

Full Thrust

Cross Dimensions

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Credits and Thanks

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This version would not exist without the earlier inspiration and hard work of Jon Tuffley and all the previous contributors to FULL THRUST.

Text, figures, and layout by Hugh Fisher. Cover and interior artwork by Rob Armstrong of Bullseye Graphics.

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1 Introduction

First and foremost, **this is not an official GZG publication.** This is a variant, a different version of FULL THRUST produced with the (much appreciated) permission of Ground Zero Games and Jon Tuffley. **Do not** send questions, complaints, or suggestions to GZG. Hugh Fisher has final responsibility for everything in this book, so bother him by email to laranzu@ozemail.com.au.

CROSS DIMENSIONS, often shortened to 'FT:XD', began in 2010 as a consolidation of the original Second Edition rule and fleet books into a single volume, with a few new rules and systems added. Now many FULL THRUST players prefer the PROJECT CONTINUUM rules, but CROSS DIMENSIONS is still an excellent introduction to the game.

1.1 For experienced Second Edition players

CROSS DIMENSIONS has many small differences from the GZG edition of FULL THRUST – think Rugby Union and Rugby League, or American football and Canadian football – but the intent has always been to remain as similar as possible to the style and spirit of the original. The *First Rule of Full Thrust* still applies: if you don't like any rule, ignore it or change it!

The best way to learn what has changed is to play a few battles as soon as possible and carefully read each section of the rules as you need them. (While I hope you will find the changes in CROSS DIMENSIONS to be interesting, there is no guarantee that any of the new rules in this book will be used in any future edition of FULL THRUST.)

This is a rule book, not a fleet book, so does not include any ship designs. All of the ships in FLEET BOOK 1 can be used unchanged with CROSS DIMENSIONS. The alien ships and rules from FLEET BOOK 2 and the newer fleets for the GZG setting available online may require slight changes to mass or points cost.

1.2 For new players

The premise of FULL THRUST 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.

FULL THRUST puts you in the role of squadron or fleet commander. The commander decides what to do and when based on knowledge of the ships' own capabilities and those of the enemy, but doesn't personally tune the laser frequencies or tweak the ECM programs. In the vast majority of science fiction battles are not won by remodulating the coffee maker diodes or other forms of technobabble, and FULL THRUST is no different. You may be surprised by how simple the rules are and how few different types of weapon there are, but this doesn't make the game any less challenging.

FULL THRUST has an original setting and range of miniatures, but you are not obliged to use either. This seems to surprise

many gamers so is worth repeating: you don't *have* to use the 'official' miniatures. Nor is there a monthly magazine or endless stream of supplements that you need to keep up with. Obviously the more GZG products you buy the happier GZG will be, but buy them because you want to, not because somebody says you have to.

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 science fiction gaming is (or should be) all about!

1.3 How to use this book

This section and the next three give an overview of how FULL THRUST: CROSS DIMENSIONS is played and an introduction to the cinematic movement system and to beam weapon combat. Once you have read those, you will be ready to try an introductory scenario – like most games, the best way to learn is by actually playing. This shouldn't take more than an hour.

After that read the remaining sections which describe additional weaponry and defensive systems, faster than light (FTL) drives, fighters, ship design, and various other topics.

Throughout this book you will see that some rules are labelled **optional**. (While every rule in FULL THRUST is optional, some are more optional than others.) Pick and choose which of these you wish to use, but just remember to agree with your opponent which ones are in play and which are not.

1.4 Playing equipment

To play FULL THRUST you need a medium sized table, some space ship models or counters and corresponding SSD sheets, a tape measure, some standard six-sided dice, pens or pencils and some paper for writing movement orders.

Playing area

One of the great advantages of starship combat games is that you do not need any 'terrain'. A table about 6' by 4' (1.8m by 1.2m) is best, but you can use any suitable flat area for the game 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 and looks surprisingly effective.

Although terrain is not needed, once you are accustomed to the rules you will find that battles involving space stations, asteroids, or other features are more interesting.

Ship models

As this is primarily a miniatures game, we obviously recommend that it is played with actual starship models. These can be placed flat on the table, but we recommend they be mounted on hexagonal base stands. Ships on stands look better, acquire less fingerprints, and the centre of the stand gives a useful reference point for measuring distances in play.

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 (present direction) of the ship.

We have 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 fleet of models.

Every ship needs a matching *system status display* (SSD) which shows all the weapons and systems that a ship is fitted with and records damage. SSDs for the introductory scenario are provided in the back of the book. Photocopy these, and if you wish you can then put the copies in clear plastic document wallets and record orders and damage with erasable markers, so the sheets can be re-used.

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. A simpler way is to permanently mount a few fighter models (or even a single one) on a base and use a separate counter to indicate the actual number of fighters it represents.

Although not compulsory, the FULL THRUST starship miniatures line now includes over 200 different models and is highly recommended. For sales contact Ground Zero Games: <http://www.groundzerogames.co.uk>

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.

CROSS DIMENSIONS tries to balance game outcomes across die results. On high rolls things are more likely to go boom, which is good when it's an enemy ship, not so good if it's the reactor on one of your own. Mostly high rolls are better, but sometimes a high roll is a failure, or a low roll is successful.

Occasionally the rules require a *D12* 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.

Measurements

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.

The Course and Fire Arc 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.

Exploring the universe

The introductory scenario can be played against an opponent or solo. After that, ask around at your local gaming club, or venture online: there is a Facebook group you can find by searching for 'Full Thrust'. There is an active world wide community of gamers happily creating new rules and new ships for all manner of purposes. Join us and add your distinctiveness to the collective, or something like that.

Two excellent GZG and Full Thrust related web sites with additional rules and ship designs are:

<http://emeraldcoastskunkworks.wordpress.com>

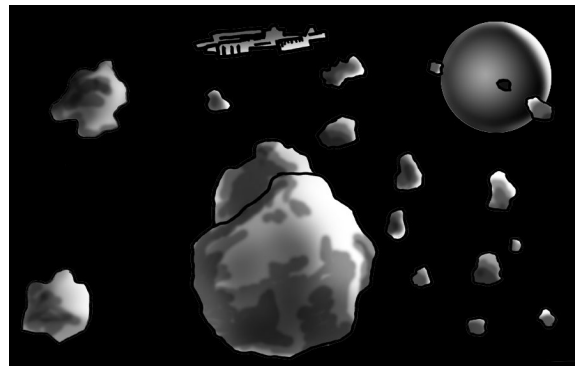
<http://fullthrust.star-ranger.com>

Updates

This revision of CROSS DIMENSIONS fixes a few minor errors in the previous edition and tries to better explain a few sections that some players found confusing. In November 2023 the web site moved.

Under the Creative Commons copyright you are free to distribute copies of these rules. The current version is available online at:

<http://laranzu.id.au/fullthrust/rules>



2 Rules Overview

2.1 Distance and direction

FULL THRUST measures distance and velocity in Measurement Units (MU).

One MU on the table represents hundreds to thousands of kilometres, depending on player preferences. For tactical purposes:

- 0– 6 MU is ‘point blank’ range where fighters attack and missiles home in.
- 0– 12 MU is close range, where weapons fire will be particularly deadly.
- 12– 24 MU is medium range where the smallest weapons cannot fire.
- 24– 36 MU is long range where most light ships cannot fire.

Only unusually powerful (and expensive) weapons can fire at ranges beyond 36 MU.

Using the common 1 inch = 1 MU scale, an average 6’ by 4’ table is 72 x 48 MU, a good size for a typical battle.

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 tactical space game) are actually vastly over-size compared to the 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. For the same reason there are no line of sight or inter-penetration rules for ships: they can freely fly or shoot ‘through’ each other.

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.

Direction

Ship direction, or *course*, is measured in clock *points*. (For our younger readers, we mean the analog clocks that were common in the previous millennium.) Each point is equal to 30°. Courses are measured relative to the table edge a fleet starts from, so 12 is straight ahead, 3 90° to the right, and so on. Ship orders are given relative to the current course: ‘Starboard 2’ would change from 12 to 2, or 7 to 9. See section 3.1 for how facings are used in movement and section 4.2 for weapons fire.

Ships mounted on hex bases are easy to align. Ships with course 12, 3, 6, or 9 will have the front edge parallel to a table edge; for the courses in between one pair of opposite edges must be aligned to table edges.

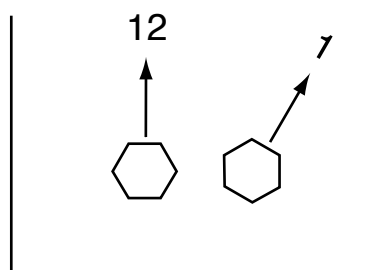


Figure 1: Course Points

Ship course represents the average or majority direction in a single game turn, not that the ship is precisely following that line.

FULL THRUST uses the naval terms port, starboard, fore, and aft for directions, but you can use left, right, front, and back if you prefer.

2.2 3D, or not 3D?

Some starship combat games have made attempts to simulate 3-dimensional movement and combat, with varying degrees of success. The FULL THRUST authors believe that while it can be done, it is not worthwhile. Tables are 2D surfaces: adding a 3rd dimension requires special stands, is harder to follow, and the extra complications 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, and while the front and back of a spacecraft are different the sides, top, and bottom are usually almost identical. 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.

2.3 Ship classes

Mass

Ship size in FULL THRUST is measured in abstract *mass* units.

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 24 ship could be fitted with a maximum of 24 mass of systems.

Mass ratings indicate the required volume, power requirements, crew stations, etc rather than being an exact measure of the bulk or weight of a single piece of equipment. In the GZG setting, one mass unit represents about fifty to one hundred actual tons.

Points

All the systems and equipment fitted to a ship have a points cost, calculated from the mass. The more effective or 'high-tech' systems have a higher points cost for a given mass, so it is possible for two ships of the same total mass to have different points costs due to differences in systems carried.

As in many games, the points system is used for one-off and tournament battles to ensure roughly equal forces on each side despite a variety of ship designs. See section 11 for ship design and section 15 for suggestions about fleet composition.

The FULL THRUST ship design and points system is very easy to work with and does not require a spreadsheet. Modifying existing ships and designing new ones is common among FULL THRUST players.

Classes

FULL THRUST, like most science fiction, uses 20th century western naval terms to describe spacecraft. (Irritating though this may be to the current day air forces.)

Fighters are the tiny spacecraft that are carried into battle by larger starships, individually very weak but dangerous in large numbers. Fighters do not need SSDs, and are not referred to as 'ships' in these rules.

Combat starships are divided into three broad classes: 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. Frequently used on detached duty in low-threat areas, or patrol missions and courier duties, and to support heavier ships of cruiser or capital class. Ships of the escort class are lightly armed and protected; 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 often further divided into light, escort and heavy cruiser classes. They are reasonably agile and well protected, with 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 leviathans, bristling with heavy weaponry and defences against attack. Capital units form the core of a battlefleet or task force and many carry their own onboard fighter groups as both an offensive and defensive weapon.

In addition to these classes, a *carrier* is any ship with hangar space for fighters, even if that is not its primary role in battle.

See section 11.2 for more refined ship designations within each class.

2.4 Ship System Status Display

The *system status display* (SSD) for each ship has symbols for all the drives, weapons, and systems fitted. Figure 2 shows the SSD for one of the cruisers used in the introductory scenario.

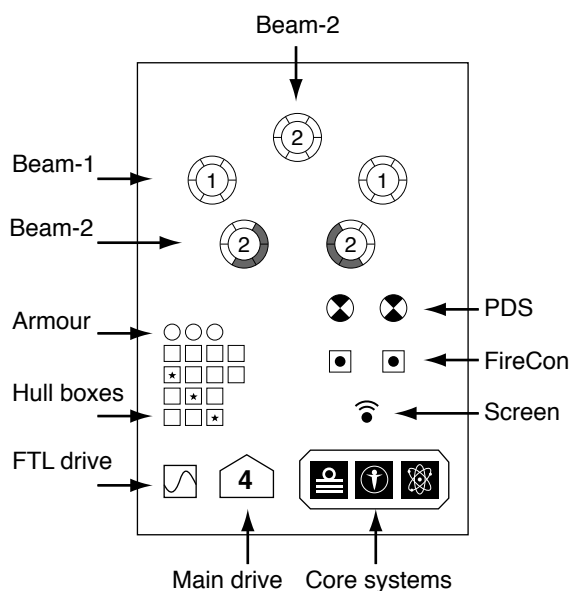


Figure 2: System Status Display

The labels and arrows are a reference as to what each symbol represents. These will be explained in the following sections so don't worry about them for now.

(This is a plain box style SSD. Many players like to overlay the various symbols onto a silhouette of the ship, which takes up more space but can make it easier to find the matching SSD for a particular model.)

In the top half and to the right are the symbols for the various beams and other offensive and defensive weapon systems carried by this ship. At the bottom of the SSD are the

symbols for the FTL and main drive, and the optional *Core Systems*.

If a system is knocked out and non-operational it will be crossed off the SSD.

The rows of small boxes above the drive symbols are the *hull boxes* or *damage track* that shows the actual damage point total that the ship can take. 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.

Immediately above the hull are some round armour symbols, which absorb damage and are also marked off in the process.

Damage

When damage is inflicted, these points are marked off the target ship's hull boxes on its SSD, starting at the top left and crossing out one box per damage point inflicted. If the ship has armour, some or all will also be crossed off. Here a ship with 3 armour and 14 hull boxes has taken 4 points of damage, half on the armour.

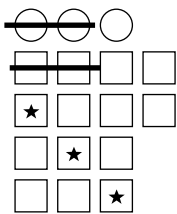


Figure 3: Taking damage

It is normal for a ship to have hull damage but armour boxes remaining, however hull boxes are always crossed off in sequence without gaps.

When you reach the end of a row of hull boxes (but not armour), this is a *threshold point* (section 4.9) and each ship system must make a *threshold check*. In FULL THRUST these are the equivalent of critical hits, making it possible for systems or entire ships to be destroyed without needing to first grind down every single box.

If this ship received four more points of damage, the player would cross off the 1 remaining armour box and then three more hull boxes, ending the first row and continuing onto the second. This would be a threshold point.

Each ship needs an SSD, as they are complicated things with multiple systems and (usually) able to absorb some damage before being destroyed. The much smaller and simpler fighters and missiles do just one thing and are destroyed by a single hit, so do not have SSDs.

2.5 Game turns

FULL THRUST, like most tabletop games, divides time into turns.

A game turn in FULL THRUST represents about five to ten minutes of action, enough time for the commander to order a change of course and have it carried out, a ship to aim and fire an effective salvo or volley and take defensive measures against incoming fire, or a fighter group to make an attack run against a ship.

A typical six to twelve turn battle therefore represents an hour or two of actual combat. A ship with velocity 8 will go from long range to close range in 3 or 4 game turns, assuming that the target is standing still, and will cross from one end of a typical table to the other in 9 turns, assuming no further acceleration.

Turns exist only to make the game playable, and should not be regarded as a rigid division of non-overlapping time. The sequence of engine burns and course adjustments that are represented by one turn of movement would really start about half way through the previous turn and be completed by the half way point, while the weapons fire in one turn starts at about the middle of the turn and continues into the next.

A game turn consists of *phases*. Each phase represents a different kind of action (move, shoot, etc.) carried out by all the ships (or other things such as fighters or missiles) on the table. Each turn, all players move and fire their ships in the sequence given.

Unlike some other space combat games, there are no segments or impulses. For example, every ship completes its movement in one phase. Ships fire happens in a later phase, and all ranges and bearings are measured from the final positions after movement.

What happens in a turn

The full turn sequence is on page 9.

If you are an experienced second edition FULL THRUST player, this should be familiar to you, however note that fighters now move after missile launch, not before. You can skip the rest of this section if you like.

If you are a new player, you can just skim through it for now. As the Hitch Hiker's Guide to the Galaxy advises, **don't panic** if you are feeling confused. The game turn sequence is long, with eleven phases and individual steps within each. This is because it shows *everything* that *could* happen in a turn, not everything that will. Game turns are usually not that complex, and for your first few games you can use just ship to ship combat which requires only phases 1, 2, 5, 10, and 11.

Orders and actions

In FULL THRUST ship movement is simultaneous after written orders (pre-plotted). Weapons fire and damage is alternating, one ship at a time.

Writing orders is not as complicated as it is in real life: the ship orders for movement in one turn are usually just ‘go this fast in that direction’. Each player writes orders for all their ships; then both players move their ships simultaneously.

Many games, including some space combat games, don’t use written orders, so why does FULL THRUST? Can you play the game without them?

No, because fighters and missiles, explained later, won’t work if you remove written orders. And no, because FULL THRUST is a game about squadron and fleet command. Writing orders encourages you to think ahead and plan, not just react to what an enemy ship does.

After movement you have more freedom in decision making. (And when you start using fighters and missiles, they don’t need written orders to move.) Both sides perform the same actions in a single turn, alternating one ship at a time. One player has the *initiative* each turn, but this just decides which ship shoots first, not the entire fleet.

Information

Before writing movement orders, players can ask opponents for the last known velocity and course (ie at the end of the previous turn’s movement phase) of any ships.

Most games are played as ‘open book’ where players can look at the SSDs of enemy ships at any time. 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 isn’t any place to hide so this is quite reasonable.

Players do not have access to enemy SSDs when using the optional Sensors and ECM rules in section 10.1, or if the designer of a scenario specifies otherwise. Velocity and course can only be hidden under exceptional circumstances.

Resource management

FULL THRUST does not track power consumption, fuel consumption, or ammunition supply other than for one-shot weapons. Ships are assumed to enter battle with sufficient fuel and ammunition to fight a normal battle.

Strange events

The FULL THRUST turn sequence can sometimes lead to unusual events. One example is the ‘fly-by’, where two spaceships start the turn out of range, move past each other in the movement phase, but in the ship fire phase are unable to

shoot because they are now out of range again or each is in the rear arc of the other.

The initial reaction from players is always “Huh? But we flew right past each other!”

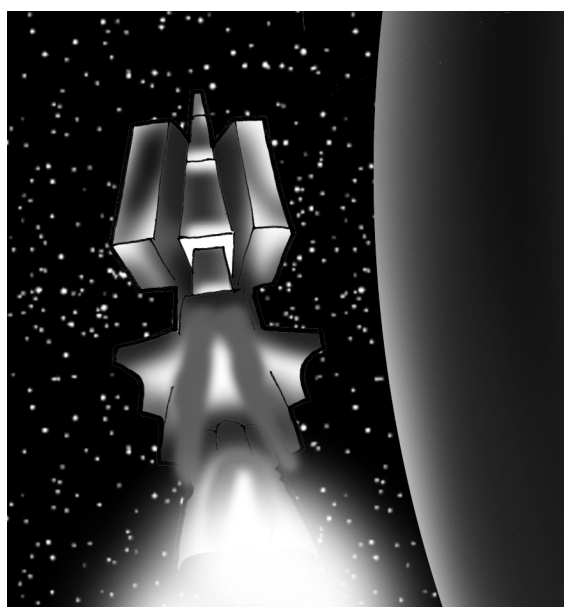
This only happens when ships are moving at very high speed. The closing velocities of the two ships are enormous, and, importantly, beyond the capability of fire control systems. Each ‘shot’ in FULL THRUST represents a few minutes of sustained beam fire or a burst of torpedoes, which need accurate target tracking and concentration of fire. A quick snap shot during the few seconds of actual time in range is incredibly unlikely to do any actual damage.

What has really happened in such cases is that both commanders have failed to correctly anticipate the enemy movement. Making a high speed strike run against a stationary target is difficult enough; against a moving target it takes skill and luck to obtain a good (not fleeting) opportunity to fire.

You may not find this convincing. The other explanation is that no set of game rules is ever perfect. Adding more and more rules to try and solve rarely occurring problems would be more trouble than it is worth.

What next

After this introduction to how ships are represented in FULL THRUST and how the game is played, the next two chapters describe in detail ship movement and combat with beam weapons. This will be enough for a tutorial scenario where you can (finally) start having fun.



2.6 Full Turn Sequence

1. Write orders.

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

Announce ships entering by FTL and place markers at each designated entry point.

Announce ships entering or leaving a squadron.

2. Roll for initiative.

Players roll a D6 each: highest roll has initiative for this turn. (If there are more than two players, the winner decides the order for the others.)

3. Launch missiles.

Both players alternate in announcing and placing heavy missiles, salvo missiles, or any similar *ordnance* weapons. Players alternate by ships, not by missile or salvo. The player who lost initiative launches first.

4. Move fighter groups.

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

Any fighter group may declare it is screening or pursuing instead of making a normal move.

5. Move ships.

Any asteroids, starbases, or other objects with fixed movement paths are moved first.

Both players simultaneously move their ships, strictly in accordance with orders written in phase 1. Ships laying mines are moved before all others. Screening or pursuing fighter groups are moved at the same time with the appropriate ship.

Ships entering or exiting FTL are moved or placed last.

Resolve collisions, mine sweeping, or mine attacks as they occur.

6. Secondary fighter moves.

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

7. Allocate missile and fighter attacks.

All missiles and fighter groups that are within the specified attack ranges of suitable targets (and wish to attack, in the case of fighters) are moved into attack positions: counters and/or fighter models are moved next to the intended target model, so it is clear exactly what they are attacking.

8. Fighters against fighters or missiles.

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.

9. Missile and fighters against ships.

Any ship under missile and/or fighter attack allocates its defences against attacking elements, then rolls for effect. As with ship fire, announce all targets before rolling any dice.

Ships with ADFC may choose to fire in defence of other ships, even if they are not under attack themselves.

Any ship that wishes to shoot at multiple fighter groups or missiles must divide point defence weapons between them.

All missiles and fighter groups that survive defensive fire in the previous phase now resolve their attacks. Damage resulting from these attacks is applied immediately, including threshold point checks if applicable.

10. 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 (ships or fighter groups) 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.

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 effect; 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".

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 ship to ship weapons in that game turn. A single target ship may, of course, be fired on more than once in the turn by different attackers.

11. Damage control.

Make any damage control repair rolls.

If the Core System rules are being used, count down 1 completed game turn from damaged bridge or life support systems and roll to see if damaged reactor systems explode.

Weapons can only be used once per turn. Any system used for point defence can only be used against a single fighter or missile group, and cannot be used again against a ship.

Optional

Many players prefer to delay all threshold checks until the Damage control phase. A destroyed ship is removed immediately, but if a ship loses one or more hull box rows just make a note on the SSD for now. After all attacks are complete, both players make any threshold checks required before Damage control rolls.

3 Cinematic Movement

3.1 Ship movement

FULL THRUST uses a *Cinematic* set of rules for ship movement which allows ships to move as they are most often depicted in the sci-fi media, with little regard for the laws of physics.

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.

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

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, unless it applies any thrust to alter that velocity.

Ships must always move the full distance specified by their current velocity.

Velocity changes take effect immediately at the beginning of each game turn: a ship ordered to change from 8 MU to 12 MU velocity moves the full 12 MU in that turn. (This is not in accordance with the Laws of Physics, but it is easier.)

Course

A ship may only move on one of twelve *courses*, which are defined by the 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.

The direction that the nose or bow of the ship points to is the *facing*. In the cinematic movement system, the course and facing are always identical.

Example: In figure 4, ship A is travelling on course 12 and ship B is on course 5.

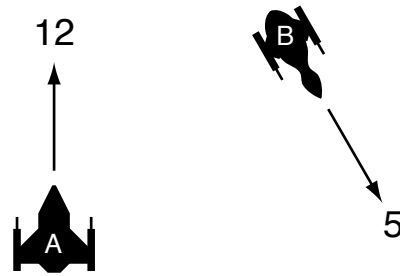


Figure 4: Ship Course Example

3.2 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. The thrust rating of the ship is the combined acceleration, deceleration, and course changing that can be performed in one turn. The higher the rating, the faster and more 'agile' the ship.

The ship SSD has an symbol for the main drive and thrust rating as shown in figure 5.

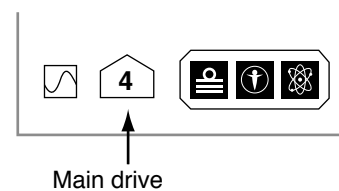


Figure 5: Main drive symbol

Up to the full rating may be used to accelerate or decelerate, changing the velocity of the ship.

Up to half the rating, rounded down, may be used to change facing. Each point of thrust applied to course changes will alter the ship's course by one course point during the game turn. 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.

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 port it will turn anticlockwise, ending up on course 7. Should the turn be made to starboard (clockwise), the final course will be 1.

A ship that has a thrust rating of 1 can change facing by 1 point, but not on consecutive game turns. Such a ship can accelerate or decelerate by 1 MU each game turn, or change

facing by 1 provided it did not change facing on the previous turn.

3.3 Advanced drives

Unusual species or ships may be capable of amazing spins and turns due to their advanced drives. These are rare: it is not enough for such ships to be more agile than others, but to be able to perform manoeuvres impossible to normal ships.

To differentiate advanced drives from normal drives, a slightly different symbol is used on the System Status Display, and when the thrust rating of an advanced drive is written down it is suffixed by an "A" to indicate that the advanced drive rules should be used.

Ships with advanced main drives move and manoeuvre in exactly the same way as other ships with one exception: they are permitted to use up to *all* of their thrust rating to change course instead of half. A ship with an advanced drive with a thrust rating of 6 could actually make a full 180° about-face in a single turn, though its path would in fact be an L-shaped manoeuvre rather than a turn in place, as it is still bound by the normal rules about splitting course changes between the start and midpoint of the movement.

Typical thrust ratings

Thrust 0: Space habitats, satellites, asteroid bases, giant battle stations. Thrust 0 doesn't mean it can't move or turn, but that any change of course or speed takes planning and a few hours or days to take effect. The captain doesn't just shout 'Helm, hard a-port!'

Thrust 1: Orbital defence platforms or satellites with minimal ability to change position, primitive spaceships, enormous bulk cargo carrying merchant ships. Warships rarely have thrust 1 drives: it is just too dangerous to be so limited in movement.

Thrust 2: Many civilian ships, and huge and lumbering warships that rely on power and brute force, not manoeuvre. This doesn't necessarily mean slow, as they can build up quite a speed over a long straight stretch, but nobody would describe such a ship as a graceful mover.

Thrust 3: Still clumsy on the turn but with better straight line speed and acceleration.

Thrust 4: A common velocity for capital warships that allows a good balance of speed, protection, and firepower. Cruisers or escorts with thrust 4 are expected to stand and fight rather than dodge or chase.

Thrust 5: Faster than average capital ships used by fleets that value rapid strikes and ambushes. Also a good speed for cruisers that need just enough margin to be able to escape the typical thrust 4 capital.

Thrust 6: Ships that rely on speed and agility, often at the expense of protection. A few very fast and manoeuvrable capital ships, much larger than their equally well armed thrust-4 equivalents. Most fast cruisers and destroyers, and escort sized pirates or ships designed to catch pirates.

Thrust 7-8: Very fast scouts, couriers, and reconnaissance ships; usually lightly armed and not intended for serious fighting.

Thrust 9+: The space going equivalent of turbocharged street racers, probably with chrome paint job and extremely loud sound system!

3.4 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.

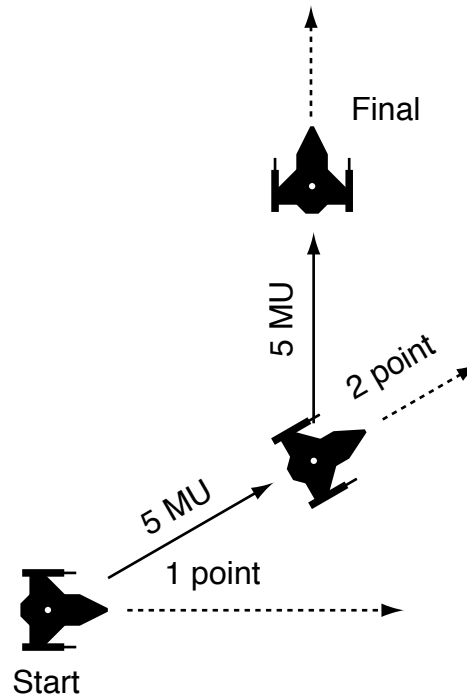


Figure 6: Course change by 3 points

Example: The ship in figure 6 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.

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 7 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.

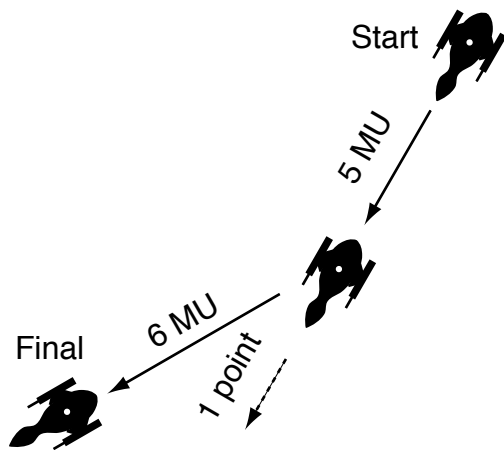


Figure 7: Course change by 1 point

The maximum course change in one game turn is calculated from the current rating of the main drive, so if the drive is reduced by battle damage (4.9) the ability to turn is also reduced.

3.5 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.

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).

Orders can be either written on SSD sheets or on a separate order sheet as desired.

Although not strictly movement orders, certain other actions such as launching fighters (section 7.1) and FTL entry or exit (section 9) must be written down as well.

Halted ships

Cinematic spaceships turn at the same rate regardless of velocity, and this includes a velocity of zero. A halted ship is still restricted to pivoting no more than half the drive rating. (This did not apply in earlier versions of FULL THRUST.)

Double course change

A ship with a sufficient thrust rating may make a double or 'zig zag' course change, written as two turns one after the other. One of them must be to port and the other to starboard, they cannot both be in the same direction. A ship making a double course change always makes the first course change before moving and the second at the half way point, even if the first change is greater than the second.

*Example: The ship in figure 8 (thrust rating of 4+) has orders **P1 S1** to first turn to port and then back to starboard, resuming the original course but at some distance to port.*

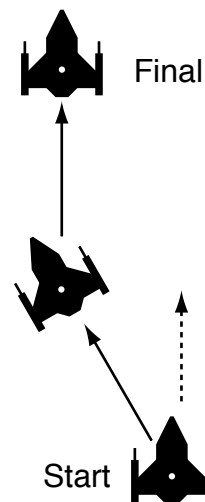


Figure 8: Double course change

3.6 Squadron operations

Orders and movement can be speeded up by dividing all or part of each fleet into squadrons of several ships each, which then move 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. A squadron is two

to four ships in line ahead, line abreast, wedge, or diamond formation; but it could also be one large ship surrounded by a ring of up to six escorts. The models must be as close together as practical.

A squadron of ships, once announced as such, all move together, using just one movement order. The *lead* ship moves as normal, while the others maintain the same relative position to it throughout the manoeuvre. The lead ship is often but not always the one at the front. The player has only to write the one set of orders for the squadron each turn, rather than orders for each individual ship.

For ships in line ahead, always move the lead ship according to orders with the others staying in formation behind it.

For ships in other formations, the lead ship is the ship that has to move *furthest*, which is the leftmost for starboard turns, the rightmost for port.

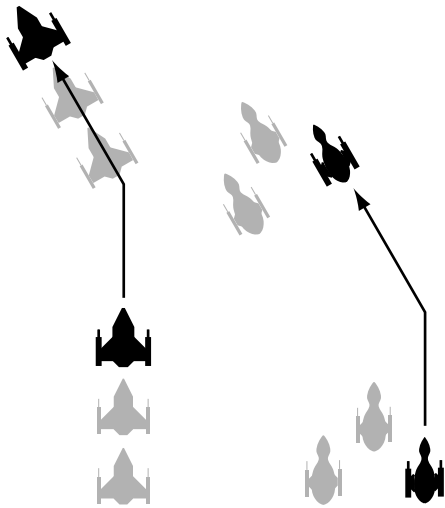


Figure 9: Squadrons turning 1 point to port

Squadron acceleration/deceleration and turning is restricted to that of the ship with the lowest drive rating in the squadron. Squadrons cannot mix ships with standard and advanced drives.

Squadrons can be formed or broken at the start of the game turn, before writing movement orders. (This is necessary because if the ships in the squadron start moving individually, they will move to slightly different locations than they would as a squadron, and missile launching players worry about such things.)

3.7 Collisions

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 aster-

oids 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.

3.8 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 unless using the moving table rules (section 12.4) or fighting an orbital scenario (section 13.8).

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.

Ships can also leave the playing area from any location by use of FTL as explained in section 9.2.

3.9 Vector movement

FLEET BOOK 1 introduced a vector movement system. This book does not include any vector movement rules, but you can still use the older system.



4 Beam Combat

4.1 Beam weapons

Beams are the primary armament of science fiction warships in FULL THRUST, whether called lasers, phasers, masers, disruptors, particle beams, turbolasers, CREWS, etc. Beams travel at lightspeed (although some TV and film sci-fi beams appear to be slower!) so cannot be dodged, but as the range increases it becomes more difficult to keep the beam from spreading and focused onto a precise spot.

Continuous or rapid fire plasma weapons and most fighter weapons are also treated as beams in FULL THRUST.

Beams are classed numerically. The higher the class, the longer the effective range and the more damage inflicted at closer ranges.

Class 1 beams, or beam-1, are the shortest ranged and the least powerful. They are the only armament for the smallest ships, and are able to track rapidly enough to be also used against missiles and fighters.

Class 2 are medium weapons, the primary armament for light warships and the secondary for major warships.

Class 3 are the largest usually carried by warships with the longest range. Class 4 beams are occasionally found on very large vessels, while Class 5 or above are usually restricted to starbases.

The standard symbol for a beam weapon is a circle with the beam class inside it, segmented to show which *arcs* (section 4.2) it can fire through.



Figure 10: Beam symbols

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, as explained in 4.4.

4.2 Fire Arcs

The 360 degree space around each ship is divided into six *arcs*, each of 60 degrees. The arcs are indicated in figure 11, and are designated *Fore (F)*, *Fore Starboard (FS)*, *Aft Starboard (AS)*, *Aft (A)*, *Aft Port (AP)*, and *Fore Port (FP)*. Each fire arc covers the angle between two of the course facings used in movement, and can be judged by eye from hexagonal ship bases.

These fire arcs determine which of a ship's weapons may be brought to bear on a particular target, as some will be unable

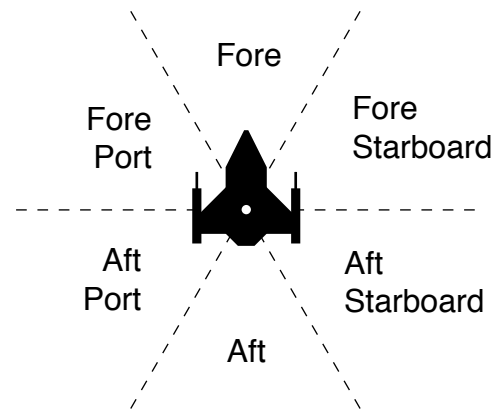


Figure 11: Firing Arcs

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 segments around the system symbol, with empty segments showing the arcs that the weapon is permitted to fire through. See figure 10 for examples.

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

Aft arc

No ship may fire offensive weaponry through its aft arc due to the interference of the ship's main drive, which makes it impossible to accurately track a distant target through the rear 60° of the ship's arcs.

Optional rule: Aft-arc fire is permitted on any game turn in which the firing ship did not use any thrust from its main drive to accelerate, decelerate, or change course.

Spinal mounts

Spinal mount weapons are considered to be fore arc weapons in FULL THRUST. The game turn is long enough for the ship to make small course adjustments and bring the weapon to bear on any target within the 30° either side of straight ahead.

Broadside arcs

Some weapons fire through *broadside* arcs, the two port and two starboard arcs but not the fore and aft.



Figure 12: Broadside beam and missile

4.3 Range bands

A range band in FULL THRUST is a minimum and maximum distance over which a particular weapon type is considered equally effective. Some weapons have only a single range band, but ship to ship beams have a number of range bands equal to their class.

(Range bands are another simplification necessary for a tabletop game. In reality, the effectiveness of weapons declines gradually over distance instead of suddenly changing.)

Each beam range band is 12 MU. The class of a beam is the number of range bands that it has, so a beam-1 (class 1 beam) has a maximum range of 12 MU, a beam-2 maximum range of 24 MU, and so on.

The FULL THRUST range of a weapon is not the maximum range, but the range at which it can be fired with a reasonable chance of hitting and effectively damaging a target. In space, a scout ship beam-1 can still hit a target at the same range as a battleship beam-3, but the beam-1 will have dispersed too much to do any actual damage.

4.4 Fire control systems

The fire control systems (*FireCons* or *FCs*) 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 an 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).

The more FireCon systems a ship has, the more targets it can engage simultaneously. 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.

Ship weapons can also be fired against fighter groups under some conditions: see section 7.7. Each fighter group targeted requires a FireCon as if it were a ship.

Point defence fire against fighters or missiles does not require the use of the ship's main FireCon systems.

4.5 Beam fire

A beam weapon rolls a number of dice equal to the class, minus 1 die for each range band beyond the closest.

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 unscreened 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 or armour on the target ship. (Sections 4.6 and 4.7).

No single weapon may split its die rolls 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.

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.

Re-rolls are made for a natural (unmodified) 6 **only**. For example, if the die roll is modified by +1 then a roll of 5 inflicts 2 damage points as if it were a 6, but does not re-roll.

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: half any damage from the initial die rolls of an attack can be taken on 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 remaining.

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. The re-roll is 4, inflicting 1 more point.

Note that this example assumes that the target ship does not have any screens to protect it.

4.6 Defensive screens

Screens are the primary defence against beam weapons. Screens are force fields or magnetic fields that deflect or defocus beam energy, but also include materials that reflect energy, or stealth systems that interfere with beam targeting. Screens can be burnt through, but quickly rebuild or recharge themselves.

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 screen generator symbol, 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 unscreened ship.
- With level-2 screens, rolls of 5 and 6 each inflict only one point of damage.

Example: A ship fires six dice of beams at an enemy vessel with level-2 screens. The player rolls 2, 3, 3, 4, 6, and 6. Against level-2 screens the 4 is a miss and each 6 does only 1 damage point, for a total of 2. The re-rolls are 4 and 6, and the further re-roll is 3: because this is penetrating damage which ignores screens, the 4 inflicts 1 damage point and the 6 another 2 for a total of 5.

4.7 Armour

Armour is ablative, metal, ceramic, or similar outer layers that absorb weapons fire but are broken or consumed in the process. Armour also includes force fields that can't be recharged in the time frame of a battle, and other time limited defences such as sandcasters.

Armour is represented as additional damage boxes that absorb hits, indicated on the ship diagram as a row of circles placed above the top row of hull boxes. (Yes, calling round circles 'boxes' is a little strange, but it's traditional.) As damage is taken, some of the armour boxes are crossed off on the SSD. There is no threshold roll (see below) made at the end of the row of armour, but any further damage is applied to the first row of hull.

When one ship fires on another, add up the damage inflicted (except for re-rolls). Up to half this damage, rounded up, can be taken on armour if available, the rest is applied to the hull.

For simplicity all weapons in CROSS DIMENSIONS are considered to be 'semi armour-piercing' with half the damage absorbed. In other versions of FULL THRUST some weapon damage can be completely absorbed by armour but other weapons are more effective.

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

Example: A ship with eight armour boxes and no screen comes under fire from a battleship rolling ten D6 of beams. The rolls are 2, 3, 3, 4, 4, 5, 5, 6, 6, a total of 9 damage points and two re-rolls. The battleship re-rolls are 3, 6, and then a final 4 for 3 more points.

For the 9 initial damage points, half rounded up is 5 so 5 armour boxes are crossed off and 4 applied to the hull. The 3 points of re-roll damage go straight to the hull even though there are 3 armour boxes remaining, for a total of $4 + 3 = 7$ hull damage points from this attack.

Next turn the battleship fires again with ten dice, inflicting another 10 damage points. Half this is 5, but there are only 3 armour boxes left, so those are crossed off and the remaining 7 points is applied to the hull.

4.8 Optional rule: rear arc attacks

Spaceships tend to be exceptionally vulnerable to attack from the rear because the engines are large and difficult or impossible to protect. Any ship firing from within the rear arc of the target ship automatically does *penetrating* damage, ignoring screens or armour.

This rule does not apply when firing at starbases (section 13.7) or other Really Big Things.

Missiles or fighters do not benefit from rear arc attacks. At short ranges the engines of a spaceship emit a considerable amount of energy, enough to melt a missile or fighter before it can finish an attack.

4.9 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 player 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 not already destroyed.

At the first threshold point (the end of the first row of hull boxes), any system for which a 6 is rolled is knocked out. At the next threshold point (end of the second row) a system is lost on a roll of 5 or 6; at the end of the third (if present) 4, 5, or 6. (No threshold checks need to be made at the end of the last hull row, since the ship is considered to be destroyed!)

(Threshold failures occur on high rolls rather than low to help balance good and bad game outcomes across die rolls, and to provide opportunities for players to complain about rolling a six at the wrong time.)

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 add 1 to each die roll for each extra threshold point passed in that attack. Note that one 'attack' is defined as the ship being fired on by one other ship, regardless of how many or few weapons are fired at it; it also counts as one attack if the ship is under fire by any number of missiles and/or fighter groups at the same time.

Example: A ship with 12 hull boxes in four rows of three takes 7 damage points from another ship in one attack, crossing off two complete rows. At the end of the second row systems are normally lost on a roll of 5 or 6, but this time they will be lost on 4-6. If the ship is fired on again and takes 3 more points of damage, the third row will be crossed off, but since only one row was lost the threshold rolls will be as normal, 4+.

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 suffer a 'destroyed' roll on a threshold check it is reduced to half the original thrust rating, provided it has a drive rating above 1. If it is then hit a second time on a subsequent threshold check, it is disabled completely. A drive rated only 1 is immediately disabled by the first threshold failure.

4.10 Rolling dice

We encourage you to roll for all weapon systems of a particular type together and add up the results instead of rolling weapon by weapon. If a ship is firing two beam-1s, four beam-2s, and one beam-3 at an enemy ship 9 MU away, just roll $2 + 8 + 3 = 11$ dice at once (provided you have that many) instead of worrying about which are which.

To keep track of normal and re-roll damage, we recommend putting all dice in the initial volley that score hits to one side, then roll new dice for any re-rolls. (And if any of those are also sixes, roll more dice, ...) At the end you will have two clumps of dice to add up, the initial damage that can be absorbed by armour or screens and the penetrating damage from re-rolls.

In the same way you should roll as many threshold checks at once as you can, rather than one by one. If a ship has three PDS, or FireCons, or similar just roll three dice at once and cross off the destroyed systems from left to right.

For weapons with limited fire arcs, it does matter if, for example, the port beam is knocked out rather than the starboard. You can still roll for multiple systems at once by matching the fall of the dice to the symbol positions on the SSD. If there are three beam-3 symbols arranged left to right, then roll three dice: the one that lands most to the left is for the corresponding leftmost symbol, etc.

4.11 Introductory scenario

You are now ready to play the introductory scenario. This is a very simple, quick game 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. On page 61 you will find a full set of counters and SSDs to represent the ships used in the battle, so you can set up and play almost immediately without needing any ship models. All you need to do is make two copies of that page (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.

Each side has the following forces:

Two cruisers, each with a thrust rating of 4, armed with three class-2 beams, two class-1 beams, and two FireCons, 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. Compare the SSD for a frigate with the cruiser and note the differences in thrust, number of FireCons and weapons, lack of defences, and fewer hull boxes.

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

Setup

With two players, the opposing fleets enter the table from opposite ends. Roll D6 to see who goes first and take it in turn to place one ship at a time on the table edge. All ships have an initial velocity of 6 and course 12 when writing orders for the first turn.

For a solo version, your ships deploy anywhere along one narrow end of the table, with initial velocity of 6 and course 12.

The opposing ships deploy in two line ahead squadrons at the far right corner of the table with an initial velocity of 6 and course 1, roughly pointing towards the opposite diagonal corner.



Figure 13: Solo game setup

Turn sequence reminder

The complete game turn sequence is on page 9. For the introductory game you will need just phases 1, 2, 5, and 10. On each turn:

1. Write orders.

Write orders for each ship. You can change the velocity and/or course, for example $v2+1 = 11$. In the solo game, you only write orders for the lead ship in each of the two enemy squadrons (section 3.6), and these orders are always $+2 =$ to accelerate by 2 MU along the same course.

2. Roll for initiative.

Each player rolls a D6, the higher wins. In the solo game, roll for the enemy, and if they get the higher roll, one of their ships will shoot first.

5. Move ships.

All ships are moved in accordance with their written orders, possibly changing velocity (section 3.1) and course (section 3.4). In the solo game, the enemy ships move by squadron (section 3.6). You may wish to move your own ships by squadrons too – it makes writing orders easier.

10. Ships fire.

The player who has initiative chooses one ship to fire.

The cruisers have two FireCons (section 4.4) each, so can split their weapons across two enemy ships or concentrate on one. The frigates can shoot at only one enemy ship.

The ships have only beam weapons. The cruisers have some Class-2 beams (section 4.1) with longer maximum range (section 4.3) and more dice at short range. However these Beam-2 weapons have limited fire arcs (section 4.2) so may not be able to fire even though within range.

Depending on class and range each beam weapon will contribute one or two D6 against a single enemy ship. Grab the right number of dice and roll for effect, then re-roll for natural 6s (section 4.5).

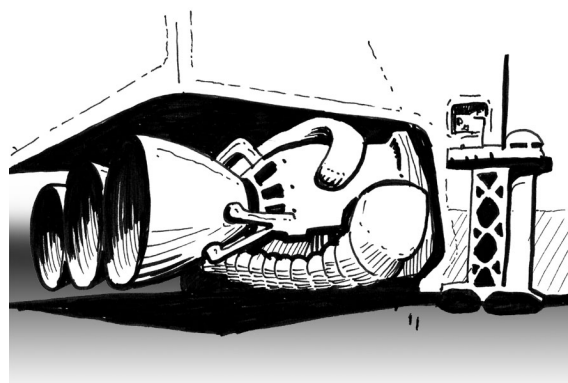
The frigates have no defences, so damage is applied directly to the hull. The cruisers have screens (section 4.6) which will ignore rolls of 4, and armour (section 4.7) which will absorb some of the damage.

If a complete row of hull boxes is crossed out this is a threshold point (section 4.9). The player who owns the ship rolls a D6 for each beam, FireCon, PDS, screen, FTL drive, and main drive to see if it is out of action and should be crossed off. (Although losing a PDS or the FTL won't matter in this scenario.) Out of action beams cannot fire, out of action screens make the ship more vulnerable. A ship with no working FireCons cannot shoot at all. If the main drive is halved the ship won't be able to turn or change velocity as easily.

Once the first ship has shot all its weapons at one (or more) enemies, the opposing player chooses one ship to shoot and repeats phase 10. Then the original player chooses their second ship...and so on until all ships able to do so have fired.

Developing your skills

Once you have played through this small battle, try the same battle again with some extra rules and different weapons. A good start would be to give some ships torpedoes (section 5.2) instead of beams, and add phase 11 with the rules for Core Systems (section 8.2) and repairing damaged systems (section 8.3). Once you are comfortable with ship movement and combat, add some missile racks or launchers (section 6) and practise launching them in phase 3 and resolving point defence in phase 9. And finally, throw some fighter groups into the scenario.



5 Offensive and Defensive Systems

This section describes most of the additional offensive and defensive systems that can be fitted to ships. Missiles and fighters have their own sections.

5.1 Grasers

Grasers are more advanced and especially destructive beam weapons. Like beams, grasers have numeric classes, although the increasing cost means that class 3 and above grasers are less common. The symbol for a graser is similar to a beam but with the class rating in white on a black triangle.

The range bands for grasers are 18 MU, not 12, so a class 2 graser rolls 2D6 at 0-18 MU, 1D6 at up to 36 MU.

Grasers score hits as beam weapons: against unscreened targets rolls of 4 or 5 inflict 1 hit; rolls of 6 inflict 2. Against level-1 screens rolls of 4 do no damage, and against level-2 screens rolls of 5 or 6 inflict only 1 hit. Grasers are not penetrating weapons and do not re-roll on a 6.

Unlike beams, each hit from a graser inflicts 1D6 of damage on the target.

Example: A ship with two graser-1 and two graser-2 mounts fires at a target with level-1 screen and 24 MU away. The two graser-1s are out of range (maximum 18 MU) and the graser-2s get 1D6 each. The player rolls 4 and 6. The 4 is a miss because the target has a level-1 screen and the 6 scores two hits but no re-roll. The player now rolls 2D6 for damage, getting 4 and 3 for a total of 7.

Graser-1s cannot be used for point defence.

5.2 Torpedoes

Torpedoes (pulse torpedoes) are railguns, unguided rockets, plasma launchers, and similar weapons that fire projectiles as single shots or in very short bursts. As the projectiles are unguided the firing ship must accurately predict the movement of the target, which becomes more difficult at longer ranges and flight times. While not travelling at lightspeed the projectiles are too fast to be shot down, and since they don't need to be focused the damage remains constant at all ranges.

Torpedoes have five range bands, each of 6 MU. Roll 1D6 per torpedo fired and score hits on the following rolls:

Band	Range	Score to hit
1st	0-6	2+
2nd	6-12	3+
3rd	12-18	4+
4th	18-24	5+
5th	24-30	6

Damage per hit is 1D6, and no re-roll is applied to scores of 6.

Neither screens nor advanced screens (below) affect torpedo hits, but advanced screens reduce the damage inflicted by 1 for each level.

Torpedoes are limited to a maximum of three adjacent firing arcs, or four in a *broadside* mount (section 4.2). A torpedo symbol without arcs fires through the fore (F) arc only.

CROSS DIMENSIONS uses the new style of torpedo symbol, a circle with a star inside (figure 14). The previous black and white rectangle symbol is still common.

Torpedo classes

Torpedoes in CROSS DIMENSIONS now have numeric classes. The default is 1, which was the only class in the original edition of FULL THRUST.

Each extra class above 1 adds 3 MU to the torpedo range bands, so a class-2 torpedo hits on a roll of 2 at range 0-9, 3 at range 9-18, and so on up to 6 at range 36-45. The damage for all classes of torpedo remains at 1D6.

5.3 Submunition packs

A *submunition pack* (SMP) is a single use weapon that fires a cloud of small projectiles either all at once or in quick succession against a single target. They are often used to give smaller ships a cost-effective punch against larger vessels. As the range increases the cloud disperses and the chance of significant damage becomes lower.

An SMP fires through a single arc only, by default the fore arc. Once fired, cross the symbol off the 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.

Standard screens do not affect submunition packs. Advanced screens (section 5.7) affect SMPs as if they were beams: against level-1 advanced screens rolls of 4 do no damage, against level-2 advanced screens rolls of 5 or 6 do 1 damage point only.

5.4 Needle weapons

Needles are very accurate beams, precision guided missiles, or similar sneaky weapons that are used for 'sniping' to knock out individual systems on the target vessel.

The maximum range of a needle 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.

Needles are *penetrating* weapons: ignore all screens and armour.

A functioning FireCon system is necessary to fire a needle weapon, and may only direct needles at *one* specific system on the target. If a ship was firing two needles 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 fires at the drive and the other at a weapon, the firing ship would need two FireCons to make these attacks.

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

A needle always fires through a single arc, the fore arc by default.

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.

Needle weapons cannot target a ship's Core Systems (section 8.2).

Aiming weapons?

Media sci-fi commanders are fond of ordering their subordinates to 'Target their weapons!' FULL THRUST assumes that such precise shots are usually unlikely or impossible given the long ranges and high speeds in space combat, not to mention enemy crews who refuse to co-operate and warships designed not to be rendered helpless by a single shot. Only needle weapons at short range can achieve such results.

5.5 FireCon

An operational FireCon is needed for each of the following in each phase of a turn:

- Firing ship weapons (not point defence) at a single ship or fighter group
- Firing needle weapons against a single ship system
- Launching salvo or heavy missiles

To avoid the need for record keeping these limitations are per *phase*, not per turn, so a FireCon used to launch missiles can also be used to direct other weapons in the ship fire phase of the same turn.

5.6 Defensive screens

The maximum *active* screen level for any ship is 2. Extra screen generators may be fitted but will only be useful as backups should one of the main screens be lost through damage.

Screens only protect against fire from beams and similar weapons such as grasers and fighters. Other weapons such as torpedoes and missiles are able to penetrate screens with no reduction of their damage effects. See the description of each individual weapon system type for whether they are affected by screens.

5.7 Advanced screens

Advanced screens not only protect against beam weapons, but also against torpedoes, missiles, and other weapons that normally ignore screens.

Beams, grasers, fighters, and other weapons that are affected by standard screens are affected in the same way when attacking a ship with advanced screens.

SMPs and similar weapons that ignore standard screens and roll a combined hit and damage D6 are affected by advanced screens as if they were beams. Against level-1 advanced screens a roll of 5 inflicts 1 damage point, 6 inflicts 2. Against level-2 advanced screens a roll of 5 or 6 inflicts 1 damage point.

Torpedoes, missiles, and other weapons that are unaffected by standard screens and roll one or more D6 for damage subtract 1 from each damage die against level-1 advanced screens. Against level-2 advanced screens, subtract 2 from each die. (Negative damage is treated as zero: the target ship cannot regain hull boxes or armour!)

A ship cannot be fitted with both advanced and standard screens, as they are assumed to represent different types of technology.

As with standard screens, a ship cannot have an advanced screen level greater than 2, even if it has additional generators.

5.8 Shell armour

Shell or layered armour is unusually effective at absorbing damage and is represented by stacked rows of armour boxes on the ship SSD. The bottom or innermost row (the only row for standard armour) is layer 1, the next above that layer 2, and so on.

When hit by weapon fire, half the damage (rounded up) can be absorbed by the top layer as usual. Each successive layer

can absorb up to half again of the remaining damage until the hull is reached.

Penetrating damage is still applied directly to the hull, regardless of shell armour.

5.9 Stealth

CROSS DIMENSIONS does not include any standard stealth system rules.

There is a strong argument that in any kind of hard science fiction, stealth in space is flatly impossible due to heat radiation.

In not so hard science fiction, stealth systems that don't completely hide the ship can be represented by screens, or by ECM systems (10.4). Different technology but same effect: the ship becomes harder to hit or scan.

Stealth systems that completely hide the ship produce uninteresting battles. If the stealth system works, opposing ships are helpless and will be massacred. (Unless both sides have stealth, in which case you have a game of hide and seek in a pitch black sports stadium.) If there is a countermeasure that works – and if there is, everyone is going to learn about it very quickly – the stealth system is pointless.

For players who do want to explore stealth, the original second edition *Cloaking Field* rules are given later in this book, and PROJECT CONTINUUM has rules for a variety of stealthy and cloaking systems.

5.10 Point defence

Point defence weapons are designed for shooting down incoming missiles or fighters. See sections 6.2 and 7.5 for details. Point defence fire does not require FireCons.

Point defence systems (PDS) include light beams, autocannon, or countermissile launchers with a large number of reloads. The more PDS symbols a ship has, the stronger the point defence.

Beam-1 systems are dual purpose and can also be used for point defence. In this role they do not require a FireCon.

Point defence weapons can be fired through any arc, including the rear arc even if the ship has used the main drive in this turn. The ranger is shorter and the missiles or fighters cannot hide within the energy output of the drive.

Scatterguns

A *scattergun* is any short range projectile PDS usable for only one turn, such as a one shot canister gun or countermissile launcher with a limited number of reloads. A scattergun can fire through any arc at a target like other point defence systems, but once fired must be crossed off the SSD.

A ship cannot be fitted with both PDS and scatterguns, as they represent different technological or tactical methods of point

defence. (A ship can carry scatterguns and light beams.) If as an optional rule you do decide to allow ships to be fitted with both types of point defence, only weapons of one type can be fired in a single turn.

A scattergun used for point defence rolls as if it were four PDS.

Against ships

Point defence weapons can be fired against ships with a maximum range of 6 MU, and do not require a FireCon to do so.

PDS can only be fired against ships without an operational screen or any remaining armour boxes – undamaged warships are not vulnerable to such light weapons. Scatterguns may not be fired against ships with an operational advanced screen or armour, but are not affected by standard screens.

Each PDS rolls only 1D6, with a roll of 6 inflicting 1 DP with no re-roll. A scattergun rolls four PDS dice.

5.11 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 point defence. One ADFC allows the ship's PDS or scatterguns (but *not* beam-1) 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 fire to protect as many other ships as the number of operational ADFCs, but each weapon may only be fired once per turn. Weapons used in area defence mode roll dice and score kills exactly as normal PDS fire.

An ADFC may not be used if the ship launched or recovered any fighters (section 7.1) in the movement phase of the turn.

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

5.12 Alien technologies

FLEET BOOK 2 introduced new alien systems for FULL THRUST. When using such ships with CROSS DIMENSIONS, the following changes should be applied:

Kra'Vak

Advanced drives are already included in CROSS DIMENSIONS and do not change.

Kinetic guns (K-guns) are affected by advanced screens. When rolling to see if damage is doubled, deduct the advanced screen level from the class of the K-gun to give the final number for the die roll.

Example: A class 5 K-gun hits a ship with 2 levels of advanced screen. On a roll of 1-3 (5 - 2) the damage is doubled to 10, on a roll of 4-6 the damage stays at 5.

MKPs are affected by advanced screens as if they were beams. Against level-1 advanced screens a 4 is a miss. Against level-2 advanced screen a 4 is a miss, and a 6 inflicts only 1 hit.

Kra'Vak scatterguns use the rules in CROSS DIMENSIONS, rolling 4 PDS dice for effect and costing only 4 points. They cannot automatically be used for area defence of other ships, so the *Si'Tek* escort cruiser or similar ships should exchange one K-1 gun for an ADFC. Kra'Vak scatterguns no longer risk damaging friendly ships when used for area defence.

Kra'Vak fighters pay the extra points for being armed with kinetic weapons (section 7.10). If you are using the optional fighter morale rules, use the Ro'Kah rules in FLEET BOOK 2 for Kra'Vak fighters.

Sa'Vasku

Advanced drives do not change.

Lance pods are affected by advanced screens as if they were torpedoes or missiles: subtract 1 from the damage per level of advanced screen.

Leech pods are not affected by advanced screens. They continue to be non-penetrating against armour.

Interceptor pods roll 4 PDS dice as if they were CROSS DIMENSIONS scatterguns. (And may be used against heavy missiles.)

Stingers are equivalent to beam weapons, so now do penetrating damage.

Phalons

Shell armour does not change.

As beam weapons, pulsers inflict penetrating damage against armour.

Kra'Vak scatterguns and Sa'Vasku interceptor pods, like other scatterguns, roll 4 PDS dice against plasma bolts.

All screens, standard or advanced, affect plasma bolts. Subtract the screen level from the damage dice instead of negating rolls of 5 or 6. A roll of 2 therefore inflicts no damage against a level-2 screen, while a roll of 6 inflicts 5 points against level-1.

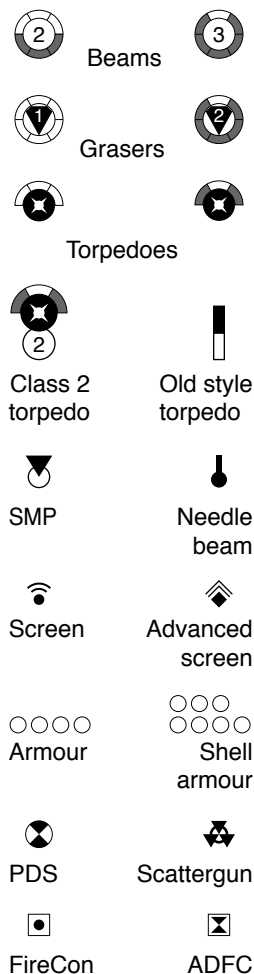
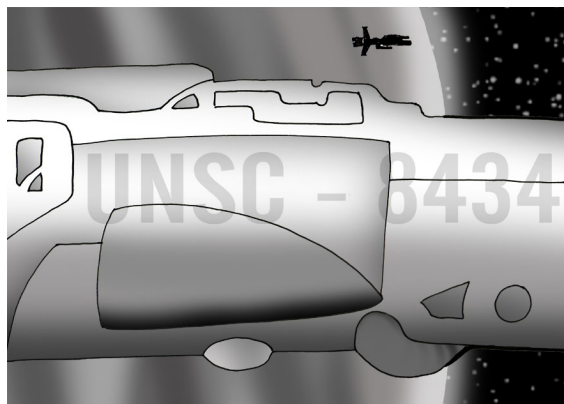


Figure 14: System symbols



6 Missiles

Missiles are long range homing weapons with nuclear, bomb-pumped laser, or simple kinetic warheads. Missiles are large enough to have very dangerous warheads, but this also limits the number that can be carried by a ship. The missiles are slower than beams or torpedoes, so fast target ships may be able to dodge the missiles entirely and others use short range point defence weapons to intercept them.

A *salvo missile* (SM) system fires salvos of anti-ship missiles. Normally there are six missiles in one salvo, either fired as a cluster, in quick succession from a smaller number of launchers, or as multiple warheads from a single missile; but can also represent a smaller number of more powerful warheads with accompanying decoys and jammers. Ships with lighter or unreliable missiles are assumed to fire more in each salvo for equivalent effect.

Salvo missiles can be fired from a *rack*, a single salvo launcher, cluster, or pod that can be used only once; or from *launcher* tubes or cells supplied by magazines that can fire each turn until the supply of missile loads is exhausted.

While each salvo is considered equally dangerous, ships vary in the number of racks or launchers and the capacity of magazines.

Heavy missiles are long range homing weapons fired individually, with more powerful warheads and armour or countermeasures that make them harder to shoot down. Heavy missiles are always fired from one-shot launcher racks.

There are two grades of missile available: standard and extended range (ER). Both grades work in the same way, but the ER missiles have (as their name implies) a greater range than the standard, and are larger and more expensive.

Missiles in **FULL THRUST** are not like current day guided or homing missiles used by ground troops and aircraft, which by space combat standards are far too short ranged and cannot change course without atmosphere. The nearest equivalent today are the anti-ship cruise missiles that are fired to where the target is expected to be, fly for some time, and finally search for a target when they arrive in the right area.

6.1 Launching missiles

Missile launch occurs in phase 3, after orders are written but before fighter group movement. The firing player announces the launch of a missile or 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 extended range missiles, but must be within the boundaries of the fire arcs through which the launcher system may bear. (And not obstructed by any asteroids, planets, or similar obstacles as described in section 13.) The marker is left in place while all ships are moved.

An operational FireCon is necessary to launch heavy missiles, salvo missile racks, or salvo missile launchers (section 5.5).

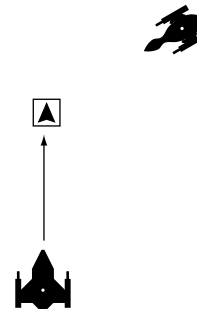


Figure 15: Missile launch

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

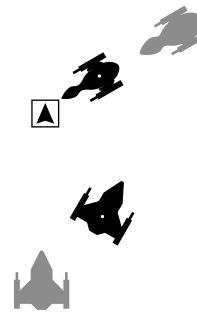


Figure 16: After movement

Optional If you choose to use vector movement instead of the standard cinematic movement rules, then we strongly suggest reducing the attack radius of 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. Assume that the cinematic drive movement ships have a higher drive signature for the missiles to home on than the drives of the vector movement ships.

6.2 Point defence

When resolving missile fire, the defending player must first decide what defences to allocate against each heavy missile or salvo marker. Once that has been done for each ship, resolve defensive fire as follows:

Against salvo missiles, the defending player rolls per point defence weapon:

- Each PDS rolls a D6, 'killing' one missile on a roll of 4 or 5. Rolls of 6 kill two missiles and re-roll.
- Each beam-1 or fighter rolls a D6, killing one missile on a roll of 5 or 6, with a re-roll on 6.
- Each scattergun rolls four D6, results as for PDS.

The attacking player then rolls a D6 for each salvo missile marker. The result is the number of missiles in the salvo that are actually on target. Subtract the number of missiles killed from the D6 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 or heavy missiles. If there are no defences at all then at least one missile in a salvo will always get through.

Against heavy missiles:

- Each PDS rolls a D6 and kills the missile on a roll of 5 or 6.
- Each beam-1 or fighter rolls a D6 and kills the missile on a roll of 6.
- Each scattergun rolls four D6, results as for PDS.

Note that fighters get one roll each in screening groups, so a full strength group will roll 6 dice. For each salvo or heavy missile killed by a fighter roll an additional D6: on a roll of 6 the fighter is destroyed as well. (Trying to take out missiles is a tricky and dangerous job at high speeds and very close quarters.)

6.3 Damage

Each heavy missile inflicts 3D6 of damage on the target. Each missile in a salvo that hits the target ship inflicts 1D6 of damage.

(As usual, half rounded up can be taken on armour, the remainder on the hull.)

Standard screens have no effect on missiles. Advanced level-1 screens subtract 1 from each damage roll, advanced level-2 screens subtract 2.

If using the optional rear arc attack rule (section 4.8), missiles do not do penetrating damage.

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 four boxes of armour, 4 points of damage will be taken on the armour and the remaining 9 on the hull boxes.

6.4 Mountings and magazines

Heavy missiles and salvo missile racks (SMR) have individual symbols on the ship SSD. Once fired, it is crossed off and cannot be used again. Each counts as one system for threshold point checks.

A salvo missile launcher (SML) may fire one salvo per turn provided ammunition is left in the magazine. The magazine symbol is a box linked by lines to the SML(s) it feeds. Each magazine has a mass rating, which determines the number of salvo loads carried: mass 2 for a standard salvo, mass 3 for ER. Salvo loads are indicated by small arrowhead symbols within the box which are crossed off as they are fired. Magazines and launchers are considered separate systems for threshold point checks.

Standard grade heavy missiles, SMRs, and salvo loads are outlined; extended range shaded solid. Launchers have a solid arrowhead in the actual launcher symbol, but this has no bearing on the load carried in the magazine.

Once fired, racks and magazines are empty until replenished after the battle from a base or fleet auxiliary.

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. Heavy missiles can be carried by all classes.

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

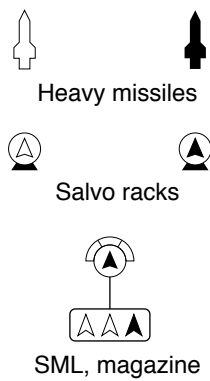


Figure 17: Standard and ER missiles

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 18.

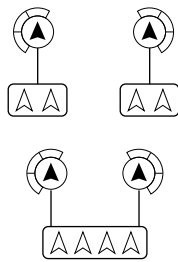


Figure 18: SMLs and magazines

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

The ship designs in the fleet books assume standard salvo loads in the magazines. If you wish to load a ship with ER salvoes then shade in the required number of salvo symbols and delete any excess – if a ship design shows 3 standard salvo symbols in a mass 6 magazine and you wish to use 2

ER salvoes instead, shade two symbols and cross off the third one.

6.6 Optional: multi-stage missiles

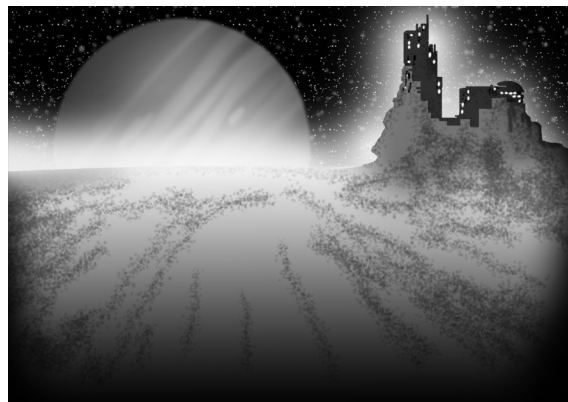
An extra stage for a heavy missile, salvo missile rack, or salvo missile load increases the mass by 2 and doubles the points cost. Only standard missiles may be multistage, not ER; and a magazine may only carry either regular missiles or multi-stage missiles, not a mixture. The extra stage increases the range by 24 MU and the ‘duration’ by 1 turn.

On the turn fired, a two stage missile marker is placed between 16 and 24 MU from the launching ship and within the normal 180° arc for missile launch. The marker itself has a facing, which must be the nearest clock facing to the direction from the launching ship to the missile marker.

If no enemy ship is within 6 MU of a missile marker at the end of ship movement, it is not removed. Instead in the missile launch phase of the following turn the missile marker is placed at the intended point of aim, anywhere from 16 to 24 MU within the 60° front arc of the marker. Multi-stage missiles only have the full 180° firing arc on the launch turn, and must always be moved at least 16 MU each turn.

After ship movement, the missile or salvo then homes in on the nearest enemy target as usual, or is removed if none is within 6 MU.

While the missiles are ‘in flight’ the marker may be fired on by fighters, or ships with ADFC and point defence weapons.



7 Fighters

Fighters are small combat craft that are not capable of operating for any time or distance on their own; they are carried between stars by true starships, either specialised fighter carriers or some of the larger ship classes. Fighters usually have a pilot and possibly one or two other crew, but can be remotely controlled drones or fully autonomous robotic craft with AI pilots.

Fighters operate in *groups* of 1 to 6 craft, with each group moving and firing as a single unit.

As fighters are very small craft, it is assumed 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. The endurance limit is six *Combat Endurance Factors*, CEF, per standard fighter group.

7.1 Launch and recovery

Fighter groups may be *launched* from a carrier in any turn. A ship that is launching fighters cannot use the main drive to perform any velocity, course, or facing changes, so need only write **Launch** as the movement order for 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. The fighter group moves into contact with the carrier in the fighter movement phase.

Launching fighters move before all others in that game turn. The launching group may immediately form a screen for the carrier, attack other fighters or ships, or carry out any other normal action. Move distance on the launch turn is only half normal, representing time lost for successive launches and/or to form up.

All carriers are allowed to launch as many groups per turn as they have operational fighter bays. Fighter recovery is of necessity a slower process than launching, so any carrier may only recover fighter groups equal to half its number of operational bays in any one turn; or one group every other turn if it has only a single operational bay. Launching and recovery operations may both be performed by one ship in the same turn if desired, provided each hangar bay is only used by a single fighter group.

A ship that launches or recovers fighters cannot use an ADFC (section 5.11) in that turn.

7.2 Movement

Fighter group movement is performed after both players have written their ship movement orders, but before the ships are actually moved.

If using cinematic movement, a fighter group can move any distance up to the maximum allowed and in any direction, without needing to write orders or record course and velocity. A fighter group *does* have a facing, which need not be the same as the course or direction of movement. Standard fighter groups have a maximum move distance of 24 MU.

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

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 distance in the primary move phase. Any fighter group that makes this secondary move expends 1 CEF.

The secondary move may be used to bring a group into range of 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 moved a group first in the main fighter move phase must also move first in the secondary move phase.

Example: In figure 19 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. 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 turn's worth of combat endurance for the group must be marked off.

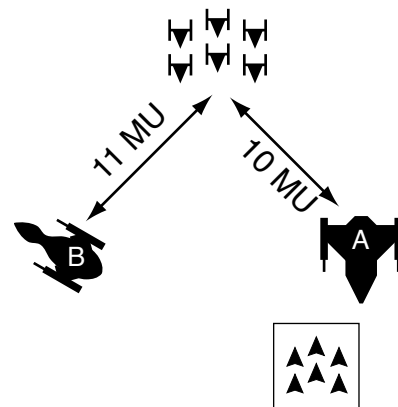


Figure 19: Fighter Secondary Move

7.3 Screens and pursuits

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 adjacent to 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.

Fighters may also screen other fighter groups, for example one or more interceptors (7.9) could screen a torpedo fighter group to protect them from enemy fighters. Fighter can not screen fighters which are themselves screening...

Whenever a ship or group 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 then 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.

Pursuits

A fighter group that attacked an enemy ship or an enemy screening fighter group last turn can declare it is pursuing the ship. Like a screening group, the pursuing fighters move with the ship being pursued in the ship movement phase even if the distance is greater than the fighter group normal move.

7.4 Target selection

After fighter movement and secondary moves a fighter group may declare an attack against any ship, missile marker, or other fighter group within 6 MU and within its front 180° arc. All fighters in the group must engage the same target.

Fighters attacking other fighters are *dogfighting*, fighters declaring attacks against ships (or starbases, etc) are making

an *attack run*. Any fighters attacking or being attacked are *engaged*.

Attacks are not resolved until after point defence fire (if any).

7.5 Point defence

Allocating point defence

Each point defence system (PDS) or scattergun on a ship may fire once per turn, either as an anti-fighter or anti-missile defence weapon. The defender allocates all point defence fire against missile and fighter attacks before resolving any.

Ships without ADFC systems may only target fighters (or missiles) attacking them directly. Ships with ADFC (section 5.11) may provide *area defence* in support of one other ship per ADFC carried, dividing their point defence among ships as desired by the defending player. In either case, the fighter group targeted must not be engaged by other fighters.

Ships with ADFC may also target unengaged fighter groups within 6 MU. Each group targeted requires one ADFC.

Class-1 beams may be allocated for point defence of the ship itself, provided that they did not fire earlier in the turn. Beams-1s may not be used for area defence.

Example: In figure 20, 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 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; or group Y because it is within 6 MU. Fighter group Z is safe from point defence fire.

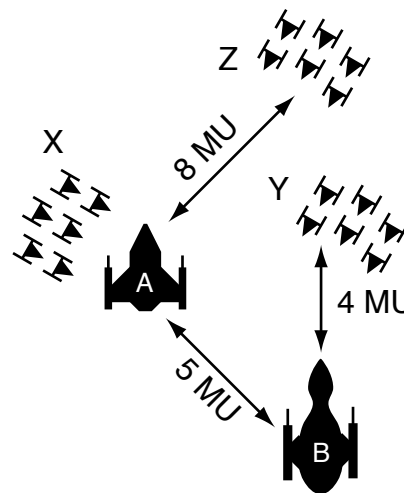


Figure 20: Point defence

Point defence fire

For each point defence system:

- A PDS rolls a D6 and kills one fighter on 4 or 5. A 6 kills two fighters and re-roll.
- A beam-1 rolls a D6 and kills one fighter on 5 or 6, with a re-roll on 6.
- A scattergun rolls four D6 with results as for PDS.

'Wasted' shots when point defence kills more fighters than are in the group may not be reallocated to other groups.

7.6 Fighter combat**Attack runs**

For each group attacking a ship, roll 1D6 per remaining fighter in the group. Hits and damage are scored per die using the same results as beam-1 weapon fire (section 4.5): fighters are affected by screens, and re-roll for penetrating damage on 6.

If using the optional rear arc attack rule (section 4.8), fighters can attack ships from the rear arc, but like missiles are still affected by screens and armour as it is assumed that they must avoid being melted by the drive.

If a fighter group making an attack run is engaged by other fighters, the ship attackers have the choice of either breaking off the attack and engaging in a dogfight, or continuing the attack. In the latter case, the 'intercepting' fighter group fires as if in a dogfight, and the survivors carry out the attack against the ship.

Dogfights

All fire between fighter groups in a dogfight is considered simultaneous. Roll 1D6 per fighter and inflict casualties as for beam-1 fire against an unscreened target: 4 or 5 kills one fighter, 6 kills two fighters and re-roll.

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 not have a higher speed (maximum move) the attacking group gets a free round of attack rolls before contact is broken.

Ships may not fire into a dogfight: the fast action and sensor interference risks too many 'friendly fire' casualties.

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 a re-roll of 3; 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.

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. 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.

Interception of missiles

A fighter group may attempt to intercept and engage any missile or salvo that is within 6 MU and front 180° arc of it at the end of either the fighter's main or secondary movement. Simply move the group up to the missile marker. See section 6.2 for scores required.

Attack or torpedo fighters cannot intercept missiles; neither can any fighter group that has exhausted its combat endurance.

7.7 Ship fire against fighters

In the ship fire phase, fighter groups that are not engaged (7.4) can be fired at with ship to ship weapons. As with ships, the fighter group must be in range and firing arc and each fighter group targeted requires a separate FireCon.

Ship to ship weapons roll 1D6 only against fighter groups, regardless of range band or normal damage. A roll of 6 kills one fighter, no re-roll. (Fighters are very difficult to target with ship weapons, but any hit will be certain to destroy the fighter.)

After a player has announced fire against a fighter group but before actually rolling the dice, the fighter group can choose to *evade* the attack by spending a CEF. An evade automatically negates the attack and any further ship weapon fire in that turn. Evading does not cancel any casualties already inflicted.

Example: A fighter group is moving up for an attack on a battleship. The opposing player announces that a destroyer 9 MU away will fire two beam-2 weapons against the group. The fighter group chooses not to evade. Each beam-2 would normally roll 2D6 at this range, but against fighters it is always 1D6. The destroyer rolls 4 and 6, killing one fighter.

Later in the ship fire phase, the opposing player announces that the battleship will fire ten of its beam weapons against the fighter group. This time the fighter group chooses to spend 1 CEF and evade. The ship weapons automatically miss (and cannot be fired against another target), but the group has been forced to expend a CEF.

Evades must be declared quickly: the fighter group player can ask 'How many?' but if they reach for a calculator or otherwise start mumbling and counting, it is too late! If a player announces ship fire against an already evading fighter group and hence would automatically miss, the player must be told and can switch targets.

Point defence fire cannot be evaded.

7.8 Endurance

A group will use up 1 CEF each turn it engages in combat, whether attacking a ship, another fighter group, or missiles. A fighter group also uses 1 CEF every time it makes a secondary move or evade. 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.

We recommend recording the remaining combat endurance and the number of fighters left in each group with two small D6, in different colours, which may be placed either behind or on the stand of the fighter group they relate to. An alternative to this is to have a single fighter group roster sheet on a piece of paper, with each group having two rows of six boxes – one row represents the number of fighters left in the group, and the other the remaining CEF.

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

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.

Fighter types must be specified before the battle begins in one-off games. In a campaign the ability to change fighter types will depend on your chosen replenishment and re-equipment rules.

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.

Heavy fighters

Heavy fighters have the same offensive 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.

Heavy fighters have a maximum move of 18 MU per turn, with 12 MU secondary.

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 starbases. When they make such an attack they may add 1 to all die roll results other than a 6. Thus they kill one normal fighter on a roll of 3 or 4, two on rolls of 5, and two on rolls of 6 with a re-roll. Against heavy fighters they would kill one on a roll of 4, two on rolls of 5, and two on rolls of 6 and re-roll.

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

Attack fighters

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 and do not re-roll. When engaging other ships, however, attack fighters add 1 to all their die rolls other than 6, ie if firing on an unscreened target ship they would inflict one damage point with rolls of 3 or 4, and two damage points with 5 or 6.

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.

Torpedo fighters

These are a further specialisation of the attack fighter, carrying a heavy single shot anti-ship weapon on each fighter. Torpedo fighters can also represent Autonomous Kill Vehicles (AKVs) or similar tiny 'one-shot' craft.

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 each hit inflicts 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. Standard screens

do not protect against torpedo fighters, but advanced screens reduce the damage inflicted by 1 point per level of screen.

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.

Torpedo fighters have a maximum move of 18 MU per turn, with 12 MU secondary.

7.10 Extra capabilities

FTL fighters

FTL capable fighters are those which can travel through hyperspace, either by having their own FTL drive or by travelling in close proximity to a larger FTL capable ship. FTL fighters still require a carrier with hangar space, as they do not have sufficient fuel or life support for long journeys. (Unless all the pilots are Jedi Knights.)

FTL fighters can be deployed at the start of the battle anywhere that a normal ship would be allowed or as a screen for another ship, without needing to launch. If the fleet is making an FTL entry, fighter groups deploying individually are subject to normal FTL scattering while screening groups stay with the ship being protected. FTL fighter groups can retreat off table at any time without needing to re-embark – but count as lost if no carrier with sufficient hangar space for the group also escapes.

FTL capability can be bought for all types of fighter.

Kinetic fighters

Some species or cultures may use fighters armed with kinetic projectile weaponry instead of the usual beam-like armament. When attacking ships kinetic fighters ignore standard screens but do not re-roll on a 6; in dogfights they have exactly the same behaviour as other fighters including re-rolls on 6 if appropriate.

Kinetic weapon capability can be bought for all types of fighter, but has no benefit for interceptors or torpedo fighters.

7.11 Optional rules

Re-arming

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.

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!

Any fighter group that has lost one or more members must roll a D6 before making an attack. If the roll is less than or equal to the number of fighters remaining in the group, the attack is carried out; if greater than, they abort this attack and do not fire. 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.

Kra’Vak fighters (FLEET BOOK 2) have their own Ro’Kah morale rules.

Swing role fighters

Fighters which are ‘swing role’ can have a specialised type chosen at launch time during the battle from a set of permitted types. Once launched, the group stay as that type until recovered. A group of swing role fighters has the full points cost of the most expensive type, plus half the cost of each extra type.

Example: A fighter group can be launched as standard, interceptor, or attack depending on weapons load and mission plan. The group costs 24 points for the attack type and $18 \div 2 = 9$ for each of the interceptor and standard types, for a total points cost of 42.



8 Threshold Points



Figure 21: Bridge, life support, and power core

8.1 Damage to systems

The first threshold damage inflicted on a main drive halves the thrust rating of any drive rated above 1. Drives with thrust rating 1, or any drive that has already suffered threshold damage, are reduced to zero.

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 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.)

Weapons carried in a magazine, such as salvo missiles and mines, roll just once for the magazine rather than each load. All missiles and mines in a magazine are permanently destroyed when knocked out and cannot be repaired.

Heavy missiles and salvo missile racks roll per launcher. If destroyed, this is permanent and cannot be repaired.

8.2 Core systems

Core systems are **optional** but recommended.

While weapons, fire control sensors, and screen emitters are all surface features 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 subtract 1 from the die roll – thus at the first threshold point, where systems are lost on rolls of 6 only, the core systems do not need to be rolled for as the minimum score will be 7. At the second threshold point, where normal systems go down on rolls of 5 or 6, the core systems are only hit on rolls of 6, and so on for subsequent threshold points.

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

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

If you do not wish to use the core system rules, simply ignore the systems within the core box on the ship SSDs.

Command bridge

If the command bridge takes a hit, then make a further D6 roll immediately. If the roll is 1 to 5, then the ship is ‘out of control’ for that number of turns including the remainder of the current one, until command can be restored through backup links and secondary command systems. If the roll is a 6, then the ship is out of control for the rest 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, using the rules below (section 8.3).

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 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, continuing on its present course and velocity, though it may of course be recovered and repaired after the battle if it survives.

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. (Unless the core is then damaged again, when the process will repeat.) 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 of no further use for that battle, but may be salvaged afterwards and its power restored.

8.3 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. 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 setting assume that one CF represents about 20 personnel.

A single DCP might therefore be four or five crew, 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. A system can be brought back online by rolling a D6 result less than or equal to the number of DCPs assigned. The maximum number of DCPs on a single job is three, so 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 ship with 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 1-3, and the weapon on 1 or 2.

8.4 Crew casualties

For simplicity, assume that crew casualties are 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 or stars 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 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: A mass 90 ship 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, 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.

8.5 Cargo and passengers

The holds and passenger space are arranged on the ship SSD 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 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.



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 by 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.

Hyper limit

In many science fiction settings decent sized planets or the local sun have a 'hyper limit' distance within which FTL travel is not possible. As most of the interesting bits of any solar system are on or near such planets, or relatively close to the sun, many battles will take place within the local hyper limit. In such a setting, FTL entry or exit is only permitted by player agreement or scenario design.

9.1 Advanced FTL drives

Certain ships may be able to enter or leave space very precisely without risk of collisions or scattering. These ships have *advanced FTL drives*.

Since this isn't useful in many friendly or competition games, such ships only have to pay the points cost for standard drives. The player may choose to pay extra points for advanced FTL capabilities for a one-off battle or tournament, and should always pay the extra points in a campaign.

9.2 FTL exit

If a ship attempts to engage its FTL drive while on the table, the owning player must write this in movement orders for that turn. The ship may not apply any thrust in that move, nor may it use any offensive weaponry or ADFC. (Point defence 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 ships exiting by FTL are moved after all other ships.

If any other ship-sized or larger object, but not fighter group or missile salvo, is within 6 MU of the actual point of FTL exit (the point that the ship disappears from the table) then problems may occur.

The ship attempting to enter FTL 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 immediately suffers 1D6 of damage. Unless the ship is actually destroyed by this it completes its FTL transition safely. (Any threshold point checks would be made 'off table'.)
- On a roll of 5 or 6, the ship attempting the FTL jump is completely destroyed. All other ships or starbases within 6 MU immediately suffer 2D6 damage, and any fighter group or missile marker within 6 MU is destroyed.

Non-FTL ships being carried by a tug or tender (9.4) or battle riders carried by a mothership (9.5) also suffer 1D6 damage or are destroyed depending on the FTL entry roll.

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

9.3 FTL entry

Any ships that are to enter the game by dropping out of FTL onto the playing area must be ordered as such at the start of the game, giving the number of the game turn in which they will enter and the point of entry on the table. The entry point should be specified as two measurements from the left and rear edges of the table. The player must also write down the initial velocity, from zero up to the main drive rating, and the initial course for the ship on emergence from FTL space.

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 entry, and place a counter or other marker at the intended entry point.

In the movement phase, for any ship without an advanced FTL drive (or without paying points for advanced FTL capability), 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.

The FTL entry is the ship's movement for that turn, with velocity being applied from the start of the next.

Example: The two ships in figure 22 attempt FTL entry 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.

Ships carried by a tug or tender (9.4), battle riders carried by a mothership (9.5), or FTL-capable fighters screening a ship

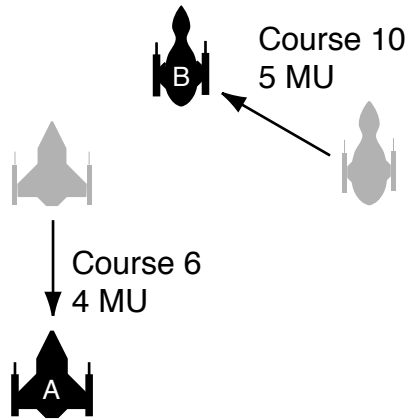


Figure 22: FTL Entry

(section 7.10) move the same distance and direction as their ship.

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 (not fighters or missiles) is within this distance when the ship enters normal space, roll a D6 for the ship:

- On a roll of 1 to 5, the ship 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. Any other ship within 6 MU takes 2D6 damage, and any fighter group or missile marker is destroyed.

Damage from FTL entry or exit cannot be absorbed by screens or armour. If sufficient damage is inflicted to reach a threshold point (and the ship remains on the playing area), roll threshold point checks as usual.

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.

9.4 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*. 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 carry other ships by extending their jumpfield around them, require massively overpowered 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 *transfer 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.

FTL tugs use a modified drive symbol that also displays the transfer mass capacity.



Figure 23: Tug FTL drive

Tugs with standard FTL drives can haul any number of ships, provided that the total mass does not exceed the transfer mass capacity of the drive. Tugs with advanced FTL drives can also combine to haul ships larger than any individual ship capacity.

Example: A crippled battleship with mass 120 can be hauled off table by one tug with a standard FTL transfer mass of 120 or more, or by two tugs with advanced FTL drives of transfer mass 60 each.

9.5 Battle riders and motherships

Some warships are designed as *battle riders* without an FTL drive of their own, transported into battle like giant fighters by *motherships*.

The battle riders are designed in exactly the same way as other warships, except that they do not pay mass or points cost for an FTL drive. The mothership is treated as an FTL tug or tender, paying extra mass and points for internal bays or an oversized FTL drive.

A fleet with battle riders must deploy the motherships as well. If the mothership makes an FTL entry, the battleriders cannot detach and move independently until the next turn. They start with the velocity and course of the mothership.

Until they detach, only the mothership can be fired at and battleriders are protected by any mothership screens (but not armour). Damage received can be applied to either the mothership or battleriders at the choice of the defending player. In one-off battles, battleriders are considered casualties at the end of the battle if their motherships have been destroyed.

The maximum mass for any battle rider is 60, following the science fiction convention that battle riders are smaller than the FTL-capable motherships.

System defence 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 ships – other than battleriders with a mothership – cannot be part of fleets for one-off battles unless specifically permitted by player agreement or scenario design.

9.6 Jump gates and portals

Jump gates and portals are an alternative to standard FTL drives. Instead of a ship moving itself with an internal FTL drive, a stationary external object moves the ship to where it is going.

A *jump gate* is any natural ‘wormhole’ or artificial construct that provides entry or exit between hyperspace and normal space at a given point. A ship transfers from normal space to hyperspace through the jump gate, travels for some time through hyperspace to another jump gate, and there transfers back to normal space. The two transfers are not linked: once in hyperspace a ship can change destination, or the ship can use its own FTL drive if it has one instead of a jump gate at either end.

A *portal*, natural or artificial, creates a fixed connection between two points in normal space, either as a shortcut through hyperspace or some other dimension, by matter to energy to matter conversion and transmission, psionic powers, etc. What distinguishes a portal from a jump gate is that the transfer is instantaneous or nearly so and cannot be changed in flight. Natural portals usually connect two fixed points in space, while artificial portals usually can be programmed for a specific destination.

Jump gates are only found in space, near planets or space stations, as the equivalents of terrestrial railway stations or airports. Warships need to be able to go anywhere so must have FTL drives, but civilian cargo or passengers often just travel between fixed locations. With jump gates, these ships can avoid the expense and overhead of their own FTL drive. Even warships may choose to use jump gates when available to reduce wear and tear on their own FTL drives and to ensure a more accurate arrival point.

Portals can exist anywhere, although some technologies may require portals to be in space to avoid problems with atmospheric displacement. A big portal on an enemy world is a great way to invade without all the bother of troop transports, so there are good non-technical reasons to keep the larger models in space. Whether due to technological reasons or simple caution, small portals are far more common in science fiction than large ones.

Ships that enter or exit normal space through a jump gate or portal never suffer from direction or distance errors, unlike normal FTL drives.

Where the game rules are identical for both types the term *gate* will be used to mean ‘jump gates and portals’.

In a setting where **all** FTL travel is through jump gates or portals, artificial or natural, the FTL ‘drive’ for starships should be considered as representing the mass required for the sensors, computers, navigation records, special construction, mutated psionic pilots, or whatever else is needed to locate and use gates and survive the journey.

Representation

In game terms a gate is a stationary object represented by an appropriate model or counter. (This is not to say that they can never be moved, just that it won’t happen within the time frame of a single battle.)

The capacity of natural gates is usually very high to unlimited, and the gate itself cannot be destroyed by normal weapons fire, so no record keeping is necessary.

Artificial gates have a *transfer mass*, the maximum capacity or mass that it is capable of handling in one turn. A gate must also have a certain number of hull boxes to represent essential control systems and structural elements. Armour, screens, and weaponry are optional, but even in settings where attacking gates is ‘not cricket’ it is sensible to have at least some protection against accidental damage.

An artificial jump gate must have an FTL drive, which has 10 transfer mass points for every 1 point of drive mass, and does not need to include the mass of the jump gate itself. A jump gate should also have hull boxes equal to at least 10% of the transfer mass.

An artificial portal should have the FTL drive with mass equal to the transfer mass of the portal, representing the (usual) higher cost and more advanced technology.

A gate takes damage in the same way as other ships. For each 10% of hull boxes marked off the current transfer mass is reduced in proportion: a jump gate that begins with a transfer mass of 60 and 6 hull boxes will be reduced to 50 at 5 hull boxes, 40 at 4, and so on as it takes damage. Whenever a complete row of hull boxes is lost the gate must make threshold checks as usual for the FTL itself and other systems.

Operation

Artificial gates must be activated before used. The player writes an activate order at the beginning of the turn and announces the activation when ships are moved. The gate may be used for transfers from the following turn until deactivated again.

If the gate is under control of the player, usually the case when the gate is part of the infrastructure for a home system being defended, activation is automatic. If the gate is not under control and an attacker wishes to activate it to transfer forces into the system the defender rolls a D6 in the movement phase:

- On a roll of 1,2, or 3 the activation is delayed that many turns.
- On a 4, 5, or 6 the activation succeeds straight away.

(This assumes, as is usually the case, that the gate is part of a general purpose transport network open to all so the attackers will eventually be able to override the control system.)

Some gates can be used from any angle, but more commonly they have one entry and exit facing. If this is, for example, 9 then ships wishing to use the gate to exit the play area must write an **Gate exit** order and be on course 9 within 3 MU and within the 60° arc of the entry facing. All ships entering the gate are placed on the gate marker as their movement for the turn.

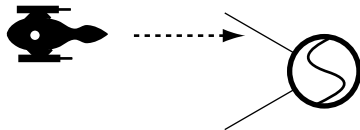


Figure 24: FTL gate approach

At the end of the turn, the transfer takes place. If the transfer mass of the gate exceeds that of the combined ships entering, they all transfer successfully. If the transfer mass was reduced due to damage or the gate FTL failed a threshold check, roll a die for each ship. On a 1 the ship transferred successfully, on a 2 it manages to back out in time and remains at the location of the gate with a velocity of zero, on a 3 or higher it is destroyed.

To enter through a gate, a ship likewise writes an **Gate entry** movement order with a velocity up to the maximum rating of its main drive. In the movement phase the entering ship is placed on the gate with an initial course that is 180° opposite

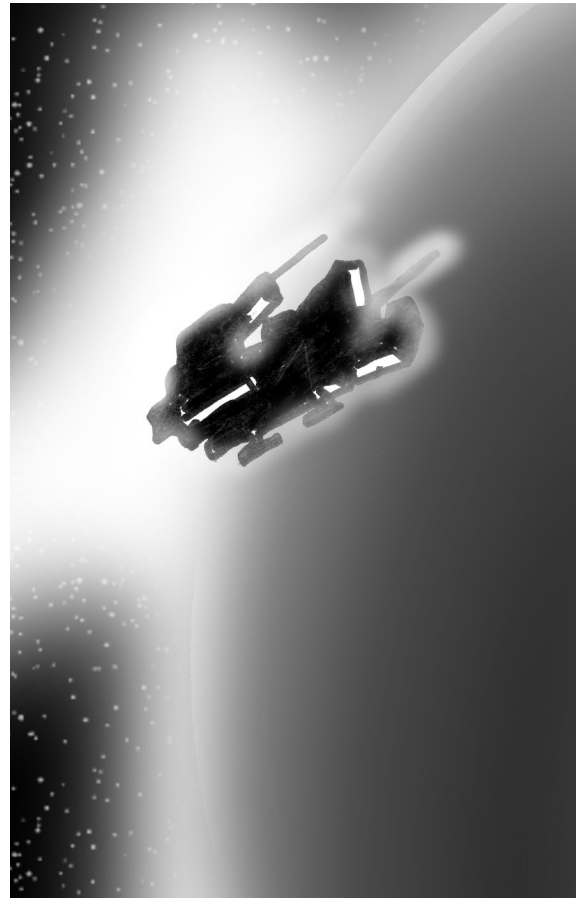
(3 in the example above) and then moves the distance specified by the velocity order.

If for some reason both ends of the portal are on the playing area, a ship exiting through one and entering again through the other does so with the same velocity that it entered.

Battles in hyperspace

FULL THRUST, like a lot of science fiction, assumes a clear distinction between faster than light travel, which exists because otherwise it would take years for ships to actually get anywhere; and 'normal' space where most of the action, including combat, takes place. Modifying the rules given here to match such a setting is not difficult.

If you do decide to allow battles at FTL speeds or in hyperspace, the challenge of designing suitable rules - and answering questions such as 'what happens when a ship travelling faster than light fires a laser beam?' - is entirely yours!



10 Optional Rules

10.1 Sensors and ECM

Sensors and ECM allow a basic form of 'limited intelligence' to be brought into the game, to make the initial fleet dispositions for a battle 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 or bead). 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, and the course and velocity.

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 as part of their Fire Control Systems. 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.

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. A ship may scan one opposing bogey per operational FireCon each turn. The player chooses which of the enemy bogeys to scan (of those within 54 MU range) and these must then be revealed.

10.2 Advanced sensors

If not playing an *open book* game, 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
- 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.

10.3 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 that are equipped with systems designed to emit the signature of a much larger vessel.

A weasel decoy system requires 2 mass to emit the signature of an escort or cruiser class, 4 mass to emit the signature of a capital ship. The points cost is 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!

10.4 Electronic counter measures

These additional optional rules allow players 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 friendly ECM, simply roll twice, subtracting the second roll from the (modified) first roll.

10.5 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 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 4D6 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.

Individual mines are carried as loads within a magazine. 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 load on the minelayer magazine 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.

A minesweeper can attempt to dispose of all the mines it passes within range of in one turn.

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 point defence weapons and any screens and armour function as normal.

10.6 Ortilery

This is orbital artillery or a planetary bombardment system used for ground support fire from orbiting starships. It has no function in space combat, and cannot be used as an anti-ship weapon. (Unless a ship has landed in the target area...) Effects should be determined by players according to the ground combat system rules in use.

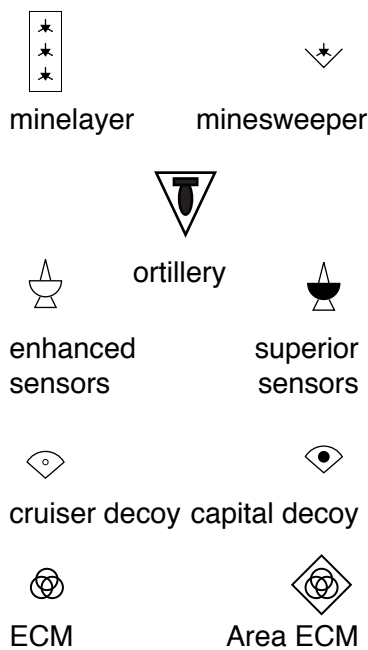


Figure 25: Optional system symbols

10.7 Boarding actions

A boarding party is normally composed of part of the Marine contingent from the attacking ship with specialised equipment.

To launch a boarding action the attacking ship must first be brought close to the target vessel, so that it is within 3 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.

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 3 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 by small assault pods, powered armour suits, transporter beams, etc.

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!

The defensive strength of a full troopship is increased by the number of mass allocated to troop holds divided by 4 (rounded down). Carried troops cannot be used for offensive boarding actions due to lack of training and specialised equipment.

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 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. (A hold full of heavy tanks won't do the defenders much good!) Boarding actions should be sufficiently uncommon, however, that the rather abstract system here will suffice in most cases.

10.8 Fleet morale

The question of morale in naval games, whether science fictional 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.

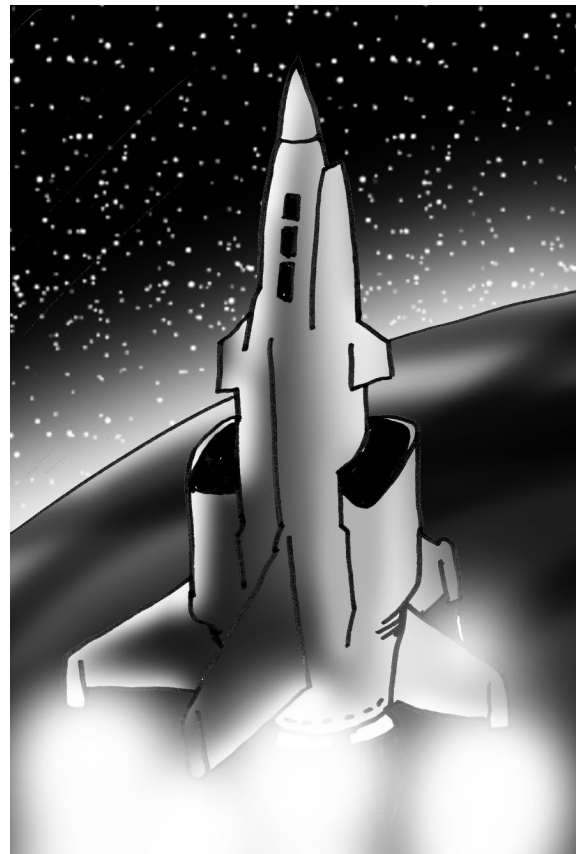
10.9 Striking the colours

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.

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. Players may prefer to roll as if for a core system check, in which case ships will never surrender on the first row of damage.

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 GZG 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.



11 Ship Design

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 super fast, 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.

Designing 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.

11.1 Scale

FULL THRUST is deliberately vague about scales: there is no exact definition of how many tons a mass unit represents, or how many kilometres per MU. Ships are defined by their role: fighter, escort, cruiser, capital, carrier; and the relative value of their weaponry and protection in abstract mass units rather than number of turrets or megajoules. FULL THRUST is intended to be a fairly generic set of rules that you can adapt to your own setting, so these abstractions – or fudge factors if you prefer – are necessary.

For an example, consider fighters. In most science fiction TV and film these resemble space going versions of current jet fighters, with a pilot and sometimes one or two other crew. This does not mean that your fighters cannot be much bigger and with sizeable crews. What matters in FULL THRUST is how they behave: if they are launched in swarms from carriers, zip about at speed, are very difficult to hit with normal ship weapons but easily destroyed, and attack enemy ships or fighters at very short range; then in FULL THRUST terms they are fighters.

Scaling also applies to numbers. Nominally each fighter group in FULL THRUST has six fighters, but you are free to declare that each 'fighter' represents 2 or more actual vessels. It is standard in space opera for a single Heroic Good Guy (of any gender or species) to be worth several of the multitudes of low quality cannon fodder used by the Evil Bad Guys. In such a setting fighter groups belonging to the first side would be just six fighters each, while fighter groups belonging to the other would represent three dozen unfortunates whose destiny is to be shot down six at a time!

Going the other way, FULL THRUST takes a large scale 'bang you're dead' approach to fighter combat. But you could easily design various types of fighters as small corvette or frigate sized ships, each with their own unique combination of thrust, weaponry, and protection. Shorten the game turn to 5 seconds, add in one or two giant warship models to fight around, and you have a dramatic dogfight.

Really big ships are also found in science fiction, such as the superdreadnoughts in the Honor Harrington books or the Super Star Destroyer that Darth Vader uses as his flagship. CROSS DIMENSIONS imposes an upper mass limit on ships, which would be far too low if mass units represented a fixed number of tons. Instead you can assume a sliding scale from perhaps fifty tons per 1 mass for the smallest escorts, increasing to several hundred or even thousands per 1 mass for the largest superdreadnoughts. There are three reasons for this.

Firstly, the combat effectiveness of larger ships in FULL THRUST increases at a faster rate than the mass does, so one ship of mass 200 is (almost always) superior to two ships of mass 100. The mass represents weaponry and protection, not just volume.

Secondly, you can always scale everything else around the really big ships down. The smaller sized combatants in such a fleet would normally be considered dreadnoughts themselves, but in a fleet with such monsters (and presumably equally formidable opposition) would be reduced to the role of escort cruisers.

Lastly and much less seriously, the really big ships are usually constructed by megalomaniacal Evil Overlords and they never work as well as expected, often being destroyed by nothing more than a puny fighter! The CROSS DIMENSIONS mass limit represents the actual performance of the ship, not that promised by the (terrified or over-optimistic) designers.

Systems

When designing ships, there is not necessarily a 1:1 match between FULL THRUST system symbols and individual weapon systems. For example, a single beam-1 symbol represents the ability to deliver a certain amount of firepower in all directions, which on all but very small ships will require more than one actual weapon mount.

Each beam on a ship SSD can represent an individual mount, or a battery consisting of a number of projectors slaved together under a single control system.

A beam system that is twice as damaging as another but not longer ranged would be represented by two symbols instead of one. A powerful alien beam that is also very accurate against fighters would be represented by a graser symbol for fire against ships and a PDS symbol for use against fighters.

A broadside symbol can represent an actual turret unable to fire fore or aft (as seen on the *Sulaco*); or two weapons, one on each side, that share a common fire control or ammunition supply; or that the ship is able to roll quickly enough to combine the fire from two individually weaker weapons in either direction.

11.2 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 24 ship could be fitted with a maximum of 24 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 tons; it will, however, require 100 tons of hull capacity to mount the system and its infrastructure, control and power requirements, sensors, crew, etc.

Escorts have a maximum mass of 44, *cruisers* have a maximum mass of 90. Anything over mass 90 is a *capital*.

If a ship has a mass over 10, it must be even.

The maximum possible mass for a ship is 300. If you do decide to design larger ships, consider using the rules for starbases (section 13.7) with multiple individual sections and SSDs.

The table below shows the standard basic ship classifications, along with the accepted designations and a rough guide to the typical mass ratings of each. 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	Mass
Scout or Courier	SC	4 - 10
Corvette	CT	8 - 16
Frigate	FF	14 - 28
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 - 300
Escort Carrier	CVE	60 - 140
Light Carrier	CVL	120 - 180
Heavy Carrier	CVH	160 - 300
Attack Carrier	CVA	150 - 300

Names

Historically 'battlecruiser' has been used both for fast, heavily armed, but lightly protected British and American ships; and for lighter armed but better protected French and German ships. In FULL THRUST it is used for ships bigger than heavy cruisers but smaller than most capitals.

'Escort cruisers' and 'escort carriers' are cruisers or carriers, not escorts. The designation simply indicates that its primary function is that of supporting (escorting) other ships rather than independent action.

These names are used in the GZG setting but are not at all compulsory. Other navies have different ship classifications, for example *Escorteur d'Escadre* or *Raketny Kreyser*; or you could adapt aircraft terminology. This is an area where a little research and imagination can go a long way. (As a matter of courtesy, you should always be willing to inform your opponents whether a ship is an escort, cruiser, capital, or carrier.)

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.

System mass

The total mass includes the *Core Systems* (section 8.2) and passive sensor arrays (section 10.1). 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.

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.

11.3 Hull strengths

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 and screens: such a ship will be fine until some damage manages to get through, at which point 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. For standard ships, 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 hull 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 hull 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 is $\text{mass} \times 2$.

Advanced hulls

Some ships have superior construction technology or internal protection and are therefore much more resistant to the initial effects of damage. Such ships have *advanced hulls* with the boxes arranged in three rows, not four. In the example above a strong hull would still have 24 hull boxes but arranged in three rows 8/8/8, requiring more damage to inflict a threshold point check than before – but still only the same amount of total damage to destroy.

The points cost of an advanced hull is $\text{mass} \times 3$ instead.

Ships with less than four hull boxes are always considered standard hulls, not advanced.

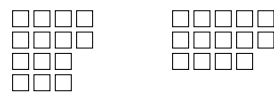


Figure 26: Strength 14 standard and advanced hulls

Drives

The FTL drive for interstellar capability requires 10% of the total mass. Non-FTL ships may only be used in certain scenarios: see section 9.5. Tugs, tenders, and motherships use more than the standard mass for their FTL drives: see section 9.4.

A standard FTL has cost $\text{mass} \times 2$. For ships that choose to pay the extra cost of advanced FTL capability (section 9.1), the cost increases to $\text{mass} \times 3$.

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

Example: A cruiser has total mass 64. A main drive rating of 4 would be $20\% \text{ of } 64 = 12.8$, rounded up to 13. Main drive rating 6 would be $30\% \text{ of } 64 = 19.2$, rounded down to 19.

The points cost of the main drive is $\text{mass} \times 2$ for standard, $\text{mass} \times 3$ for advanced. Ships with advanced main drives never have the choice to 'turn off' advanced capability to reduce points cost.

Advanced drives and FTL

Advanced drives or FTL represent new 'tech levels' or different mechanisms, not just that one ship is a bit better than another. All the ships built by a given species, culture, or state are expected to have the same kind of main drives and same kind of FTL. Exceptions can be made when a fleet has acquired ships from a different source, or is undergoing some kind of major technological transformation.

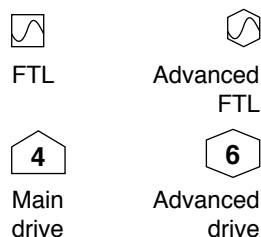


Figure 27: Ship drives and FTL

Atmospheric streamlining

Streamlining allows ships to safely enter a planet's atmosphere as described in section 13.9. Partial streamlining requires 5% of the ship's total mass, while full streamlining requires 10% 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 3 mass and cost an additional 6 points on top of the basic hull cost; to give the same ship full streamlining will use 5 mass and cost 10 points.

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 typical 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 symbol with the capacity in mass marked.

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

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 rows. If the number does not

divide evenly then the first holds or passenger areas are the larger ones.

The space is divided up purely for damage and threshold point checks, and does not mean that the ship is actually limited to cargo items that would fit within each individual hold.

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



Figure 28: Fighter bay, ship bay, cargo hold

11.4 Systems

Armour

Armour requires 1 mass per box of protection. The total number of armour boxes is called the *grade*.

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

For shell armour, the points cost of each box is equal to standard armour multiplied by the layer number. Each box in the lowest layer therefore has the same cost as standard armour; each box in the second layer is 4 points per box, each box in the third layer 8 points.

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.

The points cost of a screen is $\text{mass} \times 3$, minimum of 9 points for level-1 and 18 points for level-2.

Advanced screens

Each advanced screen generator requires 7.5% of the ship's mass, minimum 4 mass for level-1 and 8 mass for level-2. The points cost is $\text{mass} \times 4$.

A ship cannot be fitted with both advanced and standard screens.

FireCons and ADFC

A FireCon has a mass of 1 and costs 4 points.

Area-Defence Fire Controls (ADFC) have a mass of 2 and cost 8 points each.

Ships with ADFC systems are usually escort or cruiser sized in FULL THRUST. Capitals with ADFC are either dedicated to the area defence role or have unusual backgrounds, while carriers with ADFC are extremely rare.

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 requires 2 mass, a class 3 requires 4 mass, a class 4 requires 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. Each additional arc of fire requires 25% of the base mass per 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.

Broadside arcs are a special case: class 1 and class 2 beams with broadside fire arcs have the same mass as all-round 6 arc; class 3 and above beams with broadside fire arcs have the same mass as 3 arcs.

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

Beam points cost is $\text{mass} \times 3$.

Grasers

The mass requirement for a class 1 graser are:

- Firing through 1 arc: mass 2
- Firing through 3 arcs: mass 3
- Firing through broadside or 6 arcs: mass 4

A basic class 2 graser has a base mass of 9 and fires through only 1 arc. Each extra arc requires 3 mass; or 6 mass for a broadside mounting.

A class-3 graser requires 24 mass and +6 per extra arc (+12 for broadside). Each higher class triples the base mass and doubles the extra per arc.

Graser point cost is $\text{mass} \times 4$.

PDS

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

Scatterguns

Each scattergun has a mass of 1 and costs 4 points.

Ships cannot be fitted with both PDS and scatterguns.

Torpedoes

The basic mounting for a class 1 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; or through a broadside fire arc, costing 2 extra mass.

Higher class torpedoes double the base mass and extra per arc for each class increase, so a class 2 torpedo takes 8 mass and +2 per extra arc (+4 for broadside), a class 3 is 16 mass and +4 per arc (+8 for broadside) and so on.

Torpedo points cost is $\text{mass} \times 3$.

Needle weapons

Needle weapons have only 1 fire arc. 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 salvo missile launchers 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 extended range types.

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

The points cost of an SMR or SML system is three times the total mass of launcher and magazine capacity.

All salvo missile launchers and racks fire either through 3 consecutive arcs or broadside arcs.

Heavy missiles

Each heavy missile has mass 2 for standard or 3 for extended range. Points cost is $\text{mass} \times 3$.

Heavy missile racks also fire either through 3 consecutive arcs or broadside arcs.

11.5 Ship design procedure

The easiest way to begin your career as a warship designer is by taking an existing ship design (the SSD) and modifying it in some way. Ships can be tailored for particular missions by changing the weapons while keeping the original hull and drives, for instance replacing beams with missiles. Or you could try reducing the mass spent on weapons and defences to increase the drive rating and hence agility.

For this example, though, we will dive in and demonstrate the entire process from beginning to end.

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

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

2. Choose the hull integrity for the ship.

Example: We decide to give our heavy cruiser a standard hull of average strength. This will use up 30% of the total 86 mass, or 26 mass (actually 25.8, rounded up). The points cost of the hull 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.

3. Choose and fit drives to the ship.

An FTL drive to give the ship interstellar capability will require 10% of the total mass.

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

Example: Our heavy cruiser needs an FTL drive (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 $26 \times 2 = 52$.

Total mass	86	86 pts
Hull integrity	26	52 pts
FTL drive	9	18 pts
Main drive thrust-4	17	34 pts
sub-total	52	190 pts

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

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, so we decide on a balanced mix of offensive and defensive systems to cope with a wide variety of possible threats.

Two standard Fire Control systems use 1 mass each and cost 4 points each. This leaves us 32 mass.

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 decide to fit a level-1 screen generator for 4 mass. (5% of $86 = 4.3$, rounded down to 4); alternatively, we could spend this on 4 boxes of hull armour which would be slightly cheaper. Total defensive systems mass is 6, costing mass $\times 3 = 18$ points.

Hull and drives	52	190 pts
2 × beam-3 (3 arc)	12	36 pts
beam-2 (6 arc)	3	9 pts
2 × beam-1	2	6 pts
2 × FireCon	2	8 pts
SML	3	9 pts
magazine (3 loads)	6	18 pts
level-1 screen	4	12 pts
2 × PDS	2	6 pts
sub-total	34	104 pts

Total	mass 86	294 pts
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The System Status Display for this ship is figure 29.

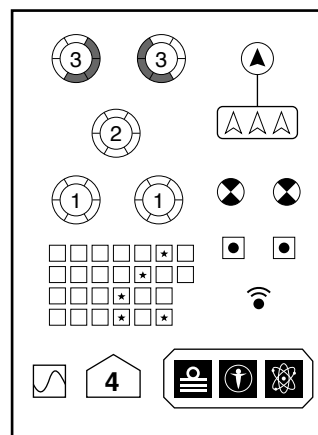


Figure 29: Heavy cruiser SSD

11.6 Mass and points cost

System	Mass	Points
Basic hull	total mass of ship	× 1
Standard integrity	10+% of total mass	× 2
Advanced integrity		× 3
Standard drive	5% total per factor	× 2
Advanced drive		× 3
FTL drive	10% total mass	× 2
Advanced FTL drive		× 3
Partial streamlining	5% of total mass	× 2
Full streamlining	10% of total mass	× 2
Cargo/passenger	1 per space	None
Hangar bay	1.5 × mass carried	× 3
Hangar bay, standard	9 (space 6 fighters)	27
Hull armour, per box each layer	1	2
Screen generator	5% total mass minimum 3	× 3
Advanced screen	7.5% minimum 4	× 4
Fire Control	1	4
ADFC	2	8
Beam-1	1	3
Beam-2, 3 arc	2	6
broadside or 6 arc	3	9
Beam-3, 1 arc	4	× 3
extra arc	+1	
broadside	+2	
Beam-4, 1 arc	8	× 3
extra arc	+2	
broadside	+4	
Graser-1, 1 arc	2	× 4
3 arc	3	
broadside or 6 arc	4	
Graser-2, 1 arc	9	× 4
extra arc	+3	
broadside	+6	
Graser-3, 1 arc	24	× 4
extra arc	+6	
broadside	+12	
Torpedo, 1 arc	4	× 3
extra arc, max 3	+1	
broadside	+2	
Each extra class	× 2	
Submunition pack	1	3
Needle weapon	2	6
Point defence system	1	3
Scattergun	1	4
SML	3 (launcher only)	9
Missile magazine	2 per salvo	× 3
	3 per ER salvo	× 3
SMR	4	× 3
extended range	5	
Heavy missile	2	6
extended range	3	9
Extra missile stage	+2	× 2

Optional Systems

System	Mass	Points
Enhanced sensors	2	8
Superior sensors	4	16
Weasel cruiser emitter	2	8
Weasel capital emitter	4	16
ECM system	4	16
Area effect ECM	6	24
Minelayer	2	6
	+ 1 per mine minimum 2	× 2
Minesweeper	5	15
Ortillery system	3	9

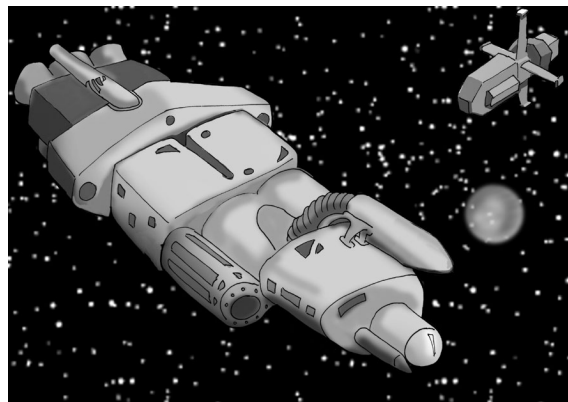
Fighter types

All fighters require 1.5 mass of hangar bay space per fighter. A standard group has 6 fighters, requiring a mass 9 hangar. Points costs for fighters are:

Fighter	Each	Group
Standard	3	18
Fast	4	24
Heavy	5	30
Interceptor	3	18
Attack	4	24
Long range	4	24
Torpedo	6	36
FTL	+1	+6
Kinetic	+1	+6

Light vessels

Interface craft, shuttles, etc cost 2 points per mass of craft and require 1.5 mass of hangar bay space per 1 mass of craft.



12 Special Moves

12.1 Thrust 0 drives

Ships with thrust 0 drives, and any asteroids or similar object that have significant movement relative to ships, never write orders. The controlling player, or scenario designer, determines the initial position, course, and velocity before the game begins. Each turn, the ship or asteroid moves along this predetermined course before all other ships.

12.2 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, rolled ships 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.

12.3 Towing ships

In normal space, ships can tow other ships.

First the towing ship must match courses. The two ships must be within 3 MU of each other and either both halted, or both moving at the same velocity and course facing.

At the start of a turn (before movement phase) where the two ships have matched courses, the towing ship can begin establishing a link.

- A ship equipped for towing as part of its normal duties requires one complete turn for each ship.

- Any other ship requires two complete turns and can only tow a single ship.

If either ship changes velocity or facing during this time without an exact match by the other ship, or if the target ship fires any weapon against the other and inflicts at least one hull box of damage, the link is broken and the procedure must be restarted from the beginning.

Once linked, the two ships move as if they were in a line ahead squadron formation. Multiply the mass of the towing ship by its main drive rating: this is the available thrust. Divide the available thrust by the combined mass of the linked ships and round down to the nearest whole number: this is the thrust rating of the linked ships.

(If the thrust rating of the linked ships rounds down to zero, the tow can still succeed, but the time required will be many hours or days, outside the time frame of a FULL THRUST battle.)

Example: A salvage ship with mass 80 and thrust 4 attempts to tow a dreadnought of mass 160 that has no operational main drive. It is currently drifting at velocity 3, course 9. The salvage ship first matches velocity and course within 3 MU, then spends one turn establishing a link. The salvage ship has mass $80 \times \text{thrust } 4 = 320$ available thrust. Dividing this by the combined mass of $80 + 160 = 240$ gives $320 \div 240 = 1.5$, thrust rating 1 for the linked ships.

12.4 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.)

12.5 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.

12.6 Docking

Ships may attempt to dock with other ships or with starbases (section 13.7) although this is unlikely during combat. To accomplish a docking, the ship's movement orders must be planned so that it ends up within 3 MU of the target ship/starbase at the end of the turn. If the target is stationary, the ship must also come to a dead stop, otherwise it must exactly match both course and velocity with the target ship or starbase at the end of the turn. On the following turn, the ship may be taken as docked. One full turn is also required to 'cast off' and undock again, after which the ship may manoeuvre as normal.

12.7 Ramming

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**.

(Very small ships that ram, such as Autonomous Kill Vehicles with AI pilots, are represented in FULL THRUST by missiles or torpedo fighter groups.)

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.

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 ship's thrust ratings. If the attacker ends up with the highest total, the ram is successful. If the target's 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) hull boxes 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.

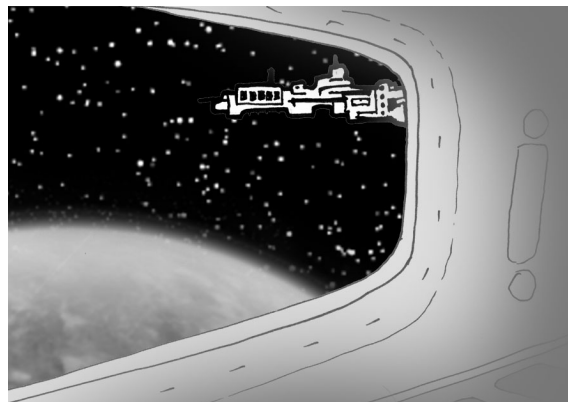
Example: A corvette with 2 of its original 3 damage points left actually succeeds in ramming an undamaged heavy cruiser with all 16 of its damage points. The corvette player rolls a 4, which inflicts 8 points of damage on the cruiser. The cruiser owner rolls a 3, thus doing 48 points to the corvette. 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.

Ramming ability

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.

Any ship that can automatically attempt to ram should have an extra cost of at least +1 per mass of the ship, which represents the difficulty of indoctrinating crews willing to sacrifice their own lives, the cost of a fully automated ship with remote controls or AI pilot, or the remote hive mind/queen intelligence controlling expendable beings.



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 suggestions are mostly pure space opera and anyone who has seen a few episodes of the typical science fiction television show will doubtless be able to think of lots more!

13.1 Asteroids

Asteroid is used in this section for all asteroids, planetoids, comets, starbases, orbitals, and all other Really Big Things. Asteroids can either be stationary, or be thrust 0 objects with a predetermined course (section 12.1) and velocity.

Ships cannot block line of sight or line of fire, but bodies such as asteroids do have a significant size in relation to the playing area and therefore are able to block lines of fire or sensor detection and pose a collision risk. 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. (Between centre points of models, remember.)

If, however, you are using irregularly shaped asteroid models, such as foam chunks, then it is necessary to mount them on bases, perhaps 1 to 6 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 solves any disputes that could be caused by the irregular shape of the asteroid model itself.

If the line of sight between opposing ships is blocked by an asteroid, those ships may not fire at each other with any weapons, or place missiles along that line. Fighters may still fly around the asteroid to attack as normal.

Example: In figure 30, ship A has a clear line of fire to ship C, but cannot engage ship B due to the intervening asteroid.

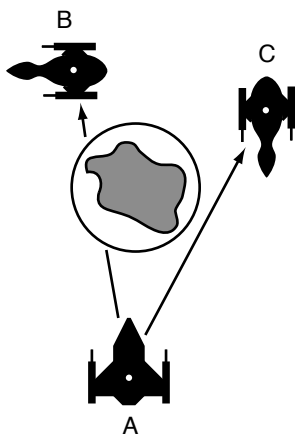


Figure 30: Combat in asteroid field

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 that this blocking applies equally to active scan attempts as to passive.)

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 at 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...

13.2 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 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 or grasers 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.)
3. Fighters always lock on, but treat the target as having one screen level higher as for beam weapons.

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.

13.3 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 a 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 as if by a threshold check.

13.4 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 planet such as Saturn, in which case a large arc of it could be depicted on the table to cause all sorts of problems!

13.5 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 it 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.

Depicting spatial phenomena

The various effects suggested above may be represented on the table by means of pieces of card, cloth, or acetate 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.

13.6 Collisions

Collisions can occur between ships and asteroids.

If the asteroid is stationary - ie never changes position on the playing area - then a ship risks collision with the asteroid if its path during the movement phase crosses any edge of the asteroid.

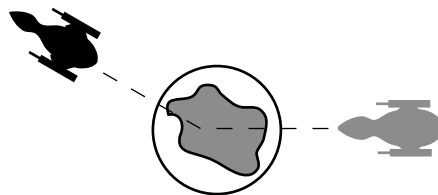


Figure 31: Collision with stationary asteroid

If the asteroid is itself moving, a collision risk can occur under either of these circumstances:

- The movement path of the asteroid brings it into contact with a ship at any point. (This is before the ship itself has moved, at the beginning of the movement phase.)
- The final position of a ship after making its move is inside the asteroid.

Collisions do not occur if the movement paths of the asteroid and ship merely cross. Use the base or model edges of the asteroid and the centre point of the ship model to determine collisions, not the edges of the ship model.

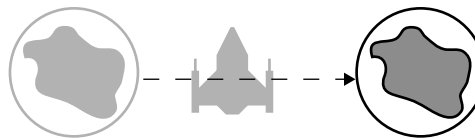


Figure 32: Moving asteroid collides with ship

These collision rules are simple rather than physically accurate, but do ensure that as the movement of both asteroids and ships is completely predictable, you have only yourself to blame if you run into one!

To determine if the ship manages to avoid a fatal collision, subtract the ship's total available thrust rating from its current velocity. This number must be equalled or exceeded by the roll of 1D6 in order for the ship have avoided the collision.

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!

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!

13.7 Starbases

A *starbase* is any space station, habitat, drift, orbital, asteroid base, or other artificial construct large enough to be treated as terrain rather than a ship. A starbase is always thrust 0 for movement.

A starbase has one or more *sections*, each with its own SSD. For game purposes these are considered to be arranged on a hexagonal grid with each section having a central point for determining fire arcs and ranges.

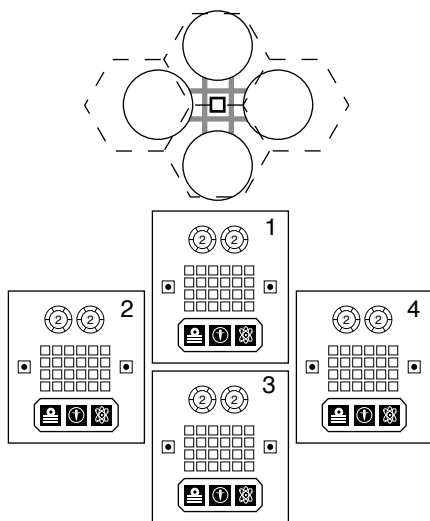


Figure 33: Starbase and SSDs

(The hex grid is purely to determine spatial relationships, ie 'is this bit next to that bit?', and the actual sections can be any desired shape.)

Each section has at least symbols for core systems and a hull damage track, plus weapons or defences as appropriate. Non-military starbases should have many small sections to represent their less robust construction.

Like asteroids, weapons may not be fired or missiles launched by ships through the space occupied by a starbase.

Individual sections may fire or be fired at if they have a direct point to point line of sight, or through sections that have already been destroyed. 'Interior' sections are therefore immune to attack until at least one outer section has been lost.

In figure 34, the ship and sections 2 and 4 can fire at each other, but sections 1 and 3 cannot. Sections either have no drive or a comparatively much smaller drive than a ship, so are not affected by rear arc firing limitations or vulnerability.

If a section of a starbase is destroyed by a core reactor explosion, all immediately adjacent sections take 3D6 of penetrating damage. If this also destroys those sections, repeat the process again: this can create the chain reaction of explosions so often seen in sci-fi television and film.

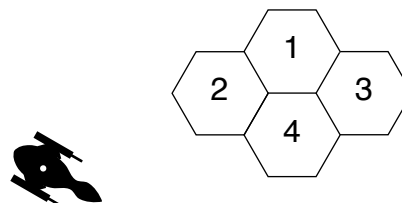


Figure 34: Starbase combat

Movement and starbases

The mass of a starbase represents only that used for ship equivalent systems. The true mass would be many times higher: you cannot use a tow ship or FTL tug to steal a starbase or sections thereof!

While a ship is docked to a starbase 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 starbase has while docked. Whether a ship docked externally to a starbase can fire any of its own weaponry is up to the players or scenario designer.

Should a starbase happen to have an FTL drive, the symbol should be in the innermost or best protected section. Assume that it has enough excess capacity to carry along any docked ships with it.

A starbase is the same collision risk as an asteroid. If a collision occurs the ship is destroyed and the nearest starbase section takes $D6 \times$ ship hull boxes damage as if it had been rammed.

13.8 Planets

For FULL THRUST purposes a *planet* includes not just planets but also major moons and even suns at the larger scales: any stellar body with a significant gravitational effect on space-ships. Planets block lines of fire like asteroids and starbases, but instead of collisions ships must enter or leave orbit, or enter the atmosphere.

In this section we present three different possible systems for representing planets at varying scales. Pick the one that best suits your scale or scenario.

Orbital table

At this scale the table represents an area at a given orbit radius above a planet (plus or minus some distance - higher velocities are 'lower'), with the equatorial orbit path running between the centres of the short edges and a polar orbit across. The planet itself would be underneath the table.

A ship can leave the table at any time to make an orbit around the planet. When it does so, record the ship velocity, course, and distance from the nearest table corner at the point of exit.

A number of turns later, the ship can enter again by being placed before orders on the opposite edge at the same velocity and course, and within 6 MU of the same distance from the diagonally opposite corner edge.

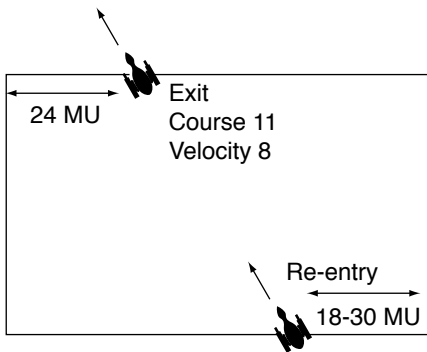


Figure 35: Orbital table

Thrust 0 or 1 ships cannot enter until the 5th turn after exiting, thrust 2 to 4 until the 4th, and thrust 5 or greater the 3rd. (This assumes that the ship is making a powered atmosphere skimming circumnavigation rather than a genuine orbit, plus a bit of dramatic license.)

Whether fighter groups can orbit is optional but not recommended: making the orbit would consume too much fuel for such small craft.

Medium scale

At medium scale a planet should be represented on the table by a half sphere, although a plate or disk will suffice. Decide whether the planet can be landed on or that contact with the planet will be a fatal collision.

The edge of the planet is the orbit track and should be marked with 12 clock face points. The orbit track has an entry velocity and an orbital speed in clock faces per turn.

A planet may have satellites or starbases in orbit. These move at the orbit speed of points per turn around the orbit track, and always face 'away' from the centre of the planet.

A ship enters orbit with any move that intersects the orbit track at the entry velocity and is placed at the nearest marker point. 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* and moves the ship by a number of points equal to the orbit speed around the track. Any velocity change will cause the ship to leave orbit, either down or up.

If using cinematic movement, ships in orbit face forward in the closest course facing to the orbit path at that point. In vector movement, ships may change facing as usual. Ships in orbit may fire at any ships outside the orbit track, or at ships at the point immediately in front or behind.

For simplicity we recommend only one ship or starbase may occupy each marker point, or only ships from the same side.

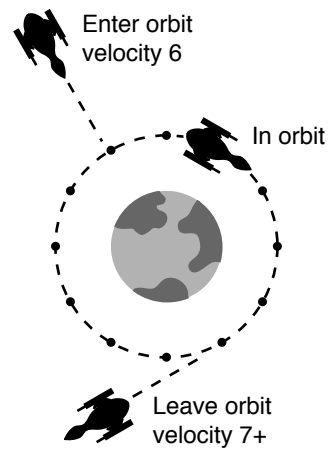


Figure 36: Orbiting a planet

If you do allow hostile ships within the same point, they may fire at each other as if at 1 MU range, through any arc the firing ship chooses. Missiles home in on a target chosen by random die roll.

Entering and leaving orbit

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 (section 13.9). If it arrives with greater than the correct velocity it will ram straight into the atmosphere in an uncontrolled entry – you have been warned!

If the ship decelerates to less than the orbital velocity, its orbit will decay and it will start to enter the atmosphere. 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.

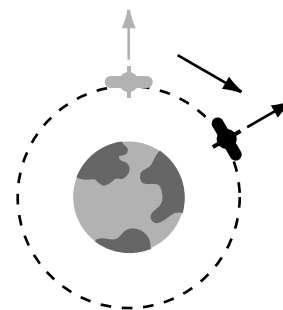


Figure 37: Orbiting starbase

Any ship that suffers a drive or bridge threshold failure while in orbit must make a second threshold check to stay in orbit. If this too fails, the ship orbit has decayed and it enters the atmosphere.

Large scale

These rules are for those who prefer their space battles on a grand scale with the table representing a significant chunk or all of an entire solar system.

Represent planets by small disks up to several MU in diameter, much smaller than for medium scale. A planet is surrounded by three concentric gravity zones, each extending the radius by at least 1 MU. The outer zone is strength 1, the middle strength 2, and the innermost 4. For large planets increase the radius of the zones; treat a sun as a large planet with an extra inner zone of strength 8.

If the movement path of a ship intersects a gravity zone, pause the ship in the innermost zone contacted and adjust the speed and course as follows.

First, determine where the centre of the planet is relative to the ship.

- If the centre is in the fore arc of the ship, add the zone strength to the ship velocity.
- If the centre is in the aft arc, subtract the zone strength from velocity.
- If the centre is in a port or starboard arc, add half the zone strength to the velocity, and turn the ship towards the centre by a number of points equal to the strength of the zone.

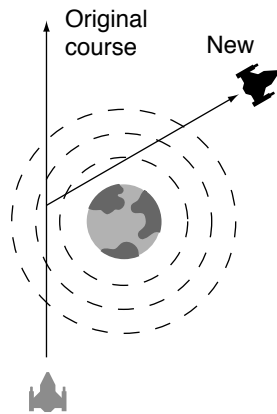


Figure 38: Slingshot around planet

If the ship ends the movement phase in a gravity zone, apply the changes in velocity and course to the start of the next turn movement instead.

A ship that has unused thrust points for changing course may use them to change the gravity zone turn. In figure 38, the ship changes course by 2. If it were a ship with thrust 4 drive and had not changed course, it could increase this up to 4 or decrease it down to none.

The velocity increase may not seem very high, but remember at this scale, the ship must already be moving at considerable speed.

The ship is considered to make a partial orbit within the zone while changing course, so cannot collide with the planet or enter another zone even if the straight line path would indicate otherwise. After leaving it can however intersect the gravity zone of another planet which will change the course and velocity again – clever players may be able to bounce their ships around like billiard balls.

13.9 Atmospheric entry

A fully or partially streamlined ship 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 or approaching a planet at too high a velocity.

To make a deliberate safe atmospheric entry, a ship must first enter orbit as described above and then decelerate to less than orbital velocity. A fully streamlined (capable of aerobraking or gliding) ship can land provided it has some main drive thrust. A partially streamlined ship can land if it has main drive thrust at least equal to the planet gravity in Earth Gs; if it has insufficient thrust it will make a crash landing with the effects being up to the individual scenario.

If any ship without streamlining enters atmosphere, or a streamlined ship makes an uncontrolled entry, 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 entry orbital velocity.
- Add 1 if the 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), fighters, or life pods on board to launch.

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



14 No! Not the Nova Cannon!

The intention behind these optional (*extremely* optional) rules is to simulate some of the weird and wonderful weapons seen in television and film that operate with a blatant disregard for the laws of physics and common sense. As they were never meant to fit in with the basic game system, they can do very strange things to the game balance. We 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.

14.1 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, it launches a round of compressed plasma in a containment field and a nuclear or anti-matter explosive core. 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 contents 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.

Damage from a nova cannon is penetrating damage: neither type of screen nor armour has any effect.

14.2 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 unscreened 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 on any turn. Firing the wave gun totally discharges the capacitors, which must then recharge from zero again. 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.

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.

Advanced screens affect wave gun damage rolls, but against standard screens or armour the damage is penetrating.

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.

14.3 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! 'Energy weapon' includes beams, grasers, fighters, and any other weapon affected by standard screens.

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 energy 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!

If a fighter group attacks a ship with an active reflex field, roll a single D6 for the entire group after rolling fighter attack damage. Rolls of 1-4 have the effect described above. On a roll of 5 or 6, each fighter that inflicts any damage is destroyed by the reflected energy.

14.4 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. (A 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 write 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!

Mass and points cost

System	Mass	Points
Nova cannon	20	60
Wave gun	12	36
Reflex field	10% total mass minimum 10	× 6
Cloaking field	10% total mass minimum 2	× 10

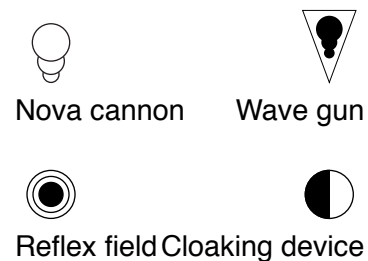
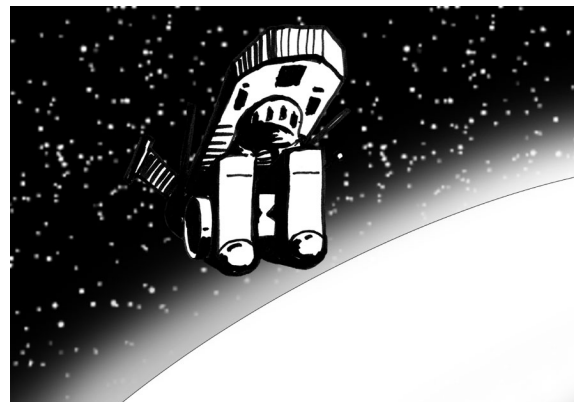


Figure 39: SSD symbols



15 Battles and Campaigns

Space battles may be fought in a vacuum, but the commanders will still have some purpose or objective in mind. Once you are familiar with the rules, we strongly recommend the use of terrain and planets to make the games more interesting, and scenarios with objectives other than a simple 'beat up the enemy'.

15.1 Deployment

A conventional if uninspiring way to begin the battle is with fleets at opposite short ends of the table in a 'meeting engagement'. Players alternate in placing one ship at a time within 6 MU of their table edge (or two to four ships at a time for large battles) with any desired course and an initial velocity.

Space does provide much more freedom of movement than a planetary surface, so there is no reason not to use other deployments. One likely scenario is two fleets heading for the same objective on converging courses. Players deploy their ships along the opposing long edges of the table up to the half way mark, within 6 MU of the edge and initial course limited to 11, 12, or 1.

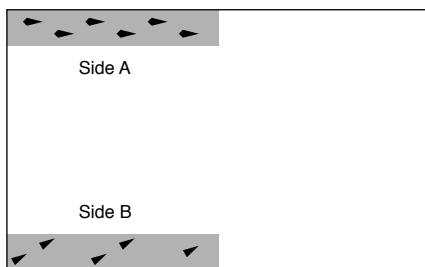


Figure 40: Converging deployment

For a battle between offensive and defensive fleets, the defending fleet deploys all its ships first anywhere within their own half of the table. The defender can also place a planet or similar terrain feature anywhere they desire. The attacking ships can either enter under main drive at the opposite table edge, or (if permitted) some or all may make an FTL entry.

Big battles

Very large battles with dozens of ships will flow more smoothly if threshold point checks are postponed instead of being done immediately. (Optional rule in section 2.6.) With one player per side, use 'simultaneous' fire with all threshold checks done at the end of the turn. With more than one player per side, postpone threshold checks for any ship that is itself about to fire or that is going to be shot at by multiple ships in succession, until they can be done while another player is firing. A free flowing game with a minimum of waiting is more important than rigid adherence to the turn sequence.

15.2 Tournament fleets

Ship designs for competitive tournaments need to be controlled, for instance by restricting players to only designs given in the FULL THRUST fleet books, with no modifications, changes in weapons, etc. (Players can of course use their own ship models even if they don't resemble the 'official' designs.) 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.

Fleets should be kept fairly small to allow games to be played to completion in a reasonable time. The ideal size is probably between 1000 and 1500 points in total, though fleets as small as 500 points can still be interesting. Forces of over 3000 points will probably be too large unless plenty of time is available.

To finish games faster, disallow repairs to systems (section 8.3) and/or use the optional Striking the Colours rules (section 10.9).

Fleet composition

Battles can be made more interesting by restricting the proportions of different ship classes as well as the overall points total.

For 'patrol' battles, restrict fleets to having no capitals at all and no more than 50% of the points spent on cruisers. Allowing small carriers is optional but not recommended.

For larger battles, you can restrict fleets to no more than 50% of points spent on capitals, including their fighters; or require that each capital class ship must have one or two corresponding cruisers and escorts. Or you could decide that large 'fleet actions' can be fought entirely by capital class ships with no requirement to have smaller ships present. Either can be argued based on historical precedent or different science fiction settings, so feel free to experiment.

15.3 Combat Points Value

Experience has shown that the FULL THRUST points system does not fully reflect the advantages of increasing ship size: one larger ship will usually defeat two ships each costing half as much, even though the combined points of the two sides are equal. The *Combat Points Value*, CPV, is a more complex method of calculating the points value for each ship that gives more equally matched battles when ships of different classes are mixed together.

The simple CPV calculation changes only the basic hull cost calculation (section 11.2). Instead of being equal to mass, the points cost for the hull becomes

$$\text{hull} = \frac{\text{mass}^2}{100}$$

rounded off to the nearest integer.

(If the ship has mass 7 or less the CPV calculation would give zero as the hull cost, but in FULL THRUST everything must cost at least 1 point.)

The effect of the simple CPV is that ships with mass below 100 become cheaper, over 100 more expensive. The change to the points value can be calculated by subtracting the actual ship mass from the CPV hull value.

For example, the *Suffren* class light cruiser from FLEET BOOK 1 has mass 54 and a points cost of 181. Using the CPV calculation, the hull cost is

$$\frac{54^2}{100} = \frac{2916}{100} = 29$$

a reduction of 25 points for a new total points cost of 156. On the other hand, an *Excalibur* class dreadnought has mass 140 and points cost 472. Using the CPV, the hull cost is

$$\frac{140^2}{100} = \frac{19600}{100} = 196$$

an increase of 56 for a new total points cost of 528.

The simple CPV given here is still unbalanced for some cases. A more elaborate method of CPV calculation is online at <http://fullthrust.star-ranger.com/CPV.htm>

15.4 Humour

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

There is quite a lot of good science fiction 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!

15.5 The GZG setting

The ultimate source of interesting battles is a campaign. This can be anything from a series of linked battles with only the survivors from previous actions able to keep fighting, up to a full fledged 'space opera' where each player represents a major power and must worry about politics and economics as well as simple combat. What all campaigns do need though is some sort of setting so the players know who is who and what resources are available.

The GZG setting, or 'GZGverse,' is the background and reference for FULL THRUST and companion GZG products such as the STARGRUNT and DIRTSIDE ground combat rules. It has been developed and expanded for well over a decade, so there is only space for a very brief introduction here. For more information, read the relevant sections in the FULL THRUST 2nd edition rulebook and the two Fleet Books.

Please treat this background just like any of the 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!

The GZGverse future history begins (or began) in the 1990s, but the period covered by the rules is roughly 2160 CE (AD) to, so far, 2194.

The major technological advances are efficient space travel and the development of a faster than light drive, widespread use of compact and powerful energy sources, and the early stages of artificial gravity. The GZGverse is neither transhuman nor approaching a singularity. Human biology has remained almost the same, while ethnic, religious, and national rivalries continue unabated or even intensified.

Earth remains the central planet of humanity. Surrounding it are the inner colonies, long settled worlds divided among the major powers. The outer worlds beyond are home to a staggering variety of colonies, factions, and settlements.

The two superpowers of the GZGverse are the New Anglian Confederation (NAC), present day Britain, Canada, and United States; and the Eurasian Solar Union (ESU), present day China, India, and most of Russia. The other two major powers are the Federated States of Europe (FSE) and New Swabian League (NSL) which between them include almost all of present day Europe. The fleets used by these four major powers are described in FLEET BOOK 1.

Twenty second century warfare can be so destructive that the major powers, reluctantly, have allowed the United Nations sufficient authority to maintain an uneasy peace on Earth and the inner colonies. Diplomatic and military struggles for power and influence have largely shifted to the outer worlds. The United Nations Space Command (UNSC) and some of these outer world fleets have not yet been published in book form, but can be found online.

Beginning in 2183 humanity met three different alien races in quick succession. The Sa'Vasku are ancient and enigmatic, relying on living biological technologies. The Phalons are

similar enough to humans to be allies, enemies, or trade partners – but by human standards are exasperatingly changeable and can be all three on different days.

The third are the Kra’Vak who are much more consistent in their approach to humanity: consistently hostile. 2185 is the official date for the start of the Xeno War between humanity and the Kra’Vak. The war has seen the United Nations become a major power itself, and the introduction of advanced weapons and systems for a new generation of human warships. (The older designs remain in service, especially among lesser powers.)

The Sa’Vasku, Phalon, and Kra’Vak fleets are described in FLEET BOOK 2. The current GZG history stops at 2194, with Earth itself under threat from a massive Kra’Vak attack.

15.6 The cross dimensional setting

Or “Hey! How did the Daleks get hold of a Death Star?”

FULL THRUST makes it possible for fleets from different systems, galaxies, or universes to do battle with each other. As every TV sci-fi viewer knows, space is cluttered with tachyon bursts, negative polarity fields, and quantum singularities that routinely push ships back and forth in time, into parallel universes, or even other dimensions. If ships, why not whole fleets or solar systems?

If you do decide to bring fleets from different settings together, it is best to require that players translate all designs into those allowed by the standard FULL THRUST rules only. This is contrary to advice given everywhere else in this rulebook, but the more you modify the rules to match a particular setting, the less suitable those rules become for ships from different settings.

Restricting ships to the standard rules will upset players who want to use the MkIX MegaCannon with the Viridian Amplification Element as seen in episode 64, but it is by far the easiest and also fairest method. (In the worst case, “fair” in that everyone will be equally disappointed.)

The first step in converting from another setting to FULL THRUST is to determine the role of each ship, whether escort, cruiser, or capital. This will give an initial mass range for the design. If feints and rapid strikes are important in battle then the drive ratings should be higher than in settings in which the opponents plough straight into each other like herds of dinosaurs.

If ships grind away at each other in drawn-out firefights, the designs should allocate more mass to defensive systems and hull and less to weapons. In other settings ships frequently explode with the first good shot, so should be designed with plenty of weapons and little or no protection. Most science fiction ships use beams of some sort, but there may also be torpedo like weapons, or missiles.

You will find that FULL THRUST is flexible enough to recreate the distinctive fighting styles of different fleets even without one for one equivalents and special rules. And it’s lots of fun.



Quick Reference

Turn Sequence

1. Write orders.
2. Roll for initiative.
3. Launch missiles.
 - Ship by ship
 - Initiative launches second
4. Move fighter groups.
 - Launch groups, half distance
 - Other groups one by one
 - Initiative moves second
5. Move ships.
 - Fixed movement objects
 - Minelayers
 - Normal moves
 - FTL entry or exit
6. Secondary fighter moves.
7. Allocate missile and fighter attacks.
8. Fighters against fighters or missiles.
9. Missiles and fighters against ships.
 - Ship by ship
 - Point defence fire
 - Fighters and missiles attack
 - Threshold checks after each
10. Ships fire.
 - Ship by ship
 - Initiative shoots first ship
 - Threshold checks after each
11. Damage control.
 - Repair rolls
 - Core System effects

Movement

1. Turn half, rounded down
2. Move half, rounded down
3. Remaining turn
4. Remaining move

Standard max turn is half thrust rounded down.

T or H fighters 18 MU; F 36; others 24.

Defence

- Armour
 - Half rounded up, each layer
- Screen
 - Beams, grasers, non-Torpedo fighters
- Advanced screen
 - Subtract 1 per level from damage die
 - SMP affected as if beam vs screen
 - Torpedo fighter -1 damage per level
- Penetrating weapons ignore defences

Ship fire vs fighters

1. Announce weapons fire
2. Option to evade 1 CEF
3. 1D6 per weapon, 6 = 1

Ship fire

- Beam

D6/range	0-12	12-24	24-36		
Class 1	1	-	-		
Class 2	2	1	-		
Class 3	3	2	1		
		Unscreened	1-3 = none	4,5 = 1	6 = 2
Beam damage	Level-1		1-4 = none	5 = 1	6 = 2
	Level-2		1-4 = none	5 = 1	6 = 1

 - Re-roll on 6, penetrating
- Graser
 - Hit as for beam, 18 MU range bands
 - D6 DP per hit, no re-rolls
- Torpedo

MU	0-6	6-12	12-18	18-24	24-30
Hit	2+	3+	4+	5+	6

 - D6 DP from hit
 - +3 MU to bands per class above 1
- SMP
 - 0-6 MU 3D6, 6-12 2D6, 12-18 1D6
 - Damage as beam, re-roll on 6
- Needle
 - Range 12 MU, penetrating
 - 5 = 1 DP, 6 = 1 DP + system
- Missile
 - Range 24 MU, Extended 36
 - Salvo: D6 in salvo, D6 each
 - Heavy: 3D6
- Point defence
 - Unarmoured, unscreened targets
 - 6 = 1 DP, no re-roll

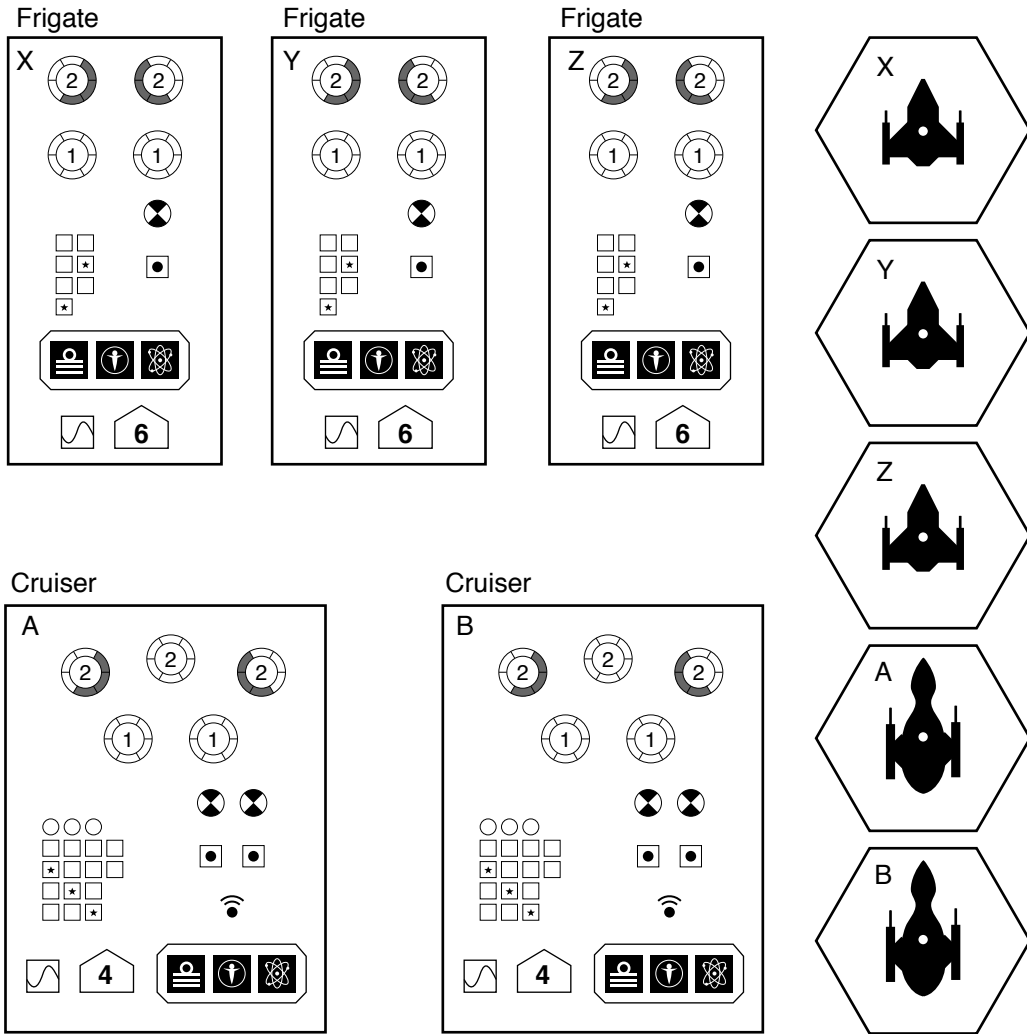
Point defence

- PDS vs
 - Fighter or salvo: 4,5 = 1, 6 = 2 + re-roll
 - Heavy fighter: 5 = 1, 6 = 2 + re-roll
 - Heavy missile: 5, 6
- Beam-1 vs
 - Fighter or salvo: 5 = 1, 6 = 1 + re-roll
 - Heavy missile: 6
- Scattergun rolls four PDS dice.

Fighters

- vs ship
 - Interceptor, no CEF: none
 - Torpedo: 4,5,6 = DP
 - Other as beam-1, Attack +1
 - Kinetic ignore standard screen
- vs fighter
 - Attack, Torpedo, no CEF 6 = 1
 - Other as PDS, Int +1
- vs missile
 - Attack, Torpedo, no CEF: none
 - Salvo: 5 = 1, 6 = 1 + re-roll, Int +1
 - Heavy: 6 = 1, Int +1

Introductory SSDs and counters



Turn 1 2 3 4 5 6 7 8

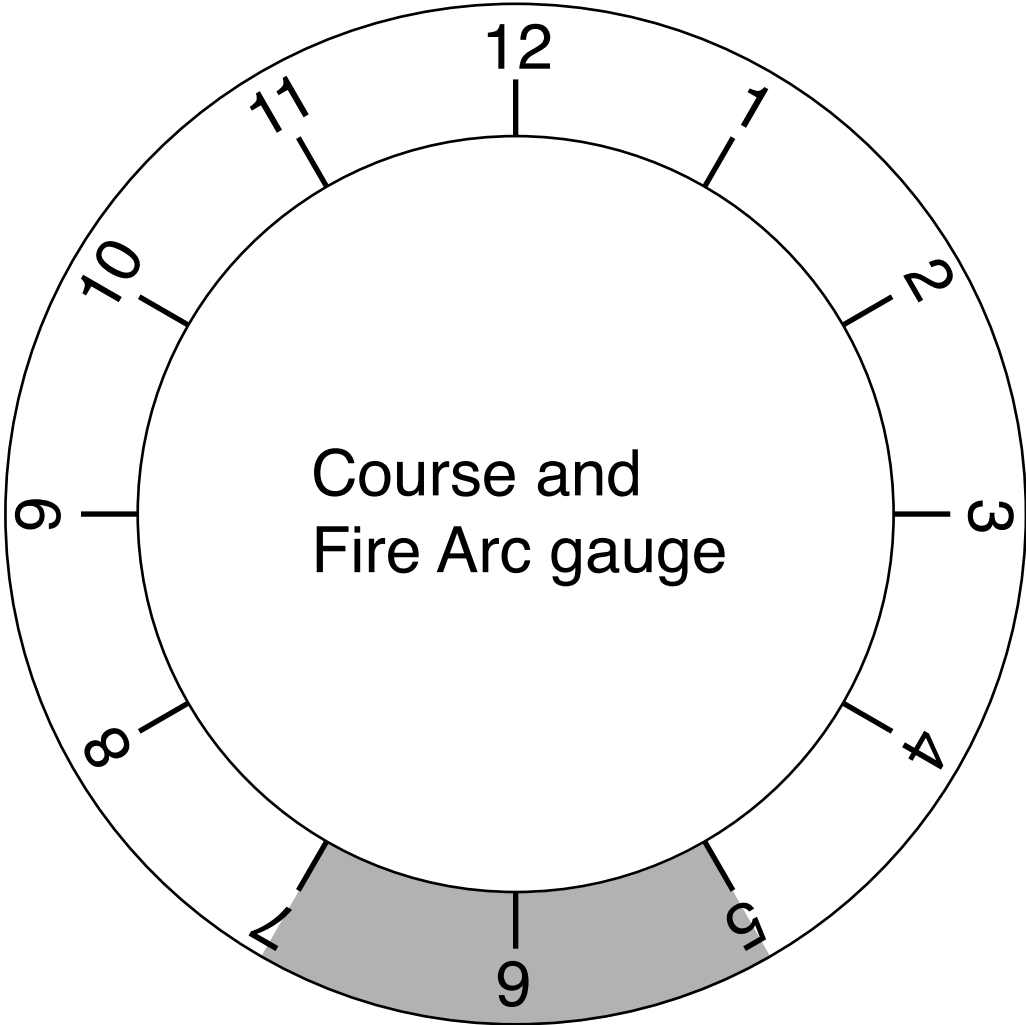
Cruiser A V: 6 _____

Cruiser B V: 6 _____

Frigate X V: 6 _____

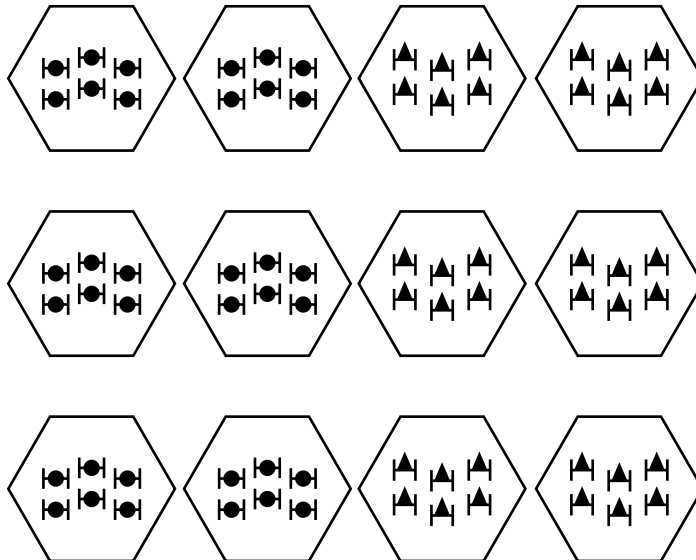
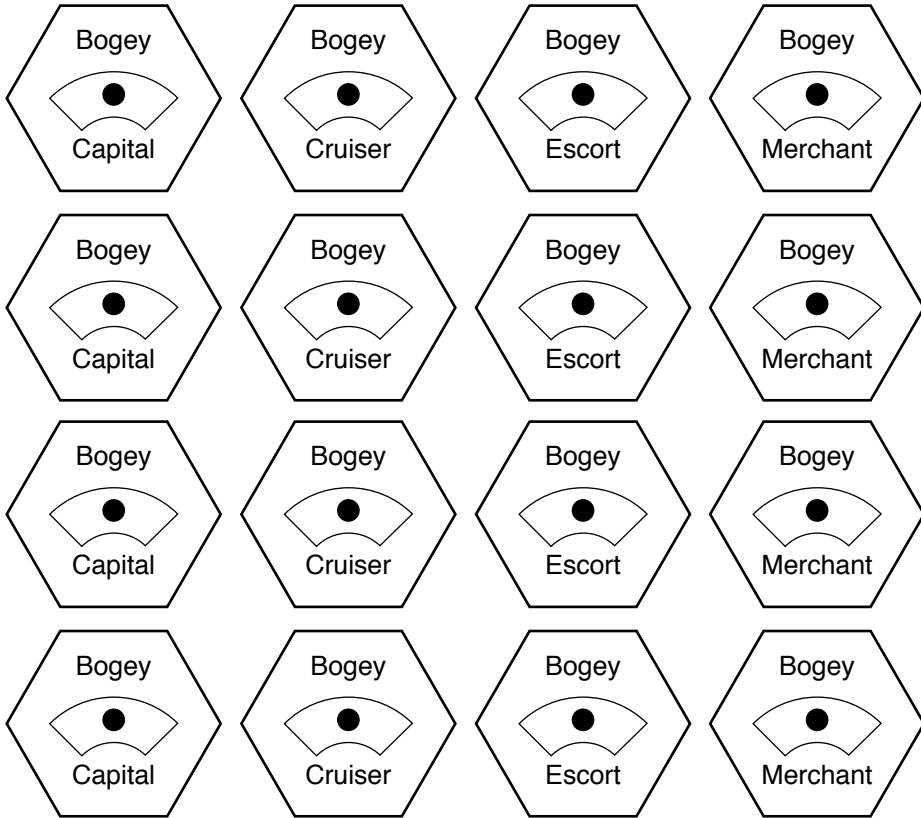
Frigate Y V: 6 _____
















Frigate Z V: 6 _____



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