Advent of Galactic Wars

Completely Unauthorized
Kitchen Sink Edition

Revisions A through C: Richard L. Bax Jr. (12/15/08)

Completely Unauthorized Kitchen Sink Edition: Kevin A. Muñoz (current draft 4/17/13)

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1.0 Introduction

Welcome to the Advent of Galactic Wars generic rule set. This product provides a set of generic rules for task force level combat in deep space and acts as an easy reference allowing new players to jump right in.

1.1 What is Advent of Galactic Wars?

Advent of Galactic Wars, or AoG Wars, is a tabletop game of spaceship combat. The intent of the game is to provide an exciting starship combat experience that is in-depth and detailed, yet highly manageable. With this game, you'll be able to participate in battles ranging from simple ship-on-ship duels up to large fleet actions with 10 or more ships (and their fighters) per side—without getting bogged down in complex rules and calculations.

1.2 What You Need to Play

For a basic game of AoG Wars, you need these rules, a few ship or fighter control sheets, any hexgrid map, some dice, and a set of counters or miniatures to represent your fighting units. You also need a table (or other convenient flat surface) and one or more opponents, but you'll have to find these yourself.

1.3 Control Sheets

Ships and fighters are represented in AoG Wars using control sheets, which are graphical representations of those units. Ship systems, such as weapons and thrusters, are shown as icons on the control sheet, and each icon is made up of a number of damage boxes that are crossed off when destroyed in battle. Feel free to photocopy the control sheets as needed for use during play (but only for personal use).

A sample ship control sheet is shown on the next page. This example shows how the *Epimetheus* heavy cruiser is displayed for game purposes. The important parts of the ship control sheet, or SCS, are labeled for easy reference. A more detailed explanation of each follows:

Ship Datacard: This set of three information boxes shows the ship's vital statistics, such as ship class (in this case a capital ship), in-service date for this model (2193), and other info. The various numbers in these boxes will, like many of the other details listed here, be explained in more detail later in this book.

Ship Type & Model: This shows the type of ship (*Epimetheus*) and any model, if applicable. If the ship is a variant of another type, this fact will be listed above the type name.

Revision Info: The revision number and source of this SCS. If this sheet is later updated, the revision number will be incremented so you can tell if you have the most recent copy.

Combat Point Cost: This value is used as an approximate representation of the ship's value against other units in the game It is used most often for balancing scenarios or generating free-form battles. See "Scenarios" later in Section 1.6.

Ship Diagram: Most control sheets show some kind of diagram or image letting you know what the ship actually looks like, allowing you to match it easily with its miniature during play.

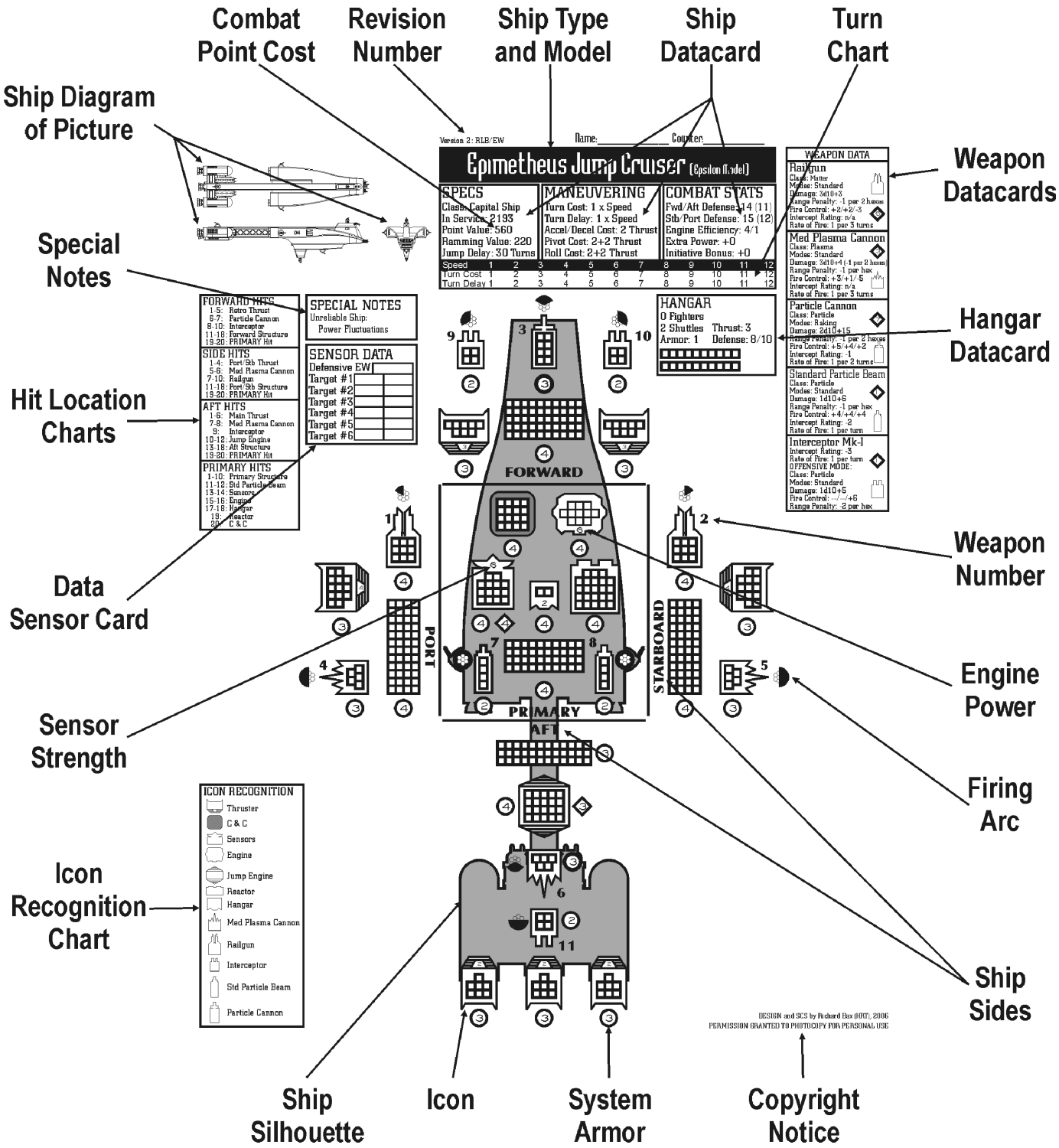
Special Notes: This box (if present) shows anything special about the ship. In this case, the box notes that *Epimetheus* is an Unreliable Ship, subject to Power Fluctuations, attributes that are explained in Section 10.9.

Hit Location Charts: When a hit is scored on the ship, the firing player rolls on this chart to learn which system was damaged by the incoming fire. Each ship has a unique hit location chart, which is typically located on the upper left side of the SCS.

Sensor Data: Used to record the ship's sensor allocations. Each turn, your use of electronic warfare will be recorded in this block. See Section 3.3 on EW for more information.

Sensor Strength: This number, always found in the sensor icon, shows how much electronic warfare is produced each turn by the ship's sensor system.

Icon: These shapes represent various ship systems. The one shown here is a thruster, distinguished by its "nozzle" shape. The icon recognition chart will help you identify other icons.



Icon Recognition Chart: Used to identify the icons by shape. After a few games, you'll begin to recognize these at a glance, particularly the more common icons such as thrusters, engines, and sensors.

Ship Silhouette: This shows you the basic topview shape of the ship, which will help you identify if when using counters to represent ships on the map.

System Armor: Almost all systems are armored against incoming damage. The strength of this armor is shown inside a small circle next to the system icon. The value shown is subtracted from any damage volley before any hits are marked against that system (see Section 5.5.2 for more information).

Engine Power: The amount of free thrust produced each turn by the ship's engine is shown as a number within the icon, as shown in the example. Engines are described in Section 4.3.

Shuttle Datacard: Stats for shuttles normally used

by the ship are shown in this datacard. Most shuttles are unarmed (and have no Combat Point cost), but some units use an armed version. To use one, pay the cost in Combat Points, and deploy them using the rules for Hangar Operations in Section 10.1. If you do not pay for the armed version, you'll use an unarmed version instead. Some vessels use special types of shuttles (assault varieties or breaching pods, for example), and if so, they will also have their own datacards on the ship control sheet.

Firing Arc: Weapons, shields, and other directional systems have an arc display located next to them. This not only shows the direction in which they can fire (or block incoming fire), but also often affects whether or not they can be hit by incoming shots. For more information, see the Section 5.2.1.

Ship Sides: Most ships have a forward, port, starboard, aft, and primary side, for use in various rules. The lines, if present, indicate where ship sections begin and end. As a capital ship, *Epimetheus* has forward, port, starboard, aft and primary sections. Other types of ships will have fewer while bases often have a variety of different section arrangements.

Weapon Number: All weapons and shields on a ship have a number for easy identification. The most common use for this is to easily specify which weapon(s) is/are being shut off for extra power; as described in Section 3.1.2.

Hangar Datacard: Ships with shuttles or fighters will have this box, which indicates the number of unarmed shuttles and fighters they carry. If there are more than one hangar, there will be multiple hangar datacards. If the ship normally carries unarmed shuttles, their damage tracks will appear in this box.

Weapon Datacards: Each weapon type on the ship will have its own datacard in this section of the SCS. These cards display the statistics for weapon class, firing modes, damage, range, and so on. The value in the diamond represents the amount of power required to operate the weapon. In addition, a small version of the weapon icon is shown for easy reference.

Turn Chart: This handy chart can be used as a quick reference to determine turn costs and turn delays for this ship at lower speeds. For higher speeds, simply extend the chart using the obvious logical progression (e.g., speed 13 would require a cost and delay of 13). Rules for turning are found in Section 4.5.

1.4 Fighter Control Sheets

Fighters are an important part of AoG Wars. Carried by many ships, they provide additional firepower and a significant force projection ability to any fleet. A task group with superior fighters has an advantage over any comparable opposition. With their high speed, low profile and incredible maneuverability, fighters can go places and do things no ship could hope to accomplish.

In the game, fighters are represented with their own special type of control sheet referred to as a fighter control sheet, or FCS. Though it shares many of the same features as an SCS, the FCS has enough differences to warrant its own section in these rules. A description of each item found on the FCS follows:

Fighter Type: This shows the race and type of fighter.

Fighter Datacard: Displays the vital statistics of the fighter; including its Combat Point cost (per fighter), year in service (for this version), class (light, medium, heavy, etc.), and so on. Combat stats are shown in the exact same location as similar data appears on an SCS's ship datacard. There are some differences, however (e.g., fighters have free thrust and offensive bonuses listed instead of engine efficiency and extra power). These are explained in the Section 4.12 and Section 6 on Fighter Combat

Illustration: A drawing or image of the fighter. Firing arc: This display shows the firing arc used by the fighter's main weapons The arc shown is typical for most fighters, though some use wider or offset arcs.

Armor-values: Fighters have armor values in four directions: forward, port, starboard, and aft. These are arranged on the armor diagram.

Flight Number: Each flight on the FCS is displayed separately. Typical sheets include up to 8 flights, although this sample shows only two to conserve space (the others are all identical to the first two). Each flight holds 6 fighters,

as shown to the right of the silhouette. Note that in AoG Wars, flights of 6 fighters always fly together and share the same statistics, except for internal hits (represented by structure).

Silhouette: A top view of the shape of the fighter.

Structure Boxes: Each fighter has its own block of structure, consisting of a number of boxes that are checked off as damage is applied The fighters shown have 15 structure each (and so take 15 damage to destroy), which is relatively high as fighters go. The average fighter has 10- 12 points of structure.

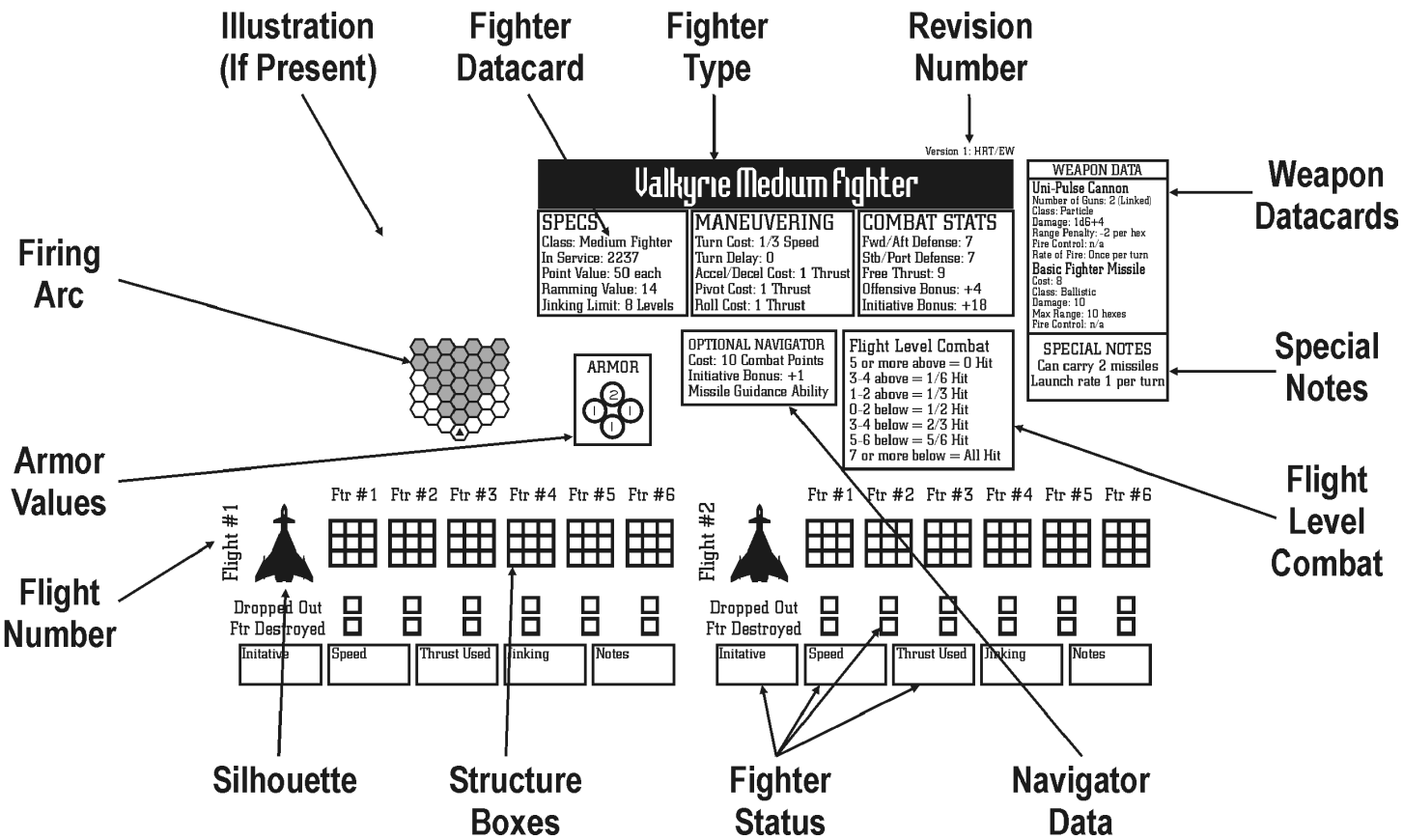
Fighter Status: These areas are provided as a handy place to note the status of each fighter or the flight as a whole. If a fighter drops out or is destroyed, mark the appropriate box. The other blocks are used to record a flight's initiative, speed, thrust used, and jinking levels each turn (see Section 4.12 for an explanation of these terms). The "Notes" box can be used for any other purpose not shown here, such as to record the location of an Expert Pilot or other special feature within the flight, or to keep track of missiles used (if applicable).

Navigator Data: Fighters with navigators (or the option to buy them) possess this box, which lists the abilities of that individual. See "Navigators" in Section 6.4.1 for more details.

Flight Level Combat: Fighter combat takes place on a flight level, with all fighters firing at a target using a single die roll. After this roll is made, this chart is referenced to see how many hits were scored. See "Flight Level Combat" in Section 6 for a better explanation and examples of the procedure.

Special Notes: Some fighters possess this box, which lists any special features of this fighter type. The fighter shown can carry 6 missiles with a launch rate of 2 per turn, and can purchase an optional navigator. Other possible special notes include gravitic movement (for more advanced races), non-atmospheric (fighters can move through atmosphere safely unless noted here), and so on.

FIGHTER CONTROL SHEET(FCS) RECOGNITION GUIDE (EXTRACT)



Weapon Datacards: All weapons used by the fighter have their statistics in this location. The fighter shown here, for example, uses uni-pulse cannons and can launch missiles. Some fighters also have heavy weapons, which would also be listed in this space.

1.5 Ship Representation

On the playing field (the hex map), the positions of your ships and fighters are represented by counters or miniatures. *For example, when a ship moves, you indicate this by moving its counter or miniature across the hex map.* Counters provide a simple and easily portable means to represent your units, although some players will prefer the more visually appealing miniatures.

1.6 Scenarios

To play a game of AoG Wars, you need a scenario , which provides your setup rules and goals. This can be a simple free-form battle ("You take this fleet, I'll take that, and we'll fight until only one fleet is left") or a complex multi-player war with dozens of special rules. If you're just getting started, we recommend free-form games for now. More advanced scenarios and player-designed scenarios are available on many World Wide Web sites.

Ships and fighters are all provided with an estimated value in Combat Points (CPs), as shown on their control sheets. These values are approximations and won't cover every situation, but provide a quick and easy way to set up a battle where each side is relatively equal to each other in strength. *For example, you might agree to play a free-form game where both players have 3,000 Combat Points, or some other value.* The larger the number, the longer the scenario.

If you've read the rules once and want to jump right in and try your hand, the sample scenario shown on the next page will get you started. It provides a battle of around 5,000 Combat Points and showcases a single large cruiser, versus an inferior, but more numerous, fighter group.

This sample scenario also shows the layout of the typical AoG Wars scenario found on the web. It includes a brief intro followed by set-up rules, which first list the units in play by each side and instructions on how to place them on the map. Any special rules are then defined, such as the example shown here. Victory conditions describe how the scenario ends and who should be considered victorious (sometimes these can be complex, including multiple possible levels such as Amazing Victory, Pyrrhic Victory, or Crushing Defeat). Finally, if this was a historical scenario, a historical note describing the actual outcome will be provided. This wasn't the case with provided sample, but many other scenarios include such data.

1.6.1 Sample Scenario

A group of fighters while on patrol unexpectedly meets a hostile cruiser during a particularly hot time of a cold war, and a shooting match results.

Scenario Set-Up

Race 1: One Epimetheus Jump Cruiser.

Race 2: 2 flights of Valkyries.

Each race set up in opposite corners of the map facing each other, each at a speed of 10.

Special Rules

Ramming is not permitted until only one flight of Valkyries remains.

One of the Valkyries flights has an Expert Pilot. The Race 2 player secretly records this before the scenario begins, revealing the pilot's presence only when he does something a normal pilot couldn't do.

All fighters have a full load of missiles.

Victory Conditions

The player whose ships hold the field after the battle ends is the victor. If all units are destroyed, the scenario is a draw.

1.7 A Few Words about Dice

This game uses several sizes of dice to institute randomness during play. At a minimum, you need two

different types (at least one six-sided die and one twenty-sided die) to play the game, though several of each type are recommended, along with at least one ten-sided die. These can be purchased at any game or hobby shop.

Throughout these rules, you may see references to terms like “1d20” or “2d6.” This may seem like some kind of obscure code if you aren’t familiar with this sort of notation. The first number (the one before the “d”) refers to the quantity of dice, and the second number (alter the “d”) is the type of die being rolled. Thus, “1d20” means to roll one 20-sided die, while “2d6” refers to a roll of two six-sided dice.

One d20 and one d6 are the basic types used in play. It is possible to use the d20 to generate results of a d10. If a d10 is called for, simply roll the d20, and subtract 10 if the number shown is greater than 10. The same can be done for 1d3 (using 1d6) and 1d5 (using 1d10 or 1d20).

2.0 Structure of These Rules

This rule book is set up to quickly teach you how to play AoG Wars, beginning with the basic Combat Sequence, continuing with movement and combat, and concluding with additional details and supporting material.

Additional rules for special procedures, such as ramming and hyperspace travel, can be found in Section 10.

2.1 The Combat Sequence

The combat system in AoG Wars is turn-based. While many actions can be performed in the space of a single turn, some take place over two or more turns. One example of such an extended event is the recharging of heavy weapons, which may take two or more turns to accomplish.

In AoG Wars, turns are very structured, with events taking place in a distinct order. This structure is referred to as the Combat Sequence. The complete Combat Sequence is quite detailed, but for now, you only need to be aware of four separate steps, shown on the chart below. These are explained in more detail in the sections that follow.

2.1.1 Initial Actions Step

During this step, the following actions are performed, in this order:

Power Resolution: Ships adjust their power output to cover shortages and pay for optional abilities, such as extra thrust or enhanced sensors.

Initiative Determination: All units roll for initiative, which determines the order in which they will move during the turn.

Ballistic Weapons Launch: Players with ballistic weapons secretly determine their launch and targeting instructions.

Electronic Warfare Allocation: Ships allocate the electronic warfare points provided by their sensors, either for self-protection or to lock onto and target enemy units.

Jump Point Formation: Any jump points opening (either for arrival or escape purposes) are initiated at this point.

2.1.2 Movement Step

In the Movement Step, each unit maneuvers for position against the enemy. Each unit moves in order of its initiative, as determined earlier in the turn.

The aim here is to arrange your own ships and fighters to get the optimum shot against your opponent, while denying him the same privilege. Many players believe the game is won and lost in this step.

Each turn, ships will move a number of hexes equal to their speed. While moving, they also have the option to make additional maneuvers as desired, assuming the required amount of thrust is available. This includes simple turns and rolls, as well as more complex actions like slips, pivots, and snap turns.

After unit movement is complete, any rotations or combat pivots are accomplished (4.13.5), close combat EW is allocated (3.3.5), and ramming attempts are resolved (10.4). These are described in more detail later in this book.

2.1.3 Weapons Fire Step

Unlike movement, which takes place in initiative order, all weapons fire is declared simultaneously. Once declared, weapons fire allocations can't be changed Weapons then roll to hit and score damage, in a set order, as follows:

Ballistic weapons roll first. These include missiles, energy mines, and similar items. Weapons of this sort are actually launched before movement, and spend the Movement Step approaching to attack their target.

Ships fire weapons next. Among other things, this lets ships knock out enemy fighters before they can get their shots off.

Then, fighters fire at other fighters. This allows fighters to employ combat space patrol missions, engaging and dogfighting enemy fighters before they can take shots at ships.

Finally, fighters fire at ships. Because this happens last, fighters making attack runs on enemy ships will have a tough time arranging a good shot if the target is well defended.

2.1.4 Post-Turn Actions Step

This step covers anything that happens after all combat is completed, including but not limited to the following:

Critical Hits: These are rolled for every system that suffered damage but wasn't destroyed during the turn.

Hangar Operations: The launch and recovery of fighters is performed at this point, as are any other hangar operations that might be necessary, such as the loading of extra ordnance (e.g., missiles).

Repairs & Adjustments: Finally, any additional required adjustments are performed as needed. The following sections expand the Combat Sequence in more detail.

Table 1
Simplified Combat Sequence

Initial Actions Step
- Ship Power Adjustment
- Initiative Determination
- Ballistic Weapon Launch
- Electronic Warfare Allocation
- Jump Point Formation

Movement Step
- Units Move in Initiative Order
- Pivots & Rotations
- Close Combat EW Allocation
- Ramming Resolution

Combat Step
- Fire Determination
- Fire Declaration
- Defensive Fire Allocation
- Resolve Ballistic Weapon Attack
- Resolve Ship Weapons Fire
- Resolve Fighter vs. Fighter Fire
- Resolve Fighter Drop-Out
- Resolve All Other Weapons Fire

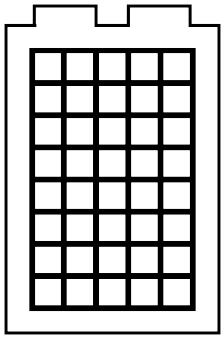
End of Turn Step
- Critical Hit Resolution
- Jump Points Close
- Hangar Operations
- Repairs & Adjustments

3.0 Pre-Turn Activities

This section focuses on actions taken at the start of the turn, before any movement or combat actually takes place. In general, these actions usually take the form of power resolution initiative determination and electronic warfare (EW) allocations, as described in the sections that follow.

3.1 Ship Power

3.1.1 Reactors



All starships have a reactor that provides power for weapons and other systems on board. Without power from this reactor, a ship will be useless in combat Reactors appear much like the sample icon shown here, with a distinctive "battery" shape.

Most reactors produce enough energy to power everything on the ship at normal efficiency. If the reactor suffers damage, its power production can be reduced, forcing the ship to deactivate systems to compensate for the loss (see below). If the reactor is completely destroyed, the ship is considered destroyed (the reactor has "gone critical").

If a ship should have two or more reactors, the loss of one still destroys the ship, unless the ship's description or other rules state otherwise In the case of bases, only the section the reactor is in is destroyed. If this should be the primary section, the base would be lost.

In the ship datacard, you will find a value labeled either "Extra Power" or "Power Shortage." For most ships, this value will be zero, meaning the reactor provides exactly enough energy for all weapons and systems to operate at normal levels If the ship has extra energy, though, the excess can be used as backup (in the case of critical reactor hits) or for other purposes as described hereafter. In the case of a shortage, the ship will need to deactivate one or more systems to make up for this lack of energy. If the shortage is so severe that it cannot be covered in this manner, the reactor shuts down, and everything on the ship that requires energy is automatically deactivated.

3.1.2 Deactivating Systems

Any system that uses power can be deactivated, freeing up its energy for use elsewhere. The amount of energy recovered is shown in the diamond-shaped power symbol (like the example here) that accompanies the system icon. For weapons, the power symbol is found on the ship's Weapons Chart Systems with no power symbol, like hangars and thrusters, cannot be deactivated.

Deactivation of systems occurs at the beginning of the Pre-Turn Actions Step of the Combat Sequence, which is also the same point where a previously deactivated system would be reactivated (You cannot both deactivate and reactivate the same system on the same turn). If reactivated, it would begin any arming steps (in the case of multi-turn arming weapons, for example) from scratch at that point. *Example: Suppose you deactivate a heavy laser cannon, which has 4-turn arming sequence, on turn 1 of the game. In order to fire it at the next possible opportunity thereafter, you would need to activate it on turns 2, 3, 4, and 5 (and it would be ready to fire on turn 5).*

Deactivated systems must be announced as such to your opponent. For example, if you turn off a weapon, your enemy will be able to detect that it's unavailable for use. There may be some exceptions to this rule, but these will be specifically defined in their individual descriptions (typically, such systems will be wholly internal and have little or no direct effect on game play). Note that this does not allow you to detect the arming status of a weapon, only that power is being applied.

If a system has been destroyed, the power it requires is also lost—the power grid that services it has shorted out, making its energy unavailable. A destroyed system cannot be deactivated for power. *As an example, assumes a ship has a power shortage of -2, but loses a twin particle array (which has a power requirement of 2) to battle damage. This does not erase the power shortage, because the 2 points of energy used by the twin array are destroyed along with the*

weapon itself.

Fighters and shuttles normally cannot deactivate systems for extra power; though there may be exceptions to this rule in the case of certain fighters operated by advanced races.

3.1.3 Uses of Extra Power

There are a number of reasons to deactivate systems, but the primary one is to cover a power shortage (either one built into the ship or caused by damage to the reactor). This isn't an option, if's a requirement. If your reactor has lost 10 points of power due to damage, you must deactivate systems totaling at least 10 points of power in order to compensate. If not enough systems can be shut down, then the reactor itself will shut down, and no power-using systems can be used thereafter. Needless to say, this will be a disaster in the middle of a battle.

Extra power can also be used for a number of other purposes during play. Examples of these include purchasing additional thrust points for movement (by channeling the power into the engine), increasing the sensor yield (making more electronic warfare points available), and providing for special weapon arming modes (such as sustained mode fire for certain heavy weapons). These will be detailed in later sections.

3.1.4 Zero-Power Systems

A system with a zero in the power diamond (such as a missile rack) draws a nominal amount of power in order to operate, although this is not significant enough to affect combat. Such systems can be deactivated, though there is little point to doing so. However, if the reactor is forced to shut down, these systems will be deactivated along with all others that require energy. Zero-power systems can also be forced to deactivate due to the effects of certain weapons, such as burst beams.

3.2 Initiative

3.2.1 Determining Initiative

During the Movement Step of the Combat Sequence, ships and other units will move one at a time. The order in which this is done is determined by their initiative.

Initiative is rolled on 1d20 during the Pre-Turn Actions Step, after all power allocations (as described in Section 3.2) have been completed. Each ship makes its own roll, as does each flight of fighters (i.e., each group of up to 6 on a fighter control sheet). Do not roll once per player—initiative is done on a unit-by-unit basis.

The actual initiative roll should be announced before any units are actually moved. Typically, this is done by placing the initiative die next to your counter or miniature where it can be seen by all players. The unit with the lowest total is then moved, followed by the one with the next lowest initiative, and so on.

3.2.2 Effect of Initiative

When movement is performed, the unit with the lowest initiative rating moves first, followed by the one with the next lowest roll, and so on up the chain. Since units with higher numbers are therefore able to more easily react to their slower opponents' moves, they have the advantage. If you lose the initiative, you will need to move more conservatively, or at least force your opponent into making a difficult choice when his turn to move arrives.

If two competing units tie for initiative, the one with the highest initiative bonus (see below) wins In the event both have identical bonuses, each should roll off against each other to determine which will move lost during the turn. There can be no unresolved ties between opposing units.

3.2.3 Built-In Initiative Modifiers

Many units have a bonus or penalty to their initiative die roll. This is shown in the datacard at the top of the control sheet, under the label Initiative Bonus (or Initiative Penalty). In general, smaller and more maneuverable units will possess higher modifiers, as will units from more advanced races. Some examples of these are shown on the

accompanying Table 2.

Table 2
Standard Initiative Bonus

Capital Ships:	+0
Advanced Units:	+1
Very Advanced Units:	+2
Heavy Combat Vessels:	+6
Shuttles:	+9
Medium Ships:	+12
Light Combat Vessels:	+12
Super-Heavy Fighters:	+14
Heavy Fighters:	+16
Medium Fighters:	+18
Light Fighters:	+20
Ultralight Fighters:	+22

Note, however, that these bonuses and are only guidelines and will already be factored into the Initiative Bonus rating shown on the control sheet. There may be exceptions to these general rules from unit to unit. In all cases, the Initiative Bonus on the control sheet takes precedence.

3.2.4 Action Initiative Modifiers

In addition to the built-in modifiers, the actions some units take (and damage they sustain) can affect the initiative roll. Some examples of these are:

Land/Launch Procedures: A ship that launches or lands at least one fighter or shuttle (during the Post-Turn Actions Step of the Combat Sequence) suffers an initiative penalty of -4 on the ensuing turn. This penalty does not apply to bases. In addition, any fighter/shuttle launched by a ship or base will suffer a penalty of -10 to its initiative roll during the ensuing turn. This penalty does not apply to fighters launched from a catapult or external rail.

Slowness Modifiers: Slow-moving units by their nature tend to cede the initiative to their opponents. This is represented by a penalty of -2 for each point of speed less than 5. Thus, a ship moving speed 4 will have an initiative penalty of -2, a ship with a speed of 3 will have a penalty of -4, and so on. This penalty does not apply to immobile bases, orbital satellites or any other immobile units. Note that ships moving speed zero have a penalty of -10, which is an excellent reason not to use “park and shoot” tactics in this game.

Command & Control: Critical hits to the command & control (C&C) system of a ship can disrupt its initiative for the ensuing turn or the remainder of the scenario. These penalties are listed in Section 7.3.8.

Combat Effects: Some weapons or other combat effects can lower the initiative of a target unit by disrupting crew operations. This is generalized in game terms by forcing the unit to accept a penalty on its die roll. Examples of this include the effect of attacks by enemy breaching pods.

Voluntary Penalty: A ship may voluntarily reduce its initiative bonus to any lower value, even a negative amount, but no more than 20 below what it was originally entitled to. This decision must be made before the initiative die is rolled. The player does not need to announce that he is taking a voluntary reduction, only what his total bonus is (again, before he rolls). While it may seem strange that a player might want to penalize his own ships, there might be certain times where this is desirable, depending on the scenario.

Note that all of these modifiers (and any other action modifiers provided in future supplements) are cumulative.

3.2.5 Optional Initiative Alternatives

If desired, there are several options available to enhance or bypass the Initiative system. These are recommended for advanced players only.

Simultaneous Movement: In the case of a tie during Initiative rolls, each player writes down his movement exactly, then both players reveal their moves at the same time. This reflects the fact that both units are basically moving simultaneously.

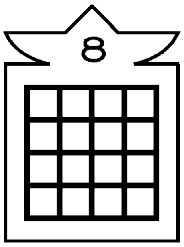
Secret Initiative: If all players agree, initiative rolls can be kept secret until movement is actually required. This results in a bit of tense excitement in close fights, as you can

no longer be sure if your opponents will be moving before or after you until your initiative (or theirs) has come up. However, some method should be used to ensure honesty between the players. *For example, an Impartial judge can watch the rolls, or the die can be rolled inside a cup and revealed when the player's turn to move arrives.*

Fully Plotted Movement: In this alternative, the Initiative system isn't used at all. Instead, players all determine their moves In advance and reveal them simultaneously. While this Is more realistic than the basic Initiative system, it Is also very time-consuming and should be used only for small battles.

Phased Movement: Instead of using initiative, the movement step of the turn is broken down Into a number of phases equal to the speed of the highest-moving unit. In the simplest such system, all units will make one move on the first phase, another on the second, and so on until they've moved all the hexes they're entitled to based on their speed. In a more complex system, a chart can be developed averaging the moves out across the turn, with the fastest units moving in each phase and slower ones spreading their moves out evenly (e.g., a speed-12 unit might move every phase while a speed-6 one moves every other phase). Such a chart is, however, beyond the scope of this book.

3.3 Electronic Warfare



Electronic Warfare (EW) represents the ability of a ship to generate electronic countermeasures for its own protection (defensive EW), or to cut through the same sort of interference being produced by an opponent (offensive EW). Put simply, defensive EW makes your ship harder to hit, while offensive EW makes your opponent easier to hit.

Ships produce EW through their sensor array, represented with an icon with a distinctive dish-like shape atop it. The sensor array provides a number of free EW points every turn, as shown within the dish *(so in the example pictured here, the ship would have 8 points of free EW each turn).* If the sensor array is turned off or destroyed, it will not produce any EW. In addition, certain critical hits can reduce its effectiveness during the scenario.

3.3.1 Buying Extra EW Points

Additional EW points may be acquired by applying extra power from the ship's surplus or from deactivated systems. The amount of energy required to "buy" just one extra EW paint is equal to the total EW points you'd have after the purchase. For the sample sensor array shown above (with a rating of 8), it would require 9 points of energy to gain an extra EW point (thus boasting the total to 9 EW).

There is no limit, other than available power, to the number of additional EW points that can be purchased. *To provide 10 total EW, the sensor array shown above would require 9 power for the first extra point and 10 for the second extra point, a total of 19 points of energy.* In general, a ship won't be able to buy more than one or two points of extra sensor power during a turn due to the extremely high cost of doing so.

3.3.1.1 Damaged Sensors

If a sensor array has been damaged and its output reduced, the cost to buy additional points of EW is based on its original level, not the current one. *Thus, if an 8-point sensor array had been reduced to an output of 6 EW, it would still cost 9 energy (not 7 energy) to buy an extra EW point.*

If the sensor array's rating has been reduced to zero by critical hits, it may still buy extra points using the above procedure. *For example, if the 8-point array had been reduced to zero, 9 points of power would increase it to a rating of 1.*

If the rating is reduced to a negative value, these negative points count against any extras purchased, but do not otherwise provide a penalty (the ship is never required to allocate "negative EW" to any EW function). *For example, if an 8-point array is down to -1, 9 points of power will get it back to zero and a further 10 power will reach the 1-point level. However, if it is left at -1, this can safely be treated as a zero for all other purposes.*

3.3.1.2 Multiple Sensors

In the case of units with multiple sensor arrays, each purchases extra points separately, although only bases are permitted to boost any of their arrays using this procedure—ships may only buy extra points for the most powerful sensor array they currently possess. *Thus, a base with two 8-EW arrays would pay 9 energy to buy an extra EW point for either of them (not 17 energy). However, a ship with one 8-EW array and one 4-EW array could only improve the larger of the two (unless that array had been destroyed or reduced below 4 EW in total strength).*

Units with more than one sensor array combine their EW totals into a single pool for use during the turn, but each array buys extra points (and suffers critical hits) separately. *For example, a ship with an 8-point array and a 4-point array would be treated as having 12 EW points available. It is not required to spend the first 8 for one purpose and the other 4 for something else (unless that is what the player wants to do).*

3.3.2 Allocation of EW Points

Immediately after initiative is rolled (during the Pre-Turn Actions Step of the Combat Sequence), players secretly (and simultaneously) decide how to allocate their EW points. These points can be spent for either defensive EW or offensive EW, or any combination of the two. *For example, a ship with 8 EW could put all of it into defense, all into offense, or split its points 4 and 4, 3 and 5, or any other desired combination.*

These points should be recorded in the Sensor Data box on the ship control sheet, like the one shown here. Defensive EW is recorded in a single location, while offensive EW can be allocated to one or more enemy targets, as described hereafter. Note that these values can be changed every turn (during the Pre-Turn Actions Step), so be sure to record them in pencil, and keep an eraser handy.

SENSOR DATA		
Defensive EW		
Target #1		
Target #2		
Target #3		
Target #4		
Target #5		
Target #6		

3.3.3 Defensive EW

Defensive EW points protect your ship by making it harder for enemy weapons to target you. Each enemy weapon that attempts to hit your ship suffers a -1 penalty for every point of defensive EW your ship generates. If you wish, you can assign all your EW points to defensive mode—a tactic that may be desirable in some situations, but limits your offensive capabilities.

Defensive EW Example

A damaged cruiser is attempting to form a jump point and escape before being destroyed. Several enemy ships are nearby and the cruiser player suspects they will be targeting him in the coming turn. Since he knows there is little chance he can damage or destroy enough of them to ensure his escape, he decides to "go defensive" and applies all 10 of his available EW towards his own defense. If the enemy ships attempt to fire on him in the coming turn, they'll have to do so with a -10 penalty to hit.

3.3.4 Offensive EW and Lock-Ons

Offensive EW is used to improve your chance to hit specific enemy targets. You assign these points to enemy units individually, except for fighters and shuttles, which are locked onto on a flight-by-flight basis ("Flights" are six fighters traveling together and attacking as a unit, or a group of any six shuttles as defined by the player allocating the EW, during the EW Determination Step of the Combat Sequence).

For every point of offensive EW allocated to a target, your weapons have a +1 to hit that unit. More than one point can be spent on any specific target, adding to the bonus to hit. *Thus, if you apply 4 EW to a single ship, you have+4 to hit it during that turn.* It is permitted to "paint" a single enemy with all your EW, thus guaranteeing a good chance to hit, but this limits your options and telegraphs your intentions to your opponent.

If you have at least 1 point of offensive EW applied to a given unit, you are said to have a lock-on to that target. Without a lock-on, enemy units are extremely difficult to see

at great distances, so any range penalties you have will be doubled. This requires you to put some forethought into who you will be shooting at later in the turn. (Note that you double the range penalty, not the range itself.) *For example, if your weapon's range penalty is -1 per 2 hexes, and the target is 3 hexes away, the normal penalty would be -2, since the fraction would be rounded up. Without a lock-on, though, the penalty is doubled to -4. If you had incorrectly doubled the range instead, your penalty would work out to -3.*

Offensive EW Example

A Heavy Cruiser faces off against three enemy warships, all of which fired their heavy weapons at a different target on the preceding turn. Because their big guns are recharging, the captain of the heavy cruiser suspects they will attempt to elude him on the next turn, and decides allocating EW to defense will be unnecessary. He could choose to allocate 3 of his 8 offensive EW points against two of the ships and 2 points against the third ship, giving him a decent chance to hit any of them. Another possibility is to concentrate 6 DEW against a single ship (the primary target) and 1 point against each of the others, ensuring a lock-on in case the primary opponent eludes him. Other combinations are also possible, depending on the situation.

3.3.5 Close Combat EW

Close combat EW, or CCEW, is a broader form of offensive EW that can be used against attacking fighters or shuttles only (it cannot be used against ships, including light combat vessels). It is treated as offensive EW except as noted here.

Instead of specifically applying offensive EW points to a particular fighter or shuttle flight, the player instead applies electronic warfare to the CCEW function. Then, after movement, he specifically allocates those CCEW points to enemy flights. The only disadvantage of this is that the enemy flights must be within 10 hexes of the ship in order for the CCEW to function. (If you use too much CCEW, your opponent might well just fly his fighters off to some other target, making your close combat EW useless.) Note that CCEW points must still be assigned to specific enemy flights—they don't affect all enemy shuttles and fighters within 10 hexes.

Example of Close Combat EW

A Destroyer is being attacked by three flights of enemy fighters. The Destroyer has 8 points of EW to spend, and his fighters are elsewhere this turn, so he's very concerned about the enemy fighters (as well he should be). He could, if he wished, directly allocate 3 offensive EW an each of two of the flights and 2 on the third, but realizes he'd be better off just targeting a single flight and trying to destroy it, rather than splitting his fire among three full flights. However, if he directly applies all 8 EW to one flight, it will simply turn and leave while the other two trash his ship. So, he allocates 8 EW to close combat EW instead. Now he can wait until the fighters have moved, and choose his target after that point. If the enemy fighters all leave the area, his EW is worthless—but in this particular case, that result is fine, as he'll be able to bring his own fighters back to his ship's defense on the following turn.

3.3.6 ELINT Function

ELINT ships (also referred to as scouts) are also available for use. These provide advanced EW functions, such as fleet support or blanket defense. Rules for such units are presented in Section 10.5.

3.3.6.1 Jealous ELINT

If a ship is designated as a Jealous ELINT vessel, it has a sensor suite with the capabilities to function as an ELINT ship, but it will not do so during every turn. Only one Jealous ELINT vessel per every four may provide ELINT support to a fleet during any given turn. The decision as to which vessel will be an ELINT ship must be made during the EW Determination segment of the Combat Sequence. Vessels noted as being regular ELINT ships may do so without any effects, and do not count towards the Jealous ELINT limitations in any way.

3.3.7 AEGIS Function

Some ships can be equipped with AEGIS pods. These provide additional Close Combat EW points. Rules for AEGIS Pods are presented in Section 5.13.

3.3.8 Jammer

Some ships, fighters, and other units are equipped with jammers that provide a powerful alternative to defensive EW. Rules for such units are presented in Section 5.12.

3.3.9 Announcement of Electronic Warfare

After all players have secretly determined their EW levels, these levels should be announced. The order in which players make the announcement doesn't matter; though it isn't permitted to change your allocations after you've heard what your enemy is doing with his EW. Typically, each player will point at each one of his units in turn, announcing its defensive EW followed by the targets of its offensive EW (and the amount of EW applied to those lockons). Any close combat EW would also be announced at this point, although—as mentioned above—actual targets don't need to be defined until movement is complete.

3.3.10 Optional EW Alternative

If desired, there are several options available to enhance EW system. These are recommended for advanced players only.

Secret EW: For an interesting challenge, don't require players to reveal their EW until weapons fire has been written down and announced. EW must still be determined at the usual point in the Combat Sequence (only its announcement point is changed). Note that this requires a great deal of honesty on the part of yourself and your opponents.

Limited Offensive EW: Some players find that the ability to fully "paint" a target with large amounts of EW makes it too easy to score a kill with medium and long range fire. To restrict this, limit the amount of offensive EW that can be applied against a single target to one-half the ship's total EW on any turn. This rule should not apply to bases, which are designed to target very distant enemies.

Half EW: For a longer game, with more weapon misses and a higher emphasis on maneuver, halve all EW values in the game (including fighter offensive bonuses), but do not alter weapon fire control ratings. This tends to favor ships with weapons that fire every turn, so be careful when using this alternative. If increasing the effect of maneuver is your goal under this system, you might consider increasing the thrust and thrust ratings of all ships as well.

3.3.11 Fighter and Shuttle EW

Fighters and shuttles don't use electronic warfare points as such, since their sensor array is much simpler and depends mostly on visual targeting. Instead, they have a single offensive bonus (also called the combat bonus), which represents a built-in offensive EW capability. The combat bonus counts as offensive EW every turn, and can't be allocated to defensive EW at all. Note, however, that most fighters have a very small profile and are difficult to hit in any case.

Since fighters and shuttles use a visual targeting system (meaning that the pilot basically fires at whatever is in his crosshairs, with little or no electronic assistance), they don't need to worry about lock-ons. Assume that fighters and shuttles have a lock-on (as such) against all units in the scenario, unless the target is protected by a jammer (see Section 5.12). Additionally, they are immune to defensive EW when using non-ballistic weapons. Their offensive bonus and visual targeting systems can easily bypass it.

4.0 Movement and Maneuver

4.1 Basic Movement Concepts

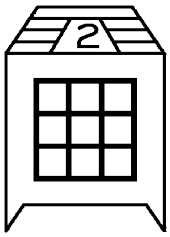
Movement in space, unlike atmospheric movement, is a constant. Unless an outside force influences an object, it will continue to move in the same direction at the same velocity forever. It is only through maneuvering that a unit's direction and speed can be altered. The rules that follow deal specifically with movement and maneuver for ships. Rules for fighters and shuttles are defined in Section 4.13.

4.2 Thrusters

A ship uses thrusters to maneuver through space. Thrusters allow the ship to change its speed and its direction of motion. Without thrusters, a ship cannot accelerate, decelerate, or turn.

Thrust in AoG Wars is represented by thrust points, which are provided by the engines (as described in Section 4.3). Thrust points are generated by the engine every turn, and can be spent for various maneuvers as described hereafter.

Most ships have four sets of thrusters: Forward (in the front; typically used to decelerate), port (on the left side of the ship; used to turn right), starboard, (on the right side; used for left turns), and aft (in the back; used to accelerate). Aft thrusters are often referred to as main thrusters and forward thrusters are occasionally called retro thrusters or retros.



Thrusters are represented on the ship by one or more exhaust-port-shaped icons, as seen in this example. The maximum amount of thrust that can be channeled through any thruster is displayed at the top of the icon (in this example, no more than 2 thrust can be used by this thruster during the turn). This is known as the thrust rating. If more than one thruster is available in a given direction, players are free to channel thrust through whichever thruster (or combination of thrusters) they choose. Generally, it is advisable to spread this out as much as possible in order to avoid overthrusting.

4.2.1 Overthrusting

If a thruster channels more thrust during a turn than its rating allows, it must roll for one critical hit at the end of the turn (during the Post-Turn Actions Step) adding to the roll any damage suffered by the thruster plus the amount of overthrust done by the thruster. These are in addition to any critical hit check required by normal damage, which would be a separate roll entirely. Doing a lot of overthrusting is a sure way to penalize your movement abilities later in the game—so use this option only if you've little choice in the matter.

Note: Regardless of overthrust limitations, thrusters cannot expend more thrust during a turn than twice their rated value. *For example, a thruster with a rating of 3 cannot use more than 6 points of thrust in a turn.*

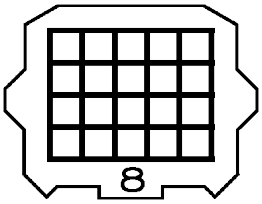
Overthrusting Example

An Assault Cruiser is flying at high speeds in an attempt to reach a jump gate. In order to avoid weapons fire, it is forced to turn away from its goal temporarily. To make the turn, the ship must apply 5 thrust to aft and 5 through the port side. There are plenty of aft thrusters available, but only one port thruster—and it only has a 4 rating. This generates 1 point of overthrust, so at the end of the turn, the player must roll for a critical hit to that thruster, with a +1 to the die roll.

4.3 Engines

A ship's engine is used to provide power to the thrusters Without an engine to power them, thrusters are useless. Note that certain ships (such as the very advanced vessels used by some advanced races) don't use engines—rules for such exceptions will be provided as appropriate.

Engine icons usually appear in the central area of the ship, and are similar to the example shown here. There is usually only one engine on any given ship. If more than one engine is present, they provide thrust as a unit, but critical hits affect them separately.



Engines produce a set amount

of free thrust each turn. The number of free thrust points provided is shown in the engine icon, so in the example here, the engine provides eight such points. It is possible that critical hits to the engine might lower this value, and if the engine is destroyed, the ship will have no thrust available whatsoever—it will be stuck at its current course and speed for the rest of the game.

4.3.1 Power and Thrust

It is possible to use extra reactor power to buy additional thrust points during a turn. In the ship datacard, there is a value called the Engine Efficiency Rating. This is displayed as a ratio, such as 3/1. The ratio represents the amount of power needed to purchase one additional point of thrust, so in the 3/1 example, it takes 3 points of energy to earn another thrust point. There's no limit (other than ship's power) to how many extra thrust points can be purchased during a turn.

If the engine has been destroyed, the ship may not purchase additional thrust points, because there's no engine left to produce them.

Consolidated Example of Extra Thrust and Overthrusting

A Heavy Cruiser is trying to get behind an asteroid so that several pursuing enemy units lose line-of-sight for the turn (and therefore cannot fire at the cruiser). The space rock is 13 hexes away and the cruiser must get behind it, requiring a total of 14 hexes of movement. However, the cruiser is only moving speed 9. Consulting his ship control sheet, the cruiser's player discovers he has 12 thrust available (from the engine icon) and an accel/decel cost of 3 (from the ship datacard). This means he can only accelerate by 4 (to speed 13), so he will fall one hex short of his goal.

Realizing this is a critical maneuver, the cruiser's player decides to purchase extra thrust. His engine efficiency rating is 3/1, so it will cost him 9 power to buy the 3 thrust he needs for one more point of acceleration. To get this power, he deactivates one of the twin arrays (2 power) and all four light pulse cannons (8 power total), leaving 1 point of energy left over. (He can find another use for this energy or leave it unallocated with no penalty.) Using the extra 3 thrust this 9 power buys, he accelerates to speed 14 and moves safely behind the asteroid.

The cruiser has three aft thrusters (which must be used for the acceleration maneuver), which can only safely channel 4 thrust each, but 15 thrust is used, so some overthrusting will come into play. The cruiser's player could choose to apply 1 of the 3 overthrust points to each thruster, but then there's the possibility for a critical hit on all three of them. Therefore, all 3 points will be applied to one thruster. After all weapons fire is done, a roll for a critical hit against this thruster is made with a +3 penalty for the 3 points of overthrust.

4.4 Movement and Speed

In the basic case, movement takes place in a forward direction, with the ship facing the direction of motion. There are some exceptions to this. Ships may freely move in reverse, simply by accelerating in the opposite direction they are facing. It's also possible for ships in the process of a pivot maneuver to fly sideways, although this makes acceleration and turning difficult.

A ship possesses a speed, indicating the number of hexes it will move during the turn. *For example, a ship moving speed 9 will move 9 hexes—this is a requirement, by the way, and is not optional.* As noted earlier, if the ship doesn't act to change its speed in some way, it will continue moving 9 hexes each turn (at no cost in thrust points whatsoever). Thrust points are only spent to alter speed, not to maintain it.

The maximum speed a ship can move in space is unlimited, although in most scenarios it will be 20 or less. With no friction, gravity, or other forces to work against a ship, it is free to accelerate to whatever speed it wishes. However, the faster a ship goes, the harder it is to make other maneuvers, such as turns.

4.4.1 Acceleration and Deceleration

Acceleration and deceleration are performed at the beginning of movement. When a unit's turn to move has arrived (based on its initiative roll), acceleration and deceleration must be done first, before any motion occurs or

other maneuvers are performed.

All ships have an Accel/Decel Cost shown in the ship datacard at the top of the control sheet. This represents the number of thrust points required needed to change the ship's speed by 1. *For example, a ship with an Accel/Decel cost of 2 moving speed 8 would pay 6 thrust points to accelerate by 3 to a new speed of 11.*

To accelerate, a ship spends some of its thrust points by channeling it through the aft thrusters. To decelerate, it thrusts in the opposite direction (i.e., through the retro thrusters). The ship then moves at the new speed for the remainder of the turn. Note that if a ship accelerates or decelerates into a speed where it would suffer an initiative penalty, the new penalty would not take effect until the following turn.

4.4.2 Moving in Reverse

A ship may move in reverse by simply decelerating so much that it begins moving backward. *For example, a ship moving speed 5 that decelerates by 8 will now be moving speed -3 (speed 3 in reverse).* While moving backward, all thruster requirements are switched. Thus, acceleration (in the reverse direction) requires the forward thrusters not the aft ones, and turning left would require the port (not starboard) thrusters There are, however, no other adverse effects.

Note that a ship's aft thrusters are usually the ones with the highest ratings, so moving in reverse will limit your maneuvering options somewhat. Thus, forward movement is recommended in most situations.

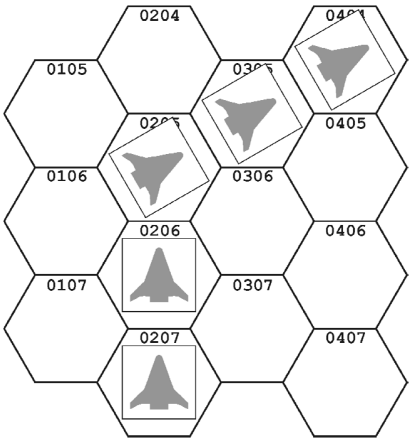
4.4.3 Normal Motion

After acceleration and deceleration are performed, the ship will now move a number of hexes based on its current speed. If the ship doesn't do any other maneuvering, simply move it one hex per point of speed and you're done.

However, you will probably want to maneuver somewhat to arrange an optimal firing solution (if at all possible), or to achieve other goals. The maneuvers you can perform are described in the following sections.

4.5 Turning

Unless they act to change their direction of motion, ships move in a straight line across the map. Changing directions is accomplished by making a turn maneuver.



A turn maneuver changes the facing of the ship by 60°, i.e., one hex facing to the left or right. Movement then proceeds in the new direction until altered by another turn later on in the game. *In the example pictured here, the unit (moving forward, towards the top of the map) turns to starboard (right) in hex 0205.* Note that the turn is mode first, and independently of movement, so it is possible for a ship to turn in a hex and not move out of it (assuming that it does not have to move again during the turn).

Ships have two factors that affect their ability to turn. These are the turn cost and the turn delay, both of which are shown on the ship datacard. These are usually fractional amounts, but a handy chart is provided just below the datacard so you don't need to do any actual calculations (at least not at moderate speeds).

4.5.1 Turn Cost

This value represents the thrust cost to make a turn, and is based on the ship's current speed. For example, a ship moving speed 6 with a turn cost of 2/3 would require 4 thrust to turn. Any fractional amounts would be rounded up (although the values in the turn cost chart have already done this for you). There is a minimum thrust cost of 1 to turn, even if the ship is moving speed zero.

Thrust points used to turn must be evenly divided between the aft thruster and the side thruster opposite the turn. *For example, a ship turning left using 4 points of thrust to turn would have to channel 2 points of thrust through the oft thrusters and 2 points through the right (starboard) thrusters.* If the ship is moving in reverse, the thruster requirements

would be swapped.

If there is an odd point left over, it can be used in either thruster at the option of the owning player. Usually, you'd choose to put it in an aft thruster, as this is usually the one with the highest thrust rating. It's notable that at very slow speeds (usually 2 or less), a ship can actually turn without using side thrusters at all, because it will only need 1 point of thrust and can choose to use the aft engine for this "odd" point. This can become very important if a ship loses its side thrusters in combat.

Note that if a ship is moving extremely fast, it might not be able to afford to turn without overthrusting. If this is the case, the player can either choose to take the risk, or must slow down in order to make the turn safely. It's to your advantage to take note of your ship's thrust ratings and determine, in advance, the maximum speed you can afford to go without the risk of overthrusting when you turn.

4.5.2 Turn Delay

After turning, a ship must move a number of hexes equal to its speed times its turn delay before it can turn again. As with the turn cost, round any fractions up, although there's a handy chart under the datacard that you can use without having to bother with the fractional math involved.

For example, if a ship is moving speed 9 and has a turn delay of 1/2, its turn delay would be 5, meaning it must move 5 hexes after any turn before it can turn again. Assuming the thrust is available, multiple turn maneuvers are possible in the same combat turn. There is no minimum delay period, so a turn mode at speed zero will always have a turn delay of zero.

The turn delay requirement is satisfied the moment the ship makes its last required movement. This is important if the ship accelerates (or decelerates) at the start of the next combat turn. If the turn delay has been satisfied already, the new speed won't have any effect, and the ship could turn immediately if needed. However, if the turn delay has not been satisfied, it must be adjusted to match the new speed. *For example, consider a ship moving speed 12 with a turn delay of 1/2. During combat turn #1, it turns and moves 5 hexes, then runs out of movement. Then, on combat turn #2, the player chooses to accelerate his ship to a speed of 15. The turn delay time would increase to 8, of which 5 has been satisfied. The ship must now move 3 more hexes before it can turn again.*

4.5.3 Shortened Turns

At the time a turn is made (*not* after the turn has already been completed), a ship may spend additional thrust to shorten the turn delay period. For each 1-hex reduction, the total turn cost is increased by 1 point of thrust. This is known as a shortened turn.

For example, if a ship makes a turn that costs 5 thrust and has a delay of 4 hexes, it can shorten the delay to 3 hexes by paying 6 thrust, 2 hexes for 7 thrust, 1 hex for 8 thrust (the minimum delay). The resulting total thrust requirement (the basic amount plus the shortening cost, i.e. 8 in this example) is considered to be the full turn cost for the maneuver, so it must be divided evenly between thrusters.

Note that once the turn is made, and the thrust spent for it, it's too late to shorten the turn any further. Turn shortening must be done immediately—it can't be delayed or applied to a turn already performed.

4.5.4 Extended Turns

If a ship is moving extremely fast, or has suffered damage to critical thrusters, it might wish to extend its thrust expense into the next combat turn. This option is occasionally seen if a fast-moving ship wishes to avoid overthrusting.

To make an extended turn, the player announces that he is paying some fraction of the required thrust (but at least 25% of the turn cost) to make an extended turn. He must also announce the direction of the turn. The ship, however, doesn't actually change facing yet, but continues moving as before, and may not make any other maneuver (including accelerations or decelerations) until the extended turn is finished.

On the ship's next combat turn, it must pay the remainder of the turn cost immediately, before moving even a single hex on the map. The extended turn is completed at

this point, and the ship changes facing and direction (Note that the ship may not accelerate or decelerate on this combat turn, because accelerations and decelerations must be done before any other maneuvers). The turn delay count begins at this point, not when the extended turn began.

If for some reason the ship cannot pay the thrust requirement (such as one or more required thrusters being blown off the ship in the preceding turn), the entire maneuver is canceled. Note that cancellation cannot be done voluntarily—it is permitted only if it is physically impossible (due to thruster or other restrictions) to complete it. If canceled, the ship is still not permitted to accelerate or decelerate, and any thrust spent previously is lost. Extended turns may be shortened as described earlier. The extra cost is paid in the second game turn in which thrust is applied.

4.5.5 Snap Turns

Some ships are capable of snap turns. If a ship is allowed to use this maneuver, it will be described as agile in its description and on the control sheet.

Snap turns are 120° or 180° direction changes, not 60° changes like a standard turn. The thrust cost of a snap turn is double that shown for a normal one (minimum 2 thrust) for 120° turns, or triple the cost (minimum 3 thrust) for 180° turns. However, the delay time is not increased in either case. *For example: An agile ship with a turn cost of 1/3 and a turn delay of 1/2 is moving at a speed of 17.In order to make a turn, it must pay 6 thrust and move 9 hexes before it can turn again. A 120° snap turn, however, would require 12 thrust and a 9-hex turn delay.*

Thrust to pay for a snap turn is channeled through thrusters in the same way as with a normal turn. Snap turns may not use the extended turn option, though they are permitted to use turn shortening.

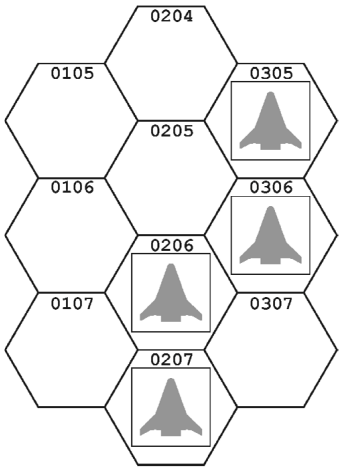
4.6 Slides

In some cases a ship may wish to move slightly to one side without actually turning. To do this, it can use a slide maneuver. Slides are also referred to as slips or sideslips.

When a slide is performed, the ship's direction of motion is not altered. Instead, the ship simply moves one hex to the left or right as shown in the example here. A slide is considered the same thing as one hex of normal movement for all purposes, and counts towards turn delay periods just as any other movement would. *For example, if a ship had a turn delay of 2 hexes, moved forward once, and slid to the right once, its turn delay would be satisfied (and this would count as 2 hexes of movement for that turn).*

Making a slide requires thrust points equal to 1/5 the ship's current speed (round all fractions up), channeled through the side thruster opposite the direction of the maneuver. *For example, if a ship is moving at a speed of 12, 3 points of port thrust are required.*

A ship may slide several times during a turn (limited by available thrust and the rating of the side thrusters). However, a ship must make one normal movement forward before it can slide again. In addition, it can only slide in one direction during a game turn (e.g. once a ship has made one slide to starboard, it cannot make a slide to port during the same combat turn).



Since slides count as one hex of normal movement, a ship cannot slide if it is moving at a speed of zero.

4.7 Rolls

In some circumstances, a ship may wish to roll so that it is effectively flying upside-down (This is relative, as there is really no "up" or "down" in space). It is assumed that all ships enter a combat scenario in a normal, un-rolled state unless otherwise noted in the scenario description.

To make a roll, the ship pays the roll cost shown in the datacard at the top of the control sheet. Two numbers are shown, separated by a "+" sign. The first of these is the amount to initiate the roll and the second is the amount required to halt it. These costs can be paid by any thruster or combination of thrusters.

The first half of the roll cost is paid when the maneuver is initiated, which can occur at any time during a ship's movement. The ship is considered to be at its current (normal) orientation for the duration of that combat turn. The actual flipping over does not occur until the start of the Movement Step of the next turn. In fact, it occurs outside the initiative sequence, before any ships move during that turn. You can see the exact timing by examining the complete Combat Sequence.

The ship completes its roll by paying the appropriate thrust cost at any time during its movement for the next turn (after it has flipped over). It stops rolling immediately, and all maneuvering and weapons fire limitations are lifted at that point. If for some reason the ship doesn't pay the required cost, the roll continues, and on the next turn, it will flip over again. In fact, it will continue to do so in perpetuity until the cost is paid.

While a roll is in progress, a ship may not perform any maneuver (turn, pivot, slide, etc.) except acceleration/deceleration, and may not launch or land shuttles or fighters (Exception: Gravitic Drives; see Section 4.10). In addition to this, the ship suffers a -3 penalty to all weapons fire while a roll is in progress, representing the difficulty of the ship's gunners to react to the shifting situation.

Agile ships are a special case. Agile ships have a single cost shown for rolls, and that cost represents the thrust required to both start and stop the roll. When this cost is paid, the roll is completed immediately. The ship is under the weapons fire penalty for the rest of that turn, but suffers no other restrictions of any kind.

Rolling Example

A ship with a roll cost of 2+3 commences a roll maneuver while moving on turn #4, paying 2 points of thrust to do so (the first portion of the roll cost). During this turn, the ship is considered to be at its normal orientation, but suffers a -3 to weapons fire for the rest of the turn. At the start of the Movement Step of turn #5, the ship is flipped over (used a "Rolled" counter to indicate this). If the ship pays the remaining 3 thrust to halt the roll, it will stop rolling and continue upside-down for the remainder of the scenario (unless it rolls again), and the weapons fire penalty will be lifted immediately. If it does not pay the halt cost, it will flip over again during the Movement Step of turn #6, returning to its normal orientation. It will be under the maneuvering and weapons fire restrictions noted above until it halts the roll.

4.8 Pivots

When a ship wishes to change its orientation without actually turning, it can use a pivot maneuver to accomplish this. Pivots cause the ship to rotate about its center in a controlled manner, one hex facing at a time, without actually changing its direction of motion. The thrusters required for this are shown in the Table 3.

Table 3
Thrusters Required for Pivoting

Clockwise Pivot:
Forward+Port *or* Aft+Starboard
Counterclockwise Pivot:
Forward+Starboard *or* Aft+Port

Much like rolls, pivots have a thrust cost displayed as two numbers separated by a "+" sign. The first number is the amount of thrust required to begin the pivot and the second is the thrust required to stop it. Thrust for pivots must be channeled equally through a pair of thrusters, as shown. If there is an extra point left over, it can be applied to either thruster at the player's option.

Note that this refers to starting a pivot. To conclude one, use one of the opposing thruster pairs. In all cases, if there is an odd point of thrust left over, it can be applied to either of the two thrusters at the owning player's option.

A ship may begin a pivot maneuver at any point during its movement. The moment it pays the required cost, if pivots 60° in a clockwise or counterclockwise direction, as determined by what thrusters are used. It now can do one of two things: either stop the pivot immediately (by paying the halt cost) or let the pivot continue.

If the ship stops the pivot, it continues on in its current direction of motion at its new facing. The only maneuvering it can do while in this state is to roll, slide or pivot—it cannot turn, accelerate, or decelerate (Exception: Units with gravitic drives; see "Gravitic Drives" in Section 4.10). However; a ship may turn into the pivot if it is only pivoted one hex side. In this case, the ship may turn normally and the act of the turn cancels the pivot.

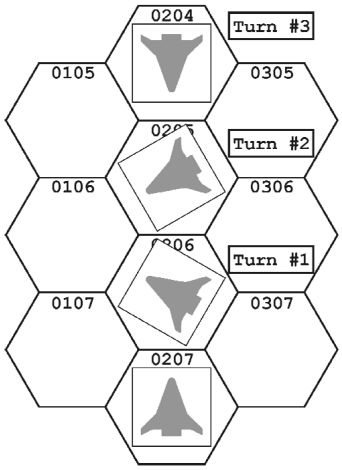
If the pivot is not halted, the ship will continue to make one 60° facing shift at the start of the next turn, at the beginning of the Movement Step of the Combat Sequence (at the same time rolling ships flip over). While the pivot remains in progress, the ship can't make any other maneuvers except emergency rolls or slides (as described above), and may not launch or land fighters or shuttles. The ship can stop pivoting at any time during its movement, simply by paying the required thrust cost. However, under no circumstances can a ship pivot more than one 60° facing during a turn, except for agile ships (see below). This means you cannot halt a pivot and start another one in the same turn. Note that if the ship doesn't pay to stop a pivot, it will continue to change facing every turn (just as a rolling ship will continue to flip over every turn until stopped).

During any turn in which a ship pivots 60° (regardless of when the facing change takes place, or if the pivot has been halted), the ship's weapons suffer a -3 firing penalty, and the ship may not launch or land fighters/shuttles.

One use of pivots is to bring the ship to a reverse facing, allowing fast-moving ships to change from forward to reverse motion without actually having to turn around. In the example shown here, a ship moving speed 1 begins a pivot on turn #1, making its first facing change immediately. The second facing change happens at the beginning of the Movement Step of turn #2, and the third at the same point during turn #3. The ship could then halt the pivot, and would now be moving in reverse.

Some ships are not permitted to pivot. These include bases (which use rotation instead) and many commercial vessels (which can't take the stress). If a ship cannot pivot, it will have a pivot cost of "N/A" in the Pivot Cost section of the ship datacard. This would be different from a pivot cost of zero, which would represent a ship that can pivot at no thrust cost.

Agile ships are a special case. They have only a single pivot cost listed on their datacard, and can pivot up to 180° all at once. The cost shown both starts and stops the pivot immediately, and is paid per hex side pivoted, so an agile ship with a pivot cost of 2 would pay 6 to pivot the full 180°. If it pivots at all, the ship suffers the -3 weapons fire penalty (but only once, not once per hex side pivoted) and may not launch/land fighters.



4.8.1 Emergency Rolls

Nothing is more embarrassing to a ship's captain than to begin a pivot maneuver and have the opposing thrusters (the ones needed to halt the pivot) blown off the ship. The pivot can't be stopped, causing the vessel to sail off into deep space, spinning wildly around as it exits the scenario helplessly.

Emergency rolls can be used to recover from this situation, and provide an exception to the rule prohibiting a pivoting ship from rolling. The emergency roll must be declared at the point in the Combat Sequence where the ship rolls initiative (not during the usual maneuvering sequence). After the player declares the emergency roll, he must make a critical hit check on the C&C chart, suffering any resulting effects immediately. The initiative roll is then made at an additional penalty of -4. This penalty (but not the C&C critical) is also suffered on the following turn, when the roll is ended.

Note that the pivot cannot be halted until the roll maneuver has been successfully completed. While the ship is rolling and pivoting simultaneously, it suffers both weapons fire penalties (i.e., it has a -6 when shooting any weapon).

4.9 Skin Dancing

Skin dancing refers to a maneuver wherein a unit flies only meters above the surface of a large unit or base. It is a very dangerous maneuver only performed by the most agile of ships and skilled helmsmen, and even then it is usually computerassisted.

To perform skin dancing, a ship must be of the medium class or smaller and must be classified as agile (fighters and shuttles are considered agile for this purpose) The target unit must be of enormous size (see the unit classifications later in this book) and must be moving no faster than 5 hexes per turn. If the target is moving, the dancing ship must be moving in the same direction or the exact opposite direction.

A skin dance can be declared only if the dancing ship ends its movement in the target unit's hex and the target has already moved during that turn. The actual check for success, however, is made after all movement is completed, in initiative order (See the Combat Sequence for the exact timing). To determine if the unit is successful, roll a standard d20. If the roll is 15 or less, the skin dancing maneuver succeeds. Use the modifiers in the chart below.

If the roll fails by 5 or less (i.e., the modified roll is a 16, 17, 18, 19, or 20), the dance is aborted with no ill effects, and there is no chance of a ram. Otherwise, a failed roll means you smash into the hull of the target. Treat this as an automatically successful ram (see the Section 10.4 on ramming for more details), although you will need to roll on the Ramming Result Table with a +2 modifier. Since your ship is probably going to be destroyed, you can see why this maneuver is rarely attempted except under ideal conditions.

If a fighter flight attempts to skin dance and fails by more than 5 (as described above), one fighter at random crashes into the hull as above while the others break away. The survivors cannot fire (even defensively) or guide weapons on that turn as they are too busy pulling out of the maneuver.

If skin dancing is successful, your unit cannot be fired upon by enemy units unless they also skin dance over the same target (exception: ballistic weapons). The vessel you are skimming over cannot fire at you, and cannot fire defensively against your weapons, because you're inside its weapon's tracking zones. Finally, any of your forward firing weapons (those that can legally fire into the row of hexes directly ahead of your ship) automatically hit the target unit. (For weapons with a varied effect depending on the actual attack roll, assume you rolled a "1" on your to hit die.) In fact, your weapons may not fire at any other target (except other skin dancers, against whom they use the normal firing procedures) unless they can fire outside the 120° forward area ahead of the ship. If this is the case, they can choose another eligible target if desired. That unit may use intercept fire or other defensive devices normally.

4.9.1 Skin Dancing Modifiers

If the dancer's speed is greater than 5, add 1 to the roll for each 2 points of speed (or any fraction) above this limit. Thus, a ship moving speed 10 would add +3.

If either unit is rolling or pivoting, add +5 to the roll. These are cumulative, so if the skin dancer is rolling while the target is pivoting, add +10. A rotating base is not considered to be pivoting.

If a skin dancing ship has lost any of its thrusters (regardless of their location), add +1 for each point of thrust rating no longer available. *For example, a ship that has lost two of its aft 4-rating thrusters would have a +8 to the roll.*

If a skin dancing fighter is jinking, add +3 for each level.

If a skin dancing ship has an expert helmsman (see Section 10.7.4.1), subtract 5 from the roll. If a skin dancing fighter flight has one or more expert pilots (see Section 10.7.5.7), subtract 2 for each such individual. If a flight of two-seat fighters contain navigators, subtract 1 from the roll (just 1, not 1 for each navigator).

4.9.2 Skin Dancing Restrictions

Because of the Combat Sequence, ballistic weapons cannot be launched when skin dancing. (They would be too dangerous to employ in this way in any case.) A ballistic weapon launched earlier in the turn by a unit that later skin dances would use the normal attack rules, and could be defended against normally. It would not automatically hit.

A ship that is not moving may not skin dance. Skin

dancing ends as soon as the combat turn is over, so you must re-roll for success every turn, after moving away from the target and maneuvering to return to its hex. Just because you skin danced last turn doesn't mean you'll be successful again this time.

Fighters cannot guide missiles or other ballistic weapons towards a target (even the unit being skin danced over) even if they have a navigator. The pilot and any other crewmen are too busy controlling the fighter and its onboard weapons to perform another mission.

4.10 Gravitic Drives

Some advanced races use gravitic drives for propulsion. While functionally they are very different, for game purposes they use most of the same rules. For example, gravitic thrusters don't produce exhaust, but they still have thruster-like systems that have maximum ratings just like the thrusters of other races do.

If a race uses gravitic drives, this will be noted in the race description and on their control sheets (in the "Special Notes" box). The main difference of gravitic drives is an enhanced ability to operate while using roll or pivot maneuvers.

The following rules apply to each case:

Rolls: A gravitic drive allows a rolling ship to perform any other desired maneuver without restriction. *For example, a gravitic ship can roll and pivot at the same time (and would simultaneously suffer all required penalties and other restrictions).* It cannot, however, launch or land shuttles/fighters, and it is still under the noted weapons fire penalties.

Pivots: While pivoting, ships with gravitic drives ignore the restrictions against other maneuvers, although fighter/shuttle launch/land procedures are still prohibited, and the weapons fire penalties are still in place. This, for example, allows a ship to accelerate or decelerate while facing in a direction other than its direction of motion. In order to resolve which thrusters to use for this purpose, consider the thrusters relative to the current facing. *For example, assume a gravitic drive cruiser is pivoted 60° to port. In order to accelerate, it must use the thrusters facing opposite its direction of motion, which in this case would be the port thrusters.* (Note: The thrusters required for other maneuvers, such as turns, are not altered. If the ship turns, its facing relative to its new direction of motion may remain the same, or it may turn into the pivot, at the owning player's option. In the example above, if the cruiser turned left, it could either assume a new direction of motion, or leave itself pivoted 60° to port, relative to its new heading).

In addition to their movement benefits, gravitic drives also provide artificial gravity to those aboard the ship. However, this has no effect on game play in AoG Wars.

4.11 Singularity Drives and Mag-Gravitic Reactors

The black hole that drives some vessels is most commonly referred to as a singularity. It is almost microscopically small, yet produces enough energy to power an entire ship, though usually not all its weapons simultaneously. The singularity is represented on the ship with a standard engine icon.

The singularity produces all a ship's engine power and thrust using the gravitic rules. In addition, the "thrusters" that focus these gravitational forces are extremely efficient, and do not use or require thrust ratings. Thrusters on these ships ignore all outlet critical hits, though they are still subject to efficiency criticals under the usual rules.

The engine system completely encases the singularity. If the engine is ever destroyed, the ship is also immediately destroyed. The implosion of the containment field destroys the black hole in the process—there is no danger that it will remain behind as a menace to navigation.

To harness the power of the singularity, these ships are also equipped with a special power system referred to as the **mag-gravitic reactor**, or MGR. This device manages and maintains the ship's energy, transferring it to systems as needed and bleeding off any excess safely into the void of space. Because of the nature of the electromagnetic weapons on ships using an MGR, they are not considered armed unless they draw power from the supply made available by the MGR. Sensors and engine output require no special attention, although both can be improved by applying

MGR power using standard rules. Since MGR-fed thrusters have no upper limits, this can allow their ships to performd some tremendously intricate maneuvers (but every point you spend on thrust is one less you have for your ship's guns).

The amount of power the MGR provided is shown as "Available Power" in the ship datacard, in the same place where power surpluses or deficits are normally defined. If the MGR is destroyed, all of this power is lost, leaving the ship capable of maneuver but unable to use any power-requiring systems at all (including sensors).

Note that the use of all power must be determined at the start of the turn, at the same times systems are activated or deactivated for extra energy. This includes all special weapon arming modes and the like. Any energy not allocated at this time is lost.

4.12 Agile Ships

Ships defined as agile have several movement related benefits, most of which have already been described. The benefits are summarized in Table 4.

Most agile ships are of the medium class or smaller, and have their agile status displayed prominently on the control sheet. All light combat vessels are considered agile unless otherwise noted. Fighters and shuttles are not agile as such (the classification is normally used to refer to ships), but benefit from some of the same advantages, as listed Table 4.

Table 4
Agile Unit Advantages

Initiative: Some agile ships have a built-in bonus to their initiative, although this varies from ship to ship. This bonus is included in the rating shown on the ship datacard.

Snap Turns: Agile ships may turn up to 180° at once using the Snap Turn maneuver. Non-agile ships may not do this, although fighters (but not shuttles) are permitted to do so.

Pivots: Agile ships may pivot up to 180º in a turn, and complete the maneuver immediately. See the Section 4.8 for more information.

Turning While Pivoted: An agile ship may turn while pivoted, regardless of how far it has pivoted. The turn must be performed in the direction the ship is facing, and casts the usual amount. *For example, an agile ship moving in direction A (towards the tap of the map) that is facing in direction C (towards the bottom right) could turn while pivoted, but only in direction C.* The turn automatically sets the ship's facing to the new direction (no pivot is required for this), so in this example, the ship would now be moving in direction C and facing direction C. Agile ships with gravitic drives can choose to ignore this facing reset if they wish, remaining in their original orientation, as mentioned in the gravitic drive, Section 4.10. *Thus, in this example, a gravitic agile ship could choose to either have its facing reset to C, or remain in the same orientation, i.e., moving in direction C while facing in direction E.*

Rolls: Agile ships complete rolls immediately, as defined in the rolling rules in Section 4.7.

Skin Dancing: Agile ships may skin dance. Fighters and shuttles are considered agile for this purpose.

4.13 Fighter/Shuttle Movement

Thrust for fighters and shuttles, most of the movement concepts are the same as with ships. However, since these smaller units are much more maneuverable, they have some advantages over their larger space going brethren.

First of all, fighters and shuttles have a specific

amount of thrust they can use during the turn. Although they have thrusters like any ship does, these are assumed to be available as needed (for simplicity's sake), so there is no need to "channel" thrust through particular thrusters. However, it is not possible to purchase additional thrust points for fighters and shuttles. They will have to make do with what they have and nothing more.

4.13.1 Acceleration and Deceleration

These maneuvers are performed the same way as ships do them (fighters with gravitic drives, can accelerate while pivoted). All fighters and shuttles have an accel/decel cost of 1 unless noted otherwise on their control sheets.

4.13.2 Turns and Snap Turns

These maneuvers are essentially the same for fighters and shuttles as for ships All shuttles have a turn cost of 1/3 and a turn delay of 1/3 unless noted otherwise. Fighters have a turn cost of 1/3, but a turn delay of zero (unless otherwise noted), as shown on their FCS.

All fighters may make snap turns as though they were agile ships. Shuttles may not do this unless specifically noted in their rules.

Fighters and shuttles may turn regardless of their current facing (i.e., if they are pivoted in a direction other than their current heading). When the turn is made, the maneuver automatically shifts the fighter/shuttle so that it now faces its new direction of motion. There is no need to pay any sort of pivot cost for this action. Note that fighters with gravitic drives may ignore the facing reset if desired.

4.13.3 Slides

Fighters and shuttles can slide in the same way that ships can, except the maneuver costs only one point of thrust regardless of speed.

4.13.4 Pivots

Fighters and shuttles have more control over pivots than ships do due to their small size and maneuverability. A fighter or shuttle can pivot to face any direction at will, paying 1 point of thrust for each 60° of facing change. Any such change in facing happens immediately (there is no delay) and stops at that point-the fighter/shuttle doesn't keep pivoting like ships will. *For example, a fighter wishing to pivot so it faces opposite its direction of motion would make three 60° facing changes, costing 3 thrust.* There are no weapons fire penalties for fighter pivots.

While pivoted to a side, a fighter cannot accelerate or decelerate (unless it has a gravitic drive, see Section 4.10), although it can turn (see Section 4.12.2 above). In order to accelerate or decelerate, it must pivot again so it is facing in its direction of motion (or exactly opposite it, so it is moving in reverse). Note that a turn can also be used to restore a fighter to its correct orientation.

4.13.5 Combat Pivots

After all movement is complete (by all units at all initiative levels), fighters and shuttles may make a combat pivot. This is exactly like a normal pivot except it costs twice the normal amount (2 thrust per facing change) for fighters and three times the normal cost (3 thrust per facing change) for shuttles. If a fighter or shuttle makes a combat pivot, it suffers a -1 penalty to its weapons fire, regardless of how many facing changes are actually made.

Typically, fighters use combat pivots to bring their weapons to bear on enemy fighters or other units that "got the drop on them" due to initiative limitations. In order to use a combat pivot, you will need to leave at least a couple of thrust points unspent during movement.

4.13.6 Rolls

Fighters and shuttles may roll for a cost of 1 thrust point. The maneuver takes effect instantaneously and brings with it no weapons fire penalties. For most fighters and shuttles, rolling is a pointless maneuver, however, because their weapons are usually arranged symmetrically.

4.13.7 Jinking

Fighters (but not shuttles, even armed ones, or ships) may make a special jinking maneuver to increase their defensive rating. For every 1 point of thrust spent jinking, the fighter gains the effect of 1 point of defensive EW. However,

its own weapons also suffer a -1 penalty to hit. Each point of thrust is said to buy one level of jinking, so a fighter with 4 levels has +4 to its defensive EW and a -4 penalty on all weapons fire.

There are limits to the amount of jinking a fighter may use. This limit is defined by the fighters size and shown in Table 5. Note that limits provided in Table 5 assume the fighter has enough thrust to pay for the number of levels desired. A light fighter with only 9 thrust could not use the 10th level unless it had some other way to gain a thrust point (e.g., an expert crewman of same type, or a special scenario rule).

Jinking is declared when the fighter is taking its turn to move, and must be announced to all players. It can be declared at any time during the movement step (at the beginning, end, or anywhere in between, but only when it is the fighter's turn to move), simply by announcing you are using the required thrust for this purpose. Jinking must be paid for each turn—it is not a continuous action once started.

Jinking is only effective against ships or at ranges beyond point blank. Thus, fighters can ignore the jinking levels used by enemy fighters so long as both units are in the same hex and the attackers are not themselves jinking.

Typically, fighters jink when approaching or leaving a target, but not on turns when they are making a firing run (as it disrupts their own weapons too much). They also jink like crazy while under attack by missiles, hoping to throw off the limited targeting abilities of such weapons.

Jammer-equipped fighters cannot benefit from both jinking and jamming effects (see Section 5.12 for Jammer rules). They apply the best effect these actions would normally incur. *For example, a jammer equipped fighter jinking at level 4 would normally give any enemy fighter a -4 to hit. However, its jammer also forces range penalties to be doubled. Thus, a fighter weapon with a range penalty of -2 per hex would use the jinking adjustment if shooting from range 0 or 1, either penalty from range 2, and the jammer penalty from range 3 or beyond.*

Table 5
Fighter Class Jinking Limits

Super-heavy fighters:	4 levels
Heavy fighters:	6 levels
Medium fighters:	8 levels
Light fighters:	10 levels
Ultralight fighters:	Unlimited

5.0 Combat Procedure

Maneuvering is merely the setup for the most important port of the game-destroying your enemy before he destroys you. This section explains how weapons are armed and fired, how damage is resolved against a target, and other special procedures that have to do with direct combat between ships (Fighter combat will be explained in Section 6).

5.1 Preparing Weapons

To fire a weapon, the weapon must first be powered. As noted in the power system rules, ship reactors automatically provide enough energy to power everything on the ship (including weapons) automatically. Thus, a weapon won't be powered only if it is (a) destroyed, (b) voluntarily deactivated by you, or (c) unpowerable due to other factors, such as a damaged reactor.

All weapons have a rate of fire associated with them. *For example, heavy lasers have a rate of fire (ROF) of 1 per 4 turns. This means that after firing (or being shut off and repowered), they must wait four turns before they can shoot again. Thus, if a heavy laser fires on turn 5, it could fire again on turn 9, but no sooner. If it were deactivated for extra power on turn 6, and repowered on turn 7, it would have to wait for all of turns 7, 8 and 9, and could shoot again on turn 10.* For all intents and purposes, you can consider the last turn a weapon was deactivated to be the last turn it was "fired."

Some small, defensive weapons have an ROF of 1 shot (or more) per turn. Even if shut down on one turn, they could immediately fire again on the following turn (assuming they are powered on that turn). Unless otherwise noted in a specific rule, a weapon with an ROF faster than 1 shot per turn cannot be partially shut down (it's all or nothing).

5.1.1 Cooldown Periods

Some weapons have a cooldown period associated with them, during which time they cannot be armed. During a cooldown turn, the weapon may not be powered under any circumstances. This power is not lost, however, but can be distributed to other systems using the normal rules.

For example, weapons using sustained mode (described in Section 5.6.4) must cool off after use. If a weapon uses a cooldown procedure, this fact will be noted in its specific rules.

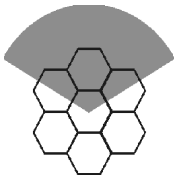
5.2 Declaring Fire

All units declare fire at each other simultaneously, at the beginning of the Weapons Fire Step of the Combat Sequence. In order to ensure that this is truly simultaneous (and not just a reaction to an opponent's shot, or lock thereon, you'll want each player to secretly write down his or her weapons fire. This eliminates "me-too fire"—and a lot of arguments.

Some weapons are capable of firing in defensive mode (as explained later in Section 5.8), using their shot to attempt to stop an incoming enemy weapon fire. If used in this mode, simply write "defensive" down for its firing orders. After you have learned what the enemy is shooting at you, you can then decide which shots to block (if any). However, you could not change such weapons from defensive mode to offensive mode once this declaration has been made even if no one shoots at you. Weapons set to defensive mode aren't required to make a defensive shot if you so choose (this might be an option for defensive weapons with slow rates of fire).

5.2.1 Firing Arcs

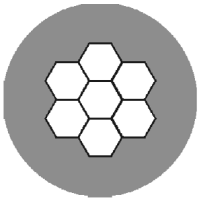
Although the target of your shot may be obvious, your ship's weapons may simply be unable to aim at your opponent due to the limitations of firing arcs. Firing arcs represent the field of fire the weapon is capable of shooting in. A sample arc is shown to the right of this paragraph. The weapon with this arc is assumed to be in the central hex of the display, and can fire in any hex filed or partially filled by grey (and outward across the map, limited only by the weapon's maximum range), including the firing ship's hex. Note that units in the same hex as the firing ship are not automatically "in arc" of its weapons—to judge arcs in such situations, see "Determining the Direction of Fire," in



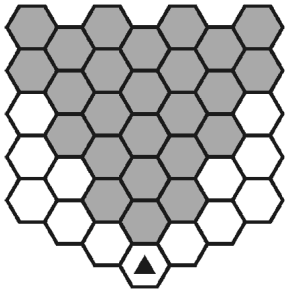
Section 5.4.1.

If the arc extends into a half-hex, as in the case of arcs like the example shown in this paragraph, any half-hex is considered within the arc of fire.

In the case of the 360° arc, like the one shown to the in this paragraph, the hexes are shown on top of the grey area in order to avoid confusion (especially after the control sheet has been photocopied, after which the gray will tend to turn black). Very few weapons possess this arc, as most are mounted on inflexible hardpoints for stability.



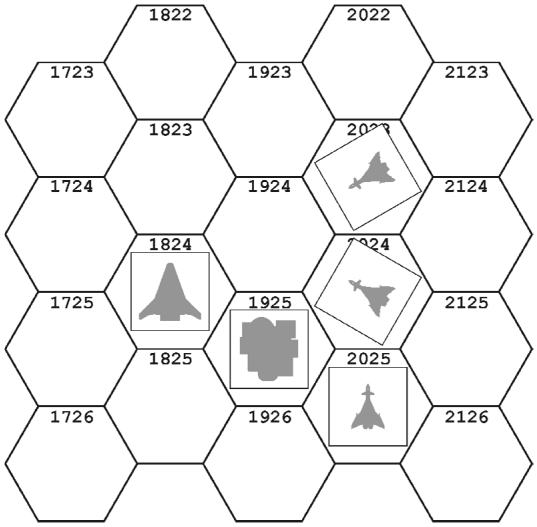
Most fighters use a special arc display (shown in this paragraph), which is narrower than most ship weapons. As with all other arcs, this one extends outward as far as the ship's weapons can reach (it is not limited to only the hexes shown on the graphic). Fighters, however, typically have very short-ranged weapons. Like ships, fighters are permitted to fire at units in the same hex as themselves (see Section 5.4.1 for more on this subject).



5.2.2 Line-of-Sight

It is not possible to shoot at a target you do not have line-of-sight (LOS) to. The only things in the game that can block line-of-sight are huge objects, such as enormous units, moons, asteroids, and other terrain features. Other ships, fighters, and so forth will not block LOS.

To determine if LOS is blocked, draw an imaginary line between the center of the firing unit's hex to the center of the target unit's hex. If this line enters the hex containing something that blocks LOS, or touches the edge of such a hex, then no weapons fire can be exchanged between the two units on that turn. *For example: in the diagram shown here, the a destroyer in hex 1824 has line-of-sight only to the fighter flight in hex 2023. LOS to the fighter group in 2025 is blocked by the asteroid, while the fighters in 2024 are hidden only barely, because the line-of-sight touches the asteroid's hex (the top edge of hex 1925).*



5.2.3 Ballistic Weapons

These weapons, such as missiles, are unique in the way they operate. They do not fire during the Weapons Fire Step, but are instead launched at the same time EW is determined (see the Combat Sequence in the Appendix for the exact timing). However, they don't actually make their attack—that is, roll to hit—until the Weapons Fire Step, like all other weapons do.

The tactical effect of such weapons is that, because they are launched before movement, the firing ship—and the target—can adjust their positions and facings to react to the attack. For example, a fighter could simply turn away from the target after launching a missile, winding up well out of range of the ship's guns when its missile impacts. Or, that same fighter could charge in and attack a different enemy unit while the missile continues towards its target, hopefully tying up that ship's defensive weapons against the missile instead of the fighter itself.

When the firing unit launches a ballistic weapon, it should leave a counter in the launching hex to represent the point of launch. Line-of-Sight is required at the time of launch, but not when the weapon rolls to hit. Note that if the target disengages from the scenario somehow during the Movement Step—perhaps by entering a jump point—the ballistic weapon automatically misses.

Further rules on ballistic weapons are provided in Section 8.11.

5.3 Weapons Fire Resolution

After weapons declarations are made, weapons fire is resolved in a specific order, as mentioned in Section 2.1. First, ballistic weapons (launched before movement) make their to-hit rolls. Then, ships take their shots. Next, fighters fire at fighters Finally, fighters fire at ships. These four elements are referred to as combat resolution steps, and are handled individually, one after the other.

The main effect of this sequence is that it's possible to destroy a weapon or fighter before it gets a chance to take its shot. A weapon or fighter that allocated fire in the same combat resolution step that it is destroyed, however, will still get to shoot (since all fire in that step of the sequence is effectively going on simultaneously). *For example, if a ballistic weapon hits a ship and destroys a laser that had been allocated to fire that turn, the laser will be lost before it can shoot. However, if two ships exchange laser fire, and one destroys the other's laser cannon, that cannon will still get to take its shot The two weapons were basically firing at the same time.*

Defensive fire at an incoming weapon is resolved during the attacking weapon's combat resolution step. In this way, a ship-mounted turret can shoot at an inbound ballistic weapon (for example) during the ballistic weapon resolution step.

5.3.1 Firing Order

If you have allocated more than one weapon to fire at the same target during the same combat resolution step, you can resolve those shots in any order you choose. However, you must announce the order you'll be taking the shots before you actually make any die rolls.

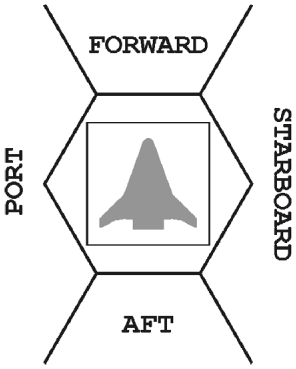
This can be very important when using different types of weapons that score damage in unique ways, or when combining small shots with larger ones. You might, for example, choose to fire your smaller weapons first, since these will be more likely to damage poorly armored systems before your heavy guns strip them away. Otherwise, your light weapons might bounce off the more heavily armored interior of your target.

5.4 Rolling To-Hit

Once declaration is done, and the time comes to actually fire, you must figure out what your chance to hit is. This process requires several easy steps, as listed below. Not all of these steps come into play with every weapon.

5.4.1 Determining the Direction of Fire

Before you can make any calculations, determine the direction of fire. There are four directions a shot can come from: forward, port, starboard or aft, as shown in the diagram in this paragraph. Note that the forward and aft areas are only 60° arcs, whereas the port and starboard regions are 120°, making those areas twice as likely to take damage.



In the case of an indeterminate shot (one that comes down the "spine" and could hit one of two possible areas), the target of the shot chooses which section is hit. However, he must choose the same side for all weapons coming from the same source in that turn. He could not choose to take half the weapons fired by a particular ship on one side and half on the other. If fire is coming from two different ships (even If they are in the same hex), he could choose to split them (and probably will).

If two units are in the same hex (range zero) and one shoots at the other, determine the firing situation (firing arcs and direction of fire) based on the positions of the two ships just before the last of the two entered the hex in question. It is a fact of the initiative system that one of the two will enter the hex after the other. (If using the secret movement option [see Section 3.2.5] for initiative tie-breaking, determine the facings randomly by tossing a coin).

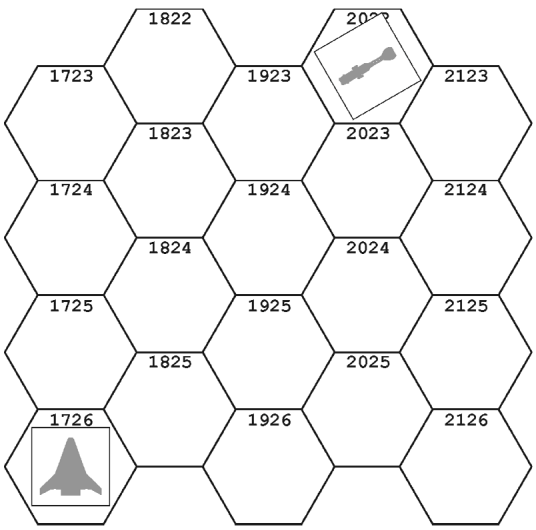
5.4.2 Determining the Base Chance to Hit

Once you know the direction your fire is corning from, find out the target's defensive rating for that direction. The defensive rating is a representation of the ship's profile when viewed from the front/back or from the side. *For example, long and narrow ships tend to have lower forward/aft values, while fat, wide ships will have lower side values.*

The defense rating values will be located in the datacard on the top right of the control sheet. *For example, if a ship has a forward/aft defense rating of 15, you need a roll of 15 or less (on a d20) to score a hit if shooting at its front or rear sections.* Thus, the lower the value, the harder the ship will be to hit.

1. Combat Resolution Example

Here is an example of the fire resolution process. In this example, a heavy cruiser in hex 1726 is firing weapons at a destroyer in hex 2022.



The first step in the procedure is to determine the direction of fire. Consulting the diagram in Section 5.4.1, it can be see that the heavy cruiser is firing at the forward section (barely). To see this for yourself, trace a line from the center of hex 1726 to the center of hex 2022. Since the destroyer has a forward profile of 13 (which is shown on its control sheet), the base to-hit number will be 13 or less on a d20.

If the destroyer had been in 1923 instead, the direction of fire would be split evenly between the forward and port side. By rule (Section 5.4.1), the target would select the direction in this case, but his choice would affect ALL fire by this heavy cruiser during this combat turn.

5.4.3 Adding or Subtracting for Electronic Warfare

If the target ship has any defensive EW, the EW value effectively reduces the chance to hit appropriately. Thus, a ship with 5 defensive EW will effectively have a defense rating 5 points lower than normal (in all directions). Remember, fighters shooting non-ballistic weapons at a target ignore its defensive EW entirely.

If you have assigned any offensive EW to the target (or, in the case of a fighter, if you have an offensive bonus available), add this amount to the base chance to hit. For example, if the target's defense rating (as modified by EW) is 12, and you have 4 points of offensive EW painting that unit, your chance to hit is 16 or less.

2. Combat Resolution Example Continued

Applying EW Modifiers

Assume the destroyer has allocated 4 points of defensive EW and the heavy cruiser has fully painted the destroyer with 8 offensive EW. The net result is a +4 in the heavy cruiser's favor, so he now needs a 17 or less to hit.

5.4.4 Adding Weapon Fire Control Modifiers

Each weapon type has its own fire control system associated with it. This feature is represented by three values separated by slashes. The first of these is the bonus (or penalty) against capital ships and heavy combat vessels (or anything larger); the second is the bonus against medium ships and light combat vessels; and the third is the bonus against shuttles and fighters (and anything smaller).

For example, a heavy weapon might have these modifiers: +3/+1/-2. If firing at a capital ship, it has a + 3 bonus to hit. At medium vessels it would have a + 1 bonus, but against fighters and shuttles it would have a -2 penalty.

Note that most fighter weapons don't have a fire control listing. As fighter pilots usually just eyeball their targets (with the assistance of their onboard computer's offensive systems), fire control ratings are already built into the combat bonus statistic. There may be exceptions to this rule, particularly for fighter-mounted heavy weapons.

3. Combat Resolution Example Continued

Fire Control Modifiers

The heavy cruiser wishes to fire its Heavy Laser Cannons at the destroyer. A quick check of the firing arcs on the heavy cruiser control sheet shows the destroyer is a legal target of heavy laser #2 only (#1 fires in the forward port area only, and #3 is an aft firing weapon). The fire control rating of an Heavy Laser Cannon is +3/+2/-4, meaning it has a +3 to hit capital and heavy combat ships (of which the destroyer is an example). The heavy cruiser to-hit number is now up to 20 for the heavy laser cannon. Note that other weapons have different fire control ratings (e.g., the pulse cannon has a +4) and so might require different target numbers from this point on in the process.

Hvy Laser Cannon
Class: Laser
Modes: R, S
Damage: 4d10+20
Range Penalty: -1 per 3 hexes
Fire Control: +3/+2/-4
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns

5.4.5 Subtracting the Range Penalty

Weapons also have a range penalty that determines how effective they are at longer ranges. Count the distance, in hexes, between the firing ship and the target, and apply the listed penalty to your chance to hit. Round any fractions up. For example, if a weapon's range penalty is -1 per 3 hexes and the target is 7 hexes away, the penalty to the to-hit roll is -3.

To find the distance between your ship and the target, simply determine the closest possible path between the two units, and count the number of hexes involved. Do not count the hex your ship is in, but do count the target's hex, unless you are both in the same hex (which would be a range of zero). For example, if your ship is in hex 2110 and is firing at a ship in hex 2104, the distance would be 6 hexes.

Note that if you are firing without a lock-on (e.g., if you applied no EW to the target), your range penalty would be doubled. Do not double the number of hexes—double the penalty itself. Thus, if your range penalty is -3, and you have no lock-on, that penalty would be -6.

4. Combat Resolution Example Continued

Range Penalties

Consulting the weapon datacard once again, the player sees that his Heavy Laser Cannon has a range penalty of -1 per 3 hexes. The range to the destroyer is 5 hexes, so the penalty would be -2 to hit. The to-hit number is now down to 18.

As there are no additional modifiers (the destroyer has no other defense bonuses such as shields or interceptors), the heavy cruiser must roll an 18 or less on a d20 to hit with its heavy laser cannon. The heavy cruiser rolls a 13 and scores a hit with his heavy laser cannon.

5.4.6 Subtracting Defense Bonuses

In some cases the defender will have certain advantages that make it harder to hit. These are described in other rules, such as those regarding various terrains (see Section 12.5).

If the target is protected by a shield or similar system, subtract the shield factor or intercept rating from the chance to hit. Note that only one of each type can protect a target at a time, so if multiple shields or similar system overlap, the defender should select one and use its rating (usually the one with the highest rating). Ships with shields or similar systems show the lower defense ratings in parenthesis next to the originals, representing the effect of the defensive item.

If the target is a fighter and is using the jinking maneuver, subtract 1 for each level of jinking.

5.5 Damage Resolution

After you've actually hit a ship with a weapon, you must determine how much damage your shot has caused. Each weapon does a certain amount of damage as listed in its statistics box on the Weapon Data Sheet. *For example, a heavy laser cannon causes 4d10+20 damage, meaning the player will roll four 10-sided dice and add 20 to the result.* The total number of points of damage, referred to as a volley, is then allocated to the target.

The rules that follow deal with damage to ships. Fighter and shuttle damage resolution is handled in Sections 6.5 and 6.7.

5.5.1 Determining What Was Hit

The first step in resolving damage is to determine what system on the target ship is hit. On each ship control sheet, you'll find hit location charts that are used for this purpose. For capital ships, you'll find hit charts for each section of the ship (forward, aft, port, starboard, and primary). For heavy combat vessels and medium ships, there are only forward, aft, and primary hits. These represent the forward half and rear half of the ship, respectively. Light combat vessels use only a single hit chart. Some other ship types might use different hull arrangements, and if so, rules for this will be defined in the appropriate ship description or rule.

All hit location rolls are made on a d20. *For example, if a volley strikes a destroyer from the front, and the firing player rolls a 7, a particle cannon would be hit. If the player rolled a 19 or higher, he would score a Primary Hit, which is provided as a separate chart.* (Primary Hits represent damage that penetrates to the central core of the ship). If a volley hits a system and there are several possibilities (e.g., several of the same type of weapons available), the target player chooses which one will be damaged. However, he must choose one an the side of the ship being struck (forward, port, starboard, or aft)—items on the other sides are not eligible for damage. If applicable, weapons/shields that bear on the firing unit must be selected first. Finally, in addition, he must select one that is undestroyed—destroyed systems can't be selected to accept damage. If there are no systems left of the type rolled, damage hits structure instead.

FORWARD HITS

1-5:	Retro Thrust
6-7:	Particle Cannon
8-10:	Interceptor
11-18:	Forward Structure
19-20:	PRIMARY Hit

Damage Location Example

A destroyer is hit from the forward part quarter by four volleys. As the destroyer is a heavy combat ship (with no "Side Hits"), all of these volleys roll on the Forward Hits chart. The first roll results in a shield hit, and the destroyer player may only choose the single shield facing the firing unit.

The second hit strikes a particle cannon, and the player chooses one of the two, which is damaged but not destroyed.

The third volley is determined to be a Primary hit, and the additional roll yields a Port/Stbd Thrust result. This means that only the port thruster can be damaged, as that is the side the fire is coming from.

Finally, the fourth and final volley hits another particle cannon. The player may now select either the undamaged one or the damaged one at his option.

5.5.2 Subtracting for Armor

Almost all ship systems are armored. Armor is shown next to systems in a circle icon, similar to the example here.

When a volley hits a system, subtract the system's armor value from the number of hits scored by that volley. *Thus, if a volley of 15 points hits a system with 2 armor, it would score 15 - 2 = 13 hits, and the player would mark that many boxes destroyed with the system.*

Note that armor is non-ablative. This means that it is not destroyed with damage, but continues to affect future volleys (including other volleys that may strike the same system on the same turn) until the system it is attached to is destroyed. *For example, if four particle beams hit a system with 2 points of armor and each rolls a total of 8 damage, the damage caused would be (8-2) + (8-2) + (8-2) + (8-2) = 24, not (8+8+8+8)-2 = 34.* Remember that each weapon causes its own volley of damage, which is resolved separately.

If a ship is equipped with adaptive armor (described in Section 5.10), and one or more points have been activated for use against weapons of the type hitting the ship, simply add those points to the listed armor value for the system being struck.

5.5.3 Subtracting for Shields

If a ship has a shield that covers the side being fired upon (i.e., the shield's arc faces the firing ship), the shield factor is subtracted from the volley's damage (before any armor subtractions are handled). *Thus, for example, if a structure block with 5 armor took a 12-point hit, but the shot came in through an arc covered by a 3-point shield, only four*

boxes would be marked destroyed on the structure. Shields will affect each volley only once.

Note that only one shield system can protect a ship from any individual volley. If two or more shields overlap, the target player can select which one to use (and will almost certainly pick the one with the highest rating). Even if the shield is destroyed, it still protects against any damage scored during the same combat resolution step.

5.5.4 Marking the Damage

When the total damage has been determined, mark it off on the target ship's control sheet by crossing out or filling in the boxes of the system that was hit. When doing this, the player who owns the target (not the firing player) chooses which boxes to mark off (if it matters).

If even a single hit is marked on a given system during a turn, then that system is eligible for a critical hit at the end of the Weapons Fire Step of that same turn. See Section 7 on critical hits.

If a system is completely destroyed, it can no longer be used for any purpose (and neither can its armor), beginning immediately. If the destroyed system is a weapon, and was allocated to fire during the same resolution step of the weapons fire sequence, then it may still take its shot; otherwise it won't get the opportunity. *For example, if a ship allocates a heavy laser to fire at another ship, but that heavy laser is destroyed by a missile, it would not get a chance to fire. On the other hand, if the heavy laser was destroyed by an enemy ship's guns (effectively simultaneously), it would still get its shot off.*

5.5.5 Overkill

If all of the targeted system's boxes are destroyed during a volley and there are still unallocated hits left over, these overkill hits penetrate to the structure block on that side of the ship (or, if that structure block has already been destroyed or is not applicable, to the primary structure). However, armor does apply to overkill damage, greatly mitigating the effect.

For example, if a volley of 15 points of damage hits a forward twin array with 3 armor and 6 damage boxes, the entire array will be destroyed, with 6 points of overkill remaining. This would be applied to the forward structure, since the twin array is part of the forward area of the ship. If the forward structure has 4 armor, then 2 boxes would be marked destroyed, concluding the volley.

5.5.6 Destroyed Structure

The bulk of most starships is structure, representing the actual hull of the vessel. Structure appears as boxes with no icon, as in the example here.

Capital ships have five structural locations: forward, part, starboard, oft, and primary (the central hull). Heavy combat vessels have only forward, aft, and primary structure blocks. Medium ships and light combat vessels have only primary structure. Fighters and shuttles don't have structure blocks, but use a single damage track that is marked off regardless of the direction of the shot.

If a structure block is destroyed, this represents the loss of a major section of the vessel. After all weapons fire is done (technically, during the Post- Turn Actions Step of the Combat Sequence), any system located in the same structural area as a destroyed structure block should also be marked destroyed (Structural areas are denoted an the control sheet by block lines separating each ship section). Note that since this happens after all weapons fire is done, systems attached to a destroyed block can still be selected for damage on the same turn (and such hits would be wasted).

After a forward, aft, or side structure block is destroyed, any additional damage allocated to it on the same turn is scored instead on the primary structure. Damage allocated to a destroyed structure block on future turns (i.e., after the entire section has fallen off the ship) is instead rolled as a Primary Hit. Note that in neither of these cases will the destroyed structure's armor be counted for any purpose.

If the primary structure is completely destroyed, the ship is destroyed immediately (don't allocate any more damage) and is removed from play.

5.6 Weapon Firing Modes

Most weapons score their damage in "standard" mode. However, some will allocate their volleys in different ways. The different firing modes a weapon can use are described in the following sections. All weapons will use one or more of these modes, and the specific modes available are listed with each weapon's description. A list of modes and a short description of their characteristics is provided in Table 6.

5.6.1 Standard Mode

The typical weapon (particularly smaller, defensive ones) will score its damage in standard mode. In standard mode, all damage is scored in a single group. *For example, if a standard mode weapon scores 14 damage to a system with 5 armor, simply mark 9 boxes destroyed and move on to the next volley.*

5.6.2 Raking Mode

Many heavy weapons, especially beam weapons, tend to spread their damage across a ship's hull. When fired in this way, this is referred to as raking mode. Many heavy weapons can only fire in raking mode, not standard mode, since their beams fire for several seconds in order to achieve maximum effect.

When a weapon fires in raking mode, first determine the total damage caused, then break the damage up into groups of 10-point sub-volleys Any leftover points go into a final, smaller sub-volley. *For example, if a heavy laser (a raking weapon) causes 25 damage on a hit, this would be resolved as two 10-point sub-volleys and one 5-point sub-volley.*

Each sub-volley rolls separately for hit location (rolling the full 10-point sub-volleys first, with any fractional one last). However, since these are all part of the same volley, do not subtract armor or shield effects again once these have already been applied to a previous sub-volley of the same shot. *For example, assume the 25-point heavy laser from the previous example hits a ship an the port side. The first sub-volley hits the port structure, which has an armor value of 5, resulting in 5 damage to the structure block. The second sub-volley hits a heavy laser, which has 3 armor, causing 7 damage to that gun (leaving 1 damage block). Finally, the third subvolley (this one of 5 points) is found to hit the port structure. Although the structure has 5 armor, this would be ignored since a previous sub-volley already hit that system. These 5 boxes would thus be marked off as damage.*

Same raking weapons are capable of scoring raking sub-volleys in lots other than 10 points. *For example, a raking weapon may be designated as scoring 8-point, 12-point, 15-point, or even larger sub-volleys.* If this is the case, the firing mode will be listed as Raking (X) or R(X) where X indicates the subvolley size. *For example, a weapon that scored its volleys in 15-point increments would be listed as Raking (15) or R(15).*

Raking made does not use the above procedure against fighters or shuttles. If a raking weapon hits such a unit, score all its damage in standard mode against a single target (do not break it down among the elements of the flight). *For example, if a heavy laser hits a flight of fighters, it will hit (and probably destroy) one of them, leaving the others intact.*

Raking mode is perhaps the most common among

Table 6: Weapon Firing Modes at a Glance

Standard: Damage is scored as a single volley.

Raking: Divides damage up into multiple sub-volleys, usually of 10 points each.

Piercing: Divides damage into three subvolleys. The first hits the facing side, the second primary, and the last the opposite side of the target.

Sustained: Fires continuously for two or more turns. After the initial hit, future hits are automatic provided the target remains in arc and all other conditions are met.

Flash: All damage is a single volley, but excess is re-allocated to a new location. Cannot hit primary until everything on the facing side is destroyed.

Pulse: Scores a random number of standard mode volleys with bonuses based on the quality of the hit.

Linked: Linked weapons roll to-hit normally but will all hit the same location on the target. Used chiefly by fighter weapons.

heavy weapons. Raking weapons can cause good damage, sometimes knocking off several systems in a single shot. In addition, they are less likely to overkill destroyed systems because their hits are broken up into several sub-volleys.

5.6.3 Piercing Mode

Some weapons, particularly the more powerful beam systems, can be concentrated into piercing mode. If this option is available, it will be listed with the weapons statistics and in its description. If it is not listed, a weapon may not use this option.

The decision to fire a weapon in piercing mode is made at the moment of firing, before rolling to hit. As the shot requires great precision, the target must have been painted by at least 4 points of offensive EW. However, there is also a -4 penalty to hit, which effectively cancels out the offensive EW. Piercing mode does not require a lock-on, so it can be used against jammer-protected units (the 4 offensive EW points are still required). See Section 5.12 for additional jammer rules.

If a piercing shot hits, divide the damage into a number of volleys equal to the number of structure locations the shot would travel through if it passed cleanly through the target (regardless of whether or not said sections have already been destroyed by damage). Thus, on a capital ship or base, divide your damage into three equal volleys (forward-primary-aft or port-primary-starboard). On heavy combat vessels, divide it into three equal volleys if coming from the forward or aft directions, or two if coming from a side arc (i.e., forward-and-primary, if in front, or aft-and-primary, if from the rear; in ambiguous situations, the target chooses). On a medium ship or light combat vessel, it is always treated as a single volley, but loses 2 points of damage per die with a minimum of 1 point per die (this is due to the fact that there is much less ship to burn through and some of the energy is wasted on a target this small). Piercing mode cannot be used against fighters or anything smaller than a light combat vessel.

Roll hit location for each resulting volley, once on each appropriate hit location chart (rerolling any primary hits generated on a side chart), and apply each volley in standard mode. However, any overkill is lost, and not applied to the structure. If the side in question has already been destroyed, that damage is lost.

Piercing mode is often used in an attempt to cause a significant critical hit to a key enemy ship. Since the damage is divided into an extra set of volleys, it is mitigated by armor more than any other weapon (and armor in the primary section of the ship is usually the strongest). Piercing mode can also be used when your target is very close to destruction, but the section facing you is still in good shape. In this case, normal fire will take forever to get through, but a piercing shot might score enough damage to the primary structure to finish off the target.

Piercing Mode Example

A light cruiser hits a heavy cruiser with a laser in piercing mode. It is firing into the forward structure, so the damage will be divided into three separate volleys. A total of 35 points is rolled, resulting in three 11-point volleys and 2 extra points. The extras are allocated as the target player sees fit, but must be on different sections; he chooses the first and last volleys.

The first volley is rolled on the forward chart and hits structure. The second is rolled on the primary chart and hits the jump engine. The final volley is rolled on the aft chart and hits a light pulse cannon. It only takes six points to destroy the cannon (2 for armor, 4 for the actual damage boxes) so the remaining 6 points of damage are wasted.

5.6.4 Sustained Mode

The most powerful and most advanced weapons are capable of firing in sustained mode. To do this, the ship feeds extra power into the weapon for an extended period of time, then channels it to the target in a deadly continuous stream.

To fire a weapon in sustained mode, it must first be double-armed. This means its power requirement is effectively doubled, throughout its entire arming cycle. *For example, if a weapon usually requires 5 points of power (i.e.,*

it has a "5" in its diamond-shaped power icon), it will require 10 points on every turn of arming in order to use sustained mode. The extra 5 points of power must be acquired from surplus energy (if available) or by deactivating other systems on the ship. Note that even if you don't fire the weapon as soon as possible, you still must pay the extra arming cost to keep it online and ready (otherwise it reverts to a normally-armed state).

To denote sustained arming, write an "S" next to the weapon on your control sheet, or record this information on any other handy slip of paper. You do not need to reveal the fact that your weapon is armed in sustained mode until it actually shoots (at which point it will be obvious).

If the weapon hits, it scores the normal amount of damage as listed on the weapon data sheet. The damage is scored in whatever mode the weapon usually fires (typically either raking mode or standard mode); it cannot be combined with piercing or any other special modes unless otherwise noted in the weapon's description. This will be whatever mode is listed first as a weapon firing option. *For example, some advanced lasers can fire in raking, piercing, or sustained mode. As raking mode is listed first, their sustained mode shots would be resolved in raking mode.* Weapons that can only fire in sustained mode use raking mode for damage resolution unless otherwise specified in their rules.

The true benefit of sustained mode fire is not felt on the turn it is first fired, but rather on the next turn, because it not only continues shooting until then, but will automatically hit. There are certain conditions to be met for this to happen. First of all, the weapon must still be double-armed as described above. Second, the target must still be in the weapon's firing arc. Third, the line of sight between the firing ship and the target must remain intact. Finally, the firing ship must have kept the target in its firing arc throughout the entire Movement Step (or, if the target moved out of arc during its movement, the attacker must have moved in such a way that the target was brought back into arc as quickly as possible). If all of these conditions are met, the second half of the sustained shot hits automatically. It doesn't matter if the range increased or decreased, or even if a hit would technically be impossible due to range penalties or other factors. The firing ship does not even need to maintain a lock-on to the target.

If the weapon missed during its first attempt to hit, and the above conditions are met, it may make a new roll on the second turn of sustained fire (the hit is not automatic in this case). However, it must attempt to hit the same target, it may not switch to a new one.

Since the second turn of firing is considered to be a continuation of the same shot, shields and armor already used against the first turn's volley(s) will not be effective a second time. *For example, a ship that took damage to its forward structure on the first turn of sustained fire would not get to use that structure's armor against the second portion of the same shot.* In effect, the second turn's damage is a continuation of the original volley. This, combined with the automatic hit, makes sustained mode weapons particularly deadly.

For most sustained weapons, the weapon ceases firing after the second shot and does not continue There are some exceptions to this, however, such as the lasers operated by very advanced races. These weapons are capable of firing for three turns of sustained mode, not two. Assuming the conditions for sustained fire are met, the third shot would automatically hit (as long as the first or second had already hit; otherwise it would have to roll). Weapons that can fire in sustained mode for more than 2 turns are listed as Sustained (X) or S(X) where X indicates the number of turns of sustained fire. *Thus a laser capable of three turns of sustained fire would be listed as "Sustained (3)" or "S(3)."*

After all sustained mode fire is done (regardless of success or the actual length of time the weapon was firing), the weapon must be deactivated for a full turn so it may "cool off." *For example, if a laser fires in sustained mode on turns 4, 5, and 6, it must be deactivated on turn 7 and could begin its arming cycle again on turn 8.* If the weapon is, for some reason, unable to complete the last shot(s) of sustained mode (perhaps the target moved out of arc or behind a convenient moon), that turn can be used as the cooldown

turn. When the weapon is cooling down, its power can be used for other purposes—it is not lost.

Unless specifically overridden in scenario setup rules, weapons may not begin a game In sustained mode. If a weapon is to be armed in this way, it must begin sustained arming on the first turn of the scenario.

Sustained mode is normally used only by very large ships with power to spare during a long approach (usually by deactivating rear-firing or defensive weapons). It is not to be used at close range as the target might easily slip out of arc. Sustained mode is deadly to bases or slow-moving units that give the firing ship time to prepare Its guns and then move away during the cooldown period.

5.6.5 Flash Mode

Flash damage is scored by several different types of weapons, typically those that produce a severe energy or plasma discharge against a ship or other target. If a weapon scores damage in flash mode, it usually is not capable of any other mode (including standard mode).

If a flash weapon strikes a ship, roll location normally and apply damage as though this were a standard mode weapon. However, any overkill does not penetrate to structure. Instead, whatever is left over makes another hit location roll (armor applies as usual). Continue this process until the volley's total damage has been scored Note: A flash weapon cannot score damage in the primary section of the ship unless every system and structure box on the facing side has been totally destroyed (both the structure block and all systems attached to it). If a Primary Hit is rolled and this condition has not been met, roll again. If a flash weapon completely wipes out a side during a turn (or strikes a side with no systems or structure), the rest of its damage rolls on the Primary Hits chart thereafter.

Flash damage also has a significant side effect—it scores bonus damage to all units in the target's hex. This collateral damage is equal to 25% of the original damage caused by the weapon, rounding fractions of 0 5 or more up. This does not affect the original target, but will affect all other units (ships, fighters, mines, etc.) in the hex including friendly units.

A few weapons do damage as a flash weapon, but don't actually score the collateral damage described above. Instead, all units in the hex take the full amount of damage listed. These exceptions will be noted in each applicable weapon description.

Flash Mode Example

A flash weapon hits a heavy cruiser on the front, scoring 40 points of damage.

The first location roll hits a thruster, which has 3 armor and 8 structure. The thruster is destroyed, leaving 29 points in the flash volley. Normally this overkill would hit structure, but flash weapons don't use that procedure, instead re-rolling for a new hit location.

The second roll hits on interceptor, with 4 hits and 2 armor. It too is destroyed, leaving 23 damage remaining.

The third roll is 20, normally indicating a Primary Hit, but flash weapons may not hit primary until the facing side is completely destroyed. The player rerolls and hits a thruster. The previously destroyed thruster cannot be used for damage, so the other one must be taken instead, leaving 12 damage remaining.

The fourth roll indicates thruster again, but none remain. Normally such a result would fall through to structure, but flash damage causes a re-roll. The new roll hits structure. After subtracting 5 armor, 7 hits are marked off on the forward structure and the volley is concluded.

5.6.6 Pulse Mode

Pulse mode weapons fire a group of energy bolts at a target, counting on the spread of shots to earn at least a few hits. Pulse guns are based on an old weapon system called the bolter, which was initially refined into another device known as the pulsar. These are considered inferior to the modern pulse gun. Examples of pulse guns include the light, medium, and heavy pulse cannon.

Pulse weapons score a set amount of damage—usually 8 or 10 points—but can hit more than one time in a turn. *For example, a medium pulse cannon does 10 points of*

damage 1d5 times when it hits. This is listed on the weapon data sheet as "10 1d5 times" (the 1d5 is referred to as the volley count roll). Each 10 points scored by such a weapon would be a separate volley for all purposes, so armor would be subtracted in each case (unlike a raking weapon, Section 5.6.2, for example). Do not roll to-hit for each volley, however. If the pulse weapon hits, its pulses will hit together. Each one will make its own hit location roll (they don't all hit the same spot, unless you're using a called shot).

As pulse cannons fire groups of energy bolts in a close formation, they benefit from the accuracy of their shot. For every four full points the to-hit roll is exceeded, a pulse cannon gains a bonus of +1 on the volley count roll. *Thus, for example, a pulse cannon that needs a 12 or less to hit and rolls a 9-12 would have no bonus, while a 5-8 would give a +1, and a 1- 4 would allow a +2 on the volley count roll.* The four-point zone that determines where these pulse bonuses are scored is called the pulse grouping range, and may vary from weapon to weapon—most of the older pulsars, for example, have a pulse grouping range of 5, while more advanced molecular pulse cannons have a 3.

Pulse weapons will have a maximum number of pulses defined in their statistics (e.g., the medium pulse cannon can hit with no more than 6 pulses, as that is how many the weapon produces during a turn). If the modified roll exceeds this amount, it is reduced to the listed maximum.

When a pulse weapon is fired at a group of fighters or shuttles in the same hex, the firing player can select which unit(s) are to be targeted by the weapon (a flight of fighters is considered a "unit" for this purpose), and makes his to-hit roll against the best defended unit in the group. The defender will then choose which of his units will take damage, and can do it on a pulse-by-pulse basis. *Example: A player has a flight of fighters in a hex along with two armed shuttles and two normal (unarmed) shuttles. A nearby heavy cruiser targets one of his heavy pulse cannons on the stack, but chooses to direct his shot only at the flight of fighters and the two armed shuttles, ignoring the unarmed ones. Since the fighters have the best defense ratings, the shot uses their defense as a baseline. Four of the pulses hit. The fighter's player chooses to take one pulse against each of the armed shuttles and the remaining two against two different fighters of his choice. He could have used two pulses each per armed shuttles (since they can absorb 16 damage each, plus 1 armor, and a heavy pulse cannon scores damage in 15-point volleys), thus destroying both and leaving the fighter flight unscathed, but he wanted to retain as much firepower as possible. He could not have selected either of the unarmed shuttles, as the firing player specifically excluded them from the list of targets.*

Pulse Weapon Example

A medium pulse cannon is determined to require a 20 or less to hit. A normal weapon would not even need to roll (it's automatic) but pulse weapons use the to-hit roll for the volley count bonus. The player rolls a 10. Since medium pulse cannons have a grouping range of +1 per 4 (as shown on their weapon datacard), and this is 10 under the to-hit number, the volley count bonus is +2 (A roll of 17-20 would have no bonus, 13-16 would be +1, 9-12 would be +2, and so on).

With the bonus determined, the player now rolls to see how many volleys are scored. The medium pulse cannon scores damage in 10-point volleys and normally earns 1d5 of them, increased by +2 for this shot due to its accuracy. The player rolls a 5, which should score 7 volleys. However, the medium pulse cannon has a max pulse limit of 6, so the total is reduced to this number. The end result: 6 standard mode volleys of 10 points each strike the target.

5.6.7 Linked Mode

Most fighter guns fire in linked mode. In this mode, they roll to-hit once, and hit the same location on the target (or, if firing at flights, the same fighter in the flight). Each is still treated as a separate volley, and must penetrate armor on its own. If the target system is destroyed by the first shot of a linked grouping, later shots go to structure, ignoring the armor on the destroyed system.

The damage scored by linked weapons is resolved using the standard mode rules unless otherwise noted in the

weapon's description.

Linked Mode Example

A pair of linked weapons fires at a ship, and both weapons hit. The roll for hit location comes up "thruster." The target can choose which thruster is hit, but both weapons will hit that same thruster (the target cannot split their fire between two different thrusters). If the first shot destroys the thruster, the second goes to structure.

5.7 Additional Weapons Fire Rules

Some weapons operate on special mounts or can use alternative firing options As these rules do not fit well under any other heading, they are provided here.

5.7.1 Weapon Turrets

Some ships mount large weapons into one or two very large turrets. Turret-mounted weapons are denoted as such on the ship control sheet, inside a separate circle representing the turret itself.

The primary advantage of the turret is its 360° field of fire, which applies to any weapon or system within it. This is also a disadvantage, as such weapons are more likely to be damaged. If a non-weapon system is located on a turret, that system is destroyed on "weapon" hits (even if it is not technically a weapon). Hangars on turrets can launch their shuttles or fighters in any direction desired.

Although a turret has on effectively unlimited firing arc, all weapons located on a turret must fire into the same 60° arc during any given turn. *For example, a turret with two weapons that fires one of them directly ahead of the ship cannot fire the second more than 60° (one hex side) away from that same target on that same turn. This rule applies only to weapons fire—or example, if a turret has both a weapon and a hangar, the shuttle's launch direction is not affected by the direction the weapon is fired on that turn.*

5.7.2 Single-Shot Twin Weapons (Optional)

When using this optional rule, twin arrays (and other weapons that feature dual-mounted guns on a single mount) can fire only one-half their available shots for a cost of one-half the listed power (round any fraction up). For example, a twin array, with a power cost of 2 energy, could deactivate one of its two guns, returning 1 point of power to the ship for other uses. This optional rule allows ships that need an odd point of power to get it without deactivating an entire weapon.

Note: If the dual-mount weapon is half-deactivated, the deactivated portion must begin the arming period from the beginning. However, any critical hits affect both weapons equally. Similarly, a weapon with three, four or some other number of weapons can also use this rule, dividing the power cost by the number of weapons, rounding any fraction of 0.5 or more up For example, on quad array, with a power cost of 4 energy, could deactivate 1 of its 4 guns for 1 point of power.

5.7.3 Called Shots (Optional)

If this optional rule is used, any standard damage weapon (except ballistic types) may make a called shot against a specific system on the target ship (except structure or systems within the primary section, such as reactors or sensors).

As a general rule, any system located in the area marked "Primary" on the control sheet is invulnerable to attack by called shots. Systems in this area are located deep within the ship and can't be singled out for destruction in this way. *(Exceptions: The port and starboard thrusters on heavy combat vessels and smaller ships can be targeted by called shots, but the firing ship must be facing the appropriate 120° side area in order to do this. Also, weapons located in the primary area can be targeted by called shots, but the firing unit must be within their firing arc to make the attempt).*

Called shots are announced with the rest of your weapons fire declarations, and suffer a penalty of -8 to hit. *For example, if you have determined that you need a 15 or less to hit, but wish to specifically target a system (typically a crucial weapon or thruster), the chance to hit would be a 7 or less.* You do not need to have a lock-on to use a called shot, though it would certainly be helpful.

If a called shot hits, roll damage normally but do not

roll for target location. All damage caused by the shot will automatically hit the designated system. Armor applies as usual. If the system is completely destroyed by the called shot, additional damage is treated as overkill, as with any other volley. If more called shots have been declared against the destroyed system (or if more pulses or sub-volleys from the same shot are to be allocated against it), these would revert to a random hit location roll once the targeted system is completely destroyed. They would still suffer the -8 to hit penalty for the coiled shot (a good reason not to fire too many called shots at the same system).

Called shots cannot be used with raking, piercing, or flash attacks (including sustained weapons that resolve their damage in any of these modes) or by ballistic weapons, unless otherwise noted in their specific rules.

5.8 Defensive Fire

Some weapons can be used defensively to intercept incoming fire. To use a weapon in this fashion, it must be declared as such when weapons fire is declared (as explained in Section 5.3.1). Laser weapons cannot use defensive fire, nor can any weapon that has on intercept rating of "N/A" (not applicable), as shown on the weapon data sheet.

When weapons are declared to be operating defensively, the player is permitted to wait until he sees the targets of his opponent's weapons before choosing which shots to intercept. He is also permitted to learn if any given weapon is using a special firing mode (such as piercing or sustained mode), or a called shot, before deciding whether to use a defensive weapon against it. However, he cannot wait for to-hit rolls or damage rolls to be model nor can he wait to find out other information, such as the type of missile that's about to impact. Note that choosing not to fire at all is an option.

When a weapon fires defensively, it acts as a negative modifier against the incoming weapon. All weapon specifications will list an intercept rating, which indicates the negative modifier to be used. *For example, if a pulse cannon is fired at a ship and needs a 10 or less to hit, but that ship defensively fires a weapon with an intercept rating of -2, the pulse cannon would now need on 8 or less to hit.* Note that defensive weapons fire against only one particular incoming shot, not against all incoming shots.

Multiple weapons can fire defensively against the same incoming weapon, but each one over the first suffers intercept degradation. Each additional weapon over the first is 1 point less effective than the previous one. *Thus, if three weapons that have a defense rating of -3, are used against a single incoming weapon, the first would apply a -3 penalty, the second a -2, and the third a -1, for a total penalty of -6.* Additional defensive five would have no effect. Note: There is no intercept degradation against ballistic weapons.

In general, weapons may only defensively engage incoming shots against their own ship. *For example, a destroyer could not intercept shots fired at a nearby heavy cruiser, nor could it intercept on area affect weapon targeted on a nearby hex.* Exceptions to this rule will be clearly defined in their own rules.

Typically, the only weapons intended for use in defensive mode are smaller ones with limited ranges. If these weapons are powered and have a short arming cycle, consider using them defensively if your opponent is keeping his distance.

Defense Fire Timing Example

A ship allocates a twin array for defensive use. When weapons fire is declared, he learns that a nearby cruiser is firing a plasma cannon at his ship, and a fighter flight is also firing at him later on in the resolution sequence. He must decide whether to use his twin array against the plasma shot, against the fighters, or not at all, before the plasma cannon makes its to-hit roll. If he chooses to use it against the fighters, and the plasma hits and destroys the defensive weapon, it will never get a chance to shoot.

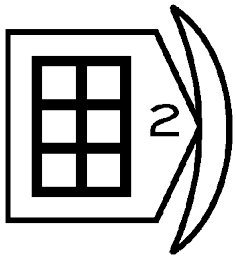
5.8.1 Advanced Race Improved Defensive Fire

Some exceedingly advanced races (or in scenarios and campaigns where players want more powerful advanced races) have improved defensive fire: if intercepting a ballistic weapon fired by a younger race, by sending at least one shot of defensive fire at the ballistic weapon, the shot is

automatically intercepted. All exceedingly advanced race weapons have doubled intercept ratings when used against all other shots from younger races.

5.9 Shields

Shields are a defensive item and come in various types, but all have the same basic abilities. More advanced races have shields based on electromagnetic technology, and are often called EM shields. A less advanced shield type includes the gravitic shield. A sample shield icon is shown here.



Shields are protective devices that attempt to deflect some of the effect of incoming fire from striking the ship's hull. They have two basic effects: reduction of the chance to hit, and absorption of some incoming damage. EM shields do these things by producing an electromagnetic screen that partially surrounds the ship, while gravitic shields accomplish the same goal by warping space enough that incoming weapons are shifted slightly as they approach. Each shield system protects only a certain area (arc) of the ship, and if destroyed or deactivated, can leave a hole in the defense screen that can be exploited by an opponent.

Only one shield can protect against any single incoming volley. If more than one shield system covers the same arc, the defender must choose which one to use (and will probably choose the best one available).

Fighters and shuffles that reach range zero to a shield-protected ship can ignore the shield's effects when they fire. It is assumed that they simply "fly under" the shield, something nothing larger than a fighter or shuttle could accomplish. Note that this does not imply that they will themselves be protected by the shield.

5.9.1 Defense Value of Shields

Shields can deflect incoming shots so they miss their target entirely. Apply the shield factor (the number shown in the icon-e.g. a 2 in the example above) as a negative modifier to the to-hit roll of any weapon. Note that ships defended by shields will have the lowered defense rating shown in parenthesis next to the normal rating listed on the ship datacard.

5.9.2 Absorption Value of Shields

Shields also act as a kind of "armor" against shots that do penetrate to score damage. Reduce the total value of any volley by the shield factor. Note that this is per volley, so if this damage was a basic raking hit, for example, the shield factor would be subtracted first and then divided into 10-point sub-volleys (not smaller sub-volleys). Similarly, piercing weapons would subtract the shield factor before dividing into their separate segments. As a final example, pulse weapons (which deal damage in distinctly separate volleys) will subtract the shield strength from each of their pulses, making them particularly vulnerable to a shield's effects.

Shield Example

A shield like the one shown here is protecting the forward arc of a targeted ship. The firing vessel fires a laser and calculates its normal to-hit chance as 12. The shield factor, however, is a 2, so this is reduced to 10.

The laser rolls a 9 and hits. Its damage roll is 30 points, scored in raking mode. The shield subtracts its factor from this total, resulting in 28 damage, scored in three sub volleys (two of 10 points and one of 8 points).

5.10 Adaptive Armor

This advanced armor system, found only on very advanced ships (and typically organic in nature), is capable of improving itself against specific attack forms during a battle. Essentially, the hull "learns" how to defend itself against incoming fire, adjusting its texture and construction to make it less easily damaged.

To represent this armor function on the ship control sheet, there are two armor values. The first is the usual type (as it would appear on any other ship, in circles next to each ship system, see Section 5.5.2). This permanent armor is non-adaptive, and represents the basic inherent strength of

the hull and systems. If the ship is hit by weapons that destroy or avoid some or all of on armor's value (e.g., plasma weapons, which ignore one-half of the armor rating), it is this permanent armor (only) which is affected.

The second armor number is the adaptive segment, shown in a special box on the side of the control sheet (like the one shown here). This can be applied, in whole or in part, to any specific attack form so long as that ship has encountered it in the recent past. For most scenarios, it is assumed that the ship has never encountered such weapons (or has not done so recently), so the adaptive armor segment is unavailable until the ship has been struck at least once (note that it must actually be hit—a miss will not "release" the adaptive armor points for use by the ship, nor will a hit that scores zero damage because of shields or other non-armor factors).

ADAPTIVE ARMOR: 3

Weapon Type	Available/Assigned	

Note: Max 1 point per weapon type

Each individual weapon striking the ship releases one point of adaptive armor for future use against that type of weapon (regardless of how many damage points are scored or how many pulses or sub-volleys the shot is broken down into). Weapon types are defined Section 8 and include particle, laser and plasma. Note that regardless of where the ship is actually hit, the impact of a weapon allows every system on the vessel to benefit against future attacks.

If adaptive armor points have been released, the player must record how they are to be used. This is done by indicating it in the appropriate block in the Adaptive Armor box on the control sheet. A given point can only be allocated once per scenario, although it can be left unallocated as long as desired (i.e., a released point doesn't have to be specified immediately). Activation of an armor point is not secret, and is done (and announced) at the same time electronic warfare points are allocated.

A player may assign released points to the appropriate categories in any quantity, except as listed on the control sheet in the adaptive armor datacard. *For example, if an advanced cruiser and a slightly less advanced destroyer were both hit by three missiles, the cruiser player could use three points of adaptive armor against ballistic weapons thereafter, but the destroyer player could assign no more than one point of his adaptive armor against that category. This is a limitation of the less advanced technology.*

All adaptive armor must be allocated the same way across the ship. Thus, if 3 points are available, the player could choose to use 1 of them against lasers and 2 against particle weapons, but this would be the same far every system on the ship. The player could not choose to change this allocation for specific systems, such as thrusters or weapons, as the adaptive armor "skin" is assumed to cover them all in the same way.

Some rules or scenarios may specify that some or all ships present have previous experience against particular weapon types. In free-form battles, however, it should be assumed that the ships in the scenario have no prior experience at all (unless otherwise agreed to by those players present). Note that very advanced races, who have had ages to accumulate experience against every weapon type, could start any scenario with at least some points available for immediate assignment. This will be specified on their ship control sheet in the adaptive armor datacard.

Adaptive Armor Example

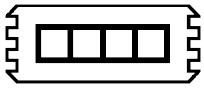
A structure block has 5 permanent armor and the ship has 3 adaptive armor. On the first turn of a battle, this structure is struck by a heavy laser cannon for 30 points of raking damage and three particle beams for 12 standard-mode damage each. The ship has not been hit by any of these weapon types in the recent past, so no points of adaptive armor are available. The 30 points of raking damage thus score 25 total hits (the first sub-volley is reduced by 5 for the permanent armor, the remaining two sub-volleys score 10 each) and the three particle beam hits each score 7 damage (12 minus the 5 permanent armor). At the end of this turn, the ship now has access to 1 point of adaptive armor against laser attacks (though three raking sub-volleys were scored, this was only a single attack, so only one point is released) and as many as 3 points against particle weapon attacks.

5.11 Bulkheads

Some ships are equipped with special bulkheads that can be slammed shut in areas that are receiving (or about to receive) damage.

These represent much more than simple doors that can be closed—they also include special heat sinks to accept overloads and similar hardware.

Bulkheads are denoted on the ship control sheet with the icon shown here. Typical bulkheads have from 3 to 6 boxes.



When a system takes damage, the player is allowed to mark bulkhead boxes instead of that system, protecting it from the blow. The bulkhead must be attached to the same structure block as the damaged system. A bulkhead could also absorb damage striking the structure block, though this somewhat defeats their purpose (unless the structure is about to be completely lost).

A given system may be protected by only one bulkhead in any single volley, and if used, it must be employed in its entirety (i.e., you cannot use just part of it). If the bulkhead absorbs less damage than it has boxes, mark the damage on the bulkhead instead. The original system takes no damage at all, and no critical hit need be rolled. If, on the other hand, the bulkhead does not have enough boxes to absorb the full impact of the incoming damage, anything left over goes to the system being protected (which also gets a critical hit roll, assuming at least 1 point of damage penetrated that far). Note that bulkheads themselves have no armor; however, bulkheads are used after any armor or shields have already been subtracted from the incoming damage.

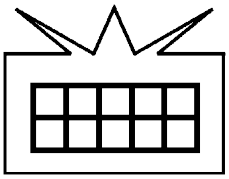
Note that the choice to use a bulkhead in any volley is always up to the ships player. They are never forced or required to use a bulkhead at any time.

Bulkhead Example

A ship with bulkheads takes 10 points of damage, determined to hit a retro thruster with 4 armor and 6 internal hits available. The player does not wish to lose this thruster, so he chooses to accept the hit damage on a 4-box bulkhead Instead. The 10 paints of damage are thus dealt with as follows: the first 4 points are absorbed by armor, the second 4 points are marked on the bulkhead (destroying it), and the last 2 boxes are marked on the thruster. These 2 points could not be absorbed on another bulkhead (if there was a second one attached to the same structure block) because only one bulkhead can be used in any volley.

5.12 Jammers

Some ships, fighters, and other units are equipped with jammers that provide a powerful alternative to defensive EW. An example of a jammer system icon is shown here.



While the jammer is activated, the protected unit cannot be locked onto (and thus all weapons fire will be at the double range penalty described previously). However, offensive EW, fire control bonuses, and the like still function normally against jammer-protected ships. In addition to this, the launch ranges of all ballistic weapons (missiles, etc.) are halved against a target under a jammer's protection (drop any fractions).

For example, if a cruiser has a jammer active and an enemy puts 3 points of offensive EW onto the ship, it earns the +3 to hit that this EW provides, but no lock-on is gained, so all weapons suffer double the usual range penalties. Similarly, a fighter would get to use its offensive bonus, but would still have the double range penalty (though fighters typically engage at very close ranges, mitigating the effect). Also, a missile with a normal launch range of 15 hexes could not be launched at the cruiser until the ship reached a range of 7 hexes or closer.

A ship can voluntarily deactivate its jammer (and use its power elsewhere as needed). If it does so, it loses the jammer's benefit (the same thing would happen if the jammer were destroyed). Note that in some terrains, such as nebulas, jammers won't function at all, so the player might as well deactivate it and use the power elsewhere.

Note: Units from races that possess jammers can lock onto other jammer equipped units of the same race, even if

they have active jammers. Advanced races also ignore the effects of jammers.

5.12.1 Optional Jammer Alternatives

The way the jammer functions in AoG Wars has been a hotly debated subject. After much discussion and playtesting, the rules herein were adopted as the official version. However, a number of other choices have been suggested over the years. In case the jammer rules in this section don't appeal to your group, we present the following unofficial alternatives.

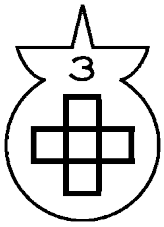
No Offensive EW Jammers: Under this set of rules, jammers prevent enemy ships from benefitting from offensive EW bonuses, although they do not prevent lock-ons. Thus, a ship using one offensive EW point against a jammer equipped ship or fighter would gain a lock-on but would not benefit from the +1 bonus. Fighters firing at a jammer-protected unit use only half their offensive bonus (round fractions up), but all fire control bonuses work normally. The main complaint about this rule was that it forced opponents to use defensive EW only (except for the one point needed to lock-on), thus making them too predictable.

Double the Range: Under this optional alternative, jammers do not prevent lock-ons or any other EW-like function, but the range to any protected unit is always considered to be double its true value. Thus, if a jammer equipped unit is 8 hexes away, any weapons shooting at it are treated as being 16 hexes away. This may seem like a subtle difference, but the real impact comes in when a weapon (typically a ballistic one) has a maximum range limit, or scores damage based on the range to the target—e.g., antimatter weapons.

"White Noise" Jammers: Under this option, jammers are considered to put out a certain amount of white noise that interferes with opposing sensors. In order for an opponent to achieve a lock-on, they must use enough offensive EW to exceed the defensive EW being used by the jammer equipped unit (fighters and shuttles are assumed to have a value of 3 for this purpose only). Thus, if a jammer equipped ship assigns 10 points of defensive EW, any opponent must paint that ship with 11 or more offensive EW points in order to gain a lock-on. In any case, the offensive EW still provides its usual bonus to hit. Fighters are assumed to use their offensive bonus as offensive EW under this option.

Rated Jammers: This option assumes that all jammers have a jammer rating that provides free defensive EW equal to that rating. In order to achieve a lock-on to the protected unit, this rating must be exceeded by offensive EW or offensive bonuses (as with White Noise, above). While the jammer is active, the jammer equipped unit cannot use defensive EW at all (though he could deactivate it and use defensive EW normally, if desired). If using this option, basic units have the following ratings: Starbase 12, Dreadnought/Battlecruiser 10, Heavy Cruiser 8, Destroyer 6, Frigate 4, Heavy Fighter 3, Shuttle 2. Note: This jammer rule is particularly powerful; if used, increase the costs of all jammer equipped units by 10%.

5.13 CCEW System: AEGIS Sensor Pod



Originally an attempt to develop a system capable of defeating jammers, the AEGIS pod later evolved into something entirely different during its development. While it seems highly useful, it is prone to breakdowns and requires significant amounts of maintenance to keep the pod operational.

The AEGIS pod has a rating within its icon. This rating represents a number of points of CCEW the pod provides against a single fighter flight. This bonus CCEW cannot be combined with any other EW produced by the AEGIS ship, including OEW, CCEW, or other AEGIS pods. This limitation proved to be one of the major weaknesses of this technology.

AEGIS pods are sensitive devices and must be mounted externally, so they cannot be armored, and their exposed position allows them to be easily destroyed with called shots. Any called shot against an AEGIS pod has a +2 bonus to hit, after all other modifications are taken into account.

6.0 Fighter Flight Level Combat

6.1 Flight Organization

Fighters and shuttles use many of the same combat procedures that ships do. However, there are some differences you should be aware of. For purposes of the discussion that follows, fighters and shuttles use the same rules, except as noted.

Each fighter control sheet shows several rows of fighter flights. A flight is defined as a group of six or fewer fighters that travel together. You'll use a single counter or miniature stand to represent this flight during play. In order to keep the map from becoming cluttered with the large numbers of counters that would be required in any reasonably sized AoG Wars scenario, all fighters in a flight will stay together at all times. Also, for simplicity's sake, all fighters in a given flight must be identical.

Note that under some circumstances (only as defined in specific rules), it may be necessary to break off an individual fighter for some specific purpose, outside the flight structure. If this is the case, it is still considered part of its original flight (if any) for purposes of enemy lock-ons. However, a single fighter will not use the special group weapons fire system described hereafter. Instead, it will fire its guns individually, like a ship does. Otherwise, all the rules hereafter apply. Most shuttles, including armed ones, are flown as individuals.

6.2 Weapons Fire

Except in the case of ballistic weapons (see Section 6.4), fighters in the same flight fire their guns simultaneously, and will make only a single die roll to hit. Fighters with linked guns must fire all their weapons at the same target at the same time. Fighters or shuttles with unlinked guns can choose different targets for their weapons, but if one fighter in a flight fires a weapon, every fighter in that flight must fire the same weapon at the same target.

Note that fighters don't use EW, and completely ignore the defensive EW created by enemy ships. Instead, fighters use an offensive bonus as though it were built-in, free offensive EW for all purposes. When determining the chance to hit, calculate the to-hit number as usual (they will all be the same) and roll once. Do not roll for the individual fighters. See Section 6.2.1 to see the effects.

After the number of hits is determined, roll hit locations and damage normally. Note that if a fighter uses linked guns (and most of them do), you can make just one hit location roll per fighter, but must still roll damage individually, since each shot is a separate volley If the fighter's guns are unlinked, each rolls to-hit and damage separately.

Using these rules affords fighters that would normally have no chance of hitting (e.g., if the chance to hit is zero or below) a possibility of scoring at least some damage when they fire, if they roll well enough. On the flip side, however, fighters that would normally have an automatic hit (such as a tohit roll of 20) might have a few misses if they roll poorly. A single fighter outside its flight (or an armed shuttle) wouldn't use these rules, and would either hit or miss on its own to-hit roll.

6.2.1 Flight Level Combat Resolution

If the flight's to-hit roll is equal to the chance to hit or up to 2 points below it, one-half of the fighters hit. *For example, if the to-hit chance is 6 or less and the player rolls a 4, three fighters would hit.* If the number of fighters in the flight has been reduced by damage, round fractions of one-half or more up (e.g., a flight with 5 fighters would score 3 hits).

If the to-hit roll is higher than the chance to hit but within 2 of it, then only one-third of the fighters hit. Again, if the flight has fewer than 6 fighters, round fractions of one-half or more up, so a flight of 5 fighters would score two hits while one of 4 fighters would score only one hit.

If the to-hit roll is 3 or 4 points above the chance to hit, then only one-sixth of the fighters hit. If it is 5 or more points above, then no hits are scored. If the to-hit roll is 3 or 4 points below the chance to hit, then two-thirds of the fighters hit. If it is 5 or 6 points less, five-sixths of them hit. If it is 7 or more

Flight Level Combat
5 or more above = 0 Hit
3-4 above = 1/6 Hit
1-2 above = 1/3 Hit
0-2 below = 1/2 Hit
3-4 below = 2/3 Hit
5-6 below = 5/6 Hit
7 or more below = All Hit

below the calculated chance, then all fighters hit.

Note: The above data are also summarized on all fighter control sheets.

Flight Level Combat Example

A flight of fighters is firing on a jammer equipped heavy cruiser. The fighters are at range 1 and are facing the port side of the ship, which has a 19 defense rating. The uni-pulse cannons used by the fighters have a range penalty of -2 per hex, which is doubled because the cruiser is protected by a jammer. The fighters have an offensive bonus of +5, and since they are fighters, they ignore any defensive EW the target is generating. The chance to hit is calculated as follows; 19 (defense rating) -4 (range penalty) +5 (offensive bonus), totaling 20. The die roll is 17, 3 points less than the target number, so two-thirds of the fighters (four of the six in the flight) score hits.

Since the fighters have two linked uni-pulse cannons, each of the four that hit will roll once for hit location, and then resolve two shots against whatever system is indicated. Each shot scores 1d6+4 damage against that system. The rolls and their results are as follows.

Fighter #1 rolls a 3 for hit location, hitting the port thruster (4 armor, 16 boxes). The first gun rolls a 5, scoring 9 damage. After subtracting the 4 armor, 5 thruster boxes are marked destroyed. The second gun rolls a 3, for a total of 7 damage. The armor applies again (though linked, the two guns are still treated as separate volleys), so 3 more boxes are marked off, leaving 8 of the original 16 boxes undestroyed.

Fighter #2 rolls a 14 and hits the port structure. His damage rolls are 1 and 6, scoring 5 and 10 damage respectively. As the structure has 5 armor, the first shot bounces off completely, while the second marks off 5 points of damage on the structure.

Fighter #3 rolls an 8 and hits a fusion cannon (3 armor, 8 structure). The damage rolls are 2 and 3, scoring 6 and 7 points respectively. The cruiser has several fusion cannons on the port side and the player is free to choose any of the port side fusion cannons in arc of the incoming fire, but whichever one is selected must absorb both hits (since the shots are linked). He picks a cannon and marks 7 of the 8 boxes destroyed.

Fighter #4 rolls a 9 and again hits a fusion cannon. The damage rolls are both 4's, scoring two volleys of 8 damage. The cruiser player is again free to select any of the eligible fusion cannons. However, he notes that the total damage caused by this fighter would be sufficient to destroy any of the five, so rather than destroy an undamaged gun, he chooses the previously damaged fusion cannon. The first unipulse cannon scores 5 points of damage on this cannon after armor, destroying it and leaving 4 points of overkill. Normally this would be applied to the port structure, but as the armor value there is 5, the overkill bounces cleanly off. The second uni-pulse cannon would be applied to the same cannon, but it is now destroyed, so the entire shot passes cleanly through to structure (ignoring the fusion cannon's armor, as destroyed systems never provide their armor to any volley). After the structure's 5 armor is subtracted, three boxes are marked destroyed. Note that if another shot later hits the port side, the destroyer fusion cannon is no longer a valid target, as it has been completely destroyed.

6.2.2 Optional Individual Fire Rules

If all players agree, fighters in flights can fire their weapons separately (rolling their own to-hit dice). If this is done, they can fire at separate targets, but linked weapons will still work normally. If this option is used, the number of die rolls will be greatly increased, especially in large battles, and defensive fire will work on a fighter-by-fighter basis. However, players will have more targeting options and results will be more statistically accurate, so this choice may be desirable.

6.3 Defensive Fire vs. Flights

If a flight fires grouped weapons at a ship, that ship can attempt to use defensive fire just as it would against any other incoming shot, except that the intercept rating is reduced by 1 (unless there is only one fighter in the flight). The usual intercept degradation rules apply. *For example, if*

a full flight fires at a Destroyer and needs a 6 or less to hit, and that destroyer uses three Mark II Interceptors (with a -4, -3, and-2 intercept rating respectively, but each is reduced by 1, yielding a total of -6) against the flight, the to-hit chance is reduced to zero. (Note that a to-hit roll is still required, since 1 or 2 on the die would result in one-third of the fighters hitting, and a roll of 3 or 4 would allow one-sixth of the flight to hit).

6.4 Fighter Ballistic Weapons

Fighters do not use the group fire procedure when launching missiles or other ballistic devices. Instead, each such weapon is resolved individually. The flight launches whatever ballistics it needs to fire (these do not have to be the maximum available, nor must they all be at the same target) at the same point in the Combat Sequence that ships launch similar weapons. When the time for impact arrives, each missile's chance to hit is determined and is rolled separately. Defensive fire against these weapons is also handled on an individual basis (do not use the rules in Section 6.3). Note that fighter launched ballistic weapons are subject to the target's defensive EW, just as any other ballistic weapon would be.

A fighter must keep the target in its primary firing arc, and must maintain line-of-sight (LOS), in order to provide its offensive bonus to its ballistic weapons. In addition, the fighter may not fire other weapons while guiding missiles towards its target (if it fires normal weapons, it cannot provide its offensive bonus to any ballistic weapons, even if it keeps the original target in arc).

6.4.1 Navigators

Some missile or torpedo equipped fighter have the option of purchasing a navigator, who acts as a backup pilot and scanner operator. If this is done, the fighter receives an initiative bonus of +1, and can guide missiles towards one target while the fighter itself engages another unit. Thus the arc restriction and normal weapons fire restrictions as indicated in Section 6.4 are lifted. However, the line-of-sight requirement remains.

The cost for this addition is 10 Combat Points per fighter, and each fighter in the flight must use one in order to for the flight to benefit. If a navigator is used, his presence is obvious, (and must be announced) due to the visible combat effect.

Fighter Ballistic Weapon Example

A flight of fighters fires a volley of missiles at a jammer equipped cruiser that is 5 hexes away (basic fighter missiles have a launch range of 10, but this is halved since the ship is protected by a jammer). These particular launching fighters can launch 2 missiles each per turn, thus the full salvo is 12 missiles (they could fire fewer if desired, but the player does not choose to exercise this option).

During the Movement Step of the Combat Sequence, the cruiser player realizes his ship is moving too slowly to get out of range (the distance range is triple the original launch range, or 30 hexes; the jammer does not affect the distance range). Instead, he maneuvers his ship so the missiles are hitting through the front (relative to the launch point of the missiles), as the forward direction has a lower profile than the side. He also allocates six of his fusion cannons to fire defensively.

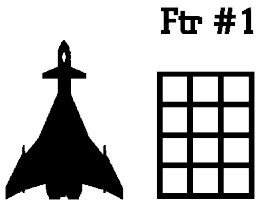
The fighters do not have navigators and are forced to turn away during the Movement Step, and lose their offensive bonuses. The missiles calculate their chance to hit as follows: 15 (the cruiser's front defensive rating) + 3 (the missile's offensive bonus) -4 (the ship is generating 4 points of defensive EW), for a final chance to-hit of 14.

Each missile then rolls to-hit individually against this target number. However, the cruiser player chooses to use his six fusion cannons (which he previously allocated to defensive fire) against the missiles, firing one at each of the first six attacks, and lowering their chance of success by the cannon's intercept rating of -2. (Note that he could have combined his fire against one missile, for a total of 11, since intercept fire against ballistic weapons does not degrade. However, in this case he feels it's a wiser option to spread these shots out against six different targets.) Thus, the first

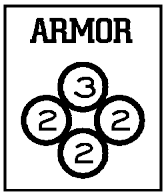
six missiles need a 11 or less to hit, while the remaining six need a 14 or less to hit.

6.5 Damage Tracks and Armor

The fighters in a flight each have their own damage track, which represents the number of hits required to destroy them. When the last box is marked off for a given fighter, the fighter is destroyed, and when the last fighter in a flight is destroyed, that counter or miniature should be removed from play. In the example shown here, the fighter can absorb 12 hits before being destroyed. A control sheet for this fighter will display a number of rows of six fighters, representing a flight.



Fighters have armor like ships, but instead of armor on a system-by-system basis, they use armor values for each direction they can be hit from. Thus, the direction of fire determines the amount of armor that will apply to each volley *For example, a fighter with an armor display like the one shown here has 3 points of armor when hit from the front and 2 points to port, starboard and aft.* Most shuttles list only a single armor value. This represents the armor in all directions.



6.6 Locking Onto Fighters

Fighters are locked onto on a flight by flight basis. When allocating EW, each point can be used against any flight of your choice. If some of the fighters have been destroyed, the flight is still considered on entire "unit" for this purpose, so you cannot, for example, use one EW point to lock onto two flights with three fighters each.

If some fighters on the map are using the individual movement rules, they count as part of their original flight, if any, for purposes of EW. To lock onto any shuttles (e g , an armed shuttle), pick up to six of them and define them as a "flight" for purposes of EW. Thus, a single EW point could lock onto six independent shuttles (even if they aren't in the same hex, or even near each other on the map), or one normal flight of fighters. Note, however, that independent fighters/shuttles cannot be used to fill in the "holes" in partially destroyed, formally defined fighter flights.

6.7 Damage Allocation to Flights

All weapons strike a flight of fighters as though it were a single unit. The target player chooses which fighter in the flight absorbs each volley, however. There are some exceptions to this method of selection—some weapons can select a particular fighter to suffer its effects. Note that the target player cannot choose a destroyed fighter to absorb damage. However, volleys that strike a single individual system repeatedly (such as linked shots from fighters, but not the individual pulses of a pulse weapon) may expend themselves on a destroyed fighter if called for in their rules. *For example, if a fighter fires its two uni-pulse cannons at a damaged enemy fighter and destroys it with its first gun, the second gun will be wasted on the debris that remains. It does not re-roll against another fighter.*

Special weapon modes, such as raking, piercing, and sustained modes, can't be used against fighters unless noted otherwise in their specific rules. Treat all weapons fire against fighters as being in standard mode. Weapons permitted to fire only in these special modes (e.g., the particle cutter) must still obey all the rules and restrictions of that mode, but resolve their damage against a fighter in standard mode. In general, weapons of this type are not designed for use against fighters and will not be used against them except in dire circumstances.

6.8 Flight Level Defensive Fire

Fighters in a flight can attempt to use defensive fire if they wish, but must declare it for all fighters simultaneously (i.e., some cannot fire defensively while others fire offensively). Unless otherwise noted, the intercept ratings of all fighter weapons are -1, and they do not suffer from intercept degradation. Thus, a fighter with two linked guns would have a -2 intercept rating against on incoming shot. A fighter with three weapons would have a -3 intercept rating. Note that a fighter that used lasers (or any other weapon

specifically noted as lacking a defensive capability) as its main weapon would not be able to use defensive fire.

Some heavy weapons on fighters may have different intercept ratings, and these will be defined in the weapon's datacard. For example, the gatling pulse cannon has a -2 intercept rating.

Fighters can use jinking and defensive fire in combination. They do not suffer a penalty to their intercept rating because they are jinking.

Defensive Fire Example

A flight of fighters comes under attack by three missiles. The flight declares it is using defensive fire against the incoming weapons. Each fighter has a total intercept rating of -2 (its guns are linked, so they must fire together), for an aggregate total of -12. The fighter player can choose to allocate all of these points against a single missile (very likely knocking it out of the sky), -4 to each of the missiles, or some other legal combination. The missiles are attacking the front of the fighters (as otherwise their weapons would not be in arc to fire defensively), which has a defense rating of 7. The missiles have a +3 offensive rating, and the fighters are jinking by two levels, so the basic to-hit chance for each missile works out to 8 or less. The fighter player decides to apply a -8 rating to one missile (ensuring its failure), and -2 to each of the other two, forcing them to each roll a 6 or less to hit.

6.9 Fighter Drop-Out

After all damage has been allocated to a flight during a specific weapons fire step, there is a chance that damaged fighters in that flight might drop out and return to their carrier (or flee off the map). Fighter drop-out represents the effects of shorted-out systems and damaged life support systems that force a fighter to leave before it is completely destroyed, as well as the overall morale level of the pilot.

The exact means by which a fighter escapes isn't important, only that it departs the battle somehow. If their original carrier survives the fight, it's assumed that the fighter is recovered by that ship (even if it retreats); otherwise, it can be picked up by any other surviving vessel that has the space to carry them. In a campaign, where escaped fighters might return to fight another day, assume a dropped fighter is recovered if (a) friendly ships hold the field of battle at the end of the scenario, or (b) a friendly ship escapes and has an open fighter slot somewhere among its hangars that is capable of holding and servicing the fighter. Even if the fighter can't be recovered in this latter case, the pilot is still assumed to be rescued by any ship that escapes the scenario (by whatever means). Otherwise, he is killed or captured, depending on campaign rules.

To determine if a fighter drops out, roll a single d10 at the appropriate point in the Combat Sequence (after ships fire at fighters and fighters exchange fire with each other). If the number rolled is greater than the amount of hits left on the fighter, it drops out as described above, and is gone for the rest of the scenario. A fighter with at least 10 hits remaining doesn't need to roll. In addition, fighters are not required to roll unless they have taken at least 1 hit of damage (otherwise, some light fighters could drop out without ever getting a chance to do anything).

Some weapons can force an automatic drop-out (super-heavy fighters are immune to this, but can still drop from normal damage). If this occurs, the fighter is out of play immediately (do not wait until the usual point in the Combat Sequence) and is not eligible for any further damage on that turn. Since the firing player is free to resolve weapons fire in whatever order he chooses, he'll usually try to force drop-outs first, but this is up to the player to decide.

Some races and special fighters may also have bonuses or penalties to the drop-out roll. Fighter pilots may also choose to voluntarily drop out, but can only do so at the time normal drop-out rolls are made (thus, a flight could not launch into battle, launch missiles, and then drop out before enemy missiles have a chance to make their attack rolls).

Drop-out rolls are performed by every fighter that took damage during the current turn. The fighters make the roll just before fighters fire on ships (see the Combat Sequence). If a fighter took no damage on the current turn, it does not need to roll regardless of how crippled it might be at the

moment.

Some scenarios may specify that the fighters on one side or another are particularly courageous (or cowardly), and in such cases will be entitled to a bonus (or penalty) to their drop-out roll. Some scenarios may also state that the fighters of one side are immune to drop-out due to the desperate nature of the situation. In either of these cases, dropout could still be forced by an EP gun (which actually shorts out the fighter's combat systems), and voluntary drop-out would still be permitted, unless stated otherwise.

Once a fighter has dropped out, it may not return to the battle during that scenario.

6.10 Missile Hardpoints

Some fighters possess external hardpoints that can carry additional ordnance. The most common addition to any such hardpoint is a missile (see Section 8.11.4 for more information). Note that a fighter can use only those missiles specifically noted as usable on hardpoints (most of the other missiles in the game are designed for ship-based racks). To add missiles of the basic type to a hardpoint-equipped fighter, the player must pay Combat Points per missile (including any desired replacements, which would be stored on the carrier) as noted in that missile's description. The number of missiles a fighter can carry, if any, will be listed in the fighter's rules. If those rules do not list any available hardpoints, the fighter cannot carry missiles. Note that there are some fighters that have both a missile version and a non-missile version. Generally, missile variants have a higher point cost but are otherwise identical (or nearly so).

One missile is destroyed each time a fighter suffers at least two points of damage in any volley. The owning player is free to select which missile, but he cannot choose an empty hardpoint over an actual missile, if one is present. The loss of this missile does not otherwise affect the fighter.

An enemy unit can detect the presence of a missile on a fighter from a range of 16 hexes for ships or 12 hexes for fighters or shuttles. At these ranges, the number of missiles can be counted by the enemy and should be announced. Dummy missiles (costing 1 point) are available as deception items, but these are revealed as such If any unit reaches range 4 or less to the fighter. Dummy missiles may be destroyed from damage instead of normal missiles if both are present on the fighter.

6.11 Optional Fighter Repair Rules

Assume a dropped-out fighter lands aboard any available carrier one full turn per every 10 hexes (or fraction thereof) away from the nearest carrier after it drops out. For example, a fighter 25 hexes from a capable carrier would require 3 turns 10 arrive and land. (The actual method it uses to reach that point is unimportant.) If the carrier is destroyed or retreats before that point, and no other carriers are available, the fighter is lost.

Each turn after recovery, the owning player can mark one destroyed fighter box undestroyed. Repairing a box requires a full turn's hangar bay action (see "Hangars" in Section 10.1). The fighter can return to battle four turns after it lands, or when it is fully repaired, whichever is shorter. If it launches while in a damaged state, it is not required to roll for drop-out again until it has suffered at least 1 point of damage later on in the scenario.

The jury-rigged repairs using this rule are only temporary, and will require more detailed work after the scenario ends. Because they are unstable, the fighter has a penalty of +1 to its dropout roll for every 3 boxes repaired under this rule (or any fraction). For example, a fighter that repaired 4 boxes and returned to battle would have to add 2 to any drop-out roll thereafter.

A recovered fighter that was forced to drop out by a special weapon, such as a burst beam, can return to battle later in the scenario if this rule is in force. Two turns of hangar activities are required before the repair crews can fix the electronics and other equipment damaged by the attack. If the fighter is also damaged, any hits can be repaired concurrently with this work.

6.12 Optional Fighter Missions

Each flight of fighters normally operates in an autonomous role, able to act and react as the pilots and

flight leader so designate. However, in some cases they can be assigned specific missions by the carrier's captain or the fleet admiral. The mission is defined when the fighters launch and can be changed during the scenario only by forcing the fighters to suffer a -12 initiative penalty on the turn the change is made (during which they operate with not specific mission parameters). Missions are changed at the same time EW is announced. Fighter missions are always known, as their formation and method of flying are easily detected and evaluated. The types of assigned missions are as follows:

No Specific Mission: This is the normal role for fighters unless otherwise stated.

Combat Space Patrol: The flight is assigned to interdict enemy fighters entering a zone of up 10 hexes surrounding their carrier or a designated key ship. They cannot intentionally leave this zone, but while within it, they act as though they had an expert dogfighter (cumulative with that expert, if present; see Section 10.7.5.1 for details on expert dogfighters). If they attack ships while on this mission, they suffer a -3 to their offensive rating for all weapons (minimum 1).

Anti-Ship Action: The flight attacks enemy ships specifically and attempts to avoid dogfights. While attacking ships with anything other than ballistic weapons, they receive a bonus of +1 to their offensive rating. If they attempt to attack fighters, they suffer -3 to their offensive rating (minimum 1).

Scout Penetration: In this case, the flight is attempting to avoid direct action and pass though enemy screening units, presumably on their way to another target. Their main intent is to avoid damage. Their defense ratings are reduced by 1 in all direction, and they are permitted to jink by one extra level if they have the thrust available. However, their offensive ratings are reduced by 3 for all weapons (minimum 1).

Defensive Intercept: In this specialized role, the flight must be in the hex of a friendly ship after movement is completed, and will attempt to defend thus unit from incoming ballistic weapons. The flight must face its guns towards the ballistic weapon's launch hex. Calculate the intercept rating using the Flight Level Defensive Fire rules explained in Section 6.8. They can break up this bonus for use against any incoming shots however they wish *(e.g., a flight of fighters with linked guns giving -2 per fighter could put -4 on each of three incoming missiles)*, but only against ballistic weapons. All fighters suffer a penalty of -3 to their offensive rating while on this mission (minimum 1).

7.0 Critical Hits

Critical hits are the disruptive effects caused by damage to various systems. Whenever any system, other than structure, marks even a single box destroyed during a turn, that system is required to make a critical hit roll. Usually, only one roll is required no matter how many points of damage were scored on the system (or how many volleys actually scored that damage). Overthrusting provides on exception to this rule, as this causes an extra critical roll for overthrusting (as described in Section 4.2.1)

All critical hits are rolled after all weapons fire is completed during the turn. In this way, you don't need to waste time rolling criticals for systems that actually wind up destroyed. There is an exception in the case of missile racks, which can cause a special magazine critical.

Critical hits are all rolled using a single d20, modified by + 1 for every point of damage marked on the system in question at the time the roll is mode. This means a heavily damaged system is more likely to suffer a debilitating critical hit than a lightly damaged one.

Unless otherwise noted, multiple criticals on a given system are cumulative. If there are no rules stating otherwise, they last for the remainder of the scenario and may not be repaired.

Basic rules for critical hits are as follow. There may be some additional rules for specific system descriptions (e.g., some weapons have their own specific critical charts).

Some players consider critical hits optional. This is acceptable if agreed to by all parties in the battle, and is actually recommended for very large scenarios, as it will speed up play. Even in this case, however, it's recommended that critical hits to primary systems (especially C&C) should still be used.

Listed hereafter are the various critical hits that can be scared on various ship systems. If a system isn't listed here, it can't suffer a critical (e.g., structure).

7.1 When to Roll Critical Hits

Criticals are rolled in the End of Turn Actions Step. Basically, they are the first thing that happens after all weapons fire and effects are resolved.

7.2 What Causes Criticals

If a system takes damage during a turn, make one critical check at + 1 per destroyed box. Missile racks take a special critical on a natural "20" (or other value depending on the rack's rules). They must roll for this even if destroyed, assuming. they contain any missiles.

Thrusters must make a special critical check if they overthrust, at + 1 per point of overthrust. Structure blocks with external fighter rails must roll for a critical (with no modifiers) if they take damage during the turn.

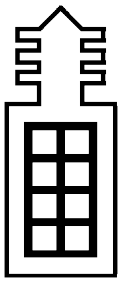
Systems that use power must roll if hit by certain special weapon types (particularly electromagnetic ones) depending on the weapon's rules. See Section 8.6.

Damaged jump drives must roll for a critical when used, and if they fail this roll, they explode and destroy the ship.

7.3 Basic System Criticals

The following critical tables are for basic systems typically found on all ships. Specialty system criticals are listed in Section 7.4.

7.3.1 Basic Weapon Criticals



1-12: No critical hit.

14-18: Range reduced. Reduce the distance factor by 1 hex, e.g., -1 per 3 hexes goes to -1 per 2 hexes If the penalty is at -1 per hex, it is reduced to -2 per hex; -2 per hex goes to -3 per hex; and so on. If the weapon has no range penalty (e.g., most ballistic weapons), its maximum range is reduced by 20% (round fractions of 0.5 or more up). *Thus, for example, an energy mine system would have its maximum range reduced to 40 hexes from its original value of 50 hexes.*

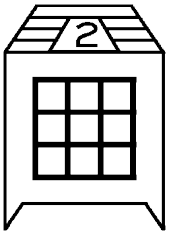
19-24: Damage reduced. The weapon suffers a -2 penalty to damage per die (but no single die roll can be less than 1). *For example, a weapon doing 3d10 that rolled a 9, 5, and 1 for damage would have these values reduced to 7, 3, and 1 respectively for a total of 11.* In the case of

pulse weapons (or other weapons that do a flat amount of damage), the -2 penalty is per pulse (so a pulse cannon doing 8 1d5 times would instead do 6 1d5 times, while a missile rack would subtract 2 points from the damage scored by any of its missiles).

25+: Both of the above effects are suffered. Note: These are general critical hits. Some weapons may define different ones. See the individual weapon criticals for more details.

7.3.2 Thruster Criticals

1-14: No critical hit.



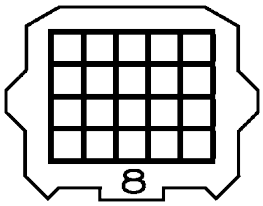
15-19: Outlet failure: The first point of thrust applied to this thruster during the turn is ignored (i.e., lost) due to the clogged exhaust port, although the "lost" point does not count against the thrust rating. Thus, if you needed to send 3 thrust points through the damaged thruster, you'd actually have to send 4 in order to perform the maneuver you sought, although it would count as only 3 thrust towards the thrust rating. The outlet critical also reduces the thrust rating by 1, and if the thrust rating reaches zero (due to multiple criticals), the thruster melts down and should be marked completely destroyed.

20-24: Efficiency reduced. The thruster now requires 2 thrust points in order to produce 1 point of thrust through that thruster. Additional efficiency criticals are cumulative, so a second one on the same thruster would make it require 3 energy to produce 1 thrust, and so on. Note: Ships with gravitic drives cannot suffer this critical the first time it is scored on a given thruster during a scenario. Ignore this result the first time it is scored on a given gravitic thruster.

25+: Both of the above effects are suffered.

7.3.3 Engine Criticals

1-14: No critical hit.



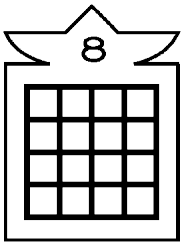
15-20: Thrust reduced. The engine produces 2 fewer points of free thrust for the remainder of the scenario.

21-27: Engine shorted. Damage has caused a temporary short in the engine controls, which will take effect on the next turn only. Roll 1d20 again, with no modifiers. On a 1-14, the engine simply provides no thrust whatsoever next turn. On a 15 or greater, however, the controls become stuck in the maximum position. This forces the ship to involuntarily accelerate at the engine's maximum thrust rating on the ensuing turn. In other words, all the thrust the engine can provide is automatically channeled through the main thrusters, even if this would cause overthrusting. If there are no main thrusters, then nothing happens, but the engine's thrust is still lost. A ship may not shunt additional power to an engine in this state, although a ship with multiple engines could send power to another one not under these effects. If the ship is involved in a pivot or other maneuver that normally prevents acceleration, the engine will thrust anyway, causing no acceleration but instead causing severe stress on the ship. Score one point of damage on the primary structure for every point of thrust produced, and this ignores armor. If this is sufficient to destroy the ship, it explodes when the acceleration occurs, not when this critical is recorded (this will give the ship a chance to launch fighters or shuttles, for example, before being destroyed).

28+: Use both of the above effects.

7.3.4 Sensor Criticals

1-14: No critical hit.



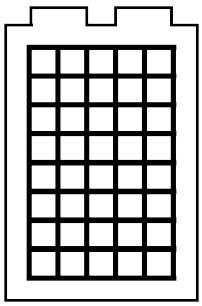
15-18: Output slightly reduced. The sensors provide 1 less EW for the remainder of the scenario.

19-22: Output noticeably reduced. The sensors provide 2 less EW hereafter.

23-26: Output significantly reduced. Sensors provide 3 less EW hereafter.

27+: Output critically reduced. Sensors provide 4 less EW hereafter.

7.3.5 Reactor Criticals



1-10: No critical hit.

11-14: Minor power loss. The reactor suffers a shortage of 2 power for the rest of the scenario.

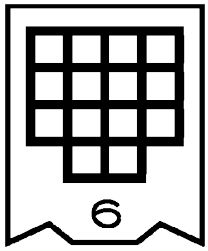
15-18: Moderate power loss. The reactor loses 4 points of power for the rest of the scenario.

19-26: Major power loss. The reactor loses 8 power for the rest of the scenario.

27 +: Containment breach. The reactor loses 10 points of power for the rest of the scenario. In addition, the reactor has a chance of exploding each turn it remains in operation. This chance is a percentage equal to the number of destroyed boxes on the reactor, so if 15 boxes are destroyed, there is a 15% chance the reactor will explode, destroying the ship. This roll is made during the Ship Power Segment of the turn at the beginning of the Combat Sequence. Just before this roll, the player may voluntarily shut down his reactor, possibly averting disaster, but if this is done, no power requiring systems on the ship will function on that turn. The reactor can be reactivated in any turn, but the chance of detonation remains unless the critical hit is somehow repaired.

If an enormous base rolls a natural "20" on a reactor critical, that reactor may no longer transfer power to other sections of the base, in addition to any other critical that results from the chart above.

7.3.6 Hangar Criticals



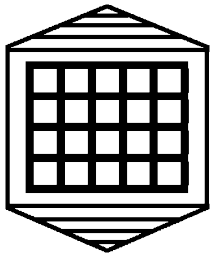
1-12: No critical hit. Note, however, that any damage to this system also reduces the hangar's ability to hold fighters and shuttles by 1 per box. This is not a critical hit; it is an inherent feature of this system.

13-18: Docking links damaged. All hangar bay activities (fighter reloading, pilot replacement, etc.) take twice as long as usual.

19-24: Partial bay collapse. The bay's launch/recovery rate is cut in half (drop any fraction). A second critical of this type would reduce the launch/recovery rate to 1/6 of its original value. A third critical of this type destroys the bay entirely.

25 +: Both of the above effects are suffered.

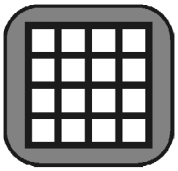
7.3.7 Jump Drive Criticals



There are no critical hits for this system. However, if the jump drive is not completely intact, there is a percentage chance (equal to the percentage of destroyed boxes versus total boxes, dropping fractions) that the jump engine will explode—totally destroying the ship—when a jump point is opened or held open on a future turn. For example, a ship with a 40-box jump engine that had 10 boxes destroyed would have a 25% chance of being destroyed if it opened a jump point. Even if it made this roll, it would need to roll again every turn it held the vortex open

Complete rules for jump point operations are found in Section 10.3.

7.3.8 Command & Control Criticals



This system contains the command & control systems for the ship. Damage to this system, even slight damage, can severely disrupt ship operations.

1-8: Sensors disrupted. EW levels may not be altered on the next turn (they must remain the same as they were during the turn the critical was caused). If the EW level must be reduced because of sensor damage, the player is free to choose where he will subtract these points. If some of the EW was allocated offensively against a target no longer in play, those points can be reallocated, but to defensive mode only. This problem is cleared up after the next turn is over.

9-11: Communications disrupted. The ship suffers a -1 penalty to initiative for the rest of the scenario.

12- 14: Fire control computers scrambled. All weapons suffer a -1 penalty to hit for the remainder of the scenario.

15-17: Sensor controls damaged. The ship loses 2 EW

points for the remainder of the scenario and may use no more than half of its EW offensively for the rest of the game. If this critical is received again, only the -2 EW penalty is cumulative.

18-20: Major communications disruption. The ship suffers a -4 penalty to initiative on the next turn, and a -2 penalty for the rest of the scenario thereafter.

21-23: Communications severely scrambled. Combine the effects of the two previous criticals.

24+: Severe power loss. The ship cannot maneuver, use sensors, or fire weapons on the next turn, and suffers the effects of hits 12-14, 15-17, and 18-20 above.

If the ship has more than one C&C system aboard (additional ones representing backup systems), the criticals caused to each of them are recorded separately. The player then designates (at the same time EW is allocated) which one of them is being used to command the ship on any given turn, Critical hits suffered by the inactive C&C don't affect the ship at all. A ship with a backup C&C system has a significant advantage in this situation.

If all C&C systems on the ship are destroyed, the penalties of critical hit 24+ above (the ship can't maneuver, use sensors, or fire weapons) are automatic and permanent.

If an advanced race ship completely loses its C&C, it can continue to maneuver and can jump out of a scenario if desired (assuming its jump drive is intact). It may not fire weapons, however, except in defensive mode.

7.3.8.1 C&C Recovery (Optional)

Under this rule, ships that lose their last C&C system are not out of the battle, but transfer control to an auxiliary command post elsewhere in the primary section. This allows a ship without a C&C to continue fighting, albeit at tremendous penalties.

On the turn after the C&C is destroyed, the ship suffers the effects of the worst C&C critical hit (the ship cannot maneuver or fire weapons). In addition, it also receive the penalties listed for the first five critical hits on the C&C list. Thereafter, the ship can maneuver and fire under the restrictions of these penalties.

If the ship takes another C&C hit, the damage falls through to structure (as would any hit that struck a destroyed system), but regardless of armor or whether any damage is actually scared on the structure block, the auxiliary command post is destroyed automatically. The ship again suffers the effects noted in the previous paragraph until another auxiliary post can be set up, and any initiative, sensor, and other penalties are cumulative (each time, lower ranking officers rally to command the ship, and these penalties reflect their lower skills and experience). Theoretically, this could happen multiple times in a scenario, with no limit to the number of occurrences other than the amount of structure left an the ship.

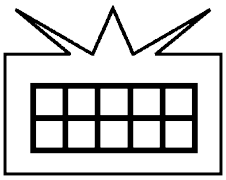
7.4 Special System Criticals

The following critical tables are for systems typically found on a few ships or for a specific race.

7.4.1 Jammer Criticals

1-15: No critical hit.

16-22: Partial burnout. The jammer blocks only part of any enemy lock-ons. As long as an opponent targets them with at least 1 EW, their range penalties are only increased by 50% (round fractions up), not doubled. For example, if the range penalty was -7 against a ship with a partially burntout jammer, this would be increased to -11 (not -14).



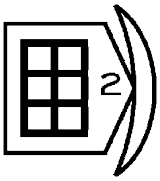
23+: Complete burnout. The jammer has no effect thereafter. It can, however, be shut off for extra power.

7.4.2 Shield Criticals

1-15: No critical hit.

16-19: Strength reduced. The shield factor is reduced by 1.

20-24: Effectiveness reduced. The shield no longer absorbs incoming damage, but will still apply its factor to the ship's defense rating. Thus, an enemy ship firing through a 3-point

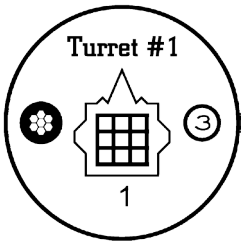


shield with a 15 to-hit number would have to roll a 12 or less to hit, but would not lose 3 points off his damage volley.

25 +: Both of the above effects are suffered.

7.4.3 Weapon Turret Criticals

If a weapon or system on a turret is hit, roll one d20 (in addition to the normal weapon critical hit roll, but with no modifiers for damage). On a roll of 17-20, the turret is restricted to the 60° arc in front of the ship for the remainder of the scenario. This affects weapons, shuttle launch, and any other directional rules associated with systems on that turret. It would not, however, restrict systems that normally don't have directional requirements.



For example, a sensor array on a turret would not find its coverage area reduced.

7.4.4 Antimatter Weapon Criticals

Weapons in the "antimatter" category suffer their own variety of critical hits. Use this chart instead of the "general" weapons criticals listed in Section 7.3.1. Multiple applications of the same criticals have no effect.

1-13: No critical hit.

14-18: Range reduced. Add +3 to all range calculations.

19-24: Damage reduced. Reduce the "X" in any formula by 2. However, X may not drop below zero.

25 +: Both of the above effects are suffered.

7.4.5 Electro-Pulse Gun Criticals

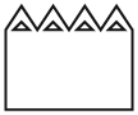
The EP gun suffers from the "range reduced" critical hit like any other weapon, but if it takes a "damage reduced" critical hit, there is a chance it will have no effect when it hits. On a hit it scores later in the scenario, roll 1d6 and subtract 2 for every "damage reduced" critical the weapon has suffered. If the result is less than 1, it does not affect the target fighter (otherwise it forces drop-out).

7.4.6 Comm Disruptor Criticals

Comm disruptors (as well as sensor spears and comm jammers) suffer a special critical hit. If they take damage, roll a d20 as you would for any other critical. On a 1-16, there is no effect, but on a 17 or greater, the disruptor loses half its effectiveness, jamming communications only but not producing interference. Thus, the weapon will continue to penalize a target's initiative but will no longer affect its EW levels. Multiple criticals of this type have no added effect.

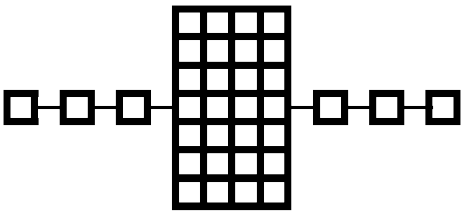
7.4.7 Electromagnetic Wave Disruptor

The first time a "Range Reduced" or "Damage Reduced" critical is scored, the device loses one of its two basic -3 intercept ratings. It can still, however, add more power to buy more. *Thus, 4 power will allow the player two -3 intercepts or one -6 intercept.*

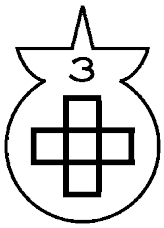


7.4.8 External Fighter Rail Criticals

Structure blocks with fighter rails (see the Hangar Operations in Section 10.1.4) are subject to a unique critical hit roll. If the structure takes damage during a turn, roll 1d20 as with any other critical, but do not add any modifiers (including those from weapons that normally provide their own bonuses). On a natural roll of 16-20, one entire rail is destroyed. The owning player is free to choose which rail is destroyed by this critical. Naturally, any fighters present on a destroyed rail will also be destroyed, so the player will almost certainly select the one with the fewest fighters (if any).



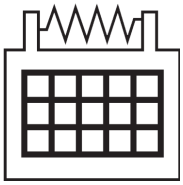
7.4.9 AEGIS Sensor Pod Criticals



1- 15: No critical hit.

16+: The pod ceases to function.

7.4.10 Mag-Gravitic Reactor Criticals



All power losses are cumulative with any earlier criticals, but available power can never be reduced below zero.

1-12: No effect.

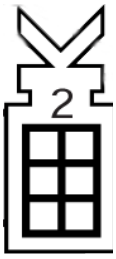
13-16: Minor field fluctuations. 10% of the MGR's energy is lost.

17-20: Moderate field fluctuations. 20% of the MGR's energy is lost.

21-28: Severe field fluctuations. 30% of the MGR's energy is lost.

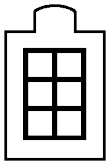
29: Catastrophic field fluctuations. Severe field fluctuations cause the containment elements to destabilize. Lose 30% power, and the containment field is in danger of imminent collapse. The chance of this happening is equal to the amount of damage the MGR system has sustained (exactly like the chance of a jump gate's collapse if it suffers damage), and is rolled at the start of each turn the singularity drive remains in operation. Before the roll, the player can voluntarily eject the singularity, losing all thrust and power for the remainder of the scenario. If this is not done, and the roll fails, the containment field collapses and the ship implodes upon the singularity, destroying the ship.

7.4.11 Targeting Array Criticals



Roll the usual d20. If a 16 or higher is rolled, the array's rating is reduced by 1. An array reduced to zero by multiple criticals is automatically destroyed.

7.4.12 Plasma Battery Criticals



If a plasma battery is hit, roll 1d20. If a 13 or greater is rolled, the battery loses all power it is currently holding. There is no other effect.

7.4.13 Hunter-Killer Control System Criticals

1-14: No critical

15-16: Control loss - no flights may be controlled by this ship next turn, but control can be transferred normally.

16-18: -2 initiative for controlled flights

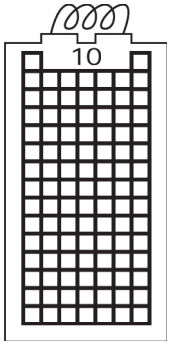
19-20: -1 control rating

21+: both the 16-18 and the 19-20 results

7.4.14 Self-Repair System Criticals

On a critical hit roll of 19 or greater, the repair rate of the self-repair system is cut in half.

7.4.15 Power Capacitor Criticals



1-17: No effect.

18-22: -1 to recharge rate.

23-27: -2 to recharge rate and the capacitor loses one half (drop fractions) of the energy it is currently holding.

28+: -4 to recharge rate and the capacitor is completely emptied.

Note that the capacitor cannot explode or go critical, a significant advantage over primitive reactors.

7.4.16 Energy Diffuser Criticals

1-10: No critical hit.

11-15: No effect to the diffuser. However, one of the attached segments is destroyed (player's choice). Mark an X in its box to indicate this. The pilot suffers "pain" (see 10.18.10) on the next turn equal to the segment's absorption capacity (treated as damage, even though no damage points are actually marked off anywhere in the ship).

16-19: Lose a segment as described under 11-15, and reduce the diffuser's discharge rate by 1.

20-24: Lose a segment, reduce the discharge rating by 2 and lower the absorption ratings of all remaining segments by 2.

25+: Lose two segments, reduce the discharge rating by 3 and lower the absorption ratings of all remaining segments by 4.

7.4.17 Lightning Array Criticals

Roll 1d20 with the usual modification for damage taken by the weapon. If a 28 or greater is rolled, the lightning array loses one of its shots per turn. This is cumulative. The weapon has no other criticals.

7.4.18 Energy Draining Field Criticals

Roll a d20 and add the number of damaged blocks. On a result of 21+, the radius of effect is reduced by one hex. The field cannot be driven below a radius of 1 hex by critical hits.

For adjustable EDFs, roll a d20 and add the number of damaged boxes. On a result of 20+, the field may no longer be double-powered for increased range. Successive rolls reduce the standard operating radius by 1 hex, to a minimum of 0 hexes (same hex only).

7.4.19 Energy Draining Mine Criticals

Roll a d20 and add the number of damaged boxes. On a result of 20+, reduce the rate of fire to 1 per 2 turns. Successive rolls continue to lengthen the recharge rate by 1 turn, to 1 per 3 turns, 1 per 4 turns, and so on.

7.4.20 Energy Draining Net Criticals

Roll a d20 and add the number of damaged boxes. On a result of 20+, the power required to operate the EDN doubles. On successive rolls the power requirement triples, then 4x power, then 5x, and so on. The device may be deactivated as normal.

7.4.21 Electronic Warfare Detector Criticals

Roll a d20 and add the number of damaged boxes. On a result of 19+, the EW Detector's range is halved. On a second roll, the range is halved again, and so on.

7.4.22 Shading Field Criticals

Roll a d20 and add the number of damaged boxes. If a 26 or greater is rolled, the device loses 1 point of shield protection. Its jamming effects are not altered by critical hits.

7.4.23 Shade Modulator Criticals

Roll a d20 and add the number of damaged boxes. On a result of 22+, the device loses 1 point of shield modulation capability.

7.4.24 Transverse Drive Criticals

Roll a d20 and add the number of damaged boxes, then consult the following chart:

1-17: No effect.

18-20: Increase recharge rate by 1 turn.

21-22: Causes d3 points of damage to the jump engine.

23+: Apply both of the above two critical hits.

7.4.25 Second Sight Criticals

Roll a d20 and add the number of damaged boxes. On a result of 21+, the device adds 1 to its recharge time. This is cumulative with additional critical hits.

7.4.26 Thought Wave Criticals

Roll a d20 and add the number of damaged boxes. On a result of 21+, the base to-hit number is reduced by 5. This is cumulative with additional critical hits.

7.4.27 Hyperplasma Cutter Criticals

Roll a d20 and add the number of damaged boxes.

24-29: Lose 1d10 damage

30+: Lose 2d10 damage

Each d10 is treated as a separate critical hit for purposes of self-repair.

7.5 Critical Hits for Fighters (Optional)

Fighters in the flight level system don't suffer individual critical hits, because the fighters among the flight must be considered essentially identical in order to make the system work. However, sometimes damage that affects several fighters in the flight can slow the whole flight down or reduce its combat abilities.

Whenever at least one fighter in a flight takes damage during the turn, a critical hit should be rolled for the entire flight. Add +1 to the roll for each different fighter beyond the first that suffered damage on the turn (so a flight that had four

fighters damaged during the turn would suffer a critical roll with a +3 modifier). Individual shuttles should also make a roll, but without any modifiers. Note that many of the criticals below will not apply to shuttles, and should be treated as "no critical hit" (don't re-roll in such cases).

Note: These rules will slow down play, so don't use them in very large battles.

The critical hits available are:

1-11: No critical hit.

12-14: Special item critical If the flight has any non-standard item (i.e., not something that normal fighters use), it is destroyed by this critical hit. This includes, but is not limited to, the following:

Jammers: When these are destroyed, the entire flight no longer benefits.

Shields: Fighters with shields, lose this protection.

Stealth: The stealth feature, regardless of how it is provided, is lost.

Navigators: The flight loses the navigator's abilities. This could be because the navigators are disabled or killed or because their delicate equipment is damaged. In a campaign, roll 1d20 with the some modifiers used by the original critical roll. On a 16-19, one navigator was killed and must be replaced. On a 20 or greater; 1d6 navigators were killed.

Special Equipment/Abilities: If the flight purchased optional equipment as described in Section 10.7.2, such as improved thrust or offensive ratings (but not skilled pilots or other officers, see Section 10.7.5), this is lost. In a campaign, these are repaired at the same time as the damaged fighters and don't need to be replaced.

Note that if a fighter possesses more than one item on the above list (or a similar item that falls into this category but isn't listed above), only one such item is destroyed for each critical of this type. The owning player is free to choose which item is lost.

15-16: Fire control critical. The offensive bonus of the flight is reduced by 1, to a minimum value of zero.

17-18: Engine critical. The thrust rating of the flight is reduced by 2, to a minimum value of 1.

19: Power Plant critical. The recharge time of all weapons in the flight is increased by 1 turn. Thus, a flight armed with weapons that can fire every turn would be reduced to firing them only once every other turn. If such weapons fired on the turn the critical was suffered, they would not be able to fire next turn. On the other hand, if they didn't fire on the current turn, they could consider that their recharge time and could fire on the following turn (if desired). Note that the launch rate of missiles is not affected by this critical, as they require no power and aren't hooked into the power grid at all.

20-21: Pilot injured. The pilot of one of the damaged fighters (roll randomly, if more than one damaged fighter exists) suffers on injury due to battle damage. In order to protect the pilot, the flight must slow down to compensate, and suffers the effect of items 15-16 and 17-18 above until the fighter is destroyed or drops out.

22 or greater: Pilot killed. The pilot of one of the damaged lighters (roll randomly, if more than one damaged fighters exist) dies as a result of injuries suffered during the turn. The selected fighter automatically drops out. It can be recovered only by the side that holds the field of battle at the end of the turn. Alternately, you can place a drifting lighter counter (it maintains the current heading and speed) on the board and track its motion, so that it could be captured during the battle (or destroyed by a friendly unit hoping to keep it from being captured).

8.0 Weapon Technology

In AoG Wars, weapons come in a variety of types, many of which have special abilities and considerations, as listed later in this section. The category a weapon falls under will be listed in its description and on the weapon's datacard.

8.1 Weapon Categories

In brief, the types of weapons found in the game are as follows:

Particle: The most common class, they are considered average in almost all respects. Their simplicity makes them ideal for use as short and medium range weapons by many races.

Laser: Among the more powerful weapon classes, lasers are distinguished by their near-instantaneous fire-to-impact time, making them almost impossible to intercept. However, their slow charging time and the pinpoint fire controls required prevent their use as defensive weapons. Many races use lasers.

Plasma: One of the oldest technologies, plasma guns drop off in damage over distance, making them useful only in short-ranged circumstances. Their incredible heat allows them to ignore half a target's armor values, however; and they can be quite powerful when used properly. A number of races continue to use plasma as a secondary weapon type.

Molecular: These advanced weapons operate by taking matter apart at the molecular level. While they have no specific special rules, they tend to be more powerful and longer-ranged than similar devices of a like size used by less advanced races. The advanced races operate the most powerful molecular guns, while the advanced races also use this technology.

Electromagnetic: This type of weapon produces a significant electrical discharge, useful either to cause damage or to cause special effects against the target. These could include extra criticals, bonuses on critical rolls, deactivation of systems, and the like, as defined in the weapon's specific rules. The advanced races are the masters of EM weaponry, though some races are also known to use less advanced versions of such devices.

Matter: These relatively large guns fire physical objects (such as rocks, bullets, pellets, and the like) at the target at high speeds. The resulting impact bypasses all armor and tears systems apart, but rarely penetrates beyond the initial strike, and so does not cause overkill. A number of races use such technology, but the difficulty of supplying matter guns with ammunition creates significant logistical troubles.

Gravitic: These advanced devices affect gravity, usually by manipulating gravitons themselves. This can be used to score damage as well as to cause special effects such as forcibly moving or turning the target. In addition, gravitic technology can be employed defensively in the form of shields. Because of the special construction requirements involved, few races dabble in gravitic weapons, but instead are forced to specialize in it.

Antimatter: This dangerous technology is powerful, operating as it does on the catastrophic combining of matter and antimatter. In general, the more antimatter delivered to the target, the more damage is scored, so the quality of a hit actually affects the damage scored. Despite this advantage, few races want anything to do with this technology, and those that do must research special safety measures to protect themselves from accidents.

Ionic: This low-tech category is similar to particle weaponry, but adds the side effect of radiation into the mix. Since this is also dangerous to the user, few races operate ionic weapons, despite the fact that they are among the fastest-firing devices available.

Ballistic: This weapon class includes all self-propelled devices that launch from an origin point, track their target, and impact against it alter a significant period of time. In some cases these target a unit, while other times it is a location (where it typically explodes or produces another sort of ranged effect). Examples of the ballistic class include missiles and torpedoes of various types. The primary advantage of such weapons is the lack of a range penalty (since they lock onto and "seek" their target), but they are so slow they can be intercepted with no degradation.

8.2 Particle Weapons

These are among the most basic and common weapon types. Particle guns are relatively old technology, and are used by many of the races, but usually as lighter, support weapons or for antifighter work.

In general, particle weapons have no special damage procedures or abilities. However, they often cause damage in standard mode, meaning they can do a significant blow to a single system on a hit.

8.2.1 Particle Beams

8.2.1.1 Standard Particle Beam

Modes: Standard

Standard Particle Beam
Class: Particle
Modes: Standard
Damage: 1d10+6
Range Penalty: -1 per hex
Fire Control: +4/+4/+4
Intercept Rating: -2
Rate of Fire: 1 per turn

The standard particle beam (often referred to as the SPB) is a common light weapon. Intended for use against fighters, the SPB is also effective against ships due to its standard-mode damage and decent fire controls. Its range is relatively short, meaning that heavier shipboard weapons will engage before these are in effective range. Some captains prefer to use these beams for interception duties, though they are not very effective in this role.

The standard particle beam is more damaging than the twin array, but gets only one shot per turn.

8.2.1.2 Light Particle Beam

Modes: Standard

Light Particle Beam
Class: Particle
Damage: 1d6+3
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Intercept Rating: -1

This weapon is the result of modifications made to standard particle beams to adapt them to fighter based use. It is among the most average of all fighter guns.

8.2.1.3 Ultralight Particle Beam

Modes: Standard

Ultralight Particle Beam
Class: Particle
Damage: 1d6+1
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Intercept Rating: -1

This weak fighter-mounted weapon is a low-tech device well suited for cheap fighters and races not normally inclined towards warfare. Its primary advantages are its low cost and maintainability. Among fighter weapons it is one of the least powerful, however.

8.2.2 Twin Array

Modes: Standard

Twin Array
Class: Particle
Modes: Standard
Damage: 1d10+4
Range Penalty: -2 per hex
Fire Control: +4/+5/+6
Intercept Rating: -2
Rate of Fire: 2 per turn

The twin particle array (usually just called the twin array) is actually two light particle beams housed together. Either or both of these guns may fire in any turn, and each makes its to-hit and damage location roll separately. The twin array's primary duty is defense against incoming fighters, or in defensive mode against heavy weapons fire, as the twin array is a shortranged weapon.

The twin array can fire either or both of its two weapons defensively. If it intercepts with one shot, it can fire the other shot offensively (if desired). If both shots fire against the some incoming shot, they suffer intercept degradation just like any other weapons would do in the same situation.

When rolling for critical hits against a twin array, use the normal weapon chart except that any result of 20 or greater results in a special critical. In this case, one of the two guns of the twin array is destroyed, and only the remaining one is available thereafter. (Note: Other critical hits scored on the twin array turret affect both of its guns equally) If this critical is scored twice on the some twin array, it is considered completely destroyed.

8.2.2.1 Quad Array

Modes: Standard

Quad Array
Class: Particle
Modes: Standard
Damage: 1d10+4
Range Penalty: -2 per hex
Fire Control: +4/+5/+6
Intercept Rating: -2
Rate of Fire: 4 per turn

This is a quartet of particle beams in a single, large turret. It is similar to (and, in fact, based on) the twin array, but has some additional restrictions and disadvantages. The quad array can fire in either offensive or defensive mode, but not both in the same turn. If fired offensively, all shots must be against the same target or targets in the same hex (such as a flight of fighters). If fired defensively, each of its four defensive shots must engage incoming fire from the same opposing unit (or units in the same hex, such as a fighter flight). The individual shots do not have to defend against the same volley, however (and if they do defend against the some volley, they suffer the usual intercept degradation).

Quad arrays also have a tendency to overheat if fired rapidly. If three or more shots are fired from the turret in a turn, that turret may not safely fire in the following turn at all (it is "cooling down"). If it elects to take the risk and fire anyway, roll for a critical hit against the turret. Modifiers: If only 3 shots were fired in the previous turn: -2; +2 for every shot fired on the current (overheat) turn; plus the usual modifiers for damage the weapon has suffered.

When rolling for critical hits against a quad array, use the normal weapon chart except that any result of 20 or greater results in a special critical. In this case, one of the four guns of the array is completely destroyed, while the others are unaffected. Other critical hits scored on the turret affect all of its guns equally.

8.2.2.2 Heavy Array

Modes: Standard

Heavy Array
Class: Particle
Modes: Standard
Damage: 2d10+6
Range Penalty: -1 per hex
Fire Control: +4/+3/+2
Intercept Rating: -2
Rate of Fire: 2 per turn

Advancing on twin array technology, the heavy array features more powerful particle beams in a similar, but larger, housing. The heavy array fires just as quickly as the twin array, but has a longer range and greater damage yield. All other special rules (including the special critical hit) are the same as with the twin array.

The heavy array is a rare weapon and cannot simply replace any twin array on a ship. Significant internal modifications are required on any variant, and its lack of appearance on new construction hulls may indicate difficulties in design not represented on the control sheet.

8.2.3 Pulse Cannons

Modes: Pulse (Standard)

Pulse cannons are an advanced form of the more basic pulsar weapons and are used by several races. Pulse cannons come in three basic sizes, as listed below.

8.2.3.1 Heavy Pulse Cannon

Hvy Pulse Cannon
Class: Particle
Modes: Standard
Damage: 15 1d5 times
Maximum Pulses: 6
Grouping Range: +1 per 4
Range Penalty: -1 per 2 hexes
Fire Control: +4/+3/-1
Intercept Rating: -1
Rate of Fire: 1 per 3 turns

The heavy pulse cannon, or HPC, launches a series of six rapid bursts each time it fires. When it hits, a number of these pulses impact the target, doing a considerable amount of damage to several systems. It has a shorter range than the heavy laser, but the HPC has the potential to score incredible amounts of damage on a good hit.

8.2.3.2 Medium Pulse Cannon

Med Pulse Cannon
Class: Particle
Modes: Standard
Damage: 10 1d5 times
Maximum Pulses: 6
Grouping Range: +1 per 4
Range Penalty: -1 per hex
Fire Control: +4/+3/+1
Intercept Rating: -2
Rate of Fire: 1 per 2 turns

The medium pulse cannon, usually called simply the pulse cannon, or MPC, is a medium-strength version of the typical pulse gun. It is essentially a scaled-down version of the HPC, scoring less damage but firing more rapidly. It has a maximum yield of 6 pulses.

8.2.3.3 Light Pulse Cannon

Lt Pulse Cannon
Class: Particle
Modes: Pulse
Damage: 8 1d5 Times
Maximum Pulse: 6
Grouping Range: +1 per 4
Range Penalty: -2 per hex
Fire Control: +3/+3/+4
Intercept Rating: -2
Rate of Fire: 1 per turn

The light pulse cannon, or LPC, is the weakest of the pulse weapons, used normally in an anti-fighter role. Like the medium and heavy pulse cannons, it fires a series of short bursts towards the target, to a maximum of 6 hits. Though its damage yield is very low, its ability to fire rapidly makes it a capable defensive weapon.

8.2.4 Particle Cannon

Modes: Raking

Particle Cannon
Class: Particle
Modes: Raking
Damage: 2d10+15
Range Penalty: -1 per 2 hexes
Fire Control: +5/+4/+2
Intercept Rating: -1
Rate of Fire: 1 per 2 turns

This weapon is an enlarged and enhanced version of the standard particle beam, but the beam is more powerful and lasts longer, resulting in a raking effect (unusual among particle weaponry). It is a common weapon found on many ships operated by due to its ease of construction.

8.2.4.1 Light Particle Cannon

Lt Particle Cannon
Class: Particle
Modes: Raking
Damage: 2d10+8
Range Penalty: -1 per hex
Fire Control: +4/+2/+0
Intercept Rating: -2
Rate of Fire: 1 per 2 turns

Ships that are designed short on power occasionally use the light particle cannon. Once considered a powerful weapon, it is rarely seen today except on low-tech ships. The races that use it appreciate it for its simplicity and ease of maintenance.

8.2.5 Particle Blaster

Modes: Standard

Particle Blaster
Class: Particle
Modes: Standard
Damage: 1d10+12
Range Penalty: -1 per 2 hexes
Fire Control: +4/+4/+0
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

The particle blaster is often referred to simply as the blaster. Instead of a steady stream of charged particles that rake a target, the blaster concentrates its power at a single point. The result is a lower chance to hit but a greater amount of damage on a successful shot.

8.2.6 Particle Repeater

Modes: Standard

Particle Repeater
Class: Particle
Modes: Standard
Damage: 2d10
Range Penalty: -1 per hex
Fire Control: +2/+2/+4
Intercept Rating: -1 per shot
Rate of Fire: 1 or more per turn

This is a rapid-fire particle beam mounted on a swiveling turret. The basic shot it fires is similar to a slightly enhanced standard particle beam, which would not make this weapon particularly useful except for its “repeater” ability.

The particle repeater is outfitted with a specialized targeting system, and if it successfully hits a unit, it can fire two or more shots in a single turn. In order for this to function, the firing ship must have a normal lock-on to the target. Then, if the first shot hits, the repeater can roll again (at a -1 penalty) for a second hit. If this shot hits, it can fire a third time, this time at a -3 penalty. It can continue to fire, increasing the to-hit penalty by -2 for each successive shot (i.e., -5, -7, and so on), for as long as it hits and for as long as it has energy (see below). Each shot is treated as a separate volley. As soon as it misses once, all remaining shots automatically miss—they still fire, however, so the number of actual shots taken must be announced.

In order to fire more than one shot, the weapon must have been armed with additional power at the start of the turn. The amount used (or even the fact that it is armed with more than the basic shot) need not be announced until the weapon is fired. Each shot beyond the first requires 1 point of energy, usually acquired by shutting down other systems on the ship. For example, if the weapon is to fire 3 shots, it must have been given 2 extra points of energy (remember, the first shot is already taken care of). In practice, applying more than a couple of points of energy to one of these weapons is not very efficient unless you’re very sure you’ll have a high chance to hit.

If fired in defensive mode, the particle repeater must be used against a single incoming shot, and its intercept rating is improved by 1 for each extra point of power in the weapon.

Thus, if 5 points were added to the repeater, its intercept rating is increased from the basic -1 to -6. In other words, the repeater has an intercept rating of -1 for each shot it takes—with no degradation.

For every 2 shots (or fraction thereof) after the first two fired by the repeater (including defensive mode) the weapon requires a "cooldown time" of 1 turn. During a cooldown turn, the weapon must be deactivated, and its power can be used elsewhere. Thus, since particle repeaters have a basic recharge time of 1 turn, if it fires just 1 or 2 shots, it can (if powered) fire on the very next turn. However; 3 or 4 shots require 1 turn of cooling before it can be used again, 5 or 6 shots increase the cooldown period to 2 turns, and so on. Note that this is based on the number of shots fired, not the number of hits. If the repeater attempts 10 shots, but the first one misses (thereby spoiling the rest), the cooling period is still 4 turns.

Each successive shot must be fired at the same target; it cannot switch targets unless enhanced by a special gunsight system. If fired at a shuttle or fighter, successive shots must be on the same unit (selected by the defender after the first shot hits), as the weapon is not sophisticated enough to switch targets while repeating.

8.2.6.1 Repeater Gunsight

This enhancement to the particle repeater allows it to fire its shots at different targets. Each shot must still be at a target in the same hex, or at most one hex away, from the original target (and still in arc of the weapon). If the target is a fighter in a flight, successive shots can be at different fighters in the flight or any other nearby shuttle or flight within 1 hex. If fired at the same flight, the defender still chooses which fighter to accept the damage. The target of each shot is selected before each roll to-hit.

Repeater gunsights cost 12 points (per repeater). They are destroyed if the particle repeater itself takes even a single point of damage (after armor). This is not a critical hit: it is an automatic and basic disadvantage of this enhancement.

The repeater gunsight does not affect the defensive mode function of the weapon. It must still fire solely at a single incoming shot.

8.2.6.2 Repeater Gun

Modes: Standard

Repeater Gun (4)
Class: Particle
Modes: Standard
Damage: 1d10+3
Range Penalty: -1 per 2 hexes
Fire Control: +2/+2/+2
Intercept Rating: -1 per shot
Rate of Fire: 1or more per turn

This is the precursor to the particle repeater. It uses the same rules as that weapon, with the following changes:

(1) It requires 2 points of power for each shot beyond the first.

(2) Each additional shot beyond the first requires one turn of cooldown.

(3) The weapon's damage is slightly reduced, although its range is better (the one advantage of this system over the particle repeater).

(4) The gunsight is not available.

To replace particle repeaters with repeater guns on a ship control sheet, replace the weapon chart and lower the point cost of the ship by 3 points per repeater.

8.2.7 Particle Cutter

Modes: Sustained only (resolve damage as Raking)

Particle Cutter (3)
Class: Particle
Modes: Sustained
Damage: 2d10+12
Range Penalty: -1 per 2 hexes
Fire Control: +4/+3/+2
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
Shots at fighters are resolved in standard (not sustained) mode.

The particle cutter is a particle beam capable of firing in sustained mode, a difficult prospect considering the tendency of particle guns to overheat quickly. The result is a reasonably powerful weapon that is difficult to employ properly. Because of this, it is rarely seen in quantity, normally appearing only once on any warship.

Designed with sustained mode in mind, this weapon has no need for the extra power requirement most sustained mode weapons use. It also may begin a scenario armed (if not otherwise specified by scenario rules), something not normally permitted for sustained-mode weapons. However;

it must obey the other rules and restrictions of sustained mode.

8.2.8 Solar Cannon

Modes: Standard

Solar Cannon
Class: Particle
Modes: Standard
Damage: 1d5+12
Range Penalty: -1 per 2 hexes
Fire Control: +5/+3/+0
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Special: Damage scored is repeated on the structure.

This unusual weapon is a relatively new addition to the particle class. It is a bright, blinding weapon that delivers a tremendous amount of heat to the target. This causes armor to melt away and damage to be done both to the system struck by the beam and the structure that houses it.

If a ship is hit, roll for location and damage normally. The damage caused is first reduced by armor and shields in the usual way, but the armor value is then reduced by 2 points for the rest of the scenario (minimum value zero), beginning at the end of the current turn (after all weapons fire has been resolved). Damage scored is marked first against the system struck, and then on equal amount on the facing structure (ignoring, and not affecting, that structure's armor). This added damage represents the "melting" effect of the weapon Note, however, that damage from a solar cannon does not "overkill" into any other system. Excess damage is lost (it bleeds off into space).

If a solar cannon's initial shot hits structure, first reduce the damage for armor and/or shields and lower the armor rating as noted above, then mark the resulting damage against the structure block twice (the first time for the basic damage, and the second for the "melting" effect). The armor value is only reduced one time, not twice.

If a solar cannon hits a fighter, there is no "melting" effect, but normal damage is still scored and the armor facing the incoming shot is still reduced.

Solar Cannon Damage Examples

Example #1: A solar cannon strikes a heavy laser with 3 points of armor. The facing structure has 5 armor. The solar cannon rolls 12 damage, which is reduced by 3 because of the laser's armor, to a total of 9. The laser has only 8 points of damage, and so is destroyed, but the 1 remaining point does not cause overkill. 9 points are also scored on the structure because of the melting effect, but these are not reduced at all by the structure's armor (and that armor value is not lowered). Note that the 3 armor of the heavy laser would also be reduced to 1, but this is moot since that the laser has been destroyed. The armor on the structure block is unaffected.

Example #2: A solar cannon hits a ship's forward structure for 14 damage. The structure block has an armor rating of 6 (which is reduced by 2 to a new value of 4), lowering the volley to 8 damage. 16 boxes are marked destroyed on the structure.

8.2.9 Particle Concentrator

Modes: Raking

Particle Concentrator
Class: Particle
Modes: Raking
Damage: 2d10+15
Range Penalty: -1 per 2 hexes
Fire Control: +5/+4/+2
Intercept Rating: -1
Rate of Fire: 1 per 2 turns

This weapon is intended for long range fire. A particle concentrator is basically a particle cannon with a supporting option that allows it to be combined with one or more particle concentrators from other ships.

A particle concentrator can be fired individually at a target (in which case it works exactly like a particle cannon) or can combine with one or more particle concentrators fired by the some ship or nearby ships (To combine with a nearby ship's fire, that ship can be no more than one hex away, and must be firing at the same side of the target. All ships combining fire must be within 1 hex of each other).

If combined, all of these "linked" weapons fire as one, rolling to hit one time, and producing just one damage roll (not one roll for each weapon). To determine the chance to hit, use the distance from the closest ship to the target to find the range penalty (doubling the penalty if any of the ships does not have a lock-on to the target), and use an average of the offensive EW values of all ships involved (round fractions of 0 S or more up). The chance to hit is improved by +2 for each additional weapon (beyond the first) involved in

the joint shot (to a maximum of +10), and the damage roll is similarly increased by 1d10 to a maximum possible bonus of 5d10. If a hit is scored, all damage is rolled as a single raking shot (While at first this may seem to be less than efficient, note that a large quantity of particle concentrators firing at long ranges can score hits easily, and the damage caused will be tremendous).

Particle Concentrator Example

Three gunships, all within 1 hex of each other, fire their particle concentrators at a heavy cruiser. One gunship is 6 hexes away and has 4 points of offensive EW, the second is 6 hexes away and has 7 points of offensive EW, and the third is 5 hexes away and has 1 offensive EW. The average of all three ships' EW is 4 points, giving a +4 to hit, and the closest ship is 5 hexes away, yielding a range penalty of -3 (the particle concentrator has a range penalty of -1 per 2 hexes). Since there are three concentrators involved, they have a further bonus of +4 to hit, bringing the adjusted total (adding in all the factors above) to +5. If it hits, the combined shot does an extra 2d10 above its base damage. Note that it fires only one time, not three times.

8.2.10 Quad Particle Array

Modes: Standard

Quad Particle Beam
Class: Particle
Modes: Standard
Damage: 1d10+6
Range Penalty: -1 per hex
Fire Control: +4/+4/+4
Intercept Rating: -2
Rate of Fire: 4 per turn

Where the quad array had four light particle beams in a single turret, this huge weapon has four standard particle beams in a single turret, allowing them to be placed in a smaller installation than four individually placed SPBs would have used. Unfortunately, the power linkages and other internal problems restricted its use to bases and other huge units only.

Each beam on the QPA can fire independently of the others, and can be used in either offensive or defensive mode. If used defensively, the individual guns use intercept degradation like any other weapon.

This weapon uses the same special critical hit rule as the quad array (8.2.2.1).

8.2.11 Interceptor

Modes: Standard

Interceptor Prototype
Intercept Rating: -2
Rate of Fire: 1 per turn
OFFENSIVE MODE:
Class: Particle
Modes: Standard
Damage: 1d10+3
Fire Control: --/--/+4
Range Penalty: -2 per hex

This weapon is dedicated specifically to the interception role and is highly effective at deflecting some or all of on incoming shot, as reflected by their high intercept rating. There are three types seen to date, the original Prototype version with a defense rating of -2, the improved Mark I, which has a rating of -3, and the newer Mark II, with an advanced defense rating of -4. All interceptors on a given ship will be of the same type.

Interceptor Mk-I
Intercept Rating: -3
Rate of Fire: 1 per turn
OFFENSIVE MODE:
Class: Particle
Modes: Standard
Damage: 1d10+5
Fire Control: --/--/+5
Range Penalty: -2 per hex

In addition to their normal use as defensive weapons, interceptors also generate on energy web (similar to shields) that surrounds the ship. This web reduces the ship's defensive rating in all directions covered by the arcs of active (and undestroyed) interceptors. Thus, any ship equipped with interceptors will have two defense ratings for each direction, as shown in the example here. The first of these is in force only if there are no active interceptors that bear on the incoming fire If, on the other hand, there is at least one interceptor facing the approaching shot, the second rating (in parenthesis) is used instead. Note that the second, interceptor-enhanced defense rating affects all weapons, even lasers. Note: This does *not* mean that an interceptor can fire defensively against lasers. The energy web is a passive defense, like a weaker variety of shield, whereas defensive fire is an active defense.

COMBAT STATS
Fwd/Aft Defense: 14 (11)
Stb/Port Defense: 15 (12)

Interceptor Mk-II
Intercept Rating: -4
Rate of Fire: 1 per turn
OFFENSIVE MODE:
Class: Particle
Modes: Standard
Damage: 1d10+8
Fire Control: --/--/+8
Range Penalty: -2 per hex

Interceptors can be set to offensive mode, in which they are employed strictly as weapons to shoot at shuttles or fighters (in fact, they are not permitted to fire at anything larger than fighters or shuttles, nor can they be used for defensive fire while in this mode). This is a job at which interceptors excel, as they rarely miss a fighter at close range, as reflected by a high fire control rating against fighters and shuttles (although the range penalty is quite severe). Even if interceptors are used in offensive mode, the ship is still protected by the energy web, as described previously.

Changing to offensive mode (or back to defensive mode) requires one full turn, and each interceptor can make this change independently. While on interceptor is changing modes, it must be deactivated. While in this state, it cannot contribute to the ship's energy web, though many vessels provide overlapping coverage for their interceptors, allowing some to change modes without affecting the web's overall defense levels.

At the start of a scenario, a player may choose the mode (offensive or defensive) for each interceptor on his ship and may keep it a secret until they are used. Note, however, that the strength of a ship's energy web can be detected at all times. If any of the interceptors are ever deactivated for any reason, this must be announced (although the mode they change to—if they indeed change—can be kept secret until they are used again).

Note that the energy web provided by the interceptor is very proprietary technology and is used only by the developing race. Other races or organizations that use interceptors do so without the benefit of the energy web. The interceptor otherwise operates normally. If a race's interceptors have this limitation, it will be so noted in their specific rules.

8.2.12 Heavy Interceptor Battery

Modes: Standard

Hvy Interceptor Btty
Intercept Rating: -4
Rate of Fire: 1 per turn
OFFENSIVE MODE:
Class: Particle
Modes: Standard
Damage: 2d10+6
Fire Control: --/--/+10
Range Penalty: -2 per hex
Note: Can switch modes with no delay period.

A larger interceptor often seen on the largest bases and ships, this weapon is enhanced with a greater ability to shoot down fighters. While its basic intercept rating and energy web protection are not increased, its fire control and damage against fighters are greatly improved. In addition, the heavy battery does not require a turn's delay while changing from offensive to defensive mode or back again. The player may switch them at will at the start of the turn, during the Power Allocation Step of the Combat Sequence.

8.2.13 Guardian Array

Modes: Standard

Guardian Array
Intercept Rating: -3
Rate of Fire: 1 per turn
OFFENSIVE MODE:
Class: Particle
Modes: Standard
Damage: 1d10+5
Fire Control: --/--/+8
Range Penalty: -3 per hex

The guardian array is a device similar to the interceptor, but has the added ability to defend against shots fired at friendly ships. It does not, however, possess the interceptor's energy web, so it does not automatically lower the defense rating of the ship it is mounted on. Like the interceptor, the guardian array possesses both an offensive and defensive mode and switches between them using the same rules as the interceptor.

To intercept fire targeted at nearby friendly ships, the following conditions must be met. First, the defending ship must be between the firing vessel and its target. Second, the guardian array must be facing the firing ship, available to fire, and allocated for defensive use on that turn. Finally, the guardian array must not be in offensive mode.

To qualify as being between the firing ship and the target, the guardian vessel must be within the some damage location arc that is being damaged on the target unit. The arcs in question are forward, port, starboard, or aft, regardless of the unit's size, except for bases (which have their sections'

arcs clearly defined on the control sheet). For example, if the target is being hit through the forward area, the guardian ship must also be within the forward arc.

In addition to this, the guarding ship must be closer to the firing ship than the target. If the defender is in the hex of the firing ship or the target ship, determine its relative position using the somehex positioning procedures (i.e., take the last one to move back to its previous location and determine facings from the resulting position). It is possible for these conditions to be met if all three units are in the same hex, but only if they all entered the hex in a precise order.

8.2.13.1 Sentinel Point Defense

Modes: Defensive only

Sentinel Point Defense
Intercept Rating: -3
Rate of Fire: 1 per turn
OFFENSIVE MODE:
Not Available

The SPD system is the precursor to the guardian array. The Sentinel is a purely defensive system, lacking any offensive mode. Sentinels cannot combine their effects, so if more than one are used against an incoming shot, only one is effective.

The Sentinel Point Defense can be used to intercept fire targeting nearby friendly ships. To do so the follow conditions must be met. First, the defending ship must be between the firing vessel and its target. Second the Sentinel must be in arc and ready to fire.

To qualify as being between the firing vessel and its target the defending ship must be within the same arc as that being fired upon. The defending unit must also be closer to the firing ship then the target. If the defender is in the same hex as either the firing or targeted ship, use the same-hex positioning rules to determine their relative position.

8.2.14 Particle Impeder

Modes: Standard

Particle Impeder
Intercept Rating: -3
Rate of Fire: 1 per turn
OFFENSIVE MODE:
None Available

The particle impeder is similar to the interceptor, but has no offensive capability or "energy web." Instead, it functions wholly in a defensive role. It operates by throwing a kind of metallic chaff into space, blocking or deflecting an incoming shot. Particle impeders are effective in blocking laser weapons, and in fact were created specifically to do just that.

The particle impeder is fired defensively at a single incoming shot just as any other defensive weapon would be. However, to use the system to its fullest extent, you may specifically allocate some of your electronic warfare points to it. To do this, write "Impeder" (and the number of the specific impeder system) in the Targeting Data space on your Ship Control Sheet. For example, if you were to apply 4 EW points to a forward-bearing impeder, it might appear as: "Impeder #1: 4" on your sheet. Any EW applied to an impeder is treated as defensive EW versus any weapons fire—even shots from fighters— coming into that impeder's arc later in the turn (but ONLY through that arc). This is known as the impeder's passive benefit.

In addition, any impeder gains a bonus equal to the EW amount applied to it when firing defensively at an incoming shot. This bonus is in addition to the impeder's normal intercept rating and is referred to as the active benefit. Thus, if you apply 4 EW to an impeder with a -3 intercept rating, it would then have a -7 rating (for that turn only) against any ONE incoming shot. Note that both the active and passive benefits are cumulative.

Only one impeder's passive benefit can affect an incoming shot. If two or more impeders overlap, the defender chooses which impeder he will employ If he opts to use an active benefit, the same impeder must also be used for the passive benefit (i.e., he cannot use one impeder's passive and another's active benefit against the some incoming shot).

Critical Hits: If a particle impeder suffers damage, roll the usual d20. If a 17 or greater is rolled, the impeder is partially disabled. Its intercept rating is reduced by 1 and its EW benefit is limited to half (round fractions up) of any electronic warfare put into it.

8.2.15 Scattergun

Modes: Standard

Scattergun
Class: Particle
Modes: Standard
Damage: 2d6+1
Range Penalty: -2 per hex
Fire Control: +0/+2/+5
Intercept Rating: -2
Rate of Fire: 1d6 per turn

The scattergun is a pulsed particle weapon that fires a series of small blasts at nearby targets. When fired offensively, it gets 1d6 shots, all of which can be at different units (unlike many pulse weapons, the player makes the volley-count roll before choosing targets). Each such shot is treated entirely separately, and causes its damage in standard mode. Some or all of the shots could be at the same target, if desired.

If fired defensively, each shot of a given scattergun gets its full intercept rating, though only one shot can defend against any single incoming weapon. If two or more different scatterguns are employed against the same shot, each one after the first would suffer the usual degradation in effectiveness.

A scattergun may fire in either offensive or defensive mode during any turn. It may not fire some of its shots offensively and some defensively. Some advanced users of the scattergun can possess an enhancement that allowed this possibility, but many races do not.

Scatter guns are not particularly long-ranged, but they have an excellent firing rate, and are a good weapon to use against fighters.

8.2.15.1 Light Scattergun

Mode: Standard

WEAPON DATA
Light Scattergun
Number of Guns: 1
Damage: 2d6
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: 1d3 shots per turn

This is a smaller version of the scattergun designed for use on fighters. It is functionally the same as the main version, though it can fire only 1d3 pulses, not 1d6, and lacks the ability to divide its shots between offensive and defensive mode.

8.2.16 Pulsar Mine

Modes: Standard

Pulsar Mine
Class: Particle
Modes: Pulse (Special)
Damage: 8
Range Penalty: None (Max 2)
Fire Control: --/--/+4
Intercept Rating: n/a
Rate of Fire: 1 per turn
Special: Up to 18 shots at fighters/shuttles per turn.

Pulsar mines are short-ranged weapons designed to keep an area of space clear of enemy fighters. They are very effective when employed by several units in a chain or other formation, as they can produce a wide zone within which all fighters are subject to automatic attack.

Pulsar mines fire outside the normal combat sequence, doing so during the Movement Step, not the Weapons Fire Step. They fire whenever a fighter or shuttle is located within 2 hexes of the ship (even if that fighter is not finished with its movement). As soon as this condition exists, you should interrupt the fighter or shuttle's movement and resolve the pulsar mine attack immediately (Note: Do NOT do this when the ship itself moves. It functions only when fighters or shuttles are in motion).

An obvious tactic is to fly your pulsar mine ship into the same hex as a flight of fighters—as soon as those fighters take their turn in the movement sequence, they'll be targeted and fired upon. In this case, the shot would occur after they made their first hex of movement (if they don't move, they will still be fired upon).

To resolve the attack, determine the chance to hit based on the defense rating of the target and the fire control bonus of the weapon. All EW, jinking, jammer, and range bonuses/penalties are ignored. If the target is hit, it suffers the listed damage. If not, there is no effect. Regardless of the result, the fighter or shuttle cannot be attacked by that same pulsar mine in the same turn, even if it moves out of range and back again, or moves closer to the target ship.

If a flight of fighters is hit, use the Flight Level Combat Chart on the fighter control sheet to determine how many fighters are actually damaged. *For example, if an 11 is needed to hit a flight of fighters and the attacker rolls a 12, one-third of the fighters (2 of them) take damage.* Round any fractions of 0.5 or more up.

A given pulsar mine can engage no more than 18 targets in a given turn. If a flight of fighters enters the 2-hex "zone of death" and not enough shots are available to engage them all, the flight's owner can select which units take the shots, but must do so before the attack rolls are actually made. Note that the weapon's owner does not make this choice—in fact, short of shutting the weapon off, he cannot order his pulsar mine system not to fire at a given enemy target. The pulsar mine will not, however, fire at friendly targets (even if ordered to do so) due to the limitations of its computer-controlled firing system.

Note that due to the Combat Sequence, fighters cannot skin dance in order to ovoid pulsar mine fire. They cannot dance at speed zero so at some point in the turn, they must move out of the larger unit's hex and then return. When that movement comes, the pulsar mine will shoot at them automatically.

8.2.17 Uni-Pulse Cannon

Modes: Standard

Uni-Pulse Cannon
Class: Particle
Damage: 1d6+4
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Intercept Rating: -1

The uni-pulse cannon is a fighter-mounted weapon. Although it is a pulse weapon, it fires only one shot. This is a pulse-class weapon that does damage in standard mode.

8.2.18 Gatling Pulse Cannon

Modes: Standard

Gatling Pulse Cannon
Class: Particle
Damage: 2d6+6
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Intercept Rating: -2

Also known as the gatling cannon or gatling gun, this is a new development in fighter armament. It fires a burst of pulses in a narrow field, all of them at a single target. Though technically a pulse weapon, it makes only a single to-hit and damage roll, and does not use individual pulses. For a fighter weapon, it is particularly powerful—it can easily destroy any fighter it hits, and score significant damage against ships.

8.2.19 Light Particle Gun

Modes: Standard

Light Particle Gun
Class: Particle
Damage: 1d6+2
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Intercept Rating: -1

This is a very small particle weapon, typically operated by intercept-class fighters. While an efficient weapon and well suited for the small, speedy fighters, it does not cause very much damage when it hits.

8.2.20 Paired Particle Gun

Modes: Standard

Paired Particle Gun
Class: Particle
Damage: 1d6+5
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Intercept Rating: -1

While similar to the light particle guns, the paired gun (also called the medium particle gun) is capable of scoring far more damage with each of its shots. However, it uses up more space, making it unsuitable for use on anything smaller than a heavy fighter.

8.2.21 Light Particle Blaster

Modes: Standard

Light Particle Blaster
Class: Particle
Damage: 1d3+5
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Intercept Rating: -1

A variant of the particle blaster that has been optimized for use on fighters, this is a powerful gun that is greatly feared. It is also extremely expensive and dangerous to use, possibly contributing to the low survival rate of fighters equipped with this weapon.

8.2.22 Bolters

Bolters are energy weapons that fire a single, huge ball of destructive force at their target. The resulting blast scores damage in standard mode, a considerable advantage over beam weapons. Unfortunately, bolters larger than the light type are slow to arm and prove useless against fighters.

8.2.22.1 Heavy Bolter

Modes: Standard

Heavy Bolter
Class: Particle
Modes: Standard
Damage: 24
Range Penalty: -1 per 3 hexes
Fire Control: +3/+2/-1
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
6

The heavy bolter is the ultimate development of the bolter concept. The single huge blast it fires is capable of causing incredible damage to an enemy target, and is particularly devastating against lightly structured ships. Though extremely powerful, the heavy bolter is very slow to arm and possesses only a standard fire control system.

8.2.22.2 Medium Bolter

Modes: Standard

Medium Bolter
Class: Particle
Modes: Standard
Damage: 18
Range Penalty: -1 per 2 hexes
Fire Control: +3/+2/+1
Intercept Rating: -1
Rate of Fire: 1 per 2 turns
4

This weapon was developed during experiments designed to improve the light bolter into an anti-ship weapon.

8.2.22.3 Light Bolter

Modes: Standard

Light Bolter
Class: Particle
Modes: Standard
Damage: 12
Range Penalty: -1 per hex
Fire Control: +2/+2/+3
Intercept Rating: -1
Rate of Fire: 1 per turn
2

The original bolting weapon, this was designed at first for use as a light defensive gun. However, its intercept rating is too low to be effective in this role. The light bolter has proved to be an excellent fighter weapon.

8.2.23 Energy Pulsar

Modes: Pulse

Energy Pulsar
Class: Particle
Modes: Pulse
Damage: 10 1d2 times
Maximum Pulses: 3
Pulse Grouping: +1 per 5
Range Penalty: -1 per hex
Fire Control: +3/+2/+1
Intercept Rating: -1
Rate of Fire: 1 per 2 turns
3

Pulsars are capable of firing more controlled pulses than bolters and are highly effective against flights of enemy fighters. The basic pulsar gun fires three pulses, each one on a slightly different trajectory from the last. When firing against ships, roll 1d2 for the number of hits, adding +1 for every five full points the to-hit roll has been exceeded (to a maximum of 3 hits). Note the relatively poor volley count statistic of 5, a characteristic common to pulsar guns.

8.2.24 Scatter-Pulsar

Modes: Pulse

Scatter-Pulsar
Class: Particle
Modes: Pulse
Damage: 6 1d5 times
Maximum Pulses: 6
Pulse Grouping: +1 per 5
Range Penalty: -2 per hex
Fire Control: +1/+2/+3
Intercept Rating: -2
Rate of Fire: 1 per turn
2

The scatter-pulsar is a lighter pulsar gun with more pulses available, the intent being to score more damage against fighters. The scatter-pulsar fires six pulses, rolling 1d5 for the number of hits, with volley count modifiers as with the energy pulsar. Note that although this weapon is highly effective against fighters, its warhead yield is so weak as to be nearly useless against armored targets, such as capital ships.

8.2.25 Quad Pulsar

Modes: Pulse

Quad Pulsar
Class: Particle
Modes: Pulse
Damage: 14 1d3 times
Maximum Pulses: 4
Pulse Grouping: +1 per 5
Range Penalty: -1 per 3 hexes
Fire Control: +3/+3/-1
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
4

Quad pulsars fire four very large blasts, rolling 1d3 for the number of hits (modifiers as with the energy pulsar). This device is highly effective against ships and can usually destroy a fighter with one bolt.

8.2.25.1 Pulse Accelerator

Modes: Pulse

Pulse Accelerator
Class: Particle
Mode: Pulse
Damage: 12 1d3 times
Maximum Pulses: 4
Pulse Grouping: +1 per 5
Range Penalty: -1 per 3 hexes
Fire Control: +4/+3/+1
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Special: Can fire at an accelerated ROF for less pulses, as shown below:
1 per 2 turns: 3 pulses, 1d2 hit
1 per turn: 2 pulses, 1 hit
4

This variant of the quad pulsar, like most accelerator type devices, can fire more rapidly at a decrease in combat strength. The cost of this flexibility is high, however, as the individual pulses are not as strong as those found in the quad pulsar.

If fired at the normal level (once every three turns), four pulses are produced, with 1d3 of which will hit (this weapon has a pulse grouping of +1 per 5). If fired every other turn,

three pulses appear, 1d2 of which hit. If fired every turn, two pulses are formed, only one of which hits on a normal roll. All pulses score 12 points of damage.

8.2.26 Point Pulsar

Modes: Pulse

Point Pulsar
Class: Particle
Modes: Pulse
Damage: 10 3 times
Number of Pulses: Always 3
Pulse Grouping: n/a
Range Penalty: -1 per 2 hexes
Fire Control: +5/+3/-4
Intercept Rating: -3
Rate of Fire: 1 per 2 turns

This weapon is designed to knock the weapons off an attacking vessel. To this end, its fire control is optimized to hit capital ships, and each of its three pulses can be independently targeted (presumably with called shots).

The point pulsar always fires three bolts. There is no random roll for quantity as with most pulse guns. Instead, each of the three bolts can be targeted at a specific system using the called shot procedure, at only one-half the usual penalty to hit. Called shots are not required, and if not used the weapon will strike the ship randomly. All three shots roll to hit separately in any case, and all must be aimed at the same unit (or fighters in a single flight). Note that against fighters, the pulses can target individual fighters with no called shot penalty, but gain no further benefit.

8.2.27 Interdictor

Modes: Special

Interdictor
Class: Particle
Modes: Defensive only
Damage: None
Range Penalty: n/a
Fire Control: n/a
Intercept Rating: -4
Rate of Fire: 1per turn

This defensive device was created to provide laser-heavy ships at least some sort of interception ability, which lasers notoriously lack. The interdictor is an excellent defensive weapon, though it lacks any sort of offensive firepower. It operates by firing a widely dispersed field of particles at an enemy shot. In coordination with a ship's computers, the device is highly effective in this role. However, interdictors do not have a cumulative effect (even against ballistic weapons), so if more than one is used against a single incoming shot, only one will function.

Interdictors can also defend nearby friendly ships, in much the same way that the guardian array does, but with fewer restrictions. In order to block a shot aimed at a different unit, the following must be true:

(1) The enemy ship and the target ship must both be in the interdictor's firing arc.

(2) The target ship must be no farther than 5 hexes away from the interdicting ship.

(3) No other interdictor may be used against the same incoming shot.

As long as these conditions are met, the interdictor can attempt to knock aside the incoming weapon fire. Note that this is different from the guardian array, which must be between the firing ship and the target.

8.2.28 Particle Accelerator

Modes: Raking

Particle Accelerator
Class: Particle
Mode: Raking
Damage: 2d10+14
Range Penalty: -1 per 2 hexes
Fire Control: +4/+4/+2
Intercept Rating: -1
Rate of Fire: 1 per 2 turns
Special: Can fire at an accelerated ROF for less damage, as shown below:
1 per turn: 1d10+6 / Int -2

This variant of the particle cannon is capable of firing in either one-turn or two-turn modes. If fired more frequently, its damage is relatively weak. Like the laser accelerator (8.3.16), this device is not capable of any sort of advanced firing mode, surrendering any chance of this in exchange for flexibility.

8.2.28.1 Light Particle Accelerator

Modes: Standard

WEAPON DATA
Lt Particle Accelerator
Number of Guns: 2 (Linked)
Damage: 1d6+2
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Special: If not fired on one turn, can fire on the next for 2d6+4 damage, with fire control +2/+0/-4

This fighter-mounted particle accelerator is one of the most flexible guns operated by any fighter anywhere. It can fire in either one-turn mode (in which case it operates exactly as a light particle gun) or in two-turn mode. The latter is most effective against enemy ships, as its damage is scored in standard mode, and its lack of precision forces it to suffer a

penalty against fighters. Note that there is no requirement to fire it in this mode if it hasn't fired in previous turns. However, firing it in a lesser mode provides no other benefits.

8.2.29 Pentagon Array

Modes: Standard

Pentagon Array (5)
Class: Particle
Mode: Raking (Special)
Damage: 5 sub-volleys of 1d10
Range Penalty: -1 per hex
Fire Control: +3/+3/+3
Intercept Rating: -5
Rate of Fire: 1 per turn
Special: Scores each 1d10 as a separate sub-volley.

The pentagon array (or "pentarray") is a cluster of five particle beams in a single housing, all closely linked together so that they fire almost as one. Other than the obvious advantage in damage scored and high rate of fire, it is also longer ranged than a light particle beam. It is also an exceptional defensive weapon, with an intercept rating all but unequalled. Unfortunately, it is expensive, costing more to maintain than the defensive array of an entire cruiser.

If the weapon hits, it scores 5d10 damage in raking mode, but each 1d10 is rolled separately as a sub-volley. In other words, you roll for hit location 5 times, then roll 1d10 for damage per hit. Against a ship, this means that most of its damage will be mitigated by armor, unless by chance most of the sub-volleys hit the same system. Its real use is against fighters, as each sub-volley can hit a separate target in a flight, and thus just one pentarray can theoretically knock several fighters out of action in a single turn.

8.2.30 Particle Projector

Modes: Standard

Particle Projector (1)
Class: Particle
Modes: Standard
Damage: 1d10+4
Range Penalty: -1 per hex
Fire Control: +2/+2/+1
Intercept Rating: -2
Rate of Fire: 1 per 2 turns

The Particle Projector is used as the baseline for many advanced particle weapon developments.

8.2.30.1 Heavy Particle Projector

Modes: Standard

Hvy Particle Projector (3)
Class: Particle
Modes: Standard
Damage: 2d10+8
Range Penalty: -1 per 2 hexes
Fire Control: +3/+2/-1
Intercept Rating: -1
Rate of Fire: 1 per 3 turns

Simply an enlarged version of the Particle Projector, it contains additional capacitors and an enlarged primary emitter to create a harder hitting and longer ranged weapon. The price for these increases comes in the form of a longer reload time and greater power demand.

8.2.30.2 Light Particle Projector

Modes: Standard

Lt Particle Projector (1)
Class: Particle
Modes: Standard
Damage: 1d6+4
Range Penalty: -2 per hex
Fire Control: +2/+2/+3
Intercept Rating: -2
Rate of Fire: 1 per turn

The light particle projector is simply a miniaturized version of the Particle Projector, trading damage and range for a reduction in size and increased fire rate.

8.2.31 Particle Hammer

Modes: Standard

Particle Hammer (5)
Class: Particle
Modes: Standard
Damage: 2d10+15
Range Penalty: -1 per 3 hexes
Fire Control: +3/+1/-2
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns

The ultimate expression of particle projector technology, the particle hammer is intended to land the heaviest blow possible in a single directed burst. While deadly to light vessels and fragile units, the bulk of larger ships reduces the shock effect of this weapon to little more than an annoyance.

8.2.32 Telekinetic Cutter

Modes: Raking

Telekinetic Cutter (4)
Class: Particle
Mode: Raking
Damage: 4d10
Range Penalty: -1 per 3 hexes
Fire Control: +4/+4/+4
Intercept Rating: -4
Rate of Fire: 2 per turn

Similar to the hyperplasma cutter, this advanced race weapon is a projection of mental energy in the form of a beam. Not close to being as powerful or as versatile, it still is a compelling weapon.

8.2.33 Trioptic Pulsar

Modes: Standard

This small weapon is strictly defensive in nature, and generally operates as an anti-fighter device. It fires three pulses (there is no random roll for pulse quantity, nor is there a grouping range statistic), doing random amounts of damage. Its primary advantage is that it can fire each turn.

Trioptic Pulsar
Class: Particle
Mode: Standard
Damage: 2d10 3 Times
Range Penalty: -1 per 2 hexes
Fire Control: +2/+3/+4
Intercept Rating: -3
Rate of Fire: 1 per turn

8.2.34 Ultra Pulse Cannon

Modes: Pulse

This weapon, also referred to as the **mental pulsar**, operates by concentrating aggressive thoughts into bolts of energy. These are then focused and fired at the target. As with most pulse guns, these shots are interceptable.

This weapon uses the same rules as any other pulse cannon does. However, it can use any of three modes, referred to as light, medium or heavy. In light mode, the shots are small, but more numerous and better able to target fighters. In heavy mode, there are few shots, but they are huge and can smash enemy ships to bits. Medium mode is a compromise between the two.

The decision to fire in any mode is made at the time the weapon shoots, but must be announced before the to-hit roll is made. As with any other pulse weapon, the firing player selects the targets of each pulse if it should strike a fighter flight or group of shuttles.

Ultra Pulse Cannon
Class: Particle
Mode: Pulse
Intercept Rating: -6
Rate of Fire: 1 per turn
Light Mode:
Damage: 12 1d6 Times
Maximum Pulses: 12
Grouping Range: +1 per 2
Range Penalty: -1 per 2 hexes
Fire Control: +4/+6/+8
Medium Mode:
Damage: 16 1d5 Times
Maximum Pulses: 9
Grouping Range: +1 per 3
Range Penalty: -1 per 3 hexes
Fire Control: +6/+6/+6
Heavy Mode:
Damage: 24 1d3 Times
Maximum Pulses: 6
Grouping Range: +1 per 4
Range Penalty: -1 per 4 hexes
Fire Control: +8/+6/+4

8.2.35 Minor Thought Pulsar

Modes: Standard

This "weapon" is created using mental exercises similar to those that power the thought wave. The disconnection from a pure source of power greatly reduces the range and effectiveness of the pulses.

Minor Thought Pulsar
Number of Guns: 1
Class: Particle
Damage: 1d6+5
Mode: Standard
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: 2 per turn
Special: Three points of thrust increase RoF by +1, damage on one shot by +5, or Offensive Bonus by +2.

8.2.36 Advanced Particle Blast Gun

Modes: Standard

Sometimes what is simple is what is best. The advanced particle blast gun fires a small, concentrated mass at its target, scoring damage in standard mode. These weapons are often placed on turrets to exploit their superb intecept ability.

Advanced Particle Blast Gun
Class: Particle
Modes: Standard
Damage: 2d10+15
Range Penalty: -1 per 3 hexes
Fire Control: +5/+3/+2
Intercept Rating: -4
Rate of Fire: 2 per turn

8.2.37 Solar Blaster

Modes: Standard

The solar blaster targets a system and simply rips portions of it off, usually taking portions of the structure underneath. Damage is scored identially to the solar cannon

When a volley from the solar blaster hits a target location, the damage is reduced by armor and shields in the normal way, and then applied to the system that was hit. The solar blaster doesn't score overkill against structure, so any damage left over is lost. However, any damage applied to the system is immediately transferred to structure without being reduced by armor or shields. If the initial volley hits structure, reduce the damage by armor and shields, and apply double the remainder to the appropriate structure block.

Solar Blaster
Class: Particle
Modes: Standard
Damage: 3d10+20
Range Penalty: -1 per 2 hexes
Fire Control: +5/+5/+2
Intercept Rating: n/a
Rate of Fire: 1 per turn
Special: Damage scored is repeated on the structure. Non-interceptable.

When scoring damage against energy diffuser-equipped ships, roll for location and reduce the volley by armor as usual. The remaining damage is then applied twice as one volley that hits the original location, and another that hits structure. It is possible to absorb both volleys into segments. When scoring damage against ships with thought shields, if the blaster's damage is completely blocked by the shields there is no further effect.

This weapon is not interceptable.

8.3 Laser Weapons

Lasers are also older technology, but whereas particle beams strike in a single blast, lasers tend to linger on a target, meaning they almost always do damage in raking mode. Examples of lasers include light, medium, and heavy laser cannons.

Because lasers are coherent light, they strike a target effectively instantaneously, meaning they can't be blocked by most kinds of defensive fire. On the other hand, they are incapable of themselves firing defensively. This is both on advantage and a disadvantage, as you can well imagine.

8.3.1 Laser Cannons

8.3.1.1 Heavy Laser Cannon

Modes: Raking, Sustained

Hvy Laser Cannon
Class: Laser
Modes: R, S
Damage: 4d10+20
Range Penalty: -1 per 3 hexes
Fire Control: +3/+2/-4
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns

The heavy laser cannon is the primary heavy weapon of many races. It is capable of damaging multiple systems in a single shot due to its high damage yield and raking mode.

The major disadvantage of the heavy laser is its slow rate of fire.

8.3.1.2 Medium Laser Cannon

Modes: Raking

Med Laser Cannon
Class: Laser
Modes: R
Damage: 3d10+12
Range Penalty: -1 per 2 hexes
Fire Control: +3/+2/-3
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

The medium laser is an average-sized weapon approximately equal in strength to the medium plasma cannon and pulse cannon. Though it lacks the punch of the heavy laser, it can be armed more swiftly. Note that unlike the heavy laser, the medium version cannot use sustained mode

8.3.1.3 Light Laser Cannon

Modes: Raking

Light Laser Cannon
Class: Laser
Modes: Raking
Damage: 2d10+7
Range Penalty: -1 per hex
Fire Control: +2/+1/-2
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

This early precursor to the medium laser is rarely seen on contemporary ships, and typically resides only on small vessels or those of a more civilian nature (such as transports). It is one of the weakest raking weapons in existence, and for a light gun, its inability to operate in defensive mode is a real disadvantage.

8.3.2 Laser/Pulse Array

Modes: Raking or Pulse

Laser/Pulse Array
This weapon can fire as either a medium laser or medium pulse cannon, determined at the time of firing. The ROF is based on the shot being taken.

The laser/pulse array, or LPA, is a double weapon found on some ships. It was designed for flexibility, allowing the ship's captain to choose which weapon (laser or pulse) was needed for a given situation. However, the weapon system is extremely difficult to maintain, since it effectively required the spare parts of two weapons in a single housing. The maintenance nightmares caused by this problem meant it was suitable only for use on specialty vessels. Warships that mount these arrays tend to use no other heavy weapons at all—just row after row of LPAs.

The laser/pulse array can fire as either a medium laser or a medium pulse cannon (but not both at the same time).

This decision is made when weapons fire allocations are determined (i.e., at the same time you are choosing targets for your guns). The mode in which it was used during the previous shot doesn't affect the current shot, so you could— for example— use it in pulse mode every time it fired during the scenario.

The medium laser and medium pulse cannon modes have different rates of fire (1 per 3 turns and 1 per 2 turns, respectively). The time requirement before the next shot can be taken is based on the next mode used (it has no bearing on the previous type of shot). *For example, if fired on turn 1 in either mode, it could fire again on turn 3 in pulse mode, but could not be used as a laser until turn 4.*

8.3.3 Heavy Laser/Pulse Array

Modes: Raking, Sustained or Pulse

Hvy Laser/Pulse Array
This weapon can fire as either a heavy laser or heavy pulse cannon, determined at the time of firing. The ROF is based on the shot being taken.
6

This is the obvious extension of laser/pulse array technology, extending up to the heaviest possible version of this versatile weapon class. It is very rare and difficult to maintain, appearing only on a few other specialty designs. Except for its basic statistics, it can be treated the same as a normal LPA for all rules (including critical hits).

If it fires in laser mode, it can use sustained fire. However, if must observe the usual cooldown period associated with this mode, which will also delay its use as a pulse weapon until the cooling time has expired.

8.3.4 Neutron Laser

Modes: Raking, Piercing, or Sustained

Neutron Laser
Class: Laser
Modes: R, P, S
Damage: 4d10+15
Range Penalty: -1 per 4 hexes
Fire Control: +4/+4/+1
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
6

A more advanced version of the heavy laser, the neutron laser (also called the neutron cannon) does a devastating amount of damage and has a comparatively short rate of fire. It is also couples a highly accurate fire control system that can engage both capital ships and fighters effectively.

8.3.4.1 Improved Neutron Laser

Modes: Raking, Piercing, or Sustained[3]

Neutron Laser (Impr.)
Class: Laser
Modes: R, P, S(3)
Damage: 4d10+18
Range Penalty: -1 per 4 hexes
Fire Control: +5/+4/+1
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
7

An incremental improvement to the basic neutron cannon. The result is a slightly better damage yield and fire control rating, but the real strength is its ability to fire in sustained mode for three turns in a row. While it may seem that this ability is unremarkable (considering the difficulty of maintaining the firing requirements for that length of time), some advanced races can mount the new cannon on highly maneuverable ships, which puts its abilities in an entirely new light.

8.3.5 Battle Laser

Modes: Raking or Piercing

Battle Laser
Class: Laser
Modes: R, P
Damage: 4d10+12
Range Penalty: -1 per 4 hexes
Fire Control: +4/+3/-3
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
6

The battle laser is somewhat less powerful than the Heavy Laser Cannon, but offsets this by firing more often and with greater range. It also sacrifices sustained mode capability for the advantage of piercing.

8.3.5.1 Assault Laser

Modes: Raking

Assault Laser
Class: Laser
Modes: Raking
Damage: 3d10+4
Range Penalty: -1 per 3 hexes
Fire Control: +3/+3/-4
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
4

This weapon is the precusor to the battle laser. It is occasionally referred to as the "intermediate laser."

The assault laser does less damage than a medium laser, but has a faster rate of fire and a longer range. While it is a toss-up as to which is the better weapon, most races do not have access to it anyway.

8.3.5.2 Combat Laser

Modes: Piercing

Combat Laser
Class: Laser
Modes: Piercing
Damage: 3d10+20
Range Penalty: -1 per 3 hexes
Fire Control: +3/+3/-2
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Shots at fighters are resolved in standard (not piercing) mode.

The combat laser is related to the battle laser, but is not as flexible as that weapon. Unlike battle lasers, the combat laser can only fire in piercing mode. It does not have the option to use a standard, raking, or sustained mode shot. However, the combat laser uses dedicated sensor equipment tied directly into its fire control, allowing it to ignore the normal piercing mode requirement of 4 offensive EW, as well as the associated -4 to-hit penalty. In effect, the weapon itself provides this EW (which cannot be redirected elsewhere). Note that this does *not* provide any sort of automatic lock-on to the target.

8.3.5.3 Imperial Laser

Modes: Raking

Imperial Laser
Class: Laser
Modes: Raking
Damage: 4d10+8
Range Penalty: -1 per 3 hexes
Fire Control: +3/+2/-5
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns

Although an older technology, for its era it was considered a powerful, long-range weapon.

8.3.5.4 Tactical Laser

Modes: Raking

Tactical Laser
Class: Laser
Modes: Raking
Damage: 2d10+8
Range Penalty: -1 per 2 hexes
Fire Control: +2/+1/-5
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

An intermediate range, quick firing weapon, this serves as a standard laser weapon for older fleets.

8.3.6 Laser Cutter

Modes: Raking (6)

Laser Cutter
Class: Laser
Modes: Raking (6)
Damage: 4d10+2
Range Penalty: -1 per 2 hexes
Fire Control: +2/+1/-2
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

This laser weapon is designed to sweep across the hull of a ship, even more so than typical beam weapons do. The gun emplacement actually traces the beam across the target, hopefully scoring damage against every system it touches.

The laser cutter (often called the cutting laser) is a raking weapon that scores damage in 6-point sub-volleys, not 10-point ones like typical raking weapons. Though it scores about the same damage as a medium laser cannon, it can touch more systems during its pass, resulting in less damage but more critical hits.

8.3.7 Spinal Laser

Modes: Raking

Spinal Laser
Class: Laser
Modes: R, S
Damage: 6d10+40
Range Penalty: -1 per 5 hexes
Fire Control: +4/+2/--
Intercept Rating: n/a
Rate of Fire: 1 per 5 turns

The spinal laser is very powerful. Its main problems are a slow rate of fire and an extremely fixed firing arc (there is simply no way to mount this weapon on any sort of turret).

Due to the immense cooling struts needed for the device, only one appears on any ship, and then only on the largest vessels (or those designed specifically around the weapon).

8.3.8 Blast Laser

Modes: Standard

Blast Laser
Class: Laser
Mode: Standard
Damage: 2d10+14
Range Penalty: -1 per 3 hexes
Fire Control: +4/+2/+0
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

When a blast laser strikes its target, roll once for hit location, treating any Primary hit as a hit on the facing structure (or primary structure in the case of medium ships or ships with their side structures blown off). Overkill is treated normally from that point. Against fighters, there is no special damage allocation procedure.

8.3.8.1 Light Blast Laser

Modes: Standard

Light Blast Laser
Number of Guns: 1
Class: laser
Damage: 2d6+5
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Intercept Rating: n/a

This is a fighter-sized laser weapon. Lasers have always proven difficult to mount on fighters due to their size and cooling problems. The weapon's main disadvantage against ships lies in the fact that it is a raking weapon, so much of its effect is often mitigaed by armor. Against fighters, this is not a problem.

8.3.8.2 Improved Blast Laser

Mode: Standard

This device is more powerful than the original weapon. Its primary improvements lie in its damage rate, which, considering the fact the weapon scores damage in standard mode, is considerable.

Improved Blast Laser
Class: Laser
Mode: Standard
Damage: 3d10+14
Range Penalty: -1 / 3 hexes
Fire Control: +5/+3/-1
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
8

8.3.9 Maser

Modes: Standard

This is a microwave variant of the classic laser. It is a relatively weak weapon that delivers a burst of hard radiation instead of the usual cutting beam. The intent is to short out or disable systems without necessarily destroying them.

Maser
Class: Laser
Modes: Standard
Damage: 2d10+2
Range Penalty: -1 per hex
Fire Control: +3/+3/+2
Intercept Rating: n/a
Rate of Fire: 1 per turn
Special: Armor counts double, damage doubled for crits
3

The maser does not penetrate armor well. All armor values are doubled against maser attacks. In addition, any overkill caused by a maser is lost, so it can affect no more than one system in any volley.

If a maser strikes a system, that system must roll a critical hit and the end of the turn (even if it takes no actual damage from the attack, due to armor or a low damage roll). Any damage the maser actually scored counts double toward the bonus roll on the die. For example, if a maser hits a sensor array and scores 3 points of damage to it (after armor), the critical roll would have a +6 bonus. This rule applies only to damage scored on the current turn; if the same sensor were hit later in the scenario (even by the same maser), the doubling effect would not be applied to any damage recorded on an earlier turn.

8.3.10 Laser Accelerator

Modes: Raking

This unusual weapon was developed by applying acceleration technology (reverse-engineered from plasma accelerators) into a laser housing. The weapon has four chambers, each of which are charged sequentially. This energy can be discharged at any time during the arming process, once at least two chambers are filled, though faster it is fired, the less powerful the beam.

Laser Accelerator
Class: Laser
Mode: Raking
Damage: 4d10+16
Range Penalty: -1 per 3 hexes
Fire Control: +2/+2/+0
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns
Special: Can fire at an accelerated ROF for less damage, as shown below:
1 per 2 turns: 2d10+6
1 per 3 turns: 3d10+10
6

At its full strength (after four turns of arming), the laser accelerator is comparable to a heavy laser cannon, but is slightly weaker and cannot use sustained mode (a tradeoff for its flexibility). If armed in only three turns, it is similar to a medium laser cannon, and the two-turn version operates much like a light laser cannon. The rate of fire of once per two turns is the fastest this weapon may be used.

8.3.11 Laser Lance

Modes: Raking, Piercing

The laser lance is relatively short ranged by modern standards. The laser lance uses an early understanding of gravitic technology to create a powerfully focused laser capable penetrating completely through an enemy ship.

Laser Lance
Class: Laser
Modes: R, P
Damage: 3d10+6
Range Penalty: -1 per 2 hexes
Fire Control: +3/+3/-5
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
4

8.3.11.1 Heavy Laser Lance

The heavy laser lance represents an improvement in firepower, able to significantly damage capital ships. A slower rate of fire is seen as an acceptable compromise for the weapons greater strength.

Heavy Laser Lance
Class: Laser
Modes: R, P
Damage: 4d10+10
Range Penalty: -1 per 2 hexes
Fire Control: +3/+3/-5
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns
4

8.3.11.A War Lance

Although short ranged, the war lance is capable of inflicting massive amounts of damage both in raking and piercing modes. The war lance is only mounted in capital ships. Attempts to fit the weapon on smaller ships results in constant misfirings and other technical flaws.

War lance
Class: Laser
Modes: R, P
Damage: 5d10+15
Range Penalty: -1 per 2 hexes
Fire Control: +4/+3/-5
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns

8.3.11.B Laser Spear

Modes: Raking, Piercing

The laser spear is a product of experimentation with the light laser cannon. The weapon is larger than the light laser cannon but has a longer range and greater damage potential.

Laser Spear
Class: Laser
Modes: R, P
Damage: 2d10+10
Range Penalty: -2 per 3 hexes
Fire Control: +4/+3/-5
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

8.3.12 Power Laser

Modes: Raking (15), Piercing, Sustained

This is perhaps the most flexible laser weapon ever designed. It can be used as a raking, sustained or piercing mode weapon (using the normal rules for each, except that its raking volleys are divided into groups of 15, not groups of 10). It is also very fast as lasers go, firing every other turn, and has an excellent range. Like most other laser, weapons, it cannot be intercepted.

Power Laser
Class: Laser
Mode: R(15), P, S
Damage: 8d10+18
Range Penalty: -1 per 4 hexes
Fire Control: +6/+5/+4
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

8.3.12.1 Medium Power Laser

A fantastic heavy weapon in its own right, the medium power laser is placed on ships without the servers necessary to operate the more intense, higher-powered version.

Med. Power Laser
Class: Laser
Mode: R(15), P, S
Damage: 4d10+10
Range Penalty: -1 per 4 hexes
Fire Control: +5/+4/+3
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

8.3.13 Volley Laser

Modes: Pulse

This is the laser-based answer to pulse-particle weapons: a rapid-fire laser capable of shooting off a burst of shots quickly. It is non-interceptable.

Volley Laser
Class: Laser
Mode: Pulse
Damage: 15 1d3 Times
Max Pulses: 6
Grouping Range: +1 per 3
Range Penalty: -1 per 2 hexes
Fire Control: +4/+5/+6
Intercept Rating: -3
Rate of Fire: 1 per turn

8.3.14 Ultra Light Laser

Modes: Raking

Deployed on stiletto drones, the ULL is quite possibly the most powerful fighter-class weapon ever developed.

Ultralight Laser Cannon
Number of Guns: 1
Class: Laser
Damage: 2d10+8
Mode: Raking
Range Penalty: -1 per hex
Fire Control: n/a
Rate of Fire: 1 per 2 turns
Special: Non-interceptable

8.3.15 Photonic Prism Beam Generator

Modes: Raking, Raking (15), Raking (20)

The photonic prism beam generator is a set of diffuse light generating advanced race systems that may work either independently or in combination. The weapons have poor targeting capability, due to lack of focus, but have great damage potential. When fired in combination with several other photonic prism beams, the amount of damage attained is truly staggering, even though the coherence of the beam suffers greatly.

A photonic prism beam generator may fire up to three shots at a time, at either the same or different targets. Even a single shot discharges the weapon fully. All three shots may be combined into a single shot with slightly improved fire control and range penalties. Both types of shots are resolved in raking (20) mode.

Photonic Prism Beam
Class: Laser
Modes: R(20)
Damage: 4d10+15 (3 shots)
Range Penalty: -2 per hex
Fire Control: +0/+3/+8
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
Alternate Fire: May combine all three shots into a single volley.
Modes: R(20)
Damage: 8d10+15
Range Penalty: -1 per hex
Fire Control: +1/+4/+6
Alternate Fire: Multiple Photonic Prism Beams from the same vessel may combine all of their shots into a single volley.
Two Beams: Modes: R(15)
Damage: 14d10+20
Range Penalty: -1 per 2 hexes
Fire Control: +4/+4/+3
Three Beams: Modes: R(15)
Damage: 20d10+30
Range Penalty: -1 per 3 hexes
Fire Control: +6/+5/+4
Four Beams: Modes: Raking
Damage: 24d10+35
Range Penalty: -1 per 5 hexes
Fire Control: +8/+6/+3

Any number of photonic prism beams may combine their full shots to form a single beam. All systems must be fully charged. Two or three systems combined together resolve damage in raking (15) mode, while four systems resolve their damage in raking (10) mode.

8.3.15.1 Light Prism Beam

Modes: Standard

This device may fire up to three times per turn, or may combine together into one more powerful blast.

Light Prism Beam
Number of Guns: 1
Class: Laser
Damage: 1d10+4
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: 3 per turn
Note: Can combine all 3 shots into a single blast, scoring 3d10+4 damage with range penalty -1 per hex

8.4 Plasma Weapons

Plasma weapons do most of their damage in the form of heat, which has advantages against armored targets but disadvantages at longer ranges. Plasma weapons are among the oldest weapon types, hearkening back to the days when early plasma welding tools were converted into makeshift plasma torches for impromptu use against piracy. The main advantage of plasma weapons is their effectiveness against armor. When a plasma weapon hits its target, divide any armor in half (dropping any fraction). For example, if a plasma gun scored 18 damage on a system with 5 armor, that armor's value would be considered as a 2, so 16 points of damage would be scored. Note that the armor won't actually be reduced in level permanently, just in effectiveness against the plasma hit. Thus, assuming that system survived the 16 points of damage, it would still have an armor level of 5 against future hits.

Another advantage of plasma weapons is that their damage is usually scored in standard mode. There may be exceptions to this.

The primary disadvantage of a plasma gun is its weakness at long range. Since their payload is basically superheated energy, and that heat is traveling through the frigid vacuum of space, some of its strength bleeds away before it reaches the target. Thus, most plasma weapons will be listed as losing a certain amount of damage for each hex they move. *For example, a plasma accelerator scores 4d10+5 damage -1 per hex, so if fired at a target 10 hexes away, you would subtract 10 from your damage roll before rolling for hit location.* Note: Some advanced weapons, such as the mag gun (which encases its plasma warhead in an explosive shell), are not subject to this limitation.

Plasma weapons operate best at very close range, and are quite effective against heavily armored opponents. Due to their relative slowness, they are not very good against fighters and shuttles, with heavy penalties to their fire control against these targets.

8.4.1 Plasma Cannons

Modes: Standard

Plasma cannons are the most common types of plasma weapons, and the smaller versions are among the oldest weapons in known space. They come in four basic sizes, all of which are similar in function, except for their rate of fire and damage yield.

8.4.1.1 Mega Plasma Cannon

The mega plasma cannon is the largest variety of plasma cannon and is usually operated by a ship whose entire hull is dedicate to this weapon type. The mega cannon is mounted on capital ships only, as it is too large to use effectively on any smaller hull. It does a tremendous amount of damage, but suffers the same accuracy and range problems that other plasma guns do.

Mega Plasma Cannon
Class: Plasma
Modes: Standard
Damage: 6d10+12 (-1 per 2 hexes)
Range Penalty: -1 per 2 hexes
Fire Control: +3/+1/-5
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns

8.4.1.2 Heavy Plasma Cannon

The heavy plasma cannon is one of the cheapest and easiest heavy weapons to operate. Capable of a devastating amounts of damage, it is the primary weapon of the less advanced races. However, the range limitations of the heavy plasma, when compared to other heavy weapon systems, tends to shorten the deployment

Heavy Plasma Cannon
Class: Plasma
Modes: Standard
Damage: 4d10+8 (-1 per 2 hexes)
Range Penalty: -2 per 3 hexes
Fire Control: +3/+1/-5
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

period, phased out in favor of longer ranged and more advanced systems.

8.4.1.3 Medium Plasma Cannon

Med Plasma Cannon
Class: Plasma
Modes: Standard
Damage: 3d10+4 (-1 per 2 hexes)
Range Penalty: -1 per hex
Fire Control: +3/+1/-5
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

The medium plasma cannon is the most commonly seen type, and is usually referred to as simply a plasma cannon. Much like its heavier cousin, the plasma cannon is very effective at close ranges but quickly loses its punch as it cools off. As it tends to move towards its target slowly, it can be more easily avoided by fighters and shuttles and suffers a significant fire control penalty against such units.

8.4.1.4 Light Plasma Cannon

Light Plasma Cannon
Class: Plasma
Modes: Standard
Damage: 2d10+2 (-1 per 2 hexes)
Range Penalty: -1 per hex
Fire Control: +3/+1/-5
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

The light plasma cannon is the oldest and weakest of these basic plasma guns. It is rarely seen on modern warships, but occasionally appears on pirates and other small vessels. It is considered the root of all plasma weapons in use today.

8.4.2 Dual Plasma Cannon

Modes: Standard

Dual Plasma Cannon
Class: Plasma
Mode: Standard
Dmg: 5d10+8 (-1 per 2 hexes)
Range Penalty: -1 per 2 hexes
Fire Control: +3/+1/-5
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Special: May fire as two medium plasma cannons

This weapon combines two medium plasmas in one housing, with the ability to fire them separately or combine the shots into a more damaging longer ranged blast. The decision as to which mode to use is made at the moment weapons fire is determined, just as it is for similar multi-function weapons like the laser/pulse array or gravitic lance.

The statistics shown in the weapon datacard on the control sheet are for the combined shot. If fired as separate medium plasma cannons, use the normal MPC stats shown separately. The two shots may fire independently, at the same or different targets, and are not required to fire on the same turn. However, in order to fire as a combined blast, the recycling time of both MPCs must be satisfied.

The races that use this weapon only mount it in their bases or OSATs due to its large size and unusual construction.

8.4.3 Fuser

Modes: Flash

Fuser
Class: Plasma
Modes: Flash
Damage: 9d10+20 (-1 per hex)
Range Penalty: -1 per 3 hexes
Fire Control: +5/+3/--
Intercept Rating: n/a
Rate of Fire: 1 per 5 turns

The fuser (occasionally called the fuser torpedo, though this is a misnomer since the weapon is not of the ballistic persuasion) is used only on special cruiser-sized or larger ships designed to mount it. The weapon does a ridiculous amount of damage and rarely misses except at long range. On the other hand, it loses power quickly with distance, takes forever to arm, suffers penalties against small ships, and requires a lot of power.

Ships armed with fusers are usually built around the weapon, as it is too large to simply add later as a modification or refit. Most such ships possess enlarged (and expensive) power plants capable of arming the torpedo.

8.4.3.1 Ranged Fuser

Modes: Flash

Ranged Fuser
Class: Plasma
Modes: Flash
Damage: 6d10+12 (-1 per 4 hexes)
Range Penalty: -1 per 4 hexes
Fire Control: +5/+3/--
Intercept Rating: n/a
Rate of Fire: 1 per 5 turns

This is actually the forerunner of what is now called the "fuser," and originally used that name. When scientists improved the strength of the gun at the expense of range, the original was relegated to bases and fixed defenses while the heavier weapon became the centerpiece of heavy attack ships.

The ranged fuser is the longest-ranged nonballistic plasma weapon currently fielded and only appears on bases and satellites.

8.4.4 Plasma Accelerator

Modes: Standard

The plasma accelerator is the result of a unique experiment in plasma technology. The intent was to create a plasma gun that fires a controllable amount of firepower to the target. While the results were not entirely what was expected, the accelerator is much more flexible than a typical plasma weapon.

Plasma Accelerator
Class: Plasma
Modes: Standard
Damage: 4d10+12 (-1 per hex)
Range Penalty: -1 per hex
Fire Control: +3/+1/-4
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Special: Can fire at an accelerated ROF for less damage, as shown below:
1 per turn: 1d10+4 -1/hex
1 per 2 turns: 2d10+8 -1/hex

The plasma accelerator can fire as often as the owning player wishes. If fired at the minimum rate of fire (i.e., every turn), its damage yield is very small, such that it would only be truly effective at very short range. If allowed one turn's delay (i.e., fired every other turn, a rate of fire of 1 per 2 turns), it scores more damage than it does at the lesser level. However, its true strength is shown if allowed its optimal ROF of 1 per 3 turns. In this case, its damage yield is impressive and the weapon becomes viable at longer ranges. Delaying fire beyond this point does not further increase the weapon's firepower, but holds it at full strength. As with any other weapon, if it is fired or shut down, it must start the rearming process from scratch when recharging.

8.4.5 Mag Gun

Modes: Flash

This plasma railgun fires a small nuclear charge to a target's location, damaging anything in the hex. The mag gun is a huge weapon, and ships that mount it are generally designed around its emplacement. A hit from a mag gun can cause severe damage and affect a number of other units in the same hex, as it scores damage in flash mode. Note that if the weapon misses, the warhead does not explode (a safety feature built into the device). This was included in the design to avoid damaging friendly ships, and cannot be voluntarily disabled or superseded.

Mag Gun
Class: Plasma
Modes: Flash
Damage: 8d10+10
Range Penalty: -1 per hex
Fire Control: +6/+2/--
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

8.4.6 Plasma Stream

Modes: Raking (5)

Plasma streams are a special variety of plasma weapon designed to weaken a ship permanently, leaving it open to future attacks. It is the combination of several failed weapons experiments, which when combined produced a barely adequate device. It is generally considered a poor substitute for more powerful guns and is rarely seen.

Plasma Stream
Class: Plasma
Modes: Raking (5)
Damage: 3d10+4 (-1 per hex)
Range Penalty: -1 per hex
Fire Control: +2/+2/-4
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
Special: Each sub-volley is mitigated by armor, and each full sub-volley which strikes a system degrades armor there by 1 point permanently.

Plasma streams are raking (5) weapons, i.e., they score damage using the raking rules in 5-point (not 10-point) increments. However, subsequent sub-volleys do not ignore armor (in effect, you treat each sub-volley as an entirely new volley for all purposes). Regardless of this, remember that this is plasma damage, and ignores half of the target's armor in any case.

For every full 5 points that strike a system (regardless of the effect of armor), that system's armor value is decreased by 1. This happens *immediately*—do not wait until the end of the turn. Plasma streams are usually the first weapons to fire in any attack, thereby weakening the target's defense against later volleys—a combination that can be quite deadly.

8.4.6.1 Dual Plasma Stream

Modes: Raking (5)

This is a unique type of plasma weapon that consists of two plasma projectors on a turreted mount. The two streams roll to hit as a single shot. They do excellent damage, but fade quickly at long ranges. Note:

Dual Plasma Stream
Class: Plasma
Modes: Raking (5)
Damage: 6d10+8 (-2 per hex)
Range Penalty: -1 per hex
Fire Control: +2/+2/-4
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
Special: Each sub-volley is mitigated by armor, and each full sub-volley which strikes a system degrades armor there by 1 point permanently.

The damage listed is a total; do not roll it twice.

As explained above, plasma streams cause a special armor-degrading type of raking damage. Their damage total is broken up into 5-point volleys, and all volleys (even ones that hit the same system multiple times) are degraded by armor. However, each full 5-point volley will permanently reduce the armor value of any system it hits by 1 point. This effect is applied immediately. Note that volleys of less than 5 points will not reduce armor levels (though they might still cause damage as usual). Also, armor ratings cannot drop below zero.

Special Critical Hit: If the dual plasma stream suffers a "Damage Reduced" critical roll, one of the two guns in the dual array is knocked offline, and weapon damage is halved (instead of 6d10-2 damage, roll 3d10-1). Other statistics are unaffected. After this critical is suffered, additional critical hits should use the normal weapon critical chart.

Dual Plasma Stream Example

A dual plasma stream is fired at the front of a ship that is missing its forward structure due to previous battle damage. 28 points are scored, all of it by' chance striking the primary structure, which has 8 points of armor. This results in 5 volleys of 5 points and one of 3 points. As this is plasma damage, only half of the armor rating applies, so the 5-point volleys will each score 1 hit on the structure and the 3-point volley will do nothing. In addition, the primary structure's armor value is reduced to 3 (since five full volleys were scored) for the rest of the scenario.

8.4.7 Plasma Web

Modes: Standard

Plasma Web
Class: Plasma
Modes: Standard
Damage: 1d6+2 (antifighter mode)
Range Penalty: n/a
Fire Control: n/a
Intercept Rating: -2
Rate of Fire: 1 per turn

The plasma web is a defensive device related to the energy web produced by interceptors. Plasma web generators expel a cloud of gaseous plasma in the path of incoming weapons, causing them to miss or be reduced in strength. The plasma can also be spewed into space near the ship, creating temporary heat zones that damage shuttles or fighters. The plasma web can be used in either defensive or anti-fighter mode during a turn, but not both.

Defensive Mode: The primary use of the plasma web is in an interceptor-like form, but unlike normal defensive weapons that must be allocated to a specific incoming shot, plasma webs block fire from units in a single hex. (This could be one ship, several ships, a fighter flight, or a combination of ships and fighters, so long as they are all firing from the same hex.) Use of the web in this manner reduces the chance to hit (even for laser weapons) by the web's intercept rating. In addition, any laser, antimatter, or particle weapon (not any other types) is reduced in strength by the intercept rating; e.g., a laser doing 27 damage to a ship protected by a plasma web with a rating of -2 would be reduced to 25 damage.

Defensive web effects cannot be combined with those of other plasma webs. Note that, like most interceptor-type weapons, these do not affect proximity shots like energy mines. Note also that the defensive mode of the plasma web protects only the web-equipped ship, not any other unit.

Anti-Fighter Mode: Plasma webs can be used to fill a hex near the ship with a temporary cloud of superheated plasma. The hex chosen must be within 3 hexes of the ship and in the web generator's arc of fire. Mark the affected hex with a counter, and note the turn on which it was created. It dissipates at the end of the next turn. Creating such a hex costs 1 point of extra power. Note that in most cases the extra point must be applied during the weapons arming step of the Combat Sequence, but many ships with these weapons are also equipped with plasma batteries (see Section 8.4.12) for added flexibility.

If a fighter or shuttle is in the hex of the web when it is created, or passes through a plasma hex during its movement (even if it does not remain in that hex), it suffers 1d6+2 damage immediately. As plasma damage, this ignores half of the unit's stated armor (use the armor value in the direction that faced the hex when the fighter entered it). Note that the plasma hex does not affect anything larger than a fighter, and will not damage mines, which are shielded against such

effects. The plasma web will reveal the presence (or lack thereof) of a mine in the same hex as the web, though it will not provide any further information about it.

Plasma hexes are not cumulative with each other. If more than one is present in a hex, there is no additional effect.

8.4.8 Plasma Blaster

Modes: Standard

The plasma blaster is a short ranged, but relatively powerful, light plasma weapon typically used by early fighters and armed shuttles. While an effective weapon, its short effective range and poor fire control caused it to fall into disfavor.

Plasma Blaster
Number of Guns: 2 (Linked)
Class: Plasma
Damage: 1d3+2 (-1 per hex)
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn

8.4.8.1 Plasma Gun

A more powerful version of the plasma blaster, used by assault fighters against enemy warships. Like the plasma blaster this weapon's shorter effective range and poor fire control, especially when faced with the deadly anti-fighter capital ship defenses, caused it to fall into disfavor and eventually be removed from service.

Plasma Gun
Number of Guns: 1
Class: Plasma
Damage: 1d3+6 (-1 per hex)
Range Penalty: -3 per 2 hexes
Fire Control: +4/+4/-6
Rate of Fire: Once per 2 turns

8.4.8.2 Light Plasma Gun

This is a small plasma cannon created specifically to use on fighters. Though it can do damage equal to a light particle blaster at short distances, it is almost useless at any range other than point blank.

Light Plasma Gun
Class: Plasma
Damage: 1d3+5 (-1 per hex)
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Intercept Rating: -1

8.4.9 Plasma Projector

Modes: Raking (8)

This advanced plasma cannon uses high intensity magnetic fields to focus the plasma into a narrow beam. While no more damaging than a heavy plasma cannon, it is slightly longer ranged and scores damage in raking (8) mode.

Plasma Projector
Class: Plasma
Modes: Raking (8)
Dmg: 4d10+5 (-1 per 4 hexes)
Range Penalty: -1 per 2 hexes
Fire Control: +3/+2/--
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

8.4.10 Plasma Bolters

Modes: Standard

These devices works by accelerating a ball of plasma contained in a magnetic bottle towards the target. After launch, the magnetic bottle decays quickly, and it suffers from the usual problem of plasma, cooling, once the bottle has begun to decay. However, plasma bolters are a reasonably effective weapon.

8.4.10.1 Heavy Plasma Bolter

Heavy Plasma Bolter
Class: Plasma
Modes: Standard
Dmg: 22 -1 / 2 hexes after 15
Range Penalty: -1 per 3 hexes
Fire Control: +3/+2/-4
Interception Rating: n/a
Rate of Fire: 1 per 3 turns

8.4.10.2 Medium Plasma Bolter

Med. Plasma Bolter
Class: Plasma
Modes: Standard
Dmg: 16 (-1 per 2 hexes after range 10)
Range Penalty: -1 per 2 hexes
Fire Control: +3/+2/-3
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

8.4.10.3 Light Plasma Bolter

Light Plasma Bolter
Number of Guns: 2 (Linked)
Class: Plasma
Damage: 7 (-1 per hex above range 3)
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn

8.4.11 Plasma Torch

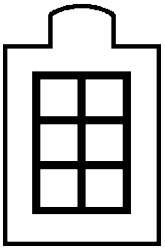
Modes: Standard

Plasma Torch
Class: Plasma
Modes: Standard
Damage: 2d10+10 -1 per hex
Range Penalty: -2 per hex
Fire Control: +2/+0/--
Intercept Rating: n/a
Rate of Fire: 1 per turn

This is one of the original plasma weapons, and is designed to deliver a tremendous amount of heat at close range. Though this makes it highly dangerous when armed on small, fast ships that can more easily win initiative, it has two main disadvantages. The first and most obvious is the one most commonly associated with plasma weapons: a quick drop-off in damage at range. The second is more serious.

Whenever the weapon is fired, the amount of heat it generates has the potential to overwhelm the weapon's safety systems. If the weapon fires in a turn, roll an extra critical hit (at the usual step in the Combat Sequence, and in addition to any other criticals it may need to roll), adding +1 for every box of damage the weapon has already suffered. If a 16 or greater is rolled, it has overheated, and safety interlocks have deactivated it. The weapon cannot be reactivated for two turns thereafter (the next turn and the following turn). During this time, its power can be used elsewhere.

8.4.12 Plasma Battery



Some ships are equipped with plasma batteries, which store extra energy for use in plasma webs and for other uses. Batteries can hold as much power as they have undestroyed boxes, and at the start of a scenario it is assumed they are completely full (unless otherwise noted in the set-up rules). A sample icon is shown here, though they can vary in size and box count depending on the ship.

Energy from such a battery can be used to arm a plasma weapon. Arming energy can be called forth only during the normal weapons arming step of the Combat Sequence-it could not, for example, be used during the weapons fire step to fire a weapon that was deactivated. There is a partial exception to this rule in the anti-fighter mode of the plasma web. If the web system was armed (not deactivated), the extra energy needed for anti-fighter plasma webs can be applied during weapons fire using a plasma battery.

Plasma batteries can also channel their power into the ship's engine, providing additional thrust points. This is done at a rate equal to the engine efficiency rating (so if that rating is 3/1, for example, it would require 3 points of battery power for an extra thrust point). Extra thrust can only be "purchased" in this way during the Deactivate Systems step of the Combat Sequence, at the same time extra thrust would normally be acquired—it cannot be used during movement, because channeling battery power into the engine takes too long to be used at a moment's notice. Note that the engine must be intact for batteries to be used for extra thrust.

When a plasma battery is used, some of the energy it contains is drained and must be replaced. This is accomplished by deactivating some other system and using that power to refill the battery. Generally, you should mark an empty battery by placing dots in the boxes. When the power is replaced, simply erase the dots. A destroyed box cannot hold power (and if it was destroyed while power was in it, that power is lost).

Normally, ships refill their batteries during turns in which they are maneuvering well away from a target. They then use the batteries for emergencies, especially those nasty surprises caused by reactor criticals.

8.4.13 Fuser Array

Modes: Flash

Fuser Array
Class: Plasma
Modes: Flash
Damage: 6d10+26 (-2 per 3)
Range Penalty: -1 per 3 hexes
Fire Control: +5/+4/+0
Intercept Rating: n/a
Rate of Fire: 2 per turn

One of the bothersome aspects of plasma weaponry that advanced races are able to avoid, by the nature of their ships, is the massive power requirement. With that restriction removed, they are able to construct weapon systems that put out a large amount of damage with frightening frequency. This array resolves damage in flash mode, making it one of the best weapons to use when trying

to remove all of the external systems on a vessel without damaging the primary section.

8.4.14 Hyperplasma Cutter

Modes: Raking (15), Sustained (3)

This weapon is actually multiple weapons that fire as one. They project a field of hyper-intense energy (similar to the lightning cannon in appearance) that is concentrated into a single beam. This then sweeps across space to cut apart its targets. If one or more of the cutters are destroyed, the survivors can continue to operate normally. The field scores damage by super-heating its target. Due to the wide and varied nature of the beam, the weapon is interceptable.

Hyperplasma Cutter
Class: Plasma
Mode: R (15), S (3)
Dmg: 10d10 (-1 per 3 hexes)
Range Penalty: -1 per 3 hexes
Fire Control: +6/+6/+6
Intercept Rating: -1 per 1d10
Rate of Fire: 1 per turn
Alternate Fire: Can separate each d10 or a combination into separate shots. Can also combine fire with other cutters. All cutters must fire together and at the same target in order to use sustained mode.

Each of the cutters can project the listed number of d10s of damage, but these do not all have to be used against the same target. In fact, the ship is free to allocate all of its d10s against any units it wishes. *For example, if three cutters have 30d10 available among them, the ship could fire 10d10 at a specific enemy ship, 5d10 against another ship, 1d10 against each of six fighters and hold 9d10 in reserve for defensive fire.* The division of the d10s must be decided in the Prepare Weapons phase of the Combat Step, but the exact number of dice used to intercept incoming shots may be allocated as the incoming shots are resolved. Note that there is no penalty for successive shots as there would be with the molecular slicer beam.

The cutters normally score damage in raking (15) mode, but if the full strength of all beams on a single vessel are brought together on a single target, it can be used in sustained mode for up to three turns. There is no requirement to arm the guns with extra power in order to pull this off, though they must still endure the usual cooldown period following the shot's termination.

8.4.15 Hyperplasma Matrix

Modes: Flash

Combining the power of multiple weapon systems is a highly advanced technique, producing massive amounts of damage while avoiding the complicated and dangerous alternative of a single weapon.

Hyperplasma Matrix (combined fire)
Number of Guns: 1 per flight
Class: Plasma
Mode: Flash
Damage: 2d6+12 (+2d6 per additional fighter) (-1 per hex)
Range Penalty: -1 per hex
Fire Control: n/a
Rate of Fire: 1 per turn
Special: Fighter does not take collateral damage from own weapon.

This is a fighter-based weapon. The fighters on the exterior of the flight formation channel energy toward the center vessel, which directs the sum total towards an unfortunate target. The hyperplasma matrix that is formed is resolved as a single plasma volley, doing damage in flash mode. When the center vessel is alone, it does the damage listed on the SCS. Every additional fighter that combines fire provides an additional amount of damage. There is no limit to the number of fighters that may combine, but all fighters in the same flight must contribute to the same matrix. The shot is never resolved as Flight Level Combat, but the flight still uses its Offensive Bonus and is not affected by defensive EW. A single to-hit roll is made for each matrix. The weapon may be used to intercept as usual for fighters.

As it is a plasma-class weapon, the energy produced degrades over distance. The flight of fighters does not take collateral flash damage from its own weapon (or one that it combines with), but is still susceptible to that from other hyperplasma matrices.

8.4.16 Hyperplasma Stream

Modes: Raking (20)

This advaced race weapon fires a surge of energy in a tight, continuous beam. The nature of the attack is to super-heat the target vessel in specific locations, damaging the armor in any system that it hits.

Hyperplasma Stream
Class: Plasma
Modes: Raking (20)
Damage: 8d10+16 (-1 per 2)
Range Penalty: -1 per 3 hexes
Fire Control: +5/+2/+0
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
Special: Each sub-volley is mitigated by armor, and each full sub-volley which strikes a system degrades armor there by 4 points permanently.

As an advanced race weapon, the hyperplasma stream ignores half of a system's armor. Each 20-point rake is affected by armor, as even the slightest movement requires the beam to heat another section of armor. For every 5 points of damage done to a system, the system's armor is permanently reduced in effectiveness by 1 point. This reduction takes place when the damage is received, so successive rakes from the same volley are affected by the lesser armor value.

8.4.17 Plasma Driver

Modes: Pulse

The plasma driver generates a series of bolts in quick succession. The bolts degrade as they travel through space, as every plasma weapon does, but they are truly devastating at close range.

Plasma Driver
Class: Plasma
Mode: Pulse
Damage: 22 1d3 Times (-1 per 2)
Max Pulses: 5
Grouping Range: +1 per 3
Range Penalty: -1 per 2 hexes
Fire Control: +3/+4/+6
Intercept Rating: -2
Rate of Fire: 1 per turn

8.5 Molecular Weapons

These high-tech weapons take apart matter at a molecular level. They are found only in the hands of advanced races. Molecular weapons use no special damage procedures, but are advanced in other ways. Typically, they do more damage, have better ranges, and use more firing options than similar weapons operated by lower-technology races. Some molecular weapons have special rules that will be defined in their individual descriptions.

8.5.1 Molecular Pulsar

Modes: Pulse

The molecular pulsar is a more advanced version of the particle based pulse cannon discussed in Section 8.2.1. The goal was to produce a weapon that was more powerful than the fusion cannon (see Section 0). Ultimately successful, the advanced molecular pulsar appears on only a few ships to date.

Molecular Pulsar
Class: Molecular
Modes: Standard
Damage: 10 1d5 times
Maximum Pulses: 7
Grouping Range: +1 per 3
Range Penalty: -1 per hex
Fire Control: +4/+3/+2
Intercept Rating: -2
Rate of Fire: 1 per 2 turns
Special: Can fire every turn doing 1d3 pulses with no volley count bonus.

The pulse grouping range for this weapon is 3, not the traditional 4 of other current pulse weapons. It also has a maximum of 7 pulses instead of the normal 6 other pulse cannons use. This weapon may also use a rapid fire mode, in which it may fire every turn, but has a maximum of 3 pulses (roll 1d3) with no volley count bonuses permitted. (If it fires two turns in a row, it is automatically using rapid-fire mode.)

8.5.2 Molecular Disruptor

Modes: Raking

The molecular disruptor (or simply the disruptor) is a relatively old weapon, though one developed by advanced races. It was the primary heavy weapon in use before being replaced by the neutron laser.

Molecular Disruptor
Class: Molecular
Modes: R, P
Damage: 2d10+30
Range Penalty: -1 per hex
Fire Control: +4/+2/-4
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns
Special: Destroys 1 point of structure armor on facing side.

The disruptor operates pretty much as its name implies: it disrupts the cohesion between molecules, tearing objects apart at the atomic level. It has a shorter range and longer recharge time than the neutron laser, but does more damage on average. In addition, every time it hits a ship, it reduces the structure armor on the facing side by 1 point permanently. This effect occurs even if the structure block did not actually absorb any damage during the volley, and is a result of random disruptions across the superstructure. Note that armor loss is not recorded until the Critical Hit Step of the Combat Sequence, so it will not affect any other weapons hits scored on the same turn.

The molecular disruptor is seen only on a few ships now, though at one time it appeared on most. A few ships still continue to use the disrupter, as they are specifically designed to fight at closer ranges where they can benefit from the disruptor's power.

8.5.2.1 Light Molecular Disrupter

Lt Molecular Disruptor
Number of Guns: 1
Damage: 2d10+15 (Raking)
Range Penalty: -1 per hex
Fire Control: +3/+0/-4
Rate of Fire: 1 per 3 turns
Special: Destroys 1 point of armor if at least 3 fighters hit

This is a fighter-mounted molecular disruptor. As a fighter-mounted heavy weapon, it scores decent damage against a target, but its ability to destroy armor is limited. When a flight fires these guns at a ship or enemy fighter flight, at least three hits must be scored in order to eliminate a single point of armor. Each flight must achieve this level independently of any other. *For example, if four flights fire at the same side of a ship simultaneously, and the number of hits are 4, 3, 2, and 2, only two points of armor are lost (for the first two flights) even though the total number of hits was 11.* If used against a fighter flight, armor loss affects all fighters in the flight so long as at least 3 hits are scored.

8.5.3 Fusion Cannon

Modes: Standard

Fusion Cannon
Class: Molecular
Modes: Standard
Damage: 1d10+9
Range Penalty: -1 per hex
Fire Control: +3/+3/+4
Intercept Rating: -2
Rate of Fire: 1 per turn

Similar in nature to most other races' light armaments, the fusion cannon is somewhat more accurate and damaging. While its arcs are less open than those of some other races, there tend to be so many of them on the ship that this is not really a factor.

8.5.3.1 Light Fusion Cannon

Modes: Standard

Light Fusion Gun
Class: Molecular
Damage: 1d6+4
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Intercept Rating: -1

This is a light version of the basic fusion cannon that is typically mounted on fighters. Other than technical specifications, it is functionally similar to the normal fusion cannon.

8.5.4 Molecular Slicer Beam

Modes: Raking(15), Piercing (at higher arming levels)

Molecular Slicer Beam
Class: Molecular
Modes: Raking(15)
Dmg, 1 Turn: 8d10+12
Dmg, 2 Turn: 12d10+24
Dmg, 3 Turn: 16d10+36
Range Penalty: -1 per 3 hexes
Fire Control: +8/+6/+4
Intercept Rating: n/a
Rate of Fire: 1 per turn
Special: Ignores armor. Can be divided into multiple attacks on different targets. Non-interceptable.

This advanced race weapon is used to literally cut apart enemy vessels. It is a raking weapon, but scores damage in l5-point volleys, not 10-point volleys like the heavy weapons used by the younger races.

Slicer beams are incredibly intense molecular weapons, and are not affected by armor (except adaptive armor set to molecular defense; see Section 5.10). This, more than anything, allows them to tear apart the ships of the younger, less advanced races. Slicers are affected by shields and other defenses normally (except for those nullified by advanced sensors).

Molecular slicer beams can be fired as often as desired, but no more than once per turn. However, the longer they go without firing, the more powerful they become, up to a certain maximum. On the ship control sheet, the Weapons Specs chart lists damage yields based on the number of turns of arming since the last shot was taken. If not otherwise specified in a scenario, assume that ships equipped with a slicer begin play with the weapon fully charged.

Molecular slicers can be employed against multiple targets, "sweeping" the beam through space. A player does this by allocating any subset of his damage dice (before rolling for damage) to the targets of choice. For example, he could apply 4d10 to a nearby fighter flight and the remainder of the damage to a ship. All selected targets must be in the weapon's firing arc, but their ranges can be vastly different. The ship must roll to hit each target normally, and a cumulative penalty of -1 applies to each target after the first (the player is free to specify the order of targets in whichever way he chooses). *If he fired at four different flights, for example, the first would be at no penalty, the second at -1, the third at -2 and the last at -3.* Slicer beams can be employed against the individual fighters in a flight. The firing ship is free to specify which specific fighter is damaged by his shot (the defender

does not choose, as is the case with most weapons). If the slicer is broken up and fired several times into the same flight, each extra segment of the shot suffers the penalties noted in the previous paragraph.

Finally, slicer beams can operate defensively against incoming weapons even on the same turn that it fires offensively. For each 1d10 used for defensive purposes, the weapon operates as a weapon with a -2 intercept rating. This can be combined with as many 1d10's as are available (from the same weapon) with no degradation, i.e., 2d10 would count as a -4 intercept rating, 3d10 would be -6, and so on. If desired, 6 points of "constant" damage can be expended as a d10, so 3d10+6 would count as a -8 intercept rating.

Each defensive use counts as a full "shot" by the weapon for purposes of multiple firing penalties, and defensive fire must be considered first for this purpose. *Thus, if a slicer beam fired 2d10 against a particle beam, 1d10+6 against a missile, and the rest of its damage against a nearby ship, both intercept shots would be at -4 and the offensive fire would be at a -2 penalty.*

8.5.4.1 Light Molecular Slicer Beam

Modes: Raking

This is a weaker version of the slicer beam. It is typically found on smaller advanced race vessels as well as some less advanced ships allied to an advanced race. This weapon uses all the rules of the normal slicer beam (i.e., it ignores armor, can't be intercepted, can fire at multiple targets, etc.) except that it cannot be operated defensively. Its only other differences are in its weaker statistics. For example, it does not score damage in Raking (15) mode, but normal Raking (10) instead.

Light Molecular Slicer Beam
Class: Molecular
Modes: Raking
Dmg, 1 Turn: 4d10+4
Dmg, 2 Turn: 6d10+6
Dmg, 3 Turn: 8d10+8
Range Penalty: -1 per 3 hexes
Fire Control: +6/+4/+2
Intercept Rating: n/a
Rate of Fire: 1 per turn
Special: Ignores armor. Can be divided into multiple attacks on different targets. Non-interceptable.
10

8.5.4.2 Heavy Molecular Slicer Beam

Modes: Raking (15), Piercing (std)

This weapon takes advantage of the superior power systems available on some older advanced race ships. The ability to produce and store much larger quantities of energy vastly improves the extended arming capability beyond that of the standard molecular slicer beam. In the highest arming levels, the beam is able to punch clear through even the largest enemy ships.

Heavy Molecular Slicer Beam
Class: Molecular
Mode: Raking (15)
Dmg: 8d10+12
Range Penalty: -1 per 3 hexes
Fire Control: +8/+6/+4
Intercept Rating: n/a
Rate of Fire: 1 per turn
Alternate Fire: Two turns:
Mode: Raking (15), Piercing
Dmg: 16d10+24
Fire Control: +8/+6/+4
Alternate Fire: Three turns:
Mode: Piercing (Standard)
Dmg: 24d10+36
Fire Control: +4/+2/+0
Special: Ignores armor. Can be divided into multiple attacks on different targets. Non-interceptable.
16

Single turn arming: Operates in raking (15) or piercing mode with standard fire control.

Two turns arming: Operates in raking (15) or piercing mode with standard fire control.

Three turns arming: Operates in piercing (std) mode only. Fire control has been modified to include the negative modifier for firing in piercing mode (the first four points of EW that would normally be ignored are included in the fire control). Note that since this modifier has been applied to the weapon there is no need to apply the four extra EW points to every target.

Piercing (std) mode is similar to regular piercing mode, except that all volleys are applied in standard mode (overkill is applied to structure instead of being lost).

It is possible to use the weapon in a lesser mode if it is desirable, which would still count as firing. *Firing a three-turn-charged HMSB in two-turn-charged raking (15) mode would fully discharge the weapon, for example.*

This weapon ignores armor, cannot be intercepted and may be broken up into separate shots in the same way as a molecular slicer beam.

8.5.5 Multiphased Cutter

Modes: Standard

Multiphased Cutter
Class: Molecular
Modes: Standard
Damage: 2d10+2
Range Penalty: -1 per 2 hexes
Fire Control: +3/+3/+6
Intercept Rating: -2
Rate of Fire: 3 per turn

These weapons are less powerful than molecular slicer beams, and are employed on smaller vessels. Their main purpose is destroying enemy fighters, though they can significantly damage ships by cutting holes in their hull. Multiphased cutters can fire up to three times per turn, at the same or different targets. Each of these shots can fire offensively or defensively, though if more than one is fired at the same incoming shot, they suffer the usual degradation.

8.5.5.1 Light Multiphased Cutter

Modes: Standard

Lt Multiphased Cutter
Class: Molecular
Modes: Standard
Damage: 2d10+2
Range Penalty: -1 per 2 hexes
Fire Control: +3/+3/+6
Intercept Rating: -2
Rate of Fire: 1 per turn

This is a basic multiphased cutter without the multiple firing ability (it can take only one shot per turn). Like the Lt Molecular Slicer, it appears on some smaller advanced race ships as well as some less advanced ships allied to an advanced race. It is primarily a defensive weapon, operating in place of standard particle beams, for example.

8.5.6 Phasing Pulse Cannon

Modes: Pulse

Heavy Phasing Pulse Cannon
Class: Molecular
Modes: Standard
Damage: 18 1d5 times
Maximum Pulses: 6
Grouping Range: +1 per 3
Range Penalty: -1 per 2 hexes
Fire Control: +6/+4/+2
Intercept Rating: -2
Rate of Fire: 1 per 3 turns

The phasing pulse cannon is an advanced pulse gun, similar to the molecular pulsar, originally designed to phase its way through shields. Against nonelectromagnetic shields operated by less advanced races, it ignores both the damage absorption and lowered defense ratings. It also ignores energy webs, particle impeders, plasma webs, and any other shieldlike energy field that provides a similar type of defense (unless operated by an advanced race). It is not immune to defensive fire or EW, however.

Medium Phasing Pulse Cannon
Class: Molecular
Modes: Standard
Damage: 13 1d5 times
Maximum Pulses: 6
Grouping Range: +1 per 3
Range Penalty: -1 per hex
Fire Control: +6/+4/+2
Intercept Rating: -3
Rate of Fire: 1 per 2 turns

The phasing pulse cannon comes in several varieties, including light, medium, and heavy versions. They are functionally similar, except for differences in damage and other statistics. Note the improved grouping range typical of molecular pulse weapons.

8.5.7 Polarity Cannon

Modes: Standard

Polarity Gun
Class: Molecular
Damage: 2d6+2
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: 2 per turn
Intercept Rating: -1
Note: If it does not fire, it can take 3 shots on the next turn.

This is a light weapon is used by very advanced fighters. It is a multi-shot weapon and normally fires twice per turn, but if not fired, it can take three shots on the next turn (or any turn thereafter, until it shoots and empties itself of energy, which starts this cycle over again). Note: On the turn an advanced fighter is launched, this weapon cannot be used, and on the turn after this, it will have only two shots available.

8.5.8 Destabilizer Beam

Modes: Piercing

Destabilizer Beam
Class: Molecular
Modes: Piercing
Damage: 6d10+30
Range Penalty: -1 per 3 hexes
Fire Control: +6/+1/-5
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns

This powerful molecular weapon is normally seen only on larger ships. When it hits a target, it punches a hole straight through it by destabilizing the structure of the hull at the molecular level. As with many other weapons that function only in piercing mode, it ignores the normal offensive EW requirement and firing penalties for using that mode. It is an extremely powerful weapon and very accurate against capital ships, but fires no faster than a standard disruptor and does not cause damage to armor.

8.5.9 Fusion Agitator

Modes: Raking (6)

Fusion Agitator
Class: Molecular
Modes: Raking (6)
Damage: 5d10+10
Range Penalty: -1 per 3 hexes
Fire Control: +4/+4/--
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Special: Treats all armor as if it were 1 point lower. Add 1d10 damage for each 4 extra power (max +4d10)

This is one of the more interesting applications of molecular technology. It locks onto a target, then randomly fuses the molecular structure of whatever it hits. The beam appears to dance across the target's hull as it wreaks havoc with whatever it touches. Though it operates only in Raking mode with volleys of 6 points each, it ignores the first point of armor on every system it hits (including structure), so it can be more effective than it looks.

The Fusion Agitator can also be made more effective by adding extra power. Each four points of energy added to the weapon produce an extra 1d10 damage, up to a maximum of 4d10 for 16 energy. While not a particularly effective use of power, it provides an extra punch that might make the difference in battle, especially after the target's armor has been stripped away by molecular flayers.

8.5.10 Molecular Flayer

Modes: Special

Molecular Flayer
Class: Molecular
Modes: Special
Damage: Special
Range Penalty: -1 per 3 hexes
Fire Control: +4/+0/--
Intercept Rating: n/a
Rate of Fire: 1 per turn
Special: Destroys 1 point of armor on all facing systems and structure

When fired, this weapon bursts upon a target's hull and strips away the outer layer of armor on the facing side. It scores no actual damage, but every system on the facing side (including structure) loses one point of armor immediately (minimum level 0). Because of this, the flayer is normally fired first in any combat situation, usually to be followed shortly by disruptors and agitators.

When the weapon hits a heavy combat vessel or larger unit, do not roll for hit location at all; simply reduce the armor as noted above. If the facing structure block was destroyed in a previous turn, the armor reduction applies to the primary section of the ship. The tactical implications of this should be obvious.

If the flayer hits a medium ship, it destroys one point of armor on every system on the unfortunate vessel, including primary systems (fortunately for most foes, flayers find targeting such vessels difficult). The device does not affect fighters or smaller units.

8.6 Electromagnetic Weapons

Electromagnetic weapons, or EM weapons, damage their targets using a powerful electrical discharge. Often, this is nondestructive damage, leaving the target system or fighter relatively intact while savaging it with critical hits or other effects. An example of this is the electro-pulse gun, which is used to knock fighters out of a battle without actually destroying them. The advanced races have advanced their electromagnetic technology to incredible levels, and can score amazing amounts of damage with their lightning cannons and other devices.

Many EM weapons cause penalties to a target's critical hit or dropout rolls. Unless noted otherwise, these effects are all cumulative. For example, the light surge blaster (a fighter-mounted weapon) causes a +1 shift on any critical hit roll. If a system is hit by six of these (from three fighters) in the same turn, there is a +6 penalty to the critical roll in addition to any other adjustments.

8.6.1 Electro-Pulse Gun

Modes: Special

Electro-Pulse Gun
Class: Electromagnetic
Effect: Forces dropout
Range Penalty: -3 per hex
Fire Control: --/--/+3
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

The electro-pulse gun, or EP gun, is used by ships to disable small craft so they can be more easily captured. It fires a powerful electromagnetic burst that can short out the systems on fighters and shuttles. Larger units are unaffected by this weapon, as they contain more shielding to prevent this sort of occurrence.

The firing player can select any desired fighter in a flight as the EP gun's target, and can wait until all other weapons have been fired at that flight before making this choice

(this allows the firing player to choose a fighter not already damaged earlier in the turn, if he wishes). If it hits, the target unit is disabled and automatically drops out at the end of the turn (super-heavy fighters are immune to this effect).

Note that this weapon is extremely shortranged, and thus is useful only against fighters that come too close to the ship.

8.6.2 Electro-Burst Beam

Modes: Special

Burst Beam
Class: Electromagnetic
Modes: Standard
Damage: None
Range Penalty: -2 per hex
Fire Control: +2/+2/+4
Intercept Rating: n/a
Rate of Fire: 1 per turn
Special: -1 power if structure hit; deactivates power-using systems; +4 critical to non-powered systems; forces auto-dropout on fighters. See rules.

The electro-burst beam, usually referred to simply as the burst beam, is an electromagnetic weapon designed originally for anti-piracy operations. The weapon scores no physical damage when it hits a ship. However, roll hit location normally. If the target is structure (regardless of location), the burst beam shorts out vital reactor conduits, reducing the ship's power by 1 for the remainder of the scenario. Multiple hits of this type are cumulative and there is no limit to the shortage that can build up, other than the total amount of energy produced by the reactor.

If the target is a powered system, that system must be deactivated on the next turn. This applies to any system with a power icon, even if that icon shows a zero (e.g., missile racks or EM shields). In addition, while such a system is deactivated, its power is lost due to brownouts caused by the burst effect. (If the item in question had been deactivated on the turn it was hit, it must still be deactivated on the ensuing turn, but the power is not lost since the various power conduits were also deactivated and not subject to brownouts.) Note: When allocating damage, the defending player may not choose a powered system previously struck by a burst beam on the same turn, unless there are no other alternatives available. In the case of such a duplication, the system will not be affected further (multiple hits of this type are not cumulative).

If a burst beam hits a ship protected by an active EM shield (but not any other kind of shield), it does not roll for hit location, but causes the effect described in the previous paragraph against the relevant EM shield generator automatically. Multiple hits on the same shield in the same turn cause no additional effect (the shield absorbs them all).

If the burst beam hits a jump drive, the jump delay time is reset-one of the reasons these weapons came in so handy against jump-capable pirates. The jump drive is not fully deactivated, just interrupted enough to force a recycling of the recharge time. This does not release the player from the requirement to power the jump engine on future turns, unless he has been freed from this restriction in another way as defined within the jump engine rules.

If the burst beam hits a non-structure system that does not require power (i.e., it does not have a power icon), such as C&C, reactors, engines, or thrusters, it scores no damage but forces a critical hit roll at a +4 on the die. This is rolled in the usual critical hit step of the turn and is cumulative with damage and other burst beam hits on the same turn. Note that this bonus applies only on the current turn, not future turns.

Burst beams used against fighters do not score damage, but cause automatic dropout. (Super-heavy fighters are immune to this effect). This is similar to the effect caused by the electro-pulse gun (see Section 8.6.1), except the firing player cannot select a fighter of his choice-the owning player chooses which fighter is affected, as he would with most other fighter damage. The target player may not, however, pick a fighter that has already been forced to drop out by another electromagnetic weapon at the same time.

8.6.2.1 Medium Burst Beam

Medium Burst Beam
Class: Electromagnetic
Mode: Standard
Damage: None
Range Penalty: -1 per 2 hexes
Fire Control: +4/+3/+0
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

The medium burst beam is a step above the standard burst beam. In addition to the listed advantages in range and rate of fire, it also has the following benefits (which operate exactly like the similar effects used by the standard burst beam except as noted):

If the targeted system requires power, it is deactivated for two turns. Jump drive delay times are reset and add +2 to their rearming time. If an EM shield protects the target ship, it absorbs this effect instead of rolling for hit location.

If the system does not require power, it suffers a critical hit at +6 on the die roll.

If structure is hit, the ship loses 2 points of power.

Fighters hit by this weapon take 1d6 damage and automatically drop out, except for super-heavy fighters. If a super-heavy fighter is hit, it takes the damage and rolls an additional 1d6. On a roll of 1, the fighter drops out. On a roll of 2 or 3, the fighter takes 2d6 additional damage, ignoring armor. Otherwise, there is no further effect.

8.6.2.2 Heavy Burst Beam

Heavy Burst Beam
Class: Electromagnetic
Mode: Standard
Damage: None
Range Penalty: -1 per 3 hexes
Fire Control: +5/+4/-2
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

This is the ultimate extension of electro-burst beam technology, and is seen only rarely. Getting hit by one of these things can seriously degrade your ship's performance. The following effects will be caused depending on what is hit:

If the targeted system requires power, it is deactivated for three turns. Jump drive delay times are reset and add +5 to their rearming time. If an EM shield protects the ship, it absorbs this effect instead of rolling for hit location.

If structure is hit, the ship loses 4 points of power.

Fighters hit by this weapon take 2d6 damage (ignoring armor) and automatically drop out, except for super-heavy fighters. If a super-heavy fighter is hit, it takes the damage and rolls 1d6. On a roll of 1 or 2, the fighter drops out. On a roll of 4-6, the fighter takes 3d6 additional damage, ignoring armor.

8.6.2.3 Dual Burst Beam

Dual Burst Beam
Class: Electromagnetic
Mode: Standard
Damage: None
Range Penalty: -2 per hex
Fire Control: +3/+3/+4
Intercept Rating: n/a
Rate of Fire: 2 per turn

This weapon operates like a standard burst beam except that it fires twice per turn.

8.6.2.4 Burst Pulse Cannon

Modes: Pulse

Burst Pulse Cannon
Class: Electromagnetic
Mode: Pulse
Damage: 0 1d5 Times
Maximum Pulses: 6
Grouping Range: +1 per 4
Range Penalty: -1 per 2 hexes
Fire Control: +4/+3/+2
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

This modified burst beam fires a series of electro-burst bolts in pulse form. This device is particularly useful in knocking flights of fighters out of the sky, but it can also erode a ship's combat firepower by repeatedly deactivating systems and draining power. Each pulse of the cannon acts like a standard burst beam, with all the attendant effects.

8.6.3 Shock Cannon

Modes: Standard

Shock Cannon
Class: Electromagnetic
Modes: Standard
Damage: 1d10+4
Range Penalty: -1 per hex
Fire Control: +3/+3/+3
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
Special: Ignores armor. Divide structure damage by 4, and apply as a negative power modifier thereafter. Fighters automatically drop out.

This device is used to disable pirate vessels and other craft without actually harming the owners. It is not usually found on front-line ships, but instead relegated to police vessels, and is a comparatively recent development. It is similar to the electro-pulse gun, but is much more powerful and can affect ships as well as fighters.

If the shock cannon hits a non-structure system, score the listed damage, ignoring armor entirely. No damage is scored against structure, however. Instead, divide any such damage (including overkill damage) by four, dropping any fraction. The resulting number represents the amount of points of power the ship loses for the remainder of the scenario. For example, if a shock cannon scores 12 damage against a twin array, the first six points will destroy it and the remaining six would overkill to structure. However, do not mark this damage. Instead, divide 6 by 4 and drop fractions, yielding 1. The ship's power is reduced by 1 thereafter.

There is no limit to the amount of power that can be drained by this weapon, other than the amount of energy the ship's reactor produces. Should all such power be lost, the reactor would simply shut down (it would not explode and

destroy the ship).

If the shock cannon hits a fighter, score the listed damage (ignoring armor). Should the fighter survive, it automatically drops out.

8.6.4 Communications Disrupter

Modes: Special

Comm Disupter
Class: Electromagnetic
Modes: Standard
Damage: 1d6 Init, 1d6 Sensor
Range Penalty: -1 per 2 hexes
Fire Control: +3/+2/-1
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Special: Subtracts 1d6 from targets initiative and 1d6 from sensors for next turn.

Some less aggressive races have ships that are fitted with this weapon. The comm disruptor operates by jamming inter- and intra-ship communications temporarily, as well as causing significant sensor interference. This causes no appreciable damage to the target (which could be a fighter as well as a ship), but drastically affects its combat performance on the next combat turn.

Comm disrupters are armed and fired like any other ship's weapon. When they hit, roll two sixsided dice, one at a time. The first die indicates the penalty to the target ship's initiative on the ensuing turn. The second die indicates the reduction in the target's sensor rating (or offensive bonus in the case of fighters) during the next turn. The effects of the disruptor last for the next turn only. Note that under no circumstances can a target's sensor rating or offensive bonus be reduced below zero, although negative initiatives are possible.

Multiple comm disrupter strikes on the same target are cumulative. Thus ships will often fire massed comm disrupters on a key enemy ship, hoping to reduce its sensor rating to zero and preventing it from locking onto targets in the following turn. (Note that the ship would spend extra power for additional sensor points based on the sensor array's original value, not the reduced value, as explained previously. Since the sensors cannot be reduced below zero, additional points purchased with extra power will never be subject to the comm disruptor's effects.)

If used against a flight of fighters, instead of rolling for effect, reduce the initiative and offensive bonus of the entire flight by 1 each. This assumes, however, that the flight still has at least 5 active fighters. If the flight contains only 3 or 4 fighters, reduce both values by 2, and if it has less than 3 fighters, reduce both values by 3. Comm disrupters do not function in a nebula.

Comm Disrupter Example

A comm disruptor strikes a battlecruiser on turn 1 of a scenario. The dice rolled are a 4 and a 2. On the next turn, the battlecruiser has -4 to its initiative roll and-2 from its sensor rating (reducing from a starting value of 10 to an 8). These effects fade after turn 2 is over, although if another communications disruptor hit the ship during turn 2, the battlecruiser would suffer a new batch of penalties on turn 3.

8.6.4.1 Sensor Spear

Modes: Special

Sensor Spear
Class: Electromagnetic
Mode: Standard
Damage: 1d3 Sensor
Range Penalty: -1 per 2 hexes
Fire Control: +1/+1/-1
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
Special: Subtracts 1d3 from target's sensors for next turn.

The Sensor Spear degrade enemy sensors via a directed electromagnetic surge. Faster firing than the Comm Disrupter, the Sensor Spear is 50% less effective.

8.6.4.2 Sensor Spike

Sensor Spike
Class: Electromagnetic
Modes: Standard
Damage: 1d6 Sensor
Range Penalty: -1 per 2 hexes
Fire Control: +2/+1/-1
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
Special: Subtracts 1d6 from targets sensors for next turn.

This doubles the effectiveness of the sensor spear.

8.6.4.3 Communications Jammer

Modes: Special

Comm Jammer
Class: Electromagnetic
Mode: Standard
Damage: 1d6 Initiative
Range Penalty: -1 per hex
Fire Control: +2/+2/+0
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Special: Subtracts 1d6 from target's initiative for next turn.

The Comm Jammer uses electromagnetic interference to block the communications array of the targeted ship. The Comm Jammer suffers from a shorter range than the Comm Disrupter.

8.6.4.4 Improved Communications Jammer

This system is essentially identical to the older model, but resolves the primary complaint against the older system: poor range.

Imp. Com Jammer
Class: Electromagnetic
Modes: Standard
Damage: 1d6 Initiative
Range Penalty: -1 per 2 hexes
Fire Control: +2/+2/+0
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Special: Subtracts 1d6 from targets initiative for next turn.

8.6.4.5 Optional Rule: No Talking

To experiment with the comm disrupter's effect on external communications, delete the penalty to initiative but instead do not permit the target ship's owner (player) to communicate with his allies until the comm disruptor's effects have faded. This prevents that player from being a part of any tactical decisions or plans regarding the upcoming turn, and largely depends on honesty (i.e., no secret communications—such as note-passing or hand signals-are permitted). This option is really only viable if the players in the scenario are each operating just one ship (how do you exclude a player from discussions if one of his units is jammed but others are not?), and thus is not usable in most situations. However, it is still an interesting option and adds a uniquely different "feel" to the game.

8.6.5 Lightning Cannon

Modes: Raking (Varies), Piercing

The lightning cannon is the primary weapon employed by some advanced race capital ships. It is an electromagnetic gun that usually appears as a huge "prong" that extends from the front of the vessel, typically arranged in groups of four. The prongs are each separate weapons, but can combine their effects to produce spectacular amounts of damage. The following choices are available.

Lightning Cannon (Lt)
Class: Electromagnetic
Modes: Standard
Damage: 1d10+8
Range Penalty: -1 per hex
Fire Control: +5/+5/+8
Intercept Rating: -4
Rate of Fire: 1 per turn

Lightning Cannon (Med)
Class: Electromagnetic
Modes: Raking
Damage: 2d10+16
Range Penalty: -1 per 2 hexes
Fire Control: +5/+5/+4
Intercept Rating: -3
Rate of Fire: 1 per turn

Lightning Cannon (Hvy)
Class: Electromagnetic
Modes: Raking (15), P
Damage: 4d10+32
Range Penalty: -1 per 3 hexes
Fire Control: +5/+5/+0
Intercept Rating: -2
Rate of Fire: 1 per turn

Lightning Cannon (Mega)
Class: Electromagnetic
Modes: Raking (20), P
Damage: 8d10+64
Range Penalty: -1 per 4 hexes
Fire Control: +5/+5/--
Intercept Rating: -1
Rate of Fire: 1 per turn

If the lightning cannon is fired individually, it is a comparatively weak weapon, scoring little damage and with a rather limited range. It is, however, very good against fighters and requires little power. This is referred to as a "light" shot, and scores damage in standard mode.

Two lightning cannons can be combined, firing a medium-strength beam that is effective at the middle ranges. The power requirement is significant, however, as it is greater than two individual shots added together. It scores damage in raking (10) mode.

Three cannons can also work together, producing a heavy shot with some serious damage potential. This is very power-hungry, however, and will quickly drain the capacitor if used frequently. It scores damage in raking (15) mode.

Finally, four prongs can fire as one, producing a single beam of incredible power and range. However, this "mega" shot will drain the capacitor system on all but the largest advanced race ships. The mega shot scores damage in raking (20) mode. (It is not possible to combine more than four prongs into a single shot, even if a ship has more than four guns available.)

Note that in all but the last case, the actions taken by

some of the prongs do not impact what the others do on that same turn. *For example, a cruiser that combined two beams into a single shot could fire the other two individually, combine them into another medium-strength beam, or leave them unfired, depending on the whim and need of the player.*

The ship control sheet lists the firing data for each type of shot (light, medium, heavy, or mega) separately. Note that a combined blast is better than the sum of its parts, but is less efficient (in total power over time). Note also that heavy and mega shots can use piercing mode, while light and medium ones may not. Due to the nature of the capacitor system, sustained mode is not available.

If any of the individual guns suffer a critical hit, they apply that critical to any larger shot they are a part of. If several guns have criticals, only the worst one is used. *For example, if four lightning cannons fire a mega shot, and two of them have suffered "damage reduced" criticals, this would count as only one such critical against the mega shot's damage.* The "worst" critical is the one scored by the highest critical die roll, and if this was a "multiple effects" critical, both such criticals take effect. Lightning cannons are huge, and take up significant space on the ship. They are considered part of both the forward section as well as the side they are mounted on. This means that if one of the two appropriate structure blocks is destroyed, the weapon will not be automatically destroyed as well. Instead, both the front and side blocks must be destroyed for this to occur. The weapon can be destroyed by direct damage in the usual way, and can be hit by called shots from either the front or the appropriate side.

8.6.5.1 Lightning Gun

Modes: Standard, Raking, Raking (15), Raking (20), Piercing

The precursor to the lightning cannon provides a higher rate of fire, but sacrifices fire control and overall damage capability.

A single lightning gun may fire in Light mode up to twice per turn. This produces a bright spark of energy that is very good at taking out large groups of small fighters. The weapon scores damage in standard mode.

Two lightning guns may combine fire to shoot in Medium mode up to two times per turn, which is useful for destroying large fighters or inflicting significant damage on small ships. It fires in raking mode.

Three lightning guns may combine fire to shoot in Heavy mode up to twice per turn. A salvo in Heavy mode resolves its damage in raking (15) or as a piercing shot.

Using four lightning guns it is possible to fire in Mega mode with a rate of fire of 2 per turn. The amount of energy necessary for a shot like this will drain all but the largest capacitors or the hardiest of vessels. This shot is resolved in raking (20) or piercing mode.

When firing multiple shots the power requirements (shown in the power icon) must be paid for each shot separately. All modes are non-interceptable.

Lightning Gun (Lt)
Class: Electromagnetic
Mode: Standard
Damage: 1d5+8
Range Penalty: -1 per hex
Fire Control: +4/+4/+7
Intercept Rating: -4
Rate of Fire: 2 per turn (max)
Note: Non-interceptable
1

Lightning Gun (Med)
Class: Electromagnetic
Mode: Raking
Damage: 1d10+16
Range Penalty: -1 per 2 hexes
Fire Control: +4/+4/+3
Intercept Rating: -3
Rate of Fire: 2 per turn (max)
Note: Non-interceptable
3

Lightning Gun (Hvy)
Class: Electromagnetic
Mode: Raking (15), P
Damage: 2d10+32
Range Penalty: -1 per 3 hexes
Fire Control: +4/+4/+0
Intercept Rating: -2
Rate of Fire: 2 per turn (max)
Note: Non-interceptable
9

Lightning Gun (Mega)
Class: Electromagnetic
Mode: Raking (20), P
Damage: 4d10+64
Range Penalty: -1 per 3 hexes
Fire Control: +4/+4/--
Intercept Rating: -1
Rate of Fire: 2 per turn (max)
Note: Non-interceptable
18

8.6.6 Discharge Gun

Modes: Raking

This weapon is used as secondary armament on some advanced race ships. Its main advantage is that it is extremely flexible. It can fire up to four times a turn, and each shot can be boosted in strength up to two levels.

Discharge Gun
Class: Electromagnetic
Modes: Raking
Damage: 2d10+2
Double power: add 1d10+1
Triple power: add 2d10+2
Range Penalty: -1 per 2 hexes
Fire Control: +2/+3/+4
Intercept Rating: -2
Rate of Fire: 1 or more per turn limited by power; max 4 shots

The damage listed assumes the weapon is being fired at the listed power level. If, however, it is armed with extra energy, the base damage can be increased. If the listed power is doubled, 1d10+1 damage is added on a successful hit, and if the power is tripled, a further 1d10+1 is added (a total of 2d10+2 extra damage). The player must announce how much power he is putting into the weapon before he rolls to-hit, and cannot alter his choice after his die roll. Bonuses higher than 2d10+2 are not possible. Extra power added also improves the intercept rating of the weapon by 1 point to a maximum of 2 points of improvement.

The discharge gun can also fire multiple shots per turn. It can fire up to four times, limited only by available power. Each shot costs the listed amount, and these shots can be improved in strength as described in the preceding paragraph. Each shot is completely independent of any other shot, so if two such shots were used to defend against an incoming weapon (for example), the second would suffer the usual degradation.

8.6.6.1 Light Discharge Gun

Modes: Standard

This is a light version of the discharge gun that appears only on fighters and small vessels. It can fire two shots per turn, or can combine both shots into a longer-ranged blast that scores damage in a single volley. While the two individual shots can cause more destruction than the combined blast, especially against lightly armored targets, longer range and lessened vulnerability to armor makes the single shot quite useful.

Lt Discharge Gun
Class: Electromagnetic
Modes: Raking
Damage: 1d6+6
Range Penalty: -2 per hex
Fire Control: n/a
Intercept Rating: -1
Rate of Fire: 2 per turn
Note: Can combine both shots into a single blast, scoring 2d6+9 damage with a range penalty of -3 per 2 hexes

8.6.6.2 Discharge Pulsar

Modes: Pulse

The discharge pulsar, fitted on the most archaic advanced race ships, is a precursor to the discharge and lightning weaponry seen on more modern ships.

Discharge Pulsar
Class: Electromagnetic
Mode: Pulse
Damage: 12 1d3 Times
Max Pulses: 4
Grouping Range: +1 per 3
Range Penalty: -1 per 2 hexes
Fire Control: +2/+3/+5
Intercept Rating: -2
Rate of Fire: 1 per turn
Double Power:
Damage: 18 1d3 Times

The discharge pulsar fires four coherent balls of energy at its target and resolves the damage in pulse mode. As with the discharge gun and discharge cannon, more power may be applied to produce a significantly more damaging shot, as shown on the datacard.

8.6.6.3 Discharge Cannon

Modes: Raking, Raking (15)

This anti-fighter weapon is often grown on ancient race battle destroyers when the captain wishes better performance against ships as well. It is less efficient than a discharge gun and burns through energy faster, so it is often coordinated with a Crimson skin enhancement.

Discharge Cannon
Class: Electromagnetic
Mode: Raking
Damage: 4d10+5
Range Penalty: -1 per 2 hexes
Fire Control: +2/+3/+4
Intercept Rating: -2
Double Power:
Mode: Raking (15)
Damage: 6d10+10
Range Penalty: -1 per 3 hexes
Fire Control: +3/+3/+3
Triple Power:
Mode: Raking (15)
Damage: 8d10+15
Range Penalty: -1 per 3 hexes
Fire Control: +5/+3/+2
Rate of Fire: 1 or more per turn limited by power; max 4 shots

The weapon may be fired in single shot mode as normal. If fired with double or triple power, damage and combat characteristics are increased. The discharge cannon may be fired up to four times in a single turn, and is limited only by available power.

8.6.7 Planet-Cracker Beam

Modes: Special

Planet-Cracker Beam
Class: Electromagnetic
Modes: Standard
Damage: Auto-kills anything it hits
Range Penalty: n/a
Maximum Range: 4 hexes
Fire Control: n/a (auto-hit)
Intercept Rating: n/a
Rate of Fire: 1 per 1,000 turns
Special: Fires only into the row of hexes directly ahead of the ship. Anything in those hexes is destroyed.

This is a tremendous weapon that appears only on the very largest of ships. It has only one use: total annihilation. There is no target and no roll to hit—if the unit is in arc and in range, the weapon hits automatically.

The firing arc is the row of hexes directly in front of the ship, from 1 to 4 hexes out, not including the firing vessel's hex. Any ship, moon, planet, or other object in one of these hexes is destroyed. No damage needs to be rolled-destruction is automatic. The beam is capable of cracking planets as large as Jupiter, though it will have no appreciable effect on stellar bodies (even brown dwarfs or black holes, which are too massive to be broken apart by the weapon).

The planetary annihilation beam does not use the capacitor system (it is self-powered, and damage to the capacitor will not affect it). It has a recharge rate of 1,000 turns, meaning it will fire only once in most scenarios (we hope.). Typically, the scenario rules will specify how many turns are left before the beam is ready to fire. *For example, the setup rules may state that the planet-cracker cannot fire before turn 10, giving the defending forces a chance to eliminate the weapon or somehow divert the ship from its destructive course.*

Critical hits do not affect the planet-cracker beam. However, if the ship's C&C is destroyed, the beam cannot fire.

Note that the beam does not require a lock-on to its target in order to hit it. Special Notes: Called shot volleys may not be used against the planetcracker weapon. It is simply too much a part of the main structure to be directly targeted.

8.6.8 Vortex Disruptor

Modes: Special

Vortex Disruptor
Class: Electromagnetic
Damage: Destroys jump point
Range Penalty: -1 per hex
Fire Control: +0/+0/+0
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Special: Fired at jump point with a base 24 or less to hit. Scores no damage on ships.

This is a special weapon that was originally developed solely for the purpose of destroying jump point using advanced races.

The vortex disruptor is fired directly into an open jump point, with a base chance to hit of 20 (minus the range penalty). If it hits, that vortex begins to collapse. Any ship in the jump point at the time (this is possible due to the Combat sequence, as noted in the Core Rules) will be automatically destroyed by the resulting rift in the fabric of space. There is no roll for damage; destruction is automatic. If the disruptor misses the jump point, there is no effect whatsoever. Advanced race ships, which use a slightly advanced form of jump engine (developed in response to the vortex disruptor), have a chance to slip through the jump point before it collapses. Determine the difference between the attack die roll to hit the jump point and the required to-hit value, and add to this the distance the advanced race ship moved to reach the jump point on this turn. Now roll 1d20. If the result is equal to or greater than the calculated total, the ship escapes; otherwise, it is destroyed.

Example: A vortex disruptor needs a 16 or less to hit a jump point and rolls an 11, a difference of 5. The fleeing advanced race ship moved 6 hexes to reach its jump point on this turn. If the result of the die roll is 11 or greater; the ship gets away.

8.6.9 Stun Beam

Modes: Special

Stun Beam
Class: Electromagnetic
Modes: Standard
Damage: Special (see rules)
Range Penalty: -1 per hex
Fire Control: +4/+2/+0
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

The stun beam is a unique weapon designed to temporarily disable crew and fighter pilots. It operates by producing a low-level electrical pulse that shuts down the higher brain functions of most sapients. Stun beams will not affect non-

animal creatures (robots, plants, energy beings, etc.) and do nothing whatsoever to the more advanced races.

Stun beams score no damage whatsoever when they hit, but a location roll is required. If they hit structure, there is no effect. If they hit a weapon or thruster, it will be unavailable for use on the next turn (weapons must be deactivated, forcing their recharge cycle to restart from scratch, while thrusters simply can't be used for any purpose while the crew at the controls stand around in a daze). Against other systems, the following non-cumulative effects are caused:

C&C: The ship has an initiative penalty of -4 on the next turn.

Sensors: The sensor rating is cut in half (round fractions up) on the next turn.

Engine: The free thrust produced by the engine is cut in half (round fractions up) on the next turn.

Hangar: The hangar cannot use any hangar bay operations on the next turn (reloading missiles, etc.), and cannot launch anything, though fighters and shuttles are permitted to land.

Jump Engine: The jump engine cannot be used on the next turn (it is not deactivated, however). If it is holding open a jump point, that jump point must be closed.

Jammer: The jammer must be deactivated on the next turn.

Energy Diffuser: No energy is added to the diffuser, but it cannot be used to absorb energy on the next turn. (Some races and their ships are immune to this effect.)

The stun beam does not affect any systems not listed above.

If a stun beam hits a fighter, that fighter automatically drops out. Super-heavy fighters are immune to this effect. An expert pilot can resist the effects through sheer force of will, but only if he rolls a 1 or 2 on a d6.

8.6.10 Surge Cannon

Modes: Raking

The surge cannon draws power from a mag-gravitic reactor to produce an electrical discharge, which can then be directed at an enemy target. It is not very powerful individually, but can be combined with other surge guns in the same arc for a greater effect.

Surge Cannon
Class: Electromagnetic
Mode: Raking
Damage: 1d10+1
Range Penalty: -2 per hex
Fire Control: +2/+2/+2
Intercept Rating: -2
Cooldown Period: 0 Turns

Two Surge Cannons
Damage: 2d10+3
Range Penalty: -1 per hex
Fire Control: +3/+3/+1
Cooldown Period: 1 Turn

Three Surge Cannons
Damage: 3d10+6
Range Penalty: -1 per 2 hexes
Fire Control: +4/+4/+0
Cooldown Period: 2 Turns

Four Surge Cannons
Damage: 4d10+10
Range Penalty: -1 per 3 hexes
Fire Control: +4/+4/-2
Cooldown Period: 3 Turns

Five Surge Cannons
Damage: 5d10+15
Range Penalty: -1 per 4 hexes
Fire Control: +4/+4/-4
Cooldown Period: 4 Turns

Two, three, four, or five surge cannons can be combined together to form a single blast. The intercept rating of the combination does not change over that of one cannon firing alone, but the damage, range, and fire control against ships all improve, while fire control against fighters decreases, and the cooldown period is increased for each weapon.

If a combination fires as one, all guns that fired together must wait the full cooldown period listed on the weapon datacard. This allows the ship to cycle its weapons to maximize the use of available power. *For example, if an Ipsha ship fires surge cannons #1, #2, #3, #4, and #5 as a single blast on turn 1, none of those cannons can fire again until turn 6 (due to the 4 turns of required cooling, i.e., turns 2-5).* However, because the ship's available power could not possibly arm all of its weapons simultaneously, this is not as troublesome as it might appear. Note that as soon as the cooling period is over, the guns can be fired individually, or as a combination with other guns, so long as those guns are also eligible to shoot.

As an EM weapon, this device causes electrical disturbances that increase the rate of critical hits and fighter dropout. Add +1 to such rolls for each gun involved in a combined blast. For example, if three surge cannons combine, there is a +3 penalty on critical hits rolled by any system it damages, and fighters it strikes have a +3 penalty

to their dropout roll. If multiple, separate surge cannon blasts hit the same system, they are not cumulative, but use only the highest penalty.

This is an electromagnetic weapon that scores damage in raking mode.

8.6.11 Surge Blaster

Modes: Standard

The surge blaster is similar to the surge cannon, but lacks the combination ability. It is a large weapon and rather power-hungry, but is preferred by some fleets for the standard mode damage it causes.

Surge Blaster
Class: Electromagnetic
Mode: Standard
Damage: 4d10
Range Penalty: -1 per 2 hexes
Fire Control: +3/+2/+1
Intercept Rating: -1
Cooldown Period: 1 Turn
Special: +4 to crits & dropout

Though the surge blaster does not score a tremendous amount of damage, it is adept at causing critical hits. Any system struck by such a weapon suffers a +4 shift on its critical hit roll on that turn, and fighters suffer a similar +4 penalty to their dropout rolls (assuming they survive).

8.6.11.1 Light Surge Blaster

Modes: Standard

This is a fighter-sized version of the surge blaster. It scores a fairly mediocre amount of damage for a fighter, but gains a benefit of +1 on any criticals it causes and forces a +1 penalty to an enemy fighter's dropout roll.

Light Surge Blaster
Number of Guns: 2 (Linked)
Class: Electromagnetic
Damage: 2d6-1
Range Penalty: -2 per hex
Fire Control: n/a
Cooldown Period: 0 Turns
Special: +1 to crit/dropout rolls

8.6.12 Electromagnetic Pulsar

Modes: Pulse

Because it divides its energy into so many smaller elements, this weapon is not particularly good at scoring damage, and only moderately effective in causing criticals (any system hit by a pulse has a +1 shift to its critical roll on that turn). Its main use is against fighters, where it forces a +2 shift on any dropout roll, in addition to the damage it scores. Since it uses the pulse rules to select fighter targets, it can be quite effective at sweeping enemy fighters out of the sky.

EM Pulsar
Class: Electromagnetic
Mode: Pulse
Damage: 9 1d5 times
Maximum Pulses: 6
Pulse Grouping: +1 per 5
Range Penalty: -1 per hex
Fire Control: +3/+2/+1
Intercept Rating: -2
Cooldown Period: 1 Turn
Special: +1 to critical hits, +2 to dropout rolls

8.6.13 Electromagnetic Bolter

Modes: Standard

This weapon fires a charged packet of energy towards a target, the impact of which delivers a fixed amount of damage and a significant EM effect. It is an unusually powerful weapon, but is so power-hungry it is seen only on the largest ships.

EM Bolter
Class: Electromagnetic
Mode: Standard
Damage: 21
Range Penalty: -1 per 3 hexes
Fire Control: +3/+3/+0
Intercept Rating: n/a
Cooldown Period: 2 Turns
Special: +1 to all critical rolls made by target on that turn.

The hit scored by the EM bolter not only causes the listed damage, but also sends a cascade effect across the entire ship. Any critical hit rolls on that turn are at a +1 shift, in addition to any other modifiers (this is cumulative with any other weapon damage or EM bolters fired on the same turn). This does not force a critical on systems not hit that turn, but only affects systems rolling under the normal procedure. This weapon is best used in combination with attacks by other friendly ships or fighters, and is particularly deadly when used with a resonance generator.

8.6.14 Resonance Generator

Modes: Standard

This unusual short-ranged device is employed strictly against enemy ships, the larger the better. It fires a fan-shaped, glowing beam across the target, using opposing EM fields to set up resonating vibrations in the affected unit. Though these last only a short time, they can cause significant damage, as the resulting shock waves reverberate throughout the ship. Because they are internal in nature, they ignore armor (except adaptive armor set to EM defense), but are affected by shields and other defenses

Resonance Generator
Class: Electromagnetic
Mode: Standard
Damage: 1d10
Range Penalty: -1 per hex
Fire Control: +2/+2/--
Intercept Rating: n/a
Cooldown Period: 2 Turns
Special: Ignores armor. Scores damage against all sides of the target (Including primary).

normally. Advanced armor is counted at only half strength against the resonance generator.

To resolve the attack, roll one to-hit roll using the normal procedures. If the weapon hits, it scores one volley of damage against each side of the vessel and a single roll on the Primary Hits chart. Roll each damage roll and hit location roll separately. If a roll on a side results in a hit to the primary section, roll again. Destroyed sides are not affected and do not generate a roll.

For example, a capital ship hit by a resonance generator would suffer five attacks, one on the forward, one aft, one starboard, one port, and one primary. If the forward structure is gone, do not roll on that chart at all. If a roll on the aft, starboard, or port charts results in a primary hit, simply re-roll until a non-primary result is achieved. (If none is possible, perhaps because the side has been destroyed on the current turn, then no roll should be made. If only one possible system is available, don't bother rolling and simply apply damage directly to that system.)

Enormous units suffer attacks on each section, including the primary section. Heavy combat vessels roll three attacks: one forward, one aft, and one primary. Medium ships suffer only two attacks: one forward and one aft. Light combat vessels are attacked only once, on the primary hits chart. Fighters and smaller craft are not affected by the resonance generator.

8.6.15 Spark Field

Modes: Standard

This defensive device is found in the primary section of vessels that use it and produces an electrically charged zone of energy around the ship. The width of this zone and its effect on an enemy are wholly dependent on the amount of power used by the weapon.

Spark Field
Class: Electromagnetic
Mode: Standard
Damage: 1d6+1
Range Penalty: n/a (2 hexes)
Fire Control: n/a
Intercept Rating: n/a
Cooldown Period: 0 Turns
Special: Ignores armor. +2 hexes and -1 dmg per 2 extra power applied (maximum 10 power)

At the basic arming level (2 points of power), the spark field has a radius of 2 hexes around the vessel and scores the listed damage on any unit that ends its movement within the field. For every 2 additional points of power, the radius is increased by 2 hexes (to a maximum of 10 hexes) and the damage is reduced by 1 point (to a maximum of -4). It is possible for a field spread over a wide area to score no damage on an opponent on a poor die roll. Note that if multiple fields overlap, their effects are not combined—use only the most powerful field when calculating damage, and roll only once (i.e. do not roll once for each field and take the best result). If affecting a ship, the damage is scored on the side facing the vessel.

Spark fields are activated and announced during the Ballistic Weapon Launch Step (before movement), but do not cause damage on units until movement is complete. Damage is scored at the same time ballistic weapon impact is resolved. All units within the field at this point, including friendly units other than the ship generating the field, are affected. The field drops as soon as the Combat Step is over, so it will not affect any units launched from hangars at the end of that turn. The field does not affect ballistic weapons passing through it on their way to a target.

Damage scored by spark fields does not harm structure, but ignores all other armor, just as the burst beam does (some liken the weapon to a weak, zoned version of the burst beam). Armor on fighters is also ignored. There is no penalty to critical hit or dropout rolls due to the weak charge of the field.

8.6.16 Electromagnetic Wave Disruptor

Modes: Special

This defensive weapon puts forth a shower of particles and hits them with an electromagnetic wave, thus disrupting the attack of any incoming weapon except lasers.

EM Wave Disruptor
Class: Electromagnetic
Mode: Standard
Rate of Fire: Varies
DEFENSIVE MODE:
Intercept Rating: -3
OFFENSIVE MODE:
Damage: Forces auto-dropout
Range Penalty: -2 per hex
Fire Control: --/--/+4

In the basic mode, the EM wave produced by the device provides a -3 defense rating against any two incoming shots (from any source), or a -6 rating against any single

shot. However, by providing an additional 4 power to the weapon, a further -3 can be earned for defensive purposes. This can be combined with another intercept rating of -3, or used individually. What's more, there is no limit (other than available power) to the amount of energy used by the device for this purpose. The only restriction is that no more than -6 can be applied to any single incoming shot. *Thus, for example, if 8 extra power is put into a given EM wave disruptor, that device could apply -3 to each of four incoming shots, -6 to one and -3 to each of two shots, or -6 to each of two shots. However, the player could not apply -9 or -12 to any one incoming attack.*

The EM wave disruptor can also be used in offensive mode. There is no delay between switching modes (the decision can be made at the time fire is determined). The device earns 1 shot for every -3 intercept rating normally available (i.e., with no extra power it can fire twice, with 4 power it can fire three times, and so on). If it hits a fighter, that fighter drops out (super-heavy fighters are not affected). It has no effect on ships and does not cause any sort of damage.

8.6.16.1 Light EM Wave Disruptor

This defensive device is used only on breaching pods. It has no offensive mode and cannot use more than one -3 intercept shot per turn. However, it is blessed with a decent firing arc (for a shuttle) and is often the only reason a breaching pod has a chance to reach its target.

8.6.17 Lightning Array

Modes: Flash

Lightning Array
Class: Electromagnetic
Mode: Flash
Damage: 5d10+20
Range Penalty: -1 per 3 hexes
Fire Control: +2/+4/+8
Intercept Rating: -5
Rate of Fire: 4 per turn
Alternate Fire: Can combine two or more shots as follows:

Two Shots
Damage: 10d10+20
Range Penalty: -1 per 4 hexes
Fire Control: +5/+6/+6

Three Shots
Damage: 15d10+20
Range Penalty: -1 per 4 hexes
Fire Control: +6/+6/+4

Four Shots
Damage: 20d10+20
Range Penalty: -1 per 5 hexes
Fire Control: +6/+6/+2

The lightning array is a massive electromagnetic weapon used by advanced races. It functions as an advanced communication device allowing the ship to communicate across vast distances and through dimensional barriers, but can be switched into offensive mode. This provides a truly devastating weapon with a considerably longer range than most other advanced armaments. It is, however, possible to dissipate or redirect such an attack by throwing flak or other particles into the beam's path, so it is susceptible to interception.

The array can fire up to four times per turn at the same or different targets. In addition, two or more of these shots can be combined, using the statistics shown on the control sheet. The decision to use combined fire is announced before any shots are taken by the ship.

8.6.17.1 Medium Lightning Array

Med Lightning Array
Class: Electromagnetic
Mode: Flash
Damage: 4d10+12
Range Penalty: -1 per 3 hexes
Fire Control: +2/+4/+6
Intercept Rating: -4
Rate of Fire: 1 per turn
Alternate Fire: If not fired in previous turn, may fire twice or combine both shots for:
Damage: 8d10+12
Range Penalty: -1 per 4 hexes
Fire Control: +5/+5/+4
Note: Does not begin the game charged for two shots.

A medium lightning array may fire a single shot every turn. If it doesn't fire for a turn, it may fire two shots, or combine the two into a single shot with an increased rating as shown on the SCS. The weapon is assumed to not be able to fire multiple shots at the beginning of a scenario unless the scenario specifies.

8.6.17.2 Wide Beam Lightning Array

It is possible to spread a lightning array beam over a larger area when operated in an offensive mode. During the

Prepare Weapons section of the combat turn, the lightning array may be configured to fire a wide beam, and the following rules are in effect:

- The weapon suffers a -2 per die damage penalty in all modes, with the minimum damage of any die being 1.
- Collateral flash damage is scored as normal when the target is inside an energy draining field (i.e., 25% on any other targets in the same hex). If the target is not in an energy draining field, collateral flash damage is scored at an amount of 50% of the original amount.
- The operation of a lightning array in this mode is stressful on its systems, and therefore requires a 1 turn cooldown period.

The cost for this enhanced array is 300 points for a lightning array and 200 for a medium lightning array. If a ship has more than one array, the player pays to enhance each one separately, and is not required to improve them all.

This improvement may not be used on fighters.

8.6.18 Chromatic Pulse Driver

Modes: Pulse, Scanning

This advanced race weapon consists of several small, multi-colored spheres. These are an extension of one of the various arcane sensor suites at the ship's disposal, the purpose of which would be incomprehensible to younger races. It is so potent that it can easily cause significant damage when used in an offensive manner.

Chromatic Pulse Driver
Class: Electromagnetic
Mode: Pulse
Damage: 18 1d3 Times
Max Pulses: 4
Grouping Range: +1 per 3
Range Penalty: -1 per 2 hexes
Fire Control: +4/+4/+4
Intercept Rating: -1
Rate of Fire: 1 per turn
Alternate Fire: If not fired in the previous turn, increase damage to 18 1d5 Times and Max Pulses to 8.

As one or several chromatic pulse orbs are ejected into an area, the launching ship records the changes to each orb as it passose through/impacts on any sort of spatial feature. The different colors denote the specific properties to which the orbs are sensitive.

In pulse mode, any ship coming into contact with a chromatic pulse orb takes a surge of EM damage. If the chromatic pulse driver was not fired in the previous turn, the damage and maximum pulses are increased as noted on the datacard. The chromatic pulse driver may not begin a scenario able to fire at the increased level.

The ship can choose to switch the chromatic pulse driver into scanning mode (decided in the Fire Determination segment of the Combat Sequence) in order to derive some information regarding enemy shield modulations.

If a CPD in scanning mode scores a successful hit on a unit operating any sort of shield system, then all ships of the CPD-firing fleet treat all such systems on any unit of the same race as one point less for the duration of the scenario starting in the next Adjust Ship Systems segment.

A scanning mode CPD does no damage to any system, and does not operate in pulse mode. The effects are cumulative, and may eventually reduce the shield effectiveness to zero.

If the CPD-firing ship is facing multiple races with the same type of shield system, the modifiers are not spread across the different races.

The scanning mode CPD can negate the effect of a shading field even in shading mode. The first points of adaptation go towards the regular shield-type systems of the shading field. Once those have been negated, the subsequent points apply to the profile-reduction properties granted by shading mode.

8.6.18.1 Light Chromatic Pulsar

Modes: Standard

This device produces chromatic orbs capable of higher resolution than a chromatic pulse driver, but with far less range. The type of survey mission where LCPs are used is slightly different from that of a CPD and, as a side effect, they are not usable in scanning mode.

8.6.21 Sensor Charge Transceiver

Modes: Standard (no overkill)

This system is used by advanced races to chart irregularities in the fabric of space, and is useful in any spatial or temporal plane. The transceiver launches a precisely modulated sensor charge encased in a force field that steers the charge through the field of interest to gather data.

> **Sensor Charge Tranceiver**
> Class: Electromagnetic
> Modes: Standard (no overkill)
> Dmg: 6d10
> Range Penalty: None
> Fire Control: +3/+2/+1
> Intercept Rating: n/a
> Rate of Fire: 1 per 3 turns
> *Special: Range 16 hexes with 4 maneuvers. Every 2 power adds +1 range or +1 maneuver. Must end maneuver at a SCT.*
> See rules for description.

The pulse is then returned to the transceiver for analysis. The main disadvantage is that the charges need to have a complete path from and to a transceiver to be of any use.

The SCT is a unique weapon. The charges move along a path in a manner similar to a fighter. A charge defaults to a range of 16 hexes and the ability to make 4 maneuvers. This is equivalent to a fighter moving speed 16 with 16 thrust and a 1/4 turn cost. Turn delay is zero.

The charge does not move during the Movement Step. During the Ship Power Segment, the Sensor Charge Transceiver must be configured for firing. Every additional 2 points of power applied produces either 1 additional hex of range or adds the capability for an extra maneuver.

In the Fire Determination Segment, the sensor charge is transmitted from one SCT to another (or possibly returning to the originator). The player must plot a course from the originating ship to any other ship in the fleet with a SCT using the movement abilities described above, with a maneuver counting as a turn or slide (not acceleration or deceleration). The charge must end its movement in the same hex as another ship with a SCT. If it does not, then the charge is lost, and it is unable to do any damage during the turn. For every 2 full hexes of possible range remaining on a received charge, the SCT must take a point of damage, rolling critical hits as normal.

If the charge passes through a hex with an enemy target, the SCT may attempt to hit it (at the player's option). All EW and fire control modifiers apply (although there is no range penalty). If the charge does not pass through an enemy target hex, the charge may not be used. However, if the charge manages to pass through more than one target's hex, it may be used to damage all targets providing that it is sent against only one target per hex. There is no degradation on the chance to hit.

The rate of fire on a Sensor Charge Transceiver is 1 per 3 turns. This refers to the weapon's ability to fire a recovered charge. If a charge is not recovered (if it is intercepted, for example), then the recharge rate is increased to 1 per 5 turns.

A successful interception by an enemy vessel results in the loss of the charge. ANy other failed shot does not. A Sensor Charge Transceiver may receive more than one charge per turn, but may only store a single one for use in the next turn. Damage is scored as a single standard-mode volley with overkill not transferring to structure (similar to a matter weapon volley).

8.6.22 Flare Generator

Modes: Shield, Raking (20), Flash

An advanced race vessel with this device produces a shield effect that is much more flexible than traditional implementations. The vessel can cause the shield to "flare," extending its reach and filling the surrounding area with EM radiation. It may also direct this flare into a mighty blast capable of inflicting great amounts of damage on a target.

> **Flare Generator**
> Generates a 4-point EM shield in all directions while active.
> Alternate Fire:
> Class: Electromagnetic
> Modes: Raking (20)
> Damage: 6d10+50
> Range Penalty: -1 per 4 hexes
> Fire Control: +7/+6/+4
> Intercept Rating: -6
> Rate of Fire: 1 per 2 turns
> Alternate Fire:
> Class: Ballistic (resolved EM)
> Modes: Flash
> Damage: 60/20/10
> Max Range: 0 hexes
> Fire Control: n/a
> Intercept Rating: n/a
> Rate of Fire: 1 per 2 turns
> *Special: Generates a 4-point EM shield at range 1, a 6-point shield at range 2, and a 7-point shield at range 3+.*
> See rules.

The flare generator supplies a 4 point EM shield in all directions while active. During the Ship Power segment, the flare generator may be switched into one of two alternate modes (the shield still functioning in either case):

- The flare generator may be used as an offensive weapon

with a profile shown on the ship control sheet.

• Alternately, the flare generator may extend its shield range. If this is done, the shield is treated as level 4 by any unit at range 1, level 6 at range 2 and level 7 at three hexes or greater. Any unit at range zero is "underneath" the shield and is unaffected by it. When the shield is activated in this manner, it produces a blast of energy in the ship's hex that is treated much like the explosion of an energy mine. 60 points are scored against all units in the same hex, 20 points to any unit at range 1 and 10 points to any ship at range 2. It is quite obvious when the flare generator is switched to this mode, so it must be declared during the Ballistic Launch segment. In this mode, the flare generator only benefits the originating vessel, not other units within the shield radius.

The rate of fire for either of the alternate modes is 1 per 2 turns, which means that the flare generator is required to recharge for a turn after use, and may not be used in any mode until fully charged. The normal 4 point EM shield mode may be used every turn regardless of mode or the current recharge level.

8.6.23 Neutron Burst

Modes: Raking

When the neutron burst hits a system, the point of contact becomes an electrical potential sink, drawing electrical energy from all nearby circuits and using the system's own power to damage itself.

Neutron Burst
Class: Electromagnetic
Modes: Raking
Damage: 4d10+8
Range Penalty: -1 per 2 hexes
Fire Control: +5/+5/+2
Intercept Rating: n/a
Rate of Fire: 1 per turn
Special: -2 power if structure hit; deactivates power-using systems; +5 criticals to non-powered systems; forces dropout on fighters. Non-Interceptable. See rules.

Any power-using system that takes even a point of damage (after armor) from a neutron burst is completely de-powered on the following turn, with the power being lost (not usable for other purposes). For ships with capacitors, the minimum operating power is drained from the capacitor and the system cannot be used at all on the next turn.

If the damage is scored on structure, the vessel's reactor will produce -2 power during the next turn. A hit on a capacitor drains 2 energy, but causes no other ill effects. Any non-powered system (C&C, reactor, etc.) must roll for a clitical hit at +4 to the die roll. Any fighter damaged by the neutron burst will automatically drop out. If a fighter is normally immune to drop-out, it must make a roll for drop-out as if it were not immune.

Vessels with and without advanced armor suffer the same effects. Even if all the damage from a neutron burst is absorbed into an energy diffuser segment, the system hit suffers the effects as normal.

This weapon cannot be intercepted.

8.7 Matter Weapons

Matter weapons operate by accelerating an object (typically a metal sphere or explosive shell, but often something less refined, like a rock or piece of scrap iron) at high speeds towards a target. The impact of such a weapon will knock a significant chunk of material off a ship's hull, paying no heed whatsoever to armor. Weapons that fall into this category include the matter cannon and rail gun. The mass driver is also technically a matter weapon, but is too slow for use against ships and is generally considered solely a planetary bombardment device.

If a matter weapon strikes a target, it totally ignores any armor values on whatever system it hits. However, any overkill damage is lost; it does not penetrate further into the ship. Thus, matter guns are excellent at blowing single systems off a ship's hull (or doing large amounts of damage to a structure block), but can't be expected to score any further penetration.

8.7.1 Mass Driver

Modes: Standard

Mass drivers are terror weapons employed only in strict violation of most interstellar treaties. The mass driver is a large, slow-firing device used to blow up cities and kill sentients by the thousands. The huge

Mass Driver
Class: Matter
Modes: Standard
Damage: 8d10+60
Range Penalty: -1 per 6 hexes
Fire Control: +2/--/--
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns
Special: Targets immobile, enormous units, bases, or planets only; launching ship must be speed zero

rocks it fires are of absolutely no use against ships or fighters, though they can be troublesome to bases.

The combat statistics given for mass drivers are useful only against bases, or any enormous unit moving speed zero. Any other unit will simply avoid it using its local maneuvering jets (unless it is a total derelict).

The rocks fired by a mass driver are so large that they can be intercepted with no degradation (and most bases will choose to do this, considering the amount of damage a mass driver can cause if it hits).

Mass drivers are matter weapons, but score damage against structure only. There is no need to roll for hit location when a mass driver hits its target. Simply apply its damage directly to the facing structure block. Remember that as a matter weapon, any overkill damage is lost.

8.7.1.1 Mass Drivers on Ships

Some ships can be equipped with these huge devices, using the following rules. It should be noted that the use of such weapons is a violation of any number of interstellar treaties, so use these rules with caution.

Attaching a mass driver requires the addition of a special module that costs 75 Combat Points, the installation of which requires weeks at a starbase. The module occupies a large space on the underside of the ship, often blocking the arcs of certain weapons. Although the mass driver itself requires a huge amount of power to operate, the addition of this module does nothing to relieve the resulting deficit, so the resulting power shortage will need to be dealt with by shutting off weapons or other systems.

Mass driver modules can be added to the following vessels:

Cruisers: One module only. Typically, the firing arcs of some of the forward weapons are partially blocked, preventing fire in the forward 120° area directly ahead of the ship.

Battleships and Dreadnought: Two modules can be used. The ship cannot operate with only one module as its thrusters would be unbalanced. Similar to the cruiser modification, the modules usually reduce the arcs of some side and forward weapons, cutting off the forward 120° area.

8.7.2 Matter Cannon

Modes: Standard

Matter Cannon
Class: Matter
Modes: Standard
Damage: 2d10+2
Range Penalty: -1 per 2 hexes
Fire Control: +3/+3/-2
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

Matter cannons are effectively scaled-down versions of the mass driver. A series of magnetic coils are arrayed down the length of a barrel that, when energized, fires a small explosive round at the enemy. The high velocity of the pellet imparts a lot of kinetic energy, allowing it to punch through the heaviest of armor as though it weren't there. Once inside the armor, the pellet explodes, damaging interior components and structure.

This is an older weapon design that is rarely used it on newer ships.

8.7.3 Railgun

Modes: Standard

Railgun
Class: Matter
Modes: Standard
Damage: 3d10+3
Range Penalty: -1 per 2 hexes
Fire Control: +2/+2/-3
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

The railgun is an older weapon that fires chunks of metal at hypervelocities towards a target. Though capable of doing significant damage, the difficulties of supplying the gun is logistically taxing, and the system is not used in newer ship designs.

For most scenarios, the amount of ammunition available for railguns will not be a problem, as railgun ammo can be carried in greater quantities than missiles. Thus, there is no need to track ammunition quantities on the control sheet. There may be scenarios that provide a limited number of shots for each railgun, however, in which case you can assume that all railguns on the ship draw from the same supply. As soon as that supply runs out, all railguns will be useless, and should probably be shut down and their power used elsewhere.

8.7.3.1 Heavy Railgun

The heavy railgun scores more damage than any known matter weapon save the mass driver, but is slow to arm and has a poor fire control.

Heavy Railgun
Class: Matter
Modes: Standard
Damage: 5d10+7
Range Penalty: -1 per 3 hexes
Fire Control: +2/+2/-3
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns

8.7.3.2 Light Railgun

The light railgun's primary use is against fighters or other units at extremely close range. Though it is not particularly powerful, it has a decent fire control against fighters.

Light Railgun
Class: Matter
Mode: Standard
Damage: 1d10+5
Range Penalty: -1 per hex
Fire Control: +0/+2/+3
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

8.7.3.3 Gatling Railgun

A matter-based defensive weapon, this light railgun fires a blast of "pellets" into space at shortranged targets. Its main advantage is its high rate of fire. The weapon can be used as an interceptor, but only against ballistic weapons.

Gatling Railgun
Class: Matter
Modes: Standard
Damage: 2d6
Range Penalty: -2 per hex
Fire Control: +0/+2/+4
Intercept Rating: -1 (Ballistic Only)
Rate of Fire: 1 per turn
RAPID Gatling RAILGUN
Rate of fire: 2 per turn

8.7.3.4 Improved Gatling Railgun

The improved or "rapid" gatling railgun reinforces anti-fighter defense. Unlike previous advances the RGR focuses on speed rather then strength. Improvements in tracking and target acquisition allow the RGR to engage two targets in the time its predecessor could engage one.

Improved Gatling Railgun
Class: Matter
Modes: Standard
Damage: 2d6+2
Range Penalty: -2 per hex
Fire Control: +3/+4/+6
Int. Rating: -1 (ballistic only)
Rate of Fire: 2 per turn

8.7.3.5 Light Gatling Gun

A smaller version of the gatling railgun, this is used by fighters. As a matter weapon the LGC is remarkably effective against enemy ships. However, its limited ammunition track requires constant resupply.

Lt. Gatling Gun
Number of Guns: 2 (Linked)
Class: Matter
Damage: 1d6
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn

8.7.3.6 Railgun Shells

Except as noted, these special shells are available in three sizes (one for each of the light, medium, and heavy railguns) and cannot be shared between different gun sizes. In addition, they must be assigned to a specific weapon on the ship before the scenario begins, and cannot be transferred between guns or between ships during play. After a scenario, they can be redistributed as needed.

With all of the following shells, the firing player chooses when to use one at the time weapons fire is determined. If no special shell is listed in the firing orders, a standard one is used automatically. Once fired, a special shell cannot be recovered and is lost whether it hits or misses.

A ship can purchase at most three special shells per railgun, except as noted in the descriptions below. In a campaign, a ship could carry up to three times these amounts, but could not employ the extras during a scenario. Any extras would be reloaded into the guns after the scenario is over.

Flash Shell: This shell has a plasma warhead instead of the usual solid projectile. When it hits a target, it delivers a plasma blast similar to that caused by the fuser, only less powerful. The result is a flash explosion resolved as a plasma weapon (not a matter weapon). In other words, armor is treated at half levels (not ignored) and the flash causes collateral damage on other units in the same hex. The effect is resolved as plasma, not matter, against adaptive armor. Otherwise, the weapon launching this shell uses its listed statistics (damage, range, etc.).

Cost: Light 3, Medium 6, Heavy 10.

Scatter Shell: After firing, the shell splits in to several pieces on its way to the target. Unfortunately, the scatter-shot is terribly inaccurate. All fire controls are reduced by 2, and the shell has a pulse grouping of 1 per 5. There are three versions, depending on the size of the weapon (a smaller shot may not be used):

Cost: Light 2, Medium 5, Heavy 10.

Heavy Shell: This is a special shell made of an ultra-

dense material. No more than one shell per railgun can be of this type during any normal battle, but in a homeworld defense, this restriction is lifted. The light version of this shell adds +5 damage, the medium +10 damage, and the heavy +15 damage.

Cost: Light 6, Medium 12, Heavy 18.

Long-Range Shell: These shells trade damage for an increased effectiveness at a distance. They can be used only on heavy and medium railguns. The statistics are as follows:

Long Range Medium Shell: Damage 1d10+5, Range -1 per 3 hexes, Cost 2.

Long Range Heavy Shell: Damage 3d10+3, Range -1 per 4 hexes, Cost: 4.

Ultra-Long Range Heavy Shell: Damage 1d10+5, Range -1 per 5 hexes, Cost: 6.

Black Shell: The ultra-rare black shell is a radiation bomb designed originally to bombard planets. It is a device banned as a terror weapon by most treaties. Using one in a campaign will likely be considered an atrocity. It is not permitted in standard scenarios unless specified in the scenario rules or agreed upon in advance by all players.

The black shell can only be used on a heavy railgun, and no more than one is permitted per launcher. It requires an extra turn of arming to prepare (so the rate of fire is increased by 1 turn if this shell is to be used). It scores 12d10+60 damage against a ship, scored in flash mode. If used against a planet, it scores as much damage as a mass driver, plus provides radioactive fallout effects for months afterwards, which is why it is so dreaded.

Cost: 50.

8.7.4 Slug Cannon

Modes: Standard

Slug Cannon
Number of Guns: 2 (Linked)
Class: Matter
Damage: 3
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: 1 per turn

This is effectively a fighter-mounted railgun. It fires "slugs" made of castoff leavings from standard railgun ammunition. Though it scores only a minimal amount of damage, its ability to ignore armor makes it somewhat dangerous. One advantage of fighters that use this weapon is that they can engage nearly any target with at least a chance of scoring damage to them, even heavily armored units.

Slug cannons require ammunition, the amount of which is shown on the fighter control sheet in special boxes for each fighter. The ship can rearm these at a rate of 2 shots per turn the fighter is aboard. For practical purposes, there is effectively no limit to the amount of ammo the ship can supply, and replacement ammunition costs nothing (other than the time and trouble required to reload it).

8.7.5 Flak Cannon

Modes: Flash

Flak Cannon
Intercept Rating: -3
Rate of Fire: 1 per turn
OFFENSIVE MODE:
Class: Matter
Mode: Flash
Damage: 1d10+2
Range Penalty: -2 per hex
Fire Control: --/--/+4

This device fires an explosive shell that fills an area of space with a cloud of metallic fragments, blocking incoming enemy fire. Unlike normal intercept weapons, a flak cannon can intercept all weapons fire coming from a single enemy unit or fighter flight (multiple cannons suffer the usual degradation). In addition, the heavy particles present are somewhat effective in blocking laser fire, though the flak cannon's intercept rating operates only at half the listed levels for this purpose (round fractions down). For example, against lasers one flak cannon would provide a -1 rating (half the usual -3 rounded down), two would give a -2 (half of -5), and three -3 (half of -6).

Under normal circumstances, the flak cannon can only defend against shots aimed at the parent ship. However, the device can also be used to defend nearby friendly units. To do so, the defending unit must be within 5 hexes of the friendly ship being protected, and must select a specific enemy unit to defend against. The flak cannon must have both of these units in its firing arc. If other flak cannons are also used against the same firing ship (and to protect the same target), they suffer degradation in the usual fashion, regardless of which unit actually uses them. Flack cannons

may not defend friendly units against attacks by laser class weapons, which are simply too fast to be tracked effectively in this manner.

Flak cannons can also be used offensively against fighters. Used in this mode, they are considered matter weapons and score damage using the flash procedures (i.e., full damage against a single target and 25% damage against all other targets in the same hex, ignoring armor in all cases). A flak cannon can fire in either mode during a turn, but not both. The decision regarding which mode to use is made at the moment of firing.

8.7.5.1 Flak Array

Based on the flak cannon, this is roughly the size of the twin array. It replaces the gatling railgun on a two for one basis. It is capable of ripping fighters apart with its two shots.

Flak array
Intercept Rating: -3
Rate of Fire: 2 per turn
OFFENSIVE MODE:
Class: Matter/Flash
Modes: Flash
Damage: 1d10+6
Range Penalty: -2 per hex
Fire Control: +3/+4/+5

8.7.6 Gauss Cannon

Modes: Standard

The gauss cannon is a large and powerful weapon but suffers from poor fire control.

Gauss Cannon
Class: Matter
Modes: Standard
Damage: 1d10+10
Range Penalty: -1 per hex
Fire Control: +2/+1/-3
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

8.7.6.1 Heavy Gauss Cannon

The heavy gauss cannon is a significant improvement in both damage and fire control over the already formidable gauss cannon. However, as with the heavy laser lance, ships are forced to sacrifice rate of fire for fire power.

Heavy Gauss Cannon
Class: Matter
Modes: Standard
Damage: 3d10+10
Range Penalty: -2 per 3 hexes
Fire Control: +3/+2/-2
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

8.7.6.2 Gauss Rifle

The gauss rifle series is the logical progression of the gauss cannon weapons, with improved range and fire control, and a more compact housing.

Gauss Rifle
Class: Matter
Modes: Standard
Damage: 1d10+15
Range Penalty: -1per 2 hexes
Fire Control: +4/+3/-6
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

8.7.6.3 Heavy Gauss Rifle

The heavy gauss rifle can cause an impressive amount of damage and its long range firing ability makes it even more formidable. The weapon's size limits its deployment to capital ship hulls, however.

Heavy Gauss Rifle
Class: Matter
Modes: Standard
Damage: 3d10+18
Range Penalty: -1 per 3 hexes
Fire Control: +3/+3/--
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

8.7.7 Ultra Matter Cannon (Matter Accelerator)

Modes: Standard

Although superceded by the combined systems of gravitic augmenters and warrior projectiles, ultra matter cannons provide excellent fire control, a high rate of fire and massive amounts of damage.

Matter Accelerator
Class: Matter
Mode: Standard
Damage: 5d10+5
Range Penalty: -1 per 3 hexes
Fire Control: +5/+5/+0
Intercept Rating: n/a
Rate of Fire: 1 per turn

This weapon was originally known as the matter accelerator.

8.7.8 Matter Bolt

Modes: Standard

Some advanced race fighters use a form of matter weapon that literally tears away pieces of itself with every volley. On any turn in which it is fired, the fighter suffers a single point of damage, but may repair up to two points of structure on any turn in which it does not fire. This self-repair is used in the Self Repair step and has no

Matter Bolt
Number of Guns: 1
Class: Matter
Damage: 3d6+2
Range Penalty: -1 per hex
Fire Control: n/a
Rate of Fire: 1 per turn
Special: Causes a point of damage to the Phantom when fired. Provides 2 Self-Repair when not fired.

upper limit. It may be used te repair damage suffered on the current turn.

8.7.9 Blast Cannon

8.7.9.1 Light Blast Cannon

This is one of the earliest known matter weapons. It was originally developed for use against raiders. The light blast cannon is much like a small ship-mounted shotgun, firing a cluster of "bullets" towards a nearby target. The spread of the shot is not wide enough to strike multiple units, but scores damage using the pulse rules. As with the pulse cannon, the accuracy of the shot can provide a bonus to the volley count roll. However, blast cannons are not as advanced as the pulse cannon, possessing a grouping range of +1 per 5.

Light Blast Cannon
Class: Matter
Modes: Pulse
Damage: 3 1d3 times
Maximum Pulses: 4
Grouping Range: +1 per 5
Range Penalty: -1 per hex
Fire Control: +2/+1/+0
Intercept Rating: -1
Rate of Fire: 1 per turn

One of the primary disadvantages of this weapon is that its ammunition must be specifically constructed for the launcher. Thus, an ammunition track is required (and if the gun is destroyed, so is its ammo). In most scenarios, running out of ammo will not be a problem, although it could be troublesome in a campaign. Some scenarios might specify that launchers on a given ship begin play partially empty. There is no cost for basic blast cannon ammunition.

Critical Hits: Use the normal hit chart. In addition, if the roll is greater than 18, subtract 18 and mark that many boxes of ammo (of the owning player's choice) destroyed. For example, on a modified roll of 21, three boxes of ammunition are lost.

8.7.9.2 Medium Blast Cannon

Usually referred to as simply the **blast cannon**, this weapon is much like the light version, but is more powerful and has a much higher damage yield. The ammunition it uses is of a different size and composition, and cannot be exchanged with the ammo used by other types of cannons. Use the same special critical rules as the light blast cannon.

Medium Blast Cannon
Class: Matter
Modes: Pulse
Damage: 5 1d5 times
Maximum Pulses: 5
Grouping Range: +1 per 5
Range Penalty: -1 per 2 hexes
Fire Control: +3/+2/+0
Intercept Rating: -1
Rate of Fire: 1 per 2 turns

8.7.9.3 Heavy Blast Cannon

The heavy blast cannon's ammunition is different from that of its smaller cousins and cannot be exchanged with those weapons. Use the same critical hit rule as the light cannon.

Heavy Blast Cannon
Class: Matter
Modes: Pulse
Damage: 8 1d6 times
Maximum Pulses: 6
Grouping Range: +1 per 5
Range Penalty: -1 per 3 hexes
Fire Control: +4/+3/+0
Intercept Rating: -1
Rate of Fire: 1 per 3 turns

8.7.9.4 Special Ammunition

Most of the pellets fired by blast cannons are made of easily collected rock and recycled materials. Sometimes other ammunition is used for special purposes, particularly in dangerous areas of space. The costs shown are for light, medium and heavy ammo respectively. No more than 10% of all ammunition in a given launcher can be of a special type. These types cannot be combined with one another.

Penetrating (5/10/20): Each pellet in the shot scores extra damage: +1 for light, +2 for medium, +4 for heavy.

Cluster (4/8/12): The shot grouping is much tighter, using a grouping range of +1 per 4, and gaining an automatic +1 to the volley count roll. This does not increase the max pulses statistic.

8.7.10 Matter Gun

The matter gun is a fighter-mounted matter cannon, usually referred to derogatorily as a "popgun." It does not do very much damage, but since it completely ignores armor, this is not as large a disadvantage as it might appear.

Matter Gun
Number of Guns: 2 (Linked)
Class: Matter
Damage: 1d6-1 (minimum 1)
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: 1 per turn

The main problems with the weapon are its inability to function defensively and the limited ammunition that can be carried on a fighter. Fighters using this weapon will list their total available ammunition in their descriptions (if nothing is listed, assume six shots per gun). Once out of ammo, the fighter has little choice but to return to its carrier and reload.

8.8 Gravitic Weapons

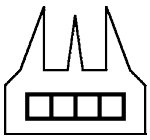
Gravitic weapons operate by controlling both magnetic and gravitic forces and focusing them on a target. Because they depend on the ship's drive system to provide much of the forces involved, they can only be used by races that use gravitic or magneto-gravitic drives for movement.

The primary advantage of most gravitic devices is flexibility. Typically, such guns can be improved by the addition of extra power, or can split their fire against multiple targets. Examples include the graviton pulsar, which can increase the number of pulses if more power is added to the weapon, and the gravitic lance, which can fire as a single longranged beam or split its fire into two standard graviton beams when required.

Some gravitic weapons can actually affect the motion or facing of other units in the game, causing them to turn or move unexpectedly. The gravitic shifter is the one example (it can turn its target to a new facing), as is the gravity net, which can cause its target to move several hexes. Devices of this type cause their effects before other weapons are fired during a combat turn, thereby altering the tactical situation drastically.

8.8.1 Tractor Beam

Modes: Special



The tractor beam is used to grab hold of small craft, either to pull them into the docking bay or to dock with them. Tractors are short-ranged and can require a tremendous amount of power to capture-a target. Normally, the beam is only used once the target has been disabled by some means.

Tractor beams are activated during the Tractor Stage of the Combat Sequence. In order to tractor a fighter or shuttle, the target must be in the some hex as the tractoring ship. The two do not need to be moving the same direction, but they must have a velocity difference of 3 or less. The power cost to make the tractor effective is equal to the velocity difference plus the amount of thrust the fighter or shuttle is currently generating, with a minimum cost of 1 energy (note that if this is a willing target, it can simply deactivate its thrusters to make this easier). The fighter or shuttle can then be pulled into any open space in the hangar bay in the next Launch/Land Fighters Stage of the Combat Sequence. In the meantime, it remains on the board (held in tractor) and moves in the same direction and speed as the tractoring ship.

If a fighter or shuttle is tractored in this way while it is disabled, it is captured automatically. If it is not disabled, the pilot can open fire on the shuttle bay with his weapons (during the usual Weapons Fire Stage of the Combat Sequence). Roll damage normally and apply it to the shuttle bay first (with no armor benefit). The box containing the "captured" fighter or shuttle will be the last one destroyed by any such damage. Any damage remaining after the bay is completely destroyed is scored on the structure block that supports the hangar bay, with no armor benefit.

A ship may also tractor another ship, providing that vessel is of the same class or smaller. To do this, the two ships must be moving at the same speed and in the same direction, and must be in the same hex. The power cost is equal to the Ramming Factor of the target ship divided by 4 (round fractions up)- this is considered the mass of the target. The tractor cannot be established unless the target is disabled or willing to allow the tractor attempt without resistance. To be considered disabled, a ship must be powerless (its reactor destroyed), out of control (its C&C destroyed, or unable to thrust (its engine destroyed, or all thrusters destroyed). It could also surrender, and allow tractoring without resistance.

Once the tractor is attached, the tractoring ship and target ship both maneuver as one. They can turn, roll, and perform other maneuvers, but the tractoring ship must pay any costs or delay periods (the target cannot thrust without disrupting the tractor), and any such costs or delays are equal to the sum of the costs/delays of both units. *For example, a cruiser with a turn cost of 1/2 and a roll cost of 5 that tractored a commercial freighter with a turn cost of 1 and roll cost of 6 would pay a total turn cost of 3/2 and*

a roll cost of 11 to perform such maneuvers. Note that if a gravitic-drive ship tractors a vessel, without a gravitic drive (or vice versa), all benefits of the gravitic movement system are suspended until the tractor is released. Also, if an agile ship tractors a non-agile one (or vice versa), agile status is similarly suspended.

Any amount of power can be put into the tractor beam. However, if more power is used than is needed, the excess is lost. Under normal circumstances, the tractor beam is left deactivated, though this returns no energy (the tractor beam is listed as having a power requirement of "?" due to its variability, but when not being used its power requirement is zero).

There are no critical hits for this device.

8.8.2 Gravity Net

Modes: Special

Gravity Net
Class: Gravitic
Effect: Moves target 1d6 hexes
Range Penalty: -1 per hex
Fire Control: +3/+2/+1
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

This was an attempt by scientists to create a device capable of controlling the movements of other ships. Using gravitic forces, the gravity net can push, pull, or shove on opposing ship into a position of the firing ships choice. Unfortunately, the device proved relatively short-ranged, and did not quite live up to expectations.

The gravity net scores no damage on any ship or flight of fighters it hits, but instead allows the firing player to move the target (which could be an entire fighter flight) up to six hexes from its current location. Roll 1d6 if the weapon scores a hit, and move the target unit up to that many hexes away, in any direction desired. Subtract 1 from the distance roll if the target is equipped with a gravitic or magneto-gravitic drive system. Note that the facing of the target is not altered by the move, and turn delay periods and the like are not affected.

A unit may be affected by only one gravity net in a given turn. If two or more are used on the same unit, and the gravity nets are under the control of the same player (or team), only one makes the distance roll, but each additional net that hit adds +1 to the die roll (to a maximum of 10 hexes of movement). On the other hand, if the gravity nets are under the control of different players who do not agree on where to move the target, they should each announce their choice of destination, then roll one d20 against each other, with the higher rolling player's gravity net taking effect and the other's doing nothing whatsoever. Do not add +1 to the die roll, as the nets are competing against each other.

The target cannot be moved into any hex that the firing ship does not have line-of-sight to, and cannot be forced into a ramming or collision situation (so it cannot be forced to move into a hex with an Enormous Unit, an asteroid, a planet's surface, or the like). In addition, the unit may only be moved into or through hexes that are in the firing arc of the gravity net (and if multiple nets are combining on the same target, the hexes of motion must be within the arc of *all* such nets).

The gravity net is fired during the Weapon-Based Movement Step (at the beginning of the Combat Sequence), so the movement it causes occurs before any other weapons fire is declared. This allows the firing player to move a target into a more optimal firing position (either a friendly unit to a better position or an enemy unit into a worse one), for example. If used on a friendly unit, the gravity net must still obey all other rules as listed herein (i.e., it does not automatically hit, suffers the penalty to the distance roll with regard to gravitic-style drives, etc.). A gravity net cannot be used on the firing ship itself.

Gravity nets cannot be used against any unit of a larger category than the firing vessel (e.g., a medium ship could not use one against a heavy combat vessel, and a capital ship could not use a gravity net against an Enormous Unit). Nets firing in support of other nets must also abide by

this limitation. For this reason, few medium ships or heavy combat vessels mount this weapon.

8.8.3 Graviton Beam

Modes: Raking

Graviton Beam
Class: Gravitic
Modes: Raking
Damage: 5d10+12
Range Penalty: -1 per 4 hexes
Fire Control: +3/+2/-5
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns

The graviton beam is the primary heavy weapon of the gravitic arsenal. It is powerful and long-ranged, but requires a large amount of power. Its primary disadvantage is its slow recharge rate, affording opponents plenty of time to respond to a strike by these weapons (especially if they fired defensively against it during the initial attack).

8.8.4 Gravitic Lance

Modes: Sustained

Gravitic Lance
Class: Gravitic
Mode: Sustained
Damage: 6d10+24
Range Penalty: -1 per 5 hexes
Fire Control: +3/+2/-5
Intercept Rating: n/a
Rate of Fire: 1 per 4 turns
Can fire as two graviton beams at the same or different targets.

Developed as a result of experiments to develop a longer-ranged gravitic weapon, the lance is actually two graviton beams in a single housing. These beams can fire independently if desired, just like normal graviton beams, and can even be used against different targets if the owning player wishes.

If fired as a gravitic lance, both beams must be eligible to shoot (i.e., they must have completed their rate of fire restrictions). The range and damage scored by the lance are higher than any single beam, and the weapon fires in sustained mode only (this is not an option). There is no requirement to arm the lance with extra power, as it is designed around this firing mode. It will, however, suffer the normal cooling restrictions.

This weapon suffers standard weapon critical hits, but any such criticals affect both graviton beam shots if the gun fires in dual mode.

8.8.5 Grav Cannon

Modes: Standard

Grav Cannon
Class: Gravitic
Modes: Standard
Damage: 1d10+6
Range Penalty: -1 per 3 hexes
Fire Control: +2/+2/-1
Intercept Rating: -1
Rate of Fire: 1 per turn

A relatively weak heavy weapon, this gun appears unimpressive at first glance. However, opponents of this weapon have learned to appreciate its long range and rapid rate of fire, which enable it to harass a them at every step.

8.8.6 Graviton Pulsar

Modes: Pulse

Graviton Pulsar
Class: Gravitic
Modes: Pulse
Damage: 10 1d2 times
2 extra power: 1d3+1 pulses
4 extra power: 1d3+2 pulses
Maximum Pulses: 3, 4 or 5
Pulse Grouping: +1 per 4
Range Penalty: -1 per hex
Fire Control: +2/+2/+4
Intercept Rating: -1
Rate of Fire: 1 per turn

This is a defensive weapon employed to destroy fighters and other closerange targets. Unlike many weapons, it can be armed with a varying amount of power. Normally, it is armed with 2 points of energy, the default. However, 2 more points can be added safely, and a further 2 more points (to a total of 6) can be applied if the situation demands it.

Each upgrade step increases the possible number of pulses generated by the weapon, slows the rate of fire by 1 turn, and improves the intercept rating by 1. *For example, a graviton pulsar with 2 power in it (the normal amount) will produce 1d2 volleys of 10 points of damage, and would have a rate of fire of 1 per turn and an intercept rating of -1. If it had been armed with 2 extra points (totaling 4), it would produce 1d3+1 10-point volleys, would have a RoF of 1 per 2 turns, and would have an intercept rating of -2. The maximum strength of the gun (the basic 2 energy plus 4 more) would provide 1d3+2 pulses and an intercept rating of -3, but would require 3 turns to rearm.*

If the maximum 6 points of power are used to arm the

weapon, there is a chance that it will overload and cause a critical. Roll for a critical hit when the weapon fires (if it is armed, but doesn't fire, on that turn and is armed at a lesser state the following turn, no roll is needed), using the standard weapon critical table.

8.8.7 Gravitic Bolt

Modes: Standard

Gravitic Bolt
Class: Gravitic
Modes: Standard
Damage: 9
2 extra power: 12 damage
4 extra power: 15 damage
Range Penalty: -1 per hex
Fire Control: +2/+2/+4
Intercept Rating: -1
Rate of Fire: 1 per turn

This older weapon was the precursor to the graviton pulsar, and was used up until the development of the graviton pulsar.

Like the graviton pulsar, the gravitic bolt is a defensive gun that can be increased in strength by the addition of more power. Use the graviton pulsar rules for this, except that instead of adding more pulses, the strength of the actual bolt is increased by 3 points for every 2 additional energy added to the weapon. As with the graviton pulsar, no more than 4 extra points of power can be used. All other rules (the extended rate of fire, the increased defense rating, and the extra critical hit) apply as explained in the graviton pulsar's description.

Ships equipped with graviton pulsars can replace these weapons with the gravitic bolt. This returns 10 Combat Points per pulsar to the player, effectively reducing the cost of the ship.

8.8.7.1 Light Gravitic Bolt

Modes: Standard

Light Gravitic Bolt
Class: Gravitic
Damage: 7
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn
Intercept Rating: -1

This is a weaker gravitic bolt used strictly on fighters. It scores less damage, and cannot be increased in strength, but otherwise is treated as a gravitic bolt for all purposes.

8.8.8 Gravitic Shifter

Modes: Special

Gravitic Shifter
Class: Gravitic
Effect: Turns Targets
Damage: None
Range Penalty: -1 per hex
Fire Control: +5/+3/-3
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

This is a specialized device used to disrupt the movements of enemy ships and keep their weapons facing away from their opponents.

Gravitic shifters are unlike other weapons in many ways. First and foremost, they fire before other weapons do. The firing player announces he is firing a gravitic shifter during the Weapon Based Movement Segment of the Combat Sequence (just like a gravity net, see Section 8.8.2). If the gravitic shifter hits, it warps space around the target vessel (or flight of fighters), causing it to involuntarily turn. The player who fired the shifter is allowed to—but is not required to— turn the target ship one 60-degree hex facing (or up to 60 degrees if using the miniatures rules) in either direction, at his option. Note that due to the Combat Sequence, shifters cannot cause pre-declared fire to become invalid. The target player always determines and declares his fire after seeing his new facing.

Forced turns override any rules that normally prohibit turning, such as when the target is in the process of executing a roll or pivot. When a ship is turned by the shifter, its turn delay "count" is not affected. If the ship is involved in an extended turn, it may complete it normally. Note, for clarification, that a shifted ship's direction of motion actually changes (not just its facing).

A given unit may be attacked by only one gravitic shifter during a turn. If two or more shifters fire on the same unit (regardless of whether or not the source is a single ship or multiple ships, or even if the firing ships are on different sides), they all automatically miss. No roll to hit is required or permitted in any case.

Gravitic shifters may target their own ships or an ally, and in fact this can be a very useful tactic. However, the shifter must still roll to hit (it does not function automatically).

Gravitic shifters do not work as well against opponents that do not employ standard thrusters. Against any target that uses a fully gravitic drive (or more advanced system) ,

they suffer a -3 penalty to hit. If a race uses a gravitic drive, this fact will be so noted in their rules and on their ships' control sheets.

8.8.9 Gravitic Cutter

Modes: Raking (6)

After the development of the gravitic bolt, work began on a gravitic weapon with greater emission time capable of matching laser weapons. The initial result was the gravitic cutter. While the weapon is inadequate compared to the medium laser or grav cannon, it is a more affordable option.

Gravitic Cutter
Class: Gravitic
Modes: Raking
Damage: 2d10+8 R(6)
5 extra power: 3d10+10 R(8)
Range Penalty: -1 per 2 hexes
Fire Control: +4/+2/-4
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns.
1 turn cooldown if extra power added.
5

The Gravitic Cutter scores damage in raking mode (6). However, the weapon may be improved with the application of 5 extra points of power during the weapons arming cycle. Firing an enhanced shot causes the weapon to require a turn to cool down using the standard rules for cooling (5.1.1).

8.8.10 Hypergraviton Blaster

Modes: Raking (20)

This weapon is an incredibly advanced form of the graviton beam. It can fire every turn, and sends a wall of hypergravitons towards its target, ripping it to pieces. LIke gravitic weapons operated by younger races, it is interceptable but highly versatile:

Hypergraviton Blaster
Class: Gravitic
Mode: Raking (20)
Damage: 5d10+40
2 turns arming: 10d10+80
Range Penalty: -1 per 4 hexes
Fire Control: +6/+6/+6
Intercept Rating: n/a
Rate of Fire: 1 per turn
Alternate Fire: Can transfer damage (see rules).
Special: Each 6 points of thrust applied to the weapon add +10 to damage.
15

- If desired the hypergraviton beam can withhold fire for a turn, then fire in double strength on the following turn.
- As the graviton emissions of the beam are tied closely to the propulsion system of the ship, some energy from the engine can be routed to the weapon at the sacrifice of mobility. For every 6 points of thrust applied to the hypergraviton blaster, increase the damage bonus by +10 points. This permits the weapon to dish out considerable amounts of damage, but only if all defensive weapons are taken offline and the ship foregoes maneuverability entirely. Note that if the ship operates more than one hypergraviton blaster, each must be allocated thrust separately (they do not all benefit from the same thrust simultaneously).

If the weapon completely destroys its target or destroys a structure block on a heavy combat vessel or larger unit, any remaining damage can be shunted to another target. This is possible due to the huge size of the beam and the ship's control over it. Use the following rules and restrictions:

- The new target must be in the same hex or within 1 hex in any direction. It can be of any size (it does not need to be the same size as the original target).
- The firing player must roll to hit the new target using the normal procedures. This is referred to as the "transfer roll." Should the transfer roll succeed, any remaining damage is applied to the latest victim in 20-point rakes. *For example, if the blaster scores 90 damage to a ship and the 35th point destroys the facing structure block, the remaining 65 points can be shifted to another unit.*
- If the transfer roll fails, 20 points of damage are subtracted from the remainder of the volley. Another transfer roll can then be attempted, or the damage can be scored on the previous target without a roll. *Continuing the previous example, if the transfer roll failed, the remaining 65 points would be dropped to 45. The player could make another transfer attempt, or apply the remaining 45 damage to the previous target using the normal 20-point raking procedure.*
- Should transferred damage destroy the new target, the excess can continue to be passed on to new units using this procedure, so long as unallocated damage is left in the beam and each new target is within one hex of the shot's previous recipient. All targets must be in arc of the weapon at the time of firing.
- If the initial shot (the first one taken by the weapon) misses, 20 points of damage are subtracted and the weapon may roll to hit again. It may not, however, transfer targets, but must continue to attempt to hit the original

target until it either hits or runs out of damage. (Note that this will require the firing player to determine how much damage is scored before actually rolling to hit.)

• Shots that have transferred away from a given target can later come back to that same target, but a new to-hit roll would be required.

• If a ship mounts more than one hypergraviton blaster, no more than one such weapon can transfer damage during the same turn. The ship is incapable of maneuvering well enough to optimize more than one weapon at a time.

Note that transferring damage to another target is always voluntary. One excellent use of this feature is to rip entire flights of fighters out of space in a single swipe.

8.8.11 Hypergraviton Beam

Modes: Raking (15)

A highly advanced graviton weapon, this precursor to the hypergraviton blaster shares many features common to gravitic class weaponry, in that it is interceptable and can increase its damage potential. The main advantage of the hypergraviton beam over similar weapons operated by younger races is its high rate of fire.

Hypergraviton Beam
Class: Gravitic
Mode: Raking (15)
Damage: 4d10+20
Range Penalty: -1 per 3 hexes
Fire Control: +5/+4/+3
Intercept Rating: n/a
Rate of Fire: 1 per turn
Special: Each 4 points of thrust applied to the weapon add +5 to damage.
12

For every 4 points of thrust vented into the hypergraviton beam, the damage bonus is increased by +5 points.

8.8.12 Antigravity Beam

Modes: Standard

Many advanced race orbital segments are armed with these weapons, which put forth a quick, powerful blast of standard-mode antigravitons that punch holes in their targets.

Antigravity Beam
Class: Gravitic
Mode: Standard
Damage: 3d10+6
Range Penalty: -1 per 2 hexes
Fire Control: +1/+3/+5
Intercept Rating: -3
Rate of Fire: 1 per turn
Alternate Fire: Can use 3 shots of 1d10+2 damage each
3

The beam normally fires just once, but can be split apart into three different shots if desired (typically to attack a fighter flight). The firing player does this by specifying (before rolling to hit) which targets will be fired upon. Against a fighter flight, the defender does not choose which targets are struck. This determination is made by the firing player at the time the weapon is used.

Note that antigravity beams may not fire if the housing orbitals are not deployed. They may, however, be deactivated for extra power if this is the case. They cannot be deactivated for power on the turn the orbitals are deployed or recovered.

8.8.12.1 Medium Antigravity Beam

This version of the antigravity beam appears on ships with less capable power plants. It follows the same rules as the standard antigravity beam, except that it can be split into a maximum of two separate shots.

Medium Antigravity Beam
Class: Gravitic
Mode: Standard
Damage: 2d10+4
Range Penalty: -1 per 2 hexes
Fire Control: +1/+3/+4
Intercept Rating: -2
Rate of Fire: 1 per turn
Alternate Fire: Can use 2 shots of 1d10+2 damage each
2

8.8.13 Gravitic Augmenter

Modes: Special (Non-Interceptable)

Found on advanced race orbitals, these systems are able to project and manipulate fields of gravitons. Designed as an enhancement to the ultra matter cannon, they proved to be useful in many other situations as well. Every turn each gravitic augmenter is capable of one of the following effects:

Gravitic Augmenter
Class: Gravitic
Effect: Turns target
Range Penalty: -1 per 2 hexes
Maximum Range: 20 hexes
Fire Control: +6/+5/+0
Intercept Rating: n/a
Rate of Fire: 1 per turn
Alternate Fire: Affects matter and ballistic weapons, enhances Warrior Projectiles, acts as a Tractor Beam (see rules).
Special: Non-interceptable
7

Matter Weapon Enhancement: All matter weapons fired within the gravitic augmenter's maximum range and arc can have their fire control modified by +/- 3. Ballistic weapons are modified by +/- 6. Apply the bonus for shots fired by friendly ships and apply the penalty for enemy shots, so long as the firing units are within the listed range. Modifiers are cumulative with additional gravitic augmenters, and do not count toward interception degradation.

Warrior Enhancement: Any single warrior projectile flight within the gravitic augmenter's maximum range and

arc may apply several bonuses. These modifiers are not cumulative with additional gravitic augmenters.

- 3 free levels of jinking, including all bonuses and penalties. This counts toward the jinking limit as normal, but thrust is not paid.
- 3 additional points of free thrust.
- Offensive bonus increased by 3 points. This is cumulative with the -3 from the above jinking penalty, for a net of zero.
- -4 to all drop-out rolls.

Tractor Beam: A gravitic augmenter may function as a tractor beam. It is considered to have 7 points of energy readily available to it, although more may be added. All energy requirement calculations for tractoring vessels equipped with advanced armor (or better) are performed as normal, while all energy requirements needed to tractor a ship equipped with regular armor are halved. Multiple gravitic augmenters, even those from other ships, may combine to ease the tractor beam loading providing the target is within range of both ships.

Gravity Shifting: The gravitic augmenter, using the weapon statistics from the datacard, may target one ship that is within maximum range and arc. If hit, the ship suffers effects similar to the gravitic shifter with the following exceptions:

- A ship not equipped with gravitic drives may have its facing and heading changed by as much as 120º, or two 60º facings.
- A ship equipped with gravitic drives is not immune, but instead may have its facing and heading changed by a single 60º facing.
- Friendly ships wishing to be targeted still benefit from dEW and must be locked onto and hit as normal.

The mode must be decided in the Prepare Weapons segment of the Combat Sequence, just as offensive/defensive firing modes are being decided.

This weapon is also very useful in redirecting comets or moving asteroids for use in planetary bombardment. These tactics, while devastating against younger races, are too slow to be effective against other advanced races.

8.8.14 Spatial Cutter

Modes: Raking (15)

This advanced race weapon literally tears the fabric of space, forming a rift between normal space and some alternate dimension (probably hyperspace). It is a spectacular sight, but is mostly for show. When the end of this rift impacts on a vessel, the effect is to remove portions of the ship and pass it into this dimension. The rift is very difficult to direct against fast moving vessels, and has an extremely limited range, and opponents quickly learn to give vessels equipped with spatial cutters a wide berth.

Spatial Cutter
Class: Gravitic
Modes: Raking (15)
Damage: 8d10+20
Maximum Range (Waveform): 12 hexes
Range Penalty: -1 per 4 hexes
Fire Control: +7/+3/-2
Intercept Rating: -8
Rate of Fire: 1 per turn
Special: Rips a (Hyperspace) Waveform from vessel's hex to target's hex which lasts for the entire following turn. First One vessels suffer terrain damage as normal, young races take double damage. Non-interceptable. May be used to intercept non-interceptable weapons. See rules.

The firing vessel must nominate a target within the cutter's maximum range to which it has a lock-on. If no targets meet both of these conditions, the spatial cutter may not fire. If it may fire, draw a line between the firing vessel and the target and note all hexes that the line passes through (including the target's hex). It is within these hexes that the spatial rift has been generated, and during the next turn only they are filled with a hyperspace waveform (see Section 12.5). This includes the hex of the firing unit and the target unit. Note that this occurs whether the battle is in hyperspace, real space or any other dimension.

Vessels equipped with advanced armor suffer terrain effects and damage as stated, with all others taking double damage. All damage is scored in the gravitic category for purposes of adaptive armor. This weapon is not interceptable. It can be used to intercept all targeted weaponry (including all laser and other beam weapons). This specifically includes advanced race weapons such as the lightning cannon and molecular slicer beams.

8.9 Antimatter Weapons

Typically developed by more advanced races, these weapons are still used infrequently due to the inherent

dangers of dealing with antimatter.

Antimatter weapons score damage by causing an explosive interaction between the particles they fire and the normal matter that comprises their target. Thus, the better they can be trained on the target (i.e., the better the shot), the more damage they will score on the enemy. To resolve this, take the difference between the base to-hit roll and your actual roll and call this value "X". *For example, if you need a 10 or less to hit and roll a 7, X would be 3.* The value of X will then be defined in each weapon's damage formula, e.g., 2X+3 ("2X" represents 2 times X, and is always resolved before the addition part of the formula). Thus, if X were 3 as in the previous example, 2X+3 would yield 9 points of damage.

In any such formula, the minimum value of X is zero (representing the weakest hit from the weapon). Any value below zero is a miss and scores no damage, regardless of what the formula might indicate. Many weapons also list a maximum value of X, which does not mean anything higher is a miss, but that any higher value should be reduced to the listed maximum. *For example, if a weapon with a maximum X of 10 needs a 20 or less to hit (normally automatic, but a roll still needs to be made) and rolls a 1, X would normally be 19, but should be reduced to the maximum value of 10.* If a weapon does not list a maximum X, then there is no limit to its value.

Antimatter guns treat range penalties differently than normal weapons. Instead of doubling the range penalty, they double the range itself. *For example, an antimatter cannon firing from range 6 without a lock-on treats this as range 12.* This applies to all antimatter guns unless otherwise noted in their descriptions.

Antimatter weapons use a different critical hit chart. See the critical hits (Section 7.4.4) for more information.

8.9.1 Antimatter Converter

Modes: Flash

Antimatter Converter
Class: Antimatter
Modes: Flash
Damage: (4 x X) + 2
Range Penalty: -1 per hex
Fire Control: +4/+4/-6
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

When this close-range weapon's beam locks onto a target, it converts some of the subatomic particles present in the hull into their antimatter equivalents, resulting in a powerful explosion.

As with most antimatter weapons, the better the to-hit roll, the more damage will be caused. Note that this weapon has no maximum "X" value, a considerable advantage.

8.9.2 Antimatter Cannon

Modes: Raking

Antimatter Cannon
Class: Antimatter
Modes: R, P
Damage: 2X+16
Maximum X: 20
Range Penalty: Special
Range 0-10: No Penalty
Range 11-20: -1 per hex
Range 21+: -2 per hex
Fire Control: +5/+3/-2
Intercept Rating: -1
Rate of Fire: 1 per 3 turns

This is the most common antimatter based heavy weapon, and is found several types of warships. Like most antimatter weapons, the cannon can score damage in a wide range, from very small amounts to huge volleys on a good roll.

This weapon has a range penalty of zero from range 0 through 10 hexes from its target, while it has a penalty of -1 per hex from ranges 11 through 20 and -2 per hex for each hex thereafter. *For example, if a shot is taken at range 22, the penalty would be - 14 to hit (-10 for the ten hexes from 11 to 20, and -4 for hexes 21 and 22).*

8.9.3 Antiproton Gun

Modes: Standard

Antiproton Gun
Class: Antimatter
Modes: Standard
Damage: 1X+12
Maximum X: 10
Range Penalty: Special
Range 0-5: No Penalty
Range 6-10: -1 per hex
Range 11+: -2 per hex
Fire Control: +3/+3/+2
Intercept Rating: -2
Rate of Fire: 1 per turn

These were the original antimatter weapons, until antimatter cannons were developed. They are now used as a secondary armament.

The antiproton gun uses a range calculation similar to

that of the antimatter cannon, but is shorter ranged. It has a range penalty of zero from range 0 through 5, -1 per hex from ranges 6 through 10, and -2 per hex thereafter.

8.9.4 Antiproton Defender

Modes: Standard

Some ships use a defensive version of the antiproton gun, which does less damage and has a decreased range, but is better against fighters and possesses a better interception mode. It is also a somewhat smaller weapon, allowing it to be mounted in greater numbers on defense-oriented ships like escorts and traders. The icon for the defensive version is recognizable by its smaller size (half that of a normal antiproton gun).

Antiproton Defender
Class: Antimatter
Modes: Standard
Damage: 1X+8
Maximum X: 10
Range Penalty: Special
Range 0-3: No Penalty
Range 4-6: -1 per hex
Range 7+: -2 per hex
Fire Control: +2/+2/+4
Intercept Rating: -3
Rate of Fire: 1 per turn

8.9.5 Antimatter Shredder

Modes: Standard

This is the ultimate in antimatter technology, and is a relatively recent development. The weapon is devastatingly powerful, especially to large numbers of fighters.

The shredder carpets an area with a rain of antimatter bolts, each fired from a ring of 15 separate antimatter mini-cannons linked together (think of a huge antimatter Gatling gun). To use it, the firing player selects a hex anywhere within the shredder's firing arc at a range of at least one hex away from the firing ship. Every unit (even friendly units) within that hex, or any of the surrounding hexes, has a chance to be hit by the resulting rain of antimatter bolts. Note: The surrounding hexes must also be within the shredder's firing arc; if not, objects within them cannot be affected. The shredder can affect units in the firing ship's hex (which is always considered to be in arc of the weapon), but will never affect the firing unit itself.

Antimatter Shredder
Class: Antimatter
Modes: Standard
Damage: 2X+6
Maximum X: 10
Range Penalty: 0 (Max Rng 10)
Fire Control: +0/+0/+0
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Notes: Ignores EW & Jinking
Attacks on Ftr/Shtl/Mine: 1
Attacks on Med/Hvy Ships: 1d3
Attacks on Cap Ships: 1d6
Attacks on Enormous: 1d6+3

The shredder must roll to hit each unit in the affected zone (using the normal rules for weapons fire). If fired into a flight, it rolls once against each fighter, not the flight as a whole. Mines, fighters and shuttles can be hit at most once by any shredder shot, while medium ships and heavy combat vessels can be hit 1d3 times, capital ships 1d6 times, and enormous units 1d6+3 times. There is no limit, other than the size and quantity of units in the affected zone, to how many attacks the shredder can make in a single blast. However, shredders are NOT cumulative, so if multiple shredders overlap a given hex, only one (determined randomly) may attack.

Once the number of actual attacks is determined, the shredder rolls to hit using the standard procedure, except that it ignores all EW (offensive, defensive, ELINT, etc.) and jinking. Jammers, stealth, and other "masking" technologies do not affect this weapon. The range penalty is determined by figuring the range from the firing ship to the original target hex, not the target unit's actual location. If the shredder hits a target, it calculates its damage like any other antimatter weapon would (i.e., using the shredder's damage formula).

Antimatter shredders affect ships, fighters, shuttles, bases, mines, fixed jump gates, or any other similar unit. They have no appreciable effect on planets, asteroids, or other terrain types, unless otherwise specified by scenario or terrain rules.

Cannon Mode: For long-range use, shredders are equipped with an extractable gun emplacement, or barrel, which allows the antimatter bolts to be combined into a directed beam. This allows the gun to operate exactly as an antimatter cannon. The decision to switch to this mode is done in the Fire Determination Step of the Combat Sequence, and is announced with the rest of your weapons fire. The firing arc of the gun is not altered. Switching between shredder and cannon mode does not affect or alter the rate of fire of the weapon.

Antimatter Shredder Example

A shredder fires into hex 0723. There is a destroyer

in 0722, three fighters in 0824, and a cruiser in 0623, all of which are within the affected zone. The destroyer is a heavy combat vessel, and thus can be hit 1d3 times by the shredder (the firing player rolls a 2) and the cruiser, a capital ship, has the potential of 1d6 hits (the attacker rolls a 5). Thus, the shredder may make one attack on each fighter, 2 attacks on the destroyer, and 5 attacks on the cruiser.

8.9.6 Antimatter Slicer

Modes: Raking (20), Piercing

Antimatter Slicer
Class: Antimatter
Modes: R(20), P
Damage: 4X+20
Maximum X: none
Range Penalty: Special
Range 0-15: No penalty
Range 16-30: -1 per hex
Range 31+: -2 per hex
Fire Control: +5/+4/+0
Intercept Rating: -3
Rate of Fire: 1 per 2 turns

This weapon is constructed to fire a tight stream of antiprotons at its target, tearing matter apart at the atomic level. The more accurate the hit, the deadlier the shot becomes.

The weapon scores 4X+20 damage in raking (20) or piercing mode. Due to the massive power reserves available to ships fielding this weapon, there is no maximum X. A missed shot (i.e., negative values of X) scores no damage.

There is no range penalty for shots taken within 15 hexes. From hexes 16-30, there is a -1 per hex penalty, and for hexes 31 and above there is a -2 per hex penalty.

8.9.7 Antimatter Wave

Modes: Flash

Antimatter Wave
Class: Antimatter
Modes: Flash
Damage: 5X+10
Maximum X: 25
Range Penalty: -1 per 3
Fire Control: +5/+5/+5
Intercept Rating: n/a
Rate of Fire: 1 per turn

This weapon fires a massive ball of antiprotons at its target. The result of a hit causes segments on the target vessel to explode, damaging other vessels in the target's hex. The antimatter wave scores 5X+10 damage in flash mode. The X value is limited to 25 due to the finite anti-energy contained in the volley.

8.10 Ionic Weapons

The category that includes ion-based weapons is another dangerous one, as these devices use significant amounts of radiation during operation. Thus, while they are considered somewhat low-tech, ionic weapons are generally avoided by most races. There are exceptions, particularly in the case of beings immune or resistant to radiation exposure. Some ion weapons provide exceptions, but these are so well-shielded or contained in other forms that they are effectively another weapon type altogether. The ion torpedo, for example, is actually considered a ballistic weapon for all relevant rules. The primary advantage of ship-mounted ionic weapons is their rate of fire, which is usually faster than most comparable weapons in a similar class. However, they tend to score lower amounts of damage, so a race employing ionic weapons must keep up a constant barrage on the enemy in order to ensure victory.

8.10.1 Ion Bolt

Modes: Standard

Ion Bolt
Class: Ionic
Damage: 3d6
Range Penalty: -1 per hex
Fire Control: +0/+0/-4
Rate of Fire: 1 per 2 turns
Intercept Rating: n/a

This fighter-mounted heavy weapon produces a significant amount of radiation, a problem the typically solved by mounting the device well to the rear of the fighter and away from the pilot. The gun must be shut down before the fighter lands and is never activated aboard ship, but these issues can be safely ignored for game play purposes.

The ion bolt also tends to draw a great deal of power on the turn it fires. For this reason, any fighter mounting this device cannot use any other energy-based weapons (such as its light guns) on the same turn the ion bolt is fired.

8.10.2 Ion Cannon

Modes: Standard

Ion Cannon
Class: Ion
Modes: Raking
Damage: 2d10+10
Range Penalty: -1 per 4 hexes
Fire Control: +2/+2/+0
Intercept Rating: -1
Rate of Fire: 1 per 2 turns

Though not particularly powerful, the blast of energy this weapon fires can be generated quickly, and fired at relatively long ranges. Its main disadvantage is the amount of radiation it produces, forcing it to be heavily shielded to protect the crew (meaning it takes up a great deal of space on the ship).

8.10.3 Dual Ion Bolter

Modes: Standard

Dual Ion Bolter
Class: Ion
Modes: Standard
Damage: 8
Range Penalty: -1 per hex
Fire Control: +2/+2/+2
Intercept Rating: -2
Rate of Fire: 2 per turn

This is an ionic version of the light bolter mounted on a dual housing. It is not particularly powerful, but can fire twice per turn, making it effective in combat. When it fires, both shots must be at the same target (and if it hits a flight, both bolts hit the same fighter), though each is a separate volley and rolls to-hit and location separately.

8.10.4 Radiation Cannon

Modes: Standard

Rad Cannon
Class: Ion
Modes: Special
Dmg vs Structure: 10
Dmg vs Wpn/Thruster: 100%
Dmg vs Other: See rules
Range Penalty: -1 per 2 hexes
Fire Control: +3/+2/--
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

The radiation cannon (usually just called the **rad cannon**) is a specialized device built to take advantage of most races' susceptibility to radiation. Though it scores little physical damage, the rad cannon can render portions of a ship unusable for the remainder of a scenario. The weapon does not affect the ships of the more advanced races.

If the target ship is defended by a shield, mark the shield icon destroyed and do not roll for hit location. If this was a gravitic shield, reduce the shield generator's capacity by 1 for the remainder of the scenario.

If the target is defended by an energy diffuser tendril, mark as filled the tendril with the highest unused capacity. That tendril cannot diffuse any further energy for the remainder of the scenario.

If the weapon hits structure, mark 10 boxes destroyed, ignoring armor. Any overkill is lost. If the rad cannon hits a weapon, thruster, or jump drive, mark that system entirely destroyed. If a sensor array is hit, reduce the rating by 1 point at the end of the turn, during the Critical Hits step of the Combat Sequence.

If an engine is hit, reduce the rating by 2 points at the end of the turn as above.

If the C&C is hit, score no damage but roll a critical hit at the end of the turn, with a +2 bonus in addition to any other bonuses from previous damage.

The rad cannon has no effect on any other system. Its effects do not cause critical hits except as noted above.

Damage caused by the rad cannon is relatively easy to repair, as most of it is just requires a radiation cleanup. In a campaign or multi-part scenario, all rad cannon damage may be repaired for free after the scenario is over, unless the item in question was attached to a structure block that was destroyed.

Tactical Note: Since you can select the order in which your weapon fire is resolved, always us a rad cannon first.

8.10.5 Ionic Laser

Modes: Raking

Ionic Laser
Class: Ion+Laser
Modes: Raking
Damage: 3d10+8
Range Penalty: -1 per 2 hexes
Fire Control: +3/+2/-3
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

This device is an attempt to combine the assault laser with an ion cannon. The result is a powerful beam weapon that follows a carrier wave towards its target. The wave oscillates on a resonance frequency, doubling what would otherwise be a relatively weak laser effect. The result is a random quantity of damage that is determined and then doubled, as shown on the ionic laser's weapons chart.

This is an ion weapon that scores damage in raking mode. It is considered ionic for adaptive armor purposes, but is treated as a laser weapon for purposes of defensive fire (i.e., it cannot fire defensively, nor can it operate in that mode). Like any laser, it cannot be intercepted.

8.10.6 Ionizer

Modes: Standard

Ionizer
Number of Guns: 2 (Linked)
Class: Ionic (laser)
Damage: 2d3+2
Range Penalty: -2 per hex
Fire Control: n/a
Rate of Fire: Once per turn

This is a fighter-mounted version of the ionic laser. It is capable of scoring a great deal of damage on a good hit, a fact many races put to use on their many fighters.

8.10.7 Ion Field Generator

Modes: Proximity

Ion Field Generator
Class: Ion
Modes: Special
Effect: See Rules
Range: 35 hexes
Fire Control: n/a
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

This weapon is fired at a hex, not a unit. It is a proximity device similar to an energy mine, but does not scatter. Upon detonating, the device explodes into a cloud of charged ions that produce an effect similar to that of a weak electromagnetic storm. The cloud occupies the target hex and all hexes within 2 of that point (a total of 19 hexes). While a single cloud may not seem to be all that useful, several such launchers can create an extremely wide zone of coverage on the map. All units caught in the area suffer the following effects:

(1) All ships temporarily lose 2 points from their sensor ratings and all fighters lose 1 point from their offensive bonus. In the case of ships, the owning player chooses which of his allocated sensor points are lost.

(2) All ships suffer a single "attack" by the field. This attack is rolled against the side facing the center hex of the field. If a weapon is hit, that weapon is deactivated by the field's effects and cannot be used until it is recharged (treat the current turn as the last turn of firing for rate of fire purposes). If a non-weapon system is hit, there is no effect.

(3) On the next turn, all units in the field suffer a -3 penalty to their initiative.

(4) On the next turn, all medium ships and LCVs lose 1 point of power, while HCVs and larger lose 2 points of power.

None of the above affect bases, mines, or OSATs. Overlapping ion fields are not cumulative and do not earn multiple attacks.

8.11 Ballistic Weapons

Ballistic weapons are those that are launched at a target early on in the turn, then roll to-hit after movement is completed. See the complete Combat Sequence in the Appendix for the precise timing of launch. Note that players are required to determine ballistic launch at the same time as EW (near the beginning of the combat turn). In this way, a player cannot wait to find out which enemy units didn't use defensive EW, and then overwhelm them with a missile salvo.

There are three basic types of ballistic weapons: missiles, torpedoes, and proximity weapons. Missiles are just what you'd expect—a warhead with a rocket attached to the back. While they have some advantages (typically in their self-guidance abilities), they are large and cumbersome, and require significant logistical support. Torpedoes are more advanced devices, often energy-based, created by their launcher and guided to the target by the ship that fires them. Proximity weapons are similar to torpedoes, but are targeted at a location, not a specific unit. Upon arrival at their destination, they either explode (causing damage to any unit in range) or deliver other effects to nearby targets.

All ballistic weapons are assigned a target when launched (sometimes this target must be announced, as is the case with missiles and ballistic torpedoes; other times it is secret, e.g., energy mines). The target cannot be changed after launch. The target is always a specific unit, except proximity weapons, which target a hex on the map. The launching player must announce which launcher fired the weapon (and, in the case of weapons that can fire multiple times, the quantity of warheads fired), but need not announce any other specific data. *For example, the player does not have to reveal which type of missile his rack just launched until it actually impacts.* The type must, however, be recorded at the time of launch, and cannot be changed afterward. If the weapon misses, the warhead type need not be revealed until the scenario is over (unless noted otherwise in the warhead's specific rules).

When a ballistic weapon is launched, place a counter on the table to mark the firing position. It is from this location that the range and firing directions will be determined. Note that the weapon must have line-of-sight to be launched at a target, but need not maintain it thereafter. If the target disengages from the scenario, however, the ballistic shot will miss. The weapon can also be voluntarily ordered to miss (in effect, self-destructed in flight) as a safety precaution, an option that may be useful in some situations.

Ballistic weapons usually have no range penalties,

although they do have a maximum launch range, which limits their distance when fired, and a distance range that determines the maximum number of hexes they can travel during the turn. Unless otherwise stated, these ranges are the same. *Thus, for example, a ballistic torpedo can be launched from no farther than 25 hexes from its target, and can travel no more than 25 hexes to its target without automatically missing.* Some weapons, however, have an extended distance range—most missiles, for example, have a distance range equal to three times their launch range. Unless noted otherwise, the value shown on the weapon datacard is the same for both ranges.

Ballistic weapons roll to hit during the Weapons Fire Step (after movement). In fact, they have a significant advantage in that they roll to-hit and score damage before any other weapons fire is exchanged during the turn. This, combined with the fact that the firing ship doesn't have to expose itself to an enemy, is the primary benefit of a ballistic weapon.

Ballistic weapons are usually long-range devices that have few, if any, range penalties. Their main disadvantage is a vulnerability to defensive fire. If fired at a unit, that unit can use any number of defensive weapons against a ballistic shot without any degradation in effectiveness. See Section 5.2.3 for more information on this.

8.11.1 Missiles

Missiles are simple, self-guided devices that home in on a target in order to deliver their warhead (or other payload). Because they use built-in optical systems, they do not benefit from the launching ship's EW, but use their own "offensive rating" instead. All missiles (unless stated otherwise), including those launched from fighters, have an offensive rating of +3. This represents the guidance system found in the missile itself. Note that this applies to the Basic Missile and any newer devices—older missiles may have a lesser rating (or no rating at all), and if so, this will be mentioned in their descriptions. Some special missiles may have a further bonus against certain units, e.g., the antifighter missile has a bonus to its offensive rating when used against fighters.

All missiles, unless noted otherwise, have a distance range equal to three times their launch range. *For example, the basic missile has a listed range of 20. This means the target must be within 20 hexes at the time of launch, but can be up to 60 hexes away when the missile impacts.* Some racks alter the range of missiles they fire, but this is applied after the tripling factor is calculated. For example, the Class-L long-range rack adds +10 to the range, so a basic missile fired from such a rack would have a launch range of 30 hexes and a distance range of 70 hexes.

8.11.2 Fighter-Launched Missiles

A fighter may apply its offensive bonus (in addition to the normal +3 bonus noted above) so long as it keeps the target in arc, maintains line-of-sight, and does not fire any other weapons on that turn. A navigator can remove the arc and weapons fire restrictions, but does not alleviate the LOS requirement. Note that fighters do not use the flight level system when launching ballistic weapons, but treat each such device as a totally independent launch for all rules. This is described further in the Flight Level Combat rules (Section 6).

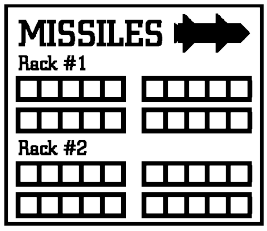
8.11.3 Missile Racks

Missiles are launched from special racks that must be able to "see" the target (thus, they have a firing arc just like any other weapon). Missile racks generate a number of benefits and penalties, as described below:

Guidance: Extended guidance from missile racks can also help the missile reach its target, as represented by a built-in fire control rating. This rating is used by any missile launched by the rack, in addition to the built-in offensive EW (Section 8.11.1). However, the fire control rating applies only if the launching unit has line-of-sight to the target at the time of impact (i.e., after movement, when the missile actually rolls to hit). Thus, a defender can duck behind handy asteroids or enormous units to try to throw off-a missile. Similarly, if the launching ship is destroyed or leaves the scenario before impact (perhaps it is lost to a ramming attack, or enters a jump gate), the rack's benefit cannot be used. The rack does

not need to be in arc of the target to provide its fire control bonus.

Ammunition: Missiles come in a limited supply. A missile rack typically carries 20 missiles when full (this number may vary, depending on missile rack type). As each missile is launched, check off a box on the track provided on the control sheet, and when the rack is empty, no more missiles can be used. Missiles cannot be transferred between racks during a scenario. Note that during a typical game, you won't be able to use all 20 missiles, but this could have meaning in a campaign or series of interconnected battles. Some scenarios might also specify that one or more racks are empty or partially empty. Also, players may voluntarily use fewer missiles if desired, but this must be declared at the start of the scenario (it can be kept secret, but should be recorded somewhere to be revealed when necessary).



In typical scenarios, basic missiles don't cost any Combat Points to buy. Assume the rack is full at no cost (unless special missiles are used, or the player voluntarily lowers the number of missiles). However, in a campaign, filling a rack may require some expense for missile construction, as well as the logistics of supply.

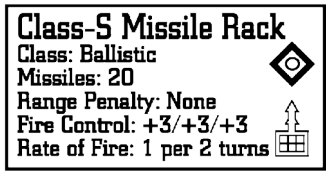
Criticals: If a missile rack takes damage or is destroyed, the missiles it contains are usually unaffected (they are stored in a protected magazine). However, because of this magazine, missile racks are subject to a special critical hit. Use the usual weapon critical chart—even if the rack has been destroyed during the turn—but if a natural 20 (that is, a 20 unmodified by any bonuses or penalties) is rolled on the die, the rack's magazine has been hit and the detonators explode in a chain reaction. This has the following effects. First, count the number of missiles still in the rack, multiply this by their warhead strength (20 for basic missiles), and divide by 4. This determines the magazine potential of the explosion. Next, mark the rack (and all its missiles) destroyed. Then, apply the magazine potential as a raking volley against the side of the ship that supported the missile rack. Normal armor will affect this damage normally, but shields and the adaptive portion of adaptive armor won't apply. *Example: A corvette takes a hit on its port side missile rack and a natural 20 is scored as its critical hit. There are 12 missiles still in the rack, all of them basic missiles, with a conglomerate warhead strength of 240. The missile rack and all its miles would be immediately be marked destroyed. The magazine potential is 60 points (one-fourth of 240), resulting in one raking volley consisting of six 10-point sub-volleys, all scored against the port side.*

Example of Missile Fire

A corvette launches a basic missile at a nearby cruiser. The cruiser is 14 hexes away at the moment of launch (before movement on that turn), so it is well within the 20 hex range of the basic missile. Since the distance range is triple this value, the cruiser would have to get to range 61 to force an automatic miss, so it doesn't even try. Since the cruiser's forward profile is only 16 compared to a side defensive rating of 17, the cruiser player turns his ship to face the launch hex in order to present his best face towards the missile. In addition, he fires four forward twin array shots in defensive mode at the incoming warhead. Thus, the missile requires a base to-hit roll of 16, less 8 for the intercept fire (there is no intercept degradation against ballistic weapons), or 8 (unfortunately, the cruiser was running no defensive EW). The corvette maneuvered to keep line-of-sight on the cruiser, so he can provide his rack's fire control bonus of +3, in addition to the missile's built-in +3, raising the required to-hit number to 14 or less on a d20. If he hits, the missile scores 20 points of standard mode damage.

8.11.3.1 Class-S Missile Rack

Modes: Varies By Missile



Missile racks are found mainly on older and less advanced ship classes, as more modern vessels tend to eschew them in favor of energy-based guns that don't require constant rearming. They come in

several types, one of which is the Class-S rack shown here. Class-S missile racks can launch one missile every other turn. This uses the ballistic weapons procedure as defined earlier in these rules. The range of a missile is dependent on the missile type (as listed hereafter).

8.11.3.1.1 Class-SO Missile Rack

Modes: Varies By Missile

Class-SO Missile Rack
Class: Ballistic
Missiles: 12
Range Penalty: None
Fire Control: +2/+2/+2
Rate of Fire: 1 per 2 turns

This missile rack is an older, slightly cheaper version of the Class-S. The main difference between the two systems is that the Class-SO holds only twelve missiles, not twenty.

8.11.3.2 Class-L Missile Rack

Modes: Varies By Missile

Class-L Missile Rack
Class: Ballistic
Missiles: 20
Range Penalty: None (+10)
Fire Control: +3/+3/+3
Rate of Fire: 1 per 2 turns

A long-range rack, this is equipped with a special targeting booster array that increases the range of any missiles it fires by 10 hexes. Racks of this type were expensive, and usually appeared only on specialty ships designed for them (such as missile cruisers).

8.11.3.2.1 Class-LL Missile Rack

Triad Missile Rack
Class: Ballistic
Missiles: 5
Range Penalty: None (x2)
Fire Control: +5/+5/+3
Rate of Fire: 1 per turn
Special: If 6 power applied, the rack does not use up a missile. See rules.

A variant of the Class-L sometimes referred to as a "triad rack," this rack doubles the former's range. The main limitation of this variant is the reduced inventory: only 5 missiles. It is possible to remove this limitation by applying 6 power to the system, which causes the rack to produce a basic missile ready for firing. This missile must be used in the current turn; it may not be used to fill up a depleted space in the missile rack.

8.11.3.3 Class-R Missile Rack

Modes: Varies By Missile

Class-R Missile Rack
Class: Ballistic
Missiles: 20
Range Penalty: None
Fire Control: +3/+3/+3
Rate of Fire: 1 per turn

The "rapid-fire" rack has two missile tubes instead of one, and can fire up to one missile per turn instead of one every other turn. Two missiles in a single turn is not possible due to the alternating nature of the rack.

The main disadvantage of the class-R rack is an increased vulnerability to magazine hits (due to the double connection to the magazine itself). Magazine criticals are scored against this rack on a natural "19" or "20."

8.11.3.4 Class-A Missile Rack

Modes: Standard

Class-A Missile Rack
Class: Ballistic
Missiles: 20
Range Penalty: None
Fire Control: +0/+0/+4
Rate of Fire: 1 per turn
(antifighter missiles only)

This is a specialized missile rack designed to launch antifighter missiles rapidly—it can fire one each turn. It may not, however, use any other type of missile.

Class-A racks hold 20 missiles, just like class-S racks. The cost of ships equipped with class-A racks includes a full load of type-A missiles — (though the player can voluntarily lower this if desired), although in a campaign, any replacements would have to be paid for at the normal price.

The Class-A rack, like the Class-R, is slightly more vulnerable to magazine criticals due to the nature of its ordnance linkages. Magazine criticals occur on a natural 19 or 20 against this sort of rack. Otherwise, use the normal missile rack critical hit chart.

8.11.3.5 Class-B Missile Rack

Modes: Varies By Missile

Class-B Missile Rack
Class: Ballistic
Missiles: 60
Range Penalty: None (+10)
Fire Control: +3/+3/+3
Rate of Fire: 1 per turn

This rack was designed for use on bases or OSATs, and to last through very long battles. It is capable of firing one missile per turn (like the class-R rack)

holds sixty missiles in its magazine, and does not suffer from magazine critical hits (due to the depth and strength of the armor surrounding it). Due to improved tracking abilities, any missile launched from a class-B rack has its usual maximum range increased by 10 hexes (just like the class-L rack).

8.11.3.6 Class-F Missile Rack

Modes: Varies By Missile

Class-F Missile Rack
Class: Ballistic
Missiles: 10
Range Penalty: None
Fire Control: +3/+3/+3
Rate of Fire: Varies
Can fire as a class-S, class-L, or class-R rack.

This rack type is referred to as the Class-F because of its flexibility. This rack can fire in any of three modes: standard, rapid-fire, or long-range mode.

In standard mode, the Class-F rack fires as listed on the control sheet, using the listed fire control and launching one missile every other turn. Unless the player states otherwise, this is the assumed firing mode of the rack.

Rapid-fire mode allows the rack to launch a missile every turn, if desired. If the rack launches a missile on a turn where it would normally be inactive, it is working in rapid-fire mode. Using this mode, however, reduces the ranges of all missiles by 5 hexes and lowers the fire control by 2 against all targets.

Finally, long-range mode adds 15 hexes to the range of any missile (so a basic missile could be launched at a target up to 35 hexes away). The player is assumed to be using this mode if his target is beyond the missile's normal range. There is, however, a penalty of -2 on all fire control ratings under this mode, and the rack is not permitted to fire on the next turn (i.e., it cannot choose to use rapid-fire mode the turn after using long-range mode). It should also be noted that rapid-fire and long-range mode cannot be combined, so if you used the rack on one turn (in any mode), you could not follow with long-range fire on the very next turn.

Note that the Class-F rack holds fewer missiles than most other racks, sacrificing magazine capability in the name of flexibility.

8.11.3.7 Class-D Missile Rack

Modes: Varies By Missile

Class-D Missile Rack
Class: Ballistic
Missiles: 20
Range Penalty: None
Fire Control: +3/+3/+3
Rate of Fire: 1 per turn
Special: Fires only missiles of types A, C, I, or Z.

The Class-D rack is an example of highly specialized missile technology. Its purpose is solely to act in defense of the ship, and as such it cannot launch any of the larger types of missiles. It is, however, capable of rapid-fire operations.

The Class-D rack can launch one missile per turn, but can only launch the following types: antifighter, antimine, antimissile, or chaff. Of these, antifighter and chaff missiles are well known. The other two are expanded upon below.

8.11.3.8 Reload Rack

This system, which appears only on a few missile-dependent ship types, is designed to provide extra missiles without a need for restocking during a long-term campaign. Each reload rack on the ship holds up to 80 missiles, which can be of the special types listed hereafter (though each must be purchased separately). If no special ones are purchased, basic missiles are assumed. In a campaign or series of interconnected scenarios, the use of each should be tracked until reloads arrive.

During a turn, a reload rack can move at most one of its missiles (even large ones) into a missile rack, or it can take one out of a missile rack and into its own storage space (assuming there is enough room). The missile rack in question cannot be used on that turn, though this does not count as "deactivation" for purposes of launch rates. The missile transfer is recorded at the start of the turn, during the Power Allocation Step of the Combat Sequence, and the missile remains in its current position (for purposes of magazine criticals) until the Repair/Adjustment Segment at the end of the turn.

Note that reload racks can be used to move missiles out of the magazines of destroyed missile launchers (assuming those magazines survived). Ships without reload racks to use as intermediaries cannot transfer missiles between

magazines during a scenario.

Reload racks are subject to the same special magazine critical (the natural 20 roll) of a missile rack, but do not suffer any other criticals. Note that since the reload rack almost always appears in the primary section of the ship, such a critical hit will be catastrophic.

8.11.4 Missile Types for Ships

The various types of missiles available are listed in this section. These types have a single letter identifier that can be written in the missile track on the ship control sheet. As each missile is launched, simply check it off on this track.

Standard (basic) missiles are the default type and are used unless otherwise noted. The special missiles listed below replace basic missiles in any type of rack, except as noted otherwise. Some of them replace more than one basic missile. If a rack holds several different types of missiles, it can fire any of them (player's choice) during a turn-there is no need to record their order in the rack's magazine. This is due to the special rotary delivery system used by most modern racks.

Note that there is an added Combat Point cost (shown in Table 7) for using any of these missiles. These missiles cannot be carried on fighters, only in missile racks. Each special missile must be purchased and tracked separately in any campaign, as replacements for them are not free.

Basic Missile (B): This is the standard missile. Unless otherwise specified, racks are filled with this type.

Flash Missile (F): This missile scores the same damage as a normal missile, but does so in flash mode.

Table 7: Missile Summary Chart

Class	Cost	Surcharge	Warhead	Range	Available	Special
B	0	0	20	20	—	Basic ship missile
F	6	0	20	20	+64	Flash
H	4	0	30	10	+60	+3 to hit fighters
A	4	0	15	15	+66	+3 to hit fighters
L	6	0	15	30	+60	—
P	16	0	30	20	+79	Piercing
X	6	0	0(20)	30	+83	Disrupts Sensors
M	24	0	10 each	15	+91	Up to six shots
C	4	0	0	20	+65	Target has -3 to hit
D	8	0	12	15	+13	—
Z	5	2	15	20	+83/+84	+3 to hit mines
I	0	2	N/A	N/A	+85/+98	Interceptor
K	20	10	10	15	+95/+99	Subminitions
S	5	0	20	20	+87	Secret announcement
J	8	0	2 EW	15	+74	2 points ELINT
G	12	—	20	20	+82/—	Repeated hit attempts
KK	8	—	18	15/-1	-189/—	Matter damage
FB	8	0	8	10	—	Basic fighter missile
FD	8	2	6	10	+56/+80	Target +6 to dropout
FL	10	2	8	15	+61/+80	—
FH	10	2	15	5	+61/+80	-2 to hit < LCV

Available: *indicates the number of years after the introduction of the basic missile (B) that a particular missile type becomes available (to developing race / to other races). Availabilities without a / are available simultaneously; the G and KK missiles are only available to the developing race(s).*
Surcharge: *additional cost for races other than the missile developer.*

Missiles of this type are excellent against flights of fighters, as the flash explosion scores collateral damage against all other fighters in the flight.

Heavy Missile (H): These missiles trade propulsion systems for an enlarged warhead. They are so short-ranged as to be all but useless in battle, though ships with class-L racks find them quite powerful. If used on a fighter-sized target (including super-heavy fighters), they suffer a penalty of -3 to hit.

Anti-Fighter Missile (A): These were equipped with a special fire control system allowing them better shots at enemy fighters (+3 to hit). Though their range is somewhat decreased over a basic missile, this was not seen as a disadvantage considering the usual engagement ranges used by fighter flights.

Long-Range Missile (L): The opposite of a heavy missile, these trade warhead strength for increased propulsion. Coupled with a class-L rack, long-range missiles can be launched at targets at ranges almost equaling those of ion torpedo or energy mine.

Piercing Missile (P): These were developed specifically for the purpose of damaging or destroying jammers and other critical systems within the primary hull. The theory is to deliver a shaped charge that penetrated the outer structure and score at least some damage against a primary system (hopefully the jammer). Unfortunately, their cost exceeds their usefulness in battle.

HARM Missile (X): These special missiles are designed to follow an active lock back to the enemy, then produce a blast of interference that disrupts the ship's sensors. These missiles have a bonus of + 1 to hit for every point of offensive EW the target is using against the firing ship. If the missile explodes, roll 1d6. This represents the amount the target's sensors should be reduced on the coming turn. Multiple HARM missiles are cumulative, although no sensor array can be reduced below zero in any turn (excess does not carryover to future turns, but is lost). Although HARM missiles score no actual damage, they are treated as having a warhead strength of 20 points for purposes of magazine criticals. HARM missiles do not affect shuttles or fighters.

Multiwarhead Missile (M): This special missile is designed to take down incoming fighter flights. It must be targeted on a fighter flight in order to function. Upon launch, it splits into six sub munitions, which will each engage a separate fighter (if there are fewer than 6 fighters in the flight, excess sub munitions are lost). Each sub munition rolls to hit and scores damage separately. Because it bursts immediately, the fact that a given missile is of type-M is obvious and must be announced. Multiwarhead missiles take up two missile spaces in any rack, and count as 60 points for purposes of magazine criticals.

Chaff Missile (C): This specialized missile does no damage to the target, but instead creates a thick cloud of metallic particles in front of the enemy unit's gun ports. Any non-ballistic weapons fire from that unit at any target on the same turn is reduced by the chaff missile's intercept rating of -3. After that turn is over, the chaff disperses and has no further effect. Multiple chaff missiles from the same unit at the same target are not cumulative. Chaff missiles count as having a warhead strength of 0 points for purposes of magazine criticals.

Light Missiles (D): This missile was designed specifically to home in on known or unknown enemy mines. The missile can be targeted at either a mine or a hex thought to contain one. If targeted at a mine, it has a +3 bonus (in addition to all other benefits) to score a hit. If targeted at a hex, it sends out a sensor pulse as it approaches that hex, and automatically targets the nearest mine that is no farther than 3 hexes away from that point. The missile does not get the +3 bonus noted above, having expended that benefit in activating the sensor pulse. The mine-owning player is not required to reveal any mines other than the one actually targeted (if none is present, he must announce this fact, and the missile burns out harmlessly). If the missile misses the resulting target, only the fact that a mine is present there is known; no statistics on it are actually gained.

It should be noted that this missile only functions if ballistic mines have already been deployed. On the turn the ballistic mine is launched, an antimine missile will not be able to target it.

Antimine Missile (Z): This missile was designed specifically to home in on known or unknown enemy mines. The missile can be targeted at either a mine or a hex thought to contain one. If targeted at a mine, it has a +3 bonus (in addition to all other benefits) to score a hit. If targeted at a hex, it sends out a sensor pulse as it approaches that hex, and automatically targets the nearest mine that is no farther than 3 hexes away from that point. The missile does not get the +3 bonus noted above, having expended that benefit in activating the sensor pulse. The mine-owning player is not required to reveal any mines other than the one actually targeted (if none is present, he must announce this fact, and the missile burns out harmlessly). If the missile misses the resulting target, only the fact that a mine is present there is known; no statistics on it are actually gained.

It should be noted that this missile only functions if ballistic mines have already been deployed. On the turn the ballistic mine is launched, an antimine missile will not be able to target it.

Antimissile Missile (I): This missile (also referred to as the interceptor missile) is designed to defend a ship against an incoming missile or other ballistic weapon. It cannot be used against proximity weapons, only ballistic types. It cannot affect ballistic weapons targeted on a unit other than itself.

The moment a ballistic weapon is launched at a ship, the owning player can elect to launch an antimissile missile at it (assuming his rack is eligible to fire on that turn). He cannot make this decision later in the Combat Sequence, but must do so immediately. If the rack has already launched another missile type, he cannot rescind this order, but must go with his original plan. Thus, when antimissile missiles are present, players are required to write down their launch orders and reveal them simultaneously.

If the incoming ballistic weapon is not required to announce its target (e.g., a packet torpedo or stealth missile), the interceptor missile can be launched anyway. If the weapon then proves to be targeted on the defending ship, the antimissile
missile will be effective; otherwise, it will do nothing. If there is only one possible or logical target (such as a duel scenario), this is not as big a gamble as it may appear.

Should the above conditions be met, the interceptor missile is treated as a defensive weapon firing with a -6 intercept rating. Several antimissile missiles can be combined with no degradation, just as any other weapon might be, and in sufficient quantities they can make incoming ballistic attacks completely useless.

Starburst Missile (K): This specialized missile is an expensive example of some races' mastery of missile technologies. It is a huge device, taking up two spaces in any missile rack and counting as 80 points of explosive force for magazine criticals.

The starburst missile is targeted on a single opponent like any other missile, but just before detonation it breaks up into as many as six submunitions, each of which then detonates individually. Sometimes not all of them explode at the same moment, and as a result are destroyed or swept away in the explosive force of their neighbors. Thus, the owner should roll 1d3+3 to see how many submunitions actually detonate. Each one scores the listed damage against the facing side of the target unit, resolved as a separate standard mode volley.

The main disadvantage of this powerful missile is its vulnerability to defensive fire. It is treated as only a single missile for purposes of rolling to hit. Thus, if it misses, all its submunitions also miss. Because of the burst effect, the opponent will always know if a missile that goes awry is actually of the starburst variety.

Stealth Missile (S): A variant of the basic missile, this has many of the same statistics but has one special feature that makes it unique: the firing player does not have to announce its target upon launch. This missile was developed in response to the Type-I antimissile missile, making that device difficult to employ in fleet actions. Nonetheless, it is rare, perhaps due to the expense required in hiding its sensor output when deployed. A given rack may not hold more than 2 type-S missiles at any time, and in a campaign, no more than 1/10th of all missiles purchased may be of this variety.

Jammer Missile (J): The Type-J missile was designed to operate as an impromptu defensive ELINT unit. It is a proximity weapon, launched at a hex instead of a ship or fighter. Use the proximity rules to handle launch of the jammer missile, except that it does not scatter. Upon arriving in the target hex, it emits a burst of sensor static that produces the effect of 2 points of blanket ELINT protection for all units (even enemy units) within 5 hexes in all directions. Note that this cannot be combined with other blanket protection effects from nearby scouts or other jammer missiles.

The jammer missile is very expensive, and since it burns out at the end of the turn it is used, its utility is limited. However, a fleet without a scout may find these a cheap alternative to an expensive ELINT unit, even if bought in quantity.

Homing Missile (G): This unusual missile has the same combat statistics as the basic type, but costs 12 points and suffers the same availability restrictions as the stealth missile. The homing missile is equipped with advanced propulsion and tracking modules that permit it to remain in play even if it misses its target. It simply comes around for another pass on the next turn. The missile can continue to attack every turn (treating its target's previous location as its new launch hex for directional purposes) until it runs out of range or is shot down. The defending player does not know if a missile being used against him is a homing missile until it misses once and sticks around (it becomes obvious at that point when the propulsion systems don't shut down automatically).

To shoot down the missile, the defending unit must employ defensive fire sufficient to cause it to miss. If this happens, it is removed from play.(For example, a missile needs a 12 to hit before counting the intercept rating of defensive fire, which in this case is –4. If the die roll is 8 or less, the missile hits. If the roll is 9 though 12, the defensive fire has shot down the missile. If the roll is 13 or higher, it misses on this turn, but remains in play and can attack on the following turn.) Count all defensive fire from all sources when determining whether a missile is shot down, e.g., guardian arrays, class-I missiles, and so forth, but do not include passive defenses like shields or energy webs for this purpose.

The missile runs out of fuel if its total movement exceeds its distance range. Each time it misses, add the distance it has already traveled to the distance it must move to the target's new hex. If that ever exceeds the distance range, the missile is lost. *For example, if the launching ship is in 1501 and the target ends that turn in hex 1521, the missile will have traveled 20 hexes on that turn. If the target then moves to hex 1511, the missile has now moved a total of 30 hexes.*

Kinetic Missile (KK): The Kinetic, or Kinetic Kill (KK) missile, uses advanced tracking and maneuvering systems to literally ram their targets. The KK's advanced guidance systems allows it to potentially engage targets are greater ranges then the Basic Missile, but limitations on fuel for maneuvering cause it to become less accurate, suffer a -1 per hex to hit penalty beyond 15 hexes. While technically a ballistic weapon, the KK Missile scores damage as if it were a Matter weapon in standard mode.

8.11.5 Missile Types for Fighters

Most fighters use a standardized missile referred to as the basic fighter missile. This has a launch range of 10 (distance range 30) and scores 10 points of damage when it hits. Unless noted otherwise, fighter missiles cannot be used on ships, or vice versa.

Dropout Missile (FD): This is a fighter-launcher missile specifically designed to encourage enemy fighters to drop out. While it scores less damage than the Type-FB basic fighter missile, it forces any fighter it hits to suffer a +6 penalty on its dropout roll at the end of that turn (+3 for super-heavy fighters). The penalty does not remain more than a single turn, though it is cumulativewith other dropout penalties.

This missile has a -2 penalty to hit anything other than a fighter or shuttle. The dropout penalty has no effect on ships or units than fighters or shuttles.

Long-Range Fighter Missile (FL): This fighter-launched missile has an extended range, but scores slightly

less damage. It is the fighter equivalent to the Type-L missile used by ships. Its damage yield is so low it is rarely used on enemy vessels, only fighters and the occasional OSAT.

Heavy Fighter Missile (FH): This powerful missile has a limited range and suffers a -2 penalty to hit any unit smaller than a light combat vessel. However, it can score significant damage on such targets, and is a much greater threat than a basic fighter missile. No more than one missile on any fighter (two on a super-heavy fighter) can be of this type.

8.11.6 Torpedoes

Torpedoes are in many respects the basic ballistic weapon of AoG Wars. While missiles must be individually tracked (and can run out of ammunition during a scenario), this is usually not the case with torpedoes. Indeed, the launching ship can usually create its own torpedoes as needed, so it will never run out of ammo.

Torpedo weapons (ion torpedoes, packet torpedoes, etc.—basically anything with the word "torpedo" in its name) benefit from the offensive EW provided by the launching ship. They do not have the built-in +3 offensive EW that missiles use, but replace this with their ship's offensive EW, if any. While this is a disadvantage if the ship needs to go on the defensive, it also provides an opportunity to "paint" a target with maximum EW and all but guarantee a hit. When the range of the typical torpedo weapon is factored in, the combat effects of such weapons can be devastating. Only the fact that they can be intercepted with no degradation works against them.

Torpedo weapons also have fire control ratings, which operate exactly like those missile racks (i.e., it only functions if the launching ship can see the target at the time of impact. Fighter launched torpedoes operate like fighter-launched missiles, except they do not have the +3 bonus to hit. While this may seem to be a disadvantage, such weapons typically have a much greater range than fighterlaunched missiles.

Unless otherwise noted, the launch and distance ranges of torpedo weapons are identical.

8.11.6.1 Ion Torpedo

Modes: Standard

Ion Torpedo
Class: Particle
Modes: Standard
Damage: 15
Range Penalty: None
Max Range: 50 hexes
Fire Control: +3/+1/-4
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

While it uses an ionic core, the ion torpedo is treated as a ballistic weapon for all rules. It is the classic torpedo weapon-longranged, quick to arm, and scoring a fair amount of damage. Only the inherent radiation issues in the device's ionic makeup keep it from being more popular.

8.11.6.2 Light Ion Torpedo

Modes: Standard

Light Ion Torpedo
Cost: 8 Combat Points
Class: Ballistic
Damage: 10
Max Range: 20 hexes
Fire Control: n/a
Intercept Rating: n/a

The light ion torpedo is a fighter-mounted version of the ion torpedo system. Like the light ballistic torpedo, the primary advantage of this weapon is its range, but is limited by available ammunition. A carrier can reload just 1 torpedo per fighter per turn of hangar activities.

Light ion torpedoes are treated as fighterlaunched missiles for all rules, except that they don't gain a missile's inherent +3 bonus to hit.

8.11.6.3 Ballistic Torpedo

Modes: Standard

Ballistic Torpedo
Class: Ballistic
Modes: Standard
Damage: 2d10
Range Penalty: None
Max Range: 25 hexes
Fire Control: +4/+3/+0
Intercept Rating: n/a
Rate of Fire: 1 per turn
Special: Can hold up to six shots and fire them all at once or separately. See rules.

The ballistic torpedo fires an energy weapon housed in a metallic shell. It operates much like a missile, but because its warhead is created on demand by the energy weapon system, its ammunition does not need to be tracked (the shells can be stored by the hundreds with little difficulty). In addition, there is no magazine, so there is no risk of a catastrophic critical hit to the ship.

A ballistic torpedo launcher can hold up to six shots at once, and can launch any or all of them during any turn.

Each one must be fired at a different unit, however, unless using saturation mode (see below). Typically, the ship fires a spread at a cluster of enemy vessels or a flight of fighters. Against flights, the torpedoes will automatically select different fighters-the same fighter will never be hit by two torpedoes from the same launcher in the same turn, and if there aren't enough fighters in the flight, some of the torpedoes will miss.

As long as the weapon is powered and undestroyed, one ballistic torpedo will be created within it every turn (hence it is listed as having a ROF of 1 per turn). Thus, after six turns, an empty one will have been completely refilled. Once full, new torpedoes will not be generated until at least one of them has been launched and a "free slot" opens up. If the weapon is ever deactivated, all torpedoes within it are de-energized and lost. Unless otherwise noted, the weapon is considered fully armed (with six torpedoes) at the start of any scenario. As with most ballistic weapons, ballistic torpedoes are launched during the Movement Step of the Combat Sequence. Targets must be announced at this time.

Saturation Mode: When launched in this mode, some or all of the ballistic torpedoes in a given launcher are group-fired at a single enemy unit, usually a key ship in the opposing formation. The torpedoes all follow the same path, each slightly behind the other, in the same way as pulse cannon shots are fired. Thus, it should not be surprising that the saturation mode torpedo uses similar rules. To fire a ballistic torpedo in saturation mode, simply announce (at the time of launch) the number of warheads being used against the target. The resulting attack is resolved as a single die roll, treated as a normal ballistic torpedo shot, except that for every 4 points the to-hit roll is exceeded, one additional torpedo will hit (up to the number that were fired). When used against fighters, use the pulse rules to resolve the attack, although in most cases it is wiser to simply fire the ballistic torpedo in normal mode against such targets.

It is possible to fire groups of ballistic torpedoes against different targets in the same turn, up to the limit of how many warheads are available. For example, you could fire three shots against one target, two against a second unit, and one on a third. Any target that receives more than 1 torpedo from a single launcher uses the above saturation mode rules to resolve the attack. Note that it is *not* permitted to fire two or more separate salvoes against the same target in the same turn. If you fired two shots against a ship and two more against the same ship (from the same torpedo launcher), that would be one attack with four torpedoes, not two attacks with two each.

Saturation Mode Example

A frigate launches three ballistic torpedoes at an enemy cruiser. After factoring defense ratings, EW, and the like, the torpedoes need a 24 or less to hit (the cruiser was well-painted with EW). The cruiser player, realizing that the torpedoes can be intercepted with no degradation (since they are ballistic weapons), fires his forward twin arrays defensively against this attack. Each twin array shot gives a -2, reducing the chance to hit to 16 or less. If the attacking player rolls a 13-16, he will hit with one torpedo. If he rolls 9-12, he gets 2 hits, and 8 or less would earn 3 hits. Note that no matter how well he rolls, he cannot score better than 3 hits since he chose to only launch 3 warheads when he fired the weapon (and cannot change this decision now).

8.11.6.4 Light Ballistic Torpedo

Modes: Standard

Light Ballistic Torpedo
Cost: 8 Combat Points
Class: Ballistic
Damage: 2d6
Max Range: 25 hexes
Fire Control: n/a
Intercept Rating: n/a

This device is an attempt develop a non-missile ballistic weapon for use on fighters. It has the same range as a normal ballistic torpedo, but is not as powerful. Its primary advantage is an unusually long range for a fighter-mounted weapon, but like any ballistic device, its carriage is limited (see the individual fighter rules to find out how many can be used). A ship can reload 2 light ballistic torpedoes per fighter per turn of hangar bay activities.

Light ballistic torpedoes are treated as fighterlaunched missiles for all rules, including the need to keep the target in arc to benefit from the fighter's offensive bonus. They do not receive a missile's +3 to-hit bonus, however, but make up for

this deficiency with a longer range.

8.11.6.5 Packet Torpedo

Modes: Standard

This weapon is a kind of crossbreed between particle cannons and an ion torpedo. The device creates a packet of energy that "locks-onto" its target after firing.

Packet Torpedo
Class: Ballistic
Modes: Standard
Damage: 2d10+10
Range Penalty: -1 per 2 hexes after range 10
Fire Control: +3/+3/-6
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

The packet torpedo is a ballistic weapon that uses the normal ballistic rules, except that it has a range penalty. Its distance range and launch range are identical (a maximum of 50 hexes), but the range penalty is based on the distance range. If used against jammer-protected ships or ships without a lock-on, all appropriate effects apply (e.g., against a jammer, the launch range is halved and the range penalty is doubled).

The target of a packet torpedo need not be announced at the time of launch (though it must be determined and recorded at this time). The target is actually announced when other weapons fire is announced, affording the target player no chance to use movement as a defense. This is the primary advantage of the packet torpedo weapon.

8.11.6.6 Antimatter Torpedo

Modes: Standard

One of the more unusual antimatter experiments undertaken was the development of a longrange ballistic weapon for use against stand-off targets. The classic problem of antimatter weaponry (the relatively short range) was countered by the addition of a matter shell surrounding an antimatter core. The resulting torpedo remained stable for a longer period of time, permitting volleys to be used against targets that would normally be out of range of standard antimatter weaponry.

Antimatter Torpedo
Class: Antimatter (Launched as Ballistic)
Modes: Standard
Damage: 1X+8
Maximum X: 12
Range Penalty: Special
Range 0-25: No Penalty
Range 26-50: -1 per hex
Range 51+: -2 per hex
Fire Control: +4/+2/-2
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

Like most antimatter weapons, the torpedo is unaffected by range to a point, then begins to receive a range penalty thereafter (if used against a jammer-protected ship or without a lock-on, all appropriate penalties apply, just as with the packet torpedo). Also typical of the class, it scores more damage depending on the quality of a hit, as described in the antimatter weapon section (see Section 8.9). Though it is treated as an antimatter weapon for class purposes, it uses the ballistic rules where launch and impact are concerned.

8.11.6.7 Limpet-Bore Torpedo

Modes: Standard

This unique ballistic weapon is designed to hunt down and destroy specific systems on a target's hull. The launching player secretly records an external system as a "called shot." This must be a specific system (if a weapon, use the weapon number as a reference) and must be one that can be legally attacked by a called shot under the normal rules. There is no called shot penalty , however. The target system need not be attached to the side facing the firing vessel.

Limpet-Bore Torpedo
Class: Ballistic
Torpedoes: 5
Damage: 2d10+10
Maximum Range: 30
Range Penalty: None
Fire Control: +4/+2/--
Rate of Fire: 1 per 2 turns
Special: Seeks target system. Ignores armor upon detonation. Scores no overkill. See rules.

If it hits, the torpedo attaches itself directly to the facing structure using a magnetic grappling system. It then "crawls" across the surface, searching for the specified system. When it finds its target, it bores its way inside and explodes, hopefully scoring enough damage to destroy the system outright. Though it is almost always successful (unless somehow destroyed first), the limpet device can be mind-numbingly slow in performing its task.

On the turn the torpedo hits, write a note on the side of the target ship that a limpet-borer is attached. The device can do nothing else on that turn. However, at the end of the Weapons Fire Step of the Combat Sequence of each turn that follows, the limpet-borer is active. If it is not attached to the structure block that supports its target system, it transfers to an adjacent structure block (it cannot move to or through a destroyed block, however), trying to find the target system.

It must move to the block closest to the target if it can do so. Otherwise, it moves to the target as best it can. A limpetborer can move only one block per turn, and cannot attack on a turn in which it moves.

Once it finds the proper structure block, the limpet-borer attempts to drill its way inside the target beginning on the following turn. Roll 1d10 and add the number of previous attempts it has made. If the die roll is 7 or greater, it succeeds and explodes within the target system. Since it bores through armor before detonating, ignore all armor (except adaptive armor set to ballistic defense). No overkill is scored, however, due to the shaped nature of the blast. Note that the limper-borer's explosion is usually large enough to destroy just about any system it attacks.

Note that the limper-borer cannot operate on or pass through a destroyed structure block. If it hits such a block when initially launched, it bounces off (treat this as a "miss"). If it is on a structure block when that block is destroyed, it too is destroyed.

The limpet-borer device operates differently depending on what kind of ship or unit it is attached to. The following special rules apply:

Capital Ships/HCVs/Enormous Units: The weapon attaches to one block, or section in the case of bases. It can only move to an adjacent block or section during a turn.

Medium Ships: The borer attaches to either the front or the back side (even though there is really only one structure block). It is considered on the same side as its target only if that target is listed on the appropriate hit location chart. At most, the limpet-borer would have to spend only a single turn moving.

Light Combat Vessels: The device need never move, as it is always considered to be on the same structure block as its target system. This makes the limpet-borer uncommonly effective against LCVs.

Saucer-Shaped Vessels: The limpet-borer attaches to one of the structure blocks (target player's choice of any that face the original launch hex, but not a destroyed block unless no other choices exists) and can attack any system that shares any part of that block's arc. The borer is still considered destroyed if the block it is on is lost in combat.

Organic and Advanced Race Ships: Limpet-borers cannot attach to advanced armor or to non-metallic surfaces such as organic hulls. Thus, they are of no use against any ship that is fully organic (or otherwise non-metallic, e.g., a ceramic or crystalline hull). They are permitted to attach to hybrid hulls, however.

Fighters, Shuttles, OSATs, Mines, etc.: Limpet-borers cannot be used against such units or anything of a comparable size.

It is possible to destroy the limpet-borer by firing at it using direct-fire weapons only (not ballistics). It is small, however, and very difficult to hit. Treat it as having a defense rating of 4. It must be locked-onto separately and must be on the side facing the firing unit. If it is attached to a ship defended by a special defensive system such as a jammer, shield, or energy web, it benefits from the same protection due to its small size. When calculating the chance to-hit, determine the required roll for both the limpet-borer and the ship it is attached to. If the shot misses the borer but is within the range needed to strike the ship, it hits the ship instead and scores damage in the usual way. If it hits the borer, no damage is scored to the ship. The limpet device is destroyed by 6 points of damage and possesses no armor.

A limpet-borer may remain on a ship for 5 turns before a ship's defenders can disable it. If it fails to destroy a system by then, it is removed from play. If the ship disengages with a borer attached, assume it is disabled before it can affect it target, unless the scenario is part of a campaign or other multipart event. In this case, make attack rolls until it succeeds or the defenders disable it. Any damage it scores would carry over to the next scenario in sequence or would have to be repaired with the usual campaign repair procedures.

8.11.6.8 Limpet-Bore Torpedo (Starbase Version)

Modes: Standard

On an enormous base, the limpet-bore torpedo launcher receives some improvements. The stabilization of the firing platform allows the system to double its usual range (i.e., from 30 hexes to 60), and the firing rate is increased to once per turn. In addition, a resupply procedure is available. When the launcher is fully empty, it can be deactivated for two complete turns, after which its ammunition is completely replaced. This can be done twice during the scenario per launcher. For example, if a launcher fires once on each of the first five turns of the scenario, and were shut down on turns 6 and 7, it could begin firing again (with a complete reload) on turn 8.

Limpet-Bore Torpedo (Starbase Version)
Class: Ballistic
Shots: 5 Reloads: 2
Damage: 2d10+10
Range Penalty: None
Maximum Range: 60
Fire Control: +4/+2/--
Rate of Fire: 1 per 2 turns
Special: Seeks target system. Ignores armor upon detonation. Scores no overkill. See rules.

8.11.6.9 Phased Gravitic Torpedo

Modes: Standard

This advanced race ballistic weapon negates a portion of an enemy vessel's shields. The device uses a concentrated force field to encase gravitons generated with a particular modulation. The gravitons are then able to pass through a portion of an enemy shield system.

Phased Gravitic Torpedo
Class: Gravitic (launched as Ballistic)
Mode: Standard
Damage: 2d10
Range Penalty: None
Max Range: 50 hexes
Fire Control: +5/+4/+3
Intercept Rating: n/a
Rate of Fire: 1 per turn
Special: -1d10 to shield absorption rating (min 0). Can hold up to nine shots and fire them separately or all at once (+1 per 3). See rules.

The rate of fire of the Phased Gravitic Torpedo is 1 per turn, but the weapon is able to generate and hold up to nine torpedoes before filling all possible space in the weapon. The munitions may be stored indefinitely, or any portion may be fired during a single turn (called **saturation mode**).

Saturation Mode: When firing more than one torpedo at the same target, the multiple shots are incorporated into a single to-hit roll, with every three points that the shot hit by indicating that another torpedo has hit the target, similar to pulse mode with a volley bonus of +1 per 3. Interception is performed once for the combined shot, not per torpedo. All torpedoes fired at the same target from the same weapon system must be resolved as a single volley. While it is unlikely for all torpedoes to hit a single target with the volley bonus of +1 per 3, it is useful if the weapon chooses to shoot at multiple targets in the same turn.

Once it is known how many torpedoes have hit an enemy vessel, damage is resolved in standard mode. If the enemy vessel is equipped with any shield system, a torpedo will reduce the effectiveness of the shield for the rest of the scenario. For each torpedo, roll an additional d10 to represent the weapon's phasing ability, and reduce the absorption rating of the shield by that amount. The minimum value of the shield's absorption rating is zero. The phased gravitic torpedo ignores the damage absorption of shield systems on the ships of younger races.

Phased gravitic torpedoes have no special effects against a vessel using any protective system that does not reduce damage, although they will take damage as normal. Once a thought shield is reduced to zero over a particular arc, the torpedoes also lose their special effect.

The weapon may be considered fully armed with nine phased gravitic torpedoes at the beginning of the scenario unless otherwise specified.

8.11.6.A Fighter Torpedo

Modes: Standard

This is an improved heavy fighter missile. It has a better targeting computer and a higher range than the standard heavy fighter missile, but this torpedo is so large that a special holding system is needed to carry it.

Fighter Torpedo
Cost: 14 Combat Points
Class: Ballistic
Damage: 15
Max Range: 15 hexes
Fire Control: +1/+1/-2
Intercept Rating: n/a

(Stefan Lechermann)

8.11.6.B Anti-Ship Torpedo

This fighter weapon is designed to hunt down enemy capital ships. It is the predecessor to the heavy fighter missile.

Anti-Ship Torpedo
Cost: 12 Combat Points
Class: Ballistic
Damage: 12
Max. Range: 8 hexes
Fire Control: +0/+0/-2
Intercept Rating: n/a

(Stefan Lechermann)

8.11.7 Bomb Rack

Modes: Varies With Ordnance

Bomb racks can hold up to 8 bombs, which are usually nuclear weapons. Some scenarios may specify that the racks are armed with special kinds of bombs (biological, chemical, etc.). In order to drop a bomb on a planet, the ship must be no farther than 20 hexes from the target hex, and the hex must be in the rack's firing arc. It is assumed that the bomb has a base 20 or less to hit (i.e., automatic), assuming these conditions are met. It travels using its own guidance system, and has a wide area in which to impact.

Bomb Rack
Class: Ballistic
Bombs/Missiles: 8
Range Penalty: None
Fire Control: +3/+2/+1
Rate of Fire: 1 per 2 turns

Draw a line from the firing ship to the target hex. Any ground-based defense, orbital defense, ship or fighter in a hex that touches this line, or one hex away from it in any direction, can fire defensively against the bomb, reducing its chance to hit below the base of 20 (using its intercept rating, with no degradation for multiple weapons). Otherwise, the only defense against a bomb is to destroy the ship (or the launcher) before it can release its deadly cargo.

Bombs are considered ballistic weapons and are launched at the same time as those weapon types. Note that bombs are useful only against planets, and will not function against ships or other units. Bomb racks are relatively slow, and can release a bomb only once every other turn.

In a combat situation, the bomb rack has very little application, although there do exist missiles that can launch out of bomb bays. For this purpose, consider the bomb rack to be identical to the Class-S missile rack, with two exceptions: (1) the rack can carry no more than 8 missiles, each one replacing a bomb, and (2) only the basic or flash missile may be used. All other stats (including the magazine critical hit rule) are the same as the missile rack.

In a campaign where bombing plays a role, bombs should be rated as one of the following types:

Biological: These are designed to kill plant or animal life, usually with airborne germs or viruses created by bio-engineering experiments. In a campaign, hits from biological bombs will reduce population, inhibit population growth and/or affect production rates.

Ecological: Bombs of this type disrupt the ecology of the planet, usually by irradiating the surface, poisoning the water, disrupting the atmosphere and so on. Nuclear bombs, cobalt bombs, fusion bombs and other types are used in this role. The campaign effects would include a one-time reduction in population and/or production, as well as a lowering of potential industrial production rates until the eco-damage can be cleaned up.

Destructive: These bombs are designed to damage a planet's infrastructure, destroying cities, production centers, farms, defenses, shipyards and the like without tremendous damage to population. Campaign effects would involve destruction of specificed infrastructure (manufacturing, research, defense or other categories) with little effect on the population.

Replacement obmbs cost 4 Combat Points each regardless of type, though the ship's racks are full at no cost after construction (the price being included in the ship's value). Bmobs from a ship-mounted bomb rack score 100 points of damage, while fighter-mounted rocket bombs score 10 points of damage. Campaign rules should specify the effects of various levels of damage against a planet.

Somb bombs will need to be delivered to specific hexes during a scenario. While biological or ecological bombs can often strike anywhere (except extremely remote areas), destructive bombs must be aimed at installations, which can be defended. Scenario rules will usually specify these locations, but in a campaign or free-form battle, it may need to be agreed upon in advance. The target hexes provide points of defense, and are often guarded carefully by mines,

satellites and bases.

8.11.7.1 Rocket Bombs

These weapons appear on some fighters, primarily to conduct fast hit-and-run strike missions against well-defended planets. While other fighters clear a path, bomb-armed fighters sweep in, drop their bombs and then retreat back to their carrier to reload.

Converting a fighter to a fighter-bomber (or back again) costs 2 Combat Points, and the bomb itself costs 1 point, as do any replacements. Only heavy fighters may be modified for this roll, unless otherwise noted in the fighter's description. This conversion is relatively simple, but takes longer than a single scenario allows. Most carriers do not carry the equipment to make such a change unless a bombing run is expected in the mission plan. Scenario rules will list which fighters, if any, can be used as bombers. In a campaign, a token cost of 1 point per fighter box is required to prepare a carrier for this mission on any campaign turn where a bombing attack is expected.

A fighter can carry only one bomb, and the equipment to mount and launch it reduces the fighter's thrust rating by 3 points, regardless of whether or not a bomb is present. While the bomb is in place, the fighter's maximum ability to jink is reduced by two levels. A fighter has an initiative penalty of -4 while carrying a bomb, but this drops to -2 once the bomb has been deployed. While the bomb is present, the fighter loses the effects of stealth, jammers or other similar protections.

To launch the bomb, the fighter must be facing the target and must have been moving toward that hex for th entire previous turn's movement. The fighter may not fire its other weapons, or launch missiles, on the turn the bomb is dropped. The target hex must be 10 hexes away or less at the time of launch, but otherwise the bomb is treated just like a ship-launched bomb. A fighter bomb scores only 10% of the damage scored by one from a ship, but can be deployed much more easily.

Fighters can carry missiles in their bomb slots, but all of the above rules and penalties apply, in addition to the cost of the missile. Shuttles may not use rocket bombs.

8.11.8 Plasma Wave

Modes: Flash

Plasma Wave
Class: Ballistic (Plasma)
Modes: Flash
Damage: 3d10
Range Penalty: n/a (max 30)
Fire Control: +2/+0/--
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns

The plasma wave is a ballistic weapon that is launched at a target and explodes in a burst of plasma. The resulting wavefront crashes against the facing side of the ship, scoring damage in flash mode. The plasma wave cannot target fighters, shuttles or mines, which are too small to be tracked by the weapon. It can be used against OSATs, LCVs and larger ships.

8.11.9 Thought Wave

Modes: Flash

Thought Wave
Class: Plasma (Ballistic)
Mode: Flash
Damage: 3D6÷3 x Def. Profile (-1 per hex)
Range Penalty: -1 per 3 hexes
Fire Control: +0/+0/+0
Base To-hit: 15
Intercept Rating: n/a
Rate of Fire: 1 per 3 turns
Special: Special to-hit calculation. Advanced Armor takes 3D6÷5 x Def Profile. See rules.

Some advanced race telepaths are capable of creating an explosion of mental energy. This telekinetic explosion radiates out in all directions, potentially damaging all vessels on the map not of the same race.

Effectively a spatial disturbance, most vessels are capable of maneuvering in such a fashion as to minimize any damage from the thought wave, and defensive electronic warfare can often degrade the effects. The desire to fire a thought wave is announced during the Ballistic Launch segment, and all ranges are computed from the origin hex. The chance to hit is calculated as follows:

- 15 (base chance to hit)
- Subtract Range Penalty (-1 per 3 hexes), affected by advanced race jammers.
- Add offensive EW applied to target
- Subtract defensive EW
- Subtract target's current Initiative
- Add d20 (rolled once per turn for all targets)

If the total of the above calculation is greater than zero, the target is hit. Any target hit by the thought wave takes damage equal to 3d6 divided by 3 times the target's defensive profile (facing the firing ship). This is resolved as flash damage. Vessels with advanced armor (or better) take only 3d6 divided by 5 times their defensive profile, dropping fractions. The damage from the thought wave is degraded by technology even as mundane as an energy web or gravitic shields, so all modified values are used.

Only one fighter in a flight is hit, but the flash mode collateral damage may still affect the other fighters.

8.11.10 Asteroid Salvo

Modes: Standard

Perhaps the most grand matter weapon ever, developed by advanced races, the asteroid salvo saunches a small hyper-dense projectile than expands into an immense field of basic rocks and other debris at the target hex, surrounding an actual asteroid. The asteroid is launched at a hex, not a target, in the same manner as an energy mine. During the Ballistic Fire Resolution Step of the Combat Sequence, roll a d20 and consult the following table:

Asteroid Salvo
Class: Matter (resolved as Ballistic)
Mode: Standard
Damage: 50/20/10
Range Penalty: None
Max. Range: 50 hexes
Fire Control: n/a
Rate of Fire: 1 per 2 turns
Special: Targeted on a hex, not a unit. First damage is scored on all units in the hex, second is scored on all units in 1 hex surrounding target hex, third is scored on all units two hexes from target hex. Produces an asteroid in hex, meteor swarms in surrounding hexes, and dust clouds in 2-hex radius for remainder of scenario. First One vessels suffer terrain damage normally, young races take double damage. See rules.

d20	Result
1-15	On target
16-20	Scatters (roll d10)

d10	Result
1-6	Scatters d5 hexes along the appropriate hex facing
7-10	No effect

Damage in the initial round is scored as a matter weapon. All vessels in the target hex take 50 points, those in the 1 hex radius surrounding take 20 points, and those in the hexes 2 hexes from the target take 10 points of damage. If the shot did not scatter, the target hex becomes filled with an **asteroid**, blocking line of sight. The hexes surrounding the target hex are filled with **meteor swarms**, and the next hex out is filled with **dust clouds**. (See Section 12.0.) All effects take place at the beginning of the next turn (including blocked line of sight) and the terrain features remain for the rest of the scenario.

Vessels without advanced armor suffer double terrain damage. When detonated inside an energy draining field, the asteroid is generated and all damage is done in the target hex only. There is no spreading of debris or damage into surrounding hexes due to the dampening of the weapon's energy.

8.11.11 Proximity Weapons

Proximity weapons fall under the "ballistic" category unless otherwise noted. However, they are not launched at ships, but at a hex on the map. Unless noted in their descriptions, this hex is recorded secretly, and announced only when the weapon arrives at its destination. The launching ship requires line-of-sight to this hex, but requires no lock-on and generally does not need to roll to-hit (though some proximity weapons, like energy mines, might scatter or otherwise have a chance to miss). Proximity weapons cannot be intercepted by any weapon not specifically noted as being able to affect them. They can be safely fired into any sort of terrain or placed effect (e.g., anti-fighter plasma webs) unless noted in other rules, or unless it's painfully obvious that the terrain would destroy any such weapon (for example, a planet's surface, star, or black hole).

Proximity weapons usually do not have range penalties, but will have a maximum range that cannot be exceeded (unless a scatter effect pushes them outside that range). This range, and other basic statistics, will be specified in their datacard.

Proximity weapons score only half the listed damage

against enormous units, such as starbases.

8.11.11.1 Energy Mine

Modes: Flash (No Collateral)

Energy Mine
Class: Ballistic
Modes: Flash
Damage: 30/10
Range Penalty: None
Max Range: 50 hexes
Fire Control: n/a
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
Special: Targeted on a hex, not a unit. Damage before the slash is scored on targets in impact hex, damage after the slash is scored on targets one hex away. See rules.

The energy mine is designed to damage or destroy incoming fighters and ships before they get within normal engagement range. Protons and antiprotons are introduced together within a stasis field. This field degrades at a predetermined rate, dependent upon the distance the weapon is being fired. When it fully degrades, the protons and anti-protons collide, causing an explosion that covers a large volume of space. Occasionally the stasis field is not properly tuned and degrades improperly, causing the mine to implode in on itself harmlessly or scatter in an unpredictable direction.

Energy mines are proximity weapons, and use the proximity launch rules described earlier in this section. The weapon's target hex is not revealed to the opponent until the roll for success is made. When the mine reaches this hex, the firing player reveals this information and then rolls to hit, with a base chance of 15 or less. If it hits, the mine explodes at that location. If it misses, roll one d 10. On a 1-6, the mine scatters (see below) in the direction shown on the die, and on a 7-10 it fizzles and does nothing.

If the mine scatters, it misses in the direction shown on the die (where 1 is towards the top of the map, 2 is towards the top right corner, and so on clockwise around the map). The miss occurs 1d5 hexes away from the original target hex. Note, however, that the mine may not scatter more hexes than the distance between the launching hex and the original target hex. If the number on the distance die is greater than this distance, it should be reduced to equal it. Thus, for example, if an energy mine is launched at a spot 3 hexes in front of the firing ship, and the scatter roll is a 5, it should be reduced to a 3.

Damage for energy mines is two numbers separated by a slash. Any unit (even friendly units) in the hex where the mine lands takes the damage shown before the slash (determine the direction of the hit based on the unit's facing towards the original launching hex). Units one hex away take the number after the slash, and are hit from the direction of the explosion. In the case of fighters, all fighters in the flight suffer this damage. Enormous units, such as bases, take only half damage from energy mine explosions (their huge hulls are better able to shunt off the effects). There is no collateral damage scored for the flash effect.

Energy mines have a maximum range of 50 hexes when launched, and a minimum range of 1 hex (they cannot be launched into the same hex as the firing ship). Scattering mines can exceed the 50-hex limitation, but this is the only case where this is possible. It is not permitted to voluntarily scatter a mine.

The energy mine is a very capable weapon against massed fighters and is a highly useful device in large fleet battles, but somewhat less than effective in smaller engagements.

8.11.11.2 Gravitic Mine

Modes: Flash (No Collateral)

Gravitic Mine
Class: Gravitic
(Launch as Ballistic/Proximity)
Mode: Flash (no collateral)
Damage: Shearing (below)
Range Penalty: None
Maximum Range: 40 hexes
Fire Control: n/a
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
Special: Ignores armor. Can move target. See rules.
Shearing: Affects only units caught between mines at ranges 5 hexes or less. Sum 1+range to nearest mine, times size factor (ftr/shtl 1, LCV 2, medium 3, HCV 4, capital 5, enormous 6, enormous bases 0).

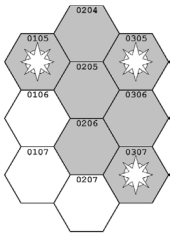
Gravitic (or graviton) mines are an ongoing experimental weapon that are currently only of limited usefulness, but one whose strength and effectiveness will increase as experiments continue.

Gravitic mines are rarely launched alone, but usually appear in a "spread" consisting of at least two and usually more of them. They use the proximity weapon rules (described in Section 8.11.7) but are listed here as they are technically classified as gravitic. Unlike energy mines, they have no chance of a "scatter" or "fizzle," but always hit their designated target hexes.

Any unit within 5 hexes of a lone mine during the Ballistic

Impact Segment of the Combat Sequence is moved one hex in the direction of the mine. If there is any doubt as to which hex is appropriate (the target must be moved closer to the target hex if at all possible), the owner of the unit makes the call. The unit may not be forced into a hex containing an enormous unit or terrain feature, so do not consider any such hex as a possible destination. If no applicable hex exists that is closer to the mine, then no movement occurs. In the event several mines exist that could move the target, only the closest one affects it, but if these are in conflict, a shearing effect will occur instead (see below). A unit may not be moved more than one hex by graviton mines during a turn.

The true potential of this weapon is discovered when a unit is caught between two or more gravitic mines. The unit in question does not move, but instead takes shearing damage as the two mines conflict with each other and try to pull it apart. Note that the unit must be within 5 hexes of all such mines; any beyond 5 hexes are irrelevant. If only two mines are present, the unit must be directly between them (draw a line between the centers of the mines' hexes, and if this line touches the unit's hex, it is eligible for damage). If there are more than two mines, the unit must be within the zone formed by their arrangement on the map. *For example, if mines land in 0105, 0305, and 0307, a unit in 0105, 0204, 0205, 0206, 0305, 0306, or 0307 would be affected, while a unit in 0106, 0107, or 0207 would not.*



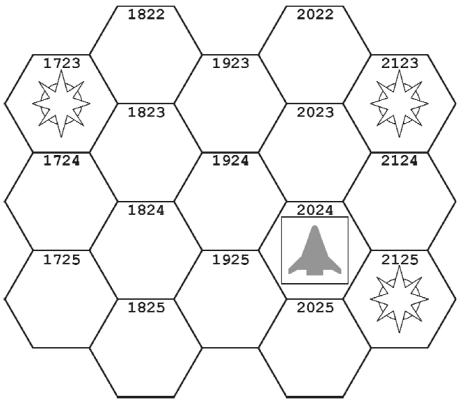
Shearing damage is calculated by first determining the distance between the unit and the mine nearest to it, adding 1 to this total. This result then multiplied by the factor shown on the Gravitic Mine Damage Factors table shown here.

Table 8
Gravitic Mine Damage Factors

Mines, other small units	0
Fighters/shuttles, OSATs	1
Light combat vessels	2
Medium ships	3
Heavy combat vessels	4
Capital ships	5
Enormous non-base units	6

Damage from shearing is scored on the side of the ship facing the most distant mine within 5 hexes of the target. If two or more mines meet this criteria, the target chooses which side suffers the damage. Damage is scored in flash mode, but causes no collateral damage to other units in the same hex, and ignores armor.

For example, a capital ship is located in hex 2024 facing towards the top of the map, and finds itself caught between graviton mines in 1723, 2123, and 2125. Its range to the nearest mine is 1 hex (2125) so the player adds 1 to this range and multiplies by the capital ship factor of 5, for a total of 10 damage. This is scored on either the forward or port areas at the target's option, since the farthest mine (1723) faces down the forward port hex spine.



Enormous bases, when fixed in place, produce enough of a gravity field of their own that they can throw off the effects. Terrain features, such as asteroids or moons, are not affected.

Graviton mines are not cumulative. A unit may suffer shearing only once during a turn. A graviton mine will affect friendly units as well as the enemy, so use them with caution.

8.11.11.3 Ballistic Mine Launcher

Modes: Special

Ballistic Mine Launcher
Class: Ballistic
Mode: Proximity
Damage: By mine type
Maximum Range: 30
Range Penalty: None
Fire Control: N/A
Intercept Rating: N/A
Rate of Fire: 1 per 2 turns

This launcher is used to deploy a special kind of mine referred to as a **ballistic mine**. It is a proximity weapon with the same probability of scatter that energy mines possess. Its maximum range is 20 or 30 hexes (depending on the model). When the ballistic mine arrives in the target hex, it immediately activates and transforms itself into a captor mine. If there is a legal target within its detection range, it attacks immediately (at the appropriate point in the Combat Sequence). If not, the mine remains in the hex for the remainder of the scenario until something activates it or the owner turns it off using a secret command sequence. He can do so during the EW determination step of the Combat Sequence and announces this at the same time he would announce his own EW level (even if using secret EW). Deactivation can only occur during this step; it cannot be done later in the turn, such as during movement. Once deactivated, the captor mine cannot be reactivated during the same scenario.

Mine Launcher
Class: Ballistic
Modes: Proximity
Damage: By mine type
Maximum Range: 20 hexes
Range Penalty: None
Fire Control: n/a
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns

The ballistic mine comes in three varieties, based on a modular frame. The basic mine has Accuracy +8, Damage 1d10+16, and Max Detection Range 3 hexes. The wide-range version increases the max range to 5, but lowers accuracy to +6 and damage to 1d10+12. The heavy model increases damage to 1d10+24, but reduces accuracy to +5 and range to 2. The player selects which mine type is to be used at the time of launch, and records it secretly. The mine can then be identified later by its actions or using the mine detection rules.

Ballistic mines are not free, and must be purchased individually. Fortunately, they cost only 8 points each (for any of the above types). They can also be enhanced using any of the enhancement rules in 10.7.1-2. Note that the Identify Friend or Foe (IFF) module is particularly useful, especially when used in a large fleet environment.

Ballistic mine launchers possess a maximum amount of ammunition they can use during a scenario. After the battle is over, any deployed mines can be deactivated and recovered (assuming the player holds the field) in order to restock these supplies. The Kor-Lyans also operate special logistical vessels designed specifically to restock these launchers. The need to perform such resupply operations is troublesome, but is not seen as a great problem for the races that use it.

8.11.11.4 Proximity Laser

Modes: Raking

Proximity Laser
Class: Ballistic (Laser)
Mode: Raking
Damage: 3d10+8
Maximum Range: 30
Range Penalty: -1 per 2 hexes
Fire Control: +0/+0/-
Intercept Rating: N/A
Rate of Fire: 1 per 3 turns

This specialized proximity weapon is an implosive device that focuses its very detonation into a coherent beam. Though it uses the proximity rules to reach its target, it does not scatter. In addition to secretly recording the destination hex, the launching player must also record a target for the weapon's laser. This latter target must be a ship—it cannot focus on smaller units such as fighters or shuttles.

Upon reaching the destination hex, the weapon implodes, focusing the blast into a laser beam aimed at the target unit. The laser fires during the Ships Fire at Ships stage of the Combat Sequence and receives a benefit of 3 points of offensive EW (the maximum allowed by the firing platform's limited sensor suite). It cannot benefit from any EW provided by the launching ship or nearby friendly ELINT vessels, but is affected by defensive EW normally. Note that the laser cannot fire, and automatically misses, if it does not have line-of-sight at the time of the weapon's detonation. Note also that the implosion does not affect any nearby units, even those in the same hex.

Note that the weapon's datacard lists a maximum range. This applies to the travel distance of the proximity warhead only. The laser produced by the implosion can exceed this

limit, and in fact is limited only by its own inherent range penalty, which is applied from the implosion hex (not the original launch hex).

8.11.11.5 Energy Draining Mine

Modes: Proximity

When the need arises to map a particularly dangerous spatial anomaly, certain advanced races deploy temporary sensor probes. They appear like chromatic pulse orbs, but are approximately four times the diameter. Targeted like an energy mine, they produce an Energy Draining Field, with all applicable rules, covering the destination hex and those immediately surrounding that hex (seven hexes in total). This field lasts for one turn, after which the energy of the chromatic pulse dissipates (in the Vortex Closure segment). This length of time is sufficient for the launching ship to record all of the information received by the pulse. It is also possible for the ship to use these temporary orbs to extend the range of an EDF, or to place one in a stationary target. During the ballistic fire resolution step of the Combat Sequence, roll a d20:

Energy Draining Mines
Class: Electromagnetic
Mode: Ballistic
Damage: Special
Range Penalty: n/a
Max Range: 150 hexes
Fire Control: n/a
Intercept Rating: n/a
Rate of Fire: 1 per turn
Alternate Fire: May save mines not launched for use in future turns. May save up to 2 mines. May fire up to 3 at once, or save as desired.
Special: Targets a hex, not a unit. See rules.
Note: Does not begin the game with any reserve mines.

1-15: On target
16-20: Scatters (roll d10)
Scatter roll 1-6: Scatters d5 hexes along the indicated hex facing.
Scatter roll 7-10: No effect.

The system is able to store mines not launched in a previous turn, up to a maximum of 3, for launching in a following turn. The full complement need not be launched in that turn, either. The weapon may not begin the scenario fully loaded unless specified in that scenario's rules.

8.11.11.6 Singularity Mine

Modes: Flash

On occasion, certain advanced races have been known to create temporary quantum singularities in specific locations in space. These spatial features cause immense havoc in the immediate area, but quickly burn themselves out.

When firing a singularity mine, the player must choose a target hex and a rotation (clockwise or counter-clockwise). The mine is targeted like an energy mine. During the Ballistic Fire Resolution Step of the Combat Sequence, roll a d20 and consult the following chart:

d20	Result
1-15	On target
16-20	Scatters (roll d10)

d10	Result
1-6	Scatters d5 hexes along the appropriate hex facing, rotation direction reverses
7-10	No effect

Providing the mine detonates correctly (i.e., does not get a "No effect" result), the singularity forms in the appropriate hex, generating a huge gravity well that spikes in an instant. The effect of this ship is to pull anything nearby towards the well. All enemy vessels within 10 hexes of the mine hex take an amount of damage equal to the vessel's Ramming Factor divided by 5 times the target's range, resolved in advanced race gravitic flash mode, except that no collateral damage is scored. Minimum range is resolved equal to 1. If there is a vessel at range 0, it takes damage as if it were at range 1, and then rolls terrain effects immediately (see below).

At the beginning of the next turn, the hex containing the singularity functions as if it had in it a hyperspace whirlpool rotating in the specified direction, regardless of whether or not the mine detonated in hyperspace, real space or any other dimension. (See Section 12.5.) During the second turn, the effective ranges are halved, but damage is calculated as normal.

Vessels with advanced armor suffer terrain damage as stated in Section 12.5, while vessels without it suffer double terrain damage.

If two singularity mines detonate during the same or consecutive turns, it is possible that they will affect one another.

- If two or more singularities exist at the same time, all must be rotating in the same direction or they will cancel each other out one after the other until they are all gone, or there is only one left. If there is only one singularity mine-laying player, he may choose which to cancel. If there are more than one, all mine-laying players roll a d10 and the one with the highest result may choose. A second-turn (reduced) singularity may cancel the effects of a one-turn singularity. Note that damage is still scored during the launch turn, regardless of the singularity terrain effects.
- If there are two or more singularities (rotating in the same direction) on the map, nominate a corner of the map and work outward from there. If there are more than one mine-laying player, all mine-laying players roll a d10 and the one with the highest result may choose the corner. Pick the singularity closest to the corner and determine all ship effects, then move to the next closest singularity, etc.

Note that all vessels suffer from the terrain effects generated by the singularity, even mine-laying vessels.

If detonated inside an energy draining field, the mine detonates as normal during the initial Damage Resolution Step, including all damage, but vanishes at the end of the turn due to the dampening effect of the field.

The singularity blocks line of sight for as long as it is in existence. If created in hyperspace or any other alternate dimension, each singularity always opens to a single Sufficiently Far Away location in normal space. If created in normal space, each singularity opens to a single SFA location in hyperspace. A vessel expelled from the current dimension due to a 9-15 result on the hyperspace whirlpool table (Section 12.5.9) may re-enter the battle, assuming that it has sensors capable of determining its current and previous location and a properly charged jump engine.

8.12 Telepathic Weapons

Certain advanced races have spent aeons perfecting their telepathic abilities, and are probably the most adept at reading the minds of alien creatures, including other advanced races. In times of desperation, a large collection of advanced race telepaths will concentrate their mental energy and attempt to predict the actions of their enemies.

8.12.1 Second Sight

Modes: Special

This "device" is activated in the Weapons Fire segment. There is no to-hit roll required, as it affects all vessels on the map.

Second Sight
Class: Telepathic
Mode: Special
Damage: n/a
Range Penalty: None
Fire Control: +0/+0/+0
Intercept Rating: n/a
Rate of Fire: 1 per 2 turns
Special: Reduces enemy initiative in following turn. Cannot be intercepted.See rules.

- All vessels with advanced armor (or better) suffer a -2 Initiative Penalty.
- Every other vessel suffers a 1d6+2 Initiative Penalty. Resolve the die roll for each ship/flight individually. For example, if a ship rolled a 6, it would suffer -8 to its initiative.
- If there is an Initiative tie between the ship(s) employing Second Sight and an enemy, the enemy automatically loses (regardless of Initiative Modifiers or the presence of special officers or crew). If both vessels employ Second Sight, the tie is resolved as normal.

All modifiers are cumulative with additional Second Sight activations, and occur during the following turn only. For the bonuses to be applied, the vessel operating the Second Sight must still be in existence during the appropriate Initiative Phase (when it communicates its findings to the rest of the fleet), although the Second Sight system itself may have been destroyed in the previous turn. It cannot be intercepted.

9.0 Types of Units

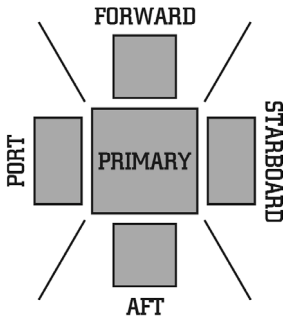
In AoG Wars, there are a number of types of units, ranging from the various categories of ships and fighters to more unusual items like bases and satellites. This section provides a summary of those that have already been described in these rules, and introduces the rules for a number of new unit types.

9.1 Starships

There are four basic categories of ships: capital ships, heavy combat vessels, medium ships, and light combat vessels. Some of their features have already been discussed previously in this book, but will be listed again here for easy reference.

9.1.1 Capital Ships

This is the basic ship type in the game. Capital ships are distinguished by four sides (forward, port, starboard, and aft), plus a primary section. The sides of a capital ship are generally larger than the forward and aft sections, but as they are twice as large (for incoming fire purposes), they tend to take damage more often.

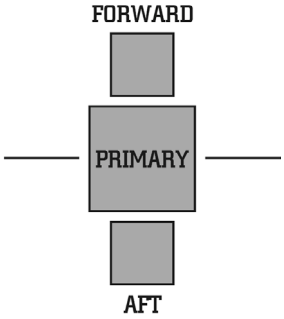


As the diagram here shows, capital ships have four structure blocks plus a primary block. The lines indicate how incoming damage would be applied to these blocks.

Some examples of capital ships include battleships, dreadnoughts, heavy cruisers, light cruisers, destroyers (for some races), heavy carriers, most scouts, exploration vessels, and similar types of large spacecraft.

9.1.2 Heavy Combat Vessel

These ships, often referred to as HCVs, are intermediate units. They are not as large as capital ships, but can often carry the same kinds of heavy armament usually reserved for larger classes. Their smaller size typically affords them greater speed and maneuverability, making them ideal as hunter-killer units. However, because they have only three sections (forward, aft, and primary), they are more vulnerable in combat. While a capital ship that loses a section can simply turn another side to the enemy, an HCV without a forward or aft structure block is in serious trouble.

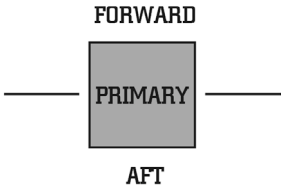


The diagram here shows the main difference between an HCV and a capital ship: only three structure blocks instead of five. The fact that incoming damage is only distributed to two areas (forward and aft) instead of four (forward, aft, port, starboard) makes heavy combat vessels much more vulnerable to damage than capital ships.

Examples of heavy combat vessels include small destroyers, escorts, light carriers, large frigates, miscellaneous warships, and the like.

9.1.3 Medium Ship

These swift and maneuverable vessels are used for a variety of missions. Their small size prevents the use of most heavy weapons, limiting their firepower, but because they are not all that expensive, they can be employed in quantity. In addition, their size makes them difficult targets. Unfortunately, they have only one section (primary), so they are relatively easy to destroy (compare the basic structural diagram to that of the much more sturdy heavy combat vessel and capital ship designs). Only the fact that incoming fire must still be split between forward and aft makes medium ships combat-worthy.



The medium ship category includes most frigates, light escorts, fast warships, police craft, corvettes, and many civilian freighters and other support vehicles. Medium ships are usually too small to carry fighters, so there are few vessels of this type in use as carriers. Jump engines are also rare among medium ships.

9.1.4 Light Combat Vessel

Something of a cross between a ship and a fighter, the light combat vessel (LCV) is generally considered inappropriate for military use (though a few races have specialized in this ship category). While incredibly cheap to build, the LCV is so small it can usually be destroyed by a single heavy PRIMARY weapon hit (the basic structural diagram shown here is almost unnecessary).

An LCV's small size prevents the use of any sort of heavy armament, so their combat abilities are extremely limited. In addition, because they have little storage space for supplies or fuel, their patrol range is very short, usually limited to a small area of territory near their base.

Light combat vessels are normally used only by civilian or pirate organizations as a cheap defense unit for a colony or outpost. Because they cannot travel through hyperspace on their own (and are extremely vulnerable to adverse hyperspace currents), they are almost never seen with an attacking force. However, as noted above, there are some races that have specialized in LCVs, designing special ships to carry and deploy them in reasonable numbers.

Light combat vessels are treated as medium ships except as noted hereafter. *For example, this means a weapon's fire control against medium ships should be used when targeting an LCV.* The following differences apply:

• LCVs have only one structure block (just as medium ships do), but use the same hit location chart (but not defense rating) regardless of which direction enemy fire comes from. They do not have a Primary Hits chart, so they can be easily crippled on a lucky roll. Called shots can only be used against weapons when firing on LCVs.

• LCVs do not operate heavy weapons, as they are too small to mount a gun with that sort of firepower. The largest weapon operated by an LCV is a medium laser cannon. Most LCVs do not carry missiles or other weapons with consumable ammunition, primarily due to space limitations. If an LCV has a missile rack, for example, its magazine may be limited in size, as defined in the individual ship description.

• LCVs have a basic initiative bonus of +14, which may be even higher on some vessels. They are always agile (any initiative bonuses from that status are included in the bonus listed on the control sheet) and are always atmospheric capable unless otherwise listed. One advantage of such ships is that they can operate from ground bases on planets with unusually thick or hostile atmospheres, where a normal fighter could not. This fact, more than any other, has influenced the development of light combat vessels by races that would otherwise not have a reason to bother.

• Sensors and C&C are combined on an LCV into a single system called "control." This uses the same icon as a normal sensor suite. If this system takes damage, roll for a critical hit on the Sensor chart, but not the C&C chart. If it is destroyed, this is counted as a destroyed sensor system, and roll once on the C&C chart. Barring any resulting C&C critical, the ship's C&C abilities can operate normally even if the control system is destroyed.

• LCVs are limited in the use of their electronic warfare points. While a larger ship can apply its EW as it wishes, LCVs must use all but two of their points for offensive EW The remaining two can be used for any purpose. *For example, an LCV with a sensor rating of 5 must use 3 points for OEW, but can use the other two for OEW, DEW, or CCEW in any combination desired.*

• Engines and thrust are combined on an LCV into a single system called a **drive**. The ship can apply thrust in any direction desired, assuming the drive is operational. If the system takes any damage, roll critical hits on the Engine chart. If it is destroyed, treat this as a destroyed engine. Regardless of the thrust generated, LCVs do not suffer from overthrusting.

• Reactors work normally on LCVs except that their loss does not immediately destroy the ship. If the reactor is destroyed, it simply shuts off. LCVs do not roll for overload, regardless of how damaged their reactor is.

• No more than one breaching pod can attach to an LCV at any time. LCVs do not carry shuttles or fighters. For service or to onload/offload crew, they must dock to larger units. They are small enough to fit into the internal bays of large bases, but not the hangar bays of starships. Certain

large vessels designed to carry one or more LCVs may appear in future products, but none are presented herein.

9.2 Variants

Variants (also called models or versions) are physical alterations to a standard ship's basic form. For example, the heavy laser cannons of a cruiser are replaced with heavy pulse cannons. Some variants include just a few changes, as in this example, while others can be quite extensive. Often, a given ship class will receive a number of different variants over the course of its lifetime.

In AoG Wars, the basic ship is usually the one published first (not necessarily the one first built historically). Variants published later will have the line "Ship Variant" listed just above the class name on the control sheet. If a ship is not a variant, this line will not appear. Variants are subject to certain availability limitations listed later in this section. Some examples of variant types include the following:

Carrier: These ships typically modify an existing warship hull to add an increased fighter capacity. Often, this means a reduction in firepower or other systems, but in the mind of the designer, the addition of fighters to the battlefield should more than make up for this.

Escort Carrier: These are similar to carriers, but instead of a major overhaul to the hangar bay, they instead usually add just a few fighters for limited support. Often, these are added by attaching an auxiliary hangar directly to the outside of the hull, rather than in the primary section. This hangar is frequently left empty, and used strictly to reload and refuel fighters launched by mainline carriers.

Strike Carrier: The strike carrier is a relatively rare ship type designed to operate alone, or with limited escorts. In theory, it (along with its fighters) should be able to move into an area and conduct a military strike (hence the name). Should it come under attack by an enemy vessel, it is more than capable of defending itself.

Gunship: These ship types operate heavy weapons, often in large quantities (e.g., the Nova), often at the expense of defensive firepower. Though they are powerful, their lack of defenses forces the fleet commander to treat them with caution, lest they be isolated and destroyed.

Close Escort: This unusual variant is designed purely for short-ranged, defensive firepower. Its main purpose is to accompany a carrier, command ship, or other key vessel and shoot down anything that dares to get close (typically fighters). Missile/Bombardment Ship: As the name suggests, these ship types specialize in ballistic firepower. Though they have few "big guns," these fire support platforms can operate from the rear of a fleet, harassing the enemy with missiles and other ordnance. For this reason they are often the target of fighter attacks.

Assault Ship: This type is designed to carry troops and perform ground attacks. Sometimes they also hold breaching pods to better aid in capturing enemy ships. The need to hold huge quantities of troops and equipment often limits their armament and maneuvering abilities.

Leader/Command Ship: These rare ships are equipped with special C&C facilities allowing them to better control the actions of their own ship and others in their fleet. This is usually represented by an initiative bonus to the ship itself and occasionally an effect on ships nearby (as defined in the ship's description).

Scout: The ELINT variant is one of the more useful conversions, and also one of the most difficult to build. The sensor arrays of the typical warship are integrated throughout the hull, so upgrading them to ELINT status requires a major overhaul and redesign of these systems. For this reason, scout variants are relatively rare, and when they appear, they are sadly lacking in firepower.

Survey Vessel: The survey ship is one of the few types designed to operate alone, and for long periods of time. Typically outfitted with cargo space for supplies and ELINT sensors to explore newly discovered systems, the survey vessel can explore unknown areas during peacetime, and during war, can perform covert intelligence gathering operations on enemy star systems.

9.2.1 Special Deployment

While many ship variants are effective in battle, they often suffer from construction and support difficulties not

adequately represented in a tactical game. This and other factors contribute to their rarity in fleet structures, no matter how useful they may appear. To represent this, many variants are assigned special deployment rules that limit the number that can appear in scenarios or be built in campaigns. Deployment rules apply to free-form battles as well as published scenarios, except under special circumstances. In campaigns, they apply only to construction (once a player has built his ships, he should be allowed to deploy them however he wishes). There are four levels of availability, as defined below.

Common (Unlimited Availability): This is the standard unless otherwise noted. Common ships can be built without limitations or restrictions, unless otherwise noted in their descriptions.

Uncommon (Limited Availability): Uncommon variants are limited to no more than one in every three of that class. Thus, in any three ships of a specified class, only one can be uncommon; the others must be common types.

Rare (Restricted Availability): These variants are limited to no more than one in every nine of that ship class, and count as an "uncommon" ship for all rules.

Specialty (Special Rules): These variants are treated as rare ships, but are also under other special rules. Examples include uniqueness (such as single "named" cruiser) or similar limits. See the individual ship's rule for a full explanation.

Fighters: Fighters use squadrons as their class type, but uncommon or rare types are limited by flight. For example, no more than one flight in every three squadrons of a given class can be uncommon, and no more than one flight in every nine squadrons can be of a rare variant.

Campaign Notes: Purchase restrictions apply to construction limitations only. For example, a player could build one uncommon or rare variant, but the next two would have to be common versions. If a player wishes, he could move all his rare/uncommon variants into the same fleet, so long as the limitations are observed at construction time. Some campaigns may require the first ship of a given class to be of the most basic type (signifying the prototype model), but this is up to the campaign designer to define.

Note that only variants have to worry about these classifications—basic ship hulls do not have or need them. Some ships have their own special availability rules, but these will be listed on a case by case basis in their individual descriptions.

Table 9
Variant Deployment Summary

If you have. . .	Then you can use. . .
1 unit of a given type	1 rare or uncommon type
2 units of a given type	1 rare/uncommon, 1 common
3 units of a given type	1 rare/uncommon, 2 common
4 units of a given type	1 rare/uncommon, 1 uncommon, 2 common
5 units of a given type	1 rare/uncommon, 1 uncommon, 3 common
6 units of a given type	1 rare/uncommon, 1 uncommon, 4 common
7 units of a given type	1 rare/uncommon, 2 uncommon, 4 common
8 units of a given type	1 rare/uncommon, 2 uncommon, 5 common
9 units of a given type	1 rare/uncommon, 2 uncommon, 6 common

9.3 Enormous Units

Enormous units are huge, and fill an entire hex (or more) on the map. This affords them a number of special rules and conditions, as listed hereafter. Most enormous units are bases, although a few ships of this type exist.

Because an enormous unit entirely fills the hex in which it is located, any unit passing through that hex has a significant chance of hitting it. Thus, a ramming check is always required, even if neither unit actually intends to ram. (See the Section 10.4 on Ramming for more details.) If the enormous unit passes through a hex with a smaller unit, however, do not make a ramming check unless the smaller unit doesn't move out of the hex later in the turn. However, if an enormous unit enters the hex of another, ramming is automatic.

Another feature of enormous units is that they usually block line-of-sight (there are some exceptions to this rule, such as fixed jump gates). Thus, if you have such a unit on

your side, you can use it as a shield against enemy fire. If an opponent locks onto you, simply interpose the enormous unit between yourself and the enemy. If you do so, however, the enemy has the option to alter his offensive EW to the enormous unit instead. In such situations, the opposition has little choice but to destroy the larger unit so he can get to your other forces. Unfortunately, their huge size makes enormous units generally easy to hit, even from long range, so this is not as difficult as it may appear.

Because they are so bulky, enormous ships often operate under other restrictions. *For example, the some enormous ships are not permitted to pivot (their structure is not capable of surviving the forces involved).* If these conditions exist, they will be noted in the ship description.

Note that proximity weapons score only half damage to enormous units.

9.4 Bases

Bases are immobile outposts used as logistics centers, docking ports, and defensive installations. They are often referred to as space stations, starbases, base stations, and similar names. They are usually of enormous size, though some are treated as capital ships or even smaller units (if this is the case, it will be noted on the base's control sheet). While they cannot move, they can rotate and are often placed in orbit. If in orbit, they will not move during a scenario, as this motion is not fast enough to be represented in the short period of time represented during a game.

While they operate much like ships, bases have a number of special rules, as noted hereafter.

9.4.1 Rotation

Many bases, particularly those that are regular in shape, can be set to rotate. This is normally done to provide gravity for the inhabitants (unless the race has artificial gravity). It also has certain tactical uses and can operate as a backup gravity source if the artificial generators fail.

If a base is rotating, this fact must be noted before the scenario begins, along with the rotation direction (clockwise or counterclockwise). Rotation always occurs at the rate of 1 hex facing per turn, and may not be altered during a scenario, with the exception of certain advanced races as defined in their rules. This rotation occurs after all other movement, during the Combat Pivot Segment of the Combat Sequence, and is involuntary (the base may not elect to skip its rotation).

Some bases cannot rotate due to their unique construction. If this is the case, it will be noted in that unit's specific rules.

A few bases possess their own thrusters. If this is the case, they may be able to pivot or alter their rotation speed. See the unit's description for more information.

9.4.2 Stability

Bases are considered fixed in place for most rules, a feature of their sturdy construction and great mass. This affords them immunity to any weapon that causes involuntary movement or facing changes, such as gravity nets or gravitic shifters. For similar reasons, they cannot be moved by tractor beam.

In addition to this, the stable platform a base provides enhances the launching abilities of certain ballistic weapons, such as missiles. Any ballistic device launched from a fixed base uses its distance range as the launch range for all purposes. Thus, missiles (which have a distance range triple that of their launch range) can launch missiles at extremely distant targets. *For example, a standard missile (which normally has a launch range of 20 and distance range of 60) has both a launch and distance range of 60 hexes if fired from a fixed base.*

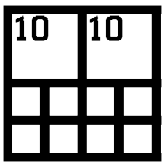
Unless otherwise noted in scenario rules, a base is always considered stable for these purposes. Certain base-like units can stabilize their position once in orbit and would therefore receive the above benefits. However, stable status cannot be altered during a scenario. If a unit is stabilized, it cannot move or maneuver (though it could be rotating, if this was declared at the start of the scenario). If not, it does not receive any of the above immunities, but is capable of independent movement (if it possesses thrusters).

Note that only certain special units are capable of

stabilizing themselves, not just any ship. If a ship can do this, it will be noted in its description. Orbital satellites (described later in Section 9.8) are not treated as stable for the above rules.

9.4.3 Structure

In order to represent the huge amount of structure blocks required for most bases, a megabox (counting as 10 hits) is displayed to save space. A sample is shown here. Note that the two megaboxes in this structure block are much larger than the normal boxes, and include a "10" as a reminder that they are the equivalent of 10 smaller boxes.



Whenever you take 10 points in a single volley, use one of these boxes for administrative convenience. Do not round any volley up to 10, as these represent exactly 10 points of damage (no more and no less). If, for example, you need to mark 9 hits, either mark 9 small boxes, or mark a megabox and erase one normal box.

Many players have found the megabox concept confusing or tried to read too much into their presence. Just remember that all a megabox does is replace ten normal boxes with one bigger one. It doesn't have any other special meaning or connotation.

9.4.4 Sides

Bases have sides like any other ship, but these vary in number from as few as 2 to any number (depending on size).

When determining which side was hit by enemy fire, the target of the shot selects a side, but it must be one that faces the incoming shot (as represented by the firing arc next to the structure block in question). If there are no eligible sides, the shot penetrates as a primary hit. Note that if the enemy is firing multiple weapons from a single unit, all weapons from that unit must strike the same side of the base. However, shots from different unitseven those in the same hex-could hit different sides, so long as they all had arcs facing the incoming fire.

Piercing weapons divide shots against bases into three segments, as they would with a capital ship. The first segment hits the facing section, the second the primary, and the third the section exactly opposite the first. On bases with an even number of sides, the results of this will be obvious. On bases with an odd number, however, there will be two possibilities for the third damage element. In such cases, the defender makes the choice (as he would when resolving other ambiguous situations).

The firing ship can use the called shot procedure to target a specific side with a -8 penalty. In addition, it is possible to narrow the shot down to a specific system at a further -8, for a total of -16 to hit. (This may seem prohibitive, but the defense ratings of many large bases are in the 20s, making them vulnerable to this tactic.)

9.4.5 Firing Arc

In addition to determining whether a structure block can be hit by an incoming shot, a section's firing arc also applies to all weapons attached to that structure.

9.4.6 Armor

All systems on a base have armor equal to that found on the structure block they are attached to (be it side or primary structure), except gravitic shields (which always have an armor value of zero). Thus, armor is displayed in only one place, next to the structure block itself.

If a base is hit by a weapon that destroys or reduces armor permanently, that effect will apply only to the system being struck (not every system attached to a given side). In this case you'll need to keep track of the armor value on the targeted system individually for the rest of the scenario. Simply write the new value next to the affected system.

9.4.7 Reactors

Each side of the base, and the primary section, possesses its own reactor. If this reactor suffers any criticals or is destroyed, the power loss affects only the systems on that side (and if it is destroyed or goes critical, the explosion only destroys the side the reactor is attached to). The reactors *can* transfer power between sides, however. In

effect, you can pool your reactor power as needed unless a particular reactor is critically damaged or destroyed.

Each reactor suffers its own critical hits. however, instead of +1 on the critical roll per hit scored, reactors on an enormous base receive a modifier of +1 per 2 hits scored (dropping fractions). If a natural "20" is rolled on the die, the reactor cannot transfer or receive power out of its section for the remainder of the scenario, in addition to any other critical hit caused by that die roll.

9.4.8 Destruction

Bases are destroyed just like ships, i.e., you must knock out all the primary structure boxes. The loss of any number of sides will not cause a base's destruction.

9.5 Fighters

Fighters are small, usually one-man attack craft designed for a variety of roles, including anti-ship actions, ground attacks, short-ranged patrols, police .work, and intercepting enemy fighters. Used by almost all races due to their high firepower-to-cost ratio, fighters come in a variety of types, each with their own features, as listed hereafter.

9.5.1 Light Fighters

The most basic fighter, these are usually fast but poorly armed craft most suitable for an interception role. Their primary advantage lies in their low cost and high speed. Because they are so small, a single hit from an enemy fighter or defensive weapon will usually destroy them or force them to drop out. Light fighters have the ability to jink up to 10 levels, a feature that can make them all but unhittable when fully employed.

9.5.2 Medium Fighters

One of the more common fighter types, medium fighters are considered average in most respects. They normally carry standard fighter weapons on a mid-sized frame capable of surviving the first engagement in a dogfight. Their average nature makes them suitable for a number of roles, though they are generally too small to carry any additional external ordnance.

Medium fighters can jink up to 8 levels.

9.5.3 Heavy Fighters

The combat fighter of choice for a number of races, heavy fighters can carry just about any weapon suitable for use on a fighter, and often have a number of external hardpoints. Their size affords them the ability to survive one or two blows from an opponent, and many are heavily armored enough to enjoy extended staying power. If there is a disadvantage to this category, it is in its high construction and support cost.

Heavy fighters can jink up to 6 levels.

9.5.4 Super-Heavy Fighters

These gigantic fighters are so big they cannot be employed from a standard hangar. Instead, they must be carried externally and launched from special catapults. (See "Hangar Operations" in Section 10.1.3 for more details on this system.) For this reason, most races avoid using fighters of this type, as they are usually considered more trouble than they're worth.

Super-heavy fighters are so large they count as an entire flight of fighters for lock-on purposes. They do not operate as formal flights or squadrons, but are targeted individually. They operate as fighters for all rules except flight combat (super-heavy fighters always use the individual fighter rules) and EW. When locking onto a super-heavy fighter, it is treated as an entire flight, and if EW is lent to such a fighter, it benefits as though it were a ship. Note, however, that it is treated as a fighter for any other purpose, such as weapon fire controls and the like, except as noted herein.

Super-heavy fighters are hardened against many EM effects and provide extra protection for their crews. They are immune to any special weapon effect that forces an automatic drop-out, and if using the optional fighter critical hit rule, they have a bonus of -1 to any such die roll.

The typical super-heavy fighter carries a heavy fighter's armament, as well as at least one heavier gun used for anti-ship work. Most fighters of this class also carry a number of external hardpoints, usually for missile carriage.

Super-heavy fighters can jink up to 4 levels.

9.5.5 Ultralight Fighters

These tiny craft are employed by only a few fighter-specialized races. They are extremely small, and will be crushed by a single shot from most weapons. In addition, they use only the lightest guns, making them only mosquito-like in their effectiveness. However, like the insects they resemble, they have the ability to swarm an opponent. Their low cost and small size means they can be employed in huge numbers (assuming that many pilots are available). Opponents using heavy fighters against them will find their guns are overkill against their tiny foes.

Unlike larger fighters, ultralights are small enough to be packed into hangars at twice the normal rates. Thus, a hangar normally capable of holding only twelve fighters could support up to twenty-four ultralight ones. The launch rate of the hangar is not increased, however. (Note: Some light fighters, are also able to use this same ability due to their unique construction. Such fighters will have this ability noted in their specific rules.)

Ultralight fighters have no jinking limitations. They can jink as many levels as they can afford, using the usual thrusting rules.

9.5.6 Hunter-Killer Remote Fighters

These weapons are treated, not as fighters, but as controllable missiles. Most races see the suicide fighters as far too expensive in terms of development and maintenance.

Special Rules: Hunter-Killer flights are operated according to the normal rules for fighters, with the following exceptions.

1) H-K flights must begin all scenarios in the Hangar.

2) Upon launch, a default target size (Enormous, Capital, HCV, MCV, LCV, Fighter) and a default jinking level must be written down for each flight, in case control is lost. If an H-K flight is uncontrolled it must move towards (and attempt to ram, if possible) the nearest enemy ship of it's default target size. It must jink at its default jinking level, suffers an initiative penalty of -3 and may only use half of its remaining thrust for acceleration or deceleration. Control of a flight of H-Ks may be lost through damage to, or destruction of H-K control or through Command-link Jamming by an enemy ELINT vessel. H-Ks may also be launched in autonomous mode.

3) Hunter-Killers only cause damage through Ramming, and obey all of the standard ramming rules. Each H-K in a flight resolves it's attempt separately.

4) A range penalty of -1/3 (-1/2 if uncontrolled) is applied to the ramming roll. The range in this case is determined by the number of hexes the H-K moved that turn to bring it into the ramming hex. This penalty represents the decreased time available for the onboard computers to develop a firing solution before committing to the attack run.

9.5.6.1 Hunter-Killer Control System

These extremely specialized sensor and communication systems allow the controlling warships to remotely pilot flights of Hunter-Killer Remote fighters. The number on the H-K Control icon indicates the number of flights that can be controlled. Control of a Hunter-killer flight does not have to be by the launching unit, but can be by any ship with an operational H-K Control system. Control is transferred in the Adjust Systems (before Critical Hits) phase of the turn.

9.5.7 Warrior Projectiles

These are hyper-dense, hardened projectiles, self-guided and enhanced by a gravitic augmenter, used by some advanced races. Launched in flights, these projectiles swarm through space, smashing their way through their target before moving on to another. The ultimate advance in matter weapon technology, they are guided, re-targetable rail gun rounds. Having no ranged weapons, they attack by a special method of ramming.

Ramming: When attacking a ship, a flight of Warriors may choose one of two modes.

1) Direct Ram mode. Warriors fly directly into the enemy

ships, in an attempt to bash straight through. Each Warrior does an amount of damage equal to the number of its undestroyed structure sections, scored as an advanced race matter-class weapon. Flight level to hit rolls as normal, and each location is rolled separately. If the Warrior fails to completely destroy the location, it takes an amount of damage equal to double the armor rating of the damaged system (reduced by the Warrior's armor) and must make a drop-out roll at the end of the turn at +4.

2) Glancing Ram mode. In this mode, each Warrior does 1d10 advanced race matter-class damage, flight level to-hit and location rolls as normal. This represents the Warriors taking a more cautious mode of attack.

It is possible to use the normal ramming rules, if allowed by the particular scenario. This would cause considerably more damage to the target but guarantee the destruction of the Warrior.

Regeneration: Similar in construction to orbitals, a partially damaged flight of Warrior projectiles can land on a ship, spend 5 full turns on board and launch again fully regenerated. There must be at least one undestroyed Warrior projectile in the flight for the regeneration to take place.

Hyperspace Travel: While Warriors do not possess jump drives, they may follow any jump drive-equipped friendly ship into or out of hyperspace if they both end their movement in the same hex. It is assumed that the Warriors move very near to the ship, at the same proximity as orbitals.

9.5.8 Stiletto Drones

These weapons exist in a constant state of shading (see Section 10.18.19) and are often dismissed as sensor anomalies by anyone who doesn't know what they're looking at.

Stiletto drones are fitted with a hybrid jump engine/shading field. In any turn in which a flight of Stilettos doesn't desire to fire its weapons, it may be considered to be shaded:

- An enemy ship may only detect the flight if within 15 hexes
- Use the reduced defensive ratings when being targeted (the ones in parentheses)

Capable of existing on their own for centuries, Stiletto drone flights are not transported into battle by any sort of carrier. They may be guided to enter or exit hyperspace by any ship of the race deploying the Stilettos leaving or entering at the same time.

At the beginning of the scenario, the player must designate which ships are controlling which flight(s) of drones. This need not be announced until the time at which a controlling ship is destroyed.

While the controlling ship is functional, the Stiletto drones are immune to dropout. However, when the ship that they are linked to loses its C&C or is otherwise destroyed, the drones must test for dropouts as normal.

A Stiletto drone contains no crew and can never contain a telepath. They may never have any ship or crew enhancements.

9.6 Shuttlecraft

Usually referred to as simply shuttles, these craft are designed for a variety of missions, such as transporting crew or supplies, boarding other ships, rescuing escape pods, and the like. The typical shuttle is unarmed, and includes a simple damage track and information box on the control sheet of the ship that carries it. This information appears in the hangar datacard, like the sample shuttle info shown here.

Shuttles occupy boxes in the ship's hangar (one shuttle per box, as noted on the control sheet). When deployed, they count against the hangar's launch and recovery rate. A box containing a shuttle also includes supplies and support equipment for that unit, and cannot be exchanged for a fighter or other craft. Unless noted otherwise, fighters are not permitted to use shuttle space in a hangar. Shuttles do not use flight level combat, although groups of up to six of them will be treated as a flight (for example, when allocating EW against them). Unless noted otherwise, shuttles have an initiative bonus of +9.

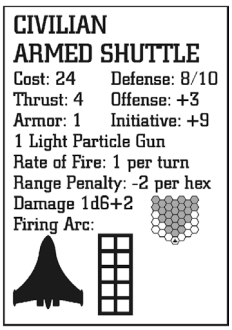
The shuttle datacard does not include a ramming factor under most circumstances. To calculate this, simply odd the

number of structure boxes to the amount of armor available. *For example, the shuttle in the box above would have a ramming factor of 11.*

Certain special types of shuttles are available. These are listed hereafter.

9.6.1 Armed Shuttle

In some cases, standard shuttles are armed for combat. This is rare, and normally occurs only in special situations, often as a surprise for an enemy. An example (a typical civilian shuttle) is shown in the diagram provided. If a shuttle is to be armed, use the standard shuttle type shown on the ship control sheet, but add a small weapon to it (as listed in the race's unit list). The armed shuttle replaces the unarmed one, and the point cost shown must be paid (there is no "refund" for the unarmed shuttle). Armed shuttles other than those listed are not available—i.e., this is not an excuse to put any kind of weapon you like on a shuttle.



Only standard shuttles may be modified. Troop shuttles, cargo shuttles, and other shuttle variants may not receive added weapons (except as noted otherwise in the rules for those units).

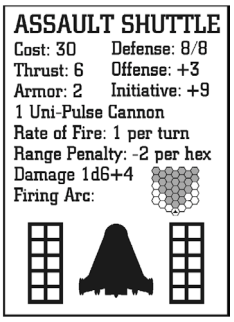
All firing arcs are identical to those found on standard fighters, except as noted. The range penalty is -2 per hex and the fire rate 1 shot per turn, unless listed otherwise.

Armed shuttles are not fighters, but are treated as shuttles for most rules, except as noted herein. *For example, an armed shuttle cannot jink.* It can make a combat pivot, but this requires three times the normal pivot cost, as described in the rules regarding Fighter/Shuttle Movement.

Shuttles armed with weapons cannot be identified as such unless an opposing unit closes to range 8 (range 4 for shuttles or fighters), and then only if viewed from the front. This gives them an opportunity for a surprise attack or at least for use as decoys.

9.6.2 Assault Shuttle

These are large armed shuttles used for the purpose of carrying troops and supporting their deployment. They are normally used only by assault ships (i.e., troop carriers). Assault shuttles are the size of medium fighters, but are treated as shuttles for most other rules (they cannot jink, and combat pivot like shuttles do). They use the individual shuttle rules, not flight level combat. A sample assault shuttle diagram is shown here, with a hit record for two such shuttles available.



Assault shuttles cannot be used in shuttle boxes aboard ship, but are deployed from their own special type of hangar box. Troop ships that use assault shuttles will note this fact on their control sheet in the hangar datacard. Other types of carriers occasionally deploy assault fighters for special missions, launching them from any box capable of supporting a medium or larger fighter. For this reason, is permissible to trade an assault shuttle for a fighter, or vice versa, but this costs 5 Combat Points per hangar box converted.

Assault shuttles are almost always armed, allowing the craft to fight its way through an enemy fighter screen on its way to its destination.

9.6.3 Minesweeping Shuttle

The shuttles used on minesweepers utilize an enhanced sensor package optimized for mine detection. These shuttles (but not fighters, if any are present on the same ship) have an improved offensive bonus of 4 and can operate it at full strength, not half-strength, when detecting mines (see the mine rules for more information on this procedure).

A non-minesweeper may upgrade a standard shuttle to the minesweeping type for a cost of 10 Combat Points per shuttle or +20% to its cost, whichever is higher. This would not be done normally (i.e., while the ship is on patrol), but only if the ship expected to encounter mines in an upcoming base or planetary assault. Armed shuttles can rece1ive this improvement (e.g., a Combat Flyer with a minesweeping package would cost + 14 points).

Minesweeping shuttles are included in the cost of any minesweeper. If converted to an armed design, they lose their minesweeping abilities, unless this is paid for as above.

9.6.3.1 Remotely Piloted Minesweeping Shuttle

These are treated as minesweeping shuttles with a dedicated 4 point detection ability but with the requirement that they be controlled by the same procedure as Hunter-Killers, with control points allocated to that purpose and counting against the H-K control limits. Minesweeper Drones are operated as individual units, not flights. A single HK control point can control six independent shuttles. The sweepers need to have a course and speed recorded, and if control is lost, they must follow this heading. Alternately, they can have a speed and location recorded, and must move to that location at that speed until it is reached and motion stops. If uncontrolled they will not report mine locations detected while following their instructions.

9.6.4 Cargo Shuttle

These are special shuttlecraft designed to transport cargo. They are generally large and slow, and are almost never armed. Because of their size, they cannot be used in normal shuttle boxes, only on enormous units or ships specifically denoted as carrying them. If a cargo shuttle lands on a ship not normally equipped with cargo shuttles (other than an enormous unit), it requires two undestroyed boxes in the shuttle bay. If one of these boxes is destroyed while the shuttle is aboard, it is also considered destroyed.

Cargo shuttles are capable of carrying cargo, crew, marines, and other supplies. A shuttle of this type must spend a certain length of time in the landing bay loading these items. A shuttle can load or unload one “unit” of cargo each turn; however a “cargo unit” might be defined in the scenario rules. Generally, this will be a number of crates or pallets already prepared for loading or unloading, and vary depending on container size and shape as well as contents. Cargo shuttles can hold one “cargo unit” for each undestroyed box of structure they possess (and if these boxes are destroyed in combat, each box takes one cargo unit with it when it goes).

Each turn, a cargo shuttle can load up to 10 people if they are members of a military unit (like a platoon of ground troops) specifically trained for this purpose. Untrained individuals, but those still with military training (like a ship’s crew), can board a shuttle at a rate of 5 per turn. The rate for civilians, injured people, and the like is 2 per turn.

9.7 Breaching Pods

These heavily armored shuttles are designed to attach to an enemy ship, cut a hole in its hull, and allow Marines access to the interior. More often than not, the attackers are met by resistance from the target vessel’s crew, making their mission difficult at best. If they manage to break through, however, they can attempt to perform various acts of sabotage or even capture the ship.

Breaching pods are treated as shuttles for most rules except as described hereafter. They are listed in a separate section due to the complexity of their rules.

9.7.1 Attaching a Pod

To attach to an enemy unit, a breaching pod must end the Movement Step of the Combat Sequence in that unit’s hex. The difference in speeds between the two units may not be greater than the pod’s thrust rating. If the target is moving faster than the pod, roll 1d10, and if the result is equal to or greater than the difference in speed between the ship and the pod, the pod can attach. *For example, if a breaching pod with 6 thrust moving speed 8 attempts to attach to as destroyer moving speed 14, it would need to roll a 6 or greater (14 - 8 = 6) to attach.* If the pod is moving at the same speed as, or faster than, the target unit, the chance of success is automatic so long as the pod’s thrust rating can compensate for the difference. For this reason, a pod moving at a rate equal to its thrust value or less can always attach to a speed-zero base or other unit, for example.

Pods cannot attack units equipped with advanced armor, but any other unit is fair game unless listed otherwise. Shields and other defensive items will not prevent a breaching pod from attaching unless otherwise specified. Finally, a pod

cannot attach on the turn after it first launches, as it needs time to orient itself on the battlefield and its target. (If it was attached to an enemy ship and detaches, this restriction is ignored.)

If the above conditions are met, the pod attaches immediately (at the end of the Movement Step). Once attached, a breaching pod may not be fired upon by the unit it is connected to, and if any units friendly to the ship (but not enemy units) shoot at the pod, their weapons will automatically hit and damage the target ship (in addition to the pod, should they hit it). This would equally apply to any ballistic weapon targeted at the pod before it attached; however, the player controlling the ballistic weapon is permitted to voluntarily miss (by sending an abort signal to the weapon) to avoid this sort of "friendly fire."

Breaching pods attach to the side of the ship they are facing when the Movement Step of the Combat Sequence is completed. No more than two pods can be attached to any ship section at a time. *For example, on medium ships, only two can attach as there is technically only one "section" available (one pod could connect to the forward area and the other to the aft area).* Heavy combat vessels can support four (two forward and two aft), and capital ships can accept eight (two in each of the four areas). Enormous units and bases can hold two per section unless otherwise noted, while light combat vessels and OSATs can hold only one regardless of size. Pods can attach to destroyed sections, but are still limited by the above rules.

Breaching pods remain attached to the ship until destroyed or the target unit is destroyed (in which case it detaches and escapes safely). If, however, the side structure the pod is attached to is directly destroyed while the pod is present, the pod is also considered destroyed. If any of these occur on the turn it attaches, it does not get a chance to deliver its Marines. (Note: The pod can also detach voluntarily during any turn. See the end of these rules for more information.)

9.7.2 Delivering the Marines

Each pod can carry a group of Marines, referred to in these rules as a contingent. The size and makeup of such contingents varies depending on the race, but all are mobile, heavily armed units designed to strike quickly and inflict maximum damage from within, then retreat safely with minimal losses.

Once attached, the breaching pod deposits its Marines on the next turn, during its opportunity to move in the initiative sequence. The defending ship rolls 1d10 at this point to see how well its crew deals with the attacking Marines. Modifiers: +1 if the defender is allowed to ram in the scenario (representing the desperation of the situation), -1 if the attacking side can ram: +1 if the defenders are adept soldiers, -1 if the attackers are adept soldiers, +2 if the defenders are elite soldiers, -2 if the attackers are elite soldiers, -2 if the pod is attached to a destroyed ship section. Consult the following chart:

5 or less: Marines defeat the defenders and can proceed with their mission.

6-8: Marines are driven back and the pod is forced to detach (launch) on that turn. Mission fails.

9+: Marines are killed and the pod must detach. Mission fails.

Note that if the pod detaches with Marines aboard, they can attempt to attach again on the next turn, to the same or any other target. In any event, if the pod detaches, it is subject to initiative penalties on the next turn as if it had launched from a ship, but the target ship is under none of the usual penalties for launching fighters or shuttles (unless it is on the same side or team as the owning player).

9.7.3 Marine Missions

Once aboard, the Marines can attempt one of several missions: sabotaging a system, wreaking havoc, rescuing a captive, deactivating a satellite, or capturing the ship. These attacks are made during the Post-Turn Actions Step of the Sequence of Play, just before critical hits are rolled (so any damage caused would be subject to critical hit rolls). If the Marines have not been killed or forced to withdraw,

they can make one attack each turn. (If they choose not to make an attack, the defenders can make an attempt to drive them off the ship or kill them using the preceding chart. The Marines can also voluntarily retreat, and the pod can make its getaway, on any turn the Marines do not make an attack.) If the ship section they are in is destroyed while they are still aboard, they are killed (along with any enemy crew in that section). The various attacks are defined hereafter.

In each of the following cases except capturing the ship, the following modifiers are applied to any die roll: -1 if the attacker can ram, +1 if the defender can ram, -1 if the attackers are particularly adept soldiers, or +1 if the defenders are particularly adept soldiers. All of these modifiers are cumulative.

9.7.3.1 Sabotaging a System

If the Marines choose this mission, they can select anyone system (but not structure) attached to the structure block they landed on and try to blow it up with demolition charges. (If they attached to a medium ship, or to a destroyed ship side, they can attempt to sabotage systems located in the Primary area, but otherwise they are limited to the structure block they attached to.) The Marines are free to select whatever system they like, although it must be undestroyed. Roll on the following chart, using the modifiers listed above:

1 or less: Satchel charges explode, scoring 3d6+2 damage to the targeted system. The Marines escape unaffected.

2-3: Satchel charges explode as above, but score only 1d6+2 damage. The Marines escape unaffected.

4-5: Satchel charges score 1d6+2 damage as above, but the Marines are killed in their attempt to retreat from the area.

6-8: No effect. The Marines fail, but manage to escape the area with slight casualties. They can try any mission next turn at a + 1 cumulative penalty on mission die rolls.

9+: The Marines are killed before they can accomplish their mission. If a natural "1 0" was rolled, most of the Marines are actually pinned down and captured (which could have meaning in a campaign).

Damage scored is treated as though it were caused by a matter weapon, i.e., it ignores armor and all overkill is lost. If the Marines survive, they can continue to make attempts on future turns, but cannot attack any other area of the ship (i.e., they cannot move deeper into the enemy vessel).

9.7.3.2 Wreaking Havoc

In this mission, the Marines disperse into the ship, killing crewmen at random and generally disrupting operations at every opportunity. As each Marine is largely unsupported, this is generally considered a suicide mission, and can be attempted only if the Marine player is permitted to ram (i.e., the situation is particularly desperate). Exception: some marines, those with little self-preservation instincts, can attempt this mission at any time. (Note: If the breaching pod that deposits the Marines is destroyed or departs, this is not an excuse to start wreaking havoc.)

When this attack is made, it automatically continues every turn until a "Marines Killed" result is received. There is no way to recall the Marines, and the pod will probably detach as soon as this mission is announced. A Wreak Havoc mission cannot be turned into one of the other missions once declared.

As with the Sabotage Mission, this mission is resolved using a d1 0 with modifiers as listed previously. Use this chart:

1 or below: A Marine manages to score damage in a crucial area. 1d6 damage is caused to a primary system. Roll on the Primary Hits chart, re-rolling any Structure hit, and ignore all armor and overkill.

2: Disruption to internal operations reduces the ship's initiative by 1d6 on the next turn.

3: A jamming device is set up, reducing the ship's sensor rating by 1d3 on the next turn.

4: A Marine manages to clog up the engine conduits, reducing the ship's free thrust by 1d3 on the next turn. (On

ships with gravitic drives, there is no effect.)

5: A signal emitter is activated, allowing ships with a lock-on to the vessel a + 1 bonus to hit it on the next turn.

6-8: No effect, but at least one Marine is killed in action, so further rolls on future turns are at a + 1 penalty (cumulative with previous mission rolls).

9+: The Marines are killed, captured or otherwise eliminated from effectiveness.

9.7.3.3 Rescuing a Captive

This mission can be undertaken only in certain scenarios, wherein an individual or group is being held hostage or a particular item or object must be safely recovered. It is assumed that the target of the raid is being guarded. If not, the attacking player receives a -3 bonus on his die roll (this could be the case in scenarios where the defender doesn't know what he has).

This mission can also be used to capture or kill a particular individual, such as an expert or elite officer known to be aboard. In this ease, scenario rules will specify any bonuses or penalties to the roll. In campaigns where this mission might be allowed, the raiding force must know the officer exists (typically by having encountered him in a previous scenario). The campaign rules may also specify certain intelligence conditions, such as learning the true identity of the officer and possibly acquiring photographs or other means of identification.

This mission also may be employed to steal certain items (such as data crystals), collect computer information, gather technology or intelligence, deposit or rescue a spy, or perform any other small, scenario-specific goal. Scenario designers are encouraged to think up their own unique uses for this mission.

When the "Rescue" mission is attempted, roll on the chart below, with modifiers as in the previous two missions:

2 or below: The raid is successful and the Marines escape unscathed.

3-4: The raid is successful, but so many of the Marines are killed during the retreat that the contingent is effectively destroyed.

5-6: The raid is unsuccessful, but the Marines survive and can try again next turn, at a +1 cumulative penalty.

7+: The Marines are killed in the attempt, which is unsuccessful.

9.7.3.4 Deactivating a Satellite

Marines can attempt to deactivate unmanned OSATs if their pod successfully attaches to one. (Manned OSATs must be captured as though they were ships.) The Marines basically work their way through the satellite in an attempt to locate key control circuits, which are usually well hidden to prevent just such operations. Roll on the following chart with the usual modifiers:

1-2: The attempt succeeds and the satellite is deactivated. If the satellite is being controlled by a player, the Marines must remain in place (if they leave, the satellite reactivates on the next turn, beginning all weapon arming cycles at that point). If the satellite is uncontrolled, the Marines can depart safely.

3-4: The Marines find a crucial system, but it selfdestructs, killing them in the explosion. The OSAT is deactivated for one turn (and all weapons must start rearming cycles over after this delay) while controls are shunted to new systems.

5-6: The raid is unsuccessful, but the Marines survive and can try again next turn, at a +1 cumulative penalty.

7+: The Marines are killed by automated defense systems. Their mission fails.

9.7.3.5 Capturing a Ship

This mission is usually attempted only by multiple breaching pods at once, and is very difficult to pull off. Typically, the target vessel is disabled and stripped of weapons by called shot fire, allowing the pods easy and safe access to its hull. The attacking ships often fly alongside, allowing pods to land and load more Marines if their first attacks fail.

To attempt to capture a ship, the Marines must first deal

with the defending crew, who will take up arms to defend themselves and their vessel. Assume that there are the equivalent of one contingent of Marines aboard for every 20 points of Ramming Factor (which is a good measure of overall hull structure, and therefore crew strength), plus any extras purchased (see below). Use a ratio of one Marine for every 15 points of Ramming Factor in the case of elite ground troops.

During a battle to take a ship, each attacking and defending Marine on board rolls 1d10, subtracting 1 for Elite units, and subtracting 1 if the space battle has already been won by the appropriate player (thus reflecting the crew's morale). If the roll is 5 or less, they hit and kill one defender. Each unit on either side is permitted one such roll every turn until the attackers are all defeated, or the defenders are killed (at which point the ship is captured).

Captured ships surrender, and agree to pilot themselves off the field of battle at the direction of their new owner. They do not, however, fire upon their former friends (and the last act before they surrender is usually to lock out the weapons systems so this cannot be done). Note that the friendly side can attempt to recapture the ship by landing his own breaching pods, in which case the weapons could be unlocked after the ship is retaken.

9.7.4 Aftermath of the Attack

Pods can detach after Marines have returned (either successful or not), after they have been killed, or while the Marines are still in action (in which case their mission effectively becomes a suicide run, though this does not permit wreak havoc missions to be undertaken unless already allowed by other rules). When the pod detaches, it is treated as having launched (for initiative purposes) and has the heading and speed of the ship it was attached to. It must be facing away from the side it attached to (i.e., towards the hex edge opposite the side on which it landed).

If any Marines are left aboard hostile ships when the scenario is over, they usually surrender (assuming the hostile vessels hold the field of battle) or are ordered to stand down. Captured Marines might have value in special scenarios or during a campaign.

9.7.5 Purchasing Breaching Pods and Marines

Breaching pods replace either normal shuttles (at a cost of 10 Combat Points, in addition to the pod's cost) or fighters/assault shuttles (at no extra cost, other than that of the pod itself), on a one-forone basis. No more than one such pod can be purchased for any medium ship or HCV, no more than two per capital ship, and no more than four for enormous units or bases. Assault ships (i.e., those vessels specifically noted as carrying troops) can carry double these numbers if they have enough shuttle boxes to permit it. Certain exceptions may exist for specialty ships or in published scenarios, and these will be described in the appropriate ship rules.

Each pod comes with two contingents of Marines, although extras can be purchased for 10 points. The maximum number of contingents that can be bought as extras (not those that come with pods or already present on the ship) is equal to 1%of the ship's Combat Point value, rounding any fraction up. In addition, some ships carry contingents as standard equipment. Assault cruisers (capital ships) have four, assault HCVs have three, and assault-class medium ships carry two. Bases have one for each section (i.e., one for the primary and one in each of the attached sides). If a ship has a different quantity, the amount will be listed in the "Special Notes" box on the control sheet and in the ship description. There is no cost for these "inherent Marines."

For example, an assault cruiser, carries four Marine groups as standard equipment. In addition, the player can buy up to 4 breaching pods in place of the assault shuttles or fighters, or in place of normal shuttles at a cost of 10 points each. These pods provide a further 2 contingents apiece. Finally, 1% of the assault cruisers Combat Point cost is 5 (after rounding up), so 5 additional Marine units can be bought, for a total of 17 Marine units.

Only one contingent can be used by any pod at any given time. If the pod can return to the launching ship, it can pick up another Marine group after 1 full turn of hangar bay

actions. Note that unused Marines can help defend the ship if an opponent tries to capture it, as described previously.

9.7.6 Grappling Claws

Developed as a means to attach a small vessel to an enemy warship during battle, this device uses both physical force and magnetic attraction to force the two units into contact. Once attached, holes are drilled through the floor of the claw assembly and marine contingents are free to make their assault.

To attach, the claw-equipped ship must win initiative on the target and end its movement in the ship's hex. The attacking unit then makes the attempt at the same point in the Combat Sequence that breaching pods attach. The chance to succeed is rolled on 1d20. If the number rolled is greater than the difference in speed between the two units, the attempt is successful. (Thus, a speed difference of zero guarantees success.) An expert helmsman adds +1 to the roll, and a bonus of +2 is allowed if the target unit is enormous.

The grappling claw can only operate if the ship is facing the target properly, as represented by the "firing arc" on the claw's icon. This arc also affects the direction from which the claw can be hit by incoming fire. The claw is not a true weapon, however, as it does not score damage on the target. Its power requirement is zero, though it draws a nominal amount of energy, so it will be deactivated if struck by a burst beam (for example) or if the ship suffers critical power losses.

Once the two ships are joined, neither can fire weapons at each other. They continue to operate independently for most other purposes, however. *For example, both operate their own EW, and both accept loaned EW independently of each other.* The attaching unit cannot perform any maneuvers, but the target may do so, if it is of the same size or larger than the attacker. Its turn costs and turn delays are increased to the sum of both units' values (e.g., a ship with a 1/3 turn cost attached to one with a 2/3 turn cost would produce a total turn cost of 1). Retain all fractions. The target unit moves the conglomerate group when its turn arrives in the initiative sequence, and it may maneuver normally (if it rolls or pivots, any firing penalties apply equally to itself and the attached unit). Since both units are connected, they will both be affected by terrain equally, and will both enter a vortex together.

No more than one unit can use grappling claws to attach to a medium ship or heavy combat vessel. Two units can attach to a capital ship, but both must be on opposite ends. One unit can attach to each section of an enormous base. Breaching pods cannot also attach to any section to which a claw-equipped vessel is connected.

The structure block to which the ship attaches must be intact. If it is destroyed during the battle (or if the ship itself is lost), the claw-equipped vessel is broken free and any attached claws are destroyed. The destruction of either ship will not affect the other, except as noted above.

Once the attacking ship has attached itself to the target, all fire by weapons through the claw's firing arcs is blocked by the target's hull (they cannot fire at the target unit for safety reasons)-*. If the attached unit's weapons are capable of firing into other arcs or into a wider range, they can shoot at targets in those positions. The unit to which the ship is attached is not prevented from firing any weapons (except at the attached unit), a necessary simplification.

Each attached claw can deliver one marine contingent per turn, using the rules for breaching pods. One such contingent can also be recovered each turn (this does not interfere with any new ones being deployed). The typical use for this attack is to attempt to capture the enemy target, though other missions are certainly possible.

9.7.A Crash Landing Assault

Sometimes, ships or bases must be boarded when breaching pods are unavailable. In these situations, assault shuttles can be used as makeshift boarding craft to deliver Marines. Crash landing attempts cannot be made on vessels with destroyed hangars, or on vessels that do not have hangars to begin with.

In order for a shuttle to successfully deliver its Marines, the assault shuttle must "crash land" aboard the vessel. To

accomplish this, the assault shuttle must end movement in the same hex as the vessel, facing into its hangar (i.e., if the hangar has an arrow showing its facing, the assault shuttle must enter the hex with the opposite facing). The crash landing attempt should be announced at this point.

After movement is complete, the crash landing attempt takes place. Use standard ramming rules with an additional -4 modifier to see if the crash landing is successful.

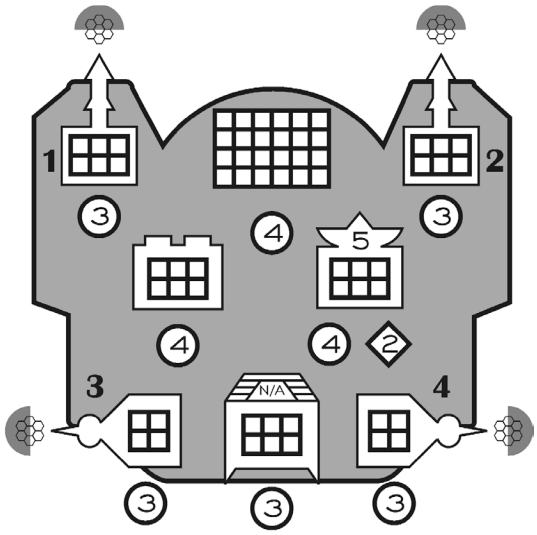
If the crash landing succeeds, the Marines are deposited in the hangar. Roll for ramming damage normally, and apply the assault shuttle's full ramming damage to the hangar (do not ignore armor). The assault shuttle will almost certainly be completely destroyed.

While wreaking havoc or attempting to capture the vessel would be the most common missions for these Marines, they can attempt any mission they would normally be able to perform.

(Mike Jasperson)

9.8 Orbital Satellite

Orbital satellites, also called defense satellites, OSATs, or a defense grid, are a special type of unit designed for use as a fixed defense element. Technically, they are treated as medium ships, with the same structural arrangements and initiative bonuses (where initiative would apply). Despite the fact that they cannot move, orbital satellites have no initiative penalties for their lack of speed. A sample OSAT is shown below.



9.8.1 Maneuvering

OSATs have no engines, but use a specialized omnidirectional thruster suite as a primary hit. This thruster can only pivot the satellite-it cannot be used for any other maneuver. The thruster can pivot the satellite to any facing desired by the owning player (treated as a combat pivot for all purposes, with no need to track thrust-note the lack of a thrust rating in the icon on the sample satellite shown here). If it has suffered damage exceeding one-half its boxes, it can only pivot the satellite one hex facing per turn. The thruster suffers no other critical hits.

9.8.2 Controls

Orbital satellites are usually (but not always) unmanned, and are under the control of the player defending the planet around which they are positioned. It is assumed that someone on the ground is commanding the satellites, allowing them to operate even if every ship on their side is destroyed. If the planet surrenders or is captured by ground operations (which may be possible in some scenarios), the OSATs would deactivate at that point. If an unmanned satellite is operating in open space, it deactivates when all ships on its side are destroyed or have lost their C&C systems.

It is also possible that OSATs might operate under automatic rules. If this is the case, the scenario will explain the contingencies under which they will fire (or give instructions to the owning player on how this might be done). If operating automatically, OSATs cannot accept other commands during a scenario, and will continue to act on their own until destroyed (even if the owning player surrenders or is defeated).

9.8.3 Deployment

OSATs are typically deployed by freighters or other logistical elements and cannot activate during scenarios. On rare occasions they are placed in open space near a staging area to defend against surprise attacks by an enemy. If carried by a freighter, OSATs cannot be activated during a scenario (as they are basically stored as cargo). Standard

OSATs require 40 boxes of cargo space, so the basic civilian freighter can hold four of them.

9.8.4 Towing

Races with tractor beams have been known to tow satellites to the scene of an engagement, though this is extremely rare. In such cases, the OSATs are pulled along in a combat-ready state. They cannot, however, use their weapons or thrusters while in tractor, though they can be tractored on the same turn in which they fired or maneuvered. Once a tractor beam is released (in the appropriate step of the Combat Sequence), the OSAT must then spend the entire ensuing turn stabilizing itself before it can take any actions. For example, if the tractor was released on turn 2, the OSAT could not fire or thrust on turn 3, but could use its weapons on turn 4.

Note that while being towed, OSATs are permitted to charge their weapons, including those with long rates of fire.

For example, if an OSAT fires on turn 4, and is subsequently tractored at the end of turn 4. The OSAT is then moved to a new location on turn 5, and the tractor released on turn 5, the OSAT could be ready to fire its neutron lasers on turn 7 because it could be rearming those weapons during the intervening time.

9.9 Mines

One of the subtler methods of waging war in space involves the use of mines to protect important strategic targets, such as colony worlds, industrial outposts, and, bases. In some rare cases, mines have even been used as part of an elaborate trap.

The rules hereafter present the basic system used to set up and operate simple minefields in AoG Wars. Note that no attempt is made to explain how mines are constructed, or how they might be physically deployed by military units. The sole purpose of the rules herein is to allow mines to be used in scenarios.

9.9.1 Mine Deployment

In general, mines will appear as a pre-existing condition as defined in the scenario rules. For example, the scenario might specify that mines of a given type or types will be present in a certain range of hexes on the map. The minefield-owning player will then place them secretly within the defined parameters. In some cases, the actual types of mines may not be specified, but the player may be given a certain number of points to spend to buy mines, and a broad latitude in their placement. Most of the time, minefields will appear only in specific published scenarios and won't be used in simple "let's get together and fight" type games, unless all sides agree to experiment with preplacement of mines. Note that under these rules, there is no way to lay a mine during a scenario and activate it.

Because mines exist as a pre-scenario condition, all players in the game will likely know about them (though their exact locations may not be known). This can be chalked up to military intelligence work, long-range scanning, or a previous encounter with the minefield. Only in a campaign would it be possible for a scenario to exist where one side does not know about the mines in advance, but even then, a player would be foolish not to check for the presence of a minefield before engaging an enemy.

Because the sensors mines use are restricted in a nebula, minefields will not appear in that terrain. Minefields may also not be used in hyperspace, as the currents therein will quickly scatter or destroy the mines. It is not possible to position a mine in a hex containing a planetary or moon surface (though they could be adjacent to such a surface), or in an atmosphere.

9.9.2 Placement of Mines

Usually, a mine-controlling player will be given a range of hexes or a zone in which he can place his minefield. These are not displayed directly on the map, but are instead marked on a mine location form in secret. Only if the mines are detected (or activate their weapons, if applicable) should their locations be revealed on the main map. There is no restriction on the number of mines that can be in any given hex. Players should always leave at least a 10-hex buffer between the minefield's edge and any approaching enemy ships, to give them at least a chance to maneuver before

encountering the fieldthe scenario rules will almost always arrange for this when listing the minefield deployment range.

Although the map itself is of a limited width, it is assumed that the minefield will actually extend off its edges, in a basically spherical pattern around the target (planet, base, or whatever). In many cases, the fixed point being defended is well away from the fringes of the minefield (as many as 100 hexes) and often won't even be involved in the scenario. For this reason, minefields cannot be avoided simply by flying off one edge of the map, moving around the field, and reentering the map elsewhere. The scenario rules will usually prohibit this sort of maneuver. If desired, players can extend a minefield into additional maps "off the edges," simulating the "belt" of mines that surround the defended point. Except as noted above, mines can be placed in any hex on the map that is within the minefield deployment zone (as defined by the scenario rules).

9.9.3 Paying For Mines

While many scenarios will simply list the types of mines to be placed in the field, some will allow an amount of points to be spent on mines of the player's choice. Players may also want to purchase mines for use in "pickup" battles.

The basic cost of any minefield is 100 points. That is to say, in order to have any mines present at all, you must pay 100 points just for the privilege. This represents the strategic cost of producing, acquiring, and laying mines. Note that this refers only to pre-existing minefields—no provision is made for laying mines during a scenario.

In addition to this, add the cost of each individual mine in the field. Prices per mine are provided at the end of this section. The resulting subtotal-l 00 plus the cost of all individual mines-is then increased by 10% for each different class (proximity, captor or DEW) of mine selected after the first, representing the difficulty in procuring and supplying each type, as well as the tactical advantage of having a variety of options present.

For example, a player creates a minefield containing 10 Class-P3 Proximity Mines (20 points each, 200 total), 30 Class-P1 Proximity Mines (10 points each, 300 total), and 6 Class-03 DEW Mines (25 points each, 150 points total). The subtotal would be 650, plus the 100-point cost of the field itself, or 750 points. However, there are three different classes of mines, increasing the total by a further 20% to 900.

9.9.4 Types of Mines

There are three basic categories of mines: Proximity, Captor, and Directed Energy Weapon (DEW). Each has its own advantages and disadvantages.

Proximity mines are simple explosive types that are cheap to build. They are very shortranged, as they rely on their own explosion to cause damage (the intended victim must therefore be close by). Basically, they are little more than a bomb-pumped beam weapon with a proximity detection fuse attached to it. Because of their simplicity, they are relatively inexpensive and ordinarily appear in very large numbers, forcing an enemy ship or fleet to slow down to avoid or destroy them.

Captor mines are mobile, with their own small engine and thruster in addition to the usual explosive. When a viable target comes within their activation range, they accelerate to incredible speeds in an attempt to impact and explode on the target, which could be several hexes away. This makes them capable of doing significant damage even in small numbers, but they are vulnerable to point defense systems.

Directed Energy Weapon mines (DEWs) are basically weapons mounted on small, fixed platforms. They have their own power source and are renewable, unlike other types of mines. In addition, advanced control systems are available that allow the targets of these mines to be directed by players, as opposed to automatic rules.

9.9.5 Detecting Mines

Mines are shielded from detection by electronic signature masking devices, low-reflectance surfaces, and similar technologies (varying by race, mine type, cost, and enhancements). Each mine has a signature rating that indicates how hard it is to see. This is a numeric rating-the larger the number, the harder it is to detect.

To locate mines, a ship applies electronic warfare points to "mine detection" (instead of offensive or defensive EW or ELINT functions) during the Determine & Announce EW Status step of the Combat Sequence. After all EW determination has been made by all players, those who have spent EW on mine detection announce this (even if using the Secret EW optional rule) and any detected mines are revealed. Note that players may not see the result of one ship's attempts before choosing their own EW status or levels (even ELINT ships).

Fighters and shuttles can attempt to detect mines, but not as effectively. To do this, a fighter/shuttle would simply declare some or all of its Offensive Bonus points are being used for this purpose, and those points would not be available for combat on that turn. However, each point of Offensive Bonus is only half as effective as a ship's EW points would be (drop any fraction). Thus, a fighter using 7 offensive points would consider this to be only 3 EW points for purposes of mine detection. Note: Shuttles are considered to have an Offensive Bonus of 3 (before halving) for this purpose only, unless stated otherwise in the race's rules or the shuttle description.

When mines are being detected, the detecting player announces how many points of EW he allocated to that purpose. The minefield owner then looks at his master map or list of mine types and locations, and reveals any detected mines by placing a counter, coin or other convenient marker in the correct hex. A mine is detected if the EW "pulse" is of a strength equal to or greater than the mine's signature plus the range to the mine. For example, a mine 5 hexes from a detecting ship would be detected by a 6-EW detection pulse if the mine had a signature of 0 or 1, but not if it had a rating of 2. Detection EW remains active throughout the turn, and works throughout a unit's movement. Each time a unit moves, check its detection EW against any mines in the area, and reveal any that have been detected.

Once a mine is detected, it can be fired upon by any unit on the same side as the detecting ship. It's assumed that the detecting ship feeds this information to its allies automatically, but for game play purposes, it is actually done this way in the interest of expedience. If you wish to experiment with truly secret mine locations (warning: this will get very complex and will probably lead to arguments), only the detecting player would actually know where the mines were, and should be provided with a separate list. He can choose to communicate this information to anyone he wishes (unless his ship is under the restrictions of a comm disruptor, or he is otherwise restricted from talking to other players, see Section 8.6.4).

Any unit that can "see" a mine (because he or an ally detected it previously) may shoot at it, but is not considered to have a firing lock-on, and so would have to suffer the double range penalty restriction. If the unit has actually detected the mine on that same turn (using the detection rules listed above), it still suffers this penalty, but has a bonus to hit equal to the EW spent in excess of the minimum detection requirement. This is known as having a general lockon to the mine, and any such bonuses apply to the detecting ship only. For example, if a ship spent 10 EW on mine detection and spotted a mine at range 3 with a signature of 1, it has +6 to hit that mine. Other ships on the same side could fire at it as well, but would not have this +6 bonus (unless they were also putting enough EW into mine detection).

If greater precision is needed, a ship (but not a fighter or shuttle) can gain a specific lock-on to a mine by applying at least 1 point of offensive EW into locking onto it. This is treated exactly as locking onto a ship (i.e., each offensive EW point provides a +1 to hit, and at least 1 point will eliminate the double range penalty), and is cumulative with any bonuses from general lock-ons. Specific lock-ons cannot be achieved on the same turn the mine is first detected (because of the Combat Sequence), but can by performed at any time thereafter (during the same scenario). Once a specific lock-on is gained, the detecting ship learns what kind of mine it is (i.e., its type), but not until then. Note that the mine's targeting instructions cannot be detected regardless of the strength of the lock-on-although they could always be discovered the hard way.

If a mine is located in an asteroid field, dust cloud, or similar terrain, its signature rating is increased by 50%

(round fractions up). Some terrains may also improve or degrade the signatures of mines, and these will be defined in the terrain description if applicable.

DEW mines have two signature ratings. The first is their usual rating, while the second number (in parenthesis) is their signature when they have activated their weapons. Once a DEW mine is active, use the second number for all purposes.

9.9.6 Destroying Mines

Proximity and captor mines are always destroyed by the first point of damage they take, whereas DEW mines have a damage track and armor similar to that of a fighter (they have only one unidirectional armor value, which applies to any incoming shot). Some very large DEW mines have critical hits, shields, or other special functions that will be explained in their description.

The base chance to hit a mine is 12 minus its signature rating. If the firing ship or fighter has no lock-on, remember to double any range penalties. There are some caveats, however:

• Mines can be targeted by any weapon and are treated as medium ships (the center category in any fire control bonus list) when determining tohit benefits. However, any weapon that normally cannot shoot at medium ships is allowed to fire at a mine using its fire control vs. fighters with an assumed -4 penalty. An example might be an interceptor in offensive mode.

• Weapons that cause no damage, such as the electro-pulse guns or comm disruptors, will not affect a mine unless noted otherwise in their rules description.

• Mines are not affected by proximity weapons such as energy mines or other explosive mines (they are shielded from such effects). The mine must be specifically targeted and shot in order to damage or destroy it.

9.9.7 Minesweepers

Some ships are specialized for minesweeping duty, and will be noted as such in their descriptions and on the ship control sheet.

The primary' advantage of minesweepers is a bonus to their sensor ratings for mine detection. On the control sheet's Special Notes box, the ship will have a minesweeping bonus noted. *For example, a minesweeper might have a bonus of +4. Such as ship would be treated as always generating 4 points of bonus EW for the mine detection mission.* This EW cannot be modified or used for any other purpose other than mine detection, and does not count towards the sensor rating when purchasing extra EW points.

Another advantage of minesweepers is that their shuttles utilize an enhanced sensor package optimized for mine detection. These shuttles (but not fighters, if any are present on the same ship) have an improved Offensive Bonus of 4 and can operate it at full strength, not half-strength, when detecting mines. These shuttles are included in the cost of the minesweeper. Note: If a nonminesweeper wishes to upgrade a shuttle with this ability, this can be done at a cost of 10 points per shuttle or +20% to its cost, whichever is higher. This would not be done normally (i.e., while the ship is on patrol), but only if the ship expected to encounter mines in an upcoming base or planetary assault. Armed shuttles can receive this improvement (e.g., a Combat Flyer with a minesweeping package would cost + 14 points).

9.9.8 Activating Mines

Most mines are activated in response to movement by enemy units. There are some exceptions in the case of enhanced mines (see the section on enhancements to follow).

Proximity mines detonate whenever a viable target enters their range (1 hex unless otherwise noted). The mine can be preset to select only capital ships, medium ships, and/or fighter-size targets, but not anything more specific than this. When activated, the mine explodes, causing standard mode damage to one single unit the moment that unit enters the mine's range (roll for hit location immediately, before accomplishing any other movement). Note that the movement rules do not allow two or more units to set off a mine simultaneously, except in the case of fighter flights (in

which case, the defender chooses which fighter is affected). Because proximity mines detonate without warning, they cannot be intercepted or blocked (though some passive defenses, such as shields, will help against them) and always hit-the only defenses are to avoid or destroy them before setting them off.

Captor mines are similar to proximity mines, but have a range greater than one hex. The owning player can preset them to accept targets entering their range or any lesser range, but once set this cannot be changed. Ranges can be different for each of the three classes of unit. For example, a captor mine with a maximum range of 6 could be set to activate against capital ships entering a range of 6 hexes, medium ships at range 4 and fighters at range 1 or less. The mine will activate against the first acceptable target that moves within this range. At the moment they are activated, captor mines "launch" towards their target. This is detected immediately (treat it as a ballistic weapon launch at that point), but the roll for effect is not made until the Weapons Fire step, at the same time ballistic weapon impact is resolved. Captor mines have no distance range limit, so once they begin their attack, 8 they cannot be outraced.

Captor mines have an Accuracy statistic, reflecting a bonus or penalty to the base chance to hit the target. Determine the chance to hit as you would any weapons fire (i.e., use the defense rating of the target unit, modified by EW), treating the mine as a ballistic weapon with no range penalty. The mine automatically has a lock-on, unless the target is protected by a jammer or special lock-on-breaking device or terrain, in which case its maximum range is cut in half (it will not attack a target outside its maximum range). Defensive fire can also modify the mine's to-hit roll, and will not suffer from degradation.

If the mine hits, it causes its damage to the side of the unit that faces the mine's original hex. Damage is scored in standard mode unless otherwise specified in the mine description. The mine is destroyed during its attack (whether it hits or misses), and is removed from play.

For example, a mine with an accuracy of +4 attacks a capital ship with a defense rating of 16, meaning the mine hits on a roll of 20 or less (i.e., automatically). However; the target is protecting itself with 5 points of defensive EW and chooses to fire an Interceptor Mk-I (-3 defensive rating) to try to knock the incoming mine aside. The 20 to-hit is reduced to 12. The mine-owning player rolls a 13, which misses.

DEW mines follow many of the same procedures as captor mines. Their weapons can be targeted in the same way, with ranges defined for the three basic types of units (capital ships, medium ships, and fighters/shuttles). DEW weapons are powered by onboard generators and batteries holding them in a constantly ready to fire (at least during a scenario). They will shoot during the Weapons Fire step of the Combat Sequence, choosing the first unit that ended its movement within the appropriate range. All weapons fire together and at the same target unless the mine has had the Multiple Target enhancement. All DEW mines have a 360° arc of fire. As soon as the mine activates and locks onto (or attempts to lock onto) the target, its location is known and its signature rating changes to the second (weaker) value. If not destroyed, it remains in play at this lesser rating, arming its weapon(s) at the fastest possible rate and firing as often as range and targeting parameters allow. A mine will not take a shot if its calculated chance to hit is zero or less.

Some DEW mines possess defensive weapons, which protect the mine from incoming shots. These are defined in the mine's description. If the description does not specify defensive fire capabilities, a DEW weapon cannot fire in that mode.

9.9.9 Mine Enhancements

It is possible to add modifications to certain mines in order to improve their abilities. In general, the number of points available for enhancements will be specified by the scenario rules. *For example, a scenario might list the types of mines available and some quantity of points available for improvements. Other scenarios might give players a number of points for whatever mines they want, with enhancements purchased out of this overall total.* However, in such cases it is recommended that no more than 10% of all the points available for mines can be spent on mine enhancements.

Enhancements that increase numeric values (range, signature, etc.) can be purchased multiple times, but each point of increase is treated as a separate enhancement. Thus, raising range from 4 to 6 would require two enhancements, each paid for separately.

When adding up percentage-based enhancement costs, retain all fractions until all enhancements are added, then round any fraction of 0.5 or more up, others down.

Table 10
Mine Enhancement Summary

Ability	Cost
Improved Range	Equal to current range, minimum 4
Improved Signature	Equal to new signature rating +1, minimum 4
Improved Armor	Equal to new armor, minimum 4, max 50% increase
Improved Accuracy (Captor)	10% of base cost, max 50% increase
Improved Accuracy (DEW)	20% of base cost, max 50% increase
Multiple Targets	25% of base cost
Jammers	25% of base cost
Command Controller	33% of base cost
Identify Friend or Foe	10% of base cost

Improved Range increases the distance at which a captor or DEW (but not proximity) mine can engage a target. The cost to improve the range by 1 hex is equal to the current range value. For example, a mine with a maximum range of 5 hexes would pay 5 points to increase its range to 6. The minimum cost for any range improvement is 4.

Improved Signature raises the signature rating (both ratings in the case of a DEW mine) by 1. The cost is equal to the new signature rating plus one, so raising a signature of 2 to a 3 costs 4 points. For DEW mines, use the highest resulting signature value. The minimum cost for any such improvement is 4.

Improved Armor raises the armor value of a DEW mine by 1. The cost is equal to the new armor value, so adding 1 to an armor value of 3 costs 4 points. The minimum cost for this improvement is 4. Armor cannot be increased to more than 50% of its original value.

Improved Accuracy increases the accuracy bonus of a captor or DEW mine by + 1. The cost is equal to 10% of the mine's basic price for captor mines, or 20% of the base cost of a DEW mine. For example, a captor mine costing 30 points would pay 3 points to increase its accuracy by 1, whereas a 40-point DEW mine would pay 8 points for a + 1 accuracy bonus. Accuracy cannot be increased by more than 50% of its original value, so a mine with an original accuracy of +5 can be increased to +7, but no higher.

Multiple Targets allows a DEW mine with more than one weapon to set different targeting parameters for each of its guns. This effectively makes each weapon a totally separate entity with its own targeting rules, specified by the player. For example, a mine with two twin arrays and this enhancement could set one array to fire solely at capital ships and the other only at fighters. The cost is 25% of the mine's base price.

Jammers: A mine with this enhancement cannot be locked onto by less-advanced races. Some advanced race mines include this enhancement automatically; if not, it can be purchased for 25% of the mine's basic cost.

Command Controllers are available for all types of mines. These allow a nearby ship (on the same side controlling the minefield) to give orders to the mine, allowing direct player control of who it shoots at or explodes against. (For example, if two ships and a fighter flight enter a proximity mine's hex, the controller could choose to use it against either ship or any of the fighters-his choice of which.) Automatic controls can still be left in place, but can always be overridden by command controls during the scenario. The command ship must be within 30 hexes of the mine, and can be of any type. If, for some reason, two or more ships on the same side try to give a mine conflicting orders, the closest ship takes priority (if both are at the same range, choose one at random). Note that only a ship can command a mine; fighters and shuttles may not. Command controllers cost 33% of the mine's base price.

Identify Friend or Foe (IFF) Systems can also be purchased for any mine. These useful detectors allow a

mine to avoid activating against the ships of the owning player (but not any other player). If these enhancements are not used, a mine might accidentally fire at a friendly target, as basic mines do not have very sophisticated identification sensors. The cost of this improvement is 10% of the mine's base cost.

10.0 Miscellaneous Systems and Procedures

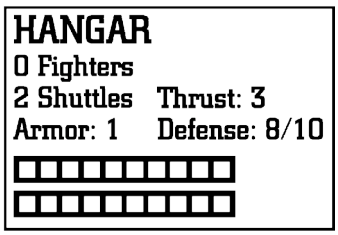
10.1 Hangar Bay Operations

10.1.1 Hangars

Most ships use a hangar of some sort to store smaller support craft, such as shuttles and fighters. Many warships carry at least a flight of fighters for defense against similar units operated by the opposition. Almost all ships have at least one shuttle to aid in the transfer of crew and other supplies. Larger commercial vessels may have cargo shuttles specifically designed to move large amounts of goods or passengers.

The number of boxes in a hangar icon represents not only the amount of damage that the hangar can take, but also the number of fighters and shuttles it can support. If a hangar box is destroyed and a fighter or shuttle is "in that box," it is also destroyed. Note that the owning player can choose which box to mark destroyed, and will usually pick one that isn't occupied.

On the ship control sheet, you will find a datacard regarding the ship's hangar (or hangars, in the case of ships with more than one of them). This datacard lists exactly what can be carried in that hangar. *In the example shown here, the hangar carries no fighters, but does hold two shuttles.* Note that the statistics of the shuttle(s) are listed here, including thrust, armor (in all directions), and defense rating (shown as forward/aft and port/starboard), as well as a damage track. If the shuttle were armed, information on its weapons would also be provided.

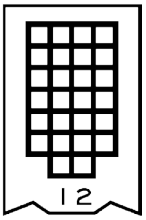


Some hangars are limited in the type of fighter they can carry. *For example, a hangar might be noted as operating only medium or smaller fighters, or only a specific type of fighter.* This will be defined in the information block, and in the ship's description (if there is no note, it can use any fighter unless this is superseded in the fighter's own rules). Note that shuttles may be operated from any fighter box, but under no circumstances may any fighter replace a shuttle.

Assault shuttles are treated as medium fighters, and cannot be used in just any shuttle box (though they could be used in a fighter box, assuming that box can support at least medium sized fighters). It is permissible to trade an assault shuttle box for a fighter box, or vice versa, but this costs 5 Combat Points per box converted.

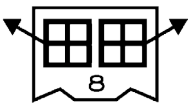
10.1.2 Launching and Landing Procedures

During the Post-Turn Actions Step of the Combat Sequence, ships can launch or land fighters. To do this, the ship simply announces the fact and places the required counter(s) on the map. The number of shuttles/fighters that can be launched and/or landed at once—the hangar's launch rate—is shown as a number in the hangar bay icon on the control sheet. *For example, in the sample shown here, the hangar holds 26 fighters/shuttles and can launch or recover up to 12 of them (2 flights) in any turn. Note that it can do this in any combination, so it could launch 6 fighters while recovering 6 others, launch 10 and recover 2, launch 0 and recover 12, or any other combination. It could not launch 12 and recover 6 as this would exceed the bay's limitations.*



Note that ships may not launch or recover fighters or shuttles on any turn in which they are rolling or have pivoted. This applies even if a pivot maneuver has been halted or if a roll is completely immediately (since agile ships can do this).

When a fighter or shuttle is launched, it is placed on the board in the same hex as the carrier, facing the same direction (unless there are one or more launch arrows attached to the hangar, in which case the fighters are launched facing in one of those directions). *For example, the hangar shown here can launch its fighters in either the forward port or forward starboard directions at the owner's option.* The shuttles or fighters will have the same speed and direction of motion of the carrier, regardless of facing. Note that fighters suffer a significant initiative penalty on the turn



after launch (and the carrier suffers a similar, but less strict, penalty).

In order to land a shuttle at fighter, that unit must be in the same hex as the carrier, and must be moving in the same direction. Its speed must be equal to or greater than the carrier's speed, but not less; in addition, its speed cannot exceed the carrier's speed by more than the fighter/shuttle's thrust rating (actual thrust spent during the turn does not matter). *For example, a fighter with 10 thrust could land on a carrier moving speed 6 only if the fighter's speed was in the range 6 to 16.* Any maneuvers performed by the fighter (e.g., rolling or pivoting) don't affect its ability to land safely. When a fighter or shuttle lands, simply remove its counter from the map and note on the control sheet that the unit is aboard.

Note that since fighters and shuttles are usually handled on a flight-by-flight basis (groups of 6), it is possible for partial flights to be launched or recovered during the game. If a partial flight is launched, treat it like a regular flight, but assume the unavailable fighters are "destroyed" until the others arrive. The flight can collect its missing units by being in the same location and facing as the carrier when the missing units are launched, or by matching speeds and headings with its missing elements and announcing the merger. Flights may not, however, split apart unless some of them are landing while others are remaining in play. One reason to do this might be to reload ordnance onto some of the fighters in a flight while the others remain in combat.

10.1.3 Launch Catapult

The launch catapult is a special type of external hangar bay designed to hold and service super-heavy fighters. Each catapult is designed around a specific fighter type operated by the appropriate race, and cannot launch, land, or service any other type of fighter. Catapults are not part of the ship's usual shuttle bay, but are separate systems on the control sheet, using an icon like the one shown here.

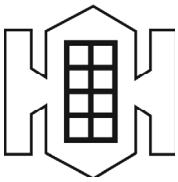
Each turn, a catapult can launch or land one super-heavy fighter. Due to its specialized facilities, neither the ship nor the fighter suffers initiative penalties for launching (but the ship would incur a penalty if a fighter lands). Hangar operations in the catapult take place at the same speed as any other hangar.

Catapults can only launch their fighter towards the front of the ship (they are fixed in place) and the fighter can only land if it enters the ship's hex from the rear. Note that the catapult can only service the specific type of fighter they are designed to support; no other fighter can land on or launch from this system.

Unlike most hangar bays, catapults have more than one box in them (even though they carry only one fighter). The catapult can launch or land a fighter regardless of any damage the system has sustained, but if a fighter lands on a damaged catapult, it suffers damage equal to the number of boxes marked on the system itself. If this is sufficient to destroy the fighter, it still makes the landing (and is considered recovered) but cannot launch again during the scenario (it could be repaired later in a campaign). Catapults suffer no other critical hits due to damage.

10.1.3.1 LCV Rails

LCV Rails are similar in concept and function to the Launch Catapults used to support Super Heavy Fighters. These external mounts include a set of umbilicals and a docking ring that allows the transfer of crew, fuel, supplies and atmosphere between the two ships. Most rail designs allow the crew to relax aboard the ship in far more spacious conditions and transfer to the LCV before the ship leaves hyperspace or when an alert is sounded. LCV Rails are too large to mount on Medium vessels. An HCV could mount one LCV Rail, while a Capital ship can mount up to four LCV Rails.



Each Rail can launch or land one LCV per turn. Like Launch Catapults, LCV Rails can only launch craft towards the front of the ship and land craft that approach from the rear. A launched LCV has the same facing and starting speed as its carrier. LCV rails can only support one class of LCV (including variants). All hanger operations take place at the same speed as with any other hanger. A ship with LCVs

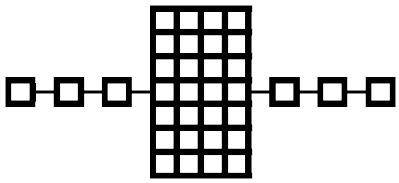
docked to it on rails is less maneuverable, increasing the Turn Cost and Turn Delay of the ship by 1 for each docked LCV. (Ex. A Deliverer Strike Carrier moving at speed 5, with 4 docked LCVs has a turn cost and delay of 9.) The ship also suffers a -2 initiative penalty for each LCV docked to it. LCVs suffer a -10 initiative penalty the turn they are launched. LCVs can only dock to a carrier if the carrier is stationary and they end their movement in the same hex as the carrier with one point of thrust left. Safety protocols prevent docked LCVs firing their weapons.

If an LCV lands on a damaged Rail, it suffers Structure damage equal to the amount of damage the Rail has sustained. If an LCV is docked on a Rail that is subsequently destroyed, the LCV is treated as having launched and suffers Structure damage equal to the damage sustained by the destroyed Rail, plus 2d10 standard Matter damage caused by the fragments of the rail.

If the ship has been taken by surprise then the LCV crews are not at ready stations. It takes three turns to suit up (as LCV crews wear environmental suits in case the hull is punctured, as it often is in combat) and transfer across to the LCV and prepare to separate.

10.1.4 External Fighter Rails

Some races or organizations build their ships for the quick strike. Their doctrine is to fly into an area, engage a undefended target, and get away clean, as quickly as possible. To this end, they have developed a system of launch rails that increases the speed of their launching and recovery operations. While this allows fighters to be injected into combat swiftly, it does have a few disadvantages.



External launch rails are shown on the ship control sheet as a row of detached boxes (not in an icon) connected to a structure block. In the example here, two 3-box rails are shown attached to a single 28-box block of structure.

One fighter is attached to each box in the rail, and can launch and land independently of any other fighter on the ship. In addition, there are no initiative penalties imposed on the fighter on the turn after launch, although the ship will suffer the usual penalties on the turn launching or landing is performed.

Unfortunately, the fighter rails are vulnerable to damage. They are considered to be part of the structure block for all purposes, and since structure hits are the most common, they are far more likely to be destroyed than a normal hangar bay. If a rail box is destroyed and a fighter is present, it can attempt to escape (using the escape rules provided in Section 10.1.5.5). If this is successful, the fighter is not exempt from initiative penalties on the following turn.

Structure blocks with rails are also subject to a unique critical hit roll. If the structure takes damage during a turn, roll 1d20 as with any other critical, but do not add any modifiers (including those from weapons that normally provide their own bonuses). On a natural roll of 16-20, one entire rail is destroyed. Note that a rail is any row of external fighter boxes connected by a single straight line segment (not just a single fighter box). The owning player is free to choose which rail is destroyed by this critical.

Fighters attached to external rails are not within any kind of hangar, but must perform hangar bay operations through narrow airlocks. Thus, any hangar ops take twice as long to complete. In addition, if the ship is considered “surprised” in any scenario, it will take twice as long as normal to get the fighters ready for launch. Thus, if the scenario rules stated that the ship could not launch fighters for 2 turns, it would take a ship with external rails 4 turns to get its pilots to their fighters and ready to launch.

10.1.5 Other Hangar Operations

Within the hangar bay, certain operations can take place that can have effects on the battle or in certain scenarios. Many of these take the form of actions that take a number of turns to complete. When an action is stated as requiring “one full turn,” that means the entire turn from start to finish. The fighter or shuttle cannot launch or land on that turn, or the operation will not be completed (it is aborted in order to

get the unit to the launch position, or move it away from the landing position, as applicable).

10.1.5.1 Replacement of Injured Pilots

If a pilot is injured somehow (or if he is killed and the fighter recovered), the pilot can be replaced. This operation requires two complete turns after the fighter has landed, and is concurrent with any other hangar bay operations in progress. Once the pilot has been replaced, the fighter can rejoin its flight by either launching and matching speeds with that flight, or launching while the flight is located in the carrier's hex (as described previously).

Ships have effectively unlimited quantities of shuttle pilot replacements available, but only a number of replacement fighter pilot's equal to 50% of their original fighter capacity (note that a ship that doesn't normally carry fighters will not be able to provide a fighter pilot replacement). It is not likely this limit will come into play during a scenario in the case of a full-fledged carrier (considering the infrequency of pilot injuries) but might have meaning during a campaign.

Note that there are no specific actions described in this book that can injure or kill pilots, but there may be ways to do so in future products or certain scenarios.

10.1.5.2 Reloading of Weapons

Shuttles and fighters may be capable of carrying missiles or other reloadable munitions. In general, it takes one full turn to load one missile, mine, or other object onto a fighter or shuttle. This can be done concurrently with any other operations. Specific rules for exceptions to this procedure will be defined in future products.

Note that missile replacements are not free-they must be purchased before the scenario using Combat Points, at the same rate you would pay to buy them for the fighter itself. If the ship is not carrying any fighters that use missiles, it may still buy replacement missiles.

10.1.5.3 Flight Recombination

If two partial flights land on the same carrier, they are permitted to combine into a full flight (or some other arrangement) if the owning player wishes, so long as they spend at least one full turn aboard while shifting around. This can be concurrent with other hangar ops.

For example, if two flights of three missile armed fighters land to reload their missiles, they could combine into a single flight while reloading, then launch as a single unit. Naturally, the new arrangement must be announced upon launch. Dropped-out fighters may not return to combat unless using the optional fighter repair rules described in Section 6.11.

10.1.5.4 Recovery of Fighters/Shuttles/Escape Pods

Ships have grapples within their hangar bays capable of capturing a derelict fighter or shuttle, such as one from which a pilot has voluntarily ejected, or escape pods. These grapples are present in all hangar bays (but not external rails) unless otherwise noted.

To use the grapple, the ship must be in the same hex as the target, moving the same speed and in the same direction. The attempt is automatically successful, and takes place during the ship's turn in the Movement Step of the Combat Sequence. Note that if the ship's hangar bay is currently full, it cannot recover fighters or shuttles (but could capture escape pods). If the hangar has been destroyed, it cannot recover anything at all.

This ability cannot be used to capture a fighter that is attempting to resist, as long as that fighter has at least one thrust point available to maneuvereven if it has already spent all its thrust during a turn. It's assumed that the pilot can use small maneuvering jets well enough to avoid a grapple, so long as the pilot is alive and conscious, and the fighter or shuttle isn't so crippled that it can no longer move away.

10.1.5.5 Shuttle/Fighter Escape

If a ship is destroyed while some fighters or shuttles are still aboard, there is a chance some of them might be able to get out of the hangar in time to avoid destruction. (The death of the ship is handled immediately in game terms though it might actually take several turns to finish breaking apart.)

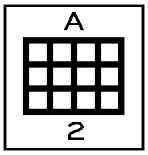
Roll one d20. If a 1-5 is rolled, no fighters or shuttles can escape. If a 6-10 is rolled, only onefourth of the fighter and shuttles may get away (drop fractions); the player can

select which ones. If an 11-18 is rolled, one-half may escape and if a 19 or 20 is rolled, all of them manage to get away.

Escaped fighters are treated as having just launched, and have a facing and speed as if they just launched from the appropriate hangar. They can do nothing (maneuver, fire, etc.) on the turn they escape. During the next turn, they may accelerate, maneuver, fire weapons, or otherwise act normally, but would be subject to the -10 initiative penalty at this point.

10.2 Cargo Hold

Some ships, particularly transports and freighters, possess cargo holds. These holds normally carry bulk cargo, though they are occasionally outfitted for other purposes, like the transportation of passengers, colonists, military forces, prisoners, or refugees. The uses of cargo space are limited only to the imagination of the ship's owner, who is usually a private businessman or employee of a larger freight company (but occasionally an individual of more dubious means).



Cargo holds appear much like structure blocks, but are found within a simple rectangular or trapezoidal icon, such as the one shown here. The transfer rate of cargo is shown as a number in the cargo icon. This represents how many boxes' worth of cargo can be loaded into, or offloaded from, the cargo hold during a turn. This might be important to timing in scenarios where cargo is being transferred. *For example, two freighters might be transferring cargo between each other, with scenario rules stating that neither may attempt to depart the area until the transfer has been completed.* (Note that cargo bays like the one in this example are often labeled with letters for easy record-keeping.)

In general, a box in a cargo hold represents a percentage of the cargo in that hold. The hold is a huge open area, usually packed with goods, people, or whatever else the ship is carrying. When a box is marked destroyed, an equivalent percentage of the cargo is also destroyed. If, for example, a freighter has 20 boxes in a cargo hold and that hold loses 5 boxes in combat, 25% of its cargo is destroyed.

10.2.1 Ejection of Cargo

Some holds, like those on smuggling ships, are set up so they can be ejected or released into space if the pirate (or whoever) needs to dump his contraband. If this is the case, the hold in question will be located on either the front, side, or aft sections of the ship (rather than within the primary structure area). If the hold is ejected, it simply drops off the ship (retaining the ship's facing and speed) while the ship continues on. The hold may not be recovered during the scenario, but is considered captured by whichever side occupies the map when the scenario is over. If a cargo hold (or pod, or pallet) can be dropped, this fact will be noted in the unit's description.

10.2.2 Cargo Mass (Optional)

The statistics shown for ships with cargo holds assumes the holds are filled with light cargo or are empty. In some scenarios, a loaded freighter might suffer additional penalties to its movement and other statistics.

Fully loaded freighters suffer a penalty of -1 to their initiative for every 50 cargo boxes (or fraction thereof) they possess. These boxes are packed with dense or heavy materials, but not to critical levels. For every 100 cargo boxes (or fraction thereof), the ship must add +1 to its turn delay period and +1 to its accel/decel rating. Thus, if a freighter with 125 fully loaded boxes made a turn that would normally require 6 hexes to satisfy the turn delay, said turn would instead need 8 hexes of movement. Turn shortening can be used to offset the normal delay requirement (6 hexes in this case) but cannot eliminate any of the penalty hexes. The turn cost is not affected.

Overloaded freighters suffer a penalty of -1 to their initiative for every 25 cargo boxes (or fraction thereof). Every available inch of packing area is stuffed with massive cargo, such as heavy metals or other dense materials. For every 50 cargo boxes (or fraction thereof), the ship must add +1 to the turn delay and +1 to its accel/decel cost, and for every 100

boxes, it must add +1 to the turn cost. *Thus, if a freighter with 125 overloaded boxes made a turn that normally required 6 turn delay hexes and 6 thrust, the requirement would instead be 9 hexes of turn delay and 8 thrust.* As with fully loaded freighters, turn delays can be reduced by turn shortening, but the penalty hexes cannot be eliminated.

Note that freighters capable of dropping their holds might consider doing so in order to reduce or eliminate some of the above penalties.

10.3 Hyperspace Movement and Jump Engines

10.3.1 Hyperspace Travel

Eventually, most sentient races reach for the stars, despite the great distances involved. Races in the infancy of expansion into the galaxy try covering these distances with sleeper ships—ships that house colonists in deep hibernation so they will survive the long trip. But this process is both slow and expensive and doesn't allow for trade or communications with the colony once (and if) it is established.

Most races also spend some years trying to break the faster-than-light barrier, though no race has yet to find a way to violate this nature-imposed speed limit. Eventually, though, these races stumble across hyperspace, either by accident or with deliberate purpose. Often a race already established will come across a sleeper ship and contact the mother planet.

Hyperspace is a parallel dimension that lies very close to our own. For this reason you can navigate with some accuracy in hyperspace and know, approximately, where you will come out in normal space. There are dangers to traveling in hyperspace, however. It lies close enough that large gravity bodies in our dimension affect it. This has the effect of creating currents that can, if the crew is not alert, drag a ship far off course, becoming lost in hyperspace forever. Sensors are nearly useless due to these same currents, so tracking down a lost ship is nearly impossible, more a matter of luck than skill or technology.

Access to hyperspace is achieved by warping the fabric of space and creating a tear, sometimes referred to as a vortex (or more commonly as a jump point), which leads to hyperspace. This process requires a tremendous amount of energy, so much so that only the largest or most advanced ships can carry the jump engines necessary to do so. Large ships (capital ships, heavy combat vessels, and some other ship types) are the only craft capable of opening their own jump points. In addition, the various spacefaring races have established fixed jump gates (basically a skeletal structure with a reactor dedicated to the task of creating vortices on demand) at key points throughout their territory. (These are described in detail in a later section.)

10.3.2 Traveling the Hyperspace Lanes

When a ship moves into hyperspace, it can cross the void between star systems in a few days or weeks, instead of the decades it would take in normal space. Note that the ship does not actually move faster in hyperspace; it merely moves a shorter distance.

Only a few ships, generally those that are equipped with their own jump engines, can move at will through hyperspace. Even these ships tend to avoid this as it can be dangerous should equipment fail. All other ships are restricted to following established hyperspace beacons.

All fixed jump gates house one or more hyperspace beacons. Each of these beacons is linked to another at another jump gate some distance away. A given beacon will only trace a line to one other beacon. These lines are generally referred to as hyperspace lanes. Ships in hyperspace follow these beacons from one gate to another, often having to move through several different jump points to get to the desired destination, much like changing planes several times when you fly today.

A jump gate can only support a limited number of hyperspace beacons. Too many beacons will cause the signals to interfere with one another. Jump gates must also be placed far apart from one another or the same effect can occur. This means that there are many cases when a ship must cross open space for several days to reach the next jump gate necessary to continue its journey.

10.3.3 Movement within Hyperspace

Movement within hyperspace varies in several ways from that of normal space. It can be likened to an endless river, with currents and eddies that can change capriciously. There can even be dangerous anomalies like “rapids” and “whirlpools.”

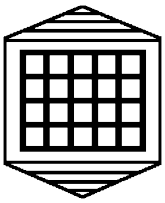
If a scenario is fought in hyperspace, the units within that scenario are assumed to compensate for steady currents. However, during each turn of the game, currents might shift or flow in unexpected ways, affecting each unit in the scenario differently.

At the start of the Movement Step of any turn taking place in hyperspace (before any ships make their movements), roll 1d20 and consult the following chart. Some scenarios held in particularly rough (or weak) areas of hyperspace may specify a bonus (or penalty) to this roll.

Note that during normal (non-combat) travel through hyperspace, these anomalies are handled automatically by a ship’s navigation systems. Only rarely are currents encountered that are too strong to overcome. Fortunately, ships can detect these currents before they enter and wait for them to calm down before proceeding.

10.3.4 Jump Engines

Jump engines are large generators capable of opening a jump point to hyperspace. The size of these engines limits their deployment to large vessels, as mentioned previously.



Jump engines are very delicate and must constantly be maintained in order to be usable at a moment’s notice during a battle. Jump engines that are damaged become very unstable when activated and can cause the ship using them to explode, as described in Section 7.3.7. Also, if held open for long periods, the power drain on the ship’s reactor becomes severe.

10.3.5 Jump Delay Times

In the datacard for any jump engine-equipped ship is a statistic labeled Jump Delay. This indicates the number of turns the engine must wait between the time of its last jump point closed before it can open a new point. *For example, a ship with a jump delay of 20 turns that left hyperspace to arrive in a scenario on turn 3 of the game could not open an escape vortex until turn 23.*

If the jump engine is ever deactivated during any turn, the engine becomes discharged, and must recharge at 10 times the listed jump delay period (beginning at the point the system is again powered). However, no ship can voluntarily deactivate its jump engine for extra power, unless specifically allowed by scenario rules (or your own house rules). While it may seem tactically wise, it’s something no ship captain would normally do: he would always want to keep that escape route open. This restriction is lifted if the jump engine is more than 50% damaged, as the captain may well feel sticking around is less dangerous than trying to open up a jump point.

10.3.6 Opening a Jump Point

To open a vortex, the ship simply announces it is doing so during the Jump Point Formation Segment of the Combat Sequence (at the very end of the Initial Actions Step). There is no power cost to do so, although the jump engine must not be deactivated (see above). The player may select any hex within 4 hexes of the ship opening the vortex, marking it with a counter, coin or other convenient chit. This represents the location of the jump point itself. (Note: Some advanced units, particularly those of advanced races, can open vortices at greater distances. These will be defined in the rules for such ships.)

In addition to the target hex, the player must also select a vortex facing. This is a single hex side, or direction, through which the jump point allows access. Units may not enter the vortex through any of the other hex sides. *For example, if the vortex formed towards the top of the map (direction #1), only ships that entered the jump point’s hex from direction #1 could enter hyperspace through that point.* The vortex facing cannot be altered once the jump point begins to form.

The hex with the jump point may contain any other units (even enemy units) but cannot contain any of the following: planets, moons, or other terrain objects; other jump points or

jump gates (no "bonehead maneuvers" are allowed unless specifically overridden by scenario rules); or Enormous Units. There may be other restricted items released in future projects, which will be noted at that time.

Jump points opened on a given turn (the initiation turn) are not fully formed until the end of that turn. They finish opening during the Vortex Activation/Closure step of the turn they are initiated (see the Combat Sequence). Units are not permitted to enter a jump point during the initiation turn, but can do so at any time thereafter.

Any unit—not just the ship that opened the vortex—can use it as long as it is open. To use a jump point, a unit must either be in the point's hex at the time it becomes active, or must enter the hex by moving into it (at any speed). The direction from which it entered (even if it is already in the hex) must match the vortex facing. Note that a unit does not have to end its movement in the jump point's hex.-it merely has to move into the hex. If it moves into the hex but still has movement remaining, that movement" is lost-the ship's movement ends the moment it enters a vortex.

Entry into an open vortex is entirely optional. A unit that passes through a jump point's hex, or is in that hex when the vortex forms, only enters the vortex if it so chooses-and if it does, entry is automatically successful (so long as the vortex facing is correct).

Once within a vortex, the unit is effectively out of the scenario. It may not fire weapons (or be fired upon), nor may it launch or recover fighters or shuttles, or do much of anything else. It could recover fighters and shuttles on the other side of the vortex. Note that some scenarios may specify that combat will continue in hyperspace, but this is a rare situation, and will be fully explained in the scenario rules. Under most circumstances, a ship that enters hyperspace (or which leaves it, if the scenario starts in hyperspace) is considered disengaged and can't return to the battle. Jump points are one-way passages-two-way vortices cannot be created. A ship in normal space cannot open a jump point to allow units in hyperspace to come through, for example. A ship may, if it wishes, open a jump point opposite the normal direction. That is, a ship in hyperspace could open a jump point into normal space that would allow a ship in normal space to enter hyperspace but the ship in hyperspace could not enter normal space through that point.

10.3.7 Closing a Jump Point

The ship that opened a jump point can either let it close automatically (at the end of its first full turn of operation), or elect to keep it open. If it chooses not to maintain it, the vortex closes immediately. The announcement that a jump point has closed is made during the Vortex Closure Segment of the Combat Sequence, near the end of the turn.

Jump points also close if the ship holding them open enters its own vortex. As soon as the ship does this, the vortex begins to collapse, closing at the end of that turn (other ships can still enter it during that turn). It cannot be held open from the other side.

Note that vortices don't actually close until the Vortex Closure step of the Combat Sequence, near the end of the turn. Since the vortex is open throughout the rest of the turn (during which ships that entered it are "in transit"), those ships are vulnerable to the effects of vortex disruptors.

10.3.8 Maintaining a Jump Point

If a ship prefers, it can hold a jump point open for more than one full turn. The decision to do so is made during the Vortex Closure Segment of the Combat Sequence, and must be announced. *For example, a ship that opens a jump point at the start of turn 3 would be able to make use of it on turn 4. At the end of that turn, it can either allow the vortex to close, or could choose to maintain it.* A vortex can be maintained for no more than four complete turns (counting the first one), so in this example, it could be held open during turns 5, 6 and 7 and must be closed at the end of turn 7. A vortex must also be closed if the ship maintaining it moves more than 4 hexes from the jump point.

In order to hold a jump point open, the ship must turn off all weapons and other powerabsorbing systems, except for sensors and the jump engine itself, channeling this power and any other free energy into the jump engine. This represents the strain on the ship as it holds the vortex open

and stable. The ship can continue to maneuver normally, although if it moves more than 4 hexes from the vortex, it can no longer maintain it (as noted above).

If the engine has any damage marked on it, it will require a roll each turn to see if it overloads (see Critical Hits). This roll is made during the Jump Point Formation step of the turn (not during the Critical Hits Segment). A ship that suffers damage to its jump engine while holding a vortex open should consider dropping it during the Vortex Closure step to avoid an overload roll early in the next turn.

10.3.9 Fixed Jump Gates

Fixed jump gates (normally referred to as simply jump gates) are large structures with a simple reactor capable of charging, opening, and holding a jump point on demand. The jump point forms in the same hex as the jump gate; it cannot be "projected" to any other hex.

Any unit wishing to open the gate must simply get within 10 hexes of the gate and tell it to open. The ship musts signal the gate during the Jump Point Formation Segment, and it will open in the same way as ship-generated jump points, with its vortex always facing the same as the jump gate's facing. If multiple players are competing to see who gets to command a jump gate, the player who "owns" the gate gets first call. "Ownership" is usually obvious or specified by the scenario. If no owner is clearly stated (or it is noted as a totally neutral gate) then use the closest unit. If several are equally distant, then each competing player rolls off, highest roller getting to make the call. Do not use initiative.

Jump gates can be programmed to stay open for a certain time period or until specific vessels enter the gate, but in neither case will they remain open for more than four complete turns. The unit opening the gate does not have to use it, nor does it need to remain within the 10-hex access range, once the gate has been signaled. Once an order is given, the gate cannot be given a new order until it completes the previous order. Once the jump point closes, it has a jump delay period of 20 turns before it can open again.

A control sheet for the typical fixed jump gate is provided in this product. It is usually a neutral unit, operating under automatic rules. Since it has no weapons, and cannot maneuver, it usually just sits in place until activated (see above). If it takes damage, a player on the side not shooting at it selects which systems to mark destroyed, if a choice is needed. Note that even though this is an Enormous Unit any ship or fighter entering its hex does not have to make a ramming check (as described later in this chapter). This is due to the construction of the jump gate itself.

The fixed jump gate uses an automated power system and cannot alter its reactor usage. For every 3 boxes of reactor destroyed, the jump delay time (normally 20 turns) increases by 1 turn, and for every 15 points of reactor damage, the maximum time the vortex can be held open is reduced by 1 turn (from the original maximum of 4 turns). If the reactor is completely destroyed, the jump gate should be marked destroyed. Note that the reactor on a fixed jump gate does not suffer any other critical hits, and no other damage affects the gate unless it is destroyed or the jump engine itself is damaged. In this latter case, the engine has the same chance of exploding when used as any other jump engine would—see Section 7.3.7 for this procedure.

10.3.10 Jumping Into Combat

According to the Combat Sequence, units creating a jump point on a given turn cannot enter it until the following turn, and are effectively out of the battle as soon as they are within it. The same applies for jumping into combat. On the turn units are to begin arriving (either as specified by scenario rules or as defined by the players), place a vortex counter on the map at the point specified in the scenario description. However, this applies only to historical scenarios where the jump point location is historically known, or to fixed jump gates that always open in the same location. In the case of a free-form or campaign battle, the starting location may vary well beyond what is expected or desired.

To determine the exact starting point of an unknown vortex, the owning player places a counter representing his desired arrival point, and then rolls 1d20 on Table 11 to determine where it really appears. The ship creating the jump point must be specified before the die roll is made, as

its sensor rating and other abilities apply modifiers to this chart, as listed hereafter. In addition, the player must specify the desired jump point facing, which can be shifted on a poor die roll.

Table 11
Vortex Location

If Die Roll Is. . .	Then the Vortex Moves. . .
Less than 1	Zero hexes (precise placement)
1-3	1d3 hexes in random direction
From 4 to the ship's sensor rating	1d6 hexes in random direction
Higher than the sensor rating but less than twice the sensor rating	1d10 hexes in random direction, plus roll 1d6, on a 1-2, the vortex facing shifts 60° left; on a 5-6 it shifts 60° right
Equal to or greater than twice the sensor rating	2d10+2 hexes in random direction and the vortex facing is shifted to a random facing
Modifiers: Advanced races -1; Jump Accelerator -1, Expert Jump Officer -1; Advanced Race -5, arriving in nebula +3. These bonuses are cumulative. In addition, of a friendly base is present on the map when the jump point is opened, apply a further -3 modifier, or is a ELINT vessel is present apply a -1	

The arrival hex cannot be within a solid object (e.g., a planet), off the edges of a fixed map, or in the same hex as an enormous unit such as base or asteroid. In these cases, shift the vortex to the left or right (random determination) until the conditions no longer exist. Maintain the same distance if at all possible, altering direction before distance until a clear hex has been found. In most cases, the new site will be obvious. Please note that in scenarios where blocking terrains or items are present, it is theoretically possible for a jump point to form directly facing such objects. In such terrain, the player is advised to choose a low starting speed for his arriving forces so they do not slam into the obstacle.

Once the location of the vortex has been determined, place the counter on the map and note its facing. Ships entering through it arrive on the map on the next turn. The owning player decides which units are using the vortex (and their speeds and other status information) during the Jump Point Formation Segment of the Combat Sequence, and announces this simultaneously with any other arrivals taking place on the same turn. Arriving units do not, however, make their appearance until the end of the turn, during the Vortex Activation/Closure Segment. Thus, they cannot be fired upon, nor may they themselves fire, on the turn of arrival. Weapons capable of disrupting or otherwise affecting jump points can do so on this turn, just as they can with vortices opened for escape purposes.

While within the vortex, the arriving ship cannot fire weapons, but can launch fighters or do anything that does not require its specific presence on the map. It can roll or pivot, but cannot perform other maneuvers such as acceleration, turns, and the like. It can reload missile racks, move officers or other internal items around, perform self-repairs if available, execute hangar bay activities, and so on. It can arm weapons in sustained mode (or other special modes) if desired, and if enough turns have elapsed (including the preceding one, when the jump point formed), the weapon can be ready to fire when the ship arrives on the playing field.

The turn after arrival, newly placed units are eligible to act normally, and can fire weapons, maneuver, or take any other desired actions. They may, however, suffer an initiative penalty due to their unfamiliarity with the battlefield. This modifier is equal to the number of hexes the vortex "scattered" (as determined using the preceding chart) plus 2 for each 60° of facing shift. *For example, if a vortex arrived 10 hexes from the target location and was facing exactly opposite what was intended, the arriving force has an initiative penalty of -16 (-10 for the ten hexes of distance and -6 because there were three 60° shifts involved in reversing the vortex facing).*

10.4 Ramming

10.4.1 The Kamikaze Attack

Ships and fighters may attempt to ram other units. This is usually a desperation move, as true kamikazes don't exist in any of the major races. In some situations, however, ramming might be allowed.

10.4.2 When Ramming Can Be Allowed

Normally, ramming can be used only in times of desperate war, if one side is losing badly against superior technology and feels they have no other choice. In the past, it has also been done by races that are defeated in war but refuse to submit to the heel of slavery. Under these conditions, a proud captain might choose to "take some of the enemy with him" rather than surrender.

Ramming is not allowed unless the rules of the scenario specifically permit it. Scenarios of this type will be ones in which the situation is particularly desperate, or in which a particular key enemy unit must be destroyed (or a key friendly unit protected) at all costs. In free-form games or player-designed scenarios, ramming is an optional rule. It is up to you, the players, to decide if it is to be allowed in your game or scenario. However, if those involved in your game have not already discussed the matter, assume that ramming is not allowed.

In campaigns, it is up to the campaign rules to define when and where ramming can be done. Even if the ramming rules are not in use, and a unit enters the same hex as an Enormous Unit (by whatever means), it will automatically make an attempt to ram (even if this isn't the owning player's intention). This is due to the sheer size of the Enormous Unit, which occupies a huge volume of space approximately equal to the entire hex on the map.

10.4.3 Ramming Conditions & Restrictions

Ships can ram other ships, and fighters or shuttles can ram other fighters/shuttles, or even ships if they wish to. Ships cannot ram fighters or shuttles, as they are too small and maneuverable, unless those units are incapable of maneuvering for some reason.

Ramming can be attempted by simply moving a unit into the same hex as another unit. The two units must end the Movement Step of the Combat Sequence in the same hex; they cannot simply "pass each other by" during the turn. Note that, in general, you will need to achieve initiative in order to arrange for this to happen (especially if your opponent knows you are trying to do it). Also, you must be moving at least speed 1 in order to make a ramming attempt.

The ramming attempt is actually made at the end of the Movement Step of the Combat Sequence. Units that wish to ram make the announcement at this point. Note that because this happens before weapons fire is exchanged, you can't count on shooting down an opponent before he tries to ram you.

Note: Hexes in AoG Wars are large enough that only Enormous Units occupy a vast area within them. Thus, units can easily pass through hexes without hitting each other, and in fact this is normally handled automatically by subtle piloting maneuvers beyond the scope of the game. Only if a unit directly attempts to ram another—or if a unit enters an Enormous Unit's hex—is ramming possible.

10.4.4 Making the Attempt

These rules assume that ramming is being attempted by only one of the two parties involved. If both are trying to ram each other, or if both units are of enormous size, the chance of success is automatic; skip to the next heading.

Roll a single d20. On a roll of 13-20, the ram is successful. The following modifiers are available, and all are cumulative:

+2 if the target is a capital ship and the ramming ship a smaller class of vessel.

+4 if the target is a ship and the ramming unit a fighter or shuttle.

+6 if the target is of Enormous size.

+6 if the ramming unit is of Enormous size.

+1 if the target is moving speed 4 or 5.

+2 if the target is moving speed 2 or 3.

+3 if the target is moving speed 1.

+5 if the target is not moving.

-2 if the ramming ship is a capital ship and the target is a smaller size class.

-1 for every 5 points of speed (or fraction thereof) that the target is moving faster than 5. *For example, a ship moving speed 6-10 would have a -1 modifier, speed 11-15 would have a -2 modifier, and so on.*

-1 for every level of jinking the ramming or target unit is using (if applicable).

10.4.5 Results of the Ram (Ship vs. Ship)

On the datacard of each ship control sheet, ships are assigned a ramming factor. This factor is based, in part, on the amount of structure on the ship, as well as its basic profile and sturdiness when making or absorbing a ram. It is this value that will be used to determine the damage caused when you ram (and the defender's ramming factor will determine how much damage your ship takes). Damage a ship has sustained doesn't affect the ramming factor, except that it should be reduced by a proportion equal to the number of entire structure blocks that are missing. *For example, a capital ship (which has five blocks-forward, aft, port, starboard, and primary) would reduce the ramming factor by 20%.* if it were missing its forward structure. Round fractions of 0.5 or more up when making this calculation.

When the ram occurs, roll one d20 and consult Table 12. All damage is scored in raking mode. If the ramming ship moved into the target's hex front-first, with initiative, add +1. If the two ships are head-tohead, add +1. These modifiers are cumulative. Round fractions up in all cases.

Table 12
Ramming Results

Die Roll	Damage
1-6	Glancing blow. Each ship takes damage equal to 25% of the other's ramming factor, rounding any fractions of 0.5 or more up.
7-12	Moderate hit. Each ship takes 50% of the other's ramming factor.
13-16	Solid blow. Each ship takes 75% of the other's ramming factor.
17-20	Perfect shot. Each ship takes the full ramming factor of the other.

10.4.6 Results of the Ram (Fighter/Shuttle vs. Ship)

Fighters have a ramming factor shown on their datacard (shuttles calculate theirs by summing the original number of hit points and their basic armor value). As with ships, this represents the amount of damage they can hope to cause when ramming. Reduce this value by 1 for each point of damage the shuttle or fighter has suffered.

Roll the ramming attack using the same chart shown in the previous section (Ship vs. Ship), with a further +1 bonus due to the maneuverability of the ramming unit. Note, however, that regardless of the effect on the target ship, the fighter or shuttle is automatically destroyed. The pilot may not eject; even if he did, his velocity would carry him into the ship, with deadly results.

Note that when a flight rams a ship, each fighter or shuttle makes the ramming attempt separately. Thus, it is possible for some of the fighters to ram while others miss the target and continue past it.

10.4.7 Results of the Ram (Fighters/Shuttle vs. Fighters/Shuttle)

Roll on the chart found in the Ship vs. Ship section (above). The ramming unit receives a +1 bonus on the die roll due to its small size and maneuverability, unless it is a shuttle trying to ram a fighter, in which case no bonus is available. Some special fighters may receive greater bonuses, and some scenarios might permit additional bonuses to this roll.

When a flight of fighters makes a ramming attempt on another flight, each fighter makes the attempt individually, and must choose a particular enemy unit to ram. The choice of target is never random, nor does the defender have any control over the selection. It is permitted for more than one fighter to try ramming a single enemy fighter, but if this is done, it is handled simultaneously-so if both are successful, the target gets its full ramming factor against both attacks. This makes "gang-tackling" somewhat counterproductive.

Ramming often results in the destruction of both units. While it might seem that a heavy fighter would wish to ram light fighters, as his own greater mass would give him an advantage, there is a significant chance that even a light fighter might (on a high roll) destroy the heavy one—and even if it doesn't, it will cause more damage than the heavy fighter might be willing to accept.

10.5 ELINT Ships

Often referred to as scouts, ELINT ships are designed to gather intelligence about the sector of space they occupy with a minimum of contact with the enemy. They are also used to support fleets during wartime operations and guide other units through hyperspace or unknown and potentially dangerous territory. These missions are possible due to the impressive array of sensors installed aboard such vessels. Most scouts are jump-capable capital ships with a long cruising range, as these features best allow them to complete the missions described above. A few ELINT ships are designed for more specialized roles, but these are rare.

While on intelligence-gathering missions, scouts slip into an enemy system and silently record all the electronic emissions they can detect. Depending on the level of detection technology employed by the opposition, the scout may move very close to planets and bases, cataloguing everything it sees for later analysis, all while remaining hidden in the depths of space. If an ELINT vessel is sighted in a system, it will be targeted for immediate destruction, and this normally forces the ship to flee immediately with whatever data is has collected.

During a battle, ELINT ships have the capability to provide superior targeting information to their fleet, allowing the force to engage at longer ranges and with more accuracy than normal. Scouts can also hide the size of a fleet by throwing up large amounts of "white noise" that can effectively block sensors. This forces the enemy to engage without proper intelligence on the size and composition of the fleet.

10.5.1 Offensive ELINT

During a battle, scouts can be used to improve the accuracy of one or more friendly ships. They do this by providing additional targeting data from their own systems to the firing vessel, which thereby enhances its targeting solution. This ability is usually referred to as "loaning offensive EW" to the friendly ship.

Procedure: The unit being aided must lock onto the target (enemy) with at least 2 points of offensive EW (OEW). The scout must then lock onto the friendly vessel with at least one point of OEW, and must lock onto the target enemy unit with at least 2 points of offensive EW For every 2 full points of OEW used against the target (drop any fraction), the friendly unit receives the benefit of 1 extra point of OEW versus the target. This allocation is determined during the EW Segment of the Combat Sequence and cannot be changed once EW has been announced. Close combat EW cannot be loaned.

Example: *A scout locks onto a friendly battlecruiser with 1 point of OEW and a nearby enemy cruiser with 10 points of OEW. The battlecruiser also locks onto the enemy cruiser with 2 of its own OEW The battlecruiser earns 5 extra OEW versus the enemy cruiser.*

Fighters: A flight of fighters, or group of up to 6 shuttles, is considered a single unit for this purpose. However, such flights receive only half the normal bonus (drop fractions) due to their limited sensor systems. *For example, a scout locking onto an enemy with 8 OEW will provide only a +2 bonus to a flight of fighters it has also locked onto (not a +4 bonus).*

Ranges: The ELINT ship must be no farther than 30 hexes away from both the friendly unit and the target unit. This restriction applies both at the time EW is determined and at the time weapons are fired. If one or more of the ships moves out of range during its movement, but the others move in such a way as to rectify this, the loaned EW will still apply.

Line-of-sight: LOS to both the friendly unit and the target unit is required at the time ELINT is determined and at the time fire is actually performed. If it is broken during movement but restored after movement, it will still function normally.

Jammers: Since lock-ons are required, a unit cannot loan offensive EW to a friendly jammerprotected unit unless it can penetrate the jammer or the jammer is deactivated. Similarly, loaned OEW cannot be used against a jammer protected enemy unless the scout and the friendly ship both have some way to penetrate this defense. Note that a race equipped with jammers can always defeat their own

jammers.

Limitations: An ELINT ship can provide its benefits to several friendly ships (limited only by the number of units it 8 can lock onto) but cannot combine loaned OEW with OEW from other scouts. Thus, a scout could lock onto three other friendly ships and an enemy unit, providing loaned EW to all three friendly units against that enemy target. However, a second scout in the vicinity could not do the same and combine its benefits with those of its counterpart.

Combinations: The scout continues to benefit from the offensive EW it uses against the enemy target. Thus, if it uses 8 OEW against an enemy and locks onto a friendly ship, the scout gets +8 to hit and the friendly ship gets +4. (Note that two scouts loaning EW to each other can be very effective in combat. If two scouts lock onto each other, and both lock onto a single enemy target with 12 OEW, they will each have a combined total of +18 to hit that target. It is perhaps fortunate that most scouts are poorly armed, giving up weapons for their considerable sensor suites.)

10.5.2 Defensive ELINT

ELINT vessels can be used to help protect key ships within a friendly fleet. This ability is usually referred to as "loaning defensive EW."

Procedure: The scout must lock onto the friendly unit with at least 2 points of defensive EW. For every pair of EW points used in this way, the target gains a bonus of 1 point of defensive EW Any fractions should be dropped. This allocation is determined during the EW Segment of the Combat Sequence and cannot be changed once EW has been announced.

Example: *A scout locks onto an destroyer with 8 points of defensive EW. The destroyer receives +4 to its DEW for the remainder of the turn.*

Fighters: Any flight of fighters, or group of up to 6 shuttles, can be considered a "unit" for this purpose, and benefit as any ship would. Ranges: The ELINT ship must be no farther than 50 hexes away from the friendly unit. This restriction applies both at the time EW is determined and at the time weapons are fired. If either ship moves out of range during its movement, but the other moves in such a way as to rectify this, the loaned EW will still apply.

Line-of-sight: LOS to the friendly unit is required at the time ELINT is determined and the time fire is actually performed. If it is broken during movement but restored after movement, it will still function normally.

Jammers: Since lock-ons are required, a friendly unit cannot defend a jammer-protected unit unless the scout can penetrate this defense or the target deactivates the jammer. Note that a race equipped with jammers can always defeat their own jammers. Limitations: An ELINT ship can provide defensive EW to any number of friendly units, limited only by available EW However, each is treated separately, and no combinations are permitted. Thus, if a scout provides 6 defensive EW to one unit, it cannot use those same points to help another unit or for any other purpose. It could, however, provide 2 or more points to another friendly unit if any additional EW points are available.

Combinations: The scout does not itself benefit from the defensive EW it loans to the target. Any number of scouts can loan DEW to a specific unit during a turn, but loaned DEW cannot, in combination with the ship's own DEW, reduce a target's profile below zero. For example, a target with a forward/aft profile of 15 using 10 points of self generated DEW cannot benefit from more than 5 loaned DEW. A vessel with a profile of l0 using 12 points of self generated DEW will have a profile of -2, so no loaned DEW can further protect it.

10.5.3 Disruption ELINT

ELINT vessels can disrupt an opposing ship's sensors, filling it with "white noise" that makes lockons difficult. This process is referred to as "breaking enemy EW" or (where appropriate) "breaking lockons." Procedure: The scout must apply at least 3 points of EW against the enemy target. For every 3 full EW points used in this way, one point of OEW or CCEW being used by the target on that turn is nullified. Any fractions should be dropped. The number of OEW points used to break enemy EW, and the target of the effect, should be determined during the EW Segment of the

Combat Sequence. Once all EW announcements are made, the player then decides which of the target's OEW or CCEW points are lost. This choice is the scout's, not the target's. Only OEW or CCEW can be broken; if the target goes full defensive, the scout cannot affect it. This decision must be made immediately it cannot wait until after movement.

Example: *A scout applies 3 points of disruption EW against an enemy battleship. When EW is announced, the battleship reveals that it locked onto the scout with 1 point of OEW, allocated 1 point to CCEW, and used the rest for its own defense. The scout can choose to nullify either the OEW point (thus breaking the lock-on) or the CCEW point, but must make the decision right away (it cannot wait until later in the turn).*

Fighters: Fighter and shuttle offensive bonuses cannot be disrupted.

Ranges: The ELINT ship must be no farther than 30 hexes away from the target unit. This restriction applies both at the time EW is determined and at the time weapons are fired. If either ship moves out of range during its movement, but the other moves in such a way as to rectify this, the disrupted EW will still apply.

Line-of-sight: LOS to the target unit is required at the time ELINT is determined and the time fire is actually performed. If it is broken during ~movement but restored after movement, the EW disruption will still occur.

Jammers: No lock-on is required to break enemy EW, so OEW or CCEW employed by jammerprotected units can be disrupted.

Limitations: Each 3 points of disruption EW can affect only a single point of enemy EW. Offensive EW being loaned to the target by an enemy scout cannot be disrupted, but the scout can break the lock-on that permits it-this is often referred to as "counter- ELINT" Note that if the target does not use OEW or CCEW on that turn, there will be nothing to disrupt, so any disruption ELINT allocated against that target will be wasted.

Combinations: A scout can break as many points of EW as its sensors allow. However, two scouts cannot break EW against the same target. If two scouts attempt to do so, use the one with the most EW points allocated to this function. If both used the same number of points, roll randomly to see which one can break the target's EW on that turn.

10.5.4 Blanket Protection

ELINT vessels can generate a defensive field that protects all nearby friendly units. Though expensive, this can be a much more efficient means of defense where large armadas are concerned. This ability is usually referred to as "blanket protection."

Procedure: The scout must generate a minimum of 4 points of EW for this purpose. For every 4 points produced (dropping any fraction), all friendly units within range receive the benefit of 1 point of defensive EW. This allocation is determined during the EW Segment of the Combat Sequence and cannot be changed once EW has been announced.

Example: *A scout uses 12 points of EW for blanket protection. All friendly units within range receive +3 DEW for the remainder of that turn.*

Fighters: Fighters and shuttles benefit in the same way as ships.

Ranges: All friendly units within 20 hexes when weapons fire is resolved will benefit from the blanket protection. The position of friendly units at the time EW is announced is irrelevant. If there is a question as to which units are "friendly" the scout's owner can make this determination on a unit by unit basis, but must do so at the time blanket protection is announced.

Line-of-sight: LOS to the target unit is required at the time weapons fire is resolved, but is not necessary at the time EW levels are announced. Jammers: Since lock-ons are not required, a scout can provide blanket protection to units protected by jammers.

Limitations: EW used for blanket protection cannot be used for any other purpose on that turn. Since this ability is so sensor-intensive, a scout cannot use any other ELINT functions on a turn it generates blanket protection. It may, however, use non-ELINT EW (such as defensive EW) if it wishes.

Combinations: A ship may receive blanket protection from at most one scout on any given turn. If several ELINT ships in the same area use this ability, only the best defense level will apply. Blanket protection can be combined with loaned DEW, but counts against the limits described in that section.

10.5.5 Identification

One important use for ELINT ships is the identification of ships, weapons, terrain objects, mines, and similar items. This ability is of particular importance when surveying newly discovered star systems, or searching such systems for enemies that may be hiding therein. The identification abilities of ELINT ships can also be used during a scenario for several other purposes, as listed hereafter. This is not an all-inclusive list, as new abilities may be added in future products.

Ship Identification: ELINT ships have bonuses when attempting to determine the exact class and variant of an enemy unit. When using the Ship Identification rules (see the Scenarios chapter), they can make two attempts per turn and each such attempt is at a +3 bonus. Using this ability does not require the use of EW in any way.

Surveying: An ELINT ship may survey star systems, explore asteroid fields, and perform other scouting duties. This has little effect on game play, but could be important in a campaign or in specific scenarios. If this is the case, specific rules will be provided for the survey mission.

Minefield Detection: An ELINT ship can detect the presence of minefields, a fact that is of great importance in campaign battles. To do this, the scout must allocate one point of EW to the "minefield detection" mission at the start of the turn. This point can be used for no other purpose that turn. When the player announces his use of this ability, he immediately (i.e., before movement) learns if any mines are present within 30 hexes of his ship. Any player whose forces include mines must announce whether the quantity of mines within range is "small" (1-10 mines), "medium" (11-20 mines), or "large" (21 or more mines). This refers only to mines that player actually knows about (which could be important in multi-player scenarios where more than one person controls a minefield). No further information is gained, however. To identify mines once their presence is known, see the rules for mine identification presented in the previous chapter.

Ballistic Weapon Identification: An ELINT ship can allocate one or more of its sensor points to this function each turn. This is determined like any other EW allocation, but is announced as "ballistic identification," and these points can be used for no other purpose on that turn. Each point spent allows the scout to precisely identify any four ballistic weapons deployed within 50 hexes of the ELINT ship at the moment of launch (they do not have to be targeted on the scout). If these conditions are met, the launching player is required to reveal to the scout player the exact class of missile or other ballistic weapon upon request. Note that this only identifies the type of weapon (e.g., a heavy missile), not its target if that target is normally kept secret. Thus, this function cannot be used to identify the impact points of proximity weapons, for example. Its main use is determining which missiles would be the best ones to intercept.

10.5.7 H-K Command Link Jamming

An ELINT ship may allocate EW points to Hunter-Killer flights in an attempt to jam their command-link guidance from the H-K Control Unit. The target flight must be within 30 hexes of the ELINT ship during both the EW phase and the critical hits phase of the turn. Each flight of H-K's with at least one point of Jamming applied to it must roll on the following table, with a +1 modifier for each additional point of EW applied to Jamming. The roll is made in the Critical hits phase.

1-14: No Effect

15-16: -2 Initiative Next Turn

17-18: -4 Initiative Next Turn

19-20: Control Lost for 1 Turn (H-K's Switch to Automatic at -4 Initiative Penalty

20-21: Control Lost for 1 Turn PLUS 1 H-K Drops Out

22+: Control Lost for 1 Turn PLUS 2 H-K's Drops Out

Jamming is affected in the same was as OEW by disrupting ELINT. Note that if the targeted H-K flight impacts its target, no EW allocated against it on that turn will have any effect. Thus, it is advisable to use this defense during the approach, limiting its effectiveness somewhat.

10.6 Chameleon Sensors

The Chameleon Sensor Suite (CSS) is an extremely expensive but very special ELINT system that can be used like standard ELINT sensors, but also has the following additional abilities.

10.6.1 Deception

The main purpose of the CSS is to disguise the ship as another type of unit when viewed from a distance. The chameleon suite may alter the appearance of the ship so that it appears as any other kind of ship (including light combat vessels, medium ships, heavy combat vessels, or capital ships). It cannot make a ship look like a fighter or any other small unit (shuttles, OSATs, etc.), nor may it disguise a ship as a base or enormous unit. If a fighter is equipped with a CSS, it can only simulate another fighter or shuttle, never anything larger or of a radically different type (e.g., it could simulate a breaching pod, but not an OSAT).

On the playing field, the chameleon ship should substitute a false counter or miniature and employ a fake control sheet at all times. The exact unit the CSS will simulate must be determined in advance, as the ship's sensors must be programmed ahead of time with this information (and cannot change it during a scenario). So long as the chameleon ship does nothing that the false image could not normally do (e.g., accelerate much faster than would normally be possible, or fire weapons the simulacrum doesn't have), the enemy cannot pierce the disguise at any kind of range. Only if an opposing ship gets within 5 hexes (or a shuttle or fighter gets within 2 hexes) can it reveal the deception.

The chameleon ship must be careful with certain rules in order to avoid giving itself away. For example, if it disguises itself as a unit that normally has a greater initiative bonus (e.g., a capital ship disguising itself as a medium ship), the enemy will know something's fishy. Note that the rules allow a ship to voluntarily reduce its initiative bonus, so a CSS equipped ship could disguise itself as a smaller class ship and still get away with it. To do so, however, the CSS player must voluntarily lower the initiative ratings of some of his smaller ships on other occasions, so that the opponent is never quite sure which ships are disguised ships and which are really the lighter ships disguising their abilities. (This is the same sort of strategy used when bluffing in poker.)

If an enemy unit fires at a CSS-equipped ship, resolve the fire using the simulated ship's defense ratings. Shots that hit the simulacrum but don't hit the "real" ship should be rolled and recorded on the false image's ship control sheet, but these have no effect on the CSS ship itself. Similarly, shots that miss the false signature but actually strike the real ship will give no outward sign of damage, but do need to be marked. In order to make the rolls without giving things away, the player should use the next die rolls made during that turn (e.g., the next to-hit or hit location rolls made on a d20) to figure which systems are hit (in addition to the normal use for such dice).

Otherwise, damage to the disguised vessel should be rolled normally and marked publicly on the false control sheet, but secretly recorded (using the appropriate hit location rolls) on the CSS ship's sheet at the same time. If the sensors are destroyed or deactivated, the deception is revealed immediately. The sensor suite accepts critical hits like any other sensor array; there are no special chameleon-related criticals.

An impartial GM will be a great help in these situations. The point is that sniping and random hits or misses are not enough to reveal a CSS, as the sensors adjust their signature to account for "damage" or the lack thereof.

10.6.2 Masking Weapon Signatures

Chameleon suites mask the arming status of weapons. Under the standard rules, all ships are required to reveal which of their weapons are being armed (though not necessarily in what mode). If a ship is equipped with a CSS, however, it does not need to make this announcement, even

after the chameleon deception is revealed. In fact, while the ship is in disguise, the owning player can lie about whether his (simulated) guns are active or not. This provides at least some benefit—however small—to CSS-equipped ships once they have been revealed.

10.7 Computerized Fire Control

The weapons on some ships are tied into an advanced central computer system that tracks enemy units faster than any mind can. This produces one or more bonus fire control points (BFCPs) every turn. The player is free to distribute these points as desired among the three fire control categories (capital ships/heavy combat vessels, medium ships, fighters/shuttles) each turn, but no category can be given more than two BFCPs. These bonuses are ship-wide and cannot be set for individual weapons.

Any desired change to BFCP allocation should be made during the EW Allocation Step of the Sequence of Play (if not changed at this point, it remains as it was during the previous turn). The allocation of BFCPs is secret, revealed only when weapons fire is announced. For this reason it should be covered or hidden on the control sheet, then revealed as weapons are fired, to avoid any illegal last-second changes.

BFCPs are not electronic warfare, but are considered part of each weapon's inherent fire control system. They are not affected by anything that would diminish or eliminate EW, such as disruptive ELINT functions, jammers, stealth, nebulas and so on. Similarly, a BFCP point cannot be used for a lock-on, nor does it need to be applied to a specific enemy unit.

Bonus fire control points are produced by the ship's computer (an icon type on the control sheet), and are lost if the system is destroyed. The computer has no critical hits, but its BFCP production is reduced proportionally to its damage. The boxes in any computer icon are arranged in groups, so that when all the boxes of a given group are lost, one BFCP is lost. The player is required to mark all the boxes in one group before beginning on the next. Note that these are not critical hits and cannot be restored by repairs that cancel the effect of criticals.

10.8 Hardened Sensors

Some races build ships with sensors that are resistant to damage, and shrug off critical hits more easily. Instead of adding +1 to the critical sensor roll for every point of damage, add +1 only for every two boxes of damage (dropping fractions). This rule applies only to sensor arrays, not other systems on the ship.

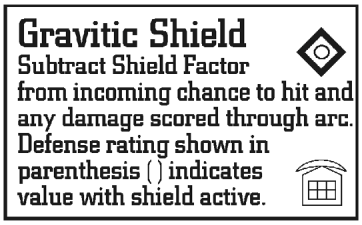
10.9 Mass Sensors

This advanced sensor system (backed up by heavily stealthed probes) enables a ship to sense targets in normal space. This provides an opportunity to "gen the drop" on an unsuspecting enemy.

If a scenario calls for a mass sensor-equipped ship to jump into the scenario, the opponents must place all their units first and determine their position, heading, speed and size category (capital, HCV, etc.). (They do not need to reveal the specific class of vessel or fighter, nor must they report on any hidden units or units located on the surface of planets or asteroids.) The sensor-equipped ship can then form a jump point anywhere on the map, and enter at its leisure, with a -5 bonus on the Vortex Location table (Section 10.3.10).

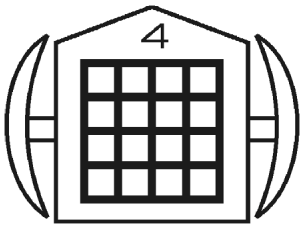
10.10 Gravitic Shields

Gravitic shields operate by creating a slight gravity well around the vessel, causing weapons to shift slightly on their courses and either miss or glance off the target. Functionally, they are identical to EM shields for all purposes, and even share the same type of icon, like the sample shown here. Gravitic shields and EM shields



cannot be present on the same ship.

Gravitic shields are very power-hungry. In order to supply them with enough energy to operate, a special shield generator is required, which appears in the primary area of the ship. At nominal levels, this generator can only power a limited number of shield emitters, shown as a number within the generator icon. For example, an icon with a "4" (as in the example shown here) would power four shields per turn. The player should select which shields are in use at the same time ship systems are deactivated (during the Ship Power Segment of the Combat Sequence). This selection is then announced immediately thereafter, as shown in the Combat Sequence.



It is possible to activate more than the standard number of shields at a significant power cost. For each additional shield, the ship must apply power equal to the amount the shield generator requires (as shown in the diamond power icon next to the generator). *For example, a generator with a "4" in the diamond icon would require 4 extra power to activate an extra shield, 8 power for two shields, etc.*

If the shield generator is deactivated, all shields on the ship are also deactivated. It is not possible to partially deactivate the generator. Note that gravitic shields do not themselves have a power icon, since they are powered entirely by the generator (i.e., they cannot be individually deactivated for extra power).

Gravitic shields function normally in all terrains except nebulas (see Section 11.5.7), in which their shield ratings are reduced by 1 point.

Due to the nature of the field they produce, gravitic shields must be open to space, so they are very difficult to harden with armor. In fact, each point of armor (if used) would reduce the field strength by 1, so the shield emitters must be left unprotected and exposed, with armor ratings of zero (on bases, they do not benefit from the structure's general armor protection). Electromagnetic shields do not suffer from this problem.

10.11 Shield Projector

This device is huge, and is found only on bases, satellites, and other fixed defensive platforms. It can operate as a normal gravitic shield, but also has the following additional abilities.

Shield Projector
Maximum Range: 5 hexes
Increase shield rating of all gravitic shields on target vessel by the projector's shield rating.

Each turn, a given shield projector can enhance the shields around a single friendly target, so long as that unit is within 5 hexes when weapons fire takes place, and is within the arc the shield projector. The player determines and announces which unit is to be protected at the same time EW is declared (not when weapons fire is announced). The target can be a ship, a flight of fighters, or a group of up to six shuttles in the same hex.

Assuming all conditions are met, the target receives the benefit of the projector's shield factor during the Weapons Fire Step of the turn. This amount is added to the shield factors of all shields on the target, although it does nothing if no shield is present (it can only enhance existing shields, not produce new ones). Note that this can make ships all but invulnerable to weapons fire. Shield projectors are not cumulative. If multiple shield projectors target the same unit, use only the one with the best rating.

The shield projector is powered by shield generators just like any other gravitic shield would be. While projecting a shield, the device cannot protect the base itself, only the target unit. (It can operate as a normal gravitic shield, but if it does, it cannot project a shield on the same turn.) Note that since most bases have multiple shield projectors in overlapping arcs, they will be able to defend several ships without opening any vulnerabilities in their own defenses.

Shield projectors cannot affect enormous units due to the scale involved. Thus, two bases could not protect each other using these devices. Satellites and smaller bases may defend each other this way, however. This makes rows of chained OSATs into highly effective defensive elements.

10.12 Stealth Ships

Stealth vessels, usually referred to as subs by analogy

with their naval counterparts, are expensive to build and maintain, requiring about 25% more resources to construct and support than other ships of their size. This should be reflected in the rules for any campaign in which stealth ships are used, applying a 25% economic penalty (increase) to their build cost.

Subs are difficult to target due to built-in non-reflective hulls, as indicated by their relatively low defense ratings (in some cases approaching those of fighters). Some of this is also due to automated defensive EW systems that are tied into the sensors and computer. If either the sensor array or computer system is destroyed, the defense ratings of the stealth ship are increased by 3 in all directions. This hardwired defensive EW cannot be altered by players and is not affected by critical hits.

The main advantage of stealth ships, however, is their ability to move and strike unseen. This is not a "cloaking device," as the unit does not actually vanish. Instead, it is simply impossible to detect at long ranges, and is therefore invisible amongst the normal background radiation of space. While moving invisibly, the player is required to keep a secret written record of its location (or use the assistance of an impartial moderator).

Stealth ships will be detected by any unit with active sensors once it moves into that unit's detection range as shown on the chart below:

Unit Type	**Detection Range**
Base	5 x Sensor Rating
ELINT Ship	3 x Sensor Rating
Other Ship	2 x Sensor Rating
Fighter	Offensive Bonus

These values are calculated using the detecting ship's base sensor rating as modified by enhancements, crew or officers, extra power applied and so on. It does not matter what the sensor's EW is actually used for on the turn.

An ELINT ship can also allocate EW to Stealth Detection, which adds +2 to its detection range for each point so allocated, but those points will be unavailable for any other purpose on that turn. Note that because of the huge sensor arrays available to bases, it is almost impossible to sneak a sub within firing range of one without some kind of assistance from terrain.

If, after the end of the Movement Step of the Combat Sequence, a stealth ship is within the detection range of an enemy unit that has line-of-sight, it becomes invisible on the map and its counter or miniature must be placed on the board. Once it is revealed, a stealth ship cannot become hidden again during a scenario so long as at least one enemy unit has line-of-sight to it thereafter. Should this condition no longer be met, it can disappear again. A sub can also recover its hidden status if it disengages and scenario rules allow it to return to play in some manner (e.g., following a friendly unit through a jump point and then re-emerging elsewhere on the map at a later time).

A stealth ship is also revealed if it fires any weapon, locks onto any enemy unit or uses any ELINT ability. Its lock-on (and presence) will not be announced until after the enemy has allocated his own EW, giving the sub a full turn to strike with the element of surprise.

Even after they have been detected, subs cannot be locked onto due to their stealth capabilities, unless the enemy is 12 or fewer hexes away (4 or fewer in the case of fighters or shuttles, 24 or fewer hexes for an enormous base). This uses the same rules as jammers. (If an opposing ship applies offensive EW to a sub and then manages to get within appropriate range after movement is completed, it would earn a lock-on at that point.) This stealth ability is lost if the sub uses any ELINT functions, although it is permitted to use offensive and defensive EW for the usual purposes without disrupting its stealth benefits.

Although subs sound impressive, in practice they gain a single first strike after which they are easy prey to marauding enemy fighters. In practice, they avoid combat except when absolutely necessary, or when they locate an easy target such as an unguarded convoy. They are best put to use as spies, where they can scout enemy movements from the darkness of space. In fleet actions, they often hang back until the battle is joined, then provide a sneak attack against a vulnerable enemy. Once discovered, they should

be protected by fighters, or consider jumping out with the aid of a friendly ship.

A sub's stealthy construction prohibits the use of jump drives. Any attempt to place the necessary materials on a sub renders its stealth technology useless.

10.12.1 Stealth Fighters

Some fighters have limited stealth abilities. The stealth system makes it impossible to lock onto the fighter at a distance greater than five hexes. A ship may allocate offensive EW or CCEW against the stealth fighter in the hope that it will be within that range by the time it and the ship have completed their movement for the turn. If this should occur, lock-on is achieved. If not, the OEW will function but the ship will suffer double the range penalty. Enemy fighters may use their offensive ratings against a stealth fighter normally, but outside range 5, they must double their range penalties as well.

The stealth system also protects the fighter from ballistic weapons. If the launching unit is outside range 5, it may not launch such weapons against the stealth fighter. If the fighter is within that range and ballistic weapons are launched at it, they retain their lock and roll for impact normally even if the fighter moves farther than 5 hexes from the launch point.

Advanced sensors ignore stealth entirely.

10.12.A ELINT Stealth

Scouts and Explorers are often thrust into situations where they must infiltrate enemy sectors to provide intelligence. To accomplish this, they can use their powerful sensor arrays to obscure themselves from others. In order to utilize ELINT Stealth, an ELINT unit must apply EW equal to one third of its largest profile (rounding up). The unit cannot use offensive ELINT of any type (as this would negate the bonuses provided by the stealth), but can perform other defensive EW activities.

ELINT Stealth follows the same rules as stealth ships, with the following additional restrictions:

- If the unit overthrusts any of its thrusters, it is immediately detected.
- The Jump Drive (if any) must be turned off while attempting to use ELINT Stealth.

The ELINT Stealth unit must not be in line-of-sight with any enemy ship when attempting to initiate ELINT Stealth; otherwise it will have no effect (as the enemy units can still visually track the target).

(Mike Jasperson)

10.13 Refits

Navies often go through a series of refits as they respond to a conflict against a power nearly as great as their own. Armor levels, sensor ratings and weapon loadouts are improved as lessons are learned and new technology incorporated. To incorporate these refits, the SCSs for some ships have several additions to the standard SCS.

10.13.1 Blank Armor Circles

Several system icons on the SCS have a blank circle next to them rather the usual armor value. Before play, check the table on the SCS labeled **Armor Refits**. Match the system to the time period being played and write the appropriate armor value in the blank armor circle. For example, the Retro Thrusters on the example shown below would have an armor rating of 4 if played in year 1985 and beyond, otherwise it would be a 3.

Be sure to use the cost given in the **Refit** box for that year. If playing in a pick-up game or free-for-all battle, players can select any year they wish, but the year specified must apply to all units in use by any given player. If playing as part of a team, the team must use the same year for all its units and refits. If playing a pre-defined scenario, the year will apply to all units on the game map.

ARMOR REFIT

System	1860	1985	2005
Retro Thrust	3	4	4
Port/Stb Thrust	3	4	4
Aft Structure	3	3	4
Main Thrust	3	3	4

SENSOR REFIT

Sensor Rating	5	5	6

10.13.2 Blank Sensor Rating

Certain ships have a blank Sensor Rating in their sensor icon. Before play, check the table on the SCS labeled

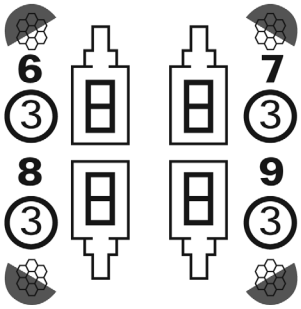
Sensor Refits. Match the sensor rating to the time period being played and write the appropriate sensor value in the blank sensor space.

Be sure to use the cost given in the **Refit** box for that year. The same time frame rules discussed in the previous section apply.

10.13.3 Replacement Weapons

As ships are refitted, weapons are often replaced with newer more advanced systems. The weapon replacements and the new point value of the refitted ship are shown in large **Refit** Tables. Simply cross out the replaced weapons on the ship silhouette and use the systems in the **Refit** table.

Point Value: 440
1. Replace Particle Projector 6 with Lt Particle Beams 6 and 7
2. Replace Particle Projector 7 with Lt Particle Beams 8 and 9



In some cases, altered weapons include changes in arc, icon, or armor value. In such cases, the replacement item always appear in the **Refit** box. However, if no change is necessary, no replacement is shown.

Whenever an item is replaced on the ship, use the hit location chart for the original item to determine when the new weapons are struck by incoming fire.

Note that each weapon refit includes the armor increase and sensor rating increase shown in the **Armor Refits** and **Sensor Refits** tables. The point value shown in the **Refit** table includes the armor and sensor rating changes. There is *no* partial refit that would include just the armor or only the weapons or just a sensor rating increase. In the case of multiple refits, the later refits should include the older refitted weapons, armor and sensor rating.

10.14 Unreliable Ships

When obsolete ships are reactivated from mothball reserve, the advanced age of the hulls can cause operational problems. In these cases, the ships may have one or more combat penalties. Other circumstances, such as ships that have fallen into enemy hands, have similar consequences. Such vessels will have "Unreliable Ship" found in the Special Notes box on their control sheet, along with a list of any penalties or restrictions. Some of these effects of age are listed below.

If more than one effect is listed, apply each one in full, with all such effects being cumulative. For example, a ship with Unreliable Systems, Pre-Existing Damage and Vulnerable to Criticals would first roll for damage on each system, then roll for criticals on each system, including a bonus for any damage, as well as the +1 modifier from the critical hit vulnerability.

10.14.1 Vulnerable to Criticals

All critical hits scored on this ship add +1 to their die roll.

10.14.2 Unreliable Systems

Weapon Misfirings: Each time a weapon fires offensively, roll 1d10. If a 1 comes up, the weapon misfires and automatically misses. It is still treated as firing for all purposes. If a weapon is sustained, roll on each turn of firing. (If it misfires on the first turn, it can still attempt its follow-up volley on the next turn.)

Communications Problems: Each turn, at the start of the turn, roll for a critical hit on the C&C with a +1 on the die roll (plus 1 for each additional point of damage already scored to the C&C). Such criticals are not permanent, however (regardless of what the listed critical would indicate). No effect caused by this roll lasts for more than the duration of the current turn.

Power Fluctuations: Each turn, at the start of the turn, roll for a critical hit on the reactor with a +1 on the die roll (plus 1 for each additional point of damage already scored to the reactor). Such criticals are not permanent, however (regardless of what the listed critical would indicate). No effect caused by this roll lasts for more than the duration of the current turn.

Sensor Fluctuations: Each turn, at the start of the turn, roll for a critical hit on the primary sensors with a +1

on the die roll (plus 1 for each additional point of damage already scored to the sensor array). Such criticals are not permanent, however (regardless of what the listed critical would indicate). No effect caused by this roll lasts for more than the duration of the current turn.

Engine Fluctuations: Each turn, at the start of the turn, roll for a critical hit on the primary engine with a +1 on the die roll (plus 1 for each additional point of damage already scored to the engine). Such criticals are not permanent, however (regardless of what the listed critical would indicate). No effect caused by this roll lasts for more than the duration of the current turn.

10.14.3 Sluggish

Each turn, roll 2d6 and subtract this amount from the ship's initiative. Initiative can be made negative as a result of this roll.

10.14.4 Pre-Existing Damage

At the start of the scenario, roll 1d6 for each system on the ship (including structure blocks, but not C&C, sensors, engines, reactors or hangars). Score the resulting amount of damage on that system as a standard mode volley, subtracting armor as usual, except that if a six is rolled, at least one point of damage is scored. No critical rolls are required as a result of this damage unless the ship also has Unreliable Systems (above), in which case any damage will result in a critical modifier as noted above.

10.14.5 Ablated Armor

At the start of the scenario, roll 1d6 for each system on the ship (including structure blocks). If a 1 is rolled, reduce that system's armor level by 1 for the duration of the scenario. In a campaign, any such reduction would last after the scenario unless repaired using the campaign's repair rules.

10.15 Antiquated Sensors

The sensor arrays on some vessels are extremely weak, and are tied into a special targeting array system (10.9.1) that limits their effectiveness. The antiquated sensors on these ships operate exactly as normal sensors except they cannot

be increased above their base value through the use of extra power or ship enhancements. An elite officer or crew benefit could still provide bonus points, but the sensors themselves can never be improved.

Should the sensor suffer damage that reduces it below its normal maximum, extra power can return it to the maximum level (using the standard rules), but never above it. For example, a ship with a sensor rating of 5 the lost a point of sensors to a critical hit could apply 5 points of power to restore the maximum level.

10.15.1 Targeting Array

Targeting arrays are low-end technology normally seen only on young races making their first foray into space. They operate in a manner similar to radar, firing a pulse of energy into space and measuring what bounces back to determine precise target locations.

Each ship has one or more targeting arrays, which usually appear in the primary section and possess a 360-degree arc. These arrays are treated like weapons in many ways, in that they "fire" during the usual weapon fire step, and their targets must be recorded in secret. Because they fire at such a wide angle, they automatically hit, but score no damage. Instead, their effect is to add a fire control bonus (equal to the rating shown in their icon) for any other weapons that fired at the target on the same turn.

A targeting array requires line-of-sight, but not a lock-on, and does not in and of itself provide a lock-on. Its maximum range is 15 hexes, and it cannot be used against fighters or any other unit smaller than an OSAT. It is not affected by jammers or other stealth technology.

Multiple targeting arrays from the same unit can combine against a single enemy target, but degrade just like defensive fire will. For example, if three arrays with ratings of "3" each are sued on a single target, the first provides +3 to hit, the second +2, and the third +1, for a maximum of +6.

Targeting arrays cannot be increased in effectiveness through the addition of extra power. They can be deactivated

for power, a good option if all opponents are expected yo be farther than 15 hexes away.

Targeting arrays on stable platforms (bases, OSATs, etc.) can be used at triple the standard range, i.e., 45 hexes instead of 15.

10.15.2 Escort Array

Standard targeting arrays cannot combine with those of other ships, but those on escorts can do so. If a ship with antiquated sensors is considered an escort, this fact will be recorded in the "Special Notes" box on its control sheet.

The icon for an escort array appears the same as a standard targeting array. The only difference is that it can combine with any friendly ship within 5 hexes. Naturally, both units must have the designated target in arc of their targeting arrays. All arrays suffer the usual degradation, but since an escort array tends to be more powerful than a standard version, the escort can be quite effective in a support role.

10.16 Low Crew Training

The crews used by some races tend to be less experienced than those of their more warlike neighbors. While normally this is not all that noticeable, there are always a few ships whose crews are truly horrendous.

At the start of any scenario, a poorly trained crew must roll 1d6 on the following chart and suffer the listed penalties for the duration of that scenario. In a campaign, this roll is made each battle, and can differ from scenario to scenario (even if multiple battles are played during the same strategic turn). This is because this rule does not represent mechanical failures, but weaknesses in the readiness of the crew.

1: -1 sensors.

2: -1 free thrust.

3: -4 initiative.

4: +1 to all critical rolls required by the ship.

5: -4 power (-2 for medium ships or smaller). This may result in a power shortage.

6: -1 to all weapon fire controls.

Cost: -5% to the ship's base cost. In general, low crew training can be purchased only once for any ship, though some scenarios might violate this rule for extreme situations. In this case, the player would roll once for each level, re-rolling any duplications (six levels would be the maximum possible).

Availability: While any race can have such crews, they are rare in navies operated by races with any war experience. These battle-hardened races can use such ships in no more than 10% of their battle force (in a campaign, this is a fleetwide limit). Extremely warlike races would almost never permit such ships to exist, though it is possible one or two ships in their entire fleet might be used as a dumping-ground for undesirables or misfits they cannot otherwise get rid of.

10.16.1 Poor Crews (Alternative Option)

Poor Crews exist for many reasons. Some are simply crews that lack the time required to properly shake down on ships rushed into combat too early. Others have commanders with more political connections than competence. This can ruin even good crews if allowed by circumstances and higher authorities. The following rule covers these situations.

Ships that have poor crews possess the following list of flaws:

(1) Initiative has a -1 penalty on top of any other modifiers.

(2) The engine produces 1 less point of thrust than its listed rating.

(3) Each Thruster can safely channel one less point of thrust than what it is rated for. (Not recommended, but included for completeness.)

(4) Sensor rating is one point less than the class would normally produce.

(5) The Defense rating is increased by one for all directions and purposes.

(6) After the turn rate is calculated, one is added to the result.

(7) Launch, recovery and rearming of any fighters or armed small craft takes twice as long as normal. Essentially, this also means the hangar rating is cut in half. In the case of carriers, of the resulting value is less than that required to launch a full flight, the ship does not launch partial flights;

instead, it must wait an extra turn until all fighters are ready to go.

(8) Specialized shuttles, to include armed shuttles, are not allowed unless they are normal to the class or nation, and then only the least capable alternative is allowed.

(9) The ship always suffers from a -2 penalty to power produced on top of any other such condition.

(10) The fire control of all weapons is reduced by one for each category for all purposes.

(11) All critical damage rolls treat damage as if it were one point higher than the actual number, provided at least one point of damage exists or a weapon is used that forces an otherwise undamaged system to make a critical hit roll.

(12) Jump delays are increased by 20% rounded to the next higher whole number.

Cost: The ship is treated as having a point cost of 75% of normal. An additional level of poor crew can be purchased only if the scenario specifically authorizes or requires it. A ship with 2 levels of poor crew would have a point cost of 60% of normal.

10.17 Unprofessional Squadrons

Some fleets have been known to field squadrons with commanders selected by a criteria other than professional competence. In some circumstances, this can happen to several layers of command, creating an effect far worse than the sum of the handicaps present. For scenarios (rather then ordinary pick-up games) representing these extreme circumstances, the following rule is presented:

All or part of a force can be selected as being an unprofessional squadron. All ships so designated have a -2 initiative modifier in addition to any other penalty. All ships so designated must roll a D6 between the Hangar Operations and Initiative Roll phases of the Initiative Segment, and on a 1, have committed a serious error of some type.

Squadrons with especially horrid commanders may be required to roll 2 dice per ship, and if so, will keep both results. This double penalty is reserved for the most heinous commanders, would represent the nadir of performance for the worst, and would not be the normal state of any unit. In a campaign, it would remain a rare and temporary condition. Squadrons can, on the other hand, remain at the one roll level permanently if not corrected.

To determine which type of error has been committed, roll a d10 and consult the classification chart. Then roll a d6 on the chart indicated.

Classification Chart

1-2	EW Chart
3-6	Weapon Chart
7-10	Thrust Chart

EW Chart

1 All EW must be defensive.

2 All EW must be CCEW.

3 At least half of all EW must be offensive on the closest enemy capital ship, or the largest ship if no capital ship is present.

4 As many enemy units as possible must be targeted. If more EW points are available than enemy units, the player may allocate excess as desired.

5 At least half of all EW must be used defensively, with the rest allocated offensively as the player desires. Ships with an odd number of EW points may use the odd point as desired. CCEW may not be used.

6 All EW must be offensive, but may be allocated among targets as desired.

Weapon Chart

1 All weapons must hold fire this turn.

2 All weapons that bear must fire on the closest enemy unit.

3 All weapons that bear must fire on the closest enemy ship.

4 Only defensive fire is allowed this turn.

5 Each weapon possible must fire on a different enemy ship, to the largest number of enemy ships that can be legally fired on. If the chance to hit is less than 1 on a d20, the fire can be held, but that weapon may not fire this turn. Weapons in excess of the number of ships that may be targeted, or where the weapons outnumber the ships in arc, may combine on the target, provided all ships possible are fired upon.

6 All weapons that bear must fire on the phasing players choice of targets, no other targets may be fired upon. Weapons that do not bear on the target may fire defensively.

Note: All such fire is required regardless of the EW status, so a wise player will conduct his EW Segment accordingly.

Thrust Chart

1-2 No thrust may be used this turn, for any reason. If this results in a ship leaving the board on a fixed map, it is treated as any other ship that disengages in this manner. A ship that will otherwise ram an immobile object, such as a planet, may still maneuver to avoid collision.

3 The ship must conduct a port turn, of at least 60 degrees.

4 The ship must conduct a starboard turn, of at least 60 degrees.

5 The ship must accelerate by the highest possible amount that does not require overthrusting, unless overthrust is required to accelerate by one, in which case overthrust must be used.

6 The ship must decelerate by the highest possible amount that does not require overthrusting, unless overthrust is required to decelerate by one, in which case overthrust must be used.

Note: If a ship cannot conduct the requ0ired move, such as one that has lost the appropriate lateral thruster, it may not use thrust for any purpose this turn as #1 above.

10.18 Advanced Race Systems

Advanced races use special systems. Most benefits of these systems are ignored when being used against another advanced race.

10.18.1 Advanced Armor

Advanced armor is the term used to describe the armor employed by advanced races. This type of armor provides a number of special abilities as listed hereafter. Note, however, that these abilities only work against the weapons employed by less advanced races. Weapons fired by other advanced races ignore all of these advantages. If a ship has advanced armor, this fact will be listed in the “Special Notes” box on the control sheet.

Advanced armor has the following advantages:

Plasma weapons do not ignore half the value of advanced armor.

Matter weapons treat advanced armor as though it were two points less than listed. In the case of systems with two or fewer points of armor, they are considered to have a zero value.

Armor-damaging weapons (e.g., molecular disruptors) do not use these abilities against advanced armor.

Electromagnetic weapons that cause effects other than damage do not affect a ship or fighter protected by advanced armor. EM weapons that cause damage still score this damage normally, but if they are listed as ignoring armor, they ignore only half of advanced armor (rounded up).

Breaching pods and docking clamps cannot attach to advanced armor. Tractor beams, gravitic shifters and the like will still function normally.

Ballistic weapons are anticipated by advanced armor due to their slower rate of approach. The armor’s value is considered 2 points higher versus any ballistic device (missile, torpedo, energy mine, etc.).

10.18.1.1 Hardened Advanced Armor

Some advanced races deploy ships encased in an ultra-dense material, providing protection even deep into the ship's structure. This grants the ship all benefits of advanced armor, in addition to the following:

- Against weapons that would normally ignore advanced armor, the ship's armor counts as half, rounding fractions down. This includes weapons operated by other advanced races, as well as every sub-volley from a raking shot, even if they all hit the same location. Hardened advanced armor is *always* applied.
- Against flash mode weapons, all armor counts as double, even against weapons operated by other advanced races.
- Armor is not halved against plasma class weaponry, even if operated by other advanced races.

10.18.2 Self-Repair Systems

Most advanced race ships are equipped with self-repair systems capable of removing some amount of damage during a scenario. Each such system is displayed on the control sheet in a hexagon-shaped icon.

Each turn of the scenario, during the Adjust Ship Systems step of the Combat Sequence, a self-repair system can repair a number of destroyed boxes equal to the repair rate shown in the self-repair icon. It can only repair damage that occurred on a previous turn (not the current turn), cannot repair self-repair boxes, armor, or shuttles/fighters, cannot replace structure on blocks that were completely destroyed (or anything attached to such blocks), and cannot recreate fighters or shuttles that have been lost. Some ships can temporarily double their repair rates by deactivating all weapons and shields.

Self-repair systems can work on as many different systems as they wish, limited only by damage and their repair rates. If there are two or more self-repair systems on the same ship, each does its work separately, and can combine their efforts if desired. The use of self-repair is never required or forced upon the player.

Critical hits can be repaired with self-repair systems. These count as one "box" being repaired, except for C&C criticals which count as four "boxes." Note that systems that have suffered multiple critical hits must repair each of them separately. A critical that tells you to apply the effects of two or more other criticals counts as multiple criticals for this purpose.

Self-repair systems can make repairs to a device that has been completely destroyed by damage (except an entire structure block or anything attached to that block). However, that system will not be functional again until it has been totally repaired. If even one destroyed box remains on it, it will not work at all. Even if fully repaired and restored to functionality, it will retain any critical hits it had suffered before its destruction, unless those are also repaired.

Self-repair systems are limited to a maximum number of boxes' worth of repairs during a scenario. This limit is equal to ten times the number of undestroyed boxes on the self-repair system itself. Thus, if a self-repair system with 15 boxes could repair at most 150 boxes (or their equivalent: critical hits count as one or more boxes as described above) during a scenario. If a box is destroyed, repaired and destroyed again, repairing it a second time counts as a second repair against this limit.

If the self-repair system is damaged or destroyed, recalculate the maximum limit immediately. Any previously committed repairs are not lost. Repairs in progress that would push the self-repair system over the new limit will not be completed.

10.18.2.1 Limited Self-Repair Systems

Some self-repair systems are more limited, and cannot repair structure at all. Self-repair systems employed in ships with energy diffusers cannot repair segments that have been destroyed due to diffuser criticals.

10.18.2.2 Structure Self-Repair Systems

Certain advanced races are able to repair their ships using the force of their will, even if the damage is substantial. This ability is represented on the control sheet as a Structure Self-Repair System (which appears as two concentric self-repair icons).

In the Repair Segment of the Combat Sequence (and in addition to the normal self-repair available to most advanced races), structure self-repair has the following effects:

- Up to the listed number of Structure Boxes may be repaired, even if the damage has been taken on the current turn. This enables the vessel to reattached destroyed sections, as long as the section has been destroyed this turn. Any weapons or systems on a reattached system retain all the damage previously suffered.
- Structure self-repair cannot be used on any other ship systems, which will require the use of the normal self-repair using the regular rules. It functions on structure only. If the primary structure is completely destroyed, the ship is lost in the Combat Step of the turn, and thus is unable to use the structure self-repair.
- A capital ship may loan its structure self-repair to any friendly vessel within 5 hexes. The vessel must still be in existence during the Adjust Ship Systems segment. Fighters are considered to be made up completely out of structure.

10.18.3 Advanced Sensors

A ship that uses advanced sensors will have this fact listed in the "Special Notes" box on its control sheet. Advanced sensors have the following advantages:

- They are immune to the effects of "masking" technologies, including jammers, chameleon sensors and stealth technologies. Masking technologies operated by advanced races will still function.
- They ignore all defensive ELINT capabilities (blanket protection or single ship protection) and cannot be disrupted by ELINT. Enemy ELINT ships may still use their offensive aid function normally. ELINT ships operated by other advanced races ignore this rule and can use all their abilities normally.
- Advanced sensors cut through any non-advanced protective systems that lower a ship's defense rating with the exception of defensive weapons fire and defensive EW generated by the target. *Interceptor energy webs, for example, would not lower a ship's defense rating against an advanced sensor, but the interceptor could still be used defensively. Similarly, particle impeders cannot use their EW abilities, but may still fire in defensive mode. As a final example, a gravitic or EM shield would not get its defense rating bonus against an advanced sensor, but would still lower the damage caused by incoming weapons in the usual way.*

Some exceedingly advanced races (or in scenarios and campaigns where players want more powerful advanced races) have the following additions to advanced sensors:

- When targeting a vessel equipped with advanced sensors by a ship with normal sensors, the target's defensive EW is treated as being 50% higher (dropping fractions).
- Fighters of non-advanced races are affected by the defensive EW of a target ship's advanced sensors, as the fighters are simply not sufficiently shielded. This dEW does not receive the +50% bonus mentioned above.

Note that advanced sensors are not immune to defensive EW, though they do ignore defensive ELINT functions.

10.18.4 Advanced Adaptive Armor

Some advanced races use a combination of adaptive and permanent armor, which are collectively treated as "advanced" (so, for example, you would not add 2 to both values versus ballistic weapons), and the lack of either does not reduce or eliminate advanced armor abilities.

Advanced race ships with adaptive armor always have some memory of just about any weapon type they have ever encountered. For this reason, they can begin any scenario with some of their adaptive armor points pre-assigned. If they wish, they can wait to do this until they have learned the nature of their opponents (if the scenario calls for an unknown deployment of enemy units). The number of pre-assigned points available is shown on the ship control sheet in the adaptive armor datacard.

Remember that weapons that ignore or damage armor would apply such effects only to/against the permanent segment of adaptive armor. The adaptive segment would operate normally and would not be affected by armor-

damaging weapons. *For example, this would mean that the adaptive segment of such armor is capable of fully blocking matter weapons and molecular slicer beams if set to defend against those weapon classes.*

10.18.5 Advanced Jump Drives

The jump costs and delay times are usually very low for advanced jump drives. In addition, the jump point can be formed up to 12 hexes away from the ship (it is not limited to a mere 4 hexes), and can be held open indefinitely.

Advanced jump drives do not require a specific maintenance cost. Instead, they are held ready to operate at any time using built-in bioelectrical energy sources. When they are activated, the required amount of energy shown in the power diamond must be drawn from a capacitor. (See 10.18.7 for more information.)

It is possible for an advanced race ship to shunt more power to its jump drive and reduce the jump delay. The jump engine's power icon indicates how much power is required for this ability. Each time the listed amount of extra power is applied, the jump engine is considered to have been operating for an additional turn towards the jump delay requirement. An advanced jump drive can produce no more than 4 turns' worth of charging in any turn, however.

When testing for jump drive detonatino on a drive that has been overcharged, the percentage chance of detonation is multiplied by the number of extra recharge points purchased over the entire arming period.

10.18.5.1 Traveler Jump Drives

Some jump drives are even more advanced. In addition to the effects of advanced jump drives, traveler drives deliver a coruscating field of crackling lightning, fading away into the center of the resulting jump point. This operates as any other advanced jump drive, except that the ship is permitted to fire weapons on the same turn that it departs the map. Additionally, the ship suffers no chance of being destroyed if its jump system is damaged during a turn that the drive is in use, though jump-out will be cancelled if the drive is completely destroyed.

Ships with traveler drives may choose to ignore any hyperspace penalties, adjustments or effects. This includes those from special features such as whirlpools and waveforms. If entering a hyperspace singularity, the ship can choose any desired result from the hyperspace whirlpool table and will take no damage from the effect.

10.18.5.2 Extra-Dimensional Jump Drive

This device is capable of much more than simply transferring a ship between real space and hyperspace. Ships with this drive can freely move between real space and any other dimension that the player may desire. But this even is not the limit of its power.

In a campaign setting, it can be assumed that a sufficiently large fleet is capable of removing (i.e., destroying) a moon, asteroid or other heavenly object. It is also possible for the fleet to simply relocate the mass to a friendly territory, and put it into completely stable orbit around another star.

This ability may be used against enemy vessels as well, but is very difficult. The following rules apply to the extra-dimensional jump drive (EDJD) in addition to all rules for traveler jump drives.

On a turn that an EDJD is capable of activating, the following must occur:

- The target vessel must end its movement in an Energy Draining Field connected to the ship's Energy Draining Field (extended through ED Mines or other ships, for example).
- The EDJD ship must announce that it is activating the EDJD. The ship must allocate more Offensive EW towards the target than the target has allocated DEW (including defensive but not offensive ELINT support).

If both conditions are met, then the ship may begin to "abduct" the enemy vessel. The ship must activate its jump engine, applying a greater amount of power for a number of consecutive turns until the required total is achieved. A single power-turn is achieved by applying normal jump engine power (over the standard norm) for an entire turn. Two power-turns are achieved by applying normal jump engine power for two turns or by applying double power for

a single turn. Greater quantities of power-turns are achieved along the same lines. Note that they must be consective.

Vessel Size	Power-Turns
Any Unit	(Ramming Factor) / 50
Asteroid, Moon, Planetoid	10 x Radius^3
Planet or larger	Unknown

"Any Unit" means anything from shuttle size all the way up through Enormous Units. Round all fractions up to the nearest whole power-turn. The power-turns achieved toward one target apply only once and may not be counted toward other targets (if units are docked or otherwise connected, add their ramming factors together). If the target vessel is equipped with advanced armor (or better), divide the ramming factor by 10 instead of 50, rounding up.

Multiple vessels may contribute towards the abduction of a single target vessel as long as at least one has been affecting the target for the duration. Vessels equipped with a standard traveler jump drive may also contribute at a maximum of 1/2 of a power-turn for double power applied to the jump drive for a single turn. (Increased power does not grant further benefits.) These vessels may not initiate an abduction.

Once a target has been abducted, it is up to the player to decide which alternate dimension the target has traveled to. In campaigns it may be necessary to limit this to hyperspace (to allow jump-capable ships the opportunity to return under their own power), but in any event the target is not damaged through this effect at all.

If the EDJD is damaged, critical rolls are performed every turn that the engine is active. The EDJD must check for jump engine detonation as any other damaged jump drive would. Note that the check must be performed every turn that the EDJD is active.

10.18.6 Autonomous Operation

Some advanced races use living ships, which are capable of flying themselves without direction from a captain. This applies even if the ship's C&C is destroyed. Under these circumstances, the ship suffers the following penalties:

- Reduce initiative bonuses by 2.
- Lower free thrust by 25%, dropping fractions.
- Lower all shield ratings by 1.
- Lower sensors by 2.
- Lower the capacitor recharge rate by 20%, dropping fractions.
- Self-repair systems operate at half their normal rates.
- The ship may only hold a jump point open for a single turn.
- All hangar bay abilities require twice as long to complete.

These penalties apply because the ship creature is required to devote some of its limited cognitive power away from controlling these operations and into driving the vessel. Note that all C&C criticals continue to apply even if the ship is under autonomous operation.

Note that it is very unusual for a cruiser-sized or larger vessel to use these rules (except as the result of damage), but smaller vessels—especially transports—do so frequently.

10.18.7 Power Capacitors

Some advanced races do not use reactors, instead having a built-in power capacitor system. This capacitor is biological in nature, and is part of a living ship's body. The electrical energy produced by this life form fills the capacitor over time, and it is from this source that the ship draws power for its weapons, jump engines and extra thrust.

All capacitors can hold at most one point of power per box, and the destruction of a box both lowers their capacity and destroys any power contained in that box. (The release of such energy will not affect the ship, as it simply bleeds off into space.) Capacitors also recharge a certain amount of power each turn automatically. This amount is shown as a number within the capacitor icon. Recharging occurs just before movement, as shown in the Combat Sequence.

Each time the ship uses a system that requires power, or purchases extra thrust, it must draw energy from the capacitor. Weapons on capacitor-enabled ships are not automatically powered each turn, using the capacitor for this

purpose. If the capacitor runs out, the ship can do nothing more until the next turn, when more energy is restored into the system. The real advantage of the capacitor system comes when the ship is required to make a series of intense maneuvers, or fire its heavy weapons as frequently as possible.

To account for the energy used, keep a running total of the capacitor's energy level. Points are subtracted in the following cases:

- Each time a weapon is fired, subtract its energy cost from the capacitor's total. *For example, a weapon with a "4" in the power diamond would cost 4 points of energy from the capacitor.* Note that there is no reason to deactivate weapons for extra power on these ships. The weapons can be fired as often as power can be drawn from the capacitors to supply them.
- Extra thrust is purchased by drawing energy from the capacitor. *For example, if a ship with an engine efficiency of 4/1 requires an extra point of thrust, subtract 4 energy from the capacitor.* Note that the engine can operate normally if the capacitor is destroyed, but cannot purchase extra thrust.
- Sensors operate normally without any expenditure of power. It is possible to buy more EW using the normal rules, expending capacitor energy for this purpose, although this is somewhat expensive.
- When a capacitor-equipped ship opens a jump point, the amount of energy shown in the jump drive's power icon must be drawn from the capacitor. The jump point can be hend open indefinitely as long as this amount of energy is paid each turn.

A ship can double the rate of capacitor recharge by voluntarily shutting down all its weapons and shields. This option must be chosen and announced at the beginning of the turn in the appropriate step of the Combat Sequence. The doubled power recharge occurs immediately thereafter. On the same turn in which this is done, all repair rates of self-repair systems are also doubled, though this will not take effect until the end of the turn, at the appropriate point in the Combat Sequence.

10.18.8 Bio-Drives

Some advanced races do not use conventional drive systems. Instead of thrust, they redirect bio-energy using advanced technologies not even dreamed of by the younger races.

Such ships have a series of small **bio-drives** or **bio-thrusters** that produce all their thrust. These are considered to face any direction desired at the time the thrust is needed, although an individual bio-drive may only apply thrust in one direction during any turn. A bio-drive's location on the control sheet does not affect this choice.

Although such ships do not have engines, they still have an engine efficiency rating that determines how much power is needed to produce an extra point of thrust. Bio-drives can overthrust, and accept critical hits like any other thruster would. They share the same icon as normal thrusters, although "Bio-Drive System" will be noted in the Special Notes box as a reminder that these are treated differently.

10.18.9 Energy Diffusers

An energy diffuser is a damage distribution system. Damage that hits the ship can be absorbed instead into an energy diffuser, preventing actual boxes from being marked off. The stored damage points can then be bled off into space safely, without harming the vessel. However, there is a limit to the absorption ability of these diffusers. Once this has been exceeded, the ship is rapidly and easily eradicated.

The diffuser system appears as a concentric circle icon with a number of lines attached to various segments on one side of the ship. The segments on a side can be used only against shots coming in from that side. Indeterminate shots are resolved in the same way as with any other weapons fire: the player chooses which side is hit, but must select the same side for all shots coming from the same unit on that turn.

When any volley or sub-volley hits a diffuser-equipped vessel, roll for hit location normally and subtract armor in the usual way (and apply special effects, such as matter or plasma armor interactions, or effects that weaken or destroy armor, if necessary). The player may now choose to either

mark the remaining damage from the volley on the listed system, or absorb it into a segment. If it is absorbed, write the damage amount in one of the diffuser record boxes provided for this purpose. The total amount absorbed into any specific segment cannot exceed that segment's maximum rating (shown in the box). If it does, the remaining damage proceeds to hit the originally damaged system. If a volley or sub-volley is completely absorbed, and no damage actually penetrates into the targeted system, then no critical hit will be generated for that system by that volley.

Note that absorption is performed at the sub-volley level, so a ship could, for example, choose to accept some sub-volleys from a single raking shot into diffusers while other sub-volleys could be taken as actual hits. If a volley later results in further damage to another system (e.g., through overkill or other effects), the player can choose to accept the remaining damage into a different diffuser at this point, or allow it to damage another system using the normal rules.

At the end of each turn, a diffuser can discharge some of the energy in its segments by bleeding it off into space. The amount of energy that can be discharged is shown in the diffuser's icon. This amount can come from one or more segments in any combination desired. Energy absorbed on the current turn can be discharged if the player so wishes.

The diffuser itself services all segments to which it is attached. If it is destroyed, those segments can no longer absorb or release damage.

Flash damage is a special case, resolved as follows. First, determine the system hit in the normal way and subtract armor as required. The player then selects at most a single segment and absorbs as much damage as it can handle. If extra damage is left over, resolve it as a completely new volley, exactly as above. A different segment (but only one) can be used with each volley. Repeat the procedure until the flash weapon damage is used up or the ship is destroyed. Should any damage penetrate to a system (either because the ship runs out of segments or because the player chooses to allow it), the system will absorb damage until it is destroyed, and then a new volley will be generated as above.

Energy Diffuser Example

A raking volley of 40 points hits a diffuser-equipped ship. This is subdivided into four 10-point sub-volleys per the normal rules. The first sub-volley rolls hit location and hits a slicer beam, which has 5 armor. Rather than let the remaining 5 damage hit the weapon, the player absorbs it into a segment, writing "5" in that segment's record box. The second 10-point sub-volley rolls hit location and again hits the slicer. Since the slicer has already used its armor against this volley, the full 10 points would be applied against it. However, the player again absorbs the sub-volley, this time into a different segment (incidentally filling it). By luck, the third 10-point sub-volley hits the slicer beam. As it happens, the only segments on that side not already filled with damage hold 5 points already and have a capacity of only 10 points. The player absorbs the sub-volley into one of these segments, filling it, and the remaining 5 points are marked as damage against the weapon. The final sub-volley hits the slicer a fourth time. The player absorbs 5 points into a tendril and 5 points hit the slicer beam, which is enough to destroy it (it was previously damaged before this example), with 1 point of overkill. The ship can now choose to absorb this 1 point into a different segment (as overkill is permitted to be transferred to another segment), or let it hit the structure. The player chooses the latter, and the 1 point bounces off the structure's armor.

10.18.10 Phasing Drives

Phasing drives are engines that phase a ship directly into or out of hyperspace without the need for jump drives or jump gates. To use it, the ship activates the drive during the Announce/Open Jump Points step in the Combat Sequence. The ship begins to phase out at this point (this must be announced) and all weapons (but not other systems, such as sensors) are deactivated immediately (and automatically) to feed power into the drive. At the end of the turn, during the Adjust Ship Systems step, the vessel disappears and is removed from play (treat this as disengagement from

the scenario unless otherwise specified by that scenario's specific rules).

During the turn of phasing out, the ship is vulnerable to fire from enemy weapons. If the phasing drive is damaged during a phase-out, with even one point of damage after armor and diffuser absorption, the drive overloads and destroys the ship. For this reason, ships should move well away from a combat zone before phasing, or at least make sure the general area is clear of any enemy units.

If a ship is phasing into a scenario, it uses the exact same procedure except that it is not quite as vulnerable. Its weapons do not need to be deactivated. Though they cannot fire during the phase-in, at least they will be ready on the following turn. The ship is, however, still subject to destruction if one box of the phasing drive is destroyed.

The ability to use phasing drives is built into the hulls of the ships using them, and is tied into the energy diffuser segments that are found on such ships. If even one of these is destroyed, or if the phasing drive itself is destroyed, the ship may not phase into or out of hyperspace. If the drive is damaged but not destroyed, it can be used, but with the same risk of overload as damaged jump engines have.

If a ship cannot phase out for any of the reasons listed above, another phasing-capable vessel of the same size or larger can dock to it and phase them both. The two ships must match speed and heading, and be in the same hex, and they must spend one full turn flying together to complete the docking procedure. On the following turn, they can phase out safely. While docking, or while docked, neither can fire weapons, though they can use energy diffusers if needed. They are treated as separate targets for all other purposes. If the phasing-capable ship is destroyed while phasing out, the docked vessel is also destroyed.

10.18.10.1 Half-Phasing

This maneuver temporarily shunts a ship partially into hyperspace, making enemy weapons more likely to miss. Half-phasing uses the phasing drive to its limits, so that system must be completely intact to use this maneuver. As with phasing out, damage to the drive will destroy the ship if it is involved in a half-phasing attempt.

To use this procedure, the player announces during his step in the movement sequence that he is partially phasing out. This requires the full use of any two undamaged bio-thrusters (their thrust is channeled directly into the phasing drive). If two undamaged thrusters are not available, the maneuver cannot be executed.

Half-phasing lasts for the duration of the turn. While the maneuver is underway, the following effects occur:

- The ship's defense ratings are improved by 8 against ballistic weapons (including proximity types) and by 4 against any other kinds of weapons. Note that this applies directly to the ship's defense ratings (it is not EW).
- The ship suffers a -10 penalty to any weapons fire on that turn.
- The ship cannot use vortex disruptors, nor can it launch or recover fighters.
- The ship cannot be rammed, nor may it ram, unless the other unit is itself half-phasing. If the half-phased ship enters a hex containing a solid object such as an enormous unit, asteroid or planetary surface, it passes through unharmed, so long as it ends the turn in open space. At the end of the turn the ship will rematerialize, even if the player intends to continue half-phasing on the subsequent turn. If it ends up in the same hex as a solid object, it is forcibly thrust into hyperspace (or normal space if already in hyperspace) with such force as to destroy it without damaging or affecting the object it appeared within.
- The ship may not phase into or out of hyperspace on a turn in which it is half-phasing. Half-phasing does not affect the jump rate of the ship.

Half-phasing can be done each turn, though it stops at the end of that turn and must be restarted on the following one. It is normally used when the ship becomes the target of large numbers of ballistic weapons, which are otherwise difficult for the vessel to defend against, or believes it is about to be the subject of a ramming attack.

10.18.11 Integrated Pilots

Any damage scored on a ship with an integrated pilot

causes considerable pain to the pilot. For every 10 points of damage or destroyed diffuser segment capacity (not counting energy blocked by armor or absorbed into the diffusers), dropping fractions, the ship suffers a -1 penalty on weapons fire, has a -1 penalty to initiative and loses 1 point of free thrust. These penalties apply on the next turn only, after which the pilot recovers. During this "pain turn," the ship emits a horrible scream that can be heard over most communications channels.

It is possible to kill the pilot directly with a lucky hit to the precise center of the ship. If all Pilot boxes are destroyed, the ship is "killed" (it crumples into a wasted shell). If some but not all boxes on the Pilot system are hit, each one is considered a "wound" (causing the same effects as pain, except that they remain for the duration of the scenario, and cannot be repaired with self-repair systems). Wound and pain effects are cumulative.

Pilots bring with them any abilities or skills they had before being converted into the ship's service. Thus, a pilot who was an elite officer would retain those abilities (and must pay for them in Combat Points) should those optional rules be in use. Since there is only one pilot, however, he can only have the abilities of one officer, and cannot be considered an elite crew under any circumstances.

10.18.11.1 Telepathic Attacks

Integrated pilots are particularly vulnerable to telepaths, who can make a devastating psychic attack during a scenario. The primary means to determine the effect of such attacks is the telepath's psi rating, which normally ranges from 1 (weakest) to 12 (strongest). Some rare cases may exceed these levels, but nothing higher than P15 has ever been recorded.

Usually, scenario rules will specify which ships have telepaths (and their levels). In free-form scenarios, players may not buy them individually, although one may be employed if all sides agree. Due to their varying effects and the fact that they function only against integrated pilots, it is impossible to set a proper point value for them. As a general rule, however, assume they cost 50 points per psi rating level, with a maximum level of P12 available under most conditions.

Telepaths can be employed on any ship or fighter. Most ships do not include telepaths as part of their normal crew, and none should be present in any fleet that has not previously had contact with integrated pilots.

During any turn, a telepath can make a psychic attack on an integrated pilot within a number of hexes equal to double the telepath's psi rating, so long as the target ship can be directly seen by the telepath in question (a video image is not sufficient). Normally, the telepath is positioned on the bridge (or in the cockpit of a fighter) and thus can directly see targets only through the forward 12º arc (or the rear arc if located in the navigator's seat of a two-seat fighter). In some cases, the telepath will be in another part of the ship (an option unavailable for fighters). If this is the case, assume that any location in the primary hull or forward structure area can see through the forward arc, any location in the port area sees through the port arc, and so on. If located in a weapon emplacement, the telepath gains a field of view equal to that weapon's arc.

The telepath is considered disabled (but not killed) if even one box is marked destroyed in the system he resides in, and is considered killed if that entire system is destroyed. If disabled, he is unavailable for the rest of the scenario, but could be used again later in a campaign. If desired, the telepath (if not disabled) can move to another part of the ship, but will be unavailable for two full turns while in transit (or one turn if the location is in or attached to the same structural area).

To make his attack, the telepath rolls a d20 just after electronic warfare status has been announced by all ships on the map. The telepath's presence and location are revealed at this point. If the die roll is equal to or less than his psi rating, he locks onto the target ship. Once lock-on is achieved, the following effects occur:

- The target ship's speed is temporarily reduced by a value equal to the psi rating (to a minimum of zero). Available free thrust points are reduced by an equal amount. Any rolls or pivots in progress are temporarily halted. Speed,

rotations and thrust are restored as soon as the telepathic link is broken (picking up where they left off, as applicable).

• The target ship cannot fire weapons or launch/recover fighters while the telepath is locked on, although its weapons continue to charge (if applicable). If the ship operates semi-autonomous or hunter-killer fighters, they can continue to attack, but at a penalty to their initiative equal to one third of the psi rating (dropping fractions).

• The target ship cannot activate a phasing or jump drive for any purpose, and other ships cannot dock to help it escape.

• Energy diffusers canot bleed off energy into space.

If the target ship is actually piloted by a telepath, subtract the defending ship's psi rating from the attacker's rating before any of the calculations above are made. If the defender's rating is equal to or greater than the attacker's, no attack can be made.

Once a ship has been locked onto by a telepath, the lock-on can be cancelled only in the following ways:

• The telepath must roll each turn to continue the lock-on. Each turn after the first, his psi rating is reduced by 1 for this purpose only (cumulative).

• If the attacking telepath can no longer see the target, then the lock-on is broken. All restrictions against the target ship are lifted, although movement-related effects are still in place for the current turn.

• If the system containing the telepath takes at least one point of damage, the attacking telepath is automatically disabled or killed and lock-on is lost. All restrictions against the target ship are lifted at the start of the next turn.

Once lock-on is lost (or if the attack fails), the telepath suffers psychic exhaustion due to the strain of the attack. For two turns thereafter, plus the number of full or partial turns that the lock-on was maintained, that telepath cannot make another attempt on any ship.

10.18.12 Energy Damping Fields

Some races are capable of creating energy or "death" clouds. Any ship or fighter caught within the cloud at the start of a turn suffers from the following effects:

• One half of all free thrust (rounded up) is lost while in the field, and engines (except those on advanced ships) function at half efficiency (*e.g., an engine rated at 2/1 operates at 4/1*).

• The first turn a unit is in the damping field, all energy is drained out of jump engines, sensors function at only half efficiency (rounded up), no special weapon functions (piercing mode, sustained mode, etc.) may be used unless that is the only method the weapon may use to fire, and energy equaling one fourth of the total number of weapons on the ship (rounding to the nearest whole number) must be deactivated (and their power is lost, not transferred to other systems).

• The second consecutive turn in the field, sensors function at only one fourth efficiency (rounding to the nearest whole number), special weapon functions are lost as above, and one half of the ship's weapons must be deactivated.

• The third consecutive and subsequent turns in the field, sensors and weapons are totally drained and useless.

Once the ship is no longer in the field, the penalties above are lifted. Any weapons that were shut off must begin the rearming process again from scratch.

10.18.13 Energy Draining Fields

This is an advanced race sensor suite that investigates matter and energy at the molecular level in a zone surrounding the surveyor's ship. It is very dangerous for an insufficiently shielded ship to travel within such a zone, as the effect drains the energy out of all electrical systems.

The device produces a field of negative energy that deactivates power-consuming systems on any units approaching within a certain number of hexes from the ship. So long as the energy draining field is active, any ship ending its turn inside the EDF suffers the following effects, calculated at the Critical Hit Step of the Combat Sequence:

• The ship loses 1d10 of the following attributes on the next turn, increased by a further 1d10 for every additional turn ended in the EDF. The minimum any attribute (other than initiative) can be reduced to is zero.

Free Thrust: If thrust is reduced to zero, the ship will

be unable to maneuver unless it has some other way to acquire thrust.

Energy: If the ship's reactor is completely drained of power, this will force the deactivation of everything on the ship that requires energy. This includes any weapon or system with a power diamond, even if that icon contains a zero (such as missile racks).

Initiative: The initiative loss takes the form of an additional modifier, similar to moving at a speed of less than 5 hexes per turn. Initiative penalties produced by the field cannot exceed a total of -20.

• The ship's total EW is reduced by 1d6 for the next turn, increased by a further 1d6 for every additional turn ended in the EDF. The minimum total EW that a ship can have is zero.

• Any fighter or shuttle trapped in the EDF at the end of the turn must immediately roll for drop-out on 2d10 instead of the usual 1d10, also increased by an additional 1d10 for every successive turn spent in the Field. Even if the fighter/shuttle does not drop out, it will not be able to shoot the next turn, and loses initiative and free thrust in the same manner as a ship.

In addition to the above effects, the EDF also applies a cumulative -1 targeting penalty for every hex of a field between the firing ship and its target. Trace the most direct route between the firing unit and its target, and add up the number of hexes that the targeting beam must pass through the EDF. Apply the result as a penalty to hit. Plasma and antimatter class weapons treat every hex within the field as 2 hexes, not 1, unless they are operated by an advanced race.

Flash weapons are extremely sensitive to the dampening of the field. If they strike a unit located within the field, they will only affect the target (collateral damage will not be scored). The first unit will still take full damage, however. This applies to advanced race weapons as well.

Proximity weapons, such as energy mines, that land within a field hex only detonate in that hex, losing any explosion radius they might normally have. They will still cause their full damage within the target hex, affecting any unit therein. This applies to advanced race weapons as well.

Enormous units are large enough to be shielded from much of the field's effects. The modifiers are limited to the first die (1d10 or 1d6) and do not increase with every additional round.

The rest of the fleet of the ship deploying the EDF is immune to the field's effects, and additional fields do not provide cumulative modifiers. The total targeting penalty from multiple fields is still calculated, but overlapping hexes are only counted once. When multiple EDF ships are present in the same scenario, it is a common tactic to use several of their support vessels to screen the larger ships, forcing the enemy to target through ten or fifteen hexes of EDF in order to hit the flaships.

The EDF will affect any non-EDF-deploying ship, including those of other advanced races, regardless of the desires of the player. The player may deactivate the field if moving among friendly units, but cannot deactivate some hexes (or reduce its radius of effect) without turning off the entire system. The EDF does not affect Planet-Killers or Energy Clouds (and energy damping fields produced by the latter).

10.18.13.1 Variable Energy Draining Fields

Some vessels are able to preduce EDFs with a variable radius of effect. The field generator's standard operating range is noted on the control sheet, but for double power, the radius may be increased. This must be announced during the Ship Power Segment.

10.18.13.2 Increased Radius Energy Draining Fields

Any EDF-capable ship may upgrade its EDF field with an improved range. The cost is 50x the number of hexes covered. The easy way to calculate the number of additional hexes is that each hex of radius provides 6x the radius in new hexes. *For example, a ship increasing its EDF radius from 5 to 6 will cost 6x6x50 = 1800 points.*

A vessel with a Variable Energy Draining Field may only increase the radius of the normal-power field, and does not change the radius of the double-power field. Energy Draining

Nets may not be enhanced.

10.18.13.3 Energy Draining Nets

The original implementation of the Energy Draining Field functions only between multiple points. Several vessels fly in formation, surveying the environment between them.

Two vessels equipped with Nets that end their movement at most three hexes away from each other may extend the generated EDF to include the two hexes between them as well as their own hexes. If there is more than one possible hex, the player may choose the hex that the field is generated through.

If several ships linking up in such a manner form a closed area, the area may be "filled in" with an EDF as long as the filled-in hexes number less than double the total number of Energy Draining Nets. It is not necessary to count those hexes in an EDF generated by another vessel.

The normal range of the EDF generated by an EDN is 0 hexes, covering only the hex that the vessel is in.

10.18.14 Fighter Bombs

Some advanced races deploy their fighters in clusters, which the younger races have dubbed "fighter bombs." A bomb can contain any number of fighters, but the ship cannot operate more fighters during a scenario than its listed maximum (shown on the hangar icon).

A fighter bomb is launched during the Weapons Fire step of the Combat Sequence, and targets a hex in the hangar's arc, at a maximum range of 10 hexes. There is no chance of a miss, so no die roll is needed. The bomb immediately bursts into the number of fighters chosen to be deployed (subject to the ship's fighter maximum). They have the same heading and speed as the firing ship, and are all located in the targeted hex. Note that since they arrive on the map during the Weapons Fire step, they cannot take any actions until the following turn (and their guns would not begin arming until that turn).

10.18.14.1 Integrated Fighters

Certain advanced races do not employ separate fighters, instead creating them by drawing off part of their essence. Ships using this method do not maintain or launch fighters using their hangar like most ships. Instead, they draw from their own structure to create fighters. Whenever a fighter is formed, place a dot or slash in one structure box. If the fighter is later recovered, erase this mark. If all structure boxes contain marks, no more fighters can be produced.

If a marked structure box is destroyed in combat, the fighter is cut off from its carrier and can no longer land. It will die and shrivel up after the scenario is over (but can otherwise continue the battle unaffected).

If a fighter is lost and was not already cut off, the corresponding structure box on its carrier is also lost (marked destroyed). If that was the last structure box on the ship, the ship is destroyed. Integrated fighters cannot drop out of combat, so players can actually damage or even destroy a carrier by picking off its wounded fighters.

Integrated fighters cannot phase or jump out, but can flee the map and disengage in the hope of being recovered later. They can remain unattached from their carrier for several hours (assuming they are not cut off by damage to the ship), even if separated by great distances. However, it takes the carrier several days to recover from the loss of a fighter, so it cannot generate a replacement until at least that much time has passed.

Integrated fighter hangars cannot recover fighters. Fighters are recovered using the normal fighter landing procedures. If a fighter lands, it is immediately reabsorbed into the structure, and can be launched again as soon as the following turn (with all of its existing damage repaired). Any damage the fighter had when it landed, and any energy contained in its diffusers, must be absorbed into a single diffuser of the carrier's choice (with any excess penetrating as damage to a random system, ignoring armor).

Integrated fighter hangars do not suffer from critical hits.

Note: Integrated fighters are not free, but must be paid for at the listed cost in Combat Points. If they are not purchased, it is assumed the ship's pilot is incapable of controlling fighters and therefore cannot use them. Integrated fighters can never be purchased independently; they must

have a carrier available.

10.18.15 Electronic Warfare Detectors

These systems allow advanced races to exploit their mastery of electronic warfare. The sensors on an EWD-equipped ship can detect the configuration of any enemy's EW suite and instantaneously report it to the ship's fleet, enabling the ships to react to any change and use it to their advantage.

This system provides every friendly unit within range of the EW Detector the enhancement of **Expert Scanner** (see Section 11.4.3). All friendly ships may save one point of EW for allocation as late in the combat turn as the end of the movement segment.

The effects are cumulative with multiple EW Detectors, but the efficiency degrades. The first for EW Detectors allow the fleet to save 1 point of EW each. EW Detectors number 5-8 allow the fleet to save 1/2 of a point of EW each. All additional EW detectors allow only 1/4 of a point each. Round down fractions of 1/4 and 1/2 and round up fractions of 3/4.

If a vessel declares that it is saving an EW point but ends its movement step out of range of the EW Detector, the point is lost. It is possible to save ELINT EW points as well, as long as the ELINT vessel is within range both before and after movement.

10.18.16 Orbital Segments

Certain advanced race ships can separate up to eight pieces of themselves from the main body. These orbital segments are shown on the control sheet as separate structure blocks with a single antigravity beam. At any given time they are in one of two states:

Deployed: Unless otherwise noted by the player, the orbitals are considered deployed at the start of the scenario. In this state they float above the structure with which they are associated, and can be hit on any normal attack to that side. (There is a separate hit location chart for such cases.) They can also be specifically targeted as if they were fighters (but are only treated as fighters for this purpose). Use the defense rating shown on the control sheet. If this is done, calculate the hit location as shown on the Orbital Hits chart. Called shots may not be made on orbitals or weapons attached to them. If there is any overkill on the orbital's weapons, it passes to the orbital's structure. Any further overkill is lost, though flash damage may pass to another system. Weapons on an orbital cannot be deactivated for extra power while deployed. If the associated structure block is destroyed while an orbital is deployed, the orbital is also destroyed.

Undeployed: In this state the orbital is attached to the main hull of the ship. Its structure is treated as part of the associated structure block for all purposes. Its weapon cannot be hit while undeployed (treat any "orbital" roll on the hit location chart as "structure"). While undeployed, weapons on the orbital can be deactivated for extra power.

To move between the deployed and undeployed states, the orbitals launch or land like fighters, doing so in the Hangar Operations Segment. They do not suffer from initiative penalties for doing so and do not force similar penalties on their mothership. The mothership is permitted to deploy or recover orbitals while rolling, pivoting or performing other advanced maneuvers. Each orbital can be deployed or undeployed independently from the others.

When deployed, the orbital segments move with the main ship, using the same heading and executing turns, pivots, accelerations and decelerations simultaneously. Their positions remain relative to the main ship if it rolls or pivots. In effect, they remain in the exact positions shown at all times, maintaining the displayed firing arcs. If the ship transitions to or from hyperspace, all its orbitals make the shift simultaneously. If the central ship is destroyed, all orbitals are destroyed.

If the pieces are damaged or destroyed, they can be regenerated. To do so, they must be recovered (i.e., undeployed) by the main ship and remain in this state for 5 complete turns. So long as the associated structure block has not been completely destroyed, all damage on the orbital will be erased when the 5 turns have elapsed (even damage scored on it while regenerating). This is done independently

of any self-repairs performed by the main ship. The orbitals are destroyed with their asseciated structure blocks and cannot regenerate if that block has been lost.

10.18.16.1 Light Orbitals

Light orbitals are an early version of the orbital segment system. They function exactly like regular orbitals, except they do not regenerate when undeployed.

10.18.16.2 Heavy Weapon Orbitals

A heavy weapon orbital is usually spherical and floats at a level slightly farther away from the main ship body than a standard orbital segment. Almost as large as a ship in its own right, the heavy weapon orbital functions quite admirably as a turret with exceptional range of motion.

Heavy weapon orbitals are quite obvious on any ship, and may be targeted separately by any vessel in arc of the corresponding side. The orbitals are treated as a medium ship for fire control purposes, and gain all defensive EW benefits from the main ship in the same manner as a standard orbital segment. It is not necessary to specifically target a heavy weapon orbital, as any shot into an appropriate ship side has a chance of hitting one. There are hit locations for the heavy weapon orbital as normal, and a subordinate table for the systems on the orbital itself on the SCS.

The heavy weapon orbital may be launched and recovered as a normal orbital segment. The main ship suffers no initiative penalties due to performing these manipulations. When deployed, the weapon systems on the orbital typically have fantastic arcs of fire. These arcs are limited when undeployed, as the orbital's range of motion is restricted. To represent this, the weapon systems on the SCS have two arc icons separated by a vertical line. The arc icon on the left, usually the larger arc, represents the weapon's arc of fire when the orbital is in the deployed state. The arc icon on the right represents the weapon's arc of fire in the undeployed state. The weapon may only be powered down when the orbital is undeployed.

An undeployed heavy weapon orbital becomes part of the corresponding ship side, with the structure combining with the side structure, and the self-repair and weapon systems residing on that side. Any hits resolved to hitting the heavy weapon orbital use the heavy weapon orbital hit location chart as normal. Those shots hitting the orbital's structure hit the combined structure instead.

Too large to regenerate like a standard orbital, heavy weapon orbitals possess their own self-repair systems, which may only be used to repair systems and structure on the orbital itself. When the orbital is undeployed, its internal self-repair ability per turn is doubled, although it still may only be used on the weapon system and combined structure. The main vessel's self-repair may be used to repair systems on the orbital as usual in either state.

10.18.17 Advanced Gravitic Shield Generators

These shields are much more advanced than those deployed by younger races. One of the most apparent advantages is that they do not require a separate shield generator to function. They are still necessarily exposed to space, and only benefit from the smallest amount of armor.

Another advantage is their small size, which is exploited through redundancy. Redundant shields do not accumulate.

As they are only deployed on orbitals, the last main advantage of these shields is that they may function normally on an orbital regardless of whether the orbital is in a deployed state or attached to the ship. When the shield generator or corresponding orbital is destroyed, the shield is lost. If the orbital is regenerated, the generators are also regenerated and may function as normal.

Any vessel not already equipped with advanced gravitic shield generators may be upgraded to have them at a cost of 150 points per generator multiplied by the shield rating. Any standard orbital will lose its weapon/system and may accommodate up to two AGSGs. A light orbital will replace its weapon/system with a single AGSG. Heavy weapon orbitals may not be upgraded.

10.18.18 ELINT Sensor Modules

These devices are deployed on standard orbital segments and typically cover an arc of 180º, although some

applications have been known to vary. The ELINT Sensor enables the ship to function as an ELINT vesell, but it may only provide ELINT functions to vessels that are both within normal range and the provided arc.

The ELINT Sensor Module provides a boost to the ship's EW level in its arc, but at a sacrifice of overall EW ability. The value noted in the system icon may be used to provide any ELINT function, cumulative with the vessel's normal EW. There is an EW penalty for linking with an ELINT Sensor Module, but that is normally taken into account on the SCS.

ELINT Sensors may positively contribute with each other only if their arcs overlap and the target lays in the overlapped section. If the target moves out of arc, then the extra points are lost. A ship equipped with an ELINT Sensor Module allocates EW as normal, including the additional points, and then checks the validity of its allocation after all movement has been completed.

For example, a ship allocates 12 EW toward targeting an enemy ship and four more at each of four friendly vessels to provide a lock on and a +6 to hit the target. As the ship generates 10 EW from its normal sensor system, it will have to get the 6 remaining EW from two undamaged ELINT Sensor Modules, which each produce 4 EW. Unfortunately, the enemy ship manages to move out of the arc of the two ELINT modules, so the ship may only allocate its 10 regular EW against the target. The four friendly vessels, however, remain in arc of the two ELINT Sensor Modules, and may be locked onto through them. The remaining 4 points of EW are lost.

If the orbital or ELINT Sensor Module is destroyed, the vessel loses its ELINT abilities in that arc. Regenerated ELINT Sensor Modules function normally.

For 700 points, a gravitic augmenter may be replaced with a 4-point ELINT Sensor Module, reducing a ship's EW output by two cumulative points. Note that this means that the ship must purchase two of these modules to cover the full 360º of space. A ship may only purchase up to four ELINT Sensor Modules. This is a ship upgrade, not an enhancement.

10.18.19 Shading Fields

These devices project an electromagnetic shell around a ship, protecting it from weapons and making it invisible at long ranges. So long as it is undestroyed, a shading field operates as a jammer for all purposes, and will affect other advanced races as well as ships of younger races.

The shading field has two states, normal operation and shading mode. In the normal mode, it projects a 4-point EM shield in all directions around the ship. This operates exactly as any other EM shield would if given a 360º arc, except that fighters cannot "fly under" the shield, which is too close to the hull. If the shading field system is deactivated, this effect is lost.

At the start of the turn, before EW is determined or declared, the player may declare he is switching to shading mode. If this is done, the following effects occur:

- The shield's effect on the ship's defense rating is doubled. This does not increase the shield's absorption rating versus incoming weapons fire.
- The ship may not fire weapons on that turn, although it can continue to arm them.
- If the ship is more than 15 hexes from all enemy units at the time shading mode is declared, the ship's counter can be removed from the map. The owning player moves the ship normally, but is not required to reveal his location unless he is within 15 hexes of an enemy unit (and that unit has line-of-sight) at the conclusion of the Movement Step of the Combat Sequence. If the ship cannot be seen at this point, any lock-ons to it are lost and the ship cannot be targeted by weapons fire on that turn.

Shading mode may be active at the beginning of a scenario. If other players attempt to fire on the ship, use the rules for Dark Matter Clouds to resolve this. Note that this requires the shading ship's player to be extremely honest and diligent in bookkeeping, and thus this rule may not be usable in all scenarios.

The shading field may be used in combination with the ship's jump drive. This, along with the ship's stealthy nature and extreme speed, make it a difficult target to track if it wishes to escape.

10.18.19.1 Silent Running

Certain advanced races capable of shading mode are able to configure their ships to almost disappear completely from enemy sensors. A single vessel may be configured for silent running for an additional 30% of the vessel's basic point cost. When this ship is in shading mode, if it not only foregoes weapon fire, but also all thruster activity, it may declare that it is running "silent."

When "silent," a vessel may not be detected through a sensor ping until it is within 15 hexes of an enemy ship. If it is detected, the shading field factor is added a third time to the defensive profile (once for the shield, twice for shading mode).

The desire to run silent must be decided at the same time as the announcement for shading mode. It is not necessary to announce this, but it must be noted. The vessel will continue without making any maneuver that costs thrust, including finishing pivots, rolls or extended turns.

10.18.19.2 Sensor Echo

When stealth is not going to be enough, a shading-capable ship can be set up to produce a sensor echo, in an attempt to fool the enemy fleet. Any capital ship may configure its sensors to generate a sensor echo for an additional 20% of the vessel's basic point cost.

An echo is represented by a counter identical to that of the root vessel, and is moved along with it. It will have the same EW, initiative and shading mode. It must remain at most one hex from the root vessel, but may be in the same hex if desired. It cannot fire weapons and if the root vessel decides to fire, the echo is revealed (and therefore removed). It may also be revealed if an enemy manages to score a weapon hit against the echo, since it cannot receive any damage.

Against an enemy with advanced sensors, the sensor echo is only useful as long as the vessel is more than 15 hexes from all enemy ships. Against all other enemies, the sensor echo remains in play until revealed. A ship with an active sensor echo may not run silent.

10.18.19.3 Shade Modulator

This device enhances the defense of ships equipped with shading fields. The modulator has a rating that represents the number of defensive points the player may apply in a variety of ways.

Blanket Shield Enhancement: The modulator may increase the shield rating of every shading field within 3 hexes at a rating of 1 point per 4 points applied.

Individual Shield Enhancement: The shields of a single ship may be enhanced at a ratio of 1 point per 2 applied within a range of 5 hexes.

Blanket Shade Enhancement: The defensive profile of all ships currently in shading mode may be decreased by one point for every two points applied within a range of 15 hexes.

Individual Shade Enhancement: The defensive profile of a single ship currently in shading mode may be decreased at a ratio of 1 to 1 within a 20 hex radius.

The improved shield doubles as normal when the vessel enters shading mode. The shade modulator may not enhance an alpha shading field, and may only provide shade enhancement to a stiletto flight.

Extra points of shade modulation capability may be purchased for 15 points of energy each.

10.18.20 Transverse Drive

The transverse drive incorporates into a ship's shading field and jump drives to provide a short-ranged, near instantaneous burst of extra-dimensional movement. The ship appears to "blink" out, and appears several kilometers away in a flash of light.

After all movement is completed, but before ballistic weapons hit, any ship so equipped may activate its transverse drive.

The ship announces along which of the six hex facings it will transverse and the number of hexes that it will move (up to a maximum of 3 hexes).

The player rolls a d20 and consults the following chart:

d20 Roll	Effect
1-16	Successful
17	Successful, but to the counterclockwise hex facing
18	Successful, but to the clockwise hex facing
19	No Movement
20	No Movement + Critical Hit

On any successful roll, the ship moves up to 3 hexes in the indicated direction. Note that on a roll of 17-18, the ship moves down a different 60º hex facing than the player had desired. The ship's speed and heading are not affected.

If used when the ship is in shading mode, the flash of light produced when reappearing can give away the ship's position. The ship will be detected if it reappears within 20 hexes of an enemy vessel.

If multiple ships are activating a transverse drive simultaneously, the ships will move in Initiative order.

On any turn in which a ship successfully activates a transverse drive, all ballistic class weapons targeting that ship will suffer a cumulative -4 to hit penalty for every hex transversed.

The activation of a transverse drive counts as an activation of the jump engine in terms of a possible malfunction caused by damage, but does not count as the opening of a jump gate towards the Jump Delay.

10.18.21 Constrained ELINT

Some advanced races are highly telepathic, and have exceptional mental links with one another. Because of this they are able to assist each other with various sensor information. In game terms, most such vessels are able to perform some sort of ELINT functionality, although not as efficiently as a normal ELINT vessel.

Although all ELINT support generated by a Constrained ELINT ship functions as normal, the ship must apply more points of EW toward the target.

- Offensive ELINT support is gained at 1 point for every 3 points of offensive EW applied against a target. A lock-on is achieved on friendly vessels with one point as normal.
- Defensive ELINT support is achieved at 1 point for every 3 points of defensive EW applied to a friendly ship.
- An enemy vessel's EW may be disrupted at a ratio of 1 point per 4 points of EW applied.
- Blanket EW protection is achieved at 1 point for every 5 points applied.

Essentially, all vessels with Constrained ELINT capabilities must apply one more point of EW to a target for each desired point of effect than a normal ELINT ship. All procedures, ranges, combinations and other limitations apply as normal.

10.18.22 Thought Shields

These defensive devices are a direct extension of an advanced race crew's minds, deflecting incoming shots with the pure power of thought.

The thought shield array projects a special shield equal to the number of boxes in the system icon on each of the ship's sides. If desired, the ship can voluntarily lower any given side's shields in order to strengthen another, but no side's shields can be more than doubled in strength. This change must be made during the EW Determination Step of the Combat Sequence and is announced along with the ship's EW levels. *For example, if anticipating an attack from the forward or port directions, the aft and starboard shields can be lowered to strengthen the forward and port directions.*

A given side's shield can be lowered partially if desired. This can be changed each turn, but once set, cannot be altered until the next turn's EW Determination Step.

The effect of the shield is to absorb incoming damage. It does not affect the ship's defense ratings or armor level. Each shield point absorbs exactly one point of damage before it is eliminated, and the shield must absorb the first damage that hits the ship (regardless of type). The shield does not protect against attacks that score no damage, such as the involuntary movement caused by a gravitic shifter or gravity net.

Thought shields regenerate completely each turn and can be redistributed as described previously. This occurs because they are in part generated by the ship's crew. If one of the C&C systems is destroyed (assuming multiple C&C systems), the thought shield system's ability to generate shield points is halved (dropping fractions), and if the other C&C is destroyed, no thought shields can be produced at all. The thought shield generator does not suffer any critical hits.

10.18.22.1 Shield Reinforcements

It is possible on some ships to harden or "reinforce" a thought shield. The capacity of reinforcement is indicated by the number of undestroyed boxes in the shield reinforcement system. Each box represents a point of thought shield that can be enhanced, and is allocated as follows:

- During the EW Segment, the shield reinforcement allocates a number of points with which it will enhance a friendly ship's thought shield. The ship must be within range and the number of points must be a multiple of the number of sections on the target ship. All thought shields must be reinforced equally. This must be announced as normal.
- The target vessel must allocate enough thought shield on all shield arcs to cover the amount of reinforced shield. If this is not done, then the shield reinforcement fails.
- Both vessels must end their movement phase still within the shield reinforcement's range.

The recipient ship then gains the benefit of an EM shield with a value equal to the number of reinforced shield points applied to each arc. This shield reduces the vessel's profile and all incoming damage as normal. These shields are present even after all other thought shield points are removed.

Chromatic pulse drivers set in scanning mode are able to remove reinforced shield points, but only after they have successfully turned-out every other thought shield point.

There are no critical hits to the shield reinforcement system. Any damage to the system reduces the maximum number of points that it can distribute. If two shield reinforcement systems attempt to enhance the same vessel, only the one with the highest allocation succeeds.

10.18.22.2 Improved Thought Shields

Certain members of advanced races may be extraordinarily adept at protecting their ships with thought shields. The maximum thought shield rating on any location may be increased. The point cost for this enhancement is the new maximum rating multiplied by the number of thought shield arcs. No system may have its maximum increased by more than 5 points, but they may be increased unequally.

This enhancement may not be used by fighters.

10.18.23 Living Ship Sails

Some advanced race living ships have absorption membranes, called "sails" by the younger races due to their functional resemblance to solar sails. Originally used by the ancestral creatures of the living ships to absorb energy from a variety of sources, the current smaller vessels still may gain some benefit in non-combat or desperate situations by deploying them away from the main ship body. The following rules apply to all heavy, medium and light combat living vessels and any vessels noted to have sails. There is no point cost to use a ship's sails.

- The SCS shows the configuration of the sails in the furled state.
- During the Adjust Ship Systems segment, the player may declare the furling (closing) or unfurling (opening) of sails.
- With the sails unfurled, the ship's defensive values are increased by 1. All armor values on the Primary Section are decreased by 2 due to the lack of protection from the sails. The ship's power capacitor recharge rate increases by an additional 50% (rounding down). This power is available in the next Ship Power Segment as normal. The amount is determined separately from the x2 multiplier gained by shutting down all power-using systems (which would effectively grant a 150% increase if used in combination).
- The sails are part of the Primary Structure, and are considered functional as long as part of the ship remains.

A flight of living fighters may unfurl their sails during the Adjust Ship Systems segment. The flight's defensive values

are increased by 1 and side armor is decreased by 2. The flight gains an additional 2 points of Free Thrust while the sails are unfurled.

10.19 Inverted Wedge Formation

Some races prefer to place their ships in an inverted wedge formation. The usual arrangement of this formation is a group of five ships that fly in an inverted wedge, with the command ship in the center and slightly behind the others. Usually (but not always), the two ships closest to the command vessel are 1-3 hexes away, forward and along the port and starboard flank, while the smallest vessels are a further 1-3 hexes forward and away from the center. When the formation turns, the outermost vessels (which are smaller and better able to turn at a tighter radius) accelerate and make a wide turn, while the ones on the inside make tight, shortened turns to maintain the arrangement. The basic idea of the formation is to draw enemy ships into the center of the wedge, whereupon the wedge collapses, and all five ships open up on the hapless victim.

The command ship of the formation can provide any built-in "command" initiative bonuses to the ships of its formation. Note that this refers only to command vessels specifically noted as providing such a bonus. The command bonus provided will be specifically noted in the Special Notes box of the ship's control sheet.

In addition to the above, players flying a fleet element in the inverted wedge formation can make one initiative roll for the entire formation (though each unit applies its own initiative bonuses, assuming they are different). This is completely optional and is declared during the Initiative Phase, before any other initiative rolls are made.

Inverted wedge formations are created and organized before a scenario begins, not during one. In general the player chooses how to organize his formations before the scenario starts, and announces them as he places his units. Some scenarios may specify formations, but if not, they can be set up under the following rules.

Inverted wedge formations can consist of anywhere from four to six vessels. At least two units must be medium ships or heavy combat vessels and at least one (the "command" ship) must be a capital ship. The command ship need not actually be a command variant, but it must be a combat vessel (i.e., not a scout or logistical element). All units must be mobile (if a ship is rendered incapable of maneuvering, it must be involuntarily dropped from the formation). All units within the formation must remain within 10 hexes of each other during the scenario in order to benefit from the initiative bonus. If any are outside this radius at the beginning of a turn, they cannot benefit from the bonus on that turn, though the can still use the optional initiative sharing rule.

It is possible for a ship to drop from a formation (or be added to an existing one) during a scenario, a fact that must be declared and announced before the player makes any initiative rolls on that turn. No formation can voluntarily drop or add more than one unit in any turn, though any number can involuntarily drop (if they are destroyed, captured, disengage, surrender or are disabled). If a command ship is dropped, and another capital ship can take its place, control can be transferred but no initiative bonuses or benefits can be used on the ensuing turn while the command network is re-established. If no such ship exists, or if the formation is reduced to fewer than three ships, the formation is disbanded and cannot be re-formed later. Its ships, however, can be absorbed by other formations at that point. A ship may never be part of more than one formation at a time.

10.19.1 Fighter Formation

Some fighters may also be operated in the inverted wedge formation. These are treated as normal flights (five fighters led by a veteran pilot). So long as the leader's fighter is present and he is uninjured, his flight earns a +1 initiative bonus (as shown on the control sheet). If his fighter is destroyed, drops out or suffers a critical hit that injures the pilot, the flight no longer benefits. Note that if the player purchases any elite fighter pilots, the first such must always be assigned to the flight leader's fighter. Other types of crewmen can be allocated to any of the flight's other elements.

11.0 Enhancements

This section presents a number of enhancements and officers that can be added to ships for variety. Note that all of these enhancements are optional and should not be used in tournaments. If your group uses them, feel free to alter them as you wish, or disallow certain ones if you feel they are unbalancing.

All of these improvements have Combat Point costs, and many of these costs are multipliers against the base cost of the unit being altered. In all cases, round any fractions of 0.5 or more up, otherwise drop any remainder. Since all enhancements are done separately and are based on the ship's original cost, the surcharge for each can be calculated separately and then summed at the end of the process. For example, if a 500-point ship receives two modifications, each costing 10% of its base value, each improvement would cost 50 points and the ship's resulting cost would be 600. (Do not raise the cost to 550 and then to 605.)

Availability dates are relative, and in the absence of a campaign-specific timeline, may be assumed to use the year 2100 as a baseline.

11.1 Enhancements for Ships

11.1.1 Gunsights

"Gunsight" is generic name given to any system that generates a bonus to weapon's fire control system. A +1 bonus is applied directly to the fire control rating of all three categories of the weapon system. It is not EW, and will not be counted towards earning a lock-on in any way.

Point Cost: Determine the maximum damage a weapon can cause in a single shot. The cost of the gunsight for that weapon is one-fourth this value.

Limitations: Only one gunsight can be present on any given weapon.

Available: +143.

11.1.2 Advanced Defensive Targeting

A number of experimental defense targeting systems have been developed by many races to improve the defensive fire of their light weaponry. If advanced defensive targeting (ADF) is added to a weapon, it allows that weapon an additional -1 point of effectiveness when firing in defensive mode. This does not increase the protection of energy webs on intercepts, just the intercept rating against specific incoming shots.

Point Cost: 8 points if the new intercept rating is -2, 16 if it is -3, or 24 for -4. If the weapon can fire more than once per turn defensively, multiply the cost by the number of times it can fire, e.g., x2 for twin arrays or x4 for quad arrays.

Limitations: This enhancement can be purchased only once for any given weapon and cannot increase a weapon to better than a -4 rating.

Available: +90.

11.1.3 Improved Sensors

Various attempts have been made to improve sensors over the years. This enhancement increases the sensor rating of the sensor array by +1.

Point Cost: Equal to five times the new sensor rating. For example, if a ship with a 6 sensor rating increases it to 7, the cost would be 35 points. On ELINT ships, this cost is doubled. Minesweepers pay a cost based on the total sensor value, but both levels are raised simultaneously (e.g., 6+4M would be increased to 7+5M for a cost of 60 points).

Limitations: This improvement can be purchased no more than once for any given sensor array.

Available: +110.

11.1.4 Improved Engines

Engines can be enhanced to provide an extra free thrust point during each turn of the scenario. For example, a ship with 7 free thrust could increase this to 8.

Point Cost: Equal to five times the new free thrust total. For example, an engine with 7 free thrust that increased this *to 8 would pay 40 points for this improvement. This could be bought multiple times; increasing from 7 to 9 would cost 40+45=95 points, for example. If used on an enormous unit, the cost is doubled.*

Limitations: The free thrust provided by any engine

cannot be increased by more than 50% of the original engine's rating. Thus, an engine with 7 free thrust could be enhanced as high as 10 thrust, but no higher.

Available: +127 for one point of thrust only, +146 for up to the 50% limit stated above.

11.1.5 Improved Reactor

Reactors can be upgraded to provide extra power, although they become unstable in the process. This enhancement adds 1 point of power on medium ships, 2 points on heavy combat vessels, 3 points on capital ships, and 4 points on enormous units.

Point Cost: 10 times the amount of power added (10 points on medium ships, 20 on HCVs, etc.). If the ship has a power deficit, triple the cost.

Limitations: If the reactor is in danger of exploding, double the percentage chance when making the die roll.

Available: +130.

11.1.6 Improved Thrust Rating

For a number of years, various ships have been produced with enhanced thrusters, hoping to surprise an opponent who expects lesser maneuverability. This enhancement increases the thrust rating of a single thruster by 1, and can be purchased multiple times.

Point Cost: Sum the thrust ratings of all thrusters that aim in the same direction, and multiply this value by 2. For example, the Omega Destroyer has four aft thrusters, each with a "2" rating, so increasing one of them to 3 would cost 16 points. Increasing another one would then cost 18 points.

Limitations: The thrust rating of a given thruster cannot be increased to more than double its original value. A thruster with a rating of 6 could be improved to 12, for example, but no higher.

Available: +135.

11.1.7 Hardened Armor

Some rare materials make better armor, but are in such short supply they cannot be used for normal vessels. This enhancement increases the armor value of a system by 1. It cannot improve adaptive armor, though it can be used on the permanent armor of adaptive-capable ships.

Point Cost: Add the number of boxes in the system, multiply by the current armor value (minimum 2), and divide the result in half. For example, a thruster with 10 boxes and an armor value of 3 would cost 15 points to increase to armor level 4. Note that because the cost is so high, hardening the armor of structure blocks is very expensive and rarely done. Generally, you will want to use this enhancement on small weapons and thrusters only.

Limitations: Armor values can be raised only one time for any given system. A system with an armor value of zero cannot be improved.

Available: +98.

11.1.8 Stealth Coating

While developing a stealth fighters, scientists discovered a special "stealth" coating that could be applied to ships. The coating interfered somewhat with enemy lock-ons, effectively increasing the defense rating of the vessel it was applied to.

If a ship or fighter has a stealth coat, its defense ratings are considered to be 1 point less (in all directions) if the ship is locked onto. Enemy units firing without a lock-on use the original, unmodified defense rating.

The stealth coating is very delicate, and after a short period of time (perhaps a month or so of constant flight), impacts with microscopic debris (stray molecules and dust) tend to strip the coat from the hull, especially on the ship's leading edges. Thus, the coating must be constantly reapplied, making it expensive to maintain. (This is why most races do not regularly use the material.) It is possible to meet a ship that has a stealth coat on the rear and sides (or just the rear) due to degradation. If this is the case, reduce the Combat Point cost by 25% (or 75% if it is only present on the rear section).

Point Cost: The cost for this enhancement is equal to the ship's price divided by the average of the forward/aft and starboard/port defense ratings (round fractions up after the calculations are finished, but retain them when averaging). For example, a ship with a cost of 1000 and a defense rating

average of 16.5 would pay 61 points for a stealth coating. (This improvement can be added to fighters or shuttles, using the same cost schedule. For example, a fighter with a cost of 42 and average defense rating of 6 would pay 7 points for the stealth coat. When using flight level rules, all fighters must purchase the enhancement together.)

Limitations: This can be purchased only once for any unit.

Available: +159.

11.1.9 Advanced Engine Module

Advanced engine modules are more efficient, reducing the efficiency rating of the ship's engine by one-half a point, to a minimum of 1/1. For example, an engine with an efficiency rating of 2/1 would be improved to 3/2 (4/2 -1/2 = 3/2), while one with a rating of 3/2 would drop to 1/1. Engines better than 1/1 efficiency are not possible using current technology, including this improvement.

Point Cost: The cost of this improvement is 10% of the ship's base cost.

Limitations: This can be purchased only once per ship. Also, the module is very fragile. If the engine takes even a single critical hit (regardless of type), the module is considered destroyed, and the engine efficiency returns to its original value. This effect cannot be repaired during a scenario, even by officers with repair abilities or advanced self repair systems.

Available: +158.

11.1.10 Jump Accelerator

This device speeds up the ship's jump engine and increases the distance at which the jump point can be formed. Though the technology is relatively common, it is rarely installed due to the strain on the ship and the amount of fuel it requires to operate.

If a ship is equipped with the accelerator, the listed jump delay time is reduced by 33% (round fractions of 0.5 or more up), and the resulting vortex can be opened at a distance of up to 2 extra hexes away from the generating ship (6 hexes for most ships). However, the ship's jump engine power cost is doubled, so the extra power must come from deactivated systems or free power. *For example, if the jump engine has a power cost of 6, this will be doubled, and the extra 6 points of energy must come from somewhere—typically by deactivating weapons or other systems.* (Note: It is not permissible to use the original, lower values to save power if this system is installed, due to its near-total integration with existing jump engine systems.)

If an accelerator-equipped jump engine takes damage, the chance of destroying the ship when the vortex is formed is doubled. Thus, for example, a jump engine with 25% of its boxes destroyed will have a 50% chance of blowing up when a jump point is opened.

Point Cost: The cost for this enhancement is 10% of the ship's base cost, meaning it can really be afforded only on very small vessels. There is also an ongoing maintenance fee not reflected in this cost, but this would be applicable in a campaign.

Limitations: This can be purchased just once on any ship.

Available: +75.

11.1.11 Hardened Shields

This is an enhancement to shield emitters, improving their defensive value by 1 point over the listed value. For example, a shield with a defense of 2 could be improved to 3.

Point Cost: The cost of the improvement is 10 times the old shield value (thus, in the example above, the cost would be 20 points) if the shield covers a 60° arc, 20 times for a 120° arc, 30 times for a 180° arc, etc.

Limitations: This can only be purchased once for any given shield emitter. It cannot be used on the shield projector and is not cumulative with the effect of a shield projector (so if a projector is used on an upgraded shield, the effect of the upgrade is lost).

Available: +160.

11.1.12 Improved Self Repair

Self-repair systems can be upgraded in order to repair

more points of damage in a given turn. The point value for such an enhancement is 100 times the desired value. If more than one point is purchased, each point is paid for individually. All self-repair systems in a single ship section must be upgraded equally. No system may be upgraded by more than 50% (rounding down). The first point of damage to a self-repair system removes this enhancement. This may not be used on fighters.

11.1.13 Improved Gravitic Converters

The gravitic drives on some advanced warships may be fitted with devices that allow them to more efficiently increase the damage output from a hypergraviton blaster. For every 4 points of thrust vented into the blaster, the damage is increased by +10 points. The cost is fifty times the number of hypergraviton blasters on the vessel (tied to the enhanced system) plus 100. It is not necessary to tie all blasters present into the improved gravitic converters.

11.2 Enhancements for Fighters & Shuttles

Some items on fighters and shuttles can also be improved for a cost in CPs. Again, round fractions of 0.5 or more up. Unless stated otherwise, any rules below that refer to fighters also refer to shuttles. If purchased for one fighter, all fighters in the flight must also buy it.

11.2.1 Improved Thrust

This enhancement adds +1 to the thrust rating.

Point Cost: Equal to the new thrust rating of the fighter. Thus, a fighter with a current rating of 8 thrust would pay 9 points to increase this to 9 thrust.

Limitations: This improvement can be purchased once per fighter.

Available: +125.

11.2.2 Improved Targeting Computer

This enhancement adds +1 to the offensive bonus of the fighter.

Point Cost: Equal to twice the current offensive rating. Thus, a fighter with an offensive bonus of 5 could increase this to a 6 for a cost of 10 points.

Limitations: This can be purchased just once per fighter.

Available: +107.

11.2.3 Ramming Prow (Fighters Only)

In the anguish of a lost war, some races turn to desperate measures. Kamikaze-style attacks are just one example of this. During one such war, some fighters were outfitted with experimental prows to aid in ramming attempts.

The ramming prow is a huge block of armor fitted over the front of the fighter, obscuring the pilot's view and limiting his flying to instruments only. The armor rating of the fighter's front is increased by 2 points, but its weapons firing arc is reduced to the row of hexes extending directly ahead of the fighter. In addition, any weapons fire is at a -2 penalty, and missiles cannot be used.

In addition to these effects, the ramming prow increases the fighter's ramming potential by 50% (round fractions up). Note that this includes the extra points of armor added by the prow. In order to benefit from the 50% bonus, however, the fighter must be the one doing the ramming, or else be rammed through its forward section. If a fighter equipped with a prow attempts to ram, its pilot may successfully eject only 50% of the time (due to his limited view of the target). Roll 1d20, with a roll of 11 or greater indicating success. A skilled pilot may add 1 for every level of pilot expertise.

Point Cost: The cost of this enhancement is 10% of the fighter's base value. Note that ramming prows can be purchased for use only in scenarios where ramming is specifically allowed (or is normally permitted by local house rules).

Limitations: This can be purchased just once per fighter.

Available: +65.

11.3 Detecting Enhancements

In general, enhancements on ships and fighters cannot be detected unless they are used and have a visible effect. For example, a weapon with a boosted fire control would reveal its enhanced status the first time it fired, but not

before. Similarly, a fighter with an extra point of thrust would keep this fact secret until it actually used the bonus point.

The exception to this rule occurs when the modification is externally visible. Anything that reduces the defense rating of a ship or fighter can be detected simply by examining the ship's profile (this would include enhanced shields and stealth coatings). Similarly, since the arming status of weapons can be determined by studying the reactor's output, any alteration in the reactor's power curve can also be detected (this would reveal improved reactors so long as the extra power provided was actually in use). Improved armor, however, cannot be identified until damage is actually scored on the targeted item.

11.4 Elite Officers for Ships

These officers provide special abilities to any ship that possesses them. In general, they must be in the appropriate ship system (as noted in their rules); if more than one such system is available, the player can select any of them at his option.

Officers are considered disabled (and unusable for the rest of the scenario) if the system they are in is destroyed, but there is also a chance they will be killed by any damage to the system. Use the normal critical hit roll to determine this (make a roll even if the system is totally destroyed). If this roll results in a "20" or greater (including any modifications), the officer is killed. This is in addition to any other critical hit effects.

Elite officers may not be transferred to another ship of a different class, or they lose their abilities. If transferred to a variant that is more expensive, the difference in Combat Points must be paid or his abilities will not be usable until this is done. (There is no refund if he transfers to a lesser-valued ship of the same hull type.) While this has little meaning during most scenarios, it can be very important during a campaign.

In order to move an officer from one ship to another during a battle, the officer must leave his post at the start of any turn, and will not provide his benefits on that turn. During the Shuttle Launch Step of the Combat Sequence, he can launch in any convenient shuttle (but not a fighter). If recovered safely by another ship, he can begin to provide his abilities two turns later (assuming the above conditions are met) but no sooner.

If more than one of the same officer is present on a ship, they do not combine their abilities. However, one can operate as backup for the other if desired.

Elite officers do not have an "availability" year. They function regard less of the time period in which they are used.

11.4.1 Expert Helmsman

A skilled helmsman can anticipate enemy maneuvers. Any ship with such an expert gains a +1 initiative bonus. In addition, if his ship winds up tied with another unit that does not possess an expert helmsman, the expert's ship automatically wins the initiative tiebreaker.

The helmsman also has certain abilities with respect to the various terrains described elsewhere in this supplement, as follows. Subtract 1 from the ship's speed when calculating damage from atmosphere, subtract 1 from the die roll for hyperspace whirlpool singularity effects; and subtract 1 from the die roll for meteor impact.

Point Cost: 5% of the base cost of the ship. Halve the cost for capital ships and larger units.

Location: C&C.

11.4.2 Expert Engineer

An expert engineer can jury-rig repairs to critical hits. He can repair one critical hit per turn, but cannot repair a critical until the ship has suffered its effect for at least one full turn. For example, if a thruster takes an efficiency critical on turn 3, and suffers the effects of this on turn 4, it could be repaired at the end of turn 4.

Repair of critical hits is automatic, except in the case of C&C criticals, which are repaired only on a roll of 16 or greater on a single d20. If he makes this attempt and fails, he cannot repair anything else on that turn.

Point Cost: 5% of the base cost of the ship.

Location: Engine.

11.4.3 Expert Scanner

The expert scanner has an uncanny ability to determine how best to apply his ship's sensors. Some would say his powers are psionic in nature, but most of the time he just gets lucky. Each turn, the expert scanner can "save" one (and only one) of the ship's sensor points. The "saved" point can then be applied either defensively or offensively (but not for any ELINT abilities), and the player can wait until the end of the Movement Step of the Combat Sequence is over before using it. (He can wait until all ships and all initiative levels have moved, but must announce how he's using the EW point before weapons fire is determined by any player.)

Note that the "saved" EW point is NOT a bonus point. It is drawn from the ship's existing sensor levels. *A ship with 8 points of sensor strength could, for example, put 7 points into defensive EW and save the eighth point for use by the expert scanner after movement is over. This could allow him to gain a lock-on to an enemy ship that moved in close to attack him, or increase his ship's defense rating by one more point if he expects to come under heavy fire.*

Point Cost: This officer costs 7% of the ship's price.

Location: Sensor array.

11.4.4 Expert Navigator

Skilled navigators are masters of maneuver. They can use a ship's thrusters in amazing ways, allowing the ship to perform movements an enemy might never expect. This has the following benefits: Turn Cost: The turn cost of the ship is reduced by one level. The levels are as follows, in descending order: 2, 1.75, 1.66, 1.5, 1.33, 1.25, 1.0, 0.83 (fivesixths), 0.75, 0.66, 0.5, 0.33, 0.25, 0.16 (one-sixth), and 0.1.

Pivot/Roll Cost: All costs are reduced by 1 point (minimum 1). Thus, a ship with a pivot cost of 3+2 would have these values lowered to 2+1. A pivot cost of 1+1 would not be reduced any further. Ships that already have a cost of 0 gain no advantage from this.

Accel/Decel Cost: This is reduced by 25%. Retain all fractions until the full acceleration/deceleration cost has been determined, then round any remainder up. Thus, for example, a ship with an accel/decel cost of 2 would have this lowered to 1.5. If it accelerated by 1 hex per turn, the cost would still be 2 points of thrust (1.5 rounded up). However, if it accelerated by 2 hexes, the cost would be only 3 thrust.

Point Cost: The cost of an expert navigator is 7% of the base cost of the ship, dropping fractions.

Location: C&C.

11.4.5 Expert Technician

These rare officers are highly prized for their ability to subtly enhance the power curve and energy usage of the typical warship. Technicians have the following skills:

Improved Power: A technician's ability to finetune the reactor provides an extra 2 points of power (over any extra points already available) and allows the player a -2 bonus on any critical hit die roll involving the reactor.

Efficient Transfers: If a weapon or other system is shut down for extra power, that system provides 1 extra point of energy than it usually would. This can be used on only one system in any turn, not all systems. Efficient transfers do not actually increase the power usage of deactivated systems, but merely represents an ability to eliminate some of the waste normally seeping out of overworked conduits. Note that systems with no power requirement cannot use this benefit.

Improved Circuit Breakers: If a system is destroyed, the technician's unique breaker system allows it to provide 33% of its energy requirement (drop all fractions, and do not include the extra point of energy from the preceding "efficient transfers" benefit) back to the reactor as extra power. Thus, for example, a destroyed battle laser would provide the ship with 2 points of extra energy.

Point Cost: The cost of an expert technician is 9% of the ship's base cost.

Location: Reactor.

11.4.6 Expert Jump Officer

This elite officer operates best when the optional jump point arrival rules (see the Scenarios chapter) are in effect. He also has several other abilities that affect jump points

created by his ship, as defined hereafter.

He permits his ship to open a jump gate up to 5 hexes away (not 4 hexes) from his ship, and can hold it open for one turn longer than normal.

If the jump engine takes damage, he reduces the chance of a catastrophic explosion by 20%. *For example, if exactly half the boxes of the jump drive are destroyed, the chance of detonation would be 30%, not 50%.* The jump drive still cannot be used if all boxes are lost, however.

The jump officer provides a -1 shift to the vortex scatter chart (as listed in the modifiers) if his ship is the one opening the vortex.

He can cancel 60° of unintended facing change caused by a vortex shift (this does not allow him to alter the facing from its original position, however).

Any initiative penalty produced by scatter is reduced by 4 for his unit only. Note that this is not an initiative bonus, only a reduction of an initiative penalty.

Location: Jump drive.

Cost: 5% of the ship's base value.

Availability: Any race except pirates and anyone who does not possess jump drive technology.

11.4.7 Expert Quartermaster

All good quartermasters are experts in obtaining hard to find spares and other items for their ships. However, the best have an almost magical ability to lay their hands on anything anybody might ever need, be it a spare shuttle, a dozen long-range missiles, or secret stashes of narcotics.

One of the following ship enhancements (player's choice) will be present on his ship at no extra cost: Gunsight (any two weapons), Advanced Defensive Targeting (any two weapons), Improved Reactor (but if the reactor is in danger of exploding, triple its chance), Improved Thrust Rating (any two thrusters), Hardened Armor (on any two nonstructure and non-primary systems on the same ship side), or Jump Accelerator.

Each of the ship's class-S or better missile racks comes with two special missiles of any type normally available to the race, at no extra cost. If the racks are of the class-SO or an older class, they receive only one free special missile.

Due to the availability of repair parts and system patches, the ship may ignore one critical hit it receives during a scenario. The player must make the choice immediately after the critical is rolled. If he chooses not to use the patch right away, the critical cannot be repaired later.

Unfortunately, the Quartermaster is sometimes too good. His ability to acquire intoxicating substances and similar items of low repute results in a vicious cycle of inebriation and hangovers among the crew. As a result, any vessel with an Expert Quartermaster will suffer a permanent -6 to its initiative roll. In addition, the navigation crew's response times are slowed, resulting in a +10% penalty (round fractions up) to its Turn Delay. Finally, because of the difficulty in transferring communications, there is a +2 penalty on all critical hits against the C&C.

Location: C&C.

Cost: 20% of the ship's base value

Availability: Cost is 1/2 normal for races known for their expert quartermasters.

11.4.8 Expert Geneticist

The Expert Geneticist is skilled at performing scientific experiments and manipulations on prisoners and subjugated enemies. While this in and of itself has little effect on the battle, the expert's presence has a demoralizing effect on the enemy. Unfortunately, the opponents are frequently well aware that if they lose the battle, they could become the subjects of the geneticist's cruel tortures. Therefore, they tend to target the expert's ship and have difficulty concentrating on other targets.

The location of the Expert Geneticist is always known. All weapons fire against other ships (but not fighters or shuttles) is performed at a -1 to hit, but fire against the Geneticist's ship is at +2 to hit. In addition, enemy units are always permitted to ram his ship in their attempt to get rid of him. If his ship disengages, or he flees in a fighter or shuttle, all bonuses and penalties are dropped. If he moves to another ship, the bonuses and penalties transfer with him. Ramming attacks can still be made until the expert is

completely off the map or has been killed.

Location: Any system on any ship in the scenario.

Cost: 5% of the cost of all ships (but not fighters or shuttles) in the fleet.

Availability: No more than one of these experts can be present in any fleet.

11.4.9 Expert Scavenger

These masters of procurement and hoarding keep enough parts around that they could almost build entirely new systems from scratch. A ship with an Expert Scavenger has the following abilities:

Once per scenario, the scavenger can jury-rig repairs to a system that just took damage. Basically, up to six points of damage can be ignored in any single volley, anywhere on the ship. This ability can be used only once per scenario, even if less than six points are blocked. Typically, this is used to survive a fluke hit to the C&C or reactor, or to stop the last few damage points that would destroy a key system or structure block.

The Expert Scavenger can also make repairs during a scenario. Each turn, he can repair four destroyed boxes anywhere on the ship, other than on a destroyed section (he need not move to this location to effect these repairs). If desired, he can instead forego box repair and instead erase a single critical hit on any system, just as an Expert Engineer can do. Repairs can only be used on un-destroyed systems (this is not the same as advanced race self-repair abilities) and cannot be used on damage scored on the same turn as the repairs take place.

Most of the repairs above are temporary and will last only for the rest of the scenario. In a campaign, after the battle is over, the Expert Scavenger can shore up his work somewhat. Up to two criticals and twenty points of damage repair can be made permanent. In addition, the Scavenger can rebuild a single system of no larger than 15 boxes in size, even if it was fully destroyed, so long as it was not attached to a destroyed section. This last benefit will not work on structure blocks.

Location: Engine.

Cost: 25% of the ship's base value.

Availability: Cost is 15% for scavenger races.

11.4.10 Breaching Expert

This highly trained breaching specialist accompanies a breaching pod on its mission, greatly enhancing its capabilities. The following benefits are provided to the pod:

The pod receives +1 thrust and ignores any loss of thrust due to damage. The player can voluntarily forego this benefit so as to not give away the fact that his pod has a breaching expert aboard (for this reason, this ability is normally used only during the escape, after his presence is known).

If attempting to capture a ship, the pod's contingent gets three attack rolls on the first turn of combat. It is still destroyed by a single hit from the enemy, however. This benefit can be received only once per scenario.

Location: Breaching pod.

Cost: 25% of the cost of the breaching pod.

Availability: No more than 20% of a ship's breaching pods (round fractions of 0.5 or more up) can use these experts (in a campaign, this limitation is fleetwide, not per ship).

11.4.11 Expert Analyst

This expert is adept at locating the choicest items to steal and making off with them at the best possible speed. While this in and of itself has little usefulness in a combat situation, his ability to analyze scans of the opposition has provided him with some unique powers of observation. Accessing any of these special scanning abilities requires a lock-on against the target being viewed. Against fighters and shuttles, an actual lock-on with OEW (not CCEW) is required. The target must be within 30 hexes of the Expert Analyst for his abilities to function. Only one of these abilities can be used in any turn, and they take place at the same time the lock-on is announced.

(1) Any special weapon arming modes (sustained, piercing, etc.) currently active are detected.

(2) The presence, type and location of any elite officers

or crew are detected, so long as they are currently performing their jobs (if they are moving from system to system, are disabled, or just aren't in use, they will not be seen). This will also identify specialists (10.7.7) if they are in a position to perform their special function, even if they do not use it on that turn. Experts on fighters or shuttles in a hangar are not detected, but this scan can be made against a flight on the map, and will identify all experts and their exact locations.

(3) The contents of all cargo bays are known. This will have little meaning in most scenarios, though it can be a great help in battles with decoy freighters, or where a specific cargo item must be located. This will also reveal special freighters like the wolf raider or Q-ship, but only if used within a range of 10 hexes (otherwise the bays appear as either empty or full at the option of the owning player).

(4) The quantity and type of all fighters and shuttles aboard the ship is known (but no other information about them). If used on a flight on the map, the fighters are identified, missiles and other options are revealed, armed shuttles are detected as such, and any modifications are identified. Elite officers are not detected with this scan.

(5) The number, type and location of all special weapon ammunition is learned. This would include all special missiles, railgun shells, and the like (anything with ammo of more than one type). The player can also count the exact amount of ammo in any rack or weapon, including reload racks, but not cargo storage.

Location: Sensors

Cost: 10% of the ship's base cost.

Availability: Capital and ELINT ships only. This officer cannot be used on bases.

11.4.12 Expert Evangelist

Some religious leaders are more like evangelists, traveling and spreading the faith by making personal appearances and giving performances. Occasionally, these will visit the military, and make their rounds through the various fleets. If this occurs, they provide a certain moral benefit.

So long as the evangelist is alive and on the field of play, all units in the scenario receive a +2 initiative bonus and +1 to hit with all weapons due to higher morale. This does not affect defensive fire, however. If the evangelist is disabled or killed, these bonuses are reversed into penalties (-2 to initiative and -1 to hit) for the rest of the scenario. If the evangelist's ship disengages, there are no ill effects, though any bonuses are lost.

Location: Any system or structure block on any ship in the fleet. He may not, however, use a shuttle or fighter unless escaping a doomed vessel.

Cost: 5% of the cost of the fleet.

Availability: CPN and OSF units only. No more than one evangelist may appear in any fleet.

11.4.13 Expert Laser Technician

With their specialized knowledge, expert laser technicians can increase the power and abilities of a ship's lasers significantly. This provides the following abilities, all of which operate throughout the scenario.

Spinal lasers score +3 damage, blast lasers score +2 damage, and all other laser-category weapons score +1 damage.

The player can shunt extra power into any laser weapon for added effect. Each point of power provides +1 extra damage, in addition to the above benefit. This is particularly effective when combined with an Expert Technician and/or an Improved Reactor, which can basically turn their extra power into bonus damage. A weapon's total damage cannot be increased by more than 50% through the use of this ability (e.g., if the base roll was 12 damage, it could be raised to 18 with 6 points of power, but any additional energy is lost.

Note that if used with a weapon with multiple modes (such as the laser/pulse array), the above benefits affect only the laser portion of any shot.

Location: Reactor.

Cost: 20% of the ship's base cost.

Availability: Cost is 1/2 normal for races that field ships using primarily laser-based weapons.

11.4.14 Expert Software Engineer

This computer programmer provides several abilities that enhance the ship's computer, all of which operate constantly. The computer provides one extra bonus fire control point. This is lost only if the computer is completely destroyed. The player can leave this extra BFCP point unallocated until the Weapons Fire Step of the Combat Sequence, recording it along with his weapons fire orders. This ability does not function in combination with the powers of a Computer Specialist (his abilities would override those of the Expert Software Engineer for this purpose only).

The computer ignores the first point of damage in any volley (essentially, it can be treated as having an extra point of armor that cannot be damaged, destroyed or bypassed by weapons that affect or ignore armor).

If aboard a stealth unit, advanced electronic signature masking software makes the ship appear as though it were five hexes further away for detection purposes (but not for weapons fire or other reasons), except for fighters, which halve their detection range (round fractions up). This is not cumulative with a Stealth Specialist (if both are present and active, use whichever one provides the best benefit).

Working as a team, the Expert Software Engineer permits a specialist to use his abilities a second time during the scenario. The specialist must be of the software category, and must wait at least a full turn after using his special function before he can use it again. This only works for one specialist per scenario, and only on those that occupy a single slot.

Location: Computer.

Cost: 15% of the ship's base cost.

11.4.15 Expert Ion Technician

This expert knows ways to channel power from a ship's ion engines into its weaponry for added effect. The following abilities are provided:

All ion-based weapons (including the ionic laser) score +1 damage per die, but no die can be increased above its maximum roll (e.g., a d10 would score 10 damage on a roll of either 9 or 10). Weapons scoring a flat amount of damage, like the dual ion bolter or ion torpedo, add +1 only.

Radiation cannons score 12 damage on structure instead of 10 (this supersedes the above benefit), and force a critical roll if they hit the sensors, engine or reactor. If they hit C&C, the critical roll is at +4 on the die instead of the listed +2.

Using a ship's ionic drive system, this expert can shunt thrust into one or more of the ship's guns. This decision is made at the same time systems are activated or deactivated for extra power. Three points of thrust produce an extra 1d10+1 damage, should the weapon score a hit. This power must be applied on the turn of firing, and if applied, the weapon must fire on that turn (if it does not, it discharges and is treated as having fired anyway). This ability will not function on non-ionic weapons or with those that score a fixed amount of damage. Weapons being charged in this manner will be detected (and their strength known) by anything that detects special weapon arming modes, such as the Expert Analyst.

Location: Engine.

Cost: 10% of the ship's base value.

Availability: Any race using ion-based engines may use this expert.

11.4.16 Expert Surge Officer

For races that specialize in electromagnetic technology, this officer optimizes his ship's EM weapons as well as its resistance to similar devices. The following advantages are gained.

All electromagnetic-category weapons add +1 damage. A surge cannon adds +1 for each weapon involved in any combined shot, so a five-weapon blast would score +5 damage. EM pulsars receive +1 damage per pulse.

Capital ships and larger receive +2 points of power, while medium ships and HCVs get +1 extra power. LCVs and smaller units gain no extra benefits. Electromagnetic weapons that hit the ship suffer a -3 penalty (not -2) to their critical hit roll against any affected system. If the hit forces the deactivation of a system, the system resists the effect if it rolls a 1 or 2 on a d6.

Any spark field affecting the ship reduces its damage by 1 point.

Location: Mag-gravitic reactor.

Cost: 10% of the ship's base value.

11.4.17 Expert Ballistics Officer

This expert is not only skilled with the deployment of ballistic weapons, but also in their logistics and operations as well. He provides all of the following benefits to his ship:

All ballistic weapons receive +5 to their distance range (but not their launch range). This does not apply to proximity weapons. All ballistic devices with limited ammunition receive one extra round of ammo. For missiles, this would be an extra missile slot, for example. Devices that are self-arming, such as the ballistic torpedo, gain no benefit. If the ammunition has a cost, it must be paid (it is not free) or no benefit is gained.

All missile racks (but not reload racks) can change one of their single-space missiles to any other legal type at no cost. This can only be done before the scenario. Such missiles cannot be transferred between ships and will only function during that scenario only (i.e., in a campaign you cannot save them up or use this officer as a special missile production facility).

Location: C&C.

Cost: 10% of the base cost of the ship, plus 2% for each missile rack that received a free missile upgrade.

Availability: Cost is 1/2 normal for races that field ships using primarily ballistic weapons.

11.4.18 Expert Anticipator

Occasionally, when a fleet's leaders finds an individual who can consider many different options at once, and come up with the appropriate solution quickly, they put him on the bridge of a ship and let him go to work. While some of these abilities may be psi-related, many are simply instincts that happen to turn out correctly more often than not. This provides the following advantages:

When rolling for initiative, this officer's ship rolls the die twice. The player then selects whichever roll he chooses (usually the higher one). This represents the officer's ability to "look ahead" at the battlefield and correctly predict enemy actions.

After moving his ship, the player can announce that he is using his Expert Anticipator to "predict" any remaining maneuvers still to come in the turn. To do this, he must ensure that his ship's Turn Delay is complete and enough thrust is left unused to complete a turn maneuver. Then, at the end of the Movement Step, he can execute a single turn, if desired. This ability can only be used for a turn, not a roll, pivot, snap turn, or other maneuver. This is similar to a fighter's combat pivot except that there are no associated firing penalties.

By correctly interpreting the exact location of a target, this officer can improve the damage of his ship's offensive weapons. When rolling for damage, roll an extra die and drop the lowest die from the calculation. For example, a pentagon array would roll six dice, and if these came up 10, 8, 6, 5, 4, and 1, the 1 would be dropped. This ability works only on weapons that roll at least two dice for damage, so it would not affect a light particle beam. Similarly, it would not affect a fixed-damage weapon like a bolter or pulsar.

Location: C&C.

Cost: 20% of the ship's base value.

Availability: Cost is 1/2 normal for races that regularly employ experts of this type.

11.4.19 Matter Weapons Expert

These valued experts are the masters of matter weaponry. They provide a +1 to hit and damage with all matter-class weapons on their ship. This is not EW-related, but is considered part of the fire control. This ability is cumulative with an improved gunsight.

If desired, this officer can be moved into one specific weapon on the ship instead of his normal station (in the C&C). If this is done, that weapon receives the above benefit (but no others do), and as a bonus, its rate of fire is improved by 1 turn. A weapon's rate of fire cannot be improved to better than 1 per turn in this way. Because this officer must work his magic from deep within the weapon's machinery, he is

disabled if the weapon takes any damage at all (after armor), and is automatically killed if the weapon is destroyed. For this reason, this ability is normally used only early in a battle, or on a base or other unit with excellent protection for its weapons.

Location: C&C or a specific weapon.

Cost: 10% of the ship's base cost.

Availability: Only races that field ships that primarily use matter-based weapons may use this officer.

11.4.20 Expert Gunner

Expert gunners are assigned to a specific weapon on the ship. They can move between weapons as desired (e.g., if their weapon suffers damage) using the normal officer movement rules. They provide the following benefits to their weapon:

Provides a +1 bonus to hit. Note that this is not EW, and is not affected by anything that would reduce or eliminate EW. This ability functions all the time.

Provides +1 damage per die, but not more than the highest possible roll for the die (e.g., a roll of 10 on 1d10 would not be increased). This ability functions all the time.

The weapon's rate of fire is improved by 1 turn, but to no better than once per turn. This ability functions once per scenario.

The weapon can fire in piercing mode, even if it is not normally permitted to use that mode (if it already has that ability, it ignores the normal firing penalty). This ability functions once per scenario.

The weapon can use a called shot at a +3 bonus, in addition to the +1 fire control mentioned previously. This ability functions once per scenario.

None of the once-per-scenario abilities can be combined with each other. The Expert Gunner does not combine any to-hit or damage bonuses with those of other elite officers, such as the Expert Plasma Technician or Matter Weapons Expert.

Location: Specific weapon.

Cost: 10% of the ship's base cost.

Availability: Cost is 1/2 normal for races that consistently recruit above-average gunners. A ship may have at most one such officer on a medium ship or smaller, two on a heavy combat vessel, three on a capital ship and four on an enormous unit.

11.4.23 Elite Crew

Elite crews are the epitome of training and natural ability, the kind of group who works so well together you'd think they were all part of the same family. The skill and cooperation they possess provide a number of benefits to the ship's combat abilities, as noted below. Note that these are cumulative with benefits from other items and officers, although any bonuses are added in after all other benefits and costs are calculated. Initiative: Expert crews add a +1 initiative bonus.

Thrust: Expert crews provide the ship's main engine with 1 point of bonus free thrust.

Thrusters: The thrust ratings of all thrusters are considered to be one level higher.

Sensors: The rating of the ship's main sensor array is increased by 1 point.

Defense: The defense rating of the ship is decreased by 1 point (for all ratings).

Maneuver: Whenever the ship turns, it gains 1 free point of turn shortening.

Hangar: The launch/land rate of shuttles and fighters is doubled (but is never greater than the number of shuttles/fighters the ship carries). Hangar bay operations take half as long as listed.

Shuttles: If applicable, one of the shuttles is armed (see rule elsewhere in this supplement). Use the weakest shuttle type listed for the race in question. This comes at no additional cost.

Reactor: The ship's main reactor provides an extra 2 points of power in addition to any other free power it already delivers.

Weapons: All weapons do +1 point of damage per die, although no die can be greater than its maximum yield (e.g., if you rolled a 9 on a d10 it would be treated as a 10, but if a 10 is rolled, it would not be improved).

Criticals: All critical hit rolls made by the ship have a -1 bonus.

Jump: The jump delay time of the ship is reduced by 20% (round fractions of 0.5 or more up). Point Cost: The elite crew costs 50% of the ship's base cost. It can be purchased a second time (for an "ultra elite" crew), but this requires a total cost of 125% of the ship's base value. In this case, all of the above modifiers are cumulative.

Location: The elite crew is located throughout the ship, and cannot be disabled or killed. However, it is destroyed if the ship is destroyed.

11.5 Elite Officers for Fighters and Shuttles

Some elite officers are best used in fighter combat, and provide benefits to an entire flight of fighters. The owning player must note which fighter has the officer, and if that fighter is destroyed or drops out, the benefits are lost. The fighter with the elite officer cannot be detected by the enemy, however, unless he does something specific to identify himself. Thus, for example, a player firing an Electro-Pulse gun would have to guess at which fighter has the expert dogfighter—but if all fighters have been damaged except one, it's a pretty good guess which one has the officer.

A flight may not benefit from more than one expert officer of the same type (except as noted), although multiple ones may be used to ensure redundancy. A given expert can be of only one of the following types, unless noted otherwise. These benefits can be provided only if the officer is aboard a fighter normally operated by his race (not a captured unit). On two-seat fighters, these experts can sit in either seat as desired, except as noted.

11.5.1 Expert Dogfighter

This individual is skilled at engaging in dogfights, and provides a +1 initiative bonus to his entire flight as a result. In addition, if the flight ties another unit in initiative, it automatically wins the tiebreaker unless there is an expert navigator or expert dogfighter present on the enemy unit.

Point Cost: One-half the base cost of the fighter.

Limitations: A flight may only benefit from one dogfighter at a time.

11.5.2 Expert Motivator

This elite officer can tell stories, sing inspirational songs, or do whatever it takes to motivate his fellow pilots to fight to the bitter end. The fighters in his flight have a -2 on any drop-out roll, in addition to any other bonuses or penalties they may already possess.

Point Cost: One-half the base cost of the fighter.

Limitations: A flight may benefit from only one motivator at a time.

11.5.3 Expert Missileer

This officer knows certain tricks that can help missiles slip by enemy EW systems. All missiles launched by the flight gain a +1 to hit their targets.

Point Cost: One-half the base cost of the fighter, plus 1 for every missile the flight is capable of carrying (regardless of whether the fighters all carry their maximum amounts).

Limitations: A flight may benefit from only one missileer at a time. If the fighter has a navigator's seat, the missileer must use that seat; otherwise he can occupy a pilot's position.

11.5.4 Expert Evader

This elite officer can arrange to angle his flight so that incoming fire scores less damage. To make this maneuver, the player announces that his flight is "evading" during the Combat Pivot step of fighter movement. This costs thrust equal to that required for a combat pivot, in addition to any other combat pivot made at the same time. The fighter group does not actually change facing due to the evasion maneuver, but it does suffer a -1 penalty to its weapons fire (cumulative with any penalties for jinking or combat pivots).

The effect of evasion is that incoming fire on the flight is reduced by 1 point per volley scored on that turn, before subtracting for armor or other factors. *For example, an 8-point shot hitting an evading fighter would score only 7 points before armor is subtracted.*

Point Cost: Equal to the cost of the fighter.

Limitations: A flight can benefit from only one evader at a time. Fighters using the evasion maneuver cannot guide missiles towards a target unless they have a navigator available.

11.5.5 Expert Coordinator

This expert allows a flight to react quickly to nearby threats, often with near-incredible feats of anticipation. The flight may make a combat pivot for half the normal thrust cost (i.e., 1 point instead of 2) and with no weapons fire penalties as a result, unless the combat pivot was a full 180T, in which case a penalty of -1 is applied.

Point Cost: One-half the base cost of the fighter.

Limitations: A flight may benefit from only one coordinator at a time.

11.5.6 Expert Electrician

This officer is capable of rigging special power shunts in his flight's power plant hookups. This allows the fighter to deactivate its weapons for extra thrust or offensive bonuses during a scenario.

A flight may deactivate any or all of its weapons. For each weapon deactivated in a turn, add the maximum damage it can cause to a running total, and then divide this by the number of guns in the flight, rounding fractions of 0.5 or more up. This results in a number of points that can be added to either the flight's offensive rating or thrust rating for that turn. However, any added offensive rating points apply only to direct-fire weapons, not ballistic weapons.

For example, a flight of fighters has a total of 12 paired particle beams, each of which can score a maximum of 11 damage per hit (1d6+5). If 5 of these are deactivated, the sum of the damage potentials is 55, which (after dividing by 12 and rounding the fraction up) yields 5 points to distribute between the flight's thrust rating and offensive bonus for that turn. It is permissible to put all of these points into one or the other, so the flight could arrange for a +5 to its offensive rating or +5 thrust, though this could also be divided between the two (+2 to one and +3 to another, etc.) as desired.

Because of the jury-rigging required in setting up this kind of power shunt, there is a possibility that each deactivated weapon may fry its circuits and not re-activate after use. Roll 1d6 for each weapon (not just one roll for the whole flight), and on a roll of 1, it is lost for the rest of the scenario. There are no modifiers to this roll. Note that if the weapon fails to reactivate, its power is still available for use as described previously.

Point Cost: Equal to the cost of the fighter. In a campaign or multi-turn scenario that tracks repairs, any weapon damaged by the above procedure counts as one box of damage on the fighter for repair purposes.

Limitations: A flight may benefit from no more than one electrician at a time. Fighters with heavy weapons, like the Ion Bolt, cannot benefit from expert electricians due to the already tenuous nature of their power plant hookups.

11.5.7 Expert Pilot

Pilots all receive a certain amount of training, but some are so skilled, experienced or simply gifted that they rank among the elite. Pilots provide the following benefits to their flight:

Offense: +1 to the flight's offensive bonus.

Jinking: The flight can use one level of jinking without paying any thrust cost for it. Additional levels require the standard amount of thrust (calculated as though this "free" level were not being used). The bonus level does not count against jinking limits for that fighter class.

Hyperspace: In hyperspace, he shifts all "hyperspace current" die rolls by 1 in the most favorable direction.

Ejection: The fighters in his flight have a bonus of -1 on any die roll to successfully eject.

Point Cost: Equal to the base cost of the fighter.

Limitations: The expert pilot may not be in the navigator's position on two-seat fighters. Up to four expert pilots in the same flight are cumulative, except for pirate flights, which can use no more than two due to poor training methods.

11.5.8 Expert Tailgunner

This fighter-only officer is adept at operating his fighter's tailgun in concert with the forward-mounted weapons, and can train the rest of his flight in this special skill. The flight receives no penalties when using the tailgun in the same turn as the other guns.

Cost: Half the cost of the fighter.

Availability: Races can use this officer if they have fighters that meet the requirements. Experts from races that do not routinely field tail-equipped fighters can erase no more than 2 points of firing penalty (i.e., they could cover a -1 or -2 penalty, but a -3 penalty would only be improved to -1). If the tailgun has a penalty associated with it, the officer provides a +1 to hit with that gun only.

11.5.9 Redline Pilot

"Redline Pilots" are nothing less than fanatical. They know their fighters inside and out and push their machines to the maximum at every opportunity. Sometimes their great skill and daring makes them seem a bit crazy. One thing that is certain is that Redline Pilots can often perform such precise maneuvers that few others would ever dream of attempting, except for those who have no other choice but to follow orders.

A flight with a Redline Pilot cannot contain any other officers. Most people with any experience under their belts believe Redliners to be crazy and reckless and refuse to serve with them. However, a Redline Pilot provides the following benefits to his flight:

(1) A Redline Pilot may perform skin dancing on an capital ships moving at speeds of 8 or less. Apply additional modifiers of +1 for every point of speed over 5 (for the target unit) and +1 for every 2 points over 5 (for the skin dancing flight). Should the skin dance attempt fail, and one of the fighters rams the target, the Redline Pilot must always be picked as the fighter destroyed (at which time the flight loses its benefits).

(2) Redline Pilots may combat pivot their flight even if they do not have enough thrust left. If this is done, however, the firing penalty for a combat pivot is tripled.

(3) Redline Pilots may use their afterburners above and beyond their usual tolerances. If this is done, the flight increased its thrust by 50% on the current turn (round any fractions down). However, the flight is not permitted to maneuver on the following turn (it must proceed straight ahead at its current speed) while the engines cool off.

(4) Redline Pilots may attempt to land his flight on its carrier beyond the usual thrust tolerances. If this is attempted, roll a d20. If the result is less than or equal to the amount of thrust by which the tolerance is exceeded, the Redline Pilot's fighter crashes into the carrier (treat this as a 100% successful ramming attempt) and all other fighters in the flight break off. The flight cannot use the afterburners during this attempt. Example: A flight with 10 thrust is moving speed 24 and its carrier is moving 10. Normally they would not be able to land because the 14-point speed difference exceeds the Calaq's thrust by 4. If the Redline Pilot makes the attempt, a die roll of 1-4 will result in his fighter's destruction. There can be no successful ejection if this occurs.

Cost: Equal to the cost of the fighter.

11.6 Special Elite Officers

This section includes several special officers that are available only to those races that meet certain criteria. Others either cannot buy them at all or must pay a premium for the privilege, as defined hereafter.

11.6.1 Expert Security Officer

The security officer is vital for maintaining order, catching spies, and controlling dissent among the crew. His presence improves morale and ensures command and control operations proceed smoothly. This provides a +1 bonus to the ship's initiative, and a -2 to any critical hit rolls against the C&C.

The security officer provides improved defenses against raids by enemy boarding parties. Whenever a breaching pod attacks, shift all die rolls by up to 2 in any direction desired by the defending player (after the roll is made), if desired. For example, if an enemy attempts a Wreak Havoc mission and rolls a 10, the defender could change this to an 8, 9,

10, 11, or 12, depending on which result he feels is the least painful. If the attacker has any modifiers to his roll, he must add these in before the security officer makes his alterations.

Location: C&C.

Cost: 5% of the ship's basic value.

Availability: Non-authoritarian or similar police state type governments increase the cost by 50%.

11.6.2 Expert Religious Leader

Higher level members of the religious caste provide a morale boost to their crews, simply by virtue of their presence aboard ship. In addition, if they are killed, wounded or captured, this can stir the crew into a berserker frenzy.

A religious leader provides an automatic +2 to the ship's initiative. In addition, each weapon the ship fires scores +1 damage per volley (not per subvolley or per die). If he is wounded, captured or killed, the initiative bonus is doubled, and the ship receives +1 to its sensors and defense ratings thereafter (note that +1 to the defense rating is not a bonus, but a penalty).

Location: Any primary non-weapon system.

Cost: 15% of the ship's base value.

Availability: Available only to theocracies or to races otherwise strongly guided by religion.

11.6.3 Expert Political Officer

Many monarchy or aristocracy based races employ ships are sponsored by royal houses or political organizations, who like to keep an eye on their charges. One common means for this is the political officer, who is actually little more than a glorified spy for the nobility. The political officer is not a part of the military, but occupies a civilian post. His presence is almost always despised, or at best tolerated (as one might tolerate a severe head cold). There are, however, a few rare political officers who choose to make themselves useful.

Though they have no shipboard duties, expert political officers have Influence with a capital "I." This enables them to acquire better equipment and service for their ship. This has the following benefits: The ship possesses one armed shuttle. If this shuttle can use missiles, it comes loaded with one set of standard missiles at no cost.

The political officer's reputation attracts other important or skilled figures to the ship's crew. Select either an expert navigator, expert helmsman, expert engineer, expert scanner, or elite pilot and add him to the crew at no cost. These are not lost if the political officer is killed, but remain on the ship.

Due to improved armor (normally too expensive to install, but available due to the political officer's influence), 5 ship systems (selected by the owner) receive +1 to their armor values. The owner must select 5 different systems (i.e., these cannot be combined) and cannot select structure blocks. This armor is not lost during the scenario if the officer is killed, but within a few weeks (in a campaign, by the end of the campaign turn) the extra armor falls into disrepair and is lost.

The ship receives a stockpile of spare parts enabling the ship to repair damage between scenarios of campaigns. If the campaign rules provide no procedures for such repairs, assume the ship can fix up to three destroyed or damaged systems completely between scenarios (but cannot fix destroyed structure blocks or anything attached to such blocks). If campaign rules allow such repairs, increase their rate and/or limits by 50%.

Once during each scenario, the political officer can give a stirring speech to his ship's crew, quoting the past glories of the race, the honor of serving the monarchy, and other political mumbo-jumbo. This provides the ship with +6 to its initiative on that turn. The speech must be announced before initiative rolls are made on that turn (by any player).

Location: C&C.

Cost: 40% of the ship's basic value.

Availability: Capital ships or larger units only. Not available to non-monarchy/aristocracy or races that value political intrigue.

11.6.4 Expert War Leader

Many races have histories filled with heroic leaders who rose to the occasion, getting their people out of danger or fighting to victory despite desperate odds. When such a

leader commands a fleet, he provides significant benefits to the entire force.

An expert war leader adds +1 to the initiative of every ship of his race that is present, so long as his ship is in command. Should his ship be disabled, or his C&C destroyed, he can transfer his flag to another vessel, but will not provide his benefits until he moves (presumably by shuttle or fighter) to the new unit's C&C.

Once and only once during the scenario, the war leader can do each of the following, but can only do one on any turn:

He can select a single enemy unit, declaring it as the subject of his personal wrath. All ships gain +1 to hit that unit on that turn only. This must be announced before any weapons roll to-hit.

He can declare a single friendly unit to be the "center of glory." It receives a +2 bonus to hit on that turn only. This must be announced before any weapons roll to-hit.

He can taunt the enemy, drawing their attention to himself. They receive a +1 bonus to hit his ship on that turn, but a -1 penalty to hit any other ship (but not fighters or shuttles). Note that this would be a good turn to suggest his ship use a full complement of defensive EW.

He can anticipate his enemy's actions. He must announce the use of this ability at the start of the turn, before the EW Determination Step of the Combat Sequence. On this turn only, he can wait to determine his ship's (and only his ship's) EW until after his opponents have all announced their EW. He must still determine ballistic weapons launch at the usual time, however. In addition to this, his ship receives a bonus of +12 to initiative on that turn only, in addition to all other benefits.

Location: C&C.

Cost: 5% of the base cost of all units involved in the scenario (assume this to be 500 in a campaign), plus 25% of the cost of his own ship.

Availability: All races have such influential leaders, but only those war-like races that allow for self determinism tend to have them occur regularly, for all other races and cost 50% more than the listed price.

11.6.5 Expert ELINT Officer

While some races advance their weapons of destruction, others choose a more passive advancement in the form of advanced electronics and communications. The expert ELINT officer is one result of these pursuits. He provides the following advantages:

The sensor rating of his ship is increased by +1. All critical hit rolls against the sensors are reduced by 2.

The range of all ELINT functions is increased by 25% (round fractions of 0.5 or more up). If the ship identification rules from Showdowns- 1 are in force, the ship gains a +3 bonus on any ID rolls.

If the ship puts up blanket protection, the total EW value is divided by 3 (not 4) for purposes of ballistic weapons only. Thus, if 12 EW is applied to blanket protection, all friendly units in range receive -3 to their defense ratings for normal weapons and - 4 versus ballistic types.

Location: Sensors.

Cost: 15% of the ship's base value.

Availability: The base cost applies to those races that pursue systems that improve sensors or reduce opposing sensor performance (technology such as the Comm Disrupter, see Section 8.6.4). Double the cost for any other race. Not available for races whose current mainline ships do not have at least an 8 sensor rating.

11.6.6 Expert Graviton Controller

Research in the area of gravitics has produced a number of experts in the field. These can provide special abilities to the ship's weapons and drive systems, as follows:

All gravitic beam weapons score +1 damage.

All graviton pulsars or gravitic bolts roll to hit normally, but after they hit, they determine their result as though the to-hit die roll was 1 point lower. *For example, if a graviton pulsar fired needing a 10 to hit and rolled a 7, this would be treated as a 6, thus resulting in +1 to the volley count roll.* Tweaking of the drive improves its free thrust by 1. Increase the thrust rating of the largest aft thruster by 1 as well.

Once during the scenario, during the Movement Step, the gravitic drive can be "rotated." This is generally

a desperation move, as it is completely uncontrollable. Roll 1d6 and rotate the ship to face the resulting direction (with "1" indicating the top of the map, and other numbers rotating clockwise from there). Heading, turn status, and the like are unaffected. On the turn a rotation is done, the ship's weapons suffer a -3 penalty to all weapons fire, even if the ship winds up facing the same way it was originally heading.

Location: Engine.

Cost: 10% of the ship's base cost.

Availability: Only races based purely on gravitic technology may purchase. Races that use gravitic drives or a few gravitic weapons can purchase one for 50% higher than the listed cost.

11.6.7 Expert Warrior

A race intent on conflict cannot help but produce experts in combat. These experts possess a number of special abilities whenever they fight, and some of these seem to flow into the crews that surround them.

A ship with an expert warrior receives +1 to hit with all weapons, and all weapons cause +1 extra damage per die. The ship receives a +2 bonus to its initiative and any fighters or shuttles it launches receive the same initiative (but not to-hit or damage) benefit. All critical hits, regardless of system, have a - 1 on their rolls, and any critical hits caused by the expert warrior's ship gain +1 on their rolls.

Once and only once per scenario the expert warrior can also do each of the following (but cannot do more than one of them in a given turn):

He can "charge" an opponent by pointing his ship at the target and moving directly towards it for his full movement. The "charge" is declared as this maneuver is performed. He must move at least 4 hexes towards the enemy and must have beaten him in initiative. If this is done, he gains a further +2 to hit that unit with all his ship's weapons.

His ship can execute one snap turn as though it were agile, at a cost of 1 point less thrust than it should. If the ship is already agile, the thrust cost is halved instead.

He can make a "precision strike," a single called shot, with only one weapon, without the usual called shot penalty.

He can make a "supreme anticipation," earning his ship a +10 initiative bonus (in addition to any other benefits) on the next turn. However, on the turn after that one, his ship suffers a -10 penalty.

Location: C&C.

Cost: 50% of the ship's base cost.

Availability: Only the most militaristic races can produce sufficient numbers of potential candidates, such that a few might survive long enough to become expert warriors.

11.6.8 Expert Troop Leader

Nearly every race pushes for additional technology, better ships and more powerful weapons. A few continue to recognize the power of the individual solder. Such races produce leaders whose primary focus is in the direction and control of ground forces, which does not apply to most AoG Wars situations. However, aboard a ship he still has a few abilities he can lend to his crew.

If the ship is attacked by enemy breaching pods, he provides a penalty of 2 on all enemy rolls and a bonus of 2 on all defense rolls. If any of his own ship's breaching pods attack an opponent, they gain a +1 bonus on any attack table. The troop leader can also accompany a breaching pod, and if this is done, he gives a further +2 bonus (a total of +3) to any rolls. If any result appears that "kills" his contingent, roll 1d6, and on a roll of 1-4 he manages to escape with his pod (but not the rest of his team). This is not available on Wreak Havoc missions.

The expert troop leader also provides heightened training to many of his crew, enhancing their reflexes. Nowhere is this more acute than with the crewmen whose job it is to control the bulkheads. Thus, all bulkheads on the ship are considered to have 1 extra box. This benefit remains even if the troop leader is killed in combat, but only for the duration of that scenario, after which the bulkheads revert to normal.

Location: Hangar.

Cost: 5% of the ship's base cost.

Availability: Expert troop leaders are, almost always the result of genetic manipulations.

11.6.9 Expert Plasma Scientist

Despite the appearance of being less advanced then other weapons technology, a master of plasma technologies, add some interesting wrinkles to what would be considered by most a well-understood technology. An expert plasma scientist provides several benefits to his ship, as follows:

All medium or heavy plasma weapons on the ship score +1 damage (this would include medium plasma cannons and larger, as well as plasma streams, plasma accelerators, etc.). Fuser torpedoes score +2 damage, not +1.

All plasma weapons on the ship ignore the first two hexes traveled when reducing damage scored against an opponent. For example, a weapon that suffered -1 point of damage per 2 hexes that struck an enemy 10 hexes away would lose only 4 points of damage, not 5.

All plasma batteries can store an extra point of power, and receive a -3 bonus on any critical hit roll. They cannot operate if completely destroyed (despite the +1 power bonus).

Plasma webs receive a +1 bonus to range, even if suffering from a critical hit.

Location: Engine.

Cost: 10% of the ship's base cost.

Availability: Only races whose technology base is dedicated to plasma weapons. Any race using plasma weapons can also use these officers, but the cost is doubled and the benefits less pronounced.

11.6.10 Expert Turret Officer

The expert turret officer is adept at using his turret efficiently and getting its weapons out of harm's way when necessary. This has the following effects:

Weapons on the turret gain +1 to hit.

When rolling for critical hits against turretmounted weapons, subtract 1 from the die roll.

When rolling for the special turret critical, subtract 2 from the die roll.

If no weapon on the turret fires in a given turn, the owning player can declare it to be "sheltered." If this is done, no incoming fire can hit its weapons unless they use called shots. The "sheltering" announcement must be made before any other players determine weapons fire, thus revealing to everyone that you have no intentions of shooting turret-mounted weapons on that turn.

Location: One turret-mounted weapon. The turret operator can only aid that turret, not any other turrets on the same ship (if any).

Cost: 5% of the ship's base value.

Availability: Turret using races only.

11.6.11 Expert Targeter

One area in which pirates excel is that of knocking critical systems (weapons, thrusters, etc.) off enemy units. In many cases, this is the only way they can complete their goal of capturing freighters with their cargo intact.

The expert targeter is a true boon to a pirate band. With him on the ship, called shots have a +4 bonus to hit.

This does not provide any benefit to normal attacks, only called shots. It does not cancel the usual -8 called shot penalty, either.

Location: One structure block. All weapons attached to this block receive the benefit. On a medium ship, he must choose either forward or aft weapons, and will aid only those weapons that can be hit from the chosen direction (on the Hit Location Chart).

Cost: 10% of the ship's base cost.

Availability: Pirates only. Races that specialize in raiding or thievery, could also acquire one for double the cost.

11.7 Specialists

The crewmen of some races receive special training as specialists. In addition to their usual functions at their posts, they can provide their singular expertise at key moments in battle. In nearly every case, specialists are "plugged into" the ship's computer via special implants, allowing them to act swiftly and at the speed of thought. Most ships belonging

to a race that has developed specialists have at least one specialist assigned to them. The number of specialists appears on the control sheet in the Special Notes box. With some restrictions, the player is free to select which specialists are assigned to any given ship. These restrictions are as follows:

(1) No two specialists on a given ship may be the same.

(2) Some specialists count as two or more for purposes of assignment, and cannot appear on a ship that permits only one to be present. For example, a ship that can carry three specialists could have three one-slot specialists, one two-slot and one one-slot, or one three-slot.

(3) There are three types of specialist available: Hardware, Software and Command. Hardware specialists deal strictly in physical objects, providing their abilities through hands-on work. Software specialists operate entirely by interfacing with the ship's computerized systems. Finally, command specialists are tied into the ship's personnel through the C&C, operating directly in support of other crewmen. A ship must divide its specialists among these three categories as best it can on a slot by slot basis. For example, a ship with four specialists available can have one hardware, one software and one command specialist, plus a fourth of any type. If the hardware specialist uses two slots, however, the other two must consist of one command and one software, or a single two-slot specialist of either type.

There are certain features common to all specialists. Unless otherwise noted, a specialist provides his bonus ability just once per scenario. Any such benefit will last no longer than one turn, unless the description says otherwise. The intention to use a specialist's ability or abilities can be made at the point in the Combat Sequence listed in the descriptions, sometimes ignoring the normal sequence of events.

The abilities of specialists can be combined with those of elite officers or crew, should those optional rules be in use. Specialists operate only on ships, not fighters, unless otherwise noted.

Specialists are located in specific ship systems as listed in their descriptions. They can be disabled or killed in the same manner as elite officers. They can transfer to other systems in the ship (or to the primary structure) but provide their abilities only if located in their appropriate locations. They can transfer to another ship during a scenario, but unlike elite officers will not provide any abilities to that ship during the scenario.

Players can feel free to experiment with specialists of their own design, subject to local house rules. Keep in mind that their abilities should be simple and not overly powerful. Optionally, in the case of a specialist from a race not known to have them, allow it as an optional ship improvement costing 5% of the ship's point cost per specialist slot. One can appear for every 400 full Combat Points in ship base value, so a ship that costs less than 400 would have none, 400-799 could have one, 800-1199 two, and so on.

In a campaign, any ship build by a specialist-using race will begin play with specialists of the owner's choice. These cannot be changed later, but could be swapped around among ships between scenarios so long as all other limits and restrictions are obeyed. If a ship winds up with more specialists than it can normally employ, however, any extras (presumably kept as "spares") would not function during a scenario, even if a similar specialist were lost in battle. Additional specialists (for races that normally have them) can be acquired for 25 Combat Points per slot, to be held in reserve.

11.7.1 Breaching Specialist

Type: Hardware

Location: Hangar

Special: Requires Two Slots

This specialist can change a single normal (not armed) shuttle into a makeshift breaching pod at no extra cost. This pod looks and operates like any other normal shuttle (and cannot be identified otherwise until it makes an attack), except that it can carry Marines and attach to enemy units like a regular breaching pod. The free pod counts against the ship's normal limit of breaching pods. Any Marines that use the pod must come from those normally assigned to the ship or purchased through the usual optional item rules.

The breaching pod will be of the ship-owning race's standard low-end, unarmed type.

11.7.2 Called Shot Specialist

Type: Software

Location: Weapon

Special: Requires 1-2 Slots

The specialist is assigned to a specific weapon on the ship. Once per scenario, he allows that weapon to make a called shot with no penalty. If used on a spinal laser or other 5-turn arming weapon, he requires two slots.

11.7.3 Computer Specialist

Type: Software

Location: Computer

Once per scenario, this specialist adds 1 point to the ship's bonus fire control points and allows these points to be reshuffled to any desired values. This ability is activated during the Fire Determination Segment and must be announced at the same time other weapons fire is announced. The usual restrictions on the allocation of bonus fire control points must be observed.

11.7.4 Defense Specialist

Type: Software

Location: C&C

Once per scenario, this specialist increases the Intercept Rating of all weapons on the ship by 2, provided those weapons already had an intercept rating of 1 or more (e.g., a spinal laser would receive no benefit, but an interdictor would be increased to 6). This ability can be activated upon learning that an opponent is firing at the ship, but will not affect any attack rolls already made and recorded. For example, if a player chooses not to use this ability and several attacks thereafter are very near hits (+1 and +0 above their required to-hit numbers), it is too late to activate this specialist.

Note: If using this ability on the ships of races that do not normally have specialists, only the Intercept Rating of a weapon will be increased.

11.7.5 ELINT Specialist

Type: Software

Location: Sensors

This specialist increases the effectiveness of a scout's ELINT functions (he is of no use on a non-ELINT ship). Once during the scenario, this specialist can use one of the following abilities:

(1) Offensive ELINT will be provided on a 3 for 2 basis instead of 2 for 1. For example, if 6 points of OEW are applied to a target, any friendly unit locked onto it will receive 4 points of OEW.

(2) Defensive ELINT will be provided on a 3 for 2 basis as above.

(3) Disruption ELINT will be provided on a 2 for 1 basis. For example, if 8 points of disruption ELINT are applied against a target, 4 of its OEW or CCEW will be eliminated.

(4) Blanket Protection will be provided on a 3 for 1 basis. For example, if 9 points of blanket protection are purchased, all friendly units are defended by 3 points of DEW.

(5) Identification: The ship can positively identify three enemy units with no roll necessary, up to 75 hexes distance.

(6) The range of all the ship's ELINT functions is increased by 50%

The ability used must be announced during the Electronic Warfare Segment of the Combat Sequence.

11.7.6 Engine Specialist

Type: Hardware Location: Engine

Once during a scenario, this specialist provides a 25% increase in free thrust (round any fraction up). This extra thrust must be used all at once, i.e., it cannot be divided among several turns. This ability can be activated at any time a maneuver (including acceleration or deceleration) calls for more thrust that a ship has available.

11.7.7 Flight Specialist

Type: Command

Location: One Fighter

This specialist is assigned to a single flight of fighters or shuttles, and must be designated as being on a specific

unit (though this can be kept secret from the opponent). His abilities are lost if the fighter drops out or is destroyed, or if he is killed or disabled by a critical hit under the optional fighter critical hits rule.

Once during a scenario, the flight can ignore any drop-out rolls and pivot to any desired facing. This ability is activated during the Fire Resolution Step after fighter-drop rolls are made. The player can choose to use this ability even if no fighters are eligible for drop-out, presumably to arrange for a shot against a different target than the flight is currently facing.

11.7.8 Hangar Specialist

Type: Hardware

Location: Hangar

This specialist can arm a standard shuttle with a single light blast laser. This effectively transforms the shuttle into an armed variant at no cost. The gun can be added only to a normal shuttle, not a fighter, assault shuttle or other variant. Tarmed shuttle will be of the ship-owning race's standard type, and will include any missiles or other ordnance normally found on that shuttle at no additional cost.

11.7.9 Intelligence Specialist

Type: Command

Location: C&C

This specialist can anticipate enemy intentions. Once per scenario, the ship can wait to determine its weapon fire allocation until after learning the intentions of all enemy units. To resolve this, everyone records firing intentions through the usual rules. The player then announces the activation of this specialist. After learning the fire allocations of all opponents, he may then determine his own ship's weapon fire. Note that all other friendly ships in the scenario are required to follow their plotted fire allocations; only the one with the specialist may make changes.

11.7.10 Navigation Specialist

Type: Command

Location: C&C

Special: Requires Two Slots

This specialist allows the ship to make a single turn of up to 120 degrees with no turn cost or delay, and no thrust or engine requirements. The turn is made during the Movement Step of the Combat Sequence; it cannot, for example, be made after weapons fire determinations are made. A ship whose engine has been destroyed or reduced to zero free thrust by criticals can still make a turn using this specialist, but only 60 degrees in either direction.

11.7.11 Piercing Specialist

Type: Software

Location: Weapon

This specialist allows a weapon not normally capable of firing in piercing mode to use that mode once during a scenario. The specialist must be in the weapon system to be used. Piercing mode cannot be used at the same time as any other special firing mode (such as sustained or flash) and will override any special abilities of such modes. A Piercing Specialist cannot be used on ballistic weapons or any weapon with a rate of fire greater than one per four turns, such as a spinal laser.

11.7.12 Psi Specialist

Type: Software

Location: C&C

Special: Requires Two Slots

This specialist can be used to gain one piece of vital information during a scenario. The Psi Specialist reaches into the mind of the enemy fleet commander and withdraws the required data. This allows the player to ask one question of his opponent, which must be answered immediately and correctly. This can be done at any time during the scenario, even during game setup.

The question must be stated in a single sentence, cannot ask for more than one piece of information, and does not have to reveal anything that has not yet happened (e.g., future plans or orders not yet executed). The opponent must live

up to the spirit of the question (if there is any doubt as to what the player want to know, he should ask for clarification).

There should be no need to agonize over proper phrasing, or to hire the services of a lawyer to determine the exact question to ask.

If the question is illegal or cannot be answered for some reason, the enemy would reveal this (the Psi Specialist's ability is not considered wasted unless the enemy's act of stating he cannot answer the question yields information to the specialist).

Examples of questions and their responses:

"Are you sustaining the fire of any weapons?" The enemy would answer "yes" or "no" but would not be required to reveal which weapons on which ships.

"What is the target hex of one of those energy mines you just launched?" The opponent would choose an energy mine and reveal its target hex. If the player had asked about a specific mine, he would have to reveal its target hex. He does not have to reveal any other mine targets.

"How many Combat Points did you spend on special missiles?" The enemy would have to answer exactly, but does not have to reveal what types were bought, or where they are located.

Because the Psi Specialist must enter the mind of his enemy, the enemy must actually have a mind, and one that is not so far advanced as to be unreadable. Thus, he cannot use this ability against constructs (e.g., a robotic enemy) or the more advanced races. The specialist will not enjoy probing a truly alien mind, but will get the job done.

In a campaign, a Psi Specialist can be used to learn only information related to the current scenario. The player cannot use this specialist as a way to spy on his opponent's empire.

Rarely, a scenario will include some secret piece of information that, if known to the opponent, will totally skew the game in his favor. For example, if an individual had to be captured using breaching pods and was hidden on any of several ships, knowing which ship in advance would allow the player a huge advantage. In such situations, the Psi Specialist cannot be used to gain such information, purely for scenario balance purposes.

11.7.13 Reactor Specialist

Type: Hardware

Location: Reactor

This specialist provides extra power at one key point during the scenario. This can be used for any one of the following purpose:

(1) The specialist can begin arming a weapon or other device that was deactivated that turn for extra power (as though it had been armed normally). This counts as the weapon's first turn of arming. This ability can activate a sensor array that was deactivated for extra power, but that array can be used only for defensive EW on that turn. This ability must be activated before the Movement Step is over.

(2) The specialist can acquire enough power to purchase 2 points of extra thrust. This ability must be activated during the Ship Power Segment.

(3) The specialist can generate enough power to boost the ship's sensors by 1. This ability must be activated when the ship's EW is being determined, no later in the turn, and cannot be used in concert with any other EW being purchased with extra power.

(4) The specialist can ignore the first critical hit scored on the ship's reactor. This can be used after the effect of the critical roll is made.

(5) The specialist can prevent the ship's reactor from going critical and destroying the ship. If this is done, he valiantly sacrifices his life to save his vessel. The critical is not erased, and critical detonation must still be rolled for on future turns.

11.7.14 Repair Specialist

Type: Hardware

Location: Any System

This specialist can fully repair any critical and eliminate its effects for the rest of the scenario, but must be in the system being repaired. If not already in that system, he must use the normal transfer rules for elite officers. (It is assumed that this specialist is in the C&C at the start of any scenario unless otherwise specified.) This ability must be activated during the Adjust Ship Systems Segment of the Combat

Sequence.

Alternately, if this specialist is in a Hangar, he can fully repair any on fighter (except super-heavy fighters), including any critical hits if using those optional rules. He cannot restore a disabled pilot to operational status, however.

11.7.15 Sensor Specialist

Type: Software

Location: Sensors

This specialist provides 1 point of free electronic warfare once per scenario. This can be assigned at any time during the turn prior to the Combat Step, i.e., until the conclusion of movement, and is often used to acquire a lock-on to an enemy unit that has suddenly presented itself as an unexpected target. The player must activate the EW before anyone is required to write down their fire decisions.

If using Secret EW, the player may forego the above ability and instead require that his opponent reveal the EW allocation of all units under his control. This can be used at any time prior to the Combat Step, as above.

11.7.16 Tactics Specialist

Type: Command

Location: C&C

This specialist provides +6 initiative, but does not help break ties with other units. This bonus is applied at any time during the Initiative Segment, even after seeing the results of enemy initiative rolls, but must be used before any EW announcements are made.

If using Secret Initiative, the player may forego the above ability and instead require that his opponent reveal the initiative of all the units under his control. This ability must be used before EW determinations are made.

11.7.17 Targeting Specialist

Type: Command

Location: Computer

Special: Requires Two Slots

Provides a bonus of +3 on any single weapons's to-hit roll, or +6 on any roll made with a called shot. The main advantage of this ability is that it can be activated after the to-hit roll is made, changing a near miss into a hit. This is particularly devastating when combined with a spinal laser, and could change the course of a battle.

11.7.18 Thruster Specialist

Type: Hardware

Location: Engine

Allows the ship's thrusters to operate for one turn as if they had no thrust limits. Any critical will still apply, but no new ones can be generated on that turn, except those caused by incoming damage. On a sufficiently large ship, the Thruster Specialist can be combined with the Engine Specialist for some seriously intense acceleration.

11.7.19 Weapon Specialist

Type: Software

Location: Weapon

Special: Requires 1-3 Slots

This specialist must be assigned to a specific weapon on the ship. Once during the scenario, he can perform ONE of the following abilities:

(1) He may cut the arming time of his weapon by 2 turns, possibly permitting it to fire immediately, but never more than its usual firing rate in any turn. For example, this specialist could enable a medium laser to fire two turns in a row, or a plasma accelerator at full strength two turns in a row. However, a Class-S missile rack would fire two turns in a row with no "second shot" available, and one-turn weapons like a twin array or maser would not be improved.

(2) He may extend the arc if fire of his weapon by 60 degrees in any one direction, so long as the weapon is not firing in sustained mode. Note that this can permit some very unusual wide-angle shots, especially by spinal lasers.

The specialist can require multiple slots. If used on any one- or two-turn arming weapon, he counts as only a single slot. On three-turn or four-turn weapons, he counts as two slots. If employed on a five-turn or greater weapon, such as a spinal laser, he counts as three slots.

11.7.20 Reinforcement Specialist

Type: Command

Location: C&C

Special: Requires 3 Slots

A specialist of this type almost always manages to have reinforcements available at a crucial point in the battle. Any time after the first turn, during the Jump Point Formation Segment, the specialist may call for reinforcements. If the call is successful (see chart below), one or more units arrive from an offmap area at the end of the turn. If possible, they will use the same map edge that Hyach originally started from; otherwise choose a random side. Reinforcements will not arrive within 10 hexes of an enemy unit. During the Jump Point Closure Segment at the end of the turn, roll on the following chart to see what appears. The ship must be an unlimited deployment base hull, not a variant.

1	One flight of fighters 200 points or less
2	One flight of fighters over 200 points
3	One medium ship 600 points or less
4-5	No reinforcements, roll again next turn
6	No reinforcements this scenario

New arrivals appear facing the specialist's ship at speed 10. They arrive at battle stations, regardless of the readiness of the rest of the fleet. No units have any enhancements or special abilities, though if a ship arrives, the player may choose specialists for it upon arrival.

In a campaign, reinforcements can still be called in this way but must be drawn from available forces (they don't appear from thin air). The ship or fighters come from the nearest available fleet or garrison and return there after the battle. If destroyed, they are lost. If no such units are available within the maximum one-turn cruising distance in the campaign, no reinforcements of that type are possible. The player can continue to roll once per turn until a 6 is rolled or a legal reinforcement appears.

The fleet must consist of at least 5,000 Combat Points in value for this specialist to function (otherwise he are treated as a standard crewman with no special benefits). No more than one such specialist will function in any fleet. This specialist will not work in tournaments.

11.7.21 Salvo Specialist

Type: Software

Location: C&C

Special: Requires 2 Slots

This specialist has the unique ability to link all his ship's weapons into a single, usually accurate firing solution. All weapons on the ship must fire as one, at the same target (weapons that are out of arc or otherwise unavailable need not be used, but they cannot fire at a different target on that turn). Defensive weapons may not be used, as all the ship's guns (including defensive ones) are tied into the firing computer simultaneously. Piercing and sustained mode fire may not be used on any weapon, and specialists, enhancements, or elite officer abilities will not function in concert with this shot. The player is, however, permitted to roll the combat die twice, choosing the best roll, so this is not as risky a proposition as it may appear. The best result is then used as the attack roll for every weapon on the ship.

11.7.22 Stealth Specialist

Type: Hardware

Location: C&C

Special: Requires 2 Slots

This specialist operates only on stealth ships (10.7.11). He provides the following abilities, only one of which can be used during the scenario. As with all specialist abilities, the option chosen functions only once.

(1) The ship may make itself harder to spot. The detection range of all enemy units is cut in half for that turn only. This is the most common use for this specialist, as it allows the ship a better than normal chance to get close for a first strike.

(2) The ship may evade enemy sensors and "disappear" even after it has been detected earlier in the scenario. To do so, it must be outside the normal detection range of all enemy units. The specialist then causes the ship to vanish

as though its opponents had lost line-of-sight at the end of the turn.

(3) The ship may put out a burst of sensor static that disrupts enemy lock-ons. This option must be activated immediately after the EW Determination Step and before movement occurs. If this is done, the stealth ship is effectively protected by a jammer for the duration of the turn. However, any ELINT support it may be provided or receiving is lost due to the static burst (this includes any benefits from blanket protection).

11.8 Lucky Ship Captain

Some races are known to have several of these officers, whose skillful tactics in battle are matched only by their incredible luck. Often these officers have an ability to somehow pull off amazing feats of gunnery, maneuvering and escape at precisely the moments necessary to secure victory.

A lucky captain may perform each of the following feats once per scenario. He may not perform more than one in any given turn.

1. After all the ship's weapons have been fired, but before any damage has been rolled, the player may choose to discard those dice and roll again. He is, however, stuck with whatever is rolled on the second attempt. This decision must be made before any damage or weapon effects are determined.

2. The player may choose to alter one die roll, either by himself or an opponent, to any number desired. If used against an opponent, the effect or damage must have been directed at his ship, not another unit in the same fleet or even a fighter or shuttle from the lucky captain's ship. Typically, this ability is used to prevent a catastrophic critical hit, to alter the hit location of a weapon or to prevent a successful ramming attack. It can also be used to guarantee the location of a called shot, or the best possible result in an initiative die roll, either of which can be devastating if used at the right moment.

3. The player may wait until all other ships have determined and announced their EW values before determining his own.

4. The player may attempt to automatically disengage his ship from the battle. To do this, he must be facing an edge of the map with no enemy units (excepting any unarmed or disabled units, or units that lack line-of-sight to his ship) in the 120-degree arc ahead of his vessel (relative to his current direction of travel). If this is attempted, determine the range from his ship to the nearest applicable enemy and roll a single d20. If his roll is less than or equal to the range, he disengages successfully. If the closest unit is 20 or more hexes away, or if no unit has LOS to his ship (e.g., he is behind a convenient asteroid), success is automatic. This die roll is made at the start of the turn, before systems are deactivated for extra power, so if he fails the roll he can still operate his ship normally. Note that the status of his vessel has no bearing on the roll (he can still succeed if his ship is disabled, for example).

Location: C&C.

Cost: 25% of the ship's base value for races known for their lucky captains, 50% of the ship's base value for other races.

Availability: Any race can have such an officer, but for most races they are extremely rare.

11.9 Altered Skins

Certain advanced races are occasionally able to modify their living ships with properties that vary slightly from the norm. The side effect of this genetic manipulation is that the vessel's outer covering usually has some odd coloring tint. As all baseline living ships are assumed to be colored in a yellow-green scheme, the presence of any enhanced ships is plainly obvious to any opponent and must be announced at the beginning of the scenario.

11.9.1 Azure Skin Coloring

The rating on any shield system may be increased beyond its original value. To calculate the combat point cost, multiply the new shield value by the number of shield generators, and that total by a ship size factor. If it is desired to increase the shield value by more than one, accumulate

the combat point costs for all increases.

Vessel Size	Ship Size Factor
Enormous Units	30
Capital Ships	25
Other sizes	20

This enhancement affects all generators on a single living ship. No shield system may be increased beyond 150% of its original rating. This enhancement may not be used with any other skin coloring enhancements. It may be used on fighters, as long as it is applied equally to all fighters in a flight.

11.9.2 Crimson Skin Coloring

The ship's power capacitor may be enhanced to gain 2 additional points of storage and 1 point of increased recharge rate. A maximum of 6 levels of this enhancement can be bought for an individual ship. The combat point cost is 20 times the desired recharge rate, paying for each point of enhancement individually. The power capacitor does not gain any additional structure, so the first time it takes damage all enhanced abilities are lost.

If the power capacitor is repaired, the enhancements are regained at a rate of three self-repair points per level of enhancement. The enhancement does not function again until all levels have been repaired.

This enhancement may not be used with any other skin coloring enhancements. It may not be used by fighters.

11.9.3 Amethyst Skin Coloring

A living ship may purchase additional adaptive armor points. The cost for a single point is the value of the additional point multiplied by the ship's Ramming Value, the result then divided by 5. No vessel may increase its adaptive armor by more than 50% (rounding down).

This enhancement may not be used with any other skin coloring enhancements. Note that the maximum adaptive armor points allowed to be pre-assigned or assigned to any one weapon class is half of the new total, not the original total points.

11.10 Increased Diffuser Capacity

The rating on a port-starboard symmetric pair of energy diffusers may be increased by up to 5 points. The cost of each individual point is the desired value multiplied by 5. *For example, a ship has its pair of diffusers increased so it can dissipate 18 points of energy per turn. Its original value is 15, so the cost of the enhancement is (16 + 17 + 18) x 5 = 255.*

No energy diffuser pair may have its rating increased by more than 5 points. This enhancement may not be used by fighters.

11.10.1 Additional Segments

A vessel with energy diffusers may purchase an additional port-starboard pair of segments, each tied to an energy diffuser in the appropriate section. The combat point cost is the segment capacity times the diffuser rating of the energy diffuser. Only one pair of segments may be purchased per ship. The segment capacities available are 5, 10 or 15, with the maximum being equal to the lowest segment capacity of the segments on the ship's standard layout.

This enhancement may not be used by fighters.

12.0 Scenarios

A scenario in AoG Wars is defined as a set of parameters (including the game objective, fleet composition, starting locations and so on) that define the situation at the start of a game session. The following sections will set down guidelines to follow when setting up your own AoG Wars scenarios. After a couple of games, you will probably determine for yourselves the way you prefer to set up a scenario and you should, by all means, follow your preferences. As stated earlier, these are simply guidelines that can be used to get you started.

12.1 Combat Points

When setting up a scenario, it is useful to know an approximate combat strength of each unit in order to achieve balance between sides. To this end, ships and other units are assigned costs, which are expressed in Combat Points These are approximations and cannot reflect the skill of the players involved, but should suffice to arrange a generally even battle if used properly.

The Combat Point values of ships, fighters, and shuttles are found on their individual control sheets. There are also options, such as missiles for fighters or the Thunderbolt's navigator, which cost an additional amount of Combat Points. Future products will list other enhancements that can add to the cost of a fleet or a unit within that fleet. As these are only estimates, however, you should take these values with a grain of salt. *For example, a 5,000 point force consisting of all fighters may not stand up well to an opponent who chooses a large number of ships armed with antifighter weapons. If the opponent had, however, chosen ships with virtually no fighter defenses, the result will be vastly different.*

12.2 Type of Scenarios

There are many different types of scenarios that can be played in AoG Wars. The most common of these will be touched on below.

12.2.1 Meeting Engagement

Meeting engagements occur when two fleets approach each other from some distance. Generally, both fleets have been in the same system for some time and are fully aware of the other's presence. Thus, they are both approaching each other with the intention of engaging the opposing fleet. As both are in balance, the Combat Point values of each side should be roughly identical.

This is the most common type of scenario to play and is the easiest to set up. With both sides fully prepared, both can set up however they like. Usually, you'll position the two (or more) forces along one edge of the map, opposite each other and at least 30 or more hexes apart. Speeds are no greater than 10 hexes per turn, though acceleration could be performed as soon as the scenario begins.

12.2.2 Defend/Attack Objective

In this scenario, one player is defending an objective, such as a small moon or base, and one player is attacking the same, with the intent to capture or destroy it. This scenario is somewhat more difficult for the defender as his maneuvering room is curtailed by the need to remain a close distance to the objective. However, if a base or other fixed defense is involved, the defender may well have the firepower advantage. Use approximately equal Combat Point values in this scenario, though these may need to be altered depending on what is being defended and how strictly the defender's movements are restricted.

Normally, the base, small moon, or whatever will be placed in the center of the map, and the defender will set up his units first, within a certain range (perhaps 5 hexes) from the objective, moving no faster than 5 hexes per turn. The attacker will then position his forces along one map edge, facing the target, and moving no faster than 10.

12.2.3 Convoy Raid

One of the most effective ways of curtailing an enemy's capability of fighting is to disrupt his supply lines. Convoys are the most common target to achieve this end. These scenarios are similar in many respects to Defend/Attack scenarios except the objective (the convoy) is moving. Future products will provide details for freighters of the type often seen in convoys. This sort of unit makes an excellent

"target" for such battles. However, it's also possible to simply assume the freighter is nearby and must be defended simply by preventing the opponent from entering a certain zone on the map or disengaging successfully in a particular direction. As the defender's job is extremely difficult, he should receive a combat bonus of 25% or more in points in order to hope to prevent the loss of his strategically important units.

As with the defend/attack scenario, place the objective (the convoy) in the middle of the board, facing any direction it wishes (all defenders in the same direction, however) with a speed of no more than 3. The attacker arrives on anyone map edge he chooses at a speed of up to 15.

12.2.4 Pursuit Battle

Pursuit battles are usually the final results of a previous scenario. Generally, one player will be running for an objective, such as a jump gate or friendly fleet, and the second player will be trying to prevent his reaching the objective. Usually, this scenario starts with the fleeing player being cut off from his objective by the attacking player, forcing the fleeing player to try and skirt around the enemy or engage him hoping to quickly defeat (or blow by) him. The scenario becomes all the more interesting when the attacker has more Combat Points available than the defender.

A warning about pursuit battles: the velocity on ships can get quite high and the forces might be spread out over a wide area. You might need several maps to handle such fights.

12.2.5 Jump Engagements

Jump engagements can be combined with any of the above scenarios (with the exception of a meeting engagement) but with the additional parameter that one side enters the battle via hyperspace. This situation changes the tactical setting significantly as neither the attacker nor the defender will know exactly what the other side has or where they will be. Often the defender is taken by surprise at the start of the engagement.

For a general setup of this sort of scenario, have one player (the attacker) leave the room and choose his forces, the hex his jump point will form in, and the facing and speeds of all his units on arrival. While this player is absent, the defender places his units on the board. The scenario then begins with a jump point forming at the start of turn 1, and the attackers arriving on the map on turn 2. This gives the defenders one turn to react to the appearance of the vortex.

When the attackers arrive, their forces appear in the hex of the jump point, which then closes behind them.

12.3 Setting up a Scenario

The following sections will detail out how to set up certain scenario details. As noted earlier, these are strictly guidelines and players should feel free to use them or discard them as the individual group feels.

12.3.1 Fleet Composition

The first thing that must be done, no matter which scenario type is being played, is the selection of each player's fleet. In some cases these will be chosen well in advance (such as a published scenario, variation of same, or a campaign battle).

Other times, some other factor or factors can be used-perhaps a random draw or lottery. The Combat Point system provides an easy means to set up an even fight. Many battles are formed by having the players simply select a point value for each side and choosing forces that add up to no more than that value (remember that the cost of fighters and armed shuttles is not included in the price of ships). In such cases, the actual selection of ships and other units is normally kept secret until deployment occurs on the scenario map, adding to the tension as players don't know what they might be facing.

The opposing sides should also choose any limitations on what may be selected. Some examples of this include certain races or technology, particular units that might disrupt a scenario condition, units that were historically unavailable at the time this battle is being fought, and so on. Depending on your gaming group's opinions, some rules might not be used (such as the optional ramming rules) or might be altered for special purposes. The point is that it's your scenario and you should feel free to play it however you choose-so long as everyone in the game agrees about it in advance.

12.3.2 Pre-Scenario Intelligence

In most scenarios a player will not know what his opponent (or opponents) is bringing into the battle until the scenario actually starts. In some cases (base assaults and convoy raids, for example) he may have some idea of the defenses. In base assaults, the type of base will be known, as will the approximate point value of any other fixed defenses in the area. In convoy battles, the attacker will normally know the number and type of freighters, but not the escorting ships.

Once the scenario has begun, the class of ships, fighters and shuttles will be known immediately (and must be announced, although shuttles and fighters that haven't yet been launched can be kept secret until they appear). Players do not have the right to ask for other details, like what units might still be carried in hangar bays, the arming status of weapons, or what pre-existing damage might be present on a ship (which might be specified in some scenarios, particularly campaign battles). In general, a player may not look at another player's ship or fighter control sheets during a game (though he can always look at a blank one for reference). The only data he will know about the status of a ship is the damage he himself has caused to that ship during play.

12.3.3 Weapons Status

It's assumed that all weapons are fully armed and ready to fire at the start of any battle. There might be exceptions to this in some scenarios (if one side is "surprised," their weapons may have to begin arming from scratch, as they would have been deactivated before the game started). Note that unless a special rule is in use, weapons may not begin the game in sustained mode.

Ships armed with missiles can choose to remove some of the missiles from their racks (presumably to avoid some of the effects of a disastrous magazine critical) but this must be recorded in advance-it can be kept secret from the enemy, but the written record would have to be revealed when needed. If this is done, the missiles that are taken out cannot be "reloaded" during the game.

12.3.4 Ending the Scenario

Generally, a scenario ends when one side or the other is destroyed or retreats. In some cases, the scenario may specify some other victory condition (like destroying a base or other key unit, or a time limit) that, if achieved, ends the scenario at that point.

Often, a scenario ends if one side "retreats." This is usually done by fleeing into a jump point. However, a side can retreat by disengaging, which means basically accelerating off into the distance and leaving the area.

A unit can disengage voluntarily by spending a full turn putting all available thrust (up to its maximum safe levels) into accelerating away from any enemy forces, then announcing that it intends to continue doing so in perpetuity. As long as the unit is out of range of any opposing weapons, and is moving at a speed of 20 or greater, it can disengage under this rule; otherwise the opponent can demand an additional turn (or more) until the fleeing unit is out of range.

A player may also declare that his opponent has disengaged if the opposing player's forces are all more than 50 hexes from the original center of the map, more than 25 hexes from the nearest enemy unit, and are heading away from the player's forces at the start of the turn. If these conditions are met, the opponent must disengage (though strategically he is still in the vicinity, his opponent has won the day).

12.4 Optional Extras

This section lists a number of additional options that can be added to any scenario to increase the challenge involved.

12.4.1 Crew Readiness

Ships are not always 100% ready for combat. Their status often depends on their readiness state at the start of the scenario. Unless stated otherwise, assume ships are at battle stations when the scenario begins.

The following states are possible:

12.4.1.1 Battle Stations

This is the assumed level in the game. The ship is

expecting battle and is ready for it. All weapons are online, charged, and manned; fighters are ready to scramble; compartments are sealed; damage control teams are on duty; etc.

Weapons capable of sustained mode cannot begin play in that mode unless the scenario specifically allows it (which is possible if the opposing forces have been closing on each other from a great distance or were forewarned of each others' presence).

12.4.1.2 Patrol Stations

The ship is cruising in a dangerous area and faces the possibility of action in the very near future. The crew is ready for this, but is not at full battle stations.

The ship suffers an initiative penalty as battle stations are quickly assumed. During turn 1, this penalty is -3, but it drops by 1 point every turn, so by turn 4 the penalty will be gone. This penalty does not apply to fighters launched by the patrolling ship.

Weapons and fighter flights may not be active on ships at this readiness level. Roll 1-10 on a d20 for each weapon/flight for it to be prepared at the start of the scenario. Weapons that fail the roll have no energy, but can begin the arming process immediately on turn 1 (note that this will have no effect on weapons with a recharge time of 1 turn, so there is little point in rolling for these in the first place).

Fighter flights that fail the roll require 1d6 turns for their pilots to reach them and launch (after turn 1, so a roll of 2 means the flight cannot launch until turn 3). Note that at patrol stations, a ship with more than 1 flight will always have at least 1 flight active, regardless of rolls.

12.4.1.3 Cruise Stations

This is the normal level in peacetime or well behind the lines in wartime. The crew is not expecting trouble and is performing normal, noncombat duties and maintenance. A small complement of crew is in a ready state, however, just in case. This represents the usual staff of command watch and the like.

Cruising ships have a significant initiative penalty as they hurry into battle stations from what is essentially a rest state. This penalty begins at -6, but drops by 1 each turn, and will be eliminated by turn 7. The penalty does not apply to fighters launched by the ship.

About 75% of all weapons and fighter flights are unprepared for battle. Roll 1d20 for each weapon and fighter flight, with a 1-5 indicating it is ready to use at the start of play. Weapons and flights that fail the roll must roll again at the start of the next turn, and each successive turn, until the roll is made or the scenario ends. Weapons cannot begin recharging and fighters may not launch until the roll is successful. The chance of success increased by 2 each turn, so on turn 2 a 1-7 would indicate success, on turn 3 it increases to 1-9, and so on.

Pilots of inactive fighter flights roll 1d6, and cannot launch until that many turns have elapsed (as with patrol stations), but this runs concurrently with the activation check. Thus, a flight that was not initially ready to launch and had to wait 3 turns for its pilots to arrive would have to wait until at least turn 4 even if it made its activation roll on turn 1 or 2. However, if the pilot arrived at his fighter on turn 4 and activation was not yet successful, he would have to wait around until the roll succeeded-but could launch later on that same turn once the check was made.

12.4.1.4 Drill Stations

During peacetime or well behind the combat lines, or during training missions, ships often perform combat drills to enhance performance. The ability to move quickly from cruise stations to battle stations is very important (as you can see from the penalties applied to ships at cruise stations). On some rare occasions, ships performing a combat drill will come under attack by real enemy forces.

The arming status of weapons and fighters for drilling ships is functionally the same as battle stations. However, ships performing combat drills arm their weapons at a significantly lesser state to avoid accidents (especially when drilling against friendly targets). When scoring damage with drillstatus weapons, assume all damage dice roll l's, and no critical hits can be caused. Note: This applies to energy weapons only. Missiles and the like are loaded, but with

dummy warheads that do no damage whatsoever.

After the first 1d6 turns have elapsed, weapons may be shut off (or non-energy weapons like missiles deactivated) for 1 turn, after which they can be armed normally. Roll the d6 for the entire ship, not per weapon. Weapons that do not spend one turn deactivated (and fighters that do not spend one turn on board the carrier) after this period will still fire their weapons at the lower arming level.

12.4.2 Tactical Surprise

In some situations, ships that believe themselves to be totally safe will suddenly be set upon in a surprise attack. When this happens (as will be specified in some scenarios), the surprised forces are under some restrictions, while the attackers benefit from several advantages. This can allow a much smaller force to achieve a major victory over a larger, surprised enemy.

On the first two turns of the scenario, surprised units will be almost completely shut down, with only a skeleton crew on duty. The following restrictions are in force during this period:

All systems that require power are deactivated, and their power is unavailable for other uses. The reactor is running at a low level, and the power is being used chiefly for life support and other intangibles. Thus, no system on the control sheet with a power (diamond-shaped) icon can be used, even if that icon has a zero (there is still a nominal amount of power required, just not enough to count during most scenarios). This includes most weapons, defenses shields, sensors, jump engines, jammers, and the like. On shuttles and fighters, no weapons can be armed or fired, and the offensive bonus is cut in half (round fractions up).

The engine is partially deactivated. Only half the listed free thrust points (round fractions up) are available. This applies to fighters and shuttles as well.

No fighters or shuttles may be launched (unless the scenario specifies they are already in play). Fighters and shuttles already on the map are permitted to land (if they can), although no other hangar operations are permitted.

Initiative is automatically lost by all surprised units, regardless of die roll or unit size. If there happen to be multiple players with surprised units, each should roll off against each other, but all unsurprised ships and fighters (of all sizes) will automatically win initiative.

During the above two-turn period, the attackers, having achieved tactical surprise, have the following advantages. Note that these function only if the attacking units are actually themselves ready to fight. If they blunder into the defenders, they may not be able to benefit from these abilities (the scenario will specify this, if applicable).

Weapons capable of sustained fire can begin play in sustained mode, if desired by the owning player.

Called shots (if that rule is in use) may be made at one-half the normal penalty (usually -4 to hit instead of -8). In addition, called shots may be made to structure blocks, but at twice the listed penalty (i.e., -8 instead of -4). Note: This does NOT mean you can make called shots to structure under normal, non-surprise circumstances at a -16 penalty.

Weapons fire is less likely to do low levels of damage. For any damage roll on a d10, treat any roll of less than 3 as a 3, and any damage d6 that rolls less than 2 should be treated as a 2. This applies only to weapons that score physical damage to their targets. Other effects, such as those caused by comm disruptors, are not improved.

After the first two turns of the scenario have elapsed, the surprised units begin to recover (assuming they survived). Reactor power is brought back on line slowly, with 25% (round fractions of 0.5 or more up) of its power fully restored (less any critical hits) each turn. Two free thrust points are also restored each turn. Also beginning on the third turn of the scenario, the ship may begin launching fighters and shuttles at the normal rate, may execute any desired hangar bay operations, and may roll initiative at a -4 penalty. This penalty is reduced by 1 point in each succeeding turn until initiative rolls return to their normal level. In addition, after the second turn, all benefits available to the attackers are lost.

For example, consider the case of a surprised ship that has 12 free thrust and systems requiring a total of 47 used power. On the first two turns, it could use only 6 of this thrust

and none of the power. On turn 3, 8 thrust would be available as well as 12 power (which could be applied to sensors, weapons, or whatever else the player needs it for). In addition, the ship would be at a -4 initiative penalty. It could, however, launch fighters if it had any available. To continue the example, on turn 4, 10 thrust and 24 power would be available, and the initiative penalty drops to -3. Turn 5, all thrust is restored, available power is 35, and the initiative penalty is -2. On turn 6, a minor penalty of -1 applies, but all other restrictions of surprised status have been lifted. Turn 7 and after, the ship is fully functional again.

12.4.3 Secret Ships

Under this optional rule, players don't know what ships the other side is using. They can identify units on the map only by type: shuttle or fighter; medium, heavy, or capital ship; or enormous unit. They must identify exactly what unit is in play by observing its weapons fire and other actions. Note: Ships equipped with the chameleon sensor suite can keep their ship type a secret as well, and can announce any vessel size they choose.

All damage rolls are made normally, but their allocations (and the results) are secret. The firing player knows only whether or not he hit and the total amount of damage scored.

If an impartial judge is available, the damage rolls can become even more secret. After determining whether or not a hit was scored, and how much damage was done, the judge makes the hit location rolls out of view of the firing player.

12.4.3.1 Ship Identification

This optional rule is similar to Secret Ships (above), except that ships and fighters are permitted opportunities to identify ships by their shapes and weapon arrangements at range. Currently, many ships can be told apart from each other simply by checking their defense ratings, but as more and more ships and variants are added to AoG Wars, this will change.

Each turn, after EW has been assigned and announced (or, if using secret EW, after that step in the Combat Sequence has passed), each unit in the game is permitted to make one identify an enemy target. ELINT ships, enormous units other than bases, and non-enormous bases can make two attempts on the same or different targets, while enormous bases can make three attempts. A "unit" is defined for this purpose only to be one ship, flight of fighters, or individual shuttle. (This provides an actual reason to use unarmed shuttles in the game, other than scenario-specific situations where shuttlecrafts are important.) Identification rolls are made sequentially, in any order desired by the player, so it's permitted to wait and see if one roll is successful before making the next.

To make the attempt, calculate the identification chance using the normal to-hit rules for weapons (i.e., begin with the defense rating of the target unit). Assume the ID has a range penalty of -1 per 5 hexes (-1 per hex in the case of fighters or shuttles), has no fire control values, and benefits from EW in the usual fashion (including penalties for lack of a lock-on, the effect of jammers, etc.). If the identifying unit is an ELINT ship, add +3 to the identification chance. No other bonuses apply. Note that a line-of-sight to the target is required at the time the identification check is made.

For example, assume a scout (an ELINT ship) is attempting to identify a jammer equipped cruiser at range 20, and has 10 points of offensive EW against that ship. The cruiser has a defense rating of 19 on the side facing the scout, has its jammer active, and is running 6 defensive EW. The chance of a successful ID is 19 - 6 (defensive EW) - 10 (the range penalty of - 1 per 4 hexes, doubled because of the jammer) + 10 (offensive EW) + 3 (ELINT ship bonus) for a total of 16.

Roll 1d20 to determine the ID's success. If the roll fails, no information is gained (other than the ship's defense rating, which may be enough to learn the ship's basic hull type). If the roll succeeds by less than 5, the player learns what weapons and thrusters are facing him (and whether are not said weapons are being powered, unless the target has chameleon sensors), but no other information. If the roll succeeds by 5 or more, he learns the exact ship type, can examine a basic control sheet for that variant, and knows (for that turn only) whether or not each weapon on the ship

is currently being powered, unless the target is chameleon sensorequipped.

Continuing the above example, the scout player rolls a 15, which is successful but not good enough to specifically identify the target ship. After his enemy describes the number of neutron lasers and fusion cannons that face him, he knows he's looking at a particular cruiser type or a variant, but does not yet know enough to tell the variant type. Since he needs to know this information for certain, and ELINT ships can make two tries, he uses his second against this ship and rolls a 14. As a result, the scout's player now knows the specific cruiser type/variant.

12.4.4 Hiding in Asteroids

In some cases, ships that have been occupying an asteroid field for a long period can hide themselves among the rocks. This is a slow and careful procedure and can't be accomplished while a scenario is in progress.

If a scenario specifies that one or more units are hidden in asteroids, the unit counters are not placed on the map until detected (or the ships perform some action that reveals their presence). A hidden unit will be located in the actual asteroid hex and should also indicate a hex side that it resides on. The unit can exit the asteroid hex safely by leaving through this hex side or either of the adjacent hex sides, but if it attempts to move any of the other three directions, it will collide with the asteroid. In addition, line-of-sight is blocked by rock through any direction the unit cannot safely move. This applies both to the hidden unit and any unit attempting to target it.

Ships hiding in asteroids are very close to them (almost touching), using maneuvering thrusters to avoid collision. At this range, they appear to be part of the rock itself. They cannot be seen unless an enemy unit has a line-of-sight to the hex side of the asteroid the ship is hiding in and is within 2 hexes of it.

Alternatively, the searching player can allocate a number of EW points to a specific asteroid hex, as part of his electronic warfare allocation. He then rolls one d20. If the result is less than or equal to the points allocated to that hex minus the range to that hex, any hidden unit must be revealed, as long as the searching ship has line-of-sight to the hex side where the unit is hidden.

At the end of each turn, a hidden unit may move to any adjacent hex side of its asteroid hex (e.g., if it was facing towards the top of the map, it could move so that it is facing towards the top left or top right) without revealing itself. This is performed using a "slide" maneuver. The hidden unit may also turn, roll or pivot without being noticed by an opponent. If it leaves the asteroid hex, launches anything, uses any electronic warfare except selfdefensive EW, or fires a weapon, it is automatically revealed.

12.4.5 Disabled Ships

Some scenarios call for a ship to be "disabled." This means the ship is incapable of escaping from the battle scene (note that this does not mean it is unable to continue fighting, as it may have weapons remaining). In order to meet this criterion, anyone of the following must be true:

All its forward and aft thrusters are destroyed. (If its rear thrusters are destroyed, it can always fly backwards.)

Its engine is destroyed. If there is a jump engine on the ship, then that too must be destroyed (or the ship must be at a complete stop, making it impossible to enter a jump point).

All C&C systems are destroyed.

Note: The easiest way to disable something is to knock both the forward and aft structure blocks off of it. Alternatively, the called shot rules can be used to directly target thrusters.

12.4.6 Debris

Debris is leftover material from destroyed ships and other large objects. In some scenarios, debris may already be present on the map (this will be defined in the scenario's set-up rules). It can also be created whenever a large enough unit is destroyed in play.

Debris is said to have a "strength factor" representing the amount and concentration of bits of metal and other flotsam residing in the hex. Typical strengths range from 1-3, with heavier concentrations arising through non-natural means (e.g., the explosion of a small moon, or extremely thick rings surrounding a gas giant).

If a unit enters a debris hex, it is subject to possible impact with the remnants there. (Fighters and shuttles are treated individually and do not use the flight level rules.) Any such hit will come in through the side of the unit entering 8 the debris hex. Make the roll immediately using the rules hereafter, and apply any damage at that moment. Do not, however, roll critical hits until the end of the turn, in the Critical Hit Step of the Combat Sequence.

First, divide the defense rating of the side being hit by 3 (by 4 for agile ships, and by 5 for fighters, shuttles, or anything smaller). Use the base defense rating only, not including any modifications for shields, energy webs, EW, or any other item or system. Then, multiply the result by the strength factor of the debris hex (rounding any fractions of 0.5 or more up after the calculations are complete).

This represents the base chance of hitting debris. *For example, a capital ship with a forward/aft defense rating of 14 entering strength-2 debris would have a base impact chance of 9.333, rounding down to 9.* An expert helmsman or expert pilot reduces this by 2 after all other calculations are complete.

Next, roll 1d20 against the base value. If the result is equal to or less than the base impact chance, score 1d10 (1d6 for fighters or shuttles) plus the unit's speed to the facing side. If the roll is less than the amount needed to hit, add +1 for every point less than the base chance. *For example, if the base to-hit is 10, the ship is moving speed 8, and a 4 is rolled, the result is 1d10+14 damage. Damage is standard mode and armor applies normally.*

Note that units make a debris impact check each time they enter a hex containing debris, which could happen several times during a turn's movement. If they enter the same hex multiple times during the scenario (or even in the same turn), they would have to roll each time, as the debris moves around unpredictably. Units already in a debris hex do not need to roll when they perform other maneuvers unless they leave the hex and later return.

Units can use defensive fire as they enter debris hexes in an attempt to lower their chance of impact. Each such weapon applies its intercept rating against the base chance of impact, so a Mark-I interceptor would lower the chance by 3. Normal degradation rules apply, and this counts as the use of that weapon during the turn. Each weapon can only defend against a single debris hex, and only the at the moment of entry-if the unit later returns to the same hex, previously fired defensive weapons won't help out again.

12.4.6.1 Creating Debris During Scenarios

If desired, debris hexes can be created during a scenario using the following guidelines. Note that any debris hexes retain the speed and direction of motion of the unit they were created from (this cannot be altered during play by special devices such as gravity nets, though it will change as a result of gravity and other terrain effects). The debris moves at the end of the turn in the Terrain-Related Movement Step of the Combat Sequence. If it enters the hex of another unit, make an impact check as though that unit had entered the debris hex.

Destruction of Enormous Units: If an enormous unit is destroyed, the hex it was in should contain debris of strength-3. On the following turn, after all movement is complete, all hexes surrounding this debris will be filled with strength-2 debris (representing the expanding cloud of remains). The turn after that, all hexes one hex further out should be filled with strength-I debris. The cloud will not expand any more than this during the scenario.

Enormous Unit Sides: If the side of an enormous unit is destroyed, place strength-I debris in that unit's hex. This represents pieces breaking free of the unit and expanding into the local area. Note that this hex is not attached to the enormous unit, and if that unit moves away, the debris will remain where it was (moving at the speed and direction of the unit when the side was lost).

Capital Ship Destruction: If a capital ship is destroyed, its hex is filled with debris of strength 2. On the following turn, all surrounding hexes will be filled with strength-I debris. The cloud will not expand further during the scenario.

Smaller Ship Destruction: If a heavy combat vessel or medium ship (but not a light combat vessel) is destroyed,

mark its hex with strength-1 debris. Smaller units do not create debris.

Planet Destruction: If a planet is destroyed (which is possible through scenario events or using a First One planet-killer), the entire map will eventually become covered with deadly debris. Begin with the map edge where the planet is located, filling the edge row with strength-20 debris. Each turn, the next three rows will be filled with debris of one strength point less than the previous turn. For example, if a planet is off the left side of the map and is destroyed, the 01xx row will have strength-20 debris. On the next turn, rows 02xx through 04xx will have strength-19, the following turn rows 05xx through 07xx will have strength-18, and so on until the expansion is complete.

Moon Destruction: Destroyed moons use the procedure for planets, but expand outward in a spherical pattern at a rate of one row per turn, not three rows. The hexes originally containing the moon begin at a strength equal to the diameter in hexes (maximum 20).

12.5 Terrain Rules

12.5.1 Planets

The scale of AoG Wars is such that each map hex is just a few kilometers wide. At this scale, a planet the size of Earth would be over 10,000 hexes across. Thus, the surface of a planet is usually represented on a scenario map by a row of hexes, and any unit entering that hex row either crashes (if incapable of landing, as with most ships) or lands (in the case of fighters or shuttles). A fighter or shuttle can only land safely if it has enough unspent thrust available to counter its forward velocity at the instant it enters the planet hex. If it cannot do this, it crashes (the pilot can eject safely if desired, and can later be recovered from the same planet hex).

If the planet has an atmosphere, the fighter or shuttle must be atmosphere-capable in order to safely land. All fighters and shuttles are considered to have this capability unless stated otherwise. More specific rules for movement in atmospheres are presented hereafter.

If a unit crashes, it is destroyed for game purposes. Roll percentile dice to see what percentage of the crew survives the impact, subtracting 5 from the roll for every point of speed above 1 the unit was moving at the time of impact.

If a unit lands, it can be targeted from units still in space, though it cannot jink (in the case of fighters). It cannot fire weapons while on the ground. It can lift off from the surface in the same step in the Combat Sequence in which fighters and shuttles launch from a carrier.

12.5.2 Moons

Many large asteroids, planetoids, and moons are just a few kilometers long, and thus would be represented on the playing field as a single- or multihex object. All of these possibilities will be referred to as “moons” for the remainder of this discussion.

If a moon appears in a scenario, the rules will note a center hex and a radius or diameter. Unless specified otherwise, the moon is assumed to be round, and thus will occupy all hexes that fall into the defined area. For example, a moon centered in hex 0826 that had a radius of 2 hexes would include 0826 as well as the surrounding hexes of 0825, 0926, 0927, 0827, 0727, and 0726. If using the miniatures rules, a radius of 2 inches will indicate a 2” globe surrounding a point on the map.

It is assumed that moons of such small sizes will not include any appreciable atmospheric or gravity effects. However, there are exceptions to this. Very heavy stellar bodies, such as brown dwarfs, might be incredibly dense. It’s also possible that a thick atmosphere might surround a dense moon with a gravitational field strong enough to hold it. In these cases, see the description of atmospheres and gravitational effects hereafter.

12.5.3 Atmospheres

In some cases, it may be necessary to enter an atmosphere. This is often the case when landing a ship on a planet, or when attempting to elude or ambush an enemy by flying through a gas giant.

Atmospheres have a “density factor” that determines their effect on movement. Most atmospheres have a factor of 1 or (at most) 2. The effect of this is to “drag,” or slow down,

the movement of any unit moving through the atmosphere. If a unit passes through an atmosphere during any turn, even if only partially, its velocity (in whatever direction it is currently moving) is reduced by the density factor. If several layers of density (say, in a large gas giant) are passed through, used the factor of the densest one. This cannot reduce a unit's speed below zero. *For example, a ship flying at speed 9 that entered a level-3 layer of a gas giant would have its speed drop to 6.*

If a ship is not atmospheric-capable, it will suffer damage due to the unexpected friction and pressures buffeting its hull. A ship's description and control sheet will note if it is capable of flying through atmosphere safely. Fighters and shuttles can do so unless their description specifically says they cannot. This is a generalization, however, and any exceptions to it will be noted in the appropriate unit descriptions.

The damage a non-atmospheric unit takes in atmosphere is equal to its speed times the density factor. One standard-mode volley of this amount is applied to the side facing the atmosphere (as the unit moves through it) for each hex the unit passes through. As this represents internal stresses, armor does not mitigate the effects. Note that a nonatmospheric unit cannot land through an atmosphere, no matter how slow it is moving, unless it crash-lands (see the rules for planets, above).

For example, if a destroyer moving speed 5 moved into a gas giant, passing through two hexes of density-1 and three hexes of density-2 atmosphere, it would suffer two volleys of 5 damage and three volleys of 10 damage.

12.5.4 Gravity Wells

In some scenarios, a gravitational effect may come into play. There are two forms of this: general and specific. General gravity comes from a particular side of the map (perhaps from a planet or star located along that edge or beyond it). Specific gravity comes from a point on the playing field.

Regardless of type, the effect is to draw units closer to the gravitational source. The strength of the gravity well will be defined in the scenario rules (it's usually 1, although it can be higher). This strength factor determines how many hexes each unit is drawn towards the source in a given turn. In the case of general effects, all units in the field of play will be drawn towards the noted edge of the board each turn; after all other movement is complete. They will be drawn a number of hexes equal to the gravitational strength. When deciding which hex to move a unit into, the first priority is to move it into the hex closest to the map edge. If there is more than one choice, move the unit in the direction of its motion (the direction it is moving at the end of the turn, but if this does not resolve the question, use the last appropriate direction).

For local sources, all units are drawn towards the hex in question, a number of hexes equal to the strength of the gravity well. Use the rules above to resolve ambiguous situations. Note that a unit will not be pulled farther than the center hex of the gravity source.

In most cases, the scenario rules will note that some sort of physical object (such as a black hole or planet's edge) exists as the source of the gravitational pull. Any unit that enters such a hex would be destroyed-either smashed against the surface or torn apart by gravitational forces. A gravity factor as small as 1, however, is still so strong that most humanoid life forms would be unable to survive on the object for any but the shortest period (unless they had the ability to nullify the gravitational effect somehow).

12.5.5 Asteroids

In some dense asteroid fields, there are enough asteroids to make maneuvering difficult. Asteroids are represented by scattering a number of asteroid hexes randomly on the map (or placing them in certain specific hexes as defined by the scenario); each entirely occupies the hex it appears in. Asteroids of this type block line-of-sight through their hex.

If a unit enters an asteroid hex, it takes damage equal to its current speed times a roll of 1d10, resolved as a raking volley and applied to the side of the ship that faced the asteroid hex before entry (or, for fighters and shuttles,

against its damage track). Armor does apply to damage from asteroids. In some scenarios, units can begin the game hidden in asteroid hexes. Use the rules provided elsewhere in this supplement.

12.5.6 Dust

Some areas of space are clouded with fine dust particles. If a scenario takes place in a dust zone, the entire map will be considered covered with dust, and units will be damaged each turn as they move through it.

After movement is complete (see the Combat Sequence), each unit takes damage depending on its speed during that turn. For ships, divide their speed by 2, drop fractions, and apply the result directly to the forward structure (or, if there is no forward structure, the primary structure). For fighters and shuttles, subtract 10 from their speed, divide this by 3, drop fractions, and apply the result to the fighter's structure. Note that, in both cases, armor facing the direction of motion does apply to the incoming damage, increasing the ship's resistance to this effect. (If a unit turns or pivots, the "armor facing the direction of motion" is considered to be the one facing that direction for the majority of movement. If there is a tie, the owning player chooses which side is damaged.)

12.5.7 Nebulae

As with dust zones, a nebula fills the entire map. Ships and other units in the nebula suffer various degrading effects during a scenario. The following limitations apply:

• All thruster ratings are reduced by 1. This includes both the thrusters on ships and the thrust ratings of fighters and shuttles.

• No ships can use EW of any kind.

• The fire control bonuses of all weapons and shuttles/fighters are cut in half, and fire control penalties are doubled.

• Weapons firing in defensive mode have their intercept ratings reduced by 1.

• All weapons suffer -1 on each die of damage they roll. Pulse weapons do -1 point of damage for each pulse that hits. Plasma weapons suffer double the usual heat dissipation per hex of range, in addition to the -1 damage per die.

• The range of all missiles is halved (this includes both the launch and distance ranges).

• Jinking requires 2 thrust per level, not 1 thrust.

• Jammers do not function.

• Electromagnetic weapons do not function unless mounted on advanced race ships.

12.5.8 Meteor Swarms

These are clouds of rocks, usually formed from the debris of asteroids, moons or comets that broke apart during a close encounter with a huge gravity source such as a gas giant or solar body. The cloud of meteors is usually fairly small, and occupies a known orbit, so can be easily avoided. However, because they cause random amounts of damage, ships being pursued have been known to dive into them in the hopes of eluding a larger opponent.

The meteor swarm occupies a particular zone on the map (or, in some cases, the entire map). The meteors are not represented by individual counters, however, as they are too small and numerous. Instead, each time a ship or other unit moves into a meteor-filled hex, it rolls 1d20 on Table 13 to find out how many meteors hit it (if any). Note that this is done for every hex the unit enters during its turn, not just once per turn.

If a unit is moving at a speed of 4 or less, it can subtract 1 on this chart, while units moving faster than 12 must add 1. A unit with an expert helmsman can also subtract 1 from the die roll. Expert pilots can subtract 1 if they have at least 1 level of skill, but earn no other benefit.

Table 13
Meteor Swarm Chart

Die Roll	Fighter/ Shuttle	Med. Ship/ LCV	HCV	Capital Ship	Enorm. Unit
1-12	0	0	0	0	0
13-14	0	0	0	0	1
15	0	0	0	1	1
16	0	0	1	1	1
17	0	1	1	1	2
18	0	1	1	2	2
19	1	1	2	2	2
20	1	2	2	2	3

If a meteor hits, it scores damage equal to 1d10 plus the unit's current speed. Armor will help protect against this. All damage scored by meteors is done in standard mode.

In addition, defensive weapons that face the direction of motion can be set up to defend against meteors during movement. This must be announced at the start of the turn, and if done, the weapons cannot be used for any other purpose (either offensive or defensive) during that turn-including defense against enemy weapons fire.

If a weapon is defending against meteors, it must be allocated to a specific meteor strike, and will block only that meteor. Multiple defensive weapons can fire at the same meteor with no degradation. The decision to fire must be made at the moment the meteor is discovered to be inbound (you cannot wait until all movement is complete, then choose which meteors to shoot at). If weapons are targeted on a meteor, all damage caused by that meteor is reduced by the total interception rating of all weapons used against it.

Note: Technically, the rocks in this terrain are not "meteors." The term meteor refers to a rock or other particle as it burns up in an atmosphere. However, as the word is immediately recognizable (and sounds better than the correct meteoroid), we decided to use it anyway.

Meteor Swarm Example

A destroyer, facing forward, is entering a meteor swarm at speed 6. It allocates its two forward facing interceptors to defend against meteors. The destroyer moves through six hexes of meteors, rolling a d20 in each case. The first roll is a 5, resulting in no meteor strike. The second roll is a 10, so again no meteors hit the ship. The third roll is a 15, so one meteor impacts, and the player elects to use one interceptor against it. 1d10+6 (6 because of the ship's speed) is rolled for damage against the forward section, resulting in a total of 8. The Interceptor Mk-II has a rating of -4, reducing the damage to 4, which is determined to hit structure and does not penetrate the armor there. The last three meteor rolls are 1, 14, and 9, resulting in no further strikes. The second interceptor, which had no target, is wasted as it cannot be used for any other purpose on that turn.

12.5.9 Hyperspace Whirlpools

Hyperspace whirlpools, as their name suggests, appear only in hyperspace, in areas where part of that alternate dimension pokes into normal space. The result is a singularity that causes hyperspace currents to draw objects spiraling towards its center.

The hex containing the whirlpool's center (the singularity) should be marked on the map with a counter, such as a fixed jump gate, or other convenient object. In addition, the direction of the spiral effect (clockwise or counterclockwise) should be noted. Usually scenario rules will specify both of these, but in player-designed battles, they can be chosen by lot or agreed upon by some other means.

The nature of the whirlpool is such that it will tend to speed up ships moving in the same direction as the spiral, slow down those moving against the current, and draw all units closer to the center. This has the following effects for all units within 50 hexes of the whirlpool's center: ***Before Movement:*** Before any movement is performed during the turn, all units are moved one hex (with no change in facing) in the direction of the spiral. To determine the hex moved into, use a string fastened to the singularity hex, stretch it out so it is on the center of the counter (or miniature), and—using the singularity as the pivot point—rotate it in the spiral's direction so the unit moves one hex. If there is any doubt as to which hex is actually entered, choose the one closer to the whirlpool's center. This movement will never result in the unit's arrival in a hex farther from the singularity.

During Movement: Any unit that maneuvers in the direction of the spiral (for whatever purposeturning, sliding, accelerating, etc.) requires a smaller amount of thrust. If the unit in question is within 10 hexes of the singularity, the thrust cost for the maneuver is halved. If the unit is between 11 and 30 hexes away, the cost is two-thirds of normal. Outside of 30 hexes, the cost is 75% of the listed value. In all cases, round fractions of 0.5 or more up, while dropping any other remainder.

Similarly, units that thrust against the current must pay a penalty to do so. Within 10 hexes, the cost is doubled; from 11-30 hexes it is increased by 50%; and 31-50 hexes

requires an extra 25%. Again, round fractions of 0.5 or more up.

After Movement: After all units are done moving, all units are moved one hex closer to the singularity. Note that in many cases, there will be two possible choices that any unit might be moved into. The one in the direction of the spiral should always be selected-the unit doesn't get to choose. Treat this as a gravitational effect, as described earlier in this chapter.

The Singularity: If a unit enters the hex of the singularity, for whatever reason, roll 1d20 on Table 14. Enormous units add 2, while agile ships may subtract 1, as can ships with elite helmsmen (these are cumulative). Fighters may subtract 1 for each level of pilot quality. Note that in the flight level rules, each fighter must still roll individually.

Table 14
Hyperspace Whirlpool Effects

Die Roll	Effect
4 or less	"Ride the edge" and survive, but take damage (on the side facing the singularity) depending on unit type: Fighters and shuttles = 50% of speed (drop fraction), medium ships =2 x speed, heavy combat vessels =4 x speed, capital ships =6 x speed, enormous units =10 x speed. All damage is in standard mode, and armor does protect against this effect.
5-8	The unit is spun wildly and flung outward in a random direction and facing, 1d6+1 hexes away from the singularity. The unit's new direction of motion is assumed to be the direction it was thrown from the center (its speed is unchanged), but (in the case of ships) the unit is also assumed to be involuntarily pivoting and must pay its listed cost to stop the pivot. The unit takes damage equal to that listed in the previous entry, in addition to an equivalent amount scored as a Primary hit.
9-15	The unit is drawn into the singularity and expelled from hyperspace (and out of the battle) at an unknown location in normal space. Take damage as noted in the preceding entry. If multiple units in the same scenario suffer this effect, they will be "near" each other in normal space, though probably thousands of kilometers apart.
16+	The unit is destroyed. In the case of fighter pilots/ escape pods, no survival is possible.

12.5.10 Hyperspace Waveforms

One of the more dangerous aspects of hyperspace is its occasional ability to "overlap" itself. This represents nothing less than a wrinkle in hyperspace, creating a kind of speed bump for ships.

The waveform is represented on the map as a row of hexes in a straight line, usually (but not always) extending off the edge of the playing field for an effectively infinite distance. *For example, a waveform might be listed as occupying the 01xx hex row, and would then extend in either direction ad infinitum.*

Generally, waveforms are static, although in some scenarios they might move across the board at a set speed. If this is the case, it will be given a direction and speed, and will "move" after all ships and fighters have moved. If it contacts any unit during this movement, it will cause damage exactly as if that unit entered the wave's hex.

If a unit should contact a waveform, it suffers damage on the side facing the wave (that is, the side facing the wave hex that the unit actually entered). The damage scored is equal to the target unit's speed times a factor depending on its size, as shown on the Table 15. Round fractions of 0.5 or more up. Damage caused is scored in standard mode, and is mitigated by armor in the usual way. If the waveform is moving, add its speed to the unit's speed before determining the damage caused.

Table 15
Waveform Ship Size Modifiers

Size	Speed Multiplier
Light Fighter	1/2
Medium Fighter	3/4
Heavy Fighter	1
Shuttle	1
Medium Ship	2
Heavy Combat Vessel	4
Capital Ship	6
Enormous Unit	10

Note that sometimes hyperspace waveforms come in stronger (or weaker) versions, which will be explained in the scenario rules. To make matters more complex, they

sometimes appear in groups, either in parallel rows or, more rarely, in intersecting patterns. There are even reports of "boxes" being formed by crisscrossing waves, but these are extremely uncommon.

12.5.11 Hyperspace Rapids

Rapids are regions of hyperspace where the current flows strongly and in one general direction. Usually, the entire map will be considered affected by the rapids. However, in some cases certain zones will be outside the effect, or operate at a reduced level.

The scenario will specify the direction the rapids are flowing, as well as the region (or entire map) where the effect is noted. While a unit is in the affected zone, it is effectively being carried along by the rapids. At the end of each turn, it is moved in the direction of the flow a number of hexes equal to the strength of the current. This motion has no effect on turns and other maneuvers.

In addition to this, any maneuver performed in the direction of the flow (such as a slide, turn, or accel/decel), has its thrust cost reduced by 10% for every point of current strength. For example, a strength 5 current will reduce the thrust cost of accelerating along with it by 50%. Round fractions of 0.5 or more up, while dropping any other remainder. Similarly, actions performed against the current will cost extra, at the same percentage rate.

Note that, because of the hex grid movement system, all maneuvers will either be "with" or "against" the current. Consider a ship within hyperspace rapids that are flowing in direction 1 (toward the top of the map). If that ship is facing in direction 1, then any turn (to either side) will necessarily involve fighting the current (which is trying to push the ship directly forward), and thus would invoke the penalty. If the ship were facing in direction 2 (toward the top right of the map), and tried to turn right, it would fight the current, but if it turned left, it would be going with the current.

12.5.12 Electromagnetic Storms

These storms are often caused by sunspots, but also occur in certain nebulae. They produce random electromagnetic (EM) effects that vary from unit to unit. If an EM storm is active, it will affect every unit in the scenario unless otherwise noted.

At the start of each turn, before EW status is determined, each unit suffers the following effects. Note that these effects are temporary and end at the conclusion of the current turn.

• Ships suffer a penalty of 1d6 from their sensor ratings. Fighters and shuttles lose 1d3 from their offensive bonuses, but never more than one-half (drop fractions) of their offensive rating.

• All units suffer a penalty of 2d6 from their initiative ratings.

• Ships might temporarily lose power. Roll 1d6, and if a 4 or less is rolled (5 or less for enormous units, 3 or less for medium ships), reduce the ship's power by the number of points shown on the die.

• Ships suffer "attacks" by the EM storm against their exposed systems. Medium ships are attacked once, heavy combat vessels 1d2 times, capital ships 1d3 times, and enormous units 1d6 times. Roll each attack against a random side (but do not count a destroyed side as a valid target, e.g., if a capital ship has no port side, it can only be attacked on its forward, starboard, and aft sides). The attack always hits, so roll for location against the affected side. If structure is hit, there is no effect. However, any other system will be involuntarily deactivated exactly as if it had been hit by an electro-burst beam. Multiple hits on the same location in the same turn are not cumulative. (Note: Ships with EM shields may elect to accept this effect using a facing shield, but this must be declared before the roll for location is made. If such a ship is hit by more than one EM storm "attack" in the same turn, it cannot use the same shield against more than one attack.)

12.5.13 Dark Matter Clouds

Dark matter exists in clouds throughout the Galaxy. Within such a cloud, direct vision is blocked and only the strongest sensor lock-ons can be used to target an enemy.

To play a scenario in a dark matter cloud, a set of very honest players are needed (or a completely impartial judge can be used). The locations of all ships and other units in

the scenario are kept secret, recorded on a separate sheet of paper by each player. Use the Secret Ships optional rules in all cases. There are no counters on the map, other than those revealed by sensor echoes.

At the start of the turn, while EW status is being declared, a player may choose to issue a "ping" from his sensors. This costs 1 point of EW for every 5 hexes of range (in all directions) to be scanned. When this is done, the player reveals his own location (placing a counter on the board) and all players who have units within the specified range (5, 10, 15, etc.) must also reveal their locations. The "ping" will reveal the type of unit (shuttle, fighter, medium ship, heavy combat vessel, capital ship, or enormous unit) but no further information. Jammer equipped units that issue a ping cannot, in that turn, also benefit from a jammer's protection.

After all pings are resolved, players may attempt to lock on to targets. A target that was "lit up" (or that lit itself up by issuing a ping) can be locked onto with no penalty, using the normal rules. However, if a target was not seen, lock-on costs are multiplied by the number of turns since it was last spotted (counting the current turn as the first). *For example, if a battlecruiser executed a ping on turn 1, thus revealing itself, but was not again "lit up" on turn 2, it would cost a nearby cruiser double the normal EW to lock-on to it (i.e., 2 points for the usual lock-on, 4 points to have a +2 to hit, etc.). On turn 3, if not again spotted, it would cost three times the usual EW amount, and so on.*

When players move their units, they do so in secret, revealing their new locations only if they move out of the dark matter cloud. They then allocate fire based on where they think their target has moved. After all fire declarations are made, units that are firing place a counter indicating their location (but not ship type) on the board and announce which weapons are being activated, what their firing arcs are, and the target of each shot (this can be done even if they have no lock-on). If the target isn't also firing (and is thus invisible), the player owning the target then determines, based on this information, what the chance to hit is for each weapon. As the attacker rolls, the defender announces only whether or not a hit was scored (he doesn't have to reveal if there was no chance to hit because the target is out of arc, although this may become obvious after a few die rolls). Any damage scored is rolled normally, but marked in secret, as the firing player can't actually see what is happening.

Note that an impartial judge can speed up this process tremendously, resolving all the weapons fire himself and revealing only which weapons actually hit, if any. However, a judge isn't required in order to play a scenario in this terrain.

Energy mines that explode in dark matter clouds do not "light up" the map, and in fact, players who take damage from them do not even need to announce this. The attacker should make a hit location roll, and anyone affected by the energy mine simply marks it off in secret. This same rule can be extended to any "proximity" weapon or device that has a zone of effect on the map, such as the anti-fighter mode of a plasma web.

Proximity, captor, and DEW mines will not function in dark matter. Their sensors are simply not powerful enough to cut through the interference.

12.5.14 Effects of Terrain on Advanced Race Ships

Advanced races are adept at moving through various terrains and through hyperspace, as befits their great experience surviving within the galaxy. This provides them with a number of benefits:

Atmosphere: Advanced races ignore the first density point of atmosphere. *For example, in a gas giant of density-2, they would treat this as a 1.*

Gravity: Advanced races treat gravity sources as 1 point less than they actually are. *Thus, for example, a source of strength 3 would be treated as a 2.*

Asteroids: Advanced races subtract 2 from their speed when rolling for asteroid damage.

Dust: Advanced races reduce dust damage by 25%, applied before fractions are dropped. *For example, a ship moving speed 11 would normally take 5.5 damage (5 points after dropping fractions). An advanced ship would take 5.5 x 0.25 or 4.125 damage—4 points after dropping fractions.*

Nebulae: Advanced races ignore the effects on

thrusters and jinking, but all other items apply as listed.

Meteor Swarms: Advanced races subtract 2 from their die roll.

Electromagnetic Storms: Advanced races subtract 1 from all effect rolls. They do not temporarily lose power and are immune to the "attacks" generated by the storm.

Dark Matter Clouds: For advanced races ping range is doubled (*e.g., 1 point of sensors reaches out to 10 hexes*) but advanced race ships are revealed at the normal range (*e.g., 1 point of sensor reveals the ship to units within 5 hexes*). Advanced ships with jammer-like benefits do not cancel these bonuses if they issue a ping.

Hyperspace Travel: Advanced races ignore or avoid many of the effects on the Hyperspace Table. Treat any roll of 14-15 as no effect. On a 16-17, advanced races ignore any roll of 6-10 or 16-20 on the subsequent shift check. On an 18-19, speeds are reduced by 10%, not 20%. On a 20, use both of the preceding effects as usual.

Hyperspace Whirlpools: Advanced races subtract 4 from the die, cumulative with any other bonuses.

Hyperspace Waveforms: Advanced races treat themselves as one size category smaller for calculating waveform damage (*e.g., a capital ship would be considered a heavy combat vessel, while a light fighter would take no damage)*.

Hyperspace Rapids: Advanced races treat the rapids as 2 levels lower than listed. They can voluntarily forego this benefit (or treat it as 1 level lower) but must announce this decision before the start of the scenario and cannot change it during that scenario.

12.6 Advanced Race Hyperspace Combat

In a battle with multiple advanced race players, it must be established whether hyperspace combat will be allowed. If all players agree, then at least one separate map must be set up to account for hyperspace travelers. Otherwise, hyperspace will act as a refuge and all transitions will be "sufficiently far away" (see below); no other map is necessary.

12.6.1 Hyperspace Transitions

When moving from one dimension to another, the advanced race vessel must announce its destination at the same time as it announces the opening of a jump point. If there is another vessel currently in the target dimension, the jumping vessel must specify whether it will move into proximity with the other vessel or if it will move "sufficiently far away."

Proximity: If moving into proximity with another vessel, the jumping vessel must specify a target hex and facing in the new dimension relative to the other vessel (on the same map). If able to operate sensors across the specific dimensional barriers (see 12.6.2), the jumping vessel will have full knowledge of the ship position(s) in this new dimension. During the Jump Point Closure step of the combat turn, the jumping vessel fully appears in the new dimension in the target hex with the appropriate facing. It will be moving the same speed that it was at the end of the previous Movement Phase, including all appropriate pivots and rolls.

Sufficiently Far Away: If there are other vessels in hyperspace that the jumping vessel desires to avoid, or if the jumping vessel is the first one to move into that dimension, the vessel may be considered "sufficiently far away" (SFA). In this case, only the target dimension must be announced. During the Jump Point Closure step of the combat turn, the jumping vessel is simply in the new dimension moving the speed that it was at the end of the last Movement Phase. It may be assumed that all friendly vessels move to the same location.

Note that SFA locations are not exclusive to hyperspace, and due to the complexities of the transitions there may be considered to be an infinite number of them (although this may be limited due to available playing space or if agreed upon beforehand). SFA represents a distance between vessels that cannot be reasonably traversed within the scope of a scenario. The first vessel to enter each SFA location is placed in the center of the dimension map, with all following vessels entering accordingly.

As long as there are vessels from both sides equipped

with sensors capable of scanning the alternate dimension, it is possible to enter and exit all locations in hyperspace and real space as many times as desired. A battle may be considered lost if there are no vessels from a fleet on the primary battle map (where the battle began) for more than a single turn, unless specified by the scenario.

Certain ships may escape to a different set of dimensions not safely accessible to the other advanced races. Therefore, such a ship going SFA must announce if it is traveling to hyperspace or another dimension. If the latter is chosen, the vessel may not be followed into proximity except by other vessels capable of similar travel.

Vessels with traveler drives, phasing drives or extra-dimensional jump drives never scatter when jumping into combat. This applies regardless of whether the ships arrive in normal space, hyperspace or any other dimension. Any ship without one of these drives uses the scatter rules when arriving in another dimension, just as it would when arriving in normal space.

12.6.2 Sensors Spanning Dimensions

An advanced race vessel is able to direct its sensors into local portions of alternate dimensions, either from real space into hyperspace or vice versa. The information gained is 100% accurate, and may be used by the advanced race to plan its jump. However, as the nature of hyperspace is extraordinarily complex, the definition of “local” varies.

Advanced race vessels may scan across dimensional boundaries as long as there are friendly vessels in the desired location or if a friendly vessel was present when an enemy vessel jumped into that location from the current game space. If a friendly vessel did not see the enemy ship leave or arrive, you will not be able to track it (assuming that it goes SFA). Hyperspace beacons, fixed jump gates and the like are always assumed to be “friendly” unless otherwise stated.

It is not possible for an advanced race to detect what location in space another advanced race came from when it jumps in, as they have developed technology to mask the far end of a jump point. If friendly vessels are on both sides of the jump point, however, that is not necessary. A vessel with advanced sensors may determine the start-point of any jump point created by a vessel with a standard jump drive.

Advanced race ships with advanced sensors can accurately scan into real space from hyperspace, and from real space to hyperspace. Extremely advanced races may scan from hyperspace into real space with 100% accuracy, and the barrier from real to hyperspace appears as if they are using mass sensors. The sensors only report ship class (capital, HCV, etc.), position and heading.

Ships capable of traveling to additional dimensions may scan those dimensions as well. These vessels may also declare a target hex and issue a sensor “ping” of a desired intensity in an attempt to detect shaded ships when no friendly vessels are present.

12.6.3 Hyperspace Reserves

A very exciting variant of standard deployment arrives when sides are allowed to leave a portion of their fleet in hyperspace beyond the first turn. Both sides’ reserves are assumed to be SFA and undetectable by the opposing fleet until a friendly vessel jumps from real space to hyperspace. The battle is lost when one fleet spends more than a single turn without any ships in real space. If no one jumps in at the beginning of the turn when they didn’t have a vessel in real space during the previous turn, they are considered to have disengaged from the battle.

13.0 Tactical Campaigns

The following is a set of rules allowing players to generate their own mini-campaigns. These tactical campaigns proceed on a strategic battlefield made up of several systems linked by jump paths. Space in a system is represented by hex grids of varying sizes depending on the campaign. Ships move across systems on these tactical maps, fighting battles only when their units come into contact with one another. A battle then proceeds to a scenario map, with the victor occupying the tactical hex and the loser forced to retreat to an adjacent hex on his next move.

Movement is always simultaneous, except as noted. If only two players are available, all ships and movement will be visible and should be played on a common map set. However, if a third player is available to act as an impartial moderator, movement can be kept secret, and surprise ambushes and raids become possible. The former option is easier and faster, but the second is more challenging and will lead to more surprises.

The campaign begins with an initial set-up (as defined in the rules for each specific campaign) and then in a series of pulses or phases. Ships generally move one hex per pulse, though there are some exceptions to this rule. Jumping from one system to another will take longer. In addition, certain other events (such as ship construction and repairs) require longer periods of time. It is recommended that players keep a list of events and their completion times, so that nothing gets forgotten. If a major battle interrupts the campaign for several days, you may not remember that the ship you started 50 pulses ago will roll off the shipyard next turn.

13.1 Production

Campaigns include an economic structure that permits the construction of new units and/or the repair of damaged vessels. Production is purchased with the available Economic Ponts (EPs) and Commerce Points (CPs) up to a fixed limit dependent on hull size. Unit construction time is given in the campaign notes along with the economic system. Production cost per turn is equal to the cost of the ship divided by the production time (or, for simpler accounting, pay for the ship in full at the time you start building it).

13.2 System Maps

These are fields of hexes as defined in the campaign's setup rules. Details and layouts of systems are provided by the campaign designer. Use any blank hex map, with features represented by counters, coins or other handy markers.

Ships and fighters move 1 hex per turn, except as noted hereafter or in specific campaign rules.

13.3 Movement

There are two options available depending on the type of campaign you wish to play. These are as follows:

Open movement: all moves are open and made with the knowledge of all players. There is one map and all counters are placed upon the map. Movement is simultaneous.

Secret movement: a neutral party or GM records movement and consults the detection ranges chart in telling players what their fleets can detect. Movement is simultaneous.

Table 16
Detection Ranges

Unit	Ships	Fighters
Fighters	same hex	same hex
Ships with EW < 12	1 hex	same hex
Ships with EW > 12, ELINTs < 10, Bases < 12	2 hexes	same hex
Bases < 12	3 hexes	same hex
ELINTs < 15	4 hexes	same hex
ELINTs 15+, ships with advanced sensors	5 hexes	1 hex

13.4 Combat

Units in the same hex fight if either side chooses to. This is resolved using a basic AoG Wars scenario, with units entering off opposite sides of the map with weapons ready per the standard rules.

13.5 Repair

Ships can repair systems that are not completely destroyed without visiting a base or repair facility. This takes one pulse for each five boxes and an additional pulse for each critical hit. Ships cannot self-repair structure or destroyed systems.

Ships may be repaired by bases or repair ships, taking 4 pulses to repair primary structure (which must be repaired before external structure) and 3 pulses to repair an external structure block. Bases have repair capacities (the number of blocks they can simultaneously repair) specified by the campaign's notes.

Destroyed sections can only be replaced at shipyards, and it takes a number of pulses equal to 15% of the production time for capital ships, and 25% of the production time for HCVs.

Table 17
Structure Repair Costs

Ship Size	Primary Structure Cost	Secondary Structure Cost
MCV/LCV	80% of CPV x Y	N/A
HCV	40% of CPV x Y	25% of CPV x Y
Capital/Enormous	30% of CPV x Y	20% of CPV x Y

Y = the number of structure boxes in the block destroyed plus the number of boxes in destroyed systems as a percentage of the total number of boxes in the section. *For example, consider a ship's forward section consisting of a 32-box structure block and two 5-block gravitic bolts, a total of 42 boxes in the section. If both bolts were destroyed and 10 damage had been sustained by the structure, Y would equal 48% (20 boxes destroyed divided by 42).*

13.6 Hyperspace Movement

Campaign maps will show the location of systems relative to one another and their connection by jump routes. The number next to the line connecting the systems is the number of pulses it takes to travel between systems.

13.7 Jumping Into Systems

Every ship with jump engines has the tech to jump into whichever hex on the system map that it chooses. But it must know the normal space destination's corresponding hyperspace location.

Fleets with no ELINT element jumping into a system in which that player has no facilities or ships must roll a d10 for scatter, and on a 1-6 scatter in the direction shown.

Otherwise fleets enter the system in the hex they have targeted. If this results 12.8 Endurance (Optional)

This is the amount of time before a ship or fighter needs to resupply, refuel and rotate crew. Fighters count as destroyed once their endurance is up, while LCVs stop moving at the end of their endurance and are destroyed 2 pulses later. Ships lose -1 initiative, -1 free thrust and -1 EW due to supply problems, breakdowns and crew fatigue for every two pulses beyond their endurance (MCVs every pulse). When thrust has been reduced to zero, ships drift dead in space (count as abandoned as the crew has starved). The owner may choose to self-destruct them at this point, or leave them as derelict for later recovery, but if the latter choice is made, it cannot be self-destructed later. If the enemy finds the ship first, it is captured, and once it has been taken to a base and left for 2d6 pulses, it can be used against its former owner.

Occupying the same hex as a unit identified as a supply point in a campaign's notes resets the endurance count, as does docking at a base. A unit must remain with the supply unit or base for 1 pulse for this effect to occur (to represent the time taken to rotate crew and transfer supplies on board).

Table 18
Endurance

Unit	Endurance
Fighter	2 pulses
LCV	8 pulses
MCV	25 pulses
HCV	40 pulses
Capital	60 pulses

13.8 Fleet Missions (Optional)

Ships and fleets may be given missions. These options are detailed below.

13.8.1 Silent Running

The ship or fleet can only be detected by enemy ships in the same hex. However, it does not use any of its electronics and cannot spot enemy ships or fighters unless they are in

the same hex. Also, the ship/fleet moves only once every two pulses instead of every pulse.

To minimize energy emissions, ships on silent running deactivate weapons and have jump engines turned off. If a fleet on silent running enters the hex of an enemy fleet (or vice versa), they begin a resulting scenario (if either side chooses to fight) with no turns of arming completed on their weapons.

13.8.2 Convoy

Commerce vessels (and any escorts) are grouped into a convoy and operate between two set points, to generate commerce points. (The quantity will be detailed in a campaign's notes.) These two points can be in the same system or in different systems, but in either case the route taken is mapped out and followed by this fleet. This can include waypoints and supply stops to ensure that the endurance ratings of ships are satisfied.

All ships count as being at cruise stations and have their detection rating reduced by one rank (for example, ships with EW 12+ use the value for ships with EW less than 12). Detection range cannot be reduced below same hex only detection.

Convoys move two hexes per pulse as they are traveling heavily mapped routes and with some systems shut down for greater speed.

13.8.3 Combat

Ships act completely normally, moving one hex per pulse and entering combat with all weapons arming cycles satisfied.

13.8.4 Intercept/Shadow

A fleet using the intercept or shadow mission targets an enemy fleet. It then moves after that fleet, according to the following conditions:

1) if on an intercept mission, the fleet must take the shortest route to the same hex as the enemy fleet; and

2) if on a shadow mission, the fleet must move to keep the enemy fleet in detection range.

If both fleets are on intercept/shadow and have designated one another, they move simultaneously.

In both cases, ships are at full combat readiness and move one hex per pulse.

13.8.5 Ambush

Ships using the ambush mission cannot be detected except by ships in the same hex. They cannot move, and cannot open jump points, and wait for enemy ships to enter the hex. This mission is best employed when using secret movement, but even if movement is visible, it allows the fleet content to remain secret.

Ships not using the missions Combat or Intercept/Shadow suffer from tactical surprise as defined in 11.4.2. Regardless of whether tactical surprise is in force, the ambushed fleet will have no jump engines ready, but may begin powering up these engines at the start of the scenario.

14.0 Large Scale Campaigns

This section has been adapted from campaign rules designed by Valthonis.

14.1 Building the Galaxy

Begin by laying down a hex map, using a size that fits the scale of the intended campaign. Starting in one corner and proceeding across the map, for each hex roll 1d10. On a roll of 1-3, place a star system counter in the hex. On a roll of 4-9, the hex is empty. On a roll of 10, the hex contents are unknown: sensors will determine that something is there, but the hex must be explored first.

14.1.1 Star System Contents

Once the map is drawn, determine the contents of each star system. Roll 1d10+1 for the number of celestial bodies orbiting each star (rolling once per occupied hex). Then, for each celestial body roll 1d10 twice.

1-3: Organic [1-6 Terrestrial, 7-10 Oceanic]

4-8: Lifeless [1-6 Barren, 7-10 Irradiated]

9-10: Uninhabitable [1-6 Asteroid Belt, 7-10 Gas Giant]

Players will need to explore hyperspace, but there should always be a few preexisting hyperspace lanes. For each star system, roll 1d10. Add 1 to the roll if the system contains two or more organic planets. Subtract 2 from the roll if the system contains no organic planets. On a roll of 1-3, there are no Jump Gates in the system. On a roll of 4-8, there is a single Jump Gate (placed randomly orbiting one of the celestial bodies). On a roll of 9-10, 1d2 Jump Gates are present, placed randomly.

14.1.2 Jump Gates

Each gate can support up to four concurrent beacon links. Each preexisting gate begins with 1d3 links. Connect these to the closest star systems with Jump Gates. Do not connect them to one another in-system and do not place more than one lane between two systems. Each player's home location must have at least one Jump Gate to another system.

14.1.3 Populations

All celestial bodies have a maximum population value:

Terrestrial: 60

Oceanic: 40

Barren: 20

Irradiated: 20

Gas Giant: 0

Asteroid Belt: 20

Players may decide to populate the star systems at the beginning of the campain, or leave most star systems uninhabited until they are colonized during the campaign. Population values are determinative for a number of statistics associated with colonies.

14.1.4 Mineral Deposits

For each celestial body, roll 1d10. On a roll of 1-3, the body is poor in minerals. On a roll of 4-8, the body has an average quantity. On a roll of 9-10, the celestial body is rich in mineral deposits. The deposit quantities are as follows:

Poor: 50 x (Population + 1d3)

Average: 100 x (Population + 1d3)

Rich: 100 x (Population + 1d6)

Roll 1d10 to determine the quality of Hyperspace-Attuned Ore deposits. On a roll of 1-3, there are no HA Ore deposits. On a roll of 4-8, there is one. On a roll of 9-10, there are 1d3 HA Ore deposits.

14.1.5 Terrestrial Body

These planets are usually lush with plant and animal life. It is easy for new colonies to root themselves and become generally self-sufficient. Terrestrial planets are ideal for farming.

Farming Value: Population + 1d6

Food Requirement: Equal to Population

Economic Value: 100 x (Population + 1d6)

Mineral Value: No Penalties on Ore Production

Growth Value: +1 per 5 Strategic Turns

Maintenance Value: 100 x Population

Maximum Defense Value: 2 x Population

14.1.6 Oceanic Body

These planets are nearly or completely covered in water. While still suitable for new colonists, they do present some additional challenges.

Farming Value: Population + 1d6

Food Requirement: Equal to Population

Economic Value: 100 x (Population + 1d6)

Mineral Value: 25% Penalty on Ore Production

Growth Value: +1 per 5 Strategic Turns

Maintenance Value: 100 x Population

Maximum Defense Value: 2 x Population

14.1.7 Barren Body

Barren planets are virtually devoid of life. Life is very difficult on a barren world colony: life in biodomes keeps the population small and heavy reliance on food shipments makes starvation a frequent worry.

Farming Value: 1d3-1 (hydroponic farming domes)

Food Requirement: Equal to Population

Economic Value: 50 x (Population + 1d3)

Mineral Value: No Penalties on Ore Production

Growth Value: +1 per 10 Strategic Turns

Maintenance Value: 50 x Population

Maximum Defense Value: Equal to Population

14.1.8 Irradiated Body

Living on an irradiated world is nearly impossible. Complete reliance on food shipments poses the constant risk of starvation.

Farming Value: None

Food Requirement: Equal to Population

Economic Value: 50 x (Population + 1d3)

Mineral Value: 25% Penalty on Ore Production

Growth Value: +1 per 20 Strategic Turns

Maintenance Value: 50 x Population

Maximum Defense Value: Equal to Population

14.1.9 Asteroid Belt

Few groups have adapted themselves to building colonies among the asteroid belts. Only races and organizations that are specified as belt-capable are permitted to make use of asteroid belt colonies. They can inhabit asteroid belts in systems that are home to other races and groups. (Such races and groups are still permitted to colonize planets.)

Farming Value: 1d3 (hydroponic farming domes)

Food Requirement: Equal to Population

Economic Value: 50 x (Population + 1d6)

Mineral Value: No Penalties on Ore Production

Growth Value: +1 per 15 Strategic Turns

Maintenance Value: 50 x Population

Maximum Defense Value: 1/2 x Population

(No Gun Battery Points)

14.2 Economics

"Credits" are considered the universal currency among players. These credits can be used for nearly everything, such as building ships, purchasing research points and buying supplies from other players. Even though this is a universal standard for game purposes, it may not be the same within the campaign setting. It is possible, through war or a random event, for a player's empire's credits to become devalued. In the case of war, any time an empire is considered losing the war (by the referee's determination), its currency value decreases, removing 1d6 percent from its treasury. If the empire is losing to an empire of a higher tier (see below), add 1d6 for each tier of difference.

14.2.1 Trade Routes

A trade route can be established between willing players. Each side gains a 10% bonus to their economic value, starting on the first strategic turn following the trade agreement's ratification.

14.2.2 Jump Gates

Jump Gates allow civilian traffic to move easily between systems without jump engines. Ships equipped with jump engines prefer using Jump Gates both to preserve their HA Ore stores and to mitigate the hazards of hyperspace travel. A player may choose to lock any owned system's gates or leave them open. Players may choose to allow certain

races through freely or for a fee. Fees should general range between 1 and 10 credits per ship.

A locked Jump Gate does not prevent a ship from leaving hyperspace through the gate. A Jump Gate lock only prohibits use of the gate to enter hyperspace.

It is possible to shut down a beacon, effectively shutting off the gate, allowing no traffic in or out. This is generally done only in times of desperation and is otherwise frowned upon. If a beacon is shut down, the taskforce navigating the lane can become lost in hyperspace: begin making hyperspace navigation checks.

14.2.3 Jump Gate Construction

Contsruction of a Jump Gate requires 10 HA Ore, 1000 Ore and 2000 Credits. It requires 4 strategic turns to complete and a maintenance allotment of 150 points. As noted above, by default a Jump Gate's beacon can support up to 4 simultaneous lanes. This can be upgraded to support 6 at the cost of 1500 Ore and 2500 Credits, with a build time of 2 strategic turns. Note that the gate is not operational during the upgrade turns. Maintenance costs go up from 150 points to 200 points. The upgrade to a 6 lane beacon can be added to the initial build by adding the necessary resources and time.

14.3 Production

Production facilities consist of everything from factories producing missiles, fighters and shuttles, to shipyards and training facilities. Construction time is based on the production value of the factory or shipyard, which indicates how much the unit can produce per strategic turn. To determine how many turns are required to build a given ship, divide the ship's Ram factor by the shipyard's production value and round up. *For example, a ship with a Ram factor of 250 being built in a shipyard with 50 production points will take 5 turns to build.*

Various production costs are listed below:

Fighter Missile or Standard Mine: 1 point

Captor Mine: 2 points

Basic Ship Missile: 2 points + 1 Ore + 1 credit

Light Missile: 2/3 point + 1/3 Ore + 1/3 credit

DEW Mine: Value Equal to Structure Blocks

Supply and Repair Points: 1 point + 1 Ore + 1 credit

Ground Battery: 150 points + 200 Ore + 100 credits

Sensor Net Points: 100 points + 250 Ore + 500 credits

Shipbuilding requires a quantity of Ore and credits equal to 1/2 the production points cost each.

14.3.1 Factories

Factories construct missiles, mines, OSATs, fighters, shuttles, sensor nets, supply points, repair points and ground battery points.

14.3.1.1 Small Factory

Produces: Supply and Repair Points, Missiles, Mines, Sensor Nets.

Production Value: 100

Maintenance Cost: 1

Build Cost: 25 Ore + 50 credits

Build Time: 1 strategic turn

14.3.1.2 Medium Factory

Produces: Small Factories, OSATs, fighters, shuttles

Production Value: 200

Maintenance Cost: 5

Build Cost: 50 Ore + 100 credits

Build Time: 2 strategic turns

14.3.1.3 Large Factory

Produces: Medium Factories, ground battery points, super fighters, LCVs

Production Value: 300

Maintenance Cost: 10

Build Cost: 150 Ore + 250 credits

Build Time: 3 strategic turns

14.3.2 Shipyards

Shipyards can build LCVs, MCVs, capital ships and enormous ships, depending on the shipyard type. All shipyards have a standard production rate of 50. If a shipyard is building a jump-capable ship, it must also use a quantity

of HA Ore based on the ship's size. Enormous ships cost 5 HA Ore, capital ships cost 4, HCVs cost 3, MCVs cost 2 and LCVs cost 1.

14.3.2.1 Small Shipyard

Produces: LCVs and MCVs

Maintenance Cost: 20

Build Cost: 125 Ore + 250 credits

Build Time: 2 strategic turns

14.3.2.2 Medium Shipyard

Produces: All Combat Vessels

Maintenance Cost: 25

Build Cost: 250 Ore + 500 credits

Build Time: 4 strategic turns

14.3.2.3 Large Shipyard

Produces: HCVs, capital ships, enormous ships

Maintenance Cost: 40

Build Cost: 600 Ore + 1500 credits

Build Time: 8 strategic turns

14.3.2.4 Dry Dock

Some races use dry docks instead of shipyards. Dry docks cost 50% less Ore and credits to build than the equivalent shipyard, and have maintenance costs 50% less than the equivalent shipyard.

Dry docks cannot be used to construct ships. Instead, they use stripped hulls acquired from other empires, purchased at 62.5% of their point value in credits. An additional 12.5% of the point value is spent in Ore. The ship is then treated as being refitted into a variant. An empire cannot prevent the purchase of a basic hull unless it is at war with the purchasing race or one of its allies.

14.3.2.5 Shipyard Retooling

Shipyards that have been captured from other empires must be retooled before they can be used. This costs 1/2 of the initial build cost in credits and takes 1/2 of the initial build time.

14.3.3 Training Facilities

Training facilities are used to prepare marines and agents. Marines cost 10 credits per unit. Agents cost 50 credits.

An assault shuttle may carry 1 marine unit. A breaching pod may carry 2 marine unit. Any ship may carry up to 1% of its point value in marines. (Ships with SCSs that indicate the presence of marines do not automatically include them.) Marines stationed on planet add to its Defense Value, one point per marine.

14.3.3.1 Small Training Facility

Produces: Marines

Number Trained: 1 per strategic turn

Maintenance Cost: 1

Build Cost: 30 Ore + 75 credits

Build Time: 1 strategic turn

14.3.3.2 Medium Training Facility

Produces: Marines

Number Trained: 2 per strategic turn

Maintenance Cost: 5

Build Cost: 50 Ore + 125 credits

Build Time: 2 strategic turns

14.3.3.3 Large Training Facility

Produces: Marines and Agents

Number Trained: 4 marines per strategic turn or 1 agent per strategic turn

Maintenance Cost: 15

Build Cost: 200 Ore + 200 credits

Build Time: 3 strategic turns

14.3.4 Decommissioning Facilities

Players may find themselves with more production units than they need or want to support in maintenance costs. Decommissioning a factory, shipyard, dry dock or training facility requires 1/2 the initial build time (minimum 1 strategic turn) to properly shut the facility down and close. Once

closed, it can no longer produce units and no longer costs maintenance points. Reactivation of a decommissioned production unit requires no additional credits or ore, but takes 1 strategic turn for small facilities and 2 strategic turns for medium or large facilities.

14.3.5 Base Construction

Star bases are built in the same way that ships are built, with the same cost calculations. The facilities used to build the base cost nothing extra, but build at a production rate of 100 per strategic turn.

14.3.6 Fighter Bases

Fighter bases are capable of holding fighters ready for combat or for resupply. Fighter bases can either be ground-based or orbital.

14.3.6.1 Small Fighter Base

Fighter Capacity: 12

Maintenance Cost: 20 (25 if orbital)

Build Cost: 20 Ore + 50 credits (25 + 60 if orbital)

Build Time: 1 strategic turn

14.3.6.2 Medium Fighter Base

Fighter Capacity: 24

Maintenance Cost: 35 (45 if orbital)

Build Cost: 50 Ore + 100 credits (60 + 125 if orbital)

Build Time: 2 strategic turns

14.3.6.3 Large Fighter Base

Fighter Capacity: 48

Maintenance Cost: 60 (80 if orbital)

Build Cost: 250 Ore + 250 credits (300 + 300 if orbital)

Build Time: 3 strategic turns

14.3.7 Deployment Limitations

Ships with either limited/restricted or uncommon/rare deployment limitations are handled on a fleet wide level, not a task force level. This means that any given task force may have any configuration of ships as long as the fleet overall maintains the allowed ratios.

14.3.8 ELINT Construction

Players may designate a campain as an Exploration Campaign. In an Exploration Campaign, all deployment limitations for ELINT ships are lifted. If an ELINT ship is designated as either limited/restricted or uncommon/rare, ignore the limitation but triple the cost of ship construction and maintenance. There is no limit to the number of ELINT ships players may build in an Exploration Campaign.

14.3.9 Decommissioning Vessels

It takes 1 strategic turn to decommission a vessel. Once it is decommissioned, its location must be recorded for future use. Decommissioned vessels have no maintenance cost. Vessel reactivation requires the use of an appropriate shipyard and 1 strategic turn. Vessel maintenance must be paid during the reactivation turn.

Decommissioned vessels may be sold to other empires, at whatever prices are acceptable to both parties.

14.4 Maintenance and Supply

Every ship, OSAT, fighter, base and facility requires maintenance in order to continue functioning. Production facilities require the maintenance cost listed in their descriptions every strategic turn. If maintenance is not paid, facilities cease functioning (units currently under production are halted) until maintenance is paid again.

OSATs require 5% of their SCS point value in maintenance every strategic turn. Bases require 20% of their SCS point value per strategic turn. Mines require 10% of their SCS point value per strategic turn. Ships require 20% of their SCS point value at the end of their listed endurance phase. Fighters require 10% of their SCS point value every time their carrier or base requires maintenance.

14.4.1 Freighters

Freighters (and some combat vessels) can carry supply points to provide maintenance to task forces performing long range missions. A freighter can carry 1 supply point per cargo box; each supply point is worth 10 maintenance points.

14.4.2 Endurance

Ships are capable of traveling between systems for months at a time without the need to resupply. Each ship therefore has an endurance value, indicating the number of strategic turns the ship can operate without maintenance. Any vessel that enters combat (for any reason and for any length) reduces its endurance value by 1 (to a minimum of 1).

Enormous Ships: 5 strategic turns

Capital Ships: 4 strategic turns

HCVs: 3 strategic turns

MCVs: 2 strategic turns

LCVs: 1 strategic turn

Fighters: 1 strategic turn (if not assigned to a carrier or base)

Some ships (mainly explorer-type vessels) are built for longer durations and add 2 to the appropriate number above.

14.4.3 Out of Maintenance

When a unit fails to receive necessary maintenance for one strategic turn, it is considered "out of maintenance" and the following penalties begin to apply:

- All thruster ratings are reduced by 1
- Missile launchers and other weapons that track ammunition do not reload until the ship is maintained
- Jump delay increases by 10%, rounded up
- Critical hits are rolled at +1 per strategic turn that the unit is out of maintenance

14.4.4 Supply Lines

Supply lines are similar to but different in function from maintenance. Supply lines replenish things like fighters and ammunition at the end of each tactical turn as long as the task force is within range of a supply freighter. The presence of supply freighters is abstracted for the purposes of these rules. They are considered handled by commercial contracts and no tracking of supply freighters is required. Supply freighters have a range out to 4 hyperspace hexes from a friendly star system.

14.4.5 Supply Depots

Supply lines can be extended with the use of Supply Depots. The same rules apply for supply depots as apply to the rules for supplying from one of a player's own systems. The supply depot must be within range of a system it is extending (that is, within 4 hexes) and extends the range by another 4 hyperspace hexes.

Depots cost 500 Ore and 1000 credits, and require 2 strategic turns to construct. Supply depots are considered linked with all in-range friendly systems and supply lines are always active between these links. Players do not need to have a colony in the system in which a supply depot is constructed.

14.4.6 Supply Line Raids

Supply lines may be targets for raiders and enemy empires. Each strategic turn, pick a supply line (a line of hexes connecting systems, depots and/or ships being supplied) at random: raiders will attack an empire's supply line on a 1d10 roll of 8+. If there is a raid, the raiders steal 3d10 credits from the attacked empire. If the first attack occurs, roll for a second attack at 9+, and finally 10+. No more than three attacks can be made against an empire's supply lines in one strategic turn. Subtract 1 from these rolls if there are vessels with Patrol orders at either end of the selected supply line. Add 1 to these rolls if raiders made a successful raid on the previous turn.

If all of the player's ships are orbiting friendly systems and the player has no supply depots, skip this step.

14.4.7 Missile and Ammunition Stockpiles

Empires that make use of ammunition-tracked weapons such as missiles and mines usually produce these at a level that far exceeds what a ship can carry. What is left after a ship loads up is stockpiled for later use. Track any and all stockpiles of ammunition; they can be placed in supply depots or kept planetside.

Any ship that carries missile-capable fighters must also carry a supply of missiles to restock them. MCVs may carry 4 missiles per hangar box. HCVs may carry 8. Capital ships

may carry 12. Enormous ships may carry 16. Races that are accustomed to using fighter-based missiles may carry 50% more missiles per hangar box.

14.5 Task Force Orders

Task Forces are simply groups of ships that are given identical orders. The available orders are Ambush, Assault, Attack, Blockade, Blockade Run, Garrison, Intelligence Gathering, Move To, Patrol, Raid, Refit/Repair, Survey and Training Maneuvers.

14.5.1 Ambush

Ambush orders the Task Force to hide in either a terrain feature or hyperspace and wait for a target of opportunity. Task Forces will engage the first target of a type specified in the order. The Task Force is considered to be at Battle Stations.

14.5.2 Assault

Assault orders are given to Task Forces attacking a planet or colony. If any assault ships are included in the taskforce, they have the option of either holding back (remaining out of combat) or engaging in combat and launching assault shuttles during combat. Assault ships that hold back will launch assault shuttles assuming a successful battle, but they do not lend any assistance to the battle. Assault Task Forces are considered to be at Battle Stations.

14.5.3 Attack

Attack orders are simple: engage any hostile force at the end of a jump or within a system. When the Task Force arrives up to half of its fighters may be immediately deployed. The Task Force is considered to be at Battle Stations.

14.5.4 Blockade

This order instructs the Task Force to blockade a planet's Jump Gate or the planet itself. If the planet is blockaded, all production ceases on the following strategic turn. If the Jump Gate is blockaded, enemy ships entering or leaving the system via the gate will be engaged by the Task Force.

If there is a defending Task Force already in system, it must be defeated before a Blockade order can be issued. Defending Task Forces include those that have been given Blockade Run, Garrison Duty or Patrol orders. A blockading Task Force is considered to be at Patrol Stations.

14.5.5 Blockade Run

This orders a Task Force to break through a blockade, usually to deliver supplies or evacuate a population. The Task Force is considered to be at Battle Stations.

14.5.6 Garrison Duty

Garrison Duty orders a Task Force to defend a strategic location, such as a planet, supply depot or Jump Gate. The Task Force is considered to be at Patrol Stations.

14.5.7 Intelligence Gathering

This order instructs a single ELINT vessel to enter a system to gather information on another empire. The vessel can automatically determine planet types and any stellar anomalies. To determine resource quantities (Ore and HA Ore), Task Force strength, Task Force orders, minefields, bases or shipyards, a sensor sweep roll is required for each planet being inspected. Roll 1d20 and add modifiers as described in the Sensor Nets section (14.8.1). The result of the 1d20 roll must be equal to or less than the sensor value. The ELINT vessel does not need to be at the scanned planet's Theater. The ELINT vessel is considered to be at Patrol Stations.

14.5.8 Move To

The Move To order instructs a Task Force to move to a specific destination (planet, Jump Gate or a point in hyperspace). If the destination is located in hyperspace, the Task Force gathers just off the hyperspace lane. If the Task Force remains off lane for more than one strategic turn, it must make Hyperspace Navigation checks or run the risk of getting lost. The Task Force is considered to be at Cruise Stations.

14.5.9 Patrol

Patrol orders instruct a Task Force to patrol an area near a planet, Jump Gate, shipyard or supply depot. Invading Task Forces may be encountered by patrols. Follow the Sensor Net rules for detection. If the hostile Task Force is detected, the patrolling Task Force may choose to intercept (outer sphere theater) or fall back to the planetary defenses (inner sphere theater).

If a patrol detects an incoming Task Force, any friendly OSAT, Base or Garrison Duty Task Force in orbit around the planet may automatically switch to Battle Stations.

Patrol Task Forces are considered to be at Patrol Stations.

14.5.10 Raid

The Raid order sends a Task Force to disrupt trade routes or supply lines by preying on the supply freighters that travel the lines. Ships participating in a raid do not gain any experience, as attacking freighters is hardly a challenge for a trained crew.

Sensor Nets may detect raiding Task Forces. If a sensor net fails to do so but there is an enemy Task Force on Patrol orders where the raid is being conducted, roll 1d10. On a 1-6, the patrolling Task Force detects the raiding Task Force on its own.

If the Task Force is detected and there is a patrolling Task Force present, that Task Force engages the raiding Task Force with 1d3+1 supply freighters in their midst.

14.5.11 Refit/Repair

This orders a Task Force into refit/repair status. The vessels in the Task Force effectively shut down and are moved into an appropriate shipyard. A Task Force may only receive Refit/Repair orders if there is an available and appropriate shipyard at its location. The Task Force is considered Tactically Surprised if attacked.

14.5.12 Survey

The Survey order instructs a ship to determine a system's planet types and any stellar anomalies. An ELINT class vessel can accomplish this automatically in a single tactical turn. Non-ELINT ships require a roll on 1d20 to get the same information and requires two tactical turns in the attempt. The roll result must be equal to or less than the value of the highest sensor value in the Task Force. An additional roll is required to determine the planet's resources. ELINT ships gain +4 to roll. ELINT ships do not need to be in the scanned planet's theater; all other ships do. Surveying Task Forces are considered to be at Cruise Stations.

14.5.13 Training Maneuvers

This order instructs a Task Force to spend time in deep space on training exercises. The player must specify the duration of the exercises (in tactical turns), to a maximum of 8 for each ship. Ship crews earn 10 experience points per tactical turn.

The Task Force is removed from the game until the training is completed. Should the Task Force be attacked while performing the training, it is considered to be at Drill Stations.

14.6 Task Force Movement

14.6.1 Hyperspace Movement

The hyperspace map is a large hex map. The distance between two points is calculated in the same way that combat distances are calculated (by counting hexes).

As the speeds of vessels in a Task Force are generally not the same, to determine a Task Force's hyperspace cruising speed refer to each ship's SCS. Take the maximum acceleration of which the ship is capable without boosting engines or overthrusting thrusters. This is the ship's hyperspace speed. A Task Force that intends to remain coherent (that is, all in the same hex) must move at the slowest ship's hyperspace speed.

A Task Force is not normally permitted to stop in hyperspace and must continue traveling until it reaches its destination or decides to exit to normal space. The only exception to this is the Move To order.

14.6.2 Limited Movement Ships

Some ships are designed either as a strict policing/patrolling vessel or for system defense. These vessels are

limited in their functionality and cannot be used in taskforce attacks outside of the controlling empire's own systems. Any vessel identified as a Patrol, Monitor or Police vessel is restricted in this way. These vessels may travel in hyperspace to other systems the player controls, but cannot be ordered into hostile territory.

14.6.3 Normal Space Movement

Often players will find themselves with a system of colonies in which there are not enough Jump Gates for each planet, requiring that Task Forces travel via normal space between planets in order to reach a Jump Gate.

Normal space movement is half of a ship's hyperspace movement speed, rounded up. Adjacent planets are considered to be one "hex" apart. System geography is determined by the order in which a system's celestial bodies were created at the start of the campaign.

A ship with a jump drive may follow the rules above or open its own jump point and begin its movement along the chosen hyperspace lane. If the ship chooses to follow a hyperspace lane, it must roll a sensor check on 1d20. A roll equal to or less than the ship's sensor value allows it to link up with the Jump Gate beacon and proceed.

14.7 Theaters of Operation

Each star system is divided into a previously generated number of planets; each planet is divided into two levels.

14.7.1 Outer Sphere Theater

The Outer Sphere Theater of a planet is the area beyond its orbital reach. Jump Gates and patrolling vessels are found in this sphere. A hostile force has a chance of being detected either by the star system's sensor net or by a planet's patrolling Task Force. If the invading Task Force is detected, any patrolling Task Force may engage it or fall back to reinforce any garrisoned Task Force in orbit.

14.7.2 Inner Sphere Theater

The Inner Sphere Theater is the area immediately surrounding the planet. Bases, minefields, garrisoned ships and OSATs orbit in this theater. Shipyards are found here as well, but they are positioned in a lower orbit than any orbiting OSATs.

14.7.3 Jumping Out of Hyperspace

Generally speaking, most Task Force captains will jump the Task Force into normal space in the Outer Sphere Theater. This allows the Task Force to get its bearings and form up before approaching the enemy. Even if detected and engaged by patrolling forces, the Task Force is allowed to form up normally.

However, if the Task Force wishes to make a surprise strike against a system, it can elect to jump out of hyperspace directly into the Inner Sphere Theater. This comes with its own risks, as the Task Force will potentially be jumping into a theater containing defensive units.

14.8 Fleet Intelligence

14.8.1 Sensor Nets

System-wide detection systems are referred to as Sensor Nets. They cost 250 Ore and 500 credits and have a production point requirement of 100. Each Sensor Net adds 1 Sensor Net point to the system. There may be a maximum of 5 points in any single star system. To detect a Task Force using a Sensor Net, roll 1d10. On a roll of 7 or higher, the Task Force is detected. A number of modifiers are applied to the roll:

+1 for each Sensor Net point after the first

+2 if the enemy Task Force formed a jump point

+1 for each enemy ELINT intelligence gathering bonus (maximum +4)

+2 if there is a friendly Patrol with ELINT support

-2 if there is a friendly Patrol without ELINT support

-4 if the enemy comprises only ELINT ships

-2 if the enemy comprises both ELINT and non-ELINT ships

-1 if all enemy ships are jammer-equipped

-4 if an enemy listening post is present

If a system is being attacked, the defending player first rolls to see if the sensor net detects the Task Force(s). Any

Patrol Task Force present in the system rolls next. If neither is successful, the every planet's defenses are at Patrol Stations at the beginning of the battle and no Patrol Task Forces may participate. If the sensor net or Patrol detects the hostile force, then both the Patrol and the nearest planet's defenses raise to Battle Stations and the Patrol Task Force has the option of intercepting the hostile force before it reaches the planetary defenses or falling back to reinforce the planetary defenses.

14.8.2 Listening Posts

Listening posts can often provide valuable intelligence about an enemy empire's forces. They can be deployed regardless of treaties between empires; reactions to discovery are at the discretion of the eavesdropped empire's player. Normal Sensor Net rules are used to detect any listening posts. Additional detection rolls are made by any Patrolling Task Forces in the area. Listening posts gather intelligence as if they were ELINT ships with Intelligence Gathering orders.

14.9 Combat

Attacking Task Forces are assumed to be at Battle Stations. There are three basic locations for combat: Inner Sphere, Outer Sphere and Hyperspace.

14.9.1 Outer Sphere

Combat in an outer sphere consists of four 20x32 hex maps placed together in a 40x64 block. The map is fixed if there is a Jump Gate present, floating if there is no Jump Gate present.

14.9.2 Inner Sphere

Combat in an inner sphere consists of eight 20x32 hex maps placed together in an 80x128 block with one of the short sides functioning as the edge of the planet's atmosphere. Shipyards must be placed within 3 hexes of that edge. Bases and OSATs must be within 20 hexes. If the celestial body is an asteroid field, then the battle takes place within the asteroid field with any bases, shipyards, factories and other stationary units placed in the middle of the map. The controlling player must also make a single asteroid field hex as the central hub colony.

14.9.3 Hyperspace

(Not completed)

14.9.4 Reinforcements

When an attacking Task Force engages its enemy, it may attack in full force or choose to hold part of the Task Force in hyperspace as reinforcements. Reinforcing units follow the normal rules for jumping into combat, but cannot enter combat until 1d3+3 turns have passed.

14.9.5 Ramming

Ramming is permitted under two circumstances. A defending ship may ram if the defender's units are outnumbered and outgunned (the attacker has a combined combat point total at least 150% greater than that of the defender). A defending ship may also ram if its empire is at war and has lost at least 1/3 of the star systems it controlled at the start of the war.

14.9.6 Fighter Bases

Fighters that have been docked for resupply cannot be used for reinforcement. Atmospheric fighters on a ground base or a fighter base in orbit may be used as reinforcements. Ground-based fighters must wait 1d3+3 tactical turns before they may enter combat. Orbiting fighter platforms do not have this delay.

14.9.7 Mine Warfare

It is against the rules of war to mine Jump Gates. Any mines placed around a planet for defense must have IFF capability or be command controlled.

14.10 Experience

As ships fight in combat—and survive—their crews gain experience points. Players must keep a record of total experience earned throughout the campaign.

Every time a ship's crew earns 1,000 points, the ship rolls on the Expert Officers chart below. Fighters earn elite

abilities by rolling on the Expert Fighter Officers chart. Ships may have only 1 expert of any given type. Re-roll any duplicates. Fighter flights may have up to 4 expert pilots.

Once a ship has reached 2,500 experience points its crew qualifies for Elite status. At 5,000 points, it qualifies for Ultra Elite status. If the crew is moved to a different ship that is *not* a variant of the original, the crew's total experience is halved.

Table 19
Experience Point Awards/Penalties

Fought in Battle	+100 xp
On Winning Side	+100 xp
Extreme Valor	+100 x 1d3 xp
Ship is Crippled [1]	-100 x 1d3 xp
Task Force Outclassed [2]	double xp earned
Enemy Outclassed [3]	no xp earned
Task Force Defending Refugees	double xp earned

[1] Primary section at 50% loss or 2 sections destroyed

[2] Enemy has at least 150% total combat points value

[3] Task Force has at least 150% total combat points value

Table 20
Elite Officer Chart (1d10)

1	Helmsman (11.4.1)
2	Engineer (11.4.2)
3	Scanner (11.4.3)
4	Navigator (11.4.4)
5	Technician (11.4.5)
6	Jump Officer (11.4.6)
7	Special Elite Officer (11.6)
8	Lucky Captain (11.8)
9	((Expert Tactician?))
10	Expert Captain (below)

Table 21
Elite Fighter Officer Chart (1d8)

1	Dogfighter (11.5.1)
2	Motivator (11.5.2)
3	Missileer (11.5.3) or Pilot
4	Evader (11.5.4)
5	Coordinator (11.5.5)
6	Electrician (11.5.6)
7	Pilot (11.5.7)
8	Tailgunner (11.5.8) or Pilot

14.10.1 Expert Ship Captain

Expert captains are the stuff of legends: simply by having one in a battle a force can often turn the impossible into the possible. They are excellent strategic planners and after all ships have been set up on the map board the player may change all of that side's ship starting speeds and positions by up to 10 hexes.

In addition, any ship controlled by the Expert Ship Captain gains a +1 initiative bonus and automatically wins any initiative ties with other ships and against any expert helmsman.

Location: C&C

14.11 Repairs

Ships automatically repair any critical received, after combat, if they are not out of maintenance. Ships with damaged fighters or shuttles are repaired to 100% at no extra cost, assuming the fighters or shuttles survive and return to the ship.

To repair damage done to a ship (destroyed blocks on a SCS), the ship must dock in a shipyard of appropriate ship class size. One SCS block is repaired per repair point. Repair points are produced at a factory for 1 credit and 1 Ore. A shipyard may repair up to 50 blocks, regardless of shipyard size, per *tactical turn*. Bases can repair at a rate of 20 blocks per tactical turn.

Ships that have had permanent reduction to the armor value of a given location will have to replace that entire location's armor (not just the amount reduced). This costs 1 repair point *per box* in the contained location.

14.12 Refits

A ship may be converted to one of its variants at a shipyard of appropriate size. This takes half of the ship's original construction time (minimum 1 strategic turn). A shipyard refitting a vessel can do nothing else while it is doing so. Dry dock refit rules are the same as for shipyards.

14.13 Salvaging Ships

If a ship's primary section and reactor were not destroyed during a battle but the ship is floating derelict in space, the ship is salvageable. It takes an empire a single tactical turn to salvage a ship. This requires use of a tug to pull the salvaged ship out of the field of battle. The tug is a civilian SCS, shared among all players. Salvaged ships can be repaired and refitted by races that do not build their own ships. Other races can salvage and either sell the ship or destroy it.

Entire battlefields take 1 strategic turn to clean up (after combat), plus 1 strategic turn for every 4,000 combat points of derelict ships in the field.

14.14 Conquering Systems

14.14.1 Planetary Bombardment

If an attacker obtains orbital control of a planet (Inner Sphere Theater), the player may choose to bombard the planet. Tally the Bombardment Points of every bombarding unit and roll 1d10 once *for each BP* to determine hit location.

MCVs are worth 2 Bombardment Points. HCVs are worth 4 BP. Capital ships are worth 6 BP. OSATs are worth 4 BP. Atmospheric fighters are worth 1 BP. If a given unit has matter-type weapons, add 2 BP. If a given unit has a weapon of mass destruction that deals over 100 points of damage, add 8 BP. (Mass Drivers are considered matter-type WMDs, and are therefore worth +10.)

If there are defending ground fighters, subtract 1 BP per fighter to a maximum (negative) value equal to the number of bombarding fighters.

Table 22
Bombardment Hit Locations (1d10)

1-2	Ground Defense	Select on 1d2: -1 to Planet Defense value or -1 to Ground Battery value
3-4	Fighter Bases/ Fighter Storage	1d10 Fighters/Shuttles destroyed
5-7	Factory/Training/ Storage	Select on 1d3; anything stored, in production or in training is destroyed
8-10	Civilian population	Lose 1d3 current Population

If civilian population is hit, the planet's available maintenance points are lowered by 100 and production values drop by 25%. These are temporary losses: the maximum values remain intact.

14.14.2 Mass Destruction

If an attacking player wishes to strip the world and render it Barren, they can do so with 500 bombardment points. These points may be accumulated in a single tactical turn or over multiple turns if the turns are consecutive. Any break in the bombardment results in failure, even if additional bombardment points are accumulated afterward that reach the 500 point requirement (unless a full 500 points are subsequently accumulated consecutively or in a single turn).

14.14.3 Planetary Assault: Drop Phase

A planetary assault consists of two parts: Drop and Assault. During the Drop phase, roll 1d10 for each assault shuttle/fighter or atmospheric vessel that is attempting to make landfall, applying a +1 bonus per Ground Battery point. On a roll of 8 or higher, the ship is hit: a shuttle or fighter is shot down and an atmospheric vessel takes a hit. In the latter case, randomly determine which facing is hit, then roll for hit location and damage. Damage is based on the kind of weapon used by the defending race's Ground Batteries, determined prior to play.

If a vessel receives a critical hit to a thruster, engine, C&C, sensor or reactor, or the vessel is destroyed, it suffers a crash landing. Roll damage for a Ram against itself if the

ship has not already been destroyed. Any marines on board are killed.

14.14.4 Planetary Assault: Assault Phase

After the assaulting ships have landed, both sides roll 1d10 and apply a 1 point modifier for each surviving marine (attacker) or each planetary defense point (defender). The empire that won the initial orbital battle gains a +1 bonus. If orbital ships are supporting the attack, the attacker gains a +2 bonus. If the defender maintains control of at least one orbital base, that side gains +1 on the roll.

On a roll of 8 or higher, the opponent loses a marine or defense point. Once rolls are completed and losses are determined, check to see if both sides remain planet side. If both sides have forces still intact, a new Drop phase will begin on the next tactical turn. Reinforcements are permitted for the defender unless the attacker has formed a Blockade; in such a case, the defender will need to order Blockade Runs before any reinforcements can land on the planet.

14.14.5 Mixed Population

After a planet has been conquered, the occupier begins to bring in its own forces. Players must keep track of the numbers of native and occupation forces and population. When the population grows, the first point goes to the occupation force. Each additional point goes to whichever population the occupier chooses.

14.14.6 Genocide

An occupying force may choose instead to obliterate the native population. This takes 1 strategic turn for every 5 population points on the planet. Once the number has been reduced to zero, the occupier's population is raised to 1 and the planet becomes the exclusive possession of the occupation force. Genocide causes a -2 penalty to the roll for guerrilla formation.

14.14.7 Guerrilla Resistance Fighters

When a system is conquered by an empire there is always the possibility that the local population will raise arms against their new rulers. Every tactical turn during which a planet is under occupation, a new guerrilla force may form. Starting with the initial turn, roll 1d10. On a roll of 8 or below a new guerrilla is formed. Every strategic turn decrease the chance by 1 to a minimum of 2.

Occupying empires do not know if and where guerrillas are located until they take action by attacking, disrupting production or failing at an espionage check.

Guerrillas may attack any marine units occupying the planet. This gives away their presence, permitting marines to search for them later. Both sides roll 1d10 and apply a 1 point modifier for each marine or guerrilla. The guerrilla force receives a -1 penalty for being poorly armed. On a roll of 8 or higher, the opponent loses a marine or guerrilla.

Guerrillas may disrupt production, causing a 1d6 loss in all production on the planet for that turn. Doing so gives away the guerrillas' presence, permitting marines to search for them.

After the guerrilla force is given the chance to act, marine forces that are aware of their presence may roll 1d10. On a roll of 1 they may attack the guerrilla force, applying up to 25% of their total force to their die roll modifier.

If a guerrilla force successfully eliminates all occupation marines on the planet, the planet reverts to native control.

14.14.7.1 Mixed Guerrilla Wars

If the population of a planet is mixed (after occupation) and is subsequently attacked and occupied by a third empire, the population will consist of three factions. Both the native and initial occupying forces may generate guerrillas. These guerrillas may attack either the new marine force or each other.

If the third faction's marines are eliminated, possession of the planet reverts to the first occupying force, and half of its guerrillas are converted to marines.

14.14.8 Refugees

During an invasion there is often a flood of civilians seeking escape from nearby colonies. This does not directly impact the population value of a colony, but can add an unknown element to combat. If a planet is assaulted and

conquered by an empire, any other colonies within that same system will begin to generate refugees on the following turn. If on that turn there is combat at any of the other planets in the system, each planet will have 1d6+6 transports attempting to escape during combat. Apply a -1 modifier to the roll for each tactical turn (including the first), to a maximum of -4.

After four tactical turns have passed, the refugee exodus ends. However, if another planet is conquered in the same system, new refugees are generated and the four turn cycle resets.

Attackers gain no experience for destroying civilian ships, but defenders gain additional experience for protecting them.

14.15 First Contact

When two empires make contact for the first time, roll 1d10. Add 1 if there are communications problems (due either to terrain features or damaged systems); subtract 1 if both fleets are on Exploration orders. If one of the empires is designated Aggressive (determined before play), add a +2 modifier. If one is designated Pacifist, subtract a -2 modifier. These modifiers are cumulative, so if an Aggressive force meets a Pacifist force, the net modifier is zero.

On a roll of 5 or below, the contact is peaceful. Otherwise, the contact is hostile and a battle must be resolved. Ships are assumed to be at Cruise Stations and only 25% of the fighters on each side may begin the combat launched.

The two empires may not communicate in any way unless the contact is peaceful or until the hostile contact battle has been resolved.

14.16 Research

Each race begins with a limited selection of ships based on ISD availability. Some have more than others, but the spirit is the same. In order to obtain newer ships and ship variants research are needed and the form to do so is research points. It takes 100 research points to advance a tech year, basically increase your individual ISD by 1 year and each research point costs 30 Credits per research point.

14.16.1 Research Centers

Highly advanced labs known as Research Centers can dramatically boost your technology research. They have a substantial investment to build and maintain, but automatically build 1d6 research point per turn.

Research Centers cost 500 Ore + 1500 Credits and 4 Strategic Turns to build. They require a maintenance cost of 50.

14.16.2 Joint Research Agreements

It is possible for two empires, not at war, to have a joint research program. If the agreement is made it generates 1d3 research points per empire per strategic turn. Each empire is rolled separately.

14.17 Civil Unrest

During the course of a campaign the desires of the military and civilian populations will often clash, sometimes with disastrous results. Most empires begin with an unrest level of 20. Unrest is calculated at the end of the strategic turn and tracked for the entire empire.

Civil Unrest Modifiers:

Losing home world to foreign power: +10
Weapons of mass destruction used on empire: +8
Genocide used on captured empire colony: +6
Sanctions imposed by 3 or more empires: +5
Losing colony to foreign power: +4
Leader assassinated: +3
Breaking peaceful treaty: +2
Rebellion on colony: +2
Loss of major battle (6000+ points) +2
Loss of significant battle (4000-5999 points) +1
Declaring war on another empire: +1d6
War declared on empire: -1d3
Capturing hostile colony: -1
New technology year breakthrough: -1
Peaceful first contact with new spacefaring race: -1
Rebellion put down: -1
Successfully protecting shipping from raiders: -1

Trade route established: -1

Winning significant battle (4000-5999 points): -1

Winning major battle (6000+ points): -2

New colony: -2

Liberating captured colony: -2

Signing a treaty: -2

Referees should use their own discretion when assigning and/or adapting the above modifiers. When in doubt consider a 1d3 roll for the modifier.

14.17.1 Efficiency and Inefficiency Bonuses

High levels of unrest can cause a general slowdown in production output. Likewise low levels of unrest can increase production output. At levels of 24, apply a 5% penalty to all production with an additional 5% for each 2 points of unrest over that. At levels of 6 apply a 5% bonus to all production with an additional bonus of 5% per 2 points of unrest below that.

14.17.2 Civil War

If the unrest level reaches 30 or higher there is a chance that civil war will break out. Roll 1d20 and add +1 for every unrest point over 30. If the result is 15+, civil war starts

If civil war breaks out the player can select which side they want to fight for. The referee takes up arms as the other force. The initial system affected is chosen at random, home world is always considered to remain loyal. All ships located at the rebel's colony are considered to be rebel allied as well. Then begin rolling for each ship and colony. Roll 1d6 and compare:

1	Target joins rebel forces
2-4	Target remains unconvinced
5-6	Target remains loyal

Unconvinced forces are initially loyal but can be swayed during combat with rebel forces. At the beginning of each combat turn, the rebels attempt to convince the forces to join them. Roll 1d20 and on a roll of 17+ the unconvinced join the rebels and become non-combative for the remaining combat. Unconvinced forces cannot be swayed if damaged by rebel forces. If not attacked by rebel forces a colony can also be swayed on a roll of 17+, only one check is allowed per tactical turn.

Unless a large number of systems defect to the rebel side, the rebels will likely have to seek alliances with other empires. At this point the Rebels and Loyalists become two different empires. In all respects the rebels are treated as a separate empire.

14.18 Espionage

14.19 News Reports

There are ways of obtaining information about another empire other than through the use of agents. If a new trade route is established between two empires the news will broadcast it once it goes into effect. If war breaks out between two empires the news will cover it as well. The Referee is encouraged to create a news service, giving each player highlights of the events that have unfolded.

14.20 Cargo

For the most part the abstract supply freighters will handle all the cargo moving needs you could have, but there are times that you may want to make a deal with another race. You might want to sell a stock pile of missiles to another race (that can make use of them), you might want to sell an overstock of ore to another player or other unknown choices for whatever reasons your players might concoct.

Ore, HA Ore, Credits, Repair, and Supply points require 1 cargo box per unit. Missiles require 1 cargo box per unit. Fighter missiles can fit 2 per cargo box. Fighters require a number of cargo boxes equal to their ram factor.

14.21 Diplomacy

Sometimes a simple word can do far more than a fleet full of ships. Diplomacy is the key between war and peace with empires. Carried out during the diplomacy phase of the tactical turn, players are urged to player out their roles and act as Ambassadors of their people. Ambassadors must be

present to discuss terms and negotiate treaties and deals between empires. Negotiations can be conducted anywhere, but can often become public knowledge. The ambassadors must actually travel and rendezvous at an agreed upon location to discuss. So do not agree to meet in a particular location in one strategic turn if you cannot make it there in time. Ambassors are considered to travel back to home world if no neutral base has been established, so consider all travel times for the ambassador.

14.22 Economic Tiers

Each race is broken down into one of four tiers and ranked from tier 1, being the "highest" and tier 4 being the "lowest." Each starts with the resources and colonies below.

Major races: 22,500 credits, 18,750 Ore, 50 HA Ore, 7 Colonies (3 systems), 3 large shipyards, 3 large factories

Median races: 15,000 credits, 12,500 Ore, 20 HA Ore, 5 Colonies (2 systems), 2 large shipyards, 2 large factories

Minor races: 7,500 credits, 6,250 Ore, 10 HA Ore, 3 Colonies (1 system), 2 medium shipyards, 2 medium factories

Special class: 1,500 credits, 1,500 Ore, 5 HA Ore, 1 Colony, 1 small shipyard, 1 small factory

Appendix A: Combat Sequence

Initial Actions Step

Ship Power Segment

- Resolve power deficiencies:
  - Shortages, weapon effects, reactor criticals
- Deactivate systems for additional power
  - Divert plasma battery output to thrusters
  - Allocate power to plasma batteries for recharging
  - Declare capacitor recharge and repair doubling
- Capacitors recharge at the appropriate rates
- Transfer missiles to/from reload racks
- Configure Sensor Charge Transceivers
- Configure Flare Generators
- Announce deactivated systems/shields
- Roll for critical reactor detonation

Initiative Segment

- Hangar operations (reloading missiles, etc.) begin
- All units roll for initiative

Electronic Warfare and Ballistic Launch Segment

- Shading mode and Flare Generator mode declared
- All players secretly determine:
  - EW levels
  - Adaptive armor and Thought shield allocation
  - Ballistic weapon launch
  - Intention to reveal/hide concealed weapons
  - Fighter missions
- Tailgunners switch to/from navigator missions
- All players announce:
  - EW levels
  - Adaptive armor and Thought shield allocation
  - Ballistic weapon launch (and target)
  - Fighter missions
- Reveal/hide concealed weapons
- ELINT ships announce functions in use
  - Allocate which enemy oEW points to disrupt
- Telepaths attack

Jump Point Formation Segment

- Announce/open jump points, activate phasing drives

Movement Step

Pre-Movement Terrain Effects Segment

- Determine hyperspace current changes
- Perform other terrain-related movement

Movement Segment

- Rolling units flip over
- Pivoting units change facing
- Derelict units move
- All other units move in initiative order
  - Phasing ships announce half-phasing
  - Resolve pulsar mine fire when fighters enter range
- Resolve skin dancing attempts
- Attached breaching pods deposit Marines
- Assign EW points reserved by EW Detectors

Post-Movement Terrain Effects Segment

- Perform remaining terrain-related movement

Weapon-Based Movement Segment

- Resolve fire from weapons that move/turn targets

Combat Pivot Segment

- Fighters make combat pivots
- Bases rotate

Recovery Segment

- Capture derelict fighters/shuttles
- Recover escape pods
- Breaching pods attempt to attach

Close Combat EW Segment

- All players secretly determine CCEW targets
- Announce CCEW targets

Ramming Segment

- Resolve ramming attempts
- Activate Transverse Drives

Combat Step

Fire Determination Segment

- All players secretly determine weapons fire, defense
- Declare all offensive fire, including called shots
- Allocate defensive weapons against specific shots
- If using secret EW, announce all EW levels
- Transmit Sensor Charge Transceivers between ships

Fire Resolution Segment

- Resolve ballistic weapon impacts/explosions
  - Resolve energy draining mine launches
- Resolves weapons fire from ships
- Resolve fighter/shuttle vs. fighter/shuttle weapons fire
- Roll for drop-out
- Resolve fighter/shuttle vs. ships weapons fire
- Resolve all other weapons fire
- Launch fighter bombs

End of Turn Actions Step

Marine Attack Segment

- Determine and resolve all Marine attacks

Critical Hit Segment

- Determine and resolve all critical hits
- Resolve Energy Draining Field effects
- Destroy systems attached to destroyed structure blocks
- Reduce armor on armor-damaged systems

Vortex Activation/Closure Segment

- Jump points opened this turn become active
- Ships entering jump points removed from play
- Collapsing jump points close
- Plasma web hexes created on previous turn dissipate
- Energy draining mine fields dissipate

Hangar Operations Segment

- Fighters/shuttles attempt to escape destroyed ships
- Launch/land fighters and shuttles
- Deploy/undeploy orbital segments
- All other hangar bay operations complete

Link/Unlink Segment

- Announce release of detachable cargo holds
- Tractor beams attach/detach
- Tugs attach/detach pods

Adjust Ship Systems Segment

- Adaptive armor points released due to damage
- Adjust ship systems to account for damage
- Furl/Unfurl living ship sails
- Apply power allocated to plasma batteries
- Self-repair systems perform repairs
- Phasing ships complete phase-out/phase-in

Appendix B: Reactor Uses

B.1 Power Point Expenditure

- Increase EW output (3.3.1)
- Increase Engine output (4.3.1)
- Arm Sustained-mode weapons (5.6.4)
- Fill Plasma Batteries (8.4.12)
- Boost Spark Fields (8.6.15)
- Boost Sensor Charge Transceivers (8.6.20)
- Boost EW Wave Disruptors (8.6.16)
- Engage Tractor Beams (8.8.1)
- Boost Graviton Pulsars (8.8.6)
- Boost Graviton Bolts (8.8.7)
- Boost Gravitic Augmenters (8.8.14)
- Create Missile in Class-LL Rack (8.11.3.2.1)
- Reduce Advanced Jump Engine Delay (10.18.5)
- Boost Variable Energy Draning Fields (10.18.13.1)

B.2 Power Point Reclamation/Efficiency

- Advanced Engine Module (10.7.1.9)
- Expert Technician (10.7.4.5)
- Expert Surge Officer (10.7.4.18)
- Reactor Specialist (10.7.7.12)

B.3 Plasma Batteries

- Power Plasma weapons (8.4.12)
- Increase Engine output (8.4.12)
- Expert Plasma Scientist (10.7.6.9)

Appendix C: Campaign Turn Sequence

Tactical Turn

There are 4 tactical turns for every 1 strategic turn.

Order Phase

Check for Raider activity

Supply Points/Marines transfer to/from ground

Shuttles/Fighters transfer to/from other units

Task Forces receive orders

Agents receive orders

Guerrillas receive orders

Empires negotiate with one another

Action Phase

Sensor Net rolls made and revealed

Agent actions resolved

Raider activity resolved

Task Force movement orders resolved

Task Force attack orders resolved **[Combat Sequence]**

Planetary Bombardment resolved

Assault orders resolved

Guerrilla orders resolved

Strategic Turn

Upkeep Phase

Check for random events

Government Options take effect

Production/Training orders complete

Research orders complete

Systems produce credit, Ore, HA Ore,
maintenance, food

Trade routes produce credit

Check for starvation, food

Check for disrepair, maintenance

Supply lines resupply

Check colony status

Orders Phase

Place production orders

Place training orders

Choose government options