

Fires of Space Rules

1. Introduction. This game simulates battles that will take place only in our imaginations – battles between interstellar space ships. While the battles are not real, they are the standard stuff of many works of science fiction. Think Poul Anderson's Terran Empire, Niven and Pournelle's Motie universe, Asimov's *Foundation*, interstellar empires and interstellar conflicts, "space opera," military science fiction, *Battlestar Galactica* (okay, maybe not *Battlestar Galactica*).
2. Scales. The game has two scales: one for operational movement and one for tactical movement.
 - a. In the operational game, one turn is 2 hours, one hex represents an area 518,400 kilometers across, and one G of thrust is a game turn of thrust at 0.01 kilometer per second per second.
 - b. In the tactical game, one combat turn is 6 minutes, one hex represents an area of 12,960 kilometers across, and one G of thrust is a tactical game turn of thrust at 0.1 kilometer per second per second.
3. Playing Surface. The game is played on a hex grid. The hexes regulate movement and distance measurement. Two hex grids are used: one for the operational game and one for the tactical game. Some scenarios use only the tactical game hex grid. Both hex grids measure 50 hexes by 50 hexes. For both, hex 2525 is considered the center of the grid.
4. Markers. In this game, cardboard markers are used to represent each player's forces.
 - a. Each unit of ships or missiles is represented by 3 separate markers. A unit of ships or missiles can consist of any number of ships or missiles, as long as they all have the same locations. Ship markers have a triangle at the top. Missile markers have an arrow at the top. Ships and missiles may not be mixed in the same unit.
 - b. The two opposing sides use markers with different colored bands or characters. One side uses the markers that designate units with letters. These markers are red for ships and orange for missiles. The other side uses the markers that use numbers to designate units, with blue for ships and green for missiles.
 - c. Each unit has 3 locations, with each location represented by a marker. These are the unit's past location, its present location and its future location. The unit's present location is simply that – the location that the unit occupies at the start of the current turn. The unit's past location is the location that it occupied in the prior turn. The unit's future location marker marks the location that the unit will occupy at the beginning of the next turn.
 - d. Ship units have 2 sets of past, present, and future position markers. One is for use on the tactical grid. The other is used on the operational grid. Missiles only have one set of markers, which are used on the tactical grid.
 - e. In addition to position markers, the marker set also includes intercept markers. These are used on the operational map to indicate units that are attempting to intercept other units.
5. D20 Probability Table. The game will call for players to roll a lot of twenty-sided dice – D20s. Included with the game is a D20 probability table to streamline these rolls. The table permits 1 D20 roll to stand in for as many as 9 D20 rolls. If players are required to roll more than 9 D20, they can group the rolls into 2 or more groups and roll for those. For example, a player required to make 24 D20 rolls could roll 3 times on the D20 Probability Table, using the rows in the table for 8 attempts. The D20 Probability Table describes how it is used. Players should always use the D20 table for rolls of more than 3 D20 calling for the same result.

6. Units. Ships on the same side may freely join into ship units if they have matched course and speed. They may combine at any time that this conditions is met. Ships in a ship unit may leave the unit at any time, even if they continue to share the same hexes. Missiles launched by different ships may join into units as long as the ships were all part of the same unit when the missiles were launched and the missiles have matched course and speed. Missiles in a unit may split into different units at any time.
7. Some Common Terms. As used in these rule, the following terms have the following meanings,
 - a. "Bear the same relationship." When 1 marker ("marker 1") is to bear the same relationship to a second marker ("marker 2") as the second marker does to a third ("marker 3"), marker 1 should be positioned so that it is as far away from marker 2 as marker 2 is from marker 3, and so that a straight line drawn from the center of marker 3's hex through the center of marker 2's hex would extend on to pass through the center of marker 1's hex. For example, if after movement a unit's present marker is 3 hexes up and 2 hexes left of its past marker then the unit's future marker would be placed in the hex 3 hexes up and 2 hexes left of its present marker. If a line were drawn between a unit's present marker and past marker, the unit's future marker would be placed on the extension of that line forward from the present marker for the distance separating the past and present markers.
 - b. "Intercept." One unit has intercepted another when its present position marker is in the same hex as the present marker of the other unit. This would have been preceded by the future markers of both units sharing the same hex.
 - c. "Match course and speed." A unit has matched course and speed with another unit when its past, present and future position markers are each in the same hexes as the past, present and future markers of the other unit.
 - d. "Speed relative to." To measure one unit's speed relative to another unit, pick one of the units and place an unused marker on it. Then place a second unused marker so that it bears the same relationship to the first unused marker as the second unit's future marker bears to its present marker. Count the hexes from the first unit's future marker to the second marker of the other unit. The distance is each unit's speed relative to the other.
 - e. "Stationary." A unit is stationary if its past, present and future position markers are all in the same hex.
 - f. "Unit" means all the ships or missiles represented by one set of past, present and future markers. Units may be ship units – containing only ships – or missile units – containing only missiles. Missile units only appear on the tactical map.
8. Ship Specification Sheets. Ship specifications are shown on specification sheets. Each sheet shows a ship's details, as follows:
 - a. The ship's class,
 - b. The ship's electronic suite,
 - c. The ship's armor level (if any),
 - d. The ship's maneuver rating, in multiples of 0.01km/sec/sec of acceleration,
 - e. The ship's meson screen level (if any),
 - f. The ship's size,
 - g. The ship's main beam weapons (if any), showing their type (particle accelerators or meson guns) and their penetration ratings at various ranges,
 - h. The ship's target values, where are a function of a ship's size and the range to the ship,

- i. The ratings of the ship's point defense weapon weapons, for use against missiles and small craft,
 - j. The ship's maximum jump distance, in multiples of 10 light years,
 - k. The minimum time (in operational game turns) that the ship must prepare before jumping,
 - l. The number of the ship's crew and any troops carried by the ship,
 - m. The power produced by the ship's power plant,
 - n. The ship's mass in metric tons,
 - o. The ship's cost in millions of credits,
 - p. The number of passengers that the ship can carry,
 - q. The amount of cargo (in metric tons) that the ship can carry,
 - r. The ship's damage table (used with the optional damage rules),
 - s. The details of how many rolls are made on the damage table for each effective hit,
 - t. The ship's damage numbers (for the basic damage rules), and
 - u. The details of any missiles that the ship carries.
 - v. The space at the bottom of the ship specification sheet can be used to record individual ship names, hits on ships, missiles launched and destroyed, arrival time and destination of jumps, ships surrendered or ransomed, etc.
9. **Scenarios.** The game rules are a framework for playing battles. Individual games are based on scenarios that describe the forces on each side, the starting positions of the forces, the length of the game, how the game is won, and any special rules that apply to the scenario. Some scenarios use only the tactical grid, while others use both the operational grid and the tactical grid.
10. **Turn sequence.** The game is played in turns.
- a. **Operational Game Turns.** Each operational game turn has the following segments.
 - i. **Initiative Phase.** Each player rolls D6 and adds the highest electronic suite rating of any ship on that side. The side with the highest adjusted roll has initiative for that turn. In case of a tie, the side with the highest electronics suite rating has initiative. If the result is still a tie, roll again. In performing each of the actions below, the player with initiative goes after the player without initiative.
 - ii. **Movement Phase.** Players move units on the hex grid. It is easier to remember which units have moved and which have not by moving units in a set order, for example by moving units in order of their number or letter designators with first one side moving and then the other.
 - iii. **Tactical Engagement Phase.** Players determine whether tactical engagements result from movement. A tactical engagement may take place any time that the 2 opposing units moving at a relative speed of 20 or less have intercepted each other. If a tactical engagement results, set up the engaged units on the tactical hex grid (using the second set of ship unit markers) as described in the tactical game rules.¹
 - iv. **Thrust Phase.** Players may apply thrust to move the future marker of each unit, except for those units in tactical engagements. A unit applies thrust in a turn based on its maneuver rating. Players move future markers as thrust is applied. This occurs in sub-phases and is described in detail in the section on movement.

¹ For players with space challenges, the operational grid can double for the tactical grid. Just note the positions of the units on the operational grid with paper and pencil, then remove them and use the operational grid as a tactical grid.

- v. **Damage Control Phase.** Players determine the status of hits inflicted in combat and not repaired in the course of a tactical engagement.
 - vi. **Jump Phase.** Players plot jump movement for eligible ships, and place units on the grid in their pre-plotted positions as they complete jumps.
 - vii. **Special Action Phase.** Players determine whether ships are subject to ransom, capture or scuttling, based on the rules for those events. Opposing ships must have matched courses and speeds for those events to apply.
- b. **Tactical game turns.**
- i. All tactical games begin with an initial placement and maneuver phase that precedes all combat.
 - ii. Once the initial phase is complete, each turn of the tactical game consists of the following phases.
 - 1. **Initiative Phase.** Initiative is determined as in an operational turn. In performing the actions below, the player without initiative acts before the player with initiative.
 - 2. **Movement Phase.** All units are moved. As with the operational game, the order of movement is not important as long as the players keep track of which units have moved and which have not. If missile units are launched, their past, present and future markers are placed in the hexes with the markers of the ship units launching them. The player launching the missiles makes a note of the maximum maneuver rating that the missiles will use. As noted on the ship specification sheets, missiles that commit to move at less than their maximum rating will have increased penetration.
 - 3. **Missile Thrust Phase.** Missiles targeting ships apply thrust to their future position markers.
 - 4. **Anti-missile Thrust Phase.** Missiles targeting missiles apply thrust to their future position markers.
 - 5. **Beam Weapon Fire Phase.** All ship units fire beam weapons. Results take effect at the end of the phase, but the player without initiative fires before the player with initiative.
 - 6. **Point Defense Phase.** All ships fire point defense weapons at missiles and small craft.
 - 7. **Anti-missile Attack Phase.** All missiles targeting missiles with present position markers in the same hex with the present position markers of their targets resolve attacks.
 - 8. **Missile Attack Phase.** All missiles targeting ships with present position markers in the same hex with the present position markers of their targets resolve attacks.
 - 9. *Optional: Damage Control Phase. If the optional damage rules are in use, ships attempt to repair damage. Players may elect to shut down ship power plants. P hits are checked to see if they cause additional damage or a catastrophic explosion.*
11. **Movement in Normal Space.** Movement in normal space follows different principles in this game than in most other games. It takes into account the conservation of momentum that comes with

travel without the effects of friction and (for the most part) gravity. Movement in normal space is different from jump movement, which involves movement at speeds faster than light.

- a. Each unit is represented on the playing grid by three markers – one showing the unit's position in the previous turn (the "past" marker), one showing its position in the current turn (the "present" marker), and one showing its position in the next turn (the "future" marker).
- b. At the start of a scenario, the scenario rules will tell how each unit's markers should be placed on the operational or tactical grid.
- c. Each turn (whether operational or tactical), each unit's markers are moved. The unit's past marker is moved to the hex of its present marker. The unit's present marker is moved to the hex of its future marker. The unit's future marker is then moved to the hex that bears the same relationship to its present marker as its present marker does to its past marker. So as not to lose track of unit positions, players should always follow the sequence of moving a unit's past marker to the hex of its current marker, then moving its present marker to its future marker hex, then determining the new position of the unit's future marker.
- d. Thrust permits units to change course and speed. Thrust is applied by moving a unit's future marker. The rules for applying thrust are different for the operational game and the tactical game.
- e. Thrust in the operational game. Thrust is applied hex by hex in a series of sub-phases in the Thrust Phase.
 - i. Each ship unit has a maneuver rating equal to the lowest maneuver rating of any ship in the unit.
 - ii. The maneuver rating is the number of hexes that the future marker of the unit may be moved in any Thrust Phase.
 - iii. Future markers are moved in sub-phases. The number of sub-phases equals the highest maneuver rating of any ship unit in the game.
 - iv. The ship unit with the highest maneuver rating can move its future position marker 1 hex in each sub-phase. A unit with a maneuver rating 1 less than the highest could move its future marker 1 hex in each sub-phase except the last one. A unit with a rating 2 less than the maximum could move in each sub-phase except the last 2, and so on down to a unit with a rating of 1, which could only move its future marker in the first sub-phase.
 - v. Within each sub-phase, the side without initiative moves its applicable future markers before the side with initiative.
 - vi. Interceptions. As an exception to iv. and v. above, a player can declare that one or more of his or her units is intercepting opposing units. Once this declaration is made, place the intercept marker corresponding to the unit being intercepted on the future marker of the interceptor. This potentially changes the order in which the interceptor moves its future marker.
 1. The interceptor moves immediately after the unit being intercepted.
 2. If the unit being intercepted has a higher maneuver rating than the interceptor, the interceptor moves its future marker in the last sub-phases in which the unit being intercepted is able to move its future marker.

3. Example: a unit with a maneuver rating of 2 is attempting to intercept a unit with a maneuver rating of 3. The intercepting unit would move its future marker in the last 2 sub-phases in which the other unit moves its future marker.
4. The interceptor must attempt to move its future marker to be closer to the opposing unit's future marker in each of its moves.
5. The player with initiative may declare an interception before the player without initiative. Players then alternate declaring interceptions as long as both want to make interception attempts. One player may continue to declare interception attempts even if the other player declines.
6. A unit may not declare that it is trying to intercept a unit that is trying to intercept it.
7. Interceptions have to be declared every turn, at the beginning of the Thrust Phase. They do not last from turn to turn.
8. If interceptions create a loop of units (for example, A intercepting 1 intercepting B intercepting 2 intercepting A), the player with initiative may determine where in the loop the process of moving the future markers of the intercepting ships begins.
9. The interception process is not used in the tactical game.
 - vii. In situations where ships are not in close proximity, players may agree to apply thrust to their ships in a single phase, with the player without initiative going first.
- f. Thrust in the tactical game. The tactical game has different rules for thrust. Ship units apply thrust before the combat turns of the game begin. Missile units apply thrust during the combat turns, but using a different sequence than that of the operational game.
 - i. Ship units apply thrust only in the initial phase of a tactical engagement.
 - ii. Each unit may apply thrust based on its maneuver rating, as in the operational game.
 - iii. In addition, ship units may apply thrust based on the highest electronic suite rating of any ship in the unit, figured as follows.
 1. Both players declare the highest electronic suite ratings in each of their units.
 2. Any units with the lowest ranking electronic suite rating in the engagement receive no additional hexes of thrust.
 3. Units with an electronic suit 1 level higher than the lowest receive 1 additional hex of thrust. Units with suites 2 higher receive 2 additional hexes of thrust and so on until the unit with the highest rated suite is reached.
 4. These additional hexes of thrust are received through as many additional movement sub-phases as are needed to accommodate all basic maneuver ratings plus all additional hexes of thrust received due to electronic suites.
 5. Once ships have applied thrust in this initial phase, they do not apply thrust in combat phases. Their courses are fixed for the rest of the engagement.
 - iv. Thrust is applied in sub-phases 1 hex at a time, with the player without initiative going first.

- v. Missile units begin the tactical game having matched courses and speeds with the ship units that launched them. They maneuver in each combat phase using the following rules.
 - 1. Missiles with ship unit targets declare their targets and move their future markers any number of hexes up to their maneuver rating.
 - 2. Missiles with missile unit targets then declare their targets and move their future markers any number of hexes up to their maneuver rating.
 - 3. The player without initiative moves missiles first in each of these phases, followed by the player with initiative.

12. **Jump Movement.** Jump movement is movement at speeds faster than light. It enables ships to move within star systems and from star system to star system.

- a. Within a star system, jumps are considered to be instantaneous. Between star systems, the time spent in jump movement relates to the distance between the systems. Where a scenario includes more than 1 star system, it will give the travel times between the systems.
 - b. Ships must remain stationary before they may jump. Each ship specification sheet lists the number of operational turns that the ship must remain stationary before it can jump. For example, a ship with a 3 turn jump time would have to remain stationary for 3 turns before jumping. If it began the jump process in the Jump Phase of turn 4, it could jump in the Jump Phase of turn 7.
 - c. In the Jump Phase of a turn in which a ship is stationary, the owning player may secretly note that the ship is jumping and record the turn on which it will jump and the location to which it will jump. Once a location is selected, the ship must either jump to that location or restart the process of waiting the number of turns needed to make a jump.
 - d. A ship's jump rating also determines the number of jumps for which the ship may prepare before its jump drive must be recalibrated.
 - i. Each preparation for a jump counts against this limit, whether or not a jump is made.
 - ii. Military jump drives require 4 operational turns to recalibrate. Civilian drives require 8 operational turns. In either case, the ship may perform any other activity while recalibrating except preparing for a jump.
 - e. The ship must remain stationary during the waiting period. It may attack and be attacked, but if it applies thrust it cancels the jump process.
 - f. Ships may not jump within set radii of large masses, such as moons, planets, and stars. Scenario special rules will state the locations of these masses and the distances that ships must be from these masses to be able to jump.
 - g. Ships that jump in a turn are placed in their destination hex in the Jump Phase of their jump. They are stationary when placed on the grid.
13. **Detection.** Opposing ships may be detected in any of the following 3 ways. A ship must be detected during an operational turn before it may be engaged by opposing ships in a tactical engagement.
- a. Ships under thrust are detected when they first use thrust and then remain detected for the remainder of the game. The owning player must announce when a previously undetected ship unit first uses thrust by placing past, present and future marker for the unit on the grid. The owning player must announce whether the ship is civilian or military

and must announce the tonnage of the ship within a margin of 25% of the ship's actual tonnage. For example, the owning player could announce that a 5,000 ton ship was a ship of 3,750 tons, a ship of 6,250 tons, or any amount in between these 2 values.

- b. Any ship that was not stationary at the start of the game is detected at the start of the game. To be in motion, it must have used thrust at some point before the start of the game. This may be changed by scenario special rule, as for example, when a ship in a system used thrust before enemy ships jumped into the system.
 - c. Ships that jump are detected at the moment they jump. The location that they jumped from is revealed, and the owning player must give the same information as would have to be given if the ship used thrust. A jumping ship's destination hex is not revealed.
 - d. Even if it not under thrust, a ship is detected if an opposing ship's present marker within 6 hexes of its present location. For this type of detection, only the presence of the ship is revealed.
14. Tactical Engagement Set-up. When the present markers of opposing units share the same hex, a tactical engagement may result.
- a. The concept behind simulating tactical engagements should help to make sense of the tactical engagement rules. The idea here is that ships are not able to make significant changes to their speeds or courses during the engagements themselves. Instead, opposing commanders concentrate on setting courses and speeds for best tactical advantage before closing to weapons range. Once ships are to the point of shooting at each other, they follow fixed courses and speeds. Maximum effective beam weapons range is 16 hexes.
 - b. A unit is not set up for tactical combat if its speed relative to all opposing units is more than 20 hexes.
 - c. The second set of ship unit markers is used to portray units on the tactical map. The markers for the units involved in the action remain in place on the operational map until the tactical engagement is resolved.
 - d. Place any engaging units on the tactical map, using the following rules.
 - i. If the unit has jumped into the hex and not moved, or began the game stationary in the hex, place the unit's future marker by rolling D20 and D6. The D20 roll determines how many hexes away from grid center (hex 2525) while the D6 roll determines the unit's orientation to the center. In determining orientation, a roll of "1" means that the unit is displaced from the center hex of the map up the center hexrow in the direction of decreasing hex numbers. A roll of "2" means that the unit is displaced on a line 60 degrees clockwise from the line of decreasing numbered hexes running from the center hexrow. Each succeeding number indicates an additional 60 degrees from that line of hexes.
 - ii. If the unit has moved into the hex under thrust, determine the hexside through the unit has moved. For a unit with a path that splits 2 hexsides, the unit is considered to be entering through the hexside furthest to the clockwise.
 1. Each hexside on an operational map hex corresponds to an entry area on the tactical map. There are 6 entry areas, 1 for each hexside of a tactical map. Each of the 6 entry areas is 20 hexes away from the center hex, and

- each is centered on a straight row of hexes leading to the map's center hex.²
2. Roll D20. Using the result, place the unit's second present marker (the marker not in use on the operational map) in the hex in the appropriate entry area matching the number rolled on the D20.
 3. Once a unit's present marker is placed, place its future marker in the same position relative to the present marker that the unit's future marker occupies on the operational map.
 4. If 2 opposing units are entering through the same hexside, the unit further to clockwise is instead set up as if it is entering from the next hexside clockwise from the hexsides from which the enemy unit is entering.
- iii. The owning player rolls separately for each ship unit in the engagement.
 - iv. Once a present and future marker is placed for a unit, the owning player places its past position markers on the grid. These are placed in the same relation to the present marker of the unit as they have on the operational map. They need not be placed on the first turn of a tactical engagement if they would be off the hex grid.
 - v. If the scenario being played is purely tactical and no set-up instructions are given, the set-up process changes as follows.
 1. Begin the placement process by rolling D6 to determine the entry area of a unit. Opposing units may not enter from the same direction – that is, begin the set-up process in the same entry area. If this results from the random set up process, reroll for the opposing unit until a different entry hex is rolled for it.
 2. Roll D20. Using the result, place the unit's second present marker (the marker not in use on the operational map) in the hex in the appropriate entry area matching the number rolled on the D20.
 3. Determining the location of a unit's future marker by rolling D6 for its distance from the unit's present marker in the direction of the map's center hex. If the unit's present marker is on a line of hexes running straight to the center hex, place the unit's future marker on that line of hexes. If the unit's present marker is on such a line of hexes, place the unit's future marker on the line of hexes parallel to the line of hexes leading directly to the map's center hex.
 4. Then roll D6 to determine if the future marker is moved clockwise or marker clockwise. On rolls of "1" or "2," there is no movement. On any other roll, the future marker is offset 1 or 2 hexes clockwise or marker clockwise, keeping it at the same distance from the unit's present marker. On a roll of "3," move the unit 1 hex clockwise. On a roll of "4," move it 2

² For the game without a marked map, the center hex is 2525, the entry area for direction 1 is centered on hex 2505, the entry area for direction 2 is centered on 4515, the entry area for direction 3 is centered on 4535, the entry area for direction 4 is centered on 2545, the entry area for direction 5 is centered on 0535 and the entry area for direction 6 is centered on 0515. Each entry area consists of 20 hexes, in 5 rows extending 4 deep from the hex on which the area is centered. Each hex in the first row is 20 hexes distant from the map's center hex, with 2 hexes on each side of the center hex of the entry area. The other 3 rows are directly behind the first row, with each row 1 hex further away from the center of the map. The hexes of each entry area are numbered from 1 through 20.

hexes clockwise. On a roll of "5", move the unit 1 hex marker clockwise, and on a roll of "6" 2 hexes marker clockwise.

- vi. Guide Formations. For friendly formations with matching courses and speeds, the owning player may elect to place all of the formations but 1 on the tactical map by stating their position in relation to that 1 formation (the "guide formation"). The player must state the positions of the other formations before the guide formation is placed on the tactical map. The other formations must begin within 2 hexes of the guide formation.
- e. Once all engaged units are placed on the map, the players apply thrust as described above. Once all thrust has been applied, move each unit's past position marker so that it is in the same position relative to the unit's current position marker as that marker is to the unit's future marker.
- f. After ship unit markers are positioned, players may place missile unit markers in the same hexes as the ships that launched them. Players record the maximum maneuver rating that each missile unit will move. As noted on the ship specification sheets, missiles that move at less than their maximum rating will have increased penetration. The players are now ready to begin combat turns.

15. Ending Tactical Engagements.

- a. Tactical engagements end when any of the following apply.
 - i. All of one player's ships are destroyed.
 - ii. At least 10 turns have elapsed, and no ship unit is within 24 hexes of an opposing ship unit.
 - iii. 20 turns have elapsed.
- b. When a tactical engagement ends, all missile units are removed from play. On the operational map, adjust the future markers of surviving ship units to match the orientation of those markers to the units' present markers on the tactical grid. The ship units then move normally in the following operational turn.
- c. If a unit's movement would take it off the map during a tactical engagement, displace all the markers on the map to keep the unit on the map.

16. Tactical Combat. Combat takes place in 4 phases: the Beam Weapons Phase, the Point Defense Weapons Phase, the Anti-missile Missile Attack Phase, and the Missile Attack Phase.

- a. Ships fire their main beam weapons in the Beam Weapons Phase. These are described on the ship specification sheets as particle accelerators or meson guns.
 - i. The player without initiative attacks with his or her ship's weapons first, then the player with initiative attacks. Results of all attacks take effect simultaneously at the end of the phase.
 - ii. Players make a number of D20 rolls to attack with beam weapons.
 - 1. Roll for each weapon firing. Roll against the target value (a) less the target's electronic suite rating and maneuver rating and (b) plus the firer's electronic suite. Rolls less than or equal to the adjusted target rating are successful. As reflected on the ship specification sheets, a ship's target value varies with range.
 - 2. For each successful roll, make a second roll against the weapon's penetration value less any applicable defensive value of the target. For particle accelerators, the applicable defensive value is armor. For meson

guns, it is screens. Rolls equal to or less than the adjusted penetration value are successful. In addition, rolls of 1 are always successful regardless of the adjusted penetration value.

- iii. Each ship has a basic damage number and a “roll to increase” number. These numbers reflect the potential for each hit on the ship to cause damage.

Determine the damage number for a series of hits as follows.

1. Multiple the number of effective hits scored in the phase by the ship’s basic damage number.
 2. Roll D20 for each effective hit. For each roll equal to or less than the target’s “roll to increase” value, increase the damage number by 1.
- iv. Once the damage number is known, roll D20.
1. If the roll is less than or equal to 2 times the ship’s final damage number, the target ship is degraded.
 2. If the roll is less than or equal to the ship’s final damage number, the target ship is damaged.
 3. If the roll is less than or equal to $\frac{1}{2}$ the ship’s final damage number (with fractions rounded down), the target ship is disabled.
 4. If a ship receives a second disabled result when it is already disabled, it is destroyed. Combat results are not otherwise cumulative in their effects. However, additional degraded or damaged results against the same ship should be recorded as they occur.
 5. The Damage Effects Chart lists the effects of the combat results listed above.

- v. Example: A ship has a basic damage number of 1 and a “roll to increase” number of 12. The ship takes 6 effective hits in a phase. The attacking player rolls 6 D20, with 4 of the rolls being at or below 12. The ship’s final damage number is 6 plus 4, or 10. The attacking player rolls 1 D20. On a roll of 11-20, the target ship is degraded. On a roll of 6-10, it is damaged. On a roll of 1-5, it is disabled.

- vi. *Optional Rule: Detailed Damage.* Players wanting a more detailed modeling of damage may use the following rules instead of the damage rules above.

1. *Each ship specification sheet has a damage chart and 1 or 2 numbers associated with the chart. The first number associated with the chart is the number of D20 rolls on the damage chart that result automatically from each successful penetrating hit. The second is the number (or less) that must be rolled on D20 for each successful penetrating hit to result in 1 additional roll on the target ship’s damage table. For some larger ships, the first number may be 0, indicating that no damage table rolls occur automatically.*
2. *If rolls in addition to the automatic rolls are possible, roll D20 for each successful penetrating hit to see if the additional rolls will be made.*
3. *Once the total rolls are known, make that number of D20 rolls and consult the target ship’s damage chart. The hits resulting from each roll are cross-indexed to the numbers rolled.*
4. *Record the damage on the target’s ships specification sheet.*

5. *For each unsuccessful penetration roll, roll D20. On a roll of 1-4 the target receives an S hit.*
 6. *The Alternate Damage Effects Table explains the effect of each damage result. While a certain number of hits to a system will make it unusable, the system can continue to accumulate hits. These additional hits will be relevant to attempts to repair the system.*
 7. *Example. A ship with damage table numbers of 0 and 12 receives 6 penetrating hits in a phase. The player scoring the hits rolls 6 D20, with 4 rolls at or below 12 resulting. The player then rolls 4 times on the ship's damage table.*
- vii. *Beam weapons may be fired at missiles and small craft, but only at ranges of 0-4 hexes. A missile or small craft's final target value is always 1 for the purpose of beam weapons fire. Any hit on the target automatically destroys it.*
- viii. *Optional Rule: Dispersed and Concentrated Beam Weapons Fire. Players may elect to have ships with multiple beam weapons fire them using concentrated fire or dispersed fire. Concentrated fire increases the chances of a beam weapon hit penetrating; dispersed fire increases the chances of multiple beam weapons scoring a single hit. Players declare that they are using concentrated or dispersed fire before rolling for the relevant beam weapon fire.*
1. *For dispersed fire, ships make fewer die rolls but at increased target values. Determine the number of beam weapons that will combine their fire into one roll. Multiply that number by the target value and divide the result by 2. This becomes the new target value for the attack. Adjust the target value for maneuver and electronic ratings after this calculation. Players may elect to have some beam weapons on a ship fire normally and others fire using the dispersed rule.*
 2. *For concentrated fire, ships make fewer die rolls to hit the target but hits have an increased penetration value. Determine the number of beam weapons that will combine their fire into one roll. Add the penetration values of the weapons and divide the result by 4. This is the penetration value of the attack, which is then adjusted by any armor or screens of the defending ship. Players may elect to have some beam weapons on a ship fire normally and others fire using the concentration rule.*
 3. *Players may not have the same weapons fire in both dispersed and concentrated modes.*
 4. *Examples:*
 - a. *A ship with 8 beam weapons and an electronic suite of 3 fires at a ship with a target value of 3 and an electronic suite of 5. Rather than rolling 8 times at an adjusted value of 1, the firing player elects to roll once at target value of $8 \cdot 3 / 2 = 12$, adjusted to a final value of $12 + 3 - 5 = 10$.*
 - b. *A ship with 16 beam weapons with penetration values of 7 fires at a ship with an armor value of 12. Rather than rolling for penetration at the minimum value of 1, the firing player elects to concentration fire by rolling once. The attack would have a*

penetration factor of $16 \times 7/4 = 28$. If the attack hit, the adjusted penetration factor would be $28 - 12 = 16$.

- ix. Ships fire their point defense batteries in the Point Defense Weapons Phase. These weapons may only be fired at missiles or small craft, not at ships. Roll D20 for each battery. The battery hits on a roll equal to or less than the battery's strength divided by the target's defense value. Any hit destroys the target.
- x. Missiles targeting other missiles attack those missiles in the Anti-missile Attack Phase.
 - 1. To attack, the missiles must intercept their targets.
 - 2. Roll D20 for each attacking missile. Roll against the target's size (a) less the target's maneuver and guidance rating and (b) plus the attacking missile's maneuver and guidance rating. Any roll less than or equal to this adjusted value is a hit. Any hit destroys the target.
- xi. Missiles targeting ships attack those ships in the Missile Attack Phase. Players make 2 separate D20 rolls when attacking ships with missiles.
 - 1. To attack, the missiles must intercept their target.
 - 2. Roll D20 for each attacking missile. Roll against the target's target value (a) less the target's electronic suite rating and maneuver rating and (b) plus the attacking missile's maneuver and guidance rating. For any roll less than or equal to this adjusted value, roll for penetration.
 - 3. For each hit, roll D20 to see if the hit penetrates. A hit penetrates if the roll is less than the penetration value of the missile less the armor value of the target. A roll of 1 is always a successful penetration, regardless of the adjusted value.
 - 4. *Optional. If the optional damage rules are being used, roll D20 for each unsuccessful penetration roll. On a roll of "1-4" the target receives an S hit.*

17. Damage Control.

- a. A damage result may not be permanent. In the Damage Control Phase of each combat turn, players check to see whether their ships repair damage. This only applies to ships that are not disabled or destroyed. Roll D20 for each degraded or damaged result. On a roll of 1-6, the ship removes the degraded result. On a roll of 1-3, the ship removes the damaged result. Double the die roll result for any civilian ship. Any damaged or disabled result not removed on the first attempt is considered permanent for the remainder of the game.
- b. For purely tactical scenarios, players check for damage control at the end of the engagement as they would in the Damage Control Phase of an operational turn.
- c. *If the optional damage rules are used, use the following damage control rules in combat turns.*
 - i. *Select 1 damage result on each ship and roll D20. On a roll of 1-6, the hit is repaired. On a roll of 18-20, the hit becomes permanent and cannot be repaired with the ship's own resources.*
 - ii. *As a way of tracking this, players may wish to strike out repaired hit and circle permanent hits.*

- iv. Divide that number into 4 times the number of ship's troops on ships that have matched course and speed with the damaged ship. Drop any fractions.
 - v. Roll D20. If the roll is less than or equal to the number computed in iv. above, the capture attempt succeeds.
 - vi. If the capture attempt fails, the damaged ship scuttles.
 - vii. Captured ships may not be recaptured. They may not use weapons or launch missiles. They may be destroyed by the capturing player. They may be destroyed by the side originally owning them, if a ship from that side meets the criteria for forcing the scuttling of the captured ship.
- c. Ransom. Civilian ships may be subject to ransom. If an opposing ship matches courses and speeds a civilian ship, the opposing ship has at least one operable beam weapon and the civilian ship has none, and the opposing ship has a greater maneuver rating than the merchant ship, then the civilian ship is ransomed by the opposing ship. Note this on a separate sheet of paper.
19. Endurance. [Reserved.]
20. Bases. [Reserved]
21. Transport Missions. [Reserved.]
22. Ship Pools. [Reserved.]
23. Victory Points. Victory points (VPs) are awarded based on hits scored, ships destroyed or captured, capture attempts defeated, missiles used, and scenario special conditions. A player must have at least 50 VPs more than his or her opponent to win. Any other result is a tie. A player gets VPs as follows:
- a. VPs equal to 10% of the cost of each degraded opposing ship,
 - b. VPs equal to 25% of the cost of each damaged opposing ship,
 - c. VPs equal to 50% of the cost of each disabled opposing ship,
 - d. VPs equal to an opposing ship's cost if the ship is destroyed or scuttled,
 - e. VPs equal to 2 times an opposing ship's cost if the ship is captured and not destroyed,
 - f. VPs equal to half the opposing ship's cost if the opposing ship is ransomed,
 - g. For each ship, apply only the award above that results in the most VPs.
 - h. VPs equal to the cost of all missiles launched by the opposing player during the game,
 - i. VPs for any conditions specified in scenario special rules, and
 - j. 100 VP for each failed attempt by the opposing player to capture one of the player's ships.
 - k. *If the optional damage rules are used, the following applies in place of the VPs for degraded, damaged or disabled ships:*
 - i. *VPs equal to 2.5% of an opposing ship's cost for each permanent S hit scored on the ship, up to a maximum of 4 hits,*
 - ii. *VPs equal to 5% of an opposing ship's cost for each other permanent hit scored on the ship, up to a maximum of 15 hits,*
 - iii. *Players do not get VPs for hits on ships that are scuttling, captured or ransomed.*