Rules

INTRODUCTION

Star Cruiser is a game of naval combat in the 24th century. However, the navies it represents are those which guard the spaceways rather than the seas. In the 20th century, the naval forces of a state are most often engaged in three missions. coastal defense, commerce protection (or raiding), and force projection. In the 24th century, stellar navies will strive to carry out similar missions. The coasts of a state, however, will be orbital space, and commerce will be with inhabitants of other star systems.

GAME COMPONENTS

The following components are included in *Star Cruiser*·

Two Maps: Each map shows a starfield and has a hexagonal grid superimposed Each hexagon (hereafter "hex") represents 600,000 km of space from side to side.

One Counter Sheet: Counters representing 60 large ships and 120 small vessels, drones, torpedoes and game markers are included.

One Naval Architect's Manual: This manual explains the principles used in the design, construction and use of starships, and gives complete rules enabling you to design and build your own vessels.

One Data Form Booklet: This booklet has the ship data forms necessary for playing the game.

Two Combat Charts: These summarize all relevant combat charts and tables.

One 10-sided Die: The die is used to generate random numbers. Unless otherwise stated, all rolls are made using a 10-sided die for a 1-10 result.

This Rule And Scenario Book.

SEQUENCE OF PLAY

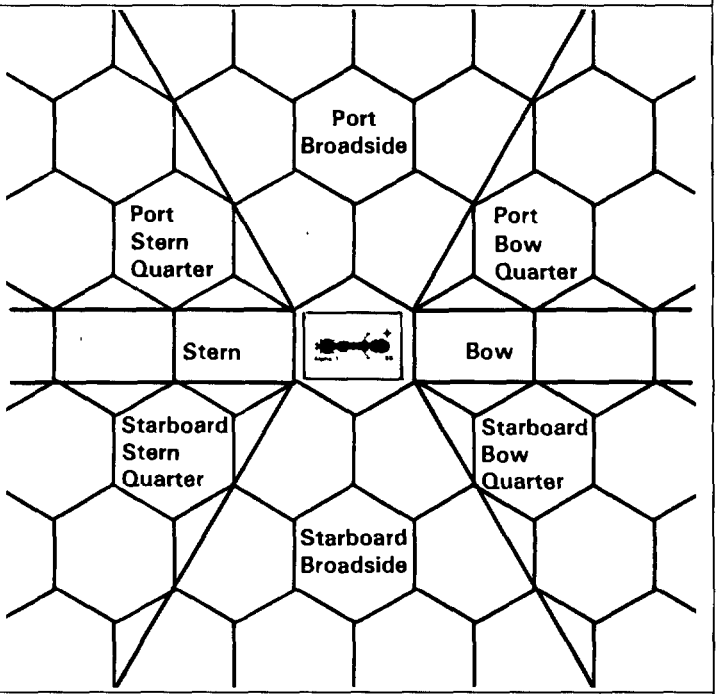
Star Cruiser is played in turns, each representing one minute of real time. All activity in a turn takes place in the following sequence·

Intruder Movement and Fire Phase
Active Sensor Illumination Phase
Detection Phase
Detonation Phase
Intruder Damage Control Phase
Native Movement and Fire Phase
Active Sensor Illumination Phase
Detection Phase
Detonation Phase
Native Damage Control Phase

Only the Native player may move and fire in the Native Movement and Fire Phase or conduct damage control activity in the Native Damage Control Phase Only the Intruder player may move and fire in the Intruder Movement and Fire Phase or conduct damage control activity in the Intruder Damage Control Phase In all other phases, both players conduct actions simultaneously. After all phases are complete, a new game turn is started. Play continues until one side or the other fulfills the victory conditions of the battle being fought.

FACING

All ships have a facing, as shown in the diagram below.



Each vessel, missile, and drone in play must be faced toward one of six possible hexsides at all times. Facing may only be changed in the movement phase as a result of the expenditure of movement points. Facing affects movement for all ships and also affects the number of lasers which can bear on a target.

Facing also usually affects the reflective signature of the vessel and its target profile

MOVEMENT

All ships and missiles, and most sensor drones, have a movement allowance. All ships in this game have their movement allowances printed in the Data Form Booklet. For specially designed ships, movement in *Star Cruiser* is equal to twice the warp efficiency, rounding to the nearest whole number. Note that only vessels with stutterwarps have movement allowances, all other ships and objects have a movement allowance of zero.

A ship's movement allowance is the number of movement points it may expend in a single movement phase. Each movement point may be used either to move the ship forward one hex in the direction it is currently facing or to change its facing by one hexside. Ships with more than one movement point may spend some points on facing changes and some on movement. Facing changes may be done at any point during the movement of the ship, including those at the beginning or end. A ship need not expend all of its movement points, but unused movement points may not be accumulated from turn to turn.

Sequence of Movement: Generally, a player moves one ship at a time, conducting its entire move and all fires, before moving another ship Ships that begin the phase together and intend to move together for the entire phase may be moved at the same time.

"All Stop": Any ship may declare "All Stop" at the beginning of its movement phase, in which case it expends no movement points that phase. The ship's radiated signature is cut in half (rounding fractions down). Also, the ship may change facing in the hex it occupies (at no movement point cost) to any desired facing. Ships at "All Stop" may not fire submunition launchers

DETECTION

All vessels in play are initially represented by "bogey" markers It is impossible to completely mask all emissions from a powered-up starship, and the game assumes that in most cases both sides are aware of at least the presence of "something" out there. At that point, however, there is insufficient information to identify the bogey as a "bandit" (definite hostile craft) or, more importantly, provide any of the ship's weapons with an acceptable target solution. Once detected, however, the bogey is replaced with the correct ship counter and can be fired at.

Each vessel has two signatures and two possible means of detecting similar signatures in other vessels. Signatures may be radiated or reflected. The radiated signature of a ship represents the neutrino and infrared emissions of its power plant. Reflected signature is the extent to which a vessel will produce a recognizable radar "echo" when another vessel attempts to detect it with active radar.

Sensors may be passive or active. Passive sensors include neutrino detectors and infrared sensors, as well as advanced optics (telescopes). They do not emit any detectable energy of their own when in use (hence the name "passive"). Active sensors represent the multiple wavelength high-energy radars used by warships to illuminate small targets many light-seconds away. The chance of detecting another ship with active sensors depends on the range to the target, how good an "echo" the target will produce (its reflective signature), and how good the data processing equipment on the detecting ship is at deciphering the echo

A. Signatures

Each ship listing gives the radiated and reflected signature values of the ship. Radiated signature is used when a hostile vessel attempts to detect the target vessel with passive sensors Reflected signature is used when the detection attempt is made with active sensors.

Masking: Some ships have two radiated values, the second and higher one in parentheses. These ships incorporate neutrino shields and IR dissipating radiators on the hull surface to mask the radiated signature of the ship. The lower number is the normal (masked) signature, which is used until the ship's hull suffers enough damage to be breached (either a minor or major breach). When that happens, the signature is no longer masked, and the second (higher) value is used.

Target Aspect: Target aspect refers to the angle of the target vessel in respect to a hostile vessel attempting to detect it. Target aspect does not affect passive detection, but it does affect active detection. Most ships have lower reflective signatures when viewed radially (from the bow or stern) than when viewed laterally (from the side). Lateral values are used when the detecting sensor is in the broadside aspect of the ship, while the radial value is used when the detecting sensor is in the bow or quarter aspect of the ship

B. Sensors

The ship status sheet gives a value for the active and passive sensors on a ship. In both cases, the number represents the ship's autospot range, the range in hexes at which the ship will automatically detect a vessel with a signature of 1 or greater. Active sensors only detect reflected signatures; passive sensors only detect radiated signatures. Each hex beyond perfect detection range raises the minimum signature detected by 1.

For example, a ship with a passive sensor rating of 5 would be able to detect any ship with a non-negative sensor value at a range of five hexes or less. At six hexes it could only detect ships with a radiated signature of 2 or greater. At seven hexes it could only detect ships with a radiated signature of 3 or better.

Negative Signature Values: Vessels with negative value signatures may not be detected beyond the sensor's autospot range. At the autospot range and less, the detecting player must roll the die and obtain a result greater than the absolute value of the vessel's signature. This die roll is not affected by range (but is only possible if the vessel is at less than autospot range). The player with the negative signature value vessel need not announce the true signature value of his vessel until and unless it is detected. Instead, he need only observe the detecting player's die roll and tell him whether or not it was high enough.

For example, a vessel with a signature of -1 would be spotted on a roll of greater than 1; one with a signature of -2 would be spotted on a roll greater than 2, etc

C. Committing Active Sensors

During each Active Sensor Illumination Phase, both players decide whether they will illuminate their active sensors. During the phase both players place either an "illuminate" marker or some other unused counter or marker face down next to each ship. All are revealed simultaneously; those with "illuminate" markers are using their active sensor suites while all other ships are not.

Using the active sensor suite allows the vessel to use its active sensor rating in the next two detection phases; the one immediately following the Active Sensor Illumination Phase and the next one following that. Ships using their active sensors do so using the reflected signature of the target and their own active sensor value.

Illuminating the active sensors also has consequences. Since the radar is a massive burst of electromagnetic energy, the illuminating vessel is automatically spotted by all vessels of the opposing player. This automatic spot is in effect for the same two detection phases in which the active radar can be used.

D. Detection Procedure

In order to detect a bogey, a ship must make a detection attempt This is done in several steps. First, the detecting player

counts the range to the bogey he wishes to detect and determines the minimum signature which he can detect at that range. He then asks his opponent, "Is the radiated (or reflective) signature of this bogey N or greater?" (N being the minimum signature he can detect) The opponent then answers either "yes" or "no"—"yes" resulting in the bogey being replaced with a marker or model. If the answer is "no," the bogey remains undetected

A ship may attempt to detect a single target only once per turn. It may attempt to detect any number of different targets in a turn.

E. Effects of Detection

Once detected, a bogey is replaced with the correct ship counter The detecting ship at that point usually has sufficient information to determine the ship type and can determine its characteristics (The computer calls up the appropriate information including displacement, drives, crew complement, etc.) More importantly, the detecting ship now has a solution to the target problem, and its gun directors are locked onto the target.

F. Maintain Target Lock-On

Once a bogey is detected, maintaining that detection is somewhat easier Roll 7+ on the die to maintain the target lock, using the crew quality modifier (listed for each scenario) as a die roll modifier. However, subtract 1 from the die for each attempt in excess of 1 made during the turn. For example, if a sensor operator attempted to maintain a target lock on three targets, each attempt would suffer a die roll modification of −2

Of course, if the target remains within the range at which the ship's sensors can detect it, no additional roll to maintain the lock-on is necessary. The roll is only used to maintain a lock on vessels that normally could no longer be detected.

Redundant Sensors: If a ship has multiple passive sensors and operators, each passive sensor must be considered when tracking multiple targets. For example, a ship with two passive sensors could maintain a lock on two separate vessels without suffering a negative modification. The sensors could track four vessels, each sensor maintaining a lock on two vessels and each with a modification of −1, etc.

FIRING

All weapons in the game are directed-energy beam weapons, either lasers or particle accelerators Missiles in the game are remotely piloted spacecraft carrying one or more directed energy weapons and intended to carry them "in harm's way" without endangering the mother ship or its crew. Also, missiles are smaller targets (smaller target profile) and are, thus, more difficult to hit. Submunitions are small detonation lasers dropped by a ship and almost immediately detonated and fired. For game purposes they are treated as regular lasers.

A. Firing Procedure

Both sides may fire their weapons at any point desired during the Intruder Movement and Fire Phase. Any weapons not fired during the Intruder Movement and Fire Phase may be fired during the Native Movement and Fire Phase. Thus, each ship can fire each weapon once per turn. Both sides may fire all of their weapons at hostile missiles in the same hex as the one they occupy during the detonation phase. This does not count against their normally allowed one shot per turn.

The moving player moves ships one at a time and specifies when he will fire during the phase. If the enemy fires at a moving ship, he must so announce while that ship is moving, and fire is then resolved. If a moving ship fires from a hex, and an enemy ship fires at it while it is in the same hex, the fire is resolved as if it were simultaneous. That is, the damage from one ship's fire does not take effect until the other ship resolves its own fire.

B. Target Engagement Limits

A ship has a limited number of fire directors, termed Target Tracking Arrays (TTA). Each TTA can engage only one target per phase but may direct more than one weapon to fire on that target. A TTA may only direct the fire of weapons mounted on the same ship as the TTA. For example, a ship with five lasers and two TTA mounts could engage two targets in a phase It could fire one laser at one target and four at the other, two at one and three at the other, etc.

Ships equipped with UTES (Unified Target Engagement System) have one TTA per UTES, in addition to the laser or particle accelerator there. This mount can direct the fire of conventional turrets on the ship as well. Thus, a ship with two UTES and three lasers functions the same as a ship with two TTA and five lasers.

C. Weapon Description

The ship rating section lists the fire characteristics of all energy weapons carried by vessels in the game Four characteristics are listed: targetting, mounting, hits and damage Submunition launchers also include number of rounds carried.

Targetting: Lasers rely on several high-energy bursts to blanket several possible course endpoints for the target. Modern high-efficiency lasers can put out more energy bolts in a given time and, thus, have a greater chance of scoring a hit. By the same token, particle accelerators generally have a lower rate of fire and suffer accordingly. The targetting value of the weapon itself is expressed as a die roll modifier to the chance of hitting.

Mounting· Most weapons are single mounts, but some vessels employ double mounts to get the effect of a more modern (high rate of fire) laser A double mount still makes only one attempt at a hit, but enjoys a +1 modification to the hit die roll.

Strikes: Normally a weapon will inflict one target strike per successful shot. Certain weapons (mostly so-called "detonation lasers") pump out a tremendous volume of energy in a very short time in the form of numerous attacks on each given target location If these weapons achieve a hit, they inflict strikes (rolls on the Hit Location Table) equal to the number shown Thus a detonation laser with a strike value of 10 would, if it actually hit its target, inflict ten separate strikes.

Example: The owning player may, if he desires, divide these strikes up among several enemy ships. If so, he must specify how many strikes are directed at each ship before making any hit determination rolls. One roll is made per target ship and, if successful, all the strikes directed at the ship hit it.

Damage: Most weapons have a damage value of x1, meaning they do one point of damage per actual strike. Some exceptionally powerful weapons have a damage value of ×2 or ×3, indicating that they do two or three points of damage per strike. (See Damage below.)

Rounds Carried· Each submunition launcher is a canister containing several small submunitions. A submunition does not have a stutterwarp drive. It has only a small number of attitude control jets with two or three seconds of fuel, a nuclear warhead, a laser, and a tight beam communication receiver. The submunition is dropped and, since it has no stutterwarp, remains in place. The ship that dropped it, however, continues to move away. While it does so, the gunner on the ship directs the submunition at the target, using the tight beam commo link. He does this using his TTA as if the submunition were a hull-mount laser. The short-range tight beam transmitter is included in the submunition dispenser rack. When the ship is a safe distance away, the submunition warhead detonates and pumps a grazer (gamma ray laser), which fires at the target an instant before it is destroyed by the explosion. Thus, each submunition launcher fires like a laser. It can fire once

per turn. Unlike a laser, it has a limited ammunition supply, that being the number of submunitions carried in the launcher. Once these are exhausted, the mount may not fire any more. The "rounds carried" listing is the total number of times the launcher can fire per scenario.

D. Targets in Atmosphere

No weapon may engage a target that is still in an atmosphere. One-third of the time a ship spends entering or leaving a planet's surface is spent in the atmosphere. During the remaining time, it is still escaping the gravitational pull of the world but is out of the atmosphere and is, therefore, an eligible target.

RANGE

Weapons may only fire at targets in adjacent hexes or in the same hex as the firing ship. To determine whether a weapon hits, roll the die. The weapon hits on a roll of 7 or greater. However, the die roll is modified as follows:

+ Crew Quality (see scenario) (does not apply to missiles).
+ or − Target's Target Profile.
+ or − Weapon Targetting Rating
−2 at 1 hex range.
+1 if double-mount turret.
+ or − Ship's Targetting Computer Rating.

Note: All ships actually equipped with a targetting computer have a positive die roll modification. Certain older ships in some of the earlier historical scenarios have particularly primitive tracking means which are reflected by rating them with a negative die roll modification recoded in the targetting computer entry line of the ship rating

SCREENS

The ship status sheets list screen values for those ships that have them. Screen values range from 1 to 6 and represent the effectiveness of the screen at the beginning of each turn in which they are energized. Their effective value may decline as they absorb hits during the turn.

Once a hit has been achieved on a ship with screens, it must be confirmed against the screens. For each hit, roll the die once. The hit penetrates through the screens if the die roll is greater than the current screen value; otherwise, the screen absorbs the hit.

Each hit absorbed by the screen reduces the effective value of the screen by the damage multiplier of the weapon. This reduced effective value is in effect from the end of the phase in which the hits were made, and remains in effect until either reduced further or until the owning player's next Damage Control Phase During a player's Damage Control Phase, all screens automatically reset to their original value.

If a ship's power plant is inoperative due to battle damage or the ship is executing an "All Stop," the screens may not be used.

Players may energize (turn on) or de-energize (turn off) their screens during any Friendly Movement Phase but must announce any change in screen status when they do so. While in use, the current value of the screens is added to the radiated signature of the ship. However, a screen need not be run at full power and instead may be "tuned" to any value up to the original screen rating.

HIT LOCATION

Once a hit has been achieved on a ship and it has been confirmed against the ship's screens, the hit location must be determined. Roll on the General Hit Location Table. If the result is "surface fixture," immediately roll again on the Surface Fixture Hit Location Table. If the result is "critical," immediately roll on the Critical Hit Table.

ARMOR

Some ships have an armored hull. If so, this is noted on the ship status sheet. Armor protects the ship's internal components from damage but provides no protection for surface fixtures. Thus, a hit on a surface fixture of an armored ship is resolved normally.

Any hit other than on a surface fixture is affected by armor and must be confirmed. In order to confirm a hit on an armored ship, roll the die. If the result is higher that the ships's current armor level, the hit normally penetrates and causes damage. Otherwise, it is ignored.

Once the hull has taken enough hits to suffer a minor breach, its armor value is cut in half (rounding fractions up) Once the hull has taken enough hits to suffer a major breach, its armor value is reduced to zero.

Jack Turrets: Jack turrets are flat-topped, retractable turrets with limited arcs of fire. However, jack turrets have the advantage of being armored Each jack turret has the same armor value as the hull, and, thus, hits on them must be confirmed as if they were an internal component rather than a surface feature Jack turrets keep their full armor value regardless of how seriously the hull has been breached.

DAMAGE

For each strike on a vessel, roll the die once on the General Hit Table. Each strike does damage points equal to its damage multiplier, and these damage the indicated location

A. General Hits

Hull· The ship rating for a vessel will list three different hull hit values. The first (lowest) number is the number of cumulative hull hits required to open a minor breach. A minor breach reduces the ship's armor value (if any) by half and renders masking equipment inoperative. The vessel uses its unmasked radiated signature and adds 1 to its reflected signature If the vessel does not employ masking, then this hit level affects only the reflected signature. The second (higher) number is the number of cumulative hull hits required to open a major breach in the hull. A major breach in the hull doubles the radiated and reflected signature of the vessel and reduces its armor value to zero The third (highest) number is the number of hits required to completely destroy the structural integrity of the hull. Once the hull fails, the ship is completely destroyed.

Power Plant: The ship rating for a vessel will give two different power plant hit values. The first (smaller) value is the number is the number of hits required to render the power plant inoperable The second (higher) number of hits are those required to damage the plant beyond repair. Once the power plant is inoperable, the ship goes to an "All Stop" situation. Additionally, the ship may not make any active sensor detection attempts or fire any energy weapons. Battery power is sufficient to maintain communications, life support, and the passive sensor array for the duration of the battle.

Crew: One damage control crewman is killed.

Surface Fixture: Roll again on the Surface Fixture Hit Table.

Critical: Roll again on the Critical Hit Table.

B. Surface Fixtures

Active Sensors: One or more damage points to the ship's active sensor array renders it inoperable until repaired If the ship is equipped with more than one active sensor array, randomly determine (with a die roll) which array was hit. A ship that has no undamaged active sensor array may not conduct active detection

attempts.

Passive Sensors: One or more damage points to the ship's passive sensor array renders it inoperable until repaired. If the ship is equipped with more than one passive sensor array, randomly determine (with a die roll) which array was hit. A ship that has no undamaged passive sensor array may not conduct passive detection attempts.

Weapons Mount: One weapons mount (turret, missile pack, submunition dispenser) is hit. If the vessel has more than one weapons mount, randomly determine (with a die roll) which was hit. One damage point to a weapons mount renders it inoperable, and two points damages it beyond repair for purposes of the game. A damaged weapons mount may not fire until repaired, nor may a damaged UTES direct the fire of another weapons mount

Target Tracking Array (TTA): One damage point to a TTA renders it inoperable, and two points damages it beyond repair A damaged TTA may not direct fire while inoperable.

Communicator: One damage point to a communicator renders it inoperable, and two points damages it beyond repair. If more than one communicator is present, determine randomly (with a die roll) which is damaged. A damaged communicator for a remote station may not control a missile. If no other remote station is available to take control of the missile, it goes to "All Stop" until communication is reestablished with it.

Screen Generator: One damage point to the screen generator reduces the screen value by one until repaired. Multiple damage points cause multiple reductions in screen value. If a ship does not have screens, this counts as a weapons mount hit.

C. Critical Hits

Computer: One or more damage points cause major electronic disruption, causing most data processing equipment to fail. The ship may not fire, move, control remote objects or make detection attempts until the system is repaired.

TAC: One TAC work station is destroyed and the operator killed. That station may not be remanned, but any vacant computer station may be manned and substitute for the work station.

Bridge: One member of the bridge crew is killed and the work station destroyed. That station may not be remanned, but any vacant computer station may be manned and substituted for the computer station.

Life Support: The ship's life support system is damaged. Reduce all crew quality modifiers by 2 until it is repaired.

Drive: The ship's stutterwarp is damaged The ship may not move until it is repaired

Hangar Deck: One hangar launch door is rendered inoperative and the deck extensively damaged. If a fighter or other vessel is in the hangar at the time, it is damaged as well. No craft may be launched from, or recovered to, the deck until it is repaired. The damage to the small craft is a hull hit.

Missile Bay: One missile bay is damaged If the bay has one or more missiles in it at the time, one missile is damaged as well. No missile may be launched until the bay is repaired. The damage to the missile is a hull hit. If the missile can sustain only one hull hit, it is destroyed. This does no additional damage; it merely turns the missile into junk.

Continuing Damage: Continuing explosions and fire cause additional damage until the continuing damage is brought under control (repaired). Each unrepaired continuing damage result inflicts one damage point at the end of each Friendly Damage Control Phase. Roll on the General Hit Table to determine the nature of the damage. (This may trigger a critical hit roll, which in turn may trigger another continuing damage result).

DAMAGE CONTROL

Damage can be repaired during the Friendly Damage Control Phase of a turn. The ship rating lists the number of extra engineer personnel available for damage control. Each group of three engineers (or fraction thereof) forms a single damage control party. Thus, a ship with nine extra engineers has three damage control parties. A ship with 10 extra engineers has four damage control parties.

Each damage control party may attempt to repair one point of damage. To succeed, it must roll an 11 or higher on the die, but it receives the crew quality modifier as an addition. Also, since the bulk of the engineering crew is stationed near the power plant, as are most of the engineering tools and spare parts, attempts to repair power plant damage receive a die roll modifier of +4.

The owning player must declare what all of his damage control parties are doing during the phase before rolling any of the repair attempts.

REMOTE OBJECTS

Remote objects are all those unmanned vessels that are controlled from another ship. Missiles and sensor drones are typical remote objects. Fighters and other manned objects are not

Remote objects are launched at the beginning of the Friendly Movement and Fire Phase before any movement or fire takes place. If the remote object is powered, it may move during that phase. Controlling the remote object is the job of a remote operator on the mother ship. While in control, the remote object can do anything that any other ship can do, providing it has the equipment necessary to do so. If equipped with sensors, it can detect other ships; if armed, it can attack; if it has a drive, it can maneuver

Detonation Missiles: Detonation missiles are slightly different from other missiles in that they "fire" by setting off a small nuclear explosion. The explosion destroys the missile, but (momentarily before it does) it pumps a very powerful X-ray or gamma-ray laser which takes multiple shots at nearby targets. The detonation missile is a means of including considerable directed-energy firepower in a small package, although admittedly a one-way package at that.

During the Detonation Phase, any detonation missile on either side may detonate and discharge its weapon. Commitment to detonate is done simultaneously and secretly by the same means (and using the same counters) as for active sensor illumination Those missiles which detonate must fire and are then removed from play.

Once a missile commits to detonate, all vessels in the same hex as the missile have an opportunity to fire at it with their lasers and particle accelerators All hits on the missile are hull hits. If sufficient hull hits are achieved to destroy the missile, it detonates but does not fire its laser. If the missile sustains hull hits, but not enough to destroy the missile, the total number of hull hits is applied as a negative die roll modifier to the missile's own fire

PLANETS

One planet counter is included in the game. This represents a planet and its entire complex of natural satellites, if any are present. In scenarios which call for the presence of a planet, the hex in which the planet is placed is referred to as the "planetary hex." Only one planet is included as, given the scale of the game, two planets will never be on the same map at the same time. Planets affect both movement and detection.

Movement: Vessels pay one additional movement point to enter a planetary hex and one additional movement point to leave a planetary hex. A vessel may enter and leave a planetary hex in

the same turn provided it has sufficient movement points to do so. Ships stationary in the planetary hex (at "All Stop") are in orbit.

Take-offs and Landings: The scenario will list the time it takes a ship to descend from or climb to orbit from a planet surface. When using the *Star Cruiser* rules to fight out battles from a **Traveller: 2300** campaign, the Thrusters section of the Naval Architect's Manual will enable you to calculate the time to or from orbit for any craft from any planet. A part of the time to or from orbit will be spent in the atmosphere. This is specified in the scenario and can be calculated using those rules.

Detection: A planetary hex counts as two hexes for purposes of determining detection range. This is also true when attempting to detect ships in the planetary hex.

Ships landed on the planet are not placed on the playing surface until they take off. Landed ships may not be detected

Ships in the atmosphere of the planet may not be detected except by other ships either in orbit, or transitioning to or from orbit.

STARS

One star counter is included in the game. In scenarios that call for the presence of a star, the hex in which the star is placed is referred to as the "stellar hex." The six adjacent hexes are referred to as "near stellar hexes." Stars affect both movement and detection

Movement: All vessels pay two movement points to enter or exit a near stellar hex. No vessel may ever enter a stellar hex.

Detection: A near stellar hex counts as two hexes for purposes of determining detection range This is also true when attempting to detect ships in the near stellar hex. No detection attempt may be made through a stellar hex.

GIANT EMITTERS

Nuclear explosions and illuminated vessels are giant emitters. Giant emitters produce such giant amounts of energy that detection through the hex becomes difficult. Each vessel which illuminates counts as a giant emitter for as long as it retains its illuminated status. Once a detonation missile or submunition is detonated in a hex, that hex becomes a giant emitter hex (due to radioactive debris) for the rest of the game. Mark this with an inverted unused counter.

Giant emitter hexes are identical to near stellar hexes in their effects on detection. Giant emitter hexes have no effect on movement.

KAFERS

The later scenarios include several actions against the Kafers, a violent and hostile alien race with which several Earth nations are at war in 2300. Kafer crew quality is universally low, but improves once the crew becomes aroused. Once a Kafer ship is fired at, its crew has a progressively greater chance each turn of becoming aroused. Roll the die once each turn thereafter. On the first turn, the Kafer player must roll a 1 or less. On the second turn he must roll a 2 or less, etc. Once the crew becomes aroused, increase its crew quality level by 3 for the remainder of the scenario.

THE SHIP STATUS SHEET

A ship status sheet must be filled out for each ship to be used in a *Star Cruiser* game. For the ships in the scenarios, status sheets are provided for each in the Data Form Booklet. For those ships built using the Naval Architect's Manual, fill out a blank ship status sheet in the following manner.

Silhouette: The box in the upper left corner of the ship status sheet is provided for a rough sketch of the ship. This can be ignored, if desired.

Ship Name, Ship Type, Owning Nation or World: These are fairly self-explanatory. Fill them in as necessary.

Movement: Insert the movement rating of the ship, in hexes. If the ship has no stutterwarp drive, its movement is 0

Screens: Insert the screen rating of the ship. If the ship has no screens, insert 0.

Radiated Signature: Insert the ship's radiated signature. If the ship has a hull which masks the signature, insert the masked value followed by the unmasked value in parentheses

Radial Reflected: Insert the ship's radial reflected signature.

Lateral Reflected: Insert the ship's lateral reflected signature.

Targetting Computer: Insert the ship's targetting computer modifier. If the ship has no targetting computer, insert 0.

Radial Profile: Insert the ship's radial profile modifier.

Lateral Profile: Insert the ship's lateral profile modifier.

Armor: Insert the ship's armor rating. If the ship has no armor, insert 0.

Hull Hits: Boxes equal to the total hull hit capacity need to be left blank in this box; the rest need to be filled in Counting from the upper left box of the first column down, continuing to the top of the second column, etc., leave boxes equal to the hull hit capacity untouched. Fill in the remainder.

As hits are accumulated, block out boxes from left to right, starting with the top row. When the first row is completely blocked out, the ship has suffered a minor breach. When the second row is also blocked out, the ship has suffered a major breach. If all the boxes have been blocked out, the ship has suffered a major structural failure and is destroyed.

Power Plant Hits: Fill in excess boxes here as described for hull hits above.

When the first row of boxes is blocked out from battle damage, the drive is inoperable. When all the boxes are blocked out, the power plant is destroyed and cannot be repaired. The ship cannot move, fire, or operate screens or sensors which require power.

Surface Fixture Hits: Various surface fixtures must be recorded here.

Weapons: Space is allowed for eighteen weapons mounts. Each mount is numbered, has space for the damage, targetting, and number of weapons in the mount, has two hit boxes, and has a display of the facing attitudes into which the mount may fire.

The blank line should be filled out with the damage, targetting, and number of weapons in the mount. For example, a double-mount Hyde Dynamics EAA 1000 laser mount should read "×2, +1, dbl." Single-mounts need not be noted—mounts not designated as double are assumed to be single.

The two hit boxes are left blank. Mark these off if the two possible hits are achieved on the mount. Around these boxes is a representation of the eight facing aspects. For each weapons mount, block out those facing aspects into which the mount *cannot* fire As with the counters, the bow is to the left on the display.

TTA, Communicators, Submunitions, Missile Packs: List TTAs as necessary. One communicator exists for every remote station on the ship. Submunitions missile packs are listed as necessary The two hit boxes are provided to record battle damage for each item.

Sensors: Fill in the range of each sensor in the large boxes. A range of zero hexes is noted as "0," and having no sensor at all is noted as "—." Hit boxes are provided with each type of sensor. The primary boxes are used if there is one sensor of that type on the ship. If a redundant sensor is provided, boxes are also provided for it If the redundant boxes are unnecessary, fill them in.

Critical Hits: There are several possible critical hits.

Computer: The ship's overall computer (not its targetting computer) can sustain damage. Boxes are provided to record hits.

Tactical Action Center: Two stations are almost always present in the TAC—the active and passive sensor operators. These are already printed on the form (if one or both are unnecessary, mark them out). The remaining 18 blank spaces are to be filled out with all other sensor, fire control, flight controller, or remote stations to reflect the TAC of the ship. Each hit kills the crewman at the station and renders the station inoperable. A hit box is provided for each.

Bridge: The required bridge personnel are already printed on the blank status sheet. Any additional stations must be filled in on the 10 blank spaces.

Life Support, Drive, Hangar Deck, Missile Bay, Continuous: Hit boxes are provided for multiple damage to each of these areas of the ship

Damage Control: Each damage control section consists of three individuals Starting from the left, allow space for each engineer who is available for damage control and fill in all remaining spaces. For instance, a ship with eight damage control engineers would have two complete sections and one with only two men (the last is unable to repair things, but will absorb battle injuries).

Ordnance: Keep track here of all missiles and ordnance carried by the ship, their types, and how many are actually carried

Crew: Fill in the comfort level of the ship. Also, determine the crew quality of the ship from the scenarios and note it here.

Enormous Ships: For ships which simply cannot fit on a single status sheet, use multiple status sheets. Note which sheet represents which components and mark hits off of each as necessary.

DESIGNER'S NOTES

As you play *Star Cruiser,* you will quickly find that it is considerably different from any space combat game you have played before Our approach to designing *Star Cruiser* was first to try to pin down what space combat between starships was likely to be like and then to design a game that reflected it. The first step was to identify the science upon which starships were based.

THE SCIENCE OF *STAR CRUISER*

I've heard it said that a science-fiction author is allowed one major change in the laws of physics. I'm not certain how true that is for authors, but it's a good rule of thumb for game designers. The one major departure from current physical laws in *Star Cruiser* (and in **Traveller: 2300**) is the Jerome Drive, more commonly referred to as the stutterwarp. The Jerome Drive relies on the principle of "tunneling" to move particles from one location to another without passing through the intervening space. Each tunnel is relatively short, but the drive cycles at a rate of millions of warps per second and thus gives the illusion of considerable speed.

The apparent speed of a starship is affected by the sheer power of its drive, the warp frequency of the drive, the mass of the ship, and the presence of a gravity well. The sheer power of the drive, when compared to the mass of the ship, determines the average length of the warp tunnel. Gravity severely truncates the length of the warp tunnel. Warp frequency indicates how many times the ship will tunnel per second. All of these combine to produce an apparent speed. The activity of the drive itself at high cyclic rates produces a gyroscopic effect that is referred to as pseudo-momentum It is not true momentum in the Newtonian sense, but limits the magnitude of immediate changes in direction and velocity.

Aside from the star drives themselves, the science of starships is a relatively conservative linear projection of current technology. Power plants are based on refinements of existing designs. Weapons are directed energy beam weapons, either lasers or particle accelerators Detonation lasers and particle accelerators are currently under development for the U.S. Strategic Defense Initiative ("Star Wars") program, and the game's submunition dispensers are an economical and logical outgrowth of this. Detection in the game is by means of neutrino detectors, infrared sensors, enhanced optics, or reflection of radar or laser radiation. In all cases these are currently available, at least in theoretical form, and require only better data processing to produce the results suggested by the game.

THE NATURE OF TACTICAL COMBAT

You can make an argument (and I am now doing so) that developments in tactical combat can largely be viewed as attempts at better solutions to the targetting problem. That is, the problem in tactical combat is seldom one of developing a weapon that will deliver sufficient damage in the event of a hit; the problem is, instead, finding a weapon that can be relied upon to achieve a hit. For example, the smoothbore musket is a perfectly acceptable man-killer, provided you can manage to hit someone with it. To increase the chances of a hit, battalions in the 17th and 18th centuries formed up in tightly packed lines and discharged their muskets in simultaneous volleys all at the same target. That enabled them to achieve a fair number of hits. To increase the individual infantryman's chance of a hit, rifling was added to the musket's barrel, and this increased the accuracy sufficiently so that a more dispersed formation could achieve the same number of hits. Massed formations could then be shot to pieces in short order, and so by the American Civil War, armies tended to fight in loose skirmish lines. The development of the machinegun combined the rifle's accuracy with the massed battalion's volley effect and did so without requiring large numbers of men to expose themselves to enemy fire. The result was more dispersion of the infantry and the need to put more firepower in the soldier's own hands—hence, the automatic rifle, grenade launcher, etc

Naval warfare has seen a similar evolution. The 17th century's ships of the line, with twenty or thirty guns per broadside, quickly gave way to warships with rifled shell guns. Each rifled shell gun had a much higher chance of scoring a hit, and each shell did much more damage. As a result, a ship carried fewer guns but could do much more damage and do so at greater range. To counteract the effects of better guns, ships added armor. The answer to armor was larger guns, but the greater weight of large guns meant ships could carry fewer of them. To give them the same chance of scoring hits and more numerous small guns, more work was done with ballistics. Larger ships were built to provide more stable firing platforms. Rangefinders and fire directors improved gunnery accuracy. By the 1980s, many warships carried only a single gun or missile launcher.

Where is all this leading? The central problem in any tactical situation is hitting the target. There are two possible ways to increase your chances of hitting a target: Increase the per-shot chances of a hit (precision of fire) or keep the same per-shot chance of a hit but increase the number of shots fired at the target (volume of fire). Examples of both solutions can be found throughout history, but, of the two, precision of fire is clearly preferable. Why? Because the other fellow is firing at you as well, and a precision weapon is usually a smaller target than a volume weapon, all other things being equal. Consider the example of a handful of riflemen versus a massed battalion of musketeers; or the large three-decker ship of the line versus the steam frigate with a few rifled shell guns;

or the rapid-fire large caliber naval guns of a light cruiser versus the missile launcher of a Soviet *Osa*-class missile boat.

After thinking this through, I decided that the *Star Cruiser* system should concentrate on the solution of the target problem. This entails efforts of the attacker to achieve a good target solution and efforts of the target to frustrate that solution.

THE TARGET SOLUTION IN *STAR CRUISER*

There are three main elements to the target solution: enemy position, weapon performance, and weapon control. By enemy position we mean the location of the enemy when your shot arrives. By weapon performance we mean the actual flight path of your shot as affected by the physical characteristics of the weapon itself and the environment through which the shot passes. By weapon control we mean the degree to which you can precisely control the aiming of the weapon (quite well in a spacecraft, for example, but much less so with a rifle). As data processing improves, our ability to measure and control for each of these variables has improved, and that enables engagement of targets at successively greater ranges

While the attacker attempts to increase his chance of a hit, the target can take measures to decrease it. Just as the two means of increasing the likelihood of a successful shot are increases in precision of fire and in volume of fire, the target's two defensive options involve decreasing the precision of fire and decreasing its effective volume. To decrease the precision of fire, the target must interfere in one of the three variables above. The easiest to control for the target is target position, and most defensive measures based on reduction of precision concern themselves with disguising target position. Simple examples of this are camouflage paint and electronic jamming of radar. In *Star Cruiser* the main component in this type of defense is basic ship design. Most ships are designed to minimize their "signature," the extent to which enemy sensors can detect them. Contemporary stealth technology is a good example of this. Stealth is hardly super-science, its basic principles were outlined before World War II. In the future, considerations of radar cross section and reflectivity of materials will be basic to any military ship design.

Reducing a ship's normal emission level is important as well, as passive sensors will become much more important Active sensors, once illuminated, are like beacons for enemy missiles and fire control equipment, and thus will often be mounted on remote sensor drones.

The second means of frustrating a target solution is to reduce the effective volume of enemy fire. Volume is reduced if rounds are rendered harmless even if they hit, and this is usually accomplished by means of armor In *Star Cruiser* armor is used, but so are screens Screens are not mysterious force fields that prevent enemy weapons from penetrating. Instead they are electromagnetic fields which hold reflective particles in suspension. When a laser hits the screen, the particles reflect a portion of the laser light and then vaporize, absorbing the rest of the laser's energy. Although some energy will penetrate the screen, often the screen absorbs or reflects enough energy that the remainder is insufficient to damage the ship.

HIDE-AND-SEEK WITH BAZOOKAS

The result of all this is that *Star Cruiser* sometimes resembles a very lethal game of hide-and-seek. This is certainly true of battles between smaller ships. A good analogy is to compare this to modern antisubmarine warfare. One good shot can end the battle, but that doesn't mean that the game comes down to one die roll. The true strategy and drama lies in the efforts to pinpoint the enemy and set up your shot without getting hit in return.

The most effective means of getting in your shot without being hit in return is a missile, and that is why all modern warships in the game rely heavily on missiles for their offensive ability. No matter how well a ship is constructed, it is an inherently larger target than a missile. Thus, a missile can be fired from a safe distance and has a better chance of penetrating to effective range than does a ship. By the same token, use of a remote sensor drone can enable you to detect your enemy while remaining at a safe distance. A second solution is the use of a number of small fighters. Although a larger target than a missile, a fighter is still harder to hit than most ships and is capable of delivering a quick hard punch with either a conventional beam weapon or submunitions dispensers.

In general, human fleets tend to rely more on stealth and its related technologies to avoid destruction. The Kafers, on the other hand, tend to rely more on armor and screens. This is so because the average level of intelligence and initiative is much lower among Kafers than humans, with the result that qualified pilots are much rarer. To compensate for this, Kafer fleets tend to rely on fewer very large ships, each heavily armed and protected, but virtually impossible to conceal. If human tactical battles can be likened to hide-and-seek, Kafer tactics are closer to a barroom brawl. Kafer ships close as rapidly with the enemy as possible, trusting their armor and screens to minimize damage on the approach run, and then trade broadsides until one or the other ship is crippled or destroyed. The limited number of fire directors on a Kafer ship make it fairly easy to overload its antimissile defenses and land hits, but the sheer amount of punishment a Kafer ship can take can be very demoralizing.

NAVAL MISSIONS AND SHIP DESIGN

Star Cruiser concentrates on pure ship-to-ship combat. However, that is not all there is to the mission of star fleets in the 24th century The most common naval mission is the landing party, and that is why most naval ships in the game carry troop complements. For the most part, naval vessels are called upon to enforce the peace, and this rarely involves more than chasing down blockade runners or privateers, putting shots across the bows of merchant vessels, and landing a platoon or so of combat troops A platoon of marines or legionnaires can do wonders to restore order on low-population frontier worlds. When designing warships of your own, remember that their main mission is to show the flag and be able to project national power into a variety of environments.

THE SCENARIOS

The scenarios included in the game are drawn from every war fought with armed spacecraft by man up to 2300 AD, with one exception. The so-called Slaver War (2252-2255 AD) is not included, since starships were used only by the human fleets (Manchuria and Canada), while the Sung used only ion-drive slow boats. The battles of the Slaver War are of historical interest only and are too hopelessly one-sided to make decent scenarios. While the scenarios are representative of the types of actions fought and the types of ships used, they are not exhaustive. Many battles were fought which are not represented in the game, and a number of warship classes built are not shown in the countermix. In many cases one particular ship is used to represent a different ship of the same class in a particular scenario. This was necessary due to the limitations of the countermix. Players should feel free to use the counters provided to make up additional scenarios from the wars presented or even to test different ships in hypothetical scenarios