SFB ’n3D

Information and Justification: The game of Star Fleet Battles® by Task Force Games® is a game of space combat. Traditionally Star Fleet Battles has been played on a two dimensional hex grid which provides flexibility and playability while maintaining the bulk of tactics for space combat.

However, the reality is that in space, ships move in three dimensions. Several of the rules of the Star Fleet Battles rulebook are to account for the fact that the hex grid is simply an approximation. Tracking the movement and activities of a starship in three dimensions is more work than what they could reasonably expect a person to do for a game on paper.

However, computers have simplified many aspects of Star Fleet Battles. I have created some play aids to play Star Fleet Battles in three dimensions. But, with these play aids the play of Star Fleet Battles is a little different. Changes in some of the rules are necessary because of these differences.

The biggest differences can be summarized thus: Webs can be moved, explosions give a different force for different ranges, movement can be for a partial hex, and sub-light and inertia are handled differently.

These rules are Advanced Optional in accordance with (A3.15). If you play with these rules, then the versions of the rules listed here overrule the rules in the Star Fleet Battles Captain’s Rulebook, but all other rules remain in effect and operate the same (except common sense changes.)

(A3.4) In the traditional Star Fleet Battles game, one hexagon on the game board is approximately 10,000 kilometers across. This Huge Expanse of eXistence (hex) is therefore the base unit of measurement in traditional Star Fleet Battles. In SFB ’n3D, a hex is still used as the standard of measurement. Locations are rounded to the nearest kilometer (1/10,000 of a hex.) Note that the space of the smallest granularity (of this more precise system) is still enough to fit dozens of star ships. Anything launched from a ship that would normally go in the same hex is given the same X, Y, and Z coordinates as the ship that launches it at the moment of launch. Ships can still stack indefinitely. There is still no ramming. (And seriously, once you’ve tried actually landing on the same X, Y, and Z coordinates of another moving unit at this increased granularity, you’ll understand how hard it would really be to hit a starship with another starship moving at warp speeds.)

(C1.11) Movement: Each Impulse, the movement of units is calculated by the utility to the nearest kilometer (or 1/10,000 of a hex) based on the speed and facing of the unit.

(C1.12) Position: A ship’s location is expressed in terms of x, y, and z coordinates. If we consider positive x to be “north,” then positive y is up and positive z is west.

(C1.2) Facing

(C1.21) General: The facing of a unit is expressed in degrees of pitch, yaw, and roll. Ninety degrees of pitch is pointing straight up. Ninety degrees of yaw is pointing exactly left. One hundred and eighty degrees of roll is upside down. Ninety degrees of roll is pointing straight ahead with the top of the ship pointing exactly right. Zero degrees of each is pointing straight ahead and right side up.

(C1.22) Movement Ahead: Units generally move in the direction they are facing. Enter the warp speed in the Movement/x for the unit of the utility. Enter the impulse thrust in the Thrust/x for the unit. Enter 0.03125 in the multiplier. Units turn (C3.0) to face a new direction as they move, but will always move ahead except when other rules have them move another direction. However, when thrust is accumulated and then the unit turns, the inertia will continue to move the unit in the same direction, not the new facing.

(C1.4) Performing Movement

Note: The Impulse Chart is not used for movement, but the turn is still broken into 32 impulses. Many rules take common sense adjustments for this reason. Units may move at fractional speeds. Unlike traditional Star Fleet Battles, a unit with a movement cost of 1 can assign twelve and a half points of warp power to movement, and move twelve and one half hexs (150,000 kilometers) in a turn.

(C1.43) Movement Procedure: Each unit that has a speed greater than zero will move each impulse, with the location rounded to the nearest kilometer (1/10,000 of a hex.) The warp speed per impulse of each unit is placed in the Movement x section of the utility. The Impulse acceleration per impulse of each unit is placed in the thrust x section of the utility.

(C2.111) Impulse and Inertia: One point of impulse power may be used for movement each turn. Impulse energy used for movement adds inertia to the unit in the forward direction every impulse. Inertia is recorded. Inertia will continue to move a unit even if impulse energy is no longer used for movement. Enter the amount of impulse energy used this turn in the Thrust/x. Make sure the multiplier is 0.03125.

The result is if a ship with one point of impulse energy assigned to movement will have one hex of momentum at the end of the thirty-second impulse.

Note that this means you can accumulate more than a single hex of "sub-light" momentum. The reality is that the inertial dampeners and artificial gravity generators onboard a ship create a very low level warp field. As warp theory developed, they learned how to make it more than just a bubble around the ship, thus allowing the warp field to move and the ship to move within it, but even a "sub-light ship" accumulates some warp movement. This is how a ship can, with time, achieve "high warp" speeds. It would take almost 200 turns for most ships to achieve warp factor six, but in real time this is only a couple of minutes.

Once you reach these high warp speeds, there are some strange effects where you start to travel outside your warp bubble and suffer an effect similar to a HET breakdown, but these considerations are obviously outside the scope of a single SFB scenario. Note also the lack of maneuverability at these speeds. You just keep going in a straight line.

(C3.0) Turning and Turn Modes

In traditional Star Fleet Battles, a ship always turns 60 degrees when it turns because you are playing on a hex grid. In SFB 'n3D, the angle is recorded in absolute terms of pitch, yaw, and roll. Of these, pitch and yaw are used to determine which direction a unit is moving. Since units are measured in absolute terms, a unit turns some amount up to its maximum each impulse.

(C3.1) Turning

Each impulse, a unit may rotate any amount (up to its maximum) on pitch, yaw, and/or roll. The turn for each is independent, and the turn arc for one direction has no bearing on the turn arcs for the others. A unit can turn either positive or negative degrees in any direction.

Example: A ship with a turn mode of 9° can turn 8.2° pitch, 6.1° yaw, and 3° roll on the same impulse. It could also turn 9° pitch, 9° yaw, 9° roll the same impulse. It could also turn 9° pitch, 0° yaw, and 0° roll the an impulse. It could also turn -9° pitch, 9° yaw, -9° roll the same impulse.

(C3.2) Definition of Turn Mode

(C3.21) Definition: The turn mode determines the maximum number of degrees a unit may turn on a given impulse.

(C3.24) Sideslips are not used in SFB 'n3D.

(C3.3) Assignment of Turn Modes

(C3.31) Turn Mode Chart: Units have a maximum turn mode of 1.5° or that defined by this chart, whichever is greater. "S" is the warp speed of the unit. Note that all units except seeking weapons use the square root of the speed times a constant. Seeking weapons simply use the speed times a constant.

	Seeking Weapons	Shuttle	AA	A	B	C	D	E	F
Turn Mode	S×0.9375	√S×3	√S×2.3	√S×1.91	√S×1.65	√S×1.59	√S×1.53	√S×1.44	√S×1.26

Units with a turn mode of a multiple of hexes (turn mode of one at all speeds, turn mode of three at all speeds, etc) calculate their turn mode as follows:

$$60 \div (T+1) \div (S \div 32)$$

Where T is the number of hexes the unit must move before turning, and S is the speed of the unit.

(C3.7) Base Rotation

A base may rotate at any rate up to 7.5° per impulse. Any rate lower than 7.5° is acceptable. The rotation in pitch, yaw, and roll may be each be set and may each be any number of degrees less than 7.5° per impulse.

(C3.71) The rate of rotation is set by the owning player before the scenario begins. He sets the rotation in pitch, yaw, and roll up to 7.5° per impulse. This rate cannot be changed in the course of the scenario.

(C3.72) Bases rotate every impulse.

(C3.8) Directed Turn modes are not used in SFB 'n3D.

(C4.0) Sideslips are not used in SFB 'n3D.

(C5.0) Tactical Maneuvers

(C5.1) Sub-light Tactical Maneuvers

(C5.11) Procedure: A ship performing sub-light tactical maneuvers may turn up to two degrees on each axis every impulse.

(C5.13) Zero-Energy Turns: A ship can turn 1.5° per impulse even if it does not allocate power to tactical maneuvers or movement.

(C5.2) Warp Tactical Maneuvers

(C5.21) Procedure: Each tactical maneuver lasts a quarter turn, either from impulse 1 to impulse 8, impulse 9 to 16, impulse 17 to 24, or 25 to 32. Every impulse that you are performing a warp tactical maneuver the owning ship may turn up to 7.5° degrees on each axis.

(C5.3) Combination of Warp and Sub-light Tactical Maneuvers

(C5.31) Procedure: Ships can perform sub-light tactical maneuvers and warp tactical maneuvers on the same impulse.

(C5.32) Turn Rate: A ship using both warp and impulse tactical maneuvers at the same time may turn up to nine degrees per impulse.

Note: the ship may still be using inertia from a previous impulse movement, but cannot expend any energy for movement other than a single point of impulse power for the sub-light tactical maneuvers and the warp power for warp tactical maneuvers. The energy costs of all tactical maneuvers are unchanged from traditional Star Fleet Battles.

(C6.0) High Energy Turns

In SFB 'n3D, a High Energy Turn (HET) can change your pitch, yaw, and roll to any number of degrees. Replace all references to changing facing to changing your pitch, yaw, and roll to any number of degrees. Other than this, the effect is the same.

(C6.541) (This rule remains exactly the same, except the process to determine the direction that the ship faces after a breakdown.) After the breakdown, to determine which direction the ship faces, roll a die and multiply the result by sixty, then roll another die and multiply the result by ten. Add the two together. This is the pitch. Repeat the process for the yaw, and then again for the roll. (Or roll a 36 sided die and multiply the result by ten. In this case, the results are the in essence the same.)

(C6.5511) Use the same process as C6.541 to determine ship facing.

(C8.0) Emergency Deceleration

When the ship stops after an Emergency Deceleration, all of the inertia is lost as well. The momentum is simply lost, no additional energy is gained from it.

A ship may also do an "Inertia Only Deceleration." The procedure is identical to an Emergency Deceleration, except that only the inertia is lost and no energy is gained. Note that an Inertia Only Deceleration is an all or nothing arrangement. You can't loose part of the inertia. Note the time frame before the inertia is lost. You start accumulating inertia again immediately after performing an Inertia Only Deceleration. (You don't have to turn off the impulse engines, just the warp bubble, and that for an instant.)

(C8.41) Movement: A ship which performed an Inertia Only Deceleration continues to move. The warp energy and impulse energy continue to function, so even though the ship has zero inertia on the impulse it performs the deceleration, the next impulse it can start to accumulate it again. After an Emergency Deceleration, however, no more impulse energy may be applied to movement during the post-deceleration period.

(C12.21) Total Energy Cost: This rule is really unchanged, except I wanted to remind you that you're moving in absolute terms. If you move speed 15 for half a turn, then you move 7.5 hexes.

(C14.20) (This rule remains unchanged except the following.) The ships must be less than one half hex apart. They must have zero warp or impulse energy applied to movement each turn, and their inertia is averaged between them immediately once the web energy begins to bind them together. Each must have one of the others in its #3 shield arc, and the remaining other in its #5 shield ark.

(D1.4) The utility calculates range automatically. Round all ranges down to the next lower whole number. Any range of less than one is considered to be in the same hex, and any action that can be taken on units in the same hex can be taken on a unit whose range is less than one.

(D2.0) Firing Arcs

(D2.1) Firing Arc Designations

(D2.11) Designation: Each weapon on a ship is marked with a firing arc. The firing arc is as listed below. Weapons have both a Yaw Arc and a Pitch Arc. The Yaw Arc is as listed on the SSD or otherwise listed in the rules. Unless otherwise stated in a ship description or other rule, the Pitch Arc is determined by the following procedure:

Each group of weapons is considered a group if there is a shared border among the weapons on the SSD.

If there is only one weapon, it is Center Mount.

If there are two weapons, then one is Top Mount and one is Bottom Mount.

If there are three weapons, then one is Top Mount, one is Center Mount, and one is Bottom Mount.

If there are more than three, then break it into the smallest possible number of groups of two and/or three to determine the number of weapons in each arc.

Examples:

If there are four, then it is two groups of two, so two Top Mount and two Bottom Mount.

If there are five, then there is one group of two and one group of three, so two Top Mount, two Bottom Mount, and one Center Mount.

If there are six, there are three groups of three, so three Top Mount, three Center Mount, and three Bottom Mount.

(D2.12) Boundaries: Yaw arcs have an additional 10° beyond the traditional limits in each direction.

Yaw Arcs:

LF: 360° to 290° and 10° to 0° (or -70° to 10°)

L: 310° to 230° (or -50° to -130°)

LR: 250° to 170° (or -110° to -180° and 170° to 180°)

RR: 180° to 110°

R: 130° to 50°

RF: 70° to 0° and 350° to 360° (or -10° to 70°)

Pitch Arcs:

Top Mount: -30° to 90° (or 0° to 90 and 330° to 360°)

Center Mount: 60° to -60° (or 0° to 60° and 300° to 360°)

Bottom Mount: 30° to -90° (or 0° to 30° and 270° to 360°)

(D2.3) Special Modified Firing Arcs

(D2.31) FH arc is 0° to 100° and 260° to 360° (or -100° to 100°.) RH arc is 80° to 280° (or 80° to -80°.)

(D2.32) Wing phasers are top mount, except give wing phasers a 360° yaw arc if and only if the target is more than 60° pitch. At any pitch from -30° to 60°, the firing arcs exactly match the firing arcs that they are assigned as they would for any other ship.

(D2.33) Weapons which have a forward firing arc (FA, FX, etc.) and then are able to fire into the row of hexes immediately behind the ship are Top Mount and given a 360° yaw arc if the target is above 30° pitch.

(D2.34) Plasma Torpedo Swivel Mounts: FP mounted weapons can fire at anything with a facing of 180° Yaw to -180° Yaw, if the pitch is between 60° and -60°. The torpedo has a facing of anywhere from 120° to -120° Yaw off the facing of the firing unit, with the same pitch as the firing unit.

Turn the LP and RP 45° to the left or right respectively, and the LS and RS plasma arcs another 45° past that.

(D2.35) ISC Rear-Firing Plasma Torpedo Arcs: an L/LR torpedo is placed with the torpedo facing 240° off the firing unit. A R/RR torpedo is placed with the torpedo facing 120° off the firing unit. In either case, the pitch is the same as the firing unit.

(D2.34) Reverse Swivel Plasma Torpedo Firing Arcs: LRP is 45° past LS plasma torpedo arcs, and RRP is 45° past RS plasma arcs. AP is the opposite of FP.

(D5.2) Explosion Force

The force of any explosion on an object in SFB ’n3D is calculated by dividing the strength by the square of the range:

$$\text{Damage} = \text{strength} \div \text{range}^2$$

Drop all fractions.

So if there’s a ten point explosion near four units, then one at .01 takes 1,000 points of damaged (and unless you use a lot of shield reinforcement, it’s gone) one at half a hex takes 40 points, one at exactly one hex takes ten points, and one at two hexes only takes two points of damage.

Note: setting the radius that a mine detects at is a slightly more important matter in SFB ’n3D. Setting a mine to go off at 1 hex may mean that a drone following behind is not destroyed, but setting it so it won’t go off unless it’s half a hex means there’s a smaller area that will cause the explosion. Also note the significance for fighters and drones to spread themselves out more, even over partial hexes.

(E8.23) Mauler Firing Arc: The firing arc of a mauler is 15° port, starboard, up, or down. Anything more that 15° from straight ahead in either dimension is out of arc. Do not add 10° from D2.0 since this is not one of the standard arcs.

(F1.24) The target must be in the weapon’s FA Center Mount arc when the weapon is placed on the board. The seeking weapon must be pointed in such a way as to be as close to the center of the arc as possible. If it is possible to place the weapon on the board so that it has the target directly in the center of the seeking weapon’s path, then you must do so.

(F2.123) A seeking weapon may begin turning to track its target immediately.

(F2.21) If possible, a seeking weapon will keep it’s target directly ahead of itself. Note that this will tend to make the seeking weapon “follow” its target and can’t be set to “lead” the target.

Utility Usage: In the “Target” section for the seeking unit, enter the x, y, and z location of the target unit. This will give the Pitch, Yaw, and Range to the unit. Enter pitch and yaw (up to the turn mode) in the turn for your seeking unit, and this will cause your seeking weapon to seek the target. If you decide to use a different method of tracking, all players must agree.

(F2.3) Seeking Weapon Impact

A seeking weapon is considered to have entered the hex of its target if the range is less than one. If the range is .9999 or less, it can impact as it is in the same hex. If the range is exactly 1.0000 then the weapon is not in the same hex and cannot impact.

(F4) Ballistic Targeting

A little bit less useful in 3D, since it quickly becomes obvious that the weapon is just going in a straight line, but yes, you can still use it.

(FP3.1) Fixed Tube Launchers

When the torpedo is placed on the board, it is placed with the same pitch and roll, and yaw as the firing unit. Then turn the torpedo by the yaw of the launcher. (The yaw of the launcher is the center of the 120° arc the torpedo has. If it is a swivel launcher with a greater than 120° arc, then the FA arc of the plasma torpedo being placed on the board must be completely inside the firing arc of the plasma launcher.)

(G10.0) The Tholian Web Device

(G10.11) Linear Web: A linear web extends between two points. This rule is mostly unchanged.

(G10.115) The web must be a straight line. A linear web when finished is defined as a straight line between the anchor points. The units acting as anchors may move as though they are trapped in the web, and therefore move the web.

(G10.117) If a linear web has several anchors and one of the middle anchors is destroyed or looses anchor status or drops anchor status, the web remains intact and becomes a straight line between the next two anchor points. The strength of the web is re-calculated. If the web has only two anchor points and one of the anchors looses or drops anchor status, the web dissolves.

(G10.12) Globular Webs: Globular webs are (as the name implies) globular. Globes are by definition three-dimensional objects. Globular webs are more complicated in three dimensions than in traditional Star Fleet Battles.

A globular web is actually a series of strands, not just the one strand as is normally set in traditional Star Fleet Battles. Each strand is laid individually. As the unit laying the web moves, it leaves a trail of webbing. This is simulated in the following way: the unit places web points which act like anchor points and web hexes as it moves. Each impulse that a web-laying unit moves, it places a new web point. While the web is at zero strength, these web points can be used as anchor points to make anchors for web strands going at another direction, so a total sphere can (with much time and effort) be constructed. Once power is applied to the web, any point which does not anchor to two other web points is lost. (Therefore, if there is a part of the web being built, anything that attaches to only one other web point and the ship dissolves.)

A web point can be moved closer to the center of the sphere. A ship that is less than one half hex away, and closer to the center of the web, may expend six points of power, and the web point will move to the location of the ship. The web strength is then recalculated, but the six points of energy expended to move the web are not added to the strength of the web.

Most other aspects of the rules operating globular webs take only common sense adjustments.

(G10.2) Construction of Webs

(G10.211) To lay a web, a web laying unit must either be adding to an already anchored web, or be less than two hexes (up to 1.9999 hexes) from another valid anchor. The ship must then expend six points of power per hex.

Examples: If two ships are 0.1 hexes apart and make a web together, then it will require .6 points of energy. If they are 1.1 hexes apart, then it will require 6.6 points of energy.

If they are exactly one hex apart, it will require six points of energy. As the two ships move apart at a speed of sixteen to lay the web, on the next impulse they will be two hexes apart, requiring an additional six points of energy from one ship (or three from each) to lay another web hex. If they moved apart at speed eight, then they would only move half a hex further away from each other on the next impulse, and therefore only require three points of energy to lay the additional web.

(G10.224) Two linear webs may pass as close together as the player likes, and even cross. Linear webs which do not share an anchor point are separate webs, even if they cross. Globular webs that don't share any web points are separate webs.

(G10.3) Strength of webs

The strength of a web in SFB 'n3D is four times that calculated in traditional Star Fleet Battles. The maximum strength is still 35. There are still some better energy usages of webs after certain years. Otherwise, these rules are unchanged.

(G10.51) A ship which is less than two (up to 1.9999) hexes from a web is considered to be in a web hex.

(G10.511) All inertia is lost on any unit that is in a web of any strength greater than zero. Impulse energy will move the ship each impulse by the same amount of inertia that normally would have added, but the inertia does not accumulate. The warp speed of a unit in a web is reduced by the strength of the web. If the web is stronger than the ship is fast, then the ship stops. Unlike traditional Star Fleet Battles, a web can have a fractional strength, and a ship can have a fractional movement, and these fractional values must be calculated against each other. Note that this also means that ships serving as anchor points loose their inertia after the web is powered.

(G10.61) Non-Tholian weapons: the line of weapons fire may not come within 1 hex of the center of the web line. Units can fire into the field, but they cannot fire through the field.

(G10.71) Transporters and Tractors: use the same rules as non-Tholian weapons.

(G10.72) Explosions: If either the explosion or the unit feeling the impact of the explosion is within a web (or both are) then reduce the strength of the explosion by one for each 1/10 of a hex (1,000 kilometers) of distance between them.

(G10.82) Cost: each web point is equivalent to 0.125 BPV points. Otherwise, this rule is unchanged.

Note: Web casters and snares are unchanged, except that the web can extend in three dimensions. The strength of cast web is that which appears on the firing chart for the web castor or snare.

Note: The shielded ship models I provide has a one-hex "shield sphere" around it. The string dynamic model I provide has a center line and a one hex circular "web field." If the one hex shield sphere touches the one hex web field, then the ship is trapped. If line of fire goes through the field, then it can't be fired there.

(G21.224) Outstanding Crews and Warp TAC: An outstanding crew can make turns of up to 11 degrees per impulse when using warp tactical maneuvers.

(G23) Expanding Sphere Generator

(G23.4) Operations

(G23.41) Radius: When formed, the sphere can be any size from 0 to 3.9999 (anything less than four.) Units collide with the field if their range from the ship generating the field goes from larger than that radius to smaller, or smaller than that radius to larger, or exactly matches that radius.

Example: A radius 0.5 field will not collide with a unit at range one. If the two units are moving toward each other at a rate of 0.1857 hex per impulse (speed 6) then the two will be at range 0.6286 on the next impulse. The field will still not collide. The next impulse, they will be 0.2572. Then the field will collide, since the ship went from outside the radius to inside it.

(G23.42) Strength: The strength of a field is determined by the following formula:

$$(4 - (\text{radius} \div 3)) \times \text{energy}$$

(M2.40) Procedure: On any impulse that a unit is scheduled to move on the impulse chart, and the unit is within the detonation zone of the mine, then the procedure for the normal operation of this rule applies.

Note: this means you cannot detonate a mine except on impulses when you would be scheduled to move on the impulse chart.

(M2.50) Procedure: Mines (like ship explosions(D5)) act a little different in SFB ’n3D. Use that procedure to determine the damage done to units close to the mine. Note that this will cause the radius of things damaged to be larger than in traditional SFB, but it will cause those at the fringe to be damaged less.

(P2.1) General Rules, (how to reinterpret traditional rules for planets for SFB ’3D)

Planets are solid objects ranging from a few thousand kilometers to tens of thousands of kilometers in diameter. Every planet has a radius. Planets with atmospheres have an atmosphere radius. Because the granularity of SFB ’n3D is higher than that of traditional Star Fleet Battles, the rules for planets are modified a little bit. The most significant difference is, of course, that a planet can have a size that is a fraction of a hex. Most of the differences come from this. All references to “through a hex containing a planet” which refer either to a class M planet or a gas giant planet apply to anything where the line of sight would pass through a planet or a small moon. Units collide or land on a planet when their range from the center of the planet is less than the radius of the planet. They are in the atmosphere when their range is less than the atmosphere radius. The atmosphere radius for class M planets must be less than two tenths of a hex.

(P2.223) Rings: This rule is mostly unchanged, except that ring damage only takes place on impulses that the unit would have been scheduled to move on the traditional movement chart.

(P2.231) Units do not use the chart to determine if they collide with small moons. Instead, as with class M planets and gas giants, if the unit is closer to the center of the moon than the radius of the moon, then the ship collides or lands or whatever the appropriate course of action is.

(P3.11) Layout of Asteroid Fields: Unless otherwise agreed by players, the location for asteroid hexes is determined before unit selection and setup as follows: roll two dice, multiply the result of one by six, and add the two together to get the x field. If you mirror the board around the (0,0,0) point, then subtract 21. If you are playing entirely in the positive field, do not subtract 21. Repeat the process for the y field, and the z field. This places your first asteroid hex. Then roll a die and divide by three for the radius of the field. Repeat 54 times. If you create an asteroid hex that overlaps another asteroid hex, then re-roll the location for the second asteroid hex. Or you can use the example field as below:

x	y	z	radius	x	y	z	radius
30	34	16	1	20	33	35	0.33333
29	27	14	0.66667	11	40	18	1.66667
8	28	8	0.33333	31	17	38	0.66667
31	29	7	0.66667	29	23	39	0.33333
18	8	38	0.33333	38	41	40	1.33333
29	34	38	0.66667	15	15	24	1.33333
40	40	12	0.66667	41	20	18	1.33333
9	16	11	1	26	17	35	1.33333
25	15	27	0.33333	29	28	17	0.66667
31	8	37	1.66667	24	38	24	1.66667
11	22	27	0.66667	37	36	10	1.66667
19	14	37	0.33333	17	24	24	1.33333
38	38	42	1.33333	36	15	38	0.33333
28	35	35	2	10	38	42	1.66667
38	24	11	0.33333	30	32	10	0.33333
34	24	39	0.66667	17	28	24	0.66667
15	10	19	0.33333	13	36	29	1.33333
21	24	7	2	7	15	30	1.66667
35	26	36	0.33333	26	33	19	1.66667
35	41	36	0.66667	23	22	30	2
31	13	41	2	22	35	41	2
27	21	10	2	41	9	28	1.33333
11	34	11	1.66667	13	36	34	2
20	9	27	1.66667	20	8	41	1
34	10	38	2	13	16	8	0.33333
38	21	36	1.66667	23	17	17	1
10	12	12	1.66667	34	36	35	2

(P3.12) Definition: all units within the radius of a asteroid hex are considered to be within the asteroid hex. At the very center of each asteroid hex (unless otherwise agreed by the players) is a single large asteroid (P3.4).

(P3.2) Effect of Asteroids on Movement

This rule is mostly unchanged, except that asteroid damage only takes place on impulses that the unit would have been scheduled to move on the traditional movement chart.

(P4.1) Black Hole Movement Procedure

Movement by a black hole is determined every impulse, and every Black Hole is assigned a size. Larger Black Holes will attract things faster.

(P4.11) Procedure: A Black Hole moves a unit based on the distance and the size of the Black Hole. Units always move directly towards the Black Hole. To determine the speed at which something is attracted to the Black Hole, use the following formula:

$$\text{Pull} = \text{Size} \div \text{range}^{2}$$

Where the Pull is the amount to move in the direction of the Black Hole, the Size is the size of the Black Hole, and the range is the distance between the object and the Black Hole.

To determine how much an object moves in each x, y, and z, for each of them, determine the following:

$$\text{Change} = (\text{hole} - \text{unit}) \div \text{range} \times \text{Pull}$$

Where hole is the Black Hole's location on the coordinate system (x, y, or z), unit is the unit's location on the coordinate system, and Change is the change in movement on that coordinate system. Add the Change to the inertia. Inertia accumulates, so keep adding impulse after impulse.

(P8.0) Standard Orbits

(P8.2) Movement

This rule is mostly unchanged, except:

(P8.21) Sequence: The unit will orbit continually.

(P8.4) Ships in Orbit

(P8.41) Establishing Orbit: To do this, move the ship to within three hexes of the planet or object to orbit, and stop all warp movement through any means the rules provide. The planet must be close enough to bring the planet to exactly 90 degrees Yaw, and to zero on Pitch.

(P8.411) Immediately adjust the facing of the ship to bring the planet to exactly 90 degrees Yaw and 0 degrees Pitch. (Or 270 degrees Yaw if going the other way.) This takes the zero energy turn of the original rules.

(P8.412) This rule is unchanged.

(P8.413) After that, set the Movement/X to 1. Remember to make sure the multiplier is set to 0.03125. Set the Turn/Yaw to the number calculated as:

$$5.625 \div \text{range} \times \pi$$

where range is the range from the planet to the unit.

If the planet is at 270 degrees (-90 degrees) then it will be the negative of what's calculated.

(P8.43) If you want to use tactical maneuvers in a standard orbit, go ahead, but it's up to you to figure out how to make it work. For my part, I just remember how far the ship has turned on a separate note and add that to the current facing when I need to figure out firing arcs and such.

(S3D) 3D Scenarios

(S3D1) Adapting traditional scenarios to SFB'n3D.

(S3D1.1) Hex to Coordinate Translation: In most scenarios, the process of translating between hexes and coordinates is pretty straight forward. Hex numbers are in four digits. The first two digits become the x coordinate, the second two digits become the z coordinate. The y coordinate is zero.

(S3D1.2) Facing Translation: Facing A is 300° yaw, Facing B is 0° yaw, Facing C is 60° yaw, Facing D is 120° yaw, Facing E is 180° yaw, Facing F is 240° yaw. Pitch is 0°. Roll is 0°.

(S3D2) Pickup SFB 'n3D Games

(S3D2.1) Fleet Placement

Place one fleet within thirty hexes of 100X, 0Y, 0Z, facing (in a general sort of way) towards 0, 0, 0. Place the other fleet within thirty hexes of -100X, 0Y, 0Z, again facing toward the middle.

You may notice that some of the rules mess with the utility of some ships or other units in a battle. Speed upgrades are going to become a much bigger deal in drones, and sub-light Romulan ships are going to be a little more useful.

(S3D3) Ultra-mini Campaigns

(S3D3.1) General Scope

The map in SFB 'n3D can be a little larger than in traditional Star Fleet Battles. Even if you had your whole house and tiny hexes, running a traditional Star Fleet Battles game that spanned more than a single planet's gravitational control would be impractical. In SFB 'n3D, running a game that covered a whole solar system is possible. (Although, time consuming.)

I suggest if you're going to try one of these, you set up regular play times. Once a week, playing two or three turns might be a good way to waste a decade of your life.

(S3D3.2) Solar Systems

Set a star at 0, 0, 0, and give it a radius. Our sun would be about 70 hexes in radius. Use that for a reference.

Put a bunch of planets at various distances from that. Set one of the players as the defender, the other as the attacker of the solar system. Set one of the planets as a class M, habitable planet. Other planets may or may not be inhabited, as you agree.

The goal of the attacking player, entering somewhere around 10,000 hexes from the outside, is to take over the capitol planet. The goal of the defender is to stop him.

(S3D3.3) Boarder Defense

There is a huge amount of space between battle stations on the boarders between empires. Far too far for phasers to reach, in the thickest parts you can imagine these are 10,000 hexes or more. Each will have a small fleet assigned to help it protect the space between.

Try setting up these battle stations, and the accompanying fleet. See how hard it is to both defend a line, and try to penetrate your opponent's line at the same time. Play with larger and smaller fleets.

For example, set up a star base at -1000, 0, 0, and an enemy star base at 1000, 0, 0. The border is along the plane of x=0, and set battle stations on either side of the border at 1000 hex distances. Give each side the same number of fleets of 1500 BPV each, station one fleet at each star base to start.