PIMP MY (WAR)SHIP

Note from the author:

I was ready to jump fully into warship to create my perfect custom spacecraft (Millennium Falcon, Serenity, Normandy SR-2, Defiant, ect.). When I noticed that I just couldn`t fit half the systems to make it a good, solid, do-anything, go-anywhere (in reasonable time), and still-have-some-teeth ship. Cars, planes, motorcycles and boats can be outfitted and pushed far beyond specifications in our current time and it stands to reason that in the far flung future the options exist. Much like our current time those options come with either a penalty to other systems, a very high cost, or frequently both. I also noted a lack of versatility in the equipment themselves. There's seriously only one type of everything? I can`t buy one brand of cat litter! They don`t even make one version of fuel for cars. My disappointments aside the Warship's book and its add-ons are excellent and the rules make creating a fleet of ships and space combat much more smooth and realistic. There are several instances where I will borrow from, or completely copy work done in the Warships book. This whole customization system relies on the short entry about complex skill checks in the PHB and follows the rules for those.

This is intended for users who like Warship but want to squeeze the most out of their personal crafts (or flagships). While a few modifications could be applied en-mass, most are cost prohibitive or carry a drawback that makes them less than enticing for mass production. That said; I wholly intend for these modifications to push the limits of spacecraft into the near fantasy. If your GM allows this reference be careful the next time you run into a pirate vessel! Godspeed!

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Notes on Upgrades/Modifications

Hull Points/Durability – Both terms will be used interchangeably as best as possible. H.P. means Hull Points, Dur. Is short for Durability

To keep some aspect of balance in the game all upgrades cost quite a bit more than modifications and modifications come with more options but also more disadvantages. There is a limit of 3 upgrades or modifications to each system or system group. You can have a prototype unit that comes with 2 upgrades and slots for two more but your GM can make a roll to generate a random flaw in the prototype. The GM has the option to tell you or not tell you the flaw. During the process of upgrading if a check fails make a second roll to determine if the upgrader notices the flaw and corrects it. It is the same check as their original check or a related check (whichever they choose). Multiple people can contribute to both the primary check and the checks to notice anything going wrong. Up to 2 extra people per H.P./Durability can assist. Modifiers for available facilities and time reductions are available.

Time for upgrades/modifications- The time involved in upgrading a system varies depending on the level of the upgrade the size of the item being modified, the user's skill level and the conditions it is being done under. You can either use these rules in ultra realistic settings or completely ignore them as do them as you see fit. These are just based upon current abilities of crews, time involved in overhauls, and general game mechanics.

An upgrade can be done in 8 hour segments provided that the cost for the parts for an upgrade are already available. One person or crew can perform only once during this 8 hour segment then has to rest, they can perform a second segment following the first but must take a 8 hour break in-between (call it boot up, initializing or sleeping). This second segment within a 24 hour period gives them a +2 penalty to all checks due to fatigue and rushing the system. Two crews could alternate and install at triple speed at +2, three crews could install at triple speed and have no penalty (one crew only operates once in 24hours). This includes installation, calibration, programming, and limited testing. With multiple crews you always take the lowest modifiers. The formulas for figuring out how long it takes are as follows:

Marginal: 0.5 X (HP / CONDITIONS) = 8 HOUR SEGMENTS/check

Ordinary: 1 X (HP / CONDITIONS) = 8 HOUR SEGMENTS/check

Good: 2 X (HP / CONDITIONS)= 8 HOUR SEGMENTS/check

Amazing: 3 X (HP / CONDITIONS)= 8 HOUR SEGMENTS/check

So an 8 H.P. weapon with an ordinary modification (1x) at an ordinary quality station or hangar (2) means that it takes 4 segments per check. Roughly 32 hours per check. 4 days with a single person or crew 1 day 8 hours with a full three crews between checks. As always, round to the nearest 8 hour segment. How many checks it takes to finish is in the table below.
     Groups of items as a battery, sensor systems, or other items that are used by the same check.

__Alternate Rules:__ Temp Job/Rush – This is designed as a plot point for characters whom have a time limit to work with, if it seems unnecessary or will not work for the GM they can institute an "Temp Job" or "Rush" alternate rule. Temp Jobs are only designed to hold up to the immediate futures uses, not a permanent fixture on the ship. They only last for the next 1d4 scenes it was used in plus 1 per 3 ranks the one who did the checks has. This reduces the segments into one hour segments (same formula divided by 8).
     Rush- Rush jobs are an option for people with very little time and a lot of expertise to do the job. For every +1 the roller takes they increase the conditions modifier by 1. So a person taking a +3 penalty increases their condition by 3. So an ordinary condition becomes a 5 modifier. So the above modification takes (8/5) x 8 hours = 12.8 hours per check, about 2 days with a single person and 16 hours with three crews.

Conditions:

Type of Condition	(Examples)	Modifier
Mega-Port	– Capable of building even fortress ships, Only one or two may be available to any nation due to costs. (Tendril System)	X10
Super-Port	– Can build a single capital ship at a time, some fortress ships qualify, common at well-populated systems. (Aegis, Algemron, Hammer's Star)	X5
Base-port	– Modest by most standards, not capable of any capital constructions, most stations with any shipyard qualify. Some are even located on planets.	X2
Mini-Port	– Very small outposts, mining stations, and other permanent installations may have one of these to assist in repair of small craft. They cannot repair Capital Ships.	X1
Landing Pad	– Exactly what it sounds like, bring your own parts and repair crew.	0.5X

Unless otherwise stated the modifications follow the following number of successful checks:

Upgrade*

First Upgrade: Ordinary complexity (3)

Second Upgrade: Good complexity (5)

Third Upgrade: Amazing Complexity (8)

Modification*

First Modification: Marginal complexity (2)

Second Modification: Ordinary complexity (3)

Third Modification: Good complexity (5)

Three failures indicate the ship compartment/system develops a flaw. See charts for possible results. You can retry the work for 25% cost of the upgrade.

*Working on prototype items are always amazing complexity (8). They cost 3 times the listed items cost and start with upgrades included (that cannot exceed 100% extra costs). Prototype items have a maximum mod/upgrade limit of 5. Prototypes are always restricted availability.

General Upgrades/Modifications

Upgrades

Type	Effect	Cost
Reduce H.P/Dur. Use	Reduce the durability cost for a system by 20% (if reduced less than 1 reduce by one, if there is only 1 reduce to 0.5)	System Cost +25%
Reduce Power Use	Reduce the power consumption of a system by 5%, this can never reduce it lower than 0.5. (if reduced less than 1 reduce by one, if there is only 1 reduce to 0.5)	System Cost +25%
Hot swappable	Reduce time to install/removed by 75%	System costs +25%
Reliable	-2 to jury rig attempts to bring back into operation, -2 on damage checks to avoid damage	System costs +30%

These apply to all systems, round down to the nearest half number for HP/Durability use.

Chassis

"Hold together baby."

Custom Builds

In the vast and diverse universe there are unlimited variations and styles of ships. Therefore there should be no limit to the custom sizes of ships that you can build. Now just because it can be built doesn`t mean that it's going to be cheap. Common plans and sizes decrease costs.

To find a price for your ship first decide if you are going to go with a military hull or a civilian hull. The military hulls are tougher per hull point, but they cost quite a bit more money. Civilian hulls are great for cost for space but are not as durable. Then find the two nearest ships to the HP/Durability number you want. For this example I wanted 60 HP so we will use the Escort (1M, 40HP) and the Corvette classes (5M, 80HP).

The next thing to do is to decide how many HP/Durability points you want your ship to be (we'll go with 60 for our example). Now take the *more* expensive ship (Corvette 5Mil) divide its price by its hp ($62,500 per H.P) now multiply that by your new ships H.P (60HP x 62,500= 3,750,000). Now comes decision making time do you want the other stats like toughness, target modifier, or maneuver to be the same as the higher or lower ship? If you just want the stats of the worst of the two ships than leave your price unmodified. If you want to pick the best of both you need to add 10% to your costs (3.75mil x +10% =4,125,000). If you just want one of the upgrades then add +5% (3.75mil x +5% = 3,937,500).

Now for the finishing touches; Damage stats. To find your new ships damage stats take the difference between the two and divide it in half, rounded up. For an extra 10% total cost you can have the better damage stats as well.

Let us assume I wanted a super awesome ship in our example. I would take the extra 10% for the better chassis stats, and another extra 10% for the better damage stats. That means my 60 HP ship moves like an Escort but takes hits like a Corvette (and costs 4.5million). Is it a bad ass ship? You bet! Is it better statistically than an escort or a corvette, yes. Can it survive a beating from 4 escorts and a strike fighter for the same price? Hell no, sorry but you`re going to lose. So for most large scale battles where both have to worry about money it's not statically advantageous. But if you`re a commander with a lot of money and want the best this option is for you.

Superstructure Improvements

Ever wish your ship could just take a bit more beating? Those bigger guns getting the upgrade in damage just because they have a higher rating? Say no-more! With this special upgrade you can upgrade the toughness of your ship to the next level! Extra bulk heads! Redundant structure supports! Thickened inertial dampening! Headlight fluid! This costs 40% of your ship's hull cost (which includes the cost of installation). One upgrade per ship (sorry, no fighters are going to get the toughness of a heavy cruiser). This also reduces your Maneuver rating by 1. You do not gain any bonus hull points from this sort of upgrade.

Upgrades/Modifications to Chassis:
*add 10% to time for changes (have to remove all external components before working).

UPGRADES

Type	Effect	Cost
Good Design[1]	Adds 5% to total hull points (bonus)	20% hull cost
Great Design[1]	Adds 10% to total hull points (bonus)	40% hull cost
Superb Design[1]	Adds 15% to total hull points (bonus)	60% hull cost
Durable Hull	Adds 10% to all damage tracks (rounded up)	40% hull cost
Small profile[1]	Increase difficulty to target +1	40% hull cost
Well balanced[1]	Increase maneuver by 1	40% hull cost
Universal Design[1]	Decrease the time it takes to find parts, remove, or work on the ship by 15%	5% hull cost
Redundancy	Gives -1 to all damage control checks, as well as system damage resistance checks	30% hull cost

1: This can only be applied once per chassis

MODIFICATIONS

Type	Effect	Cost
Slap it on	Add 10% Hull Pts.	20% hull cost, reduce damage tracks by 5% (rounded down)
Extra re-enforcements	Add 10% to all damage tracks (rounded up)	20% hull cost, decrease maneuver by one
Glued to the outside	Add 10% Hull Pts.	20% hull cost, reduce target modifier by one.
Redundant Redundancy	Gives -1 to all damage control checks, as well as system damage resistance checks	15% hull cost, reduce available hull points 5%.
It's not built for that[1]	Gain 20% hull points that must be used on a single system.	15% hull cost, Reduce armor in section by half, reduce damage track in section to 75%.
Slim and sleek	Increase maneuverability by 2	20% hull cost, 10% H.P.,
Need for speed	Increase maneuverability by 4, increase acceleration 10%	30% hull costs, armor resistances are reduced by 2, 15% hull points
What a piece of junk[2]	Add 20% Hull pts.	20% hull costs, gain quirks *unreliable* and *troublesome*.
Ultra light[3]	Increase maneuver by 1, increase targeting mod by 1, increase acceleration by 15%	15% hull costs, Reduce toughness one grade, reduce available hull points 5%

1: Can be applied multiple times, but must be in a different section for different equipment.
2: Can only be applied once, if another modification has the same quirk than either double the penalty or have the GM pick another quirk.
3: Can only be applied once.

Power

"I cannot change the law of physics! I've got to have 30 minutes!"

Power, next to hull points, is the most vital resource aboard a ship. It is also the one that is hard to come by in abundance. The following upgrades/modifications allow for a ship to squeeze the most out of a system.

UPGRADES

Type	Effect	Cost
Highly Efficient[1]	Adds 5% to total power available (bonus)	20% system costs
Great Efficiency[1]	Adds 10% to total power available (bonus)	40% system costs
Superb Efficiency[1]	Adds 15% to total power available (bonus)	60% system costs
Redundant Capacitors	Reroll any damage checks that would disable this power system	30% system costs
Hot boot system[1]	Enable a quick start from cold, reduce startup time by 75%	30% system costs
Ejection system[1]	Enable power source to be jettisoned into space in event of failure	20% system costs
Idiot proof[1]	Gives -2 bonus to any attempts related to adjusting power	30% system costs
Excellent Recycling	Increase time between fuel refills by 50%	25% system costs
Split distribution systems	Split power generation into multiple systems. (Every upgrade gives one more power generator that does an even amount of power). 1st: 2 generators 50% each, 2nd: 3 gens. 1/3rd each. 4 gens. 25% each.	25% system costs

1: This can only be used once per system

MODIFICATIONS

Type	Effect	Cost
Over clocked	Power generation +10%	+25% system cost, burn through fuel at 2x rate, +2 penalty to resist damage to system
Lean mixture[3]	Reduce power generation 2% (min. 1 point), increase fuel duration 200%	+10% system cost, reduce time between maintenance by half.
"Unique" Design[1]	Increase power +5%, reduce HP cost -5%,	+20% system cost, +2 repair checks, 2x maintenance costs
Dangerously powerful[1,2] (Also known as the Death Star Mod.)	Gain +15% power	+20% system cost, Any damage to system requires check to see if system explodes. Consume fuel at 2x.
Cool Power[1]	Gain -2 bonus to check to distribute, overpower, or adjust power to systems	+25% system cost, only applies until any failed check then remove bonus and apply +2 penalties till end of scene.
Duct-tape and a spanner[1]	Repair time -50%, repair costs -50%, -1 Jury-rig attempts	+10% system cost, time between maintenances cut in half.

1: Can only be used once per system.
2: Only applies if damage is primary damage or higher than wound secondary damage.
3: Only applies to generators that use fuel.

The Bad Guy's Bag O' Tricks #1

A note for GM's: Bad guy vessels always seem to have an amazing amount of firepower but frequently have a fatal flaw that causes their ship to explode in amazing and spectacular fashion. I would recommend that their ships be equipped with *Dangerously Powerful* power generators. This gives them all the power they need to fill the stars with firepower but fall to a pair of proton torpedoes that make it past the outer hull. Also, feel free to strap on guns that are too big for the bad guys and have them "charged" before battle. That means the bad guys make a good first round showing but truly have less ability to fight that would be thought at first. Of course be sure not to make a weapon that a little luck couldn`t destroy your PC's ship with that first hit!

Propulsion

Sub-light Drives

"She may not look like much, but she's got it where it counts, kid."

Any method of propulsion in this category has one thing in common; they all go under the speed of light. Before the discovery of any of the law-of-the-physical-universe devices that allow FTL this was the only method of transportation. As such there are a myriad of ways to do it from solar sails to the induction engine and beyond. They all rely on the acceleration, which is discussed later, and other than that the only part that matters is where you point your acceleration (or how you point it).

UPGRADES

Type	Effect	Cost
Power Reserves	If all power is lost to the engines, then they can operate normally for 3 rounds before cutting out.	30% system costs
Omni-directional Thrusters[1,2]	The ship can maneuver in any direction without changing facing; however it only can do this at quarter its normal speed.	25% system costs
Resilient	Any damage check rolls to this system have a -2 modifier	25% system costs
Acceleration Boosters[1]	Pilot can make checks to accelerate faster than normal. O=+1,G=+2, A=+3	30% system costs
Backup System	Integrated backup system that operates at ¼ of the original if original is disabled.	60% system costs, 10% extra durability costs.
General Performance Pack[1,3]	Increase Acceleration 10%	20% System Costs
Advanced Performance Pack[1,3]	Increase Acceleration 20%	50% System Costs
Superb Performance Pack[1,3]	Increase Acceleration 30%	80% System Costs
Enhanced maneuverability	Increase maneuver rating by 1	30% System Costs
Maximum Speed	Increase top speed by 10% (or halfway to light speed, whichever is less)	30% System Costs

1: This can only be used once per system
2: Induction engines do not need this as they can already do it.
3: Cannot be combined with other performance Packs or Tweaks.

MODIFICATIONS

Type	Effect	Costs
Strap another one on	Increase accl. 10%, have one backup at 1/8th normal speed	30% system costs, 20% system hull costs
Booster[4,1]	Increase acceleration 40% for 2 rounds	20% system costs, 2% hull points, reduce maneuver by 5 when used.
Minor Tweaks[1,2]	Increase acceleration 10%	15% system costs, gain *temperamental* flaw
Major Tweaks[1,2]	Increase acceleration 20%	30% system costs, gain *temperamental* and take +2 to damage checks.
Tricked out Tweak[1,2]	Increase acceleration 35%	50% system costs, gain *temperamental,* take +2 to damage checks, and gain *unreliable*
Hot Rod Tweak[1,2]	Increase acceleration 50%	60% system costs, gain *temperamental,* take +2 to damage checks, gain *dangerously unreliable*
Lots a thrusters	Increase maneuverability by 1	20% system costs, reduce acceleration by 10%.
Moves like a fish, turns like a cow	Increase top speed by 10% (or halfway to light speed, whichever is less)	20% system costs, reduce maneuverability by 1.
Fixed Direction[1,3]	Increase acceleration 10%, reduce durability size (not cost of system) by 20%	Reduce maneuverability by 2

1: Can only be used once per system.

2: Cannot be combined with other tweaks or performance packs

3: Cannot be used on chemical engines, only induction

4: Only chemical propulsion can use this. Other systems can add it for twice the cost (still only works for the highest chemical propulsion available.)

Alternate Maximum speed ratings: I was at first confused when reading the game with their insistence that ships using the same propulsion methods would have different top speeds. It's not like there are other factors in space that you need be concern with such as drag or resistance. An object with a constant force (ie. Thrust) will accelerate until that thrust is equal, or near enough, to the speed at which it exits the craft that it makes little difference. That said a craft with less acceleration will take must longer to get near the max speed and maybe the authors thought 'oh well, its close enough'. Besides to truly reach the maximum speed of any propulsion would probably take more AU's of distance than most star systems have.

Therefore I have an alternate table of maximum speeds in a 24hour period as follows:

F.T.L.

Upgrades/Modifications

"It's the ship that made the Kessel Run in less than 12 parsecs…"

UPGRADES

Type	Effect	Cost
Increased Speed[2]	Increase speed in transit 15%	25% System Costs
Increased Distance[3]	Increase distance jumped 20%	25% System Costs
Reduce Cool-down	Reduce cool down time between uses by 20%	25% System Costs
Quick Jump[3]	Can jump a short distance into empty space without the need for calculations. Can only move 10% normal distance.	50% System Costs
Reduced Gravitational Interruption	Reduce the distance from gravitational sources to needed to jump by 25%	30% System Costs
Increase FTL field size	Increase FTL H.P/durability limit for taking other craft along with by 30%.	20% System Costs
Increase Jump Accuracy[3]	Reduce distance to target achieved by successful *Astrogation* by 30%, no effect for failures.	25% System Costs
Quick Calculations	Reduce computation time for *astrogation* by 30%	20% System Costs

1: This can only be used once per system
2: Only for FTL drives that are rated in speed (Hyperdrives, Warpdrives, ect.)
3: Only for FTL drives that are rated in distance per jump (Stardrives, ect.)

MODIFICATIONS

Type	Effect	Costs
Thread the Needle[1,3]	Reduce distance to target achieved by successful *Astrogation* by 50%,	15% System Costs, increase modifier dice +2
Crunch ALL the variables[1]	Roll twice for *astrogation* checks	10% System Costs, triple the time for calculations
Quick jumper[1]	Reduce cool down between FLT travels by 40%	25% system costs, Gain *unreliable.*
Ludicrous Speed[2]	Increase speed in FTL by 25%	25% System Cost, Gain *Unreliable* and *Tempermental*

1: This can only be used once per system
2: Only for FTL drives that are rated in speed (Hyperdrives, Warpdrives, ect.)
3: Only for FTL drives that are rated in distance per jump (Stardrives, ect.)

Defenses

Armor –

UPGRADES

Type	Effect	Cost
Thick Skinned	Increase all armor defenses by +1	50% Armor costs
Increased Energy Absorption	Increase energy defense by +1	20% Armor costs
Increased Kinetic Buffer	Increase LI defense by +1	20% Armor Costs
Increase Hardness	Increase HI defense by +1	20% Armor Costs
Reduce Collateral damage	Reduce any secondary damage by 1	30% Armor Costs
Safety optional extras	Reduce any damage sustained by crew in compartment by 2	30% Armor Costs
Scan resistant	Apply +2 penalty to any attempts to scan components that have no external attachments (i.e. cargo)	30% Armor Costs

1: This can only be used once per system

MODIFICATIONS

Type	Effect	Costs
Tough	Add +1 to all armor ratings	30% armor costs, +5% hull costs.
Achilles' Heel	Add +2 to one armor rating but reduce the die of the others by one step.	10% armor costs

1: This can only be used once per system

Shields –

Mixed bag of knuts

With the advent of shielding technologies in PL7 I feel there should be many more options for ships to defend themselves against all different threats they may encounter. This means that there should be several different forms of shields and shielding, some work just on a specific type of damage, others have secondary effects. There should also be different levels of shielding and the power requirements of them.

Therefore I have created a list of new shields and different shield levels for every budget and size of vessel. They will all have their strengths and weaknesses.

Low-density field- Rather than a hard shield that consumes a lot of power and completely absorbs the damage, the LDF shield creates a semi-permeable energy field that reduces the force of incoming projectiles and spreads energy before it impacts the ship. This effectively reduces the power of the incoming damage one grade. Medium weapons become Light, Light become Small, ect. The upside is that a ship can launch and recover its own ships and equipment without lowering the shields, the downside is that missiles and other guided ordinance weapons can penetrate the shields without interference. Often a well equipped ship will have this as a secondary when launching but energize its normal shields when all ships have embarked/disembarked. Note: This shield does work against area attacks as they do not rely on making contact.

Polarized hull (particle screen) - One of the most common defensive measures of PL7, this absorbs some or all of the energy before it reaches the hull. It comes in several varieties, but the most common deals with d4 Li/Hi and d6 En damage. Any remaining damage is applied to armor. This does not stop any vehicles or carried craft from deploying or landing, or missiles firing. There are two other models a; material screen that gives d6 Li/Hi and d4 En protection, and a heavy version that protects d6+1 Li/Hi and d8+1 En. Apply secondary damage as normal.

High-Density field – This provides a bit more true protection and reliability than polarized hulls or low-density fields. Any damage absorbed is not added as secondary damage but is completely negated before you roll for armor. It comes in a few varieties. Light: Reduce all damage by 2, Medium: reduce all damage by d4+1, Heavy: Reduce all damage d6+1.

Deflection Inducer – There are multiple types of deflection inducers, the first is passive and provides a steady bonus. The second is active and requires a defensive operator to make a check every round to adjust them to incoming fire. They both come in three varieties; Ordinary, Good, and Amazing. Ordinary Passive D.I.'s provide a +1 penalty to any attacks against the ship. Good Passive D.I.'s provide a +2 penalty to any attacks against the ship. Amazing Passive D.I.'s provided a +3 penalty to any attacks against the ship. This belt of gravitational force seriously damages any craft that try to pass through it and it prevents ships from departing or embarking.

Active Deflection Inducers are a bit more complicated. They reduce the power and size required by using the Defense Systems Operator to manage the angles and adjust the power at certain areas to maintain an effective defense. The defense check determines the resulting quality of the defense: Failure (no bonus), Ordinary +1, Good +2, Amazing +3. The quality of the deflector determines the

bonus to the check or additional defenses. An ordinary deflector operates normally, a good deflector gives a -1 bonus to the check, and an amazing deflector gives a -1 bonus and increases the defensive bonus by +1 for any check. A critical failure gives a -2 to any attacks (-1 with amazing deflector). One additional feature is that the defensive operator is able to drop deflectors on any one of the protected arcs to allow ships to embark/disembark.

Magnetic Screen – Still an effective shield in PL7, it does suffer against more modern energy weapons. It comes in three levels of protection. Ordinary gives +1, Good gives +2, and Amazing gives +3. This only works on mines, missile attacks and projectile weapons, other weapons are unaffected. Any ships attempting to embark have to make a piloting check with a penalty equal to the level of protection to land safely with the shield on.

Type of Shield	Hull	Power	Cost/Coverage	Notes
Low-density field (PL7)	1	2	$400k/20 hull pts	Reduce weapon grade by one step
Polarized Hull (PL7)				Reduce damage taken
Ordinary	2	3	$750k/20 hull pts	D4 Li/Hi, D6 En
Material	2	3	$750k/20 hull pts	D6 Li/Hi, D4 En
Heavy	3	5	$1.1mil/20 hull pts	D6+1 Li/Hi, D8+1 En
High-density field (PL7)				Damage reduced
				-
Light	2	3	$900k/20 hull pts	2
Medium	3	4	$1.2mil/20 hull pts	D4+1
Heavy	4	5	$2 mil/20 hull pts	D6+1
Deflection Inducer (PL7)				Targeting modifier
				-
Ordinary	1	1	$350k per 20 Hull points	+1
Good	1	2	$500k per 20 Hull Points	+2
Amazing	2	3	$750k per 20 Hull Points	+3
Deflection Inducer (Active)				Defense op bonus
				-
Ordinary	1	1	$250k per 20 Hull Points	0
Good	1	2	$350k per 20 Hull Points	-1
Amazing	2	3	$500k per 20 Hull Points	-1, increase effect +1
Magnetic Screen (PL6)				
Ordinary	3	1	$250k per 20 Hull Points	+1
Good	4	2	$400k per 20 Hull Points	+2
Amazing	4	3	$650k per 20 Hull Points	+3
Ablative Shield (PL8)				
Generator	1	2	$500k per 20 hull points	Capacitor/Compiler required
Capacitor	1	-	$100k per unit	10 Shield points
Energy Compiler	1	-	$500k per unit	20 Shield points

UPGRADES

Type	Effect	Cost
Increase recover rate[2]	Shields recover 1 extra point a round/phase	25% System cost
Increased capacity[2]	Increase energy storage capacity by 10%	30% System cost
Shield Flicker	Turn on and off shield in certain locations to allow objects to pass through un-accosted.	25% System cost
Secondary Shielding[1]	Can have two different shields active at the same time.	40% cost for each system (Must be applied to both)
Increased energy dissipation[3]	Increase the die of the energy absorption by one (D4>D6>D8>D10>D12>2D8)	30% System cost
Increase kinetic absorption	Increase the die of Li/Hi shielding by one (D4>D6>D8>D10>D12>2D8)	30% System cost

1: This can only be used once per system
2: This only applies to Ablative Shields
3: Only applies to Polarized Hulls and High Density Fields

MODIFICATIONS

Type	Effect	Costs
Special Calibration	Pick one weapon or weapon type (laser, plasma, missile, ect), Gain +2 armor vs. that type of attack	10% system cost, 1PP and all other types of damage are reduced by one less.
I`m invincible!	Double the effectiveness of the shield (twice the dice, twice the capacity ect)	25% system costs, 1.5x power consumption, gain *burnout* quirk

1: This can only be used once per system

WEAPONS (like you read anything else)

UPGRADES

Type	Effect	Cost
Range Increase	Increase Weapon Range by 20% (min 1 Mm)	Weapon Costs +25%
Damage increase	Increase weapon damage by +1	Weapon Costs +30%
Increased Targeting	Add or subtract 1 from compartment target roll. Combines with Sensor Ops. Targeting	Weapon Costs +25%
Fire Rate increase	Increase firing rate one step F/B/A (cannot increase to Battery)	Weapon Costs +20%
Internal power reserves	Store enough power for two extra shots.	Weapon Costs +20%

1: This can only be used once per system

MODIFICATIONS

Type	Effect	Costs
Overpowered[1,2]	Increase grade of damage by one	+50% system cost, Uses 1.5X the power and must make engineering check or take 1d4 stun when fired.
Sporting	Increase range 30%, increase accuracy bonus by 1	20% weapon cost, Decrease damage grade by one step
Kick it up a notch[4]	Increase damage by 2	25% weapon cost, +10% power cost (min 0.5), gain *troublesome*, must say "BAM!" after every hit.
Spray and Pray[3]	Add A (automatic fire) to the weapon	10% system costs, lose the ability to use any other fire option,
Make it count[1,2]	Have the option to 'juice' the system to up the grade of damage by one, add 3 to the damage roll and a -1 to the accuracy for a single shot	+50% system costs, after shot weapon shuts down for 1d4+1 rounds (It cannot charge power during shutdown), uses 2x power, gain burnout
It goes to eleven	Increase damage by 2	20% weapon costs, +10% H.P. used.

1: Can only be applied once per system.
2: Can only be used on Energy weapons.
3: Weapon must have at least 3 actions to qualify
4: If they do not say "BAM!" then the shot glances harmlessly off the target and everyone must point at laugh at them.

Ridiculous overpowered obscene weapons (by type)

This is for those who wish to have a flying cannon. Basically it's an engine, a power source, a hull, and a cannon. If you`re looking for the biggest cannon you can find for a large scale battle you might be able to go up two grades. Look into investing heavily in power reduction and size reduction. Armor should be a secondary concern to accuracy and speed. A wing of bombers with medium grade weapons will deal havoc if they have the speed for hit and run tactics. If you can, eliminate any environmental controls, and any bunk or cargo space, also it won`t have the option of any FTL so it better have a base to return to. I recommend energy weapons for those who like a quality ship that can be reliable. However for cost and damage projectile weapons are hard to beat. The most enduring (and sometimes expensive) are missile boats. Firing very large, very deadly weapons at close range will make any commander think twice about ignoring them.

For those that still want a ship of their own with a really big gun and still have FTL, some armor, some cargo and a bunk to sleep in, get ready for some drawbacks. The first thing that you should do is make it a fixed weapon. That means that it's stuck in a single direction and to change its direction you have the change the ships direction. This applies a targeting penalty but reduces the size quite a bit. I would recommend energy weapons as the ammo for projectiles take up more space. Just be sure to give it some real power. Remember if you are just a hair over you can always have it charge every other round to make it a bit less of a power bear. If you are cruel you can turn off life support or other "wasteful" systems to squeeze a bit more power out, just remember to tell you're crew first. As far as secondary weapons, good luck, you`ll most likely be using small weapons like lasers or missile racks.

Command and Control

What can comm's really do? (See sensor operator)

Seriously, not exactly the job everyone wants. Next to sensors operator it can get pretty dull. They most fun you can possibly have is if you have a kind GM who lets you be a hacker, and attempt to hack your opponent's ship. The good news is that you can go get a beer during combat, bad news is that you might as well get a beer during combat. A good GM will pass you notes about what you hear over communications at least then you get to rephrase it however you like.

Hacking an opponent's ship can be quite a challenge during combat. Most military ships have their communication systems separated from their main systems, preventing anyone from taking over their ship via the com system. Doesn`t mean that even having your opponent shut off their com isn`t a bad option. During combat especially in a large group communications are vital. If a ship looses their com they have no orders, no direction, and no sync with the rest of the group. Laser com are a solid option though they can only communicate to one ship/per laser com. Anyone who wishes to hack a communication must proceed similar to a hacking check, first they will have to make a connection which is a communications attempt. The level of difficulty is based upon the encryption used and the skill of the other com officer. If they are using encrypted com's then make a check with a penalty equal to the level of the opponents com check.

New Equiptment

Jammers – Jammers will be divided into two groups, active and passive. Active jammers require an operator to function and are used much like those in the PHB and GMG. Passive are like those in warship and require no operators but cost more for size and power.

UPGRADES

Type	Effect	Cost
Emergency Stations[1]	Gain backup controls at another location	25% Cost, all checks at +1 from emergency stations.
Piercing communications[1]	Reduce penalty for being jammed by 1	25% System Cost
Mono Directional	Make communications impossible to intercept over short distances	25% System Cost, +2 to comm. Checks when active. Can only communicate to a single vessel.
Disruptive Jammer[2]	Gain -1 to any attempts to jam communications or sensors	30% System Cost
Wide spread Jamming	Jam all ships in a fire arc	40% System Cost
Extended Jamming	Apply jamming to all ships within your MM.	40% System Cost

1: This can only be used once per system
2: Active Jammers only

MODIFICATIONS

Type	Effect	Costs
RASBERRY![2]	Increase jamming effect by 2	15% System Costs, Penalize your own sensors/coms by 2, passive detectors gain -1 bonus to detect jamming signal (not to target)
Jam everything [1,2]	Increase jamming effect by 4	25% System costs, Penalize your own sensors/coms by 5, passive detectors gain -3 to detect jamming signal (not to target)

1: This can only be used once per system
2: Jammers Only

Sensors

A use for the sensors operator?

Usually one of the most boring positions on a starship, next to communications, keeping watch. At best you can give a bonus to the weapons or see how bad the enemy is doing. While vital to the operation especially during combat it isn`t much fun to role-play out. If you have NPC's or fighters, or even enemies you`d wouldn`t mind passing off I`d recommend it to keep them off their cell phones and in the game firing and dealing damage. If they are on a small ship with only one weapon and one opponent there's not much for them to do in any situation. I do also recommend passing notes to sensors on what they pick up on scans rather than telling the group. Makes them have to interact with others.

UPGRADES

Type	Effect	Cost
Long range sensors	Increase sensor range 20%	30% System Cost
Penetrating sensors[1]	Decrease penalty for scanning through objects by 1	15% System Cost
Targeting improvement[1]	Reduce targeting penalty by 1	40% System Cost
Increase damage recognition[2]	1 step bonus to detecting damage on ships.	20% System Cost
Sensor masking[3,4]	Reduce bonus to enemies detecting with passive sensors by one.	30% System Cost

1: Cannot reduce penalties below zero.
2: Only works on sensors that can detect damage.
3: Cannot reduce opponent's bonus below zero.
4: Active Sensors only

MODIFICATIONS

Type	Effect	Costs
Loud[1,2]	Gain a -2 to all sensor checks	15% System Cost, opponents gain a -2 to detect you with passive sensors
Quiet[1,2]	Opponents reduce bonus for detecting by 2	15% System Cost, all sensor checks are at a +2 penalty
Very Focused[1]	Gain -3 to a sensor check vs a single object	20% system cost, cannot use sensor for any other task
Broad spectrum	Increase detection by 25%	System cost 10%, +2 targeting penalty
Heavy tuning[1]	Gain -1 to damage scans and targeting	System cost 10%, reduce range by 20%
Fuzzy Picture	Increase sensor range 40%	System cost 10%, Damage scans and targeting take +2 penalty

1: This can only be used once per system
2: Only applies to Active Sensors

Hangars and Small Craft

How hard could it be?

UPGRADES

Type	Effect	Cost
Efficient storage[1]	Add 10% to Hangar capacity	15% System Cost
Superb Storage[1]	Add 20% to Hangar capacity	35% System Cost
Amazing Storage[1]	Add 30% to Hangar capacity	55% System Cost
Catapult[2]	Craft can be launched at up to 20% maximum velocity from the hangar	10% System Cost (per catapult/upgrade)
Vehicle Drop (PL6)[3]	Capacity to deliver vehicles safely out of the ship from in atmosphere. (The vehicles must have some way to land safely on their own)	10% System cost (Per vehicle dropped per round)
Vehicle Lander (PL7)[3]	Vehicles can be safely delivered to ground via gravity manipulation from in atmosphere.	15% System Cost (Per vehicle dropped per round)
Vehicle Teleported (PL8)[3]	Vehicle is materialized upon the ground at desired location. (Can be done from orbit)	20% System Cost (per vehicle per round)
Auto-Loader	This increases the number of ordinance loaded per round by 5	25% System Cost

1: This can only be used once per system
2: Can be used a number of times equal to the number of craft that can be launched at one time. In addition you may purchase it up to three times per launch, increasing the speed of the launch each time (20%>40%>60%).
3: Only purchased once per system, multiply purchase price by number of vehicles deployed

MODIFICATIONS

Type	Effect	Costs
Need for Speed!	Hangar can launch craft at 30% their cruise speeds	10% system cost, 1 PP per 20 H.P. of craft
Cool Bay[1]	Hangar can dock and launch 25% more at a time	20% System Cost, Hangar has no airlocks, gravity, or atmosphere when active.
Hot Loader	Craft do not need to dock to load (still must enter area and remain next to ship until loaded)	10% System Costs (per external loader). Any wound or higher damage to hangar disables loaders until repaired.
Pack 'em in![1]	Add 20% hangar capacity	20% System Cost, Gain *Disarray* that applies to any craft in the hangar.
Who needs aesthetics?[1]	Add 40% Hangar capacity	45% System Cost, Gain *Disarray* to any craft in the hangar, lose gravity and life support in bay (open to space)

1: This can only be used once per system

2: Can be used a number of times equal to the number of craft that can be launched at one time. In addition you may purchase it up to three times per launch, increasing the speed of the launch each time (30%>60%>90%).

Miscellaneous (We have cake)

UPGRADES

Type	Effect	Cost
Alien Life support[1]	Can duplicate almost any environments atmosphere	50% Life Support Cost (Can be applied on a single system)
Crew Safety [1]	Treats all crew as though they were strapped in (airbags, inertia dampeners, ect.)	75% Life Support Costs, 0.5 H.P per 20 covered.
Concealed Compartments[2]	Use up to 20% of cargo space as anti-scan, hidden compartments (+4 to detect with *search*)	50% Cargo system cost. Lose 5% cargo space.

1: This can only be used once per system
2: Each additional is added to the first.

MODIFICATIONS

Type	Effect	Costs

1: Can only be applied once per system.

Quirks

All because you used standard and they used metric...

Quirks are those traits of a spaceship that may or may not come into play regularly but are a part of it none the less. They give the ship personality, and usually come as the result of either tampering too far beyond the capabilities of physics, or as a direct result of a modification that causes problems. If they are part of the upgrade/ modification they can only be removed if the offending modification/upgrade is removed. If it is due to some poor installation then they may be removed and reinstalled with a new set of checks when the players have the time and money to do such.

Quirks apply to only the system or item that was modified unless otherwise specified.

Unreliable – At the end of a scene involving the spacecraft roll a crew check/engineering check to see if the ship breaks down in some fashion. If it is a failure then roll for which compartment fails (If this is a system apply the penalty to the system without rolling). Assume that compartment/system has taken maximum stun damage. Repair as normal.

Seriously Unreliable – The same as unreliable but make checks before and after each scene involving the spacecraft.

Dangerously unreliable – The same as unreliable but instead of stun damage it is wound damage the ship/compartment takes.

Annoying – System Operations and Repair Checks take a +1 penalty

***Temperamental* –** System Operations and Repairs take a +2 penalty

***Worry-some* –** Repairs/ Modifications/Upgrades carry a +1 penalty

Troublesome – Repairs/Modifications/Upgrades carry a +2 penalty

Burnout – Every round that this system is active it takes 1d4 stun points which cannot be repaired until the system is inactive.

Disarray – This may not be accurate in describing how the actually component works or is laid out, but in any case it takes one and a half times as long to get anything done due to some reason. This applies to Repair and Jury-Rig

Flaw Chart

When someone fails and upgrade or modification they may suffer the consequences. While flaws that are included in a modification are well known and should be revealed to the players. Rolled flaws are hidden until they take effect. A good GM will roll secretly (or even better roll when they first use the system), and keep the info secret as long as possible while the engineer is constantly trying to narrow down the problem.

A nice GM will let the players test their systems to see the flaw before it is critical. A naughty GM will let the players think that they`ve no problem until it is time for combat or some other dire situation. Nothing like gearing up for a dogfight only to find out that modified engine cuts out when you try to give it the gas. All flaws are at a GM's discretion, they may rule that a certain condition does not apply, applies some of the time, or all the time. They can also select a flaw rather than roll, they can also come up with a new flaw.

Roll d20	Name of Flaw	Result
1	Structure Flaw	Roll random compartment, apply +1 penalty when rolling for a damage check
2	Structure Defect	Roll random compartment, apply +2 penalty when rolling for damage check
3	Wrong Circuit	Roll Random compartment, compartment looses environmental controls (air, gravity, lights, ect) when modified system is activated.
4	Poor Welds	Compartment with modified system applies +1 penalty when rolling for damage check
5	Damaged Structure	Compartment with modified system applies +2 penalty when rolling for damage check
6	Bad Circuitry	Compartment with modification looses environmental controls (air, gravity, lights, ect) when modified system is activated.
7	Poor Distribution	Random system shut down for 1d4 rounds when modified system is activated. Roll compartment and system randomly every time. System Ops *Engineering* success can reduce downtime by O (1), G (2), A (3)
8	Power Hog	Modified system takes 1 additional power when used; if no more power is available roll random system (that uses power) shuts down for as long as other system is active.
9	Overload	Modified system compartment takes one stun damage whenever activated (no armor reduction)
10	Ionizing	Modified system ionizes round after activated or used, system inactive for 1d4 rounds. Jury-Rig as if disabled to reactivate sooner, keep track of ionization rounds vs. jury-rig rounds.
11	Crossed Wire	Activate random other system when modified system is used. If system is already active, deactivate. Cargo includes cargo hold door, rooms with airlocks and escape pods should be included.
12	Overheat	System deactivates 1 round from use. System Ops *Engineer* can return to use with complex check of ordinary (4)
13	Measured in Standard	Any repair work on compartment is increased by one die, and one more successful check.

14	Incorrect Ventilation	System vents into compartment. Any characters inside take 1D6 Stun (En) from heat and electricity whenever modified system is activated, armor may reduce.
15[1]	Annoying	System gains *Annoying* quirk
16[1]	Temperamental	System gains *Temperamental* quirk
17[1]	Disarray	System gains *Disarray* quirk
18[1]	Unreliable	System gains *Unreliable* quirk
19[1]	Seriously Unreliable	System gains *Seriously Unreliable* quirk
20[1]	Dangerously Unreliable	System gains *Dangerously Unreliable* quirk

1: If the system already has this quirk either reroll, upgrade to the next level or add the modifier.