Starship Engineering

Introduction:

This section covers the use of the skills *(A) Engineering: Starfighter* (covering any small armed starship designed to carry no
more than three crewmen, including any droids), *(A) Engineering: Space transports* (including any Starfighter-scale vehicle that does not fit the description of a starfighter, above, plus any lightly armed Capital-scale ship whose primary function is carrying passengers and/or cargo), and *(A) Engineering: Capital ship* (any Capital-scale vehicle that would not qualify as a Space Transport because of armament, purpose, etc.). Two related skills, *(A) Engineering: Installation* (from *Hideouts and Strongholds*) and *(A) Engineering: Droid* (from *Cynabar's Fantastic Technology: Droids*), have been detailed in WEG SW:RPG books and this section draws a lot of inspiration from them.

These (A) Engineering specializations have the following prerequisites (source: *Hideouts and Strongholds*):

- *Starfighter:* 5D Starfighter repair, 3D Starship weapons repair.
- *Space transports:* 5D Space transports repair
- *Capital ship:* 5D Capital ship repair, 4D Capital ship weapons repair, 2D Computer programming/repair

To use this system, come up with an outline of the stats you want for your new vehicle (not including price or crew), then go
through each subsection to find the cost of that component. Some things are dependent on the cost of other things, so you
should go through this system in order! Assume that 1 pip = 1/3 of 1D. Remember that modifiers are cumulative and may be
multiplied together when applicable.

Independent Systems:

Independent systems are those whose cost is not dependent on any other factor, but their costs (and sizes and weights) increase the cost of Dependent systems, below. Total the cost of all Independent systems before proceeding through the design process. *The cost of Indpendent systems is doubled for Starfighters and halved for Capital ships.*

Vehicle/Hangar Bay:

Vehicle Type	Cost
Speeder-scale vehicle	1,000 each
Walker-scale vehicle	10,000 each
Starfighter	2,500 each
Space transport	25,000 each

Starfighters may not have a vehicle bay.

Sensors:

Cost: (1,000 x #D) x (*Passive* range/15) x (*Scan* range/30) x (*Search* range/50) x (*Focus* range/3)

Passive: Maximum 3D,

Passengers:

Passenger Type	Cost
Steerage	2,500
Standard	5,000
Cozy	7,500
Comfortable	10,000
Affluent	15,000
Luxurious	25,000
Seats only (48 hrs. flight or less)	x1/5
Droid	x1/2
Note: Starfighters can only have seats.	
Steerage accommodations can be used as barracks for troops or as prison cells (double cost for a +1D to difficulty to escape, triple cost for a +2D).	

Cargo:

Cargo costs 75 credits per ton . Assume that there is one cubic meter of storage space per two metric tons of cargo.

Accessories:

Navigation computer	2,000 credits (40,000 for a Capital-scale starship, due to the added complexities of moving a larger mass through hyperspace); x2 to cost for +1D to *Astrogation*, x3 to cost for +2D to *Astrogation (*no further improvement possible); also, a "limited nav computer" capable of holding only 2 hyperspace jumps is available for half cost
Communications *Military versions have built-in encryption*	**Comlink:** 300 (civilian), 600 (military). Allows normal radio communications to a range of about 500,000km.
	Subspace Radio: 500 (civilian), 1,000 (military). Allows faster-than-light communication to range of about 100 light years.
	Hypertransceiver: 5,000 (civilian), 10,000 (military). Allows unlimited range *audio and video* communication through hyperspace,

range 5-250
Scan: Maximum 4D, range 10-800
Search: Maximum 5D, range 15-1500
Focus: Maximum 6D+2, range 1-18

Ranges: Ranges must be progressively larger in this order: *Focus, Passive, Scan, Search.*

Sensor dice: Sensor dice must be progressively larger in this order: *Passive, Scan, Search, Focus.* However, sensor modes may be excluded, starting with *Focus* and proceeding backward through this list.

Note: If a starship has no sensors (i.e., 0D in all categories), then it must rely on visual perception: *Passive* 5/0D.

Weapons Systems:

Weapons costs are determined by *type* and the sum of *fire control* and *damage* dice. For these purposes, consider fire-linked weapons to be a single weapon (e.g., an X-wing's four fire-linked laser cannons are purchased as a single laser cannon with Fire Control 3D and Damage 6D).

Blasters (*Starfighter*-scale):

Cost: 750 per 1D
Range: 1-5/10/17
Fire Control: 0D-3D

	although it cannot reach parts of the galaxy not serviced by hyperradio or HoloNet booster stations.
	HoloNet: 50,000 (civilian), 100,000 (military). Allows unlimited range *holographic* communication through hyperspace, although is cannot reach parts of the galaxy not services by HoloNet booster stations.
	Comm jammer: 5,000. Usable for 10 rounds before recharging (focus mode lasts only 5 rounds). Make an opposed *communications* roll to determine if jamming succeeds. Operator chooses number of arcs being jammed and this may give him a bonus to his *communications* roll: all arcs, +0D; three arcs, +1D; two arcs, +2D; one arc (focused jamming), +3D.
Airlock	500 credits each (every vehicle larger than a starfighter should have a least one; capital ships might have dozens)
Escape pod	1,200 credits (holds 10 people, one day of consumables, and moves at Space 10)
Ejection seat	500 credits (works for one seat; if weaing only a vacuum suit, make an Moderate *Stamina* roll every hour or suffer a Wound from the extreme temperatures, 10 hours oxygen; if wearing a full space suit, individual doesn't make *Stamina* rolls and has 25 hours of air but suffers a -1D to all *Mechanical* and *Dexterity* skills due to bulkiness; character is Mortally Wounded whenever the oxygen runs out)
Medical facilities	30,000 per bed, 400,000 for a clinic level (up to 20 patients and a bacta tank), and 1,500,000 for a hospital level (up to 100 patients and five bacta tanks); x2 to cost gives a +1D to *(A) Medicine* rolls, x3 to cost gives a +2D to *(A) Medicine* rolls (no further improvement possible).
Machine shop	20,000 per shop, x2 to cost for +1D to modification and repair rolls, x3 to cost for +2D to modification and

Damage: 1D-6D

Lasers (*Starfighter*-scale):

Cost: 1,000 per 1D
Range: 1-3/12/25
Fire Control: 0D-3D
Damage: 1D-7D
Total Dice: Cannot exceed 9D

Lasers or Turbolasers (*Capital*-scale):

Cost: 8,000 per 1D
Range: 3-15/35/75
Fire Control: 0D-4D
Damage: 2D-10D
Total Dice: Cannot exceed 10D

Ion Cannons (*Starfighter*-scale):

Cost: 1,000 per 1D
Range: 1-3/7/36
Fire Control: 0D-4D
Damage: 3D+1-4D

Ion Cannons (*Capital*-scale):

Cost: 8,000 per 1D
Range: 1-10/25/50
Fire Control: 2D+2-4D
Damage: 3D-4D

Proton Torpedoes (*Starfighter*-scale):

Cost: 500 per 1D
Range: 1/3/7
Fire Control: 0D-3D
Damage: 7D-9D
Ammo Capacity: +10% of base per torpedo
Each Torpedo: 25% of base

Proton Torpedoes (*Capital*-scale):

Cost: 4,000 per 1D
Range: 2-12/30/60

	repair rolls. A machine shop can tool replacement parts for 1/5 normal price on a successful skill roll, although original parts must still be purchased (or their blueprints copied) to allow this. Raw materials take up one ton per 2,000 credits of value.
Sensor counter-measures	**Sensor baffling:** 50,000 per Hull die for Capital-scale, 20,000 per Hull die for Starfighter-scale; adds +1D to difficulty to *detect* vessel (second coating, doubling cost for +2D to difficulty, is available for ships with less than 5D Hull)
	Sensor mask: 300,000 per Hull die for Capital-scale, 150,000 per Hull die for Starfighter-scale; adds +2D to difficulty to *detect or identify* vessel. *Note: A vehicle can have no more than +3D protection from sensor baffling and sensor masks combined.*
	Sensor jammers: 5,000; choose which sensors mode they will be used in to determine modifier to enemy vessels (i.e., if Focused on one ship, use Focus dice); dice are added to difficulty to *identify*, but subtracted from difficulty to *detect*.
Backup battery	5,000 for Starfighter, 10,000 for Space transport, 200,000 for Capital ship; allows one hour of life support while powerless or in silent running; each additional hour doubles cost

Fire Control: 2D-3D+1
Damage: 6D+2-9D
Total Dice: Cannot exceed 11D
Ammo Capacity: +10% of base per torpedo
Each Torpedo: 25% of base

Concussion Missiles (*Starfighter*-scale):

Cost: 375 per 1D
Range: 1/3/7
Fire Control: 1D-3D+2
Damage: 7D-9D
Ammo Capacity: +15% of base per missile
Each Missile: 50% of base

Concussion Missiles (*Capital*-scale):

Cost: 3,000 per 1D
Range: 2-12/30/60
Fire Control: 1D-5D
Damage: 4D-9D
Total Dice: Cannot exceed 12D
Ammo Capacity: +15% of base per missile
Each Missile: 50% of base

Tractor Beams (*Starfighter*-scale):

Cost: 2,000 per 1D
Range: 1-5/15/30
Fire Control: 2D-3D
Damage (Strength): 2D-5D

Tractor Beams (*Capital*-scale):

Cost: 16,000 per 1D
Range: 1-5/15/30
Fire Control: 0D-4D
Damage (Strength): 4D-9D

Gravity Well Projector (*Capital*-scale

only):

Cost: 100,000 per 1D
Range: 1-5/75/150
Fire Control: 0D-6D
Gravity Well Constant (GWC): 1-6 space units (each point counts as 1D for cost purposes). A starship's range from the center of the gravity well determines the effecton its hyperdrive:

- *Within 1xGWC:* Cannot enter hyperspace
- *Within 2xGWC:* +30 to *Astrogation* difficulty
- *Within 3xGWC:* +20 to *Astrogation* difficulty
- *Within 4xGWC:* +15 to *Astrogation* difficulty
- *Within 6xGWC:* +10 to *Astrogation* difficulty
- *Within 8xGWC:* +5 to *Astrogation* difficulty

Note: See pp.18-20 of *Wanted by Cracken* for details.

Mass Modifier:

To find the *Mass Modifier*, take the total cost of all Independent systems and divide by 50,000.

Dependent Systems:

Dependent Systems are those whose cost is modified by the mass and/or size of the independent systems, above. To calculate the cost of Space, Maneuverability, Hyperspace Multiplier, Hull, and Shields, find the base cost from the charts below and mulitply by the *mass modifier*. *The cost of Dependent systems is halved for Starfighters and doubled for Capital ships.*

Hyperdrive: 20,000/(Hyperspace mult.)

Hull (*Starfighter*-scale): 4,000 per 1D

- *Starfighters may not have a Hull over 4D+1*
- *Space transports may not have a Hull over 7D*

Hyperdrive multiplier lower than x1.
- *Hyperdrives slower than x5 are usually used as backup hyperdrives.*

Sublight Engines: 2,500 x Space

- *Capital ships may not have a Space rating above 9.*
- *Space transports may not have a Space ranging above 10.*
- *Starfighters may not have a Space rating above 12.*
- ***Drop-ships** are special cases: They may have a Space of 1-2 but move 5x as fast when heading toward a planet's surface (this should only work within 100 units of the atmosphere); however, drop-ship engines cost 2x as much as normal.*
- *If the starship cannot fly in a planet's atmosphere, its sublight engines cost 1/2 as much. Otherwise, look up its Atmosphere rating on the chart below:*

Space	Atmosphere
12	450;1300km/h
11	435;1250km/h
10	415;1200km/h
9	400;1150km/h
8	365;1050km/h
7	350;1000km/h
6	330;950km/h
5	295;850km/h
4	280;800km/h
3	260;750km/h
2	225;650km/h
1	210;600km/h

Baffled Drive: 50,000 x Space

- *Space cannot exceed 2*
- *Fuel enough for 100 units of movement on a single tank*
- *Each tank costs (engine cost) x 0.07 and occupies (cost 3,500) tons of cargo per spare tank*
- *This drive can allow movement even while powered down (adding +5 to*
- *Hull normally includes 2D of Particle Shields (i.e., if Particle Shields are lowered because of power loss, missle/torpedo launches, or vehicle launch and recovery, lower the starship's Hull by 2D). If the vehicle's Hull is less than 4D, Particle Shields instead make up 1/2 the total Hull code, rounded down.*

Hull (*Capital*-scale): 32,000 per 1D

- *Capital-scale Space transports may not have a Hull over 5D+2*
- *Other Capital ships may not have a Hull over 10D*
- *Hull normally includes 2D of Particle Shields (i.e., if Particle Shields are lowered because of power loss, missle/torpedo launches, or vehicle launch and recovery, lower the starship's Hull by 2D). If the vehicle's Hull is less than 4D, Particle Shields instead make up 1/2 the total Hull code, rounded down.*

Shields (*Starfighter*-scale): 6,000 per 1D

- *These are Ray/Energy Shields and have no effect on physical damage.*
- *Starfighters may not have Shields over 2D+2*
- *Space transports may not have Shields over 4D*

Shields (*Capital*-scale): 48,000 per 1D

- *These are Ray/Energy Shields and have no effect on physical damage.*
- *Capital-scale Space transports may not have Shields over 3D*
- *Other Capital ships may not have Shields over 8D*

Maneuverability: 3,750 per 1D

- *Starfighters may not have Maneuverability over 4D*
- *Space transports and Capital ships may not have Maneuverability over 3D*

difficulty to detect identify).

Crew: 5,000 each (x1/5 if crewmen are seated)

Small ships such as light freighters or starfighters may have very small crews because a single crewman performs several tasks (e.g., a starfighter pilot acts as commander, pilot, astrogator, shield operator, comm specialist, sensor specialist, and gunner). However, larger ships such as capital ships (especially military vessels) usually have at least one to two crewmen dedicated to each task per shift (normally three shifts per day). Also, very large vessels may carry extra crewmen to compensate for combat casualties.

- *Command:* At least one, but usually three (captain, first officer, second officer) plus one per five crewmen.
- *Pilot:* At least three, but usually six (one pilot and co-pilot pair per shift).
- *Astrogators, Sensor Operators, Shield Specialists, Comm Specialists:* Three to six of each. These constitute the bulk of the bridge crew.
- *Gunners:* One per starfighter-scale weapon, two per capital-scale weapon, and four per tractor beam.
- *Hangar crews and pilots/drivers:* Three times the total of all carried vehicle crews (e.g., twelve TIE fighters have twelve pilots, so include at least thirty six crewmen as deck crews and TIE pilots).
- *Engineers:* At least one per 60,000 credits of Dependent Systems, rounded up.
- *Passenger Service:* One per 50 Steerage, 20 Standard, 15 Cozy, 10 Comfortable, 5 Affluent, and 2 Luxurious accommodations. Droids are often used for these positions.
- *Medical personnel:* One doctor, nurse, or other medical specialist per 50 people aboard. Vessels with five or more medical personnel should have a Clinic Level, and those with twenty-five or more should have a Hospital Level (see Medical facilities under Independent Systems, above). Droids are often used for these positions because of the highly specialized physiological knowledge needed.
- *Service:* One service crewman (cooks, morale officers, etc.) per 50 people aboard. Droids are often used for these positions, especially those that might be viewed as "menial."
- *General Maintenance:* One mechanic per 50 aboard. Droids are often used for these positions as they often require extravehicular activities.
- *Life Support:* One per 100 people aboard. Life support is handled by Engineering on smaller vessels, but it especially important (and hence the responsibility of an independent department) on larger ones.
- *Security:* One security guard/military policeman per 50 aboard. Carried troops also perform security tasks, but most vessels have a separate security contingent aboard.
- *Other crewmen:* Larger military vessels may have many more crew positions, such a intelligence officers, landing parties, cargo handlers, computer specialists, droid mechanics, entertainers, diplomatic personnel, sentientologists, astrocartographers, astrophysicists, xenobiologists, and public relations/media personnel. Star Destroyers, for example, would have *thousands* of these sorts of crew..

Consumables:

Starfighters:

- Cost = (Independent Systems + Dependent Systems + Crew costs)/600 per day
- Maximum five days of consumables (one Galactic standard week)
- *Drop tanks:* Cost as per Consumables. A single drop tank cannot carry more fuel than the starfighter normally carries. For every +50% *or fraction thereof* added to the starfighters range by drop tanks, subtract -2 pips from *Maneuverability* and -1 from *Space*, to a maximum of a +300% increase to range. A Starfighter may not have its *Maneuverability* or *Space* reduced to zero.

Space Transports:

- Cost = (Independent Systems + Dependent Systems + Crew costs)/1,200 per day
- Maximum six months of consumables (one Galactic standard month is 35 days)

Capital Ships:

- Cost = (Independent Systems + Dependent Systems + Crew costs)/2,400 per day
- Maximum six years of consumables (one Galactic standard year is 368 standard days)

Base Cost:

Base Cost is equal to the total costs of all Independent Systems, Dependent Systems, Crew Accommodations, and Consumables.

Designing Starships:

Step 1: The Design

First, the designer (or design team) has to draw up the plans (as above) to determine what the Base Cost will be for the starship. The time required to create the blueprints for this design = 10 x (square root of Base Cost) man-hours. After this time is spent, roll *(A) Engineering* against the following difficulty:

- *Base cost up to 25,000:* Very Easy
- *Base cost up to 100,000:* Easy
- *Base cost up to 250,000:* Moderate
- *Base cost up to 1 million:* Difficult
- *Base cost up to 10 million:* Very Difficult
- *Base cost up to 100 million:* Heroic
- *Each additional 10x increase in cost:* +10 additional points

Multiple engineers may work on the design to reduce the time required, but in this case they will roll the following number of dice for their *(A) Engineering* skill, rounding down to the nearest pip:

((Design team leader's skill) + ((Total of all other team members' skills) / (Number of other team members))) / 2

The maximum number of people who may work on a given task is equal to the cube root of the man-hours required (e.g., if 1,000 man-hours are required, no more than 10 engineers may work on the blueprints). Every engineer *must* have an appropriate *(A) Engineering* specialization to participate. Note that an average person will spend no more than eight hours a day working on the blueprints; if more time is required (up to 16 hours a day), overtime will have to be paid *and* the engineers will have to make *Stamina* rolls against a difficulty of (# hours worked - 8), increasing by +1 every day until the design is finished for the engineer collapses from exhaustion, at which point he needs a number of days off equal to (total # of overtime worked thus far)/8, rounded up.

Compare the *(A) Engineering* roll to the difficulty:

- *Missed by 10+ points or a Complication:* The design is completely unworkable. All work (and money spent) is wasted and the engineers must start over again.
- *Missed by 1-9 points:* The design has one major flaw and 1-3 minor flaws (see below)
- *Succeeded by 0-9 points:* The design has 1-3 minor flaws (see below).
- *Succeeded by 10+ points:* The design is flawless, working exactly as intended.

Design flaws should be determined in secret; *do not allow the players to know what they are or how many there are!* They should only be revealed during the construction of the Prototype (see Step 2, below) or during Testing (see Step 3, below).

Design Flaws			
Minor Flaws (2D)		**Major Flaws (2D)**	
2	Malfunction-prone weapon systems. On any given round of firing, roll 1D. On a "1" the weapons systems are disabled for 1D rounds.	2-3	Weak Hull Integrity. On any given day, the vehicle has a 1/6 chance to lose integrity and expose major compartments to vacuum.
3	Weak engines. Reduce *Space* by -1.		
4	Inferior sensors. Reduce 1-3 sensors by -1 pips.	4	Weak structural integrity. Reduce *Hull* by -1D.
5	Poor handling. Reduce *Maneuverability* by -1	5	Misaligned shield generators. Reduce *Shields* by -1D.
6	Complex control systems. Unless the pilot has at least 1D in a specialization for this specific vehicle, reduce his skill by -1D.	6	Unsafe. A critical safety system (blast doors to prevent decompression, emergency shutdown on reactor, escape pods) doesn't work.
7	Inefficient fuel consumption. Reduce *Consumables* by 1Dx5%	7	Very poor handling. Reduce *Maneuverability* by -1D.
8	High maintenance requirements. Add +1D to the difficulty of all repair, modification, and maintenance rolls.	8	Underpowered retrograde thrusters. The vehicle can accelerate normally (increasing by one movement grade per round), but may only decelerate by one movement grade every two rounds.

9	Strong electromagnetic signature. Reduce all difficulties to detect and/or identify this vehicle by 1D.	9	Defective hyperdrive motivator. On any given hyperspace jump, there is a flat 1/3 chance of a hyperdrive mishap unless the hyperdrive runs at half normal speed (i.e., x2 instead of x1).
10	Temperamental electronics. Add +1D to the difficulty of any *computer programming/repair*, *communications*, or other rolls as dictated by the GM.	10	Sticky controls. On any round in which the vehicle moves at All-Out speed or makes a Difficult maneuver, there is a 1/6 chance that the control lock up, permitting no piloting rolls for 1-3 rounds.
11	Shoddy armor. Reduce *Hull* by -1 pip.	11-12	Failure-prone generator/power cells. On any round in which the vehicle moves at All-Out speed or makes a Difficult maneuver, there is a 1/6 chance of losing all power for 1-3 rounds.
12	Vulnerable generators/power cells. On any Severe Damage result, add +1 to the damage result (giving a 1/3 chance of the vehicle being Destroyed).		

Step 2: The Prototype

The time required to construct the prototype = 3 x (square root of Base Cost) man-hours. A maximum of (cube root of man-hours required) individual mechanics may be used to build the prototype. Note that an average person will spend no more than eight hours a day working on the prototype; if more time is required (up to 16 hours a day), overtime will have to be paid *and* the mechanics will have to make *Stamina* rolls against a difficulty of (# hours worked per day - 8), increasing by +1 every day until the design is finished for the engineer collapses from exhaustion, at which point he needs a number of days off equal to (total # of overtime worked thus far)/8, rounded up.

During the building of the prototype, construction materials cost 100% of the Base Cost; if a workforce has to be hired, they cost an additional 500% of the Base Cost (*before* paying for overtime). Note that volunteers, droids, and slaves do *not* incur workforce costs (although volunteers will have to be fed, droids will have to be bought, and slaves will need both).

Make an appropriate *[vehicle] repair* roll based on the average of all mechanics working on the prototype (e.g., if building a starfighter, use the mechanics' *starfighter repair* or *Mechanical*, whichever is higher), rolling against the following difficulty:

- *Base Cost up to 10,000:* Very Easy
- *Base Cost up to 25,000:* Easy
- *Base Cost up to 100,000:* Moderate
- *Base Cost up to 250,000:* Difficult
- *Base Cost up to 2.5 million:* Very Difficult
- *Base Cost up to 25 million:* Heroic
- *Each additional 10x increase in cost:* +10 additional points

After making the *[vehicle] repair* roll, compare it to the difficulty:

- *Missed by 10+ points or a Complication:* An industrial accident of some sort occurs. The prototype may be destroyed, there may be a fire, the mechanics may be injured, etc. The GM is

invited to be creatively malevolent..

- *Missed by 1-9 points:* The prototype is completed, but takes twice as long to finish..
- *Succeeded by 0-9 points:* The prototype is finished on time.
- *Succeeded by 10+ points:* The prototype is finished on time, plus the mechanics discover half (round up) of the design flaws and fix them during construction.

Step 3: Test Piloting

This step is optional but very highly recommended. It allows the designers to spot design flaws before going into production. Time the pilot (or crew) spends on this "shake-down cruise" has a chance to discover one of the bugs.

Roll the appropriate Piloting skill once per 2D days and check the result:

- *10 or less, or a Complication:* A serious accident occurs; roll as a Severe Damage result, possibly destroying the prototype and killing the crew.
- *11 to 20:* No bugs are discovered that week. If there are any unfixed major flaws, it causes a serious accident, as above.
- *21 to 30:* One flaw (at random) is discovered.
- *31 or more:* All remaining flaw are discovered.

Remember: The GM should never tell the PCs how many bugs remain! It is up to the PCs to decide how long they will continue test piloting before they think they have found all the bugs. These design flaws are not obvious during routine flight, but they will reveal themselves during a complication or during combat.

Step 4: Fixing Design Flaws

Each design flaw requires the designers to go back to work. A minor bug requires 5% of the original design time to be redesigned, while a major bug requries 20% of the original design time. Then, roll the design team's skill against the design difficulty, as per Step 1:

- *Missed by 10+ points or a Complication:* The engineers *think* they have fixed the design flaw, but it (or a new, different flaw) remain in effect.
- *Missed by 1-9 points:* The engineers don't find a solution, but they can try again.
- *Succeeded by 0-9 points:* The engineers find a solution, removing that specific design flaw.
- *Succeeded by 10+ points:* The engineers find a solution, removing that specific design flaw in half the required time.

After a solution is invented, the prototype must be modified. This requires 5% of the cost and time required to build the prototype for a minor flaw, or 20% for a major flaw. If the prototype was wrecked as a result of testing, this extra time is not required: The new prototype (built in the normal time) will have the redesign built in. Design flaws left unfixed become a part of the final design and will be reproduced if the vehicle goes into production.

Step 5: Production

After this, the designers have the option of going into production:

- *Limited production:* The vehicle is produced with the same facilities used to build the prototype, taking 1/6th as long to build, costing 20% of the Base Cost in parts, plus 80% of the Base Cost in labor (if required).
- *Mass production:* The vehicle is produced in a mass production facility, costing 20x Base Cost to construct (design/construction time figured from *Hideouts and Strongholds*); each vehicle is produced in 1/20th the original design/construction time, costing 20% of the Base Cost in parts, plus 30% of the Base Cost in labor (if required). Note that vehicles built in mass production can be sold at their Base Cost for a 50% profit even including labor costs!
- *Variants:* A variant is a new design based on an existing vehicle, modified by up to +/-2 pips in any stat, +/-1 Space, +/-50% to the Hyperdrive multiplier, or +/- 50% to the cost of all Independent Systems. This is designed as per a new vehicle, except that time for design is 10% of what would normally be required (the prototype still requires the same time). Also, add +10 to the *(A) Engineering* roll when drawing up the blueprints.