

RuneQuest Sci-Fi Document (v0.60)

All text in this document is designated as Open Content.

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Introduction

FAQ

What is this?

This is an attempt to write a set of Sci-Fi rules using the RuneQuest, Traveller and D20 Modern SRDs.

Is it Traveller RuneQuest or RuneQuest Traveller?

Neither. This is RuneQuest for a Space-based Sci-Fi game. It uses many terms from the Traveller system but is not merely a Traveller conversion.

Why not just use the Traveller Rules?

Traveller is a good system, as far as it goes. However, Traveller is not flexible enough nor does it have the same depth that RuneQuest has to enable it to be used in a general Sci-Fi game.

So, can I use this to run Traveller scenarios with RuneQuest?

Probably not, although this might give some pointers as to how to convert Traveller scenarios to RuneQuest, this is not a set of conversion rules.

What about other Rules Systems?

This should be fairly compatible with some Sci-Fi rules systems such as Future World, Ringworld, Other Suns or Basic Roleplaying. Many of the concepts from those games could easily be used in a RuneQuest Sci-Fi game. However, there are copyright implications in using swathes of their rules, which is why this concentrates on Traveller and RuneQuest, both being published under the Open Game Licence. It is less compatible with other Sci-Fi rules systems as they are not ultimately based on RuneQuest or Basic Roleplaying.

What is the Focus of These Rules?

This SRD is a RuneQuest Sci-Fi SRD, so the main Focus is on producing a workable set of RQ rules for a Sci-Fi game.

Having said that, there are different things that a Sci-Fi game emphasises that a Fantasy game, for instance does not.

Many people who enjoy Sci-Fi games like to design Spaceships, Vehicles, Robots and so on, so I have fairly detailed design rules for each of those. I have emphasised Character Generation, Skills and Character Progression. Players can play aliens and robots as well as humans. I have tried to play down the role of combat in a Sci-Fi game, which is why the Combat Chapters can be found towards the end of the document. This is a deliberate decision because many Sci-Fi rules play up combat more than anything else. Sure, Shipboard combat is important when it happens but how often should it happen? If you are playing a game where the PCs are Space Marines and have missions to attack and destroy various aliens then combat is important. If you are playing in a game of traders travelling between far-away solar systems then combat will not be that important. If you are playing rebels fighting against a Galactic Empire or Federation then Diplomatic skills and evasive skills might be more important than combat ones. I have relegated World Design to a single chapter at the end of the main section not because it is unimportant but because the Traveller SRD only touches on World Design and I know that there are more detailed rules elsewhere. If I can find more detailed rules in an SRD then I will include them in this document, otherwise you will have to look at published games for detailed World Design rules.

What About Settings?

The best thing about Sci-Fi games is the settings. Babylon 5, Star Wars, Star Trek, Blake's Seven and Farscape all have excellent and detailed backgrounds and settings. There are novels and series of novels by Sci-Fi authors that detail backgrounds that would be great as Sci-Fi settings. However, licensing issues and the extremely large amount of work that needs to be done to describe the settings mean that producing a Sci-Fi setting is only practical for a RPG Company.

This Sci-Fi RQ SRD is not based on a single setting, even though it uses the Traveller SRD as its basis. Because of this it is very generic and very dry. I would love to introduce Phasers and Light Sabres, Vorlons and Mimbari, Wookies and Jedi, Klingons and Vulcans, but those are way beyond the scope of an SRD.

Are These Rules Complete?

No. These rules are more of a set of rules that can be applied to a Sci Fi setting. They form a toolkit from which a GM can pull whatever rules he wants. As such, they are not designed to be complete. As more material becomes available through SRDs more rules can be added. Also, because these rules have not been polished into a published work, they are rough and ready.

Technology Levels

One of the most important things about Sci-Fi settings is that they operate at different levels of Technology. Traveller has the excellent concept of Technology Levels, the equivalent to D20 Modern/Future's Progress Level, that identify the general level of technology that a particular culture, planet or society has reached or currently has. Technology Level can be abbreviated to Tech Level or simply TL for short and have a scale running from TL0 to TL15.

Technology Levels measure the scientific capacity of a world and the complexity and effectiveness of a piece of equipment.

TL 0: (Primitive) No technology.

TL 1: (Primitive) Roughly on a par with Bronze or Iron age technology.

TL 2: (Primitive) Renaissance technology.

TL 3: (Primitive) The advances of TL 2 are now applied, bringing the germ of industrial revolution and steam power.

TL 4: (Industrial) The transition to industrial revolution is complete, bringing plastics, radio and other such inventions.

TL 5: (Industrial) TL 5 brings widespread electrification, telecommunications and internal combustion.

TL 6: (Industrial) TL 6 brings the development of fission power and more advanced computing.

TL 7: (Pre-Stellar) A pre-stellar society can reach orbit reliably and has telecommunications satellites.

TL 8: (Pre-Stellar) At TL 8, it is possible to reach other worlds in the same system, although terraforming or full colonisation are not within the culture's capacity.

TL 9: (Pre-Stellar) The defining element of TL 9 is the development of gravity manipulation, which makes space travel vastly safer and faster.

TL 10: (Early Stellar) With the advent of Jump, nearby systems are opened up.

TL 11: (Early Stellar) The first true artificial intelligences become possible, as computers are able to model synaptic networks.

TL 12: (Average Stellar) Weather control revolutionises terraforming and agriculture.

TL 13: (Average Stellar) The battle dress appears on the battlefield in response to the new weapons.

TL 14: (Average Stellar) Fusion weapons become man-portable.

TL 15: (High Stellar) Black globe generators suggest a new direction for defensive technologies, while the development of synthetic anagathics means that the human lifespan is now vastly increased.

Higher Technology Levels exist and may appear in other settings or be discovered by pioneering scientists.

D20 Modern (Future) uses Progress Levels to categorise societies.

D20 Progress Level	Technology Level
PL 0: Stone Age	TL 0
PL 1: Bronze/Iron Age	TL 1
PL 2: Middle Ages	TL 2
PL 3: Age Of Reason	TL 3
PL 4: Industrial Age	TL 4 - TL 5
PL 5: Information Age	TL 6 - TL 7
PL 6: Fusion Age	TL 8
PL 7: Gravity Age	TL 9 - TL 11
PL 8: Energy Age	TL 12 - TL 14
PL 9 And Higher	TL 15 +

Where possible, I have kept this equivalency, except where the different Technology Levels disagree. In those cases I have tended to use Traveller's Technology except where I think that D20 Technology fits better. In some situations I have disregarded both Traveller and D20 and placed technology at a different tech level to both, simply because I thought that it fitted better.

Some cultures specialise in certain technologies and can have higher levels of technology in those areas than their normal Tech Level would indicate. It is quite normal for a culture to have one of two technologies at one TL higher and perhaps to have a single technology at 2 TLs higher than the standard for the culture. It is rare to have any technology 3 TLs higher than normal unless the culture has obtained the technology from another source.

So, a culture may have reached TL 7 but have specialised technology in Computing, Cybernetics and NanoTechnology, giving it TL 8 NanoTechnology, TL 9 Computing and TL 9 Cybernetics. It may have gained the use of Organic Machines from alien artefacts found in ancient ruins on a planet in their solar system and have Organic Machine Technology at TL10.

This can lead to a slightly unbalanced culture where one technology skews the development of the culture.

Feedback and Criticism

I have attempted to convert the Traveller and D20 Modern (Future) SRDs into a RuneQuest format as well as to add different types of equipment, space travel and other rules that seem to fit reasonably well. However although I have played RQ for a long time I am not completely familiar with Mongoose RuneQuest and I am woefully unfamiliar with both Traveller and D20. I played Traveller for a couple of months in the 1980s and AD&D in the early 1980s for a year or so, back in the days where AD&D was different to D&D. Because of this, there will be areas that I have converted badly, areas where I have misinterpreted the rules and areas which are simply awful. There will also be areas that I have missed out completely.

Whilst I am a big fan of Sci-Fi books, TV series and films, I appreciate that there are far bigger ~~geeks~~ fans out there who have a far greater knowledge of Sci-Fi settings and rules than I do. Most of my roleplaying as player and GM has been Fantasy and much of that has been in Glorantha, so I am woefully limited in my Sci-Fi gaming. I have played a little Traveller, some Ringworld, even less Future World and pretty much nothing else.

Because of this, I would appreciate any criticism and feedback that anyone reading this can give me. There are entries in the RQ Forum and the Mongoose RQ Forum where you can post your comments, or you can email me directly at soltakss@yahoo.com with any comments or criticisms. I am normally quite open to criticism and will include most additions with a bit of editing. Any comments or additions that make it into the SRD will be credited in the OGL Section in the Appendices.

CHAPTER 1: Creating an Adventurer

Character Creation Checklist

Follow this checklist when creating a new character.

1. Determine the character's Characteristics.
2. Determine the character's Attributes.
3. Determine the character's Basic skill scores.
4. Determine the character's Previous Experience.
5. Determine the character's General Information.
6. Outfit the character with Starting Equipment.

Part One – Characteristics

All characters and creatures have at least eight Characteristics. Other Characteristics may be added depending on the particular species.

Strength (STR): A character's brute force, Strength affects the amount of damage he deals, what weapons he can wield effectively, how much he can lift and so on.

Constitution (CON): A measure of the character's health, Constitution affects how much damage he can sustain in combat, as well as his general resistance to disease and other illnesses.

Dexterity (DEX): A character's agility, co-ordination and speed, Dexterity aids him in many physical actions, including combat.

Size (SIZ): This is an indication of the character's mass and, like Strength and Constitution, can affect the amount of damage a character can deal and how well he can absorb damage. Unlike most other Characteristics, a high score in Size is not always an advantage. While a large character can take more damage, a small character will have a much easier time when sneaking around in the shadows.

Intelligence (INT): A character's ability to think around problems, analyse information and memorise instructions. It is a very useful Characteristic for characters interested in becoming accomplished engineers or scientists.

Power (POW): Perhaps the most abstract Characteristic, Power is a measure of the character's life force and his personal force of will. It also measures his ability to use magic, for those settings that allow magic to work, or to change or control the surroundings by extra-normal means.

Charisma (CHA): This quantifies a character's attractiveness and leadership qualities.

Education (EDU): A measure of a character's learning and experience.

Optional Characteristics

Length (LEN): This is an optional derivative of SIZ, for those who wish to separate the height and mass of a person. LEN may be used to calculate reach in place of SIZ. A person's SIZ is abstracted as $(LEN + MAS) / 2$.

Mass (MAS): This is an optional derivative of SIZ, for those who wish to separate the height and mass of a person. MAS may be used to calculate Hit Points and Damage Modifier in place of SIZ. A person's SIZ is abstracted as $(LEN + MAS) / 2$. Mass can be important in a Sci-Fi setting as different species have different body shapes and concepts such as Momentum rely on a person's mass rather than length.

Robotics (ROB): This is a measure of how Robotic a character is. It is only available to those characters that have cybernetic implants.

Social Standing (SOC): A character's place in society. Some Gamesmasters will prefer not to use SOC as a characteristic, preferring this to come out of roleplaying. In this case, treat any mention of SOC as CHA.

Psionics (PSI): A measure of the character's Psionic power. Every character has a Psionic score, representing his/her innate Psionic strength, but not everyone can use Psionics. Some Gamesmasters will prefer not to use PSI as a characteristic, preferring to use Power as a general characteristic for pseudo-magical powers. In this case, treat any mention of PSI as POW.

Determining Characteristics

Depending on the inherent superiority of the characters, a slightly different approach is used in rolling characteristics than the standard RuneQuest method. Each characteristic is given as nD6(BN) which means "Roll n D6 and take the best N values". So, the standard human Characteristic is 4D6(B3) meaning "Roll 4D6 and take the best 3 values", meaning that you drop the worst roll. Sometimes you have nD6(WN) which means "Roll nD6 and take the worst N values", these are for characters with worse than normal characteristics.

Human Player Characters normally have Characteristics rolled as 4D6(B3) or 3D6(B2) + 6. Genetically engineered Human Player Characters normally have 5D6(B3) or 4D6(B2)+ 6. Non-human aliens may well have different characteristics, as may non-intelligent animals.

Players will need a number of six-sided dice to generate their characters' Characteristics. Roll the following dice to determine an adventurer's Characteristics:

Human Characteristics Table

Characteristic	Abbreviation	Normal	Player Character	Genetically Engineered
Strength	STR	3D6	4D6(B3)	5D6(B3)
Constitution	CON	3D6	4D6(B3)	5D6(B3)
Dexterity	DEX	3D6	4D6(B3)	5D6(B3)
Size	SIZ	2D6+6	2D6+6	2D6+6
Intelligence	INT	2D6+6	2D6+6	4D6(B2)+ 6
Power	POW	3D6	4D6(B3)	5D6(B3)
Charisma	CHA	3D6	4D6(B3)	5D6(B3)
Education	EDU	3D6	4D6(B3)	5D6(B3)
Social Standing	SOC	3D6	4D6(B3)	5D6(B3)
Psionic Strength	PSI	3D6	4D6(B3)	5D6(B3)

Humanoid Hit Locations

D20	Hit Location
1–3	Right Leg
4–6	Left Leg
7–9	Abdomen
10–12	Chest
13–15	Right Arm
16–18	Left Arm
19–20	Head

Strength (STR): 4D6(B3) - Roll 4D6, drop the lowest die and total the remaining dice.
Constitution (CON): 4D6(B3) - Roll 4D6, drop the lowest die and total the remaining dice.
Dexterity (DEX): 4D6(B3) - Roll 4D6, drop the lowest die and total the remaining dice.
Size (SIZ): 2D6+6 - Roll 2D6 and total the dice. Add 6 to the result.
Intelligence (INT): 2D6+6 - Roll 2D6 and total the dice. Add 6 to the result.
Power (POW): 4D6(B3) - Roll 4D6, drop the lowest die and total the remaining dice.
Charisma (CHA): 4D6(B3) - Roll 4D6, drop the lowest die and total the remaining dice.
Education (EDU): 4D6(B3) - Roll 4D6, drop the lowest die and total the remaining dice.
Social Standing (SOC): 4D6(B3) - Roll 4D6, drop the lowest die and total the remaining dice.
Psionic Strength (PSI): 4D6(B3) - Roll 4D6, drop the lowest die and total the remaining dice.

The Games Master may also allow players to assign their rolls to specific Characteristics, so that a player who wants to play a burly warrior can move a rolled 15 from CHA to STR, for example. Players should not be allowed to move rolls from INT or SIZ to any of the other five Characteristics, however.

Homeworld Modifiers

The homeworld of a character's birth can cause some slight variation in characteristics. Some of the more common modifiers are listed below. Note that no characteristic may be decreased to less than 3 or raised to more than 21.

High Gravity +1 STR, -1 CON, (-1 LEN, +1 MAS)
Low Gravity -1 STR, -1 CON, (+1 LEN, -1 MAS)
Hostile Atmospheres -1D3 CON, +1D3 DEX*
High Population +1D3 CHA
Low Population -1D3 CHA
High Tech Level -1D3 CON, +1D6 EDU
Low Tech Level +1D3 CON, -1D6 EDU

* Only if environment suits were often worn

Part Two – Attributes

These are a set of secondary scores that define exactly what the character is capable of.

Combat Actions (CA): This is the number of actions a character can perform in each combat round.

Psionic Combat Actions (PCA): This is the number of Psionic actions a character can perform in each combat round.

Combat Actions

DEX	Combat Actions
6 or less	1
7–12	2
13–18	3
19 or more	4

Psionic Combat Actions

PSI	Combat Actions
6 or less	1
7–12	2
13–18	3
19 or more	4

Damage Modifier (DM): The Damage Modifier applies whenever the character uses a melee or rolln weapon.

Psionic Damage Modifier (PDM): The Psionic Damage Modifier applies whenever the character uses a Psionic Power or Talent.

Damage Modifier

Total of STR and SIZ (MAS)	Damage Modifier
1–5	–1D8
6–10	–1D6
11–15	–1D4
16–20	–1D2
21–25	+0
26–30	+1D2
31–35	+1D4
36–40	+1D6
41–45	+1D8
46–50	+1D10
51–60	+1D12
61–70	+2D6
71–80	+2D8
81–90	+2D10
91–100	+2D12
101–120	+3D10
121–140	+3D12
141–160	+4D10
161–180	+4D12
181–200	+5D10
201–220	+5D12
221–240	+6D10
241–260	+6D12
261–280	+7D10
281–300	+7D12
301–320	+8D10
321–340	+8D12
341–360	+9D10
361–380	+9D12
381–400	+10D10

Psionic Damage Modifier

PSI x 2	Psionic Damage Modifier
1–5	–1D8
6–10	–1D6
11–15	–1D4
16–20	–1D2
21–25	+0
26–30	+1D2
31–35	+1D4
36–40	+1D6
41–45	+1D8
46–50	+1D10
51–60	+1D12
61–70	+2D6
71–80	+2D8
81–90	+2D10
91–100	+2D12
101–120	+3D10
121–140	+3D12
141–160	+4D10
161–180	+4D12
181–200	+5D10
201–220	+5D12
221–240	+6D10
241–260	+6D12
261–280	+7D10
281–300	+7D12
301–320	+8D10
321–340	+8D12
341–360	+9D10
361–380	+9D12
381–400	+10D10

Hit Points (HP): These determine how much damage the character can sustain before reaching unconsciousness or death. Hit points are located in certain areas of the character’s body, representing exactly how much damage he can sustain.

Hit Points

STR+SIZ	Leg	Abdomen	Tail	Chest	Arm	Wing	Head
1-5	1	2	1	3	1	1	1
6-10	2	3	2	4	2	2	2
11-15	3	4	3	5	3	3	3
16-20	4	5	4	6	4	4	4
21-25	5	6	5	7	5	5	5
26-30	6	7	6	8	6	6	6
31-35	7	8	7	9	7	7	7
36-40	8	9	8	10	8	8	8
41-45	9	10	9	11	9	9	9
46-50	10	11	10	12	10	10	10
51-55	11	12	11	13	11	11	11
56-60	12	13	12	14	12	12	12
61-65	13	14	13	15	13	13	13
66-70	14	15	14	16	14	14	14
71-75	15	16	15	17	15	15	15
76-80	16	17	16	18	16	16	16
81-85	17	18	17	19	17	17	17
86-90	18	19	18	20	18	18	18
91-95	19	20	19	21	19	19	19
96-100	20	21	20	22	20	20	20

STR+SIZ	Leg	Abdomen	Tail	Chest	Arm	Wing	Head
101-105	21	22	21	23	21	21	21
106-110	22	23	22	24	22	22	22
111-115	23	24	23	25	23	23	23
116-120	24	25	24	26	24	24	24
121-125	25	26	25	27	25	25	25
126-130	26	27	26	28	26	26	26
131-135	27	28	27	29	27	27	27
136-140	28	29	28	30	28	28	28
141-145	29	30	29	31	29	29	29
146-150	30	31	30	32	30	30	30
151-155	31	32	31	33	31	31	31
156-160	32	33	32	34	32	32	32
161-165	33	34	33	35	33	33	33
166-170	34	35	34	36	34	34	34
171-175	35	36	35	37	35	35	35
176-180	36	37	36	38	36	36	36
181-185	37	38	37	39	37	37	37
186-190	38	39	38	40	38	38	38
191-195	39	40	39	41	39	39	39
196-200	40	41	40	42	40	40	40

Strike Rank (SR): This determines how quickly the character acts in combat. Strike Rank is determined by adding together the character’s INT and DEX, and halving the result.

Part Three – Skills

Every character has a range of skills that allows him to perform a variety of actions with varying degrees of expertise.

Each skill is set by the total of one or more Characteristics. Some skills will also suffer a penalty from other Characteristics.

The Starting Skills table lists all the skills characters might possess and the Characteristics used to determine the skill's base score. If a Characteristic is listed as a penalty, deduct it from the skill's base score.

Different backgrounds and different species have different Skills.

Some skills have specialities. A character may pick a speciality when he gains 50% in a skill with specialities.

What About Basic and Advanced Skills?

Mongoose RQ introduced the concept of Basic and Advanced skills, Basic Skills being those skills that everyone naturally has and Advanced Skills being those skills that have to be specially taught. For this SRD I have deliberately not used Basic and Advanced Skills. This is because it is very difficult to decide what is a Basic Skill in a Sci-Fi setting. Athletics is fine, but what about Spacers brought up on a Zero-G spaceship? They won't have Athletics as a Basic Skill but will have Zero-G. What about Species that are Psionic? They will have Psi-Skills as Basic Skills. What about people brought up on a High-G world? They will have High-G as a Basic Skill. In my opinion, this is simply an extra layer that serves no useful purpose in a Sci-Fi game.

Part Four – Previous Experience

There are three stages involved in determining the character's previous experience. First the player must pick the character's cultural background. This provides certain starting skill bonuses that reflect this upbringing. Second, the player must pick a profession and gain further associated skills with that profession. Thirdly, the player spends the character's free skill points.

Homeworld

Growing up on your homeworld gave you skills that depend on the planet's nature. You can select any skill that matches your homeworld's planetary description and trade codes. If you came from a planet already established, then consult those sources for the planet's description.

Homeworld Type	Basic Skill
Agricultural	Animals
Asteroid	Zero-G
Desert	Survival
Fluid Oceans	Seafarer
Garden	Animals
High Technology	Computers
High Population	Streetwise
Ice-Capped	Vacc Suit
Industrial	Trade
Low Technology	Survival
Poor	Animals
Rich	Carouse
Water World	Seafarer
Vacuum	Vacc Suit

Professions

A character may choose his own profession as with standard RuneQuest. If he chooses to do so then he uses the tables and method below. However, he can also choose a Traveller-style character generation method, in which case he should go to the Traveller Generation Method in the Appendices.

The Professions table shows all the various bonuses each profession bestows on a character. Standard RuneQuest uses basic and Advanced skills, but they do not really fit in a Sci-Fi setting, so the skills here are just skills. Skill Bonuses are added straight onto the character's skill scores. Skills that are gained as part of the Profession start at their base Characteristic score.

If a character is Psionic, with Gamesmaster approval, he may have Psionic Talents as described in the Psionics section.

Professions

Profession	Skill Bonuses
Traveller	Pilot (any) +10%, Sensors +10%, Comms +10%, Gunner (any) +10%, Gun Combat (any) +10%, Persuade +10%, Stealth +10%, Medic +10%
Mercenary	Sensors +10% , Comms +10% , Medic +10%, Leadership +10%, Heavy Weapons (any) +10%, Gun Combat (any) +10%, Stealth +10%
Trader	Pilot (any) +10%, Sensors +10%, Medic +10%, Streetwise +10%, Broker +10%, Advocate +10%, Diplomat +10%, Astrogation +10%
Starship	Pilot (any) +10%, Gunner (any) +10%, Engineer (any) +10%, Mechanic +10%, Sensors +10%, Medic +10%, Comms +10%, Astrogation +10%
Explorer	Pilot (any) +10%, Astrogation +10%, Sensors +10%, Survival +10%, Recon +10%, Gun Combat (any) +10%, Stealth +10%, Medic +10%
Diplomat	Advocate +10%, Diplomat +10%, Persuade +10%, Stealth +10%, Streetwise +10%, Deception +10%, Computers +10%, Comms +10%
Investigator	Advocate +10%, Admin +10%, Investigate +10%, Persuade +10%, Stealth +10%, Streetwise +10%, Computers +10%, Sensors +10%, Gun Combat (any) +10%
Criminal	Pilot (any) +10%, Sensors +10%, Stealth +10%, Deception +10%, Persuade +10%, Streetwise +10%, Broker +10%, Medic +10%
Mecha Jockey	Mecha Operations (DEX) +10%, Engineer (Mecha) +10%, Mechanic +10%, Sensors +10%, Comms +10%, Heavy Weapons (any) +10%, Stealth +10%

Free Skill Points

Every character receives 100 additional skill points. The player can add these free skill points to his skills in the following ways:

- ◆ Add to a Basic or Weapon skill score.
- ◆ Add to an Advanced skill score, as long as the character already possesses the skill.
- ◆ Purchase an Advanced skill. This costs 10 free skill points and the Advanced skill starts at its basic Characteristic-derived score.

No single skill can benefit from more than 30 free skill points. The Advanced skill of Psionic may not be purchased, but a character with the Psionic Advanced Skill may increase it. An Advanced skill purchased with free skill points cannot be increased by more than 20 points.

Education

A formal education gives you a basic level of competence in various sciences and academic disciplines. Any educated character receives his EDUx5 skill points that can be split among the following list:

Admin, Advocate, Art, Carouse, Comms, Computer, Drive, Engineer, Language, Medic, Physical Science, Life Science, Social Science, Space Science, Trade.

Part Five – General Information

Movement: Human characters have a Movement of 4 metres (4m).

Hero Points: Every character starts with two Hero Points.

Age: The character may start out at any age between 18 and 30.

CHAPTER 2: Traveller-Style Character Generation

RuneQuest has a very straightforward and simple character generation process. However, many people find it dry and prefer the Traveller character generation system for a SciFi game. Many of the aspects of the Traveller character generation system can be converted to RuneQuest. A few things do not convert easily and have been replaced by a RuneQuest equivalent. Traveller and RuneQuest SciFi skills are very similar and often have the same names, so they are easily usable in RuneQuest SciFi. Where professions are not included, it should be very easy to use the equivalent Traveller profession and convert the skill levels to RuneQuest.

Character Generation Process

Basic character generation uses the following steps:

1. Roll characteristics and determine characteristic modifiers.
2. Background
 - a. Choose a homeworld.
 - b. Gain background skills.
3. Career
 - a. Choose a career. You cannot choose a career you have already left.
 - b. Roll to qualify for that career.
 - c. If you qualify for that career, go to Step 4.
 - d. If you do not qualify for that career, then you can go to the Draft or enter the Drifter career. The Draft can put you back into a career you have been forced to leave, at your old rank. You can only apply for the Draft once.
4. If this is your first time on this career, get your basic training.
5. Choose a specialisation for this career.
6. Choose one of the Skills and Training tables for this career and roll on it.
 - a. Roll for survival on this career.
 - b. If you succeed, go to Step 7.
 - c. If you did not succeed, then events have forced you from this career. Roll on the Mishap table, then go to Step 9.
7. Events
 - a. Roll for Events.
 - b. Optionally, establish a Connection with another player character.
8. Advancement
 - a. Roll for Advancement
 - b. If you succeed, choose one of the skills and training tables for this career and roll on it. Increase your Rank and take any bonus skills from the Ranks table for this career. Go to step 9 if you wish to leave the career, or step 5 to continue with this career.
 - c. If you roll less than the number of terms spent in this career, you must leave this career.
 - d. Military characters (Army, Navy, Marines) can roll for commission instead of rolling for advancement.
9. Increase your age by 4 years. If your character is 34 or older, roll for Aging.
10. If you are leaving the career, roll for Benefits.
11. If you have left your current career, then go to Step 3 to choose a new career, or to Step 12 if you wish to finish your character. Otherwise, go to Step 5.
12. Finalise any Connections with other characters.
13. Choose a Campaign Skill Pack and allocate skills from that pack.
14. Purchase starting equipment and, if you can afford it, a spacecraft.

Careers

Career Format

Qualification: What you need to roll to enter that career. Military careers use Enlistment as the description for this roll instead of qualification. If you fail this check then you cannot enter your chosen career this term. You must either submit to the Draft or take the Drifter career for this term. You suffer a -10% to qualification rolls for each previous career you have entered. Once you leave a career you cannot return to it. The Draft and the Drifter career are exceptions to this rule – you can be Drafted into a career you were previously in but got ejected from and the Drifter career is always open.

Terms: Each term of service lasts for 4 years.

Rank: Each term, a character will be employed at whatever rank he or she has already earned in the service.

Skills and Training: Each career has skill tables associated with it – Personal Development, Service Skills, Specialist Skills and Advanced Education. In each term you spend in a career, pick one of these tables and roll 1d6 to see which skill you increase. You may only roll on Advanced Skills if your character has the listed qualification. You may only roll on the Officer Skills if your career has one and if you have received a commission.

Skills can be listed with or without an associated level. If no skill level is listed, then you gain that skill at 20% + Bonus if you do not have it already, or increases by 10% if you are already trained in that field. If a level is listed, then you gain the skill at that level as long as it is better than your current level in that skill.

Hero Points: You gain a Hero Point at the start of each term of service and by earning a commendation or through certain Events. Hero Points may be used as Second Chances, to reroll any dice roll during the character generation process, as a Glancing Blow, to downgrade any roll on the Injury Table by one level and to purchase Legendary Abilities once you have met the qualification for the legendary Ability. Luck of the Heroes may be invoked, but normally as a plot point and always at the GM's discretion. Hero Points unused at the end of the character generation process may be carried over into normal play.

Basic Training: For your first career only, you get all the skills listed in the Service Skills table at 10% + Bonus as your basic training. For any subsequent careers, you may pick any one skill listed in the Service Skills table at 10% + Bonus as your basic training.

Survival: Each career has a survival roll. If you fail this roll, roll on the mishap table. If you fumble the roll, roll twice on the Mishap table and apply both values. This mishap is always enough to force you to leave the service. You lose the benefit roll for the current term only.

Events: If you are still in your career after resolving the survival roll, roll on the events table to see what interesting things befall you this term.

Decorations: Each term you survive, there is a chance of earning a medal or citation for your actions during the term. Not all professions have decorations.

Commission: This only applies to the military careers of Army, Navy and Marines. A character who succeeds at a commission roll becomes a Rank 1 officer in that career, and uses the officer Rank table from then on. A character may attempt a commission roll once per term, and trying for commission is optional.

If you obtain a commission after having already advanced several ranks, you become a Rank 1 officer as normal but you may add your two final ranks together for the purposes of determining benefits and pensions.

Some events give a bonus to advancement rolls, or give automatic advancement. You can apply these bonuses to commission rolls also.

Advancement: Each career has an advancement roll. If you make a successful Advancement roll, then you move to the next rank and gain an extra roll on any of the Skills and Training Tables for this career. You also get any benefits listed for your new rank. You may only attempt to advance once per term.

If you fumble your Advancement roll then you cannot continue in this career after this term. Either your services are no longer required, or events have caused you to leave, or perhaps you are simply bored and want a new challenge.

If you critical your Advancement roll then you must continue in this career.

Ranks and Benefits: You start at Rank 0 in your career. Each time you succeed at an advancement check, you move onto the next Rank. Some ranks have benefits associated with them, such as extra skills or more benefits. You gain these benefits as soon as you attain that rank.

Cash Bonuses: It is possible to earn a cash bonus while serving a term in some class prior histories (including Merchants).

Life Events: If you roll a Life Event on the Events table for your career, roll on the Life Events table.

History: You have a more complete background from which to develop a personal history and personality.

Medal Benefits

A character who wins a medal gains a Hero Point and may apply a bonus from that medal to any one Survival, Qualification or Promotion roll. The bonus from a medal may only be applied once.

Medal	Bonus
Purple Heart	+10%
Meritorious Conduct Under Fire	+20%
Meritorious Performance Of Duties	+10%
Medal for Conspicuous Gallantry	+30%
Starburst for Extreme Heroism	+40%
Long Service	+10%

When a character is mustering out, any medal bonuses left unused may be converted into extra benefit rolls, at the rate of one roll per 20% left unused, rounding down.

Mustering Out or Retiring

Characters who end prior experience receive 1 benefit per term served in which they did not lose benefits. If you reached rank 1 or 2, you get an extra benefit roll when leaving that service. If you reached rank 3 or 4, you get two extra benefit rolls, and if you reached rank 5 or 6, you get three extra benefit rolls and may apply a +1 to rolls on the Benefits table that you gain from that career.

Characters with Gambling 40%+ or who have retired gain +1 on Cash table rolls. Characters of rank 5 or 6 gain +1 on Material Benefit rolls.

Mustering-Out Benefits: When you leave a career for any reason, you gain material benefits from that career. There are two tables – Cash and Benefits. You may only roll on the cash tables a maximum of three times, regardless of how many careers or benefit rolls you have. You get one benefit roll per full term served. Leaving due to a mishap means you lose the benefit roll for that term, but not previous full terms in that career.

Retirement Pay: A character that leaves a service at the end of the 5th or later term of service may receive retirement pay.

Cash Benefits

1D6	1	2	3	4	5	6	7+
Cash (Merchant)	Cr 1,000	Cr 5,000	Cr 10,000	Cr 20,000	Cr 30,000	Cr 50,000	Cr 90,000
Cash (Scout)	Cr 500	Cr 1,000	Cr 2,000	Cr 3,000	Cr 4,000	Cr 5,000	Cr 10,000

Material Benefits

1D6	1	2	3	4	5	6	7+
Benefits (Merchant)	Low Passage	+2 INT	Middle Passage	High Passage	Weapon	TAS Membership	Free Trader
Benefits (Scout)	Low Passage	+2 CHA	Middle Passage	High Passage	Weapon	TAS Membership	Free Trader

Passage: The character has a single ticket of the type named (low, mid, high) for travel on a starship. It is good for one Jump to any destination.

+2 INT: The ever-changing nature of service has taught the character to think on his or her feet, effectively increasing INT.

+2 CHA: The ever-changing nature of service has made the character charismatic, effectively increasing CHA.

Weapon: The character leaves the service with an appropriate weapon (gun or blade).

TAS Membership: The character is a member of the prestigious Traveller's Aid Society. TAS will provide a free High passage ticket every two months, plus access to the TAS information network and TAS-run hostels.

Free Trader: The character owns a small and elderly merchant starship. The ship is basically spaceworthy, but showing its age. Subsequent receipts of this benefit reduce the remaining 40-year mortgage on the ship by 10 years each, but also increase the age of the ship by 10 years.

Retirement Pay

Terms	5	6	7	8	9+
Pay (Merchant)	Cr. 4,000	Cr. 6,000	Cr. 8,000	Cr. 10,000	Cr. +2,000 per term beyond 8
Pay (Scout)	Cr. 10,000	Cr. 12,000	Cr. 14,000	Cr. 16,000	Cr. +2,000 per term beyond 8

General Events

Some effects are specific to certain careers, others are general and apply to all careers. The following effects are available to all careers.

Ageing

The effects of ageing begin when a character reaches 34 years of age. At the end of the fourth term, and at the end of every term thereafter, the character must roll 2d6 on the Ageing Table. Apply the character's total number of terms as a negative Dice Modifier on this table.

Ageing Table

2d6	Effects of Aging
-6	Reduce three physical characteristics by 2, reduce one mental characteristic by 1
-5	Reduce three physical characteristics by 2.
-4	Reduce two physical characteristics by 2, reduce one physical characteristic by 1
-3	Reduce one physical characteristic by 2, reduce two physical characteristics by 1
-2	Reduce three physical characteristics by 1
-1	Reduce two physical characteristics by 1
0	Reduce one physical characteristic by 1
1+	No effect

Ageing Crisis: If any characteristic is reduced to 0 by ageing, then the character suffers an ageing crisis. The character dies unless he can pay 1d6 x 10,000 credits for medical care, which will bring any characteristics back up to 1. The character automatically fails any Qualification checks from now on – he must either continue in the career he is in or become a Drifter if he wishes to take any more terms.

Anagathics

While using anagathic drugs, the character effectively does not age – add the number of terms since the character started taking anagathics as a positive modifier to rolls on the ageing table. If a character stops taking anagathics, then he must roll immediately on the ageing table to simulate the shock that comes from his system beginning to age again.

The risk of trying to obtain a reliable supply and the disruption to the character's biochemistry means the character must make a second Survival check if he passes his first Survival check in a term. If either check is failed, the character suffers a mishap and is ejected from the career.

The drugs cost 1d6 x 2,500 Credits for each term that the character uses the drugs. These costs are paid out of the character's eventual mustering-out cash benefits. If the character cannot pay these bills, he goes into debt.

Injuries

Characters that are wounded in combat or accidents during character creation must roll on the Injury table.

Injury Table

1d6	Injury
1	Nearly killed. Reduce one physical characteristic by 1d6, reduce both other physical characteristics by 2 (or one of them by 4).
2	Severely injured. Reduce one physical characteristic by 1d6.
3	Missing eye or limb. Reduce Strength or Dexterity by 2.
4	Scarred. You are scarred and injured. Reduce any one physical characteristic by 2.
5	Injured. Reduce any physical characteristic by 1.
6	Lightly injured. No permanent effect.

Injury Crisis: If any characteristic is reduced to 0, then the character suffers an injury crisis. The character dies unless he can pay 1d6 x 10,000 credits for medical care, which will bring any characteristics back up to 1. The character automatically fails any Qualification checks from now on – he must either continue in the career he is in or become a Drifter if he wishes to take any more terms.

Medical Care: If your character has been injured, then medical care may be able to undo the effects of damage. The restoration of a lost characteristic costs 5,000 Credits per point.

If your character was injured in the service of a patron or organisation, then a portion of his medical care may be paid for by that patron. Roll 2d6 on the table below, adding your Rank. The result is how much of his medical care is paid for by his employer.

Medical Bills

Career	Roll of 4+	Roll of 8+	Roll of 12+
Army/Navy/Marines	75%	100%	100%
Agent/Nobility/ Scholar/Entertainer/ Merchant/Citizen	50%	75%	100%
Scout/Rogue/Drifter	0%	50%	75%

Medical Debt: During finishing touches, you must pay any outstanding costs from medical care or anagathic drugs out of your Benefits before anything else.

Drifters and The Draft

You may attempt to enlist in one career each term if you are not continuing on in an existing career. If you fail to enter a new career, you have two options. You can apply to the Draft and be randomly sent to one of the military services or you may spend that term travelling through known space as a Drifter without a career or purpose. A character may only enter the Draft once.

Draft Table

1d6	Career (speciality)
1	Navy (any)
2	Army (any)
3	Marines (any)
4	Merchants (merchant marine)
5	Scouts (any)
6	Agent (law enforcement)

Mustering Out Benefits: Benefits are gained when a character leaves a career for any reason other than failing a survival roll.

You may only roll on the Cash table a maximum of three times no matter how many careers you have had.

Cash Benefits: A character with the Gambler skill at 40% or better gets a +1 to all rolls on the Cash table.

If the character has any money after rolling on the Cash table then he may purchase personal equipment worth up to 2,000 credits immediately.

Other Benefits: When you leave a career in good standing with your previous employers, you are permitted to keep various pieces of equipment or even shares of a vessel.

Finalise Connections

The connections between characters rule can give you bonus skills. At this stage, you may make (or finalise) a connection between your character and up to two other player characters. For each connection you make, you may gain 20% in any skill, but you cannot bring a skill above 80% using this rule nor may you take the Jack of all Trades skill.

Skill Packages

As a group, select one of the following skill packages, which are collections of basic skills you will use while adventuring and travelling. Taking a skill package ensures that your group will at least have basic competency in the situations that will come up in the game. When you have collectively decided which skill package is most suitable for the campaign you want to play, each player takes it in turns to select an item from the package. Keep going until all skills have been selected.

- **Traveller Skill Package:** Pilot (any) 50%, Sensors 50%, Comms 50%, Gunner (any) 50%, Gun Combat (any) 50%, Persuade 50%, Stealth 50%, Medic 50%.
- **Mercenary Skill Package:** Sensors 50%, Comms 50%, Medic 50%, Leadership 50%, Heavy Weapons (any) 50%, Gun Combat (any) 50%, Gun Combat (any) 50%, Stealth 50%.
- **Trader Skill Package:** Pilot (any) 50%, Sensors 50%, Medic 50%, Streetwise 50%, Broker 50%, Advocate 50%, Diplomat 50%, Astrogation 50%.
- **Starship Skills Package:** Pilot (any) 50%, Gunner (any) 50%, Engineer (any) 50%, Mechanic 50%, Sensors 50%, Medic 50%, Comms 50%, Astrogation 50%.
- **Explorer Skills Package:** Pilot (any) 50%, Astrogation 50%, Sensors 50%, Survival 50%, Recon 50%, Gun Combat (any) 50%, Stealth 50%, Medic 50%.
- **Diplomat Skill Package:** Advocate 50%, Diplomat 50%, Persuade 50%, Stealth 50%, Streetwise 50%, Deception 50%, Computers 50%, Comms 50%.
- **Investigator Skill Package:** Advocate 50%, Admin 50%, Investigate 50%, Persuade 50%, Stealth 50%, Streetwise 50%, Computers 50%, Sensors 50%, Gun Combat (any) 50%.
- **Criminal Skill Package:** Pilot (any) 50%, Sensors 50%, Stealth 50%, Deception 50%, Persuade 50%, Streetwise 50%, Broker 50%, Medic 50%.

Merchant

				Career Progress	
Enlistment: CHAx5%				Survival	Advancement
Per previous career, −10%			Planetside	CONx5%	EDUx5%
			Route	STRx4%	EDUx5%
Assignments: Choose one of the following: Planetside Route Charter Exploratory Speculative			Charter	DEXx4%	INTx5%
			Exploratory		
			Speculative		
			Promotion: CHAx4%		
			Roll	Cash	Other Benefits
			1	Cr 1,000	Low Passage
			2	Cr 5,000	+2 INT
			3	Cr 10,000	Middle Passage
			4	Cr 20,000	High Passage
			5	Cr 30,000	Weapon
			6	Cr 50,000	TAS Membership
			7	Cr 90,000	Free Trader
Skills and Training					
Roll	Personal Development	Service Skills	Advanced Education	Retirement	
			(Minimum EDU 13)	Terms Served	Yearly Pension
1	+1 CHA	Appraise	Bluff	5 Terms	Cr 4,000
2	+1 DEX	Bribery	Broker	6 Terms	Cr 6,000
3	+1 CON	Drive	Gambling	7 Terms	Cr 8,000
4	+1 INT	Gather Information	Trade & Commerce Law		
5	+1 EDU	Liasion	Trader		
6	Any +1	Pilot	Technical		
Roll	Planetside	Route	Charter	Exploratory	Speculative
1	Comms	Sensors	Sensors		
2	Sensors	Persuade	Pilot (spacecraft)		
3	Pilot (spacecraft)	Pilot (small craft)	Pilot (small craft)		
4	Vacc Suit	Navigation	Life Science (any)		
5	Zero-G	Diplomat	Stealth		
6	Astrogation	Streetwise	Recon		
Ranks and Skills					
Rank	NCO	Skill or Benefit			
0					
1	Apprentice				
2	Crewman				
3	Petty Officer				
4	Junior Officer				
5	Senior Officer				
6	Executive Officer				

Mishaps

<i>1d6 Mishap</i>	
2	Serious Injury – roll twice on the Injury Table and keep the lowest result.
3	Hard times force you to deal with shady characters. Roll Streetwise to keep your benefit roll for this term.
4	You are bought out by a rival company or person. You may keep your benefit roll for this term.
5	A series of bad deals and decisions force you into bankruptcy. You salvage what you can. You may take a benefit roll for this term as well as any others you are entitled to.
6	Imperial trade restrictions force you out of business. You may take the Rogue career for your next term without need to roll for Qualification.
7	Injured – roll on the Injury Table.
8	A sudden war destroys your trade routes and contacts, forcing you flee this region of space. Gain Gun Combat (any) at 40% or increase it by 10% if you already have the skill.
9	Your ship or starport is destroyed by criminals. Gain them as an Enemy.
10	Pirates target your shipping contracts. Gain Investigate at 40% or increase it by 10% if you already have the skill and an Enemy.
11	Your ship or station is attacked and severely damaged. Gain Pilot (any) at 40% or increase it by 10% if you already have the skill.
12	You are bankrupted by a rival. You lose all benefit rolls from this career and gain the other trader as an Enemy.

Events

2d6	Events
11	Disaster! Roll on the Mishap Table, but you are not ejected from this career.
12	Your cargo is stolen by Pirates. Roll Streetwise INTx5% to avoid losing your benefit roll for this term.
13	Your ship is attacked. Roll DEXx5% to avoid a roll on the Injury Table.
14	You are presented with a fake cargo. Roll Deception to avoid -10% Penalty on one benefit roll.
15	Hard times force you to consider criminal activity to pay the bills. If you choose to become a criminal, roll Streetwise or INTx5%. If you fail, you lose your benefit roll for this term. If you don't choose to become a criminal, -10% on one benefit roll.
16	You discover that one of the cargoes you recently purchased is a fake. If you try to sell it anyway, roll Deception . If you fail, you lose your benefit roll for this term and gain Advocate at 40% or increase it by 10% if you already have the skill. If you do not try to sell it, you lose your Benefit roll for this term.
21	You are offered the opportunity to smuggle illegal items onto a planet. If you accept, roll Deception or Persuade. If you succeed, gain Streetwise at 40% or increase it by 10% if you already have the skill and an extra benefit roll. If you refuse, gain a criminal Enemy.
22	You have the opportunity to set up a trade deal with an alien race. Roll INTx5%. If you succeed, gain +10% on a benefit roll. If you fail, gain an alien Enemy.
23	You have a chance to risk your fortune on a possibly lucrative deal. You may gamble a number of benefit rolls and roll Gambler or Broker. If you succeed, you gain half as many benefit rolls as you risked, rounding up. If you fail, you lose all the benefit rolls risked. Either way, gain one level in whichever skill you used.
24	You are asked to help law enforcement break a smuggling ring. Roll INTx5% or Deception. If you succeed, gain one of Investigate, Advocate or Streetwise at 40% or increase it by 10% if you already have the skill. If you fail, gain an Enemy.
25	A customer tries to sell you stolen goods. Roll Deception or Streetwise. If you succeed, gain either Advocate or Investigate at 40% or increase it by 10% if you already have the skill. If you fail, -10% on one benefit roll.
26	You have a chance to get in on a risky venture. Roll Gambler or Broker. If you succeed, gain an additional benefit roll. If you fail, lose one benefit roll.
31-36	Life Event. Roll on the Life Events Table.
41	You make an unexpected connection outside your normal circles. Gain a Contact.
42	You are given the opportunity to work with a Pirate group. If you accept, roll Deception or Streetwise . If you succeed, gain +10% on one benefit roll. If you fail, -10% on one benefit roll. Either way, you make transfer to the Rogue career next term without making a Qualification roll. If you refuse the Pirates, gain them as an Enemy.
43	You spend time researching the trade potential on a planet. Roll EDUx5%. If you succeed, gain one of Animal (any), Broker, or Survival at 40% or increase it by 10% if you already have the skill
44	You invest wisely in the market. Gain one Ship Share.
45	You are able to sell trinkets to primitives for valuable raw materials. Roll INTx5% and gain one of Deception, Broker, Trade (any) or Physical Science (any) on a successful roll at 40% or increase it by 10% if you already have the skill.
46	You are given advanced training in a specialist field. Roll EDUx5% to increase any one skill you already have by 20%.
51	You are embroiled in legal trouble. Gain one of Advocate, Admin, Diplomat or Investigate at 40% or increase it by 10% if you already have the skill.
52	Time spent dealing with suppliers and spacers pays off. Gain one of Trade (any), Engineer (any), Animals (any) or Social Science (any) at 40% or increase it by 10% if you already have the skill.
53	You work on establishing contacts among aliens. Gain Language (any) at 40% or increase it by 10% if you already have the skill.
54	You work in trade expansion. Gain one of Broker, Advocate, Recon or Survival at 40% or increase it by 10% if you already have the skill.
55	You work on a spaceship. Gain one of Pilot (any), Astrogation, Engineer (any), Steward or Gunner (any) at 40% or increase it by 10% if you already have the skill.
56	You spend time expanding your markets. Gain one of Animals (any), Art (any) or Trade (any) at 40% or increase it by 10% if you already have the skill.
61	You befriend a useful ally. Gain an Ally and gain either +20% of Carouse or a +40% on your next Advancement roll thanks to his aid.
62	A good deal ensures you are living the high life. Gain +10% on one benefit roll.
63	You are rewarded saving a superior. Gain one Ship Share.
64	You are awarded a bonus for your hard work. Gain +10% on one benefit roll.
65	Your work is noted by your superiors. Gain +40% on your next Advancement roll.
66	Your business or ship thrives. You are automatically promoted.

Scout

				Career Progress		
Enlistment: INTx5%					Survival	Advancement
Per previous career, -10%				Courier	CHAx5%	INTx5%
				Survery	EDUx5%	INTx5%
Assignments: Choose one of the following: <ul style="list-style-type: none">CourierSurveyExploration		Exploration		INTx5%	INTx5%	
		Promotion:				
		Mustering-Out Benefits				
				Roll	Cash	Other Benefits
				1		
				2		
				3		
				4		
				5		
				6		
				7		
Skills and Training						
Roll	Personal Development	Service Skills	Advanced Education			
			(Minimum EDU 13)			
1	+1 STR	Pilot (spacecraft or small craft)	Medic			
2	+1 DEX	Survival	Navigation			
3	+1 CON	Mechanic	Engineer (any)			
4	+1 INT	Astrogation	Computer			
5	+1 EDU	Comms	Space Science (any)			
6	Any +1	Gun Combat (any)	Jack of all Trades			
Roll	Courier	Survery	Exploration			
1						
2						
3						
4						
5						
6						
Ranks and Skills						
Rank	NCO	Skill or Benefit		Officer	Skill or Benefit	
0						
1	Scout	Vacc Suit 10%				
2						
3	Senior Scout	Pilot 10%				
4						
5						
6						

Mishaps

1d6 Mishap	
1	Severely injured in action. (This is the same as a result of 2 on the Injury table.) Alternatively, roll twice on the Injury table and take the lower result.
2	Psychologically damaged by your time in the scouts. Reduce your INT or SOC by 1.
3	Your ship is damaged, and you have to hitch-hike your way back across the stars to the nearest scout base. Gain 1d6 Contacts and 1d3 Enemies.
4	You inadvertently cause a conflict between your culture and a minor world or race. Gain a Rival and Diplomat + 10%
5	You have no idea what happened to you – they found your ship drifting on the fringes of friendly space.
6	Injured. Roll on the Injury table.

Events

2d6 Events	
2	Disaster! Roll on the mishap table, but you are not ejected from this career.
3	Your ship is ambushed by enemy vessels. Either run, and roll Pilot -20% to escape, or roll Persuade -20% to bargain with them. If you fail the check, then your ship is destroyed and you may not re-enlist in the Scouts at the end of this term. If you succeed, you survive and gain Sensors 10%. Either way, gain an Enemy.
4	You survey an alien world. Gain one of Animals (riding or training), Survival, Recon or Life Science (any) at 40% or increase the skill by 10% if you already have it.
5	You perform an exemplary service for the scouts. Gain a +1 to any one Benefit roll.
6	You spend several years jumping from world to world in your scout ship. Gain one of Astrogation , Navigation, Pilot (small craft) or Mechanic at 40% or increase the skill by 10% if you already have it.
7	Life Event. Roll on the Life Events table.
8	When dealing with an alien race, you have an opportunity to gather extra intelligence about them. Roll either Sensors -20% or Deception -20%. If you succeed, gain an Ally in your culture and a +20% to your next Advancement roll. If you fail, roll on the Mishap table, but you are not ejected from this career.
9	Your scout ship is one of the first on the scene to rescue the survivors of a disaster. Roll either Medic -20% or Engineer -20%. If you succeed, gain a Contact and a +20% to your next Advancement check. If you fail, gain an Enemy.
10	You spend a great deal of time on the fringes of known space. Roll Survival -20% or Pilot -20%. If you succeed, gain a Contact in an alien race and +10% in any skill of your choice. If you fail, roll on the Mishap table.
11	You serve as the courier for an important message from your culture. Either gain Diplomat at 40% or increase the skill by 10% if you already have it, or take a +40% to your next Advancement roll.
12	You discover a world, item or information of worth to the your culture. You are automatically promoted.

Army

Members of the planetary armed fighting forces. Soldiers deal with planetary surface actions, battles, and campaigns. Such individuals may also be mercenaries for hire.

Enlistment: CONx5%

If you are aged 30 or more, -20%

Per previous career, -10%

Assignments: Assignments: Choose one of the following:

- Support: You were an engineer, technician, medic, cook or in some other role behind the front lines.
- Infantry: You were one of the Poor Bloody Infantry on the ground.
- Cavalry: You rode a tank or other ground vehicle.

Skills and Training

Roll	Personal Development	Service Skills	Advanced Education (Minimum EDU 13)	Officer Skills (Commissioned Only)
1	+1 STR	Drive (Any)	Comms	Tactics (Military)
2	+1 DEX	Athletics (Any)	Sensors	Leadership
3	+1 CON	Gun Combat (Any)	Navigation	Advocate
4	Gambler	Recon	Explosives	Diplomat
5	Medic	Melee (Any)	Engineer (Any)	Tactics (Military)
6	Melee (Unarmed)	Heavy Weapons (Any)	Survival	Admin
Roll	Specialist:Support	Specialist:Infantry	Specialist:Cavalry	
1	Mechanic	Gun Combat (Any)	Mechanic	
2	Drive (Any)	Melee (Any)	Drive (Any)	
3	Flyer (Any)	Heavy Weapons (Any)	Flyer (Any)	
4	Explosives	Stealth	Recon	
5	Comms	Athletics (Any)	Gunnery (Any)	
6	Medic	Recon	Sensors	

Ranks and Skills

Rank	NCO	Skill or Benefit	Officer	Skill or Benefit
0	Private	Gun Combat (Slug Rifle or Energy Rifle)		
1	Lance Corporal	Recon	Lieutenant	Leadership
2	Corporal		Captain	
3	Lance Sergeant	Leadership	Major	Tactics (Military)
4	Sergeant		Lt Colonel	
5	Gunnery Sergeant		Colonel	
6	Sergeant Major		General	SOC 16 or +1 SOC whichever is higher

Career Progress

	Survival	Advancement
Support	CONx5%	EDUx5%
Infantry	STRx4%	EDUx5%
Cavalry	DEXx4%	INTx5%

Commission SOCx4%

Mustering-Out Benefits

Roll	Cash	Other Benefits
1	2,000	Combat Implant
2	5,000	+1 INT
3	10,000	+1 EDU
4	10,000	Weapon
5	10,000	Armour
6	20,000	+1 CON
7	30,000	+1 SOC

Mishaps

2d6	Mishap
2	Finding conditions to be inhumane under a barely sane commander during your current posting you desert and are now a wanted man. Gain 1d3 Enemies amongst the military, including your former commanding officer, who will try to bring you to justice.
3	You are involved in a disastrous campaign and barely escape off planet in a frantic and badly organised evacuation. This leaves you a long way from your own lines and you make 1d3 Contacts as you return home. However you find yourself a wanted man and are listed as AWOL by an inquisitional commission that has come down hard on those even remotely involved in the debacle.
4	Your regiment merges with another due to budgetary constraints. You are one of those who are not offered a position within the new unit and are forced to leave the service.
5	You spend several days in the brig after getting into a fight with a superior officer. Gain that officer as a Rival as he has you ejected out of the service.
6	Severely wounded. Roll twice on the Injury table and take the lower result.
7	Your unit is slaughtered in a disastrous battle, for which you blame your commander. Gain him as an Enemy as he has you removed from the service.
8	Injured. Roll on the Injury table
9	You are sent to a very unpleasant region (jungle, swamp, desert, icecap, urban) to battle against guerrilla fighters and rebels. You are discharged because of stress, injury or because the government wishes to bury the whole incident. Increase Recon or Survival by 10% but also gain the rebels as an Enemy.
10	You discover that your commanding officer is engaged in some illegal activity, such as weapon smuggling. You can join his ring and gain him as an Ally before the inevitable investigation gets you discharged, or you can co-operate with the military police – the official whitewash gets you discharged anyway but you may keep your Benefit roll from this term of service.
11	You are tormented by, or quarrel with, an officer or fellow soldier. Gain that officer as a Rival as he drives you out of the service.
12	You have a strong relationship with a munitions supplier which is deemed to be too close by your superiors and you are 'requested' to resign from the service. Gain the supplier as a Contact.

Wartime Events

If you roll a Wartime Event on the Events table for your career, roll on the Wartime Event table.

2d6	Event
2	Just a Flesh Wound: You are lightly wounded. Roll two dice on the Injury table, choosing the higher result.
3	Heartfelt Confession: Someone close to you, likely within your unit, is fatally wounded and dies in your arms. Whilst dying, he confesses something previously unknown to you; from knowing about a traitor to explaining where stolen treasure might be.
4	Double-cross: Someone on your side in a conflict turns on you at the last moment, causing tension within the unit. Paranoia and distrust exists in the ranks for some time to come. Gain a Rival.
5	Impressive Scar: You were wounded by an alien weapon that left a strange scar on your face or neck. It does not hurt anymore, but it does give you a rough exterior that is sometimes difficult to ignore.
6	Camaraderie: You become very close to the other members of your unit and such fraternity is rewarded with unquestioning acceptance. If you choose to remain in the same career path and assignment for your next term, you do not need to roll for Qualification.
7	You save a member of your unit's life and gain a new Ally.
8	Weapon Cache. You stumble upon a stockpile of weaponry and armament. When no one is looking you manage to claim a piece of the find for yourself. Add an Armour, Combat Implant or Weapon Benefit (player's choice) when you muster out.
9	Employment Offer: The character is approached by a potential future employer, and the unit is set up for another conflict before the current one is even concluded. You gain a +20% bonus to your next Qualification roll.
10	Heroic Stand: You are caught alone in a fire fight where you hold off an enemy force for a prolonged period of time. Increase SOC by 1 or gain a +10% bonus to your next Benefits roll.
11	Trouble with Authorities: Your unit is arrested and detained for supposed illegal wartime activities. Lose one Benefit roll or reduce your SOC by 1.
12	Unusual Event: Something odd has occurred. Roll 1d6 1 – Meta-Intelligence Officer. You encounter a Psionic officer, who offers to spend some time with you. You may immediately test your Psionic Strength and can, if you qualify, take the Psionist career in your next term. 2 – Alien Mercs. You are saddled with a small unit of alien mercenaries for a few tickets. Gain a Life Science at 40% or gain +10% if you already have the skill and a Contact among an alien race. 3 – Military Black Market. You are approached by a black marketeer who has some advanced technology for sale on the cheap. You may choose any piece of TL12 personal equipment instead of taking the cash from a Benefits roll. 4 – Shell Shock. You were knocked into a short coma by artillery, and lost several weeks of your memory. 5 – Governmental Award. You and your unit are publicly heralded by the government you were serving. This ruins anonymity, but increases SOC by 1. 6 – Ancient weapon technology. You discover a weapon older than the Imperium. Now, if you could only figure out how to use it.

New Army Events

6d6	Events
11	Disaster! Roll on the mishap table, but you are not ejected from this career.
12	You are assigned to an urbanised planet torn by war. Gain one of Stealth, Streetwise, Persuade or Recon at 60% or gain +20% if you already have this skill.
13	You are assigned to a planet with a hostile or wild environment. Gain one of Vacc Suit, Engineer (any), Animals (riding or training) or Recon at 60% or gain +20% if you already have this skill.
14	You are given a special assignment or duty in your unit. Gain a +10% bonus to any one Benefit roll.
15	You are rolln into a brutal ground war. Attempt a Resilience roll to avoid injury; if you succeed, you gain +20% in Gun Combat (any) or Leadership.
16	You are given advanced training in a specialist field. Roll your EDUx5% to increase any one skill you already have by 20%.
21	Surrounded and outnumbered by the enemy, you hold out until relief arrives. Gain a +20% bonus to your next Advancement attempt.
22	You are assigned to a peacekeeping role. Gain one of Admin, Investigate, Deception or Recon at 60% or gain +20% if you already have the skill.
23	Your commanding officer takes an interest in your career. Either gain Tactics (military) at 60% or gain +20% if you already have the skill or take a +40% bonus to your next Advancement roll thanks to his aid.
24	You are chosen for cross training in a different service. Roll for a skill in a Specialist assignment other than your own start the skill at 60% or gain +20% if you already have the skill
25	You are assigned to protected forces training, gain one of Vacc Suit or Zero-G at 60% or gain +20% if you already have the skill.
26	You are named in a law suit alleging war crimes against your unit. You gain 1d3 Enemies despite your proclamations of innocence (whether they are true or not).
31-36	Life Event. Roll on the Life Events table.
41-46	Wartime Event. Roll on the Wartime Events table.
51	You are assigned to Officer Training, gain a commission, if you are already an officer you are automatically promoted.
52	You are given special forces training. Gain one of Melee (any), Gun Combat (any), Survival, Combat Engineering (any) or Explosives at 60% or gain +20% if you already have the skill.
53	You are assigned to a teaching post. Attempt an Instruction roll. Success increases your Instruction skill by 20%.
54	A posting far from any conflict on an idyllic world leaves you with plenty of downtime. Gain one of Gambling, Carouse or Streetwise at 60% or gain +20% if you already have the skill.
55	You are assigned to the legal offices of your base, helping with court martial services. Gain one of Admin, Advocate, Investigate or Deception at 60% or gain +20% if you already have the skill.
56	You are assigned to Military Intelligence. Gain +20% in Streetwise, Computer, Interrogation (any) or Deception.
61	You are assigned a position at an embassy. You are automatically promoted this term and gain Social Sciences at 60% or gain +20% if you already have the skill.
62	Your unit is sent to combat insurgents. Attempt a Gun Combat or Stealth avoid injury; if you succeed, you gain +20% in Gun Combat (any) or Tactics (military).
63	Your ability at the card table makes you a legend amongst your unit, however not everyone is a good loser. Gain +20% in either Gambling or Carouse, but gain 1d3 Enemies.
64	A revolution overrolls the legitimate government of the world you are serving on. Your unit backs the government as it attempts to regain power, attempt Tactics or Gun Combat (any) to avoid injury. You gain both an Ally and an Enemy as a result of the fighting.
65	Your immediate superior is a drunkard and incompetent. If you report him then you gain a +20% bonus to your next Advancement roll. If you say nothing and protect him, gain him as an Ally.
66	You display heroism in battle. You may gain a promotion or a commission automatically.

Naval College

If a character attends naval college, he spends four years there preparing for his career in the navy. To enter naval college, the character must pass the Entry roll. If successful, he may choose a course and attempt to pass the course in order to gain its benefits. A failed course after gaining entry means the character flunks out and spends his first term in the drifter career.

No character may attempt to enter Naval College after his first term, the Navy has plenty of potential recruits eager to fill their ranks and never wish to be seen as the second choice for any new officer recruit.

Any graduate from a Naval College will be commissioned and immediately start his first term at rank o1. A successful education at Naval College will leave the new officer with a full set of basic skills, some training in his chosen specialist field and, of course, his commission as an officer. He will not have an Event or Mishap, losing any benefits he may have gained. In addition he will not gain a mustering out benefit for the term he spent in college.

A graduate will not immediately be placed within his specialised service, instead serving in the Crewman roll of the navy of his choice (it is fairly uncommon, but not unknown, for promising graduates to opt for a naval career in their own planetary navy rather than the more prestigious Imperial Navy, for example).

College	Admission	Success	Honours
Support	EDUx5%	INTx3%	Critical
Engineering	INTx5%	EDUx3%	Critical
Gunnery	INTx5%	INTx3%	Critical
Flight	DEXx5%	EDUx5%	Critical
Pilot	DEXx5%	DEXx5%	Critical

Career Summary Table

Career	Specialisation	Qualification	Previous Service	Survival	Promotion
Crewman		Special			
	Planetary Navy	INTx5%		INTx5%	EDUx5%
	Subsector Navy	INTx4%		INTx5%	EDUx5%
	Imperial Navy	INTx3%		INTx4%	EDUx5%
Support		EDUx5%	One naval term, skill 1+		
	Training		Leadership	INTx5%	SOCx5%
	Medical		Medicine	EDUx5%	INTx5%
	Administration		Admin	EDUx5%	INTx4%
Engineering		INTx4%	One naval term		
	Damage Control			CONx4%	INTx5%
	Electronics			EDUx5%	INTx4%
	Mechanic			INTx5%	EDUx4%
Gunnery		INTx4%	One naval term		
	Fire Control			EDUx5%	INTx5%
	Turret			DEXx5%	EDUx5%
	Countermeasures			INTx5%	EDUx5%
Flight		DEXx4%	One naval term		
	Astrogation			INTx5%	EDUx4%
	Helm			DEXx5%	EDUx5%
	Sensors			EDUx5%	INTx5%
Pilot		DEXx4%	One naval term		
	Fighter Pilot			DEXx5%	INTx5%
	Shuttle Pilot			EDUx5%	INTx4%
	Special Operations			COBx5%	INTx4%
Command		SOCx3%	Three naval terms		
	Commander			INTx4%	EDUx5%
	Aide			EDUx5%	EDUx4%
	Tactician			EDUx5%	INTx3%
Naval Intelligence		INTx3%	Four naval terms, Imperial Navy or Subsector Navy only		
	Analyst			EDUx5%	INTx4%
	Planner			EDUx5%	SOCx4%
	Black Operations			CONx4%	INTx5%
Naval Engineering		EDUx3%	Four naval terms,		

			Imperial or Subsector Navy, Support or Gunnery		
	Senior Engineer			INTx5%	EDUx5%
	Ship Architect			EDUx5%	INTx4%
	Researcher			INTx4%	EDUx5%
High Command		INTx2%	Six naval terms, Imperial Navy Only		
	Legendary Captain			INTx3%	SOCx4%
	Fleet Commander			INTx4%	SOCx3%
	Daredevil			SOCx3%	DEXx3%

A character that fails admission to one of the Naval Colleges is able to then attempt to join a career of his choice and does not enter the draft.

If admitted the new midshipman undergoes a series of tests over the course of his term. If he succeeds he is deemed to have passed out of the college with a commission, basic training for his chosen field and can roll on the service skills table for the assignment of his choice.

If the character succeeds in making his honours roll not instead of rolling on the service skills table he is free to choose

Expanded Character Generation & Ranks

Not all ranks are available in all careers. Obviously, a legendary commander is going to be at least of a rank where they will have a command. A character who is not of the minimum rank number or above the maximum rank for a career suffers a -10% per missing rank number when trying to qualify for that career. If a character qualifies for a career when he is below the minimum rank, he is promoted to that rank.

Some careers are only available to commissioned characters.

For the purposes of benefits ranks o1 to o3 are the equivalent to standard ranks 1 to 3 respectively, ranks o4 and o5 are the equivalent to standard rank 4, ranks O6 and o7 to rank standard 5, and ranks o8 and above to rank standard 6.

Standard Rank	Rank	NCO	Rank	Commissioned
1	E1	Spacehand Recruit	O1	Ensign
2	E2	Spacehand Apprentice	O2	Sublieutenant
3	E3	Able Spacehand	O3	Lieutenant
4	E4	Petty Officer Third Class	O4	Lieutenant Commander
4	E5	Petty Officer Second Class	O5	Commander
5	E6	Petty Officer First Class	O6	Captain
5	E7	Chief Petty Officer	O7	Commodore
6	E8	Senior Chief Petty Officer	O8	Fleet Admiral
6	E9	Master Chief	O9	Sector Admiral
6			O10	Grand Admiral

In the Navy

A character who leaves a planetary navy to join the Imperial navy drops back down to rank 0.

A character ejected from the Imperial or subsector navy through mishap cannot reenlist in either the Imperial or subsector navy. A character ejected from any career may attempt to join the planetary navy again, but may join a maximum of three different planetary navies.

Medals and Commendations

These medals are awarded during character generation whenever the character is involved in a Mishap or Event that is combat orientated and needs a skill roll to prevent injury. The result of this roll will determine what medal(s) are received by the character.

- **Combat Ribbon:** Any character that is in a combat Event or Mishap will automatically be awarded a Combat Ribbon.
- **Combat Command Ribbon:** Any officer that receives a Combat Ribbon is automatically awarded with a Combat Command Ribbon.
- **Purple Heart:** Any character that has to roll on the injury table having failed his skill roll is awarded a Purple Heart.
- **Meritorious Conduct under Fire (MCUF):** A character is awarded this medal if he rolls a critical skill roll that is more than 5.
- **Medal for Conspicuous Gallantry (MCG):** A character is awarded this medal if he rolls a critical skill roll that is 02-05.

- **Starburst for Extreme Heroism (SEH):** A character is awarded this medal if he rolls an 01 on his skill roll.
- **Long Service Medal:** Any character that serves five or more terms in any Navy automatically receives the Long Service medal.
- **Meritorious Performance of Duties Medal:** Whenever a character needs to roll a skill on his events table and rolls a critical he is deemed to have impressed his superiors enough during that term to be made a recipient of this award.

Going for Glory

A character may apply a penalty of up to 20% to skill roll, making it much more likely to be injured. However, when it comes to receiving an award the modifier becomes a bonus instead.

Crewman

The bulk of the crew on board any naval vessel are low–ranking crewmen, serving under more senior officers. Unlike other careers, the crewman career is divided not by specialisation, but by the type of the navy. Planetary navies are small–scale affairs, normally only a handful of pirate hunter and customs ships or system defence boats. Subsector navies are the backbone of the Imperium, providing local defence and patrolling the spaceways. The Imperial Navy is the most prestigious assignment, but also the most dangerous.

				Career Progress		
Enlistment: If you are aged 34 or more: -20%, Per previous career: -10%					Survival	Advancement
Planetary Navy – INTx5%				Planetary	INTx5%	EDUx5%
Subsector Navy – INTx4%				Subsector	INTx4%	EDUx5%
Imperial Navy – INTx3%				Imperial	INTx3%	EDUx5%
Assignments: Choose one of the following: <ul style="list-style-type: none">Planetary Navy: You served in one of the hundreds of local naval forces across the Imperium.Subsector Navy: You served in a subsector navy under the seal of the local duke, battling pirates and protecting trade routes.Imperial Navy: You served upon a major warship, watching the borders for incursions by foreign powers.						
				Promotion: EDU 13+ Ranks: E1 to E5, O1 to O2.		
				Mustering-Out Benefits		
				Roll	Cash	Other Benefits
				1	1000	None
				2	2000	+1 EDU
				3	3000	+1 SOC
				4	4000	Contact
				5	5000	Weapon
6	6000	1 Ship Share				
7	10,000	Two Ship Shares				
Skills and Training						
Roll	Personal Development	Service Skills	Advanced Education	Retirement		
			(Minimum EDU 13)	Terms Served	Yearly Pension	
1	+1 STR	Pilot (any)	Remote Operations			
2	+1 DEX	Vacc Suit	Astrogation			
3	+1 CON	Zero–G	Engineer (any)			
4	+1 INT	Discipline	Computers			
5	+1 EDU	Mechanic	Medic			
6	+1 SOC	Gun Combat (any)	Tactics (naval)			
Roll	Planetary Navy	Subsector Navy	Imperial Navy			
1	Pilot (any)	Pilot (any)	Pilot (any)			
2	Space Science	Mechanic	Engineer (any)			
3	Sensors	Sensors	Sensors			
4	Comms	Comms	Comms			
5	Gunner (turret)	Gunner (any)	Gunner (any)			
6	Mechanic	Vacc Suit	Discipline			
Ranks and Skills						
Rank	NCO	Skill or Benefit	Officer	Skill or Benefit		
0						
1			O1	Melee (blade) 1		
2	E2	Mechanic or Discipline	O2	Leadership 1		
3						
4	E4	Vacc Suit				
5						
6						

Mishaps

2d6	Mishap
2	Severe budgetary cutbacks leads your squadron being mothballed. You are one of the unfortunates who are not reassigned.
3	You are placed in the frozen watch, but something goes wrong. One of your limbs atrophies but you are provided with a cybernetic replacement.
4	Your ship is destroyed in a naval battle. You survive in an escape pod, but the ensuing inquiries and post-mortems end your career.
5	A serious accident occurs on your watch and you are blamed for it. The accident is not your fault and is the result of another crew-member's negligence, but you are blamed. Gain an Enemy.
6	Injured. Roll on the Injury table
7	You fall in love with a serving colleague who is already married or in a long-term relationship and the liaison is discovered. You are forced out of the service after a court martial for breaking regulations. Gain your lover's partner as an Enemy.
8	Severely wounded. Roll twice on the Injury table and take the lower result.
9	You are implicated in a scandal. You avoid any real blame, but your tarnished reputation leaves your career in tatters.
10	A vindictive officer sinks your career. Gain a Rival.
11	You catch an obscure alien virus that leaves you incapacitated for much of your tour and are medically discharged. Lose 1 from STR, DEX and CON as the illness is never fully shaken off.
12	You are taken prisoner in action and are unable to continue in your role once repatriated.

Events

d66	Event
11	Disaster! Roll on the mishap table, but you are not ejected from this career.
12	A boring assignment leads to temptation. Roll CONx5%, if you fail you develop a drinking problem or addiction, gain Streetwise and a reliance on a semi-legal drug or alcohol.
13	You stand out from the rank and file, and are groomed for advancement by a superior. Either gain Leadership at 40% or increase the skill by 10% if you already have it, or take a +40% bonus to your next Advancement roll (in any naval career).
14	You become well known on board ship for a particular personal quirk. Roll 1d6 for your reputation, you gain the skill at 40% or gain +10% if you already have the skill: 1-2: Gambler (Gambling), 3: Poet (Art), 4: Athlete (Athletics); 5-6: Joker (Perform)
15	You may report a fellow crewman for dereliction of duty. If you do gain a +20% bonus to your next promotion roll and a Rival. If you fail to do so your crewmate is thankful and becomes an Ally.
16	You are given a special assignment or duty on board ship. Gain a +10% to any one Benefit roll.
21	Your vessel participates in a notable military engagement. Gain one of Sensors, Engineer (any), Gunnery (any) or Pilot (any) at 40% or gain +10% to the skill if you already have it.
22	You foil an attempted crime on board, such as mutiny, sabotage, smuggling or conspiracy. Gain an Enemy, but also gain a +20% bonus to your next Advancement roll in the Navy.
23	You join a gambling circle on board. Gain Gambler or Deception at 40%, or +10% if you already have the skill. If you wish, roll Gambler -40% - if you succeed, gain an extra Benefit roll from this career; if you fail, you lose one Benefit roll from this career.
24	There is a hostile stowaway on your ship. Attempt an Investigate -20% roll. If successful you catch the troublemaker, you gain +40% to your next Advancement roll. If you do not, your ship is sabotaged and you must roll on the Injury table.
25	You have a chance to save a fellow crewman. If you wish to make the attempt, try a Resilience roll at -20%. If you fail, you are injured. If you succeed, gain a Contact.
26	When hunting an enemy ship, you play cat and mouse with it, chasing sensor ghosts and false trails. Roll Sensors -20% to find it before it finds you. If you fail, the enemy ship escapes, becoming an infamous commerce raider – take its commander as an Enemy.
31–36	Life Event. Roll on the Life Events table.
41–46	Naval Event. Roll on the Naval Events table.
51	You are attacked by a hostile native lifeform during a survey mission. Roll Animal (training). If you succeed, you befriend the animal and can keep it as a pet. If you fail roll on the Injury table.
52	Your ship is boarded, and you find yourself fighting blade to blade with the enemy. Gain Melee (blades) at 40% or +10% if you already have the skill and a duelling scar.
53	You are attacked and overrun by natives during a survey mission. One of your crew falls behind. You must make an Athletics roll to escape; if you stop to pick up the fallen crewman, you have a –20% to your roll. If you escape and rescue the crewman, gain an Ally. If you fail, roll twice on the Injury table and take the lowest result.
54	You are engaged in first contact with a minor species. Roll Diplomacy; if you fail roll on the Injury table. Succeed and you gain one of Diplomacy or Carouse at 40% or gain +10% if you already have the skill.
55	You are escorting a crewmate to his court martial when there is an escape attempt. Roll Melee (any), if you succeed you gain an Enemy and a +40% to your next promotion roll. If you fail roll on the Injury table.
56	You take part in a boarding action against a pirate vessel. Roll Gun Combat (any) or Melee (any). If you succeed you gain one of Melee, Gun Combat or Tactics at 40% or gain +10% if you already have the skill. If you fail roll on the injury

	table.
61	On a long survey mission, you pick up some useful skills. Gain Survival, Sensors, Navigation or Recon at 40% or gain +10% if you already have the skill.
62	You spend this term in the asteroid belts of a system, showing the navy's presence and deterring pirates and claim jumpers. Gain Vacc Suit, Zero-G or Sensors at 40% or increase the skill by 20% if you already have it.
63	You are assigned to various non-combat support vessels. Forced to work alongside reservists and civilian crews, you appreciate the Navy way of doing things even more. Gain one of Discipline, Carouse or Persuade at 40% or gain +10% if you already have the skill.
64	You star in a series of documentaries featuring your ship and your role gains you 1D3 Contacts, within and/or outside of the navy.
65	You impress a visiting officer so much you may automatically enter a branch of the service of your choice that you have the qualifications for.
66	You display heroism in battle, helping save your ship. You may gain a promotion or a commission automatically.

Naval Events

Naval Events

Roll 2d6	Event
2	Just a Flesh Wound: The character is grazed by shrapnel or stray munitions. Roll two dice on the Injury table, choosing the higher result.
3	Special Mission: The character is assigned a secret mission by the navy. The mission goes off without a hitch, but something from the mission may show up during the campaign. Discuss the exact nature of the mission with your Referee.
4	New Rival: Someone on board ship or encountered while serving takes a strong dislike to the character, and becomes a rival.
5	Shore Encounter: During a period of liberty, the character has a curious and memorable encounter with a civilian. Roll 1d6: 1–2: Romantic, 3: Alien, 4: Criminal, 5: Conspiracy, 6: New Contact.
6	New Contact: The character picks up a new contact. Roll 1d6: 1–3: Naval, 4–5: Civilian, 6: Superior officer or unusual.
7	Cross Training: You receive training in a different branch of the navy. Roll on any Service Skill table besides your own. You can join this branch if you meet its requirements next term with a +40% bonus to enlistment.
8	Extra Training: You are given extra training. Roll EDUx5% to gain any one skill.
9	Lifesaver: You save the life of a crewman who becomes a lifelong friend. Gain a new Ally.
10	Holding Action: You are on board a warship that holds off a vastly superior hostile force for a prolonged period of time before relief arrives. This action results in all the crew being considered heroes both within the navy and amongst the wider population. Gain +1 SOC or gain a +10% bonus to your next Benefits roll.
11	Medal: Attempt a Luck Roll + 5% for each term since you last won a medal, if you succeed you are awarded the citation for Meritorious Performance of Duties. If you roll a critical then you are awarded a Medal for Conspicuous Gallantry.
12	Unusual Event: Something odd has occurred. Roll 1d6: 1: One of your crewmates is a secret telepath, who offers to train you in psionics. You may test your Psionic Strength Potential and, if strong enough, take the Psionist career next term. 2: You are framed for a crime, and imprisoned for the remainder of this term. You are then ejected from the navy. 3: Your ship misjumps, and has to make a long voyage home. Increase your age by 1d6 years and gain half as many skills, rounding up. 4: You uncover evidence of a conspiracy within the navy. Either join them, or reveal their existence and gain 1d3 Enemies. 5: You are captured and interrogated by agents of a foreign power. You manage to escape or be rescued (or did they let you go...?). 6: Your ship encounters an anomaly, possibly connected to the Ancients.

Mercenary

Mercenaries do not have a straightforward career path. Instead, they advance by means of mercenary tickets, in other words by carrying out jobs.

Mercenary Tickets

In game terms, when a mercenary administrator sits down to judge the opening offer of a ticket – to ensure it is good enough, but not too good – he must roll Admin skill. If he succeeds then he can adjust the results on the following table by 1, if he rolls a critical he can adjust it by 2.

	1	2	3	4	5	6
Ticket Offer Adjustment	–40% Penalty	–20% Penalty	+0%	+0%	+10% Bonus	+20% Bonus
Number of Ticket Adjustments	1d6	1d6+1	1d6+2	1d6+3	2d6	2d6+2

In game terms, the negotiation process requires both primary administrators (the employer and the employee) to roll their Broker skill in an Opposed Roll. If the employer's result is better than the mercenary's, then the ticket is more or less arranged as the employer needs it to be, and all of the tables used to generate a mercenary ticket (see Creating the Ticket below) are rolled normally, with no modifiers. If the mercenary administrator manages to roll a better overall result than the employer, his Effect is compared to the table below. This shows just how much sway the mercenaries have in creating the ticket and adjusting it according to their wishes. Ticket adjustments are discussed further later in this chapter.

Any ticket that is administrated by outside forces is given 1d6–1 Ticket Adjustments during the creation process.

Step One – Working out the Employer Details

It may seem obvious that the employer of a mercenary ticket would be listed plainly and honestly, but it is not always the case. Some employers are purposefully shady in their listings, and only through the mercenary's scrutiny can they be discovered. The above information is considered privileged for the Referee unless the mercenary administrator involved chooses to research it further. This costs the administrator one Ticket Adjustment to research, and takes an Admin roll to know the status of the employer's true details.

Employer Details

2d6 Result	Employer Details
2	Employer is trying to remain anonymous and use false nomenclature to protect itself.
3–5	Employer is purposefully vague on important details.
6–8	Employer is perfectly honest in the ticket, but details are little more than title and mode of communication.
9–10	Honest details; including the employing agent's name and direct communication.
11	Honest and very detailed information about the employer.
12	Private Ticket; employer is honest – but is willing to pay extra to keep the information secret.

Step Two – Including the Employee Details

The amount of information about the mercenary unit listed on a ticket is up to the individual administrator. If the unit does not want to include all of the information about itself, it simply does not. Omitting any information about the unit on the ticket costs the unit administrator one Ticket Adjustment.

Step Three – Service Required

Generic Service Type

The Referee can either choose or roll randomly on the table below to determine this. For this roll, the administrating character's Rank is added to the result.

2d6 Result	Generic Service Type
1	Criminal
2	Guerrilla
3	Cadre
4	Cadre
5	Commando
6	Commando
7	Striker
8	Striker
9	Striker
10	Security
11	Security
12	Warmonger
13 or higher	Dream

The varied sub-types of mission are rolled randomly on the Service table below, the descriptions of all mission categories. Each sub-type has a compensation code in brackets that should be noted.

Mission	1	2	3	4	5	6
Criminal	Assassination (E)	Raid (A)	Raid (B)	Raid (C)	Sabotage (C)	Unlawful Acquisition (D)
Guerilla ¹	Sabotage (A)	Sabotage (B)	Terrorise (D)	Assassination (D)	Recon (B)	First Strike (C)
Cadre ²	Train (A)	Train (B)	Field Exercise (B)	Field Exercise (C)	Active Duty (D)	Recon (C)
Commando ³	First Strike (C)	Raid (B)	Active Duty (D)	Active Duty (E)	Retrieval (C)	Elimination (D)
Striker ⁴	Counter Strike (E)	Recon (A)	First Strike (C)	First Strike (D)	Elimination (D)	Elimination (E)
Security ⁵	Defence (A)	Defence (B)	Defence (C)	Active Duty (D)	Escort (B)	Escort (C)
Warmonger ⁶	Escort (B)	Escort (C)	Field Exercide (C)	Commerce (D)	Commerce (E)	Raid (C)
Dream ⁷	Recon (D)	Escort (E)	First Strike (F)	Field Exercise (D)	Elimination (G)	Technological Test (D)

- ¹ A mercenary administrator with two or more terms in the Guerrilla career path can roll twice, choosing the result they desire.
- ² A mercenary administrator with two or more terms in the Cadre career path can roll twice, choosing the result they desire.
- ³ A mercenary administrator with two or more terms in the Commando career path can roll twice, choosing the result they desire.
- ⁴ A mercenary administrator with two or more terms in the Striker career path can roll twice, choosing the result they desire.
- ⁵ A mercenary administrator with two or more terms in the Security career path can roll twice, choosing the result they desire.
- ⁶ A mercenary administrator with two or more terms in the Warmonger career path can roll twice, choosing the result they desire.
- ⁷ Raising or lowering this result costs three Ticket Adjustments per increment.

Length of Service

The following three tables are designed to quickly determine how long the mercenary unit will be given to fulfil the ticket’s services. The mercenary administrator may lengthen or shorten the time increment rolled by spending Ticket Adjustments, one per level moved up or down. Additionally, the administrator can spend three Ticket Adjustments to change the ticket mission’s base length completely (such as from Short to Long.).

Mission	1	2	3	4	5	6	7+
Short	1D6 Days	1D6 Days	2D6 Days	2D6 Days	1D6 Weeks	1D6 Weeks	1D6+2 Weeks
Medium	1D6 Weeks	1D6 + 1 Weeks	2D6 Weeks	1D6 Months	1D6 + 1 Months	2D6 Months	2D6 + 1 Months
Long	1D6 + 1 Months	2D6 Months	2D6 + 1 Months	3D6 Months	3D6 + 2 Months	4D6 Months	1D6 Years

Unless the mercenary administrator specifically includes an ‘end of mission’ clause (which costs the administrator a Ticket Adjustment), the unit will not actually receive their Compensation Package until the determined time has expired.

Ticket Exposure

The Referee can use the following table to determine the type of exposure the ticket’s activities will get. The mercenary administrator can spend Ticket Adjustments to raise or lower the result by +/- 1 per Ticket Adjustment.

2d6 Result	Public Exposure
2 or lower	Hidden – Without doing research, no one knows the ticket existed.
3 – 4	Obscure – Only the local public is aware of the ticket’s actions.
5 – 6	Low Profile – Much of the planet is aware of the ticket’s actions, and the local public know the name of the mercenary unit.
7 – 8	Uncommon – The ticket has received some media attention in the local area and the mercenary unit’s involvement is locally public.
9 – 10	Common – The media has spread the mercenary unit’s name throughout the planet and it has spread to neighbouring planets.
11 – 12	Exposed – The mercenary unit’s name is publicly known on a planetary level; even a few specific members’ names are being spoken.
13 or higher	High Profile – The ticket and the mercenary unit are being talked about throughout the system. At least one member of the unit is being named specifically.

There are a few minor adjustments that are automatically applied to the table above:

- Any Criminal missions have a -3 to their exposure.
- Any Guerrilla missions have a -2 to their exposure.
- Any Warmonger missions have a -1 to their exposure.
- Any Dream missions have a +2 to their exposure.

Determine Target

- Defensive Target Missions: Active Duty, Defence, Escort, Retrieval, Train
- Neutral Target Missions: Commerce, Defence, Field Exercise, Recon, Retrieval, Technological Test
- Offensive Target Missions: Active Duty, Assassination¹, Counter Strike, Elimination, Field Exercise, First Strike, Raid, Recon, Sabotage, Terrorise, Unlawful Acquisition

Roll on the following table to determine any increments to the compensation code.

Target Type	1	2	3	4	5	6
Defensive	Item	Location (+1)	Ally, Individual (+1)	Information (-1)	Ship (+1)	Ally, Group (+2)
Neutral	Item	Trade Goods	Individual (-1)	Personal Goods	Ship (+2)	Activity
Offensive	Individual (+1)	Location (+2)	Item (+1)	Vehicle (+2)	Ship (+2)	Group (+2)
Target Descriptor	Political	Military	Civilian	Commercial	Mobile ²	Alien ²

¹ Assassinations always target an Individual.

² Roll again for further descriptor, ignoring the same result.

The mercenary administrator can adjust the result of the target table one increment up or down by spending two Ticket Adjustments.

Determine Risk

Referees can choose or roll upon the Ticket Risk table to determine the level of risk involved with the ticket (and the payment increase involved). This is kept secret by the Referee, but a mercenary administrator can choose to spend a Ticket Adjustment to learn the results.

Ticket Risk

1d6	Level of Risk	Pay Grade Adjustment
1	<i>Too Easy</i> – This is well beneath the unit’s level of training; it is unlikely they will even break a sweat.	–2 Increments
2	<i>Easy</i> – This ticket will not cost the unit much in the way of resources or stress.	–1 Increment
3	<i>Average</i> – This is what the unit is trained for, and should serve as a good reminder what ticket work should be.	—
4	<i>Worthy Test</i> – This is a fantastic place to test the unit’s skills, even some of the obscure ones. They might suffer some wounds or even casualties.	+1 Increment
5	<i>Difficult</i> – This ticket will be a tough one for the whole unit, and the members will need to be diligent in their training or they might not make it back home.	+2 Increments
6	<i>Arduous</i> – This mission is a nightmare. If anyone makes it back in one piece, they will have been pushed to the very limit.	+3 Increments

Step Four – Pre-Ticket Support

The mercenary administrator can either spend a number of Ticket Adjustments to add Pre-Ticket Support, rolling once for each on the table below, or they can attempt a Broker roll to add a single result from the table without spending the Ticket Adjustment. A ticket can only have one instance of each type of support, re-rolling duplicates.

Pre-Ticket Support Type

1d6 Result	Support Table Used	Pay Grade Loss
1 – 2	Advance Funds	–1 Increment
3 – 4	Services	–1 Increment
5 – 6	Equipment ¹	–3 Increments

¹ Technological Test missions *always* gain this Support, but do not suffer the Pay Grade Loss.

Mission	1	2	3	4	5	6
Advance Funds Offered	5,000 Credits	10,000 Credits	20,000 Credits	30,000 Credits	40,000 Credits	50,000 Credits
Service Offered	Transportation	Transportation	Equipment Repairs	Rearmament	Arms Trading	Medicinal Process
Equipment Offered	Basics	Armour	Weapons	Heavy Weapon	Transport	Specialised Gear

Service Offered:

Transportation: The unit will not have to worry about getting to and from the ticket service site. The employer will arrange for these things and will not pass on any of the cost.

Equipment Repairs: If the unit has physical equipment (vehicles, armour, gear, etc.) that requires repairs before the ticket begins, the employer will arrange for those repairs.

Rearmament: The employer arranges for all power packs, fuel cells, and munitions for the unit's weaponry to be recharged, re-armed, or otherwise refreshed properly.

Arms Trading: The employer arranges a meeting with an allied arms dealer, who will trade with the unit at a discount of 10% to market prices.

Medical Process: The employer will pay for 50% of any medical services the unit wishes to undertake before the ticket can begin. This can include wound care, augmentation, implanting or image reconstruction.

Equipment Offered:

Basics: The employer arranges for each unit member to be outfitted with 5,000 credits worth of basic equipment useful to the ticket mission.

Armour: The employer arranges for enough Flak Jackets (TL8) for the entire unit or 2d6 suits of Combat Armour (TL11).

Weapons: The employer arranges for up to 1,250 credits worth of weapons for each member of the unit placed on the ticket.

Heavy Weapon: The employer arranges for a single heavy weapon for the unit's use worth up to 5,000 credits (after ammunition).

Transport: The employer grants the unit the use of any single vehicle worth 300,000 credits or less; this must be returned after the ticket.

Specialised Gear: The employer gives each member of the unit a single piece of specialised equipment or armament that the ticket might require them to have (Vacc suit, toxin antidotes, methane breathers and so on).

As a note, if a mercenary administrator specifically waives any Pre-Ticket Support, he may increase the Pay Grade of the Compensation Package by +1 Increment.

Step Five – Post-Ticket Support

Each roll on the following table cost the mercenary administrator a Ticket Adjustment. Alternatively, the Referee can choose to automatically add one roll from the table on behalf of the employer – an effort to reduce cost in exchange for services. A ticket can only have one instance of each type of support, re-rolling duplicates.

Post-Ticket Support

	1	2	3	4	5	6
Support Given	Rest and Relaxation	Repair and Rarm	Medical Care	Expedited Evacuation	Legal Counsel	Repeated Ticketing Agreement
Pay Grade Loss	-	-2 Increment	-1 Increment	-	-1 Increment	-2 Increment

Rest and Relaxation: The employer agrees to pay for 1d6 weeks of recuperation time for the unit at a pleasurable location (tourist resort, vacation location, etc.).

Repair and Rarm: The employer agrees to pay for 50% of any rearmament and repair costs for ticket-related equipment and weaponry.

Medical Care: The employer agrees to pay for up to 5,000 credits of medical care for unit members injured during the mission.

Expedited Evacuation: The employer agrees to ensure the fastest transportation process they can manage for the unit when the ticket is reported finished. This cuts return travel time for the unit in half.

Legal Counsel: The employer agrees to retain an attorney for the mercenary unit (if needed); with Admin 60%, Advocate 70%, Broker 60% and Language 60%.

Repeated Ticketing Agreement: The employer agrees to contract the unit up for future use, granting an additional 1d6 Ticket Adjustments to their next ticket with this employer.

As a note, if a mercenary administrator specifically waives any Post-Ticket Support, he may increase the Pay Grade of the Compensation Package by +1 Increment.

Step Six - Compensation Package

The initial pay grade of the Compensation Package is determined by the mission type and any adjustments made due to ticket negotiations.

Pay Grade Amounts

Grade	Amount	Grade	Amount	Grade	Amount	Grade	Amount	Grade	Amount	Grade	Amount	Grade	Amount
	5,000 Cr	C	50,000 Cr	G	200,000 Cr	K	500,000 Cr	O	2 MCr	S	7 MCr	W	25 MCr
0	10,000 Cr	D	75,000 Cr	H	250,000 Cr	L	750,000 Cr	P	3 MCr	T	10 MCr	X	30 MCr
A	20,000 Cr	E	100,000 Cr	I	325,000 Cr	M	1 MCr	Q	4 MCr	U	15 MCr	Y	40 MCr
B	30,000 Cr	F	150,000 Cr	J	400,000 Cr	N	1.5 MCr	R	5 MCr	V	20 MCr	Z	50 MCr

The mercenary administrator can choose to augment the Pay Grade by spending Ticket Adjustments, at a ratio of two adjustments per Pay Grade.

Any ticket that has a final Pay Grade of 'F' or higher qualifies for a potential bonus in its compensation package. By willingly reducing the Pay Grade by one increment and spending a Ticket Adjustment, the mercenary administrator can roll once (and once only!) on the special compensation bonus table below.

Special Compensation Bonus

	1	2	3	4	5	6
Compensation Bonus	Equipment Package	Free Medical Care	Combat Implant Package	Ship Shares	Debt Payment	Prime Ticket

Equipment Package: The employer includes 2d6 x 10,000 credits worth of equipment (any) as part of the compensation for a successful ticket.

Free Medical Care: The employer includes a contract for completely free medical care for members of the mercenary unit for 2d6 months after the ticket is finished.

Combat Implant Package: The employer will arrange for the purchase and grafting of up to 100,000 credits worth of Combat Implants to the higher ranking members of the unit.

Ship Shares: The employer gives 2d6 Ship Shares to the mercenary unit.

Debt Payment: The employer offers to pay 1d6 x 10% of the unit's medical or banking-related debts.

Prime Ticket: The employer will grant the equivalent to the Prime Ticket benefit to the unit for their next sanctioned ticket together.

Step Seven - Repatriation Bond

The Referee rolls upon the following table to determine the amount of the Compensation Package funds (cash only, no bonuses) will be paid to the mercenary unit in case the employer is forced to abandon the ticket. The mercenary administrator can adjust the result one increment by spending a Ticket Adjustments.

Repatriation Bond Level

2d6 Result ¹	Repatriation Percentage
2 – 3	15%
4 – 5	25%
6 – 7	40%
8 – 9	50%
10 – 11	60%
12	75%

¹ If doubles are rolled, the Repatriation does NOT include emergency evacuation costs.

Step Eight – Escape Clause

If the mercenaries want to have an escape clause added, the administrator must spend a Ticket Adjustment to earn a single roll upon the Escape Clause Levels table, on the following page.

Escape Clause Levels

1d6	Escape Clause Description
1	<i>Poor</i> – The mercenaries must return any Pre-Ticket Support, and must pass an Advocate -20% test or be fined 1d6 x 10,000 credits.
2	<i>Below Average</i> - The mercenaries must return any Pre-Ticket Support, and must pass an Advocate test or be fined 1d6 x 5,000 credits.
3	<i>Average</i> - The mercenaries must return any Pre-Ticket Support, and must pass an Advocate test or be fined 1d6 x 1,000 credits.
4	<i>Above Average</i> – The mercenaries must return their Pre-Ticket Support.
5	<i>Good</i> – The mercenaries can pass an Advocate test to avoid giving back any Pre-Ticket Support.
6	<i>Perfect</i> - The mercenaries are allowed to back out of the ticket without any repercussion.

Step Nine – Seal the Ticket

Some mercenaries might want to keep their ticket completely private, risking the wrath of the operational authorities in order to hide their activities from all parties. If this is the case, not only will the mercenary administrator need to spend a Ticket Adjustment – but he will also have to succeed in a Broker roll.

Narrative Resolution Format

The fairest and most enjoyable format of ticket resolution for a gaming session, a ticket played in Narrative form runs as a string of scenarios and adventurous events. The Referee plans out all of the encounters he wishes to take place, maps out the course of the adventure, and creates individual Non-Player Characters to interact with, and so on. Essentially, this format has the Referee turn the ticket into a fully designed scenario.

Summary Resolution Format

A ticket can be resolved in a Summary using the following steps:

- Step One – Each ticketing member rolls one related skill (chosen by Referee)
- Each failure must roll on the Ticket Mishap Table (below).
- Step Two – Each ticketing member must attempt a Resilience+ or SOCx5% roll.
- Failing the Resilience roll earns the character a roll on the Injury Table (see *Traveller* core rulebook)
- Failing the SOCx5% roll earns the character a Rival or Enemy (Referee's choice).
- Step Three – Unit rolls on Ticket Event Table (below).

Ticket Event Table

2d6	Ticket Event
2	<i>Disaster</i> – Every character must immediately pass a Resilience test or suffer a Random Major Injury (see Mishap above).
3	<i>Employer Dissolved</i> – The employer is no more and the ticket's Repatriation Bond must be enacted.
4 – 5	<i>Unexpected Conflicts</i> – Unit is placed into combat several times unexpectedly. Every member must pass a combat skill test or suffer a Random Minor Injury.
6 – 7	<i>New Recruits</i> – Unit meets and hires 2d6 new recruits into the mercenary unit, adjusting their profitability.
8 – 9	<i>Basic Conflicts</i> - Every member must pass a combat skill test or suffer a Random Minor Injury.
10 – 11	<i>Flawless Conflicts</i> – The unit eliminated any enemies with precision and skill, meaning that they suffer no ill effects from the ticket whatsoever.
12	<i>Impressive!</i> – The unit excels at the ticket and the employer is impressed, adding a +10% to the monetary amount of the Compensation Package of the ticket.

For every full 10 members of the unit active for the ticket, one Player Character member can ignore Step One or Step Two of the above process.

Ticket Mishap Table

2d6 Result	Mishap
2 – 3	Random Major Injury
4 – 5	Actionable Offence
6 – 7	Random Minor Injury
8 – 9	Persistent Enemies
10 – 11	Bad Media Coverage
12	Personal Loss

Random Major Injury: Character rolls on the Injury Table.

Actionable Offence: The character is arrested by local authorities and must bail himself out of trouble, using his private funds or a share of his profits. This amount is equal to 2d6 x 100 credits.

Random Minor Injury: Character rolls twice on the Injury Table, accepting the higher result.

Persistent Enemies: The character finds himself targeted by his enemies, as if they have some form of grudge upon him. His Endurance or Social roll in Step Two has a -20% Penalty.

Bad Media Coverage: The character is shown in a particularly bad light on the local media coverage, and word has spread about the negativity surrounding him. He must decrease his SOC characteristic by 1 immediately.

Personal Loss: The character lost something important to him (weapon, jewellery, etc.) during the ticket. This item is chosen by the Referee, and should be something that the character would have had with them during the ticket.

Reductions

Reduction One - Transport

The Reduction for transport is set as a basic 1d6%, but has modifiers depending on the size of the unit and equipment being transported.

- +1% for every 10 unit members being transported
- +1% for every vehicle being transported
- +1% for every 25 passengers (allies, non-unit personnel and so on)
- +3% if being transported into actively hostile territory
- +5% if Emergency Evacuation is required

What Eliminates this Reduction: Owning sufficient transport, using personal sources, ticket support choices, local ticket.

Reduction Two - Equipment Upkeep

The Reduction for equipment upkeep is set as a basic 1d6+1%, but has modifiers depending on the technological level and types of gear used by the unit.

- -1% for a non-combat ticket
- +1% for every 25 unit members on ticket
- +1% for using equipment with a TL higher than TL11
- +1% for every vehicle used
- +1% for a unit using Battle Dress
- +2% for a unit that actively used Field Artillery or Artillery Battle Dress

What Eliminates this Reduction: Access to sufficient upkeep workshops and equipment, ticket support choices.

Reduction Three - Medical Fees

The Reduction for medical fees is set as a basic 1d6-1%, but has modifiers depending on the number of unit members possibly injured, and the threat level of the mission.

- -3% for a non-combat ticket
- -1% for a unit that uses Battle Dress armour
- +1% for every 10 active unit members on the ticket
- -2% for a unit that actively used unit members with at least Medic 1
- -3% for a ticket assessed at a Too Easy level of risk
- -1% for a ticket assessed at an Easy level of risk
- +1% for a ticket assessed at a Worthy Test level of risk
- +2% for a ticket assessed at a Difficult level of risk
- +3% for a ticket assessed at an Arduous level of risk

What Eliminates this Reduction: Not suffering wounds or casualties, ticket support choices.

Reduction Four - Authority Payments

The Reduction for authority payments is set as a basic 1d6%, but has modifiers depending on the amount of money in the compensation package.

- -1% for a unit that actively used unit members with at least Advocate 70% during ticket administration

- +1% for a Compensation Package ranging between 30,000 - 99,999 credits
- +2% for a Compensation Package ranging between 100,000 - 499,999 credits
- +3% for a Compensation Package ranging between 500,000 credits and 1 Megacredits
- +4% for a Compensation Package over 1 Megacredit

What Eliminates this Reduction: Anonymous or illegal ticketing.

Reduction Five - Ticketing Costs/Living Expenses

The Reduction for ticketing costs/living expenses is set as a basic 1d6-2%, but has modifiers depending on the size of the unit and the number of vehicles they commonly own.

- +1% for every 50 members of the unit
- +1% for every 5 vehicles owned by the unit
- +2% for every compound, office or other structure owned by the unit

What Eliminates this Reduction: Illegal living or storage arrangements.

Calculating Final Profits

Once the Compensation Package from the ticket has had all of the necessary reductions removed, some 30% of any profit at this stage is put aside for the mercenary company's own accounts. After this share is deducted the remaining money is split between the members of the mercenary unit.

In game terms, after all applicable Reductions have been subtracted from the Compensation Package, the mercenary unit adds up all of their effective members' Ranks (three Rank 0 members count for a single Rank 1). The Compensation Package is then divided by that total number of Ranks, giving the Salary Share amount of wage. This should amount to only the members that were considered active on the ticket, but some extremely large mercenary units or companies might have a special Rank 6 Salary Share that they take for themselves. If a Referee has not already detailed this information, a system for randomly generating the size and Ranks of a mercenary company is included in this book.

The final Salary Share amount is then multiplied by each member's individual Rank; the result is their wage from the ticket.

Costs Outside of Tickets

Step One - Figuring the Unit's CPM Variable

The base number for a CPM variable is 5. This is then modified by the series of unit-based checks below. Many of these modifiers will be determined by the Referee. It should be noted that the CPM variable cannot be reduced to less than 2 by any given modifier.

Mercenary Retirement Benefits – Friends & Favours

Friends & Favours

2d6 Result	Bonus
2	An alien transport pilot remembers you being kind to his people. Gain 2 ship shares.
3 – 4	Old gambling buddy owes you money. +10,000 credits
5 – 6	Government agent owes you for his life. Gain Ally
7 – 9	Military types rarely forget their debts. +5,000 credits
10	An arms dealer owes you for helping him in a hard time. +7,500 credits or the Weapon benefit
11	One of your old friends has arranged for a lesser vehicle to 'go missing' and end up in your possession. Gain either the Air/Raft or Ship's Boat Benefit
12	You were named as an inheritor on an old colleague's last will. Gain +15,000 credits

Pre-Enlistment Education

Introduction

Technological economies rely on well-educated workers, and the vast interstellar empires in Traveller are not exempt from this need. However, local communities are often incapable of giving their people sufficient levels of education to be competitive. Universities and other academic institutions provide a means to educate young men and women before they enter the workforce. The following rules are intended to give characters an opportunity to improve their educations before pursuing more formal careers.

Pre-Enlistment Format

Your character may pursue one or more of the following pre-enlistment educational options before enlisting in a career. Each of these schools lasts one four-year term, even if a character fails to graduate. Spending a term in one of these schools does not apply a penalty to future qualification rolls, nor does it prevent your character from receiving the full list of basic training skills from your first career; however, you do not receive any benefit rolls for this term.

Prerequisites: This specifies what is required of your character before you may attempt to enter the school. If you do not meet these requirements, you automatically fail the qualification roll.

Qualification: This specifies the roll or rolls needed to enter the school. If you fail the qualification roll, you do not lose any time and you may attempt to enter any other school for which you are qualified or proceed to your first career. You may not attempt to reapply to a school for which you failed qualification or that you have previously entered.

Skills: This lists the skills that the school may teach to your character. Upon a successful qualification roll, you may choose 3 of the skills from this list to acquire at 40%.

Events: This table specifies potential events in your character's life during the term. Roll 2d6 and consult this table after choosing your skills.

Graduation: This specifies the roll needed to graduate from this school. If successful you may increase one of the skills you chose on qualification to 60%. This section will list any additional benefits or special rules related to graduating from this school.

Honours: This specifies the roll needed to graduate with honours. If successful you may increase a second skill to 60%. This section also lists any additional benefits or rules related to graduating with honours.

University

Universities are institutions of higher learning that grant a variety of academic degrees. There are a number of private and public universities available that provide roughly equivalent educations.

Prerequisites: Edu 13 or more

Qualification: INTx5%

Skills:

Admin	Advocate	Athletics (any)
Art (any)	Broker	Carouse
Comms	Computer	Diplomat
Engineer (any)	Instruction	Investigate
Language (any)	Medic	Recruiting
Life Science (any)	Physical Science (any)	Social Science (any)
Space Science (any)	Trade	

Events:

2d6	Event
2	Injured – You were injured or became ill during the term. Roll on the injury table.
3	Party Animal - You spent a lot more time partying than studying. Gain a Contact. Also gain Carouse, Gambler, or Streetwise. Take a -20% Penalty on your Graduation and Honours rolls.
4	Athletics – you were involved in the university’s athletic programs, gain +1STR, +1 DEX, +1 CON, or Athletics (any). Roll CONx5% to avoid injury.
5	Broad range of studies - you may choose two additional skills at 40%.
6	Working Student – you worked your way through school. Gain Trade, Admin, or Steward at 40% or increase by +10% if you already have the skill.
7	Life Event – roll on the Life Events table.
8	Teaching assistant – gain Instruction and a contact.
9	Fraternity – you were recruited into a prominent fraternity or sorority. Gain Carouse at 40% or increase by +10% if you already have the skill. Roll SOCx5% to gain an Ally or 1d3 Contacts.
10	Internship – you were placed in an internship program. Choose any career and roll on the Service skills table. Gain a +20% on any future qualification roll for that career.
11	Concentrated study – gain a +20% to your Honours roll. If you succeed you may increase your chosen skill to 70%.
12	Mentor – an esteemed professor takes you under his wing. Take a +40% on your Graduation roll and Honours rolls.

Graduation: INTx4%

- Gain EDU 13 or +1 EDU, whichever is higher
- Take a +10% bonus on your next Qualification roll
- Automatic qualification for the Scholar career

Honors: INTx3%

- Gain +1 EDU
 - Take an additional +10% bonus on your next Qualification roll and +10% bonus on your next Advancement roll.
-

Naval Academy

The Naval Academy was instituted to ensure a source of qualified and capable officers for the Navy. While typically referred to as “The Academy,” there are actually a number of separate facilities that make up the institution. These facilities are usually attached to naval bases in or near sector and subsector capitals.

Prerequisites: EDU 13 or more, SOC 13 or more, 18 years old

Qualification: INTx4% and SOCx4%

Skills:

Admin	Astrogation	Athletics (any)
Comms	Computers	Diplomat
Engineer (any)	Gunner (any)	Instruction
Interrogation	Leadership	Medic
Pilot (any)	Recruiting	Remote Ops
Sensors	Tactics (Naval)	Vacc Suit
Weapon Engineering	Zero-G	

Events:

2d6	Event
2	Injured – You were injured during the term. Roll on the injury table.
3	Emergency duty – You are called into active duty. Roll on the Navy Service skills table. Roll INTx5% to avoid injury.
4	Marine Cross-training – roll on the Marine Service skills table.
5	Specialist Training – If you successfully graduate, gain an additional level of your chosen skill.
6	Technical School – Gain Comms, Sensors, or Medic.
7	Life Event – roll on the Life Events table.
8	Engineering School – Gain Engineering (any) or Mechanic.
9	Flight School – Gain Pilot (any) or Astrogation.
10	Command School – Gain Leadership or Tactics (naval).
11	Intelligence Training – Gain Investigation, Interrogation, or Deception.
12	You impress a senior officer and he takes an interest in your career. Take a +20% bonus on your Graduation roll and Honours rolls.

Graduation: INTx4%

- Gain EDU 13 or +1 EDU, whichever is higher
- Enter the Navy as an Ensign on your next term

Honors: INTx3%

- Gain +1 EDU or +1 SOC
- Take a +10% bonus on your next Advancement roll.

After completing the Naval Academy you are automatically enlisted in the Navy for your next term, whether or not you successfully graduated. If you graduate with Medic 60% or higher, you may apply to Medical School before enlisting in the Navy. Similarly, if you graduate with Pilot 60% or higher, you may apply to Flight School, before enlisting.

Military Academy

A number of military academies have been established with the intent of training a competent officer corps for the army. Most of these facilities are integrated into major army bases, while others are associated with civilian universities.

Prerequisites: EDU 13 or more, 18 years old

Qualification: INTx4% and CONx5%

Skills:

Admin	Athletics (any)	Advocate
Combat Engineering	Comms	Computers
Diplomat	Engineer (any)	Explosives
Instruction	Interrogation	Leadership
Medic	Navigation	Recon
Recruiting	Sensors	Survival
Tactics (Military)	Weapon Engineering	

Events:

2d6	Event
2	Injured – You were injured during the term. Roll on the injury table.
3	Emergency duty – You are called into active duty. Roll on the Army Service skills table. Roll CONx5% to avoid injury.
4	Commando School – Gain Recon, Stealth, or Explosives at 40% or increase by +10% if you already have the skill.
5	Specialist Training – If you successfully graduate, gain +20% to your chosen skill.
6	Technical School – Gain Combat Engineering, Weapon Engineering, or Medic at 40% or increase by +10% if you already have the skill.
7	Life Event – roll on the Life Events table.
8	Cavalry School – Gain Drive (any), Flyer (any) or Mechanic at 40% or increase by +10% if you already have the skill.
9	Ranger School – Gain Survival, Navigation, or Stealth at 40% or increase by +10% if you already have the skill.
10	Command Training – Gain Leadership or Tactics (military) at 40% or increase by +10% if you already have the skill.
11	Intelligence Training – Gain Investigation, Interrogation, or Deception at 40% or increase by +10% if you already have the skill.
12	You impress a senior officer and he takes an interest in your career. Take a +20% bonus on your Graduation roll and Honours rolls.

Graduation: CONx5%

- Gain EDU 13 or +1 EDU, whichever is higher
- Enter the Army as a Lieutenant on your next term

Honors: INTx3%

- Gain +1 EDU
- Take a +20% bonus to your next Advancement roll.

After completing the Military Academy you are automatically enlisted in the Army for your next term, whether or not you successfully graduated. If you graduate with Medic 60% or higher, you may apply to Medical School before enlisting in the Army.

Marine Academy

While the various Marine Academy sites are integrated into Naval Academy facilities, the students and classes are generally kept separated.

Prerequisites: EDU 13 or more, 18 years old

Qualification: INTx5% and CONx5%

Skills:

Admin	Athletics (any)	Advocate
Comms	Combat Engineering	Computers
Diplomat	Engineer (any)	Explosives
Gunner (Any)	Instruction	Interrogation
Leadership	Medic	Recon
Recruiting	Sensors	Tactics (Any)
Vacc Suit	Weapon Engineering	Zero-G

Events:

2d6	Event
2	Injured – You were injured during the term. Roll on the injury table.
3	Emergency duty – You are called into active duty. Roll on the Marine Service skills table. Roll Resilience to avoid injury.
4	Navy Cross-training – roll on the Navy Service skills table.
5	Specialist Training – If you successfully graduate, gain an additional level of your chosen skill.
6	Technical School – Gain Combat Engineering, Weapon Engineering, or Medic at 40% or increase by +10% if you already have the skill.
7	Life Event – roll on the Life Events table.
8	Assault/Security School – Gain Vacc Suit, Zero-G, or Melee (blade) at 40% or increase by +10% if you already have the skill.
9	Drop School – Gain Battledress, Gunner (any), or Heavy Weapons at 40% or increase by +10% if you already have the skill.
10	Command Training – Gain Leadership or Tactics (any) at 40% or increase by +10% if you already have the skill.
11	Commando School – Gain Recon, Stealth, or Explosives at 40% or increase by +10% if you already have the skill.
12	You impress a senior officer and he takes an interest in your career. Take a +20% bonus on your Graduation roll and Honors rolls.

Graduation: CONx5%

- Gain EDU 13 or +1 EDU, whichever is higher
- Enter the Marines as a Lieutenant on your next term

Honors: INTx5%

- Gain +1 EDU
- Take a +20% bonus to your next Advancement roll.

After completing the Marine Academy you are automatically enlisted in the Marines for your next term, whether or not you successfully graduated.

Merchant Academy

Major interstellar shipping corporations have found the same need for a competent officer corps as the various military services. Merchant academies, while similar to traditional civilian universities in many ways, have a much greater focus on the practical application of the skills needed in commercial spacecraft.

Prerequisites: EDU 13 or more

Qualification: INTx5% and SOCx5%
-40% penalty if older than 22

Skills:

Admin	Advocate	Astrogation
Broker	Comms	Computers
Engineer (any)	Instruction	Language (any)
Medic	Persuade	Pilot (any)
Recruiting	Sensors	Social Science (any)
Steward	Vacc Suit	Zero-G

Events:

2d6	Event
2	Injured – You were injured or fell ill during the term. Roll on the injury table.
3	You spent a lot of your time “networking” with other students and staff. Gain Carouse and 1d3 contacts, but take a -20% penalty to your Honors roll.
4	You discover cutthroat competition in the industry and have an opportunity to backstab another student. Accept and gain a Rival and a +20% bonus to Graduation and Honors rolls. Refuse and gain an Ally.
5	Technical Training – Gain Comms, Sensors, or Computers.
6	Apprenticeship – you served onboard a trading vessel as part of your training. Gain a contact and Vacc Suit or Zero-G at 40% or increase by +10% if you already have the skill.
7	Life Event – roll on the Life Events table.
8	Personal Assistant – you were assigned as an assistant to an important officer. Gain Steward and either a +20% bonus to your Honors roll or a Contact.
9	Administrative Training – Gain Admin, Advocate, or Broker at 40% or increase by +10% if you already have the skill.
10	Flight School – Gain Pilot (any) or Astrogation at 40% or increase by +10% if you already have the skill.
11	Security Training – Gain Gunner (turret), Gun Combat (any) or Melee (any) at 40% or increase by +10% if you already have the skill.
12	A senior officer takes an interest in your career. Take a +20% bonus on your Graduation roll and Honors rolls.

Graduation: INTx3%

- Gain Edu 13 or +1 EDU, whichever is higher
- Enter the Merchants as Senior Crewman on your next term
- Take a +10% bonus on your next Advancement roll.

Honors: SOCx4%

- Take an additional +20% bonus on your next Advancement roll.

After completing the Merchant Academy you are automatically enlisted in the Merchants (Merchant Marine) for your next term, whether or not you successfully graduated. If you graduate with Pilot 60% or higher, you may apply to Flight School, before enlisting.

Graduate School

Graduate Schools award advanced academic degrees to students who wish to continue their education following their university program. Many universities award graduate degrees; a graduate school is not necessarily a separate institution.

Prerequisites: Graduated from University

Qualification: INTx5%

Skills: (No skills are automatically gained on qualification)

Admin	Advocate	Art (any)
Broker	Computer	Diplomat
Engineer (any)	Instruction	Investigate
Language (any)	Medic	Recruiting
Life Science (any)	Physical Science (any)	Social Science (any)
Space Science (any)		

Events:

2d6	Event
2	Injured – You were injured or became ill during the term. Roll on the injury table.
3	Graduate Assistant – Your studies suffered due to the amount of time spent serving a professor. Gain a Contact. Also gain Admin, Steward, or Diplomat. Take a -20% penalty to your Graduation and Honors rolls.
4	Field Research – you spent a lot of time in the field doing research. Gain Survival, Vacc Suit, Diplomat, or Streetwise at 40% or increase by +10% if you already have the skill
5	Corporate Sponsor – your research was sponsored through a corporate grant. Roll once on the Scholar cash benefits table. (This does not count against your limit of rolls for Cash benefits.)
6	Travel – you traveled extensively during the course of your studies. Gain Language at 40% or increase by +10% if you already have the skill or a Contact
7	Life Event – roll on the Life Events table.
8	Teaching assistant – gain Instruction at 40% or increase by +10% if you already have the skill and a Contact.
9	Networking – your studies bring you to the attention of the high and mighty. Gain +1 SOC
10	Secret Project – you were involved in a top secret research project. Gain a military, noble, or scientist Ally
11	Concentrated studies – gain a +20% bonus on your Graduation and Honor rolls.
12	Mentor – an esteemed professor takes you under his wing. You automatically graduate and gain a +20% bonus to your Honors roll. If you graduate with Honors, gain the professor as an Ally.

Graduation: INTx5%

- Gain +1 EDU
- Take a +10% bonus on your next Qualification roll and +10% bonus on your next Advancement roll.
- Instead of the normal skill gain, you may choose any one of the listed skills you already have, and gain one level.

Honors: INTx4%

- Gain +1 EDU
 - Instead of the normal skill gain, you gain an additional level in your graduation skill.
 - Take an additional +10% bonus to your next Qualification roll and +10% bonus to your next Advancement roll.
-

Medical School

Medical Schools provide advanced training for those who wish to pursue careers as physicians and medical researchers.

Prerequisites: Graduated from University, Naval Academy, or Military Academy
Medic 60% or higher

Qualification: INTx5%

Skills:

Admin	Advocate	Art (writing or holography)
Comms	Computer	Diplomat
Engineer (life support)	Instruction	Investigate
Language (any)	Life Science (any)	Physical Science (any)
Social Science (any)	Sensors	

Events:

2d6	Event
2	Injured – You were injured or became ill during the term. Roll on the injury table.
3	Hospital Duties – you spent long grueling hours working in a hospital. Roll Resilience to gain 1d3 contacts and one of the listed skills.
4	Mission of Mercy – you were assigned to a medical team working on a primitive colony. Gain Survival, Navigation, or Recon at 40% or increase by +10% if you already have the skill
5	Military assignment – you were conscripted to provide emergency medical care in a war zone. Roll Resilience to avoid injury. Gain Recon or Stealth at 40% or increase by +10% if you already have the skill and a military Ally.
6	Travel – you traveled extensively during the course of your studies. Gain Language at 40% or increase by +10% if you already have the skill or a Contact
7	Life Event – roll on the Life Events table.
8	Teaching assistant – gain Instruction at 40% or increase by +10% if you already have the skill and a Contact.
9	High Profile – your studies bring extended contact with the nobility. Gain +1 SOC
10	Medical Research – you were involved in a successful and profitable research program. Roll on either Scholar benefits table. (This does not count against your limit of rolls for Cash benefits.)
11	Concentrated studies – gain a +20% bonus on your Graduation and Honor rolls.
12	Mentor – an esteemed professor takes you under his wing. You automatically graduate and gain a +20% bonus to your Honors roll. If you graduate with Honors, gain the professor as an Ally.

Graduation: INTx5%

- Gain +1 EDU or +1 SOC
- +20% bonus to your next Advancement roll in the Scholar career.
- Gain Medic at 40% or increase by +10% if you already have the skill

Honors: INTx4%

- Gain +1 EDU or +1 SOC
 - Gain +20% in Medic
 - Take an additional +20% bonus to your next Advancement roll in the Scholar career
-

Flight School

Flight schools provide intensive advanced training for starship pilots.

Prerequisites: Graduated from Naval Academy or Merchant Academy
Pilot (any) 60% or more

Qualification: INTx5% and DEXx5%

Skills:

Astrogation	Comms	Computers
Engineer (any)	Flyer (grav)	Gunner (any)
Leadership	Remote Ops	Sensors
Space Science (any)	Tactics (Naval)	Vacc Suit
Zero-G		

Events:

2d6	Event
2	Injured – You were injured during the term. Roll on the injury table.
3	Emergency duty – You are called into active duty. Roll Int 6+ to avoid injury. Gain Tactics (Naval), Gunner (any), or Engineer (any) at 40% or increase by +10% if you already have the skill
4	Intensive Reflex Training – gain +1 DEX
5	Specialist Training – If you successfully graduate, gain +20% in your chosen skill.
6	Technical Training – Gain Comms, Sensors, or Remote Ops at 40% or increase by +10% if you already have the skill.
7	Life Event – roll on the Life Events table.
8	Engineering Training – Gain Engineering (any) or Mechanic at 40% or increase by +10% if you already have the skill.
9	Navigator Training – Gain Computers or Astrogation at 40% or increase by +10% if you already have the skill.
10	Command School – Gain Leadership or Tactics (naval) at 40% or increase by +10% if you already have the skill.
11	Focused Training – Gain Pilot (any) at 40% or increase by +10% if you already have the skill
12	You impress a senior officer and he takes an interest in your career. Take a +20% bonus to your Graduation roll and Honors rolls.

Graduation: INTx5% and DEXx5%

- Gain Pilot (any) at 40% or increase by +10% if you already have the skill
- Take a +10% bonus to your next Advancement roll in the Navy or Merchants

Honors: INTx4% and DEXx4%

- Gain Pilot (any) at 40% or increase by +10% if you already have the skill
- Take an additional +10% bonus to your next Advancement roll in the Navy or Merchants

CHAPTER 2: Aliens

An Alien is a member of an extra-terrestrial, non-human species. Of course, humans are aliens to those species. Sci-Fi RQ is a rules SRD, not a setting SRD, so the species covered will be very limited. Humans are the main species to be covered, but other species are mentioned, mainly to show the differences between different species. Inclusion of different sample species is not meant as a challenge to copyright and any species that is copyrighted will be removed once that copyright has been identified.

Species or Race?

Many Roleplaying Games use the term Race to indicate another type of creature or being. Sci-Fi RQ uses the term Species and Race interchangeably. My original intention was to simply use the term "Species" because each individual species may have separate races within that species, in the same way that humans have races within itself. However, the term "Human Race" is as valid as "Minbari Race", "Aslan Race" or "Klingon Race", so the RQ Sci-Fi SRD will be using Species and Race, preferring to use terms such as racial where there is no suitable term derived from "species". Where there are subtypes of a species, the RQ Sci-Fi SRD will use the term "Sub-Race" for clarity and to avoid confusion with the term "Race". Confused? You will be ...

Traits

In addition to their characteristics, aliens may have one or more alien traits. Some traits are described here, but this is not an exhaustive list. GMs and players should feel free to develop other traits for new Alien Races as they are encountered.

Armoured: The alien possess thick fur, scales, a bony exoskeleton or other natural protection that gives it natural armour of at least one point.

Aquatic: The alien is adapted to life underwater. It can breathe underwater, or hold its breath for a long period (CON x 10 minutes on average). If amphibious, its Dexterity is halved on land. If the species is not amphibious, then it cannot operate out of water without mechanical aid or telepresence.

Atmospheric Requirements: The species requires an unusual combination of gases to breathe and cannot survive in most atmospheres without artificial aid.

Dark Sight: Allows the character to treat pitch-black conditions as dark. Normally possessed by subterranean creatures and aliens evolved from them.

Engineered: The species has been altered by some external factor to adapt to changed circumstances or a different environment. Medical treatment of Engineered species by a facility of a lower Technology Level than that at which the species was created receives a negative modifier equal to the difference between Technology Levels x 10%.

Fast Metabolism: Creatures with a fast metabolism require more food than most species, and their life support costs are doubled. In combat, fast-metabolism creatures gain a +5 initiative bonus. Fast-metabolism creatures halve their CON for the purposes of determining fatigue.

Feral: Feral species are uncivilised, regardless of their technological knowledge. Feral species roll Education on 2d6 only.

Flyer: The species can fly using wings, glider membranes, gasbags or other means. Characters of this species gain the Athletics (flying) skill at STR+DEX and can travel at a speed noted in their description. Flying creatures who are aloft must spend action every round on movement or stall and fall out of the air.

- Winged flight is tiring and can only be sustained for a number of rounds equal to the creature's CON before requiring a like amount of rest. Some specialised avians can increase this to minutes or even hours equal to CON.
- Species with glider membranes cannot gain altitude while flying. They descend one metre every time they move forwards and cannot use more than one action for flying movement in a round.
- Species that float using gasbags or some other method do not need to move to remain aloft.

Hive Mind: The species has two states of mind, first and foremost a Hive Mind to which all the component individuals contribute and secondly an individual personality that may, or may not, have individualist properties. Members of a Hive Mind normally have constant contact with the Hive Mind when they are within a certain distance of any other members of the Hive, this is a natural ability as a consequence of the Hive Mind and is not a normal Psionic Talent or Power.

Insectoid: The species has a similar body-shape to an insect. Limbs are generally secondary and the loss of a limb is a minor drawback at best and does not cause System Shock or loss of functionality, except for the physical loss. Insectoid species are not necessarily related to real world insects, but simply have a similar physiology.

Internal: The species exists inside a host of some kind, living entirely within the host. The species may be a parasite, a symbiot or simply be hitching a ride. It may be a physical being or made of some kind of living energy. Sometimes the creature can exert some kind of control over its host.

Keen Smell: The species has a keen sense of smell and can use this to track people or identify strange scents. They have access to the Perception (Smell) speciality.

Large: The species is considerably larger than the average for sophonts. Life support requirements for Large creatures are doubled.

- Some Large creatures are described as Huge. Attacks against Huge creatures receive a +20% bonus to hit.

Natural Weapon: The species has a natural weapon, such as claws, a strong bite or a poisonous stinger. Such weapons are usable in melee combat. The creature gains Melee (natural weapons) at STR+DEX.

Night Sight

Allows the character to treat partial darkness as illuminated and darkness as partial darkness. Normally possessed by nocturnal creatures.

No Fine Manipulators: The species has no fingers or other prehensile appendages, preventing them from easily picking things up, pushing small buttons, reaching into tight spaces, and so on.

Parasitic: The species is a parasite and lives off another species. Often, such parasites cannot survive well without their hosts.

Poison: The species has a poisonous attack. Each species will have its own type of poison that can be delivered in a particular way. Some species have poisonous bites, spines, skin, spit or saliva.

Psionic: All members of the species are Psionic, and may determine their Psionic Strength and talents at the start of character generation.

Regeneration: The species regains hit points at an exceptionally fast rate, usually 1 or more hit points per round. Regeneration stops working when a creature is killed. Except as noted here, regeneration works just like natural healing.

Regeneration doesn't provide any benefit against attack forms that don't deal hit point damage, nor does it restore hit points lost to starvation, thirst, or suffocation, and it doesn't allow a creature to regrow or reattach severed body parts.

Small: The minimum size for a sophont is about half that of a human,

- Some Small creatures are described as Tiny. Attacks against Tiny creatures receive a –20% to hit.

Slow Metabolism: Creatures with a slow metabolism require less food than most species, and their life support costs are halved. In combat, slow-metabolism creatures suffer a –5 initiative penalty.

Symbiotic: The species has a symbiotic relationship with another, in other words the relationship enriches and enhances both partners. This differs from a Parasitic Trait in that a Parasite is normally harmful to the partner whereas a Symbiot is beneficial.

Uplifted: This species was originally non-sentient, but has been raised to a higher intelligence by another species. Uplifted races generally become client species of their patron. Two common uplifted animals are apes and dolphins:

Sample Aliens

Many Sci-Fi settings have aliens and many of these aliens have been described in great detail. Where those have been described previously in RQ/RQ terms and are freely available over the Internet, I have included sample stats for them. Obviously, if these are found to be infringing copyright and a complaint is sent to me at soltakss@yahoo.com then I will remove that race.

Aliens from the Traveller Setting

Aslan Characteristics Table

Characteristic	Abbreviation	Normal	Player Character	Genetically Engineered
Strength	STR	3D6+2	4D6(B3)+2	5D6(B3)+2
Constitution	CON	3D6	4D6(B3)	5D6(B3)
Dexterity	DEX	3D6	4D6(B3)	5D6(B3)
Size	SIZ	2D6+8	2D6+6	2D6+8
Intelligence (Male)	INT	2D6+4	2D6+4	4D6(B2)+ 4
Intelligence (Female)	INT	2D6+6	2D6+6	4D6(B2)+ 6
Power	POW	3D6	4D6(B3)	5D6(B3)
Charisma	CHA	3D6	4D6(B3)	5D6(B3)
Education	EDU	3D6	4D6(B3)	5D6(B3)
Social Standing	SOC	3D6	4D6(B3)	5D6(B3)
Psionic Strength	PSI	3D6	4D6(B3)	5D6(B3)

Aslan Hit Locations

D20	Hit Location
1–3	Right Leg
4–6	Left Leg
7–9	Abdomen
10–12	Chest
13–15	Right Arm
16–18	Left Arm
19–20	Head

Movement: 4m

Traits: Natural Weapons (Claws), Night Sight

Droeyne Characteristics Table

Characteristic	Abbreviation	Normal	Player Character	Genetically Engineered
Strength	STR	2D6+3	3D6(B2)+3	4D6(B3)+3
Constitution	CON	1D6+10	2D6(B1)+10	3D6(B1)+10
Dexterity	DEX	3D6	4D6(B3)	5D6(B3)
Size	SIZ	2D6+3	2D6+3	2D6+3
Length	LEN	2D6+6	2D6+6	2D6+6
Mass	MAS	2D6	2D6	2D6
Intelligence	INT	2D6+6	2D6+6	4D6(B2)+ 6
Power	POW	2D6+6	3D6(B3)+6	4D6(B2)+6
Charisma	CHA	3D6	4D6(B3)	5D6(B3)
Education	EDU	3D6	4D6(B3)	5D6(B3)
Social Standing	SOC	3D6	4D6(B3)	5D6(B3)
Psionic Strength	PSI	2D6+6	3D6(B2)+6	4D6(B2)+6

Droeyne Hit Locations

D20	Hit Location
1–3	Right Leg
4–6	Left Leg
7–8	Abdomen
9	Right Wing
10	Left Wing
11–12	Chest
13–15	Right Arm
16–18	Left Arm
19–20	Head

Movement: 4m / 10m Flying

Traits: Flyer, Psionic

Droeyne are lizard-like creatures.

Hivers Characteristics Table

Characteristic	Abbreviation	Normal	Player Character	Genetically Engineered
Strength	STR	2D6	3D6(B2)	4D6(B2)
Constitution	CON	3D6	4D6(B3)	5D6(B3)
Dexterity	DEX	3D6	4D6(B3)	5D6(B3)
Size	SIZ	2D6	3D6(B2)	4D6(B2)
Intelligence	INT	3D6+6	3D6+6	5D6(B3)+ 6
Power	POW	3D6	4D6(B3)	5D6(B3)
Charisma	CHA	3D6	4D6(B3)	5D6(B3)
Education	EDU	3D6	4D6(B3)	5D6(B3)
Social Standing	SOC	3D6	4D6(B3)	5D6(B3)
Psionic Strength	PSI	3D6	4D6(B3)	5D6(B3)

Hiver Hit Locations

D20	Hit Location
1–3	First Limb
4–6	Second Limb
7–9	Third Limb
10–12	Fourth Limb
13–15	Fifth Limb
16–18	Body
19–20	Head Limb

Movement: 4m

Hivers look like great sea stars.

Vargr Characteristics Table

Characteristic	Abbreviation	Normal	Player Character	Genetically Engineered
Strength	STR	3D6+2	4D6(B3)+2	5D6(B3)+2
Constitution	CON	3D6+2	4D6(B3)+2	5D6(B3)+2
Dexterity	DEX	3D6	4D6(B3)	5D6(B3)
Size	SIZ	2D6+6	2D6+6	2D6+6
Intelligence	INT	2D6+6	2D6+6	4D6(B2)+ 6
Power	POW	3D6	4D6(B3)	5D6(B3)
Charisma	CHA	3D6	4D6(B3)	5D6(B3)
Education	EDU	3D6	4D6(B3)	5D6(B3)
Social Standing	SOC	3D6	4D6(B3)	5D6(B3)
Psionic Strength	PSI	3D6	4D6(B3)	5D6(B3)

Traits: Keen Smell, Uplifted

Vargr resemble uplifted dogs.

Zhodani Characteristics Table

Characteristic	Abbreviation	Normal	Player Character	Genetically Engineered
Strength	STR	3D6	4D6(B3)	5D6(B3)
Constitution	CON	3D6	4D6(B3)	5D6(B3)
Dexterity	DEX	3D6	4D6(B3)	5D6(B3)
Size	SIZ	2D6+6	2D6+6	2D6+6
Length	LEN	2D6+9	2D6+9	2D6+9
Mass	MAS	2D6+3	2D6+3	2D6+3
Intelligence	INT	2D6+6	2D6+6	4D6(B2)+ 6
Power	POW	3D6	4D6(B3)	5D6(B3)
Charisma	CHA	3D6	4D6(B3)	5D6(B3)
Education	EDU	3D6	4D6(B3)	5D6(B3)
Social Standing	SOC	3D6	4D6(B3)	5D6(B3)
Psionic Strength	PSI	2D6+6	3D6(B2)+6	4D6(B2)+6

Traits: Psionic

Zhodani are a branch of humankind.

Aliens from the Future World Setting

Quertzl Scout Characteristics Table

Characteristic	Abbreviation	Normal	Player Character	Genetically Engineered
Strength	STR	1D6+2	2D6+2(B1)	3D6+2(B1)
Constitution	CON	1D6+2	2D6+2(B1)	3D6+2(B1)
Dexterity	DEX	4D6+3	5D6+3(B4)	6D6+3(B4)
Size	SIZ	1D6+3	1D6+3	1D6+3
Intelligence	INT	18	18	18
Power	POW	3	3	3
Charisma	CHA	1D6+3	2D6+3(B1)	3D6+3(B1)
Education	EDU	-	-	-
Social Standing	SOC	-	-	-
Psionic Strength	PSI	-	-	-

Traits: Hive Mind, Insectoid

Vargr Hit Locations

D20	Hit Location
1–3	Right Leg
4–6	Left Leg
7–9	Abdomen
10	Tail
11-12	Chest
13–15	Right Arm
16–18	Left Arm
19–20	Head

Movement: 4m

Zhodani Hit Locations

D20	Hit Location
1–3	Right Leg
4–6	Left Leg
7–9	Abdomen
10–12	Chest
13–15	Right Arm
16–18	Left Arm
19–20	Head

Movement: 4m

Scout Hit Locations

D20	Hit Location
1–3	Right Leg
4–6	Left Leg
7–9	Abdomen
10–12	Thorax
13–15	Right Arm
16–18	Left Arm
19–20	Head

Movement: 4m

Quertzl Beetle Characteristics Table

Characteristic	Abbreviation	Normal	Player Character	Genetically Engineered
Strength	STR	4D6+6	5D6+6(B4)	6D6+6(B4)
Constitution	CON	3D6	4D6(B3)	5D6(B3)
Dexterity	DEX	3D6	4D6(B3)	5D6(B3)
Size	SIZ	4D6+6	4D6+6	4D6+6
Intelligence	INT	18	18	18
Power	POW	3	3	3
Charisma	CHA	1D6	2D6(B1)	3D6(B1)
Education	EDU	-	-	-
Social Standing	SOC	-	-	-
Psionic Strength	PSI	-	-	-

Traits: Armoured (4 points), Hive Mind, Insectoid

Quertzl Drone Characteristics Table

Characteristic	Abbreviation	Normal	Player Character	Genetically Engineered
Strength	STR	2D6+6	3D6+6(B2)	4D6+6(B2)
Constitution	CON	3D6	4D6(B3)	5D6(B3)
Dexterity	DEX	1D6+6	2D6+6(B1)	3D6+6(B1)
Size	SIZ	2D6+6	2D6+6	2D6+6
Intelligence	INT	18	18	18
Power	POW	3	3	3
Charisma	CHA	1D6	2D6(B1)	3D6(B1)
Education	EDU	-	-	-
Social Standing	SOC	-	-	-
Psionic Strength	PSI	-	-	-

Traits: Hive Mind, Insectoid

Sauriki Characteristics Table

Characteristic	Abbreviation	Normal	Player Character	Genetically Engineered
Strength	STR	3D6	4D6(B3)	5D6(B3)
Constitution	CON	2D6+2	3D6+2(B2)	4D6+2(B2)
Dexterity	DEX	3D6+3	4D6+3(B3)	5D6+3(B3)
Size	SIZ	2D6+2	2D6+6	2D6+6
Intelligence	INT	3D6+3	4D6+3(B3)	5D6+3(B3)
Power	POW	3D6	4D6(B3)	5D6(B3)
Charisma	CHA	3D6	4D6(B3)	5D6(B3)
Education	EDU	3D6	4D6(B3)	5D6(B3)
Social Standing	SOC	3D6	4D6(B3)	5D6(B3)
Psionic Strength	PSI	3D6+3	4D6+3(B3)	5D6+3(B3)

Traits: Psionic

Rumahl Characteristics Table

Characteristic	Abbreviation	Normal	Player Character	Genetically Engineered
Strength	STR	4D6+3	5D6+3(B4)	6D6+3(B4)
Constitution	CON	4D6	5D6(B4)	6D6(B4)
Dexterity	DEX	1D6+6	2D6+6(B1)	3D6+6(B1)
Size	SIZ	4D6+3	4D6+3	4D6+3
Intelligence	INT	3D6	4D6(B3)	5D6(B3)
Power	POW	3D6+6	4D6+6(B3)	5D6+6(B3)
Charisma	CHA	3D6	4D6(B3)	5D6(B3)
Education	EDU	3D6	4D6(B3)	5D6(B3)
Social Standing	SOC	3D6	4D6(B3)	5D6(B3)
Psionic Strength	PSI	3D6	4D6(B3)	5D6(B3)

Traits: Keen Smell

Beetle Hit Locations

D20	Hit Location
1–3	Right Leg
4–6	Left Leg
7–9	Abdomen
10–12	Thorax
13–15	Right Arm
16–18	Left Arm
19–20	Head

Movement: 3m

Drone Hit Locations

D20	Hit Location
1–3	Right Leg
4–6	Left Leg
7–9	Abdomen
10–12	Thorax
13–15	Right Arm
16–18	Left Arm
19–20	Head

Movement: 4m

Sauriki Hit Locations

D20	Hit Location
1–3	Right Leg
4–6	Left Leg
7	Tail
8–9	Abdomen
10–12	Chest
13–15	Right Arm
16–18	Left Arm
19–20	Head

Movement: 3m

Rumahl Hit Locations

D20	Hit Location
1–3	Right Leg
4–6	Left Leg
7–9	Abdomen
10–12	Chest
13–15	Right Arm
16–18	Left Arm
19–20	Head

Movement: 4m

Changes in Characteristics

Some Alien Species use characteristics in strange ways. Here we look at some of the ways that these characteristics differ from the norm.

Social Standing

Alien species may have different criteria for Social Standing: Caste or Charisma. When dealing with a species that has a different concept of Social Standing, all benefits or penalties from Social Standing or its alien equivalent – whether positive or negative – are halved.

Alien Evolution

There are many types of Alien in Sci-Fi settings and this raises several important questions - Why are many aliens humanoid? Why are many aliens similar to others? How are alien species related if they evolved separately?

This probably won't answer many of these questions, but is my own view of how aliens evolved.

Isolated Evolution

Evolution has happened many times in many places. Most of the time, life is formed and remains simple. Sometimes it evolves to higher beings and very, very occasionally to Sophonts, but this is extremely rare. Life in these conditions will possibly be unlike life anywhere else in the Galaxy/Universe. Often life forms will not be recognisable as life forms or will be drastically different to anything we have encountered before.

Alien Seeding

For whatever reason, aliens interfered, or started, the evolutionary process on many worlds. One or more species of aliens seeded thousands, or even millions, of worlds with primitive life forms from their own planets in a primitive attempt at Terraforming. This seeding resulted in life forming on many of those worlds and evolution began to change the life forms. Since many of those worlds had the same basic DNA, evolution happened in similar ways, so the same types of life emerged. Many of these life forms evolved into intelligent sophonts, but many did not. As on Earth, there were extinction events that wiped out some forms but not others, so that the Sophonts that evolved were of different families of life forms. So, with an evolutionary tree based on similar life to that found on the Earth, Sophonts could come from Insectoid, Amphibian, Reptilian, Avian and Mammalian stock

Alien Intervention

Similar to Alien Seeding, Alien Intervention occurs when an alien species decides, for whatever reason, to give the evolutionary process a kick-start. This can be done through genetic manipulation, selective breeding, unnatural selection, climatic changes or through other means unknown to us at this time. The results can mean that a species evolves faster and in a different direction than would otherwise have naturally occurred.

Alien Transplantation

This is when an alien species takes a life form from one planet and moves it to another. The new planet may well support the life form and it could flourish as it is. Alternatively, the life form may find severe evolutionary pressures and may undergo a process of rapid evolution to cope with the changes.

Convergent Evolution

Aliens sharing similar evolutionary conditions will often develop similar evolutionary strategies and even develop similar ways of doing things. So, aliens that fly often share similar traits simply because they are the most efficient way of flying.

Essential Evolution

Evolution happens the way it does because that is the way that evolution works. Genes work the way they do because no other mechanism works as well. The same patterns of genes occur over and over again because they work the best. Life evolves independently on other planets in similar ways because that's the way that life must evolve, that's the best way and that's what happens. So, most life forms will be carbon-based because only carbon produces the correct types of long-chain chemicals, most life requires water and so on.

Which is Correct?

Probably all, some or none of them. My favourite rationale of aliens and their interactions involves different chains of events. Life evolves independently on several planets and produces intelligent life. Some of these decide to seed other planets to generate inhabitable planets for their descendents, as they don't have Jump or Hyperspace Technology they send ships out to many planets to seed them. For some reason they never follow up on their work and the life that forms is allowed to evolve naturally. Later other life forms either evolve independently or evolve from those species, achieve interstellar travel technology and travel to other worlds. They try Terraforming those worlds and this changes the worlds sufficiently to accelerate evolution. Some aliens begin Terraforming worlds but never complete the job, others Terraform and settle alien worlds. Some aliens decide to accelerate evolution by manipulating the genes of those creatures they find or introduce new species to a planet in order to cross-breed or settle the planet.

Some species are uplifted and made artificially intelligent. Eventually, the aliens that enhanced evolution evolve themselves and disappear leaving other species to achieve intelligence and start the whole process again.

Servitor Races

As a species evolves and becomes more intelligent and more advanced it will use other creatures to do work for them. On Earth, we have domesticated many animals and created new breeds through selective breeding and genetic manipulation. As we advance, we find there are more and more tasks that we do not want to do ourselves, so we look to others to do those tasks for us. As Aliens become Space Travellers they will encounter many different species, some intelligent, some near intelligent and some unintelligent. They may well take some of the intelligent species and use them as slaves, as servants or as secondary species, trained to perform certain tasks. These are known as Servitor Races and are considered to be lesser by many races.

However, many Servitor Races are technologically and culturally advanced because they have not had to develop their own technology or culture. A race that has been brought to a new planet to grow crops for a decadent and lazy species will have access to more technology, food and knowledge than it did before. Eventually a Servitor Race may be able to break free of its chains and become an independent race. Alternatively, the master race may evolve sufficiently to set the Servitor race free or to leave the Servitor Race behind. The Servitor Race itself may well evolve to a certain point and require Servitor Races of its own, creating a hierarchy of Servitor Races, each master to one and servant of another.

There are many examples of Servitor races in Sci-Fi TV Series, Films and Books. The Apes in Planet of the Apes were originally developed as domestic servants and Uplifted to true intelligence. The living ships of Farscape are Servitors of the Peacekeepers. In the Babylon 5 Series, the Drakh are Servitors of the Shadows, Zathras seems to belong to a Servitor Race serving the Great Machine on Epsilon 5. The aliens of the Alien nation Film and TV Series are another Servitor race, genetically engineered to work as miners.

What does it mean to be a member of a Servitor Race? Firstly, you have a place in the Universe that is well-defined. Secondly, you have a purpose and a reason for living. Thirdly you are a slave, of some kind. Many people will consider you inferior but will not make an issue of it because of your powerful masters. Perhaps you rankle against your position and want to be free to make your way in the Universe. Perhaps you fight against you masters to become free. Perhaps you serve your masters loyally and want to impress them. Whatever the case, being a member of a Servitor Race is neither a good nor a bad thing.

Future Evolution

What is going to happen in the future? How are races going to evolve, both physically and culturally?

The classic goal of physical evolution in many Sci-Fi settings is to transcend the physical body and become beings of energy. In doing so, several stages seem to be fairly common:

- **Abandoning Brutishness:** As races become more advanced, they tend to abandon their primitive, brutish natures, becoming more refined.
- **Losing Unnecessary Bodily Parts:** Many of the more primitive features of the body are lost as they become more and more redundant.
- **Longevity or Immortality:** Many races seem to become very long lived, or even immortal on their evolutionary journey.
- **Loss of Reproduction:** As races become longer lived and less brutish, they lose the will and ability to reproduce, replacing this with artificial reproduction and, eventually, with immortality and no need for reproduction.

All this has a price, however, and many a Sci-Fi story has turned on the fact that an alien race has need of some part of it that has been left behind on the evolutionary journey and turns to a more primitive race, such as ourselves, to provide that primitive or brutish essence.

Cultural evolution also seems necessary. We have seen this in our own society where we have, to a large extent, abandoned primitive urges and have become less barbarous and violent and more civilised and gentle. Currently, we are advancing technologically at the fastest rate that we have ever achieved. How long can this go on for? I see a point in time where this is seen as a childish and primitive trait that is abandoned by more advanced cultures.

Some of the stages of cultural evolution seem to be:

- The development of civilisation
- The development of agriculture
- The development of industry
- The development of technology
- The abandonment of superstition
- Expansion to other places and worlds
- Introspection and the development of the inner self
- Focussing on the spiritual and philosophical side of life
- Becoming spiritual/energy beings

CHAPTER 3: Skills

Skill Tests

Roll D100 and compare this to the relevant skill's score. If the dice roll is equal to or less than the skill's score, the attempt is successful. If the total is greater than the skill's score, then it has failed.

Difficulty & Haste

Any modifiers are temporarily applied to the skill for the duration of the test only. A penalty will make the test harder while a bonus makes it easier. Where several modifiers can be applied to the same test, they will all have an effect, 'stacking' to make one final bonus or penalty.

Difficulty and Haste Modifiers

Difficulty	Time Taken	Test Modifier
Very Easy	Ten times normal time	+60%
Easy	Five times normal time	+40%
Simple	Double normal time	+20%
Normal	Normal time	+0%
Difficult	—	−20%
Hard	Half normal time	−40%
Very Hard	—	−60%
Nearly Impossible	Almost instantly	−80%

Critical Successes

If the dice roll in a test is equal to or less than 10% of the modified skill, then a critical success has been achieved.

The actual result of a critical success during a test is largely up to the Games Master. It normally achieves one of the following results:

- The task is completed sooner.
- The task is completed to a higher degree of expertise than normal.
- The task is completed with élan and style, generally impressing witnesses.
- The character gains additional information or insight into the task thanks to their brilliance.

Fumbles

Whenever a skill test results in a roll of 00, the character is assumed to have fumbled the roll.

The actual result of a fumble is largely up to the Games Master to decide. It normally results in one of the following mishaps:

- The task takes twice as long to finish and is still a failure.
- The task produces a useless result, that actually makes further actions more difficult.
- The task is failed spectacularly, opening the character up to derision and scorn from witnesses.
- The character becomes impeded or even harmed by his failure.

Automatic Success & Failure

- Any test result of 01 to 05 is an automatic success.
- Any test result of 96 to 00 is an automatic failure (and, in the case of 00, a fumble).

Opposed Tests

Opposed tests are made by both characters attempting the relevant skill test. Both characters make the tests as normal, rolling 1D100 and attempting to roll equal to or under their skill.

One Character Succeeds

If one character succeeds their test and the other fails, the successful character has won the opposed test.

Both Characters Succeed

Whoever rolled the highest in their skill test wins the opposed test.

Both Characters Fail

A complete failure of the contest with no success for either side.

Critical Successes

Any critical success rolled beats a normal success no matter how highly the opponent has rolled. If both participants roll a critical, the higher critical roll wins the opposed test.

Very High Skills

Very High Skills and Automatic Failure

For normal skill tests, this means that the character simply has only a very small chance of failing in their specialised skill (the usual 96 to 00 chance of failure, with 00 being a fumble). However, once a character's skill score reaches 200% in a particular skill, they only suffer a failure on 97 to 00 when rolling tests with that skill, with 00 still being a fumble. Once a character reaches 300%, the failure chance reduces to 98 to 00. At 400%, the chance is reduced to 99 to 00. Finally, at 500%, the character will only fail on a roll of 00 and this is not considered a fumble.

Very High Skills and Opposed Tests

- Apply all relevant test modifiers to both skills.
- Participants roll against their skills.
- Note whether the dice rolls were a critical, normal success or failure (for participants with skills of 100% or more this will only be on a roll of 96-00). A critical success always beats a normal success.
- If the dice roll was a normal success, participants with skills exceeding 100% may now add the difference between 100 and their skill value. Ignore the fact 96-00 is an automatic failure; that is only applicable to the initial dice roll, and not the modified result.

Group Tests

With a group test, the Games Master may make a single percentile roll to determine the success of a group of individuals all performing the same task.

Team Tests

In a team test, success is cooperative; everyone reaps the benefit from a single success. If the roll is a failure, everybody fails.

Sorting Tests

In a sorting test, success is individual.

Large Groups & Percentile Success

From time to time, the Games Master may need to determine the success of a large group of people performing the same task, in a situation in which there is no room for error. In this case, he may simply take the skill or Characteristic being employed and use that as the percentage of success.

Assistance

Characters will often have the opportunity to help one another during various tests. Every assisting character adds his critical score (10% of his skill) to the primary character's skill.

Specialities

Some skills have specialities – specialised forms of that skill. For example, a character might have Engineer 40%, allowing him to make any Engineer skill checks without an unskilled penalty. He might then gain 5% in Engineer, giving him Engineer (Jump drives +5%). He would make all Engineer checks involving Jump drives at +5%, but would make all other Engineer checks at his standard chance. A character can have multiple specialities in a skill – an engineer might have Engineer 70% (Jump Drives +20%, Power Plant +10%). He would make checks related to Jump drives with +20%, checks related to power plants with +10% and all other Engineer checks with his normal skill.

Some Gamesmasters might prefer to treat specialities as different skills, so someone with Engineering (Jump Drives) would have a different skill of Engineering (Power Plant).

Skills

Skill	Base
Acrobatics	DEX
Admin	EDU
Advocate	EDU
Animals	INT
Appraise	INT
Athletics	STR+DEX
Art	INT
Astrogation	EDU
Battle Dress	DEX
Broker	CHA
Bureaucrat	INT
Carouse	CHA+SOC
Combat Engineering	EDU
Comms	EDU+INT
Computers	EDU
Contacts	SOC
Credit	CHA
Deception	CHA
Discipline	INT
Diplomat	SOC
Disguise	CHA
Dodge	10+DEX-SIZ
Drive	POW
Engineer	EDU

Skill	Base
Explosives	DEX
Flyer	DEX
Gambler	CHA
Habitat Maintenance	INT
High-G	STR
Hyper Jump	EDU
Instruction	EDU
Interrogation	INT
Investigate	INT
Liaison	SOC
Language	CHA
Leadership	CHA
Life Sciences	EDU
Martial Arts	DEX
Mechanic	INT
Mechanisms	DEX+INT
Mecha Operations	DEX
Medic	EDU
Navigation	INT
Perception	INT+POW
Persistence	10+POW
Persuade	CHA
Pilot	INT
Physical Sciences	EDU

Skill	Base
Recon	INT
Recruiting	CHA
Remote Operations	DEX
Resilience	CON+POW
Seafarer	INT
Sensors	INT
Sense Motive	POW
Sleight	DEX
Social Sciences	EDU
Space Sciences	EDU
Stealth	DEX
Steward	SOC
Streetwise	CHA
Survival	INT
Tactics	INT
Rolling	DEX
Tracking	INT
Trade	CHA
Unarmed	STR
Vacc Suit	STR
Zero-G	DEX
Weapon Engineering	EDU

Acrobatics (DEX)

This allows a character to perform a variety of gymnastic and balancing tasks, such as tumbling, walking a tightrope or keeping balance on a narrow or unstable ledge. The character can move at half his normal speed across an unstable surface without penalty. To move at a normal rate requires an Acrobatics test. A successful Acrobatics test will also halve the damage suffered from falling.

Admin (EDU)

This skill covers bureaucracies and administration of all sorts, including the navigation of bureaucratic obstacles or disasters.

Advocate (EDU)

Advocate gives a knowledge of common legal codes and practises, especially interstellar law.

Common Specialities:

- **(Culture) Law:** The knowledge of the laws of a particular culture
- **(Church) Law:** The knowledge of the laws of a particular church or religion

Animals (INT)

This skill, rare on industrialised or technologically advanced worlds, is for the care of animals.

Common Specialities:

- **Riding:** The character knows how to ride an animal who is trained to bear a rider.
- **Veterinary:** The character is trained in veterinary medicine and animal care.
- **Training:** The character knows how to tame and train animals.
- **Farming:** The character can grow and harvest crops and raise animals.

Appraise (INT)

This skill allows the character to judge the value of a trade item, artefact or object. It is used to know whether trade goods are worth the asking price or to know how much something can be sold for.

Athletics (STR+DEX)

The character is a trained athlete and is physically fit.

Common Specialities:

- **Co-ordination:** Climbing, juggling, rolling.
- **Endurance:** Long-distance running, hiking.
- **Strength:** Feats of strength, weight-lifting, brute force.

- Swimming
- **Flying:** Species that fly gain this skill for free at level 0.

Art (INT)

The character is trained in a type of creative art.

Common Specialities:

- **Acting:** The character is a trained actor, at home on the stage, screen or holo.
- **Dance:** The character is trained dancer and performer.
- **Erotic:** The character is skilled in the erotic and sexual arts
- **Holography:** Recording and producing aesthetically pleasing and clear holographic images.
- **Instrument:** Playing a particular musical instrument, such a flute, piano or organ.
- **Seduction:** Seducing another person, for sexual or other purposes
- **Sculpting:** Making artistic or abstract sculptures in a variety of media.
- **Writing:** Composing inspiring or interesting pieces of text.

Astrogation (EDU)

This skill is for plotting the courses of Starships and calculating accurate jumps.

Battle Dress (DEX)

This skill permits the character to operate advanced battle armour. While wearing Battle Dress the character's physical skills are limited to his Battle Dress skill and may not be higher than that skill.

Bureaucrat (INT)

This allows the character to use and understand bureaucracy.

Broker (CHA)

The Broker skill allows a character to negotiate trades and arrange fair deals.

Carouse (CHA+ SOC)

Carousing is the art of socialising; of having fun, but also ensuring that other people have fun, of infectious good humour.

Combat Engineering (EDU)

This is the use of physical engineering skills for combat purposes.

Common Specialities

- **Fortifications:** The character is trained how to build field defences from trenches to bunkers.
- **Camouflage:** The character is trained to camouflage vehicles, fortifications and field sites.
- **Land Mines:** The ability to place, search for, and remove land mines.
- **Sensor Surveillance:** The use and placement of specially crafted ground sensors.

Comms (EDU+INT)

The Comms skill covers the use of modern telecommunications – opening communications channels, querying computer networks, jamming signals and so on, as well as the proper protocols for communicating with Starports and other spacecraft.

Computers (EDU)

The Computers skill is for using and controlling computer systems.

Common Specialities:

- **Counter-Intrusion:** The ability to stop intruders from gaining access to an AI
- **Data Extraction:** The ability to extract complicated data from an AI
- **Hacking:** The ability to bypass a computer/AI's security systems
- **Programming:** The ability to write a program allowing a computer/AI to perform a new task or to alter an existing program.

Contacts (SOC)

The Contacts skill is used to find, maintain and nurture contacts. A character may have contacts in the underworld, with traders, in powerful organisations or in any place where he has been or with any group he has encountered. Not all contacts are friendly or helpful, although most will be. Use the Contacts skill to determine if the character can find his contacts in the current situation or place. The Gamesmaster may give bonuses or penalties to this skill depending on the particular circumstances.

Credit (SOC)

The Credit skill is used when trying to buy something that is difficult to buy or is expensive or restricted in some way. A successful use of the Credit skill means that you have demonstrated that you have the required funds to the satisfaction of all parties concerned. Normally, after such a success the funds are transferred from the character's bank account as soon as is reasonable, given the circumstances. Anyone failing to do so would be subject to the harshest of measures.

Deception (CHA)

Deception allows a character to lie fluently and fool onlookers.

Common Specialities:

- **Bluff:** The character can mislead someone by presenting a bold, strong, or self-confident front.
- **Fast Talk:** The character knows how to talk someone into doing something before they stop and think about it.
- **Spurious Logic:** The character knows how to bamboozle robots, computers and policemen by twisting logic to suit his purposes.

Dimensional Navigation (EDU)

This skill is for plotting courses and jumps into alternate dimensions.

Diplomat (SOC)

The Diplomat skill is for negotiating deals, establishing peaceful contact and smoothing over social faux pas.

Discipline (INT)

The Discipline skill covers self-control, ingrained reflexes and training. A character with a high Discipline is adept at following orders and procedures. In game terms, as long as the character is in a situation covered by his training, he may reduce any negative modifier by an amount equal to his Discipline skill's critical score. This may be done a number of times each day equal to his INT. This can only be applied to skills that the character already has at a skill level of 20% or more.

Discipline cannot turn a negative modifier into a positive modifier – training allows a character to do the right thing and ignore distractions, but does not give him any extra competence or ability.

Disguise (CHA)

This skill is used to change a character's appearance and adopt a different outward persona. It is usually opposed by a Perception test if trying to avoid being identified.

Dodge (10+DEX–SIZ)

The Dodge skill is used to avoid incoming objects that are swung or rolln at the character. The Dodge skill is normally used when using either the dodge or dive Reactions in combat.

Drive (POW)

This skill is for controlling ground vehicles of various types. There are several specialities.

Common Specialities:

- **Mole:** For controlling vehicles that move through solid matter using drills or other earth-moving technologies, like plasma torches or cavitation.
- **Tracked:** For tanks and other vehicles that move on tracks.
- **Wheeled:** For automobiles and similar groundcars.
- **Hover:** For hovercraft and other ground-repulsion vehicles.

Engineer (EDU)

The Engineer skill is used to operate and maintain spacecraft and advanced vehicles.

Common Specialities:

- **Manoeuvre Drive (M-Drive):** Maintaining and operating a spacecraft's manoeuvre drive, as well as its artificial gravity.
- **Jump Drive (J-Drive):** Maintaining and operating a spacecraft's Jump drive.
- **Electronics:** All forms of computing hardware, sensors and other electronics and electrics.
- **Life Support:** Covers oxygen generators, heating and lighting and other necessary life support
- **Power:** Maintaining and operating a spacecraft's power plant.
- **Robotics:** Maintaining and repairing robots of all kinds
- **Naval:** This covers the design and construction of starships. It is of limited practical use in the field, but can be substituted for any other Engineer speciality at a -20% when dealing with starship systems.

Explosives (DEX)

The Explosives skill covers the use of demolition charges and other explosive devices, including assembling or disarming bombs.

Flyer (DEX)

The various specialities of this skill cover different types of flying vehicles.

Common Specialities:

- **Grav:** This covers air/rafts and other vehicles that use gravitic technology. Grav vehicles have theoretically perfect manoeuvrability and can hover, but skill checks may be necessary when performing high-speed aerobatics.
- **Rotor:** For helicopters, hovercraft and other similar craft. Rotor craft can hover but may require skill checks to keep steady in the face of adverse environmental conditions.
- **Wing:** For jets and other aeroplanes using a lifting body. Winged aircraft must keep moving forwards or they will stall and fall out of the sky.

Gambler (CHA)

The character is familiar with a wide variety of gambling games, such as poker, roulette, blackjack, horse-racing, sports betting and so on, and has an excellent grasp of statistics and probability.

Habitat Maintenance (INT)

This is the knowledge of the support infrastructure systems (transit, power, sewer, ventilation and so on). Engineers may know how the Life Support Systems work, but it's the Habitat Maintenance Crew who unblock the toilets. This includes where they are, what they do and how to fix them. Habitat Maintenance can also be used to deduce the location of specific facilities in the area.

Common Specialities:

- **Starship:** The knowledge of facilities on a typical Starship
- **Starbase:** The knowledge of facilities on a typical Starbase
- **City Complex:** The knowledge of facilities on a typical City Complex

High-G (STR)

Having the High-G skill means the character is adept at moving around in high-gravity environments. While in a High-G environment the character's physical skills are limited to his High-G skill and may not be higher than that skill.

Hyper Jump (EDU)

This is used when using Jump Travel to move vast distances. Success means the Jump was made without problem, a failure means that the jump was not made at all and a fumble means there was a mis-jump.

Instruction (EDU)

Anyone with the Instruction skill can pass on the basics of their own knowledge to less experienced characters over a period of time. They can, on a successful success, pass skills to other characters up to a maximum level of half their Instruction skill or half their own skill level in the skill being taught (whichever is lower). Teaching the skill requires an Instruction roll on the behalf of the teacher. The number of students that can benefit from this teaching is equal to one tenth of the skill. During the training, the Referee should severely curtail the activities of all characters involved. At the conclusion of the training, the learning character(s) must then succeed in an Education or Intelligence roll. Player Characters cannot teach the Instruction skill to other Player Characters. The greatest assets an individual character has is his pool of skills, so we encourage the Gamesmaster to exercise great caution in allowing Player Characters to simply hire Non-Player Characters for their Instruction skill.

Interrogation (INT)

This is the skill of questioning a hostile or uncooperative character in order to extract information.

Common Specialities

- **Doubletalk:** The character knows how to talk circles around most people, getting them to say or admit to things they never meant to with pressured conversation. With enough time to grill them properly, the character can get anyone to spill their secrets.
- **Torture:** This speciality governs the collection of emotional, physical and psychological methods in which an interrogator can get a victim to break. Through an assortment of unsavoury methods, the character can get anyone to say what he needs them to.

Investigate (INT)

The Investigate skill incorporates keen observation, forensics, and detailed analysis.

Language (CHA)

There are numerous different Language specialities, each one covering reading and writing a different language. All characters can speak and read their native language without needing the Language skill, and automated computer translator programs mean that Language skills are not always needed on other worlds. Having Language implies that the character has a smattering of simple phrases in many languages and can get by in most common languages.

Common Specialities:

- **Anglic:** The common Trade language, derived originally from the English spoken in the Rule of Man.
- **(Language):** The ability to speak, understand, read and write the specified language.

Leadership (CHA)

The Leadership skill is for directing, inspiring and rallying allies and comrades.

Liaison (SOC)

The character is trained in the art of dealing with others, including knowledge of proper protocols, manners of address, codes of conduct and other information needed when dealing with a wide range of societal types. Such a character is quite useful when attempting to negotiate a particularly edgy deal, to convince the Duke's secretary to admit the party into the Duke's presence, help settle a dispute between two opposing groups, or other acts of negotiation and diplomacy.

Life Sciences (EDU)

Common Specialities:

- **Biology:** The study of living organisms.
- **Cybernetics:** The study of blending living and synthetic life.
- **Genetics:** The study of genetic codes and engineering.
- **Psionicology:** The study of Psionic powers and phenomena.

Martial Arts (DEX)

The Martial Arts skill is used in place of the Unarmed skill.

Martial Arts attacks deal 2D3 damage, rather than 1D3 for conventional Unarmed attacks. A character with Martial Arts also counts as possessing natural weaponry. Martial Arts parries may only parry natural weapons or Unarmed attacks and have an AP of 3.

Mechanic (INT)

The Mechanic skill allows the character to maintain and repair most equipment.

Mechanisms (DEX+INT)

Picking a lock or disassembling a trap usually takes at least one minute (12 Combat Rounds) to perform, while larger devices will take longer.

Usually, a character will simply make a Mechanisms test in order to succeed at assembling or disassembling a device, with appropriate bonuses or penalties decided upon by the Games Master. If a device has been designed to specifically resist attempts at disassembly, the Mechanisms test becomes opposed by the Mechanisms skill of the character who created it.

Common Specialities:

- **Lockpicking:** The ability to open physical locks
- **Disarming:** The ability to make a trap or weapon useless
- **Security Systems:** The ability to bypass security systems

Mecha Operations (DEX)

This skill permits the character to operate Mecha of all kinds. While operating a Mecha the Mecha's physical skills are limited to the operator's Mecha Operations skill and may not be higher than that skill, unless the operator has the Mecha Specialist Legendary Ability.

Medic (EDU)

The Medic skill covers emergency first aid and battlefield triage as well as diagnosis, treatment, surgery and long-term care.

Navigation (INT)

Navigation is the planet-side counterpart of astrogation, covering plotting courses and finding directions on the ground.

Perception (INT+POW)

The Perception skill is used to represent the senses of the character when detecting objects or other characters.

Common Specialities:

- **Listen:** The character can hear things.
- **Smell:** The character can smell things.
- **Spot:** The character can see things.
- **Taste:** The character can taste things.
- **Touch:** The character can feel things through touch.

Persistence (10+POW)

Persistence is used whenever a character has his mental willpower called into question. Persistence cannot rise above a creature's POW x 5.

Persuade (CHA)

Persuade is a more casual, informal version of Diplomacy.

Common Specialities:

- **Bootlicking:** The character can sweet talk his superiors and put himself in a good light.
- **Innuendo:** This allows a character to send and receive secret messages without arousing the suspicion of other citizens. This includes sign language, body language and coded phrases. Thus, a pair of characters might appear to be talking about a trip to PLC when they're really planning to sabotage a nearby power plant.
- **Intimidate:** The art of convincing others to do things against their will by means of implied or stated threats.
- **Motivation:** This enables a character to gee up other characters, perhaps enabling them to perform a task they normally wouldn't have done.
- **Orate:** The character knows how to put on a good performance and fire up an audience.

Pilot (INT)

The Pilot skill specialities cover different forms of spacecraft.

Common Specialities:

- **Flyer:** Small personal flying vehicles
- **Small Craft:** Shuttles and other craft under 100 tons.
- **Spacecraft:** Trade ships and other vessels between 100 and 5,000 tons.
- **Capital Ships:** Battleships and other ships over 5,000 tons.

Personality (INT)

The Personality skill gives mechanical objects distinct personalities, allowing them to interact with humans and aliens. Success in this skill means they will be accepted by humans. Failure means the humans are uncomfortable around them and a fumble means the humans are distinctly hostile to them.

Physical Sciences (EDU)

Common Specialities:

- **Physics:** The study of the fundamental forces.
- **Chemistry:** The study of matter at the atomic, molecular, and macromolecular levels
- **Electronics:** The study of circuits and computers.

Recon (INT)

A character trained in Recon is able to scout out dangers and spot threats, unusual objects or out of place people.

Recruiting (CHA)

Recruiting allows the character to successfully identify suitable candidates for a role and to persuade them to join the character's organisation.

Remote Operations (DEX)

Remote operations is the skill of using telepresence to remotely control drones, missiles, robots and other devices.

Resilience (CON+POW)

The higher a character's Resilience, the more likely he is to handle adverse physical conditions, such as weathering a vicious sandstorm, surviving in a drought or overcoming the effects of poison or disease. Resilience cannot rise above a creature's CON x 5.

Seafarer (INT)

The Seafarer skill covers all manner of watercraft and ocean travel.

Common Specialities:

- **Sail:** This skill is for wind-driven watercraft.
- **Submarine:** For vehicles that travel underwater.
- **Ocean Ships:** For large, motorised sea-going vessels.
- **Motorboats:** For motorised small craft.
- **Personal:** For any manpowered craft (canoes, kayaks, rowboats, etc.).

Sense Motive (POW)

The character has the ability to know when someone might be lying, withholding information, attempting to pull a con, or is otherwise acting in bad faith or under duress.

Sensors (INT)

The Sensors skill covers the use and interpretation of data from electronic sensor devices, from observation satellites and remote probes to thermal imaging and densitometers.

Sleight (DEX)

This skill is used to hide or take objects, without drawing undue attention. It is usually opposed by a Perception test if trying to avoid getting caught.

Social Sciences (EDU)

Common Specialities:

- **Archeology:** The study of ancient civilisations. It also covers techniques of investigation and excavations.
- **Economics:** The study of trade and markets.
- **History:** The study of the past, as seen through documents and records as opposed to physical artefacts.
- **Linguistics:** The study of languages.
- **Philosophy:** The study of beliefs and religions.
- **Psychology:** The study of thought and society.
- **Sophontology:** The study of intelligent living creatures.

Space Sciences (EDU)

Common Specialities:

- **(Alien) Studies:** The study of a particular alien species.
- **(Alien) Technology:** The study of the technology of a specific alien species.
- **Planetology:** The study of planet formation and evolution.
- **Robotics:** The study of robot construction and use.
- **Xenology:** The study of alien life forms.

Stealth (DEX)

A character trained in the Stealth skill is adept at staying unseen and unheard.

Common Specialities:

- **Hide:** The ability to hide from others, making it difficult to see you.
- **Sneak:** The ability to move silently past other people.
- **Camouflage:** The ability to cover yourself or another object in such a way that it is difficult to spot.

Steward (SOC)

The Steward skill allows the character to serve and care for nobles and high-class passengers.

Common Specialities:

- **High Passage:** Allows the Steward to take care of High Passage passengers.
- **Medium Passage:** Allows the Steward to take care of Medium Passage passengers.
- **Low Passage:** Allows the Steward to take care of Low Passage passengers.

Streetwise (CHA)

A character with the Streetwise skill understands the urban environment and the power structures in society.

Survival (INT)

The Survival skill is the wilderness counterpart of the urban Streetwise skill – the character is trained to survive in the wild, build shelters, hunt or trap animals, avoid exposure and so forth.

Tactics (INT)

This skill covers tactical planning and decision making, from board games to squad level combat to fleet engagements.

Common Specialities:

- **Military Tactics:** Coordinating the attacks of foot troops or vehicles on the ground.
- **Naval Tactics:** Coordinating the attacks of a spacecraft or fleet.

Temporal Navigation (EDU)

This skill is for plotting courses through Time Streams and general time travel.

Rolling (DEX)

The Rolling skill is usually used to judge the accuracy of the character when rolling improvised objects, from small stones to bar stools. Weapons that are rolln can either use their own specific skill, such as Spear for javelins, or the Rolling skill, at the character's preference.

A rolln object will have a maximum range of one metre for every point the character's STR exceeds its SIZ. The Rolling test measures the character's accuracy during the roll and the Games Master may choose to treat this as a ranged combat attack.

Tracking (INT)

With this skill a character can locate the tracks of a specific creature and follow them. A test must be made to locate the trail and then again once every ten minutes they are being followed.

Trade (CHA)

A character with a Trade skill is trained in producing some useful goods or services.

Common Specialities:

- **Biologicals:** Engineering and managing artificial organisms.
- **Civil Engineering:** Designing structures and buildings.
- **Space Construction:** Building orbital habitats and megastructures.
- **Hydroponics:** Growing crops in hostile environments.
- **Polymers:** Designing and using polymers.

Unarmed (STR)

The Unarmed skill covers all untrained unarmed combat from simple brawling to grapples to rude fisticuffs. Punches, kicks, head-butts and all other Unarmed attacks do 1D3 points of damage. Unarmed parries may only parry other Unarmed attacks and have an AP of 2.

Common Specialities:

- **Fist Combat:** General fisticuffs
- **Grappling/Wrestling:** The ability to fight using chokes and holds
- **Head Butt:** The Glasgow Kiss, or the ability to fight by striking another with your own head
- **Kick:** The ability to strike with a kick.

Vacc Suit (STR)

The Vacc Suit skill allows a character to wear and operate spacesuits and environmental suits. While wearing a Vacc Suit the character's physical skills are limited to his Vacc Suit skill and may not be higher than that skill.

Weapon Engineering (EDU)

This is the skill of manufacturing and modifying weapons.

Common Specialities:

- **Drones:** Altering the utility and output of drones, making them more efficient for offensive roles.
- **Blades:** Creating bladed or stabbing weaponry from a suitable material.
- **Slug Rollers:** The assembly and alteration of common firearms that use physical munitions.
- **Energy Weapons:** The assembly and alteration of energy-based weaponry.
- **Heavy Weapons:** Alteration of some of the most powerful weapons known to exist.

Zero-G (DEX)

Having the Zero-G skill means the character is adept at moving around in micro-gravity environments and freefall. While in a Zero-G environment the character's physical skills are limited to his Zero-G skill and may not be higher than that skill.

Weapon Skills

In a Sci Fi game, melee weapons are not as important as in a Fantasy game. Therefore the Gamesmaster may choose to use a simplified Melee skill with appropriate specialities. If the Gamesmaster prefers the traditional RuneQuest approach then he may use the standard weapon skills below.

Simplified Weapon Skills

Melee (STR+DEX)

The melee skill covers attacking in hand-to-hand combat.

Common Specialities:

- **Unarmed Combat:** Whether it is trained martial arts or street fighting learned the hard way, this is the skill for using your body as a weapon.
- **Blade:** Attacking with swords, rapiers, blades and other edged weapons.
- **Bludgeon:** Attacking with maces, clubs, staves and so on.
- **Natural Weapons:** The favoured combat skill of wild animals, this covers fighting with claws, teeth, and other weapons that are a part of you.
- **Archery:** The use of bows and crossbows for hunting or in combat.

Gunner (INT)

The various specialities of this skill deal with the operation of ship-mounted weapons in space combat.

Common Specialities:

- **Turrets:** Operating turret-mounted weapons on board a ship.
- **Ortillery:** An abbreviation of Orbital artillery – using a ship's weapons for planetary bombardment or attacks on stationary targets.
- **Screens:** Activating and using a ship's energy screens like Black Globe generators or meson screens.
- **Capital Weapons:** Operating bay or spinal mount weapons on board a ship.
- **Missiles:** Operating missile weapons on board a ship.

Gun Combat (DEX)

The Gun Combat skill covers a variety of ranged weapons.

Common Specialities:

- **Slug Rifle:** Using rifle weapons such as the autorifle or gauss rifle.
- **Slug Carbines:** Using slug rolling weapons designed to fill the space between pistols and rifles; autocarbine, gauss carbine, etc.
- **Slug Pistol:** Using pistols like the body pistol or snub pistol.
- **Shotgun:** Using shotguns.
- **Energy Rifle:** Using advanced energy weapons like laser rifles or plasma rifles.
- **Energy Pistol:** Using advanced pistol-style energy weapons like laser pistols and stunners.
- **Zero-G Weapons:** Using weapons designed for use specifically in Zero-G situations. Only characters who already have Zero-G Combat expertise may take the Zero-G Weapons speciality upon receipt of a Gun Combat skill. Zero-G Weapon skills may also be applied to accelerator weapons and snub pistols.

Heavy Weapons (INT)

The Heavy Weapons skill covers man-portable and larger weapons that cause extreme property damage, such as rocket launchers, artillery and plasma weapons.

Common Specialities:

- **Launchers:** Rocket launchers and grenade launchers.
- **Man Portable Artillery:** Man portable fusion and plasma weapons – the FGMP, PGMP and similar.
- **Field Artillery:** Fixed guns, mortars and other indirect-fire weapons.
- **Flamerollers:** Using weaponry designed to project dangerous payloads in a fan or gout at short ranges.

Traditional RuneQuest Weapon Skills

All close combat weapon skills are based on DEX+STR (with the exceptions of Unarmed and Martial Arts).

Close Combat Weapons

Skill	Base Characteristic(s)	Weapons Covered
1H Axe	DEX+STR	Battleaxe, hatchet
1H Flail	DEX+STR	Ball & chain, grain flail
1H Hammer	DEX+STR	Warhammer, club, heavy mace, light mace
1H Sword	DEX+STR	Bastard sword, war sword, shortsword, scimitar
2H Axe	DEX+STR	Battleaxe, great axe, halberd
2H Flail	DEX+STR	Military flail
2H Hammer	DEX+STR	Great hammer, heavy mace, war maul
2H Sword	DEX+STR	Bastard sword, great sword
Dagger	DEX+STR	Dagger, knife
Martial Arts	DEX	Fist, foot
Polearm	DEX+STR	Bill, glaive, halberd
Rapier	DEX+STR	Rapier
Shield	DEX+STR	Buckler, kite shield, target shield
Spear	DEX+STR	Javelin, lance, longspear, shortspear
Staff	DEX+STR	Quarterstaff
Unarmed	STR	Fist, foot

Ranged Weapons

Skill	Base Characteristic(s)	Weapons Covered
Blowgun	DEX	Blowgun
Bow	DEX	Longbow, nomad bow, shortbow
Crossbow	DEX	Heavy crossbow, light crossbow
Sling	DEX	Sling, staff sling
1H Pistol	DEX	Body pistol, snub pistol
2H Rifle	DEX	Autorifle, gauss rifle
Shotgun	DEX	Shotgun
Energy Pistol	DEX	Laser pistols, stunners, blasters
Energy Rifle	DEX	Laser rifles, plasma rifles

Heavy Weapons

Skill	Base Characteristic(s)	Weapons Covered
Launchers	DEX	Rocket launchers, grenade launchers
Man-Portable	INT	Man portable fusion and plasma weapons
Field Artillery	INT	Fixed guns, mortars and other indirect-fire weapons

Gunnery

Skill	Base Characteristic(s)	Weapons Covered
Turrets	INT	Operating turret-mounted weapons on board a ship
Ortillery	INT	Using a ship's weapons for planetary bombardment or attacks on stationary targets
Screens	INT	Activating and using a ship's energy screens like Black Globe generators or meson screens
Capital Weapons	INT	Operating bay or spinal mount weapons on board a ship

CHAPTER 4: Improving Travellers

Improvement Rolls

In an average story, each character should receive three to six improvement rolls. This can be modified if the character performed particularly poorly or heroically, giving a range of between one and five improvement rolls awarded.

Hero Points

In an average story, each character should receive two Hero Points. This can be modified if the character performed particularly poorly or heroically, giving a range of between zero and four Hero Points awarded.

Improving Skills

A player can choose to spend one improvement roll to attempt to increase one known skill.

Select the skill to be increased and roll 1D100.

If this 1D100 result is *greater* than the skill's current score, the skill increases by 1D4+1 points.

If this 1D100 result is *equal to or less* than the skill's current score, the skill only increases by one point.

There is no limit to the score a skill can reach.

When trying to increase a Speciality, add the Speciality to the skill, then roll above the combined total with the same results as above. It is possible to increase both the underlying skill and a speciality in the same session.

Practise & Research

Practising or researching a skill generally takes one day per 10% the character already possesses in the skill.

Practise

All skills may be learnt through practise, except for Science skills. Note that in the case of EDU-based skills, the skill must be initially learnt before it can be practised.

Research

All skills may be increased through Research. New skills take (21 - EDU) days to learn.

Characters may apply a +10 modifier to the improvement roll when attempting to learn a skill through research. This is an addition to the roll, not the skill.

Mentors

A mentor must have a score in the skill being taught that is at least double his student's score in that skill.

The mentor must be present with the student for the entire practising or research period. Before the student makes their improvement roll, the mentor makes a skill test for the taught skill.

If the mentor's skill test is a failure, then the student makes their improvement roll as normal.

If the mentor's skill test is a success, then the student makes their improvement roll and applies a positive modifier to the roll equal to the mentor's critical success range with the skill. Note that this is an addition to the roll, not the skill. In addition, if the student's improvement roll results in a gain of 1D4+1 points, this gain is instead increased to 1D6+1 points.

Learning New Skills

In order to learn a new skill, the character must either be able to research it (in that it is both researchable and the relevant research material is to hand) or they must be taught it by a mentor.

It costs two improvement rolls to attempt to learn a new skill. The character immediately gains the new skill at the base score determined by the appropriate Characteristics. The character may now increase the skill normally through practice or research.

Improving Characteristics

A player can choose to spend *three* improvement rolls to attempt to increase one Characteristic by one point.

Multiply the Characteristic to be increased by five. Then roll 1D100.

If this 1D100 result is *greater* than the Characteristic x 5, the Characteristic increases by one point.

If this 1D100 result is *equal to or less* than the Characteristic x 5, the Characteristic does not increase. However, one skill that the character already possesses is increased by one point. One of this skill's derived Characteristics must be the same as the Characteristic which was not improved.

A roll of 96 to 00 on this roll always results in the Characteristic increasing.

SIZ may never be increased using improvement rolls.

The maximum a human character can increase a Characteristic to is 21. For non-humans, the maximum for a Characteristic is equal to the maximum possible starting score for the Characteristic plus three.

Legendary Abilities

In order to gain a Legendary Ability, a character must meet the requirements listed for it and then spend the required number of Hero Points.

Legendary Abilities

Legendary Ability	Requirements	Hero Points
(Alien) Technology Specialist	(Alien) Technology 75%, INT 15 or higher	10
(Alien) Xenomedic	Medic 70%, (Alien) Studies 70%, EDU 15 or higher	10
Battle Dress Specialist	Battle Dress 70%, STR 15 or higher	10
Battle Fury	CON 15+, close combat Weapon skill 90%+	12
Born to the Saddle	POW 15+, Riding skill 90%+	8
Chutzpah	CHA 15+	8
Cybertaker	Three or more cybernetic implants	10
Dead Eye	DEX 15+, ranged Weapon skill 90%+	10
Decapitating Swing	STR 15+, 2H Sword or Axe skill 90%+	12
Disease Immunity	CON 18+, Resilience skill 90%+	8
Double Tap	DEX 15 or higher, Firearms skill 70% or higher	10
Duellist	1H Weapon or Rapier skill 90%+	10
Empathic Wound	PSI 15+, Telepathy talent 90%+	10
Friends in High Places	CHA 15+, Contacts 70%+	10
Gearhead	INT 15 or higher, Mechanic at 70% or higher.	10
Heroic Aura	CHA 15+, Influence skill 90%+	12
High-G Specialist	High-G 70%, DEX 15 or higher	10
Jack of All Trades	Any 5 skills at 70%	12
Jury-rig	INT 15+, Mechanic 70% or higher	12
Linguist	INT 15+, two non-native Language skills 50%+	8
Master Pilot	Pilot at 70%, DEX 15 or higher	10
Mecha Specialist	Mecha Operations 70%, DEX 15 or higher	10
(Planetary) Adaptation	Special	5
Poison Immunity	CON 18+, Resilience skill 90%+	8
Quick Draw	DEX 15 or higher, Firearms skill 70% or higher	10
Sciencemaster	INT 15+, four Science skills 50%+	10
Shoot on the Run	DEX 15 or higher, Firearms 70% or higher	10
(Situation) Tactician	(Situation) Tactics 70% or higher, INT 15 or higher	10
Skip Shot	DEX 15 or higher, Firearms 70% or higher	10
Slaying Touch	POW 15+, Martial Arts skill 90%+	12
Spacer	INT 15 or higher, the character must have been brought up on spaceships	10
Surgery	Medic 70% or higher, DEX 15 or higher	10
Tireless	CON 15+, Athletics skill 90%+	8
Vacc Suit Specialist	Vacc Suit 70%, DEX 15 or higher	10
Wall Leaping	DEX 15+, Acrobatics skill 90%+	10
Wild Talent	PSI 15 or higher, no operant powers	10
Zero-G Specialist	Zero-G 70%, DEX 15 or higher	10

(Alien) Technology Specialist

Requirements: (Alien) Technology 75%, INT 15 or higher

Hero Points: 10

You are proficient with technology from a specific alien culture. You may take multiple uses of this, as long as you have the required (Alien) Technology skills.

- You do not suffer from any penalty due to this technology being alien
- You get a 10% Bonus to any attempts to use technology from this alien species.

(Alien) Xenomedic

Requirements: Medic 70%, (Alien) Studies 70%, EDU 15 or higher

Hero Points: 10

You know how to provide safe medical treatment to particular alien life forms. This can be taken multiple times, as long as the character has studied the particular alien species beforehand.

- You do not incur any penalties when treating aliens of the chosen species.
- You have a +20% bonus on any roll dealing with the alien's environment or physiology

Battle Dress Specialist

Requirements: Battle Dress 70%, STR 15 or higher

Hero Points: 10

You are expert at using battle dress. While wearing battle dress you have the following benefits:

- Your physical skills are not limited to your Battle Dress skill
- You do not incur skill penalties while wearing Battle Dress or Combat Armour

Battle Fury

Requirements: CON 15 or higher, any close combat Weapon skill at 90% or higher.

Hero Points: 12

You can enter a Battle Fury as a Combat Action. While in a Battle Fury, the following effects take place:

- Your STR and CON are both considered to be 5 points higher, but only for the purposes of determining your Damage Modifier.
- All your close combat Weapon skill tests, including Unarmed and Martial Arts, receive a +50% bonus.
- All your Persistence and Resilience skill tests receive a +50% bonus.
- You may not parry, dodge or dive for cover.

You may remain in Battle Fury for a number of rounds equal to your CON. Upon leaving Battle Fury, you automatically gain three levels of Fatigue.

Born to the Saddle

Requirements: POW 15 or higher, Riding 90% or higher.

Hero Points: 8

While riding, the following effects take place:

- Any penalty to your Riding skill is reduced by –20 %. For instance, if the driving rains and slippery ground would normally apply a –40% penalty to your Riding test, the penalty is reduced to –20%.
- You may use 2H Weapon skills, Polearms and Staffs.
- You may treat all animals you ride as trained for combat.
- You may use your Riding skill instead of your Dodge skill when dodging.

Chutzpah

Requirements: CHA 15 or higher

Hero Points: 8

You have a natural charisma that makes others look upon you kindly.

- You gain a +20% bonus to any skill used to manipulate others

Cybertaker

Requirements: Three or more cybernetic implants.

Hero Points: 10

You can have more cybernetic implants than normal without suffering ill effects.

- Your cybernetic implants do not interfere with each other
- When being treated by a medic, his skill is not affected by your cybernetic implants

Dead Eye

Requirements: DEX 15 or higher, any ranged Weapon skill at 90% or higher.

Hero Points: 10

Pick any single ranged weapon (with which you must have at least 90% skill). While using this weapon, the following effects take place:

- Increase the weapon's Range by 50%.
- Increase the weapon's damage by +2 (only to targets within Range).
- Precise attacks with the weapon only suffer a –20% penalty.

Decapitating Swing

Requirements: STR 15 or higher, either 2H Sword or 2H Axe skill at 90% or higher.

Hero Points: 12

You may only use Decapitating Swing with a 2H Axe or 2H Sword and only against an opponent whose SIZ is within ten of your SIZ.

Decapitating Swing is declared before a precise attack, targeting your opponent's head, is started. Any attempt to dodge or parry this precise attack gains a +20% bonus. As long as the attack inflicts at least a Minor Wound, the attack is converted to a Major Injury that decapitates the target.

Disease Immunity

Requirements: CON 15 or higher, Resilience 70% or higher.

Hero Points: 8

You are immune to all normal diseases. Medical diseases will still affect you, though you gain a +20% bonus to tests to resist them.

Double Tap

Requirements: DEX 15 or higher, Firearms skill 70% or higher

Hero Points: 10

When using a semiautomatic firearm with at least two bullets loaded, you may fire two bullets as a single attack against a single target.

- You can do this with no penalties to hit
- On a successful attack, both bullets hit
- You do not suffer any additional recoil from this double shot

Duellist

Requirements: 1H Weapon skill or Rapier skill at 90% or higher.

Hero Points: 10

While using a selected weapon the following effects take place:

- You may parry one additional attack per Combat Round (over and above the normal Reaction allowance).
- You gain a +10% bonus to your Weapon skill when parrying.
- Increase the weapon's damage by +1.

Empathic Wound

Requirements: PSI 15 or higher, Telepathy Talent at 90% or higher.

Hero Points: 10

With Empathic Wound, you may offset the injuries a companion has sustained by transferring the hit point damage to yourself. A wound appears on your body at the same hit location as your companion. One hit point of damage may be transferred each Combat Round, during which neither patient nor healer may move or perform other Combat Actions.

Each Combat Round, you must make a Resilience test with a -40% penalty or take one level of Fatigue. Empathic Wound is incapable of re-growing or re-attaching severed limbs or resurrecting a character.

Friends in High Places

Requirements: CHA 15 or higher, Contacts at 70% or higher.

Hero Points: 10

You have many deep and enduring contacts that have left you with many important friends.

- Once per session you may call on your friends in high places for a favour - a successful Contacts roll means they help you, a fumble means that you lose any contact with that particular friend
- You never incur penalties to Contacts when you try and contact your friends in high places

Gearhead

Requirements: INT 15 or higher, Mechanic at 70% or higher.

Hero Points: 10

You enjoy and are quite skilled at tinkering and working with mechanical and electronic equipment and systems.

- You add a +20% Bonus to any Mechanic roll when attempting to repair, construct, or sabotage a piece of equipment.
- You can make a repair 20% faster than you would otherwise normally do.

Heroic Aura

Requirements: CHA 15 or higher, Influence skill at 90% or higher.

Hero Points: 12

All allies within your CHA in metres will be heartened by your presence, gaining your CHA as a bonus to any Persistence or Resilience tests they are called upon to make.

In addition, you may make take a Combat Action to encourage your nearby allies, requiring an Influence test. If this is successful, they gain your CHA as a bonus to all Weapon skills for the remainder of the Combat Round.

High-G Specialist

Requirements: High-G 70%, DEX 15 or higher

Hero Points: 10

You are expert at operating in high gravity. While operating in high gravity you have the following benefits:

- Your physical skills are not limited to your High-G skill
- You do not incur skill penalties while operating in high gravity
- You do not fall ill through the effects of high gravity

Jack of All Trades

Requirements: Any 5 skills at 70%

Hero Points: 12

You've picked up a smattering of even the most obscure skills and can turn your hand to anything

- You can use any skill, even if you do not have it on your character sheet, with a base of INT+EDU
- You cannot learn that skill through your Jack of All Trades ability, but have to learn the skill normally

Jury-rig

Requirements: INT 15 or higher, Mechanic 70%

Hero Points: 12

You can repair anything quickly but temporarily.

- You can choose to repair a broken object in half the normal time
- Anything so repaired will only work for a short time, probably only for long enough to complete the required task
- Repairing such an item does not need the normally necessary components or tools - you can use anything that you can lay your hands on, within reason

Linguist

Requirements: INT 15 or higher, two Language skills (aside from your native tongue) at 50% or higher.

Hero Points: 8

In order to use this ability, you must either converse with a speaker of a strange language for one hour, or simply hear the language being spoken for two or more hours. You then automatically gain the Language skill in that language at its basic score.

A successful improvement roll when improving a Language skill doubles the skill points gained (roll 2D4+2 rather than 1D4+1).

Master Pilot

Requirements: Pilot at 70%, DEX 15 or higher

Hero Points: 10

A Master Pilot is an expert pilot who can handle a Starship with uncanny skill.

- Any Pilot skill attempt is treated as being one level easier, so an Easy attempt is treated as very Easy and a Nearly Impossible attempt is merely Very Hard.
- A Master Pilot cannot fumble his Pilot skill

Mecha Specialist

Requirements: Mecha Operations 70%, DEX 15 or higher

Hero Points: 10

You are expert at operating Mecha. While operating Mecha you have the following benefits:

- The Mecha's physical skills are not limited to your Mecha Operations skill
- You do not incur skill penalties while operating Mecha
- Your Mecha may take advantage of other Legendary Abilities that you may have, such as Zero-G Specialist, Shoot on the Run or Skip Shot

(Planetary) Adaptation

Requirements: You must have been brought up in the particular planetary environment chosen. It is possible to take this more than once if brought up in an environment with more than one harsh environment. So Spana is a Spacer brought up on a Low-G, Cold and Barren world. He takes Low-G Adaptation and Cold Adaptation. At a later stage he may also take Barren Adaptation as he finds out that he also has some adaptation to that environment.

Hero Points: 5

Your physiology has been altered by life on a planet with a harsh climate or adverse environmental conditions.

Benefit: You gain one of the benefits listed below, depending on your planet of origin.

<i>Barren World:</i>	You gain a +40% bonus on Survival checks and a +40% bonus on Resilience checks against starvation and thirst.
<i>Cold World:</i>	You gain a +40% bonus on Resilience rolls against extreme cold.
<i>Dark World:</i>	You gain the Darkvision trait.
<i>High-G World:</i>	You gain a +2 bonus to your Strength (STR) and -2 LEN if you are using that characteristic. Reduce your base height by 6 inches (15 cm).
<i>Hot World:</i>	You gain a +40% bonus on Resilience rolls against extreme heat.

Low-G World: You gain a +2 bonus to your Dexterity (DEX) and +2 LEN if you are using that characteristic. Increase your base height by 6 inches (15 cm).

Water World: You gain a +40% bonus on Swim rolls and can hold your breath for a number of rounds equal to twice your Constitution score.

Poison Immunity

Requirements: CON 18 or higher, Resilience 90% or higher.

Hero Points: 8

You are immune to all normal poisons.

Quick Draw

Requirements: DEX 15 or higher, Firearms skill 70% or higher

Hero Points: 10

- You can draw a weapon as a Combat action, not taking a combat action
- Drawing and firing a firearm takes a single combat action
- Using Quick Draw gives a +4 Strike rank advantage on the first shot as the opponent does not realise that you have a weapon ready to fire

Sciencemaster

Requirements: EDU 15 or higher, four Science skills at 50% or higher

Hero Points: 10

Any time you fail a Science skill test, you are entitled to make an immediate Persistence test (with the same modifiers as the original Science test) to see if you can recall some shred of knowledge germane to the subject at hand.

Shoot on the Run

Requirements: DEX 15 or higher, Firearms 70% or higher

Hero Points: 10

- You can shoot while running without any loss of skill.
- Shooting while running or moving incurs no skill penalties
- Opponents have a -10% penalty to any reactions as they do not expect you to be able to shoot them

(Situation) Tactician

Requirements: (Situation) Tactics 70% or higher, INT 15 or higher

Hero Points: 10

A tactician has an added advantage in using tactics in a particular situation.

- Any tactical advantage in the named situation is doubled
- The tactician cannot fumble his Tactics when in the named situation

Skip Shot

Requirements: DEX 15 or higher, Firearms 70% or higher

Hero Points: 10

You may deliberately ricochet a bullet off a nearby surface to strike somebody who is undercover.

- This is a Difficult (-20%) roll and further penalties may be imposed if the surface is too far from the target
- The bullet does its normal damage minus 1D4 on a successful hit

Slaying Touch

Requirements: POW 15 or higher, Martial Arts 90% or higher.

Hero Points: 15

Slaying Touch is declared before a precise attack is started (the type of precise attack is up to you, though if the target is wearing armour, it will have to be bypassed). As long as the attack inflicts at least a Minor Wound, the attack is considered a Slaying Touch. The target must immediately succeed at a Resilience test with a -40% penalty or die.

Spacer

Requirements: INT 15 or higher, the character must have been brought up on spaceships

Hero Points: 10

You have a special affinity for spacecraft and space travel.

- You get a +20% bonus on all skills to do with spaceships and space travel

Surgery

Requirements: Medic 70% or higher, DEX 15 or higher

Hero Points: 10

You can perform surgery as part of your medical training.

- When in an operating theatre you have a 20% bonus on your Medic skill when performing surgery
- Outside an operating theatre you do not incur penalties on your Medic skill when carrying out operations

Tireless

Requirements: CON 15 or higher, Athletics 90% or higher.

Hero Points: 8

You may engage in medium activity for a number of minutes equal to your CON x 10 before risking Fatigue. The time between subsequent Fatigue tests for continuing to engage in medium activity is likewise your CON x 10 in minutes.

You may engage in heavy activity for a number of Combat Rounds equal to your CON score before risking Fatigue. The time between subsequent Fatigue tests for continuing to engage in heavy activity is likewise your CON score in Combat Rounds.

You also recover from each level of Fatigue in half the normal time (one level for every two hours of light activity or one hour of complete rest).

Vacc Suit Specialist

Requirements: Vacc Suit 70%, DEX 15 or higher

Hero Points: 10

You are expert at using a Vacc Suit, Survival Suit or Environment Suit (referred to as a Vacc Suit for convenience). While wearing a Vacc Suit you have the following benefits:

- Your physical skills are not limited to your Vacc Suit skill
- You do not incur skill penalties while wearing a Vacc Suit

Wall Leaping

Requirements: DEX 15 or higher, Acrobatics 90% or higher.

Hero Points: 10

You may only use Wall Leaping if not Overloaded, Exhausted or Debilitated. The entirety of your movement in a Combat Action may be made along a vertical surface, allowing you to bypass an obstruction that might otherwise block your path or even climb a wall at lightning speed. This can result in you running up a wall with one Combat Action, attacking an enemy with a second Combat Action, and then returning to the floor with a third Combat Action.

However, you cannot continue moving along a vertical surface from Combat Round to Combat Round – you must reach level ground (or a suitable perch) by the end of your last Combat Action in a round or fall.

Wild Talent

Requirements: PSI 15 or higher, no operant powers

Hero Points: 10

You can manifest a wild Psionic talent while under extreme stress or in extreme danger.

- The first time that Wild Talent is used, the talent is rolled randomly, after that the same talent is used.
- The talent operates at PSIx2%, cannot be increased by experience and only manifests when you are under extreme stress or in extreme danger.

Zero-G Specialist

Requirements: Zero-G 70%, DEX 15 or higher

Hero Points: 10

You are expert at operating in zero gravity. While operating in zero gravity you have the following benefits:

- Your physical skills are not limited to your Zero-G skill
- You do not incur skill penalties while operating in zero gravity
- You do not fall ill through the effects of zero gravity

Features

Some people have special abilities, known as Features. These are less powerful than Legendary Abilities and tend to be things that the person is born with or has acquired in the course of his previous experience. Some Gamesmasters might prefer to include these as Legendary Abilities, if they are treated as Legendary Abilities then they should cost 8 Hero Points and have no particular Requirement, but they will need Gamesmaster approval.

Ambidextrous

You are equally at home with using your off-hand as your normal hand.

- You do not incur any penalties when using weapons in your off-hand.
- Switching hands in combat gives you a +20% surprise bonus the first time you do it against an opponent

Narrow Escape

You have developed a knack for sensing trouble and avoiding it before it spots you, whether it be pirates, local customs frigates, or a navy destroyer. When an encounter with someone likely to cause you trouble occurs, you may attempt to avoid the encounter before it

happens. Try to make a Luck Roll (POWx5%). If successful, the encounter does not occur or passes you by. Characters who use Lucky Escape all the time may well find that the Gamesmaster takes the Feature from them.

Calculating Eye

You make your living through the art of the deal, and knowing the potential value of various items and cargo is a large part of the process. You have developed a very Calculating Eye towards this task, and may add +20% to your Appraise skill rolls when attempting to appraise the value of common objects and equipment ranging from poor to masterful quality. This does not apply to rare items such as works of art, artifacts, antiques, etc. You also have a +20% bonus when using their Broker skill to negotiate the price of a speculative trade good or cargo.

Dumb Luck

You are unnaturally lucky. You have a +20% bonus to all Luck Rolls (POWx5%). Once per day you can ask to reroll a skill roll without spending a Hero Point, if the Gamesmaster believes that you Good Luck has a bearing on the situation.

Trustworthy

You have that down-home, all-around good guy, honest look about you. Folks just feel comfortable around you and are more willing to confide in you. You get a +20% bonus on all Liaison and Gather Information checks when interacting with others.

CHAPTER 5: Travelling

Movement

The Movement table shows how far characters with a variety of Movement scores can travel over various periods of time. Groups of characters travelling together will move at the speed of the slowest member.

Movement

Time Period	Movement 1m	Movement 2m	Movement 3m	Movement 4m	Movement 5m	Movement 6m
Combat Action	1m (2m if running)	2m (4m if running)	3m (6m if running)	4m (8m if running)	5m (10m if running)	6m (12m if running)
Minute	12 (24m if running)	24m (48m if running)	36m (62m if running)	48m (96m if running)	60m (120m if running)	72m (144m if running)
Hour	0.7km	1.4km	2.2km	2.9km	3.6km	4.3km
Day (12 hours)	8.4km	16.8km	26.4km	34.8km	43.2km	51.6km

Movement in combat assumes a character is moving as fast as possible given his particular Combat Action. Movement over any period other than combat (Minute or longer) assumes a character is walking at a sustainable rate, though it is possible to run instead. This sustainable walking is considered light activity, though a full day (12 hours) of walking will count as medium activity.

Running

Running is easy enough for short periods; a character can run for a number of minutes equal to his CON before suffering from any tiredness. Once this time period has elapsed, the running counts as medium activity.

Terrain & Weather

Movement rates can be hindered by terrain and other adverse conditions such as wind, rain and hail. These conditions are divided into three categories, Slight, Moderate and Great Adversity.

- **Slight Adversity:** Reduce the character’s distance moved by 25%.
- **Moderate Adversity:** Reduce the character’s distance moved by 50%.
- **Great Adversity:** Reduce the character’s distance moved by 75%.

Chases & Pursuits

If a character succeeds at a Difficult (–20%) Athletics test, they may treat their Movement as one higher than normal for a single Combat Action or minute.

Sprinting is very tiring when chasing and counts as heavy activity.

If mounts are being used by characters in a pursuit, then the Athletics skill of the mount should be used rather than that of the character.

Illumination & Darkness

Environment is...	Example	Effects
Brightly Illuminated	Blazing summer day, shrine holding a rune of Light.	+10% to Perception tests to spot hidden characters or items
Illuminated	Heavily candlelit room, overcast day, within radius of illuminating item.	None.
Partial Darkness	Cavern mouth, misty day, within 3 x radius of illuminating item.	–20% to vision-based Perception tests.
Dark	Large cavern illuminated only by embers, foggy day, within 5 x radius of illuminating item.	–40% to vision-based Perception tests. Movement penalised by –1m.
Pitch Black	Sealed room with stone walls, cavern many miles underground, mountaintop whiteout, shrine holding a rune of Darkness.	Perception tests reliant on vision impossible, as are ranged attacks. –60% to close combat attacks. Movement halved.

Illuminating Items

Example	Radius
Candle or embers	1m
Flaming brand or lantern	3m
Campfire	5m
Bonfire	10m
Flashlight	10m

Fatigue

Physical activity is divided into three categories; light, medium and heavy. The length of time a character can engage in physical activity without running the risk of becoming Exhausted is determined by his CON. Once this time has elapsed, a character must begin to make skill tests in order to resist the effects of exhaustion.

Light Activity: Characters never risk Fatigue while engaging in light activity.

Medium Activity: Includes running, fighting in combat, climbing, swimming at a rapid rate, brisk activity in Low or High Gravity environments or brisk activity while wearing any form of Vacc Suit, Environment Suit or Battle Dress. A character can engage in medium activity for a number of minutes equal to his CON before risking Fatigue. Once this time has elapsed, the character must immediately make a Simple (+20%) Athletics test or begin suffering the effects of Fatigue. So long as the activity continues, he must make another Simple (+20%) Athletics test every time a number of minutes equal to the character's CON elapse.

Heavy Activity: Includes back-breaking manual labour, sprinting and climbing at a rapid rate. A character can engage in heavy activity for a number of Combat Actions equal to his CON score before risking Fatigue. Once this time has elapsed, the character must immediately make a Normal (+0%) Athletics test or begin suffering the effects of Fatigue. So long as the activity continues, he must make another Normal (+0%) Athletics test every time a number of Combat Actions equal to the character's CON elapse.

Effects of Fatigue

If a character fails a test while engaged in medium or heavy activity, he will begin to show Fatigue. Every time a Fatigue test is failed, the character will drop down one level of Fatigue, as shown on the Fatigue Levels table.

Fatigue Levels

Level of Fatigue	Effects
Fresh	None.
Winded	All skill tests (including further tests to resist Fatigue) suffer a –10% penalty.
Tired	All skill tests (including further tests to resist Fatigue) suffer a –20% penalty. Movement suffers a –1m penalty.
Wearied	All skill tests (including further tests to resist Fatigue) suffer a –30% penalty. Movement suffers a –1m penalty. Strike Rank suffers a –2 penalty.
Exhausted	All skill tests (including further tests to resist Fatigue) suffer a –40% penalty. Movement is halved. Strike Rank suffers a –4 penalty. DEX is considered 5 points lower for the purposes of determining Combat Actions. Character must make a Persistence test every minute or fall unconscious for 1D3x2 hours
Debilitated	All skill tests (including further tests to resist Fatigue) suffer a –50% penalty. Movement is halved. Strike Rank suffers a –6 penalty. DEX is considered 10 points lower for the purposes of determining Combat Actions. Character must make a Difficult Persistence test every Combat Round or fall unconscious for 1D6x2 hours.

Time and Fatigue

Once a character has been awake for 10+CON hours, they must make a Persistence test or drop one Fatigue level. This test must be repeated for every hour the character remains awake.

Recovering from Fatigue

A character will move up one level of Fatigue for every two hours of complete rest or four hours of light activity. A successful Medic test can raise a character by one level of Fatigue once per day, but cannot raise a character above Winded. Drugs can help restore fatigue temporarily.

Exposure, Starvation and Thirst

A character can normally survive for a number of hours equal to his CON before suffering from exposure.

A character can survive for a number of days equal to his CON before becoming starved, though after three days they will begin to suffer a –10% penalty to Fatigue tests.

A character can survive for a number of hours equal to his CON x 4 before becoming chronically thirsty, though particularly arid environments may reduce this to CON x 3 or even CON x 2.

Whenever a character is suffering from exposure, starvation or thirst, the Fatigue test penalty immediately doubles to –20%. In addition, the character will automatically suffer one point of damage to all locations every day, for every condition he is experiencing. Natural healing will not heal this damage – only sufficient shelter, food or water can remedy the problem and allow natural healing to take place.

Healing

Healing can be performed in one of three ways – using Medical Treatment, a Psionic Talent, or through natural healing, resting while the injuries heal themselves.

Natural Healing

A character's injured locations (any location that has 0 hit points or more) regain one hit point per 24 hours, as long as the character does not engage in anything more than light activity.

A character's badly injured locations (any location that has –1 or fewer hit points or more) regain one hit point per location per day, as long as the character does not engage in anything more than light activity, and the character succeeds at a Resilience test.

Natural healing will not heal a Major Injury until that location has either been treated with a successful Healing test or medical healing has been applied.

Medical Treatment

First Aid: Applying first aid restores 1 Hit Point on a success and 2 on a Critical per wound treated. First aid must be applied within five minutes of the injuries being received to be fully effective. A character can still benefit from first aid up to an hour after their injury but they only receive half the Hit Points. Performing first aid on yourself is a Difficult (–20%) task.

Surgery: A seriously wounded character requires surgery. Surgery restores Hit Points just like first aid but if the check is failed the patient loses 1 Hit Point, 2 for a Fumble. Surgery requires a hospital or sick bay, otherwise it is Very Hard (-60%). Surgery does not benefit characters who are not seriously wounded. Performing surgery on yourself is a Hard (–40%) task.

Medical Care: Medical care restores 2 + the character's CON / 7 hit points per day, divided evenly among all damaged locations in addition to natural healing. Medical care requires a hospital or sickbay and for the patient to undergo full bed rest.

Hospitalisation: An injured character who needs hospital care for a prolonged period will pay approximately 100 credits per month per Technology Level. (At TL 11+ the doctors will just use medicinal slow in most cases and charge for that instead.) Surgery costs 1d6 x 50 x Technology Level in Credits.

Augmentation and Medical Care: Cybernetic or genetic augments can interfere with medical treatment. All medical care or surgery Medic rolls treating a character suffer a Penalty equal to ten times the difference in Technology Level between the medical facility and the highest relevant implant, or ROBx10%, whichever is higher.

Healing and Mental Characteristics: Other than Psionic Strength, characters may also suffer damage to their Intelligence or even their Education. Unless otherwise specified, each mental characteristic heals at the rate of one point per day.

Replacements: A character whose injuries require cloning limbs or cybernetic replacement must pay 5,000 credits per Characteristic point.

Encumbrance

Every piece of equipment in the Equipment chapter has an Encumbrance (ENC) score, though some items are too small or light to have an ENC score. Characters can usually ignore the effects on Encumbrance that these have unless they start carrying a lot of them – assume that an average of 20 such items will equal 1 ENC, so long as the character has a suitable means of carrying them, such as a sack or backpack.

A character can carry equipment whose total ENC is less than or equal to his STR+SIZ without penalty.

Overloading

A character carrying total ENC greater than his STR+SIZ is Overloaded.

Overloaded characters suffer a –20% penalty to all tests that require physical actions, including Weapon skill tests and most tests that have DEX or STR as a Characteristic.

Overloaded characters have their Movement halved. They also suffer a –20% penalty to all Fatigue tests.

A character cannot carry more than twice his STR+SIZ in ENC.

Falling

A character that takes damage from a fall ends up prone. Armour points do not reduce falling damage.

Falling Distance

Distance Fallen	Damage Taken
1m or less	No damage.

2m to 5m	D6 points of damage to a random location
6m to 10m	2D6 points of damage, each D6 applied to a randomly rolled location
10 to 15m	3D6 points of damage, each D6 applied to a randomly rolled location
16m to 20m	4D6 points of damage, each D6 applied to a randomly rolled location
+5m	+1D6 damage

A creature of SIZ 8 to 9 treats the distance fallen as one metre less. A creature of SIZ 6 to 7 treats the distance fallen as three metres less. A creature of SIZ 4 to 5 treats the distance fallen as five metres less. A creature of SIZ 2 to 3 treats the distance fallen as eight metres less. A creature of SIZ 1 or less treats the distance fallen as ten metres less.

As long as the character was not surprised, they may attempt an Acrobatics test to mitigate falling damage – a successful test allows the character to treat the fall as if it were two metres shorter than it actually is. In addition, as long as this test is a success and the character is not reduced to 0 hit points in a location due to the fall, the character lands safely and is not prone.

Characters falling onto soft surfaces may have the distance they fall effectively halved for the purposes of damage.

Characters falling onto damaging surfaces will suffer the effects of the surface to all locations that are damaged in the fall.

Character falling on high- or low-gravity worlds will increase or decrease the damage. Look up the size code for the world and the gravity level associated with it and multiply the falling damage by the gravity number.

Suffocation

While performing medium activity, a character can hold his breath for a number of Combat Rounds equal to his CON. Characters engaging in light activity can double this time, while characters performing heavy activity will halve it.

Once a character has surpassed the time for which he can hold his breath, he must make a Resilience test every round with a cumulative –10% penalty. If he fails, he automatically starts inhaling the suffocating substance, which automatically damages his Chest location every round.

Suffocating Substance

Substance Inhaled	Damage Taken to Chest Location
Water	1D6
Vacuum	1D6
Thick Smoke	1D3
Poison Gas	Character is exposed to the poison. If the gas is also a thick smoke, then 1D3 damage is incurred in addition to the poison's effect.

Armour points do not reduce suffocation damage. The damage will only cease once the character can draw breathable air once more. Even then, the character will require a Resilience test to be able to do anything other than wretch or gasp for breath for 1D4 Combat Rounds.

Fire, Heat and Freezing

A character will normally take damage from fire or heat to a specific hit location. However, if a character is immersed in the source of the damage, then all locations will suffer from the damage the fire causes. Unusually hot or cold worlds can cause damage unless the characters are suitably protected. The amount of damage suffered from fire or heat will depend on its intensity, as shown on the Fire and Heat table.

Fire and Heat

Damage Source	Example	Damage
Flame	Candle	1 point
Large Flame	Flaming brand	1D4 points
Small Fire	Camp fire, cooking fire	1D6 points
Large Fire	Scolding steam, large bonfires, burning rooms, Welding Torch	2D6 points
Inferno	Lava, inside a blast furnace	3D6 points
Very Hot Climate (50°C)	Desert	1D6 / Hour
Hot Planet (200°C)	Mercury	1D6/round
Very Hot Planet (500°C)	Venus	2D6/round

Poison

Every type of poison has the following information detailed:

Name: The poison's name. Also, if the poison is medical in nature, it will be mentioned here.

Type: Lists whether the poison is ingested, used on a weapon or inhaled.

Delay: The time between the poison's introduction to a character, to the time its effect takes hold.

Potency: This is a number between 10 and 100 that measures the strength of a poison. Some medical poisons, like basilisk venom, have even higher Potencies. A character must make an opposed Resilience test versus the poison's Potency test in order to avoid or mitigate the damage of the poison.

Effect: Usually hit point damage that affects all locations of the victim, though this is not universal. Some poisons cause a character to sleep for a period of time. More exotic poisons may cause hallucinogenic effects, paralysis or a combination of effects. These take place after the delay noted above.

Duration: How long the poison, if effective, will affect the victim. The effects of the poison cannot be removed or healed until the poison itself has been neutralised or has dissipated in the victim's system. Hit point damage caused by poison will not automatically heal – it must be healed through medical or natural healing.

Poison Succeeds, Character Fails

If the poison succeeds its Potency test and the character fails his Resilience test, the poison has its full effect.

Character Succeeds, Poison Fails

If the character succeeds his Resilience test and the poison fails its Potency test, the poison has no effect.

Both Poison and Character Succeed

Whoever rolled the highest in their test wins.

Both Poison and Character Fail

Whoever rolled the lowest in their test wins.

Disease

Every type of disease has the following information detailed:

Name: The disease's name. Also, if the disease is medical in nature, it will be mentioned here.

Type: Lists whether the disease is spread through contamination, touch or is airborne.

Delay: The time between the disease's introduction to a character, to the time its effect takes hold. It is also the time following disease contraction that a victim will be forced to make follow-up opposed disease tests.

Potency: This is a number between 10 and 100 that measures the strength of a disease. Some medical diseases, like the shining plague, have even higher Potencies. A character must make an opposed Resilience test versus the disease's Potency test in order to avoid or mitigate the damage of the disease.

Effect: Usually hit point damage that affects all locations of the victim, though this is not universal. Many diseases will apply a penalty to Characteristics or skills. More exotic diseases may cause hallucinogenic effects, paralysis or a combination of effects. These take place after the delay noted above.

The effects of the disease cannot be removed or healed until the disease itself has been neutralised or has dissipated in the victim's system. Hit point damage caused by disease will not automatically heal – it must be healed through medical or natural healing.

Disease Succeeds, Character Fails

If the disease succeeds its Potency test and the character fails his Resilience test, the disease has its full effect.

Character Succeeds, Disease Fails

If the character succeeds his Resilience test and the disease fails its Potency test, the disease has no effect.

Both Disease and Character Succeed

Whoever rolled the highest in their test wins.

Both Disease and Character Fail

Whoever rolled the lowest in their test wins.

Unlike a poison, diseases will progress if a character does not resist its effects. Once the first opposed test is failed by the victim, they will have to make an additional opposed test (after an amount of time determined by the disease's delay statistic).

If the victim succeeds this second opposed test, he has overcome the worst of the disease and will no longer suffer its effects (other than remaining hit point damage) after while (use the disease's delay statistic to determine how long this takes).

If the victim fails this second opposed test, he falls deeper into the disease. Apply all of the disease's effects again to the character. Once the delay period has elapsed once more, the victim will have to make a third opposed disease test, and so on.

Radiation

Radiation exposure is measured in rads. Once a character has absorbed a certain number of rads, he will suffer certain effects. One problem with radiation exposure is that while physical symptoms can be treated and may heal, the radiation never goes away. The character's rads must be tracked. Further exposure adds to what the character is already carrying around until a deadly level is reached. Each exposure adds its dose to the existing level of radiation in the body and the effect is for the higher amount. Accumulated rads can be removed using anti-rad drugs.

Name: The name of the radiation

Type: Type of radiation

Delay: The time between the exposure to the radiation, to the time its effect takes hold.

RADs: The dose measured in RADs (or REMs)

Potency: This is a number between 10 and 1000 that measures the strength of the radiation. A character must make an opposed Resilience test versus the radiation's Potency test in order to avoid or mitigate the damage of the poison.

Stage One Effect: The typical effects of the radiation in its first stage

Latent Period: Many doses of radiation have a latent period where symptoms seem to die down before a second set of symptoms appear.

Stage Two Effect: The typical effects of the radiation in its second stage

Recovery Period: The time taken to recover if not fatal

Fatality: The percentage of people who die after a certain number of days. Use this for NPCs and if you want a fast resolution to the poisoning. This is the chance of the person dying of the radiation poisoning.

Characters must make the Resilience test upon exposure to the radiation, after the Latent Period and at the end of the Fatality period. If the character succeeds all rolls and the radiation fails all rolls then the character has been lucky and will suffer no serious ill effects. For high doses of radiation, this event is unlikely.

Radiation Succeeds, Character Fails: If the radiation succeeds its Potency test and the character fails his Resilience test, the radiation has its full effect.

Character Succeeds, Radiation Fails: If the character succeeds his Resilience test and the Radiation fails its Potency test, the Radiation has no effect.

Both Radiation and Character Succeed: Whoever rolled the highest in their test wins.

Both Radiation and Character Fail: Whoever rolled the lowest in their test wins.

Medical Treatment

Anyone exposed to Light radiation or higher requires immediate medical treatment otherwise the ill-effects will be permanent. TLs 1-4 cannot treat Radiation Poisoning, TLs 5-7 can treat the symptoms but can do little for acute cases, TLs 8-11 can keep acute cases from dying and have a chance to reverse the damage, given good enough equipment and TLs 15+ can completely treat and cure any level of radiation poisoning.

Gamma-Ray Bursts

Name: Low Level Gamma-Ray Burst

Stage One Effect: Mild burn (1 point to each exposed location)

Latent Period: None

Stage Two Effect: Low Level Radiation Exposure

Name: Mild Gamma-Ray Burst

Stage One Effect: Mild burn (1D2 point to each exposed location)

Latent Period: None

Stage Two Effect: Mild Radiation Exposure

Name: Light Gamma-Ray Burst

Stage One Effect: Light burn (1D3 points to each exposed location)

Latent Period: None

Stage Two Effect: Low Level Radiation Exposure

Name: Moderate Gamma-Ray Burst

Stage One Effect: Moderate burn (1D4 points to each exposed location)

Latent Period: None

Stage Two Effect: Moderate Level Radiation Exposure

Name: Severe Gamma-Ray Burst

Stage One Effect: Severe burn (1D6 points to each exposed location)

Latent Period: None

Stage Two Effect: Severe Level Radiation Exposure

Name: Sub-Lethal Gamma-Ray Burst

Stage One Effect: Extreme burn (1D8 points to each exposed location)

Latent Period: None

Stage Two Effect: Sub-Lethal Level Radiation Exposure

Name: Lethal Gamma-Ray Burst

Stage One Effect: Mild burn (1D10 points to each exposed location)

Latent Period: None

Stage Two Effect: Lethal Level Radiation Exposure

Name: Hyper-Lethal Gamma-Ray Burst

Stage One Effect: Mild burn (1D12 points to each exposed location)

Latent Period: None

Stage Two Effect: Hyper-Lethal Level Radiation Exposure

Ionising Radiation

Name: Negligible Level Radiation

Potency: 5-10

Stage One Effect: Potential for genetic mutations

Name: Low Level Radiation

RADs: 20-50

Potency: 11-25

Stage One Effect: As above plus temporary decrease in red blood cells

Name: Mild Radiation

RADs: 50-100

Potency: 26-50

Stage One Effect: Headaches, increased risk of infection (Resilience skill reduced by POT / 5), temporary male sterility

Name: Light Radiation

RADs: 100-200

Delay: 3-6 hours

Potency: 51-100

Stage One Effect: Mild to moderate nausea (-20% to all skill rolls), increased risk of infection (Resilience skill reduced by POT / 2), temporary male sterility

Latent Period: 10-14 days

Stage Two Effect: Spontaneous abortion/stillbirth for pregnant women, depressed immune system (Resilience skill halved)

Fatality: 10% after 30 days

Name: Moderate Level Radiation

RADs: 200-300

Delay: 1-6 hours

Potency: 101-150

Stage One Effect: Nausea (-20% to all skill rolls), vomiting, increased risk of infection (Resilience skill reduced by POT / 5), temporary male sterility

Latent Period: 10-14 days

Stage Two Effect: 50% chance of losing hair, fatigue (Wearied), general illness, loss of white blood cells (Resilience skill halved), possible permanent female sterility

Recovery Period: 1-several months

Fatality: 35% after 30 days

Name: Severe Level Radiation

RADs: 300-400

Delay: 1-6 hours

Potency: 151-200

Stage One Effect: Nausea (-20% to all skill rolls), vomiting, increased risk of infection (Resilience skill reduced by POT / 5), temporary male sterility

Latent Period: 7-14 days

Stage Two Effect: As above plus fatigue (Exhausted), bleeding under the skin, from the mouth and from the kidneys (take 1D2-1 Hit Points of damage per location per day)

Recovery Period: Several Months

Fatality: 50% after 30 days

Name: Acute Level Radiation

RADs: 400-600

Delay: 1-2 hours

Potency: 201-300

Stage One Effect: Nausea (-20% to all skill rolls), vomiting, increased risk of infection (Resilience skill reduced by POT / 5), temporary male sterility

Latent Period: 7-14 days

Stage Two Effect: As above plus fatigue (Exhausted), bleeding under the skin, from the mouth and from the kidneys (take 1D3-1 Hit Points of damage per location per day), infections (Resilience skill halved)

Recovery Period: Several months to a year

Fatality: 60%-90% after 30 days

Name: Sub-Lethal Level Radiation

RADs: 600-1000

Delay: 15-30 minutes

Potency: 301-500

Stage One Effect: Nausea (-20% to all skill rolls), vomiting, increased risk of infection (Resilience skill reduced by POT / 5), temporary male sterility, permanent loss of bone marrow (requires a transplant or Resilience loss is permanent)

Latent Period: 5-10 days

Stage Two Effect: As above plus fatigue (Exhausted), severe internal bleeding (take 1D4-1 Hit Points of damage per location per day), infections (Resilience skill halved)

Recovery Period: Several years but never complete

Fatality: 100% after 14 days

Name: Lethal Level Radiation

RADs: 1000-5000

Delay: 5-30 minutes

Potency: 500-2500

Stage One Effect: Nausea (-40% to all skill rolls), Fatigue (Exhausted), increased risk of infection (Resilience skill reduced by POT / 5), permanent male sterility, permanent loss of bone marrow (requires a transplant or Resilience loss is permanent)

Latent Period: None

Stage Two Effect: Gastric and intestinal cell death and severe diarrhoea (lose 1D3 HP from abdomen every day), severe internal bleeding (take 1D4-1 Hit Points of damage per location per day), infections (Resilience skill halved), delirium (lose 1D3-1 INT per day), coma (if INT reduced to 0), then death

Recovery Period: None

Fatality: 100% after 7 days

Name: Hyper-Lethal Level Radiation

RADs: 5000+

Delay: 5 minutes

Potency: 2500+

Stage One Effect: Nausea (-60% to all skill rolls), Fatigue (Exhausted), increased risk of infection (Resilience skill reduced by POT / 5), permanent male sterility, permanent loss of bone marrow (requires a transplant or Resilience loss is permanent)

Latent Period: 1-2 days

Stage Two Effect: Gastric and intestinal cell death and severe diarrhoea (lose 1D4 HP from abdomen every day), severe internal bleeding (take 1D4 Hit Points of damage per location per day), infections (Resilience skill halved), delirium (lose 1D6 INT per day), coma (if INT reduced to 0), then death

Recovery Period: None

Fatality: 100% after 2 days

Currency

The Credit (Cr.) is the standard unit of currency. Larger denominations include the KiloCredit (KCr; 1,000 Credits), the MegaCredit (MCr; 1,000,000 Credits) and the GigaCredit (GCr, 1,000,000,000 Credits). Alien currencies are automatically converted to Credits and nobody effectively uses anything else.

Passage

Many people need to travel between star systems yet do not own a Starship. Fortunately there are many Starships that can take passengers - at a cost. Space Travel has been standardised into four overarching categories – high, middle, working and low.

High Passage: The passenger receives a stateroom and one ton of cargo space for baggage, and can expect high-quality entertainment. Every 10% of Steward or Steward (High Passage) skill allows the steward to effectively look after one high passage passenger on board a ship (so a character with Steward 60% could care for six passengers).

Middle Passage: Every 10% of Steward or Steward (Middle Passage) skill allows the steward to effectively look after two middle passengers. A baggage allowance of 100 kg is permitted.

Working Passage: This is identical to middle passage but the passenger pays his way by serving on board ship in some capacity.

Low Passage: This is passage while frozen in cryoberths. There is some danger to the passenger – a Medic check is required upon opening the capsule, applying the passenger’s CON to the skill. If failed, the passenger does not survive. Low passage costs includes a 10 kg baggage allowance; many commercial cryoberth units have a built-in baggage compartment.

The price of passage varies depending on how far you want to go:

Parsecs Travelled	High	Middle	Low
1	Cr. 6,000	Cr. 3,000	Cr. 1,000
2	Cr. 12,000	Cr. 6,000	Cr. 1,200
3	Cr. 20,000	Cr. 10,000	Cr. 1,400
4	Cr. 30,000	Cr. 15,000	Cr. 1,600
5	Cr. 40,000	Cr. 20,000	Cr. 1,800
6	Cr. 50,000	Cr. 25,000	Cr. 2,000

CHAPTER 6: Spacecraft Design

Any class A starport has a shipyard which can build any kind of ship, including a Starship with Jump drives; any class B starport can build small craft and ships which do not have Jump drives.

The Hull

Each spaceship has a Hull Rating that varies according to the normal tonnage of the Hull. The Hull Rating is important as it drives different costs and ratings of other systems within the spaceship.

Hull	Hull Code	Price (MegaCredits)
100 tons	1	2
200 tons	2	8
300 tons	3	12
400 tons	4	16
500 tons	5	32

Hull	Hull Code	Price (MegaCredits)
600 tons	6	48
700 tons	7	64
800 tons	8	80
900 tons	9	90
1,000 tons	A	100

Hull	Hull Code	Price (MegaCredits)
1,200 tons	C	120
1,400 tons	E	140
1,600 tons	G	160
1,800 tons	J	180
2,000 tons	L	200

Primitive & Advanced Spacecraft

There is a 5% price discount per TL for older technology devices if bought new at the source, to a maximum of -30%. Characters can buy second-hand outdated technology for a fraction of the price (10% to 75%, depending on condition and usability).

- Low Technology Hulls are not as space-worthy as standard hulls, and use lower-grade material. They have lower Hull and Structure values.
- High Technology Hulls are constructed using new materials according to the most advanced naval architecture designs, making them stronger.

TL	7	8	9	10	11	12	13	14	15	16
Cost	100%	100%	100%	100%	100%	100%	110%	125%	150%	200%
Hull per	100	90	80	70	60	50	45	40	35	25

The **Hull Per** row determines how many Hull and Structure points a spacecraft will have at that technology level. Normally, a ship has one Hull point and one Structure point per 50 tons. At higher technology levels, a ship can have more Hull and Structure for its tonnage. So, a TL 7 ship has 1 Hull Point and 1 Structure Point for every 100 tons and a TL 16 ship has 1 Hull Point and 1 Structure Point for every 25 tons.

Configuration

A ship may have any of three configurations – standard (a wedge, cone, sphere or cylinder), streamlined (a wing, disc or other lifting body allowing it to enter the atmosphere easily) or distributed (made up of several sections, and incapable of entering an atmosphere or maintaining its shape under gravity).

Streamlining a ship increases the cost of the hull by 10%. This streamlining includes fuel scoops which allow the skimming of unrefined fuel from gas giants or the gathering of water from open lakes or oceans. Streamlining may not be retrofitted; it must be included at the time of construction.

A distributed ship reduces the cost of its hull by 10%. It is completely non-aerodynamic and if it enters an atmosphere or strong gravity it will fall to the surface of the planet. It cannot mount fuel scoops.

A standard-hull ship may still enter atmosphere but is very ungainly and ponderous, capable only of making a controlled glide to the surface. Getting it back into space requires an elaborate launch setup and considerable expense. A standard-hull ship may have scoops for gathering fuel from a gas giant but the process will be much more difficult and less efficient. Larger ships of this type will often carry a specialized sub-craft to perform the actual atmospheric skimming.

Armour

Armour does not need to be added in 5% elements, but it must be added in whole armour point values.

For example, a heavily armoured warship might take Bonded Superdense armour twice. This would take up 10% of the hull’s volume and cost 100% of the base cost of the hull, but give 12 points of armour.

Armour Type	TL	Protection	Cost	Max Armour
Titanium Steel	7	2 per 5%	5% of base hull	TL or 9, whichever is less
Crystaliron	10	4 per 5%	20% of base hull	TL or 13, whichever is less
Bonded Superdense	14	6 per 5%	50% of base hull	TL

Reinforced Hull

Hull Size	Reinforced Structure per 5%	Reinforced Hull per 10%
10–90	1	3
100–1,000	2	5
1,000–2,000	4	10
3,000–10,000	8	20
20,000+	16	40

Modifications

Armour modifications must be added when the ship's armour is installed, and cannot be easily retrofitted.

Heat Shielding: A ship without a functioning gravitic drive attempting re-entry without heat shielding will burn up. If equipped with undamaged heat shielding, re-entry is successful on easy Pilot skill check, with failure resulting in burn up (this task is often undertaken more slowly). Damage to the ship from proximity to a star in the absence of heat shielding are at the referee's discretion, but should be harsh! Heat shielding does not provide protection against starship combat weapons; even fusion weapons. Heat shielding costs MCr 0.1 per ton of hull

Radiation Shielding: Radiation shielding improves the ship's protection against radiation from both natural sources (solar flares, pulsars) and artificial (nuclear bombs, meson hits). A ship with radiation shielding decreases the amount of rads absorbed by all crew by 1,000, treats the bridge as if it is hardened and provides 6 extra armour points against radiation damage from nuclear weapons, particle beams and fusion guns. Radiation shielding costs MCr 0.25 per ton of hull.

Reflec (TL 10): Reflec coating on the hull increases the ship's armour against lasers by 3. Adding Reflec costs 0.1 Megacredits per ton of hull and can only be added once.

Self-Sealing (TL 9): A self-sealing hull automatically repairs minor breaches such as micrometeoroid impacts, and prevents hull hits from leading to explosive decompression. It costs 0.01 Megacredits per ton of hull.

Stealth (TL 11): A stealth coating absorbs radar and lidar beams, and also disguises heat emissions. This gives a -40% Penalty to any Sensors rolls to detect or lock onto the ship. Adding Stealth costs 0.1 Megacredits per ton of hull, and can only be added once.

Hull and Structure

Initial damage is applied to the Hull; once the Hull is breached, further damage goes to the Structure. When all Structure Points have been lost, the ship has been smashed to pieces. A ship has one Hull Point and one Structure Point per 50 tons of displacement.

Structure

Modifications

Reinforced Structure: For every 5% of the ship's total tonnage allocated to reinforced structure, the ship gains extra structure points. Reinforced structure costs MCr 0.2/ton.

Reinforced Hull: For every 10% of the ship's total tonnage allocated to reinforced hull, the ship gains extra hull points. Reinforced hull costs MCr 0.1/ton.

Armoured Bulkheads: Adding internal bulkheads requires tonnage equal to 10% of the tonnage of the protected system, but negates the first hit on that system.

Modular Hull: Up to 75% of a ship's internal tonnage may be designated as modular, allowing it to be swapped out easily. This tonnage may not include the bridge, power plant, drives or any structural or armour options. Different modules can be installed for different tasks. Making a modular hull increases the cost of the overall hull by the percentage designated as modular.

The Engineering Section

- A non-Starship must have a manoeuvre drive and a power plant.
- A Starship must have a Jump drive and a power plant; a manoeuvre drive may also be installed, but is not required.

- Starships may also have Dimensional Travel Drives (D-Drives), Temporal Drives (T-Drives) or Wormhole Drives (W-Drives) if that technology is allowed in the campaign.

Drive Costs and Mass

	J-Drive		M-Drive		P-Plant		D-Drive		T-Drive		W-Drive	
Drive Code	Tons	MCr	Tons	MCr	Tons	MCr	Tons	MCr	Tons	MCr	Tons	MCr
A	10	10	2	4	4	8	4	8	4	8	4	8
B	15	20	3	8	7	16	7	16	7	16	7	16
C	20	30	5	12	10	24	10	24	10	24	10	24
D	25	40	7	16	13	32	13	32	13	32	13	32
E	30	50	9	20	16	40	16	40	16	40	16	40
F	35	60	11	24	19	48	19	48	19	48	19	48
G	40	70	13	28	22	56	22	56	22	56	22	56
H	45	80	15	32	25	64	25	64	25	64	25	64
J	50	90	17	36	28	72	28	72	28	72	28	72
K	55	100	19	40	31	80	31	80	31	80	31	80
L	60	110	21	44	34	88	34	88	34	88	34	88
M	65	120	23	48	37	96	37	96	37	96	37	96
N	70	130	25	52	40	104	40	104	40	104	40	104
P	75	140	27	56	43	112	43	112	43	112	43	112
Q	80	150	29	60	46	120	46	120	46	120	46	120
R	85	160	31	64	49	128	49	128	49	128	49	128
S	90	170	33	68	52	136	52	136	52	136	52	136
T	95	180	35	72	55	144	55	144	55	144	55	144
U	100	190	37	76	58	152	58	152	58	152	58	152
V	105	200	39	80	61	160	61	160	61	160	61	160
W	110	210	41	84	64	168	64	168	64	168	64	168
X	115	220	43	88	67	176	67	176	67	176	67	176
Y	120	230	45	92	70	182	70	182	70	182	70	182
Z	125	240	47	96	73	192	73	192	73	192	73	192
AA	135	260	51	104	79	206	76	206	76	206	76	206
BB	145	280	55	112	85	222	79	222	79	222	79	222
CC	155	300	59	120	91	238	82	238	82	238	82	238
DD	165	320	63	128	97	254	85	254	85	254	85	254

Performance by Hull Volume

	100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000
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A	2	1	–	–	–	–	–	–	–	–	–	–	–	–	–
B	4	2	1	1	–	–	–	–	–	–	–	–	–	–	–
C	6	3	2	1	1	1	–	–	–	–	–	–	–	–	–
D	6	4	2	2	1	1	1	1	–	–	–	–	–	–	–
E	6	5	3	2	2	1	1	1	1	1	–	–	–	–	–
F	6	6	4	3	2	2	1	1	1	1	1	–	–	–	–
G	6	6	4	3	2	2	2	2	1	1	1	1	–	–	–
H	6	6	5	4	3	2	2	2	2	2	1	1	1	–	–
J	6	6	6	4	3	3	2	2	2	2	2	1	1	1	–
K	6	6	6	5	4	3	3	3	2	2	2	2	1	1	1
L	6	6	6	5	4	3	3	3	3	3	2	2	2	1	1
M	6	6	6	6	4	4	3	3	3	3	3	2	2	2	1
N	6	6	6	6	5	4	4	4	3	3	3	3	2	2	2
P	6	6	6	6	5	4	4	4	4	4	3	3	3	2	2
Q	6	6	6	6	6	5	4	4	4	4	4	3	3	3	2
R	6	6	6	6	6	5	5	5	4	4	4	4	3	3	3
S	6	6	6	6	6	5	5	5	5	5	4	4	4	3	3
T	6	6	6	6	6	6	5	5	5	5	5	4	4	4	3
U	6	6	6	6	6	6	6	5	5	5	5	4	4	4	4
V	6	6	6	6	6	6	6	6	5	5	5	5	4	4	4
W	6	6	6	6	6	6	6	6	6	5	5	5	4	4	4
X	6	6	6	6	6	6	6	6	6	6	5	5	5	4	4
Y	6	6	6	6	6	6	6	6	6	6	5	5	5	4	4
Z	6	6	6	6	6	6	6	6	6	6	6	5	5	5	4
AA	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5
BB	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5
CC	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
DD	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

For manoeuvre drives, the potential is the Thrust number (Tn), which is the number of Gs acceleration available.
For Jump drives, the potential is the Jump number (Jn), or Jump range in parsecs.

The power plant rating (A-Z) must be at least equal to either the manoeuvre drive or Jump drive rating whichever is higher.

Types of Manoeuvre Drive

There are many kinds of manoeuvre drive. The most common are listed below, but enterprising GMs and Players may come up with different types of drive.

Gravitic Drive: The standard drive uses gravitational energy for propulsion.

Reaction Drive: The reaction drive takes the same space as a Gravitic drive, and costs less, but this is offset by the large fuel requirements in addition to fuel used for the jump drive and power plant. To calculate a ship's fuel requirements, use the following system: *Fuel Required (as a percentage of the ship's displacement) = 2.5% x Maximum Thrust x hours of Maximum Thrust required.* As space combat turns are 6 minutes long, each hour of fuel gives 10 turns of operation at maximum thrust. The total reserve of fuel is expressed as a number of G/TURNS, which are equivalent to the total number of thrust points available. Each thrust point spent reduces the number of G/TURNS remaining in the tank, and a ship cannot manoeuvre once this fuel is spent.

Solar Sail: A deployed solar sail covers an area dozens of kilometres across. It is made of a flexible synthetic fabric that has limited self-repair capabilities. Particles emitted by the sun – the 'solar wind' catch the sail and provide a minuscule amount of thrust. A ship using a solar sail as its primary method of propulsion has a Thrust of 0 and requires several days or weeks to change its course or speed. A solar sail costs MCr 0.01 per ton of ship, and takes up 5% of the ship's total tonnage when stowed. Obviously, this is ineffective in a combat situation. Jump drive can not be used with a sail deployed.

Primitive & Advanced Spacecraft

There is a 5% price discount per TL for older technology devices if bought new at the source, to a maximum of –30%. Characters can buy second-hand outdated technology for a fraction of the price (10% to 75%, depending on condition and usability).

Drives

Drives of a certain rating are normally only available at certain Tech Levels. If a drive is purchased at a different Tech Level to that corresponding to its rating, the cost and tonnage may differ from the norm.

Rating	1	2	3	4	5	6
Manoeuvre TL	7	7	8	8	8	9

Jump TL	9	11	12	13	14	15
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So, a Jump 3 drive is normally available at TL 12, but it is possible to develop a Jump 3 drive at TL 11, but the drive will have twice the tonnage and cost half again the normal amount. Buying a Jump 3 drive at TL 14 costs 125% of the normal costs of a drive but the tonnage is reduced to 90% of normal.

	<i>TL -1</i>	<i>TL +0</i>	<i>TL +1</i>	<i>TL +2</i>	<i>TL+3</i>
Drive Tonnage	200%	100%	95%	90%	75%
Drive Cost	150%	100%	110%	125%	200%

Power Plants

As technology advances, so the cost and functionality of Power Plants improve. Low Tech power plants are generally heavier than the norm and High tech power plants are lighter and more expensive than the norm, reflected in the table below.

	<i>TL 8-10</i>	<i>TL 11-14</i>	<i>TL 15+</i>
Tonnage	125%	100%	75%
Cost	100%	100%	200%

Power and Energy

A ship uses up Energy as it operates. The different drives use up energy, energy weapons and shields use up energy, even life support and the on-board technology uses up energy.

A ship has a certain number of Energy Points (EPs) and these EPs are used up in standard operation. A power plant supplies ten times its rated potential in EPs per hour.

Batteries: Surplus EPs can be stored in batteries. Each battery can store a certain number of EPs depending on its rating and weighs its rating in tons, so a set of batteries storing 20 EPs weighs 20 tons.

Emergency Power: An emergency power system allows a vessel to keep functioning even when its main power plant has been knocked offline by damage and is a cheaper alternative than a second backup power plant. If the power plant suffers a third hit, the emergency power system activates, and allows the ship to function normally for 30 minutes or 5 Combat Rounds of full operations – or until it suffers another power plant hit. An emergency power system has a tonnage and cost equal to 10% of the tonnage and cost of the main power plant.

Chemical power plants: A chemical power plant is 40% bigger than its fusion equivalent, costs MCr 1.25 per ton and requires 20 times the amount of fuel for the same endurance.

Fission power plants: Fission plants provide the same power as a fusion power plant and can provide any power performance level. However, they are twice the size and price of a fusion power plant. They are available at TL7.

Solar Panel: Extendible solar panels provide backup power for vessel's power plants. They are sometimes installed in scout or mining ships, giving them greater range and endurance. The size of solar panels required to power a ship is 1/10th that of the main power plant, to a minimum of 0.5 tons. If the panels are fitted to a ship without a power plant, then assume the (non-existent) main power plant is sized to deliver a performance rating of 1. A ship equipped with solar panels within 15 AUs of an active star consumes power plant fuel at one-quarter the normal rate as long as it is only engaged in minimal manoeuvring and does not fire weapons. Minimal manoeuvring does not include long periods at full thrust, so solar panels are useless for trade vessels. Solar panels cost MCr 0.1 per ton. No power plant fuel is consumed, and endurance is considered as infinite, if the ship is not manoeuvring, using active sensors or refining fuel for use. Jump cannot be entered with solar panels deployed.

Energy Costs

Action	Cost (EPs)	Example
Jump	$0.1 \times \text{tonnage} \times \text{Jump distance}$	A 100 ton ship making a Jump 4 costs 40EPs
AI	1 per AI per hour	A Starship with 5 AIs burns 5 EPs per hour
Shields	$1 / \text{AP/Hour} + 1 \text{ per HP absorbed}$	A ship with Shields 5 uses 5EPs / hour but blocking a 6 point blast uses an extra 6 EPs
Life Support	1 per 10 people per hour	A ship with 65 people uses 7EPs per hour on Life Support
Tractor Beam	$(0.1 \times \text{tonnage}) + \text{Thrust per round}$	Trapping a 200 ton ship with thrust 3 costs $(0.1 \times 200) + 3 = 23$ EPs per round
FTL Travel	$0.1 \times \text{tonnage} \times \text{Speed} / \text{Day}$	A 100 ton ship moving at Speed 4 costs 40EPs per day
Hyper Drive Travel	$0.1 \times \text{tonnage} \times \text{Speed} / \text{Day}$	A 100 ton ship moving at Speed 4 costs 40EPs per day

Fuel

A Power Plant uses fuel equal to its rating every day. Different types of fuel may be used.

Hydrogen: is used for fusion reactors and ion drives

Anti-Matter: is used to power advanced drives by colliding with matter particles

Neutronium: The super-condensed matter from a White Dwarf or neutron star can be used in a matter-destruction power plant, storing a lot of fuel in a very small containment field

Drop Tank: Military assault ships sometimes use external fuel tanks that are explosively jettisoned as the ship enters jump space. The virtue of a drop tank is that it allows a ship to carry a large amount of extra fuel, but the tank carries a risk. Jumping is a delicate procedure, which is greatly complicated by having big empty fuel tanks flying around in close proximity to the jump bubble.

- Drop tanks come in two parts. Firstly, there are the docking ports, fuel injectors and explosive collars that allow the spacecraft to mount drop tanks and to jettison them quickly. Secondly, there are the physical tanks themselves.
- A drop tank mount costs MCr1 per 50 tons of fuel in the drop tank, and takes up two tons of space per 50 tons of fuel for the fittings to transfer fuel.
- A drop tank itself costs MCr 0.1 per 50 tons of fuel space.
- Jumping using a drop tank applies a $-(15 - \text{TL}) \times 10\%$ Penalty to the roll for misjumping.
- When a drop tank is used, tank has a 50% chance of surviving the ejection process and can be retrieved and reused. Otherwise, it is destroyed by the expanding jump bubble or warped by the jettison explosion. At TL14 the use of drop tanks has been improved to such a degree that drop tanks designed at this tech level or above will automatically survive use.
- A ship's M-Drive rating must be recalculated when carrying a drop tank. For example, a 200-ton ship with a 150-ton drop tank counts as being a 400-ton ship for the purposes of determining its effective M-Drive rating. Round the tank's tonnage up to the nearest hull size. Drop tanks can also be used to store fuel for other purposes, such as reaction drive propellant.
- The jump performance for the ship is calculated assuming that the drop tanks are not attached unless the jump is to be carried out without jettisoning the drop tanks. In this case, the jump performance should be calculated in a similar manner to the effective M-Drive rating.
- The power plant rating must be calculated assuming the drop tanks are not in place.
- Drop tanks are relatively fragile and if they are attached when the ship is attacked, they are very vulnerable to fire. A drop tank has one hull point and one structure point per 100 tons. Determine the proportion of the drop tank is of the combined ship and drop tank. When the ship is fired on, there is a probability equal to this that the drop tank will be hit, until the drop tank is destroyed. For every point of damage it will suffer hit it will take hull and structure damage as normal and automatically suffer a "fuel" hit as well to the fuel in the drop tank.

Metal Hydride storage: Instead of storing the ship's hydrogen in liquid form at extremely low temperature with a high risk of explosion if a leak occurs into the inhabited spaces of the ship, it is possible to store hydrogen in a more bulky form in a room temperature non-flammable metal hydride matrix. Any portion of the ship's fuel tankage may be designated as metal hydride storage. This storage holds 50% less hydrogen fuel than a more normal tank. It is available at TL9 and costs MCr0.2 per ton. If the storage is hit the following revised damage rules are used:

- First Hit: minor damage 1d6% of fuel lost
- Second Hit: loss of 1d6x3% fuel
- Third and Subsequent Hits: as per normal fuel hit.

Burning Your Bridges (or using Jump Fuel in an Emergency)

Starships have jump drives, which require significant amounts of fuel to sustain a jump. If you have enough jump fuel left it is possible to start to draw on the jump reserve for the Reaction Drive. Each parsec of Jump capability requires 10% of the tonnage of the hull in fuel. Each 10% of fuel will provide an extra 40 Thrust Points of Operations.

However, each time the fuel is reduced below a 10% increment, the jump range is decreased by 1 parsec. So, if an Cruiser with Jump 2 worth of fuel left in the tanks was forced to eat into its jump reserve, the first fuel used would reduce the range to 1 parsec, and jump would no longer be capable once fuel fell below 10%. This is a risky manoeuvre for an attacker, as this reduces their chance to escape from a system that they have jumped into and attacked.

Jump Drive

Fast–Cycle Jump: A normal jump drive requires the engine to be prepped before jump, and the ship cannot jump again until the engine has been prepared and the ship’s batteries have recharged. This procedure takes at least one hour, and usually as many as sixteen if all checks are preformed. A fast–cycle drive recharges much faster and does not normally require preparation. After a jump, roll 2d6. On a 3+, the drive does not need a preparation roll and can jump again immediately. However, the time between jumps raises the chance of a misjump. A fast–cycle jump drive costs 10% more than a conventional jump drive.

Time Between Jumps	Misjump Penalty
One minute or less	–60%
One minute to 30 minutes	–20%
30 minutes to one hour	–10%

Stealth Jump: A stealth jump drive minimises the burst of radiation caused by the transition from jump space into real space. Normally, a ship that emerges into real space will be automatically detected if it emerges within the “minimal” detail range of the sensor. However, detecting a ship equipped with a stealth drive emerging into real space requires a Sensor, Intelligence or Education, Difficult (–20%) skill check if within “limited” detail range of the sensor or a Very Difficult (–40%) skill check if within “Minimal” detail range of the sensor. A stealth drive takes up no extra tonnage but costs ten times the amount of a standard jump drive.

The Main Compartment

The ship’s main compartment contains all non-drive features of the ship, including the bridge, ship’s computer, the staterooms, the low passage berths, the cargo hold and other items.

Bridge

The size of the bridge varies depending on the size of the ship:

Ship Size	Bridge Size
200 tons or less	10 tons
300 tons – 1000 tons	20 tons
1,100 – 2000 tons	40 tons
More than 2,000 tons	60 tons

The cost for this bridge is MCr. 0.5 per 100 tons of ship.

Command Bridge: A command bridge is intended for use by warships that will be co–ordinating the efforts of a squadron of other spacecraft. It incorporates a large-scale holographic display of fleet actions, enhanced communications and control electronics, and space for more command staff. A spacecraft command bridge takes up 80 tons, but gives a +10% bonus to Tactics (naval tactics) rolls. A command bridge costs 50% more than a conventional bridge of the same size. Capital ship command bridges take up 80 tons per section of ship and located in a single location (which may be separate from the main bridge).

Compact Bridge: A compact bridge crams as much equipment and control stations into as small a place as possible. Compact bridges take up 25% less tonnage than a normal bridge of the same type. However, all skill checks performed on the bridge suffer a –10% penalty due to the un–ergonomic design.

Detachable Bridge: This bridge design can be ejected from the ship in an emergency to become a lifeboat for the command crew. The bridge has two weeks of life support and battery power, while emergency thrusters give it basic manoeuvring capabilities. A detachable bridge is even capable of soft–landing on a planetary surface. Detachable bridges may not be fitted to ships of more than 6,000 tons. See the table below for details of the various types of this bridge.

	Type 1	Type 2	Type 3	Type 4
Ship size	200 tons or less	201–1,000 tons	1,001–2,000 tons	More than 2,000 tons
Tonnage	15	30	50	80
Cost per ton of ship	MCr 0.8	MCr 0.8	MCr 0.8	MCr 0.8
Hull	0	0	1	1
Structure	1	1	1	1
Thrust	0.1g	0.1g	0.1g	0.1g

Hardened Bridge: A hardened bridge is shielded against radiation attacks. The ship’s computer systems are immune to EMP and the number of rads absorbed by the bridge crew is reduced by 1,000. Hardening a bridge adds 25% to the cost of the bridge. If a ship has radiation shielding installed, it is assumed to be hardened.

Holographic Controls: This bridge design incorporates advanced interactive holographic displays, reconfiguring itself to adapt to the current situation. A bridge with holographic controls is always optimised, and gives a +2 bonus when rolling for Initiative. A holographic bridge adds 25% to the cost of the bridge.

Computer/AI

The computer is identified by its model number which defines its base cost and INT. Each AI comes with different modules loaded, either pre-generated or detailed by the players.

Electronics

A ship comes with a basic communications, sensor and emissions-control electronics suite, but more advanced systems can be installed. The Dice Modifier applies to jamming and counter-jamming attempts.

System	TL	Penalty	Includes	Tons	Cost
Standard	8	–40%	Radar, Lidar	Included in bridge	Included in bridge
Basic Civilian	9	–20%	Radar, Lidar	1	Cr. 50,000
Basic Military	10	+0	Radar, Lidar, Jammers	2	MCr. 1
Advanced	11	+10%	Radar, Lidar, Densitometer, Jammers	3	MCr. 2
Very Advanced	12	+20%	Radar, Lidar, Densitometer, Jammers, Neural Activity Sensor	5	MCr. 4

Berths

A Starship contains many berths, for crew and passengers.

Staterooms: Each stateroom is sufficient for one person, displaces 4 tons, and costs Cr. 500,000. No stateroom can contain more than two persons, as it would strain the ship’s life support equipment. The tonnage and cost of the staterooms includes the life support systems needed to keep the crew alive.

Low Passage Berths: One low passage berth carries one low passenger, costs Cr. 50,000, and displaces one-half ton.

Emergency Low Berths: These are also available; they will not carry passengers, but can be used for survival. Each costs Cr. 100,000 and displaces one ton. Each holds four persons.

Cargo Hold

The design plan must indicate cargo capacity. There is no cost but cargo carried may not exceed cargo capacity. Any space left over after all systems have been installed may be allocated to cargo space.

Fuel Scoops: Fuel scoops allow an unstreamlined ship to gather unrefined fuel from a gas giant. Streamlined ships have fuel scoops built in. Adding scoops costs Cr. 1,000,000 and requires no tonnage.

Fuel Processors: Fuel processors convert unrefined fuel into refined fuel. One ton of fuel processors can convert 20 tons of unrefined hydrogen into refined fuel per day. A ton of fuel processing equipment costs Cr 50,000.

Luxuries

Luxuries cost Cr. 100,000 per ton, and make life on board ship more pleasant. Each ton of luxuries counts as one level of the Steward skill for the purposes of carrying passengers, and therefore allows a ship to carry middle and high passage passengers without carrying a trained steward on board.

Ship’s Locker

Every ship has a ship’s locker. Typical equipment carried aboard will include protective clothing, vacc suits, weapons such as shotguns or pistols, ammunition, compasses and survival aids, and portable shelters. The contents of the locker are defined only when they need to be but always contains vacc suits and other useful items. The ship’s locker is usually protected by a biometric lock keyed to the ship’s officers.

Vehicles and Drones

The tonnage and cost covers minimal hangar space, indicating the vehicle is either carried on the outer hull or in a form-fitting compartment on board. For ease of access and for storage of spare parts and equipment, many ships will allocate more space to some vehicles.

Mining Drones: Mining drones allow a ship to mine asteroids. Each set of mining drones takes up ten tons, and allows the ship to process 1d6 x 10 tons of asteroid per working day. The tonnage allocated includes ore handling machinery, allowing the ship to take on ore and transfer it to the cargo bay.

Repair Drones: Carrying repair drones allows a ship to make battlefield repairs with the AutoRepair software or when managed by a character with Mechanic or Engineer skills. Repair drones have the same statistics as repair robots only without an Intellect program.

Probe Drones: Probe drones are for surveying planetary surfaces. Each ton of probe drones contains five drones. Probe drones can be dropped from orbit in disposable entry shells but must be recovered manually. Probe drones are also capable of surveying orbiting satellites, derelicts and other space debris. They can also be used as communications relays.

Escape Pods: This covers the installation of rescue bubbles and other escape pods for the entire crew.

Life Boat, Ship’s Boat, Shuttle, Pinnace, Cutter: These are all small craft, hangared either in or on the ship’s hull.

Air/Raft, ATV: These are vehicles, also stored in or on the ship.

Armaments

A ship has one hardpoint per 100 tons of ship and each weapon system takes up one hardpoint. A weapon system may include multiple weapons – for example, a triple turret contains three lasers, missile launchers, sandcasters or some combination of three weapons.

Weapon Systems

A ship can have different types of Weapon Systems. Normal weapon systems are Turrets, Bays, Screens and Shields.

Turrets: One turret may be attached to each hardpoint on the ship. If a turret is installed, then one ton of space must be allocated to fire control systems:

Weapon	Single Turret	Double Turret	Triple Turret	Pop-Up Turret	Fixed Mounting
TL	7	8	9	10	-
Tons	1	1	1	2	0
Cost (MCr.)	0.2	0.5	1	+1	x0.5

Details of turret weapons may be found in the Equipment section.

Bays: Bay weapons are much larger than turrets, and take up 50 tons of space and one hard point, as well as one ton of space for fire control.

Details of bay weapons may be found in the Equipment section.

Screens: Screens are defensive systems that protect against specific attacks.

Weapon	Nuclear Damper	Meson Screen
TL	12	12
Tons	50	50
Cost (MCr.)	50	60
Effect	Reduces fusion gun and nuclear missile damage by 2d6, removes automatic crew hit from nuclear missile attacks	Protects against meson weapon damage, reducing damage by 2d6

Shields: Shields are defensive systems that block or absorb some of the damage done to the ship in combat.

Weapon	Weapon Shield
TL	13
Tons	50
Cost (MCr.)	10x Max Rating
Effect	Protects against blaster attacks, reducing damage by 1 per point of rating

Primitive & Advanced Armements and Screens

There is a 5% price discount per TL for older technology devices if bought new at the source, to a maximum of –30%. Characters can buy second-hand outdated technology for a fraction of the price (10% to 75%, depending on condition and usability).

Armaments & Screens

	<i>TL -1</i>	<i>TL +0</i>	<i>TL +1</i>	<i>TL +2</i>	<i>TL+3</i>
Tonnage	200%	100%	90%	75%	60%
Cost	150%	100%	110%	125%	200%

Weapon	Pulse Laser	Beam Laser	Particle Beam	Fusion Gun	Meson Gun	Nuclear Damper	Meson Screen
Tech Level	7	9	8	12	11	12	12
Weapon	Missile	Nuclear Missile	Smart Missile	Torpedo	Railgun	Meson Flicker	
Tech Level	6	6	8	9	9	13	

Instead of decreasing the tonnage of the weapon or screen, it is possible to select upgrades for a higher–technology weapon or screen. One upgrade may be added per extra Tech Level. Some upgrades are double upgrades, consuming two ‘slots’. Each modification may only be taken once. Each upgrade adds a Modification to the weapon at no cost.

The following are Double Upgrades:

- Accurate
- Resilient
- Variable Range
- Very High Yield

Modifications

Ship Armaments can be modified in the same way as other weapons and equipment.

Accurate: Accurate weapons have a +10% bonus to all attack rolls (not applicable to screens or shields). In capital ship combat, if all the weapons firing in the barrage are accurate, a +10% bonus is used on the attack roll.

Easy to Repair: Easy to Repair armaments give a +10% bonus to all repair attempts in spacecraft and capital ship combat.

High Yield: When rolling damage for a High Yield weapon or performance of a high yield screen, any ‘1’s rolled on the dice are counted as ‘2’s. For example, a roll of 1, 1, 2 on a High Yield Particle Beam attack would deal 6 damage, as the two ‘1’s become two ‘2’s. In capital ship combat, if all the weapons firing in the barrage have high yield, a +10% bonus is used on the attack roll. High yield screens have no effect in capital ship combat.

Long Range: The optimum range for the weapon is increased by one band. For example, a Pulse Laser has an Optimum range of Short. A Long Range Pulse Laser has an Optimum range of Medium instead (not applicable to screens or shields)

Resilient: The first hit on a Resilient weapon is ignored. This only applies in capital ship combat if all the weapons of that type in that section are resilient.

Variable Range: A Variable Range weapon increases its Optimum Range by one band in either direction. For example, a Pulse Laser has an Optimum range of Short. A Variable Range Pulse Laser has an Optimum Range of Close–Medium (not applicable to screens)

Very High Yield: When rolling damage for a Very High Yield weapon, any ‘1’s or ‘2’s rolled on the dice are counted as ‘3’s. For example, a roll of 1, 1, 2 on a Very High Yield Particle Beam attack would deal 9 damage, as all the dice are below the threshold and become ‘3’s. In capital ship combat, if all the weapons firing in the barrage have high yield, a +20% bonus is used on the attack roll. Very high yield screens have no effect in capital ship combat

External Components

Aerofins: Extendible aerofins improve a spacecraft’s manoeuvrability in atmosphere only, giving a +20% bonus to all Piloting rolls made in an atmosphere. Aerofins take up 5% of the ship’s tonnage, and cost MCr0.1 per ton. The penalties for atmospheric operations still apply.

Breaching Tube: All airlocks include flexible plastic docking tubes that allow passengers to cross from one ship to another by floating through the air–filled tube. A breaching tube is a military version of the common docking tube. Instead of a thin myomer, the breaching tube is made of a combination of ballistic cloth and reflec. The breaching tube does not end in a docking collar, but in a magnetic clamp with a ring of plasma torches that can burn through the hull of an enemy vessel when attached. A breaching tube takes up three tons of space and costs MCr 3. To use the breaching tube the craft must be adjacent to the target vessel and then succeed in a docking action. As the vessel does not have to line up with an airlock, this manoeuvre is easier than using a normal docking tube and receives a +10% bonus if the boarding vessel does not want to enter via the airlock. If access is acquired via an airlock the plasma torches quickly burn through the airlock and boarding can begin immediately. If trying to get through the hull, the plasma torches will take 1 full turn to cut through, increasing by 1 turn for each 2 points of armour (round down). Each breaching tube provides 5 armour against personal and vehicle weapons and 10 armour against lasers. A hit from a starship weapon will destroy the breaching tube if a successful Point Defence roll is made.

Docking Clamp: A docking clamp allows a spacecraft to carry a small craft or other vessel on the outside of the hull. Recalculate the ship's Thrust Number by adding the tonnage of the spacecraft and the docked craft together, round up to the nearest hull size, then compare that to the thrust by drive volume table. If performance is reduced to the point that it has no rating, then treat the ship as if it has the equivalent of a solar sail. Jump performance is reduced in a similar manner, but reductions below 1 mean the drive cannot function. The size of the vessel that can be clamped depends on the size of the docking clamp.

Clamp Tonnage	Attached Ship Maximum	Cost
1	10–30	MCr 0.5
5	40–90	MCr 1.0
10	100–300	MCr 2.0
20	400–2,000	MCr 4.0
50	2,000+	MCr 8.0

Grappling Arm: A grappling arm is a remote-control device for picking up or manipulating objects in space. The arm is a flexible tentacle of thousands of telescoping segments, capable of reaching out up to 250 metres. The arm ends in a set of cameras and grippers of varying sizes, from large claws to tiny micro-manipulators. It also carries a toolkit which can be customised for a particular task. A grappling arm takes up two tons of space and costs MCr 1.

Tractor Beam: Any ship with a Tractor Beam may lock on to a nearby ship and pull it in, normally to a docking bay. This costs 0.1 x tonnage per round if the ship is stationary, however if the ship is trying to move away the cost is increased by the ship's Thrust.

Internal Components

Airlocks: A ship has at least one airlock per 100 tons. The average airlock is large enough for three people in vacc suits to pass through at the same time. An airlock takes ten seconds to cycle. Under normal circumstances, airlocks are locked down from the bridge and require a Hard (–40%) Engineer (electronics) check to override. An unlocked airlock can be triggered from outside. Airlocks generally have vacc suits, rescue bubbles and cutlasses in a ship's locker nearby.

Armoury: Ships carrying a large number of marines or soldiers can benefit from an armoury, a specialised weapons store. An armoury can only be accessed by those with the correct codes (usually the ship's senior officers and security team) and contains a wide variety of weapons. In game terms, an armoury has enough snub pistols for the crew, enough accelerator or gauss rifles for any marines, and a selection of other military equipment like grenades, combat drug packs, combat armour and communications equipment. Where military vessels are concerned, the number of armouries built into the ship's design is based on crew size. One armoury is installed for either every 50 crew members, or every 10 marines, in order to provide adequate storage for equipment, weapons and ammunition. A general armoury for a spacecraft costs MCr 0.5 and takes up two 2 tons of space.

Cargo Hatches: Ships with cargo space have cargo hatches, allowing up to 10% of their cargo to be transferred at any time. Otherwise they behave as airlocks.

Briefing Room: A specialised briefing room is useful on mercenary cruisers and other adventuring ships, where teams can discuss plans or meet with clients privately. A briefing room gives a +10% bonus to Tactics (military tactics) checks made when planning missions on board ship. Ships with command bridges and fighter squadrons require additional briefing rooms and facilities. Capital ships must therefore have one briefing room per ship section, and one briefing room for every 20 fighter or bomber crew.

Hangar: Normally, when a small craft is included in the design of a larger one, it is installed into a form-fitting enclosure in the hull of the mother vessel. The scout's air/raft, for example, is carried in a small compartment in the forward section, with barely enough room for passengers to scramble on board. Most repairs and maintenance require the air/raft to be launched first. Adding a full-scale hangar allows for repairs and maintenance of the small craft when they are back on the ship. The hangar includes spare parts and specialised testing and repair equipment for the stored craft. A hangar requires 30% of the space allocated to the small craft, and costs MCr 0.2/ton.

Launch tubes: Launching and recovering small craft from a larger vessel is usually an activity taking 30 minutes to launch or recovery one craft. Launch tubes allow small craft to be launched and recovered rapidly from a ship. The size of a launch tube is twenty-five times the tonnage of the largest craft that will be deployed in this manner, and they cost MCr 0.5/ton. With a launch tube, up to ten small craft can be launched per round. Multiple launch tubes can be installed.

Laboratory: Space allocated to laboratories can be used for research and experimentation. Each four tons of lab space allows for one scientist to perform research on board ship. The cost for research equipment varies depending on the type of research undertaken, but is generally around MCr 1.0 per 4 tons.

Library: A library room contains computer files as well as lecterns, display screens, holotanks and even hard copies of books. A good library is useful for both research and passing time in jump space. Having a library on board a ship gives one extra week of training time for new skills per week spent in jump space.

Vault: A vault is a special armoured chamber in the heart of a spacecraft, designed to survive attacks that would annihilate the rest of the ship. A vault has another four Hull and Structure points that only come into play when the ship housing the vault is destroyed. A vault can contain cargo, staterooms or any other internal components equivalent up to 6 tons.

Component	Type	TL	Tonnage	Cost (MCr)
Fuel				
Drop Tank Mount	External	9	2/50 tons of fuel	1/50 tons of fuel
Drop Tank	Fuel Tank	9	–	0.1/50 tons of fuel
Metal Hydride Storage	Internal	9	Varies	0.2/ton
Bridge				
Command	Internal	12	80	50% more than standard bridge
Compact	Internal	8	Varies	10% more than standard bridge
Detachable	Internal	10	15 30 50 80	0.8/ton of ship
Hardened	Internal	12	Varies	25% more than standard bridge
Component	Type	TL	Tonnage	Cost (MCr)
Holographic	Internal		Varies	25% more than standard bridge
Sensors				
Survey	Internal	12	10	10
Counter–Measure	Internal	13	7	6
Military Countermeasure	Internal	15	20	25
External				
Aerofins	External	8	5% of ship	0.01/ton
Breaching Tube	External	10	3 tons	3
Docking Clamp	External	8	Varies	Varies
Grappling Arm	External	8	2	1
Solar Panels	External	8	10% of power plant	0.1/ton
Internal				
Armoury	Internal	10	2	0.5
Briefing room	Internal	8	4	0.5
Hangar	Internal	8	Varies	0.2/ton
Laboratory	Internal	12	4	1
Library	Internal	8	4	4
Vault	Internal	14	12	6

Spacecraft Operations

Atmospheric Operations

A streamlined ship is designed to enter a planetary atmosphere, and can function like a conventional aircraft. Pilot or Flyer (winged) checks are required in high winds and other extreme weather.

A standard-configuration ship can also enter a planet’s atmosphere, but is reliant on its thrusters to keep it aloft at all times and is extremely ungainly. Pilot checks are required for all movement and suffer a –20% Penalty.

A distributed ship must make a Pilot check at a –40% Penalty when it enters an atmosphere and for every minute of flight. Each check that is failed inflicts 2d6 points of damage.

Boarding, Docking and Landing

Landing: Any ship with a standard or streamlined hull may land on the surface. Unstreamlined ships suffer a –20% to any Pilot checks made in atmosphere while a ship with a Distributed hull suffers a –40% to any Pilot checks, and is likely to take severe structural damage if it lands. Landing at a starport is a Routine (+20%) task for most ships taking 10–60 seconds. Most ships have landing gear, allowing them to touch down ‘in the wild’, which requires an Average (+0), Difficult (–20%) or even Hard (–40%) check, depending on local conditions. Non-distributed ships can also land on bodies of water without sinking. Failing a landing roll means that the ship has landed improperly or even crashed.

Docking: Two spacecraft may dock if they are close together and neither ship attempts to resist the docking manoeuvre. Many airlock designs across charted space are compatible; for incompatible airlocks, ships extend flexible plastic docking tubes that adapt to the

target airlock. Docking with another vessel is a Routine (+20%) Pilot task taking 1–6 minutes. If one ship is drifting or unpowered, the difficulty rises to Difficult (–20%).

Boarding: Hostile boarding actions are safest when the enemy ship is crippled, in which case it is a standard docking procedure. If the enemy ship is still moving, then the prospective boarders must match the target’s velocity and dock with it (a Difficult (–20%) Pilot task), or else just land on the hull and either make their way to an airlock or cut through from outside.

Costs and Maintenance

Item	Monthly Cost (Cr.)
Mortgage or Debts	Varies
Life Support	2,000 per stateroom (3,000 for double occupancy) 100 per low berth
Fuel	500 per ton of refined fuel 100 per ton of unrefined fuel
Maintenance	1/12 of 0.1% of ship’s purchase price/month
Crew Salaries:	
Pilot	6,000
Navigator	5,000
Engineer	4,000
Steward	2,000
Medic	4,000
Gunner	2,000
Marine	2,000

Mortgage or Debts: If the crew are paying off debts on their spacecraft, then these debts must be paid each month. The standard terms for a ship mortgage is paying 1/240th of the cash price each month for 480 months (40 years). In effect, interest and bank financing cost a simple 120% of the final cost of the ship, and the total financed price equals 220% of the cash purchase price. Ship shares are treated as reducing the cash price of the ship, and so reduce the monthly cash payments.

Life Support and Supplies: Each stateroom on a ship costs Cr. 2,000 per month, occupied or not. This cost covers supplies for the life support system as well as food and water, although meals at this level will be rather spartan. Each low passage berth costs Cr. 100 per month.

Fuel: Fuel costs Cr. 500/ton for refined fuel, or Cr. 100/ton for unrefined fuel.

Repairs and Maintenance: A ship needs maintenance, which costs 0.1% (1/1000th) of the total cost of the ship per year and requires a shipyard. Maintenance should be carried out each month. If maintenance is skipped or skimped on, roll 2d6 each month and add the number of months skipped. On an 8+, the ship takes damage to a random system. Roll on the following table for the number of hits.

1D6	1-3	4-5	6
Number of Hits	1	2	3

Repair supplies cost Cr. 10,000/ton.

Crew Salaries: Hired crew members must be paid each month.

Berthing Costs: Landing at a starport incurs a cost, which varies wildly from world to world.

Fuel: Hydrogen is obtained from water or from the atmospheres of gas giants, and refined fuel costs Cr. 500 per ton. Some out-of-the-way places only offer unrefined fuel for only Cr. 100 per ton. A ship with fuel scoops may gather fuel from bodies of water using hoses. It may also scoop hydrogen from a gas giant. Scooping takes 1–6 hours. Fuel gathered ‘in the wild’ is unrefined, but a ship with fuel processors may refine it.

Life Support

A Starship has Life Support systems that make life on board both bearable and survivable.

Normal Life Support costs 1EP per hour for every 10 people supported. So, a Starship with 22 crew and 50 passengers would spend 8EPs per hour.

Normal Life Support includes lighting, heating, artificial gravity, oxygen, carbon dioxide scrubbing, waste storage/disposal and food and drink.

Radiation Exposure

Characters exposed to a radiation weapon will receive a one-time dose of radiation. Entering a radioactive area or being exposed to a leak or solar flare will cause exposure each round or hour.

Suffocation

A spacecraft with power can sustain life support for one person per stateroom for one month comfortably, and for six months at a stretch (number of staterooms x 5,000 person/hours). Without power, this drops to two weeks at most.

Without life support, a character begins to suffocate, suffering 1d6 damage each minute. A character who is utterly without air (such as one who is being smothered or strangled, or who has been dumped out an airlock) suffers 1d6 damage each round instead.

Repairs

Damage to a ship falls into three categories – Hull Damage, Structure Damage and System Damage.

A destroyed system costs 2d6 x 10% of its original cost to repair, and cannot be repaired using spare parts.

Hull Damage: Hull damage can be repaired with a Mechanic check taking 1–6 hours, and consumes one ton of spare parts.

Structure Damage: Structure damage can only be repaired at a shipyard, and requires 1–6 weeks per point of damage. It costs 500,000 Credits per point.

System Damage: A damaged system can be jury-rigged back to functioning, but it will stop functioning again after 1d6 hours. Repairing a damaged system requires not only an Average skill check (Mechanic, Engineer (appropriate speciality) or Science (appropriate speciality)) taking 1–6 hours but also spare parts. Roll 1D6 to determine how many spare parts are required, adding +2 if the repair roll is a critical. Spare parts can be purchased at the cost of Cr. 10,000 per ton.

Roll	1	2	3	4	5	6+
Spare Parts Required	1Ton	0.8 Tons	0.6 Tons	0.4 Tons	0.2 Tons	None

Sensors

- **Visual sensors:** Electronically-enhanced telescopes.
- **Thermal sensors:** Pick up heat emissions.
- **EM sensors:** Detect power flows and transmissions.
- **Radar/Lidar:** detects physical objects. It can be active or passive. If a ship is using active sensors, it is easier to detect (+20% to Sensors checks) but detects more about its surroundings.
- **NAS:** Detects neural activity and intelligence.
- **Densitometers:** Can determine the internal structure and makeup of an object.
- **Survey Sensors:** Survey sensors integrate a suite of probe drones and deployable satellites into the sensor system, and are optimised for scanning large areas at great speed. Survey sensors are equivalent to Advanced Sensors, but reduce the time taken to scan a planetary surface by one step.
- **Countermeasures Suite:** A countermeasures suite is specifically designed for jamming enemy transmissions. It is functionally equivalent to an advanced sensor suite, but has a higher bonus for counter-measures. Meson transmissions cannot be jammed. The bonus for these sensors is +40%.
- **Military Countermeasures Suite:** The military counter-measures suite is the cutting edge of counter-measure technology in the Imperium, incorporating both powerful transmitters and advanced electronic-warfare programs to shut down enemy communications. The bonus for these sensors is +60%.

Sensor Modifications

- **Improved Signal Processing:** (TL 11, 1 ton , MCr 4) Improved signal processing provides a +20% bonus to sensor tasks and improves of range band of “full” and “limited” by 1 for radar, lidar, densitometer, thermal and visual sensors. However, this comes at a cost of increased vulnerability to jamming, with all jamming penalties doubled.
- **Enhanced Signal Processing:** (TL 13, 2 tons, MCr 8) As for Improved Signal processing except that it has a +40% bonus, the range band increase is two and the susceptibility to jamming has been overcome.
- **Distributed Arrays:** (TL 11, triples weight and cost of sensor suite and associated signal processing). By using multiple hull-mounted arrays in an integrated computer controlled arrangement, it is possible to increase the effective sensor antenna size and increase the longest range of the sensor (all increased range performance is at “minimal” level of detail). Visual and Thermal sensors can now detect at Very Distant Range (from 150,000 to 300,000km), EM and active radar/lidar to Distant

range (50,000–150,000km) and passive radar/lidar to Long range. This modification cannot be added to standard sensors and can only be added to ships of 5,000 tons displacement or more. Due to their surface area requirements only one sensor suite per craft can be fitted with distributed or extended arrays.

- **Extended Arrays:** As per the distributed array, but as the arrays are extended well beyond the hull of the ship on retractable arms, there is no limit on the size of the ship. However, with the arms extended the ship can be detected at a +20% bonus by all sensors bar NAS and it may not use its manoeuvre or jump drive.

Security Systems

Sometimes a Starship has to deal with security issues on board. These might include a party of boarders, rowdy passengers or a crewmember who has gone postal.

- **Alarms:** If an alarm is tripped (hull breach, fire, door being forced open, alarm button pressed) it will alert the crew. The location of the alarm will be shown on computer displays. The average passenger ship has several crew trained in combat; military ships will carry marines. Some vessels will even have security robots who respond automatically to alarms.
- **Gravity:** It is possible to alter the artificial gravity on board. Reducing gravity to zero will limit actions to the level of a character's Zero-G skill. Gravity can also safely be increased up to 3G.
- **Tranq Gas:** Some ships carry tranq gas canisters in the air vents, which can be released automatically. These flood a compartment with gas that forces a CONx5% check each round, with a –10% penalty per previous check. Any character who fails the roll is knocked unconscious.
- **Venting Atmosphere:** If a compartment is connected to an airlock, then the air can be vented from that area. Characters in that area must make an Athletics roll to hang on and will also begin to suffocate.

Construction Time

The construction times for bespoke and particularly military designs is as follows and is based on their displacement:

The first number is for the first ship of that class built in that yard and the second number is for subsequent ships.

<i>Size (tons)</i>	<i>Duration (weeks)</i>
50 or less	24/15
60 to 80	32/19
90 to 100	40/24
200 to 300	48/29
400 to 500	64/38
600 to 700	96/58
800 to 900	112/67
1,000 to 4,000	120/72
5,000 to 7,500	144/86
10,000 to 15,000	160/96
20,000 to 40,000	174/104
50,000 to 75,000	192/115
100,000	208/125
200,000 to 400,000	224/134
500,000 to 900,000	232/139
1,000,000	240/144

Crew

All starships require a crew to operate and maintain the ship. In general, the crew of the ship must provide enough personnel to operate all machinery and man all weaponry. The actual number of crew personnel required for the ship must be computed based on the drives, weaponry, and other equipment carried by the ship. It is strongly recommended that you calculate the required crew for the vessel as each element of the ship is designed.

The basic living expenses of crewmembers during their shipboard duties are considered paid out of the ship's overheads. Note that salaries are generalized and can vary considerably depending upon circumstances and special arrangements.

Monthly Salaries (Credits)

[illegible]

Command Section

The ship should have a commanding officer, an executive officer, a computer officer, two navigation officers or astrogators, a medical officer, and a communications officer. The section should also have support personnel, ratings equal to 50% of the total officers in the section. On large ships (over 20,000 tons), the number of personnel in the command section should amount to 5 per 10,000 tons of ship.

Engineering Section

The ship needs one engineering crew member for each 100 tons of drives installed. This should include a knowledgeable chief engineer, a second engineer, and several petty officers.

Gunnery Section

The ship should have a chief gunnery officer and at least 1 petty officer for each type of weapon aboard. The major weapon (spinal mount) should have a crew of 1 per 100 tons of weapon; bay weapons should have a crew of at least 2; turret weapons should have a crew of at least 1 per barrage. (Note this places a maximum limit on the number of barrages a ship can shoot, which could limit its performance against small craft. Each operational fighter or turret drone requires at least 1 crew member. Each screen device (force field, damper, meson screen) should have a crew of at least 4. The gunnery section should have 10% officers, and 30% petty officers. Personnel are drawn from the gunnery branch and the technical services branch.

Flight Section

If the ship has any launched craft, it should have a flight control officer, crew for each craft, and at least 1 maintenance person per craft. Launch tubes should have a crew of at least 10, which will include a flight supervision officer and a preponderance of petty officers. Pilots must be officers, and maintenance personnel are generally ratings. In addition, if the ship has more than 3 vehicles (air/rafts, ATVs, and so on), the flight section should include vehicle drivers and maintenance personnel for them as well (at least 1 per 3 vehicles).

Ship's Troops

Most ships over 1,000 tons have a marine (or military) contingent aboard which ranges in size from a squad to a regiment. Such contingents range from 3 per 100 tons to 3 per 1,000 tons. Ship's troops often fill the role of security forces aboard the ship, and are used for military adventures by the commander where necessary. Ship's troops are also used for damage control parties, manning of some weapons, and boarding actions.

Service Crew

The ship itself may have a requirement for other sections which provide basic services, including shops and storage, security (especially if there are no ship's troops aboard), maintenance, food service, and other operations. Many ships have a purser who controls the Service Crew. Such personnel are drawn from the crew branch if no other appears appropriate. Allow 3 per 1000 tons if there are no ship's troops. This can be reduced to as low as 2 crew per 1000 tons of ship by replacing service crew with ship's troops.

The Frozen Watch

A ship may have low berths installed (and competent medical personnel assigned). If low berths provide enough places for a 50% coverage in personnel (including ship's troops, if any), then the ship has a frozen watch. Replacement personnel are kept available in low berths for continuous replacement of casualties and battle losses; between battles, the frozen watch can be revived and used to restore lost crew.

Section	Base Crew	Requires
Command	10 or 5/10,000 tons of ship	Stateroom
Engineering	1/100 tons of drive	½ Stateroom
Gunnery	1/100 tons of spinal weapon 2/bay weapon 1/turret 4/screen	½ Stateroom
Flight	Crew of craft, +1 mechanic per craft	½ Stateroom
Ship's Troops	Varies	½ Stateroom
Service	2/3 per 1000 tons	½ Stateroom
Frozen Watch	Varies	Low Berth

Quarters

Staterooms or quarters must be provided for the entire crew. The captain of the ship must be provided with an individual stateroom, as must the commanding officers of each section and the commander of the ship's troops. All other personnel on military vessels must be provided with the equivalent of half a stateroom each.

Passengers should be provided with single staterooms. Low passengers should be provided with individual low berths.

Staterooms require 4 tons at a cost of MCr 0.5 per stateroom. Staterooms actually average about 2 tons, but the additional tonnage is used to provide corridors and access ways, as well as galley and recreation areas. Low berths require 0.5 ton per berth, at a cost of MCr 0.05 each.

Section Hit Tables

Once all components have been selected for the ship, the ship's details must be record and its Section Hit Tables must be laid out.

	Engineering		Forward		Other	
Roll 2d6	External	Internal	External	Internal	External	Internal
2	Hull	Crew	Hull	Crew	Hull	Crew
3	C	J–Drive	C	C	C	C
4	M–Drive	P–Plant	B	B	B	B
5	A	A	A	A	A	A
6	Hull	Structure	Hull	Structure	Hull	Structure
7	Armour	Hold	Armour	Hold	Armour	Hold
8	Hull	Structure	Hull	Structure	Hull	Structure
9	A	A	A	A	A	A
10	M–Drive	J–Drive	B	B	B	B
11	C	P–Plant	C	C	C	C
12	Hull	Critical	Hull	Critical	Hull	Critical

All slots must be filled on all tables. The entries marked Type A, Type B or Type C can contain any of several components – see the Component Type table.

If there are excess Type A components, then the excess can be placed in unoccupied Type B slots.

If there aren't enough Type B slots, use unoccupied Type C slots.

Sometimes, not all of a ship's components can be placed on the Section Hit Tables; if so, place the largest tonnage components first.

If there are still unfilled slots when all components have been placed, then unfilled internal slots are filled with Structure and unfilled external slots are filled with Hull.

Type A		Type B		Type C	
External	Internal	External	Internal	External	Internal
Turret ¹ Barbette ¹	Bay ¹ Fuel Hold	Sensors Craft ² Launch Tubes M–Drive ³ Spinal Weapon ⁴	Spinal Weapon ⁴ Hangar ² Power Plant ³ J–Drive ³ Computer	External Special Component ⁵	Screen Internal Special Component ⁵ Command

¹ If the ship mounts multiple types of this weapon (such as laser turrets and particle turrets), they should be counted separately.

² If the ship mounts multiple types of this component (such as fighters and shuttles), they should be counted separately.

³ The engineering section normally contains all the ship's drives, but if any drive exceeds 10% of the ship's tonnage, it should be placed in one extra section per extra 10%.

⁴ If a ship has a spinal weapon, then it must be placed in the Internal Section Hit tables for every section apart from Engineering.

⁵ If a component such as laboratories or docking clamps exceeds 1% of the ship's tonnage, it should be placed on the Section Hit table.

All weapons, sensors, small craft, launch tubes, hangars, computers, screens, command sections and any other component that has a role in ship to ship combat must be put in at least one slot.

Endurance

Ships are able to operate for one month without needing to go into a spaceport for maintenance, assuming an adequate supply of fuel. This is increased by one month for every 1% of total tonnage dedicated to cargo. If fleet support vessels are in attendance then another three months can be added to the time needed before maintenance is required.

Small Craft Design

A small craft is any ship from 10 to 99 tons. Small craft cannot use jump engines.

The Hull

Hulls are identified by their displacement, expressed in tons.

Hull Tonnage	10 tons	20 tons	30 tons	40 tons	50 tons	60 tons	70 tons	80 tons	90 tons	100 tons
Hull Code	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Price (MCr)	1.0	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0

Configuration

Streamlining a small craft increases the cost of the hull by 10%.

A distributed small craft reduces the cost of its hull by 10%.

A standard-hull small craft may still enter atmosphere, but is very ungainly and ponderous, capable of only non-lift generating powered flight.

Armour

Armour Type	TL	Protection	Cost	Max Armour
Titanium Steel	7	2 per 5% ¹	5% of base hull	TL or 9, whichever is less
Crystaliron	10	4 per 5% ¹	20% of base hull	TL or 13, whichever is less
Bonded Superdense	14	6 per 5% ¹	50% of base hull	TL

¹ or one ton, whichever is greater.

Armour does not need to be added in 5% elements, but it must be added in whole armour point values.

Options

Hull & Structure

Tons	Personal Scale		Ship Scale	
	Hull	Structure	Hull	Structure
10	2	4	0	1
20	4	6	0	1
30	6	8	0	1
40	8	10	1	1
50	10	10	1	1
60	12	12	1	1
70	14	14	1	1
80	16	16	1	1
90	18	18	1	1
100	20	20	2	2

Manoeuvre Drives

- A small craft cannot be equipped with a Jump Drive. It can be equipped with a Gravitic or Reaction M-Drive or a solar sail
- A Gravitic drive is a smaller version of the drive plates used by larger spacecraft, and propels the craft using artificial gravity.
 - A Reaction drive is a rocket. Reaction drives are cheaper and smaller than Gravitic Drives, but burn fuel much more quickly and are less efficient.
 - A Solar Sail is large, up to several kilometres across, made of a flex flexible synthetic fabric that has limited self-repair capabilities. Particles emitted by the sun – the ‘solar wind’ catch the sail and provide a minuscule amount of thrust. A ship using a solar sail as its primary method of propulsion has a Thrust of 0 and requires several days or weeks to change its course or speed. A solar sail costs 0.01 MCr per ton of ship, and takes up 5% of the ship’s total tonnage when stowed.

Power

Like a larger spacecraft, a small craft must have a power source. There are four standard options.

- **Fusion power plants** are the most common power source used throughout the Imperium.

- **Chemical plants** use petrochemical or synthetic fuels Chemical plant fuel can not be skimmed from gas giants or taken from water sources and can not be used by rocket motors.
- **Chemical batteries** that store electrical energy and eventually need to be recharged
- **Solar Panels** - extendable panels provide power, as a backup to a chemical or fusion plant, as a recharging source for chemical batteries or, if the power required is very low, as an independent power source.

Chemical Batteries: The sizes of chemical batteries are based on the power plant required to deliver a performance rating of 1. A chemical battery the same size as a fusion power plant of the same tech level will provide 1000 hours of use assuming the vessel is not manoeuvring, using active sensors, refining fuel, making significant use of long range communicators or energy using weapons (such as lasers, rail guns, meson guns, fusion guns and particle beams). Alternatively, the same sized battery will give 1 hour of performance without these restrictions. A battery can be scaled in size to give any endurance and costs 4 times the equivalent fusion power plant. A TL7 battery is the same size as a TL 8 battery. The time to recharge a battery is equivalent to the battery endurance used (in low power setting) divided by 1000 divided by the power plant rating multiplied by 2. If using solar panels to recharge the battery, the “power plant rating” is 0.1.

Solar Panel: The size of solar panels required to power a ship is 1/10th that of the main power plant. If the panels are fitted to a ship without a chemical or fusion power plant, then assume the (non-existent) main power plant is sized to deliver a performance rating of 1. A craft equipped with solar panels consumes power plant fuel at one-quarter the normal rate as long as it is only engaged in minimal manoeuvring and does not fire weapons. Minimal manoeuvring does not include long periods at full thrust. Solar panels cost 0.1Mcr/ton. No power plant fuel is consumed, and endurance is considered as infinite, if the ship is not manoeuvring, using active sensors or refining fuel for use.

Small Drive Costs and Tonnage

<i>Drive Code</i>	<i>Gravitic M-Drive</i>		<i>Reaction M-Drive</i>		<i>Fusion P-Plant</i>		<i>Chemical P-Plant</i>	
	<i>Tonnage</i>	<i>MCr</i>	<i>Tonnage</i>	<i>MCr</i>	<i>Tonnage</i>	<i>MCr</i>	<i>Tonnage</i>	<i>MCr</i>
SA	0.5	1	0.25	0.5	1.2	3	2	1
SB	1	2	0.5	1	1.5	3.5	2.5	1.25
SC	1.5	3	0.75	1.5	1.8	4	3	1.5
SD	2	3.5	1	2	2.1	4.5	3.5	1.75
SE	2.5	4	1.25	2.5	2.4	5	4	2
SF	3	6	1.5	3	2.7	5.5	4.5	2.25
SG	3.5	8	1.75	3.5	3	6	5	2.5
SH	4	9	2	4	3.3	6.5	5.5	2.75
SJ	4.5	10	2.25	4.5	3.6	7	6	3
SK	5	11	2.5	5	3.9	7.5	6.5	3.25
SL	6	12	2.75	5.5	4.5	8	7	3.5
SM	7	14	3	6	5.1	9	7.5	3.75
SN	8	16	3.25	6.5	5.7	10	8	4
SP	9	18	3.5	7	6.3	12	8.5	4.25
SQ	10	20	3.75	7.5	6.9	14	9	4.5
SR	11	22	4	8	7.5	16	10	5
SS	12	24	4.5	9	8.1	18	11	5.5
ST	13	26	5	10	8.7	20	12	6
SU	14	28	5.5	11	9.3	22	13	6.5
SV	15	30	6	12	9.9	24	14	7
SW	16	32	6.5	13	10.5	26	15	7.5
SX	17	34	7	14	11.1	28	16	8
SY	18	36	7.5	15	11.7	30	17	8.5
SZ	19	38	8	16	12.3	32	18	9

Hulls vary in their requirements for drives and power plants based on tonnage. The drive potential table lists 24 small craft drive types, identified by the letters sA through sZ (omitting I and O to avoid confusion). Also listed are various tonnage levels for hulls; any tonnage which exceeds a listed level should be read at the next higher level. Correlating hull size with drive letter indicates drive potential. If a — is listed, then that combination of drive and hull will result in a vessel with insufficient power or overpowered.

- For manoeuvre drives, this potential is the Thrust number (Tn), which is the number of Gs acceleration available.
- For power plants, it is power plant rating (Pn).

The power plant rating must be at least equal to the manoeuvre drive rating for gravitic M–Drives. For reaction M–Drives, the power plant rating must be at least 1.

Performance by Hull Volume

	10	20	30	40	50	60	70	80	90	100
sA	2	1	—	—	—	—	—	—	—	—
sB	4	2	1	1	—	—	—	—	—	—
sC	6	3	2	1	1	1	—	—	—	—
sD	8	4	2	2	1	1	1	1	—	—
sE	10	5	3	2	2	1	1	1	1	1
sF	12	6	4	3	2	2	1	1	1	1
sG	—	7	4	3	2	2	2	2	1	1
sH	—	8	5	4	3	2	2	2	2	2
sJ	—	9	6	4	3	3	2	2	2	2
sK	—	10	6	5	4	3	3	3	2	2
sL	—	11	7	5	4	3	3	3	3	3
sM	—	12	8	6	4	4	3	3	3	3
sN	—	13	8	6	5	4	4	4	3	3
sP	—	14	9	7	5	4	4	4	4	4
sQ	—	—	10	7	6	5	4	4	4	4
sR	—	—	10	8	6	5	5	5	4	4
sS	—	—	11	8	6	5	5	5	5	5
sT	—	—	12	9	7	6	5	5	5	5
sU	—	—	12	9	7	6	6	5	5	5
sV	—	—	13	10	8	6	6	6	5	5
sW	—	—	14	10	8	7	6	6	6	5
sX	—	—	14	11	8	7	6	6	6	6
sY	—	—	15	11	9	7	6	6	6	6
sZ	—	—	16	12	9	8	6	6	6	6

Fuel

Total fuel tankage for a ship must be indicated in the design plans. There is no cost, but the capacity does influence how often the ship must refuel. All fuel requirements assume two weeks of operation.

Gravitic drives do not require fuel.

Reaction drives require fuel. The required fuel is a percentage of craft displacement equal to 2.5% per thrust hour. So to thrust a craft at 4G for 2 hours requires 8G–hours of fuel, which corresponds to 20% of the craft dedicated to fuel. In ship combat, there are 10 turns in an hour so multiply the number of G–hours by 10 to give the duration number of G–turns a ship can thrust for. Each point of thrust spent reduced the fuel reserve by an equivalent number of G/turns.

Different power plants use different amounts of fuel. The following table shows the amount of fuel used by a Fusion Power Plant and a Chemical Power Plant over a 2 week period.

	sA	sB	sC	sD	sE	sF	sG	sH	sJ	sK	sL	SM	sN	sP	sQ	sR	sS	sT	sU	sV	sW	sX	sY	sZ
Fusion Plant	1	1	1	1	1.5	1.5	1.5	1.5	2	2	2	2	2.5	2.5	2.5	2.5	3	3	3	3	3.5	3.5	3.5	3.5
Chemical Plant ¹	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120

¹When not using active sensors, weapons or more than occasional use of very long communication, craft with chemical power plants halve their fuel consumption.

If you are reducing power plant fuel to a number of hours, endurance will be important, so multiply the number of hours of fuel by 10 to give the number of turns of operation at full power.

Operation Time	3 Hours ¹	6 Hours ²	12 Hours ³	One Day ⁴	Three Days	One Week
% of Base Fuel Requirements	1%	2%	5%	10%	25%	50%

¹ Surface to Orbit

² Dog Fight

³ Surface to Orbit, Manoeuvring and return
⁴ Standard Vehicle Operations

Crew and Drones

Small craft have a minimum crew requirement, as shown below. Crewmembers may be replaced by Drone Command Units at a cost of 1.5 tons per crewmember replaced and include a basic electronics suite.

Tonnage	10-50	60-100
Minimum Crew	1	2

TL	9	11	12	13
Functionality	Remote Operation (Non-Combat only)	Remote Operation	Autonomous Mode (Non-Combat) or Remote Operation	Autonomous Mode or Remote Operation
Cost (Mcr)	0.5	2.0	5.0	10.0

A small craft drone operating in autonomous mode is effectively a robot with a range of specialist intellect and expert programmes. The characteristics and skills of an autonomous mode drone depend on its tech level, noting that all skills requiring physical characteristics use INT instead.

TL	Characteristics	Skills
12	Intelligence 7 (+0) Education 9 (+1)	Intellect/2, Expert Pilot/2 and 2 Expert/2 (from astrogation, comms, mechanic, electronics and sensors)
13	Intelligence 8 (+0) Education 10 (+1)	Intellect/3 Expert Pilot/3, 1 Expert/3 and 2 Expert/2 (from astrogation, comms, mechanic, electronics, sensors and gunnery)
14	Intelligence 9 (+1) Education 11 (+1)	Intellect/4 Expert Pilot/3, 2 Expert/3 1 and 1 Expert/2 (from astrogation, comms, mechanic, electronics, sensors and gunnery)
15	Intelligence 10 (+1) Education 12 (+2)	Intellect/4 Expert Pilot/3, 2 Expert/3 and 2 Expert/2 (from astrogation, comms, mechanic, electronics, sensors and gunnery)

The Main Compartment

Cockpit or Control Cabin: A cockpit is much more cramped and uncomfortable, but takes up less tonnage. No extra passengers can be carried in a cockpit; a control cabin allows for half as many passengers as crew to be carried. The cost for a cabin or cockpit is the same – MCr 0.1 per 20 tons of ship. A cockpit takes up 1.5 tons per crewman; a cabin takes up three tons per crewman. The cockpit or control cabin includes a basic electronics suite.

Airlock: Unlike starships, a small craft does not have an airlock by default. Airlocks take up one ton each and cost MCr 0.2. If a craft does not have an airlock, then the crew cannot leave the craft except when it is landed or in a pressurised landing bay without opening the ship up to vacuum.

Cabin Space: Adding cabin space gives the crew more space to move around and to access other components of the ship, such as the engines or cargo bay. Every 1.5 tons of cabin space allows the craft to carry another passenger in moderate comfort (although passenger shuttles will customarily take Luxuries to upgrade the passenger section). Designating a section as cabin space costs MCr 0.05 per ton.

Other Components: A small craft may have any of the components allowed to larger vessels.

Armaments

One ton of fire control equipment must be installed for each turret or fixed mount. Anti–personnel weapons do not need to be placed in turrets – instead, they are mounted on the external surface of the craft. One turret is required per three weapons carried.

Hull Tonnage	10 tons	20 tons	30 tons	40 tons	50 tons	60 tons	70 tons	80 tons	90 tons	100 tons
Ship Weapons	1	1	1	2	2	2	3	3	4	5
Anti-Personnel Weapons	1	2	3	4	5	6	7	8	9	10

Ship weapon types are limited. Rapid fire mounts may not be fitted. Barbette Particle beams can be fitted but use the equivalent of two ship weapons (and a turret). Torpedo barbettes cannot be fitted but individual torpedoes can be carried. Each torpedo displaces 2.5 tons and uses a ship weapon slot.

The number of particle beams is limited as per the expanded space craft rules.

Meson, particle beam and fusion bays cannot be fitted.

The armaments allowed to a small craft are further restricted by its power plant type. It may only equip up to the number of ship-scale lasers and, particle weapons – allowed by the following table. The number of missile launchers or projectile weapons is not limited by the power plant letter.

Power Plant Rating	sA-sF	sG-sK	sL-sR	sS-sZ
Energy Weapons	0	1	2	3

Particle beam barbettes are the equivalent of 2 energy weapons each.

Capital Ship Design

The Hull

Capital ships range between 2,001 and 1,000,000 tons, and are designated by Hull Code.

Tonnage	3,000	4,000	5,000	6,000	7,500	10,000	15,000	20,000	25,000	30,000	40,000	50,000
Code	CA	CB	CC	CD	CE	CF	CG	CH	CJ	CK	CL	CM
Tonnage	60,000	75,000	100,000	200,000	300,000	400,000	500,000	600,000	700,000	800,000	900,000	1,000,000
Code	CN	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ

The base cost of a hull is MCr. 0.1 per ton, plus a modifier based on the Hull Configuration.

Configuration

Configuration	Needle/Wedge	Cone	Standard (Cylinder)	Close Structure	Sphere	Dispersed Structure	Planetoid	Buffered Planetoid
Spinal Weapons	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Bearing	80%	70%	80%	70%	70%	60%	50%	50%
Streamlined	Yes	Yes	Partial	Partial	Partial	No	No	No
Cost	+20%	+10%	-	-10%	-20%	-50%	Special	Special

Hull Code	Sections	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6
CA to CE	2	Engineering	Forward				
CF to CK	3	Engineering	Main	Forward			
CL to CQ	4	Engineering	Amidships	Main	Forward		
CR to CV	5	Engineering	Aft	Amidships	Main	Forward	
CW to CZ	6	Engineering	Aft	Upper Amidships	Lower Amidships	Main	Forward

Planetoid and Buffered Planetoid hulls cost Cr 4000 per ton to transport from the local planetoid belt and to drill out. Only 80% of the volume of a planetoid hull is useable and 65% of the volume of a buffered planetoid is useable.

A capital ship is divided into between two and six sections, depending on its tonnage. Attacks on a ship will hit one section or another. One section is always the Engineering section; sample names are given for different sections, but the section should be named when components are allocated to it.

Armour

Armour Type	TL	Protection	Cost	Max Armour
Titanium Steel	7	2 per 5%	5% of base hull	TL or 9, whichever is less
Crystaliron	10	4 per 5%	20% of base hull	TL or 13, whichever is less
Bonded Superdense	14	6 per 5%	50% of base hull	TL

Armour can be allocated on a per-section basis, in which case the cost is determined as if the two differently armoured sections of the ship were different vessels of the appropriate size. Armour does not need to be added in 5% elements, but it must be added in whole point values.

Dispersed structure ships cannot be armoured.

Planetoids and Buffered Planetoids have integral armour of 2 and 4 points respectively. They may be additionally armoured as if they were a close structure vessel, but with the base hull already paid for. The maximum armour of a planetoid is 2 plus the limit from the technology or tech level of the armour. The maximum armour of a buffered planetoid is 4 plus the limit from the technology or tech level of the armour.

Drives

To determine the tonnage of the drive required, consult the drive potential table, which gives the percentage of the ship’s total tonnage that must be allocated to the drive to give the designed Thrust or Jump.

Drive Potential Table

Drive Rating	1	2	3	4	5	6
Manoeuvre	1	1.25	1.5	1.75	2.5	3.25
Jump	2	3	4	5	6	7

Jump TL	9	11	12	13	14	15
Manoeuvre MCr/ton	0.5	0.5	0.5	0.5	0.5	0.5
Jump MCr /ton	2	2	2	2	2	2

For power plants, the required tonnage depends on both the tech level that the ship is built at, and the designed Power Number.

Power Plants

The power plant rating must be at least equal to either the manoeuvre drive or Jump drive rating, whichever is higher, unless a chemical manoeuvre drive is fitted, in which case the rating must be 1 or the jump drive rating if this is higher. The power plant rating also determines what weapons and defensive screens of each type in each screen group the ship can carry. There is no limitation on the number of redundant screens fitted.

For example a 60,000 ton TL 15 ship with power plant rating of 5 may have up to 300 bay weapons and a spinal mount. Each of its screens groups can have up to 5 meson screens, 5 nuclear dampers or 3 black globe generators.

Rating	1	2	3	4	5	6
% of displacement	1.5	2	2.5	3	4	5
Turret Weapons	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
Bay Weapons per 1,000 tons	1	2	3	4	5	6
Spinal Weapons	No	Yes	Yes	Yes	Yes	Yes
Screens	1	2	3	4	5	6

Power Plant Type	Chemical	Fission	TL8-10 Fusion	TL11-14 Fusion	TL 15+ Fusion	Antimatter
Size Multiplier	140%	200%	125%	100%	75%	100%
Cost Per Ton (MCr)	1.25	1.0	2.0	2.5	5.0	2.5

Fuel

Manoeuvre Drive fuel is only needed if a reaction drive is fitted. The amount of fuel required is determined as the percentage of ship displacement = 2.5 per thrust hour.

Jump Drive fuel depends on the size of the ship and the length of the Jump, and is calculated as 0.1 x tonnage x Jump Number, and allows one Jump of the stated level.

Power plant fuel depends on the tonnage of the plant. For fusion plants an amount of fuel equal to two thirds of the tonnage of the power plant will power the starship for two weeks.

Hyperspace Drive

Hyperdrives can be used in non-standard *Traveller* settings.

A hyperspace drive uses no fuel but requires double the space of a jump drive that can travel the equivalent distance.

Hull & Structure

Like other starships, capital ships have one Hull Point and one Structure Point per 50 tons of displacement. However, as capital ships are so vast, these Hull and Structure points are divided into several groups, each group representing one section of the ship. If any section of the ship is reduced to zero Structure, the ship is destroyed.

Tons	Sections	Total		Per Section	
		Hull	Structure	Hull	Structure
3,000	2	60	60	30	30
4,000	2	80	80	40	40
5,000	2	100	100	50	50
6,000	2	120	120	60	60
7,500	2	150	150	75	75
10,000	3	200	200	66	66
15,000	3	300	300	100	100
20,000	3	400	400	133	133
25,000	3	500	500	166	166
30,000	3	600	600	200	200
40,000	4	800	800	200	200
50,000	4	1,000	1,000	250	250
60,000	4	1,200	1,200	300	300
75,000	4	1,500	1,500	375	375

100,000	4	2,000	2,000	500	500
200,000	5	4,000	4,000	800	800
300,000	5	6,000	6,000	1,200	1,200
400,000	5	8,000	8,000	1,600	1,600
500,000	5	10,000	10,000	2,000	2,000
600,000	5	12,000	12,000	2,400	2,400
700,000	6	14,000	14,000	2,333	2,333
800,000	6	16,000	16,000	2,666	2,666
900,000	6	18,000	18,000	3,000	3,000
1,000,000	6	20,000	20,000	3,333	3,333

The Main Compartment

Component Options

Command: A ship requires one command module per section. Each command module takes up 0.5% of the ship’s total tonnage and costs MCr.1 per ton of command module/bridge. One of these command modules must be designated the ship’s bridge, but they can all use any specialist bridge options.

Computer: The rating for the ship’s computer system is in addition to the processing power and speed needed for Jump Control programs, and all jump control software is included in the price of the computer system. Other ship software must be added to this.

Ship Size Minimum	Jump Minimum	Computer Model	TL	Rating	Cost
3,000–5,000 tons	2	Core/3	9	40	12 Mcr
5,001–10,000 tons	2	Core/4	10	50	20 Mcr
10,001–50,000 tons	3	Core/5	11	60	30 Mcr
50,001–100,000 tons	4	Core/6	12	70	50 Mcr
100,001+ tons	5	Core/7	13	80	70 Mcr
100,001+ tons	6	Core/8	14	90	100Mcr
100,001+ tons	6	Core/9	15	100	130 Mcr

Sensors: Capital ships use standard sensors. However, due to the size of these vessels, it is possible to mount multiple extended or distributed arrays with up to one per section fitted.

Armaments

Turrets and Barbettes: A capital ship can mount one turret per 100 tons not allocated to other weapons. The standard set of turrets (single, double, triple, pop–up and so on) is available to capital ships. One ton of fire control equipment is required for each turret.

Bays: The number of bays that a capital ship can mount is limited by the ship’s power plant (see above), and by the number of hardpoints. The total number of turrets and bays cannot exceed the ship’s tonnage divided by one hundred. One ton of fire control equipment is required for each bay.

Point Defence: While a capital ship can mount point defence systems like sandcasters, the effectiveness of these systems is measured by the total point defence, not by individual systems.

Screens: Unlike point defence weapons, which are the same for capital ships as they are for smaller craft, defensive screens scale with the size of the ship. A capital ship will need a larger screen generator to protect itself. Only one screen generator needs to be installed per ship, but extra generators can be installed as backups or to provide a stronger screen. There is a limit on the number of screens that may be combined together depending on the Tech Level of the screens. The limits are:

<i>TL</i>	<i>Nuclear Damper</i>	<i>Meson Screen</i>	<i>Black Globe</i>
12	1	1	—
13	2	2	—
14	4	4	—
15	6	6	3

<i>Hull Code</i>	<i>Nuclear Damper</i>		<i>Meson Screen</i>		<i>Force Field (Black Globe)</i>	
	<i>Ton</i>	<i>MCr</i>	<i>Ton</i>	<i>MCr</i>	<i>Ton</i>	<i>MCr</i>

CA to CE	20	30	50	70	10	100
CF to CK	30	40	60	80	15	150
CL to CQ	40	50	70	90	20	200
CR to CV	50	60	80	100	25	250
CW to CZ	60	70	90	110	30	300

Spinal Weapons: The damage of a spinal weapon depends on the size and type of weapon. Spinal weapon damage is measured in capital ship damage terms. For damage to spacecraft, the damage is the barrage value in d6. Spinal mounts use a number of hardpoints equivalent to their tonnage divided by 100. All weapons have long range. A ship may only have one spinal mount. Increasing Tech Level will reduce size and cost significantly with some improvement in performance.

		TL+1	TL+2	TL+3	TL+4
Particle	Size and Cost	−10%	−20%	−30%	−40%
Particle	Damage	+5%	+10%	+15%	+20%
Meson	Size and Cost	−20%	−40%	−60%	−80%
Meson	Damage	+10%	+20%	+30%	+40%

Meson Gun Spinal Mount Penetration is graded on the amount of damage they inflict in accordance with the following table:

<i>Damage</i>	<i>Penetration</i>
200–259	I
260–309	II
310–359	III
360–459	IV
460+	V

Rapid Fire: A rapid-fire spinal weapon is equipped with capacitors and redundant reaction chambers. It can be fired twice in a round instead of once, but only if it does not fire at all in the following round while the capacitors recharge. Making a rapid-fire spinal weapon increases the tonnage and the cost of the weapon by 10%.

Particle Type	A	B	C	D	E	Meson Type	A	B	C	D
Base TL	8	12	10	14	12		11	11	12	13
Tons	5,000	3,000	5,000	3,500	4,000		5,000	8,000	10,000	14,000
Damage	200	300	300	400	400		200	250	350	450
Cost	3,500	2,100	3,500	2,500	2,800		5,000	8,000	10,000	14,000

Components

Barracks: A barracks takes up 2 tons per marine, and costs MCr 0.1 per marine. Barracks can only be used to accommodate troops intended for boarding or assault operations. Troops accommodated in barracks cannot be used to reduce the number of service crew embarked.

Hangar: Storage Hangars have just enough space to hold the craft. To launch or recover the craft takes ten six–minute rounds, as the craft must be unpacked and prepared for flight. A storage hangar takes up tonnage equal to tonnage of the stored craft plus 10% and costs MCr 0.2 per ton. Standard Hangars are large enough to hold the craft in readiness for a quick launch, perform reloading and all necessary maintenance. It includes all the necessary spare parts, tools and heavy machinery to conduct full maintenance and repairs. A standard hangar takes up tonnage equal to the tonnage of the small craft to be stored, plus 30% and costs MCr0.2 per ton.

Launch Tubes: Launch tubes allow for small craft to be launched and recovered rapidly from the capital ship. The size of a launch tube is twenty–five times the tonnage of the largest craft that will be deployed in this manner, and they cost MCr. 0.5/ton. With a launch tube, up to ten small craft can be launched per starship combat round. Multiple launch tubes can be installed.

Capital Ship Crews

Crew Strength: The size of the crew relative to the ship is measured on the Crew Strength scale. An understrength crew may still be able to operate the ship, but with penalties to skill rolls or more slowly. An overstrength crew gives no bonuses, but is able to absorb more casualties and has a bonus during boarding actions.

Crew Strength	% of full crew	Skill DM	
Dead	0%	–	Cannot act
Survivors	1% to 10%	–4	May only fire once every five rounds
Skeleton	11% to 25%	–2	May only fire once every three rounds
Half	65% to 50%	–1	May only fire once every two rounds

Weakened	51% to 75%	+0	
Full	76% to 90%	+0	
Battle	91% to 120%	+0	
Overstrength	121% to 150%	+0	
Massively Overstrength	151%+	+0	

If a ship is noted as being able to fire once every two or more rounds, then this applies to each individual weapon. For example, a ship armed with a pulse laser bank, a particle beam bank, and a spinal meson gun could fire a half–strength barrage from its pulse lasers together with a meson gun blast. Next round, it could fire another half strength pulse laser barrage and the particle beams, but could not fire the other half of the pulse lasers or the meson gun again.

Crew Skill: A starship crew is assumed to have average to good Characteristics and to have mastered the following skills: Pilot, Gunner, Discipline, Mechanic, Engineer, Sensors and Medic. All these skills are at the level of their Crew Skill characteristic. Obviously, some individual crewmen will have greater or lesser skills, but the average is the Crew Skill and is used for all skill checks made by the crew.

<i>Crew Skill</i>	<i>Skill Check DM</i>
Green	+0
Average	+1
Experienced	+2
Elite	+3
Legendary	+4

A crew may have an especially skilled officer. If the officer has a skill level of 4 or more, he gives a +1 DM to all matching skill checks. An officer may only give a bonus to one skill roll each round, and a skill may only benefit from one officer bonus.

CHAPTER 7: Interplanetary Travel

Realistic Space Travel

When speaking of space travel, it is important to distinguish interplanetary travel from interstellar travel. Travel between planets is within the grasp of modern technology and is likely to become easier as science develops new fuel sources or new ways to maximize existing fuel sources. Travel between stars, on the other hand, calls for some truly radical leaps in a number of different fields.

Hazards Of Space Travel

Space travel is nowhere near as easy as books and movies make it seem. Foreign objects are a constant danger; even a micrometeoroid travelling at a high enough velocity can punch a hole through a Starship's hull and expose the entire crew to the vacuum of space. Ionising radiation also poses a serious threat. Finally, characters must adapt to the weightlessness of space or suffer the effects of space adaptation syndrome (SAS), referred to colloquially as "space sickness."

Meteoroids

Meteoroids are small rocks that travel through space at a speed of 7 miles per second. They can be as small as a grain of sand or as big as a mountain. Although they generally burn up in a planet's atmosphere before reaching the ground, meteoroids in space aren't likely to suffer such a fate. Instead, they slam into other objects, including Starships and space stations, like volleys of rifle or artillery fire. Unarmoured Starships and space stations can easily survive impacts from the smaller meteoroids, but larger ones can punch lethal holes in such fragile vessels. Fortunately, large meteoroids are rare and easier to detect before they can get too close to cause any real damage.

Roll on Table: Meteoroid Encounters to determine whether a meteoroid threatens a given Starship or space station. Each roll represents one 24-hour period.

Meteoroid Size: The size of the meteoroid.

Collision Damage: When a meteoroid collides with a Starship, space station, or other object, both the meteoroid and the object it strikes take damage.

Scanners Penalty: A Starship or space station equipped with a sensor system can detect an incoming meteoroid; doing so requires a successful Scanners roll. A Starship or space station cannot attempt to avoid or destroy a meteoroid it fails to detect.

Pilot Penalty: Avoiding a meteoroid requires a successful Pilot check. Only Starships or space stations that move are capable of avoiding meteoroids.

Armour Points: The meteoroid's APs.

Hit Points: The meteoroid's total hit points.

D100 Roll	Meteoroid Size	Collision Damage	Scanners			
			Penalty	Pilot Penalty	Armour Points	Hit Points
01–75	No meteoroid	—	—	—	—	—
76–80	Diminutive	1d6	-35%	-5%	8	15
81–85	Tiny	2d6	-30%	-10%	8	30
86–88	Small	3d6	-25%	-15%	8	90
89–91	Medium-size	4d6	-20%	-20%	8	225
92–94	Large	1d6x5	-15%	-25%	8	1,125
95–97	Huge	3d6x5	-10%	-30%	8	4,500
98–99	Gargantuan	6d6x5	-5%	-35%	8	9,000
100	Colossal	12d6x5	0	-40%	8	36,000

Vacuum Exposure

Beings exposed to the airless cold of space are not immediately doomed. Contrary to popular belief, characters exposed to vacuum do not immediately freeze or explode, and their blood does not boil in their veins. While space is very cold, heat does not transfer away from a body that quickly. The real danger comes from suffocation and ionizing radiation.

For rules on vacuum exposure and the effects of weightlessness, see Atmospheric Conditions and Gravity in the Environments section.

Re-entry

Anything that travels too fast in an atmosphere generates an enormous amount of friction, which produces tremendous heat. (Temperatures of 2,280 degrees Fahrenheit have been recorded.) Objects trying to enter a planetary atmosphere safely must shed velocity. However, decelerating consumes large amounts of fuel, and many ships (especially at TL 7) simply don't have enough. As an alternative, scientists have developed ways to slow ships in re-entry by using the atmospheric friction itself. Ablative shielding or ceramic tiles take care of any excess heat. Even so, entering a planet's atmosphere is a tricky business; the angle of entry is precise, and deviation either way causes the heat to build up too quickly for the heat shields to reflect away from the ship. Worse yet, during the most intense heating, the ship is surrounded by a thin layer of plasma that blocks radio signals, and the crew have no contact with ground control.

Entering planetary atmosphere safely requires a Pilot roll each round for the 1d10+20 rounds it takes to slow the ship using friction alone. Success means that the ship takes only 3d6 points of fire damage each round. Failure means that the ship's angle is too low, and

that it is not shedding velocity fast enough; the ship takes 6d6 points of fire damage each round until the pilot succeeds at the Pilot check to correct the angle of descent. If the roll fumbles the angle is too steep, and the ship takes 10d6 points of fire damage each round until the pilot succeeds at the Pilot roll to correct the angle. Each round spent at too low an angle does not count toward the number of rounds required to land the ship; the ship isn’t making any downward progress. Conversely, each round spent at too steep an angle counts as 2 rounds, indicating that the ship is descending much faster than it should.

Interplanetary Travel

At TL 5, humanity has the technology to send unmanned probes to the edge of the solar system. However, human sojourns into space are limited to orbital missions and trips to the Moon, as longer journeys would take decades and consume ridiculous amounts of fuel and oxygen.

Interplanetary travel becomes possible at TL8. Ships fitted with magnetic ram scoops allow the crew to manufacture fuel from particles of hydrogen gas floating loose in space (though at only a few atoms per cubic inch). Such a ship could even incorporate a particle accelerator that converts matter into antimatter—with far more efficient thrust-to-payload ratios than solid fuel. With a sufficient supply of food, water, and oxygen, a ship so equipped could travel to the edges of the solar system and perhaps to another solar system entirely.

It takes a long time to travel between planets. At TL7 interplanetary travel is measured in years; at TL8 travel is measured in months; at TL9 in weeks; at TL10 in days and at TL12 in hours. This should not be seen as a problem; in fact many scenarios can take place in the time taken to travel between planets, as can routine tasks like gaining experience, training or research.

Looking at our own solar system, assuming a travel time of 1 unit per AU gives approximate travel times of:

Planetary Body	Mean Solar Distance (AUs)	Closest to Earth	Furthest from Earth	Mean Travel Time (TL8)	Mean Travel Time (TL9)	Mean Travel Time (TL10)	Mean Travel Time (TL12)
Mercury	0.4	0.6	1.4	18/22 days	4/10	14/34 hours	36/84 minutes
Venus	0.7	0.3	1.7	9/52 days	2/12 days	7/41 hours	18/102 minutes
Moon	0.002	0.002	0.002	1.5 hours	30 minutes	3 minutes	72 seconds
Earth	1.0	0	0				
Mars	1.5	0.5	2.5	15/76 days	4/18 days	12/60 hours	30/150 minutes
Jupiter	5.2	4.2	6.2	128/188 days	29/43 days	4/6 days	4/6 hours
Saturn	9.5	8.5	10.5	258/319 days	60/74 days	9/10 days	9/10 hours
Uranus	19.2	18.2	20.2	553/614 days	127/141 days	18/20 days	18/20 hours
Neptune	30.0	29.0	31.0	881/942 days	203/217 days	29/31 days	29/31 hours
Pluto	39.5	38.5	39.5	1170/1200 days	270/276 days	39/40 days	39/40 hours

These may not be achievable or realistic, but they are playable. Taking 18 days to travel between Mars and Earth has echoes of the Age of Steam with travellers spending time on tramp steamers between ports. The very outer reaches of the Solar System are still remote, so bases on those planets will be fairly inaccessible.

With the advent of Jump, or pre-Jump, technology, some aspects of interplanetary travel were revolutionised. Despite jump drives being affected by gravity sources, engineers found that they could make micro-jump drives that were not as affected by the gravitational forces exerted by the Sun and large planets. The rough and ready rule was that micro-jumps were safe as long as they were made at least 0.1 AU from a rocky planet, 0.2 AUs from a Gas Giant and 0.3 AUs from the Sun and as long as they had a stable and external jump mechanism. The most stable form of Micro-Jump technology was the Micro-Jump Gate and this is the favoured method of interplanetary travel for those cultures with Jump capability.

Performance by Hull Volume

	100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000
A	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—
B	4	2	1	1	—	—	—	—	—	—	—	—	—	—	—
C	6	3	2	1	1	1	—	—	—	—	—	—	—	—	—
D	—	4	2	2	1	1	1	1	—	—	—	—	—	—	—
E	—	5	3	2	2	1	1	1	1	1	—	—	—	—	—
F	—	6	4	3	2	2	1	1	1	1	1	—	—	—	—
G	—	—	4	3	2	2	2	2	1	1	1	1	—	—	—
H	—	—	5	4	3	2	2	2	2	2	1	1	1	—	—
J	—	—	6	4	3	3	2	2	2	2	2	1	1	1	—
K	—	—	—	5	4	3	3	3	2	2	2	2	1	1	1
L	—	—	—	5	4	3	3	3	3	3	2	2	2	1	1
M	—	—	—	6	4	4	3	3	3	3	3	2	2	2	1
N	—	—	—	6	5	4	4	4	3	3	3	3	2	2	2
P	—	—	—	—	5	4	4	4	4	4	3	3	3	2	2
Q	—	—	—	—	6	5	4	4	4	4	4	3	3	3	2
R	—	—	—	—	6	5	5	5	4	4	4	4	3	3	3
S	—	—	—	—	6	5	5	5	5	5	4	4	4	3	3
T	—	—	—	—	—	6	5	5	5	5	5	4	4	4	3
U	—	—	—	—	—	6	6	5	5	5	5	4	4	4	4
V	—	—	—	—	—	6	6	6	5	5	5	5	4	4	4
W	—	—	—	—	—	—	6	6	6	5	5	5	4	4	4
X	—	—	—	—	—	—	6	6	6	6	5	5	5	4	4
Y	—	—	—	—	—	—	6	6	6	6	5	5	5	4	4
Z	—	—	—	—	—	—	6	6	6	6	6	5	5	5	4

Micro-Jump Gate (TL9)

This consists of a reactor fuelling a series of Micro-Jump Generators that connect to a similar Micro-Jump Gate somewhere else in the Solar System. A ship wishing to travel through a Micro-Jump Gate (MJG) needs to have permission to travel and enough funds to pay for the trip. Once these have been established, the on-board computer opens up a Micro-Jump Point that co-exists with a similar point in another MJG and the ship travels through the Jump Point and out of the other gate. The technology is pretty seamless and very rarely fails, so there is no realistic chance of the ship being destroyed under normal circumstances. It normally takes 30 minutes to charge up a Micro-Jump Generator, so single-Generator Gates are restricted to allowing 2 ships through per hour. Some MJGs have multiple Micro-Jump Generators, allowing more ships to travel.

Micro-Jump Technology is limited by the gravitational forces that exist within solar systems and also by the quality of the space nearby. This means that Micro-Jumps are restricted to jumps of 6AUs or less. Most Micro-Jump Gates have generators capable of 6AU jumps, which allows for jumps between Mars and Venus or between Earth and Jupiter most of the time. Jumps to further planets are more difficult and require several smaller jumps, often dependant on planetary positions, so it is not always possible to travel between the furthestmost planets.

What this means for interplanetary travel is that the longest a ship has to travel from a planet to another planet is the distance from the planets to the MJG. Assuming an MJG near to Earth and another near to Jupiter, a spaceship needs to travel 0.1AUs from earth to the MJG and 0.2 AUs from the MJG to one of Jupiter's moons, a total distance of 0.3 AUs or 2 days travel at TL9. Depending on the number of generators at a MJG, the ship might have to wait for several hours or even days to get a slot in which to travel.

The cost of travel is normally Cr 1000 per Micro-Jump.

Micro-Jump Drive (TL9)

This consists of an on-board reactor fuelling a Jump Drive that opens up a Jump Point nearby and another somewhere else in the Solar System. The spaceship then travels through the Jump Point and exits at the remote point. This is a lot more dangerous than travelling via an MJG and requires an Astrogation and Engineering (Jump Drive) roll to successfully travel. However, it may be worth the risk to be able to travel outside the MJG network and not have to answer awkward questions. It also allows travel to the furthestmost planets where Micro-Jump Gates are not always in position.

Micro-Jump Network (TL10)

When Micro-Jump Technology has become commonplace, the mega-corporations and governments build Micro-Jump Networks - series of Micro-Jump Gates that are connected and centrally controlled. Every major planet and many asteroids have Micro-Jump Gates nearby and movement through them is commonplace and relatively cheap. Micro-Jump Gates are also positioned in dead space between planets, allowing jumps to even the furthestmost planets, no matter where they are, using a chain of Micro-Jumps.

CHAPTER 8: Interstellar Travel

Travelling to the stars is difficult and time-consuming conventional physics. Starships travelling between stars either take a long time or travel at light speeds, taking a lot of energy and undergoing Einsteinian Time Dilation. Early TL8 Starships were multi-generational or used cryogenic technology to store their crews. TL9 Starships could use Micro-Jump Drives to make multiple jumps to nearby stars, but as the nearest star is approximately 40,000 Micro-Jumps away, this takes a lot of energy and time, roughly nine years at a rate of twelve jumps per day.

Starmaps

Any campaign involving interstellar travel needs some kind of Starmap showing the relative positions of stars. There are different ways of generating Starmaps. Realistic Starmaps can be produced from co-ordinates of actual stars, alternatively Stars can be rolled randomly on a hex-grid or square-grid.

Space is multidimensional, which makes mapping it difficult. Some RPGs have used the "Flat Space" model which says that most Galaxies, in particular the Milky Way, are spirals which means that they can be modelled 2-dimensionally. This makes mapping a lot easier as you don't have to worry about extra dimensions. However, you might want to give the galaxies a thickness which involves a third dimension.

How do you map 3 Dimensions easily? By using multiple 2-Dimensional maps. So, you have a number of maps overlaid on top of each other.

What scale is best? Whatever scale you think works for your setting. This mapping is extremely relative and abstract and can be used for different types of setting.

Mapping is on a stellar scale, so solar systems are lumped together and are only referenced as Stars. Stars are placed on a 2D grid with each star occupying a single square on the grid. How far apart the stars are on the grid depends on how many days you think it should take to travel between stars. If you think that Starships should hop from solar system to solar system every day then put them close together. If you think it should be an epic voyage between systems then put them far apart. Personally, I think it should take a couple of days to hop between systems, so I'd have them fairly sparse but not too sparse.

Jump Technology

At TL10, Jump Technology is developed. Jump Technology allows a Jump-Generator to force two points in space to co-exist, opening a Jump points between them for a short period of time and then allowing a Starship to pass through the Jump Point. Due to the nature of space and the difficulty of forming Jump Points, Jumps are limited to 6 cells on a Starmap. If you, as a Gamesmaster, prefer a more absolute scale then restrict jumps to 6 Parsecs, or 6 Light Years. Jumps may be instantaneous or they may take several days or even weeks, depending on the setting.

Jump Technology is extremely sensitive to gravity and gravitational forces. This means that jumps cannot normally be made closer than 0.1 AU from a rocky planet, 0.2 AUs from a Gas Giant and 0.3 AUs from a star. Any attempt made closer than this can lead to mis-jumps or worse.

Jump Drive (TL10)

A Jump Drive that opens up a Jump Point nearby and another somewhere else in space. The spaceship then travels through the Jump Point and exits at the remote point.

Making a Jump involves succeeding in an Astrogation roll to plot the jump, then a successful Engineering (Jump Drive) roll to fire the Jump Drive, then a successful Hyper Jump to successfully make the jump. The Astrogation roll is an Easy one (+40%) but has a Penalty of -10% for every level of Jump, so a Jump 4 has a -40% Penalty. Various penalties affect the Hyper Jump skill roll:

- -20% per Jump drive hit
- -20% for using Unrefined fuel
- -80% if still within the gravitational limit

Jump Gate (TL10)

A Jump Gate (JG) consists of a series of generators connected to a number of Jump Drives. Unlike a Jump Drive on a Starship, a Jump Gate opens a Jump Point inside the fabric of the Jump Gate connected to another Jump Point within another Jump Gate.

Because this is not random or variable, this is a lot easier than travel via a normal Jump Drive.

It normally takes 30 minutes to charge up a Jump Generator, so single-Generator Gates are restricted to allowing 2 ships through per hour. Some JGs have multiple Jump Generators, allowing more ships to travel.

The cost of travel is normally Cr 100000 per Jump.

Hyperspace

At TL12 the ability to travel through Hyperspace is developed. Hyperspace is the space between dimensions that normal space exists. When a Jump Point forms it actually forms a tunnel that warps Hyperspace, through which the Starship travels. At TL12, engineers find that they can open up Jump Points that allow entry into and out of Hyperspace with Starships travelling through Hyperspace. The advantage of this is that travel through Hyperspace uses less energy than travelling using Jump Points. There is no known limit to the

speed at which Starships can travel through Hyperspace, but most Hyper Drives travel up to 6 cells on a Starmap per day. Higher Tech Hyper Drives may be able to travel faster.

Hyper Jump Engine (TL12)

A Hyper Jump Engine allows a Starship to open up a Hyper Jump Point (HJP) between normal space and Hyperspace. This then allows the Starship to travel through the Jump Point from normal space into Hyperspace or from Hyperspace into normal space. Operating a Hyper Jump Engine requires a successful Engineering (Hyper Jump) roll. Failure means the engines did not fire properly, a fumble means some kind of mishap has occurred.

Hyper Drive (TL12)

A Hyper Drive (H-Drive) is a method of propulsion that allows a Starship to move through Hyperspace. This involves a successful Astrogation roll and a Pilot Starship roll. Failing the Astrogation roll means that the Starship is in the wrong position, failing the Pilot roll means that the Starship has encountered a problem of some kind. Fumbling the Astrogation roll means that the Starship is way off course, fumbling the Pilot roll means the Starship has encountered a major problem.

Travel through Hyperspace depends on the rating of the Hyper Drive. Normal Hyper Drives can travel up to 6 cells per day, but advanced Hyper Drives can travel faster.

Hyper Jump Gates (TL12)

Like a Jump Gate, a Hyper Jump Gate (HJG) consists of a number of generators connected to a series of Hyper Jump Engines. They can be used to open up a Hyper Jump Point through which a Starship may travel into Hyperspace. Hyper Jump Gates are normally commercial enterprises and can be used by anyone with the Credits and security clearance. Many of the armed forces of the galaxy have Hyper Jump Gates of their own that they use for military transports. Ships making a successful Astrogation and Pilot Starship roll end up near enough to a Hyper Jump Gate to allow passage through the HJG back to normal space. HJGs allow Starships without Hyper Jump Engines to travel through Hyperspace, thus opening up interstellar travel to more ships than would otherwise be possible.

Wormholes

Space has many types of flaw. One of these is the Wormhole. A wormhole is a tear in space that connects two points in a permanent or semi-permanent way. Starships with the correct Sensor and Drives can exploit the existence of these wormholes and can travel through the wormholes to other areas of space. Some wormholes connect regions that are fairly close together, others connect space on the other side of a galaxy or even in other galaxies.

Some wormholes are permanent fixtures and can easily be exploited with the right technology. Others are semi-permanent and seem to come into and out of existence cyclically or at random intervals and the technology needed to find them is more advanced.

Normally, TL13 is required to exploit wormholes. Starships can travel through a wormhole with a Wormhole Drive, or W-Drive and those cultures that exist near a wormhole will often have some kind of W-Drive.

Wormhole Drive (TL13)

A Wormhole Drive (W-Drive) enables a Starship to travel through a Wormhole. Using a W-Drive involves making a Sensors (Wormhole) roll to find the Wormhole, then a Wormhole Navigation roll to plot a course through the Wormhole and finally a Difficult (-20%) Pilot Starship roll to successfully travel through the Wormhole.

Faster Than Light (FTL) Travel

Under Einsteinian physics, the Velocity of Light in a Vacuum (c) is an absolute limit that cannot be surpassed. As an object approaches c its mass increases exponentially and time slows relative to time elsewhere. Even at near light speed it can take many years to travel between stars.

Some cultures have managed to get around this problem by developing drives that can warp space or create conditions where the velocity of light is no longer an absolute limit. Such drives are generally lumped together as FLT Drives.

FLT Drives normally have a c-factor that measures how much faster than c the Starship can travel. C-Factors are usually expressed as multipliers, so a c-Factor of 20 means the ship travels at 20 the speed of light. Even at such speeds, it can take many months to travel between nearby solar systems. A c-factor of 365 means that it takes 1 day to travel a light year.

As a general rule, FLT Travel is slower and less efficient than Jump Travel or Hyperspatial travel. Some cultures have a phase of FTL travel before developing Jump Drives or Hyper Drives, others miss out on FTL travel, yet others never develop alternative travel methods.

FTL Drive (TL11)

A FTL Drive allows a Starship to travel faster than the speed of light. Using an FTL Drive involves making a successful Astrogation roll, then a successful Engineering (FTL Drive) roll and finally a successful Pilot (Starship) roll.

Other Methods

There may be other methods of travelling between the stars than those described above. Advanced cultures could well have means of travelling that are mysterious and even unknown to lesser beings. Gamesmasters and players are encouraged to develop such methods of travel where appropriate.

Obstacles to Interstellar Travel

There are many obstacles to Interstellar Travel, some are just annoying, others are dangerous and others block **travel** completely.

Hyperspace Scars

Sometimes an area of **space** can be damaged by a natural event such as a Supernova or an artificial event such as a powerful ancient weapon. These areas are called Hyperspace Scars and have an effect on Interstellar Travel.

Black Holes

No Starship may cross a cell containing a Black Hole and any travel through a cell adjacent to a Black Hole costs double Movement. No Jumps can be made to or from a cell adjacent to a Black Hole.

Dust Clouds

Dust Clouds exert a gravitational pull that affects the local **space** and hyperspace. Travel through a Dust Cloud costs double Movement.

CHAPTER 9: Teleportation

Teleportation

Teleportation is the transporting of an object instantaneously between two points.

The earliest teleportation devices move only simple substances, with uniform molecular structures. As the technology improves, teleporting more complex matter becomes possible. At TL12, living organic matter can pass more or less safely through teleporters. At TL14, the range of matter transference increases to cover galactic distances.

Teleporters

As with Stardrives, multiple types of teleporters can exist, depending on the technology used to develop them.

Transport Booth (TL11)

Based on original teleportation technology, a transport booth is simply a booth large enough to accommodate a single Medium-size person or object, with controls on the outside. An operator selects the destination booth (which is any other transport booth), waits for a clear signal from the destination then transmits. Anything inside the booth is disassembled at the molecular level, translated into electronic data, and transmitted. Transmission is instantaneous, no matter the distance.

Transport Booth (TL11): A transport booth at Tech Level 11 can transport up to ranges of 1 AU, thus allowing easy teleportation between planet and moon or between planet and orbiting base.

Transport Booth (TL12): A transport booth at Tech Level 12 can transport up to ranges of 10 AU, thus allowing easy teleportation between nearby planets.

Transport Booth (TL13): A transport booth at Tech Level 13 can transport up to ranges of 100 AU, thus allowing easy teleportation anywhere within a solar system.

Transport Booth (TL14): A transport booth at Tech Level 14 can transport up to ranges of 6 cells on a Starmap, thus allowing teleportation between nearby solar systems.

Base Cost: Cr 500,000 (per transport booth).

Transportal (TL12)

The Transportal is a contained teleportation field. Creatures step into it, and moments later they step out on the far side in a different location. The technology only allows transport from one Transportal to another, though it is stable enough to remain open for several minutes with each activation and only requires about 30 minutes to recharge between activations. The only major drawback of the Transportal is that it tends to disorient travellers. Any creature using a Transportal must make a Resilience roll or be shaken for 1d6 rounds upon arrival.

Transportal (TL12): A Transportal at Tech Level 12 can transport up to ranges of 1 AU, thus allowing easy teleportation between planet and moon or between planet and orbiting base.

Transportal (TL13): A Transportal at Tech Level 13 can transport up to ranges of 100 AU, thus allowing easy teleportation anywhere within a solar system.

Transportal (TL14): A Transportal at Tech Level 14 can transport up to ranges of 6 cells on a Starmap, thus allowing teleportation between nearby solar systems.

Base Cost: Cr 1,000,000 (1 MCr) per Transportal.

Transport Disk (TL13)

The general technology of teleportation advances at TL13, to the point where a receiving station is no longer necessary. The traveller stands upon a disk on the floor, and the operator uses sensor technology to pinpoint the traveller's target destination. Pinpointing the target destination requires a successful Sensors roll, with a penalty depending on the distance travelled.

When the operator transmits, any creature or object standing on the transport disk is instantly sent to the location the operator has selected. If the operator's Sensor roll fails, the teleported creature or object appears in a location 1d100 miles from the intended destination (determined randomly). If the roll fumbles, the teleported creature or object materializes inside solid matter at some location 1d100 miles from the intended destination. Any living creature teleported into solid matter takes 20d6 points of damage, or half damage if a Luck roll succeeds. It must also be freed from whatever she has materialized inside of.

Although the chance of a botched transmission is daunting to some, transport disks offer a tremendous advantage. With a successful Sensors roll, a transport disk operator can locate a particular creature or object with computer sensors and teleport it from its present location to the transport disk. The range is limited only by the range of the sensors.

Base Cost: 1,000,000

CHAPTER 10: Dimensional Travel

Humankind has long been fascinated with the idea of parallel dimensions, the theory being that alongside our own universe lie virtually identical universes in which people just like us live out their lives (and perhaps fantasize about parallel dimensions). The popular notion is that in a parallel dimension, some different decision was made, some random event occurred differently, or that some element in the composition of the Earth is more common—and, as a result, the universe is different to some degree or another. What if Wellington lost the Battle of Waterloo? What if the cataclysm that wiped out the dinosaurs never happened? What if Hitler conquered the world?

Of course, it could all be considerably more subtle than all that; perhaps all humans have grey eyes, and that's the only difference. The point is that in alternate realities, life could be different. Without ever leaving their home world, dimensional explorers could face challenges every bit as daunting as the challenges faced by space explorers.

Dimensional Travel does not fit into all settings, so feel free to not use it in a Sci-Fi game.

Hazards Of Dimensional Travel

Any initial exploration of parallel dimensions must logically proceed from a fixed location, because the amount of energy required would not allow for a portable power source. Thus, as with interstellar travel, early interdimensional trips are likely to be one-way. Fortunately, if a beachhead can be established in another dimension, it should be a simple matter for subsequent expeditions to transport the materials necessary for the construction of another power source. It is in establishing that beachhead that the real risk lies.

Initial dimensional journeys are unlikely to be carried out by humans, but rather by probes designed to test the gravity, radiation levels, atmosphere, pressure, and temperature—and to bring back samples of microorganisms—to ensure that humans can survive, and that they are properly equipped. Such probes must be tethered to the original dimension to send back information (since there is no indication that communication signals would travel back any more easily than objects could).

The use of probes, however, should allow dimensional physicists to develop a kind of “matrix map.” Not only can they note which dimensions are hostile to human life, but, with sufficient data points, they can extrapolate which dimension “frequencies” are likely to prove conducive to human life. The first human dimensional travellers are likely to be extremely well prepared for the environmental conditions they encounter.

Other factors may prove more hazardous, however. In addition to the perils of first contact with a xenophobic populace, dimension travellers must contend with the possibility of equipment failure, dimensional static, scale variance, and encounters with other travellers who might not be friendly.

Equipment Failure

As the science of dimensional travel advances, explorers carry portable dimension gate generators, enabling them to come and go through dimensions as they please. If that equipment fails for some reason, the expedition might be trapped, possibly without the means to repair the damaged generator.

Dimension gate generators—whether stationary or portable—should not break down at random any more than a Starship does (unless, of course, the campaign revolves around that very problem).

Complete Shutdown: The generator simply stops working, either because its components are damaged or because it has run out of power. Fixing damage components usually requires 10 hours and a successful Engineering roll, while constructing a new power source (a complex device) requires 60 hours and a successful Engineering roll (-20%). Locating a replacement power source in a civilized area may require a successful Gather Information roll, and negotiating for it may require a Diplomacy roll.

Miscalibration: A miscalibrated dimension gate generator doesn't take the characters where they planned to go. Correctly recalibrating the generator involves either downloading the data from another functional generator (a full-round action followed by a successful Computers roll) or returning to the last “accurate coordinates” and resetting the matrix (12 hours of work followed by a successful Computers roll at -20%).

Communication Failure: There is no guarantee that standard communications work across dimensions; even communications designed to work across interstellar distances are useless when the party for whom the message is intended is not in the same dimension. A d-com (see Dimensional Communicators, below) or similar device enables communication across dimensions.

Dimensional Static

Dimensions are constantly splitting into new dimensions as events create alternate realities. These divergences release tremendous amounts of energy, which manifests as a kind of “static” during dimension gate operations. Generators are designed to filter out this noise and lock onto the specific “signal” of the intended destination. However, if the generator isn't getting enough power, or if the static level is extremely high, the gateway between dimensions is less stable.

Travelling through an unstable gate is potentially fatal. The traveller must make a Resilience roll. If the roll succeeds, the character arrives at the intended destination but is stunned for 1d4 rounds. If the roll fails, the character arrives on target but is nauseated for 1d4 hours. If the roll fumbles, the character arrives on target, takes 2d6 points of Constitution damage, and is nauseated for 1d4 hours.

Scale Variance

A potential risk in travelling to other dimensions is a matter of size: Is everything in the other dimension on the same scale as the travellers who visit it? A scale variance can be simulated by changing a character's effective size. For example, a Medium-size character might be considered Fine in the new dimension. Such a variance, of course, changes the character's size modifier to attack rolls and Defence. Speed also changes, multiplied by a factor based on the change in size: Fine $\times 0.16$, Diminutive $\times 0.33$, Tiny $\times 0.5$, Small $\times 0.66$, Medium-size $\times 1$, Large $\times 1.33$, Huge $\times 2$, Gargantuan $\times 2.66$, Colossal $\times 3.33$.

The damage a character deals with natural and artificial weapons also scales with size. For every step by which a character's size category increases or decreases, increase or decrease the damage by one step: 1, 1d2, 1d3, 1d4, 1d6, 1d8, 2d6, 3d6, 4d6, 6d6, 8d6,

12d6. Attacks that deal 2d4 points of damage scale down to 1d6 or up to 2d6. Attacks that deal 1d10 points of damage scale down to 1d8 and up to 2d6. Attacks that deal 1d12 points of damage scale down to 1d8 and up to 3d6.

Dimensional Opponents

If humans are capable of travelling through dimensions, it is reasonable to believe that intelligent beings, either from other worlds or other dimensions, also have this capability. Other dimensional travellers might not be friendly. They might be raiders, plundering other dimensions for the resources they lack in their own. They could just as easily be transdimensional traffic police, tasked with detecting and disabling unauthorized dimension gate generators. They could simply be savage monsters, naturally capable of dimensional travel and drawn to unusual interdimensional activity.

Dimension Gate Generators

The technology behind dimension gates is highly advanced. The first working gates are treated as late TL12 technology, and concerted human exploration of alternative dimensions begins at TL13. The calculations required for dimensional travel are complex, but the calculations for *safe* travel—arriving at the intended destination with no loss of carrier signal—are tens of thousands of times more complex.

Actually travelling through a dimension gate is easy, but changing the setting is more complex. A character must succeed on a Dimensional Navigation roll to reset the gate to a known destination; setting the gate to an unknown (but safe) destination is a -20% Dimensional Navigation roll. Performing either check requires 30 minutes of calibration. Of course, if the destinations have been preset, any character can change the settings as a move action without making a roll.

Dimension gate generators come in a variety of forms, each operating somewhat differently.

D-Gate Generator (TL12)

The first dimension gate generators—appearing at TL12—are enormous objects that cannot be transported once assembled. The TL12 D-gate creates a trans-dimensional aperture approximately 3 meters in diameter and allows for one-way transport only. Due to the incredible power drain, the gate remains open for only 1 round, after which the generator shuts down and cannot be activated again for 24 hours.

The TL13 D-Gate weighs 200 pounds, but due to its bulk, the generator requires at least two people to lift and haul it. It creates a trans-dimensional aperture up to 6 meters in diameter, and the generator can keep the gate open for up to 10 rounds, after which the generator shuts down and cannot be activated again for 24 hours. Dimensional mapping makes calculations to reset the gate's destination easier (Dimensional Navigation roll), and any given gate can store up to its INT in predetermined destinations. Travel is still one-way, but with the larger aperture and the destination presets, the equipment to construct another D-gate can be transported through, and the travellers' home dimension can be locked into the new gate upon startup.

Base Cost: 1,000,000 Cr.

D-Drive Generator (TL13)

The D-drive generator can be incorporated into a Starship's engine design, allowing the ship to travel between dimensions.

Considered the safest form of dimensional travel, D-Drive generators allow ships in space to cross dimensions. Due to the enormous power drain, the D-Drive generator shuts down for 12 hours after the dimensional jump is completed. At TL13, the D-drive generator shuts down for 3 hours and at TL14 it shuts down for 1 hour.

Base Cost: 1,000,000 Cr.

Personal D-Jumper (TL13)

The Personal D-Jumper is a dimension gate generator small enough to be carried easily by one person. It creates a rupture in the fabric of reality just large enough for one character to step through into another dimension. The gate remains open until the Personal D-Jumper itself passes through, so multiple characters can step through without using their own jumpers. The drawback to the Personal D-Jumper is that it must be recalibrated after each use (see Equipment Failure, above), or entirely new dimensional coordinates must be entered, as though changing the settings. The Personal D-Jumper takes several forms, for example a ring, bracelet or belt pack. At TL14, the Personal D-Jumper does not require recalibration each time it is used and can store its INT in co-ordinates.

Base Cost: Cr 100,000.

Other Equipment

In addition to dimension generators, most dimensional travellers at Progress Level 8 and beyond carry dimensional transceivers, which

Dimensional Transceiver (TL12)

A dimensional transceiver permits two-way communication across dimensions, although dimensional static can sometimes hinder or block communications. The somewhat bulky TL12 transceiver can be carried like a backpack; a handheld version is available at TL13.

A dimensional transceiver must be calibrated to transmit signals to a given dimension. Assuming the coordinates have already been plotted using some kind of dimension generator (see above), calibrating the transceiver takes a full-round action and requires a successful Computers roll. The TL13 version can store the coordinates of up to five different dimensions.

Base Cost: Cr 200,000

CHAPTER 11: Time Travel

The dream of time travel probably arose out of a desire to go back and correct one's past mistakes—or to visit the future and subsequently return to take advantage of foreknowledge. The concept intrigues historians and archaeologists for obvious reasons. Science fiction has explored the possibility of time travel many times, as well as the pitfalls of visiting the past and impacting the future.

Technically, time travel—of the “into the future” sort—is within the realm of possibility. In fact, it happens all the time—just on such a small scale that no one notices. Given that a Starship engine could be developed that accelerates a ship to relativistic speeds at which time dilation occurs, time travel can be achieved simply by achieving 90% of the speed of light for a short time, then returning to one's point of origin. For every minute you spend flying at 90% the speed of light, 2.3 minutes pass everywhere else. Travel at relativistic speeds long enough and you could return to a time predating the rise of human civilization!

True Time Travel involves instantaneous or short-duration travel forward or back in time, normally using a Time Machine of some kind.

As with Dimensional Travel, Time Travel does not suit all campaigns and Gamesmasters may decide whether to use them or not.

Hazards Of Time Travel

The time machine is perhaps more dangerous than any other technology that manipulates space and time. Not only can unscrupulous people use it to wreak havoc in the past and take advantage of knowledge from the future but a single change could forever alter the course of history.

Temporal Paradoxes

Trips through time are exercises in causality. Travelling into the past might set in motion a chain of actions culminating in different major historical events. Characters might return to the present to discover that the Roman emperor Caligula used intercontinental ballistic missiles to conquer Europe and the Middle East. Conceivably, history could be altered in a way that prompts the Soviet Union to invade and conquer North America. Perhaps the characters can't even return to their own time because the person who invented the crucial component of the time machine was never born, for some reason. In short, the permutations of cause and effect can be infinitely mind-boggling.

Temporal paradoxes are liable to stall the development of time travel until someone can prove either that (a) actions in the past by people from the present have, in fact, already happened (and that it was those actions that led to the current state of affairs), or (b) actions in the past that affect the present can be detected and averted by sending someone else into the past to prevent those actions from happening.

From a game point of view, Temporal Paradoxes are a nightmare. How do you handle the fact that a PC has travelled in time and has done something that affects the other PCs, including himself? If you run a session where a PC appears and talks to himself, what is to stop the player from then refusing to go back in time later on? For this reason alone, Time Travel is best left to NPCs and only in certain circumstances.

Alternate Realities

Another potential side effect of time travel popularised in literature is the alternate reality. The time stream in which time travel is invented continues to exist. Situations that create significant changes or temporal paradoxes serves as the locus or intersection point where realities diverge.

Time travellers might encounter worlds very similar to or different from their own. This creates a rich diversity of settings where the established “facts” and “rules” are no longer sure. The nefarious villain recently defeated in a different reality might be a trustworthy ally in this one. A temporal adventurer might encounter a dead companion who did not die in this alternate reality. The possible permutations are infinite.

Ever-Changing Landscapes

Time machines that do not actually move are at the mercy of topographical changes and other changes in the locations in which they appear. Never mind that one couldn't construct a time machine in New Mexico and use it to visit Jerusalem in the year A.D. 33. Travelling into the past might deposit you in the middle of a rushing river or under thousands of tons of glacial ice. Travelling into the future, you might find that the position occupied by your time machine now resides in the basement of a futuristic skyscraper or in the middle of a radioactive wasteland covered by ice—the result of an extraordinarily heavy and sustained nuclear bombardment.

Language

Modern language is loaded with slang, jargon, and colloquialisms that would mean nothing to people who lived in the 19th century. Their slang, jargon, and colloquialisms, by the same token, would mean nothing to those who lived in the 18th century. Go back another thousand years, and the words you are reading right now would be all but incomprehensible to the average English-speaking person—assuming he or she could read. Your speech would be equally incomprehensible. Go forward a thousand years, and the English of the new millennium will barely resemble the English of this millennium. Without a Speak Language or Read/Write Language skill for the appropriate era, communication could more closely resemble a game of charades.

Age

Those who travel in time age normally within their own localized time. So, while eons may pass in the eye blink it takes to travel through them, the time traveller feels none of the effects of aging. However, this can work against the traveller. If he were to spend

twenty years in his own timeframe exploring the centuries, then return to his starting point, he would, in fact, be twenty years older than he was when he left.

Time Machines

Temporal displacement drives—colloquially known as “time machines”—do not exist until TL12. The first time machines are faintly reminiscent of the brass, ivory, and quartz machine invented by H.G. Wells in his novel *The Time Machine*, though made of lightweight aluminium and resembling something more like bathyspheres. Those that follow are constructed as fixed tunnels leading to nowhere, while those mounted in Starships turn the entire ship into the time machine. Time Machines are normally illegal in every culture and setting. However some settings may use them as a state-controlled tool.

Time Sphere (TL12)

Time spheres are small, two-seated modules designed to withstand any reasonable amount of buffeting that might occur when the machine finally comes to rest in a different time period. At the very least, the self-contained atmosphere should give the occupants time to “reverse course” should they discover that conditions outside are too hostile to disembark. The time sphere carries sensors designed to test outside conditions immediately upon arrival.

The temporal displacement mechanism itself is arranged around the inside of the sphere, giving the occupants full access to the electronics in case of emergency. The main computer has all programs necessary to operate the machine and is crammed with historical and linguistic information, electronic encyclopaedias, and any other information that might be necessary to survive in a different time. Operation of the time sphere is quite simple for characters familiar with computers. One simply sets the desired date and time and presses the “Go” button.

Time spheres are not sold commercially. In fact, doing so is illegal, but the plans to construct them are quite common. The components have a total cost of Cr 1,000,000. Building a time sphere chassis takes 12 hours and requires a successful Engineering roll. Building and filling the time sphere’s computer (a much more daunting exercise) takes 120 hours and requires a successful Computer -40% roll.

Time spheres have the following statistics:

Crew 2; Passengers 0; Cargo 120 lb.; Armour Points 5; Hull Points 6, Structure Points 15; Base Cost: 2,000,000

Temporal Drive (TL13)

Like the D-drive generator, which is designed to carry Starships across dimensional boundaries, the Temporal Drive (T-drive) carries Starships through time. The drive can be mounted in a Starship of any size and turns the entire ship into a time machine. As with other forms of travel, using a T-Drive involves a successful Temporal Navigation roll, a successful Engineering (T-Drive) roll and a successful Pilot Starship roll.

Base Cost: Cr 3,000,000.

Time Bridge (TL14)

Doing away with the issue of portability, the time bridge opens a portal to both other times *and* other places. The time bridge also has the advantage of not leaving a fragile piece of vital equipment lying about while its operators go exploring. Instead, the travellers use a simple “message-drop” system to communicate with their base of operations: Upon arrival, they conceal a small transmitter somewhere near their point of embarkation. They then have a prearranged amount of time to explore and return to the location to catch the next appearance of the time bridge. If they do not return, an operative from their base emerges to search for the transmitter. Assuming he finds it, the operative records a message on the transmitter, letting the explorers know when the bridge will reappear again, or he collects any recorded message the explorers might have left indicating where and when to pick them up. The process repeats until the explorers are brought back safely.

Travel through the time bridge is comparable to walking through a tunnel. Operators at the base set the temporal and physical coordinates at the other end, and a team of travellers walks into the tunnel and seems to vanish. For the travellers, the point of origin simply becomes less “real” as the destination becomes more real. The bridge is large enough to accommodate most vehicles.

Base Cost: Cr 5,000,000.

Personal T-Jumper (TL14)

The Personal T-Jumper is a time travelling device small enough to be carried easily by one person. It creates a rupture in the fabric of reality just large enough for one character to step through into another time and place. The gate remains open until the Personal T-Jumper itself passes through, so multiple characters can step through without using their own jumpers. The drawback to the Personal T-Jumper is that it must be recalibrated after each use, or entirely new temporal coordinates must be entered, as though changing the settings. The Personal T-Jumper takes several forms, for example a ring, bracelet or belt pack. At TL15, the Personal T-Jumper does not require recalibration each time it is used and can store its INT in co-ordinates.

Base Cost: Cr 100,000.

CHAPTER 12: Communications

One of the problems facing any culture that goes into space is that of communications. How to communicate across vast distances in a meaningful manner?

Delayed Communications

The easiest way to communicate over vast distances is by delayed communications. Delayed communications include post, recorded messages and electronic documents on physical devices. They are typically carried on Starships to remote colonies and can take many days, weeks or even months to arrive.

Delayed Communications can be expensive, depending on the speed of carriage and the distance involved. However, they are not restricted by Tech Level as anyone with an operating Starship can carry delayed communications.

Immediate Communications

These include communications by Electro-Magnetic means, through Hyperspace and Subspace and even more exotic means. They are characterised by face-to-face communication in real time, or as near to real time as the lag in communications allows.

Generally, immediate communications can be found at one Tech Level below that where transport via that medium is possible. So, at TL8 engineers find out that they can open channels via Micro-Jump Points and at TL9 they can open channels using Jump Points.

Lag

The vast distances across space means that many immediate communications suffer some form of lag or delay. Electromagnetic radiation travels at the velocity of light, so it takes just over 8 minutes for a signal to travel 1 AU. Communicating with colonies on distant planets can involve a greater lag

Planetary Body	Mean Solar Distance (AUs)	Closest to Earth	Furthest from Earth	Lag
Mercury	0.4	0.6	1.4	5/11 minutes
Venus	0.7	0.3	1.7	2.5/14 minutes
Moon	0.002	0.002	0.002	1second
Earth	1.0	0	0	
Mars	1.5	0.5	2.5	4/20 minutes
Jupiter	5.2	4.2	6.2	35/51 minutes
Saturn	9.5	8.5	10.5	70/87 minutes 1hr10min/1hr17min
Uranus	19.2	18.2	20.2	151/167 minutes 2hr31min/2hr47min
Neptune	30.0	29.0	31.0	240/257 minutes 4hr/4hr17min
Pluto	39.5	38.5	39.5	319/327 minutes 5hr19min/5hr27min

Such lags make communications difficult. People cannot have normal conversations, instead having disjointed ones. One way to make communications easier is by recording both sides of the conversation and playing the recording each time the communication is received, so each participant has a transcript of the conversation at each stage. This is not ideal but is better than having to remember what was said 5 hours ago.

Anyone trying to persuade another via a communication with a long lag should incur a penalty, at the Gamesmaster's discretion. Such a penalty could range from Difficult (-20%) to Almost Impossible (-80%).

The use of Relays can lessen communication lag. Where a culture has mastered the use of communications relays they can use a mixture of different transmission methods to lessen delays.

Communications Relays (TL8)

As soon as engineers have uncovered the secrets of Micro-Jump Points, Jump Points, Teleports or Wormholes they can use them to transmit signals faster. They do this by opening up small Jump Points for as long as they are able, sending communications bursts through the Jump Points, then closing them and opening up new Points immediately. Complicated hardware and software at either end ensure that the flow of information is kept constant and that no information is lost. Because such Jump Points are small and no mass is sent through them, they can be created near to planets, so reducing lag even further.

Communications with far planets may be achieved by using multiple relays. There might be a very small lag involved the further the planet, but it shouldn't be more than a few seconds.

Communications Relays are normally owned by governments or mega-corporations. This means that communications using the Relays may be monitored and have a cost. Normally, a citizen of a colony is charged a certain amount every month or year in order to use the Communications Relay.

Some people set up independent Communications Relays to avoid using the state or mega-corporation-owned ones. This is expensive but can be fairly easily achieved.

Communications Networks

Individuals may have their own communications devices allowing them to communicate with their Starship and companions, but what if they want to communicate with family back home or friends on other planets or even people on far-away solar systems? Every reasonably advanced culture will have Communications Networks of some kind. Some span entire planets, others cover solar systems and yet other cover vast stellar empires.

Planetary Networks (TL5)

A Planetary Network is one that has Immediate Communications that cover an entire planet. It might not cover every single household, but should cover most households in most areas.

At TL5 communication is by static means with some kind of apparatus in many households and buildings. TL6 has communications in most buildings and households. TL7 has mobile communications devices that allow people to communicate wherever they are. TL8 has mobile communications by voice and data. TL9 includes communications between devices on other planets. TL10 uses standardised technology that allows communications devices from other systems to seamlessly use the planetary network. Travellers arriving at a new planet will be able to use that planet's communications network using their own comms devices as long as both are at TL10, otherwise they will have to buy or make a converter that allows cross-network communication. There are always costs incurred when using Planetary Networks. These costs are different for every network, so Gamesmasters may want to have different tariffs or may want to have a standard tariff that works everywhere for convenience.

Inter-Planetary Networks (TL9)

An Inter-Planetary Network is one that connects more than one planetary body, including satellites, asteroids and orbiters. Such Networks are based around local Planetary Networks as well as Communications Relays, working together to make a seamless integrated network.

Inter-Stellar Networks (TL10)

When a culture has colonies on many planets across many solar systems, it needs a robust communications network. Like Inter-Planetary Networks, these Inter-Stellar Networks are mixtures of different technologies. Each planet or colony has a Planetary Network connected via Communications Relays to other Planetary Networks. These rely on advanced technology to make the connections between each individual network. Where Solar Systems are close together they can communicate using Communications Relays based on their own planets, however where they are more than a Jump-6 apart then there are problems with communications and they have to use some kind of Starbase, a manned base in deep interstellar space that can pass transmissions on to nearby Starbases and planets.

Communication Methods

There are many different methods of communicating across space. Some are available at low Tech Levels and others are only available at high ones. Generally, different technologies become available in research labs, then as enablers in Communications Relays, then in large shipboard or building-installed comms devices and finally as portable comms devices. Sometimes these happen within a single Tech Level, sometimes over two consecutive Tech Levels. The Gamesmaster must decide in each culture when these changes happen.

Electromagnetic Radiation

The earliest and simplest method of long-distance communication uses different frequencies of Electromagnetic radiation (EMR), beginning with radio waves, and then using tightly controlled beams of microwave then visible light. Electromagnetic radiation suffers from being limited to the speed of light, so long-distance communications can encounter lag at vast distances within a solar system. It also means that raw EMR is unsuitable for communicating between different solar systems.

Hyperspace Communications

Hyperspace communications is normally achieved by sending signals using EM Radiation through Jump Points or portals. This allows communications to be carried via interconnected networks to solar systems and ships that are very far away.

Subspace Communications

As Hyperspace exists outside normal space, so Subspace exists outside Hyperspace. No Technology exists that can travel via Subspace, but at TL12 the Technology exists to communicate through Subspace. Subspace communications rely on the ability to excite subspace and to send waves through the subspace ether at extremely fast speeds - a subspace beam travels at around 1,000,000,000 times the speed of light, allowing for lags of less than a second with nearby solar systems and only a few seconds to far systems.

At TL13, Subspace Technology allows for a subspace transmitter to be housed on a Starship, allowing crewmembers to communicate with far systems using their own comms devices in relays.

At TL14, Subspace Technology can be found in individual comms devices, allowing people to communicate without using a Starship as a relay.

CHAPTER 13: Vehicle Design

Traits

All vehicles have the following traits:

TL: The lowest Technology Level that the vehicle is available at.

Skill: What skill is used to drive or pilot the vehicle.

Agility: How easy the vehicle is to drive, expressed as a modifier to the pilot's skill check.

Speed: The vehicle's maximum speed.

Crew and Passengers: How many people the vehicle can carry.

Open/Closed: If the vehicle is open or closed.

Armour: How much armour the vehicle has. Damage sustained by a vehicle is reduced by its armour.

Hull/Structure: The number of hits the vehicle can sustain before being disabled.

Weapons: What weapons the vehicle has, if any, and what fire arcs they are in.

Vehicle Types

Air Raft: An open-topped vehicle supported by anti-gravity technology. Air Rafts can even reach orbit but passengers at that altitude must wear vacc suits. They are ubiquitous, remarkably reliable and flexible vehicles.

Ground Car: A conventional wheeled automobile.

AFV: A heavily armoured ATV, known as an Armoured Fighting Vehicle, equipped with a triple laser turret. The lasers use the Gun Combat (energy rifle) skill, do 4d6 damage each using the Ranged (rifle) range modifiers, and one, two or three may be fired at the same target with one attack action.

Assault Capsule: A cylindrical vehicle designed for tunnelling under enemy lines to deliver soldiers, the assault capsule can take a squad through solid rock rather quickly. Using a dozen individual and spinning plasma-cutting devices, the capsule liquefies the ground it draws itself through. It can be used above ground like a slow-moving car, but it is better suited for underground travel. The second Speed score listed is for its tunnelling rate.

Assault-cycle: A semi-enclosed, one-man armoured motorcycle that moves at very high speeds while allowing the rider to fire twin LMGs at targets that it passes by.

ATGT: The All Terrain Gun Transport is nothing more than a tracked weapons platform. It carries two powerful fusion cannons into battle and allows the gunner to fire them in tandem, shielding both driver and gunner from the dangerous radiation such weapons produce. Some replace these weapons with a single meson accelerator, but such weapons are still semi-experimental and too expensive to risk.

ATV: An enclosed, pressurised all-terrain ground vehicle. The vehicle is capable of floating on calm water, and has a suite of built-in sensors and communications equipment (usually a laser transceiver) making it ideal for exploration. An ATV has a hardpoint for a turret, but does not come with a weapon normally.

Carry-All: A huge helicopter with four massive rotors positioned at the corner of its expansive crew and cargo compartment, the Carry-All is the best way to bring a single platoon to a specific point of interest safely - albeit slowly. The passenger limit listed is an utter maximum, and can be reduced by bringing other vehicles within the cargo hold of the Carry-All. Every Hull point worth of vehicle carried by the Carry-All takes up three passengers worth of room. Unfortunately, the Carry-All cannot have the Deployment Ramps/Harnesses option added to it.

Grav Carrier: A Grav carrier is effectively a flying tank, and is the standard fighting vehicle of many military forces. The turret-mounted fusion gun is a vehicle-mounted version of the TL 15 FGMP and uses the same 'serious firepower' rules. Advanced containment systems mean that it does not leak radiation with each shot in the same way as the man-portable version.

Grav Belt: A Grav belt resembles a parachute harness, and is fitted with artificial gravity modules allowing the wearer to fly. The internal battery can operate for a maximum of four hours before needing to be recharged. At TL 15, the battery can operate for 12 hours before charging. Modifications cannot be added to the Grav belt.

Grav copter: Fast and agile, the grav copter uses two small gravitic generators located to either side of the passenger cabin to propel itself across the sky. It is lightly armoured and armed, mainly used to deliver troops to hard-to-reach places very quickly.

Grav Floater: A Grav floater is a forerunner of the Grav belt, a platform upon which a single person can stand and be carried along. It cannot achieve any great speed but can, like an air raft, achieve any altitude up to orbit.

Gunskiff: A mobile, gravitic gun platform that lets its passengers fire their weaponry over the somewhat precarious railing.

Hovertrak: A bit of a misnomer, the hovertrak anti-armour tank has no 'trak' portion of it at all. It was originally named for the tracked version of its chassis, now obsolete with the advent of its hovering capabilities. Fully enclosed and supporting a small anti-personnel weapon, the main reason the hovertrak exists is to support its powerful anti-tank cannon turret. Few mercenary units can afford these behemoths, but those who can will never be without a job.

Hydrofoil: A fast-moving boat that actually lifts above the water on a set of ski-like 'foils', this is the best watercraft for aquatic assaults.

Modifications

With the exception of on-board computer, each of these modifications can only be taken once on a given vehicle.

Autopilot (TL 11): an autopilot has an INT 3 Specialised Computer running Standard Intellect and an Expert Module in an appropriate skill and specialty, normally Pilot or Drive. This will be in addition to any other computers installed. An autopilot is often

mandatory on cheaper commercial models. In many areas (primarily urban) they are required to be in use. Higher Law Level polities may require a slave modification to the autopilot for centralized and/or emergency traffic control. Cr 3,000.

Deployment Ramps/Harnesses (TL4): The vehicle with this option can deploy all of its passengers in a single combat action if the vehicle is held steady. This costs 100 credits per passenger-capacity of the vehicle.

Enclosed: This modification turns an open vehicle into a closed one. It costs 10% of the base cost of the vehicle, reduces Agility by 1 and top speed by 10%.

ECM Shielding (TL9): Vehicles that purchase this option are immune to the effects of ECM grenades and effects. This costs 25% of the vehicle's total cost, and can even be added to a grav belt.

Extended Life Support: A sealed vehicle can be equipped for extended life support, which increases the duration to 18 hours per person. Costs another 10% of the base cost of the vehicle.

Heavy Armour: Increasing the armour of a vehicle by 5 adds 25% to the cost of the vehicle.

High Performance: A vehicle can be made into a high-performance vehicle, increasing its top speed by 20%. The vehicle costs 50% more.

On-board Computer: Adding an on-board computer costs the same as a hand computer.

Radiation Shielding (TL8): By using special alloys and aerosol medications in the crew passenger compartments of a vehicle, it can render all passengers immune to radiation while on board. This adds +10% to the vehicle's cost and can only be used on enclosed vehicles.

Reflec Covering (TL11): The vehicle is coated with the expensive Reflec armour polymer, a plastic made with layers of reflective material and heat-dispersing gel. It is highly effective against lasers, increasing the Armour rating by +5 against laser weaponry, but provides no other protection against other attacks. Once the vehicle has taken half (round down) of its Hull points in damage, the Reflec has torn free or burnt off, and the bonus no longer applies. This costs 1,000 credits x the sum of the Armour and Hull ratings of the vehicle.

Sealed: This option can be added to any closed vehicle (it is included in the ATV, AFV and Grav Carrier). The vehicle can be sealed and provides life support for its passengers and crew for two hours per person. This option adds 20% to the cost of the vehicle.

Style: Allows a vehicle to be customised to the buyer's wishes. Costs Cr 200 to Cr 2,000.

Sample Vehicles

Civilian	TL	Skill	Agility	Speed	Crew and Passengers	Open/ Closed	Armour	Hull	Struct.	Weapons	Cost
Air/Raft	8	Pilot (Flyer)	+0%	400 kph	1 pilot, 3 passengers	Open	6	2	2	None	275,000
Ground Car	5	Drive (Wheeled)	+0%	150 kph	1 driver, 3 passengers	Closed	6	3	2	None	6,000
Grav Belt	12	Zero-G	+20%	300 kph	1 wearer	Open	-	-	-	None	100,000
Grav Floater	11	Pilot (Flyer)	-20%	40 kph	1 rider	Open	-	-	1	None	500
Military											
AFV	12	Drive (Tracked)	+0%	80 kph	1 driver, 9 passengers	Closed	18	5	5	Triple Laser (turret)	65,000
ATV	12	Drive (Tracked)	+0%	100 kph	1 driver, 15 passengers	Closed	12	5	5	None	50,000
G/Carrier	15	Pilot (Flyer)	+0%	620 kph	1 driver, 1 gunner, 14 passengers	Closed	25	8	8	Fusion Gun (turret)	MCr. 15
Assault-cycle	8	Drive (wheeled)	+20%	180 kph	1 driver	Open	9	2	1	2 x LMG (front)	35,000
Gunskiff	9	Flyer (grav)	+0%	150 kph	1 driver, 12 passengers	Open	10	4	3	LAG (turret)	75,000
Hovertrak	12	Drive (hover)	+0%	70 kph	1 driver, 2 gunners, 5 passengers	Closed	18	8	6	LMG (front) and AT Gun (turret)	5 MCr
Gravcopter	13	Flyer (grav)	+30%	250 kph	1 driver, 1 gunner, 12 passengers	Closed	10	8	3	Twin ACRs (turret) and MRL pack (front)	300,000
Hydrofoil	8	Seafarer (ocean ships)	+10%	135 kph	1 driver, 8 passengers	Closed	12	6	4	LMG (turret)	50,000
Carry-All	10	Flyer (rotor)	-20%	100 kph	1 pilot, 1 co-pilot, 50 passengers	Closed	20	15	8	2 x Auto Cannon (turret)	8 MCr

Assault Capsule	13	Drive (mole)	-20%	40 kph / 10kph	1 pilot, 8 passengers	Closed	18	6	4	None	2 MCr
ATGT	15	Drive (tracked)	+0%	180 kph	1 driver, 4 gunners	Closed	22	8	8	2 x Fusion Gun (front)	12 MCr

Vehicle Movement and Combat

For normal movement, the driver of a vehicle does not need to make Drive rolls. Movement can be assumed to be at three-quarters maximum speed or at the local speed limit or local average speed.

For anything else, use the rules for Vehicular Combat, explained in the combat section. Why include vehicle movement in combat? Because a race between vehicles is as much about combat as anything else.

CHAPTER 14: Computer / AI Design

An AI (Artificial Intelligence) is a computer system that is, at least partially, self-aware and self-intelligent. This allows it to do more than a standard or “dumb” system.

AIs are generally large and complex. They need to be housed in a Starship or on a planet. Generally the more powerful the AI the larger it is, but the higher TL an AI is the smaller it is.

Modules

Each AI can multitask, with the maximum number of sub-systems available at any one time limited by its INT. So, an INT 14 AI can have 14 sub-systems simultaneously active. AIs generally do not have variable INT, so a HOL-2000 always has INT 7 and a HOL_MEDI-1000 always has INT 5, unless they have been customised.

An AI comes with several Modules pre-loaded and often has more modules than available sub-system slots. Each Module performs a number of tasks simultaneously, so, a Navigation Module will be checking sensors, speed, position, calculating the best route and analysing any problems that might occur en route.

Each Module may be bought at different levels, ranging from Basic through Standard, Advanced, Expert to Master Level. Generally, each Module is associated with a single keynote Skill and each level gives the Module a skill that is usable by the AI. So, Basic gives 20%, Standard 40%, Advanced 60%, Expert 75% and Master 90% in the keynote skill. An Expert Navigation Module would give Stellar Navigation 75% and a Master Medical Module would give Medical 90%. Each Module takes up a point of INT but costs more the higher the level. Modules with more than one keynote skill have an additional cost of half the cost of the additional skill.

Inactive Modules can be swapped out for active ones at a rate of 1 Module per hour, during which the swapped modules are out of commission. So, if the Captain wanted to change his Starship Combat Module for the Medical Module, this would take an hour, during which neither the Starship Combat nor the Medical Modules can be used.

The AI may use its own skills, or those of slave AIs, at the stated rating in the absence of crew, or without crew intervention. So, an AI with Expert Navigation has Stellar Navigation 75% which it can use to program a series of Hyperspace Jumps to reach the intended destination. An AI's skill may be used to augment a crew-member's skill, or vice versa. So, Bones, a generic name for a Ship's Medical Officer, has Medical 80% and can use the ship's Expert Medical unit's Medical 75% to augment his skill, but Fingers McCathay can use his Medical 40% to augment the ship's Medical 75% when Bones is not around.

Slave Systems

An AI may use the facilities of another AI, but doing so takes up a Sub-System slot. The Master AI uses a (AI-Module) Sub-System slot and the Slave AI uses a Link Sub-System slot. All skills belonging to the Slave AI are available to the Master AI. It is possible for two AIs to be both Master and Slave, allowing both to use the other's skills.

Master and Slave Subsystems may be specific to a particular model or to a range of models. So, an AI with HOL-2000 Subsystem can use a HOL-2000 as a slave, but one with a HOL-2* Subsystem can use a HOL-2000 or HOL-2500 AI.

For example, the HOL-2000 has INT 7 and comes pre-programmed with the following modules: Standard Life Support, Standard Jump Drive, Standard Navigation, Standard Medical, Standard Sensors, Standard Communications, Standard Starship Combat, Standard Entertainment, Standard Engineering, Standard Planetary Traverse and Standard AI Personality. Normally, it has Life Support, AI Personality, Engineering, Sensors, Medical, Entertainment and Communications loaded, but when it needs to make a Hyperspace Jump it unloads Entertainment and Medical and loads up Navigation and Jump Drive.

A little later, the ship obtains a HOL-MEDI-1000 medical unit which has INT 5 but has Expert Medical and Standard Sick-Bed, so the HOL-2000 drops its Standard Medical and uses HOL-MEDI-1000 Subsystem instead and uses the HOL-MEDI-1000 with HOL-2000 Link Sub-System, Medical, Sick-Bed 1, Sick-Bed 2 and Sick-Bed 3 Modules, giving the HOL-2000 access to Expert Medical as well as 3 Standard Sick-Beds.

Most AI technology from a single culture can communicate with each other automatically as the necessary protocols are built in to the AI's systems. However, AIs from an alien culture may well use a different set of protocols to communicate. Communicating with an Alien AI requires the use of that Alien's communication protocols, normally as subsystems within the AI or a Slave AI.

So, a HOL-2000 uses the HALO (Human AI Linkage Object) system to communicate, but the Mindani MIN-2385 uses MINDA to communicate and the ASLN-5000 system has HALO and MINDA as Sub-Systems. So as long as the HOL-2000 and MIN-2385 systems include an ASLN-5000 compatible Subsystem Module, the ASLN-5000 has a HOL-2000 compatible Master Subsystem and an MIN-2385 compatible Master Subsystem, the HOL-2000 has a MIN-2385 Subsystem Module and the MIN-2385 has a HOL-2000 Master Subsystem Module installed, then the HOL-2000 AI can use the MIN-2385 AI as a Slave.

AI	Protocol	INT	Subsystems
HOL-2000	HALO	7	ASLN-5*, MIN-2385
MIN-2385	MINDA	5	ASLN-5*, HOL-2000-Master
ASLN-500	ASBO	4	HALO, MINDA, HOL-* Master, MIN-2385 Master

It is quite possible to get fairly complicated hierarchies of AIs where several AIs are master/slaves of each other.

AI	INT	Purpose	Subsystems
HOL-2000	7	Ship AI	HOL-N500, Standard Sensors, Standard Communications, Standard Entertainment, Standard Planetary Traverse, Standard AI Personality
HOL-1000	5	Engineering AI	HOL-N* Link, Standard Life Support, Standard Jump Drive, Standard Engineering, Standard Navigation
HOL-1000	5	Weapons AI	HOL-N* Link, Standard Starship Combat, Standard Shields
HOL-N500	4	Network AI	HOL-MEDI-*, HOL-1000, HOL-1000, HOL-2000 Link
HOL-MEDI-1000	5	Medical AI	HOL-N* Link, Expert Medical, Standard Sick Bed 1, Standard Sick Bed 2, Standard Sick Bed 3

The above configuration gives the HOL-2000 access to all the subsystems of the other AIs via the HOL-N500, so rather than having 7 subsystems to use it now has effectively 15 subsystems. Since all the HOL systems use HALO there is no need for extra subsystems to allow them to communicate.

AI	INT	Purpose	Subsystems
HOL-2000 (1)	7	Ship AI	HOL-N500 (7), HOL-N500 (8), HOL-N500 (9), HOL-1000(2), Standard Entertainment, Standard AI Personality, Standard Sensors,
HOL-1000 (2)	5	Bridge AI	HOL-N*(7), HOL-1000(4), HOL-2000 Link (1), Standard Communications, Standard Planetary Traverse
HOL-1000 (3)	5	Engineering AI	HOL-N* Link (7), Standard Life Support, Standard Jump Drive, Standard Engineering, Standard Navigation
HOL-1000 (4)	5	Tactical AI	HOL-N* Link (7), HOL-N*(8), HOL-N*(9), HOL-1000 (2) Link, Starship Tactics
HOL-1000 (5)	5	Weapons AI	HOL-N* Link (8), Standard Starship Combat, Standard Starship Combat, Standard Starship Combat, Standard Starship Combat,
HOL-1000 (6)	5	Shields AI	HOL-N* Link(8), Standard Shields, Standard Shields, Standard Shields, Standard Shields
HOL-N500 (7)	4	Network AI	HOL-1000(3), HOL-1000(4), HOL-1000 Link(2), HOL-2000 Link(1)
HOL-N500 (8)	4	Network AI	HOL-1000(5), HOL-1000(6), HOL-1000 Link (4), HOL-2000 Link(1)
HOL-N500 (9)	4	Network AI	HOL-MEDI-*,HOL-1000 Link (4), HOL-2000 Link(1)
HOL-MEDI-1000	5	Medical AI	HOL-N* Link(9), Expert Medical, SICKBED-500, SICKBED-500, SICKBED-500,
SICKBED-500	4	Sick Bay AI	HOL-MEDI-* Link, Advanced Sick Bed 1, Advanced Sick Bed 2, Advanced Sick Bed 3
SICKBED-500	4	Sick Bay AI	HOL-MEDI-* Link, Advanced Sick Bed 4, Advanced Sick Bed 5, Advanced Sick Bed 6
SICKBED-500	4	Sick Bay AI	HOL-MEDI-* Link, Advanced Sick Bed 7, Advanced Sick Bed 8, Advanced Sick Bed 9

This is the configuration of a larger Starship. The 9 Sick Beds are linked to the Medical AI which is, in turn, linked via a Network AI to both the Tactical AI and the Ship AI. The Shields and Weapons AIs are linked via a Network AI to the Tactical AI which is, in turn, linked to the Bridge AI directly and to the Ship AI via a Network AI. Engineering is linked to the Bridge AI via a Network AI. The Bridge AI is linked directly to the Ship AI. This means that the Ship AI has access to all the Subsystems of all the AIs, the Bridge has access to all the Subsystems except those held by the Ship AI and the Tactical AI has access to all Weapons, Shields and Medical Subsystems.

Specialised Computers

Robots, Drones and other types of equipment often contain smaller computers than AIs. These are called Specialised Computers and are complex but nowhere near as complex as an AI. Generally, the Modules running on a Specialised Computer only relate to and affect the machine housing the Specialised Computer.

Specialised Modules

The Modules for Specialised Computers are smaller and less complex than those running on an AI. They allow a machine to use the Keynote Skill at the stated rating.

Intellect: Machines with Intellect can operate on their own without outside control. They generally do not have personalities but can interact with people in a basic form.

Personality: Machines with a Personality Module have their own individual personality but these are not as well developed as an AI's.

(Skill) Module: Machines with a Skill Module can use a specific skill at the stated rating.

Trade (Phycial): Machines with Trade (Physical) can perform the trade at the stated rating. So, a Cargo Robot might have Expert Trade (Cargo-Handler) and be able to move ship cargo around.

Dumb Computers

Dumb computers are small and far more limited than AIs. They often have INT 1 and can simply use the Computer module, but at varying levels. The Computer Module can be used to perform calculations, design things and do whatever a small PC can do. Where a Dumb Computer is connected to an AI it can use some of the functions of the AI.

The Dumb Computers listed here are laptop size. Battery life is 8 hours at TL 7, 16 hours at TL 8, and effectively unlimited at TL 9 and above. Desktop computers offer a slightly greater amount of processing power for the same cost but not enough to make a difference in-game. Desktops become obsolete during TL 8.

Optimum TL	Computer Power	Mass (kg)	Cost (Cr.)
TL 7	Computer INT 1	10	50
TL 8	Computer INT 1	5	100
TL 9	Computer INT 1	5	250
TL 10	Computer INT 2	1	350
TL 11	Computer INT 2	1	500
TL 12	Computer INT 3	0.5	1,000
TL 13	Computer INT 4	0.5	1,500
TL 14	Computer INT 5	0.5	5,000

Computer Terminal (TL 7): This is a ‘dumb terminal’, with only limited processing power. It serves as an interface to a more powerful computer such as a ship’s computer or planetary network. Terminals range in size depending on their control method – a holographic display terminal can be much smaller than one with a physical keyboard and screen. A computer terminal has the Basic Computer module and costs Cr. 200.

Hand Computer (TL 7): A hand computer is a portable computer system with considerable processing power. It is more powerful than a computer terminal, and can be used without access to a network. A hand computer costs twice as much as a normal computer of the same TL but can be held in one hand and operated with the other.

Modifications

Data Display/Recorder (TL 13): This headpiece worn over one or both eyes provides a continuous heads-up display for the user, allowing him to view computer data from any linked system. Because of the transparent screen vision is not obscured while using a DD/R headset. DD/Rs can display data from any system, not just computers – they can display vacc suit oxygen reserves, Grav belt status, neural activity scanner results and so forth. Cr. 5,000.

Data Wafer (TL 10): The principle medium of information storage is the standard data wafer, a rectangle of hardened plastic about the size of a credit card. A TL 10 data wafer is memory diamond, with information encoded in structures of carbon atoms; more advanced wafers use more exotic means of data storage. Cr 5.

Als

The Base Cost of an AI depends on both the Tech Level and the INT rating of the AI.

TL	INT	Cost	TL	INT	Cost	TL	INT	Cost	TL	INT	Cost	TL	INT	Cost
7	1	KCr. 30	12	11	MCr 2.8	13	21	MCr 7.5	14	31	MCr 16	15	41	MCr 25.5
8	2	KCr 80	12	12	MCr 3.2	13	22	MCr 8	14	32	MCr 17	15	42	MCr 26
9	3	KCr 120	12	13	MCr 3.6	13	23	MCr 8.5	14	33	MCr 18	15	43	MCr 26.5
9	4	KCr. 160	12	14	MCr 4	13	24	MCr 9	14	34	MCr19	15	44	MCr 27
10	5	KCr 300	12	15	MCr 4.5	13	25	MCr 10	14	35	MCr 20	15	45	MCr 27.5
10	6	Kcr 600	12	16	MCr 5	14	26	MCr 11	14	36	MCr 21	15	46	MCr 28
11	7	MCr 1	13	17	MCr 5.5	14	27	MCr 12	15	37	MCr 22	15	47	MCr 28.5
11	8	MCr 1.5	13	18	MCr 6	14	28	MCr 13	15	38	MCr 23	15	48	MCr 29
11	9	MCr 2	13	19	MCr 6.5	14	29	MCr 14	15	39	MCr 24	15	49	Mcr 29.5
12	10	MCr 2.4	13	20	MCr 7	14	30	MCr 15	15	40	MCr 25	15	50	MCr 30

Modules

AIs are very complex and the Modules they run are more than single programs. Often a Module can be made up of several suites of programs running at once on several machines, interfacing with many more remote devices. It is normally a Difficult task to copy a Module from one AI to another.

At TL10 and above, the concepts of storage and bandwidth become meaningless and can be safely ignored.

		Cost				
Module	Keynote Skill	Basic 20%	Standard 40%	Advanced 60%	Expert 75%	Master 90%
AI Personality	Personality	KCr 10	KCr 20	KCr 40	KCr 60	KCr 80
Communications	Comms	KCr 20	KCr 40	KCr 60	KCr 80	KCr 100
Engineering	Engineering	KCr 30	KCr 50	KCr 70	KCr 90	KCr 110
Entertainment	Carousing	KCr 10	KCr 20	KCr 40	KCr 60	KCr 80
Jump Drive	Engineering (Jump Drive)	KCr 30	KCr 50	KCr 70	KCr 90	KCr 110
Life Support	Engineering (Life Support)	KCr 10	KCr 20	KCr 40	KCr 60	KCr 80
Medical	Medic	KCr 20	KCr 40	KCr 60	KCr 80	KCr 100
Planetary Traverse	Pilot (Starship)	KCr 30	KCr 50	KCr 70	KCr 90	KCr 110
Security	Computers (Counter Intrusion)	KCr 30	KCr 50	KCr 70	KCr 90	KCr 110
Sensors	Sensors	KCr 20	KCr 40	KCr 60	KCr 80	KCr 100
Shields	Engineering (Shield Type)	KCr 30	KCr 50	KCr 70	KCr 90	KCr 110
Starship Combat	Starship Weapon	KCr 30	KCr 50	KCr 70	KCr 90	KCr 110
Stellar Navigation	Astrogation	KCr 20	KCr 40	KCr 60	KCr 80	KCr 100

Here are some Modules typically found in a Starship AI. The list is not an exhaustive one and you are encouraged to add your own Modules.

AI Personality

People react better to an AI when they can communicate with it as a person rather than just a machine. An AI Personality Module gives the AI a pseudo-human personality that helps integrate it with a crew.

Communications

This controls all communications within the Ai's sphere of influence. So, a Starship AI might control inter-personnel communication via comm. devices, inter-Starship communications and monitoring of subspace signals.

Engineering

This covers all the engineering functions of the AI. A Starship AI would control the day-to-day running of the ship using its Engineering, would repair and maintain the ship and would also diagnose problems and come up with solutions.

Entertainment

Many interstellar voyages take a long time and crewmembers and passengers become bored and irritable. Many Starships have an Entertainment Module that handles crew and passenger entertainment. This can include vast libraries of literature, films and shows, games, sports and puzzles. More exotic forms of entertainment such as Holodecks and Erotobots are normally purchased as extras and do not come as part of Entertainment Modules.

Jump Drive

The Jump Drive Module allows a Starship to travel between stars quickly and relatively safely. Each specific Jump Drive has its own Jump Drive Module as they are very complex. Jump Drove Modules will not work for a Jump Drive of a different type.

Life Support

Space is a hostile environment and a Starship needs a way to keep its crew safe. The Life Support Module handles various tasks such as Temperature Control, Humidity Control, Gravity Control, Food and Water Supplies, Atmospheric and Plumbing. If the Life Support Module fails, the crewmembers only have a short period of time before they become endangered.

Medical

Starships are closed environments, often many days or weeks travel from planets and so the Starship must be able to cope with medical emergencies and keep its crew healthy. The Medical Module gives an AI the chance to diagnose certain illnesses and advise or perform a wide range of treatments. An AI generally cannot operate using its Medical but can advise a Medic on what to do. Many Starships are equipped with MediBays or SickBeds that allow for a wider range of procedures to be carried out by the AI. Normally, Medical relates to a single species and any tasks relating to an unfamiliar alien species are Very Difficult. Starships with mixed crews often have multiple Medical Modules, one for each species.

Planetary Traverse

Many Starships cannot land on planets and are restricted to Starbases or high orbit. Those that can operate in atmospheres and can land on planets use the Planetary Traverse Module to cope with these challenging and dangerous environments.

Security

AIs with a Security Module can protect themselves against hacker attacks. The Security Module can detect intrusion attempts and drive off hackers.

Sensors

Starships need many different types of sensors to gather information about itself and its environment. The Sensors Module interrogates various sensor equipment, collates and interprets it and makes it available to the rest of the crew and the AI. Sensors are equally used within the Starship to monitor the environment and crew activity as outside the Starship, monitoring the surrounding space.

Shields

Starships sometimes have shields installed to protect them from enemy weapons. The Shields Module allows the AI to control one particular type of Shield. Starships with more than one type of shield need multiple Shields Modules.

Starship Combat

Sometimes a Starship is attacked or needs to attack another. The Starship Combat Module allows a Starship to defend itself. Normally a Starship Combat Module allows the automatic firing of a single shipboard weapon at once. However, more powerful Starships have a specific AI with multiple Starship Combat Modules, allowing multiple weapons to be used simultaneously.

Stellar Navigation

Starships have to navigate on long journeys between stars and also when approaching a planet or travelling through an asteroid belt. The Navigation Module takes all readings, performs calculations and advises on the best route to travel.

Modifications

Hardened Systems: A computer and its connections can be hardened against attack by electromagnetic pulse weapons. A hardened system is immune to EMP, but costs 50% more than the base cost.

CHAPTER 15: Robot and Drone Design

Robots and Drones are mobile electromechanical machines that can perform physical tasks by themselves. A robot has an Intellect program running, allowing it to make decisions independently, while drones are remote-controlled by a character or computer with the Remote Operations skill.

Robots and drones operate in combat like characters but take damage as if they were vehicles. Any robot running an Intellect program has an Intelligence and Education score. Drones have neither. A robot's Education characteristic is representative of the information programmed into it and even low-end robots can have high Education scores. Most robots have Social Standing characteristics of 0 as they are not social creations but there are some exceptions, usually high-end models running advanced Intellect programs. Drones do not have Social Standing but in cases where they are used to engage in diplomacy or other social intercourse the operator can use his own Social Standing score.

Evolution Of Robotics

TL5: Though crude automata have existed before this era, TL5 is the widely accepted dawn of robotics, due to the development of the programmable manipulator arm. The field rapidly advanced, hand in hand with computer technology, until a crude form of artificial intelligence allowed for the creation of robots with the ability to solve basic problems on their own. Such robots are still generally confined to military and scientific applications, but simple, programmable robots are available as high-tech “toys.” Humanoid robots exist, though they qualify only by dint of their general shape; robots in the shape of animals are also common.

TL7: The versatility of robots continues to improve throughout this Progress Level. Robots can make choices from among a multitude of options, and specific components like legs and hands become more commonplace. Emergency services routinely use specialized robots to handle dangerous situations, and many households include “smart” appliances that cook, clean, patrol, and even babysit. In some cultures, robots are more common than pets.

TL8: Truly bipedal robots finally become feasible for widespread use, paving the way for the first androids—robots that resemble and behave more or less like humans (or animals), but which are still easily distinguishable from the real thing.

TL9: Robots have become so common by this era that they appear in nearly every sector of daily life. Robots teach schoolchildren, maintain hazardous equipment, and fight wars. Miniature electroflex technology—artificial muscles—arrives, paving the way for the first lifelike androids. Bioreplica robots are in limited use, however; they raise so many legal questions that most manufacturers stick to the more easily identifiable non-replica androids. The legal ramifications do not extend to animal Bioreplicas, however, and “synthetic pets” are both common and popular.

TL12: Advances in metallurgy enable robotics designers to create “liquid-state” robots: machines that can alter their physical form into nearly any shape desired. Applications involving such robots are mostly confined to space exploration, but the military and intelligence communities show great interest.

TL13: Liquid State robotics advances to allow pigmentation of the surface, enabling those robots to take on the visible form of others rather than being metallic in colour.

Robot Laws

Robots are mechanical constructs and can interact with living creatures. In many cases they have been programmed with certain laws to make that interaction easier. However, different robots are programmed with different rules or laws.

Asimov's Three Laws of Robotics

Isaac Asimov created the Three Laws of Robotics:

- First Law: A robot may not injure a human being or, through inaction, allow a human being to come to harm.
- Second Law: A robot must obey orders given to it by human beings, except where such orders would conflict with the First Law.
- Third Law: A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

These work fairly well when robots are simply servants or slaves performing manual labour, but the laws fall down when used in other situations or with other cultures.

For example, what happens when a robot programmed with the Three Laws meets an alien or non-human? Do the strictures of the Three Laws apply? If so, what constitutes a Human Being? Many of Asimov's best stories deal with extensions to the Three Laws or different interpretations, especially when a robot takes it upon itself to interpret the Three Laws in its own individual way.

Military Robots

Where robots are used by the military, the Three Laws cannot apply. Military Robots are designed to cause harm to others, so doing so would contradict the First Law. Military robots cannot use the Second Law as anyone could order them to do anything. So, Military Robots use their own programming.

PC Robots

Players with Robot PCs may wish not to be restricted by external Laws and may well strive to defeat or circumvent those Laws. In fact, a DM might want to introduce Robotic Laws to cover a robotic PC simply in order to add some roleplaying opportunities and tension.

Types of Robots or Drones

Cargo Robot (TL8): These simple, heavy-duty robots are found in Starport docks and on board cargo ships. Cargo drones become more advanced with the development of Intellect programs.

STR 30, DEX 9, INT 3, EDU 5

Traits: Armour 8, Specialised Computer INT 2 (Basic Intellect, Expert Trade (any physical))

Weapons: Crushing Strength (Melee (unarmed), 3d6 damage)

Price: 75,000 Credits

Repair Robot (TL9): Shipboard repair robots are small crab-shaped machines that carry a variety of welding and cutting tools. Specialised repair robots may run Expert Engineer (any) rather than Expert Mechanic.

STR 6, DEX 7, EDU 6, Social Standing 0

Traits: Integral System (mechanical toolkit), Specialised Computer (INT 3 (running Basic Intellect and Expert Trade (Mechanic)))

Weapons: Tools (Melee (unarmed), 1d6 damage)

Price: 10,000 Credits

Personal Drone (TL 11): This is a small floating globe about thirty centimetres in diameter. It is equipped with holographic projectors which can display the image of a person, allowing a character to have a virtual presence over a great distance.

STR 2, DEX 7

Traits: Tiny, Integral System (comm, audio/visual), Integral System (Grav floater), Integral System (TL 11 holographic projector)

Price: 2,000 Credits

Probe Drone (TL 11): A probe drone is a hardened version of a personal remote, armoured and carrying more sensor packages. They have an operating range of five hundred kilometres, and can fly at a speed of 300 kph.

STR 3, DEX 7

Traits: Armour 5, Integral System (comm, audio/visual), Integral System (Grav belt), Integral System (TL 11 holographic projector), Integral System (every sensor available at TL 11 and below)

Price: 15,000 Credits

Autodoc (TL 10): An autodoc is a specialised, immobile medical robot, which is often installed inside vehicles or spacecraft.

STR 6, DEX 15, EDU 12, SOC 0

Traits: Integral System (TL 12 medikit), Specialised Computer (INT 5 running Standard Intellect and Expert Medic)

Weapons: Surgical Tools (Melee (small blade), 1d6 damage)

Price: 40,000 Credits

Combat Drone (TL 12): Combat drones are little more than flying guns mated to a Grav floater and a computer system. The drones must be piloted with the Remote Operations skill but attacks are made using the appropriate weapon skill. Combat drones loaded with Intellect and combat Expert programs (making them autonomous combat robots) are illegal on many worlds.

STR 12, DEX 10

Traits: Armour 9, Integral System (Grav floater), Integral Weapon (any)

Weapons: Any gun

Price: 90,000 Credits plus the cost of the weapon (the Integral Weapon upgrade is included)

Servitor (TL 13): Servitor robots are expensive humanoid robots who are programmed to act as butlers or servants to the nobility. Some servitor owners reprogram their robots with Expert Carouse or Expert Gambler to better suit their lifestyle.

STR 7, DEX 9, INT 6 EDU 12, SOC 7

Traits: Specialised Computer (INT 6 running Advanced Intellect, Advanced Personality and Expert Trade(Steward)) – servitors also have Expert Diplomacy and Standard Translator available should they be necessary

Weapons: Robot Punch (Melee (unarmed), 1d6 damage)

Price: 120,000 Credits

Loader Robot (TL9):

Traits: Heavy Weapons (Field Artillery) 1.

Armour 8

Hull 3

Costs Cr. 80,000.

Minesweeper Drone (TL10): This drone exists to safely clear landmines.

Traits: Combat Engineering (Landmines) 70%

Armour 4

Hull 2

Costs Cr. 95,000.

Recon Drone (TL9): They can be fitted with up to three additional types of sensor packages for the appropriate cost, and can be remote-linked to a battle computer (see below) or other monitors. Remote drones also come with two hardpoints where pistols or rifles could be mounted and fired by remote control as well. Availability 9+, base cost is Cr. 200,000.

Spotter Drone (TL10): The small spheroid zooms out to where the artillery needs to fire, spends 1-6 combat actions holding a laser designator on the potential target, and waits for the attack. This requires the drone's operator to succeed in a Remote Operations skill, but will add a +40% to the designated artillery team's next attack roll when shooting at the target.

Hull 1

Cost Cr. 12,000.

Options

Self-Destruct:

Explodes as per a frag grenade with a 5-metre radius when directed to do so with a Remote Operations roll, but increases the drone's cost by 25%. The high cost is to protect the drone from accidental or enemy self-destruct activation.

Modifications

Armour: Armour can be increased by 5, which increases the drone or robot's cost by 25%.

Integral System: Certain devices can be built into drones or robots by increasing the cost of the device by +50%. Popular choices include toolkits of different kinds, various sensors, or mobility upgrades like thruster packs or Grav floaters.

Integral Weapon: Any suitable weapon can be added to a drone or robot, at the cost of Cr. 10,000 + the cost of the weapon.

Robots As Player Characters

Robots may be player characters, within reason. PC Robots should have an Intellect Program running to enable them to make decisions of their own. Apart from that, a player should be able to play any kind of robot. It makes it easier if the robot has sensors and a voice.

Robots generally do not have rolled characteristics. Each model of robot is built with certain set characteristics. Robots have STR, SIZ, INT, DEX, EDU and occasionally SOC. They do not have CON, POW, PSI or ROB. Some Robots have CHA if they have an Artificial Personality Module.

Robots have limited abilities to learn through experience. They can remember what has happened to them and can use that to increase their skills as normal. However, they cannot increase any skill by more than 20%. If they wish to increase a skill further they must purchase a Module of a higher level. Any increase already gained is lost, but the robot may retain 5% as learned experience.

Robots may gain Legendary Abilities, at the GM's discretion. Not all Legendary Abilities are suitable for robot player characters and some may require adjustments to fit in with being a robot. GMs and Players may wish to create new Legendary Abilities specifically for Robotic PCs.

Humanoid Robots

There are several types of Humanoid Robots, i.e. robots that look like humans rather than robots with a human-like shape. The two main types are Androids (Biodroids) and Synthetics (Bioreplicas). Both types have artificial intelligence, to a degree, and can make independent decisions.

Biodroid (“Android”)

Biodroids exist in societies of TL9 or higher. They are typically modelled after their anthropomorphic creators. The technology that creates them is so versatile that virtually any living creature (except oozes and plants) can be emulated, at least in terms of movement and behavior. Under certain conditions, a Biodroid can be mistaken for what it was made to resemble. However, reasonably close inspection of the Biodroid reveals the presence of robotic parts in place of biological parts.

Some Biodroids are built to serve their masters, while others are sold to interested buyers looking for loyal servants. As utilities, their usefulness is boundless, and most Biodroids are content to perform their assigned duties without question. Biodroids make able security guards, couriers, gardeners, shuttle pilots, expendable soldiers, and even nannies.

Much to the chagrin of their creators, some Biodroids are not content to serve. Perhaps due to some flaw in their construction, they choose to pursue a different path and strive to gain experiences that will lend meaning to their existence. Although some agencies have an interest in capturing and demolishing free-willed Biodroids, most societies in general have greater concerns to worry about. Consequently, many freethinking Biodroids are given a chance to chase their dreams ... if one assumes they even have them.

Biodroid Traits

Biodroids are constructs. They also share the following traits:

Starting Occupation: Biodroids can choose a starting profession as normal. Biodroids have been programmed to perform a certain task and have the relevant skills, but their method of calculating the skills is different.

Hit Points: A Biodroid does not have Hit Points; rather they have Structure Points as explained in the general robot section.

Armour: A Biodroid hero can wear armour or have certain types of integrated armour attached to its frame.

Critical Systems: Although they are constructs, Biodroids have vital areas and critical systems. Consequently, they are subject to critical hits.

Cybernetic Incompatibility: A Biodroid cannot be fitted with cybernetic implants.

Immunities: Biodroids are immune to mind-influencing effects, poison, sleep, paralysis, stunning, disease and any effect that requires a Resilience roll unless the effect also works on objects or is harmless.

Lifelike Appearance: Distinguishing a Biodroid from members of its emulated species requires a successful Perception. It can use the Disguise skill to increase the Perception modifiers.

Manipulators: The manipulators of a Biodroid resemble the organic manipulating digits of its emulated species (a humanlike Biodroid has humanlike hands, for example). These manipulators otherwise function identically to their organic counterparts.

Rejuvenation Cycle: A Biodroid runs on energy cells that need to rejuvenate regularly. During a 24-hour period, it must shut down for 8 hours to replenish its energy supply. During its rejuvenation cycle, the Biodroid is essentially asleep. If it fails to rejuvenate, it suffers a cumulative –10% penalty on all skills each day until it fully recharges itself.

Repairable: Biodroids cannot normally heal damage on their own but can be repaired using the Engineering (Robotics) skill. A successful Engineering roll heals 1d10 Structure Points to a Biodroid, and each attempt represents 1 hour of work.

Robot Resurrection: A Biodroid reduced to 0 Structure Points is immediately destroyed and cannot be repaired, although its “brain” may be removed and installed in a similar but intact frame. See Robot Resurrection, below, for details.

Sensors: A Biodroid begins play with whatever sensors its model was equipped with.

Height and Weight: A Biodroid has the same height range as its biological counterpart. Its weight, however, is equal to $1.5 \times$ the normal weight of its biological counterpart. If using the MAS characteristic, a Biodroid has an effective MAS of 1.5 normal.

Bioreplica (“Synthetic”)

Bioreplicas exist in societies of TL11 or higher. These anthropomorphic robots, modelled after their creators in most instances, are so convincingly lifelike that they are virtually indistinguishable from their biological counterparts. A Bioreplica’s components are made up of lightweight plastics in a synthetic sheath that looks and feels like real flesh and skin. Bioreplicas are so lifelike that their fabrication and distribution are strictly regulated. Most Bioreplicas are built for military needs, and they are frequently put to use as disposable soldiers, scouts, and spies. A few Bioreplicas find roles in law enforcement and military-funded scientific expeditions. A Bioreplica's artificial intelligence is so sophisticated and finely calibrated that it can simulate subtle facial expressions or complex emotions. It learns and adapts quickly, so much so that organic beings find it easy to mistake the artificial intelligence for biological intuition.

Although freethinking synthetics are hunted down in societies that feel threatened by robots with autonomy, other “enlightened” cultures prefer to treat Bioreplicas with the same rights afforded to sentient biological species. Regardless of how everyone else perceives them, Bioreplicas are generally more interested in finding answers to the big questions plaguing their synthetic existence, such as what it means to be sentient and what happens to a Bioreplica after it “dies.”

Bioreplica Traits

Bioreplicas are constructs. They also share the following traits:

Starting Occupation: Bioreplicas can choose a starting profession as normal. Bioreplicas have been programmed to perform a certain task and have the relevant skills, but their method of calculating the skills is different.

Hit Points: A Bioreplica does not have Hit Points, rather they have Structure Points as explained in the general robot section.

Armour: A Bioreplica character can wear armour or have certain types of integrated armour attached to its frame.

Critical Systems: Although they are constructs, Bioreplica have vital areas and critical systems. Consequently, they are subject to critical hits.

Cybernetic Incompatibility: A Bioreplica cannot be fitted with cybernetic implants.

Immunities: Bioreplicas are immune to mind-influencing effects, poison, sleep, paralysis, stunning, disease and any effect that requires a Resilience roll unless the effect also works on objects or is harmless.

Lifelike Appearance: Distinguishing a Bioreplica from members of its emulated species requires a successful Perception. It can use the Disguise skill to increase the Spot roll modifiers.

Manipulators: The manipulators of a Bioreplica resemble the organic manipulating digits of its emulated species (a humanlike Bioreplica has humanlike hands, for example). These manipulators otherwise function identically to their organic counterparts.

Rejuvenation Cycle: A Bioreplica runs on energy cells that need to rejuvenate regularly. During a 24-hour period, it must shut down for 8 hours to replenish its energy supply. During its rejuvenation cycle, the Bioreplica is essentially asleep. If it fails to rejuvenate, it suffers a cumulative –10% penalty on all skills each day until it fully recharges itself.

Repairable: Bioreplicas cannot heal damage on their own but can be repaired using the Engineering (Robotics) skill. A successful Engineering roll heals 1d10 points of damage to a Bioreplica, and each check represents 1 hour of work.

Robot Resurrection: A Bioreplica reduced to 0 Structure Points is immediately destroyed and cannot be repaired, although its “brain” may be removed and installed in a similar but intact frame.

Sensors: A Bioreplica begins play with whatever sensors its model was equipped with.

Height and Weight: A Bioreplica has the same height range as its biological counterpart. Its weight, however, is equal to $1.5 \times$ the normal weight of its biological counterpart. If using the MAS characteristic, a Bioreplica has an effective MAS of 1.5 normal.

Nonheroic Robots

Most robots exist to perform mundane, routine, or dangerous tasks without argument or ambition. Except for Biodroids and Bioreplicas with heroic class levels, all robots are treated as constructs and share the general traits outlined below.

General Robot Traits

As constructs, robots share the following traits that set them apart from organic beings:

Starting Occupation: Robots have been programmed to perform a certain task and have the relevant skills, but their method of calculating the skills is different.

Manipulators: A robot typically has two functioning manipulators, although large robots can have a higher number of functioning manipulators based on their size.

Immunities: Robots are immune to mind-influencing effects, poison, sleep, paralysis, stunning, disease and any effect that requires a Resilience roll unless the effect also works on objects or is harmless.

Robots with Biomorph and liquid-state frames are not subject to critical hits. Biodroids and Bioreplicas, like the creatures they imitate, have vital areas and critical systems that can be attacked; consequently, they are susceptible to critical hits.

Repairable: Robots cannot heal damage on their own but can be repaired using the Engineering (Robotics) skill. A successful Engineering roll heals 1d10 points of damage to a Robot, and each check represents 1 hour of work.

Robot Resurrection: A robot reduced to 0 Structure Points is immediately destroyed and cannot be repaired, although its “brain” may be removed and installed in an similar but intact frame. See Robot Resurrection for details.

Weight: A robot is generally heavier than an organic creature of similar size by 1.5.

Robot Resurrection

A robot’s core programming and experiences are contained within its central processor—its brain. The brain’s “drive to survive” is determined by its force of personality, as represented by the robot’s Charisma.

Whenever a robot is destroyed (reduced to 0 or fewer hit points), some brain degradation occurs. Each time its body is destroyed, the robot suffers a permanent drain of 1 point of Charisma. The brain ceases to function and the robot “dies” if its Charisma drops to 0. If a robot has at least 1 point of Charisma left after its body is destroyed, its brain can be removed and transplanted into another robot of the same size and frame. Removing a robot’s brain from a destroyed frame and installing it in a similar but intact frame requires 10 minutes of work, a mechanical tool kit, and a successful Engineering (Robotics) roll; the Not using a tool kit imposes a –40% penalty on the Engineering.

A robot that gains a new body retains the memories of its previous “life,” as well as any previously installed skill software and feat software. It also retains any previously installed mental ability score upgrades (see Ability Upgrades). It does not retain the previous frame’s armour, locomotive means, manipulators, sensors, physical ability score upgrades, accessories, or mounted weapons, as these were all destroyed.

Robot Frames

A robot’s frame is the basic form the robot takes, from a simple barebones Armature to a convincingly lifelike replica or metallic liquid. It includes both the robot’s chassis and its internal power source. The frame determines a robot’s base statistics and Base Cost, as shown on the tables below.

Frame Size: The size of the frame, which determines the robot’s Base Cost, base Hit Dice, and ability scores.

Base Cost: The Base Cost of the frame (or its components). The Base Cost does not include the cost of accessories (modes of locomotion, manipulators, armour, sensors, or equipment).

Base Ability Scores: The robot’s ability scores, before improvements. Robots that do not have Constitution or Intelligence scores cannot improve these abilities.

Armature (TL5)

The most basic of robot designs, Armatures are essentially mechanical skeletons.

Biomorph (TL7)

A Biomorph frame is essentially a hard plastic or metallic casing, often in a shape that suggests a living creature—for example, a human, dog, cat, or chimpanzee—though the resemblance is vague, at best.

Biodroid (TL9)

Biodroids are a step up from Biomorphs, in that they can be mistaken, under certain conditions, for what they are made to resemble. However, reasonably close inspection reveals the presence of robotic parts and the lack of biological parts. Purchasing a factory-model Biodroid requires a license. To build a Biodroid frame from scratch, a character must succeed at two skill checks—a Craft (mechanical) check (DC 30) and a Craft (electronic) check (DC 30). These checks are made after investing time in the frame’s construction: 48 hours for a Large or smaller frame or 72 hours for a Huge or larger frame. A character without a mechanical tool kit or electrical tool kit takes a –4 penalty on the skill check (–8 if the character has neither). The character must also make a Wealth check against the frame’s Base Cost.

Bioreplica (TL11)

A step up from Biodroids, Bioreplicas are robots so convincingly lifelike that they are virtually indistinguishable from their living counterparts. The Bioreplica’s components are made up of lightweight plastics in a synthetic sheath that looks and feels like real flesh and skin. Bioreplicas are restricted, and in some areas, buying or owning one is illegal.

Liquid-State (TL12)

The liquid-state robot is a mass of metal alloy resembling liquid mercury. It contains a molecular network of subprocessors that interpret the central processor’s instructions to form a nearly endless variety of shapes. The liquid metal can emulate radically different densities within the same form, meaning that the robot can feel like flesh on the outside, but be as solid as stone on the inside.

Being able to assume different forms does not allow the robot to duplicate appearances or abilities; a liquid-state robot cannot change its colour. For example, if it assumes the shape of a human, the robot would appear to be a human made of metal. However, at TL13 Liquid-State robots gain this ability. Furthermore, a liquid-state robot is limited to the quality of its own components. A liquid-state robot equipped with a rotor for locomotion cannot simply change shape and acquire a pair of legs, for example; any change must be of the same Tech Level or lower. A liquid-state robot can, however, reattach separated components.

Locomotion

How a robot moves is determined by its means locomotion. Most robots have only one means of locomotion, each of which comes with its own advantages and disadvantages, as shown below.

Base Speed: Each mode of locomotion has a base speed. This speed can be improved, but each 5-foot increase in speed also increases the Base Cost by +10%. The base speed can never be increased more than double the listed amount.

Base Cost: The cost of the components necessary to grant the robot this particular mode of locomotion. This cost is always a fraction of the Base Cost of the robot's frame.

Forced Air (TL7): The robot takes in air through a vent and forces it out beneath itself, allowing it to hover about an inch off the ground. It handles poorly and moves at half speed over poor surface conditions.

Base Speed: Fly 10 meters (clumsy).

Base Cost: One-half the Base Cost of the robot's frame.

Legs (Multiple) (TL6): The robot has three or more mechanical legs that allow it to walk, after a fashion. The robot moves at half speed when navigating obstructions, stairs, or poor surface conditions. Only robots equipped with legs can jump.

Base Speed: 10 meters.

Base Cost: One-half the Base Cost of the robot's frame.

Propeller (Air) (TL6): The robot has a propeller for air travel. It cannot travel on land without another mode of locomotion. If for some reason the robot's speed drops below half its base speed during any given round, it falls.

Base Speed: Fly 15 meters (clumsy).

Base Cost: One-quarter the Base Cost of the robot's frame.

Propeller (Water) (TL6): The robot has one or more propellers for water travel. It cannot travel on land without another mode of locomotion.

Base Speed: Swim 7 meters.

Base Cost: One-quarter the Base Cost of the robot's frame.

Rotor (TL6): The robot is equipped with a rotor, like a helicopter's. It doesn't move as quickly as a robot equipped with an air propeller, but it can hover without falling.

Base Speed: Fly 10 meters (poor).

Base Cost: One-quarter the Base Cost of the robot's frame.

Stationary (TL5): The robot cannot move at all. It is most likely bolted or otherwise secured in place. Factory robots are usually stationary.

Base Speed: 0 feet. (This speed cannot be improved.)

Base Cost: Not applicable. (This cost is included in the robot's Base Cost.)

Track (TL6): The robot follows a preset track and cannot deviate from that course. If the robot is somehow separated from the track, it becomes effectively stationary. The robot can manoeuvre over an obstacle only if the track leads over the obstacle, but if something obstructs the track, the robot comes to a halt.

Base Speed: 3 meters.

Base Cost: One-tenth the Base Cost of the robot's frame (rounded down).

Treads (TL6): The robot is equipped with a pair of tank-like treads that allow it to roll along over most terrain without significant difficulties. It can negotiate reasonably shallow steps, but stairs are beyond its abilities. Robots with treads cannot jump or swim.

Base Speed: 6 meters.

Base Cost: One-quarter the Base Cost of the robot's frame.

Wheels (TL6): Wheels are somewhat more effective than treads on level ground, but the robot moves at half speed when navigating poor surface conditions. Most wheeled robots have four, six, or eight wheels. Robots with wheels cannot jump or swim.

Base Speed: 10 meters.

Base Cost: One-half the Base Cost of the robot's frame.

Casters (TL7): The robot moves about on spherical wheels, or casters. These are somewhat more efficient than wheels and enable the robot to change direction easily. Robots with casters cannot jump or swim.

Base Speed: 6 meters.

Base Cost: One-quarter the Base Cost of the robot's frame.

Legs (Pair) (TL8): The robot is bipedal, walking on two legs as well as a human. Only robots equipped with legs can jump.

Base Speed: 4 meters.

Base Cost: One-half the Base Cost of the robot's frame.

Thruster (TL9): Thrusters use a miniature impulse engine to produce a stream of high-energy particles, contained and directed by magnetic fields. The exhaust is hot, but not dangerously so. Thrusters enable the robot to fly and hover.

Base Speed: Fly 10 meters (poor).

Base Cost: One-half the Base Cost of the robot's frame.

Inductor (TL12): Induction engine technology allows the robot to move about on a thin cushion of artificial gravity. The thrust does not enable the robot to corner quickly, but it can hover and float above liquid surfaces (including water).

Base Speed: 10 meters.

Base Cost: One-half the Base Cost of the robot's frame.

Manipulators

Without some kind of manipulating appendage, robots cannot lift or move objects. Manipulators can be as crude as a simple probe or as complex as a five-fingered hand.

Damage: Robots can use their manipulators as melee weapons, dealing piercing, slashing, or bludgeoning damage based on the type of manipulator and the robot's size (see Table: Manipulator Damage). Some types of manipulators deal non-lethal damage only.

Base Cost: The cost of each manipulator. This cost is always a fraction of the Base Cost of the robot's frame (see Frame, above).

Claw (TL5): Claws resemble pincers, but the opposed surfaces cover the length of the appendage. Claws suffer the same handicaps as pincers when attempting tasks involving manual dexterity, but they deal greater damage.

Damage: 1D4

Base Cost: One-quarter the Base Cost of the robot's frame.

Jaws (TL5): Only robots modelled after creatures with bite attacks have jaws. Robotic jaws are essentially large clamps with teeth.

Damage: 1D4

Base Cost: One-quarter the Base Cost of the robot's frame.

Pincer (TL6): A pincer is a two-fingered, clawlike appendage that focuses all the grip strength on a pair of opposed surfaces, rather like a pair of tongs. Pincers allow the robot to manipulate and lift objects without much difficulty, but objects specifically made for humanoid hands (like firearms) are usually beyond the pincers' ability to operate. At the GM's discretion, tasks involving manual dexterity suffer a –40% penalty for a robot equipped with pincers.

Damage: 1D3

Base Cost: One-quarter the Base Cost of the robot's frame.

Probe (TL6): Similar to a special-use gripper, a probe is simply an instrument of some kind, meant to measure torque, temperature, or some other factor. If the robot attempts to manipulate or lift an object with a probe, it takes a –40% penalty on the roll.

Damage: 1D2

Base Cost: One-tenth the Base Cost of the robot's frame.

Special-Use Gripper (TL7): The robot has a manipulator designed for a specific task. When the robot uses a special-use gripper for a task other than its intended task, the robot suffers a –40% penalty on the check if the roll involves manual strength or dexterity.

Damage: 1D3

Base Cost: One-tenth the Base Cost of the robot's frame (rounded down).

Hand (TL8): A hand is a step up from a claw, in that it has more digits— usually three or four, total. Hands are a bit more adaptable as well, imposing only a – 2 penalty when attempting tasks involving manual dexterity.

Damage: 1D3

Base Cost: One-quarter the Base Cost of the robot's frame.

Advanced Hand (TL9): Advanced hands are essentially the same in structure as human hands, though some might have additional fingers for specialized work. Advanced hands suffer no penalties when attempting tasks involving manual dexterity.

Damage: 1D3

Base Cost: One-quarter the Base Cost of the robot's frame.

Task Hand (TL9): Task hands function just like advanced hands, except that they are equipped with additional joints and often with additional or telescoping digits, enabling them to multitask, as well as to spread the robot's grip strength over a slightly wider area. A robot with a task hand gains a +10% bonus on all physical skills that rely on the use of the hand. This bonus improves to +20% if the robot has two or more task hands.

Damage: 1D3

Base Cost: One-quarter the Base Cost of the robot's frame.

Armour

Although composed of durable alloys or resilient plastic polymers, robots are easily damaged. For this reason, combat models are usually equipped with some form of armour, depending on the robot's frame.

A robot can be equipped with a suit of removable armour (identical in form and function to armour worn by organic characters), or it can have armour integrated into its frame. A robot may be limited to one type or another depending on its shape, size, and frame. Liquidstate robots cannot have armour of any sort.

Removable Armour: Anthropomorphic Biodroids and Bioreplicas typically wear removable suits of armour. Armour penalties apply to robots as normal.

Integrated Armour: This type of armour is welded or otherwise fixed securely to the robot’s frame. Robots equipped with integrated armour suffer no armour penalties if the armour is installed properly. Improperly installed armour causes the robot to take a –10% Armour Penalty.

Integrated Armour

Different types of integrated armour are presented below. Only one type of armour can be installed on a given robot.

Armour: The particular type of armour described

AP: The Armour Points that the armour blocks in combat.

Except: Robots of these types cannot have this type of integrated armour.

Weight: How much weight integrated armour adds to the robot’s weight.

Speed Penalty: The amount by which the armour reduces the robot’s speed. If a robot’s speed drops to zero because of the penalty, it cannot move (the armour is too heavy for its frame).

Base Cost: The cost of the integrated armour (or its components).

Armour	Tech Level	AP	Except	Weight	Speed Penalty	Cost
Alumisteel	TL5	5	Bioreplica/Liquid-State	1/4 Frame	-2 meters	1/2 Base Cost
Duraplastic	TL8	3	Bioreplica/Liquid-State	1/8 Frame	None	1/2 Base Cost
Duralloy	TL8	8	Bioreplica/Liquid-State	1/2 Frame	-3 meters	1/2 Base Cost
Resilium	TL9	6	Liquid-State	1/8 Frame	None	1/2 Base Cost
Crystal Carbon	TL10	8	Bioreplica/Liquid-State	1/8 Frame	None	1/2 Base Cost
Neovulcanium	TL11	7	Bioreplica/Liquid-State	1/4 Frame	-2 meters	1/2 Base Cost
Megatanium	TL12	10	Bioreplica/Liquid-State	1/4 Frame	-2 meters	1/2 Base Cost
Reactive	TL13	8	Bioreplica/Liquid-State	1/4 Frame	-2 meters	1/2 Base Cost

Sensors

Robots are unable to perceive their surroundings without a sensor system of some kind. Without sensors, they are effectively blind and deaf, and they suffer penalties on certain checks—if they can attempt them at all.

Sight: A robot without visual sensors suffers a –40% penalty on all skill rolls and cannot make visual Perception rolls.

Sound: A robot without audio sensors suffers a –20% penalty on all skill rolls involving sound and cannot make aural Perception rolls.

Touch: A robot without tactile sensors suffers a –40% penalty on all fine manipulation skills.

Smell: A robot without olfactory sensors suffers no particular penalties.

Taste: A robot without gustatory sensors suffers no particular penalties.

Robot sensor systems are further separated by type and Base Cost:

Type: The type of sensors (visual, audio, tactile, olfactory, gustatory) included in the system.

Base Cost: The cost of the sensor system.

Class	Tech Level	Type	Type 1 Skill	Type 2 Skill	Type 3 Skill	Base Cost
I	TL6	Audio, Visual.	-40%		-20%	Cr 5,000
II	TL6	Audio, Olfactory, Visual.	-40%		No Change	Cr 10,000
III	TL7	Audio, Olfactory, Visual.	No Change		No Change	Cr 15,000
IV	TL8	Audio, Olfactory, Tactile, Visual.	+20%		No Change	Cr 20,000
V	TL8	Audio, Olfactory, Tactile, Visual, (Ladar/Sonar).	+20%	+20%	No Change	Cr 25,000
VI	TL8	Audio, Olfactory, Radar, Tactile, Visual.	+20%	+20%	No Change	Cr 30,000
VII	TL9	Audio, Olfactory, Radar, Tactile, Visual.	+20%	+20%	No Change	Cr 35,000
VIII	TL10	Audio, Olfactory, Radar, Tactile, Visual.	+20%	+20%	No Change	Cr 40,000
IX	TL12	Audio, Olfactory, Radar, Tactile, Visual.	+40%	+20%	+20%	Cr 45,000

Type 1 Skills: Demolitions, Disable Device, Forgery, and Repair

Type 2 Skills: Perception (Listen), Perception (Spot), Perception (Smell)

Type 3 Skills: All other Skills

Class I Sensor System (TL6): This sensor system includes a low-res video camera and a basic audio receiver (effectively a robotic ear).

Class II Sensor System (TL6): This sensor system includes a video camera with infrared capability, capable of discerning creatures and objects by their heat signatures. It also includes a basic audio receiver and a crude chemical sniffer (a series of filters that detect free-floating chemical residues).

Class III Sensor System (TL7): This sensor system includes a video camera with infrared capability, a basic audio receiver, and a crude chemical sniffer.

Class IV Sensor System (TL8): This sensor system includes hi-res video sensors, a hi-fidelity audio sensor, a chemical vapour scanner, and a pressure sensor that enables the robot to perform tasks requiring manual dexterity.

Class V Sensor System (TL8): This sensor system includes hi-res video sensors with darkvision (out to 20 metres), hi-fidelity audio sensors, a chemical vapour scanner, pressure sensors, and either a lidar or sonar system. Lidar uses laser detectors and ranging sensors to rapidly play low-powered laser beams across the robot's surroundings, allowing it to locate targets. Sonar sensors are used mostly in subaquatic environments, but the technology works almost as well in the air. By bouncing sound waves off objects and measuring the length of time it takes to receive an echo, sonar can produce a clear image of the robot's surroundings.

Class VI Sensor System (TL8): This sensor system includes hi-res video sensors with darkvision (up to 40 metres), hi-fidelity audio sensors, a chemical vapour scanner, pressure sensors, and short-range radar that allows a robot to not only perceive its surroundings but also target more effectively.

Class VII Sensor System (TL9): This sensor system includes hi-definition video sensors with darkvision (out to 40 metres), acoustic audio sensors, a chemical vapour scanner, pressure sensors, and multiband radar that uses multiple concurrent radar signals in different frequencies to gather more data.

Class VIII Sensor System (TL10): This sensor system includes hi-definition video sensors with darkvision (out to 40 metres), acoustic audio sensors, a sophisticated olfactory sensor, a tactile sensor array, and multiband radar.

Class IX Sensor System (TL12): This sensor system includes a full-spectrum eye with darkvision (out to 60 metres), a full-frequency ear, a sophisticated olfactory sensor, a tactile sensor array, and multiband radar.

Nerve Web (TL13)

The nerve web is an advanced sensor array that simulates the function of an organic nervous system. This sensor system includes a full-spectrum eye with darkvision (out to 180 feet), a full-frequency ear, a sophisticated olfactory sensor, tactile and gustatory sensors, and multiband radar.

Programming vs. Artificial Intelligence

Mechanical intelligence is extremely limited in the early stages of robotic technology. The best TL5 robots have processors only as advanced as computers, and they are little better than remotes. If a situation falls outside the conditions for which the TL5 robot was programmed, the robot doesn't know what to do and sees no reason to take any actions at all.

TL9 robots step closer to achieving true artificial intelligence with the invention of the first commercially viable neural networks: "learning" computers. Designed to mimic how an organic brain processes and stores information, the neural network allows the robot to analyse the data it receives from its sensors and make autonomous decisions based upon that data. In other words, a neural network allows a robot to think.

However, true artificial intelligence does not arrive until TL10. While neural networks allow robots to learn and think, artificial intelligence allows robots to plan and be creative. Further, the AI attaches appropriate significance to what it learns; not only can it create but also it can decide for itself whether doing so is a good idea. In effect, artificial intelligence allows a robot to simulate humanoid behaviour (for better or for worse) without being programmed to do so. It learns by observation and deduction, not unlike a human child learns to behave as the adults he knows.

Skill Software

Robots do not gain skills in the normal way. They must be programmed with software that gives them the ability or the knowledge to perform certain skills. Skill software is embedded in the robot's central processor or "brain" and can be saved after the robot is destroyed. All Robots have a Specialised Computer that can be programmed with extra skills, up to its INT.

Skill Chip (TL9)

A skill chip allows a Robot to use an extra skill, in addition to those normally allowed through its INT. The Skill Chip is programmed with a skill at a certain level and that skill or level may not be changed. The Skill Chip may be removed and replaced, with a Difficult (-20%) Engineering (Robotics) roll.

Base Cost: Cr 10,000 for a basic skill, Cr 20,000 for Standard, Cr 30,000 for Advanced, Cr 40,000 for Expert and Cr 50,000 for Master.

Skill Cluster (TL10)

A Skill Cluster consists of a very small Specialised Computer that allows a Robot to have a number of skills equal to its INT. The Skill Cluster is normally pre-programmed with the skills at certain levels.

Base Cost: Cr 10,000 plus Cr 10,000 for each basic skill, Cr 20,000 for Standard, Cr 30,000 for Advanced, Cr 40,000 for Expert and Cr 50,000 for Master skills.

Skill Upgrades

Robots can receive structural and programming upgrades that increase their skills. A robot can receive multiple upgrades to the same skill score.

Characteristic Upgrades

Robots can receive structural and programming upgrades that increase their Characteristics. A robot can receive multiple upgrades to the same Characteristic score.

Upgrades to physical characteristics (STR and DEX) always entail a refit or reconstruction and require a factory, workshop, or other facility. Upgrades to mental abilities (INT, EDU, CHA and SOC) are handled by using a computer to reprogram or add new subroutines to the robot's brain, neural network, or central processing unit.

To perform a Strength or Dexterity upgrade from scratch, a character must have access to a workshop or other suitable facility.

Base Cost: The cost of the upgrade.

Strength Upgrade (TL6)

Parts of the robot's frame, including its joints and hydraulic components, are reinforced or replaced with similar components made of stronger materials. The upgrade increases STR by 1.

Base Cost: One-half the Base Cost of the robot's frame.

Dexterity Upgrade (TL8)

The robot receives replacement joints or ligaments that are more flexible, and the robot's tactile sensors are modified to improve manual dexterity. The upgrade increases DEX by 1.

Base Cost: One-half the Base Cost of the robot's frame.

Intelligence Upgrade (TL8)

Modifications to the robot's artificial intelligence allow it to think more creatively. The upgrade increases INT by 1.

Base Cost: One-half the Base Cost of the robot's frame.

Charisma Upgrade (TL9)

The robot is programmed with character and personality subroutines that enable it to better interpret and simulate humanoid behaviour patterns and emotions. The upgrade increases CHA by 1.

Base Cost: One-half the Base Cost of the robot's frame.

Social Upgrade (TL10)

Adjustments to the robot's character and personality help others to perceive it in a better way. The upgrade increases SOC by 1.

Base Cost: One-half the Base Cost of the robot's frame.

Robot Accessories

Even an assembly-line robot needs certain tools to accomplish its tasks. The following section describes miscellaneous accessories designed specifically for robots.

Base Cost: The cost of the accessory.

AV Recorder (TL6)

This audio and video recorder unit uses the robot's video and audio sensors to record and store up to 8 hours of information.

Base Cost: Cr 50

AV Transmitter (TL6)

A remote audio-visual unit consists of a video camera and microphone connected to the robot's visual and audio sensors, with a transmitter to send the information to a computer or a remote control unit. The AV Transmitter includes a transmitter with an effective range of 1,000 meters. This unit does not allow a remote operator to control the robot. It merely allows the operator to see and hear what the robot sees and hears.

Base Cost: Cr 50

Fire Extinguisher (TL6)

This unit ejects enough extinguishing chemicals during a combat action to put out a fire in a 3 meter by 3 meter square. A robot's extinguisher tank holds a number of shots of chemical spray equal to the Robot's SIZ.

Base Cost: One-quarter the Base Cost of the robot's frame.

Integrated Comms Device (TL8)

An integrated comms device enables the robot to communicate with other comms devices without resorting to the use of its manipulators.

Base Cost: Cr 50

Storage Compartment (TL6)

The robot has an insulated compartment for storing foreign objects. The compartment can store objects smaller than the area containing the compartment.

Base Cost: Ct 50

Loading Mechanism (TL7)

A loading mechanism allows a robot to reload a single handheld weapon as a full-round action. The mechanism can hold enough ammunition to reload the weapon three times. The mechanism works with weapons that use box ammunition, speed-loaders (but not loose bullets), a grenade launcher round, some sort of fuel tank (such as a flameroller) or power cell.

A robot can have multiple loading mechanisms—one for each weapon it carries.

Base Cost: Cr 10,000 (doesn't include ammunition).

Remote Control Unit (TL7)

Referred to colloquially as a "Remcon," this handheld, self-powered control stick has a small video screen and audio receiver built into it. It also comes in the form of a mechanical gauntlet worn on the hand.

The remcon allows its operator to control a specific robot from afar. For it to work, the robot must be equipped with an AV transmitter and a robolink adjusted to the same frequency as the remote control unit. The operator must also have knowledge of the security, for example passwords, built into the robot.

Using a remcon to activate or deactivate a robot is an attack or move action. Using it to make the robot move, attack, or use a skill uses as many actions for the operator as the robot performs. Using a remote control unit requires the Remote Operations skill.

Base Cost: Cr 50,000.

Robolink (TL7)

This unit is normally only be installed in drones but can be installed in other robots. It allows a remote operator to control a robot's actions from afar. It also enables the operator to shut down and activate the robot. The effective range of the robolink's transmitter is 1,000 meters. To control a robot equipped with a robolink, the operator requires a remote control unit.

Base Cost: Cr 50,000.

Tool Mount (TL6)

Any robot with an Armature, Biomorph, Biodroid, or Bioreplica frame can be equipped with a tool mount. Liquid-state robots, due to their amorphous nature, cannot have tool mounts.

This mount is usually attached to the end of a robotic appendage and sports a single tool. A tool mount easily adjusts to house different kinds of tools, but it can hold only one tool at any given time.

The robot's internal power source powers the tool, if necessary.

Base Cost: Cr 1,000 + the Base Cost of the tool.

Vocalizer (TL7)

This unit enables a robot to speak any language it knows. It must have the appropriate Linguistics skill and language Speciality programmed into it.

Base Cost: Cr 10,000.

Weapon Mount (TL8)

Any Robot with an Armature, Biomorph, Biodroid, or Bioreplica frame can be equipped with a weapon mount. Liquid-state robots, due to their amorphous nature, cannot have weapon mounts.

A weapon mount can be attached to almost any part of a robot's frame.

Any weapon can be mounted on the weapon mount. However, a robot-mounted weapon cannot be used as a hand-held weapon, or vice versa.

A robot can have as many weapon mounts as its SIZ divided by 10, rounding up. A weapon mount has compartments for storing ammunition. However, the Base Cost of the weapon mount does not include either the weapon or the ammunition. The robot must have a skill to use the weapon.

Base Cost: Cr 50,000 plus half the cost of the weapon mounted.

Magnetic Feet (TL7)

The robot comes with electromagnetic grippers that allow it to cling to ferrous surfaces, including iron and steel. The robot using its magnetic feet gains a climb speed of 4 meters and need not make Athletics rolls to scale ferrous surfaces.

Base Cost: Cr 60,000.

Self-Destruct System (TL8)

Designed for robots in military and espionage roles, self-destruct systems ensure that the robot cannot be captured, analysed, and reprogrammed. Installing a robot self-destruct system requires an Explosives roll; if the Explosive roll is fumbled, the system detonates, destroying the robot and possibly harming others nearby.

The default self-destruct system is rigged to detonate when the robot is reduced to 0 Structure Points. With a second Explosives roll, the system can be modified to detonate when the robot has a higher number of Structure Points remaining (5 SPs, for example).

The self-destruct system obliterates the robot regardless of how many hit points it has left. A robot destroyed by its own self-destruct system has no salvageable parts.

Base Cost: Half the Base Cost of the robot's frame.

Survivor Array (TL7)

Robots are often used to explore environments inhospitable to organic creatures. The survivor array enables the robot to better traverse harsh terrain and withstand hostile conditions. A survivor array includes the following units:

- Topographical and astronomical guidance systems that grant a +10% bonus on Navigate rolls.
- A gyroscopic unit that improves the robot's base speed by +3 meters.
- A pressure-sealed, energy-resistant frame that allows the robot to function normally in low-gravity, high-gravity, and zero gravity conditions, prevents oxidation and corrosion, and provides resistance to acid, cold, electricity, and fire.
- A nightvision amplifier that grants the robot darkvision out to a range of 20 meters or extends its normal darkvision range by +20 meters.

Base Cost: One-half the Base Cost of the robot's frame.

Holo Screen (TL9)

A holo screen unit projects a holographic image around the robot, making it appear as something else of roughly similar proportions occupying the same amount of space. Although the holographic projection appears real, physical objects can pass through it without difficulty. If the robot moves, the holographic image moves as well. Attacks made against the robot are treated as though it had 20% cover, since the projected image may not perfectly match the robot's true proportions, for any attack made against the robot there is a

20% chance that even a successful attack misses because it is aimed at the holo image. A holo screen is powered by the robot's internal power source.

Base Cost: Cr 100,000.

Inertial Inhibitor (TL8)

The inertial inhibitor generates a thin magnetic field that radiates out from the robot, slowing the velocity of potentially damaging weapons and projectiles. The robot reduces the damage done by metallic projectiles by the energy level used by the Inhibitor (the inertial inhibitor does not protect against attacks that deal acid, cold, electricity, fire, or sonic/concussion damage). The inertial inhibitor uses the robot's internal power source.

Base Cost: Cr 100,000.

Polyvox (TL8)

This unit translates any language spoken within range of the robot's audio sensors into a language familiar to the robot (or binary code, if the robot has no Speak Language skills). A polyvox does not grant the ability to speak languages the robot does not know.

Base Cost: Cr 100,000.

Self-Repair Unit (TL8)

A self-repair unit enables a robot to repair itself by replacing damaged parts with cannibalised or replicated ones. A robot with a self-repair unit can spend 1 hour repairing itself; this automatically restores 1d10 points of Structure Damage with no skill rolls. A robot cannot use this unit to repair another robot.

Base Cost: 25.

Photon Screen (TL12)

Using a series of light reflectors moulded to the robot's frame, this unit bends light around the robot, rendering it invisible. Any items carried by the robot also become invisible. An invisible robot gains a +40% bonus on Hide rolls if immobile, or a +20% bonus if moving. Pinpointing the location of an invisible robot that isn't attempting to hide requires a Perception roll (-40% if the robot is immobile or -20% if the robot is moving).

An invisible robot gains 50% concealment against attacks from creatures that correctly pinpoint its fighting space.

The photon screen is powered by the robot's internal power source.

Base Cost: Cr 100,000.

Robot Weapon Rules

A robot can be armed with manipulators, handheld weapons, mounted weapons, or any combination of the three. However, during any given round of attacks, it must choose whether to attack with its manipulators, handheld weapons, or mounted weapons, as it cannot switch between them during the same turn.

A robot has the standard number of Actions in a round and can use as many of its weapons as it has actions. It uses those weapons at the ratings programmed into it.

Sample Robots

“Spot” Security Robot (TL7)

This robot looks like a man-sized, mechanical guard dog with four powerful legs, wicked jaws, and resiliium armour covering its body. It growls and barks at intruders with the aid of a vocalizer. “Spot” functions as a robotic watchdog and can only be mistaken for an actual dog at distances of 30 meters or more.

Base Cost: Cr 50,000.

“Spot” Security Robot: STR 14 SIZ 10 DEX 12 INT 4 CHA 1

Skills: Expert Athletics 60%, Expert Stealth 60%, Expert Perception 60%, Expert Bite Attack 60%

Weapons: Bite (1D4)

Armour Points: 6

Structure Points: 10

Frame: Biomorph.

Locomotion: Multiple legs (4).

Manipulators: Jaws.

Armour: Resiliium armour.

Sensors: Class IV sensor system.

Accessory: Vocalizer

Ape Police Robot (TL8)

The Armed Police Escort (APE) robot is designed to help police deal with civil disobedience and unrest in the urban jungle. This robot resembles a hulking, apelike man with thick arms and legs, clad head to toe in interlocking duralloy plates. The robot's hands can be used for grappling or carrying items. It usually carries an assault rifle. In addition, it has a mini-grenade launcher (with a compartment for concussion grenades) mounted in its left forearm and a laser pistol mounted in its right forearm. The APE robot cannot use its mounted weapons if it is grappling.

Base Cost: Cr 200,000

APE Police Robot: STR 20 SIZ 30 DEX 11 INT 7 CHA 5

Skills: Expert Athletics 60%, Advanced Perception 75%, Expert Trade (Law Enforcement) 60%, Expert Rifle Combat 60%, Expert Energy Pistol Combat 60%, Expert Heavy Weapons Combat 60%, Expert Intellect 60%

Weapons: Assault Rifle, Laser Pistol, Grenade Launcher

Equipment: Assault rifle with 4 30-round magazines, laser pistol (mounted), mini-grenade launcher (mounted) with 8 concussion grenades. The APE police robot has the following systems and accessories:

Move: 8 meters

Armour Points: 8

Structure Points: 30

Frame: Biodroid.

Locomotion: Legs (2, speed-enhanced).

Manipulators: Hands (2).

Traits: Darkvision

Armour: Duralloy armour.

Sensors: Class V sensor system (with ladar).

Accessories: Magnetic feet, weapon mounts (2).

“Nuyu” Doppelganger Robot (TL9)

Each doppelganger robot is modelled after a specific person. “Nuyu” Bioreplicas are often used as doubles for politicians and movie stars during high-risk public appearances. Government agencies also use them as spies and infiltrators. A “Nuyu” is usually programmed with enough knowledge of its biological counterpart to maintain the charade for a period of a few hours or days.

Base Cost: Cr 100,000.

“Nuyu” Replacement Robot: STR 12 SIZ As Subject DEX 11 INT CHA 12 SOC As Subject

Skills: Master Disguise 90%, Master Mimic 90%, Master Artificial Personality 90%, Master Intellect 90%, Master Linguistics (English, Japanese) 90%, Advanced Diplomacy 75%, Expert Survival 60%, Expert Drive 60%, Advanced Pistol 75%

Equipment: Determined by the GM.

Move: 8meters

Frame: Bioreplica.

Locomotion: Legs (2, speed-enhanced).

Manipulators: Advanced hands (2).

Traits: Darkvision

Sensors: Class VII sensor system.

Accessories: Integrated comms unit, self-destruct system, self-repair unit, vocalizer.

CHAPTER 16: Mecha

A Mecha is a large robotic machine capable of holding personnel and normally used in fighting on battlefields. Mecha technology can be found in societies of TL7 or higher.

Mecha Body Size

Mecha bodies come in a range of categories, the higher the category the larger the Mecha. For convenience, Mecha are also rated as Large, Huge, Gargantuan, and Colossal. A Mecha's Category determines how many equipment slots (places where weapons and additional equipment can be installed) it has, and how well it measures up in combat.

Quadrupedal Mecha

Mecha can be built with four legs instead of two. A quadrupedal Mecha sacrifices equipment slots for added speed and stability. Its base land speed increases by 3 meters and the number of slots is decreased. A Quadrapedal Mecha allocates its Leg Slots across all four legs, meaning that some Quadrapedal Mecha will not have slots on every leg.

<i>Bipedal Mecha Hit Locations</i>		<i>Quadrapedal Mecha Hit Locations</i>	
D20	Hit Location	D20	Hit Location
1–3	Right Leg	1	Right Hind Leg
4–6	Left Leg	2	Left Hind Leg
7–10	Abdomen	3-4	Right Fore Leg
11–12	Chest	5–6	Left Fore Leg
13–15	Right Arm	7–10	Abdomen
16–18	Left Arm	11–12	Chest
19–20	Head	13–15	Right Arm
		16–18	Left Arm
		19–20	Head

Large Mecha

Category: 1-2

Essentially big suits of armour, Large Mecha excel in urban battlefields and Starship boarding actions, where they move through buildings and corridors to find the enemy. Large Mecha are the easiest to operate. However, they can't carry the intense array of weapons that bigger Mecha can, nor are they as strong or durable. The Pilot sits in the torso, the combined abdomen and chest area and there is no room for a co-pilot.

Huge Mecha

Category: 3-5

Common weapons on the futuristic battlefield, Huge Mecha offer a solid balance between cost, agility, and sheer bulk. They perform well in any combat environment, but they favour locations with some variation in terrain. In the wide-open desert or depths of outer space, they can fall prey to larger Mecha.

Gargantuan Mecha

Category: 6-10

Gargantuan Mecha are highly experimental in TL8 societies, but quite common at TL9. Units of this size are titans of the battlefield, able to destroy almost anything they can hit. Gargantuan Mecha are common in outer space environments but are often too expensive and unwieldy for planet-based missions.

Colossal Mecha

Category: 11-20

Colossal Mecha do not exist in TL8 societies and are rare sights even at TL9. Only at TL10 do they leave the experimental stage and enter the battlefield in respectable numbers. Massive juggernauts, Colossal Mecha represent the epitome of futuristic warfare, with firepower sufficient to destroy Starships or level entire city blocks. They typically serve as mobile artillery and walking weapon platforms.

Characteristics

For every two metres of height, a Mecha rolls 3D6+6 for STR and 3D6+6 for SIZ.

Category: The Mecha's rating - this is used to categorise the Mecha.

Tech Level: The Tech Level at which this type of Mecha is available.

Height: The Mecha's height in meters

STR: The Mecha's STR Characteristic.

SIZ: The Mecha's SIZ Characteristic.

Slots: The number of locations where weapons and other Mecha equipment can be installed.

Move: The Mecha's base movement. Certain types of armour reduce Move.

Hull Points: The strength of the Mecha's Superstructure

Structure Points: The amount of damage a Mecha can take.

MBC: The Mecha's Base Cost, excluding armour, weapons and other equipment.

Mecha Characteristics Table

Category	Rating	Tech Level	Height (m)	STR	SIZ	DEX	Move	Hull Points	Structure Points	Slots	MBC
20	Colossal	12	40	60D6+120	60D6+120	2D6	10	24	Equal to SIZ	25/22	1,050 KCr
19	Colossal	11	38-39	57D6+114	57D6+114	2D6	10	23	Equal to SIZ	24/21	1,000 KCr
18	Colossal	11	36-37	54D6+108	54D6+108	2D6	9	22	Equal to SIZ	23/20	950 KCr
17	Colossal	11	34-35	51D6+102	51D6+102	2D6	9	21	Equal to SIZ	22/19	900 KCr
16	Colossal	11	32-33	48D6+96	48D6+96	2D6	9	20	Equal to SIZ	21/18	850 KCr
15	Colossal	10	30-31	45D6+90	45D6+90	2D6	8	19	Equal to SIZ	20/17	800 KCr
14	Colossal	10	28-29	42D6+84	42D6+84	2D6	8	18	Equal to SIZ	19/16	750 KCr
13	Colossal	10	26-27	39D6+78	39D6+78	2D6	8	17	Equal to SIZ	18/15	700 KCr
12	Colossal	10	24-25	36D6+72	36D6+72	2D6	7	16	Equal to SIZ	17/14	650 KCr
11	Colossal	9	22-23	33D6+66	33D6+66	2D6	7	15	Equal to SIZ	16/13	600 KCr
10	Gargantuan	9	20-21	30D6+60	30D6+60	2D6	7	14	Equal to SIZ	15/13	550 KCr
9	Gargantuan	9	18-19	27D6+54	27D6+54	2D6	6	13	Equal to SIZ	14/12	500 KCr
8	Gargantuan	9	16-17	24D6+48	24D6+48	2D6	6	12	Equal to SIZ	13/11	450 KCr
7	Gargantuan	8	14-15	21D6+42	21D6+42	2D6	6	11	Equal to SIZ	12/10	400 KCr
6	Gargantuan	8	12-13	18D6+36	18D6+36	2D6	5	10	Equal to SIZ	11/9	350 KCr
5	Huge	8	10-11	15D6+30	15D6+30	2D6	5	9	Equal to SIZ	10/8	300 KCr
4	Huge	8	8-9	12D6+24	12D6+24	2D6	5	8	Equal to SIZ	9/7	250 KCr
3	Huge	7	6-7	9D6+18	9D6+18	2D6	4	7	Equal to SIZ	8/7	200 KCr
2	Large	7	4-5	6D6+12	6D6+12	2D6	4	6	Equal to SIZ	7/6	150 KCr
1	Large	7	2-3	3D6+6	3D6+6	2D6	4	5	Equal to SIZ	6/5	100 KCr

Most Mecha have a fairly standard configuration of slots, as shown in the Table below. However, many Mecha differ slightly. Some may have extra slots on their shoulders (Chest) for ammo storage or ranged weapons, others have slots in their torso (Abdomen/Chest) for integral systems.

Mecha Equipment Slots Table

Slots	Right Leg	Left Leg	Abdomen	Chest	Right Arm	Left Arm	Head
25	3	3	3-4	3-4	4	4	4
24	3	3	3	3	4	4	4
23	3	3	3	3	3-4	3-4	4
22	3	3	3	3	3	3	4
21	3	3	3	3	3	3	3
20	3	3	2-3	2-3	3	3	3
19	3	3	2	2	3	3	3
18	3	3	2	2	3	3	2
17	2-3	2-3	2	2	3	3	2
16	2	2	2	2	3	3	2
15	2	2	2	2	2-3	2-3	2
14	2	2	2	2	2	2	2
13	1-2	1-2	2	2	2	2	2
12	1	1	2	2	2	2	2
11	1	1	1-2	1-2	2	2	2
10	1	1	1	1	2	2	2
9	1	1	1	1	2	2	1
8	1	1	1	1	1-2	1-2	1
7	1	1	1	1	1	1	1
6	1	1	1	1	1	1	

Mecha Superstructure

A Mecha's superstructure—its exoskeleton, interior braces, and other structural parts—can be made from any sufficiently advanced metal alloy. Whatever its composition, a Mecha's superstructure has a hardness that reduces the damage the Mecha takes from weapons and collisions.

To build a Mecha superstructure from scratch, a character must succeed in an Engineering (Mecha) after investing the requisite amount of assembly time, equal to 60 times the Mecha's Category. A character without a mechanical tool kit takes a –40% penalty on the roll.

Different types of superstructure materials are presented below and summarized below.

Tech Level: The minimum Tech Level at which the superstructure material can be used.

Hull Points: The modifier applied to the Mecha's Hull Points when made of this material.

Structure Points: The modifier applied to the Mecha's Structure Points when made of this material.

Base Cost: The Base Cost of the Superstructure, expressed as a proportion of the Mecha's Base Cost.

Material	Tech Level	Hull Points	Structure Points	Base Cost
Alumisteel	5	x 0.5	x 0.5	0.75 x MBC
Duraplastic	8	x 0.75	x 0.75	1 x MBC
Duralloy	7	x 1.0	x 1.0	1 x MBC
Vanadium	8	x 1.25	x 1.25	1 x MBC
Resilium	9	x 1.0	x 1.0	1 x MBC
Crystal Carbon	10	x 1.25	x 1.25	1 x MBC
Neovulcanium	11	x 1.25	x 1.25	1 x MBC
Neutronite	11	x2	x2	1.25 x MBC
Megatanium	12	x 1.50	x 1.50	1 x MBC
Reactive	13	x 1.50	x 1.50	1 x MBC

Mecha Armour

Armour can be welded or otherwise fixed securely to a Mecha's superstructure, providing Armour Points to protect the Mecha's Structure from damage. Mecha armour does not impose a maximum Dexterity bonus upon the Mecha operator (as worn armour does). Installing armour on a Mecha requires an Engineering (Mecha) roll. The check is made after investing an amount of time in hours equal to the Mecha's Category.

Different types of Mecha armour are presented below, along with the following statistics:

Tech Level: The minimum Tech Level at which this armour is available.

Armour Points: The standard rating of the armour.

Weight: The weight of the armour, as a proportion of the Mecha's frame.

Speed Penalty: The amount by which the armour reduces the Mecha's base speed.

Base Cost: The cost of the armour, as a proportion of the Base Cost of the Mecha.

Armour	Tech Level	Armour Points	Weight	Speed Penalty	Base Cost
Alumisteel	5	5	0.25 x MBC	-2 meters	0.3 x MBC
Duraplastic	8	3	0.125 x MBC	None	0.5 x MBC
Duralloy	7	8	0.50 x MBC	-3 meters	0.5 x MBC
Vanadium	8	9	0.70 x MBC	-3 meters	0.5 x MBC
Resilium	9	6	0.125 x MBC	None	0.5 x MBC
Crystal Carbon	10	8	0.125 x MBC	None	0.7 x MBC
Neovulcanium	11	7	0.25 x MBC	-2 meters	0.5 x MBC
Neutronite	11	8	1.0 x MBC	-4meters	0.7 x MBC
Megatanium	12	10	0.25 x MBC	-2 meters	0.5 x MBC
Reactive	13	8	0.25 x MBC	-2 meters	0.5 x MBC

Mecha Structure Points

Mecha do not have Hit Points, as they are mechanical objects. Instead they have Structure Points. A Mecha's Structure Points in each Hit Location is determined by its overall Structure Points.

Structure Points

Structure Points	Leg	Abdomen	Tail	Chest	Arm	Wing	Head
1-5	1	2	1	3	1	1	1
6-10	2	3	2	4	2	2	2
11-15	3	4	3	5	3	3	3
16-20	4	5	4	6	4	4	4
21-25	5	6	5	7	5	5	5
26-30	6	7	6	8	6	6	6
31-35	7	8	7	9	7	7	7
36-40	8	9	8	10	8	8	8
41-45	9	10	9	11	9	9	9
46-50	10	11	10	12	10	10	10
51-55	11	12	11	13	11	11	11
56-60	12	13	12	14	12	12	12
61-65	13	14	13	15	13	13	13
66-70	14	15	14	16	14	14	14
71-75	15	16	15	17	15	15	15
76-80	16	17	16	18	16	16	16
81-85	17	18	17	19	17	17	17
86-90	18	19	18	20	18	18	18
91-95	19	20	19	21	19	19	19
96-100	20	21	20	22	20	20	20

Structure Points	Leg	Abdomen	Tail	Chest	Arm	Wing	Head
101-105	21	22	21	23	21	21	21
106-110	22	23	22	24	22	22	22
111-115	23	24	23	25	23	23	23
116-120	24	25	24	26	24	24	24
121-125	25	26	25	27	25	25	25
126-130	26	27	26	28	26	26	26
131-135	27	28	27	29	27	27	27
136-140	28	29	28	30	28	28	28
141-145	29	30	29	31	29	29	29
146-150	30	31	30	32	30	30	30
151-155	31	32	31	33	31	31	31
156-160	32	33	32	34	32	32	32
161-165	33	34	33	35	33	33	33
166-170	34	35	34	36	34	34	34
171-175	35	36	35	37	35	35	35
176-180	36	37	36	38	36	36	36
181-185	37	38	37	39	37	37	37
186-190	38	39	38	40	38	38	38
191-195	39	40	39	41	39	39	39
196-200	40	41	40	42	40	40	40

Mecha Equipment

Mecha equipment falls into several categories: flight systems, sensor systems, defence systems, weapons (both hand-held and integrated), and miscellaneous systems.

Installing a piece of equipment on a Mecha—be it a weapon or some other integrated system—requires an Engineering (Mecha) roll. The roll is made after investing an amount of time determined by the Mecha's size: Large 10 minutes, Huge 30 minutes, Gargantuan 1 hour, Colossal 3 hours. If the weapon or system occupies more than one equipment slot on the Mecha, multiply the installation time by the number of slots it takes up. An integrated weapon or system can be removed in half the time with a successful Engineering (Mecha) roll.

Leave Room for the Pilot

When equipping a Mecha from scratch, make sure to leave at least two vacant equipment slots for the Mecha operator's cockpit. (The cost of the cockpit is already factored into the Mecha's Base Cost.) On Large Mecha, the operator always occupies two of the following three equipment slots: helmet, torso, and back. On Huge and bigger Mecha, the designer has more choice when placing the operator's cockpit.

Co-pilot and passenger cockpits are described under Miscellaneous Equipment.

Stowing Hand Slot Equipment

Any piece of Mecha equipment integrated into a Mecha's hand slot—and only the hand slot—can be stowed magnetically against the Mecha or in a storage compartment as a move action. This frees up the hand to perform more delicate manipulation (such as opening a door or pressing a button) or grabbing another piece of Mecha equipment.

A Mecha may have more pieces of equipment for its hand slots than it has hand slots available; it just can't use them all at once.

Equipment Description

In addition to a general description, each piece of equipment includes the following information:

Equipment Slots: The number of equipment slots needed to install the equipment. Some pieces of equipment are limited to specific body slots, as noted here.

Activation: How long it takes to activate the piece of equipment (usually a combat action).

Range/Range Increment: A range listing indicates the maximum distance out to which the equipment functions. If a range increment is listed instead, it represents the distance at which accuracy begins to decline, as per the rules on range increments.

Unless otherwise noted, equipment with a range increment has a maximum of ten increments.

Target or Targets/Effect/Area: This entry starts with one of three headings: Target, Effect, or Area. If a component is a weapon capable of autofire, it will be noted here.

Duration: The amount of time a piece of equipment continues to operate before it needs to be reactivated, or how long its effect lasts. A duration of persistent means the equipment functions until the Mecha is destroyed (reduced to 0 hit points) or the Mecha's operator turns it off (usually as a Combat action).

Base Cost: The Base Cost for the Wealth check to acquire the equipment.

Mecha Flight Systems

All Mecha are equipped with legs that allow them to walk and run. A Mecha's size determines its base speed. This section describes various optional flight systems. To build a flight system from scratch, a character must succeed at an Engineering (Mecha) roll after investing 60 hours in its assembly. A character without a mechanical tool kit takes a –40% penalty on the skill.

Flight System	Equipment Slots	Activation	Range	Duration	Base Cost
Afterburner (TL 8)	1 - must be torso, back, or leg.	1 Combat Action	Mecha (Self)	1 round	1/4 MBC
Jetpack (TL 8)	1 - must be back or boots; or 2, must be left leg and right leg.	1 Combat Action	Mecha (Self)	Persistent	1/4 MBC
Jet-Assist Wings (TL 9)	1 - must be back or shoulders (Large or Huge); 2, must be back or shoulders (Gargantuan or Colossal).	None	Mecha (Self)	Persistent	1/4 MBC
Thruster Boots (TL 10)	1 - must be boots.	None	Mecha (Self)	Persistent	1/4 MBC
Ramjet Thruster Boots (TL 12)	1 - must be boots.	None	Mecha (Self)	Persistent	1/4 MBC

Afterburner System (TL8): The afterburner system dumps a shot of raw fuel into the Mecha's Thruster system, giving the Mecha a temporary speed boost. The Mecha's fly speed is doubled for 1 round. The afterburner system is good for only one use; additional activations require additional afterburner systems.

Jetpack (TL8): A jetpack combines vectored thrust with simple avionics, granting the Mecha a fly speed of 100 feet (clumsy). The jetpack carries enough fuel for the Mecha to travel a total of 1,000 feet; refuelling has a Base Cost of 16.

Jet-Assist Wings (TL9): Jet-assist wings allow a flying Mecha to manoeuvre more effectively, but do not provide the Mecha with the ability to fly. A Mecha with jet-assist wings improves its flight manoeuvrability by one category (clumsy to poor, poor to average, and so on).

Thruster Boots (TL10): Thruster Boots combine powerful fusion thrusters to give the Mecha a fly speed of 150 feet (poor).

Ramjet Thruster Boots (TL12): The best Thruster system available uses ramjet technology to improve the performance of the PL 7 Thruster Boots, granting the Mecha a fly speed of 200 feet (poor).

Mecha Sensor Systems

Sensor systems make it easier for Mecha operators to perceive their surroundings; however, not all Mecha are equipped with sensors (or even require them). In such cases, Mecha operators must rely on their own acute vision and hearing.

A Mecha equipped with sensors conducts passive scans of the surrounding area constantly, without the operator's attention. A passive scan extends in all directions at once, providing the operator with data on surrounding terrain, obstacles, and the location of other creatures, vehicles, and Mecha within several miles of the Mecha's position.

A sensor system can also be used to conduct an active scan of a single target. With a successful Computer Use check (DC 15) and a move action, a Mecha's operator can use the onboard sensor system to actively scan a single nonliving target (usually another Mecha or vehicle) and determine specific information about that target, as specified in the sensor system's description.

To build a sensor system from scratch, a character must succeed at a Craft (electrical) check (DC 30) after investing 60 hours in its assembly. A character without an electrical tool kit takes a –4 penalty on the skill check. The character must also make a Wealth check against the sensor system's Base Cost.

Skill Bonus: Bonus applied to navigate and Perception (Spot) rolls.

Equipment Slots: The number of slots taken up by the sensor array.

Range: Radius of emanation centred on your Mecha for Active Scan.

Area: Area of active scan.

Duration: How long it takes to perform an Active Scan.

Class	Tech Level	Type	Skill Bonus	Equipment Slots	Darkvision	Range	Area	Activation	Duration	Base Cost
I	TL8		+20%	1	None	1 mile	1 Target	1 Action	1 round	Cr 5,000
II	TL8		+20%	1	None	1 mile	1 Target	1 Action	1 round	Cr 10,000
III	TL8		+20%	1	30 meters		1 Target	1 Action	1 round	Cr 15,000
IV	TL9		+40%	1	40 meters	10 miles	1 Target	1 Action	1 round	Cr 20,000
V	TL9		+40%	1	60 meters	10 miles	1 Target	1 Action	1 round	Cr 25,000
VI	TL12		+60%	1	60 meters	100 miles	1 Target	1 Action	1 round	Cr 30,000
ENIGMA	TL8			1		50 meters	Cone	None	1 round	Cr 20,000
ORACLE	TL8			1				1 Action	Permanent	Varies

CLASS I SENSOR SYSTEM (TL8)

This sensor system includes air/space radar that allows a Mecha operator to scan the basic topography of the surrounding area and pick out targets well enough to aim weapons at them.

With a successful Sensors roll the operator can use the sensor system to actively scan a single nonliving target (usually another Mecha or vehicle) and determine all the following information about that target:

- The target's size.
- The target's locomotive capabilities.
- The target's present direction or trajectory.

CLASS II SENSOR SYSTEM (TL8)

This sensor system includes an electromagnetic (EM) detector array that localizes electromagnetic emissions, and an infrared detector that tracks targets by their heat signatures. It also incorporates a high-resolution video system that differentiates targets by their visual profile. The hi-res video system incorporates a zoom feature, allowing close inspection of distant targets.

With a successful Sensors roll the operator can use the sensor system to actively scan a single nonliving target (usually another Mecha or vehicle) and determine all the following information about that target:

- The target's size.
- The target's locomotive capabilities.
- The target's present direction or trajectory.
- The number of living creatures aboard, if applicable.
- The composition of the target's hull or superstructure, as well as the type of its armour, if any.
- The target's weapon systems (functional and nonfunctional).

CLASS III SENSOR SYSTEM (TL8)

This system combines the features of the Class II sensor system with an advanced night-vision unit.

With a successful Sensors roll the operator can use the sensor system to actively scan a single nonliving target (usually another Mecha or vehicle) and determine all the following information about that target:

- The target's size.
- The target's locomotive capabilities.
- The target's present direction or trajectory.
- The number of living creatures aboard, if applicable.
- The composition of the target's hull or superstructure, as well as the type of its armour, if any.
- The target's weapon systems (functional and nonfunctional).

CLASS IV SENSOR SYSTEM (TL9)

This system includes electromagnetic (EM), infrared detector, hi-res video, and nightvision sensors similar to those found on the Class II and Class III systems. It also incorporates a ladar system that uses low-powered laser beams to quickly locate and identify difficult terrain, distant obstacles, and targets.

With a successful Sensors roll the operator can use the sensor system to actively scan a single nonliving target (usually another Mecha or vehicle) and determine all the following information about that target:

- The target's size.
- The target's locomotive capabilities.
- The target's present direction or trajectory.
- The number of living creatures aboard, if applicable.
- The composition of the target's hull or superstructure, as well as the type of its armour, if any.
- The target's weapon systems (both functional and nonfunctional).
- How much damage (in hit points) the target has taken.

CLASS V SENSOR SYSTEM (TL9)

This system improves upon earlier sensor systems by replacing the air/space radar with powerful multiband radar that quickly and effortlessly identifies and tracks Mecha, creatures, and vehicles. It also combines the electromagnetic, infrared, and video scanners into a single, more powerful array.

With a successful Sensors roll the operator can use the sensor system to actively scan a single nonliving target (usually another Mecha or vehicle) and determine all the following information about that target:

- The target's size.
- The target's locomotive capabilities.
- The target's present direction or trajectory.
- The number of living creatures aboard, if applicable.
- The composition of the target's hull or superstructure, as well as the type of its armour, if any.
- The target's weapon, defence, and sensor systems (both functional and nonfunctional).
- How much damage (in hit points) the target has taken.

CLASS VI SENSOR SYSTEM (TL12)

This sensor system resembles the Class V sensor array, except that it replaces the multiband radar unit with multiphase radar capable of penetrating nearly any obstacle or barrier.

With a successful Sensors roll the operator can use the sensor system to actively scan a single nonliving target (usually another Mecha or vehicle) and determine all the following information about that target:

- The target’s size.
- The target’s locomotive capabilities.
- The target’s present direction or trajectory.
- The number of living creatures aboard, if applicable.
- The composition of the target’s hull or superstructure, as well as the type of its armour, if any.
- The target’s weapon, defence, and sensor systems (both functional and nonfunctional).
- How much damage (in hit points) the target has taken, and how much damage it can withstand (that is, hit points remaining).

The Enigma Sensor Suite and Oracle targeting System can also be bought to act in conjunction with standard Sensors.

ENIGMA SENSOR SUITE (TL8)

Using a combination of thermal imaging, X-rays, and vibration sensors, the Enigma sensor suite enables the operator to effectively see through solid objects. Fine details can’t be detected, but a Mecha using the Enigma suite could tell, for example, that three humanoids were crouched behind a closed door, or that an escape tunnel runs from one building to another.

A Mecha with the Enigma suite reduces the effects of concealment by two grades. Thus, an object with total concealment (50% miss chance) would have three-quarters concealment (30% miss chance) instead.

ORACLE TARGETING SYSTEM (TL8)

The standard computer-assisted targeting system for Mecha combines holographic displays and heuristic target-prediction profiling to increase a Mecha operator’s accuracy. The system grants an enhancement bonus on attack rolls (+10% to +50%) when using a specific ranged weapon selected by the operator. Switching the bonus from one weapon to another requires a move action. The Oracle system has five different categories (denoted Mark I through Mark V). The Base Cost varies depending on the enhancement bonus conferred.

Base Cost: Cr 5,000 for Mark I (+10%), Ct 10,000 for Mark II (+20%), Cr 15,000 for Mark III (+30%), Cr 20,000 for Mark IV (+40%), Cr 25,000 for Mark V (+50%).

Mecha Defence Systems

Defence systems include energy shields, life support systems, and other equipment intended to protect the Mecha and its operator from harm.

To build a defence system from scratch, a character must succeed at a Craft (mechanical) check (DC 30) after investing 60 hours in its assembly. A character without a mechanical tool kit takes a –4 penalty on the skill check. The character must also make a Wealth check against the defence system’s Base Cost.

System	Tech Level	Equipment Slots	Activation	Cost
Bulwark Tactical Shield	6	1 (Arm)		1/4 MBC
Bastion Tactical Shield	6	1 (Arm)	1 to deploy	1/4 MBC
LX-10 Anti-shock Array	8	1	Auto	Cr 50,000
Barricade Tactical Shield	9	1 (Arm)	1 to deploy	1/4 MBC
Delphi Defence Suite	10	1	1	Varies
Light Fortification	9	1		1/2 MBC
LX-20 Anti-shock Array	10	1	Auto	Cr 100,000
Cloaking Screen	12	1	1	1/2 MBC
Deflection Field	13	1	1	Varies
Medium Fortification	13	2	N/A	1/2 MBC
Heavy Fortification	15	3	N/A	1/2 MBC
Cargo Compartment	6	1		Cr 500
Storage Compartment	6	1		Cr 50

Bulwark Tactical Shield (TL6)

The Bulwark tactical shield—a high-tech version of the shields carried by knights of old—is worn on one of the Mecha's arms. It allows the Mecha to parry and absorb damage, with 8 AP.

Bastion Tactical Shield (TL6)

The Bastion tactical shield improves upon the Bulwark tactical shield (see above). It improves the Mecha's parrying weapon's AP to 12

When not deployed, the Bastion tactical shield can retract into the Mecha's arm. Deploying or retracting the shield is a move action.

Lx-10 Anti-shock Array (TL8)

The LX-10 Anti-shock array grounds the Mecha and protects it against electrical attacks. The Mecha reduces electricity damage by 10 points.

Barricade Tactical Shield (TL9)

A larger version of the Bastion tactical shield, the Barricade shield improves the Mecha's parrying weapon's AP to 16 and its superior ceramic coating reduces fire damage by 10 points if parried.

When not deployed, the Barricade tactical shield can retract into the Mecha's arm. Deploying or retracting the shield is a move action.

Delphi Defence Suite (TL10)

The Delphi defence suite consists of a heuristic collision avoidance system, enhanced crew restraints, and a series of adrenal and nonadrenal autoinjectors for the Mecha operator. The Delphi defence suite grants the operator increased STR, CON and DEX for 1 minute: +1 for the Mark I version and up to +5 for the Mark V version.

Duration: 1 minute.

Base Cost: Cr 5,000 for Mark I (+1), Cr 10,000 for Mark II (+2), Cr 15,000 for Mark III (+3), Cr 20,000 for Mark IV (+4), Cr 25,000 for Mark V (+5).

Light Fortification (TL9)

The Mecha's structural integrity is reinforced so it can shake off attacks that would cripple it otherwise. Light fortification converts 25% of all critical hits into regular hits.

Installing light fortification requires an Engineering (Mecha) roll. Light fortification takes the place of one of the Mecha's equipment slots.

Lx-20 Anti-shock Array (TL10)

Similar to the LX-10 anti-shock array, the LX-20 anti-shock array reduces electricity damage by 20 points. In addition, it insulates and protects the crew from the collateral dazing effect of an electromagnetic pulse, such as the type caused by an M-70 EMP rocket launcher.

Cloaking Screen (TL12)

The cloaking screen warps light and energy around the Mecha, rendering it invisible to visual and electronic sensors.

A cloaked Mecha has total concealment. To attack a cloaked Mecha, an attacker must guess where the Mecha currently is (or determine its position based on where it attacked last), and even if the guess is accurate, there is a 50% chance that the attack misses. A cloaked Mecha gains a +40 bonus on Hide checks if immobile, or a +20% bonus on Hide checks if moving. Pinpointing the location of a cloaked Mecha that isn't attempting to hide requires a Perception -40% if immobile or -20% if moving.

Deflection Field (TL13)

The deflection field uses broadcast magnetics to provide a semi-permeable energy field around the Mecha. It provides a 1 to 5 Armour Points against missile fire. The Base Cost of the system is based on the type of field (denoted Mark I through Mark V). The operator can activate or deactivate the deflection field once per round as a Combat action.

Base Cost: Cr 10,000 for Mark I (+1), Cr 20,000 for Mark II (+2), Cr 30,000 for Mark III (+3), Cr 40,000 for Mark IV (+4), Cr 50,000 for Mark V (+5).

Medium Fortification (TL13)

Similar to the light fortification system, the medium fortification system converts 75% of all critical hits into regular hits.

Medium fortification takes the place of two of the Mecha's equipment slots.

Heavy Fortification (TL15)

Similar to the light fortification system, the heavy fortification system converts all critical hits into regular hits.

Heavy fortification takes the place of three of the Mecha's equipment slots.

Cargo Compartment (TL6): Mecha can be converted to carry more cargo than in its normal configuration. Each Cargo Compartment is large enough to carry about 40Kg, a child, a small alien or half a normal sized person. It requires two adjacent Cargo Compartments to store a normal sized person, but there will not be any special life support built in, so it is probably better to use a Passenger Cockpit to carry living people.

Storage Compartment (TL6): The ability to store and carry small items in a safe place can sometimes be of critical importance. The storage compartment modification accomplishes just that, incorporating an empty space where other objects can be carried with relative ease. Each storage compartment modification allows the wearer to carry two small items in a container built into the piece of equipment. This modification may be taken multiple times, each time providing another compartment where small items may be carried. Clearly, the number and size of compartments depend on the size of the original object - this should not be abused.

Mecha Weapons

Mecha use both melee and ranged weapons to dispatch foes. In addition, a weapon can either be handheld or integrated into the Mecha's superstructure; each version has its benefits.

Handheld Weapons: A handheld weapon does not cost an equipment slot. However, a Mecha with a handheld weapon can be disarmed.

Integrated Weapons: An integrated weapon takes up one or more of the Mecha's equipment slots, but the Mecha cannot be disarmed of the weapon. The following table summarises some of the weapons that a Mecha can have, but is by no means exhaustive. A Mecha should be able to use any hand-to-hand or ranged weapon with slight modifications.

To build a handheld or integrated weapon from scratch, a character must succeed in an Engineering (Weapons)and an Engineering (Mecha) roll after investing 60 hours in its assembly. A character without a mechanical tool kit takes a –40% penalty on the skill.

Sample Mecha Ranged Weapons

Weapon	Skill	TL	Damage	Range	Load	Recoil	Auto	Slots	Ammo	Cost
M-9 Barrage Chaingun		6	5D6					1	4x50 Cr 1000	Cr 10,000
M-53 Firestar Rocket Launcher	Heavy Weapons	10	10D6/5m	400m	5	10		1	6 rockets Cr 10,000	Cr 20,000
M-87 Talon Missile Launcher	Heavy Weapons	10	15D6/5m	600m	5	10	Guidance System	1	4 rockets Cr 15,000	Cr 40,000
Warpath Recoilless Rifle		6	10D6	120m				1	20	Cr
A3x Dragon Flame-Roller	Heavy Weapons	7	4D6	10m Cone				1	20 Cr 5000	Cr 10,000
Corona Microwave Beam	Heavy Weapons	8	5D6	50m				1		
M-21 Comet Autolaser		8	8D6	250m			4	2		
M-70 Emp Rocket Launcher		8	10D6 EMP	400m				1	6	
M-75 Cricket Rocket Launcher		8	10D6 Stunning Sonic Burst	400m				1	6	
Nkp Puma Plasma Cannon		8	8D6	200m				1		
T-95 Cavalcade Chaingun		8	7D6	200m			5	1	4x50 belts	
Typhoon 240 Laser Cannon		8	10D6	350m				2		
Chrysanthemum Laser Array		8	16D6	20m burst around Mecha			20	1		
M-300 Rhino Mass Cannon		9	16D6	300m				2		
Tsunami 480 Plasma Cannon		9	12D6	500m				3		
Lt-5 Longshot Mass Driver		12	15D6	400m				2+1/Am mo Bay	10	

D20 Progress Level	Technology Level
PL 0: Stone Age	TL 0
PL 1: Bronze/Iron Age	TL 1
PL 2: Middle Ages	TL 2
PL 3: Age Of Reason	TL 3
PL 4: Industrial Age	TL 4 - TL 5
PL 5: Information Age	TL 6 - TL 7
PL 6: Fusion Age	TL 8
PL 7: Gravity Age	TL 9 - TL 11
PL 8: Energy Age	TL 12 - TL 14
PL 9 And Higher	TL 15 +

Close Combat Weapons

Weapon	Skill	TL	Reach	Damage Dice	Slots	AP/HP	Cost
Rp-91 Reaper Laser Scythe		12		4D6+DB	2		one-quarter the Mecha's Base Cost
Ps-15 Panther Claws		6		2D6+DB	1		one-quarter the Mecha's Base Cost
Thunderbolt Shock Rod		6		3D6+DB+4D6 Electric Shock	1		one-quarter the Mecha's Base Cost
Xj-A Python Electro-Whip		9		4D6+DB Electric Shock	1		one-quarter the Mecha's Base Cost
Avenger Electro-Scimitar		12		4D6+DB + 2S6 Electric Shock	1		one-quarter the Mecha's Base Cost

Ps-25 Tiger Claws		9		6D6+DB	1		one-quarter the Mecha's Base Cost
Lk8 Armour-Piercing Pike		8		2D10+DB	1		one-quarter the Mecha's Base Cost

Miscellaneous Equipment

This section describes various other pieces of Mecha equipment that don't fall neatly under the other categories, including a variety of electrical systems.

Building a system from scratch requires a character to make a Wealth check against the system's Base Cost, invest time in its assembly, and succeed at a Craft (electrical), Craft (mechanical), or Craft (structural) check (DC 30)—whichever seems most appropriate given the type of equipment. See the Craft skill description for further guidance. A character without the appropriate electrical or mechanical tool kit takes a –40% penalty on the skill check.

System	TL	Slots	Activation	Range	Duration	Cost
Cockpit, Co-pilot	8	2	N/A	N/A	N/A	Cr 50,000
Cockpit, Passenger	8	2	N/A	N/A	N/A	Cr 50,000
Comm System	7	0	1 Action	100 miles	N/A	Cr 500
Life Support System	7	1	N/A	N/A	N/A	
Hv-5 Haven Escape Pod	8	1	1 Action	N/A	3 rounds	1/2 MBC
Space Skin	9	1	N/A	N/A	N/A	1/4 MBC
Stealth Suite	9	1	N/A	N/A	Mecha	1/4 MBC
Advanced Diagnostics	8	1	1 Action	N/A	1 round	1/4 MBC
Structural Enhancement	7	1	N/A	N/A	N/A	1/2 MBC
Zero-G Stabilizer	8	1	N/A	N/A	N/A	
Crackerjack Neural Link	9	1	N/A	N/A	N/A	1/4 MBC
Nanorepair Unit	11	1	N/A	N/A	Mecha	1/4 MBC

Cockpit, Co-pilot (TL8)

This extra cockpit provides a comfortable station inside the Mecha for a Small or Medium-size Co-pilot. A Co-pilot has the ability to fire the Mecha's ranged weapons, perform active scans using the Mecha's sensor systems, or aid the pilot's attacks and skill checks (using the aid another action). Melee combat, defence, and movement remain under the control of the Mecha's operator in the main cockpit. A Co-pilot doesn't grant the Mecha additional attacks in a round, and only one character may fire each ranged weapon each round. The Mecha operator or Co-pilot can transfer weapon control as a Combat action.

As a combat action, the Mecha's operator can lock out one or more Co-pilot cockpits, shutting off the cameras, locking the hatches, and so on.

It takes a successful Computers roll to switch overall control of the Mecha to a Co-pilot cockpit.

Cockpit, Passenger (TL8)

This extra cockpit merely provides a comfortable place inside the Mecha for a passenger to sit. The passenger can't do anything other than observe the surroundings (seeing exactly what the Mecha's operator sees), communicate privately with the operator and publicly open frequencies, and leave the cockpit as a full-round action. As a move action, the operator can prevent any of the above by shutting off the cameras, locking the hatch, and so on.

Comm System (TL7)

The Mecha is equipped with a radio transceiver that can transmit on multiple frequencies in either LOS (line of sight) or omnidirectional mode. It can handle up to ten simultaneous two-way conversations.

Target: One or more radio transceivers.

Life Support System (TL7)

The Mecha's life support system provides a closed environment, allowing the Mecha operator to ignore the effects of inhaled poisons and immersion in water. The onboard air supply lasts for 24 hours. A Mecha equipped with a life support system has one less equipment slot.

Hv-5 Haven Escape Pod (TL8)

The HV-5 Haven escape pod jettisons the cockpit and the Mecha operator from the rest of the Mecha (typically because the Mecha is about to be destroyed). The operator can activate it as a move action and move normally at the Haven's fly speed. The Haven can also be activated as a Combat action, in which case it flies under the operator's direction up to its fly speed, but can move no farther that round.

The Haven escape pod has a fly speed of 30 meters (clumsy), 50 Structure Points and AP 10. Three rounds after it jettisons from the Mecha, it runs out of fuel, landing or crashing as appropriate.

Space Skin (TL9)

Space skin colloquially refers to a series of environmental stabilizers that allow the Mecha operator (and other living creatures aboard the Mecha) to ignore the effects of vacuum, thus enabling the Mecha to operate in space.

A Mecha equipped with space skin has one less equipment slot.

Stealth Suite (TL9)

Based on high-tech low observables technology, this combination of sound baffles, heat dispersers, and nonreflective paint combines to give the Mecha a +10% bonus on Stealth (Hide) and Stealth (Move Silently) rolls. Cost and the size penalty combine to make this structural option impractical on all but the smallest Mecha.

Advanced Diagnostics (TL8)

Multiple redundant systems coupled with the ability to detect and correct minor system faults allow the Mecha to repair moderate damage. Advanced diagnostics restores 1d10 points of damage per hour, during which time the Mecha cannot move or attack. Only the Mecha's bonus hit points are repaired, not damage to the Mecha's operator.

Structural Enhancement (TL7)

Significant advances in engineering inspire a series of modifications to the Mecha's superstructure, granting it an additional 50 Structure Points. A Mecha can undergo structural enhancement multiple times, gaining 50 additional Structure Points each time, but it can never have more than twice its starting Structure Points.

A character may structurally enhance a Mecha with a successful Engineering (Structural) roll after devoting an amount of time equal to ten times the Mecha's Category. A character attempting the procedure without a mechanical tool kit takes a –40% penalty to the roll.

Each time a Mecha is structurally enhanced, it loses one equipment slot.

Zero-G Stabilizer (TL8)

A Zero-G stabilizer allows the Mecha and its operator to function normally in low-gravity and zero-gravity environments, as though the operator has the Zero-G skill.

Crackerjack Neural Link (TL9)

This unit links the operator's brain directly to the Mecha, making it feel less like a machine and more like an extension of the operator's body. While driving or piloting the Mecha, the operator gains a +2 initiative. In addition, the operator can use any of his nonmecha-specific feats while operating a Mecha. (This ability does not grant the operator any new feats.)

Nanorepair Unit (TL11)

State-of-the-art nanites swarm over the surface of the Mecha at the first indication of damage. The Mecha automatically heals 5 points of damage per round. The nanorepair unit ceases to function if the Mecha loses all its hit points.

Mecha Cargo Capacity

Although they are not built to haul cargo, Mecha superstructures have a limited amount of storage space. A Mecha can carry its Category multiplied by 15Kg in extra cargo, not including crew, weapons, or other integrated equipment in the gaps contained within its Superstructure. It is not recommended that living beings be stored in these gaps as the Mecha's movements tend to distort them and change their shape, often with fatal results.

Sample Mecha

Category:	The Mecha's rating - this is used to categorise the Mecha.
Tech Level:	The Tech Level at which this type of Mecha is available.
Height:	The Mecha's height in meters
STR:	The Mecha's STR Characteristic.
SIZ:	The Mecha's SIZ Characteristic.
DEX:	The Mecha's DEX Characteristic
Superstructure:	The chief material used in the construction of the Mecha's superstructure.
Hull Points:	The strength of the Mecha's Superstructure
Structure Points:	The amount of damage a Mecha can take.
Armour:	The type of armour installed on the Mecha. Some types of armour reduce a Mecha's speed.
Armour Points:	The number of Armour Points the Mecha typically has
Slots:	The number of locations where weapons and other Mecha equipment can be installed.
Move:	The Mecha's base movement. Certain types of armour reduce Move
MBC:	The Mecha's Base Cost, excluding armour, weapons and other equipment.
Standard Equipment Package:	The standard equipment found on the baseline model.

Myrmidon

The Myrmidon primarily serves as a light infantry support Mecha, replacing an armoured vehicle on the battlefield. It has also proven effective in close-combat situations, particular in urban arenas.

A Myrmidon installed with the standard equipment package (see below) has a Full Cost of 200,000 Cr.

Category:	3	Tech Level:	7	Height	
STR	50	SIZ	50	DEX	7
Superstructure:	Duralloy	Hull Points:	7	Structure Points:	50
Armour:	Duralloy	Armour Points:	8	Base Cost:	200 KCr
Slots:	8	Move:	4	Full Cost:	
Standard Equipment Package: Pilot's cockpit (Abdomen/Chest), Class II sensor system (Head), M-9 Barrage chaingun (Left Arm), 6 50-round ammo belts for M-9 Barrage Chaingun (shoulders), PS-15 Panther claws (Right Arm), Jetpack (External), Comms system (no slots)					

D20	Hit Location	AP	HuP	SP
1-3	Right Leg	8	7	10
4-6	Left Leg	8	7	10
7-10	Abdomen	8	7	11
11-12	Chest	8	7	12
13-15	Right Arm	8	7	11
16-18	Left Arm	8	7	11
19-20	Head	8	7	11

Scourge

The Scourge assault Mecha uses heavy weapons to disable enemy Mecha and vehicles, and leaves them to a mop-up crew of traditional infantry. This frees up the assault Mecha for more suitable tasks than disassembling captured ordnance. A Scourge installed with the standard equipment package (see below) has a Base Cost of 300,000 Cr.

Category:	5	Tech Level:	8	Height	
STR	83	SIZ	83	DEX	7
Superstructure:	Vanadium	Hull Points:	11	Structure Points:	103
Armour:	Duralloy	Armour Points:	8	Base Cost:	300 KCr
Slots:	10	Move:	5	Full Cost:	
Standard Equipment Package: Pilot's cockpit (Abdomen/Chest), Class II sensor system (Head), Enigma sensor suite (Head), Typhoon 240 laser cannon (Left Arm x2), M-53 Firestar rocket launcher (Right Arm), 6-pack o f M -53 Firestar rockets (Right Arm), jet-assist wings (Chest), LX-10 Anti-shock array (Abdomen), jetpack (External), comm. system (no slots).					

D20	Hit Location	AP	HuP	SP
1-3	Right Leg	8	11	21
4-6	Left Leg	8	11	21
7-10	Abdomen	8	11	22
11-12	Chest	8	11	23
13-15	Right Arm	8	11	20
16-18	Left Arm	8	11	20
19-20	Head	8	11	20

Manticore

The Manticore is a flying quadrupedal assault Mecha designed to take out enemy infantry units with a hailstorm of large-calibre shells. The Manticore has a special tail slot that replaces its belt equipment slot; the tail incorporates a deadly Chrysanthemum laser array.

A Manticore installed with the standard equipment package (see below) has a Base Cost of 45.

Category:	5	Tech Level:	10	Height	
STR	50	SIZ	50	DEX	7
Superstructure:	Neovulcanium	Hull Points:	9	Structure Points:	63
Armour:	Crystal Carbon	Armour Points:	8	Base Cost:	300 KCr
Slots:	8	Move:	8	Full Cost:	
Standard Equipment Package: Pilot's cockpit (Chest/Head), Class IV sensor system (Head), T-95 Cavalcade chaingun (Right Arm), 6 extra 50-round ammo belts (Left Arm), Chrysanthemum laser array (Tail), jet-assist wings (Chest), jetpack (Abdomen), comm. System (no slots).					

D20	Hit Location	AP	HuP	SP
1	R Hind Leg	8	9	13
2	L Hind Leg	8	9	13
3-4	R Fore Leg	8	9	13
5-6	L fore Leg	8	9	13
7	Tail	8	9	12
8-10	Abdomen	8	9	14
11-12	Chest	8	9	15
13-15	Right Arm	8	9	12
16-18	Left Arm	8	9	12
19-20	Head	8	9	12

Tempest

The Tempest is a heavy support Mecha, designed to work alongside tanks and other heavy armoured vehicles, or as the centrepiece of smaller Mecha platoons.

A Tempest installed with the standard equipment package (see below) has a Base Cost of 49.

Category:	10	Tech Level:	10	Height	
STR	165	SIZ	165	DEX	7
Superstructure:	Neovulcanium	Hull Points:	17	Structure Points:	165
Armour:	Crystal Carbon	Armour Points:	8	Base Cost:	550 KCr
Slots:	15	Move:	7	Full Cost:	
Standard Equipment Package: Pilot's cockpit (Abdomen), Mark III Oracle targeting system (Head), Class IV sensor system (Head), jet-assist wings (Chest), Tsunami 480 plasma cannon (Left Arm x3), Bulwark tactical shield (Left Arm), M-87 Talon missile launcher (Right Shoulder), 4-pack of M-87 Talon missiles (Right Arm), XJ-A Python electro-whip (Held Right Hand), HV-5 Haven escape pod (Abdomen), life support system (Left Leg), Thruster boots (Boots), 50-hp structural enhancement (1 slot equivalent), comm system (no slots).					

D20	Hit Location	AP	HuP	SP
1-3	Right Leg	8	17	33
4-6	Left Leg	8	17	33
7-10	Abdomen	8	17	34
11-12	Chest	8	17	35
13-15	Right Arm	8	17	32
16-18	Left Arm	8	17	32
19-20	Head	8	17	32

Paragon

Nothing less than a mobile weapons platform, the Paragon dominates any battlefield and can lay waste to entire armies. In space, it can fight toe-to-toe with armed Starships.

A Paragon installed with the standard equipment package (see below) has a Base Cost of 61.

Category:	20	Tech Level:	12	Height	40m
STR	540	SIZ	540	DEX	12
Superstructure:	Megatanium	Hull Points:	36	Structure Points:	810
Armour:	Megatanium	Armour Points:	10	Base Cost:	1,050 KCr
Slots:	25	Move:	10	Full Cost:	
Standard Equipment Package: Pilot Cockpit (Abdomen), Co-pilot Cockpit (Chest), Advanced diagnostics (Head), Class V sensor system (Head), Crackerjack neural link (Head), Mark IV Oracle targeting system (Head), jet-assist wings (Chest), Avenger electro-scimitar (Left Hand), Barricade tactical shield (Right Arm), M-300 Rhino mass cannon (Right Arm x2), M-87 Talon missile launcher (Left Shoulder), 2 4-packs of M-87 Talon missiles (Left Arm), M-70 EMP rocket launcher (Right Shoulder), 2 6-packs of M-70 EMP rockets (Abdomen), HV-5 Haven escape pod (Abdomen), zero-G stabilizer (Chest), Mark II deflection field (Abdomen), life support system (Left Leg), ramjet thruster boots (Boots), 100-hp structural enhancement (2 slots equivalent), light fortification (1 slot equivalent), space skin (1 slot equivalent).					

D20	Hit Location	AP	HuP	SP
1–3	Right Leg	8	36	162
4–6	Left Leg	8	36	162
7–10	Abdomen	8	36	163
11–12	Chest	8	36	164
13–15	Right Arm	8	36	161
16–18	Left Arm	8	36	161
19–20	Head	8	36	161

Mecha Movement

Combat between Mecha is conducted much as it is between characters. Characters operating Mecha are simply much larger and stronger than they would otherwise be, and they can wield truly frightening weapons. However, they still obey the essential rules of movement and combat. They still threaten squares within their reach, take move actions and attack actions, duck behind cover to gain a bonus to Defence, and so forth. In some respects, however, Mecha movement and combat differs from character movement and combat. The following sections describe specific situations that arise when Mecha manoeuvre and clash on the battlefield.

Cockpit Access

It takes a full-round action to climb into a Mecha's cockpit and a move action to activate its various systems so it can move and fight. It takes a full-round action to get out of a Mecha unless an HV-5 Haven escape pod or similarly expeditious device is used (see Miscellaneous Equipment).

Driving, Piloting, And Movement

Mecha operators use the Mecha Operations skill to operate their Mecha both on the ground and in the air or in space. Mecha operators with the Pilot (Mecha) skill can add one fifth of that to their Operate (Mecha) skill while flying. When operating a Mecha, no Mecha skill may be higher than the operator's Mecha Operations skill, unless he has the Mecha Specialist Legendary Ability.

In general, Mecha operators don't need to make Mecha Operations rolls to steer their Mecha around the battlefield. However, these skills may come into play in combat under the following circumstances:

- When trying to move past a foe without provoking a Free Attack, a Mecha operator can make an Operate (Mecha) roll.
- A Mecha operator can oppose a trip attempt with a Drive check (if on the ground) or a Pilot check (if in the air).
- A successful Mecha Operations roll can pull a Mecha out of a stall.
- A character in a Co-pilot cockpit can make an Mecha Operations roll to aid the Mecha Operations rolls of the Mecha's operator.

Flying Mecha

The vehicle rules are entirely appropriate for ground cars and other normal modes of transportation; however, even a clumsy Mecha is more manoeuvrable than a normal vehicle.

On the ground, Mecha move as characters. They can turn at any time, move in any direction, and stop on a dime. In the air, though, they are more limited.

Most flying Mecha have to slow down to make a turn, and many are limited to fairly wide turns and must maintain a minimum forward speed. Each flying Mecha has a manoeuvrability rating, as shown on Table: Flight Manoeuvrability. A Mecha's flight systems determine its manoeuvrability.

Minimum Forward Speed: If a flying Mecha fails to maintain its minimum forward speed, it must land at the end of its movement.

If it is too high above the ground to land, it falls straight down, descending 50m in the first round of falling. If this distance brings it to the ground, it takes falling damage. If the fall doesn't bring the Mecha to the ground, the operator must succeed at an Mecha Operations roll to recover. Otherwise, it falls another 50m. If it hits the ground, it takes falling damage. Otherwise, it has another chance to recover on its next turn.

Hover: The ability to stay in one place while airborne.

Fly Backward: The ability to fly backward.

Reverse: A Mecha with good manoeuvrability uses up 2m of its speed to start flying backward.

Turn: How much the flying Mecha can turn after covering the stated distance.

Turn in Place: A Mecha with good or average manoeuvrability can “spend” some of its speed to turn in place.

Maximum Turn: How much the Mecha can turn in any one space.

Up Angle: The angle at which the Mecha can ascend.

Up Speed: How fast the Mecha can ascend.

Down Angle: The angle at which the Mecha can descend.

Down Speed: A flying Mecha can descend at twice its normal flying speed.

Between Down and Up: An average, poor, or clumsy Mecha must fly level for a minimum distance after descending and before ascending. Any flying Mecha can begin descending after an ascent without an intervening distance.

Table: Flight Manoeuvrability

Manoeuvre	Perfect	Good	Average	Poor	Clumsy
Minimum forward speed	None	None	Half	Half	Half
Hover	Yes	Yes	No	No	No
Fly backward	Yes	Yes	No	No	No
Reverse	Free	−2m	—	—	—
Turn	Any	90°/2m	45°/2m	45°/2m	45°/3m
Turn in place	Any	+90°/2m	+45°/2m	No	No
Maximum turn	Any	Any	90°	45°	45°
Up angle	Any	Any	60°	45°	45°
Up speed	Full	Half	Half	Half	Half
Down angle	Any	Any	Any	45°	45°
Down speed	Double	Double	Double	Double	Double
Between down and up	0 ft.	0 ft.	2m	3m	7m

Mecha In Outer Space

Only a Mecha equipped with space skin (see Miscellaneous Equipment) can operate in outer space. However, the Mecha's operator takes a −40% penalty on all attack rolls and skill checks unless he has both the Zero-G and Mecha Specialist Legendary Abilities or has equipped his Mecha with a Zero-G stabilizer.

In outer space, Mecha fly just like they do in the atmosphere, with three exceptions. First, all flying Mecha improve by one manoeuvrability category (clumsy becomes poor, poor becomes average, average becomes good, and so on). Second, all Mecha can ascend and descend regardless of the limitations on Table: Flight Manoeuvrability, and their speed is unchanged if they do so. Finally, all Mecha can hover in space and need not maintain a minimum forward speed.

Mecha Combat

Combat between Mecha is conducted much as it is between characters. Characters operating Mecha are simply much larger and stronger than they would otherwise be, and they can wield truly frightening weapons. However, they still obey the essential rules of combat. They still threaten areas within their reach, take move actions and attack actions, duck behind cover and so forth. In some respects, however, Mecha combat differs from character combat. The following sections describe specific situations that arise when Mecha clash on the battlefield.

Mecha Critical Hits

Whenever you confirm a critical hit against a Mecha, you may choose to roll percentile dice and consult Table: Mecha Critical Hits instead of dealing the normal critical hit damage for the attack. However, you must accept the results of the roll, even if those results are less than desirable.

Table: Mecha Critical Hits

d%	Roll Effect(s)
01–15	Normal damage, crew dazed
16–35	Normal critical hit, crew dazed
36–45	Normal critical hit, Mecha knocked prone
46–50	Severe critical hit, crew dazed, Mecha stunned
51–55	Severe critical hit, Mecha knocked prone
56–60	Crew hit (normal damage)
61–70	Normal damage, equipment damaged
71–80	Normal damage, equipment destroyed
81–90	Normal critical hit, slot damaged
91–100	Normal critical hit, slot destroyed

Normal Damage: The attack deals normal damage (do not apply critical hit multipliers).

Crew Dazed: Each crewmember aboard the Mecha, including its operator, must make a Luck Roll (POWx5%) or be dazed for 1 round. Unable to act, a dazed character can take no actions.

Normal Critical Hit: Roll critical hit damage normally.

Mecha Knocked Prone: The force of the attack knocks the Mecha prone. All crewmembers and passengers aboard take 1d6 points of bludgeoning damage as they are knocked about their cockpits. A prone Mecha takes a −40% penalty on melee attack rolls and can't use rolln ranged weapons. The Mecha gains a +40% bonus to Defence against ranged attacks, but takes a −40% penalty against melee attacks.

Standing up from prone is a move action that provokes attacks of opportunity.

Mecha Stunned: The Mecha automatically drops what it is holding and can take no attack or move actions for 1 round. While the Mecha is stunned, apply a –20% penalty to the Mecha operator's Defence (even though the operator is not stunned).

Severe Critical Hit: Roll critical hit damage using a x5 multiplier instead of the weapon's normal multiplier.

Crew Hit: The attack bypasses the Mecha's armour and superstructure. Apply normal damage to one crewmember or passenger (determined randomly), ignoring the Mecha's bonus hit points.

Equipment Damaged: One piece of equipment (attacker's choice) is damaged and ceases to function until repaired. It can be a flight system, sensor system, defence system, weapon (handheld or integrated), or miscellaneous system. Repairing a damaged system requires 1 hour of work and a successful Repair roll.

Equipment Destroyed: One piece of equipment (attacker's choice) is destroyed and ceases to function. It can be a flight system, sensor system, defence system, weapon (handheld or integrated), or miscellaneous system. A destroyed system cannot be repaired, only replaced.

Slot Damaged: One of the Mecha's equipment slots (attacker's choice) is damaged. Any piece of equipment wholly or partially installed in that slot will not function until the slot is repaired. Repairing a damaged equipment slot requires 1 hour of work and a successful Repair roll.

Slot Destroyed: One of the Mecha's equipment slots (attacker's choice) is destroyed, along with any piece of equipment wholly or partially installed in it. Rebuilding a destroyed equipment slot requires 12 hours of work and a successful Engineering (mechanical) roll.

CHAPTER 17: Cybernetic Augmentation

Evolution Of Cybernetics

As with all forms of technology, advancements in cybernetics can be tracked by Technology Level.

TL7: Cybernetics is still in its formative stage. Most prosthetic units are of the nonpowered variety, but medical associations have approved certain electronic regulators for life-threatening conditions. The artificial heart is the most recognized example. Other common examples include pacemakers, artificial kidneys, and pancreas monitors (for high-risk diabetics). Nearly all TL7 cybernetic implants are simply designed to keep their recipients alive and reasonably healthy.

TL8: Elective cybernetics begins at this stage with the work of university professor Kevin Warwick, who develops methods of linking computer microchips to the human nervous system. His “cyborg chip” becomes the foundation for all future cybernetic components.

TL9: This era sees the first use of independently powered cybernetics, including servolimbs and subcutaneous cellular telephones. These begin mostly in military applications but soon become available to the public. Household pets all over the world are implanted with subcutaneous identity chips—as are important government figures and their families—after the technology proves safe and effective on prison inmates.

As cybernetics is still new and can have negative side effects, its adoption is not universal. Most people still prefer mundane equipment, which is generally cheaper, safer, and less troublesome to repair, replace, or upgrade. Cybernetics becomes the preferred choice only when mundane equipment is impractical or unavailable—or when the recipient is fixated on self-improvement.

TL10: Medical plans eventually come to offer at least baseline prosthetics to compensate for disabling injuries, such as the loss or partial loss of a limb, though such plans do not cover elective cybernetic surgery. Their concern is overall health—not “cosmetic” enhancement. For those who want more than just replacements, a new kind of clinic appears, offering cybernetic enhancements.

TL11: At this TL, the first cybernetic regulation laws are passed—largely instigated by a few harshly publicized accidents involving cyborgs. These laws give rise to numerous black-market cybernetic clinics that install cybernetics without performing the required background checks.

TL12: By this era, cybernetics has become a mostly safe science. Flaws in earlier designs have been corrected. Cybernetics becomes more of a status symbol, and luminous skin grafts become the fashion accessory of choice. In some societies, newborn children are implanted with identity chips as an anti-kidnapping measure. Military applications include replacement eyes with heads-up targeting and GPS displays.

TL13: Insurance regulations relax considerably toward cybernetic replacements; enhancements are perfectly acceptable, though only as part of a prosthetic, rather than as elective cyber-surgery. Still, most cyborgs are members of military or law-enforcement organizations—or mercenaries.

TL14: Cyborgs are a common sight. In some societies, medical insurance frowns on noncybernetic replacements, as mechanical body parts are less expensive than flesh. Cybernetic technology has improved so much, in fact, that some cyborgs are virtually indistinguishable from living beings—except that they never appear to age.

Cybernetic Implants

Two kinds of cybernetic implants exist: replacements and enhancements.

Replacements: Replacements are prosthetic or artificial units intended to replace lost limbs and damaged organs. Common replacements provide no benefits other than duplicating the essential functions of their biological counterparts, and they present little strain on the beneficiary’s overall well-being. In appearance, a cybernetic replacement can be recognizably artificial or virtually indistinguishable from the real thing.

Enhancements: Enhancements bestow new abilities or improve the recipient in some fashion. Enhancements include skeletal reinforcement, subcutaneous communications hardware, and weapon mounts. Some enhancements have visible external components, while others are hidden beneath the skin. Enhancements put more of a drain on the body’s resources, and recipients frequently suffer debilitating physical or mental side effects.

Construction And Repair

Cybernetic implants are complex instruments with both electrical and mechanical components. Cybernetics bought from a reputable supplier are generally fairly safe, but those bought on the blackmarket or in chop-shops bring their own risks. Not every expert in cybernetics is well-trained or capable.

Repairing a damaged or nonfunctional cybernetic implant requires 10 hours of work and a successful Life Sciences (Cybernetics) roll. A character needs both an electrical tool kit and a mechanical tool kit to facilitate repairs. Without one or the other, a character takes a –20% penalty on the roll; without both kits, the penalty increases to –40%.

Installation And Removal

Installing or removing a cybernetic implant, regardless of whether it’s a replacement or enhancement, requires a successful Medical roll. Removing a cybernetic implant without proper surgery causes lasting physical trauma to the patient’s body, dealing 1d4 points of permanent CON loss.

Number Of Implants

A character may have as many cybernetic implants installed on its body as he wants, but each extra one brings the risk of severe neurological and physical damage if the units interfere with each other. Each Cybernetic Implant adds +1 to the character's ROB

Characteristic. If the GM rolls below ROBx1% when the new implant is activated the new implant will cause interference. If a cybernetic implant causes interference then any further cybernetic implant will be guaranteed to cause interference as the body begins to reject the implants.

Cybernetic interference or rejection manifests in many ways. The character may lose control of one or more implants in a stressful situation; he might black out for no apparent reason; he might lose the ability to use a Psionic power; his cybernetic limbs might lock up now and again. Even if the cybernetic implant is removed the body will remember its intolerance and will reject any further cybernetic implants. Only a Medic specialising in Cybernetics can cure this and only at TL13 or higher.

Benefits And Drawbacks

Cybernetic implants provide countless benefits to their recipients. For example, cybernetic eyes can bestow darkvision, improve the accuracy of the recipient's ranged attacks, or emit pencil-thin laser beams. A cybernetic brain implant can improve the recipient's response time in a crisis, protect against mind-influencing attacks, or increase the flow of adrenaline throughout the body. The possibilities of cybernetic technology are endless. Although the benefits make cybernetics very alluring, the drawbacks are equally discouraging:

Electricity Vulnerability

A creature with one or more cybernetic implants takes 50% more damage from any attack that deals electricity damage. Such an attack may well temporarily take one of the cybernetic implants out of action, especially one in the same location as the shock. This vulnerability to electricity can be offset by an anti-shock implant (see Cybernetic Enhancements, below).

Susceptibility To Attack

External cybernetic implants are subject to attacks as if they were objects worn by their recipients.

Medical Treatment

Augments can interfere with medical treatment. All long-term care or surgery Medic rolls treating an augmented character suffer a penalty equal to the ten times the difference in Technology Level between the medical facility and the highest relevant implant, or ROBx5% whichever is higher. For example, a character with TL 15 Endurance implants being treated in a TL 10 hospital would give a -50% Penalty to the surgeon's Medic skill checks.

Major Wound Effects

Major wound damage wreaks havoc with cybernetic implants. Whenever a creature with cybernetic implants suffers a major wound to a hit location containing the implant, the GM should roll percentile dice and consult Table: Major Wound Effects to determine what happens.

Table: Major Wound Effects

d% Roll	Effect of Damage
01–30	Normal Effect
31–60	Implant Disabled
61–80	Normal Effect and Implant Disabled
81–100	Implant Damaged and Side Effect

Normal Effect: The character immediately suffers the normal effects of the major wound

Implant Disabled: One cybernetic implant in the location struck (determined randomly or chosen by the GM) ceases to function until repaired (see Construction and Repair, above). The character suffers the effects of the disability—as noted in the description of the cybernetic implant—for as long as the implant remains disabled.

Implant Damaged: One cybernetic implant in the location struck (determined randomly or chosen by the GM) continues to function but develops an unpleasant side effect that persists until the implant is repaired (see Construction and Repair, above).

Side Effect: The character suffers a debilitating side effect as the result of a damaged implant. Various side effects are presented on Table: Side Effects.

Table: Side Effects

d% Roll	Side Effect
01–08	<i>Blurred Vision:</i> Character suffers a -20% penalty on all attacks.
09–17	<i>Constant Trembling:</i> Character's DEX is reduced by 2.
18–25	<i>Cybernetic Rejection:</i> Character suffers 1d4 CON damage per day.
26–34	<i>Dizziness:</i> Character takes a -10% penalty on skill rolls.
35–42	<i>Impaired Hearing:</i> Static distortion imposes a -20% penalty on all Listen checks.
43–50	<i>Impaired Vision:</i> Distorted images impose a -20% penalty on visual Perception checks.
51–59	<i>Insomnia:</i> Character can only sleep for minutes at a time and gains insufficient rest to heal naturally.
60–67	<i>Muscle Cramps:</i> Character moves at half speed.
68–76	<i>Muscle Fatigue:</i> Character's STR is reduced by 2.
77–84	<i>Power Surge:</i> Character is shaken for 1 round if wounded unless the character succeeds in a successful Resilience roll
85–93	<i>Psychosis:</i> Character loses 1d4 CHA per day, lapsing into a coma if the score drops to 0.
94–100	<i>Sensory Overload:</i> Character is stunned for 1 round if wounded unless he makes a successful Resilience roll

Effects on Humanity

The more cybernetic implants a person has the less human he is likely to become. To a certain extent, this is measured by the character's Robotics (ROB) characteristic. For every cybernetic implant a person has, he gains +1 ROB. The actual game effect of

having a high ROB characteristic is decided by the Gamesmaster in conjunction with the player. Perhaps a character becomes more detached from humanity, not caring about his fellow humans. Perhaps he can relate more to robots and other cyborgs than to humans.

Replacements

The most basic replacement limbs and organs don't bestow any special benefits, but they suffer the usual drawbacks (see Benefits and Drawbacks, above). Some replacements of higher TL are built to counter certain drawbacks, as noted. They don't add measurably to the recipient's weight.

Each replacement description includes the following information:

Benefit: What the cybernetic replacement allows its recipient to do.

Type: Replacements can be external or internal. External replacements are subject to sunder attacks; internal replacements are not.

Armour Points/Hit Points: The armour and hit points of the replacement. Armour stacks with any worn armour. Internal replacements don't have armour.

Base Cost: The typical of the replacement (or the components to build it), at its specified TL. Cybernetic implants are cheaper to buy at higher TLs; for each raised step in TL, reduce the cost by 10% to a minimum of 20%.

Basic Artificial Organ (TL8)

An artificial organ fully replaces a defective or destroyed biological organ, such as a heart, lung, eye, or ear.

Benefit: The artificial organ duplicates the function of its biological counterpart. It provides no special game benefits.

Type: Internal.

Armour Points/Hit Points: 0/2.

Base Cost: Cr 60,000.

Basic Prosthetic Arm (TL8)

A prosthetic arm fully replaces a lost or destroyed biological arm. The prosthetic arm may begin at the shoulder, elbow, or wrist.

Benefit: The prosthetic arm duplicates the function of its biological counterpart. It provides no special game benefits.

Type: External.

Armour Points/Hit Points: 3/5.

Base Cost: Cr 60,000.

Basic Prosthetic Leg (TL8)

A prosthetic leg fully replaces a lost or destroyed biological leg. The prosthetic leg may begin at the thigh, knee, or ankle.

Benefit: The prosthetic leg duplicates the function of its biological counterpart. It provides no special game benefits.

Type: External.

Armour Points/Hit Points: 3/7.

Base Cost: Cr 60,000.

Improved Artificial Organ (TL10)

This improved version of the TL8 artificial organ not only replaces a defective or destroyed biological organ but is also more resilient than its technological predecessor.

Benefit: The improved artificial organ duplicates the function of its biological counterpart and cannot be disabled if the recipient takes a Major Wound.

Type: Internal.

Armour Points/Hit Points: 0/4.

Base Cost: Cr 100,000.

Improved Prosthetic Arm (TL10)

This improved version of the TL8 prosthetic arm not only replaces a lost or destroyed arm but is also more resilient than its technological predecessor.

Benefit: The improved prosthetic arm duplicates the function of its biological counterpart but has more armour and hit points than the basic TL8 prosthesis.

Type: External.

Armour Points/Hit Points: 5/10.

Base Cost: Cr 100,000.

Improved Prosthetic Leg (TL10)

This improved version of the TL8 prosthetic leg not only replaces a lost or destroyed leg but is also more resilient than its technological predecessor.

Benefit: The improved prosthetic leg duplicates the function of its biological counterpart but has more armour and hit points than the basic TL8 prosthesis.

Type: External.

Armour Points/Hit Points: 5/15.

Base Cost: Cr 100,000.

Advanced Artificial Organ (TL12)

This advanced version of the TL8 artificial organ and TL10 improved organ not only replaces a defective or destroyed biological organ but is also more resilient and less impairing than its technological predecessors.

Benefit: The advanced artificial organ duplicates the function of its biological counterpart and cannot be disabled if the recipient takes a major wound. In addition, the advanced organ does not count toward the number of cybernetic implants the recipient has before suffering side effects (see Number of Implants).

Type: Internal.

Armour Points/Hit Points: 0/4.

Base Cost: Cr 120,000

Advanced Prosthetic Arm (TL12)

This advanced version of the TL8 prosthetic arm and TL10 improved arm not only replaces a lost or destroyed arm but is also more resilient and less impairing than its technological predecessors.

Benefit: The advanced prosthesis duplicates the function of its biological counterpart. In addition, the advanced arm does not count toward the number of cybernetic implants the recipient has before suffering side effects (see Number of Implants).

Type: External.

Armour Points/Hit Points: 5/10.

Base Cost: Cr 120,000.

Advanced Prosthetic Leg (TL12)

This advanced version of the TL8 prosthetic leg and TL10 improved leg not only replaces a lost or destroyed leg but is also more resilient and less impairing than its technological predecessors.

Benefit: The advanced prosthesis duplicates the function of its biological counterpart. In addition, the advanced leg does not count toward the number of cybernetic implants the recipient has before suffering side effects (see Number of Implants).

Type: External.

Armour Points/Hit Points: 5/15.

Base Cost: Cr 120,000.

Enhancements

Cybernetic enhancements are available starting at TL 8. Unlike standard replacements, they bestow new abilities upon their recipients. Unless otherwise noted, enhancements don't add measurably to a recipient's weight.

Each enhancement description includes the following information:

Benefit: What the cybernetic enhancement allows its recipient to do.

Type: Enhancements can be external or internal. External enhancements are subject to sunder attacks; internal enhancements are not.

Armour Points/Hit Points: The armour and hit points of the enhancement. Internal enhancements don't have armour.

Base Cost: The base cost of the enhancement (or the components to build it), at its specified TL. Cybernetic implants are cheaper to buy at higher TLs; for each raised step in TL, reduce the cost by 10% to a minimum of 20%.

Anti-Shock Implant (TL8)

This tiny implant, embedded near the recipient's brain stem, protects itself and other cybernetic hardware against electricity damage.

Benefit: The implant negates the recipient's special vulnerability to electricity (see Benefits and Drawbacks, above).

Type: Internal.

Armour Points/Hit Points: 0/1.

Base Cost: Cr 50,000.

External Weapon Mount (TL8)

The recipient's prosthetic arm ends in a weapon instead of a hand.

Benefit: The recipient has a melee or ranged weapon attached to a prosthetic arm. Attempts to disarm the recipient of the attached weapon automatically fail, though the weapon can still be attacked (like any other weapon) in an attempt to destroy it.

Type: External.

Armour Points/Hit Points: 10/5 (mount only).

Base Cost: Melee weapon mount Cr 50,000, ranged weapon mount Cr 60,000 (the cost does not include the prosthetic arm or weapon).

Restriction: Military.

Identity Chip (TL8)

Identity chips provide identification without requiring visual recognition—high-tech ID cards that function even when the wearer is unrecognisable. Identity Chips do not increase a character's ROB nor can they cause interference with other implants.

Benefit: An identity chip functions as both legal ID and a credit card. The recipient can make purchases even when separated from his funds.

Type: Internal.

Armour Points/Hit Points: 0/1.

Base Cost: Cr 20,000.

Injector Unit (TL8)

This unit, attached the recipient's forearm or thigh, incorporates three medical hypo-syringes. Upon command, the unit can inject any or all of the medicinal substances into the recipient's bloodstream.

Benefit: The injector unit has three built-in hypos, and each hypo holds a single dose of a chemical. The hypos normally contain the following medicinal chemicals: Antitox, Boost, Neutrad, Sporekill, or Biocort but there is no reason why they can't be replaced with other chemicals. Using a combat action during his turn, the recipient can contract his muscles to inject himself with any or all of these hypos, gaining the benefits immediately. A drained hypo can be removed and replaced using a combat action.

Type: External.

Armour Points/Hit Points: 2/5.

Base Cost: Cr 50,000 (medical hypos must be purchased separately).

Nightvision Optics (TL8)

The recipient's eyes are replaced with ocular implants that enable the character to see better in the dark. All of the recipient's eyes must be replaced to gain any benefit.

Benefit: The recipient operates as if he had the Darksight trait.

Type: Internal.

Armour Points/Hit Points: -/2 (per eye).

Base Cost: Cr 90,000.

Subdermal Comm (TL8)

The recipient has a small comm unit installed underneath the skin of his throat. The transceiver is connected to a tiny speaker located in the recipient's ear.

Benefit: The recipient may carry on conversations using the subcutaneous comm. device without raising his voice above a whisper; Listen checks made to hear the recipient suffer a -20% penalty. The tiny speaker implanted in the recipient's ear enables him to hear the other side of the conversation, but others cannot.

Type: Internal.

Armour Points/Hit Points: 0/2.

Base Cost: Cr 70,000.

Anti-Flare Implants (TL9)

The recipient's corneas are replaced with artificial ones equipped with flare suppressors that react instantly to bright flashes of light.

Benefit: Blinding effects produced by bright lights have no harmful or debilitating effect on the recipient.

Type: Internal.

Armour Points/Hit Points: 0/1 (per eye).

Base Cost: Cr 40,000.

Internal Weapon Mount (TL9)

The recipient has a subcutaneous weapon embedded in her body, usually in a prosthetic forearm or hand. The weapon extends from the prosthesis and is visible when in use.

Benefit: The recipient has a melee or ranged weapon hidden under her skin. Attempts to disarm the recipient of the attached weapon automatically fail, and the weapon itself cannot be attacked unless it is extended. Extending or retracting the weapon is a Combat action.

Spotting a subcutaneous weapon requires a successful Spot check opposed by the recipient's Sleight of Hand check.

Type: Internal.

Armour Points/Hit Points: 10/5 (mount only).

Base Cost: Melee weapon mount Cr 60,000, ranged weapon mount Cr 80,000 (the cost does not include the prosthesis or weapon).

Skill Augmentation (TL9)

The character's nervous system is rewired to be more suited to a particular task. A pilot might have his reflexes and sense of balance improved; a broker might be made capable of controlling his pupil responses and smelling the pheromones and skin salinity of the other party.

Benefit: A skill augmentation gives the character a +20% Bonus when using that skill.. A character must possess the augmented skill at 10% to benefit from the augmentation. Different skills require different implants, and a skill implant cannot be modified to grant a bonus to another skill. A recipient may have multiple skill implants, but each is considered a separate cybernetic implant.

Type: Internal.

Armour Points/Hit Points: 0/1.

Base Cost: Cr. 50,000.

Stabilizer (TL9)

A stabilizer releases chemical coagulants into a dying recipient's bloodstream to prevent excess blood loss, effectively stabilizing him. A stabilizer is usually installed near the recipient's heart.

Benefit: If reduced to a level where he would normally be dead, the character is stabilised and held at death's door.

Type: Internal.

Armour Points/Hit Points: 0/3.

Base Cost: Cr 100,000.

Telescopic Optics (TL9)

The recipient's eyes are replaced with ocular implants that simulate the effects of binoculars, enabling the recipient to perceive distant objects more easily. All of the recipient's eyes must be replaced to gain any benefit.

Benefit: Telescopic optics reduce the range difficulty modifier for Perception checks by one level (Very hard to Hard, Easy to very Easy).

Type: Internal.

Armour Points/Hit Points: 0/2 (per eye).

Base Cost: Cr 50,000.

Voice Stress Analyzer (TL9)

Sensors attached to the recipient's optic nerves and inner ear analyze minute physical indicators from living beings (including increased pulse galvanic skin response) and enable the recipient to better determine the emotional states of others.

Benefit: The recipient gains a +20% bonus on all Sense Motive rolls.

Type: Internal.

Armour Points/Hit Points: 0/4.

Base Cost: Cr 80,000.

Anti-Stun Implant (TL10)

This implant, embedded near the spine, shields the recipient's nervous system against stunning attacks.

Benefit: The recipient cannot be stunned.

Type: Internal.

Armour Points/Hit Points: 0/4.

Base Cost: Cr 150,000.

Body Repair Weave (TL10)

A delicate weave of subdermal biowires stimulates and repairs the body's damaged tissue.

Benefit: The recipient heals naturally at twice the normal rate.

Type: Internal.

Armour Points/Hit Points: 0/4.

Base Cost: Cr 100,000.

Data Archive (TL10)

A data archive is a microcomputer implanted in the recipient's skull. It contains skill-related information stored on a series of biological data chips, or biochips.

Benefit: The recipient gains access to an information database that grants a +20% equipment bonus on all Knowledge checks.

Type: Internal.

Armour Points/Hit Points: 0/2.

Base Cost: Cr 120,000.

Fortified Skeleton (TL10)

The recipient's skeleton is fortified with high-impact polymers, increasing his ability to shrug off physical damage.

Benefit: The recipient gains +5 Hit Points to each treated hit location.

Type: Internal.

Armour Points/Hit Points: N/A.

Base Cost: Cr 120,000

Initiative Implant (TL10)

The initiative implant consists of a series of wires threaded around the recipient's spinal cord and attached to the recipient's nervous system. The implant stimulates faster response times.

Benefit: The recipient gains a +2 bonus on initiative checks.

Type: Internal.

Armour Points/Hit Points: 0/10.

Base Cost: Cr 100,000.

Neural Comm (TL10)

A neural comm has identical capacities to a standard comm, but the cost is much higher and the TL is increased by 2. For example, an audio-only comm costs 250 Credits and is TL 10.

Benefit: A character can access the capabilities of a neural comm by thought alone but must still make any relevant skill checks and must still speak aloud to send audio messages.

Type: Internal

Armour Points/Hit Points: 2/4

Base Cost: Varies by TL.

TL 10	Audio only	Cr. 1,000
TL 12	Audio and visual	Cr. 5,000
TL 14	Multiple forms of data	Cr. 20,000

Subdermal Body Armour (TL10)

Subdermal body armour consists of small plates of flexible armour or a mesh of ballistic fibres implanted under the recipient's skin.

Benefit: The character gains natural armour in addition to any worn armour. The Armour Points depends on the density of the armour: Light +2, Medium +4, Heavy +6.

Type: Internal.

Armour Points/Hit Points: –/N/A.

Base Cost: Light Cr 60,000, Medium Cr 100,000, or Heavy Cr 120,000.

Augmentation (TL11)

Replacing slow nerve cells with faster synthetic substrates and implanting optoelectronic boosters can increase the speed at which a character thinks, effectively boosting his Intelligence.

Benefits: A permanent increase in INT, the number of points increased depends on the TL of the implant.

Type: Internal

Armour Points/Hit Points: N/A

Base Cost: See below

TL 12	INT+1	Cr. 500,000
TL 14	INT +2	Cr. 1,000,000
TL 16	INT +3	Cr. 5,000,000

Laser Optics (TL11)

The recipient's eyes are replaced with ocular implants capable of firing thin laser beams.

Benefit: Using laser optics is a missile attack action. A “laser eye” deals 2d6 points damage, and has a normal range of 20m. Each additional eye adds +2 to the damage roll (thus, a pair of laser eyes would deal 2d6+2 points damage). A creature equipped with multiple laser eyes must fire them simultaneously at the same target.

Type: Internal.

Armour Points/Hit Points: 0/2 (per eye).

Base Cost: Single Cr 150,000, pair Cr 200,000.

Luminous Skin (TL11)

Special skin grafts create luminous displays on the recipient's flesh. Most recipients use it purely for decoration, but the same technology can provide a built-in chronometer.

Benefit: The recipient can control the brightness of the luminescence as combat action, negating it entirely if desired. As its most intense, luminous skin can illuminate spaces adjacent to the recipient. The chronometer serves the same function as a wristwatch, including date, time, and alarm functions.

Type: Internal.

Armour Points/Hit Points: 0/0 (luminous skin ceases to function when the recipient is killed).

Base Cost: Cr 10,000 (Cr 12,000 for chronometer version).

Microcomputer (TL11)

The recipient has a miniature computer attached to his nervous system, usually at the base of the skull.

Benefit: The recipient may attempt Computer Use checks as a move action, rather than a full-round action. The microcomputer reduces by half the time required to operate remotes. A data port in the back of the unit allows for the insertion of a standard interface cable (Base Cost 5), allowing the recipient to transfer data without the benefit of a modem.

Type: Internal.

Armour Points/Hit Points: –/4.

Base Cost: 35 (36 with integrated cellular modem).

Mindscreen Implant (TL11)

A small implant in the recipient's brain protects him against mental attacks.

Benefit: The recipient gains a +2 equipment bonus on saving rolls against mind-affecting attacks.

Type: Internal.

Armour Points/Hit Points: –/2.

Base Cost: 28.

Physical Characteristic Augmentation (TL11)

A character's Strength, Constitution, Dexterity or Charisma can be increased in various ways, from replacing motor neurons with faster synthetic cells, to reinforcing bones and replacing organs with tougher vat-grown clones or producing pheromones via Subdermal glands. Augmentations must be purchased for each characteristic separately.

Benefits: Permanent increase of a single characteristic by a number of points depending on the TL.

Type: Internal

Armour Points/Hit Points: N/A

Base Cost: See below

TL 11	Characteristic +1	Cr. 500,000
TL 12	Characteristic +2	Cr. 1,000,000
TL 15	Characteristic +3	Cr. 5,000,000

Prosthetic Enhancer (TL11)

This implant attaches to a prosthetic arm or leg, making it stronger.

Benefit: If attached to a prosthetic leg, the prosthetic enhancer increases the recipient's base speed by +5. In addition, any unarmed attack made with an enhanced prosthetic leg deals an additional 1 point of damage.

If attached to a prosthetic arm, the prosthetic enhancer grants a +2 bonus on Strength- and Dexterity-based ability checks and skill checks. In addition, any unarmed attack made with an enhanced prosthetic arm deals an additional 1 point of damage.

A prosthetic enhancer does not count toward the total number of cybernetic implants the recipient can have before taking negative levels (see Number of Implants).

Type: Internal.

Armour Points/Hit Points: -/2.

Base Cost: Cr 120,000

Rage Implant (TL11)

This brain implant dramatically increases the amount of adrenaline and testosterone the recipient's body produces, temporarily boosting his strength and durability.

Benefit: The recipient can activate the implant as a Combat action once per day. Upon doing so, he temporarily gains a +4 bonus to Strength, a +4 bonus to Constitution, and a +20% morale bonus, but he takes a -20% penalty to Dodge.

The increase in Constitution increases the recipient's hit points, but these hit points go away at the end of the rage when his Constitution score drops back to normal. While raging, the recipient cannot use any Charisma-, Dexterity-, or Intelligence-based skills (except for Balance, Drive, Escape Artist, Intimidate, Pilot, or Ride), the Concentration skill, any abilities that require patience and concentration (including manifesting Psionic powers), or any items that must be activated to function.

The rage lasts for a number of rounds equal to 3 + the recipient's (newly acquired) Constitution modifier. The recipient may prematurely end his rage.

At the end of the rage, the recipient loses the rage modifiers and restrictions and becomes fatigued for the remaining duration of the current encounter.

Type: Internal.

Armour Points/Hit Points: 0/3.

Base Cost: Cr 150,000

Skill Plexus (TL11)

This unit, implanted in the recipient's brain, allows multiple skill augmentations to function as a single cybernetic implant.

Benefit: The recipient may have up to four skill augmentation implants attached to the skill plexus, and together they are treated as a single cybernetic implant. However, if the skill plexus is destroyed, all of the attached skill implants are destroyed as well.

Type: Internal.

Armour Points/Hit Points: 0/4.

Base Cost: Cr 180,000 (does not include skill implants).

Targeting Optics (TL11)

The recipient's eyes are replaced with ocular implants that use a projected targeting system to improve the recipient's aim. All of the recipient's eyes must be replaced to gain any benefit.

Benefit: Targeting optics grant a +20% bonus on all attack rolls made with ranged weapons.

Type: Internal.

Armour Points/Hit Points: 0/2 (per eye).

Base Cost: Cr 80,000

Wafer Jack (TL 11)

A wafer jack is a computer system implanted into the base of the skull that consists of an external data socket and a processor running an interface program.

Benefit: A character with a wafer jack can use computer modules for tasks relying on Intelligence or Education only. The main benefit of the jack is that it is much smaller and more discrete than a hand computer, and the user can access the computer module by thought alone. A wafer jack is an INT 3 Computer (INT 6 at TL 13). It is always running Intelligent Interface at no cost.

Type: Internal

Armour Points/Hit Points: 0/1

Base Cost: Cr. 10,000.

Wireless Wafer Jack (TL 11)

A wireless wafer jack is the same as a wafer jack but uses a wireless connection, so it does not need a data cable plugged into the interface.

Benefit: A character with a wireless wafer jack can use computer modules in the same way that someone with a wafer jack can, however he does not need to be wired into the computer network, he can be free-roaming as long as a wireless network is available. Such networks are normally present in TL8+ environments. There is a danger, however, that someone with a wireless wafer jack can be hacked into by somebody else unless he had a good security module loaded into the wafer jack.

Type: Internal

Armour Points/Hit Points: 0/1

Base Cost: Cr. 40,000.

Invisiware (TL12)

This technology enables its recipient to turn invisible for a short time. Invisiware uses crystalline refractors grafted to the skin and powered by rechargeable solar battery units protruding from various points on the recipient's body (usually the spine).

Benefit: By using invisware to bend light around its body, a creature can turn invisible.

While invisible, the creature gains 50% concealment against attacks from other creatures that correctly pinpoint its fighting space. Activating or deactivating invisware is a Combat action. However, the technology consumes a great deal of the battery power; after 10 rounds (1 minute) of use, the solar batteries must be recharged for 1 hour, during which time the invisware cannot be activated.

Type: External.

Armour Points/Hit Points: 4/20.

Base Cost: Cr 200,000

Psi Implant (TL12)

This brain implant stimulates neuron activity in underdeveloped regions of the recipient's brain, unlocking latent Psionic abilities.

Benefit: The recipient gains the Wild Talent Legendary Ability.

Type: Internal.

Armour Points/Hit Points: 0/2.

Base Cost: Cr 300,000

CHAPTER 18: Genetic Augmentation

Genetic Manipulation

Genetic manipulation becomes possible at TL7 when technology advances enough to create electron microscopes, computer-aided imagery, and the tools to delicately examine and manipulate the tiniest building blocks of life—genes. At this point, scientists are able to experiment with DNA, gene splicing, and other activities that eventually lead to more advanced techniques.

Performing Experiments

Science is not a process that happens quickly, although key developments often happen accidentally, reshaping the knowledge base overnight. Performing basic experiments in genetic manipulation realistically would take a researcher months (and more likely years) of effort. However, once the scientific groundwork is laid, tests and procedures can be attempted more rapidly.

In general, testing any single hypothesis about a procedure, or discovering the effects of performing a specific genetic modification, requires 3d10 days and a successful Research roll. Bonus and Penalties can be whatever the GM wished. Scientific research is painstaking and even experiments based on solid theories must often be attempted several times before providing a conclusive result. If the GM is running a more cinematic campaign where scientists develop theories and produce solutions in quick succession, she may opt to change the time required to 3d10 hours.

Designer Diseases

One of the most basic implementations of genetic manipulation is modifying existing microscopic organisms such as bacteria and viruses. At TL7, scientists are able to alter existing diseases to be resistant to particular medicines and resilient enough to survive in conditions that would kill their naturally occurring relatives.

At a later stage of TL11, researchers learn to splice together the DNA of two or more different diseases to create super viruses. At this point, they can tailor such characteristics as the disease's incubation period and primary, secondary, and tertiary symptoms. They can even make it resistant to all known treatments and, at the same time, create a wholly effective remedy—putting them in the position of being able to infect the entire world and only providing the cure to those they deem worthy.

The flip side of this, naturally, is that scientists are able to create synthetic medicines—antibiotics and other drugs—that combat diseases that were previously uncontrollable. Unfortunately, nature is at least as inventive and resourceful as science. Whenever a new cure is developed, it is not long before scientists discover one or more diseases that have natural immunity to it.

Gene Therapy

It is possible in the closing stages of TL7 for scientists to develop effective forms of gene therapy. These treatments can be used on mature creatures to replace defective genes, or genes that are linked to particular diseases, with a more benign gene. Usually this is done using modified retroviruses (viruses that can create DNA copies of their own RNA), however, several other methods exist, all of which are capable of targeting specific cells—lung or liver cells, for example—within a living organism.

Gene Screening

Using advanced TL7 techniques, it is possible for scientists to learn a great deal about an organism even while it is gestating. By taking a sample of a developing creature's DNA, they can tell what physical and mental qualities it is liable to possess, what diseases or conditions it is predisposed toward, and even what its emotional temperament is likely to be.

What If It Escapes?

Specimens for use in laboratory experiments are generally bred to be short-lived, require specific temperatures and conditions to thrive, and often are sterilized. If a sample escapes or is accidentally released, it is nearly impossible for it to survive outside the laboratory, and even more unlikely that it would be able to reproduce. A virus that has a life cycle of 12 hours and can only live in a pH3 solution of 30% saline between 60°F and 70°F is extremely unlikely to survive long enough in the wild to affect anyone or anything.

When scientists are working with a hardier organism, they often genetically manipulate it so the creature has one of the following flaws.

Dependent: The organism requires a particular item or condition to survive. For example, it may need to consume a particular chemical. If the organism's dependent need is not met, it suffers 1d4 points of Constitution damage each time the specified period passes.

Particular: The organism has an extreme preference (or an extreme dislike) for a certain condition. Examples include darkness or bright light, wetness, heat or cold. When faced with the condition it is particular about, the organism must make a successful Persistence roll to resist the urge to remain where it is (or flee, as appropriate).

Susceptible: The organism is damaged by a specific condition or material. Examples include environments above or below a certain acidity or temperature, or the presence of a particular gas or liquid.

When the organism comes in contact with the substance or condition to which it is susceptible, it takes damage. The amount of damage depends on the being concerned and the susceptibility.

This damage is in addition to any other damage caused by the contact. If, for example, the organism was susceptible to steel and it was struck in melee by a steel weapon, the creature would take the normal melee damage plus the damage for being susceptible.

More Human Than Human

Beginning early in TL8, scientists discover ways to not only replace abnormal or defective genes, but also to safely improve on otherwise healthy genes. Even more importantly, they discover ways to create retroviruses that target all of an organism's cells, thus allowing them to change various aspects of a creature. It becomes possible to upgrade a living being.

At first, these processes only modify existing traits—increasing (or decreasing) one of the subject's innate abilities, or sharpening his or her senses. But as the technology is perfected and scientists map and catalogue the genetic structure of various other creatures, it is possible to alter a subject so that he or she has traits that humans have never possessed.

Genetic manipulation can endow a creature with any special quality. Developing the appropriate therapy is no different than any other genetic experiment (see Performing Experiments, above). Once the therapy begins, the subject must make a Resilience roll once per day until such time as he achieves a specific number of successes linked to the genetic modification being attempted (at which point he permanently gains that special quality). Every time the roll fails, the subject suffers 2 points of Constitution damage.

<i>Type of Special Quality</i>	Resilience Penalty	Number of Successes
+1 to one ability score	-10%	10
Extraordinary ability	-20%	15
Supernatural ability	-30%	25

During therapy, the ability remains latent, so the patient receives no benefits from the intended manipulation. Immediately upon completing the required number of Resilience rolls, the ability activates and becomes a permanent special quality of the patient. Alternatively, there may be treatments with short-term durations. (According to most scientific authorities, these are not realistically feasible, but they can be found in many places in fiction.) A short-term treatment automatically takes effect in 1d4 minutes and lasts for 1d3 hours. At the end of that time, the character reverts to his normal state, is fatigued, and suffers 4 points of Constitution damage. A successful Hard Resilience roll reduces this to only 2 points of Constitution damage.

The main idea to remember is that according to our best understanding of genetics, each gene tends to affect only a single trait (or a small set of closely linked traits). At TL9 it is only possible to modify one gene at a time. To create more drastic changes, the patient must undergo several gene therapy treatments, each one requiring a separate set of Resilience rolls.

At TL11 mastery of this process is such that multiple modifications may be combined into one treatment. Have the patient make Resilience rolls as if the regimen was for a single Supernatural special quality.

Gene Therapy Templates

The potential uses of gene therapy are not limited to special abilities. GMs can simulate just about any simple modification by creating templates that characters can acquire by undergoing the proper program of gene therapy. This is identical to the process described above, except that the GM must set the value for the penalty and the number of successful saves required. Use the table above as a guide.

Below are several example gene therapy templates.

Aquan (Template)

“Aquan” is an acquired template that can be added to any character. It uses all the character's statistics and special abilities except as noted here.

The aquan template allows the character to survive on both land and under water. A character acquires the aquan template by undergoing a course of gene therapy (see More Human than Human). The regimen requires 25 successful Resilience rolls.

Special Qualities: An aquan retains all the special qualities of the character and gains the additional special qualities listed below.

Amphibious: Aquans can breathe equally well in air and water.

Blindsight: Aquans have blindsight with a range of 20 meters when under water only.

Low-Light Vision: Aquans have low-light vision with a range of 20 meters on land and in water.

Skills: Same as the character, with a +20% species bonus on Listen checks while under water, a +20% species bonus on Move Silently checks while in the water, a +20% species bonus on Navigate checks while under water, and a +40% species bonus on all Swim checks.

Healer (Template)

“Healer” is an acquired template that can be added to any character. It uses all the character's statistics and special abilities except as noted here.

The healer template allows the character to heal wounds more rapidly. A character acquires the healer template by undergoing a course of gene therapy requiring 25 successful Resilience rolls.

Special Qualities: A healer retains all the special qualities of the character and gains the additional special qualities listed below.

Fast Healing 3: A healer heals 3 points of damage each round. Fast healing stops working when the healer is dead.

Skills: Same as the character, with a +20% species bonus on any Medical rolls made to treat himself.

Morphean (Template)

“Morphean” is an acquired template that can be added to any character. It uses all the character's statistics and special abilities except as noted here.

The Morphean template allows the character to go for long periods without sleep and still function normally. It also allows the character to enter into a sleeplike trance that lasts for many days without suffering the effects of dehydration or starvation. A character acquires the morphean template by undergoing a course of gene therapy requiring 25 successful Resilience rolls.

Special Qualities: A morphean retains all the special qualities of the character and gains the additional special qualities listed below.

Hibernate: A morphean can enter into a sleeplike state that lasts for an extended period. While in this state, the morphean does not suffer the effects of dehydration or starvation. Hibernation can last up to a number of days equal to twice the character's Constitution. The morphean decides how long the hibernation will last before entering into the sleeplike state. If outside forces disturb or try to awaken the character, the morphean must succeed at a Luck Roll (POWx5%) to end the hibernation prematurely.

Sleepless: The morphean does not suffer the detrimental effects of sleep deprivation. Once per day, the morphean can spend 10 minutes meditating and receive all the benefits of a full 8 hours of sleep. However, morpheans cannot go indefinitely without sleep. Once every 30 days, the character must get 2 full days of uninterrupted sleep or hibernation. Failure to do so makes the morphean fatigued.

Nocturnal (Template)

"Nocturnal" is an acquired template that can be added to any character. It uses all the character's statistics and special abilities except as noted here.

The nocturnal template allows the character to function in darkness the way normal humans do in the light. A character acquires the nocturnal template by undergoing a course of gene therapy requiring 25 successful Resilience rolls.

Special Qualities: A nocturnal retains all the special qualities of the character and gains the additional special qualities listed below.

Darkvision: Nocturnals have darkvision with a range of 20 meters.

Light Sensitivity: Nocturnals are blinded by sunlight, flashlights, fluorescent lights, halogen lamps, and other sources of bright illumination. They can counter the blindness and see normally by wearing dark-tinted sunglasses or tinted visors.

Skills: Same as the character, with a +20% species bonus on Listen and Move Silently checks.

Unnatural Selection

Gene therapy as practiced at TL8—targeting specific cells for localized modification—affects only the patient directly receiving the treatment. She is unable to pass the modifications on to her offspring. However, once the technology reaches the point in TL10 that it can imbue the subject with new special qualities, the subject has been changed at a basic genetic level and the traits may be passed along to children.

This process has the potential to create an entirely new race—winged humans, for example. And if the genetic manipulation is extensive enough that the subject's DNA is no longer compatible with naturally occurring DNA—if she can no longer mate with normal members her own kind—the subject has actually been transformed into a new species. Such manipulation generally is not possible until TL12.

The most common use for such extensive genetic manipulation is to create humans or other creatures who are capable of surviving in conditions that would normally be deadly.

CHAPTER 19: Cloning

Another type of genetic manipulation found in many futuristic settings is cloning. A sample of one creature's DNA is used to make an exact physical duplicate of the creature. A clone is identical to the original creature in every genetic way—blood type, birth defects, fingerprints, and retinal pattern. However, the clone does not have any scars, tattoos, or other identifying marks gained during the course of the original creature's life. If, for example, the original creature was born with only one kidney, the clone has only one kidney. However, if the original creature has had a kidney removed, any clone made of him will have two kidneys (as the original creature did at birth).

Cloning is a very difficult process. Although the number of successful experiments has increased, creating and bringing a clone to full term is a high-risk endeavour and scientists generally have to make several attempts before an experiment reaches a satisfactory conclusion. Any single attempt to create a clone has roughly a 90% chance of failure. What's more, clones tend to be prone to a host of developmental problems including accelerated decrepitude, unexplained organ failure, immune system failure, and a generally weak constitution.

Mini-Me

Some time toward the end of TL7 or the beginning of TL8, researchers find the solution for the developmental problems to which clones are prone. At this point, it is possible for scientists to successfully clone any living organism with an acceptably low failure ratio. (In most cases, a ratio equal to or lower than the general infant mortality rate is sufficient.)

Each clone, though, must still go through the same gestation period and developmental processes as a child conceived through ordinary procreation. In fact, without a detailed genetic examination, it is difficult (if not impossible) to tell the difference between a naturally conceived baby and a clone.

Provided the clone is given the same nutritional and physical environment the original person had, he develops physically in exactly the same way as the original person. The two may be completely different in terms of personality and temperament, much the same way as any parent and offspring. The clone may be a physical recreation of a person, but it is not an emotional or intellectual duplicate.

A good deal of debate centres around potential medical uses for this technology—creating clones but not allowing them to come to full gestation so that research and experimentation can be performed on the foetuses. In most settings, cloning is illegal for any reason other than reproduction.

This fact changes only when scientists discover a way to create viable organs without first creating a viable life form.

Replacement Parts

If the scientific community is allowed to work through the technical problems of viability and the moral issues surrounding the creation of living tissues, it eventually (usually in TL10) becomes possible for them to use cloning technology to grow specific organs without first creating a viable embryo. They are able to stimulate cells in the lab so that they spontaneously develop into a liver, lung, or kidney. This eliminates the need for organ donation and make possible huge advances in the science of organ transplantation.

In the modern world, people whose major organs are dysfunctional must wait in hopes that an appropriate donor (one with the right blood type and other specific traits) can be found. With advances in science, cloned replacement organs are available whenever they are needed and match the recipient exactly, down to the last chromosome. (This has the added bonus of practically eliminating the chance of the body rejecting the new organ.) Cloning can also replace much of the need for blood banks, since doctors can clone as much replacement blood as necessary. Some stores of donated blood remains necessary, though, for use in times of emergency.

At TL10, cloning a replacement organ requires a state-of-the-art research laboratory and a successful Credit roll (-40%). The process takes 2d10+10 days. Cloning blood is a much easier process, requiring only a standard hospital or university laboratory, 1d3 hours, and a Credit roll to create 1d6 pints.

At TL12, improvements make these processes quicker and cheaper to perform. All experiments can be performed in any hospital or university laboratory, and some may even be successfully accomplished in well-stocked home labs. Cloning a replacement organ takes 1d6+4 days and requires a Credit roll. Cloning blood takes 1 hour and an Easy Credit roll to produce 1d6 pints.

At TL14, cloning a replacement organ takes 1d4+4 hours and a Credit roll. Cloning blood can be done in the operating room and does not have a significant cost associated with the process.

My, How You've Grown

The advent of cloning allows scientists to create genetically identical embryos that age normally. Unless a clone is created during the first year or two of a person's life, such a significant age difference exists between the original person and the clone that they are more akin to parent and offspring than to identical siblings. The next quantum leap in cloning technology comes when scientists develop the ability to artificially age the clone. Rather than wait for the embryo to age normally, this advance allows the clone to mature at an accelerated rate until it is an exact replica of the donor (minus scars, tattoos, and other acquired physical modifications).

Artificial aging is an important part of clone fiction, but it is such a hypothetical process that it is difficult to place it at a particular Progress Level. Perhaps this ability would be linked to developments in battling the aging process. Or there might be a relatively simple way to stimulate embryonic clone cells so they continue to grow at the same advanced rate even after the foetus becomes a viable infant. This allows the clone to grow to full maturity in a matter of weeks or perhaps even days.

In a setting where the GM wishes to be as scientifically realistic as possible, artificial aging is not developed until TL14. However, in campaigns where individuals are able to have a cadre of clones to serve as organ donors, replacement bodies, and heirs, the GM may rule that artificial aging is developed at TL8, at the same time that cloning technology overcomes the viability problem.

An Army Of One

In a setting where cloning and artificial aging are commonplace, it is possible for an individual to have dozens of replicas of herself at any one time. Of course, if a new clone can be grown and artificially aged within a matter of days or hours, the question arises as to why one would need to keep active clones at all.

Body Double: In the modern world, celebrities and VIPs often hire look-alike actors to take their places for brief public appearances, dangerous situations, and other situations where they do not have the inclination or time to appear themselves. The illusion is complete if the look-alike actor is a clone whose purpose in life is to stand in for her genetic original from time to time.

Disposable Workers: In societies where clones are not afforded the rights and protections given those born through procreation, genetic duplicates might be used as a disposable work force. Clones could be sent into the most dangerous situations, used to fill the ranks of the armed forces, and made to perform all manner of unpleasant activities. Depending on the setting, this might be an accepted fact of life or there could be a group or political party that opposes clone repression. (See the Clones' Rights sidebar for further discussion.)

Workload Efficiency: In a society that places a higher value on clone life, the world's rich and powerful might still create cadres of clones. In this case, though, they would clone those people who are especially good at a particular job or activity. They could fill entire companies with people ideally suited for their jobs and who work well together.

This scenario, however, requires the addition of one more advance in clone technology—identity transfer.

A Question Of Identity

If a person is the sum of all his experiences, a clone is no more the person whose genetic structure he shares than he is a photograph or sculpture of that person. To transform a clone into that person, a way needs to be found to make the clone's mind identical to the person's mind.

In many campaign worlds, the person involved makes a recording of his brain pattern and transfers the pattern to the clone while it is still in a formative stage. (Exactly how this is accomplished varies widely from setting to setting.) The clone awakens with all the memories and experiences of the person up to the point of the recording—anything that happens to the person after the recording is not part of the pattern.

In settings where clones are kept as organic life insurance, people periodically record their brain patterns so their clone has the most up to date memory possible. In settings such as this, it is possible to use technology in unusual ways. One could imprint the mind of a clone with the brain pattern of another person. Alternatively, an elderly person on his deathbed could have his brain pattern recorded and, after he passes away, implanted on a clone of himself as a young man.

The Non-Born

A technological offshoot of cloning is the artificial womb. There comes a point where carrying a genetically engineered or cloned foetus to term becomes very difficult for a normal woman and doctors found the solution in an artificial womb. Using such a device means that clones or genetically engineered children can be mass-produced in an industrial manner rather than relying on the goodwill or servitude of large numbers of women. This happens at TL11.

The children of artificial wombs are often called Non-Borns as they were not born to a natural mother. They are raised in state-run homes and do not have normal inheritance rights from their genetic parents. Non-Borns are often the product of donated sperm and eggs and have no knowledge of their natural parents. This gives them a unique and potentially unbalanced view of life.

CHAPTER 20: Nanotechnology

Nanotechnology

Nanotechnology is a broad, new, mostly hypothetical area of research. It is, practically speaking, the ultimate step in miniaturization. Nanotechnology involves manipulating objects that are as small as a nanometer (one billionth of a meter) to create materials and products that are only the size of a dozen atoms.

Of course, nanotechnology is not merely futuristic speculation. It is used in its most rudimentary form in many products and materials today. For example, clothing manufacturers use nanotechnology to create stain-resistant cloth, auto manufacturers use it to make scratch- and dent-proof parts, and environmental researchers use it to develop substances to remove toxic metals from water.

Current uses, though, only scratch the surface of nanotechnology's potential. The possibilities are practically limitless. Imagine a computer processor with all the capabilities of today's top-of-the-line desktop models, but that is the size of a single bacterium—or a super-computer the size of a sugar cube. These are considered reasonable expectations for the future of nanotechnology.

Experts in the field suggest nanotechnology will change human culture in ways that can scarcely be imagined. Indeed, some believe it will directly result in a "postmonetary economy" where money becomes meaningless, industrial manufacturing is unnecessary, and nanoassemblers instantly create any item a person desires.

The term nanotechnology refers to many different potential disciplines—nanomedicine, nanobiotechnology, nanolithography, nanoelectronics, artificial intelligence, and microencapsulation, just to name a few. But when the term is used in futuristic fiction, it almost always is in regard to nanorobotics.

The Littlest Robot

The basic working unit of nanotechnology is a nanite—a single robot that can be as small as a dozen atoms in length. Nanite is a generic term: Any robot built using this technology, no matter what its purpose, is a nanite. Each one must be constructed and programmed for a specific purpose, and a nanite's true power lies not in what it can do individually, but what it can be programmed to do in complete synchronization with millions of other nanites that make up a nanocolony.

It is possible for a single item or piece of material to be composed of hundreds or thousands of different types of nanites, just as a human body is composed of a multitude of different types of cells.

Ambient Nanocolonies

In addition to the independent and internal nanocolonies, a third type of nanocolony exists. The ambient nanocolony floats in the air with no fixed location or purpose. Most ambient nanocolonies exist in areas where nanotech has either grown out of control or where civilization has declined, leaving behind only microscopic remnants of its technology. Often referred to as "zombie nanites," these nanocolonies float around aimlessly until some outside stimulus reactivates them. In some cases, ambient nanocolonies even try to continue to fill their intended purpose long after the conditions necessary to do so have passed; ambient utility fog (described below) might continue to try and build roads where no roads have been needed for years, while an inert ambient nanocolony of grey goo (also described below) might suddenly reactivate, essentially becoming a nanite minefield.

Only in rare cases are internal nanocolonies found in ambient situations, usually having been removed from (or drained from the decaying body of) a character or creature that once made use of them.

Acquiring Nanotechnology

In most settings, nanotechnology is not some cheap technology that can be picked up off the street. While it is feasible that some campaign settings could have nanotechnology so common that any character could go to the local nanotech clinic and receive the latest nanite injection, it is more likely that obtaining nanotechnology for personal use is more difficult than simply dropping down the cash. Gamesmasters might limit the availability of nanotechnology by not only making nanocolonies expensive to purchase, but also requiring the character to obtain permission or a permit.

Conversely, the Gamesmaster may wish to dole out nanocolonies as a reward for completing a task, or might determine that a nanite injection would be standard procedure for a particular organization.

Programming Nanites

Since nanites are small machines controlled by small computers, they can be programmed and reprogrammed accordingly.

Reprogramming a nanocolony requires a special computer that can broadcast signals on a frequency the nanocolony recognizes; such computers require a Credit roll (-40%) to purchase and, depending on the setting, are frequently restricted by the government.

Nanocolonies are programmed using the Computers skill as normal.

Typical commands given to a nanocolony include activation and deactivation, movement (both internal and external), as well as instructions to follow orders only from particular computers or individuals. Though hacking a nanocolony is possible, changing a nanocolony's purpose can be quite difficult. The hacker must not only overcome the nanocolony's programming, but also must find a way to use the nanite's hardware to serve a new function.

Independent Nanocolonies

An independent nanocolony is one that is capable of functioning and surviving outside of a contained environment. Independent nanocolonies can take many forms and can be either airborne or part of another piece of technology. These nanocolonies usually perform independent tasks, creating or building or destroying, without having to enhance or alter an existing object. In fact, most independent nanocolonies are designed to function as autonomous units once released into the air, only altering their objectives when given new commands or new programming.

Independent nanocolonies are among the most dangerous because they can move about freely and cannot be reclaimed easily (if at all should a malfunction occur). In some settings, independent nanocolonies are the direct cause of the fall of entire civilizations, thanks to nanites that consumed natural resources or destroyed infrastructure. Some independent nanocolonies are capable of wiping out entire planets, moving from one object to the next devouring and destroying all that stands in their paths.

Grey Goo (TL9): Grey goo is the ultimate destructive application of nanotechnology. This colony of nanites exists for the sole purpose of destroying all other types of matter. The nanites within grey goo attack any material they come in contact with and convert it into additional grey goo nanites. In other words, any object or person that touches this material is subsumed by it.

Anyone touching grey goo must attempt a Very hard Resilience roll. If the roll is successful, the character has severed contact before any damage was done. If the save fails, the nanites have gotten into the character's system. In 3d10 hours, the character is irretrievably killed and completely transformed into grey goo. The only way to prevent this is to amputate any portion of the body that has come in contact with even a single grey goo nanite.

Unfortunately, grey goo is generally one of the first nanocolonies that scientists learn to create (sometime toward the end of TL9). The material must be contained in a magnetic storage field so that no physical object ever touches it.

Unseen Bodyguard (TL10): Unseen bodyguard usually does not appear until TL10, due to the complex nature of its programming.

Essentially, unseen bodyguard nanites form a completely invisible nanocolony that can rearrange itself to provide a character protection from incoming attacks. Unseen bodyguard works on many of the same principles that create force fields, and in essence is made up of thousands of tiny nanites that project a webbing of deflective force between one another until a nearly solid shield springs up to protect the character.

When a character utilizes unseen bodyguard, the nanocolony creates a force shield in a single direction that hovers in place and protects against all incoming attacks. The user of the nanocolony directs the nanites to either its front, right, left, or rear facing where it stays until redirected. The nanocolony provides a +4 Armour Points against all attacks coming from the specified direction. Unseen bodyguard costs Cr 250,000 and can be activated (and left running permanently) by a simple voice command.

Utility Fog (TL12): This collection of intelligent nanites looks like a formless, colourless substance. However, when fed instructions through a computer, it can reorganize its size and physical properties to become more or less any object. As long as the computer can pass along the structural and functional parameters, utility fog (or UFog) can become anything—from a clear protective coating, to a wall of steel, to a piece of furniture, and more. All that is required is the software to implement the transformation.

UFog is not generally discovered until late in TL12. It costs Cr 50,000 for a litre of the material (since its density and weight can vary widely depending on what material it becomes, the most accurate way to measure UFog is by liquid volume). This price includes a terminal for communicating with the material, but not the software necessary to program it into various forms and functions.

Internal Nanocolonies

Internal nanocolonies operate within a living host. These nanocolonies interact fluidly with the body's natural biological functions and blend seamlessly with the other cells in the body. Most internal nanocolonies are coated with the same chemical compounds that coat the outer portion of blood or skin cells (depending on the nanocolony's function) so that the body they inhabit sees each nanite as just another natural system at work.

After injection into a creature or character, it takes 10 minutes for the nanites to spread to their desired positions in the body. Once in place, the nanites are immediately functional and begin work as soon as they are given commands. Each host can typically only support two internal nanocolonies; more than that causes conflict between the nanites, since some might try and overtake others. Any nanocolony injected into the bloodstream after the second immediately attacks (and usually destroys) one of the colonies already in the character or creature's body.

Nanoviruses

Nanoviruses are nanocolonies that act like viruses. They move throughout the body, typically with a single function in mind, and alter cells they are programmed to affect. Nanoviruses can lay dormant within a body for long periods and are only destroyed by the body's natural recycling systems; a nanovirus can stay dormant for up to one year before it washes out of the body completely.

Nanoviruses typically serve a single purpose, then deactivate and are absorbed by the body.

Calcion (TL9): A beneficial nanovirus, calcion is one of the most commonly used nanocolonies in the field of medicine. Calcion is a bone-knitting nanite that repairs fractures and breaks in bones with advanced calcium-grafting technology. Additionally, calcion repairs joints and aids with skin regeneration. A character injected with calcion heals from damage at twice the normal rate until she reaches full hit points. After her health is fully restored, the calcion nanites deactivate and cease to function.

Grey Death (TL10): A derivative compound based on grey goo, grey death is a horrible weapon that kills in a slow and painful manner. Grey death nanites are grey goo nanites held within a special containment field. When the command is given, the nanocolony dissipates the containment field and the grey goo is released into the bloodstream of the character. The character must make a Resilience roll at -40%. If the save is successful, the character's immune system flushes the nanites out of the body before they do any harm. If the save fails, the character is irrevocably killed in 3d10 hours and transforms into grey goo.

Grey death is a horrible biological weapon. It is outlawed by almost all civilizations that have discovered it.

Onco-Guard (TL10): One of the most beneficial discoveries to come out of nanotechnology, onco-guard nanoviruses treat and stave off the effects of cancer. Though not the "cure for cancer" that 20th century scientists so voraciously sought, onco-guard attacks and contains cancerous cells. Additionally, onco-guard prevents a character from developing cancer while the nanites remain in the

bloodstream, either in their active or inert states. A character injected with onco-guard recovers from any negative effects of cancer almost immediately and is immune to further developments of the disease for 2d6 months.

Resilite (TL9): Another incredibly dangerous nanovirus, resilite is used in both torture and espionage. Resilite has a single purpose—to deal severe amounts of damage to a creature upon activation. Resilite floats inert in the bloodstream until activated, at which point the nanites burrow outward in random directions. In addition to causing internal bleeding, resilite tears through vital organs and damages bones and nerves as well. Whenever resilite is activated, the creature or character immediately suffers 3D6 points of damage to a random location. This damage is physical and internal and may not be prevented by any form of shielding or damage reduction.

Stiletto (TL9): A particularly vicious nanovirus, stiletto causes damage directly to a creature's brain and can render the creature brain dead if successful in its attack. Unlike most other nanoviruses, stiletto does not linger in the bloodstream but instead flows directly to the brain. The nanites burrow directly into the brain and shoot out harmful jolts of energy until their supply is depleted and they deactivate. Any creature or character targeted by stiletto immediately suffers 2d6 points of ability damage to INT, POW, CHA and PSI rolled separately for each characteristic.

Nanohunters

Nanohunters are nanoviruses with one specific purpose: to search and destroy other nanites. A nanohunter colony can be injected into a living creature to destroy some or all nanites already in the creature.

Each nanohunter colony combats a single type of nanocolony. For example, a nanohunter designed to eliminate grey death nanites seeks out and removes all traces of inactivated grey death in a creature's system, but completely ignores all other nanites.

Nanohunters are often the only means of removing a nanocolony from a creature or character and are highly sought-after in societies where nano-warfare is common.

In addition to nanohunters that destroy internal nanocolonies, some nanohunter colonies target ambient and independent nanocolonies. These nanocolonies function in the same way as their internal nanite-hunting counterparts, but must be released in the vicinity of the target nanites. These nanohunters are often used to eradicate dangerous nanites and are one of the few reliable means of disposing of overactive nanocolonies like grey goo.

Nanoaugmenters

Unlike nanoviruses, nanoaugmenters latch onto a specific biological system and provide consistent bonuses for as long as the nanites remain active. Most nanoaugmenters are injected into a character or creature to permanently enhance performance and continue to function indefinitely. Nanoaugmenters are only removed by other nanites or by commanding the nanocolony to cease all activity. When this occurs, nanoaugmenters are absorbed and recycled by the host body in the same manner as inert nanoviruses.

Most nanoaugmenters simply provide energy or transmit signals between the nanocolony and the host body, but some actually alter the host's genetic structure or change the host's chemical balances.

Brain Boost (TL10): Frequently used by scientists, researchers, and mathematicians, brain boost is a nanoaugmenter that gives the brain increased memory capacity. The nanites in brain boost latch onto the memory and thought centres of the brain and transmit data back and forth between these centres at an incredible rate. Each nanite can store large amounts of data and acts as a temporary memory storage centre. Brain boost nanites also move back and forth between various memory centres, copying and moving information in the most efficient manner possible.

The thought and memory abilities of the creature or character are increased greatly. Any creature injected with brain boost immediately gains a +4 bonus to INT. This bonus remains in effect for as long as the nanoaugmenters remain attached to the brain.

Chatter (TL11): A useful nanoaugmenter frequently injected into soldiers on covert missions, chatter allows communication without speech. In many ways, chatter resembles the technology of the micro-aural communicator. However, unlike the microcom, the nanites in a chatter nanocolony attach directly to the speech and language centres of the brain. When a character wishes to communicate via his chatter nanites, he needs only to think of what he would say and the nanocolony transmits those thoughts over a communications channel. When other nanites receive the communication, they transmit the information directly into the brain of their host.

Each set of chatter nanites is keyed to only communicate with certain other chatter colonies, or with other computer systems. Those without the chatter nanoaugmentation can communicate and receive communications from those with the chatter nanoaugmentation through the computer system.

When a character is injected with the chatter nanoaugmentation, he must spend 30 minutes practicing so that ambient thoughts do not interfere with the communications.

Doppelganger (TL11): A devious nanoaugmentation popular with criminals, the doppelganger nanoaugmentation acts as a dynamic plastic surgery system that alters the physical appearance of its host. The nanoaugmentation can change the hair and eye colour of a character instantly and, if desired, can reconfigure the bone structure and actual facial appearance of a character in thirty minutes. Reconfiguring the bone structure and facial features of a character are excruciatingly painful. Most doppelganger colonies release anesthetics before and during the process to eliminate or reduce some of the pain. A doppelganger colony can change the character's features any number of times, though each time requires 30 minutes of transformation time and another 30 minutes of recovery time. A character that has a doppelganger nanocolony transform his physical features suffers a -2 penalty on all INT and CHA based skill checks for the 1 hour of transformation and recovery time while the anaesthetic is functioning.

Micro Muscles (TL9): Often used to enhance soldiers and those involved in athletics, micro muscles are nanoaugmentations that attach themselves to muscles and enable them to perform beyond their normal limitations. Micro muscles not only enhance the strength of a creature injected with the nanites, but also allow the creature to push its muscles beyond their normal capacity. Only one micro muscle colony may function in a host at a time.

Any creature or character injected with micro muscles gains a +4 bonus to STR while the nanites are functioning. Additionally, the creature gains an additional +20% bonus on all Strength-based skill checks that involve endurance or long-term activity.

Prophecy (TL11): Another of the brain-altering nanoaugmentations, prophecy allows the character to receive visual and audio data from a remote source. Prophecy nanocolonies link to a computer system that receives images and video from multiple sources and funnels the information directly to the nanocolony. A character can be fed images from other locations, giving her access to

everything from security camera locations to computer representations of terrain. Like chatter, prophecy is often used on soldiers in the field to transmit dynamic battlefield representations directly into a soldier's mind. Additionally, prophecy is used to give mission briefings on the fly. Prophecy nanites cannot record or transmit data, however, and only act as receivers of information from the remote computer system.

Soullink (TL10): Pilots and drivers that want greater interaction with their vehicles frequently seek out soullink injections. The soullink nanites connect the mind of a character directly to the vehicle, Starship, or Mecha the character is currently piloting. The mind of the pilot directly links to the vessel, melding his consciousness with it. The pilot manoeuvres the vessel as though it were an extension of his body. In combat, this nanoaugmentation allows the pilot to know when and where the vessel sustains damage; he also knows the severity of the damage.

An unfortunate drawback to this link between pilot and machine is that if the vessel's onboard computer system suffers trauma, such as when it takes damage, the pilot's mind often suffers damage as well. Whenever a soullinked vessel suffers damage that affects the computer systems, the soullinked pilot must make a Luck roll (POWx5%) or lose 1d4 POW.

A character with this nanoaugmentation gains a +40% bonus on Pilot or Drive checks while piloting a soullinked vessel. This nanoaugmentation works with only those vessels that support soullink technology.

20/20 (TL9): One nanoaugmentation that can be incredibly useful for scouts and investigators is the 20/20 nanocolony. By attaching to and enhancing sensitivity of a creature's optic nerves, the 20/20 nanites improve the creature's vision. One of the most common consumer nanotech injections, 20/20 corrects eye problems such as nearsightedness and astigmatism. A creature injected with 20/20 nanites immediately gains a +40% bonus on all Spot and Search checks involving vision.

Watchdog (TL10): Often used in medical situations as well as in space exploration, the watchdog nanoaugmentation is a catchall phrase used to describe nanocolonies that monitor the health condition of a creature. Watchdog nanites monitor everything from heart rate and blood pressure to brain activity and the purity of air being taken into a host's lungs. Hospitals and other medical facilities often inject their patients with watchdog nanocolonies to monitor vital signs and watch for early warning signs of illness relapses or other medical problems. Additionally, organizations involved in space exploration often use the nanoaugmentation to monitor the vital signs of their explorers in remote regions of space. Watchdog nanocolonies can be linked to computer systems to monitor and report data automatically; however, a watchdog nanocolony cannot take action to heal or prevent damage to a host in the event of a problem with the host body's physiology.

Nanolife

After a society creates artificial intelligence, nanomachines become far more than simply computer-controlled microscopic machines. Many argue that nanites become microscopic life forms, and that nanocolonies are hive minds, with the nanites behaving in much the same way as insects. This raises the issue of whether or not nanites can be controlled, especially if their programming can be overcome by their artificial intelligence. In some cases, nanolife takes on an agenda of its own, and it is often in these circumstances that catastrophic turns of events bring entire civilizations down. Additionally, moral questions are raised when the creation of new nanotechnology mirrors the creation of new life, and doubly so for the termination or destruction of nanocolonies.

CHAPTER 21: Mutants and Mutations

Species evolve, changes are made to individuals in small ways that are passed on to their descendants so those changes become permanently fixed in the genome of the species. However, what happens when evolution is forced? What happens when the changes to individuals are large not small? Individuals who have had major changes to their genomes are called Mutants and the changes to their genomes are called Mutations.

Mutations can be caused in many ways. Various types of radiation fields cause mutations as do some poisons and diseases. Some aliens can introduce changes in populations. Some planetary environments cause mutations and some alien species have inbuilt mechanisms causing them to mutate.

Some mutations are advantageous, conferring some kind of advantage on the mutant, others are disadvantageous and confer some disadvantage and others are neutral. Many disadvantageous mutations cause physical, mental or psychological disabilities.

CHAPTER 22: Matter Replication

Matter Replication

The ability to create any object from seeming nothingness is a common theme in science fiction. Known as matter replication, the process is the computerized creation of an object where no such object existed before. Essentially, matter replication allows for an object to be willed into existence through the application of technology.

Matter replication is not discovered until TL10 and typically is not perfected until TL13, when manipulation on the atomic level becomes truly practical. Matter replication is an incredibly precise process that requires not only detailed blueprints for an object (down to the molecular level) but also the ability to recreate that object in some fashion.

Matter replication is usually accomplished by machines known simply as replicators. A replicator device combines powerful computers that store massive amounts of blueprints for various objects. These computers have a catalogue of millions of objects and a detailed plan for replicating each one. Specialized replicators only replicate certain objects within a category, such as food or weapons, eliminating the need for too diverse a catalogue (which takes up massive amounts of memory storage). Once the blueprint for the desired object is located, the replicator triggers whatever recreation mechanism is in place (see below) and produces it within a matter of minutes.

Matter replication usually raises issues that fundamentally change a society. With matter replication, hunger is almost instantaneously eliminated since foods can be reproduced instantaneously without the time and effort of planting, tending, and harvesting. The laws of supply and demand sometimes cease to apply since any object in a replicator's catalogue can be duplicated as many times over as desired. Occasionally, all concepts of personal wealth vanish because anyone can have any object he or she desires simply by replicating it. Some governments restrict the use of replicators to prevent malcontents and rebels from arming themselves with replicated weapons, and some societies keep a tight rein on all replicators to prevent abuse. These are a few of the issues raised by the advent of matter replication, but are among the most significant.

Obtaining a replicator is easy in some civilizations and difficult in others. Societies that have abandoned the concept of wealth accumulation might make replicators easily available, while societies that tightly monitor replicator technology may not make them available to the public at all. Depending on the setting, replicators may be either abundant and cheap or rare and expensive. The GM determines what role matter replication takes in a society and how readily replicators can be found.

Modern Alchemy

One source of matter replication is reminiscent of the ancient technique known as alchemy. Replicators that rely on alchemy as their primary means of producing new objects transform one element into another to create the final object. These replicators require a basic object to transform; in most cases, the object to transform must have the same mass as the desired object. This type of replication relies heavily on the science of cold fusion and the ability to alter the most basic building blocks of matter. This form of replication is one of the earliest discovered and requires the most effort to function.

From A Lump Of Clay . . .

Another type of matter replication transforms a substance known as protomatter into the desired object. In many respects, protomatter resembles the basic shapechanging nanocolony known as UFog (see above) because it can be transformed into almost any object. Protomatter is a generic base from which all other matter is replicated; it can be transformed and molded as the replicator's computer system sees fit with no need to transform one element into another. The use of protomatter is one of the most efficient forms of matter replication and has the beneficial side effect of being environmentally safe.

I'll Take Two

One of the simplest processes using matter replication is the duplication of an existing object. In fact, duplication machines are far more common in most settings than full-fledged replicators because they don't require the storage of massive amounts of blueprints. Replacing the databank of blueprints are advanced sensors that analyze the construction of an object and transform the collected data into a blueprint of the object. Once the scanning process is complete, the replicator produces a copy of the desired object just as quickly as creating it from a stored blueprint. The duplication machine does not store blueprints, and so each object must be scanned before duplication can occur.

The Breath Of Life

While matter replication can duplicate inanimate objects from the proper blueprint, creating a living being is another issue altogether. The complexity of a living being is far beyond that of even the most complicated machine and computer; attempting to recreate a living being using a replicator almost always meets with failure.

Moral and ethical concerns about creating new life aside, only the most advanced societies have developed technology capable of mapping out something so complex as the mind of an animal. Plant life duplication is somewhat simpler, but still complex, and duplicating animal life is a task that can result in horrible deformities if not perfected.

Something From Nothing

Almost incomprehensible to modern science, one final means of replication should also be considered. Creating an object literally from nothing is a concept that cannot fit into modern scientific understanding. The laws of conservation of energy and the idea that there is a finite amount of matter in the universe dictate that creating an object without a basic set of materials is impossible. However,

some incredibly advanced societies may be able to do just that, and matter replication without a basic material like protomatter might be entirely feasible and evidence of how far that society's technology is beyond all others.

The One And Only

In the case of matter duplication, there are very few minute differences between the original and the duplicated object. However, to help prevent counterfeiting and other deception, some replicators have built-in mechanisms for marking objects they create. One such mechanism is the replication tag; usually only visible at the molecular level, this tag does not alter the form of the replicated object, but marks the object as replicated and not created through conventional craftsmanship.

After only a short time, the marks that merely signify replication give way to marks that designate individual ownership. These "anti-theft" tags lead to criminals seeking to master the secrets of the molecular marks. Using techniques such as kidnapping, blackmail, or extortion, devious amoral masterminds circumvent the anti-counterfeiting and anti-theft mechanisms. Of course, the time and resources required mean that such circumvention is used only for the most important or expensive of items.

The next step in matter duplication advances the identity mark to a tracking mark that sends out specially coded transmissions indicating the item's location. Once again, this "foolproof" system enjoys only a brief sojourn of primacy before it, too, is foiled by the determined villain.

CHAPTER 23: Psionics

Psionics are super-normal mental abilities that allow a person to interact or change the world simply through the power of his mind.

Psionic Strength

Psionics are powered by the Psionic characteristic (PSI). This characteristic cannot be rolled or bought during character creation without the Referee's permission.

A character has a number of Psionic Strength points (PSPs) equal to his PSI. Using a Psionic talent costs a number of PSPs, temporarily reducing the character's total.

Recovering Psionic Strength Points: Expended Psionic Strength points are recovered at the rate of one point per hour, beginning three hours after the character last used a Psionic talent.

Institute Testing

Most people are Latent or Non-Operative and do not have any Psionic talent at all. Non-Operative characters have no Psionic talent but have some Psionic potential. Latent characters have the potential to awaken their Psionic nature and become Operant. Operants are called Psions.

The first step is testing a character's Psionic Nature. If a character does not already have an active Psionic ability, he must roll below his PSIx5%. A Critical means that he has an active Psionic ability. A success means that he is Latent and a Failure means he is Non-Operant. Latent Psionics may undergo Psionic Training in order to attempt to awaken Psionic abilities.

Training requires four months of work, and costs Cr. 100,000. As part of training, the character may attempt to learn any of the common Psionic talents on the Psionic Training table by making a Psionic Strength (PSIx5%) check. He may attempt the talents in any order, but suffers a -10% Penalty per Talent attempted. If a character learns a talent, he gains that talent at his PSI score. Latent Psionics must first awaken their Psionic Ability but each attempt takes a week and each further attempt is at a -10% Penalty. If a Latent Psionic has not managed to awaken his Psionic Ability after the course has finished he has not succeeded but may enrol on another course later on.

Talent	Bonus/Penalty
Awaken Psionic Abilities	+0
Telepathy	+40%
Clairvoyance	+35%
Combat Mind	+30%
Coercion	+25%
Telekinesis	+20%
Awareness	+15%
Teleportation	+0%
Precognition	-20%
Per previous talent acquisition check	-10%

Psionic Talents

There are several Psionic talents, each of which works like a skill for the powers in question. A character trained in the use of Psionics may develop his talents over time just as if they were normal skills. Unlike other skills, Psionic talents cannot be used untrained. The most common talents are:

- **Telepathy:** reading minds and mental communication.
- **Clairvoyance:** perceiving at a distance.
- **Combat Mind:** the ability to fight psionically
- **Coercion:** the ability to control other people's minds
- **Telekinesis:** mind over matter.
- **Awareness:** control over one's own mind and body.
- **Teleportation:** moving from one point to another instantly.
- **Precognition:** the ability to know the future

Each talent grants access to all of its powers – a character with Telepathy can use life detection, read surface thoughts or assault as the situation demands.

Using A Psionic Talent

To activate a talent, the Psion must make a skill check using the appropriate talent (Telepathy, Telekinesis, etc). He must also spend the listed number of Psionic Strength Points if he succeeds, or one point if he fails. If this cost brings him below zero PSPs, then any excess points are applied to his Hit Points as damage. A character with no PSPs cannot attempt to activate a power.

Using a talent in combat takes an action.

Many abilities are ranged. The Psionic Range table lists the number of points to project an ability out to a given range – these must be paid as well as any points to activate the ability. Each talent has a different set of costs, with the exception of Awareness – all Awareness abilities apply to the Psion only.

Each power can also be treated as a Speciality and can be recorded as such on the character sheet.

Talent	Power	Time	Difficulty	Cost (PSPs)
Telepathy	Life Detection	10–60 seconds	Easy (+40%)	1+Range
Telepathy	Passive Telempathy	10–60 seconds	Simple (+20%)	1+Range
Telepathy	Active Telempathy	10–60 seconds	Standard (+0%)	1+Range
Telepathy	Read Surface Thoughts	10–60 seconds	Standard (+0%)	2+Range
Telepathy	Send Thoughts	10–60 seconds	Difficult (-20%)	2+Range
Telepathy	Probe	1-6 minutes	Hard (-40%)	4+Range
Telepathy	Assault	1-6 seconds	Very Hard (-60%)	8+Range
Clairvoyance	Sense	10–60 seconds	Simple (+20%)	1+Range
Clairvoyance	Tactical Awareness	1–6 seconds	Standard (+0%)	2+Range
Clairvoyance	Clairvoyance	10–60 seconds	Standard (+0%)	2+Range
Clairvoyance	Clairaudience	10–60 seconds	Standard (+0%)	2+Range
Clairvoyance	Clairsentience	10–60 seconds	Difficult (-20%)	3+Range
Clairvoyance	Object Reading	10-60 seconds	Standard (_0%)	1+ Rounds
Clairvoyance	Sensitivity to Psychic Impressions	10-60 seconds	Difficult (-20%)	3+Range
Coercion	Attraction	10–60 seconds	Standard (+0%)	1+Range
Coercion	Charm Person	10–60 seconds	Standard (+0%)	1+Range
Coercion	Daze	10–60 seconds	Standard (+0%)	2+Range
Coercion	Distract	10–60 seconds	Standard (+0%)	2+Range
Coercion	Domination	10–60 seconds	Difficult (-20%)	3+Range
Coercion	Suggestion	10–60 seconds	Standard (+0%)	2+Range
Coercion	Tailor Memory	10–60 seconds	Difficult (-20%)	3+Range
Combat Mind	Brain Lock	10–60 seconds	Difficult (-20%)	3+Range
Combat Mind	Mental Blast	1-6 seconds	Standard (+0%)	Range
Combat Mind	Mind Darts	1-6 seconds	Standard (+0%)	Range
Combat Mind	Electric Charge	10–60 seconds	Difficult (-20%)	3+Range
Combat Mind	Natural Armour	1-6 seconds	Standard (+0%)	Range
Combat Mind	Negate Psionics	10–60 seconds	Difficult (-20%)	3+Range
Telekinesis	Telekinesis	1-6 seconds	Standard (+0%)	Strength+Range
Telekinesis	Flight	1-6 seconds	Standard (+0%)	5
Telekinesis	Telekinetic Punch	1-6 seconds	Standard (+0%)	1+Range
Telekinesis	Microkinesis	10–60 seconds	Difficult (-20%)	3
Telekinesis	Pyrokinesis	10–60 seconds	Difficult (-20%)	3+Range
Awareness	Suspended Animation	1-6 minutes	Standard (+0%)	3
Awareness	Enhanced Awareness	1-6 seconds	Standard (+0%)	1
Awareness	Psionically Enhanced Strength	1-6 seconds	Standard (+0%)	Boosted STR
Awareness	Psionically Enhanced Constitution	1-6 seconds	Standard (+0%)	Boosted CON
Awareness	Regeneration	10-60 seconds	Hard (-40%)	Amount Healed
Awareness	Body Armour	1-6 seconds	Hard (-40%)	Amount Blocked
Teleportation	Teleportation	1-6 seconds	Standard (+0%)	SIZ Teleported
Teleportation	Self Teleportation	1-6 seconds	Hard (-40%)	SIZ Teleported
Precognition	Tactical Prescience	1-6 seconds	Difficult (-20%)	1
Precognition	Vision of the Future	10-60 seconds	Difficult (-20%)	3

Telepathy

Telepathy is the talent of mind-to-mind contact. It is subtle by nature but can also be used to bluntly crush the wills of those who oppose the telepath.

Detect Life

The most elementary form of telepathy is the ability to detect the presence of other minds. Life detection enables a character to sense the presence of other minds, the number of minds present, the general type of minds (animal, human, and so on) and their approximate location.

Life detection is reasonably sophisticated, and can distinguish intelligent beings from bacteria or unimportant animals in the area. It functions best at detecting intelligent minds. Shielded minds are undetectable (whether the shield is natural or artificial in origin). If an individual whom the telepath knows is ‘life detected’ he or she will be recognised.

Detect Psions

The Psion detects Psionic auras. The amount of information revealed depends on how long the Psion studies a particular area or subject.

1st Round: Presence or absence of Psionic auras.

2nd Round: Number of different Psionic auras and the strength of the strongest aura.

3rd Round: The strength and location of each aura. If the items or creatures bearing the auras are in line of sight, the Psion can make a Detect Psions roll to work out what powers other Psions may have, although this may be opposed by the other Psion's Shield ability.

Psionic areas, multiple disciplines, or strong local Psionic emanations may confuse or conceal weaker auras.

False Sensory Input

The Psion has a limited ability to falsify one of the target's senses. The subject thinks he or she sees, hears, smells, tastes, or feels something other than what his or her senses actually report. The Psion can't fabricate a sensation where none exists, nor make the target completely oblivious to a sensation, but the Psion can falsify the specifics of one sensation for different specifics. The Psion can switch between senses he or she falsifies round by round. A Psion can't alter a sensation's "intensity" by more than 50%. If this power is used to distract an enemy Psionic character who is attempting to manifest a power, the enemy must make a Concentration roll.

Telepathy

The communication of emotions and basic feelings is accomplished by telepathy. This ability serves well in the handling of animals and beasts of burden but may also be applied as a psychological weapon against humans.

Active telepathy is the sending of emotions such as love, hate, fear, and others may influence other beings (although not necessarily in the manner desired). Telepathy also allows the emotions and feelings of others to be read by a character. The Level of Success of the check determines the strength of the projected emotion.

Telepaths will always recognise when someone is using active telepathy to bend their emotions but others will not. The change in mood may be dramatic and inexplicable but most people will simply ascribe it to the mercurial nature of human emotions. Shielded individuals are immune to telepathy as they are all other Telepathy powers.

Read Surface Thoughts

The most widely known feature of Telepathy is the ability to read the thoughts of other individuals. Only active, current thoughts are read by this ability, with the subject (if himself not a telepath) unaware of the activity. Individuals with telepathic ability cannot be read due to the presence of their natural shields, unless they willingly lower their shielding. The Effect of the check determines the clarity of the telepath's perceptions.

Send Thoughts

Complementary to the ability to read surface thoughts is the ability to send thoughts to others. Such individuals need not themselves be telepathic to receive such thoughts. Telepathic individuals are normally open to such transmissions, but may close their shields against them if they become bothersome or threatening.

Probe

The application of great Psionic strength will enable a telepath to delve deep into the mind of a subject and to then read his innermost thoughts. Questioning can be used in the procedure to force the subject to divulge specific information. The prober can easily determine deliberate untruths told (thought) by the subject. Probe cannot be used against a shielded mind. Again, the Effect of the check determines the clarity of the telepath's perceptions.

Assault

Violence may be dealt by a telepath. An unshielded mind, when assaulted telepathically, is rendered unconscious immediately and the character suffers 2d6 damage. Unlike normal damage, assault damage is applied to Psionic Strength (if the victim has it), then Intelligence, then Hit Points. Psionic Strength and Hit Points return as normal. Intelligence returns at the rate of one point per day.

When a shielded mind is assaulted the two telepaths make opposed Telepathy checks. If the attacker wins, the victim suffers damage as normal.

Sending

The Psion contacts a particular individual with whom he or she is familiar and sends a short message of twenty-five words or less. The target recognizes the Psion if it knows him or her. It can answer in like manner immediately. The target is not obliged to act on the message in any way.

Shield

All telepathically able characters learn how to create a mental shield which protects the mind against unwanted telepathic interference. Shield is automatically in force at all times and requires no Psionic Strength point expenditure to maintain. However, while a telepath has his shield up he cannot use any telepathic powers either. Shield can be lowered to allow telepathic contact or to use telepathic powers – this takes a mere thought (a Combat action in combat).

Coercion

Coercion is the ability to control the minds of others

Attraction

The Psion plants a compelling attraction in the mind of the target. The attraction can be toward a particular person, an object, an action, or an event. The power's target takes reasonable steps to meet, get close to, attend, find, or perform the object of its implanted attraction. For the purposes of this power, "reasonable" means that while fascinated, the target doesn't suffer from blind obsession. The target will not undertake obviously self-destructive actions. The subject can still recognize danger, but will not flee unless the threat is immediate. If the Psion makes the target feel an attraction to the Psion, the Psion can't command the subject indiscriminately, although he or she will be willing to listen to the Psion (even if the subject disagrees) in which case this power grants the Psion a +40% bonus to CHA skills when dealing with the subject.

Charm Person

Success in this makes the target the ally of the psion. If the target is currently being threatened or attacked by the psion or allies, however, the subject receives a +25% bonus on his or her resistance.

The power does not enable the Psion to control the charmed person as if he or she was an automaton, but he or she does perceive the Psion's words and actions in the most favorable way. The Psion can try to give the subject orders, but the Psion must win an opposed Charisma check to convince the subject to do anything he or she would not ordinarily do. (The Psion can't try again.) A charmed person never obeys suicidal or obviously harmful orders. Any act by the Psion or his or her apparent allies that threatens the charmed person breaks the power. Note also that the Psion must speak the person's language to communicate his or her commands.

Daze

This power clouds the mind of a target so that he or she takes no actions. The dazed subject is not stunned (so attackers get no special advantage against him or her), but the subject can't move or take actions.

Distract

The Psion causes the target's mind to wander, distracting him or her. Subjects of Distract make all skill rolls at a -20% penalty.

Domination

The Psion can control the actions of a character. The Psion establishes a telepathic link with the target's mind. If the Psion and his or her subject share a common language, the Psion can generally force the subject to perform as he or she desires, within the limits of the subject's abilities. If no common language is shared, the Psion can only communicate basic commands. The Psion knows what the target is experiencing but does not receive direct sensory input from him or her.

The target resists this control, and if forced to take an action that goes against his or her nature he or she receives a chance of rolling off the Domination. Self-destructive orders give a +60% bonus to any chance of rolling the Dominate off.

Once control is established, the range at which it can be exercised is unlimited. The Psion need not see the target to control him or her.

Suggestion

The Psion influences the actions of the target by suggesting a course of action (limited to a sentence or two). The suggestion must be worded in such a manner as to make the action sound reasonable. The suggested course of action can continue for the entire duration. If the suggested action can be completed in a shorter time, the power ends when the subject finishes what he or she was asked to do. The Psion can instead specify conditions that will trigger a special action during the duration. If the condition is not met before the power expires, the action is not performed.

A very reasonable suggestion causes the resistance to have a substantial penalty, at the GM's discretion.

Tailor Memory

The Psion inserts a memory of his or her own choosing in the target's mind. The Psion can insert a memory of up to 1 round duration for every 25% in Coercion and Tailor Memory. The Psion chooses when the fake event occurred any time within the last week. The Psion can't read the target's memory with this power.

Tailoring a memory is tricky, because if it is not done right the target's mind recognizes it as false. Dissonance occurs if a Psion inserts a memory that is out of context with the target's past experience. The target gains a bonus of +10% to +40% on his or her resistance, depending on the magnitude of dissonance created by an out-of-context memory, as determined by the GM. Likewise, inserting a memory of the target taking an action against his or her nature grants a +10% to +40% bonus, depending on the type of memory inserted. Inserting a memory that couldn't possibly be true causes the power to fail automatically.

Clairvoyance

Clairvoyance is the general talent which allows a person to sense events at some location displaced from the viewer. There are several levels of clairvoyant ability. Clairvoyance abilities allow eavesdropping activities as well as spying and detection-free exploration of situations. While telepathic life detection will determine the presence of living minds in a closed room, for example, sense will determine if a room is occupied or empty. Clairvoyant activity cannot be sensed by others, including by other Psionic individuals.

Sense

The basic ability to sense things at some point in the distance. A character will become aware of the most rudimentary characteristics of a location when applying this ability. For example, the Referee will give a basic description, without detail: ‘a room containing four dogs’ or ‘an open plain with a tree, and no animals or men present’. The clairvoyant character must state the range at which he is applying his talent, and will generally sense the most interesting or important feature at that range. The Effect of the check determines the level of accuracy and clarity.

Tactical Awareness

With this ability, the character can perceive dangers and foes around him using his clairvoyant abilities. This enhanced spatial perception allows him to ignore the effects of darkness, smoke, fog or other environmental effects that impede vision. He may also detect hidden foes within range. The Effect of the check how long the enhanced awareness lasts in rounds.

Clairvoyance

This specific ability allows actual remote viewing of a situation at some displaced point. Rather than the ‘snapshot’ that sense gives, clairvoyance allows the psion to observe as if he was there in person. The clairvoyant character must state the range at which he is applying his talent. The Level of Success of the check determines the level of detail perceived and the duration in rounds the vision can be maintained for.

Clairaudience

This ability is identical to clairvoyance, with the exception that it allows hearing instead of seeing.

Clairsentience

This power combines the effects of clairvoyance and clairaudience. The character is capable of both seeing and hearing a specific situation.

Object Reading

This power provides information about an object’s previous owner. The amount of information revealed depends on how long the Psion studies a particular object.

1st Round: Last owner’s gender.

2nd Round: Last owner’s age.

3rd Round: Last owner’s appearance.

4th Round: Last owner’s primary allegiance (if any).

5th Round: How last owner gained and lost the object.

6th+ Round: Previous-to-last owner’s gender, and so on.

An object without any previous owners reveals no information. A Psion can continue to run down the list of previous owners and learn details about them as long as the power’s duration lasts. If the Psion reads the same object again, he or she doesn’t pick up where he or she left off in the list of previous owners.

Sensitivity to Psychic Impressions

The Psion gains historical vision in a given location. The types of events most likely to leave psychic impressions are those that elicited strong emotions. Everyday occurrences leave no residue for a Psion to detect. The vision of the event is dreamlike and shadowy. The Psion does not gain special knowledge of those involved in the vision. A Psion can sense one distinct event per round of concentration, if any exist at all. This sensitivity extends into the past a number of years equal to 100 x the Psion’s PSI characteristic.

Combat Mind

Sometimes Psions have to fight and those with Combat Mind are particularly suited to fighting as they have combat powers.

Brain Lock

The target’s higher mind is locked away. He or she stands mentally paralyzed, unable to take any actions. The brain locked subject is not stunned (so attackers get no special advantage). He or she can defend him or herself against physical attacks (Dexterity bonus to Defence still applies), but otherwise can’t move, and can’t use Psionic powers.

A brain locked flyer can’t flap its wings and falls. A swimmer can’t swim and may drown.

Mental Blast

The Psion delivers a telepathic strike that stuns the target for 3d4 rounds.

Mind Darts

The Psion creates a flurry of mental bursts that deal 3d6 points of damage to a single target within range.

Electric Charge

The Psion creates a static charge that deals 2d6 points of electrical damage with his or her touch.

Natural Armour

This power adds 4 to his natural armour. Natural armour does not reduce skills or movement. This is compatible with other effects that increase armour.

Negate Psionics

Negate Psionics can be used to end ongoing powers that are manifested on a creature or object, to temporarily suppress the Psionic abilities of a Psionic item, or to end ongoing power (or at least their effects) within an area. A negated power ends as if its duration had expired. Negate Psionics can negate (but not counter) the ongoing effects of supernatural abilities as well as Psionic powers. Negate Psionics affects spell-like abilities just as it affects powers (and spells). A Psion can't use negate Psionics to undo the effects of any power with instantaneous duration.

The Psion chooses to use negate Psionics in one of two ways: a targeted negation or an area negation:

Targeted Negation: One object, creature, or power is the target of the power. The Psion makes a negation check against the power or against each ongoing power currently in effect on the object or creature in an opposed contest.

If the object that targeted is a Psionic item, the Psion tries an opposed contest with the item's Psix5%. If the Psion succeeds, all the item's Psionic properties are suppressed for 1d4 rounds, after which the item recovers on its own. A suppressed item becomes non-Psionic for the duration of the effect.

The Psion automatically succeed on the negation check against any power that he or she manifested his or herself.

Area Negation: The power affects everything within a 10-meter radius.

For each creature that is the target of one or more powers, the Psion makes a negation check against the power with the highest Psion level. If that fails, he or she makes negation checks against progressively weaker powers until he or she negates one power (which discharges the negate Psionics so far as that target is concerned) or fails all his or her checks. The creature's Psionic items are not affected.

For each object that is the target of one or more powers, the Psion makes negation checks as with creatures. Psionic items are not affected by area negations.

For each ongoing power with an area centred within the negate Psionics target area, the Psion makes a negation check to negate the power.

For each ongoing power whose area overlaps with that of the negation, the Psion makes a negation check to end the effect, but only within the area of the negate Psionics.

Telekinesis

Telekinesis is the talent which allows objects to be manipulated without physically touching them. Any manipulation is treated as if the person was physically handling the item but physical danger, pain, or other stimuli are not present. Telekinesis includes a limited amount of sensory awareness, sufficient to allow actual intelligent manipulation.

Telekinesis

This basic form of the talent allows the character to move objects at range. The number of points spent determines the Strength of the Telekinesis with each point moving 1 SIZ or 5 Kgs.

Flight

By applying telekinesis to his own body the character can fly, or at least levitate over short distances. The character can fly for a number of rounds equal to the Effect of the check at a speed of six metres per round.

Telekinetic Punch

Telekinesis can be used as a direct attack, smashing the foe with a blast of telekinetic force. The damage inflicted is calculated by the 1D6 + Damage Modifier given for twice the character's PSI. So, someone with PSI 15 does 1D6+1D2. The Psion may choose this to be lethal or stunning damage.

Microkinesis

This more challenging form of telekinesis allows for fine manipulation of very small or even microscopic objects. A telekinetic can use this power to pick locks, perform microsurgery, sabotage a computer system and so forth. The range is always Personal.

Pyrokinesis

By exciting the substance of an object the character can raise its temperature, possibly even causing it to burst into flames.

Pyrokinesis Effect	Target...
Failure	Becomes warmer, but is undamaged.
Success	Is burned, suffering 1d6 damage.
Critical	Suffers 2d6 damage and may burst into flame if flammable.

Awareness

Awareness is the Psionic talent which allows control of one's own body. Awareness powers never have a range – they are used only on yourself.

Suspended Animation

Personal body activity may be suspended for varying periods of time. A character with Awareness may enter a suspended animation state (similar to cold sleep but without the intrinsic danger of death) by willing himself into it. Such a state continues for 7 days without need for food or water and with minimal air needs. Such a person could effectively travel in a low passage berth without actually undergoing cold sleep and its dangers. Suspended animation may be stopped at any time previous to its duration expiring, provided external stimulus is given to awaken the sleeper (such as a friend or a mechanical alarm).

Enhanced Awareness

By focussing his mind, the character can improve his concentration and ability to perform complex tasks. While under the effects of enhanced awareness, the character may add his Enhanced Awareness critical chance ($1/10^{\text{th}}$ of his skill) to any skill checks. Enhanced awareness lasts until the character fails a skill check or sleeps.

Psionically Enhanced Strength

Psionic Strength points may be converted to normal STR points on a temporary basis. The character makes the commitment, reduces his Psionic Strength by a specific number of points, and increases his physical STR characteristic by that number. In no case may the number of STR points gained exceed the character's Awareness / 10, and STR may not be increased beyond the character's racial maximum. Psionically enhanced strength reaches its new level immediately, remains at that peak for ten minutes, and then declines at the rate of 1 STR point per minute until the normal STR level is reached.

Psionically Enhanced Constitution

Psionically enhanced endurance works in exactly the same way as Psionically enhanced strength except the characteristic boosted is CON rather than STR.

Regeneration

Wounds and injuries may be healed rapidly. Strength, Dexterity and Endurance lost to injury, disease, poison or other trauma may be healed by the application of this ability, exchanging one Psionic Strength point to regenerate one characteristic point. Any amount of Psionic Strength may be expended with a single use of regeneration but it may not be used again until all expended Psionic Strength is recovered. Regeneration may also be applied to the growing of new limbs or organs to replace lost ones or to heal unrecovered old wounds suffered prior to Psionic training. Regeneration may not be used to counteract aging. Awareness is not capable of affecting others and may not be used for healing or enhancing other characters.

Body Armour

By channelling Psionic strength to his skeletal structure and boosting his healing rate, the character can enhance his ability to absorb damage. Body armour lasts for a number of rounds equal to the Effect of the check and provides an armour rating equal to the number of Psionic Strength points expended. This armour stacks with worn armour as normal.

Teleportation

Teleportation is a talent which allows effectively instantaneous movement from one point to another point without regard to intervening matter.

Teleportation

This is the ability to teleport an object. The object may be small or large, although its size is limited by the base cost of the object's SIZ in PSPs. Teleporting an object held by another person is Difficult (-20%), Teleporting an object that the Psion cannot see is Hard (-40%) and Teleporting an object that is inside another object is Very Hard (-60%). It is possible to Teleport someone's heart away from their body, for example, but this would incur a Very Hard and a Difficult penalty, resulting in a -80% Penalty. Generally, Teleporting anything that isn't Line of Sight is Difficult (-20%). Teleporters are considered very dangerous by most cultures and are heavily regulated.

Self Teleportation

Self Teleportation is the ability to teleport yourself. Teleporting without any equipment or clothing uses the Teleportation talent with the Psionic Strength DM as a modifier. The act of teleporting takes 1–6 seconds (an action in combat) and costs the Psion's SIZ plus whatever the Psion spends on range.

Teleporting with up to 10 kg of equipment or clothing is Hard (-40%) and costs 2 + SIZ + range Psionic Strength points.

Teleporting with up to 500 kg of equipment is Very Hard (-60%) and costs 4 + SIZ + range Psionic Strength points.

Teleportation always involves the movement of one's body to another location. Independent items or other individuals may not be moved. Teleportation involves certain requirements in order to be accurate, and to insure obedience of the laws of physics.

Preknowledge of Destination: A character must always have a mental image of his or her destination before teleporting. This mental image is acquired by personally visiting the location first (or viewing it from a distance), having the mental image implanted in one's mind (by telepathy) by another person who has visited the destination, or by viewing the location through clairvoyance. The key to remember is that someone has to actually view the location – recorded images are not enough.

Energy and Momentum: Teleportation involves serious restrictions on movement in order to assure the conservation of energy and momentum.

On planetary surfaces, teleportation is restricted to jumps of Very Distant range or less. Jumps at Very Distant range involve disorientation for a period of 20 to 120 seconds (2d6 x 10) after arrival. This restriction results from the law of conservation of momentum: on a rotating planet, two locations will have different rotational speeds and directions. A jump from a point on the Earth's equator to one of its poles would result in a total velocity difference between the character and his surroundings of over 3300 kph, which would lead to a messy death in short order.

Teleporting to or from vehicles travelling at high speed can also result in energy gains or losses. When teleporting into, onto or out of a fast-moving vehicle the Psion takes damage as if the vehicle had rammed him at its current speed.

Changes in altitude (actually all movement to locations of differing gravitational potential) will result in potential energy changes, manifesting themselves as changes in body temperature. A jump of one kilometre straight down will result in a temperature increase of 2.5 degrees Celsius; this is sufficient to cause extreme fever, brain damage, and even death. A jump up will cool the body by the same amount, with equally serious results. To be safe, a jump may not involve an elevation change of more than 400 meters, and multiple jumps should not involve a cumulative elevation change of more than 600 meters in one hour. These problems may be gotten around through the use of technological devices: energy compensators, heated suits, and other means. Characters may feel driven to invent such materials, commission their invention, or seek them out from those who already have them.

Precognition

The ability to know the future in anything more than a random wild manner is very rare. Seers and prophets have been revered and reviled in equal measure in the past and also will be in the future.

Tactical Prescience

The Psion gains a +20% bonus on his or her attack and defensive rolls for the duration of the power as the Psion sees what is about to happen and can react accordingly.

Vision of the Future

The Psion sees a sudden vision of the future. This vision might be short or long, about himself, a companion or even a stranger and helpful or not. If the Psion attempts to gain a Vision of the Future deliberately, then he must make a Hard (-40%) Precognition (Vision of the Future) roll.

Psionic Technology

Psi-Drugs (TL 8+): These drugs restore Psionic Strength if taken when the character has already spent Psionic Strength Points, or temporarily increase the character's Psionic Strength if taken when he is at full Psionic Strength.

Drug	TL	PSP Restored	PSI Boosted	Cost (Cr.)
Standard	8	3	2	1,000
Double	9	6	4	4,000
Special	10	9	6	10,000

A character who takes more than one dose of Standard or Double Psi-Drug, or a single dose of the Special drug must make a CONx5% roll, with a -10% Penalty per dose of Psi-drug taken in the last week (not including the one just taken). If the check is failed the character falls ill with a serious fever, suffering 3d6 damage and permanently reducing his PSI by one.

Inhibitor Drug (TL 9): Psionic inhibitors dampen the brain's ability to generate psychic effects. A character who takes (or, more often, is forcibly injected with) an inhibitor drug suffers a -40% Penalty to all Psionic rolls and cannot regain Psionic Strength points. Each hour the character may make a CONx5% roll to roll off the effects of the drug with a +10% Bonus for every previous attempt. Inhibitor drugs have no effect on non-Psionic individuals. The drugs cost Cr. 500 per dose.

Psionic Shield (TL 12): Any armour incorporating a helmet or hood can be outfitted with a Psionic shield, blocking Telepathy. Unlike the Telepathy power shield a technological shield is invulnerable to assault and blocks sent thoughts. It cannot be lowered without removing the helmet or hood containing the shield. Cr. 40,000.

Buildings and vehicles can also be Psionically shielded, but this is much more costly, increasing the cost by 10%.

Teleportation Suit (TL 12): This device can be integrated into a suit of armour or worn as a form-hugging body-suit. It rapidly cools or warms the body after a teleport, minimising the damage from sudden energy gains or losses. The suit costs Cr. 50,000 and allows a character to jump up to 600 metres up or down in a single teleport, or up to ten kilometres in a single hour when using successive jumps.

Psionic Interface (TL 14): Any weapon or technological device can be outfitted with a Psionic interface. A character using a device with a Psionic interface can add his PSI to his skill when using the weapon or device; a character without Psionic ability gains no

benefit. The character must either touch the device or use telekinesis to interact with it at range. Adding a Psionic interface increases the cost of the device by 20%.

Psionic Enhancer (TL13):

A Psionic Enhancer normally has a PSI Rating which is added to the Psion using the Psionic Enhancer. At TL13, such Enhancers tend to be large, bulky items that involve direct neural interfaces using needles injected deep into the brain. At TL14 the Enhancers become more portable and at TL15 a Psionic Enhancer may well take the form of a circlet or physical implant. Cost: Cr PSI rating x 1,000,000

CHAPTER 24: Equipment

Any Sci-Fi game is defined to a certain extent by its equipment. Star Trek has its Tricorder and Holo-Deck, Red Dwarf has Holograms and mile-long spaceships and Doctor Who has Sonic Screwdrivers. The equipment lists here are very generic and are available at different Tech Levels. They do not include Weapons or Armour as they are detailed elsewhere.

Each item is listed with the Technology Level needed to manufacture it, its mass (in kg) and its cost. If an item's mass or cost is not listed, then its mass or cost is negligible.

Modifications

There are some standard modifications that can be made to any equipment.

Compact (TL6): By eliminating wasted space and using smaller components, some engineers are capable of producing equipment far smaller than its standard counterparts. Any piece of equipment that makes use of the compact gadget is half its normal size (mass/ENC). Price: Cr 50

Miniaturized (TL7): By eliminating wasted space and using microscopic components, some engineers are capable of producing equipment vastly smaller than normal. Anything that has been miniaturised is one-fifth its normal ENC/mass. Price: Cr 200.

Multiple Use Item (TL6): The multiple use item modification allows the character to integrate the function of two separate items into a single device. When selecting the multiple use item modification, choose a second object. That object is integrated into the base object and can be used at any time. Additionally, you must choose whether or not the alternate object may be physically separated from the base object or not at the time of purchase. This modification may be selected multiple times, each time adding a single additional piece of equipment to the base object. Price: Cost of both pieces of equipment + Cr 50.

Paint-On LCD (TL8): One of the most revolutionary advances in computer technology during the Information Age and beyond is the paint-on LCD modification. This allows almost any surface to be used as a computer display, as it grafts the colour-changing pixels common to all display devices onto another surface. Any piece of equipment with the paint-on LCD modification can be used as a display for any piece of computer or communications equipment. Additionally, weapons and armour may make use of the paint-on LCD gadget at the normal cost, but gain no special benefit from the modification other than being able to display data. Cost: Cr 500

Satellite Datalink (TL8): At the dawn of the Information Age, the value of knowledge and accurate intelligence became a crucial aspect of warfare. The ability to connect to a global communications network was critical to the success of any army, as intelligence travelled at the speed of light across the globe to command centres safe behind defended battle lines. The satellite datalink modification enables any piece of equipment, from computer to communication device to heads-up display, to connect to a global (or, if in place, galactic) satellite network and communicate with computer systems in far remote areas. Cost: Cr200

Storage Compartment (TL6): The ability to store and carry small items in a safe place can sometimes be of critical importance. The storage compartment modification accomplishes just that, incorporating an empty space where other objects can be carried with relative ease. Each storage compartment modification allows the wearer to carry two small items in a container built into the piece of equipment. This modification may be taken multiple times, each time providing another compartment where small items may be carried. Clearly, the number and size of compartments depend on the size of the original object - this should not be abused. Cost: Cr 50.

Techno-Organic Makeup (TL 11): Though the technology of Earth is based on electronics and mechanics, some alien cultures may have developed technology based on living organisms working in harmony for an intended purpose. Additionally, advanced civilizations may make use of certain biological forms of technology integrated with their own mechanical devices to form a techno-organic hybrid capable of performing certain tasks with increased efficiency. Equipment with the techno-organic makeup gadget is composed of living tissue or a biological/mechanical hybrid material. Unlike normal equipment, those with this modification heals itself at a rate of one hit point per hour when damaged. Additionally, equipment with this gadget is susceptible to diseases and poisons specifically designed to target techno-organic material. Cost: Item price x 10.

Ultralight Composition (TL8): The development of new and experimental alloys constantly allows technology to advance to the point where once bulky and heavy equipment become as easy to carry as lighter models. Any armour with the ultralight composition modification weighs significantly less than similar pieces of armour and is more easily used and worn and has its ENC by 1 per location. Other equipment with the ultralight modification has ENC reduced by 1. Cost: Item Price x 2

Standard Equipment

Personal Display Equipment

Display Glasses (TL8): A logical advancement of video display and VR technology, display glasses provide on-the-go monitors that can be hooked up to everything from computer systems to televisions and other audiovideo equipment. Each pair of display glasses looks like a darkened pair of sunglasses and features one or two earpieces that wrap around the back of the ear. The glasses are semitransparent and allow the wearer to see both the display and the user's surroundings simultaneously.

Heads-Up Display (HUD) (TL8): One of the most valuable innovations in portable information technology is the personal heads-up display (HUD). A HUD is composed of optical sensors for taking in data and a display device that projects an overlay in the user's field of vision. A HUD also typically incorporates some sort of communications link or data link to allow another person or computer to see what the wearer sees and transmit valuable information back to the HUD.

Over the years, the HUD display device transforms from a simple eyepiece worn on a headband to contact lenses that can display data, all the way up to a neural interface that simply taps into the bearer's optical nerve and tampers with the signals sent to the brain. The standard HUD can be used to highlight the outline of a person or object on voice command, granting a +2 bonus on Spot checks when pursuing a specific target. Additionally, a person with a link to the HUD can freely send data and images to the wearer at any time. Individual software packages can further augment the abilities of a HUD.

Display Contacts (TL10): Display contacts are part of the further miniaturization of computers. These contact lenses fit perfectly over the eye and project a semitransparent image that appears to be roughly three feet from the user and comparable to a 52-inch monitor. This can be used to show the character any computer display it is linked to, and is also frequently implemented into the heads-up display device (using the multiple use item gadget) to provide real-time data on objects and people in the character's field of vision.

Counter-Security Equipment

Hackcard (TL9): A marvel of computer technology, the hackcard is a disposable, one-use item designed to allow those who are not computer savvy to bypass technological and computer barriers or perform computer-related tasks. Each hackcard is an individual data-carrying card roughly the size of a credit card with a hole in its centre and a magnetic strip on one side. Each hackcard carries a single program designed for a single purpose; this may be to open doors, bypass security restrictions, crash a computer, or even to modify information. Almost any task that can be performed by using the Computer Use skill can be encoded into a hackcard. Hackcards can be swiped in magnetic keycard readers and can be inserted into disc drives on computers with the same ease. When a character uses a hackcard for its designated purpose, the hackcard gives the character a bonus of +40% to the skill attempted. Each time the hackcard is used there is a 10% chance of it being detected and nullified if used on high-tech equipment. A nullified hackcard is useless.

Disguise Kit, Morphic (TL10): Most people forced to work undercover for extended periods rely on the morphic disguise kit. The kit features a pair of contact lenses that change colour, a hair prosthetic that changes colour, length, and texture, a paint-on LCD injector for instant tattoos that transform, and a vocal encoder (vocoder) that is attached to the throat to alter the user's voice. Each component can be altered on command. The morphic disguise kit grants a +20% bonus on all Disguise checks while in use.

Intellipicks (TL10): Though not technically an actual set of lockpicks, intellipicks are a cluster of several tiny machines (though not quite small enough to be called nanites) that can pick almost any lock and open almost any door. Intellipicks come in a small box that, when placed on the lock to be opened, releases the miniscule robots to do their work. Once the intellipicks penetrate the lock, they move tumblers and shift bolts in an efficient and rapid manner, opening the lock in way that no human could. Intellipicks give a +40% bonus to any attempt to disable, disarm or unlock any piece of equipment or conventional lock. Intellipicks cannot open electronic or computerized locks, though they can open magnetic locks by generating a magnetic field of opposite polarity.

Security Equipment

Laser Tripwire(TL8): The laser tripwire is a simple device that replaces the standard physical tripwire. A single focused beam of light is projected out from the tripwire generator until it hits a solid surface. If the beam is broken by, for example, a person passing through the beam, the tripwire generator immediately sends out a signal from its data port. This can be used to activate an alarm, trigger an explosive device, or even just turn on the lights in a particular room, depending on what event the signal is set to trigger.

Nanobeacon(TL8): An invaluable device used in tracking and search and rescue, the nanobeacon is a small microchip that is placed on a target's body (or on an object). It sends out a pulse every second that can be detected by sensors attuned to the beacon's frequency. The nanobeacon projects its pulse at up to a 500 mile radius, each nanobeacon with its own unique identification code. Nanobeacons are often used to coordinate combat squads, track wanted criminals, and even to help recover kidnapped or lost children. A beacon can be placed on any character or object by making a simple touch attack against the target.

Shepherd Chip (TL8): The shepherd chip is a tiny microchip implanted beneath the surface of the wrist. It contains the bearer's identification information. Some computers can read the shepherd chip and extract its information, while all shepherd chips can be made to receive another person's identification information via handshake—once a mere method of greeting, the handshake becomes a permanent way to introduce oneself and clearly identify yourself to another person. Of course, the shepherd chip can be made to not broadcast information via handshake for privacy's sake.

In addition to basic identification information, many people have their banking and credit information keyed to their shepherd chips so that they no longer have to use physical money or credit cards. Businesses love this as it allows them to prevent shoplifting; if a person carries an item from the store, that item's value is immediately deducted from their bank account. Additionally, in later years

the shepherd chip can be linked to computers (particularly neural implants) such that any information can be transferred between two shepherd chips—a great boon to the espionage community as it allows for discrete information transfers.

Some governments use shepherd chips (occasionally combined with nanobeacons) to monitor the activities of their citizens. This oppressive, watchful eye of the government is exactly what opponents of the shepherd chip fear. Additionally, a black market for forged or stolen shepherd chips emerged as soon as the chips themselves became widespread, making identity theft and falsification an ever-present crime in some communities.

Other Equipment

Computer, Card (TL9): As has been the case since the invention of the computer, the miniaturization of technology is most often seen in the area of computer size. The card computer functions as a standard computer but is no bigger than most credit cards or hackcards. The card computer may be hooked into any computer interface or display (including paint-on LCDs) and functions exactly like a personal computer.

Jetpack (TL9): A jetpack consists of a backpack and fuel cells capable of producing powered flight for up to 2 hours. A character equipped with a jetpack can fly at a speed of 20 metres (good manoeuvrability).

Soother Pulse (TL9): A small box that fits in one hand, the soother pulse emits sub-audible noises and subtle vibrations that can soothe almost any animal. It carries in its memory banks the codes of pulses to soothe almost every animal on the planet, and new pulses can be loaded into the device whenever they are discovered. A character using the soother pulse gains a +20% bonus on all Animal checks when dealing with an animal identified in the soother pulse's database.

Galpos Device (TL11): The GalPos device is the Gravity Age equivalent of the GPS system of the modern era. Equipped with star charts and a link to the galactic satellite network, the GalPos device (known also as a GPD) triangulates its own position based on distance between satellite relays and its knowledge of stellar cartography. If the GalPos is taken to a region of space where it cannot contact the galactic satellite network, or to a region of space not included in its star charts, it does not function. Otherwise, the GPD can be used to indicate what planet it is on, or what star system it is in (if not on a planet). A GalPos device with the satellite uplink gadget can function as a GPS receiver on worlds where such systems are available.

Piercing Visor (TL11): The piercing visor allows a person to see through solid objects. Through a combination motion-sensor data, gravity fluctuations, ambient light penetration, x-rays and ultraviolet light, heat and infrared signatures, sound waves and sonar, and other sensory inputs, the visor creates an accurate computer-rendered image of what lies beyond intervening objects. Any character wearing a piercing visor may, as a combat action, activate the visor's sensors and see through a wall, floor, object, or creature at a range of up to 100 feet. The visor can penetrate 6 inches of metal (except lead, which it cannot see through) and 1 foot of other materials, including concrete, wood, and plaster.

Power Backpack (TL10): The power backpack is essentially a portable generator. While worn, the power backpack can replace the power packs used by laser and plasma weapons, granting an infinite supply of ammunition while attached. Additionally, the power backpack can provide energy to almost any device requiring electrical power.

Neural Computer Link (TL12): The most advanced form of computer interface in the Energy Age, the neural computer link creates a direct connection between the brain and a computer system. The neural computer link eliminates the need for a physical interface. Instead, the user simply “thinks” commands to the computer. Output from the computer is sent straight to the user's brain, tapping into the visualization centres to project images and displays directly into the user's mind, eliminating the need for any sort of display device. In all other ways, the neural computer link allows the user to access the computer as if used conventionally. The neural computer link connects to a computer system via a network jack built into the base of the skull.

Neural Network Jack, Wireless (TL12): A natural extension of neural computing technology, the wireless neural network jack plugs into the neural computer link and allows for remote access to computer networks. Additionally, the wireless neural network jack with the satellite datalink gadget can connect to any global or galaxy-spanning computer network instantaneously. If the neural computer link is the basic means of connecting the human mind to a computer, the wireless neural network jack is the means of connecting the human mind to massive computer networks. A wireless neural network jack is useless unless the user also has a neural computer link.

Neural Recorder (TL13): A flexible cap that resembles a grasping clawed hand, the neural recorder can collect data directly from the human mind. Any visual or auditory memories or thoughts can be transmitted through the neural recorder and stored in its memory. Capable of storing up to two hours of data, the neural recorder requires a Computer Use roll to activate and operate. If the subject of the neural recording is willing, the neural recorder collects images and sounds from the subject's mind and stores them as either two-dimensional or three-dimensional recordings. An unwilling subject may make an INTx2% roll to prevent the recorder from functioning.

Neural Scrambler (TL10): The neural scrambler is a restraint device used by many law enforcement agencies in the place of physical restraints such as handcuffs. The neural scrambler consists of a six-pronged device that, when placed over the head, interrupts brainwave activity. A character wearing a neural scrambler may not take any actions whatsoever, though she moves her normal speed under the command of another individual. When the neural scrambler is removed, the character has no knowledge of events that took place while she was restrained.

Polyvox (TL12): The polyvox translates the languages of different cultures and species.

Tools

Duracable (TL8): Strong as steel, flexible as rubber, and almost as light as normal rope, duracable replaces most cables and ropes as the standard device for lifting, pulling, and support. Duracable is made of lightweight and durable wiring wrapped hundreds of times in a swirl that reinforces itself as more stress is placed on the coil. Duracable is able to support up to 10 metric tons of weight.

Grappler Tag (TL8): Often used in conjunction with duracable, the grappler tag is a small disc roughly six inches in diameter. When placed against a solid surface, the grappler tag attaches to that surface by magnetism (if the surface is ferrous) or by an array of nearly microscopic metal barbs (if not). The tag can then be attached to duracable and used as an anchor for climbing, pulling, or any other purpose. A button on the top of the disc releases the grappler tag's hold.

Grappling Tether (TL12): Replacing duracable and the grappling tag, the grappling tether is another application of gravity technology put to practical use. The grappling tether is a beam of pure gravity energy, up to 200 feet in length, fired from a metal tube. At the end of the tether is an anchor of intense gravity. When the anchor touches a solid object, it latches on with a grip that can only be broken by an equally strong anti-gravity force.

While the tube is held with the anchor attached to an object, the user can retract the tether to either pull the object to her (if the object is smaller in mass than the character), or pull herself to the object (if the object is greater in mass than the user, or the anchor is attached to a wall, ceiling, or other fixed surface). The anchor is released with a simple push of a button.

Flash-Seal (TL10): Flash-seal looks like a block of metal roughly the size of a thin brick. It attaches to any door frame. When activated, chemical compounds inside the block of metal burn fast and hot enough to melt the metal into a liquid form. Almost instantaneously, a second chemical compound freezes the molten metal back into its solid state. The result is that the metal melts, sinks into the space between the door and its frame, and then solidifies again, essentially welding the door shut. A door that has been flash-sealed may not be opened by normal means and must be destroyed or cut through as though it were a wall.

Fusion Torch (TL10): The fusion torch is the Fusion Age's equivalent of a blowtorch. The fusion torch produces a small, thin gout of flame that burns with such intensity that it creates temporary blobs of plasma all around it. The fusion torch consists of a small fuel canister attached to the torch generator. The torch deals 3d10 points of damage each round to immobile objects. Due to the nature of the fusion torch, a character using the torch must be meticulous in the way he cuts to maximize damage to whatever he is slicing through. If used as an improvised weapon, the fusion torch deals only 1d10 points of damage since it is being wielded in a more haphazard fashion.

Portable Glow Lamp (TL8): The portable glow lamp is the most efficient and beneficial form of lighting equipment known to man. It can function as a directional lighting device (like a flashlight) or as an area-covering lantern. Glowlamps have long-lasting power cells and bulbs that never need to be replaced, and can be adjusted to provide light in any radius up to 50 feet.

Toolkits

Technical skills require specialist tools of various kinds. These kits contain diagnostic sensors, hand tools, computer analysis programs and spare parts. All kits cost Cr. 1,000 and weigh 12 kg.

Combat Engineering: Required for building or maintaining combat fieldworks

Engineer (specific specialty): Required for performing repairs and installing new equipment.

Forensics: Required for investigating crime scenes and testing samples.

Interrogation: Required for interrogating a suspect

Mechanical: Required for repairs and construction.

Scientific: Required for scientific testing and analysis.

Surveying: Required for planetary surveys or mapping.

Weapon Engineering: Required for repairing or constructing weapons

Communications

Battle Computer (TL 9): The battle computer is a man-portable system (backpack weighing 18 kilograms) capable of capturing and collating intelligence and providing approximations of enemy forces. It can be linked to untended ground sensors via communication links to increase its potential and can provide visual displays overlaid on maps when interfaced with a map box (see below). When attached to a communicator it can direct a powerful laser communication beam at one of several preprogrammed targets (such as relay satellites or tactical communication hubs) and automatically switch to back-up relays if primaries are jammed or rendered inaccessible. A battle computer system grants the commander of any battle a +20% bonus to all Tactics rolls when dealing with a monitored area. Availability is 10+, cost is Cr. 100,000.

Bug (TL 5): Surveillance devices such as hidden microphones and tiny cameras, bugs are available from TL 5 onwards. They rapidly miniaturise and become more intelligent. A TL 14 bug can be no bigger than a dust mote. The smaller a bug, though, the shorter its range – a bug that transmits data needs a much larger power supply than one that just records until it is collected.

TL 5	Audio	Cr. 50
TL 7	Audio or Visual	Cr. 100
TL 9	Audio or Visual or Data	Cr. 200
TL 11	Audio/Visual/Data	Cr. 300
TL 13	Audio/Visual/Data/Bioscan	Cr. 400
TL 15	Audio/Visual/Data/Bioscan/Computer	Cr. 500

- **Audio:** The bug records anything it hears.
- **Visual:** The bug records anything it sees.
- **Data:** If attached to a computer system, the bug can search and copy data from the computer. The bug cannot breach computer security on its own, but if a user accesses the computer in the bug's presence, the bug can read his data.
- **Bioscan:** The bug has a basic biological scanner, allowing it to sample the area for DNA traces, chemical taint and so forth.
- **Computer:** The bug has an onboard computer system with an INT 3 Specialised Computer.

A bug can be active or passive. An active bug transmits data (either constantly, or when triggered). Passive bugs just record until activated.

Transceiver (TL 5): A transceiver is a stand-alone communications device. Unlike a comm, which relies on the presence of an established communications network, a transceiver can send and receive directly under its own power.

To reach orbit reliably, a transceiver needs a range of 500 kilometres.

Radio Transceivers	Mass (kg)	Range	Cost (Cr.)
TL 5	20	Distant (5 km)	50
TL 8	2	Distant (5 km)	100
TL 9 (Computer INT 3)	1	Very Distant (50 km)	250
TL 12 (Computer INT 4)	1	Regional (500 km)	500
TL 13 (Computer INT 5)	1	Continental (5,000 km)	1,000
Laser Transceivers			
TL 9	1.5	Regional (500 km)	100
TL 11 (Computer INT 3)	0.5	Regional (500 km)	250
TL 13 (Computer INT 4)	-	Regional (500 km)	500

Comm (TL 6): A personal comm unit is a portable telecommunications device/computer/camera, ranging in size from a bulky handset to a slim watch or pen-like cylinder. Larger comms have physical controls and screens, while smaller units either project data and control displays onto nearby surfaces, have fold-out plastic screens, or connect to cybernetics. Comms have only short-range transmission and reception capabilities, but most technologically advanced worlds will have planet-wide comm networks allowing the user to send messages and access data anywhere.

TL 6	Audio only	Cr. 50
TL 8	Audio and visual, computer INT 3	Cr. 150
TL 10	Multiple forms of data, computer INT 4	Cr. 500

Commdot (TL 10): A commdot is a tiny microphone/speaker and transmitter, ranging in size between a few centimetres and a few millimetres across. A commdot is capable of interfacing with another communications device and relaying messages back and forth. Commdots have a range of only a few metres. They are usually used as hands-free communicators, but can also be used as improvised bugs or throat microphones. Cr. 10 each.

Universal Communicator (Unicom) (TL10): The unicom is an all-in-one piece of equipment that handles the communication needs of a single person. Each unicom has its own frequency and can send transmissions both directly to another individual unicom as well as to an entire group of unicoms. The unicom also has a data port so that it can be linked to a computer system and receive data as well as audio and visual communications. In later eras, the unicom also frequently incorporates the hologram recorder and projector devices (via the multiple use item gadget).

Micro-Aural Communicator (Microcom) (TL12): The micro-aural communicator consists of three components. A tiny earpiece transmits incoming communications directly into the ear, at a volume far too low to allow others to hear. A small node placed on the inside of the lip allows the user to broadcast while speaking no louder than a whisper. Finally, a wristband functions as the input/output port for hooking other devices into the microcom. Using a microcom does not provoke a normal Listen check and cannot be heard by any normal means.

Radio Jammers (TL6): First available in base-camp versions, and then made portable by tech level 8, the radio jammer suite is a static generator that fills the wavelengths with incomprehensible noise. The basic models make radio-wave communications impossible up to 2 km of its location. It requires a Difficult Electronics roll to get a single transmission through. Most jammers are not effective against tight beam laser communication, however. Cost: Cr. 500.

(TL 8): This version is more efficient, raising the range to 5 km and the cost to Cr. 2,000.

(TL 10): personal This version is as small as a cufflink, and has a 10 km range. It costs Cr. 5,000.
(TL 10): stationary This is a huge version of a jammer attached to a power plant or starship, jamming unsanctioned radio communications up to 100 km away from its location. It costs Cr. 20,000.

Rescue Transponder (TL8): Activated with a quick snap of a safety tag, normally when wounded or captured, the tracker sends out a nearly constant emergency signal across several bandwidths to let allies know where the wearer is. It has a 10 km range, lasts twelve hours, has no Availability score, and costs Cr. 50.
(TL 10): This version is more efficient, raising the range to 200 km and the cost to Cr. 200.
(TL 13): This version is not worn; it is swallowed and has a 1000 km range. It costs Cr. 750.

Tactical Relay Network (TL6+): Every participating member on a tactical relay network can use the Tactics skill of the character monitoring the central hub, to a limit depending on the TL of the network.

TL	Information Relayed	Maximum Tactics Level Used	Cost ¹
TL6	Audio only	Tactics 60%	Cr. 50
TL8	Audio and visual	Tactics 70%	Cr. 100
TL10	A/V, Transponder location	Tactics 80%	Cr. 200
TL12	A/V, medical readings, equipment status	Tactics 90%	Cr. 350

¹ This cost is per member unit; the central hub costs ten times this amount.

Holographic Equipment

Holographic Projector (TL 11): A holographic projector is a toaster-sized box that, when activated, creates a three-dimensional image in the space around it or nearby – the range is approximately three metres in all directions. The image can be given pre-programmed animations within a limited range and the projector includes speakers for making sound. The projected holograms are obviously not real so this device is mostly used for communication. The TL 12 version can produce holograms real enough to fool anyone who fails an Intelligence check (made upon first seeing the hologram) and the TL 13 version can produce holograms that are true-to-life images. TL 11 Cr. 1,000, TL12 Cr. 2,000, TL13 Cr. 10,000.

Hologram Player (TL12): A hologram player is a small disc with several small light projectors arranged around its outer edge. When activated, the device projects a three-dimensional image in full colour as small as three inches in height or as large as a Medium-size character. The hologram player can be hooked into a hologram recorder (capable of storing three-dimensional images), or even to a unicom to receive three-dimensional images for real-time communications.

Hologram Recorder (TL12): A hologram recorder is a cylinder no larger than a pen with a bulbous, transparent cap on one end. The device can make a three-dimensional recording of anything within its cone-shaped recording area. Hologram recorders can store up to one hour of three-dimensional images to be played back on a hologram player or transferred to a computer as video data. Most hologram recorders can also be attached to a unicom to serve as a video input device for real-time holographic communications. The hologram recorder is commonly carried by law enforcement agents, as it allows for the accurate collection of evidence and can prevent abuse on the part of the authorities.

Hologuise (TL13): The hologuise is a combination hologram projector and digital imaging computer system that is worn like a headband over the forehead. When activated, the hologuise projects a three-dimensional image over the face that completely obscures the character’s natural features. This image is commonly a different face, but can be a black veil or some other decorative image instead. With practical and fashionable uses, hologuises are employed by the wealthy elite as well as by criminals and spies. An active hologuise grants the wearer a +20% bonus to Disguise.

Medical Equipment

Cryoberth (TL 10): A cryoberth, or ‘icebox’, is a coffin-like machine similar to the low or frozen berths used on some spacecraft. A cryoberth can be used to place a severely injured character into stasis until he receives medical treatment. While in a cryoberth, a character’s wounds neither heal nor degrade and all disease and poison activity is halted. A cryoberth’s internal power system can function for up to one week on its own, but a berth is usually connected to a vehicle’s power supply. Wt. 200 kg, Cr. 50,000.

SickBed (TL11): A SickBed is an automated machine that provides various levels of support, but is not as advanced as a MediBay. At its basic it is a Life Support System and can be used to keep an injured or sick person alive and stable. Unlike in a cryoberth, a patient in a Sickbed is not frozen and is often awake and alert, although under medication. A Sickbed cannot perform operations but does allow a Medic to perform operations and assists where possible. A SickBed is a small AI in itself and has an INT of between 2 and 4, depending on its TL. Cost: Cr 100,000.

MediBay (TL12): A MediBay is an automated machine that provides various levels of support. At its basic it is a Life Support System and can be used to keep an injured or sick person alive and stable. However, a MediBay can also perform simple operations

and can assist a Medic in performing complex operations. A MediBay is a small AI in itself and has an INT of between 4 and 8, depending on its TL. Cost: Cr 200,000.

Regen Tank (TL13): A Regen tank is a tank filled with amniotic fluid that stimulates the regrowth of severed limbs or other body parts. A limb takes 1 week per 10% lost, other body parts take 1 day per 10% lost. The regrown limb or body part operates as normal but is without any scars or special properties obtained over the years. Cost: Cr 300,000.

Medikits

Chemical, Plastiflesh (TL13): Contained in a small spray can, plastiflesh bonds with human skin on contact and accelerates the healing process by providing a layer of artificial skin to seal the wound. The target of the spray immediately recovers 1d4 hit points without needing a medical roll.

Adhesive Bandages (TL6): The use of adhesive bandages while using the Medic skill halves the time it takes to perform first aid, but incurs a -10% Penalty to the Medic skill roll. The cost is Cr. 10 for a three-dose tube.

TL8: Cr. 50 for a five use spray.

TL10: Cr. 75 for a ten use roll-on.

TL12: Cr. 100 for twenty use applicator wand.

TL14: Cr. 500 for a hundred use gelling gun.

Medkit, Advanced (TL 8): The advanced medkit functions as a combined first aid kit, medical kit, and surgery kit. It also grants its user a +20% bonus to all Treat Injury checks. Cost: Cr 50.

Medkit, Fast-Use (TL 8): The fast-use medkit functions as both a first aid kit and a medical kit. In addition, specialized computers and sensors prepare exactly what is needed to restore a character's hit points, treat a disease, stabilize a dying character, or revive a dazed, stunned, or unconscious character. A character may use the Treat Injury skill with the fast-use medkit as a combat action. The fast-use medkit cannot be used as a surgery kit. Cost: Cr 500.

Medikit (TL 8): There are different types of medikit available at different Technology Levels. All medikits contain diagnostic devices and scanners, surgical tools and a panoply of drugs and antibiotics, allowing a medic to practise his art in the field. Higher-technology medikits do not give a bonus to basic treatment, but can help with more exotic problems or when treating augmented individuals. For example, a TL 8 medikit can test blood pressure and temperature (among other things); a TL 14 kit has a medical densitometer to create a three-dimensional view of the patient's body and can scan brain activity on the quantum level. All medikits weigh 8 kg.

TL 8: Cr, 1,000.

TL 10: Cr. 1,500.

TL 12: Cr. 5,000.

TL 14: Cr. 10,000.

Plastic Surgery Kit, Personal (TL11): The personal plastic surgery kit is fashionable with society's elite—and its criminal underworld. Consisting of a mask that fits neatly over any human face, the personal plastic surgery kit is a one-use item that completely and permanently changes a character's facial appearance. The personal plastic surgery kit is first linked to a special imaging computer that programs the kit with the desired outcome. The kit is then placed on the face and activated. The kit sedates the person using it and then proceeds to alter his face according to the specifications, and can even go so far as to permanently alter eye and hair colour. Using the kit takes one hour, during which the character is unconscious.

Regen Wand (TL13): A regen wand is a tubular device roughly fifteen inches long. It emits waves of energy that promote cellular growth and healing. A character can use a regen wand as a first aid kit or medical kit. Because of the device's simplicity, Medical checks made with the regen wand gain a +40% bonus.

Trauma Pack (TL8): The use of a trauma pack requires a Medic roll, but will give a wounded character back a temporary 1d6 Hit Points. These Hit Points can be used to bring a technically 'dead' character back from 0 or less Hit Points (so long as the new total is above 0), so long as they suffered their last wound within 30 seconds. This regained Hit Points lasts for 1d6 hours - at which point it vanishes, potentially killing them. A character can only benefit from one administration of a trauma pack per day. Higher technological versions of the trauma pack are not any more efficient, merely lighter.

TL8: Weight 2 kg, Cr. 750.

TL10: Weight: 1 kg, Cr. 1,500.

TL12: Weight: 0.5 kg, Cr. 3,500.

TL14: Negligible Weight, Cr. 7,500.

Medicinal Drugs

Medicinal Drugs (TL 5) include vaccines, antitoxins and antibiotics. They range in cost from five credits to several thousand credits, depending on the rarity and complexity of the drug. Medicinal drugs require the Medic skill to use properly – using the wrong drug can be worse than doing nothing. With a successful Medic check the correct drug can counteract most poisons or diseases, or at the

very least give a positive Bonus towards resisting them. If the wrong drug is administered, treat it as a Difficult poison with a damage of 2d6.

Anti-rad Drugs (TL 8) must be administered before or immediately after (within ten minutes) radiation exposure. They absorb up to 100 rads per dose. A character may only use anti-rad drugs once per day – taking any more causes permanent CON damage of 1d6 per dose. Cr. 1,000 per dose.

Antitox (TL9): A chemical found in many first aid kits, antitox is a special hypodermic injection that can be used to save the life of any character infected with a poison. Each antitox injector contains a specialized analyzer linked to chemical generators. When the needle penetrates the skin of the target, it samples the target's blood and sends the data back to the analyzer, which determines the nature of the poison and generates an antidote from stored chemical compounds. Once the antitox delivers its specially formulated chemicals, the target character is completely cured of the poison and its effects in 1d6 rounds.

Biocort (TL12): Biocort is a unique chemical compound that enhances the human body's natural ability to heal. Biocort pushes the immune system into overdrive, and can cause the character to heal from grievous wounds at a greatly increased rate. Any character injected with biocort heals at twice the normal rate for a 24-hour period.

Clotting Aid (TL9): Someone currently on a daily dosage of clotting aids will give a +10% to other people's Medic rolls to treat them. They cost Cr. 200 per 30 day bottle.

Hibernation Drug (TL 10) puts the user into a state akin to suspended animation, slowing his metabolic rate down to a ratio of 60 to 1 – a subjective day for the user is actually two months. Hibernation drug is normally used to prolong life support reserves or as a cheap substitute for a cryoberth and costs 200 credits per dose.

Medicinal Accelerator (TL 11) is a variant of the Metabolic Accelerator drug. It can only be applied safely in a medical facility where life-support and cryo technology is available as it increases the metabolism to around thirty times normal, allowing a patient to undergo a month of healing in a single day. Medicinal slow costs 500 credits per dose.

Neutrad (TL12): A chemical found in many first aid kits, neutrad is a special hypodermic injection that can be used to neutralize the effects of radiation poisoning. Each neutrad injector contains a specialized analyser linked to chemical generators. When the needle penetrates the skin of the target, it samples the target's blood and sends the data back to the analyser, which determines the nature of the radiation sickness and generates an antidote from stored chemical compounds. Once the neutrad delivers its specially formulated chemicals, the target character is completely cured of the radiation poisoning and its effects in 1d4 hours.

Panaceas (TL 8+) are wide-spectrum medicinal drugs that are specifically designed not to interact harmfully. They can therefore be used on any wound or illness and are guaranteed not to make things worse. A character using panaceas may make a Medic check as if he had Medic 20% when treating an infection or disease. Panaceas cost 200 credits per dose.

Sporekill (TL12): A chemical found in many first aid kits, sporekill is a special hypodermic injection that can be used to neutralize the effects of most diseases. Each sporekill injector contains a specialized analyzer linked to chemical generators. When the needle penetrates the skin of the target, it samples the target's blood and sends the data back to the analyzer, which determines the nature of the disease and generates an antidote from stored chemical compounds. Once the sporekill delivers its specially formulated chemicals, the target character is completely cured of the disease and its effects in 1d10 hours. Some genetically engineered diseases are created to circumvent sporekill chemical, and are unaffected by this piece of gear.

Other Drugs

Adrenaliser (TL10): One dose of the drug is the equivalent of ten hours of sleep, after which the user will have 2d6 x 5 minutes to find someplace to lay down - because the lost amount of sleep will hit him without fail at the end of that time. Adrenalisers cost Cr. 150 per dose.

Combat Drug (TL 10): This drug increases reaction time and improves the body's ability to cope with trauma, aiding the user in combat. A character using a combat drug adds +4 to his initiative total at the start of combat (or whenever the drug takes effect). He may also dodge once each round with no effect on his initiative score and reduces all damage suffered by two points. The drug kicks in twenty seconds (four rounds) after injection, and lasts around ten minutes. When the drug wears off, the user is fatigued. Combat drugs cost 1,000 credits per dose.

Nervous Response Dampeners (TL9): Taken a few hours before battle, the dampeners last for a day or so, granting the user a bonus point of Morale for 2d6 x 3 hours. They have an Availability of 8+, and cost Cr. 100 per dose.

Metabolic Accelerator (TL 10) boosts the user's reaction time to superhuman levels. A character using a Metabolic Accelerator in combat adds +8 to his initiative total at the start of combat (or whenever the drug takes effect). He may also dodge up to twice each round with no effect on his initiative score. The drug kicks in 45 seconds after ingestion or injection and lasts for around ten minutes. When the drug wears off, the user's system crashes. He suffers 2d6 points of damage and is exhausted. Metabolic accelerator costs 500 credits per dose.

Meta-Performance Enhancer ('Titan Drug', TL10): The drug kicks in 60 seconds after injection, and lasts for around fifteen minutes, adding 6 to the user's strength (up to a maximum total strength of 21 for a human). When the drug wears off, the user's muscles cramp painfully under the stress and fatigue. He suffers 1d6 Hit Points of damage and is instantly enfeebled (STR of 5 for 1d6 hours). Meta-Performance Enhancer costs 600 credits per dose.

Anagathics (TL 15) slow the user's aging process. Synthetic anagathics become possible at TL 15, but there are natural spices and other rare compounds that have comparable effects at all Technology Levels. Anagathics are illegal or heavily controlled on many worlds. They cost 2,000 Credits per dose. One dose must be taken each month to maintain the anti-aging effect – if the character taking anagathics misses a dose they must make an immediate roll on the aging table as their body reacts badly to the interrupted supply.

Boost (TL12): A drug that is both beneficial and highly dangerous, boost functions as a temporary adrenaline-enhancer. Boost was originally conceived for military purposes in an attempt to make the soldiers of the Fusion Age stronger, faster, and more combat-capable. A single injection of boost grants the character a +4 STR, +2 CON, + 2 Movement, and increases the character's Serious Wound threshold by +4. These effects last for 1 minute.

Unfortunately, the side effects of boost almost outweigh the benefits. For one, the chemical is addictive and can alter the perceptions of a character so that she thinks she cannot live without a dose of the drug. Additionally, repeated use of boost has debilitating effects on the body's immune and nervous systems.

Each time a character uses a dose of boost, she has a 10% chance of suffering a –2 penalty to her Dexterity and a –10% penalty on Resilience rolls. These penalties last for 24 hours.

If the character uses the drug again before recovering from these penalties, the penalties increase and the recovery time extends for an additional 24 hours. For example, if a character uses another dose of boost while still under the effect of the penalties, the character suffers a –4 penalty to Dexterity and –20% on Resilience rolls, and the recovery time increases to 48 hours.

Solvaway(TL12): Solvaway is a special spray-on chemical designed to break through the restricting compound fired by tangler guns and tangler grenades. A single application of solvaway completely dissolves any hardened compound and frees the character as though the compound had dissolved on its own.

Starlight Drops (TL12): In darkness or near-dark environments, any DM penalty is negated, as the character can see perfectly well. The effects of the drug last for 1d6 hours, during which time the user's eyes look silvery and cloudy. A dropper of starlight drops carries 6 doses (12 eyes) and costs Cr. 500.

Stim Drugs (TL 8) remove fatigue, at a cost. A character who uses stim may remove the effects of fatigue but suffers one point of damage. If stims are used to remove fatigue again without an intervening period of sleep, the character suffers two points of damage the second time, three points the third time, and so on. Stims cost 50 credits per dose.

Truthtell (TL13): Truthtell is a specially formulated chemical that targets areas of the brain that handle creativity and, particularly, lying. By temporarily neutralizing these areas of the brain, truthtell makes it impossible for a character to lie while under the drug's influence. A character injected with Truthtell may roll Persistence vs. the Truthtell's POT negate its effects. On a failed roll, the character is compelled to speak truthfully for the next 3d10 minutes. A subject under the effect of truthtell is aware of its influence and may still refuse to answer questions.

Sensors

At TL 11 sensors become notably more discriminating because they can be hooked up to a system running Intellect that can dynamically filter information based on pre-set parameters – not sounding the alarm if the motion sensor picks up anything too small to be an intruder, for example.

Sensor equipment does not offer a bonus to skill checks but allows the user to find things that they would otherwise not be able to.

Binoculars (TL 3): Allows the user to see further. 1 kg, Cr. 75. At TL 8 electronic enhancement allows images to be captured; light-intensification allows them to be used in the dark. Cr 750. At TL 12 PRIS (Portable Radiation Imaging System) allows the user to observe a large section of the EM-spectrum, from infrared to gamma rays. Cr 3,500.

Geiger Counter (TL 5): Detects radiation, both presence and approximate intensity. Cr. 250. The Sensors skill is not needed to detect the presence of radiation with a Geiger counter but anything more complex than that requires a check.

IR Goggles (TL 6): Permits the user to see exothermic (heat-emitting) sources in the dark. Cr. 500.

Light-Intensifying Goggles (TL 7): Permits the user to see normally in anything less than total darkness by electronically intensifying any available light. Cr. 500. At TL 9, IR goggles and light-intensifying goggles can be combined into a single unit costing Cr. 1,250.

Motion Sensor (TL 7): A motion sensor simply detects any and all movement within the area assigned to it. It cannot differentiate between kinds of movement, it just reports whether there is movement or not in an area roughly six metres in diameter. Cr. 500. At

TL 9 the motion detector can report the general qualities of motion – size, speed and duration – but no more. Cr. 1,000. The Sensors skill is not required to use a motion detector to detect motion. When trying to interpret data from a TL 9 motion sensor, the Sensors skill may need to be checked.

Electromagnetic Probe (TL 10): This handy device detects the electromagnetic emissions of technological devices, and can be used as a diagnostic tool when examining equipment (+1 DM to work out what's wrong with it) or when searching for hidden bugs or devices. Cr 1,000. The Sensors or Investigation skills can be used to sweep a room for bugs.

Densitometer (TL 14): The remote densitometer uses an object's natural gravity to measure its density, building up a three-dimensional image of the inside and outside of an object. 5 kg. Cr. 20,000.

Bioscanner (TL 15): The bioscanner 'sniffs' for organic molecules and tests chemical samples, analysing the make-up of whatever it is focussed on. It can be used to detect poisons or bacteria, analyse organic matter, search for life signs and classify unfamiliar organisms. 3.5 kg. Cr. 350,000. The data from a bioscanner can be interpreted using the Sensors or the Life Sciences (biology) skills.

NAS (TL 15): This device consists of a backpack and detachable handheld unit, and can detect neural activity up to 500 metres away. The device can also give a rough estimation of the intelligence level of organisms based on brainwave patterns. 10 kg. Cr 35,000. The data from a neural activity scanner can be interpreted using the Sensors, the Life Sciences (biology) or the Social Sciences (Sophontology) skills.

Chemicomp Sensor (TL9): The Chemicomp sensor computer is a handheld computer or computerized gauntlet designed to find individual chemical compounds. Chemicomps can locate a specific chemical, providing a +10% bonus on Search checks when attempting to find chemical compounds.

Geocomp Sensor (TL9): The geocomp sensor computer is a handheld computer or computerized gauntlet designed to find individual minerals. Geocomps can locate a specific mineral, providing a +10% bonus on Search checks when attempting to find minerals.

Motion Sensor (TL8): The motion sensor is capable of not only detecting motion but also of plotting it on a display screen in relation to other objects. The motion sensor plots motion relative to its own position, but can sense motion through walls and solid surfaces, indicating the location of any moving object within 30 meters.

Armacomp Sensor (TL11): The Armacomp sensor is a hand-held computer or computerized gauntlet designed to detect and locate weapons of all types. It grants a +6 equipment bonus on Search checks when searching for weapons. Additionally, the armacomp sensor's advanced data on weapons of all types makes it a valuable resource when repairing weapons, granting a +4 equipment bonus on all Repair checks made on weapons. This does not include explosives and other demolitions devices, which are covered under the democomp sensor.

Democomp Sensor(TL11): The democomp sensor is a hand-held computer or computerized gauntlet designed to detect and locate explosives of all types. It grants a +60% equipment bonus on Search checks when searching for explosives. Additionally, the democomp sensor's advanced data on explosives of all types makes it a valuable resource when planting them, granting a +40% bonus on all Demolitions and Disable Device checks made involving explosives.

Electricomp Sensor (TL11): The electricomp sensor is a hand-held computer or computerized gauntlet designed to detect and locate electronic devices of all types, including computers. It grants a +60% bonus on Search checks when searching for electronics of a specific type. Additionally, the electricomp sensor's advanced data on electronics of all types makes it a valuable resource when repairing computers and other electronics, granting a +40% bonus on all Repair checks made on them. Additionally, the electricomp can be used to identify any flaws in cybernetics.

Mechanicomp Sensor (TL11): The mechanicomp sensor is a hand-held computer or computerized gauntlet designed to assist in the evaluation and repairs of mechanical devices. The mechanicomp can identify a vehicle's, Starship's, or Mecha's current and maximum hit points. Additionally, thanks to the mechanicomp's extensive library of mechanical blueprints, any repairs made using the mechanicomp as a reference are more efficient, granting a +40% bonus on all Repair checks made to vehicles, Starships, and Mecha.

Medicomp Sensor (TL11): The medicomp sensor is a hand-held computer or computerized gauntlet designed to assist in the evaluation and healing of the human body. The medicomp can identify a creature's current and maximum hit points. Additionally, thanks to the medicomp's extensive library of medical records and biological knowledge, any treatments administered using the medicomp as a reference are more efficient, granting a +40% equipment bonus on all Medical rolls.

Robocomp Sensor (TL13): The robocomp sensor is a hand-held computer or computerized gauntlet designed to assist in the evaluation and repairs of robots and robotic life forms. The robocomp can identify a robot's current and maximum hit points. Additionally, thanks to the robocomp's extensive library of robotic blueprints, any repairs made using the robocomp as a reference are more efficient, granting a +40% bonus on all Repair checks made to robots.

Energy Emission Warning Beacon (TL13): Any character hooked up to an EEWB feed adds an additional -10% Penalty to attackers using energy weaponry at Long Range or farther when they react. Weighs 4.5 kg, Availability 10+, cost Cr. 60,000.

Forensic Sweeper (TL13): Within an hour of sweeping a twenty square metre area with the handheld wand, and succeeding in an Investigate roll, the device will know all of the following pieces of information.

- The types of weapons fired in past 36 hours.
- The known species of any beings passing through the area in the past 12 hours.
- The known species of anyone injured in the area during the past 48 hours.
- If any chemicals (drugs, poisons and so on.) were in use during the past 12 hours.

Weights 2 kg, cost Cr. 7,500.

Anti-personnel Equipment Scanner (TL10): By looking at a target with great scrutiny (1-6 minutes) within five metres, the character may make an Investigate roll. If successful, the goggles penetrated the target's clothing/ armour and found all inorganic devices in or on them. Weights 1 kg, cost Cr. 10,000.

Options

Helmet Reader (TL9): A single type of sensor feed can be wirelessly fed into the eyepiece HUD of a basic combat helmet with this option. Cost Cr. 250.

TL10: Can receive up to three feeds at once. Cost Cr. 500.

TL11: Can receive up to five feeds at once. Cost Cr. 750.

TL12: Can receive up to eight feeds at once. Cost Cr. 1,000.

TL15: Can receive information from unlimited feeds at once. Cost Cr. 5,000.

Force Fields

Force Field Technology is developed at Tech Level 11 and consists of interwoven bands of energy that form a mesh protecting against physical and energy attacks. Force Fields feel physical and can act as barriers.

Force Wall (TL11): A Force Field Generator is built into a physical wall and has a number of filaments surrounding a physical area. The Force Wall generated acts as a barrier with Armour Points and Structure Points. Breaking through a force Wall is difficult as it has an effective STR equal to its Rating x 5. It is possible to overload a Force Wall by punching through, but this typically requires damage equal to its STR.

Force Bubble (TL12): This consists of a Force Field Generator and a series of filaments that allow a Force Field to be created around the generator, protecting all those within the Force Bubble. This is typically used to protect against hostile environments, in combat situations or as an emergency structural support.

Survival Gear and Supplies

Tent (TL 3): A basic tent provides shelter for two people against the weather, reducing skill check penalties by 2. Cr. 200. The TL 7 tent can be pressurised. There is no airlock – the tent is depressurised when opened. Cr 2,000.

Rebreather (TL 6): The rebreather is a bulky backpack containing breathable atmosphere and a face mask that collects exhaled gasses and ‘scrubs’ them back into breathable gasses again. A rebreather provides six hours of breathable atmosphere and can be used to breathe in any environment that is not otherwise harmful, such as underwater. 10 kg, Cr. 250.

Respirator (TL 6): This device concentrates inhaled oxygen, allowing a character to breathe on worlds with a thin atmosphere. Respirators take the form of a face mask or mouthpiece initially. Cr. 100. The more advanced TL 10 respirator is small enough to fit into the nose, or can even be a lung implant for 3 x cost. Cr. 2,000.

Filter (TL 7): Filters are breathing masks that strip out harmful elements from the air inhaled by the character, such as dangerous gases or dust particles. Cr 100. The TL 10 filter is small enough to fit into the nose, or can even be a lung implant for 3 x cost. Cr. 2,000.

Breather Mask (TL 8): Combines the filter and respirator into a single package. Cr. 150.

Artificial Gill (TL 8): Extracts oxygen from water allowing the wearer to breathe underwater. Only works on worlds with breathable atmospheres (type 4–9). 4 kg. Cr 4,000.

Puritizer (TL8): The puritizer is a small, semitransparent cylinder roughly one foot tall that removes impurities from water food. The puritizer’s onboard computer recognizes chemicals that can be harmful to the human body and separates them from the food and drink.

Environment Suit (TL 8): Designed to protect the wearer from extreme cold or heat, the environment suit has a hood, gloves and boots but leaves the face exposed in normal operations. Costs Cr 500.

Habitat Module (TL 8): A modular, unpressurised quarters for six people, capable of withstanding anything less than hurricane-force winds. Includes survival rations and enough batteries to keep the lights on and the heaters (or air conditioning) running for a week. Requires 12 man-hours to assemble, and can be attached to other modules to form a base. Cr 10,000. The TL 10 module is pressurised, and includes life-support for six occupants for one week (1000 person/hours). Cr 20,000.

Rescue Bubble (TL 9): A large (2m diameter) pressurised plastic bubble. Piezoelectric layers in the bubble wall translate the user's movements into electricity to recharge the bubble's batteries and power its distress beacon, and a small oxygen tank both inflates the bubble and provides two person/hours of life support. A self-repairing plastic seal serves as an emergency airlock. Rescue bubbles are found on both space and sea vessels as emergency lifeboats. Cr. 600.

Thruster Pack (TL 9): A simple thruster pack gives the user the ability to manoeuvre in zero-gravity. A Zero-G check is required to use a thruster pack accurately. Thruster packs can only be used in microgravity environments and are only practical for journeys between spacecraft at Adjacent range. Cr. 2,000.

At TL 12 the long-range thruster pack gives 0.1g acceleration for up to 48 hours, using standard Starship fuel. This increases its practical range on the spacecraft scale to Short but gives it a weight of 10 kg. Cr. 14,000. The TL 14 version of the long-range pack is much smaller as it uses Grav-thruster plates instead, but has the same performance profile as the TL 12 version. Cr. 20,000.

Portable Generator (TL 10): This is a heavy-duty portable fusion generator, capable of recharging weapons and other equipment for up to one month of use. Cr. 500,000.

Chemical Sniffer (TL9): Costs Cr. 2,500.

Protein Tap (TL9): The device adds a +10% Bonus to all Survival skill checks made to 'find' food in the wild. Cost Cr. 1,000.

Map Box (TL9): Scale may be adjusted by hand using a few button presses or voice commands (TL11 or higher). Most inhabited planets have insert wafers available for Cr. 150 each that will update the box appropriately. When not available, two orbital sweeps of the world are required to obtain the necessary photographs to construct a map wafer. Blank map box wafers are available for Cr. 30. The use of a map box grants the user a +20% bonus to all skill rolls involving direction and navigation of the mapped planet. The cost of a map box (with one planet preprogrammed) is Cr. 3,000.

Nuclear Dampers (TL13): Any nuclear devices that are not currently already in a state of fusion (fusion cells, starship cores, etc.) will have a penalty of the Effect of the damper operator's Computer skill roll to any attacks made. The range of the damper field is proportional to the distance separating the two stations. At TL 13, the ratio is 100:1 (a separation of 50 metres between stations would give a field range of 5 kilometres). Each damper station weighs 75 kg, and the maximum distance the stations can be apart before the field disperses is 200 metres. Cost MCr. 5.

(TL14): As above, and the ratio is now 500:1. Cost MCr. 10.

(TL16): As above, and the ratio is now 1,000:1. Cost MCr. 20.

Purifier Tabs (TL6): These small chemical tablets are dropped into potentially questionable water, turning up to one gallon of it into drinkable (perhaps not tasty) water. The process takes only a few minutes, and turns the water an off-blue colour. The tablet only purifies natural contaminants, not synthetic poisons or toxins. Cost Cr. 10 per tablet.

TL10: More advanced chemicals will even isolate and purify man-made toxins and pollutants. Cost Cr. 50.

Tent Barracks (TL8) The pole structure requires 1-6 man hours to set up properly. Weight 10 kg. Cost Cr. 500.

(TL10) The TL10 version can be effectively pressurised using a chemical seal from the inside. There is no actual airlock - the tent depressurises when it is opened. Cost Cr. 5,000.

Modifications

Self-Assembling (TL 11): The self-assembling upgrade can be given to tents, habitat modules and other basic structures. The structure is capable of expanding and assembling itself with only minimal aid, reducing the time needed to set up the shelter to a single man-hour. Cr. 5,000.

Self-Sealing (TL 13): Structures can be made self-repairing and self-sealing at TL 13 for Cr. 2,000. Small breaches and rips are automatically fixed in seconds.

Armoured (TL9): Survival structures (tents, habitats and so on) can be layered with the armoured option, granting Armour 5 to those inside from attacks originating outside of the structure (and vice versa). This triples the weight of the structure. Cr. 2,500.

Chameleonic Fibres (TL12): The structure gains the benefits of advanced camouflage. The TL12 version bleeds heat excesses to match the background infrared levels and effectively renders those inside invisible to IR sensors (Hard to detect with sensors). Cost Cr. 8,000.

(TL13) The advanced TL13 version uses both the IR and Vislight camouflage technologies, adding light-bending technology to the structure, making everyone inside nearly invisible to the naked eye (Hard to spot).

Cost Cr. 60,000.

Hi-Tech Material

There are different Hi-Tech materials that can be used to make armour, robot Armatures, Mecha Frames and Starship Hulls.

Material	Tech Level	Armour Points	Description
Alumisteel	5	5	This easy-to-acquire alloy is lightweight and reasonably strong.
Duraplastic	8	3	Duraplastic consists of advanced plastic polymers, like carbon fibre and high-grade fibreglass.
Duralloy	7	8	Duralloy is harder, heavier, and more durable than alumisteel.
Resilium	8	9	Resilium is more malleable alloy than duralloy, although not as strong.
Vanadium	9	6	Vanadium alloy absorbs a respectable amount of damage and is easy to mould.
Crystal Carbon	10	8	“Grown” in orbital laboratories, crystal carbon is a composite fibre material that outperforms neovulcanium on the battlefield.
Neovulcanium	11	7	Similar to Duralloy, neovulcanium uses plasma-forging techniques to create an alloy of unparalleled resilience.
Neutronite	11	8	Neutronite is a tough steel alloy into which a weave of free neutrons has been pressed. It is extremely resilient but also incredibly massive, weighing approximately five times more than a similar volume of lead.
Megatanium	12	10	Sandwiched layers of crystal carbon and neovulcanium held in a magnetic matrix, megatanium is exceedingly hard and durable.
Reactive	13	8	Consisting of layers of insulating gel or compressed gas between cerametal sheets, reactive material provides the same protection as crystal carbon armour but is considerably cheaper and easier to produce.

CHAPTER 25: Combat

Combat is divided into rounds. With 12 rounds in every minute, a single round translates to five seconds of time, during which a character can perform one or more actions. Each round is broken into Strike Ranks, which determine when a character can act. Every combat round goes through the following steps:

1. **Determine Strike Ranks:** At the start of every combat round, roll D10 for each character and add the character's Strike Rank modifier. This will determine the character's Strike Rank – the order in which every character involved acts for the round.
2. **Characters Take 1st Action:** Each character involved in the combat performs one Combat Action in Strike Rank order. The character with the highest Strike Rank will act first, followed by the character with the second-highest Strike Rank, and so on until the character with the lowest Strike Ranks acts. Reactions, such as parries or dodges, are made during this process as appropriate.
3. **Characters Take 2nd Action:** After each character has completed his 1st action, characters with Combat Actions remaining may perform a second Combat Action, in Strike Rank order.
4. **Characters Take 3rd Action:** After each character has completed his 2nd action, characters with Combat Actions remaining (if any) may perform a third Combat Action, in Strike Rank order.
5. **Characters Take 4th Action:** After each character has completed his 3rd action, characters with Combat Actions remaining (if any) may perform a fourth Combat Action, in Strike Rank order.
6. **End of Combat Round:** Once all eligible characters have used up all their Combat Actions in the combat round, it is over. Fatigue is determined now, if applicable. If there are characters still engaged in combat with enemies, another combat round begins.

Initiative

The Tactics skill can be used to give an Initiative bonus to a whole unit at the start of combat. The unit commander may make a Tactics check, and everyone in the unit may increase their Strike Rank by 1 for a Success, 2 for a Critical and -1 for a Fumble.

The Leadership skill can be used to increase another character's Initiative. The character with Leadership makes a Leadership check, and the target character's may increase his Strike Rank by 1 for a Success, 2 for a Critical and -1 for a Fumble. Using the Leadership skill in this manner costs an action.

Strike Ranks

If two or more characters can act in the same Strike Rank, the characters will act in order of their DEX, with the highest going first. If two or more characters acting in the same Strike Rank have the same DEX score, they will act simultaneously.

Gaining Surprise

A surprised character suffers a -10 penalty to his Strike Rank during the first combat round. In addition, he may only use Reactions against actions that occur after his own Strike Rank.

The effects of surprise generally only last for the first combat round of a combat.

Combat Actions

The actions a character may take when it is his turn to act are detailed here.

Aim: Every Combat Action spent aiming adds a +10% bonus to the character's ranged Weapon skill. This bonus only applies to the first attack the character makes with the weapon, which must be at the target being aimed at. A maximum of three Combat Actions may be spent aiming, for a +30% bonus. A character can take no other Combat Action or Reaction while aiming without losing the aim bonus.

Change Stance: The character may shift from one of the following stances to another: standing, prone, kneeling or sitting. Any adjacent enemy may make a Reaction free attack in response to this action.

Charge: If a character can move a minimum of five metres, he can make a charge. He may move a distance up to twice his Movement. This must be in a straight line and he must end up adjacent to an enemy. When the move is complete, a close combat attack may be made against the enemy. If the attack is successful, the character gains a bonus of +1D4 damage.

Close Combat Attack: The character can make a single close combat attack.

Defend: A character may defend himself, effectively adding +20% to any Dodge Skill tests or parrying Weapon skill tests he is called upon to make until the beginning of his next Combat Action.

Delay: A character may pause to assess the tactical situation around him.

- ◆ If a delaying character merely wishes to act after a specific character has acted, they wait until that character has finished their Combat Action. The delaying character's Strike Rank is then altered reflect their new place in the Strike Rank order and they act as normal.
- ◆ If a delaying character wishes to interrupt a specific character's action as it occurs, or act immediately upon a specific trigger, the character must make a test appropriate to his interrupting action (a Weapon skill test if the character wishes to attack, for instance). If the trigger is capable of opposing the test with a test of its own relevant to its action, it may do so. Whoever wins the test acts first.

Once the character has acted, they are no longer delaying and their Strike Rank is modified appropriate to their new position in the Strike Rank order.

Fighting Retreat: He may move up to half his Movement directly away from an enemy he is fighting.

Sprint: Any adjacent enemy may make a Reaction free attack in response to this action and gains a +20% bonus for the attack. The character may move a distance up to twice his Movement score.

Flurry: A character may use all of his remaining Combat Actions at once, rather than waiting for other characters to act. Each blow struck in a flurry is at -20% to Weapon skill.

Move: Any adjacent enemy may make a Reaction free attack in response to this action. The character may move a distance up his Movement score.

Ranged Attack: The character can make a single ranged attack.

Ready Weapon: Drawing a sword from its sheath, unhooking an axe from one's belt, nocking an arrow to one's bow – all these actions require the Ready Weapon Combat Action. A single Ready Weapon action can also include dropping a weapon currently held to the floor and then drawing a new one. Sheathing one weapon and drawing another takes two Combat Actions, as does readying two weapons. Ranged weapons can be reloaded with this action – this takes as many Combat Actions as noted in the weapon's description.

Skill Use: Including normal use of skills and the use of Psionic talents and powers.

Close Combat Attacks

1 – Declare Attack

The attacker announces that he will be attacking his target.

2 – Target Reaction

If the enemy has any Reactions left, then this attack may be opposed. The target may attempt to dodge or parry the attack, as they choose. However, only one Reaction may be made to each successful attack.

If the enemy has no Reactions left, then this attack is unopposed.

3 – Opposed Test

The attack and defence rolls are then made simultaneously by the combatants and the results compared according to the opposed test mechanics. The attacker rolls D100 and compares it to the character's skill in the weapon he is using. The defender rolls D100 and compares it to either the character's Dodge skill or the character's skill in the weapon he is parrying with, as appropriate.

If the success levels are equal, the higher success roll wins and the lower roll is demoted by one level. If both combatants roll a normal success, then the higher roll remains a success, but the lower roll is downgraded to a failure, or if both roll a critical success the lower roll is downgraded to a normal success. If the participants achieve the same level of success with the same score on the die, then no downgrading takes place.

If the attack was unopposed, then the defender is counted as failing his test.

4 – Resolution

Look up the attacker and defender's results on the matrix appropriate to the defence being used and apply the results. In any case where damage is applied to the defender, roll D20 to determine the location struck on the target.

Attack Succeeds: Each weapon has its own Damage score, to which is added the attacker's Damage Modifier in order to determine the total damage being dealt. If the damage is greater than the target's SIZ at this point (before armour points are deducted), Knockback

occurs. If the defender is armoured in the location that is hit, the armour will absorb some of this damage. Reduce the attack's damage by the armour points (AP) of the location's armour, to a minimum of zero damage. Apply any remaining damage to the location's hit points.

Attack Fails: The attack has no effect.

Where the matrix refers to maximum or minimum damage, this applies to the weapon's damage dice only. Damage from a creature's damage modifier is rolled normally.

Close Combat Situational Modifiers

Situation	Skill Modifier ¹
Target is helpless	Automatic Critical Hit
Target surprised ²	+20%
Target prone or attacked from behind	+20%
Attacking or defending while on higher ground or on mount	+20%
Attacking or defending while prone	-30%
Attacking or defending while on unstable ground	-20%
Free motion of weapon arm obstructed (for example, a wall on the right side of a right-handed swordsman)	-10%
Attacking or defending while underwater	-40%
Defending while on lower ground or against mounted foe	-20%
Fighting in partial darkness	-20%
Fighting in darkness	-40%
Fighting while blind or in pitch black	-60%

¹ These modifiers are cumulative – attacking a character attacking a surprised target which is on lower ground increases their Weapon skill by 40%.

² A surprised character may only use Reactions against attackers with a Strike Rank lower than their own.

Impaling Close Combat Attacks

A character that scores a 'maximum damage' result with an impaling weapon causes maximum damage as normal. However, the character also has an additional choice – whether to yank the weapon free or to leave the enemy impaled.

Yanking

Yanking the weapon free requires a brute force Athletics test. If successful, the character automatically causes normal (not maximised) damage for the weapon once more, to the same location as the original strike, and has also regained their weapon for use.

If the brute force Athletics test fails, 1D4 damage is inflicted upon the impaled enemy's stricken location and the weapon remains stuck.

Impaled Enemies

Impaled enemies suffer from a -20% penalty to all skill tests, including Weapon skills, due to pain and physical difficulty. This penalty is cumulative.

A successful unarmed close combat attack that targets an enemy's impaled location results in the attacking character laying hold of the impaling weapon. They may immediately attempt to yank it free.

The impaled creature may also spend a Combat Action to yank the impaling weapon free themselves (this does not require an unarmed attack).

Another character may remove the impaling weapon in a cleaner and less agonising manner through the use of the First Aid skill.

Precise Attack

A character may make one precisely aimed attack in order to strike a specific hit location, bypass a target's armour, strike a target's weapon or disarm an enemy.

Precise attacks may not be made as part of a charge or flurry. All precise attacks are Hard; the character's Weapons Skill suffers a -40% penalty. Precise attacks cannot be combined in a single strike.

Bypass Armour

A precise attack can be used to find chinks in an opponent's armour, bypassing its protection. Instead of choosing a hit location, the character can determine it normally but if successful in his attack, will ignore all AP of the location he hits.

Disarm

The attacker declares that he is attempting to disarm the target of a single held weapon. If the attack successfully strikes the opponent, no damage is caused and instead an opposed Weapon skill is made. If either combatant is using a weapon in two hands, they gain a

+20% bonus to this test. Should the attacker succeed, his opponent's weapon flies 1D6–1 metres in a random direction (a result of 0 metres places at the defender's feet).

Location Strike

The attacker declares that he is aiming for a specific hit location of the target's body. If successful, this strike automatically hits the desired location, instead of using the normal Hit Location table.

Strike Weapon / Shield

The attacker declares that he is attempting to attack the target's held weapon or shield. If the attack is successful, any damage is dealt directly to the opponent's weapon, using the rules for attacking inanimate objects. Natural weaponry may not be attacked in this way.

Reactions

A character can make as many Reactions in a combat round as he has Combat Actions. Unlike Combat Actions, Reactions are not made during a character's Strike Rank but are made in response to the Combat Actions of enemies.

There are four types of Reaction – dodge, parry, dive for cover and free attacks.

Reactions are declared after the trigger event has occurred but before its effects are applied.

Only one Reaction may be made in response to a single trigger event, no matter how many Reactions a character has available.

Dodge

Trigger Event: A ranged or close combat attack being made against the character.

Restrictions: Helpless characters may not dodge.

Penalties: A mounted character suffers a –30% penalty to his Dodge Skill. If a character has his back to a wall, cliff, more enemies or is otherwise impeded from freely dodging in any direction, he will suffer a –20% penalty to his Dodge Skill.

Dodge Table

		Attacker's Result			
		<i>Critical</i>	<i>Success</i>	<i>Fail</i>	<i>Fumble</i>
Defender's Result	<i>Critical</i>	Attack succeeds but causes minimum damage.	Attack fails.	Attack fails. Attacker is Overextended.	Attack fails. Attacker is Overextended. Attacker must roll on the appropriate Fumble Table.
	<i>Success</i>	Attack succeeds.	Attack succeeds but causes minimum damage.	Attack fails.	Attack fails. Attacker must roll on the appropriate Fumble Table.
	<i>Fail</i>	Attack succeeds and causes maximum damage. Defender forced to Give Ground.	Attack succeeds. Defender forced to Give Ground.	Attack fails. Defender forced to Give Ground	Attack fails. Attacker must roll on the appropriate Fumble Table.
	<i>Fumble</i>	Attack succeeds and causes maximum damage. Defender must roll on the appropriate Fumble table.	Attack succeeds and causes maximum damage. Defender must roll on the appropriate Fumble Table.	Attack fails. Defender must roll on the appropriate Fumble Table.	Attack fails. Both sides roll on the appropriate Fumble Table.

Attack Succeeds: The dodge attempt failed and the attack resolves damage as normal.

Attack Fails: The attack is considered to have missed and therefore causes no damage.

Maximum Damage: The attack causes maximum weapon damage. Other additions to damage, such as from strength modifiers, are rolled as normal.

Minimum Damage: The attack causes minimum weapon damage. Other additions to damage, such as from strength modifiers, are rolled as normal.

Giving Ground: A character forced to Give Ground immediately retreats his Movement directly away from the attacker. The attacker has the option of either immediately following up and remaining adjacent to the defender, or remaining where he is. Neither the movement of the defender or the attacker cost any Combat Actions or Reactions in this case. If the defender cannot Give Ground their full Movement, they will move as far as possible and then stop.

Overextended: A character who attempted a close combat attack but Overextended themselves is rolln off balance. This imposes a – 20% penalty on the next Reaction the attacking character takes. As soon as the Overextended character performs another Combat Action, he recovers from his Overextension.

Roll on the Fumble Table: A character must roll on the Fumble Table appropriate to the weapon they are using when instructed.

Parry

Trigger Event: A close combat attack being made against the character.

Restrictions: Helpless characters may not parry. Ranged attacks may not be parried.

Improvisation: Parrying with improvised items, such as crossbows or fallen logs, is usually done using the Shield Skill, though the Games Master may decide a particular Weapon skill is more appropriate in other cases (such as the Club Skill for tree branches).

Parry Table

		Attacker's Result			
		Critical	Success	Fail	Fumble
Defender's Result	Critical	Attack succeeds and causes maximum damage, reduced by twice the AP of the parrying weapon.	Attack succeeds, damage is reduced by twice the AP of the parrying weapon.	Attack fails. Defender may Riposte.	Attack fails. Defender may Riposte. Attacker must roll on the appropriate Fumble Table.
	Success	Attack succeeds and causes maximum damage, reduced by the AP of the parrying weapon.	Attack succeeds, damage is reduced by the AP of the parrying weapon.	Attack fails.	Attack fails. Attacker must roll on the appropriate Fumble Table.
	Fail	Attack succeeds and causes maximum damage.	Attack succeeds.	Attack fails.	Attack fails. Attacker must roll on the appropriate Fumble Table.
	Fumble	Attack succeeds and causes maximum damage. Defender must roll on the appropriate Fumble Table.	Attack succeeds and causes maximum damage. Defender must roll on the appropriate Fumble Table.	Attack fails. Defender must roll on the appropriate Fumble Table.	Attack fails. Both sides roll on the appropriate Fumble Table.

Attack Succeeds: The dodge attempt failed and the attack resolves damage as normal.

Attack Fails: The attack is considered to have missed and therefore causes no damage.

Maximum Damage: The attack causes maximum weapon damage. Other additions to damage, such as from strength modifiers, are rolled as normal.

Minimum Damage: The attack causes minimum weapon damage. Other additions to damage, such as from strength modifiers, are rolled as normal.

AP of Parrying Weapon/Shield is Deducted from Damage: The attack still causes damage, however the damage is reduced by the AP of the parrying weapon or shield. The amount deducted from the attack's damage may also be double the parrying weapon/shield's AP, depending on the specific result on the Parry table.

Defender May Riposte: A Riposte is a free attack against the attacker. In order to make the free Riposte attack, the defender must have an available Reaction to spend.

Roll on the Fumble Table: A character must roll on the Fumble Table appropriate to the weapon they are using when instructed.

Free Attacks

Trigger Event: Free attacks are made in response to certain adjacent enemy actions.

Restrictions: Helpless characters may not make free attacks. Free attacks must always be close combat attacks.

The following situations will grant a free attack, as long as the reacting character is adjacent to the acting enemy:

- ♦ If the enemy makes a ranged attack. If the free attack causes damage, the ranged attack fails.
- ♦ If the enemy readies a weapon. If the free attack causes damage, the enemy must make a Dodge test or drop the weapon instead of readying it.
- ♦ If the enemy stands from prone. If the free attack causes damage, the enemy must make an Athletics test or remain prone.
- ♦ If the enemy moves away from the character without using the Fighting Retreat Combat Action. If the free attack causes damage, the enemy's Movement for that particular move is halved.
- ♦ If the enemy moves adjacent to the character without using the Charge Combat Action (which must be targeted at the character). This includes enemies who move through an adjacent area to the character en route to a further destination.
- ♦ If the enemy leaves himself open for a Riposte.

Free attacks are always single close combat attacks – they may not be charges, flurries or precise attacks. Enemies may parry or dodge free attacks with Reactions as normal.

Dive

Trigger Event: An area effect taking place that encompasses the character.

Restrictions: Helpless characters may not dive. Targeted attacks may not be evaded with a dive. A character that has nowhere to dive to may not dive. A prone character may not dive.

Penalties: A mounted character may not dive and remain mounted. A mounted character may dive with a –30% penalty to Dodge Skill, but automatically dismounts when he does so.

To dive for cover against an area attack, a character must succeed in a Dodge Skill test. If successful, he will halve the damage dealt by the attack. A critical success avoids all damage dealt by the attack.

Any character that attempts a dive, whether successful or not, becomes prone.

Ranged Weapons

Ranged weapon attacks are usually initiated through the Ranged Attack Combat Action. Ranged attacks may not be used as part of a charge or flurry. Regardless of the specific Combat Action that initiates the attack, all ranged attacks are handled in same manner as close combat attacks, with the following exceptions:

Loading Ranged Weapons

While readying most ranged weapons takes only a single Combat Action, others take more than one Combat Action to reload.

Ranged Attack Situational Modifiers

Situation	Skill Modifier
<i>Wind</i> ¹	
Strong wind	–10%
High wind	–20%
Fierce wind	–40%
Hurricane	Attack automatically fails
<i>Target Movement</i> ¹	
Target has moved 10m or more since attacker's last Combat Action	–10%
Target has moved 30m or more since attacker's last Combat Action	–20%
<i>Target Visibility</i> ¹	
Target obscured by smoke, mist or is in partial darkness	–20%
Target obscured by thick smoke, fog or is in darkness	–40%
<i>Target Size</i> ¹	
Per 1 SIZ target is under SIZ 5	–10%
Per 10 SIZ target is above SIZ 20	–10%
<i>Target Condition</i> ¹	
Target is helpless	+10%
Target surprised ²	+10%
Target prone	–20%
<i>Attacker Condition</i> ³	
Attacker is prone	–20%
Attacker is underwater ⁴	–20%
Attacker is on unstable ground	–20%
Attacker is blinded	–40%

¹ Modifiers within these sections are not cumulative. However, modifiers from different sections are cumulative. Therefore, shooting at a target within a mist that has moved more than 10m since the attacker's last Combat Action imparts a -20% penalty.

² A surprised character may only use Reactions against attackers with a Strike Rank lower than their own.

³ Attacker condition modifiers are cumulative.

⁴ Only rolln weapons may be used underwater. Bows and other projectile weapons will automatically miss if fired underwater.

Range

A target within the weapon's Range may be attacked without penalty. A target within double the weapon's Range may be attacked, but the attacker's effective Weapon skill is halved (before other modifiers are applied). Attacks against targets beyond the weapon's Range automatically fail.

Dodging and Parrying

The target may attempt to dodge the attack, but may not normally parry it.

Precise Attacks

A character may not attempt to disarm targets with ranged attacks, nor may he attempt to strike a target's weapon or shield. Precise ranged attacks made to bypass armour or hit a specific location operate normally.

Recoil

- When firing a ranged weapon with a Recoil rating, subtract the Recoil from the effective Strike Rank the next time using that weapon in this combat. Having an Action where you do not use the weapon removes this Recoil penalty.
- Small characters, below SIZ 10, have an effective +1 to Recoil, large creatures have -1 Recoil for every 10 points of SIZ, or part thereof, above 20.
- When firing automatic weapons in burst mode, increase Recoil by 1. When firing them on full auto increase Recoil by half the Auto score.

Automatic Weapons

- Any weapon that has an Auto rating may take advantage of Automatic Fire. When using Automatic Fire, a character may fire a number of shots equal to or below the Auto rating at once.
- When firing at a single target each extra shot after the first gives a +5% chance to hit.
- The attack roll is rolled normally and if it succeeds a proportion of the shots will hit the target. Roll a die equal to the number of shots, for an odd number roll a higher die and halve the number, the number rolled is the number of shots that hit the target.
- When firing at different targets there is no +5% bonus as the shots are spread out. Treat each target separately and allocate a number of shots to each target. Roll each shot individually and roll an appropriate die for each hit as above.
- So, using an Auto-Pistol in bursts of 3 would give +10% chance to hit and on a success the player rolls 1D3 for the number of shots that hit the target. Each shot that hits the target has damage rolled separately.
- Firing an auto-rifle at a group of 3 people means that the 10 shots are split 4/3/3, the first and second rolls succeed and the third fails, so the attacker rolls 1D4 to see how many shots hit the first target and 1D3 to see how many hit the second target.

Penetration

- Some ranged weapons and some types of ammunition are armour piercing. This is reflected in weapon's/ammunition's Penetration.
- Such weapons ignore APs equal to the Penetration before determining damage.
- If the APs are less than the Penetration then the remaining Penetration is ignored.

Hardness

- Armour has Hardness if it has been treated to oppose armour piercing weapons or ammunition.
- Each point of Hardness counters a point of Penetration, so ammunition with Penetration 3 fired against armour with Hardness 2 acts as though it has Penetration 1.

Cover

If a target is in cover or partially covered by an object, any attack that hits a covered location will instead hit the object. Cover affects both ranged and close combat attacks.

Firing into a Crowd

When firing into a crowd, the Games Master will determine which locations of the target have cover from the ranged attack. The ranged attack is then resolved as normal for a target behind cover.

If a covered location is hit by the attack, the firer has hit one of the individuals adjacent to the target. The accidental target may use Reactions against this attack as normal. If the attack damages the accidental target, roll the hit location randomly.

If the accidental target successfully dodges a ranged attack, the projectile continues on its original path and may strike the intended target. The intended target may use Reactions against this attack as normal.

A character may not make a precise attack when firing into a crowd.

Damage

When a character successfully scores damage against a target, the damage must be deducted from a specific hit location. Every weapon has a damage rating, which is listed in its statistical entry in the relevant Weapons table in the Equipment chapter. This is the amount of dice rolled when the weapon successfully hits a target, to which is added the attacker’s Damage Modifier.

Hit Locations

A successful attack will damage a specific hit location. To determine which location has been hit, roll 1D20 and compare the number rolled with the Humanoid Hit Location table.

Humanoid Hit Location

D20	Hit Location
1–3	Right Leg
4–6	Left Leg
7–9	Abdomen
10–12	Chest
13–15	Right Arm
16–18	Left Arm
19–20	Head

The amount of damage is deducted from the hit points of this location. So long as the location has hit points remaining, the character will suffer no further effects. If the location is reduced to zero hit points or less, then the character is injured:

Location’s Hit Points reduced to 0

The location has suffered a Minor Wound. The location will be permanently scarred and the character loses his next Combat Action.

Location’s Hit Points reduced to –1 or more

The location has suffered a Serious Wound. The location is permanently scarred and the character loses his next 1D4 Combat Actions.

Limbs

A limb will be rendered useless by a Serious Wound, until the location is restored to 1 hit point or more, or if the character receives First Aid. If a leg is rendered useless, the character drops prone.

Abdomen, Chest or Head

A character with either the Abdomen, Chest or Head suffering a Serious Wound must immediately make a Resilience test or fall unconscious. If the character remains conscious, this test will have to be repeated at the end of every Combat Round, until the location is restored to 1 hit point or more, or the character receives First Aid.

Location’s Hit Points reduced to a negative score greater than its starting Hit Points

The location has suffered a Major Wound. The location is permanently scarred and the extent of the injury may well permanently maim or kill the character.

Limbs

A limb will be either severed or mangled by a Major Wound. The character drops prone and must immediately make a Resilience test or fall unconscious. If the character remains conscious, this test will have to be repeated at the end of every Combat Round, until the location is restored to 1 hit point or more, or the character receives First Aid. If the location does not recover within a number of Combat Rounds equal to the character’s CON+POW, the character dies from blood loss and shock.

Abdomen, Chest or Head

A character with either the Abdomen, Chest or Head suffering a Major Wound must immediately make a Resilience test or die. If the character lives, another Resilience test must be made to stay conscious. Both tests will have to be repeated at the end of every Combat Round, until the location is restored to 1 hit point or more, or the character receives First Aid. If the location does not recover within a number of Combat Rounds equal to *half* the character’s CON+POW, the character dies from blood loss, shock and internal injuries.

One Useless or Missing Arm

A character that has one arm rendered useless drops anything held in that arm’s hand. The character may not use any weapon that requires two hands, such as great axes or bows. They also suffer a –20% penalty to any Skill that normally relies upon using two arms or hands, such as Athletics tests to swim or Boating tests to paddle.

Two Useless or Missing Arms

A character that has both arms rendered useless drops anything held in either arm's hand. The character may not use any weapon. Most Skills based on STR or DEX are impossible, though some (such as Athletics and Dodge) only suffer a –30% penalty.

One Useless or Missing Leg

A character that has one leg rendered useless may only stumble along. This halves their Movement score. They also suffer a –10% penalty to any Skill that relies upon physical mobility, such as Athletics, Dodge, Stealth and Weapon skills.

Two Useless or Missing Legs

A character that has both legs rendered useless may only crawl – their Movement is reduced to 1 metre and they will be prone until at least one leg is restored. Most Skills that rely upon physical mobility are impossible, though some (such as Dodge and Stealth) only suffer a –30% penalty.

Knockback

Knockback can occur when a character is hit by ranged or close combat attacks.

Knockback occurs after Reactions have been completed, but before armour points are deducted from the attack's damage. If the damage at this point exceeds the target's SIZ, the target is knocked backwards 1 metre by the force of the attack.

For every five full points the damage exceeds the target's SIZ, they are knocked back an additional metre.

A character that suffers from Knockback must also succeed at an Acrobatics test or fall prone.

If a character is knocked back into a wall or other solid object, he must make a Dodge Skill test or suffer 1D4 damage to a random hit location as they slam into the obstruction.

If the character who caused the damage did so as part of a Charge Combat Action, the distance the target is knocked back is doubled.

Mounted characters suffering from Knockback can add the SIZ of their mount to their own if they make a successful Riding Skill test. If this roll is failed, only the character's own SIZ is used and any Knockback will cause him to be knocked off his mount.

Characters in Low-G or Zero-G environments suffer double the effects of Knockback.

Two Weapon Use

A character wielding two weapons or a weapon and a shield may use the off-hand item to either:

- ◆ Parry one additional attack per Combat Round (over and above the normal Reaction allowance)

OR

- ◆ Gain a single bonus Close Combat Attack action. This bonus attack may not be a precise attack and suffers a –20% penalty to the relevant Weapon or Shield Skill.

Mounted Combat

Untrained Mounts

The rider of a mount unused to combat must make a Riding Skill test at the start of each Combat Round.

Failing this test will cause the horse to automatically use the Flee Combat Action at every opportunity for the remainder of the Combat Round.

Succeeding this test allows the horse to be treated as a trained mount for the remainder of the Combat Round.

A mounted adventurer can use no weapon at a Skill level greater than his Riding skill score.

A mounted warrior has a +20% bonus to his attacks and parries against adjacent opponents on foot; a character on foot defending against a mounted attacker suffers a –20% penalty to his Reaction skill. These modifiers do not apply if the target on foot is as tall as the mounted character is while mounted.

A mounted warrior is prohibited from using weapons dependent on a 2H Weapon skill, Polearm or Staff while mounted.

A mounted character uses his mount's Movement score when moving rather than his own.

Hit Locations in Mounted Combat

Unless a mounted combatant is using a weapon dependent on the Spear skill, re-roll the location for all Leg hits by mounted attackers against opponents on foot.

Unless a footsoldier is using a weapon dependent on the Spear, Polearm or a 2H Weapon skill, re-roll the location for all Head hits by footsoldiers against mounted combatants.

Unarmed Combat

If an unarmed attack is parried by a crafted or natural weapon, the attacker will immediately suffer the rolled damage of the parrying weapon, with no damage modifier, to the limb he is using. This is in addition to the normal effect of the parry.

Natural Weapons

Natural weapons such as the teeth and claws of monsters are counted as weapons and not unarmed attacks. The damage they deal is listed in the monster's description. They may parry other natural weapons or unarmed attacks, but not crafted weapon attacks.

Grappling

A grapple attack is made in the same way as a normal unarmed or natural weapon attack but must be declared as such before any dice are rolled.

Should the attacker hit with his grapple attack, no damage is initially caused. Instead, the attacker then opposes an Unarmed Skill test to the target's Unarmed skill, Shield skill or Dodge skill (target's choice). The attacking and defending players then look up their results on the Grapple Table.

Grapple Table

		Attacker's Result			
		<i>Critical</i>	<i>Success</i>	<i>Fail</i>	<i>Fumble</i>
Defender's Result	<i>Critical</i>	Impasse.	Grapple fails.	Grapple fails. Defender may Riposte	Grapple fails. Defender may Riposte. Attacker rolls on Natural Weapons Fumble Table.
	<i>Success</i>	Grapple succeeds.	Impasse.	Grapple fails.	Grapple fails. Attacker rolls on Natural Weapons Fumble Table.
	<i>Fail</i>	Grapple succeeds. Attacker may Immobilise or Roll defender.	Grapple succeeds.	Grapple fails.	Grapple fails. Attacker rolls on Natural Weapons Fumble Table.
	<i>Fumble</i>	Grapple succeeds. Attacker may Immobilise or Roll defender. Defender rolls on appropriate Fumble Table.	Grapple succeeds. Defender rolls on appropriate Fumble Table.	Grapple fails. Defender rolls on appropriate Fumble Table.	Both combatants roll on Appropriate Fumble Table.

Impasse: The attacker has achieved a partial hold. The defender is not considered grappled but the attacker gains a +20% modifier on his next combat skill test against the defender.

Grapple Fails: The grapple attempt fails and the attack is considered to have missed.

Grapple Succeeds: The grapple attempt is successful and the two combatants are now grappling.

Attacker may Immobilise or Roll Defender: The grapple is a phenomenal success. The two combatants are now grappling and the attacker may immediately follow up on this success by attempting a free Roll or Immobilise manoeuvre.

Defender may Riposte: The grapple fails badly. The attack is considered to have missed. The attacker has also left himself wide open for a Riposte, which the defender may immediately take advantage of. See above.

Martial Arts

A character with Martial Arts may use his Martial Arts Skill rather than any other skill in the grapple rules.

Grappling Combatants

Grappling combatants will remain locked together until one combatant breaks free or is rolln out of the grapple. Grappling combatants suffer a –20% penalty to any tests that do not target or directly respond to their grapple partner. Grappling combatants may not use Reactions.

A grappling combatant is restricted to the following special Combat Actions

- **Break Free:** To break out of a grapple, the character makes a grapple attempt, designating himself as the defender. The character may only use the Unarmed Skill or a Natural Weapon skill in this case. Compare the opposed results on the Grapple table – a result of ‘grapple fails’ means the character has succeeded in breaking free and the combatants are no longer grappling, though they will be adjacent.
- **Immobilise:** While immobilised, enemies are considered helpless. It takes a successful Unarmed skill test to immobilise an opponent – this test suffers a penalty equal to the opponent’s DEX+STR. An immobilised character may only use his Combat Actions to attempt to escape. Escape requires a successful Unarmed skill test with a penalty equal to the opponent’s STR+SIZ.
- **Inflict Pain:** It takes a successful Unarmed Skill test to inflict pain – this test suffers a penalty equal to the opponent’s DEX+CON. If this skill test succeeds, the damage is 1D6 + damage modifiers and applies to a random location.
- **Roll:** It takes a successful Unarmed Skill test to roll an opponent – this test suffers a penalty equal to the opponent’s DEX+SIZ. If this skill test succeeds, the opponent is rolln 2 metres and suffers 1D6 damage, applied to a random location. The grapple ends in this case.

Hero Points

Hero points can be used in a variety of ways. One Hero Point is deducted form the character’s total every time one of the following options is taken.

Second Chance: A character can re-roll any dice roll that affects his character. This can be a skill test, damage roll or anything else that has some effect on him.

Glancing Blow: A character who suffers a Major Injury may spend a Hero Point and downgrade that injury to a Serious Injury. This simultaneously reduces the damage so that it is at a negative score equal to its starting hit points.

Luck of the Heroes: A Hero Point may be spent to alter the storyline of the current scenario in some minor way. This may only be done with the approval of the Games Master and allows a character to become truly lucky for a short period of time.

Legendary Abilities: The character may spend Hero Points to acquire a Legendary Ability he has qualified for.

Combat Fumbles

Close Combat Fumble Table

1D20	Result	Effect
1-3	Falter	Lose next Combat Action.
4-6	Drop Weapon	Weapon falls 1D4 metres away.
7-9	Lose Balance	Lose next 1D3 Combat Actions.
10-12	Damage Weapon	Weapon takes damage from opponent’s parrying weapon. Else weapon strikes an inanimate object (tree, wall, ground, etc) and does damage to itself.
13-14	Stumble	Trip and fall prone. Forfeit next 1D3 Combat Actions. All defensive actions at a –20% penalty.
15-16	Lose Armour	Roll for hit location to determine where the armour fell from. If not armoured, roll again.
17	Hit Ally	Accidentally strike a nearby companion for normal rolled damage. If no ally within reach, hit self instead.
18	Break Weapon	The weapon strikes the ground, a wall, or a similar surface capable of causing damaging. The weapon takes 1D10 points of damage, plus the user’s Damage Modifier, but reduced by the AP of the weapon. Roll three times.
19	Hit Self	Inadvertently hit own hit location for normal rolled damage, plus Damage Modifier.
20	Unlucky	Roll twice on this table.

Natural Weapon Fumbles

1D20	Result	Effect
01-03	Hesitate	Lose next Combat Action.
04-06	Numb Limb	Limb is temporarily paralysed until a successful Resilience roll is made, starting next Combat Action.
07-09	Entangle Self	Lose next 1D3 Combat Actions.
10-12	Damage Limb	Limb is injured from striking opponent's parrying weapon, armour or an inanimate object (tree, wall, ground, etc) and does damage to itself.
13-14	Sprawl	Trip and fall prone. Forfeit next 1d3 Combat Actions. All defensive actions at a –20% penalty.
15-16	Break Limb	Limb is reduced to –1 hit points (a Serious Wound).
17-18	Hit Ally	Accidentally strike a nearby companion for normal rolled damage. If no ally within reach, damage is done to self instead from wrenching a random location.
19	Fated	Roll twice on this table.
20	Cursed	Roll three times on this table.

Ranged Weapon Fumbles

1D20	Result	Effect
1-2	Disoriented	Attacker loses next Combat Action.
4-6	Drop Weapon	Weapon falls 1D2 metres away.
7-9	Snare Weapon	Lose next 1D3 Combat Actions.
10-12	Lose Weapon	Weapon string either snaps or weapon is lost when rolln.
13-14	Damage Weapon	Weapon when fired or rolln suffers rolled damage to itself.
15-16	Hit Ally	Accidentally strike a nearby companion for normal rolled damage.
17-18	Misfire	Inflict normal damage on self.
19	Bedevilled	Roll twice on this table.
20	Damned	Roll three times on this table.

Special Considerations

Battlefield Comms

Communications technology is a vital part of the battlefield. If a character is not in communication with the rest of his unit and his commander, then he cannot benefit from Tactics or Leadership. Characters who benefitted from Tactics at the start of combat and are later cut off from their commander have their Initiative lowered by the same amount it was boosted at the start of combat. Unlike other Initiative modifications, this lasts until combat ends or communication is re-established. There are several methods of communication:

- Direct: This covers hand signals and verbal communications.
- Hardlinks: Hardlinks are wires or other physical connections, and cannot be jammed.
- Radio: Radio communications allow communications as long as the radio signal can get through – they can be jammed or blocked by local conditions.
- Laser: Two characters with tight beam lasers are in communication as long as line of sight exists between a character and another friendly laser-comm equipped character.
- Masers: These work just like lasers, but can cut through smoke and aerosols.
- Meson: Meson communicators cannot be jammed or blocked, but cannot be used while a character is moving.

Battlefield Sensors

There are several types of sensors.

- Bioscanner: Bioscanner 'sniffers' detect airborne pathogens and hazardous chemicals.
- Infra-Red (Heat): Infra-red sensors detect warm bodies, and negate concealment from smoke and soft cover, but can be jammed by strong heat sources.

- **Densitometer:** An outgrowth of gravitic technology, a densitometer can scan an area and plot variable densities, effectively creating a three-dimensional map of all objects.
- **Electromagnetic Detectors:** These sensors can detect unshielded high-power electrical devices, such as gauss weapons or transmitters.
- **Laser-Assisted Targeting:** A low-powered laser is reflected off the target, giving targeting data to the firer.
- **Light Intensification:** Light intensification technology magnifies visible light, negating the penalties for darkness or low light.
- **Motion Sensors:** Can detect motion within range.
- **Neural Activity Sensor:** A combination of highly sensitive EM-detectors and Psionic theory, NAS detectors pick up on the brain activity of living beings and classifies them according to amount and complexity, giving a rough idea of the intelligence of subjects.

Battlefield Sensors may be used to counteract Penalties incurred by poor conditions. So, they may be used to see in the dark, to see through fog, smoke, driving rain and snow.

Explosions

Grenades, rockets and other explosives affect an area. A character caught in an explosion may dodge as a normal Reaction. A character who dodges an explosion may reduce the damage by 1d6 if he just dodges or by half if he dives for cover. A character who dives for cover ends up prone and loses his next action.

Grenades

Grenades are explosive devices that are rolln or propelled at a target, doing no damage themselves but having a harmful payload. A grenade that successfully hits does its damage to the intended target and also does damage to those nearby. A grenade that misses falls 1D6 metres from the intended target in a random direction and may well explode and damage the target.

CHAPTER 26: Vehicular Combat

For simply travelling from point to point, the vehicle used is largely a matter of personal style and finances. Skill rolls are only required in extraordinary circumstances. These rules are primarily focused on ground vehicles—cars, trucks, and light military vehicles. The rules can be modified for boats, heavier armoured vehicles, and aircraft.

Characters in Vehicles

A character in a vehicle fills one of several possible roles, which determines what the character can do.

- **Driver:** The driver of the vehicle controls its movement. Most vehicles have only one position from where the vehicle can be driven, so the person seated there is the driver. Driving a vehicle is, at a minimum, a combat action, which means that the driver may be able to do something else with his or her other actions. There can be only one driver in a vehicle at one time.
- **Co-pilot:** A Co-pilot can help the driver by taking an aid another action. The Co-pilot must be seated in a location where he or she can see the road and advise the driver (in a car, this generally means the front passenger seat). Aiding the driver is a combat action, leaving the Co-pilot with extra actions each round to do something else. A vehicle can have only one Co-pilot at a time. A Co-pilot can also drive the vehicle if the driver cannot or chooses not to, provided there is a second set of controls at the Co-pilot's seat (usually true in aircraft, but not ground vehicles).
- **Gunner:** Some vehicles have built-in weapons. If such a weapon is controlled from a location other than the driver's position, a character can man that position and become the gunner. A vehicle can have as many gunners as it has gunner positions.
- **Passenger:** All other personnel aboard the vehicle are considered passengers. Passengers have no specific role in the vehicle's operation, but may be able to fire weapons from the vehicle or take other actions.

Driver Options

Here is what a vehicle driver can do in a single round:

Choose the Vehicle's Speed: The driver may increase or decrease his or her vehicle's speed category by one (or keep it the same).

Optional Attack Action: If the driver wants, and if he has any combat actions left, he or she can use a combat action before moving the vehicle.

Movement: Move the vehicle any number of squares within the vehicle's speed category. Along the way, perform any number of simple manoeuvres (limited only by their movement cost). The driver may also attempt a single stunt as part of the movement (or two, if the driver has enough actions).

Vehicle Movement

These rules are fairly detailed and for square-grid based movement. Games that do not use such grids for movement can still use these rules for movement but in a looser fashion.

Scale

These rules use two scales. If the encounter involves both vehicles and characters on foot, use character scale. If the scene involves only vehicles, and they're likely to move at much higher speeds than characters or creatures on foot, use vehicle scale.

Character Scale: Character scale is identical to the standard movement scale: If you use grid paper in your games to keep track of character movement then you can do the same to work out character and vehicle movement. In character scale, most vehicles are large enough to occupy multiple squares on the map grid. How many squares a vehicle occupies is specified in the vehicle's description. When moving a vehicle, count the squares from the vehicle's rear. When turning, pivot the vehicle on the rear square toward which it is turning. When firing weapons, count squares from the location of the weapon. In character scale, more than one ground vehicle cannot occupy the same square.

Chase Scale: In chase scale, each square of the grid represents 15m. In chase scale, most commonly encountered vehicles occupy only one square. (Some especially large vehicles, such as ships or jumbo jets, might occupy more than one square.) More than one vehicle can occupy the same square. Vehicles in the same square are considered to be up to 7m apart for the purposes of determining range for attacks.

Facing and Firing Arcs

Unlike with characters, when dealing with vehicles, the vehicle's facing (the direction it's pointing) is important. Facing indicates the direction in which the vehicle is travelling (assuming it's not moving in reverse). It can also determine which weapons aboard the vehicle can be brought to bear on a target.

A weapon built into a vehicle can be mounted to fire in one of four directions—forward, aft (rear), right, or left—or be built into a partial or full turret. A partial turret lets a weapon fire into three adjacent fire arcs (such as forward, left, and right), while a full turret lets it fire in any direction. For vehicles with weapons, a weapon's arc of fire is given in the vehicle's description.

Getting Started

Most vehicles can be entered with a combat action and started with a second combat action. An exception is noted in a vehicle's description when it applies.

Initiative

There are two options for determining initiative in vehicle combat. First is individual initiative just as in normal combat, where each character rolls separately. This is probably the best method if most or all characters are aboard the same vehicle, but it can result in a lot of delayed or readied actions as passengers wait for drivers to perform manoeuvres. An alternative is to roll initiative for each vehicle, using the vehicle's initiative modifier. This is particularly appropriate when characters are in separate vehicles, since it allows everyone aboard the same vehicle to act more or less simultaneously.

Vehicle Speed

Vehicle speed is expressed in five categories: stationary, alley speed, street speed, highway speed, and all-out. Each of these speed categories represents a range of possible movement (see Table: Vehicle Speeds and Modifiers). Each round, a vehicle moves according to its current speed category.

Stationary:	The vehicle is motionless.
Alley Speed:	This speed is used for safely manoeuvring a vehicle in tight spaces, such as alleys and parking garages. It tops out at about the speed a typical person can run.
Street Speed:	The vehicle is travelling at a moderate speed, up to about 35 miles per hour.
Highway Speed:	The vehicle is moving at a typical highway speed, from about 35 to 80 miles per hour.
All-Out:	The vehicle is travelling extremely fast, more than 80 miles per hour.

Speed Factor (SF):	A number relating to the Speed category, used to determine ram damage amongst other things
Movement (MOV):	The number of squares a vehicle can move at this speed.
Turn Number (TN):	The number of squares a vehicle must move at this speed before making a turn.
Roll Modifier:	The penalty applied to the Drive skill when driving at these speeds.

Speed Category	Speed Factor	Character Scale		Chase Scale		To Hit Penalty	Roll Modifier
		MOV	TN	MOV	TN		
Stationary	0	0	N/A	0	N/A	0%	N/A
Alley Speed	1	1-20	1	1-2	1	-10%	0%
Street Speed	2	21-50	2	3-5	1	-20%	-10%
Highway Speed	3	51-150	4	6-15	2	-30%	-20%
All-Out	4	151+	8	16+	2	-40%	-40%

Declaring Speed

At the beginning of his or her action, a driver must declare his or her speed category for the round. The driver can choose to go one category faster or slower than the vehicle's speed category at the end of the previous round or may continue with the same speed category. A stationary vehicle can change to alley speed in either forward or reverse. Most vehicles cannot go faster than alley speed in reverse.

Moving

On his or her action, the driver moves the vehicle a number of squares that falls within the vehicle's speed category. Unlike characters, a vehicle cannot double move, run, or otherwise extend its movement (except by changing to a higher speed category). Every vehicle has a top speed, included in its statistics. A vehicle cannot move more squares than its top speed. This means that some vehicles cannot move at all-out speed, or even highway speed. Count squares for vehicles just as for characters. Vehicles can move diagonally; remember that when moving diagonally, every second square costs two squares' worth of movement. Unlike with moving characters, a vehicle's facing is important; unless it changes direction, a vehicle always moves in the direction of its facing (or in the opposite direction, if it's moving in reverse).

The Effects of Speed

A fast-moving vehicle is harder to hit than a stationary one—but it's also harder to control, and to attack from. When a vehicle travels at different speeds, it gains a To Hit Penalty, i.e. anyone attacking the vehicle has this penalty to their attack chance. However, that speed brings along with it a penalty on all skill rolls and attack rolls made by characters aboard the vehicle—including Drive checks to control the vehicle and attacks made from it.

Driving a Vehicle

Driving a vehicle does not in itself cost an action, but moving the vehicle does. During his or her move action, the driver moves the vehicle a number of squares that falls within its speed category. The driver can attempt manoeuvres to change the vehicle's course or speed. These manoeuvres can be attempted at any point along the vehicle's route. The driver can choose to use his or her attack action to attempt additional manoeuvres.

The two kinds of vehicle movement are simple manoeuvres and stunts.

Simple Manoeuvres: A simple manoeuvre, such as a 45-degree turn, is easy to perform. Each takes a Combat action and can be taken as many times as the driver likes while he or she moves the vehicle. However, simple manoeuvres do cost movement—so a vehicle

that makes a lot of simple manoeuvres will not get as far as one going in a straight line. Simple manoeuvres do not require the driver to make skill checks.

Stunts: Stunts are difficult and sometimes daring manoeuvres that enable a driver to change his or her vehicle’s speed or heading more radically than a simple manoeuvre allows. A stunt costs an action. Stunts always require Drive checks.

Simple Manoeuvres

During a vehicle’s movement, the driver can perform any one of the following manoeuvres.

45-Degree Turn: Any vehicle can make a simple 45-degree turn as part of its movement. The vehicle must move forward at least a number of squares equal to its turn number (TN) before it can turn. Making a 45-degree turn costs 1 square of movement.

Ram: At character scale, a driver does not have to perform a manoeuvre to ram another vehicle—he or she only needs to drive his or her vehicle into the other vehicle’s square, and a collision occurs.

At chase scale, however, more than one vehicle can occupy the same square and not collide—so ramming another vehicle requires a simple manoeuvre. The driver moves his or her vehicle into the other vehicle’s square and states that he or she is attempting to ram. Resolve the ram as a collision, except that the driver of the target vehicle can make a Drive roll to reduce the damage to both vehicles by half.

Sideslip: A driver might wish to move to the side without changing the vehicle’s facing, for instance to change lanes. This simple manoeuvre, called a sideslip, allows a vehicle to avoid obstacles or weave in and out of traffic without changing facing. A sideslip moves a vehicle 1 square forward and 1 square to the right or left, and costs 3 squares of movement.

Stunts

Stunts are manoeuvres that require a Drive roll to perform successfully. Unsuccessful stunts often result in the vehicle ending up someplace other than where the driver intended. When this happens, the vehicle collides with any objects in its path. Remember that the roll modifier affects all Drive rolls made by the driver and attack rolls made by all occupants of the vehicle.

Avoid Hazard: Vehicle combat rarely occurs on a perfectly flat, featureless plain. When a vehicle tries to move through a square occupied by a hazard, the driver must succeed on a Drive roll to avoid the hazard and continue moving.

Structures simply cannot be avoided. Also, if a driver cannot make a roll (if he or she has used all his or her actions for the round in performing other stunts), he or she automatically fails to avoid the hazard. In such cases, a collision occurs.

The penalty to the Drive roll to avoid a hazard varies with the nature of the hazard.

On a failed roll, the vehicle hits the obstacle. For caltrops, this means the caltrops make an attack against the vehicle (see Caltrops).

An oil slick forces the drive to make a Drive roll to retain control of the vehicle (see Losing Control). Failing to avoid an object results in a collision with the object (see Collisions and Ramming).

Hazard	Penalty to Avoid
Caltrops	-20%
Oil Slick	-10%
Small Object (tyre, light debris)	-10%
Medium Object (Crate)	-20%
Large Object (pile of wreckage)	-30%
Structure	Cannot be avoided

Bootleg Turn: By making a bootleg turn, a driver can radically change direction without turning in a loop. However, in so doing, the vehicle comes to a stop. Before a vehicle can make a bootleg turn, it must move in a straight line at least a number of squares equal to its turn number. To make a bootleg turn, simply change the vehicle’s facing to the desired direction. The vehicle ends its movement in that location, at stationary speed. It is more difficult making larger bootleg turns.

On a failed roll, instead of facing the desired direction, the vehicle only changes facing by 45 degrees. Make a Drive roll to retain control using the same penalty for the bootleg turn attempted.

Facing Change	Penalty
45 degrees	-10%
90 degrees	-20%
135 degrees	-30%
180 degrees	-40%

Dash: With a dash stunt, a driver can increase the vehicle’s speed by one category. (This increase is in addition to any speed change made at the beginning of the driver’s action; if the driver increased speed at that time, he or she can accelerate a total of two categories in the same round.) The vehicle’s total movement for the round cannot exceed the maximum number of squares for its new speed category. (The squares it has already moved before attempting the dash count against this total.)

The driver can only succeed at one dash per round. To make a Dash, the driver must succeed in a difficult (-20%) Drive roll. On a failed roll, the vehicle does not change speed categories.

Hard Brake: With a hard brake stunt, a driver can reduce the vehicle’s speed by up to two categories. (This is in addition to any speed change made at the beginning of his action; if the driver reduced speed at that time, he or she can drop a total of three categories in the same round.) The vehicle’s movement for the round ends as soon as it has moved the minimum number of squares for its new speed category. (If it has already moved that far before attempting the hard brake, it ends its movement immediately.)

The driver can only succeed at one hard break per round. The driver must make a Difficult (-20%) Drive roll. On a failed roll, the vehicle does not change speed categories. Make a Difficult (-20%) Drive roll to retain control.

Evasive Action: Vehicles are not typically manoeuvrable enough to dodge as a reaction. Instead, the driver may declare that he is taking evasive action when his turn arrives. He makes a skill check (skill determined by vehicle), success give a -20% Penalty to all

attacks against the vehicle or its passengers, a Critical gives a -40% penalty and a fumble gives a +20% Bonus. Any attacks made from the vehicle also suffer the Penalty as the vehicle is being rolln around, except that a fumble gives a Penalty not a Bonus to anyone attacking from inside the vehicle. This lasts until the driver’s next action.

Hard Turn: A hard turn allows a vehicle to make a turn in a short distance without losing speed. A hard turn functions like a 45-degree turn simple manoeuvre, except that the vehicle only needs to move forward a number of squares equal to half its turn number (rounded down). The driver must make a Difficult (-20%) Drive roll. On a failed roll, the vehicle continues to move forward a number of squares equal to its turn number before turning, just as with a simple 45-degree turn. Make a Difficult (-20%) Drive roll to retain control.

Jump: A driver can attempt to jump his or her vehicle across a gap in his or her path. To make a jump, the vehicle must move in a straight line a number of squares equal to its turn number. If the vehicle doesn’t have enough movement left to clear the gap, it must complete the jump at the start of its next turn. The difficulty of a jump depends on the width of the gap, modified by the vehicle’s speed category. On a failed check, the vehicle fails to clear the gap, and instead falls into it (or collides with the far side). Determine damage as for a collision.

Gap	Width	Penalty	Speed Category	Modifier
Ditch	1m	-5%	Alley Speed	-20%
Culvert	1.1m - 3m	-10%	Street Speed	-10%
Creek, small ravine	3.1m - 5m	-20%	Highway Speed	+0%
Narrow road, small pond	5.1m - 8m	-30%	All-Out	+10%
Wide road, small river	8.1m - 15m	-40%		

A shallow gap (1 to 3 feet deep) is equivalent to a Medium-size object; the vehicle may be able to avoid taking collision damage from the failed jump by treating the far side as a hazard and then continue moving (see Avoid Hazard, above).

A moderately deep gap (4 to 10 feet deep) is equivalent to a Huge object. The vehicle can only drive out of the gap if the walls are not too steep.

A deeper gap (11 feet or deeper) is equivalent to a Colossal object. The vehicle can only drive out of the gap if the walls are not too steep.

If the gap is filled with water, the vehicle takes only half damage from the collision with the ground. However, if the water is too deep or the bottom is too soft (GM’s discretion), the vehicle might not be able to move.

Sideswipe: During a vehicle’s movement, a driver can attempt to sideswipe a vehicle or other target, either to deal damage without fully ramming it or to cause another driver to lose control of his or her vehicle.

At character scale, a vehicle must be side by side with its target (that is, occupying the square or squares directly to its side) and moving in the same direction. Attempting a sideswipe costs 1 square of movement.

At chase scale, the vehicle must be in the same square as its target and moving in the same direction. There is no movement cost. The Driver must make a Drive roll with a Penalty of -10% for every difference in speed category between the two vehicles. If the stunt is successful, the sideswiping vehicle and the target both take damage as if they had collided, except that the collision multiplier is 1/4, and the target (or driver of the target vehicle) can make a Drive roll to reduce the damage to both by half. If the target is another vehicle the driver must succeed in a Drive roll at the beginning of his or her next action or lose control of the vehicle. On a failed roll, both vehicles take damage as though the sideswipe attempt was a success. However, the other driver does not need to make a roll to retain control.

Weave: In an environment with many obstacles, such as an inner city or tight underground caverns, a driver or pilot may choose to weave his vehicle in and around the obstacles at high speed in order to evade pursuit. The driver chooses a weaving number, between 5% and the Speed factor x 10%, and must then make a Drive roll with the weaving number as a penalty on his roll. If he fails, he loses control of his vehicle, if he fumbles he has woven into an obstacle and crashed. If he succeeds, any pursuers must choose a weave action when their Strike Rank comes up and make their skill test at the same penalty with the same consequence for failure. Alternatively, they can choose to break off pursuit and either give up or try to reacquire the target later.

Collisions and Ramming

A collision occurs when a vehicle strikes another vehicle or a solid object. Generally, when a vehicle collides with a creature or other moving vehicle, the target can attempt a Drive roll to reduce the damage by half.

Resolving Collisions

The base damage dealt by a vehicle collision depends on the speed and size of the objects involved. The damage is based on the speed of the ramming or colliding vehicle, the difference in speed categories and the relative sizes of the vehicles.

Highest Speed	Stationary	Alley Speed	Street Speed	Highway Speed	All-Out
Base Damage Dice	0	1D3	1D4	1D6	2D6

Increase the base damage by 1D6 for every difference in speed factors. Head-on collisions add the speed factors together rather than using the difference. When the vehicles are moving at the same rate, then halve the damage done. Where vehicles are of drastically different sizes then add between 1D6 and 4D6 to the damage as appropriate.

So, two cars involved in a head-on collision, one moving at highway speed and the other at Street Speed will do 1D6+5D6 damage.

Once the damage has been determined, apply it to both vehicles (or objects or creatures) involved in the collision. Both vehicles reduce their speed by two speed categories, except in the case of a sideswipe. If the colliding vehicle moved the minimum number of

squares for its new speed category before the collision, it ends its movement immediately. If not, it pushes the other vehicle or object aside, if possible, and continues until it has moved the minimum number of squares for its new speed category.

The driver of the vehicle that caused the collision must immediately make a Drive roll or lose control of the vehicle. The driver of the other vehicle must make a Drive roll at the beginning of his or her next action or lose control of his or her vehicle.

Damage to Vehicle Occupants

When a vehicle takes damage from a collision, its occupants may take damage as well. The base amount of damage depends on the cover offered by the vehicle.

Cover	Damage
None	Same as damage taken by vehicle
One-quarter	One-half damage taken by vehicle
One-half	One-quarter damage taken by vehicle

Three-quarters or more None

Each of the occupants may make a Luck roll to take half damage.

Losing Control

A collision or a failed stunt can cause a driver to lose control of his vehicle. In these cases, the driver must make a Drive roll to retain control of the vehicle. If this check is successful, the driver maintains control of the vehicle. If it fails, the vehicle goes into a spin. If the roll is fumbled, the vehicle rolls. Remember that the roll modifier from the vehicle's speed applies to all Drive rolls.

An out-of-control vehicle may strike an object or other vehicle. When that happens, a collision occurs.

Spin: The vehicle skids, spinning wildly.

At character scale, the vehicle moves in its current direction a number of squares equal to the turn number for its speed, then ends its movement. Once it stops, roll 1d8 to determine its new facing: 1, no change; 2, right 45 degrees; 3, right 90 degrees; 4, right 135 degrees; 5, 180 degrees; 6, left 135 degrees; 7, left 90 degrees; 8, left 45 degrees. Reorient the vehicle accordingly.

At chase scale, the vehicle moves 1 square and ends its movement. Roll to determine its new facing as indicated above.

Roll: The vehicle tumbles, taking damage.

At character scale, the vehicle rolls in a straight line in its current direction for a number of squares equal to the turn number for its speed, then ends its movement. At the end of the vehicle's roll, reorient the vehicle perpendicular to its original direction of travel (determine left or right randomly).

At chase scale, the vehicle rolls one square before stopping and reorienting.

At either scale, a vehicle takes damage equal to 2d6 x the character scale turn number for its speed (use the turn number from character scale even at chase scale). The vehicle's occupants take damage equal to 1D3 x the character scale turn number for its speed (Make a Luck Roll for half damage).

Hide and Seek

When being pursued, a driver can attempt a Stealth roll to lose the pursuer in heavy traffic, or a Streetwise roll to know where to turn onto an off-ramp or a side street.

The Gamesmaster may allocate a bonus or penalty to a Stealth roll depending on the amount and type of traffic on the road. For example, a motorcycle will be able to hide more easily than a petrol tanker.

A driver can use Drive roll to make a pursuer think he or she is going a different direction from what the driver intends. Just before making a turn onto an off-ramp or side street, make a Drive check opposed by the pursuer's Perception roll. If the driver is successful, the pursuer takes a -50% penalty on any Drive check needed to make the turn to follow the driver. If the other driver can make the turn using only simple manoeuvres and does not have to make a Drive check, the deception attempt has no effect.

Vehicle Combat

Combat in and on vehicles is much the same as ordinary combat. The differences are as follows:

- Unlike people, who are mobile and manoeuvrable, careful track must be kept of which way a vehicle is facing. Vehicle-mounted weapons – and armed passengers, to a lesser extent – are restricted to certain fire arcs.
- Vehicles are considered to move on the driver's Strike Rank. The driver must spend a combat action every round to keep control of the vehicle under normal circumstances – a straight road or simple manoeuvres – or to navigate obstacles, conduct evasion or pursuit, or dodge incoming fire.
- Attackers gain a +10% Bonus to hit most vehicles because of their size, but this is modified by the speed of the vehicle.

Types of Vehicles

There are two main types of vehicles: open and closed.

Closed Vehicles

- Closed vehicles grant cover to the occupants – unless the description mentions otherwise civilian vehicles grant ½ soft cover and military vehicles full hard cover.

- Only a few people in a closed vehicle can shoot out, depending on the number of windows or other firing ports and the internal space available. Unless the description mentions otherwise up to two people can fire into each arc from a civilian vehicle and one person in each arc in a military one.

Open Vehicles

- Open vehicles grant no cover to the passengers.
- Any passenger in an open vehicle can shoot (or otherwise attack) in any direction.

Vehicle-Mounted Weapons

Weapons mounted on vehicles are limited in what directions they can fire. A weapon mounted in the front arc, for example, can only fire into a 90° area in front of the vehicle. Weapons in turrets can fire in any direction.

Targeting Occupants

An attack made against a vehicle may hit a random part of the vehicle. However, attackers may target certain occupants inside the vehicle using a Precise Attack. This incurs a penalty of -40% to the attack roll, in addition to any other penalties that may be incurred from the vehicle's speed, from being in cover inside the vehicle or other conditions. A successful attack means that the targeted occupant has been hit. Failure means the attack has no effect on the vehicle or its occupants.

Cover

When a character fires from a vehicle, objects or other vehicles in the way can provide cover for the target. The vehicle itself can provide cover for any occupants of the vehicle.

Vehicle Damage

Vehicles have a Hull value and a Structure value, which measure the vehicle's structural integrity. When Hull is reduced to 0, the vehicle starts taking damage to its internal systems. When Structure is reduced to 0, the vehicle is reduced to scrap. Vehicles also suffer damage to onboard systems as they take damage.

To determine the effects of an attack on a vehicle, first determine how much damage the vehicle suffers as normal. Many vehicles will have one or more points of armour that reduces the damage. Then roll the Hit Location struck using the Vehicle's Hit Location Table. Different vehicles will have different vehicle Hit Location Tables.

Hits are then applied to the struck location on the vehicle and the effect of the hit is rolled in the Vehicle Hit Table. If something is hit that is not relevant to the location struck then Hull or Structure Points are used instead. Excess points then become secondary hits and the process continues until no excess points are left.

So, Alan rolls a grenade at a car, hits and does 3D6 damage, rolling 14. He hits the car's body (AP 6, Hull Points 4, Structure Points 2) and rolls Hull on the Vehicle Hit Table. Since the car has 6 APs, he subtracts that from the damage and does 1 Hull Point, leaving 7 points left, so he rolls again and rolls Weapon, but as the car has no weapons this defaults to Hull. He takes off the 6 APs and the Hull takes another point of damage. The car is intact but damaged. Next round, Alan rolls another grenade at the car and hits the body again, this time doing 16 points of damage. He rolls a Hull again, subtracts 6 from his damage and does another points of Hull damage, leaving 9 points of damage, he rolls Weapons (Hull) and does another point of Hull damage. Since Hull is now reduced to 0, any Hull damage in the body of the car is treated as Internal Hits. He has 2 points left but they bounce off the armour. As the car drives away, he rolls a third grenade, hits the body again for 10 points of damage. Since this is now an internal hit, the Gamesmaster rules that the damage can be done to multiple targets as this was a grenade attack. He rolls Power Plant, doing one hit, then Structure, doing 1 SP, then passengers, doing the remaining 8 points of damage to all passengers in the vehicle. The vehicle limps away badly damaged.

Vehicle Hit Table

2d6	External Hit (Vehicle)	Internal Hit (Vehicle)	Robot or Drone
2	Hull	Structure	Hull
3	Sensors	Power Plant	Power Plant
4	Drive	Power Plant	Sensors
5	Weapon	Cargo	Weapon or Limb
6	Hull	Structure	Hull
7	Armour	Passengers	Armour
8	Hull	Structure	Hull
9	Weapon	Cargo	Weapon or Limb
10	Drive	Computers	Drive
11	Sensors	Cockpit	Sensors
12	Hull	Cockpit	Computer

Hull: Reduce the vehicle or drone's Hull by one in that location. If a vehicle runs out of Hull, further Hull hits become hits on the same row of the Internal Damage table (if a vehicle) or Structure hits (if a robot or drone).

Structure: Reduce the vehicle or drone's Structure by one. If a vehicle runs out of Structure, it is destroyed. If the vehicle is destroyed by an attack that reduces it to a negative Structure score it explodes, doing 4d6 damage to everyone within six metres (including the occupants) and 2d6 damage to everyone within twelve metres. The occupants of a closed vehicle cannot dodge or dive for cover from this explosion but the occupants of an open vehicle can.

Armour: Reduce the vehicle's armour by one.

Drive

First Hit: Reduce movement by 10% and apply a –10% penalty to all vehicle control skill checks.

Second Hit: Reduce movement by 25% and apply a –25% Penalty to all vehicle control skill checks.

Third Hit: Drive disabled.

Further drive hits count as Hull hits.

Weapon

Choose a weapon or device randomly for each hit.

First Hit: The weapon or device suffers a –20% Penalty to all checks related to its operation.

Second Hit: The weapon or device is destroyed.

If no weapons remain to be destroyed, further hits on this location become Hull hits.

Sensors

First Hit: The vehicle or drone suffers a –20% to all Sensors checks. For drones and robots, this also applies to Recon checks.

Second Hit: The sensors are destroyed, blinding the vehicle or drone.

Further Sensor hits count as Hull hits.

Power Plant

First Hit: The vehicle or drone loses one round's worth of actions.

Second Hit: The vehicle or drone's movement is reduced by 50%.

Third Hit: The power plant is destroyed disabling the vehicle and inflicting 1d6 Hull hits on it.

Passengers

Choose a passenger randomly for any passenger hit, but the passenger must be in the particular Hit Location that was struck. The passenger takes damage equal to the damage inflicted on the vehicle. If all the passengers are dead, further passenger hits become Structure hits.

Cargo

Any cargo present is hit and may be destroyed. If no cargo remains, further cargo hits become Structure hits.

Cockpit

The pilot of the vehicle is hit, and takes damage equal to the damage inflicted on the vehicle. If the pilot is dead, further pilot hits become Structure hits.

Computer

First Hit: The vehicle's computer system is disabled. A drone or robot with a disabled computer system shuts down for 1d6 rounds.

Second Hit: The vehicle's computer system is destroyed. A drone or robot with no computer system is completely disabled.

Further Computer hits count as Structure hits.

Repairs

Damage to a vehicle or drone falls into three categories – System Damage, Hull Damage, and Structure Damage.

System Damage: A damaged system can be jury-rigged back to functioning, but it will stop functioning again after 1d6 hours.

Repairing a damaged system requires not only a Standard skill check (Mechanic, Engineer (appropriate speciality) or Science (appropriate speciality)) taking 1–6 hours but also a source of spare parts. The spare parts can come from a scrap yard, a workshop, systems on another vehicle, or can be taken from other systems on the same vehicle.

Passengers and Pilot/Driver cannot be repaired as they are not true sub-systems of the vehicle. Healing damage done to them is performed using the normal healing rules.

A destroyed system costs 2d6 x 10% of its original cost to repair, and cannot normally be repaired. It requires a full workshop and specialist materials to be replaced.

Hull Damage: Hull damage can be repaired with a Mechanic check taking 1–6 hours.

Structure Damage: Structure damage can only be repaired in a workshop and requires 10–60 hours per point of damage. It costs 20% of the base cost of the vehicle per point repaired. No skill check is required.

Fighting from Vehicles

The following rules provide a further framework for combat involving vehicles.

Vehicle Combat Actions

Actions during vehicle combat are handled the same way as actions during personal combat. In general, a character can take two move actions, one move action and one attack action, or one full-round action in a round. Combat actions can be performed normally, in conjunction with another action.

Combat actions: Communicating orders is a Combat action. Characters can perform as many Combat actions as they have available in a single round.

Move Actions: Changing position within a vehicle is usually a combat action, especially if the character has to trade places with another character. If the character's movement is short and unobstructed, the character can do it for free, otherwise, it requires a combat action.

Attack Actions: Anyone aboard a vehicle can make an attack with a personal weapon, and drivers and gunners can make attacks with any vehicle-mounted weapons controlled from their positions.

Attack Options

Firing a vehicle's weapon requires a combat action and uses the driver's or gunner's skill as appropriate.

Some military vehicles are equipped with fire-control computers. These systems grant bonuses on attack rolls with the vehicle-mounted weapons to which they apply.

Driving Defensively: Just as in melee combat, one can fight defensively while driving a vehicle, which grants a -20% penalty to any attempts to attack the vehicle but also applies the same penalty on attack rolls made by occupants of the vehicle as the vehicle is being rolled around.

Total Defence: A driver can choose the total defence, action which grants a +40% penalty to anyone attacking the vehicle but does not allow the driver to attack (gunners or passengers take a -40% penalty on attack rolls). These modifiers last until the driver's next round of actions.

Crew Quality

Rather than force the GM to create, or remember, statistics for everyone aboard a vehicle, vehicle statistics include a general "crew quality" descriptor. This indicates a typical crew's aptitude with the vehicle's systems.

Crew Quality	Untrained	Normal	Skilled	Expert	Ace
Skill	20%	40%	60%	75%	90%

Use the skill for all skill rolls related to the operation of the vehicle (including Drive, Attack and Repair checks).

This by no means restricts the GM from creating unique vehicles where the crew's statistics are included, or from using GM characters' abilities when they drive or attack from vehicles. It's merely a shortcut to save time if the GM doesn't have particular characters behind the wheel.

CHAPTER 27: Vehicle/Starship Weapons and Armour

Vehicles and Starships are of different sizes and have different classes of weapons. This means that a Blaster on a motorcycle sidecar has a different power to a Blaster mounted on a Battle Cruiser and the armour plating on the sidecar will be of a different order of magnitude to that of the Battle Cruiser. One way of modelling this would be to have ever-greater APs and damages for the different weapons, but this is not a particularly elegant solution.

Vehicle Classes

Vehicles can be classified by their general size and power. The class of the vehicle governs the strength of the armour and weapons.

Class	Description	Example
1	Human-Sized	Bicycle, Motorcycle
2	Small Automobile	Small Car
3	Medium Sized Automobile	Medium Sized Car
4	Large Automobile	Large Car, Small Truck
5	Tank	Medium Tank, Large Truck
10	Fighter	Fighter Aircraft/Starfighter
15	Bomber	Bomber Aircraft
20	Light Cruiser	Light Star Cruiser
30	Medium Cruiser	Medium Star Cruiser
40	Heavy Cruiser	Heavy Star Cruiser
50	Heavy Destroyer	Heavy Star Destroyer
100	Planet-Destroyer	Planet Destroying Starship

Relative Vehicle Classes

When vehicles fire on each other, their relative Classes should be taken into account. Multiply the damage done by the Attacking Vehicle Class and then divide it by the Defending Vehicle Class. For example, a Starfighter (Class 10) takes on a Light Star Cruiser (Class 20) and does 1D10 damage, rolling 7, the damage done is $7 \times 10 / 20 = 3.5$, rounding normally to 4, the Star Cruiser has Vanadium Armour (6 AP) so the hit bounces.

CHAPTER 28: Space Combat

Space Combat involves combat between Starships or Spaceships.

Each turn in space combat lasts six minutes, so an hour contains 10 combat turns.

Range

If two vessels randomly encounter each other while travelling, the encounter will begin at Very Long range. More often, ships engage near a planet, where the range is Short or Medium.

Range	Adjacent	Close	Short	Medium	Long	Very Long	Distant
Distance (km)	<1	1 –10	10–1250	1250 –10,000	10,000 - 25,000	25,000 – 50,000	50,000 +
Thrust to Change	1	1	2	5	10	25	50
Example	Docked ships	Nearby vessels	Ships in same orbital path	Surface to orbit	Near a planet	Within jump limit	Distant ships

Weapon Range Modifiers

<i>Weapon</i>	<i>Adjacent</i>	<i>Close</i>	<i>Short</i>	<i>Medium</i>	<i>Long</i>	<i>Very Long</i>	<i>Distant</i>
<i>Lasers</i>							
Pulse Laser	-10%	-10%	+0%	-10%	-20%	-30%	Out of range
Beam Laser	-20%	-10%	-10%	+0%	-10%	-10%	-20%
Particle Beam	-30%	-20%	-10%	-10%	+0%	-10%	-10%
Fusion Gun	-20%	-20%	-10%	+0%	-10%	-10%	-20%
Meson Gun	-40%	-30%	-20%	-10%	+0%	-10%	-20%
Missiles (flight time)	N/A	N/A	1	1	2	5	10
Sandcaster	-20%	+0%	-20%	Out of range	Out of range	Out of range	Out of range

Crew Positions

At the start of an engagement, all crew must be assigned to a position on board ship. There can be only one pilot, but other than that, any number of people can occupy the same position.

Pilot:	Flies the ship, responsible for changing course and for evasive manoeuvres.
Captain:	Commands the ship, and can use Leadership and Tactics skills.
Drive Engineer:	An engineer can be assigned to each of the M-drive and the J-drive.
Turret Gunner:	Each turret has its own gunner. A character must choose which turret he is manning at the start of the combat.
Bay Gunner:	Each bay weapon has its own gunner.
Damage Control:	A character assigned to free-floating damage control can repair any system.
Marine:	Prepares to repel boarders, or to board enemy ships.
Passenger:	Passengers are all people aboard ship who are not assigned a position and are assumed to be waiting in staterooms.

Automated Positions

The ship's computer can cover several positions if it is running the appropriate software:

Each sub-system assigned to a weapon can either act as a gunner or aid an existing gunner.

A ship equipped with repair drones and Auto-Repair software acts as damage control.

A ship running an Intellect program and Pilot can be the pilot.

A ship equipped with repair drones and running an Intellect program and Engineer (M-drive or J-drive) can be a drive engineer.

Initiative

Each ship in an engagement rolls 1D10 to determine their starting Initiative score. The ship with a greater Thrust score gains a +1 to its roll.

The commander of each spacecraft (or each fleet, if more than one ship is involved on each side) may attempt a Tactics (Naval) check. A Critical success adds 2 and a Normal Success adds 1 to the Initiative of the spacecraft (or fleet).

Manoeuvre Phase

In each manoeuvre phase, a ship can allocate Thrust either to movement (closing or increasing the range to a target) or manoeuvring. The amount of thrust needed to close or open by one range category is given in the Range Table – the number given is the amount of

thrust needed to move from that range category to either a closer or more distant one. A ship can spend thrust over multiple rounds to close or open a range category.

If two ships are travelling towards each other, then add together the Thrust allocated by both ships to movement to see how close they are to changing range categories; if one ship is trying to escape from the other then subtract the lower Thrust from the higher value to work out the effective change in position – the faster ship will either gain slightly or pull away slightly.

Any thrust not allocated to movement is allocated to manoeuvring, which is done in the combat phase. Manoeuvring does not change the range to the target but allows the ship to position itself better for an attack or to avoid incoming fire.

Combat Phase

In each combat phase, a ship may manoeuvre, fire any of its weapons, or board enemy vessels.

Manoeuvre

A ship can manoeuvre, dodging and weaving to evade enemy fire or to position itself for a better attack. A ship may make a number of manoeuvre actions per combat phase equal to the amount of Thrust allocated to manoeuvring.

A manoeuvre action can be used to:

Dock with another vessel: The pilot must make a successful Pilot check. If the other ship does not wish to be docked with then make opposed Pilot checks; the ship trying to dock suffers a –20% Penalty. When docked, boarding actions can take place.

Help line up a shot: A pilot may attempt to aid his gunners by providing a stable firing platform along an optimum attack vector. The pilot makes a Pilot check to aid his gunners as per the normal rules on task chains.

Dodge incoming fire: Any leftover Thrust can be spent as a reaction to dodge incoming fire.

Firing Beam Weapons

To fire a beam weapon, the gunner must make a successful Gunner (turret) or Gunner (capital weapons) check, modified by the range to the target multiplied by 10. When targeted by a beam weapon, the enemy ship may react by dodging, firing and or triggering screens (see Reactions). A gunner may fire any or all of the weapons in his turret or bay but each turret or bay may only fire once per round.

If the attack is successful it will inflict damage. Damage is resolved after all attacks have been made in a round.

Launching Missiles

Unlike beam weapons, which travel at the speed of light and so hit the enemy vessel almost instantly, missile weapons take time to cross the gulf of space. Missiles travel at Thrust 5 towards their designated target and their position can either be tracked as additional craft in the battle or, for the sake of simplicity, they can be assumed to strike after a number of turns dependent on launch range:

Missiles cannot be used at Adjacent or Close range.

The gunner must make a Gunner (turret), Gunner (capital weapons) or Gunner (Missiles) roll modified by the weapon ranges table to determine how accurate the missile launch was, then another Gunner roll to determine if the missile hits its target. The result of the Gunner Accuracy roll gives a bonus or penalty to the Gunner roll determines the chance that the missile will strike its target when it hits.

Gunner Accuracy Roll	Critical	Success	Failure	Fumble
Missile To-Hit Bonus	+25%	No Change	-25%	-50%

A target may react to incoming missiles by dodging or point defence. This reaction does not take place until the turn the missiles arrive at their destination, so any manoeuvring or shooting must wait until then.

Smart Missiles

These have a Specialised Computer which gives them a +25% chance to hit and if they miss they make another attack every turn until they are destroyed with point defence, jammed with ECM or otherwise dissuaded.

Range

Weapons are affected by the range of the target. The Weapon Ranges Table gives a number of penalties and bonuses for using different weapons at different ranges.

Some weapons have fixed limits on the range as indicated in the expanded spacecraft construction chapter. Spinal mounts have an additional –10% Penalty if shooting at close or adjacent range.

Weapon ranges

Weapon or Optimum Range					Range				
	Adjacent (small craft shooting)	Adjacent	Close	Short	Medium	Long	Very Long	Distant	Very Distant
Missile*	-20%	N/A	N/A	-10%	+0%	+0%	+0%	-20%	Out of Range
Torpedo	-20%	-30%	-20%	-10%	+0%	+0%	+0%	-20%	Out of Range
Short	+0%	-10%	+0%	+0%	-40%	Out of Range	Out of Range	Out of Range	Out of Range
Medium	-10%	-20%	-10%	+0%	+0%	-20%	-40%	Out of Range	Out of Range
Long	-10%	-30%	-10%	+0%	+0%	+0%	-20%	-40%	Out of Range
Very Long	-10%	-30%	-10%	+0%	+0%	+0%	+0%	-20%	Out of Range

**Missile accuracy is not dependent on range save at very high distances. Missiles cannot be used against targets at Adjacent and Close ranges.*

Boarding Actions

If two ships are Adjacent or docked, then a boarding action can be attempted. If the ships are docked, then the attackers may cross over safely via airlocks. If the ships are merely adjacent, then the attackers must use thruster packs or small craft to cross over. While crossing, the attackers may be attacked with point defence weapons or by firing sand.

Once across, boarding actions can be resolved using the personal combat rules or the quick boarding rules.

Special Attacks

Several types of weapons have their own rules.

Meson Guns: Meson guns ignore armour and always roll on the Internal Damage table. Furthermore, they also automatically inflict a radiation crew hit in addition to any other damage.

Fusion Guns: Fusion guns inflict a radiation crew hit in addition to any other damage. The bonus radiation hit suffers a -10% Penalty equal to the ship's armour.

Particle Beams: Particle beams inflict a radiation crew hit in addition to any other damage. The bonus radiation hit suffers a -10% Penalty equal to the ship's armour.

Nuclear Missiles: Nuclear missile hits inflict a radiation crew hit in addition to their normal damage. The bonus radiation hit suffers a -10% Penalty equal to the ship's armour.

Sandcasters: While the primary purpose of a sandcaster is to block incoming beam attacks, they can also be used as an attack. A sandcaster has a range of Close and inflicts 1 damage.

Reactions

A ship may react to incoming attacks. The following situations allow reactions:

- Targeted by a beam attack
- Incoming missile
- Attempted boarding

The ship's Initiative determines how many times it may react in a round.

Initiative	0-4	5-8	9-12	13+
Reactions	1	2	3	4

Dodge

Each dodge reaction counts as a manoeuvre and so is limited by the amount of Thrust allocated to manoeuvres. One point of Thrust allows a single dodge. To dodge, the pilot must make a Pilot check. If successful, the attack suffers a -20% Penalty.

Point Defence

Turret lasers can be used to destroy incoming missiles. The missiles can only be destroyed in the moments before they strike the spacecraft as they are too small and fast-moving to effectively target at greater ranges. The gunner must make a Gunner (turrets) check against the missile. If successful, the missile is destroyed. A gunner may keep making Gunner checks against missiles until he misses an attack; each attack suffers a cumulative -10% penalty. Attacks may be directed against different incoming missiles.

Point defence can also be used to destroy incoming boarders in the same way.

Fire Sand

Turrets equipped with sandcasters can fire sand at incoming beam attacks. Each reaction spent on firing sand allows the gunner to make a Gunner (turrets) roll. If successful the damage of each beam in the incoming attack is reduced by 1d6. Resolve each beam separately. Each firing of sand costs one canister of sand.

Sand can also be directed against incoming boarding parties. If the sand attack is successful, each target in the boarding party takes 8d6 damage allocated evenly across all hit locations.

Trigger Screens

Screens can be activated as long as the commander or one of the gunners has the Gunner (screens) skill at 20% and the ship has the required screen type (nuclear against nuclear missiles and fusion guns; meson against meson guns). Screens reduce the damage from the attack by 2d6 if the operator succeeds in a Gunnery (screens) skill. Nuclear dampers also negate radiation hits against crew from nuclear missiles and fusion guns.

Ship Action Phase

In each ship action phase, a ship may take one ship action. Ship actions are wholly internal to the ship.

Repair Damaged System

A character on damage control may attempt to repair a damaged system by making a Mechanic skill roll. If the roll is successful, determine how many hits are repaired:

Mechanic Roll	Critical	Success	Failure	Fumble
Hits Repaired	3	2	1	0

A ship with repair drones and the Auto-Repair software also makes one or two repair rolls in the ship action phase (unless it is being used to assist other repair attempts). The standard Auto-Repair software makes the check with a +10%.

These are battlefield repairs only and will break down as soon as the battle is over unless repaired properly.

Sensor Lock

A ship's sensors operator may make a Sensors check to establish a lock on an enemy vessel. Attacks made against a vessel that has been locked onto gain a +10% Bonus. When using missiles the initial Gunner check gets this bonus – the individual missile to hit rolls do not benefit directly. Smart missiles are unaffected.

Electronic Warfare

A ship's sensors operator may attempt to jam radio communications and sensor locks by making an opposed Intelligence-based Sensors check against the sensors operator of the opposing vessel. Electronic warfare can be used to break sensor locks.

Alternatively, electronic warfare can be used to attack smart missiles that are targeting the ship. The sensors operator makes a Difficult (–20%) Sensors check and, if successful, a single attacking smart missile ceases attacking. The sensors operator may continue making checks to disable smart missiles until he fails one, with a cumulative –10% DM each time.

Increase Initiative

The commander of a spacecraft may make a Leadership roll and increase the Initiative of his spacecraft by 2 for a Critical Success, 1 for a Normal Success and -1 for a Fumble. This increase only applies for the following round.

Change Positions

Any characters not doing anything else may elect to swap positions during the ship action phase. As of the next round they are considered to be manning their new position rather than their previous one.

Damage

Systems can take a variable number of hits before being destroyed, depending on the system in question. A ship can endure one Hull damage per fifty tons, rounding down. A ship that runs out of Hull Damage will rapidly be incapacitated. A ship can endure one Structure damage per fifty tons, rounding down to a minimum of one. A ship that runs out of Structure breaks up and is completely destroyed.

Any hit on a ship affects a random location. Each ship will have its own Hit Location Table, although most ships have at least Drive, Fuel Tanks, Cargo and Body. Normally, specialised systems are not included as Hit Locations and must be targeted separately. Targeting a specialised system such as a Turret, Drive or Function is a Hard (–40%) roll and any damage that gets through the Hull affects the targeted system.

Damage done to a particular Hit Location may also affect anything within the Hit Location. So, damage to the Body may affect Staterooms.

Individual systems may have their own armour. If so, any hit to that system will have its damage reduced by the system's armour and has no effect if reduced to zero damage. Such a hit does no damage and has no effect on the system.

Starship Hit Table

2D6	2	3	4	5	6	7	8	9	10	11	12
External Hit	Hull	Sensors	J-Drive	Turret	M-Drive	Armour	Hull	Bay	Hull	Sensors	Hull
Internal Hit	Structure	Power Plant	Power Plant	Cargo	Structure	Crew	Fuel	Cargo	AI	Bridge	Bridge

System	Effect
Hull:	Reduce the ship's Hull by one. If a ship's Hull is 0, then apply the hits to the location in the same row of the Internal Damage table.
Structure:	Reduce the ship's Structure by one. If a ship's Structure is reduced to 0, the ship is destroyed.
Armour:	Reduce the ship's armour by one. If the ship's armour is already 0, then this counts as a Hull hit.
Turret:	A random turret is hit. First Hit: The turret's tracking mechanism is damaged. It can still be used, but all attacks suffer a –20% Penalty. Second Hit: The turret and all weapons in it are disabled. Third Hit: The turret and all weapons in it are destroyed. Subsequent Hits: Count as Hull hits. Any damage done to a Turret also hurts anyone inside the turret.
Bay:	A random bay is hit. First Hit: The bay's targeting mechanism is damaged. It can still be used, but all attacks suffer a –20% Penalty. Second Hit: The bay weapon is disabled. Third Hit: The bay weapon is destroyed. Subsequent Hits: Count as Structure hits.
J-Drive:	The Jump drive is hit. First Hit: All attempts at Jump suffer a –20% to Engineering (jump) checks. Second Hit: The jump drive is disabled. Third Hit: The jump drive is destroyed. Subsequent Hits: Count as Structure hits.
M-Drive:	The manoeuvre drive is hit. First Hit: Reduce the ship's thrust by one. Second Hit: Reduce the ship's thrust by 50%. Third Hit: The drive is disabled. Subsequent Hits: Count as Hull hits.
Power Plant:	The power plant is hit. First Hit: Damaged. Second Hit: The crew suffer a Crew Hit, rolling on the Radiation Damage column. Third Hit: The Power Plant is destroyed and the ship is disabled. Subsequent Hits: Count as Structure Hits.
Sensors:	The sensors are hit. First Hit: –20% Penalty to all Sensors checks. Second Hit: Sensors are disabled preventing the ship from making Sensors checks and on making attacks on targets beyond Adjacent range. Third Hit: Sensors are destroyed. Subsequent Hits: Count as Hull hits.
Bridge:	The bridge is hit. First Hit: The crew suffer a Crew Hit, rolling on the Normal Damage column. Second Hit: The bridge is disabled. Until the bridge is repaired, the ship cannot take any Pilot or Sensor actions, it cannot jump, and any attacks suffer a –20% Penalty. Third Hit: The bridge is destroyed. Subsequent Hits: Count as Structure Hits.
Fuel:	The fuel is hit. First Hit: Causes a minor fuel leak of 1d6 tons per hour. Second Hit: Destroys 1d6 x 10% of stored fuel. Third Hit: Destroys fuel tank. Subsequent Hits: Count as Structure Hits.
Cargo:	The cargo hold is hit. First Hit: Destroys 1d6 x 10% of stored cargo. Second Hit: Destroys 1d6 x 10% of stored cargo. Third Hit: Destroys cargo hold and everything in it. Subsequent Hits: Count as Structure Hits.
Crew:	Each hit on the crew indicates that radiation or flying debris has injured one or more crew. Roll percentiles on the appropriate column on the Crew Damage table and add the damage that was done in the attack.

Roll	Normal Damage	Radiation Damage
01-05	Lucky escape – no damage	Lucky escape – no radiation
06-20	One random crew member in the location struck suffers 2d6 damage	One random crew member in the location struck suffers 2d6 x 10 rads
21-75	One random crew member in the location struck	One random crew member in the location struck suffers

	suffers 4d6 damage	4d6 x 10 rads
76-95	All crew in the location struck suffer 2d6 damage	All crew in the location struck suffer 2d6 x 10 rads
96-100	All crew in the location struck suffer 4d6 damage	All crew in the location struck suffer 4d6 x 10 rads
101+	Roll again but affects the whole ship	Roll again but affects the whole ship

Orders

This section presents a set of optional rules for space combat, where the commander of a space vessel can issue one or more orders to his crew each round. Each order temporarily reduces the ship's Initiative by a certain amount, which also reduces the number of reactions the ship can take. A commander may issue any number of orders, as long as the orders do not bring the ship's Initiative below 0. Each order can only be issued once per round unless otherwise noted.

Orders are written down secretly by each ship commander, and revealed simultaneously at the start of each round.

The format of orders is:

Order Name

Initiative Cost: This cost applies only for the round in which the order is executed.

Type: Orders fall into several types depending on when they are executed. Combat Orders are executed in the Combat Action phase, while Ship Orders are executed in the Ship Action phase. Special Orders are executed when noted in the text.

Requirements: Some orders can only be executed by a crew with a certain level of Crew Skill or other requirement.

Emergency Orders

Some orders are followed by an exclamation mark (!), denoting they are emergency orders. Emergency orders can be issued as a reaction to an attack instead of during the order phase. Only one emergency order can be issued per ship per round.

Repeatable Orders

Some orders are followed by an asterisk (*), denoting they are repeatable orders. A repeatable order can be given multiple times in one round, as long as the ship has the Initiative to allocate to it.

Line up Spinal Mount!

Initiative Cost: 2

Type: Combat

Requirements: ship fitted with spinal mount

Lining up the spinal mount with a evading target that can be tens of thousands of kms away is no easy thing and requires delicate ship handling. Without this special order the spinal mount can not be fired.

All Hands...Fire At Will!

Initiative Cost: 8

Type: Combat

Requirements: None

All the ship's energy barrage attacks are made as a single action this round.

Angle for Maximum Effect

Initiative Cost: 2

Type: Combat

Requirements: Crew Skill 2+

The ship is positioned to maximise its attack potential. Increase the percentage of weapons that can be combined into a barrage by 10%.

Blast Them As They Launch!

Initiative Cost: 2

Type: Combat

Requirements: Crew Skill 1+

Weapons are trained on enemy launch tubes and hangars. Select an enemy vessel – any small craft launched from that vessel this turn may not dodge attacks.

Board Them!

Initiative Cost: 4

Type: Special

Requirements: None

Command Discipline

Initiative Cost: 8

Type: Ship

Requirements: None

By rallying his men, the commander prepares his ship for action. Any skill checks other than Gunner checks made this round have a +10% bonus.

Damn the Torpedoes!

Initiative Cost: 4

Type: Special

Requirements: Crew Skill 2+

The ship flies into the teeth of enemy fire. All attacks on it gain a +10% bonus; all its attacks also gain a +10% bonus.

Defensive Posture

Initiative Cost: 4

Type: Combat

Requirements: None

The ship angles itself to minimise exposure to enemy weapons fire. The percentage of weapons that can be included in a barrage is reduced by 20%, but all attacks on the ship suffer a –20% penalty.

Escort Defence

Initiative Cost: 4

Type: Combat

Requirements: None

Choose a friendly ship within Close range. Attacks on that ship may be intercepted by the active ship's sandcasters, screens and other defensive weapons.

Evasive Action*

Initiative Cost: 4

Type: Special

Requirements: None

The ship gains one extra point of thrust this round which can only be spent on dodging incoming fire, and does not count as a reaction.

Fast Strafing Run

Initiative Cost: 4

Type: Special

Requirements: Only undertaken by small craft

If the small craft flight is within Close range of a hostile target, it can manoeuvre in to undertake a low level strafing run under the elevation of the weapons on the target vessel. Shooting at the flight is at –20% penalty. The fire of the flight receives a +20% bonus.

Fighter Screen

Initiative Cost: 4

Type: Special

Requirements: Only undertaken by small craft

As for the escort defence, but only performed by a small craft flight. In addition, having a flight using this special order prevents the fast strafing run special order being used by attacking small craft.

Focused Fire

Initiative Cost: 6

Type: Combat

Requirements: None

The crew focus the ship's guns on a single target. The ship may only fire at one target this round, but all attacks on that target gain a +10% bonus.

Get Those Engines Back On-Line*

Initiative Cost: 6

Type: Ship

Requirements: Crew Skill 3+

The crew may make two extra repair rolls this round, but only in the engineering section.

I Only Need One More Shot*

Initiative Cost: 2

Type: Special

Requirements: Crew Skill 3+

Any one damaged weapon system is temporarily restored to full functionality for this round. At the end of the round, the system becomes disabled.

Maximum Speed

Initiative Cost: 4

Type: Combat

Requirements: None

All available power is allocated to the engines. The ship may only fire half its turrets and bays this round, rounding down, but may increase its Thrust by 1.

Opportunity Fire!

Initiative Cost: 6

Type: Combat

Requirements: None

The ship makes no attacks until all other ships have finished firing. It may then make all allowed attacks. If two or more ships declare Opportunity Fire, the ship with the highest Initiative goes first.

Prepare to Abandon Ship!

Initiative Cost: 4

Type: Special

Requirements: None

If the ship is destroyed this round, then all surviving crew make it to the lifeboats or escape pods, if any.

Prepare for Jump!

Initiative Cost: 4

Type: Special

Requirements: None

If the ship attempts to jump this round, then all Engineering (jump) or Astrogation checks have a +20% bonus.

Prepare to Repel Boarders!

Initiative Cost: 4

Type: Special

Requirements: None

If the ship is boarded this round, the crew have a +1 to rolls on the Boarding Action table.

Prepare for Impact!

Initiative Cost: 4

Type: Special

Requirements: None

If the ship is damaged this round and suffers one or more Crew Hits, roll 1d6 for each Crew Hit. On a 4+, ignore the Crew Hit.

Roll The Ship!

Initiative Cost: 4

Type: Combat

Requirements: Crew Skill 1+

The ship rolls, making it harder to target specific sections of its hull. This gives a –20% penalty to attacks using the Target That Section order.

Run Silent, Run Dark

Initiative Cost: 4

Type: Special

Requirements: None

The ship shuts down all non-essential systems and attempts to minimise electromagnetic emissions. The ship may not move or fire this round, or use any active sensor systems. All attempts to detect the ship using sensors suffer a –20% penalty.

Screens to Full!

Initiative Cost: 4

Type: Special

Requirements: None

Full power is allocated to the ship's screens. Screens now provide three points of protection per screen instead of two.

Target That Section*

Initiative Cost: 4

Type: Special

Requirements: Crew Skill 1+

One of the ship's attacks this round targets a specific section of the enemy vessel.

Expanded Space Combat

Capital Ships & Initiative

The basic space combat rules call for a ship's captain to roll for Initiative, with the faster vessel gaining a +1 bonus. Actions and damage take place in order of Initiative.

For capital ships, Initiative works differently.

Rolling for Initiative: Capital ships roll only 1d6 for Initiative, but add their Crew Skill to their total Initiative. The fleet commander may also make a Tactics (Naval) Check and add the effect to the fleet. Optionally, a chained roll (see *Traveller* core rulebook page 51) can be made by the fleet commander, and each ship captain may make their own Tactics (Naval) check.

Resolving Attacks: Instead of resolving all attacks from a ship at once, capital ships trade barrages or other combat actions such as boarding or moving. All ships in a battle make one attack in descending order of Initiative, then the order of actions loops back around to the vessel with the highest Initiative again. Keep looping until all ships have taken all the combat actions they wish to take.

Barrages

At its simplest, the barrage attack involves taking all attacks of the same type on the same target as a single attack. The size of the barrage is measured by the number of dice involved. For example, a beam laser deals 1d6 damage, so a barrage from fifty beam lasers would be a fifty dice barrage.

The damage from each individual weapon must still be noted, though, as armour is obviously much more effective against smaller weapons than larger ones. The notation for a barrage is therefore:

(Number of Dice) – (Weapon Type) – Range – (Individual Weapon Damage in dice).

For example, the fifty beam laser barrage mentioned above would be noted as 50–Beam Laser– Medium–1 and a barrage from ten missile 50 ton bays of multiple warhead missiles at long range would be noted as 10–Missile–Long–12.

At minimum, a barrage must include ten weapons of the same type or all the weapons on the ship of that type if fewer are mounted.

Configuration: A capital ship cannot always bring all its weapons to bear at all times. Each configuration of capital ship lists a percentage value; this is the percentage of turrets or bays that can be aimed at a single target. The size of a barrage aimed at that target is therefore capped by this percentage.

Barrage Attacks

A barrage does not 'hit' or 'miss' as a whole. Even an inaccurate barrage will usually score one or two minor hits. Instead, the more accurate the barrage is, the more damage it deals. An attack with a barrage roll is made by rolling percentiles and with dice modifiers for range, fire control software, dodging, Gunner skill and ship defences. The modifiers for range, fire control software, dodging and skill are as normal spacecraft combat. The modifiers from the ship defences are worked out below. Note that the missile launch accuracy check and the help line up a shot check are not used in barrage combat.

Barrages & Defences

Barrage attacks interact with defences slightly differently to normal attacks. Instead of reducing the damage directly, defences such as armour or sand provide a modifier to the attack roll. Add up the protection offered by the defences, and then subtract it from the individual weapon damage score to determine the final modifier. Multiply this modifier by 10 to find the final modifier to be used against the barrage.

Armour: Armour contributes directly to defence against all types of attack. Add the armour rating to the defence total. (Note that this means that armour works better against barrages than against individual attacks).

Sand: Sand protects against incoming laser attacks and missile attacks fired from medium range or longer. Roll 1d6 for the amount of protection offered by a sand cloud, modified as below. If the modified dice roll is zero or less, the sand protection modifier is zero.

Ratio	Sand Protection
Number of sandcasters is 110% or more than the number of lasers or missiles	+2
Number of sandcasters is within 10% of the number of lasers or missiles	+0
Number of sandcasters is 90% or less than the number of lasers or missiles	–2
Incoming attacks are high energy lasers from bomb pumped torpedoes	–2
Crew Gunner 3+	+1

Screens: Screens apply only against attacks of the appropriate type (nuclear dampers vs nuclear missiles or fusion beams, meson screens against meson guns). Note that nuclear dampers are not effective against bomb–pumped torpedoes as these detonate beyond the effect of the damper. Screens offer two points of protection per screen.

Shields: Shields add their rating to the overall Protection against weapons that the Shield is able to protect against.

Configuration: Certain ship configuration offer protection against meson weapons as they are particularly compact, increasing the likelihood of decay occurring outside the ship.

- Dispersed Structure and buffered planetoid: 4
- Needle/wedge, cone and standard (cylinder): 2
- Close structure, sphere and planetoid: 0

Point Defence Lasers: Point defence lasers protect only against incoming missile attacks. Roll 1d6 for the amount of protection offered by lasers, modified as below. If the modified dice roll is zero or less, the point defence laser protection modifier is zero.

Ratio	Point Defence Protection
Number of lasers is 110% or more than the number of missiles	+2
Number of lasers is within 10% of the number of missiles	+0
Number of lasers is 90% or less than the number of missiles	-1
Barrage consists of bomb pumped torpedoes	-2
Crew Gunner 3+	+1

Splitting Barrages

Not all of a ship's weapons of a particular type need be aimed at a single target. A ship with 100 laser turrets and thirty fusion bays, for instance, can fire fifty laser turrets and thirty fusion guns at one target, 25 lasers at another target, and 25 at a third. All barrages of the same type on the same target must be combined into one.

Barrage Damage

The damage from the barrage is determined from the following table, using the net dice score. Barrage damage is rounded down.

On small craft or spacecraft, multiply the final barrage total by 3 to determine the actual amount of damage inflicted by the attack. If the barrage total is greater than the ship's remaining Hull + Structure, assume that the ship is annihilated by the attack instead of working out each individual hit.

On capital ships, barrage damage works slightly differently. See Capital Ship Damage, below.

Barrage Damage

Barrage Attack Roll	% Barrage Damage	5-Dice Barrage	10-Dice Barrage	12-Dice Barrage	20-Dice Barrage	50-Dice Barrage
2 or less	0%	0	0	0	0	0
3	10%	0	1	2	2	5
4	25%	2	3	3	6	20
5	50%	3	5	6	10	30
6	75%	4	8	9	16	40
7	100%	5	10	12	20	50
8	125%	6	13	15	26	60
9	150%	7	15	18	30	70
10	175%	8	18	21	36	80
11	200%	10	20	24	40	100
12	225%	12	23	27	46	120
13	250%	13	25	30	50	130
14	275%	14	28	33	56	140
15	300%	15	30	36	60	150
16	400%	20	40	48	80	200
17 or more	500%	25	50	60	100	250

Fighter Flights

A large number of spacecraft can be combined into a *flight*, which allows them to act in concert and act as a single unit, concentrating their attacks into a barrage. The skill level of the flight is the average skill of the craft in the flight; the thrust of the flight is equal to the lowest Thrust of the craft in the flight – with the proviso that the flight must remain together at all times. (Of course, the flight can then become a single target for barrages, so life could be short...)

Attacks By Flights

Flights can combine their weapons in barrages as normal.

Attacks On Flights

Attacks can be made on individual craft in the flight as normal.

Barrage attacks on flights suffer a -40% Penalty, representing the difficulty of hitting a distributed set of targets. Barrage damage is assumed to inflict a number of hits equal to the barrage total. Flights lose a number of craft whose combined Hull and Structure total

is equal to the barrage total; any excess barrage damage is applied as normal hits. The flight will lose a maximum number a craft based on the lower of the number of mounts firing or the average gunnery crew for that weapon system. Ship designers are encouraged to provide sufficient gunners for turret weapons to maximise their anti–fighter defences.

Spinal Weapon Attacks

To hit with a spinal mount is a Formidable task (–60% Penalty), with the following modifiers: fire control software (up to +50% bonus), crew skill (typically +30% to +50% nonus), range modifier, dodge modifier, if a Pilot skill check is successful (–20%) and a size modifier. All spinal mounts have an optimum range of Long. The size modifier is as follows:

- Ships under 10,000 tons –10%
- Ships under 1,000 tons –20%
- Ships under 100 tons –30%

Before they can damage their target, Meson Guns must penetrate the target’s meson screen and ensure that it decays within the ship . Compare the penetration rating of the meson gun with the configuration of the ship and the number of screen points being generated (2 or screen or 3 if *the screens to full* action is being used) and roll the number indicated or more on 2d6 to penetrate the ship’s defences.

		Meson Gun Penetration Rating				
	Screen Points	I	II	III	IV	V
Close, Sphere or Planetoid	0	Automatic Penetration	Automatic Penetration	Automatic Penetration	Automatic Penetration	Automatic Penetration
	Up to 4	6	4	Automatic Penetration	Automatic Penetration	Automatic Penetration
	6	7	5	3	Automatic Penetration	Automatic Penetration
	8 or 9	8	6	4	Automatic Penetration	Automatic Penetration
	10	9	6	4	Automatic Penetration	Automatic Penetration
	12	10	8	6	4	Automatic Penetration
	15	11	9	7	5	3
	18	12	10	8	6	5
Cone, Needle/ Wedge or Standard (Cylinder)	0	4	Automatic Penetration	Automatic Penetration	Automatic Penetration	Automatic Penetration
	Up to 4	6	4	Automatic Penetration	Automatic Penetration	Automatic Penetration
	6	7	5	3	Automatic Penetration	Automatic Penetration
	8 or 9	9	6	4	Automatic Penetration	Automatic Penetration
	10	9	7	5	Automatic Penetration	Automatic Penetration
	12	9	8	6	4	Automatic Penetration
	15	11	9	7	5	Automatic Penetration
	18	12	10	8	6	5
Dispersed or Buffered Planetoid	0	8	6	5	4	Automatic Penetration
	Up to 4	8	7	5	4	Automatic Penetration
	6	9	7	5	4	Automatic Penetration
	8 to 10	10	8	6	4	Automatic Penetration
	12	11	9	6	4	Automatic Penetration
	15	11	9	7	5	3
	18	12	11	8	6	5

Spinal Weapon Damage

Particle Beam spinal mount damage is reduced by the amount of armour. Reduce Damage by 30 per point of armour. Damage cannot be reduced below zero. However, there is still residual damage arising from the spinal weapon hit. Take 10% of the damage value of the particle beam hit absorbed by the armour and treat this as a standard barrage hit (although on a single section), even if the spinal weapon otherwise did no damage. This residual damage cannot inflict system hits. Note that a meson spinal mount does not inflict residual damage.

Both types of spinal mount inflict radiation damage. Divide the damage inflicted on the ship by the spinal mount (including residual damage from particle beam hits) by 6 (rounding down) to find the radiation damage inflicted. Divide further by 2 if the hull has radiation shielding.

Spinal mount damage is then resolved as below.

Capital Ship Damage

The normal damage rules can be used when a starship or small craft is attacking a capital ship, with one exception – it is impossible to inflict a third hit on a Drive, Power Plant, Sensor or Bridge system on a capital ship.

For barrage attacks on a capital ship, follow these rules:

Location

First, determine the location of the attacks by rolling for the section struck.

Adjacent Locations: A turret, barbette or bay attack splits its damage 50/50 between the section hit and any one adjacent section chosen by the attacker. Spinal mount damage is inflicted on a single section. For example, on the CF-code hull, Engineering is adjacent to the Main section, and the Forward section is adjacent to the Main section, and the Main section is adjacent to both.

Apply Damage

Subtract the damage inflicted by the attack from the Hull score of the damaged section. If a section is reduced to zero Hull in a barrage, remaining damage is subtracted from the Structure score of the same section. If the hull score of the hit section is already zero, all damage is subtracted from the Structure score of the same section. Meson weapons are the exception as damage is inflicted on Structure instead. If a section is reduced to zero Structure, it is destroyed and the ship is crippled or destroyed.

Damage Location

	Hull Code				
Roll	CA to CE	CF to CK	CL to CQ	CR to CV	CW to CZ
1	Engineering	Engineering	Engineering	Engineering	Engineering
2	Engineering	Engineering	Amidships	Aft	Aft
3	Engineering	Main	Amidships	Amidships	Lower Amidships
4	Forward	Main	Main	Main	Upper Amidships
5	Forward	Forward	Main	Main	Main
6	Forward	Forward	Forward	Forward	Forward

Roll for System Damage

A barrage hit may inflict some system damage if the Barrage Attack Roll was a critical. Roll on the Section Hit Table for the section or sections struck by the attack to determine which system is damaged. If the damaged section still has Hull remaining, roll on the External column; otherwise, roll on the Internal column. Meson weapons only roll on the internal column. Spinal weapons roll a number of times on the section hit table, with one roll for every 50 points of damage inflicted (excluding residual particle beam weapon damage).

Turrets:

First Hit: A turret hit gives a $-1d6 \times 10\%$ penalty to all turret barrages of that type. Reroll the penalty for each barrage until repaired.

Second Hit: Increase the penalty to $-(1d6+1) \times 10\%$.

Third Hit: Turrets can no longer fire.

Bay:

First Hit: A Bay hit gives a $-1d6 \times 10\%$ to all bay barrages of that type. Reroll the penalty for each barrage until repaired.

Second Hit: Increase the penalty to $-(1d6+1) \times 10\%$.

Third Hit: Bays can no longer fire.

Hull: A hull hit indicates an explosion on the surface, and inflicts extra Hull damage equal to half the damage inflicted by the barrage.

Armour: An armour hit reduces the armour of that section by 1.

Structure: A structure hit indicates an external explosion or structural failure, and inflicts extra Structure damage equal to half the damage inflicted by the barrage.

Spinal Weapon:

First Hit: A spinal weapon hit gives a –20% penalty to spinal weapon attacks.

Second Hit: The spinal weapon is disabled and can no longer fire.

Screen: Damage to a screen reduces its protection by 2 until repaired.

Jump Drive:

First Hit: The first hit on a Jump drive gives –1d6x10% penalty to all Jump attempts until repaired.

Second Hit: The jump drive is disabled.

Manoeuvre Drive: Each hit on a Manoeuvre drive reduces the ship's Thrust by 1 until repaired.

Power Plant:

First Hit: Damage to a Power Plant reduces a capital ship's ability to employ its energy weapons or engines. Reduce the ship's Power Number by 1, which may also reduce its ability to employ weapons and its Thrust or Jump.

Second Hit: Decrease the ship's Power Number by 2.

Third Hit: Power plant is disabled, disabling the entire ship.

Fuel: 1d6x5% of fuel reserves are lost. Halve this value if metal hydride storage is used in this section. If different fuel types are present roll to determine which is hit.

Sensors:

First Hit: –1d6x10% penalty to all Sensors checks made using the sensors in that section. Roll this penalty once; it remains until repaired.

Second Hit: Sensors in that section are disabled.

Computer:

First Hit: All rolls made by the capital ship suffer a –10% penalty.

Second Hit: All rolls made by the capital ship suffer a –1d6x10% penalty, rerolled each time.

Third Hit: Computer is disabled; the ship cannot jump or fire weapons at targets beyond Close range.

Bridge:

First Hit: A bridge hit prevents the ship from manoeuvring or jumping next round.

Second Hit: The bridge is destroyed. Command automatically transfers to another section, but the ship's Initiative is halved.

Crew: A crew hit reduces the Crew Strength by one step.

Critical Hit

Roll 1d6 on the Critical Hit table:

1. **Power Failure:** The section goes offline for one round. Weapons and components in the section cannot be used next round.
2. **Structural Failure:** A whole section of the ship shears away. Reduce the remaining Hull of the section by 50%. If no hull remains, reduce the remaining Structure by 50%.
3. **Hull Breach:** Repairs cannot be conducted on this section for one round, as the repair crews need to fix the hull breach. Also inflicts a Crew Hit. A self-sealing hull means that the breach is automatically fixed, so repairs can take place immediately.
4. **Internal Explosion:** The explosion inflicts 6d6 Structure damage and another Section Hit.
5. **Cascade Failure:** Roll again twice on the Section Hit table.
6. **Fire:** Fire suppression systems fail, and an inferno rages through the section. The crew must roll Discipline to put the fire out next round, or it will inflict another Section Hit. If not put out, there is a cumulative penalty of -10% per round (Discipline -10% in round two, -20% in round 3). If the Discipline roll is fumbled the fire spreads to another section, with Discipline rolls at no penalty to put it out. If metal hydride fuel is stored in this section the Discipline roll has a +20% bonus.

Radiation Attacks

Ships with nuclear dampers or radiation shielding will suffer no radiation damage from nuclear weapons or fusion guns. Ships with armour ratings of 8 or more ignore radiation hits from all but meson weapons.

For barrage weapons each nuclear missile, fusion gun, particle beam and meson weapon will inflict the radiation hits on the basis of the percentage score on the barrage table multiplied by the crew hit per weapon (1 except for meson flicker weapons) and be placed in a damage band. Reduce the damage band by the armour rating of the ship for all bar meson weapons and by the meson screen rating for meson weapons. Reducing the damage band to 0 results in no damage. Then compare the damage to determine the roll needed to inflict a hit.

Radiation Damage

Radiation Damage	Damage Band	Crew Hits	Computer Hits	Sensor Hits
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1–10	1	6+	0	0
11–15	2	5+	0	0
16–20	3	4+	6+	0
21–30	4	3+	5+	0
31–40	5	2+	4+	6+
41–50	6	Auto	3+	5+
51–60	7	Auto	2+	4+
61–80	8	Auto	Auto	3+
81–100	9	Auto	Auto	2+
101+	10	Auto	Auto	Auto

Repairing Damage

A capital ship may attempt to repair one system per section during the Ship Action phase, as normal. Multiple attempts may be made to repair a damaged system if it extends through multiple sections.

Crew Hits

Each crew hit reduces the ship’s crew by one step – from Full to Weakened, Weakened to Half, Half to Skeleton and so on. Reduced crews affect a ship’s ability to fight.

<i>Crew Strength</i>	<i>Skill DM</i>	
Dead	–	Cannot act
Survivors	–40%	May only fire once every five rounds
Skeleton	–20%	May only fire once every three rounds
Half	–10%	May only fire once every two rounds
Weakened	+0%	
Full	+0%	
Battle	+0%	
Overstrength	+0%	
Massively Overstrength	+0%	

The Frozen Watch: Many warships carry extra crew in low berths. These men of the frozen watch can be revived to provide reinforcements in the midst of battle. Reviving the frozen watch may be done at any time but takes 6 turns to thaw, brief and get to the right place. Until the 6 turns have passed, the ship will suffer from any applicable skill penalties.

CHAPTER 29: AI Combat

There are times when AIs are involved in combat. AIs do not use lasers or weapons to fight, instead they use electronic means of warfare. AI Combat covers AI-AI Combat and Character-AI Combat where a character tries to hack into an AI for his own purposes.

Intrusion

Accessing and altering computer networks is a complex and time-consuming job. For the purposes of a Sci-Fi game it can be simplified into several steps, most of which entail an opposed Computers use.

All AIs have an inbuilt Security system that gives them a Basic (20%) Computers (Counter-Intrusion) skill that an AI can use to counter any attempt to access its systems. It is possible to purchase a Security Module that gives a higher Computers (Counter-Intrusion) skill.

Access

Any attack on an AI requires access to the AI. For planet-based AIs this is not normally a problem as most planet-based AIs are connected to one of the many planetary networks. However, for ship-based AIs this can be a difficulty, as ship-based AIs are not normally connected to external networks. Enterprising hackers may use some kind of communications signal to gain access to the AI, but this would immediately incur a -40% penalty to the attempt. Most ship-based AIs can be accessed using on-ship terminals or jack-points, assuming that somebody can get on board. Some hackers place a remote access device on a ship when they are travelling aboard the ship, this then allows them access to the ship's AI.

Layering

Each part of an AI has a different level of protection against intruders. In game terms, this is represented as a penalty on any attempt to access that area of the AI.

Area	Penalty	Description	Possible Actions
Outer Access	10%	General access to the AI	Data Extraction, Data Manipulation
Outer Module	20%	Access to the outer processing sections of an AI's modules	Interfere with the Module
Inner Module	40%	Access to the inner processing sections of an AI's modules	Control over the Module, Shut Down the Module
Inner Access	60%	Access to the inner core processes of the AI	Control the AI, Control multiple modules, Shut Down the AI

Different parts of the AI may be hardened against intrusion attempts. This hardening adds 50% to the cost of the part to be hardened and adds 20% to the penalty. Hardening the Outer/Inner areas of the AI adds 50% to the base cost of the AI.

Data Encryption/Decryption

AIs have a built-in Basic (20%) Computers (Encryption) skill that the AI may use to encrypt its data. This encryption gives a -20% penalty to any attempt to decrypt the data. AIs with a higher Computers (Encryption) skill may impose a higher penalty to decryption attempts. Most data stored by an AI will be automatically encrypted.

Data Extraction

Data Extraction allows a character to access an AI and search for data. It requires a successful Computers roll, modified depending on the quantity, scarcity and difficulty of access of the data, with each penalty being cumulative. Data may be placed within the core systems of the AI, meaning that anyone trying to access that data must start from the Inner Core of the AI or suffer an additional -60% Penalty.

Data	Penalty
Restricted	-20%
Complicated	-20%
Hidden	-20%

Black ICE

When the hacker is directly plugged in to the AI, perhaps by means of a personal Jack, it is possible to physically affect him as part of the counter-intrusion. Black ICE constitutes counter-intrusion modules capable of killing the hacker. It should be very difficult to actually kill an intruder and then only with the correct software and hardware installed. Black ICE modules are generally illegal and highly restricted. If an intrusion attempt has been detected and successfully countered, the Black ICE module can make an opposed Very Hard (-60%) Computers (Counter Intrusion) against the Hacker's Computers (Hacking) skill. On a normal success the hacker has taken some kind of physical or neurological damage, on a critical success the hacker has been killed.

Equipment

Hackers have specialist equipment that helps them in their hacking attempts, as do AI security. A few of these are shown below.

Decks

Decks are specialist computers running a small number of hacking modules. Decks rarely have INT of more than 3 and are very rarely intelligent. Depending on the modules loaded, a deck can assist a hacker in many ways. A hacker may use the deck's skills or may simply allow the deck to augment his own skills. Generally, a deck allows the hacker to use a Jack to connect himself directly to the AI being hacked and gives some level of protection against Black ICE attacks.

Viruses

AIs are very complex machines and are very sensitive to malfunctioning programs. A virus is a particular kind of program that insinuates itself into an AI in order to extract information, cause problems or cause harm to the AI. Such viruses are far more complex than modern-day viruses and are very difficult to create, requiring a Computers (Programming) roll at -40%. The Virus itself may help a hacker to access an AI or may simply cause problems for the AI. Any Virus has a Computers (Hacking) skill that allows it to bypass an AI's security system.

CHAPTER 30: Weapons

Close Combat Weapons

Each close combat weapon is characterised by the following qualities:

Skill: The skill used to wield the weapon.

Damage Dice: The damage the weapon deals on a successful attack.

STR/DEX: The minimum STR and DEX scores needed to easily wield this weapon. For every point a Characteristic is below these minimums, a –5% penalty is applied to a character’s skill when attacking and parrying with this weapon.

ENC: The weight and bulk of the weapon.

AP/HP: The armour points and hit points possessed by the weapon. When hit points reach 0, the weapon is broken and useless.

Cost: The cost in Credits to purchase this weapon.

Close Combat Weapons

Weapon	Skill	Damage Dice	STR/DEX	ENC	AP/HP	Cost
Ball & chain	1H Flail	1D6+1	9/11	2	4/8	250
Bastard sword	1H Sword	1D8	13/9	2	4/12	250
	2H Sword	1D8+1	9/9			
Battleaxe	1H Axe	1D6+1	11/9	1	3/8	100
	2H Axe	1D6+2	9/9			
Bill	Polearm ²	1D6+1	7/9	2	2/8	50
Buckler	Shield	1D4	—/5	1	5/8	50
Club	1H Hammer	1D6	7/	1	2/4	5
Dagger	Dagger ⁴	1D4+1	—/—	—	4/6	30
Glaive	Polearm ²	1D8+1	7/9	3	2/10	100
Great axe	2H Axe	2D6+2	13/9	2	3/10	125
Great hammer	2H Hammer	1D10+3	11/9	3	3/10	250
Great sword	2H Sword	2D8	13/11	4	4/12	300
Halberd	2H Axe	1D8+2	13/7	4	3/10	250
	Polearm ²	1D8+1	9/9			
	Spear ^{1, 2}	1D8	7/7			
Hatchet	1H Axe ⁴	1D6	—/9	1	3/6	25
Heavy mace	1H Hammer	1D8	11/7	3	3/10	200
	2H Hammer	1D8+1	9/7			
Improvised	Unarmed	1D6–1	—/—	—	—/—	—
Kite shield	Shield ³	1D6	13/—	3	10/18	300
Knife	Dagger	1D3	—/—	—	4/4	10
Lance	Spear ^{1, 2}	1D10+2	9/9	3	2/10	150
Light mace	1H Hammer	1D6	7/7	1	3/6	100
Longspear	Spear ^{1, 2}	1D10	5/5	2	2/10	30
Military flail	2H Flail	1D10+2	13/11	3	3/10	250
Military pick	1H Hammer	1D6+1	11/5	3	3/10	180
Monoblade	1H Sword	2D6+5	5/7	1	3/15	1,000
Natural weaponry	—	As noted	—/—	—	—	—
Quarterstaff	Staff	1D8	7/7	2	3/8	20
Rapier	Rapier ¹	1D8	7/13	1	3/8	100
Sap ⁵	1H Hammer	1D6	7/-	1	1/2	30
Scimitar	1H Sword	1D6+1	7/11	2	4/10	200
Shortspear	Spear ^{1, 2, 4}	1D8	5/5	2	2/5	20
Shortsword	1H Sword ¹	1D6	5/7	1	3/8	100
Spring-blade	Dagger	1D6	5/7	1	3/6	200
Stiletto	Dagger	1D6+2	5/7	1	3/4	70
Target shield	Shield ³	1D6	9/—	2	8/12	150
Unarmed	Unarmed	1D3	—/—	—	—/—	—
War hammer	1H Hammer	1D8+1	11/9	2	3/8	150
War maul	2H Hammer	2D6	13/7	3	3/12	150
War sword	1H Sword	1D8	9/7	2	4/10	175

¹ This weapon will impale an opponent upon a critical hit.

² This weapon may be set against a charge.

³ This weapon may parry ranged weapons.

⁴ This weapon suffers no penalty when rolln.

⁵ This weapon can stun a character, when hit in the head roll a Resilience roll, if the roll is failed the character is knocked unconscious

Stiletto (TL2): A long, thin blade used to puncture rather than slice. Often 30-40 centimetres in length for reaching organs.

Spring-blade (TL4): A thin-bladed dagger set into a spring-loaded or hydraulic sheath located on or around the forearm, used for surprise attacks. Spring-blades have a +20% bonus for their initial surprise attack, but suffer a -10% penalty for parrying.

Monoblade (TL8): A light one-handed sword with a polymer blade honed to a monomolecular edge by the mechanisms in the supplied scabbard.

Sap (TL2): This melee weapon deals 1d6+1 stun damage in addition to its normal damage. A character struck by a sap in the head must make a Resilience roll. If the Resilience roll is failed, the character is knocked unconscious.

Rolling Close Combat Weapons

If rolln, a close combat weapon has a range of 8m and suffers a penalty to the attack equal to its ENC x 10. Either the usual Weapon skill or the Rolling skill may be used.

Setting Weapons against Charges

Setting a weapon against a charge occurs at the same time the character decides to delay in combat. In this case, the circumstance the character is waiting for is for someone in front of him to charge his position.

As long as the charge occurs, the character gains a +20% bonus to the opposed skill test to determine who strikes first.

Ball & Chain: This weapon imposes a -10% penalty on an opponent's parry roll. However, the wielder also suffers a -10% penalty to parry with this weapon.

Bastard Sword: May be used with either one hand or two.

Battleaxe: The battleaxe may be used with one or two hands.

Bill: A mounted defender does not get the standard +20% parry bonus against a bill.

Buckler: Shields suffer a -10% penalty when used to attack.

Great Axe: The wielder suffers a -10% penalty to parry with this weapon.

Great Hammer: The wielder suffers a -10% penalty to parry with this weapon. Great hammers may be used on inanimate objects without being destroyed.

Halberd: The halberd can be used with either the Spear skill or with the Polearm skill or with the 2H Axe skill.

Improvised: Improvised weapons usually use the Unarmed skill, though in certain cases the 1H Hammer or Staff skills are more appropriate. All attempts to attack or parry with an improvised weapon suffer a -10% to -30% penalty (at the Games Master's discretion).

Kite Shield: Kite shields can parry ranged weapons. Shields suffer a -10% penalty when used to attack.

Lance: When used by a charging, mounted character, the wielder may add his mount's Damage Modifier as well as his own to the damage.

Military Flail: Notoriously difficult to parry, this weapon imposes a -10% penalty on an opponent's parry roll. However, the wielder also suffers a -10% penalty to parry with this weapon.

Military Pick: Military picks may be used on inanimate objects without being destroyed.

Quarterstaff: The wielder gains a +10% bonus to parry with this weapon.

Stunstick: This melee weapon deals 2d6 stun damage in addition to its normal damage. A character struck by a stun stick must make a Resilience check with a negative modifier equal to the stun damage x5. If this Resilience check is failed, the character is knocked unconscious.

Target Shield: Shields suffer a -10% penalty when used to attack.

War Maul: War mauls may be used on inanimate objects without being destroyed.

Inanimate Objects

All inanimate objects have armour points and hit points. Except for the most unusual of circumstances, attacks on inanimate objects will automatically hit – characters simply need to work out how much damage they deal.

The object's armour points will be deducted from any damage dealt as normal, with the remainder being applied to its hit points. Once an object's hit points have been reduced to zero, it is smashed and useless.

Inanimate objects likely to block or restrain characters, such as doors or ropes, have Strength scores. To break down a door, or burst one's bonds, a character must succeed at a brute force Athletics test. This automatically reduces the object's hit points to 0.

Inanimate Objects

Object	Armour Points	Hit Points	Brute Force Modifier
Boulder	4	40	—
Castle gate	4	120	-40%
Castle wall (2m section)	5	250	—
Chain	4	8	-30%
Club	2	4	—

Dagger	4	4	—
Hut wall (2m section)	2	15	+0%
Iron door	4	75	−30%
Rope	1	3	+0%
War sword	4	10	—
Wooden chair	2	6	—
Wooden door (normal)	2	25	+10%
Wooden door (reinforced)	3	30	−10%
Wooden fence (2m section)	2	5	+10%

Inanimate Objects & Weapons

Using a weapon on an inanimate object with armour points equal to or greater than that of the weapon deals damage on both the object and the weapon.

Ranged Weapons

Each ranged weapon is characterised by the following qualities:

Weapons

Weapons are described with the following statistics:

- Skill:** The skill used to fire or roll the weapon.
- TL:** The lowest Technology Level at which the weapon is available.
- Damage:** The damage the weapon inflicts. Where two values are shown, the second value is for long range firing.
- Range:** This is the effective and maximum range of the weapon. Where a maximum range is not shown, the maximum range is twice this score.
- Load:** This shows how many Combat Actions are required to load or reload the weapon.
- Recoil:** The penalty suffered to the next Strike Rank after firing this weapon.
- Auto:** The bonus added to a weapon's damage when used in automatic mode.
- Pen:** The Penetration of the weapon, the number of APs that the weapon can ignore before applying the damage done.
- STR/DEX:** The minimum STR and DEX scores needed to easily wield this weapon. For every point a Characteristic is below these minimums, a −5% penalty is applied to a character's skill when attacking with this weapon.
- ENC:** The weight and bulk of the weapon.
- Ammo:** The number of shots the weapon can take before needing to be reloaded or connected to a new power pack. Unless specified otherwise in the weapon's description it takes only a single action to reload or two to switch to a new power pack.
- Cost:** The weapon's cost in credits with the cost to buy a spare magazine/power pack in brackets

Ranged Weapons

Weapon	Skill	Damage	Range	Load	STR/DEX	ENC	AP/HP	Cost
Atlatl ¹	Spear or Rolling	+2	+10m	2	5/11	1	2/4	20
Blowgun	Blowgun	1D2	15m	1	—/9	—	1/4	30
Dagger ²	Dagger or Rolling	1D6	10m	—	—/9	—	4/6	30
Dart ¹	Rolling	1D4	20m	—	—/9	—	1/1	10
Hatchet ²	1H Axe or Rolling	1D8	10m	—	7/11	1	3/6	25
Heavy crossbow ¹	Crossbow	2D8	150m	3	7/9	2	2/8	350
Javelin ¹	Spear or Rolling	1D6	40m	—	5/9	1	1/8	20
Light crossbow ¹	Crossbow	2D6	100m	2	5/9	1	2/5	150
Longbow ¹	Bow	2D8	175m	1	13/11	1	2/7	200
Nomad bow ¹	Bow	1D10	120m	1	11/11	1	2/5	150
Rock/improvised	Rolling	1D4	10m	—	5/9	1	3/5	—
Shortbow ¹	Bow	1D8	60m	1	9/11	1	2/4	75
Shortspear ^{1, 2}	Spear or Rolling	1D8	25m	—	5/9	2	2/5	20
Sling	Sling	1D6	50m	1	—/11	—	1/2	5
Staff sling	Sling	1D8	60m	2	—/11	2	2/6	20
Rolling star	Rolling	1D4	15m	—	—/13	—	4/1	15

¹ This weapon will impale an opponent upon a critical hit.
² This weapon suffers no penalty when used in close combat.

Ranged Projectile Weapons

Weapon	Skill	TL	Damage	Range	Load	Recoil	Auto	Pen	STR/DEX	ENC	Ammo	Cost
Pistols/Revolvers												
Light Revolver	Pistol, Projectile	7	1D6	15m	1	2	-		5/5	0.5	6	
Medium Revolver	Pistol, Projectile	7	1D8	25m	1	3	-		7/5	1	6	
Heavy Revolver	Pistol, Projectile	7	1D10+2	20m	1	4	-		11/5	1.5	6	
5.56mm revolver	Pistol, Projectile	5	1D6/1D4	15/40	1	2	-	0/0	7/9	0.5	4	100/3
7mm revolver	Pistol, Projectile	5	1D8/1D6	30/100	1	3	-	1/0	7/9	1	6	125/4
9mm revolver	Pistol, Projectile	5	1D10/1D8	30/100	1	4	-	1/0	9/9	1	6	150/5

9mm magnum revolver	Pistol, Projectile	5	1D12/1D10	50/120	1	4	-	2/0	11/9	1.5	6	300/8
Zip Gun	Pistol, Projectile	3	1D6	15m	1	2	-		5/5	0.5	1	80/5
Light Pistol	Pistol, Projectile	8	1D6	10m	1	1			5/5	0.5	8	
Medium Pistol	Pistol, Projectile	8	1D8	15m	1	2			7/5	1	12	
Heavy Pistol	Pistol, Projectile	8	1D10	20m	1	3			11/7	1.5	8	
Light AutoPistol	Pistol, Projectile	9	1D6	10m	1	1	6		5/5	0.5	8	
Medium AutoPistol	Pistol, Projectile	9	1D8	15m	1	2	8		7/5	1	12	
Heavy AutoPistol	Pistol, Projectile	9	1D10	20m	1	3	10		11/7	1.5	8	
7mm auto pistol	Pistol, Projectile	6	1D8/1D6	550/1200	1			1/0	7/9			150/8
9mm auto pistol	Pistol, Projectile	6	1D10/1D8	750/1250	1			1/0	9/9			200/10
Flechette Pistol	Pistol, Projectile	9	1D10	100/300	1	1	4		5/9	1.0	20	250/10
Magrail Pistol	Pistol, Projectile	14	2D8/2D6	600/1000	1	0	0	6/3	7/7	1.0	10	600/25
Carbines												
7mm carbine ²	Rifle, Projectile ¹	6	2D6/1D10	400/1000				5/2	5/7			200/10
Accelerator carbine ²	Rifle, Projectile ¹	9	2D8/2D6	200/600	1	2	4	8/4	-/9	1.5	12	750/30
Gauss carbine ²	Rifle, Projectile ¹	12	2D8/2D6	700/1400	1	1/2	4		5/8	3.0	60	1200/30
Flechette carbine ²	Rifle, Projectile ¹	9	1D10	200/500	1	1	4	0/0	5/9	2.0	40	500/10
Magrail Carbine ²	Rifle, Projectile ¹	14	2D8/2D6	700/1200	1	0/1	4	6/3	7/7	3.0	20	2000/40
Rifle	Rifle, Projectile	7	2D6+4	110m	1	3			7/5	3	5	
Assault Rifle	Rifle, Projectile	8	2D6+2	90m	1	2			10/5	3.5	30	
Autorifle	Rifle, Projectile	9	2D6+4	110m	1	2	10		10/5	4.0	50	
Advanced Combat Rifle	Rifle, Projectile	10	2D6+6	150m	1	1	20		8/5	4.5	50	
7mm semi-auto rifle	Rifle, Projectile	6	2D8/2D6	650/1400				6/3	7/7			200/20
7mm auto rifle	Rifle, Projectile	6	2D8/2D6	500/1200				6/3	9/7			1000/20
5.5mm assault rifle	Rifle, Projectile	7	2D6/1D10	400/1000				6/3	5/7			300/20
7mm assault rifle	Rifle, Projectile	7	2D8/2D6	500/1200				6/3	7/7			400/30
Flechette rifle	Rifle, Projectile	9	1D10	300/600	1	2	4	0/0	5/9	4.0	60	800/10
Sniper Rifle	Rifle, Projectile	4	2D6/2D4	700/2000	1	3	-	5/2	7/7	5.5	1	500/5
		8	2D6/2D4	800/2500	1	2	-	5/2	7/7	5.5	4	700/10
Magrail rifle		14	2D10/2D8	800/1400	1		4	6/3	7/7	4.0	30	2200/50
Light assault gun	Rifle	8	3D10/3D10	200/500				2/2	-/9		5 HE	600/20
			2D12/2D8	300/1000				20/5	-/9		5 HEAP	600/20
			1D8(8)/1D6(4)	50/120				1/0	-/9		5 Flech	600/40
6mm accelerator rifle (ACR)	Rifle	9	2D8/2D6	250/750			4	8/4	-/9	3.0	15	900/25
7mm ACR	Rifle	10	2D8/2D6	650/1400			6	6/3	7/7		20 slug	800/10
			1D12/1D10	750/1500				12/6	7/7		20 DS	800/20
9mm ACR	Rifle	10	2D10/2D8	650/1400			6	6/3	9/7		20 slug	1000/15
			2D8/2D6	750/1500				12/6	9/7		20 DS	1000/25
			3D6/3D6	650/1400				2/2	9/7		20 HE	1000/20
4mm gauss rifle	Rifle	12	2D8/2D6	900/1800					5/7		40	1500/40
4mm gauss pistol	Rifle	13	1D10/1D8	100/325					5/9		20	600/20
Shotguns												
Shotgun	Shotgun	7	4/2/1D6	10/20/50	1	4		0/0 2/0	9/5	3.5	2	
Sawn Off Shotgun	Shotgun	8	4/1D6	5/20	1	4			9.5	2.0	2	
Automatic Shotgun	Shotgun	8	4/2/1D6	10/20/50	1	4	6		11/5	4.0	8	
Shotgun	Shotgun	5	1D6(6)/1D4(4)	20/50	1	2			-/5	4.0	10 shot	150/10
			3D6/2D6	20/100					-/5		10 slug	150/20
Auto carbine	Shotgun	5	1D6(6)/1D4(4)	20/40	1	2	6	0/0	9/5	4.0	20 shot	800/10
			3D6/2D6	20/70				2/0	9/5		20 slug	800/20
Auto shotgun	Shotgun	7	1D6(6)/1D4(4)	20/40	1	2	6	0/0	9/5	4.0	20 shot	1000/10
			3D6/2D6	20/80				2/0	9/5		20 slug	1000/20
9mm submachinegun	Submachinegun	6	1D10/1D8	60/200			8	1/0	5/9	4.0	30	150/20

¹ When fired one handed, carbines use the Pistol, Projectile skill rather than Rifle, Projectile

² Carbines are designed to be fired in one hand with relative ease, but it is harder to keep them under control when doing so. Because of this, double the recoil of a carbine when fired one handed. Carbines with Recoil 0 have Recoil 1 when fired one handed.

Striker - Individual Weapons: Slug Rollers

TL	Weapon	Magazine	STR/DEX	Base %	Grammes	Damage	Pen.	Range	ROF	Cr
5	5.56mm revolver			25	300/50		0/0		2/-/-	100/3
5	7mm revolver	6	7/9	25	600/75	1D8/1D6	1/0	30/100	2/-/-	125/4
5	9mm revolver	6	9/9	25	900/100	1D10/1D8	1/0	30/100	2/-/-	150/5
5	9mm magnum revolver	6	11/9	25	1200/120	1D12/1D10	2/0	50/120	2/-/-	300/8
5	Shotgun	10 shot	-/5	30	3750/750	1D6(6)/1D4(4)	0/0	20/50	1/-/-	150/10
		10 slug	-/5	30	3750/750	3D6/2D6	2/0	20/100	1/-/-	150/10
5	7.62mm bolt-action rifle	6	-/7	20	4000/200	2D8/1D12	5/2	750/1500	1/-/-	200/8
6	7mm auto pistol	15	7/9	25	550/200	1D8/1D6	1/0	30/100	2/-/-	150/8
6	9mm auto pistol	15	9/9	25	750/250	1D10/1D8	1/0	30/100	2/-/-	200/10
7	Body pistol	6	5/9	25	250/50	1D6/1D4	0/0	15/40	2/-/-	500/20
6	9mm submachinegun	30	5/9	15	2500/500	1D10/1D8	1/0	60/200	-/-/8	150/20
6	7mm carbine	10	5/7	20	3000/125	2D6/1D10	5/2	400/1000	2/-/-	200/10
6	7mm semi-auto rifle	20	7/7	20	4000/500	2D8/2D6	6/3	650/1400	2/-/-	200/20
6	7mm auto rifle	20	9/7	20	5000/500	2D8/2D6	6/3	500/1200	1/-/6	1000/20
7	5.5mm assault rifle	30	5/7	20	3000/330	2D6/1D10	6/3	400/1000	2/3/6	300/20
7	7mm assault rifle	30	7/7	20	4000/600	2D8/2D6	6/3	500/1200	2/3/6	400/30
7	Auto shotgun	20 shot	9/5	30	4000/1500	1D6(6)/1D4(4)	0/0	20/40	1/-/4	500/20
		20 slug	9/5	30	4000/1500	3D6/2D6	2/0	20/80	1/-/4	500/20
8	Snub revolver	6 HE	-/9	25	250/30	2D6/2D6	2/2	10/20	1/-/-	150/10
		6 HEAP	-/9	25	250/30	2D4/2D4	8/8	10/20	1/-/-	150/10
8	Snub auto pistol	20 HE	-/9	25	400/100	2D6/2D6	2/2	10/20	1/-/-	200/30
		20 HEAP	-/9	25	400/100	2D4/2D4	8/8	10/20	1/-/-	200-30
8	Light assault gun	5 HE	-/9	10	4000/500	3D10/3D10	2/2	200/500	1/3MR	600/20
		5 HEAP	-/9	10	4000/500	2D12/2D8	20/5	300/1000	1/3MR	600/20
		5 Flech	-/9	10	4000/500	1D8(8)/1D6(4)	1/0	50/120	1/3MR	600/40
9	6mm accelerator rifle (ACR)	15	-/9	20	2500/500	2D8/2D6	8/4	250/750	1/-/4	900/25

10	7mm ACR	20 slug 20 DS	7/7 7/7	20 20	3000/400 3000/400	2D8/2D6 1D12/1D10	6/3 12/6	650/1400 750/1500	2/3/6 2/3/6	800/10 800/20
10	9mm ACR	20 slug 20 DS 20 HE	9/7 9/7 9/7	20 20 20	3500/500 3500/500 3500/500	2D10/2D8 2D8/2D6 3D6/3D6	6/3 12/6 2/2	650/1400 750/1500 650/1400	2/3/6 2/3/6 2/3/6	1000/15 1000/25 1000/20
12	4mm gauss rifle	40	5/7	20	3500/400	2D8/2D6	20/5	900/1800	4/8/10	1500/40
13	4mm gauss pistol	20	5/9	20	650/20	1D10/1D8	12/3	100/3250	4/-/-	600/20

Ranged Energy Weapons

Weapon	Skill	TL	Damage	Range	Load	Recoil	Auto	Pen	STR/DEX	ENC	Ammo	Cost
Laser Pistol	Pistol, Energy	9	1D8	20m	2	0			5/5	2.0	20	
Laser Pistol	Pistol, Energy	9	2D8/2D6	500/1000				3/1	-/7	2.0	50	2000/400
Laser Pistol	Pistol, Energy	13	2D10/2D8	750/1500				5/2	-/7	2.0	200	3000/7000
Laser Carbine	Rifle, Energy	9	2D6	60m	2	0			7/5	3.0	20	
Laser Carbine	Rifle, Energy	8	3D8/3D6	1000/2000				5/2	-/5	3.0	50	2500/1000
Laser Carbine	Rifle, Energy	13	3D10/3D8	1500/3000				10/4	-/5	3.0	200	4000/14000
Laser Rifle	Rifle, Energy	9	2D8	100m	2	0			7/7	3.5	20	
Laser Rifle	Rifle, Energy	9	4D8/4D6	1500/3000				8/4	-/5	3.5		3500/1500
Laser Rifle	Rifle, Energy	13	4D10/4D8	2000/6000				15/8	-/5	3.5		8000/28000
Stagger Laser	Rifle, Energy	12 14	4D10 4D10	1500/3000 2000/6000	4 4		4 4	12/6 14/7	-/5 -/5	9.0 7.0	75 100	7,500/1,500 10,000/3,000
Gauss Pistol	Pistol, Gauss	13	1D10	30m	1	0			7/7	1.0	50	
4mm gauss pistol	Pistol, Gauss	13	1D10/1D8	100/3250				12/3	5/9		20	600/20
Gauss Rifle	Rifle, Gauss	13	2D6+6	100m	1	0	10		7/7	2.0	50	
4mm gauss rifle	Rifle, Gauss	12	2D8/2D6	900/1800			10	20/5	5/7		40	1500/40
Plasma Rifle	Rifle, Plasma	16	3D10	500m	N/A	0			20/7	5.0	N/A	
PGMP-13	Rifle, Plasma	13	6D20/2D20	750/1200				20/4	21/9	5.0	8	65000/50000
PGMP-14	Rifle, Plasma	14	6D20/2D20	750/1200				20/4	21/9	5.0	8	100000/65000
FGMP-14	Rifle, Plasma	14	8D20/3D20	1000/1500				30/5	21/9	5.0	8	100000/65000
FGMP-15	Rifle, Plasma	15	8D20/3D20	1000/1500				30/5	21/9	5.0	8	400000/300000
Fusion Pistol	Pistol, Energy	17	4D12	50m,	N/A	2		15/8	12/9	4.0	N/A	10,000/5,000
		18	4D12	50m	N/A	2		15/8	12/9	3.5	N/A	12,000/7,000
		19	4D12	50m	N/A	1		15/8	10/9	3.5	N/A	15,000/10,000
Matter Disintegrator	Pistol, Energy	18	2D6	50m				100/50	14/9	10.0	N/A	300 KCr/500 KCr
	Shotgun, Energy	19	3D6	50m				100/50	12/9	10.0	N/A	500 KCr/500 KCr

Striker - Individual Weapons: Energy Weapons

TL	Weapon	Magazine	STR/DEX	Base %	Grammes	Damage	Pen.	Range	ROF	Cr
8	Laser carbine	50	-/5	30	5000/3000	3D8/3D6	5/2	1000/2000	1/-/-	2500/1000
9	Laser pistol	50	-/7	25	3000/1000	2D8/2D6	3/1	500/1000	2/-/-	2000/400
9	Laser rifle	100	-/5	30	6000/4000	4D8/4D6	8/4	1500/3000	2/-/-	3500/1500
12	PGMP-12	40	15/9	10	6000/3000	3D20/1D20	10/2	500/900	1/3MR	10000/2500
13	Laser pistol	200	-/7	30	2200/1000	2D10/2D8	5/2	750/1500	4/-/-	3000/7000
13	Laser carbine	200	-/5	30	4400/2000	3D10/3D8	10/4	1500/3000	4/-/-	4000/14000
13	Laser rifle	200	-/5	30	8800/4000	4D10/4D8	15/8	2000/6000	4/-/-	8000/28000
13	PGMP-13	8	21/9	10	9000/60000	6D20/2D20	20/4	750/1200	1/3MR	65000/50000
14	PGMP-14	8	-/7	20	1000/9000	6D20/2D20	20/4	750/1200	1/2MR	100000/65000
14	FGMP-14	8	21/9	10	10000/80000	8D20/3D20	30/5	1000/1500	1/3MR	100000/65000
15	FGMP-15	8	-/7	20	1000/2000	8D20/3D20	30/5	1000/1500	1/2MR	400000/300000

Striker - Crew Served Weapons: Slug Rollers

TL	Weapon	Magazine	STR/DEX	Base %	Kilos	Damage	Pen.	Range	ROF	KCr
5	Medium machinegun	100		10	9.5/2.5	2D8/2D6	6/3	400/1000	-/-/6	1.50/0.12
6	Light machinegun	100		10	5.5/2.5	2D8/2D6	6/3	750/2000	2/-/8	1.20/0.12
6	Heavy machinegun	100		10	15/10	3D8/3D6	4/2	400/1000	1/-/6	3.00/0.25
7	5.5mm gatling gun	2500		05	70/31	2D6/1D10	6/3	400/1000	-/-/16	12.35/2.25
7	7mm gatling gun	2500		05	100/62	2D8/2D6	6/3	500/1200	-/-/12	15.50/3.00
8	5.5mm gatling gun	5000		05	80/62	2D6/1D10	6/3	600/1200	-/6-20	19.50/4.50
8	7mm gatling gun	5000		05	100/125	2D8/2D6	6/3	750/2000	-/4-16	23.50/6.00
10	VRF gauss gun	30000		05	2000/300	3D20/3D10	80/20	3000/4500	4/8/50	200.00/6.00

Grenades/Explosives

Weapon	Skill	TL	Damage	Blast Radius	Range	Load	STR/DEX	ENC	Cost
Aerosol Grenade	Grenade	8	N/A		Roll	1	5/5	0.7	
EMP	Grenade	9	None	2D6 metres	Roll	1	5/5	0.7	Cr 100
Frag Grenade	Grenade	7	4/2/1D6		Roll	1	5/5	0.7	
Gas Grenade	Grenade	7	Special		Roll	1	5/5	0.7	
Incendiary	Grenade	5	3D6	3 metres	Roll	1	5/5	0.7	Cr 30
Plasma	Grenade	12	5D6	1.5 metres	Roll	1	5/5	0.7	Cr 50
Smoke Grenade	Grenade	7	N/A		Roll	1	5/5	0.7	
Stun Grenade	Grenade	8	6/3/1D6		Roll	1	5/5	0.7	
Plastic	Explosives	7	6D6		10m				
Pocket Nuke	Explosives	13	4D6x20		10m				
TDX	Explosives	10	8D6		10m				

Heavy Weapons

Weapon	Skill	TL	Damage	Range	Load	Recoil	Auto	Pen	STR/ DEX	ENC	Ammo	Cost
Flameroller	Heavy Weapons	4	4d6	20m	N/A	3	No	10/5	15/10	25.0	30	800 (40)
		6	4d6	30m	N/A	2			14/9	20.0	25	1,400(70)
		8	5d6	40m	N/A	1			13/8	20.0	25	2,500 (110)
		14	8d6	50m	N/A	0			12/7	8.0	30	15,000 (300)
LMG	Heavy Weapons	5	2D6/2D4	1km	6 (2)	2	6	6/3	15/10	20.0	100	3,000 (80)
LAG	Heavy Weapons	5	2D10/2D8	1km	4	5	No	6/3	N/A	30.0	5	3,500 (100)
		8	2D10/2D8	1km	4	4						5,000 (160)
ARMP	Heavy Weapons	10	3D8/3D6	1km	1	4	No	6/3	N/A	15.0	1	10,000 (250)
Auto Cannon	Heavy Weapons	8	2D10/2D8	500m/1km	6 (12)	3	8	6/3	N/A	35.0	200	7,500 (100)
		10		1km/2km	6 (12)	2	8			(50.0 with both drums)	200	10,000 (140)
VRF Gauss Rifle	Heavy Weapons	14	2D12/2d10	3km/4.5km	6	2	10	6/3	20/10	40.0	1,000	50,000 (500)
MagRail Minigun	Heavy Weapons	15	3D10/3D8	2km/3km	6	2	12	10/5	25/10	25.0	500	250,000 (1,500)

Artillery

Weapon	Skill	TL	Damage	Range	Load	Recoil	Auto	STR/DEX	ENC	Ammo	Cost
Grenade Launcher	Heavy Weapons	8	3D6/2m	20m	2	5		N/A	3.0	1	
RAM Grenade Launcher	Heavy Weapons	9	8D6/1m	150m	5	10		N/A	4.5		
Rocket Launcher	Heavy Weapons	10	10D6/5 m	400m	5	10		N/A	7.0		
PGMP	Heavy Weapons	11									
FGMP	Heavy Weapons	12									

Field Artillery

Weapon	Skill	TL	Minimum Range	Effective Range	Damage	Radius	Rate of Fire	Minimum Crew	Cost
Field Mortar	Heavy Weapons (Field Artillery)	3	L	2,000 metres	3d6	6 metres	6	2	Cr 600
		8	M	2 km	4d6	9 metres	3	2	Cr 1,250
		11	M	10 km	5d6	9 metres	3	1	Cr 25,000
AT Gun	Heavy Weapons (Field Artillery)	6	L	2 km	6d6	—	9	4	Cr 2,000
		8	L	500 km	8d6		6	4	Cr 4,000
		12	M	750 km	8d6+4		6	3	Cr 8,000
		15	M	1,000 km	10d6		6	2	Cr 40,000
Frag Cannon	Heavy Weapons (Field Artillery)	5	M	1 km	5d6+5	5 metres	12	6	Cr 2,500
		8	S	600 km	6d6+5	5 metres	9	4	Cr 5,000
		10	S	750 km	8d6+5	10 metres	6	3	Cr 8,000
MRL Pack	Heavy Weapons (Field Artillery)	6	L	1 km	4d6	5 metres	Special	5	Cr 3,000
		8	M	50 km	5d6	4 metres		4	Cr 10,000
		10	S	75 km	5d6	4 metres		3	Cr 15,000
		12	S	100 km	6d6	3 metres		2	Cr 20,000
Mass Driver	Heavy Weapons (Field Artillery)	10	M	1,000 km	10d6	2 metres	4	3	Cr 3,000
Meson Accelerator	Heavy Weapons (Field Artillery)	15	L	Line of Sight	18d6	10 metres	12	4	MCr 20

Using Ranged Weapons in Close Combat

If used in close combat, a ranged weapon is treated as an improvised weapon. Usually, the 1H Hammer skill or the Rolling skill may be used.

Ancient Weapons

Atatl: Only javelins may get the benefit from an atatl.

Blowgun: A character's Damage Modifier is never applied when using a blowgun.

Heavy Crossbow: A character's Damage Modifier is never applied when using a heavy crossbow.

Light Crossbow: A character's Damage Modifier is never applied when using a light crossbow.

Longbow: A longbow cannot be used from horseback.

Slug Rollers (Projectile Weapons)

Accelerator Rifle: Also known as gyrojet weapons, accelerator rifles are designed for zero-gravity combat. They fire tiny missiles that leave the rifle with minimal velocity and thus minimal recoil, then accelerate to high speed.

Accelerator Carbine: Also known as a gyrojet carbine, accelerator carbines are designed for zero-gravity combat. They discharge tiny missile munitions that leave the barrel with minimal velocity and recoil before accelerating to higher impact speeds.

Advanced Combat Rifle (ACR): The ultimate evolution of the conventional firearm, advanced combat rifles are the weapon of choice for many military units. Standard equipment includes an electronic battlefield sight, incorporating both light amplification and IR abilities, visual magnification up to 5x zoom, and a laser rangefinder which may also be used as a target painting device (reveals exact distance to target). The weapon is also gyroscopically stabilised during firing.

Antique Pistol: Unless the weapon is especially well made, it will have -20% to attacks. Antique pistols require an action and a successful Gun Combat (Slug Pistol) check to reload. Failure means you have to start again.

Antique Carbine: A breach-loading short rifle-like weapon often used by horsemen or cavalry to fill the role between pistols and rifles. Unless the weapon is especially well made, it will have -10% to attacks. Antique carbines require a successful Gun Combat (Slug Carbine) check to reload.

Antique Rifle: Unless the weapon is especially well made, it will have -20% to attacks. Antique rifles require an action and a successful Gun Combat (Slug Rifle) check to reload. Failure means you have to start again.

Assault Rifle: Assault rifles fire lighter projectiles than rifles, but are capable of a higher rate of fire and are more suitable to short-range encounters.

Autopistol: Variants of this semi-automatic pistol are the standard sidearm for law enforcement officers and criminals.

Autocarbine: Fast firing slug rollers that only require one hand to fire, but can be terribly inaccurate without a second hand to steady it. Autocarbine are considered to be a good standard firearm for most security forces.

Autorifle: Automatic rifles have a higher muzzle velocity and are capable of automatic fire. Also termed battle rifles.

Body Pistol: Body pistols are manufactured from plastics and cultured bone, making them very difficult to detect using conventional weapons scanners. Body pistols increase the difficulty of Sensors checks to detect them to Hard.

Cartridge Pistol: A revolver-style pistol that fires shotgun ammunition at very close range. It comes standard with an attached arm brace to help absorb some of the considerable recoil created by the weapon's discharge.

Flechette Pistol: A small and light pistol that uses air pressure to all-but-silently hurl tiny slivers of metal with great accuracy. Often considered to be an assassin's preferred sidearm due to its inherent quietness.

Flechette Carbine: A short-barrelled weapon capable of shooting metallic flechettes at longer ranges than the standard pistol.

Flechette Rifle: Much like the normal autorifle, the flechette rifle has a decent rate of fire and moderate takedown potential. Its metallic slivers punch through lightly armoured targets easily, making it a good assault weapon when dealing with common infantry.

Gauss Pistol: Gauss pistols use electromagnetic coils to accelerate metallic darts to hypersonic speeds. Gauss weapons are lightweight, efficient and deadly.

Gauss Carbine: Not as bulky as the gauss rifle, gauss carbines fire high-velocity projectiles using electromagnetic rails. Gauss carbines are the favoured weapon of boarding marines because of their size and ease of use.

Gauss Rifle: Gauss rifles replace conventional rifles at TL 13. Like the smaller gauss pistol, rifles fire high-velocity projectiles using electromagnetic rails.

MagRail Pistol: Using the basic MagRail principle of much larger weaponry, this pistol magnetically projects five-centimetre diameter alloy discs at astonishing velocity. Although it has a slower rate of fire due to the limits of its attached power pack, its munitions can cut through armour and flesh with ease.

MagRail Carbine: Using the attached power cell to augment firing rate, this carbine projects the same five-centimetre diameter alloy discs as its pistol version. It uses a larger magazine and a more rapid fire rate, but does not increase the velocity or the 'calibre' of the projectiles.

MagRail Rifle: With the larger frame of the rifle stock, a larger power source can allow for even larger ammunition to be hurled by this wide-barrelled weapon. Fifteen centimetres in diameter, the alloy discs shot by the MagRail rifle can tear humanoid targets apart in seconds if held on target.

Revolver: A conventional six-shooter handgun. Revolvers take an action to reload.

Rifle: Reloading a rifle requires an action.

Shotgun: A shotgun using pellet ammunition cannot be dodged, but Armour gives double protection against pellet attacks. A shotgun can also fire solid slugs, which follow all the normal rules for shooting.

Sniper Rifle: A high-calibre rifle designed not for rapid firing, but instead for penetration and visceral damage. With its integrated silencer and magnification scope, long-distance targets can be killed quietly and efficiently.

Snub Pistol: These lightweight, low-recoil weapons were designed for use aboard spacecraft and in zero gravity.

Zip Gun: A one-use pistol made from makeshift materials, the 'zip gun' is a catch-all title used to describe any one-shot homemade firearm. Zip guns have a -10% penalty to attacks.

Energy Weapons

A laser that hits the head from the front will permanently blind its target unless they are wearing some sort of eye protection.

Laser Carbine: Laser carbines are shorter and lighter than laser rifles, and have a correspondingly shorter range.

Laser Pistol: The TL 9 pistol is bulky, but effective, with no recoil and a large magazine. At TL 11, advances in battery technology and miniaturisation mean that the pistol is no larger than a conventional firearm, but must still be connected to a battery pack for sustained use.

Laser Rifle: Laser rifles are highly accurate at long range. They are powered by heavy backpacks, although they have an internal battery that can store enough energy for six shots for mobile sniping.

Plasma Rifle: TL 16 technology allows the bulky reactor and plasma chamber of the PGMP to be made small enough to fit into a rifle frame. The plasma rifle is a high-power sniper weapon designed to crack Battle Dress. Because of its internal reactor it never runs out of ammunition.

Stunners: Stun weapons are non-lethal and do not inflict normal damage. A character struck by a stun weapon must make a Resilience check with a penalty equal to the damage x 5 (after armour is subtracted). If this Resilience check is failed the character is knocked unconscious. If the Resilience check is successful, the character is unaffected by the weapon and the stun damage is ignored.

Fusion Pistol: Using advanced directional gravitics, the fusion pistol projects a small blast of fusion energy from its attached power source at respectable ranges. Those without radiation protection who are in Personal range of the weapon when a fusion pistol is fired will suffer a moderate dose of radiation - each firing of a fusion pistol emits 1d6x5 rads.

Stagger Laser: The first energy weapon designed to effectively hurl multiple shots, the stagger laser actually just uses an industrial beam splitter to create the effect of several smaller beams in place of a single solid one.

Matter Disintegrator: This weapon was specifically designed for killing heavy infantry. The science behind the weapon is simple; causing the target to shed neutrons at an alarming rate and using its own matter against it. The larger or more dense a target is, the larger the reaction. The Effect used with a matter disintegrator is not determined by the attack roll; instead it is equal to the Armour rating of the target - meaning that the weapon will always inflict damage if it hits.

Grenades

Aerosol: Aerosol grenades create a fine mist six metres in radius that diffuses lasers but does not block normal vision. Any laser attack made through the mist has its damage reduced by 10. Laser communications through the mist are completely blocked. The mist dissipates in 1d6 x 3 rounds, although high winds and other extreme weather can sharply reduce this time.

EMP: Electromagnetic Pulse grenades are used to knock out drones, robots, computers and electronic equipment. Any unshielded electronic technology caught in the radius of an EMP grenade will automatically shut down for 1d6 minutes unless equipped with shielding to prevent this. Few high-tech mercenaries use these devices due to the erratic nature of their effect radius - which can effect their own gear on occasion.

Frag: The damage from fragmentation grenades decreases with distance from the blast:

Distance	Damage
3 metres	6d6
6 metres	3d6
9 metres	1d6

Incendiary: Incendiary grenades deal 1d6 heat damage to characters within three metres of the blast; the radius is considered to be ablaze for 2d6 minutes - inflicting 2d6 fire damage to anything that enters the area.

Plasma: Plasma grenades use two chemical agents and an electric pulse to start a massive reaction in the grenade's shell, causing it to explode in a small orb of superheated gas.

Smoke: Smoke grenades create a thick cloud of smoke six metres in radius, centred on the location of the grenade. This smoke imposes a 40% penalty on all attacks within or through the cloud (doubled for laser weapons). Smoke dissipates in 1d6 x 3 rounds, although high winds and other extreme weather can sharply reduce this time.

Stun: Stun grenades are non-lethal and do not inflict normal damage. A character struck by a stun grenade must make a Resilience check with a penalty equal to the damage x 5 (after armour is subtracted). If this Resilience check is failed the character is knocked unconscious. If the Resilience check is successful, the character is unaffected by the weapon and the stun damage is ignored.

Explosives

The Explosives skill is used with explosives.

Plastic: This generic, multi-purpose plastic explosive is a favourite of military units, terrorists, demolition teams and adventurers across known space.

TDX: An advanced gravity-polarised explosive, TDX explodes only along the horizontal axis.

Pocket Nuke: Hideously illegal on many worlds, the pocket nuke is actually the size of a briefcase and so is too large to fit into a grenade launcher.

Weapon	TL	Damage	Radius	Cost (Cr.)
Plastic	6	6d6	2d6 metres	200
TDX	12	8d6	4d6 metres	1,000
Pocket Nuke	12	4d6 x 20	15d6 metres	20,000

Heavy Weapons

Armour Rifle, Man Portable (ARMP): Designed to be the epitome of sniper rifles, the ARMP is a single-shot, bolt action heavy rifle that can puncture the plate armour of personnel carriers. With the integrated bio-mass range finder (see below) and adjustable pivoting bipod, an ARMP properly set up with a clear line of fire can kill a target that thinks it is safe behind cover. Little can withstand a well-aimed direct hit from the ARMP's specialised ammunition.

Auto Cannon: A gravity fed, fully automatic weapon, the auto cannon fires a large-calibre round at amazing velocities with a practical rate of fire reaching 200 rounds per minute. Ammunition is provided in two large drums, placed to either side of the firing position. Empty drums may be changed independently of one another by a secondary loader, allowing the weapon to be fired while being reloaded. Replacing an ammunition drum requires the normal 6 combat actions, but is doubled to 12 if performed while the gun is being fired. This ammunition system is so heavy, that the weapon must be mounted on a vehicle or emplacement to be fired effectively.

Flameroller: A pressurised tank of combustible fuel attached to a projecting nozzle, the flameroller shoots a long stream of burning liquid and flame at its targets. When fired, the flameroller's stream strikes a single target and expands in all directions to consume it and the area around it. The fuel does not puncture armour like a bullet, but instead coats the target in burning fuel - which will continue to blaze for several seconds. As technology advances the type of fuel becomes more efficient, eventually reaching the heights of the blue-white plasma roller at TL14.

In game terms, a flameroller targets a single point of contact within range, making attack rolls against everything in a straight line from the firer to that point (rolling in order) - stopping when an attack hits. When the stream hits a target however, it breaks the projection and fills a radius of 3 metres around the target, rolling the damage for the weapon as normal. Anything that suffers damage from a flameroller will continue to suffer half (round down) the current damage value every round until the damage is halved eventually to 0. Due to the lack of penetration available to a flameroller's stream, armour values are doubled against flameroller attacks.

Grenade Launcher: Grenade launchers are used to fire grenades over long distances.

Light Machine Gun (LMG): A heavier belt fed version of the automatic rifle, the LMG fires standard ammunition at staggering speeds. Ammunition is provided in 100 round belts. Reloading requires six combat actions if the weapon is manned by a single individual or two combat actions if a dedicated loader is present. If a loader is present, he may choose to link two 100 round belts to form a 200 round belt on the spot as a combat action. This may not generally be done ahead of time as each belt is carried in its own ammo box. Linked 200 round belts are often provided ahead of time if the weapon is emplaced in a defensive structure or is vehicle mounted.

Light Assault Gun (LAG): Essentially a superheavy rifle, the LAG fires a single solid slug at extreme distances with armour piercing capability. A magazine containing five rounds is inserted into the underside of the weapon, ahead of the trigger guard, and locked into place before firing. The weapon comes standard with both a manually set tripod and an over-the-back sling to assist in carrying from place to place.

MagRail Minigun: Modified to fire steady streams of twenty-centimetre discs of sharpened metal, the MagRail minigun does not use revolving barrels like conventional slug-rolling miniguns, although it does have four individual firing ports. It uses a compartmentalised energy cell to direct the individual barrels to fire in alternating patterns, drawing from a single drum-sorted ammunition feed located under the weapon's rear.

RAM Grenade Launcher: Rocket Assisted Multi-Purpose Grenade Launchers have a longer range and are capable of firing up to three grenades with a single attack. This uses the rules for firing on full auto; unlike other weapons with an Auto score, a RAM grenade launcher cannot fire in burst mode. It takes two actions to reload a RAM grenade launcher.

Rocket Launcher: To counteract the recoil of the weapon, a rocket launcher channels exhaust backwards in an explosive backblast. Anyone up to 1.5 metres behind a rocket launcher when it fires takes 3d6 damage from the burning gasses. Vehicle-mounted rocket launchers lose this side-effect as a vehicle is a more stable firing platform than a person. It takes three actions to reload a rocket launcher. The rockets presented are high-explosive models. A rocket that misses has a 50% chance of detonating upon impact with the ground. Otherwise it will miss completely and leave the battlefield without striking anything or detonating.

PGMP: It is so heavy and bulky that it can only be used easily by a strong trooper. Every point by which a user's Strength falls short is a -10% on any attack rolls made with it rather than the normal -5%.

FGMP: It includes a gravity suspension system to reduce its inertia, making it easier to use than the PGMP and fires what amounts to a directed nuclear explosion. Those without radiation protection who are nearby when a FGMP is fired will suffer a lethal dose of radiation – each firing of an FGMP emits 2d6 x 20 rads, which will affect everyone within the immediate vicinity.

VRF Gauss Rifle: Standing for Very Rapid Fire, the gauss rifle is a shoulder-slung gauss weapon that uses an attached power backpack to accelerate hundreds of metal darts per second at targets over a hundred metres away. Generally only carried by soldiers in battle dress, the VRF gauss rifle is a heavy rig that must be set on a stationary pintle-mount if it is to be fired by any character not wearing powered armour.

Support Weapons (Field Artillery)

Field Artillery is designed for long-range bombardment of enemies.

Field Mortar: A simple aiming and firing mechanism based on self-propelled rounds being dropped into a tube, the field mortar is primarily used to drop parabolic attacks into the rear of an enemy formation. At TL8, the fragmentation shell has been re-designed to be more aerodynamic. At TL11 the mortar actually uses a power pack to create charged balls of energy to launch into the enemy. Ammunition for the field mortar cost 50 credits per shot, except for the power pack fuelled TL11 version.

AT Gun: The single best way to deal with an armoured target, the Anti-Tank gun is a huge cannon that fires a single armour-piercing, high-fragmentation shell that is designed to punch through armour and explode. At early technology levels, the gun is called a 'howitzer' and is used to lob shells in wide arcs. As technology increases, the AT Gun's ammunition becomes more and more efficient as it is made from better materials, allowing it to be fired more like a conventional gun. At TL15 however, the AT Gun fires a directed plasma lancet of energy drawn off a huge fusion pack attached to it by cables and conduits. For the earlier versions, ammunition for the AT Gun cost 25 credits x the Technology Level.

Frag Cannon: A high-calibre parabolic cannon, the frag cannon is used to launch special anti-personnel rounds over a battlefield. The rounds explode when they reach a certain falling velocity, hurling thousands of chunks of superheated shrapnel into the masses below. It is a weapon that cannot be used in areas where allied forces might be, as the airbursts are not easily contained. As technology increases, the frag cannon becomes more computerised and easier to manage with fewer crew. Ammunition for the frag cannon costs 50 credits x the Technology Level of the weapon.

MRL Pack: The multiple rocket launcher pack is a rack of motorised launch tubes that uses the same ignition system to rapidly deploy payloads. Earlier versions use simple 'aim and fire' rockets that required several crew to load, direct and fire properly. As technology increased, the MRL becomes a radar-controlled automated system with contained loading systems and laser-guided rockets. MRL packs fire either single shots or a number of rockets as a separate attacks roll up to half (round up) the pack's Technology Level, and have a rate of fire equal to three times the number of rockets launched. Missile reloads cost 25 credits x the TL of the MRL pack each.

Mass Driver: This simple gravitic weapon hurls clusters of dense matter at dangerous velocities. The ammunition used in a mass driver is little more than metallic or polymer ovoid-shaped pellets the size of a human fist. Dozens of these pellets are fired in a tight grouping, striking a relatively small area with tremendous force, like an artillery shotgun of sorts.

Meson Accelerator: Using nuclei-stripping technologies originally discovered for the nuclear dampers protecting many major population centres in the galaxy, the meson accelerator is a huge field-focussing device that disintegrates matter caught in its focused energy emissions. The 'beam' fired by the accelerator is actually invisible except for its effects, but the weapon's designers added a harmless light-projection system to colour the area of effect a bright blue immediately before it fires - allowing allies to steer clear of the coloured area!

Field Artillery Rules

Effective Range: Field Artillery is designed to fire at very long ranges. The number listed is the farthest the target of a Field Artillery attack can possibly be, suffering no penalties at that range. Firing at targets up to +50% of that range will suffer a -40% Penalty to hit. Anything farther cannot be hit at all.

Minimum Range: Either due to how difficult to physically manipulate or due to the requirement of parabolic firing arcs, some weapons are extremely difficult to fire at close ranges. For every range band closer to the firing weapon than what is listed, the attack suffers a -40% Penalty to hit.

Rate of Fire: Artillery is difficult to fire rapidly due to reloading and re-aiming constraints. The number listed is the amount of combat actions that must be spent preparing the weapon before firing again; treated similar to a Reload score.

Minimum Crew: This is the number of skilled Artillerists needed on hand to ready/aim/fire the weapon properly. Each crewman contributes to the overall firing skill of the artillery piece, figured by taking the average of all crewmen's Heavy Weapons (field artillery) skill levels. For each crewman less than the listed minimum, the weapon suffers a -20% Penalty to hit rolls.

Modifications

Weapons can be modified to improve them. Such modifications are generally expensive and can only be performed by experts at certain Technology Levels.

Bio-Mass Range Finder (TL10): Using sophisticated density and IR recognition scanning, the computerised scope draws reliable outlines of where living targets are, despite up to twelve inches of inorganic material between target and firer. This allows the firer to spot living creatures behind cover and reduces the penalty incurred for firing into cover.

TL 10: Eliminates up to 20% penalty from Cover. Costs Cr. 500.

TL12 3-D imaging and motion tracking is added to the scope. This eliminates up to 40% penalty from Cover. Costs Cr. 750.

Bipod/Tripod (TL4): Any weapon that has been fitted with a stabilising bipod or tripod can be set up in two combat actions to halve the weapon's Recoil (round down), so long as the weapon is not moved. Costs Cr. 50.

Grenade Launcher (TL 8): An underslung RAM grenade launcher can be added to any rifle at the cost of 1,000 Cr. This grenade launcher has a magazine of one grenade, cannot fire on automatic and takes four actions to reload.

Gun Cam (TL8): The camera takes several seconds of recording around the pulling of the weapon's trigger, allowing for slow-motion playback to see what the shooter was doing right or wrong - or for the verification of kills. A gun cam costs Cr. 150.

Gyrostabiliser (TL 9): Stabilisers can be added to any weapon with recoil, reducing the recoil by one point at the cost of 300 credits.

Intelligent Weapon (TL 11): This adds Computer to any weapon. Cr 1,000. The TL 13 upgrade adds Computer/1 to any weapon. Cr 5,000.

Laser Sight (TL 8): Integrated optics and laser sights give an extra +20% bonus to any attack that has been aimed. Cr 100. At TL 10, x-ray lasers and improved display technology removes the tell-tale 'red dot' of a vislight laser. Cr 200.

Magnification Scope (TL4): When Aiming with a rifle, the firer can ignore the penalty for long range firing. Costs Cr. 25.

Secure Weapon (TL 10): A secure weapon requires authentication in some fashion (scanning the user's DNA or iris patterns, entering a password, transmission of an unlocking code from a comm) before it can be fired. Cr. 100.

Silencer (TL 8): A silencer can be added to any slug roller with Auto 4 or less, masking the sound produced by firing. (−40% to detect) Cr. 250.

CHAPTER 31: Armour

Each piece of armour is characterised by the following qualities:

AP: How many armour points are given to each location covered by this armour. If a character is wearing multiple pieces of armour on a location, only the highest armour point score is used.

ENC: The weight and bulk of the armour.

Locations: Which hit locations this type of armour covers.

Skill Penalty: Add together the AP of all the armour the character is wearing – this is the character's Skill Penalty. If a character is wearing multiple pieces of armour on a location, only add the highest armour point score.

The Skill Penalty applies to tests with most skills that use the DEX Characteristic to calculate their base scores, plus some other skills.

Cost: The cost in Credits to purchase this armour.

Unless otherwise noted, only one type of armour can be worn at a time. Resolve damage from the outside in – damage that gets through the outer layer of armour is next applied to the inner layer.

Some types of armour have a required skill. A character using armour that requires a skill has all physical skills limited to the armour skill.

Armour Types

Armour	TL	Item	AP	ENC	Locations	Cost	Skill Penalty
Chainmail	2	Coif	5	1	Head		-5%
Chainmail	2	Shirt	5	4	Abdomen,Arms,Chest		-20%
Chainmail	2	Skirt	5	2	Legs		-10%
Chainmail	2	Trews	5	3	Legs		-10%
Heavy Leather	1	Hauberk	2	1	Abdomen, Chest		-4%
Heavy Leather	1	Cap	2	1	Head		-4%
Leather	1	Hauberk	1	1	Abdomen, Chest		-2%
Leather	1	Shirt	1	1	Abdomen,Arms,Chest		-4%
Leather	1	Trews	1	1	Lega		-2%
Plate	2	Breast/Back	6	4	Abdomen, Chest		-12%
Plate	2	Leggings	6	4	Legs		-12%
Plate	2	Vambraces	6	3	Arms		-12%
Plate	2	Full Helm	6	1	Head		-6%
Plate	2	Suit	6	12	All		-42%
Ringmail	2	Shirt	3	2	Abdomen,Arms,Chest		-12%
Ringmail	2	Skirt	3	2	Legs		-6%
Scalemail	2	Shirt	4	3	Abdomen,Arms,Chest		-16%
Scalemail	2	Skirt	4	3	Legs		-8%
Jack	1	Suit	2	3	All		-10%
Mesh	6	Suit	2(4)	4	All		
Ballistic Cloth	7	Suit	3(5)	4	All		
Flak Jacket	7	Jacket	4	8	Abdomen, Chest		
Ablat	9	Suit	0(5)	4	All		
Reflec	10	Suit	0(10)	3	All		
Vacc Suit	8	Full Suit	8	16	All		
HE Vac Suit	8	Full Suit	10	25	All		
Combat Armour	11	Full Suit	12	36	All		
Battle Dress	13	Full Suit	16	48	All		

Jack (TL 1): A natural or synthetic leather jacket or body suit covering the torso and upper arms and legs.

Mesh (TL 6): A jacket or body suit lined with a flexible metal or plastic mesh that gives it added protection against bullets.

Cloth (TL 7): A heavy duty body suit tailored from ballistic cloth. The fabric absorbs impact energy and spreads it over the body, which can result in bruising. However, cloth armour is highly useful and versatile – it can be effectively concealed under normal clothing although observers making an Investigate or Recon check at -20% will notice something unusual.

Flak Jacket (TL 7): A less expensive version of ballistic cloth, the bulky flak jacket is an unmistakably military garment.

Ablat (TL 9): A cheap alternative to Reflec, ablat armour is made from a material that ablates (vaporises) when hit by laser fire but blocks all the damage done by the laser. Each laser hit on ablat reduces its armour value (versus lasers) by one, but the armour is cheap and easily replaceable.

Reflec (TL 10): Reflec armour is a flexible plastic suit with layers of reflective material and heat-dispersing gel. It is highly effective against lasers, but provides no protection against other attacks. Reflec can be worn with other armour.

Full Suits

Unlike normal armour, some armour can only be worn as full suits. These are integrated suits of high-tech armour that provide other functions than simply protecting from damage.

Vacc Suit (TL 8): The vacc suit or space suit is the spacer's best friend, providing life support and protection when in space. A vacc suit provides a breathable atmosphere and protection from the extremes of temperature, low pressure and radiation typically found in a hard vacuum, for six hours. Anyone using a Vacc Suit is limited to his Vacc Suit skill in all physical skills.

Hostile Environment Vacc Suit (TL 8): Hostile environment suits are designed for conditions where a normal vacc suit would be insufficient, such as deep underwater, worlds shrouded in toxic or corrosive gases, extremes of radiation or temperature, or other locales that offer serious physical danger as well as the lack of a breathable atmosphere. HEV suits provide all the life support offered by a normal vacc suit (for six hours) but are also impervious to flames, intense radiation such as that found at nuclear blast sites, and high pressure environments like undersea trenches. Anyone using a Hostile Environment Vacc Suit is limited to his Vacc Suit skill in all physical skills.

Combat Armour (TL 11): This full-body suit is used by the military and not generally available on the open market, although those with military or criminal contacts can obtain it without much difficulty. It is issued to troop units and mercenary battalions. Combat armour protects from hard vacuum in the same way as a vacc suit and provides life support for six hours. Anyone using Combat Armour is limited to his Battle Dress skill in all physical skills.

Battle Dress (TL 13): The ultimate personal armour, battle dress is a powered form of combat armour. The servomotors vastly increase the user's speed and strength, boosting his Strength and Dexterity by +4 while wearing the armour. Damage to the wearer's characteristics is calculated as normal, but the values from the armour are used for all other purposes such as hand to hand damage or skill checks. The suit has a built-in computer running an Expert Tactics (military) program to give tactical advice and updates and is commonly outfitted with numerous upgrades. The suit is fully enclosed, with a six-hour air supply and gives full protection against environmental hazards – including NBC shielding – as if it was an HEV suit. TL 14 battle dress is considerably stronger, giving Strength +6 instead of +4, and upgrades its internal systems to Master Tactics. Anyone using Battle Dress is limited to his Battle Dress skill in all physical skills.

Effects of SIZ on Armour

Armour made for a character of SIZ 1 to 5 will have its cost and ENC halved from that shown on the Armour table. Characters of SIZ 21 or higher will double the cost and ENC for armour made for them.

Modifications

Most of the modifications listed here can also be applied to normal clothing at the same cost. The exceptions are extended life support and Grav assist.

Eye Protection (TL 6): Many armours include eye protection such as visors or goggles to guard against flying debris but such protection becomes absolutely vital at TL 9 to guard against the blinding effects of lasers. Eye protection can be added to any armour and is included for free in any TL 9+ armour. Cr 50.

Magnetic Grapples (TL 8): Magnetic plates in the boots of the armour allow the user to walk normally on a spacecraft without artificial gravity. Cr. 100.

Computer Weave (TL 10): Computer weave can be added to any armour that does not already have a computer system, and gives Computer/0 to that armour. Cr 500.

Extended Life Support (TL 10): This upgrade can be added to any suit that provides life support (vacc suit, HEV suit, combat armour, battle dress). By adding high-pressure oxygen tanks and recycling systems, the suit now provides eighteen hours of oxygen. Cr. 10,000.

Medikit (TL 10): An internal medical scanner and drug injector, the medikit can be installed in combat armour, battle dress or a vacc suit. It automatically applies first aid if the wearer is reduced to 0 Hit Points in a Hit Location (treat the Medikit as having Medic

80%). It can also administer Fast Drug on command, or if life support systems are failing (turning remaining minutes of life support into hours). Cr 5,000. A TL 11 medikit can also inject Combat or Slow drugs and the Slow Drug antidote on command. Cr 10,000.

Smart Fabric (TL 10): Smart fabric resists stains and dirt, cleaning itself automatically. Cr. 1,000.

IR Chameleon (TL 12): IR (infra-red) chameleon technology can be added to any full-body suit of clothing or armour. It selectively bleeds heat to match background IR levels and effectively renders the wearer invisible to IR (Hard to detect with sensors). IR Chameleon costs Cr. 5,000.

Grav Assist (TL 12): This upgrade can be added to combat armour or battle dress only, and adds the functionality of a Grav belt to the armour at the cost of Cr. 110,000. The TL 15 version lasts longer. Costs Cr 120,000.

Vislight Chameleon (TL 13): A more advanced form of IR Chameleon, Vislight Chameleon covers the surface of the armour with light-bending technology, making the wearer nearly invisible to the naked eye (+40% to Stealth rolls). Vislight Chameleon costs Cr. 50,000.

Force Shields

Force Shields are the application of Force Field technology to individuals or vehicles and are used to block damage in the same way as armour does. When Force Field technology was miniaturised the applications it was used for underwent several stages of evolution, from hand held devices to shields covering the whole body. All Force Shields consist of a Force Shield Generator and a network of filaments that serve as a skeleton to direct the Force Shield. A Force Shield Generator has an Energy Store (ES) rated in Energy Points (EPs) and has an Armour Point rating, the Force Shield Generator uses its AP rating in EPs every hour and once the energy is used, the generator becomes inactive, although the energy store may be recharged or replaced. The Energy Store and AP Rating vary according to the particular make but the maximum value of each normally increases with Tech Level.

Projectile Deflector (TL11): A defensive item that is in many ways the predecessor to the personal shield, the projectile deflector generates a field of gravity-altering energy around its user. Often worn as a belt or other piece of jewellery, the device actually bends the path of incoming high-speed projectiles, making the target harder to hit. The projectile deflector grants a +20% bonus to Dodge against ranged attacks. Melee attacks are unaffected by this device.

Hand-Held Personal Force Shield (TL12): This consists of a handle containing a Force Field Generator and a series of filaments in the shape of a circle or rectangle. The maximum ES and AP ratings are typically TL12 AP 4 ES 20; TL13 AP5 ES 30; TL14 AP 6 ES 40; TL15 AP 7 ES 50. The Hand-Held Personal Force Shield is used as a normal Shield and blocks damage in the normal way, either by parrying or by interposing it between the attacking weapon and the wielder.

Directional Personal Force Screen (TL13): This consists of a Force Field Generator worn on the body and a series of filaments radiating out in a fan-shaped pattern. The maximum ES and AP ratings are typically TL13 AP6 ES 30; TL14 AP 7 ES 40; TL15 AP 8 ES 50. Once activated the Directional Personal Force Screen covers an oval area that completely protects the user from a single direction.

Personal Force Screen (TL14): This consists of a Force Field Generator worn on the body and a series of filaments that cover the body of the wearer, typically woven into a uniform. The maximum ES and AP ratings are typically TL14 AP 8 ES 40; TL15 AP 9 ES 50. Once activated the Personal Force Screen completely protects the user from any attacks, adding its APs to the normal APs worn.

CHAPTER 32: Ship Armaments

A ship has one hardpoint per 100 tons of ship and each weapon system takes up one hardpoint. A weapon system may include multiple weapons – for example, a triple turret contains three lasers, missile launchers, sandcasters or some combination of three weapons.

Turrets

One turret may be attached to each hardpoint on the ship. If a turret is installed, then one ton of space must be allocated to fire control systems:

Weapon	Single Turret	Double Turret	Triple Turret	Pop-Up Turret	Fixed Mounting
TL	7	8	9	10	-
Tons	1	1	1	2	0
Cost (MCr)	0.2	0.5	1.0	+1.0	50%

Single, Double and Triple turrets can hold one, two or three weapons.

Pop-Up is a quality that can be applied to any type of turret – the turret is concealed in a pod or recess on the hull, and is detectable only when deployed. A ship with all its weapons in pop-up turrets looks unarmed to a casual sensor scan.

Fixed Mounting weapons cannot move, are limited to firing in one direction (normally straight ahead), and are found mainly on fighters. A fixed mounting costs half as much as a turret of the same type, so a single fixed mounting costs 0.1 MCr., a double fixed mounting costs 0.25 MCr., and a triple fixed mounting costs 0.5 MCr.

Turret Weapons

Weapon	Pulse Laser	Beam Laser	Particle Beam	Missile Rack	Sandcaster
TL	7	7	8	6	7
Optimum Range	Short	Medium	Long	Special	Special
Damage	1D6	2D6	3D6 + Crew Hit	Depends on Missile	Special
Cost (MCr)	0.5	1.0	4.0	0.75	0.25

Missile racks need ammunition – twelve missiles take up one ton of space.

A sandcaster reduces the damage from a beam weapon by 1d6. Sandcasters require ammunition. Twenty sandcaster barrels take up one ton of space, and cost 10,000 credits.

Bays

Bay weapons are much larger than turrets, and take up 50 tons of space and one hard point, as well as one ton of space for fire control.

Bay Weapons

Weapon	TL	Range	Damage	Cost (MCr.)
Missile Bank	6	Special	Launches a flight of twelve missiles	12
Particle Beam	8	Long	6d6 + crew hit	20
Fusion Gun	12	Medium	5d6	8
Meson Gun	11	Long	5d6 + crew hit	50

Weapon	Missile Bank	Particle Beam	Fusion Gun	Meson Gun
TL	6	8	12	11
Range	Special	Long	Medium	Long
Damage	Launches a flight of 12 missiles	6D6 + Crew Hit	5D6	5D6 + Crew Hit
Cost (MCr)	12.0	20.0	8.0	50.0

Missile banks fire flights of twelve missiles at a time.

Meson weapons are unaffected by armour, as the blast only becomes harmful after it has already passed through the hull. Meson guns also inflict an automatic radiation hit on the crew of any target struck.

Screens

Screens are defensive systems that protect against specific attacks.

Screen	TL	Effect	Tons	Cost (MCr.)
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Nuclear Damper	12	Reduces fusion gun and nuclear missile damage by 2d6, removes automatic crew hit from nuclear missile attacks	50	50
Meson Screen	12	Protects against meson weapon damage, reducing damage by 2d6	50	60

A nuclear damper reduces the damage from fusion weapons and nuclear missiles by 2d6 when affected.

Meson screens block attacks from meson weapons by preventing meson decay.

CHAPTER 33: Terraforming

Terraforming is the science of changing a planet's physical properties to make it habitable by mankind or other species.

Planet Types

Many different types of planet are suitable candidates for Terraforming.

- **Earth-Like** - Earth-like planets have roughly the same mass and gravity as Earth, but with primitive atmospheres and no life.
- **Venusian** - Venusian worlds are similar to Venus in that they have thick atmospheres rich in carbon dioxide and water vapour.
- **Martian** - Martian worlds are smaller and have less gravity than Earth and often have thinner atmospheres.
- **Moons** - Some moons are large, have atmospheres of their own and are capable of being terraformed, some of these moons are Earth-like in size and some are even larger.

To sustain life a planet must have a breathable atmosphere, liquid water, a covering of plant and a stable biosphere that maintains itself in a self-sustaining equilibrium.

Techniques

Changing a planet's make-up is a difficult process and requires different techniques depending on the planet's type and its stage of development.

- **Nanotechnology** - Some nanomachines can be used to transform atmospheres, producing colonies of machines that produce oxygen from carbon dioxide and water vapour, or methane and water vapour and after a while the nanomachines turn themselves off and become part of the biosphere.
- **Biotechnology** - Algae can be seeded through an atmosphere and serves several purposes. It can convert a primitive atmosphere to an oxygen-rich one, it can clear a thick atmosphere, it can remove noxious gases from the atmosphere, provide clouds and cooling shade and it can provide foodstuff for other forms of life. Later types of plant can be introduced, trapping more carbon dioxide and releasing more oxygen, turning rock into soil, allowing animals to graze and fertilise the soil and establishing a flourishing biosphere.
- **Chemical Manipulation** - Dropping chemicals in an atmosphere can be used to clean up those gases that biotechnology cannot touch. Comets, meteors and asteroids can be rerouted and dropped onto a planet, increasing the water content and cooling the world. Seeding the atmosphere with carbon dioxide
- **Technology** - Various high-technology techniques can be used to terraform a planet. Planetary chimneys draw the heat stored in the lower reaches of an atmosphere and discharge the heat in the upper atmosphere or pump gases from the lower reaches. Oxygen generators take in carbon dioxide and extract the oxygen, enriching the local atmosphere. Chemical plants liquefy gases and allow them to be stored underground or removed by transports.
- **Solar Reflectors** - These lie in orbit around the planet and focus and redirect solar energies that would normally pass the planet, instead allowing the solar energies to warm the planet. Sometimes, large arrays are placed around a planet, collecting much more energy than a single reflector can manage.
- **Solar Shades** - These screens cover a planet and shield it from the glare of the sun, cooling and protecting from harmful rays.

Worldhouses

Sometimes a planet is too difficult to terraform completely however there may be small parts of the planet that can be terraformed successfully. Such an area is called a Worldhouse.

Worldhouses are often covered in huge lattices, providing domes many kilometres high with ecosystems, climate systems and biosystems all of their own. Each system can be kept separate from its neighbours, allowing for different species to live on a single planet. The technological challenges involved in keeping such a system running are great and Worldhouses tend to be well-maintained and highly dependent on technology.

As Worldhouses grow, they can be linked together, creating larger and larger structures until whole continents are covered. Some planets have enormous planet-wide structures, with only the high mountains and upper atmosphere on their natural state.

Primitive Worldhouses use solid frames with glass or similar substances, but these normally prove expensive to build, difficult to maintain and are limited to relatively small structures. Larger Worldhouses use flexible self-maintaining polymers on inflatable frameworks, using solar energy to power motors dedicated to keeping the structures aloft, keeping dangerous solar radiation from the planet and using solar transmitters to provide light and warmth to the surfaces below.

Timescales

Terraforming may take several centuries to completely transform a planet. However, some changes take far less time. A series of aggressive atmospheric transformations can convert a large percentage of carbon dioxide into water or can raise or lower the

temperature of a planet within 20 or 30 years. Sometimes colonists can move to a planet before terraforming is complete, living near oxygen generators and farming thin soils before the rest of the planet is habitable. It takes 10-20 years to build a small Worldhouse and often that is enough to sustain life while other terraforming is carried out, allowing the Worldhouse to grow or others to be built nearby. So, a colony may be established within anything from 50 to 100 years after terraforming begins.

Economics

Terraforming is not cheap, in fact it is very expensive, so why do it at all?

Many planets are rich in natural resources, containing vast mineral wealth that is easier to extract by miners living in a stable ecosystem. Sometimes a colony on a planet may claim an entire solar system. Planets may be populated by colonists forced from a world through overcrowding, expulsion or other migrations. Home Planets may require food to be grown on other planets and shipped home. These reasons can mean that terraforming is viable, whatever the cost.

Because terraforming is so expensive it is normally funded by governments or large corporations. Colonists usually share a large part of the debt and often have to pay the debt off through mineral exports, high taxes or even indentured labour. Some colonies consist of thousands of slaves working to pay off their debt and earn their freedom.

CHAPTER 34: World Creation

In a small Sci-Fi campaign the Gamesmaster will know where the major planets are and will also know their make-up. However, for a setting with thousands of planets it becomes necessary to generate planets on the fly. The Gamesmaster can use the following rules to generate planets for use in any Sci-Fi setting.

If the Gamesmaster is not using pre-generated Starcharts then he may roll to see if a world exists in the hex, square or location.

World Occurrence: There is a basic one-half chance normally that a world (and its attendant stellar system) will be in a hex. Systematically check each hex on the subsector map, rolling one die and marking the hex with a circle if the result is a 4, 5, or 6. This indicates that a world is present; otherwise, leave the hex blank.

The Referee may elect to alter the normal chances of worlds, making them more frequent or less frequent to correspond to specific regions of the galaxy. A 50% density is appropriate for the spiral arms of the galaxy. Apply –20% for ‘rift sectors’, –10% for sparse sectors and +10% for densely populated sectors.

Starport Type: Many worlds have starports, their presence being essential to interstellar trade and commerce.

Bases: Stellar systems may have bases for military forces, the navy, the scouts, or for other arms of interstellar government.

Bases will also help determine political boundaries in the sector. An interstellar government will place bases along its borders to guard against aggression from rival states, or to control local systems. The presence of multiple bases within a few parsecs might indicate a contested border, or a mighty stronghold.

Gas Giants: A star system may have one or more gas giant planets. The presence of a gas giant allows Starships equipped with fuel scoops to refuel by skimming; this eliminates fuel cost for the vessel and increases profit. It also allows refuelling at systems that do not have starports. Refuelling in this fashion requires 1–6 hours per 40 tons of fuel.

Gas giants are relatively common. For each system roll 10+ on 2d6 for at least one gas giant not to be present in the system.

Travel Zones: Most worlds are assumed to be civilized, or at least amenable to travellers and visitors. Some, however, are caught in the throes of war, plagued by disease, or simply not ready for interstellar visitors. Such worlds are classified by travel zones to denote such status. In most cases, the Referee should indicate travel zones based on the information available. Two such zone types exist: amber and red.

Politics: Worlds may be independent, or part of a larger polity that spans a system or more. Politics range from loose confederations of a few worlds with common trade or defence policies or cultural links, to vast star empires containing thousand of systems and trillions of citizens. Polity borders should be drawn on the map. Note that larger polities will usually have sub-domains, which should also be marked.

Communications Routes: Within the subsector, local governments will have established communications routes connecting some (but not all) worlds. These routes serve as a conduit for messages between businesses and between governments as well as between people.

Communications routes should be carefully drawn so as to avoid making all parts of the subsector accessible; a subsector should have some areas as backwaters for exploration and adventure. Communications routes are drawn as single lines connecting hexes on the subsector grid.

Trade Routes: Trade routes link worlds that have strong commercial ties. Consult the table below – if any pair of worlds matching the two columns are within four parsecs of each other, and there is a Jump–1 or Jump–2 route between them, then mark a trade route connecting those two worlds.

Column 1	Column 2
Industrial or High Tech	Asteroid, Desert, Ice Capped, Non-Industrial
High Population or Rich	Agricultural, Garden, Water World

World Creation

The basic planetary characteristics are Size, Atmosphere, Hydrology, Population, Government, Law Level, Technology Level, Starport and Bases, and are generated by rolling 2D6 with modifiers applied based on other characteristics. These characteristics establish the basic identity of a world, and are referred to as the Universal World Profile (UWP). Additional information can be generated, and should be, to more fully describe a world.

Characteristic	Dice	Modifier
Size	2D6-2	
Atmosphere	2D6-7	+ Size
Hydrographics	2D6-7	+ Size + Hydrographics Bonus
Population	2D6-2	
Government	2D6-7	+ Population
Law Level	2D6-7	+ Government
Starport	2D6	
Technology Level	1D6	+ Special Bonus

Size

The Size characteristic for inhabitable worlds ranges from 0 to 10, and is determined by rolling 2d6–2.

Size Table

Score	World Size	Surface Gravity (gs)
0	800 km	Negligible
1	1,600 km	0.05
2	3,200 km	0.15
3	4,800 km	0.25
4	6,400 km	0.35
5	8,000 km	0.45
6	9,600 km	0.7
7	11,200 km	0.9
8	12,800 km	1.0
9	14,400 km	1.25
10 (A)	16,000 km	1.4

High and Low Gravity Worlds

Worlds where the gravity is 0.7 or less are low-gravity worlds. Common features include improbable-looking rock formations, thin and spindly life forms and flying as a common form of locomotion (assuming the atmosphere is thick enough to support flyers). Humans tend to find life on low-gravity worlds to be initially pleasant, but regular exercise regimes and medicinal supplements are required to prevent bone and muscle degradation. Those who spent too long on low-gravity worlds cannot tolerate higher gravities. Characters on low-gravity worlds suffer a –10% Penalty to all skill checks until they acclimatise, a process which takes 1d6 weeks. Characters with the Zero-G skill at 20% or better acclimatise instantly.

High-gravity worlds have a gravity 1.25 times or more than of Earth. They tend to be extremely dense worlds; common features include wide rocky plains, squat, muscular creatures, and plant life that spreads out like lichen instead of growing up. Crawling, burrowing or swimming are the commonest forms of locomotion. Humans find high-gravity worlds unpleasant. Especially high-gravity worlds require the use of pressured or powered suits to support the human frame. Characters on high-gravity worlds suffer a –10% Penalty to all skill checks until they acclimatise, a process which takes 1d6 weeks.

Atmosphere

A planet's Atmosphere is generated by rolling 2d6–7 and adding the planet's Size.

Atmosphere Types

Tainted: Tainted atmospheres contain some element that is harmful to humans, such as an unusually high proportion of carbon dioxide. A character who breathes a tainted atmosphere without a filter will suffer 1d6 damage every few minutes (or hours, depending on the level of taint).

Exotic: An exotic atmosphere is unbreathable by humans, but is not otherwise hazardous. A character needs an air supply to breath in an exotic atmosphere.

Corrosive: Corrosive atmospheres are highly dangerous. A character who breathes in a corrosive atmosphere will suffer 1d6 damage each round.

Insidious: An insidious atmosphere is like a corrosive one, but it is so corrosive that it attacks equipment as well. The chief danger in an insidious atmosphere is that the toxic gases will destroy the seals and filters on the character's protective gear. An insidious atmosphere worms its way past protection after 2d6 hours on average, although vigilant maintenance or advanced protective gear can prolong survival times.

Dense, High (D): These worlds have thick N2/O2 atmospheres, but their mean surface pressure is too high to support unprotected human life (high pressure nitrogen and oxygen are deadly to humans). However, pressure naturally decreases with increasing altitude, so if there are highlands at the right altitude the pressure may drop enough to support human life. Alternatively, there may not be any topography high enough for humans to inhabit, necessitating floating gravitic or dirigible habitats or sealed habitats on the surface.

Thin, Low (E): The opposite of the Dense, High atmosphere, these massive worlds have thin N2/O2 atmospheres that settle in the lowlands and depressions and are only breathable there – the pressure drops off so rapidly with altitude that the highest topographic points of the surface may be close to vacuum.

Unusual (F): An Unusual atmosphere is a catchall term for an atmosphere that behaves in a strange manner. Examples include ellipsoidal atmospheres, which are thin at the poles and dense at the equator; Panthalassic worlds composed of a rocky core surrounded by a water layer hundreds of kilometres thick; worlds wracked by storms so intense that the local air pressure changes from dense to thin depending on the current weather; and other planets with unusual and hazardous atmospheric conditions.

Atmosphere Table

Score	Atmosphere	Pressure	Survival Gear Required
0	None	0.00	Vacc Suit
1	Trace	0.001 to 0.09	Vacc Suit
2	Very Thin, Tainted	0.1 to 0.42	Respirator, Filter
3	Very Thin	0.1 to 0.42	Respirator
4	Thin, Tainted	0.43 to 0.7	Filter
5	Thin	0.43 to 0.7	
6	Standard	0.71–1.49	
7	Standard, Tainted	0.71–1.49	Filter
8	Dense	1.5 to 2.49	
9	Dense, Tainted	1.5 to 2.49	Filter
10 (A)	Exotic	Varies	Air Supply
11 (B)	Corrosive	Varies	Vacc Suit
12 (C)	Insidious	Varies	Vacc Suit
13 (D)	Dense, High	2.5+	
14 (E)	Thin, Low	0.5 or less	
15 (F)	Unusual	Varies	Varies

Hydrographics

Hydrographic percentage is obtained by rolling 2d6–7 and adding the planet's Size, modified by the planet's atmosphere or size as described below:

Size 0 or 1	Hydrographics 0
Atmosphere 0, 1, A, B or C	–4

If the planet's atmosphere is not D (or a kind of F that is thick enough to retain water) then also apply DMs for temperature:

Hot Temperature	–2
Roasting Temperature	–6

Hydrographics Table

Score	Hydrographic Percentage	Description
0	0%–5%	Desert world
1	6%–15%	Dry world
2	16%–25%	A few small seas.
3	26%–35%	Small seas and oceans.
4	36%–45%	Wet world
5	46%–55%	Large oceans
6	56%–65%	
7	66%–75%	Earth-like world
8	76%–85%	Water world
9	86%–95%	Only a few small islands and archipelagos.
10 (A)	96–100%	Almost entirely water.

Population

Population is generated by rolling 2d6–2:

Population Table

Score	Population	Range	Description
0	None	0	
1	Few	1+	A tiny farmstead or a single family
2	Hundreds	100+	A village
3	Thousands	1,000+	
4	Tens of thousands	10,000+	Small town
5	Hundreds of thousands	100,000+	Average city
6	Millions	1,000,000+	
7	Tens of millions	10,000,000+	Large city
8	Hundreds of millions	100,000,000+	
9	Billions	1,000,000,000+	Present day Earth
10 (A)	Tens of billions	10,000,000,000+	
11 (B)	Hundreds of billions	100,000,000,000+	Incredibly crowded world
12 (C)	Trillions	1,000,000,000,000+	World-city

If a world has a population of 0, it is uninhabited and so has a Government, Law Level and Technology Level of 0.

Government

The Government characteristic is determined by rolling 2d6–7 and adding the planet’s Population.

Rivals, Factions, Connections and Colonies

Roll 1d3 to determine how many factions there are on the planet, with a DM of +1 if the government type is 0 or 7, and a DM of –1 if the government type is 10 or more. Determine what ‘mini-government’ each faction uses on the government table. In cases where the faction type is the same as the current government type, then it is a splinter faction within the ruling government. In cases where it is radically different, then the faction is a rebel group or movement.

Roll 2d6 to determine the strength of each faction:

Faction Strength Table

Roll	Relative Strength
1–3	Obscure group – few have heard of them, no popular support
4–5	Fringe group – few supporters
6–7	Minor group – some supporters
8–9	Notable group – significant support, well known
10–11	Significant – nearly as powerful as the government
12	Overwhelming popular support – more powerful than the government

Law Level

Law level is determined by rolling 2d6–7 and adding the Government characteristic.

Law Level Table – Illegal Possessions

<i>Digit</i>	<i>Weapons</i>	<i>Drugs</i>	<i>Information</i>	<i>Technology</i>	<i>Travellers</i>	<i>Psionics</i>
0	No restrictions.					
1	Poison gas, explosives, undetectable weapons, WMD	Highly addictive and dangerous narcotics	Intellect programs	Dangerous technologies such as nanotechnology	Visitors must contact planetary authorities by radio, landing is permitted anywhere	Dangerous talents must be registered.
2	Portable energy weapons (except ship-mounted weapons)	Highly addictive narcotics	Agent programs	Alien technology	Visitors must report passenger manifest, landing is permitted anywhere	All Psionic powers must be registered; use of dangerous powers forbidden.
3	Heavy weapons	Combat drugs	Intrusion programs	TL 15 items	Landing only at starport or other authorised sites	Use of telepathy restricted to government-approved telepaths
4	Light assault weapons and submachine guns	Addictive narcotics	Security programs	TL 13 items	Landing only at starport	Use of teleportation and clairvoyance restricted
5	Personal concealable weapons	Anagathics	Expert programs	TL 11 items	Citizens must register offworld travel, visitors must register all business	Use of all Psionic powers restricted to government Psionicists
6	All firearms except shotguns and stunners; carrying weapons discouraged	Fast and Slow drugs	Recent news from offworld.	TL 9 items	Visits discouraged; excessive contact with citizens forbidden	Possession of Psionic drugs banned
7	Shotguns	All narcotics	Library programs, unfiltered data about other worlds. Free speech curtailed.	TL 7 items	Citizens may not leave planet; visitors may not leave starport	Use of Psionics forbidden
8	All bladed weapons, stunners	Medicinal drugs	Information technology, any non-critical data from offworld, personal media.	TL 5 items	Landing permitted only to imperial agents	Psionic-related technology banned
9+	Any weapons	All drugs	Any data from offworld. No free press.	TL 3 items	No offworlders permitted	All Psionics

The Law and Travellers

In each of the following situations, roll the Planet's Law Level x 5% with the following modifiers and if the roll succeeds, the characters are investigated or challenged by agents of planetary law enforcement.

Situation	DM	Response
First approach to a planet	+0%	Check
Offworlders wandering the streets of a city (once per day)	+0%	Check
Offworlders acting suspiciously	+10%	Check
Bar fight	+10%	Combat
Shots fired	+20%	Combat
Breaking and entering	+20%	Investigate
Firefight involving armoured characters and military weapons	+40%	Combat
Murder and carnage	+40%	Investigate

Check: means that the characters’ travel documents and identities are checked, either by a police officer or guard, or by electronically by querying the characters’ comms. A successful Admin or Streetwise roll can allay suspicion but if this check is failed the planetary authorities move on to Investigation.

Investigate: means that a detective or bureaucrat probes deeper into the characters’ backgrounds. If the characters have a ship, it will be searched. They may be followed, or have their communications tapped. They may also be questioned closely.

Combat: means that the police show up ready for a fight. Their response will generally be proportional to the threat posed by the player characters; if the characters are just making trouble in a bar, then most police forces will just use batons, stunners, tranq gas and other non-lethal weapons. On the other hand, if the characters are in Battle Dress and firing PGMPs at the palace of the planetary duke, then the police will show up with the best weapons and armour available at the planet’s TL (or even a few levels higher).

Characters arrested for a crime will face punishment, determined by rolling 2d6+DMs on the Sentencing table. For crimes involving smuggling banned goods, the DM is equal to the difference between the planet’s law level and the banned goods in question. Other crimes have a set DM:

Assault	Law level –5
Destruction of Property	Law level –3
False Identity	Law level –2
Manslaughter	Law level –1
Murder	Law level +0

A character with the Advocate skill may attempt to reduce the severity of sentencing by making a check. If successful, reduce the Sentencing DM by the Effect of the check.

Sentencing Roll	Sentence
0 or less	Dismissed or trivial punishment
1–2	Fine of 1d6 x 1,000 credits
3–4	Fine of 2d6 x 5,000 credits
5–6	Exile or a fine of 2d6 x 10,000 credits
7–8	Imprisonment for 1d6 months or exile or fine of 2d6 x 20,000 credits
9–10	Imprisonment for 1d6 years or exile
11–12	Imprisonment for 2d6 years or exile
13–14	Life imprisonment
15+	Death

A result of Exile means that the character must leave the planet immediately and never return. Fines for smuggling goods are per ton of goods seized – gun running can be an extremely risky proposition.

Starport

To determine the level of a Starport on a planet, roll 2d6:

Starport Table

Roll	Starport Class
2 or less	X
3	E
4	E
5	D
6	D
7	C
8	C
9	B
10	B
11+	A

Technology Level

The Technology Level of the planet is determined by rolling 1d6 and adding modifiers as follows:

Starport	Modifier	Size	Modifier	Atmosphere	Modifier	Hydro	Modifier	Population	Modifier	Government	Modifier
0		0	+2	0	+1	0	+1	0		0	+1
1		1	+2	1	+1	1		1	+1	1	
2		2	+1	2	+1	2		2	+1	2	
3		3	+1	3	+1	3		3	+1	3	
4		4	+1	4		4		4	+1	4	
5		5		5		5		5	+1	5	+1
6		6		6		6		6		6	
7		7		7		7		7		7	+2
8		8		8		8		8		8	
9		9		9		9	+1	9	+1	9	
10 (A)	+6	10 (A)		10 (A)	+1	10 (A)	+2	10 (A)	+2	10 (A)	
11 (B)	+4	11 (B)		11 (B)	+1	11 (B)		11 (B)	+3	11 (B)	
12 (C)	+2	12 (C)		12 (C)	+1	12 (C)		12 (C)	+4	12 (C)	
13 (D)		13 (D)		13 (D)	+1	13 (D)		13 (D)		13 (D)	-2
14 (E)		14 (E)		14 (E)	+1	14 (E)		14 (E)		14 (E)	-2
15 (F)		15 (F)		15 (F)	+1	15 (F)		15 (F)		15 (F)	
X	-4	X		X							

Bases

A system or planet may have a Base of some sort.

Naval: A naval base is a supply depot, refuelling station, repair yard or fortress of the Navy. Naval vessels can obtain refined fuel and supplies here.

Scout: A scout base offers refined fuel and supplies to scout ships.

Research: A Research base is dedicated to a particular field of research.

Consulate: A consulate is an administration office for various departments such as commerce, justice and foreign affairs. Characters wishing to report significant crimes or obtain various permits will need to visit a consulate.

Pirate: The presence of a pirate base in a system indicates that a group of thieves is active in the area. Pirates are unlikely to be operating out of the Starport itself (except on a Law Level 0 world), but no doubt have agents at the port on the look-out for likely prey.

Travel Codes

There are two travel codes – Amber and Red.

Amber Worlds

An Amber world has been deemed dangerous, and travellers are warned to be on their guard. Amber worlds are often undergoing upheaval or revolution, or else are naturally hazardous environments.

Red Worlds

Red worlds are interdicted and travel to them is forbidden. A world might be Red because the world is too dangerous to allow visitors. Interdictions are enforced by the Navy.

A world with an Atmosphere of 10+, a government of 0, 7 or 10, or a Law Level of 0 or 9+ should be considered for Amber status. Red codes are given out at the discretion of the Referee.

CHAPTER 35: Trade

The Traveller game is one of commerce as only traders can afford to have Starships. This may not be to everyone's tastes, but trade can play a very important part in any Sci-Fi game.

Freight

Freight shipments pay Cr. 1,000 per ton for shipping a ton for one parsec, +200 Cr. per additional parsec. Freight lots must be transported in their entirety, and come in three sizes:

- Major cargos are composed of 1d6 x 10 tons of freight.
- Minor cargos are composed of 1d6 x 5 tons of freight.
- Incidental cargos are composed of 1d6 tons of freight.

To determine the number of cargos available, add the destination planet's Population value to the modifiers from the Freight Traffic table, then consult the Freight Lots Available table.

A freight lot cannot be broken up. Cargo is paid for upon delivery, assuming it is delivered on time. Failing to deliver cargo on time reduces the amount paid by 1d6+4 x 10%.

Speculative Trade and Smuggling

Finding a Supplier

Characters can search for multiple suppliers, but there is a -10% Penalty per previous attempt on a planet in a given month.

Finding a supplier: Broker, Education or Social Standing, 1-6 days, Standard (+0%).

Finding a black market supplier: (Illegal goods only) Streetwise, 1-6 days, Standard (+0).

Finding an online supplier: (Worlds with TL 8+ only) Computers, 1-6 hours, Standard (+0).

The size of the Starport provides a bonus to finding a supplier. Class A Starports give a +60% Bonus, class B Starports give a +40% Bonus and class C Starports give a +20% Bonus.

Determine Goods Available

Goods are divided into two categories of goods – Common and Trade Goods. Common Goods can be purchased on any world. Trade Goods can usually only be found on a world with a matching trade code. The amount of each type of goods available is limited – the tons column determines how many tons of a given type of goods are available for purchase.

A given supplier has all Common Goods available, the Trade Goods that match the world's trade code, and 1d6 randomly determined goods. Roll d66 on the table to determine the goods available, ignoring results 61-65 unless dealing with a black market supplier. If you roll the same type of goods multiple times, then the supplier has extra amounts of those goods available.

Some goods are illegal, and can be purchased only through a black market supplier. A black market supplier has whatever illegal goods match his world's trade code, as well as any randomly rolled illegal goods.

Determine Purchase Price

To determine the purchase price, roll 3d6 and apply the following modifiers:

- + the character's Broker skill / 10 (or the local broker's skill).
- + the character's Intelligence or Social Standing whichever is higher.
- + the largest Dice Modifier from the Purchase DM column.
- the largest Dice Modifier from the Sale DM column.
- any Dice Modifiers from the supplier. Some especially rich or powerful suppliers can demand high prices.

In cases where multiple Purchase or Sale DMs apply, use only the largest ones from each column.

Next, consult the Purchase column of the Modified Price table. The trader does not have to accept this price, but if he rejects the deal, then he cannot deal with that supplier again for at least one week. After that week, he may reroll one of the dice rolls to determine the purchase price for those goods.

Item	Cost (Cr.)	Bonus
Basic Electronics	25,000	+0%
Basic Machine Parts	10,000	+0%
Basic Manufactured Goods	20,000	+0%
Basic Raw Materials	5,000	+0%
Basic Vehicles	30,000	+0%
Crystals and Gems	20,000	+10%
Petrochemicals	10,000	+20%
Pharmaceuticals	100,000	+0%
Precious Metals	50,000	+10%
Radioactives	1,000,000	+0%
Spices	6,000	+20%
Uncommon Raw Materials	20,000	+0%

Selling Goods

Selling goods works just like purchasing goods, with the following changes:

- A character must find a buyer, instead of a supplier. The same rules apply.
- When selling goods, add the largest Sale DMs for the world trade code and subtract the largest Purchase DMs.

If a character does not accept the price offered for his goods, he must find another buyer or wait a week, in which case he may reroll one of the dice rolln to determine the purchase price.

APPENDIX 1: Technology Levels

Technology Levels measure the scientific capacity of a world and the complexity and effectiveness of a piece of equipment.

TL 0: (Primitive) No technology.

TL 1: (Primitive) Roughly on a par with Bronze or Iron age technology.

TL 2: (Primitive) Renaissance technology.

TL 3: (Primitive) The advances of TL 2 are now applied, bringing the germ of industrial revolution and steam power.

TL 4: (Industrial) The transition to industrial revolution is complete, bringing plastics, radio and other such inventions.

TL 5: (Industrial) TL 5 brings widespread electrification, telecommunications and internal combustion.

TL 6: (Industrial) TL 6 brings the development of fission power and more advanced computing.

TL 7: (Pre-Stellar) A pre-stellar society can reach orbit reliably and has telecommunications satellites.

TL 8: (Pre-Stellar) At TL 8, it is possible to reach other worlds in the same system, although terraforming or full colonisation are not within the culture's capacity.

TL 9: (Pre-Stellar) The defining element of TL 9 is the development of gravity manipulation, which makes space travel vastly safer and faster.

TL 10: (Early Stellar) With the advent of Jump, nearby systems are opened up.

TL 11: (Early Stellar) The first true artificial intelligences become possible, as computers are able to model synaptic networks.

TL 12: (Average Stellar) Weather control revolutionises terraforming and agriculture.

TL 13: (Average Stellar) The battle dress appears on the battlefield in response to the new weapons.

TL 14: (Average Stellar) Fusion weapons become man-portable.

TL 15: (High Stellar) Black globe generators suggest a new direction for defensive technologies, while the development of synthetic anagathics means that the human lifespan is now vastly increased.

Higher Technology Levels exist and may appear in other settings or be discovered by pioneering scientists.

APPENDIX 2: Realistic Space Travel

Realistic Travel Times

Table: Realistic Travel Times provides various “realistic” interplanetary and interstellar travel times. These times assume that Starships cannot achieve velocities anywhere near the speed of light, for reasons discussed under Interstellar Travel (see above). Using the table, a Starship equipped with a TL8 ion engine would take 67.2 days to travel from Earth to Mars, while the same ship equipped with a TL9 induction engine would take 16.8 days.

The travel times listed are based on average distance. Planets move closer together and farther apart based on their relative orbits around the sun, and the travel time between worlds may increase or decrease accordingly.

Table: Realistic Travel Times

Distance	Time to Destination					
	TL7 Engine	TL8 Engine	TL9 Engine	TL10 Engine ¹	TL11 Engine ²	Light Speed
Earth to the Moon (240,000 mi.)	40 hrs.	8 hrs.	2 hrs.	1.96 min.	9.2 sec.	1.29 sec.
Earth to the Sun (1 AU) (93,000,000 mi.)	645.8 days	129.2 days	32.3 days	12.6 hrs.	59.3 min.	8.3 min.
Earth to Mercury (56,950,000 mi.)	395.5 days	79.1 days	19.8 days	7.7 hrs.	36.4 min.	5.1 min.
Earth to Venus (26,040,000 mi.)	180.8 days	36.2 days	9.04 days	3.5 hrs.	16.6 min.	2.33 min.
Earth to Mars (48,360,000 mi.)	335.8 days	67.2 days	16.8 days	6.6 hrs.	30.7 min.	4.3 min.
Earth to Jupiter (390,600,000 mi.)	7.43 years	1.49 years	135.6 days	2.2 days	4.2 hrs.	35 min.
Earth to Saturn (704,940,000 mi.)	13.4 years	2.68 years	244.8 days	4 days	7.5 hrs.	63.2 min.
Earth to Uranus (1,687,020,000 mi.)	32.1 years	6.42 years	1.6 years	9.5 days	18 hrs.	2.52 hrs.
Earth to Neptune (2,715,600,000 mi.)	51.67 years	10.33 years	2.58 years	15.4 days	1.2 days	4.1 min.
Earth to Pluto (3,574,920,000 mi.)	68.02 years	13.6 years	3.4 years	20.2 days	1.6 days	5.33 min.
1 light year (5,865,696,000,000 mi.)	111,600 years	22,320 years	5,580 years	91 years	7.14 years	1 year
Sun to Alpha Centauri (4.4 light years)	491,040 years	98,208 years	24,552 years	400 years	31.4 years	4.4 years
1 A PL 8 engine can achieve a speed of 2,046 miles per second (1.1% of the speed of light).						
2 A PL 9 engine can achieve a speed of 26,040 miles per second (14% of the speed of light).						

Time Dilation

When a ship approaches to within 90% of the speed of light, time slows down. Characters on board the ship would not notice, but if they were to make hourly reports back to their point of origin, those reports might arrive only once every hundred hours. This creates an interesting paradox, in that if a character managed to travel at the speed of light to another star and back again, a newborn child he left behind would now be older than him—if the child hadn’t died of old age some time ago.

The actual amount of time dilation observed aboard a ship travelling near light speed increases in proportion to just how close it is to light speed. Technically, time dilation occurs at any speed, but it only becomes noticeable at relativistic speeds. The dilation is a ratio that determines how much time passes aboard the ship; it is a multiplier when determining how much time passes outside the ship. For example, a ship moving at 70% the speed of light has a time dilation of 1.4. Ten hours of travel aboard the ship at this speed means that 14 hours (10 × 1.4) have passed outside the ship. However, if ten hours pass for those left behind, only 7.1 hours have passed aboard the ship (10 divided by 1.4).

Table: Time Dilation

Starship Speed (miles/second)	AU per hour	% Speed of Light	Time Dilation
2,046	0.18	1.1%	1.0003
26,040	1.0	14%	1.01
52,080	2.0	28%	1.04
78,120	3.0	42%	1.1
104,160	4.0	56%	1.2
130,200	5.0	70%	1.4
154,380	6.0	83%	1.8

167,400	6.5	90%	2.3
180,420	7.0	97%	3.9
182,466	7.1	98.1%	5.1
185,981	7.239	99.99%	60.2

Starship Speed: The vessel’s speed in miles per second.

AU per Hour: How many Astronomical Units (AU) a vessel travelling at this speed can cross in 1 hour. One AU equals 93,000,000 miles (the distance between the Sun and the Earth).

% Speed of Light: The percentage of the speed of light (186,000 miles per second).

Time Dilation: Divide the time travelled by this number to arrive at the amount of time that passes on board the Starship.

Fantastic Travel Times

Travel times at relativistic speeds are generally easy to calculate. Simply determine how long it takes to arrive at the destination while travelling at the speed of light, then divide the result by the light speed multiplier of the drive being used. Some sample travel times appear in Table: Fantastic Travel Times.

Table: Fantastic Travel Times

Distance	Light Speed Factor						
	0.5	0.75	1	5	10	15	25
Earth to the Moon (240,000 mi.)	2.58 sec.	1.72 sec.	1.29 sec.	0.26 sec.	0.13 sec.	0.09 sec.	0.05 sec.
Earth to the Sun (1 AU) (93,000,000 mi.)	16.6 min.	11.07 min.	8.3 min.	1.66 min.	49.8 sec.	33.2 sec.	19.9 sec.
Earth to Mercury (56,950,000 mi.)	10.2 min.	6.8 min.	5.1 min.	1.02 min.	30.6 sec.	20.4 sec.	12.2 sec.
Earth to Venus (26,040,000 mi.)	4.66 min.	3.11 min.	2.33 min.	28.2 sec.	14.1 sec.	9.4 sec.	5.6 sec.
Earth to Mars (48,360,000 mi.)	8.6 min.	5.7 min.	4.3 min.	51.6 sec.	25.8 sec.	17.2 sec.	10.3 sec.
Earth to Jupiter (390,600,000 mi.)	70.0 min.	46.7 min.	35 min.	7.0 min.	3.5 min.	2.3 min.	1.4 min.
Earth to Saturn (704,940,000 mi.)	126.4 min.	84.3 min.	63.2 min.	12.6 min.	6.3 min.	4.2 min.	2.5 min.
Earth to Uranus (1,687,020,000 mi.)	302.4 min.	201.6 min.	151.2 min.	30.2 min.	15.1 min.	10.1 min.	6.05 min.
Earth to Neptune (2,715,600,000 mi.)	486.6 min.	324.4 min.	243.3 min.	48.7 min.	24.4 min.	16.2 min.	9.7 min.
Earth to Pluto (3,574,920,000 mi.)	640 min.	426.67 min.	320 min.	64 min.	32 min.	21.3 min.	12.8 min.
1 light year (5,865,696,000,000 mi.)	2.0 years	1.33 years	1.0 year	2.4 mo.	1.2 mo.	0.8 mo.	0.48 mo.
Sun to Alpha Centauri (4.4 light years)	8.8 years	5.87 years	4.4 years	10.56 mo.	5.28 mo.	3.53 mo.	2.1 mo.

Realistic Space Travel

When speaking of space travel, it is important to distinguish interplanetary travel from interstellar travel. Travel between planets is within the grasp of modern technology and is likely to become easier as science develops new fuel sources or new ways to maximize existing fuel sources. Travel between stars, on the other hand, calls for some truly radical leaps in a number of different fields.

Hazards Of Space Travel

Space travel is nowhere near as easy as books and movies make it seem. Foreign objects are a constant danger; even a micrometeoroid travelling at a high enough velocity can punch a hole through a Starship’s hull and expose the entire crew to the vacuum of space. Ionising radiation also poses a serious threat. Finally, characters must adapt to the weightlessness of space or suffer the effects of space adaptation syndrome (SAS), referred to colloquially as “space sickness.”

Meteoroids

Meteoroids are small rocks that travel through space at a speed of 7 miles per second. They can be as small as a grain of sand or as big as a mountain. Although they generally burn up in a planet’s atmosphere before reaching the ground, meteoroids in space aren’t likely to suffer such a fate. Instead, they slam into other objects, including Starships and space stations, like volleys of rifle or artillery fire. Unarmoured Starships and space stations can easily survive impacts from the smaller meteoroids, but larger ones can punch lethal holes in such fragile vessels. Fortunately, large meteoroids are rare and easier to detect before they can get too close to cause any real damage.

Roll on Table: Meteoroid Encounters to determine whether a meteoroid threatens a given Starship or space station. Each roll represents one 24-hour period.

Meteoroid Size: The size of the meteoroid.

Collision Damage: When a meteoroid collides with a Starship, space station, or other object, both the meteoroid and the object it strikes take damage.

Scanners Penalty: A Starship or space station equipped with a sensor system can detect an incoming meteoroid; doing so requires a successful Scanners roll. A Starship or space station cannot attempt to avoid or destroy a meteoroid it fails to detect.

Pilot Penalty: Avoiding a meteoroid requires a successful Pilot check. Only Starships or space stations that move are capable of avoiding meteoroids.

Armour Points: The meteoroid's APs.

Hit Points: The meteoroid's total hit points.

d% Roll	Meteoroid Size	Collision Damage	Scanners Penalty	Pilot Penalty	Armour Points	Hit Points
01–75	No meteoroid	—	—	—	—	—
76–80	Diminutive	1d6	-35%	-5%	8	15
81–85	Tiny	2d6	-30%	-10%	8	30
86–88	Small	3d6	-25%	-15%	8	90
89–91	Medium-size	4d6	-20%	-20%	8	225
92–94	Large	1d6x5	-15%	-25%	8	1,125
95–97	Huge	3d6x5	-10%	-30%	8	4,500
98–99	Gargantuan	6d6x5	-5%	-35%	8	9,000
100	Colossal	12d6x5	0	-40%	8	36,000

Vacuum Exposure

Beings exposed to the airless cold of space are not immediately doomed. Contrary to popular belief, characters exposed to vacuum do not immediately freeze or explode, and their blood does not boil in their veins. While space is very cold, heat does not transfer away from a body that quickly. The real danger comes from suffocation and ionizing radiation.

For rules on vacuum exposure and the effects of weightlessness, see Atmospheric Conditions and Gravity in the Environments section.

Re-entry

Anything that travels too fast in an atmosphere generates an enormous amount of friction, which produces tremendous heat. (Temperatures of 2,280 degrees Fahrenheit have been recorded.) Objects trying to enter a planetary atmosphere safely must shed velocity. However, decelerating consumes large amounts of fuel, and many ships (especially at TL 7) simply don't have enough. As an alternative, scientists have developed ways to slow ships in reentry by using the atmospheric friction itself. Ablative shielding or ceramic tiles take care of any excess heat. Even so, entering a planet's atmosphere is a tricky business; the angle of entry is precise, and deviation either way causes the heat to build up too quickly for the heat shields to reflect away from the ship. Worse yet, during the most intense heating, the ship is surrounded by a thin layer of plasma that blocks radio signals, and the crew have no contact with ground control.

Entering planetary atmosphere safely requires a Pilot roll each round for the 1d10+20 rounds it takes to slow the ship using friction alone. Success means that the ship takes only 3d6 points of fire damage each round. Failure means that the ship's angle is too low, and that it is not shedding velocity fast enough; the ship takes 6d6 points of fire damage each round until the pilot succeeds at the Pilot check to correct the angle of descent. If the roll fumbles the angle is too steep, and the ship takes 10d6 points of fire damage each round until the pilot succeeds at the Pilot roll to correct the angle. Each round spent at too low an angle does not count toward the number of rounds required to land the ship; the ship isn't making any downward progress. Conversely, each round spent at too steep an angle counts as 2 rounds, indicating that the ship is descending much faster than it should.

Interplanetary Travel

At TL 5, humanity has the technology to send unmanned probes to the edge of the solar system. However, human sojourns into space are limited to orbital missions and trips to the Moon, as longer journeys would take decades and consume ridiculous amounts of fuel and oxygen.

Interplanetary travel becomes possible at TL8. Ships fitted with magnetic ram scoops allow the crew to manufacture fuel from particles of hydrogen gas floating loose in space (though at only a few atoms per cubic inch). Such a ship could even incorporate a particle accelerator that converts matter into antimatter—with far more efficient thrust-to-payload ratios than solid fuel. With a sufficient supply of food, water, and oxygen, a ship so equipped could travel to the edges of the solar system and perhaps to another solar system entirely.

APPENDIX 3: Striker Small-Arms Tables

These were devised by Vile, from the RQ Forum, as a conversion of Traveller Striker weapons to RQ/RQ. I have edited the tables a little but the core is Vile's work. The damage done by these weapons seems a bit high to me, so I am changing them slightly. However, I am planning to keep the progression and terminology the same. Vile's approach to things like Penetration and Auto-Fire are slightly different to mine, so I am including his tables as they were as a contrast to the converted tables shown above.

To use these tables, copies of Basic Roleplaying or Runequest (3rd edition), Striker (1981), Classic Traveller (2nd edition) and Mercenary are necessary. The weapons in these tables are straight out of Striker, with additional statistics taken from CT Book 1 and Mercenary. The tables are similar to those in Runequest III, with some changes for the Traveller universe:

TL: The tech level of the weapon in the Traveller universe.

LL: The law level of the weapon in the Traveller universe.

Weapon: The calibre and name of the weapon.

Magazine: The magazine capacity and type of ammunition for the weapon. If no ammunition type is specified, the weapon fires standard solid slugs.

STR/DEX: Minimum STR and DEX to use the weapon effectively. Dex operates as for RQ, but STR only applies to single shots fired in the same round. If a character's STR is below the minimum, each shot after the first is at a cumulative -05% to hit, up to the ROF limit (see below).

Base: Base chance to use the weapon, as per RQ.

Grammes/Kilos: Weight, not ENC, of the weapon (unloaded) and a fully-loaded magazine.

Damage: Damage for the weapon up to effective and maximum ranges. This may vary with ammunition types, which is why some weapons have multiple listings in the tables. For multiple projectile rounds such as shot and flechette, the number in brackets is the die rolled for the number of projectiles which may hit the target. for example, a shotgun doing 1D6(6) damage will do 1d6 damage for each one of 1d6 projectiles to hit the target.

Pen.: The number of armour points ignored before armour starts to reduce the damage caused by the weapon, up to effective and maximum ranges. For example, a character wearing cloth armour (10AP) is hit by a DS round (pen.10) from a 7mm ACR, with a roll of 5 for damage. The cloth armour is completely overcome by the penetration of the DS round, so the character takes 5 hit points worth of damage.

Range: As for RQ, the effective and maximum ranges of the weapon.

ROF: Rate of fire per round is given as single shot/burst/fully-automatic. Single shot gives the maximum number of round which may be fired per round, subject to minimum STR penalties (above). Burst and fully automatic ROF are given as die rolls, representing the number of rounds which actually hit a target on a successful to-hit roll. Fully automatic ROF is maximum - it is possible to fire less rounds (use a lower die).

Cr/KCr: Cost for the weapon (unloaded) and a fully-loaded magazine in credits or 1000s of credits.

Individual Weapons: Slug Rollers

TL	Weapon	Magazine	STR/DEX	Base %	Grammes	Damage	Pen.	Range	ROF	Cr
5	5.56mm revolver	4	7/9	25	300/50	1D6/1D4	0/0	15/40	2/-/-	100/3
5	7mm revolver	6	7/9	25	600/75	1D8/1D6	1/0	30/100	2/-/-	125/4
5	9mm revolver	6	9/9	25	900/100	1D10/1D8	1/0	30/100	2/-/-	150/5
5	9mm magnum revolver	6	11/9	25	1200/120	1D12/1D10	2/0	50/120	2/-/-	300/8
5	Shotgun	10 shot 10 slug	-/5 -/5	30 30	3750/750 3750/750	1D6(6)/1D4(4) 3D6/2D6	0/0 2/0	20/50 20/100	1/-/- 1/-/-	150/10 150/10
5	7.62mm bolt-action rifle	6	-/7	20	4000/200	2D8/1D12	5/2	750/1500	1/-/-	200/8
6	7mm auto pistol	15	7/9	25	550/200	1D8/1D6	1/0	30/100	2/-/-	150/8
6	9mm auto pistol	15	9/9	25	750/250	1D10/1D8	1/0	30/100	2/-/-	200/10
6	9mm submachinegun	30	5/9	15	2500/500	1D10/1D8	1/0	60/200	-/-/8	150/20
6	7mm carbine	10	5/7	20	3000/125	2D6/1D10	5/2	400/1000	2/-/-	200/10
6	7mm semi-auto rifle	20	7/7	20	4000/500	2D8/2D6	6/3	650/1400	2/-/-	200/20
6	7mm auto rifle	20	9/7	20	5000/500	2D8/2D6	6/3	500/1200	1/-/6	1000/20
7	Body pistol	6	5/9	25	250/50	1D6/1D4	0/0	15/40	2/-/-	500/20
7	5.5mm assault rifle	30	5/7	20	3000/330	2D6/1D10	6/3	400/1000	2/3/6	300/20
7	7mm assault rifle	30	7/7	20	4000/600	2D8/2D6	6/3	500/1200	2/3/6	400/30
7	Auto shotgun	20 shot 20 slug	9/5 9/5	30 30	4000/1500 4000/1500	1D6(6)/1D4(4) 3D6/2D6	0/0 2/0	20/40 20/80	1/-/4 1/-/4	500/20 500/20
8	Snub revolver	6 HE 6 HEAP	-/9 -/9	25 25	250/30 250/30	2D6/2D6 2D4/2D4	2/2 8/8	10/20 10/20	1/-/- 1/-/-	150/10 150/10
8	Snub auto pistol	20 HE	-/9	25	400/100	2D6/2D6	2/2	10/20	1/-/-	200/30

		20 HEAP	-/9	25	400/100	2D4/2D4	8/8	10/20	1/-/-	200-30
8	Light assault gun	5 HE	-/9	10	4000/500	3D10/3D10	2/2	200/500	1/3MR	600/20
		5 HEAP	-/9	10	4000/500	2D12/2D8	20/5	300/1000	1/3MR	600/20
		5 Flech	-/9	10	4000/500	1D8(8)/1D6(4)	1/0	50/120	1/3MR	600/40
9	6mm accelerator rifle (ACR)	15	-/9	20	2500/500	2D8/2D6	8/4	250/750	1/-/4	900/25
10	7mm ACR	20 slug	7/7	20	3000/400	2D8/2D6	6/3	650/1400	2/3/6	800/10
		20 DS	7/7	20	3000/400	1D12/1D10	12/6	750/1500	2/3/6	800/20
10	9mm ACR	20 slug	9/7	20	3500/500	2D10/2D8	6/3	650/1400	2/3/6	1000/15
		20 DS	9/7	20	3500/500	2D8/2D6	12/6	750/1500	2/3/6	1000/25
		20 HE	9/7	20	3500/500	3D6/3D6	2/2	650/1400	2/3/6	1000/20
12	4mm gauss rifle	40	5/7	20	3500/400	2D8/2D6	20/5	900/1800	4/8/10	1500/40
13	4mm gauss pistol	20	5/9	20	650/20	1D10/1D8	12/3	100/3250	4/-/-	600/20

Individual Weapons: Energy Weapons

TL	Weapon	Magazine	STR/DEX	Base %	Grammes	Damage	Pen.	Range	ROF	Cr
8	Laser carbine	50	-/5	30	5000/3000	3D8/3D6	5/2	1000/2000	1/-/-	2500/1000
9	Laser pistol	50	-/7	25	3000/1000	2D8/2D6	3/1	500/1000	2/-/-	2000/400
9	Laser rifle	100	-/5	30	6000/4000	4D8/4D6	8/4	1500/3000	2/-/-	3500/1500
12	PGMP-12	40	15/9	10	6000/3000	3D20/1D20	10/2	500/900	1/3MR	10000/2500
13	Laser pistol	200	-/7	30	2200/1000	2D10/2D8	5/2	750/1500	4/-/-	3000/7000
13	Laser carbine	200	-/5	30	4400/2000	3D10/3D8	10/4	1500/3000	4/-/-	4000/14000
13	Laser rifle	200	-/5	30	8800/4000	4D10/4D8	15/8	2000/6000	4/-/-	8000/28000
13	PGMP-13	8	21/9	10	9000/60000	6D20/2D20	20/4	750/1200	1/3MR	65000/50000
14	PGMP-14	8	-/7	20	1000/9000	6D20/2D20	20/4	750/1200	1/2MR	100000/65000
14	FGMP-14	8	21/9	10	10000/80000	8D20/3D20	30/5	1000/1500	1/3MR	100000/65000
15	FGMP-15	8	-/7	20	1000/2000	8D20/3D20	30/5	1000/1500	1/2MR	400000/300000

Crew Served Weapons: Slug Rollers

TL	Weapon	Magazine	STR/DEX	Base %	Kilos	Damage	Pen.	Range	ROF	KCr
5	Medium machinegun	100		10	9.5/2.5	2D8/2D6	6/3	400/1000	-/-/6	1.50/0.12
6	Light machinegun	100		10	5.5/2.5	2D8/2D6	6/3	750/2000	2/-/8	1.20/0.12
6	Heavy machinegun	100		10	15/10	3D8/3D6	4/2	400/1000	1/-/6	3.00/0.25
7	5.5mm gatling gun	2500		05	70/31	2D6/1D10	6/3	400/1000	-/-/16	12.35/2.25
7	7mm gatling gun	2500		05	100/62	2D8/2D6	6/3	500/1200	-/-/12	15.50/3.00
8	5.5mm gatling gun	5000		05	80/62	2D6/1D10	6/3	600/1200	-/6-20	19.50/4.50
8	7mm gatling gun	5000		05	100/125	2D8/2D6	6/3	750/2000	-/4-16	23.50/6.00
10	VRF gauss gun	30000		05	2000/300	3D20/3D10	80/20	3000/4500	4/8/50	200.00/6.00

APPENDIX 4: Converting Traveller to RQ

The skill levels:

Skill level 0 = 40 %

Skill level 1 = 60 %

Skill level 2 = 70 %

Skill level 3 = 80 %

Skill level 4 = 90 %

The attributes:

Trav 02 = RQ 03

Trav 03 = RQ 04

Trav 04 = RQ 06

Trav 05 = RQ 08

Trav 06 = RQ 10

Trav 07 = RQ 11

Trav 08 = RQ 13

Trav 09 = RQ 15

Trav 10 = RQ 16

Trav 11 = RQ 17

Trav 12 = RQ 18

APPENDIX 5: Blank Career Form

				Career Progress		
Enlistment:				Survival	Advancement	
Per previous career, -10%						
Assignments: Choose one of the following:						
				Promotion:		
Mustering-Out Benefits						
				Roll	Cash	Other Benefits
				1		
				2		
				3		
				4		
				5		
				6		
				7		
Skills and Training						
Roll	Personal Development	Service Skills	Advanced Education (Minimum EDU 13)	Retirement		
				Terms Served	Yearly Pension	
1						
2						
3						
4						
5						
6						
Roll						
1						
2						
3						
4						
5						
6						
Ranks and Skills						
Rank	NCO	Skill or Benefit	Officer	Skill or Benefit		
0						
1						
2						
3						
4						
5						
6						

APPENDIX 6: Things to Add to the SRD

- The Combat Rules need tightening up and slimming down
- Detailed Vehicle rules and sample vehicles
- The Starship Design rules need tightening up
- Sample Starships, Vehicles, Robots and Computers

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Pre-Enlistment Education taken from a document by Jim Geldmacher.

Basic Roleplaying Conversions and Striker Small arms Tables for Classic Traveller by Vile 2005

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