

STARBORNE

A Science-Fiction-Sourcebook for OMNIROLE

Reviewed and modified First Edition

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Starborne: Preface

Preface

Dear roleplayers !

In your hands, you have one of the very first worldbooks for Omnirole, the universal roleplaying game. We wish you a lot of fun with this result of several years of development.

When thinking of roleplaying games, usually two subjects will be encountered repeatedly: Fantasy and science fiction. Consequently, we have decided to begin the row of worldbooks for Omnirole as well with a Fantasy world, ARIMON, and a science fiction-World, the universe of STARBORNE.

Why the name Starborne? Well, the basic thought was, that in this world of the future, the gateways to the stars are open. The humans have not yet become "heirs of the universe" (greeting to a great German SF series), but they do have a different set of mind, different possibilities. This conception shall be reflected by the name Starborne.

Starborne is some kind of classic SF stuff. It covers a world, in which mankind has managed to reach the stars. Space travel has become as current, as flights are for us today. Other races, including true aliens, even hydrogen breathers, make contact with the humans. And these have changed themselves, some of them having adapted to new environments, mutated or having decided to replace parts of their body with technical elements.

Psionics play a role in this world, but also beam weapons and antigravitation, protection fields and robots, Spaceships and alien worlds. Nevertheless, Starborne is not a pure space opera. We have always tried to create a fascinating roleplaying world with interesting possibilities for adventures, but also to have a credible technology, a society of the future and "true" aliens, i.e. not merely humans in costumes.

It is now up to you as players and master, to fill the world of Starborne with life, to develop it, to discover its beauties and to resist its dangers.

There are plenty of possibilities for adventuring. Perhaps you want to try it as a group of free traders that commutes between the stars, possibly throwing in a bit of smuggling or even piracy? Just be aware of the customs cruisers and fleet patrols! Or what about some inspiration from the Star-Trek series with the adventures of an exploration ship that advances into unknown space? First contact with alien races,

fully unknown stars and planets, animals and plants? The beauty of a hydrogen world? Or perhaps also the life as interstellar tramps, always looking for a good opportunity, in the casinos of the Milky Way, as stowaways aboard spaceships, or in the backyards and alleys of the large stellar cities? Or as interstellar mercenary troop, or as members of the Space fleet, or as secret agents, or or or...

The possibilities are as many as the planets in the Milky Way and their inhabitants. Maybe you even try to do all of this, you have the time, and the universe is open for you.

Anyway, we will attempt to develop the world of Starborne more and more. Sourcebooks on the most important states and planets are planned, as well as some true scenarios and plot ideas. Just wait and be surprised.

If someone among you has good ideas, if you have developed worlds or a good scenario, if you have wishes, suggestions or criticism – just give it to us. We depend on the feedback of the players, and are always open for new ideas. Who knows, perhaps very soon YOUR name will be on the cover of the new Omnirole sourcebook?

But now, get ready for the unknown frontier. Take a shuttle into the early 28th century of the Terran calendar, let yourself be surprised, enchanted, amused. Have fun and many wonderful adventures, and always a good time between the stars!

Changes in Version 1.3 from 2006

The space combat system has been substantially modified in order to get more playable rules for the use of a hexagonal or square grid. This resulted in several modifications of weapon ranges, deletion of the missile rules and a redesign of the attack and defense procedure. In connection with these changes, the background was made more consistent. A major difference to the past is that missiles were eliminated – they belong to Honor Harrington, but not to this universe.

Furthermore, several mistakes have been corrected. A full revision is planned after version 2 of the basic rules, most probably mid 2007, has been published.

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History

Calendars

In the galaxy, different calendars, usually one for each important nation, are in use. The following dates are always based on the Terran calendar, whose starting point is the year of the birth of Christ, the founder of one of the most important religions. There is no year zero. Years after the birth of Christ are abbreviated AD, such before with BC. A year in this calendar is based on one orbit of the planet Terra (Earth) around its sun. As smaller units, days (one turn of the planet around its axis) of 24 hours are used; one Terran year has 365.25 Terran days. The times week (7 days) and month (a combination of 28 up to 31 days) are only still in use among conservative Terrans; all others use a date format of the type day - year.

Another important calendar is that which uses the foundation of the Old Empire (see below) as its starting point. It also does not know a year zero and counts years as Pre-Imperial and Post-Imperial. A year in this calendar is based on the revolution of the former central planet of the Empire around its sun. There is barely a difference to the Terran year (1 Imperial year = 1.0015 Terran years). The smaller unit are Imperial days of 20 hours each. An Imperial year contains 400 days, thus, a Terran day is equal to 0.914 Imperial days and a Terran hour is 1.097 Imperial hours. Dates are recorded as in the Terran system.

Furthermore, the Wachali use a calendar that also measures time in Imperial years, but whose base year is not the foundation of the Empire, but always the year of enthronization of the current Emperor (thus e.g. in the year 20 Ra-Ngarn).

The History of Known Space

For the following chapter, our special thanks are sent to Professor J.L.Tanaka of the University of Tokyo, who presented this short summary in the prologue to his commemorative publication "From the darkness of the past to the stars of the future - a short history of space travel in the Milky Way".

The beginning

As very often, the very beginning is cloaked somewhere in the dark depths of history. It is certain that there have been spacefaring races in the Milky Way for a very long time, because there traces are often encountered. For instance, there are planets, on which mysterious glazed surfaces can be found, as if great heat had affected them from the outside. Other ones appear as if they had been, maybe with neutronic radiation, practically sterilized. In other sectors, there are asteroid belts which are very unlikely to have been created naturally. Whole regions of the Galaxy are changed in such a way.

Additionally, there are common legends of many peoples that speak of visitors from space, whose descriptions do not have anything in common with the known races. Linked with them are tales of genetic manipulations of the earlier races, with the intention, e.g. to create intelligence. Only inventions? Who knows, maybe some proof will be found some day in the future. But there already are some interesting facts, for example, a spaceship wreck that was found some years ago, but that unfortunately orbited a black hole and therefore could barely be examined. The same is true for the UFOs, mysterious spacecraft, that either consist of energy or that at least use very mysterious cloaking shields. They are faster than all current ships, and nobody knows their origin. Or are they not spaceships at all, but living beings? Finally, the fact should not be neglected, that some races are biologically related up to and into their chromosomes, but without knowing of any common origin. Has someone transported their ancestors through space, or is it mere coincidence? In this connection, the Terra hypothesis should be noted, which has been made

by Terran scientists several decades after the contact with races, that are actually genetically related to the Terrans. According to this hypothesis, at some time between 200,000 BC and 50,000 BC, unknown powers abducted early humans from Earth and placed them on other planets. The theory is very disputed in science, but it does appear to be more logical than a "parallel evolution".

In any case, the known and somewhat documented history of the Milky Way probably begins around the year 80,000 BC, as the Nimatún (the "First People") developed FTL space travel entdeckten and very quickly spread across the galaxy. They colonised lots of worlds and soon encountered other races, who they taught space travel, before they suddenly and without any visible reason retreated to their homeworld around the year 50,000 BC, and had completely disappeared without a trace, except for some relics, within some millennia. Nobody knows why. Were they trying to escape from a danger, that they saw in the future? Did they commit collective suicide? Were they abducted? Did they attain a different form of existence? And why did they either remove or destroy all their buildings?

The only things that are still known of them, besides the mentioned relics, are some image recordings, which hint that they were humanoid creatures. Their homeworld does not even have any ruins of their civilization.

Has Atlantis been an outpost of the Nimatún, maybe forgotten in the general retreat? Some Terran scientists are of this opinion, based on the humanoid appearance of the Nimatún and the similarity of some elements of their language ancient Terran languages. But probably, this question will never be answered sufficiently.

The disappearance of the Nimatún caused a cultural and political void in the Milky Way. Some of the races, that had been assisted, began to fill it slowly. Many others, however, became extinct, because they did not possess the necessary maturity and e.g. destroyed themselves. Among the races, that finally began to play a role on the galactic stage, were the Wachali, a very belligerent race, the one, that should dominate the next chapter of galactic history.

The Old Empire

The first great turning point of galactic history occurred around the year 20,000 BC with the creation of the Old Empire, also called Empire of the Wachali, First Empire or Great Empire. The government system was based on a complex caste system of governing and serving races, at whose top where the Wachali, who provided the Emperor. Independence movements were rapidly suppressed, if they occurred at all, because the total government policy tried to control the entire life of all citizens. Nevertheless, tremendous scientific advances were made, even some that have not been surpassed nowadays, and the Empire soon was thought to be an "eternal" one.

Around the year 11,000 BC, this Empire was at the climax of its power, and it governed about half the Milky Way, preparing to send its scouts into the other half and to embark on intergalactic discovery journey in the region of the Magellan clouds. However, this should never happen, because dark clouds appeared at the horizon, caused by internal decay and quarreling, but also a cultural paralysis. Only the Emperor and the power of the fleet were able to hold the Empire together...

The Civil War

With the death of the last Emperor of the Ngarn dynasty in the year 10,053 BC, without a direct successor to the throne, a ferocious quarrel about the succession erupted in the Empire. Mainly, it were distant relatives of the ruling family, that assembled followers and tried to take the throne. The following years saw not less than 112 Emperors, sometimes up to ten at the same time, that allied, fought and killed a-

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mongst themselves. Additionally, there were attempts from races that had been conquered by the Empire to leave it, and general power desires of local governors and rulers. Within very short notice, the settled Galaxy became a sea of flames. The wars were fought with extreme brutality, whole planets and peoples were eliminated and many technological secrets were lost. Entire planets were forgotten and sometimes only rediscovered after some millennia.

Finally, the Civil War ended, without the possibility to name an exact date, due to general exhaustion and because there no longer was any Empire for that one could have fought. The star empires of the Sklick, the Yrians and other races were created, but the most important one became the new Empire of the Wachali, also called Second Empire. This belligerent Race, that had also dominated in the Old Empire and always provided the ruler, conquered more and more other races in the following millennia and increased its base of power. And they always struggled, although in vain, to reach the old tech level again. Unfortunately, too much had been lost forever, and thus relics from the past became the core of the space fleets of the peoples. Main reason for the lack of progress was the tremendous damage caused by the Civil War, but it should also be noted that the Old Empire's main scientists had never been the Wachali, but the Vrindan, a race that was either exterminated during the Civil War or that at least disappeared during its course.

The result was a quasi standstill of developments for a long time, marked by minor wars for the heritage of the Empire or against newly appearing races, as well as rivalries among each other. Whole areas of the galaxy, including the larger surroundings of the planet Terra, that should play an important role in the coming era, actually were no longer travelled to.

Terra's road to the Stars

On the Earth, also known as Terra, the third planet of a small yellow G-V-star near the outer rim of the Milky Way, the inhabitants succeeded around the year 2055 of their calendar in ending their internal quarrels. Before, there had been lots of war among the species, whose last big one, the Second World War of 1939 up to 1945, had cost many millions of lives. Together with famines and the consequences of an extreme environmental pollution, the total population of the Earth did reach a level of 6.5 billion until 2050, but at the same time, in that century alone, at least 4 billion humans did of the effects of wars and general misery.

As finally a kind of world government had derived from the UN – this was the only possibility at all to survive as a race – it did not take long before a massive departure into the own solar system began. Space colonies of all types as well as a beginning terraforming of the Mars were part of the projects, together with the use of nuclear fusion, that had already been applied on a minor scale since 2020. The international cooperation furthermore enabled the realization of great projects like for example solar energy plants in the deserts, a better allocation of the food and a beginning removal of social imbalances. Nevertheless, already by 2100, many millions of humans had emigrated to the space colonies, where they hoped to find new and better chances.

The removal of the bad inheritances from preceding generations such as the greenhouse effect, pollution and lack of resources turned up to be a millennium project. Even at the present day (2600 AD), parts of the Earth remain almost hostile wasteland. Many animal and plant species have been lost forever, and coastal areas have been changed. Nevertheless, humanity has got round to it at the very last moment, as a politician of the late 21st century once remarked, who also added, that one now shared a common responsibility never again to allow wars or environmental pollution to occur.

The 21st century finally became a century of research: Interfaces between man and machine, computers of a power never thought to be feasible, the development of biotechnical

replacement limbs and organs and incredible advances in the areas of genetics shall be given just as some examples for this.

The situation once again changed decisively with the year 2112: Already around the year 2040, some scientists had published theoretical essays, in which the general and special theory of relativity were newly defined and the possibility of FTL speeds were discussed. The works had barely been taken seriously then, and the reputation of some scientists suffered a lot, if not to mention the demands to concentrate the efforts on the reconstruction of the Earth. Nevertheless, the theories of space-time-perforation never were forgotten completely. In the year 2099, a graduate student of the university of Heidelberg rediscovered them for his final thesis, and he saw a possible link with briefly earlier discovered, until then never conclusively explained quantum mechanical effects. His works should revolutionize science, because this man, who later became Prof. PhD Dr. in engineering Sundermann, succeeded with an experimental proof of actual FTL speed, using a radio wave transmission. The scientific world was upset, Sundermann won the Nobel Prize within two years, and the research centres of the world started to work on applications. Finally, in 2112, the TSEA (Terrestrial Space Exploration Agency, the space research institution of the world government) constructed the first FTL capable spacecraft, an unmanned probe of 10 meters length, that reached a speed of 10 times the lightspeed on 5 May 2112 when making a test run in the Solar System. Posthumously, the scientists Wardon and Miller were awarded the Nobel prize for their work on space-time-perforation in the following year.

This first FTL drive was far from being perfect: It required tremendous amounts of energy to launch, and the ships were only able to stay in hyperspace (how the area, which they entered due to the perforation effect, was quickly baptized by press and science - "Perforation space" did not have any chance against classic SF) for a very short time, so that potential flight distances remained limited. Furthermore, the speed stayed at a rather low level.

However, this should change very soon. Beginning with the year 2120, Terran FTL space travel started on a larger scale, after the Alpha-Centauri expedition had succeeded in the years 2114 to 2116. The resulting colonization wave meant the emigration of more than 1 billion humans during the following 75 years, and many of the early spaceships were lost forever because of lack of experience with FTL travel or because of material failures. Some of these ships were found later, many lightyears farther away, than they could normally have traveled – others were never seen again.

On the different planets that were reached and colonised, the Terrans sometimes found life at the threshold to intelligence, or primitive civilizations, but no intelligent space-faring race, in spite of all efforts with powerful peace radio transmissions and numerous scout ships. Instead, the humans began to vary more and more, because it turned often out to be necessary to undergo genetic adaptations to the alien living conditions.

The tremendous cost of the first phase of space travel did result in great technical advances such as the development of effective force fields, the discovery of new materials and much more – but together with the population losses, it also impaired the development of Earth itself.

The Terran War

All this should change decisively with the year 2227, the very year, in which the Terrans finally met other intelligent life. More exactly, the life met them, as on 6 November 2227, ships of the Wachali entered the system of Lacedonia, 150 lightyears away from Earth, where a small colony had been set up in the years since 2201. The arriving aliens were received in peace, but they replied with a message asking for immediate surrender: The Wachali viewed the Terrans as

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disturbing their area of influence, and they believed to be able to quickly conquer this primitive race, especially as they were reputed as the most belligerent race of the galaxy. Distress calls of the colony were simply not taken seriously, and the planet was occupied outright.

Some days later, an emergency conference of the world government took place on Terra. One had experienced a full century of peace, but nobody was willing to surrender without a fight, especially as the Wachali had meanwhile occupied three more systems, and in one case, they had simply eliminated several thousand resisting colonists by using superior weapons. The world president, John C. Weidenberg, made a speech to the world, which he concluded with the following words: "Ich cannot promise you that he will win, but if we lose, we will lose everything for that our race has ever lived. Let us avoid that five millennia of culture have been in vain."

In a hurry, the spacecraft were armed and a defense of the most important systems was prepared. A fast action task force was held in ready alert to be able to act on the next invasion, and that invasion soon occurred: The Wachali did not think much as their scanners, while approaching the system of Muria, showed the arrival of 100 unknown vessels. What could the Terrans have to match the technology of the Old Empire, and the morale of a warrior race? They missed that the Terrans had been fighting wars among themselves for a long time, and thus had their own share of a will to fight and morale. The resulting battle caused the almost complete annihilation of the Terran fleet, including losses due to actual kamikaze attacks against the large Wachali cruisers, but not a single ship of the invasion fleet got away.

In the following time, the Terran science made incredible advancements, based on the analysis of captured technology, but also by independent developments. Within 10 years, the Wachali had to admit that this opponent matched them as an equal. Titanic fleets ran through this part of the galaxy, planets were turned into deserts forever. A push against the Sol system in 2236 making use of the largest Wachali battle-ships ended with horrible losses, but also caused big damage on many of the Terran planets. Finally, other races, mainly the Sklick and the Krellians, were involved into the war, because they had become aware of the events and now saw a chance, to ally with the Terrans and to pay back old defeats to the hated Wachali, that meanwhile had joined forces with the Yrians.

The Peace Agreement

In the year 2250, both sides realized that this war could not be won. Representatives of the Terrans and the Wachali met on neutral ground, mediated by the Loffati, in order to negotiate the conditions for a ceasefire, that was finally signed on 21 December 2251. With this contract, definitely a new space faring race, the Terrans, had been established, and the balance of power had been shifted decisively. Nevertheless, all races had to pay a high price: According to Terran announcements, about 150 million humans died during the war; the losses of the Wachali never became publicly known due to their restrictive information policy, but probably were two to three times as high. Many planets were uninhabitable for a long time, and just the repair of the war damages in the Solar System took until the year 2300. The power of the Wachali had been shaken terribly, not at least by tremendous losses of relics of the Old Empire in the battles.

The Status Quo

The peace agreement of 2251 fixed some kind of Status Quo, this means that the various races and confederations defined their spheres of interest. Between these power zones, neutral zones of 20 up to 50 lightyears of width were established, in which no colonization or setting up of bases was allowed.

Nevertheless, small skirmishes happened often in the following time, when explorer units entered a system outside the

zones - in the so-called periphery – and were unable to come to an agreement. It should be mentioned that the rule "no peace in the periphery" is valid since a long time...

The Terrans and other races made further advances into the Milky Way than ever before, searching for colonisation space and resources. New races were contacted, e.g. the H'Ch-R'Harl and Froydians.

The Independence War

Around the year 2422 Terran Time, the next important development happened, as the Dub, that had been part of the Empire of the Wachali for more than 500 years, attempted to fight for independence. In order to avoid being caught in a war again, the Terrans did not support these movements openly, but "independent" space traders delivered equipment to the rebels, that could be sure that the world government had a positive view on them, as the whole thing weakened the old enemy. And actually – however, the Wachali only fought with limited effort, apparently they feared a direct intervention of other races if using to drastic means - the Wachali recognized the independence of the Dub in the year 2431. In the following time, almost all subject races of the Empire left it, in most cases without any larger conflicts.

The Federation Crisis

In the years 2533 to 2555, the Terran Federation was confronted with its first great domestic crisis. Numerous member worlds threatened with secession, because they no longer agreed with the dominance of the planet Terra. Under decisive assistance by the Federation president at that time, a joint effort was undertaken together with the discontent members, resulting in substantial changes of the structure of the Federation and the introduction of enhanced elements of local independence, or the de-jure confirmation of de facto already existing conditions. This could solve most parts of the crisis, and only about 10 per cent of the Federation worlds of that time actually did declare themselves independent – one half of them has rejoined the Federation meanwhile.

The present, 2600 AD

Today, in a whole, the principles of the Status Quo continue to be in force. The relations between the races have not changed much, although some mistrust of many races towards the Terrans begins to develop. Although they yet have not demonstrated any interest to rule other races, such behavior is perfectly thought to be possible, as they are a warrior race. Speeches of Terran minority politicians mentioning expansion and "Terras fate in the universe" are of course also far from useful to counter such fears.

Furthermore, science has advanced continuously, especially due to the increased independence of many races that improved their imagination. Actually, this has led to reaching the level of the Old Empire again in many areas, or at least we think so, because many things from the past are only known in myths and legends.

Research ships are preparing to advance into the galactic halo and the yet unknown eastside of the Galaxy (until now, only about 40% of the Galaxy have been explored roughly, but certainly they still conceal lots of worlds and maybe even space faring races), a project, that has been considered for the last time shortly before the outbreak of the Civil War. Furthermore, one thinks to be able to conclude from observations, that an important space faring civilization exists, or at least has existed, in the eastside of the Galaxy, because various traces have been found in the regions of the most distant Periphery.

Thus, the future is full of uncertainties, and nobody is able to say, which new challenges might be waiting for the peoples of the Galaxy.

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Timeline

Year	Event
About 80.000 BC	The Nimatún develop space travel and establish an interstellar empire. "Development aids" for other peoples. Much information is lost in the millennia afterwards.
About 50.000 BC	The Nimatún suddenly leave all planets and within several millennia, they are even no longer present on their homeworld.
About 20.000BC	Creation of the Old Empire.
About 11.000 BC	Climax of power of the Old Empire.
10.053 BC	Death of the emperor without a successor. The Civil War begins.
ca. 9.500 BC	End of Civil War due to general exhaustion

9.500 BC to 2.000 AD	The Dark Millennia: an era characterized by wars and technological standstill and the creation of small states including the new empire of the Wachali, a pale reflection of the Old Empire.
2112 AD	First terran FTL voyage
2120 AD	Terrans begin space travel and interstellar colonisation
2227 AD	Beginning of the Terran War: Terra against the Wachali.
2236 AD	Failed advance of the Wachali against the Solar System.
2251 AD	Ceasefire Terra - Wachali.
2422 AD	Beginning of independence movements of many races. Within several years, almost all races assimilated by the Wachali gain full independence.
2533	Beginning of the Federation Crisis
2555	Federation Crisis is solved
2600 AD	The Present.

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The most important races

The main information on the appearance of the races and their special abilities are mentioned in the character creation chapter. At this place, therefore only some remarks about their lifestyle and motivations and goals shall be made, as far as such things can be said in general at all.

Terrans

Typical Terrans are not much different from their 20th century counterparts. However, they are generally healthier, with a longer life expectancy, and they have a little bit changed motivations. Terms like "skin color" no longer are of any importance, in their place, aliens or extremely deviating appearances (and, of course, mutants in case of radicals) have been put, but in the whole, such a thing as racism no longer exists at all. In this connection, it should also be mentioned that the different types of humans that existed in the past have been substantially mixed. Typical Terrans nowadays have a skin color that is light brown.

However, the most decisive motivation in life for most humans continues to be the desire to have success, wealth and power, although the general egoism in large parts of the society has decreased a bit compared to the past. Probably, this is, among other reasons, due to the experiences with the environmental damages that have been caused by past generations.

Wachali

As mentioned repeatedly, the Wachali are a very belligerent race. Although their society with its complex caste system and the ritual challenges is not violent in the exact meaning, the general idea of duels and of winning in combat influences all their thoughts and actions.

Wachali are always open for possibilities to improve their position and to increase their power, and of course that of their race. They will always obey their superiors, but will at the same time be looking for a way of realising their ambitions via a ritual challenge. Consequently, there are many Wachali, that travel through space, be it as merchants, as prospectors, as pirates, as soldiers or many other more.

Most of the other races are not directly viewed as „of minor value“ by the Wachali, but as inferior in their doings. The Wachali are the selected traditional ruling people, and therefore, they are unable to forgive the Terrans that they resisted them successfully in the war. Nevertheless, a certain grudging respect of Terra has developed in the last few centuries – probably driven by the idea that the Terrans somehow have proved themselves in a challenge.

If the work together with other races, Wachali will always demonstrate a certain claim to leadership and respective arrogance. They prefer combat-based solutions; even a sales negotiation is a duel for them.

Dub

The amphibious Dub are a race which is noted for the fact that almost all female members have an empathic talent.

This empathy has the effect that female Dub have certain advantages – they are better in discovering hidden intentions, if someone is lying or telling the truth, if someone is under stress, etc.

Traditionally, the females will thus take over diplomatic functions among the Dub. When working with other races, males might participate – but the women are always number one.

Motivations for Dub are mainly personal luck, for female Dub in any case the creation of a family and the establishment of the special empathic relationship to their children, which has

resulted in the Dub society being so stable and closely cooperating. Personal luck does include wealth and money.

Krellians

The society of the Krellians is, interestingly, not too different from that of the Wachali, and there are theories, which explain this with the fact, that both are reptilian races.

Krellians recognize two authorities, these are age and the strength of a male. Females have an absolute second-class role; they do not fill any important positions in the society and would e.g. be impossible as spaceship commanders.

As opposed to the Wachali, however, the system of the challenges is very differently structured, much more ritual-based, i.e. the combat component is far more in the background. Therefore, Krellians also no longer have a warrior thinking, but they are looking to get influence using other means.

H'Ch-R'Harl

The hydrogen breathing H'Ch-R'Harl live in a matriarchate. Their society almost did not know the concept of war until they contacted other races – as their living conditions always were good, there was plenty of room, food, etc. for all of them.

This tradition has survived until today, certainly emphasised by the fact that the hydrogen breathers are usually interested in worlds with which most other races cannot do much, and vice versa.

The concept of "power" as a position of personal influence is not understood by the H'Ch-R'Harl. The only authority is that of the matriarchate, but it is a natural one. Respectively, the H'Ch-R'Harl are not interested in improving their individual position or gathering large amounts of personal wealth. They try to be happy in their personal place in life, and they watch many of the other races, especially the more aggressive ones such as the Terrans and the Wachali, with a mixture of distrust and lack of comprehension.

Loffati

The race of the Loffati is living in some kind of structured anarchy, i.e. in small, unconnected life partnerships without fixed government, ranks, institutions, etc. Probably, this development is mainly due to their psionic talents. By the way, on the homeworld itself, the Loffati have neither money, nor any kind of criminal activities.

Motivations such as positions of power, wealth or other assets are not only unknown to the Loffati, but even almost incomprehensible for them. They do work together with other races, but always somehow see them as "immature children", that still must be developed to a useful mental level. During this process, the Loffati attempt to protect the "children" from themselves - and probably also themselves from the "children".

If Loffati leave their planet or work with other races, they mainly do this to collect scientific data or to make personal experiences. They are rarely encountered, and e.g. almost impossible to persuade to work as space traders or in similar sectors, but the few Loffati, that nevertheless have joined e.g. one of the supranational organizations, are viewed as irreplaceable specialists.

Yrians

For the Yrians, the most important thing in life is their religion, the belief in Yrlalog. Someone that blasphemes against Yrlalog, or of whom they believe he does this – even not knowingly, this being perfectly possible in view of the complex system of religious strictures - is unacceptable for them and an enemy, that might even have earned death.

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A priest of Yrlalog or even one of the higher ranks must be obeyed without any limit. There is few opposition against this official religion, but it does exist, not at least after the Terrans appeared in the galactic theater. By the way, all official sources, i.e. the priesthood, still denounce any biological relationship with the Terrans.

The most important motivation for an Yrian is to live a life that it as desired by Yrlalog, i.e. to increase the significance of Yrlalog. This is done by improving the Yrian power, by regular offerings and pilgrimages, and much more. However, the personal power also is not neglected. Yrians are mentally not that different from Terrans, except for their religious fanaticism. Money and influence can be joined with the Yrlalog without difficulty, Yrlalog himself even asks his followers to develop a position of power, because he will benefit from them.

Sklick

Sklick will probably never be encountered as single beings, but always in groups. This is due to their lack of independence. A Sklick that leaves his race and goes adventuring, would be a contradiction in himself and probably be impossible. Respectively, no motivations will be found among Sklick, besides serving their race as good as possible, even if this should mean their own death. The ethics of an insectoid race are definitely very different e.g. from those of the Terrans.

The Queen is the only creature that possesses the traits of initiative and creativity. Warriors or even workers now nothing else than doing their duty and unconditional obedience.

Orachans

The Orachans belong to the more peaceful, mentally oriented races of the Milky Way, although not as extreme as e.g. in the case of the Loffati. Additionally, they have the particularity that the intelligence of female and male members of the race drops almost to zero during the two months of mating time, so that the neuters with their stable intelligence play a special role.

Orachans participate in space trading and the exploration of the Milky Way, they even have very skilled spacemen and scientists. However, it is normal to have the number three play a role, i.e. all important functions are held by three people, one of every sex.

After all, the Orachan and the Terran mentality and goals are similar, although, of course, preferences and dislikes are a bit different, and the above-mentioned particularities apply.

Froydians

The Froydians are a race, which values the mental advancement and science, but that never neglects its readiness for self-defense.

Froydians operate spaceships primarily for scientific purposes, but to a limited extent also for trade and all kinds of exchanges. Money and power, reputation and wealth do not have a central role, but also are not refused outright. Usually, they seek a middle course between races as the Terrans and Wachali on the one side and the Loffati on the other.

The Clans

The Clans as a splinter people of the Terrans partially have conserved a lot more of the attitudes of the 20th and 21st centuries, or recreated them. They live for the benefit of their families, and of course for their own, and almost any possible means is acceptable for them. Therefore, criminals are quite frequent among them, at least according to other races' standards.

Nevertheless, the Clans should not be condemned in general. They have developed a different, independent form of society, but they do also observe other races and also are

interesting partners in many areas. Just one warning, it is better not to show a weakness towards them.

The States

The most important states of the known Milky Way as well as their relationships amongst each other will be the subject of this brief chapter.

The Free Worlds

This term summarises a medium number of solar systems close to the borders of the Periphery, which have formed a league for independent administration.

Most of these 136 planets are inhabited by descendants of Terran colonists; but there are also some other minor races as well as Krellian settlers. The League of the Free Worlds was founded during the Federation crisis, as some planets opted for secession.

Its main purpose is the protection of the common interests against the large power blocks. There is no common government, but some kind of parliament (Council of the Free Worlds), where delegates of the member governments decide on joint activities. Furthermore, there is a central supreme fleet command and various similar institutions.

In the whole, due to a certain tendency towards isolation, the Free Worlds are not as technologically advanced as other states, and traders are also frequently subject to pedantic controls, because the government wants to prevent the admission of saboteurs and agitators. Citizens of the Federation are even very unpopular visitors.

The Terran Federation

The Terran Federation is the most important state of Terran mankind. At the same time, this is one of the most important states of the known Milky Way. The Federation is direct derived from the unified state of the humans of Earth that was created in the 21st century by the Terran world government. Besides the Solar System, it today includes 2,376 solar systems with respectively many inhabited planets.

Its members are not only Terrans, but also enviro-adapted descendants as well as some minor humanoid and even a few non-humanoid races, which have become part of it in the past are.

The basic principle is a democratic system of government. Experiments with feudal or other more autocratic forms of administration were only considered as planning games, but never realised. Nevertheless, there are substantial differences compared e.g. to the democracies of the 20th century on Earth. The details are ruled by the Federation constitution of 2169 in its current version.

At the head of the state, there is the Federation President. He is elected directly by the population for a term of 5 Terran years, and all registered Federation citizens may vote, if they have at least an age of years or, in case of enviro-adapted or non-humanoid races, the age that has been defined for them. The election is made with an electronic voting system; voting is not compulsory. In the most recent election, 50.2 per cent of the voters participated.

The President represents the Federation in negotiations with other states and also towards the interior. Furthermore, he has a right of veto for all legislative proposals, however, this can be overruled by a majority of two third of the votes in the Federation Council. He appoints the Federation government, consisting of various ministers and other powers, but please note that the Federation council has to approve the decisions. Finally, the President is commander-in-chief of the armed forces and he has a right to pardon convicts.

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This leads us to the second important institution, the Federation council. This council evolved directly from a UN institution, which worked on Terran unification, and it actually is the Parliament of the Federation. The number of members is 500. Repeatedly, during the expansion of the territory, discussions occurred about the question whether the Council should be increased, in order to e.g. grant every planet at least one vote. Practical evaluations led to the refusal of these proposals, because a Parliament with already 2,000 members usually is almost no longer able to work properly, and a system of the described type would not have been feasible in view of the population differences between the inhabited worlds, as there are variations between several thousand and 5.6 billion (Terra). Just imagine, if a planet with one thousand inhabitants got one vote, Terra would have to have several thousand, and we quickly would have 100,000 councilmen!

At this place, it is certainly interesting to learn that just this was the reason for the Federation crisis of 2533 as well as of many disputes in the 21st century UN. As a democratic principle requires, that the relationship between citizens and representatives is about identical everywhere, but as on the other hand, individual planets with small populations do not want to be dominated by the „big ones“, and there is furthermore the problem of differences in economic power, the problem is right there. Consequently, the industrialised countries of Terra always were against a UN council based on population, because that would have put them into the minority. The result that derived after lengthy negotiations, has survived in its basics until the present day.

Every 10 years, the election districts in the Federation are newly defined. A district may perfectly cover several thinly populated planets, or could be a part of a densely populated one, as e.g. on Terra. The authorities always avoid not to have large portions of a district being covered by one densely populated planet, because this could easily cause bad moods in the smaller populations. For modification of the population weight, a key is applied, that is calculated based on the ratio between the gross national product per capita and the Federation average. For this key, there is a lower limit of 80%, i.e. even a GNP lower than 80% of the average means that the inhabitants count with 80% for determination of the district. Similarly, there is an upper limit of 150%. Caution! The votes are generally equal, the only point is that e.g. one district represents one billion of humans, and another one 1.25 billion. The system is a bit unusual, but except for the mentioned crisis, it has always worked.

The representatives are then elected by the population (see above) in a general and secret election for a term of 5 years. The votes are directly made for candidates, that need not be members of a political party - and are not such members in about 30% of the cases. By the way, in the current Federation council, there are 56 representatives that are not members of any party.

The Federation council decides on all kinds of proposed laws. It can impeach the President; but this requires a majority of 75%. Amendments of the constitution are possible, but they require two thirds of the votes. Furthermore, the Federation council ratifies agreements with other states, allows the use of financial means, etc.

The third element of the Federation is the judicative. This is based on different levels of courts, beginning with the local courts, moving on to appeal courts until finally reaching the Federation Supreme Court, which has various chambers and is the highest legal authority. Very interesting in this context, of course, is especially the Constitutional Court, that reviews whether laws are constitutional. The judges of the Supreme Courts are proposed by the President and elected by the Federation council, with office terms of 7 years.

Very important is furthermore, that local administration and government are very much emphasised in the Federation. The basic principle is decentralisation, with the idea, to have

as many decisions as possible made locally. Therefore, all Federation laws only give a general outline, which is often very generous. The actual rules are then up to the member worlds, whose government systems, by the way, can be decided as wanted, provided that they do not contradict the Federation constitution. This would even allow a monarchy, because it would not violate the respective articles (The Rights of Intelligent Beings). The respective catalogue includes for example freedom of speech, of religion, of assembly, of press and other liberties, the inviolability of the life and the dignity of intelligent creatures, the right of self-determination (a monarchy thus would have to integrate democratic principles; absolute power would be unconstitutional) and a lot more. In the reality, about 80 per cent of the decisions that are relevant for daily life, are made at the level of the member worlds.

Furthermore, these have a veto right for all laws that affect them directly and may cause disadvantages. The respective veto may be made against any legislative proposal of the Federation. It must be justified and is decided by a separate chamber of the Federation Supreme Court. During this review, the law cannot be enacted with effect on the member that filed the veto. However, the decision of the Court is binding. If the veto is refused, the law can only be stopped by a plebiscite.

A plebiscite is justified, if at least 20 member worlds or a group of member worlds, that represent at least 10% of the electors, demand it. Its result is binding, i.e. can not be overruled. Respective actions, however, are very rare; there have only been two since the introduction of this possibility after the Federation crisis.

Using a similar way, member worlds or individuals are able to propose laws.

In crisis times, it is possible to use the emergency articles of the constitution. These have been considerably extended as the Federation reached a certain size. Requirement is the establishment of a state of defense, i.e. a crisis that threatens the existence of the Federation. In this case, usually two thirds of the votes of the Federation Council are necessary. If the Council is unable to decide, and seven standard days have passed since the application, it is sufficient if the President and 75% of the present votes of the Federation Council and the local parliament agree. However, the Federation Supreme Court has a right of veto.

The emergency articles allow the President to pass laws without parliamentary approval, as long as they are constitutional. Furthermore, numerous extraordinary powers are granted. After one month has passed, in any case the Parliament must be asked whether the state of defense is maintained. This must be repeated every month.

Other government systems could never be realised due to the large size of the Federation and the respective problems of communications and coordination, although every year, there are lots of proposals that range from feudalism via electronic systems of direct democracy up to an Empire.

After all, the degree of individual liberty of the Federation citizens is quite high. Important systems of social security and laws for protection and security make life rather comfortable. The average life expectancy is meanwhile 128.4 years. Additionally, diseases have almost been completely eliminated, and the rate of violent crimes is very low on most member worlds.

The Wachali Empire

Still one of the most powerful stellar empires is the Empire the Wachali with its 2,500 solar systems and respectively many planets, plus outposts and bases. At the top of the state, which is structured using a caste system with position fights, there is, traditionally, the Emperor, currently Lacham Rham'Grukh. He practically has absolute power, decides

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about war and peace, the foreign and domestic policy. He is aided by various ministers and high level military advisors.

Wachali continue to dream of the size of the Old Empire and the times, as their race ruled all the others. Repeatedly, there are tendencies to prepare for another war, that mainly shall once and for all times vanquish the Terrans, but also other races.

Thus, the Empire possesses a titanic space fleet plus respective ground forces and other troupes. There still is more technology of the Old Empire than in the other states, although a lot has been lost due to old age or the Terran War, as for example the most powerful battlefleet in the Battle for Sol.

The central world of the Empire, Wachal, is a desert world, on which almost every square kilometer has been used for industrial constructions or military installations, deep into the planetary crust. There are automated production plants for spaceships and other installations, some of them leftovers from the Old Empire, that produce until the present day. The distance to Earth is about 15,000 Lightyears. The whole solar system bristles of defense forts, fleet bases and minefields. To a more limited extent, this also applied to other important Wachali systems.

The Loffati Dominion

As already mentioned in another place, the humanoid Loffati only rule a single solar system, that of Loffat. However, they maintain some outposts in several uninhabited systems to exploit resources or for research purposes.

The civilization of the Loffati is very old. They are already mentioned in the first surviving documents of the Old Empire, in which they once became members. If they knew space travel before that date, perhaps longer than any other still existing race, is known by nobody except the Loffati themselves, and they stay silent.

The government system of the Loffati is a structured anarchy, this means there are very few written laws or institutions of public order. Most probably, this only works due to the psionic talents, mainly the telepathy, that helps to avoid conflicts, and because of the principle of non-violence. There is no "ruler", president or similar positions. If necessary, the community elects one or several representatives at short notice.

Nevertheless, the Loffati maintain a space fleet, but not many details are known about it. Rumors say that its units are among the best that can be found in the known galaxy, but nobody is able to prove this or even just to state an exact number of craft. The Loffati only smile when asked about their fleet. However, there are tales from the time of the Civil War, that speak of a failed Wachali attack of titanic strength against the Loffat system. The Wachali deny all respective requests, but in any case it is interesting to know that Loffati stayed independent after the end of the Old Empire.

There is no colonisation of other solar systems, instead, the Loffati operate spaceships only for scientific purposes. Even exploitation of resources in other system would be highly exceptional.

The Yrian Holy Empire

The Yrians, that are very similar to Terrans, rule a minor stellar empire of 325 solar systems, which they call their Holy Empire. At the head of the government, there are the priests of the state religion, which is the belief in Yrlalog. The priests have a lot of influence in the entire society of the Yrians, and instead of governors or other secular administrators, there will always be a priest or high priest that has the responsibility. This even applies for the space fleet.

The high level decisions of the Empire are made by the Council of the Wise, a group of the 25 highest priests of

Yrlalog, that choose the Supreme Priest of Yrlalog from their numbers, appointing him at lifetime. Any violations of religious dogms are strictly punished, up to deportation of the death penalty.

The homeworld is the oxygen planet Yria, which very much resembles Earth, from which is about 7,200 lightyears away. It orbits a sun of the type A V, i.e. considerably brighter than Earth's sun, resulting in higher temperatures and very much more light, and probably also causing the appearance of the Yrians. The whole planet is heavily fortified, with numerous space defense forts and all kinds of orbital defense installations.

The joining of the H'Ch-R'Harl

The hydrogen breathing H'Ch-R'Harl have formed a small state, that only consists of hydrogen planets. Oxygen planets are not settled for two reasons: They can only survive on them with a lot of technical support, and the race wants to avoid conflicts with the oxygen breathing races.

The government of the stellar empire of the H'Ch-R'Harl, that consists of 122 planets, is very similar to the Federation structure: The individual planets are relatively independent and administer themselves, while an elected central government on the origin planet is responsible for joint tasks and large projects. The system is that of a republic, but for the known reasons, only female H'Ch-R'Harl may have important functions.

The space fleet is mainly used for self-defense and space exploration and research. There are alliances with the Dub and with the Federation as well as with the Krellians.

The Dub Confederacy

The stellar empire of the Dub with its 266 solar systems, in which also other races can be found, is a democratically organized society similar to the Federation, with regular elections. However, the individual member worlds have even more independence than for example in the Federation, which often has the effect that there are difficulties in pursuing a joint policy.

The central planet Dubon is about 9,233 lightyears from Earth. It is a waterworld, on which the main constructions are either submarine or floating.

The space fleet of the Dub serves more peaceful than military purposes, but it is probably sufficient for defense, especially as there is an alliance with the Federation and with the Orachans.

The Free Planet of Froydia

The Froydians, similar to the Loffati, are not interested to expand their territory beyond their home solar system. Consequently, the borders do reach farther out than to the outmost of the 12 planets of their solar system. Exceptions include bases that are set up on uninhabited planets for research or mineral exploitation.

The government system is a democracy, in which all adult citizen may vote and the votes all have the same weight. A president is directly elected by the people for a term of ten years, in order to represent the state in foreign affairs. Otherwise, the key word of the Froydians is decentralisation, i.e. the concept of self-administration of small communities is a central part of the state

There are not any rigid, centrally directed structures, but one lives together in settlement communities. These are responsible only to themselves, except for some general framework rules, and very heavily based on the use of direct democracy, i.e. asking the citizens. Higher level establishments and institutions are only used for matters of global importance, e.g. coordination of research or defense.

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The Froydians maintain a small space fleet, but most vessels are lightly armed research ships. Instead, defense relies on the alliances with the Federation and with the Orachans.

The planet Froydia itself has a beautiful landscape, without large buildings, instead, it is characterised by the typical filigrane and airy Froydian architecture, which always leaves room for the nature.

The Orachan Combine

The Orachans are a relatively peaceful people, which has established a minor stellar empire of 100 solar systems. The main world Orach is about 18,500 lightyears from Terra.

The government is based on some kind of parliamentary-presidential democracy with consideration of the Orachan specialty (cf. races), to have all functions be held by representatives of all three sexes.

Orachans do not think much of war and expansion, but necessity has caused them to maintain space forces, but they consists mainly of in-system units and are intended to deter.

The 66 Suns of Krell

After the Krellians had separated from the Wachali, the planets settled by their race constituted a new stellar empire, that also colonised some further worlds. However, not all planets settled by Krellians are part of this state (cf. e.g. Free Worlds), but the race can be encountered in small communities in numerous other stellar empires including the Federation.

The 66 Suns of Krell cover respectively as many systems with inhabited planets, and the main planet Krell has a distance to Terra of 8,022 lightyears. Krell is a desert-like planet, on which there are numerous industrial areas and mining districts.

The Krellians live in some kind of caste society, that is organised under patriarchal aspects and in which the age and strength play a decisive role. There are no inheritances or elections, but the head of state - the "Eldest of Krell"- and other important positions are placed using a system of ritual challenges and duels.

The Krellian fleet is small, but powerful, as one wants to defend especially against new expansion lusts of the Wachali. The Krellians, however, try to avoid conflicts and concentrate their efforts on the exploration of new worlds and on science.

The Kingdom of the Sklick

The insectoid Sklick, as mentioned repeatedly, are ruled by a single queen. The government type is an absolute monarchy, in which the word of the ruler is law. There neither is a parliament nor similar forms of participation of the people – and the people also do not have any desire to participate.

The laws are based on the principle to effectiveness and partially have never been changed since the foundation of the state. Similar facts apply for the architecture, which consequently is for example seen as really boring and monotonous, if not outright ugly, by Terrans. Typical Sklick buildings are cubic or rectangular, and the interior is almost always divided according to the same plans.

Spaceships of the Sklick also are designed under practical considerations, almost all of them in the same form, i.e. as cubes or boxes of different sizes, at which, if at all, there are extensions for weapon turrets or antennas.

The Kingdom – actually, the term queendom would be better - nowadays covers 526 solar systems. However, due to their high rate of reproduction, the Sklick are constantly involved with expansion and colonisation.

The main world, called Sklickan, is an earth sized oxygen planet with conditions that very much remind of Terra. The distance to Terra is 12,500 lightyears. The planet is very densely populated and almost completely covered by the typical Sklick buildings.

The Clans

The Clans are an ethnic group that has evolved from the Terrans, starting in the years after the war against the Wachali. They consist of humans, that have become space nomads. Most of the time, they live on board their spaceships, that are designed for this purpose and can often reach titanic sizes. With these ships, they move from world to world, always searching for resources and markets for their goods.

Actually, two kinds of trades are the main activity of the Clans: Space trade and mineral search. Additionally, there is a third one, the function as "galactic mercenaries", but this only started some time ago. The truth behind the repeatedly occurring rumors of piracy is not certain.

On board the ships, the Clans are organised in family groups, either patricarchal or matriarchal. It should be noted that the different clans do not stand together as one force, but strong competition about jobs and planets is frequent among them. Only if the totality of the Clans is threatened, the family groups will join forces to defeat the evil.

The spaceships often are very old, and their maintenance is almost exclusively a family matter. Therefore, and also in view of ups and downs and different levels of power, anything ranging from rusty colonist ships of the 22th century over spoils of war in the form of Imperial vessels and up to the most recent cruisers, may be encountered with the Clans - and one should never be deceived by the bad and unkept appearance of their ships, because the Clans view bluffing as a very high virtue.

The Clans do not respect any authority of the Federation or any other states over them, but only their own leaders. As some of their laws deviate e.g. from those of the Federation, conflicts may happen. By the way, many Clans very much use genetics to increase their family's power - and they probably do this by violating the respective laws of the Federation.

Less important states

Besides these large states or state-like unions, there are many independent planets in the Milky Way, especially in the Periphery. This includes races, that have only been contacted recently, colonists that did not want to join the motherland, or also small races, that have won their independence during the last centuries. Just to list them all would consume too much space here.

The relationship between the powers

The relationships between the powers are quite a special thing. Some information has already been mentioned during the presentation of the history of the Milky Way, and some additions shall be made here.

The Status Quo

As we already have learned, the peace agreement of 2251 resulted in the definition of the Status Quo, insofar, as that the races signing it agreed not to use any violent means to change their relationships, i.e. actually, their spheres of influence. Certain changes in the following centuries therefore have always been due to interior causes such as uprisings or secessions, but never due to exterior reasons, i.e. wars.

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The Status Quo means furthermore, that between the defined different spheres of influence of the races, neutral zones of 20 up to 50 lightyears width, in which neither colonisation nor the establishment of outposts are allowed, have been set up. Finally, the border to the so-called Periphery was fixed.

The Periphery

As can be seen in the galaxy map, the term Periphery describes the area outside the defined spheres of influence of the major powers. In the Periphery, everyone can do what he wants ("no peace in the Periphery"), and frequently, it is the place of conflicts between settlers, prospectors and scouts.

Nowadays, the Periphery is a zone that is bigger than all the spheres of influence together, because more and more territory has become reachable due to technical progress in the area of spaceship drives. There already are discussions about a redefinition of the spheres of influence, including parts of the Periphery, but until today, no agreement could be found, and the local settlement patterns probably are much too chaotic for such agreement also.

Additionally, there are lots of independent settlers and corporations, that populate planets or exploit resources without government knowledge or participation.

The whole area has become a play area for corsairs and pirates, for deserters and fortune hunters, for mercenaries and other "freelancers". Someone that no longer is safe elsewhere, will go to the Periphery, because official authorities, mainly due to the fear to trigger a war, almost do not play any role there.

The Neutral Zones

These are small strips of 20 to 50 lightyears width, having been agreed between the various spheres of influence. It is prohibited to maintain settlements or bases in the Neutral Zones, and apparently all the powers do respect this. The passage is allowed, however, only in the half which is close to one's own territory, and officially only with civilian spacecraft.

However, there is no efficient control authority, so that the Neutral Zones probably only continue to exist because the superpowers want to avoid triggering a new war.

Supranational organizations

The Galactic Commonwealth

After an initiative made by the Loffati, simultaneously with the signature of the peace contract of 2251, the Convention of the Galactic Commonwealth was signed. Originally, it was intended as the nucleus for a galaxy-wide cooperation, but until today, not much of this has become true.

Not a single of the planned institutions, that should range up to a galactic parliament, has been established until today, not to speak of the ideas of a joint space exploration fleet, the pooling of scientific knowledge and general disarmament.

The only visible thing that reminds of the existence of the Galactic Commonwealth – besides the convention – is the planet, that is called „Parliament“ in the Terran language. One day in the future, it shall become the seat of the Galactic Parliament; until then, it is administered by a joint committee headed by the Loffati. Who knows, maybe there will be some positive developments in the near future.

The Treaty of Karn Azud

A contract of probably more symbolic significance, but nevertheless one of the rare actually existing agreements between the major races, is the Treaty of Karn Azud, signed on 2 March 2555. It rules the actions to be taken in the case of an

attack by a race that is not covered by the Status-Quo agreement against one of the signing parties or its interests, and thus, oddly enough, this is the only military treaty which has been signed by both the Federation and the Wachali.

The Agreement of Pologinon

Actually, there are side products of the Galactic Commonwealth, that work to some extent. One of them is the agreement of Pologinon, in which an exchange of maps of sectors at the far side of the Periphery has been settled. Certainly, the races never exchange the most recent and best maps, but at least this is a beginning and a great aid especially for civilian space travel.

The agreement (17 December 2277) has meanwhile been signed by all the major races and most of the minor ones, only the Yrians have not acted yet, probably due to religious reasons.

The Horn Agreement

The Horn agreement of 23 June 2455 also is one of the more promising approaches for a policy of understanding and cooperation. It has been concluded between the Wachali, the Federation and some further races, as the Sklick, and treats the joint research of potentially dangerous space phenomena, i.e. more exactly black holes, supernovae and similar things.

The economy in the Milky Way

How does the economy look like? What role does the government have in the economy, and what about private companies? There are important differences, depending on the territory in which one is. In the following, we are going to make a brief presentation of the economic systems for the two most important states.

Terran megacorporations and the Terran economic system

After the very strict environmental and food policy of the Terran 21st century, many large businesses either collapsed or even were nationalised, and as numerous laws had been introduced to enforce the political strategy, there almost were not lot any large corporations left when FTL travel was discovered.

This should change as the colonisation of other worlds began. Very soon, a lobby managed to get extraterritoriality laws, especially as most of the major problems of the 21st century had been solved in the 22nd century. Once again, private major enterprises were created, also under consideration by the government that the system that had been introduced, had its own special drawbacks. The war with the Wachali slowed this development temporarily, because large parts of the Terran industry had to be converted to arms production and, respectively, the government had to take over control.

After the peace treaty, however, and especially to accelerate the general reconstruction efforts, the new economic policy was based on liberalism and privatisation. It did not take long before the largest part of the Terran GNP was again produced by private businesses.

Due to the experiences of the past, however, one came to the conclusion that an unlimited and uncontrolled market economy does have its problems. Laws like the anti trust act of 2208 were introduced in order to control the development of the economy and to prevent unlimited exploitation of resources or environmental pollution, and of course to avoid that the corporations reach too high concentrations of power. But unfortunately, it must be said that the Federation only can control what it sees. In the widths of the Periphery, there

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always are possibilities to use even the most illegal of measures, and there already have been true corporate wars about minerals or planets that are interesting for different reasons, and all this without any possibility for Federation interventions.

Today, we encounter some kind of social market economy in the territory of the Terran Federation. Large parts of the economic power are concentrated in titanic corporations with interstellar range, that are in strong competition. Among them are the following:

- **Intercosmic Trading Company** (interstellar cargo transports and passenger lines, furthermore participation in mines and many other sectors)
- **Solar Spaceship Lines** (space trade and passenger transport, luxury cruises, participation in spacedocks and hotels).
- **Starmetal** (mainly exploitation of all kinds of mineral resources, furthermore energy production and search for new useful worlds. Participation in space trading companies).
- **United Spacedocks** (production of spaceships, but also of all kinds of equipment as well as repairs. Production of gliders and other vehicles.)
- **Terran Cargoliners Corporation** (space trading and passenger transports).
- **Ceres-Spacedocks** (Spaceship building and repair).
- **Solar metal** (Exploitation of minerals and trading with minerals, furthermore energy production. Production of vehicles, pieces of equipment, etc.).
- **Martian Cybernetics** (Robots and computers of any kind including software. Furthermore, toy manufacturer.)
- **Terra-Info One** (largest Terran Hologrid network, furthermore production of hologrids, holoplayers, entertainment broadcasts, etc.)

and some others. Furthermore, there still are lots of small and medium-sized businesses that have found a place to prosper and e.g. exist in sectors, that do not appear to be profitable for the "big ones".

The megacorporations themselves are so gigantic that they have hundreds of thousands of employees and titanic amounts of money, and usually maintain their own space fleets or even de facto administer entire planets of their own.

The government maintains an extensive system of social protection, including health, pension, accident, unemployment and several other insurances and that normally prevents that any Terran citizen gets into true economic trouble. However, of course there is the problem, that on many colonies, Terra is far away, and secondly, a citizen can only be someone, who is known to the system, i.e. whose identity is registered. Certainly, registration is easy and accessible for everyone, but there are humans, that never hear about this possibility or that have personal motivations that let them prefer to refuse it.

For financing of government activities, a value added tax is levied on any consumption inside the Federation. Furthermore, certain goods, thus for example spaceships or mainframe computers, are subject to additional taxation. These revenues are sufficient for about 50% of the government expenses. The remainder is generated by direct participation in the economic process, i.e. the government continues to be shareholder in various enterprises, and it maintains a monopoly for the hyper energy generation for planets. The government owns e.g. many spaceports and space docks, or special levies are demanded for the exploitation of mineral rich planets, which have been discovered by government scouts. Furthermore, the various kinds of fees for all kinds of government services should not be neglected.

Government controls e.g. the supply with basic goods such as housing, food and water, concerning justified prices and the supply at any place.

The Terran Central Bank (TCB) is independent of the government. It is responsible for protection of the currency, i.e. limits e.g. the amount of money in circulation by influencing the conditions for merchant banks. Details would lead too far away, just one more thing: Of course, the Credit is not backed by precious metals or any other matter, but derives its value exclusively from the existence of the economic system.

Today, it is theoretically possible, to survive without work. But the citizen in this case only has the government grants for life.

The system of the Wachali

The Wachali have developed a wholly different system. Based on the caste structure of their society, in which war aspects played and play an important role, there never has been something like a significant private economy.

The activity of private enterprises always has been limited to a small scale, i.e. a maximum of some dozens of employees, and never in areas that are important for war.

All other areas, as e.g. spaceship building, power supply, mineral exploitation, etc., are dominated by gigantic state-owned combines. These actually do reach the size of Terran megacorporations, and they are in hard competition among each other, although they all have the same owner, the government. The Wachali society calls for permanent challenges, duels and trials, and therefore, the economic system follows the same pattern.

There are not any government controls or support programs. The weak will vanish, and the strong will survive, that is the leitmotiv. Nevertheless, there is very few poverty among the Wachali, and there are two reasons for this: Wachali almost never will surrender themselves to their supposed fate, but they fight until the end. Therefore, they try everything, to be successful again - and often enough manage this. Secondly, family groups are important among the Wachali. Families support each other unconditionally in times of crisis, a tradition that comes from the most distant past, and that very rarely (for example during the Civil War) is interrupted. Actually, there are the usual challenges and position fights in the families as well, but a family will never allow that a member is completely left alone and does not know how to live.

Other races

The economic systems of the other races often are very different. At this place, it cannot be managed even to present them in brief. Perhaps, a future worldbook will treat this subject one day in the future. Until then, we leave this complex for the improvisation of the players and the master.

Important Organizations of the Federation

In the following, the most important government and other organizations and institutions of the Federation will be presented, for example in order to provide some ideas, where a character might have passed a part of his life.

The Space Fleet of the Federation (Federation Fleet)

The Federation is far from being a military or expansionist state. Quite the opposite, its politics always were aimed towards cooperation and mutual understanding, at least outside the Periphery... Nevertheless, history teaches us that a military force has always been necessary for survival, and still is. Just think of the Terran War, as the world government

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rapidly had to equip a Space fleet, in order to be able to stop the Wachali.

The current space fleet of the Federation is in the direct tradition of this first Terran space fleet, but also views itself at the end of a long row, that began with the sailing navies of the early past. It is a titanic organization, that consumes large parts of the Federation budget. However, the size of the territory makes it absolutely necessary to maintain a sufficient number of armed spacecraft. The peace strength of the Federation Fleet is therefore about 2,500 spacecraft, not counting the auxiliary craft and fighters, with a headcount of roughly 3 million people including the spacedock and outpost crews, but not the civilian administration. In a state of war, according to all announcements, the Fleet would be able to mobilise about ten times the number of ships and crews within some weeks. As the Federation does not have universal conscription, all crew members are volunteers, them being career soldiers as well as people with limited service periods.

Young officers are normally trained at one of the three large academies of the Fleet: Terra, Regos and Alaman III. Someone that has successfully passed such a three years training, will join active duty as a lieutenant and already had to demonstrate many of his qualities.

The Fleet is structured into various subsections. For example, there is an organization into individual fleets, which have a number (e.g. the 6th Fleet) and normally also a mission or base name (Outer Ring Fleet, Home Fleet, Northern Sector Fleet, etc.). Furthermore, there are the different service branches of the Fleet, as follows: Command section, flight deck (with fighter wings), weapons section, engines, technical corps, medical section and spacedocks. At the head of the Federation Fleet, there is an admiral of the fleet.

The main tasks of the Fleet, besides territorial defense, concern the protection of spaceship traffic, i.e. the prevention of smuggling and piracy, frequent patrols, etc.

The Planetary Armed Forces

For their protection, most member planets of the Federation maintain their own armed forces with varying size. They may range from 100 soldiers of a colonial militia or single fighter wing up plenty of divisions of ground troops and whole space fleets, depending on the size of the planet and the importance, that its government assigns for defense.

Normally, the forces consist of system-bound spacecraft and ground forces, that are rarely used outside the home system. Members of the population serve in them. Of course, the organisational structure and possibilities can be very different.

The Federation Marines (Federation guard)

The Federation Marines, also called Federation guard, are the most important military unit of the Federation besides the Federation Fleet. Its tradition is based on the marines of the Terran past such as the Royal Marines of Great Britain or the U.S. Marines.

The marines mainly consists of infantry units, but there are also divisions that are equipped with all kinds of vehicles and artillery. The peace strength is about 500,000 people. The training level and the quality of equipment are excellent, and still, there are some elite units among the Marines. Cyber implants are not rare, because many soldiers volunteer for them, at least during their service time.

Federation marines are found on board of larger ships of the Fleet, but also e.g. as guards for outposts and other ground installations. In case of war, they are used as boarding parties or as ground troops for combat missions with the task of occupation or reoccupation of planets and installations.

The Scouting Fleet (Scouts)

This is the largest non-military organization of the Federation besides the general administration. Its tasks can be described as to boldly go, where no one has gone... This means that the Scouts are responsible for space exploration. Its ships advance into unknown space and draw maps, verify old Empire maps, examine special astrophysical phenomena like black holes or dust clouds. Furthermore, they are responsible for message transports in areas that are not or almost not connected to the FTL communications grid.

Finally, a task of the Scouts is to choose and prepare planets for colonisation, to search for mineral resources and to make first contact with alien races. In this context, it should be noted that only worlds that have been authorised by Scouts are officially qualified as ready for colonisation in the Federation.

The Scouting Fleet has a headcount of about 1 million people with several thousand spaceships and bases of all kinds. Due to prudence, the ships are armed, but the emphasis is more on speed and defensive measures. The organization is structured into the communications department, the docks and bases, the cartography, the astrophysics department, the research department, the colonisation office and the first contact section.

The Special Command of the Federation Fleet

This is a small, special section of the Federation Fleet, for that most details are secret. It is a fact that the Special Command is charged with extraordinary tasks such as e.g. the exploration of the territory of "hostile" states and the testing of new technologies. The headcount shall not be higher than 10,000 people, all of them extremely qualified. Rumors about a mutant brigade occur repeatedly in the press, but could never be verified.

The Federation Para-Corps

This is one of the most extraordinary and one of the smallest units of the Federation. Founded around the year 2450, the Para Corps joins able voluntary psionics and probably also mutants into a powerful task force for all kinds of risk missions.

As usual, almost no detail information is publically available, but in general, a headcount of about 100 members can be assumed, all of them possessing the most powerful psionic abilities. The type of missions carried out is never told the public, the same applies for the true training level of the personnel. In any case, the Para Corps operates in close cooperation with the space fleet and its Special Command as well as the TSA.

The Terran Security Agency (TSA)

This is the most important secret service of the Federation, as the successor of the Terran World Governments's secret service. The tasks of the Terran Security Agency include espionage and counter-intelligence, i.e. the protection of military and official secret information of the own side as well as the procurement of respective data from the opposite side.

On all important worlds of the Federation, and of course also on those of other races, branches are maintained, usually with a civilian disguise, e.g. as trading businesses. Additionally, there is a fleet of spacecraft, that are normally designed for special missions. Disguises are very frequent. The central command is at a secret location somewhere in empty space between the stars.

Agents of the TSA are not subject to local jurisdiction of member worlds of the Federation (cf. FBI). They are normally engaged for long service periods and get an excellent training. The special agents of the TSA, which undergo a ten years training on a secret planet, are believed to be the best secret agents in the Milky Way. According to rumors, some

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of them are psionics or mutants, and in any case, cybertech if far from unusual.

The Galactic Space Patrol

The special conditions in the Periphery made it necessary that the Federation created an organization, whose only task is the protection of its interests in this region. According to the principle "no peace in the Periphery", there actually is the problem, that colonies in that area are exposed to much more threats from, well officially "pirates", but unofficially, e.g. Wachali combat units, than elsewhere, but without any possibility for the Federation to intervene directly with its space fleet – as known, this might be interpreted as "power claim of Terra" and cause negative reactions of other races.

Therefore, the Galactic Space Patrol was founded as an organization, that is explicitly open to all races and that operates relatively independent from the Federation government, but of course has great sympathy for it. The financing is made via exploitation of colonies and resources in the Periphery, as well as payments from local planets on a voluntary base.

The idea is that the patrol may in general be called by anyone that is under attack in the Periphery, regardless by whom or what. The whole thing has worked rather well until today, especially as the Federation does not maintain any "skirmishers" in the Periphery. The experience also is that the Wachali never call the patrol, probably because of their mentality.

The Space Patrol maintains a fleet of about 1,000 ships with a crew of roughly 1 million people, about 60% of them are Federation citizens or their descendants. It is structured into mission fleets, which have a number, and into service branches similar to the Federation Fleet: Command section and staff, scout units, engines, technical-scientific corps, medical section, flight deck, bases.

The police (Federation Bureau of Investigation = FBI)

A state of the size of the Federation of course requires a supranational police organisation to fight the different types of crime. This organization is the FBI, whose name has not been chosen at random, but to remind of an ancient Terran example.

The FBI may not be mixed up with the local police forces of the member worlds, which only have local authority. This means that Terran policemen may not arrest a criminal on Regos – they must ask the local police for assistance.

Therefore, the FBI exists, whose powers, however, only concern Federation laws. This means that it only pursues criminals that have violated Federation law. Examples are all crimes on board of spaceships or in outer space, crimes against Federation installations or crimes, that are ruled in the 100 basic articles of the General Criminal Law of the Federation. This includes murder, kidnapping and further capital offenses. Finally, the FBI may intervene if organised crime (see below) is concerned.

In general, the FBI maintains branches with its employees, called agents, on all worlds of the Federation. The agents have the right to arrest criminals of the above mentioned categories in the territory of any member planet and on board any spaceship that is registered in the Federation. Insofar, they are not subject to local laws concerning their possibilities to carry and use weapons and to ignore the rules for protection of privacy and the personality (e.g. inviolability of the residence), but are only bound by supranational Federation law. Furthermore, they are allowed to give orders to any local police forces, and they have limited diplomatic immunity, i.e. they may not be arrested or restricted by local authorities.

The galactic syndicate

The organised crime is a symptom, that almost any society knows, with the exception of the Loffati and one or two further races. Thus, it is no surprise that also in the 27th century, something like a galactic syndicate exists. The "squid with thousand arms" is a merger of organisations that existed in the Old and New Empire, as well as Terran ones such as the Mafia and Yakuza. It is involved in drug trading and any kinds of smuggling, controls large parts of the gambling industry and information trades, and of course also aspects like hired killing or fencing for all kinds of goods up to whole spaceships.

Organisation and structure are almost unknown, and even if the police forces succeed repeatedly in arresting entire planetary sections, it never takes long, before new faces appear. In any case, the galactic syndicate is a powerful organisation, and not a good enemy. It maintains, usually via intermediaries, even its own spaceships and has shares in many megacorporations. Additionally, there is the aspect of corruption, resulting in a certain influence on governments.

However, it should not be neglected that the "syndicate" does not always represent a uniform organisation. Fights between different factions do occur regularly, and very often such power struggles cause more victims than ten years of police investigations..

The medicine of the present

Many of the possibilities of the medicine of the 27th century have already been explained in the equipment section. Here, some additional aspects shall be treated that might play an important role.

Aging

In the following, you will find the aging tables for the various tech levels starting with TL A:

TL	DM	Shift in years
A	+ 35	+ 20
B	+ 40	+ 30
TL	DM	Shift in years
C	+ 45	+ 30
D	+ 50	+ 40
E	+ 60	+ 40
*	+ 65	+ 50

Resurrections

As mentioned, the current medicine is to some extent able to cure even death. However, this requires very quick action. If a character nachis deep-frozen after his death or put into stasis (this must happen within about two minutes after the vital functions have stopped), a resurrection in a hospital is possible. This treatment normally takes several weeks. Experiences with patients, for which the conservation was made too late, show IN losses (decay of brain tissue), memory gaps (ditto) and - in case of about more than ten minutes without conservation - a reanimation, that only produces a body, but no consciousness, i.e. a "zombie". As game rule, assume that after two minutes have passed since death, each further minute requires a std. check: HT. Each failure permanently costs one point of intelligence.

Characters, whose brain has been completely destroyed, or whose brain is missing, cannot be reanimated. This applies if the head or the brain (hit locations) have a partial LF of - threshold-LF x 5 and less.

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Cloning

The understanding of genetics is rather well developed. It can be said that major secrets of the genetic code have been deciphered insofar, as that e.g. a specific cure for diseases or the modification of cells are possible.

Additionally, there is the possibility to grow almost any organ or limb from a single cell. This even applies for brain tissue, as already mentioned in the description of the regeneration tanks. Standard growth of organs for transplants normally only requires a few days; and for example rejection problems are a thing of the past since long ago.

Of course, the next question that comes up is that of cloning entire creatures, thus growing e.g. a human from a single cell. The question is not that easy to answer, without getting lost in too many scientific details. Respective experiments have shown that it is perfectly possible to grow such a clone, and even to increase his speed of aging until adult age – down to about one year. Unfortunately, however, the resulting product is not quite what was desired: First of all, the clone does not have any memories or experiences of his own, is so to speak "blank" in the brain. Now, there might be the suggestion to provide him with the needed information by hypnotic training. However, the matter is not that easy. For some yet not understood reasons, all clones whose growth has been accelerated (but not naturally aged ones) have a potential brain malfunction, which manifests in depressions and mental disturbances, and very quickly also they show physical defects, that finally result in their death. Certain, mainly theological opinions mean, that this is due to the fact that these clones do not have a „soul“ – who knows?

For these reasons, cloning is prohibited in the Federation territory, if not to mention that their possible exploitation as slave workers would be a gross violation of the convention on the rights of intelligent life.

Brain transplants

Although it is possible to transplant organs including brain tissue, no one has yet succeeded in transferring a living brain into another body, without having the conscience disappear forever. There are no scientific explanations for this.

The thought to have a younger body grown in regeneration tank also is very tempting. Unfortunately, it cannot be realised, because the few experiments that were made always resulted in the observation that the created new cells had the same aging tendency as the originals. Apparently, we still lack some knowledge about the body functions.

Wonder medicaments

Medical research of the last centuries and the exchange with other races resulted in the development of a large row of medical drugs, some of them with surprising effects. They are introduced in the equipment section.

Xenomedicine

One of the biggest problems for the doctors of our era is the treatment of patients with a different anatomy. This already begins within the human race because of enviro-adapted members and mutants – to perform surgery on a Myrrthan, you require a powerful laser knife and a table that holds about 500 kg of weight. It becomes more difficult with other humanoid oxygen breathers, worsens in case of insectoids and reptilians and becomes almost impossible with hydrogen and chlorine breathers.

For game purposes, it must be assumed that every character that learns a medical skill, must specialise this for one race. All checks are modified as follows in case of different races:

DM	Race
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- 10	Minor deviations (e.g. non-Terran humanoids, enviro-adaptations like Martians)
- 25	Moderate deviations (e.g. enviro-adaptations like Regosians, Myrrthans)
- 40	Deviating anatomy (e.g. reptilian like Wachali)
- 60	Very different anatomy (e.g. insectoids, wholly different placement of organs)
- 80	exotic (e.g. extraordinary life conditions, several hearts, ...)
- 100	very exotic (e.g. amorphous structure)
- 120	absolutely exotic (hydrogen breathers, siliconoid body, or chlorine breathers...)

It is possible to extend the knowledge of a character to other races according to the rules for obligatory specialisations.

Important laws of the Federation

The law of the Federation is mainly based on the Terran legal tradition, and here more exactly on a synthesis of latin and anglo-saxon law. The latin law dominates, i.e. there are many written laws which are used as the base to make decisions.

In general, there are Federation laws, which are applicable in the whole territory, and the laws of individual member worlds, that only have power on their territory. Such a law may never contradict general Federation law, which includes for example the declaration of the rights of intelligent beings and the basic principles of civil and criminal law.

Psionics

In the Federation, psionic powers do not have an outright positive reputation, at least within the general public. Nevertheless, they are tolerated, and the government often makes use of them (cf. Para Corps).

Various laws have been introduced to govern the effects of psionics on the society. For example, the Telepathy in Court Act disallows the use of information as evidence in court, if this information has been obtained by telepathy or similar means. The only exception applies if the psionic ability has been used with the knowledge and consent of the subject and has been authorised by the judge. The Mind Protection Act states that unauthorised mindreading is a criminal offense. However, the problem is to prove it. In a precedence case in the year 2556, a telepath was found guilty because he had very deep knowledge of information of the plaintiff, who could document without reasonable doubt that he had never made this knowledge public.

Injuring or killing someone by using psionic abilities of course is under the same punishment as a respective offense with artificially manufactured weapons, and the use of psionic abilities is always qualified as a voluntary act (thus, it can never be negligence).

The respective laws also apply to mutant abilities. Typical punishments are fines or imprisonment. It should also be noted that the Data Protection Act of the Federation prohibits to examine a person for psionic abilities without his or her consent.

Genetics

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The attitude towards the science of genetics is quite mixed. On the one hand, especially cosmic genetics have a very good reputation, because they allow the colonisation of otherwise hostile worlds. On the other hand, many citizens are very sceptical concerning the possibilities of genetic engineering. The government had to consider this.

The law on the reproduction of cells and genotypes of 2244 prohibits any cloning of intelligent creatures as well as any cloning that uses the genes of an intelligent creature without its explicit authorisation. Furthermore, there is a right to claim respective body cells at any time. A successfully grown clone would have the status of a Federation citizen according to a respective parliamentary declaration of 2356.

The introduction of genetically modified lifeforms into the environment requires the approval of a government commission after a full scale examination.

Some remarks on the society of the Federation

The following chapter shall briefly introduce the society of the early 27th century. However, it must be said that there is not "the" society - two planets in the Federation may be as different as one in the Federation and one of the Wachali. Just think of worlds, that have been stelled by people that refuse any technology, and just other ones, that are only populated by settlers of Japanese descent, who have created some kind of mix of the ancient feudal Japan and the most recent technology.

Nevertheless, there are some common aspects, that apply for most of the worlds, at least to some extent. They shall help to get a better idea of this world of the future and shall assist the master in describing it and filling it with life.

The Mutants

As already mentioned in another section, the attitude of many citizens to the mutants and psionics is rather mixed. Usually, there is some distrust concerning their abilities. Especially mutants, whose physical appearance is very different from that of humans, are subconsciously refused. The whole thing will never be pushed to true hatred or even attacks, but reactions such as "my daughter will never marry one of them" do occur.

On the other hand, many mutants and also some psionics (the latter prefer anonymity) do have become heroes of our time or in the past, especially when they had served the government or performed other important actions.

Robots

The contemporary robots mainly are fixed and specialised machines, which are used for production, mining and in general under conditions, which are not comfortable for humans. However, these robots are far from being self-conscious or even androids, that could be thought to be humans.

The problems concerning artificial intelligence (see below) also affect robotics research. Certainly, there are humanoid robots, especially after the introduction of bio-materials, and at first glance, they could be seen as humans. However, as rare as they are, they almost do not have any independent intelligence, but only follow programmed activity patterns, such as e.g. as reception robots in a hotel, as luggage carriers, as drivers, etc.

The matter was a bit different in the Old Empire, whose technology did have knowledge of artificial intelligence as well as the ability, to create intelligent independent robots. Repeatedly, there are rumors that some of these machines have survived until today. A popular version of the story further-

more mentions that they can change their appearance and use this ability to get important positions in the society. However, we must state that this is yellow press only – there is not any kind of evidence.

Computers and information technology

Computer science is a fundamental part of modern life. Computers supervise and control, they assist and liberate the citizens of many routine tasks. Almost every house possesses a multi-functional house computer (cf. housing).

Furthermore, computers control the ground, air and space traffic, drive vehicles, control the planetary weather, and a lot more. In all settlements on more developed worlds, it is possible at any time, to use public info columns to get access to the planetary computer network, in order to search for information.

However, artificial intelligence is a different matter. While the scientists of the 21st century still believed to be on the right track, it soon turned out that the computers that were believed to be "intelligent" only possessed a virtual intelligence. Actually, they simulated intelligence and consciousness, but did not have it really. Nevertheless, the devices were more powerful than non-intelligent computers and able to operate much more flexible. Until the present day, such computers can e.g. be found in automated telephone information services, in TV networks, etc.

A new breakthrough only became visible some years ago. It had already been known for a longer time, that the Old Empire was able to manufacture true AIs, but only did this rather hesitantly, and probably none of them survived the turmoil of the Civil War. However, the examination of documents by Federation and Froydian scientists meanwhile produced a similar approach, so that it appears to be theoretically possible to create an intelligent computer. Basis requirement until now, however, is bishier a very powerful system (about factor 20), and the Federation parliament hurriedly passed a declaration according to which an Artificial Intelligence may claim the rights of intelligent creatures, i.e. may not be „owned“. Until today, according to our knowledge, only one computer of this kind has been created in a joint research project. The system is still in the "learning phase"; its further development yet cannot be estimated.

Space travel

Today, space travel has become a rather normal thing for most citizens, similar to flights in the second half of the 20th century on Terra. It is not true that every Federation citizen makes space flights on a weekly base, and there are more than enough, that never board a spaceship during their whole life. Others, however, commute regularly between two solar systems or pass more time between the stars than on planets.

Actually, it is quite safe and not too expensive, to travel through space. Most holiday trips are no longer made into other regions on one's home planet, but at least into the respective solar system, but normally farther out.

Exports and imports of interstellar kind are normal; a complicated network of connections and relationships passes through space. Industrial products to thinner populated or less developed planets, resources and agricultural goods to their purchasers, luxury and fashion goods of any kind – there are multiple possibilities.

ID cards

The standard ID document for citizens of the Federation is the ID- (identity) card. This is a card of about 3 cm x 5 cm, made of special plastics, into which small threads of a special alloy have been integrated. This special alloy creates a certain pattern under ultraviolet light; the secret of its manufacturing process shall make the cards forgery proof.

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On the ID card, there is a photograph (three-dimensional) of the owner, whose size can also be increased with a mini-holo-projector. Furthermore, his names, residence and personal identification signs as well as date of birth are readable on the card. Further information is coded, and of course, the whole card can be read by computers. On the backside, there is a special field for the signature, a fingerprint and a retina print. ID cards of the next generation shall also include a brain wave pattern.

The ID card thus serves as universal proof of ID, combining passport and other ID cards. Additionally, it can also be used for electronic payment (see below), medical visits and many other purposes. If lost, normally a replacement is available within 24 hours on most worlds.

Means of payment

Cash in the form of coins and notes, made of forgery proof materials, does still exist in the Federation, but is has lost almost all its importance. With the exception of some less developed or traditionalist worlds, which issue their own money, cash is only used for the smallest transactions (baker shop, etc.).

All other functions have been taken over by electronic cash. This card chaos of the 20th century as well as the concept of checks are things of the past. A citizen has two possible means of payment, and both use the ID card. The first option is to debit a balance that is electronically stored on the ID card (for this purpose, an element is integrated) via identity proof (touching of the test display on the back of the card with one's thumb or in case of very large amounts, a retina scan of 30 seconds), and thus to make a direct transfer of electronic cash to the partner. Main advantage of this method is that no online verification is necessary. The only danger is that theoretically someone could steal the ID card and break the code. Therefore, the second possibility, especially preferred for large amounts, is to make an online check: The ID card is put into a reader, and an ID check is made (see above). Afterwards, the device checks the balance of the home bank account and transfers the money directly to the account of the recipient. Normally, citizens will have a certain credit available as well.

Work and leisure

Typical citizens of the Federation of today have a required working time of 20 hours per week with a right of vacation ranging from 8 to 12 weeks depending on the area of business. The unions continue to exist, and not long ago, they managed to claim a six percent salary increase.

Men and women have equal rights. The salaries have a level that is high enough compared to social security grants, to motivate people to work. The unemployment rate is lower than 4 per cent, and it should be noted, that repeatedly colonial worlds search for workers with considerable effort. However, it is not for everyone to leave one's home.

In the leisure time, the Federation citizens prefer all kinds of travels, hobbies such as virtual reality (cf. entertainment), modern sports up to spaceship racing, and also more traditional activities such as family life, DIY or gardening play a role.

Schools and training

In the Federation, 10 years of school attendance are compulsory for all children. By the way, the rate of illiteracy could be reduced to less than 1 per cent on the Federation average.

The school system in public schools is identical for all people, but there also is the possibility to choose private schools against payment of school fees. After the obligatory ten years have passed, the children may add two further years to obtain a high school exam.

Universities, technical colleges and private colleges of all kinds exist as well as for example academies of the Megacorporations or of the Space fleet. Furthermore, an apprenticeship of 2 to 4 years, depending on the trade, is frequent. At present, 65% of the population have a high school exam. 35 % have a university diploma or similar qualification, 30% a college diploma or an equivalent.

Continuous training is the second central part of the described basic knowledge. Most citizens are very motivated to improve their knowledge or add new skills during their entire life. Most businesses as well as the government support them in doing so.

Entertainment

In the entertainment sector, there is a very high presence of television in its current three-dimensional or even holographic form. On the more densely populated planets, dozens of networks compete, with special programs (e.g. only football, only new, only for women, only for men) as well as with full range programs. Furthermore, there is a very popular video-on-demand service, i.e. one orders from a database, as desired for watching, and gets his personal program against respective payments.

Additionally, of course, computer communications plays an important role, i.e. entertainment by chatting with users everywhere on a planet. There still are sports events, as well as music and literature, although printed books are almost no more manufactured. Normal media are chips, and if desired, one is always able to get the whole thing printed and bound by the house computer.

Virtual reality concepts also should not be neglected. Holo projection allows to embed someone completely in a fictitious world and to make his dreams come true, without any need for data helmets or gloves. An example: roleplaying in the 27th century might mean that a group meets and the holo-projector, with computer control, then generates "real" orcs and a chaos temple...

Marriage and family

In connection with the decrease of the importance of religion (see below), also the institution of marriage has changed. Usually, there is no marriage in church, but one only makes the marriage at a government institution, choosing either an unlimited or a limited contract (5, 10 or 20 years). Divorces are relatively easy.

At present, many families live together without a marriage, at least 40 per cent in the Federation. Legally, they are wholly equal with traditionally married couples. Concerning marriages between people of the same sex, however, it must be said that such marriage contracts are not allowed in the Federation, but a special partnership contract is possible. This has the effect, that couples of the same sex do not have any disadvantages, as they happened often in the past concerning e.g. taxation or legal claims.

The average number of children per family in the Federation is 2.2 and rate of divorce is lower than 5 per cent. However, very many citizens (see above) never marry formally.

Belief and religion

The old Terran religions, such as e.g. Christianity and the Islam, have lost a lot of their significance. This development is not only due to certain wrong behaviors of their officials during the great crisis periods of the 21st century, but probably also has been caused by the psychological effects of large scale space travel and the contact with aliens.

Nevertheless, the large world religions continue to exist, although they cannot call more than 5 to 10 % of the citizen their followers. Additionally, as usual, numerous sects and cults have appeared, most of them with small to medium response, sometimes motivated by some fashion trends. In

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any case, the Federation guaranteed liberty of religion, as long as a religion does not openly negate the existence of the state, the human rights or other current law. The Pope still resides in Rome; currently, he is a Regosian. However, the celibate of the catholic church has been abolished more.

Housing

Housing in the 27th century is a bit different from that on 20th century Earth. New house types and new architecture as well as the advances of computers give access to whole new dimensions.

This begins with antigrav houses. Single buildings or whole cities no longer are found on the ground, but they hover, thanks to antigrav generators, in heights between several meters and many kilometers, partially this can even be varied if desired. For emergencies, a spare generator is compulsory; furthermore, usually powerful tractor beam projectors are installed close to such settlements.

A further concept was developed from the applications of holo-projection. This allows to give a house any chosen appearance, in the interior as well as at the outside, and if desired, this can be changed daily. Unfortunately, we yet do not command matter projection technology, so that it is not yet possible to redesign the actual house on a daily base as well.

A similar thing, but following a different idea, is the bio-house. This does not have reference to similarly named

designs of the 20th century, but it is a building made of living material, resulting in tremendous advantages: The house "lives", i.e. it radiates a lot of "emotional warmth", furthermore, it is very well insulated and in perfect harmony with nature. To some extent, such a bio-house is even able to change its interior following the wishes of its inhabitants.

Generally, it should be mentioned that the current architecture has left the idea of technological dominance behind. The trend goes towards small units and the integration into nature. The impersonal skyscraper ravines of the past almost no longer exist, at least not in this form.

Finally, the house computers must be mentioned, whose breakthrough occurs at TL 13. A typical house computer has about the same capacity as the smallest current ship computer. This system controls and supervises all activities in the house, i.e. irrigation, power supply, repairs and maintenance, light, etc. Actually, the computer is quite capable to guard the house, i.e. via sensor installations, it is informed about any events in the house or on its site. A connection to the data communication nets and TV is standard, and the computer can also e.g. perform a search for certain information, select and offer programs or news according to a preference definition made in advance, or send out messages independently. The system is operated via a keyboard, the voice or a holo-projection.

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Characters

Allowed races

The following chapter introduces the most important races in the known galaxy and treats their possible role in the game. All CP values are based on a campaign among oxygen breathers, that is mainly played in the Terran sphere of influence and in the Periphery. Otherwise, e.g. for a campaign on hydrogen worlds, the cost of hydrogen breathers would have to be increased, while all other races would suffer a disadvantage in the form of extensive life support requirements. Discounts have not been included, but only the unmodified CP cost are mentioned.

Dub

The Dub evolved from amphibious creatures, and this is not very surprising, when you have a look at their homeworld, whose surface is covered by water by 95%. They are four-limbed, upright walking creatures, that reach a height of about 1.70 meters.

A smooth, leather-like skin, that is quickly coated with a layer of slime if it gets contact with water, covers their body, that does not have any hair. Temperatures from 10 up to 30 degrees are perceived as normal, as well as a pressure of 1 atmosphere and a gravity of 0.9 g. Although Dub no longer possess any gills, they are able to stay under water for up to one hour without breathing.

Their two large eyes are placed at the sides of the skull, resulting in a large field of vision. They see in the ordinary spectrum and can be protected by a nictitating membrane, this is especially beneficial while under water.

The food includes animal as well as vegetable proteins. Besides the fact, that all Dub are excellent swimmers and divers, that love to be in the water, it is important that all female members of this race (that has two sexes) possess a more or less strong empathic talent.

The children are born alive.

The Game stats: ST-1 (-20), AP-3 (-60), nictitating membranes level 2 (20), amphibious (75), increased swimming speed: x 2 (25), breath holding Level 6 (30), nat. talent swimming (35), natural armor 1 (12), peripheral vision (40), low manual dexterity level 1 (-10). **Total:** 147 CP. Female Dub furthermore have at least empathy-5 (70), increasing their CP value to 217 CP.

Froydians

Froydians are an arachnoid (spider-like) intelligent race. They are eight-limbed creatures that normally use their two front legs as manipulators and attain a height of two and a length of three meters. At the front side of the head, two facet eyes, that can perceive the standard spectrum, are placed. Additionally, the race possesses an excellent sense of touch and sense for vibrations. However, the glands that produced spider webs are lost in the course of the race's evolution.

The race is used to a gravity of 1 g and temperatures of 15 up to 30 degrees Centigrade, as well as a pressure of one atmosphere. It breathes oxygen and feeds on animal and vegetable proteins. The main color of the chitinous armor and the legs is black.

There are two sexes, and the female Froydians are a bit larger than the males. The race is rather peaceful and is mainly concerned about science and mental advancement.

The society is organized in a very democratic manner, and the Froydians live in small life partnerships that are usually entered for a very long time.

The Game stats: DX+1 (20), AP-3 (-60), four additional Legs (20), Spider climbing Level 1 (30), Extraordinary sense

of touch-5 (65), Natural armor 6 (72), Defense-DM+10 (40). **Total:** 187 CP. Female Froydians furthermore have ST+1 (20) and HT+1 (20), increasing their CP value to 227 CP.

H'Ch-R'Harl

This race is one of the more unusual species, because it consists of hydrogen breathers. The H'Ch-R'Harl evolved under the conditions of a cold giant planet with a diameter of 50,000 kilometers and a hydrogen-nitrogen-atmosphere. They are used to a gravity of 2.5g and temperatures of 0 up to 15 degrees Centigrade. Pressure conditions of 3 to 5 atmospheres are normal for them.

These creatures have a rather sturdy appearance, stand on four legs and are relatively flat. They reach a shoulder height of about 1 meter with a width also of one meter. Two flexible arms with five fingered manipulators can grip forward as well as backwards. The eyes, two of them, are seated at the front of a flat hemisphere shaped skull. They can also see in the infrared spectrum, but generally have a very low resolution and depth perception. Instead, the sense of hearing is rather well developed.

The leather-like skin gives the H'Ch-R'Harl a very good protection against high pressure, but also against many attack forms. The race has three sexes – there is a "female" form, which gives birth to living offspring, that can be active themselves after a very short time; furthermore, there are two "male" forms, that must both be present during mating.

The type of society is a matriarchate – about one female H'Ch-R'Harl is matched by twenty males of both types, and furthermore, the females are more intelligent and creative. Fights and war were unknown for a long time, because the homeworld had enough room and food for all and the term "power" does not mean much for this race.

The Game stats:

general: increased Strength x 8 (450), ST+3 (60), HT+4 (80), natural armor 12 (144), defense-DM+10 (40), increased weight: x 2 (-40), pressure tolerance: against any higher pressure up to 5 atmospheres (40), exotic life conditions (hydrogen breathers (-150), at least 3 atmospheres pressure (-60)), different home gravity: 2.5 g (30), infravision (60), no depth perception (-25), optical perception -3 (-12), hearing bonus+3 (12), flexible arms (25). **Total:** 654 CP

a) **female:** additional IN+2 (40). CP value: 694 CP.

b) **male:** additional IN-2 (-40). CP value: 614 CP.

Krellians

One of the reptilian races, which probably is the largest group in the Milky Way besides the humanoid races, are the Krellians. This race originated on a planet with 1.6 g gravity and 1.5 atmospheres pressure, resulting in a gesturdy body appearance (1.40 m size, but rather massive body). Temperatures from 15 up to 35 degrees are perceived as comfortable.

The body is covered by dark green scales, and Krellians have one pair of arms (hands with four fingers) and legs verfügt. Krellians walk upright; they no more have any tail. As they are cold-blooded creatures, low temperatures are very dangerous for them.

Two eyes placed at the sides of the head allow for a large field of vision, and they even perceive the infrared spectrum, because they evolved from nocturnal creatures. The ears hear in the normal spektrum.

Krellians lay eggs, and two sexes exist. The society of the Krellians is patriarchal, and always the oldest (or strongest) male is the leader of his group. Consequently, the ruler is chosen for life, unless he should be vanquished in a successful challenge that must be made in accordance with strict rules.

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The race is not necessarily belligerent - not more than e.g. the Terrans, i.e. there have been internal conflicts of the race, and also later with other races, but in whole, Krellians have a desire to live in peace. Nevertheless, if they are provoked or forced, they enter some kind of "combat frenzy" - a defense reflex of their ancestors.

The game stats: Increased Strength x 4 (300), HT+2 (40), AP-3 (-60), CH-1 (-20), peripheral vision (40), infravision (60), berserk (50), natural armor 6 (72), defense-DM+5 (20), different home gravity: 1,5 g (10), increased weight: x 1,5 (-20), pressure tolerance: up to 2 atmospheres (10), "allergy" against temperatures below 5 degrees: incapacitated (paralyzed), loses 1D6 ED per turn (-100). **Total:** 402 CP.

Loffati

In spite of their very humanoid appearance, the Loffati are not directly related to the Terrans, as opposed to many other races. Their genes include 44 chromosome pairs, so that they are not automatically able to reproduce with Terrans. The anatomy, however, is very similar: They are on average 1.75 meters tall, breathe oxygen, have four rather sleek limbs - two arms and two legs, grouped in pairs - and walk upright. Two eyes are placed at the front of the skull, that is normally almost hairless. They only view in the normal spectrum. Similarly, the ears at the side of the head hear only in the normal frequency range. The placement of the inner organs is a bit different from that of humans, concerning the position of the heart (in the lower belly), the three-part lungs and some additional glands.

Loffati originate from a planet with 0.9 g gravity and a pressure that is a bit lower than that on Earth. They are used to temperatures between about 15 and 35 degrees, because their sun is a bit warmer than Terra's. The food almost only consists of vegetable proteins, because Loffati in general oppose the killing of living creatures. They can also be described as very peaceful creatures, that only fight for self-defense and that, by the way, negotiated the peace agreement in the war between the Terrans and the Wachali.

An interesting point is that almost all Loffati possess more or less strong psionic powers. Mainly, these are telepathic and empathic talents, that very probably have been one of the reasons for their peaceful behavior. However, manipulation of living matter, hypnotic or suggestive powers, antipsi talents or ESP abilities are also quite frequent. Telekinetic powers or teleportation, on the other hand, as well as matter manipulation, are about as rare as for example among the Terrans.

The society of the Loffati, that have only settled one solar system, is some kind of structured anarchy, in which there are almost no laws or regulations, because those have never been necessary. There are two sexes, and the offspring is born alive after ten months of pregnancy.

The Game stats: ST-1 (-20), IN+1 (20), CH+1 (20), self-defense only (-50), vegetarian (-5). Furthermore, possibility to purchase psionic abilities, see there. **Total:** -35 CP.

Orachans

This intelligent race, which evolved under the conditions of a 1.5-g planet with one atmosphere of pressure and temperatures around 30 degrees Centigrade, has a quite humanoid body shape, except for the skull. The head, however, reminds of a cone, that has been placed on the neck upside down. It is equipped with four facet eyes which are radically placed and thus allow 360 degrees vision. They even see in the ultraviolet spectrum. The average body height is 2 meter with rather strong build.

The dominating color is green, and the body is covered by a leathery skin. Two arms with hands with six fingers are placed as e.g. by Terrans. The food consists of animal and vegetable proteins.

Offspring is born alive after 5 months of pregnancy. There are three sexes: male, female and neuter. Neuters do not have any role in the reproductive process, but they do have the advantage that their intelligence is stable. The two fertile sexes, on the other hand, drop back into a condition that is almost only ruled by instincts, for a period of two months in a year, the mating time.

The society is organized in family groups, and the neuters have an important position. Usually, all important institutions join members of all three sexes at an equal share, so that there never is just one president, but always three.

In general, Orachans are a peaceful race, that never fought any wars among themselves. During mating time, however, they are bad tempered and almost impossible to control.

The Game stats: Increased strength x 4 (300), HT+1 (20), AP-4 (-80), 360 degrees vision (75), different home gravity: 1,5 g (10), UV-Sicht (50), two additional eyes (10), Increased weight: x 1,5 (-20). All non-neuters have the additional handicap to suffer IN-9 during two months in a year (Value: -50). **Total:** 365 CP for neuters, 315 CP for other sexes.

Sklick

This intelligent race evolved from insects. They are in average two meters tall, upright walking, six-limbed creatures (two legs, four arms) with a dark grey chitinous armor, i.e. an exoskeleton. At their skull, one notices two large facet eyes, which cover a very wide field of vision, and two antennae, which have an important role in the gesture communication. They see in the ordinary spectrum. By the way, Sklick are oxygen breathers, whose food consists of animal and vegetable proteins, which is cut using their mandibles.

Sklick are used to 1.01 g gravity and temperatures in a range from 10 to 30 degrees Centigrade as well as one atmosphere of pressure. They are distinguished into workers, drones and a queen. The latter is substantially bigger (about 4 meters) and is the only fertile female creature. The drones are almost non-intelligent; the workers are classed into various sub-groups (mere workers, that are almost non-intelligent, warriors with a certain intelligence).

In the Sklick society, there is rather few individual initiative or a thing such as creativity. Decisions are made by the Queen according to the principles derived from the experience of the race. Consequently, e.g. spaceships and buildings are simple constructions built for the purpose, and Sklick e.g. do not understand the concept of art. It will also never happen that Sklick of lower groups will develop their own ideas, so that this race is almost unsuitable as a player race.

The queen is the absolute ruler of her people. Typical are e.g. structured programs of genetic engineering with each new generation and in general optimisation attempts as well as a strictly organized life.

The Game stats:

general: Peripheral vision (40), AP-4 (-80), natural armor 5 (60), Defense-DM+15 (60), two additional arms (20).

a) **Queen:** ST+4 (80), HT+4 (80), IN+4 (80), additional natural armor 4 (48), lifespan x 2 (5), inconvenient size (-30), status Queen (70). **Total:** 433 CP.

b) **Drone:** ST+1 (20), HT+1 (20), IN-2 (-40), shorter lifespan: half (-50), status drone (0). **Total:** 50 CP.

c) **Worker:** ST+1 (20), IN-2 (-40), status worker (-10). **Total:** 70 CP.

d) **Warrior:** ST+2 (40), HT+1 (20), coordination (75), pain resistance +2 (12), status warrior (5). **Total:** 252 CP.

Terrans (humans)

Terrans are a race of oxygen breathing creatures, that has evolved on the planet Earth. They are used to a gravity of 1 g

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and a pressure of one atmosphere; temperatures between 0 and 40 degrees Centigrade can be sustained for a longer time, although the range that is perceived as comfortable and required is more that between 10 and 30 degrees.

They are four-limbed creatures, that walk upright and have two legs and two arms. These limbs are place in pairs, each arm ends in five fingered hands, which can be used for complicated tasks. Terrans have two eyes, that cannot perceived the infrared or ultra violet spectrum, two ears and usually a skull that is covered by hair on the top side. They have an internal skeleton that consists of calcium and other materials, feed on animal and vegetable proteines and reach a body height of about 1.80 meter.

Terrans have two sexes. Usually, they will give birth to one living child after 9 months of pregnancy.

All attributes of characters are based on Terrans, i.e. it costs 0 CP, to create a Terran.

Terrans do not only live on Earth, but also on many other planets. Examples for names of worlds and leagues of humans can be found at another place of this book.

Wachali

The Wachali, the very race that first dominated the Old Empire and also afterwards for a long time the events in the Milky Way, are a reptilian people, that evolved on a desert planet with 1.1 g gravity and a relatively thin atmosphere. This planet, called Wachal, orbits a small red sun. Therefore, temperatures between 0 and 50 degrees are tolerated.

Wachali are used to walk upright, and they reach about 1.70 meters of height. Their body is completely covered by a thin leathery skind made of scales, which are usually colored light brown, rarely also yellowish gelblich or greenish. They have two sexes and lay eggs, but are warm-blooded creatures. A noticeable feature besides the limbs that are grouped in pairs (two legs, two arms with six fingered hands, whose fingers are equipped with small claws) is the tail, on which the Wachali rest often and that can also be used as a weapon. The food consists of vegetable and animal products.

The two eyes, which are a bit at the sides of the skull, allow a rather wide field of vision, and a transparent membrane can cover them to protect against dangers. They only see in the ordinary spectrum.

Wachali are a very belligerent race, whose entire society has a very complex structure that is based on challenges and placement fights. Due to the bad climatic conditions on their homeworld, they fought wars against each other for food and water for a long time, before they developed space travel.

The Game stats: ST+1 (20), HT+1 (20), AP-3 (-60), natural armor 5 (60), defense-DM+5 (20), claws (20), peripheral vision (40), nictitating membranes Level 1 (10), tail with range one meter (30). **Total:** 160 CP.

Yrians

The Yrians are one of those races, for whom the question comes to mind whether the genetic similarity to Terrans really can be a coincidence. They evolved (?) on a oxygen planet of 1 g gravity and one atmosphere pressure, are used to temperatures of 10 up to 35 degrees Centigrade and feed on animal and vegetable proteines.

Up to the tiniest detail, including the chromosomes, the body structure is identical to that of the Terrans. However, there is only one current skin color: dark brown. The eyes are albino-red, probably a consequence of the sunlight, because the Yrians also possess some kind of polarisation filter.

The races has two sexes and they give birth to living children after nine months of pregnancy.

The race has established a minor stellar empire of about 25 worlds, in which it lives under autocratic principles of government and where the priests of the state cult have the most important role.

The Game stats: as Terrans, but plus polarized eyes (25). **Total:** 25 CP.

Special abilities and handicaps

Besides the usual special abilities and handicaps, the following are in general allowed for characters:

Cybertech

The science is very advanced in the ability to replace or assist body parts by electronic, mechanical or bionic constructions, in order to increase the abilities of the body. Especially soldiers of most races often use this type of improvement, most notably the Sklick.

Loffati in general oppose "artificial" parts in the body, unless they are forced to use them for medical reasons. Terrans do use Cybertech, but we are not in the situation of the Gibson- and Sterling novels, i.e. this type of surgery remains exceptional. Most of the humans of the 27th century are 100 per cent natural – just as they were born. A subconscious fear to become a "robot", lets most citizens refrain from bionic parts.

Generally, it can be assumed that bionic parts result in a DM of -5 on reactions (value -10 CP). They will mainly be encountered in case of war victims if the budget or the technological standard were not sufficient for original natural replacement organs, and among members of some special forces, mainly of megacorporations or secret services. Furthermore, there are of course some humans that think it is advantageous to „improve“ their body, and as there are not any laws against this, it is their proper decision. The other races except for the Sklick have a very similar opinion. Even the Wachali!

The table at the end of this chapter includes all current cyber modifications with their prices and further game stats. The body value losses are given for TL 13. Eachede further TL reduces them by 10%.

Mental stabilization

This is a special form of protection against psionic influence, especially telepathy and hypnosis / suggestion. Details can be found in the psionics chapter of the basic rules. It can be bought at the following levels:

Level 1: causes DM-40 on all telepathic and hypnosuggestive actions against the character. Cost: 35 CP.

Level 2: causes DM-80. Cost: 60 CP.

Level 3: causes DM-120. Cost: 80 CP.

Level 4: Full immunization against the respective psionic abilities. Cost: 100 CP.

Mental stabilizations do not impair the use of the own psionic abilities of a character.

Immunizations

It is possible to immunize characters by way of a special treatment against diseases. Such precautions are very often made mainly for colonists or astronauts.

- for 3 CP per level, **disease resistance** is possible. This is in game terms the same as the respective ability from the races chapter of the basic rules.

- for 50 CP, a character is completely **immune** against all diseases. This is the same as the respective advantage from the chapter races in the basic rules.

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Low native tech level

The character has been living on a world with a tech level that is lower than E. He is not allowed to acquire pieces of equipment with a higher tech level before the game starts, and he also may not have skills of a higher tech level.

This handicap has a CP value of -10 per tech level of difference down to TL 13, afterwards it is -20 CP per level.

Example: For TL 11, the CP value is -100 (4 x -10 plus 3 x -20). The character is e.g. not allowed to learn the spacepilot skill, and as engineer, he may only have knowledge of TL 11 or below. Furthermore, he may neither train to use laser pistols (TL 12), nor is he allowed to purchase them as starting gear.

Enviro-adapted settlers

During the Terran space colonisation, it happened often that planets were encountered, which could not be stelled outright by humans, be it due to high gravity, temperatures or radiation. In many cases, a terraforming process was seen as too complicated and time-consuming, or even impossible, but the settlers nevertheless wanted to stay - or they had to, because their ship was unable to fly further on, and they longer had any contact with Terra. This was the great hour of the Terran cosmogenetics, a science that was newly created in the 21st century.

The genes of the settlers were modified, in order to better adapt them to the new environment. The result were people, whose appearance often is very different from their Terran ancestors, but that nevertheless are closely related to them. They are generally accepted in the Terran society, except by some radicals (mainly religious movements), which think that cosmogenetics are a "sin" and thus see enviro-adapted humans as some kind of "devil's children", or that speak of a "distortion of the human race". But as mentioned, these are absolutely extreme views, and even the Terran constitution grants all Terrans and their descendants equal rights in the society.

Other races passed through similar developments, most of them caused by exterior influences. For example, it happened frequently during the Civil War, that refugees or shipwrecked were forced to colonise hostile worlds, in order to survive at all.

There are at least one hundred more or less importantly enviro-adapted races, that are known today. Further ones, however, might be living in forgotten colonies. In the following, you will find some examples for more known enviro-adaptations. They might help to develop other races. Just use the rules for alien characters as a guideline, and choose special handicaps and special abilities that are suitable for the new environment.

Spacers

Genetic engineering and the influence of cosmic radiation resulted in the development of an ethnic group, that has partially adapted to the conditions of outer space. The Spacers or Space-Humans have an appearance similar to that of Terrans, except for a transparent, but hard layer, that covers their whole body and is surprisingly flexible in some areas. This layer, which can close all body openings, if required, serves as a protection against vacuum conditions. It conserves a constant interior pressure and allows to survive in a vacuum for several hours, as simultaneously occurring processes guarantee the temperature and air supply.

For unknown reasons, the life expectancy of this people is much lower than that of their Terran ancestors, but also physical maturity is reached earlier.

The low gravity, usually even zero-gravity, to which Spacers are used (they normally do not have artificial gravity on their stations) results in lower body strength and endurance, but

also allows an almost "innate" command of their home conditions.

Mainly, Spacers live in outer space, i.e. in space stations, on asteroids or in spaceships. Only in the rarest cases, they will visit planets, because they stay is uncomfortable, if not even dangerous for them.

The Game stats: ST-5 (-100), HT-2 (-40), AP-1 (-20), nictitating membranes Level 3 (30), polarized Eyes (25), vacuum proof: 3 hours (60), nat.Talent: zero-g-training (90), shorter lifespan: half (-50), different home gravity: almost 0 g (-50). **Total:** -55 CP.

Foumanerans

As the decision to settle the planet Foumane was made, this was due to economic reasons: This small planet of only 7,500 kilometers diameter, that orbits a small old M star of the class V, nevertheless has a gravity of 1.8g, because it is full of the most precious minerals.

Because of the conditions caused by the red sun, that can produce only very few light and heat, and the almost double gravity (1.8g), a genetic adaptation of the colonists was made.

Current Foumanerans have almost perfect night vision, their large eyes already give a hint about this ability - but they are also very vulnerable against bright light. Additionally, they are of rather sturdy build - a height around 1.70 meters with powerful muscles. The leathery skin allows to conserve heat very well and also to resist low temperatures - the year average on Foumane is considerable below zero degrees Centigrade. Furthermore, a very good hearing developed.

This people will rarely be encountered on earth-like planets, because the local temperatures are uncomfortable and in the long run even dangerous for them.

The game stats: increased strength x 4 (300), ST+1 (20), increased weight x 1.5 (-20), increased home gravity: 1.8g (20), HT+2 (40), natural armor 6 (72), night vision / 2 (LI) (45), AP-1 (-20), temperature tolerance up to -50 degrees shifted (0), hearing+4 (16), exotic life conditions: temperatures below 0 degrees (-60). **Total:** 413 CP.

Myrrthans

The planet Myrrtha is probably one of the most hostile planets ever having been settled by humans, and even nowadays, one can only man kann up to heute nur staunen, wenn man of the dortigen Lebensbedingungen erfährt: This is a giant planet with 30,000 kilometers diameter, resulting in a gravity of 5 g and a pressure of two atmospheres. "Well, at least it has an oxygen atmosphere", was once the remark of a cosmic genetics specialist when asked about Myrrtha.

Actually, this probably was the only good news which the colonists got when their ship had to crash-land in the Myrrtha system without any radio contact with the rest of the galaxy. The bad news is that this planet orbits a pulsating star, i.e. a star with variable brightness. For Myrrtha, this means temperature fluctuations between -100 and +100 degrees Centigrade, with a "normal value" of about 30 degrees, in one planetary year. Please note, we are talking about the same spot on the surface, not the differences between the poles and the equator. The temperature changes furthermore result in pressure fluctuations in the atmosphere due to heating and cooling of the air, down to 0.5 atmospheres is possible, plus storms with speeds of more than 200 km/h, just not talking about egg sized hailstones and periodical showers of ultra-violet radiation.

In order to survive, a program of environmental adaptation began, possible the most ambitious one known to us. As finally, about one century later, spaceships reached Myrrtha, the colonists had developed such a pride and determination

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to vanquish this planet, that they refused to leave it, but opted to complete their adaptation program.

Current Myrrthans are about 1.50 meters tall and sturdy, hairless and have a body with the stability of steel. The eyes sit deep in the sockets. The skin color is dark gray with a faint hint of silver. The body weight is around 300 up to 350 kg, please note, under Earth conditions. This means that on Myrrtha, they weigh five times as much...

These people can be encountered almost everywhere in the Federation and, especially the armed forces struggle to get myrrthan recruits because of their unique physical attributes.

The game stats: increased strength x 32 (750), HT+5 (100), pressure tolerance up to 4 atmospheres (30), pressure tolerance up to 0.5 atmospheres (10), increased weight x 3 (-80), natural armor 15 (180), defense-DM+10 (40), different home gravity: 5 g (80), AP-2 (-40), RE+1 (20), immunity to disease (50), increased resistance time against UV radiation: x 8 (15), nictitating membranes/ 4 (40). **Total:** 1.195 CP.

Regosians

The planet Regos is, except for some small islands, completely covered by water, but at the same time very rich in useful animals and resources that can be mined under water. This resulted in its early colonisation by human settlers, and a program of environmental adaptation.

Regosians are human-sized, but they have a very smooth skin and very short hair. If they have contact with water, their body quickly becomes covered by a kind of slimy coating, and they turn out to be perfect swimmers and divers – as also their eyes are protected by nictitating membranes, and on their hands and feet, fin-like swimming skins unfold. Furthermore, this race has a double breathing system: gills and lungs.

Regosians will rarely be encountered on other planets, which are normally perceived as uncomfortably dry and dusty.

The game stats: amphibious (75), gills (60), nictitating membranes / 1 (10), increased swimming speed x 3 (50), hearing -2 (-8), **Total:** 187 CP.

Tregulonians

Similar to the settlement of Myrrtha, that of Tregulon also was the result of an emergency landing in the early colonisation period. Although the conditions on this planets are not as extraordinary as those on Myrrtha, they are not much better.

The planet is under the continuous bombardment of the radiation of a large blue-white A-III star. Its surface can mainly be described as a desert, in which the few native lifeforms had to adapt to a hot hell of radiation. The temperatures easily reach 80 degrees Centigrade!

Tregulonians are therefore able to resist radioactivity and ultraviolet light for a practically unlimited time. Their skin is dry and colored deep brown, the eyes are equipped with nictitating membranes and a natural polarisation. Furthermore, they have the ability, to live with very few liquid and to resist the high temperatures.

By the way, as contact with the planet was re-established, it turned out that Tregulon was very rich in rare elements that are needed for high technology, so that its colonisation even was increased...

The Game stats: polarized Eyes (25), temperature-tolerance up to 80 degrees (10), immunity against radioactivity (200), immunity against UV radiation (50), HT+2 (40), high endurance/ 1 (25), water requirement / 4 (25), nictitating membranes/ 1 (10). **Total:** 385 CP.

Wurbonians

Among the inhabitants of planets with considerably higher gravity, one of the main races besides the Myrrthans are the Wurbonians. Wurbon is a very beautiful world, but it is much larger than Earth, and thus, its gravity is about 3 g.

Result of the enviro-adaptation is a race of strong build (1.65 meters tall), which nowadays can be encountered almost everywhere, because they are adventurous people, that can only be described as 100% fit due to their innate advantages. The typical body weight is 180 kg under Earth conditions.

The game stats: increased strength x 8 (450), ST+3 (60), HT+4 (80), AP-1 (-20), different home gravity: 3 g (40), increased weight x 2 (-40), natural armor 12 (144), defense-DM+10 (40), **Total:** 754 CP.

Martians

The colonisation of the planet Mars in the Solar System occurred rather early, and this had two reasons: First of all, this is the only planet near Earth that is at least somehow suitable - Venus is total hell, and all others are too far away - and there was the Mars myth: No other planet ever had that much influence human imaginations, just think of the "Little Green Men".

Well, after some beginnings in closed habitation colonies, very soon a terraforming process started, and at the same time, the adaptation of the colonists began. The current Martians, how they call themselves proudly, are well adapted to the conditions: A gravity of 0.5g, temperatures around 0 degrees and an atmospheric pressure similar to that on Earth a 5,000 meters above sea-level, i.e. earth-born humans need a compressor mask. The appearance of the Martians is that of about 1.60 m tall, delicate people with noticeably swelling chest, that hints to their large lung volume. Additionally, they have a strong, rather dry skin - perfect for the desert world of Mars - and the ability, to make do with very few liquid.

Martians avoid larger stays on earth-like planets ("A hot and humid hell with high gravity"), but can be found almost everywhere in the Federation, especially, of course, on Mars-like worlds.

The Game stats: ST-2 (-40), AP-1 (-20), cold tolerance: level 1 (5), different home gravity: 0,5 g (-10), reduced breathing: / 5 (70), breath holding x 24 (10), reduced water requirement / 3 (20). **Total:** 35 CP.

Titans

Titan, a moon of Saturn, also was among the worlds of the Solar system, for which an adaptation program was started quite early. The current settlers are used to the low gravity of 0.3 g, a pressure of 0.75 atmospheres and temperatures between -50 and -30 Degrees Centigrade. Furthermore, the still present traces of ammonia and methane in the atmosphere of Titan do not affect them.

Titans very strongly resemble the Martians, but they have a light blue skin that is covered by a continuously regenerating layer of liquid, as well as eyes, which have a light intensification effect and that are protected by nictitating membranes.

Similar to Martians, Titans do not like to be on earthlike planets, where they need protective suits for survival. Instead, they colonise worlds that are similar to their home, and have developed an even stronger pride than the Martians.

The Game stats: ST-3 (-60), HT- (-20), AP-2 (-40), different home gravity: 0,3 g (-20), immunity against disease (50), temperature tolerance shifted to -50 degrees (0), immunity against ammonia and similar irritants (50), nictitating membranes Level 3 (30), reduced breathing: /2 (40), LI vision level 1(45), exotic life conditions: temperatures below 0 degrees (-60). **Total:** 15 CP.

Mutants

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One of the most important changes which confronted the Terran society in the years following the beginning of space travel, was the appearance of the first mutants. As soon turned out, they were a result of the influence of cosmic radiation, other stars and also the stay in hyperspace on the human genotype, that could not be controlled. Fortunately, mutations were rarer than feared at first, and certain countermeasures, for example in the form of better radiation shields, could be realised.

Furthermore, there were numerous cases of so-called positive mutations. Humans developed powers, that nobody had expected before, or that only played a role in SF or esoteric literature. After a lot of medical and theological discussions, and under the impact of the fact, that many other races possessed such powers and viewed them as normal, Terra also accepted its mutants.

Nowadays, it can be assumed that about one human in a group of one million possesses mutant abilities, that acutally can be used. Many others never learn about their powers, and studies say estimated number of unreported cases is about ten times as high. The different variations of mutations sometimes even result in deviating physcial appearance of the subject. At this place it must be mentioned, that there still is come kind of distrust against mutants among the population, although these have done much good for mankind. However, the distrust does not lead to expulsion or attacks.

Among other races, the situation is very similar concerning the number of mutants and the general reactions.

Mutant characters must purchase extraordinary abilities for 200 CP. Afterwards, they generally have access to all advantages from the races chapter in the basic rules, except for abilities that refer to magic. It is even possible, to purchase innate "magic" abilities, if they are linked with the modification "not magic". This could e.g. result in a mutant, that can create fire or that can modify the gravity. Powers which duplicate psionic abilities are not allowed, but they must be bought as psionic abilities.

To simulate the negative reactions, a reputation in the form of a -10-DM (-20 CP) with the note: mutant should be acquired.

PSI powers

A special form of mutant abilities, and actually not necessarily part of them at all, are the psionic abilities as special powers of the mind.

During Terran history and as the result of extensive research programs, it was discovered that the psionic abilities of Terrans can be classed in two groups. There are such, that are almost never encountered – they have been assigned to the mutations - and comparatively frequent, but usually rather weak talents such as empathy and telepathy.

Concerning the latter powers, it is asumed that about 1/1,000 of the Terrans has respective latent abilities that can be activated by suitable events or the awakening process.

This awakening procedure is one of the most important developments of the Terran medicine of the last 500 years. Details shall not be explained here. With the aid of this process, it is possible, to change a human into a psionic within a few hours, provided that he has the respective innate abilities. However, the power level of the talents is a rather random matter and almost cannot be determined in advance. As on the other hand, the procedure is very expensive, and many humans are not willing to undergo "surgery" at the brain, the portion of psionics in the society remains very low. According to current statistics, about one psionic is matched by 100,000 people without any active psionic powers. Most "awakenings" occur with volunteers of the various organizations such as the Space fleet; but there are rumors that some megacorporations also have created their own psionic teams.

The Old Empire, of course, also had knowledge of psionic sciences, and this know-how was passed to some current states. Consequently, a very similar percentage of psionic abilities is encountered among almost all races.

However, similar as in the case of the mutants, there is a certain suspiciousness against psionic powers in the population, so that many humans prefer not to have their abilities awakened or not to use them, at least not in a visible manner. By the way, various laws govern the use of psionic abilities in the society, e.g. the question, whether telepathy violates the right of privacy. More on this matter is described in another section.

The CP cost and general access to psionic abilities depend on the race. All races except the Loffati and other races, among which psionic powers are frequent, must pay CP for extraordinary abilities. The following applies in detail:

Terrans, Yrians and related races

Extraordinary abilities (50 CP) allows: telekinesis (all powers, max. level 20), manipulation of living matter (healing, heal illness, heal severe injuries; without any maximum level), telepathy (empathy, mindreading, send thoughts, mindshield, scanner; max. level 25), ESP (psionic sense, clairvoyance, clairauidence, precognition, psychometry; no maximum level), antipsi (all powers, no maximum level).

Extraordinary abilities (100 CP) allows: all powers listed above without any maximum level, as well as: teleportation (autoteleportation, exoteleportation; max. level 25), manipulation of living matter (remaining powers; no maximum level), telepathy (remaining powers, max. level 25), ESP (remaining powers; no maximum level), hypnosis/suggestion (max. level 25), animal telepathy (no maximum level).

Extraordinary abilities (200 CP) allows: all powers listed above without any maximum level, as well as all remaining powers without any maximum level. The master can define a maximum.

Loffati

No purchase of extraordinary abilities required for: telepathy (no maximum level), antipsi (no maximum level), hypnosis/suggestion (max. level 20), ESP (no maximum level), manipulation of living matter (healing, heal illness, heal severe injuries; no maximum level).

Extraordinary abilities (50 CP): all powers listed above without any maximum, as well as telekinesis (max. level 20)

Extraordinary abilities (100 CP): all powers listed above without any maximum, as well as: teleportation (auto-, exo-; max. level 25), animal telepathy (no maximum level), manipulation of living matter (remaining powers; no maximum level).

Extraordinary abilities (200 CP) allows: all powers listed above without any maximum level, as well as all remaining powers without any maximum level. The master can define a maximum.

Sklick (queens only)

Extraordinary abilities (50 CP) allows: telekinesis (all powers, max. level 15), manipulation of living matter (healing, heal illness, heal severe injuries; no maximum level), telepathy (empathy, send thoughts, mindreading, mind shield, scanner; max. level 30), ESP (psionic sense, clairvoyance, clairauidence, precognition, psychometry; no maximum level), antipsi (all powers; no maximum level).

Extraordinary abilities (100 CP) allows: all powers listed above without any maximum level, as well as: manipulation of living matter (remaining powers; no maximum level), telepathy (remaining powers, max. level 40), ESP (remaining powers; no maximum level), hypnosis/suggestion (max. level 45), animal telepathy (no maximum level).

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Extraordinary abilities (200 CP) allows: all powers listed above without any maximum level, as well as all remaining powers without any maximum level. The master can define a maximum.

Krellians, Wachali

Extraordinary abilities (50 CP) allows: telekinesis (all abilities, max. level 20), manipulation of living matter (healing, heal illness, matter walking, heal severe injuries; no maximum level), telepathy (empathy, send thoughts, mindreading, mind shield, scanner; max. level 20), ESP, Antipsi (any ability; no maximum level).

Extraordinary abilities (100 CP) allows: All powers listed above without any maximum level, as well as: teleportation (autoteleportation, exoteleportation; max. level 15), manipulation of living matter (remaining powers; no maximum level), Telepathy (remaining powers, max. level 25), hypnosis/suggestion (max. level 25), animal telepathy (no maximum level).

Extraordinary abilities (200 CP) allows: all powers listed above without any maximum level, as well as all remaining powers without any maximum level. The master can define a maximum.

Dub

No purchase of extraordinary abilities required for: empathy and send feelings (female Dub only, no maximum level).

Extraordinary abilities (50 CP): telepathy (empathy [male Dub], mindreading, send thoughts, mind shield, mind check, scanner; max. level 30), ESP (no maximum level), antipsi (max. level 25), hypnosis / suggestion (max. level 20).

Extraordinary abilities (100 CP): all powers listed above without any maximum level, as well as telepathy (remaining Powers; no maximum level), manipulation of living matter (healing, heal severe injuries, heal illness; no maximum level), animal telepathy (no maximum level).

Extraordinary abilities (200 CP) allows: all powers listed above without any maximum level, as well as all remaining powers without any maximum level. The master can define a maximum.

Froydians

Extraordinary abilities (50 CP) allows: telekinesis (all powers, max. level 30), manipulation of living matter (healing, heal illness, heal severe injuries; no maximum level), telepathy (empathy, send thoughts, mindreading, mindshield, scanner; max. level 15), ESP (psionic sense, clairvoyance, clairaudience, precognition, psychometry; no maximum level).

Extraordinary abilities (100 CP) allows: All powers listed above without any maximum level, as well as direct matter manipulation (max. level 25), manipulation of living matter (remaining powers; no maximum level), telepathy (remaining powers, max. level 25), ESP (remaining powers; no maximum level), hypnosis/suggestion (max. level 15), animal telepathy (no maximum level), antipsi (no maximum level).

Extraordinary abilities (200 CP) allows: all powers listed above without any maximum level, as well as all remaining powers without any maximum level. The master can define a maximum.

Orachans

Extraordinary abilities (50 CP) allows: telekinesis (all powers, max. level 10, manipulation of living matter (healing, heal illness, heal severe injuries; no maximum level), telepathy (empathy, send thoughts, mindreading, mind shield, mind check, scanner; max. level 30), ESP (psionic sense, clairvoyance, clairaudience, precognition, psychometry; no maximum level), antipsi (all powers; no maximum level).

Extraordinary abilities (100 CP) allows: all powers listed above without any maximum level, as well as: teleportation (max. level 25), manipulation of living matter (remaining powers; no maximum level), telepathy (remaining powers, max. level 25), ESP (remaining powers; no maximum level), animal telepathy (no maximum level).

Extraordinary abilities (200 CP) allows: all powers listed above without any maximum level, as well as all remaining powers without any maximum level. The master can define a maximum.

H'Ch-R'Harl

Extraordinary abilities (50 CP) allows: telekinesis (all powers, max. level 20), telepathy (empathy, send thoughts, mindreading, mind shield, scanner; max. level 25), ESP (psionic sense, clairvoyance, clairaudience, precognition, psychometry; no maximum level), antipsi (all powers; no maximum level), direct matter manipulation (max. level 20).

Extraordinary abilities (100 CP) allows: All powers listed above without any maximum level, as well as: teleportation (autoteleportation; max. level 25), manipulation of living matter (no maximum level), telepathy (remaining powers, max. level 25), ESP (remaining powers), hypnosis/suggestion (max. level 25), animal telepathy (no maximum level).

Extraordinary abilities (200 CP) allows: all powers listed above without any maximum level, as well as all remaining powers without any maximum level. The master can define a maximum.

The negative reactions is reflected in game terms by the purchase of a -8 reaction DM (-16 CP) with the note: psionic.

Skills

At the end of this chapter, the complete skill table for this game world is printed. In the following, some additional explanations will be given. Generally, it is allowed to learn skills of any tech level up to and including that of the home-world. Please note that skills of tech level * no longer may be learned – one of the reasons for all the problems during maintenance and repair of Imperial technology.

Additions to the skill lists

Autosuggestion(HT, IN)

This is a physical skill with learning multiplier 7, that is the result of an extended research of body and mind.

Autosuggestion enables a character to have a better control of his body, resulting in various amazing actions.

First possibility is to enter into some kind of trance. This requires a concentration of 10 seconds and a successful check. In the following trance, the character only needs 1/100 of the usual amount of air; his pulse almost cannot be felt, the same applies for his breathing. In general, a trance may last up to 8 hours, and the character can either be awakened by a mechanical irritation (e.g. alarm clock, a friend) or define a duration in advance (second check, deviations in case of failure). In order to determine that such a trance sleeper is no dead, the examining character must win a duel medicine against autosuggestion.

Second possibility is to support the resistance against psionic manipulations or in general the willpower. The character can always substitute a willpower check by a check: autosuggestion, except in the case of checks against a phobia. The same method allows to replace a check against unconsciousness or pain by a check: autosuggestion; in this

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case, however, the character must have prepared himself mentally in advance (base time 5 turns). It would e.g. be possible to prepare oneself respectively before a fight - the effect lasts for 1D6 minutes.

Finally, it is also possible, to increase one's physical performance via autosuggestion: A successful check (base time 10 turns) allows to increase the strength or the health for 1D6 turns. Each increase by one point costs 1D6 ED (HT increases do not influence LF and ED, but e.g. checks against unconsciousness).

Psionic Science (IN)

This skill with a multiplier of 4 (mental skills) reflects a training in the area of psionic theories. It is in no way related with the fact whether the character himself is a psionic. Instead, it allows to discover psionic effects, to operate devices of PSI technology and e.g. to carry out an awakening procedure.

Skill specializations

The most important skill specializations are:

Artillery weapons: cf. weapon tables

Astrogation: jump drives, PSI jumps

Etiquette: culture, e.g. Wachali, Federation, Loffati; or sub-culture, e.g. underworld, military,...

Vehicle (not complete): glider (TL A-E), heavy glider(A - E), tracked vehicles, heavy tracked vehicles, wheel cars, wheel trucks, gravbelt (C - E), small jets, large jets, small propeller planes [i.e. up to twin-engine], large propeller planes, helicopter, large helicopter, horse cart, dog sleigh, spaceboats...

Engineer: jump drive, impulse drive, fusion drive, fusion reactor, antimatter reactor, PSI technology, stasis technology, electric engines, combustion engines, fission reactor, computers, bridge building, vehicles (see below), transmitter, cybertech, force fields, hyperspace technology, antigrav

communication: normal radio, FTL radio

Space pilot: up to 100 tons, up to 100,000 tons, above

Riding: horse, camel, further creatures

Firearms: cf. weapon tables

Heavy weapon: cf. weapon tables

Speed-load: energy cells, drums, revolver, magazine, belts, black powder weapons, crossbow, grenades, loading magazines

Draw weapon: swords, knife & dagger, pistols, SMGs, rifles, thrown weapons, magazines, arrows, speed-loader, energy swords

Weapon technology: black powder weapons, catapults, cannon, protection fields, distortion shields, PSI weapons, blade weapons, other close combat weapons, energy swords, armors, shields, nuclear weapons, chemical weapons, disintegrators, gravo weapons, lasers, fusion and plasma weapons, particle accelerator, tractor beamers, sonar weapons, projectile weapons (e.g. revolvers, pistols), implant weapons

Each specialization covers ship weapon versions as well as portable versions, if these exist.

Languages

In the part of the Milky Way that is probably the most important for the campaigns, one will likely encounter at least as many different languages, as there are races, if not even more. Of course, they cannot all be presented, as many of them only play a role on a single planet or even only in a

small region on a planet. Instead, only the most important languages shall be briefly introduced.

By the way, there is not any "galactic universal language", regardless of how this should look like. Most of the time, the language of the Old Empire had this function, and has it until the present day.

Terranian

This is an artificial language that was created based on the most important Terran languages in the 21st century, in order to facilitate the communications of the humans among themselves. It resembles previous attempts of the kind, such as Esperanto, and is mainly based on the vocabulary of the local languages: germanic languages like English and German, romanian languages like French and Spanish, plus Arabic, Chinese, Russian and some others. The designers had the goal to keep grammar structures as simple as possible to get a language that is easy to learn, easy to pronounce (pronunciation is the same as the written word, without any exceptions) and that cannot be misunderstood; e.g. there are not any words with the same sound, but different meanings. There also are not any complex exception rules in grammar.

The result is an easy to learn language with attractive sounds, that is the official language of Terra and in the Federation. It is written in the classic Terran alphabet with 26 signs, plus some special signs. The learning multiplier is 1. All Federation character know this language as their native language.

Local terran languages

Most of the naturally developed languages of the planets Terra that resulted from certain historical and cultural processes exist until the present day, although many of them have almost been completely forgotten. However, there are entire regions, in which the population has conserved its language, because it is a decisive part of its identity. Furthermore, it should not be forgotten that there are whole planets, which have been settled by people of a closed ethnic group and which use their old language as the main language.

In general, any ancient Terran language may be learned, although its use in daily life will be rather limited. The learning multipliers are usually 1, in rarer cases 2 up to 4 (for more complex languages such as Chinese, Basque, Navajo).

Old Imperial

This language developed in the Old Empire from the original form of the Wachali language, with the addition of some loanwords from the dialects of other important races. It served as the official universal language of the Old Empire and still has some significance in the present, when reading of ancient documents is concerned.

Old-Imperial is relatively easy to learn and to pronounce; it uses the old Wachali alphabet with its 30 symbol signs, that will also be found on the relics of Imperial technology. The learning multiplier is 1.

New Imperial

Finally, from Old-Imperial, in the centuries after the Civil War - the whole thing had started earlier - a modified language, New-Imperial, evolved. This language is the official language of the Wachali and meanwhile also the native language of most races that once have been part of the Empire. Due to the close relationship with Old-Imperial, one saves one half of the learning cost, when already knowing Old-Imperial, and vice versa. The learning multiplier is 1. The alphabet is the same as in Old-Imperial, except for some minor deviations in the writing of the letters.

Native language for Wachali, Krellians, Dub.

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Loffatim

The ancient culture of the Loffati has succeeded to conserve their own language until the present day. Certainly, they also learn Imperial, but on their own world, Loffatim is the preferred language. The language has its own alphabet of 33 signs and is written from the right to the left.

The learning multiplier is 1. Loffati know this language as their native language.

Sklicki

The insectoid Sklick create the sounds of their language by rubbing their mandibles, additionally, they use a complex antenna gesture system. For learning purposes, this are two separate languages, and one requires a holo projector (or antennas...), respectively, a voder (voice generator). The alphabet of the Sklick consists of 18 signs.

The learning multiplier of both languages is 2; Sklick know them as their native language.

H-Ch-R'Har'H'M

This is the language of the H'Ch-R'Harl, a language with deep, humming sounds that is very strange for Terran ears, although it never leaves the normally audible frequency ranges. Outside the state of the H'Ch-R'Harl, one will probably only rarely hear this language, and there are few aliens that ever learn it. Nevertheless, it is not too complicated. Its learning multiplier is 1. The used symbol alphabet with its 2,555 signs, however, is a different matter. H'Ch-R'Harl, of course, know this language as their native language.

Froydian

The Froydians possess a language, whose sounds are created by rubbing their mandibles, resulting in grating or crackling noises. Other races can only imitate these sounds with the aid of a voder (voice generator).

The learning multiplier is 2. The language uses its own alphabet, which consists of 55 wedge-like symbols, and is the native language of all Froydians.

Further languages

Most races have conserved an ancient language in some form, or even several, for example the Krellians. However, it is often a fact that these languages do not have any practical importance or e.g. are only used for religious purposes. The master decides about details, this also applies for the languages of newly discovered races.

Reading and writing

Basic assumption for characters is, that they are able to read and write in the alphabet of their native language. Further alphabets must be purchased for respective CP payments. If a character is created as an analphabet, he gets a 25 CP credit.

In the following, you can find the cost for the learning of an alphabet, for example for alien races.

Alphabet of the Federation: 25 CP.

Alphabet of the Imperial: 25 CP.

Alphabet of the Loffatim: 25 CP.

Alphabet of the H-Ch-R'Har'H'M: 25 CP for basic knowledge (daily needs); 55 CP for complete knowledge.

Alphabet of the Froydian: 30 CP.

Alphabet of the Sklicki: 25 CP.

Social status

At this place, the social status system of the most important races shall be presented in brief. All the following assumptions are based on campaigns in Federation space. Otherwise, the CP cost must be modified respectively, so that e.g. in a pure Wachali campaign, all Wachali titles would have double cost, but all Federation titles would have half cost - because status in one of the states does not automatically mean status in another one.

The master should define a status maximum for characters, to avoid that someone grins and tells him "I am the Emperor". Furthermore, many status levels will at least let it appear logical to acquire a suitable duty, wealth or a rank.

a) Federation characters:

Nobility has ceased to play a role in the Federation already for a long time, except for the fact that nice-sounding titles may be used to show off on parties and events. Instead, status reflects one's position in society as follows, with the addition that status of almost only local importance (e.g. son of the elected king of a member world) can be bought at one third of the CP cost. The following table may serve as a guideline:

Type	CP-Value
Wanted criminals	- 50
Space tramps, non-registered citizen	- 25
ordinary citizen	0
respected citizen, such as e.g. doctors, judges, members of parliament, ...	15
local leaders of all kinds: mayor, director of the largest company in place, members of the golf club,...	50
Medium management, high-level civil employees, officers, minor celebrities	75
Higher management, government secretaries, leading officials, high officers, known movie stars, etc.	100
Type	CP-Value
Member of government, Supreme commander of the fleet, CEO of a megacorporation	150
President	200

b) Wachali:

Type	CP-Value
Criminals and clanless	- 25
Ordinary citizen	0
Governor of a city, mid-level military	20
Governor of a minor planet	30
Governor of a major planet, higher-level military	40
Governor of a region (10 worlds), fleet commander	50
Governor of a district (100 worlds)	60
Counselor of the Emperor, supreme commander of the fleet, etc.	80

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Emperor	100
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c) Sklick:

The status is already included in the racial cost, because the Sklick only distinguish between the queen, warriors, drones and workers.

d) Loffati:

Loffati do not distinguish any social status among themselves. Instead, purchase a suitable reputation.

e) Yrians:

Type	CP-Value
Criminal, heretic	- 25
Ordinary citizen	0
Priest	15
High priest of a region	35
High priest of a planet	50
High priest of the state religion and member of the Council of Wisdom	75
Supreme High Priest of the state religion	100

f) Krellians:

Type	CP-Value
Outcaste	- 25
Ordinary citizen	0
Patriarch of a settlement, a ship	20
Patriarch of a region, a fleet, a minor planet	35
Patriarch of a major planet, a minor organization	50
Type	CP-Value
Patriarch of an organization like the Space fleet; a district (about 20 planets)	75
Patriarch of the Empire	100

g) H'Ch-R'Harl:

Type	CP-Value
Outcaste, criminal	- 25
Ordinary citizen	0
Matriarch of a family	10
Matriarch of a settlement	20
Matriarch of an important settlement, mid-level military	30
Matriarch of a planet, higher-level military	40
Matriarch of a district, or the Space fleet, etc.	60
Supreme matriarch	100

Please note that only female H'Ch-R'Harl may purchase these ranks. Furthermore, all female members of this race

must buy a reaction DM+5 (from male H'Ch-R'Harl), costing 5 CP.

h) Clans:

Type	CP-Value
Outcaste (clanless)	- 25
Ordinary citizen	0
Patriarch / Matriarch of a smaller Family clan	30
Patriarch / Matriarch of a large Family clan	60

i) Dub:

Type	CP-Value
Criminal	- 25
Ordinary Citizen	0
Respected citizen (doctors, successful scientists, politicians)	8
Local head of administration (mayor, etc.)	25
Governor of a planet, commander of less important organization	35
Commander of an important organization	40
Minister, governor of a district	60
President	100

j) Froydians:

Type	CP-Value
Criminals	- 25
Ordinary citizen	0
Type	CP-Value
Respected citizen (doctors, successful scientists, politicians)	8
Local administrator (e.g. mayor)	25
Governor of a planet, commander of a minor organization	35
Commander of a major organization	40
Minister, governor of a district	60
President of State	100

k) Orachans:

Type	CP-Value
Criminal, outcaste	- 25
Ordinary citizen	0
Respected citizen of any kind	8
Local administrator	25
Governor of a planet, commander of a minor organization	35
Commander of a major organization	40
Minister, governor of a district	60

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President (one of three)	100
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For neuters, the status cost in general increases by 10%.

Patrons and enemies

Some typical organizations, that can be used as patrons or enemies of a character. Their descriptions can be found in the chapter on the states and peoples.

Any given **megacorporation** (cf. descriptions in the economy chapter): Base value 150 CP.

The **police of the Federation** (i.e. FBI): Base value 150 CP.

Local police forces of a planet: Base value 20 CP.

The **galactic syndicate**: Base value 200 CP.

The **TSA**: Base value 150 CP.

A **Clan**: Base value 30 CP up to 80 CP.

The **Empire of the Wachali**: Base value 150 CP (for a campaign in the territory of the Empire 300 CP).

Duties

It is allowed to create characters that have a duty to serve temporarily or full time in one of the large organizations of the universe. Of course, one will think first of the space fleet, the scout service and the army, but the possibilities are limitless.

Such a character will have the disadvantage that he must obey orders, and it could happen, that a whole campaign is played with fleet characters that fulfill a certain mission or several of them. In order to simulate the disadvantage of the duty, it should be defined how often this takes effect. Then, the master may send out orders every X adventures. Refusal causes the usual sanctions and penalties of the respective society (loss of ranks and titles, imprisonment, forced duty, etc.).

The following applies for the CP value of a duty:

Frequency	CP-Value
every adventure	- 50
2 adventures of three	- 25
every second adventure	- 15
Every third adventure	- 10
Chance of 10%, one roll per adventure (reserve or similar)	- 5

Members of units with especially dangerous missions (all kinds of special forces, PSI corps, etc.) are granted double the CP value.

Decorations and medals

If characters shall be designed as still active members of a military organization, it might be desired to create a character that has been awarded one or several decorations during his time of service. However, also for retired veterans, decorations would match the conception.

Decorations are an advantage that must be purchased with CP. The following paragraphs treat the Federation and the most important other peoples.

What is the effect of a decoration? Every decoration results in a certain reputation (i.e. positive reaction DM) towards other military characters, but to a limited extent also towards civilians. All CP values are to be halved in campaigns that are

not almost exclusively set in a military environment. A cumulated reaction DM from decorations can never be higher than +60 for military or +40 for other characters.

The Federation

The following decorations and medals are awarded by the space fleet and the various armed forces of the Federation as well as the scout service and the TSA. Some of them are also civilian awards. Additionally, many local decorations, which are awarded by the member planets, exist.

Blood heart

This is the official decoration for wounded fighters. It is awarded to a character that has been wounded during a combat mission while acting in a heroic manner and normally is a sign of readiness to serve and of courage.

Reaction-DM: +10 from military characters, +5 from civilians.
CP-Value: 18.

This award can be granted repeatedly. Every further blood heart has 50% of the initial cost, but only grants a further reaction DM once.

Combat badge

Combat badges are awarded to all characters, that have participated in a "true" combat mission, i.e. not training. Consequently, most military characters will have collected some, and they are of rather low importance respectively. The combat command badge is a different thing, being granted only to unit commanders of at least lieutenant or sergeant rank, that have excelled in combat. Finally, there are the combat badge and command badge with star, an award for minor merits during a combat mission.

Type	Reaction-DM Military	Civilians	CP
Combat badge	none	+ 1	1
ditto, with star	+ 5	+ 2	10
Combat command badgeabzeichen	+ 2	+ 1	5
ditto, with star	+ 10	+ 5	18

Combat badges of all four types can be awarded repeatedly. Every further badge costs 50% of the CP value, but only grants one further reaction DM.

Distinguished service badge

A small decoration, that can also be awarded for extraordinary actions of civilians, e.g. saving of shipwrecked people social engagement. Every character may only possess one distinguished service badge.

Reaction-DM: +5 from all characters. CP-Value: 10 (is not halved in a non-military-campaign).

Distinguished service medal

Similar to the distinguished service badge, the more reputed distinguished service medal is a decoration that can also be granted to civilians. It is distinguished between the ordinary medal, the great medal and the great distinguished service medal with star, the latter being the highest civilian decoration of the Federation and only very rarely awarded. Military characters get this decoration rather seldomly - about 25% of the possessors.

Type	Reaction-DM Military	Civilians	CP
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Distinguished service medal	+ 10	+ 10	20
Great "	+ 10	+ 15	28
ditto with Star	+ 15	+ 30	55

CP values are not halved, when playing a non-military-campaign. Every character may only possess one of the four awards (including the distinguished service badge), because they reflect levels and only the highest one possessed is actually worn.

Order of the comet

One of the most important military awards of the Federation is the order of the comet, that is granted in the levels bronze, silver, gold and gold with diamonds, the latter one having only been awarded four times in the entire history of the Federation!

Type	Reaction-DM Military	Civilians	CP
Bronze	+ 10	+ 5	18
Silver	+ 20	+ 10	38
Gold	+ 30	+ 15	55
Gold with diamonds	+ 60	+ 30	115

Every character can only benefit from one level of the order of the comet, because only the highest granted level is worn.

Sunstar

The most important military decoration of the Federation besides the order of the comet, being awarded already since the foundation of the Terran world government, is the sunstar, existing in the levels bronze, silver, gold, great and great sunstar with diamonds. The latter has only been awarded one hundred times in Federation history, including 81 awards during the war against the Wachali.

Type	Reaction-DM Military	Civilians	CP
Bronze	+ 10	+ 5	18
Silver	+ 20	+ 10	38
Gold	+ 30	+ 15	55
Great	+ 40	+ 20	78
Great with diamonds	+ 50	+ 25	95

Every character can only benefit from one level of the sunstar, because only the highest granted level is worn.

Spiral nebula

The third big military decoration is the spiral nebula, being granted in the levels bronze, silver, gold and gold with diamonds. The final level has a reputation and rarity similar to that of the great sunstar with diamonds.

Type	Reaction-DM Military	Civilians	CP
Bronze	+ 10	+ 5	18
Silver	+ 15	+ 10	28

Gold	+ 25	+ 15	46
Gold with diamonds	+ 49	+ 25	95

Every character may only possess one of these decorations, because the award has different levels and one always wears only the highest level possessed.

Medal of valor

The medal of valor is exclusively granted for extraordinary heroism, usually individual actions. The award is differentiated into the ordinary medal, the Great medal and the great medal of valor with corona, the latter being the highest valor award of the Federation.

Type	Reaction-DM Military	Civilians	CP
Medal of valor	+ 18	+ 5	35
Great "	+ 25	+ 10	45
ditto with corona	+ 40	+ 15	75

Every character may only possess one of these decorations, because the award has different levels and one always wears only the highest level possessed.

Wachali

The Wachali are not familiar with the concept of decorations and medals. Instead, their outstanding warriors are granted names of honor, that respectively result in a reaction-DM from all other Wachali without a differentiation between military and civilians. Thus, purchase a reputation (reaction-DM) between +5 and + 60 as described in the character creation rules, with the cost mentioned there. In a campaign, that is not exclusively played among Wachali, the CP values are divided by three, because other races cannot make much of the names of honor.

Loffati, H'Ch-R'Harl and Sklick

These races do not know any decorations or military awards. Therefore, it is also not possible to purchase such.

Yrians, Krellians, Dub, Froydians, Orachans

These races are left to the creativity of players and master, and possibly a future sourcebook.

Military and other ranks

Besides decorations, the most important aspect for members of military and similarly structured organizations are ranks in the hierarchy. It would also be possible to create a character that is a retired officer or reserve officer, resulting in half the CP cost.

Practical effect of a rank is the right to give orders to subordinates, as well as a general positive reaction from other military characters (about DM + 5 per rank level above the rank of the NPC, and in general at least + 5). Civilians also will often react positively to ranks of any type, usually with half the DM, and a maximum of +25.

In the following, the CP values of the different ranks in the most important organizations of the Federation are presented. It might be recommendable to define a maximum rank allowed for players. Furthermore, in case of very high ranks (e.g. flag officers of the fleet), a corresponding status should also be purchased in order to reflect the reputation in

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the society. For other races, we leave the details to the master.

Space fleet

Rank	CP	Rank level (for DM)
Space seaman	0	0
Petty officer, third class	6	1
Petty officer, second class	12	2
Petty officer, first class	18	3
Senior chief petty officer	24	4
Master chief petty officer	30	5
Ensign	35	6
Lieutenant junior grade	40	7
Lieutenant	45	8
Lieutenant commander	50	9
Commander	60	10
Captain	70	11
Rear admiral (L)	80	12
Rear admiral	90	13
Vice admiral	100	14
Admiral	120	16
Admiral of the fleet	150	18

Space marines / Armed Forces/ TSA

Rank	CP	Rank level (for DM)
Private	0	0
Private first class	6	1
Corporal	12	2
Sergeant	18	3
Staff sergeant	24	4
Sergeant major	30	5
Second lieutenant	35	6
First lieutenant	40	7
Captain	45	8
Major	50	9
Lieutenant colonel	60	10
Colonel	70	11
Brigadier general	80	12
Major-general	90	13
Lieutenant general	100	14
General	120	16

Scouting Fleet

Rank	CP	Rank level (for DM)
Specialist	0	0
Assistant team leader	6	1
Team leader	12	2
Assistant controller	18	3
Controller	24	4
Senior controller	30	5
Junior administrator	35	6
Administrator	40	7
Group administrator	45	8
Senior administrator	50	9
Scout commander	60	10
Scout leader	70	11
Subsector scout leader	80	12
Senior scout leader	90	13
Sector scout leader	100	14
Federation scout leader	120	16

Para-Corps

Rank	CP	Rank level (for DM)
Ensign	30	5
Second lieutenant	35	6
Rank	CP	Rank level (for DM)
First lieutenant	40	7
Captain	45	8
Major	50	9
Lieutenant colonel	60	10
Colonel	70	11
Brigadier general	80	12
Major-general	90	13

Spaceship owners

Characters can be defined as owners of an individual spacecraft that is capable for FTL travel. The normal system for determining the starting moneys is not very suitable for this purpose, because on the one hand, spaceships are very expensive goods, but on the other hand, a spaceship with a value of several millions of Credits is not as advantageous as a bank account with the same amount in cash - the flexibility and thus the potential power is much higher in the latter case.

Therefore, we propose the following system for spaceship ownership: For the payment of 50 CP, a character can be defined as spaceship owner, either with a vehicle of a value of up to 10 MCr, that is wholly owned by him, or for a vehicle with a value of up to 100 MCr, for which obligations from a

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typical loan or leasing contract (cf. space travel) must be fulfilled.

Each further CP that is paid increases these numbers by 1 MCr for owners or by 10 MCr in case of payment obligations. The master decides about upper limits as well as which vessel types are allowed for new characters.

Character names

This chapter shall assist you in giving a character a suitable name.

Terrans and their colonists have names, like we know them from the 20th century, i.e. a first name and a family name. However, combinations of e.g. typical "European" first names with for example "Asian" family names are much more frequent than in the past.

Yrians normally have two names, of which one refers to their family connections. Priests will additionally use their title. Typical Yrian names sound very similar to Oriental Terran names. Examples: Arani, Nachal, Nimalian, Nassor, Rachman, ...

Wachali have an individual name and a clan name, using the clan name as the second, preceded by the syllable Cha (for male) or Lor (for female characters). A clan leader will use the syllable Rham instead.

Typical names are very rich in consonants. The consonants c, h, t, k, r, s, l are frequent, as well as three vowels a and i. Examples: Machan Lor'Krech, Chamanni Cha'Rhakh.

Krellians have a very similar names structure; but their names sound more "flowing". The consonants l, m, n, r, s and t, often as doubles, are frequent, as well as the vowels a, i, e. A name also consists of an individual name and a clan name, but without any prefixes. Examples: Nemmadian Hellibor, Wessatina Ellorgiana.

Loffati names consist of two parts: a private name, that is only used when among very close friends and that is also kept secret from most others (informing about this name is a true sign of friendship and trust) and a single "official" name. There are not any family names. Usually, all Loffati names have three syllables and they end with a vowel in case of females and with a consonant for males. Examples: Lamira, Meldibon, Galifort.

Sklick only have one name, except for the queen, and their names are almost impossible to pronounce by other races, because they practically only consist of consonants. Examples: Klsziz, Grllkszm, Pfdrbrms.

Dub use a family name, behind which their calling name is placed. Between female Dub, it is customary to furthermore use empathic names (a type of expression of feelings that harmonizes with the personality). Classic Dub names have a quite low sound, i.e. the vowels o and u as well as stressing sounds are frequent. Examples: Nomoondon Lafahtah, Kumuhgur Nofandoon.

Froydians have, similar to the Sklick, a language that is very difficult to pronounce or understand for other races. This also has impact on their names. Each of them has only one name, but in some cases, epithets are added, which reflect the function, origin or a particularity. Examples: NChkHadhkam, RKRhchach.

Orachanische names, on the other hand, are quite easy to understand even for Terrans. They have a name structure, that respectively includes the sex in the form of the syllables Hal (male), Nib (female) or Duf (neuter) and adds the names of the ancestors until the third generation, each of them separated by the syllable Ron, that has the rough meaning of "offspring of ". Examples: Nimul Hal Ron Nafanun Ron Laware.

Names of the **H'Ch-R'Harl** are, as one can already assume based on their race name, almost not pronounceable for other races. Their typical structure consists of a main name and a tribal or family name, being separated by a dash. Examples: N'Tch-M'Dhaahl, G'Rch-K'Rethk.

Characters

In the following, you will find some ideas and possibilities how to design a character for this world. However, please only take them as ideas, not as a „must“.

Prospector

These are characters, whose daily business concerns the exploitation of mineral resources in asteroid belts or on planetary surfaces, but also e.g. the cannibalization of wrecks. Usually, they own a small spacecraft or the necessary equipment. Important attributes: dexterity, intelligence. Typical skills: zero-g-training, suitable vehicle skills, geology, mining, electronics, space pilot, protection suits. Weapon skills will never be wrong – to defend against competitors. By the way, many spacers are working in this business.

Mercenary

In a time, in which local conflicts are frequent, in which the Periphery consists of frontierless space without any laws and in which megacorporations and governments struggle for domination, there will always be work for the professional mercenary – a soldier that offers his services for money. Usually, he will be a veteran of army or navy, often well-equipped. Important attributes: strength, dexterity, health, reaction. Typical skills: weapon skills, protective suits, tactics, vehicle skills, gunner, first aid, zero-g-training, gambling. Cybertech is not too rare, mainly due to combat injuries.

Reporter

A freelance news collector / journalist that travels through the endless space, be it as a passenger or on board the own spaceship – he is always looking for hot stories for his network or any kind of customer, if he is not permanently employed. Recording devices are a must. Important attributes: intelligence, charisma. Typical skills: journalism, blather, discuss, weapons, space pilot, judge people, psychology. Language skills are beneficial, Cyber recording devices quite popular.

Free trader

The limitless space between the stars offers countless opportunities for independent businessmen. The free trader belongs to those that close the gaps between the cargo services operated by the large corporations, or he attempts to engage in speculative trading for his own account. Absolutely necessary for this character is a spaceship, usually a small freighter with lots of years of service. Free traders normally also know how to defend themselves, especially as many of them will not hesitate to start smuggling runs in order to make ends meet. Important attributes are mainly charisma and intelligence. Typical skills: space pilot, astrogation, economics, merchant, weapons, ship weapons, judge people, protective suit, languages, engineer, vehicle. Free traders normally must be able to know at least a bit of anything!

Scout

This is another character type that benefits from space travel. However, he is not a trader, but an explorer following the tradition of the great expeditions of the past. Scouts travel through space, searching for colonizable planets, whose coordinates are then handed over to customers like governments or corporations. But they also try to locate mineral resources, rare plants and animals or they simply map the galaxy. A small spacecraft is necessary for independent

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freelancer scouts. Important attributes: dexterity, intelligence. Skills: astrogation, navigation, cartography, space pilot, engineer, weapons, ship weapons, protective suits, survival, exo biology, cosmic psychology, vehicles, and many more. Often also knowledge in the low tech area.

Tramp

Not only the rich or characters with their own ships travel between the stars. The tramp is the interstellar version of the 20th century stereotype, someone that is travelling from world to world, either alone or in company. This can be as a stow-away, as a hitchhiker, or even als temporary crewman, depending on personal taste. In any case, tramps know how to get an advantage, and they often have surprising skills. Important attributes: actually, all of them. Skills: blather, gambling, hide, weapons, close combat, maybe technical skills, judge people. Luck will not be bad, low status is frequent.

Medical doctor

There is always a demand for competent doctors, be it in a merc unit, on a colony world, on board a spaceship or also as part of an adventuring party. This character is the answer: He has specialised in medicine. Important attributes: intelligence, dexterity. Typical skills: any medical skills, i.e. first aid, medicine, surgery, treat illness, poisons, even biochemistry, genetics, veterinary. Furthermore, exo biology (for the aliens), Judge people, for the emergency, a weapon skill. Medical equipment of any type is recommended. Cybertech or PSI healing powers, or even mutant powers, will be rare, but possible and beneficial.

Fleet veteran

The space fleet is one of the largest organizations and a titanic employer, and not at least, a school for life. Many characters serve for a certain time and then leave, either, because they want something else, because they were wounded, because there chances of promotion were not good enough... They are now looking for a fortune between the stars, as crew of a starship, as mercs, as... be imaginative. Attributes: intelligence, dexterity. Skills: all kind of spaceship skills, space combat tactics, tactics, zero-g-training, vehicle, weapons, First Hilfe, ... Cybertech (combat injuries!) is possible, as well as a military rank or decorations.

Manager

A character that works for one of the large corporations. He might be some kind of yuppie, but could perfectly as well be an elderly, well behaved businessman, or something completely different. He will normally have a permanent employment contract, could e.g. be on a holiday or business trip, or... Important attributes: intelligence, charisma. High status and larger amounts of cash are frequent. Skills: economics, merchant, rhetorics, administration, languages, psychology, design, plus possibly a hobby such as space pilot...

Fortune hunter

Similar to the tramp, this is a type of character that can be encountered in any world. He might be an independent pilot, vagabond, hunter or whatever, in any case, he will be someone that is able to get out of almost any kind of situation - with a benefit, of course. Attributes: especially intelligence, appearance, charisma, dexterity. Skills: gambling, weapons, blather, judge people, seduction, space travel skills, plus his specialty.

Tech

In a time, in which the technology makes many activities easier for the citizens, or even takes them entirely over, it is important to ensure that this technology works smoothly. Here is the respective specialist, a character, that understands machines as a doctor understands the human body.

Important attributes: intelligence, dexterity. Typical skills: engineer at high level, electronics, weapons engineer, communications, cybernetics, etc. It is recommended to have a specialization in one or several areas with very high skill levels. Vehicle skills and weapon skills will round the character. Cybertech is often used, as well as a good tool kit, if not even a whole shop, is vital.

"Barbarian"

As we already know, the tech levels of the known planets vary between zero and the highest level. It is now possible that a character from a low tech environment, theoretically down to stone age, travels into space for whatever reasons, resulting in special problems (his whole mindset is affected) – but also meaning that his unusual skills can turn out to be a true addition to any player group. Attributes: usually mainly physical ones. Skills: low tech, nature skills such as hunting, stealth, survival, hide, zoology, botany, first aid, more primitive weapons, running, riding, etc. Normally no modern equipment.

Scientist

Similar to the tech, but more based on theories. The scientist is working in research, i.e. he examines natural phenomena and / or attempts to develop new devices or to improve existing ones. His skills in the area of specialisation will usually be very well developed, but others be almost non-existent. Attributes: intelligence. Eidetic memory and languages are helpful. Often bad physical attributes. Skills: physics, hyperspace physics, medicine, surgery, robotics, robot psychology, cybernetics, biology, genetics, engineer, spaceship building, exo biology, chemistry, metallurgy,...

Mobster

This is a character, that has opted for the illegal sides of life to make money and have success. He might be part of the syndicate, or a freelancer, and in general could be a burglar, killer, fence or whatever. Attributes: intelligence, charisma, possibly physical ones. Status (criminal) is possible, if he is a wanted person. Skills: forgery, merchant, judge people, weapons, poisons, blather, disguise,...

Bounty hunter

Governments, in some cases also organizations or individuals, will frequently put a price on the head of a fugitive, dead or alive. This is the man or woman that delivers them! Many people react very negatively on the idea of bounty hunting, but very few have the guts to say this to a bounty hunter... Attributes: intelligence, charisma, strength, dexterity, reaction. Skills: weapons of any type, zero-g-training, protective suits, disguise, hide, vehicle, judge people, assassination. Will normally be well equipped, an own spaceship is possible.

Spy

Information is an important good in the modern society, and highly valued by governments and corporations. This character collects it, regardless of the means. Attributes: all. Skills: weapons, Protective suits, disguise, acting, imitate voices, stealth, hide, assassination, programming (for hacking), poisons, first aid, Judge people, languages. Usually very good equipment. Psionic skills or cybertech would be a valuable joker.

Bodyguard

A character that is similar to the mercenary, but with a different specialisation. He is employed for the protection of people against all types of attacks and could e.g. be a military veteran. Never forget, he has a reputation to lose - a mistake may be the last one. Attributes: all. Skills: etiquette, judge people, weapons, vehicle, Protective suits, eventuell sogar space pilot, first aid and other. Cybertech is very probable.

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Space pirate

At the very end, once again a character from the illegal side: Space with its endless room that almost cannot be guarded of course offers a very large area for all kinds of pirates, be they on board their own ship, hijackers or crew members of a corsair. Attributes: all. Skills: weapons, protective suits, zero-g-training, space pilot, space tactics, ship weapons, engineer, merchant, gambling, vehicle and many more. Often low status (criminal).

The random method

As promised, this worldbook also includes a simple procedure for the creation of characters following random allocations.

The following procedure be heartily recommended to all groups, that prefer to rely on the luck of the dice, or that do not want to invest the time for a regular character creation. Every player should only be allowed to make one attempt, and as long as he does not get a character with a calculated value that is hundreds of points lower than that of the next best one, this character should be played. After all, not the character is decisive, but what the player makes of it. "Hopeless" characters are normally not produced by this system.

The basic table

The procedure always starts with a roll with 1D100 (without the special rules of the 11, 22, 99, 100; this applies for the entire creation process) on the basic table. Once per 50 CP that would have been available for creation in the standard Omnirole system, a roll is allowed.

Roll	Result
1 - 30	Attribute change, i.e. roll on the attribute table
31 - 60	Skill allocation (see below)
61 - 90	Advantage, i.e. roll on table: inborn abilities and advantages
91 - 95	Handicap, i.e. roll on that table
96 - 100	Roll on special table

The subtables

a) Attribute table

At first, roll 1D100 to determine how many attribute values are changed:

Roll	Number of attributes
1 - 50	1
51 - 80	2
81 - 95	3
96 - 100	4

Afterwards, make the respective number of rolls with 1D10 to determine which basic attribute or other attribute is modified. The following applies:

Roll	Attribute
1	Strength
2	Health

3	Reaction
4	Dexterity
5	Intelligence
6	Charisma
7	Appearance
8	LF (i.e. L)
9	ED (i.e. E)
10	WP

Finally, a roll with 1D100 shows how the selected attribute is changed.

Roll	Effect
1 - 50	Value plus 1
51 - 80	Value plus 2
81 - 95	Value plus 3
96 - 100	Value plus 4

b) Skill allocation

On this result, the character gains skills for a value of $30 + 1D10 \times 5$ CP. This includes psionic skills, if the character possesses a psionic talent. The exact choice of skills may be left to the player (this is the same as the use of CP in the standard Omnirole method). Another possibility would be to allocate skills randomly. In this case, the skills in the list (including the psionic skills) should be numbered and suitable die rolls be used to determine a skill and its level. This would be continued until all the CP have been consumed. Details of the method (a "true" random system) are left to the master.

c) Inborn abilities and advantages

Make a roll with 1D100 and refer to the following table.

Roll	Effect
1 - 5	Night vision level 1
6 - 8	Natural protection level 1
9 - 12	Ambidextrous
13 - 14	Blindfighting level 1D3
15 - 18	Empathy, skill level 5
19 - 21	Eidetic memory, skill level 5
22 - 24	Sixth sense, skill level 5
25 - 28	Berserk
29 - 31	Language talent
32 - 40	Language, level 1D3+1
41 - 43	Rapid awakening, skill level 5
44 - 46	Time sense, skill level 5
47 - 49	Orientation, skill level 5
50 - 51	Lightning calculator
52 - 53	Natural skill talent (select randomly)
54 - 55	Pain resistance level 1D6

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56 - 57	SL +1
58 - 59	Vision + 1D6
60 - 61	Hearing + 1D6
62 - 63	Smell + 1D6
64 - 65	Taste +1D6
66 - 67	Sense of touch +1D6
68 - 76	Cybertech (roll on the table)
Roll	Effect
77 - 80	Immunity to disease
81 - 85	Disease resistance 2D6
86 - 90	Mental stabilisation level 1
91 - 96	Spaceship owner (resp. Table)
97 - 99	Decoration (roll on table)
100	Longevity

If an advantage is rolled repeatedly, it is cumulative if this is possible (e.g. all advantages that have levels). In the case of advantages for which a special skill exists, the respective skill level increases respectively.

Otherwise (e.g. longevity), simply make new rolls on the table, until a suitable result appears. All language knowledge includes knowledge of the alphabet, as long as the character is neither subject to analphabetism nor to dyslexia.

d) Handicaps

Make a roll with 1D100 and consult the following table:

Roll	Effect
1 – 20	Attribute reduction (same procedure as for increases)
21 - 25	Money /5
26 - 35	Phobia (cf. table)
36 - 45	overweight level 1
46 - 50	Dyslexia
51 - 55	Analphabetism
56 - 65	Money / 2
66 - 70	Pain weakness 1D3
71 - 75	SL-1
76 - 80	Vision - 1D3
81 - 85	Hearing -1D3
86 - 90	Smell / taste - 1D3
91 - 100	Low social status: minus one level

If a handicap is rolled that contradicts an advantage (e.g. dyslexia), the result is ignored. No new roll is made, instead, the basic table is used again. Haven't you been lucky? The same applies in the case of repeated rolling of the same handicap, with the exception of cumulative handicaps, i.e. such that have levels.

For phobias, the following table is used with 1D100:

Roll	Phobia
-------------	---------------

1 - 20	Fear of heights
21 - 40	Fear of confined spaces (claustrophobia)
41 - 60	Fear of open spaces (agoraphobia)
61 - 70	Paranoia
71 - 90	Fear of darkness
91 - 100	Severe phobia (second roll determines type)

e) Special table

Roll 1D100, and find out what fate has given you.

Roll	Effect
1 - 10	Contact (Loyalty 80, availability 80, value 80)
11 - 15	patron (cf. Table)
16 - 25	Money x 5
26 - 30	Luck + 1
31 - 40	Spaceship owner, roll on table
41 - 42	Skill inability
43 - 44	Albinism
45 - 60	Other race (table is found below)
61 - 62	Hemophilia
63 - 75	Cybertech (cf. table)
76 - 78	Decoration (cf. table)
79 - 81	PSI power (cf. table)
82 - 86	Special property (master decision, e.g. Imperial artifact)
87 - 90	High social status: plus one level
91 - 95	Immunity to disease
96 - 99	Military rank (master decides)
100	Mutant (cf. table)

Contradictory results or such that conflict with an already existing advantage or handicap lead to a new roll on the basic table. It is possible that effects are cumulative.

The subtables are as follows, always using rolls with 1D100:

f) PSI powers

Make a first roll with 1D100 to determine which psionic talent the character possesses. By the way, this procedure is mainly intended for Terrans, but may also be used for all other races, if in doubt, with some small modifications.

Roll	Group
1 - 15	Telepathy
16 - 25	Telekinesis
26 - 40	Manipulation of living matter
41 - 50	Matter manipulation
51 - 70	ESP
71 - 80	Antipsi
81 - 85	Teleportation

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86 - 95	Animal-Telepathy
96 - 100	Hypnosis / Suggestion

Afterwards, a roll with 1D100 determines the number of the talents in the group that was rolled:

Roll	Number
1 - 50	1
51 - 80	2
81 - 95	3
96 - 100	4

The exact talents in a group can be determined with 1D10. If a talent is rolled twice, the power level in the respective area is doubled. In general, the power level is 1D10; roll separately for each talent. Talents, which need other talents as prerequisites (e.g. mind check), have the consequence that the character automatically gains the respective other PSI talent at a level that at least meets the condition.

In detail, the following applies:

1) Telepathy

Roll	Power
1 - 10	Empathy
11 - 20	Send feelings
21 - 40	Mindreading
41 - 60	Send thoughts
61 - 75	Mindshield
76 - 80	Mind check
81 - 85	Mental blow
86 - 90	Sleep
91 - 100	Sensor

2) Telekinesis

Roll	Power
1 - 35	Move objects
36 - 70	Levitation
71 - 100	Shield

3) Manipulation of living matter

Roll	Power
1 - 30	Healing
31 - 60	Heal illness
61 - 75	Heal severe injuries
76 - 85	Structure transformation
86 - 90	Acceleration
91 - 100	Matter walking

4) Matter manipulation

Roll	Power
1 - 40	Pyrokinesis
41 - 80	Cryokinesis
81 - 90	Matter transformation
91 - 95	Disintegrate
96 - 100	Electrokinesis

5) ESP

Roll	Power
1 - 20	Psionic sense
21 - 35	Clairvoyance
36 - 50	Clairaudience
51 - 60	Telescopic vision
61 - 70	Microscopic vision
71 - 80	Teleoptics
81 - 90	Frequency vision
91 - 95	Precognition
96 - 100	Psychometry

6) Antipsi

Roll	Power
1 - 50	Psionic resistance
51 - 90	Neutralisation
91 - 100	Active psionic absorption

7) Animal-Telepathy

Roll	Power
1 - 70	Speak to animals
71 - 100	Control animals

8) Teleportation

Roll	Power
1 - 65	Autoteleportation
66 - 95	Exoteleportation
96 - 100	Telepsimetry

9) Hypnosis / Suggestion

Roll	Power
1 - 40	Suggestion
41 - 75	Hypnotic control

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76 - 95	Hypnotic or suggestive block
96 - 100	Hypnotic illusion

g) Cybertech-Table

Firstly, determine with 1D100, how many cybermodifications the character has.

Roll	Number
1 – 50	1
51 – 80	2
81 – 95	3
96 – 100	4

Afterwards, each individual cyber part must be determined with 1D100.

1D100	Cybertech
1 - 5	Bionic arm (ST + 1D6 , DX +1D3)
6 - 10	Bionic hand (see above)
11 - 15	Artificial muscles (ST+1D6)
16 - 17	Weapon implant
18 - 20	Bionic eyes: vision +1D6
21 - 25	Bionic eyes: LI vision
26 - 30	Bionic eyes: IR vision
31 - 35	Bionic eyes: polarized
36 - 40	Bionic eyes: UV vision
41 - 42	Bionic eyes: 360 degrees vision
43 - 45	Bionic ears: hearing +1D6
46 - 48	Bionic ears: high frequency
49 - 50	Biomonitor
51 - 52	Claws
53 - 54	Reflec armor 1D6
55 - 66	Peripheral vision
57 - 58	Nictitating membranes level 1D3
59 - 60	Bionic leg: jumping x2, SL +1
61 - 62	Blood filters level 1D6
63 - 65	Mental stabilisation level 1
66 - 70	Increased RE 1D6
71 - 74	Intelligence +1D6
75 - 78	Weapon sensor connection level 1
79 - 82	Emotio-Adapter level 1
83 - 85	Dermal armor level 1D6
86 - 88	Talons
89 - 90	Pressure tolerance level 1D3
91	Bionic heart level 1D6

92	Bionic lungs level 1D6
93	Coordination level 1
94 - 95	Micromed level 1D6
96	Perfect balance
1D100	Cybertech
97	Reflex booster 1
98	Vacuum proof level 1D3
99 - 100	Improved sense of touch

If a cyber part is rolled repeatedly, the levels are added, if possible, as long as level 10 is not exceeded. Otherwise, make a new roll on the table.

h) Spaceship table

1D100	Spaceship type
1 - 20	Free trader (Loan)
21 - 40	Scout (Owner)
41 - 60	Prospector (Loan)
61 - 75	Prospector (Owner)
76 - 90	Yacht (Owner)
91 - 100	Free trader (Owner)

Each character may only own one spaceship. If the table should have to be used more than once, the roll is repeated on the special table until a different result is obtained.

Spaceships are new craft. A crew is on board. In case of credit obligations, these have the standard term as described in the chapter space travel. The stats of the ships also can be found in the space travel chapter. Their TL will normally be the best one listed there.

All ships are fuelled and equipped with enough spare parts and life support material for 30 days.

i) Races

Make a roll with 1D100. The table is not based on the true frequency of the races in the galaxy, but on their CP value and their frequency in Federation space. The standard assumption are Terran characters.

Result	Race
1- 5	Martian
6 - 10	Titanian
11- 14	Wurbonian
15 - 20	Tregulonian
21 - 22	Myrrthan
23 - 30	Regosian
31 - 35	Spacer
36 - 45	Wachali
46 - 50	Loffati
51 - 58	Krellian
59 - 70	Yrian
71 - 85	Clan

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86 - 90	Dub
91 - 95	Orachan
96 - 100	Froydian

If a Loffati is rolled, the character will in any case be entitled to at least one roll on the psionics table. This means that if he already got a psionic power, no secons roll is made. Otherwise, however, he gets to roll on that table immediately, because Loffati are almost always psionically talented. For this roll, always telepathic abilities are assumed.

For characters with the race "Clans", there is a 10% chance that they are allowed to make one roll on the mutants table (only on the first mutants table; if in doubt, roll again), because this race undergoes intensive genetic manipulations.

j) Special possessions

Make a roll with 1D100 on the following table, to determine an object of the TL *:

Roll	Object
1 - 3	Gravo-rifle
4	Distortion shield, portable
5 - 10	FTL-communicator, portable
11 - 15	FTL-communicator, Mini-
16 - 17	Gammalaser-Pistol, light
18 - 19	ditto, medium
20 - 21	ditto, heavy
22 - 23	Gammalaser-Carbine
24 - 25	Gammalaser-Rifle
26 - 27	ditto, heavy
28 - 34	Multiscanner
35 - 47	Normal spacesuit
48 - 49	Space combat suit
50 - 51	Combat combination
52 - 57	Antipsi-Shield
58 - 62	PSI scanner
63 - 70	Artificial mindshield
71 - 80	Std-Protection field
81 - 89	Mini-Computer
90	Fictitious transmitter (0.1 ton capacity)
91 - 95	Object of living metal / plastic (determine with second roll)
96 - 99	two new rolls
100	three new rolls

k) Decoration tables

Roll 1D100 and refer to the following table for the decoration of your character.

Roll	Decoration type
1 - 10	Combat badge with Star
11 - 20	Distinguished service badge
21 - 30	Distinguished service medal
31 - 35	Great Distinguished service medal
36 - 45	Blood heart
46 - 50	Order of the comet in Bronze
51 - 55	Order of the comet in Silver
56 - 60	Sunstar in Bronze
61 - 65	Sunstar in Silver
66 - 70	Spiral nebula in Bronze
71 - 75	Spiral nebula in Silver
76 - 85	Medal of valor
86 - 90	Great Medal of valor
91 - 92	Order of the comet in Gold
93 - 95	Spiral nebula in Gold
96 - 97	Great Distinguished service medal with Star
98 - 99	Great Sunstar
100	Great Medal of valor with corona

l) Military rank:

Determine the rank level with 1D100 and choose it based on the presented branches of service.

Roll	Rank level
1 - 50	1D3
51 - 70	1D6
71 - 90	1D8
91 - 99	1D10
100	1D12

If military rank is rolled repeatedly, it is added to one total level.

m) Mutant tables:

Determine with 1D100, referring to the following table, how many mutant powers the character possesses.

Roll	Number of powers
1 - 50	1
51 - 80	2
81 - 95	3
96 - 99	4
100	5

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Afterwards, each power must be allocated by rolling 1D100 on the following table:

Roll	Power
1 - 2	Natural armor 2D6
3	Defense-DM Level 2D6
4	Amphibious
5 - 6	True night vision
7 - 8	Infravision
9	Immunity to pain
10	Poison resistance 2D6
11	Immunity to poison
12	Immunity against one PSI power
13	Immunity against all PSI powers
14 - 15	PSI allocation, but with level 2D10
16	Immunity against fire
17 - 18	Polarized eyes
19	Telescopic vision 2D6
20	Microscopic vision 2D6
21 - 22	Coordination Level 1
23	Gills (and lung breathing)
24	Jumping 1D6
25 - 26	Spider climbing 2D6
27 - 28	Fire resistance 2D6
29 - 30	Radiation resistance 2D6
31 - 32	Cold resistance 2D6
33	Does not breathe
34	Does not sleep
35	No need of food/drink
36	No unconsciousness
37	Regeneration 1D8
38	ED regeneration 1D8+4
39	No aging
40	Resurrection
41	Lifespan x 1D6
42	Regeneration of permanent damage 1D6
43	Regeneration of critical injuries 1D6
44	Immunity against metall
45	Immunity against crushing weapons
46	Immunity against cutting /impaling weapons
47	Immunity against energy
48 - 49	Increased strength 1
50 - 51	Endurance 1D6
52	Extraordinary sense of touch Level 5
53	Extraordinary sense of smell Level 5

Roll	Power
54	Pressure tolerance 2D6
55	Vacuum tolerance 1D6
56	Electrical sense Level 5
57	Flexible body
58	Shapeshift 1D3
59	Radio broadcast and reception
60	Radio reception
61	Konvertermagen
62	Strong digestion
63	Universal digestion
64	Reflec armor 2D6
65	Magnetic sense Level 5
66	Talons
67	Claws
68	Hold breath 2D6
69	360 degrees vision
70	Peripheral vision
71	Sonar Level 5
72	Perfect balance
73	Temperature tolerance 2D6
74	Ultrahearing Level 5
75	Ultraspeaking Level 5
76	Tunneling 1D3
77	Reduced unconsciousness 1D6
78	Additional LF +2D6
79	Additional ED +2D6
80	Improved manual DX 2D6
81	Nictitating membranes 1D6
82	Chameleon-Effect 1D6
83 - 100	Roll on the second table

Table II:

Roll with 1D100	Power
1 - 5	Light
6 - 10	Darkness
11 - 15	Silence
16 - 20	Walk on water
21 - 23	Detect invisible
24 - 26	Omnilingua
27 - 30	Slow
31	Temporal control
32 - 33	Gravity mastery
34 - 37	Deafness

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38 - 41	Blindness
42 - 44	Paralysis
45 - 47	Pain
48 - 51	Catalepsy
52 - 53	Stun
54 - 55	Confusion
56 - 57	Fear
58 - 60	Daze
61 - 63	Stealth
64 - 65	Rust
66 - 67	Repair
68 - 69	Enlighten
70 - 71	Rot
72 - 74	Cleaning
75 - 77	Speak to plant
78	Plant growth
79 - 80	Entangling
81	Flash
82 - 83	Predict weather
84	Weather magic
85	Dehydrate
86 - 87	Flame
88	Freeze
89	Total darkness
90	Cold-melt
91	Reduce size
92	Petrification
93 - 95	Power with t = 1 sec
96 - 97	Power with t = 0 sec
98	half ED requirement (round down)
99	Effect +1D3 levels
100	Range and duration +1D3 levels

If a mutant power with levels is rolled more than once, the levels are added. Necessary skills, if any, must be learned separately. If a power is rolled repeatedly in any other case, make a new roll on the respective mutant table.

The powers in table II are based on the respective magic spells in the basic rules. They are to be treated as inborn abilities that are not connected with magic (this is equal to the +10%-modifier in the basic rules). Range, effect and duration of such a power are treated as if it had been subject to 1d3 improvements.

Example: normally, enlighten affects up to 20 kg for one hour, has a range of one meter and reduces the weight by 10%. Let us assume that the rolls with 1D3 during character creation produced results of 2, 1, 3 and 2. Thus, the power of this mutant affects up to 20 kg for one hour, and it has four meters range and causes a 20% weight reduction.

n) Patrons

Roll 1D100 on the following table with an availability of +50.

Roll	Type of Patron
1 - 25	A megacorporation
26 - 40	TSA
41 - 60	A clan
61 - 80	The galactic syndicate
81 - 100	FBI

The patron is connected with a duty (every third adventure); unless, he has been rolled twice.

o) Additions

It is possible to vary the system, e.g. by rolling a part of a character randomly and calculating the rest with the standard method. In this case, the formula "1 roll = 50 CP" has to be applied.

All these things, however, are left to your personal taste. The random method in the presented form is just a proposal.

A problem might occur if characters with very low value (less than 200 CP) are rolled or if simply bad luck produces a character without any skills. However, this is a very bad result, because the skills are the most decisive richness of an Omnirole character. Thus, it is recommended to leave one roll on the basic table aside and, if necessary, to use it as minimum skill allocation roll.

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Table of Cybertech

Cyber part	CP-cost	Body index loss	Price / Cr	Legality
Analyzer	20	2	20.000	9
Arm, bionic	variabel	15	variabel	9
Eyes, vision bonus	4 per Level	1	10.000 per Level	9
Eyes, polarized	25	1	10.000	9
Eyes, UV sight	100	1	65.000	9
Eyes, telescopic vision	6 per Level	1	20.000 per Level	9
Eyes, microscopic vision	5 per Level	1	20.000 per Level	9
Eyes, camera	5	5	5.000	9
Eyes, data monitor	2	1	5.000	9
Eyes, retina memory	40	1	100.000	5
Eyes, video reception	5	1	10.000	9
Eyes, bionic	5	2	30.000	9
Eyes, light intensification	25 + 15 x Level	1	25000 per Level	9
Eyes, Infravision	55	1	40.000	9
Leg, bionic	variabel	15	variabel	9
Biomonitor	5	0,5	5.000	10
Blood filters	3 per Level // 60	20	5.000 per Level // 100.000	9
Chip socket	5	2	3.000	9
Cortex bomb	- 50	6	100.000	5
Cyberjaws	25	5	25.000	7
Data jack	5	2	3.000	9
Data filter	- 10	3	3.000	9
Data lock	6 per Level	3	1.000	9
Decker interface	10 x Level ² +50 (max. Level 10)	Level ² x 2 (max. 10)	Level ² x 25.000 + 50.000	7
Pressure tolerance	9 per Level // 90	1 per Level	20.000 per Level // 400.000	9
Drugpack	1 or up to - 10	1	2.500	7
Emotional adapter	Level ² x 10 + 25	Level ² +5 (max. 30)	Level ² x 5.000 + 10.000	9
Skillsoft	Cp-Value/2	-	5.000 per CP	9
Fixed exoskeleton	16 per Level	20	20.000 + 15.000 per Level	9
Radio (head)	10	5	variabel	9
Cyber holster	1 per kg	3 / kg	1.000 per kg	7
Cyber holster in cyberlimb	1 per 2 kg	-	500 per kg	7
Increased Reaction	20 per Level	3 per Level	20.000 per Level	7
Increased Intelligence	20 per Level	3 per Level	25.000 per Level	9
Poison reservoir	20	1	30.000	6
Hand, bionic	variabel	5	variabel	9
Dermal armor	20 per Level	Level +5 (max. 50)	10.000 per Level	7
Head memory	2 per Level	0,5 per Level	10.000 per Level	9
Gills	0 // 55	5	5.000 // 20.000	9

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Bone lacing	2 per Level	Level +2	10.000 per Level	9
Converter stomach	130	15	100.000	9
Coordination	70 per Level	10 per Level	100.000 per Level	7
Claws	20	2	20.000	6
Bionic heart	20 per Level	15	10.000 per Level	9
Bionic lungs	20 + Level x 8	30	30.000 + 6.000 per Level	9
Bionic stomach	50	15	50.000	9
Bionic muscles	16 per Level	10 + 2 x Level	20.000 per Level	8
Loudspeakers	5	2	5.000	
Air filter	3 per Level // 60	15	5.000 per Level // 100.000	9
Air tank	10 per Level	1 per Level	5.000 per Level	9
Micromed	40 + Level x 4	10	20.000	7
Nose, bionic	5	2	10.000	9
Nose, smell bonus	2 per Level	1	5.000 per Level	9
Nose, smell filter	5	1	2.500	9
Nose, dog's	35, Difficulty 5	2	50.000	9
Nictitating membrane	10 per Level	1	5.000 per Level	9
Ears, hearing bonus	4 per Level	1	7.500 per Level	9
Ears, bionic	5	2	20.000	9
Ears, low frequency	15, Difficulty 3	1	25.000	9
Ears, high frequency	15, Difficulty 3	1	25.000	9
Cyber part	CP-cost	Body index loss	Price / Cr	Legality
Ears, damper	10	1	5.000	9
Ears, recorder	10	3	5.000	9
Armor (cyberlimb)	2 per Level	-	500 per Level	7
Perfect balance	48	5	50.000	9
Peripheral vision	38	4	40.000	9
Reduced sleep	15 + Level x 10 (max. Level 6)	5	10.000 per Level	9
Reflec armor	8 per Level	Level / 2 + 5 (max.25)	5.000 per Level	7
Reflex booster	10 x Level ² + 50 (max.Level 10)	20 + Level x 5	100.000 + Level ² x 25.000	7
360 degrees vision	70	5	100.000	9
Talons	60	5	50.000	6
Sting	25	1	25.000	6
Synthesizer	25	5	25.000	9
Telephone (head)	5	5	5.000	10
Temperature tolerance	9 per Level	1 per Level	10.000 per Level	9
Clock	30	1	1.000	10
Ultrasonic speech	30, Difficulty 5	5	40.000	
Independent eyes	25 per Level	1	30.000 per Level	9
Vacuum proof	15 per Level // 170	15	50.000 per Level // 1 MCr	9
Improved sense of touch	35, Difficulty 5	5	30.000	9
Advantage chip	CP-Value/ 2	-	5.000 per CP	9
Weapon sensor connection	Level ² x 25 + 25	6	Level ² x 10.000 + 10.000	7

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Weapon mount (cyberlimb)	10	-	10.000 + Waffenpreis x 3	6
Weapon implant	10	variabel	20.000 + Waffenpreis x 4	6
Additional LF	10 per Level	1 per Level	10.000 per Level	9
Additional ED	10 per Level	1 per Level	10.000 per Level	9

Variable prices:

Bionic Arms: Base price 50.000 Cr plus 15.000 Cr per +1 Strength plus 15.000 Cr per +1 Dexterity (Cost per Arm)

Bionic Hands : Base price 15.000 Cr plus 5.000 Cr per +1 Strength plus 5.000 Cr per +1 Dexterity (Cost per Hand)

Bionic Legs: Base price 50.000 Cr plus 25.000 Cr per +0,5 Speed level plus 100.00 Cr per Doubling of jumping distances (Cost per Leg)

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Table of skills

Skill	Difficulty	Learning table	Attributes	TL	Notes
Accounting	2	2	IN	5- E	imp.: Economics/ 4, Mathematics / 4
Acrobatics	4	1	DX, RE	0 - E	
Acting	2	2	IN, CH, AP	2 - E	
Administration	1	2	IN, CH	6 - E	
Agriculture [TL]	1	2	IN, DX	1 - E	
Alchemy	5	2	IN, DX	3 - 7	
Anthropology	3	2	IN	2 - E	
Archeology [TL]	3	2	IN, DX	8 - E	imp.: History/ 4
Architecture [TL]	3	2	IN	1 - E	
Artilleryman [TL]	3	2	IN, DX	8 - E	
Assassinate	4	1	DX, ST	0 - E	
Astrogation [TL]	4	2	IN	13 - E	
Astrology	3	2	IN, CH	1 - E	
Astronomy [TL]	2	2	IN	6 - E	imp.: Physics / 3, Astrology / 5
Balance	1	1	DX, RE	0 - E	
Biochemistry [TL]	5	2	IN	9 - E	Req.: Chemistry ;imp.: Chemistry / 6
Blacksmith [TL]	2	1	DX, ST	2 - E	
Blather	2	2	CH, AP	0 - E	imp.: rhetorics/ 4
Boat [TL]	2	2	DX, IN	2 - E	
Botany	2	2	IN	0 - E	imp.: Herbalism / 3
Calligraphy	2	2	DX, IN	5 - E	imp.: Painting / 4
Carousing	1	2	CH, AP, IN	0 - E	
Chemistry [TL]	3	2	IN, DX	7 - E	
Climbing	1	1	DX	0 - E	
Communications [TL]	2	2	DX, IN	6 - E	imp.: sensors/ 4
Consume alcohol	2	1	HT	0 - E	
Cook	1	2	DX, IN	1 - E	
Cosmic psychology	3	2	IN, CH, AP	A - E	imp.: Psychology/ 4
Criminology [TL]	2	2	IN, DX	9 - E	
Cross country racing	1	1	DX	0 - E	
Cybernetics [TL]	5	2	IN, DX	12 - E	
Dancing	1	2	CH, IN, DX	0 - E	
Design [TL]	2	2	IN	9 - E	
Didactics [TL]	2	2	IN, CH	0 - E	
Discuss	4	2	IN, CH	1 - E	
Disguise [TL]	2	2	IN, DX, CH	2 - E	
Diving	2	1	DX, HT	0 - E	
Dodge	4	1	DX, RE	0 - E	
Draw weapon [spec]	2	1	DX, RE	0 - E	
Economics	3	2	IN	5 - E	imp.: merchant/ 5
Electronics [TL]	3	2	DX, IN	9 - E	imp.: Engineer / 4
Engineer [TL] [spec]	4	2	DX, IN	1 - E	
Escape	2	1	DX, IN	0 - E	
Etiquette [spec]	2	2	IN, CH	0 - E	
Exo biology [TL]	3	2	IN	A - E	imp.: zoology/ 4, botany/ 4
Explosives [TL]	2	2	DX, IN	7 - E	
Fight on horseback	2	1	special	2 - E	Req.: Riding
First aid / heal wounds[TL]	2	2	DX, IN	0 - E	imp: Medicine
Fishing [TL]	1	2	DX, IN	0 - E	
Forgery [TL]	3	2	DX, IN	2 - E	
Gambling	2	2	DX, IN	2 - E	
Genetics [TL]	5	2	IN	10 - E	Req.: Biochemistry; none imp.
Geology [TL]	2	2	IN	8 - E	imp.: Mining/ 5
Goldsmith/ jeweler [TL]	2	2	DX, IN	3 - E	
Heavy armor fighting [TL]	2	1	DX, ST	2 - E	
Heraldry	2	2	DX, IN	4 - E	
Herbalism	2	2	IN, DX	0 - E	imp.: botany/ 3
Hide	2	2	DX, IN	0 - E	
History	2	2	IN	2 - E	imp.: Archeology/ 5
Hunting	2	2	DX, IN	0 - E	
Hyperspace physics	5	2	IN	A - E	Req.: Physics; none imp.
Hypnosis	5	2	IN, CH	0 - E	

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Imitate voices	3	2	IN, CH, DX	0 - E	
Improvisation	3	1	all	0 - E	
Interrogation [TL]	1	2	IN, CH	0 - E	
Journalism	2	2	IN, CH	4 - E	Req.: read/ write
Judge people	2	2	IN	0 - E	imp.: Psychology/ 3
Jumping	1	1	DX, ST	0 - E	
Knots and ropes	1	2	DX, IN	1 - E	
Law	3	2	IN, CH	2 - E	
Leadership	2	2	CH, IN	0 - E	
Leatherworking [TL]	1	2	DX, IN	0 - E	
Listening	2	2	IN	0 - E	
Lore	1	2	IN	0 - 5	
Mapping [TL]	2	2	DX, IN	2 - E	imp.: Navigation/ 5
Marksmanship [spec]	4	1	special	1 - E	
Mathematics	2	2	IN	2 - E	
Medicine	5	2	DX, IN	2 - E	imp.: First aid / 4
Memory	2	2	IN	0 - E	
Merchant	3	2	IN, CH	2 - E	imp.: Economics/ 4
Metallurgy [TL]	2	2	DX, IN	3 - E	imp.: Chemistry/ 4
Mining [TL]	2	2	DX, IN, ST	2 - E	imp.: Geology/ 4
Mounted bowman	2	1	special	1 - E	Req.: bow, riding
Musical instrument [spec]	1	1	IN, CH, AP	0 - E	
Nature knowledge [TL]	2	2	IN	2 - E	
Navigation [TL]	3	2	IN	2 - E	imp.: Orientation/ 4
Nuclear physics [TL]	5	2	IN	11 - E	Req.: Physics; no imp.
Occultism	2	2	IN, CH	0 - E	
Open locks [TL]	2	2	DX, IN	3 - E	imp.: Traps/ 6
Orientation	2	2	IN	0 - E	imp.: Navigation/ 4
Painting	1	1	DX, IN	0 - E	
Parachuting[TL]	2	1	DX, IN	8 - E	
Perception	3	2	IN	0 - E	
Photography [TL]	1	2	DX, IN	8 - E	
Physics [TL]	2	2	IN, DX	2 - E	Req.: Mathematics
Pickpocket	3	1	DX, RE	0 - E	
Plastics [TL]	2	2	IN, DX	8 - E	
Poetry	2	2	IN, CH	0 - E	
Poisons [TL]	2	2	DX, IN	0 - E	imp.: Chemistry/ 5, Medicine / 5
Politics	3	2	IN, CH	2 - E	
Pottery	1	2	DX, IN	1 - E	
Programming [TL]	1	2	IN	11 - E	imp: Cybernetics/ 5
Protective suits [TL]	2	1	DX, IN	11 - E	
Psychology	4	2	IN, CH	7 - E	imp.: Judge people / 5
Pursuit	2	2	DX, IN	0 - E	imp.: Hunting/ 5
Recruiting	2	2	IN, CH	0 - E	imp.: Psychology / 4
Regional knowledge [spec]	1	2	IN	0 - E	universal in native region
Research	2	2	IN	2 - E	Req.: read/ write
Rhetoric	2	2	CH, IN, AP	2 - E	imp.: Blather / 4
Riding [spec]	1	1	DX	1 - E	
Robot psychology [TL]	5	2	IN	A - E	Req.: Robotics; imp.: Robotics/ 6
Robotics [TL]	4	2	IN, DX	A - E	Req.: Electronics; imp.: Electronics/ 6, Cybernetics / 4
Rowing	1	1	DX, ST	1 - E	
Running	3	1	DX, HT	0 - E	
Scuba diving [TL]	2	1	DX, IN	6 - E	
Sculpture	2	1	DX, IN	0 - E	
Seamanship [TL]	1	1	DX, IN	2 - E	
Seduction	1	2	AP, CH	0 - E	
Sensors [TL]	2	2	DX, IN	10 - E	imp.: Communications/ 4
Shipbuilding [TL]	3	2	IN, DX	2 - E	
Singing	1	1	IN, CH	0 - E	
Skiing	1	1	DX	1 - E	
Sleigh	1	1	DX, IN	1 - E	
Sleight of hand	3	1	DX, IN, RE	0 - E	imp.: Pickpocket / 5
Smell / taste	3	2	IN	0 - E	
Space pilot [TL] [spec]	3	1	IN, DX	13 - E	
Space tactics	3	2	IN, CH	13 - E	imp.: Tactics/ 3
Speed-load [TL] [spec]	2	1	DX, IN	4 - E	
Stealth	2	1	DX	0 - E	

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Steer ship [TL] [spec]	2	1	IN, DX	2 - E	
Steward	2	2	IN, CH	5 - E	
Stoneworking [TL]	2	1	IN, ST, DX	0 - E	
Streetwise	2	2	IN, CH, AP	2 - E	
Surgery [TL]	5	2	IN, DX	3 - E	Req.: Medicine; imp.: Medicine / 4
Survival [spec]	1	2	IN, DX, HT	0 - E	
Swimming	1	1	DX	0 - E	
Tactics	3	2	IN, CH	0 - E	
Taylor	1	2	DX, IN	1 - E	
Terrain knowledge	2	2	IN	8 - E	
Theology	2	2	IN	2 - E	
Throwing	4	1	ST, DX	0 - E	
Tracking	2	2	IN	0 - E	imp.: Hunting/ 5
Train animal	2	2	DX, IN	0 - E	
Train horse	2	1	DX, IN	0 - E	Req.: Riding; imp.: Riding/ 6
Traps [TL]	3	2	DX, IN	0 - E	imp.: Open locks/ 6
Treat illness [TL]	3	2	IN, DX	0 - E	imp.: Medicine/ 4
Two handed combat [spec]	5	1	special	0 - E	
Vehicle [TL] [spec]	2	1	DX, IN	1 - E	
Ventriloquism	2	1	IN, CH	0 - E	
Veterinary [TL]	4	2	DX, IN	9 - E	imp.: Medicine/ 3
Water combat	2	1	special	0 - E	Req.: Swimming
Weapon mastery	10	1	special	0 - E	
Weapon technology [TL] [spec]	3	2	DX, IN	0 - E	imp.: Weapon skill/ 6
Woodworking	1	1	DX, IN	0 - E	
Zero g training	2	1	IN, DX, RE	11 - E	
Zoology	2	2	IN	0 - E	imp.: Hunting/ 5

Table: Weapon skills:

Skill	learn- ing	Learning table	TL	Notes
Crossbow	2	1	4 - E	
Artillery weapons [TL] [spec]	3	1	3 - E	
Blowpipe	2	1	0 - E	
Bow	3	1	1 - E	
Bolas	2	1	1 - E	
Buckler / Main-gauche	2	1	2 - E	
Boxing	2	1	0 - E	
Axe	2	1	0 - E	imp.: two handed axe/ 4, club / 4
Swords	3	1	2 - E	imp: shortsword/ 4, two handed sword/ 3
Fencing	3	1	4 - E	
Flails	3	1	2 - E	
Polearms	3	1	3 - E	
Quarterstaff	4	1	1 - E	
Club	1	1	0 - E	imp.: axe/ 3
Shortsword	2	1	2 - E	imp.: sword/ 3
Lance	2	1	2 - E	imp.: spear/ 4, if riding
Lasso	2	1	1 - E	
Net	2	1	1 - E	
Whip	2	1	1 - E	
Wrestling	3	1	0 - E	
Shields	2	1	1 - E	
Sling	3	1	1 - E	
Guns [TL] [spec]	2	1	6 - E	
Heavy weapons [TL] [spec]	3	1	6 - E	
Spearthrower	2	1	1 - E	
Spears	2	1	0 - E	imp: lance/ 4
Knives	1	1	0 - E	
Unarmed combat [Judo or Karate]	3	1	1 - E	
Throwing axe	2	1	0 - E	
Spear throwing	2	1	0 - E	
Thrown weapons	2	1	1 - E	

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Two handed axe	3	1	0 - E	imp.: axe/ 4
Two handed sword	4	1	3 - E	imp.: sword/ 4

Starborne : Equipment

Equipment

Starting money

Of course, different currencies are in use in the Milky Way, on average one per more or less important race, which possesses a separate state. Furthermore, there are also colonies that produce their own money.

The most important currency for the players will likely be that of the Terran Federation. This currency is the Credit (Cr). Credits are accepted on all worlds of the Federation, and also on most independent ones or those belonging to other races. Of course, the exchange rates will vary, but that is quite normal.

Very large amounts are also expressed in KiloCredit (KCr), MegaCredit (MCr) or even GigaCredit (GCr), in order to have to write less zeros. Similarly, there is the CentiCredit (CCr) as sub-currency of the Credit; one Credit is equal to 100 CentiCredit.

The currency of the Wachali is the Imperial Crown (a literary translation of the word). One Imperial Crown (IC) is equal to 12 Imperial Shilling (a free translation of our linguists) or 144 Imperial Pence. As one can derive, the Wachali use a system based on the number 12. The conversion rate to the Credit usually fluctuates between 9 and 11 Credit for one Imperial Crown.

The standard starting money for new characters is 10,000 Credit.

The tech levels

Besides the tech levels 0 to 13 from the basic rules, this gameworld defines the following ones:

Tech level	Description
A	22 nd Century
B	Terran War
C	25 th Century
D	26 th Century
E	Highest level for present days
*	Highest level for Old Empire

The equipment lists and space travel rules can give hints on what is part of one or the other tech level. Technology of TL * is no more produced, but it reflects artifacts of Imperial technology, that often no longer work properly, that nobody can ever repair, that nobody really understands. Many of these objects almost are not found any more, and they are treated as priceless one-of-a-kind pieces or are part of legends. However, it is also a fact that the science of tech level E is partially able to understand and reproduce devices of tech level * - or has even exceeded it. The separation of the two levels is thus rather in motion, this is also the reason that we use the star symbol instead of an F.

If objects of a lower tech level are manufactured on a world with a higher tech level, then every tech level of difference reduces their sales price by 50%. However, this happens never more often than three times, resulting in one eighth of the original price. This rule does not apply for armors and for all objects, for which it is explicitly disabled.

Example: A TL-11 automatic pistol, that is manufactured on a TL-A planet, does not cost 500 Cr, but only $500 / 8 = 63$ Cr.

All characters may purchase equipment of their tech level and below.

Availability of equipment

All legality information refers to the territory of the Federation. The average control rating is 7, but this may perfectly vary upwards or downwards on certain planets. The possession of objects with a legality up to and including the control rating is allowed without difficulty. Other objects will have to be bought in the black market or they must be smuggled. Further details can also be found in the chapter on laws in the Federation.

The economic system

In the Milky Way, different economic systems can be encountered. For example, in the Terran Federation, a market economy system is in place, in which the government participates with various means of control and supervision. Further details can be found in the chapter on the states and the economy.

Anyway, please note that the real prices will fluctuate from shop to shop, and the more from world to world. What may be cheap on one world, perhaps must be imported at very high cost on a second one!

Equipment lists

All listed prices refer to the tech level of the market introduction of an object and an average market, i.e. a world with rather good traffic connections and without a special surplus or lack of certain goods.

Equipment of the TL below 13 can be found in the Omnirole basic rules. The prices should be defined by the master, using the prices of more advanced objects as a guideline.

Energy supply

Most objects require an energy supply. Usually, the equipment lists will inform you if this applies. The operation energy is normally provided by energy cells. These can be compared with today's batteries, or to be more exact, with rechargeable ones, but they are a bit much more powerful. Energy cells are classed with letters, and the most important ones use the letters A to F. Roughly, it can be stated that the power is multiplied by 10 for each level increment. Very small cells are classed as AA, AAA, etc.

All energy cells can be recharged. This requires a suitable adapter, and a connection to an energy source such as a ship reactor or the power grid of a planet. The recharging time depends on the cell type: A-cells require half an hour, each further level doubles the recharging time.

Table: energy cells

Cell	Price / Cr	Weight / kg
AA	10	0.025
A	20	0.1
B	50	0.2
C	100	0.4
D	150	0.5
E	500	1
F	1,000	2.5

For simplification, the energy cell classifications have not been modified at the different tech levels. Nevertheless, their power of course varies with the tech level. Roughly, it should be assumed that it is possible to operate a device with cells of a lower tech level. However, each TL difference causes a halving of the operation time or the available energy.

Starborne : Equipment

Example: An energy weapon of TL C is operated with TL-A-cells. Normally, it would have 50 EP. The TL-A-cells, however, only give it 12.5 EP.

If energy cells of a higher tech level are used for operation, each level of difference increases the power by 50%, based on the initial value.

Example: The same TL-C weapon is charged with TL-E cells. Thus, it has 100 EP (two levels of difference, thus + 2 x 50 % of 50 EP).

Other energy sources are the link to a power grid or the use of a small reactor. However, this is normally only possible for a certain size of gear, because even the smallest fusion reactors of TL E still weigh between 1 and 2 kg. Nevertheless, such a reactor would allow an almost infinite operation time (cf. reactor descriptions).

Devices, which are only presented for one TL, such as most items for every day use, will not only become more powerful at higher TL, but they only get a longer operation time. Each TL after their introduction increases the operation time with the listed energy cell type by 100%.

Reactors

A fusion or antimatter reactor allows to power any chosen systems with ist energy. The maximum simultaneous energy made available by the reactor is the equivalent of of ten F cells. The fuel is sufficient for one year of continuous use.

Fusion reactors are also able to process water or other materials, but high quality fuel costs about 10 Cr per filling. Antimatter reactors require antimatter, and one filling costs about 500 Cr.

Weapons and armor

Close combat weapons

The table of closed combat weapons gives examples for primitive and modern weapons. Many of these weapons will only be available if they are custom made, such as e.g. two-handed swords.

Automatic and civilian versions

All weapons with a double legality listing (e.g. 6 / 8) are available as military (i.e. automatic) and as civilian variants. The civilian version can only fire single shots; it costs the listed price and has the second legality. The military variant costs 50% more, and for it, the first legality rating applies.

X-ray-lasers

This weapon system resembles ordinary lasers, but different from these, it does not use a light beam, but focused and amplified x-rays. The result is a more penetrating weapon, that furthermore cannot be impaired by reflec armor. However, all other rules for lasers, e.g. concerning burst fire, do apply also for x-ray-lasers.

Disintegrators

A disintegrator attacks the molecular bonds of matter, causing an object to dissolve into individual atoms, thus transforming it into some kind of gas. Therefore, any physical armor is completely useless against disintegrators, concerning the protection value as well as the defense DM. Only protection fields can block disintegrator beams.

Furthermore, disintegrators are ideally suited to create holes, dig a shaft, etc. They cause a structure point loss that is ten times as high as that of ordinary weapons. Desintegrator effects are also encountered in the form of grenades and of the disintegrator knife or sword, which projects a respective field of effect that has a blade shape.

A disintegrator knife or sword can neither be parried, nor can it parry. Its damage is equal to that of a hit by a disintegrator

pistol or, in case of the sword, a disintegrator rifle at normal range. A further difference of the two types is that a disintegrator sword can be adjusted to a range of up to 2 squares.

The energy of these weapons is delivered by an A cell (knife) or C cell (sword), both being sufficient for 100 turns of operations.

Laser sword and knife

These are weapons, whose blade is formed by a laser beam that is focused accordingly using a force field. The damage is equal to that of a hit by a medium laser pistol (knife), or in case of a sword, by a laser rifle, both at normal range. Reflec armor is effective.

The energy of these weapons is delivered by an A cell (knife) or C cell (sword), both being sufficient for 100 turns of operations.

Neural whips

Neural whips directly affect the neural system of a creature, causing strong pain that even can lead to unconsciousness. They are popular means of torture. The damage of these weapons is 2D6, and armor protects with its close combat value. If LF are lost, immediately a std.-check: pain with DM - 10 x LF loss must be made. A failure results in unconsciousness, lasting for 2D6 turns. Furthermore, all pain effects are to be doubled, i.e. any loss of 5 LF means double the standard DM.

The weapon is powered by a B cell. The energy is sufficient for 100 hits.

Disruptors

Disruptors fire a beam that attacks the neural system of living beings. Certain areas of the tissue are practically shredded from the inside. Therefore, these weapons are only useful against living beings, and they are in general reputed as brutal and cruel.

Paralysis guns

A classic knock-out weapon: The radiation paralyses the active neural system of a living being, so that its vegetative functions continue, but it becomes unable to move. Even the eyelids are paralysed. However, the victim does not become unconscious, but can still see, hear, think, etc. Creatures with very deviating body structure, e.g. siliconoids, are immune against paralysis guns, and it is also not very easy to affect very heavy creatures: Apply DM+15 on the HT check per level of increased weight. The paralysis normally lasts for 2D6 x 10 / HT minutes.

Superfiber armor

This is the improvement of monofiber armor: A light, flexible and not uncomfortable armor made from a special tissue that provides excellent protection against all attack forms. In general, this is the typical armor for non-military characters, and it is even possible to use the material for spacesuits.

Thermal layer

A special layer made of a superconducting material improves an armor and halves the basic damage (i.e. before armor) of all energy weapons except for such weapons, against which armor is useless, as for example disintegrators.

Tractor beamers

A tractor beamer is used to manipulate objects from a certain distance, i.e. to move them, lift them, etc. Ist can act as a character with strength = P factor, but may only push, pull, lift or lower, but never squeeze or similar. If the beamer is used as a weapon, it must be set as a push beam. A hit has a damage multiplier of 0.5 instead of 1D3; for the purpose of knockdown and knockback, however, it is effectively multiplied with 3.

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Example: A tractor beamer hits a target without any armor with P 10. The victim loses 5 LF and ED; however, for knockback (cf. combat), it is treated as if it had taken 30 points of impact damage.

Hypno-Weapons

These weapons are part of psionic technology. They work as if the target was attacked with the psionic ability of hypnotic control, with power level equal to the P factor and a skill of +100.

Gamma-ray-lasers (Grasers)

Similar to the x-ray-laser, but more powerful. This laser type fires focused gamma rays, making it very effective against all types of targets. Reflex armor is useless, as for x-ray-lasers; but all other laser rules apply here as well.

Monoweapons

These are enhanced versions of ordinary blade weapons. Any weapon, that has a blade (i.e. usually all „cutting“ weapons) can be designed as a monoweapon. In this case, it is equipped with a monomolecular, i.e. incredibly narrow blade, that glides through most materials like a hot knife through butter.

The protection value of armor only applies with 1/5 against monoweapons, and the damage is no more modified with +50% as in general for cutting weapons, but with +100%!

A weapon cannot be both a monoweapon and a vibroweapon.

Vibroweapons

This variante also is an improvement of conventional close combat weapons: The weapon, which must be a "cutting" or "impaling" weapon, gets a blade that vibrates at a very high frequency. The result is an increased damage and a better behavior against armor: The protection value is halved and the damage is determined as if the strength or dexterity of the user was 5 points higher.

If a vibroweapon is parried by an ordinary weapon or vice versa, it is treated like a weapon of double its actual weight when determining breaking chances, and the non-vibro-weapon always has a minimum breaking chance of 5%.

Plasma and fusion weapons

These weapons fire a charge of ultra-hot plasma, which is, in the case of the fusion weapon, even heated to the temperature of a nuclear fusion process. The acceleration and the launch are made using magnetic and antigrav fields. The result is a weapon with short range, but tremendous effect: The damage is determined as for a straying weapon (i.e. P factor D6 against double energy protection value). Additionally, the impact is treated like an explosion with a base radius of one meter. It is interesting to note in this context that the shield burden for a plasma or fusion weapon is multiplied by 6: x 3 for explosion and x 2 for energy weapon!

Particle weapons

Particle accelerators fire ions that move at almost the speed of light, and that can cause very high damage. They are a very widespread weapon system, because they combine a high penetration power, a rather low weight and a great range.

Sonic stunners

These weapons fire ultrasound waves that can stun a victim. They only work against living beings, and not in a vacuum. Some creatures are immune against ultrasound effects, thus, be careful. The stun effect usually lasts for 2D6 x 10 / HT turns. Similar as for paralysis guns, the rule that Increased weight improves the resistance chance applies here as well.

Special Ammo

Most slugthrowers (i.e. pistols, revolvers, rifles, carbines, SPGs, rocket weapons, etc.) can use all types of special ammo from the basic rules. Their prices and legalities can be found in the following table. Needler weapons can only fire normal ammo, stun ammo, plastic ammo and armor-piercing ammo.

Ammo type	Price	Legality
Standard	x 1	Normal as weapon
Explosive	x 3	4
EX-fragmentation	x 2	6
Flechette	x 2	7
Rubber	x 1,5	8
Plastic	x 1,5	7
Stun	x 2	7
Chem	x 2	6
APEX	x 6	3
Armor-piercing	x 3	4
Electrical shock	x 3	7
Hollow point	x 3	5

Possible fusion charges or antimatter charges are left to a sourcebook on military technology.

Weapon sensor connections

The use of the cyberimplant of a weapon sensor connection requires that the respective firearm is designed to cooperate with this system. This doubles the weapon price, if it shall be an integrated system.

An external adapter (mounting or removal costs 2 AP) weighs 0.25 kg, is not available for weapons with a weight of less than 1 kg and costs 2,000 Cr.

At TL C and after, all weapons with a weight of at least 0.5 kg are always equipped with an internal adapter for a sensor connection.

All these systems do not require a data wire, but they consist of an induction pad on the weapon. Take it into your hand, and the system begins to work.

Grenades

The following thrown grenades belong to the usual weapons:

Explosive hand grenades are introduced at about TL 8. Typical grenades of TL 13 and above have legality 6, a price around 50 Cr apiece and a weight of 0.5 kg. They are thrown and explode usually on impact or with a time fuse. The damage is in the range of 15D6 according to the explosion rules (base radius 1 meter).

Fragmentation hand grenades have similar stats, but they do about 8D6 damage with 3 meters Base radius.

Furthermore, there are all kinds of **chemical payloads** for grenades. A typical grenade costs 20 Cr (0.5 kg, legality 7) plus the price for the filling, usually a nerve or **stun gas** (legality variable) or a smoke charge/ **flare charge** (Legality 7). A gas charge affects the impact square and one meter around it with the respective gas effects. The same applies for smoke.

Paralysis grenades occur at TL D and after. They cost about 100 Cr apiece with a weight around 0.5 kg. The effect is equal to that of a paralysis gun with P20 and a base radius

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of one meter. Mini versions appear at TL E (0.1 kg weight, P12). Legality 8.

Disintegrator grenades are created at TL E with an introduction price of 600 Cr and legality 4. They cause a disintegration effect with a base radius of one meter and P50 and weigh 1 kg.

Fusion and antimatter grenades are left to an additional sourcebook.

Protection fields

Force fields

This is one of the most simple applications of the protection field technology. A solid blocking shield is projected, that can be used similar to the shield of a medieval knight. However, it is an invisible field that cannot be damaged. A shield projector is normally worn as a wristband. It creates a circular defense field, that can be used for parries like a shield (of course, only against visible attacks, i.e. normally in close combat and slow projectiles) and grants a defense DM, the latter applying also against ranged attacks.

A second variant is the bell projector, which creates a force field around the entire body. This can no longer be used for a shield parry, but it provides a better defense DM, which is added to all parry or dodge checks and is cumulative to the defense DM from armor.

Protection fields

The term protection fields describes force fields which surround a creature or an object and that can protect it from all kinds of attacks. The field also does not let any air molecules pass, if it is set to maximum effect. If a shield bearer wants to fight himself, a small gap is activated in the shield. The same applies for radio waves. Only visible light that does not have too much energy, as well as regular sound waves (e.g. speaking) can move through a protection field. In combat, a protection field uses the known rules, and it has an ABV.

Usually, body settings (surrounds the body or the object like a second skin in a few centimeters distance), sphere settings (roughly sphere shape) and wall settings (creates one or several force field walls) can be selected. Normally, each protection field generator possesses a respective control panel which also allows to set the shield intensity and structure gaps.

Lightwave distorter

A lightwave distorter creates a field that surrounds a character or an object and has the effect that one no longer sees him or it, but any objects behind. Actually, the light is distorted around the body. Thus, the protected character becomes invisible, resulting in possible big advantages in combat, especially as he is able to perceive and act without any limitations.

Lightwave distorters also affect the infrared and ultra violet spectrum, so that they also offer protection against these vision types. However, the character still can be heard, smelled, etc. and he e.g. leaves footprints. Another means of defense against the distorter are ultrasound or sonar devices or an energy scanner - lightwave distorters need a lot of energy.

Sonic shield

This is an invisible protecting field that consists of certain sonic frequencies, having various effects. Firstly, it protects the user against insects and many animals that perceive the frequencies as very disturbing. Furthermore, the field counts as a protection field with ABV 100 against all weapons that are based on sonics, e.g. sonic stunners. Finally, and this is the most interesting aspect, the wearer is almost impossible to hear, because the field does not allow any sound to leave

it. An ideal assistance for all kinds of stealthy actions, especially if combined with a lightwave distorter.

Portable nuclear damper

A nuclear damper directly affects the atomic and subatomic properties of matter. There is a certain relationship with the disintegrator, although it is not a weapon, but a defense system.

The working principle is that a field is created, inside which no nuclear reactions are possible, i.e. neither fission nor fusion reactions. Therefore, a nuclear damper is used to defend against nuclear warheads, but it also prevents the use of respective reactors. It creates a spheroid field in with a maximum diameter of fifty meters. Any warhead that passes this zone, could become useless. For this purpose, make a roll with 1D100 + value of the damper. A result of at least 100 neutralises the warhead, i.e. it can no longer be detonated, as long as it is inside the field. The value of the damper is +50 when introduced, with an increase of +10 per further TL. Against fission weapons, apply DM+25.

Trapfield projector

This application of the force field technology is used to immobilize characters with an energy field. Its purpose is the neutralisation of violent people as well as temporary high security containment or arrest without injuries.

The projector resembles a short barrel stubby rifle. It is pointed at a target in up to 20 meters distance. In case of a dodge capable target, an attack check (as particle accelerator or fusion/ plasma weapons) must be made and the victim may attempt to defend against dodge DM -60. If the defense fails, the character is entangled by a trapfield. This field has a strength of 100, this might theoretically be even higher in case of some, more expensive projectors (versions with strength 1,000 for the containment of enviro-adapted people from high gravity planets are known). A real damage is not caused, and armors are insignificant. However, as long as the projector is not turned off (it can only maintain one field at a time), the character stays entangled and may only attempt to break free once per turn with a strength duel.

Protection fields prevent the successful use of a trapfield, i.e. they must first be caused to collapse. A standard projector can create a field of up to 5 cubic meters size, but there are larger version (often no longer portable) as well as the possibility to have several projectors work together.

PSI technology

The research of psionic powers has lead to the development of various countermeasures against psionic attacks, but also the discovery of means of enhancement. Some frequent examples are introduced in the following.

PSI scanner

This small device, that is very similar to a standard scanner, is used to discover and identify psionic activities. It behaves like the psionic ability of psionic sense with power level = level x 10 and a skill of + 75 at TL D, + 100 at TL E with + 25 for each further TL. The device, of course, also may be set on passive detection, i.e. in this case, it will give a signal, as soon as psionic activity has been detected in its area of effect.

PSI emitter

A PSI emitter resembles a radio, but it does not use ordinary radio waves, but psionic signal. Effectively, it behaves as if it was a character with the ability send thoughts at level = device level x 10 and skill value +75. Signals of a PSI emitter can be received by other telepaths (mindreaders) or a PSI receiver (see below). The message is simply spoken into the microphone or typed in as a text; larger devices also can transmit images. It is especially interesting that PSI waves are faster than light: They effectively reach their target in zero

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time. A message may be sent in a certain direction or in a globe.

PSI receiver

This is the counterpart to the PSI emitter. A PSI receiver can receive all kinds of telepathic broadcasts, if they arrive in its area of effect (10 meters diameter). For the purpose of establishing of the contact, the device has skill value +90. Please note, however, that a PSI receiver is in no way a "mindreading device". He does not allow to read the thoughts of another creature, unless they are explicitly and actively broadcast using the send thoughts ability.

Artificial mind shield

This object is normally produced in the form of a helmet. However, it may also be integrated into any other type of helmet (add the component prices and double the result.) At TL E and above, artificial mind shields also exist in the form of a small projector, that can e.g. be worn in a necklace. For this type, the weight is negligible; the price is to be multiplied by 10.

General effect is, that the user of an artificial mind shield behaves as if he had the telepathy power of mind shield with a power level of level x 10 and a skill value of 0; this shield is always active, as long as the helmet is worn or repectively the projector is activated.

Antipsi shield

This is a small object resembling a protection field projector. It sets up an antipsionic field around the user. The field works as if the respective character possessed the PSI power of antipsionics in the form of psionic resistance with a power level of level x 10.

Amplifier cabin

An amplifier cabin is a cabin, that can be used by a single character. It has the purpose of improving his psionic abilities: Each amplifier cabin only affects one psionic ability (e.g. mindreading, exoteleportation) and doubles its effective power level per level of the cabin. A similar system is used in spaceships as the PSI drive.

A character, that is using an amplifier cabin, is treated as being in a trance similar to a psionic block, i.e. he may not make any actions except using his psionic ability.

PSI awakening device

This device, which has the dimensions of a small hospital room, is used to examine people for latent psionic abilities and to activate these, i.e. to make them usable. Core component of the configuration is some kind of human-sized chamber – there are also versions for other races – which closes around the character that shall be examined. The high acquisition cost and the maintenance costs (annual expenses of a comparabile amount) make PSI awakening devices a rare sight.

An examination for the presence of psionic abilities takes 1D6 hours and requires a skill check: psionic science. On suceess, it produces the desired information.

Make a roll with 1D100 (usual rules of the 11, 22, 99, 100), to determine whether a character possesses a psionic ability (of course, only once). Add +5 for characters with eidetic memory and +10 for empaths or such with sixth sense. Furthermore, add 2D10. If the result is at least 100, the character has latent psionic abilities. The actual ability (or abilities) as well as the levels should be determined randomly, using the information in the chapter characters concerning frequencies and that in the random creation system concerning levels as a guideline. Maybe, if interest exists, a later psionic world-book will contain an exact method.

If the present abilities shall be awakened, this takes further 2D6 hours and requires a new check. A disaster might cause the abilities to be lost forever, th same happens in case of an accident (dangerous check). A success, however, turns the character into a psionic with a power level between 1 and his maximum (determine at random) and without any skill value. In this case, at least partially XP should be paid to compensate for the newly acquired advantage in CP.

Typical examinations of a character cost at least 100,000 Cr. The tariff for an awakening (without any guarantee) is about 5 MCr.

Psionic lie detector

This small, unobtrusive scanner acts as if it had the psionic ability of empathy with a power level of device level x 10 and a skill value of +75. This makes it possible to read and show the emotions of a creature. The system remains rather vague in its presentation, i.e. it roughly mentions the suspected emotion (hatred, fear, panic, indifference, unsureness, self-confidence, etc.). Normally, it is used as a lie detector, and it has a special display for this purpose.

Medical technology

Autodoc

An autodoc is a portable doctor. This is an advanced computer system with manipulators, tools, a drug storage, etc., that is able to replace a "true" doctor. The system knows medicine and surgery with skill value+75 and can perform all medical treatments, which do not absolutely require a hospital. However, the autodoc can only treat one patient at a time, and the manufacturer insists on a waiver of liabilities for the case of failures.

Medscanner

This is a practical small device which is used to check the health conditions of a creature. The range is roughly one meter. One use determines the most important body parameters (blood pressure, blood alcohol, pulse frequency, breath frequency, etc.), and takes about 10 seconds. A longer examination (ca. 1 minute) produces an EEG, drugs in the blood, etc. and even to a certain extent a diagnosis (with skill value medicine + 75, but for diagnosis only). A medscanner causes DM+10 on all medical checks, if it is used in advance. A small medical database with the standard parameters of the most important races is integrated.

Medsensor

This is a wristband, that is usually worn at the wrist or forearm. However, depending on actual design, it might also be worn on a leg or at another place. The device measures the basic body functions of a creature. In case of important deviations, it activates an alert. Furthermore, the medsensor can be programmed to inject a dose of a drug (it contains a compartment for 5 units of a drug), if a simple condition is met. Typical examples are stim drugs in case of unconsciousness, antidotess for poisoning or regenerative drugs in case of injuries.

Regeneration tank

This is one of the highlights of modern medicine. This tank, which can house one character, acutally heals everything except for definite death: A user is healed 1D6 LF and ED every hour. Long term injuries heal within 1D6 hours (or as soon as the LF has reached its full value, if this takes longer). Permanent injuries require 2D6 hours. Lost limbs or organs regrow within 1D3 (fingers, toes), 1D6 (hands, feet, eyes, ears, stomach,...) or at the longest 1D10 days (legs, arms, heart, lungs). Even brain tissue regenerates. However, lost memories cannot be healed, and definite death is the final limit (cf. the chapter on reanimation).

Supra-Medo-Tank

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This improvement of the regeneration tank includes all its functions. Furthermore, it allows to implant biotech or cybertech without true surgery: The character lies down in the tank, and within 1D3 days, he leaves it with the installed cyber part, with a genetically modified arm or whatever. This method also allows to make rapid environmental adaptations - even extreme changes require not more than 2D6 days. Theoretically, such a tank, that operates after the method "take in body, analyse genetic structure, modify, regrow body", could even transform a human into a hydrogen breather - but this would not be easy. The limits for use of the tank are defined by the software: At the first use, any modification must be programmed, and in complicated cases, this may require years of work of numerous scientists.

Medkit

A simple first-aid kit of the respective tech level. It contains bandages, simple medical tools and some medicaments. First aid checks without a medkit are usually either impossible, or subject to high negative DM.

Hypnotic trainer

A hypnotic trainer has the shape of a helmet-like object. Its purpose is the education of skills and knowledge by hypnotic means, i.e. directly into the brain. This method is rather fast (one hour of hypnotic trainer is equal to 1 CP for the skill). Especially military organizations prefer to use this system.

However, there are limits due to the ability of body and mind to take stress. Every character, that undergoes more than 2 hours of hypnotic training within 24 hours, or that had more than 8 hours of training within one week, must make one willpower check for each hour or part of it, which exceeds these times. For this check, apply an additional cumulative DM of -5 per hour of training above the limit. A failure means that the respective training hour did not provide any benefits; a disaster or accident (dangerous check!) permanently costs one point of intelligence.

In order to make a skill training, respective software must be purchased on memory crystals. Their price is equal to that of skill chips, please refer to the cybertech section.

Medo-Set

With the aid of this medium-sized suitcase, which contains the most current medical instruments of its tech level and other aids including medical drugs, bandages and a simple medscanner, all medicine checks as well as most surgery checks, i.e. any of them that do not explicitly require a hospital, may be made.

Typical medical drugs and other substances

Typical application method for most medical drugs is an injection into a blood vessel. For this purpose, normally injection patches are used, whose application costs 2 AP. The prices are modified as follows:

- injection patch: listed price
- liquid for conventional injection (syringe): / 3
- pills (only if mentioned in description; three times as long until effect occurs) : price x 2
- gas (only if in description) : price x 5; sufficient for 1 square (cf. gases)
- ointment for direct application on the body (if in description) : price / 2; application costs 4 AP

Antidote

This is a broadband antidote, that can also be given preemptively. It is sold as a pill, patch or injection liquid. While the effect lasts (one hour), the character acts as if he possessed the advantage of immunity to poison with level = level of the

drug. Poisons whose level does not exceed that of the antidote, are completely neutralised.

Antiparalysis

An antidote against paralysis effects that have been caused by respective weapons. Unfortunately, it cannot be taken preemptively, but only to cure the effect after it has occurred. An injection or a patch ends the paralysis of a character within 1D6 turns. Side effects may occur: make a std.-check : HT; a failure costs 2D6 ED.

Antipsi

This is a drug that is used for safe containment of psionics, being either injected or applied as a patch: It costs the character 1D6 levels of psionic power per level of the drug, and no resistance is allowed. This effect lasts for 1D6 hours.

Antirad

Antirad allows to fight the effect of radiation exposure. It may also be taken preemptively. Each level increases the reduction speed of radiation by 100% and halves its absorption speed. A drawback is, that at the end of the time of effect (after 1D6 hours), a std.-check: HT is required. A failure costs 1D6 LF and ED; a disaster even 3D6.

Painkiller

This drug (injection, patch or pill) grants the character the advantage of pain resistance at level = drug level for the next 1D6 x 10 minutes. A special version exists which negates any pain effects (as immunity against pain).

Stimulant

A drug that is injected or given as a pill or patch. It immediately restores all lost ED for a period of 1D6 x 5 minutes. However, after this time, this ED, as well as, if a std. check: HT is failed, further 1D6 LF are lost, as the reserves of the body are stressed a lot.

Berserk drug

This drug (injection or pill) that is very popular among professional fighting artists has the effect that the user acts for the next 1D6 x 10 minutes, as if he possessed the special ability berserk.

Stun drug

This drug that is available as an injection or as a gas behaves as a poison of the respective level. The victim is unconscious for 2D6 x level / HT minutes and can only be awakened earlier by using an antidote. The effect occurs within one turn, if a std.-check: HT with DM - 5 x level is failed.

Bleeding stopper (Hypercoaguline)

This drug, that can be injected or applied on a wound as a patch, stops any bleeding within 1D6 seconds. If it is used more often than once in an hour, an immediate std.-check: HT must be made. A failure means a heart attack due to excessive coagulation of the blood.

Broadband antibiotic

A drug that improves the resistance against diseases. The character acts during the time of effect (one hour) as if he possessed the advantage of immunity to disease at level = drug level. Diseases whose level does not exceed that of the drug, are healed by it. Available as an injection, patch or pill.

Memory blocker

This injected drug is especially popular in secret services. It is treated as a poison with level = drug level. On the std.-check: HT for resistance, apply DM -5 x level. The victim loses all its memories of a time of 1D6 x 5 minutes per level. These memories can only be restored by a complicated medical or psionic treatment. Rumors according to which

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there are much more powerful (and more permanent) versions, could not yet be confirmed – but respected scientists do not exclude this.

Healing plasma

This drug, which stimulates the healing powers, only is effective against injuries, i.e. LF- losses caused by all kinds of wounds (not diseases, poisons, etc., but burns, cuts, It is applied on a wound or parts of the injured body area, this takes two turns (4 AP). Healing plasma is classed by a level, that may be between 1 and X (usually not higher than 5). Within 1D6 turns, it heals 2D6 LF and ED per level (but cannot lift the LF and ED above their maximum).

Between two applications on the same character, at least 24 hours x level (the highest one that is used) should pass, because otherwise there might be too much stress on the body: If the time limit is not respected, make a std. check: HT with DM - 10 x number of applied doses of healing plasma and - 5 per missing hour. On success, the drug works as usual. A failure means no healing at all; a disaster costs LF and ED equal to the amount that would have been restored by a successful use!

Combat drug

Combat drug is popular among mercenaries and the warriors of some races (e.g. the Wachali), in order to improve the abilities in combat. It is injected and takes effect after one turn: strength, dexterity, health and reaction are increased by D6 x 5%, but at least by one point, lasting for 30 minutes. Furthermore, all DM caused by shock or pain are halved. After the effect ends, the character loses 2D6 ED.

The drug should only be taken once in 24 hours. Otherwise, its effect is halved, and at the end of its effect, 2D6 LF and ED are lost.

Control drug

This injected drug is treated as a poison of the respective level. The effect occurs within 1D6 turns, if a std. check: HT with DM-5 x level fails. The victim acts for the next 2D6 minutes as if it was under the influence of the psionic ability of hypnosis without further resistance possibilities. It is also possible to implant a posthypnotic suggestion.

Paralysis poison

This drug (gas or injection) counts as a poison of the respective level. The victim is paralysed within 1D6 seconds, i.e. it behaves as if hit by a paralysis gun. For the std. check: HT, apply DM - 5 x level.

Nerve poison

A classical chemical agent, that can occur as a gas or an injection and that counts as a poison of the respective level. The victim loses 1D6 LF and ED per level per turn, as long as the effect lasts, i.e. for gases, as long as it is breathed, and further 1D6 Turns; for injections 3D6 turns. A successful resistance check also terminates the effect. For the std. checks: HT during resistance, apply DM- 5 x level.

Regenerative

These injected drugs stimulate the self-healing powers of the body and affect all kinds of LF losses. The user is, however, in a trance while they take effect, i.e. cannot act.

The effect is, that the natural healing speed of the body is multiplied with a factor 25 (one healing per hour) at level A, with a factor 150 at level B (one per minute) and factor 900 at level C (one per 10 seconds). The total duration of the effect is 2D6 hours (A), 2D6 minutes (B) or 1D3 minutes (C), respectively.

Sleeping drug

This poison (gas or injection) is treated as a poison of the respective level. The victim falls asleep within 1D6 seconds,

and will only awaken after 1D6 hours, or after successful treatment with an antidote. The sleep appears wholly natural. For resistance, make a std. check: HT with DM - 5 x level.

Superstim

This drug that is available as an injection or as a smelling capsula (price as for pills) has the effect, that an unconscious or sleeping character awakens immediately and is able to act. The drug, however, does not affect characters that are in a coma that has been caused by head or brain injuries or by poisons.

Death poison

This is the most lethal chemical agent in this list, and available as a gas or in injection form. It counts as a poison of the respective level. The victim dies immediately by standstill of the heart and circulation system, if it fails to make a std. check: HT with DM - 5 x level.

Truth serum

This injection drug counts as a poison of the respective level, but the willpower of the victim is used for resistance purposes. On this std. check, apply DM -5 x level. If the victim loses, it will only tell the truth during the next 1D6 minutes, as long as it is able to do this. Afterwards, the high physical stress calls for a std. check: HT with DM- 5x level. A failure costs 2D6 LF and ED and causes a coma for 1D6 hours; a disaster means immediate death. A success only costs 1D6 ED.

Attribute reducer

This drug that is available as an injection or as a pill is treated as a poison of the respective level. Resistance is made with a std. check: HT with DM - 5 x level. The victim loses level x 5 %, but at least level points of the defined attribute (ST, DX, HT, RE, IN or CH), but the value is never decreased to less than 1. This effect lasts for 1D10 minutes.

Attribute booster

An injection or pill of this drug increases one basic attribute (ST, DX, HT, RE, IN or CH; this is defined for the drug) by 5%, but at least by one point, per level. This effect lasts for 2D10 / level minutes. Then, a std. check for the respective attribute must be made using its normal value. A failure causes a reduction of the attribute by the same amount as the prior increase (but never below 1), lasting for 1D10 x level minutes; a disaster means the permanent loss of one point of the attribute.

Tools

The different types of tools must be purchased separately for each TL and for each skill area (e.g. for each engineer specialization or each technical skill).

Mini-toolkit

This small set with a belt hook only contains the very basic tools. It allows very simple repairs. In general, use rules as for a full-size kit, but apply a DM of -20 up to -40 depending on the type of repair. However, it is always better to have a mini-kit, than only to use improvised tools.

Toolkit-Suitcase

The basic equipment for the use of a technical skill. It allows easy repairs of all kinds as defined in the Omnirole basic rules.

Shop.

A shop (cf. Omnirole basic rules) is sufficient for almost any repairs, but barely can be transported, unless a suitable vehicle is used. In a spaceship, 5 tons of displacement are consumed if a shop is installed.

Complete shop

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A complete shop almost does not leave anything open. On most repairs, DM of +20 and more should be applied. To a limited extent, even individual designs may be attempted. For transport, a heavy truck, two normal trucks or 10 tons on board a spaceship are required.

Communications and scanner devices

Radios

Current portable radio transmitters that operate with standard frequencies reach ranges of about 1,000 kilometers at TL 13, if the conditions are good. Devices for special frequencies (e.g. police or military bands) are more expensive and not that legal... The range is increased by factor 2 for each further TL. Wrist devices begin with a range of 10 km.

FTL communications

Portable FTL communicators only appear as part of the technology of the Old Empire. They are therefore explained in the respective chapter.

Translators

A translator is an automatic translation device. Usually, it is programmed with all frequent languages of the Milky Way (cf. characters), i.e. the trade languages of the large races, and is able to make simultaneous translation into and out of them at level native speaker. Further, e.g. rare languages or also special vocabulary, can be purchased on memory crystals for about 100 Cr apiece.

The analysis of an unknown language is possible, if the translator gets sufficient hearing time (about 30 minutes). For this purpose, it makes a check with skill value 50 (+ 25 per further TL). On success, it acquires the language with the level basic knowledge; at 150 and more, it gets advanced knowledge and at 200 and more even experienced knowledge. A disaster produces false translations. In case of an ordinary failure, new checks are allowed every further 30 minutes. To improve the level afterwards, once per 12 hours, a new check may be made, if the translator continues to practice the language. A success improves the level by one, but never to more than level 4, i.e. native speaker equivalent. Languages with a very alien structure may cause negative DM or even make an analysis impossible, examples include languages, that do not use sounds or that are only based on modulation of sounds (a siren with different pitches).

Telephones

Most populated worlds are covered with a telephone network, that uses satellites and is able to reach almost any point on the surface. Current cellphones can use this network. However, on some colony worlds, it might turn out that only the spaceport and the cities are covered.

Energy scanner

A small scanning device with a belt hook, able to detect all kinds of energy activities (working reactors and power consumers, energy weapon shots, protection fields, etc.). The range is about 1 km, with a multiplier x 2 per further TL after introduction. Scanner checks must be made for effective use. It can be assumed, that larger activities (all kinds of energy shots, protection fields, reactors of vehicle size and above) can be detected at about 50% of the base range, yet more powerful activities (nuclear explosions, ship reactors, etc.) even at ten to hundred times the base range, whereas the discovery of a small consumer (smaller technical devices of any kind) will only succeed at about 10% of the base range, and devices that are only in a ready state (e.g. energy cells) require a scanner check with DM -50 and more and a distance of only several meters, even are only possible at a more advanced TL.

The standard version of an energy scanner includes a database, with current energy patterns for comparison and identification,

as well as a display for the detected intensity and distance, the direction and the energy pattern.

Bioscanner

With a similar appearance like the energy scanner, this device is used to detect living creatures. The range beträgt is about 1 km, with a multiplier of x 2 per TL after introduction.

Creatures of human size may be detected at base range feststellen, very large groups or creatures (whales, crowds) even at ten to hundred times this range. Very small creatures (mice, etc.) require distances of 10% of the base range and less.

The device may be set on a minimum size for detected creatures (usually mouse size). A display shows the detected creatures, their rough size and position, i.e. distance and direction. Very small creatures (e.g. insects) can only be discovered at very short distance or in large groups. A comparison display furthermore allows to attempt to identify creatures by their type einzustufen, because the displayed emission pattern is different e.g. for humans and for dogs.

Mass scanner

Similar to the energy scanner, but used to detect mass concentrations, that are e.g. caused by subterranean metal deposits or also by flying objects. The range is about 1 km, with a multiplier x 2 per further TL after introduction.

Typically, objects of about human size and bigger (50 - 100 kg) can be detected at around 50% of the base range, very large objects (spaceships, etc.) even at ten up to one hundred times the base range. The situation is different in case of small objects. Furthermore, an object can not be detected, if it is very close to a mass that is very much bigger, e.g. a flying human close to a space cruiser.

The device is equipped with a display that shows the distance and direction as well as the rough size of the detected mass.

Cavity scanner

This scanner is used to detect cavities, normally subterranean ones. The range is about 1 km, with a multiplier x 2 per further TL after introduction.

The depth and size at which cavities can be detected very much depend on the material. The denser it is, the more difficult the task becomes. As a rule of thumb, it may be assumed that cavities of several cubic meters may be found at 25% of the base range in ordinary earth, very large cavities even at ten to twenty times the base range.

The display shows distance, depth and rough size of the detected cavities.

Chemical scanner

A chemical scanner examines the surrounding air and analyses its composition. Normally, it displays the five main components with their names and the percentage; the display can then be switched to the next five, etc. The device may be programmed to sound an alarm if it detects minimum concentrations of certain substances that are not breathable.

The device is able to detect concentrations of at least 1 : 1,000 when introduced. This is increased by factor 10 for each further TL.

Analyzer

This small box contains a compartment for material samples that shall be examined. These are analysed concerning their composition, i.e. the device mentions the different compounds and finally the elements, of which the sample consists, plus their percentage. This procedure takes about 1D3 Minutes. A small database with current elements and compounds and their attributes is integrated.

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Bio-Analyzer

The bio-analyser is similar to the analyser, but used only for the examination of organic matter. It is possible, to get presentations down to molecular level and to obtain certain general genetic data. A small database with general information is integrated as well.

Multiscanner

This device combines the abilities of an energy scanner, a mass scanner and a chemical scanner.

Vision aids

LI goggles and lenses

These are classical systems on a light intensification base, which allow it to make optical perceptions even with very weak light. The effect is equal to that of the special ability of LI vision at level 2, i.e. the user can divide all DM from bad light except total darkness by 3. Very bright light has an increased effect on the user of an LI device: apply DM-50 on all resistance checks against blinding, the blinding times are multiplied with 10 and in case of a disaster, the eyes sogar are even treated as permanently damaged (as hit result "disabled" in combat).

Flash protection

This is a polarisation filter, which protects the wearer against blinding effects from all kinds of light. The user may ignore any blinding effects, unless an individual description explicitly states that they also affect characters with this kind of protection.

IR vision

This system perceives in the infrared spectrum, enabling the user to ignore almost any DM from bad light and darkness. The character acts as if he possessed the special ability of infrared vision.

Telescopic goggles

A type of telescope installed in goggles: The user kann watch any kind of objects with a magnification factor of up to x 20, enabling him to see details even at a great distance. Apply all rules, as they have been mentioned for the respective special ability or cyber part. However, please note that this item does not allow microscopic vision: as usual, a minimum distance to the object and a minimum size of visible details must be observed.

Head-Up-Display (HUD)

This device either appears in the form of goggles or as the modification of a helmet visora (same price), allowing to display data in the field of vision of the user. This might be a projected crosshairs, or the result of a range detection, or also status information for a weapon. Requirement for the later, however, is that the weapon is linked with the system using a data cable, and possesses a suitable adapter. The connection costs 1 AP. The weapon price increases by 10% an, if a weapon shall be HUD capable; however, weapons at TL C and higher are equipped with an adapter as standard design. In combat, the HUD provides DM+10 on all attack checks of the user. It only works with ranged weapons.

VR Helmet

Virtual reality (VR) plays an important role starting at TL 13. First of all, the system uses helmets, that must be worn by the user. They show him a different reality, either for entertainment or also for training purposes. By the way, the holo projections that are developed later will only make the helmet partially obsolete – an advantage of the helmet is, that only he user hmself sees the information, and that without any distraction from the outside.

The helmet that is presented here receives information from the surroundings and then displays them in simplified form, usually in a 360 degrees image. This provides combat advantages for the user: DM+20 on all attacks and defenses. However, any ranged weapon must be HUD capable (cf. there). LI, IR or ultrasound effects may be integrated (respective price) as well, and a VR helmet can be designed as an armor helmet or other armor piece (added and doubled prices). The only drawback of a VR helmet is that it does not have any visor. Thus, if the system is disabled by damage, the user becomes blind and deaf until he takes off the helmet. Malfunctions will even be worse.

Ultrasound vision device

This special system is based on the emission of ultrasonic waves. A computer system then transfers the received data into an image that is projected on the inside of the goggles. The system negates all DM for bad light or fog and replaces them with a simple DM-5 due to the type of vision that is a bit unfamiliar. Please note that system also functions against targets hidden by a lightwave distorter. A drawback is that the user can be detected rather easily by someone monitoring the ultrasonic frequency bands. Furthermore, the projected image only shows very few object details, and of course no colors. The maximum range in open terrain is about 500 meters. In a vacuum, of course, ultrasound devices do not work.

Media and entertainment technology

Holo projector

A holo projector can create any desired three-dimensional, absolutely convincing holographic image, e.g. using a TV signal or images stored in a database. For a standard projector, the maximum image size is an area of 1 meter length x 1 meter width x 3 meters height. Larger devices, as they will be found e.g. in most apartments, but also in spaceship bridges, reach a much larger volume, however.

Of course, such a hologram can move, and a suitable stereo sound also will not be any problem. This technology would also make it possible to changes one's appearance by projecting a hologram that covers the body, or e.g. to impress natives by projecting a small dragon, or a ghost, or... The only limit is the programming – and an image will appear much more real, if it has been filmed from the original.

TriVid-Projector

This is the TV of the future, as long as no holo projector is being used. TriVid screens can project three-dimensional images (no holograms yet) on any chosen surface, of course with stereo sound and everything. Functions such as an integrated recorder, the option for standing images, watching several networks parallelly or magnification of sectors of an image are the absolute minimum standard already for a long time.

Do not forget: Fixed screens are outdated since the 21st century.

Datareader

This small device using a flatscreen, later a holoscreen, has the purpose of presenting the information stored in a memory in a readable form.

Video and photo cameras

Typical video or photo camears of TL 13 and after are practically foolproof (DM +50 and more on photography checks). They allo three-dimensional imaging of any kind. Starting with TL B, optical lenses made of glass or plastic are replaced by a gravity field, resulting in incredible magnification power.

Memory

Starting t TL A, optical memory crystals are the standard storage in computer technology. They are small, cubic ob-

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jects of about 1 cm length, and relatively resistant against daily dangers like heat and cold (- 100 up to + 800 degrees Centigrade), direct light, magnetic fields, etc. and provide a very high capacity. Such a crystal can store up to 10,000 Terabyte (about 10 quintillion Bytes) at TL E. This is sufficient for about 8 hours of high resolution three dimensional video images, 1 hour of holographic images or several quintillion of written pages.

TL 13 normally uses different optical storage media, mainly CDs and optical chips, which already have a storage capacity in the range of 10 Terabyte (about 10 thousand trillion Byte).

All these storage media are rewriteable.

Personal computer

A typical computer for the home user. The system uses a conventional monitor up to TL 13, afterwards replacing it with a three dimensional screen and finally a holo projection (see above). Data input is possible via a keyboard, speech or touching the screen or the holo. Many users even apply an emotio-adaptor (cf. there).

The capacity of the computer is roughly equal to one tenth of the smallest ship computer of the respective TL (cf. space travel). Data transfer devices are standard, as well as perfect quality of sound and graphics. However, this is not an AI system, although the computer is capable to execute some "independent" actions. Current software allows research in all databases, writing, image and sound processing of any kind and much. The next bigger version are normally the house computers.

Mini computer

This small computer system actually is the equivalent of a 20th century notebook. Until TL , it still uses a monitor, so that the listed weight applies. Afterwards, a holo display, that is projected when needed, reduces the weight to 0.25 kg and the size to that of a wristband, as simultaneously the keyboard becomes obsolete and is replaced by the holo projection.

Input is normally made via speech, data transfer, keyboard or touchscreen. The capacity is about equal to half that of the personal computer described above.

Printer

Current printers are not much bigger than a sheet of A4 paper, and they even can be folded for transport. They are able to print all formats up to A4 (with other models also larger) in color, printing on paper as well as e.g. on plastic films or cloth. Ink must be refilled once for about every 2,000 pages.

Surveillance equipment

Bug + Receiver

A typical bug is a listening device that records audio signals. It is only a few millimeters large and can e.g. stick on clothes or a wall, making use of its special surface material. A variant is shot using a needler weapon.

The transmission range begins with 1 km, and each further TL doubles this. The bug may either be programmed for continuous transmission, or, in order to avoid being detected, be set to transmit all recorded information as a compressed short impulse, either at a defined moment or after receiving a code signal.

The receiver is the respective counterpart, actually like a radio receiver, but set on the frequency of the bugs and outfitted with a small control pad for their programming.

Bug scanner

This device that has the size of a typical scanner is used to detect active surveillance or recording devices, covering both such that transmit, as well as passive recorders.

The examination of an area of 3 cubic meters takes one minute at the TL of its introduction. Each further TL halves this time. Then, a check with value 50 is made (+10 per further TL). Apply DM - (TL difference bug - scanner) x 10 on the roll. A result of 100 or more is sufficient to discover transmitting bugs; for mere recording devices, a result of 150 is required.

White- noise generator

A white-noise generator creates jamming noises, that are intended to make any listening attempts using bugs or directional microphones impossible. It affects an area of 2 meters radius around the device. All such listening attempts must win a duel with Value 50 (+ 10 per further TL) against the white-noise generator (value 75, + 15 per further TL), or they only hear useless noise.

Directional microphone

A directional microphone is used to listen to a conversation or other sounds in up to 25 meters distance (x 2 per further TL). In this case, the respective sound are heard as if they were created in about two meters distance.

Jammer

Jammers affect radio communication from or in an area, that is a globe with 100 meters diameter upon introduction. Each further TL multiplies this by 10.

If someone attempts ordinary radio communication in the affected area, he must win a duel communications skill against the user of the jammer. Apply a TL-DM as for bugs, and a general DM+25 for jammer. FTL communications remain unaffected.

Electronic lock

Current lock technology of TL 13 and after uses electronic locks. These normally are opened with a number code that is typed in a keypad, but some types also use a code card, e.g. the ID card. The level of the lock, multiplied with 5, is applied as negative DM on any lockpicking attempts.

Retina lock

A lock with a retina scanner verifies the retina pattern by scanning the eye. This still takes one minute at TL 13, but only a few seconds at TL A and after. Apply level x 5 as negative DM on lockpicking attempts. However, an additional DM of -20 is assigned as well, because retina locks are more difficult to fool – there is not any code, but only the eye of an authorised person or an override can open them.

Fingerprint lock

A lock with a fingerprint scanner verifies the fingerprint, usually by touching. This still takes ten seconds at TL 13, but only some milliseconds at TL A and after. Apply level x 5 as negative DM on lockpicking attempts. However, an additional DM of -10 is assigned as well, because fingerprint locks are more difficult to fool – there is not any code, but only a finger of an authorised person or an override can open them.

Electronic lockpick

Most locks of TL 13 and above are electronic constructions, that no longer use keys, but react on code cards or code words, fingerprints, retina patterns or similar. An electronic lockpick has the purpose of overriding such a lock. If this device is not available, but only e.g. an electronics toolkit, apply DM-20 up to -30 on the lockpicking attempt.

Infrared tracker

An infrared tracker is a small device, that is very susceptible for the infrared spectrum. It is used to make the infrared

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traces of past events visible. These actually happen like a movie, and can be watched on a display or holo projection. Refer to the description of the psionic ability of frequency vision, assuming a skill value of 100 and a power level of 50. Especially police forces use IR trackers for securing of evidence on crime scenes.

Miscellaneous equipment

Bioplast disguise kit

This small suitcase contains tools that are used to completely change one's appearance. This covers noses, ears etc. made from bioplast, a material, that can only be distinguished from true body tissue by a thorough medical examination. By the use of such a set, it is even possible to get the appearance of an alien.

Mini lab

A mini lab allows to make current chemical or biological reactions to a limited extent, e.g. to produce substances, grow cell cultures, etc. For more complex tasks, negative DM of -20 up to -75 should be applied. The maximum capacity, however, is about 1 liter production per hour.

Robo factory

This is a small, fully automated factory that is popular for colonisation projects. Larger versions are the backbone of the current industrial production.

Theoretically, a robo factory can manufacture any selected object, provided that two conditions are met: Availability of the required software, and a stock of basic substance. This basic substance costs 100 Cr per kg and consists of important elements, that are required for metals and plastics. The software costs as much as the standard purchase price of the object that shall be manufactured, multiplied with 50.

A production run can than manufacture up to 50 kg of objects per hour, but only one type at a time in the same factory. A production change requires a software change. The consumption of basic substance is equal to object weight x 1.5. Usually, a robo-factory is not a means to become rich quickly, because the production costs are comparatively high. Its purpose is rather to meet important demands, when no other manufacturers are available. In this case, very often ordinary minerals, carbon substances or even hydrogen are used besides the standard basic substance. However, this increases the manufacturing times considerably, depending on the deviation between the basic substance and the object material. Although the robo factory is able to synthesise any element, this takes its time: x 10 up to x 100.

Climbing shoes and gloves

An invention of the biotechnology of the last centuries. These shoes or gloves are made out of a special material that is manufactured on a biological base and, similar e.g. to the bio house, „lives“ in some way. The idea was based on the limbs of insects, that are able to climb on vertical walls and even smooth surfaces.

The use of shoes or gloves provides DM+25 on all climbing checks (one DM for each) and allows to climb any kind of walls or ceilings, provided that both shoes and gloves are worn. A drawback is that many other actions are more difficult for a wearer of climbing gloves: DM - 50 on all tasks that require manual dexterity.

Universal writing pen

This small pen that is quite similar to a standard pen can write on any kind of surface, i.e. glass, paper, plastics, plants, etc.. The writing is almost impossible to remove. One cartridge is sufficient for about 100 DIN-A4 pages of text. Different colors are available.

Ultra-acid

A further product of bio technology and advanced chemistry. Ultra-acid dissolves almost any substance, so that it must be stored in force field containers. A dose of 10 ml is sufficient to dissolve up to 1 kg of most substances including the hardest steel. The structural damage is about 10,000 points per turn per 10 ml!, with a time of effect of 1D6 turns. Against organic matter, the acid also is very effective. A single drop causes 2d6 damage per turn. The only neutralisation possibility is a special liquid, that is available for the same price as the acid and neutralises it immediately, up to an amount of the same volume.

Pressurized tent

This two-people tent is vacuum proof, it even is equipped with a simple airlock. The oxygen reserve is sufficient for two people for 24 hours upon introduction (+ 24 hours per further TL). Sating at TL C, an air regeneration system (cf. space-suits) is installed, which multiplies the time of use by 10.

The plastic material provides a certain radiation shield (double resistance time) and has a protection value of 5 against all attacks. Furthermore, it insulates against temperatures down to absolute zero or up to + 300 degrees Centigrade.

Biosuit

A biosuit is made of biologically living material, that surrounds the whole body like a transparent second skin, but if desired, it can also take any selected color (like a chameleon). It does not impair the movements much and maintains the standard body conditions (pressure, temperature, etc.), even in a vacuum (but here for a maximum of 48 hours). An oxygen reserve may be added, otherwise, the air is sufficient for a maximum of five minutes. The suit disassembles all body excretions and makes them reusable; this includes carbon dioxide from breathing, so that the effect of a regeneration system is achieved.

Against close combat attacks, apply a protection value of 5, against other attacks, only one of 3. The resistance time against radiation is tripled; a pressure zwischen 0.5 and 1.5 atmospheres can be compensated indefinitely, this also applies for temperatures between -80 and +120 degrees Centigrade. Other values reduces the lifetime of the suit to a total time of one month, this is halved per further 50 degrees or one atmosphere of difference. If damaged, the biosuit repairs any leakage within 1D6 turns by cell growth.

Temperature-Suit

This suit is made from an insulating material, that is neither pressure nor vacuum tight. It provides protection against temperatures between -100 and +200 degrees Centigrade. A transparent folding helmet is integrated. The protection value against attacks is 3, or 6 against all thermal weapons such as e.g. lasers.

Environment-Shield

This application of the forcefield technology consists of a small box like generator, which creates a weak protection field around the user. This field does not protect against attacks, but it maintains a constant interior temperature, provided that the difference to the outside is not more than 50 degrees Centigrade, and deflects e.g. wind, rain, hailstones, insect swarms, etc. without difficulty. The Field is penetrable for any kind of molecules, thus also for air; and consequently does not protect against vacuum effects.

Grapple pistol

The grapple pistol uses magnets or gas pressure to fire a hook, that gets hold in almost any matter. Only very hard or very crumbly substances are excluded. The range is about 50 meters. Use shotgun skill. A hit means that the hook has reached its target. As it is connected with a thin, but very powerful rope, this makes it possible, e.g. to climb a wall or to cross a ravine. A brief impulse that is sent through the rope

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can remove the hook easily again, the rope may then be hauled in with the integrated winch.

The magnetic version (similar to a needler) requires a B cell for 50 uses. The gas variant uses a gas cartridge (10 Cr), that is sufficient for 25 shots.

Cold light lamp

This lamp contains a substance that does not require any energy for operating. It also does not emit any heat, but produces a cold fluorescence light in a cone of about 20 meters length.

Filter masks

Filter masks allow to survive in contaminated atmospheres. They remove dangerous air parts such as carbon monoxide, irritants, sulfur compounds, etc., but not combat agents. On average, the filter must be replaced every 7 days, costing 50% of the price of the mask. Each TL after the introduction increases this time by 7 days.

Compressor mask

A compressor mask allows a character to breathe in thinner atmospheres. It contains a compressor and an oxygen cartridge and can be used for pressures down to 0.5 atmospheres or an oxygen content down to 6%. The mask is also available in combination with a filter mask.

Rarefaction mask

The rarefaction mask is the counterpart. It prevents oxygen euphoria in too dense or too oxygen rich atmospheres. Values up to 2 atmospheres or 30% oxygen can be compensated. The mask is also available in combination with a filter mask.

Gas mask

A gas mask serves as protection against dangerous gases, most of them used as weapons. While it is worn, all gases that are treated as breath venoms are useless against the character for up to 6 hours. Afterwards, the mask should be replaced. Each further TL increases this time by 6 hours.

Prospector basic set

This medium size metal or plastic suitcase contains the equipment, that a prospector requires to take small mineral samples and to examine them. The set is usually carried during expeditions, when looking for mineral resources. True exploitation is not possible with the set, but only that of the smallest amounts, about 1 to 5 kg per work day.

Emotio-Adapter

If a piece of equipment shall be capable for use via an emotio-Adapter (cf. cybertech), i.e. the direct control by the brain, this doubles its price in Cr. The modification can easily be made in the manufacturing process. A later addition doubles the price once again.

Space and battlesuits

Lots of different types of protective suits are in use, in order to resist the conditions of space and foreign planets or improve the chances in combat.

Generally, the following system may be used to design such a suit based on personal preferences. However, some standard models have been developed, that have a price advantage due to mass production that should not be underestimated.

The term battlesuit usually describes military suits that are equipped with respective protection fields or armored material.

a) Installations

The weight of all installations is only counted half, if the suit is worn. The control of the equipment is normally made via a sensor pad at the belt or wrist. Starting at TL A, it furthermore becomes standard that vision switches are installed in the helmet, i.e. the system interprets certain looks of the user as commands.

Suit material

The base material of a spacesuit may consist of ordinary synthetic fibers, but also of typical armor material. A simple spacesuit at TL 13 has protection value 6 in close combat and 3 against other attack forms. It weighs 5 kg (worn 50 % as usual). Each further TL increases the protection values by 2 points. Such a basic suit including a foldable helmet (same protection value) costs 1,000 Cr. The rules for monofiber (half protection against impaling attacks) must be used.

Spacesuits of monofiber or superfiber are possible; their protection values are equal to those of the respective armor versions. The weight is calculated as armor weight for the entire body x 1.5. The price is double the standard armor price.

Respectively, it is also permitted to add a thermal layer or harden the armor or to integrate the functions of a reflex armor. The price is always double the armor price.

Air reserve

An air tank for 24 hours weighs 5 kg and costs 500 Cr at TL 13. Larger tanks have a respectively higher weight and price. Each TL after 13 increases the air reserve by 24 hours at the same weight, or halves the weight.

Air regeneration

Starting at TL B, it becomes possible, to install a system, which disassembles the exhaust breath (carbon dioxide, etc.) using an atomic process and thus considerably extends the using time of the air reserve. Such a system costs 1,000 Cr, weighs 0.5 kg and extends the time with factor 10. Each further TL increases the factor by 10 (e.g. factor 30 at TL D).

Gravitator

This small device compensates a gravity difference, so that the user is able to move e.g. on a 3-g planet as if he was under standard Earth conditions, and does not have any disadvantages from the high gravity. Introduction occurs at TL B. The base model compensates up to 2 g difference and costs 500 Cr with 0.5 kg weight. Improvements are possible; each further g of neutralisation capacity costs 1,000 Cr up to a maximum of 5 g. Each further TL adds 0.5 g to the base model and the maximum.

Radiation shield

Each level of radiation shield, with which a spacesuit is equipped, increases the resistance time against radiation (cf. basic rules) by 100%. There is no maximum; the price amounts to 1,000 Cr and the weight to 0.1 kg per level. Each TL above 13 reduces the price by 100 Cr and the weight by 0.01 kg.

Heating

Typical heating systems allow to resist the temperatures of outer space (-273 degrees Centigrade). They cost 500 Cr and weigh 2 kg. Each TL after TL 13 reduces the weight by 0.2 kg.

Cooling

A basic cooling system neutralises temperatures up to +300 degrees Centigrade. Introduction occurs at TL 13 for 500 Cr and 2 kg weight. Each power increase by 100 degrees costs further 1,000 Cr and 0.5 kg. Every TL after 13 reduces the weight by 0.2 kg for the base model and 0.1 kg per increase.

Pressure tolerance

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Usual suits resist a pressure of up to two Earth atmospheres. Every increase by one atmosphere costs additional 1.000 Cr and increases the weight by 2 kg. The maximum is 8 atmospheres. Every TL after 13 increases the base power and the maximum by one atmosphere.

Protection fields

It is state of the art to integrate protection field or force field generators especially in battlesuits. Use the normal stats concerning price and weight.

Radio

This is an integrated radio with the respective stats from the equipment table, but double price.

Scanners

It is possible to integrate any kind of scanner (e.g. energy scanner, chemscanner, etc.) in a spacesuit. The prices from the equipment table are doubled; the other stats stay unchanged.

Flight capacity

A suit can become flight capable by an installed antigrav system (backpack at TL B, gravbelt at TL C and after). Use the stats for the respective items with double price.

Space flight capacity

If a spacesuit shall be able for free movement in space, fusion or impulse drive must be included. Fusion drives become available at TL A (before, there are only small thrusters, which allow short accelerations of 1 g maximum, cost about 1,000 Cr and weigh 5 kg).

A fusion drive allows up to 2 g of acceleration with the base model, weighs 5 kg and costs 5,000 Cr. Each increase by 1 g costs further 1,500 Cr and adds 1.5 kg, up to a maximum of 10 g. Usually, a separate energy cell (F) is installed, that delivers power for up to two minutes with 2 g acceleration, respectively modified for other values. The thruster mass is sufficient for about 10 minutes. Further TLs after A increase the power of the base model as well as the maximum by 1 g each, and the energy consumption respectively refers to 1 g more.

Impulse drives are introduced at TL C. The base model allows 5 g acceleration with 5 kg weight and a price of 5,000 Cr. Each increase by 2 g costs 2,500 Cr and adds 1.5 kg with a maximum of 50 g. Each further TL doubles the base power and the increments. The power (F cell) is sufficient for 5 minutes of operation at basic acceleration.

Various

Further possible installations are almost limitless: Just be inspired from the equipment list and simply double the price: torches or searchlights, loading sockets, a medscanner or an autodoc, a computer, an HUD, a clock, a thermometer, a translator, a compass, etc.

Energy supply

Usually, an E cell powers a spacesuit for about one week of continuous use at TL 13, + 1 week per further TL. For the time, while a cell is changed, stored power is used. For suits with very many installations, especially power hogs such as protection fields or antigrav systems, it is recommended to include an additional power supply for these, based on the stats in the equipment tables. Otherwise, the master should reduce the time until the cell change.

It is possible to instal a fusion or antimatter reactor at a respective TL (double price), solving all energy problems for a longer time.

Helmet

The helmet of a spacesuit can use various different designs. The folding helmet, which can be stowed into a neck bulge like a hood, already has been presented.

Other possibilities include to use the plastic, reflec, steel or armor helmet from the armor tables as base helmet. This results in a respective protection value and weight and doubles the helmet price.

Muscle enhancer

It is possible to equip especially battlesuits with an artificial muscle enhancer, usually as an exoskeleton, later also as muscles from bio-imitate similar to some cybertech. This system supports the user and improves his physical strength.

Standard muscle enhancers increase the strength to 20 (if the user has higher strength, he cannot benefit from the system). They cost about 50,000 Cr and increase the weight by 5 kg. Each further 5 strength points double the price and increase the weight by 1 kg. At higher TL, the price decreases again, i.e. after TL 13 by 10,000 Cr per TL.

b) Standard models

The technical stats of the suits are as follows:

Light Spacesuit (LSS)

This spacesuit model is especially widespread among private space travellers, because it is cheap and nevertheless sufficiently powerful. It consists of a suit made of base material with folding helmet, and has the following stats:

TL	A	B	C	D	E	*
Oxygen	24 h	48 h	72 h	96 h	120 h	144 h
Regeneration	-	x 10	x 20	x 30	x 40	x 50
Pressure tolerance	2	3	4	5	6	7
Gravita-tor	2 g	2,5 g	3 g	3,5 g	4 g	4,5 g
TL	A	B	C	D	E	*
Radiation shield	1	1	2	2	3	3
Heating	Std.	Std.	Std.	Std.	Std.	Std.
Cooling	300	300	400	400	500	500

Additionally, the suit includes a clock, a radio (normal stats) and a thermometer, as well as a sensor, that is able to analyse an atmosphere for its parts. The suit costs 3,500 Cr and weighs 15 kg. The user DM is -15 without skill, otherwise -5 up to skill value 50 and 0 for values above this.

Normal-Spacesuit (NSS)

This is the standard model of most organizations, such as the Space fleet.

TL	A	B	C	D	E	*
Oxygen	24 h	48 h	72 h	96 h	120 h	144 h
Regeneration	-	x 10	x 20	x 30	x 40	x 50
Pressure tolerance	2	3	4	5	6	7

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Gravita-tor	3 g	3,5 g	4 g	4,5 g	5 g	5,5 g
Radiation shield	2	3	4	5	6	7
Heating	Std.	Std.	Std.	Std.	Std.	Std.
Cooling	300	300	400	400	500	500
Drive	2 g	3 g	5 g	10 g	20 g	40 g
Antigrav km/h	-	100	100	200	300	400

Additionally, the suit is equipped with a radio, a clock, a thermometer, an atmosphere analyser and a multiscanner. Since TL A, a fusion drive is installed and replaced by an impulse drive at TL C. Furthermore, the suit contains an antigrav backpack at TL B and a gravbelt at TL C and higher. The suit material is light superfiber with a standard, folding helmet. Additionally, since TL B, a bell force field projector is integrated. The weight of the suit amounts to 20 kg and its price is 25,000 Cr. The user-DM is -10 without skill, -5 up to skill value 50 and 0 above.

Heavy Spacesuit (HSS)

This spacesuit model has been developed for use under the conditions of extreme planets. Usually, a muscle enhancer is integrated because of the high weight. The user-DM is -30 without suitable skill; - 10 up to skill value 50 and -5 for higher values.

TL	A	B	C	D	E	*
Oxygen	24 h	48 h	72 h	96 h	120 h	144 h
Regene-ration	-	x 10	x 20	x 30	x 40	x 50
TL	A	B	C	D	E	*
Pressure tolerance	4	6	8	10	12	14
Gravita-tor	4 g	5 g	6 g	7 g	8 g	10 g
Radiation shield	3	4	5	6	7	8
Heating	Std.	Std.	Std.	Std.	Std.	Std.
Cooling	500	600	700	800	1000	1200
Antigrav km/h	-	100	100	200	300	400
Drive	2 g	3 g	5 g	10 g	20 g	40 g

Additionally, the equipment contains a radio, a clock, a thermometer, an atmosphere analyser and a multiscanner. Since TL A, a fusion drive is installed and replaced with an impulse drive since TL C. Furthermore, since TL B the suit is equipped with an antigrav backpack, and since TL C with a gravbelt. The suit material is light superfiber with a normal folding helmet. Additionally, a bell force field projector is integrated since TL B. The weight of the suit amounts to 40 kg and it costs 40,000 Cr. An additional muscle enhancer, that is only installed to compensate the suit weight, costs 25,000 CR at TL 13. Each further TL reduces this by 3,000 Cr. The suit then weighs only 0 kg, but the user retains his ordinary strength.

Space-Battlesuit (SBS)

A typical military space and combat suit, being e.g. used by combat units of the Federation Marines or also many armed forces. The legality is 5.

TL	A	B	C	D	E	*
Oxygen	24 h	48 h	72 h	96 h	120 h	144 h
Regene-ration	-	x 10	x 20	x 30	x 40	x 50
Pressure tolerance	2	3	4	5	6	7
Gravita-tor	3 g	3,5 g	4 g	4,5 g	5 g	5,5 g
Radiation shield	2	3	4	5	6	7
Heating	Std.	Std.	Std.	Std.	Std.	Std.
Cooling	300	300	400	400	500	500
Antigrav km/h	-	100	100	200	300	400
Drive	2 g	3 g	5 g	10 g	20 g	40 g

Additionally, the suit is equipped with a radio, a clock, a thermometer, an atmosphere analyser, an HUD, IR- and LI vision, telescopic goggles, a power socket, a medsensor and a multiscanner. At TL A and higher, a fusion drive, and at TL C and above, an impulse drive is installed. Furthermore, the suit includes an antigrav backpack at TL B and a gravbelt at TL C and above. Suit material is medium superfiber with an armor helmet with reflec coating. The suit is hardened and equipped with a thermal layer since TL B. Additionally, a bell force field projector is integrated since TL B, and since TL C, a light protection field projector is added. The suit is powered by a fusion reactor since TL B and an antimatter reactor since TL E. The weight amounts to 40 kg and its price is 100,000 Cr. A muscle enhancer (ST 30) costs 75,000 Cr at TL 13 and increases the weight by 5 kg. Each further TL reduces this price by 8,000 Cr and the weight by 1 kg. The user-DM is -15 without skill, -5 for skill value up to 50 and 0 if above.

Heavy Space-Battlesuit (HBS)

This version of a military protection suit has been designed for missions under especially bad conditions and for various special forces units. The legality is 4.

TL	A	B	C	D	E	*
Oxygen	24 h	48 h	72 h	96 h	120 h	144 h
Regene-ration	-	x 10	x 20	x 30	x 40	x 50
Pressure tolerance	4	6	8		12	14
Gravita-tor	4 g	5 g	6 g	7 g	8 g	10 g
Radiation shield	3	4	5	6	7	8
Heating	Std.	Std.	Std.	Std.	Std.	Std.
Cooling	500	600	700	800	1000	1200
Antigrav km/h	-	100	100	200	300	400
Drive	2 g	3 g	5 g	10 g	20 g	40 g

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Additionally, the suit includes a radio, a clock, a thermometer, an atmosphere analyser, an HUD, IR and LI vision, teleopic goggles, a loading socket, a medsensor and a multiscanner. At TL A, a fusion drive is installed and replaced with an impulse drive at TL C. Furthermore, starting at TL B, the suit contains an antigrav backpack, and at TL C and after, a gravbelt. The suit material is a heavy superfiber suit with an armor helmet with reflec coating. The suit is hardened and at TL B and after, it possesses a thermal layer. Additionally, since TL B, a bell protection field generator is integrated, and since TL C, a standard protection field projector is added. The suit is powered by a fusion reactor since TL B and by an antimatter reactor since TL E. The weight of the suit is 60 kg and its price amounts to 200,000 Cr. A muscle enhancer (ST 40) costs 150,000 Cr at TL 13 and increases the weight by 8 kg. Each further TL reduces this price by 10,000 Cr and the weight by 1 kg. The user-DM is -30 without suitable skill; -10 up to skill value 50 and -5 above this.

Combat combination (CC)

A combat combination is not vacuumproof, but only a special form of military protective wear for ground combat. Its legality is 5.

The combination includes neither heating nor cooling systems as the other suits, but it has been designed for a range from -50 up to +100 degrees Centigrade. The air reserve of 2 hours (at TL 13, +2 h per TL after this) is not for survival in outer space, but in the case of sealing against chemical agents. The radiation shield is equal to that of an NSS. A gravitator or antigrav is not installed.

Since TL B, a bell force field projector is integrated, and since TL C, a mini protection field projector is added. The suit material is light superfiber with a plastic helmet with reflec coating. A loading socket, a clock, a radio, an HUD, a multiscanner, a thermometer and a medsensor are also part of the equipment.

A combat combination weighs 15 kg and costs 60,000 Cr.

Space combat armor (SCA)

These systems are very rarely encountered, normally only among very small elite forces that officially do not exist at all. They turn the individual soldier into some kind of minispaceship with incredible combat power and damage resistance. The legality is 0. Very often, weapons are integrated.

Use the stats of an HBS with triple air reserve and ten times the radiation shield, but the base is heavy combat armor, hardened and coated with a thermal and reflec layer. A bell force field projector (since TL B) and an enhanced protection field projector (since TL C) as well as a lightwave distorter complete the system. The weight is about 100 kg and the price amounts to 1 MCr. A muscle enhancer is included for this price (strength 30 at TL A, +20 per further TL). If the skill value with protection suit skill is less than 50, apply a DM of -25 on all actions; and without any skill knowledge, even one of -75. For skill values of 50 and more, however, reduce the DM to -5.

Vehicles and antigravitation technology

At the different tech levels, many different vehicle types are used. After introduction of antigravitation at TL A, however, very soon grav vehicles begin to dominate. These vehicles hover by neutralising the gravity. The movement is achieved via directed gravity pulses, or, in case of very fast vehicles, also via impulse drives or conventional thrusters. The power is supplied by fusion reactors starting at TL B (before batteries = energy cells or solar energy or hydrogen combustion engines; at TL below 13 combustion of fossile fuels like oil and coal). At TL E, more and more of them are replaced by antimatter reactors.

ATV (All-Terrain-Vehicle)

This is a general term for wheeled and tracked vehicles that are able to travel in almost any type of terrain. Usually, the interior is even sealed vacuumproof and equipped with a life support system and an airlock. The main difference between wheeled and tracked versions is that the latter act better in very inaccessible terrain, whereas wheeled vehicles are faster on good ground.

The speeds for wheeled vehicles are in a range from 80 to 120 km/h on roads, much less when off road. Tracked vehicles achieve maximum speeds of about 80 km/h.

The armored versions mainly serve military purposes. However, both variants may be equipped with a turret for heavy weapons, usually beam weapons, missiles or needle cannons. Such a turret increases the vehicle price by 20,000 Cr with 180 degrees field of fire and by 40,000 Cr with a 360 degrees area, plus the weapon price.

Glider

The term glider covers all types of grav vehicles, regardless if for transport of persons or of goods. They vary between small two-person gliders and heavy cargo transporters of 20 and more meters length. In this respect, they are similar to the petrol powered vehicles of the Terran 20th century. Usually, speed of up to 1,000 km/h can be achieved, depending on type and cargo load.

On the worlds of the Federation, gliders dominate the general traffic on roads as well as in planetary airspace.

The typical glider in the table is a four-people model with closed cabin, actually the grav car.

A sports glider is a two-seater with respective sleek design and built for speed.

The grav transporter has room for up to 8 passengers (or 200 kg of freight instead of a passenger) and is vacuumtight with a life support system. The armored version is used by the military. Both can be equipped with a gun turret as described for ATV.

Combat gliders are military vehicles for patrols and scout duties. They usually have two weapons that are facing the front, mounted either on the stub wings or in the bow point. Two people can find room in this vacuum tight sealed glider.

The grav-truck, finally, is a bulk carrier for about 15 tons of cargo load.

Gravbelt and antigrav backpack

An antigrav backpack is a backpack-sized device with a control console that enables a character to fly in any direction. At introduction, a standard backpack allows to reach speeds of up to 100 km/h; this is increased by 100% for each further TL. However, it is recommended to get a protection against wind at higher speeds, starting at about 100 to 200 km/h. Such protection may be provided, e.g. by a closed spacesuit or battlesuit or a light protection field or bell force field.

A gravbelt is the logical improvement: This is a belt that can be worn. The power is similar to that of the backpack unit, i.e. 100 km/h at introduction, afterwards respectively more. The advantage is that the belt is far less clumsy is.

Both types of device allow furthermore to neutralise up to 5g of gravity when introduced (+5 g per further TL).

Antigrav modules

The technology of antigravitation makes it possible, to equip any piece of equipment with small antigrav modules, which reduce their weight to almost zero and thus facilitate the transport. Especially heavy weapons of all kinds are modified in this way. However, please note that the mass stays unchanged, i.e. one will have some problems when moving

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100kg around, even if the weight has been reduced to 0. The master decides about DM and effects.

Mini gravitator

This small device is used to compensate the effects of high or low gravity on the user. At introduction, it can neutralise a gravity difference of up to 2 g; each further TL improves this by 1 g.

Antigrav plate

A plate of varying basic size, that is equipped with an anti-grav system, that enables it to hover. Antigrav plates are mainly used for loading and unloading of freight; but they can in general be applied to make objects weightless. Usually, the maximum speed of movement is 10 up to 50 km/ h depending on their TL.

Relics

Objects of the Imperial technology cannot be bought in the next supermarket. They are jealously guarded, ancient relics. Someone that manages to find a stock with still working Imperial technology (these stocks were built for eternity), actually will no longer have to worry about money: The prices in list can be multiplied with a factor 10 up to 100 depending on the item - objects, that are "merely" improvements (e.g. x-ray laser) reach less, unique items (fictitious transmitter, gravo rifle) reach more.

Player characters do not have access to Imperial technology when created, unless the master gives them a list with „his“ prices for the items.

This chapter treats the Imperial technology.

Gravo-Rifle

A gravo rifle creates a short-lived, very strong field of gravity (a lot of g) at its target point, affecting any matter in this area and distorting it. Treat a shot as an explosion, but at the same time, as an energy weapon. Armors of any kind are completely useless; only protection fields have an effect.

Distortion shields

A distortion shield is some kind of improvement of ordinary protection fields. It does not only protect via its ABV, but, similar to e.g. an FTL drive, it furthermore opens a gate to hyperspace, so that the protected object oscillates between normal and hyperspace. This is also called flickering, and respectively, all distortion shields have a flicker value, which is usually below 25, but may be set to a lower figure.

If an attack resulted in a potential hit, roll 1D100+ flicker value. If the result is at least 100, the attack hit during the hyperspace phase, i.e. the target effectively was not present in normal space. Thus, neither damage nor a shield burden is caused. A drawback of the flickering is, that it impairs the own attacks of the shield user. Apply DM – half the flicker value on these rolls.

Micro-molecular technology

The Old Empire was capable of manufacturing various technical devices with the size of a few molecules. Mainly, these were different kinds of surveillance equipment, being effectively undetectable. Further known items include medical technology, e.g. probes for examination of blood vessels and the carrying out of surgery.

Mini disintegrator ammo

This special ammo for all current slugthrowers (normally missile weapons) is a miniaturised disintegrator bomb. In case of a hit, the respective effect affects the target with the stats mentioned there. The base price at TL * (legality 0) is about standard ammo price x 100.

Living metal / plastic

Another application of the micro molecular technology is the construction of objects from living meta or living plastic. In this case, an object contains microscopically small robots, which immediately start to make repairs if the object is damaged. Usually, they will repair 1D6% of the structure points per 5 minutes. The material for this repair is taken from the immediate surroundings, i.e. normally the base on which the object is just lying. This means, that e.g. a damaged pistol made of living metal, that has been placed on a table, might be repaired after one hour – but there will be some holes and moulds in the table plate... The robots will use any material except for living organic matter. Especially suited material, i.e. such that is identical to the base material of the object, halves the repair time.

Objects from living metal or plastic cost ten times as much as normal. The lifetime of the robots is virtually unlimited; but they may be destroyed by very hard radiation. This also happens if more than 99% of the object have been destroyed.

Matter projections

Matter projections, also called shaped energy, are a practical application of the theory of relativity. They are a bit comparable with holograms, but yet very different: a matter projector creates a solid object from energy. This makes it e.g. possible, to vary the interior of a house or a spaceship bridge at will, when required, e.g. to create or dissolve seats, tables, etc..

The research just reached the creation of entire spaceship parts from shaped energy at the end of the Old Empire, but none of these prototypes appears to have survived the Civil War.

Memory copies

The Empire possessed the possibility to transfer the whole memory of a creature to a computer storage using a special scanner of about the size of a large seat. This memory tape could then be transferred to another creature, e.g. a clone, or also to a computer. However, it is very questionable which part of this information is truth, and which is only a myth, when having a look at our difficulties in this research area.

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Portable FTL communicators

An FTL communicator opens a gate to hyperspace. This is the portable version of the devices that are currently installed in spaceships.

In general, the procedure described in the respective section is used. The standard range is 1 lightday for the portable and 10,000 km for the mini device. The main advantage of FTL radio is that it cannot be influenced by atmospheric disturbances or material obstacles.

Time-lapse field

Time lapse fields are the counterpart to the stasis field. However, inside a time-lapse field, time passes faster than at the outside, easily with a difference of factor 10 up to 1,000. As in case of a stasis field, no interaction between the inside and the outside is possible here.

There are plenty of possible applications: For example, one might have a development team work inside the time-lapse. It still needs 200 days for its research, but using a factor of 100, only 2 days would meanwhile pass in the real world! Similar uses come into the mind for medicine, for growth of crystals or living matter, for cloning, etc.

True stasis field

The stasis technology of the Old Empire was much more advanced than the currently still possible designs. Typical stasis fields were perfectly capable to cover an entire spaceship and to have the effect that for it, no measurable time passed while the field was operating – and due to an antimatter reactor, the field might work for many millennia.

Furthermore, the Empire knew the stasis projector, a type of weapon system for spaceships and larger battle vehicles, which could cover a target object with a stasis field and thus disabling it without any damage, but very effectively. The only defense against this device was a distortion shield.

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Table: Ranged weapons TL 13 to *

Weapon	TL	Leg	Price / Cr	Ammo price/ Cr	Weight / kg	Ammo	Ammo weight / kg
Light Automatic pistol	13	9	100	10	0,4	20 M	0,1
Medium Automatic pistol	13	8	200	15	0,75	20 M	0,25
Heavy Automatic pistol	13	8	300	20	1,3	20 M	0,45
Light Revolver	13	9	90	3	0,35	6 T	6 x 0,01
Medium Revolver	13	8	175	4	0,7	6 T	6 x 0,02
Heavy Revolver	13	8	250	5	1,2	6 T	6 x 0,03
Mini-Pistol	13	8	250	20	0,05	5 M	0,01
SMG	13	8	350	25	1,5	40 M	0,3
Mini-SMG	13	8	400	30	0,8	40 M	0,15
Repeating shotgun	13	9	125	25	3	10 M	0,75
Twin-barrel shotgun	13	9	95	15	2,75	2 L	2 x 0,1
Carbine	13	9	125	20	2,5	30 M	0,3
Rifle	13	9	180	25	3,85	30 M	0,5
Precision rifle	13	7	1.000	50	5	10 M	0,2
SMG-Carbine	13	7	500	20	3	30 M	0,3
Automatic rifle	13	7	750	25 (Gurt 50)	4,25	30 M (or 50 Gurt)	0,5 (or 1)
Heavy Automatic rifle	13	7	850	30 (Gurt 60)	5,25	30 M (or 50 Gurt)	0,75 (or 1,25)
Rocket-Pistol	13	6 / 7	500	40	1	20 M	0,4
Rocket-Carbine	13	6 / 8	900	40	2,5	20 M	0,4
Rocket-Rifle	13	6 / 8	1.400	40	4	20 M	0,4
Rocket-Revolver	13	7	400	12	1	6 T	6 x 0,02
Gas-Needler	13	8	200	25	0,2	50 M	0,1
Gas-Needler-Rifle	13	9	300	25	1,8	50 M	0,15
Minineedler	13	7	350	25	0,1	50 M	0,06
Maxineedler	13	7	500	40	0,3	100 M	0,2
Needler-Rifle	13	8	1.200	40	2,3	100 M	0,2
Light Laser pistol	13	6 / 8	250	20	0,6	30 EP / A	0,1
Medium Laser pistol	13	5 / 7	350	50	1,25	30 EP / B	0,2
Heavy Laser pistol	13	5 / 7	500	100	1,75	30 EP / C	0,4
Laser carbine	13	6 / 8	600	150	4	40 EP / D	0,5
Laser rifle	13	6 / 8	850	500	6	40 EP / E	1
Heavy Laser rifle	13	5 / 7	1.200	500	9	20 EP / E	1
Sonic stunner	13	10	500	150	3	30 EP / D	0,5
Rocket-Pistol	A	6 / 7	300	35	0,9	25 M	0,4
Rocket-Carbine	A	6 / 8	750	35	2,25	25 M	0,4
Rocket-Rifle	A	6 / 8	1.100	35	3,5	25 M	0,4
Minineedler	A	7	250	20	0,08	60 M	0,06
Maxineedler	A	7	350	35	0,25	120 M	0,2
Needler-Rifle	A	8	900	35	2,1	120 M	0,2
L. Laser pistol	A	6 / 8	200	20	0,5	40 EP / A	0,1
M. Laser pistol	A	5 / 7	300	50	1,1	40 EP / B	0,2
H. Laser pistol	A	5 / 7	400	100	1,6	40 EP / C	0,4
Laser carbine	A	6 / 8	500	150	3,5	50 EP / D	0,5
Laser rifle	A	6 / 8	750	500	5	50 EP / E	1
H. Laser rifle	A	5 / 7	1.000	500	8	25 EP / E	1
Gas-Needler	A	8	150	20	0,18	60 M	0,1
Gas-Needler-Rifle	A	9	250	20	1,7	60 M	0,15
Sonic stunner	A	10	250	150	2,5	40 EP / D	0,5
Mini-Stunner	A	10	260	20	0,5	50 EP / A	0,1
Rocket-Pistol	B	6 / 7	200	35	0,8	25 M	0,35
Rocket-Carbine	B	6 / 8	400	35	2	25 M	0,35
Rocket-Rifle	B	6 / 8	600	35	3,2	25 M	0,35
Minineedler	B	7	150	25	0,07	70 M	0,06
Maxineedler	B	7	200	35	0,2	140 M	0,2
Needler-Rifle	B	8	550	35	2,3	140 M	0,2
Gas-Needler	B	8	100	20	0,15	70 M	0,1
Gas-Needler-Rifle	B	9	175	20	1,5	70 M	0,15
L. Laser pistol	B	6 / 8	150	20	0,4	50 EP / A	0,1
M. Laser pistol	B	5 / 7	220	50	1	50 EP / B	0,2
H. Laser pistol	B	5 / 7	300	100	1,5	50 EP / C	0,4

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Weapon	TL	Leg	Price / Cr	Ammo price/ Cr	Weight / kg	Ammo	Ammo weight / kg
Laser carbine	B	6 / 8	400	150	3	60 EP / D	0,5
Laser rifle	B	6 / 8	650	500	4,8	60 EP / E	1
H. Laser rifle	B	5 / 7	800	500	7,5	35 EP / E	1
Sonic stunner	B	10	200	100	2,2	50 EP / C	0,4
Mini stunner	B	10	220	20	0,2	60 EP / A	0,1
L. Laser pistol	C	6 / 8	130	20	0,3	60 EP / A	0,1
M. Laser pistol	C	5 / 7	200	50	0,9	60 EP / B	0,2
H. Laser pistol	C	5 / 7	280	100	1,35	60 EP / C	0,4
Laser carbine	C	6 / 8	370	150	2,8	75 EP / D	0,5
Laser rifle	C	6 / 8	600	500	4,5	75 EP / E	1
H. Laser rifle	C	5 / 7	700	500	7	40 EP / E	1
Sonic stunner	C	10	150	100	2	55 EP / C	0,4
Mini-Stunner	C	10	180	20	0,15	65 EP / A	0,1
Heavy Plasma-Rifle	C	2	2.000	500 + 300	12	10 / E + 10 M	1 + 2
Particle-Pistol	C	4	1.000	100	2	30 EP / C	0,4
Particle-Carbine	C	5	1.500	150	4,5	30 EP / D	0,5
Particle-Rifle	C	6	2.000	500	8	30 EP / E	1
Disruptor-Pistol	C	3	1.000	100	1,45	40 EP / C	0,4
Disruptor-Rifle	C	4	1.750	500	5,5	40 EP / E	1
Paralysis-Rifle	C	9	1.750	500	6	30 EP / E	1
X-Ray-Laser-Rifle	C	4	1.800	500	8	30 EP / E	1
Disruptor-Pistol	D	3	700	100	1,25	50 EP / C	0,4
Disruptor-Rifle	D	4	1.400	500	5	50 EP / E	1
Particle-Pistol	D	4	800	50	1,5	35 EP / B	0,2
Particle-Carbine	D	5	1.100	100	3,8	35 EP / C	0,4
Particle-Rifle	D	6	1.500	500	6	35 EP / E	1
Paralysis-Pistol	D	9	500	50	1,25	40 EP / B	0,2
Paralysis-Carbine	D	9	1.000	100	3	40 EP / C	0,4
Paralysis-Rifle	D	9	1.500	150	4,5	40 EP / D	0,5
Light X-Ray-Laser Pistol	D	4 / 6	250	20	0,5	50 EP / A	0,1
Medium X-Ray-Laser pistol	D	3 / 5	400	50	1,15	50 EP / B	0,2
Heavy X-Ray-Laser pistol	D	3 / 5	600	100	1,5	50 EP / C	0,4
X-Ray-Laser Carbine	D	4 / 6	750	150	3,5	60 EP / D	0,5
X-Ray-Laser Rifle	D	4 / 6	1.200	500	5	60 EP / E	1
Heavy X-Ray-Laser Rifle	D	3 / 5	1.400	500	7,5	35 EP / E	1
Tractor beamer	D	10	1.000	500	6,5	20 EP / E	1
Plasma-Rifle	D	3	1.200	500 + 250	8	15 / E + 15 M	1 + 1,5
Heavy Plasma-Rifle	D	2	1.500	500 + 300	10	12 / E + 12 M	1 + 2
Heavy Fusion-Rifle	D	2	2.500	500 + 500	12	10 / E + 10 M	1 + 2
Particle-Pistol	E	4	600	50	1,3	40 EP / B	0,2
Particle-Carbine	E	5	800	100	3,5	40 EP / C	0,4
Particle-Rifle	E	6	1.200	500	5,25	40 EP / E	1
Paralysis-Pistol	E	9	300	50	1,25	50 EP / B	0,2
Paralysis-Carbine	E	9	750	100	2,8	50 EP / C	0,4
Paralysis-Rifle	E	9	1.000	150	4	50 EP / D	0,5
Light X-Ray-Laser pistol	E	4 / 6	200	20	0,4	55 EP / A	0,1
Medium X-Ray-Laser pistol	E	3 / 5	350	50	1	55 EP / B	0,2
Heavy X-Ray-Laser pistol	E	3 / 5	500	100	1,25	55 EP / C	0,4
X-Ray-Laser Carbine	E	4 / 6	650	150	3,2	66 EP / D	0,5
X-Ray-Laser Rifle	E	4 / 6	1.000	500	4,75	66 EP / E	1
Heavy X-Ray-Laser Rifle	E	3 / 5	1.200	500	7	40 EP / E	1
Tractor beamer	E	10	800	500	5	30 EP / E	1
Mini tractor beamer	E	9	300	50	1,5	20 EP / B	0,2
Hypno-Rifle	E	2	5.000	500	6	20 EP / E	1
Weapon	TL	Leg	Price / Cr	Ammo price/ Cr	Weight / kg	Ammo	Ammo - weight / kg
Hypno-Pistol	E	2	3.500	100	2	20 EP / C	0,4
Mini-Paralysis gun	E	9	500	20	0,5	30 EP / A	0,1
Disintegrator-Rifle	E	5	4.000	500	7	15 EP / E	1
Disintegrator-Carbine	E	5	2.500	500	5	20 EP / E	1

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Disintegrator-Pistol	E	4	1.500	100	2,5	20 EP / C	0,4
Fusion-Rifle	E	3	1.200	500 + 300	8	20 / E + 20 M	1 + 1,5
Heavy Fusion-Rifle	E	2	2.000	500 + 500	10	14 / E + 14 M	1 + 2
Particle-Pistol	*	4	500	50	1,1	50 EP / B	0,2
Particle-Carbine	*	5	650	100	3	50 EP / C	0,4
Particle-Rifle	*	6	1.000	500	4,5	50 EP / E	1
Paralysis-Pistol	*	9	200	50	1	60 EP / B	0,2
Paralysis-Carbine	*	9	650	100	2,25	60 EP / C	0,4
Paralysis-Rifle	*	9	800	150	3,25	60 EP / D	0,5
Light X-Ray-Laser pistol	*	4 / 6	150	20	0,35	65 EP / A	0,1
Medium X-Ray-Lase pistol	*	3 / 5	300	50	0,9	65 EP / B	0,2
Heavy X-Ray-Laser pistol	*	3 / 5	420	100	1,1	65 EP / C	0,4
X-Ray-Laser Carbine	*	4 / 6	600	150	3	70 EP / D	0,5
X-Ray-Laser Rifle	*	4 / 6	800	500	4,5	70 EP / E	1
Heavy X-Ray-Laser Rifle	*	3 / 5	1.000	500	6,5	50 EP / E	1
Tractor beamer	*	10	500	150	3	30 EP / C	0,4
Light Gamma laser pistol	*	3 / 5	400	20	0,5	50 EP / A	0,1
Medium Gamma laser pistol	*	2 / 4	700	50	1,2	50 EP / B	0,2
Heavy Gamma laser pistol	*	2 / 4	1.100	100	1,6	50 EP / C	0,4
Gamma laser Carbine	*	3 / 5	1.300	150	3,6	60 EP / D	0,5
Gamma laser rifle	*	3 / 5	2.000	500	5,5	60 EP / E	1
Heavy Gamma laser rifle	*	2 / 4	2.500	500	8	40 EP / E	1
Mini-Tractor beamer	*	9	150	20	0,5	30 EP / A	0,1
Hypno-Rifle	*	2	3.600	150	5	30 EP / D	0,5
Hypno-Pistol	*	2	2.500	50	1	30 EP / B	0,2
Mini-Paralysis gun	*	9	300	20	0,25	40 EP / A	0,1
Disintegrator-Rifle	*	5	3.200	500	6	25 EP / E	1
Disintegrator-Carbine	*	5	2.000	500	4	30 EP / E	1
Disintegrator-Pistol	*	4	1.000	100	1,5	30 EP / C	0,4
Gravo-Rifle	*	2	7.500	2 x 500	12	10 EP / 2 E	2 x 1

Table: Close combat weapons TL 13 to *

Type	TL	Price / Cr	Legalityt	Weight / kg
Knife (short)	all	10	10	0,1 (-)
Knife (long)	all	25	9	0,25 (-)
Dagger	all	30	9	0,5 (-)
Shortsword	all	50	9	1
Fencing sword	all	60	9	1,5
Saber	all	60	7	2
Sword	all	100	7	3
Pointed sword	all	125	7	3
Club	all	5	10	1
Short staff	all	10	10	2
Staff	all	20	10	4,5
Two-handed sword	all	150	7	6
Pointed two-handed sword	all	200	7	6
Bastard sword	all	130	7	4
Pointed bastard sword	all	160	7	4
Morning star	all	25		5
Whip	all	25	9	0,75
Hand axe	all	25	8	2
Throwing knife	all	12	9	0,25 (-)
Shuriken	all	10	9	0,2 (-)
Dart	all	10	9	0,15
Bolas	all	10	9	2,5
Lasso	all	25	10	1,5
Net	all	10	10	3,5
Throwing club	all	10	10	0,5
Blowpipe	all	10	7	1,25
Longbow	all	250	7	3
Arrow	all	5	7	0,1
Light Crossbow	all	150	7	1,8

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Heavy Crossbow	all	200	7	4
Bolt	all	5	7	0,13
Sling	all	5	9	0,5
Large shield (plastic)	all	100	10	5
Small shield (plastic)	all	70	10	2
Main-gauche	all	35	9	0,5
Vibro weapons	13 - *	Weapon price x 3	Weapon - 1	var.
Monoweapons	13 - *	Weapon price x 4	Wafe - 1	var.
Neural whip	A - *	500	2	0,75
Laser sword	C - *	900	6	1,25
Laser knife	C - *	650	6	0,1
Disintegrator knife	E - *	1.000	5	0,1
Disintegrator sword	E - *	2.000	5	1,25

Table: Armors TL 13 up to *

Type	TL	Legality	Price / Cr	Weight / kg
Kevlar (light)	13	9	100	5
Kevlar (medium)	13	9	180	8
Kevlar (heavy)	13	9	300	11
Monofiber (light)	13	8	250	4
Monofiber (medium)	13	8	500	7
Monofiber (heavy)	13	8	800	12
Reflec armor	13	8	800	1
Reflec helmet	13	8	200	1
Plastic helmet	13	8	150	1
Steel helmet	13	7	180	2
Armor helmet	13	6	1.500	3
Steel-ceramic-insert	13	7	1.500	9
Ablative armor (light)	13	8	400	6
Ablative armor (medium)	13	8	800	12
Ablative armor (heavy)	13	8	1.200	18
Combat armor	13	6	5.000	25
Combat armor, heavy	13	5	8.000	32
Monofiber (light)	A	8	120	3
Monofiber (medium)	A	8	200	6
Monofiber (heavy)	A	8	400	10
Reflec armor	A	8	400	1
Reflec helmet	A	8	100	1
Plastic helmet	A	8	100	1
Steel helmet	A	7	150	2
Armor helmet	A	6	1.300	3
Steel-ceramic-insert	A	7	1.300	9
Ablative armor (light)	A	8	250	5
Ablative armor (medium)	A	8	500	10
Ablative armor (heavy)	A	8	750	15
Combat armor	A	6	4.500	22
Combat armor, heavy	A	5	7.500	28
Superfiber (light)	A	7	300	3
Superfiber (medium)	A	7	600	6
Superfiber (heavy)	A	7	1.000	10
Type	TL	Legality	Price / Cr	Weight / kg
Hardened	A	5	x 5	+ 50%
Reflec armor	B	8	250	1
Reflec helmet	B	8	60	1
Plastic helmet	B	8	50	1
Armor helmet	B	6	1.200	2,25
Ablative armor (light)	B	8	130	4
Ablative armor (medium)	B	8	260	8
Ablative armor (heavy)	B	8	400	12
Combat armor	B	6	4.000	20
Combat armor, heavy	B	5	7.000	27
Superfiber (light)	B	7	200	3
Superfiber (medium)	B	7	500	6

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Superfiber (heavy)	B	7	800	10
Hardened	B	5	x 5	+ 50%
Thermal layer	B	5	x 5	+ 25%
Reflec armor	C	8	200	1
Reflec helmet	C	8	60	1
Plastic helmet	C	8	50	1
Armor helmet	C	6	1.000	2,25
Ablative armor (light)	C	8	120	4
Ablative armor (medium)	C	8	200	8
Ablative armor (heavy)	C	8	300	12
Combat armor	C	6	4.000	20
Combat armor, heavy	C	5	7.000	27
Superfiber (light)	C	7	190	2
Superfiber (medium)	C	7	450	5
Superfiber (heavy)	C	7	750	8,5
Hardened	C	5	x 5	+ 50%
Thermal layer	C	5	x 5	+ 25%
Armor helmet	D	6	1.000	2
Combat armor	D	6	4.000	18
Combat armor, heavy	D	5	7.000	25
Superfiber (light)	D	7	180	1,75
Superfiber (medium)	D	7	420	4,5
Superfiber (heavy)	D	7	700	8
Hardened	D	5	x 5	+ 50%
Thermal layer	D	5	x 5	+ 25%
Armor helmet	E	6	1.000	2
Combat armor	E	6	4.000	15
Combat armor, heavy	E	5	7.000	22
Superfiber (light)	E	7	180	1,5
Superfiber (medium)	E	7	420	4
Superfiber (heavy)	E	7	700	6,75
Hardened	E	5	x 5	+ 50%
Thermal layer	E	5	x 5	+ 25%
Armor helmet	*	6	1.000	2
Combat armor	*	6	4.000	12
Combat armor, heavy	*	5	7.000	18
Hardened	*	5	x 5	+ 50%
Thermal layer	*	5	x 5	+ 25%

Table: Protection field generators

Type	TL	Leg	Price / Cr	Weight / kg	Bemerkungen
Force field	B	7	5.000	1	100 Turns / B
Force field (Bell)	B	7	10.000	2	80 Turns / C
Micro-Protection field	C	7	6.000	3	150 Turns / E
Mini-Protection field	C	7	10.000	6	300 Turns / F
Light Protection field	C	7	15.000	10	250 Turns / F
Standard-Protection field	C	6	25.000	15	200 Turns / F
Enhanced Protection field	C	5	40.000	20	150 Turns / F
Type	TL	Leg	Price / Cr	Weight / kg	Bemerkungen
Maxi-Protection field	C	4	60.000	30	100 Turns / F
Protection field (Set-up-Projector)	C	6	100.000	50	50 Turns / F
Force field	C	7	3.000	0,5	100 Turns / A
Force field (Bell)	C	7	7.000	0,75	80 Turns / B
Micro-Protection field	D	7	5.000	1,5	150 Turns / D
Mini-Protection field	D	7	9.000	3	200 Turns / E
Light Protection field	D	7	14.000	6	250 Turns / F
Standard-Protection field	D	6	22.000	10	200 Turns / F
Enhanced Protection field	D	5	35.000	15	150 Turns / F
Maxi-Protection field	D	4	50.000	25	100 Turns / F
Protection field (Set-up-Projector)	D	6	85.000	40	50 Turns / F
Force field	D	7	2.500	0,25	200 Turns / A

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Force field (Bell)	D	7	6.000	0,5	100 Turns / B
Micro-Protection field	E	7	5.000	0,5	150 Turns / C
Mini-Protection field	E	7	9.000	1,5	200 Turns / D
Light Protection field	E	7	14.000	3	250 Turns / E
Standard-Protection field	E	6	22.000	6	300 Turns / F
Enhanced Protection field	E	5	35.000	10	200 Turns / F
Maxi-Protection field	E	4	50.000	20	150 Turns / F
Protection field (Set-up-Projector)	E	6	85.000	30	100 Turns / F
Force field	E	7	2.500	0,15	300 Turns / A
Force field (Bell)	E	7	6.000	0,4	150 Turns / B
Micro-Protection field	*	7	5.000	0,25	150 Turns / A
Mini-Protection field	*	7	9.000	0,5	200 Turns / B
Light Protection field	*	7	14.000	1,5	250 Turns / D
Standard-Protection field	*	6	22.000	3	300 Turns / D
Enhanced Protection field	*	5	35.000	6	200 Turns / D
Maxi-Protection field	*	4	50.000	10	150 Turns / D
Protection field (Set-up-Projector)	*	6	85.000	20	100 Turns / D
Force field	*	7	2.000	0,1	300 Turns / AA
Force field (Bell)	*	7	5.000	0,2	300 Turns / A
Distortion-Shield	*	4	300.000	25	200 Turns / F
Heavy Distortion-Shield	*	3	500.000	35	150 Turns / F
Distortion-Shield (Set-up-device)	*	3	1.000.000	50	100 Turns / F

Table: General equipment

Type	TL	Leg	Price / Cr	Weight / kg	Notes
Autodoc	13	8	10.000	15	1 Month / F
Medscanner	A	8	1.000	1,5	1 Month / C
Medsensor	A	8	400	0,5	1 Month / A
Lightwave-distorter (personal)	B	5	10.000	5	6 Hours / E
Lightwave-distorter (heavy)	B	4	50.000	25	6 Hours / F
Holo-projector	A	8	2.500	5	1 Week / E
Gravbelt	C	8	25.000	5	1 Week / E
Antigrav backpack	B	8	10.000	25	1 Week / F
Energy scanner	13	8	500	1	1 Month / C
Mass scanner	13	8	500	1	1 Month / C
Chemical scanner	13	8	600	1	1 Month / C
Cavity detector	A	8	1.000	1	1 Month / C
Multiscanner	A	8	1.200	1,5	1 Month / C
Mini-Gravitor	C	10	500	0,5	1 Month / B
Wristband communicator	13	10	500	-	1 Week / AAA
Portable communicator	13	10	300	3	1 Week / C
FTL communicator	*	9	10.000	5	1 Week / E
Mini-FTL communicator	*	8	50.000	1,5	1 Day / D
Sonic shield	A	6	6.000	5	6 Hours / E
Torch	13	10	10	0,25	1 Month / AA
Cold light lamp	13	10	15	0,1	
Mini cooker	13	10	25	0,5	1 Week / A
Fusion reactor	B	8	1.000	3	
Antimatter reactor	E	7	5.000	1	gleiche Leistung wie the Fusion reactor
Type	TL	Leg	Price / Cr	Weight / kg	Notes
Loading socket	13	10	50	0,1	
Photo camera	13	10	100	0,5	2 weeks / A
Video camera	13	10	250	0,9	1 Week / A
Dictaphone	13	10	50	0,1	1 Week / AA
Directional microphone	13	7	500	2	1 Week / B
Bug + Receiver	13	6	50 + 250	0,001 + 1	1 Week / AAAAAA or 1 Week / A
Telephone	13	10	50	0,5	1 Week / A
Headset-telephone	13	10	60	0,25	1 Week / AA
Regeneration tank	A	8	50.000	250	1 Week / 2 x F
Supra medo tank	B	8	100.000	500	1 Week / 3 x F
Medkit	13	10	100	1	
Complete medo set	13	9	1.000	10	

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Water bottle (1 l)	13	10	10	0,05	Empty
Concentrated food	13	10	5	0,05	per daily ration
Canned food	13	10	3	0,5	per daily ration
Water cleaning tablets	13	10	5	0,05	for 20 liters of water
Analyser	13	10	1.000	2,5	1 Week / C
Filter mask	13	10	50	0,25	
Gas mask	13	10	50	0,25	
Compression mask	13	10	50	0,25	
Compression filter mask	13	10	60	0,25	
Rarefaction mask	13	10	50	0,25	
Filter-rarefaction mask	13	10	60	0,25	
Warm clothes	13	10	100	5 (2,5)	
Sleeping bag	13	10	50	2	
Sleeping bag, insulated	13	10	100	4	
Tent, 1 person	13	10	100	5	
Tent, 2 persons	13	10	150	9	
Tent, 4 persons	13	10	250	15	
Welding kit	13	9	200	3	10 min / C
Diving suit	13	10	500	5 (2,5)	without oxygen tanks
Fishing equipment	13	10	100	1,5	
Photo development kit	13	10	100	2	
Bug scanner	13	7	800	1,5	1 Week / B
White noise generator	13	7	750	2,5	1 Week / C
Jammer	13	6	750	2,5	1 Week / C
Backpack	13	10	50	1 (0,5)	Empty
Travel bag	13	10	25	0,5 (0,3)	Empty
Antigrav module	C	10	1.000	0,1	per 2 kg power; 1 Month / A
Binoculars, optical	13	10	100	1	
Binoculars, electronic	13	9	200	1	1 Month / A
LI binoculars	13	8	250	1,5	
IR binoculars	13	8	250	1,5	
LI goggles	13	8	500	0,25	
IR goggles	13	8	500	0,25	
Flare protection goggles	13	9	200	0,1	
IR contact lenses	A	8	1.000	-	
LI contact lenses	A	8	1.000	-	
Flare protection contact lenses	A	9	600	-	
Multi goggles	13	8	750	0,25	IR or LI + flare protection
Multi contact lenses	A	8	1.500	-	see above
Complete goggles	13	8	1.000	0,3	IR + LI + flare protection
Complete contact lenses	A	8	2.000	-	see above
Telescopic goggles	13	9	600	0,35	1 Month / A
Prospector basic set	13	10	2.500	50	
Translator	D	10	1.000	2,5	1 Month / B
Mini-Computer	13	8	500	1	1 Month / B
Printer	13	10	100	0,5	Without paper; 1 Month / B
TriVid-Projector	13	10	250	2	1 Month / C
Mini-Walkman	13	10	50	0,1	1 Month / AA
Memory crystals	A	10	1	0,001	
Bioplast disguise kit	A	7	500	5	
Portable nuclear damper	C	6	50.000	25	50 Turns / F
Type	TL	Leg	Price / Cr	Weight / kg	Notes
Watch	13	10	20	-	2 Years / AAA
HUD-Goggles	13	9	500	0,25	24 Hours / AA
Basic disguise kit	13	8	450	10	DM – 30
Complete disguise kit	13	8	1.000	50	none DM
Grappling pistol	13	8	250	1,5	Gas cartridge for 10 shots
Rope (plastic) per m	11	10	10	0,1	
Handcuffs	9	10	25	0,15	
Handcuffs, plastic	10	10	30	0,1	
Megaphone	10	10	100	1	
Oxygen tanks	13	10	100	5	for 24 Hours, +24 per TL after or weight / 2

Starborne : Equipment

Personal computer	13	9	1.000	5	1 Month / C
Shoes with magnetic soles	13	10	250	1	
Lighter	9	10	1	-	
PSI scanner	D	7	Level ² x 100 + 2.000	1	48 Hours / B
PSI- emitter	D	7	Level ² x 50 + 1.000	1	24 Hours / B
PSI receiver	D	7	2.000	1	48 Hours / B
Amplifier cabin	C	7	Level ² x 50.000	100	1 Hour / F
Artificial Mindshield	D	7	Level ² x 100 + 2.000	2	24 Hours / C
Antipsi-Shield	E	7	Level ² x 500 + 5.000	2	12 Hours / C
Mini-toolkit	13	9	300	2	Separate per skill area
Toolkit (Suitcase)	13	9	2.000	25	Separate per skill area
Shop	13	9	50.000	5.000	Separate per skill area
Complete Shop	13	9	100.000	10.000	Separate per skill area
Electronic Lockpick	13	5	1.000	-	
Electronic Lockpick	13	4	5.000	-	DM + 25
Environment-Shield	B	9	1.500	1	1 Week / A
Biosuit	D	9	3.000	2 (-)	
Pressurized tent	13	10	1.000	10	
VR-Helmet	13	9	2.500	1 (0,5)	1 Week / B
Bioscanner	13	9	700	1	1 Month / C
Bio-Analyzer	13	7	2.000	3	1 Month / C
Retina-Lock	13	10	Level x 300	0,3	max. Level 10
Fingerprint-Lock	13	10	Level x 200	0,25	max. Level 10
Electronic Lock	13	10	Level x 100	0,25	max. Level 10
Mini-Lab	13	8	3.000	5	1 Week / C
Robo-Factory	A	8	special	3.000	1 Day / F
Datareader	13	10	100	0,2	1 Month / AA
Hypnotic trainer	A	7	100.000	5	1 Week / E
PSI awakening device	C	6	5.000.000.000	2.000	1 Day / F
Ultra-Acid	B	6	200	0,2	per unit (100 ml)
Universal-Schreibstift	A	10	100	0,1	
PSI lie detector	D	7	Level ² x 50 + 500	1	24 Hours / B
Climbing shoes	D	9	250	0,5	
Climbing gloves	D	9	250	0,5	
Trapfield projector	D	7	10.000	5	1 Hour / F
Temperature suit	A	10	1.000	1 (0)	
IR-Spürgerät	13	8	2.000	1,5	1 Month / C

The TL is the one at which the device is introduced.

Starborne : Equipment

Table: medical drugs and poisons

Type	TL	Legality	Price / Cr
Antidote	13	8	Level ² x 5 + 100
Antiparalysis	C	8	50
Antipsi	D	5	Level ² x 50 + 2.000
Antirad	A	7	Level ² x 5 + 100
Painkiller	13	7	Level ² x 5 + 50 // 500
Stimulant (Stim)	13	8	50
Berserk drug	A	6	300
Stun drug	13	7	Level ² x 10 + 100
Bleeding stopper (Hypercoaguline)	13	7	50
Broadband-Antibiotic	A	8	Level ² x 5 + 50
Memory blocker	B	5	Level ² x 50 + 500
Healing plasma	A	8	Level ² x 10 + 50
Combat drug	A	6	250
Control drug	C	5	Level ² x 100 + 1.000
Paralysis poison	A	6	Level ² x 10 + 100
Nerve poison	13	5	Level ² x 20 + 500
Regenerative	A	7	A: 500, B: 2.500, C: 6.000
Sleeping drug	13	7	Level ² x 10 + 100
Superstim	13	7	100
Death poison	13	4	Level ² x 50 + 1.000
Truth serum	13	6	Level ² x 100 + 1.000
Attribute reducer	A	6	Level ² x 25 + 250
Attribute booster	A	6	Level ² x 25 + 250

Table: weapons accessories at TL 13 and after

Type	TL	Price / Cr	Weight / kg	Notes
Gas vent Level 1	13	50	0,05	
Gas vent Level 2	13	75	0,1	
Gas vent Level 3	13	120	0,2	
Gas vent Level 4	13	200	0,3	
Gas vent Level 5	13	350	0,4	
Gyro system Level 6	13	1.300	3	1 Week / C
Gyro system Level 7	13	1.600	4	1 Week / C
Gyro system Level 8	13	2.000	4	1 Week / C
Gyro system Level 9	13	2.800	5	1 Week / C
Gyro system Level 10	13	3.500	5	1 Week / C
Silencer for automatic Weapons		500	0,25	Legality 6
Silencer for rifles or similar.	13	200	0,25	Legality 6
Silencer for pistols	13	150	0,1	Legality 6
Shock pad	13	50	0,25	
Scope, electronic	13	Level ² x 60 + 250	0,5	max. Level 5
Scope, IR	13	Level ² x 100 + 500	0,6	max. Level 5
Scope, LI	13	Level ² x 100 + 500	0,6	max. Level 5
Scope, optical	13	Level ² x 50 + 100	0,5	max. Level 5
Gas vent Level 2	B	50	0,01	
Gas vent Level 3	B	75	0,05	
Gas vent Level 4	B	120	0,1	
Gas vent Level 5	B	200	0,2	
Gas vent Level 6	B	350	0,3	
Gyro system Level 6	B	700	2,5	1 Week / C
Gyro system Level 7	B	1.000	3,5	1 Week / C
Gyro system Level 8	B	1.200	3,5	1 Week / C
Gyro system Level 9	B	1.500	4	1 Week / C
Gyro system Level 10	B	2.000	4	1 Week / C
Gyro system Level 12	B	2.500	5	1 Week / C
Antigrav-Damper Level 8	C	5.000	2	1 Week / C
Antigrav-Damper Level 12	C	7.500	3	1 Week / C
Antigrav-Damper Level 10	D	6.000	1,5	1 Week / C
Antigrav-Damper Level 14	D	8.000	2,5	1 Week / C
Antigrav-Damper Level 15	E	8.000	2	1 Week / C

Starborne : Equipment

Vehicles table

Type	ab TL	Price / Cr	Displacement	HP	Protection value	Defense-DM	Defense value	SL slow	SL medium	SL fast	SL Maximum
Glider	B	25.000	2 t	1.000	8	+ 10	50	3	10	22	33
Sports glider	B	50.000	2 t	1.000	6	+ 10	50	3	12	30	50
Combat glider	B	100.000	2 t	1.500	80	+ 40	50	3	10	25	40
Grav-Transporter	B	100.000	5 t	8.000	50	+ 25	35	3	8	18	28
Grav Truck	B	150.000	10 t	10.000	12	+ 15	25	2	7	13	20
Tracked ATV	13	75.000	6 t	7.000	50	+ 20	35	2	5	7	9
Wheeled ATV	13	75.000	6 t	7.000	50	+ 20	35	2	6	11	15
Wheeled car	10	10.000	2 t	1.000	6	+ 10	50	2	7	13	20
Motorbke	10	5.000	1 t	150	4	+ 5	60	2	8	15	22
Grav-Transporter, armored	B	250.000	5 t	15.000	180	+ 50	35	3	8	17	26
Wheeled ATV, armored	13	150.000	6 t	13.000	140	+ 50	35	2	6	11	14
Tracked ATV, armored	13	150.000	6 t	13.000	140	+ 50	35	2	5	7	9

Starborne : Equipment

General table for ranged weapons TL 13 to *

Weapon	Skill	TL	Aim	Snap	Rec	RoF	ST	DX	Dodge-DM	Mini	normal	long	extreme	Notes
L. Revolver	Revolver	13	+ 10	- 20	- 3	3 x 1	(4)	10	- 50	1	15 (10)	30 (5)	300 (1)	
M. Revolver	Revolver	13	+ 10	- 20	- 7	3 x 1	(7)	10	- 50	1	30 (12)	50 (6)	350 (1)	
H. Revolver	Revolver	13	+ 15	- 25	- 12	3 x 1	(10)	10	- 50	1	40 (14)	70 (7)	550 (2)	
L. Automatic pistol	Automatic pistol	13	+ 10	- 20	- 3	3 x 1	(4)	9	- 50	1	12 (10)	25 (5)	250 (1)	
M. Automatic pistol	Automatic pistol	13	+ 10	- 20	- 5	3 x 1	(7)	9	- 50	1	25 (12)	40 (6)	300 (1)	
H. Automatic pistol	Automatic pistol	13	+ 15	- 25	- 18	3 x 1	(10)	9	- 50	1	30 (14)	60 (7)	450 (2)	
Mini-Pistol	Automatic pistol	13	+ 5	- 10	- 4	2 x 1	(5)	11	- 50	0	6 (8)	12 (4)	100 (1)	
SMG	SMG	13	+ 10	- 25	- 4	15 / 30	(10)	11	- 50	1,5	25 (13)	60 (7)	450 (2)	
Mini-SMG	SMG	13	+ 10	- 25	- 3	18 / 30	(11)	12	- 50	1,5	40 (16)	90 (8)	550 (2)	
Carbine	Rifle	13	+ 35	- 35	- 4	3 x 1	(8)	8	- 50	2	200 (16)	400 (8)	1200 (3)	
Rifle	Rifle	13	+ 50	- 40	- 9	3 x 1	(10)	7	- 50	2	300 (17)	600 (10)	1500 (5)	
Prec.-Rifle	Prec.-Rifle	13	+ 60	- 60	- 13	2 x 1	(11)	9	- 50	2	400 (18)	700 (13)	1700 (6)	
SMG-Carbine	Automatic rifle	13	+ 35	- 35	- 8 / - 4	3 x 1 / 18 / 30	(10)	10	- 50	2	200 (16)	400 (9)	1300 (3)	
Automatic rifle	Automatic rifle	13	+ 50	- 40	- 9 / - 5	3 x 1 / 9 / 18 / 30	(11)	10	- 50	2	350 (17)	600 (10)	1750 (5)	
H. Automatic rifle	Automatic rifle	13	+ 50	- 45	- 11 / - 6	3 x 1 / 9 / 15 / 30	(12)	10	- 50	3	300 (20)	500 (13)	1650 (6)	
Shotgun, twin-barrel	Shotgun	13	+ 10	- 25	- 13	1 x 1	(10)	6	- 50	2	12 (12)	75 (5)	150 (1)	Strays
Repeating Shotgun	Shotgun	13	+ 10	- 25	- 13	2 x 1	(10)	6	- 50	2	12 (12)	75 (5)	150 (1)	Strays
Rocket-Pistol	Rocket-Weapon	13	+ 10	- 20	- 5 / - 2	3 x 1 / 9 / 15	(8)	11	- 50	1, special	100 (17)	200 (15)	1000 (7)	
Rocket-Carbine	Rocket-Weapon	13	+ 35	- 35	- 5 / - 2	3 x 1 / 9 / 18	(8)	11	- 50	2, special	500 (17)	1200 (15)	3000 (7)	
Rocket-Rifle	Rocket-Weapon	13	+ 50	- 45	- 5 / - 2	3 x 1 / 9 / 18	(11)	11	- 50	2, special	750 (17)	2000 (15)	4000 (7)	
Gas-Needler	Gas-Needler	13	+ 5	- 10	- 1	5 x 1	(1)	8	- 50	0	30 (7)	50 (4)	250 (1)	in D6, Close Combat protection
Gas-Needler-Rifle	Gas-Needler	13	+ 35	- 30	- 1	5 x 1	(7)	10	- 50	2	200 (7)	300 (4)	750 (1)	in D6, Close Combat protection
Minineedler	Needler	13	+ 5	- 10	0	5 x 1 / 15 / 25 / 50	(1)	10	- 50	0	15 (7)	30 (4)	100 (1)	in D6, Close Combat protection
Maxineedler	Needler	13	+ 10	- 10	0	5 x 1 / 15 / 25 / 50	(1)	9	- 50	1	50 (8)	100 (4)	600 (1)	in D6, Close Combat protection

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Needler-Rifle	Needler	13	+ 45	- 30	0	5 x 1 / 15 / 25 / 50	(6)	9	- 50	2	300 (8)	600 (8)	1750 (1)	in D6, Close Combat protection
L. Laser pistol	Laser pistol	13	+ 15	- 10	0	4 x 1 / 10	(1)	9	- 60	1	25 (16)	100 (6)	600 (2)	Energy
M. Laser pistol	Laser pistol	13	+ 15	- 15	0	4 x 1 / 10	(1)	9	- 60	1	40 (20)	150 (8)	800 (3)	Energy
Weapon	Skill	TL	Aim	Snap	Rec	RoF	ST	DX	Dodge-DM	Mini	normal	long	extreme	Notes
H. Laser pistol	Laser pistol	13	+ 15	- 20	0	3 x 1 / 10	(1)	9	- 60	1	50 (23)	200 (9)	1000 (4)	Energy
Laser carbine	Laser rifle	13	+ 50	- 30	0	4 x 1 / 10	(3)	9	- 60	2	350 (25)	750 (11)	2000 (5)	Energy
Laser rifle	Laser rifle	13	+ 60	- 35	0	4 x 1 / 10	(5)	9	- 60	2	500 (2 8)	1500 (13)	5000 (6)	Energy
H. Laser rifle	Laser rifle	13	+ 60	- 50	0	3 x 1	(8)	9	- 60	3	600 (31)	2000 (15)	7500 (7)	Energy
Sonic stunner	Sonic stunner	13	+ 15	- 30	0	3 x 1	(9)	11	- 60	1	10 (15)	25 (8)	50 (5)	Stun weapon, duel P against HT, HT+1 per 5 points of close combat protection
Rocket-Pistol	Rocket-Weapon	A	+ 10	- 20	- 5 / - 2	3 x 1 / 9 / 15	(8)	11	- 50	1, special	120 (18)	300 (15)	1200 (8)	
Rocket-Carbine	Rocket-Weapon	A	+ 35	- 35	- 5 / - 2	3 x 1 / 9 / 18	(8)	11	- 50	2, special	600 (18)	1500 (15)	3500 (8)	
Rocket-Rifle	Rocket-Weapon	A	+ 50	- 45	- 5 / - 2	3 x 1 / 9 / 18	(11)	11	- 50	2, special	850 (18)	2400 (15)	5000 (8)	
Minineedler	Needler	A	+ 10	- 10	0	5 x 1 / 15 / 25 / 50	(1)	10	- 50	0	20 (7)	40 (4)	150 (1)	in D6, Close Combat protection
Maxineedler	Needler	A	+ 15	- 10	0	5 x 1 / 15 / 25 / 50	(1)	9	- 50	1	60 (8)	120 (4)	900 (1)	in D6, Close Combat protection
Needler-Rifle	Needler	A	+ 50	- 30	0	5 x 1 / 15 / 25 / 50	(6)	9	- 50	2	350 (8)	700 (5)	2000 (1)	in D6, Close Combat protection
L. Laser pistol	Laser pistol	A	+ 20	- 10	0	4 x 1 / 10	(1)	9	- 60	1	30 (17)	120 (7)	700 (3)	Energy
M. Laser pistol	Laser pistol	A	+ 20	- 15	0	4 x 1 / 10	(1)	9	- 60	1	50 (21)	200 (9)	1000 (4)	Energy
H. Laser pistol	Laser pistol	A	+ 20	- 20	0	3 x 1 / 10	(1)	9	- 60	1	70 (24)	300 (10)	1200 (5)	Energy
Laser carbine	Laser rifle	A	+ 55	- 30	0	4 x 1 / 10	(3)	9	- 60	2	400 (26)	850 (12)	2400 (6)	Energy
Laser rifle	Laser rifle	A	+ 65	- 35	0	4 x 1 / 10	(5)	9	- 60	2	600 (30)	1800 (15)	6000 (7)	Energy
H. Laser rifle	Laser rifle	A	+ 65	- 50	0	3 x 1	(8)	9	- 60	3	800 (34)	2500 (17)	8000 (8)	Energy
Gas-Needler	Gas-Needler	A	+ 10	- 10	- 1	5 x 1	(1)	7	- 50	0	35 (7)	60 (4)	350 (1)	in D6, Close Combat protection
Gas-Needler-Rifle	Gas-Needler	A	+ 40	- 30	- 1	5 x 1	(7)	9	- 50	2	250 (7)	400 (4)	850 (1)	in D6, Close Combat protection
Sonic stunner	Sonic stunner	A	+ 15	- 30	0	3 x 1	(9)	10	- 60	1	15 (17)	35 (10)	75 (6)	Stun weapon, duel P against HT, HT+1 per 5 points of close combat protection
Mini-Stunner	Sonic stunner	A	+ 5	- 10	0	1 x 1	(1)	10	- 60	0	2 (10)	5 (5)	10 (1)	Stun weapon, duel P against HT, HT+1 per 5 points of close combat protection

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Rocket-Pistol	Rocket-Weapon	B	+ 15	- 15	- 5 / - 2	3 x 1 / 9 / 15	(8)	11	- 50	1, special	150 (18)	400 (15)	1500 (8)	
Rocket-Carbine	Rocket-Weapon	B	+ 40	- 30	- 5 / - 2	3 x 1 / 9 / 18	(8)	11	- 50	2, special	650 (18)	1700 (15)	3800 (8)	
Rocket-Rifle	Rocket-Weapon	B	+ 55	- 40	- 5 / - 2	3 x 1 / 9 / 18	(11)	11	- 50	2, special	900 (18)	2600 (15)	5500 (8)	
Minineedler	Needler	B	+ 10	- 10	0	5 x 1 / 15 / 25 / 50	(1)	10	- 50	0	25 (8)	50 (5)	250 (1)	in D6, close combat protection

Starborne : Equipment

Weapon	Skill	TL	Aim	Snap	Rec	RoF	ST	DX	Dodge-DM	Mini	normal	long	extreme	Notes
Maxineedler	Needler	B	+ 15	- 10	0	5 x 1 / 15 / 25 / 50	(1)	9	- 50	1	80 (9)	180 (5)	1000 (1)	in D6, close combat protection
Needler-Rifle	Needler	B	+ 55	- 30	0	5 x 1 / 15 / 25 / 50	(6)	9	- 50	2	400 (9)	700 (5)	2200 (1)	in D6, close combat protection
Gas-Needler	Gas-Needler	B	+ 10	- 10	- 1	5 x 1	(1)	7	- 50	0	40 (8)	70 (5)	450 (1)	in D6, close combat protection
Gas-Needler-Rifle	Gas-Needler	B	+ 45	- 30	- 1	5 x 1	(7)		- 50	2	300 (8)	500 (5)	1000 (1)	in D6, close combat protection
L. Laser pistol	Laser pistol	B	+ 20	- 10	0	4 x 1 / 10	(1)	9	- 60	1	35 (18)	150 (8)	800 (3)	Energy
M. Laser pistol	Laser pistol	B	+ 20	- 15	0	4 x 1 / 10	(1)	9	- 60	1	55 (23)	240 (10)	1100 (4)	Energy
H. Laser pistol	Laser pistol	B	+ 20	- 20	0	3 x 1 / 10	(1)	9	- 60	1	80 (26)	350 (12)	1400 (5)	Energy
Laser carbine	Laser rifle	B	+ 60	- 30	0	4 x 1 / 10	(3)	9	- 60	2	450 (28)	1000 (14)	2600 (6)	Energy
Laser rifle	Laser rifle	B	+ 70	- 35	0	4 x 1 / 10	(5)	9	- 60	2	650 (32)	2000 (16)	6500 (7)	Energy
H. Laser rifle	Laser rifle	B	+ 70	- 50	0	3 x 1	(8)	9	- 60	3	900 (37)	2800 (18)	9000 (8)	Energy
Sonic stunner	Sonic stunner	B	+ 15	- 30	0	3 x 1	(9)	9	- 60	1	20 (19)	50 (12)	100 (6)	Stun weapon, duel P against HT, HT+1 per 5 points of close combat protection
Mini-Stunner	Sonic stunner	B	+ 5	- 10	0	1 x 1	(1)	9	- 60	0	2 (12)	6 (6)	12 (1)	Stun weapon, duel P against HT, HT+1 per 5 points of close combat protection
L. Laser pistol	Laser pistol	C	+ 20	- 10	0	4 x 1 / 10	(1)	9	- 60	1	40 (18)	170 (8)	900 (3)	Energy
M. Laser pistol	Laser pistol	C	+ 20	- 15	0	4 x 1 / 10	(1)	9	- 60	1	60 (23)	300 (9)	1200 (4)	Energy
H. Laser pistol	Laser pistol	C	+ 20	- 20	0	3 x 1 / 10	(1)	9	- 60	1	90 (26)	400 (10)	1500 (5)	Energy
Laser carbine	Laser rifle	C	+ 60	- 30	0	4 x 1 / 10	(3)	9	- 60	2	500 (28)	1100 (12)	2800 (6)	Energy
Laser rifle	Laser rifle	C	+ 70	- 35	0	4 x 1 / 10	(5)	9	- 60	2	750 (32)	2200 (15)	7000 (7)	Energy
H. Laser rifle	Laser rifle	C	+ 70	- 50	0	3 x 1	(8)	9	- 60	3	1000 (37)	3000 (17)	9500 (8)	Energy
Sonic stunner	Sonic stunner	C	+ 15	- 30	0	3 x 1	(9)	9	- 60	1	25 (20)	50 (13)	120 (7)	Stun weapon, duel P against HT, HT+1 per 5 points of close combat protection
Mini-Stunner	Sonic stunner	C	+ 5	- 10	0	1 x 1	(1)	9	- 60	0	3 (12)	6 (7)	15 (2)	Stun weapon, duel P against HT, HT+1 per 5 points of close combat protection
Heavy Plasma-Rifle	Fusion-Rifle	C	+ 40	- 60	- 25	1 x 1	(12)	10	- 60	3	75 (54)	200 (18)	500 (8)	Special Rules
Particle-Pistol	Particle-Pistol	C	+ 15	- 20	- 3	2 x 1	(3)	10	- 60	1	100 (35)	500 (18)	2000 (9)	Energy
Particle-Carbine	Particle-Rifle	C	+ 55	- 35	- 3	2 x 1	(6)	10	- 60	2	1000 (40)	2000 (21)	4000 (10)	Energy
Particle-Rifle	Particle-Rifle	C	+ 65	- 50	- 3	2 x 1	(9)	10	- 60	3	1500 (50)	4000 (26)	10000 (13)	Energy

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Disruptor-Pistol	Disruptor-Pistol	C	+ 10	- 15	0	3 x 1	(3)	10	- 60	1	75 (25)	350 (10)	750 (5)	Energy, in D6, metal armor defense+50
Disruptor-Rifle	Disruptor-Rifle	C	+ 55	- 50	0	3 x 1	(8)	10	- 60	3	500 (30)	1000 (13)	1800 (7)	Energy, in D6, metal armor defense+50

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Weapon	Skill	TL	Tar- get	Schnell	Rück	Feuer	ST	DX	Aus-DM	Mini	normal	long	extrem	Bemerkungen
Paralysis-Rifle	Paralysis-Rifle	C	+ 50	- 50	0	3 x 1	(9)	11	- 60	3	30 (15)	75 (7)	200 (3)	Stuns, duel P against HT, armor useless
X-ray-laser-Rifle	Laser rifle	C	+ 40	- 55	0	2 x 1	(10)	11	- 60	3	1000 (37)	3000 (17)	9500 (8)	Energy, protection / 2
Disruptor-Pistol	Disruptor-Pistol	D	+ 15	- 15	0	3 x 1	(3)	9	- 60	1	85 (26)	400 (11)	850 (5)	Energy, in D6, metal armor defense+50
Disruptor-Rifle	Disruptor-Rifle	D	+ 55	- 50	0	3 x 1	(8)	9	- 60	3	550 (32)	1100 (14)	2000 (7)	Energy, in D6, metal armor defense+50
Particle-Pistol	Particle-Pistol	D	+ 15	- 20	- 3	3 x 1	(2)	9	- 60	1	120 (38)	600 (20)	2400 (10)	Energy
Particle-Carbine	Particle-Rifle	D	+ 55	- 35	- 3	3 x 1	(5)	9	- 60	2	1200 (44)	2400 (24)	4500 (13)	Energy
Particle-Rifle	Particle-Rifle	D	+ 65	- 50	- 3	3 x 1	(8)	9	- 60	3	1800 (55)	4500 (30)	11000 (16)	Energy
Paralysis-Pistol	Paralysis-Pistol	D	+ 10	- 15	0	3 x 1	(2)	10	- 60	1	10 (12)	20 (6)	50 (3)	Stuns, duel P against HT, armor useless
Paralysis-Carbine	Paralysis-Rifle	D	+ 30	- 35	0	3 x 1	(5)	10	- 60	2	20 (16)	50 (8)	100 (4)	Stuns, duel P against HT, armor useless
Paralysis-Rifle	Paralysis-Rifle	D	+ 50	- 50	0	3 x 1	(9)	10	- 60	3	30 (20)	75 (10)	250 (5)	Stuns, duel P against HT, armor useless
Light X-ray-laser pistol	Laser pistol	D	+ 20	- 10	0	4 x 1 / 10	(1)	9	- 60	1	40 (18)	170 (8)	900 (3)	Energy, protection / 2
Medium X-ray-laser pistol	Laser pistol	D	+ 20	- 15	0	4 x 1 / 10	(1)	9	- 60	1	60 (23)	300 (9)	1200 (4)	Energy, protection / 2
Heavy X-ray-laser pistol	Laser pistol	D	+ 20	- 20	0	3 x 1 / 10	(1)	9	- 60	1	90 (26)	400 (10)	1500 (5)	Energy, protection / 2
X-ray-laser-carbine	Laser rifle	D	+ 60	- 30	0	4 x 1 / 10	(3)	9	- 60	2	500 (28)	1100 (12)	2800 (6)	Energy, protection / 2
X-ray-laser rifle	Laser rifle	D	+ 70	- 35	0	4 x 1 / 10	(5)	9	- 60	2	750 (32)	2200 (15)	7000 (7)	Energy, protection / 2
Heavy X-ray-laser rifle	Laser rifle	D	+ 70	- 50	0	3 x 1	(8)	9	- 60	3	1000 (37)	3000 (17)	9500 (8)	Energy, protection / 2
Tractor beamer	Tractor beamer	D	+ 20	- 50	0	1 x 1	(10)	11	- 60	3	50 (20)	100 (7)	250 (3)	Special rules
Plasma-Rifle	Fusions-Rifle	D	+ 35	- 45	- 10	1 x 1	(9)	10	- 60	3	100 (44)	300 (18)	1000 (6)	Special rules
Heavy Plasma-Rifle	Fusions-Rifle	D	+ 40	- 50	- 15	1 x 1	(10)	10	- 60	3	90 (55)	250 (20)	750 (8)	Special rules
Heavy Fusion Rifle	Fusions-Rifle	D	+ 35	- 60	- 18	1 x 1	(13)	11	- 60	3	200 (62)	400 (22)	900 (9)	Special rules
Particle-Pistol	Particle-Pistol	E	+ 15	- 20	- 3	3 x 1	(2)	9	- 60	1	150 (42)	700 (22)	2600 (12)	Energy
Weapon	Skill	TL	Tar- get	Snap Shot	Recoil	RoF	ST	DX	Dodge- DM	Mini	normal	long	extreme	Notes
Particle-Carbine	Particle-Rifle	E	+ 55	- 35	- 3	3 x 1	(5)	9	- 60	2	1400 (48)	2600 (26)	5000 (15)	Energy
Particle-Rifle	Particle-Rifle	E	+ 65	- 50	- 3	3 x 1	(8)	9	- 60	3	2000 (60)	5000 (33)	12000 (18)	Energy

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Paralysis-Pistol	Paralysis-Pistol	E	+ 10	- 15	0	3 x 1	(2)	10	- 60	1	12 (15)	25 (10)	75 (5)	Stuns, duel P against HT, armor useless
Paralysis-Carbine	Paralysis-Rifle	E	+ 30	- 35	0	3 x 1	(5)	10	- 60	2	30 (19)	75 (11)	150 (7)	Stuns, duel P against HT, armor useless
Paralysis-Rifle	Paralysis-Rifle	E	+ 50	- 50	0	3 x 1	(9)	10	- 60	3	50 (24)	120 (13)	350 (8)	Stuns, duel P against HT, armor useless
Light X-ray-laser pistol	Laser pistol	E	+ 20	- 10	0	4 x 1 / 10	(1)	9	- 60	1	40 (20)	170 (9)	900 (4)	Energy, protection / 2
Medium X-ray-laser pistol	Laser pistol	E	+ 20	- 15	0	4 x 1 / 10	(1)	9	- 60	1	60 (25)	300 (10)	1200 (5)	Energy, protection / 2
Heavy X-ray-laser pistol	Laser pistol	E	+ 20	- 20	0	3 x 1 / 10	(1)	9	- 60	1	90 (28)	400 (12)	1500 (6)	Energy, protection / 2
X-ray-laser-Carbine	Laser rifle	E	+ 60	- 30	0	4 x 1 / 10	(3)	9	- 60	2	500 (30)	1100 (14)	2800 (7)	Energy, protection / 2
X-ray-laser rifle	Laser rifle	E	+ 70	- 35	0	4 x 1 / 10	(5)	9	- 60	2	750 (34)	2200 (17)	7000 (8)	Energy, protection / 2
Heavy X-ray-laser rifle	Laser rifle	E	+ 70	- 50	0	3 x 1	(8)	9	- 60	3	1000 (40)	3000 (19)	9500 (9)	Energy, protection / 2
Tractor beamer	Tractor beamer	E	+ 25	- 50	0	1 x 1	(10)	10	- 60	3	60 (20)	120 (9)	300 (5)	special rules
Mini-Tractor beamer	Tractor beamer	E	+ 5	- 25	0	1 x 1	(5)	10	- 60	1	5 (12)	10 (5)	25 (3)	special rules
Hypno-Rifle	Hypno-Rifle	E	+ 30	- 50	0	1 x 1	(8)	11	- 60	1	20 (20)	50 (10)	100 (5)	special rules
Hypno-Pistol	Hypno-Pistol	E	+ 5	- 20	0	1 x 1	(2)	11	- 60	3	2 (20)	5 (10)	10 (5)	special rules
Mini-Paralysis gun	Paralysis gun-Pistol	E	+ 5	- 10	0	2 x 1	(1)	10	- 60	0	2 (15)	5 (7)	12 (4)	Stuns, duel P against HT, armor useless
Disintegrator-Rifle	Disintegrator-Rifle	E	+ 65	- 55	0	1 x 1	(11)	11	- 60	3	800 (60)	1750 (50)	3500 (40)	Armor useless
Disintegrator-Carbine	Disintegrator-Rifle	E	+ 55	- 40	0	1 x 1	(9)	11	- 60	2	500 (55)	1000 (45)	2000 (35)	Armor useless
Disintegrator-Pistol	Disintegrator-Pistol	E	+ 10	- 20	0	1 x 1	(7)	11	- 60	1	10 (50)	25 (40)	50 (30)	Armor useless
Fusions-Rifle	Fusions-Rifle	E	+ 35	- 50	- 10	1 x 1	(9)	10	- 60	3	300 (55)	600 (20)	1500 (8)	Special rules
Heavy Fusion-Rifle	Fusions-Rifle	E	+ 40	- 55	- 15	1 x 1	(11)	10	- 60	3	250 (66)	500 (25)	1000 (10)	Special rules
Particle-Pistol	Particle-Pistol	*	+ 15	- 20	- 3	3 x 1	(2)	9	- 60	1	200 (45)	850 (25)	2800 (15)	Energy
Weapon	Skill	TL	Tar-get	Schnell	Rück	Feuer	ST	DX	Aus-DM	Mini	normal	long	extrem	Bemerkungen
Particle-Carbine	Particle-Rifle	*	+ 55	- 35	- 3	3 x 1	(5)	9	- 60	2	1500 (55)	2800 (30)	5200 (19)	Energy
Particle-Rifle	Particle-Rifle	*	+ 65	- 50	- 3	3 x 1	(8)	9	- 60	3	2200 (70)	5500 (40)	12500 (22)	Energy
Paralysis-Pistol	Paralysis-Pistol	*	+ 10	- 15	0	3 x 1	(2)	10	- 60	1	15 (16)	35 (10)	100 (5)	Stuns, duel P against HT, armor useless
Paralysis-Carbine	Paralysis-Rifle	*	+ 30	- 35	0	3 x 1	(5)	10	- 60	2	40 (20)	100 (12)	250 (7)	Stuns, duel P against HT, armor useless

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Paralysis-Rifle	Paralysis-Rifle	*	+ 50	- 50	0	3 x 1	(9)	10	- 60	3	75 (25)	200 (14)	500 (8)	Stuns, duel P against HT, armor useless
Light X-ray-laser pistol	Laser pistol	*	+ 20	- 10	0	4 x 1 / 10	(1)	9	- 60	1	50 (20)	200 (10)	1000 (5)	Energy, protection / 2
Medium X-ray-laser pistol	Laser pistol	*	+ 20	- 15	0	4 x 1 / 10	(1)	9	- 60	1	70 (25)	400 (11)	1300 (6)	Energy, protection / 2
Heavy X-ray-laser pistol	Laser pistol	*	+ 20	- 20	0	3 x 1 / 10	(1)	9	- 60	1	100 (28)	500 (13)	1600 (7)	Energy, protection / 2
X-ray-laser-Carbine	Laser rifle	*	+ 60	- 30	0	4 x 1 / 10	(3)	9	- 60	2	600 (30)	1300 (15)	3000 (8)	Energy, protection / 2
X-ray-laser rifle	Laser rifle	*	+ 70	- 35	0	4 x 1 / 10	(5)	9	- 60	2	1000 (34)	2500 (19)	7500 (9)	Energy, protection / 2
Heavy X-ray-laser rifle	Laser rifle	*	+ 70	- 50	0	3 x 1	(8)	9	- 60	3	1500 (40)	3500 (21)	10000 (10)	Energy, protection / 2
Tractor beamer	Tractor beamer	*	+ 25	- 50	0	1 x 1	(10)	10	- 60	3	60 (25)	150 (12)	500 (6)	special rules
Light gamma laser pistol	Laser pistol	*	+ 20	- 10	0	4 x 1 / 10	(1)	9	- 60	1	50 (22)	200 (11)	1000 (5)	Energy, protection / 4
Medium gamma laser pistol	Laser pistol	*	+ 20	- 15	0	4 x 1 / 10	(1)	9	- 60	1	70 (27)	400 (12)	1300 (6)	Energy, protection / 4
Heavy gamma laser pistol	Laser pistol	*	+ 20	- 20	0	3 x 1 / 10	(1)	9	- 60	1	100 (30)	500 (14)	1600 (7)	Energy, protection / 4
Gamma laser-Carbine	Laser rifle	*	+ 60	- 30	0	4 x 1 / 10	(3)	9	- 60	2	600 (33)	1300 (16)	3000 (8)	Energy, protection / 4
Gamma laser rifle	Laser rifle	*	+ 70	- 35	0	4 x 1 / 10	(5)	9	- 60	2	1000 (37)	2500 (21)	7500 (10)	Energy, protection / 4
Heavy gamma laser rifle	Laser rifle	*	+ 70	- 50	0	3 x 1	(8)	9	- 60	3	1500 (44)	3500 (23)	10000 (11)	Energy, protection / 4
Mini-Tractor beamer	Tractor beamer	*	+ 5	- 25	0	1 x 1	(4)	10	- 60	1	5 (15)	15 (9)	50 (5)	special rules
Hypno-Rifle	Hypno-Rifle	*	+ 30	- 50	0	1 x 1	(7)	10	- 60	1	50 (25)	100 (12)	200 (7)	special rules
Hypno-Pistol	Hypno-Pistol	*	+ 5	- 20	0	1 x 1	(2)	10	- 60	3	5 (25)	10 (12)	20 (7)	special rules
Weapon	Skill	TL	Tar-get	Schnell	Rück	Feuer	ST	DX	Aus-DM	Mini	normal	long	extrem	Bemerkungen
Mini-Paralysis gun	Paralysis gun-Pistol	*	+ 5	- 10	0	2 x 1	(1)	9	- 60	0	4 (16)	10 (7)	20 (4)	Stuns, duel P against HT, armor useless
Disintegrator-Rifle	Disintegrator-Rifle	*	+ 70	- 50	0	1 x 1	(9)	10	- 60	3	1000 (66)	2000 (55)	4000 (44)	Armor useless
Disintegrator-Carbine	Disintegrator-Rifle	*	+ 60	- 35	0	1 x 1	(6)	10	- 60	2	600 (60)	1200 (49)	2500 (38)	Armor useless
Disintegrator-Pistol	Disintegrator-Pistol	*	+ 15	- 20	0	1 x 1	(4)	10	- 60	1	15 (55)	40 (44)	100 (33)	Armor useless
Gravo-Rifle	Gravo-Rifle	*	+ 50	- 60	0	1 x 1	(12)	10	- 60	5	500 (70)	1000 (70)	2000 (70)	special rules

General Table for armors TL 13 up to *

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Type	Close combat protection value	Close combat defense-DM	Ballistic protection value	Ball. Defense-DM	Energy protection value	Energy defense-DM	Weight	TL	Areas	Notes
Kevlar (light)	8	+ 10	12	+ 20	8	+ 10	5	13	T	Close combat protection and -DM /2 against impaling weapons and mis-siles
Kevlar (medium)	12	+ 10	17	+ 20	11	+ 10	8	13	T	Close combat protection and -DM /2 against impaling weapons and mis-siles
Kevlar (heavy)	15	+ 10	25	+ 20	15	+ 10	11	13	T	Close combat protection and -DM /2 against impaling weapons and mis-siles
Monofiber (light)	9	+ 15	16	+ 25	9	+ 10	4	13	T	Close combat protection and -DM /2 against impaling weapons and mis-siles
Monofiber (medium)	13	+ 15	23	+ 25	12	+ 10	7	13	T	Close combat protection and -DM /2 against impaling weapons and mis-siles
Monofiber (heavy)	16	+ 15	33	+ 25	16	+ 10	12	13	T	Close combat protection and -DM /2 against impaling weapons and mis-siles
Reflec armor	0	+ 0	0	+ 0	10	+ 100	1	13	T	Energy-DM against other weapons than lasers: + 25
Reflec helmet	0	+ 0	0	+ 0	10	+ 100	1	13	K	See above
Plastic helmet	15	+ 20	15	+ 25	15	+ 20	1	13	K	
Steel helmet	20 / 15	+ 30	22 / 15	+ 30	20 / 15	+ 20	2	13	K	
Armor helmet	30 / 17	+ 30	40 / 20	+ 30	40 / 20	+ 25	3	13	K	
Steel-ceramic-insert	35	+ 40	40	+ 40	32	+ 30	9	13	T	Front or rear, as addition to kevlar or monofiber clothing
Ablative armor (light)	5	+ 15	3	+ 15	24	+ 30	6	13	T	Loses one point of protection and 5 points of DM per 5 absorbed points of damage
Ablative armor (medium)	7	+ 15	5	+ 15	36	+ 30	12	13	T	see above
Ablative armor (heavy)	9	+ 15	7	+ 15	50	+ 30	18	13	T	see above
Combat armor		+ 40		+ 45		+ 40	25	13	T	
Type	Close combat protection value	Close combat defense-DM	Ballistic protection value	Ball. Defense-DM	Energy protection value	Energy defense-DM	Weight	TL	Areas	Notes
Combat armor, heavy		+ 40		+ 45		+ 40	32	13	T	

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Monofiber (light)	9	+ 15	18	+ 25	9	+ 10	3	A	T	Close combat protection and -DM /2 against impaling weapons and mis-siles
Monofiber (medium)	13	+ 15	26	+ 25	12	+ 10	6	A	T	Close combat protection and -DM /2 against impaling weapons and mis-siles
Monofiber (heavy)	16	+ 15	37	+ 25	16	+ 10	10	A	T	Close combat protection and -DM /2 against impaling weapons and mis-siles
Reflec armor	0	+ 0	0	+ 0	10	+ 100	1	A	T	Energy-DM against other weapons than lasers: + 25
Reflec helmet	0	+ 0	0	+ 0	10	+ 100	1	A	K	see above
Plastic helmet	18	+ 20	18	+ 25	18	+ 20	1	A	K	
Steel helmet	24 / 18	+ 30	24 / 18	+ 30	24 / 18	+ 20	2	A	K	
Armor helmet	45 / 25	+ 30	50 / 30	+ 30	50 / 30	+ 25	3	A	K	
Steel-ceramic-insert	40	+ 40	50	+ 40	38	+ 30	9	A	T	Front or rear, as addition to superfiber or monofiber clothing
Ablative armor (light)	5	+ 15	3	+ 15	25	+ 30	5	A	T	Loses one point of protection and 5 points of DM per 5 absorbed points of damage
Ablative armor (medium)	7	+ 15	5	+ 15	38	+ 30	10	A	T	see above
Ablative armor (heavy)	9	+ 15	7	+ 15	54	+ 30	15	A	T	see above
Combat armor	45	+ 45	50	+ 45	50	+ 45	22	A	T	
Combat armor, heavy	55	+ 45	60	+ 45	60	+ 45	28	A	T	
Superfiber (light)	18	+ 25	18	+ 25	18	+ 25	3	A	T	
Superfiber (medium)	26	+ 25	26	+ 25	26	+ 25	6	A	T	
Superfiber (heavy)	37	+ 25	37	+ 25	37	+ 25	10	A	T	
Hardened	spez.	-	spez.	-	spez.	-	+ 50%	A	var.	Negates armor reduction of /2
Reflec armor	0	+ 0	0	+ 0	11	+ 100	1	B	T	Energy-DM against other weapons than lasers: + 25
Reflec helmet	0	+ 0	0	+ 0	11	+ 100	1	B	K	see above
Plastic helmet	19	+ 20	19	+ 25	19	+ 20	1	B	K	
Armor helmet	50 / 25	+ 30	50 / 30	+ 30	50 / 30	+ 25	2,25	B	K	
Ablative armor (light)	5	+ 15	3	+ 15	25	+ 30	4	B	T	Loses one point of protection and 5 points of DM per 5 absorbed points of damage
Ablative armor (medium)	7	+ 15	5	+ 15	38	+ 30	8	B	T	see above
Ablative armor (heavy)	9	+ 15	7	+ 15	54	+ 30	12	B	T	see above
Combat armor	50	+ 50	55	+ 50	55	+ 50	20	B	T	

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Type	Close combat protection value	Close combat defense-DM	Ballistic protection value	Ball. Defense-DM	Energy protection value	Energy defense-DM	Weight	TL	Areas	Notes
Combat armor, heavy	60	+ 50	66	+ 50	66	+ 50	27	B	T	
Superfiber (light)	21	+ 25	21	+ 25	21	+ 25	3	B	T	
Superfiber (medium)	28	+ 25	28	+ 25	28	+ 25	6	B	T	
Superfiber (heavy)	40	+ 25	40	+ 25	40	+ 25	10	B	T	
Hardened	spez.	-	spez.	-	spez.	-	+ 50%	B	var.	Negates armor reduction of /2
Thermal layer	-.	-	-.	-	+ 50%	-	+ 25%	B	var.	
Reflec armor	0	+ 0	0	+ 0	12	+ 100	1	C	T	Energy-DM against other weapons than lasers: + 25
Reflec helmet	0	+ 0	0	+ 0	12	+ 100	1	C	K	see above
Plastic helmet	20	+ 20	20	+ 25	20	+ 20	1	C	K	
Armor helmet	60 / 25	+ 30	60 / 30	+ 30	60 / 30	+ 25	2,25	C	K	
Ablative armor (light)	5	+ 15	3	+ 15	28	+ 30	4	C	T	Loses one point of protection and 5 points of DM per 5 absorbed points of damage
Ablative armor (medium)	7	+ 15	5	+ 15	45	+ 30	8	C	T	see above
Ablative armor (heavy)	9	+ 15	7	+ 15	60	+ 30	12	C	T	see above
Combat armor	60	+ 50	60	+ 50	60	+ 50	20	C	T	
Combat armor, heavy	70	+ 50	70	+ 50	70	+ 50	27	C	T	
Superfiber (light)	23	+ 25	23	+ 25	23	+ 25	2	C	T	
Superfiber (medium)	31	+ 25	31	+ 25	31	+ 25	5	C	T	
Superfiber (heavy)	44	+ 25	44	+ 25	44	+ 25	8,5	C	T	
Hardened	spez.	-	spez.	-	spez.	-	+ 50%	C	var.	Negates armor reduction of /2
Thermal layer	-.	-	-.	-	+ 50%	-	+ 25%	C	var.	
Armor helmet	66 / 30	+ 30	66 / 30	+ 30	66 / 30	+ 25	2	D	K	
Combat armor	66	+ 60	66	+ 60		+ 60	18	D	T	
Combat armor, heavy	80	+ 60	80	+ 60	80	+ 60	25	D	T	
Superfiber (light)	25	+ 25	25	+ 25	25	+ 25	1,75	D	T	
Superfiber (medium)	35	+ 25	35	+ 25	35	+ 25	4,5	D	T	
Superfiber (heavy)	50	+ 25	50	+ 25	50	+ 25	8	D	T	
Hardened	spez.	-	spez.	-	spez.	-	+ 50%	D	var.	Negates armor reduction of /2
Thermal layer	-.	-	-.	-	+ 50%	-	+ 25%	D	var.	
Armor helmet	70 / 30	+ 30	70 / 30	+ 30	70 / 30	+ 25	2	E	K	
Combat armor	70	+ 60	70	+ 60	70	+ 60	15	E	T	
Combat armor, heavy	88	+ 60	88	+ 60	88	+ 60	22	E	T	

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Type	Close combat protection value	Close combat defense-DM	Ballistic protection value	Ball. Defense-DM	Energy protection value	Energy defense-DM	Weight	TL	Areas	Notes
Superfiber (light)	25	+ 25	25	+ 25	25	+ 25	1,5	E	T	
Superfiber (medium)	35	+ 25	35	+ 25	35	+ 25	4	E	T	
Superfiber (heavy)	50	+ 25	50	+ 25	50	+ 25	6,75	E	T	
Hardened	spez.	-	spez.	-	spez.	-	+ 50%	E	var.	Negates armor reduction of /2
Thermal layer	-.	-	-.	-	+ 50%	-	+ 25%	E	var.	
Armor helmet	85	+ 60	85	+ 60	85	+ 60	2	*	K	
Combat armor	85	+ 60	85	+ 60	85	+ 60	12	*	T	
Combat armor, heavy	100	+ 60	100	+ 60	100	+ 60	18	*	T	
Hardened	spez.	-	spez.	-	spez.	-	+ 50%	*	var.	Negates armor reduction of /2
Thermal layer	-.	-	-.	-	+ 50%	-	+ 25%	*	var.	-

Armor versions that cover the torso as well as the arms, have their weight increased by 33%. Leg armor has a weight of 33% of torso armor. This applies respectively for kevlar, superfiber and monofiber armor, as well as for ablative and reflec armor and all forms of combat armor. Gloves have a negligible weight; boots would weigh about 5% of the weight of torso armor. All armors count as encumbrance with 50% of their weight.

Table: Protection field generators

Type	TL	ABV	Defense-DM	Par code
Force field	B	-	+ 40	20
Force field (Bell)	B	-	+ 70	-
Force field	C	-	+ 40	20
Force field (Bell)	C	-	+ 70	-
Micro-Protection field	C	100	-	-
Mini-Protection field	C	200	-	-
Light Protection field	C	300	-	-
Standard-Protection field	C	500	-	-
Enhanced Protection field	C	1.000	-	-
Maxi-Protection field	C	1.000	-	-
Protection field (Set-up device)	C	5.000	-	-
Force field	D	-	+ 45	20
Force field (Bell)	D	-	+ 75	-
Micro-Protection field	D	150	-	-
Mini-Protection field	D	250	-	-
Light Protection field	D	400	-	-

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Type	TL	ABV	Defense-DM	Par code
Standard-Protection field	D	750	-	-
Enhanced Protection field	D	1.500	-	-
Maxi-Protection field	D	3.000	-	-
Protection field (Set-up-device)	D	7.500	-	-
Force field	E	-	+ 50	20
Force field (Bell)	E	-	+ 80	-
Micro-Protection field	E	200	-	-
Mini-Protection field	E	400	-	-
Light Protection field	E	600	-	-
Standard-Protection field	E	1.000	-	-
Enhanced Protection field	E	2.000	-	-
Maxi-Protection field	E	4.000	-	-
Protection field (Set-up-device)	E	10.000	-	-
Force field	*	-	+ 60	20
Force field (Bell)	*	-	+ 100	-
Micro-Protection field	*	300	-	-
Mini-Protection field	*	500	-	-
Light Protection field	*	750	-	-
Standard-Protection field	*	1.500	-	-
Enhanced Protection field	*	3.000	-	-
Maxi-Protection field	*	7.500	-	-
Protection field (Set-up-device)	*	15.000	-	-
Distortion shield	*	10000 + special	-	-
Heavy Distortion shield	*	20000 + special	-	-
Distortion shield (Set-up-device)	*	50000 + special	-	-

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Space travel

Spaceship construction

The spaceships that are used in the Milky Way normally will have displacements in range from one up to many million tons. This chapter treats the design of your own spaceships. The respective rules also have been used to construct the sample ships that can be found at the end of this section.

Example: In the following chapter, we are going to construct a free trader vessel of TL C for better illustration of the rules. This shall also demonstrate that it does not always need to be high end tech to obtain a good ship.

Tech levels

The construction system uses the tech levels A to E, and to a limited extent the tech level *, which is reserved for the Old Empire. The tech level of the spacedock, in which the ship is commissioned, and that is normally identical with the planetary tech level, defines the allowed upper limit for a new ship design.

Technology of the Old Empire no longer can be built. Therefore, the listed prices are minimum prices for the purchase of respective relics, but there is no true market for such. Instead, Imperial technology must be secured from wrecks or depots. The construction stats shall mainly serve as a source of information for the operations parameters of Imperial vessels, if e.g. an intact one should be found somewhere or a master wants to set a campaign in a different era. The still existing Imperial technology rarely reaches the old operations parameters, because often repeated repairs had to be made without the required qualification, or simply because time takes its toll. The master should thus interpret the listed stats as upper power limits for Imperial technology that might appear in the game. All information is based on the highest level of the Old Empire.

Obsolete technology

It is possible, to install equipment of tech levels that are lower than that of the space dock. This results in price advantages: Each TL above that of an installation halves its purchase price. This rule is not applicable for ship hulls Schiffsrümpfe.

Example: A TL-A fusion reactor costs 3 MCr at TL A.1.5 MCr at TL B and 0.75 MCr at TL C.

The hull

The base of every ship design is the hull, on and in which all further components are installed. Usually, the hull is made of advanced steel alloys, but it might also e.g. consist of a hollow asteroid.

Displacement

The displacement of a ship reflects its volume, i.e. the construction space. It is measured in tons, and one ton is equal to the displacement of one ton of liquid hydrogen, i.e. 13.5 cubic meters. In general, spaceship displacements of one up to an infinite amount of tons are allowed. We recommend to ask your spacedock about the local construction limits.

Most of the spaceships in the galaxy range in an area between 100 and 1,000 Tons. Large warships and expedition motherships, or also e.g. the battlewagons of the Old Empire, reach several million tons. For example, in the Solar System, one can still see the wreck of an Empire battleship that was captured in the Battle of Sol, this being a wedge of 2,000 meters length with an aft width of 700 meters. This is equal to a volume of 12 million tons! However, such giants are no longer built, because this appears not to be economic.

Ship hulls have a base price of 10,000 Cr per ton of displacement of the ship. The part of this volume that is con-

sumed by walls, etc. is determined as described further below.

Example: We choose a hull of 300 tons displacement. Thus, the base price is $10,000 \text{ Cr} \times 300 = 3 \text{ MCr}$.

Determination of mass

The mass of a spaceship is a parameter that is e.g. important for the actual power of the drives. It is also measured in tons, and one ton is equal to 1,000 kilograms. For calculation of the mass, mass values are listed for all ship components. The formula is: $\text{Mass} = \text{displacement} \times \text{mass value}$.

Example: The mass of our free trader will be calculated at the end of this chapter to avoid duplicate work.

Form

The form of a spaceship first of all gives general information about its appearance. The rules mainly distinguish streamlined, partially streamlined teilweise stromlinienförmige and not streamlined spaceships.

Streamlined form allows to enter an atmosphere and makes it easy to fly in it, because the ship is shaped similar e.g. to an airplane. Examples are disk forms or cone and wedge forms with wings. The price of the hull must be multiplied with 2.

Partially streamlined ships are still able to fly in an atmosphere, but this will in any case require support such as e.g. an antigrav generator. Examples are ball forms, cones and wedges without wings or cylinder forms. The price of the hull is multiplied with 1.5.

Not streamlined ships only are able to fly in an atmosphere, if they are supported by an antigrav. Otherwise, they fall like a brick. Examples are hollow asteroids, box forms, cubic forms, etc. The hull price remains unchanged.

The **open structure**, that is explained in another section, is a special case.

For the displacement consumed by walls, etc. as a portion of the total displacement, apply the following:

	TL A	TL B	TL C
Streamlined	10 %	8 %	7 %
part. Streamlined	5 %	4 %	3.5 %
Basic form	2 %	2 %	1.5 %

	TL D	TL E	TL *
Streamlined	6 %	5 %	4 %
part. Streamlined	3 %	2 %	1.5 %
Basic form	1.5 %	1 %	0.5 %

The mass value amounts to

TL A	TL B	TL C	TL D	TL E	TL *
20	15	12	10	10	8

Method of construction

The method of construction describes how the hull itself is built, i.e. its separation into sections and its stability. The following types are distinguished:

Light design: The ship effectively does not have any bulkheads, i.e. all interior walls are made of light material that is

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not vacuum tight. The result is a light, but also vulnerable structure. Mass value/ 3, HP value/ 2, price / 2.

Standard design: Normal ships have a pressure and vacuum tight separation into larger sections such as engines room, bridge, cabin section, cargo room, etc. All these areas can be closed airtight and e.g. be pumped out of air individually. Normal stats.

Massive design: The ship actually is only separated by bulkheads, i.e. all interior walls, even between cabins, are pressure walls. This is a very stable, but also a heavy design. Mass value x 2, HP value x 2, price x 2.

Open structures: This special design is mainly popular for carrier vessels. The auxiliary craft are transported at the outer hull; for them, real openings have been designed. The resulting structure is very vulnerable, especially, as it can not be armored, and is treated as not streamlined. Mass value/ 5, HP value /3, price / 3, protection value = 0.

Example: A free trader vessel should be able to land on planets, including worlds without an orbit spaceport. Furthermore, this avoids time consuming and expensive transfer flights. Therefore, we choose streamlined design. This means that the price is doubled to 6 MCr. 7% of 300 tons, i.e. 21 tons, must be reserved for walls, etc. The hull mass is $12 \times 21 = 252$ tons. By the way, standard design is sufficient for our requirements.

Armor

It is possible to armor any spaceship, that is not built as an open structure, for protection against damage. This is done by using a thicker outer hull that consists of especially resilient alloys. Armor provides a certain protection, but it also makes a ship considerably heavier. Furthermore, protection fields are often even more effective. This means that most smaller vessels are not armored at all. Furthermore, the importance of armor decreases with advances in tech levels.

By the way, the possible thought to use reflex armor or ablative armor for spaceships, following the concepts for ground combat, has been dropped again after several experiments. The costs are too high, the coating is too vulnerable against micro-meteors and cosmic dust - and the effects are too weak. Furthermore, most military ship weapons are not ordinary lasers, and against other weapons, as known, these protection types are far less useful. Furthermore, even the effect against lasers is not that strong, because there is no proportional relationship between weapon size and armor thickness.

The mass value of armor amounts to 20. The price is 1 MCr per ton of armor. Compact armors cost 10 MCr per ton. The protection value is calculated with the following formula which is a preview of version 2 of the basic rules:

Armor displacement / Ship displacement x cube root of (Ship displacement/100) x armor multiplier

10% of the displacement consumed by the hull (see above) is added to the armor displacement.

In the following, you will find the armor multiplier per tech level.

	TL A	TL B	TL C
Standard-Armor	1.000	2.000	3.000
Compact-Armor	1.500	3.000	4.500

	TL D	TL E	TL *
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Standard-Armor	5.000	7.500	10.000
Compact-Armor	7.500	10.000	20.000

Example: For a trading ship, armor does not appear to be necessary. It is too heavy, too expensive and consumes valuable cargo room.

The engines

This chapter treats the heart of ship, the various engines installed in it. Please note that not all the presented systems are compulsory. For example, system bound ships or auxiliary craft do not require an FTL drive, and it is theoretically also possible to build a ship without any STL drive, however, such ship would then not be able to move in normal space.

Energy production

Every spaceship, that shall be more than a dead hull, requires the possibility to generate power (energy). There are different possibilities.

Fusion reactors

These are reactors that use the principle of nuclear fusion, normally as a fusion of hydrogen to helium, to generate energy. This is the most frequent and cheapest energy source. They cost 1 MCr per ton. The compact version costs 10 MCr per ton. The mass value for both versions is 1. The following technical stats apply, all of them listed in the form of generated energy points (EP) per ton of displacement:

	TL A	TL B	TL C
Standard-Fusion reactor	10	25	50
Compact-Fusion reactor	20	50	100

	TL D	TL E	TL *
Standard-Fusion reactor	75	100	250
Compact-Fusion reactor	150	250	500

Example: We install 30 tons of fusion reactors, which can produce 1,500 EP. The price is 30 MCr and the mass amounts to 30 tons.

Antimatter reactors

These reactors use the reaction of matter with antimatter, to produce energy. They are more powerful compared with fusion reactors of the same size, because the Wirkungsgrad of an antimatter reaction is higher. However, this also applies for the price.

Antimatter reactors cost 14 MCr per ton. The compact version even costs 140 MCr per ton. The mass value for both types is 1. In the following, the technical stats are given, once again as EP production per ton of displacement of the reactor:

	TL A	TL B	TL C
Standard-Antimatter reactor	/	/	120
Compact-Antimatter reactor	/	/	/

	TL D	TL E	TL *
Standard-Antimatter reactor	200	300	600

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Compact-Antimatter reactor	400	600	1000
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Capacitors

These are not energy generators, but a type of large batteries that can store energy and release it either continuously or within short time. They are mainly used to be able to provide sufficient energy for a hyperspace entry, but might also serve as emergency power reserve. Theoretically, it would even be possible to build a ship without reactors, using only capacitors. However, such ship would then require regular "refueling" e.g. at the reactor of a mothership or a space station or the use of a collector beam.

The price amounts to 0.5 MCr per ton, or 5 MCr per ton for the compact version. The mass value for both types is 2. The technical stats in form of the maximum storage in EP hours per ton can be found in the following table:

	TL A	TL B	TL C
Standard-Capacitors	50	100	300
Compact-Capacitors	100	250	500

	TL D	TL E	TL *
Standard-Capacitors	600	1000	2500
Compact-Capacitors	1000	2000	5000

Example: We install 16 tons of capacitors, resulting in a capacity of 4,800 EPh. The price amounts to 8 MCr and the mass to 16 tons. The size of the capacitors was calculated based on the requirements for FTL travel (cf. there).

The EP method

For determination of the energy requirement of ship systems, the energy points (EP) method is used. For each ship system, an EP requirement is given. The amount produced by the reactors or capacitors must firstly at least be equal to the total requirement of all systems installed in the ship except for the FTL drives, 50% of the STL drives and of the antigrav, and secondly be sufficient for the STL drives and the antigrav with full power, as well as the life support and the computer.

For this requirement, apply the following rules:

- weapon systems require the EP amounts mentioned in the respective tables.
- Fusion drives require 4 EP per ton of drive displacement
- Impulse drives require 50 EP per ton of drive displacement
- for FTL travel, use the rules in the respective chapter
- computers and other installations require the respectively listed EP amounts
- the life support system consumes 20 EP per ton of system displacement
- the antigrav requires 25 EP per ton of system displacement
- the protection fields require the amount listed for them

Example: A ship has impulse drives of 50 tons (i.e. 2,500 EP requirement), an antigrav of 50 tons (1,250 EP requirement), weapon systems for 1,000 EP, 10 tons of life support (200 EP), a computer for 25 EP and protection fields for 1,200 EP. Therefore, its reactors must at least produce 4,300 EP. The calculation is: total of all amounts including 50% of drives and antigrav = 4,300 EP / total full power of drive and antigrav + computer + life support = 4,000 EP.

Example: For our free trader, the EP requirement is mentioned directly in the respective following sections.

Fuel tanks

Ships require fuel, in order to power their reactors. This is either fusion capable hydrogen or water in case of fusion reactors, or antimatter pellets for antimatter reactors.

Fuel tanks for at least 10 days of operations must be installed. For their displacement, use the following rules:

a) Fusion reactors: Tank displacement = 1 / 1.000 of the reactor displacement per 10 operation days

b) Antimatter reactors: tank displacement = 1 / 10.000 of the reactor displacement per 10 operation days.

The mass value is 1 for both. Possible additional tanks or external tanks are left to the master or future worldbooks. The minimum displacement of tanks amounts to 0.01 tons.

Example: 1/1000 of the reactor displacement is 30 / 1.000 or 0.3 tons. We increase this to 1 ton, being sufficient for about 33 operation days. The mass also is 1 ton.

STL drive

For movement of a ship in normal space, there are two standard propulsion methods, which will be presented in the following.

Impulse drives

This is a drive system, that does not use the principle of thrust, but that propels the ship using impulse waves, including the benefit of hyperphysical effects. The advantage is a very high efficiency, allowing very high acceleration values, and the independency of any kinds of reaction mass.

The price amounts to 2 MCr per ton, or 20 MCr per ton for the compact version. In both cases, the mass value is 1. In the following, the technical Daten data is given in the form of g ($= 10 \text{ m/s}^2$) acceleration, which one ton of mass gets from one ton of drive. Larger masses respectively reduce the power (true power = power x displacement drive / ship mass).

Due to physical reasons, impulse drives have a minimum displacement of 10 tons. This also applies for the compact version.

Example: A drive of power 1,000 is installed in a ship of 100 tons mass. 10 tons of drive are used. This results in an acceleration of 100 g. 5 tons drive would only have reached 50 g.

	TL A	TL B	TL C
Standard impulse drive	/	100	200
Compact impulse drive	/	/	350

	TL D	TL E	TL *
Standard impulse drive	400	600	1000
Compact impulse drive	500	1000	1500

Example: The impulse drive for the free trader vessel is designed for 2,000 g of nominal power. A trader ship does not need to be really fast, but it also should not take weeks to reach jumpspeed or the minimum jumping distance. The drives consume 10 tons, need 500 EP and cost 20 MCr. The mass is 10 tons.

Fusion drives

The first drive system of most races, that made longer flights possible, is the fusion drive. This is an ion drive, i.e. applying

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the principle of thrust, ionised hydrogen atoms are emitted, resulting in movement of the ship. The possible acceleration values are lower than those of the impulse drive, but the price and energy requirements are lower as well.

The purchase price amounts to 0.2 MCr per ton. A compact version does not exist. The mass value is 1. In the following, the technical data is presented using the same method as for the impulse drives. Fusion drives have a minimum displacement of 1 ton.

	TL A	TL B	TL C
Standard fusion drive	5	10	15

	TL D	TL E	TL *
Standard fusion drive	20	30	50

FTL drive

For movement between the stars, conventional drives are not sufficient, unless one had many years of time. In the known Milky Way, two methods of interstellar travel with ships are in use.

Hyperdrives (Jump drives)

These drives catapult a ship into the hyperspace, where it is able to reach velocities far above lightspeed. Further information can be found in the respective chapter of the space travel rules.

The price is 5 MCr per ton, or 50 MCr per ton for the compact version. The mass value amounts to 1. In the following, you will find the required drive tonnage for each 100 tons of displacement and for a certain hyperjump level. The compact version requires half the tonnage. As a reminder: Hyperjump level = logarithm with base ten of the maximum allowed FTL speed.

The listed displacement is also the minimum displacement of a respective hyperdrive, i.e. it is also used for ship displacements below 100 tons.

Level	TL A	TL B	TL C
1	7	4	/
2	10	7	4
3	/	10	7
4	/	15	10
Level	TL A	TL B	TL C
5	/	20	15
6	/	/	20
7	/	/	25
8	/	/	/
9	/	/	/
10	/	/	/

Level	TL D	TL E	TL *
1	/	/	/
2	/	/	/

3	4	/	/
4	7	4	/
5	10	7	/
6	15	10	7
7	20	15	10
8	25	20	12
9	/	25	15
10	/	/	20

Example: We select an FTL drive of factor 4, i.e. sufficient for 10,000times the speed of light. With this drive, the ship needs 3.6 days per 100 lightyears. The drive consumes 30 Tons with an identical mass and a cost of 150 MCr.

PSI drive

This is not a drive in the true meaning of the word. Instead, the psionic ability of teleportation is used to cover interstellar distances. However, only very few races are able to join enough psionics to achieve such a result. The installations required for this purpose are only psionic amplifiers. Further information in the chapter on PSI drives of the space travel rules. One ton of amplifier system costs 10 MCr and it has a mass value of 1. The system is introduced at TL C.

Further installations

The following installations supplement a ship. Some of them are voluntary, but we think that at least a life support system is rather recommendable...

Antigrav system

The antigrav has two functions: It regulates the gravity on board a ship and it can work as a drive inside the gravity field of a planet, i.e. usually inside an atmosphere. To be able to keep constant gravity on board, even during acceleration phases, without having the crew squeezed against the back wall with several gees, the power must be at least equal to the acceleration of the STL drives in gees. Otherwise, the ship's crew is subject to a gee-force equal to the difference between the drive's rating and the antigrav's rating when the ship is accelerating or decelerating. More information on the use of an antigrav as a drive can be found in the respective chapter of the space flight rules.

All antigrav generators cost 2 MCr per ton. The compact version costs 20 MCr per ton. The mass value is 1 for both. The following table shows the neutralisation capacity in g for an antigrav of one ton displacement referring to one ton of mass; larger masses reduce the power respectively.

	TL A	TL B	TL C
Standard-Antigrav	50	100	200
Compact-Antigrav	100	200	350

	TL D	TL E	TL *
Standard-Antigrav	400	600	1000
Compact-Antigrav	500	1000	1500

Example: We define the antigrav power at the same level as that of the impulse drives, i.e. 2,000 g nominal value. This consumes 10 tons for 250 EP, 20 MCr and 10 tons of mass.

Life support

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The life support system allows the existence of living beings on board a spaceship. It rules the temperature, air regeneration, pressure, etc. If no life support is installed, the crew needs spacesuits or other survival support.

The system costs 1 MCr per ton or 10 MCr in the compact version, with a mass value of 1. In the following, the capacity in people that can be provided by a system of one ton. The minimum displacement of an installed life support system is 0.1 tons.

	TL A	TL B	TL C
Standard-Life support	10	25	50
Compact-Life support	20	50	100

	TL D	TL E	TL *
Standard-Life support	100	250	400
Compact-Life support	200	500	600

Example: We install one ton of life support systems. Actually, we do not really need that much capacity, but you never know. The price is 1 MCr, the EP requirement 20 Points and the mass 1 ton.

Cabins and quarters

For all persons that travel on board a ship, in any case quarters must be available. A lot of their details depends on the type of people and the travel time.

a) Cabins : these are full-size regular cabins, which allow a longer life on board a spaceship. For all missions of more than one week duration, as well as for all kinds of passenger flights, cabins are an absolute requirement. For crew members, cabin sharing (double occupation) is allowed, this is especially typical on board warships.

Ordinary cabins have a displacement of 5 tons apiece and they cost 250,000 Cr. The mass value is 0.5. First class cabins require at least 10 tons and cost 1 MCr. In the cabin displacement, a share for common installations such as aisles, hobby space, etc. is included.

Example: 10 cabins should be enough for the crew and a small number of passengers. They require 50 tons and cost 2.5 MCr. The mass is 25 tons.

b) Emergency cabins: these are small cabins, in which one cannot stay for more than a week without negative consequences. They are not suited for passenger transport.

The displacement is 2 tons apiece with a price of 50,000 Cr and a mass value of 0.5.

c) Seat: A simple, but comfortable seat, normally only found in fighters or spaceboats. The user has few liberty to move, and after a mission of more than 24 hours, he will probably have to exercise for a while, in order to feel his legs again. Therefore, only suitable for the shortest missions.

The displacement apiece is 1 ton and the price amounts to 10,000 Cr. The mass value is 0.5.

Each level of exotic life conditions (cf. races, basic rules) increases the cost by 100%, as well as the required displacement. Such people also count as several people for the purpose of calculating the required life support.

Example: A race has two levels of exotic life conditions. Thus, cabins cost 750,000 Cr and they consume 15 tons. For life support, member sof this race count as three ordinary people.

d) Cryo capsules: These are small chambers, in which people can be transported in cryogenic sleep. This is espe-

cially typical for long range colonisation ships, or as the last measure in escape pods. However, there are also space-ships, that are offering low-budget flights in cryogenic sleep. More details on risks and particularities in the respective chapter.

The unit price is 10,000 Cr and the displacement amounts to 0.5 tons. The mass value is 1.

e) Stasis capsules: This application of modern stasis technology has an appearance similar to a cryo capsule. However, the user is not frozen, but a stasis field causes that no time passes inside the capsule. Available starting at TL E only. Each capsule needs 10 EP.

The unit price is 1 MCr with a displacement of 0.5 tons and a mass value of 1.

Bridges

Every ship requires a central bridge. For this purpose, at least a displacement of 2 tons per person in the bridge crew must be provided. The mass value is 0.5; the price amounts to 1 MCr per ton. Further details on bridge crew numbers can be found in the crew chapter. A ship may only be built without a bridge, if it only has one crew member and if a seat is installed for that person.

It is allowed to install one or several emergency bridges, that will have the same displacement as the main bridge. Furthermore, there is the option to have secondary bridges, into which certain areas of the ship control are transferred. Current examples include fire control, engine control, sensors or radio bridges. Such sub-bridges have a displacement that is determined based on the respective crew member head count.

Example: We define 16 tons of bridge room, to make it possible for the entire crew and maybe also some passengers to be present there ermöglichen. Due to the civilian design and small displacement of the vessel, emergency bridges or secondary bridges are obsolete. The price is 16 MCr withei a mass of 8 tons.

Computers

The computer of a ship is responsible for many functions of general ship operations, that could not be taken over by humans. Therefore, computers are compulsory for all star-ships.

The following table contains the available types of shipboard computers with their prices. The mass value is always 1.

The table refers to TL A. Each TL after A improves the factor of the computer by one level upwards, i.e. a computer, that would have had factor 1 at TL A, will have factor 4 at TL D, with the same displacement, price and EP requirement. In this case, the rule for price reductions by higher TL does not apply.

Factor	EP-Requirement	Displacement	Price / MCr
0	0	0	0
1	5	1	2
2	50	10	25
3	250	50	120
4	500	100	250
5	1. 000	200	500
6	2. 500	500	1. 000

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7	5. 000	1. 000	2. 000
8	10. 000	2. 000	5. 000
9	25. 000	5. 000	12. 000
10	50. 000	10. 000	25. 000

Computers have the mass value 1. More information on their function and the software can be found in the respective chapter of the space flight rules.

The computer factor must at least be 0.

Example: A factor-1 computer already has an effective factor of 3 at out TL C. This appears to be sufficient for our purposes. Respectively, the stats are: displacement and mass one ton, EP requirement 5 points, price 2 MCr.

Sensor suites

For orientation in space, spaceships use various kinds of sensor devices, which are of course very important especially for military and exploration vessels. The following sensor types are distinguished:

a) Energy sensors: These systems detect energy, as it occurs e.g. due to working drives and reactors, weapons fire, stars etc..

b) Mass sensors: triggered by the mass of an object, i.e. can also detect ships that have switched off their reactors or e.g. an asteroid.

c) Distortion sensors: This scanner system detects the waves that are caused by the hyperspace exit or entry of a ship or by various other events.

d) Cavity sensors: mainly used for planetary exploration; they detect all kinds of cavities.

e) Bio scanners: This system detects all kinds of lifeforms.

f) Psi scanner: A device for detection of psionic impulses similar to the psionic ability PSI sense. Introduced at TL B.

Further possibilities are left to the creativity of players and master, e.g. concerning devices for detection of specific elements or compounds. The use of sensors is explained in the respective chapter of the space travel rules.

The following table shows the stats of the different sensor types for the TL of their introduction, i.e. TL A except for PSI scanners. Each further TL increases, similar as for computers, the factor by one level, this means that the range is higher. Higher factors should be calculated based on the table without much problem; theoretically, there is no upper limit. The standard range has been given in 1,000 km, similar to the weapon tables for ship weapons.

Example: A TL-A sensor system of factor 1 has a displacement of 1 t and costs 1 MCr with a std. range of 100,000 km. At TL C, the same displacement and EP requirement would mean a factor-3 installation, with a range of 900,000 km.

Factor	EP-requirement	Displacement	Price MCr /	Std.-Rwe.
0	0	0	0	10
1	10	1	1	100
2	100	10	10	400
3	500	30	50	900
4	1. 000	250	250	1. 600
5	3. 000	600	500	2. 500

6	8. 000	1. 200	1. 000	3. 600
7	15. 000	2. 000	2. 000	4. 900
8	25. 000	3. 500	3. 000	6. 400
9	35. 000	5. 000	4. 000	8. 100
10	50. 000	10. 000	6. 000	10. 000

The mass value is 1. Distortion sensors have ten times the displacement, ten times the EP requirement and ten times the price. Their std. range is expressed in lightdays. Psi scanners have twenty times the base price.

Factor-0 sensors are the minimum equipment in all vessels.

Example: The factor-0 systems already have an effective factor of 2 at TL C. As we judge that additional investments are not useful, we stay with them, i.e. there is neither displacement consumption nor cost for the sensors.

Radios

Spaceships may be equipped with two types of radios: conventional and FTL Devices. Conventional Devices are part of the bridge displacement without additional cost.

FTL (= faster than light-) radios must be purchased separately, however. Their energy consumption is explained separately in the space travel chapter. In the following, the technical stats for FTL radios are given for the TL of introduction (TL A); their mass value is always 1. Each further TL increases the factor by one level, as described for sensors.

Factor	Displacement	Price / MCr	Std-range.
1	2	10	1 lightday
2	25	25	10 lightdays
3	150	150	25 lightdays
4	500	500	64 lightdays
5	1. 500	1. 500	0,3 LY
6	2. 500	2. 500	0, 7 LY
7	5. 000	5. 000	1 LY
8	8. 000	8. 000	1, 5 LY
9	12. 000	12. 000	2 LY
10	20. 000	20. 000	3 LY

Example: We do not purchase any FTL radio.

Protection fields

Spaceships can be equipped with various forms of protection field, depending on the TL. It is perfectly possible that a spacecraft has more than one protection field.

Standard shields

This is the most current form of protection field. An energy field surrounds the ship, and protects it against all kinds of attacks, regardless if in the form of matter or of energy, with the exception of attacks that use higher dimensions, such as e.g. fictitious transmitters or teleporters.

The ABV is calculated according to the following formula:

(displacement shield generators ² / ship displacement) x multiplier.

Example: A 10.000-tons spaceship gets 500 tons of shield generators with a multiplier 10,000. The ABV amount to 250,000.

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The following table lists the multipliers for each TL. Shielded generators are purchased for a unit price of 5 MCr per ton. The mass value is 1; the EP requirement amounts to 100 EP per ton of generator displacement. Compact versions cost 50 MCr per ton.

TL	A	B	C
Shield	4000	5000	7000
Compact shield	6000	7500	10000

TL	D	E	*
Shield	12000	22000	45000
Compact shield	16000	30000	60000

PSI shields

A PSI shield is used to protect a ship and its Crew against all kinds of psionic actions by surrounding it with an anti-psi field. PSI shields become available at TL D.

The effective field factor (cf. space travel) is calculated based on the ratio of generator and ship displacement, multiplied with a TL dependent Value.

PSI shields cost 10 MCr per ton with a mass value of 1 and an EP requirement of 100 EP. Compact versions cost 100 MCr per ton. For the multiplier, the following applies:

TL	D	E	*
Shield	1000	1500	2500
Compact shield	1500	2000	4000

Example: A protection field does appear to be useful, if only for the case of pirate attacks. Considering the price and reactor power, we choose 6 tons of protection field generators. These cost 30 MCr and require 600 EP. The mass also amounts to 6 tons. An ABV of 1.,200 results.

Lightwave distorter

This shield distorts the lightwaves and bends them around a ship, so that it becomes invisible. Any watcher sees what is behind the spaceship instead! This also affects the infrared and ultraviolet spectrum, but is of rather low importance in combat, because the sensors do not focus on optical perception. Instead, the system's purpose is to disguise a ship e.g. when it is landed on a primitive planet. Introduction occurs at TL B.

Operations require a generator displacement of 1 t per full or partial 100 t of ship displacement, with a mass value of 1. Each ton of light wave distorter costs 5 MCr. The EP requirement is ship displacement x 2 EP. Compact versions (0.5 t per 100 tons, full or partial) cost 50 MCr.

Distortion shields

A special scientific development, that will only be rarely encountered, is the distortion shield, whose working principle is similar to that of the hyperdrive. A ship is surrounded by a special field, which causes a partial insertion into hyperspace. The ship actually hovers between normal space and hyperspace. Introduced at TL E.

Distortion shields have an ABV, which is determined as for standard shields. Additionally, they have a **flicker value**, that is explained in the chapter on space combat. This flicker value is calculated as TL multiplier x shield generator displacement / ship displacement.

The following table shows the multipliers for the ABV in relation to the TL. Shielded generators are purchased at a unit price of 50 MCr per ton. The mass value is 1; the EP requirement amounts to 200 EP per ton of shield generator displacement. Compact versions cost 500 MCr per ton.

TL	E	*
Shield	40000	80000
Compact shield	60000	120000

For the flicker value multiplier, the following applies:

TL	E	*
Shield	100	250
Compact shield	150	400

Cloaking shields

A disguise system which is used to make a ship at least partially invisible for the sensors of others. Usually, cloaking shields are only useful against sensors of the same or a lower tech level. Therefore, the TL is decisive, as also explained in the chapter on sensors in the space travel section. Most military vessels are equipped with cloaking shields.

Each cloaking shield has a cloaking value that is calculated as follows: 1,000 x shield displacement / ship displacement. Please note that the cloaking value can never be higher than 100.

Each ton of cloaking shield generators costs 5 MCr with a mass value of 1 and an EP requirement of 50 EP. Compact versions cost 50 MCr per ton; for them, the cloaking value is calculated as 2,000 x shield displacement / ship displacement.

Distortion dampers

This is a special form of disguise that shall prevent that the entry or exit of a spaceship into or from hyperspace can be detected. The shield dampens the respective shockwave considerable. Introduced at TL B.

Similar to cloaking shields, distortion dampers also have a cloaking value, that is calculated as follows: 1,000 x shield displacement / ship displacement. The cloaking value can, however, never be higher than 100.

Each ton of distortion damper generators costs 20 MCr with a mass value of 1 and an EP requirement of 100 EP. Compact versions cost 200 MCr per Ton; for them, the cloaking value is calculated as 2,000 x shield displacement / ship displacement.

Weapon systems

All weapon systems of a spaceship are classed by their **factor**. This is always a full number between 1 and X, and higher factors mean more powerful models of a weapon system. Weapon factors of more than 20 are not shown in the tables, for the simple reason, that these weapons are only possible for ships with displacements of far more than 100,000 tons. We assume, that they player characters will not order such titans, or at least not daily. If nevertheless a weapon of factor 25 is desired, the master should be able to improvise its stats based on the existing tables

By the way, some hints on arming spaceships: It is recommended, to limit the armament to as few weapon types and factors as possible. Historic experiences, beginning on Terra with the all-big-gun-one-caliber-battleship of the 20th century, but also in later periods, lead to the conclusion that the main artillery of a ship should consist of similar weapons. Add

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some medium artillery and several light weapons, e.g. for defense against smaller units, and finished. Ships with a dozen of different main weapon turrets will usually discover that their attack results, especially during salvos, will be considerable worse than those of a ship with a more uniform armament.

All weapon table in the following sections refer to the tech level of the first introduction of a weapon type. Each further TL increases the effective weapon factor by 1.

Example: A TL-A beam laser of factor 1 consumes 1 ton. At TL B, the same weapon would have factor 2 and at TL E factor 5.

Laser weapons

Lasers are a widespread weapons system that fires a focused energy beam, either in the form of a longer beam (beam laser) or a series of energy-rich short pulses (pulse laser). Beam lasers usually have a better range, but they cause less maximum damage than pulse lasers.

Furthermore, there is a differentiation between ordinary lasers (light amplification), x-ray lasers (focused x-rays) and gamma lasers (focused gamma rays, also called grasers), and the sequence is identical with their power. All these types are available as beam or as pulse lasers.

Ordinary lasers occur since TL A.

X-ray lasers are weapons of TL B upwards. They cost 50% more.

Gamma lasers are used starting at TL D. They have double price.

Factor	Displacement	Price / MCr	EP-Requirement
1	1	1	10
2	2	2	20
3	5	4	50
4	10	8	100
5	20	16	200
6	50	40	500
7	100	80	1.000
8	200	150	2.000
9	500	300	5.000
10	1.000	600	10.000
11	2.000	1.500	20.000
12	5.000	3.000	50.000
13	10.000	6.000	100.000
14	20.000	12.000	200.000
15	50.000	25.000	500.000
16	100.000	50.000	1.000.000
17	200.000	100.000	2.000.000
18	500.000	200.000	5.000.000
19	1.000.000	500.000	10.000.000
20	2.000.000	1.000.000	20.000.000

Beam lasers and pulse lasers do not have different stats, but only different combat effects. However, pulse lasers generally cost twice as much.

Particle accelerator

These weapons use a field to accelerate ions close to lightspeed, resulting in a very effective weapon. Anti-particle accelerators are a special case, because they use antimatter ions, which additionally react with the matter of the target.

Both weapon types have a very good attack range. The theoretical damage as well as the effect against armor is usually lower than in case of impulse laser, especially than for gamma ray or x-ray-lasers.

Particle accelerators are developed at TL A.

Anti-particle accelerators are a weapon of TL D. They have ten times the purchase price.

Factor	Displacement	Price / MCr	EP-Requirement
1	2	6	20
2	4	10	40
3	10	20	100
4	20	50	200
5	40	100	400
6	100	200	1.000
7	200	350	2.000
8	400	600	4.000
9	1.000	900	10.000
10	2.000	1.600	20.000
11	4.000	3.000	40.000
12	10.000	6.000	100.000
13	20.000	15.000	200.000
14	40.000	30.000	400.000
15	100.000	75.000	1.000.000
16	200.000	150.000	2.000.000
17	400.000	300.000	4.000.000
18	1.000.000	750.000	10.000.000
19	2.000.000	1.500.000	20.000.000
20	4.000.000	3.000.000	40.000.000

Plasma and fusion thrower

Plasma throwers are weapons of short range, that fire a splash of ultra-hot hydrogen plasma at a target. Fusion throwers use a similar principle, but inside the plasma, even a fusion process occurs. Both weapons systems are able to cause similar high damage amounts and also a very high shield burden, but their drawback is a really short range as mentioned. Normally, a ship will thus never be exclusively armed with this weapon type.

Plasma throwers occur since TL A.

Fusion throwers appear at TL B. They have double the price.

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Factor	Displacement	Price / MCr	EP-Requirement
1	1,5	2,5	15
2	3	4,5	30
3	8	10	75
4	15	18	150
5	30	30	300
6	75	60	750
7	150	120	1.500
8	300	250	3.000
9	750	500	7.500
10	1.500	1.000	15.000
11	3.000	2.000	30.000
12	7.500	5.000	75.000
13	15.000	10.000	150.000
14	30.000	25.000	300.000
Factor	Displacement	Price / MCr	EP-Requirement
15	75.000	50.000	750.000
16	150.000	100.000	1.500.000
17	300.000	250.000	3.000.000
18	750.000	500.000	7.500.000
19	1.500.000	1.000.000	15.000.000
20	3.000.000	2.500.000	30.000.000

Gravo beam

A special weapon development, that creates a strong gravity field close to a target and uses it to cause distortion and other damage effects. This weapon is introduced at TL C.

Gravo beams have a comparatively high damage and shield burden that are both independent of the target range. However, their range is lower than that of many other weapons systems and the energy requirement is rather high.

Factor	Displacement	Price / MCr	EP-Requirement
1	2	10	150
2	4	30	300
3	10	50	750
4	20	75	1.500
5	40	120	2.000
6	100	200	7.500
7	200	350	15.000
8	400	750	30.000
9	1.000	1.400	75.000
10	2.000	2.500	150.000
11	4.000	4.500	300.000

12	10.000	8.000	750.000
13	20.000	15.000	1.500.000
14	40.000	25.000	3.000.000
15	100.000	45.000	7.500.000
16	200.000	80.000	15.000.000
17	400.000	150.000	30.000.000
18	1.000.000	250.000	75.000.000
19	2.000.000	450.000	150.000.000
20	4.000.000	800.000	300.000.000

Paralysis guns

This weapon only attacks a ship's crew. It uses a special radiation that directly affects the neural system and causes a paralysis of all conscious body functions. The victim falls down, paralysed, but does not become unconscious, i.e. can still think or perceive things. Paralysis guns are introduced at TL B. They have a very low range and are almost useless against protection fields.

Factor	Displacement	Price / MCr	EP-Requirement
1	1	2,5	5
2	2	4,5	10
3	5	10	25
4	10	18	50
5	20	30	100
6	50	60	250
7	100	120	500
8	200	250	1.000
9	500	500	2.500
10	1.000	1.000	5.000
11	2.000	2.000	10.000
12	5.000	5.000	25.000
13	10.000	10.000	50.000
14	20.000	25.000	100.000
15	50.000	50.000	250.000
16	100.000	100.000	500.000
17	200.000	250.000	1.000.000
18	500.000	500.000	2.500.000
19	1.000.000	1.000.000	5.000.000
20	2.000.000	2.500.000	10.000.000

Disintegrators

A weapon system, whose frequency radiation directly affects the bonds between the atoms. Consequently, the target is disassembled into individual atoms. The introduction is made at TL C.

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Their main advantage is that armor is useless against them, as well as the fact that they cause rather high damage at medium and large distances.

Factor	Displacement	Price / MCr	EP-Requirement
1	2	10	20
2	4	30	40
3	10	50	100
4	20	75	200
5	40	120	400
6	100	200	1.000
7	200	350	2.000
8	400	750	4.000
9	1.000	1.400	10.000
10	2.000	2.500	20.000
11	4.000	4.500	40.000
12	10.000	8.000	100.000
13	20.000	15.000	200.000
14	40.000	25.000	400.000
15	100.000	45.000	1.000.000
16	200.000	80.000	2.000.000
17	400.000	150.000	4.000.000
18	1.000.000	250.000	10.000.000
19	2.000.000	450.000	20.000.000
20	4.000.000	800.000	40.000.000

Weapons installation

It is required to define the installation type for each weapon system, because this has impact on its behavior in space combat.

Weapon turrets

The most frequent form of installation are **weapon turrets**. They are mounts on the outer hull, which have the advantage of a comparatively large field of fire. Furthermore, turret weapons can rather easily be replaced by other ones, provided that they are of the same displacement. Details in the sections on space travel and space combat.

For static reasons, a turret can never be larger than 10% of the ship displacement, unless the master allows an exception and justifies this. How many turrets can be placed and how large their field of fire is, is up to the master, but in most cases, the question cannot be answered without making design sketches. As this is likely excessive effort for 99% of the players, we just repeat the rule of thumb from the combat system, which states that a ship, that does not have more than one turret per 100 tons of ship displacement, has turrets that can fire to any side.

Turrets cost 0.1 MCr per ton of displacement, the latter being equal to the total of the installed weapons including slots that are left open. The turret displacement is not added to the weapon displacement.

Example: A ship is constructed with a turret for a 1-t-laser, but the weapon is not installed. Nevertheless, the turret consumes 1 t and costs of 0.1 MCr.

It is possible to construct multiple turrets. These may be twin, triple or even quadruple turrets. This has special effects in combat (cf. basic rules), but also the advantage, that less displacement is required:

Twin turrets only consume 80% of the listed displacement, but cost 1 MCr per ton.

Triple turrets only consume 70% of the displacement, but they cost 2 MCr per ton.

Quadruple turrets only consume 60% of the displacement and cost 3 MCr per ton.

Example: A triple turret with lasers of 100 tons base displacement per weapon consumes not 300 tons, but only 210 tons.

The weapons that are installed in a turret may be different, but the base displacement of the smallest weapon in a turret may not deviate from that of the largest weapon by more than 25%.

Fixed weapons

The second important installation possibility is the use of fixed mounts, whose special effects in combat are described in the basic rules *geschildert werden*. Fixed mounts have static advantages, so that there is no upper limit for their displacement.

If it is decided to install a weapon in a fixed mount, the firing direction (usually to the front or to the rear, rarely to one side of a ship) must be defined during the construction process. The price of the weapon is decreased by 25%.

Example: Our free trader does not need to bristle of weapons. Budget and reactor power do not allow this, and it would also only provoke trouble with the authorities. Nevertheless, a weapon turret for self-defense looks like a good idea. We choose a twin x-ray beam laser turret of two factor-3 weapons. This costs 100 EP. The turret requires 7.2 tons (10 tons base weapon displacement at TL B, - 10 %, i.e. - 1 ton, for TL C; afterwards - 20%, i.e. - 1.8 tons, for twin turret) and costs, including the weapons, 15.2 MCr. The mass is 7.2 tons.

Auxiliary craft and vehicles

Most ships will carry some kind of auxiliary craft or at least vehicles. Especially for ships that are not designed to land on planets, they are the only possibility to enter an atmosphere. The mass of auxiliary craft and vehicles is added to that of their mothership.

Hangar space

The for space that is used for the transport of auxiliary craft or vehicles is called hangar space. It is calculated as displacement of the vehicle/craft x 1.5 and costs 2,000 Cr per ton.

Airlocks

In order to enable the launch of auxiliary craft or vehicles, usually airlocks are installed. The airlock displacement is calculated as follows:

Largest allowed craft displacement / 100

Each airlock as a minimum displacement of one ton. The price of airlocks is 10,000 Cr per ton. Each airlock allows to launch or recover one vehicle or craft per turn.

Example: Due to the law, we are obliged to carry two escape pods of 6 tons each. These require 2 x 9 = 18 tons of hangar space for 2,000 x 18 = 36,000 Cr. An airlock (1 ton) for 10,000 Cr must be added. The pod mass of 12 tons is added to the ship mass.

Quick-launch installations

Especially on larger fighter-carriers, there are often quick-launch installations in the form of launch tubes, a type of

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catapult system which allows the launch of up to 20 vehicles per turn.

The displacement is calculated as

Largest allowed auxiliary craft displacement x 10.

The price amounts to 100,000 Cr per ton.

Open transport

Ships, which have been built in the form of an open structure, can dock auxiliary crafts in their outer hull. This makes airlocks or other launch installations obsolete and allows to launch or recover all craft in one turn.

The displacement that must be allocated as "hangar space" is auxiliary craft displacement / 2 tons. The cost amounts to 500 Cr per ton. While the auxiliary craft are docked, the displacement of the mothership is increased by half their displacement.

Special installations

Finally, some special systems may be installed. In the following, there are some proposals.

Transmitter devices

At TL E, the so-called two-way transmitter is introduced. This device, which requires a sending and a receiving station, can transport matter including living beings directly through hyperspace to the receiver, similar to an FTL drive or communicator. The working principles are explained in the respective chapter.

Typical transmitters, which may be used to send as well as to receive, have the following stats: The base model has a range of 10,000 kilometers and a capacity of 0.1 tons of displacement, roughly sufficient for one human. It costs 10 MCr; the EP requirement is determined according to special rules. Each doubling of the transport capacity doubles the price; each doubling of the range also doubles the price.

The base displacement is 10 tons (mass value 1); each capacity doubling also doubles the displacement; each range doubling does this as well.

Example: A transmitter with 0.8 tons capacity (8 humans) and a range of 160,000 km has the following stats: Displacement 1,280 tons, price 1,280 MCr.

The Imperial technology knew the fictitious transmitter (TL *). This device does not require a receiving station, its use is also explained in another section. A fictitious transmitter has the same stats as a two-way transmitter, but the base model costs 100 MCr and has a displacement of 20 tons.

Medo station

If desired, ships may be equipped with a medo station. This is some kind of small hospital for the crew. The minimum displacement of the medo station is 5 tons; recommended are 3 tons per crew member of the ship, in order to provide sufficient capacity. For one ton of medo station (mass value 1), 100,000 Cr must be paid.

The advantage of a medo station is that the ship doctors can work much more efficiently, please refer to the Omnirole basic rules for treatment of injuries. Medo stations qualify as hospitals for such purpose.

Tractor beam projectors

Tractor beams are used to immobilise or move objects. They use a directed force field, which is very useful, e.g. to gather objects, but also, assuming respective strength, to hold e.g. whole ships.

Tractor beam projectors have the same displacement, EP requirement and price as beam lasers. Their mass value is 1. They are introduced at TL A and their displacement is reduced as for weapons.

Emotio-Adapter

A ship can be designed for control via an emotio adapter. Typical systems for this are the pilot function and / or the ship weapons.

In case of the ship weapons, the price of a weapon is doubled, if an emotio adapter is installed in the gunner seat. A counterpart in the fire control bridge requires a further investment of 100% of the weapon price, but no additional displacement.

An emotio adapter for the pilot costs 10,000 Cr per ton of ship displacement, but at least 1 MCr.

At TL E and after, induction helmets are introduced. They operate as a level-1 emotio-adapter, but do not require any cyber implants. Such a helmet has double the price of the standard system described above.

Example: final calculations. We have created a free trader vessel that costs 300.7 MCr plus the price of the escape pods (in the Periphery, these are often left out). It has free space (= cargo room) of 81.8 tons plus 18 tons of hangar space. The mass amounts to 397.2 tons (or 409.2 with escape pods), resulting in a real acceleration of 5 g for the unloaded ship with its impulse drives.

Calculation of crew

For the operations of any kind of spaceship, a qualified crew is required. Missing crew members increase the accident risk (cf. space travel rules) or even make certain actions almost impossible.

The crew requirements consist of the following positions, for each of them, the minimum skill value has been listed as a prerequisite.

- **Pilot:** in any case (space pilot+50), furthermore one for each auxiliary vessel
- **Commander:** on combat vessels of at least 100 crew members obligatory, otherwise voluntary
- **Second commander:** cf. commander, but 200 people
- **First aid attendant:** if there usually are 10 or more people on board (crew + passengers). 1 attendant per 50 people (full or fraction). (medicine or first aid+50)
- **Doctor:** if 100 or more people on board (medicine+75)
- **Computers officer:** if 100 or more tons of compute displacement (programming+50 or cybernetics+50)
- **Navigator:** on all ships with FTL drives (astrogation+50)
- **Sensors officer:** if 100 or more tons of sensors displacement (sensors+50)
- **Purser:** if 100 or more people on board (administration+50 or economics+50)
- **Communications officer:** if FTL communications on board (communications[FTL]+50)
- **Flight control officer:** if more than 10 auxiliary craft (special skill flight control+50)
- **Stewards:** one for each 10 passengers in the first class (full or fraction), 25 passengers in the second class or 100 passengers in the third class (steward+50)
- **Service crew:** 1 for each 20 used cabins (e.g. steward+50 or suitable technical skills)

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- **Maintenance crew:** 1 per 1,000 tons of auxiliary craft (only if more than 100 tons of craft); 1 per 10 vehicles (not space-craft); 1 per 50 robots (e.g. engineer+50, robotics+50, electronics+50 or other suitable skill)

- **Engines crew:** 1 per full 100 tons of engines (FTL, STL drives, reactors, capacitors, antigrav. FTL drives count with double their displacement.) (engineer+50)

- **Chief engineer:** if there are more than 10 people in the engines crew (engineer+75)

- **Shields crew:** 1 per full 100 tons of shields displacement (weapons engineer [protection fields] +50 or other suitable skill)

- **Auxiliary personnel:** 1 per 100 t of quick-launch installations, 1 per full 10 airlocks, 1 per full 5,000 tons of ship displacement (any technical skill+50).

- **Weapons technicians:** 1 per full 100 tons of weapons displacement (weapons engineer+50)

- **Gunners:** 1 per fixed weapon or per turret, if there is no fire control bridge and no fire control crew (see below). Otherwise voluntary. (ship weapons+50)

- **Fire control officer:** if fire control bridge has been installed, or if no gunners on board. Otherwise voluntary, but required for broadsides (ship weapons+50 with all weapons installed on board)

- **Fire control crew:** if fire control bridge has been installed, or if no gunners on board. Otherwise voluntary, but required for broadsides. 1 per two fixed weapons or two turrets. (Ship weapons+50)

Example: Our free trader requires the following crew: a pilot, a navigator, an engineer (or several, because various specialisations are needed) and a gunner. If we want to carry passengers, we must add a steward and a first aid attendant. This means a base crew of 4 up to 8 people.

Generally, it is possible that one person is responsible for two or more functions on board. However, as the skill value must be sufficient for each position, this means, that e.g. someone wanting to fill two crew slots in the engine crew must respectively have a skill value of +100. Positions that contradict (e.g. in two separate and distant places, such as gunner and engineer) must not be combined. On the other hand, the master might also allow that two positions are taken, even if the skill value is only 50 for each – provided that the positions normally are not required simultaneously (possibly for combinations such as steward + gunner or purser + communications officer, etc.).

The average skill value of a crew, that is repeatedly mentioned in the later chapter on space travel, is calculated as follows:

Total skill values of crew in the section / minimum crew for the section.

Example: A ship requires an engine crew of 10 people. In the engine room, there are eight engineers with skill value +50 and two with skill value+80. The average skill value of the engine crew is $(8 \times 50 + 2 \times 80) / 10 = + 56$.

Spaceship classes

Classes are construction series of spacecraft, that are built using the same design plans. This means that they only differ in minor details such as their color or possibly the type of weapons that is installed in the turrets.

An advantage of classes is that the data is standardised, resulting a reduced building time (see below) and also facilitating repairs because spacedocks will usually have better stocks of spare parts for frequently built ships, and also will be more used to their particularities.

Additionally, the final construction price is reduced by 20 up to 50% for each ship except for the class prototype. Furthermore, the cost for the design plans must be paid only once.

Example: For the free trader vessel, that is built in large numbers, the building price drops to 200 MCr als inclusive.

Ships of a class will normally get names that are somehow related, for example ships of the City class might have the names Washington, Brunswick, Munich, London, etc.

Building time

The building time of a spaceship in general depends on its displacement. Basically, it can be assumed that the following formula describes the relationship:

Building time = square root of ship displacement days.

However, the minimum time is always 10 days.

Example: The free trader vessel of 300 tons displacement has a basic building time of 17 days.

Time reductions

Various factors may reduce the building time: If a spacedock is building a ship based on the same construction plans, which have already been used by it for at least one further vessel, the better familiarity with the plans decreases the building time to 75% of the base time. This also is an important reason for the use of ship classes.

Example: The real building time for the free trader thus is 13 days.

The second possibility for a time reduction is to make an urgent order. The Conditions as well as the limit will vary from spacedock to spacedock. Typically, the price will be increased by 5% for each 1% time reduction, but at the best, the time can be halved.

Spaceship design

If a new spacecraft shall be built, or if larger modifications are intended, it is necessary to make a design plan. This requires the work of an expert, i.e. a character with the spaceship building skill and respective equipment. If a player character wants to do this himself, assume an action with a base time of 4 weeks, and he needs at least a medium size computer for the necessary calculations.

The normal way is to contract a design agency. Such an agency, as will be available in all docks and also on many other worlds, is able to produce a design plan within 4 weeks. The cost is equal to 1% of the value of the modifications or of the calculated spaceship price.

Urgent orders are possible: Each time reduction by one day increases the price for the service by 5%.

Spaceship modifications

It is possible to modify existing spaceships. This most often happens in order to adapt them for new tasks, or to modernise them to include technological progress or when the owner is finally able to pay for it.

Such a modification requires that the ship enters a spacedock of the same or higher TL, as usual. The rules distinguish between simple and complex modifications. Simple modifications include the exchange of weapons in a turret or the replacement of a computer, radio or sensor system by another model with the same displacement. All other modifications, which usually require also a modification of the outer hull, are qualified as complex ones.

Simple modifications never take more than one day. The cost is equal to 10% of the cost of the modified part (cost of work), plus the purchase price for new parts, of course. Old

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parts are usually credited for amounts between 10 and 60% (1D6 x 10%) of their original price, provided that they are not too worn down.

Complex modifications require that a new construction plan is made (cf. design), taking one week and costing 1% of the value of the modifications. The subsequent execution has a construction time that is calculated like the time for a ship with a displacement equal to the total displacement of the modifications, but with half the result. The minimum time amounts to 5 days.

Example: Modifications are made during which 3,000 tons of impulse drives are replaced. The construction time amounts to $\sqrt{3,000} = 55$, $55 / 2 = 28$ days.

The price of complex modifications is equal to the price of the newly purchased installations plus 25%.

Spaceship repairs

If spaceships are damaged, regardless of by an accident or in combat, it is necessary to make proper repairs. As mentioned, the emergency repairs described in the space combat chapter are not sufficient for long term operations.

A repair requires to enter a space dock at the same or higher TL, as usual. The repair time depends on the type of repair.

Destroyed systems must be replaced by new ones. This requires a construction time that is calculated based on the displacement of the installations (cf. modifications), and then is halved, with a minimum of 5 days. The price is determined as the purchase price of the new system plus 25%.

Damaged systems are repaired. Each part of or whole 5% of system points loss are one repair unit. Such a unit requires a repair time that is calculated as

Squareroot of (plant displacement/20) days.

In case of higher system point losses, the repair time must be invested repeatedly. The total repair time for a system will always be at least one day. The cost amounts to 1D6% of the system price per unit.

Hull point losses are repaired using the same method, but in any case based on the ship displacement. The price depends on the hull price.

Generally, it is allowed to have more than one system repaired simultaneously, provided that the capacity of the dock is sufficient.

Spaceship financing

In view of the high cost of spaceships, it is probably understandable that only in the rarest cases, they are immediately paid in full. This is left to governments and megacorporations with respective large budgets, and possibly some billionaires. For all others, the typical means of financing is a leasing or loan agreement.

Leasing contracts

Leasing is some kind of combination of loan and rent. The lessee (customer) makes a contract with a bank, spacedock or other leasing company and is required to make regular payments. After the contract term has lapsed, he returns the spaceship to the lessor, i.e. he does not become its owner. However, it is also possible, that he purchases the ship for a final payment, this depends on the contract.

Typical leasing contracts require an initial payment of 10% of the ship price in cash. Afterwards, the lessee must make leasing payments of 1/250 of the ship price every 30 days (i.e. monthly) for a period of 15 years, so that after the full 15 years, one has paid 82 % of the ship price and now hands the ship back to the lessor. A typical final payment for transfer of ownership would in this case probably be about 30% of

the price. However, for details, you should contact your leasing company - the competition results in very much varying conditions.

Spaceship loans

A typical loan for financing of a spaceship will be granted by a bank. The bank will always demand the ship blueprints, as well as a business plan that shows that the ship can produce sufficient revenues (or a proof that the owner gets enough money from other sources) to pay the annuities.

If this is fulfilled, the contract may be signed. The most frequent type has a defined period of 25 years, during which 12 instalments are payable every year. All instalments are identical. The typical initial payment asked for is 20% of the ship price in cash. Subsequent instalments amount to 0.5% of the ship price, so that at the end of the contract, one will have paid 170% of the price. Please note that the conditions vary between the banks, so that it will never be wrong to ask for different offers.

It is not too rare that a ship owner is unable to fulfil his obligations. In this case, there will normally be a compulsory auction of the ship – as the ownership stays with the bank until the last instalment has been paid – unless the owner attempts to escape into another state or the Periphery. This "loan escape", however, is severely punished: Up to ten years of imprisonment are possible.

Space trade

One of the most important revenue sources for most spaceship owners will be space trade in its different forms. Actually, in spite of the titanic distances and high cost, many kinds of goods are being transported from one solar system to another.

Typical freight includes all kinds of luxury items, but also high-tech for less developed worlds, minerals and resources for industrial planets, food for worlds with large population or bad conditions, industrial goods for agricultural or mineral worlds, settlers for colonies and many other more. In general, it can be said that interstellar transport of goods only makes sense, if they are not available at the destination or can only be produced locally with even higher cost. Brick transports probably will not be profitable...

Transport activity

The term transport activity summarises all kinds of transports of goods that are made for someone else's account, i.e. the spaceship owner is not the owner of the freight, but only transports it on the order of someone else and is paid for this service, usually depending on the distance and delivery time.

Typical fees for freight transports with average competition will be in a range of 1,000 Cr per ton of freight and full or part of 10 lightyears of distance. Interplanetary transport, i.e. in the same solar system, will usually cost about 100 Cr per ton. The time factor is as follows: Assume that the mentioned rate for interstellar transport is for a time of one week (7 standard days). Each time reduction by 10% usually means a rate increase of about 25%, but only if this has been agreed in the contract. A customer that did not order express cargo also will not pay for it, even if his freight arrives after two days instead of the regular seven !

Larger amounts of freight (e.g. 100 or even 100,000 tons) normally will mean that the fees are reduced, so that the cost will drop to a range between 50 and 800 Cr per 10 lightyears. Similarly, the fees are increased for freight whose transport requires special installations (e.g. dangerous goods, living animals).

Finally, mail transport needs to be mentioned, which is also made with ordinary spaceships. Yes, there still is mail, there are always people that want to send personal greetings in

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written form... Standard postage fees are about 10 Cr per 10 lightyears. If a spaceship owner is lucky enough to get a mail contract (usually only if he flies a regular route), this means revenues of about 10,000 Cr per ton and full or part of 10 lightyears, for about 3 tons of freight.

Speculative trading

For this much more profitable, but also riskier variant of space trade, the spaceship owner purchases goods for his own account and risk and transports them to another planet, hoping to sell them again there for a better price. Merchants that sell for less, or that do not consider their transport cost, normally will not stay in business for long. Of course, the risk is that it will not always be easy to judge which goods are currently in demand on other planets, and whether this is still valid some time later upon arrival with the freight.

The master should prepare a table for every planet, which shows, which goods typically can be purchased there. In the following, some sample tables for typical world categories.

a) Agricultural planets:

These are worlds, that primarily produce agricultural goods and often do not have much industry of their own.

Type of goods	Base price Cr / t
Wood	2. 200
Livestock	6. 000
Meat	2. 500
Processed food	5. 000
Fibers	3. 000
Vegetables	1. 000
Luxury food	11. 000
Fruit	1. 200
Herbs	4. 000

b) Mining worlds:

On these planets, resources are mined, but not used for production locally.

Type of goods	Base price Cr / t
Minerals	4. 500
Processed minerals	12. 000
Rare earths	55. 000
Radioactive materials	25. 000
Hydrocarbons	5. 000
Medical raw materials	10. 000
Precious metals	60. 000
Crystals	90. 000
Nitrogen combinations	4. 000

c) Industry worlds:

The term industry world describes a densely populated planet with substantial industry, that will usually export large shares of the production.

Type of goods	Base price Cr / t
---------------	-------------------

Vehicles	nach Type
Weapons	12. 000
Industrial products	5. 000
Medical drugs	25. 000
Cybernetic goods	350. 000
Electronic goods	100. 000
Spaceship parts	160. 000
Plastics	10. 000
Consumer goods	4. 000

The base price from the table may be modified during purchase, if the merchant skill is used successfully. This requires a duel against the seller, assuming merchant + 85 for him for simplification purposes. The winner may change the price by 10% in his favor for every 20 points of success span, but the limits are 50% or 150% of the basic price.

The sale of goods happens similarly. Starting with the base price of the goods, a modification occurs due to the TL difference and to the relationship between goods and world. The following rules apply:

- Each point by which the TL of the origin of the goods is higher than that of the destination, increases the base price by 25%.
- Each point by which the TL of the origin of the goods is below that of the destination, reduces the base price by 20%.
- For goods from mining worlds, multiply the base price with 1D3 on industry worlds and with $(1 / 1D6) + 1$ on mining worlds.
- For goods from industry worlds, there is no modification.
- The base price of goods from agricultural worlds is multiplied with $(1 / 1D6) + 1$ on agricultural planets and with 1D3 on all densely populated worlds.

Further modifiers may be decided by the master, if he thinks they are suitable for certain worlds or types of goods.

If someone now wants to sell his goods, the modified base price is used as starting price. Once again, a duel: merchant can shift the price. Similarly, the use of economics skill may be helpful: A successful check increases the Price by 5% per full 20 points above 80.

Note: If the master wants, he may also use e.g. objects from the equipment chapters as trading goods.

Passenger transport

A third source of income in economic life is the transport of paying passengers. Of course, they must be offered cabins according to the booked standard and with respective quality.

Typical passenger fees are as follows:

Type	Price / Cr
I. Class	ab 4.000
II. Class	2. 000
III. Class	1. 000
Deep-sleep-chamber	100

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These rates are valid per flight distance of 50 lightyears, or part of this, assuming a speed FTL factor 5 to 6 (at TL D - E) and starting and destination planets with average competition. The prices, however, vary depending on the competition for a route, the offered level of luxury and the actually announced travel speed. Flights inside a solar system normally have rates that are about equal to one fifth of the above mentioned figures.

I. Class means a very silent, comfortable cabin with all kinds of amenities. Use of the leisure installations of the ship, good service by stewards, food of high quality, etc. are standard. Up to 1,000 kg of luggage are included.

II. Class still means a comfortably equipped cabin. The steward is responsible for a larger number of passengers, but at least there is one. The food is average, and one will not get every luxury item, different to I. class. It is also possible that there is some noise due to the cabins being closer to the engines room. There only is limited access to leisure installations. Up to 400 kg luggage are included

III. Class-Passengers normally travel in a twin cabin. It is spartanically equipped, and the steward is mainly involved in preparing the meals. These are of the simplest quality - nourishing, but synthetic, and often of low taste. There are not any leisure installations, and one almost can expect to be close to the engines room. Up to 100 kg of luggage may be taken on board.

Deep-sleep-chamber means, that the voyage is passed in a cryogenic or stasis chamber, and one thus does not see anything of it. Consequently, food or leisure installations are not necessary, noise is meaningless. A very cheap type of travel, for which 25 kg of luggage are included in the price.

For independent spaceship owners, passenger flights will be rather rare, because they are mainly provided by regularly flying large companies. Only flights to more remote worlds or temporary gaps in the market (e.g. an overbooking of all regular flights) will usually be an opportunity, to make money with passenger transports - or one sets up his own passenger line between two or more solar systems.

Government influence

Most of the different states attempt to control and supervise space travel. The following information mainly is applicable for the Federation.

Taxation

Spaceships are subject to various forms of taxation. Firstly, the spaceship tax should be mentioned, a type of levy that is payable by all spaceship owners whose ships are registered in the respective state. The rate in the Federation is normally an annual payment of 100 Cr per ton of displacement of a ship for the central government, plus a varying rate of 10 to 200 Cr per ton depending on the member world, on which the ship is registered.

At this place, let us mention the aspect of registration: Registered spaceships are allowed to use all kinds of public government installations either free of charge or at least for a reduced rate (e.g. salvage after an emergency call, landing fees). Therefore, one should carefully consider whether the registration on a "cheap planet" in the Periphery really is a bargain... Furthermore, it is known that controls of ships "from the outside" are stricter.

Further taxes do not become due, except for the fact that some planets will withhold a certain percentage of the profits made from the sale of goods in their territory as income tax.

Controls

Without writing too much about legislation on space flights, some of the most important elements of government influence shall be introduced in brief. First of all, customs controls have to be mentioned, which are allowed in case of ships arriving from outside the Federation. Furthermore, Federation and planetary space fleets make regular controls searching for illegal cargo such as drugs, military weapons, etc. Of course, this mainly applies in border areas or close to crisis areas. A violation may theoretically end with the seizure of ship and cargo...

Similar rules apply for the case of illegal installations such as heavy weapons without a permission. According to the Federation Space Travel Act para.35, for private vessels in Federation space, the use of weapons with factors above 8 is only allowed in case of paralysis guns. Furthermore, all kinds of nuclear warheads, antimatter weapons and hypnotic weapons are prohibited. Exceptional permissions are very difficult to obtain.

Further controls are made upon landing on a spaceport, in order to prevent that diseases are brought onto the planet. Some planets furthermore check the identity proofs of passengers, this occurs especially on planets with immigration restrictions.

Finally, the rule that all spaceships in the Federation must have enough emergency craft (boats or pods) for all people on board, as described in the Federation Space Travel Act, para.23 lit.1, should be mentioned.

Spaceports

Space travel, this also means spaceports. A spaceport is an installation comparable to an airport of the Terran 20th century, whose purpose is to handle the space traffic of a planet. Spaceports will vary importantly concerning size and facilities. Depending on the planetary conditions, they may be anything from a simple airstrip up to a titanic installation with several terminals and many square kilometers of size, similarly, a spaceport might be designed as orbital station only. The Federation roughly distinguishes the following spaceport classes based on the facilities:

Class	Description
A	Large spaceport with orbital station, space-dock for FTL ships in the 100,000 tons range, fuel sale, passenger terminal(s), FTL communications
B	Large spaceport with orbital station, smaller spacedock, fuel sale, passenger terminal, FTL communications
C	Spaceport with orbital station, fuel sale (fusion only), dock for STL ships only
D	Spaceport, i.e. terminals and landing fields, fuel sale (fusion only), small spacedock in the 100 tons range
E	Small spaceport, i.e. landing fields, terminal, fuel sale (fusion only, small amounts)
F	Mini spaceport, i.e. landing fields with administration building
G	Simple marked landing field, not metaled, simple control tower
0	no spaceport present

In less significant solar systems, or on newly settled colonies, one will only encounter one spaceport, if one is present at all, whereas other planets such as e.g. the Earth, however, will have several spaceports. Classification information in

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general world data will usually only cover the three largest spaceports.

Megacorporations will often maintain their own spaceports, and sometimes these will reach the same size as the official government installations.

Legally, spaceports are treated as extraterritorial, i.e. they are not part of the governed territory of the planet. The carrying of weapons of any type is usually prohibited and controls are frequent, at least on better ports.

Slower than light (STL) travel

The term STL travel describes all flights of a spacecraft in space, during which there is no entry into hyperspace. Normally, propulsion occurs using fusion or impulse drives. As STL travel takes rather long, it is mainly encountered for the purpose of movement to a jump point (cf. jumps) or for traveling in a solar system, in which hyperspace jumps are prohibited.

Acceleration and deceleration

Normally, STL travel consists of an acceleration phase until the middle of the flight distance. At that point, a deceleration phase is begun, which takes the same time. The following formulas are important:

$$s = a/2 \times t^2 \text{ bzw. } t = \text{squareroot of } (2s/a)$$

$$v = a \times t$$

For the formula, a is the acceleration in m/s^2 (1 g is roughly equal to $10 m/s^2$), v the speed, t the time in seconds and s the covered distance in meters. If now, as mentioned in the above, an acceleration and a deceleration phase are assumed, the following formula can determine the required time for a given distance:

$$t = 2 \times \text{squareroot of } (s/a)$$

In the following, some sample flight times for certain distances and accelerations are given:

Acc.	5 g	20 g	50 g	100 g	200 g
Km					
1 Mill.	2,5 h	75 min	47 min	33 min	24 min
10 Mill.	7,8 h	4 h	2,5 h	1,8 h	75 min
100 Mill.	25 h	12,4 h	7,8 h	5,5 h	4 h
1 Bill.	3,2 Days	1,6 Days	25 h	17,6 h	12,4 h
10 Bill.	10 Days	5,1 Days	3,2 Days	2,3 Days	1,6 Days
100 Bill.	33 Days	16 Days	10 Days	7,3 Days	5,1 Days

Time dilatation (Optional rule)

As already mentioned in the space combat system of the basic rules, the problem of time dilatation occurs as soon as a spacecraft approaches the lightspeed c ($300,000 \text{ km/s}$), which, as known, can never be reached or even exceeded in normal space. The effect of time dilatation is that e.g. only one second will pass for the crew on board the spaceship, while possibly many years go by in the „outside“ universe. The following formula determines the dilatation factor, i.e. this number is to be multiplied with the time passing on board to determine the actual time that passes in the rest of the universe.

$$d = 1 / \text{squareroot of } (1 - v^2 / c^2)$$

Gravity wells

Ships in normal space are influenced by the gravity wells of stellar objects, i.e. stars, planets and other cosmic objects, when maneuvering. However, this mainly is important when the ship is very close to the object, or in case of objects with very high gravity (e.g. stars, black holes). We do not print the formulas for gravity effects here. If needed, they may be taken from any better physics or astronomy book.

For game purposes, it should be determined how the gravity behaves in relation to a ship's course. Does it have the same direction, the opposite, or something in between? For the same direction, the ship accelerates faster (add the gravity to the acceleration), and the opposite applies for opposing vectors. In the worst case, the acceleration of a ship might not be sufficient to escape from a strong gravity source. In this case, the ship will move closer and closer to it, until it crashes. This is one of the reasons why stars and especially black holes are that dangerous.

If the antigrav of a ship has free power (after neutralisation of the drive's acceleration), it may be used to neutralise the gravity effect. Gravity that is neutralised in this way, no longer affects the ship.

If a ship has to fight gravity effects, a DM of -5 per uncompensated $1g$ should be applied on skill checks: space pilot and also e.g. on dodge checks in space combat.

Atmosphere flights

If a ship enters an atmosphere, special rules apply. Normally, it will only fly using its antigrav (using the power left after neutralisation of gravity as its maximum acceleration), but might also use the STL drives. However, as they can easily damage buildings on the ground, at least on populated worlds and close to the ground, one should refrain from their use.

Similar rules apply for maximum speeds. The Schallgeschwindigkeit of sound (800 km/h) should at least not be exceeded when close to the ground, i.e. several kilometers high. The shock-wave created by a skyscraper sized object moving with three times the speed of sound would be sufficient to uproot entire forests and to cause damage similar to a hurricane of Beaufort scale 12.

The most important factor is the form of the hull. Streamlined ships can fly in an Earth-like atmosphere even without an antigrav, and they are not in danger of crashing. They are able to glide to a limited extent. There are not any DM on pilot checks.

Partially streamlined ships require an antigrav, that is at least able to neutralise their weight. Apply DM-25 on all pilot checks in an atmosphere (and e.g. dodge checks), and if the antigrav ceases to work, the ship begins to crash without many maneuver possibilities.

Non-streamlined ships also require an antigrav. Furthermore, apply a DM of -75 on all pilot checks, because the form of the ship directly impairs the flight.

FTL travel

The normal way of interstellar travel is by jumping through hyperspace. The spaceship uses its jump drive to open some kind of hole in the normal space-time continuum and uses it to enter a higher dimension, called hyperspace or jump space. In this dimension, the laws of nature are different from those in the Einstein universe (= our normal space). For example, the lowest possible speed in this universe is above lightspeed, i.e. one can, according to our knowledge, move as fast as desired, but never slower than just minimally above lightspeed.

Generally, hyperspace tries to reject all foreign bodies, e.g. a ship, immediately and to throw them back into the Einstein

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universe. However, already a short presence in hyperspace can result in a substantial movement in normal space. This is the base principle of the jump: The ship enters hyperspace (but it does not "dematerialise", instead, it only leaves normal space) and conserves its movement impulse - the destination direction. Afterwards, depending on the time spent in hyperspace, the distance that has relatively been covered in normal space is determined. In order to avoid the rejection long enough, the ship is held in hyperspace using a special energy field.

Science distinguishes different "levels" of hyperspace. For each level, there is an economical speed, and interestingly enough, this is equal to a multiple of ten times the lightspeed. At the same time, this speed is the minimum speed for the respective level. The levels yet have not been fully understood, because they are almost incomprehensible for the thought pattern of all known creatures. In any case, a kind of „current“ is detectable on each level, that is able to move a ship. This current's direction varies depending on the entry impulse. The speed can also be varied by modulating the energy field mentioned in the above. However, the farther the speed is above the ideal speed for the level, the more the energy consumption is increased.

In general, speed in hyperspace is also called FTL speed and measured in FTL. One FTL is equal to lightspeed. Also, the term FTL factor is used.

Course programming

It is not possible to navigate in hyperspace. One can only move in the direction that has been chosen upon entry, change the speed, or leave the hyperspace by turning off the protecting screen. Therefore, a course programming is made before hyperspace entry, i.e. the astrogator determines, with which course the entry must be made.

This programming is the job of the astrogator, and it requires a computer with an astrogation software. A skill check: astrogation is made, with a base time of 10 hours modified by the astrogation software and the computer (cf. computers).

DM are assigned if no exact jump data is available for the starting or the destination point. Exact jump data is defined as either information gathered during a successful jump to the destination by any ship (i.e. data from the interstellar database), the taking a bearing of an FTL beacon at the destination or the result of an additional astronomy action with base time 1 hour per 10 LY distance. Approximate values can already be calculated in a time of 1 hour per 1000 LY.

For the starting point, the task is easier, provided that one knows, where the ship is located. Ships, that are in unknown territory after a failed jump, however, must determine their position following the same procedure as for the destination – if they are able to find a familiar star or a beacon at all.

For the DM, in any case the following applies:

- **completely missing destination or start coordinates:** DM-50 and all time x 5

- **completely missing destination and start coordinates:** no calculation possible (automatic random jump, i.e. random determination of jump direction and distance).

- **no exact start or destination coordinates:** DM -25 for each and doubled time.

The check is made in secret by the master. A failure means that the calculation has not been exact, possibly causing deviations, or also worse effects (cf. chapter on risks). Therefore, a second calculation is standard procedure. This is made with half the base time, and a new check, comparing the results. Deviations will normally call for a third check for verification. All checks after the first one have half base time.

The hyperspace entry

The actual entry into hyperspace is an event that requires a lot of energy, because a hole must be created in normal space, and a protecting screen must be set up. The energy requirement depends on the ship displacement and the target level, and higher levels mean a higher increase than linear. The following formula determines the basic requirement for a hyperspace entry:

$$0,5 \times \text{displacement} \times \text{level}^2 \times \text{EPH.}$$

One EPh (energy point hour) is equal to the power of a reactor, that produces 1 EP per turn and that is running for one hour. Usually, the energy is taken from the capacitors.

The energy is only sufficient for the entry, i.e. the time in hyperspace remains infinitely short. Afterwards, further energy must be invested as described in the following chapter, in order to stay in hyperspace to thus to use it as a means of travel.

Minimum speed: It is not at all possible, or at least recommendable, to attempt to enter hyperspace at any given normal space speed. Generally, an entry will be the easier, i.e. with less risk and energy, the faster a spaceship is moving. This is simulated by the following formula, whose result must be multiplied with the energy requirement from the first formula:

$$\text{modifier} = 1 + (1000/v)^2$$

Use v in km/s. Thus, the ideal speed is 1.000 km/ s. In the following, you will find the time that a ship needs to reach this speed from zero speed:

Acceleration in g	Time
1	1 Day 3 Hours...
5	5 Hours 33 Minutes...
10	2 Hours 46 Minutes...
25	1 Hour 6 Minutes...
50	33 Minutes 20 Seconds
100	16 Minutes 40 Seconds
200	8 Minutes 20 Seconds
300	5 Minutes 33 Seconds
500	3 Minutes 20 Seconds
1 000	100 Seconds

Energy requirement during flight

Due to the tendency of hyperspace to reject any foreign objects, it is necessary to maintain a screen around the ship. Its energy requirement, of course, depends on the ship displacement. However, also the difference between the chosen speed and the level, for which the hyperdrive has been designed, plays an important role, and of course the speed as such. The following formula is applicable:

$$((\text{FTL}/\text{Std.-FTL})^2 + 1) \times$$

$$\text{displacement} \times ((\text{FTL}/10^5)^{1,28} + 1) \times 0,5 \text{ EPh}$$

per hour of stay. The Std-FTL value of a hyperdrive is equal to its level power of 10.

In the following, the sample energy requirement per ton of displacement is given for some speeds, assuming a flight at a speed equal to the standard value of the hyperdrive.

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Speed (FTL)	EPh per Ton
2	1
10	1
100	1
1 000	1
10 000	1
100 000	2
1 000 000	20
10 000 000	364
100 000 000	6 919
1 000 000 000	131 827
10 000 000 000	2 511 887

As already mentioned in the above, furthermore the difference between real speed and the ideal speed on a hyper-space level plays a role. The following formula produces this value:

Correction value : ([lg FTL - level] x 10) ² x displacement EPh.

The correction value is simply added to the energy requirement from the above formula.

Risks

A hyperspace entry is not without risk, and this probably is not a surprise, when hearing of "holes" in the universe and a rejection effect. Various dangers exist, ranging from deviations due to calculation errors via damage to the drive or to the entire ship up to its destruction or even the entry into a parallel universe (the hyperspace links all universes) or similarly bizarre events.

For each hyperspace entry, make a roll with 1D100 (the rule of the 11, 22, 99, 100 applies). On a result of less than 99, the entry as such happened without any problems. Apply the following DM on the roll:

General DM

- all DM due to existing damage to the drive or lack of maintenance (see below)

- all DM due to lack of crew members (see below)

DM caused by entry velocity

Apply a DM of + 10 for an entry velocity of less than 1,000 km/ s, with an additional DM + 10 per division of this speed by 10 (i.e. + 20 for less than 100 km/ s; + 30 for less than 10 km/ s etc.).

DM caused by programming errors

If the course programming failed, and if this has not been noticed, add a DM of + 100 - result of the astrogation check.

DM caused by proximity to objects (gravity effects)

It is also very dangerous to attempt to enter hyperspace inside a strong gravity field. Therefore, one usually observes a minimum distance to planets and stars and tries to avoid jumps inside a solar system at all.

In general, all stellar bodies close to the ship will be dangerous. The DM on the accident check can be determined as follows:

Distance in world diameters	DM
-----------------------------	----

200	0
190	+ 5
180	+ 10
170	+ 15
160	+ 20
150	+ 25
100	+ 50
75	+ 75
50	+ 100
48	+ 105
46	+ 110
44	+ 115
42	+ 120
40	+ 125

The distances are listed in multiples of the diameter of the respective stellar body (planet or sun). Please note that very often the influence of the sun is much more important than that of the planet.

Example: We assume a planet of 12,000 km diameter, that orbits a star of 1.5 million km in a distance of 150 million km. In order to reach the required 200 diameters of distance (DM+0), the value for the planet is 200 x 12,000 = 2.4 million km. However, the value for the star is 1.5 million x 20 = 300 million km! One already is in a distance of 150 million km, so that for a safe jump further 150 million km must be moved away from the star and the planet (and not only 2.4 million !).

Stellar bodies whose mass is unusually low or high compared to their size (black holes, gas giants) should be treated as if they had a respectively modified diameter (e.g. black holes like stars with a size similar to their actual mass).

The table only gives the DM for some levels. Further DM between the levels and to the lower end may be calculated based on it, if required.

The hyper space exit

Ships leave hyperspace with the same flight direction, with which they have entered it. Their speed will be 1,000 /1D10 km/sec. Then, a second roll for accidents must be made, applying only DM cause by proximity to an object, by damage to the drive and by lack of crew. Thus, one always attempts not to leave hyperspace inside strong gravity fields.

Countering DM by course calculations

Finally, it is possible to decrease the risks by making especially detailed course calculations. If the navigator decides to accept negative DM on the course calculation check, he is allowed to subtract them also from the entry check, provided that the programming was successful.

Example: A ship wants to enter hyperspace rather close to a planet. The respective DM is +60. The navigator decides to make a check with DM-50, and he succeeds. Thus, accident check upon entry is not 1D100 + 60, but 1D100 +10, and the accident risks are much smaller.

Accident effects

An accident happens, if the result is 100 and more. In this case, once again 1D100 is rolled and added to the failure span (usual rule see above), to determine the effects.

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Result	Effects
Up to 39	Jump deviation: covered distance is modified by 2D6 - 7%.
40 and more	Failed jump: covered distance is multiplied with 1D100 / 1D100 (usual rules)...
60 and more	Bizarre effects: crew members see their nightmares come true. Everybody makes a panic check with DM-50. However, the ship makes the jump as planned, except for a jump deviation (see above).
80 and more	Extremely failed jump: see above, but furthermore in a randomly determined direction!
100 and more	Damage to drive: loss of 3D10% of the system points. Furthermore, failed jump (see above).
120 and more	Damage to the hull: loss of 3D10% of the hull points. The ship enters the hyperspace as planned, unless the HP loss results in its destruction.
140 and more	Damage to drive: loss of 2D6 x 10 % of the system points. Furthermore, failed jump (see above).
160 and more	Drive system disabled until a repair, and it loses 2D6 x 10% of the system points. Furthermore, failed jump (see above).
180 and more	A time dilatation occurs: As the ship exits from hyperspace, the planned presence time x 1D100 / 1D100 (usual rules) has passed...
200 and more	Drive system is destroyed. Danger of explosion! There is no entry into the hyperspace!
220 and more	The ship appears in a randomly selected parallel universe. As we do not know any working parallel worlds drive, and there probably is an incredible number of parallel worlds, a return is highly questionable.
250 and more	The ship is transformed into antimatter (Ships made of antimatter become normal matter. Furthermore, failed jump (see above). Oh oh!
300 and more	The ship is completely destroyed; its elements dissipate in hyperspace.

Accidents upon hyperspace exit never result in deviations or failed jumps. Respective results mean that the next lower suitable accident result replaces them.

The PSI drive

A PSI drive is a term for the use of psionic amplifier cabins, which increase the teleportation ability of one or, usually, several psionics. These psionics, that are normally linked in a multiplication block, will then use exoteleportation to catapult the ship to its destination.

This means that at least one exoteleporter is required, in order to use a PSI drive. Normally, however, several psionics, not necessarily all of them possessing the exoteleportation ability, link their powers in a multiplication block (cf. psionics rules).

Such a PSI jump, another name for the use of the PSI drive, does not take any measurable time – just like the teleportation ability. Its range is only limited by the power of the participating psionics.

Of course, their power must first of all be sufficient to move the ship. Its mass (not displacement) is decisive. The psionic chapter of the Omnirole basic rules mentions, that a power level of 20 allows the transport of 20 kg, whereas level 24 is required to transport one ton. Thus, the formula is as follows:

required power level = (mass in tons – 0.2) x 5 + 20.

Example: A 10 tons ship requires a power level of 69.

However, the much more important factor is the range. The range table from the psionic rules mentions a range of 1,000 km for level 20, and each further level raises this by 1,000 km. Thus, our formula is:

Required power level = (jump distance in km – 1,000) +20.

A reminder: 1 lightyear = 9.46 trillion km, i.e. the formula can also be read as follows (simplified by the – 1,000 km and the +20):

Power level = (distance in LY) x 9.46 billion !

Such values probably will never be reached by a single psionic, although we will now explain the role of the amplifier cabins, which make up the PSI drive: The effective power level of an exoteleporter is multiplied by them with a factor of 100 at TL C, 1,000 at TL D, 10,000 at TL E and 100,000 at TL *. However, please note that only the power of the strongest psionic in the block benefits from this multiplication.

Example: We operate at TL D. Ten psionics are in the amplifier cabin, they have power level 20 for the leader and 15 for all others. Thus, according to the block rules (cf. psionic rules in the basic book), they reach 20 x 3 (because 15 / 5 = 3), to the ninth (9 further psionics) x 1,000 (drive) = 393 million, not 20 x 3 to the ninth 9 x 10,000 to the ninth x 10,000 !

As for standard FTL travel, use of a PSI drive also requires a programming in advance, so that the teleporters know where they have to jump. The procedure is the same as for hyperjump programming, but the required software is called PSI astrogation and a separate specialization of astrogation is necessary. Failures will always only mean deviations or jump failures, but never cause damage to the ship or the drive. In case of respective results in the accident table, use the next lowest applicable result. The proximity to a gravity field does not influence a PSI jump, this also applies for the ship speed.

Minimum crew

If the crew of a ship is not sufficiently large or qualified (cf. construction rules), the accident risks are increased. Add a DM of + 0.5 x (50- average skill level of crew) to all accident checks. Thus, a better-than-average crew may also cause negative DM and thus reduce the accident risks.

In any case, the skill level of the crew in the respective department, thus e.g. the engines crew or shield crew, must be used.

Fuel requirements and refueling

As can already be found in the chapter on spaceship construction, the reactors of every spacecraft need fuel. In case of fusion reactors, the fuel normally will be a suitable substance of high purity, e.g. hydrogen, and for antimatter reactors, it consists of antimatter pellets.

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At better spaceports, fuel may be purchased without difficulties (cf. there). Typical prices are as follows:

1,000 Cr per ton of fusion fuel

1,000,000 Cr per ton of antimatter pellets.

Fuel is also available in amounts of less than one ton.

Please note that the consumption in the construction chapter (cf. fuel tanks) refers to maximum power of the reactor. This will happen in the rarest cases, because e.g. protection fields and weapon systems, that are true energy hogs, usually only operate for a very short time. Thus, the actual fuel consumption should be estimated by the master. It will typically be in the range between 20 and 60% of the maximum requirement, depending on the portion of rarely operated systems in the ship displacement.

Theoretically, fusion reactors might be operated with impure, self-collected fuel. For example, gathered atmospheric hydrogen from a gas giant of the Jupiter type, ocean water, or also hydrogen that has been gathered in outer space using a buzzard ramscoop. This chapter, however, is left to the master for now, but we suggest that the use of such kind of unrefined fuel should cause a DM of +5 up to +10 on accident checks and increase the consumption by at least one half.

Recurring costs

Various further costs are incurred during operation of a spaceship, and they are an expense item that should never be underestimated, especially concerning the crew salaries.

Crew salaries

The following crew salaries are typical for the different positions:

Position	Monthly salary
Commander	7.500 Cr
Second commander	5.500 Cr
Pilot	6.000 Cr
Doctor, navigator, chief engineer	5.000 Cr
Gunner	2.000 Cr
Computers officer	3.000 Cr
Communications officer	3.000 Cr
Chief of flight deck	3.000 Cr
Sensors officer	3.000 Cr
Purser	3.500 Cr
Fire control officer	3.500 Cr
Steward	2.000 Cr
Service crew	2.000 Cr
Maintenance crew	2.000 Cr
Engines crew	3.000 Cr
Weapons technician	3.000 Cr
Auxiliary personnel	2.000 Cr
Pilot for auxiliary craft	6.000 Cr
Shields crew	3.000 Cr
Guard	2.000 Cr

Crew members with multiple positions will respectively make both applicable salaries. Especially qualified characters (i.e. skill value above the minimum) should get at least 20% more salary per 10 points above the minimum skill value.

Example: A pilot+80 should get about 9,600 Cr (6,000 + 3 x 20% of 6,000).

Life support

The life support for crew and passengers of a spaceship requires various expenses for basic substances for the food synthesizers, different spare parts, conserved food, etc. The typical cost per day of life per person is:

- 50 Cr in an ordinary cabin

- 100 Cr for 2nd class passengers

- 200 Cr for 1st class passengers

If exotic life conditions must be created, the costs increase respectively using the procedure described in the chapter construction, subsection cabins and quarters.

Landing fees

For the use of a spaceport by a spaceship, normalising landing fees are demanded, which fluctuate widely depending on planet and port. Often, government subsidies intended to attract commercial spacecraft will completely waive the fees. On the other hand, it can also happen that very small spaceports levy no or only a nominal fee.

Average landing fees amount to 100 Cr per 100 tons of ship displacement and per day of presence.

Maintenance (optional rule)

Spaceships are complex technical systems, that are able to reach a lifetime of many hundred or even thousand of years, but that require regular control and maintenance. Otherwise, failures and function disturbances will happen quickly.

General overhaul

Once per operation year (360 days), every spacecraft should undergo a general overhaul. This requires to enter a dock whose TL is at least equal to that of the ship.

A general overhaul takes 3D3 days and costs 1/ 1,000 of the building price of the ship. Please note that you should make an appointment in time, because many docks will be booked out for months.

If a general overhaul is skipped, add a DM of +10 on all accident checks per following 100 operation days (cumulative).

Example: In the first 100 days without overhaul, apply DM+10, after 101 up to 200 days, DM+20, afterwards DM+30 ,etc.

The master decides, if and to what extent it is possible, to make a general overhaul without a spacedock. If in doubt, the DM should be reduced or the periods for their increase be changed, if a promising solution has been found.

Routine inspections

Besides the general overhaul, a ship, i.e. its main technical systems, must regularly be inspected and maintained, in order to avoid wear and accidents. These routine inspections must be made at least once per day of operations. They mainly concern the reactors, drives, (STL and FTL) and the antigrav. A spacedock is not required, the standard crew is sufficient.

Generally, the systems need not be turned off, and this would be a problem in case of the reactors.... Typically, the inspection

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tion takes 30 minutes, and the different systems may be checked simultaneously, if enough engineers are available. If a system is turned off for the check, the time is decreased to 15 minutes.

To make the routine inspection, various tools and minor spare parts (for the wear and tear) are necessary. This means costs of about 3 / 10,000 of the system price per day of operations.

Normally, these tools and spare parts are carried on board (they can be purchased at any spaceport of the same or higher TL). They consume 3 / 10,000 of the system displacement per inspection. Especially for longer flights, therefore a sufficient stock should be taken on board.

Each routine inspection that has been skipped results in DM+1 on all accident checks, until it has been made up.

General accident rolls

Once per operation day, an accident check should be made for the reactors and for the drives. For the FTL drives, this is not necessary, because they use their own rules, cf. the chapter on FTL travel.

For the accident checks, the following rules are used: Make a roll with 1D100, with the usual rules of the 11, 22, 99, 100. A result of at least 100 means an accident. The following DM must be applied:

- DM caused by insufficient crew (cf. there)
- DM caused by damage (cf. there)
- DM caused by lack of maintenance (see above)

The effects of an accident are determined as described in the space combat chapter of the basic rules.

Further general rules

In the following, some additions to the general space travel rules will be made, i.e. information about the use of various technical devices, that will often be found on board of spaceships.

FTL communications (optional rule)

The communication via FTL impulses is based on similar principles as a flight through hyperspace. The FTL radio opens a gate between normal space and hyperspace, and the radio waves are then sent through it. The result is, that they can move at FTL speed. However, a drawback is that FTL radio requires tremendous amounts of energy.

For the use of FTL radios, for example those of spaceships, apply the following rules:

Energy requirements

The gate to hyperspace is opened as by an FTL drive using the respective formula, i.e. for level ² EPh (leave out the displacement). This gate is then open for one second. If a transmission requires more time than one second (e.g. a real-time conversation, or a message, that cannot be compressed), the same EPh amount must be paid every second to keep the gate open, or it closes again.

Afterwards, it must be calculated how long the transmission must stay in hyperspace. This means, which distance it shall cover before reaching the destination. The relationship between time and distance is that distance/ FTL factor is equal to the time.

Example: A transmission shall cover 10 lightyears, and do this on level 8 (FTL factor 100,000,000). Thus, it must stay in hyperspace for 3 seconds.

Different to FTL travel, the full EP requirement of a transmission must be provided immediately, i.e. the amount for opening the gate plus the EPh consumption for the respectively long stay in hyperspace. Apply the following formula:

((FTL/10⁵)^{1,28} + 1) EPh per hour in hyperspace,

i.e. for short times, reduce the amount accordingly.

For transmissions of more than one second duration, the amounts per second of transmission (not per second of stay) can be provided separately.

Example: A transmission with FTL factor 100,000,000 shall cover 10 LY, requiring 3 seconds. Thus, its cost per second of transmission is 64 EPh for gate Tor (8²) + 6 EPh (6,919 / 60 / 60 x 3) for the stay = 70 EPh. If the transmission is made for more than one second, each second costs 70 EPh from the capacitors or 70 x 3,600 = 252,000 EP power from operating reactors.

FTL transmissions will always move at the ideal speed of a level, i.e. the respective power of 10 as FTL factor.

Normal FTL radios can in general access any level of hyperspace, including levels above 10 that are yet inaccessible for ships 10. Normally, only the available energy limits the speed. Normal transmissions for daily communications usually move on the levels 10 to 12.

Programming and range

All current FTL radios have a standard range (cf. construction rules). This factor affects the probabilities for successful communications, because every FTL transmission requires a check, that determines, if a comprehensible broadcast leaves the antenna. The rules are the following:

1D100 (rule of the 11, 22, 99, 100 is in force)

+ half skill value of the communications officer

- ((target range / std. range) - 1) x 10

+ (actual EPh investment / requirement) - 1) x 10.

This means that higher energy investment can increase the range. A result of at least 100 on the roll is required to get a comprehensible transmission, and not just noise.

Furthermore, it is possible to make either focused transmissions or transmissions "to everyone". A transmission of the latter type moves away from the transmitter in a globe, unless disturbances should block some areas. However, normal matter cannot impair an FTL transmission. Everyone with an FTL receiver inside the globe can receive the transmission.

A focused transmission, on the other hand, is made to an exactly defined point, e.g. a planet or another ship. It is much more efficient, i.e. the std. range is multiplied by 10. However, a coordinate programming siliar as for FTL travel is necessary to reach the destination. Apply the following rules:

The programming is a task for the communications officer, and it requires a computer with software for FTL communications. Make a skill check: communications, with a base time of one hour, modified by the software and the computer (cf. computers).

DM are assigned if no exact data is available for the starting or the destination point. Exact data is defined as either information gathered during a successful transmission to the destination by any transmitter (i.e. data from the interstellar database), the taking of a bearing of an FTL beacon at the destination or the result of an additional astronomy action with base time 1 hour per 10 LY distance. Approximate values can already be calculated in a time of 1 hour per 1000 LY.

It will especially be difficult to determine the exact position of another ship, and probably be impossible unless it transmit-

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ted its exact coordinates before via a universal broadcast, or another contact, e.g. psionic contact, is available. For planets, the difficulty lies more in their exact position in orbit around their sun, but respective astronomical data will usually be sufficient for this task.

For the starting point, the task is easier, provided that one knows, where the ship is located. Ships, that are in unknown territory after a failed jump, however, must determine their position following the same procedure as for the destination – if they are able to find a familiar star or a beacon at all.

For the DM, in any case the following applies:

- **completely missing destination or start coordinates:** DM-50 and all time x 5

- **completely missing destination and start coordinates:** no calculation possible, thus also no focused transmission allowed.

- **no exact start or destination coordinates:** DM -25 for each and doubled time.

The check is made in secret by the master. A failure means that the calculation has not been exact, possibly causing deviations, and meaning that the failure span is subtracted from the transmission check. A disaster means that the transmission goes to a random point.

General aspects

On all important planets, there is at least one FTL radio, that normally has a range of 100 and more lightyears. It is connected with other planets or a relais station in other space. Several times every day, messages are exchanged, usually in the form of highly compressed data transmissions. Quasi-real-time connections via FTL radio (similar to a phone of the 20th century), perhaps even with an image, are the absolute exception, because their cost is astronomical. It is not only the radio itself that costs many billions of Credits, but also its maintenance and the energy consumption must be considered.

Typical transmissions via an FTL radio cost about 100 Cr per unit (equal to one DIN-A-4 page with simple images, similar to a fax of the 20th century) and per full or part of 50 lightyears of distance. Real-time connections, if available at all, cost at least 10,000 Cr per transmission second and full or part of 50 lightyears.

Compression software on board of spaceships will normally allow to transmit about 100 written pages of data in a second. Due to the disturbances and background noise in hyperspace, no higher compression is possible, as opposed for example to planetary transmissions with fiber optical networks or energy field cables. Emergency calls are normally either made as plain text or using a clear-cut code, to be recognizable as such. Even morse signals are not rare.

Transmitters (optional rule)

Transmitters function similar to FTL radio, but they do not move only radio waves, but objects through hyperspace. They open a gate as well, and the transported object does not need to have a hyperdrive itself. This makes them handy for landing on planets („beam me down“, at least at TL *) and for the fast exchange of people or smaller objects on a larger distance, e.g. on a planetary surface or between two ships. Current scientists even discuss, if one day, sufficiently powerful transmitters might be capable to replace spaceships.

Energy requirements

The gate to hyperspace is opened as for the FTL drive using the respective formula, i.e. level ² x object displacement in tons x 10 EPh. This gate then exists for one second, and the object that shall be transported disappears in hyperspace.

Afterwards, it must be calculated how long the transmission must stay in hyperspace. This means, which distance it shall cover before reaching the destination. The relationship between time and distance is that distance/ FTL factor is equal to the time.

Example: A transmission shall cover 10 lightyears, and do this on level 8 (FTL factor 100,000,000). Thus, it must stay in hyperspace for 3 seconds.

Different to FTL travel, the full EP requirement of a transmission must be provided immediately, i.e. the amount for opening the gate plus the Eph consumption for the respectively long stay in hyperspace. Apply the following formula:

((FTL/10⁵)^{1,28} + 1) x object displacement in t x 10 EPh per hour of stay,

i.e. for short times, reduce the amount accordingly.

FTL transmissions will always move at the ideal speed of a level, i.e. the respective power of 10 as FTL factor.

Normal transmitters can in general access any level of hyperspace, including levels above 10 that are yet inaccessible for ships 10. Normally, only the available energy limits the speed. Normal transmissions usually move on the levels 10 to 12 12.

Programming and range

All current transmitters have a standard range (cf. construction rules). This factor affects the probabilities for successful transmissions, because every transmission requires a check, that determines, if the transported object arrives at the destination – and is intact. The rules are the following:

1D100 (rule of the 11, 22, 99, 100 is in force)

+ half skill value of the transmitter technician (engineer with specialization transmitters)

- ((target range / std. range) - 1) x 10

+ (actual EPh investment / requirement) - 1) x 10.

This means that higher energy investment can increase the range. A result of at least 100 on the roll is required to make a successful transmission. Normal matter does not impair transmitter use, but distortion shields cannot be penetrated.

Transmissions always have a start and a destination point, and in case of two-way-transmitters, both must be active transmitters, whereas a fictitious transmitter is able to transport objects from any point within its range to any point within its range. A coordinates programming is required. The following applies:

The programming is a task for the transmitter technician requiring a computer with a special calculation software. Make a skill check: engineer, with a base time of 1 hour, modified by the software and the computer (cf. computers).

DM are assigned if no exact data is available for the starting or the destination point. Exact data is defined as either information gathered during a successful transmission to the destination by any transmitter (i.e. data from the interstellar database), the taking of a bearing of an FTL beacon at the destination or the result of an additional astronomy action with base time 1 hour per 10 LY distance. Approximate values can already be calculated in a time of 1 hour per 1000 LY.

It will especially be difficult to determine the exact position of another ship, and probably be impossible unless it transmitted its exact coordinates before via FTL radio, or another contact, e.g. psionic contact, is available. For planets, the difficulty lies more in their exact position in orbit around their sun, but respective astronomical data will usually be sufficient for this task. In general, it is recommend to exchange

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the coordinates via FTL radio before activating the transmitters.

For the starting point, the task is easier, provided that one knows, where the ship is located. Ships, that are in unknown territory after a failed jump, however, must determine their position following the same procedure as for the destination – if they are able to find a familiar star or a beacon at all.

For the DM, in any case the following applies:

- **completely missing destination or start coordinates:** DM-50 and all time x 5

- **completely missing destination and start coordinates:** no calculation possible, thus also no transmission allowed.

- **no exact start or destination coordinates:** DM -25 for each and doubled time.

The check is made in secret by the master. A failure means that the calculation was not exact, and a DM equal to the failure span is applied on the check for the transmission (see above). A disaster means that the object is sent somewhere, causing it to become lost in hyperspace in case of a two-way-transmitter. This is one of the reasons, why normally, as for FTL travel, a verification calculation is made.

Accidents

If a transmission fails, i.e. the result of the check was less than 100, make a roll with 1D100 and add the failure span. The following table produces the accident result:

Result	Effect
Up to 40	The transmission fails. Object stays in the sending transmitter.
Up to 80	Object appears in the receiving transmitter, but is damaged: 3D6 LF loss or structural damage.
Up to 120	Object only appears in the target area with a delay, but is unchanged.
Up to 160	Object appears in the target area with substantial changes: arms and legs change their place, inside is turned to outside,...
More than 160	Object is lost in hyperspace

Tractor beams (optional rule)

Tractor beams, also known as pull beams (although they can also be used as push beams), are directed force fields, that can hold or move objects. Their std. range is equal to the normal range of paralysis guns of the same factor.

A tractor beam has a base capacity of as many tons, as its EP requirement. This is equal to the maximum mass that can be manipulated under normal conditions.

Tractor beams are normally used to move objects, e.g. for wreck salvage, the gathering of resource rich asteroids, etc. For every use, a check is made as follows:

1D100

+ half skill value (ship weapons, specialization tractor beams)

- ((actual distance/ std. range) - 1) x 10

+ ((actual mass / base capacity) - 1) x 10

A result of at least 100 means that an object has been acquired successfully. It may now be moved, requiring a new check every turn, with a DM based on the speed: base assumption are is a speed of 1 F/R (about equal to 35 km/sec). This causes -25. Each speed increase by 100% causes a

further DM-25. A failure means grip on the object has been lost, i.e. it must be grabbed again. Deceleration of an object follows the same principle.

For manipulation of objects with high mass, several tractor beams may cooperate. However, this means that on the check a DM of - 10 is applied per tractor beam in use after the first one.

If the object moves itself, it is more difficult to seize (e.g. important, if a spaceship shall be prevented to escape..). Apply a DM of -10 per 1 F/R of object speed. The same method is applied, if the object accelerates, e.g. if a spaceship attempts to break free from a tractor entanglement. Thus, apply a further DM of -10 per part of 10 g acceleration (i.e. 1 F/R²).

Generally, it would also be possible, but is left to the master, that a space pilot attempts to free himself with a skill duel.

Active distortion shields around an object make the use of tractor beams against it impossible. In case of active protection fields, apply DM -50.

Scanner procedures

It is very important to detect other objects in space timely, because optical perception is not reliable under these conditions. The rules distinguish between passive and active scanning.

Passive scanning is limited to the collection of received signal pulses. It has the advantage than one is rather difficult to detect oneself, but produces rather limited information and is normally restricted to distances of less than one light second, because energy and other pulses reach lightspeed at maximum; so that data would already be too old at larger distances.

Active scanning, on the other hand, means that the actively emits scanner pulses, that are reflected. It reaches much farther out, but also makes it easier for an opponent to detect the own ship. By the way, at TL A and higher, this scanning uses FTL emitters.

Active scanning has five times the standard range.

In the following, we are going to treat the general scanning procedure. Usually, one scanner check is made per turn. This is a skill check, with the following value:

1D100 + half skill value (!) of the sensors officer + DM.

The DM are as follows:

- (distance to object / standard scanner range) x 10, if distance larger than standard scanner range, otherwise;

+ (standard scanner range /distance to object) x 5

Furthermore, a DM is applied depending on the sensor type.

For mass scanners, it is + (lg object size - 5) x 10. However, actually not the displacement, but the mass is decisive. This results in the following typical DM increments:

- 100 ton spaceship: DM - 30

- 10.000 ton spaceship: DM - 10

- 1 million ton spaceship: DM +10

- typical moon: DM + 120

- Earth size planet: DM + 150

- Gas giant: DM + 170

- Star of the size of our sun: DM+210

For energy sensors, use (lg active EP - 5) x 10. The active EP are equal to EP total of all operating installations, i.e. usually the current consumption. Weapon systems that are already are to be counted with the full EP amount. In case of

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active scanners used by the object, count the EP value of the sensors with ten times the base amount. Weapons fire means a multiplier of 100 on the EP value.

Example: A ship is using impulse drives for 1,000 EP, various installations such as the life support for further 1,000 EP, and it has ready weapons for 800 EP. Thus, the total of the active EP is 2,800. However, if it now fires its weapons, the total changes to 82,000 EP (1,000 + 1,000 + 800 x 100).

Distortion sensors, finally, use the following two DM:

+ (lg object displacement - 5) x 5 and

+ (used hyperspace level - 5) x 5.

It can only produce a result, if an object enters or leaves hyperspace, including the operation of FTL communicators.

PSI sensors operate wholly differently: Use the psionic rules for psionic sense, assuming a skill value of +75 at TL B, +25 per further TL. The power level amounts to factor² x 50.

Other scanner procedures are left to additional worldbooks and the master.

If several interesting objects are within the potential scanner range, only one roll should be made. The master then determines for which objects the result was sufficient. For a result of 100 or more, the scanners show something.

Example: We are using mass sensors, and there is a 10,000 tons ship (DM-10) in standard range (DM-0) and a 1,000 tons ship (DM-20) in 2 x standard range (DM-20), as well as a further 10,000 tons ship (DM-10) in 10 x standard range (DM-100). The scanner check (1D100 + skill value / 2) produces a 155 without the DM. Thus, the scanner results are as follows: The first ship is detected with a result of 155-10= 145, the second ship with 155-40= 115. For the third ship (155 - 110 = 45), the result is not sufficient, so that there is no information about its presence.

The result of the scanner check decides about the information that is acquired. The following applies:

100 - 119: Information about the presence of an object and its rough distance, with up to 50% deviation

120 - 139: Information about a quite exact position, as well as the displacement or energy total with a deviation of two categories, i.e. e.g. "between 1,000 and 100,000 tons" or "a star".

140 - 159: the information is exact by one size category ("between 1,000 and 10,000 tons" or "a planet of about Earth size").

160 - 179: Information is exact by about 10%.

180 and more: Exact information; identification may be possible, e.g. using a database or already known scanner results from preceding operations.

Example: In the situation above, the master describes the first object as of about. 5,000 to 50,000 tons of displacement and with an exact position. For the second ship, on the other hand, the only information is "a further blip in about 1 million km distance".

A further possibility is that a sensors officer operates with targeted scans, in order to get more exact data or to make a full surround scan. This takes 5 turns and allows to use the full skill value. If an object's position was already known before, apply an additional DM of +50. Prerequisite for this, however, is active scanning.

Cloaking shields and distortion dampers

If a ship is equipped with active cloaking shields, their cloaking value must be subtracted as a negative DM from all „enemy“ sensor checks with mass, energy or other scanners, that try to detect it, with the exception of distortion scanners.

The same applies for ships with distortion dampers concerning checks with distortion scanners.

Example: A 10,000 ton ship in standard range is protected by a cloaking shield with cloaking value 50. Thus, the scanner check of an enemy is made with 1D100 + half skill value - 10 (due to 10,000 tons) - 50 (for shield).

Very important is the fact, however, that any tech level differences are extremely influential here. If the TL of shield and scanner are the same, use the unmodified procedure. However, any TL advantage of the scanner divides the cloaking value by 5, and any level advantage of the shield multiplies it by 5. In this case, it is allowed that the value 100 is exceeded!

Example: Let us assume that in the above case, a TL-D scanner attempts to penetrate a TL-B shield. The cloaking value is then no longer 50, but 50 / 5 / 5 = 2! On the other hand, in the opposite case (TL-B scanner against TL-D shield), the cloaking value would be 50 x 5 x 5 = 1,250 !

Rules for space combat

This chapter treats the modifications of the space combat system from the basic rules or gives special additions to these rules. However, we do hope that space combat will remain a rare event, because it is far from harmless, just have a look at the usual weapons systems and their effects...

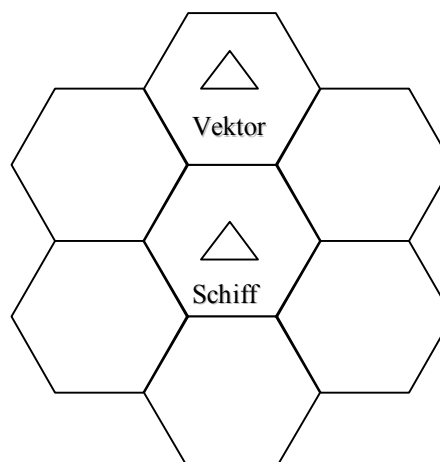
Time and distance measuring

A combat round (round = R) in space combat is equal to 360 seconds in this world. Distances should be measured in fields (=F) at 12,500 km each, in order to avoid having a possible gameboard become too large. Please do not attempt to make movements of one hundredth, but in such cases, simply make a note that the ship e.g. advances one square (U) in 10 turns, and then shift it in the tenth, finally. One should never forget that the spaceships in this SF world are relatively slow.

Fields will normally be hex fields. For reasons of practical handling, movements are restricted to a plane, i.e. two dimensions only.

More than one ship may be present in one field. In such case, the distance between them is 0 F.

For each ship, besides the position, the current speed vector must be shown. This happens by placing a separate marker in the respective hex field. The facing of a ship may be changed at will in a round, so that it is irrelevant for movement purposes (but not for attack purposes, cf. fixed mounts).



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Divide the acceleration of a ship by 10g and round mathematically in order to obtain its acceleration in F/R². This means that e.g. a ship with an acceleration of 50g will reach a speed of 5 F/R after one round.

A ship that neither accelerates nor decelerates will move by a distance in E that is equal to its current speed. In case of acceleration or deceleration a distance in E which is equal to half its acceleration has to be added or subtracted.

Example: A ship with an initial speed of 10 F/R accelerates with 4 F/R² for one round. Its speed at the beginning of the following round amounts to 14 F/R and it has covered a distance of 12 F (10F initial speed plus one half of 4 F/R²).

Ships may only move in one of the six directions shown on the hex grid. If a ship accelerates in the same direction as its speed vector (0°), the acceleration is added to the vector. In opposite direction (180°), it is subtracted.

Handling for other directions is more difficult (i.e. 60°, 120°, 240° or 300°). As this is a roleplaying game and not an introduction to vector mathematics, some simplifications and other rules are used. These may result in some deviations from vectors determined mathematically.

All the following rules for vector movement are optional. If they are too complicated for a game master, he should prohibit certain movements to a ship, i.e. any course change would first require deceleration to a speed of zero!

If acceleration is made in a direction of 60° or 300°, the acceleration must be greater than the current speed in F/R, so that the direction vector is indeed changed. All lower acceleration values do not change the direction vector of a ship. Instead, they are treated for game purposes as an acceleration in the same direction as the current direction vector.

Example: A ship has a speed vector of 6 F/R in the direction 0°. It accelerates with 4 F/R² in the direction 60°. The new speed vector is 10 F/R in the direction 0°, i.e. the direction of the vector is not changed.

If the acceleration is greater than the speed, the vector direction is changed to the respective new direction (i.e. 60° or 300°). For simplification, the new speed is equal to half the old speed plus the acceleration.

Example: The above ship accelerates with 8 F/R². The new speed vector has a direction of 60° and a speed of 11 F/R.

In case of acceleration in a direction of 120° or 240°, the acceleration must be larger than half the speed in F/R, so that the direction is actually changed. All lower acceleration values do not change the direction vector of a ship. Instead, they are treated for game purposes as acceleration in the same direction as the current direction vector.

However, an acceleration that is larger than half the speed and not larger than twice the speed, only results in a direction change by 60° (i.e. to direction 60° or 300°). The new speed vector is equal to the old speed minus one quarter of the acceleration, if the latter is lower than the speed. If the acceleration is equal to the speed, the speed is not changed, but only the flight direction. For accelerations larger than the speed, add one half of the distance of acceleration and speed to the current speed.

If the acceleration is larger than twice the speed, the direction is changed by 120° as planned. The new speed vector is equal to the acceleration minus half the original speed.

The attack procedure

Attack checks follow the standard procedure of the Omnirole space combat rules in the basic book with a base value of zero. Besides DM from software (see below), the skills of the gunners and fire control officers can have an impact. The actual applicable DM is

+ skill value with ship weapons/4

on the attack check. Use the value of the gunner for individual fire of a turret or a single weapon, and that of the fire control officer in case of centrally directed fire.

Against ships with active cloaking shields, a DM of – one quarter of the stealth value of the shield (but never more than –100) should be applied on the attack check. Most military ships will be equipped with cloaking shields.

Example: The enemy has a shield with stealth value 56. On attacks against this ship, a DM-14 applies.

The quality of the sensors of a ship also has an impact in combat. The energy and mass sensors are important. Calculate the average value of both sensor levels (round off) and add a DM of

+ average sensor level x 2

Finally, the experience of the commander must be considered. For simplification, this is done by applying a DM of

+ skill value space tactics / 10.

The ranges of all weapons have been given in 12,500 km (i.e. in F). Please note that all weapon beams move at light-speed.

The size-distance value is calculated based on a size of 1 and the distance in F.

A range of 0 means that a weapon may only be used against targets that are in the same field.

For attacks on targets that are in the same field, the attack DM is +40 according to the basic rules. This is equal to an average distance of 0.5.

Each weapon may fire a number of shots equal to its rate of fire per round. All impulse lasers use the rules for automatic laser weapons.

The defense procedure

Defense checks are made as described in the Omnirole basic rules.

However, the base value for defense is determined as follows:

Ships with a displacement of 10,000 tons have a base value of +25.

For displacements greater than 10,000 tons, apply a modifier of – 10 x (lg displacement – 4). However, the base value may never be lower than zero.

For displacements below 10,000 tons, use a modifier of + 25 x (4 – lg displacement). Displacements of less than 1 ton are treated as 1 ton.

The acceleration of ships does not influence the defense value in this universe, mainly due to the fact that they are rather low and that beam weapons are used.

This rules modification is a preview on the new space combat rules to be included in the Second Edition of Omnirole.

Similar to gunners, space pilots can also influence the battle. Apply a DM of + skill value space pilot / 4 on the dodge value of a ship.

As in the case of attacks, the experience of the commander also must be considered, using the same DM of

+ skill value space tactics / 10.

Lightspeed weapons

All beam weapons do not exceed the speed of light. Thus, they need some time to cover larger distances, making it easier for the computers and pilots of the targeted ship to

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evade them. Apply a defense DM of +25 per full light second (i.e. 24 fields or E) combat distance.

Ramming

On the pilot duel (cf. basic rules), DM based on the ratio of the maneuverabilities of the ships as found in the table for the abstract combat system are applied.

Energy from capacitors

Capacitors can be used to make the stored energy available for the ship systems. In general, 1 EPh is equal to the possibility to use 10 EP in one round. However, the use is limited by the stress to the capacitor and the power grid of the ship.

As soon as the power use in a turn exceeds the following limits, an accident check must be made using the rules for generators working with additional power (cf. basic rules). The limits are:

- maximum of 200 EP per turn and ton of ship displacement

Example: capacitors of a 100 ton spaceship can not offer more than 20,000 EP per turn.

- maximum of 50 EP per turn and ton of capacitors

Example: 10 tons of capacitors can not offer more than 500 EP in a turn without risk of an accident.

Special weapons and installations

In space travel of the 27th century, various installations are used, for which special rules apply.

Protection fields in general

It takes one turn to set up a protection field of any kind.

PSI shields

PSI shields protect a ship against psionic attacks and in general the use of psionic powers. They have an effect as if the protected ship and a certain area surrounding it (some percent of the ship diameter) were subject to the antpsi ability of psionic resistance. The level is equal to effective shield factor points.

Distortion shields

All distortion shields have a flicker value, being a number in the range from 1 to 100. If an attack against a ship protected by a distortion shield has resulted in a hit, it must be checked whether the ship has just been in a hyperspace phase. In this Case, the ship is not part of normal space, and the attack passes harmlessly without causing any shield burden or damages.

This event occurs, if a roll of 1D100 + flicker value has a result of at least 100.

However, it must be said that distortion shields also have some drawbacks: The flickering impairs the own weapons fire, so that a DM of – half flicker value must be applied on all attack checks.

Example: A ship with a distortion shield with flicker value 45 is hit by a laser beam. If the dice on the flicker roll produce at least a 55 (+ 45 = 100), this does not cause any damage. However, the ship also suffers DM-23 (45 / 2) on all its own attack checks.

Gravo beam

Gravo beams create a strong field of gravity, which causes distortion effects. Against them, the armor protection value of a ship is fully useless, i.e. read as 0. Protection fields, however, have normal effects.

Antiparticle-accelerators

An antiparticle-accelerator fires antimatter ions. These react with the matter of the target object on impact. Respectively, its protection value from armor is halved and a possible damage result is doubled. However, this does not apply for the shield burden, because the antimatter does not have any special effect against a force field.

In the weapons table, antiparticle accelerators are treated as particle accelerators whose factor has been increased by 3, i.e. a factor 1 antiparticle accelerator has the stats of a factor 4 particle accelerator.

Disintegrators

Disintegrators, a weapon that dissolves the molecular bonds, ignore any armor protection of the target ship.

Missiles

The weapon system of the missile, also known as the space torpedo, does not have any practical importance in the Starborne universe. Due to the fact that technical and physical constraints require a certain minimum size for impulse drives, it is impossible to build useful small missiles because they would be too slow.

In theory, battleships could be designed which use missiles of a size of 50 or 100 tons. However, these missiles would be rather easy targets for energy weapons and, according to current doctrine, they would be inferior to an energy armament because large magazines as well as expensive warheads and steering systems would be needed, and the missile could be destroyed by defensive fire. As a conclusion, none of the known races uses missiles as a weapon in space combat.

Space mines as fixed defenses are used, but not treated by this book.

Space fighters

Space fighters in the classic sense, i.e. small craft with a single pilot that behave similar to carrier planes of WW2 or the later 20th century, do not exist in the Starborne universe. Similar as for missiles, this is caused by the minimum size of impulse drives. In theory, small battlecraft of for example 100 tons displacement could be designed. However, they lack a suitable very powerful close distance armament (equivalent of bombs or torpedoes). Therefore, classic doctrine of the known races has not yet pursued this concept further.

Computer software

An important element of most spaceships are their computers. In the following, the operations parameters of the usual types are given. The working capacity measures the size of the computer's RAM, i.e. how many programs of what size may be running simultaneously. The memory capacity, finally, is the reserve memory of the computer, i.e. how many programs may be stored as a reserve without the requirement to reload data from external media. All these capacities are listed in **program points**.

Factor	Working capacity	Memory capacity
0	5	10
1	10	20
2	20	50
3	50	100
4	100	200
5	200	500
6	500	1. 000

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7	1. 000	2. 000
8	2. 000	5. 000
9	5. 000	10. 000
10	10. 000	20. 000

The software

The software of current computers is able to perform astonishing feats, and many space maneuvers would probably be impossible without it, just think of course programming needed for FTL travel. Most software programs have a **level**, which reflects their capability. The following software is widespread:

- **Astrogation**: This software calculates the data for hyper-space flights. The calculation time for the programming is equal to base time (cf. FTL travel) divided by the program level.

PSI-Astrogation : This software calculates the data for PSI jumps. Apply the same rules as for astrogation.

- **FTL-Communications**: This software calculates the data for FTL broadcasts. Apply the same rules as for astrogation.

- **Transmitter-calculations**: This software calculates the data for matter transmissions. Apply the same rules as for astrogation.

- **Maneuver**: A maneuver-software assists the pilot in combat, by calculating possible evasion courses when a ship is under fire. This results in a dodge DM of +2 per level.

- **Attack**: attack-software is the offensive counterpart. It calculates the enemy courses and gives the weapons a position that is as exact as possible. This results in a DM of + 2 per level on the attack check.

- **Infodata**: Infodata software is a database which contains general information about worlds, peoples and cultures. It is some kind of electronic library, that could e.g. provide the history of the Wachali, the formulas of the theory of relativity or the works of Shakespeares. When the question comes up whether a certain information is available, the master rolls 1D100 (usual rules) + level x 20. A result of at least 100 means that information is in the database, the amount of details increases with growing results. For general knowledge, no roll is required; very specific questions should casue DM in a range from -10 (Macbeth, third act, scene one) up to -75 (hobbies of a Wachali admiral that dies 10,000 years ago).

It is possible to buy Infodata software that is restricted to one world or sector, or a certain field of knowledge.

- **Translator**: A translation software. Every language must be purchases separately, although translators of TL C and higher are able to understand unknown languages by analysing them: Such analysis of an unknown language is possible, if the translator hears the respective language long enough (about 30 minutes). Then, he makes a check with skill value $50 + \text{level} \times 10$. On success, the translator now knows the language on the level basic knowledge; starting at a result of 150, it gets advanced knowledge, and at 200 and more even that of an experiecned student. A disaster produces false translations. On an ordinary failure, a second attempt is allowed after further 30 minutes. In order to improve the level afterwards, a new check is allowed every 12 hours, as long as the language is being practised. A success improves the level by one level, but never higher then to level 4, i.e. native speaker equivalent. Languages with very alien structures can cause negative DM or even make an analysis impossible, examples would include languages, that do not use sounds or that are only based on modulation of sounds (a siren with different pitches).

The software is available at levels 1 to 10.

- **Defense**: This software controls internal defense systems of a ship, such as e.g. weapons installed in the aisles, door blockades, micro cameras, etc. The level is a rough measurement of the quality and capability, it usally ranges from 1 to 10.

- **Autofire**: This software takes over control of all ship weapons and covers the functions of gunners as well as that of fire control. It is required to increase the weapons cdisplacement by 25%, at a price of 1 MCr per ton, because special control equipment becomes necessary. The skill value in ship weapons is equal to $20 + \text{level} \times 5$; the maximum sogftware level is to be set at 10. For each type of ship weapons (i.e. the respective skill specialization), a separate software is necessary.

- **Autopilot**: As counterpart to the Autofire-software, this software controls the ship, i.e. replaces the pilot. Controls with a displacement of 5% of the ship displacement must be installed at a price of 1 MCr per ton, and the skill value amounts to $\text{level} \times 5 + 10$. The maximum possible level is 10.

- **Autoengineer**: An autoengineer-software replaces the engines crew by computer-operated installations. It is necessary to install equipment equal to 25% of the engine displacement at 1 MCr per ton. The skill value is $\text{level} \times 5 + 20$. The maximum possible level is 10. Every skill or specialization requires a separate program, i.e. e.g. engineer (fusion reactors), engineer (impulse drives) etc.

- **Autonavigator**: This software replaces the astrogator. It does not require any special equipment. The skill value is $\text{level} \times 5 + 20$, the maximum possible level is 10. Each specialization (FTL drive, PSI drive) requires a separate program.

- **Autosensor**: Autosensor software requires installations with a size of 25% of the displacement of the sensor banks, at 1 MCr per ton. They replace the sensors officer. The skill value is equal to $20 + 5 \times \text{level}$; the maximum possible level is 10.

The following table shows the base size in program points and the base price for the different types of software.

Software	Price	Size
Infodata	10. 000 Cr	10
Defense	0,5 MCr	10
Astrogation	2 MCr	40
PSI-Astrogation	3 MCr	40
FTL-Communications	2 MCr	40
Transmitter calculations	2 MCr	40
Maneuver	1 MCr	10
Attack	1 MCr	10
Translator	100.000 Cr	10
Autofire	2 MCr	40
Autopilot	3 MCr	50
Autoengineer	2 MCr	40
Autoosensor	2 MCr	40
Autonavigator	2 MCr	40

The table refers to level 1. Each further level doubles the size and price.

Software programming

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It is possible to purchase the listed software by paying the prices mentioned in the above. However, programmers might have the idea to save some money by writing their own software. This requires a suitable computer and a successful skill check: programming, whose base times and additionally required skills can be found in the following table. The check is made in secret by the master. Use the worse skill value of programming and the listed other skills. Team work is possible.

Program	Base time	Skill
Infodata	1 Day	-
Defense	1 Day	Tactics
Astrogation	10 Days	Astrogation
PSI astrogation	10 Days	Astrogation
FTL Communications	10 Days	Communication
Transmitter calculations	10 Days	Engineer
Maneuver	5 Days	Space pilot
Attack	5 Days	Ship weapons
ECM	10 Days	Electronics
Translator	2 Days	Languages
Autofire	12 Days	Ship weapons
Autopilot	12 Days	Space pilot
Autoengineer	12 Days	Engineer
Autosensor	12 Days	Sensors
Autonavigator	12 Days	Astrogation

The information in the table is applicable for level 1. Each level above 1 doubles the times.

Ordinary failures mean that the work has only been in vain, but the programmer is aware of this. He has just wasted his time. A disaster, however, results in a program with a fatal bug: It will work with standard parameters first, but on every use (each turn for combat software, each calculation for calculation software, etc.) the master makes a secret function check. He rolls 1D100 (usual rules) and adds 50. On a success (at least 100), the program operates without any errors. A failure means a system crash! Even worse (yes, this is possible!), a disaster means wrong results: The program produces data that is completely false. Combat software causes negative instead of positive DM, a navigation software delivers results, that are equivalent to a programming disaster, etc.

Such a bug can only be found by an examination (same base time as programming, skill check), or if one becomes aware of the problem due to a system crash or the error effects...

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Table: Ship weapons

Weapon	Factor	Skill	TL	RoF	normal	long	extreme	Damage multiplier	Burden multiplier	Notes
Pulse Laser	1	Laser weapons	A	3 x 10	4 (1)	8 (1)	16 (1)	D8	1	
Pulse Laser	2	Laser weapons	A	3 x 10	4 (2)	9 (1)	18 (1)	D8	1	
Pulse Laser	3	Laser weapons	A	3 x 10	5 (4)	9 (2)	18 (1)	D8	1	
Pulse Laser	4	Laser weapons	A	3 x 10	5 (10)	10 (5)	20 (2)	D8	1	
Pulse Laser	5	Laser weapons	A	3 x 10	6 (20)	11 (10)	22 (5)	D8	1	
Pulse Laser	6	Laser weapons	A	3 x 10	6 (40)	12 (20)	24 (10)	D8	1	
Pulse Laser	7	Laser weapons	A	3 x 10	6 (80)	12 (40)	25 (20)	D8	1	
Pulse Laser	8	Laser weapons	A	3 x 10	6 (100)	13 (50)	27 (25)	D8 x 2	1	
Pulse Laser	9	Laser weapons	A	3 x 10	7 (140)	14 (70)	28 (35)	D8 x 3	1	
Pulse Laser	10	Laser weapons	A	3 x 10	7 (200)	15 (100)	30 (50)	D8 x 4	1	
Pulse Laser	11	Laser weapons	A	3 x 10	8 (400)	16 (200)	32 (100)	D8 x 5	1	
Pulse Laser	12	Laser weapons	A	3 x 10	8(6)	16 (300)	33 (150)	D8 x 7	1	
Pulse Laser	13	Laser weapons	A	3 x 10	9 (1.000)	17 (500)	35 (250)	D8 x 10	1	
Pulse Laser	14	Laser weapons	A	3 x 10	9 (1.200)	18 (600)	36 (300)	D8 x 15	1	
Pulse Laser	15	Laser weapons	A	3 x 10	9 (1.600)	19 (800)	38 (400)	D8 x 25	1	
Pulse Laser	16	Laser weapons	A	3 x 10	9 (1.800)	20 (900)	40 (450)	D8 x 50	1	
Pulse Laser	17	Laser weapons	A	3 x 10	9 (2.000)	20 (1.000)	40 (500)	D8 x 100	1	
Pulse Laser	18	Laser weapons	A	3 x 10	9 (2.200)	20 (1.100)	40 (550)	D8 x 200	1	
Pulse Laser	19	Laser weapons	A	3 x 10	9 (2.400)	20 (1.200)	40 (600)	D8 x 400	1	
Pulse Laser	20	Laser weapons	A	3 x 10	9 (2.600)	20 (1.300)	40 (650)	D8 x 800	1	
Beam Laser	1	Laser weapons	A	3 x 1	5 (5)	10 (2)	20 (1)	D6	1	
Beam Laser	2	Laser weapons	A	3 x 1	5 (10)	11 (5)	22 (2)	D6	1	
Beam Laser	3	Laser weapons	A	3 x 1	6 (20)	12 (10)	24 (5)	D6	1	
Beam Laser	4	Laser weapons	A	3 x 1	6 (50)	13 (25)	26 (12)	D6	1	
Beam Laser	5	Laser weapons	A	3 x 1	7 (100)	14 (50)	28 (25)	D6	1	
Beam Laser	6	Laser weapons	A	3 x 1	7 (200)	15 (100)	30 (50)	D6	1	
Beam Laser	7	Laser weapons	A	3 x 1	8 (400)	16 (200)	32 (100)	D6	1	
Beam Laser		Laser weapons	A	3 x 1	8 (500)	17 (250)	34 (120)	D6 x 2	1	
Beam Laser	9	Laser weapons	A	3 x 1	9 (700)	18 (350)	36 (170)	D6 x 3	1	
Beam Laser	10	Laser weapons	A	3 x 1	9 (1.000)	19 (500)	38 (250)	D6 x 4	1	
Beam Laser	11	Laser weapons	A	3 x 1	10 (2.000)	20 (1.000)	40 (500)	D6 x 5	1	
Beam Laser	12	Laser weapons	A	3 x 1	10()	21 (1.500)	42 (750)	D6 x 7	1	
Beam Laser	13	Laser weapons	A	3 x 1	11 (5.000)	22 (2.500)	44 (1.200)	D6 x 10	1	
Beam Laser	14	Laser weapons	A	3 x 1	11 (6.000)	23 (3.000)	46 (1.500)	D6 x 15	1	
Beam Laser	15	Laser weapons	A	3 x 1	12 (8.000)	24 (4.000)	48 (2.000)	D6 x 25	1	
Beam Laser	16	Laser weapons	A	3 x 1	12 (9.000)	25 (4.500)	50 (2.300)	D6 x 50	1	
Beam Laser	17	Laser weapons	A	3 x 1	12 (10.000)	25 (5.000)	50 (2.500)	D6 x 100	1	
Beam Laser	18	Laser weapons	A	3 x 1	12 (11.000)	25 (5.500)	50 (2.800)	D6 x 200	1	

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Beam Laser	19	Laser weapons	A	3 x 1	12 (12.000)	25 (6.000)	50 (3.000)	D6 x 400	1	
Weapon	Factor	Skill	TL	RoF	normal	long	extreme	Damage multiplier	Burden multiplier	Notes
Beam Laser	20	Laser weapons	A	3 x 1	12 (13.000)	25 (6.500)	50 (3.300)	D6 x 800	1	
Paralysis gun	1	Paralysis guns	B	3 x 1	0 (10)	n/a	1 (2)	D6	/ 10	ignores Protection
Paralysis gun	2	Paralysis guns	B	3 x 1	0 (20)	n/a	1 (5)	D6	/ 10	ignores Protection
Paralysis gun	3	Paralysis guns	B	3 x 1	0 (50)	n/a	1 (12)	D6	/ 10	ignores Protection
Paralysis gun	4	Paralysis guns	B	3 x 1	0 (100)	n/a	1 (25)	D6	/ 10	ignores Protection
Paralysis gun	5	Paralysis guns	B	3 x 1	0 (200)	n/a	1 (50)	D6	/ 10	ignores Protection
Paralysis gun	6	Paralysis guns	B	3 x 1	1 (400)	n/a	2 (100)	D6	/ 10	ignores Protection
Paralysis gun	7	Paralysis guns	B	3 x 1	1 (500)	1 (250)	2 (120)	D6 x 2	/ 10	ignores Protection
Paralysis gun	8	Paralysis guns	B	3 x 1	1 (700)	n/a	2 (170)	D6 x 3	/ 10	ignores Protection
Paralysis gun	9	Paralysis guns	B	3 x 1	1 (1.000)	n/a	2 (250)	D6 x 4	/ 10	ignores Protection
Paralysis gun	10	Paralysis guns	B	3 x 1	1 (2.000)	n/a	2 (500)	D6 x 5	/ 10	ignores Protection
Paralysis gun	11	Paralysis guns	B	3 x 1	2 (3.000)	n/a	3 (750)	D6 x 7	/ 10	ignores Protection
Paralysis gun	12	Paralysis guns	B	3 x 1	2 (5.000)	n/a	3 (1.200)	D6 x 10	/ 10	ignores Protection
Paralysis gun	13	Paralysis guns	B	3 x 1	2 (6.000)	n/a	3 (1.500)	D6 x 15	/ 10	ignores Protection
Paralysis gun	14	Paralysis guns	B	3 x 1	2 (8.000)	n/a	3 (2.000)	D6 x 25	/ 10	ignores Protection
Paralysis gun	15	Paralysis guns	B	3 x 1	2 (9.000)	n/a	3 (2.300)	D6 x 50	/ 10	ignores Protection
Paralysis gun	16	Paralysis guns	B	3 x 1	3 (10.000)	n/a	4 (2.500)	D6 x 100	/ 10	ignores Protection
Paralysis gun	17	Paralysis guns	B	3 x 1	3 (11.000)	n/a	4 (2.800)	D6 x 200	/ 10	ignores Protection
Paralysis gun	18	Paralysis guns	B	3 x 1	3 (12.000)	2 (6.000)	4 (3.000)	D6 x 400	/ 10	ignores Protection
Paralysis gun	19	Paralysis guns	B	3 x 1	3 (13.000)	2 (6.500)	4 (3.300)	D6 x 800	/ 10	ignores Protection
Paralysis gun	20	Paralysis guns	B	3 x 1	3 (14.000)	2 (7.000)	4 (3.500)	D6 x 1.500	/ 10	ignores Protection
Disintegrator	1	Disintegrators	C	1 x 1	8 (40)	16 (30)	24 (20)	D10	1	ignores Protection
Disintegrator	2	Disintegrators	C	1 x 1	8 (100)	17 (75)	26 (50)	D10	1	ignores Protection
Disintegrator	3	Disintegrators	C	1 x 1	9 (200)	18 (150)	28 (100)	D10	1	ignores Protection
Disintegrator	4	Disintegrators	C	1 x 1	10 (400)	20 (300)	30 (150)	D10	1	ignores Protection
Disintegrator	5	Disintegrators	C	1 x 1	10 (800)	21 (600)	32 (300)	D10	1	ignores Protection
Disintegrator	6	Disintegrators	C	1 x 1	11 (1.000)	22 (750)	34 (500)	D10 x 2	1	ignores Protection
Disintegrator	7	Disintegrators	C	1 x 1	12 (1.400)	24 (1.050)	36 (700)	D10 x 3	1	ignores Protection
Disintegrator	8	Disintegrators	C	1 x 1	12 (2.000)	25 (1.500)	38 (1.000)	D10 x 4	1	ignores Protection
Disintegrator	9	Disintegrators	C	1 x 1	13 (4.000)	26 (3.000)	40 (2.000)	D10 x 5	1	ignores Protection
Disintegrator	10	Disintegrators	C	1 x 1	14 (6)	28 (4.500)	42 (3.000)	D10 x 7	1	ignores Protection
Disintegrator	11	Disintegrators	C	1 x 1	15 (10.000)	30 (7.500)	44 (5.000)	D10 x 10	1	ignores Protection
Disintegrator	12	Disintegrators	C	1 x 1	15 (12.000)	31 (9.000)	46 (6.000)	D10 x 15	1	ignores Protection
Disintegrator	13	Disintegrators	C	1 x 1	16 (16.000)	32 (12.000)	48 (8.000)	D10 x 25	1	ignores Protection
Disintegrator	14	Disintegrators	C	1 x 1	17 (18.000)	34 (13.500)	50 (9.000)	D10 x 50	1	ignores Protection
Disintegrator	15	Disintegrators	C	1 x 1	17 (20.000)	34 (15.000)	50 (10.000)	D10 x 100	1	ignores Protection
Disintegrator	16	Disintegrators	C	1 x 1	17 (22.000)	34 (16.500)	50 (11.000)	D10 x 200	1	ignores Protection
Disintegrator	17	Disintegrators	C	1 x 1	17 (24.000)	34 (18.000)	50 (12.000)	D10 x 400	1	ignores Protection
Disintegrator	18	Disintegrators	C	1 x 1	17 (26.000)	34 (19.500)	50 (13.000)	D10 x 800	1	ignores Protection

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Disintegrator	19	Disintegrators	C	1 x 1	17(28.000)	34 (21.000)	50 (14.000)	D10 x 1.500	1	ignores Protection
Disintegrator	20	Disintegrators	C	1 x 1	17 (30.000)	34 (22.500)	50 (15.000)	D10 x 3.000	1	ignores Protection
Fusion thrower	1	Fusion thrower	B	1 x 1	1 (30)	2 (10)	4 (2)	2D10	2	
Weapon	Factor	Skill	TL	RoF	normal	long	extreme	Damage multi-plier	Burden multiplier	Notes
Fusion thrower	2	Fusion thrower	B	1 x 1	1 (60)	2 (20)	5 (7)	2D10	2	
Fusion thrower	3	Fusion thrower	B	1 x 1	1 (150)	2 (50)	5 (19)	2D10	2	
Fusion thrower	4	Fusion thrower	B	1 x 1	1 (300)	3 (100)	6 (37)	2D10	2	
Fusion thrower	5	Fusion thrower	B	1 x 1	1 (600)	3 (200)	6 (75)	2D10	2	
Fusion thrower	6	Fusion thrower	B	1 x 1	2 (1.200)	3 (400)	6 (150)	2D10	2	
Fusion thrower	7	Fusion thrower	B	1 x 1	2 (1.500)	3 (500)	7 (180)	2D10 x 2	2	
Fusion thrower	8	Fusion thrower	B	1 x 1	2 (2.000)	4 (660)	7 (250)	2D10 x 3	2	
Fusion thrower	9	Fusion thrower	B	1 x 1	2 (3.000)	4 (1.000)	8 (370)	2D10 x 4	2	
Fusion thrower	10	Fusion thrower	B	1 x 1	2 (6.000)	4 (2.000)	8 (750)	2D10 x 5	2	
Fusion thrower	11	Fusion thrower	B	1 x 1	2 (9.000)	4 (3.000)	8 (1.100)	2D10 x 7	2	
Fusion thrower	12	Fusion thrower	B	1 x 1	2 (15.000)	4 (5.000)	9 (1.800)	2D10 x 10	2	
Fusion thrower	13	Fusion thrower	B	1 x 1	2 (18.000)	4 (6.000)	9 (2.200)	2D10 x 15	2	
Fusion thrower	14	Fusion thrower	B	1 x 1	2 (24.000)	5 (8.000)	10 (3.000)	2D10 x 25	2	
Fusion thrower	15	Fusion thrower	B	1 x 1	2 (27.000)	5 (9.000)	10 (3.200)	2D10 x 50	2	
Fusion thrower	16	Fusion thrower	B	1 x 1	2 (30.000)	5 (10.000)	10 (3.700)	2D10 x 100	2	
Fusion thrower	17	Fusion thrower	B	1 x 1	2 (33.000)	5 (11.000)	10 (4.100)	2D10 x 200	2	
Fusion thrower	18	Fusion thrower	B	1 x 1	2 (36.000)	5 (12.000)	10 (4.500)	2D10 x 400	2	
Fusion thrower	19	Fusion thrower	B	1 x 1	2 (39.000)	5 (13.000)	10 (4.800)	2D10 x 800	2	
Fusion thrower	20	Fusion thrower	B	1 x 1	2 (42.000)	5 (14.000)	10 (5.200)	2D10 x 1.500	2	
Plasma thrower	1	Fusion thrower	A	1 x 1	1 (10)	2 (3)	4 (1)	2D8	2	
Plasma thrower	2	Fusion thrower	A	1 x 1	1 (20)	2 (7)	4 (2)	2D8	2	
Plasma thrower	3	Fusion thrower	A	1 x 1	1 (40)	2 (13)	5 (5)	2D8	2	
Plasma thrower	4	Fusion thrower	A	1 x 1	1 (100)	2 (33)	5 (12)	2D8	2	
Plasma thrower	5	Fusion thrower	A	1 x 1	1 (200)	3 (66)	6 (25)	2D8	2	
Plasma thrower	6	Fusion thrower	A	1 x 1	1 (400)	3 (130)	6 (50)	2D8	2	
Plasma thrower	7	Fusion thrower	A	1 x 1	2 (800)	3 (260)	6 (100)	2D8	2	
Plasma thrower	8	Fusion thrower	A	1 x 1	2 (1.000)	3 (330)	7 (120)	2D8 x 2	2	
Plasma thrower	9	Fusion thrower	A	1 x 1	2 (1.400)	4 (460)	7 (170)	2D8 x 3	2	
Plasma thrower	10	Fusion thrower	A	1 x 1	2 (2.000)	4 (660)	8 (250)	2D8 x 4	2	
Plasma thrower	11	Fusion thrower	A	1 x 1	2 (4.000)	4 (1.300)	8 (500)	2D8 x 5	2	
Plasma thrower	12	Fusion thrower	A	1 x 1	2 (6.000)	4 (2.000)	8 (750)	2D8 x 7	2	
Plasma thrower	13	Fusion thrower	A	1 x 1	2 (10.000)	4 (3.300)	9 (1.200)	2D8 x 10	2	
Plasma thrower	14	Fusion thrower	A	1 x 1	2 (12.000)	4 (4.000)	9 (1.500)	2D8 x 15	2	
Plasma thrower	15	Fusion thrower	A	1 x 1	2 (16.000)	5 (5.300)	10 (2.000)	2D8 x 25	2	
Plasma thrower	16	Fusion thrower	A	1 x 1	2 (18.000)	5 (6.000)	10 (2.300)	2D8 x 50	2	
Plasma thrower	17	Fusion thrower	A	1 x 1	2 (20.000)	5 (6.600)	10 (2.500)	2D8 x 100	2	
Plasma thrower	18	Fusion thrower	A	1 x 1	2 (22.000)	5 (7.300)	10 (2.800)	2D8 x 200	2	

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Plasma thrower	19	Fusion thrower	A	1 x 1	2 (24.000)	5 (8.000)	10 (3.000)	2D8 x 400	2	
Plasma thrower	20	Fusion thrower	A	1 x 1	2 (26.000)	5 (8.600)	10 (3.300)	2D8 x 800	2	
Particle acc.	1	Particle acc.	A	1 x 1	7 (10)	15 (5)	30 (2)	D10	1	
Particle acc.	2	Particle acc.	A	1 x 1	8 (20)	16 (10)	33 (2)	D10	1	
Particle acc.	3	Particle acc.	A	1 x 1	9 (40)	18 (20)	36 (5)	D10	1	
Weapon	Factor	Skill	TL	RoF	normal	long	extreme	Damage multi-plier	Burden multiplier	Notes
Particle acc.	4	Particle acc.	A	3 x 1	9 (100)	20 (50)	39 (25)	D10	1	
Particle acc.		Particle acc.	A	3 x 1	10 (200)	21 (100)	42 (50)	D10	1	
Particle acc.	6	Particle acc.	A	3 x 1	10 (400)	22 (200)	45 (100)	D10	1	
Particle acc.	7	Particle acc.	A	3 x 1	12 (800)	24 (400)	48 (200)	D10	1	
Particle acc.	8	Particle acc.	A	3 x 1	12 (1.000)	25 (500)	51 (250)	D10 x 2	1	
Particle acc.	9	Particle acc.	A	3 x 1	13 (1.400)	26 (700)	54 (350)	D10 x 3	1	
Particle acc.	10	Particle acc.	A	3 x 1	14 (2.000)	28 (1.000)	57 (500)	D10 x 4	1	
Particle acc.	11	Particle acc.	A	3 x 1	15 (4.000)	30 (2.000)	60 (1.000)	D10 x 5	1	
Particle acc.	12	Particle acc.	A	3 x 1	15()	32 (3.000)	63 (1.500)	D10 x 7	1	
Particle acc.	13	Particle acc.	A	3 x 1	16 (10.000)	33 (5.000)	66 (2.500)	D10 x 10	1	
Particle acc.	14	Particle acc.	A	3 x 1	17 (12.000)	34 (6.000)	70 (3.000)	D10 x 15	1	
Particle acc.	15	Particle acc.	A	3 x 1	18 (16.000)	36 (8.000)	72 (4.000)	D10 x 25	1	
Particle acc.	16	Particle acc.	A	3 x 1	18 (18.000)	38 (9.000)	75 (4.500)	D10 x 50	1	
Particle acc.	17	Particle acc.	A	3 x 1	18 (20.000)	38(10.000)	75 (5.000)	D10 x 100	1	
Particle acc.	18	Particle acc.	A	3 x 1	18 (22.000)	38 (11.000)	75 (5.500)	D10 x 200	1	
Particle acc.	19	Particle acc.	A	3 x 1	18 (24.000)	38 (12.000)	75 (6.000)	D10 x 400	1	
Particle acc.	20	Particle acc.	A	3 x 1	18 (26.000)	38 (13.000)	75 (6.500)	D10 x 800	1	
Gravo beam	1	Gravo beam	C	1 x 1	4 (40)	8 (40)	12 (40)	2D12	5	ignores Protection
Gravo beam	2	Gravo beam	C	1 x 1	4 (100)	8 (100)	13 (100)	2D12	5	ignores Protection
Gravo beam	3	Gravo beam	C	1 x 1	4 (200)	9 (200)	14 (200)	2D12	5	ignores Protection
Gravo beam	4	Gravo beam	C	1 x 1	5 (400)	10 (400)	15 (400)	2D12	5	ignores Protection
Gravo beam	5	Gravo beam	C	1 x 1	5 (800)	10 (800)	16 (600)	2D12	5	ignores Protection
Gravo beam	6	Gravo beam	C	1 x 1	5 (1.000)	11 (1.000)	17 (1.000)	2D12 x 2	5	ignores Protection
Gravo beam	7	Gravo beam	C	1 x 1	6 (1.400)	12 (1.400)	18 (1.400)	2D12 x 3	5	ignores Protection
Gravo beam	8	Gravo beam	C	1 x 1	6 (2.000)	12 (2.000)	19 (2.000)	2D12 x 4	5	ignores Protection
Gravo beam	9	Gravo beam	C	1 x 1	6 (4.000)	13 (4.000)	20 (4.000)	2D12 x 5	5	ignores Protection
Gravo beam	10	Gravo beam	C	1 x 1	7(6)	14 (6.000)	21 (6.000)	2D12 x 7	5	ignores Protection
Gravo beam	11	Gravo beam	C	1 x 1	7 (10.000)	15 (10.000)	22 (10.000)	2D12 x 10	5	ignores Protection
Gravo beam	12	Gravo beam	C	1 x 1	7 (12.000)	15 (12.000)	23 (12.000)	2D12 x 15	5	ignores Protection
Gravo beam	13	Gravo beam	C	1 x 1	8 (16.000)	16 (16.000)	24 (16.000)	2D12 x 25	5	ignores Protection
Gravo beam	14	Gravo beam	C	1 x 1	8 (18.000)	17 (18.000)	25 (18.000)	2D12 x 50	5	ignores Protection
Gravo beam	15	Gravo beam	C	1 x 1	8 (20.000)	17 (20.000)	25 (20.000)	2D12 x 100	5	ignores Protection
Gravo beam	16	Gravo beam	C	1 x 1	8 (22.000)	17 (22.000)	25 (22.000)	2D12 x 200	5	ignores Protection
Gravo beam	17	Gravo beam	C	1 x 1	8 (24.000)	17 (24.000)	25 (24.000)	2D12 x 400	5	ignores Protection
Gravo beam	18	Gravo beam	C	1 x 1	8 (26.000)	17 (26.000)	25 (26.000)	2D12 x 800	5	ignores Protection

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Gravo beam	19	Gravo beam	C	1 x 1	8(28.000)	17 (28.000)	25 (28.000)	2D12 x 1.500	5	ignores Protection
Gravo beam	20	Gravo beam	C	1 x 1	8 (30.000)	17 (30.000)	25 (30.000)	2D12 x 3.000	5	ignores Protection
Gamma-Pulse Laser	1	Laser weapons	D	3 x 10	5 (12)	10 (6)	20 (3)	D12	1	Protection / 3
Gamma-Pulse Laser	2	Laser weapons	D	3 x 10	6 (24)	11 (12)	22 (6)	D12	1	Protection / 3
Gamma-Pulse Laser	3	Laser weapons	D	3 x 10	6 (48)	12 (24)	24 (12)	D12	1	Protection / 3
Gamma-Pulse Laser	4	Laser weapons	D	3 x 10	6 (96)	12 (48)	25 (24)	D12	1	Protection / 3
Gamma-Pulse Laser	5	Laser weapons	D	3 x 10	6 (120)	13 (60)	27 (30)	D12 x 2	1	Protection / 3
Weapon	Factor	Skill	TL	RoF	normal	long	extreme	Damage multiplier	Burden multiplier	Notes
Gamma-Pulse Laser	6	Laser weapons	D	3 x 10	7 (168)	14 (84)	28 (42)	D12 x 3	1	Protection / 3
Gamma-Pulse Laser	7	Laser weapons	D	3 x 10	7 (240)	15 (120)	30 (60)	D12 x 4	1	Protection / 3
Gamma-Pulse Laser	8	Laser weapons	D	3 x 10	8 (480)	16 (240)	32 (120)	D12 x 5	1	Protection / 3
Gamma-Pulse Laser	9	Laser weapons	D	3 x 10	8(72)	16 (360)	33 (180)	D12 x 7	1	Protection / 3
Gamma-Pulse Laser	10	Laser weapons	D	3 x 10	9 (1.200)	17 (600)	35 (300)	D12 x 10	1	Protection / 3
Gamma-Pulse Laser	11	Laser weapons	D	3 x 10	9 (1.400)	18 (700)	36 (350)	D12 x 15	1	Protection / 3
Gamma-Pulse Laser	12	Laser weapons	D	3 x 10	9 (1.900)	19 (950)	38 (470)	D12 x 25	1	Protection / 3
Gamma-Pulse Laser	13	Laser weapons	D	3 x 10	9 (2.200)	20 (1.100)	40 (550)	D12 x 50	1	Protection / 3
Gamma-Pulse Laser	14	Laser weapons	D	3 x 10	9 (2.400)	20 (1.200)	40 (600)	D12 x 100	1	Protection / 3
Gamma-Pulse Laser	15	Laser weapons	D	3 x 10	9 (2.600)	20 (1.300)	40 (650)	D12 x 200	1	Protection / 3
Gamma-Pulse Laser	16	Laser weapons	D	3 x 10	9 (2.900)	20 (1.450)	40 (700)	D12 x 400	1	Protection / 3
Gamma-Pulse Laser	17	Laser weapons	D	3 x 10	9 (3.200)	20 (1.600)	40 (800)	D12 x 800	1	Protection / 3
Gamma-Pulse Laser	18	Laser weapons	D	3 x 10	9 (3.400)	20 (1.700)	40 (850)	D12 x 1.500	1	Protection / 3
Gamma-Pulse Laser	19	Laser weapons	D	3 x 10	9 (3.600)	20 (1.800)	40 (900)	D12 x 3.000	1	Protection / 3
Gamma-Pulse Laser	20	Laser weapons	D	3 x 10	9 (3.800)	120 (1.900)	40 (950)	D12 x 6.000	1	Protection / 3
Gamma-Beam Laser	1	Laser weapons	D	3 x 1	6 (60)	13 (30)	26 (15)	D10		Protection / 3
Gamma-Beam Laser	2	Laser weapons	D	3 x 1	7 (120)	14 (60)	28 (30)	D10	1	Protection / 3
Gamma-Beam Laser	3	Laser weapons	D	3 x 1	7 (240)	15 (120)	30 (60)	D10	1	Protection / 3
Gamma-Beam Laser	4	Laser weapons	D	3 x 1	8 (480)	16 (240)	32 (120)	D10	1	Protection / 3
Gamma-Beam Laser	5	Laser weapons	D	3 x 1	8 (600)	17 (300)	34 (150)	D10 x 2	1	Protection / 3
Gamma-Beam Laser	6	Laser weapons	D	3 x 1	9 (840)	18 (420)	36 (210)	D10 x 3	1	Protection / 3
Gamma-Beam Laser	7	Laser weapons	D	3 x 1	9 (1.200)	19 (600)	38 (300)	D10 x 4	1	Protection / 3
Gamma-Beam Laser	8	Laser weapons	D	3 x 1	10 (2.400)	20 (1.200)	40 (600)	D10 x 5	1	Protection / 3
Gamma-Beam Laser	9	Laser weapons	D	3 x 1	10()	21 (1.800)	42 (900)	D10 x 7		Protection / 3
Gamma-Beam Laser	10	Laser weapons	D	3 x 1	11 (6.000)	22 (3.000)	44 (1.500)	D10 x 10	1	Protection / 3
Gamma-Beam Laser	11	Laser weapons	D	3 x 1	11 (7.200)	23 (3.600)	46 (1.800)	D10 x 15	1	Protection / 3
Gamma-Beam Laser	12	Laser weapons	D	3 x 1	12 (9.600)	24 (4.800)	48 (2.400)	D10 x 25	1	Protection / 3
Gamma-Beam Laser	13	Laser weapons	D	3 x 1	12 (10.800)	25 (5.400)	50 (2.700)	D10 x 50	1	Protection / 3
Gamma-Beam Laser	14	Laser weapons	D	3 x 1	12 (12.000)	25 (6.000)	50 (3.000)	D10 x 100	1	Protection / 3
Gamma-Beam Laser	15	Laser weapons	D	3 x 1	12 (13.200)	25 (6.600)	50 (3.300)	D10 x 200	1	Protection / 3
Gamma-Beam Laser	16	Laser weapons	D	3 x 1	12 (14.400)	25 (7.200)	50 (3.600)	D10 x 400	1	Protection / 3
Gamma-Beam Laser	17	Laser weapons	D	3 x 1	12 (15.600)	25 (7.800)	50 (3.900)	D10 x 800	1	Protection / 3
Gamma-Beam Laser	18	Laser weapons	D	3 x 1	12 (16.800)	125 (8.400)	50 (4.200)	D10 x 1.500	1	Protection / 3

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Gamma-Beam Laser	19	Laser weapons		3 x 1	12 (18.000)	20 (9.000)	30 (4.500)	D10 x 3.000	1	Protection / 3
Gamma-Beam Laser	20	Laser weapons	D	3 x 1	12 (19.200)	22 (9.600)	33 (4.800)	D10 x 6.000	1	Protection / 3
X-Ray-Pulse Laser	1	Laser weapons	B	3 x 10	4 (2)	9 (1)	18 (1)	D10	1	Protection / 2
X-Ray-Pulse Laser	2	Laser weapons	B	3 x 10	5 (4)	9 (2)	18 (1)	D10	1	Protection / 2
X-Ray-Pulse Laser	3	Laser weapons	B	3 x 10	5 (11)	10 (5)	20 (2)	D10	1	Protection / 2
X-Ray-Pulse Laser	4	Laser weapons	B	3 x 10	6 (22)	11 (11)	22 (5)	D10	1	Protection / 2
X-Ray-Pulse Laser	5	Laser weapons	B	3 x 10	6 (44)	12 (22)	24 (11)	D10	1	Protection / 2
X-Ray-Pulse Laser	6	Laser weapons	B	3 x 10	6 (88)	12 (44)	25 (22)	D10	1	Protection / 2
X-Ray-Pulse Laser	7	Laser weapons		3 x 10	6 (110)	13 (55)	27 (27)	D10 x 2	1	Protection / 2
Weapon	Factor	Skill	TL	RoF	normal	long	extreme	Damage multi-plier	Burden multiplier	Notes
X-Ray-Pulse Laser	8	Laser weapons	B	3 x 10	7 (154)	14 (77)	28 (38)	D10 x 3	1	Protection / 2
X-Ray-Pulse Laser	9	Laser weapons	B	3 x 10	7 (220)	15 (110)	30 (55)	D10 x 4	1	Protection / 2
X-Ray-Pulse Laser	10	Laser weapons	B	3 x 10	8 (440)	16 (220)	32 (110)	D10 x 5	1	Protection / 2
X-Ray-Pulse Laser	11	Laser weapons	B	3 x 10	8(6)	16 (330)	33 (160)	D10 x 7	1	Protection / 2
X-Ray-Pulse Laser	12	Laser weapons	B	3 x 10	9 (1.100)	17 (550)	35 (270)	D10 x 10	1	Protection / 2
X-Ray-Pulse Laser	13	Laser weapons	B	3 x 10	9 (1.300)	18 (650)	36 (320)	D10 x 15	1	Protection / 2
X-Ray-Pulse Laser	14	Laser weapons	B	3 x 10	9 (1.750)	19 (900)	38 (440)	D10 x 25	1	Protection / 2
X-Ray-Pulse Laser	15	Laser weapons	B	3 x 10	9 (2.000)	20 (1.000)	40 (500)	D10 x 50	1	Protection / 2
X-Ray-Pulse Laser	16	Laser weapons	B	3 x 10	9 (2.200)	20 (1.100)	40 (550)	D10 x 100	1	Protection / 2
X-Ray-Pulse Laser	17	Laser weapons	B	3 x 10	9 (2.400)	20 (1.200)	40 (600)	D10 x 200	1	Protection / 2
X-Ray-Pulse Laser	18	Laser weapons	B	3 x 10	9 (2.600)	20 (1.300)	40 (650)	D10 x 400	1	Protection / 2
X-Ray-Pulse Laser	19	Laser weapons	B	3 x 10	9 (2.900)	20 (1.400)	40 (700)	D10 x 800	1	Protection / 2
X-Ray-Pulse Laser	20	Laser weapons	B	3 x 10	9 (3.200)	20 (1.600)	40 (800)	D10 x 1.500	1	Protection / 2
X-Ray-Beam Laser	1	Laser weapons	B	3 x 1	5 (11)	11 (5)	22 (2)	D8	1	Protection / 2
X-Ray-Beam Laser	2	Laser weapons	B	3 x 1	6 (22)	12 (11)	24 (5)	D8	1	Protection / 2
X-Ray-Beam Laser	3	Laser weapons	B	3 x 1	6 (55)	13 (28)	26 (14)	D8	1	Protection / 2
X-Ray-Beam Laser	4	Laser weapons	B	3 x 1	7 (110)	14 (55)	28 (28)	D8	1	Protection / 2
X-Ray-Beam Laser	5	Laser weapons	B	3 x 1	7 (220)	15 (110)	30 (55)	D8	1	Protection / 2
X-Ray-Beam Laser	6	Laser weapons	B	3 x 1	8 (440)	16 (220)	32 (110)	D8	1	Protection / 2
X-Ray-Beam Laser	7	Laser weapons	B	3 x 1	8 (550)	17 (270)	34 (130)	D8 x 2	1	Protection / 2
X-Ray-Beam Laser	8	Laser weapons	B	3 x 1	9 (770)	18 (380)	36 (190)	D8 x 3	1	Protection / 2
X-Ray-Beam Laser	9	Laser weapons	B	3 x 1	9 (1.100)	19 (550)	38 (270)	D8 x 4	1	Protection / 2
X-Ray-Beam Laser	10	Laser weapons	B	3 x 1	10 (2.200)	20 (1.100)	40 (550)	D8 x 5	1	Protection / 2
X-Ray-Beam Laser	11	Laser weapons	B	3 x 1	10()	21 (1.600)	42 (800)	D8 x 7	1	Protection / 2
X-Ray-Beam Laser	12	Laser weapons	B	3 x 1	11 (5.500)	22 (2.700)	44 (1.300)	D8 x 10	1	Protection / 2
X-Ray-Beam Laser	13	Laser weapons	B	3 x 1	11 (6.600)	23 (3.300)	46 (1.600)	D8 x 15	1	Protection / 2
X-Ray-Beam Laser	14	Laser weapons	B	3 x 1	12 (8.800)	24 (4.400)	48 (2.200)	D8 x 25	1	Protection / 2
X-Ray-Beam Laser	15	Laser weapons	B	3 x 1	12 (9.900)	25 (4.900)	50 (2.400)	D8 x 50	1	Protection / 2
X-Ray-Beam Laser	16	Laser weapons	B	3 x 1	12 (11.000)	25 (5.500)	50 (2.700)	D8 x 100	1	Protection / 2
X-Ray-Beam Laser	17	Laser weapons	B	3 x 1	12 (12.100)	25 (6.000)	50 (3.000)	D8 x 200	1	Protection / 2
X-Ray-Beam Laser	18	Laser weapons	B	3 x 1	12 (13.200)	25 (6.600)	50 (3.300)	D8 x 400	1	Protection / 2

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X-Ray-Beam Laser	19	Laser weapons	B	3 x 1	12 (14.300)	25 (7.100)	50 (3.500)	D8 x 800	1	Protection / 2
X-Ray-Beam Laser	20	Laser weapons	B	3 x 1	12 (15.400)	25 (7.700)	50 (3.800)	D8 x 1.500	1	Protection / 2

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