Endworld PnP

Maric

Contents

Chapter 1

The EndWorld

Years have gone by since the Great War. Many Years. Even though few remember how long it has been, the remnants of a time long gone still remind us that once, long ago, the world has been a nicer place. But, the world we know now . . . is not a nice place. Such a shame. I have lived a long life, and I have learned to adapt to the new World, but just as the Contamination eats away at technology and the lives of those who come into contact with it, time eats away at me. Such a shame, there is so little of it left for me. But the plans are in motion, immortality might be in my grasp.

I am . . . well, it seems some Details are starting to slip my mind. I am Quaesitor, and yet again I am wrong, but not entirely. I was Quaesitor. I traveled from the great city of Terracina to the quaint outpost of Kodal to learn. A life time of learning of trying to protect what the Supervivo have protected so long. The ancient Knowledge and ancient Arts. Microelectronics. Quantum Physics. The like. We, the Survivors, the Triumphant, the Conquerors, forced to huddle in what were mere shelters for a storm that has not subsided over the centuries, it is such a shame. Marvels of modern technology have kept me from dying these past years since i retired, but no army of hightech mechs, no experimental biotech treatment seems to be able to extend my mind. I have forgotten so much.

Such a shame.

Of course we are not the only ones who survived. Beasts stalk the lands, ferocious beasts, Megafauna, sly, intelligent and hungry creatures. In some cases literally. But even Humanoids, a pale imitation of real Humans, the descendants of vile mutants, military personnel enhancement projects, the failed attempts of foolish hope, are vile mutants and savages themselves, such a shame. They raid caravans, keep to their disjointed barbaric cultures, forever cursed to harbor the very Contamination killing their chances of ever knowing the pleasures of technology. And it seems that they have adapted to the Contamination, so it does not even kill them as much these days. Such a shame.

Alacast can purify them just like anyone or anything else, it changes the Contamination back to more normal dangers, but dangers that can be dealt with by proper humans. Tribals can live without the Contamination, if ever someone would invest in cleaning a Savage up that much, they likely still can not contribute. Such a shame. I have tried, yet they remained uncooperative, another sign of their inferiority. Some babble about cages and insults, barely comprehensible ramblings in their animalistic mockery of speech. They do not usually last long once they have gone through decon. Such a shame. Especially those infuriating individuals who seem to have allied with the Contamination trying to kill us all, wielding its Zones Of Normalcy Exclusion like weapons. Such a shame. Wide ZONEs of heightened gravity or brittleness, Oxygen free ZONEs or pure Oxidation. Such a shame that they have to appear at all even if caused by natural sources. Savages funneling Contamination into a ZONE until even the best seal breaks down and the Pilots are eaten alive . . .

Such a Shame.

– Transcript of the only Conversation the oldest Document in the Great Library of Kodal - a severely damaged upload of the Brain of an ancient Scientist - will have.

Chapter 2

Character Creation

First, get a general idea who your character is and what they do. Note your Character name, your name, the name of the Campaign and your concept for the character on the charactersheet. This will help you choose in the following steps.

2.1 Step 1 - Categories

Choose Category, Fate and Affinity

1. **Resistance** describes how able the Character is to survive the hardships of the outside world
2. **Fate** is "Beginners Luck" and the room to grow of the character, separating NPC from PC.
3. **Affinity** for technology allows usage of complex and futuristic gadgets

all start at 1, then 7 points are divided between them, maximum is 5.

2.2 Step 2 - Scores

2.2.1 Abilities

Order Social, Physical, Mental, Spiritual and Ability in the order that you think they are most usefull to your character concept.

In your primary priority you get 16 points, in your secondary priority you get 12 points and in your tertiary priority you get 8 points. The remaining two Priorities get 4 points.

Skills range from 1–3:

1. proficiency
2. mastery
3. special expertise

Some skills are grouped, the group has to receive a point first, after that up to 2 points can be spent to specialize into the subskills, the specific rank of a skill is the group + skill.

2.2.2 Attributes

Attributes, which range from 1–5 can be unlocked by allocating spent skill levels.

To raise an attribute a level, 1 point per current level is required, so the levels have requirements of 1;2;3;4;5. With total costs of the levels being:

1. 1
2. 3
3. 6
4. 10
5. 15

To have an Attribute at Level 5, 15 total levels in Skills ($8 \cdot 2$ or $15 \cdot 1$ or anything between) are required. To Reach Attributes of 5/5/5 120 total levels of skills would be required. Attributes can be 0, making the character unable to attempt rolls that would use that attribute.

2.2.3 Finalizing

All skillpoints need to be spent, unallocated skillpoints remain to be allocated to attributes later. Reskilling / attributing a new character can be done if player and Storyteller agree. Every level 1 skill requires some sort of mention in the backstory of the character, level 2 skills should be given an explicit reason and level 3 skills should have an explanation of how the character has reached peak human ability in that skill.

Later Points are awarded to specific Skills through roleplay and spending Off-time training. These Skillpoints can then be allocated to an Attribute at any time.

2.3 Step 3 - Finishing touches

You get 100 Credits, you can spend these on:

- Your Mech
- Goods (3 per credit)
- Gear, Spells, etc
- Bonus Character creation points (5:1)

2.4 Rules

Chapter 3

Rules

3.1 The Selector System

This system uses ten sided dice. A *Check* is a roll of usually 5 dice interpreted in a certain way, with the result describing how successfull the attempted action was.

Whenever there is advantage or disadvantage of any kind, Bonus- or Penaltydice may be applicable. The roll itself is interpreted by your *Selectors* which usually are defined by the applicable attribute and skill, but may be static or equipment based. The dice in the roll are ordered and given an order-number in ascending order by value. To get the result of the roll (or to *interpret* the roll), every selector *selects* a die with the appropriate order-number and adds them to the result. Selectors greater than the biggest order-number simply selects the highest die. A selector of 0 selects no die. The usual number of selectors is 2.

The effects and result of the Check may then be further modified by Resonance.

3.2 Bonus- and Penaltydice

Bonus- and Penaltydice cancel each other out.

The larger amount less the smaller amount describes how many extra dice are rolled on a given roll. If Bonusdice were rolled, remove the lowest dice from the Roll until the number of dice is as it was before the extra dice. For Penaltydice, the highest are removed instead. Neither Bonus nor Penaltydice ever change the number of dice being interpreted, just the relative Chances.

3.3 Resonance

Resonance is when in a Roll, more than one die shows the same Number.

The Resonance *amplitude* is the number of dice *that exceed 1*, meaning it is lower by 1 than the total number of dice.

The Resonance *frequency* is the number those dice show. If no effect states anything about a Resonance, they have no effect.

Chapter 4

Skills and Attributes

4.1 Physical Skills

4.1.1 Heavy Athletics

do you even lift?

4.1.2 Running

running fast is usually fitness, but agility may come in if it is running to avoid being shot at

4.1.3 Jumping

leaping high or far, this one has to do with energy bursts from the legs

4.1.4 Throwing

yeet

4.1.5 Survival

wilderness skills

4.1.6 Acrobatics

Uses include: doging from cover to cover, backflips, climbing, balancing and many others

4.1.7 Weapon()

There are many weapons to choose from!

4.1.8 Footwork

Used mainly in close range, **footwork** describes the characters ability to move fast and decisively in combat, outmaneuvering would be enemies

4.2 Social Skills

4.2.1 Trade

trading is used to Trade

4.2.2 Diplomacy

finding solutions that both sides want

4.2.3 Misdirection

includes lying and general providing of wrong information as correct

4.2.4 Style

panache! style! generally being impressive/following characters style

4.2.5 Intimidation

4.2.6 Rhethoric

Words, I have the best Words

4.2.7 Command

giving orders to others

4.2.8 Empathy

knowing how others feel

4.2.9 Etiquette

Knowing how to behave

4.2.10 Rumor

the skill at navigating the rumor mill, sifting through verbally repeated information and even starting rumors

4.2.11 Art()

may be any art that is used primarily for self expression and social interaction.

4.3 Mental Skills

4.3.1 Healing

important skill for Treating of Wounds

4.3.2 Research

acquiring and processing information from readily available sources

4.3.3 Instinct

used for sensing things that are not being paid attention to and as situational awareness in combat

4.3.4 Search

user for sensing things specifically declared by the player or looked for

4.3.5 Strategy

larger “zoomed out” decisions and their repercussions

4.3.6 Tactics

local “zoomed in” decisions and their repercussions also sometimes used with agility for advancing / retreating in a firefight

4.3.7 Navigation

if you need to know where you are and how to get to a place

4.3.8 Knowledge()

lore or science, any sort of mostly theoretical knowledge

4.4 Ability Skills

4.4.1 Biotech

Biotech is the Fusion of Biology and Technology

The ancient texts define Biotechnology as "any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use". Biotechnology is such a diverse group of skills, that each field is ungrouped rules-wise.

- **Red** Biotechnology Encompasses genetics, genomics, pharmacology, but also medical advances like genetherapy and automedics and deconamination of living things.
- **Green** Biotechnology is used every time the passive environment is exploited, from engineering high yield, low footprint farming to technologically harnessing the great and small Anomalies, including detoxification of materials and beings.
- **Blue** Biotechnology has developed from being used for aquatic Biotech, to include Megafauna, since the first Megafauna is told to having been spottet in the ocean. It allows scanning, categorization and assessment of Megafauna, including in some cases, harvesting Megafauna specialities.
- **White** or Industrial Biotechnology is used in Industrial processes and in handling some of the results of such processes. Creating and applying contamination-sealant is one of such processes.
- **Black** deals with with integration of Biology and Technology from enhancements or replacements like Cyberware or more conventional Prosthetics to synthesizing life, ressurection and strong AI. Seldomly useful and the most dangerous brand of Biotechnology, it is not taught often.

4.4.2 Computer

The Computer skill group describes the ability and training of the character to generally interact with computers.

- **Programming** is creating or changing computer programs.
- **Usage** is using complex features of computers in intended ways.
- **Hacking** is making computers behave in unintended ways.

4.4.3 Engineering

The Engineering skill group describes the ability and training of the character to generally create and care for machines.

- **Repair**
- **Design**
- **Build**

4.4.4 Aux

Auxiliary Training is training with specific types of equipment and tactics. This includes operation and maintenance of these devices.

4.4.4.1 Defense

Skillgroup pertaining to defensive Equipment options.

- **Decoys** From Flares against heat seeking missiles to Holographic Projectors, anything that guides an opponents Weapon to where it can inflict no harm.
- **Shields** Devices that dampen or stop kinetic energies, especially those of weapons
- **Deflectors** Anything that redirects energies, especially those of weapons

4.4.4.2 Offense

Skillgroup pertaining offensive Equipment and Tactics

- **Explosives** Training with things like mines, piles of C4 and IEDs
- **Sniping** Equipment and Tactics to specifically target enemy Systems and increase accuracy over rate of firing
- **Gadgets** Hidden weapons, fireable homing beacons, Flare guns, Flamethrowers, Cryothrowers, Gas

4.4.4.3 Recon

Skillgroup pertaining to gathering information while remaining unseen

- **Scanners** Equipment to obtain Information, from Sensors over Radar to Compositionscanners
- **Suppressors** Stealth equipment from mecha-weapon compatible flash or noise suppressors to thermal signature dissipating gadgets and even invisibility “cloaks”
- **Sabotage** EMP, ECM, ECCM, but also poison, pitfalls and similar tactics

4.4.4.4 Utility

Skillgroup pertaining to opening up more options

- **Communications** Equipment with the purpose of transferring Information
- **Reprocessing** Equipment to turn things into other, generally more useful things. From electrolysis to cooking.
- **Utility Movement** Equipment that allows movement in nonstandard ways, such as flying, climbing, swimming, boring or even teleporting

4.4.5 Professions/Proficiencies

each of these are a Skillgroup, meaning after the initial point, further progress needs to be specialized. The exact nature of these specializations is open to player and storyteller.

4.4.5.1 Metal

4.4.5.2 Ceramics

4.4.5.3 Leatherworking

4.4.5.4 Boneworking

4.4.5.5 Woodworking

4.4.5.6 Woodcraft

4.4.5.7 Animalcare

4.5 Spiritual Skills, Techside

The Skills within Mecha Weapons Expertise and Piloting Practice are not grouped.

4.5.1 Mecha Weapons Expertise

Mecha Weapons means any weapon too big to be carried, including stationary turrets. Usually Weapons are fired with a combination between Weapon Type + Attack mode and Focus.

4.5.1.1 Laser

Laser or technically "Directed Energy Weapons"

are a group of weapons which typically do not use Ammunition, but raw Energy to inflict their damage. Their comparably low damage is made up for by being as accurate as a light beam, plus, the high amounts of particles in the air make for pretty lights.

4.5.1.2 Projectile

Projectile Weapons or sometimes just "Guns"
are a group of weapons which discharge Projectiles towards a target. Ammunition has to be employed, but there are several different types available.

4.5.1.3 Missile

Missile Weapons are a weapons that travel to the target to inflict damage, the difference to Projectile Weapons is that Missile Weapons are usually self propelled instead of being accelerated at their startpoint. Missiles are comparatively heavy and expensive, but most of them ignore shields and/or deliver special devices or bombs to the target.

4.5.1.4 Attack Modes

- **Direct** Weapons are many and varied but share the characteristic of being pointed roughly at the target they are shooting. They require line of sight.
- **Indirect** Weapons are just as varied as Direct Weapons but have the key difference of not pointing at the target. Usually Up and in an angle, but not always. They require information about the targets position, but are free from line of sight restrictions, as long as the Attackstill has a valid way to travel to the target.
- **Seeking** Weapons have some sort of sensors or a dataconnection, and will follow a Target, as long as the Lock remains unbroken. This skill mainly deals with the correct usage and parametrization of such Weapons.
- **Beam** Weapons that emit long, sometimes even sustained streams, making them easier to aim and inflicting more damage, usually at the price of higher, sustained costs and less flexibility.

4.5.1.5 Melee

Melee Weapons of mech sizes are capable of inflicting utter destruction, but are usually limited to close ranges, which makes them not very useful at long distances.

- **Sharp** Melee Weapons have slightly longer range and are faster and usually do good damage. Most of them use the Movement System to get ready to attack again, so they may attack a lot of times on fast mechs. They also are the most precise of the melee weapons.
- **Blunt** Melee Weapons are usually slow, and easier to dodge, but their raw damage output is only matched by Artillery.
- **Unarmed** is not technically a category of weapon, but it represents being able to fight in melee without any special weapon, which allows for mostly disabling maneuvers.

4.5.2 Piloting Practice

Piloting Rolls are usually done with a combination of Terrain+Weightclass and Discipline

4.5.2.1 Terrain

- **Plain** Terrain
- **Desert** Terrain
- **Forest** Terrain
- **Arctic** Terrain
- **Mountain** Terrain
- **Urban** Terrain
- **Mud** Terrain
- **Marine** Terrain
- **Extreme** Terrain

4.5.2.2 Weightclass

- **Exo** is short for "Exoskeleton" and refers to Mechs that are barely larger than an extended Bodyarmor or Mechs that are generally not much bigger than their Pilot. (<1t)
- **Tiny** a versatile spot for Contraptions between Exo and Very Light, these include buggies, cars and a lot of small, fast Vehicles. (1-5t)
- **Very Light** include things like APCs and small fast walkers and light tanks.(5-15t)
- **Light** is about as big as a medium to main tank. (15-50 t)
- **Medium** is about as big as a heavy to superheavy tanks (50-150 t)
- **Heavy** is above superheavy tanks. (150-500t)
- **Very Heavy** LANDKREUZER (500t-1500t)
- **Ultra** ???

4.6 Spiritual Skills, Mageside

Magic is to be determined with the magicuser.

4.6.1 Raven

This skillgroup is an example of a Tribal Raven shamans link with their totem

- **Talon** generally damaging and interacting spells
- **Eye** scouting and information spells
- **Wing** movement and utility spells

4.6.2 Spirit

This skillgroup is an example of a Tribal Raven shamans general ability to manipulate Contamination

- **Call** increases Contamination at target (further away => weaker effect)
- **Infuse** increases Contamination in target and restores it
- **Expunge** decreases Contamination in target and damages it

4.6.3 Resonant Body

This skillgroup is an example of a Tribal Warriors awoken innate superhuman abilities.

- **Resonant Healing** Every 10-Discipline (maximum Resonant Healing) Contamination provides a bonus die when healing.
- **Tireless** Focus negates exhaustion, requires Contamination lasts 1/4/16 hours per day
- **Ancestors Strength** Intuition Adds to Physical skill in times of need (Ancestors Strength times per day)

4.6.4 Deathless

This perkline provides the legendary resilience seen in some Tribals

1. **Last Chance** No Single Wound can knock the character out
2. **Return** If the Body is restored soon after death, it will come back to life.
3. **Join the Ancestors** On Death Character becomes a ghost and is able to communicate with receptive minds.

4.6.5 Generalized, Vague, Pointsink

Attributes represent in what aspects of the gameworld a character excels and in which he doesnt.

Depending on the Priorities picked during character creation it may be easier or harder to raise them, but every Attribute can be Applied to a multitude of general Actions, see the examples in the table below.

The Priorities and Attributes in the following Table are a not all that exist but they are the most common Attributes shared by all humans.

Priorities	Social	Mental	Physical	Ability	Spiritual
Attributes	Resolve	Perception	Fitness	Competence	Intuition
	Impression	Mind	Dexterity	Insight	Focus
	Sympathy	Knowledge	Agility	Theory	Discipline

4.7 Physical Attributes

- Fitness: general physical actions, applying strength, persisting, healing
- Dexterity: precise and/or speedy manipulation of objects using hands
- Agility: running, jumping, dodging, climbing

4.8 Social Attributes

- Resolve: reasoning, convincing, bartering, negotiating and similar interactions
- Impression: leadership, bluffing, acting, boasting, lieing
- Sympathy: chatting, pleading, resolving conflicts, being likeable

4.9 Mental Attributes

- Perception: gathering information, noticing details, being alert
- Mind: memory, assessing situations, processing information, menial mental tasks
- Knowledge: knowing, learning, possessing and storing information

4.10 Ability Attributes

- Competence: repetetive or physically complicated actions
- Insight: creative or explorative actions
- Theory: applying knowledge or mentally complicated actions

4.11 Spiritual Attributes

- Intuition: knowing without thought
- Focus : the power of concentrated effort
- Discipline : to do things many times done before

4.12 Character Attributes

- Contamination Resistance: see Contamination Categories
- Technological Affinity: dictates the Techlevel that can be used with minimal risk
- Luck: the general tendency towards good or bad random outcomes

Chapter 5

Trade

These entries in the table below are usually equivalent, local supply and demand may vary them greatly. Rolling for price variance might be done if there is no in-world reason why certain things might be more or less expensive. If that is the case the prices vary by $((-1)^{1d10} \cdot 1d10 \cdot 5)\%$. Additionally everyone a character trades with has self interest and will keep some of the tradevalue.

threshhold	0	5	8	11	14	17	20
kept tradevalue	50	33	20	10	5	2	0

Goods, at 100% value each line is equivalent to one another and equivalent to 4 character creation points

5.1 Tradegoods

Storage	Article
10g	Elixir of Life (EOL)
100g	Alacast
500g	Experimental Tech Parts (ETP)
1kg	High Tech parts (HTP)
1.5kg	Advanced Gene Therapy Medicine (AGT)
5kg	Medium Tech parts (MTP)
10kg	Potent Medicine
50kg	Low Tech parts (LTP)
50kg	Seeking Rockets
100kg	Processed Medicine
100kg	Basic Rockets
100kg	Artillery
200kg	Basic Medicine
500kg	Improvised/Herbal Medicine
500kg	Base Tech parts (BTP)
500kg	Basic Ammunition
1000L	drinking Water (500days of drinking)
500L/35kg	Liquid Hydrogen
1t	Coal
350L	LiquidCombustionFuel
100kg	High Energy Rations (0.4kg/(day·person))
1t	Normal Food (2.5 kg / (day·person))
1	Medium Quality Blueprint

Open for more Suggestions Example:

Character A wants to get rid of 5 tonnes of Base Tech Scrap in favor of more easily transportable Alacast in a local Dome.

If there are no storyelements influencing the prices, they are rolled. First, the value of the BTP is determined to be (Roll: 6, 4) $((-1)^6 \cdot 4 \cdot 5)\% = +20\%$. Then the value of Alacast is determined to be (Roll: 10, 3)$((-1)^{10} \cdot 3 \cdot 5)\% = +15\%$. The result is that the rate between BTP and Alacast is $500 \cdot 1.15/100 \cdot 1.2 = 4.79$

Which means character As scrap is worth $5000kg \cdot /4.79 = 1043g$ of Alacast. He barters (with Resolve and Trade for 3, 2) with a local merchant and manages to negotiate terms in which the merchant retains (Roll: 2, 4, 5, 8, 9

$\Rightarrow 9 \Rightarrow 10\%$ of the Traded value. He decides to trade and gets 938 grams of Alacast.

Chapter 6

GameSystems

6.1 Health and Contamination

6.1.1 Healing

For living entities damage is represented by wounds with the severity being the remainder of the damage after all defenses were subtracted. Humans roll a Fitness-Check once a wound starts healing. For every met threshhold of the wound one level of regeneration rate for that particular wound is noted down. If a wound is worsened/increased the Fitness-Check is repeated, selecting the worse of the two results. If a wound is successfully and substantially improved, the Fitness Check is repeated, selecting the better of the two results. Regeneration can be aided or slowed by circumstances, such as therapy or environmental conditions. Resonance of frequency 1 lowers the healing rate by its amplitude, even going negative, while resonance of frequency 10 improves healing rate by its amplitude. Wounds do not necessarily lead to death or permanent impairments, but if they remain untreated for a long time, or there is a runaway effect on one of them, the Storyteller may decree permanent repercussions, as appropriate, including Death. Regeneration accumulates over successive days, and once the current severity is reached, the wound is lowered by 1 severity and regeneration is reset to 0. If regeneration rate is negative, and the regeneration rate falls below 0, regeneration progress is set to the wound severity and then the severity is increased by 1. Standard threshholds are 2, 4, 6, 8, 10, 12, 14.

The following table lists healing time in days for severity and hit threshholds.

Severity	1	2	3	4	5	6	7	8	9	10
1	1 d	1 d	1 d	1 d	1 d	1 d	1 d	1 d	1 d	1 d
2	3 d	2 d	2 d	2 d	2 d	2 d	2 d	2 d	2 d	2 d
3	6 d	4 d	3 d	3 d	3 d	3 d	3 d	3 d	3 d	3 d
4	10 d	6 d	5 d	4 d	4 d	4 d	4 d	4 d	4 d	4 d
5	15 d	9 d	7 d	6 d	5 d	5 d	5 d	5 d	5 d	5 d
6	21 d	12 d	9 d	8 d	7 d	6 d	6 d	6 d	6 d	6 d
7	28 d	16 d	12 d	10 d	9 d	8 d	7 d	7 d	7 d	7 d
8	36 d	20 d	15 d	12 d	11 d	10 d	9 d	8 d	8 d	8 d
9	45 d	25 d	18 d	15 d	13 d	12 d	11 d	10 d	9 d	9 d
10	55 d	30 d	22 d	18 d	15 d	14 d	13 d	12 d	11 d	10 d
11	66 d	36 d	26 d	21 d	18 d	16 d	15 d	14 d	13 d	12 d
12	78 d	42 d	30 d	24 d	21 d	18 d	17 d	16 d	15 d	14 d
13	91 d	49 d	35 d	28 d	24 d	21 d	19 d	18 d	17 d	16 d
14	105 d	56 d	40 d	32 d	27 d	24 d	21 d	20 d	19 d	18 d
15	120 d	64 d	45 d	36 d	30 d	27 d	24 d	22 d	21 d	20 d
16	136 d	72 d	51 d	40 d	34 d	30 d	27 d	24 d	23 d	22 d
17	153 d	81 d	57 d	45 d	38 d	33 d	30 d	27 d	25 d	24 d
18	171 d	90 d	63 d	50 d	42 d	36 d	33 d	30 d	27 d	26 d
19	190 d	100 d	70 d	55 d	46 d	40 d	36 d	33 d	30 d	28 d
20	210 d	110 d	77 d	60 d	50 d	44 d	39 d	36 d	33 d	30 d
21	231 d	121 d	84 d	66 d	55 d	48 d	42 d	39 d	36 d	33 d
22	253 d	132 d	92 d	72 d	60 d	52 d	46 d	42 d	39 d	36 d
23	276 d	144 d	100 d	78 d	65 d	56 d	50 d	45 d	42 d	39 d
24	300 d	156 d	108 d	84 d	70 d	60 d	54 d	48 d	45 d	42 d
25	325 d	169 d	117 d	91 d	75 d	65 d	58 d	52 d	48 d	45 d

6.1.2 Treatment

Treating of wounds is usually done with a Competence or Theory + Healing Check, where medicine and equipment can provide modifiers or advantages. Many wounds require medicine to be treated at all. Treating them without will either not be possible or generate disadvantage. Standard threshholds are 8, 11, 14, 17, 20, with results below 5 having negative consequences.

Treating ingress wounds requires at least 10g of Alacast, with the treatment of contamination inflicting the sum of all dice including and below or equal to a threshhold determined by the Technology used (i.e. 8 for Saline-Alacast-Solution Injection) as damage. The level of ingress wounds and contamination is directly lowered by the number of hit threshholds.

In all cases Alacast is used to precipitate Contamination from the body, the crudest way is to introduce Alacast to the bloodstream to precipitate it inside the body and hope the body expels it on its own, more refined ways are basically a dialysis or a very specific targetting of crystallization seeds and retrieval of precipitation clusters.

6.1.3 Medicine

Medicine is used while making a Treatment Check. Each Treatment of a wound using Medicine consumes severity·100g of the medicine and provides the specific bonus.

- **Naturopathy** uses healing and the respective field of the medicine. It provides a good floor and good threshhold bonuses.
- **Specialized Medicine**(name pending) live mixing of specialized cures from ingredients uses healing and the respective field of the ailment. It has no floor, but scales the best.
- **Broadband Medicine** is mass produced, refined medicine and uses a combination of Healing, Science(Medicine) and Red Biotech. It has a good floor, but low scaling.
- **Alacast** has no direct medicinal benefit, but effectively combats Contamination in all fields
- **Elixir of Life** is the top notch medicine, rejuvinates and heals nearly anything. Sadly, it contaminates the user.

6.1.4 Categories

Every Character has a Contamination Resistance rating ranging from 1 to 5, but in-world they are categorized (by supervivo) from A to C.

- **CatA** Humans are usually Supervivo and usually have low Contamination Resistance and high Affinity.
- **CatB**s are outlaws, traders, hermits or for some other reason living outside the Domes and Tribes. They can have any, but usually have medium Contamination Resistance and medium Affinity
- **CatCs** are usually Tribals with high Contaminatin Resistance and low Affinity.

Entity	Contamination Resistance	Affinity requirements
Experimental	1	5
High Tech	2	4
Mid Tech	3	3
Low Tech	4	2
Base Tech	5	1

Affinity requirements are the base amount of Affinity that a character has to have to use the Entity. If the requirements are unmet, every use incurs the difference in penalty dice.

6.1.5 Contamination

Contamination is a term used to describe the amalgamation of technology destroying nanoweapons, radiation, pollution and general environmental hazards. Contamination is airborne, waterborne, bloodborne and permeates pretty much everything in the environment. It is usually assigned a level describing its intensity. Only within the Domes of the Supervivo, inside a Mech or in a similarily purified environment can the Contaminationlevel ever reach 0.

Levels below 0 are necessary for taking apart Experimental Tech Technology, but getting an area so pure is hard.

- Levels 1–3 are rare areas of low Contamination, like mines, airlocks, outdoor markets, outdoor settlements and so on. Even subjected to this level of Contamination for months, it will not cause death. However, for the more fragile Members of Society, the general quality of life can be greatly diminished.

- Levels 4–6 are the most common and usually inhabited by Cat-B. People without a form of permanent resistance can die here, but life expectancies should be a few months at least.
- Levels 7–11 are usually inhabited by tribals but sometimes a few Cat-B have to make Camp here. Anyone without contamination protection will die here within a few weeks.
- Levels 12–15 are sparsely populated by hardy Tribals, but usually deserted.
- Levels 16+ are the most hostile areas. Weird Things happen here, but some say that there is great treasure...

There is no upper limit for contamination levels. If an entity is in an area with contamination, every hour it receives the local contamination as contamination damage.

6.1.6 Contamination damage

Anytime the an entity receives contamination damage, the character lowers that damage with a roll on their contamination resistance and fitness plus all applicable modifiers (external only for contamination ingress). Remaining Damage above 0 is applied to the ingress wound (extending the existing ingress wound if possible, otherwise creating a new one) and raises contamination of that character by 1. The contamination of the character is applied as an internal bonus on the contamination resistance result, but reduces their healing rate, including going negative.

6.1.6.1 Contamination Damage to Entities

When a character directly interacts with an entity, the Charactercontamination×2 of that character is applied as Contamination damage. This is repeated every hour if the interaction continues. While directly contacting an entity only the internal resistance applies, direct contact might be piloting a mech, using a gun or shaking someones hand, except when proper seals are in place.

Instead of Fitness an object uses how well adapted it is to being in contact with contamination. This is a combination of relevant factors. In general the more artificial an Object is the easier it is broken down, the more regular it is the easier it is disturbed and the more complicated it is the easier it is to bring into dissaray.

Some Examples would be

1. Rock/Stick/Clump of Dirt: might bear corruption but is usually not affected
2. Bronze Sword (5,5): the Edge will dull in days or weeks and the material will acquire a thick Patina, but over all it is quite usable and with the patina sealing it, it would last a long time.
3. Combustion Motor(4,4): a few hours in Corrupted air and it will deteriorate
4. Vaccuum Tubes(3,4): from the perspective of Corruption "just" glass, but all the interesting parts around it
5. High Tech Supervivo Survival suit(2,5): Made from simple, chaotic polymers, it can withstand Corruption even without a Sealant for several days before crumbling
6. 3nm Hightech Processor(0,2): Vulnerable on every front.

Damaged Objects might loose some or all of their functionality, or cause penalty dice when using them.

6.1.7 Seals

A seal of a level of X lowers the level of the Contamination behind it by X If a seal is damaged, its effectiveness is lowered by 1 and until it is patched, it only counts for half its current value

Air has to be purified separately or enriched with oxygen. (One human consumes about 500–600 litres of oxygen per day.) The Domes of the Supervivo for example usually have at least a level 25 hermetical seal with purified and oxygen enriched air.

Examples of human sized external contamination modifiers or in-place options:

1	An alacast infused rag or a shut wooden door (although oxygen may run out)
2	a breathermask or a simple wooden door airlock (again, oxygen)
3	a partial gasmask or an airtight airlock
4	a heavy partial gasmask with Goggles or a basetech air filtering facility
5	a full gasmask
6	as above + sealed clothing or lowtech air filtering facility
7	as above + midtech scrubber (a little backpack)
8	as above + hightech air scrubber or midtech air filtering facility
9	as above + full mask with air from a compressed air tank
10+	specially sealed suit with airtank or hightech filtering facility

6.2 Computers and Programming

6.2.1 Computers

Computers come in many different shapes and sizes, but in Endworld they are all abstracted into their availaible memory and their available processing powers.

Computers in Endworld are different from our own, since they had to be designed to be much easier, much more modular and much more resistant, they are usually quite big and heavy, but also incredibly sophisticatedly parallelized. Also they are heavily abstracted and should not be confused with real computers.

6.2.1.1 Processing Power

Processing power is a computers capability to achieve computation and the general work, including I/O, it is measured in Computational Power Usage, and a Processor provied CPU capacity. Processing power is occupied by programs, taking as much as they need or failing to start if there is not enough. A Theory, Computer Usage (and relevant skill for computer administration, clocking or similar) Roll can be used to shift [8,12,17,20] processing from one program to another or free that processing power up. A program running below its required processing power, will perform worse. Scale any applicable metric to the utilized processing power, rounding unfavorably for purposes of the program. Programs with no direct metric, still produce lesser effects, or may not work at all. A program running above its required processing power usually does not do its tasks better, but might perform them faster.

6.2.1.2 Storage Space

Storage space is a computers capability to store data and programs. It is measured in Storage.

6.2.1.3 Programs

For any Program to run, it needs to either be loaded from storage or be present as built in RROM.

6.2.1.3.1 RROM Robust Read Only Memory is a storage medium directly integrated into a processor and by custom usually made from non volatile, corruption resistant materials like woven strands of wire and beads. Since a program is needed to load a program, some processors have built in RROM acting as a bootstrap loader for the Main program used to load other programs more efficiently. Since the RROM is Using its own Computational Power it can not be reused and the Bootloader is effectively its own Computersystem. It starts executing as soon as it is turned on and the program can not be changed or modified while the Processor is running. However simply physically replacing the program is enough and so RROM has a big advantage over hardware or even elektromechanic computing techniques.

6.2.1.3.2 Execution Programs have a set of goals that they will try to accomplish and through their programming take steps towards. This culminates in the abstracted behaviour of programs performing actions, some with a predetermined degree of success, some provide parts or all of the statistics needed for a check. Programs can load other programs either in parallel (while they are still running) or in series (as they are completing). When a program is completed, it unloads and at the end of the turn any ressources it used are freed.

6.2.1.3.3 Operating System An Operating system or "Main" is simply another program that can be dynamically tasked by the user to load other programs. A user interaction requires usually one turn, after which the Operating system performs a predetermined series of loads and supplies each program with its parameters.

6.2.1.3.4 Parameters Are the context a specific program needs to accomplish its goal. Parameters are usually abstracted away as long as it is reasonable to assume that all programs "know" what they are acting upon.

6.2.1.4 Programming

To create a Program requires some knowledge of what the Program is trying to accomplish, and Computer Programming and usually Theory. If the process is more exploratory and there is no clear goal, Insight is used instead to merely determine if a solution can be found. For Theory checks, given that the programmer could conceivably find a series of Instructions, The Storyteller and Player determine a set of CPU requirements, Storage space needed for the Program, auxiliary data requirements, flat Checkresults or purposeful statistics, other programs loaded and runtime, as far as applicable for that program, with similar Programs and their checked quality as templates. After the Check was made, the Storyteller offers several configurations of the above values that could be achieved with the roll and the Player chooses one. Alternatively the Player designs a new Program, its configuration and effects

and the Storyteller tells the Player the interval of the programming rolls and the total sum of checkresults needed to achieve the desired goal. The program, its name, its statistics and effects are then noted down by the Player.

6.2.1.4.1 Example - Shield Daemon

1. Name: Shield Daemon
2. CPU: 0.5
3. Size: 1
4. Requirement: Internal Computerization, Shields
5. Effect: If a switch inside the cockpit is flipped to “bring shields up”, load one Shield Configurator for each shield that is down, if it is flipped to “NOW”, load one Shield Burster for each shield that is down
6. Runtime: Ongoing
7. To program: Shields or relevant piloting skill, 1 workday per roll, total: 100
8. Limits: specific to exact programs and mech

6.2.1.4.2 Example - Shield Configurator

1. Name: Shield Configurator
2. CPU: 3
3. Size: 1
4. Requirement: Shield
5. Effect: Configure Shield with Flat Result of 10
6. Runtime: 1 Turn
7. To program: Shields, 1 workday per roll, Any 3 Rolls of 16+
8. Limits: specific to exact shield

6.2.1.4.3 Example - Shield Burst

1. Name: Shield Burster
2. CPU: 1
3. Size: 1
4. Requirement: Shield
5. Effect: Configure Shield with Flat Result of 0
6. Runtime: Instantly
7. To program: Shields, 1 workday per roll, Total of 30+
8. Limits: specific to exact shield

Chapter 7

Combat

7.1 Life

If an entity gets damaged, the damage is decreased by the result of the roll made by the outermost layer of defense. If the remaining damage is above 0, that remaining damage is usually passed on to the layer below. Layers can fail, and then no longer participate during damage prevention. If damage passes all layers of defense, the remaining numerical value of the damage is noted down as the severity of the damage. For a Biological Entity damage is wounds an may heal..

7.2 Death

There is no fixed numerical amount of lifepoints, but every wound/instance of damage will impede the Entity. This can manifest in many ways, like penalty dice for associated activities, higher botch/malfunction frequencies, and many more. If there is a lot of damage, machines may become inoperable, people might pass out. Death and Destruction only occur when the Gamemaster decrees so.

7.3 Rounds

Combat is done in rounds. In Detailed Combat, each round is 5 seconds long, in Tactical Combat, rounds are of variable length and could last an hour. Every character present acts in turn (determined by circumstances or a Stealth, Perception, Willpower or other situational check) and can usually move and do an action (an attack or action that can be done in the remaining time). Any action beyond the first carries with it a penalty of die and might be flat impossible depending on circumstance. Weapons that do not explicitly state how many times a turn they can be fired, can only be fired once per turn, switching weapons is an action that - without specific perks - uses the whole hand(s) for the remainder of the turn, and so on.

7.4 Detailed Combat

1. Every participant (technically in secret) decides on what they are going to do.
2. Each defense is determined, depending on the current action of the participant.
3. Each offense is determined, depending on the currect action and target of the participant.
4. Non-offensive Actions are resolved first, then offensive actions in descending Order of rolled result.

7.5 Tactical Combat

In many respects much like detailed combat, Tactical Combat zooms out over encounters that could take a while, it is not unusual to switch back and forth. In Tactical Combat, there are usually no single actions, Tactical Actions (which encompass states and processes). Anytime something changes, everyone with intel on that change gets to reevaluate and change what they are doing. If these reactions cascade, detailed combat is the natural consequence and actions will procede in 5 second intervals. If an actor does more or less the same thing 3 times in a row, it might be appropriate to enter Tactical Combat.

A state and/or process will interprete the last 3 rolls and take the average of that number. When entering Tactical Combat some form of time commitment is agreed upon and after each interval one roll is made. The

moment of this roll is also the only time for unprovoked re-evaluation and change of plans. The interval should be changed by the Storyteller depending on the density of action. Tactical Actions might include

1. firing on an enemy or a position
2. guarding a position
3. breaking down a door
4. traversing to a point
5. looking out

7.5.1 Defense

Defense is usually (in the case of dodging) checked with Agility and

- **tactics** on ordered advance/retreat
- **instinct** in general mayhem
- **footwork** in close range
- **running** when zig zagging
- anything else pertaining to the situation

Evasion levels are determined with the result of the defensive interpretation of the combat roll and the character specific evasive threshhold set. (standard unarmored is [5,7,9,11,13])

7.5.2 Offense

Offense level are determined with the result of the offensive interpretation of the combat roll and the range and weapon specific threshhold set.

7.5.2.1 Aiming

Aiming for a specific bodypart gives control over the location of the inflicted wound, but it also carries a penalty that is added to the evasion levels of the target

target	penalty
head	3
hand	2
legs	1
center mass	0

7.5.3 Hit Calculation

If the offense level of an attack is at least 1, the hit roll is made. It consists of a singular die, with the offense levels as bonus dice, and the defense levels as penalty dice, see Bonus- and Penaltydice. The hit quality will be a number from 1 to 10.

For most direct projectile weapons the below table is a guideline. The encoded form would be [0,1,10,20,50,100,100]

hit quality	result	damage modifier
1	far miss	0%
2	miss	0%
3	close miss	0%
4	near miss	0%
5	tangential	1%
6	graze	10%
7	slight hit	20%
8	partial hit	50%
9	hit	100%
10	full hit	100%

On a full hit, the attacker inflicts the wound were planned The specific damage to apply will be listed with the weapon.

7.6 Weapons

7.6.1 Example weapons used in Play

To be categorized and refined later. These Weapons are of Personal Size.

7.6.1.1 Sniper Rifle

200[7,9,11]10
500[5,7,9,11,13,15,17,19]5
1500[7,9,11,14,17,20]2
6000[15,20]0.5
Costs: 1.5TU
Damage: 20
Hit Calculation
[0,80,100,150] Ammo 100g/shot

7.6.1.2 Heavy Revolver

3[5,7,9,11,13]2
20[5,7,9,11,13,15,17]10
50[9,14,18]5
100[12,16]5
150[18]3
Costs: 0.1TU
Damage: 15
Ammo 50g/shot

7.6.1.3 Light Revolver

3[5,7,9,11,13]2
20[5,7,9,11,13]10
50[7,12,16]5
100[14,17]5
Costs: 0.1TU
Damage: 10
Ammo 20g/shot

7.6.1.4 Wooden Bow

20[5,7,9,11,13,15,17,19,20]3
50[7,10,13,16,19]2
100[10,15,20]1
200[15,18,20]0.1
Costs: 0.1TU
Damage: 10
Hit Calculation
[0,80,100,150] Ammo 100g/shot

7.6.1.5 Tooth Spear

3[5,7,9,11,13,15,17,19,20]
Costs: 0.2TU
Damage: 30

7.6.1.6 Obsidian Knife

1[5,9,13,14,15,16,17,18,19,20]
Costs: 0.2TU
Damage: 20
Hit Calculation
[0,1,10,20,80,100,150]

Chapter 8

Tech

Electrolysis splits 1 L H2O into 622.22 L Oxygen und 1244.4 Hydrogen using 3.7037 kwh

8.1 Engineering

8.1.1 Blueprints

Blueprints are required for Engineer(Build) tasks. To create a blueprint a character needs the appropriate materials, usually a computer of some sort, but even sand and a stick can work. The time required is based on the complexity of the project. To find out if the blueprint is within the capabilities of the character check their specific knowledge + Theory against the difficulty of the project. If at least one threshhold is hit, the blueprint is viable. Starting quality of a blueprint can be negative. Every threshhold hit increases the quality of the blueprint by 1. If the character does not have the Appropriate Knowledge he can check sufficiently similar knowledge with an appropriate penalty dice (1 per techlevel, 3 for different module classes on the same techlevel) Even a blueprint with a negative bonus is useful, since it enables building the item in question at all.
A blueprint states the name of the Item, its category and the required materials.

8.1.2 Building

Building something requires a blueprint, the raw materials and the necessary tools. Check Engineering modified by the blueprint and the conditions. The finished product is [check result · 10%] Efficient.

Chapter 9

Mechs

9.0.1 Sizes

Sectors	Mechclass	Weight
0.5	Human	0.1
1	Exo	0.6
2	Exo,Tiny	1
3	Tiny	2
4	Tiny, Very Light	4
5	Very Light	10
6	Very Light, Light	18
7	Light	40
8	Light, Medium	70
9	Medium	150
10	Medium, Heavy	300
11	Heavy	500
12	Heavy, Very Heavy	700
13	Very Heavy	900
14	Very Heavy	1200
15	Very Heavy, Ultra	1500
16+	Ultra	>1500t

Modules are assigned to sectors. Each sector has a size of 1, a module takes up some of that size. Modules can be spread over multiple Sectors, as long as they are adjacent, although this will increase the likelyhood of it sustaining damage. Some Modules require a Hardpoint, there is generally only one Hardpoint per Sector.

A Mech has an effective Tech Level of the Tech at the 90% point of the sizes modules ordered by Tech Level.

Contamination Damage applies to the highest Tech modules first. Each Module can be damaged individually.

9.1 Systems

A Mech needs a movement system, energy and heat systems and should probably have a seal, weapons and support systems.

9.1.1 Costs

Systems Examples

Tech	Credits Cost	Examples
B	4	Water Destillery, Rail based movement system, simple wheels, Manned gun, Ramshield, Floatation, Metal Armorplating , Extra Cargo (10), steam engine, passive cooling
L	5	Lowtech Detox-Decon Equip(LDDE; +1), suspended wheels, tracks, bipedal, Dynamo , Autoturret, Jumpjets, Mech sized Sword, water cooling circle, basicHeatsink
M	6	Shields, flexible/balanced bipedal, Boostjets, Deployable Solar Panel, Sensorarray, MDDE (+2), Base AI system, Mech sized Weaponry (Advanced (Vibro/-electro/Monofilament) Sword), Rocketlauncher, Water venting system, midtech Heatsink
H	7	BCI, Advanced AI, WeaponLaser, Sustained Flight, Advanced Shields, Nano Repair Cloud, Automedic, OVERDRIVE mode, Hightech Heatsink
E	8	Quantum Lookahead Sensors, Blink Teleporter, Timerift Shields (Delays Damage 1d10 rounds), EnergySword

Designtarget (TODO: write words good) for normal fighting mech

- 20% movement
- 20% weaponry
- 5% energy
- 5% Cargo
- 50% + armor

9.1.2 Energy Systems

Energy Systems usually do not use a hardpoint.

Power to Weight is how much maximum output power per weight the system provides.

Input of an Energy System is generally considered its "fuel", but can also just be batteries or similar. The Input is stored with other Cargo.

Efficiency is the function with input x being ratio of poweroutput vs maximum power output and result of efficiency. In parenthesis at the end is the efficiency at 100%

Output is set during addition/modification of the system (Engineering:Repair+ system specific skill, Competence vs 8, 4h). By Default there are only 2 Modes: Power saving and Full Throttle. Mode usage is marked for full hours spent in them, with the higher usage overriding the lower usage, except when the remaining Energy is less than an hour, where minute/round calculations might be needed. Energy E is in Rates of kilojoules/round, since Rounds are 5 seconds long, 1 Energy is equivalent to 5kw over 1 Round. 1 MJ is 1000 kJ so 1 MJ = 200E

Type	E per t	heat/r per t	input	efficiency
Basetech				
Steampower	0.7	8	Coal	10%
FlyWheel	20	0	stored	loses 10% per turn
Crew	0.01	0	Labor	10%
Lowtech				
Combustion Motor	140	2	Combustible	40%
Midtech				
PEM	100	0.1	Hydrogen	90%
Solar Panel	10	2	Sunlight	Contamination dependent
Batteries	10	2	battery charge	loses 10% per month
Hightech				
Reactor	300	5	Fuelrods	8%
CFReactor	40	0.1	Deuterium	80%
Capacitor	1000	X	electricity	loses 10% per hour

Solar Panel Deploying takes 5 turns times 100w or 5 minutes labor, any damage received while deployed will also damage the Solar panel, production halved every 5 contamination levels, only works during day

CFReactor Cold Fusion requires start up energy, equaling the Output for 1 Round.
Deuterium 1 kg - 4.5 TJ or 900,000,000E (effective at 80%= 720ME)
Fuel Rod 1 kg - 75 TJ or 15,000,000,000E (effective at 8%= 120ME)
Hydrogen 70kg (1000L) = 10,082MJ or 2,016,400E (effective at 90% = 1,814,760E)
HFC-10 10 liter - hydrogen fuel cell: Cylinder 20cm diameter, 35 cm height or 23cm cube=10L.
containing 9 MJ or 1800E
HFC-50 50 liter - hydrogen fuel cell: Cylinder 40cm diameter, 40 cm height or 37cm cube = 50L,
containing 45 MJ or 9000E
contains low power sub system used to power up basic systems (like hydrogen gas pumps for the PEM Stacks)
CombustionFuel 800kg (1000L) = 40,000MJ or 8,000,000E (3,2ME)
Battery has 180kE/ t
Capacitor generates 1 Heat per 10 Energy moved, for all other purposes instant

9.1.3 Movement Systems

Efficiency is the ratio of power consumed to power used to move the mech
Drag is the general amount of power wasted the faster the mech is going
Power to Weight is how much maximum movement power the system can employ per weight

Type	Energy/r	GroundCoefficient per ton	Area per sector	Power per ton	hardpoints	Ext
Basetech						
railbased	55	0.001	20	500	50%	rai
simple wheels	100	8	1	750	25%	flat te
floatation system	15	2	1000	90	10%	wat
Lowtech						
complex wheels	175	6	3	1500	25%	somewhatfl
tracks	100	0.02	40	600	33%	rough t
2legs	30	0.5	100	450	25%	all ter
4legs	30	0.2	200	450	25%	all ter
6legs	30	0.13	300	450	25%	all ter
jumpjets	1000	50	1	1000	1	upwa
Midtech						
2 flexible legs	100	10	10	1000	30%	like a larg
4 flexible legs	100	1	100	1000	30%	like a larg
6 flexible legs	100	0.3	1000	1000	30%	like a larg
boostjets	2000	5	0.1	1000	2	any dir
Hightech						
Spiderwalker	150	0.1	500	400	50%	any su

Accelleration is assumed to be able to change to 50%/80%/100% of max speed in the first/second/third round
Pneumatic variants of the legs weigh half as much but are constrained to weightclasses light and below

9.1.3.1 Maximum Speed

Since Power is in Watt, aka $\frac{kg*m*m}{s*s*s}$ "all" that is needed to get the max speed in $\frac{m}{s}$ is to get the friction forces at the point of highest velocity in $\frac{kg*m}{s*s}$, aka Newton. The GroundCoefficient is the one given in the Table, Power has to be calculated $Friction = Mass * GroundCoefficient/100 * 9.81$

Repeat updating Airdrag
$Airdrag = \frac{Airdrag+0.5*Area*1.225*Speed^2}{2}$ and Speed
$Speed = \frac{Power}{Airdrag+Friction}$
Until the maximum value is found.
Bonus Formulae:
$Airdrag = (\frac{9}{4} * Speed^2 * Area)/80$
$Speed = \frac{Power}{(49*Speed^2*Area)/80+Friction}$

9.1.4 Heat Systems

Warning: ALL Dissipated heat contributes to IR signature **Input** is the amount of power the Heat System requires to function actively **Weight** direct weight of the system **Cooling** how much heat is dissipated, passively/actively. **Capacity** how much heat can be stored in this system. Cumulative for the mech.

Type	Input	Weight	Cooling	Capacity	Extra
Basetech					
Small Heatsink	0	0.5t	0.2	15	Storage
Lowtech					
Radiator Vent	2 E/r	scalable	(1/2) + (1/t / 5/t)	0	1 Hardpoint
Large Heatsink	0	1t	0.5	50	Storage
Midtech					
Optimized heatsink	0	1t	1	80	Storage
Coolant Dump	200 E	4t	0/100	100	Decoy; 1 Hardpoint
Radiator Wings	0.2 E/r	2t	10%	100	Deploy; 1 Hardpoint
Hightech					
Fractal heatsink	20 E/r	2t	3/0	200	Storage
OVERDRIVE	1000E	1t	0		Gadget

Coolant Dump: When triggered, releases 100 stored heat together with 100L water, as a thermal barrier

Radiator Wings: Deploying takes 5 turns and 1E or 5 minutes labor, any damage received while deployed will also damage the Radiator Wings: radiates 10% of total system heat, as long as 0.2E/r (for coolant pumping) is applied.

Overdrive: When triggered, enter overdrive mode: able to act at double speed, stored heat is spent insteadof gained. When heat drops to 0 or below, Mech shuts down for 2d10 rounds and Overdrive requires a Competence, Gadgets-Repair; 10m; Threshhold of 10 to repair.

9.1.5 Sealsystems

Level how much the seal reduces Contamination behind it. **Resistance** how much damage it takes to damage the Seal. For each Instance of Damage at or above the Resistance, it's Resistance is lowered by 1.

Tech	Seal Level	Resistance	Cost/Sector
Base	6	2	1
Low	13	3	2
Mid	21	4	3
High	30	5	4
Experimental	50	2	8

9.1.6 Weapons

Damage Threshholds Costs Skills

Melee weapons rely on the movement System, so their costs are in meters that are used to attack rather than move

Type	Damage	Threshholds	Costs	Weight
BaseTech				
Metal Sword	10	10m[5,7,9,11,13,15,17,19,20]0	30m	5t
Manned Turret	X	X	manual labor +X	X +50%
Lowtech				
Heavy Machinegun	30	100m[3,6,10,14,18]20 500m[5, 8, 12,15]10 1000m[7,10,14]5 2km[11,16]5 8km[15]1 indirect	5kg, 5H	100kg
Light Artillery	120	7km[8,12,16,20]1 15km[10,14]	50kg, 10H	8t
120mm Smoothbore	120	50m[10,20]3 100m[6,10,14]8 500m[5,7,9,11]15 2km[8,10,12,14,16]20 4km[11,13,15,20]10 indirect 8km[13,17]5 indirect	20kg 5H	20t
Midtech				
Autocannon	80	10m[10]3 200m[5,8,11,14,17,20]15 1km[8,12,16,20]20 2km[10,14,18]10 4km[13,17,20]5 indirect	7kg 5H	5t
Pulse Laser	60	1km[5,-15]50 5km[7,9,11,13,15]100 LOS[10,12,14,16,18]100	1000E 10H	7t
Precision Cannon	140	500m[7,10,13]2 2km[7-11,13,15,17,19]30 LOS[8,10,12,14,16,18,20]25	15 kg 10H	10t
Rocket Launcher x 8	X	X	X	500kg
Hightech				
Rocket Platform	X	X	X	1500 kg
Railgun	160	200m[7,9,11,13,15]5 1km[5,7,9,11,13]10 4km[7,9,11,13,15]5 12km[9,11,13,15,17]1	50 kg, 25H, 4000E	15t
Advanced Pulse Laser	90	3km[5-20]50 9km[7,9,11,13,15,17]100 LOS[10,12,14,16,18]100	1800E 15H	3t
Ramping Beam Laser	10×X	1km[5,10,15]10 LOS[10,15]100	X×(10E 1H)	10t

Notes:

- Melee Weapons: Ignore Shields

- Manned Turret: X Depends on the mounted gun and the skill of the gunner

- Light Artillery: Attacks take 1s per 300m distance, rounded up, minimum range 100m

- 120mm Smoothbore: Can only fire every second round, requires Indirect for targets further away than 2k

- Autocannon: may make another attack instantly for double the cost

- Basic Pulse Laser: -0.1*contamination level dmg per km, rounded mathematically

- Precision Cannon: Needs to be stationary to aim and fire, 1 turn of aiming between shots

- Rocket Launcher: Ignores Shields

- Rocket Platform: Ignores Shields, Beam rules

- Railgun: Needs to be stationary to fire. Loading takes 2 turns.

- Advanced Pulse Laser: -0.1*contamination level dmg per km, rounded mathematically

- Ramping Beam Laser: Every round, X increases by 1 while shooting, decreases by 1 down to 0 otherwise.

9.1.7 Defensesystems

Defensesystems are configured using the relevant Technical Skill, the relevant usage Method, usually Computer Usage with (if not explicitly defined) the threshholds [5,8,13,16,19] or automatically by a Program of the corresponding level.

Configuration, Strength are the armor-equivalent statistics a shield provides. Configuration is required to start a Shield and takes 1 Action, if the lowest threshhold is not hit, the Configuration is 0, but the Shield still starts.

Coldboot can only be done after all Systems have been shut off for at least one turn.

Shields turn off when overwhelmed and have to meet the Reboot requirements (including another Configuration) to turn back on. Config X means that the specific Configuration Threshhold of X has to be reached. Each Sector requires a Defensesystem on its own. Defensesystems provide coverage for the Sector that they are in first, but if multiple levels (representing a larger Generator) are present they can (during configuration) be spread to adjacent Sectors. Deflectors and Dampeners provide their effects, if they do not cover all sectors, by rounding the portion of sectors that are uncovered up to the nearest tenth and rolling a single die (Fate point adds Fate Bonusdice). If the result is larger than the uncovered portion, the Field generator applies. (1/8 missing requires 3+, 7/8 missing requires 10)

Type	Protection	Weight	Cost	Failure	Reboot	
Basetech						
Applique-Armor	Strength 1	1t	-	destroy, block	-	
Lowtech						
Basic Deflector	1 Evasion	0.2t	10E/r, 1H/attack	-	-	5E
Basic Dampener	5 + Config Reduction	0.5t	20E/r, 3H/attack	-	-	
Midtech						
Shield	Strength 3	1t	40E/r or 10E/r, 1H/attack	passthrough	5r	
Complex Deflector	3 Evasion	0.8t	40E/r, 2H/attack	-	-	160E
Heavy Dampener	30 + Config×3 Reduction	1t	60E/r, 5H/attack	-	-	
Flash Shield	Strength 1	1t	20E/r), 2H/attack	block	X×50E	
Hightech						
Advanced Shield	Strength 4	1t	200E/r or 20E/r	block	1r	

Deflectors need to be Configured with the Deflector skill and require a minimum degree of success to work and provide flat evasion-level bonuses.

Dampeners need to be Configured with the Shield skill and provide a flat damage reduction to all attacks that are influenced by shields, they usually scale with the Quality of the Configuration.

Flash Shield As soon as the Reboot Energy is paid and the configuration is done, they turn back on. X is set to 0 at Coldboot and increased by 1, everytime the Shield is broken. A 10-Resonance on the Configuration reduces X by that much, even going negative. While X is negative, the Energycost is 0.

Cost: per sector for being active.

Failure: Normal behaviour on Failure is for the shield to turn off until rebooted.

Dampeners and Deflectors dont fail from damage.

9.1.8 Armor

Type	Strength	Weight	Failure
BaseTech			
Outside Cargo	0	1.1t	destroyed, passthrough
Metal Plating	2	2t	damaged, passthrough
Ultra High Density Composite	4	5t	out of order, block
Lowtech			
Composite	3	2.5t	damaged, passthrough
Midtech			
Active	1/4	2t	out of order, passthrough full/1
SpeedShell	1	0.5t	destroyed, passthrough
Hightech			
Ion	5	1t	destroyed, energy system damage, block

- Outside Cargo: Provides flat reduction depending on cargo. Cargo gets destroyed.

- Metal Plating: Repairs need 12 or more to not lower Quality
- Ultra High Density Composite: Repairs need 8 to succeed and Freq1 Resonance lowers Strength by Amp
- Composite: needs to be replaced, spare parts 200kg, success with 6+, scrap at 2
- Active: needs 2E per round and per incoming hit or Strength is 1. Repairs Success with 15+/Spare 5+, 1–4 Scraps the Layer, Freq1 subtracts
- Speedshell: Vent 1H per 5m/s; Repair 12+, 1–11 Scraps the Layer
- Ion: 4E/r per Segment, on destruction energy Output is reduced by 10% until scrapped armor is removed.

9.2 Misc Modules

9.2.1 Basetech

9.2.1.1 Water Distillery

Energy Cost: 50kw
Heat: 10
Weight: 0.5t
Turns 1L of Dirty Water into 1L of Contaminated Water per minute
Requires Reprocessing

9.2.1.2 Cargo compartment

stores up to 1 t of Cargo
Weight: 0.5t for Size Calculation, Empty weight 0.1t, Full 1.1t for speed calculation (if relevantt)

9.3 Lowtech

9.3.0.1 Basic Food Processor

Energy Cost per operation: 10kw
Heat: 5
Size:0.5t
Detoxes and prepares up to 5kg of Food in 30 minutes
Requires Reprocessing

9.3.0.2 Basic Air Filter

Energy Cost per operation: 15kw
Heat: 2
Size:0.5
Decontaminates and pressurizes 3000 L of air in 10 minutes or double without pressurizing.
Requires Decon 1
Airtank 10 Liter @ 300 bar contains 3000L of air. Air is used at 10 Liters/Minute so a 10 Liter air tank lasts about 5 hours of calm walking or half (or even less) when doing strenuous activity. 1.225 kg/m3: 3.675 Kg of air + 15kg for Tank, Valve und Hose

9.3.0.3 Basic Decon Equipment

Energy Cost per operation: 20 kw
Clean Water Cost 10:1
Heat: 10
Size: 0.5
Allows to lower Objects contamination by washing them, if applicable. Rate requires 1 hour per Kilogram, Contamination is 1/10 of starting value. Used water is Contaminated
Optical Sensors
Energy: 1
Size: 0.25
Rating: 100
Provides Targetting Lock is obtained
Visual Lock: Distance/Rating <= Target Size (+Camouflage and visual impairments)

Thermal Sensors
Energy: 1
Size 0.25
Rating 100
Thermal Lock: Distance/Rating <= Target Thermal Signature

9.3.0.4 Basic Computer System

Weight 500kg
Energy: 0.1
Module: Processor or Memory

9.4 Midtech

9.4.0.1 ComputerSystem

: Weight 100 kg Energy: 0.1 Module: Processor or Memory
Nondeterministic Computation Core:
Size 0.5
Energy: 0.5
Module: Processor
Requires Black Biotech 3
Extended Decon Equipment
Energy Cost per Operation: 36k (10/s)
Alacast Cost per Operation: 5g
Size: 1 Allows to turn Contaminated Objects into uncontaminated Objects at the rate of 100kg/h if suitable
If used on Humans, Roll Red Biotech, on 9 or more, removes one Charactertaint.
Always Inflicts Wound of Level 11-RollResult
Requires Decon 3
Extended Detox Equipment:
Energy Cost per Operation: 36k (10/s)
Size 0.75
Allows Detoxing and Preparing of up to 1t/h
If used on Humans, Roll Red Biotech, on 6 or more, remove all Infections and appropriate Toxins.
Always Inflicts Wound of Level 8-RollResult
Requires Detox 3
Automedic: Energy Cost: 6k(variable - 10/s for 10 min)
Size: 0.75
Supplies tools of Medic/ supplies good operating conditions for Medic / reduces the use of Medicine by half / allows stasis
Roll Red Biotech, if the roll surpasses the wound, supplies an operating character with a temporary Medic skill and double Advantage or autonomously attempts the procedure at Level 3 mod -1.
If not, Instead supplies one Advantage.
Software may supply the Red Biotech roll even autonomously.
Stasis is automatic and slows down the daily/hourly tickrate (including Healing and Contamination) by a factor of 10 (additive) for every energy point per second. This is a medical coma, not timedilation.

9.5 Hightech

Advanced Detox-Decon Equipment
Size: 1
Energy Cost per Operation 72k (variable 20/s for 1 h)
Alacast Usage per Operation if Detainting: 1g/t of raw material, 10g/human
Detoxes and Detaints up to 5t of material, including air and water.
Living Entities suffer no harm, and on a 4 or more on a Red Biotech Roll lose one Taint level. Furthermore all Infections and Appropriate Toxins are removed.
Requires Detox 4 and Decon 4
Advanced AutoMedic
Energy Cost: 3k (variable - 5/s for 10 min)
size: 1

Allows Medic Rolls/ supplies very good operating conditions for Medic Rolls/ reduces the use of Medicine by 90%/allows Ressurection

To Treat a wound:

Roll Red Biotech, if the roll surpasses the wound, supplies an operating character with a temporary Medic skill and triple Advantage or autonomously attempts the procedure at Level 4 mod -1.

If not, Instead supplies one Advantage or autonomously attempts the procedure at Level 2.

Software may supply the Red Biotech roll even autonomously.

To Ressurect:

requires 1g of EOL per total spent points on a character (or 20* the average level of an NPC) Roll Black Biotech, every 15% missing from the corpse or order of magnitude in days that has passed since the time of death lowers the final score by 1. If the roll succeeds, place 5 wounds of severity 15-result on that character, they lose one level from the highest Ability and one from the highest Skill and are alive again. If the roll does not succeed, 5% of the total corpse and the dosage of EOL is lost.