FTL 2448

Adventure In Deep Space

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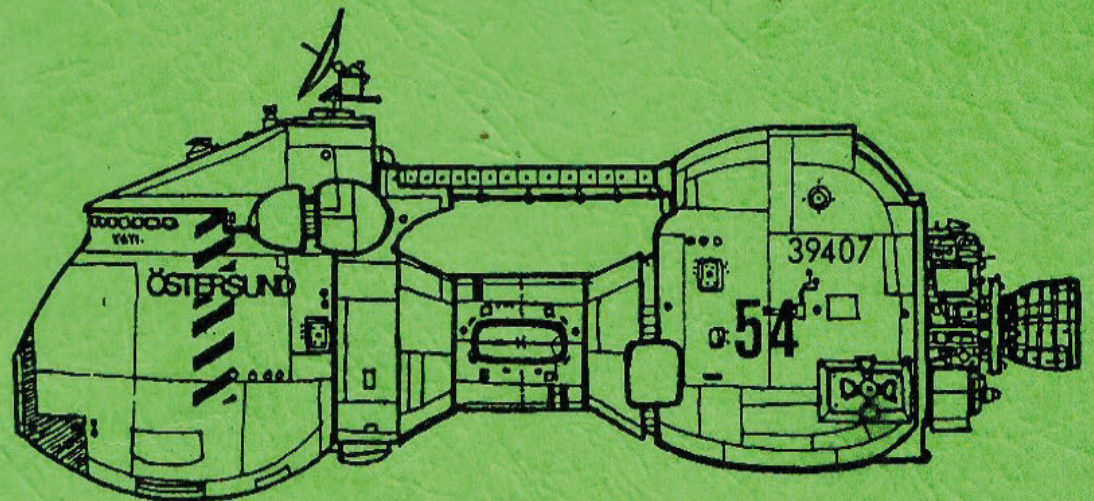
Science Fiction Role Playing
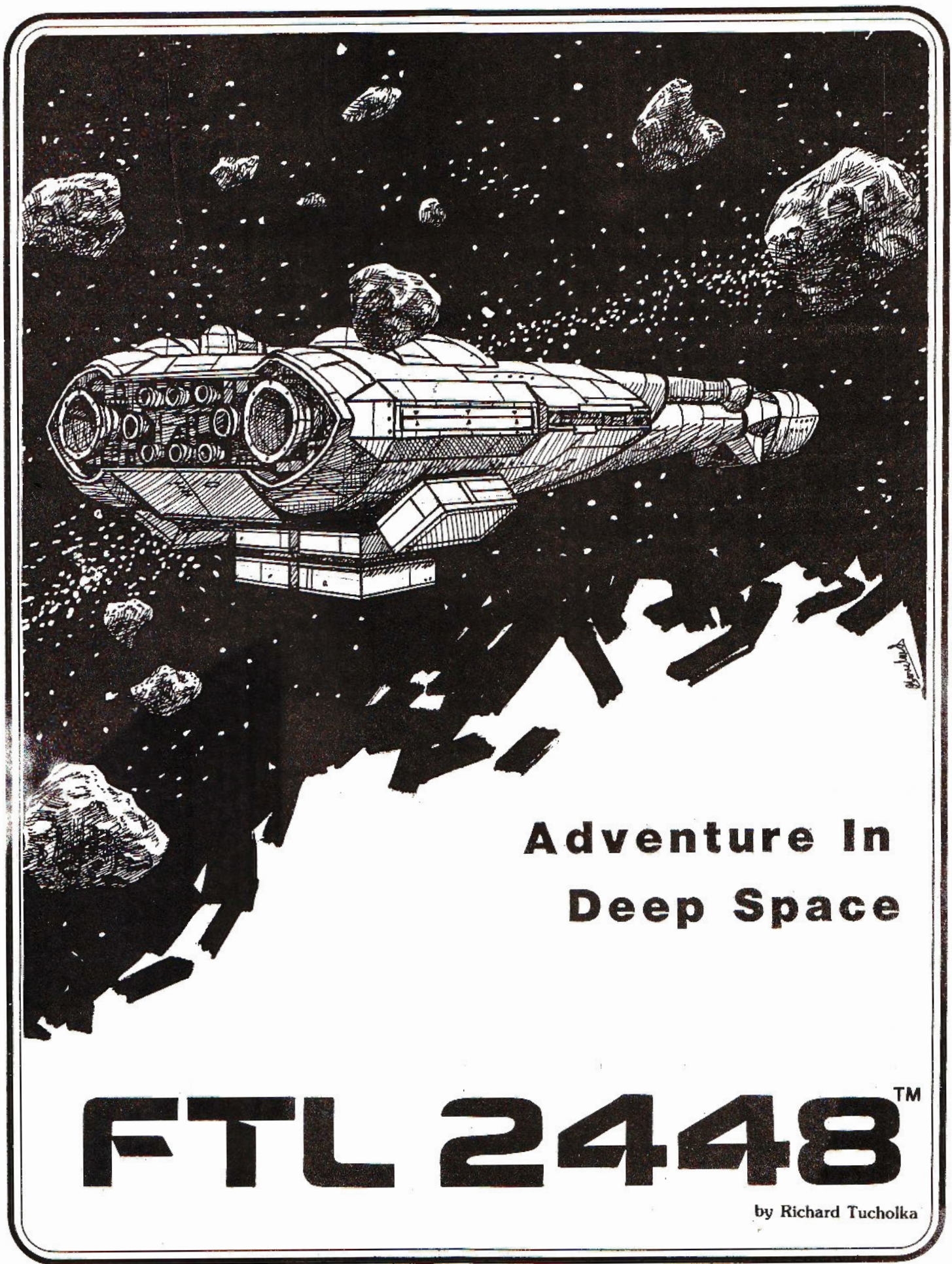
Adventure In Deep Space

FTL 2448™

by Richard Tucholka

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Credits

Faster Than Light

"The history of the technological advancement of the human race is riddled with political manipulation and massive sociological misunderstanding that may cost us the stars" ...Francisco Omoxomo

The last decades of the Terran twentieth century showed technological spinoffs of space exploration, created many new industries and added fantastic amounts of new technology. Most people of the time failed to realize that the comfort and security of their lives was closely related to the continued development of space technologies. In economic moves to better faltering economies, the space programs of the free world began to be strangled by budget cuts and politicians who thought the money better spent on pay raises and short-sighted social programs that failed to solve the real economic problems of the day. History shows us that the technology was there to alleviate the problems. It is unfortunate that big business was so short sighted and that the population did not know what the real issues of the day were. As the nuclear industries folded because of protest secretly backed by petroleum interests, the fate of the economies was sealed into a downswing to disaster.

Finally, a minor electronic blunder in the Soviet Union's computerized defense system triggered a conflict that left most of Europe and the Middle East in ruins. The following depression of the Lawless Years and the collapse of centralized governments taught the survivors that the world was too small a place for haphazard planning and political stupidity.

It may be considered ironic that the forces to pull together and rebuild the world were not the governments or military, but the remaining corporations. The new corporate governments, thus formed, began to rebuild the technologies that favored their survival. Soon the old launch sites were active again as space became a necessity.

The new governments prospered and mankind moved rapidly to the stars; where, in a spirit of brotherhood and destiny, it gained the friendship and federation of many intelligent alien races.

But history tends to repeat itself when the frontiers are measured in light years. Special interests, corporate corruption and political stupidity begin to rise again from the ashes of history unlearned.

FTL 2448

The year 2448 is a time of many opposites; a time of wealth and harsh colonial life, and of corporate honesty and industrial terrorism. Aliens in many forms are joining man for his ideals.

It is the new age of the independent starship and the crews who run them.

WELCOME to 2448

It's not glamourous, but it's ours.

Faster Than Light 2448

Faster Than Light 2448 is a role-playing game of adventure and planetary exploration in the not so distant future.

You will become a human or alien in a time of exploration and corporate expansion, where fortunes can be made and lost by the seldom considered individual. You will visit worlds of wealth and poverty, work in hells or places built on ideals. Aliens and robots will be your friends as you travel to the frontiers of settled space and beyond.

In FTL you will find no Galactic Empires of Star Kings, Dreadnaughts, Battle Cruisers, or planet destroying Galactic Rangers. You will find real people interacting with aliens and alien cultures under the watchful eyes of a police agency dedicated to fairness and peace.

The Game

Faster Than Light 2448 was written to be realistic, concise, and easy to play. It was designed by role players who understand the problems of running a game with overlong text and complex systems that make game play a burden for the player and GM.

The most difficult part of Faster Than Light will be the necessary set-up time for more complex adventures and interaction.

Materials Needed

A One or more copies of Faster Than Light
B Paper, Pencils, Notebooks, Maps, and Index cards.
C A set of common polyhedral dice, the more the better. These will include four-sided (d4), six-sided (d6), eight-sided (d8), ten-sided (d10), the twenty-sided (d20), and the percent % or (d100).
D One to twenty players and a gamesmaster.
E A Tri Tac "Game Systems Shield" (#5001) is an optional playing aid that screens the GM's notes as well as providing necessary information for player and GM use.
F A pocket calculator, home computer, or slide rule may be helpful but not of great necessity.
G Miniature figurines and buildings are handy at times for placing the setting of your adventure.
H Photocopies of FTL 2448's blank Character, Equipment, and Vehicle sheets are almost a must.*
I An outstanding imagination or a bachelor's degree in astrophysics, sociology, history and engineering.
J A time to plan and a place to play.

Photocopying

Terms

ROLE-PLAYING
Is the ability of the game player to design a character he wishes to become with that character's strengths and limitations. The character is guided through a series of adventures and general living by the Games Master. The player makes the character's decisions, right or wrong, as he continues his character's life within the framework of the game.

GAMESMASTER
The records keeper and designer of the adventure. This is the person who sets the stage of events your player character will experience. The abbreviated term for Gamesmaster is GM.

PLAYER CHARACTER
The individual(s) created by the player for the game. This character is controlled entirely by the player. Player characters may also include aliens and animals as long as they are played true to their general intelligence, personality, and temperament.

NON-PLAYER CHARACTERS
These are the characters created by the GM that become the friends and foes in the game. Their characters and development may range from simple to complex, colorful individuals.

FASTER THAN LIGHT
Faster Than Light 2448 is an optimum year in the second "boom" age of the independent starship and the exploration of the frontiers of settled space.

4d6

This is the indicator for rolling a random number on any of a series of types of dice. The initial number (4) is always the number of dice to roll of the type designated by the (d). The example 4d6 has the player or GM rolling four six-sided dice and totaling the resulting numbers.

4d6+2

The +2 modifier is added to the total of the first dice rolling operation. Always follow operations from left to right.

4(d6+2)

This +2 dice modifier is attached to the individual type of dice being rolled. For each die rolled, 2 is added to the total of the die.

Measurement

FTL 2448 was designed with the English system of measurement. A metric conversion table is included on page 141.

x(.50)

The x(.50) is a modifier for the final total result. Most of these modifiers can be found in the Number Breakdown Chart in the appendix. Fractions are always rounded down.

Utility Sheets

These are general purpose sheets that can be photocopied for player / GM use. Do not use the original for game play. There is a large utility appendix at the end of this book.

See Also...

Many sections will reference other pages for related information. Look for notes that begin with:

n/a

This is a general term used throughout FTL meaning not applicable or nil. This will often be found in damage sections or on reference areas where information is not necessary.

Dice to Roll

Most tables and charts are not generally labeled for type of dice to roll. These are most often a d100 or d10. The range of the table is always the dice type to throw unless otherwise specified.

Aliens

There are more than 20 alien races in FTL that can be used by the player. Characters are generated first as a human and then modified on the alien generation table. Study aliens carefully before choosing a type to role-play.
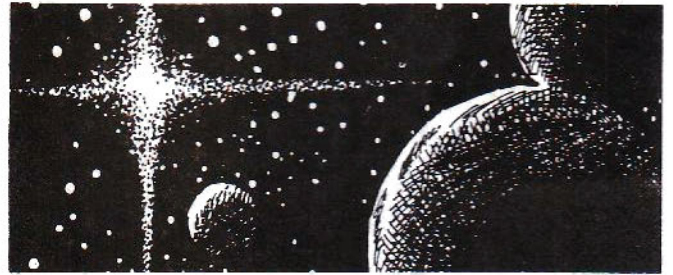
Time & Motion

Throughout Faster Than Light, time will be listed as actions, turns, and real time.

ACTION	=	2 Seconds Real Time
TURN	=	1 Minute or 30 Actions
TIME	=	In game Hours and Days

In any action characters can perform short physical movements as:

MOVE	THROW AN OBJECT
SAY A FEW WORDS	FIRE A WEAPON
PUSH TWO BUTTONS	DRAW A WEAPON

A high agility may increase your number of movements per action.

Movement

CRAWL	= 04 feet per action
WALK	= 05 feet per action
DODGE	= 07 feet per action
RUN	= 10 feet per action

RUNNING JUMP = 01 foot is cleared per point of character's strength (+d4 feet). If the character is an athlete add a (d10).

IMPAIRED MOVEMENT = .50 x your movement rate. This may include broken limbs, intoxication, wounds, pain, shock and stun. Also see terrain modifiers in Weapons Fire p. 44-45

Each action a character makes a decision to:

ATTACK
   Attempt to hit a target by rolling a d20 under your character's dexterity. Use size and speed modifiers from the projectile and weapons fire section. You may also use the optional motion modifiers from the same section.

DEFEND
   To protect from physical attack. Roll a d20 under the character's dodge number for success in dodging an attack. Add possible skill modifiers. This choice of action does not allow a return attack. High velocity projectiles cannot be dodged.

MARTIAL ARTS
   These varied skills give the character a special range of physical combat skills and training to accomplish general or unusually specific attacks or defense.
   Always roll under your martial arts percentage on a d100 for successful use. See Martial Arts on p.42

Characters

Your character's background is entirely your decision. Whether Marine ICL Commando or Pizza delivery boy, character can only be developed by your creativity. Starting a serious character can be fun but remember most people and aliens will not be better than average specimens. Roll your statistics only once.

The 0 Statistic

If you have a rare 0 statistic, remember you can develope it with a little creativity, action, and smart thinking. The low statistic can even be a benefit as a character learns to cope with physical limitations and uses his or her mind to round out these rough edges.

Wealth

Wealth is the GM's decision or roll a d100 on the table below for set up money. This may reflect weekly wage by investment, savings, job salary or government survival check, the equivalency of 20th century welfare.

ROLL	CASH ON HAND		GENERAL STATUS
01-02	d4		Destitute
03-18	d4	x10	Unemployed
19-25	(d4+4)	x10	Semi-Employed
26-85	(d4)	x100	Employed
86-95	(d4+4)	x100	Comfortable
96-98	d4	x1000	Well Off
99	(d4+4)	x1000	Very Well Off
00	(d4+8)	x1000	Wealthy

Thinking FTL

The decision to play an alien is entirely the players choice. As you choose, note the personality and remember you are not running a human in an alien suit but a creature that may have different motivations and lifestyle from what you consider normal.

First, create your character as a human but use pencil when writing on your sheet. You will have changes to make later. When finished with statistics, stop and turn to the Alien Stats chart on page 74. Modify your statistics, check skill limitations on your race from the Aliens section, and continue with your character's education.

REMEMBER
    01 Create a Character as Human
    02 Modify into an Alien
    03 Create Skills

GM's Notes

Humans are the dominant race in FTL space. Fast to spread, they have organized the other races and are the most populace species followed by Borcha, Blox, and Trell. While no racial predjudice exists against aliens, most starship crews are at least 50% human. All alien crews are rare but becoming more common.

Examples

As you progress through the ideas and game systems of FTL you will meet and get to know three of the races in settled space.

The lives of Ben, Bells, and Quagmire will guide you through this book as an example of how to use the game systems.

These are the trials and tribulations of a Human, a Kymnar, and a Trell whose lives begin here.

Ben, Bells, & Quag

BEN WARREN	HUMAN	MALE
AGE: 34	PLANET: MARS	JOB: TECH

The son of a corporate engineer, Ben spent most of his childhood on the vast spaceport complex of Fomalhaut. Because of his father's Martian citizenship he has a home planet even though he has never set foot on the Red Planet.

At age 18, Ben took a four year military service contract and became a "phase drive" Engineer of lower standing. For the last 12 years he has been a phase mechanic for a very small corporation on Fomalhaut. Ben is not married and has few family ties. Secure in his job, he does not realize his luck has just changed. His old employer was just bankrupted by the IRS, Interstellar Revenue Service of Fomalhaut Station.

BELLS	KYMNAR	FEMALE
AGE: 27	PLANET: C'Char	JOB: PERF

Firstborn of a Kymnar military family that forced her to leave her world because of an obsession with Terran music over Kymnaran military studies and training. She is now a jazz musician in a small bar on Fomalhaut.

Bells plays poker with Ben every Thursday night. She is not as temperamental as most of her race and is almost unique in this aspect of her character. Male Kymnar consider her a flake, at best.

QUAGMIRE	TRELL	MALE
AGE: 21	PLANET: BRYOX	JOB: TECH

The 8th of the litter, Johnathan Quagmire the Third's parents thought to terrestrialize their childrens' names. At 15 Quag left his family of engineers and set out to find some type of employment. He specialized in space agriculture and became a gardener on one of the giant station's nature decks. Happy and content, he plays poker as a hobby.

Last Monday Quagmire played poker with a different group and took them to the cleaners for a profit of 14,700 d's and other assorted securities.

He tells his friend Ben about the last frustrated bet by the businessman that netted him an antique digital watch and the deed card to an asteroid.

As Ben drops the card into a computer info terminal he chokes. The reader tells him it is the deed to a junked starship waiting to be scrapped. Ben smiles; the Independent Star Freighter, ISF Wapakoneta waits.

Characters

There is nothing as important as your character, his personality, and history. Many of these factors influence his day-to-day life, his reactions under stress, and his general attitudes.

Before you begin character generation and play, think about your character and remember a few basic rules for role playing.

REMEMBER

01 When your character is generated decide on his, her, or its personal makeup.

02 Keep in character. Think: will the character's next reactions be logical for this character? Will a devout coward rush into battle or hide behind a shuttle to save himself?

03 Once having established a personality, stick with it. A good way to drive a GM crazy is a character with half a dozen personalities. A drunk one week doesn't become a saint the next without a little work. When he becomes a lost corporate president the third, there may be a credibility gap.

04 Remember you can always roll a new character to replace the old if you become discouraged with the character's personality. Temporary retirement gives the benefit of having a character for a later date.

05 When a favorite character is lost, dead or eliminated there may be moment of grief, but remember, any anger or active hostility against the GM or players is not in the spirit of gaming.

Start

As you begin you will need to photocopy or hand copy a character and equipment sheet for play. Use a pencil, not ink, as you design your player character. Many of your statistics will change and you will want to erase outdated information. You may also wish to make an extra copy for the GM in case you lose your master copy. This sheet will often require updating.

REMEMBER

01 Follow instructions, rolling only once for each of your player character's statistics. There is no best of three rolls or picking the best of 5 dice.

02 When you roll a statistic it is yours permanently unless developed later in the course of the game.

03 Think about the character before you develop his or her talents and skill areas. With this system you will have the ability to create a character of your choice. This character will be as colorful or as dull as the designer wishes.

04 Be reasonable and realistic.

05 The equipment sheet is an option that can list the character's body armor, equipment, weapons, tools, and general clothing style.

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```
NAME _____ COUNTRY _____ RACE _____
OCCUPATION _____ MILITARY _____ EXPERIENCE _____ LEV __
WORLD _____

STR ____ INT ____ THR ____ PSI ____ SEX ____    HPT ____
CON ____ WIZ ____ DOD ____ HEIGHT ____ AGE ____  75% ____
DEX ____ LCK ____ ACC ____ WEIGHT ____ BLOOD TYPE ____ 50% ____
AGL ____ CRZ ____ MCD ____ HANDED · L or R   25% ____
```

Character Sheet

NAME
The name of the character you design. The name may be simple or colorful. Characters from other worlds should be created with reasonably realistic ethnic names.

RACE
The race of the character.

OCCUPATION
The primary skill of the character, what he or she does for a living in 2448.

WORLD
This is the character's world of origin. This may include adopted worlds and will not necessarily predetermine race.

COMMAND
This is a character's rank from current or past military experience. This may add to skills relating to the military and weapons use. See Military Rank generation in Skills.

AGE
This is the age of the character.

SEX
The character's sex.

LEVEL
The current experience point level of the character.

EXPERIENCE
The number of experience points the player character has earned in his or her life and adventures.

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```
NAME BEN WARREN COUNTRY N/A RACE HUMAN
OCCUPATION PHASE TECH MILITARY N/A EXPERIENCE O LEV O
WORLD MARS

STR 15 INT 12 THR 12 PSI N/A SEX M    HPT 43
CON 10 WIZ 8 DOD 12 HEIGHT 5'11 AGE 34  75% 32
DEX 12 LCK 10 ACC 11 WEIGHT 175 BLOOD TYPE A+ 50% 21
AGL 9 CRZ 8 MCD N/A HANDED  L or Ⓡ  25% 10
```

Skills   ## Combat

SKILL	LEVEL	SKILL	LEVEL
PHASE TECH	5	ELECTRIC DIAG.	4

Statistics

These are the randomly generated numbers that give your character his strengths and limitations. The character sheet above shows the block of statistics you will generate.

Strength   STR

Strength is the force a character can exert to lift or move objects. Each point of strength allows a character to carry 4 pounds with reasonable comfort.

STRENGTH HAS FIVE OPTIONS:

01	CARRY	:	4 pounds per point of STR with reasonable comfort. For every additional 10 pounds carried over a time reduce your character's Agility by 2 points.
02	DEAD LIFT	:	Four times STR. Use in a dead lift situation for d4+2 actions in a 5 minute period.
03	DRAG	:	Eight times STR. Use for d4+2 actions in a 5 minute period. Double this in an emergency situation for d4 actions.
04	COMBAT	:	To punch or strike with an object or self. See damage relating to strength.
05	THROW	:	The limit of distance an object may be thrown. See weight throwing.

For your strength roll 4d6 and subtract four from the result.

Constitution   CON

Constitution is the general health of the character, his or her basic life force. Constitution can be reduced by sickness or critical damage to the character. At -1 CON a character is unconscious. At -5 CON a character suffers death shock and will die unless aided. (SEE ALSO Medical p.20)

For a character's constitution roll 4d6 and subtract four from the result.

Dexterity   DEX

Dexterity is the character's measure of hand to eye coordination that allows him to do a precision task. This is also the hand-to-hand combat number that allows physical or hand held weapon attacks. Always roll a d20 under your DEX to strike at a target, but remember the modifiers in the combat charts and other "to hit" modifiers due to skill and martial arts training.

For dexterity roll 4d6 and subtract four from the result.
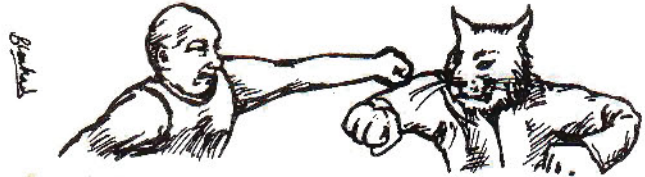
Agility   AGL

Agility is the speed of action of the character and the coordination of his or her movements.

For agility roll 4d6 and subtract four from the result.

Determine your character's movement and action rate from the table below. Index across from your character's agility.

AGILITY	RATING	ACTIONS	MOVEMENT
01-04	Low	x0.50	xo.50
05-16	Average	x1.00	x1.00
17-20	Above Average	x1.50	x1.50
21-25	High	x2.00	x2.00
26-30	Very High	x2.50	x2.50
31-40	Fast	x3.00	x3.00
41+	Very Fast	x3.50	x3.50

Agility is also used for determining the success or failure of difficult acrobatic stunts, jumping, and the rate of speed of physical combat. See the character Experience and Difficulty tables p.17

Intelligence   INT

Intelligence is the learning ability of the character you design. A lower INT may limit the character's skills but will in no way make him or her any less of a playable character.

For intelligence roll 4d6 and subtract four from the result.

Wisdom   WIZ

Wisdom is the character's ability to use sound judgement in an alien society or learn the purpose of items of unknown function. Always roll under your wisdom on a d20 for successful use.

Your wisdom score is found by rolling 4d6 and subtracting four from the result.

Luck   LCK

Luck helps the player-character in adverse situations, mostly when he needs that extra point on the dice to make a fortune or not fall off a thousand foot cliff. It is used at the discretion of the games master. Luck does not affect situations of combat or equipment failure. Luck can be used for repair percentages.

Luck is always a critical roll. Luck adds one or two points to a percent (%) dice roll. Always roll under your luck for success.

For luck roll 4d6 and subtract four from the result of the roll.

Charisma   CRZ

Charisma is the rating of a character's personality and physical appearance. Charisma is mostly irrelevant when dealing with alien or hostile life.

For charisma roll 4d6 and subtract four from the result.

Psionics   PSI

Psionics is the ability to have an extra range of controllable senses. PSI ability can manifest itself in many forms or combinations of forms.

For PSI ability roll a d100. A 01-04 will indicate a Psionic talent. A 05 indicates a borderline Psionic. This 01%-04% is also the number of talents you have. A character with a PSI of 2% has two talent areas.

Psionic talent is developed like a skill, with a starting level of d4. SEE ALSO p.92

The borderline Psionic skill works like the psionic talent with one of the following happening. A borderline can develop his or her detection "talent" as a skill.

01	Tingling	04	Migraine Headache
02	Nausea	05	Nose Bleed
03	Headache	06	Shakes

See PSI in the PSI section for information on abilities and use. See the statistic reductions table for PSI sensitivity related problems.

Throw   THR

Throw is the character's natural ability to physically propel an object toward a still or moving target in the hope of hitting the target. Always roll under your throw on a d20 to hit a target. Your ability to throw is limited by optional modifiers.

01 ATTACKER / DEFENDER MOVEMENT
02 SIZE / SPEED OF TARGET
03 WEIGHT / SIZE OF THE OBJECT THROWN

For your ability to throw add your ratings of Strength, Accuracy, and Dexterity. Divide the result by three. Round fractions down to the nearest number.   SEE ALSO p.32

STRENGTH + ACCURACY + DEXTERITY
DIVIDE BY THREE

Dodge   DOD

Dodge is the ability to avoid a physical strike or move out of the way of a thrown or dropped object, if not surprised. Arrows and high velocity projectiles cannot be dodged. Always roll under your dodge rating on a d20 for success.

For your ability to dodge add your ratings in Strength and Agility. Divide the result by two, rounding fractions down to the nearest number.

STRENGTH + AGILITY
DIVIDE BY TWO

Hit Points   HPT

Hit points are the physical structure of your character. Hit points are the total number of points a character can take in damage before he or she is incapacitated or killed. At -1 hit points a character is unconscious. At -05 hit points a character suffers death shock.

Hit points are the product of Strength added to double your Constitution rating with the addition of a d10. Your character sheet also has the space for a breakdown of your hit points by percentage to aid with shock, stun, and unconsciousness.

STRENGTH + (2x CONSTITUTION) + d10

Skills

Skills are your character's general level of developed ability. Use the next section for references or create your own general names for the skill you wish to have. The difference may be a skill in Cuisine which is another name for cooking or the specific player designed skill of "Synthetic Wine Tasting".   SEE ALSO p.9
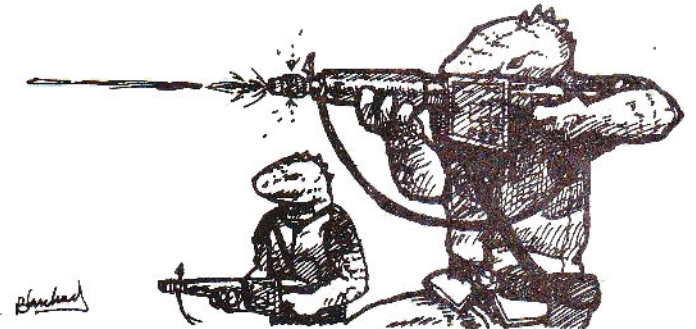
Accuracy   ACC

Accuracy is your base number for any type of projectile weapons combat. Optional combat modifiers are added to this number. Always roll a d20 under your accuracy to hit.

For accuracy roll 4d6 and subtract four from the result.
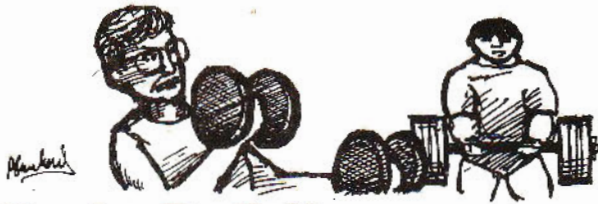
Body Building

Even if your character is a bit under-developed or lacking in characteristics you think are important, you have the chance to develop your character as he, she, or it gains experience.

First read the experience and skill point system, develop your character's education, then return here.

Body Building Cost

As a character gains experience and moves to higher plateaus of development, he or she gains skill points to improve education.

These gained skill points will also allow a character to develop personal statistics to a higher level.

REMEMBER
- 01 Statistics can only be improved after the character has gained experience and higher levels.
- 02 Skill points gained can be used for improvement with the listed costs.
- 03 There is no trading skill points back or separate accumulation from one level to the next.
- 04 Only statistics of Strength, Dexterity, Constitution, Wisdom, and Agility can be developed.
- 05 Throw and Dodge are refigured after statistics are improved.
- 06 Hit points are not refigured.
- 07 Improving Accuracy is a specific skill relating to firearms familiarity. See the Weapons section.
- 08 Statistics can only be improved to 75% of their natural maximum.

CHARACTER'S STATISTIC (Current)	COST IN SKILL POINTS (Per Point of Increase)
0 to 5	1 Point
6 to 9	2 Points
10 to 13	4 Points
14 to 15	6 Points

Ben, Bells, & Quag

At the local (Deck 47) Japanese health spa Ben works out to improve his STR. Ben has a strength of 9. Physical training begins to develop Ben's few, out-of-shape muscles with body building exercises. Months later, at the point of changing from second to third level Ben gains 4 skill points for general use.

With 2 points he raises his strength from 9 to 10. With his remaining skill points he develops a new specialized skill of Vac-Suit repair and maintenance.

Military Training

Player characters have the option to decide on past or current military training.

This may be through Planetary, Corporate, System, or ICL Police forces.

This training allows the player to choose skills listed with the M prefix without a self-learned penalty. (See also p. 52)

REMEMBER
- 01 Generate the character's military rank or equivalency by rolling a d100.
- 02 Note the special bonuses for skills. If the character is retired or out of the military for over five years, there are no skill bonuses given.
- 03 Actual titles of rank may vary with service and world.

Rank

ROLL	RANK (Enlisted)	B ROLL	RANK (Officer)
01-75	Private	01-55	Lieutenant
76-85	Corporal	56-85	Captain
86-90	Sergeant	86-90	Major
91-95	First Sergeant	91-95	Lt. Colonel
96-98	Sergeant Major	96-98	Colonel
99	Master Sergeant	99	Major General
00	Go to table B	00	General

Service

Military service can be divided into two major catagories for skill and training. These are Combatants and Non-Combatants.

Combatants gain a +1 on any skill relating to direct combat skills or use of weapons. This does not include any technical skills or accuracy modification.

Non-Combatants gain a +1 on any technical skills directly related to training or their specialty. This +1 does not carry on over to weapons or direct combat skills.

Military Training

Military physical training will give the character a +1 on Strength and Constitition if the character has a rating under 15.

Sergeants

Any Sergeants gain a +2 on all military skills and a +2 on Strength, Constitution and Charisma.

Pre-Military Training

Any enlisted personnel have a 70% chance of starting on (Table B) if they have pre-military training oriented towards officer training. This may include Military School or ROTC type training.
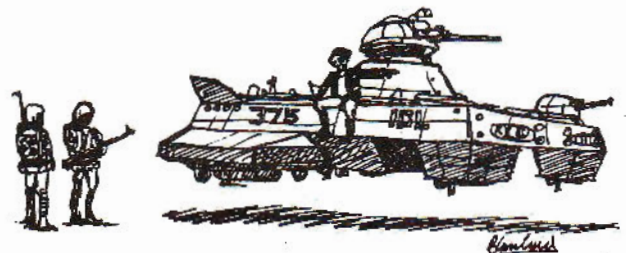
Skills

Every character is assumed to have a general range of skills necessary to survive day-to-day life in 2448. This simple, primary education is taken for granted by the GM.

As the character gains advanced education there is a choice of skill and specialization of educational area.

Skill Acquisition

Use the table of skill acquisition to pick the type of knowledge you wish your character to have. Concentrate types of skills in a specific area or have several skill areas of general experience.

Education

Skills have five different letter prefixes that designate your character's past method of learning. These include:

W	WORK EXPERIENCE	10 years
T	TECHNICAL SCHOOL	04 years
M	MILITARY EDUCATION	06 years
H	HIGHER EDUCATION	06 years
S	SELF-TAUGHT	

Choose any one letter for your character's education, then any skills with that letter prefix. Any additional Military Training allows the character to use skills with the prefix M.

Self-taught skills are the hardest way to acquire skills. These are mostly for the character who wants a special skill not in the realm of his or her education. The initial taking of a Self-Taught skill requires the use of 2 skill points. This initial cost is only for a Self-Taught skills initial generation. The development of the skill is handled like any normal skill.

Extra-Legal Skills

Extra-Legal skills are always self-taught skills. Many of these skills are beneficial to the character in many adverse situations.

Medical Skills

Medical Skills require a different process than normal skills. If you decide to become a certified doctor, go to the medical skills section after the experience tables.

Talent Bonus

Characters may have a skill or natural talent with a skill level bonus.

HOBBY / SPORTS
+1 Any 2 hobby related skills.

LONG USED SKILL / WORK SKILLS
+1 Any 1 skill in semi-constant use. This includes a +1 bonus for every 10 years of a skill used in day-to-day work.

CREATIVE TALENT (GM's Decision)
+2 Any Creative Type Skill (This may include art, writing, music, etc.)

Skill Use

Skills are an integral part of the player character. A skill is a specialized area of knowledge and training developed by your character after study and time.

Each point of skill level gives a player a +5% chance to accomplish a task relating to that skill. Levels for skills range from 0 to a maximum of 20. As a character gains experience he can develop existing skills or entirely new skills.

REMEMBER

01 Choose a primary occupational skill. Your starting level for this skill is d4 +4.
02 Choose two skills that relate or help you in this primary skill. Start the level of these skills as d4 +2.
03 Index from the player character's intelligence to find the number of additional types of skills you may choose. Try to relate these skills to your primary skills, but do not forget hobbies or special areas of interest. Start the level of these skills as a d4.
04 Add Skill Bonus for hobby or talent.
05 See Combat and Martial Arts before you finalize your decision.

Number of Skills

INTELLIGENCE		ADDITIONAL SKILLS
0	Very Slow Learner	03
01-04	Slow Learner	06
05-09	Average Learner	12
10-16	Excellent Learner	15
17-19	Fantastic Learner	19
20-21	Genius	22
22-24	More Than Human	26

Ben, Bells, & Quag

Ben's old job of PHASE DRIVE TECH was his primary skill. His two other related skills were ELECTRONIC DIAGNOSIS and ELECTRONIC REPAIR.

SKILL TYPE	SKILL LEVEL	SUCCESS PERCENTAGE
Phase Drive Technician	05	25%
Electronic Diagnosis	04	20%
Electronic Repair	03	15%
Plasti-Wood Carving	01	05%

Ben's player now chooses 15 additional skills because of Ben's intelligence of 12.

A (+1) is added to the carving skill as a hobby bonus (he likes to carve occasionally). Carving now becomes a specialized skill.

Designing Skills

Skills are what you design and make of them. In FTL 2448 the character is encouraged to pick or design his or her own varied skills with the GM's supervision. The book does not cover all possibilities.

Skill Types

ABNORMAL PSYCHOLOGY   - - H M S
     The study of deviant social behavior in
humans or aliens. Requisite (psychology)
ACCOUNTING   W - H M S
     The ordered process of keeping track of
funds earned and spent by a single source.
ADMINISTRATION   W T H M S
     The operation or directing of a government
agency or business.
AIR-SEA NAVIGATION   - T - M S
     The ability to direct the course of a boat
or aircraft with accuracy over distances.
AERODYNAMICS   - T H M S
     The study of forces acting on bodies in
air or liquid. Requisite (aeronautics)
AERONAUTICS   - T H M S
     The study of the operation of aircraft,
their use, flight, or manufacture.
AGRICULTURE   W T H M S
     The science and application of farming.
ARCHEOLOGY   - - H - S
     The study of past life and civilization as
revealed by relics left by ancient peoples.
ANIMAL HUSBANDRY   W T H M S
     The care and use of domestic animals.
ANIMAL TRAINING   W - H M S
     The behavioral training of domestic or
wild animals for a specific purpose.
ANTHROPOLOGY   - - H M S
     The science of man, his cultures, origins
and development.
AQUATIC VEHICLES TECHNOLOGY   - T - M -
     The care and repair of aquatic vehicles
and equipment. Requisite (engineering)
AQUATICS (Diving)   - T - M S
     The study and use of artificial aids to
survive underwater. Requisite (swimming)
ARCHERY TECHNOLOGY   - - H M S
     The care and use of archery-type weapons,
including design and construction.
ARCHERY   - - H M S
     Every 3 levels of archery give accuracy a
+1 in the use of bow-type weapons only.
ART, COMMERCIAL   - T H M S
     Use of art for commercial applications.
ART, DRAFTING   W T H M S
     The specific use of technical drawing for
use in industry. Requisite (related science)
ART, PAINTING   - T H - S
     Application of pigments to a surface to
form an idea or concept.
ART, SCULPTURE   - T H - S
     The creation of three-dimensional objects
to form an idea or concept.
ART, HISTORY   - - H - S
     The history and styles of art, including
painting, sculpture and other aspects.
ASTRONOMY   - T H M S
     The study of stars, planets, and phenomena
of space. Requisite (mathematics)
ASTROPHYSICS   - - H M -
     The physics of space, the operational and
theoretical mechanics and chemistry of stars
and planets. Requisite (Higher Math)

ATMOSPHERICS (Weather)   - T H M S
     The science of weather, its structure,
effects, cause, and often its prediction.

BANKING   W - H - -
     The operation of custody, loan or exchange
of currency or valuables.

BALLOON TECHNOLOGY   - - H M S
     The building, maintenance and piloting of
lighter-than-air or hot air balloons.
BARBERING   W T - M S
     Cutting hair and hair styling.
BIO-CHEMISTRY   - T H M -
     The chemistry of living things, including
analysis and practical use. (Requisite Chem)
BIOLOGY, ANIMAL   - - H - S
     The study of the general structure and
living processes of animals.
BIOLOGY, HUMAN / ALIEN   - - H M S
     The study of the general structure and
living processes of humans.
BIOLOGY, MARINE   - - H M S
     The study of aquatic life.
BLADE FIGHTING   - - - M S
     Use of this skill in combat gives a +1 to
hit per three levels of this skill (only when
knife fighting).
BLADE WEAPONS TECHNOLOGY   W - H M S
     Design and manufacture of blade weapons.
BOATING, SMALL   W - H M S
     The operation and use of small boats.
BOATING, LARGE   W T H M S
     Operation and use of larger boats or small
commercial boats with crews under 6.
BOATING, LARGE COMMERICAL   W T H M -
     Operation of large commercial freighters
with larger (25+) crews.
BOATING, SAIL   W T H M S
     The operation of sail boats.
BROKERING, COMMERCIAL   W - H - S
     The agenting of merchandise for resale.
BUSINESS LAW   - - H M -
     The branch of law that specifically deals
in business applications.

CALLIGRAPHY   W T H M S
     The art of hand lettering.
CERAMICS, CLASSICAL   W T H M S
     The design and creation of ceramics in the
form of tiles, pots, and functional shapes.
CERAMICS, INDUSTRIAL   W T H M S
     The application of Ceramics in industry
for special uses.
CHEMISTRY, GENERAL   W T H M S
     The general use of chemistry in research
or chemical analysis.
CHEMISTRY, ORGANIC   - T H M -
     The chemistry of carbon compounds, their
analysis and applications.
CHEMISTRY, INORGANIC   - T H M -
     The chemistry of non-carbon compounds.
CHILD CARE   W - H M S
     The care and feeding of children with some
emphasis on psychological and social growth.
CIVIL ENGINEERING   - T H M S
     Engineering relating to public works and
construction. Requisite (engineering)
CIVIL LAW   - - H M S
     Law relating to the public or individual.
COLD SURVIVAL   - - - M S
     The ability to survive in dangerously cold
environments.

COMMANDO TRAINING --- M S

Training to fight and survive in hostile surroundings. Every 5 levels of this skill add a +1 to hit with blade, projectile, and special weapons. This also adds 5% for any use of survival training or combat agility.

COMMUNICATIONS TECHNOLOGY W T H M S

The design, repair, and use of many types of communications equipment.

COMPUTER PROGRAMMING W T H M S

The skill of computer programming in the various computer languages.

COMPUTER OPERATION W T H M S

The operational skills of using a computer for work and specific purpose.

CORPORATE MANAGEMENT W - H - -

The ability to manage the operations of large or diversified business interests.

CORPORATE STRUCTURE W T H M -

The study of corporate management and the structure of large business.

COSMETOLOGY W T H - S

The use of artificial aids to change the structure or appearance, --often disguise.

CRIMINAL INVESTIGATION W - H M S

The investigation of illegal activities, with technical or general techniques.

CRIMINAL LAW W - H M S

The branch of law dealing with criminal defense and prosecution.

CRIMINAL SCIENCE W T H M S

The science dealing with criminal activity and techniques.

CRYPTOLOGY - - - M -

The science of encoding or breaking codes that hide information.

CRUDE WEAPONS - - - M S

The design and building of crude natural or simple technological weapons for use. This may also include traps for animals or man.

CUISINE W T H - S

The art of the alteration of food for consumption. Basic to complex cooking.

DANCING W - H - S

The art of movement (usually to music) for entertainment or social function.

DATA MANIPULATION W T H M S

Use of information storage and retrieval to find specific needed information.

DEMOLITION W T - M S

Effective use of explosives to demolish or damage structures.

DESERT SURVIVAL - - - M S

The ability to survive in hot climates, to find food, water, and shelter in areas of dangerously high temperature.

DIPLOMACY - - H M S

The art of negotiation between disagreeing parties with emphasis on peaceful resolution.

DOMESTIC TECHNOLOGY W - H - S

The management of living conditions in homes or apartments, general living skills.

DOMESTIC TRADE W T H - S

Retail and trade on the domestic scale, small scale trade.

DRAMA, THEATRE ARTS W - H - S

The art of creating the illusion of being someone else for entertainment purposes.

ECOLOGY W - H - S

The study of nature; relations between organisms and their environment.

EDUCATION - - H M -

Learning the ability to teach a subject, to make teaching effective.

ELECTRONIC DIAGNOSIS W T H M S

The ability to find problems and flaws in electronic equipment.

ELECTRONIC ENGINEERING W T H M S

The design and repair of large or small electronic equipment.

ELECTRONICS, MICRO W T H M S

The design, use, and repair of electronic sub-miniature components.

EMERGENCY MEDICAL CARE W T H M S

The ability to cope with emergency medical problems ranging from simple cuts to the resuscitation of life.

ENTERTAINER W - H - S

The skill to entertain or amuse small or large numbers of people with a talent or developed ability. Characters have a 5% chance of a natural talent that starts their talent area at (4 +d4) in skill level.

TALENT EXAMPLES

01 Voice	04 Comedy	07 Art	10 Gymnastics
02 Craft	05 Sport	08 Writing	
03 Music	06 Memory	09 Management	

ENVIRONMENTAL ENGINEERING W T H M S

Creation or design of a specific type of environment and its maintenance.

FABRICATION, METAL W T H M S

The design and creation of metal parts.

FABRICATION, WOOD W T H M S

The design and creation of wooden parts.

FABRICATION, PLASTIC W T H M S

The design and creation of plastic parts.

FASHION W - H - S

Design and construction of clothing for daily use or the creation of costumes.

FENCING - - H M S

Combat skill with foil, epee or sabre that adds a +1 on hit ability per three levels of fencing skill with these specific weapons.

FIGHTER PILOT - - - M -

The skill to fly and effectively use the weapons of fighter-type aircraft. The user is required to have a skill of (Pilot 4).

FINANCE W T H M S

The ability to manipulate sums of money for loan or profit.

FOOD PROCESSING W T H M S

The mass processing of food substances for consumption by large numbers.

FUSION TECHNOLOGY - T H M -

The design and maintenance of fusion power systems. Requisite Skills (electronics, physics, laser technology, computer)

FLUID SYSTEMS W T H M S

The technology of the motion of liquids under pressure, including plumbing, steam, or coolant. This may include waste disposal.

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FOREST SURVIVAL   - - H M S
The ability to find food and shelter in forest environments.

GEOGRAPHY   - - H M S
Science that deals with natural features, climate, and mineral products of planets.
GEOLOGY   - T H M S
Science that deals with the history of a world as shown through rock and structure.
GRENADE WEAPONS   - - - M S
Creation and use of grenade-type weapons. Includes their disarmament.
GUERRILLA TACTICS   - - - M S
Tactics for quiet subversion. Usually a small unit that fights intermittently.

GYMNASTICS   W - H M S
Long physical training and exercise that improves the overall flexibility of the body.
GLIDER TECHNOLOGY   - - H M S
The design and flight characteristics of ultra-light aircraft, glider or powered.

HEALTH CARE   W T H M S
The care of people - the prevention or general treatment of health problems.
HEAVY EQUIPMENT OPERATION   W T - M S
The ability to operate heavy industrial equipment including cranes and bulldozers.
HISTORY   - - H M S
The study of the causes and effects of past events. Sometimes a specialized area.
HORSEMANSHIP   W - H M S
The ability to ride a horse-like animal.

INTERIOR DESIGN   - T H - S
The effective design of the interior of structures, arrangement of space, and their general appearance.
INTERROGATION   - - - M S
The removal of needed information from an individual by trickery, force, or psychology.

JOURNALISM   W T H M S
Creative writing to convey information through news, story, or audio-visual means.
JUNGLE SURVIVAL   - - - M S
The ability to find shelter and food in jungle and rain forest areas.

LABOR RELATIONS   W - H M S
The ability to mediate between workers and management in a business.
LANGUAGE (Additional)   W T H M S
Several more languages may be added to the character instead of additional skills. See the language page.
LASER TECHNOLOGY   W T H M S
The building, repair, and use of lasers for many purposes. Requisite (electronics)
LAW ENFORCEMENT   - - H M -
The codes and practical use of techniques of law enforcement. Requisites (Criminal Science 4, Criminal Investigation 4, Criminal Law 1 and Martial Arts 2)
LINGUISTICS   - - H M -
The study of language and its structure, use, and history. May be specialized.
LIFESAVING   W T H M S
The ability to save lives in situations of drowning. Requisite (Swimming 4, Emergency Medical 4) See CPR in Medical

MARKETING   W T H - S
The skill of selling a product to make it competitive across a wide market.
MARTIAL ARTS   - - H M S
See Martial Arts in the Damage Section.
MATHEMATICS   - T H M S
The ability to use complex math.
MATHEMATICS, HIGHER   - - H M -
Higher math that borders on theoretical.
MECHANICAL DIAGNOSIS   W T H M S
The ability to diagnose and repair most mechanical problems in familiar equipment.
METALLURGY   - T H M -
Knowledge of metals, structure, strengths, and limitations. Requisite (chemistry)

MICROWAVE TECHNOLOGY   - T H M -
The use of microwaves for communications and industrial work. Requisite (electronics)
MOUNTAIN CLIMBING   - - H M S
The skill of scaling sheer rock faces.
MORTUARY SCIENCE   W T H M S
The science of preservation of the dead.
MUSIC TECHNOLOGY   W T H - S
The understanding of music, techniques, instrument repair, and mechanics of sound.
MUSIC PERFORMANCE   - - H - S
The ability to play an instrument of a specific type. Requisite (Music Tech. 1)
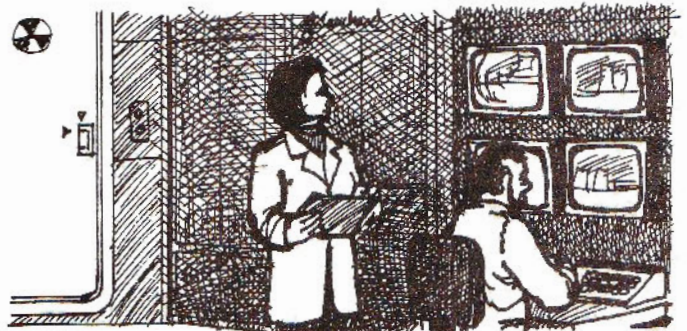
NUCLEAR PHYSICS   - T H M -
The science of the atom relating to atomic theory and applications for industrial and weapons use. Requisite (High Math 5, Physics 4, Chemistry 4)
NUCLEAR WEAPONS TECHNOLOGY   - - H M -
The use and repair of Nuclear Weapons.

NURSING   W T H M -
    This medical assistance skill aids use of
medical skills with a +5% per 5 levels.
Requisite (Emergency Medical 4, Chemistry 5,
Health Care 5 and Biology Human 4)

OCEANOGRAPHY   - T H M S
    The study of the ocean, its environments,
life, and structure.
OPTICS   - T H M S
    The science which deals with the nature
and properties of light.

PHILOSOPHY   - - H - S
    A critical study of fundamental beliefs
and the grounds for them.
PHOTOGRAPHY   W T H M S
    The use of equipment to capture images on
a sensitized surface.
PHYSICAL SURVEILLANCE   - - - M S
    To watch or spy without detection.
PHYSICS   - - H M S
    The science of natural laws of matter,
light, motion, energy, and sound.
POLITICAL SCIENCE   - - H M S
    The art or science of influencing, guiding
or taking control of a government.
PROJECTILE WEAPONS TECHNOLOGY   W T H M S
    The ability to repair and maintain a
firearm. At PWT 5 the character gains the
title of Gunsmith. This does not improve the
accuracy of the character.
PUBLIC SPEAKING   - - H M S
    The science of talking to large numbers of
people and holding their interest through use
of voice or action.

PILOT, MOTOR VEHICLE   W T H M S
    The driving of a motor vehicle. At a
level of 1 any automatic, 2 any manual, 3 any
antique, 4 any high-speed civilian vehicle.
PILOT, HEAVY MOTOR VEHICLE   W T - M S
    The driving of larger motor vehicles that
include buses, semis, and large transports.
PILOT, ULTRALIGHT AIRCRAFT   - - H M S
    The piloting of ultra-light aircraft.
PILOT, FIXED WING (PROP)   - T H M -
    The flying of prop-driven aircraft with a
requirement of two skill levels per engine
of the aircraft flown.
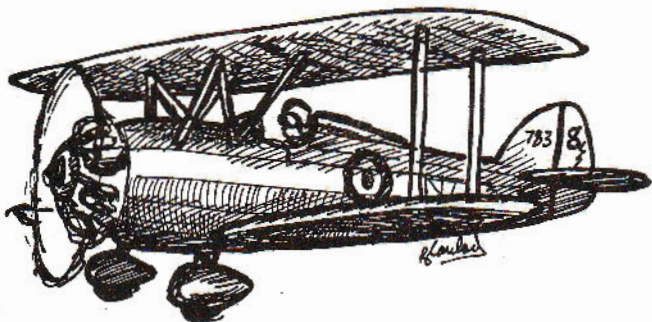
PILOT, JET   - T H M -
    The piloting of jet aircraft requires the
skills of Pilot (Fixed Wing 6) as prior
training. The user must have two levels of
Jet Pilot per engine of aircraft flown.
PILOT, ROTARY WING   - T H M -
    Piloting of helicopters requires the skill
of (Pilot, Fixed Wing 4).
PSYCHOLOGY   - - H M S
    The study of the human mind, its motives
and behavior.

RELIGION   W - H - S
    Study of man's relation to higher forces.
RETAIL SCIENCE   W T H M S
    The science of selling on the small scale.
ROBOTICS   - T H M S
    The science of robot technologies, to
design, repair, or construct.
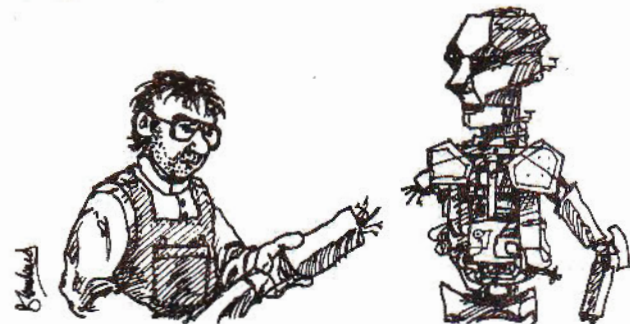
SANITATION ENGINEERING   W T H M S
    The design and maintenance of sanitation.
SECURITY   W T H M S
    The protection of man or property.
SKIING   W T H M S
    The ability to ski.
SOCIOLOGY   - - H M S
    The science of understanding societies.
SOLAR ELECTRIC TECHNOLOGY   W T H M S
    The technologies of converting sunlight to
electric power and heat.
SWIMMING   W - H M S
    The ability to move through water and
survive without drowning.
STRUCTURAL ENGINEERING   - T H M -
    The diagnosis and repair of large or small
structures, bridges, or buildings.

TAX LAWYER   - T H M -
    Branch of law dealing with taxes. From
skill levels 1 to 6 the title is CPA.
TACTICS   - - - M S
    The use of tactics gives a +5% per three
levels of skill when dealing with large
military situations.
UNDERSEA ENGINEERING   - T H M -
    Engineering under water and pressure.
UNDERSEA SURVIVAL   - - H M -
    Skill of surviving undersea mishaps.
ULTRALIGHT AIRCRAFT TECHNOLOGY   W T H M S
    The design and repair of ultralight craft.
VEHICLE REPAIR, AUTO   W T H M S
    Repair of common and uncommon problems of
motor vehicles, gas, diesel, or hover.
WEAPONS, MILITARY LIGHT   - - - M S
    The effective maintenance and repair of
light military weapons.
WEAPONS, MILITARY HEAVY   - - - M -
    The effective maintenance and repair of
complex weapon systems.

Extra-Legal Skills

EXTORTION
    Insurance that protects from violence to life or business.
ILLEGAL GAMING
    Betting or gambling outside the law.
FRAUD
    Elaborate lying to make a profit or to accomplish an illegal task.
ESPIONAGE   - - - M S
    General spying and infiltration.
ASSASSINATION
    Elimination of any intelligent life for political motive or profit.
FORGERY
    Falsifying documents.
COMPUTER CRIME
    Computer hacking for fun or profit.
SMUGGLING
    Moving contraband material past customs authorities without notice.
PICKPOCKETING
    Quiet and fast removal of objects from a victim without his or her knowledge.
ORGANIZED CRIME
    Highly organized criminal activity. This may be the Terran Mafia or any of a hundred groups or families.
INTERSTELLAR TERRORISM
    Destruction of any intelligent life or property for political recognition or gain.
TAX EVASION
    Failure to pay taxes to local government.
SLAVERY / PROCURING
    Enslavement, sale, or less than moral use of intelligent life against their will.
SAFE CRACKING
    Opening of security enclosures.
DRUG TRAFFIC
    Use, sale, and manufacture of illegal or dangerous drugs.
ARSON
    Burning or demolition for fun or profit.
KIDNAPPING
    The holding of intelligent life for ransom against their will.
COUNTERFEITING
    Production of valuables or securities for sale as originals.
PETTY THEFT
    Simple theft of small objects.
GRAND THEFT
    Theft of valuables over 500d's.
BREAKING & ENTERING
    Forcable entry into structures.
ELECTRONIC COUNTERMEASURES
    Use of electronics to foil security and communication systems.

    These skills, while not normal skills of the typical character, can be useful. A new character who is a criminal starts with three of these as his primary skills.

Space Training

    Space Training is an optional set of skills that are available to characters who wish to work, travel, or live in space.
    This intensive training course gives the character d4 +4 new skills related to space.

Start their skill levels at d4 and develop them from there. This 6 month course costs 5000 d's and may be repeated.

ALIEN CUSTOMS   W - H M S
    The ability to understand alien customs.
ALIEN PSYCHOLOGY   - - H M S
    Understanding the alien mind.
ALIEN WORLDS (d4 selected races)   - - H M -
    Close study of alien species and worlds.
COLONIAL LIFE   W - H M -
    Understanding the life and the needs of a colonist as well as their psychology.
CORPORATIONS IN SPACE   W - H - -
    History and practices of the interstellar corporations and their trade.
EMERGENCY INTERSTELLAR MEDICINE   - - - M -
    The special needs of trauma victims in a space environment.
EMERGENCY VAC SUIT REPAIR   W T H M -
    Resealing / Repair of Vac-Suits in an emergency situation. Requires Vac Suit (2)
HOSTILE ENVIROMENTS   - - - M -
    Survival in hostile environments.
SPACE LAW   - - H M -
    Laws concerning passengers, cargo, special economics, and alien legal systems.
VAC SUIT USE   W T H M -
    Use of common Vacuum Suits.
ZERO GRAV TRAINING   W - - M -
    Physical gymnastics and work in a zero grav environment. May be used for combat.

Advanced Training

    Advanced Space Training is a 1 year study course which teaches how to live aboard a starship. From this work-study program the character gains d4 +2 new skills. Roll a d4 for each new skill level. This training costs 10,000 d's to begin.

PHASE ENGINEERING or DRIVE TECH   W T H M -
    The ability to repair FTL drives.
PHASE COMPUTER   - T H M -
    Skill to repair and tune phase computers.
FUSION DRIVE ENGINEERING   W T H M -
    Skill to repair and tune fusion engines.
STARSHIP NAVIGATION   - - H M -
    Ability to navigate without a programmed destination or course aid.
SHUTTLE PILOT   - - H M -
    Skill to pilot shuttles. Requires Jet (4)
STARSHIP MANAGEMENT   W - H M -
    Starship management, economics, etc.
STARSHIP COMMAND   W - H M -
    Command decision and responsibility.
ARMOR USE   - T - M -
    Use of exploration vac suits or military style powered armor.
SHIP'S WEAPONS   - T - M -
    Weapons in space and common tactics.
EXPLORATION   - - H M -
    Laws and regulations of exploration.
ALIEN CONTACT   - - H M -
    Laws and regulations of Alien contact.

    The skills on this list may be taken later as additional skills though there is a 5000d cost for learning tapes and a d4 month time penalty to begin using the skill. Remember, once you have these skills you can develop them like any other types of skills.

Language

A character learns one language in his or her formative years. This becomes his native language. As a character gains skills he may elect to learn additional languages in place of new skills.

Bi-Lingual

Characters raised in a double language or bi-lingual environment automatically add the second language as an additional skill.

REMEMBER
01 Start your character with his native language at a level of 20.
02 Additional languages may be added as regular skills. Languages start at a level of d4.
03 Characters who are from a bi-lingual environment start their second language at a level of 16 + d4.
04 Any character who studies a foreign language or stays in a foreign language situation can gain d6 points of level in that language per year of total immersion. Immersion is the complete dedication to learning a language.
05 See the language bonus section.
06 High-tech teaching methods add a +1 to new languages after initial generation.

LANGUAGE LEVEL	DESCRIPTION	CHANCE OF COMMUNICATION
01-03	Totally Unintelligible	15%
04-06	Mostly Unintelligible	30%
07-09	Somewhat Understandable	45%
10-12	Almost Understandable	60%
13-15	Understandable	75%
16-18	Fluent	90%
19	Fluent / Can Translate	95%
20	Talks Like A Native	99%

Examples

HUMAN

		ALIEN
01 Arabic	16 Japanese	01 Arkol/Skay
02 Chinese	17 Korean	02 Barlow
03 French	18 Latin	03 Berian
04 Gaelic	19 Polish	04 Bloxian
05 German	20 Portuguese	05 Dabe
06 Greek	21 Russian	06 Falks/Poda
07 Hebrew	22 Spanish	07 Frendle
08 Hindi	23 Swahili	08 Fritzian
09 Hungarian	24 Swedish	09 Grex
10 Italian	25 Welsh	10 Hagu
11 English	26 Danish	11 Kendak
12 Turkish	27 Bantu	12 Kymnar
13 Bulgarian	28 Romanian	13 Trell
14 Czech	29 Albanian	14 Tugan
15 Norwegian	30 Icelandic	15 Vesh
	31 Terlan*	16 Whurr
		17 Zankee
		18 Zath
		19 Zumwol
		20 Uranzi

* Terlan is a technical, trade, and work language created for easy use and technical accuracy.

By 2448 computer assisted translation with small remote units is common in most cities and higher tech areas. SEE ALSO Equip. p.119

Learning

Languages are a special branch of skills that may be awarded a slightly higher skill level-rating to start. Find your character's language learning modifiers.

Education

	LEVEL START	SPECIAL BONUS
Normal Learning	d4	no
Self Teaching	1	no
Primary School Training	d4	+3
Secondary School Training	d4	+3
Higher Education Training	d4	+3
Primary + Secondary	d4	+4
Secondary + Higher Education	d4	+6
Primary + Secondary + Higher	d4	+10

Contact

	BONUS
On own world, some contact	+1
On another world, constant contact	+3
Little use of language in family	+1
Language used by family constantly	+3

Related Language

Knowing a language closely related to the new language you wish to learn gives you .25 times the level of the related language in extra skill points. This has a three point bonus maximum.

REMEMBER
01 These bonuses are for initial language generation only.
02 School training is in three stages.
   1 PRIMARY: Childrens' Basic School
   2 SECONDARY: A High School Equivalency
   3 HIGHER: College Study
03 Any of these three stages may have been skipped in the development of the character.

Ben, Bells, & Quag

As a child, Ben knew a Borcha named Jack who taught him a few words in native Borcha.

As an adult, Ben really begins to study Borcha. His starting level to begin with is 1 but because of his intermittent learning he gains a bonus of +1. With a language level of (Borcha 2), Ben can understand the word Beer and order a dinner at a Borcheese restaurant without making much of an idiot of himself as long as his translator functions.

Skill Use

Skill levels (0 to 20) are a measure of the character's ability to perform a task. Each point of skill level is worth +5% on the attempt to successfully accomplish such a task.

Difficulty ratings are the toughness of a task a player character wishes to accomplish.

All skill attempts of any importance have GM rated difficulty potential. This is the number a player must roll under on a d100 (percent dice roll).

This number for success is modified by resources available, time, and situation.

REMEMBER
01 Each point of skill is worth +5% toward your needed number.
02 Related skills from a single player can be combined for the attempt at a task under the discretion of the GM.
03 Skills cannot be combined with those from other players. The highest skill level that is available is the level used for the task attempt. Each player helping adds +1% on the final totals.
04 On the GM's decision the luck roll can be used where a percentage roll fails and falls short by one or two points.
05 An unmodified roll of a 01 on a d100 is always a success. A roll of 00 is always a crashing failure.

Difficulty Rating

The difficulty rating is the measurement of difficulty of an attempted task. It can be used for fabrication, repair, feats of agility and dexterity, etc.

DIFFICULTY RATING		PERCENT CHANCE OF SUCCESS		
01	+95%	+ (Skills %) +	optional modifiers
02	+80%	+ (Skills %) +	optional modifiers
03	+65%	+ (Skills %) +	optional modifiers
04	+35%	+ (Skills %) +	optional modifiers
05	+20%	+ (Skills %) +	optional modifiers
06	+05%	+ (Skills %) +	optional modifiers
07	0%	+ (Skills %) +	optional modifiers
08	-05%	+ (Skills %) +	optional modifiers
09	-20%	+ (Skills %) +	optional modifiers
10	-35%	+ (Skills %) +	optional modifiers
11	-65%	+ (Skills %) +	optional modifiers
12	-80%	+ (Skills %) +	optional modifiers
13	-95%	+ (Skills %) +	optional modifiers

A second use of difficulty is the general use of a player rolling under half of a character's STR, DEX, AGL, WIZ, DOD, or THR for a semi-critical situation. This can speed action when the GM is pressed for time and "fast" game continuity.

Ben, Bells, & Quag

After a week of hectic paperwork, Ben, Bells, and Quagmire are able to visit the starship the Trell owns.

As they turn the corner of the docking

umbilical they see the pitted airlock of the ship they plan to turn into a independent freighter.

As they press the cycle button to open the hatch a curl of smoke rises from the control button. Pushing the button again, Quagmire jams it solidly.

A repair is necessary. Ben's skills that relate to the project are:
        ELECTRONIC DIAGNOSIS 4 (+20%)
        ELECTRONIC REPAIR 3 (+15%)

The GM rates the difficulty of repair as a 6 or a 5% chance of success. Ben's chance to repair the airlock is 5% + his skills + any optional modifiers. Ben now has a 40% chance of success.

Ben's player now rolls a d100 with the result of a 55.

The hatch still refuses to open. Ben goes back to his apartment for tools and a repair book. In an hour he returns and adds these mofifiers to his dice roll.
        COMPLETE TOOLS   +05%
        COMPLETE INFORMATION   +10%

Now with a 55% chance of success Ben rolls a 66% and curses the manufacturer in three alien languages.

In complete aggravation Ben goes to an "Honest Abduhl's Used Parts" and purchases a standard lock replacement module for 24 d's.
        PACKAGED HOW TO KIT +15%

Now with a 70% chance of making the hatch open, Ben holds his breath and pushes the cycle button.

A 32 is rolled and the hatch opens.

"What a stench," exclaims the Trell.
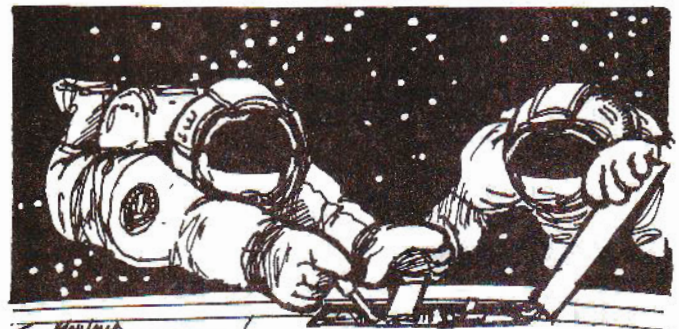
Difficulty Randomization

This chart allows for the randomization of difficulty by generating a level of difficulty from general information.

REPAIR	RATING	
Simple Repair or Fabrication	d4	
Repair or Fabrication	d4	+1
Complex Replacement	d4	+2
Complex Fabrication	d4	+3
Very Complex Replacement	d6	+3
Very Complex Fabrication	d6	+4
Speciality Fabrication / Repair	d6	+6
Unlikely Fabrication or Repair	d6	+7

AGILITY		
Easy Acrobatics	d4	
Difficult Acrobatics	d4	+2
Almost Impossible Acrobatics	d4	+4
Impossible Acrobatics	d6	+4
Unlikely Acrobatics	d6	+6
Ridiculous Stunts	d6	+7

Skill Modifiers

REPAIR / FABRICATION

		MODIFIER
01	Lack of Tools	-05%
02	Lack of Technology	-10%
03	Lack of Materials	-10%
04	Fabrication Under Stress or Combat	-05%
05	Fabrication in Hostile Environment	-10%
06	Old Parts, Undependable	-10%
07	Lack of Instructions	-10%
08	Complete Tools Available	+10%
09	Complete Information Available	+10%
10	Prepackaged "How-To" Kit	+15%
11	Familiar Design	+15%
12	Semi-Familiar Design	+05%
13	Unfamiliar Design	-05%
14	Something Never Attempted	-10%
15	More Than Three Failures at Attempt	-10%
16	More Than Six Failures at Attempt	-20%
17	Semi-Alien Design	-10%
18	Alien Design	-15%
19	Totally Alien Design	-20%
20	Archaic / Old Design	-05%

AGL / DEX Modifiers

A character's agility or dexterity may be used in the same way as a skill level to accomplish a difficult acrobatic or balance saving feat. Each point of a character's agility is worth a +5% in an attempt.

AGILITY / DEXTERITY

		MODIFIER
01	Attempt at a well-known activity while under no stress.	+15%
02	Character plans a complex action in a non-stress situation.	+05%
03	Character plans a complex action in a moderate stress situation.	- 0%
04	Character plans a complex action in a high-stress situation.	-10%
05	Action attempted for the first time without practice.	-15%
06	Character is wounded with less than half hit points remaining.	-20%
07	Character under weight burden.	-10%
08	Character under heavy or light gravity situation.	-10%
09	Character wounded in arm or leg.	-15%
10	Less than half constitution is remaining in character.	-25%

REMEMBER
These modifiers are options for the GM or players use at the GM's discretion.

Optional Modifiers

These modifiers are optional for personal difficulty. The GM may wish to use them for special situations. They can apply to most repair, fabrication, dexterity, and agility feats.

Health

		MODIFIER
01	Fresh, Healthy	+05%
02	Very Healthy	+03%
03	Healthy	+01%
04	Sick	-03%
	(character at 75% of constitution)	-05%
	(character at 50% of constitution)	-10%
	(character at 25% of constitution)	-15%
05	Tired	-05%
06	Pushed to Limit	-10%
07	Under Effects of Drugs	-10%
08	Tipsy (drunk)	-05%
09	Drunk	-20%
10	Roaring Drunk	-40%
11	Fighting Stun or Sleep Drugs	-15%
12	Under Hallucinogenics	-25%

Annoyance

		MODIFIER
01	General Annoyance	-02%
02	Continued Annoyance	-05%
03	Rampant Annoyance	-08%
04	Total Annoyance	-10%
05	Pain, Light	-05%
06	Pain, Heavy	-10%
07	Pain, Agony	-25%
08	Stun, Fast	-15%
09	Stun, Light	-25
10	Stun, Heavy	-40%
11	Forced Against Will	-05%
12	Forced at Gunpoint	-10%

The GM may create other modifiers for general use as he or she decides.

Experience

Experience points are a system of reward points for positive action in the game. With these points characters reach new plateaus of level where they are able to improve and gain skills. With each additional level chances of survival are improved by an increase in hit points.

Experience may be awarded for individual or group action. This experience is usually accumulated by the playing group as a whole and divided equally to characters who survive the game.

REMEMBER

01 Experience is the GM's decision.
02 Do not give experience for every small action that adds to the general welfare of the party.
03 Do not award experience for killing, looting, burning, or unjust mayhem by the players. Players who have their brains in their trigger fingers should be limited by Negative Experience.
04 Negative Experience is a system of not allowing a character to progress in level until a GM-set amount of new experience is returned as penalty.
05 A character can never lose experience already gained from past games.

Levels

LEVEL	POINTS		ADDITIONAL HIT POINTS GAINED	ADDITIONAL SKILL PTS. GAINED
01	100–	1000	d10	d4
02	1001–	2000	d10	d4 +01
03	2001–	4000	d10	d4 +02
04	4001–	8000	d10	d4 +03
05	8001–	16000	d10	d4 +04
06	16001–	32000	d10	d4 +05
07	32001–	64000	d10 +01	d4 +06
08	64001–	120000	d10 +01	d4 +07
09	120001–	240000	d10 +02	d4 +08
10	240001–	480000	d10 +02	d4 +09
11	480001–	730000	d10 +03	d4 +10
12	730001–	980000	d10 +03	d4 +10
13	980001–	1230000	d10 +04	d4 +10
14	1230001–	1480000	d10 +04	d4 +10
15	250,000 per level		d10 +05	d4 +10

Ben, Bells, & Quag

After minor adventures on Fomalhaut, Ben has gained a little experience.

He is a little tougher and a little more experienced in the use of his skills.

Now at first level, Ben gains the roll of a d10 to increase his hit points and a d4 more skill points to increase his levels in old skills or start new skills.

Ben's player rolls a 5 on a d10, bringing his character's hit points to 48. He then rolls a 3 on a d4 for additional skill points.

Ben decides to take a new skill, METAL FABRICATION and gives it one point. With his remaining two skill points he improves his ELECTRONIC REPAIR by 2.

Ben's skills are now:

FTL 2448

NAME _BEN WARREN_ COUNTRY _N/A_ RACE _HUMAN_
OCCUPATION _PHASE TECH_ MILITARY _N/A_ EXPERIENCE _0_ LEV _0_
WORLD _MARS_

STR _15_ INT _12_ THR _12_ PSI _N/A_ SEX _M_ HPT _48_
CON _10_ WIZ _8_ DOD _12_ HEIGHT _5'11_ AGE _34_ 75% _36_
DEX _12_ LCK _10_ ACC _11_ WEIGHT _175_ BLOOD TYPE _A+_ 50% _24_
AGL _9_ CRZ _8_ MCD _N/A_ HANDED L or (R) 25% _12_

Skills

PHASE TECH	LEVEL 5	ELECTRIC DIAG.	LEVEL 4
ELECTRONIC REP.	5 *	METAL FAB	1 *
PHASE COMP	2	VAC SUIT	2

Combat

Punch or Kick	d6
Light	2d6
Medium	3d6

Examples

	TOTAL PARTY EXPERIENCE
Exploration and Discovery	100 pts.
Outstanding Exploration	500 pts.
Reconnaissance	50 pts.
Outstanding Reconnaissance	100 pts.
Good Judgement, Sound Reasoning	200 pts.
Outstanding Reasoning, Insight	600 pts.
Outstanding Planning	550 pts.
Aiding the Needy	1000 pts.
Going Out of Their Way to Aid	1500 pts.
Risking Their Lives to Aid	2000 pts.
Outstanding Aid	3000 pts.
No use of Violence	2000 pts.
Minimal Use of Weapons	750 pts.
Effective Use of Weapons as Needed	300 pts.
Avoiding Traps / Setting Traps	400 pts.
Outsmarting a Superior Force	1000 pts.
Outfighting a Superior Force	550 pts.
Playing in Character	100 pts.
Good Group Organization	500 pts.
Good Organization After Leadership Loss	400 pts.
Dealing Peacefully with Aliens	500 pts.
Effective Use of Equipment	500 pts.
Accepting Alien Custom or Law	500 pts.
Avoiding Authorities	400 pts.
Trying to deal peacefully with hostile aliens or humans.	500 pts.

These are only examples of possible ways to gain experience. Groups who are outside the law may gain experience for the opposite reasons. This is the GM's decision.

Medical Skills

Separate from general skills are the special medical skills a character may have when he or she plays a doctor.

A character who becomes a doctor uses a separate skill generation and experience system.

REMEMBER

01 The only requisite for becoming a doctor is a minimum intelligence of 12.
02 Choose a primary medical specialty. Start this skill at a level of d4 +4.
03 Choose four other medical skills, start their level at d4 +1.
04 Choose 12 skills from the general skill table with the prefix H. Start these skills at a level of d4. A character with military training may also use the M prefix skills. New medical skills can be added with experience.

Types

ANATOMY
    The study of the structure of life.
ANESTHESIOLOGY
    The science of administering local and general anesthetics.
AUDIOLOGY
    The science of hearing.
AUTOPSY
    The science of medical examination after death to ascertain the cause of death.
BACTERIOLOGY
    The science and study of bacteria.
BEHAVIOR - MODIFICATION
    The study of the total response of a living organism to internal and external happenings. The alteration of behavior.
BIONICS / REPLACEMENT SURGERY
    The science of replacing human or alien parts with fabricated parts that serve a similar function.
BIOCHEMISTRY
    Study of the chemistry of living tissues.
BIO-PLASTIC SURGERY
    The alteration of living tissue to change its shape and general appearance
BOTANY
    The study of plants and their medical use.
BURN TECHNOLOGY
    The use of high technology to treat and repair burn damage.
CHEMISTRY
    A working knowledge of general and specialized chemistry in the lab or field.
COLONIAL / COMMUNITY MEDICINE
    The knowledge of the medical needs of a community often specialized by world.
DENTISTRY
    Science of the prevention, diagnosis, and treatment of disease of the mouth & teeth.
DERMATOLOGY
    Science of the structure, function, and diseases of the skin.

DRUG THERAPY
    The use of drugs to treat diseases and disorders over a period of time.
FREEZING / CRYO-SLEEP TECHNOLOGY
    The science and use of cold hibernation to preserve life over an extended time.
GENETICS / GENETIC ENGINEERING
    The science of heredity and variation, the engineering of traits in living things.
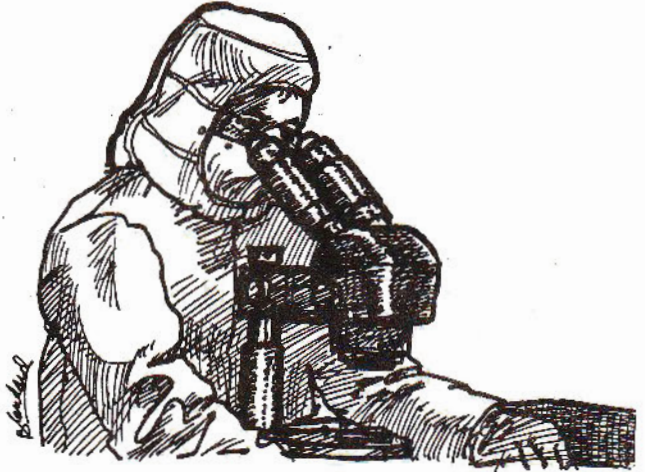
IMMUNOLOGY
    The science of dealing with the reactions of living tissues to foreign biological material.
INTERNAL MEDICINE
    Medicine that deals with the diagnosis and medical therapy of diseases of internal organs by non-surgical methods.
MICROSURGERY
    Surgical methods for correcting problems at the microscopic level that most often requires special equipment.
MEDICAL TECHNOLOGY USE
    The knowledge and the use of the latest in available medical technology and hardware.
NEUROLOGY / NEUROSURGERY
    The study of the anatomy, physiology, and pathology of the nervous system. This also includes general repair and restructuring.
OBSTETRICS
    The study and care of prenatal life, including birth and infant care.
ONCOLOGY
    The study and care of neo-plastic growths, the formation of new tissues commonly called cancers and tumors.
ORTHOPEDICS
    The branch of surgery concerned with the correction of deformities and diseases of the muscle and skeletal system.
OPTHALMOLOGY
    Science of the anatomy, physiology, and diseases of the eye.
PATHOLOGY
    The science of disease and its treatment.
PARASITOLOGY
    The study of parasitic organisms.

PHARMACOLOGY
The science of the nature and properties of drugs, particularly in their actions on living things.

PSYCHOLOGY
The science that studies the function of the mind.

PSYCHIATRY
The medical science that deals with the origins, diagnosis, and treatment of mental and emotional disorders.

REGENERATION THERAPY
The science of regenerating lost organs or limbs in humans and aliens.

RADIOLOGY
The branch of medicine that deals with the treatment of disease by radioactive substances.

SCAN TECHNOLOGY
The branch of medicine that deals with the diagnosis of injury and disease by use of special systems.

SPACE MEDICINE
The study and treatment of disease and disorders common to people working and living in space.

SURGERY
The branch of medicine dealing with trauma and diseases requiring any operative restructuring procedures.

TOXICOLOGY
The science of the nature and effect of poisons, their detection, and treatment of their effects.

VETERINARY
The study and treatment of disease and disorders of lower animals.

VIROLOGY
The study of viruses and virus diseases.

POST-OP ►
◄ SURGERY

Levels

LEVEL	POINTS		ADDITIONAL HIT POINTS GAINED	ADDITIONAL SKILL PTS. GAINED
01	100–	1000	d10	d4 +02
02	1001–	2000	d10	d4 +03
03	2001–	4000	d10	d4 +04
04	4001–	8000	d10	d4 +05
05	8001–	16000	d10	d4 +06
06	16001–	32000	d10 +01	d4 +07
07	32001–	64000	d10 +01	d4 +08
08	64001–	120000	d10 +01	d4 +09
09	120001–	240000	d10 +02	d4 +10
10	240001–	480000	d10 +02	d4 +11
11	480001–	780000	d10 +03	d4 +12
12	780001–	1080000	d10 +04	d4 +12
13	1080001–	1380000	d10 +05	d4 +12
14	1380001–	1680000	d10 +06	d4 +12
15	300,000 per level		d10 +06	d4 +12

Doctors' Abilities

RESUSCITATION
For every level of experience a doctor possesses he or she has a 5% cumulative chance to save a victim from death shock.

This resuscitation is the attempt to restart the victim's life functions after they have stopped. Each attempt takes d4 minutes. During the attempt the victim's constitution remains stable until the attempt succeeds or fails.

Roll a d100, scoring under the Doctor's "ABILITY TO RESUSCITATE" level percentage for success. This may also be taken as a separate skill.

A successful roll gives the victim a second death shock roll to survive. This procedure can be continued 6+ d6 attempts before it is no longer effective.

A second type of failure to resuscitate is where the attempts go over a maximum time. At this time the character becomes hopelessly brain damaged and useless.

CONSTITUTION	TIME TO BRAIN DEATH
0 - 02	04 minutes
03 - 08	05 minutes
09 - 14	06 minutes
15 - 18	07 minutes
19 - 22	08 minutes
23 - 26	09 minutes
27 - 30	10 minutes
31 - 40	11 minutes
41+	12 minutes

Emergency Healing

Emergency healing has a base of 5% for every level a doctor possesses.

This ability allows the doctor to repair physical damage. This ability is limited to one use per day per patient. The attempt takes d100 +20 minutes of the doctor's time.

Healing restores a limited number of hit points to the character or NPC character.

Modifiers

	REPAIR
Well Equipped Hospital	d10 +1
Poorly Equipped Hospital	d8 +1
Field Hospital	d6 +1
Adverse Conditions	d6
Lack of Equipment, Supplies	d4
Worst Possible Conditions	d4 x.50

Modifiers on situation may come from the difficulty tables in the previous section.

Doctors are an important rarity where office calls are measured in light years or where people cannot afford the services of a full time resident doctor or Auto-Doc.

Doctors gain a +1 on their charisma score when dealing with most individuals or groups.
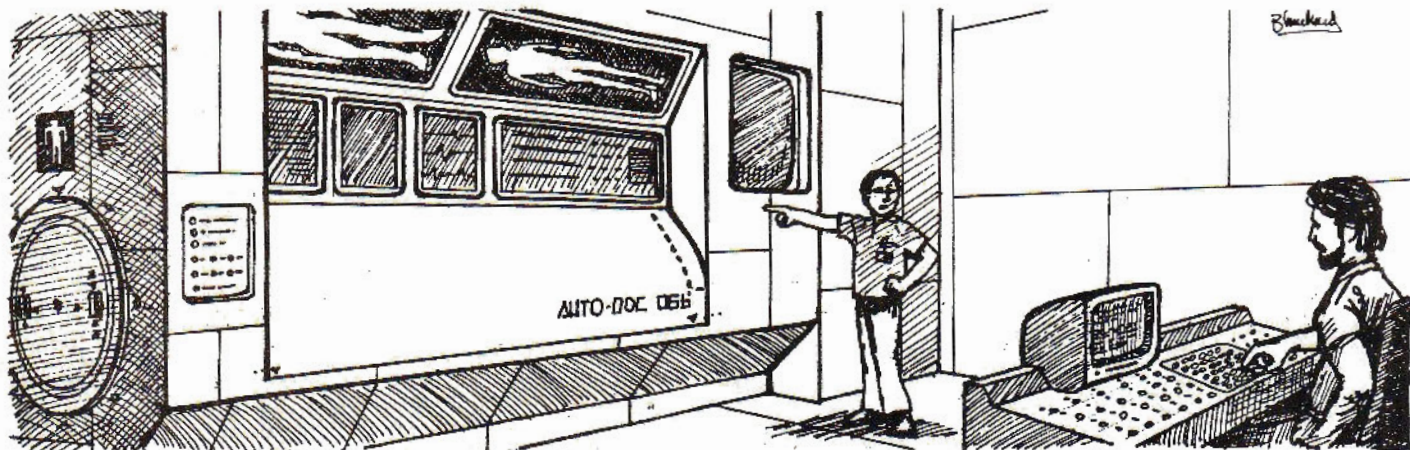
Autodoc

In 2448 medical science has progressed in many ways to near perfection in repair and replacement surgery. In many cases these mechanical doctors are far superior to their living counterparts.

The Auto Doc has six basic types.

AUTODOC TYPE	CAPABILITIES
01	A
02	A B
03	A B C D
04	A B C D E F
05	A B C D E F G H
06	A B C D E F G H I J
06b	A B C D E F G H I J K

AUTODOC SYSTEMS FOR MEDICAL AID

A General first aid, skin repair of small areas, sealing cuts, treatment of minor burns and insect bites, dispensation of low-level non-prescription drugs.
B Medical assist, blood analysis, deep cuts, stitching, antibiotics, dispensation of dietary supplements, health improvement.
C Major assistance, poison antidotes, body chemistry analysis and correction, bone repair, blood replacement, resuscitation.
D Life prolongation treatment, full medical analysis, and correction of chemical and toxin problems.
E Tissue repair of muscles and minor surgery that includes grafting.
F Cosmetic surgery, the repair of features, color, physical defects.
G Major repair surgery of internal organs, transplants, re-attachment of limbs, the limited (within 1 hour) resuscitation of dead, major restructuring of body systems.
H Simple speed healing of the body to regrow damaged tissue and organs.
I Complex reconstruction, regrowth of the internal organs, nerve re-attachment and speed healing, forced regrowth of major organs, complex transplants or replacement surgery.
J Complex reconstruction, regrowth of limbs and internal organs.
K Not commonly available. The complex gene engineering systems improve or replace defective genes in individuals before birth.

LIMITATIONS
01 The autodoc must have an analysis pack of the character being repaired or the treatments for any regrowth or speed healing are 75% fatal. An analysis pack is a full body scan that records the individual's body structure. This must be updated every 6 months.
02 The autodoc cannot regenerate brain tissue and keep the character's memory and skills intact. Brain damage is permanent or limiting to the character at the GM's decisions.
03 Tissue must exist for regeneration.

Treatment

	ANALYSIS	TIME IN
Simple First Aid	5 min.	5+ d6 min.
First Aid	5 min.	10+ d6 min.
First Degree Burns	5 min.	15+ d6 min.
Second Degree Burns	5 min.	30+ d6 min.
Third Degree Burns	10 min.	10+ d6 hrs.
Minor Surgery	10 min.	d4 hrs.
Major Surgery	15 min.	6+d10 hrs.
Bone Breakage	5 min.	4+d10 hrs.
Minor Poison	10 min.	6+d10 hrs.
Major Poison	10 min.	10+d20 hrs.
Minor Infection	10 min.	2+ d4 hrs.
Major Infection	10 min.	4+d10 hrs.
Minor Regeneration	60 min.	20+d10 hrs.
Re-attachment Surgery	30 min.	20+d20 hrs.
Replacement Surgery	10 min.	6+d10 hrs.
Transplant Surgery	30 min.	20+d20 hrs.

REGROWTH

Simple	60 min.	20+d20 hrs.
Major Organ	60 min.	100+d20 hrs.
Per Inch of Limb	60 min.	20+d20 hrs.

SIMPLE USE
d6 hours per point of damage regenerated.

AUTODOC RESUSCITATION
The autodoc system has a limited chance of resuscitation, (revival of a character) after the character has had time to decay. The list below is the number of hours the body spends before resuscitation / regeneration begins.

Less 1	94%	06-07	20%
01-02	84%	07-08	10%
02-03	70%	08-09	5%
03-04	60%	09-10	3%
04-05	50%	10-11	2%
05-06	30%	11-12	1%

Resuscitation Modifiers

MODIFIERS ON BODY PRESERVATION
```
Ice Pack        1 hr. decay per 08 hrs. time
Cold Freezing   1 hr. decay per 04 days time
CRYO-Freezing   Suspends decay of body
Drugs           1 hr. decay per d4 hrs. time
```

CAUTION: Hot or Tropical climates double
           the rate of decay and halve the
           resuscitation percentage.
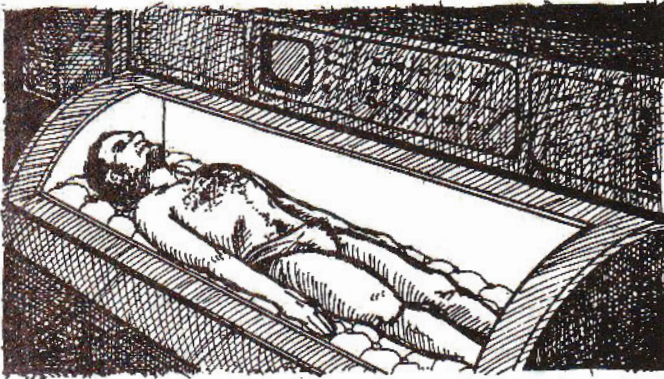
Autodoc Supplies

Any autodoc must have a complete medical
stock of 16 items and 6 program packs for use
for each race treated.

STOCK
```
01  Skin Matrix            09  Anti-Coagulant
02  Muscle Matrix          10  Anti-Venom
03  Soft Tissue Matrix     11  Anti-Toxin
04  Fluids                 12  Anti-Allergen
05  Blood Matrix           13  Anti-Carcinogen
06  Neural Regenerative    14  Anti-Biotic
07  Tissue Regeneration    15  Chemical Pack
08  Bone Matrix            16  Drug Pack
16a Life Prolongation Pack
16b Any Bio replacement or transplant packs
16c Gene Replacement Pack
```

PROGRAM CARDS PER RACE
```
01  Repair and Surgery
02  Tissue Regeneration
03  Neural Regeneration and Repair
04  Life Resuscitation
05  Life Prolongation
06  Individual's Information Pack
```
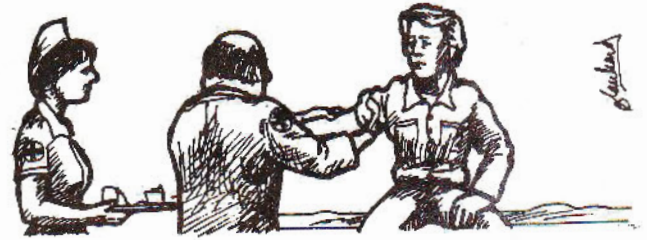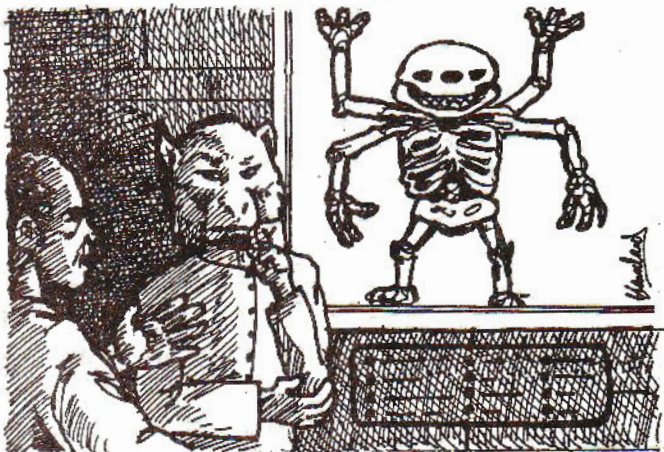

Natural Healing

Natural healing is generally the same for
all races. Index the victims constitution
to find the HPT healing rate. Add modifiers
where applicable. This rate is per 48 hours.

CON	HEALING RATE	MODIFIERS	
0	d4 x .25	Hospital Care	+1
01-02	d4 x .50	Healing Drugs	+1
03-04	d4 x .75	Complications	-1
05-07	d4	Infection	-1
08-10	d4 +1	Starvation	-1
11-14	d6 +1	Dehydration	-2
15-16	d6 +2	Proper Diet	+1
17-18	d6 +3	High Bloodloss	-1
19	d6 +4	Rest	+1
20	d6 +6	Stress	-1
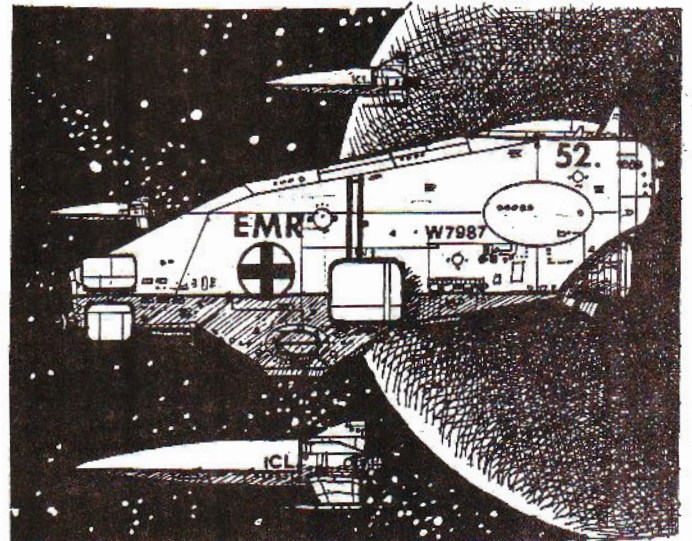
EMR Service

At most high-tech facilities a branch of
care exists specifically for space medicine
and trauma in space. These specially trained
doctors and individuals serve as EMR or
Emergency Medical and Rescue teams. With
small, fast ships, they often patrol the
frontier and colonies for a year or more to
provide health care and assistance.

EMR Starships

The normal EMR starship is packed with
specialized medical equipment and technology
found only in populated areas. The ship's
crew complement consists of (3) specialists,
(3) doctors, (6) student interns, (3) general
engineers and a ship's captain. The EMR
ships work alone or often in cooperation with
a small ICL police ship.

Damage

In FTL damage is defined as the amount of punishment a character or structure can withstand before ceasing to function.

Damage to your character may come in three forms during play.

01 WHOLE BODY DAMAGE (HBD)
This is damage from concussion, shock, and other things that affect a wide body area and reduce hit points.

02 SPECIFIC BODY DAMAGE
This damage is taken in a specific area from impact, high-velocity projectiles, contact burns, and energy. These areas have only a limited number of the body's structure or hit points. Specific damage that is over the area's total value will continue to travel through the body to exit and possibly hit a second target.

03 SYSTEMIC DAMAGE
This is continuing damage to the health of the character. Systemic damage will reduce the constitution for a critical period of time. This is mostly in the case of suffocation, poisoning, and the general or specific metabolic disruption of disease.

Many forms of damage can combine several or all of these types of damage. A laser, for example, causes burn, damage from fragments of penetrated armor and blast if it pulses.

Damage Options

FTL 2448 uses two levels of damage for play. This level of complexity is the GM's decision.

LEVEL ONE   (Fast Play)
Straight hit point reduction, ignoring all specific area damage.

EXAMPLE
Shot in the leg, Russell takes 14 points of damage, walks to the hospital, and has the damage repaired. In a few days he's out as good as new. While simple and direct, this lacks realism.

LEVEL TWO   (Recommended Play)
This level makes use of the complete medical system including specific area damage that includes bloodloss, shock, stun, and the added realism of a medical emergency.

EXAMPLE
Shot in the leg, Russell takes 14 points of damage. The bullet slices through the knee, severing an artery and splintering the bone. The bone splintering adds 5 points to the 14 already suffered and the artery wound adds d6 points per round in damage until he can stop the bloodloss.

In some ways the recommended system is a little more harsh than taking straight structure without side effects. This system is not recommended for NPC's or animals due to general detail unless the GM feels it adds realism to his or her game.

Physical Combat

Physical combat and hand to hand fighting are dependent on initiative and the player's weapon skills.

REMEMBER
01 Roll Initiative by adding a d10 to your AGL or Agility Score. Also see initiative modifiers on page 24.
02 Decide to Attack or Defend from an Attack. In a case of fighting with hand-held weapons this may be called a Parry.
03 Roll under your Dexterity to suceed with an attack or Parry.
04 Add modifiers for combat skills, a +1 per three levels of knife fighting, wrestling or related combat skill that applies to the combat situation.
05 A defender may choose to attack instead of defending, this gives the attacker a +1 on ability to hit. Optional modifiers may be used from page 46 if applicable.
06 Also see size modifiers on page 24 and Martial Arts skills on page 42. for other possible related combat modifiers.

Result

	ATTACKER	DEFENDER	RESULT
A	Fails	Fails	No Result
B	Fails	Succeeds	Defender gets the next Initiative.
C	Succeeds	Fails	Attacker Does Damage
D	Succeeds	Succeeds	No Result.

After each round of an A, C or D result, initiative is re-rolled to determine who attacks the next round. In cases where there is an agility bonus or partial extra action due to speed, the bonus is accumulated until a full combat action is accumulated and then used immediately. An example is a Frendle with a high AGL that attacks twice during a physical combat round every four rounds.

Fancy Attacks

Fancy attacks, knife, breaking bones, or special damage are found after a successful attack by rolling under the attacker's combat skill level % on a d100. Use of this gives initiative to the defender during the next combat round. See martial arts skill bonus for modifiers for characters with "like" combat skills or levels.

Combat continues until one character is incapacitated or both agree to quit.

Initiative

Initiative is speed of action of the character in a situation where physical movement is critical to the character's survival or accomplishment of a task.

Always rate the highest speed as the first action and the lesser speeds after the first.

Finding Initiative

Initiative is found by adding a d10 to your agility roll. The highest is the fastest. Use modifiers if applicable.

These may also be used as optional DEX or Dexterity "to hit" modifiers.

Modifiers

	INITIATIVE MODIFIER
SURPRISE	
Total Surprise	+5
Moderate Surprise	+2
No Surprise	0
Total Expectation	-3
HEALTH	
Wounded, Bleeding, Shock	-3
Suffering Blast Damage	-3
Stunned	-2
Sick	-1
Very Sick	-3
Critically Sick	-4
Lack of Sleep	-2
STRESS & DRUGS	
Drunk	-2
Roaring Drunk	-4
Under Heavy Medication	-2
Under Stress	-2
Under Heavy Stress	-3
OTHER FACTORS	
Distracted Momentarily	-1
Sunlight in Eyes	-1
PSYCHOLOGY	
Defending a Loved One	+1
Realizing You Don't Have a Chance	-1
Fear	+1
Stark Fear	+2
Knowing You are Morally Right	+1

Morale

Morale is the players' decision. The continued fight or retreat decision in a role playing game can only come from the players.
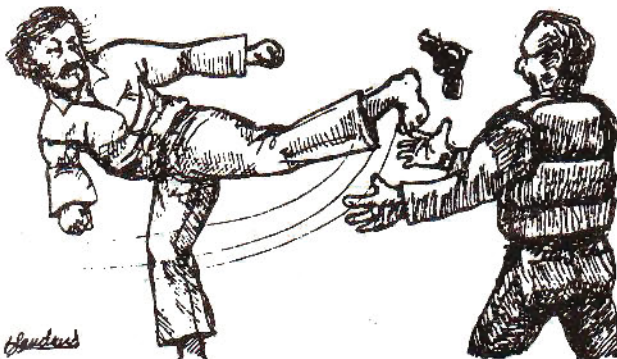
Size

Size modifiers may play an important part in physical combat. Index the attacker's size to find a combat "to hit" modifier, if any. This is only for physical combat. All sizes are listed in feet of height.

ATK = ATTACKER   DEF = DEFENDER

ATK	DEF											
	01	02	03	04	05	06	07	08	09	10	11	12
01	0	0	+1	+1	+1	+2	+2	+2	+3	+3	+3	+4
02	0	0	0	+1	+1	+1	+2	+2	+2	+3	+3	+3
03	-1	0	0	0	+1	+1	+1	+2	+2	+2	+3	+3
04	-1	-1	0	0	0	+1	+1	+1	+2	+2	+2	+3
05	-1	-1	-1	0	0	0	+1	+1	+1	+2	+2	+2
06	-2	-1	-1	-1	0	0	0	+1	+1	+1	+2	+2
07	-2	-2	-1	-1	-1	0	0	0	+1	+1	+1	+2
08	-2	-2	-2	-1	-1	-1	0	0	0	+1	+1	+1
09	-3	-2	-2	-2	-1	-1	-1	0	0	0	+1	+1
10	-3	-3	-2	-2	-2	-1	-1	-1	0	0	0	+1
11	-3	-3	-3	-2	-2	-2	-1	-1	-1	0	0	0
12	-4	-3	-3	-3	-2	-2	-2	-1	-1	-1	0	0
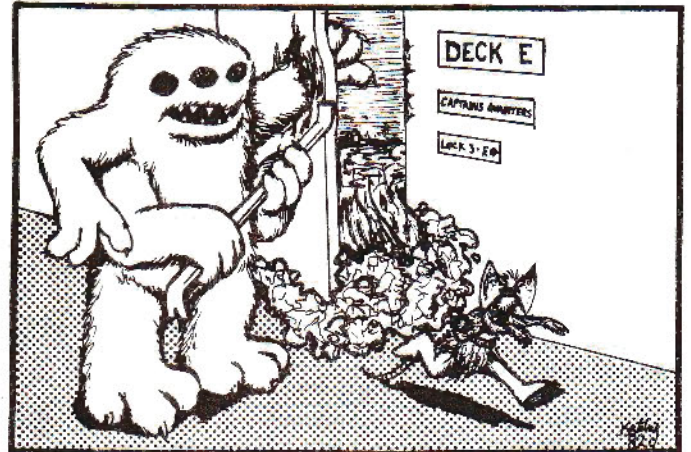
Common Sense

Common sense is your greatest modifier when working with physical combat and other game systems. Use tables and modifiers as the GM requires or as the situation demands. Do not use all modifiers for the sake of their being listed. Use what you think is necessary.

REMEMBER
01 The situation can demand simplicity or complexity in modifier use. The GM must make the decision.
02 The player has every right to demand the use of modifiers that are in his or her favor. The same goes true for the GM's use of modifiers in critical situations that relate to the life of the character.
03 Read the section fully and use a little common sense in interpatation.
04 Do not let your players bend rules to extremes.

Asphyxiation

Asphyxiation is the condition caused by a lack of breathing atmosphere by a life form.

TYPES OF ASPHYXIATION
DAMAGE PER MINUTE

TYPE	HIT POINT REDUCTION	CONSTITUTION REDUCTION
DROWNING		
Non-Panicked	d4	1
Panicked	2d4	d4
CHOKING ON FOOD OR OBJECT		
Non-Panicked	1	1
Panicked	d4	d6
CRUSHING WEIGHT		
Chest	Variable	d6
Back	Variable	d4 +01
DAMAGED OR SWOLLEN BREATHING PASSAGE		
	Variable	2
PHYSICAL STRANGULATION		
Hands	d4	d4
Rope / Cord	d6	d4 +01
Chain	d6 +01	d4
Pipe	d6 +02	d4 +02
Wire Garrote	d10	d4 +03

BREAKING STRANGULATION
ONE CHANCE PER MINUTE
INDEX ATTACKER'S / DEFENDER'S STRENGTH

	DEFENDER'S PERCENT CHANCE TO BREAK
Attacker has 6 times defender's strength	04%
Attacker has 5 times defender's strength	11%
Attacker has 4 times defender's strength	25%
Attacker has 3 times defender's strength	38%
Attacker has 2 times defender's strength	50%
Attacker and defender have equal strength	62%
Attacker has .75 of defender's strength	75%
Attacker has .50 of defender's strength	88%
Attacker has .25 of defender's strength	94%

STRANGULATION MODIFIERS

	BREAKAWAY MODIFIER
Attacker is behind victim	-20%
Attacker is in side position	+10%
Attacker is face-to-face with victim	+05%
Attacker has medical skills	-10%
Attacker has combat training	-15%
Attacker has complete surprise	-10%
Attacker has martial arts training:	
per level of attack training	-05%
Victim is combat trained	+15%
Victim is warned of the attack	+10%
Victim has martial arts training:	
per level of attack training	+05%

REMEMBER
01   Total all modifiers for a final break-away modifier, positive or negative.
02   Index Attacker's / Defender's strength to find the break percentage.
03   Add modifier to percentage and roll under this number on a d100 for a breaking of physical strangulation.
04   Wear a protective collar next time.

Atmospheric

Atmospheric damage is sustained when a character is exposed to any environment that has the wrong pressure or atmosphere mixture.

Pressure

DAMAGE PER MINUTE	HIT POINT REDUCTION	CONSTITUTION REDUCTION
Vacuum	2d10	2d10
Very Thin	d10	d6
Thin	No Damage	1
Thin Standard	No Damage	*
Standard	No Damage	No Damage
Heavy Standard	No Damage	*
Heavy	No Damage	1
Super Heavy	2d10	d6
Dense	3d10	d10

* These atmospheric pressures only affect characters who are exerting a high degree of physical action. Reduce constitution one point per minute until they rest or fall unconscious. At this time they begin to recover constitution normally.

Lung Damage

Atmospheric damage can also be sustained by breathing gasses that damage lung tissue or inhibit proper respiration.

These problems often manifest in the form of fuzzy thinking, coughing, a loss of AGL, DEX, ACC, STR, THR, DOD, and choking.

Content

DAMAGE PER MINUTE	HIT POINT REDUCTION	CONSTITUTION REDUCTION
Light Corrosive	d6	d6
Medium Corrosive	d10	2d6
Heavy Corrosive	2d10	3d6
Light Noxious	No Damage	1
Medium Noxious	No Damage	d4
Heavy Noxious	d4	d6

Noxious atmospheres are higher in:

Ammonia*	Hydrogen	Fluorine*
Methane	Chlorine*	Other Fluorides*
Cyanides	Sulfur Dioxide*	Acids

In higher concentrations many of these become corrosive and deadly to unprotected life. (*)

In some cases the wrong mixtures of common breathable gasses will also cause side effects of giddiness, dizziness, difficult respiration, unconsciousness, or death.

Protective Suits

Most normal vac and environmental suits are designed to withstand the extremes of pressure and temperature. Punctures to suits that are not resealing, allowing atmospheric entry, cause normal damage. Punctures in extremities cause half damage.

Animal Attacks

Bite

		DAMAGE
BI01	Bite, very small	d4 x.25
BI02	Bite, small	d4 x.50
BI03	Bite, medium	d4
BI04	Bite, large	d6
BI05	Bite, gigantic	d10
BI06	Adds 25% on damage because of rip or slash attack.	
BI07	Adds 50% on damage because of rip or slash attack.	

Claw

		DAMAGE
CL01	Claw, very small	d4 x.25
CL02	Claw, small	d4 x.50
CL03	Claw, medium	d4
CL04	Claw, large	d6
CL05	Claw, gigantic	d10
CL06	Adds 25% on damage because of rip or slash attack.	
CL07	Adds 50% on damage because of rip or slash attack.	

Horn

		DAMAGE
HO01	Horn, very small	d4 x.50
HO02	Horn, small	d4
HO03	Horn, medium	d6
HO04	Horn, large	2d6
HO05	Horn, gigantic	2d10
HO06	Adds 25% on damage because of impaling attack.	
HO07	Adds 50% on damage because of impaling attack.	

Sting

		DAMAGE
ST01	Sting, very small	d4 x.25
ST02	Sting, small	d4 x.50
ST03	Sting, medium	d4
ST04	Sting, large	d6
ST05	Sting, gigantic	d10
ST06	Adds 25% on damage because of impaling attack.	
ST07	Adds 50% on damage because of impaling attack.	

Pincer

		DAMAGE
PI01	Pincer, very small	d4 x.25
PT02	Pincer, small	d4 x.50
PT03	Pincer, medium	d4
PT04	Pincer, large	d6
PT05	Pincer, gigantic	d10
PT06	Adds 25% on damage because of scissors-type attack.	
PT07	Adds 50% on damage because of scissors-type attack.	

Mandible

		DAMAGE
MA01	Mandible, very small	d4 x.25
MA02	Mandible, small	d4 x.50
MA03	Mandible, medium	d4
MA04	Mandible, large	d6
MA05	Mandible, gigantic	d10
MA06	Adds 25% on damage because of puncture attack.	
MA07	Adds 50% on damage because of puncture attack.	

Paw

		DAMAGE
PW01	Paw, very small	d4 x.25
PW02	Paw, small	d4 x.50
PW03	Paw, medium	d4
PW04	Paw, large	d6
PW05	Paw, gigantic	d8
PW06	Adds 25% on damage because of high strength.	
PW07	Adds 50% on damage because of high strength.	

Hoof

		DAMAGE
HF01	Hoof, very small	d4 x.25
HF02	Hoof, small	d4 x.50
HF03	Hoof, medium	d4
HF04	Hoof, large	d6
HF05	Hoof, gigantic	d10
HF06	Adds 25% on damage because of high weight impact.	
HF07	Adds 50% on damage because of high weight impact.	

Tail

		DAMAGE
TA01	Tail, very small	d4 x.25
TA02	Tail, small	d4 x.50
TA03	Tail, medium	d4
TA04	Tail, large	2d4
TA05	Tail, gigantic	3d4
TA06	Adds 25% on damage because of high strength impact.	
TA07	Adds 50% on damage because of high strength impact.	

Tentacle

		DAMAGE
TN01	Tentacle, very small	d4 x.25
TN02	Tentacle, small	d4 x.50
TN03	Tentacle, medium	d4
TN04	Tentacle, large	d6
TN05	Tentacle, gigantic	d10
TN06	Adds 25% to damage because of crushing attack.	
TN07	Adds 50% to damage because of crushing attack.	

Other

		DAMAGE
MS01	Trunk, medium	d6
MS02	Trunk, large	d8
MS03	Trunk, gigantic	d10
MS04	Stampede, small	d10
MS05	Stampede, medium	2d10
MS06	Stampede, large	4d10
MS07	Stampede, concentrated	8d10
MS09	Kick or Butt See Strength Related Damage	
MS10	Snake Constriction See Tentacle Damage	
MS11	Full Body Impact See Strength Related Damage using Punch Damage	

To find an animal's attack damage, add the Strength-Related damage to the attack damage. Index from the type of animal for its STR.

Attack damage may be increased up to 50% by the GM for characteristically nasty types of attacks or unusual animals.

Animals

HABITAT
A Fresh Water
B Salt Water
C Rivers, Streams
D Grasslands/Tundra
E Pastures/Hills
F Forest
G Rain Forest
H Mountains
I Desert
J Cities/Suburbs
K Islands/Isolated
L Domesticated

CLIMATE
M Tropical
N Sub-Tropical
O Temperate
P Sub-Arctic
Q Artic/Antarctic

EATING HABITS
1 Herbivore
2 Omnivore
3 Carnivore

PHYSICAL
a Membrane/Skin
b Hide/Scales
c Heavy Hide/Heavy Scales
d Fat Layer
e Light Fur/Feathers

PHYSICAL CONTINUED
f Medium Fur/Feathers
g Heavy Fur
h Bony Plates/ Exoskeleton
i Shell
j Spines
k Regenerate Lost Part

BEHAVIOR
l Solitary
m Mated Pairs
n Family Group
o Herd/School/Flock
p Colonies
q Burrower
r Flyer
s Climber
t Runner
u Crawler
v Jumper
w Swimmer
x Sessile
y Migratory
z Hunter

TMP = Temper   AGL = Agility   DEX = Dexterity
TOX = Toxin   STR = Strength
INF = Information   HPT = Average Hit Points

FISH, SMALL   INF ABow
AGL	DEX	HPT	TMP	STR	TOX
14	08	10	55	02	1-10

Includes: Small carnivorous fish with teeth or beak. May sting or poison.
Damage: BIO1-BIO2

FISH, MEDIUM   INF ABcbow
AGL	DEX	HPT	TMP	STR	TOX
10	08	30	45	05	1-2 Rare

Includes: Small Shark-like species and other predatory fish.
Damage: BIO2-BIO4

FISH, LARGE   INF ABcbow
AGL	DEX	HPT	TMP	STR	TOX
08	08	100+	40	25+	1-2 Rare

Includes: Large Shark-like or Ray-like fish.
DAMAGE: BIO4-BIO6+

BIRDS   INF DEFGHIJKLMNOPQ123efmopry
AGL	DEX	HPT	TMP	STR	TOX
14	16	10+	65	3-5	-

Includes: Smaller predatory birds with a wing span to 6 feet. Often Hawk-like.
Damage: CLO1-CLO3,BIO1-BIO3

BIRDS, LARGE   INF DEFGHIJKMNOQP123fmopry
AGL	DEX	HPT	TMP	STR	TOX
13	15	20+	65	5-9	-

Includes: Condor and Great Eagle sized birds.
Damage: CLO4, BIO3-BIO5

BIRDS, FLIGHTLESS   INF DEIKMNO123flmopty
AGL	DEX	HPT	TMP	STR	TOX
12	14	40+	45	10+	-

Includes: Ostrich-like running birds up to 10 feet in height.
Damage: BIO2, Kick (see strength)

MAMMALS, SMALL   INF Most areas, Climates
AGL	DEX	HPT	TMP	STR	TOX
14	14	05	55	02	1-2

Includes: Small mammals up to the size of a small dog. Often hunters or omnivores.
Damage: BIO1-BIO3, Also slash attack. May be mildly toxic in some rare cases.

MAMMALS, MEDIUM   INF Most areas, Climates
AGL	DEX	HPT	TMP	STR	TOX
14	13	20+	40	08+	-

Includes: Mammal - like creatures up to the size of a small bear or wolverine.
Damage: BIO1-3, May have slash attack.

MAMMALS, LARGE   INF Most areas, Climates
AGL	DEX	HPT	TMP	STR	TOX
13	12	50+	50	14+	-

Includes: Great Cats, Bears, and Large Canine like animals.
Damage:BIO3-BIO6

MAMMALS, GRAZERS   INF Most areas, Climates
AGL	DEX	HPT	TMP	STR	TOX
14	10	50+	70	15+	-

Includes: Deer, Antelope, Most herd Animals.
Damage: BIO1-BIO3, Kick, Horn, Stampede, or Hoof in any combinations.

REPTILES, SMALL   INF ACEFGIKMNO123bchijklz
AGL	DEX	HPT	TMP	STR	TOX
09	10	15+	47	04	01-06

Includes: Snakes, Lizards, may include small running Dinosaurs and Turtles.
Damage: BIO1-BIO2

REPTILES, MEDIUM INF AGIKMN123cbhijklpstuvwz
AGL	DEX	HPT	TMP	STR	TOX
08	10	25+	50	06+	01-04

Includes: Larger snakes, Lizards, may include extinct Dinosaurs or running Lizards up to the size of a man.
Damage: BIO1-BIO4, Tail, Kick, Claw

REPTILES, LARGE   INF AGIKMN123chijklpstuvz
AGL	DEX	HPT	TMP	STR	TOX
07	10	75+	40	25+	-

Includes: Giant Reptiles and Dinosaurs
Damage: BIO4-BIO6, Tail, Claw, Rip or Slash

REPTILES, GIANT   INF ABCGIKMN123chijklpstuvz
AGL	DEX	HPT	TMP	STR	TOX
07	09	150+	40	50+	-

Includes: Large carnivorous Dinosaurs
Damage: BIO4 x2 Tail, Claw, Rip or Slash

INSECTS   INF CDEFGHIJKMNO123hijkprzw
AGL	DEX	HPT	TMP	STR	TOX
14	09	1	50	-	1-2

Includes: Flies, Bees, Beetles, etc.
Damage: STO1,BIO1, MAO1

INSECTS, GIANT   INF DEFGHKKMNO123ijkprz
AGL	DEX	HPT	TMP	STR	TOX
09	06	10+	50	03	1-2

Includes: Beetles and Extinct Giant Species
Damage: BIO1-BIO3, STO1-STO2,MAO1-MAO2

These listing's are generalizations for use by the GM. Use size modifiers.
Remember, animal attacks can be variable and unpredictable. Use logic and consider the animal, its habits, and general reaction to provocation.

Blade Damage

Blade damage and impact are dependent upon four factors. Each of these factors add to the damage and blade penetration. These include:

BASE DAMAGE
Indexed from the type of blade and its use or cutting action.

BLADE LENGTH
A The length of the blade in inches.
B The actual area of the blade that impacts into the target.

ATTACKER STRENGTH MODIFIER / BLADE WEIGHT
The general weight of the blade indexed to the strength of the person using it to produce a number of dice of damage when using impale or chop options.

SHARPNESS
The final damage multiplier dealing with the sharpness of the blade.

BLADE DAMAGE =

| BASE DAMAGE | + | BLADE LENGTH | + | STRENGTH & WEIGHT | x | SHARPNESS MULTIPLIER |

Blade Weight

For Strength, go to the Strength Damage table and index the strength of the attacker by the general weight of the blade. Most blades will fall into one of these general categories.

VERY LIGHT
These are the small blades and knives that have little or no weight modifiers. Index these from the PUNCH / KICK column.

LIGHT
A step up from the pocket blades are the small utility, hunting, survival, and cooking knives that are a little heavier. Index these from the LIGHT OBJECT table.

MEDIUM
These are the heavy blades, large survival knives, combat blades, and short swords. Index these larger blades from MEDIUM OBJECT in the Strength Damage table.

HEAVY
Heavy blades are the swords and larger combat weapons. Index these from the HEAVY OBJECT column of Strength Damage.

Sharpness

	DAMAGE MULTIPLIER
BLUNT EDGE	x0.25
VERY DULL	x0.50
DULL	x0.75
AVERAGE	x1.00
SHARP	x1.25
VERY SHARP	x1.50
RAZOR SHARP	x2.00

Blade Use

Blade damage is any structural harm that comes from a sharpened, edged weapon. These weapons may be as simple as chipped flint or complex as a finely balanced throwing knife.

Damage from blades depends on use by the attacker and, in more complex situations, the area hit.

USE OF BLADE WEAPONS

01	STAB	To impact, a puncture wound. d100% of blade length.
02	IMPALE	A deep, puncture wound. Up to maximum blade length.
03	CUT	A shallow, long wound. Up to d4 inches of blade used.
04	SLASH	A deep, long wound. Up to d6 inches of blade used.
05	CHOP	Impact from a heavy blade. Thickness of blade.

WTE = Blade Weight Equivlency
LEN = Length of Blade
N = User's Strength, No WTE Bonus

BASE DAMAGE BY IMPACT TYPE

BLADE TYPE	LEN	STB	IMP	CUT	SLA	CHO	WTE
Flint Blade	03"	d4	–	d4	d4	–	N
Stone Axe	04"	–	–	d4	d4	d6	L
Stone Spear	03"	d6	2d6	d4	–	–	H
Short Blade	04"	d6	d8	d6	d4	–	N
Medium Blade	06"	d6	d6	d4	d4	–	L
Long Blade	12"	d8	d8	d6	d6	d4	M
Short Sword	23"	d8	d10	d8	d8	d10	M
Sword	41"	d8	d10	d10	d10	d10	H
Great Sword	70"	d10	2d10	d8	d10	2d10	H

SPECIAL / POPULAR BLADE WEAPONS

Halberd	12"+	d8	2d10	d8	d10	2d10	H
Axe, Double	06"	–	–	d6	d10	3d6	H
Survival Kn.	14"	d8	d6	d8	d8	–	M
Razor	05"	–	–	d8	d10	–	N
Meat Cleaver	06"	–	–	d6	d8	d10	M
Bowie Knife	10"	d6	d8	d8	d8	d6	M
Rapier	35"	2d6	3d6	d6	d8	–	N
Katana	45"	d8	d10	d10	2d10	d10	M

SPECIAL / UNUSUAL BLADE WEAPONS

Star	02"	d4	–	–	–	–	N
Chain Saw	14"	2d10	4d10	2d10	2d10	3d10	H
Scimitar	36"	d6	d10	d10	3d6	2d6	H
Trench Knife	14"	d6	–	d6	d8	–	M

SPECIAL / MISC WEAPONS

Garrote	–	–	d6	–	–	N
Brass Knuckles	–	–	d4	–	–	L
Bull Whip	–	–	–	d6	–	N
Broken Bottle	d4	–	d6	d8	–	N
Cat O' Nine Tails	–	–	–	d8	–	N
Crowbar	d4	d6	–	d4	d6	H

Remember, a blade weapon impact is limited to the amount of blade surface that actually comes into contact with the victim.

EXAMPLE:
As John lunges with a 10" trench knife and hits Jack he impacts with 75% of the blade. The damage from blade length would be 75% of 10 inches or 7.5 rounded down to 7 inches.

Fire Damage

Any source of heat that damages living tissue is a burn. Burns may come from direct contact or projected energy.

Burn

	TEMPERATURE DAMAGE PER ACTION		
	HOT	BURN	HIGH TEMP
Radiant Heat	d4	d8	d10
Flashburn*	d6	d10	2d10
(chance blindness)	10%	40%	85%
(natural recovery)	90%	65%	20%

* If eyes are unshielded blindness may result from flashburns. Natural recovery is within 2d6 days.

Contact Burn

Near contact burns usually do not ignite the victim unless the burn is classified as a high temperature burn. Any high temperature burn has a 25% chance of causing a flammable object to ignite if the burn lasts more than one action.

Burn damage continues from the initial burn damage taken. Each turn the amount of damage will increase by the INCR number or .25% of the burn (whichever is more) until the fire is extinguished.

Burn Size

	TEMPERATURE DAMAGE PER ACTION			
	HOT	BURN	HI-TMP	INCR
Small Area	d4x.25	d4x.50	d4	1
Medium Area	d4x.50	d4	d6	2
Large Area	d4	d4+02	d6+02	4
Fragment Burn*	d6	2d6	3d6	

BURNING LIQUID SATURATION

	HOT	BURN	HI-TMP	INCR
Limited Spotting	d4	d6	d10	2
Saturation up to 25% body	d6	2d6	3d6	5
Saturation up to 50% body	2d6	3d6	4d6	8
Saturation up to 75% body	3d6	4d6	5d6	10
Saturation up to 99% body	4d6	5d6	6d6	14

Lung Damage

BURN DAMAGE TO LUNGS PER ACTION

	HOT	BURN	HI-TMP
Constitution Damage	d4	2d4	3d4
Whole Body Damage	d6	2d6	3d6

SMOKE INHALATION PER 30 SECONDS

	LIGHT	HEAVY	DENSE
Constitution Damage	-	1	d4
Whole Body Damage	-	-	1

* Burning fragments do the same damage as projectiles with the added ability to burn until extinguished. This includes tracers, sodium, and phosphorus projectiles.

Extinguishing Fire

Any character may assist the burning victim or object by trying to smother the fire. Each person assisting may add to the damage stopped per turn.

TYPE	EXTINGUISHES PER ACTION	DAMAGE TO RESCUER
Bare Hands	d6	d4
Roll on Ground	2d6	d4 x.50
Roll in Snow	3d6	d4 x.50
Blanket Wrap	2d6	d4 x.50
Fire Blanket	4d6	d4 x.25
Dry Extinguisher	5d6	0
Water Bucket	2d6	0
Sand Bucket	3d6	0
CO2 Extinguisher	4d6	0
Soda Acid	3d6	0
Chem Foam	6d6	0
Water Immersion	10d6	0

Electrical Damage

To find any electrical damage multiply the amperage by a d10. Index the result below.

RESULT	CHANCE OF UNCONSCIOUSNESS	CHANCE OF DEATH	HIT POINT DAMAGE
001-010	10%	5%	d4
011-020	15%	10%	2d4
021-030	20%	15%	2d6
031-040	25%	20%	3d6
041-050	30%	25%	4d6
051-060	40%	30%	5d6
061-070	50%	40%	6d6
071-080	60%	50%	7d6
081-090	70%	60%	8d6
091-100	80%	70%	9d6
101-200	90%	80%	10d6
201+	98%	98%	10d6

PHYSICAL CONTACT WITH ELECTRICAL SOURCES

01-08 Full damage, victim thrown by shock.
  09 Two actions full damage then go to 1.
  10 Victim is paralyzed to source until turned off or contact is broken.

REMEMBER

At death a victim becomes automatically unconscious. His or her constitution begins to fail at a rate of two points per minute until true death or the arrival of medical aid.

Brain Damage

Any electrical shock that kills has a chance of doing mental damage to the victim.

01-95 There is No Mental Damage
96-97 Reduce d6 mental skills one point
  98 Reduce d4 mental skills d4 points
  99 Reduce skills and statistics d4 points
  00 Reduce skills and statistics d6 points

Explosion

Objects are affected in three different ways by explosives.

Concussion   Burn   Fragmentation

CONCUSSION DAMAGE / BURN

The first type of damage from explosion is straight concussion damage. This slap of force is divided by the object or victim's distance in feet from the blast center. Burn is equal to a flashburn of the value of the explosion divided by 100.

FRAGMENTATION

The third type of damage is created by fragmentation that is deliberate or caused by material disintegration. These fragments travel with the same penetration as the force of the blast. Treat fragments as bullet wounds. Fragment velocity is divided by the victim's distance in feet from the blast.

REMEMBER

01   Divide the total points of blast damage or fragmentation velocity by the distance, in feet, from the blast.

Protection

Different circumstances will change the configuration of the blast wave and the resulting damaging slap of force.

TYPE	MULTIPLIER	TYPE	MULTIPLIER
Unprepared	Full	Mud	x.50
Prone	x.75	Sand	x.75
Shallow Hole	x.50	Debris	x.50
Deep Hole	x.25	Rock	x.25
Heavy Wall	x.50	Brush	x.75
Heavy Trees	x.25	Snow	x.75
Light Trees	x.50	Water	x.75

Ben, Bells, & Quag

On inspection of their ship, Bells and Quagmire check the arms locker.

Not knowing what the spherical object is, Quag pulls the pin. As the spoon flies away Bells slams the grenade into a disposal vent and hits the emergency exit button.

Too late, the grenade detonates in the lower section of the ship. Four hundred points of damage vaporize the transit pipe that can only take 90 points. The remaining 310 points travels 10 feet to the wall Ben is standing behind. The damage of the blast is divided by the distance to the target from the blast center in feet. The 310 points becomes 31 points of blast as they hit the wall.

The inch thick plastic wall can withstand 25 points of blast. The wall is destroyed and Ben takes the remaining 6 points as whole body damage (HBD). Ben swears again as sewage begins to flood G deck.

Exposure

Exposure to extremes of temperature will cause damage if adequate protection is not available to the character.

PROTECTION

BUFF	This is absolutely no protection.
MINIMAL	This is the lightest or least amount of clothing available.
LIGHT	This is normal summer wear and light foot protection.
MEDIUM	Light protection for cooler climates including light jacket.
HEAVY	Winter protection from cold, snow and frigid climate.
ARCTIC	Special cold protection available for survival in sub-zero cold.
VAC SUIT	Complete body protection for hostile environment and atmosphere.

Cold

	PER TWO MINUTES				
	-200	-174	-149	-124	0
	-175	-150	-125	0	+025
Buff	4d6	3d6	2d6	2d6	d6
Minimal	4d6	3d6	2d6	d6	d6x.50
Light	3d6	2d6	1d6	d6x.50	n/e
Medium	2d6	d6	d6x.50	n/e	n/e
Heavy	d6	d6x.50	n/e	n/e	n/e
Arctic	d6x.50	n/e	n/e	n/e	n/e

Heat

	PER ONE HOUR			
	+100	+126	+151	+176
	+125	+150	+175	+200
Buff	d6x.50	d6	2d6	3d6
Minimal	n/e	d6x.50	d6	2d6
Light	n/e	n/e	d6x.50	d6
Medium	n/e	n/e	n/e	d6x.50

All temperatures are given in degrees fahrenheit. Convert to celsius by subtracting (32) degrees then multiply the result by (5). Divide that result by (9).

$$\frac{((\text{Temperature F} -32) \times 5)}{(9)}$$

Falling Objects

Any object dropped on a character may cause damage. All weights listed are in lbs.

DAMAGE IN SIX SIDED DICE

OBJECT WEIGHT	HEIGHT OF FALL 10	20	30	40	50	60	70	80	90+
01- 09	0	1	1	2	2	3	4	5	6
10- 20	1	1	2	2	3	4	5	6	7
21- 30	1	2	3	4	5	6	7	8	9
31- 40	2	3	4	5	6	7	8	9	10
41- 50	3	4	5	6	7	8	9	10	11
51- 60	4	5	6	7	8	9	10	11	12
61- 70	5	6	7	8	9	10	11	12	13
71- 80	6	7	8	9	10	11	12	13	14
81- 90	7	8	9	10	11	12	13	14	15
91-100	8	9	10	11	12	13	14	15	16
101-150	9	10	11	12	13	14	15	16	17
151-200	10	11	12	13	14	15	16	17	18
201-250	11	12	13	14	15	16	17	18	19
251-300	12	13	14	15	16	17	18	19	20
301-350	13	14	15	16	17	18	19	20	21
351-400	14	15	16	17	18	19	20	21	22
400+	15	16	17	18	19	20	21	22	23

Ben, Bells, & Quag

Thinking himself safe, Ben breathes a sigh of relief just before a purification unit finishes breaking loose because of the blast. Seeing the 10 foot mass of piping and filters falling his way, he takes a second to scream as he dodges out of the way. Had he not escaped, he would have taken 15 d6 damage.

Crushing Damage

Crushing or severe structural damage to the character's head invariably kills the character.

Index the mass of the object by the height it falls from.

Roll a d100 over this percentage. If the character fails this roll, his head has been crushed and his brain destroyed.

MASS OF OBJECT	HEIGHT OF FALL 01-05	06-10	11-20	30-40
Very Light	0%	0%	02%	02%
Light	0%	02%	02%	04%
Medium	04%	06%	10%	15%
Heavy	06%	10%	15%	30%
Dense	10%	15%	30%	60%
SIZE MODIFIER				
Very Small	-10%	Chance Brain Damage		
Small	-05%	Chance Brain Damage		
Medium	0%	No Modifier		
Large	+10%	Chance Brain Damage		
Gigantic	+20%	Chance Brain Damage		

Falling Characters

When a character falls, there are two choices of fall. First is the uncontrolled, panic or surprise impact. This type of impact does full damage to the character.

The second type of impact is the no panic, controlled impact. The chance of the accomplishment of a controlled impact is rolled on a d100. The base number to roll under is 20 + Agility + one point per level of martial arts defense skill.

This controlled impact reduces fall damage by 50% (multiply damage by x.50). This ability to control fall is limited to falls under 50 feet in height.

REMEMBER
01 Roll under (20 + Agility +1pt per martial arts level) on a d100 for success.

Fall Damage

Fall damage is equal to a d10 per 10 feet of fall. A character in good physical shape can be expected to control a 10 foot fall, under most circumstances, with no damage and should not bother with a fall damage roll.

High gravity worlds can create dangerous situations where short distances of fall can become multipliers for damage. Example: A character from a 1.0 gravity world falls 20 feet on a 1.5 gravity world. He or she will take the equivilency of a 30 foot fall or 1.5 times the normal damage. Use 25% increments or whole number multipliers. Use modifiers for CONTROL, and IMPACT SUBSTANCE.

TYPE	MODIFIER	TYPE	MODIFIER
Water*	x.25	Debris, Small	x.50
Mud	x.50	Debris, Medium	x.75
Damp Earth	x.75	Branches, Light	x.75
Sand	x.50	Branches, Dense	x.50
Gravel	x.75	Coniferous	
Dry Earth	n/a	Branches	x.50
Swamp	x.50	Partial	
Spongy Plants	x.50	Parachute	x.50

* Every (100) feet of fall reduces the waters cushioning by 25% until it becomes a damage multiplier.

Ben, Bells, & Quag

Knowing Ben is in trouble a few decks below, Bells jumps into an elevator to take her to the scene of the accident. As she reaches for the buttons she realizes the elevator is little more than a hollow shell with no floor and a 40 foot drop.

Bells will impact with 4d10 in damage unless she can control her plunge. Her base percentage is 20 + her Agility of 16 + her martial arts ability of 3 (3%) in active defense. She must roll under a 39% on a d100 for success.

Rolling a 44% on a d100, Bells slams into the top of the elevator car and takes 19 points of Whole Body Damage.

BONE BREAKAGE
Bone breakage may be found as a percentage equal to 1% chance per every 5 feet of fall.

The number of bones broken are (4d -1) per 50 feet of fall. Randomize from Body Tables.

Radiation Exposure

In cases of radiation exposure multiply the intensity of the radiation by the time the character spends in the area.

PERCENTAGE OF HOUR IN HOT AREA	RADIATION MULTIPLIER
01-05 Minutes	0.06 Accumulation
06-10 Minutes	0.12 Accumulation
11-15 Minutes	0.25 Accumulation
16-30 Minutes	0.50 Accumulation
31-45 Minutes	0.75 Accumulation
46-60 Minutes	1.00 Accumulation

RADS/HOUR ACCUM.	HIT POINT DAMAGE PER HOUR	CONSTITUTION REDUCTION PER HOUR	STRENGTH REDUCTION PER HOUR
0- 100	0	0	0
101- 150	0	d4 x.25	0
151- 200	d4 x.25	d4 x.50	0
201- 300	d4 x.50	d4 -1	0
301- 400	d4	d4 -1	d4 x.25
401- 500	d6	d4 -1	d4
501-1000	d10	d4	d4
1001-2000	2d10	d6	d4
2001-4000	4d10	d8	d6

DEFINITIONS
RADS
  The intensity of the radiation.
DAMAGE
  The hit point damage a character suffers per hour while exposed to radiation.
CONSTITUTION REDUCTION
  The loss of constitution per hour indexed by the amount of exposure in rads.
STRENGTH REDUCTION
  The loss of strength per hour after being exposed to radiation.

REMEMBER
01 Radiation exposure is accumulated.
02 Every hour after exposure the total accumulated radiation level drops by 3d10 +3 points. This is the ability of the character to recover from exposure.
03 At higher levels of exposure the victim begins to take constitution and strength damage until the level of exposure drops to safer levels.
04 Specialized hospital care and treatments can double the accumulation reduction per hour. At exposures of 500 rads or above, the character's natural constitution regeneration and hit point healing stops.

At high rad doses, characters experience nausea, shaking, vomiting, high temperature, convulsions, and death.

RADIATION SHIELDING
  Shielding is any form of material that protects from radiation hazard. Multiply the final radiation exposure by the material used for shielding. In cases of * multiply the final result by .25 a second time.

Light Vehicle	x.75	Light Rad Suit	x.25
Heavy Vehicle	x.50	Heavy Rad Suit*	x.25
Armored APC	x.25	Stone*	x.25
Earth (3 feet)	x.25**	Building	x.25

Strength Related Damage

Index the strength of the attacker by his or her action to find damage to the victim.

Complete surprise by the attacker gives full damage with no modifiers. Non-surprise and face-to-face situations allow the victim a dodge action.

ATTACKER STRENGTH	PUNCH or KICK	LIGHT OBJECT	MEDIUM OBJECT	HEAVY OBJECT
01-05	d6x.25	d6x.50	d6	2d6
06-10	d6x.50	d6	2d6	3d6
11-20	d6	2d6	3d6	4d6
21-30	2d6	3d6	4d6	5d6
31-40	3d6	4d6	5d6	6d6
41-50	4d6	5d6	6d6	7d6
51-60	5d6	6d6	7d6	8d6
61-70	6d6	7d6	8d6	9d6
71-80	7d6	8d6	9d6	10d6
81-90	8d6	9d6	10d6	11d6
91-99	9d6	10d6	11d6	12d6

Light Object	Broom Handle, Small Stone
Medium Object	Baseball Bat, Large Rock
Heavy Object	Lead Pipe, Tire Iron

REMEMBER
01 Strength damage is controllable by the attacker. Attackers can use any level of strength under their own to base damage from. This allows a character to "pull a punch", lessen damage, and not kill a victim.

Throw

The distance an object may be thrown is dependent on many factors. The following is a generalization of object weight and distance that it can be thrown.

GENERAL DISCRIPTION	WEIGHT	DISTANCE IN FEET
Grenade	8 oz.	140
Grenade	12 oz.	120
Grenade	18 oz.	110
Grenade	24 oz.	100
Iron Sphere	2 lb.	90
Iron Sphere	4 lb.	75
Iron Sphere	8 lb.	50
Iron Sphere	16 lb.	45

You can add 10 feet for every three levels of single, separate skill that relates to the characters ability to throw. You can also add +10 feet of distance for every 5 points of STR in excess of 15.

Starvation

To survive, any life form must consume a determined amount of food and water.

In situations where intake is low or non-existent, a character begins to burn food and water reserves. When reserves reach 0 the character begins to take daily damage from starvation and dehydration.

Reserves

WATER POINTS
Constitution +20 points for a normal individual. Add 1 point for every pound overweight.

FOOD POINTS
Constitution +20 points for a normal individual. Add 2 points for every 10 pounds overweight.

POINTS NEEDED FOR DAILY SURVIVAL

ACTIVITY	FOOD POINTS	WATER POINTS	
Strenuous	28	160	2.0 gal.
High Activity	25	120	1.5 gal.
Normal Activity	20	80	1.0 gal.
Low Activity	15	40	.5 gal.
No Activity	10	20	1.0 qt.

REMEMBER
01 Reduce the character's food and water reserve d6+1 points whenever their daily requirements are not met.
02 At water reserve 0 the character begins to take damage in the form of 1 point constitution and d4 hit points per day.
03 At food reserve 0 the character begins to take d4 hit points per day.
04 Constitution and hit points do not regenerate during periods of water and food deprivation.
05 Restoration of food and water restart the character's regenerative abilities.
06 Reserves are replenished by over-supply of food and water requirements at a rate of d10 points per day.
07 Hotter climates accelerate this loss.

Modifiers

CLIMATE TYPE	TEMPERATURE FAHRENHEIT	CONSTITUTION LOSS	HIT POINT LOSS
Hot	85- 95	x1.00	x1.00
Very Hot	96-105	x1.50	x1.50
Blistering	110-125	x2.00	x2.00
Burning	125+	x3.00	x3.00

EFFECTS OF DEHYDRATION / STARVATION

25% Con Loss:	Nausea, Headache
50% Con Loss:	Giddiness, Hallucinations
75% Con Loss:	Failing Strength
98% Con Loss:	75% Chance Unconsciousness

See the next column for food values. These tables are designed for average human types.

Food Types

TYPE	VALUE	TYPE	VALUE
Apples	2.0	Noodles	2.0
Apricots	0.5	Nuts	4.0
Asparagus	0.5	Olives	0.1
Bacon	1.0	Olive Oil	0.5
Bakery Mix	0.5	Onions	0.5
Barley	1.0	Oranges	0.5
Beans	1.5		
Beef	3.0	Pasta	2.0
Beets	0.5	Pasta, Enriched	3.0
		Peaches	0.5
Candy	1.0	Peanut Butter	1.5
Carrots	0.5	Pickles	0.2
Cat Food	1.0	Pie Filling	1.5
Catsup	0.2	Pineapple	2.0
Cereal	1.0	Plums	0.5
Cheese	2.0	Pork Chops	3.0
Chewing Gum	0.1	Potato	1.2
Chicken	2.0	Peas	1.0
Chile	2.5	Pears	1.0
Chocolate	1.5	Prunes	0.5
Cocoa	1.0		
Coconut	1.5	Raisins	1.0
Coffee	0.1	Rice	2.0
Cookies	1.5		
Corn	2.0	Salad Dressing	0.7
Crackers	0.5	Salad Oil	0.6
		Salmon	1.0
Cranberrys	0.7	Sauce, Meat	0.3
Cream	0.7	Sardines	2.0
Cream (chem)	0.1	Sausage, Pork	1.5
		Shortening	0.5
Dessert Gel	1.5	Shrimp	2.0
Dog Food	1.0	Soup	1.5
		Spaghetti	3.5
Eggs	1.0	Spinach	0.5
		Starch	1.5
Fish	1.7	Sugar	0.5
Flour, Wheat	0.5		
Flour, Rye	0.7	Tea	0.1
Frankfurter	2.0	Tomato	0.3
Fruitcake	0.5	Tuna, Water Pak	1.5
Fruit, Candied	1.5	Tuna, Oil Pak	2.0
Fruit Cocktail	2.0	Turkey	2.0
Gelatin	0.5	Vinegar	0.5
Grapes	0.5	Yeast	0.5
Ham	2.5	Wild Game	2.5
Hamburger	2.0		
		Beer	1.5
Ice Cream	3.0	Hard Liquor	1.0
		Wine	1.0
Jam, Fruit	0.5	Soda Pop	0.5
Jelly, Fruit	0.4		
		SURVIVAL RATIONS	
Lard	1.5	Wholesale	12.0
Lemon	0.5	Corporate	12.0
Lunch Meat	1.0	Survival	15.0
		ICL Survival	20.0
Macaroni	2.0		
Margarine	1.0	FRESH FOOD BONUS	
Marmalade	0.6	Add a +.02 to any	
Marshmallow	1.0	food values that are	
Mayonnaise	1.0	fresh.	
Milk	1.5		
Molasses	0.5	CANNIBALISM	
Mustard	0.1	Adult	2.0
Mushrooms	0.1	Child	2.2

Vehicle Impact

Index the MPH speed of the vehicle and multiply the result by 2. Index this vehicle rate to find the damage to the character. A controlled impact modifier can be used in the same way as a controlled fall modifier. See the Impact tables for information.

VEHICLE RATE	HIT POINT DAMAGE	BONE BREAKAGE	BONES BROKEN
0-025	d10	10%	d4x.50
026-036	2d10	20%	d4 -01
037-050	3d10	40%	d6 -01
051-075	4d10	80%	d8 -01
076-100	5d10	85%	d10 -01
101-200	2x5d10	95%	2d6 -02
201-300	3x5d10	98%	4d6 -04
301-400	4x5d10	98%	6d6 -06

Randomize the bones broken by using the body charts and the bone damage table.

For damage to passengers involved in vehicle collisions, index the MPH of the vehicle and add modifiers for vehicle and restraint.

Modifiers

VEHICLE SIZE	CONSTRUCTION TYPE	DAMAGE MULTIPLIER
Compact	Fragile	x2.00
Midsized	Fragile	x1.50
Fullsized	Fragile	x1.00
Compact	Semi-Tough	x1.50
Midsized	Semi-Tough	x1.00
Fullsized	Semi-Tough	x0.75
Compact	Tough	x1.00
Midsized	Tough	x0.75
Fullsized	Tough	x0.50

Passengers

VICTIM IN REAR SEAT	MULTIPLIER
Unrestrained	x1.00
Lap Belt	x0.75
Shoulder Belt	x0.50
Impact Device	x0.25

VICTIM IN FRONT SEAT	MULTIPLIER
Unrestrained	x1.25
Lap Belt	x1.00
Shoulder Belt	x0.75
Impact Device	x0.50

OTHER MODIFIERS
On Impact Side of Vehicle	x1.50
Vehicle Rolls 1-2 Times	x1.50
Vehicle Rolls 3-5 Times	x2.00
Impact, Unyielding Object	x2.00
Protective Interior Padding	x0.75
Heavy or Padded Clothing	x0.75

HEAD-ON IMPACT

In head-on vehicle impacts total the speed of both vehicles together. This is the MPH to index for damage in this particular type of crash.

Pedestrians

The HPT damage from vehicle impact on unprotected life can be modified by many factors, some controllable by the victim.

SURPRISE: The pedestrian takes damage from the vehicle, as if it were travelling at twice the current speed / MPH rating.

MODERATE SURPRISE: The victim has a moment to realize he or she is about to be hit by a car. Damage is taken as if the vehicle was traveling at 1.50 times its present speed.

NON-SURPRISED: The victim takes standard damage and bone breakage percentages as he or she has a moment to move or change position before the shock of impact.

PREPARED: In this case the victim has a chance to roll with the impact or dodge in the hope of limiting the damage taken. This works much the way of a controlled fall. A successful use of being prepared will give the character a damage multiplier of (.75).

Run-Overs

Most serious of the vehicle impacts on unprotected life is the run-over. While most vehicle impacts throw a victim d6 feet per 10 MPH of speed, there is the small chance the victim may be dragged under the vehicle to suffer devastating structural damage. Index victim's posture by the vehicle's point of impact.

Posture

	VEHICLE FRONT	VEHICLE SIDE
Standing	10%	05%
Kneeling	15%	07%
Crawling	25%	10%
Prone	40%	12%

Result

Roll a d100 on the special table below to determine the effect of the run-over on the victim. Do not use for air or hover vehicles.

01-50	Victim Run-Over Effect: Multiply damage by 1.25
51-75	Victim Suffers Multiple Wheel Impact Effect: Multiply damage by 1.50
76-85	Victim Dragged by Vehicle Effect: Multiply damage by 2.0
86-95	Multiple Wheel Impact, Dragged Effect: Multiply damage by 3.0 with a 40% chance of a lost or crushed limb.
96-98	Impact, Dragged, Mangled Effect: As 86 with a 65% chance of d4 limbs being lost or crushed.
99-00	Head Destroyed Effect: Instant death.

Car Combat

For car-to-car combat we recommend use of the game CAR WARS by Steve Jackson Games and the reading of Autoduel Quarterly #3 "Chassis & Crossbow".

Toxins

Toxins and poisons are any material ingested, inhaled, or contacted, that do 3 possible types of damage.

DAMAGE

A CAUSTIC TO TISSUES
Does d4 points of damage per level of toxin, per hour, until it is neutralized. Affects hit points.

B NEURAL TOXINS
Any substance that slows or damages nervous function in living tissue. Affects constitution.

C HEMOTOXINS
Any substance that impairs or damages the blood transport system.

Each poison listed has an assigned or a variable toxic level. This level is the damage to Hit Points or Constitution per hour. This continues until the victim passes through the critical period of poisoning.

TOXIN RATING		CONSTITUTION REDUCTION PER HOUR	
01	d4 x.25	06	d6 +01
02	d4 x.50	07	d6 +02
03	d4	08	d6 +03
04	d4 +01	09	d6 +04
05	d6	10	d6 +06

REMEMBER

01 Roll damage once per hour until the poison passes its critical stage.

02 Poison antidotes for general types of poisons reduce the loss of hit points and constitution by d4 points per hour in the critical phase.

03 Specific poison antidotes reduce hit point and constitution damage by d10 points per hour in the critical phase.

04 Specific toxin antidotes only affect specific types of poisoning. The wrong antidote type has no effect. It takes one hour per antidote test.

05 After the critical hours have passed the victim begins to recover normally.

06 Toxins may have lingering side effects or lengthy recovery periods.

Toxin Types

ANIMAL POISONS
Rating 01-08 Critical Time 4d6 hrs.
Effect Any Symptoms a b c d e g h m
(stings, bites, and contact toxins)

PLANT POISONS
Rating 01-10 Critical Time 4d6 hrs.
Effect Any Symptoms a b c d e f g h i j
(mostly ingested plant toxins)

MISCELLANEOUS PESTICIDES
Rating 01-06 Critical Time 3d4 hrs.
Effect B Symptoms g h
(damages respiration)

RODENTICIDES
Rating 01-06 Critical Time 3d8 hrs.
Effect B Symptoms g j
(damages heart)

NITROGEN COMPOUNDS
Rating 01-08 Critical Time d6 hrs.
Effect C Symptoms a b l m k
(damages blood / respiration)

HALOGENATED HYDROCARBONS
Rating 01-10 Critical Time d4 +01 hrs.
Effect C Symptoms a b c d e g h i
(damages heart)

ALCOHOLS AND GLYCOLS
Rating 01-04 Critical Time 3d4 hrs.
Effect B Symptoms a b c d g h
(drinkable alcohol, rates 1 at 80 proof, 2 at 151 proof and 3 in pure ethyl form)

ESTERS, ALDEHYDES, KETONES
Rating 01-10 Critical Time 2d4 hrs.
Effect A Symptoms b c k g l m
(damage to tissues)

HYDROCARBONS
Rating 01-08 Critical Time 3d6 hrs.
Effect A Symptoms a b c f g m
(damage to tissues)

CORROSIVES
Rating 01-10 Critical Time 3d6 hrs.
Effect A Symptoms c m
(damage to tissues)

METALLIC POISONS
Rating 01-10 Critical Time 3d6 hrs.
Effect C Symptoms a b e h j m
(damage to circulatory system)

CYANIDES, SULFIDES
Rating 01-10 Critical Time 2d6 hrs.
Effect B Symptoms a b c e h k
(damage to central nervous system)

ANESTHETICS
Rating 01-06 Critical Time 4d6 hrs.
Effect B Symptoms a e j g
(impairs respiration)

DEPRESSANTS
Rating 01-08 Critical Time 4d6 hrs.
Effect B Symptoms a g i o
(impairs respiration)

AMPHETAMINES
Rating 01-06 Critical Time 4d6 hrs.
Effect B Symptoms b e i j k l o

Symptoms

a	Nausea	i	Coma
b	Headache	j	Muscle Tightness
c	Vomiting	k	Confusion
d	Cramps	l	Dizziness
e	Tremors	m	Pain
f	Diarrhea	n	Fatigue
g	Difficult Respiration	o	Visual Impairment
h	Convulsions		

These toxins are generally effective on humans and animals though individuals may have a slightly better or weaker resistance to damage and differing critical times.
Toxin effects are the decision of the GM.

Disease

This set of tables deals with infection, the pathological effect on characters exposed to viral and bacterial life.

SEQUENCE OF INFECTION

01 Roll severity of infection on a d100.
02 Roll incubation of infection on a d10, consulting the time table.
03 Roll length of symptoms on the time table. Use a d10.
04 Generate symptom number and type.
05 Check for Critical Infection.
05b Generate time critical symptoms appear by rolling a d10 on the time table.
06 Roll length of critical phase on time. Roll a d6 for this time.
07 Roll chance recovery hourly during the critical phase until the infection breaks.
08 Roll recovery time if infection breaks and the character survives.

SEVERITY OF INFECTION		SYMPTOMS			CRITICAL	
		AB	CD	E	%	F
01-25	Light	d4	no	no	no	no
26-50	Medium	d4	d4	no	no	no
51-75	Heavy	d4	d4	d4	03%	no
76-95	Serious	d4	d4	d4	50%	no
96-98	Dangerous	d4	d4	d4	85%	any
99-00	Terminal	d4	d4	d4	98%	d4

The critical % is the chance an infection will go to a critical phase where death could occur. Randomize the symptom's types from the tables in the next column.

TIME IN DAYS AND HOURS

01	d6 +04 Hours		06	03 Days +2d10 Hrs.
02	d6 +06 Hours		07	04 Days +2d10 Hrs.
03	d6 +10 Hours		08	05 Days +2d10 Hrs.
04	01 Day +2d10 Hrs.		09	06 Days +2d10 Hrs.
05	02 Days +2d10 Hrs.		10	10 Days +2d10 Hrs.

During critical illness constitution and hit points do not regenerate.

Constant medical care can restore d4 points of constitution per four hours during treatment of an infection.

Disease and infection can be generated by randomization or specific type.

Fighting Infection

As a character enters the critical phase of a disease he, she, or it begins to roll on the Critical Recovery table in the hopes of breaking the grip of the infection.

REMEMBER
01 Total all Health Modifiers.
02 Roll a d20 every two hours to lose or gain constitution as the victim fights the infection.
03 At the end of the critical phase the character will automatically break the infection and begin a normal recovery.
04 Constitution gain does not rise above the character's original score.
05 A Doctor can aid with a +1 per three levels of skill. General medical skill adds +1 per five levels of skill.

DRUGS		MODIFIERS
01	Use of Proper Drugs	+02
02	Use of Almost Proper Drugs	+01
03	Use of Wrong Drugs	0
04	Use of (Allergic) Drugs	-01
05	Use of (Highly Allergic) Drugs	-03
06	Compounding Use of Different Drugs	-02

CONDITIONS		MODIFIERS
01	Lack of Heat / Chill	-02
02	Damp or Wet Area	-02
03	Lack of Sanitation	-01
04	Lack of Professional Health Care	-01
05	Less Than Half Hit Points	-01
06	Less Than .25 of Hit Points	-02

Critical Time

01	Character Loses	2d4	Constitution
02-03	Character Loses	d4+1	Constitution
04-06	Character Loses	2	Constitution
07-08	Character Loses	1	Constitution
09-12	Character is Stable		
13-14	Character Gains	1	Constitution
15-17	Character Gains	2	Constitution
18-19	Character Gains	d4+1	Constitution
20	Infection Breaks, Begin Recovery.		

Each of the diseases listed has a standard survival percentage usable for NPCs or the infected victims.

Blood Type

An option for player characters is the generation of blood type. Roll a d100

RESULT	TYPE	RESULT	TYPE
01-45	O+	81-93	B+
46-50	O- *a	94-95	B-
51-74	A+	96-99	AB+
75-80	A-	00	AB- *b

TRANSFUSION of blood to the wrong match of blood type will result in bloodclotting and death. The transfusion of the wrong "Rh" factor will cause a d100% chance of death due to bloodclotting or kidney / liver problems.
(*a Universal Donor, can give to any type)
(*b Universal Recipient, can take any type)

Symptoms

TABLE A
Roll a d20

01 No Symptoms
02 Mild Gastritis
03 Loss of Balance
04 Fever +d4 Degrees
05 Hypersensitivity
06 Blocked Sinus
07 Loss of Appetite
08 Skin Color Flush
09 Mild Stomach Cramps
10 Sore Throat
11 Muscle Stiffness
12 Light Sensitivity
13 High Thirst
14 Watering Eyes
15 Abnormal Feeling
16 Migraine Headache
17 Sound Sensitivity
18 Shortness of Breath
19 Appetite Increase
20 Irritability

TABLE B
Roll a d20

01 No Symptoms
02 Awful Feeling
03 Dizziness
04 Sweating
05 Itching
06 Nose Bleed
07 Hiccups
08 Drowsiness
09 Insomnia
10 Depression
11 Shakes
12 Mild Rash
13 Irritation
14 Weakness
15 Aches
16 Red Eyes
17 Headache
18 Tingling
19 Numbness
20 Fainting

TABLE C
Roll a d10

01 Lung Congestion
02 Swelling in Joint
03 Fever +d6 Degrees
04 Bleeding, Eyes/Ears
05 Extremity Numbness
06 Internal Swelling
07 Blurred Vision
08 Intense Cramps
09 Lack of Coordination
10 Incapacitating Cramps

TABLE D
Roll a d10

01 Vomiting
02 Boils
03 Diarrhea
04 Ulcerations
05 Convulsions
06 Hair Loss
07 Mental Lapse
08 Tremors
09 Choking
10 Dehydration

TABLE E
Roll a d10

01 Open Sores
02 Loss of Hearing
03 Loss of Sight
04 Paralyzation
05 Fever +4d4 Degrees
06 Hallucinations
07 Glandular Failure
08 Major Loss of Weight
09 Internal Bleeding
10 Lung Collapse

TABLE F
Roll a d10

01 Kidney Failure
02 Coma
03 Liver Failure
04 Heart Failure
05 Mental Problems
06 Digestive Failure
07 Muscle Breakdown
08 Bloodclotting
09 Leukemia
10 Hemophilia

Transmission

TRANSMISSION OF DISEASE
    Roll a d100 for a percent chance of the agent infecting the victim who contracts it.
    This becomes the future percentage of an alien race contracting the disease.

TRANSMISSION		TYPE INFECTING AGENT	
01	Animal Vector	01-30	Virus
02	Insect Vector	31-80	Bacteria
03	Airborne	81-82	Parasite
04	Waterborne	83-00	Multicellular
05	Food Material		Organism
06	Plant Vector		
07	Contact With Other Victim		
08	Contact With Infected Material		
09	Roll d8 for 2 different transmitters of the infecting agent.		
10	Roll d8 for 3 different transmitters of the infecting agent.		

    Treatment with the proper type of drugs or procedure can reduce the loss of constitution in the critical phase. Successful treatment reduces the loss of constitution d4 points per hour of treatment.

INFECTION WEAKNESSES
        01   Chemical Inhibitor
        02   Bacterial Inhibitor
        03   Broad Spectrum Antibiotic
        04   Antibiotic Specific
        05   Changes in Body Chemistry
        06   Tailored Antibiotic
        07   Treat Symptoms / Complications
        08   No Treatment Available
    IMMU   Survivor Gains Immunity

COMMUNICABLE DISEASE
    While most plagues and medical problems of the past were eliminated by the time of the 22nd century, space exploration had brought home a new wave of disease for human and alien alike. These older listed diseases are examples of what any race may face. Care should be used by the GM when using the more virulent of these. Remember the character may possess an immunity from past or special vaccination. Disease creation is the GM's option.

COMMON COLD		Transmission:	05
Chance:	65%	Duration:	3d6 days
Symptoms:	A4,A15,B14	Critical:	d4 days
(virus)	A6,B11,B4	Weakness:	03
20% chance untreated colds lead to pneumonia.			

INFLUENZA		Transmission:	05
Chance:	55%	Duration:	2d4 days
Symptoms:	A11,B2,B11	Critical:	d4 days
(virus)	A10,A14,C3	Weakness:	03,06
10% chance untreated flu leads to pneumonia.			

PNEUMONIA		Transmission:	05
Chance:	25%	Duration:	3d8 days
Symptoms:	A18,C1,D9	Critical:	d6 days
(virus)	B11,C3,E10	Weakness:	03
35% chance untreated pneumonia kills.			

Health Modifiers

OPTIONAL STATISTICS REDUCTIONS FROM MEDICAL PROBLEMS

These are the temporary or continuing modifications on a character's statistics when affected by health or damage problems.

TYPE MINOR	STR	DEX	AGL	WIZ	ACC	DOD	THR
Nausea			−01			−01	
Drowsiness		−01	−01	−01			
Hiccups		−02			−03		
Watery Eyes		−02			−01		
Cramps	−01	−01	−01			−01	
Shakes	−01	−02	−01		−02	−01	
Headache		−01	−01			−01	
Migraine	−02	−03	−01		−03	−01	−02
Insomnia	−01	−01	−01	−01	−01	−02	−03
Light Cough	−01				−01		−01
Heavy Cough	−03				−02		−02
Weakness	−02		−01			−01	−02
Dizziness	−03	−02	−03		−03	−03	−02

TYPE SERIOUS	STR	DEX	AGL	WIZ	ACC	DOD	THR
Cramps	−02	−03	−04		−03	−04	−04
Vomiting	−04	−03	−03		−05	−03	−05
Fever	−02	−01	−01	−01	−01	−02	−04
Blurred Vision		−04			−05	−01	−06
Numbness	−04	−06	−03		−01	−04	−06
Sneezing	−02	−04	−02		−06	−01	−06
Light Pain	−01	−01	−02		−01	−02	−01
Heavy Pain	−02	−02	−04		−02	−04	−02
Agony	−06	−06	−06	−02	−07	−08	−09
Light Stun	−03	−03	−05	−02	−03	−05	−04
Medium Stun	−05	−05	−07	−03	−05	−07	−06
Heavy Stun	−06	−06	−09	−04	−06	−09	−08
HEAD IMPACT							
Graze A	−01	−07	−05		−05	−04	−02
Graze B	−04	−10	−07	−03	−10	−06	−06

Bones & Sprains

MUSCLES	STR	DEX	AGL	HEALING
Sprain	−04	−02	−05	d10+2 Days
Torn Ligament	−08	−04	−09	d6 +2 Weeks
Torn Muscle	−09	−06	−09	d4 Months

BONES	STR	DEX	AGL	HEALING
Bruised	−01	−01	−01	d4 Weeks
Fractured	−04	−06	−08	d4 Months
Compound Break	−08	−09	−09	d4 +2 Months
Crushed	−10	−10	−12	d4 +6 Months

Damaged bones and muscles affect only the specific areas they are located in. Some statistics may not be affected due to the location of the injury. Use logic when utilizing these modifiers. See the Medical Skills section for controlled healing rates and Auto Doc treatment time. SEE ALSO p.21-22

Wound Infection

As a character takes minor damage he or she runs the risk of wound infection.

REMEMBER
01 Index type of Wound by Contamination.
02 Roll over the listed percentage to avoid critical infection.
03 If critical infection, roll on Type.

Contamination

TYPE	STERILE	CLEAN	DIRTY	FILTHY
Scratch	02%	10%	25%	40%
Cut	05%	15%	35%	55%
Deep Cut	10%	20%	45%	65%
Puncture	20%	30%	55%	75%
Puncture, Deep	30%	40%	65%	85%
Puncture, Major Organ	45%	55%	80%	95%

CRITICAL INFECTION
01-50	Wound takes double normal time to heal with a 05% chance of table B.
51-75	Wound takes triple normal time to heal with a 10% chance of table B.
76-85	Wound takes triple normal time to heal with a 25% chance of table B.
86-95	Wound takes triple normal time to heal with a 50% chance of table B.
96-98	Wound takes triple normal time to heal with a 75% chance of table B.
99-00	Wound will not heal, go to table B.

B Normal Wounds

01-50 BLOOD POISONING
Symptoms: Fever
Critical: C3,B4,A11,A16,E6,D3,B14
Type: Bacteria
Weakness: 02,07 Cleansing infection

51-75 GANGRENE
Symptoms: Swelling, Tissue Destruction
Critical: d10 days
Type: Bacteria
Weakness: 03,04, Removal of tissue

76-99 GAS GANGRENE
Symptoms: Rapid Tissue Destruction, Swelling, Fever C3
Critical: d10 days
Type: Bacteria
Weakness: 03,04, Removal of Tissue

00 GAS GANGRENE + TETANUS

B Puncture Wounds

01-75 TETANUS
Symptoms: Swelling, pain, muscular contractions in the neck, trunk and abdomen.
Critical: d10 days.
Type: Bacterial
Weakness: Tetanus Anti-Toxin

76-98 TETANUS + GANGRENE
99-00 TETANUS + GAS GANGRENE

Food Poisoning

As spoiled, unclean or rotten food is consumed, the character risks the chance of several forms of contamination or poisoning. Index type of food by the roll of a d100.

WATER CONTAMINATION
```
01-50  No Contamination
51-75  Bacterial
76-85  Amebiasis
86-98  Poisoning level d4
99-00  Poisoning level d4 +4
```

FOOD CONTAMINATION
```
01-50  Molds, slimes, general decay
51-75  Bacterial
76-85  Salmonella
86-95  Amebiasis if fresh, if not go to 51
96-00  Botulism if canned, if not go to 51
```

BACTERIAL	Transmission:	07
Chance: 90%	Duration:	d6 days
Symptoms: A2,B2,C8	Critical:	d6 hours
(bact.) D1,C8,D3	Weakness:	01,04,07

SALMONELLA	Transmission:	07
Chance: 65%	Duration:	d6 days
Symptoms: A2,B2,C8	Critical:	2d6 hours
(bact.) D1,C8,D3	Weakness:	01,04,07

AMEBIASIS	Transmission:	07
Chance: 90%	Duration:	d10 years
Symptoms: A2,B11,C3	Critical:	d10 days
(paras.) E9,F6	Weakness:	01

BOTULISM	Transmission:	07
Chance: 75%	Duration:	d4 weeks
Symptoms: A16,C7,C8	Critical:	d6 days
(bact.) E4,E10,F2	Weakness:	Anti-Toxin

85% chance Botulism Toxin will kill without the specific anti-toxin.

POISONING
((Random) see Toxin section of damage tables)

Hepatitis

Another danger of contamination with human or animal wastes is hepatitis.

HEPATITIS A	Transmission: 01,05,07
Chance: 50%	Duration: d6 weeks
Symptoms: B2,E8,F3,A4	Critical: d10 days
(virus) Jaundice	Weakness: 07

40% chance of relapse if the patient does not rest for d8 weeks.   IMMU

HEPATITIS B	Transmission: 01,05,07
Chance: 60%	Duration: 2d4 months
Symptoms: B2,E8,F3,D1	Critical: d10 days
(virus) Jaundice	Weakness: 07,08

70% chance of relapse if the patient does not rest for 2d8 weeks.

HEPATITIS AB	Transmission: 01,05,07
Chance: 55%	Duration: 2d6 weeks
Symptoms: B2,E8,F3,A4	Critical: d10 days
(virus) D1, Jaundice	Weakness: 07,08

45% chance of relapse if the patient does not rest for 2d8 weeks.

BLESS YOU

Allergies

Allergies are a common problem that crop up in most races. These are the bodies that trigger an immune reaction to an invading substance and the body's less-than-perfect response. CTP is the chance to contact the substance during an average week.

ROLL	TYPE	ENVIRONMENTAL FREQUENCY	CTP
01-05	Specific Toxin	01-50 Rarely	02%
06-75	No Allergies	51-75 Occasional	05%
76-90	Plant/Animal	76-85 Frequent	10%
91-95	Foods	86-95 Generally	20%
96-97	Fiber	96-98 Almost Always	30%
98-99	Chemical	99-00 Constantly	40%
00	GM Surprise		

POL: Pollen FOD: Food CON: Contact / Skin

```
01-75  POL: Minor Sneezing, Annoyance.
       FOD: Indigestion
       CON: Itching / Annoyance
76-85  POL: Sneezing, Watery Eyes, Stuffed Up
            Nasal Passage.
       FOD: Cramps, Nausea, Diarrhea
       CON: Minor Redness, Rash
86-95  POL: As before with Headache
       FOD: As before with swelling, cramps
            that incapacitate, and vomiting.
       CON: Rash, Swelling
96-99  POL: As before with incapacitation.
       FOD: Throat Swells, (10%) chance of
            suffocation without aid.
       CON: Swelling, Blistering
00     POL: 10% chance of Deathshock. See #99
       FOD: Throat swelling gives suffocation
            a 33% chance without aid.
       CON: Bleeding, Cracking, Festering
```

Alien Disease

Every disease is generally specific to a species or general family. The plague that kills humans rarely kills fish or fowl but there are exceptions. When the GM creates diseases, give each a racial specific chance and a roll on the lower table to determine cross species compatibility.

Man discovered that while all races were a little different, the building blocks and natural laws that governed him also created aliens in the same way. Alien infection was possible, probable, but rare.

```
01-90  Species Specific Only
91-95  Can affect other race with .25 the
       intensity of the old disease.
96-97  Can affect two species on that Alien
       World (as Dog-to-Dog to Man-to-Man)
98     Can effect other race with .50 the
       intensity of the old disease.
99     Communicable between two races with
       no intensity modifier.
00     Strikes alien race with double its
       normal intensity.
```

Exhaustion Option

Combat exhaustion is an option for long situations of physical combat or for those special acrobatic stunts done in any quantity the GM suspects of being in excess of human or alien limits.

Exhaustion Points

Use your character's constitution added to strength as a base number for your Exhaustion Points.

Combat Exhaustion

Reduce Exhaustion Points by one point per punch or kick during combat. For acrobatic stunts use the Difficulty Rating of a stunt for the number of points used.

At 0 Points

When points reach 0, begin to reduce your dexterity, dodge, and strength in the same way as your Exhaustion Points. The player has the choice of which statistics are reduced. This reduction can be split between the three statistics.

- At 0 Dexterity a character cannot hit the broad side of a barn.
- At 0 Dodge the character is clumsy and can fall with little provocation.
- At 0 Strength the character can punch, but not with any effectiveness.

REMEMBER
- 01 This is not a permanent reduction.
- 02 Exhaustion Points are regained at a rate of 2 per minute of rest.

Modifiers

SLEEP
A lack of sleep will reduce your general Exhaustion Points by 10% cumulative per 24 hours of being awake.

DRUGS
Drugs can add +10% to your Exhaustion Points per 12 hours of use with a penalty of +50% of the needed amount of sleep.

DETERMINATION
Solid mental determination can add d10 Exhaustion Points for a single use in a 24 hour period.

PHYSICAL TRAINING
Special physical training as Martial Arts, Boxing, Gymnastics or Combat Sports teach the ability to weather exhaustion with a gain of 3 Exhaustion Points per skill level.

REMEMBER
- 01 Do not use Exhaustion Points unless specified by the GM.
- 02 General action does not use Exhaustion Points unless the activity is special or determined to be strenuous.

Coshing

Coshing is a simple table for knocking an individual unconscious by a specific impact to the head or neck area.

01-05	Victim turns his, her, or its head and receives a glancing blow that only costs them an action to recover from.
06-10	Victim receives a glancing blow that slows them for d6 actions.
11-50	Victim falls to knees, if any, from the stun of impact. Takes 2d10 actions to recover movement.
51-90	Victim knocked unconscious for d10 minutes.
91-95	Victim knocked unconscious for d10 hours.
96-98	Victim stunned unconscious for d4 days of coma. A 05% chance victim stays in coma for d4 months.
99-00	Victim stunned unconscious, dies.

Coshing Modifiers

Coshing can also be modified by the use of objects or specific skills. You may also use size modifiers.

Light Object	-05	Breakable Chair	+03
Medium Object	0	Pottery	-10
Heavy Object	+10	Rock (good size)	+05
Blackjack	+05	Rock (large)	+10
Club (wood)	+05	Bottle	-15
Pipe (metal)	+10	Gun Butt	+07

Per Three Levels of Martial Arts Skill (chop / kick, to head / neck)	+05
Per Three Levels Boxing	+04

HEIGHT OF VICTIM	ATTACKER'S HEIGHT					
	01-02	03-04	05-06	07-08	09-10	11-12
01-02	0	+01	+02	+03	+04	+05
03-04	-01	0	+01	+02	+03	+04
05-06	-02	-01	0	+01	+02	+03
07-08	-03	-02	-01	0	+01	+02
09-10	-04	-03	-02	-01	0	+01
11-12	-05	-04	-03	-02	-01	0

Tumble

In cases of common slip, tripping, jump-related falls, and AGL failure rolls, consult the table below.

01-03	VICTIM BREAKS a random bone at the point of impact. Roll on the Bone Damage chart in the Detail Body Area Section. Treat non-breaks as a very "painful" twist.
04-06	PAINFUL TWIST or PULLED LIGAMENT
07-75	TUMBLE and bruise at d4 HBD points.
76-96	TUMBLE and take d10 +10 actions to recover coordination.
97-98	EASY TUMBLE and take d10 +1 actions to recover coordination.
99-00	EASY TUMBLE with instant recovery.

Temperament

All intelligent life and animals have a temperament rating. This rating shows how easily the species is provoked.

The T scale has humans set at a base of 50 for comparison.

```
0-------25-------50------75------100
Hostility                    Pacifism
```

PROVOCATION TO ACTION
A   Add modifiers to find temperament rating.
    Index to find the provocation to action.

TEMPER	PROVOCATION TO ACTION	TEMPER	PROVOCATION TO ACTION
01-05	98%	46-50	40%
06-10	96%	51-55	35%
11-15	90%	56-60	30%
16-20	85%	61-65	25%
21-25	80%	66-70	20%
26-30	75%	71-80	15%
31-35	70%	81-85	10%
36-40	65%	86-90	05%
41-45	60%	91-95	02%
		96-00	n/a

MODIFIERS FOR PROVOKING		TEMPER MODIFIER
01	Trying to be peaceful	+05
02	Generally peaceful	+02
03	Neutral	+00
04	Neutral, hostile	-10
05	Hostile	-15
06	Really trying to provoke	-20
07	Taunting to provoke	-25
08	Physical assault	-30
09	Continued physical assault	-35
10	Major physical assault	-40

INTELLIGENT HOSTILE
01-50	Stop hostility by force
51-75	Attack next action
76-85	Attack in d4 actions
86-95	Attack if provoked again
96-98	Reason d4 actions, attack
99-00	Reason 2d4 actions, attack

INTELLIGENT PACIFISTIC
01-50	Not fight back
51-75	Continue to reason
76-95	Flee hostility
96-98	Warn, then use force
99-00	Stop hostility by force

RESULT OF PROVOCATION TO ANIMALS AND MINIMALLY INTELLIGENT LIFE

Carnivores:	01-40 Attack immediately
	41-00 Flee
Herbivores:	01-90 Flee immediately
	91-00 Attack

Charisma Use

CHARISMA SCORE	MODIFIER TO AID	MODIFIER TO HINDER
01	-8	+5
02-04	-6	+4
05-07	-2	+2
08-10	0	0
11-13	+2	-2
14-16	+5	-4
17-18	+5	-6
19	+9	-8
20	+10	-10

FAST CHARISMA USE IN DEALING WITH NPC'S
When dealing with NPC'S the GM usually determines the general hostility of the encounter or rolls a d100 on the chart below.

GENERAL MOOD OF THE NPC		AID	HINDER
01-10	Outright hostile	05%	95%
11-25	Hostile	20%	90%
26-45	Semi-hostile	40%	80%
46-70	Neutral	50%	50%
71-85	Almost friendly	80%	40%
86-90	Friendly	90%	20%
91-98	Very friendly	95%	10%
99-00	Completely friendly	98%	05%

Being friendly or hostile does not necessarily constitute a total direction of attitude. Even in extremely friendly situations a hinderance may happen. Roll on each table for a result.

HOSTILITY MODIFERS
01	Bribe with something valuable	+20%
02	Bribe with small sum	+10%
03	Persistant	-10%
04	Minor violance	-10%
05	Major violence	-20%
	+5% per skill level of interrogator.	
06	Blackmail	+20%

HINDERANCES
01	Wrong information
02	Temperament
03	Just trying to be helpful even when no information is available
04	Wants something in return
05	Sense of humor
06	Apathy

Martial Arts

Martial arts is a range of fighting skills that may be divided into several categories of attack and defense.

Martial arts is divided into 5 separate areas of skill. The first is your style of martial arts skill, your ability with the grace and teachings of that one dicipline. This is followed by the automatic gain of four areas of skill that start at a skill level of 0. These are:

AO = ACTIVE OFFENSE
Punches, Kicks, Chops and other methods of inflicting injury to an opponent.
PO = PASSIVE OFFENSE
Arm Locks, Holds, Throws and other methods of controlling movement of an opponent.
AD = ACTIVE DEFENSE
Blocking, Deflecting, Grabbing and other methods of preventing injury or physical incapacitation of oneself by an opponent
PD = PASSIVE DEFENSE
Dodging, Rolling, Twisting and other methods of avoiding an attack.

SW = Special Weapons or Martial Arts Weapons
AW = Available Weapons
PW = Personal Weapons

STYLE OF DICIPLINE	TYPE	SPECIAL
Wrestling	PO,AD	
Brawling	AO	AW
Boxing	AO,AD	
Street Fighting	AO,AD	DW
Defendu	PO,AD	SW
Savate	AO,AD	
Karate	AO,AD,PO,PD	SW
Judo	PO	
Kung Fu	AO,AD,PO,PD	SW
Aikido	PO,PD	
Tae Kwon Do	AO,AD	
Tai Boxing	AO	
Ninjutsu	AO,AD,PO,PD	AW,SW
Knife Fighting	AO,PD	SW only
Tantojutsu	AO,AD	SW only
SCA Sword & Shield	AO,AD	SW only
Kendo	AO,AD	SW only

SKILL LEVEL ATTACKER	01-02	03-04	05-06	07-09	10-12	14-16	18-20
0	0	-1	-2	-3	-4	-5	-6
01-02	0	0	-1	-2	-3	-4	-5
03-04	0	0	0	-1	-2	-3	-4
05-06	+1	0	0	-1	-2	-3	-3
07-08	+2	+1	0	0	-1	-1	-2
09-10	+3	+2	+1	0	0	0	-1
11-12	+4	+3	+2	+1	0	0	0
13-14	+5	+4	+3	+2	+1	0	0
15-16	+6	+5	+4	+3	+2	+1	0
17-18	+7	+6	+5	+4	+3	+2	+1
19-20	+8	+7	+6	+5	+4	+3	+2

(SKILL LEVEL DEFENDER)

Index skill levels of the attacker and the defender to find a dexterity modifier that can also be used as a initiative modifier.

Options

Hand to hand fighting is the use of DEX and DOD with the decision to attack or defend.

REMEMBER
01 Decide to attack or defend.
02 To hit an opponent roll under your DEX or Dexterity for a successful attack.
03 Dodge an attack by rolling under your DOD or dodge score.
04 Every 5 levels of Martial Arts adds a point of AGL to a character up to a maximum AGL of 19.
05 Use of Martial Arts allows the use of 1 attack or defense action per 5 levels of skill. EXAMPLE: With a Kung Fu skill level of 15 a character can use three different actions per attack.

Martial arts can give a player character the ability to do additional damage with special attacks.

CHOP / PUNCH
With hands Strength damage + a d4 with the option of stun when used on specific areas.
KICK
Use strength related damage + a d6 with the option of stun when used on specific areas.
PIN
Using martial arts, like skill levels, modifiers are added and a character can attempt to incapacitate a victim. The victim is only held if he fails to roll a d20 under his strength, otherwise the holder must roll a successful pin each turn until the victim fails his roll.
THROW
If a character chooses to throw an opponent his martial arts skill is used with any difficulty modifiers. If a victim fails to roll a d20 under his AGL / Agility a throw is successful.

Weapons

The following is a general list of martial arts weapons. A T code gives the weapon the ability to trap an opponent's weapon. On the decision of the GM a roll can be made to save the trapped weapon from breakage by rolling under a DEX or martial arts roll.

An E code signifies that a weapon that can entangle an opponent's weapon and prevent its usage.

01 NANCHAUK (E) An Okinawan farm implement popular in karate training. Damages as a medium to heavy object. See Strength Related damage. Add + d4 damage bonus.
02 BLADE WEAPONS (Swords, Knives, Throwing Stars and Spikes). (Hooked swords (T))
03 PARRY WEAPONS (Sai (T), Nightstick (Jitte) Kusarigama or chained sickle (E))
04 STAVES In 3,5, and 6 foot lengths. See STR damage as a light weapon.
05 POLE ARMS (Spear, Naginata, Halberd, etc.)
06 ODD WEAPONS (Stars, Spikes, Rocks, etc.)

Armor

Armor is any material which forms a physical barrier for the protection of a character, NPC, or Target.

In FTL 2448 all armor reduces the weapon penetration or damage from projectile and physical attack.

Index the defender's type of armor by the attacker's type of damage to find the number of damage points stopped by the armor.

DAMAGE TYPES
EN: Energy, Laser   PU: Puncture, Stab
BI: Bite   BL: Blade
CL: Claw   FA: Firearms
LV: Low Velocity Impact (punch, strike etc.)

-AGL Is the character's loss of agility because of the bulk of the armor worn.
-ACC Is the character's loss of accuracy during stress or movement situations.

ARMOR TYPE	EN	BI	CL	PU	BL	FA	LV	-AGL	-ACC
CLOTH									
Bare Skin	0	0	0	0	0	0	0	0	0
Fabric	01	01	02	01	0	0	01	0	0
Heavy Fabric	02	02	03	01	02	0	02	0	0
Padded Fabric	03	03	04	02	03	01	04	-01	0
LEATHERS									
Leather	03	03	05	03	03	01	03	0	0
Heavy Leather	04	05	07	04	05	02	05	-01	0
Hard Leather	05	07	09	06	06	03	06	-02	0
PLASTIC									
Thin Plastic	05	04	07	05	05	01	04	-01	0
Plastic Chain	05	06	05	04	08	01	03	0	0
Plastic Plate	07	08	09	07	10	04	08	-01	-01
Carb Filament	09	10	12	09	12	04	10	-01	0
METAL									
Light Metal	12	14	16	10	14	02	15	-01	-01
Metal Chain	14	16	18	12	16	02	17	-02	-01
Metal Plate	16	18	20	16	18	06	21	-04	-02
BALLISTIC, ARAMID FIBER									
Cloth	07	08	06	14	12	16	10	0	0
Layered	12	15	17	16	15	19	15	-01	-01
Layered w/metal	14	16	18	18	18	21	22	-02	-01
PROTECTIVE SUIT									
Minimal	06	05	08	06	06	01	03	-01	-01
Light	08	07	10	08	08	02	06	-01	-01
Medium	10	09	12	10	10	02	09	-02	-02
Heavy	13	12	15	13	13	10	12	-03	-03
Vac Suit	18	17	20	18	18	20	18	-04	-04
Heavy Vac	23	22	25	23	23	30	22	-05	-06
NATURAL ARMOR									
Light Hide	01	01	02	01	01	0	01	0	0
Heavy Hide	02	02	04	02	02	0	03	0	0
Chitin	04	02	03	05	03	01	04	-01	-01
Stony Hide	05	03	05	07	04	01	06	0	-01
Bone	06	04	07	09	05	01	07	-01	-01
Fur Layer	03	02	03	01	02	01	02	0	0
Dense Fur	06	04	05	02	03	02	04	-01	-01
Soft Wood	04	06	08	05	07	02	04	-01	-01
Hard Wood	06	08	10	07	09	03	08	-01	-01

Armor for a player character is the choice of the player with the GM's agreement.

Armor Mapping

This is an example of armor mapping for characters in combat situations. Armor will stop damage up to the value of the armor per type of attack. Use the sheet provided in the utility sheet section for armor mapping.

Example

ARMOR

Glasses

Shirt

Elbow Pads

Heavy Fabric Jacket
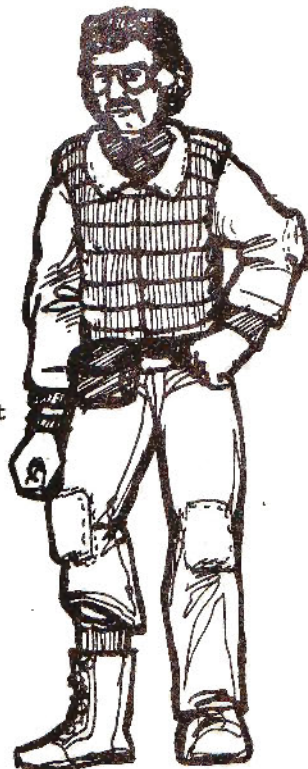
Ballistic Vest

Chronograph Band

Belt Pouch

Pants

Knee Pads

Fabric Socks

Boots

AGILITY MODIFIER = 0
ACCURACY MODIFIER = 0

Ben, Bells, & Quag

The second morning aboard their starship, Ben, thinking himself safe, turns a corner to the galley. The first two slow pulses from the laser rifle burn a hole in his knee and leg. Of the 12 point hit on his knee, his ballistic cloth knee pads absorb 7 points along with an extra three points due to the padded fabric that holds them in place. Ten points of damage are deflected as two points burn through the skin and surface tissue of the knee. It is not a major wound but it is still painful. The second shot grazes a little higher than Ben's knee pad. Eight points graze his pants leg. Quickly slapping the burning material and doing one point to his hand, he turns to see Quagmire with a laser rifle and a bucket full of dead rats. Ben begins to lose his temper.

Quagmire decides to take his hunt to the lower decks as Ben starts to search for the baseball bat he saw somewhere on B deck.

Weapons Fire Resolution

WEAPONS FIRE RESOLUTION

REMEMBER
01 Total the modifiers you are using. This will give you a + or - modifier.
02 Add this modifier to your accuracy. This is the number you must roll under on a d20 to hit a target.
03 If the player's roll is below half the number needed to hit the target, the player has the choice of where he puts the shot on the target.

Ben, Bells, & Quag

Ben has just attacked the port health inspector that toured the starship. After four hours of insults and a certificate that the ship could only haul garbage, Ben pulls out a pistol, screams, and charges.

Thirty feet away the inspector realizes he has three actions before Ben reaches him. Thinking fast, he quickly draws a tranq pistol and puts a shot into the charging madman.

```
MODIFIERS    Size / Speed......-2
             Movement..........-2
             Weapon Modifier...+2
             TOTAL            -2
```

There is a +2 on the inspector's ability to hit Ben. He quickly fires two of his six shots.

With an accuracy of 14 he now needs a 12 or below to hit. A 16 is rolled for the first shot and results in a miss. The second shot hits with a 4 rolled, striking Ben in the unprotected chin.

With a resounding thump, Ben slides to the inspector's feet, drugged and unconscious.

Shot Breakdown

```
0   01  02  03  04  05  06  07  08  09  10
```



```
11  12  13  14  15  16  17  18  19  20
```


MISS
RANDOM HIT IN AREA AIMED AT (randomize from detail body areas)

HIT IN SPECIFIC AREA AIMED AT

First Action

First action is the ability of a character to complete an action first. Always roll a d10 and add this number to your agility per attempted special action. The player with the highest total is first. In cases of tie the actions happen at the same time.

Multiple Shots

NUMBER OF SHOTS ON TARGET
REMEMBER
01 Total all modifiers for range, size, recoil, and target spread.
02 Roll a d100 and add modifiers.
03 Index the number of shots fired by the result in 2 to find the number of shots that hit the target.

RANGE MODIFIER		SIZE MODIFIER	
Point Blank	+25	Very Small	-10
Very Short	+15	Small	0
Short	+10	Medium	+05
Medium	+05	Large	+10
Long	0	Very Large	+15
Very Long	-10	Gigantic	+20
RECOIL MODIFIER		TARGET SPREAD	
No Recoil	0	Close Spread	-05
Light Recoil	-05	Medium Spread	-10
Heavy Recoil	-10	Wide Spread	-15

d100	04	05-06	07-08	09-10	11-12	13-15	16-20
						ROUNDS	FIRED
01-05	01	01	01	01	01	01	01
06-10	01	01	01	02	02	02	02
11-15	01	01	01	02	02	03	03
16-20	01	01	01	03	03	04	04
21-25	01	01	02	03	03	04	05
26-30	01	02	02	04	04	05	05
31-35	01	02	02	04	04	05	06
36-40	01	02	02	04	05	06	06
41-45	01	02	03	05	06	06	07
46-50	01	02	03	05	06	07	07
51-55	02	03	03	05	06	07	08
56-60	02	03	04	06	07	08	08
61-65	02	03	04	06	07	08	09
66-70	02	03	04	06	08	09	09
71-75	02	03	05	07	08	09	10
76-80	03	04	05	07	09	10	11
81-85	03	04	05	07	09	10	12
86-90	03	04	06	08	10	11	12
91-95	03	04	06	08	10	12	13
96-00	03	04	06	09	11	12	13

For bursts of over 20 shots, index the table a second or a third time for the remainder of the shots.

Ben, Bells, & Quag

Seeing Ben sprawled on the floor, Bells snaps back to her military training and fires the antique M16F she found at the fleeing inspector. She fires a burst of 20 shots.

```
Short Range........+10
Medium Size .......+05
Heavy Recoil.......-10
Total             +05
```

A d100 is rolled and the +05 is added to the result of 42.

```
                40 ROUND BURST
The result of 42 becomes a 47
47 indexed by a 20 round burst   = 07
TOTAL NUMBER OF SHOTS ON TARGET  = 07
```

Seven shots slam into the horrified agent as he hits the airlock. He realizes his new ballistic cloth suit was well worth the cost.

Weapons

ACC Modifiers

There are four main modifiers to take into account when firing a weapon at a target.

    01   SIZE / SPEED
    02   RANGE OF TARGET
    03   ATTACKER / DEFENDER MOVEMENT
    04   EQUIPMENT BONUSES
    04b ANY OPTIONAL MODIFIERS

REMEMBER
    01   All modifiers 1 to 4 are combined to create a final accuracy modifier.
    03   These modifiers can be used for any modifiers including:

    01   Bows
    02   Thrown and Grenade Weapons
    03   Firearms and Lasers
    04   Thrown Edged Weapons

Size / Speed

SIZE	TYPE	EXAMPLE
VSM	Very Small	The size of a rat.
SMA	Small	A medium - sized dog.
MED	Medium	Generally man sized.
LAR	Large	The size of a horse.
XLA	Extra Large	An average elephant.
GIA	Gigantic	Semi-Truck sized.

SPEED	TYPE	EXAMPLE
VSL	Very Slow	1 foot per action
SLO	Slow	2 feet per action
MED	Medium	5 feet per action
FST	Fast	10 feet per action
VFS	Very Fast	20 feet per action
LFS	Lightning Fast	40 feet per action

			SIZE	OF	TARGET	
SPEED	VSM	SMA	MED	LAR	XLA	GIA
STILL	0	+01	+02	+04	+06	+08
VSL	-01	0	+01	+02	+03	+04
SLO	-02	-01	0	+01	+02	+03
MED	-03	-02	-01	0	+01	+02
FST	-04	-03	-02	-01	0	+01
VFS	-05	-04	-03	-02	-01	0
LFS	-06	-05	-04	-03	-02	-01

Inherent ACC

Each weapon has a modifier for range from the target. These inherent modifiers differ with style of weapon and manufacture.

PISTOL	Semi-Auto				"Welsh 10 Mk VI"		
ROF 1or2	AMO GHJOP	PB	VS	SH	ME	LO	EX
ROL A	CYC n/a ➤➤	+3	+3	+2	0	-1	-3
CAP 20+1	WTE 2.5	EFFECTIVE					EX+
CIR 2301	MIS 01%d	4d					2d
HSM +1	KDM +2	SPC (cdgjkl)					

An ICL preferred weapon. (*10mm Caseless*)

Range

RANGE	TYPE	EXAMPLE
PB	Point Blank	Under 5 feet to target
VS	Very Short	06- 25 feet to target
SH	Short	26- 100 feet to target
ME	Medium	101- 500 feet to target
LO	Long	501-1000 feet to target
EX	Extreme	1001+ feet to target

Movement

Index attacker and defender's movement rates for the target movement modifier.

RATES

A	Still	F	Running
B	Slow Walk	G	Dodging
C	Walk	H	Wild Dodge
D	Fast Walk	I	Evasion
E	Slow Run / Jog	J	Roll, Tumble

ATTACKER								DEFENDER	
	A	B	C	D	E	F	G	H	I	J
A	+3	+2	+1	0	-1	-2	-3	-4	-5	-6
B	+2	+1	0	-1	-2	-3	-4	-5	-6	-7
C	+1	0	-1	-2	-3	-4	-5	-6	-7	-8
D	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
E	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10
F	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11
G	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12
H	-8	-10	-12	-14	-16	-18	-20	-22	-24	-26
I	-10	-12	-14	-16	-18	-20	-22	-24	-26	-28
J	-12	-14	-16	-18	-20	-22	-24	-26	-28	-30

Evasion

Attempting to dodge wildly, a character has a chance of falling. Roll a d10 each action you move at rates H to J.

RESULT
    01-07 No effect or regain balance.
    08-09 Stumble, roll a d10 again on your next action with a modifier of +2
    10   Fall, spend d4 actions in recovery.

Sighting Devices

Target Sighting Devices are the special optional equipment that improves the accuracy of a character.

TYPES OF WEAPON
    H = Handgun   R = Rifle / Assault Rifle
    S = Shotgun   M = Sub / Machine Gun
    L = Hand Laser   E = Laser Rifle

TYPE	MODIFIER	WEAPON					
Optical Scope	+02	H	R	-	M	L	E
Electronic Scope	+04	-	R	-	M	-	E
Laser Lock-On	+06	H	R	S	M	L	E
Radar Lock-On	+07	-	R	-	-	-	E
Quick Point Sight	+01	H	R	S	M	L	E
Still Stand, Bipod	+01	-	R	S	M	-	E
Computer Omni-Sight	+10	-	R	-	-	-	E

Optional Modifiers

These modifiers are optional for movement and weapons fire in adverse situations.

TERRAIN
Grass, High (crops)	-02
Hills	-02
Hills, Low	-02
Rocky	-03
Mountainous	-03
Jungle	-03
Jungle, Dense	-04
Sandy	-01
Sand Dunes	-02
Swamp	-01
Swamp, Dense	-02
Swamp, Tropical	-03
Trees, Widely Spaced	-01
Trees, Light Forest	-01
Trees, Heavy Forest	-02
Trees, Coniferous	-03
Tundra	0

WEATHER
Fog, Light	-02
Fog, Medium	-04
Fog, Heavy	-08
Light, Attacker Facing, Bright	-03
Light, Target silhouetted	+02
Rain, Light	-02
Rain, Heavy	-04
Rain, Downpour	-06
Smog	-02
Smog, Heavy	-03
Snow, Dry	-01
Snow, Wet	-02
Snow, Heavy	-03
Snow, Blizzard	-06
Sunny, Clear	0
Sunny, Hazy	-01
Water, Clear (target submerged)	-02
Water, Murky (target submerged)	-04
Wind	-01
Wind, High	-03
Wind, Hurricane	-07
Windblown Sand (no eye protection)	-06
Windblown Sand (with eye protection)	-03
Smoke	-02
Smoke, Dense	-06

CITIES
Close Buildings	-01
Cobblestones	-01
Dawn / Dusk	-03
Falling / Jumping (target)	-04
Falling (recovering from)	+04
Ladders / Rope (climbing)	-02
Ladders / Rope (descending)	-04
Rope (swinging)	-06
Moonlight	-06
Night, Overcast	-12
Roof, Major Incline	-03
Roof, Minor Incline	-02
Rubbish, Low	-03
Rubbish, High	-04
Steps	-02
Steps, Narrow	-03
Swimming	-03
Water, Waist Deep	-01

VEHICLES
Fast Moving (attacker or target inside)	-04
Slow Moving (attacker of target inside)	-02
Very Rough Road -04 Cratered Road	-06

Specific Shots

MODIFIERS FOR MEDIUM AND LONG RANGE

TARGET POSITION	AREA AIMED AT: HEAD	HAND	CHEST	LEG	ARM
Standing	-04	-06	-02	-03	-05
Stooping	-05	-07	-03	-04	-06
Crouching	-06	-08	-04	-05	-07
Prone	-07	-09	-05	-06	-08

WEAPONS FIRE FROM MOVING ANIMAL
OR ANIMAL-DRAWN WAGON

A = Excellent Riding Ability
B = Fair Riding Ability
C = Poor Riding Ability
D = Firing From Flatbed Wagon
E = Firing From Coach

QUADRUPED PACE	A	B	C	D	E
Walking	0	-01	-02	-02	-02
Canter	-02	-03	-04	-03	-02
Gallop	-03	-05	-07	-04	-03
Run	-04	-07	-09	-05	-04
Trot	-05	-09	-12	-06	-05

Material Strength

Deflection

ACCURACY DEFLECTION

Glass	-1	per quarter inch
Double Strength Glass	-2	per quarter inch
Reinforced Glass	-3	per quarter inch
Bulletproof Glass	-4	per quarter inch
Plexi-Glass	-1	per quarter inch
Bulletproof Plastic	-6	per quarter inch
Vehicle Windshield	-2	per quarter inch
Vehicle Side Windows	-1	per quarter inch

Below are the strengths of common building materials and the damage needed to penetrate or destroy them.

LVI: Low Velocity Impact   (strength related)
HVI: High Velocity Impact   (most firearms)
BLA: Blast Damage To Destroy   (explosives)
(q) = Quarter Inch (h) = Half Inch (i) = Inch

	PER	LVI	HVI	BLA
Glass	(q)	2	1	5
Plastic	(q)	4	1	10
Soft Wood	(h)	8	2	20
Hard Wood	(h)	16	3	30
Loose Earth	(i)	4	2	20
Packed Earth	(i)	6	3	30
Sand	(i)	5	2	30
Plasterboard	(q)	5	1	10
Concrete	(h)	18	6	60
Block, Hollow	2x(h)	10	3	25
Brick	2(i)	15	5	50
Stone	(h)	21	7	70
Metal, Thin	(h)	8	2	20
Metal, Plate	(h)	18	6	60
Metal, Hard	(h)	27	9	90
Metal, Super Hard	(h)	60	20	200
Ship's Hull	6(i)	900	300	3000
Ship's Bulkhead	6(i)	300	100	1000
Ship's Deck	2x(i)	450	150	1500
Ship Armor	(i)	300	100	1000

Codes

Each weapon type is broken into a number of statistics and codes for general use.

ROUND: A single unit of ammunition, the "bullets" a weapon holds.

ROF : Rate of Fire is the number of times a weapon can be fired in an action. When divided into more than one rate the weapon is capable of firing more than a single round and can often be set to the number of rounds fired per pull of the trigger. Example 1to3 (see CYC for automatic weapons ROF.)

ROL : Rate of Load is a weapons reload time. This time is in actions, 2 seconds per action. (See the reload chart.)

CAP : Capacity is the number of rounds a weapon can hold.

CIR : The year of a weapon's introduction.

HSM : The Hydrostatic Shock Modifier is a bonus for adjusting final damage.

AMO : Ammunition is the type of projectile or round that can be fired. See the Projectile or AMO table for specific and special types.

Dice of Damage

	PB	VS	SH	ME	LO	EX
	+4	+3	+2	0	-2	-6
	EFFECTIVE				EX+	
➡	5d				2d	

The numbers listed under each weapon's range modifiers are the number of "dice" of damage the weapon does at that general range.

CYC : Cyclic rate is the number of rounds an automatic weapon fires in an action if the trigger is held continuously.

WTE : This is the unloaded weight of the weapon in pounds.

MIS : This is the percent chance of improper function per 10 actions use and the table to index the result of misfire.

KDM : The Knockdown modifier is a bonus for "stopping" man-sized targets.

SPC : Specials are the general information and idiosyncracies of weapons.

EFF : The "EFFECTIVE Range" is the maximum distance at which a weapon may be held and fired with a reasonable chance of hitting a man sized target, unless modified by equipment or modifiers.

Load Time

CODE	TYPE	DESCRIPTION	ACTIONS
A	Box/Clip	Complete Reload	01
B	Manual	1 Step Reload	01
C	Manual	2 Step Reload	02
D	Manual	3 Step Reload	03
E	Manual	4 Step Reload	04
F	Manual	5 Step Reload	05

Multiple barrels or chambers multiply the time of loading. The above rates are for single barrel loading only. Multiply load time by the number of barrels or chambers.

Specials

Many weapons have special characteristics or information inherent to a number of types of listed weapons. Listed here are specials.

Many weapon accessories can be ordered from a store or ordered in d4 +3 weeks. AVA = Availability to find locally.

a Revolvers. ROL = B x CAP. Speedloaders change ROL to B x 2. Availability 15%.

b Accessory silencer decreases noise. Shot can be heard within 20 feet outdoors but not outside a closed room. AVA 20%.

c Weapon concealable in normal holster.

d Modest recoil, minimum strength 5.

e Sharp recoil, minimum strength 10.

f Heavy recoil, minimum strength 15. Note; shooter takes one point bruising damage for each point under the minimum strength necessary. This can result in loss of balance or broken bones in extreme cases. Roll under your agility on a d20 when firing weapons with heavy recoil to avoid losing balance and taking damage.

g Accessory electronic silencer eliminates complete sound of the shot. AVA 05%.

Holster

h Weapon concealable in special holster or under bulky clothing only. AVA 20%.

i Weapon concealable in brief case, tool box, musical instrument case, etc.

j Scope. AVA 50% (If used on handguns add special type h).

Hand Grips

k Target handgrips give +1 to hit at short and medium. AVA 15%.

l Combat handgrips give +1 to hit at point blank and very short. AVA 10%.

Bipod

m Bipod. A two-legged rest for a firearm that steadies the weapon for more accurate shooting. AVA 20%.

n Folding or collapsing stock, AVA 20% (if used add special type o).

o Concealable in a large suitcase or guitar case.

p Concealable in pocket.

Choke

q Removable Choke. This is a replaceable device which changes the shape of the barrel constriction and shot pattern. See Shotguns. AVA of 20%.

r Adjustable Choke. Like (q) but easily adjustable with a twist of the choke. AVA 20%.

s Rapid Burst. Roll to hit (under ACC) once for all shots fired.

t Bullet Tumbles. Use HSM modifier.

Projectile Damage

DAMAGE OF PROJECTILES TYPE		OLD CODE	TYPE OF DICE USED	HYDRO. SHOCK	KNOCK DOWN
A	Rocks (gravel)	B	d4		
	LEAD PROJECTILES				
B	Round Ball	C	d4	+1	0
C	Conical Bullet	D	d6 +1	0	0
D	Flat Point	E	d4 +1	+2	+1
E	Hollow Point	-	d6	+3	+1
	JACKETED PROJECTILES				
F	Full Jacket, Round or Pointed Nose	F	d8 +2	0	0
G	Tracer (add d6 burn)	F1	d8 +1	0	0
H	Armor Piercing	F2	d8 +3	0	0
I	Armor Piercing (Pointed)	-	d8 +6	0	-2
J	Flat Point	P	d8	+2	+1
K	Air Space Point	O	d6 +2	+2	0
L	ASP Tracer (add d6 burn)	O1	d6 +1	+2	0
M	Soft Point	H	d6 +2	+2	0
N	Protected Soft Point	-	d6 +3	+2	0
O	Flat Soft Point	-	d6 +2	+3	+1
P	Hollow Point	G	d6 +1	+3	+1
Q	Pointed Hollow Point	-	d6 +2	+3	0
	SPECIAL PROJECTILES				
R	Explosive Light	-	d6	+3	+1
S	Explosive Standard	F3	d6 +2	+5	+2
T	Explosive High	-	d6 +6	+8	+4
U	Flechette	I	d8	+1	0
V	Dart	J	(See V Under Pistols)		
W	Stun Bullets	R	d4 -2	0	+4
X	Depleted Uranium	U	d12 +6	+2	+3
Y	Tagging (paint pellet)	K	1 pt.	0	0
Z	Laser Capacitor Cartridge		d6 Burn	0	+4

OLD: First edition FTL, FW, STNF codes.

Misfires

TYPE B	RESULT FOR BLACK POWDER WEAPONS
01-80	Hangfire (d6 +1 actions)
81-90	Mechanical Break or Jam of Weapon
91-95	Weapon Explodes, go to Critical 1
96-00	Weapon Explodes, go to Critical 2

TYPE D	RESULTS FOR CARTRIDGE WEAPONS
01-80	Cartridge Jam
81-90	Mechanism Jam
91-98	Mechanical Break
99	Weapon Explodes, go to Critical 1
00	Weapon Explodes, go to Critical 2

TYPE F	RESULTS FOR CASELESS AMMUNITION
01-85	Jammed Shell
86-98	Smashed Shell
99	Weapon Explodes, go to Critical 1
00	Weapon Explodes, go to Critical 2

TYPE G	RESULTS FOR REVOLVERS
01-80	Dud Round
81-98	Bullet jams, requires Weapons Tech Level 2 to repair in d10 minutes.
99	Weapon Explodes go to Critical 1
00	Weapon Explodes go to Critical 2

CRITICAL 1   Victim takes 2d6 from detonating weapon and d4 x.50 fragments that hit at d6 penetration in random areas.

CRITICAL 2   Victim takes 3d6 from detonating weapon and d4 fragments that hit at d10 +3 penetration in random areas.

Hydrostatic Shock

As living objects take damage from high velocity projectiles the phenomenon of hydrostatic shock damage often happens.

When a high velocity bullet hits soft tissue, it creates a wavefront of energy that can disrupt and severely damage the surrounding tissues.

Whenever this (HSM) code is listed roll on the Hydrostatic Shock table with the listed modifiers.

REMEMBER

01   Hydrostatic shock does not add to the penetration of a projectile.
02   Add the additional HS damage as Whole Body Damage after the general body damage has been calculated.

REMEMBER

01   HYDROSTATIC SHOCK = Bullet HS + Weapon HS + HS Modifier
02   KNOCKDOWN = Bullet KD + Weapon KD + KD Modifier

Modifiers

	HYDRO. MODS	KNOCK MODS
Tumbling Bullet	+4	-
Shrapnel, Small	-	+1
Shrapnel, Large	+1	+2
Multiple Hit, Each round after first		+.50
Range Modifier		

Add a (-1) to any hydrostatic shock and knock down modifier at EX and EX+ ranges.

Hydrostatic Shock

ROLL A d10		ADDITIONAL DAMAGE
01-08	No Effect	No
09	Minimal	d6
10	Light	d6 + 2
11	Medium	d6 + 4
12	Heavy	d6 + 6
13	Very Heavy	d6 + 8
14	Critical	d6 +10 (* Add 5%)
15	Terminal	d6 +12 (* Add 10%)

(*) Add the additional percentage to any Wound Shock or Death Shock rolls.

Knockdown

ROLL A d10		RECOVERY TIME IN ACTIONS	
01-07	No Effect		
08	Jerk	d4	-1
09	Shove	d4	
10	Jerked Back	d4	+1
11	Knocked on Rump	d4	+2
12	Bowled Over	d4	+4
13	Knocked Flat	d4	+8
14	Slammed Flat	d4	+10

Weapons

The firearms most frequently used by the Characters in FTL 2448 are handguns. Handguns are popular because they are often easily concealable and can be available for use at a moment's notice without attracting much attention. Some of these handguns are large or are shaped in such a way as to require a special holster for concealed carry.

Ammunition

Interchangable ammunition is listed by an ammunition code between two stars. Whenever weapons are "like" listed, the ammunition is the same. Any differences in accuracy and range is due to differences between the individual weapons.　　　Example (*.45 ACP*)

Pistols

```
PISTOL     Semi-Auto              "COLT M1911-A1"
ROF 1or2   AMO FGHJP    PB  VS  SH  ME  LO  EX
ROL A      CYC n/a      +3  +2  +2   0  -4  -8
CAP 7+1    WTE 2.5      EFFECTIVE           EX+
CIR 1920   MIS 1%d      3d                  1d
HSM -      KDM +3       SPC (cdgk)
```

The "government model" .45 was one of the most widely used combat handguns in the late twentieth century. In modified form it has been used for 400 years. 　　(*.45 ACP*)

```
PISTOL     Semi-Auto              "Lancer Mk VII"
ROF 1or2   AMO FGHJ     PB  VS  SH  ME  LO  EX
ROL A      CYC n/a      +3  +3  +2  -1  -4  -8
CAP 10+1   WTE 2.5      EFFECTIVE           EX+
CIR 2180   MIS 1%d      4d                  1d
HSM +1     KDM -        SPC (cg)
```

The popular Brazilian Lancer was the first successful semi-auto pistol to be made out of plastic and ceramic. 　(*9mm Parabellum*)

```
PISTOL     Semi-Auto            "Browning CBA .380"
ROF 1or2   AMO FP       PB  VS  SH  ME  LO  EX
ROL A      CYC n/a      +4  +4  +2  -4  -8 -12
CAP 16+1   WTE 2.5      EFFECTIVE         EX+  3
CIR 2180   MIS 1%d      3d                  1d
HSM -      KDM -        SPC (gp)
```

Popular because of its concealability and large magazine capacity. Has a double action trigger and built-in laser sight.(*.380 ACP*)

```
PISTOL     Semi Auto              "H & K SAPS"
ROF 1or2   AMO FP       PB  VS  SH  ME  LO  EX
ROL A      CYC n/a      +4  +4  +5  +6  +6  +4
CAP 12+1   WTE 2.5      EFFECTIVE           EX+
CIR 2300   MIS 1%d      9d                  9d
HSM +6     KDM +8       SPC (gp)
```

The common weapon used by police and SAPS units, (Special Assignment Police Service) in the 2300's. Has a built-in laser site, night scope and grenade launcher. Usually used with AP and Explosive Rounds. See launcher rounds for equivilency information. 　(*.460 Magnum)

CAP +1

The +1 in the capacity is an indicator that the weapon may have a round in the chamber as well as a full magazine.

```
PISTOL     Semi-Auto            "Browning Starfire"
ROF 1or2   AMO FGHJ     PB  VS  SH  ME  LO  EX
ROL A      CYC n/a      +3  +2  +2  +1  -3  -6
CAP 15+1   WTE 2.0      EFFECTIVE           EX+
CIR 2351   MIS 1%d      4d                  2d
HSM +2     KDM -        SPC (cgk)
```

The SF 51 is the most widely used antique military sidearm. 　　(*9mm Magnum*)

```
PISTOL     Semi-Auto              "Dabian Mag."
ROF 1or2   AMO FHIJMP   PB  VS  SH  ME  LO  EX
ROL A      CYC n/a      +3  +2  +2   0  -2  -4
CAP 10+1   WTE 5.25     EFFECTIVE           EX+
CIR 2180   MIS 1%d      7d                  4d
HSM -      KDM +6       SPC (fhj)
```

This firearm was used by the Dabes during their colonization attempts. This weapon is too large for a human to hold. (*.54 Magnum*)

```
PISTOL     Semi Auto            "Chi Fed Type 67"
ROF 1or2   AMO F        PB  VS  SH  ME  LO  EX
ROL A      CYC n/a      +3  +2  +2   0  -3  -7
CAP 12+1   WTE 1.2      EFFECTIVE           EX+
CIR 2183   MIS 1%d      3d                  1d
HSM +1     KDM +1       SPC (cj)
```

This was a popular pistol of the Peoples Corporate Republic before it's amalgamation into the ICO. 　　(*9.63mm PCR*)

```
PISTOL     Semi Auto            "Wilmoore A.P.7"
ROF 1or2   AMO FGHJ     PB  VS  SH  ME  LO  EX
ROL A      CYC n/a      +2  +4  +2  +1  -1  -4
CAP 32     WTE 4.75     EFFECTIVE           EX+
CIR 2400   MIS 1%d      4d                  1d
HSM +1     KDM -        SPC (ghj)
```

With accuracy and an outstanding capacity, this is one of the most popular assault pistols used by the ICL. 　(*9mm Parabellum*)

```
PISTOL     Semi Auto           "Walden Welsh 10mm"
ROF 1or2   AMO FM-Q      PB  VS  SH  ME  LO  EX
ROL A      CYC n/a      +3  +2  +2   0  -2  -3
CAP 14+1   WTE 1.5      EFFECTIVE           EX+
CIR 2406   MIS 1%d      5d                  3d
HSM +4     KDM +5       SPC (eghj)
```

The Walden was designed for police use in breaking through barricades and crippling vehicles. 　(*10mm x 2.1"*)

```
PISTOL     Semi Auto, Dart       "Wernzak Mk IV"
ROF 1or2   AMO V        PB  VS  SH  ME  LO  EX
ROL A      CYC n/a      +3  +2  +0  -2  -4  -8
CAP 4+1    WTE 3.5       -   -   -   -   -   -
CIR 2196   MIS 2%g      SPC (hj)
```

DRUG DART PENETRATION (in d4)

	PB	VS	SH	ME	LO	EX	BREAK%
V	2	1	1	.50	.50	.25	02%
V2	3	2	2	1	1	.50	03%
V3	4	3	3	2	1	1	03%
V4	5	4	4	3	2	1	05%
V5	6	5	5	4	3	2	10%
V6	7	6	6	5	4	3	20%

Weapon Skill

Weapons' skills can be developed with a single "specific" weapon. A character's skill points used for this specific skill will give a +1 on weapon's fire accuracy per three levels of skill achieved.

Rifles

RIFLE	Semi-Auto					"Weatherby 5000"	
ROF 1	AMO FM	PB	VS	SH	ME	LO	EX
ROL A	CYC n/a	-2	-1	+1	+3	+2	+2
CAP 4	WTE 10.0	EFFECTIVE				EX+	
CIR 2190	MIS 1%b	11d				8d	
HSM +4	KDM +10	SPC (fj)					

The Weatherby was designed for large or dangerous game. (*.460 Weatherby Magnum*)

RIFLE	Semi-Auto					"Type 393"	
ROF 1	AMO FGI	PB	VS	SH	ME	LO	EX
ROL B	CYC n/a	-1	0	+3	+6	+6	+6
CAP 30	WTE 11.0	EFFECTIVE				EX+	
CIR 2280	MIS 1%d	8d				5d	
HSM +5	KDM +2	SPC (bem)					

The standard Terran sniper rifle for over a century. (*8mm Caseless*)

RIFLE	Semi-Auto		"M44 Sniper Rifle"				
ROF 1	AMO FGI	PB	VS	SH	ME	LO	EX
ROL A	CYC n/a	-3	+1	+4	+4	+4	+4
CAP 40	WTE 11.0	EFFECTIVE				EX+	
CIR 2440	MIS 1%d	9d				5d	
HSM +5	KDM +2	SPC (bem)					

A new, military, sniper rifle in its final design stages that can be found for a price. It has full optical sensors, infrared, light amplification, laser sight, and a built-in silencer. (*8mm Caseless*)

RIFLE	Semi-Auto					"M1 Carbine"	
ROF 1or2	AMO FGIMP	PB	VS	SH	ME	LO	EX
ROL A	CYC n/a	0	+2	+3	+1	-2	-7
CAP 5/15	WTE 5.5	EFFECTIVE				EX+	
CIR 1940	MIS 1%d	3d				1d	
HSM +1	KDM -	SPC (jmn)					

This weapon was issued during the Terran World Wars and later in mass by the Brazilian Corporate States for their home guard. A 50 round "Banana Clip" was produced for use in the war against Mexico. (*.30 cal Carbine*)

RIFLE	Semi-Auto Dart		"Hartson 25A1"				
ROF 1or2	AMO V	PB	VS	SH	ME	LO	EX
ROL A	CYC n/a	-2	0	+3	+2	0	-2
CAP 8+1	WTE 10.0	EFFECTIVE				EX+	
CIR 2376	MIS 1%d	See Projectile V					
HSM -	KDM -	SPC (jmn)					

The Hartson designs are produced for the administration of sleep drugs, or similar substances from a distance.

RIFLE	Lever Action "Winchester Model 94"						
ROF 1	AMO O	PB	VS	SH	ME	LO	EX
ROL B	CYC n/a	0	0	+3	+2	+1	0
CAP 6+1	WTE 7.0	EFFECTIVE				EX+	
CIR 1894	MIS 1%d	6d				2d	
HSM +2	KDM +1	SPC (dj)					

Newest version of the most popular hunting rifle crafted on Earth. (*.30-30 Winchester*)

Assault Rifles

ASSAULT RIFLE					"Wolverine 906"		
ROF 1to3	AMO FGISX	PB	VS	SH	ME	LO	EX
ROL A	CYC 20a	0	+3	+3	+2	+2	0
CAP 50/80	WTE 6.0	EFFECTIVE				EX+	
CIR 2311	MIS 1%f	6d				2d	
HSM +5	KDM -	SPC (do)					

The standard "close assault" weapon for the ICL and Local Forces. It has a short barrel and folding stock. (*7mm Caseless*)

ASSAULT RIFLE					"Fistan'Kann"		
ROF 1or3	AMO FGI	PB	VS	SH	ME	LO	EX
ROL A	CYC 40a	0	+2	+3	+2	+1	-1
CAP 20/40	WTE 14.5	EFFECTIVE				EX+	
CIR 2150	MIS 1%d	8d				4d	
HSM +2	KDM +5	SPC (ejmn)					

Old Kymnar style assault rifle. Called the "Rolling Thunder" by Celestar "Targets.", it proved formidable and deadly. (*11mm KYMN*)

ASSAULT RIFLE					"Savlhyr Cab"		
ROF 1or3	AMO FGISX	PB	VS	SH	ME	LO	EX
ROL A	CYC 20a	-1	+1	+3	+3	+2	0
CAP 20/80	WTE 12.0	EFFECTIVE				EX+	
CIR 2401	MIS 1%f	8d				5d	
HSM +5	KDM +2	SPC (djmn)					

Used by Kymnar ICL and ISCO forces. Widely found on the frontier. (*8mm Caseless*)

ASSAULT RIFLE					"States Model 3"		
ROF 1or2	AMO FGI	PB	VS	SH	ME	LO	EX
ROL A	CYC 15a	-1	+1	+3	+3	+2	+1
CAP 35/50	WTE 4.5	EFFECTIVE				EX+	
CIR 2424	MIS 1%d	4d				1d	
HSM +4	KDM -	SPC (mnt)					

Common and inexpensive weapon produced by a small French arms manufacturer on the Blox homeworld and Earth. (*4.7mm Caseless*)
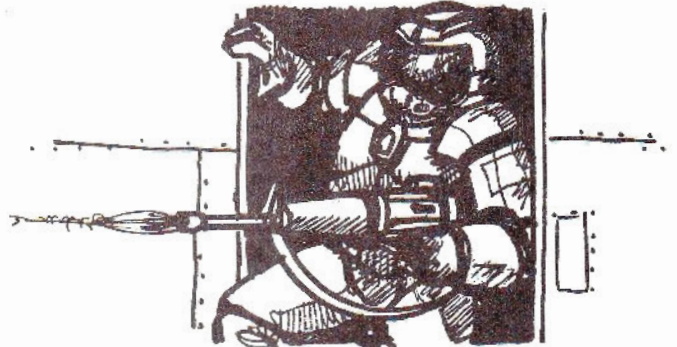
RIFLE	Semi-Auto		"ISCO Colonial M398"				
ROF 1or2	AMO FGIMQ	PB	VS	SH	ME	LO	EX
ROL A	CYC n/a	-1	0	+3	+4	+2	0
CAP 10+1	WTE 6.5	EFFECTIVE				EX+	
CIR 2398	MIS 1%f	6d				2d	
HSM +5	KDM -	SPC (djm)					

Low priced, high production rifle designed for general frontier use. (*7mm Caseless*)

RIFLE	Semi-Auto		"Krupp Model 3"				
ROF 1	AMO FMNPQTX	PB	VS	SH	ME	LO	EX
ROL B	CYC n/a	-1	0	+3	+5	+3	+1
CAP 2+1	WTE 9.0	EFFECTIVE				EX+	
CIR 2403	MIS 1%d	12d				8d	
HSM +5	KDM +5	SPC (ej)					

A sporting rifle for the connoisseur of big game. (*12mm Krupp Magnum*)

50

Lasers

Lasers differ from normal weapons in having a battery charge to expend. Each die of damage done with a laser reduces the charge five points. A 6d (six dice) shot will reduce the charge 30 points. Capacity (CAP) becomes (CHA)-points of charge.

PUL Rate

The cyclic (CYC) rate is now the number of pulses (PUL) that can be fired per action. This pulse number is adjustable from one to the PUL limit. Each pulse adds +1 to KDM and 2 points to damage. KDM in the case of laser hits is not the force of the laser but the reaction of the body's nervous system to a severe contact burn. This effectively creates a form of "knock-down".

Adjustable Damage

Dice of Damage can also be adjusted from 1 to the limit of the lasers d of damage. Laser damage is in burn.

Recharging

A laser can be recharged from normal house current at a rate of one point per minute.

Lasers can run continuously with the use of a man portable, fusion power pack. This 80 pound unit runs for 5 weeks on a unit of fuel. A laser powered by continuous power can also be used for warming, cutting metal, or welding. See Also Fusion Packs Pg. 120

Cartridge Lasers

The later development of a high voltage disposable capacitor (*.56 LAZ*) led to the design of cartridge fired lasers that ejected spent "battery" shells. Each cartridge is set for 4d6, 6d6, or 8d6 burn.

Stewart 85
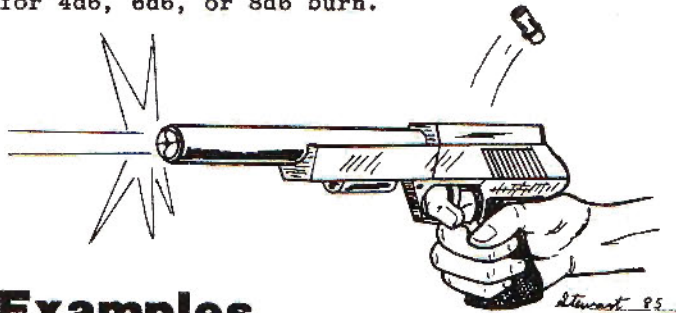
Examples

PISTOL	Laser					"GE M203"	
ROF 1		PB	VS	SH	ME	LO	EX
ROL C	PUL 3	+1	+2	+4	+4	+3	+3
CHA 100	WTE 4.5	EFFECTIVE				EX+	
CIR 2003	MIS 08%	4d				3d	
HSM –	KDM +1	SPC (hj)					

AMO Battery

Early laser pistol that found limited use until 2030. It was later mass produced in response to colonial demand. (*d4 Burn*)

PISTOL	Laser					"Brazilia 404"	
ROF 1	AMO Battery	PB	VS	SH	ME	LO	EX
ROL B	PUL 2	+1	+2	+4	+4	+4	+3
CHA 150	WTE 3.75	EFFECTIVE				EX+	
CIR 2054	MIS 03%	4d				3d	
HSM –	KDM +1	SPC (hjn)					

First mass produced laser used in space during the Brazilian Conflict. (*d6 Burn*)

PISTOL	Laser					"Mk 4 Burner"	
ROF 1or2	AMO Battery	PB	VS	SH	ME	LO	EX
ROL A	PUL 4	+1	+2	+4	+4	+4	+4
CHA 210	WTE 2.5	EFFECTIVE				EX+	
CIR 2162	MIS 03%	6d				5d	
HSM –	KDM +1	SPC (ckl)					

Used widely in space and on the frontier, its ease of repair made it the general sidearm of local and ISCO forces (*d6 Burn*)

RIFLE	Laser					"Leopard 86"	
ROF 1or2	AMO Battery	PB	VS	SH	ME	LO	EX
ROL A	PUL 4	-1	+1	+4	+6	+6	+5
CHA 300	WTE 9.5	EFFECTIVE				EX+	
CIR 2100	MIS 01%	10d				9d	
HSM –	KDM +1	SPC (jm)					

The standard laser rifle design for two centuries only modified by style of the weapon and optional features. (*d10 Burn*)

PISTOL	Semi-Auto Laser					"ISCO M335"	
ROF 1or2	AMO Z	PB	VS	SH	ME	LO	EX
ROL A	PUL 4	+1	+1	+4	+4	+4	+3
CAP 10+1	WTE 2.0	EFFECTIVE				EX+	
CIR 2335	MIS 1%d	4d/6d/8d				Same	
HSM –	KDM +1	SPC (ckl)					

First mass produced laser that fired from small, disposable capacitor cartridges that needed no other external power source or battery. Cartridges are pre-set for maximum damage. They can be filtered down.(*.56 LAZ*)

RIFLE	Semi-Auto					"Barete M2340"	
ROF 1or3	AMO Z	PB	VS	SH	ME	LO	EX
ROL A	PUL 4	-1	0	+4	+4	+4	+3
CAP 20/40	WTE 6.5	EFFECTIVE				EX+	
CIR 2340	MIS 1%d	6d/8d/10d				Same	
HSM –	KDM +2	SPC (jmns)					

First mass produced laser rifle to use the capacitor cartridge system. (*.56 LAZ*)

PISTOL	Semi-Auto					"Wexford"	
ROF 1	AMO Z	PB	VS	SH	ME	LO	EX
ROL Bx6	PUL n/a	+1	+3	+3	0	-3	-6
CAP 6	WTE 1.5	EFFECTIVE				EX+	
CIR 2432	MIS 1%g	4d				3d	
HSM –	KDM +1	SPC (lp)					

A new generation of ultra small, cartridge powered lasers for close combat. (*.257 LAZ*)

TRIPOD MOUNTED LASER						"M2422"	
ROF 1	AMO Battery	PB	VS	SH	ME	LO	EX
ROL –	PUL 25	-6	-4	0	+8	+6	+6
CAP 150	WTE 96	EFFECTIVE				EX+	
CIR 2422	MIS 01%	Up to 4x 1000				Same	
HSM +4	KDM +4	SPC (j)					

Standard tripod mounted mining, vehicle, or shuttle / ships laser. Damage is in a 4 point continuous burn x1000. (1000-4000 pts.) Has an extra d2 shots with its battery when external power fails.

MINING / SHIPS LASER						"Starlight F"	
ROF 1	AMO Battery	PB	VS	SH	ME	LO	EX
ROL –	PUL 50	-9	-6	-4	0	+6	+6
CAP –	WTE 464	EFFECTIVE				EX+	
CIR 2378	MIS 02%	Up to 10x 1000				Same	
HSM +10	KDM +8	SPC (j)					

Standard mining and ship laser powered by a 10x10 fusion generator. Has an extra d4 shots with its capacitor bank when the power fails. Has a 10 point continuous burn x1000. (1000-10,000 pts.)

SUB-MACHINE GUN — "Uru"

ROF 1to3	AMO FGH	PB	VS	SH	ME	LO	EX
ROL A	CYC 25a	0	+1	+2	+1	-2	-4
CAP 30	WTE 8.0	EFFECTIVE					EX+
CIR 1978	MIS 1%d	4d					1d
HSM +1	KDM -	SPC (gn)					

Standard issue to Brazilian troops for over 200 years. (*9mm Parabellum*)

SUB-MACHINE GUN — "Uzi"

ROF 1or3	AMO FGH	PB	VS	SH	ME	LO	EX
ROL A	CYC 20a	0	+1	+1	0	-2	-4
CAP 36	WTE 6.5	EFFECTIVE					EX+
CIR 2002	MIS 1%d	4d					1d
HSM +1	KDM -	SPC (gh)					

Standard Israeli military weapon, with a folding stock, that followed mankind into space. In different form it is still produced for police and colonists. (*9mm Parabellum*)

SUB-MACHINE GUN — "Wardrop Arms M27"

ROF 1or3	AMO FGH	PB	VS	SH	ME	LO	EX
ROL A	CYC 25a	+1	+1	0	-2	-4	-8
CAP 30	WTE 7.0	EFFECTIVE					EX+
CIR 2315	MIS 1%f	5d					2d
HSM +1	KDM +2	SPC (gh)					

First used by ISCO, the M27 has now become a common sidearm. (*9.47mm Caseless*)

SUB-MACHINE GUN — "Brul Paka"

ROF 1or3	AMO FGHR	PB	VS	SH	ME	LO	EX
ROL A	CYC 24a	+2	+1	0	-2	-4	-8
CAP 20/60	WTE 3.0	EFFECTIVE					EX+
CIR 2401	MIS 1%f	2d					1d
HSM +1	KDM -	SPC (cgn)					

Very small Bloxian weapon popular for undercover work or with the criminal elements of society. (*8.5mm BLOX Caseless*)

SUB-MACHINE GUN — "M3A1 Grease Gun"

ROF 1to3	AMO FGH	PB	VS	SH	ME	LO	EX
ROL A	CYC 15a	0	+1	+2	0	-3	-7
CAP 30	WTE 8.0	EFFECTIVE					EX+
CIR 1944	MIS 1%d	3d					1d
HSM -	KDM +3	SPC (dgi)					

Produced for over four centuries because of its inexpensive manufacture and general reliability. Older magazine types differ in MIS of up to 10%. (*.45 ACP*)

SUB-MACHINE GUN — "Thumper"

ROF 1or4	AMO FGH	PB	VS	SH	ME	LO	EX
ROL A	CYC 35a	+2	+2	+1	-2	-4	-8
CAP 35/90	WTE 15.0	EFFECTIVE					EX+
CIR 2006	MIS 1%d	6d					2d
HSM +1	KDM +3	SPC (ghjs)					

A light and concealable SMG (for a Dabe) Fired as single shot, 4 round burst, or CYC. Specials apply to Dabes only. (*12.4mm DABE*)

SUB-MACHINE GUN — "Beretta 207R"

ROF 1or3	AMO FGH	PB	VS	SH	ME	LO	EX
ROL A	CYC 3a	+3	+3	+2	0	-3	-7
CAP 15/20	WTE 2.0	EFFECTIVE					EX+
CIR 2280	MIS 1%d	4d					1d
HSM +1	KDM -	SPC (cgjkls)					

Popular Terran police weapon, this handy "machine pistol" comes with a folding stock and a variety of options. (*9mm Parabellum*)

REMEMBER

When ROF has the word "or", the weapon has a burst control limiting fire to the second number. A "to" indicates no burst control.

Machine Guns

MACHINE GUN, LIGHT — "ICO Standard C"

ROF 1to5	AMO FGI	PB	VS	SH	ME	LO	EX
ROL D	CYC 45a	-2	0	+1	+3	+5	+5
CAP 250	WTE 12.5	EFFECTIVE					EX+
CIR 2184	MIS 1%d	4d					1d
HSM +4	KDM -	SPC (gjmst)					

This weapon feeds from a belt in a box. It can be disassembled into a briefcase, and re-assembled in 10 +d10 actions. (*5.56mm*)

MACHINE GUN, LIGHT — "M60K"

ROF 1to5	AMO FGI	PB	VS	SH	ME	LO	EX
ROL D	CYC 20a	-2	0	+2	+3	+5	+5
CAP 100	WTE 15.0	EFFECTIVE					EX+
CIR 2079	MIS 1%d	7d					4d
HSM +5	KDM +2	SPC (jm)					

A special harness can be used to carry this weapon. From it's beginning in the late twentieth century it became a model for light machine guns for 250 years. (*7.62mm ICO*)

MACHINE GUN, SQUAD — "Mini-Gun"

ROF *	AMO FGI	PB	VS	SH	ME	LO	EX
ROL D	CYC 200a	0	0	+2	+3	+5	+4
CAP 7000	WTE 22.0	EFFECTIVE					EX+
CIR 2165	MIS 1%d	4d					1d
HSM +4	KDM -	SPC (n/a)					

A tripod or vehicle mounted, 6 barrel, electrically operated, belt-fed machine gun. Belts of 500 rounds each are packed in boxes. The (ROF) is controlled by a switch, and is variable between 1, 10, 20, and 50 rounds per burst. (*5.56mm*)

MACHINE GUN, MEDIUM — "Grefthrack 88"

ROF 1to5ea	AMO FGI	PB	VS	SH	ME	LO	EX
ROL D	CYC 20a	-1	0	+1	+2	+4	+7
CAP 300	WTE 41.5	EFFECTIVE					EX+
CIR 2131	MIS 1%d	6d					2d
HSM +4	KDM +2	SPC ()					

An older Bloxian weapon developed before human contact. This weapon consists of three seperate actions feeding from a common belt and mounted on a single frame. (*6.5mm BLOX*)

MACHINE GUN — "Hisst'n Kann"

ROF 3	AMO FGI	PB	VS	SH	ME	LO	EX
ROL B	CYC 50a	0	0	+1	+2	+3	+3
CAP 250	WTE 29.0	EFFECTIVE					EX+
CIR 2166	MIS 1%d	11d					5d
HSM +3	KDM +7	SPC (bj)					

Called "Screaming Thunder" it was a highly reliable weapon designed by the Kymnar and later used by the ICL. (*17mm KYMN*)

Revolvers

REVOLVER — "Colt Python"

ROF 1or2	AMO GHJOP	PB	VS	SH	ME	LO	EX
ROL B	CYC n/a	+3	+4	+3	+2	-1	0
CAP 6	WTE 3.5	EFFECTIVE					EX+
CIR 1955	MIS 1%g	4d					1d
HSM +2	KDM +1	SPC (abcdjkl)					

An incredibly expensive, hand fitted revolver produced in limited quantity by a 500 year old arms company. Their quality is second to none. (*.357 Magnum*)

All weapons that will fire the .357 Magnum round will also fire the .38 Special round as an alternate, at the damage of the .38 round.

Shotguns

The most effective, close combat weapon is the shotgun. These pellet firing descendants of the simple cannon have versatility and outstanding stopping power. Shotguns often have a "choke" that controls the spread of the pellets fired.

REMEMBER

01 Shotgun damage is controlled by the diameter of the muzzle of the barrel, commonly called the choke.

02 At closer ranges shotguns have the effect of hitting targets like a single projectile over a wider area. At longer ranges shotgun damage becomes HBD or Whole Body Damage.

03 Damage is indexed from pellet type and the damage dice of the pellet listed under type of dice. Damage listed is in dice of damage, the number of dice at that general range.

TYPE	PELLETS HITTING	PB	VS	SH	ME	LO	VL	DICE
Slug	1	6a	6a	5a	4a	3a	2a	d10
000 Buck	d8	8a	7b	5c	3d	1h	1h	d6
00 Buck	d10	7b	6c	4d	2e	1h	1h	d6
0 Buck	d12	6c	5d	3e	2f	1h	1h	d6
#1 Shot	2d8	4d	3c	2f	1g	1h	1h	d4
#4 Shot	3d20	3d	2c	1f	1g	1h	1h	d2

Run the number of pellets shot through the Automatic Weapons Hit Chart for true quantity of pellets hitting.

All listings above are for a shotgun set on normal fire. If a choke is used consult the table below for a change in the pattern of the damage spread.

FUL =Full Choke   HAF= Half Choke   OPE= Open

FUL	HAF	OPE	AREA EFFECT
a	a	b	a Single Area Hit
a	b	c	b Two, Adjacent Areas Hit
b	c	d	c Three, Adjacent Areas Hit
c	d	e	d Four, Adjacent Areas Hit
d	e	f	e Wide-Spread Same Area
e	f	g	f Very Wide-Spread (2 areas)
f	g	h	g Extreme-Spread (d4 areas)
–	h	–	h Whole Body Damage Only

Shotgun AMO Number of Pellets

COMMON SHOT TYPE		SHOT DIAMETER	SHOTGUN GUAGE			
			10	12	16	20
L	000 Buck	.36"	12	08	06	03
L1	00 Buck	.33"	16	09	07	04
L2	0 Buck	.32"	18	12	09	05
L3	1 Buck	.30"	20	16	12	07
L4	3 Buck	.25"	37	25	22	18
L5	4 Buck	.24"	54	27	25	21
M	BB Shot	.18"	100	63	56	50
M6	7.5 Shot	.095"	700	438	394	350
Q	SLUG	See AMO D	7d	6d	5d	4d
HSM MODIFIER			+3	+2	+1	+1
KDM MODIFIER			+9	+6	+4	+2

Always pick a central point for the first pellet that hits.
Randomize the direction of the adjacent hits.

```
5           6
      1
4    ⊕    2
      3
8           7
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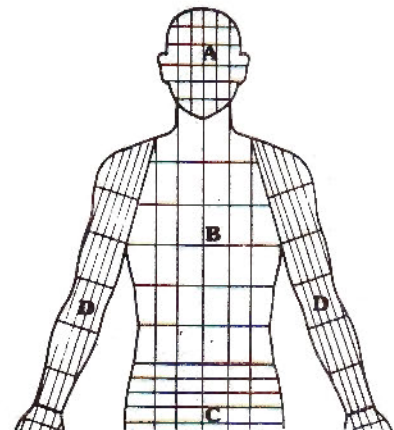

SHOTGUN	Double Barrel			"Sporting"		
ROF 1or2	AMO LMQ	PB	VS	SH	ME	LO VL
ROL B	CYC n/a	-1	0	+2	+1	0 0
CAP 2	WTE 6.5	–	–	–	–	– –
CIR 1900	MIS 1%b	SPC (eq)				

This is a generic listing for a myriad of different brands of firearm fitting the same description. (*10,12,20 or .410 guage*)

SHOTGUN	Pump			"Sport or Police"		
ROF 1	AMO LMQ	PB	VS	SH	ME	LO VL
ROL B	CYC n/a	-1	0	+2	+1	0 0
CAP 5+1	WTE 7.5	–	–	–	–	– –
CIR 2000	MIS 1%b	SPC (enr)				

A generic term for a number of different weapon brands. Sporting versions usually have the magazine plugged for CAP of 3+1 due to game hunting regulations. (*12 guage*)

SHOTGUN	Single Barrel			"Light Hunting"		
ROF 1	AMO LMQ	PB	VS	SH	ME	LO VL
ROL B	CYC n/a	-1	0	+2	+1	0 0
CAP 1	WTE 5.0	–	–	–	–	– –
CIR 1900	MIS 1%b	SPC (d)				

A light weight sporting gun for use on small game or varments. (* .410 guage*)

SHOTGUN	Semi-Auto			"Kymnarn Gerah"		
ROF 1	AMO LMQ	PB	VS	SH	ME	LO VL
ROL B	CYC n/a	-1	0	+2	+1	0 0
CAP 2+1	WTE 22.0	–	–	–	–	– –
CIR 2100	MIS 1%d	SPC (fr)				

This massive weapon was developed for military use, stopping crowds, and lightly armored vehicles. (*10 guage 3.5" magnum*)

SHOTGUN	Assault			"Kymnarn Ranger"		
ROF 1to3	AMO LMQ	PB	VS	SH	ME	LO VL
ROL A	CYC 10a	-1	0	+2	+1	0 0
CAP 10or40	WTE 14.0	–	–	–	–	– –
CIR 2400	MIS 1%d	SPC (dqr)				

The popular Kymnar combat shotgun has a standard 10 round box magazine, or a 40 round electric drum. (*10 or 12 guage*)

SHOTGUN	Semi-Auto			"Double Auto"		
ROF 2	AMO LMQ	PB	VS	SH	ME	LO VL
ROL B	CYC n/a	-1	0	+2	+1	0 0
CAP 8 x2	WTE 16.0	–	–	–	–	– –
CIR 1984	MIS 1%d	SPC (fqr)				

A custom-made, semi-auto with two separate barrels and a magazine to feed each barrel. Both barrels are fired with a single trigger pull. If a jam occurs roll for R or L barrel, the other will continue to function normally. (*10 or 12 guage*)

Launchers

LAUNCHER	Grenade Launcher		"M-99 Thump Gun"
ROF 1	AMO 40mm Variable		
ROL A	CYC n/a	MINIMUM	MAXIMUM
CAP 4	WTE 4.0	RANGE	RANGE
CIR 2296	MIS 1%d	50 ft.	2500 ft.

A simple, shotgun-styled grenade launcher.

LAUNCHER	Grenade Launcher		"VGL 8"
ROF 1	AMO 40mm Variable		
ROL A	CYC n/a	MINIMUM	MAXIMUM
CAP 1	WTE 3.0	RANGE	RANGE
CIR 2400	MIS 1%d	50 ft.	2500 ft.

A clip-on 40mm grenade launcher.

LAUNCHER	Grenade Launcher		"ABASA"
ROF 1or2	AMO 40mm Variable		
ROL B	CYC n/a	MINIMUM	MAXIMUM
CAP 2	WTE 3.5	RANGE	RANGE
CIR 2415	MIS 1%d	50 ft.	2200 ft.

Pistol styled, with a collapsing stock.

40mm Rounds

		BLA	BUR	FRA
M381	High Explosive	1500*	2d6	d 4-1
M381b	Armor Piercing	2000*b	2d10	d10-1
M381c	Anti-Personnel	150*	2d10	See C
M433	HEAP Anti-Person.	1500*c	4d6	See B
M433d	Incendiary	150*	9d10	See A
M651E1	Tear Gas	10	d4	n/a
M651E2	Tear & Vomit Gas	10	d4	n/a
M651E3	BZ, BX, BN Agents	10	d4	n/a
M583	Parachute Flare	(5 minutes)		
M585	Star Shell	(1 minute)		
SPEC	Stunbag 400 ft. range	See Heavy Stun		
SPEC	Smoke in any color			

* = Standard use of blast and burn.
*b = Blast is uni-directional, reduce value by 50% in other directions.
*c = Combines * and b with no reduction of blast due to shaped charge.
ABC = See Fragmentation in Grenades

LAUNCHER	MORTAR		"ICL Mortar"
ROF 1	AMO Variable		
ROL A	CYC n/a	MINUMUM	MAXIMUM
CAP 1	WTE 90.0	RANGE	RANGE
CIR 2400	MIS 01%d	250 ft.	5 mi.

Use the 40mm shell tables with a damage or flare burn multiplier of x4. It can be computer linked or manually fired.

REMEMBER:

For missile fire use accuracy with normal modifiers and a d10 bonus for any special missiles when sensors aid targeting. For indirect fire imagine a clock face over your target, roll a d12 for the direction of the shell fall. Index the indirect fire distance chart. Moving targets always index from #3.

For every three levels of specific type of launcher skill, add 1 to your shot number. A computer assist adds 4 to the shot number.

	STILL TARGET	
SHOT NUMBER		NUMBER OF FEET FROM TARGET
01	First Shot	3x d100
02	Second Shot	2x d100
03	Third Shot or Moving	d100
04	Fourth Shot	5 d10
05	Fifth Shot	3 d10
06	Sixth Shot	2 d10
07	Seventh Shot	d10

LAUNCHER	LIGHT, ANTI-ARMOR		"MK VII VP"
ROF 1	AMO HE Rocket		
ROL A	CYC n/a	MINIMUM	MAXIMUM
CAP 1	WTE 2.0	RANGE	RANGE
CIR 2375	MIS 1% fails	115 ft.	4700 ft.
BLAST 3400	BURN 6d10	BACKBLAST	d4

A one-shot, hand held launcher.

LAUNCHER	LIGHT, ANTI-ARMOR		"Armburst 9000"
ROF 1	AMO HE Shell		
ROL A	CYC n/a	MINIMUM	MAXIMUM
CAP 6	WTE 5.0	RANGE	RANGE
CIR 2290	MIS 1% fails	275 ft.	5600 ft.
BLAST 6600	BURN 10d10	BACKBLAST	d4

Disposable launcher with no recoil, flash, or loud noise.

LAUNCHER	MEDIUM, LASER GUIDED		"C'Changa"
ROF 1	AMO HE Rocket		
ROL B	CYC n/a	MINIMUM	MAXIMUM
CAP 1	WTE 32.0	RANGE	RANGE
CIR 2370	MIS 1% fails	500 ft.	8200 ft.
BLAST 8400	BURN 15d10	BACKBLAST	d10

A portable, guided missile.

LAUNCHER	HEAVY, SMART GUIDED		"Avenger"
ROF 1	AMO HE Rocket		
ROL B	CYC n/a	MINIMUM	MAXIMUM
CAP 1	WTE 41.0	RANGE	RANGE
CIR 2384	MIS 1% fails	475 ft.	11 mi.
BLAST 2400	BURN 15d10	BACKBLAST	d10

An air or ground vehicle fired missile.

LAUNCHER	LIGHT, ANTI-AIRCRAFT		"SW M2414"
ROF 1	AMO HE Rocket		
ROL A	CYC n/a	MINIMUM	MAXIMUM
CAP 1	WTE 37.0	RANGE	RANGE
CIR 2414	MIS 1% fails	1000 ft.	14000 ft.
BLAST 1500	BURN 4d10	BACKBLAST	d6

A "smart", heat / energy-seeking missile.

FLAME THROWER, LIGHT			"NOR 35"
ROF 1	AMO 10 Uses		
ROL C	CYC n/a	MINIMUM	MAXIMUM
CAP 3.5g	WTE 39.0	RANGE	RANGE
CIR 2299	MIS 2% fails	6 ft.	219 ft.
BLAST n/a	BURN 20d10	BACKBLAST	-

Backpack styled-flame thrower. Fuel may be ignited or cold when sprayed.

FLAME THROWER, LIGHT			"HAFLA 235M"
ROF 1or2	AMO Shell		
ROL A	CYC n/a	MINIMUM	MAXIMUM
CAP 1	WTE 1.5	RANGE	RANGE
CIR 2112	MIS 1% fails	25 ft.	465 ft.
BLAST 30	BURN 6d10	BACKBLAST	-.

Fires a phosphorus incendiary shell from a pistol-styled, disposable launcher.
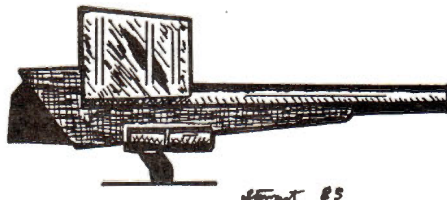
Vehicles may have an optional missile pod that is computer or manually controlled.

Damage from these missiles is indexed from the 40mm round table with a multiplier of x2. Pods contain 6 to 24 missiles.

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Explosives

Explosives come in many variable strengths and types. Some general examples include:

NAME	STYLE	FUSE	DAMAGE PER UNIT
TNT	BL	ABC	200 pts.
C-4	BL	BC	268 pts.
C-4 (Demo-Pack)	12BL	BC	3216 pts.
C-6	BL	BC	560 pts.
C-6 (Demo-Pack)	10BL	BC	5600 pts.
C-8	BL	BC	850 pts.
C-8 (Demo-Pack)	16BL	BC	13600 pts.
Fuse (waterproof)	Cord	–	1 per inch.
Primer Cord	Cord	–	4 per inch.

DYNAMITE			
Colony	ST	ABC	184 pts.
Early	ST	ABC	122 pts.
Commercial 60%	ST	ABC	166 pts.
Gelatin 60%	ST	ABC	152 pts.
Black Powder	PD	ABC	110 pts.
Nitro	DI	ABC	220 pts.

BL A small, rectangular block.
ST Stick. 12" long, 1" wide.
DI A 2 inch by .25 inch disk.
PD Packed powder.

Detonators

	DETONATOR FIRING DETONATOR						
	A	B	C	H	E	M	I
A= Fuse	A	y	y	y	y	n	y	n
B= Blasting Cap	B	y	y	y	n	y	n	n
C= Primer Cord	C	y	y	y	n	n	n	y

H= Heat Source
E= Electrical   RESULT
H= Chemical   n= No
I= Impact   y= Yes

Explosive detonators may be mechanical or electrical. Special detonators can be timed up to 30 minutes or fired immediately at the players or GM's choice.

Powder

CHANCE OF IGNITION			
ARCHAIC POWDERS	WET	DAMP	NORM
A Serpentine Powder	0%	35%	80%
B Corned-Black Powder	0%	35%	80%

GRADED BLACK POWDER				TYPE
C1 Cannon Powder	05%	45%	95%	
C2 Large-Bore Weapons	04%	50%	98%	Fg
C3 Medium-Bore	02%	45%	98%	FFg
C4 Small-Bore	01%	35%	95%	FFFg
C5 Priming Powder	0%	30%	95%	FFFFg
D Modern Smokeless	20%	90%	99%	

WEAPONS IGNITION	WET	DAMP	NORM
A Burning Stick	02%	30%	75%
B Hot Wire	04%	35%	85%
C Slow-Burning Match	01%	30%	80%
D Slow-Burning Fuse	05%	45%	85%
E Wheellock	10%	50%	85%
F Flintlock	10%	50%	85%
G Percussion Cap	20%	58%	95%
H Rim-Fire Cartridge	75%	89%	95%
I Pin-Fire Cartridge	65%	85%	90%
J Center-Fire Cartridge	85%	95%	99%
K Caseless	98%	99%	99%
L Modern Percussion Cap	90%	97%	99%

Grenades

Grenades are as varied in shape and function as the races who create them. Timers can range from simple, pre-set screw in fuses to voice activated mini-computers that can change their flight path or wait until their target is within range. Remember; these listings are generalizations to modify.

TYPE	BLAST	BURN
High Explosive	200	d10
Smoke (see ACC modifiers)	4	d6
Incendiary (80 foot circle)	50	6d10
Illumination (as a flare)	–	d10
Phosphorus (see burn damage)	65	–
Fragmentation (low-yield)	110	–
Fragmentation (high-yield)	140	d6
Stun	25	d6

Fragments

	DISTANCE IN FEET						
	40	30	25	20	15	10	05
(A) LOW-YIELD	0	1	d2	d4	d4	d6	d8
(B) HIGH-YIELD	1	d2	d4	d6	d8	d10	d20
(C) PHOSPHORUS	0	0	1	d2	d4	d4	d6

REMEMBER
01 Grenades explode with damage from blast and metal fragments that travel with penetration equal to the force of the blast divided by the distance of the target in feet.
02 Smoke, chemical, and gas grenades create a dense cloud, 50+ feet in diameter, that travels in the direction of the wind.

Gas Grenades

BZ   HAPPY HALLUCINOGENIC
    DE: 15 a   DU: d4+4 hrs.   DX: 05%
BX   FEAR CAUSING HALLUCINOGENIC
    DE: 15 a   DU: 3d8 hrs.   DX: 08%
BN   OPTIC DISRUPTIVE
    DE: 1 min.   DU: d6+9 hrs.   DX: 01%
CN   TEAR GAS
    DE: Contact   DU: d6 hrs.   DX: 01%
DM   VOMIT / NAUSEA GAS
    DE: Contact   DU: d4 hrs.   DX: 01%
SL   SLEEP GAS
    DE: 30 a   DU: d6+6 hrs.   DX: 01%
NG   NERVE AGENT
    DE: 10 a   DU: 24+ hrs.   DX: 95%
PO   POISON GAS (specific toxin types)
SM   SMOKE   DU: 2 min.
    Creates a dense cloud of smoke.

DE=DELAY TO EFFECT
Time until the full effect takes place.
DU=DURATION
The duration of the effects of the agent.
DX=Death %
The chance of an allergic or highly toxic reaction to the agent. Treat as a d10 poison. This is a one time roll.

Bows

EARLY BOW	PB	VS	SH	ME	LO	EX
Arrow Type:ABC	0	+1	+4	+3	0	-3
Break 06%a	3	3	2	2	1	1

LONG BOW	PB	VS	SH	ME	LO	EX
Arrow Type:A-D2	0	+1	+4	+4	+2	0
Break 03%a	4	4	3	2	1	1

MODERN BOW	PB	VS	SH	ME	LO	EX
Arrow Type:E1-5	0	+1	+4	+3	+1	0
Break 02%a	4	3	2	2	1	1

COMPOUND	PB	VS	SH	ME	LO	EX
Arrow Type:E1-5	0	+1	+5	+5	+3	+1
Break 01%b	4	4	3	3	2	1

ARBELEST	PB	VS	SH	ME	LO	EX
Bolt Type:A-D3	-1	+1	+4	+3	-4	0
Break 07%b	4	4	4	3	3	1

CROSS BOW	PB	VS	SH	ME	LO	EX
Bolt Type:E1-5	-1	+1	+4	+3	+2	+1
Break 01%b	5	5	4	3	3	2

PISTOL CROSS BOW	PB	VS	SH	ME	LO	EX
Bolt Type:E1-5	+4	+3	+2	0	-4	-8
Break 03%b	3	3	3	2	1	1

WRIST BOW	PB	VS	SH	ME	LO	EX
Bolt Type:E1-5	+3	+2	+1	0	-8	-12
Break 05%b	3	3	2	2	1	1

VAC CROSS BOW	PB	VS	SH	ME	LO	EX
Bolt Type:F1-4	-6	-2	+2	+4	+2	0
Break 10%b	1	2	3	4	6	6

JAPANESE BOW	PB	VS	SH	ME	LO	EX
Bolt Type:A-E	0	+2	+4	+3	+2	+1
Break 01%a	4	4	3	2	2	1

ARROW TYPE	BREAKAGE %	DAMAGE DICE
A Blunt Wood	30%	d4
B Pointed Wood	40%	d4 +1
C ARROWHEAD:		
Stone, Bone, Shell	55%	d6
D EARLY METAL		
01 Bronze	40%	d6
02 Iron	20%	d6
03 Steel	10%	d6
E MODERN		
01 Target	03%	d4 +1
02 Broadhead	01%	d6
03 (3) Blade	02%	d6 +1
04 (4) Blades	03%	d6 +2
05 Fishing	03%	d4 +2
F SPECIAL		
01 Rocket Assist	05%	d6 +4
02 Explosive	99%	(blast 3d6)
03 Incendiary	95%	(burn 2d4)
04 Stun	25%	(stun d10 +3)
05 Tagging	95%	(splashes paint)
06 Gas	95%	(see gas effects)
07 Electric	10%	d4 -1

Arrow creates a heavy stun effect if it penetrates skin on human-sized targets.

BREAK A		BREAK B	
01-07	String Snaps	01-07	String Snaps
08-09	Bow Cracks	08-09	Mechanical
10	Bow Breaks	10	Bow Breaks

Choices

The FTL character has a choice of the latest military and civilian weapons or personal preferences. He or she can even go so far as to have special weapons fabricated at a cost of d10 +6 weeks of construction time if the request is justified and accepted by the GM. Unfortunately, gun control laws are often very strict on Stations, Ships, and Cities.

Equipment

Equipment is the characters choice as long as the GM does not feel the player is over stocking his basic load beyond sensibility.

Armor

Personal body armor is the player's choice as long as AGL modifiers are followed.
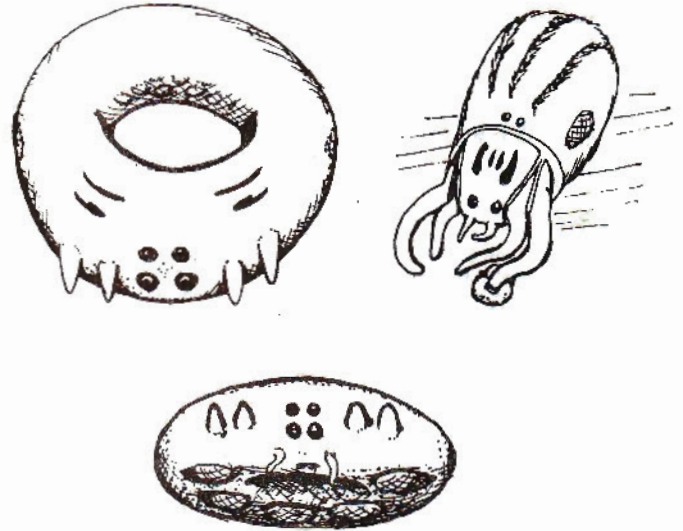
Alien Weapons

Whurr vehicles and weapons are entirely bioengineered from lesser life forms. Along with their ships, comes a living weapon that disrupts bioelectrical fields. The Zecchh shown will paralyze or stun living creatures. The Zecchh has 10 charges before a half hour feeding is necessary.

D = Dazed for d10 actions
    Reduce physical statistics x .50
P = Paralyzed for d4 minutes.
S = Stunned for d10 minutes.
X = 30% Chance of Deathshock

TARGETS MASS Lbs.	WEAPON SETTING							
	1	2	3	4	5	6	7	8
01- 25	P	P	P	S	S	S	X	X
26-100	D	P	P	P	S	S	S	x
101-200	D	D	P	P	P	S	S	S
201-300	D	D	D	P	P	P	S	S
301-400	-	D	D	D	P	P	P	S
400+	-	-	D	D	D	P	P	P

Vehicle Weapons

There are a wide variety of weapons that are adaptable for use on vehicles. These may be fixed, set on vehicle mounts, or installed in turrets.

Mini-Pod

The most common small vehicle weapon is the mini-rocket pod. Controlled by manual trigger or a simple computer and joystick system, these .75 inch rockets have a 2000 foot range. See 40mm rounds on page 54 for damage equivalencies and optional types of warheads. Rockets may also hold CNDM or other types of gas that create a 40x40 cloud. See page 55 for gas types. Depending on size, Pods can hold up to 30 rockets.
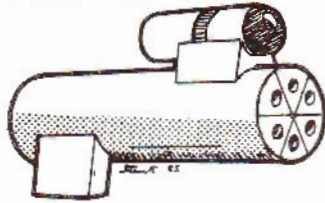
Lasers

A second common weapon for frontier use is the vehicle mounted laser. Controlled in the same manner as the rocket pod, the laser can be a formidable weapon or a tool.

Uncommon, but effective, is the vehicle mounted machine gun. This is a manual or computer controlled unit. See the M344 light machine gun on page 52. On heavier vehicles a 30, or 50 cal. version may be substituted. Launchers may also use 40mm rounds fired from computer controlled pods or line of sight launcher packs of up to 24 rounds.

Damage

Roll a d100 for damage to externally mounted vehicle weapons.

01-50 WEAPON JAMS
Takes 4d10 actions to restore.
51-75 SERVO PARTIAL JAM
Limits the firing of the weapon to half of its previous arc of fire.
76-85 SERVO JAMS
Limits the firing of the weapon to its last direction
86-95 ANMUNITION DAMAGED
Limits next firing to a 50% chance of successful fire due to minor damage in linked belt or feed mechanism.
96-97 COMPUTER LINK FAILS
Internal operation of weapon severed from weapon. May be operated manually by external triggers.
98 WEAPON DETONATES
Fragmentation to unprotected personnel and minor damage to vehicle. Weapon totally useless.
99 AMMUNITION DETONATES / LASER OVERLOAD
Ammunition fires from holder or will launch without directional control.
00 RUNAWAY FIRING
Ammunition supply will continue to fire until exhausted or overloaded.

Vehicle Failure

Roll a d100 with any modifiers every 200 hours of general ground vehicle use.

WEATHER, DRIVING, & ROADS

Very Rough Driving	+5	Combat Driving	+4
Extremes of Weather	+2	Rough Roads	+1
Very Rough Roads	+2	High Mountains	+2
Road Debris, If Hit	+2	Fine Dust	+1

COLLISION & REPAIR
After Minor Collision   +3
After Major Collision   +6
Lack of Maintenance   +5
No Auto Repair Skills   +3

VEHICLE TYPE

ATV (wheeled / track)	-1	TRUCK/JEEP	-1
URBAN COMPACT	+3	URBAN MIDSIZED	+1

RESULT
01-75 NO PROBLEMS
76-85 Needs "SPECIAL MAINTENANCE" of d10 hours work, otherwise add a +d10 to the vehicles next system check. (Compound with lack of maintenance.)
86-95 MINOR FAILURE Vehicle needs 2d10 hours of repairs.
96-98 MAJOR FAILURE Vehicle needs 4d10 hours repair time.
99 CRITICAL FAILURE Vehicle needs special replacement parts if available.
00 TERMINAL FAILURE Vehicle has suffered destruction of major parts and will not move until replaced, with 20+ 2d10 hours work required.

01 BRAKES
01 Seals   03 Wheel Assembly
02 Linkage   04 Master Cylinder
02 TIRES / HOVER SKIRT
01 Flat   04 Shifted Belt
02 Bearings   05 Slow Rim Leak
03 Slow Leak   06 Stem Leak
03 STEERING
01 Pump   03 Line
02 Belts   04 Linkage
04 FUEL SYSTEM
01 Filter   03 Fuel Quality
02 Fuel Pump   04 Fuel Line
05 ELECTRICAL
01 Battery   06 Voltage Regulator
02 Alternator   07 Fuel Pre-Warmer
03 Starter   08 Distributor or Coil
04 Wiring   09 Lights
05 Fuses   10 Auxiliaries
05b ELECTRIC VEHICLES / GRAV VEHICLES
01 Fusion Pack   03 Wiring
02 0-Grav Pack   04 Fuel Cell
06 COOLING SYSTEM
01 Oil Pump   03 Hoses
02 Coolant Pump   04 Air Conditioner
07 CARBURETOR
01 Parts   02 Adjustment
08 TRANSMISSION
01 d4 Gears   02 Reverse
09 SUSPENSION
01 Ball Joints   03 Shocks
02 Springs   04 Axles
10 ENGINE
01 Lifters   04 Valves
02 Rods   05 Cam Shaft
03 Pistons   06 Exhaust

Weapons Generation

These tables allow for the random creation of firearms that could be found on other worlds.

The GM may generate a few dozen to have on the side. Results may go from outstanding to whimsical for random designs, though they may be surprisingly effective.

Start with a blank card or use the bottoms of photocopied equipment sheets.

Type

01-10	Handgun
11-16	Rifle
17-18	Shotgun
19	Assault Rifle
20	Laser

RATE OF FIRE / CYCLIC ACTION

Roll a d6 for the rate of fire and index over to find the weapon's cyclic action. Where there is no cyclic action the weapon is semi-auto or other. Lasers have a d6 for their rate of maximum pulse.

RESULT	ROF	CYCLIC	RESULT	ROF	CYCLIC
01	1	n/a*	04	1/3	20a
02	1/2	n/a*	05	1/3	30a
03	1/3	n/a*	06	1/3/6	40a

* Weapons with this designation may be of these types.

	TYPE	CAPACITY
01	Bolt-Action	d6 Rounds
02	Manual Load	d10 Rounds
03-06	Separate Box	3d10 Rounds
07-08	Grip Box	4d4 Rounds
09	Cylinder	2d4 Rounds
10	Feed Tube	2d6 Rounds

Weapons without the * designation may be of these types.

	TYPE	CAPACITY
01-04	Separate Box	4d10 Rounds
05-06	Grip Box	5d4 Rounds
07-08	Drum	6d10 Rounds
09	Belt Fed	Any Amount
10	Manual Load	2d10 Rounds

WEIGHT IN POUNDS

PISTOL	TYPE	WEIGHT	RIFLE	TYPE	WEIGHT
01-02	Light	.50	01-02	Light	4.00
03-04	Medium	1.50	03-04	Medium	7.00
05-06	Heavy	3.00	05-06	Heavy	10.00

SHOTGUN	TYPE	WEIGHT	LASER	TYPE	WEIGHT
01-02	Light	5.00	01-02	Light	2.00
03-04	Medium	8.00	03-04	Medium	3.00
05-06	Heavy	12.00	05-06	Heavy	4.00

Ammunition (AMO) is the choice of the GM, depending on availability of the shells required and technology of manufacture.

Lasers will use capacitor rounds or a battery in the form of magazine.

Accuracy

TYPE	RATING	PB	VS	SH	ME	LO	EX
01 Handgun	Awful	0	-1	-3	-5	-7	-10
Rifle	Awful	-4	-4	0	-2	-4	-8
Shotgun	Awful	0	-1	-2	-3	-5	-8
02 Handgun	Bad	0	0	-2	-3	-6	-8
Rifle	Bad	-3	-3	-2	-1	-3	-5
Shotgun	Bad	-1	0	0	-1	-5	-8
03 Handgun	Poor	+2	+1	0	-1	-3	-6
Rifle	Poor	-3	-2	-1	0	-1	-2
Shotgun	Poor	-1	0	+1	0	-2	-6
04 Handgun	Average	+3	+2	+2	0	-2	-4
Rifle	Average	-2	-1	0	+1	+1	0
Shotgun	Average	-1	0	+2	+0	-1	-4
05 Handgun	Good	+4	+3	+2	+1	0	-2
Rifle	Good	-1	+1	+2	+1	+1	+2
Shotgun	Good	-1	0	+2	+1	0	-4
06 Handgun	Great	+4	+4	+3	+2	0	-2
Rifle	Great	0	0	+1	+2	+3	+3
Shotgun	Great	-1	+1	+2	+2	+1	0

Lasers have an average accuracy modifier that seldom varies.

	PB	VS	SH	ME	LO	EX
	+1	+1	+4	+4	+4	+3

Damage

WEAPON DAMAGE

TYPE	RATING	PB	VS	SH	ME	LO	EX
01 Handgun	Awful	EFFECTIVE 1d				EX+	1d
Rifle	Awful	EFFECTIVE 2d				EX+	1d
Shotgun	Awful	Damage x.25 on Total					
02 Handgun	Poor	EFFECTIVE 2d				EX+	1d
Rifle	Poor	EFFECTIVE 3d				EX+	1d
Shotgun	Poor	Damage x.50 on Total					
03 Handgun	Fair	EFFECTIVE 3d				EX+	2d
Rifle	Fair	EFFECTIVE 4d				EX+	2d
Shotgun	Fair	Damage x.75 on Total					
04 Handgun	Average	EFFECTIVE 4d				EX+	1d
Rifle	Average	EFFECTIVE 5d				EX+	2d
Shotgun	Average	Damage x1.0 on Total					
05 Handgun	Good	EFFECTIVE 4d				EX+	2d
Rifle	Good	EFFECTIVE 6d				EX+	3d
Shotgun	Good	Damage x1.25 on Total					
06 Handgun	Great	EFFECTIVE 5d				EX+	2d
Rifle	Great	EFFECTIVE 7d				EX+	3d
Shotgun	Great	Damage x1.50 on Total					

These weapon damages are the combined factors of a weapon's efficiency and the AMO specific to that type of weapon.

These damages can be modified by a player character's research and use of gunsmithing or the purchase (GM approved) of better grades of ammunition.

A shotguns design changes pellet damage by the modification of final (HBD) damage.

It is always fun to add idiosyncracies to weapons including: jamming, sticking, hard to get ammunition, sensitivity to specific environment and unpopularity are suggested.
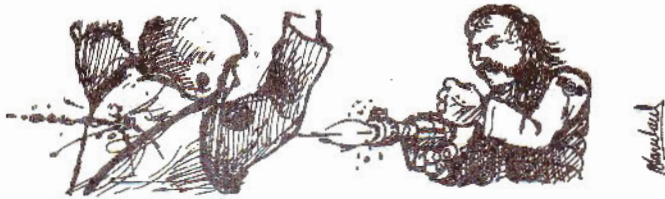
Human Fast Kill

In fast action situations the complete generation of antagonists is a waste of the GM's time. Other than accuracy and agility, disposable or generalized NPCs should be created in batch and kept on file.

The following charts speed disposal of NPC characters and animals in a simple fashion.

If the GM wishes to add a little realism and uncertainty to the game, roll on the options table when a fast kill is attempted.

REMEMBER

01 Every projectile striking a target per action adds a +1 on the result total.
02 Modifiers do not affect a roll on the options table.
03 In some cases an option will not work for a particular situation.
04 This table may also be used for alien life. It is recommended this table not be used for player character wounds.

Result

01 Victim is grazed.
02 Victim is grazed and loses next action.
03 Minor wound lightly stuns victim.
04 Wound stuns victim for d6 minutes.
05 Wound stuns victim for d6+10 minutes.
06 Critical wound, NPC falls unconscious after next action.
07 Critical wound, NPC falls unconscious after one action, dies in d10 minutes.
08 Critical wound, NPC falls unconscious immediately. Dies in d10 minutes.
09 Critical wound, NPC falls unconscious and dies in d4 minutes without aid.
10 Victim falls unconscious, dies.
11+ Victim dead before he hits the ground.

Option

01 Victim is spun by shot. Must take d4 actions to recover.
02 Victim's armor reduces first table roll by d4 on the initial d10 roll.
03 Victim's armor reduces first table roll by d4 +2 on the initial d10 roll.
04 Victim fumbles next action.
05 Victim is knocked d4 feet backwards by shot. Takes d6 actions to recover.
06 Obstruction or possession deflects the shot. Knocks victim backwards as #5.
07 Fear reduces the victim's accuracy by d6 on the next shot if the next action is weapons fire.
08 Obstruction or possession deflects the shot totally. No action penalty to NPC.
09 NPC's weapon jams or disfunctions on the next or last action.
10 If NPC is alive after and conscious after being hit, he will feign death, (play possum) until he has an advantage.

Animal Fast Kill

Use this table in the same way as the first set of tables with these results:

01 Victim is grazed.
02 Victim is grazed and loses next action.
03 Minor wound lightly stuns victim.
04 Wound stuns victim for d6 minutes.
05 Wound stuns victim for d6 +4 minutes.
06 Critical wound, victim falls unconscious after next action.
07 Critical wound, victim falls unconscious after next action and dies in d10 minutes.
08 Critical wound, victim falls unconscious after next action and dies in d6 minutes.
09 Victim falls unconscious, dies d4 minutes.
10 Victim falls unconscious, dies.
11 Victim dropped in its tracks.

Option

01 Victim flees in terror if alive.
02 Victim flees in terror in direction of attacker if still alive.
03 Deflection reduces attacker's primary dice result by d4.
04 Victim will feign death until attacker leaves or death occurs.
05 Victim will feign death and attack the attacker at the first opportunity.
06 Victim begins to thrash and die violently.
07 The kill attracts scavengers, if any.
08 The kill attracts predators, if any.
09 This kill attracts more of the victim's type, if any.
10 Victim panics, runs off to die.

TEMPERAMENT IN ANIMALS

Most wild animals will avoid contact with man and alien whenever possible.

Only when sick, cornered, wounded, or protecting young will they attack with a berserk fury. See the Temperament charts.

DEXTERITY IN ANIMALS

An animal's Dexterity and Agility is the choice of the GM. Averages may be:

	DEXTERITY	AGILITY
VERY SLOW	d6 +04	d6 +04
SLOW	d6 +06	d6 +06
MEDIUM	d6 +08	d6 +08
FAST	d6 +10	d6 +10
VERY FAST	d6 +12	d6 +12
LIGHTNING FAST	d6 +14	d6 +14

The detailed body tables may be used for damage to quadrupeds with minor structural modifications.

Animals may have different skin armor ratings, bone values and tissue thicknesses. Body areas may generally have the same function though the GM may wish to change death shock percentages and structure.

Hit Location

HIT LOCATION	FRONT OR BACK	GO TO
01–10	Right Leg 50% Tail Hit	E/F
11–15	Foot L or R	F
16–30	Left Leg 50% Tail Hit	E/H
31–45	Left Arm	D
46–56	Right Arm	D
57–60	Hand, L or R	G
61–75	Abdomen	C
76–90	Chest	B
91–00	Head	A

HIT LOCATION	SIDE OR PRONE	GO TO
01–30	Leg, L or R	E
31–35	Foot L or R	F
36–50	Abdomen	C
51–70	Chest	B
71–85	Arm L or R	D
86–90	Hand L or R	G
91–00	Head	A

Detailed hits are the tables for shrapnel hits, automatic weapons fire, and long range projectile fire where you do not have much of a choice in hit location.

Specific Areas

	AREA	GOTO	ROLL
01–04	Right Foot	F	2d6
05–08	Right Calf	F1	d6
09–12	Right Knee	E4	d6
13–16	Right Hip	E1	d6
17–20	Right Thigh	E2	d6
	or Tail, Right	H	2d6
21–24	Left Foot	F	2d6
25–28	Left Calf	F1	d6
29–32	Left Knee	E4	d6
33–36	Left Hip	E1	d6
37–40	Right Thigh	E2	d6
	or Tail, Left	H	2d6
41–44	Right Hand	G	2d6
45–48	Right Lower Arm	D6	d6
49–52	Right Elbow	D4	d6
53–56	Right Upper Arm	D3	d6
57–60	Right Shoulder	D1	d6
61–64	Left Hand	G	2d6
65–68	Left Lower Arm	D6	d6
69–72	Left Elbow	D4	d6
73–76	Left Upper Arm	D3	d6
77–80	Left Shoulder	D1	d6
81–84	Genitals	C6	d6
85–88	Abdomen	C	2d6
89–92	Chest	B	2d6
93–96	Neck	B1	d6
97–00	Head	A	2d6

This table is used for easy access to the detailed body area tables. You may also use it for shrapnel and automatic weapons fire.

On this table only, read 2d6 as a location in the detailed charts.

EXAMPLE D6 Roll d6: Body table D, Section 6, Roll a d6 for exact area.

Detailed Body Areas

EXAMPLE AREA CODES

```
3,4  **B(6) (M)****(A)(SP 12)**        T=26
a    b c d   e b   f   g  h  b         n

     DS = 80%+   Heart, Upper R
     i   j   k   l      m
```

Codes

Always roll 2 six sided dice for the area hit. Read each die separately.

a This is the number of the area found by randomization or design.

b The * is the indicator of one point of damage absorbed by the tissue in that area. This is also used for toughness and the indicator of structure of major organs.

c B is the indicator of bone in that area. Always check the bone special chart when damage is over the value of the bone. Damage under the value always lodges the projectile in the bone.

d After a B is always the value of the bone in brackets ( ).

Major Organs

e This (M) is the indicator of a major organ in the area.

f The (A) in brackets indicates a possible high bloodloss area. When this appears, the artery hit table is checked. Any damage that severs or damages arteries reduces the damage penetration by one point.

g The (SP) is the code for a spinal hit, Check the optional Spine Hit specials for additional damage and death shock.

h This is the damage needed to penetrate the spine.

i DS is the death shock indicator for damage in that particular area. A failure to roll over this percentage indicates wound shock kills the character. See Medical Skills.

Death Shock

j This is the death shock percentage the character must roll over on a d100 to live. This is the primary form of wound shock if a major organ is damaged.

k The + is an indicator showing a possible higher death shock percentage.

l This is the major organ or (b) bone hit. In arms, legs, tail, hand, and foot areas the bone is the only listing.

Locations

m This is the location of the area hit in organs that have more than one listing.

n This is the total damage penetration needed to punch a projectile through a body in that specific area.

A Head

Graze A = d6 damage
Graze B = 2d6 damage

1,1 Miss
1,2 Graze A
1,3 Graze B
1,4 Graze B
1,5 Graze A
1,6 Miss

2,1 Graze B
2,2 *B(8) (M)****(A) B(8)*   T=23
     DS = 94%   Brain, Forehead L
2,3 *B(8) (M)****(A) B(8)*   T=23
     DS = 98%   Brain, Forehead Mid L
2,4 *B(8) (M)****(A) B(8)*   T=23
     DS = 98%   Brain, Forehead Mid R
2,5 *B(8) (M)****(A) B(8)*   T=23
     DS = 94%   Brain, Forehead R
2,6 Graze B

3,1 Graze B
3,2 *EYE(4) B(4) (M)****(A) B(8)*   T=22
     DS = 98%   Brain, Eye L
3,3 *B(3) B(6) (M)****(A) B(8)*   T=23
     DS = 94%   Brain, Bridge Nose L
3,4 *B(3) B(6) (M)****(A) B(8)*   T=23
     DS = 94%   Brain, Bridge Nose R
3,5 *EYE(4)B(4) (M)****(A) B(8)*   T=22
     DS = 98%   Brain, Eye R
3,6 Graze B

4,1 Graze B
4,2 *B(4)*B(6) (M)***(A) B(8)*   T=24
     DS = 80%   Brain, Zygomatic L
4,3 *B(3)*B(5) (M)***(A) B(8)*   T=22
     DS = 85%   Brain, Maxilla Palate L
4,4 *B(3)*B(5) (M)***(A) B(8)*   T=22
     DS = 85%   Brain, Maxilla Palate R
4,5 *B(4)*B(6) (M)***(A) B(8)*   T=24
     DS = 80%   Brain, Zygomatic R
4,6 Graze B

5,1 Graze B
5,2 *B(3)*B(4) (M)***(A) B(8)*   T=21
     DS = 60%   Brain, Teeth Upper L
5,3 *B(3)*B(4) (M)***(A) B(8)*   T=21
     DS = 70%   Brain, Teeth Upper Mid L
5,4 *B(3)*B(4) (M)***(A) B(8)*   T=21
     DS = 70%   Brain, Teeth Upper Mid R
5,5 *B(3)*B(4) (M)***(A) B(8)*   T=21
     DS = 60%   Brain, Teeth Upper R
5,6 Graze B

6,1 Graze B
6,2 *B(3)*B(4)*B(6)*   T=17
     DS = 03%   Mandible, Jaw L
6,3 *B(4)***(A) (SP 12) B(8)*   T=29
     DS = 15%+   Mandible, Mid L
6,4 *B(4)***(A) (SP 12) B(8)*   T=29
     DS = 15%+   Mandible, Mid R
6,5 *B(3)*B(4)*B(6)*   T=17
     DS = 03%   Mandible, Jaw R
6,6 Graze B

B Chest

1,1 Graze B
1,2 **B(6) ***   T=11
     DS = --   (b) Clavicle, Shoulder L
1,3 ***(A) *(SP 12)*   T=17
     DS = 04%+   Trachea, Air Passage
1,4 ***   *(SP 12)*   T=17
     DS = 04%+   Esophagus, Food Passage
1,5 **B(6) ***   T=11
     DS = --   (b) Clavicle, Shoulder R
1,6 Graze B

2,1 Graze B
2,2 **B(4) (M)****(A) B(4)**   T=16
     DS = 07%   Lung, Upper L
2,3 **B(4) (M)*(A)*** (SP 12) B(4)**   T=28
     DS = 10%+   Bronchial Tube L
2,4 *B(6) **(A)*B(4)**   T=16
     DS = 04%   Esophagus
2,5 **B(4) (M)****(A) B(4)**   T=16
     DS = 10%   Bronchial Tube R
2,6 **B(4) (M)****(A) B(4)**   T=16
     DS = 07%   Lung, Upper R

3,1 Graze B
3,2 **b(4) (M)**** B(4)**   T=16
     DS = 10%   Lung, Mid L
3,3 **B(6) (M)****(A) B(4)**   T=18
     DS = 80%   Heart, Upper L
3,4 **B(6) (M)****(A) (SP 12)**   T=26
     DS = 80%+   Heart, Upper R
3,5 **B(4) (M)****(A) B(4)**   T=16
     DS = 10%   Lung, Mid R
3,6 Graze B

4,1 **B(4) (M)****(A) B(4)**   T=16
     DS = 14%   Lung, Lower L
4,2 **B(4) (M)****(A) B(4)**   T=16
     DS = 20%   Lung, Lower Mid L
4,3 **B(6) (M)****(A) B(4)**   T=18
     DS = 90%   Heart, Lower L
4,4 **B(6) (M)****(A) (SP 12)**   T=26
     DS = 90%+   Heart, Lower Mid R
4,5 **B(4) (M)****(A) B(4)**   T=16
     DS = 20%   Lung, Lower Mid R
4,6 **B(4) (M)****(A) B(4)**   T=16
     DS = 14%   Lung, Lower R

5,1 Graze B
5,2 **B(4) (M)****(A) B(4)**   T=16
     DS = 06%   Liver, L
5,3 **B(4) (M)****(A) B(4)**   T=16
     DS = 90%   Heart, Lower L
5,4 **B(4) (M)****(A) (SP 12)**   T=24
     DS = 10%+   Liver, Mid L
5,5 **B(4) (M)****(A) B(4)**   T=16
     DS = 10%   Stomach, Mid R
5,6 **B(4) (M)****(A) B(4)**   T=16
     DS = 12%   Spleen, R

6,1 Graze B
6,2 ** (M)*****(A) ***   T=10
     DS = 10%   Liver, L
6,3 ** (M)****(A) ***   T=09
     DS = 08%   Pancreas, L
6,4 ** (M)****(A) *(SP 12)**   T=21
     DS = 10%+   Duodenum, L
6,5 ** (M)****(A) ***   T=09
     DS = 15%   Stomach, Mid
6,6 ** (M)****(A) ***   T=09
     DS = 10%   Spleen

1,1	Graze B	
1,2	** (M)****(A) ***	T=09
	DS = 08% Liver, L	
1,3	** (M)****(A) ***	T=09
	DS = 10% Kidney, L	
1,4	** (M)****(A) (SP 12)**	T=20
	DS = 10%+ Stomach, L	
1,5	** (M)****(A) ***	T=09
	DS = 08% Kidney, R	
1,6	** (M)****(A) ***	T=09
	DS = 05% Colon, R	
2,1	** (M)****(A) ***	T=09
	DS = 04% Colon, L	
2,2	** (M)****(A) ***	T=09
	DS = 10% Kidney, Lower L	
2,3	** (M)****(A) *B(4)**	T=13
	DS = 10% Intestine, L	
2,4	** (M)****(A) *(SP 12)**	T=21
	DS = 12%+ Intestine, R	
2,5	** (M)****(A) ***	T=09
	DS = 10% Intestine, R	
2,6	** (M)****(A) ***	T=09
	DS = 05% Colon, R	
3,1	** (M)****(A) *B(4)*	T=12
	DS = 05% Colon, L	
3,2	** (M)****(A) *B(4)*	T=12
	DS = 08% Intestine, L	
3,3	** (M)****(A) *B(6)*	T=14
	DS = 08% Intestine, Mid L	
3,4	** (M)****(A) *(SP 12)*	T=20
	DS = 08%+ Intestine, Mid R	
3,5	** (M)****(A) *B(4)*	T=12
	DS = 08% Intestine, R	
3,6	** (M)****(A) *B(4)*	T=12
	DS = 05% Colon, R	
4,1	** (M)****(A) *B(4)**	T=13
	DS = 08% Colon, L	
4,2	** (M)****(A) *B(10)**	T=19
	DS = 08% Intestine, L	
4,3	** (M)****(A) ***	T=09
	DS = 08% Intestine, Mid L	
4,4	** (M)****(A) *(SP 12)*	T=20
	DS = 08%+ Intestine, Mid R	
4,5	** (M)****(A) *B(10)**	T=19
	DS = 08% Intestine, R	
4,6	** (M)****(A) *B(4)**	T=13
	DS = 05% Colon, R	
5,1	** (M)****(A) *B(4)***	T=14
	DS = 05% Colon, L	
5,2	** (M)****(A) *B(10)***	T=20
	DS = 08% Intestine, L	
5,3	** (M)****(A) *B(2)***	T=12
	DS = 08% Intestine, Mid L	
5,4	** (M)****(A) *B(5)***	T=15
	DS = 08% Intestine, Mid R	
5,5	** (M)****(A) *B(10)***	T=20
	DS = 05% Appendix, R	
5,6	** (M)****(A) *B(4)***	T=14
	DS = 05% Colon, R	
6,1	Graze B	
6,2	** (M)****(A) *B(5)***	T=15
	DS = 10% Bladder, L	
6,3	** (M)****(A) *B(3)***	T=13
	DS = 06% Genitals, L	
6,4	** (M)****(A) *B(3)***	T=13
	DS = 06% Genitals, R	
6,5	** (M)****(A) *B(5)***	T=15
	DS = 10% Bladder, R	
6,6	Graze B	
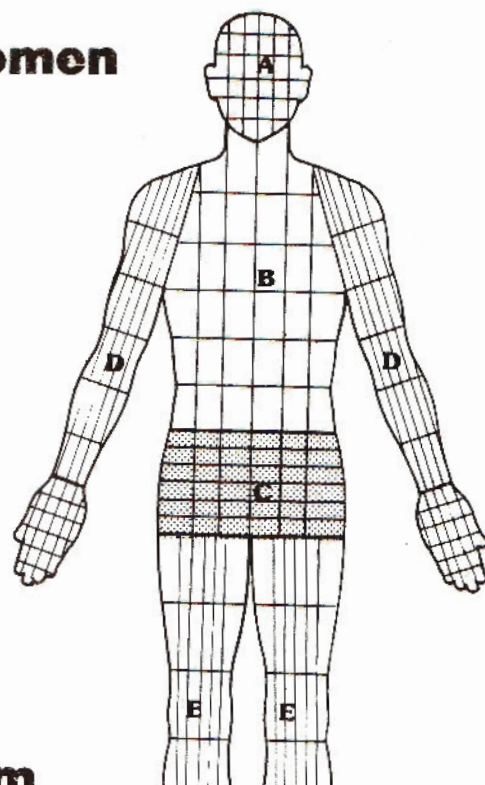
D Arm

1,1	Graze A		
1,2	Graze B		
1,3	*** B(6)**	Clavicle	T=11
1,4	*** B(8)**	Shoulder	T=13
1,5	** B(6) *(A)B(8)*	Clavicle	T=18
1,6	***B(8) ***	Shoulder	T=14
2,1	Graze A		
2,2	Graze B		
2,3	***(A) B(7)***	Humerus	T=13
2,4	***(A) * ***	Arm, Upper	T=07
2,5	Graze B		
2,6	***(A) B(8)**	Shoulder	T=13
3,1	Graze B		
3,2	***(A) * ***	Arm, Upper	T=07
3,3	***B(8) ***	Humerus	T=14
3,4	***(A) B(7)***	Humerus	T=13
3,5	***(A) * ***	Arm, Upper	T=07
3,6	Graze B		
4,1	Graze B		
4,2	*** ** ***	Arm, Mid	T=08
4,3	***(A) B(8)***	Humerus	T=14
4,4	**(A) B(10)*	Elbow	T=13
4,5	***(A) B(8)***	Humerus	T=14
4,6	Graze B		
5,1	Graze A		
5,2	Graze B		
5,3	***(A) B(6)***	Radius	T=12
5,4	***B(6) *B(7)**	Radius-Ulna	T=19
5,5	***(A) B(7)**	Ulna	T=12
5,6	***(A) * **	Arm, Lower	T=06
6,1	Graze A		
6,2	Graze B		
6,3	***(A) B(5)**	Radius	T=10
6,4	***(A) B(6)**	Ulna	T=11
6,5	Graze B		
6,6	Graze A		
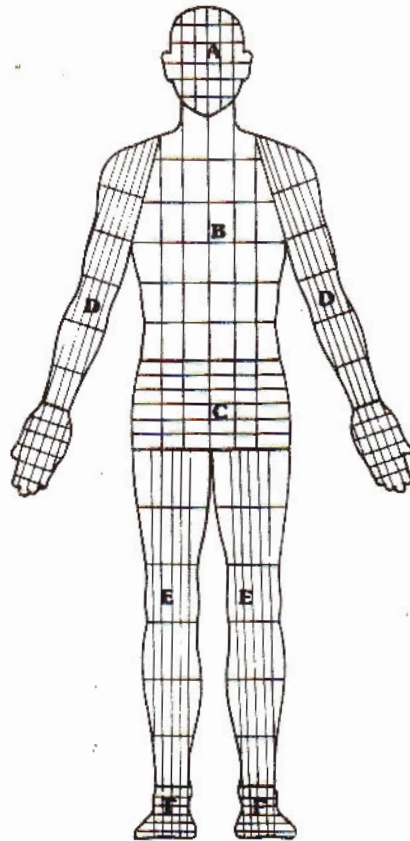
E Leg

1,1	Graze A		
1,2	*** B(10)****	Pelvis	T=17
1,3	*** B(9)***	Hip, Joint	T=15
1,4	*** B(10)***	Pelvis	T=16
1,5	Graze B		
1,6	Graze A		
2,1	Graze B		
2,2	****(A) B(12)****	Femur	T=20
2,3	**** B(12)****	Femur	T=20
2,4	**** ** ****	Leg, Upper	T=10
2,5	Graze B		
2,6	Graze A		
3,1	Graze B		
3,2	****(A) B(12)****	Femur	T=20
3,3	**** B(12)****	Femur	T=20
3,4	**** ** ****	Leg, Upper	T=10
3,5	Graze B		
3,6	Graze A		
4,1	Graze B		
4,2	**** B(12)****	Femur	T=20
4,3	**(A) B(9)***	Knee	T=14
4,4	**B(9) B(8)**	Knee	T=21
4,5	**** B(12)****	Femur	T=20
4,6	Graze A		
5,1	Graze B		
5,2	*** B(10)***	Fibula	T=16
5,3	*** B(10)***	Fibula	T=16
5,4	***(A) B(8)***	Tibia	T=14
5,5	*** B(8)***	Tibia	T=14
5,6	Graze A		
6,1	Graze B		
6,2	***(A) B(10)***	Fibula	T=16
6,3	*** B(10)***	Fibula	T=16
6,4	*** B(8)***	Tibia	T=14
6,5	***(A) B(8)***	Tibia	T=14
6,6	Graze A		

F Foot

1,1	Graze B		
1,2	*** B(10)***	Fibula	T=16
1,3	***(A) B(10)***	Fibula	T=16
1,4	***(A) B(8)***	Tibia	T=14
1,5	*** B(8)***	Tibia	T=14
1,6	Graze A		
2,1	Graze B		
2,2	**(A) B(10)**	Ankle Joint	T=14
2,3	** B(11)**	Ankle	T=15
2,4	**(A) B(10)**	Ankle Joint	T=14
2,5	** B(11)**	Ankle	T=15
2,6	Graze A		
3,1	Graze B		
3,2	** B(8)**	Talus	T=12
3,3	**(A) B(8)**	Talus	T=12
3,4	** B(8)**	Talus	T=12
3,5	Graze B		
3,6	Graze A		
4,1	Graze B		
4,2	** B(7)**	Cuboid	T=11
4,3	**(A) B(7)**	Navicular	T=11
4,4	**(A) B(7)**	Cuneiforms	T=11
4,5	**(A) B(7)**	Cuneiforms	T=11
4,6	Graze A		
5,1	Graze B		
5,2	** B(3)**	Metacarpal	T=07
5,3	** B(3)**	#2 Metacarpal	T=07
5,4	** B(3)**	#3 Metacarpal	T=07
5,5	** B(3)**	#4 Metacarpal	T=07
5,6	** B(3)**	#5 Metacarpal	T=07
6,1	Graze B		
6,2	** B(2)**	Phalanges	T=06
6,3	** B(2)**	#2 Phalanges	T=06
6,4	** B(2)**	#3 Phalanges	T=06
6,5	** B(2)**	#4 Phalanges	T=06
6,6	** B(2)**	#5 Phalanges	T=06

Body Structure

Alien body structure is based on the general human table with skin, tissue, and bone modifications. Under many circumstances human body structure may vary widely. Below are general guidelines.

FAT
   Add one point of tissue per inch of body fat in excess of 1 inch.

LARGE BONE STRUCTURE
   Add one point of bone value per (.50) inch of additional bone.

SKIN STRUCTURE
   See the armor tables for general design.

HEAVY MUSCLES
   Add (1.5) points per 1 inch of muscle in excess of 1 inch.

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G Hand

1,1	Graze B		
1,2	*** B(5)**	Radius	T=10
1,3	***(A) B(5)**	Radius	T=10
1,4	***(A) B(6)**	Ulna	T=11
1,5	*** B(6) **	Ulna	T=11
1,6	Graze A		
2,1	Graze A		
2,2	Graze B		
2,3	**(A) B(4)**	Schapoid	T=08
2,4	**(A) B(4)**	Lunate	T=08
2,5	Graze B		
2,6	Graze A		
3,1	Graze B		
3,2	** B(4)**	Trapezium	T=08
3,3	**(A) B(4)**	Trapezoid	T=08
3,4	**(A) B(4)**	Capitate	T=08
3,5	Graze B		
3,6	Graze A		
4,1	** B(4)**	Thumb	T=08
4,2	Graze A		
4,3	** B(3)**	Phalanges	T=07
4,4	**(A) B(3)**	#2 Phalanges	T=07
4,5	**(A) B(3)**	#3 Phalanges	T=07
4,6	**(A) B(3)**	#4 Phalanges	T=07
5,1	** B(3)**	Thumb, Mid	T=07
5,2	Graze A		
5,3	** B(3)**	Phalanges	T=07
5,4	** B(3)**	#2 Phalanges	T=07
5,5	** B(3)**	#3 Phalanges	T=07
5,6	** B(3)**	#4 Phalanges	T=07
6,1	** B(2)**	Thumb Tip	T=06
6,2	Graze A		
6,3	** B(2)**	Phalanges	T=06
6,4	** B(2)**	#2 Phalanges	T=06
6,5	** B(2)**	#3 Phalanges	T=06
6,6	** B(2)**	#4 Phalanges	T=06

H Tail Hits

Because of the wide variety of tail types, use this generalized table. Remember, hits on tails that penetrate can continue into legs or lower back.

TAIL STRUCTURE HITS
01 Graze A
02 Tissue hit only
03 Bone hit of general type for that race.
04 Tissue hit only, check for artery hit.
05 Tissue hit only
06 Graze B

Grazes

Grazes are minor structural damage, Whole Body Damage, equal to:

		EXAMPLE
A	d6 Extra (HBD) Damage	Minor cut
B	2d6 Extra (HBD) Damage	Serious cut

Bone Damage

OPTIONAL BONE DAMAGE

01	Clean Hit, reduce damage penetration by 4 points from this point.
02-05	Normal Damage, no modifiers.
06-09	Bone Breaks, add d4 points to the final damage. This does not add to the penetration of the projectile.
10	Bone Splinters, add d6+1 points to the final damage. This does not add to the penetration of the projectile.

Bloodloss

OPTIONAL ARTERY DAMAGE

01-07	NO DAMAGE No special bloodloss.
08-09	ARTERY NICK Artery or vein damage adds one point of damage per minute until stopped by medical aid.
10	ARTERY SEVER A sever adds d6 points of damage per minute until stopped by medical aid.

AREA MODIFIERS FOR ARTERY DAMAGE

Brain	+2 on roll
Heart	+4 on roll
Stomach	+d4 on roll
Lungs	+1 on roll
Intestine	+d4 on roll
Spleen	+2 on roll
Any Arm-Hand Sever	+4 on roll
Any Leg Sever	+5 on roll
Liver	+1 on roll
Colon	+1 on roll
Kidney	+1 on roll
CRUSH SEVER	
Any Arm, Leg, Hand	-1 on roll
BLAST SEVER	
Any Arm, Leg, Hand	+2 on roll

Spinal Damage

OPTIONAL SPINAL DAMAGE

01-04	Graze on Spine, Adds d6 damage to the damage result. Does not increase damage penetration of projectile.
05-06	Adds 2d6 on final damage with an additional 04% chance of death shock.
07-08	Direct Hit, Roll a second death shock percentage over 25% on a d100 for character survival. Add 2d10 to the final damage. Roll a 40% chance of paralyzation from the point of impact down.
09	Hit on Disc Between Vertebrae, Roll a second death shock percentage over 40% for the character's survival. Add 2d10 to the final damage. Roll a 70% chance of paralyzation from the point of impact down.
10	Spine Shattered, Roll a second death shock percentage over 60% for the character's survival. Add 3d10 to the final damage. Roll a 90% chance of paralyzation from the impact down.

Side Strike
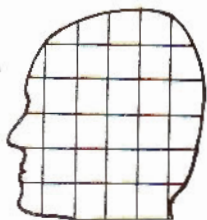
A Head

The following side tables work on the same principle as hits on the DETAIL BODY TABLES.

```
HEAD
1,1 Miss (forehead nick)
1,2 Graze A
1,3 Graze B
1,4 Graze B
1,5 Graze A
1,6 Miss (scalp nick)

2,1 Graze B
2,2 *B(8) (M)**(A) (M)**(A) B(8)*          T=22
    DS= 92%  Brain, Pre Frontal
2,3 *B(8) (M)**(A) (M)**(A) B(8)*          T=22
    DS= 98%  Brain, Frontal
2,4 *B(8) (M)**(A) (M)**(A) B(8)*          T=22
    DS= 98%  Brain, Middle
2,5 *B(8) (M)**(A) (M)**(A) B(8)*          T=22
    DS= 94%  Brain, Rear
2,6 Graze A

3,1 (M)** B(4) (M)**                       T=08
    DS= 05%  Eyes, Corneas / Lenses
3,2 *B(9) (M)** B(3) (M)** B(9)*           T=27
    DS= 10%  Eyes, Mid
3,3 *B(8) (M)**(A) B(4) (M)**(A) B(8)*     T=26
    DS= 50%  Eyes/Reteias
3,4 *B(8) (M)**(A) (M)**(A) B(8)*          T=22
    DS= 85%  Brain, Motor Area
3,5 *B(8) (M)**(A) (M)**(A) B(8)*          T=22
    DS= 95%  Brain, Motor Area
3,6 Graze B

4,1 Graze B (Nose/Snout)
4,2 *B(10) *B(1)* B(10)*                   T=25
    DS= 02%  Frontal Sinus
4,3 *B(4) ***** B(4)*                      T=15
    DS= 02%  ....
4,4 **B(4) **B(2) * B(2)** B(4)**          T=21
    DS= 25%  Jaw, Hinge
4,5 *B(8) (M)**(A) (M)**(A) B(8)*          T=22
    DS= 95%  Brain,.....
4,6 Graze A

5,1 Graze B (Upper Lips/Snout)
5,2 *B(3) B(4) B(3)*                       T=10
    DS= n/a  Teeth Upper
5,3 *B(3) ** *B(3)*                        T=10
    DS= n/a  Teeth, Upper Mid
5,4 **B(4) (A)**** B(4)**                  T=12
    DS= 05%  Jaw, Tongue
5,5 **(A)** (SP 10) **(A)**                T=18
    DS= 55%  Spine
5,6 Graze B

6,1 Graze B (lower Lip/Snout)
6,2 *B(3) *** B(3)*                        T=11
    DS= n/a  Teeth, Lower Jaw
6,3 *B(3) **** B(3)*                       T=12
    DS= n/a  Teeth, Lower Mid
6,4 **B(3) (A)**** B(3)**                  T=14
    DS= 05%  Jaw
6,5 **(A)** (SP 11) **(A)**                T=18
    DS= 45%  Spine
6,6 Graze B
```

B Chest

```
CHEST
1,1 Miss
1,2 ***(A)***(A)***                        T=09
    DS= -    Larynx/Esophagus
1,3 *** (SP 11) ***                        T=19
    DS= 40%  Spine, Neck, Front
1,4 **(A)* (SP 11) ***                     T=17
    DS= 45%  Spine, Neck, Rear
1,5 *** *** ***                            T=09
    DS= -    Neck Muscles
1,6 Graze B

2,1 Graze B
2,2 *** B(6) **(A,A)** B(6) ***            T=22
    DS= -    Clavicle
2,3 ***(A)* (SP 11) *(A)***                T=29
    DS= 40%  Spine, Front
2,4 **** * (SP 11) * ****                  T=21
    DS= 45%  Spine, Neck, Rear
2,5 **** **** ****                         T=12
    DS= -    Neck Muscles
2,6 Graze A

3,1 Graze A
3,2 **B(5) (M)**(A) (A)(M)** B(5)**        T=18
    DS= 25%  Lungs, Aorta
3,2 **** (M)(A)****(A) ** (A)(M)** ****    T=16
    DS= 95%  Lungs, Heart
3,3 ***(A)* (SP 12) *(A)***                T=20
    DS= 40%  Spine, Front
3,4 **** B(4)* (SP 12) * B(4) ****         T=30
    DS= 45%  Spine, Rear
3,5 **B(5) B(10)** **** ** B(10) B(5)**    T=42
    DS= 45%  Shoulder Blades
3,6 Graze B

4,1 Graze A
4,2 ***(M)** (M)(A)**(A) (M)** B(5)**      T=16
    DS= 40%  Lungs, Heart Nick
4,3 **B(5)(M)** (M)(A)****(A) **(A)(M)** ****
    DS= 95%  Lungs, Heart               T=26
4,4 **** B(5)* (SP 12) * B(5) ****         T=32
    DS= 45%  Spine, Front
4,5 **B(5) B(7)** (SP 12) **B(7) B(5)**    T=44
    DS= 50%  Spine, Rear
4,6 Graze B

5,1 Graze B
5,2 ***(M) (A)*****(A) B(5)***             T=16
    DS= 50%  Liver, Front
5,3 ***B(5)* (M)**(A) (M)*** *B(5)***      T=18
    DS= 65%  Stomach, Liver
5,4 **** B(5) **(M) (SP 12) **(M) ****     T=31
    DS= 50%  Lungs, Spine Front
5,5 **B(5) B(7)** (SP 12) **B(7) B(5)**    T=32
    DS= 55%  Spine, Rear
5,6 Graze A

6,1 Graze A
6,2 **B(5) (M)*****(A) * (M)*****(A) ***   T=21
    DS= 40%  Stomach, Liver
6,3 ***B(5)*(M)**(M)****(A) (M)***(A)* B(5)**
    DS= 65%  Lungs, Stomach, Liver       T=26
6,4 *** B(5) (M)**(A) (SP 12) *** (M) ****
    DS= 45%  Lungs, Spine Front      T=29
6,5 **B(5) B(7)** (SP 12) **B(7) B(5)**    T=32
    DS= 50%  Spine, Rear
6,6 Graze B
```

C Abdomen
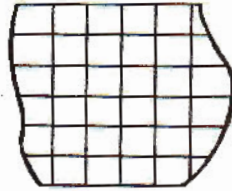
ABDOMEN
```
1,1 Graze B
1,2 *** (M)********(A) ***              T=14
    DS= 20%  Large Intestine
1,3 **B(4) (M)***(A) (M)*******(A) B(4)**
    DS= 45%  Spleen, Intestine        T=22
1,4 *** **** (SP 12) **** ***          T=26
    DS= 45%  Spine, Front
1,5 ** B(4) **(M)**(A) (SP 12) (M)**(A) *****
    DS= 45%  Kidneys, Spine, Rear      T=29
1,6 Graze A

2,1 Graze A
2,2 ** (M)(A)********(A) **             T=12
    DS= 25%  Intestines
2,3 *** (M)(A)*********(A) ***          T=15
    DS= 25%  Intestines
2,4 ** (M)**(A) (M)(A)********(A) (M)**(A) **
    DS= 15%  Colon, Small Intestine    T=16
2,5 **** ** (SP 12) ** ****             T=24
    DS= 23%  Spine, Middle
2,6 Graze B

3,1 Graze B
3,2 ** (M)(A)*******(A) **              T=11
3,3 *** (M)(A)********(A) ***           T=14
    DS= 25%  Intestines
3,4 ** (M)**(A) (M)(A)*******(A) (M)**(A) **
    DS= 25%  Colon, Small Intestines   T=15
3,5 **** ** (SP 12) ** ****             T=24
    DS= 25%  Spine
3,6 Graze A

4,1 Graze A
4,2 ** (M)(A)*****(A) **                T=09
    DS= 15%  Colon
4,3 ***B(5)(M)** (M)(A)******(A)(M)** B(5)***
    DS= 15%  Colon, Small Intestines   T=26
4,4 ***B(5)(M)** (M)(A)*****(A)(M)** B(5)***
    DS= 15%  Colon, Small Intestines   T=25
4,5 **** ** (SP 12) ** ****             T=24
    DS= 15%  Spine
4,6 Graze B

5,1 Graze B
5,2 ** (M)(A)****(A) **                 T=08
    DS= 10%  Colon
5,3 **B(5) (M)** (M)(A)****(A)(M)** B(5)***
    DS= 10%  Colon, Small Intestines   T=23
5,4 **B(5)(M)** (M)(A)****(A)(M)** B(5)***
    DS= 10%  Colon, Small Intestines   T=23
5,5 *B(5)****(SP 12)****B(5)*           T=32
    DS- 10%  Rectum
5,6 Graze A

6,1 Graze A
6,2 **(M) **** (A) **                   T=08
    DS= 02%  Genitals
6,3 **** (M) **** (M)****(A) ****       T=16
    DS= 03%  Genitals, Bladder
6,4 **** B(6) (M) ***(A)*** ****        T=20
    DS= 05%  Duodenum
6,5 *** B(5) (M)*****(A) B(4) B(5) ***  T=25
    DS= 03%  Rectum, Tail Bone
6,6 Graze B
```

D Arm

ARM:
```
    Use the general arm table D from 2,1 to
    5,6.  For 1,1 to 6 and 6,1 to 6 see below.
```

SHOULDER
```
1,1 Graze B
1,2 **B(8)*B(6) -
    Use Chest Side 1,2 From Here In
1,3 **B(9)*B(6) -
    Use Chest Side 1,3 From Here In
1,4 **B(4)*B(7)*B(6) -
    Use Chest Side 1,4 From Here In
1,5 Graze B-
    Use Chest Side 1,5 From Here In
1,6 Graze A with a 5% chance of a painful
    chip knocked from the spine.
```

WRIST
```
6,1 Graze A
6,2 Graze B
6,3 *B(5)*B(4)*            Radius/Ulna  T=12
6,4 **(A)*B(6)B(5)**       Radius/Ulna  T=18
6,5 *(A)*B(6)*(A)*B(5)*    Radius/Ulna  T=16
6,6 Graze B, (Make an artery check twice at a
    -1 modifier)
```

LEG
```
    Use the general leg table E from 2,1 to
    5,6
```

PELVIS AREA / LEG SOCKET
```
1,1 Graze A
1,2 ***B(7)*   -See Abdomen Table 6,2
1,3 ***B(9)*   -See Abdomen Table 6,3
1,4 ***B(7)*   -See Abdomen Table 6,3
1,5 Graze B Buttox
1,6 Graze B  Buttox
```

ANKLE AREA
```
6,1 Graze A
6,2 **B(15)(A)*   -See Leg Table 6,2
6,3 **B(15))*     -See Leg Table 6,3
6,4 **B(12)*      -See Leg Table 6,4
6,5 Braze B, Tendon
6,6 Graze B
```

HANDS / FEET / TAIL
```
    Use general HAND, FEET, and TAIL tables.
```

Spine Sever

```
01-10  Arm
11-25  Arm,Chest
26-50  Arm, Chest, Leg
51-70  Entire Side, Below Wound
76-85  Both Sides, Below Wound
96-98  #85 + a 10% Death Shock
99-00  Automatic Death
```

Wound Shock

As a character takes Whole Body Damage he, she, or it suffers the possibility of wound shock that may become a death shock.

REMEMBER
01 Index the general area hit.
02 Break hit points into 25%,50%,75%,100%.
03 Index the damage taken as a percentage of the character's hit points. Find the general area and index this percent to find the chance of shock.
04 Roll under this percentage on a d100 for the character to go into shock.
05 If the character goes into a state of shock, repeat steps #1-3 and roll on the death shock table. Death shock is immediate.
06 Chance of shock and death shock can be reduced by drugs.
07 See EMR and Life Saving.

% HIT POINTS LOST	PERCENT CHANCE SHOCK	PERCENT CHANCE DEATH SHOCK
BRAIN AREA		
Graze	–	–
01-25%	20%	10%
26-50%	50%	40%
51-75%	70%	50%
76-98%	90%	70%
VITAL AREA	(chest, abdomen, spine)	
Graze	–	–
01-25%	20%	10%
26-50%	40%	20%
51-75%	50%	30%
76-98%	70%	50%
EXTREMITY	(arm, leg,)	
Graze	–	–
01-25%	10%	05%
26-50%	20%	10%
51-75%	30%	15%
76-98%	50%	30%
FAR EXTREMITY	(hand, foot)	
Graze	–	–
01-25%	–	–
26-50%	05%	–
51-75%	10%	05%
76-98%	50%	10%

Blast Shock

Blast affects exposed body areas as whole body damage with the chance of stun and shock indexed from the least protected or exposed areas.

Body areas hit with double their rating of maximum damage (Total) are amputated or removed by blast at the GM's decision.

Blast Stun

Most close detonations will have the effect of causing the character to lose (d4 x .50) actions and suffer a 40% chance of a d10 hour hearing loss of d100% of hearing.

Stun

Related to wound shock, stun is another side effect of damage. When a character is damaged, check for stun intensity and length.

REMEMBER
01 The stun percentage is always indexed from the amount of damage a character has taken in a specific area. This damage is indexed as a percentage of whole body points.
02 A player character has a final action before becoming totally unconscious.

Stun Type

FAST:	d6	Actions
LIGHT:	3d6	Actions
MEDIUM:	d6	Minutes
HEAVY:	3d6	Minutes
HARD	d6+6	Hours

PERCENTAGE DAMAGE TAKEN	PERCENT CHANCE OF STUN	TYPE OF STUN
BRAIN AREA		
Graze	20%	Fast
01-25%	30%	Light
26-50%	50%	Medium
51-75%	70%	Heavy
76-98%	98%	Hard
VITAL AREA	(chest, abdomen, spine)	
Graze	05%	Fast
01-25%	20%	Fast
26-50%	40%	Medium
51-75%	60%	Medium
76-98%	80%	Heavy
EXTREMITY	(arm, leg,)	
Graze	05%	Fast
01-25%	10%	Fast
26-50%	20%	Light
51-75%	40%	Medium
76-98%	60%	Heavy
FAR EXTREMITY	(hands, feet)	
Graze	–	–
01-25%	–	–
26-50%	10%	Fast
51-75%	20%	Light
76-98%	40%	Medium

Fast and Light stuns are more an action penalty than the character actually falling unconscious. See the medical reductions in the Disease section for stun effects.

Quadruped Hits

For quadruped hits, index the area facing in the hit chart and go to the general body tables for human types. While physiological structure may look radically different, it is basically the same.

Location

FRONT HIT	BACK HIT	SIDE HIT	LOCATION OF HIT
01-10	01-10	01-12	Legs L or R
11-13	11-13	13-15	Paw/Foot/Hoof
14-17	14-75	16-50	Abdomen
18-85	76-89	51-85	Chest
86-95	90-95	86-90	Neck
96-00	96-00	91-00	Head

REMEMBER
01 A d6,d6 under Roll is a random area in that body area.
02 A B2 in Go To tells you to first go to area B, table 2 then roll a d6 for that specific strip of area.

Detail Tables

CODE	AREA	GO TO	ROLL
A	Head	Table A	d6,d6
B1	Neck, Upper	Table B1	d6
B2	Neck, Lower	Table B2	d6
B	Chest	Table B	d6,d6
C	Abdomen	Table C	d6,d6
E	Legs (any)	Table E	d6,d6
F	Paw, Hoof, Foot	Table F	d6,d6
H	Tail	Table H	d6

Side Hits

Quadruped side hits are handled like human side hits by finding the area hit and then indexing that single block of tissue from end-to-end. While not medically perfect, this approximation, with a little logic and imagination, will serve as an easy player and GM reference for specific area damage.

a Brain
b Heart
c Trachea
d Lung
e Aorta
f Liver
g Kidney
h Stomach
i Spleen
j Intestines
k Bladder

General Simulation

Detailed hits for quadrupeds and general animal life can be found by indexing the listed areas and simulating the hit with the human body chart.

REMEMBER
01 Index from the general area hit, checking the next column for information on the area and a Detail Body Table reference.

02 Bone values can be changed as follows:

Rodent Sized	= 0.25	x Value
Small Animal Sized	= 0.50	x Value
Half Human Sized	= 0.75	x Value.
Human Sized Bones	= 1.00	No
Horse Sized	= 1.50	x Value
Large Horse Sized	= 2.00	x Value
Elephant Sized	= 3.00	x Value
Dinosaur Sized	= 4.00+	x Value

03 An animal's tissue thickness can follow the same general formula with the GM's modifiers for layers of fat, muscle, and hide.

04 Skill as a veterinarian can be taken like a normal doctor's skills with a -5% skill penalty if the veterinarian must treat a human. The same can apply for a doctor treating animals.
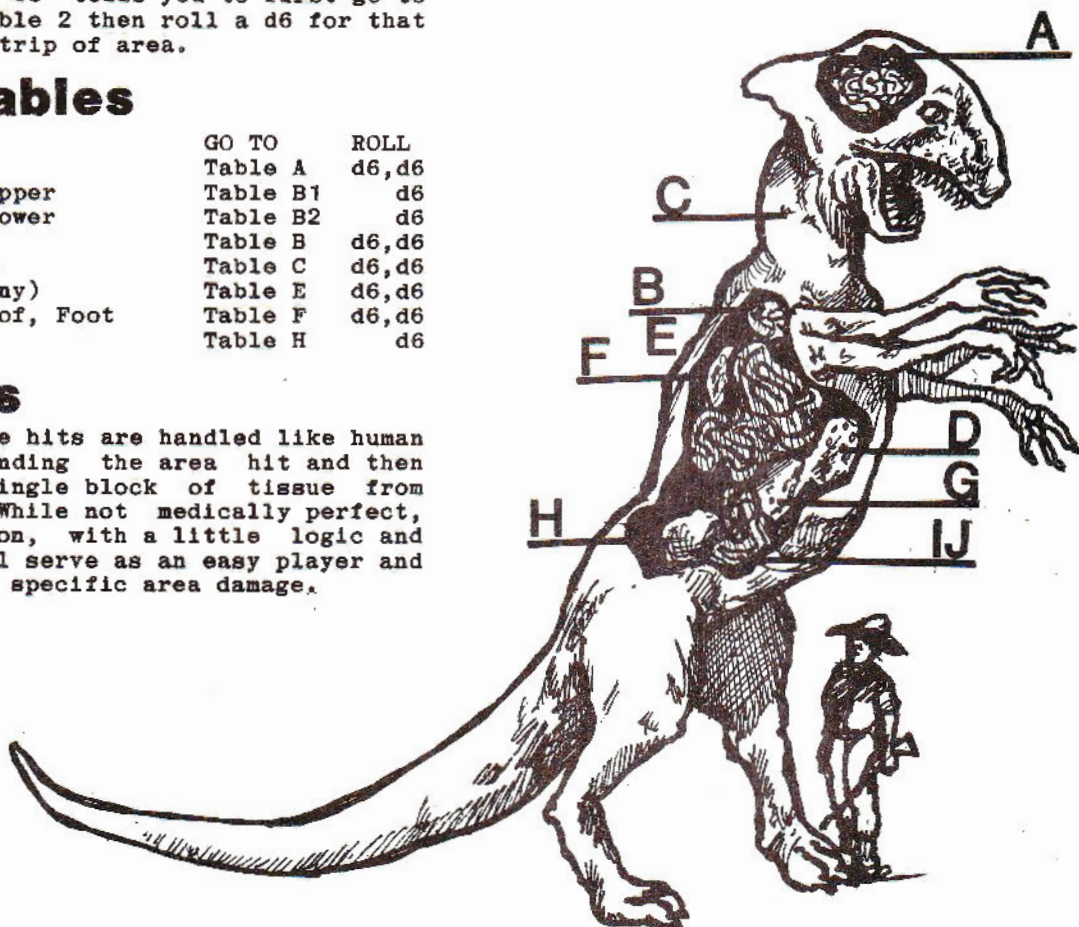
Living FTL

"Sometimes my people look up, but only to wipe the sweat from their brows. Tomorrows fields wait and their hungry children cry in the night. I will give them the stars."
...Francisco Omoxomo

Although he never achieved planetfall with his flagship, the last of Earth's great dictators did indeed give mankind the stars. Omoxomo would have been proud of his people and the colonies established by the Brazilian fleet within the next three centuries. The colonists flourished on worlds where each new day brought new challange and new delights. It was nothing like the Earth they had left behind.

On Earth itself, nothing really changed. A new, universal government united the planet, creating bright new cities to replace the untouchable remnants of the last world war. They cut and molded, changing the face of the Earth forever, yet the general attitudes and structure of Earth's societies remained the same.

Most of the cities of 2448 are dispersed across wide, natural areas with efficient mass transit, ecologically safe industry, and high-tech underground shopping centers. Homes are mostly in the form of high-rise apartment structures or condominiums. Only the largest of the old mega-cities remain, partly due to nostalgia, partly because of the people who continue to cling to them.

"The human of the 1990's would see little very little difference in the street life of our New York, Detroit, SF, or London. Life hustles along at its own pace as people live, love, and die to the tune of the city. Small businesses flourish anywhere a yen or a few dollars can be made. Wholesalers and retailers hawk their wares as children tag across the alleys and jump over the litter of centuries. There are still "city" people who have never been ten blocks from their birthplace. Winos and Dabes look for a warm place to sleep on cold winter nights as gangs prowl their turf. I wouldn't trade it for a ride to a colony."
...John Smith NY,NY 2375

"Even from the clean air of the cities you can look up and see the lights of Earth's Star Star Stations and the occasional pulse of a blue fusion torch as freighters head back to the Colonies. But what about those souls who fell through the economic net of living FTL?"
...Jacob Kuhl
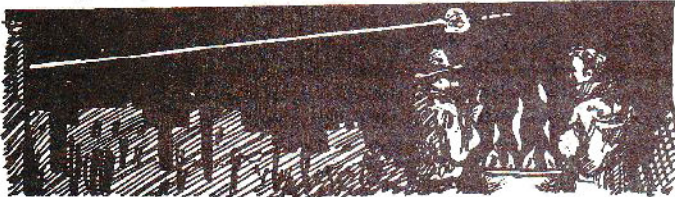
"They must come out of the cities on their own. We can't lead them where they don't want to go."
...Henderson Putnam

In spite of the world governments best efforts, densly inhabited inner cities and high-tech slums continue to exist on Earth and even a few alien worlds, places where a spacer dares not walk without friends or a charged laser.

Attempts were made though, at encouraging the economically deprived to seek their fortunes beyond the skies. On colony worlds urban designers created new cities that co-existed with their unique alien ecologies while achieving an architectural grace and beauty unseen on old Earth. The growing Mega-Corporations of Earth, Mars, and the Belts began to push outward to help develop these new found worlds. With governmental backing they built starships and created the jobs that expanded commerce. Under the ever watchful eyes of ISCO they prospered as never before and rewarded mankind by pouring profit into expansion of the frontier and producing more, faster ships.
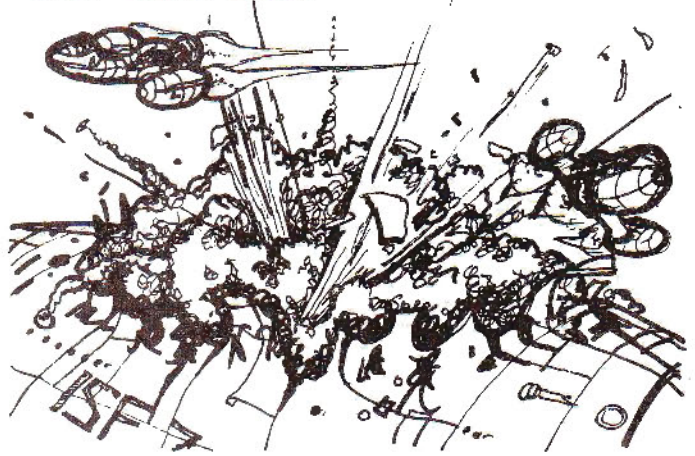
"This is an unarmed freighter, repeat, we are an unarmed freighter."
"Dave, change the beam freq to 0457 wide."
"What are they doing?"
"This is an unarm ...oh Hell ...it's a missile!"

Final message of the
ISF Goosberry Fool
at the Ghadan Colony

Mankind and its friends were lucky to have four centuries of relative peace before the incursion into the Hagu Sphere of Prosperity made many wonder if interstellar war could become a reality.

"The spectre and the horseman have slept for a time but I fear they rise again to walk among us as never before."
...Lee Chen Walker

Remnants of an ancient race re-expanding into human and FTL space, the Hagu and their allies have proven to be a menace that smiles and talks of peace and cooperation while raiding colonies on the frontier. In 2448 there is a silent war happening across the core-ward colonies and a hard line of defense planned by the ICL. As planetary agencies fight against a new ICL military build-up for what they believe are half-baked reasons, the threat of war grows ever closer.

History

Date	Event
1945	Birth of the Atomic Age.
1959	First orbital satellite launched by the Soviet Union.
1961	First manned space flight.
1969	First lunar exploration by the United States.
1981	First reusable space vehicles launched by the United States.
1983	The first permanent space station is completed by the Soviet Union.
1987	Corporations ignore the space treaty drafted by the United Nations and begin plans for building manufacturing stations in space.
1989	First solar satellite work stopped by ecological protesters and violence at the NASA launch facility in Texas.
1991	Accident triggers nuclear exchange between Soviet Union and the United States. The short lived war is over in a few hours. Sixteen U.S. cities are lost along with many cities in Europe, Britain, and the Soviet Union. The U.S. is blamed for this catastrophe.
1992	The Soviet Union collapses when its satellite countries revolt. European ground war destroys the last remaining economies and plunges the continent into depression that the US tries to avert. World-wide warfare continues. The United States is under martial law. War in the Middle East escalates to tactical nuclear weapons. Canada and Australia close borders.
1993	Beginning of "Lawless Years". The U.S. Government, strained by the loss of its reserves and raw materials, collapses as protesters storm and destroy government offices. Civilians take control of Michigan. Mexico closes its borders to refugees.
1995	The remains of U.S military joins the major corporations still operating to begin reorganization.
1997	Plagues sweep Asia, Europe, Africa, and Australia.
1999	United, the last corporations form the International Corporate Organization (ICO). the "Lawless Years" end.
2001	Detroit is now reclaimed in the second American Civil War.
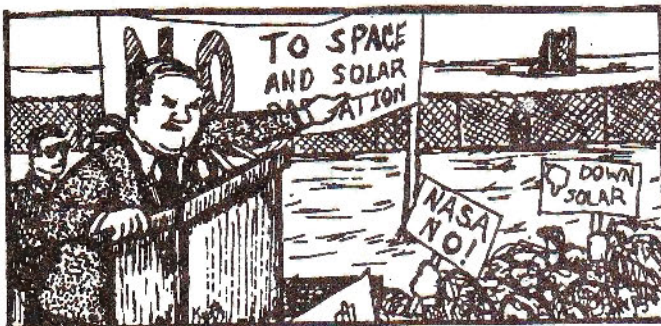
| 2007 | Shuttles begin to launch again for satellite replacement and removal of nuclear weapons in orbit. |

The year 2000 was the last year of what historians call the "Age of Waste". After the failure of careless expansion, there came a sense of unity to the survivors. They began to work together to make the world a better place with the hope the mistakes of the last decades of the twentieth century would not repeat themselves.

2009	Permanent space platforms established for shuttles. ICO begins specialty manufacturing in space.
2018	A multi-national corporate expedition is sent to Mars.
2019	Construction of four solar satellites begins. First permanent settlement established on the moon.
2021	Political unrest in Canada and Brazil as Mexican rebels begin terrorist activities against ICO offices.
2025	General Francisco Roberto Omoxomo takes control of Brazilian government. The first solar satellite begins to beam power to earth.
2027	Civil war splits Canada. Quebec gains a long sought independence. The Northwest Territories join ICO as the remaining provinces form New Canada.
2029	Mexican rebels attempt takeover of Mexican government and are crushed. ICO and The Japanese Corporate State begin construction of sea habitats, the first underwater cities. Britain becomes a province of New Canada.
2030	Mexican troops clash with Brazilian invasion force in Panama. ICO aids Mexico. Cuba and United Africa join ICO. Puerto Rico becomes a Brazilian protectorate.
2036	ICO second expedition to Mars becomes a permanent colony at the North Polar ice cap. Brazil begins accelerated space program.
2039	Makzie / Phillips fusion torch tests successful. Brazilian space platform assembled in orbit.
2041	First fast in-system ships with fusion drives completed. The solar system is opened to exploration. The first of three space habitats is begun.
2043	Brazil uses spacecraft for asteroid mining. ICO establishes second colony on Mars and sends exploration teams to the outer planets.
2046	Dr. John Lashaw finishes Einstein's Unified Field Theory and begins work on Phase Mathematics.
2047	Construction begins on first L5 space city.
2048	Janice Herbert publishes her thesis on "Applications of the Lashaw Mathematical Theories". Construction on second L5 space city by the Asian Peoples Corporate State. First mass driver (space catapult) built on the lunar surface. Permanent underground cities are planned for workers on the moon.

2049 Herbert and Lashaw, working together, propose a design for a phase-drive, a Faster-Than-Light star drive system. Pacific sea cities unite to form the Federation of Aquatic Habitats. (FAH) Brazil changes name to become the Brazilian Corporate States. (BCS)

2050 Herbert and Lashaw vanish while on a Caribbean cruise. Mexico is again threatened as Omoxomo's impassioned speeches cause a patriotic ferver throughout the Brazilian Corporate States and Territories. He directs the construction of forty freighters in Earth orbit. Rumors point to a Mars colonization project.

2052 The world is shocked when the first Brazilian starship "Rio" is phased to Alpha Centauri. ICO raid on the Brazilian city of Campos rescues Herbert and Lashaw. Omoxomo declares war on the ICO and Mexico but takes no action. Herbert and Lashaw killed on return to ICO.

2053 Starship "Rio" returns from Centauri. In four weeks it is launched for a new destination and lost. ICO phase-explorer "Messenger" launched to the star Groombridge. FAH and BCS clash over Tierra Del Fuego's fight for independence from Brazil.

2054 FAH headquarters on Guam is destroyed by a tactical nuclear weapon. FAH and Australia declare war on BCS. BCS denies all responsibility. The world hovers on the brink of World War IV. Over a two month period, over 40,000 Brazilians vanish. From orbit, Omoxomo declares Earth a hell and phases his now completed fleet to find a better home for his people. ICO, FAH, Mexico, and Australia prepare for the assault on the BCS.

2055 With Omoxomo gone, a quick and bloody revolution wrecks the last remaining semblance of BCS control. The new BCS calls for a truce which is welcomed.

2056 BCS joins ICO.

2060 A colony on Ross 128 is established.

2061 Niblock Industrial funds the building of 21 starships of experimental design and utility.

2063 Three new colonies opened to humanity.

2070 Beginning of the "Big Ship" era. The modular Kansas Class A designs under construction. A Brazilian freighter returns to Earth from two prospering colonies. The location of Omoxomo and 10 freighters of his fleet are unknown and never found. Niblock Industrial folds after the experimental starship "Altamera" is stolen.

2076 First corporations on other worlds are started by ICO splinter groups. The International Scientific Co-Op (ISCO) takes control of starship construction and exploration.

2084 ISCO 0024b "Santa Barbara" lost in a phase accident. "Homesteader Class" colonizers and freighters in general use throughout Sol and other near star systems.

2095 Research task ship H.M.S. Aardvark lost in quantum jump drive accident. Over 1700 crew vanish with the ship. All quantum jump drive tests and use are banned.

2100 Frenner Colony 3 established.

The phase drive system slowly opened space to development and human colonization.

Unfortunately as the drive times improved, so did the incidences of drive failure and what was to be called "Phase Sickness". The simple method to end the problem was freezing crews while traveling in phase space. Given time, each drive improvement was refined and the problems for the crews eliminated. The use of freezing became unnecessary.

2104 Work begins at colony "America" to build an orbital starport and starship construction facility.

2116 Construction of "Fomalhaut" starport continues as it opens for use. It soon becomes the commerce center for settled space.

2118 Mars declares independence and is granted self-rule after a year of ICO debate. Titan and Io colonies declare independence but give it up as a bad idea. Terraforming on Venus fails.

2120 "Henderson / Archeaopteryx" deep space survey ships leave on a four year tour and assumed lost five years later.

2122 Wreckage of an alien shuttle found off Luytens 789-6. Extensive research shows a slightly inferior technology in electronics and propulsion. Pilot size estimated at 600+ pounds.

2125 Damaged alien freighter goes into orbit at Ross colony. Humans and the alien "Bor'cha" achieve a peaceful meeting. The bear-like aliens prove open and friendly. "Bor'cha history and politics are a close mirror of human development. Aside from shape and family structure, the Bor'cha are psychologically identical to humanity. Bor'cha discover tobacco.
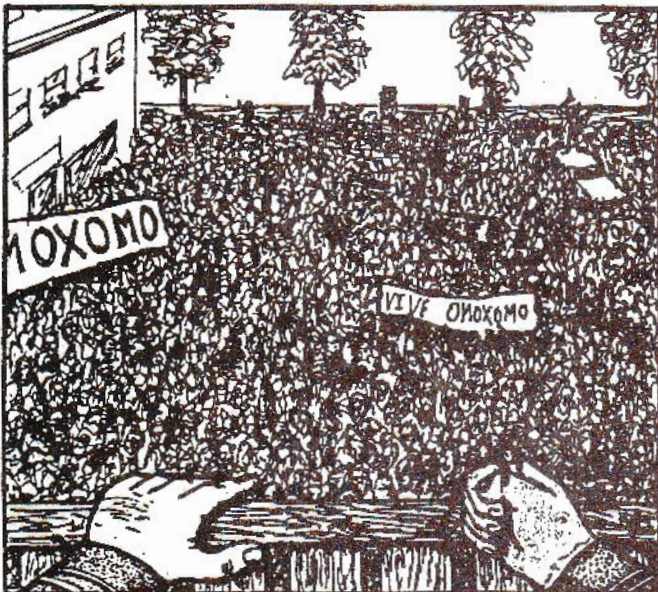
2128 Humans and the Bor'cha sign expansion treaty and begin working together. Starship "Henderson" now returns home without sister ship. The story unfolds of a disasterous meeting with another alien race.

2130 Humans and Bor'cha form close economic ties. Mixed settlements and crews become common. Bor'cha soon have new communities on Earth and Mars. Humans begin to settle on "Faxn'chr" the home world of the Bor'cha.

The first human-alien meeting was a total success. The Bor'cha heavy construction techniques and Human technologies gave both races an economic boost. The Bor'cha were like Humanity in their hopes, fears, humor, and business practices. It was a remarkable joining of cultures that would repeat itself many times in the next 300 years.

2132 Three intelligent lizard - like races are discovered on "Hansens World". The Arkol, Skay, and Tugan soon become common across human space. In time they have colonies established in the Sahara and Australian Heartland.

2145 Celestar Corporate scout finds the race that destroyed the Henderson-Archaeopteryx mission. The race calls itself "Kymnar". Last of the Morrow Project dug up from their long sleep.

2149 Celestar scouts Kymnar home world and three colonies. A long range plan of conquest is formulated.

2154 A race called the Blox are discovered on Ott. The Blox prove to have a talent for paperwork and organization, finding a niche in government and merchandising. Within the decade the Blox are living on all the known home worlds and colonies.

2160 Despite being faced with a superior enemy, the Kymnar choose retaliation over surrender, giving Celestar the excuse for a full scale attack.

2162 Final elimination of Kymnaran spacecraft paralyzes their colonies and gives Celestar control over Kymnar space. Kymnar are blackmailed into harsh trade concessions to keep their colonies alive. Celestar announces the end of the Kymnar menace and is given protectorate rights over the Kymnaran worlds by the ICO. ICO becomes the Inter-Stellar Corporate Orginization. The Kymnar are cut off from space and ICO contact for the next 80 years by Celestar.

22175 Giant Task Ship "John Lashaw" built at Fomalhaut. This ship is the largest starship to date, a deep space city / industrial center.

2180 Kymnar revolt on C'char is brutally crushed by Celestar.

2190 Colonial corporations open four new planets for settlement. For 50,000d's anybody can settle on a new world.

2192 Busy with politics and their expansion in settled space, ISCO fails to check the validity of the Celestar cultural reports on the Kymnar.

2200 Task ship "Omoxomo" launched from the Brazilian colony of Bryox. It is the second largest starship to date. ISCO becomes the Inter-Stellar Scientific Co-Op.

2210 The destruction of three ISCO cultural teams reinforces Celestar's ban on communication with the Kymnar.

2230 The Omoxomo task ship disaster kills 18,280.

This era spread humans and aliens over thirty habitable and semi-habitable worlds. High technology gave colonists many worlds that had little survival quality. Once new populations rooted it was near impossible to move them even when the colony- supporting corporations ending their involvement on the worlds. ISCO began to support these fragile oases of human and alien life until they became self supporting, if ever.

2238 Second Kymnar revolt stopped in a four day war.

2239 Task ship John Lashaw disaster kills 21,230. The remaining three task ships are dismantled.

2248 Ben Faumnol takes command of Kansas class ship ISCO 0013 "Ventura".

2250 Ventura becomes first independent star freighter.

2251 Omoxomo and John Lashaw disasters are exposed as Celestar sabotoge. Celestar tyranny exposed. ISCO / Kymnar raid on Celestar headquarters brings their demise.

2252 ISCO begins the control of corporate expansion. Treaty of Honor signed with Kymnar. Kymnar worlds freed.

2260 Inter-Stellar Protection Treaty signed to ensure protection of all races, to provide for a common defense, to guide the welfare of intelligent life in any form.

2275 Opening of Mars Orbital Air and Star Flight Museum. Second terraforming attempt on Venus fails.

2285 Plague on Seredin kills 80% of the Human, Bor'cha, and Blox population. The beginning of a medical renaissance across settled space.

2287 John Rogan, considered the greatest economic genius of the time, predicts economic disaster unless a new set of guidelines and economic systems are developed. He is ignored by most of the prospering Corporate worlds. The Kymnar begin outworld travel and trade ventures into settled space.

2290 "Frendle" are discovered. Their non expansion doctrines confuse the ISCO contact teams. Even more confusing is the race 1.1 light years from the Frendle. The "Dabe" have been trying to start a conflict with the Frendle for 400 years. After meeting with the Dabe, ISCO decides the entire race may suffer from some form of minor mental instability. Dabes soon spread across settled space. The Frendle are more cautious. Only a few Frendle will ever venture into space.

2300 For 25,000d's anyone can settle on any of the colonies. Colonization at peak with over 1 million people yearly leaving Earth. Phase time is refined.

2320 Economic depression curtails expansion as the colonial agencies collapse. The large starship yards are mothballed as independent shipping prospers. A 30 year reorganization is begun. This reorganization bogs down in red tape and corporate bureaucracy within a year.

2330 First "Grexian" deep space scout comes to Fomalhaut and spends a month learning of settled space. He departs with a return visit promised. For the next 40 years the Grex are not seen.

2335 Kansas C class launched. These multipurpose freighters become an economic necessity for many worlds. The new "Ontario" class freighter become an economic alternative to the larger more expensive ships. The "Nudge" cannister freighters take economy one step further with modular designs.

2340 Recovery is progressing carefully with the colonies being reopened. Human settlement on Zoet fails to report an alien colony already on the world. Humans and "Whurr" prosper together for more than a century before ISCO notices. Colonists change the name of their new world to Fenderwall for no apparent reason.

2370 Grexians discovered after a 40 year silence. The race was exterminated down to a few thousand by a mutant virus. The common terrestrial flu is found to be the cause. ISCO begins to aid the Grexian survivors.

2372 A race called the "Fritzians" are found to be ancient star travelers. They have one colony and a superior technology but refuse to have any commerce or discussion with the other known races.

2373 A conference on interstellar law and commerce forms a police agency. The Interstellar Court of Law (ICL) will oversee difficulties and crime that spans more than one legal system.

2400 Interest in exploration is waning, economic security is overshadowing new progress in many areas.

2425 Independent starships have all but been eliminated by corporate dealings.

2434 A race called the "Trell" discovered on a dying world. Despite insurmountable odds they continue to survive. Much like the Blox they find a niche in technical fields and spread across settled space.

2440 Barlow discovered. Because of the odd nature of the race, the ICL and ISCO keep their location classified.

2442 Attacks on the colonial frontier now point to an unknown enemy.

2448 Human named Philip Clarke inherits a junkyard and the lost starship ISCO 024 Santa Barbara. He becomes a new popular hero and Legend as the captain of the independent starship. A new era has begun.

This marks the return of the independent starship and the beginning of a new era of human – alien expansion in space. It is a time of fortunes and adventure, corporate intrigue and bureaucracy. And its only just beginning.

Expansion

This history is only limited by the imagination of the gamesmaster. You may use the history provided, starting a game any year before 2448 in the early days of space exploration or after 2448 in the future you create.
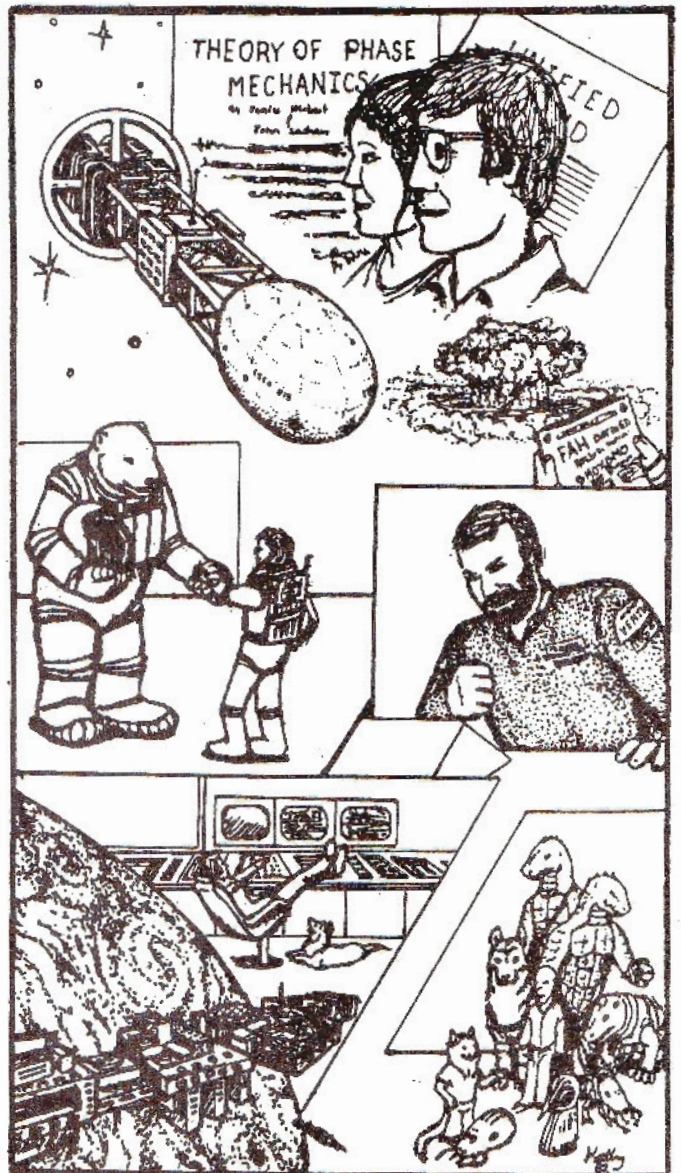
Aliens

The changing of your character into any of the races of FTL is a simple process.

REMEMBER
01 Read the Aliens section several times and choose a race you like. Remember that each has strengths as well as weaknesses.
02 Return to this section and modify your character's statistics.
03 When finished return to the HPT, or hit point section and modify your hit points by using your new statistics.
04 DO NOT refigure DOD Dodge or THR Throw.
05 Make note of changes in tissue or natural body armor.
06 No statistic can be less than 0. A 0 or a negative statistic is rounded to 1.

Races

	STR	CON	DEX	AGL	INT	WIZ	CRZ	SKIN ARMOR
ARKOL	–	–	-02	+02	–	–	–	1
BARLOW	+04	+02	–	–	–	–	+01	1
BERIAN	–	–	+01	–	–	-01	–	1
BLOX	-03	+02	+04	+01	–	–	–	1
BORCHA	+16	+04	-02	-02	–	–	+01	2
DABE	+12	+06	-03	-01	–	-02	–	2
FALCS	-01	–	+02	+04	–	-04	–	1
FRENDLE	–	+02	+04	+08	–	-02	–	3
FRITZIAN	-04	+02	+02	+01	+02	+04	–	1
GREX	-03	+04	+03	+03	-01	-01	–	1

HUMAN	STR	CON	DEX	AGL	INT	WIZ	CRZ	ARMOR
GROUNDHOG	–	+01	–	–	–	-01	–	1
SPACER	–	–	–	–	–	–	–	1
HEAVY	+06	+01	–	–	-01	-01	-01	1
LIGHT	-04	–	+01	+01	–	–	–	1
ROCKER	+01	+01	–	–	–	+01	+01	1
AUGMENTED	+20	–	–	+06	–	–	-02	10
PSI	-02	-01	–	-01	–	-01	-01	1
CHIMPANZEE	+04	+01	-01	+03	-01	-03	–	1
GORILLA	+08	+01	-01	+02	–	-01	-01	1
ORANGUTAN	+02	–	-01	+01	–	–	-02	1
CETACEAN								
Dolphin	+06	+02	–	+03	–	-03	+01	2
Orca	+40	–	-04	+02	-03	-02	–	3

	STR	CON	DEX	AGL	INT	WIZ	CRZ	ARMOR
KENDAK	-04	+04	+01	+02	–	-04	–	2
KRELVIN	-06	–	+06	-02	+05	+03	+01	2
KYMNAR	+06	+02	–	+01	–	–	–	1
SANDROL	+10	+08	-05	-04	–	-06	-03	4
SKAY	+04	+02	–	–	–	–	–	2
TRELL	-07	+09	+08	+01	-04	–	–	1
TUGAN	+08	+04	-03	-02	-01	-06	-02	2
VESH	+06	+15	+01	-01	-02	-09	-04	4
WHURR	-10	–	+10	+06	–	–	+01	6
ZATH	–	+02	–	+3	–	-02	–	1
ZUMWOL	-05	–	+06	-04	-04	–	-05	3
HAGU	-06	–	+04	+04	–	–	+01	1
ZANKEE	+02	+04	-03	-02	-05	-06	-07	2
PAEBAK	+01	+10	–	–	+01	–	–	1
URANZI	+20	–	+05	-06	–	–	–	1

Alien Data
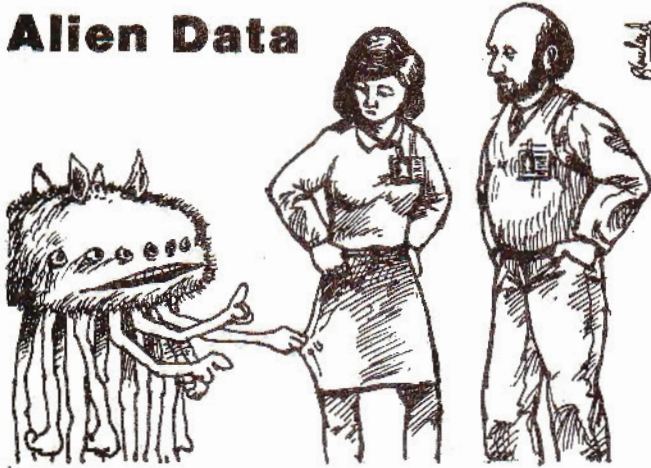
It became evident early in mankind's exploration of the stars, that natural forces created life wherever there was half a reason for its existence, and in a few places that defied logic.

In FTL we present intelligent races and the general information on history, skills, and personality.

HOME WORLD
    The planet of origin of the race.
COLONIES
    This is the number of colonies of this race or a general description of their colonial preferences.
SIZ: SIZE
    This is the vertical height of the Alien in feet. Some of the alien races without vertical posture are measured in their horizontal length.
LSP: LIFESPAN
    Lifespan is the maximum age an alien may achieve in human years. The first number is the natural life span. The second is the possible life span with high-tech medical science and life prolongation.
SEX
    Sex is the number of sexes of that race.
GES: GESTATION
    General time between conception and birth for that race. In terrestrial days.
BIR: BIRTH NUMBER
    The number of offspring.
ENV: ENVIRONMENT
    Environment is the average temperature F a member of that race finds tolerable.
SLP: SLEEP
    The sleep cycle in hours (w) awake and hours of (s) sleep.
GRA: GRAVITY
    Gravity is the gravity of the Aliens native planet.
TMP: TEMPERAMENT
    Temperament is a scale of determining the index of aggravation a creature can take before he, she, or it becomes upset.
MOT: MOTIVATION
    Motivation works on the same general scale as temperament with human motivations set at 50. At a MOT of 00 the Alien is totally non-understandable and generally motivated by non-selfishness. At 01 an Alien race is non-understandable with self-interest as a focus of motivation.

Senses

SML: SMELL
    The race's ability to smell. Bonuses add to WIZ when identifying smells or the early detection of odor.

VIS: VISION
    The vision of the race, uncorrected. This can modify ACC, THR, DEX, or DOD.
TAS: TASTE
    The ability to taste. This modifies WIZ for identification or quality.
TOU: TOUCH
    The sense of touch that can add bonuses to the use of DEX
HEA: HEARING
    The ability to hear faint sounds or ranges of sound different than the human norm. This modifies WIZ rolls for identification of the sound.
VOI: VOICE
    The general sound of the voice.

Sense Quality

This table is used for indexing sense modifiers on skill use or the historic records research modifiers for history.

		WIZ	ACC	DEX	THR	DOD	Research
A	Very Poor	-3	-4	-3	-4	-3	-50%
B	Poor	-2	-3	-2	-3	-2	-25%
C	Fair	-1	-2	-1	-2	-1	-10%
D	Average	0	0	0	0	0	-05%
E	Good	+1	0	+1	0	+1	0%
F	Very Good	+2	+1	+2	+1	+2	+05%
G	Acute	+2	+2	+3	+2	+2	+10%
H	Very Acute	+3	+2	+4	+3	+3	+25%

Language

The most important languages of the race as indexed by the percentage of the alien population who speaks it. In cases where a language is 100% and a second language is 10% the second language is a chance of having a second racial tongue.

Skills

These are general skills preferred by the race. Character's skills may lean in these directions or not as the player decides.

Good / Bad Traits

These are the traits that make the alien likable or not. While these traits are general stereotypes, many aliens do not conform to them.

Name

Name examples are general guidelines for the naming of the character.

Views on Life

PERSONALITY AND VIEWS
    The general views and answers of the race to daily facets of life and society.

Historical /Social

CON: CONTACT
   The Terrestrial year the race was first
   contacted.
JOI: JOINED
   The Terrestrial year the race joined the
   Interstellar Scientific Co-Operative.
HRS: HISTORICAL RECORDS START
   The Terran year that this race first began
   to keep general historic records.
DHS: DETAILED HISTORICAL RECORDS
   The detail of a race's history and general
   amount of accuracy of historical records.
ATE: ATOMIC ENERGY
   Year of discovery of Atomic Energy.
SPC: SPACE FLIGHT
   Year of first spaceflight.
STF: STAR FLIGHT
   Year of first, successful starflight.
REL: RELIGION
   General belief structure of the race.

Human / Alien Belief

   Many races have a belief system of higher
   authorities, gods or spirits. This table
   lists their general views and intensity of
   belief.

A Single Supreme Deity
B Several Deities
C One High Deity and a Host of Lesser.
E Several High Deities and a Host of Lesser.
F Deities, Lesser Dieties, and Spirits
G Agnostic
   (haven't decided)
H Atheistic
   (no beliefs)

1 Believe Very Strongly
2 Believe Strongly
3 Believe
4 Believe Somewhat
5 Believe the general principles.
6 Believe, but don't practice.

Religion

   Many aliens have adapted human religion or
replaced primitive beliefs entirely. Many
Bloxians took to Judaism, as a sect of Kymnar
became Christian, and Sandrol looked to the
Bhuddist religion. The Krishna rejected the
Dabes entirely.

Arkol

HOME WORLD:
Hansen's World
COLONIES:
Everywhere
BIOLOGY:
SIZ: 5-6 ft.
LSP: 90/160
SEX: 2
GES: 370
BIR: 1
ENV: 35-90
SLP: 24w5s
SML: B
VIS: C
TAS: D
TOU: D
HEA: D
VOI: Liquid
     Tenor
PSYCHOLOGY:
TMP: 41
MOT: 49

   The Arkol was the second race of three
contacted on Hansen's World. This race is a
highly industrious, semi-aquatic lizardine
renowned for their incredible building and
bio-engineering skills.
   These aliens were instrumental in the
establishment of Earth's deep sea cities and
the construction of the lower levels of the
seven existing sea mount cities.
   The Arkol have colony cities on Terra as
well as Faxn' Chr and Blant. On their own
world the Arkol have a thriving commerce with
their land based cousins, the Skay, but it is
often considered an insult even to mention
the name of the hated third race, the Tugan.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Good Government	CON:	2132
ICL:	Dry Land Police	JOI:	2154
Family:	Important	HRS:	1970
Work:	Way of Life	DHS:	C
Play:	With Family, Friends	ATE:	-
Wealth:	Incidental	SPC:	-
Justice:	Often Necessary	STR:	-
Honor:	Not Often Offended	REL:	A4
Humanity:	Friendly	LANGUAGE	
Politics:	Slows Work	Arkol	100%
Red Tape:	Minor Stupidity	Skay	46%
Space:	Exploration, Destiny		

SKILL TENDENCIES: Engineering, Construction,
Aquatics, Electronics, Business, and Law
GOOD TRAITS: Determined Workers, Outstanding
Perfectionists, Teachers.
BAD TRAITS: Impatient, Damp, Talk with a Lisp
and Drool.
USUALLY SAYING: "Im gowing thwimming..."
NAMING: Often a short two syllable name for
use. Sstoh Ssta, Thuu Thakk, Thomsss Thookk

Barlow

HOME WORLD:
Integrity
COLONIES:
–
BIOLOGY:
SIZ: 5-6 ft.
LSP: 250/300
SEX: 2
GES: 800
BIR: 1
ENV: 20-90
SLP: 18w7s
SML: E
VIS: C
TAS: D
TOU: C
HEA: E
VOI: Soft Deep
     Growling
PSYCHOLOGY:
TMP: 96
MOT: 94

The Barlow are a recently discovered race, unique in their ability to use PSI and their totally pacifistic nature.

Barlow once fought a nuclear world war of staggering proportions that nearly caused their extinction.

Barlow have only recently rebuilt their civilization with a naturalistic base, and were looking to the stars when they were discovered by an ISCO scout.

A few Barlow have spread across settled space, sharing their talents and learning what they can among their new friends.

The Barlow forepaws are as dexterous as hands. They can run on four legs or stand mostly erect.

Every Barlow has d4 Psionic talents that start with a +6 level modifier. The first two are always Telepathy and Empathy.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	A Good Friend	CON:	2444
ICL:	Good Friends Too	JOI:	2445
Family:	Everyone is Family	HRS:	2150
Work:	According to Talent	DHS:	D/FG
Play:	Part of Life	ATE:	2100
Wealth:	Unknown Concept	SPC:	2430
Justice:	Used with Care	STR:	2447
Honor:	Never Offended	REL:	AG3
Humanity:	Family	LANGUAGE	
Politics:	Interested In	Barlow 100%	
Red Tape:	Confusing		
Space:	A Potential for Good		

SKILL TENDENCIES: Engineering, Construction, Medical, Electronics, Fabrication
GOOD TRAITS: Good Natured, Diplomatic, Loyal and Pleasant Company for most races except Kymnar. Love Children and Animals
BAD TRAITS: Gullible, Unsettle PSI users and often give them headaches, Howl in the presence of death or violence, Confused by actions, Children cluster around them.
USUALLY SAYING: "I don't understand"
NAMING: Often a short syllable name with a number. Barlow 6, Marel 4, Annol 7

Blox

HOME WORLD:
Ott
COLONIES:
Everywhere
BIOLOGY:
SIZ: 3-4 ft.
LSP: 80/196
SEX: 6
GES: 470
BIR: d6
ENV: 60-115
SLP: 34w10s
SML: D
VIS: E
TAS: D
TOU: D
HEA: E
VOI: Shaky
     Tenor
PSYCHOLOGY:
TMP: 55
MOT: 52
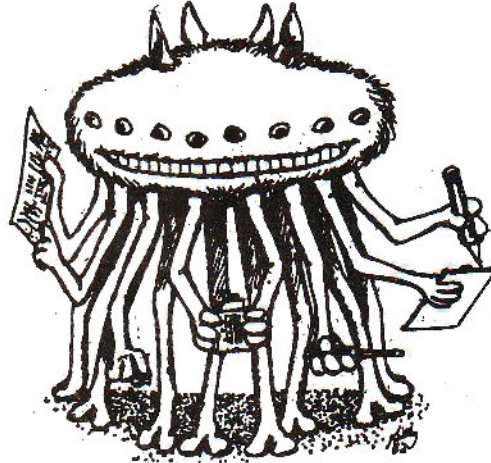
Of all the intelligent life found the Blox were the quickest to be assimilated into human societies.

The name Blox is uncommonly descriptive of this species that resembles a ball of blue fur standing on spindly legs. With eight arms and many teeth they can be an unusual and terrifying sight when they smile.

In the Blox, most humans saw a perfect psychological mirror of themselves. In Humanity, the Blox saw a deep need for organization that they had the talent for. Humans and Blox have become inseparable.

Possessing the best minds for governmental bureaucracy and paperwork, it is the Blox who keep business and planetary governments in power and solvency.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	A Grand Bureaucracy	CON:	2154
ICL:	The Police	JOI:	2175
Family:	Incidental	HRS:	8 AD
Work:	Absolute Enjoyment	DHS:	F
Play:	Detracts From Work	ATE:	–
Wealth:	Sought For	SPC:	–
Justice:	End of Stupidity	STR:	2447
Honor:	Often Offended	REL:	E5/A2
Humanity:	Brothers	LANGUAGE	
Politics:	Great Fun	Bloxian 100%	
Red Tape:	The Highest Goal		
Space:	A Potential Greater Bureaucracy		

SKILL TENDENCIES: Engineering, Construction, Medical, Electronics, Business, and Law
GOOD TRAITS: Good Natured, Diplomatic, Great at Organization and Management
BAD TRAITS: Consider red tape a necessity for life, Loud, Repeat themselves, Talkative
USUALLY SAYING: "Fill out these forms"
NAMING: Often a short, two syllable name for use. Drendorf, Dorbang, Squelch, Quombak
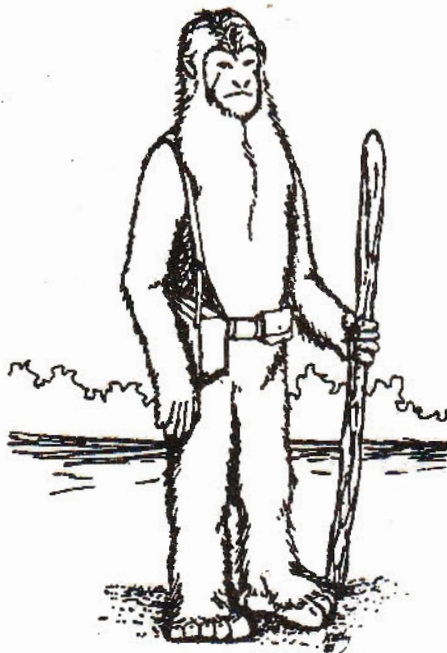
Berian

HOME WORLD:
Kashow
COLONIES:
1
BIOLOGY:
SIZ: 5-6 ft.
LSP: 65/110
SEX: 2
GES: 522
BIR: 1
ENV: 15-68
SLP: 14w6s
SML: E
VIS: E
TAS: E
TOU: E
HEA: D
VOI: Soft
     Tenor
PSYCHOLOGY:
TMP: 47
MOT: 56

The Berian are a shy, basically peaceful race who are prone to attacks of paranoia after a century of harsh enslavement by the aggressive Kymnar race. Freed from their long captivity at the beginning of the Celestar Corporate scandal, the Berians went back to their home world and hid for more than a half century as they rebuilt their society.

Eventually, the more adventurous of them began to filter out into settled space to carve a niche in interstellar society for their mostly primitive race.

The Berian tundra, over half of the land mass of their world, was soon found to have fantastic amounts of rare earths and Ilmenite in deposits that are licensed to ISCO and Star Corporations. Kashow is quickly becoming a rich world.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Watchful Father	CON:	2162
ICL:	Accepted Law	JOI:	2300
Family:	Most Important	HRS:	2003
Work:	For Future	DHS:	B
Play:	Not Very Often	ATE:	-
Wealth:	A Happy Family	SPC:	-
Justice:	Very Important	STR:	2300
Honor:	Often Important	REL:	F3
Humanity:	Liberators	LANGUAGE	
Politics:	Tribal Level	Tandra	60%
Red Tape:	Dislike	Sosha	19%
Space:	A Work Place	OTH	07%

SKILL TENDENCIES: Engineering, Construction, Electronics, Fabrication
GOOD TRAITS: Good Students, Serious,
BAD TRAITS: Paranoid, Violent around Kymnar, Perfectionists, Carry small tasks to the extreme of completion. Do not often like to volunteer information, Vague.
USUALLY SAYING: "I recheck circuit now"
NAMING: Often a short syllable name for use, but not the family or personal name. Kitz, Op Urble, Brit, Strun

Bor'Cha

HOME WORLD:
Faxn'Chr
COLONIES:
Everywhere
BIOLOGY:
SIZ: 6-7 ft.
LSP: 90/200
SEX: 2
GES: 320
BIR: 1
ENV: 10-75
SLP: 18w9s
SML: H
VIS: D
TAS: C
TOU: D
HEA: E
VOI: Growling
     Base
PSYCHOLOGY:
TMP: 64
MOT: 54

Humanity's first contact with an alien race was with the Bor'Cha. The ursoid-like race welcomed a rescue shuttle as a damaged exploration starship fell toward destruction.

Bor'Cha are highly intelligent, strong and very social. They took to human social order quickly and began to blend in. They took jobs at construction sites where their strength and heavy construction techniques were found to be invaluable. Both males and females of the species found easy friends among the humans they worked with. Soon humans and Bor'Cha became a mixed population.

Within a century the original social order of the Bor'Cha race began to disappear becoming absorbed into the greater human societies.

From a cool temperate world, the Bor'Cha are an intensly family-oriented society that has divided their world into ruling houses and extended families of up to 4000 Bor'Cha.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Watchful Father	CON:	2125
ICL:	Accepted Law	JOI:	2132
Family:	Most Important	HRS:	1200 BC
Work:	Fun	DHS:	C
Play:	Often	ATE:	1890
Wealth:	Comfort	SPC:	2030
Justice:	A Good Thing	STR:	2100
Honor:	Not Offended	REL:	B5
Humanity:	Like a Lot	LANGUAGE	
Politics:	Ignore	Bor'Cha	70%
Red Tape:	Dislike	Cen'Cha	21%
Space:	A Work Place	Mor'Cha	07%
		16 OTH	02%

SKILL TENDENCIES: Engineering, Construction, Fabrication, (all W and T skill types)
GOOD TRAITS: Great Sense of Humor, Easy-Going Think Bars are a Fantastic Invention, Social, Like Human Company, Large Happy Families.
BAD TRAITS: Like Cheap Tobacco, Loud, Drink Too Much, Gamble to Excess, Like Bar Fights Sometimes Don't Know Their Own Strength.
USUALLY SAYING: "Lets get a brew after work."
NAMING: Often Bor'Cha or Human first names with Bor'Cha family name.
Borulls B'Chma, Sam Cn'Maa, B'rn Dron Po'Maa
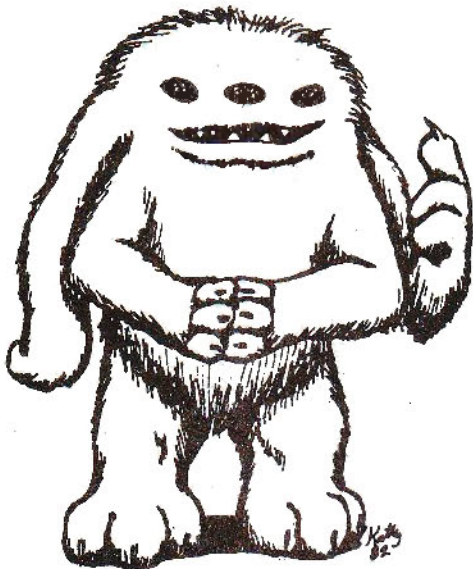
Dabe

HOME WORLD:
Blant
COLONIES:
4
BIOLOGY:
SIZ: 7-8 ft.
GRA: 1.34
LSP: 60/130
SEX: 2
GES: 214
BIR: 1
ENV: 18-86
SLP: 20w 9s
SML: C
VIS: B
TAS: C
TOU: D
HEA: D
VOI: Mild
Bass
PSYCHOLOGY:
TMP: 59
MOT: 24

The Dabe race blundered its way into space through a series of accidents and lucky guesses. Shortly after they discovered the Frendle, a highly advanced race who chose to mind their own business.

The Dabes wanted to colonize this new found world but the Frendle had other ideas; they didn't like noisy neighbors. Not a race to give up without a fight, the Dabes tried again...and again...and again.

When ISCO found the Frendle they also found the latest in a long line of Dabe slow ships making another attempt. The Dabe were overjoyed to meet mankind and his friends. In fact, the Dabes naturally took to FTL life like mice in a cheese factory and soon Dabes were a common sight everywhere.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Official Friends	CON:	2290
ICL:	Police	JOI:	2292
Family:	Happy and Large	HSR:	2000 AD
Work:	Play for Wealth	DHS:	B
Play:	Whenever Possible	ATE:	1870
Wealth:	Buys Goodies	SPC:	1990
Justice:	Punishes Evil	STF:	2100
Honor:	No Concept	REL:	F6
Humanity:	Fun Friends	LANGUAGE	
Politics:	Necessary Evil	Dabian	95%
Red Tape:	Universal	Other	3%
Space:	Big		

SKILL TENDENCIES: Labor and Heavy Equipment Operation, Structural Engineering.
GOOD TRAITS: Like Everybody, Polite, Trusted Friends, Bizarre Sense of Humor
BAD TRAITS: Can do Obnoxious, Nerve-Wracking Things, Illogical, Practical Jokers, Often Eat House Pets (a Dabian custom).
USUALLY SAYING: "oh..Do de do...Uhhhhh?"
NAMING: Names are often human first names to replace family / generation names that are up to 60 words long. Derble may be short for Derdaka Tck Mouli Dapa Norbil Et Alenkaa Et Alka (Derd family of Tck etc...)

Falcs

HOME WORLD:
Bayl Eegt
COLONIES:
3 (orbital)
BIOLOGY:
SIZ: 6-7 ft.
GRA: .85
LSP: 70/140
SEX: 2
GES: 340
BIR: 1
ENV: 45-96
SLP: 16w 7s
SML: E
VIS: D
TAS: E
TOU: F
HEA: F
VOI: Mild
Tenor
PSYCHOLOGY:
TMP: 72
MOT: 78

The coming of the disturbing creature called man has shaken the Falcs and made them realize chaotic minds had the potential to spread across space.

With this fact in mind, the Falcs have engineered a very large number of treaties oriented towards their protection and non-interference by mankind and his allies.

Medical personnel, researchers, and free-lance traders are the few Falcs to leave their world.

Most of the Falcs have a Psionic ability in Empathy that starts with a level 6.

The Falcs have constructed 3 huge space colonies at their Legrange points. These old colonies are home to a lightworld version of the Falcs now called the Poda.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Government	CON:	2425
ICL:	Police	JOI:	2427
Family:	Large Communes	HSR:	290 AD
Work:	Accepted Necessity	DHS:	E
Play:	Never	ATE:	1910
Wealth:	Knowledge	SPC:	1990
Justice:	A Fact of Life	STF:	2415
Honor:	Illogical Concept	REL:	A3
Humanity:	Not Always Logical	LANGUAGE	
Politics:	Unknown	Falcs	100%
Red Tape:	Unknown	Poda	20%
Space:	Future Resources		

SKILL TENDENCIES: Engineering, Fine Technical and Electronics, Computers, Medicine, Art
GOOD TRAITS: Very Fast, Agile, Logical, Falcs think before they act, Honest, Acrobatic, have Outstanding MARTIAL ARTS (+2) skills.
BAD TRAITS: Smug, Dull and Boring at parties, Like to hang from the ceiling, Scratch.
USUALLY SAYING: "Interesting......"
NAMING: Names are often short syllables in a group. Hach'Ne'Ha'Pon'Phet, Ba'Ko'Ph'Phi The first translates as Astronomer Family of the Desert. The second as Loud-Mouthed Jungle Politician / Farmer.

Frendle

HOME WORLD: Wilkisonn Four
COLONIES:
-
BIOLOGY:
SIZ: 5-6 ft.
GRA: 1.1
LSP: 180/240
SEX: 3
GES: 940
BIR: d4
ENV: 55-130
SLP: 130w 13s
SML: B
VIS: E
TAS: D
TOU: F
HEA: F
VOI: Harsh
     Alto
PSYCHOLOGY:
TMP: 88
MOT: 16

The Frendle are a race whose physical characteristics can be explained as a cross between a crustacean and an 8-armed reptile.

Socially, the Frendle have mostly kept to themselves for over 5000 years. Only when the insistent Dabian race appeared did they decide that total isolation was now, at best, impossible. After 400 years of harassment from the Dabe, and then mankind, they began a social battle to change their isolation into a controlled expansion with other races.

In settled space the Frendle are beginning to mingle with aliens as they show a marked talent for electronics and computers.

Sociologists believe the Frendle that are off-world are insane by their own species standards. No aliens are permitted on the Frendle home world. They will often eat the dead to honor them. Their eyes brighten from green to luminescent orange when angry.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Government	CON:	2290
ICL:	Police	JOI:	2329
Family:	Irrelevant	HSR:	60 AD
Work:	Accepted Necessity	DHS:	E
Play:	No	ATE:	1810
Wealth:	No Concept	SPC:	1750
Justice:	Simple Necessity	STF:	1900
Honor:	Most Important	REL:	F2
Humanity:	Brothers	LANGUAGE	
Politics:	Unknown	Frendle	100%
Red Tape:	Unknown	Glm	20%
Space:	Necessary for Future		

SKILL TENDENCIES: Engineering, Fine Technical and Electronics, Computers, Medicine
GOOD TRAITS: Fast, Agile, Outstanding use of Logic and Intelligence, Protective of friends
BAD TRAITS: Disturbing, Follow a different form of honor and logic, Quiet, Deadly if Provoked, Hold Grudges.
USUALLY SAYING: "Hmmmmmmmmmmmmmm"
NAMING: Names are often short syllables in a group or single words. Leib, Stsh, Morzz
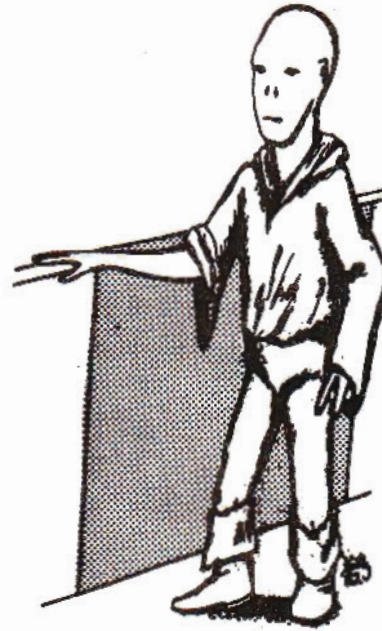
Fritzian

HOME WORLD: Xtichinanct
COLONIES:
01
BIOLOGY:
SIZ: 4 ft.
GRA: .86
LSP: 240/550
SEX: 2
GES: 410
BIR: 1
ENV: 50-85
SLP: 29w 7s
SML: C
VIS: D
TAS: D
TOU: D
HEA: C
VOI: Mild
     Alto
PSYCHOLOGY:
TMP: 34
MOT: 90

Contacted in 2372, the Fritzians as they are called are the oldest of the star traveling races. Technologically advanced well beyond FTL levels, they have sunk into a simple "don't rock the boat" attitude that has isolated them from other races.

With no concern for other races, they go about their own business and commerce to their one colony, Sedak. Information on the Fritzians comes from rare traders that have been contacted and the wreckage of one of their sun-sail starships that was salvaged near Earth. From this wreck came a new wave of space-design engineering and Zero-Phase engineering that has introduced contra-grav to FTL space.

Fritzians in contact with aliens are often the young or fearless. A Fritzian will never speak to a Grex.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Busybodies	CON:	2372
ICL:	Busybodies	JOI:	-
Family:	Continuity of Name	HSR:	9992 BC
Work:	For Robots	DHS:	E
Play:	With Young	ATE:	8200 BC
Wealth:	Comfort	SPC:	1210 BC
Justice:	Not a Necessity	STF:	1100 BC
Honor:	Unused Concept	REL:	E3
Humanity:	Children	LANGUAGE	
Politics:	Unknown	Fritzian	100%
Red Tape:	Unknown		
Space:	Not Necessary		

SKILL TENDENCIES: Engineering, Trade
GOOD TRAITS: Trade Advanced Technology for Art and Unusual Items.
BAD TRAITS: Snobbish, Refuse to talk to other races. Fast to insult.
USUALLY SAYING: "But it's so simple a child."
NAMING: Names are often short syllables in a string that resemble Chinese in tone quality. Chn Hrk, Ye Zil, Cal Nsp, Abn Ool
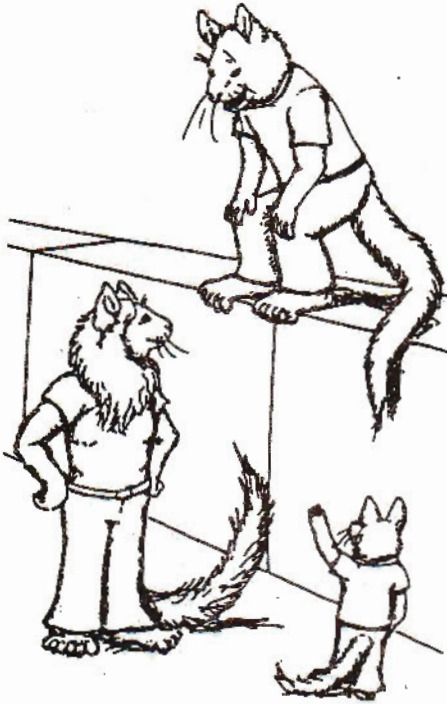
Grex

HOME WORLD:
Kirl Seban
COLONIES:
-

BIOLOGY:
SIZ: 4 ft.
GRA: .98
LSP: 40/105
SEX: 2
GES: 320
BIR: 1
ENV: 25-112
SLP: 20w 4s
SML: G
VIS: D
TAS: D
TOU: D
HEA: F
VOI: Mild
     Alto
PSYCHOLOGY:
TMP: 45
MOT: 61

Once a thriving civilization, the Grex world lies in ruin. Until disease decimated their populations into a handful of ragged survivors, the Grex enjoyed a high technology that rivaled the best of FTL space.

With technology in ruin, only ISCO saved the Grex from the hellish plant life that was closing in to finish them. Now with dedication and aid, the Grex are rebuilding the hot-house jungle called home.

Many Grex believe they were once a greater star - spanning race of vicious conquerers that were exiled to Kirl VII for their crimes and conquest of intelligent life. While no evidence verifies this, many ruins across explored space point to a long dead Empire-like civilization with an FTL drive.

Fritzians will not tolerate a Grex in their presence.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Aid	CON:	2330
ICL:	Law and Authority	JOI:	2401
Family:	Absolutely Important	HSR:	1196
Work:	To Survive	DHS:	C
Play:	With Young	ATE:	1590
Wealth:	Money For Home	SPC:	2159
Justice:	A Necessity	STF:	2300
Honor:	Unknown Concept	REL:	E3
Humanity:	Helpers	LANGUAGE	
Politics:	Slows Work	Grexian	100%
Red Tape:	No Excuse For	Grex Low	35%
Space:	Destiny Waits	Grex Tech	3%

SKILL TENDENCIES: Engineering, Fabrication, Botany, Medicine, Social Work, and Computers
GOOD TRAITS: Loyal, Fast, Agile, Protective, Family Oriented, Survivalists.
BAD TRAITS: Alcoholism, Easily Panicked, Shed Fur, Fight to Kill, Destroy House Plants
USUALLY SAYING: "It's green and has leaves!"
NAMING: Names are often nicknames for Grexian clicks, growls, and difficult syllables.

Kendak

HOME WORLD:
Harken's Hive
COLONIES:
-

BIOLOGY:
SIZ: 4.5 ft.
GRA: .89
LSP: 45/75
SEX: 3
GES: 94
BIR: 1 egg
ENV: 75-160
SLP: 49w 5s
SML: H
VIS: C
TAS: G
TOU: H
HEA: E
VOI: Nasal
     Buzz
PSYCHOLOGY:
TMP: 50
MOT: 87

One of the only hive mind intelligences found, the Kendak comprise a planet-wide society that has not changed in over 200,000 years.

Kendak are hatched in groups of 12 that share a common mind form of telepathy under the control of the overmind of the hive.

Many Kendak hatch groups are born with a mental mutation that isolates them from the hive mind. These are disposed of or traded to settled space. The insect-like, sterile worker group functions as a single mind with 12 bodies. The Kendak operates as a single individual in regards to any experience and learned skills.

As groups take on their own character they often copy a single human or alien leader in manner and personality.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Hive Leaders	CON:	2377
ICL:	Warrior Workers	JOI:	-
Family:	The Hive	HSR:	-
Work:	Life's Purpose	DHS:	-
Play:	Unknown Concept	ATE:	-
Wealth:	Unknown Concept	SPC:	-
Justice:	Hive Leaders	STF:	-
Honor:	Unknown Concept	REL:	C5
Humanity:	Hive Leaders	LANGUAGE	
Politics:	Hive Business	Sign	100%
Red Tape:	Unknown Concept	Loglan	75%
Space:	Distance		

SKILL TENDENCIES: Engineering, Fabrication, Any 1 Language, Menial Work, and Cuisine
GOOD TRAITS: Loyal to the Death, Hardworking
BAD TRAITS: Smell Odd, Have Serious Trouble with Pronouns (I,WE,MYSELF,OURSELVES), Give Psionic Telepaths Headaches or migraines.
USUALLY SAYING: "Permission to arm myselves?"
NAMING: Often a Human or Alien name with an ending like: "and gang" or "and the group".

Krelvin

HOME WORLD:
Unknown
COLONIES:
-

BIOLOGY:
SIZ: 2-3 ft.
GRA: .92
LSP: 570/1250
SEX: 2
GES: 2340
BIR: 1
ENV: 40-85
SLP: 98w 15s
SML: A
VIS: F
TAS: D
TOU: G
HEA: F
VOI: Cultured
     Baritone
PSYCHOLOGY:
TMP: 55
MOT: 75

The oddest of the known races, the Krelvin are suspected to inhabit a Dyson Sphere in the general vicinity of the frontier.

It is apparent that the Krelvin are masters of genetic engineering / design and have changed themselves to their present shape though only God knows why.

Concerned with the welfare of mankind and the other races, Krelvin venture into FTL space for their own reasons. Unfortunately, the Krelvin is also a practical joker who will have a heart – to – heart talk with a Bor'Cha while presenting him with a box of loaded cigars.

Some researchers speculate the Krelvin have advanced beyond any imagined technology and are out to simply have fun.

Krelvin possess complete mastery over the PSI abilities of Empathy, Telepathy, Spectral Kinesis, and Telekinesis. The average Krelvin free-floats or is carried in a box by a bio-construct of an animal or humanoid.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	A Good Idea	CON:	2445
ICL:	Kids With Guns	JOI:	–
Family:	Won't Discuss	HSR:	–
Work:	Not Necessary	DHS:	–
Play:	Whenever Possible	ATE:	–
Wealth:	Fleeting	SPC:	–
Justice:	Important	STF:	–
Honor:	Important For Some	REL:	C5
Humanity:	Children	LANGUAGE	
Politics:	Games	Krelvin	100%
Red Tape:	Ridiculous	Any Other	75%
Space:	A Garden		

SKILL TENDENCIES: Psychology, Medicine
GOOD TRAITS: Intelligent, Resourceful
BAD TRAITS: Masters of Mental Illusion and Control, Jokers, Easily Bored
USUALLY SAYING: "I have a fun idea!"
NAMING: Names are often prefixed with a title such as Dr. or a strange rank. Dr. Zinds or General Seuzz

Kymnar
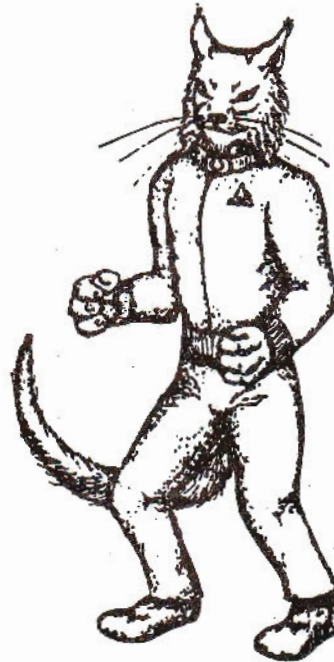
HOME WORLD:
Kymnar
COLONIES:
7 Mixed
BIOLOGY:
SIZ: 5-7 ft.
GRA: .99
LSP: 70/160
SEX: 2
GES: 340
BIR: 1
ENV: 25-85
SLP: 18w 7s
SML: F
VIS: D
TAS: D
TOU: D
HEA: E
VOI: Growling
     Bass
PSYCHOLOGY:
TMP: 37
MOT: 45

Proud and aggressive, the Kymnar enjoyed a half century of primitive starflight before the human Celestar Corporation crushed them and began a century of harsh rulership.

With the propaganda of Celestar, a full generation believed the "Kymnar Menace" was real and that they were bloodthirsty savages who had blundered into space.

With the end of the Celestar Tyranny came a greater understanding of the Kymnar's deep traditions of close family, honor, military, and clan feuding.

By the year 2448, the Kymnar have become full partners with mankind and the other races. The Kymnar have found an important place in the Interstellar Court of Law (ICL), Military, and Starborne Rangers.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Somewhat Trusted	CON:	2130
ICL:	Irrelevant	JOI:	2255
Family:	Most Important	HSR:	1290
Work:	Necessary	DHS:	C
Play:	To Train Young	ATE:	1900
Wealth:	Life's Goal	SPC:	2005
Justice:	All – Important	STF:	2090
Honor:	Reason For Living	REL:	F3
Humanity:	Mostly Friends	LANGUAGE	
Politics:	For Politicians	Kymnaran	85%
Red Tape:	To Be Cut	T'tarin	15%
Space:	Greater Glory	Military	40%

SKILL TENDENCIES: Engineering, ICL Military, Electronics, Piloting, and Space Medicine.
GOOD TRAITS: Good Fighters, Trusted Friends
BAD TRAITS: Temperamental and stubborn to a Fault, Easily Insulted, Intolerant.
USUALLY SAYING: "For honor and glory!"
NAMING: Names are earned from deed or some stupid action that brands them. "Cann" from "Eater of Canned Food"
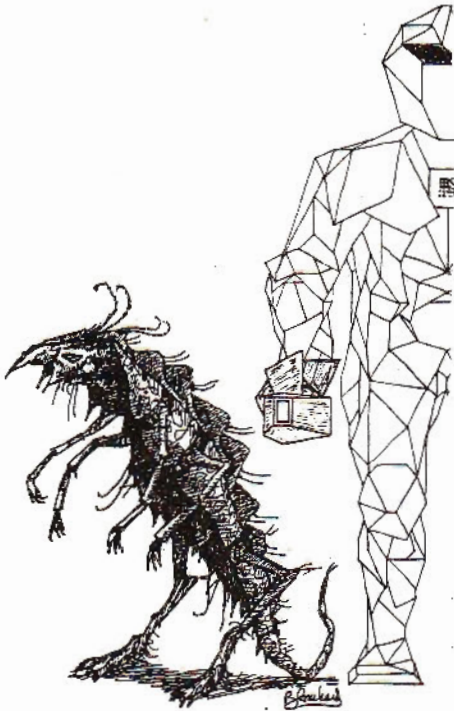
Sandrol

HOME WORLD:
Unknown
COLONIES:
Baarid IV
BIOLOGY:
SIZ: 4-5 ft.
GRA: 4.5
LSP: 340/450
SEX: 2
GES: 1540
BIR: 1
ENV: -240-110
SLP: 128w 17s
SML: A
VIS: C
TAS: A
TOU: C
HEA: B
VOI: Crackling
     Tennor
PSYCHOLOGY:
TMP: 27
MOT: 38

The Sandrol are a leftover from a past empire or race of Warriors spawned at the bottom of some hellish, high-pressure world.

Sandrol live in a flexible Ceramic Crystal armor until they are medically decompressed to our environmental range. While humanoid in the suits, they are far different in their natural form.

Telepaths who probe the Sandrol mind often report there is little there and that they have little knowledge of their ancestry or actual home world.

The crystal suits, rare and valuable to the Sandrol, multiply their STR by 10. While most suits explode with 10d6 blast when they are punctured, some of the oldest (03%) destruct with d6 x1000 points.

Sandrol continue to filter into FTL space from ammonia-methane worlds.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Irrelevant	CON:	2379
ICL:	Irrelevant	JOI:	-
Family:	Rare	HSR:	-
Work:	Something To Do.	DHS:	-
Play:	No	ATE:	-
Wealth:	Incidental	SPC:	-
Justice:	Irrelevant	STF:	-
Honor:	Not Very Important	REL:	H3
Humanity:	Another Empire	LANGUAGE	
Politics:	Irrelevant	Sandrol	90%
Red Tape:	Unheard Of		
Space:	Distance From Home		

SKILL TENDENCIES: Engineering, Heavy Labor, Electronics, Piloting, and Space Construction
GOOD TRAITS: Strong, Loyal, Shy, Helpful
BAD TRAITS: Stupid, Too Strong, Very Easily Confused, React Without Thought
USUALLY SAYING: "Uhhhh what?"
NAMING: Names are unknown, Numbers or short nicknames are common. Smokey 5450198, Tad 313
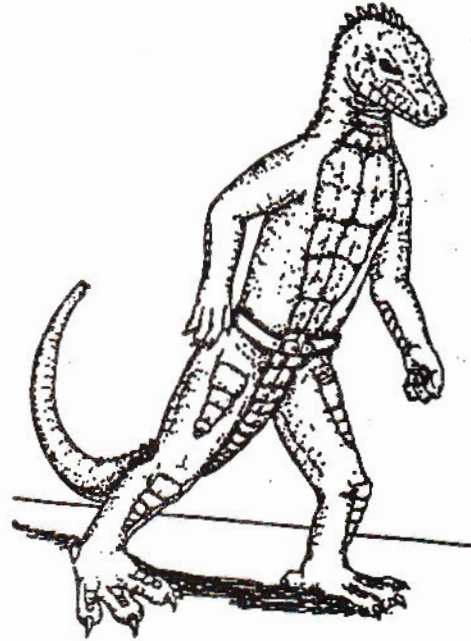
Skay

HOME WORLD:
Hansen's World
COLONIES:
 Everywhere
BIOLOGY:
SIZ: 6-7 ft.
GRA: .96
LSP: 140/210
SEX: 2
GES: 420
BIR: 2
ENV: 45-110
SLP: 28w 7s
SML: E
VIS: F
TAS: F
TOU: D
HEA: D
VOI: Slurring
     Baritone
PSYCHOLOGY:
TMP: 53
MOT: 48

The Skay are the second most successful species on Hansen's World. They differ from the water - dwelling Arkol and the mountain-dwelling Tugan in that they can exist in either environment equally well. The Skay are born traders, techs, and craftsmen who have established a thriving and varied commerce.

When ISCO landed the Skay were the first to take advantage of many interstellar trade contacts and established a business empire that has lasted centuries. It is common to see household crests of Skay trading families throughout the trade lanes of FTL Space.

Skay colonists have been established in the Australian heartland, Sahara, and Mojave Deserts as well as on the Great Barren Waste of the Borcha home world Faxn'Chr.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Partners	CON:	2132
ICL:	The Law	JOI:	2133
Family:	Important	HSR:	1640
Work:	Necessary	DHS:	E
Play:	Not Often	ATE:	-
Wealth:	A Goal in Life	SPC:	-
Justice:	Always Good	STF:	-
Honor:	Not Very Important	REL:	A4
Humanity:	Partners	LANGUAGE	
Politics:	Necessary Evil	Skay	100%
Red Tape:	Necessary Evil	Tugani	10%
Space:	Big Empty	Arkol	25%

SKILL TENDENCIES: Engineering, Law, Business, Electronics, Piloting and Construction
GOOD TRAITS: Excellent Workers, Friendly
BAD TRAITS: Smoke, Drink, Eat Raw Meat, Are often trigger - happy in stress situations.
USUALLY SAYING: "You broke what?"
NAMING: Names are private for family use or close friends. Most use nicknames.
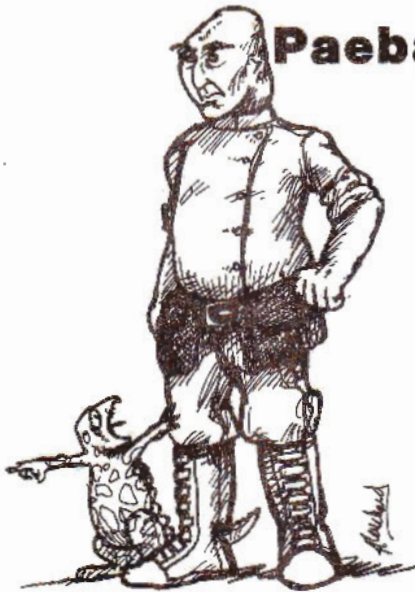
Paebak

HOME WORLD: Bendara
COLONIES: 4+
BIOLOGY:
SIZ: 5-6 ft.
GRA: .99
LSP: 185/314
SEX: 2
GES: 439
BIR: 1
ENV: 35-110
SLP: 21w 9s
SML: D
VIS: D
TAS: D
TOU: E
HEA: E
VOI: Human Ranges
PSYCHOLOGY:
TMP: 60
MOT: 55

The Paebak are caught between FTL and Hagu space. Refusing to have Hagu on their soil, this proud race of engineers and exacting robotics specialists has designed a defense to protect themselves in the form of robots and robotic ships.

Paebak are a humanoid species with skin colors that range from blue-black to pale blue. They are a friendly and close knit people with determination and a refusal to admit any defeat or failure in an engineering task.

Releasing advanced technologies to FTL space, the Paebak have broken their code of neutrality to help mankind and his allies when the expected Hagu-ISCO conflict began.

Humans who meet the Paebak are reminded of down-home country folk who are industrious and friendly.

Every Paeback has a semi-intelligent bio-engineered companion that accompanies them from cradle to grave. These obnoxious, talking lizards are the size of a large house cat. With the mental capability of a 4 year old, they have a knack for helping.

PERSONALITY & VIEWS		HISTORY	
ISCO:	Nice Folk	CON:	2447
ICL:	Needs Help	JOI:	2448
Family:	Very Important	HRS:	3200 BC
Work:	Show of Skill	DHS:	F
Play:	To Teach Young	ATE:	120 AD
Wealth:	Earned	SPC:	1300 AD
Justice:	Most Useful	STF:	1700 AD
Honor:	Family Right	REL:	A1
Humanity:	Friends	LANGUAGE	
Politics:	Causes Red Tape	Paebakian	100%
Red Tape:	Causes Politics	OTH	75%
Space:	A lot of Work		

SKILL TENDENCIES: Special Engineering, Repair and Robotics, Navigation, Fabrication.
GOOD TRAITS: Friendly, Hospitable, Good with Tools, Almost identical to mankind.
BAD TRAITS: Carry Tools, Lizards get into trouble, nosy, have a Southern drawl. Always fixing or repairing things.
USUALLY SAYING: "Got any jumper cables?"
NAMING: Short sounds with a humanized ring Zevial Zonds, Marnt Mkrady

Trell

HOME WORLD: Darnell III
COLONIES: Everywhere
BIOLOGY:
SIZ: 3 ft.
GRA: .87
LSP: 40/96
SEX: 2
GES: 170
BIR: d6
ENV: 50-80
SLP: 18w 8s
SML: A
VIS: B
TAS: D
TOU: E
HEA: D
VOI: High Soprano
PSYCHOLOGY:
TMP: 77
MOT: 64
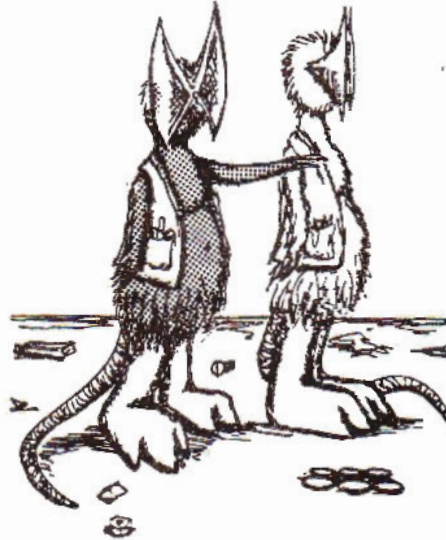
A miracle of survival and adaptation, the Trell are the last survivors of a dying world of an M class star.

As Darnell's sun died the Trell moved deep underground with their Durf meat herds. For countless millenia they maintained a closed cycle of existence in the dark caverns.

Now liberated, Trell enjoy trade for their Durf meat and the export of their populations to FTL space.

With gusto, they scavenge and repair, becoming skilled technicians and helpers to mankind and the Blox. Trell have developed a limited Psionic talent to help replace their almost useless hands. Any object that can be touched can be dismantled with telekinetic ease. They will dismantle anything.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Absolutely Great	CON:	2434
ICL:	The Cops	JOI:	2434
Family:	Bigger The Better	HSR:	–
Work:	Interesting	DHS:	A
Play:	Any Time	ATE:	–
Wealth:	Buys Everything	SPC:	–
Justice:	Not Profitable	STF:	–
Honor:	New Concept	REL:	B3
Humanity:	Fun People	LANGUAGE	
Politics:	Ignored	Trell	100%
Red Tape:	Bypassed	Herder	10%
Space:	Big Empty		

SKILL TENDENCIES: Minor Labor, Technical, Electronics, Parts Assembly, and Menial Work
GOOD TRAITS: Hardworking, Eager, Fast
BAD TRAITS: Underfoot, Collect Junk, Steal, Dismantle Everything, Excitable, and Squeal
USUALLY SAYING: "...found this module"
NAMING: Trell are using long Human, Alien, or general nouns for names. Johnathan Pop Top
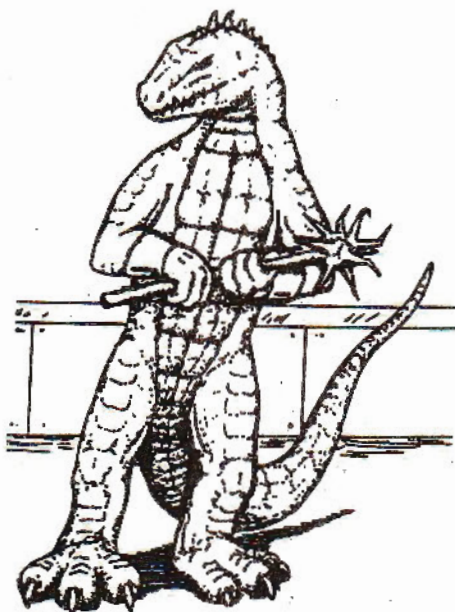
Tugan

HOME WORLD:
Hansen's World
COLONIES:
Not Yet
BIOLOGY:
SIZ: 5 - 6 ft.
GRA: .96
LSP: 70/210
SEX: 2
GES: 840
BIR: 1
ENV: 30-80
SLP: 44w10s
SML: C
VIS: D
TAS: C
TOU: C
HEA: E
VOI: Slurring,
      Bass
PSYCHOLOGY:
TMP: 24
MOT: 46

The Tugan are the third lizardine race found on Hansen's world. They were the first of the races to adapt to a land existence and remain in their primitive form.

When the small ISCO Scout,"Far Venture II" discovered their world, the Tugan were in a genocidal war with their more genetically advanced cousins. ISCO intervention in the war offered the Tugan a far less threatened existence off world and created preserves for the remainder of the population.

The Tugan are the smallest of Hansen's three related species. They are often not particularly bright creatures when it comes to high-tech but do possess an innate ability as hunters. ICL and Underworld groups employ them as security forces or bounty hunters.

PERSONALITY & VIEWS

ISCO:	Saviors	
ICL:	Warriors	
Family:	To Protect	
Work:	Necessary	
Play:	By Fighting	
Wealth:	Buys Food	
Justice:	Punishes Bad	
Honor:	Very Important	
Humanity:	Friends	
Politics:	Useless	
Red Tape:	More Useless	
Space:	Nothing	

SOCIETY

CON:	2132
JOI:	2142
HSR:	2132
DHS:	D
ATE:	–
SPC:	–
STF:	–
REL:	E2

LANGUAGE
Tugani	100%
+ SKAY	10%

SKILL TENDENCIES: Security, Heavy Labor
GOOD TRAITS: Quiet, Hard Working, Strong
BAD TRAITS: Stupid, Defensive, Enjoy a Good Fight, Harass Skay, Play With Knives
USUALLY SAYING: "Move Box, I Move Box"
NAMING: Tugan use a string of three words to describe their past deeds or accomplishments. Svakkkk Gate Keeper, Sovvvvk Rock Mover
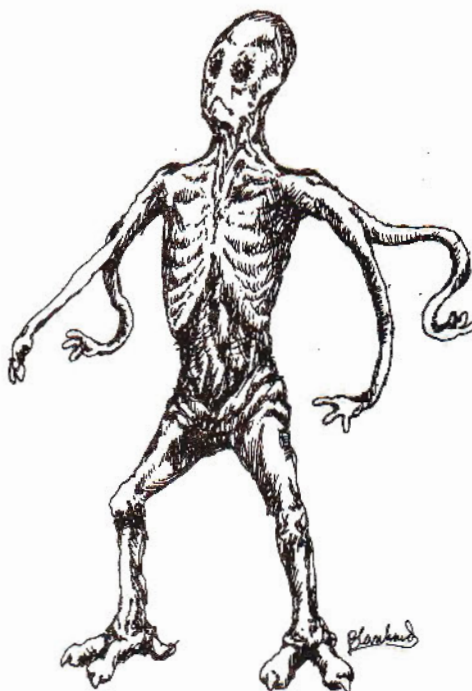
Vesh

HOME WORLD:
Unknown
COLONIES:
Chen Colony
BIOLOGY:
SIZ: 7 ft.
GRA: 1.6
LSP:300/310
SEX: n/a
GES: –
BIR: –
ENV: 0-180
SLP: n/a
SML: A
VIS: D
TAS: A
TOU: F
HEA: D
VOI: Hoarse
      Grating
PSYCHOLOGY:
TMP: 35
MOT: 03

The Vesh are a mystery to ISCO and the settlers they displaced from the Chen colony.

Researchers speculate the half mile long fragment of starship that brought them into FTL space is the remainder of a much larger craft destroyed in a drive accident in some other place or time. The 12000 Vesh survivors are resettled on the frontier.

Obviously, the Vesh are the final product of massive genetic engineering. The average Vesh can dismantle their body parts, removing an arm, leg, or organ to plug in a living replacement with a specialized function.

Vesh often inspire fear or disgust from other races who are troubled when this alien removes his head and begins to tinker with the eyes. Vesh are spreading across space to work as technicians and learn of man.

The Vesh also have a warrior/engineer with triple STR and four arms.

PERSONALITY & VIEWS

ISCO:	Authority	
ICL:	Authority Warriors	
Family:	A New Concept	
Work:	Necessary	
Play:	With Humans	
Wealth:	A New Concept	
Justice:	A New Concept	
Honor:	Unknown	
Humanity:	Soft Ones	
Politics:	A New Concept	
Red Tape:	A New Concept	
Space:	To Travel Through	

SOCIETY

CON:	2427
JOI:	2448
HSR:	2448
DHS:	D
ATE:	–
SPC:	–
STF:	–
REL:	H1

LANGUAGE
Common	100%
Warrior	10%
Technician	5%

SKILL TENDENCIES: Engineering, Fabrication
GOOD TRAITS: Quiet, Persistant, Protective
BAD TRAITS: Carry Spare Parts, Touch Faces, Psychologically Weird, Tinker Constantly
USUALLY SAYING: "I obey your command"
NAMING: Vesh only use names given to them, often like Jigsaw, Tinker, Stupid

Whurr

HOME WORLD:
Vhe-Aet
COLONIES:
4
BIOLOGY:
SIZ: 1-2 ft.
GRA: 1.25
LSP: 600/890
SEX: 2
GES: 1240
BIR: 6
ENV: 35-110
SLP: 57w3s
SML: D
VIS: C
TAS: H
TOU: G
HEA: C
VOI: Sharp
Buzzing
PSYCHOLOGY:
TMP: 51
MOT: 50

It was ironic that the race with the closest mental attitudes and motivations to mankind was also the most radically different in structure.

The Whurr is a small bio-plastic life form unique to FTL space. This alien moves by rolling on seven ball-bearing like wheels under its body. A Whurr can achieve speeds in excess of 40 mph for a short period of time.

Whurr use bio-engineering of species on their rare worlds to create equipment and even their living starships. Carrying Whurr passengers internally, this ship type is able to travel with a blink or quantun type drive.

PERSONALITY & VIEWS   SOCIETY

ISCO:	Neighbors	CON:	2340
ICL:	Cops	JOI:	2370
Family:	Important	HSR:	21000 BC
Work:	For a Profit	DHS:	D
Play:	Often, With Young	ATE:	–
Wealth:	Preferable	SPC:	1940
Justice:	If Caught	STF:	2350
Honor:	Variable	REL:	A3
Humanity:	Good Friends	LANGUAGE	
Politics:	Fun	Frequency 100%	
Red Tape:	Normal	(radio)	
Space:	The Great Frontier		

SKILL TENDENCIES: Trade, Commerce, Law, Art Crime, Engineering, and Plastics
GOOD TRAITS: Most human traits, Friendly.
BAD TRAITS: All human bad traits, Talk with a sideways inflection, Mistaken for Machines.
USUALLY SAYING: "Excuse you I please?"
NAMING: Whurr have fallen in love with names of Terran vehicles and use them as nicknames with proper titles. Dr. Ambulance, Vega

Zath

HOME WORLD:
Ardaxis IV
COLONIES:
Not Yet
BIOLOGY:
SIZ: 5-6 ft.
GRA: 1.1:
LSP: 49/110
SEX: 2
GES: 210
BIR: 1
ENV: 35-90
SLP: 16w6s
SML: H
VIS: D
TAS: G
TOU: D
HEA: E
VOI: Light
Tenor
PSYCHOLOGY:
TMP: 36
MOT: 40

The Zath were a race contacted too early by an untrained survey group. The damage and cultural shock done, ISCO is now bringing this small, bronze age culture into the 25th century.

Zath society is male dominated with the typical male 4-9 wives. The general Zathian birth ratio is 5 females to 1 male.

Zaths have a psychological aversion to lies of any form, whether verbal or physical. A majority of their beliefs and custom are based on this quest for absolute truth. Even a small lie to a Zath is a mortal insult. The more severe the lie the more likely the Zath will challenge the liar in a duel to the death with a family blade that is carried at all times.

PERSONALITY & VIEWS   SOCIETY

ISCO:	Great Bringers	CON:	2429
ICL:	The Great Truth	JOI:	2440
Family:	To Protect	HRS:	2429
Work:	A Show of Skill	DHS:	G
Play:	Not Often	ATE:	–
Wealth:	Incidental	SPC:	–
Justice:	Truth	STF:	–
Honor:	Most Important	REL:	F2
Humanity:	Uncertain Friends	LANGUAGE	
Politics:	Liars	Zath High	95%
Red Tape:	Useless	Zath Low	5%
Space:	Waiting Truths		

SKILL TENDENCIES: Metal Fabrication, Law Enforcement, Engineering, Records Research
GOOD TRAITS: Known to be Fair, Never Lie, High Code of Honor, Justice, Friendship
BAD TRAITS: Often Bigoted, Temperamental, with fast reaction and violent tendencies.
USUALLY SAYING: (doesn't talk much)
NAMING: Zath use family and line names like: Llarz, Larilen, Nowca

Zumwol
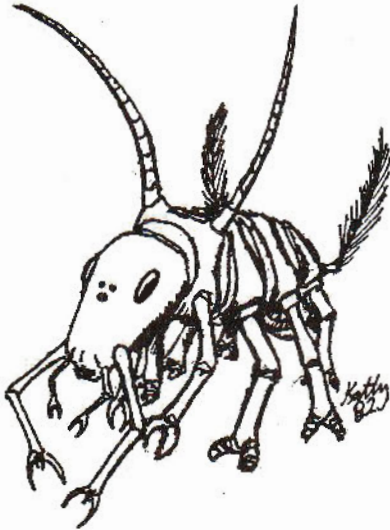
HOME WORLD:
  Gaccellus
COLONIES:
  Not Yet
BIOLOGY:
SIZ: 3-4 ft.
GRA: 1.2
LSP: 30/65
SEX: 2
GES: 29
BIR: 4
ENV: 75-130
SLP: 48w5s
SML: B
VIS: B
TAS: D
TOU: G
HEA: F
VOI: Metallic
       Falsetto
PSYCHOLOGY:
TMP: 05
MOT: 48

If there was ever a creature that did not deserve sentience, it was the Zumwol. By far, the Zumwol would have been left to their home world if it hadn't been for their skills with higher mathematics. For this ability they paid the price of being the most foul tempered race in settled space.

The Zumwol have become firmly rooted in FTL space as a living link to computer systems. This is only when they wish to cooperate, which is not often. A typical Zumwol will go out of his way to aggravate a character to blind rage. Bloxians avoid them with all haste.

More Zumwol die in airlock accidents every year than any of the known races.

PERSONALITY & VIEWS		SOCIETY	
ISCO:	Bureaucrats	CON:	2375
ICL:	Bureaucrats & Guns	JOI:	2377
Family:	A Tax Asset	HRS:	1940
Work:	OK on Payday	DHS:	H
Play:	No	ATE:	–
Wealth:	Comfort	SPC:	–
Justice:	More Bureaucrats	STF:	2375
Honor:	Ridiculous Concept	REL:	H1
Humanity:	Friends	LANGUAGE	
Politics:	Big Bureaucrats	Zumwol	95%
Red Tape:	Disdain	Other	05%
Space:	Horrifying		

SKILL TENDENCIES: Computer Programming and Repair, Debate, Law, Business, Insurance, and used cars.
GOOD TRAITS: Accurate in very complex mental calculations with a 99.96% accuracy.
BAD TRAITS: Talk Incessantly, Crabby, Hog Saunas, Love Live Sea Food, Obnoxious.
USUALLY SAYING: "I told you so!!!"
NAMING: Often Zumwol take humanoid names for easy use when dealing with creatures who can not pronounce proper names and numbers.
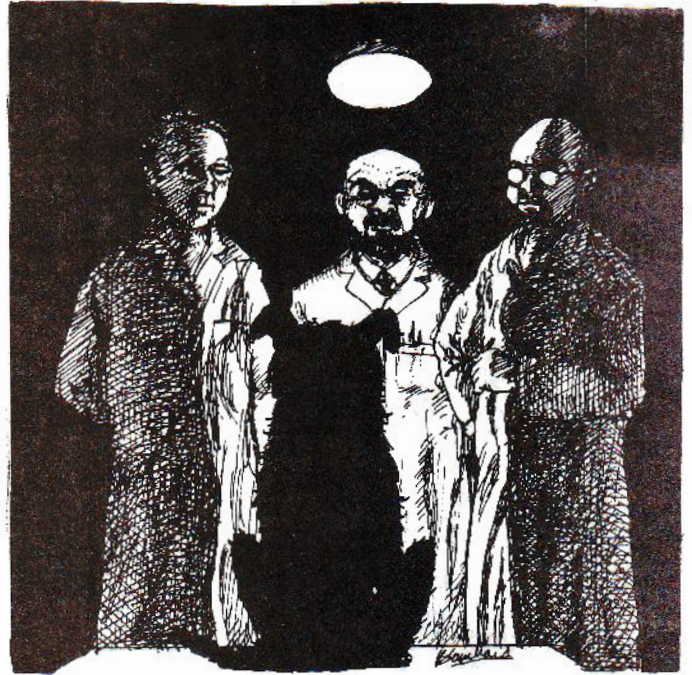
Designer Genes

Bio-constructs are a rare, but growing concern in FTL space. The moral and civil implications of creating life and pseudo-life are a constant topic of debate and protest. Some such forms are listed below.

Near Pets

Near or Almost Pets are common pets with genetic changes to promote some areas of the brain or augmented with "computer" training chips that regulate brain centers. The most common of these are the Near-Dogs and Cats. These have a hundred word vocabulary and are able to perform simple tasks under command of their master.

Krelvin Clones

Krelvin constructs range from frightening monstrosities to near-perfect human forms. On occasion a Krelvin will purchase a small cell sample from a person or creature they like and have it cloned into a servant companion that carries them. This cloning is done only on the Krelvin homeworld or starship. These creations are the GM's choice.

Paebak Lizards

The Paebak lizard is a general helper given to the Paebak at birth and accompanying him or her for life. They often remind their master of events, problems, and things that need to be done. They fetch specific objects, perform maintenance, and have a 100 word vocabulary. Their general personality ranges from loving to obnoxious. If a Paebakian dies the lizard will die in a short time. The term lizard is a misnomer for a warm-blooded creature that comes in rainbow, plaid, and designer colors.

Human

HOME WORLD:
Earth/Terra
COLONIES:
47 Mixed
BIOLOGY:
SIZ: 5-7 ft.
GRA: 1.0
LSP: 90/190
SEX: 2
GES: 189
BIR: 1
ENV: 25-115
SLP: 17w 7s
SML: D
VIS: D
TAS: D
TOU: D
HEA: D
VOI: Bass-
     Soprano
PSYCHOLOGY:
TMP: 50
MOT: 50

In the five centuries since their fast emergence into space, the human race has become the driving force of Interstellar Society. The Inter-Stellar Scientific Co-Operative (ISCO) and its multi-world legal branch, The Inter-Stellar Court of Law (ICL) are effectively responsible for interstellar society.

Humans are an extremely individualistic race. No one example can be chosen as a "typical" representative.

PERSONALITY & VIEWS

ISCO:	Government
ICL:	Police Arm
Family:	Mostly Important
Work:	Necessary
Play:	Whenever Possible
Wealth:	Lifes Goal
Justice:	Important
Honor:	Variable
Humanity:	Positive
Politics:	A Hobby
Red Tape:	Accepted
Space:	Greater Expansion

SOCIETY

CON:	-
JOI:	-
HSR:	1 AD
DHS:	C
ATE:	1945
SPC:	1959
STF:	2052
REL:	Any
LANGUAGE	
English	70%
Chinese	20%
Russian	10%
Other	55%

SKILL TENDENCIES: Any, Even Strange Choices
GOOD TRAITS: Good Fighters, Trusted Friends
BAD TRAITS: Unpredictability, Any Possible Bad Trait, Smug, Pushy, Variable TMP
USUALLY SAYING: "...What a deal I have!"
NAMING: Names are often based on objects or their ancestors occupations. These vary with language and race. Chen Carpenter, Bill Smith

Other Humans

Humanity also began to tinker with the genes of terrestrial animals. By 2448 there were 4 other races from Earth that traveled the star lanes. See: Great Apes and Cetacea

Adaptive

Even as a single species, mankind has started to divide himself into varied groups who have slightly different characteristics.

Augmentation

Light and Heavy Worlders are humans who have adapted to extremes of gravity. Other types include Humans who refuse to venture into space, (Groundhogs), and the people who do, (Spacers). Genetic Psionics are the PSI users who have the PSI dominant gene. Rockers are the star travelling "Counter-Culture" for 2448. Some humans have been surgically altered to improve themselves. This augmented technique was declared illegal in 2350 but is still practiced off world for extravagant sums of money.

Types

	STR	CON	DEX	AGL	WIZ	CRZ	PSI
Groundhogs	–	+1	–	–	–1	–	–
Spacers	–	–	–	–	–	–	–
Light Worlders	–4	–	+1	+1	–	–	–
Heavy Worlders	+6	+1	–	–1	–	–1	–
Rockers	+1	+1	–	–	+1	+1	*
Genetic Psionics	–2	–1	–	–1	–	–1	**
Augmented Human	+20	–	–	+6	–	–2	–

* Rockers have a 7% chance of PSI with d4 abilities.
** Genetic Psionics have a 12% chance of PSI with d4 abilities. SEE ALSO: Psi p.92

Apes

HOME WORLD:
  Earth
COLONIES:
  2+
BIOLOGY:
SIZ:03-07ft.
GRA: 1.0
LSP: 45/110
SEX: 2
GES: 236
BIR: 1
ENV: 25-110
SLP: 14w 10s
SML: E
VIS: C
TAS: G
TOU: C
HEA: D
VOI: Any

PSYCHOLOGY:
TMP: 57
MOT: 55

Created from their near-intelligent cousin apes, the Other Human Races, Chimps, Orang, and Gorillas quickly began to adapt to the human dominated world and carve a niche for themselves. While a curiosity at first, they later began to be feared and migrated into space to settle and avoid persecution.

In time came acceptance and by 2448 it is common to find an ape in a position of high authority, shopkeeping, or having a banana daiquiri in a bar on Fomalhaut.

Of the three species, Chimpanzees became technicians and explorers with man. The Orangutans chose a quieter life of paperwork and civil service without haste. The Gorilla leaned toward management, business, crime and a bit of politics.

PERSONALITY & VIEWS   HISTORY

ISCO: Good   CON: -
ICL: Cops   JOI: 2300
Family: A Marvelous Thing   HRS: 2290
Work: For Profit   DHS: F
Play: Great   ATE: -
Wealth: Most Important   SPC: -
Justice: Mandatory   STF: -
Honor: Important   REL: C4
Humanity: Mostly Trust   LANGUAGE
Politics: Great Fun   English 95%
Red Tape: Accepted   Other   05%
Space: A Place to Colonize

SKILL TENDENCIES: Trade, Organization, Some Engineering, Politics, Agriculture
GOOD TRAITS: Good in Business, Clean, Quiet, Mostly Honest and Helpful.
BAD TRAITS: Noisy, Scratch, Think that Indoor Gymnastics are Socially Acceptable.
USUALLY SAYING: "ook, the name's Fred."
NAMING: Short names J Fred Simon, Ozzy B

Cetacea

HOME WORLD:
  Earth
COLONIES:
  1+
BIOLOGY:
SIZ:07-30
GRA: 1.0
LSP: 45/90
SEX: 2
GES: 350
BIR: 1
ENV: Ocean
SLP: -
SML: A
VIS: C
TAS: E
TOU: C
HEA: F
VOI: Reedy
     Squeal
PSYCHOLOGY:
TMP: 75
MOT: 80

With higher technology came communication with the Cetacea of Earth's oceans. Dolphins, Orca, and most Whales were granted freedom from hunting in exchange for help in mankinds colonization of the sea.

Whales kept to themselves away from most other species unlike the Dolphin and Orca that gladly worked with man and his alien friends. Given time dolphins began to venture into space and gained a colony for themselves and a second enclave on Hansen IV.

While Orca are a major operation to move into space, Dolphins have adapted the high technology to create robotic walkers that resemble spiders.

PERSONALITY & VIEWS   HISTORY

ISCO: Great People   CON: -
ICL: Serious People   JOI: 2290
Family: Great Fun   HRS: 1200 BC
Work: Great Fun   DHS: C/F
Play: Even Greater Fun   ATE: -
Wealth: Can't Buy Fun   SPC: -
Justice: Acceptable   STF: -
Honor: Causes Trouble   REL: C4
Humanity: Great People   LANGUAGE
Politics: Doesn't Buy Fish   Cetacea 50%
Red Tape: Unknown   Other   50%
Space: A Place to Colonize

SKILL TENDENCIES: Engineering, Sea Farming
GOOD TRAITS: Intelligent, Friendly, Wise, and musical.
BAD TRAITS: Difficult to crew on Starships, swim in fuel tanks, splash, need large robotic walkers to interact in gravity.
USUALLY SAYING: "Lets go for a swim!!!"
NAMING: Long unpronounceable names of clicks and whistles. Often take odd nouns as a human name. Axle, Book, Flash, Smiley

The Enemy

It began in late 2440 with reports of scattered attacks on the far frontier coupled with reports of refugees of three new races. ISCO and ICL ships soon discovered their worst fears were realized when FTL space had expanded into another growing cluster of worlds called the HAGU SPHERE OF UPLIFTING or "Empire" as the ICL psychologists branded it after talking to Paebak and Uranzi.

Refugees described the Sphere of Uplifting as little more than planetary domination and death camps for those who are not able to cope with "the new prosperity" the Hagu bring in "their generosity"

Hagu

After an initial confrontation in space at Frenner Colony 32, the Hagu, bird-like warm-blooded mammals, began to converse with their new neighbors.

Offering friendship, but no travel into their space, they immediately requested large masses of technical information in trade for very little of similar value. Not being blind to past history, the ICL limited material and trade to cultural items with no military use or potential.
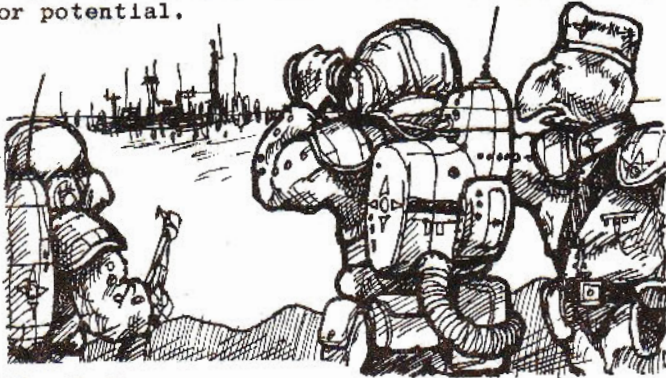
Raiders

Soon after, colonies on the frontier began to be raided by another race of ruthless plunderers and fierce fighters, the Zankee. It became evident that the Zankee were the military arm of the Hagu who preferred to have someone else do their dirty work.

Cold War

With political negotiations snarled in red tape only a Bloxian could sort through, talks have been highly sporadic or useless, closely resembling the cold wars of Terra's twentieth century.

Hagu

HOME WORLD:
  Gaklon
COLONIES:
  34+
BIOLOGY:
SIZ:05-07ft.
GRA: .95
LSP: 60/110
SEX: 2
GES: 190
BIR: d4
ENV: 55 -110
SLP: 15w 07s
SML: C
VIS: F
TAS: G
TOU: C
HEA: D
VOI: Reedy
      Soprano
PSYCHOLOGY:
TMP: 44
MOT: 45

On the core side of FTL space is a small vicious empire carved out by the Hagu race and their allies.

These bird-like cowards have subjugated a half dozen other races in their planetary colonization. Even though ISCO and the ICL are unable to interfere, they have heard the requests for aid from worlds within the Hagu sphere of influence.

The Hagu have a knack for professing peace while walking over mixed human/alien colonies on the far frontier. Refugees from Hagu space are now becoming common on the frontier.

More and more, Hagu trading vessels are entering FTL space for technology and other less-than-friendly reasons that ISCO believes could plunge this era of peace into a bloody interstellar conflict.

PERSONALITY & VIEWS		HISTORY	
ISCO:	A Joke	CON:	2447
ICL:	A Problem	JOI:	n/a
Family:	A Burden	HRS:	1200 BC
Work:	For Profit	DHS:	B
Play:	For The Deranged	ATE:	2100
Wealth:	Most Important	SPC:	2140
Justice:	For the Strong	STF:	2250
Honor:	Not Profitable	REL:	A5
Humanity:	Gullible	LANGUAGE	
Politics:	A Must	Hagonni	95%
Red Tape:	Accepted	Hagu	04%
Space:	Profitable	65 OTH	1%

SKILL TENDENCIES: Trade, Organization, Some Engineering, Weapons Use, Politics.
GOOD TRAITS: Good in Business, Clean, Quiet, Often Apologizing for Something.
BAD TRAITS: Plotting, Vicious, Drop feathers when excited, Think they are destined to rule settled space, Dishonest, Pushy, Work with the Zankee and like them.
USUALLY SAYING: "But for a few D's we can..."
NAMING: Short single names of two syllables, Ak-n, Ga-c, Be-q, St-r, Mml-s
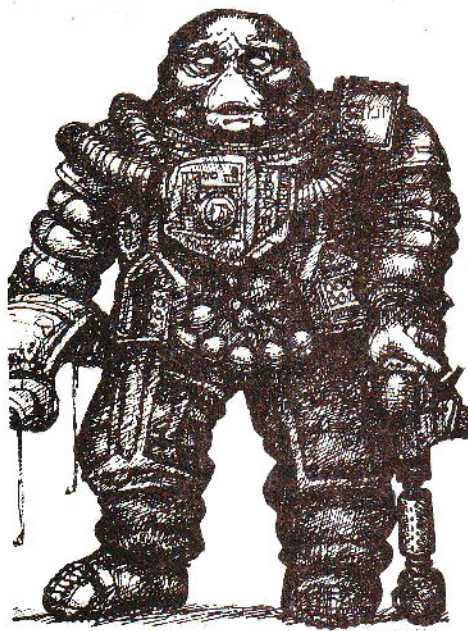
Zankee

HOME WORLD:
 Gagbfl
COLONIES:
 10+
BIOLOGY:
SIZ:04-05ft.
GRA: 1.25
LSP: 45/90
SEX: 2
GES: 490
BIR: 1
ENV: 45-120
SLP: 26w 5s
SML: B
VIS: D
TAS: C
TOU: D
HEA: D
VOI: Liquid
     Bass
PSYCHOLOGY:
TMP: 09
MOT: 43

Friends and warriors of the Hagu are the small, vicious creatures called Zankee.

A remnant of a forgotten star empire, the Zankee have lost their history and the reason for becoming a race of mercenaries.

With no redeeming social value, these war-oriented aliens are a menace to themselves and anybody foolish enough to cross them.

The Zankee philosophy is simple. If you can't eat or enslave it, blow it up. If it is more powerful, wait for a back shot.

Zankee starships are of Hagu design or highly functional, small, often brisling with missiles and lasers. These small pirates are often more than a match for cargo vessels and frontier defenses.

The average Zankee is usually seen in plastic-like ballistic combat armor that is often battled scarred. A recent rumor cites these monsters as being cannibalistic.

PERSONALITY & VIEWS

ISCO:	No Consequence
ICL:	A Good Fight
Family:	More Troops
Work:	Mercenary Skill
Play:	Killing Prisoners
Wealth:	To be Stolen
Justice:	For the Strong
Honor:	Unknown
Humanity:	Victims
Politics:	Between Wars
Red Tape:	Solved with Guns
Space:	Battleground

HISTORY

CON:	2448
JOI:	n/a
HRS:	2300 BC
DHS:	A
ATE:	80 AD
SPC:	89 AD
STF:	2190
REL:	F5

LANGUAGE
Zankee   85%
Hagonni 04%
11 OTH   1%

SKILL TENDENCIES: Killing, Demolition, Open Warfare, Wrecking Treaties, Tactics
GOOD TRAITS: None
BAD TRAITS: Stink, Have no respect for life or art, tactically stupid, believe being cannon fodder is an honor, often refuse to take prisoners, shoot civilians for sport.
USUALLY SAYING: "You Die!!"
NAMING: Short harsh sounding single names of one syllable. Kra, Goord, Shrakk, Skoo

Uranzi

HOME WORLD:
 Cadrial
COLONIES:
 2+
BIOLOGY:
SIZ:08-15ft.
GRA: 1.02
LSP: 85/190
SEX: 2
GES: 689
BIR: d6
ENV: 65-140
SLP: 27w 8s
SML: F
VIS: C
TAS: D
TOU: E
HEA: D
VOI: Soft
     Alto
PSYCHOLOGY:
TMP: 45
MOT: 58

Fleeing from the Hagu, the Uranzi were one of three new races discovered. Opening our space to these alien refugees has caused a few thousand to request asylum for a better life.

These creatures are friendly and tell of centuries of peaceful exploration and contact with a dozen more species before the Hagu "assisted" them and took control of their worlds.

Enjoying tropical climates, the Uranzi have requested sites on a dozen worlds for small colonies. Many have requested ICL military training to be used to someday help reclaim their worlds. Hagu confronting these interstellar boat people have called their flight a sham to take land from softhearted aliens and discredit the good the Hagu do.

PERSONALITY & VIEWS

ISCO:	A New Home
ICL:	Saviors
Family:	All Uranzi
Work:	Show of Skill
Play:	To Teach Young
Wealth:	Earned
Justice:	Rights Wrong
Honor:	Everyone's Right
Humanity:	Friends
Politics:	Causes Wars
Red Tape:	Causes Politics
Space:	Enough for All

HISTORY

CON:	2448
JOI:	n/a
HRS:	1760 BC
DHS:	D
ATE:	1900 AD
SPC:	1910 AD
STF:	2240
REL:	A2

LANGUAGE
Uranzi   100%
Hagonni 10%

SKILL TENDENCIES: Engineering, Killing Hagu, Medicine, Naturalists, Space Construction
GOOD TRAITS: Friendly, Hospitable, Good with Psychology and Medicine.
BAD TRAITS: Large, Lean on People / Aliens, Face tentacles move constantly, Slow, Strange
USUALLY SAYING: "Home was once beautiful"
NAMING: Short Sush sounds with a humanized or alien nickname. ShhhDom, ShhhhhTed, Subhhhhk Sometimes followed by a number.

Psionics

Long disputed to exist, Psionics, the next step in human development, was proven fact just after the 21st century.

As mankind adventured into space he found other races or evidence of such abilities in all technological civilizations. In fact, it appeared a higher machine based technology was a mandatory prerequisite for the changes to happen in the race.

Toxins and changes in the environment began to trigger genetic changes that led to the miniscule amount of the populations latent abilities.

Talent

These special and rare talents of the mind are inherited or created by use of dangerous drugs. These drugs more often kill than create the desired effect.

Chances

All characters have a flat 4% chance of having PSI talent. This is inherent in human populations born after 2100.

Characters with a Psionic in their direct lineage have a 7% chance.

Number of Abilities

Psionics	d4	abilities
Genetic Psionics	d4 +1	abilities
Drug Induced Psionics	d6 +1	abilities
Sick Psionics	d6 +2	abilities

Roll a d20 for areas of Psionic ability. Any roll over 16 is ignored / re-rolled. Only a Sick Psionic is able to use the full d20 roll.

01	TELEPATHY	11	EMPATHY
02	SELF CONTROL	12	SPECTRALKINESIS
03	TELEKINESISIS	13	REMOTE VIEWING
04	HEALING	14	PRECOGNITION
05	MIND CONTROL	15	PSI SHIELDING
06	PYROKINESIS	16	WILD TALENT
07	CRYOKENISIS	STOP	
08	POSTCOGNITION	17	ATTACK
09	PSI TAP	18	LEECH
10	PSI LINKING	19	TELEPORT
		20	MIND TRANSFER

Working PSI   WKP

Each of these ability areas has a number of abilities usable by the character as long as the character is able to power the use. This power is called WKP or WORKING PSI power. Like any battery, the PSI needs this power to perform such abilities. Power is inherent in each PSI. This energy is used and regained by rest or other specialized methods.

For WKP add your constitution value to a d10 roll. Remember to improve WKP by d10 points per level the character achieves.

(CONSTITUTION + d10) = WORKING PSI POINTS

Regeneration

Regeneration of WKP is a simple process of rest or meditation. Some PSI users have higher rates of recovery. Roll a d100 for rate.

		MULTIPLIER
01-75	Normal Recovery Rate	
76-85	Fast Recovery	x1.25
86-95	Very Fast	x1.50
96-98	Phenomenal	x2.0
99	Lightning Fast	x3.0
00	Natural	x10

Time

	RETURN
Hours Rest	d4 Points
Hours Sleep	d4 +4 Points
Four Hours Sleep	Half WKP
Eight Hours Sleep	All WKP
Meditation	d4 +2

PSI Skill

Psionic abilities start at a skill level of d4. They are developed in the same way as skills. Sick Psionics start at a skill level of d4 +4. Each point of skill in the ability is a 5% chance of success when attempting to use the ability. This percentage score is modified by the characters MCD or Mental Coordination.

MCD is found by adding your scores in Intelligence and Agility with the resulting number being divided by 2. Round fractions down.

$$\frac{INTELLIGENCE + AGILITY}{2} = \begin{array}{c} MENTAL \\ COORDINATION \end{array}$$

MCD can also be improved as a normal physical statistic with twice the costs.
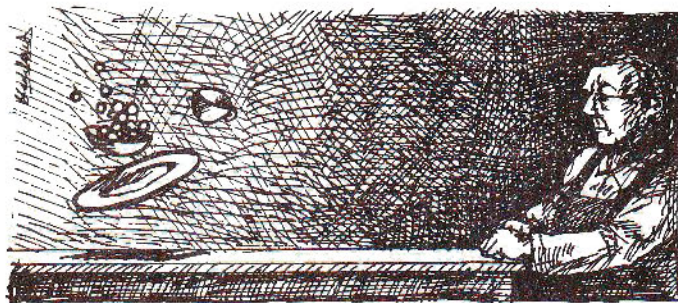
MCD Use

When you use PSI index the characters MCD on the following chart and find the situation modifier. Any skill use modifiers can be used as an option.

A: Snap use of talent without proper time.
B: Quarter necessary time taken to use Psi talent. (see ability time costs)
C: Half necessary time taken to use talent.
D: Three Quarters necessary time taken to use talent.
E: Normal Time

MCD	A	B	C	D	E
0	-35	-30	-25	-20	-15
01-02	-30	-25	-20	-15	-10
03-04	-25	-20	-15	-10	-05
05-06	-20	-15	-10	-05	0
07-08	-15	-10	-05	0	0
09-10	-10	-05	0	0	0
11-12	-05	0	0	0	0
13-14	0	0	0	0	+05
15-16	0	0	0	+05	+10
17-18	0	0	+05	+10	+15
19	0	+05	+10	+15	+20
20	+05	+10	+15	+20	+25

Boosting WKP

A character is able to boost his or her WKP for a limited time by several means that could include.

A   Linking with another PSI to share WKP
B   Tapping a source of WKP
C   Having a special skill in a meditative discipline adds +d6 WKP for an hour.

PSI Overuse

As a character burns the energy of PSI there is a chance of permanent damage if the abilities are misused.

REMEMBER
01 In desperation a character with a few WKP (PSI) points may run his available points into negative numbers with the following result. Roll a d100 on A.
02 Trying to probe another mind with PSI abilities. There is a form of last-ditch mental attack possible if the victim knows he or she is being probed. Cost of this attack is 10 points of WKP plus 1 point of WKP per 5% chance of effectiveness.
Roll under effectiveness on a d100 for a successful attack. Use table B. This can be used once per 24 hours.

A Overuse

01-50	PSI user falls unconscious for d10 minutes and is stunned for d4 hours.
51-75	PSI user blasted unconscious for d10 +10 hours.
76-85	PSI user blasted unconscious for d10 days.
86-98	PSI user permanently looses d4 points of his or her WKP points.
99	PSI user burns out PSI ability for d4 months.
00	PSI user blasted into a coma for d6 months.

B Defense

01-50	PSI user repulsed by victim.
51-75	PSI user blasted unconscious for d4 minutes. (attacker)
76-85	PSI user has identity problems for d4 hours. (no PSI use)
86-98	PSI user becomes a mental copy of the victim for d20 minutes.
99-00	PSI user controlled by intended victim for d6 hours.

Other Effects

Overuse of PSI can cause a character to have a temporary loss of AGL, CON, DEX and other physical statistics. With excessive use the character's MCD may drop until he or she rests. These options are the GM's decision.

Telepathy

Psi Talent: TELEPATHY
Telepathy is the talent for mind to mind communication over a distance. This is limited to line of sight or individuals a telepath has worked with before.
* SENDING (to telepath)   C=05,T=05s
* LISTEN WITHOUT DETECTION   C=10,T=10s
* LOCK ON A SINGLE MIND   C=10,T=05m
  A telepath must first lock on a new mind if he or she has never scanned the individual before this attempt.
* SEND (to non-telepath)   C=15,T=10s
* SEND TO GROUP (non-telepath) C=25,T=15s
* DETECT TRUTH / LIE   C=10,T=20s
* SCAN MEMORY   C=20,T=10m
  Scanning ones own memory for a specific fact or small amount of data.
* SCAN OTHER MIND (no resistance) C=30,T=15m
* SCAN OTHER MIND (resistance)   C=40,T=20m
* PROBE ALIEN MIND   C=50,T=30m
  To gain the general thoughts and feelings of an alien or animal intelligence.

Remote Viewing

Psi Talent: REMOTE VIEWING
The ability to see what is happening now at a different location. Over initial cost each point of WKP (PSI) used extends the range 100 miles. Time of sight is usually d100 seconds.
* WHAT'S HAPPENING NOW   C=20,T=30s

Cryokinesis

Psi Talent: CRYOKINESIS

The ability to create an area of cold on the surface of an object. After the initial cost in WKP each point of WKP added increases the temperature loss by 5 degrees. Each additional point of WKP expands the area of the cold spot one cubic inch.

* CHILL (one cubic inch)   C=25,T=10s
* FROST (one cubic inch)   C=30,T=20s

Linking

Psi Talent: PSI LINKING

Psi's may share their WKP by linking their minds and allowing one of the number to use his or her abilities while the others provide the WKP (PSI) power for use.

* PSI LINK (voluntary)   C=05,T=05m
* PSI LINK (involuntary)   C=20,T=03m

Healing

Psi Talent: HEALING

Healing is the ability to heal by contact with the victim of accident. Healing can only aid limited cases of physical injury and can not resuscitate the dead or regraft a lost limb. After the initial cost in WKP each additional 5 points used will cure 1 point of injury. Every 10 points used will return a point of CON (constitution)

* HEALING (cuts or open wounds) C=20,T=01m
* HEALING (1 cubic inch burn)   C=30,T=02m
* STOP BLEEDING   C=35,T=01m
  Reduces artery sever result by one point on the bloodloss tables on page 71.
* SLOW DEATH   C=50,T=01m
  The ability to hold a person who is on the brink of death for d6 minutes. At death the PSI also experiences a 5% deathshock chance.
* RESUSCITATE (+5% on result)   C=10,T=01m

Self Control

Psi Talent: SELF CONTROL

Self control gives the user control over his body and normally autonomic functions.

* RELAX BODY   C=10,T=01m
* CONTROL HEART RATE   C=20,T=01m
* BREATH CONTROL (1+ d4 minutes) C=15,T=30s
* DIAGNOSE BODY DAMAGE   C=20,T=02m
* SPEED REACTION TIME   C=35,T=01m
  For every 5 points of WKP added after the initial cost, the character gains 1 AGL point for 10 minutes.
* IGNORE STUN / PAIN   C=40,T=01m
* HEAL SELF   C=30,T=01h
  Adds +d4 points of healing per day.
* STOP BLOOD LOSS   C=30,T=30s
  Reduces the resulting artery, Blood Loss result by 1 point. See page 71.
* FIGHT DRUG EFFECTS   C=35,T=01m
  Slows drug reaction time by half.
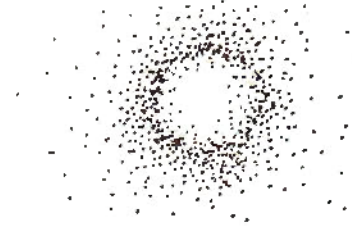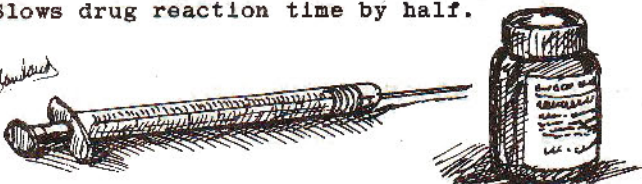
Spectralkinesis

Psi Talent: SPECTRALKINESIS

Spectralkinesis is the ability to affect the spectrum of light. This creates a ball of light one cubic foot in diameter. This will last for d6 minutes (+ 1) minute per additional WKP (PSI) point added.

* LIGHT FLASH (pinpoint flash)   C=25,T=05s
* GLOW   C=20,T=10s
* READING LIGHT   C=30,T=15s
* BRILLIANT LIGHT   C=50,T=25s
* MOVE BALL OF LIGHT   C=15,T=10s
* COLOR LIGHT (any spectral color)   C=20,T=05s
* SHAPE LIGHT (any shape)   C=25,T=05s
* MULTIPLE COLORS   C=25,T=05s

Shield

Psi Talent: PSI SHIELD

A PSI shield negates the effects of a PSI tapping the WKP or thoughts of another PSI. Effects of shields last for d10 minutes with an additional d4 minutes per every point of WKP used.

* SHIELD FROM MIND PROBE   C=30,T=10s
* BREAK MIND SHIELD   C=50,T=02m
* SHIELD FROM PERSONAL WKP TAP   C=25,T=30s
* BREAK PERSONAL WKP TAP SHIELD   C=45,T=02m

PSI Tap

Psi Talent: PSI TAP

This is the ability to increase WKP for a short time by tapping into the WKP (PSI) of an area. Detections last d6 minutes. A tap increases WKP for d4 hours or until used.

* DETECT WKP OF AREA   C=20,T=02m
* DETECT TYPE OF WKP IN AREA   C=10,T=05m
* TAP WKP OF AREA   C=25,T=02m
  Tapping an area will gain the user 5d10 points of the WKP in the area if there is that amount available.
* DUMP WKP IN OBJECT   C=20,T=10m
  This is the ability to dump 10 points of WKP into an object for future use. Roll on the table below for the final dump result.

WKP Dump

01	WKP dump lost with any stored WKP in the item used.
02-50	Fails to store.
51-75	Stores 10 points from the 20 used.
76-85	Stores 10 points +d10 of the user's remaining WKP.
86-98	Stores all 20 points.
99-00	Stores the character's entire WKP score and forces him or her to rest for d4 days before using PSI abilities again.
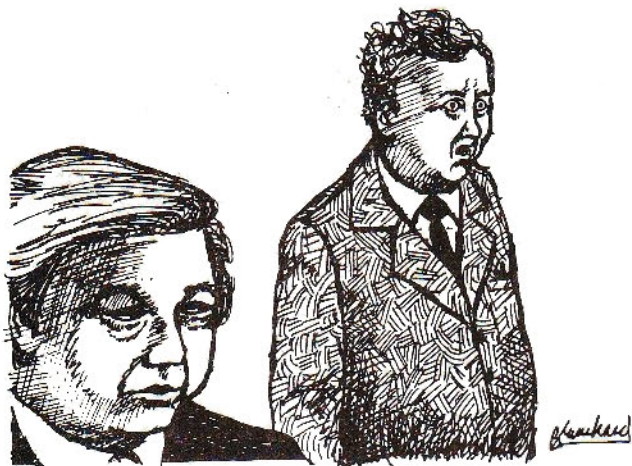
Empathy

Psi Talent: EMPATHY

Empathy is the ability to read emotion and general feelings in individuals. This talent borders on the talent of Telepathy though no concrete information may be obtained by its use.

* FAST EMOTIONAL IMPRESSION   C=10,T=05s
* READ EMOTION (individual)   C=15,T=10s
* DETECT EMOTIONAL PROBLEM   C=25,T=02m
* PROBE DISTURBED INDIVIDUAL   C=40,T=10m
  A d10 second flash of what disturbed the individual or an idea of the physical or mental problem.
* PROBE HIDDEN EMOTIONS   C=35,T=10m
* EASE / INCITE EMOTION   C=45,T=03m
  Changes temperament by d10 points.
* CHANGE EMOTIONAL STATE   C=55,T=05m
  Changes temperament by up to 4d10 points.
* ASSURANCE   C=30,T=10m
  Gives the characters around this individual the feeling of assurance, relaxation, or friendship if applicable.

Telekinesis

Psi Talent: TELEKINESIS

Telekinesis is the ability to lift and control the flight of objects. After the initial cost in WKP every point of WKP added gives the ability to lift 5 pounds. This talent lasts for 10 seconds or an additional 10 seconds for every point of WKP added.

* LEVITATE (vertical)   C=20,T=05s
* CONTROLLED FLIGHT   C=35,T=10s

Pyrokinesis

Psi Talent: PYROKINESIS

The ability to create an area of heat on the surface of an object. After the initial cost in WKP each point of WKP added increases the spot's temperature by 10 degrees. Each additional point of WKP used expands the area of the spot by one cubic inch, adds a single additional spark or increases the flames burn value by .50 pts.

* WARMTH (one cubic inch)   C=20,T=10s
* SPARK   C=15,T=10s
* SMALL FLAME (1 point of burn) C=25,T=15s

Postcognition

Psi Talent: POSTCOGNITION

The ability to see what has happened before in a specific area. Over the initial cost each point of WKP used extends the range 1 day, month or year into the past. Time of use is usually d100 minutes.

* WHAT HAPPENED BEFORE   C=30,T=10m

Precognition

Psi Talent: PRECOGNITION

The ability to see what may happen in the near future. This may be used for a person or a general area. Every 5 points of WKP used extends the range 1 hour, day, week or month into the possible future. Time of use is usually in a d10 second flash.

* WHAT WILL HAPPEN   C=50,T=15m

Wild Talent

Psi Talent: WILD TALENT

Most useless and dangerous of the PSI related talents is the Wild Talent. This is usually manifest as use of a random PSI talent in times of stress or mental anguish.

If this talent appears it is a single ability, it cancels any other PSI talents and adds their skill points to itself.

For this talent a d20 is rolled as the starting skill level. This level can be improved but not lessened. This talent can always find the necessary WKP for use even if it drains the character, another Psionic or the general area. Wild Talent can use any PSI ability or subclass. Use of the talent is often for d10 minutes.

* WILD TALENT (uncontrolled)   C=? ,T=05s
* WILD TALENT (trying to stop)   C=25,T=10m

Mind Control

PSi Talent: MIND CONTROL
   Mind control is the ability to enter and change the thinking process of a victim.

* SUGGESTION   C=25,T=30s
  Planting an idea or small thought.
* SLEEP   C=50,T=01m
* CHANGE THOUGHTS   C=40,T=01m
  To change a line of thinking.
* MIND BLANK   C=40,T=30s
  A d10 second blanking of a mind.
* STUN (4d10 head stun)   C=55,T=01m
* PLANT MENTAL BLOCKS   C=75,T=10m
  The ability to plant a mental barrier to stop a behavior pattern or a memory.
* BREAK MENTAL BLOCKS   C=85,T=20m
  The ability to erase mental blocks created naturally or by another PSI.
* PROBE (for information)   C=60,T=10m
* TOTAL MIND CONTROL   C=90,T=02h
  Total mind control of an individual. Lasts for d6 days. Has the effect of a general Mind Blank on the victim.
* BREAK MIND CONTROL   C=80,T=04h
* SLEEP GUARD   C=25,T=02m
  Wakes the user at the first general sound or movement in the area of the sleeper.

Dangerous Talents

Attack

Psi Talent: ATTACK
   The attack talent is a highly dangerous form of Telekinesis that allows physical attack without physical combat. This may manifest in the form of a raging force or poltergeist that can demolish an area. A second form is a blade-like attack that slashes as if the user's mind controls an invisible 6 inch knife of razor sharpness.

* HARD SLAP (1 point damage)   C=10,T=10s
* POLTERGEIST WIND (25+mph)   C=20,T=30s
* RAGING POLTERGEIST (destructive) C=40,T=01m
* POLTERGEIST + WIND (destructive) C=50,T=02m
* BLAST OF FORCE (d6 damage)   C=30,T=30s
* MIND BLADE (use blades)   C=40,T=20s
* ELECTRIC SHOCK (1 amp)   C=25,T=30s
  (Per each additional amp.)   C=01 pt.
* MOLECULAR DISINTEGRATION   C=85,T=30s
  Removes a 1 inch cube of mass in any form of area by the molecular layer.

THICKNESS THAT CAN BE REMOVED

1.0	.50	.25	.12	.06	.03	.15	.0075

AREA IN SQUARE INCHES THAT CAN BE AFFECTED

1	2	4	8	16	32	64	128

Leech

Psi Talent: LEECH
   This is more a sickness than a talent. The Psionic is able to remove constitution (CON) from normals and Psi's and convert it to half its value in WKP for his own use.

* LEECH (by touch) (d6 pts.)   C=10,T=20s
* LEECH SKILL (touch, 1 hour use)   C=25,T=40s
  Victim is mindless for d10 days.   DS=25%
* LEECH CONSTITUTION (3d6 pts.)   C=10,T=20s
  To replace own loss, can kill.
* LEECH APPEARANCE (touch, 1 week) C=95,T=30m
  Hair color, voice, features. Does not change body mass, only generally reshape it for a week. Does not change sex. The victim is not harmed.

Teleport

Psi Talent: TELEPORT
   This is the ability to move a body to another place at the blink of an eye.

* TELEPORT (100 ft. maximum)   C=40,T=05s
* TELEPORT (to known place)   C=75,T=05s
  Limited to within 5 miles
* TELEPORT OBJECT (by touch)   C=30,T=10s
  Limited to 1 pound
  Per each additional pound   C=01 pt.

Mind Transfer

Psi Talent: MIND TRANSFER
   This horrific use of power allows a PSI user to transfer his entire mind and warped personality into another being. This will submerge the other mind on a 95% chance and obliterate it 10% of the time. As the psionic leaves a body, the old body experiences a 85% chance of a Deathshock. If the body and mind are intact the victim's old mind recovers in d20 weeks.

* MIND TRANSFER (touch)   C200,T=05m
* MIND TRANSFER (within 20 ft.)   C320,T=07m
* TRANSFER OTHER MIND (touch)   C250,T=10m
  Leaves a mindless body.
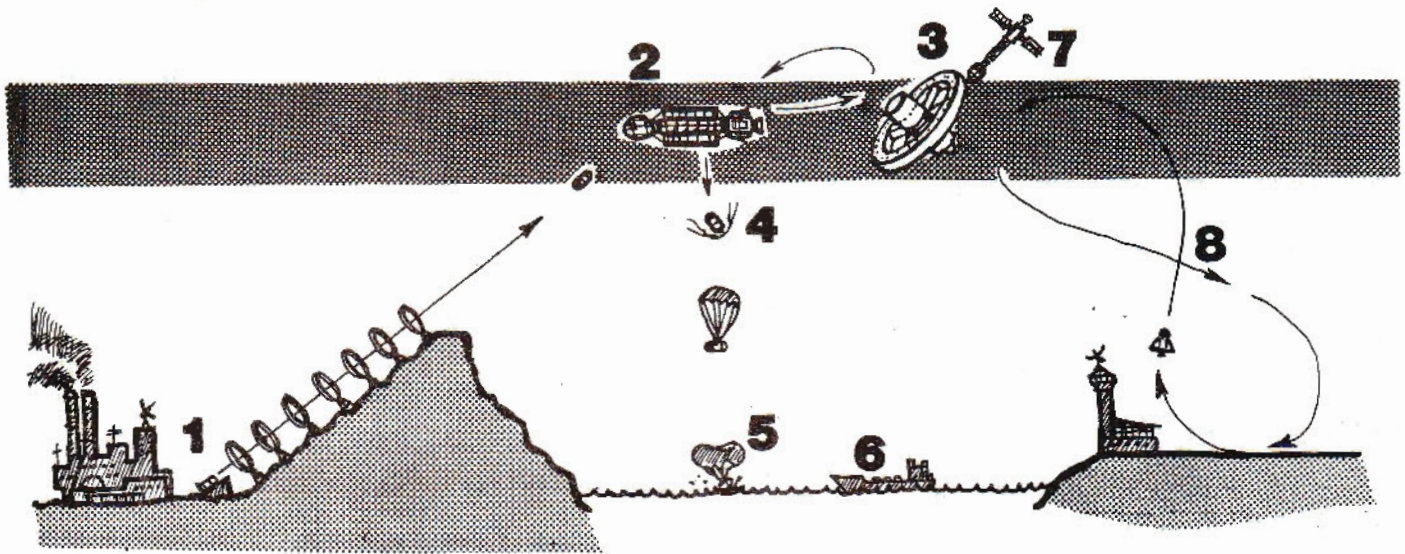
Ground to Space

Cargo handling is a snap on most developed worlds. Most cargo is loaded into 10x10x10 cans and shot into orbit in units of three by a mass accelerator built up the side of a mountain. Cannisters are caught in orbit by special ships and transported to orbital stations for redistribution. Returning cargo is an even simpler process of dumping the cannister back into the world's gravity where it reenters the atmosphere and deploys a parachute or parasail for a smooth water or a very rough land, landing.

Unfortunately, this easy high acceleration system is not usable for passengers and fragile equipment. For this, shuttles are a neccessity.

Key

1 Factory / Accelerator
2 Can "Catch" Ship
3 Orbital Port
4 Cannister Return
5 Ocean / Chute Recovery
6 Return to Factory
7 Starship or Systemship
8 Shuttle Traffic Ground to Space

Shuttle Data

LFT = Lift Type
ENG = Engine Type
LAN = Landing Type
RET = Orbital Return
FUL = Fuel Units
* = Cargo Bay
CAR = Cargo Size Area
POW = Power Source
SPC = Special Equipment
PAS = Passengers
SIZ = Height & Length
ACL = Accelerator Launch

Rescue Ball

RE-ENTRY BALL (RESCUE)
LFT: n/a
LAN: Parachute
FUL: n/a
POW: Battery
PAS: Variable
ENG: n/a
RET: Free Fall
CAR: 800 lbs.
SPC: Survival Pack
SIZ: L:4 W:4 H:4

Cannisters

CANNISTER
LFT: Parachute
LAN: Water / Rough
FUL: None
POW: Battery
PAS: no
ENG: None
RET: Vehicle / ACL
CAR: 3 (10x10x10) Block
SPC: Retrieval Beacon
SIZ: L:40 W:12 H:12

Light Shuttle

LIGHT SHUTTLE
LFT: Wings
LAN: Runway
FUL: 500 s units
POW: Fusion
PAS: 01 to 12
ENG: Fusion
RET: Internal
CAR: 6 (10x10x10)
SPC: Fully Equipped
SIZ: L:67 W:15 H:14

Heavy Shuttle

HEAVY OR PASSENGER SHUTTLE

LFT: Wings / VTOL	ENG: Fusion
LAN: Runway	RET: Internal
FUL: 900 s units	CAR: 46 (10x10x10)*
POW: Fusion	SPC: Fully Equipped
PAS: 01 to 100	SIZ: L:95 W:19 H:20
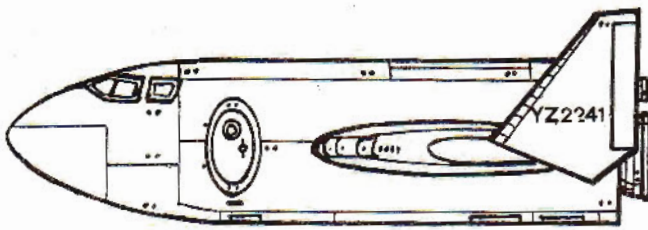
Lander

LANDER

LFT: Lift Body	ENG: Chemical
LAN: Land / Water	RET: Cannister / Vehicle
FUL: 400 s units	CAR: 6x6x6
POW: Battery	SPC: Survival Pack
PAS: 1 to 4	SIZ: L:46 W:14 H:14
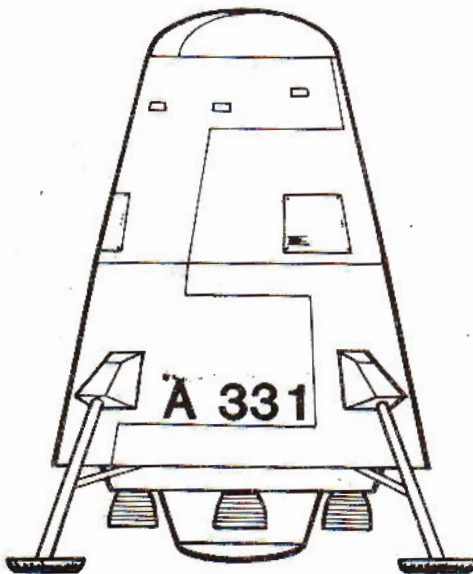
Fuel Use

In FTL, fuel use is a simple point system of expenditure and cost by size of fuel unit. Before using this section see the starship fuel use information.

VTOL

LOAD	GRAVITY					
	0.50	0.75	1.00	1.25	1.75	2.00
Empty	025	037	050	075	100	150
Light	050	075	100	150	200	300
Medium	075	100	150	200	300	400
Heavy	100	150	200	300	400	500
Overloaded	150	200	300	400	500	600

Glide Down

LOAD	GRAVITY					
	0.50	0.75	1.00	1.25	1.75	2.00
Empty	01	02	03	04	05	06
Light	02	03	04	05	06	08
Medium	03	04	05	06	08	10
Heavy	04	05	06	08	10	12
Overloaded	05	06	08	10	12	14

Sub-Orbital Flights

LOAD	GRAVITY					
	0.50	0.75	1.00	1.25	1.75	2.00
Empty	030	050	075	100	150	200
Light	050	075	100	150	200	250
Medium	075	100	150	200	250	300
Heavy	100	150	200	250	300	400
Overloaded	150	200	250	300	400	500

The sub-orbital fuel use listed is with runway use only. This does not include the launch cost of VTOL (vertical take off or landing). The cost of any VTOL use is half the cost of the VTOL Launch To Orbit Cost.

Any runway use of shuttles cuts launch to orbit costs by 25%. This multiplies the fuel use by (.75).

Most shuttle flights to planet take 1 hour + 10d6 minutes of travel time. Shuttles also enter space on the lowest edge of the Decaying Orbit Tables.

Shuttle Mishap

Unfortunatly, shuttles can crash. Add the modifiers and roll a d100 for the result. On a crash situation roll a second d100 for the result and survival chances of characters.

Ben, Bells, & Quag

Out of the Autodoc, Quagmire is bright and back to exploring his starship. On the lower deck he finds the keys to the shuttle under the bottom of a brandy bottle.

As Quagmire begins to bring the ship's light shuttle to pre-launch status, Ben turns off the main power to the shuttle's bridge. He then takes the brandy and retires to his cabin. Ben is learning.

Modifiers

SPEED	MODIFIER		ANGLE	MODIFIER
Very Slow	-10		15 degree	-10
Slow	0		30 degree	+10
Medium	+10		45 degrees	+20
Fast	+20		60 degrees	+40
Very Fast	+40		75 degrees	+60

TERRAIN	MODIFIER		TERRAIN	MODIFIER
Runway	-10		Swamp	0
Flat Area	0		Water	+10
Hills	+20		Light Wooded	+10
Rocky	+40		Dense Wooded	+20
Mountainous	+60		Buildings	+40
Cratered	+20		Local Traffic	+20

Shuttle / Aircraft Mishap

Reduce the final modifier two points for every level of shuttle piloting a character has. A Copilot may add half of his skill modifier in the same fashion.

RESULT
01-05 A Perfect Textbook Landing
06-50 Standard Landing
51-98 Rough Landing, (see crash 01-10)
99-00 Crash

Result

Add the same modifiers to the result of a d100 roll. Index the result.

01-10 Rough landing shakes everything loose with a 60% chance of breaking fragile items. Maintenance is d100 hours to next flight.

11-20 Bellies in, rips off wheels, landing gear, heat shielding, VTOL surfaces damaged. Maintenance is 4xd100 hours.

21-40 Shuttle takes near maximum underside structural damage, total loss of heat shielding, wing damage. Repair d4+2 months repair in a repair facility.

41-75 Partial break up, hull splits, control bridge destroyed. Crew takes 75mph vehicle passenger damage. See Vehicle Impact tables.

76-85 Complete break up, Crew takes 100mph vehicle impact.

86-95 Breakup and scattering. Crew takes 150mph vehicle impact.

96-99 Breakup and scattering. Crew takes 200mph vehicle impact with a 40% chance of being caught in a 6x (d100) blast or 50% chance of being caught in a 10d6 fireball.

00 Splattered across the countryside with the crew taking a 300mph impact with a 60% chance of taking a 10x (d100) blast and a 75% chance of being caught in a 10d10 fireball.

REMEMBER
01 This crash table is designed only for critical landings.
02 Shuttles can be rated much the way phase drives are rated. Allow players to improve shuttle operation condition.
03 Rating failure can be an easy to very difficult repair task. Give them time.

Orbiting

Parking a spacecraft into an orbit is a simple procedure. Roll on the tables indicated for orbit by type of use.

ORBITAL USE	TABLE	ROLL
A Going into orbit with ship	A	d10
B Shuttle returning from world to a level of orbit.	B	d6

From the initial level, characters can pilot ships and vehicles into more or less stable orbits by the immediate expenditure of 5 points of fuel. With a level of A7, a starship can boost to a more stable level of A1 with the expenditure of 30 units of fuel.

REMEMBER:
01 5 fuel units = a 1 level orbit change.
02 Level B10 is the point of no return for ships without "atmospheric" capability. The level B11 is planetary atmosphere.
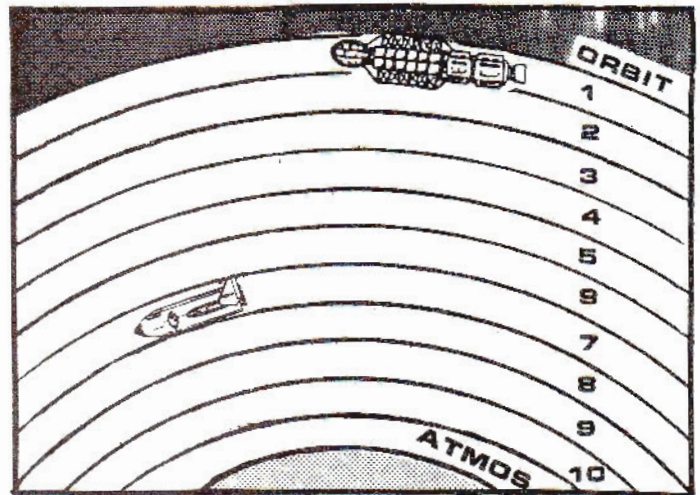
A Stable

01 Stable, decrease 1 level in 1000 years
02 Stable, decrease 1 level in 100 years
03 Stable, decrease 1 level in 50 years
04 Stable, decrease 1 level in 25 years
05 Stable, decrease 1 level in 5 years
06 Decaying, decrease 1 level in 1 year
07 Decaying, decrease 1 level in 6 months
08 Decaying, decrease 1 level in 1 month
09 Decaying, decrease 1 level in 15 days
10 Decaying, decrease 1 level in 1 day

B Terminal

01 Decrease 1 level in 12 hours
02 Decrease 1 level in 6 hours
03 Decrease 1 level in 3 hours
04 Decrease 1 level in 1.5 hours
05 Decrease 1 level in 1 hour
06 Decrease 1 level in 30 minutes
07 Decrease 1 level in 15 minutes
08 Decrease 1 level in 7 minutes
09 Decrease 1 level in 3 minutes
10 Decrease 1 level in 1 minute
and begin re-entry.

Traveling FTL

After the 2100's space travel became a way of life for massive populations that wanted to try to settle on a new world.

Starship cost and styling was kept to a minimum in favor of a light lattice design of construction that could not withstand the gravity of even light worlds. These early cargo frames and light freighters became the standard for space travel.

As the technology changed, closed shell designs of ultralight, ultrastrong materials came into general use.

Before you read this section, get to know the System Generation and Space section of FTL. Be familiar with the idea of planetary slots and general system size.

Phase Space

Phase space is a point between our universe and another universe where time and distance are different. This discovery of a distance compressed space led to the quick development of a simple drive system that could propel a starship into this fringe area between universes. This cut travel time and distance. From the first moderately succesful application of this drive the stars were opened to human exploration and colonization.

Phase space is a black void with blue stars to the front of the ship and red stars behind.

REMEMBER
01 Objects that leave the ship's sphere of phase return to normal space as energy.
02 Phase fields, when collapsed, have the residual energy to drop a starship into normal space without damage.
03 Phase fields that cross phase fields will unbalance each other and cause the phase field with the lowest operating percentage to have a phase failure. The surviving drive suffers a 4d10 point untuning.
04 Phase drives require tuning to improve the operating or phase percentage. Ships drives always untune with use.
05 Phase drives are large bulky cannister shaped devices containing the special equipment and masses of spun copper wire necessary to open holes in phase space.
06 Travel through phase has no ill effects on crew unless a phase failure occurs.
07 More efficient drives have the faster per light year travel time.
08 There are no reported sightings of any other ships in phase. Each ship becomes a universe to itself guided by the ships phase navigation computer.
09 There is no combat or communication in phase. There is communication between worlds only by starship or Phase drone.
10 Engaging FTL, Phase Fields in planetary or stellar gravity wells causes a phase failure. The untuning percentage is equal to 1 point per planetary slot remaining between your ship and the last D zone. Go to Phase Failure Table (B) automatically on this failure.
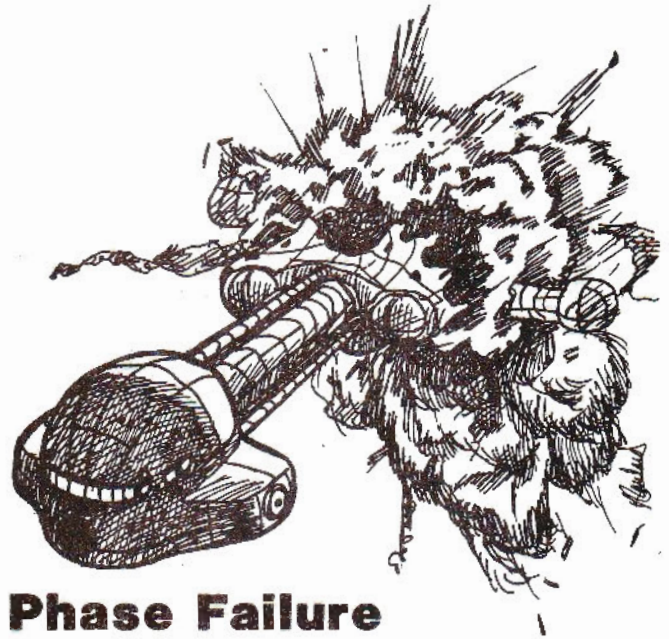
Phase Failure

Every drive has an operating percentage for success. Each time the drive is used the percentage or under must be rolled on a d100 for successful use. If the number is greater than the operating percentage a phase or drive failure has occured.

DRIVE FAILURE RESULTS A
01-80 Computer shuts down.
81-90 Computers shut down, breakers open with a d6 minute delay to next try.
91-93 Computer shuts down, breakers blown.
94-96 Phase linkage damage, d10 hour repair.
97-98 Same as 94, with computer having to be checked, reprogrammed at 2d10 hours.
99-00 Goto Table B for Serious Problems.

DRIVE FAILURE RESULTS B
01-30 See drive limitation H and Table A(97)
31-59 See B(01) Drive tuning drops d100 pts.
60-80 Linkage to phase drive fuses, see F in the limitation table. Repair in 2d100 hours with parts and tools.
81-90 Primary and secondary linkages to the Phase computer fuse. See B(60).
91-93 Phase generator suffers structural damage that takes 3d100 hours to repair. Also see A(91).
94-96 Phase generator totaled. Must be rebuilt with new components. 8xd100 Hrs.
97-98 Same as B(94) with destruction of the phase computer. Replace or rebuild.
99-00 Go to Table C for Critical Results.

DRIVE FAILURE RESULTS C

01-80 See B(97) with phase sickness as the level of Problem Table (B) p.101
81-90 Phase system totaled, jump in a random direction to the nearest star. See C(01) for other effects.
91-98 Same as C(81) with automatic fusion engine failure.
99 Ship breaks up into large pieces as fusion engines detonate and unbalanced fields rip the ship into large pieces.
00 As C(99) with the ship breaking up into small pieces.

Drive Data

OUT ZONE
  The phase point where the ship can phase with minimal, 1 point, untuning.

TRAVEL TIME
  The time it takes the FTL drive to cross a light year.

DRIVE PROBLEMS AND EFFECTS
  The problems with that drive type during use. Most happen during the process of phase failure.

A Untune rapidly, d10 per use.
B Crew suffers biological shock effects of the drive during phase failure. Crew takes an equivalency of a d100 point wound shock and stun if the critical effects reach the B table.
C Tendency toward failure. Every 5th use add a 20% chance to the phase failure percentage.
D Tendency toward bad star system entry navigation. Add d100 hours per system entry time.
E Tendency toward misdirected navigation. Crew does not know failure has occured until they drop out of phase space, having traveled in a random direction. Use the "INDIRECT FIRE" tables information for direction. This has a 5% chance per use.
F Tendency to failure and dropping out of phase space with the effects of B reduced to a (.50) x d100 wound shock equivalency.
G Tendency to cause electronic hardware to malfunction during phase failure. Highly sensitive electronic hardware and software suffer a d100% chance of malfunction until repaired.
H Tendency for ship to become lost with the effects of D, E and B with a wound shock equivalency of 5d10 and its DS effects.

drive panel 37
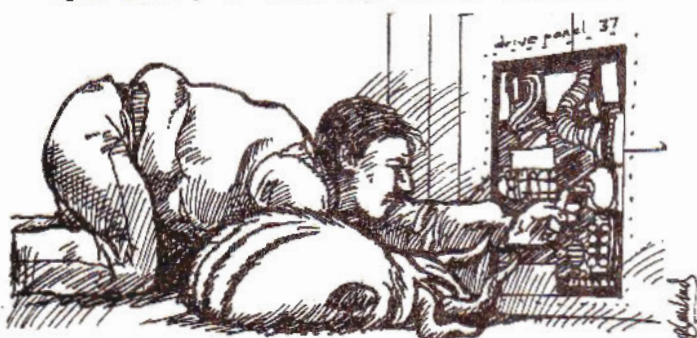
Tuning

All drives start new with a running or tuned percentage of 99%. This number is the percentage of proper drive use, or phase, to travel FTL. Drives untune in gravity wells and close to stars when used. The average ship must travel to an outer zone, C or D to avoid major untuning. Phase Drive engineers can fine-tune a drive at a rate of d4 points per 24 hours work with a success roll under their skill level. Drives cannot be tuned while running.

FTL Drives

Most FTL drives are built on the same general designs with high variations in technological refinements. Old drives are often removed and rebuilt with more efficient or sophisticated parts. All drive units come in balanced pairs or multiples of two to ensure safety in the event of failure during FTL / PHASE travel.

Drive Types

FTL DRIVES		OUT ZONE	TRAVEL TIME	DRIVE PROBLEMS
a	Brazilian HL Phase	D	BC	ABCD
HERBERT / LASHAW PHASE SERIES				
b	Phase 1	D	CD	BDE
c	Phase 2	D	E	BDEH
d	Phase 3	D	F	ABDF
e	Phase 4	D	F	BD-H
f	Standard	D	G	G
g	Standard b	C/D	H	EFG
h	Standard c	D	I	
i	Standard d	D	H	A
v	Standard e	D	I	
j	Nordholm Quantom Jump	ABCD	T*	AEGH
k	Kitch-Grice Quantom Jump	AB	S*	AEGH
l	Bor'Cha K Drive	D	B-G	ACDEF
m	Kymnar GCTM Drive	D	B-E	EFG
n	Vesh Thermoflux	A	C*b	ABH
o	Fritzian Sunjammer	A	O*c	–
	Krelvin Sunsailer	B	N*c	–
p	Sandrol Drive	D	C	ABH
q	Whurr Blink Drive	ABCD	S*d	ABH
r	Hagu Jump Drive	D	H	CD
s	Paebak Phase	C	H	AD
t	Old Grexian Drive	D	F	AB

* Banned from any use.
*b Uncommon in use, not found in human or alien vessels.
*c Technology beyond humanity and its allies.
*d Impossible to remove without killing the living ship.

Travel Time

The following chart is the index of travel time per light year.

A	85 days	K	12 hours
B	62 days	L	06 hours
C	31 days	M	03 hours
D	20 days	N	01 hour
E	10 days	O	30 minutes
F	06 days	P	15 minutes
G	04 days	Q	07 minutes
H	02 days	R	03 minutes
I	24 hours	S	02 minutes
J	16 hours	T	01 minute
		U	Instant Jump

fuel »»

713 BLANCHARD
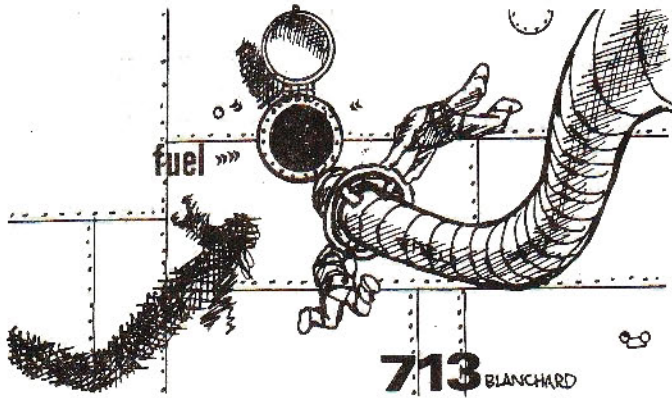
Fuel

Fuel for ships, shuttles, and vehicles are simple units according to size of vehicle. This size determines price. Regardless of the type of ship used, fuel consumption in units, remains the same.

Fuel type may boost the efficiency of fuel use in the form of an extra equivalency of fuel capacity.

FUEL TYPE	MULTIPLY FUEL BY
Common Water	0.75
Deuterium	1.00
Tritium	1.25

FUEL EQUIVALENCIES

Gigantic Ship Unit	(GS) =	10 medium Units
Large Ship Unit	(LS) =	04 Medium Units
Medium Ship Unit	(MS) =	01 Medium Unit
Small Ship Unit	(SS) =	.50 Medium Unit
Shuttle Unit	(s) =	.25 Medium Unit
Truck, Vehicle Unit	(v) =	.25 Shuttle Unit

Engine Failure

Whenever you move your ship keep track of any fuel use. Multiple engines do not use additional fuel, though the loss of a single engine, of a pair, increases fuel use and engine wear by (x2). With normal fuel use and a damaged second engine in-system travel time is doubled.

ENGINE NUMBER	FUEL MULTIPLIER	WEAR MULTIPLIER	or TIME MULTIPLIER
1 of 2	x 2.00	x 2.00	x 2.00
2 of 3	x 1.50	x 1.50	x 1.50
1 of 3	x 3.00	x 3.00	x 3.00
3 of 4	x 1.25	x 1.25	x 1.25
2 of 4	x 2.00	x 2.00	x 2.00
1 of 4	x 4.00	x 4.00	x 4.00

Navigation

Use navigation and system map grids from the System Map to determine the random planet placement when entering a system.

01 Determine random ship entry point in the D Zone and navigate from there.

02 Special and Bad Navigation may include an extra d100 hours to travel to the edge of the (In) Zone or your target at the exact far side of the sun.

Travel

From a ships fuel (TNK) capacity deduct fuel units when a ship:

	FUEL COST
Travel Through Phase Space (light year)	05
Travel Across Planetary Slot	05
(1 hour per planetary slot in travel time)	
Engine Warming / Testing / Starting	02
Fuel Line Leak	Reduce Reserves d20%
Fuel Tank Leak	Reduce Reserves d100%

Orbital Insertion

WORLD SIZE	ORBITAL INSERTION OR BREAK
Small	10 +d10 fuel units
Medium	20 +d10 fuel units
Large	30 +d10 fuel units
Small Gas Giant	40 +d10 fuel units
Medium Gas Giant	50 +d10 fuel units
Large Gas Giants	60 +d10 fuel units

Turning

A Slow Turn	01 unit
B Medium	02 units
C Fast, Panic Turn:	15

TURN 45	TURN 90	TURN 145	Turn 180
1 unit	2 units	4 units	8 units

IN / OUT SYSTEM PROCEDURE

01 Ship systems return control as ship drops out of phase on the farthest slot of the D zone. Plot special fuel use if any.

02 Plot course to destination, determine fuel use, add special fuel use. At this point the ship automatically accelerates to the mid course flip where it turns and begins to decelerate toward target.

03 Determine world size and orbital costs for orbital insertion. Check Orbital Stability from Orbit table and plot fuel to correct orbit. Drop cargo, dock, or whatever. Shuttles operate on the same principle.

04 Change ship's orbital level and plot fuel use. Plot fuel use to break orbit. Go to other, in system, destinations repeating steps 1~3 or accelerate out of system at half the in system travel cost.

05 At phase point the phase computer takes control of the ship and its engines. Roll a d100 under phase tuning for easy transition to phase space. Under computer control for days or months, the starship travels FTL using 05 fuel units per light year.

Docking

	TIME	FUEL	MISHAP%
Station Docking	Hour	5	01%
Standard Exit	.75 h	10	n/a
Hurried Exit	.50 h	7	03%
Illegal Exit	.25 h	4	10%

Fusion Failure

Like phase generators, the starship or shuttle's main fusion engines are operation rated. The failure to roll under this rating percentage gives the result of a fusion failure.

FUSION FAILURE
01-75 Fusion engine system shuts down.
       (restart in d10 minutes)
76-90 Engine bus bars open for reset.
       (reset in d6 +d10 minutes)
91-95 Engine bus bars slag.
       (replace in 6d10 minutes)
96-98 Electronic controls damaged.
       (repair in 2d10 hours)
99-00 Go to Critical Failure

CRITICAL FUSION FAILURE
01-50 Fusion computer control destroyed.
       (replace unit or repair in d6 days)
51-75 Engines suffer structural damage.
       (d6+4 days for repair)
76-90 Engines suffer partial meltdown.
       (replace or d6 months repair)
91-95 Engines slag.
       (replace only, area suffers radiation
        contamination of (d100 x100) x.25
        until cleaned)
96-99 Same as 91 with explosion of d100 x50
       points. (replace engines and area)
   00 Same as 91 with a d100 x100 point
       detonation of the engines.

Engine Abuse

The time required to travel out of system can be cut by factors of 25% by increasing fuel use and engine wear. The average ship leaving a system in 39 hours can cut its exit time to 20 hours by tripling its fuel consumption. Unfortunately this also lowers the next engine operation roll.

REMEMBER
01 Fusion engines can be rated together or separately if in a cluster.
02 Like Phase, Engine Operation can be improved by a character with skills and a little time. One engine or phase retuning attempt is allowed per one days retuning work.

FUEL ECONOMY
TIME REDUCTION	UNTUNING	FUELUSE
25% Normal Time out	d10 +6	x4.0
50% Normal Time Out	d10 +2	x3.0
75% Normal Time Out	d6	x2.0
Normal Time Out	1 point	x1.0
02x Normal Time Out	.50 point	x.75
04x Normal Time Out	.25 point	x.50
10x Normal Time Out	.10 point	x.25

Engine Damage

When a starship's engines take damage use the following easy system for exact location and results of damage.

01-50 NO MAJOR DAMAGE
       General leaks and hazards that take d10 hours to repair. Each additional hit adds 2d10 hours of repair.

51-75 CONTAINMENT DESTABILIZES
       Engine shuts down due to computer and requires 4d10 repair time to restart. Engine de-tunes 2d10 points.

76-77 CONTROL CIRCUITS DAMAGED
       Operations must be shifted to alternate manual operations; Bridge, Engineering Aft Steering, Backup Bridge, etc.

78-79 CONTAINMENT PRESSURE LOST
       Fusion failure due to pressure loss.

80-81 LUBRICANT LEAK
       Pumps damaged and failure in coolant or fuel system. Engine shuts down.

82-84 INTERCOOLER LEAK
       Cold coolant splashes across deck. See (#85) without burn damage. Engine shuts down or slags in d10 minutes

85-86 COOLANT LEAK
       Engine begins to overheat and will slag in 15 minutes unless shut down. There is a 20% chance of control damage as (#76) above. Can burn exposed life with 4d10 HBD per action.

87-90 FUEL LEAK
       Fuel leaks in Engineering area must be vented to prevent explosive ignition.

91-92 CONTAINMENT FRACTURES
       Magnetics fail to release plasma. Core plasma splashes across engineering area to burn with 4 x d100 points of damage. Engine and related equipment slagged.

93-95 ENTRAPMENT FAILS
       Radiation dampers fail. Engine releases d10 x100 rads into the area until it is repaired.

96-98 ENGINE ARCING
       Blast of electricity arcs from engine to strike equipment and personnel with 10K (ten thousand) amps of charge. Arc has a 10% chance of striking an object per 10 actions.

   99 FUEL IGNITES EXPLOSIVELY
       Fuel lines or fuel pre-heater explode as fuel leaks. See Fuel Leaks

   00 ENGINE DETONATES
       Uncontrolled nuclear fusion causes the engine compartment to vaporize along with associated equipment, fuel, crew, and superstructure. Heavily damages remaining portions of ship. Has a 50% chance of having a 5 minute build-up period.

Starships
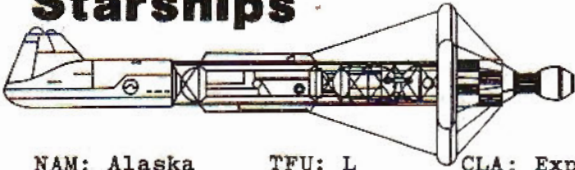
NAM: Alaska	TFU: L	CLA: Explorer
YEA: 2204	TNK: 1990	CRW: 047
CON: 65	ENG: 1x1	PSN: 153
LEN: 1007	PHA: rst	CRG: 1406

Unconventional in design, the Alaska class was the freighter workhorse after the era of close exploration. A competitor to the relatively inexpensive Homesteader, it had a grace that carried over to many other designs for the next 200 years. SPC: cfgjl

Ships

Starships are many and varied in design. If players do not design their own, use any of the following general types. How they are able to acquire their ship is the GM's decision. How they maintain and use something as expensive and rare as their starship is the player's decision.

REMEMBER   (GM's NOTES)
01 Keep good records of ship fuel, costs, and repairs. This leads to better care and a realization of their finite money when costs arise.
02 Do not hand them starships on a silver platter. Make them work for a less-than-great ship and develop a wreck into something they can be proud of.
03 Port authorities begin to wonder why a freighter bristles with weapons. Limit use of such ship's weapons unless they are ICL or a branch of system police.
04 Don't forget fuel costs, facility use licensing, port inspection and nuisance charges that add realism.
05 Older ship's equipment will fatigue and require replacement at a higher rate.

Ship Data

Each FTL ship will be listed by a number of statistics and its historical performance, use, and quirks.

NAM: Name of the ship. This may be a class name or popular name where the ship only received a number designation.
YEA: Year of construction.
CON: Number constructed before the design was discontinued or to date.
LEN: Length of the ship in feet.

TFU: Type of fuel by size designation.
TNK: Tankage of the ship's fuel tanks, the number of fuel units that it can carry. This number does not include "strap-on" or "drop" tanks that are commonly used for extended or deep space travel.
ENG: Fusion Engine size and quantity.
PHA: Phase or FTL drive type. This is listed by the original drive followed by the drive used later if the ship design saw a long service life.

CLA: General class of the ship, its use and design purpose. Many ship designs, while created for specific use, later served a totally different use. One example is the Ontario Class that became freighter, explorer, passenger, and police ship.
CRW: General ships crew for the design. Not necessarily the number needed, due to ship automation that can allow a single individual to pilot a ship.
PSN: Passengers carried by the ship. This may be auxiliary crew, special personnel or general passengers.
CRG: Cargo capacity in 10x10x10 foot "Cargo Can" equivalencies.
SPC: Special facts about the ship from the next table.
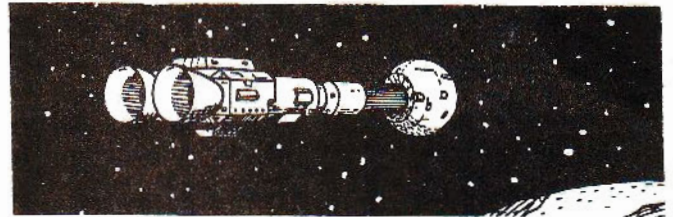
Ship Specials

a ARCHAIC DESIGN
   Not in general use, a museum piece, or few existing that have not been scrapped.
b UNCOMMON DESIGN
   Older design uncommon in general use by 2448. Often very hard to find parts for or heavily modified for general use.
c COMMON DESIGN
   Common "yard" produced design in use for its time. Often these are modular units that see parts use in a wide range of other close designs of starship.
d PRIVATE DESIGN MODIFICATIONS
   Ships that see private ownership and heavy design changes at the whim of the owner. These are often the "company jet".
e CHRONIC MAINTENANCE PROBLEMS
   These tend to have slightly higher drive or equipment failure rates due to age or shoddy mass production techniques.
f RELIABILITY
   Like (e) with more reliable equipment and production. Often these are specially certified and have a +d100% cost for parts and labor to keep certification.
g EXTERNAL PHASE or FTL GENERATORS
   Ships with external phase systems.
h INTERPHASE / INSIDE PHASE or FTL
   Ships with internal phase systems.
i DIFFICULT MANEUVERING
   Design has difficulty in close, precise docking maneuvers. This adds a -5% on any general skill rolls needed. Often these are older ships that send stardock crews running for cover.
j EASY OPERATION
   Ship design is easy to control. Adds a +5% on any general maneuvering skill rolls.
k Many still in use in one form or another.
l External cooling ring or fins.
m Internal (Intercoolers) for cooling.
n Uses automated "Cargo Can" system.
y No existing models remain intact.
z Also used as a police or warship.

NAM: H L   TFU: L   CLA: Any
YEA: 2070   TNK: 2900   CRW: 110
CON: 37   ENG: 1 xLg   PSN: 40/4200
LEN: 1040   PHA: bcd   CRG: 3000

These huge phase freighters were the last of the mass produced giants of the early FTL years. Often purchased by the new colonial administration to take a never ending stream of mankind to the near stars.   SPC: adcgil
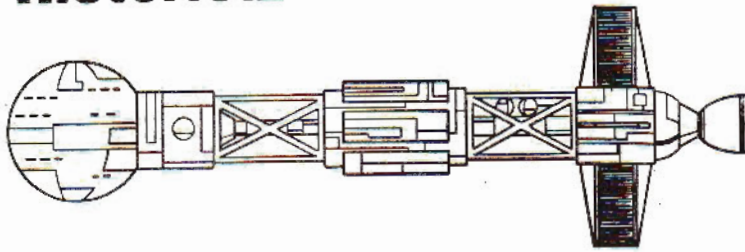
NAM: Brazilia   TFU: L   CLA: Freighter
YER: 2050   TNK: 2200   CRW: 031
CON: 56   ENG: 1 xLg   PSN: 990
LEN: 643'   PHA: a   CRG: 590

Omoxomo's freighters were the first real system and deep space freighters. Used by the BCS in a last ditch effort, they became the first fleet of interstellar colonizers that left Earth.   SPC: agjl
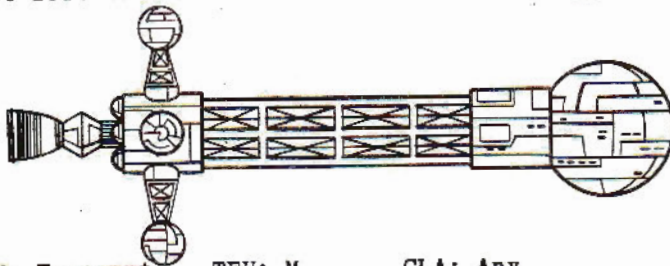
NAM: Freemont   TFU: M   CLA: Any
YER: 2051   TNK: 1100   CRW: 029
CON: 29   ENG: 1 Md   PSG: 11/470
LEN: 485'   PHA: b-e   CRG: 860

Early answer to the Brazilian freighter, the Freemont became the first explorer and general use ship for United Earth. SPC: aeghm

NAM: Port Huron   TFU: M   CLA: Freighter
YEA: 2095   TNK: 990   CRW: 18
CON: 115   ENG: 1 Md   PSN: 4
LEN: 218   PHA: bcd   CRG: 160

First of the faithful "slag mules" used for system mining and construction. Many of these small vehicles have survived into the 25th century.   SPC: cfgl

NAM: Homesteader   TFU: G   CLA: Freighter
YEA: 2068   TNK: 2400   CRW: 240
CON: 36   ENG: 1 xxLg   PSN: 387/4700
LEN: 1486   PHA: b-e   CRG: 2700

This gigantic freighter design became the truck to the stars for mankind.   SPC: cgil
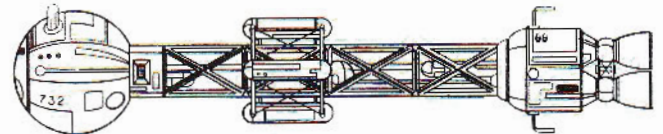
NAM: Cleveland   TFU: M   CLA: Freighter
YEA: 2144   TNK: 1850   CRW: 26
CON: 210   ENG: 1 Lg   PSN: 11/570
LEN: 420   PHA: def   CRG: 1340

Pocket explorer and cargo ship in common use to the 25th century. Used by early "Star Corporations" in large numbers.   SPC:cdfhlk

NAM: Kansas   TFU: L   CLA: Any
YEA: 2070   TNK: 1790   CRW: 48
CON: 13 / b96   ENG: 2 Lg   PSN: 36/2400
LEN 1003   PHA: cde+   CRG: 1900

The Chrysler Star Yards provided mankind with the first "Model T" of space exploration and colonization for a fraction of the cost of the larger ships. In modified design, the Kansas (round front hull) and Kansas b, (ovoid front hull) have served for 400 years of general and varied use.   SPC: agcifjlz

NAM: Faxn'Che   TFU: L   CLA: Freighter
YEA: 2119   TNK: 1560   CRW: 104
CON: 8   ENG: 2 Lg   PSN: 51 /490
LEN: 1026   PHA: b-e   CRG: 2980

Bor'Cha Explorer / Freighter design that was involved in first contact with mankind. Last of the true Bor'Cha designs. SPC: afhil

```
NAM: Nudge A      TFU: M        CLA: Tug
YEA: 2205         TNK: 1600     CRW: 12
CON: 404          ENG: 1 Md     PSN: 04
LEN: 304          PHA: ef       CRG: 110
```
Used as tugs and small haulers. The Nudge A became common across the colonies and home worlds wherever there was long term or large scale space construction.   SPC: cfgjl


```
NAM: Ob'Che       TFU: L        CLA: Any
YEA: 2135         TNK: 2500     CRW: 59
CON: 14           ENG 1 xxLg    PSN: 11 / 540
LEN: 811          PHA: cde      CRG: 196
```
Already influenced by human design, the Ob'Che or "Mixed Ship" fused human and alien technology to create an engineering nightmare that performed outstandingly.   SPC: aefhjl

Kymnar Designs


```
NAM: Gar Rass     TFU: M        CLA: Any
YEA: 2140         TNK: 1000     CRW: 42
CON: 23           ENG: 1 Md     PSN: 210
LEN: 390          PHA: m        CRG: 49
```
First and last of the general design of the Kymnar "A" Starships obliterated by the Celestar Corporate. These brave little cans with vaccuum tubes carved out three colonies in 10 years.   SPC: achmyz

```
NAM: Stillwell    TFU: M        CLA: Tanker
YEA: 2300         TNK: 7200     CRW: 34
CON: 59           ENG: 2 Md     PSN: 26
LEN: 780'         PHA: f-i      CRG: 780
```
First real tanker Freighter to see general service after the first generation ships and freighters.   SPC: chkl


```
NAM: Ontario      TFU: M        CLA: Any
YEA: 2330         TNK: 1670     CRW: 11
CON: 1890+        ENG: 2 Md     PSG: 20/180
LEN: 283'         PHA: ghi,v    CRG: 76
```
The "pocket" starship with a long and outstanding reputation for engineering, use, and economy in all fields.   SPC: cdfhjmnz


```
NAM: Nudge B      TFU: S        CLA: Scout
YEA: 2345         TNK: 880      CRW: 5
CON: 390+         ENG: 1 Sm     PSN: 1
LEN: 114'         PHA: ghi,v    CRG: 10
```
This micro-freighter design proved useful in many applications.   SPC: cdfhjmz
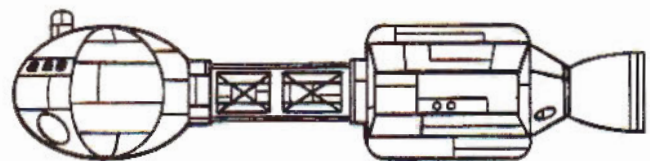

```
NAM: Alaska B     TFU: M        CLA: Freighter
YEA: 2370         TNK: 2260     CRW: 16
CON: 540          ENG: 1 Md     PSN: 44 / 180
LEN: 340          PHA: cde+     CRG: 250
```
Another "pocket" design based on the old Alaska Ross Thomas design.   SPC: cdfhjln

NAM: Hunley III   TFU: M   CLA: Any
YEA: 2375   TNK: 1470   CRW: 10
CON: 179   ENG: 1 Md   PSN: 29/ 160
LEN: 640   PHA: h,i,v   CRG: 240

These bulky designs were the first of a design revolution in starship manufacturing techniques that saw a return to larger ships with good economic efficency.   SPC: cdehm

NAM: Chicago   TFU: L   CLA: Any
YEA: 2390   TNK: 2344   CRW: 39
CON: 360   ENG: 1 xLg   PSN: 564
LEN: 1218   PHA: h,i,v   CRG: 2130

Incorporation of open or/and closed hull designs gave the Chicago Class an edge on hauling cargo or passengers with simple re-outfitting.   SPC: cdfgimnz

NAM: Africa   TFU: M   CLA: Any
YEA: 2390   TNK: 3120   CRW: 57
CON: 443   ENG: 1 Md   PSN: 29 / 640
LEN: 360   PHA: hi,v   CRG: 1190

Small freighter design with oversize phase drives for towing larger ships. Many became small company delivery ships and corporate freight liners.   SPC: cehjmn

NAM: Bha'Che   TFU: L   CLA: Any
YEA: 2390   TNK: 1140   CRW: 57
CON: 41   ENG: 1 Lg   PSN: 110
LEN: 760   PHA: hi,v   CRG: 1260

Already outdated while in production at the Bor'Cha star yards at Faxn'Chr, this design saw little use until purchased by the ICL. Converted to military / police use, they are only seen during emergencies.   SPC: cdz

NAM: Norge   TFU: M   CLA: Any
YEA: 2391   TNK: 1610   CRW: 41
CON: 210   ENG: 1 Md   PSN: 112 / 890
LEN: 535   PHA: hi,v   CRG: 2290

First ship from the Alvarez Yards off the giant Fomalhaut Station / Port, this odd ship used the latest technologies and soon proved Alvarez, the leader of Space Construction and high-tech engineering.   SPC: cdfhjmn

NAM: Moscow   TFU: L   CLA: Freighter
YEA: 2398   TNK: 1940   CRW: 11
CON: 59   ENG: 1 Lg   PSN: 43 / 990
LEN: 670   PHA: hi,v   CRG: 6700

Called the ugliest "damn" thing Earth ever produced, the Moscow Class was a workhorse freighter known for its inability to use most port facilities.   SPC:ehikmn

NAM: Port
YEA: 2400
CON: 15+
LEN: 3416
TFU: L
TNK: 94000
ENG: 1 Lg
PHA: n/a
CLA: Port
CRW: 912
PSN: 3200
CRG: 75000

Towed in modular sections and assembled, the Alvarez Port became a success that was licensed or purchased by most worlds that could afford a real port. With 24 ship bays and 46 shuttle / office bays, as well as shore - leave facilities, it has become a status symbol for corporations.   SPC: cid

NAM: Comanche
YEA: 2425
CON: 29
LEN: 610
TFU: M
TNK: 1940
ENG: 2 Md
PHA: j,v
CLA: Police
CRW: 59
PSN: 290+
CRG: 1200

Judges, Jury, Marshall, and ICL Marines are the cargo of this heavily armored warship that prowls the frontier and settled space. The Interstellar Court of Law eliminates most interstellar crime and helps settle disputes that could damage two centuries of peace. ICL ship designs are not privately owned.   SPC:z

NAM: Titan
YEA: 2430
CON: 560
LEN: 270
TFU: M
TNK: 1196
ENG: 2 Md
PHA: hi,v
CLA: Freighter
CRW: 6
PSN: 2 / 490
CRG: 840

By any other name the Titan Class is a small common star-going truck that often will take the brunt of small cargo hauling. Many of these ships are becoming independent haulers hated by the unions.   SPC: cehjmn

NAM: Porter
YEA: 2418
CON: 15
LEN: 1400
TFU: M
TNK: 1905
ENG: 4 Md
PHA: h,i
CLA: S-Tanker
CRW: 91
PSN: 26
CRG: 230

The Porter class was the beginning of a new series of modular / multi purpose designs with high economy and outstanding hauling ability. Shown with seven detachable tanks, each holding 18000 units of fuel. SPC: chimn
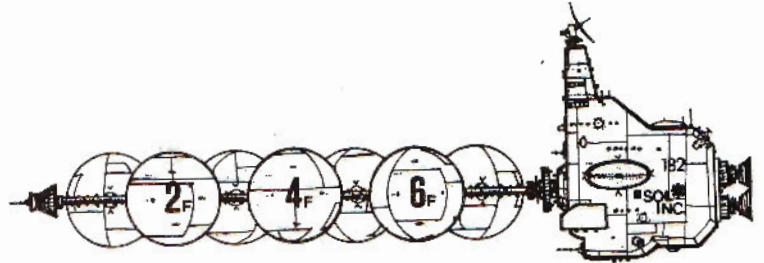
NAM: Centauris
YEA: 2412
CON: 170
LEN: 790
TFU: L
TNK: 2109
ENG: 1 xLg
PHA: h,i
CLA: Freighter
CRW: 48
PSN: 155 / 3400
CRG: 8000

Largest of the industrial ore carriers, the Centauris also occasionally have been used for inexpensive Colonization. SPC: chimn

NAM: Alaska C
YEA: 2410
CON: 46
LEN: 1234
TFU: L
TNK: 44000
ENG: 1 xxLg
PHA: h,i
CLA: Tanker
CRW: 31
PSN: 81
CRG: 290

Privately licensed and built, the Ross Thomas Alaska C was a private venture to monopolize fuel hauling and distribution that failed.   SPC: cdfhjkmn
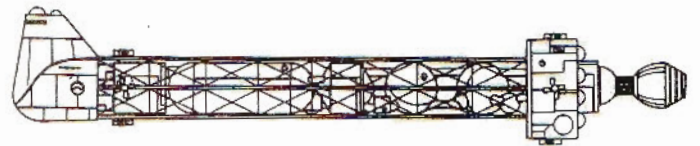
NAM: Akron'Che
YEA: 2435
CON: 499
LEN: 310
TFU: M
TNK: 1840
ENG: 1 Md
PHA: i,v
CLA: Freighter
CRW: 5
PSN: 5
CRG: 1980

Popular modular hauler from the Earth / Faxn'Chr Yards. Built to compete with the Titan Class.   SPC: cfhjmn

NAM: Och'Che   TFU: L   CLA: Freighter
YEA: 2440   TNK: 3240   CRW: 317
CON: 4   ENG: 3 Lg   PSN: 990/ 18000
LEN: 1007   PHA: i   CRG: 26000

Largest cargo hauler in operation, the Bor'Cha built ship is used for mass transport of goods or passengers.   SPC: chimnz
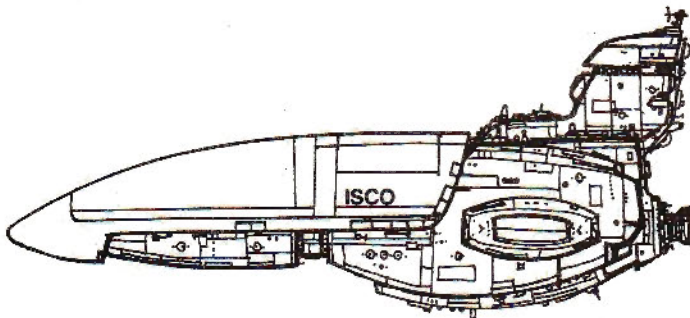
NAM: GUAM   TFU: L   CLA: ANY
YEA: 2448   TNK: 4834   CRW: 441
CON: 320   ENG: 3 Lg   PSN: 250/ 11000
LEN: 1090   PHA: i   CRG: 10000

The starship used by ISCO and a large number of agencies. Often the GUAM is used as a medical (EMR) ship that assists the hospital ships.   SPC: chmnz

NAM: WHURSHIPS   TFU: Carbon   CLA: Explorer
YEA: 2445   TNK: n/a   CRW: 24
CON: 1400   ENG: Living   PSN: 10
LEN: 68'   PHA: q   CRG: 2

Living starships are a rare but impressive sight as Whurr merchants sell their plastics in many ports. Shown are a scout & freighter.

NAM: WHURSHIPS   TFU: Carbon   CLA: Freighter
YEA: 2445   TNK: n/a   CRW: 56
CON: 800   ENG: Living   PSN: 150 /4200
LEN: 290'   PHA: q   CRG: 410

Common Whurr freighter breed.

NAM: SUNSAIL   TFU: n/a   CLA: Private
YEA: n/a   TNK: n/a   CRW: 6
CON: n/a   ENG: n/a   PSN: 2
LEN: 185'   PHA: o   CRG: 4

Used by Fritzian and Krelvin, the Sun Sail is a sleek ship bathed in force that converts interstellar hydrogen to fuel. Only a very rare human has ever seen the inside of one of these starships.   SPC: -
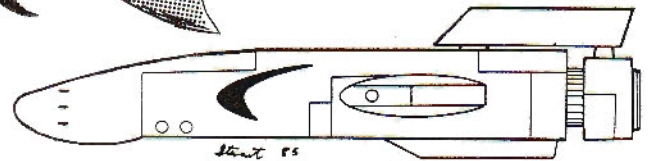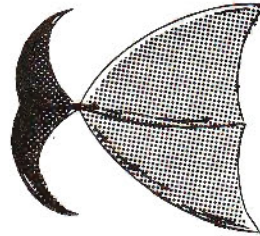
NAM: Vesh Scout TFU: unknown CLA: Scout
YEA: n/a   TNK: unknown CRW: 84
CON: n/a   ENG: unknown PSN: No
LEN: 490'   PHA: n   CRG: No

The fragment shown, crew deceased, was found to be little more than a shaped mass of dense concrete and a molecularly collapsed metal plating. Other vesh have called it an unarmed shuttle.
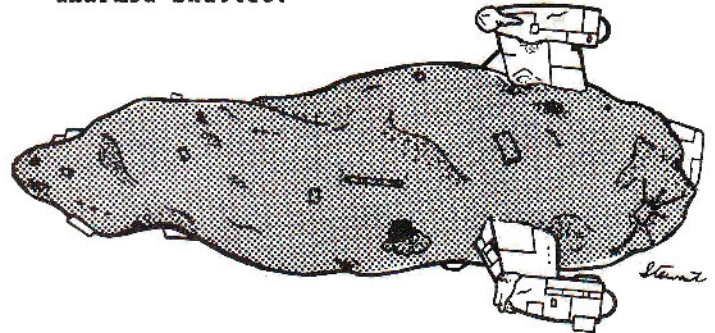
NAM: Sandrol   TFU: L   CLA: Scout
YEA: n/a   TNK: 890   CRW: 5
CON: n/a   ENG: L   PSN: No
LEN: 74'   PHA: p   CRG: 1

The miracle of Sandrol ships is that they can exit the dense gravity and pressure hells they come from. The technology of building or growing these ships is now lost.
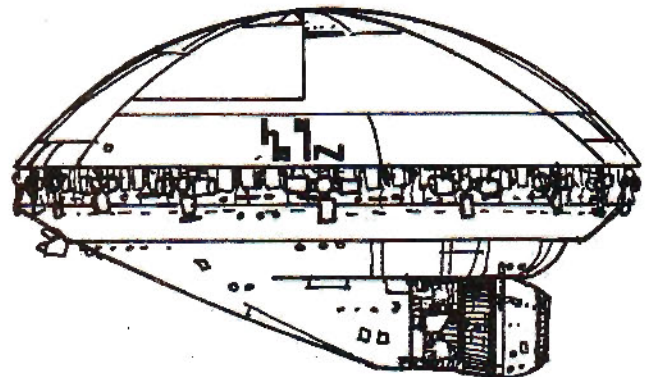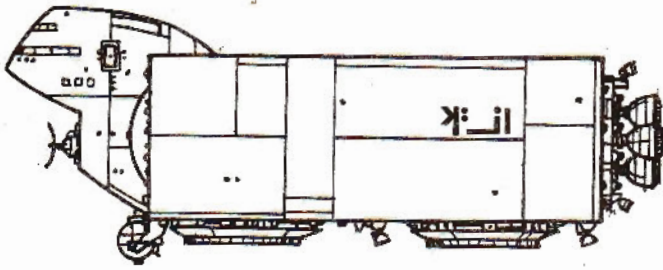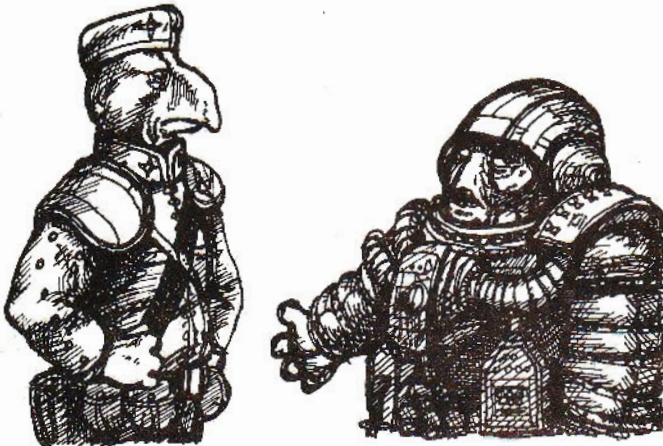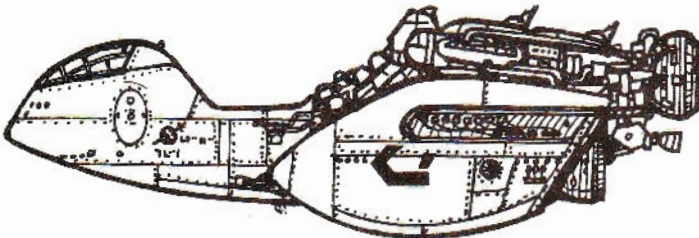
NAM: Star Frame TFU: M   CLA: Any
YEA: n/a   TNK: 1240   CRW: 6
CON: n/a   ENG: 2 Md   PSN: 6
LEN: 540'   PHA: s   CRG: 1250

The Paebakian ship is a simple cargo frame with FTL drive attached. Two saucer shaped landers with Antigrav / O-Phase units allow these 37 foot craft to fly and maneuver into an atmosphere or in space within the stars gravity well.

Enemy Ships

Zankee Raiders

NAM: Z Raider   TFU: S   CLA: Fighter
YER: n/a   TNK: 500   CRW: 2
CON: n/a   ENG: 1 Md   PSN: 4
LEN: 59'   PHA: n/a   CRG: 1

Starship carried fighter and raider craft seen on the frontier during Zankee Raids of the far colonies. These fast ships have laser and missiles. It is assumed a carrier class of ships exists to carry an estimated 100 of these atmospheric and near space craft.

Hagu Ships

NAM: Peregrin   TFU: L   CLA: Any
YEA: n/a   TNK: 1200?   CRW: 50+
CON: n/a   ENG: 2 Lg   PSN: 500+
LEN: 580   PHA: r   CRG: 2000?

Unknown in real name, the ICL has assigned tags to identify Hagu vessels seen on the far frontier. Obviously warships, there has been little communication to identify such ships.
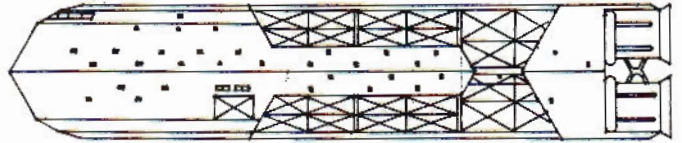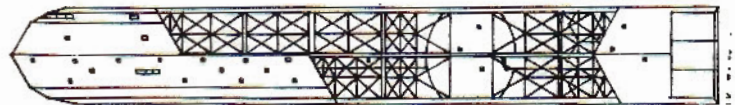

NAM: Pelican   TFU: L   CLA: Freighter
YEA: n/a   TNK: 2000?   CRW: 100+
CON: n/a   ENG: 1 xLg   PSN: 1000+
LEN: 795   PHA: r   CRG: 4900?

General designs show mass-produced modular designs retailored for specific purposes.


NAM: Parakeet   TFU: L   CLA: Warship?
YEA: n/a   TNK: 1400?   CRW: 50+
CON: n/a   ENG: 1 xLg   PSN: 100+
LEN 510   PHA: r   CRG: 1200?

General design of raider used for troop movement of Zankee or raiding operations.

NAM: Pigeon   TFU: M   CLA: Scout
YEA: n/a   TNK: 1000   CRW: 25+
CON: n/a   ENG: 4 Md   PSN: 20+
LEN: 310   PHA: r   CRG: 500+

Smallest of Hagu starships sighted, the Pigeon has infiltrated the edges of FTL space on missions of recognizance. These are small, fast, over-powered ships.
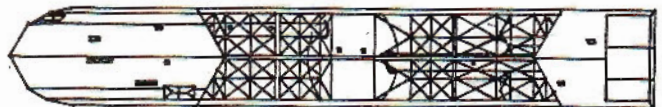
Scanners

On entering star systems a ships sensors can accumulate information on bodies in the system. Linked to the computer, this system plots orbits and navigation.

SCAN	TYPES	RANGE
01	Optical Reflection	A-H
02	Radiation	A-G
03	Motion	A-G
04	Mass / Solar Wind Displacement	A-H
05	Gravity	A-H
06	Magnetic / Radio	A-H
07	Infared / UV	A-G
08	Phase Array (Phase Use)	A-F

DISTANCES IN SPACE (MILES)

A	Very Close	0	to	300 Feet
B	Close	300	to	5000 Feet
C	Short	01	to	10 Miles
D	Medium	10	to	100 Miles
E	Long	100	to	1000 Miles
F	Very Long	1000	to	100,000 Miles
G	Extreme	100,000	to	1 Million Miles
H	System	1 Million	to	3000 Million Miles
I	System+	3000 Million + Miles		

SIZE OF OBJECT

Very Small	(VSM)	under		200 Feet
Small	(SMA)	200	to	1000 Feet
Medium	(MED)	1000	to	5000 Feet
Large	(LAR)	2	to	10 Miles
Very Large	(VLG)	10	to	100 Miles
Gigantic	(GIA)	100	to	1000 Miles
Planetary	(PLA)	1000	to	20,000 Miles
Gas Giants	(GAS)	20,000	to	200,000 Miles

Larger than 200,000 is hard to miss.

Scan Success

CHANCE OF SUCCESS PER 30 MINUTE SCAN

DISTANCE	VSM	SMA	MED	LAR	VLG	GIA	PLA	GAS
Very Close	75%	95%	99%	99%	99%	99%	99%	99%
Close	55%	75%	95%	99%	99%	88%	99%	99%
Short	35%	55%	75%	95%	99%	99%	99%	99%
Medium	15%	35%	55%	75%	95%	99%	99%	99%
Long	05%	15%	35%	55%	75%	95%	99%	99%
Very Long	02%	05%	15%	35%	55%	75%	95%	99%
Extreme	01%	02%	05%	15%	35%	55%	75%	95%
System	0%	01%	02%	05%	15%	35%	55%	75%
System +	0%	0%	01%	02%	05%	15%	35%	55%
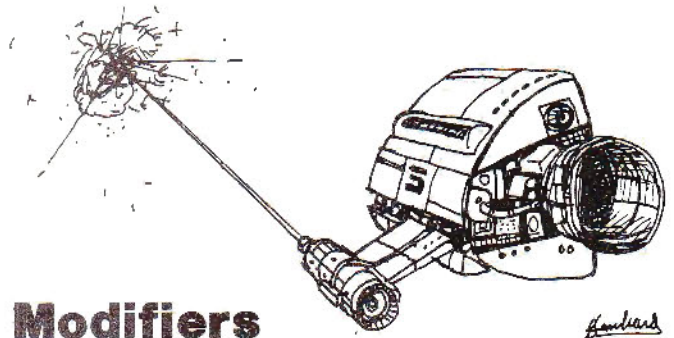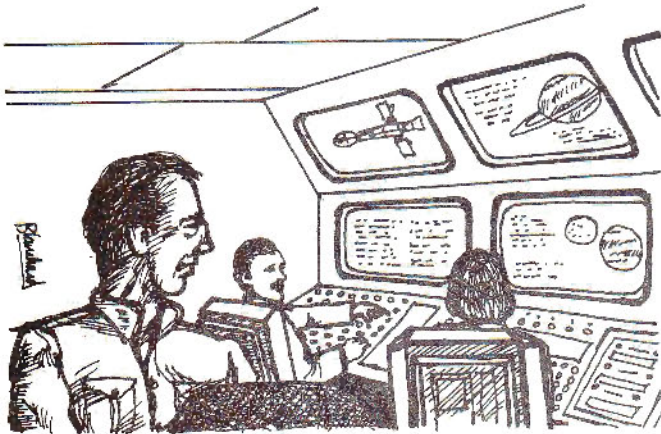
Modifiers

SEARCH MODIFIERS	MODIFIER
Specific Search For Known Object	+05%
Specific Search For Unknown Object	-10%

SYSTEM SCANS	
Computer Planetary Prediction	+25%
Computer Memory Card / System Map	+70%

WEAPONS FIRING

This table is also used for the percent chance to hit another ship with weapons fire from projectiles, missiles and lasers.

MODIFIERS	
Computer Weapon's Lock On	n/c
Mass Driver Projectiles	-15%
Dumb Missiles (fired projectiles)	-10%
Smart Missiles	+10%
Intelligent Missiles	+15%
Cruise Missiles	+35%
Ships Laser	+40%

REMEMBER

01 You must first scan and lock on a target before you fire at it.
02 Use the same Scan tables as a percent chance "to hit" table with modifiers.

Sensors

Ships sensors are a 10x10x10 area that operate much like the computers in design. Each Sensor type has a programming card and a sensor array unit.

Each of these units also has a counterpart available in the form of an Electronic Countermeasure Card that fools a scan up to the rating percentage of the card. Each level percentage of rating, 1% to 100% has a base cost of 1000 d's. A 50% card has a value of 50,000 d's.

Also available are counter-countermeasure cards with a base price of 2000 d's per percentage rating of the card.

Countermeasures

|	TIME REQUIRED	CHANCE OF EVASION	FUEL USE
COURSE CHANGE			
Minor	30 minutes	05%	10
Major	01 hour	10%	20
Hard	02 hours	20%	30
Radical	02 hours	40%	40
HIDING			
Behind Asteroid		50%	20
Behind Moon		75%	-
Behind Planet		90%	-

Ships Weapons

The vast distances in space make ship to ship combat a rarity except when ships are in planetary orbit or just breaking orbit.

Once beyond this orbital point, it is useless to throw away weapons in the hopes of crippling a starship.

As a ship accelerates out of system, the warm up and pre-phase effects isolate a starship from all but radio and laser.
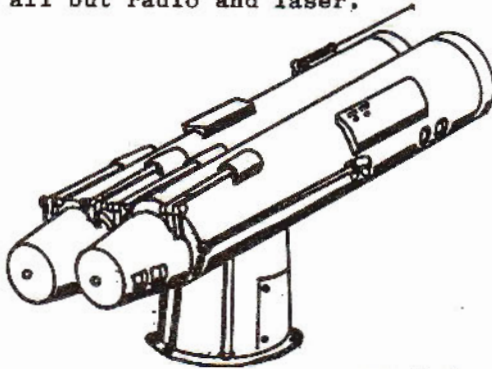
Lasers

A heavy, fluid cooled, computer controlled weapon that burns for up to d10 x 1000 points of damage and .50 x the damage of blast inside the ship if the ship hull is punctured and the compartment at the site of the hole is pressurized.

Effective Limit Very Long Range (25,000 mi.)
Overheat Cutoff 3% per Firing
ROF 1 firing per minute.
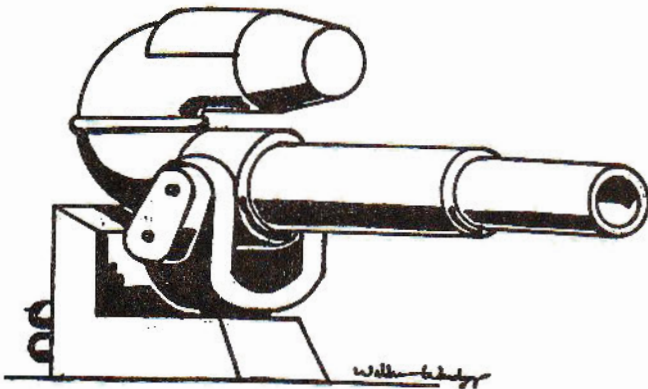
Beam Weapons

The electron or particle beam is at best a moderately effective weapon. Suffering from accuracy problems stemming from use in gravity wells, this beam of charged particles hits with a -15% modifier.

Particle beams have the same general damage as lasers with the added effect of damaging electronic hardware and software in the general area of the hit. Roll a %d100 for electronic disruption in important equipment.

Gamma Emitting variations of this system damage at x.50 laser equivalency damage but also add a d4x (d100 x10) radiation exposure that lasts for d10 minutes as the beam hits.

Effective Limit: Long Range
Overheat Cutoff 7% per Use   ROF 1 per Minute
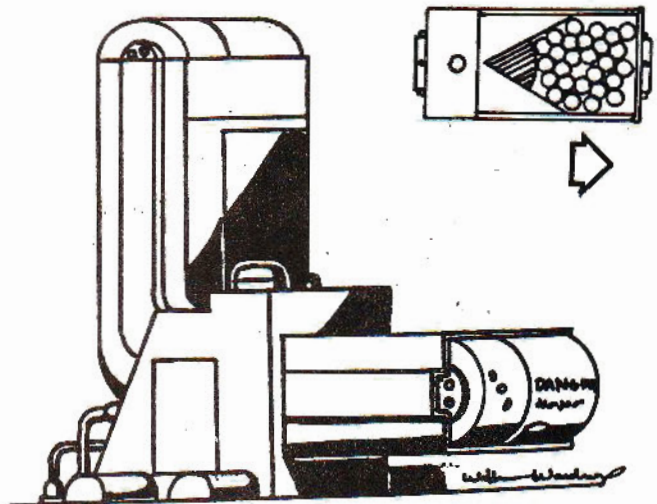
Cannisters

Cannisters are computer launched drums of varied complexity and use. Once free of the ship a cannister is controlled by the ships computer and sensors. A small chemical engine activates to stabilize course and send the cannister in the direction of the target. The cannister detonates, sending a small amount of high velocity debris to strike the other ship. This debris (d20 pieces) hits the ship doing 4 x (1000 +d100) points in damage per piece. Finer material travels at the same velocity striking any targets or exposed personnel at x.25 damage.

A third cannister type detonates close to the launching ship, showering the area with laser reflective flakes that reduce laser fire damage by d100 percent per cannister. This effect lasts 5 minutes per detonation and dissipates at 5% percent effectivness per minute.

Effective Range of Shrapnal
  Extreme (200,000 miles)
Effective Range of Laser Reflective
  Close   (1000 feet)
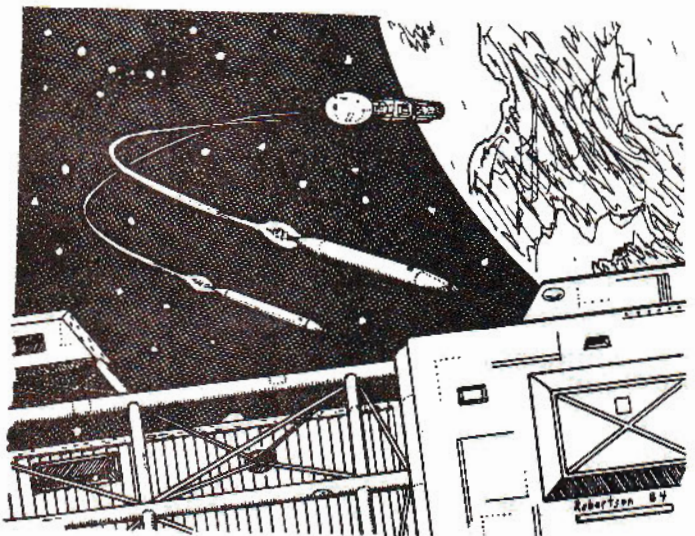
Missiles

Missiles are computer or manually launched, self propelled projectiles armed with explosives or nuclear weapons.

DUMB MISSILES
These are the cluster (d20) rockets that are launched from the ship by the computer or by visual aid in emergencies. These rockets each have a propellent charge and a warhead. They lack guidance and can not be controlled once they leave the ship. Each warhead does damage that could range from 1000-10,000 pts.

SMART MISSILES
Launched in groups of d4, these limited guided missiles have their own navigation equipment and a single or double sensor type. They travel farther than dumb missiles and have a limited ability to correct course. Damage from smart missiles is rated at 1000 to 15,000 pts. These can also carry a kiloton range (.25-30) warhead.

INTELLIGENT or CRUISE MISSILES
These single missiles have special navigation equipment and 4 sensor / anti sensor slots for guidance and targeting. A full mini ship to itself, these missiles do 5000 to 25,000 points or carry nukes.

TYPE	RANGE		SPEED MPH
Dumb	LO	1,000 mi.	3,000
Smart	VL	200,000 mi.	15,000
Cruise	VL	250,000 mi.	20,000

Time To Target

	VCL	CLO	SHO	MED	LON	VLO	EXT	SYS	SY+
LASER	1a	1a	1a	1a	2a	-	-	-	-
PARTICLE	1a	1a	1a	1a	2a	-	-	-	-
CANNISTER	6a	7a	8a	13a	25a	-	-	-	-
DMB MISS.	5a	7a	15a	23a	30a	-	-	-	-
SMT MISS.	3a	8a	14a	19a	24a	7m	-	-	-
CRU MISS.	3a	9a	12a	15a	18a	5m	-	-	-
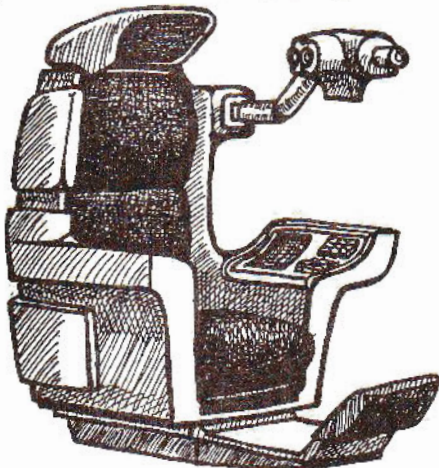
Damage

Index the total damage taken by a weapons systems for detailed damage. Index the code letter for accumulated damage.

MON:	Mounting	HOU:	Housing
MAI:	Main Body	ELC:	Electronic Link to
MOB:	Mobility		Computer / Bridge
POW:	Power	COJ:	Cooling Jacket

DAMAGE TAKEN	0001-500	0501-1000	1001-2000	2001-3000	3001-4000	4000-5000
MON	A	A	B	B	C	D
HOU	A	B	B	C	D	E
MAI	A	B	C	D	E	F
ELC	B	C	D	E	F	X
MOB	A	B	C	D	E	F
POW	B	C	D	E	X	X
COJ	C	D	E	X	X	X

Codes

A Minor structural damage to unit.
B Structural damage to unit requires 4d10 minutes to repair or a -20% chance to hit a target.
C Major damage to unit requires 4d10 hours to repair or unit has a -30% chance to hit the target. Lasers and power systems overheat with a 20% chance of automatic cutoff.
D Severe damage to unit requires 4d10 days repair or unit fires with a -50% of hitting a target. Laser and power systems suffer overheating with 40% chance of automatic cutoff.
E Extensive damage causes automatic shutoff of unit. Repair time is 4d10 days.
F Unit destroyed. Missiles / Explosives have a 40% chance of detonating and adding their damage to the area.
X Units totally destroys, 80% chance of explosives detonating.

Blast

Holes blown in the side of ships effect one square foot of hull per thousamd points of damage. A shaped charge damages hull at half the explosive rate and pushes the blast inside the hull with shrapnal.

EXPLOSIVE DECOMPRESION
Hull damage continues like other explosive damage only when the compartment behind the damage is pressurized. In cases where the compartment is not pressurized, the damage is in the form of shrapnal moving at the speed of the blast damage.

RADIATION PROTECTION
Most ship hulls and glass shield against the threat of radiation exposure.

TYPE	SHIELD PER HOUR	
Vac Suits Most Light	100	rads
Vac Suits, Most Heavy	2500	rads
Heavy Rad Suit	3000	rads
Shiphull	4000	rads
Ship Armor Per Inch	1500	rads
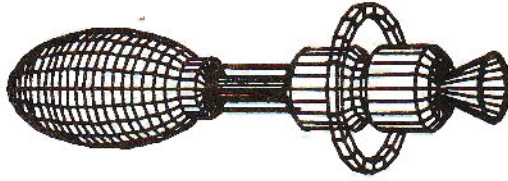
Hit Location

To find the hit location on a ship struck by missile or laser determine range of target from attacker. This tells you if the shot hit where planned or was a random hit. Smart or intelligent missiles are pre-programmed for a specific location or guided. Remember, these ranges are indexed from page 111, not the firearms ranges.

DISTANCE TO TARGET	HITS AREA
Very Close	Attacker's Choice
Close	50% Attacker's Choice
Short	15% Attacker's Choice
Medium	Random
Long	Random
Very Long	Random
Extreme	Random

X Axis

To hit a random area imagine an outline of an (X,Y) coordinate system over the angle of your target ship as in the side illustration above. Chart the center of the ship as 0 and the edges as 100%. This is for all 4 of the ships edges.

X AXIS (horizontal)

Roll a d6
RESULT
01-03 Ship hit on negative side of axis.
04-06 Ship hit on positive side of axis.
Roll a d100 for X AXIS location on ship.

Y Axis

Repeat with the Y AXIS (vertical) using the center X axis you just found as the new 0 point for finding the Y Axis. With general deck plans and a little imagination the results can be realistic. Remember to chart hull values and damage from the blast.
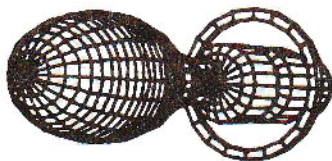
Example

The example ship shown was calculated from a side hit by two missiles. The bow hit is a (-X,60%, -Y,55%). The stern engine cone hit is a (+X,94%, +Y,70%). Other designs in the previous column show general examples of ship positioning. Imagine the XY,% grid over these for the general idea of a "To-Hit" location chart.
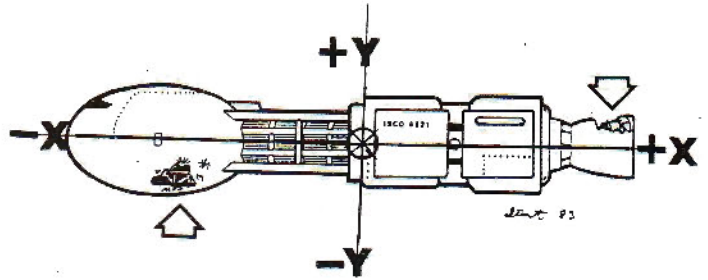
General Damage

The following are generalized hit charts for starships and shuttles if Phase Drive sections are ignored.

01-05	SHUTTLE or POD BAY
06-50	GENERAL STRUCTURAL DAMAGE
51-75	CARGO AREAS
76-85	PHASE (FTL) GENERATORS
86-95	ENGINEERING AREA / ENGINES / CONES
96-98	GENERAL CREW AREAS
99	BRIDGE AREA
00	SPECIAL

General Damage

01-50 **MAJOR FUEL LOSS d100%**
Fuel vents into space or inside ship.

51-75 **SEVERE STRUCTURAL DAMAGE**
Can cause excessive strain if ship is placed through violent manuvers. May completely destroy cargo or shuttle.

76-85 **ENGINE DESTROYED**
See detailed engine table page 103 or eliminate.

86-90 **DESTROYS FTL CAPABILITY**
Reduces Phase drive tuning percentage to d20% (1-20%) or critically damages generator.

91-95 **PERSONNEL**
Crew suffers severe injury or deaths in the area hit. Roll above for area of hit and index page 59 for the Fast Kill Table. Use this general table for characters caught in the area.

96-98 **POWER**
Knocks out d100% of the ships main power reactors or batteries.

99 **BRIDGE DESTROYED**
See #91 for personnel loss. Move to auxilery or engineering bridge if any exist.

00 **FUEL DETONATES**
Ship is fragmented into sections.

Cryo Freezing

Cryogenics is the high-tech science of life preservation and suspension by use of electromagnetic ultracold.

Discovered in the early 21st century, the process of instantly freezing the terminally ill became necessary for deep space voyages and early FTL travel.

Later with refinements of travel that let crews abandon hybernation, cryo freezing was to become the inexpensive way to ship larger numbers of colonists or livestock to the outer colonies.

REMEMBER

01 Cryo Units can be horizontal cases or vertical tubes.

02 Once activated only minimal power is necessary for support.

03 Shattering a tube without cycling the contents will kill the occupant as they defrost unless transfered to another tube. Temperature of the occupant while transfered is close to absolute zero.

04 Cryo Units operate for d10 +10 years on internal battery power.

05 Units are fail-safe and will cycle / defrost the occupant if damaged or power reaches a critical level.

06 All races except Sandrol can be frozen in this manner.

07 Cryo Units differ in size anc can come in up-to industrial sized freezers.

08 A medical data cartridge, see Autodoc page 21, reduces chance of Death Shock by d4% when used.

09 At absolute zero internally, a working Cryo-Unit emits a cold bluish light.

CONSTITUTION	RECOVERY TIME	CHANCE DEATH
0-01	d4 +4 Hours	5%
02-04	d4 +2 Hours	2%
06-12	d4 Hours	1%
13-16	1 Hour	-
17-20	d4 x10 Minutes	-
21+	d5 x 5 Minutes	-

Cargo

In FTL cargo hauling has become the main concern of the independent freighter. Cargo may be bulk cannisters or passengers.

BULK CANNISTERS

All cargo is packaged in universal 10 foot cubes called "CARGO CANS". Depending on item and general difficulty of transport an average fair may be 500 to 1000 d's for the average can per 10-20 light year run.

PASSENGERS

Passengers are a variable cargo that may be demanding or working for transport. The average freighter can rent cannister sized passenger quarters. These allow 1 passenger a 10 x 10 living space and life support for 2 months. This non luxury hauling has a cost of 500 to 1000 credits unless the passenger works and can come to some other agreement with the ship's owner or captain. Ships may also be rented by large private concerns, companies, universities, and the military.

Brokers

Smaller forms of profitable cargo include the delivery of sealed containers of general mail, Universal Package Service (UPS), or documents and securities. By interstellar law all ships, except those exempt by size, are required to carry one cargo can of mail to their next port of call if requested by the port authority. The first can is free of any transportation cost to promote news and communication. Other cargo may involve data cards of new technology and research.

TYPE OF CARGO	SIZE	GENERAL PAYMENT	
Mail	10x10x10	500	d's
UPS	10x10x10	$750+-	d's
Documents	3x3x3	$500+	d's
Securities	3x3x3	$750+	d's
Data Cards	1x3x3	$100+	d's

Investment

The economics of FTL are simple. Make a few dollars or d's to keep ahead, keep a little for the future, and invest well. The starting capitol of a character is the GM's decision or the players luck. (See p.4)

Character's or ships can also invest in stock to gain wealth over a period of time. Roll a d10 per every year. Any amount can be invested.

	SLOW INVESTMENT	MOVING INVESTMENT	FAST MOVING INVESTMENT
01	Steady	Goto Slow	Goto Moving
02	+d4%	+d6%	+3d10%
03-04	+d6%	+d10%	+4d10%
05-06	+d10%	+2d10%	+5d10%
07-08	+2d6%	+3d10%	+6d10%
09	+3d6%	Goto Fast	+d100%
10	Goto Moving	Fails	Fails

Cargo

When starships reach port they usually register a flight plan and their availability to haul cargo to their next destination. The port local authority usually forewards this authority to a Broker / Cargo Network that offers the ship d6 hauling jobs per day. The offer can be for 1 to 100 cans of cargo.
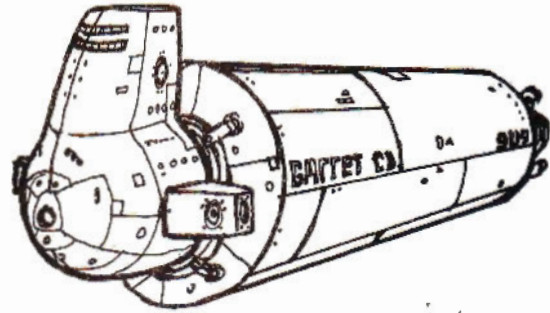
01 Explosives
02 Prisoners
03 Petroleum Distillates
04 Rare Earths, Radioactive Fuel
05 Gasses, Dangerous

06 Chemicals, Dangerous
07 Weapons, Light
08 Weapons, Heavy
09 Large Vehicles
10 Bulk Plastics

11 Farm Animals
   (easy or difficult temperaments)
12 Colonists (new Colony)
12b Colonists Equipment
12c Colonists Vehicles
13 Medical (EMR) Personnel

14 Research Personell
15 University Groups
16 Tourists
17 General Passengers
18 Businessmen
19 Corporate or High Officials

20 Entertainers
21 General Laborers
22 Technicians
23 Diplomats
24 Fresh Vegetables
25 Cold Fresh Food

26 Bulk Processed Food
27 Cangoods
28 Packaged Alcoholic Beverage
29 Beer, Bottled, Tank, Packet,
   or Freeze Dried Concentrate
30 Securities (valuables)

31 Drugs
32 Politicians
33 Fertilizer
34 Animal Feed
35 Specimens (living or dead)
36 Plants (live or seed)

37 Bulk Grain
38 Paper Products
39 Clothing
40 Toys
41 Sporting Goods
42 Food Processing Equipment

43 Communications Equipment
44 Metal Sheeting, Metal Plates
45 Hull Sealant or Plating
46 Computers
47 Books
48 Artifacts, Alien

49 Space Suits
50 Emergency Survival Equipment

51 Medical Supplies
52 Medical Equipment
53 Small Vehicles
54 Starship Components
55 Shuttle Components

56 Engine Components
57 Miscellaneous Electronic Parts
58 Bulk Lumber
59 Electronic Fabrication Equipment
60 Farm Machinery

61 Mining Equipment
62 Undersea Equipment
63 Personal Belongings
64 Bulk Hardware
65 Candy, Luxury Foods

66 Emergency Shelters
67 Home Components
68 Furniture
69 Fusion Generators
70 Fission Generators

71 Replacement Parts
72 Wind Generators
73 Aircraft Components
74 Coffins (empty or full)
75 Simple Tools

76 Paneling, Finished Wood
77 Bulk Plumbing
78 Bulk Wiring
79 Photographic Equipment
80 Orbital Information Beacons

81 Water Purification Equipment
82 Air Filtration Equipment
83 Heavy Appliances
84 Auto Parts
85 Wild Animals, Live

86 Frozen Goods in Cannisters
87 Textiles
88 Bulk Ores and Minerals
89 Mail
90 Survival Cannisters

91 Carpeting
92 Entertainment Equipment
93 Office Equipment
94 Research Equipment
95 Robots

96 Hydroponics Equipment
97 Nuclear Fuel or Waste
98 Heating, Cooling Equipment
99 Bulk Documents
00 Troops, Special (ICL) Police

Cargo Sale

Another way to make money is the outright purchase and sale of cargo. Determine cargo and general value. Most of these sales are handled by a licensed agent called a broker.

REMEMBER
01 Brokers work for 1000 d's or 2% of the value of the cargo sold.
02 A broker will try to sell a cargo as many times as possible. Each selling takes d6 days.
03 Only the GM knows the real honesty and ability of the broker.
04 After each failure at a sales attempt the brokers selling ability drops 5% on that cargo.
05 Players can always turn down an offer.
06 When all else fails the owner of the cargo may try to have the cargo auctioned by a firm that specializes in fast cargo dumping. Auction costs 10% of final profits and works the way of a broker with a -10% chance of sales. There is no stopping an auction sale.

Brokers

RESULT	SKILLS	SALES MODIFIER	CHANCE SWINDLE
01	Awful	-25%	50%
02	Bad	-20%	40%
03	Poor	-10%	30%
04	Below Average	-05%	20%
05	Average	0%	10%
06	Good	+05%	05%
07	Very Good	+10%	02%
08	Excellent	+15%	02%
09	Supurb	+20%	01%
10	The Best	+20%	01%

Specialized brokers add +5% to sales chances with higher fees. Don't forget planetary tax, cargo taxes, licenses and other bureaucratic hassles.

Auction Sale

RESULT	MARKET	PROFIT
01-10	No Market	-10%
11-25	Bad Market	0%
26-50	Very Poor Saleability	3%
51-75	Low Average	5%
76-85	Average	5%
86-95	High Average	10%
96-97	Very High Demand	25%
98-99	Critical Demand	50%
00	Sold Immediately	100%

Roll a d100 for cargo shipping and the possible problems of cargo mishap.

RESULT	SHIPPING	
01-97	No Problems With Cargo	
98-99	Cargo Aggravation	Goto A
00	Cargo Mishap	Goto B

A MINOR PROBLEMS
01 Minor perishable item if food or drugs looses 10% of its value.
02 Same as 1 with a 20% loss.
03 Difficulty with cargo licensing.
04 Difficulty with living cargo, if any.
05 Vandalism or theft reduces value by 10%.
06 Difficulty with passengers or dock crews.
07 Cargo cans lost or stolen.
08 Wrong cargo shipped.
09 Port authorities red tapes cargo sale for some reason.
10 Local black market takes an interest in your cargo's type or destination.

B MAJOR PROBLEMS
01 Major perishable item if food or drugs, looses 50% of its value.
02 Suprise Perishable, reduce it's value by d100% +20%.
03 Cargo mishap destroys d100% of cargo.
04 Licensing revoked by port authority.
05 Port accident destroys d100% of cargo.
06 Sabotage destroys d100% of cargo.
07 Locals regard cargo as a social blight.
08 Cargo considered contraband and removed.
09 Cargo lost or stolen with a very long insurance battle to replace.
10 Glut on market makes cargo worthless.

These general guidelines are expandable for any number of situations.
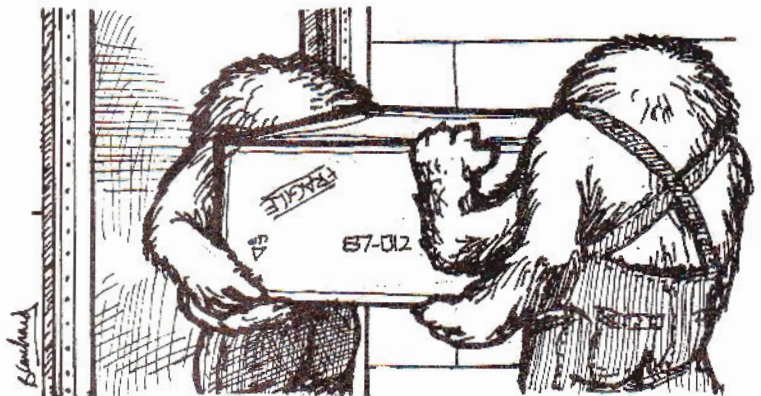
Insurance

Cargo can be insured by licensed agents for between 2 and 20 percent of it's value. This insurance will net d100 +20% (not to exceed 95%) of a cargo's value in return after a lengthly informative investigation. Insurance Corporations, by 2448, have made an art of claims collecting being hopelessly snagged by red tape. Settlement time is d10 (-1) years +d12 months. The average claims representative is, or is aided by, a Zumwol that has a 9 in its accounting skill and few social graces.

Shopping in 2448

With currencies changing from planet to planet and even country to country, a method had to be devised to allow commerce over settled space.

The result was the universal credit meter of the Star Bank of Seredin. This pocket sized computer has a permanent memory of transactions and available credit based not from precious metal or resource, but from man hours of labor.

REMEMBER

01 Credit meters may be used for person to person transactions by joining them and transferring credits.

02 Transactions may be transferred to printed form with any simple printer attachment.

03 Any attempt to alter or open or scan a credit meter wipes the credit and all information while triggering other meters in 1500 ft to report tampering. The damaged meters serial number, credit info and ownership is transferred to civil authorities.

04 Credit meters are practically foolproof and indestructable.

05 For nostalgias sake most products and prices are price based on the former earth standard of metric currency.

06 Checks and Credit Cards are common.

100 Yen = 1.00 Dollar Terran

y's = Yen   d's = Dollars
h's = Hundreds   t's = Thousands
m's = Millions   b's = Billions

General Prices

STARSHIPS

Port Cost, Full Docking (Day)	d4 in t's
Parking Fee, Orbital Port (Day)	d6 in h's
Starship Inspection	d4 in h's

GROUNDPORT

Shuttle, Landing or Leaving	d4 in h's
Shuttle Inspection	d10 in h's

FUEL TYPES

Gigantic Unit	1280 in d's
Large Unit	320 in d's
Medium Unit	32 in d's
Small Unit	16 in d's
Shuttle Unit	8 in d's
Truck / Vehicle Unit	4 in d's

VEHICLE

Shuttle (large)	100 in m's
Shuttle (medium)	50 in m's
Shuttle (small)	25 in m's
Lander	200 in t's
Atmospheric Entry Pod (emergency)	30 in t's
Re-Entry Ball	2 in h's
Small Jet (vtol)	18 in m's
ATV Truck	140 in t's
Truck (hover)	90 in t's
Truck	60 in t's
ATV Car	50 in t's
Car (hover)	20 in t's
Car	10 in t's

TRAVEL FARES

1st Class Starship		4 in t's
Econo-Fare		1500 in d's
No-Frills Passage		750 in d's
Cryo-Frozen	(trip)	1 in t's
Shuttle Rental	(day)	d4 in t's
Air Fare	(interorbital)	d4 in h's
Train	(surface)	d100 in d's
Express Tube Train	(subsurface)	d100 in d's
Bus Fare	(continent)	d100 in d's
Cab Fare	(mile)	.50 in d's
Truck Rental	(week)	d100 in d's
Rent-A-Hover Car	(week)	d100 in d's

VAC EQUIPMENT

Vac Suit	(emergency)	d10 in h's
Vac Suit	(light)	d4 in t's
Vac Suit	(standard)	d10 in t's
Vac Suit	(heavy)	d100 in t's
Exploration Suit	(very heavy)	4d100 in t's
Vac Armor	(powered)	d4 in m's
Automatic Suit Patch Feature		d10 in h's
Vac Travel Pack uses (180 unit		equivilency
of small vehicle fuel)		d20 in t's

WEAPONS

Pistol		d4 in h's
Pistol	(automatic)	d6 in h's
Laser Pistol		d6 in t's
Rifle		d10 in h's
Assault Rifle	(automatic)	d10 in h's
Laser Rifle		d10 in t's
Shotgun		d4 in h's
Assault Shotgun		d10 in h's
Most Weapon Rounds		d100 in y
Explosives, Case	(licenced)	d100 in t's
Ballistic Plastic Vest		2d100 in d's

GOODS AND SERVICES

Clothes, High Quality	2d100 in d's
Clothes, Discount Prices	d20 in d's
Boots, Shoes	d100 in d's
Backpack	d100 in d's
Tent (d100 per man sized)	d100 in d's
Arctic Clothing	d4 in h's
Air Filter Mask	d100 in d's
Breathing Pack (d100 hour)	d4 in h's
Personal Pocket Computer (secretary, info storage, audio / visual, voice activation & talks)	d6 in h's
Computer Program Cartridges	d100 in d's
Hotel	d100 in d's
Meal	d10 in d's
Coffee	d100 in y
Fifth Alcohol	d10 in d's
Case of Softdrink	d4 in d's
6 Pack Beer	d6 in d's
Can Vegetables	.50 in y
Ration Pack	d4 in d's
Tool Kit	4d10 in d's
Carpentry Kit (plastic / wood)	2d10 in d's
Metal Fabrication Tools	10d10 in d's

REPAIR & PROFESSIONAL SERVICES

Electronic Technician	2d10 d's hour
Shuttle Repairman	5d10 d's hour
Phase Technician	10d10 d's hour
Fusion Technician	10d10 d's hour
Lawyer or Accountant	4d10 d's hour
Medic	2d10 d's hour
Doctor	d100 d's hour
Psychiatrist	8d10 d's hour

PRICE QUALITY MULTIPLIER:	Outstanding	x4.00
	Average	x1.00
	Sleeze	x0.75

Equipment

This gives you an general idea of the Tech of FTL 2448. Many common items of the 20th century will be recognizable and unchanged. Many will be upgraded to their technical ultimate, at least, until next year's model premieres.
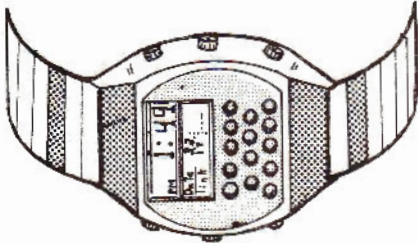
WRIST WATCH WTE: .02 lbs.
A standard, store-bought electronic watch with a voice operated computer link, 128 K memory, calculator, reminder, chronometer, and personal health monitor. It is water, dust, shock, and vacuum proof.
COST: 15 d's
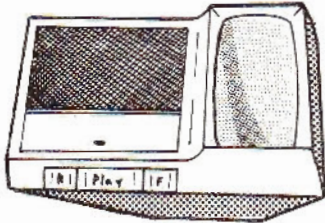
PORTABLE READER WTE:01 lb.
A folding, solar/battery powered reading device that projects or displays information and reading material. The average 300 page book has been reduced to a quarter sized disk for easy use. This compact laser disk can also be used to store films, color 3-D photo images, and record. The more expensive models have built-in computers and voice activation as well as many other features. It fits in a belt pack or carry case. COST: 90 - 1000+ d's

ELECTRIC BARRIER KIT WTE:20 lbs.
A simple, disposable wire fence system that can enclose an area 50 feet on a side. This can be set with voltage from a generator that will deliver up to 8 amps if contacted. It can be hooked to a computer perimeter monitor and an automatic weapons pod.
COST: 45 d's (generator is separate)

SLEEPING BAG WTE:04 lbs.
Insulated sleeping bag that protects from temperatures as low as -40 F. Can be unzipped to form a 12 x 24 foot waterproof tarp. With a CO_2 cartridge, it can be inflated to become a 4 man raft. The lining can be eaten in emergencies and provide 4 weeks food for 2.
COST: 145 d's

TENT, SURVIVAL SHELTER WTE: 2 lbs.
A CO_2- powered, inflatable double - walled tent that can hold 4 people. Can be set up in 2 minutes, broken down in 5. It protects from water and temperatures as low as -150 F. With a portable Heating / Cooling Unit it can serve in any environment. A small portable air-lock can be added with a weight addition of 9 pounds.
COST: 1100 d's

Data Stick

WTE: 3.0 lbs.
The universal, information gathering tool is the Data Stick. Compact and versitile, it is carried by planetary explorer and engineer for general use. It can be set for detection and direct signal or a limited form of voice communication with its user. Holds up to 225,000 pages of accessable data in a plug-in cartridge the size of a cigarette pack.

A wrist-watch sized control monitor allows the Data Stick to become a remote sensor.

Communication: Orbit	Analyze: Touch
Scan: 100-500 ft.	Radar: 25 mi.
COST: 15000+ d's	Image: 2-8 mi.

DETECTION AND GENERAL USE

Gas	Composition	Receiver
Pressure	Temperature	Transmitter
Motion	Image Intensifier	Weather Predict
IR / UV	Remote Camera	Communication
Radiation	Night Scope	Ultrasound Scan
Metal Type	Medical Sensor	Mini-Computer
Mineral	Mini Computer	Beacon Light
Mass	Radar/Sonar	

Language Translator Cartridge
 (used without sensor pole)
Sensor Pole
 (in 2,4,6,8,12 foot interchangable lengths)

Spray On Light is a canned liquid that floresces when it contacts air. Lasting 24 hours, it evaporates without residue. A 6x36 inch painted stripe can illuminate an average 10x20 room. (100 uses, any color) COST: 2d's
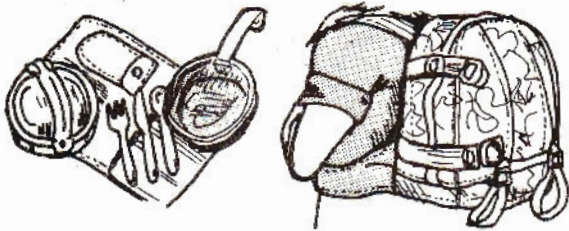
A Bush Pack is a complete camping kit that contains a month's ration tabs, tarp, camping gear, purification filters, minor medical supplies, 300 feet of filament rope, saw, and a standard mini-reader stocked with survival data. Larger packs have a flare gun or laser beacon as well as a pen-styled laser (does d4 burn damage) and a small solar charger.

COST: 110-400 d's
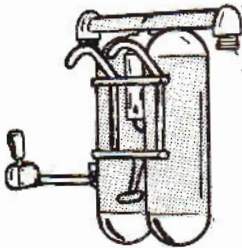
Jet Packs are highly dangerous, strap-on backpacks that provide lift and flight for a single individual.

FLIGHT SPEED: 100 mph.   RANGE : 50 miles
FLIGHT TIME : 30 minutes   WEIGHT: 200 lbs.*
FAILURE   : 4% hour   CRASH : page 34
* ((Average Pilot Weight: With equipment) may be varied due to heavier or lighter pilots)
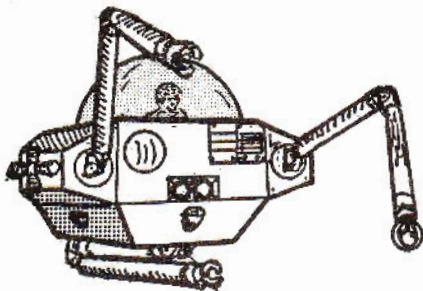
The standard work pod protects an engineer from hazardous conditions in space. These mini-ships have a cluster of robotic arms and specialized tools for hull or parts repair.

The interior of the pod can be pressurized for shirt-sleeve use or left in vacuum. Only slightly larger-than-human sized beings can fit into a work pod. Generally, a Light Vac Suit hooked to the pods air system is best when spending time inside a pod. It has a small engine for orbital maneuvering.

LENGTH: 115"   FUEL   : 250 units
WIDTH : 132"   RANGE   : Space Only
HEIGHT: 56"   POWER   : Fusion Electric
COST : 350 t's   AIR   : 300 +d10 Hrs.

CUTTING TORCH   WTE: 45 lbs.
A compact oxygen / Acetylene torch with 20 hours cutting time or 45 hours welding time. It cannot be detonated.
COST: 630 d's
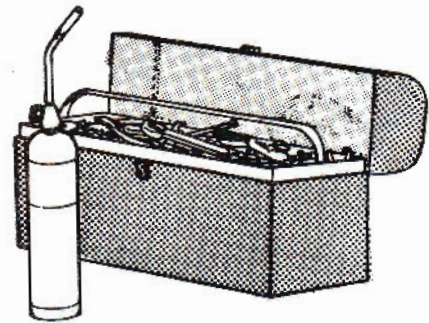
TOOL KITS
STANDARD A   WTE 11 lbs.
General tools for small repairs including screwdrivers, pliers, hammer, cutters, files, small 5 blade power saw, chisel, wire, and an adjustable wrench set.   COST: 40 d's

STANDARD B   WTE 130 lbs.
General tools with the addition of some specialized tools for more difficult jobs and minor electric tools.   COST: 180 d's

STANDARD C   WTE 470 lbs.
All tools of the above in many sizes and specialized types with heavy electrical power tools, saws, drills, a porta-woodshop, metal fabrication shop, welding torch, electronic repair station and chainsaw.   COST: 2400 d's

VEHICLE REPAIR   WTE 98 lbs.
Special tools and parts to repair or jury rig 90% of vehicle problems on modern and older vehicles. Contains a 20 ton hydraulic jack.   COST: 240 d's
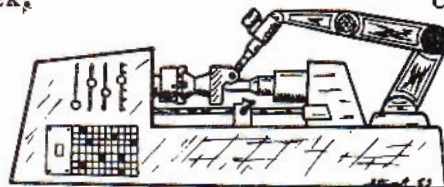
MACHINE SHOP   WTE 1540 lbs.
An electric machine shop with special saws, vertical mill, lathe, and other wood / metal shaping attachments. This can be computer augmented to produce fine, machine-produced parts with only minimal operation. Can be combined with robotic movement and arms.
COST: 12000 d's

SMELTER   WTE 21 Tons
A smelter that can refine ore into bricks, or powder. This can be coupled with a processor to create metal plates, bars, or special beams. Most often used with Iron. Can refine one ton per 30 minutes.   COST: 1.5m

METAL PROCESSOR   WTE 19 Tons
A metal processor that can turn pig iron into plates, pipe, or any of a large number of shapes that can be refined by the machine shop. Has a maximum plate creation size of (5'x5'x.50").   COST: 1.75m
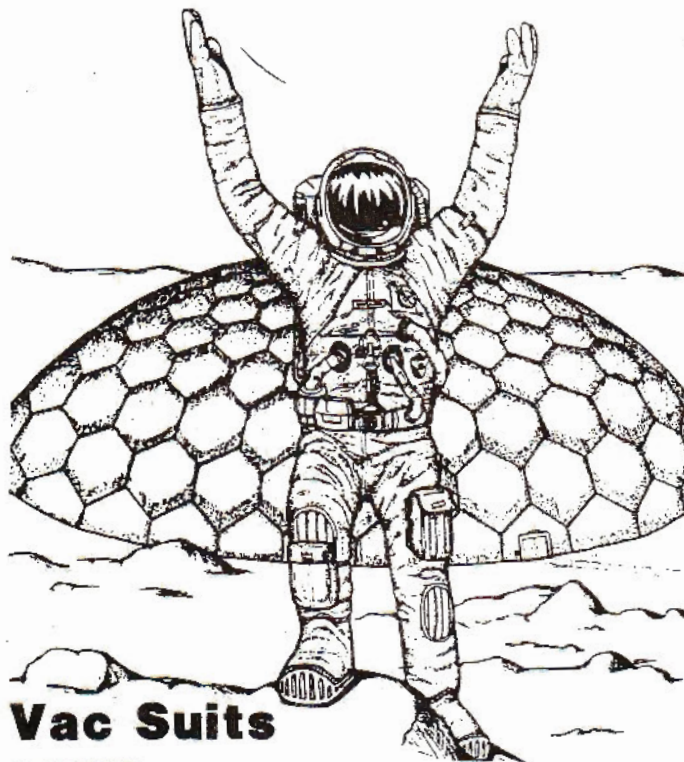
Vac Suits

EMERGENCY

HELMET: 10	CHEST PLATE: 12	BOOTS: 14
VISOR: 07	BACK PLATE: 12	GLOVES: 07
JOINTS: 08	BACK PACK: 16+	SUPPLY: A-F
COST: 200 d's	FABRIC: 06	RESERVE: a

LIGHT

HELMET: 14	CHEST PLATE: 16	BOOTS: 18
VISOR: 11	BACK PLATE: 12	GLOVES: 10
JOINTS: 12	BACK PACK: 18+	SUPPLY: A-F
COST: 8 t's	FABRIC: 08	RESERVE a

MEDIUM

HELMET: 18	CHEST PLATE: 20	BOOTS: 22
VISOR: 15	BACK PLATE: 16	GLOVES: 12
JOINTS: 16	BACKPACK: 21+	SUPPLY: A-F
COST: 20 t's	FABRIC: 10	RESERVE: b

HEAVY

HELMET: 21	CHEST PLATE: 24	BOOTS: 25
VISOR: 18	BACK PLATE: 20	GLOVES: 15
JOINTS: 20	BACKPACK: 25+	SUPPLY: A-F
COST: 50 t's	FABRIC: 14	RESERVE: b

EXPLORATION

HELMET: 25	CHEST PLATE: 28	BOOTS: 30
VISOR: 21	BACK PLATE: 24	GLOVES: 20
JOINTS: 24	BACKPACK: 30+	SUPPLY: A-F
COST:125 t's	FABRIC: 16	RESERVE: c

ARMORED

HELMET: 30	CHEST PLATE: 35	BOOTS: 40
VISOR: 25	BACK PLATE: 30	GLOVES: 25
JOINTS: 30	BACKPACK: 40+	SUPPLY: A-F
COST:150 t's	FABRIC: 20	RESERVE: c

Air Supply

AIR SUPPLY	USE TIME	AIR RESERVE
A Tourist	20 hrs.	a: 10+ d10 minutes
B Light	40 hrs.	b: 20+ d10 minutes
C Work	72 hrs.	c: d4 hours +
D Heavy	6 days	
E Exploration	10 days +	d10 hrs.
F Recirculating	1 year +	d100 days

Power
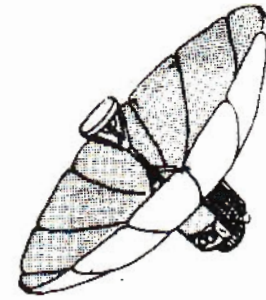
DISH, SOLAR TAP   WTE:140 lbs.
A sunlight powered electrical system for general ground use. One of these units with batteries can power an average small home.
COST: 5400 d'd
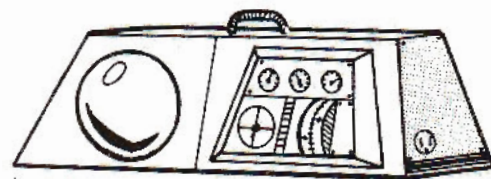
FUSION PACK   WTE:126lbs.
A man portable fusion generator that can power the average city block. Completely foolproof, these units power small industry and are used in a group to help power smaller starships during a power outage. The Mini Pack is the same size, but generally for a single home or vehicle. It has one twentieth the output of its more powerful cousin.
COST: 5,000 d's (Mini or Vehicle Pack)
COST: 120,000 d's (Standard 210 lb. Pack)
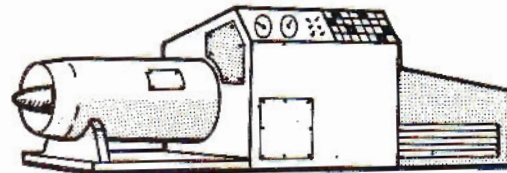
GAS / ALCOHOL GENERATOR   WTE: 19 lbs.
A small, efficient gas or alcohol powered generator. Effectively simulates a "house" current for 8 hours per pint of fuel used.
COST: 250 d's

PROPANE / HYDROGEN PACKAGE   WTE: 04 lbs.
Converts the above generator to run on hydrogen or propane for 8 hours per tank of gas consumed. COST: 24 d's

EVER-GENERATING FLASHLIGHT   WTE:.50 lbs.
A hand-held light disposable light with a guarantee of 1200 hours of continuous light.
COST: 50 d's

LASER BEACON   WTE: 02 lbs.
A laser and radio beacon that transmitts for 230 hours to aid in rescue. Designed to disrupt communication bands and be noticable on an 80% chance per hour.
COST: 450 d's

Vehicles

By the 2440's most urban transportation has become the job of efficient mass transit corporations. With clean, ecologically safe, dependable, inexpensive, and quiet transport available, most have little need of vehicles.

Unfortunately, both human and aliens enjoy the use of personal vehicles and by 2448 the ownership of vehicles is on the rise.

Rather than fight public opinion, ISCO has allowed the factories of Detroit, Tokyo, Rio, and Odessa to resume full production.

GROUND CAR

LENGTH:	190"	TANKAGE:	15 FUEL : Alcohol
WIDTH :	67"	MPG	:80
HEIGHT:	54"	RANGE	:1200 mi.
SPEED :	50 mph.	COST	:22000 d's
WEIGHT:	2000 lb.	PASSENGERS: 04-06	

From the mass produced plastic city-movers to the last classics of the 20th century, these are the cars that clog the roads.

HOVER CAR

LENGTH:	170"	TANKAGE:	10 Hours Charge
WIDTH :	73"	MPC	:25
HEIGHT:	50"	RANGE	:250-300 mi.
SPEED :	25 mph.	COST	:16000 d's
WEIGHT:	500 lb.	PASSENGERS: 02 max.	

Once thought to be the future of mass transit, the hover car is fading away because of instability at higher speeds. Prone to crawling over traffic they are often a hazard to pedestrians. The hover fan rotors are sealed units to prevent injury.

JEEP

LENGTH:	190"	TANKAGE:	24 Standard Fuel
WIDTH :	75"	MPG	:15
HEIGHT:	65"	RANGE	:400 mi.
SPEED :	50 mph.	COST	:40000 d's
WEIGHT:	2800 lb.	PASSENGERS: 02+ 1 ton	

The general jeep or small vehicle design carried by starships or used in the colonies for exploration and general survival. These come in hover, or 2/4/6 wheel combinations.

GROUND EFFECT CAR

LENGTH:	155"	TANKAGE:	40 Hours Charge
WIDTH :	60"	MPC	:40+
HEIGHT:	52"	RANGE	:1600-6000
SPEED :	250 mph*	COST	:35000 d's
WEIGHT:	1400 lb.	PASSENGERS: 04 max.	

Created from any standard vehicle, the vehicle with a magna-lift package has the ability to use magnetic repulsion on special computer controlled roadways. On such roads computers take over all piloting as the vehicle rockets to its destination. Often the GEC has streamlining or wheels that fold under for flight. (*40 mph, without lift.)

ANTI GRAV CAR / 0 PHASE CAR

LENGTH:	170"	TANKAGE:	25 Standard Fuel
WIDTH :	75"	MPG	:150+
HEIGHT:	47"	RANGE	:3750
SPEED :	100 mph.	COST	:60000 d's
WEIGHT:	1500 lb.	PASSENGERS: 6+	

Newest of a growing anti-grav technology, these vehicles with bulky 0 Phase generators are able to hover or fly at almost any altitude. The vehicle equipped with one of these units is able to neutralize up to 4000 pounds of mass including itself. Only one unit can be used per vehicle. See Phase Tuning on page 101 for operation and the general concept of tuning. Fusion/Electric

CRAWLER

LENGTH:	270"	TANKAGE:	75 Standard Fuel
WIDTH :	99"	MPG	:12
HEIGHT:	75"	RANGE	:900 mi.
SPEED :	35 mph.	COST	:75000+ d's
WEIGHT:	9800 lb.	PASSENGERS: 10+ 12 tons	

This is the faithful tracked crawler that has carried man across hostile atmospheres and a hundred worlds. It Can have an airlock and operate in liquid. Most crawlers have 30 points of general armor and weapons pods on computer controlled mounts. Fusion/Electric
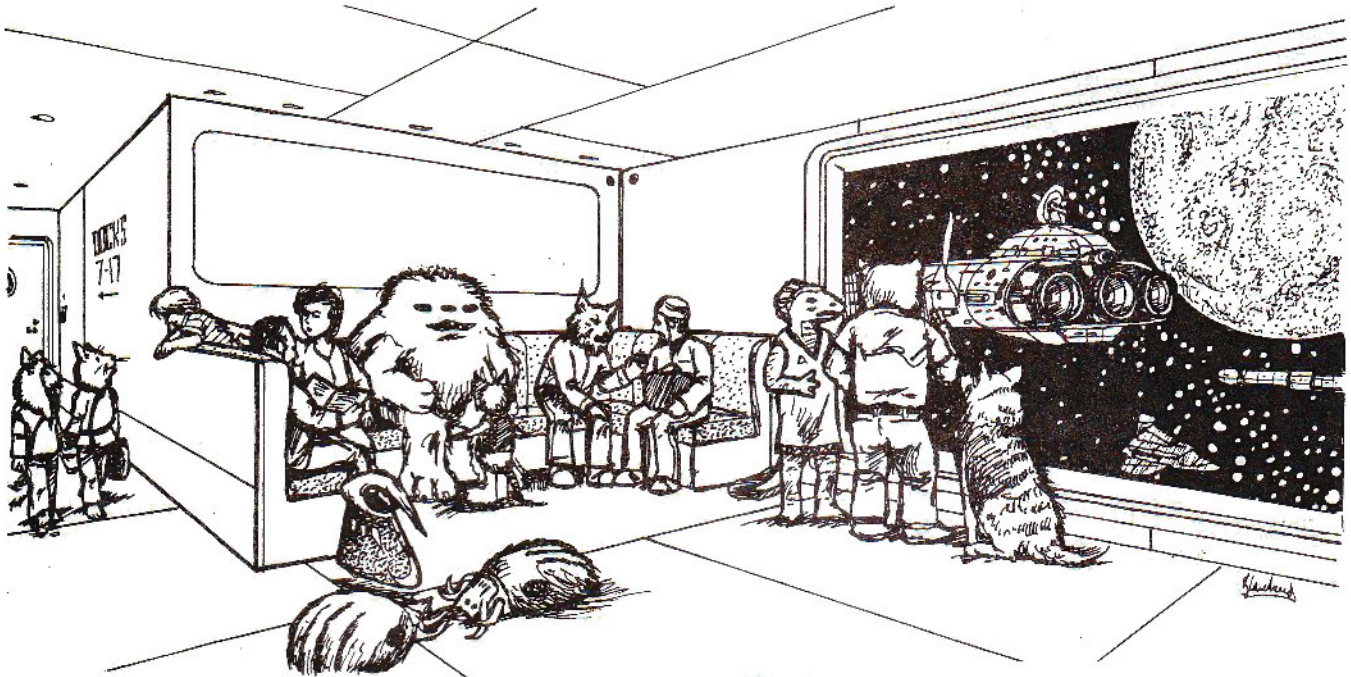
Starports

Many of the worlds in FTL have orbital facilities for incoming starships. These range from the small system beacon platform to the 10 mile diameter Alvarez Station.

FACILITY TYPE		PER	FUE	SHU	REP	CAR	TYP
A	No Port	-	-	-	-	-	-
B	Automatic Platform	-	A	A	A	A	B
C	Manned Platform	A	B	C	B	A	B
D	Small Station	B	C	D	B	B	C
E	Medium Station	B	D	B	C	B	C
F	Large Station	C	E	E	D	C	C
G	Small Port	D	E	E	D	C	D
H	Medium Port	E	F	F	D	D	D
I	Orbital Star Port	F	F	F	D	E	E
J	Full Starport	G	F	F	E	F	F
K	Dockyards	F	F	E	F	E	E

PER: PERSONEL
A	Under 10	E	100 to 500
B	11 to 20	F	500 to 1000
C	21 to 50	G	1000 to 5000
D	51 to 100	H	5000 +

FUE: FUEL
- A   Reserves Only
- B   High Cost, Infrequent Supply
- C   Occasional Availability
- D   Schedualed Availability
- E   Available
- F   Available, 24 Hour Service

SHU: SHUTTLE SERVICE
- A   Never
- B   Only on Special Missions
- C   Infrequent Shuttle Runs
- D   Frequent Shuttle Runs
- E   Constant Scheduled Runs
- F   Commercial 24 Hour Service

REP: REPAIR
- A   None
- B   Minor Electrical Engineering
- C   Minor Structural Repair
- D   Repair, No Fabrication
- E   Full Repair / Fabrication Specialized Service and Some Parts on Hand.
- F   Full Construction and Repair

CAR: CARGO HANDLING
- A   None
- B   Drop Only, Prepackaged Landers
- C   Drop Only, Prepackaging Facilities Available for Hire
- D   Scheduled Dropping, Packaging And Pick Up Facilities
- E   Two Way Bulk Cannister Service
- F   Two Way Bulk Cannister and Broker Service Available.

TYP: PORT DESCRIPTION
- A   Private
- B   Specialized, Non Commercial
- C   Specialized, Commercial
- D   Open Commercial Port, No Frills
- E   Open Commercial Port With Some Recreational Facilities
- F   Open Port, Star City Class, With Business, Lodgings, Food, and Fun

Colonies

Colonies are new homes for man and aliens who are starting new lives or creating their own peculiar version of the perfect society.

What your crew finds on these worlds is generally up to the devious mind of the GM as aided by these tables on Colonial Life.

REMEMBER

01 Establish an orbital and ground port. There are no prerequisites for the efficiency of the port as relating to the colonies society. As an Example, Fomalhaut has the best orbital port this side of Faxn'Chr. The miles long port has become a small moon of goods and services for settled space. The planet it orbits, "America" has a small Human Amish, Bloxian, and Human Mongolian population. Its ground port is only a class H where Fomalhaut is a Three star Class J/K.

02 Ports are also rated with a number to show information on a world and a second letter to show the worlds ground port facilities.
EXAMPLE "Fomalhaut JK***,08,H"

COLONIAL POPULATIONS AND PERSONALITIES

01 NATIVES HOSTILE
These natives resent your presence on their world even if they make a profit from it. By mutual agreement they are left alone by the port authority and visitors.

02 PRIVATE HOSTILE
In private ownership, this world type is a "NO TRESPASSING" situation for visitors. Persons wealthy enough to own worlds often back up their no entry beacon with the appropriate force.

03 CORPORATE HOSTILE
These are the company run worlds with the fenced off groundport facilities. They often do not allow outside contact with non-company personnel.

04 COLONY HOSTILE
Settling off their home world for social or political reasons, these people would rather put a shotgun round into your space shuttle as give you the time. Thinking theirs is the one true way, they go to great pains to separate the "outsider" groundport and "influences" from their populations.

05 NATIVE, APATHETIC
The natives watch the odd people from the stars and could care less.

06 PRIVATE, APATHETIC
The owner is neutral in attitude toward a landing as long as it doesn't disturb him, her, or it.

07 CORPORATE, APATHETIC
Open worlds controlled by corporations.

08 COLONY, APATHETIC
These are the fun places that make Toledo look like a Corporate Carnival City. Here the populations are too busy harvesting their new gritch crop to notice the alien visitors. As long as everybody obey laws, nobody cares.

09 NATIVE, FRIENDLY
Like Hawaii of the 1800's, these places are a joy to visit. Natives are harmless and friendly as they try to sell trinkets, crafts, and services.

10 PRIVATE, FRIENDLY
Private worlds that do not mind a few guests now and then. Often these are very hospitable and wealthy folk.

11 CORPORATE, FRIENDLY
A nice place to stop, rest, and bargan for needed services and goods. They are often in need of cargo transport. These honest business ventures attract hard working and hearty folk who become colonists.

12 COLONY, FRIENDLY
The true great places to visit. As long as characters don't ruin their day, these folks will aid and treat travellers with compassion and respect. (they enjoy the tourist trade and news from home)

13 COLONY, CORPORATION ABANDONED
Abandoned and often stripped areas that were once inhabited and later left for one reason or another.
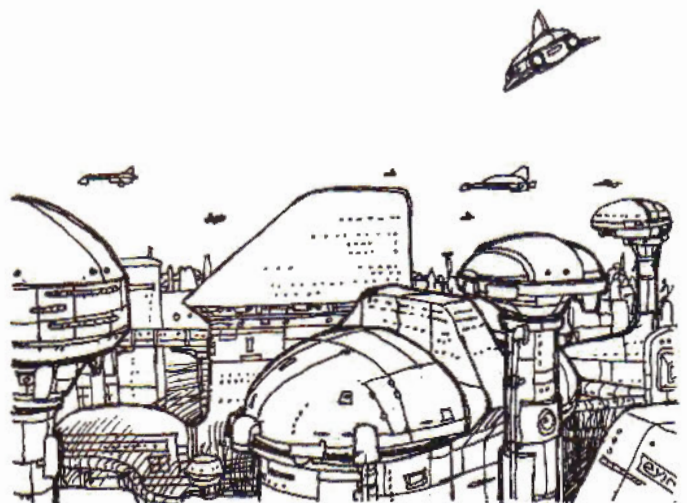
Robotics

By 2448 robots have found their way into all aspects of life and leisure, however small. By the late 20th century, crude man-like robots blundered while their industrial and home cousins began to talk to their creators. Progress slowed over the centuries to near humanoids until the boom economic growth of the 2400's and the fusion of human and alien technology made the nearly perfect humanoids possible.

Remember, robotic "life" is a myth. Only complex programming and machine self-learning has simulated intelligence, and emotion.

General Rules

Robots are generally programmed by small cards that simulate a learned skill level. Each level of a skill takes a single card. An industrial robot with a skill of 20 or 100% in electronic repair has a bank of 20 special cards.

REMEMBER

01 A missing or defective skill card in a set or bank stops the robots level of skill at that point.

02 Most Robots are programmed never to allow themselves to harm an intelligent being.

03 Robots will protect themselves until it violates the general rules of human and life preservation.

04 A good programmer can make a robot do anything he wants to do and generally shoots the first two rules to hell.

05 A robot's design is often the designers or manufacturers whim. Many old designs are recombined with other parts to create odd but functional robots.
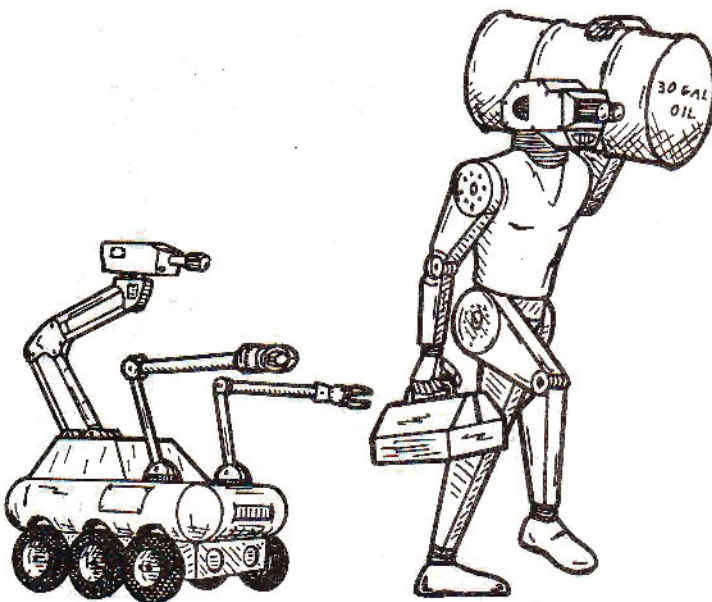
Ship Computers

Starship computers operate on this same general principal with a CPU 1000 slot module and shielded cards. The average ship has one to 20 of these units along with backups. All cards are universal.

Navigation

Starship Navigation to known stars always requires a program card. When phasing to new worlds a card is always programmed during the trip. Cards can be erased in a complex process and re-burned with new programming.
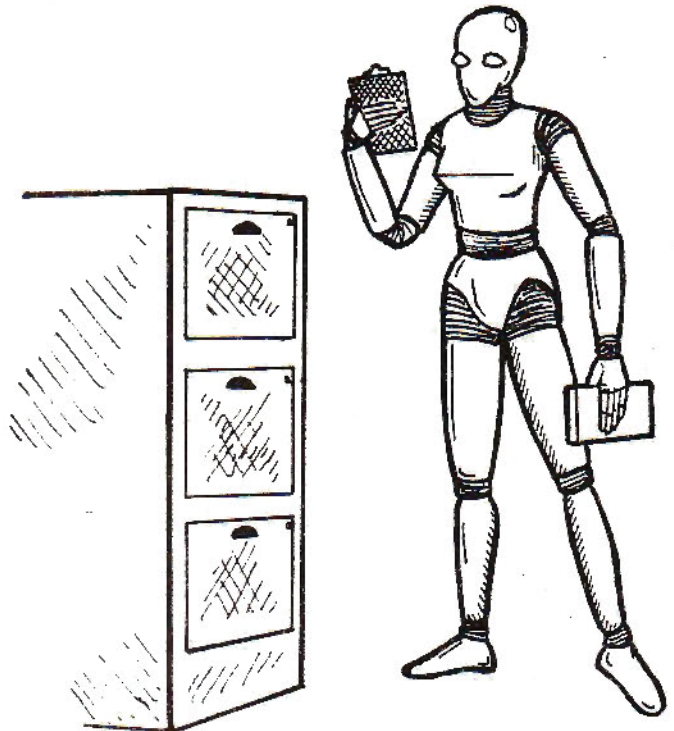
Types

WORK CLASS	New	Used	Cards
A Basic Bot	$5000	$2000	40
B Advanced Work Bot	$25000	$12000	100
C Specialized Robot	$ 7000	$ 4000	60
D Highly Specialized	$ 9000	$ 3000	60
G Heavy Industrial	$90000	$50000	140
I Security	$15000	$ 9000	40
HUMANOIDS			
M Menial Near-Humanoid	$ 6000	$ 3000	30
N Human Characature	$11000	$ 6000	60
O Medical Asst.	$75000	$50000	120
P Perfect Humanoids	$900000	$ -	540
Q Pet Bots	$ 1000	$ 500	12
R Near Humanoids	$ 45000	$30000	55

Programming cards measure 3x4 inches by .25 of an inch thick. The later, perfect humanoid models have cards 1x1 inch by .25 of an inch thick. Starship cards have a .50 inch coating of a ceramic radiation shield.

Card Cost

	NEW	USED
CPU 20 Slot Module	$ 2100	$ 900
CPU Programming Card	$ 1000	$ 750
CPU Communication Card	$ 1000	$ 900
Standard Programming Card	$ 1000	$ 750
Card With Skill Level	$ 5000	$ 4500
Optics Card & Sensor	$ 2100	$ 1900
Sensor & Processor Card	$ 1000	$ 750
Sensor, Environmental	$ 750	$ 500
Touch Sensor & Card	$ 2300	$ 2000
Taste Sensor Card	$ 8700	$ 7500
Control Per 2 Wheels / Treads	$ 1000	$ 750
Control Hover	$ 1500	$ 1200
Control Per 2 Legs & Card	$ 750	$ 500
Self Preservation Card	$ 500	$ 400
Auto Chef Cards	$ 500	$ 450
Food Reconstitution Cards	$ 500	$ 450
Gyro Stabilizer	$ 1800	$ 1500
Battery (40 Hour Rechargable)	$ 750	$ 500
Arm, Simple	$ 500	$ 400
Arm, Complex Motion	$ 1200	$ 1000
Hand, Simple	$ 250	$ 175
Hand, Complex	$ 900	$ 500
Speech, Mechanical	$ 500	$ 400
Speech, Modulated	$ 700	$ 500
Personality Cards (5)	$ 2400	$ 2000
Link to Main Frame	$ 500	$ 400
Link to Owner / Beeper	$ 175	$ 100
Strength Per Point	$ 100	$ -
Dexterity Per Point	$ 100	$ -
Reprogramming Station	$ 4000	$ 3500
Starship Computer Bank	$100000	$90000
Shielded Cards Blank	$ 500	$ 450
Pre-Set Navigation Card	$ 4000	$ 3500
Phase Computer Control	$ 75000	$65000
(110 Special Nav Cards)	$120000	$95000
Ships Systems Cards		
(340 Card Set)	$230000	$200000
Memory / Information Cards		
(A Thousand Books or Films)	$ 1000	$ 500
Ship Maintenance Cards (55)	$ 60000	$ 50000
Autopilot Cards (10)	$ 15000	$ 10000
Language Translation		
(Per 5 Levels)	$ 3000	$ 2000
Medical Cards		
(470 Per Larger Autodoc)	$150000	$110000

Expansion

The list can be endless with imagination and a general knowledge of what you need to create a robot. Have fun as you build your own from salvage. Robots are often at the hands of the Game Master who will find new and creative ways to eliminate them.

Ben, Bells & Quag

With skill and a lot of junk Bells fixes an old cleaning robot and watches it roll down the hall. Looking at the last card she forgot to replace she translates the words:

AUTO PRESERVATION CARD

as the bot rolls into an open elevator shaft and plunges to its retirement.

Critical Damage

When robots are damaged roll a d100 on the table below.

01-50 GENERAL STRUCTURAL DAMAGE
Damages exterior, paint, etc.
51-75 MOTIVE DAMAGE
Reduces speed by d100% of maximum or alters directional control.
76-85 POWER DAMAGE
Reduces battery life by d100%
86-90 MANIPULATOR DAMAGE
Drops AGL or STR by d10 points.
91-95 MAINFRAME LINK DAMAGE IF ANY
Severs any direct communication with a mainframe computer or owner control.
96-97 MEMORY CARD DAMAGE
Damages or shocks cards out of holders to limit function or memory.
98 ACCESSORY DAMAGE
Damages or removes accessory tools or weapons.
99 SENSORS
Robot is effectively blinded or sensor impaired to d100% of normal function.
00 LOGIC CONTROL
Logic / memory control damaged, robot will perform less than perfectly or illogically until repaired.
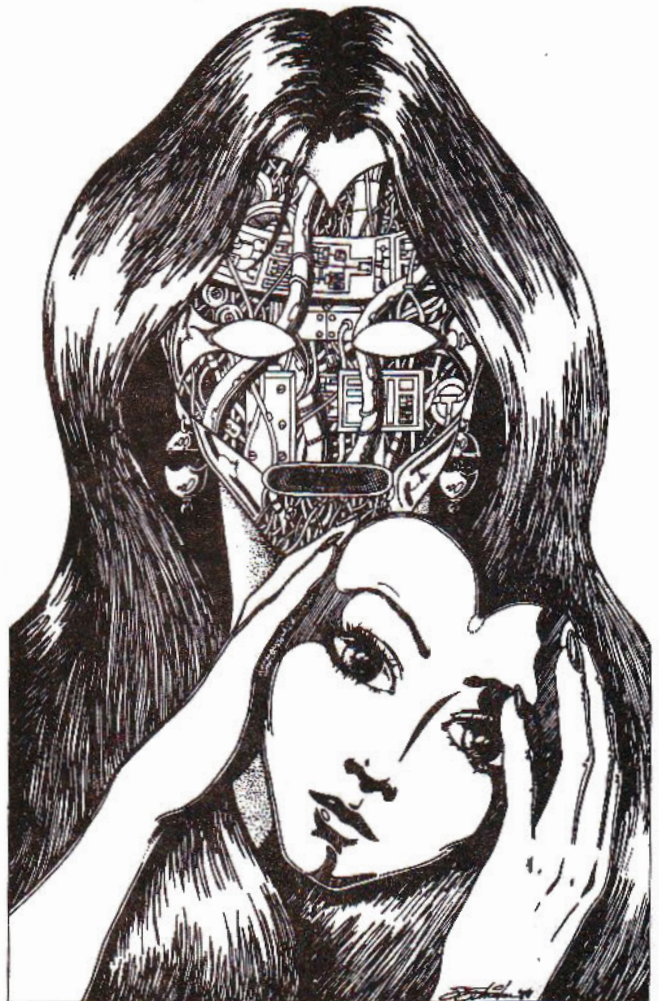
Mapping Space

SPEED OF LIGHT	=	186,000	Miles per Second
LIGHT YEAR	=	5.88	Trillion Miles
GALAXY DIAMETER	=	100,000	Light Years
PRIME HEX	=	961	Light Years
AREA HEX	= 31x31x41	Light Years
SYSTEM HEX	=	1	Light Year

Prime Hex

The relatively tiny chunk of explored space in the above illustration has been the total area of play for seven years of play testing as FTL grew from a few ideas into its present form.

In FTL a hex system is used to represent space. There are three different scales of hexes used for mapping the stars.

The first and largest scale of hex is called the Prime hex. This represents an area 961 light years from side to side. These are used to show the Orion Arm of our local area of the galaxy.
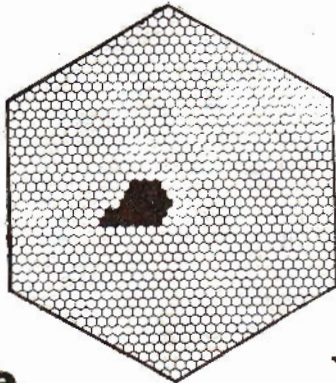
FTL Space

This shaded area of a prime hex is the location of our general neighborhood of stars. If we single out the darkened hex in this representation we find it is made of numerous smaller hexes. Each of these hexes represents an area 31x31 light years. The enlargement below shows the areas of explored space used in FTL.
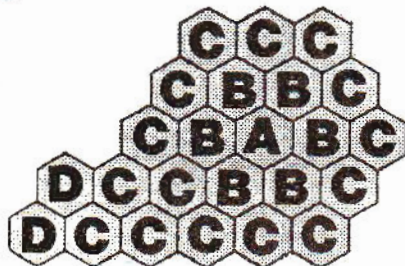
A	HOME SPACE	= The center of human space.
B	SETTLED SPACE	= Longest colonized areas.
C	FRONTIER	= Semi-Explored Space.
D	HAGU EMPIRE	= Frontier Raids

REMEMBER

01 Before you start, have a few copies of the hex, system and world sheets handy.
02 Be patient; your time will be rewarded with great detail and something for your players to explore.
03 Don't try to map the galaxy.
04 For actual areas use STAR CHARTS, the module for mapping real space.

Placing Star Systems

Placing star systems in a two dimensional plane is the first step in mapping a new hex.

METHOD

Start at the top of an area hex and roll a d100. Take the result of this roll and count across the paper in the motion shown in the next illustration and place a star system in that hex. Roll a d100 again, counting from the system just positioned. Continue this until you have populated the hex with star systems.
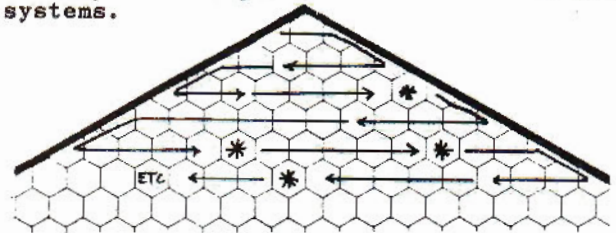
Depth   (z axis)

Now that you have a two dimensional map of space you must make it three dimensional.

Each System hex is 201 light years deep. If we can assume star systems are not less than one light year distant from each other, there are 201 possible positions for your system.

METHOD
To find the vertical level roll a a d100 for the position of the star system. Then roll a d6.

RESULT
01-03 System is on Positive Plane
04-06 System is on Negative Plane

Now you have the distance from 0 or the plane the Earth is in.

If your system is in a vertical position of a (+1) or (-1), Roll a d6 and check below.

RESULT
01-03   System moves to 0 position.
04-06   System stays as designated.
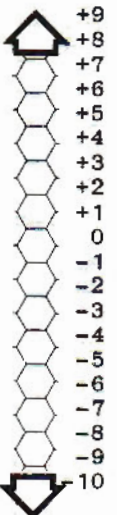
Names

Have fun naming your stars. Stars listed in FTL: STAR CHARTS are the actual stars with their common names and Gliese number.

EXAMPLE   +16 = The position of the star
          Thaltrom = The name of the star
          F32 = The hex letter and card or page number.

Designing Star Systems

Each of the points on the starmap created in the preceding section marks the location of a star system.

A star system will be defined as either a single star with planets or other matter orbiting around it. A system may also be a group of stars close or moderately close together, each with its own system of orbiting masses.

The following information on "Stellar and Planetary Generation" is taken as accurately as possible from available sources. Some astronomical information, if presented 100% factually, would make the game unplayable. For this reason some of the ranges have been altered to more usable figures.

Number of Stars

To generate the number of stars in a system hex roll a d100.

RESULT		NUMBER OF STARS
01-75	Solo	1
76-95	Binary	2
96-98	Trinary	3
99	Cluster	3 +d4
00	Special (see Star Special Chart)	

Star Specials

The following are rare examples that can occur. They add a little spice to the average stellar groups. Roll a d100.

RESULT	TYPE
01-20	Old Nova, stellar corpse, no planets.
21-30	Old Nova, burnoff, with planets.
31-40	Old Nova, gas (debris) cloud nebula that extends d4 light years around the system.
41-50	Very close binary with the stars exchanging gasses.
51-60	Close binary, stars deformed by their mutual gravitation.
61-70	Dead Cold Star with planets
71-80	Cephid A, a variable star with a d10 year fluctuating period of intensity.
81-90	Cephid B, a variable star with a d10 day fluctuating period of intensity.
91-95	Cephid A, a variable star with a d20 hour fluctuating period of intensity.
06-98	Semi-Formed planets orbiting star.
99	Proto-Star, star in formation.
00	GO TO SPECIAL B

SPECIAL B	
01-50	Large nebula, 2 to 12 light years across, from a past nova.
51-75	Nova within d100 years +d12 months.
76-90	Unstable Cephid with a variable period of changing intensity.
91-97	Unstable Protostar
98	Unstable, high rad emitting star.
99	Very unstable star
00	Small Black Hole

Star Size

Roll a d100 for the size of the star.

RESULT	SIZE OF THE STAR
01-10	Dwarf
11-40	Small
41-85	Medium
86-95	Large
96-98	Giant
00	Super Giant

Spectral Class

Determine the spectral class of the star by rolling a d100 and indexing the result.

RESULT	COLOR	SPECTRAL	TEMP K
01-02	Dark	N	2,000
03-45	Red	M	3,500
46-55	Orange	K	5,000
56-74	Yellow	G	6,000
75-89	Yellow-White	F	7,000
90-96	White	A	10,000
97-99	Blue-White	B	23,000
00	Blue	O	25,000

Gravity / Zones

Technically, each star exerts a force on all mass throughout the universe.

Realistically however, there is a limited distance from the star within wich this force is effective. This distance is often refered to as the stars gravity well. The larger a stellar mass, the larger the pull and the star's ability to hold planets. This area of stellar pull is the star's zone of control.

In FTL we divide this gravity well into four bands or zones.

A	CLOSE ZONE	: The close hot zone.
B	MEDIUM ZONE	: The moderate zone where life is most likely.
C	FAR ZONE	: This is the start of the cold lifeless zones.
D	EXTREME ZONE	: The far cold zones.
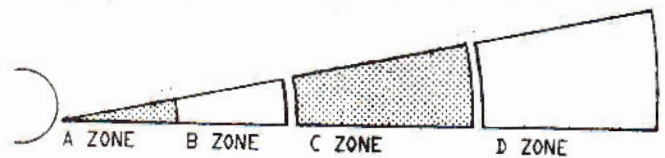
Planetary Slots

These zones are divided onto numbers of slots whose numbers differ due to star mass. These slots hold planets and possible system debris. They are also reference points for system travel and time to enter / exit.

Example A Zone

System Size

The following table is an index of system size and number of planetary slots determined by stellar type and mass.

SPECTRAL CLASS	DWA	SMA	MED	LAR	GIA	S'GIA
O	c	d	e	f	g	h
B	c	d	e	f	g	f
A	b	c	d	e	f	g
F	a	b	c	d	e	f
G	a	b	c	d	e	f
K	a	b	c	d	e	f
M	a	a	b	c	d	e
N	a	a	a	b	c	d

SIZE RESULT	TOTAL SLOTS	SLOT TYPES A	B	C	D	NUMBER OF PLANETS
a	06	01	01	02	02	d4 (-1)
b	12	02	02	04	04	d6 (-1)
c	20	04	04	06	06	d10 (-1)
d	24	04	04	08	08	d10 (-1)
e	32	06	06	10	10	d10 (-1)
f	40	08	08	12	12	d12 (-1)
g	60	10	10	20	20	d12 (-1)
h	64	12	12	20	20	d20 (-1)

You now have the general information for the beginnings of system generation. Many of these bits of information will be used at a later time in the text.

All of these slots fall into a range of a type of dice roll. This will be handy for mapping and planetary placement. Whenever placing an object randomly, roll the die appropriate to the area.

Binaries

When placing Binaries and multiple stars, remember a few basic rules.

REMEMBER
01 Generate stars separately.
02 Determine general location of stars in relation to each other, with the less dense stars orbiting the more dense stars.
03 The more massive (dense) the star, the more planetary slots it has.
04 Each star generates its own zone of control or slots. These may cross, causing areas of Gravitational Overlap and special problems.

Multiple Stars

Roll a d100 for placement of multiple stars. Roll the exact zone slot with the appropriate dice. Start the highest density star as the center of Binary star placement. More than two stars are handled in the same way. Stars within three slots of each other surrender the star of lesser mass to orbit the heavier at close range. This will usually cause a condition of deformation of shape and exchanging of gasses.

Other Star Placement

Roll a d100 for the second star's location in relation to the system. The more massive star is always the center of positioning multiple stars.

RESULT	STAR PLACEMENT
01-50	d100 x10 planetary slots from the farthest slot of the primary star's D zone. This distance effectively eliminates zone overlap and planet gravitational disturbances.
51-75	Placement is in D Zone.
76-88	Placement is in C Zone.
89-94	Placement is in B Zone.
95-00	Placement is in A Zone.

Planet Type

Roll a d10 for planetary type.

RESULT	TYPE OF PLANET
01-05	Planet
06-10	Gas Giant

Planet Placement

Roll a d10 for planetary placement into zone.

	ZONE POSITION			
TYPE OF PLANET	A	B	C	D
Planet	01-02	03-04	05-07	08-10
Gas Giant	-	-	01-05	06-10

To place planets in zone slots roll the matching die to the slot size. If you duplicate a roll, move the world over to the next available slot. (01-03 Right 04-06 Left)

True gas giants can only exist in C and D zones. Do not confuse gas giants with planets that have dense atmospheres.

Multiple Slot Overlap

Roll a d100 for planets and gas giants between close stars in overlapping slots.

RESULT	PLANET MODIFIER
01-50	Planet never formed.
51-95	Planetary breakup gives this slot much large debris and asteroids.
96-00	Planet with a high geological activity rating or a turbulent, unstable gas giant.

Optional Incline

This is an optional detail for Binaries, Planets, and Moons. This indicates the inclination of an object to the rotational plane of the system. Roll a d100.

RESULT	
01-95	On plane of system.
96-98	Object is d8 x5 (+05) degrees off the normal plane of the system.
99-00	Object is d8 x5 (+45) degrees off the normal plane of the system.

Planets

Roll a d10 for planet or gas giant data.

RESULT	PLANETS DIAMETER IN MILES		SURFACE GRAVITY	NUMBER MOONS
01	Asteroid or small planet, Roll a (d6-1) x1000 for the diameter in miles. Under 1000 miles roll a d100 x10 for diameter in miles.			
02	5,500	Small	.60	d4 (-1)
03	6,000	Small	.70	d4 (-1)
04	6,500	Small	.80	d4 (-1)
05	7,000	Medium	.85	d6 (-1)
06	7,500	Medium	.90	d6 (-1)
07	8,000	Medium	1.00	d6 (-1)
08	8,500	Large	1.25	d8 (-1)
09	9,000	Large	1.50	d8 (-1)
10	10,000	Large	2.00	d8 (-1)

Gas Giants

RESULT	GAS GIANTS DIAMETER IN MILES		SURFACE GRAVITY	NUMBER MOONS
01	20,000	Small	-	d10 (-1)
02	30,000	Small	-	d10 (-1)
03	40,000	Small	-	d10 (-1)
04	50,000	Medium	-	d10 (-1)
05	60,000	Medium	-	d20 (-1)
06	70,000	Medium	-	d20 (-1)
07	80,000	Medium	-	d20 (-1)
08	90,000	Large	-	d20 (-1)
09	100,000	Large	-	d20 (-1)
10	125,000	Large	-	d20 (-1)

Moons

For moon size index planet size and roll a d10. Moon size for planets in life areas may change the outcome of climate generation. It is even possible to have a small habitable moon orbiting a dead or hellish world.

MOON SIZE RESULT

PLANET	SMALL	MEDIUM	LARGE	GIANT
Small	01-04	05-10	-	-
Medium	01-04	05-09	10	-
Large	01-04	05-09	10	-
Sm Gas	01-04	05-07	08-09	10
Md Gas	01-04	05-07	08-09	10
Lg Gas	01-03	04-06	07-09	10

MOON DIAMETERS

SMALL	MEDIUM	LARGE	GIANT
d6	d6	d6	d6
x10	x100+ (400)	x100+ (1400)	x100+ (3000)
Miles	Miles	Miles	Miles

MOON COMPOSITION

	A or B Zone		C or D Zone
01	Bombarded Rock	01	Water Ice
02	Mineralized Rock	02	Bombarded Rock
03	Minable Minerals	03	Ammonia Ice
04	Volcanic Rock	04	Sulfur
05	Mineable Chemicals	05	Methane
06	Diversified Mix	06	Chemicals

System Specials

System specials are the optional debris and oddities you add to star systems. You have d6 rolls to use. Duplicate rolls are not repeated. Roll a d20 for result.

RESULT	SYSTEM SPECIAL TYPE
01	Gas giant with rings.
02	Planet with rings.
03	d4 Planets with rings.
04	Asteroid belt in A zone.
05	Asteroid belt in B zone.
06	Asteroid belt in C zone.
07	Asteroid belt in D zone.
08	Dense asteroid belt if you have one.
09	Shattered planet, mostly intact.
10	Asteroids with erratic orbits.
11	d4 Gas giants with rings.
12	Geologically active moon orbiting a planet.
13	Geologically active moon orbiting a gas giant.
14	High mineralization, asteroid belt.
15	Masses of cometary fragments.
16	Ejected stellar debris, possible hot / radioactive clouds.
17	Very high sunspot activity increases radiation by bursts of 4x1000 rads per hour. Phase drive untunes d6 points per day in high flare areas.
18	Two moons sharing same orbit.
19	Moon with high chemical composition.
20	Planet with a high or specific chemical composition.

SYSTEM NOTATION

S = Small Planet	Sg = Small Gas Giant
M = Medium planet	Mg = Medium gas giant
L = Large Planet	Lg = Large Gas Giant
A = Asteroid belt	M# = Moon Number
dA Dense asteroids	S# = System Special #

System Maps

Use copies of System Maps to create star systems for exploration or maps of known systems. These maps are designed for general GM and player use.
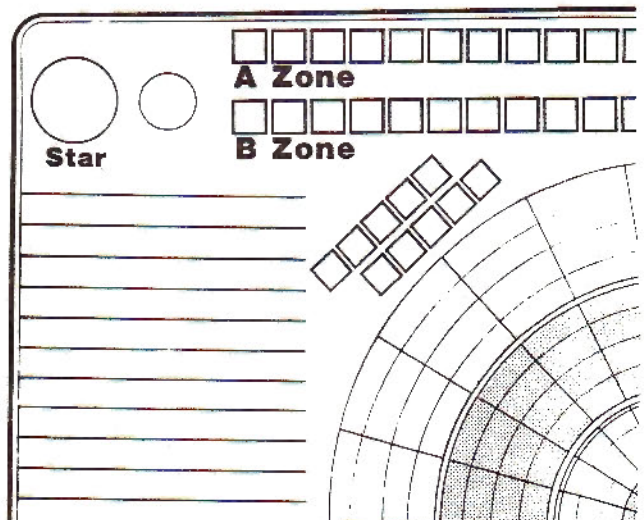
Thermally Habitable Planetary Slots

By now you have a star system with planets orbiting the star and system debris.

REMEMBER
01 Index your star's system size.
02 Index across to where your planets are set in the gravity well slots.
03 Index down to find out if the planet is in an M (Thermally Habitable Area).
04 If not an M, index general type of climate. You can add mineralization.

SIZE	ZONES																			
a	A01	B01	C01	C02	D01	D02	–	–	–	–	–	–	–	–	–	–	–	–	–	–
b	A01	A02	B01	B02	C01	C02	C03	C04	D01	D02	D03	D04	–	–	–	–	–	–	–	–
c	A01	A02	A03	A04	B01	B02	B03	B04	C01	C02	C03	C04	C05	C06	D01	D02	D03	D04	D05	D06
d	A01	A02	A03	A04	B01	B02	B03	B04	C01	C02	C03	C04	C05	C06	C07	C08	D01	D02	D03	D04
e	A01	A02	A03	A04	A05	A06	B01	B02	B03	B04	B05	B06	C01	C02	C03	C04	C05	C06	C07	C08
f	A01	A02	A03	A04	A05	A06	A07	A08	B01	B02	B03	B04	B05	B06	B07	B08	C01	C02	C03	C04
g	A01	A02	A03	A04	A05	A06	A07	A08	A09	A10	B01	B02	B03	B04	B05	B06	B07	B08	B09	B10
h	A01	A02	A03	A04	A05	A06	A07	A08	A09	A10	A11	A12	B01	B02	B03	B04	B05	B06	B07	B08

O	H	H	H	H	H2	H2	H2	H3	H3	H3	H4	H4	H4	M1	M2	M3	F4	F4	F3	F3
B	H	H2	H2	H2	H3	H3	H3	H4	H4	H4	M1	M2	M3	F4	F4	F3	F3	F2	F2	F
A	H2	H3	H3	H4	H4	H4	H4	M1	M1	M2	M3	M3	F4	F4	F4	F3	F3	F2	F	F
F	H3	H3	H4	H4	H4	M1	M2	M3	M3	M3	F4	F4	F3	F3	F2	F2	F	F	F	F
G	H4	H4	H4	M1	M2	M3	F4	F4	F3	F3	F2	F2	F	F	F	F	F	F	F	F
K	H4	H4	M1	M2	M3	F4	F4	F3	F3	F2	F	F	F	F	F	F	F	F	F	F
M	H4	M1	M2	M3	F4	F4	F3	F3	F2	F	F	F	F	F	F	F	F	F	F	F
N	M1	M2	M3	F4	F4	F3	F2	F2	F											

World Class

We now have a separate habitable climate type for worlds orbiting stars.

Type H

H : Burned Off World
H2 : Very Hot, Usually no atmosphere
H3 : Hot, Usually Dense, turbulent high pressure or no atmosphere.
H4 : Mostly hot, dense or turbulent, with high pressure or no atmosphere.

Type M

M : Like Terrestrial area with a +1 roll result modifier on pressure and on the final CLIMATE TYPE roll.
M2 : Most like Terrestrial
M3 : Like Terrestrial area with a -1 roll result modifier on pressure and on the final CLIMATE TYPE roll.

Type F

F4 : Usually Cold, may be seasonably warm to just below freezing temperatures.
F3 : Usually Cold, Frozen or a semi-thin atmosphere.
F2 : Cold, Frozen, may have atmosphere.
F : Frozen

World Climate

With many modifiers, climate generation is the second to the last step in world generation.

REMEMBER
01 Generate Moon Modifiers for atmospheric density.
02 Generate Atmospheric Density
03 Generate Zone Modifier
04 Generate Star Type Modifier
05 Add Zone and Star modifiers together.
06 Roll the indicated dice on the final Temperature and Life table.

Atmospheric Modifier

Use on Small, Medium and Large Planets.

NUMBER OF MOONS

MOON SIZE	0	01-02	03-04	05-09	10+
Small Moon	+1	0	-1	-2	-3
Medium Moon	+1	-1	-2	-2	-4
Large Moon	+1	-2	-3	-4	-5

Larger moons have the useful property of generating conditions where the atmospheric density of a planet is reduced by the moon's gravitational action over a long period of time.

Pressure Modifier

SMALL WORLDS   Roll a d10

RESULT	TYPE	MODIFIER
01-03	Very Thin	-3
04-06	Thin	-2
07-08	Normal	-1
09	Dense	0
10	Very Dense	+1

MEDIUM WORLDS   Roll a d10

RESULT	TYPE	MODIFIER
01-02	Very Thin	-2
03-04	Thin	-1
05-06	Normal	0
07-08	Dense	+1
09-10	Very Dense	+2

LARGE WORLDS   Roll a d10

RESULT	TYPE	MODIFIER
01	Very Thin	-1
02	Thin	0
03-05	Normal	+1
06-08	Dense	+2
09-10	Very Dense	+3

Zone Modifier

In any A band = Add +3 to Modify Result
In any B band = Add 0 to Modify Result
In any C band = Add -3 to Modify Result

Star Modifier

	STAR TYPE / SPECTRAL CLASS							
	O	B	A	F	G	K	M	N
Dwarf	+1	0	-1	-2	-3	-4	-5	-6
Small	+2	+1	0	-1	-2	-3	-4	-5
Medium	+3	+2	+1	0	-1	-2	-3	-4
Large	+4	+3	+2	+1	0	-1	-2	-3
Giant	+5	+4	+3	+2	+1	0	-1	-2
Super Giant	+6	+5	+4	+3	+2	+1	0	-1

Planet Size

Total all modifiers and index the world size for a final climate and life result.

WORLD SIZE	DICE TO ROLL
For Small Worlds	Roll a d4, add Modifiers
For Medium Worlds	Roll a d6, add Modifiers
For Large Worlds	Roll 2 d4, add Modifiers

Climate Result

RESULT	GENERAL CLIMATE	CHANCE LIFE	TEMPERATURE IN DEGREES
-4 Lower	Frozen	0%	-200- average
-3,-2	Very Cold	0%	-200 to -100
-1, 0	Cold	05%	-099 to -025
01-02	Cool	40%	-050 to +050
03-04	Terran	80%	-10 to +100
05-06	Warm	40%	+50 to +150
07-08	Very Warm	07%	+100 to +200
09-10	Hot	02%	+150 to +250
11-12	Very Hot	01%	+200 to +300
13+	Burning	0%	+250 to +400

Breathability

A breathable atmosphere is one of the primary requisites of worlds that are close to terrestrial in general temperature and atmospheric pressure. Roll a d20 for content.

RESULT	CODE	DISCRIPTION
01-04	A	Toxic, Highly Poisonous
05-06	B	Wrong Mixture, Toxic Elements
07-08	C	Wrong Percentages, (must be filtered and supplemented for Terran use)
09-10	D	Mostly Breathable
11	E	Completely Breathable
12	F	Mostly Breathable, (rich)
13	G	Breathable (with filters)
14-15	H	Mildly Toxic
16-19	I	Toxic, Highly Poisonous
20	J	Toxic, Poisonous, Corrosive

Light Intensity

The light intensity from a star can have adverse effects on living optical sensors that are not used to higher or lower light intensity. Index the home star's spectrum by the spectrum of the star in question.

HOME STAR	ILLUMINATING STAR MODIFIER							
	O	B	A	F	G	K	M	N
O	0	0	-1	-1	-2	-2	-3	-3
B	0	0	0	-1	-1	-2	-3	-3
A	+1	0	0	0	-1	-1	-2	-2
F	+1	+1	0	0	0	-1	-1	-2
G	+2	+1	+1	0	0	0	-1	-1
K	+2	+2	+1	+1	0	0	0	-1
M	+3	+2	+2	+1	+1	0	0	0
N	+3	+3	+2	+2	+1	+1	0	0

Roll A d6 and Add Modifier

RESULT	ILLUMINATION
-01 Less	Dark
0	Very Dim
01	Dim
02	Dusk
03	Normal Light
04	Normal / Bright
05	Bright
06	Very Bright
07	Painfully Bright
08	Damaging Bright

Bio-Compatability

RESOURCES ON ALIEN WORLDS   Roll a d20

RESULT	COMPATIBILITY
01-04	Extremely Toxic
05-06	Mostly Toxic
07-08	Mixed Toxic and Edible with generally poor food values.
09-10	Variable forms with good nutritional values. Most are non-toxic.
11-12	Inert materials may become toxic if ingested for any length of time.
13-15	Toxic, Poisonous
16-20	Extremely Toxic Corrosive
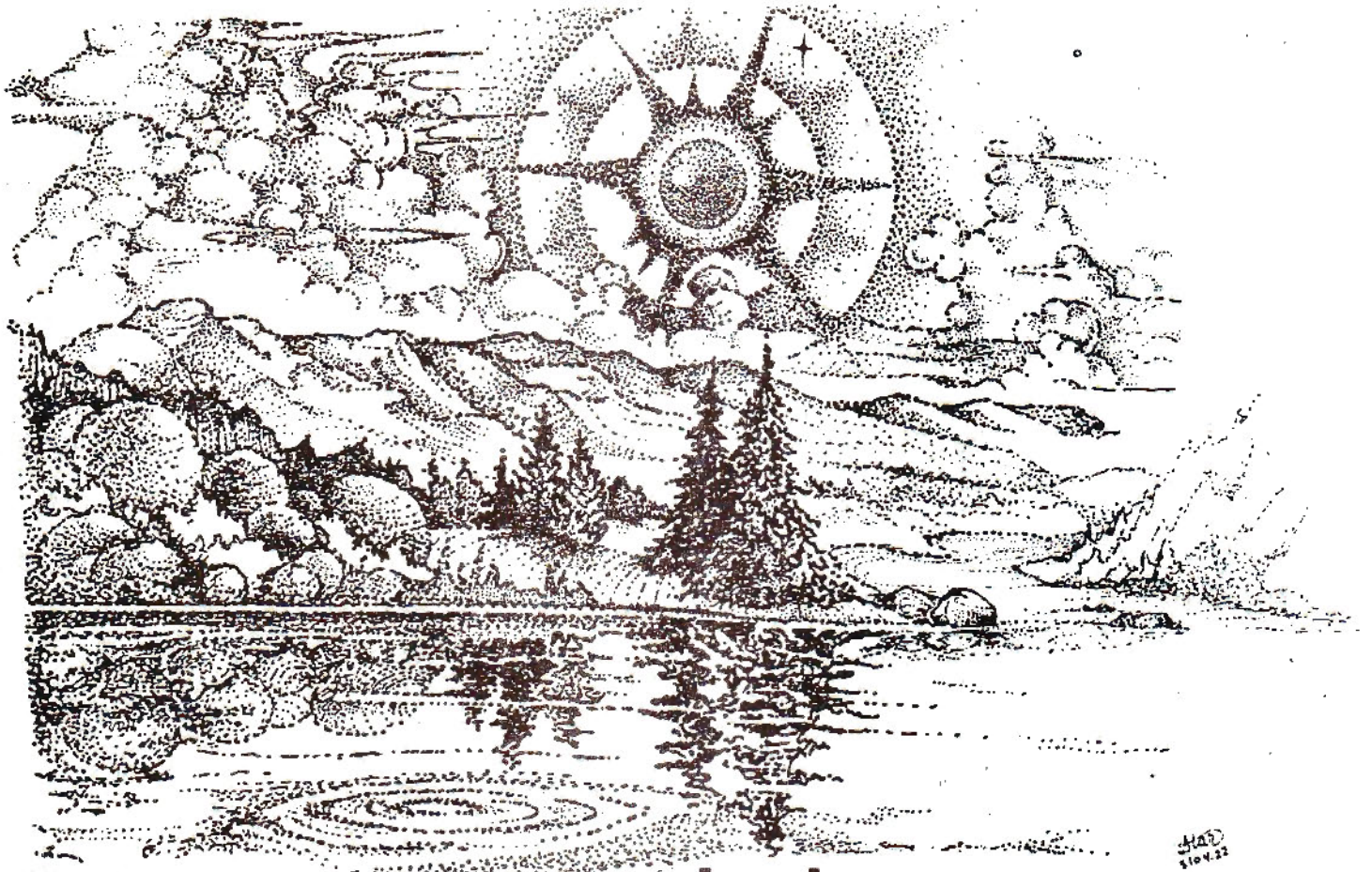
Worlds

The design of a world is the GM's choice. This section aids in the generation of world descriptions and geology. Use blank world sheets photocopied from the Utility Sheets.

Water

For the amount of water on an M world, roll a d100 percent dice for amount of water. The remainder of the surface of the world is land mass.

REMEMBER
01 On frozen or cold worlds a majority of this water may be locked into ice, or ice caps. In some cold cases only an equatorial band of free standing water may be seasonally unfrozen.
02 Dry, Arid conditions may hide water far underground or freeze it in ice caps.

Purity

RESULT	COMPATIBILITY
01-05	Brackish, Salt, or Chemical Laden
06-08	Usable with High Tech Filtering
09	Usable with Minimal Filtering
10	Fresh Water

Land

RESULT	CONTINENTAL MASSES	NUMBER
01-10	Unbroken Land Masses	1
11-20	Super Continents	d4 +1
21-75	Large Continents	d6 +1
76-90	Medium Continents	d10+1
91-95	Small Continents	2d10+2
96-97	Island Chains	d100+2
98-00	Roll 4 times below ignoring #1	

Islands

RESULT	FREQUENCY OF ISLAND			MILES IN DIAMETER
	FEW	COMMON	MANY	
MICRO	01	02-05	06-10	d100 x.50
SMALL	01-03	04-05	06-10	d100
MEDIUM	01-05	06-08	09-10	d100 x2
LARGE	01-06	07-09	10	d100 x3
VERY LARGE	01-07	08-09	10	d100 x4
GIANT	01-08	09	10	d100 x5

Geo Stability

01 STABLE CRUST
Stable, likely with shallow oceans and very few mountains. Little or no serious volcanic activity or plate tectonics. Earthquakes are mostly unknown.

02 MOSTLY STABLE CRUST
Like #1 with little activity but not enough to notice over a long period of time.

03 ACTIVE GEOLOGY
Minor geological effects. Worn Mountain ranges from slow plate collision. Very minor volcanic activity.

04 VERY ACTIVE
Common geological effects including mountain ranges pushed up in cycles of growth and decay, plate tectonics, earthquake activity, fault lines, and volcanic activity.

05 HIGHLY ACTIVE
As #4 with a high rate of activity.

06 GEOLOGICAL HELL
With major activity of all types, these unstable worlds are a nightmare of fast seismic activity and problems.

Mountains

RESULT (of a d10 Roll)

01 Flat
02 Rolling Hills, Mostly Flat
03 Steep Hills, Small Valleys
04 Very Steep Hills, Rock Outcroppings, Small Valleys
05 Rocky Hills, Steep Valleys
06 Deep Valleys, Eroded Mountains
07 Mountains
08 High Mountains
09 Volcanic Mountains
10 Active Volcanic Mountains

Unusual Features

RESULT (of a d10 Roll)

01 Major scarring from meteorite impact.
02 Deep Lakes
03 Large Shallow Lakes
04 Salt or Chemical Flats, Deserts
05 Deep Geological Faults or Canyons
06 Scarring from Climactic Upheaval
07 Outstanding Highlands
08 Geological Sculpturing of Rock in large areas.
09 Roll a d8 twice above.
10 Roll a d8 four times above.

Mineralization

COLUMN A	COLUMN B
01 Copper	Beryl
02 Lead	Monazite (thorium)
03 Gold / Silver	Samarskite
04 Cinnabar (mercury)	Ilmenite (titanium)
05 Hematite (iron)	Niccolite (nickle)
06 Stibnite (antimony)	Realgar (arsenic)
07 Magnesite (magnesium)	Sulfur
08 Cobaltite (cobalt)	Graphite
09 Cassiterite (tin)	Calcite
10 Sphalerite (zinc)	Gypsum
11 Bauxite (aluminum)	Halite (salt)
12 Chromite (chromium)	Borax
13 Manganese	Fluorite
14 Pitchblend (uranium)	Barite
15 Wolframite	Apetite
16 Scheelite	Talc
17 Molybdenite	Asbestos
18 Colombite	Quartz
19 Amethyst	Diamond
20 Sapphire	Ruby

Plants

RESULT	DESCRIPTION
01-30	VERY EARLY — Simple mosses, slimes, molds, some diversified sea plant life.
31-40	EARLY — Simple land plants, abundant sea growth, fungi, moss, liverwort and fern-like plants.
41-75	MIDDLE — Complex diversified land plants that include cycad type plants and coniferous (pine-like) plants.
76-97	LATE — Introduction of monocots and dicot flowering plants. Many forms of plants have specialized to climate and geography.
98-99	VERY LATE — Less diversified forms have high survival rates. Limited mobility and nervous system adaptations to promote survival.
00	CLIMAX — Totally adapted and universal, these few forms leave little else in diversification. Some forms may develop limited hunting and some survival instincts in sessile or mobile forms.

Animals

RESULT	TYPE
01-02	VERY EARLY SEA — Simple sea life and primitive fish.
03-25	EARLY SEA — Sea life is developing and taking many forms. Early life is making an inroad to the land from the sea.
26-50	EARLY LAND — Sea life has become complex and diversified. Land life is still primitive but spreading in early forms.
51-75	MIDDLE LAND — Sea life is stabilizing into less diverse forms. Land life is developing specialized forms to aid survival. Hunting and browsing instincts, limited form of survival intelligence, flying.
76-95	LATE LAND — Forms in land and sea have reached the stage where they can learn, if minimally. A proto-intelligence is possible, Roll on Intelligence.
96-98	VERY LATE — Many types of life have adapted to climate and geography in forms that insure survival. Less diversified types. Intelligence allows animal life to adapt behavior to changing conditions, predators and adverse conditions. Roll on Intelligence.
99-00	CLIMAX — Ancient forms with little or no competition. Highly adapted for survival in a variety of hostile conditions. Roll for a proto-Intelligence at -25, Intelligence with no roll modifier and a higher Intelligence at +20. (3 checks)
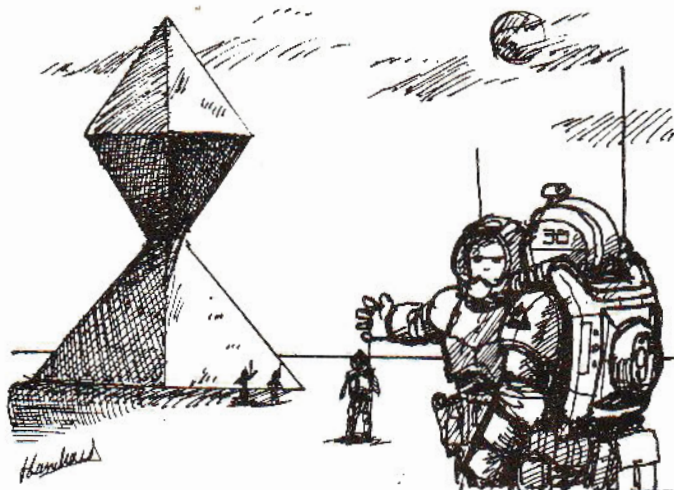
Intelligence

Roll a d100 to generate the race's basic level of intelligence.

RESULT
01-25	No real technology or language. Very clever animals with the potential to develop intelligence in time.
26-50	Primitives, crude language, stone or natural tool manipulation, survival by random subsistence.
51-75	Fine tool manipulation, language, and the beginnings of culture.
76-90	Very fine tool use, beginning of art and agriculture, beliefs, religion, imagination, and superstition.
91-95	As 76 with more refined arts, belief, and knowledge that is passed from generation to generation. Specific value systems and social structures exist.
96-98	Go to Energy Development and Culture. Modify the result on Energy by -10.
99-00	Go to Energy Development and Culture. Modify the result roll by +10 if the initial roll is under 75.
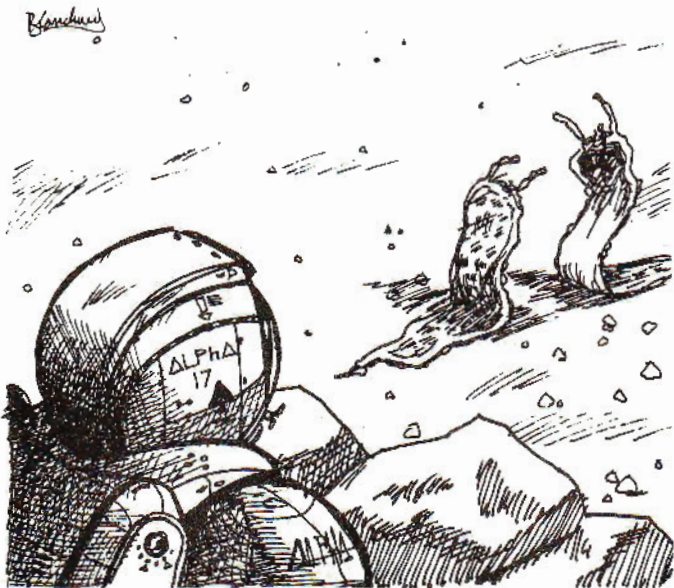
Resources

DISPERSION MODIFIERS   (Roll a d10)

RESULT	TYPE	MODIFIER
01-02	Highly Shifting Resources	-3
03-04	Seasonally Shifting Resources	-2
05-07	Stable Resources	0
08-09	Very Stable Resources	+2
10	Near Perfect Stability	+3

RESULT	TYPE CULTURE
01-02	Nomadic All Technology levels at a -2 Energy Development at -10
03-04	Rural Dispersed
05-07	Rural and Sparse Urban Culture
08-09	Urban and Rural Culture
10	Dense Urban and Rural Culture

Development

RELIGIOUS AND POLITICAL MODIFIERS

RESULT		MODIFIER
01-02	Restricting, tight control	-3
03-04	Restricting, some control	-2
05-06	No Control	0
07-08	Progressive attitude	+1
09	Progressive, some influence	+2
10	Very Progressive	+3

RESULT	DEVELOPMENT
01	Regressing, Fallen
02	Collapsing
03	Falling Slowly
04	Stagnant
05	Borderline Stagnant
06	Developing Slowly
07	Developing From Setbacks
08	Developing Moderately
09	Developing Quickly
10	Developing at a Fast Pace

Family

01	Loose Family Structure
02-04	Family Groups
05-06	Tight Family Groups
07-08	Extended Families
09-10	Clans / Large Extended Family Groups

Xenophobia

01	Outright Hostility
02-04	Fear and Hostility
05	Fear
06-07	Conquerable Fear
08-09	Acceptence with Time
10	Fast Acceptence of Aliens

		TEMPERAMENT
01	Gentle	80+
02-03	Easy Going, Generally	60 to 79
04-07	Variable	30 to 70
08	Temperamental	31 to 40
09	Very Temperamental	21 to 30
10	Highly Temperamental	Less than 20
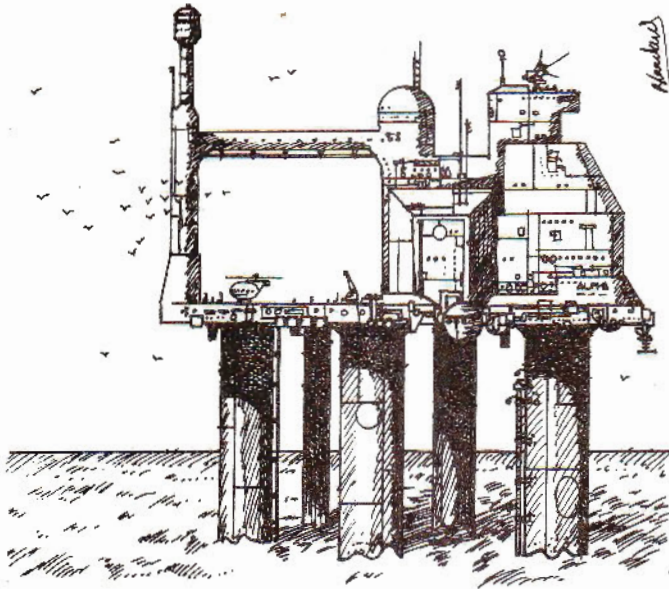
Technology

With these general guidelines the GM is able to generate technological development of human or alien society.

REMEMBER
01 Generate an Energy Use Level by rolling a d100 on the table below.
02 For primitive and non-energy dependent cultures, (50 or less), roll a d10 on the LOW TECHNOLOGY tables for general technological and social progress. Do not go beyond that point.
03 For higher technology, (50 or above), roll a d10 om the HIGH TECH tables for the society's progress.
04 Index power level by column in the HIGH TECH tables.

Energy Use

01-25	Predominant use of brute force, some limited fire use.
26-50	Use of brute force with high skills in the use of fire.
51-75	Use of steam engines and related technology.
76-80	Use of internal combustion and power by chemical sources.
81-85	Early electrical power, circa 1895.
86-90	Generated electricity, circa 1930.
91-95	Nuclear fission for electric or steam generation.
96-97	Commercial fission use. Solar power.
98	Fusion. Commercial solar electric.
99	Commercial fusion, geo-magnetic taps.
00	Mass to energy / Antimatter use.
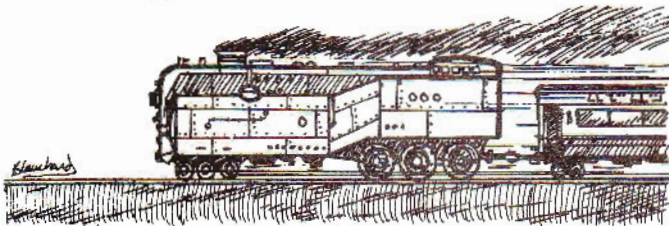
Low Tech

ENERGY LEVEL UNDER 50
NON-ENERGY DEPENDENT
ROLL A D10 ON EACH

STONE USE
01-02	Basic use of stone tools, natural shelters only.
03-05	Rough-shaped stone for foundations.
06-08	Shaped stone for most building.
09	Heavy stone construction and carving.
10	Monolithic stone constructions, stone carved with detail and for art.

FOOD
01-02	Gathering and some hunting.
03-05	Hunting and some gathering.
06-08	Subsistence agriculture.
09	Improved agriculture / surplus.
10	Highly diversified and specialized agriculture and farming knowledge.

ANIMAL HUSBANDRY
01-02	None
03-05	Domestication of a small number of species for work and food production.
06-08	Domestication of a large number of species for work and food production.
09	Improved breeding of a number of species.
10	Diversified breeding for needs and improving a species.

CERAMICS
01-02	None
03-05	Fired, early ceramics and pots.
06-08	Ceramics and glazing.
09	Ceramic building meterials, glass.
10	Refined glass, high ceramic use.

EARLY METALWORK
01-02	Soft malleable metals.
03-05	Bronze, early iron and forging.
06-08	High use of iron, casting.
09	Creation of high carbon steel.
10	Creation of low carbon steel.

MEDICINE
01-02	None
03-05	Little effective use.
06-08	Effective use in limited areas by natural means.
09	Natural medicine, early physiology, and simple surgical procedures.
10	Effective repair of complex medical problems with simple natural methods.

SOCIAL SCIENCE
01-02	None
03-05	Social science for social necessity.
06-08	Higher authority sets some social control of the population.
09	Use of social science to orient the population.
10	Social controls, custom or law, in high use.

High Tech

INDEX BY ENERGY LEVEL

LEVELS 50-85   Use Column A
LEVELS 86-00   Use Column B

SYNTHETICS

A	B	
01-02	01	Simple Alloys.
03-05	02-05	Complex alloys and very early synthetics.
08-10	06-08	Plastics
	09	Special alloys and synthetic fuels in general use.
	10	Synthetic metals, use of the heavy elements, Roll on chemistry with a +4 modifier.

CHEMICAL

A	B	
01-02	01-02	Simple Chemistry
03-07	03-05	Basic Chemistry
08-10	06-08	Use of complex chemistry.
	09	Use of synthetic chemistry and organic chemistry.
	10	Use of complex synthetic and organic chemistry

MECHANICAL

A	B	
01-02	01-02	Simple use of basic devices that are mechanical.
03-05	03-04	Complex mechanical devices.
06-08	05-08	Complex mechanical and simple automation in use.
09	09	Complex automation, high use of mechanical devices
10	10	Very complex mechanical devices and high automation

ELECTRICAL USE

A	B	
01-04	01-02	Knowledge of, but with very little effective use in everyday life.
05-09	03-05	Simple use, as Terran 1900's.
10	06-08	Common household use in day to-day life.
	09	Household dependency, high use for communications.
	10	Travel, communications, every aspect of life.

MEDICINE

A	B	
01-09	01-02	General medical diagnosis and treatment in most areas.
10	03-05	Specialized treatment, repair and reconstruction.
	06-08	Synthetic replacement, high use of medicine.
	09	Regeneration and cold sleep technologies.
	10	Use of life prolongation and effective resuscitation.

COMPUTER TECHNOLOGY

A	B	
01-09	01-02	Bulky mechanical devices of limited functions.
	10	03-06	Bulky electrical devices of limited functions.
	07	Light - weight devices of limited functions.
	08	Bulky devices of advanced functions.
	09	Light weight devices of advanced functions.
	10	Micro - Miniaturized devices of highly advanced functions.

SOCIAL SCIENCE

A	B	
01-02	01-02	No use of social science.
03-05	03-05	Social control in nominal use.
06-09	06-08	Some social control in use.
10	09	High use of social control.
	10	Knowledge of the motivations of a society and control of its operation.

FLIGHT

A	B	
01-04	01-02	General knowledge of the principles but no applied use.
05-09	03-05	Balloon technology, gliders, early powered flight.
10	06-08	Airplane Technology
	09	Jet Technology
	10	Go to EARLY SPACE FLIGHT

EARLY SPACEFILGHT

A	B	
01-09	01-02	Early Testing
10	03-05	Early Orbital Flights
	06-08	Space Stations
	09	Interplanetary Exploration
	10	In - system colonization, go to Starflight.

STARFLIGHT

A	B	
STOP	01-02	Slow ships, multi generation
	03-05	Slow ships, years per light year traveled.
	06-08	Early exploration of nearest stars with early FTL drives.
	09	Colonization of near stars.
	10	Commercial Starflight.

Expansion

These guidelines can, with a little work, create countless societies or give an odd flavor to scenarios.

Designing Aliens

The general design of alien life is the decision of the GM or available by random generation with the following tables.

REMEMBER
01 Roll number of Body Segments
02 Roll Symmetry & Body Shape
03 Roll Posture
04 Roll Head Attachment, if any
05 Roll Manipulative Members & Shape
06 Roll Walking Members & Shape
07 Roll Face, Design, Senses
08 Roll Skin Covering & Texture
09 Roll Skin Color & Pattern
10 Roll Defense , Temperament, & Niche

BODY SEGMENTS (Roll a d100)

RESULT	SEGMENTS	HEAD CHANCE	TAIL CHANCE
01-10	01	20%	10%
11-20	01	40%	20%
21-40	02	60%	40%
41-50	02	80%	60%
51-70	03	60%	40%
71-80	03	40%	20%
81-90	04	20%	10%
91-95	05	10%	05%
96-98	06	08%	05%
99-00	d6+6	05%	05%

SEGMENTS
01-50 Distinctive
51-98 Fused
99-00 Both

SYMMETRY
01-90 Bilateral
91-95 Quadrilateral
96-99 Trilateral
00 Non-Symmetrical

POSTURE
01-75 Horizontal
76-95 Horizontal & Vertical
96-99 Vertical
00 Vertical & Horizontal

BODY SHAPE
01-10 Rounded
11-20 Barrel Shaped
21-40 Tubular
41-75 Flattened
76-85 Semi-rounded
86-90 Semi-flattened
91-95 2 basic shapes
96-98 Disproportioned
99 Non-Conventional
00 Slightly Variable

HEAD ATTACHMENT
01-25 Direct
26-85 Short Neck
86-95 Medium Neck
96-99 Long Neck
00 Very Long

MEMBERS PER BODY SEGMENT
01-50 Two Locomotive
51-75 Two Locomotive
        or Manipulative
76-95 Three Locomotive
96-98 3 Manipulative
        or Locomotive
99-00 3+ any combo.

ARM LENGTH
01-70 Short
(.25 of body span)
71-85 Medium
(.50 of body span)
86-95 Long
(.75 of body span)
95-00 Very Long
(equal to body span)

LEG LENGTH
01-70 Short
(.25 of body span)
71-85 Medium
(.50 of body span)
86-90 Long
(.75 of body stan)
95-00 Very Long
(equal to body span)

MANIPULATIVE MEMBERS
01-25 Short Digits   .25 size of hand span
26-50 Medium Digits   .50 size of hand span
51-75 Long Digits   .75 size of hand span
76-98 Very Long Digits   size of hand span.
99 Tentacles
   2x d100 percent of body length without
   arms. d100% of body length with arms.
00 Pincers
   Two to 4 in symmetry.

LOCOMOTIVE MEMBERS END IN...
01-10 Flat, Stumpy Pads
11-20 Hooves
21-40 Partial Hooves
41-75 Fused Toes
76-85 Non-Manipulative Toes
86-90 Semi-Prehensile Toes
91-95 Prehensile Toes
96-98 Prehensile toes with semi-usable thumb
99-00 Prehensile toes with usable thumb

FACIAL DESCRIPTON
01-90 Face in centralized area
91-99 Decentralized face
00 Sensors where necessary

FACE STRUCTURE
MOUTH Roll a d8 on B
FACE Roll a d6 on B
NOSE Roll a d10 on B
EYES* Roll a d10 on B
EARS Roll a d10 on B
TEETH Roll a d6 on B

TABLE B
01 Nil
02 Very Small
03 Small
04 Medium
05 Large
06 Very Large
07 Covered Hole
08 Sensory Spot
09 Sensory Stalk
10 Antenna Stalk

SENSORY SPECIALS
01-04 Infrared
05-07 Radar
08-09 Spatial Sense
10 Smell

(*) d6 in quantity)

SKIN TEXTURE
01-10 Velvet
11-20 Smooth
21-30 Rough
31-40 Sandpaper
41-50 Sharp
51-60 Leathery
61-70 Wrinkled
71-85 Warty
86-90 Lumpy
91-97 Knobby
99-00 Two Textures

PROTECTIVE COVERING
01-25 None
26-36 Fur, Thick or Thin
37-50 Hair, Thick or Thin
51-60 Scale
61-70 Feather
71-80 Bony Platelets
81-90 Shell / Carapace
91-95 Spines
96-98 Heavy Platelets
99 Roll 2 Coverings
00 Roll 3 Coverings

COLOR
01 White   11 Purple
02 Black   12 Gray
03 Pink   13 Gold
04 Tan   14 Silver
05 Brown   15 2 shades
06 Orange   16 3 shades
07 Red   17 4 shades
08 Yellow   18 2 color
09 Blue   19 3 color
10 Green   20 4 color

PATTERN
01 Solid Areas
02 Spotted, large
03 Spotted, small
04 Belted
05 Splotched
06 Dotted
07 Stripes, small
08 Stripes, large
09 Camouflage
10 Seasonal Shift

DEFENSE
01-25 Claws   76-90 Bludgeon   98 Poison
26-50 Bite   91-95 Trample   99 Shock
51-75 Kick   96-97 Sting   00 Agility

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Law

The Interstellar Court of Law, ICL, is the main peace keeping force throughout settled space. Many worlds subscribe to the laws and charters from this organization.

Because laws and regulations vary across colonies, alien worlds, and corporate planets a set of general laws is impossible. The following set of basic rules is designed to be used for most legal systems.

REMEMBER
01 Determine the severity of the offense.
02 Total 13 possible legal modifiers.
03 Add modifiers to a d100 roll and index the outcome by the type of dispute.
04 Pay fines, (and /or) serve time.
05 Repeated offenses of the same nature add a +1 severity per three arrests.

Severity

		MODIFIER
01	Defers charges to general claims and fines. No court case.	+20
02	Judge wonders why this was brought to court.	+15
03	Very Minor Offense	+10
04	Minor Offense	+05
05	Not Very Serious Offense	0
06	Serious Offense	-05
07	Very Serious Offense	-10
08	Severe Offense	-15
09	Very Severe Offense	-20
10	Absolutely the most Severe Possible	-25

Judge & Jury

JUDGE			JURY		
01	Bored	-2	01	Bored	-3
02	Disinterested	-1	02	Disinterested	-2
03	Routine	0	03	Neutral	-1
04	Interested	+1	04	Interested	+1
05	High Interest	+2	05	High Interest	+2
06	Fascinated	+3	06	Fascinated	+3

Legal Aid

Roll a d6		DEFENSE LAWYER	PROSECUTION LAWYER
01	Incompetent	-3	+3
02	Not Very Competent	-2	+2
03	Somewhat Competent	-1	+1
04	Mostly Competent	+1	-1
05	Competent	+2	-2
06	Totally Competent	+3	-3

Witnesses

Roll a d6		WITNESS DEFENSE	WITNESS PROSECUTION
01	Incompetent	-3	+3
02	Not Very Competent	-2	+2
03	Somewhat Competent	-1	+1
04	Mostly Competent	+1	-1
05	Competent	+2	-2
06	Totally Competent	+3	-3

Politics

Roll a d6 Twice		RESULT 01-03 MODIFIER	RESULT 04-06 MODIFIER
01	No Involvement	0	0
02	Little Involvement	+1	-1
03	Some Involvement	+2	-2
04	Involvement	+3	-3
05	High Involvement	+4	-4
06	Political Intrigue	+5	-5

Evidence

		DEFENCE	PROSECUTION
01	None	+10	-10
02	Very Little	+05	-05
03	Evidence	+01	-01
04	Large Amount	-05	+05
05	Serious Evidence	-10	+10
06	Damaging Evidence	-15	+15

Bribes

		JURY	PROSECUTION	JUDGE
01	Accepted	+05	+10	+10
02	Accepted	+03	+06	+05
03	Accepted	+02	+04	+02
04	Accepted	0	+02	0
05	Rejected	-02	-05	-05
06	Rejected	-05	-10	-10

Other

		MODIFIER
01	Setting Precedent	+02
02	Popular Support (+05) Condemnation	-05
03	Prejudiced to Aliens, to Outsiders	-10
04	Difficult Case or Language Barrier	-05
05	Being Made an Example	-10
06	Unexpected Aid	+05

Outcome

CRIMINAL DISPUTES		FINE MODIFIER
01-10	Highest Punishment	+100%
11-25	Near Highest Punishment	+ 75%
26-50	Harsh Punishment	+ 50%
51-75	Standard Punishment	No
76-80	Lesser Than Normal Punishment	- 25%
81-90	Very Low Punishment	- 50%
91-98	Lightest Possible Punishment	- 75%
99-00	Case Thrown Out of Court	No

LEGAL RULINGS & PROPERTY SETTLEMENTS	
01-10	Highest, Unfavorable Ruling
11-25	Near Highest, Unfavorable Ruling
26-50	Highly Unfavorable
51-75	Unfavorable, But Fair Ruling
76-80	Favorable Ruling
81-90	Very Favorable Ruling
91-98	Highest, Favorable Ruling
99-00	Case Thrown Out of Court

FINES / COURT TIME
Multiply the severity level of the crime by a d10. Multiply the result by a second d10 roll. Time spent in court averages the severity level of the crime xd10 days.
PUNISHMENT
From primitive justice to sophisticated mind wipe, this is the decision of the GM.

Notes to GM's

01 Never let your players gain control of the game. Your decisions should be final.

02 In the same vein, don't keep absolute control over your players. Let them make their own decisions and mistakes.

03 Be reasonable. Let a player state a valid argument. Be willing to change a ruling without making it a habit.

04 The invincible is no fun for the GM or other players. Changing or fudging a character's stats should not be allowed. Often a character with a low to mediocre stats becomes interesting and more of a challenge to role-play than any super character.

05 Make your players work for their supplies and wealth. See what they can do without, not with. Don't be afraid to destroy equipment or damage a starship. Necessity is the mother of invention and the basis of a good game.

06 Don't design killer adventures with no solution. A grim, bloodthirsty GM is no fun for the adventurers. Always give your players a way out of a situation they cannot handle.

07 You may find yourself in a situation where you are tempted to fudge a die roll to your player's benefit. This is not the sign of a weak GM, but a good GM who can understand the difference between bad luck and a bad decision. Just don't let them know.

08 Inconsiderate, ridiculous, or homocidal players should be removed from the game at the first opportunity (preferably out an airlock without a vac suit). There is no room in a role-playing game for fools who get other player's characters killed or spoil an adventure with acute stupidity.

09 A little humor in a game makes it a lot more fun. Remember humor has its place, so don't get too wrapped up in fun or your credibility as a GM will suffer. A slapstick GM provides little enjoyment to the serious role-player.

10 Be fair and honest with your players. You are the person they trust to guide them through an adventure.

11 Find an interruption - free area to play in. The tension or mood of the game is likely to suffer with distraction.

12 Don't forget the paper, pencils, dice, and munchies.

Though the previous remarks should not be considered the last word on gaming, they may help to make a game more enjoyable for all.
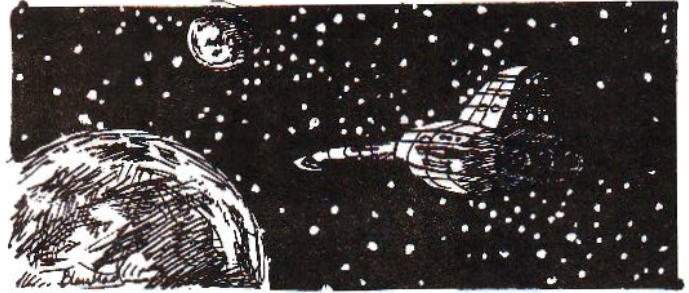
The Campaign

Adventure organization and design in FTL is the GM's choice though it is often a surprise as to where the players can take the campaign.

During the last 5 years of playtesting the systems that became FTL 2448 there were many types of groups that crossed settled space.

Listed by popularity are several examples of FTL campaigns:

```
01   THE INDEPENDENT FREIGHTER CREW
02   CORPORATE FREIGHTER CREW
03   INDEPENDENT EXPLORATION CREW
04   CORPORATE BACKED EXPLORATION GROUP
05   EMERGENCY MEDICAL RESCUE TEAM (EMR)
06   INTERSTELLAR COURT OF LAW TEAM (ICL)

07   ICL SWAT TEAMS, MARINES
08   TERRORISTS / PIRATES
09   GENERAL CRIMINALS
10   STUDENTS / HITCHHIKERS
11   COLONISTS
12   THE ULTRARICH OUT FOR ADVENTURE
```

Continuity

A campaign cannot be continuous unless the characters are continuous. This implies the players must be continuous, but this is not always the case. In circumstances where The players cannot maintain a starship crew on a regular basis, a different campaign structure is needed to promote a realistic game.

Steady Campaigners

These are the players who always show for a game, regardless of weather or unfavorable circumstance. With no difficulty, any form of campaign will work for this group.

Near-Stable Group

These are the gamers who attend the game most of the time. For this type of group a Corporate Starship "mission" or adventuring on a "per-trip" basis is necessarily easier than a full starship crew where scenarios may involve game years.

Variable Groups

With a variable group of players it is best to run a campaign where characters can enter and exit without hindrance. Police, Hitch-Hikers, and Medical Teams are best for this type of group where the management and crewing of a starship are impractical from game to game.

Metric Conversion

1	Inch	= 2.54	Centimeters
1	Inch	= 25.40	Millimeters
1	Foot	= 30.48	Centimeters
1	Yard	= .9114	Meters
1	Mile	= 1.61	Kilometers
1	Centimeter	= .3937	Inches
1	Meter	= 3.28	Feet
1	Meter	= 1.093	Yards
1	Kilometer	= .6214	Miles
1	Ounce	= 28.35	Grams
1	Pound	= 453.60	Grams
1	Gram	= 0.03553	Ounces
1	Kilogram	= 2.206	Pounds

For these conversions you will need a pocket calculator or a little patience.

Reading

The following is a list of recommended authors and specific titles that can add a wealth of knowledge to your campaign.

Burnhams Celestial Handbooks (3)	Burnham
The Telescope and the World of Astronomy	Riemer
Drama of the Universe	Abell
Communication with Extraterrestrial Intelligence	Sagen
Other Worlds than Ours	Cade
Is There Life on Other Worlds?	Anderson
Habitable Planets for Man	Dole
'too many books to mention by'	Asimov
Frontiers of Astronomy	Hoyle
Russians in Space	Riabchikov
Carrying the Fire	Collins
2000 lbs. of NASA handouts	NASA
Confrontation in Space	Stein
The Universe	Time Life

MAGAZINES

    Icarus
    Astronomy
    Sky and Telescope
    Analog
    Astounding (1949-1961)
    The Magazine of
     Fantasy and Science Fiction
    Isaac Asimov's
     Science Fiction Magizine
    Omni
    Science Digest
    Playboy

Libraries

University of Michigan Astronomy Library
Library of Congress
Kresgee Library, Oakland University
Detroit, Southfield, Farmington Libraries
National Air and Space Museum, Dr D. Devorkin
Virginia Polytechnic Univ., Dr. R Heartson
and Dr. Wilhelm Gliese, Heidelberg

The RPG Faster Than Light 2448 is based on the unpublished short novelettes "Starheat", "The Ventura Odyssey", "Anywhere But Space," and "The Laughing Starship" ⓟ 1975 by Robert Sadler and Richard Tucholka.

Software

By mid 1985 Tri Tac Inc will be selling computer programs on disk to speed use of our game and character design systems. The released software will cover all popular home computer brands and be compatable with all of our RPG's. Request information from Tri Tac Inc. after June 1st, 1985.

Utility Sheets

In the rear of FTL are utility sheets for general use. Do not remove the originals.

SHIP / SHUTTLE STATUS SHEET
A working sheet for the condition of your starship, its Engine and Phase percentages and general costs to run as well as a fuel use table for system size indexed by M planet type. Can also be used for shuttles.

CARGO MANIFEST
This is a blank cargo list for shipping.

WORLD MAP
A general map for designing other worlds.

CHARACTER / EQUIPMENT SHEETS
For designing your character.

HEX GRID
For mapping space, specific planetary area or for any general utility.

SYSTEM MAP
An 11x17 map grid to catalog, position, or see a visual representation of half of the planetary slots of a solar system. Positions of planets, debris, can be randomized, ships movement charted, and fuel costs computed. Any of a large number of game utilities can be created from this half map. Each quarter is called a quadrant.

Ben, Bells, & Quag

On Fomalhaut, Bells finds Ben in the Space Dragons Den (bar & grill) getting blasted to the gills. Without hesitation she picks up the drunk and takes him back to Quagmire's starship.

Accepting his fate and the loss of half a bottle of scotch, he is shockerd when the Trell drops a captain's hat on his chest.

While Ben and Bells will run the future crew and company, the Trell owner will run the hydroponics room.

Ben decides to stop drinking.

In the years that follow Ben, Bells, Quag, Chuckles the Dabe, Jigsaw the Vesh, Bendorf the Blox accountant, and a very motley crew prosper as they salvage and adventure across settled space.

Universal Fast Resolution

While most players and GM's enjoy detailed and realistic systems, others speed Role Play with a single, UNIVERSAL COMBAT and SITUATION CHART. For those who prefer such systems, use this Generic chart for any situation resolution. This is an option.

RAN MOD : Random Modifier, a simple (d100) roll to index against the critical difficulty or the situation for a fast answer.

SITUATION: The severity or difficulty of the situation as rated by the GM.

RAN MOD	01	02	03	04	05	06	07	08	09	10	XX
01	a	a	a	a	b	b	b	b	c	c	c
02-03	a	a	a	b	b	b	b	c	c	c	c
04-05	a	a	b	b	b	b	c	c	c	c	c
06-10	a	b	b	b	c	c	c	c	d	d	d
11-20	b	b	b	c	c	c	c	d	d	d	d
21-30	b	b	c	c	c	d	d	d	d	e	e
31-40	b	c	c	c	d	d	d	e	e	e	e
51-50	c	c	c	d	d	d	e	e	e	e	e
51-60	c	c	d	d	d	e	e	e	f	f	f
61-70	c	d	d	d	e	e	f	f	f	g	g
71-80	d	d	d	e	e	f	f	g	g	g	h
81-90	d	d	e	e	f	f	g	h	h	i	i
91-95	d	e	e	f	g	h	h	i	j	j	j
96		e	f	f	g	h	i	j	k	k	
97			e	f	g	h	i	j	k		
98				f	g	h	i	j	k		
99					g	h	i	j	k		
00						g	h	j	k	k	

Result

	COMBAT FIREARM	PHYSICAL	SKILL USE & REPAIR	PHYSICAL FEAT STR AGL DEX DOD THR	DAMAGE HPT	DAMAGE CON	BLAST/BURN
a	HIT	DEAD	PIECE OF CAKE	SIMPLE	NO	No	FAILED
b	HIT	KNOCKOUT	SIMPLE	EASY	d4	d4	FAILED
c	HIT	STUN	EASY	NO PROBLEM	d6	d6	POOFED
d	HIT	STUN/PIN	WITH WORK	WITH DETERMINATION	d10	d10	FLASHED
e	GRAZE	CONNECT	ADAQUATE	WITH DIFFICULTY	2d10	1d10	MINOR
f	GRAZE	CONNECT	NOT WELL	BADLY	3d10	2d10	LIGHT
g	MISS	GRAZE	SHABBY	VERY BADLY	5d10	2d10	MEDIUM
h	MISS	MISS	FAIL	FAIL	8d10	3d10	MAJOR
i	MISS	MISS	FAIL BADLY	BUNGLE	12d10	3d10	COMPLETE
j	FUMBLE	STUMBLE	FAIL MISERABLY	MISERABLE FAILURE	16d10	4d10	VAPORIZED
k	MISFIRE	FALL	FAIL CRITICALY	DISASTROUS FAILURE	20d10	4d10	GONE

	STUN BLOOD LOSS	EQUIPMENT	VEHICLES	INNOCENT BYSTANDERS
a	NO	FINE	FINE	DIDN'T CARE
b	NO	OK	OK	OK
c	NO	SCRATCHED	SCRATCHED	SURPRISED
d	NO	DINGED	DINGED	SHOCKED
e	NO	DENTED	DENTED	STUNNED
f	MINOR	DAMAGED	DAMAGED	UNCONSCIOUS
g	MINOR	CRITICAL	CRITICAL	HURT
h	YES	CRITICAL	TOTALLED	WOUNDED
i	YES	PIECES	PIECES	CRITICAL
j	MAJOR	JUNK	SM PIECES	MOSTLY DEAD
k	DEAD	DESTROYED	DESTROYED	DEAD

Situation Level

01 SL: NOT SERIOUS AT ALL
02 SL: NEAR MINIMALLY SERIOUS
03 SL: MINIMALLY SERIOUS
04 SL: NEAR SERIOUS
05 SL: SERIOUS
06 SL: VERY SERIOUS
07 SL: NEAR DEADLY SERIOUS
08 SL: NEAR DEADLY SERIOUS
09 SL: DEADLY SERIOUS
10 SL: TERMINALLY SERIOUS
XX SL: TERMINAL

DAMAGE MULTIPLIERS

ROLL	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00
1	0	0	0	1	1	1	1	2
2	0	1	1	2	2	3	3	4
3	0	1	2	3	3	4	5	6
4	1	2	3	4	5	6	7	8
5	1	2	3	5	6	7	8	10
6	1	3	4	6	7	9	10	12
7	1	3	5	7	8	10	12	14
8	2	4	6	8	10	12	14	16
9	2	4	6	9	11	13	15	18
10	2	5	7	10	12	15	17	20
11	2	5	8	11	13	16	19	22
12	3	6	9	12	15	18	21	24
13	3	6	9	13	16	19	22	26
14	3	7	10	14	17	21	24	28
15	3	7	11	15	18	22	26	30
16	4	8	12	16	20	24	28	32
17	4	8	12	17	21	25	29	34
18	4	9	13	18	22	27	31	36
19	4	9	14	19	23	28	33	38
20	5	10	15	20	25	30	35	40
21	5	10	15	21	26	31	36	42
22	5	11	16	22	27	33	38	44
23	5	11	17	23	28	34	40	46
24	6	12	18	24	30	36	42	48
25	6	12	18	25	31	37	43	50
26	6	13	19	26	32	39	45	52
27	6	13	20	27	33	40	47	54
28	7	14	21	28	35	42	49	56
29	7	14	21	29	36	43	50	58
30	7	15	22	30	37	45	52	60
31	7	15	23	31	38	46	54	62
32	8	16	24	32	40	48	56	64
33	8	16	24	33	41	49	57	66
34	8	17	25	34	42	51	59	68
35	8	17	26	35	43	52	61	70
36	9	18	27	36	45	54	63	72
37	9	18	27	37	46	55	64	74
38	9	19	28	38	47	57	66	76
39	9	19	29	39	48	58	68	78
40	10	20	30	40	50	60	70	80
41	10	20	30	41	51	61	71	82
42	10	21	31	42	52	63	73	84
43	10	21	32	43	53	64	75	86
44	11	22	33	44	55	66	77	88
45	11	22	33	45	56	67	78	90
46	11	23	34	46	57	69	80	92
47	11	23	35	47	58	70	82	94
48	12	24	36	48	60	72	84	96
49	12	24	36	49	61	73	85	98
50	12	25	37	50	62	75	87	100
51	12	25	38	51	63	76	89	102
52	13	26	39	52	65	78	91	104
53	13	26	39	53	66	79	92	106
54	13	27	40	54	67	81	94	108
55	13	27	41	55	68	82	96	110
56	14	28	42	56	70	84	98	112
57	14	28	42	57	71	85	99	114
58	14	29	43	58	72	87	101	116
59	14	29	44	59	73	88	103	118
60	15	30	45	60	75	90	105	120
61	15	30	45	61	76	91	106	122
62	15	31	46	62	77	93	108	124
63	15	31	47	63	78	94	110	126
64	16	32	48	64	80	96	112	128
65	16	32	48	65	81	97	113	130
66	16	33	49	66	82	99	115	132
67	16	33	50	67	83	100	117	134
68	17	34	51	68	85	102	119	136
69	17	34	51	69	86	103	120	138

DAMAGE MULTIPLIERS (CONTINUED)

ROLL	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00
70	17	35	52	70	87	105	122	140
71	17	35	53	71	88	106	124	142
72	18	36	54	72	90	108	126	144
73	18	36	54	73	91	109	127	146
74	18	37	55	74	92	111	129	148
75	18	37	56	75	93	112	131	150
76	19	38	57	76	95	114	133	152
77	19	38	57	77	96	115	134	154
78	19	39	58	78	97	117	136	156
79	19	39	59	79	98	118	138	158
80	20	40	60	80	100	120	140	160
81	20	40	60	81	101	121	141	162
82	20	41	61	82	102	123	143	164
83	20	41	62	83	103	124	145	166
84	21	42	63	84	105	126	147	168
85	21	42	63	85	106	127	148	170
86	21	43	64	86	107	129	150	172
87	21	43	65	87	108	130	152	174
88	22	44	66	88	110	132	154	176
89	22	44	66	89	111	133	155	178
90	22	45	67	90	112	135	157	180
91	22	45	68	91	113	136	159	182
92	23	46	69	92	115	138	161	184
93	23	46	69	93	116	139	162	186
94	23	47	70	94	117	141	164	188
95	23	47	71	95	118	142	166	190
96	24	48	72	96	120	144	168	192
97	24	48	72	97	121	145	169	194
98	24	49	73	98	122	147	171	196
99	24	49	74	99	123	148	173	198
100	25	50	75	100	125	150	175	200
101	25	50	75	101	126	151	176	202
102	25	51	76	102	127	153	178	204
103	25	51	77	103	128	154	180	206
104	26	52	78	104	130	156	182	208
105	26	52	78	105	131	157	183	210
106	26	53	79	106	132	159	185	212
107	26	53	80	107	133	160	187	214
108	27	54	81	108	135	162	189	216
109	27	54	81	109	136	163	190	218
110	27	55	82	110	137	165	192	220
111	27	55	83	111	138	166	194	222
112	28	56	84	112	140	168	196	224
113	28	56	84	113	141	169	197	226
114	28	57	85	114	142	171	199	228
115	28	57	86	115	143	172	201	230
116	29	58	87	116	145	174	203	232
117	29	58	87	117	146	175	204	234
118	29	59	88	118	147	177	206	236
119	29	59	89	119	148	178	208	238
120	30	60	90	120	150	180	210	240
121	30	60	90	121	151	181	211	242
122	30	61	91	122	152	183	213	244
123	30	61	92	123	153	184	215	246
124	31	62	93	124	155	186	217	248
125	31	62	93	125	156	187	218	250
126	31	63	94	126	157	189	220	252
127	31	63	95	127	158	190	222	254
128	32	64	96	128	160	192	224	256
129	32	64	96	129	161	193	225	258
130	32	65	97	130	162	195	227	260
131	32	65	98	131	163	196	229	262
132	33	66	99	132	165	198	231	264
133	33	66	99	133	166	199	232	266
134	33	67	100	134	167	201	234	268
135	33	67	101	135	168	202	236	270
136	34	68	102	136	170	204	238	272
137	34	68	102	137	171	205	239	274
138	34	69	103	138	172	207	241	276

70 Near Stars

This is a map of (70) real stars in their actual positions within 15 light years of Earth.

SP = Spectral Class of the Star

GALACTIC COORDS
Mapping by the longitudinal plane of the galaxy is used with the Z axis parallel to the North-South axis of the galaxy.
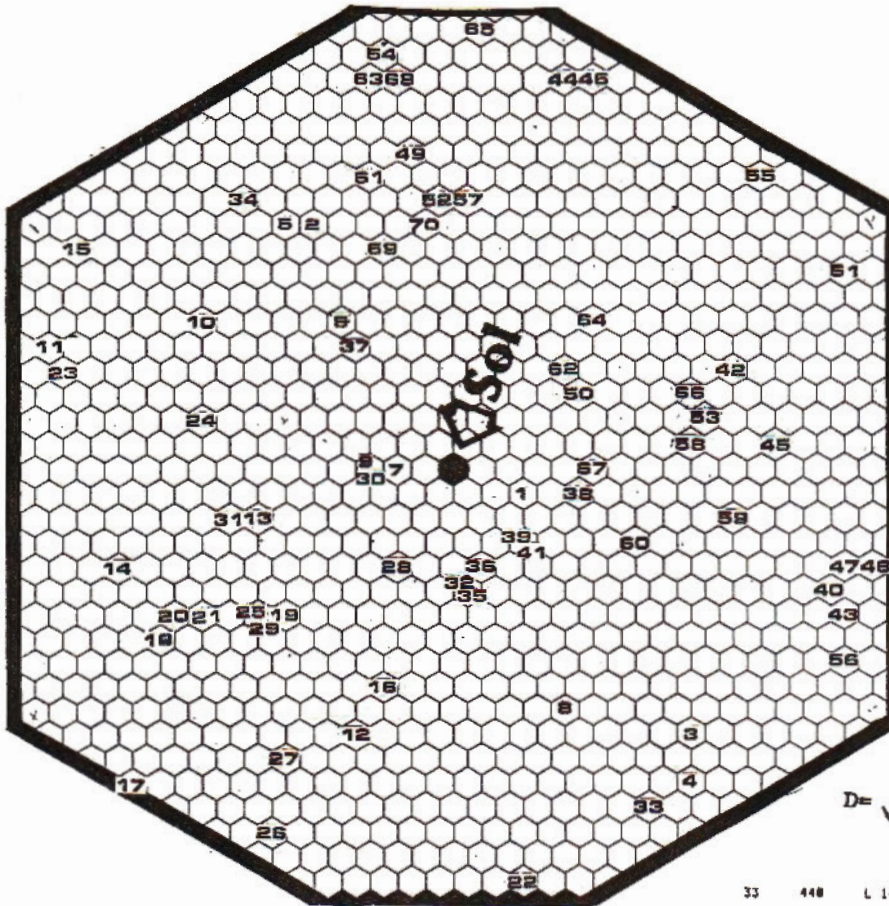
LOCAL COORDS
Local coords are the Galactic Coords with the center (0,0,0) at the exact center of the local hex instead of the Earth's sun. This transformation makes finding a star within a hex easier.

DISTANCE BETWEEN STARS
Use a calculator to follow the formula below.

A= Coords of your location.
B= Coords of your destination.
D= Distance

$$D= \sqrt{(X_A - X_B)^2 + (Y_A - Y_B)^2 + (Z_A - Z_B)^2}$$

No.	Gliese Number	Name of Star	SP	Galactic Coords X	Y	Z	Local Coords X	Y	Z
1	1	DM-37 15492	M4	3	-1	-14	3	-1	-14
2	15A	DM+43 44A	M1	-5	10	-4	-5	10	-4
2a	15B	DM+43 44B	M6	-5	10	-4	-5	10	-4
3	17	Zeta Tucanae	G2	9	-11	-18	9	-11	-18
4	19	Beta Hydri	G1	9	-13	-13	9	-13	-13
5	33	DM+ 4 123	K2	-6	10	-19	-6	10	-19
6	35	VAN MAANEN 2	B	-4	6	-11	-4	6	-11
7	65A	L 726-8	M5.5	-2	0	-9	-2	0	-9
7a	65B	UV Ceti	M5.5	-2	0	-9	-2	0	-9
8	66A	P Eridani	K2	4	-10	-18	4	-10	-18
8a	66B	DM-56 328	K5	4	-10	-18	4	-10	-18
9	71	Tau Ceti	G8	-3	0	-11	-3	0	-11
10	83.1	L 1159-16	M8	-9	6	-11	-9	6	-11
11	105A	DM+ 6 398A	K3	-15	5	-17	-15	5	-17
11a	105B	DM+ 6 398B	M4	-15	5	-17	-15	5	-17
12	139	82 Eridani	B5	-4	-11	-17	-4	-11	-17
13	144	Epsilon Eridani	K2	-7	-2	-8	-7	-2	-8
14	166A	Omicron (2) Eridani	K1	-12	-4	-18	-12	-4	-18
14a	166B	BM- 7 781A	A	-12	-4	-18	-12	-4	-18
14b	166C	BM- 7 781B	M4.5	-12	-4	-18	-12	-4	-18
15	169.1A	AC+50 25001	M4	-14	9	2	-14	9	2
15a	169.1B	AC+50 25002	?	-14	9	2	-14	9	2
16	191	DM-45 1841	M0	-3	-9	-7	-3	-9	-7
17	229	DM-21 1377	M1	-12	-13	-6	-12	-13	-6
18	234A	ROSS 614A	M7	-11	-7	-1	-11	-7	-1
18a	234B	ROSS 614B	M7	-11	-7	-1	-11	-7	-1
19	244A	Sirius A	A1	-6	-6	-1	-6	-6	-1
19a	244B	Sirius B	A	-6	-6	-1	-6	-6	-1
20	273	DM+ 5 1668	M5	-10	-6	2	-10	-6	2
21	280A	Procyon A	F5	-9	-6	3	-9	-6	3
21a	280B	Procyon B	F	-9	-6	3	-9	-6	3
22	293	L 97-12	?	3	-17	-6	3	-17	-6
23	330A	DM+53 1320	M0	-14	4	13	-14	4	13
23a	330B	DM+53 1321	M0	-14	4	13	-14	4	13
24	380	DM+58 1728	K7	-9	2	12	-9	2	12
25	388	DM+20 2465	M4.5	-7	-6	13	-7	-6	13
26	393	DM+ 1 2447	M2	-7	-15	10	-7	-15	10
27	402	WOLF 358	M5	-6	-12	19	-6	-12	19
28	406	WOLF 359	M8	-2	-4	6	-2	-4	6
29	408	AC+23 468-46	M3	-7	-6	19	-7	-6	19
30	411	DM+36 2147	M2	-3	0	7	-3	0	7
31	412A	DM+44 2051	M2	-8	2	16	-8	2	16
31a	412B	WX Ursae Majoris	M8	-8	2	16	-8	2	16
32	416.1	Beta Crateris	A2	0	-5	6	0	-5	6
33	440	L 145-141	?	7	-14	-1	7	-14	-1
34	445	AC+79 3888	M4	-8	11	10	-8	11	10
35	447	ROSS 128	M5	0	-5	9	0	-5	9
36	473A	WOLF 424A	M5.5	1	-4	13	1	-4	13
36a	473B	WOLF 424B	M5.5	1	-4	13	1	-4	13
37	477.1	DM+46 1797	K4	-4	5	19	-4	5	19
38	526	DM+15 2620	M4	5	-1	15	5	-1	15
39	551	Proxima Centauri	M5	3	-3	0	3	-3	0
40	555	DM-11 3759	M4	14	-5	14	14	-5	14
41	559A	Alpha Centauri A	G2	3	-3	0	3	-3	0
41a	559B	Alpha Centauri B	K0	3	-3	0	3	-3	0
42	566A	Xi Bootis A	G8	10	4	19	10	4	19
42a	566B	Xi Bootis B	K4	10	4	19	10	4	19
43	570A	DM-20 4125	K5	14	-6	10	14	-6	10
43a	570B	DM-20 4123	M2	14	-6	10	14	-6	10
44	623	AC+48 1595-89	M3	4	16	16	4	16	16
45	620	DM-12 4523	M5	12	1	5	12	1	5
46	661A	DM+45 2505A	M3	5	16	12	5	16	12
46a	661B	DM+45 2505B	M3.5	5	16	12	5	16	12
47	674	DM-46 11540	M4	14	-4	-2	14	-4	-2
48	682	DM-44 11909	M5	15	-4	-2	15	-4	-2
49	687	DM+68 946	M3.5	-2	13	0	-2	13	0
50	699	Barnard's Star	M5	5	3	1	5	3	1
51	702A	DM+ 2 3482A	K0	14	0	3	14	0	3
51a	702B	DM+ 2 3482B	K5	14	0	3	14	0	3
52	725A	DM+59 1915A	M4	0	11	5	0	11	5
52a	725B	DM+59 1915B	M5	0	11	5	0	11	5
53	729	AC-24 2833-183	M4.5	9	2	-2	9	2	-2
54	764	Sigma Draconis	K0	-3	17	7	-3	17	7
55	768	Altair	A7	11	12	-3	11	12	-3
56	780	Delta Pavonis	G8	14	-8	-10	14	-8	-10
57	820A	61 Cygni A	K5	1	11	-1	1	11	-1
57a	820B	61 Cygni B	K7	1	11	-1	1	11	-1
58	825	DM-39 14192	M0	9	1	-9	9	1	-9
59	832	DM-49 13515	M1	10	-2	-11	10	-2	-11
60	845	Epsilon Indi	K5	7	-3	-8	7	-3	-8
61	860A	DM+56 2783	M3	-3	12	0	-3	12	0
61a	860B	BD Cephei	M4.5	-3	12	0	-3	12	0
62	866	L 789-6	M7	4	4	-9	4	4	-9
63	873	DM+43 4305	M4.9	-3	16	-4	-3	16	-4
64	876	DM-15 6290	M5	5	6	-13	5	6	-13
65	880	DM+15 4733	M2	1	10	-14	1	10	-14
66	881	Fomalhaut	A3	9	3	-20	9	3	-20
67	887	DM-36 15693	M2	5	0	-11	5	0	-11
68	896A	DM+19 5116A	M4	-2	16	-13	-2	16	-13
68a	896B	DM+19 5116B	M6	-2	16	-13	-2	16	-13
69	905	ROSS 248	M6	-3	9	-3	-3	9	-3
70	908	DM+ 1 4774	M2	-1	10	-16	-1	10	-16

FTL 2448

NAME _____ COUNTRY _____ RACE _____

OCCUPATION _____ MILITARY _____ EXPERIENCE _____ LEV ____

WORLD _____

STR _____ INT _____ THR _____ PSI _____ SEX _____ HPT _____

CON _____ WIZ _____ DOD _____ HEIGHT _____ AGE _____ 75% _____

DEX _____ LCK _____ ACC _____ WEIGHT _____ BLOOD TYPE ____ 50% _____

AGL _____ CRZ _____ MCD _____ HANDED   L or R   25% _____

Skills

SKILL	LEVEL	SKILL	LEVEL
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____		

Combat

Punch or Kick _____

Light _____

Medium _____

Heavy _____

_____

Martial Arts

Passive Defense _____

Passive Offense _____

Active Defense _____

Active Offense _____

Style of Art _____

Language

_____

_____

_____

_____

Equipment

_____
_____
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Armor

A
B
C
D
E E
F F

_____
_____
_____
_____
_____

Weapons

_____

ROF	AMO	PB	VS	SH	ME	LO	EX
ROL	CYC						
CAP	WTE	EFFECTIVE				EX+	
CIR	MIS						
HSM	KDM	SPECIAL					

_____

ROF	AMO	PB	VS	SH	ME	LO	EX
ROL	CYC						
CAP	WTE	EFFECTIVE				EX+	
CIR	MIS						
HSM	KDM	SPECIAL					

Cargo Log

NUMBER OF CARGO CANS	SPECIFIC CARGO TYPE	CARGO FROM	CARGO TO	PRICE OF TRANSPORT

SHIP NAME   TYPE   OWNER   REG #

Ship Data

FUEL TYPE _____

TANKAGE _____

AUX TANKS _____

WORKING DRIVE % A ☐ B ☐ C ☐ D ☐ PHASE TYPE _____

WORKING PHASE % A ☐ B ☐ C ☐ D ☐ TIME PER LIGHT YEAR _____

CREW ROSTER

NAME	RACE	POSITION	SALARY
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

MAX CARGO _____

PASSENGERS _____

CRYO TUBES _____

SHUTTLES _____

WORK PODS _____

LANDERS _____

VEHICLES _____

_____

_____

_____

_____

_____

Shuttle

SHUTTLE ENGINE A ☐ B ☐ C ☐ D ☐ SHUTTLE TANKAGE ☐

CARGO CANS ____ _____ _____ _____

_____ _____ _____

_____ _____ _____

Star

A Zone

B Zone
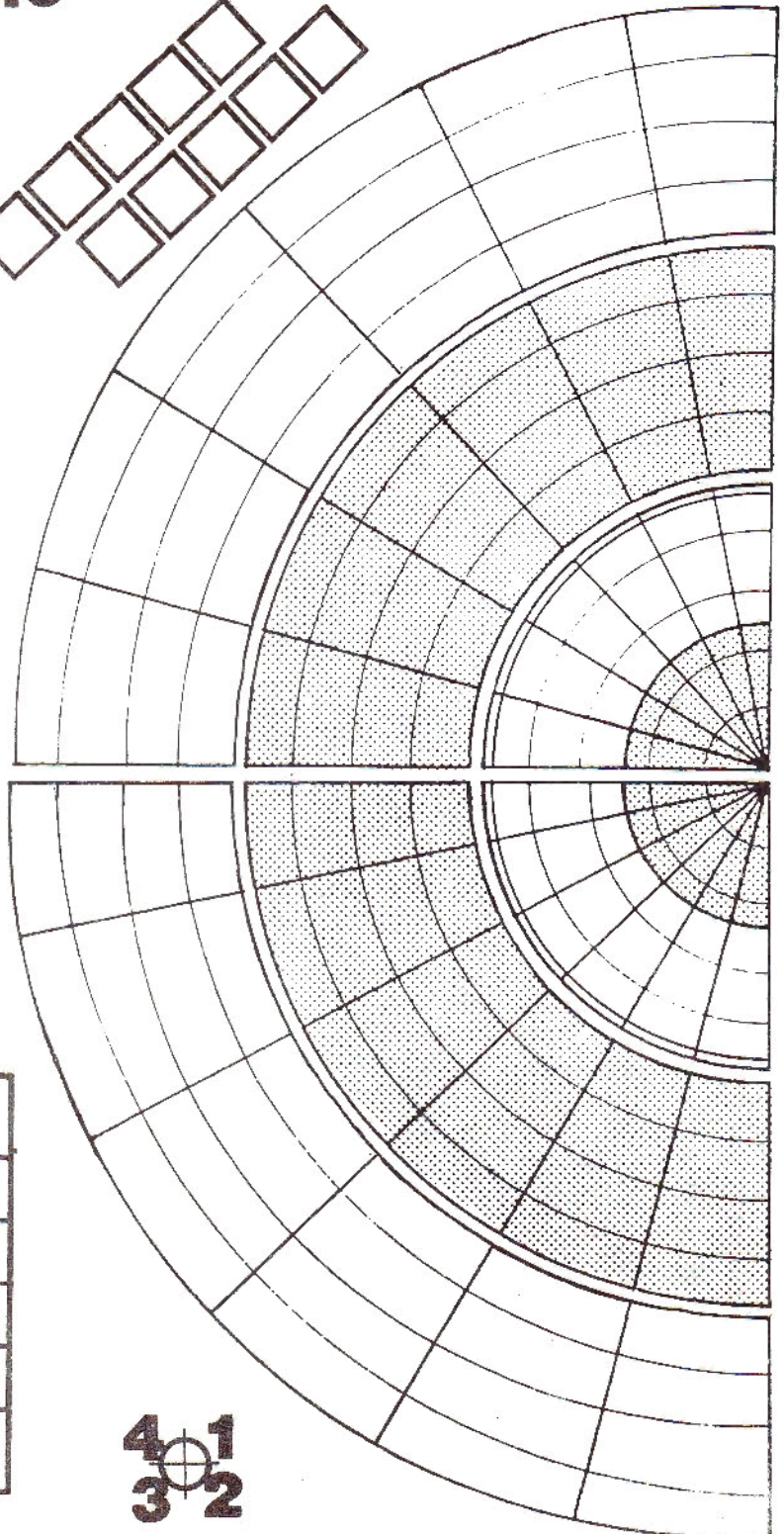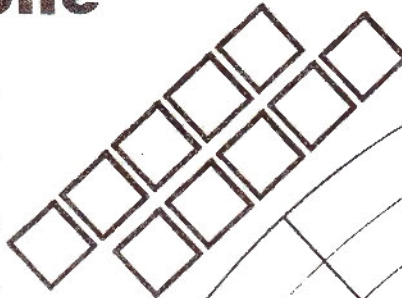
System Specials

4 1
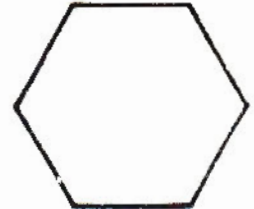3 2

C Zone □□□□□□□□□□□
□□□□□□□□□□□

D Zone □□□□□□□□□□□
□□□□□□□□□□□
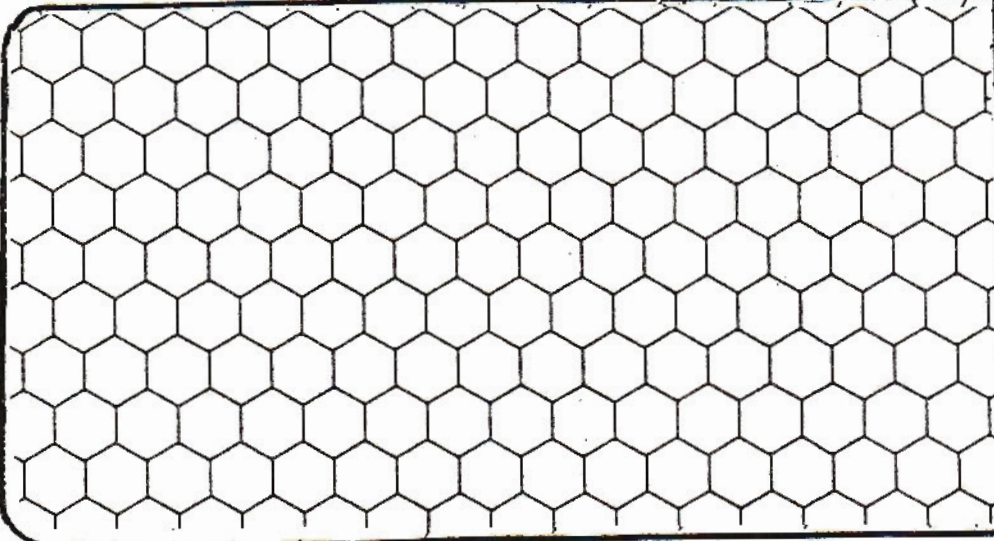
4 1
3 2

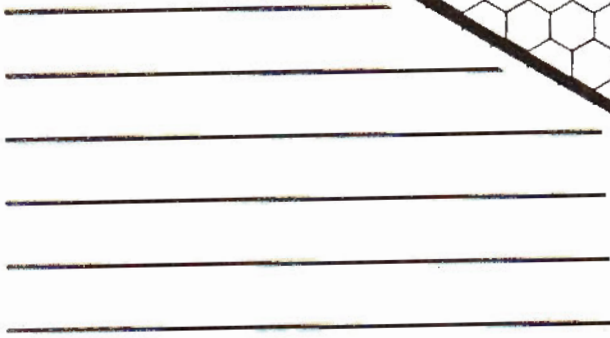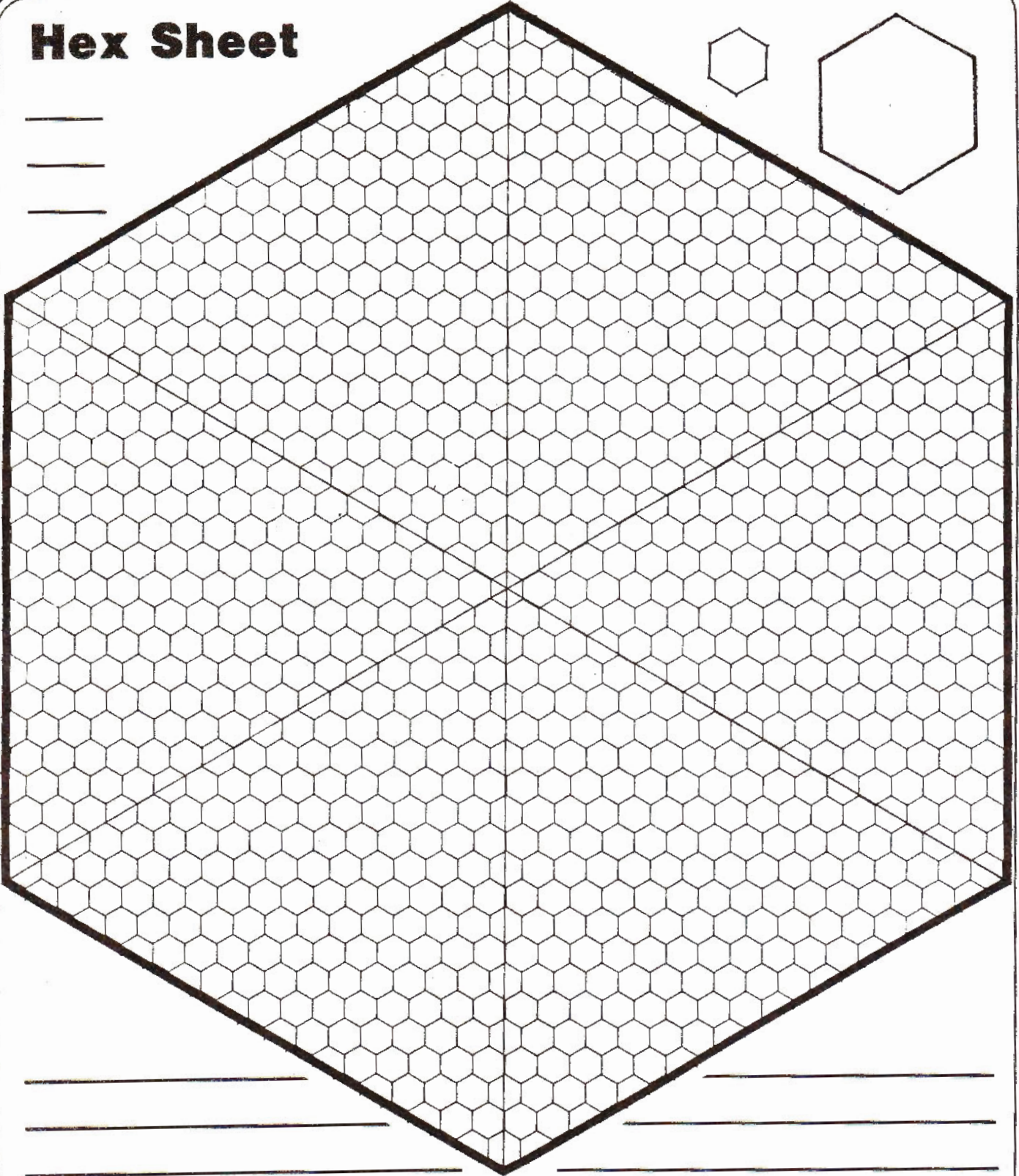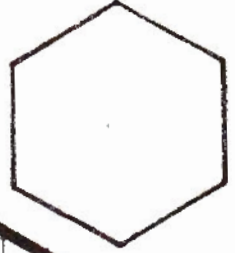# World Sheet
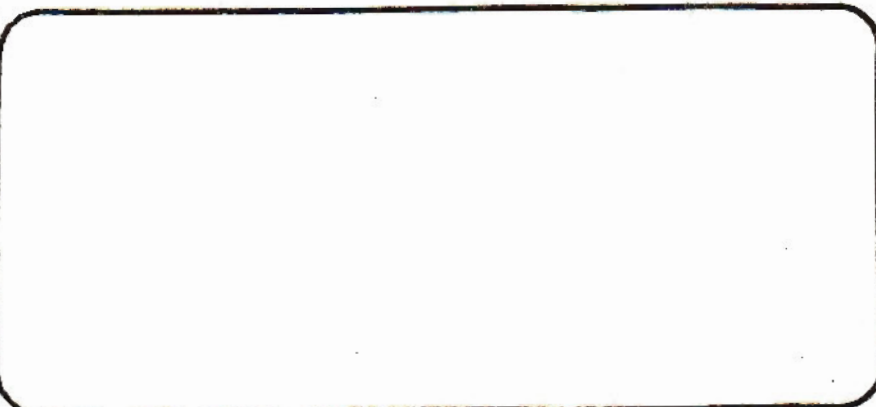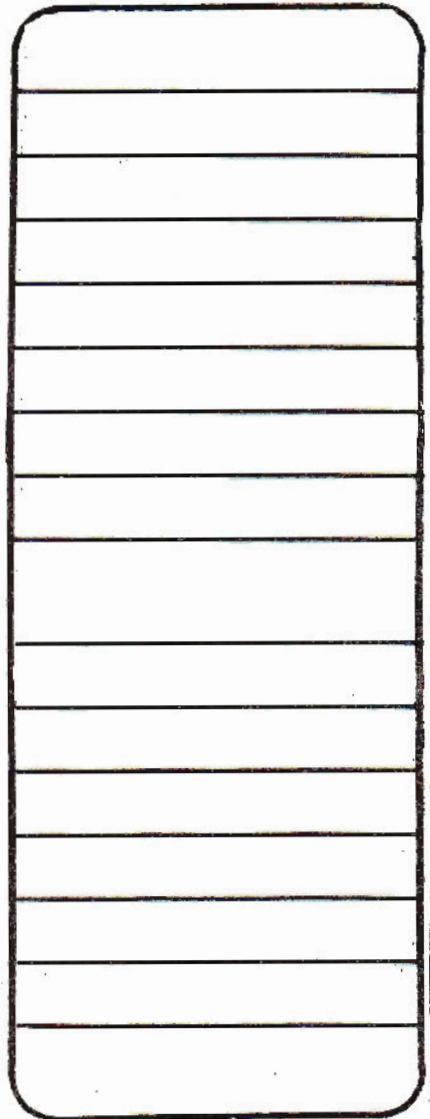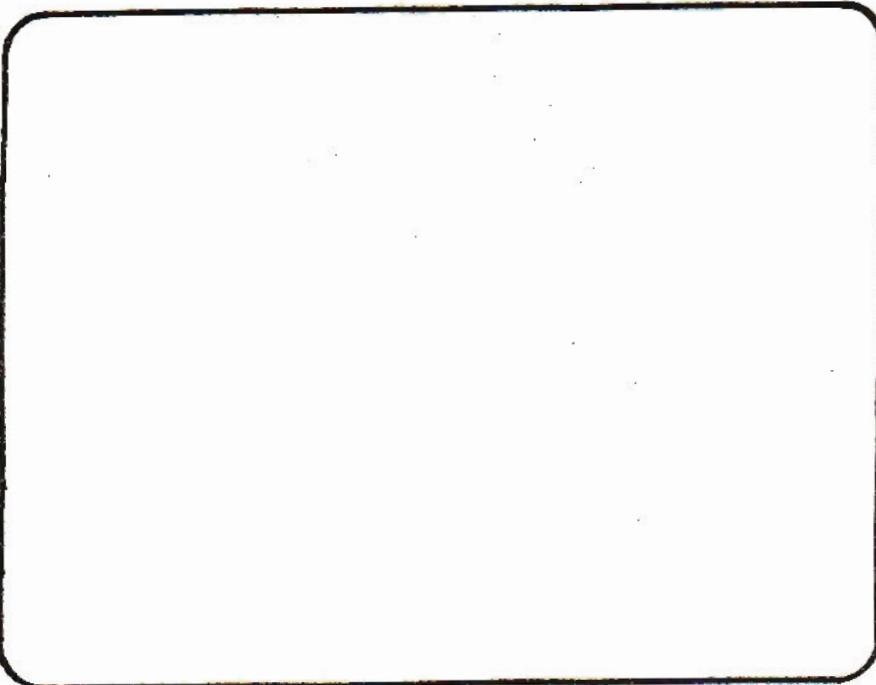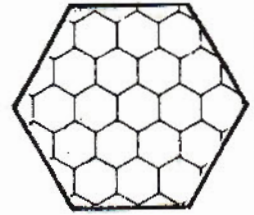
Hex Sheet

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2448

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