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2300AD™

Equipment Guide

Lester W. Smith

GDW

Humanity's Tools For Survival

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2300AD

Since 1973

GDW

The Equipment Guide is a sourcebook for the **2300 AD** science-fiction role-playing game, detailing the uses and statistics of equipment available in the world of the future.

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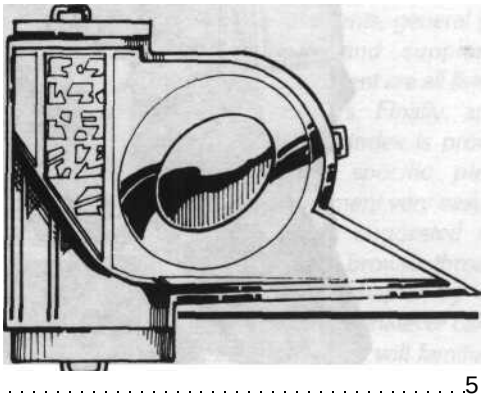
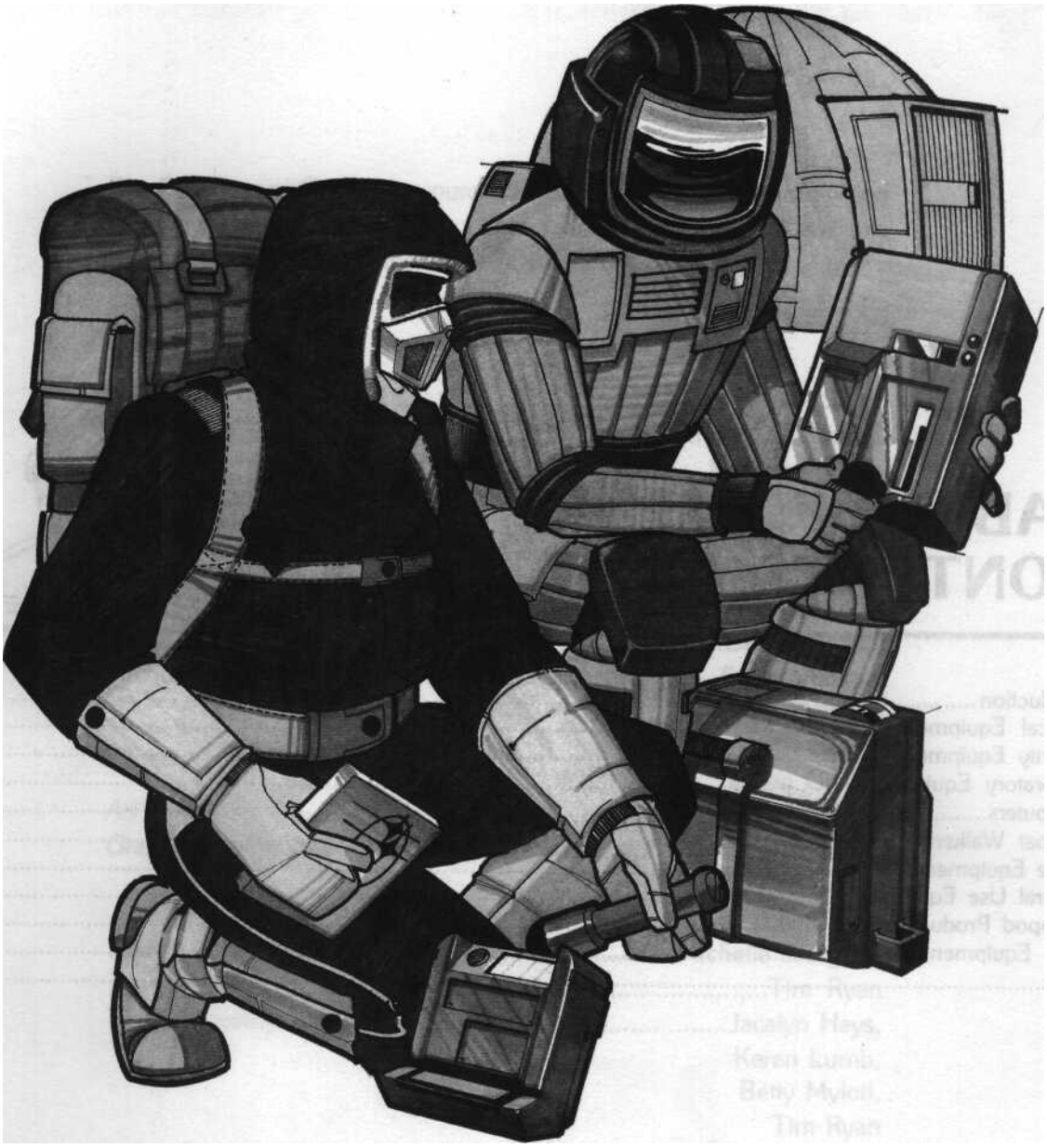
TABLE OF CONTENTS





Introduction

The 2300 AD Equipment Guide is an informative guide to the equipment available in the role-playing setting of **2300 AD.** In this book, you will find all sorts of gear, from resupply packages for a basic first aid kit to the anagathic regimen, from simple mechanical locks to sophisticated retina scanners. All are described in detail (many with related tasks listed in the sidebars), and all are fully illustrated.

This guide is designed to be an aid for play. For that reason, care has been taken to include those items that would be useful during an adventure. Essential statistics for their use are given in a standard format. Text descriptions focus not only on how the equipment works, but also on how it fits into the world of the future. The equipment is divided into logical chapters so the reader can easily find the type of equipment that interests him, and an index is included as well so individual pieces can be located quickly. Finally, to prevent the *reader* from having to switch back and forth between this guide and the equipment listing in the *Adventurer's Guide,* all of that equipment is listed here as well, much of it with expanded descriptions.

What you will not find in this guide are vehicle listings and purely combat weapons, although many of the items described here can be pressed into service in one or another of these capacities, if necessary.

The Equipment Guide is intended to be used by both player and referee. For players, the lucid descriptions and beautiful illustrations will help to flesh out the world that is **2300 AD.** For the referee, helpful information, such as where some of the items are available, new rules and task statements of how items are to be used, and the basic statistics listed for each item, will aid in making adventures in 2300 AD run smoothly. And it is a sure bet that many of the items listed in this book will also serve as a spur to the referee's imagination, suggesting new adventures to be run.

This sourcebook is divided into the following chapters:

- This "Introduction" which gives a brief description of the guide.
- "Medical Equipment" lists various pieces of medical gear and types of Pharmaceuticals available to the player characters, with information concerning the mechanics of their use during play.
- "Security Equipment" describes locks, alarms, bugs, electronic countermeasures, and other equipment used to protect valuable items and information, or to circumvent such protection.
- "Exploratory Equipment" details survival gear, sensors, oceanographic equipment, and other gear needed by research teams (and others) when exploring unknown geographical regions.
- "Computer Equipment" lists equipment from starship computer stations to subdermal calculators and computers.
- "Combat Walkers" includes two brand new versions and expanded rules for combat with these items.
- "Space Equipment" describes of P-suits, EVA propulsion units, safety gear, repair equipment, and escape pods.
- "Pentapod Analogues" describes all sorts of items, some of which are very useful, while others are less so, that have been created by these masters of bioengineering.
- "Kafer Equipment" describes the enigmatic pieces of equipment found among the remains of various Kafer forces, with explanations of their workings, if known, and guesses as to what their purposes might be. (The *referee* is *referred* to the **Kafer Sourcebook** for the full secrets of those items listed in this chapter.)
- An "Index" makes each piece of equipment easy to find.

With this **Equipment Guide,** the *referee* will find it much simpler to run adventures in the world of the future (as always, the *referee* is free to adapt the information listed here, where desired, to make it fit his own campaign perfectly). Players will better know what the technology of **2300 AD** is capable of. Player characters will be better equipped to journey through space, visiting alien worlds, facing down the enemies of humankind, and firming humanity's first tenuous grip upon the stars.

HOW TO USE THIS SOURCEBOOK

The 2300 AD Equipment Guide *is organized into chapters, separating the equipment into logical blocks of information. Most equipment pieces* are *described in the main blocks of text within those chapters. Rules, task statements, general information, and supplementary equipment are all listed in the sidebars. Finally, an alphabetical index is provided to make specific pieces of equipment very easy to find.*

It is suggested that the reader browse through this book, chapter by chapter, reading whatever catches his eye. This will familiarize the reader with the book's contents. A second, more thorough reading will fill in those gaps left from the first reading. After that, the reader need only refer to the index to find specific items when desired.

Medical Equipment

Task: *To resuscitate a dead person: Difficult. Medical and automed. 30 seconds.*

Referee: *Requires surgical hospital and surgeon, or automed and operator. If the task is instead performed with a Medkit, the task difficulty is increased one level, and the time roll is doubled.*

Task: *To stabilize a serious wound: Routine. Medical and Automed. 90 seconds.*

Referee: See referee's note above.

Task: *To heal one light wound and/or one shock point: Routine. Medical and automed. Absolute (1 day).*

Referee: *Requires at least one hour of attention per light wound and/or shock point per day. Patient requires bed rest and proper meals. If the task is done with a Medkit instead of an automed, the task difficulty is increased one level, and the time required is doubled.*

Task: *To avoid the side effects of Bounce: Routine. Endurance. Instant.*

Referee: If the character fails this roll, he suffers limb paralysis until the drug wears off normally. For each dose over two taken in a 24-hour period, increase the task difficulty one level.

Task: *To avoid the side effects of Herc: Difficult. Endurance. Instant.*

Referee: For each dose over one, increase the task difficulty one level. If the roll is failed, the character suffers muscle spasms equivalent to 1D6 light wounds per dose taken.

Technology is a sword that cuts two ways. In the 24th century, it has given humanity more lethal weapons and the capability to reach new and dangerous worlds, but it has also provided advances in medicine to help combat those dangers.

Medkit: The Medkit is a portable first-aid kit containing limited diagnostic equipment, spray-on bandages, and autoinjectors of antishock, antitoxin, antibiotic, stimulant, and anesthetic drugs. Given Medical or First Aid skill, the Medkit contains equipment needed to diagnose and treat minor injuries and stabilize serious conditions. (See the tasks in the sidebar.) A Medkit contains enough materials for 20 uses. Each light wound treated counts as one use; each shock point treated counts as three uses, and each resuscitation counts as eight uses. *Weight:* 1 kg *Price:* Lv500

Medkit Resupply Package: A Medkit resupply package is used to *replace* Medkit materials that have been used up. Each resupply package replaces five uses worth of materials. *Weight:* 200 g *Price:* Lv100

Lightweight Automed: Portable and inexpensive, the lightweight automed is popular with emergency teams and is often used in large numbers for disaster relief. It has all the capabilities of a static automed (see below), but is intended only for temporary care. (See the tasks in the sidebar.) The medical supplies carried in a lightweight automed can maintain a patient for an average of 24 hours before resupply is necessary. The batteries run for approximately 10 hours of operation.

A lightweight automed's batteries can be recharged wherever normal electrical power is available. Its medical supplies can be resupplied at any medical facility containing static automeds. *Weight:* 300 kg *Med Skill:* 1 *Price:* Lv2000

Static Automed: The static automed is a large, immobile piece of equipment designed for long-term care of a patient and, as such, requires permanent emplacement in a hospital ward (such as on a starship). With the static automed, a patient's condition can be accurately diagnosed and treated over a long period of time. (See the tasks in the sidebar.) This piece of equipment runs off the power supply of the facility in which it is emplaced, but in the event of a power outage, it does contain 12 hours worth of emergency battery power. *Weight:* 1000 kg *Med Skill:* 3 *Price:* Lv8000

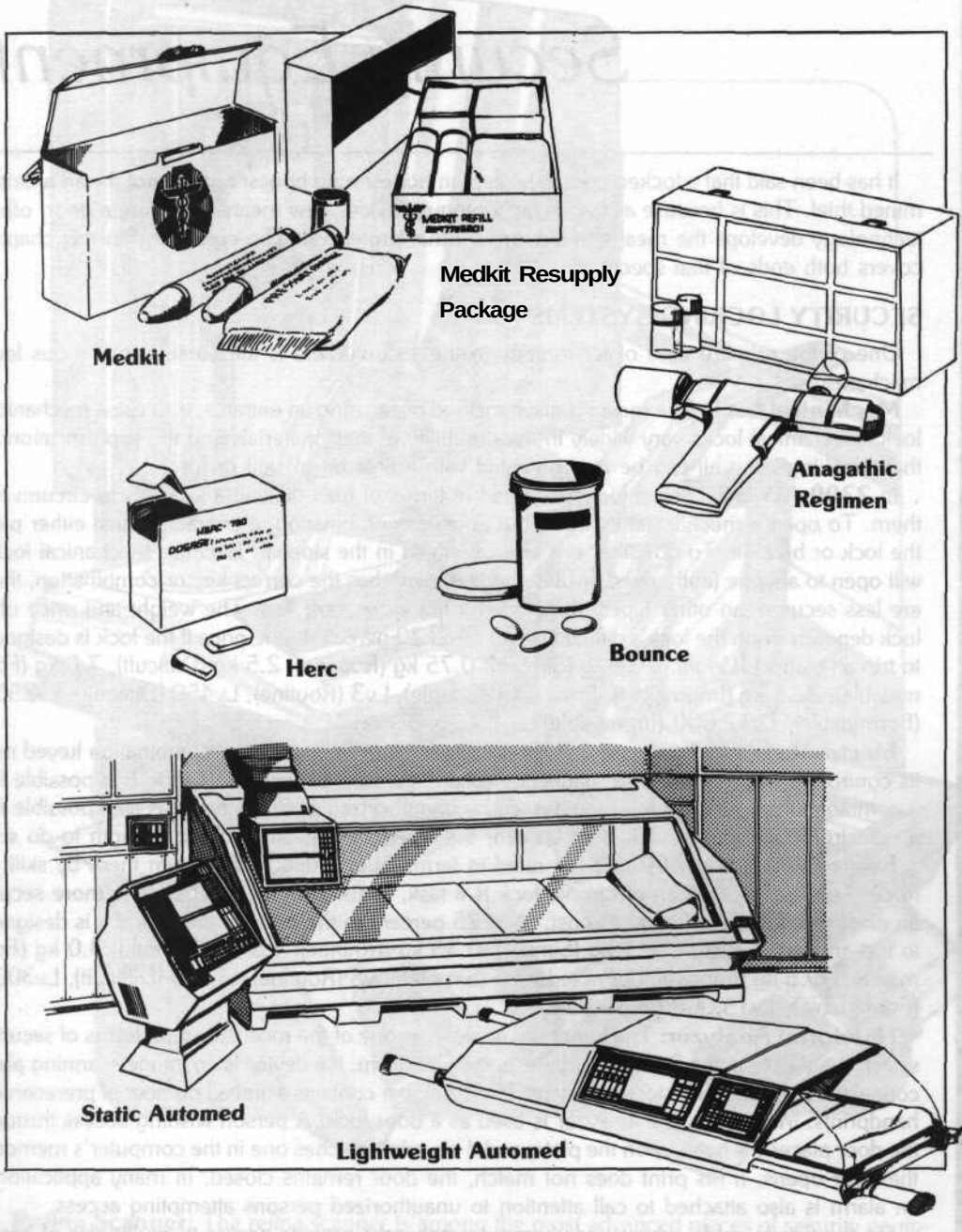
Bounce: Bounce is a drug used primarily by people operating in zero-G environments. Its effect is to counteract the reduction of dexterity experienced by those operating in a lower gravity than that of their native world. A character using Bounce treats each gravity level as if it were one higher than it is: *Zero-G* is treated as if it were low-G, low-G as if it were normal-G, and normal-G as if it were high-G. The effects of each dose last an average of 10 hours (roll 3D6 for duration).

Multiple doses of Bounce can be taken in a 24-hour period to further counteract the effects of gravity upon dexterity or to extend the drug's duration, but side effects are not uncommon in such cases. The most common side effect is a short-term paralysis, lasting until the drug wears off. When taking more than one dose of Bounce in a 24-hour period, a character should roll the task in the sidebar. *Weight:* Insignificant *Price:* Lv20 for five doses (available only at the space facilities of major colony worlds)

Herc: Herc is a drug made popular by physical laborers, and it has also been used on occasion by ground military forces. Each dose of the drug increases a character's strength by five points for a period of approximately seven hours (roll 2D6 for duration), after which time the user must rest (do nothing more strenuous than walking unencumbered) for an equivalent period of time. For example, if the drug's effect lasts for three hours, the character must rest afterwards for three hours.

If the rest period is ignored, or if multiple doses of the drug are taken in a 24-hour period, the character risks painful muscle spasms and possible permanent damage (roll for the task in the sidebar). *Weight:* Insignificant *Cost:* Lv100 per 10 doses

Anagathic Regimen: The anagathic regimen is a series of chemical treatments that slow



the physical effects of aging. In most patients, the aging process is slowed one-half or even one-third normal, theoretically doubling or tripling the adult life span. But the procedure is new enough (approved for public use in 2264) that long-term data does not yet exist. The anagathic regimen is very expensive; only the very wealthy can afford to maintain it for long periods of time.

Each anagathic treatment remains effective for an average of six months, during which time the subject ages approximately two months. When a character undergoes his first anagathic treatment, roll 2D6- 1 for the number of months that the treatment will remain in effect, then roll 1D6 - 1 for the number of months aged during that period. The effects of any future treatments will be identical. (It should be noted that in 0.5 percent of the population the anagathic regimen has no effect, and in 1.9 percent it actually speeds the aging process.) Once the duration of an anagathic treatment's effects has expired, no further effects will occur unless another treatment is taken.

Anagathic treatments are only available in major cities on Earth and Tirane. *Price:* Lv85,000 per treatment

THE EFFECTS OF AGING

If you are keeping track of the passage of game years in your campaign, you will want to note the effect of aging upon characters. To do so, the following task roll should be made every 10 years, beginning at age 40.

Task: *To resist aging: Routine. Endurance. Instant.*

Referee: The difficulty of this task increases one level for each W years over age 40. Roll once for each physical attribute except size. If the task is failed, the attribute in question decreases by one point. If an attribute reaches zero, the character dies of aging.

For example, Mike Rush, a 50-year-old character with an endurance of 16, is checking for aging effects on his strength of 6. His task is Difficult. He has an endurance modifier of 4, and he rolls a 5 for a total of 9, one point less than he needed; his strength drops to 5.

If the referee desires, Psychological attributes can be checked in the same way, beginning at age 60. If education is reduced, consider the reduction to be the result of memory loss and reduce one skill (player's choice) by one level for each point of education lost.

Security Equipment

Task: *To pick a mechanical lock (Unskilled): Variable. Security Systems or one-half Mechanical. 3 seconds.*

Referee: *To pick a mechanical lock, a character must have a locksmith kit. A slim tool such as a heavy wire may be substituted, but the task difficulty increases by one level.*

Task: *To break a mechanical lock (Unskilled): Variable. Strength. 7 second.*

Referee: To break a mechanical lock, a character must have some sort of striking or prying tool, such as a hammer or crowbar, at hand.

Task: *To pick an electronic lock: Variable. Security Systems and Electronic. 5 seconds.*

Referee: *If the character does not have Electronic skill, increase the difficulty by one level; if he does not have Security Systems, increase the difficulty by two levels. To pick the lock, the character must have an electronic security systems kit. Other electronic tools may be substituted, but the task difficulty increases by one level.*

Task: To break open an electronic lock: Variable. One-half Strength. 2 seconds.

It has been said that a locked door will keep an honest man honest but will not thwart a determined thief. This is because as fast as technology provides new means to secure a door, other technology develops the means to circumvent that protection. The equipment in this chapter covers both ends of that spectrum.

SECURITY LOCKING SYSTEMS

One of the primary uses of technology in the security field is the creation of various lock mechanisms.

Mechanical Lock: The most primitive method of securing an entrance is to use a mechanical lock. Mechanical locks vary widely in the durability of their materials and the sophistication of their workings, but all can be circumvented with a little bit of skill or force.

In 2300 AD, mechanical locks are rated in terms of how difficult a task it is to circumvent them. To open a mechanical lock without a key or combination, a character must either pick the lock or break it. To do either is a task, as stated in the sidebar. Because mechanical locks will open to anyone (authorized or unauthorized) who has the correct key or combination, they are less secure than other types of locks, and therefore, cost less. The weight and price of a lock depends upon the lock's difficulty level. (Add 20 percent to the price if the lock is designed to trip an alarm.) *Weight:* 0.25 kg (Simple), 0.75 kg (Routine), 2.5 kg (Difficult), 7.0 kg (Formidable), 22.5 kg (Impossible), *Price:* Lv1 (Simple), Lv3 (Routine), Lv450 (Difficult), Lv2500 (Formidable), Lv12,000 (Impossible)

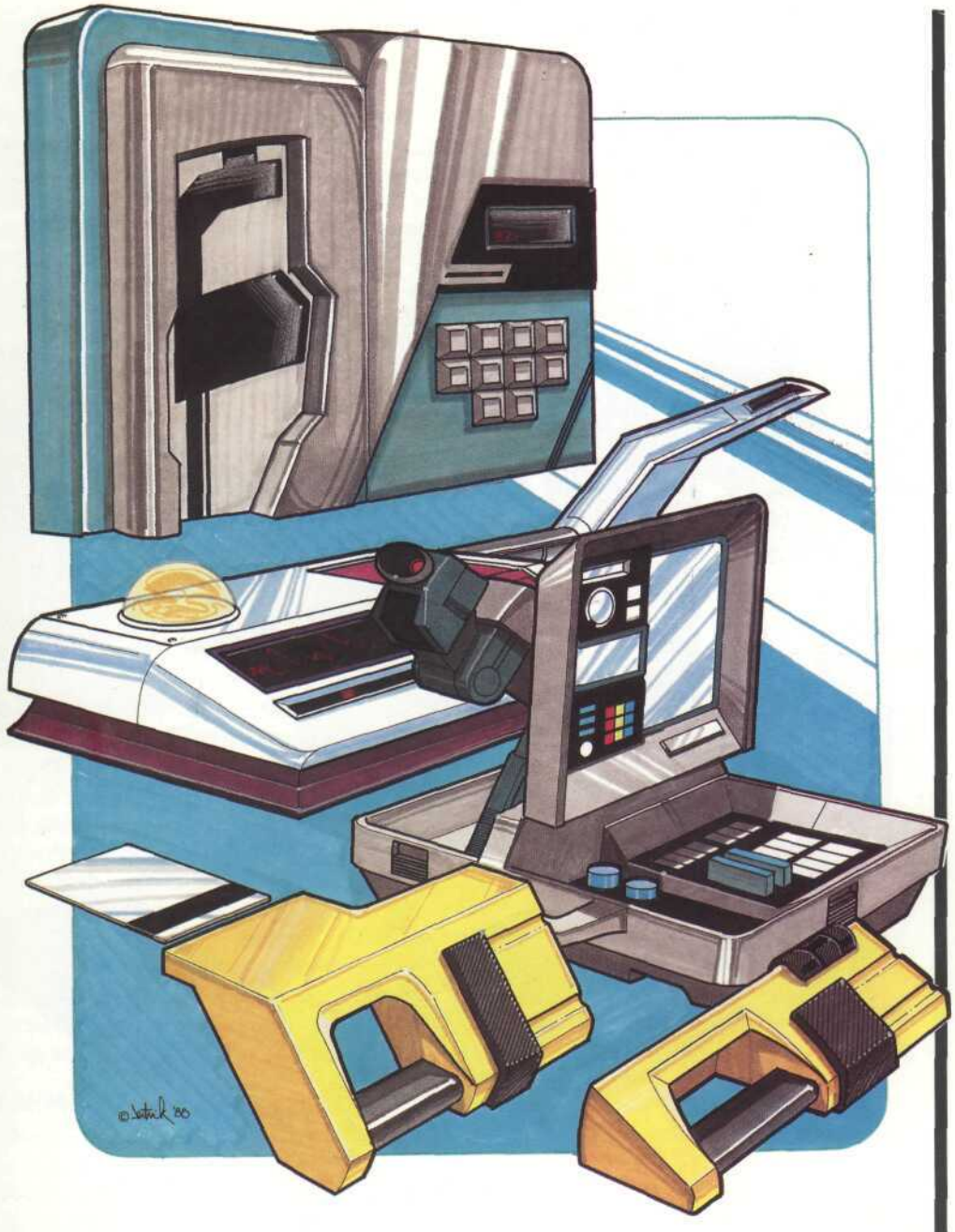
Electronic Lock: An electronic lock is opened by use of a number combination keyed into its control panel or by use of a magnetic keycard. As with a mechanical lock, it is possible for a combination or keycard to be possessed by unauthorized persons, and it is also possible for an electronic lock to be picked or broken, but it requires greater skill or strength to do so.

Electronic locks in **2300 AD** are rated in terms of task difficulty to open them by skill or force. To pick or break an electronic lock is a task, as listed in the sidebar. The more secure an electronic lock, the higher its cost. (Add 25 percent to the price of the lock if it is designed to trip an alarm.) *Weight:* 0.1 kg (Simple), 0.35 kg (Routine), 1.0 kg (Difficult), 3.0 kg (Formidable), 9.5 kg (Impossible) *Price:* Lv2.5 (Simple), Lv8 (Routine), Lv600 (Difficult), Lv3000 (Formidable), Lv15,000 (Impossible)

Handprint Analyzer: The handprint analyzer is one of the most common forms of security systems available in the 24th century. In its simplest form, the device is an image-scanning plate connected to a computer storage system. The computer contains a limited number of prerecorded handprints. Most often, the *analyzer* is used as a door lock. A person wishing access through the door places his hand upon the plate, and if his print matches one in the computer's memory, the door opens. If his print does not match, the door remains closed. In many applications, an alarm is also attached to call attention to unauthorized persons attempting access.

On the Core worlds, where wide computer networks provide access to multitudes of handprint files, handprint analyzers commonly serve as verifiers of purchases. A customer "signs" his credit account by placing his hand upon a screen after his purchases have been tallied into a shop's computer. The computer is connected to a city-wide network and has access to other computer networks around the world. Portable handprint analyzers also exist. They are used to verify identification or to restrict access to such things as briefcases. It is possible to fool a handprint analyzer; see the task in the sidebar. *Weight:* 5 kg *Price:* Lv700 (Lv850 if designed to trigger an alarm)

Voice Analyzer: Voice recognition security units use a simple vocal input unit to obtain a voice print of a person seeking access to a secured area. This voice print is then compared against a file of voice prints stored in a computer memory system. If a match is found, access is granted; if not, further security systems may be activated. Voice recognition technology is very accurate in the 24th century. To attempt to bypass a voice analyzer, see the task in the sidebar. *Weight:* 8 kg *Price:* Lv4500 (Lv4800 if designed to activate an alarm)



Task: *To bypass a handprint analyzer: Difficult. Security Systems or one-half Electronic. 6 seconds.*

Referee: *This task requires the use of an Electronic Security System kit. A set of Electronic Repair Tools can be substituted at an increase in difficulty of one level. Forgery skill can also be added to this task roll.*

Task: *To bypass a voice analyzer: Formidable. Security Systems or one-half Electronic. 5 seconds.*

Referee: *This task requires the use of an Electronic Security System kit. A set of Electronic Repair Tools can be substituted at an increase in difficulty of one level. Disguise skill can also be added to this task roll.*

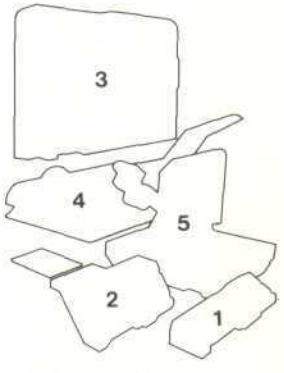
Task: *To bypass a retina scanner: Impossible. Security Systems or one-half Electronic. 75 seconds.*

Referee: *This task requires the use of an Electronic Security System kit. A set of Electronic Repair Tools can be substituted at an increase in difficulty of one level. One-half Forgery skill can also be added to this task roll.*

Retina Scanner: The retina scanner is among the most advanced pieces of security equipment available. Like the handprint analyzer, it consists of an imager and a computer file, but in this case, the file contains images of the vein network on the retina of a human eye. A person wishing access to a room guarded by a retina scanner places his eyes against the scanner's visor. The scanner then compares his retinal patterns to those in its memory. If they match, access is allowed. If they do not match, access is denied, and further security measures (an alarm, for instance) may be initiated.

Because the human eye is constantly in motion, some retina scans will fail erroneously. Many retina scanners are programmed to inform the subject that the scan has failed, and a second try may be allowed.

It is incredibly difficult to foil a retina scanner (see the task in the sidebar). Only an exact copy of the correct retina, or direct tampering with the scanning mechanism, will produce an identification match result where none actually exists. *Weight:* 20 kg *Price:* Lv30, 000 (Lv36, 000 if designed to trigger an alarm)

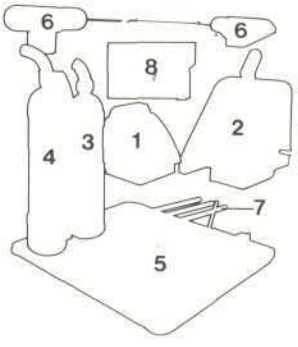


1—Mechanical Lock
2—Electronic Lock
3—Handprint Analyzer
4—Voice Analyzer
5—Retina Scanner

THE EFFECTS OF FORALINE GAS

Foraline gas produces a reaction of fear in its victims, a fear so debilitating that almost every sense stimulus seems an overwhelming threat. In a few subjects, the fear leads to panicked flight, and if this were true of more people, Foraline would be useless as a method of crowd control, since more people might well be injured in a general stampede of panicked victims than would be hurt by the riot the gas was intended to quell. But fortunately, in most subjects, the gas simply causes fearful acquiescence to authoritative commands.

A victim of Foraline will not *do absolutely anything commanded. For instance, a victim will not kill or maim himself upon command, nor will he perform acts that run contrary to deep-set ethical values. If faced with such a command, a victim of Foraline will simply cower and do nothing.*



1—Klaxon
2—Security Gas System
3—Doze
4—Foraline Gas

5—Pressure Sensor
6—Beam Sensor
7—Locksmith Kit
8—Electronic Security System Kit

ALARMS

Alarms are intended to announce the presence of an intruder in a security system.

Klaxon: A klaxon is any sort of noise-making alarm. Volume can be set from a whisper to painfully loud. At maximum volume, a klaxon can be heard 2000 meters away, but physical obstructions (such as walls and doors) and background noise often shortens this range considerably. Some klaxons are installed close to the item that they are keyed to (as an alarm above a locked door, for instance), and they are set for high volume. Others are installed at a location distant from the item that they are keyed to (as a remote alarm in a guard's office, for example), and they are set for low volume. A klaxon usually runs on power from the facility in which it is installed, but it may be purchased with a limited duration battery pack. *Weight:* 1 kg *Price:* Lv16 (Lv30 with 10-hour battery pack)

Security Gas System: Some security systems trigger the release of a gas rather than, or as well as, triggering a klaxon. Such systems require an enclosed, sealable area and a pumping system to flood the area with the gas and evacuate it afterward. Various gases can be used in such a system. A few common types are listed below. The weight and cost of such a system is based upon the area of the space it is intended to flood. *Weight:* 0.25 kg/m^3 to be affected *Price:* Lv500 (base cost) + Lv2/m^3 to be affected

Doze: Doze is a gas that is very commonly used in security gas systems. It is a chemical agent that produces sleep in its subjects. (Each combat round that a character is subjected to Doze, he receives stun damage with a DPV of 9.) As such, it is an excellent aid in capturing intruders without injury to intruder or security personnel.

Doze should be used with care, however, as prolonged exposure to concentrated amounts can be lethal. (When a character has accrued from Doze stun points equal to 10 times his life level, he is dead). As a consequence, most local governments require that a facility be licensed to use Doze. The cost of Doze is based upon the volume of the area it is to fill. *Weight:* 0.5 kg small canister (holds 10 m^3), 10 kg large canister (holds 300 m^3) *Price:* Lv1.5/m^3

Foraline Gas: Foraline gas is a substance typically used for crowd control by many police forces on the Core worlds. Its effect is to stimulate a feeling of panic or fear at the slightest threat of danger. As a consequence, a handful of riot police can disperse large crowds of Foraline-treated rioters, simply by marching forcefully toward them. When used in a security system, Foraline leaves its victims feeling unable to resist security forces. The typical response is surrender. (Foraline's effects are more fully explained in the sidebar.) The use of Foraline gas by civilians also requires a license, and it may only be purchased at Tirane.

As with Doze, the cost of Foraline depends upon the volume of the area it is to fill. *Weight:* 0.5 kg small canister (holds 10 m^3), 10 kg large canister (holds 300 m^3) *Price:* Lv2.5/m^3

ALARM TRIGGERS

Alarms can be triggered by attempts to pick locks or bypass other security systems. They can also have a separate trigger of their own.

Pressure Sensor: A pressure sensor is simply an electronic mechanism that reacts to pressure, or lack of pressure, upon it. Some sample installations include a sensor that registers when someone walks upon it, a sensor that notes changes in air pressure, and a sensor that registers when an item (such as a gem) is removed from its resting place. The price is rated by sensitivity to pressure changes. *Weight:* 200 gm *Price:* Lv20 (40 kg change or greater), Lv80 (5 to 40 kg), Lv400 (100 gm to 5 kg), Lv1600 (5 to 100 gm) "

Beam Sensor: A beam sensor consists of two parts: a beam generator and a beam receiver. If an object moves between the two, the beam is broken, triggering an alarm. The beam can either be visible or invisible (infrared) light. *Weight:* 0.5 kg *Price:* Lv35 (visible), Lv150 (invisible)

SECURITY CIRCUMVENTION

Some items are not intended to provide security measures, but rather to circumvent them.

Locksmith Kit: A locksmith kit contains tools for opening mechanical locks. On most worlds, it is illegal to possess a locksmith kit without a local license. *Weight: 2* kg *Price:* Lv450

Electronic Security System Kit: An electronic security system kit is not intended to provide electronic security, but to circumvent it. It is usually even more illegal to own than a locksmith kit. *Weight:* 3 kg *Price:* Lv1000 minimum

Characters under the influence of Foraline must succeed at the following task or they will be unable to perform any action which they perceive as placing them in danger (of a threatened beating, for example).

Task: *To perform a dangerous action under the effects of Foraline: Difficult. Determination. Instant.*

For every 10 minutes after a character ceases breathing Foraline, the task difficulty decreases by one level. After being away from the gas for 30 minutes, the effects wear off completely.

Task: *To determine the truth of a spoken statement: Difficult. Computer. 15 seconds.*

Referee: *Requires the use of a criminology kit.*

Task: *To avoid answering a question when taking "J": Difficult. Determination. Instant.*

Task: *To gain information by Cortescan 2000 (Uncertain): Formidable. Cortescan Operation. 30 seconds.*

Referee: One-half of Psychology skill may be added to this roll. To roll for this task, the monitor must state the question that is being asked or the fact to be obtained. If the subject being examined knows the answer, the monitor has a chance to perceive it even if it is unspoken.

INTELLIGENCE-GATHERING EQUIPMENT

Intelligence and law enforcement agencies require the use of sophisticated equipment in garnering information for their use.

Criminology Kit: The basic criminology kit is an item commonly used by agents from nearly every settled world to gather evidence toward solving crimes. The kit attaches to the common portacomp and includes an array of visual and chemical sensors, data analyzers, and specialized memory chips. An agent using the kit can match fingerprints with sets in the kit's memory chips, perform forensic ballistics analysis on weapons rounds, and make limited chemical tests such as blood type determination. The crimonology kit also includes a polygraph and a program that will allow the portacomp to indicate the truthfulness of a subject's statements, although much of the judgment is left up to the operator's skill (roll for the task in the sidebar). *Weight:* 2.5 kg *Price:* Lv800

Burrowvarg: The burrowvarg is an easily domesticated, omnivorous hunter that is indigenous to Beta Canum Venaticorum-4. It is a short-furred quadruped with extended incisors and a long, flexible tail.

Trained burrowvargs are used for tracking humans and animals alike. They are also frequently trained by drug enforcement agencies to sniff out illegal substances, and they are highly valued as security and guard animals. (The average burrowvarg has a Tracking skill of 6; referees can vary this for individual animals.) Although temperamental and cross, they are fiercely loyal and protective of their handlers. *Initiative:* 4 *Hit:* Routine *Size:* 20 kg *Speed:* 100 *Armor:* 0.1 *Wound Potential:* -3 *Consciousness:* The best of the breed are, of course, found on Beta Canum 1 *Life: 2 DPV:* 0.2 *Signature:* -6 *Price:* Lv500

"J": "J" is a drug that was developed in a memory-enhancement study by members of the Foundation for Practical Knowledge. The drug works very well as a temporary memory enhancer (add four points to a character's intelligence and education statistics when using "J"), but the effect does not last long (roll 2D6 for duration in hours).

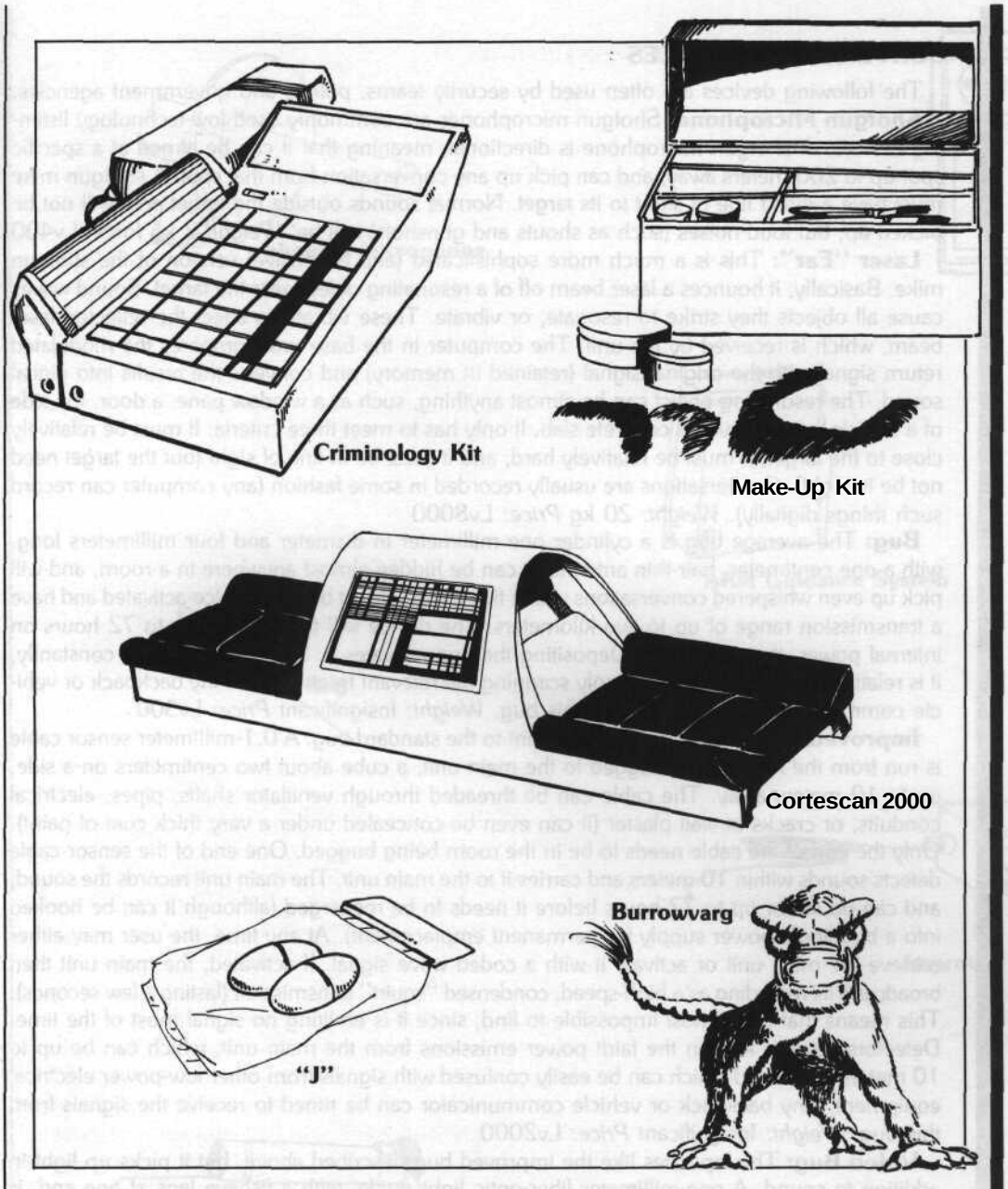
The real usefulness of "J" in security circles is in the drug's side effect—it causes extreme talkativeness in the user. The user becomes so caught up in the clarity of his memory that he does not realize he is talking aloud to himself about them. For those using "J" solely to combat memory loss, this is an annoyance, but it works wonderfully for interrogation purposes. When asked a direct question, a "J" user must roll for the task in the sidebar to avoid answering truthfully and completely. (The only problem for the interrogators is to sort the important facts from the volume of associated information given.)

Cortescan 2000: The Cortescan 2000 is the result of decades of advanced study of the electrochemical processes of the human brain and its applications in computer technology. Even as early as the 20th century, study of brain function was being conducted with an eye toward possible computer applications. Japan, in particular, promoted research into brain function, hoping to develop artificial organic brains, electronic computers that emulated human thought processes, and devices that could be controlled directly by the human nervous system.

The Twilight War brought a halt to this work, but during the early decades of the 23rd century, a computer simulation of the human brain was finally developed. The computer brain had no self-awareness and was completely passive, functioning only when commanded. It was discovered that the slight inductance field generated by the computer brain could be affected by the even weaker capacitance field generated by an organic brain. In this way, anomalies in an organic brain's function could be detected by the computer. The procedure found widespread use as a diagnostic tool in the fields of medicine and psychology.

Later research demonstrated that some individuals were, in turn, sensitive to changes in the computer brain's inductance field. Such individuals could directly monitor the computer brain's inductance field as it scanned another individual's brain. In this way, the sensitive individual could share the emotions and surface thoughts of the patient being scanned. With this discovery, the Cortescan 2000 was born.

PsiTechCorp has developed this technology to its fullest. A random sampling of 2000 people from nearly every nation and ethnic group was taken, and a standard computer brain was developed. Next, hundreds of sensitive individuals were recruited and trained as monitors. The Cortescan 2000 was soon being used not only as a diagnostic tool for mental aberrations, but it was also used for mental therapy, accelerated learning programs, dream research, and



paranormal activity investigations. But one of the device's newest uses is as an investigative tool for law enforcement agencies.

With the Cortescan 2000, a trained monitor can detect the mental activity of a person being questioned and gain some indication of the truthfulness of that person's replies. In some cases, monitors also claim to be able to detect unspoken thoughts that the subject might be concealing. The legality of evidence obtained by the use of Cortescan 2000 is presently being argued in Terran courts.

The Cortescan 2000 is composed of a metal cylinder a meter and a half in diameter (the sensing core), with a padded couch protruding from either end. A control panel on one side of the cylinder is operated by a trained medical technician; the monitor lies on one couch, and the subject takes the other. Both monitor and subject lie with their heads within the cylinder. Operation of the Cortescan 2000 requires a major energy source free of power fluctuations; a source such as that provided by a starship will suffice. To operate a Cortescan 2000, see the task in the sidebar. *Weight:* 1300 kg *Price:* Lv25,000

Make-Up Kit: *The term make-up kit actually can be applied to two very similar items with different purposes. Most make-up kits are used by people in the public eye—actors and the like—*to *augment their appearances. But make-up kits are also very handy in undercover or criminal endeavors, as well in creating disguises.*

These kits typically include, but are not limited to, hair-coloring dye, modeling putty for altering facial features, colored contact lenses, false eyelashes and artificial facial hair, necessary adhesives and solvents, colored facial powder and pencils for toning and highlighting, setting powder, necessary applicators and brushes, and a variety of basic skin tone foundation make-ups.

When a character disguises himself by using this make-up kit, any attempt to penetrate that disguise is done at one level higher on the task roll. (The referee will determine the exact difficulty level of such a task, based upon the situation at the time the task is attempted.) Weight: 5 kg *Price:* Lv250

ANTIRADIATION MISSILE (ARM) GUIDANCE SYSTEM

This is an optional add-on system for use in all guided and homing weapons. It can be added to any missile or guided bomb and activated (at the gunner's option) at the time of firing. The weapon will home in on whatever signal it has been attuned to at the moment of firing, with a homing value of 20. Weight: *Insignificant* Price: Lv600

SURVEILLANCE DEVICES

The following devices are often used by security teams, police, and government agencies.

Shotgun Microphone: Shotgun microphones are commonly used low-technology listening devices. A shotgun microphone is directional, meaning that it can be aimed at a specific spot up to 200 meters away, and can pick up any conversation from that spot. A shotgun mike must have a direct line of sight to its target. Normal sounds outside the target area will not be picked up, but loud noises (such as shouts and gunshots) will be. *Weight: 2* kg *Price:* Lv400

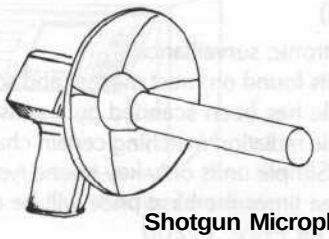
Laser "Ear": This is a much more sophisticated (and expensive) version of the shotgun mike. Basically, it bounces a laser beam off of a resonating object near the target. Sound waves cause all objects they strike to resonate, or vibrate. These vibrations affect the reflected laser beam, which is received by the unit. The computer in the base unit compares the modulated return signal with the original signal (retained in memory) and converts the results into digital sound. The resonating object can be almost anything, such as a window pane, a door, the side of a vehicle, a rock, even a concrete slab. It only has to meet three criteria: It must be relatively close to the target; it must be relatively hard; and it must be in line of sight (but the target need not be in sight). Conversations are usually recorded in some fashion (any computer can record such things digitally). *Weight:* 20 kg *Price:* Lv8000

Bug: The *average* bug is a cylinder one millimeter in diameter and four millimeters long, with a one centimeter, hair-thin antenna. It can be hidden almost anywhere in a room, and will pick up even whispered conversations within five meters. Most bugs are voice-activated and have a transmission range of up to two kilometers. The device will transmit for up to 72 hours on internal power, then it is dead. Depositing the bug activates it. Since it broadcasts constantly, it is relatively easy to detect by simply scanning the relevant frequencies. Any backpack or vehicle communicator can be tuned to this bug. *Weight:* Insignificant *Price:* Lv500

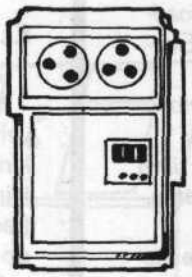
Improved Bug: This is an improvement to the standard bug. A 0. 1 -millimeter sensor cable is run from the room to be bugged to the main unit, a cube about two centimeters on a side, up to 10 meters away. The cable can be threaded through ventilator shafts, pipes, electrical conduits, or cracks in wall plaster (it can even be concealed under a very thick coat of paint). Only the end of the cable needs to be in the room being bugged. One end of the sensor cable detects sounds within 10 meters and carries it to the main unit. The main unit records the sound, and can do so for up to 72 hours before it needs to be recharged (although it can be hooked into a building's power supply for permanent emplacement). At any time, the user may either retrieve the main unit or activate it with a coded wave signal. If activated, the main unit then broadcasts its recording as a high-speed, condensed "squirt" transmission (lasting a few seconds). This means that it is almost impossible to find, since it is emitting no signal most of the time. Detectors have to key on the faint power emissions from the main unit, which can be up to 10 meters away, and which can be easily confused with signals from other low-power electrical equipment. Any backpack or vehicle communicator can be tuned to receive the signals from this bug. *Weight:* Insignificant *Price:* Lv2000

Video Bug: This operates like the improved bug described above, but it picks up light in addition to sound. A one-millimeter fiber-optic light guide, with a fisheye lens at one end, is connected to a recording/broadcast unit up to one meter away. The unit is not up to full tridee broadcast quality, but it is good enough for most surveillance purposes and has limited low-light capabilities as well. Total darkness (which is rare) will foil this system. Any backpack or vehicle communicator can be tuned to this bug. *Weight:* Insignificant *Price:* Lv6000

Cable Tap: This device is used to tap into electronic communications cables. Electric current produces a magnetic field, which can be detected and "read" to tap the signal. This does not require cutting into the cable, it produces no drop in voltage, and it is impossible to detect without physical inspection of the complete run of the cable (the tap need only be within 0. 1 meter of the cable). More sophisticated communications cables, however, are of the fiber-optic type, which transmit light instead of electricity. This requires a much more sophisticated (and expensive) tap. This type does not require cutting into the cable either, but it does require that the tap be in direct physical contact with the cable. A tap can be attached to a broadcast unit or a recording unit, like any of the bugs described. Both audio and video signals can be acquired. Because of the danger of taps, important communications are always scrambled. *Weight:* Insignificant *Price:* Lv7500 (electric), Lv12, 000 (fiber-optic)

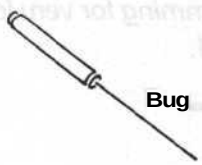


Shotgun Microphone

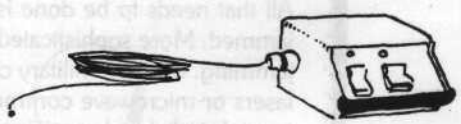


Cable Tap

ARM Guidance System



Bug



Improved Bug

Laser "Ear"

Video Bug

Task: To detect a broadcasting bug: Routine. Electronic. 1 minute.

Referee: *See note below.*

Task: *To detect an improved bug. Formidable. Electronic. 2 minutes.*

Referee: *Both tasks assume the use of bug detection equipment. Without the proper equipment, both tasks become uncertain, one level more difficult, and take 10 times longer (since this requires going over the whole room very carefully).*

ELECTRONIC COUNTERMEASURES (ECM)

The following items can be used to counter electronic surveillance.

Sensortects: Sensortects are simple detection units found on most military and some civilian vehicles, which are used to indicate when the vehicle has been scanned by a sensor of some kind. When one of these units picks up electromagnetic radiation matching certain characteristics, it indicates the fact (by an aural and/or visual signal). Simple units only key to one type of sensor (radar, laser, microwave, etc.). Units available at three times the base price will be able to pick up all commonly used sensor systems. *Weight:*. 5 kg *Price:* Lv200

Radar Jammer: Radar works by bouncing a signal off its target and interpreting the results. Jamming a radar is as simple as broadcasting random noise on the radar's frequency at a higher power level than the reflected signal. Jammers usually broadcast on a wide band of frequencies and negate the effects of all radars within their range (one to 10 kilometers, depending on price). Jammers are usually operated remotely because they become easy targets for ARMs (antiradiation missiles) when they are activated. Jammers do not affect laser-based detectors, such as rangefinders and missile homing guidance systems. *Weight:* 4 kg *Price:* Lv1000 to Lv10, 000

In any case, anyone on the battlefieldjamming for very long will soon become the target of an ARM.

Radio Jammer: Most large, multifrequency, two-way radios can be used as simple jammers. All that needs to be done is to broadcast a very powerful carrier wave on the frequency to be jammed. More sophisticated radios, however, can shift frequencies at preset intervals and escape jamming. Modern military communications, however, are even more sophisticated. Tight-beam lasers or microwave communications can be directed up to a satellite and then reflected down to each individual receiving vehicle, making the communications very difficult to jam. Line-of-sight laser communication systems are virtually impossible to jam. In any case, anyone on the battlefield jamming for very long will soon become the target of an ARM. It is possible, however, to purchase a specially built jammer, which works against all communications within a given area (one kilometer for every Lv1000 in price). *Weight:* 10 kg *Price:* Lv1000 - 10, 000

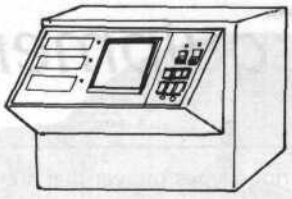
Bug Detector: Bug detectors are used to find electronic surveillance devices. For the basic broadcast bug, this is simply a matter of scanning the relevant frequencies until the bug's signal is picked up, then triangulating until it is found (it can then be destroyed or neutralized). More sophisticated bugs are tougher to find. (The task statements for finding each type are in the sidebar.) *Weight:*. 3 kg *Price:* Lv3000

Bug Jam: Bug jammers work like radio jammers, as described above. Note: If a bug never broadcasts (that is, if the bug is used to tape a conversation, which is physically retrieved later), a jammer will not work. It also will not work against the laser "ear." *Weight:*. 05 kg *Price:* Lv500

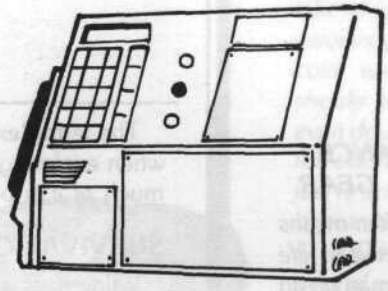
Sensuppress: Sensuppress units transmit a field of "white-noise" which washes out any normal conversation within one meter of the unit. Extremely sophisticated computer programs (like the filter program described below) can remove 90 percent of the noise, however, given enough time. A Sensuppress unit will work against the laser "ear," but will not affect the video portion of a video bug. *Weight:*. 3 kg *Price:* Lv500

Scrambler: Scramblers attach to a normal communicator and scramble any transmission according to a prearranged pattern, which can only be descrambled by a unit with the same scrambler settings. *Weight:* 0. 2 kg *Price:* Lv200

Filter Program Chip: The filter program chip contains a program (for any computer, but portacomps do not usually have enough memory for it to work properly) which analyzes and extracts random noise from electronic transmissions. It generally takes about 10 minutes to "clean" one minute of conversation, but this can be made longer or shorter at the referee's option. *Weight:* 1 kg *Price:* Lv1000

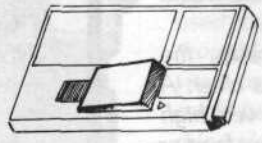


Radar Jammer

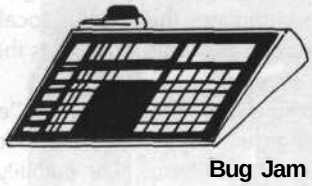


Sensortects

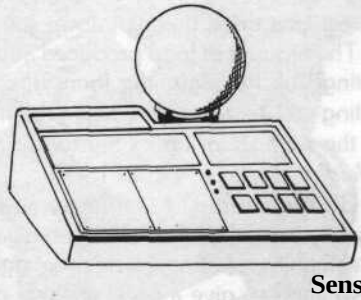
Radio Jammer



Filter Program Chip

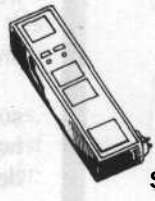


Bug Jam



Sensuppress

Bug Detector



Scrambler

Exploratory Equipment

THE IMPORTANCE OF SURVIVAL GEAR

Survival gear often means the difference between life and death to a human on an alien planet. In some cases, the distinction is obvious. For example, a human without a hostile environment suit on a world with a methane/ ammonia atmosphere would quickly die.

But in other cases, the dividing line is less clear. A human can survive very high temperatures without food or water for several days, for instance, as long as the atmosphere is breathable.

In general, consider that a human can survive without specialized equipment in temperatures between -0° and 50 ° C. At temperatures above 50 ° C, special cooling equipment (such as a sealed, air-conditioned vehicle) is required. At temperatures from -0° to -20° C, special clothing is required to conserve heat. Below -20° C, further care must be taken that no skin surfaces are exposed to the frigid air. At temperatures below -50° C, heated, airtight suits are required.

The term "exploratory equipment" is intended to cover various types of gear that are of use when exploring a planet's surface. But this equipment is not only used by exploratory teams, much of it is of use in many other situations and other *career* fields as well.

SURVIVAL GEAR

Wilderness survival gear includes equipment which is usually used by exploratory teams, but this equipment might be stored in a starship's escape pod or used by a military mission team as well.

Water Purifier: The water purifier is a battery-operated microfilter and chemical treatment machine used for purifying natural water sources. The machine can also be used to recycle biological waste water. Fifteen minutes are required to treat each liter of water. *Weight:* 5 kg *Price:* Lv750

Compact Rations: Each ration pack is a complete, prepackaged meal, providing about 1000 calories and fortified with a full day's requirement of vitamins and minerals. Each meal comes in its own self-heating (or self-chilling for some dishes) serving tray. The heating/cooling process is activated by breaking the seals and takes a total of about 30 seconds. *Weight:* 1 kg *Price:* Lv5

Food Synthesizer: A food synthesizer can be used to detoxify local food sources and add essential elements for human consumption when compact rations are not available. Sometimes a food synthesizer can even make the result palatable.

When using a food synthesizer, an operator packs the mixing chamber with native foodstuffs (plants and plant analogues work best, but animal tissue can be processed if enough time is allowed). The synthesizer chemically analyzes the contents, irradiates them to kill local pests, neutralizes or filters out toxic elements, adds missing vitamins and minerals, and ejects the result in either a dried or pulpy form (operator's choice).

The amount of food produced and the time required to do so is dependent upon the "edibility rating" of the beginning foodstuffs. The *referee* should assign each type of native foodstuff a rating of 1 to 10, with 1 being the most edible and 10 the most dangerous. The edibility rating is the number of hours the food synthesizer requires to process the foodstuff into one meal. *Weight:* 25 kg *Price:* Lv1500

Biomonitor: The biomonitor is a broad-purpose monitor about eight centimeters square and usually carried on the belt. It can give body function read-outs for medical diagnosis, can monitor breathability of atmospheres (noting presence of various gases, harmful pollens, and other toxins), and can give a good analysis of edibility of local plant and animal tissue. *Weight:* 0.5 kg *Price:* Lv500

Goggles: Goggles come in two different types: the first being nothing more than an inexpensive piece of protective eyeware, and the second being a photosensitive, autodarkening piece of equipment to protect against steady bright light or sudden flares. *Weight:* Insignificant *Price:* Lv1 (normal goggles) or Lv100 (photosensitive)

Backpack: A backpack is used to carry equipment (as well as protect it) while keeping hands free. Small items can also be suspended from its frame. *Weight:* 1 kg *Price:* Lv10

Flares: Flares are used to signal at a distance, such as in the marking of temporary landing areas. They typically come six to a set. *Weight: 2* kg *Price:* Lv3

Cold Climate Clothing: Cold climate clothing consists of a lightweight, adjustable body suit, with hood, goggles, and lower face cover. The suit contains a battery pack and internal heating elements with the ability to maintain a stable temperature down to temperatures of -20 degrees C. Battery life is about eight hours under coldest conditions, but closer to 36 hours under more typical cool weather conditions. *Weight: 2* kg *Price:* Lv100 (More expensive versions are available for the fashion-conscious)

Hostile Environment Suit: A hostile environment suit is a close-fitting, flexible pressure suit, much like the P-suits used in vacuum environments, but with added protective material

designed for use in particularly hostile environments (such as corrosive atmospheres or radiological and toxic environments). The helmet is solid, with audio and visual sensors linked to helmet monitors. The suit has a battery-powered life support system to provide breathable air and a stable temperature. Life support duration is normally eight hours, but with bottled oxygen this can be extended to 20 hours (the maximum battery life). *Weight:* 20 kg *Armor:* 0.4 *Initiative: -2 Price:* Lv2000

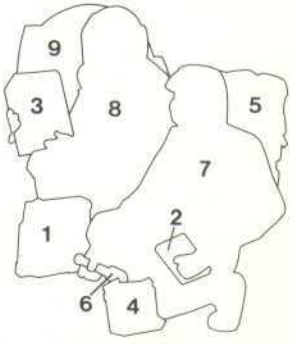
Respirator: Often an entire protective suit is unnecessary and unwieldy. In such situations, people use a simple respirator mask to filter the air. Typically, the filters in such a mask must be changed every six to 12 hours, depending upon the amount of pollutant in the air. *Weight:* 1 kg *Price:* Lv350

Pressure Tent: The pressure tent is an inflatable hemispheric tent with a radius of two meters, designed for three people. The tent includes a small air lock and a life support system capable of sustaining four people. The air lock can be detached if the pressure tent is to be used on worlds with breathable atmospheres. *Weight: 2* kg *Price:* Lv1000

A human requires an intake of approximately 2000 calories a day. In extremely cold weather, this figure should be higher, possibly even double, to compensate for calories the body burns just to provide heat. Survival is possible on approximately 1000 calories a day in normal weather, but that low an intake is not recommended.

If a character & subsisting just on native nutrients (assuming the ammo acids are such that they can be used by the body), some thought should be given to vitamins and minerals that might be missing. Even trace minerals are very important—the body uses only a few milligrams of iodine, for example, but without that substance, thyroid action is severely limited.

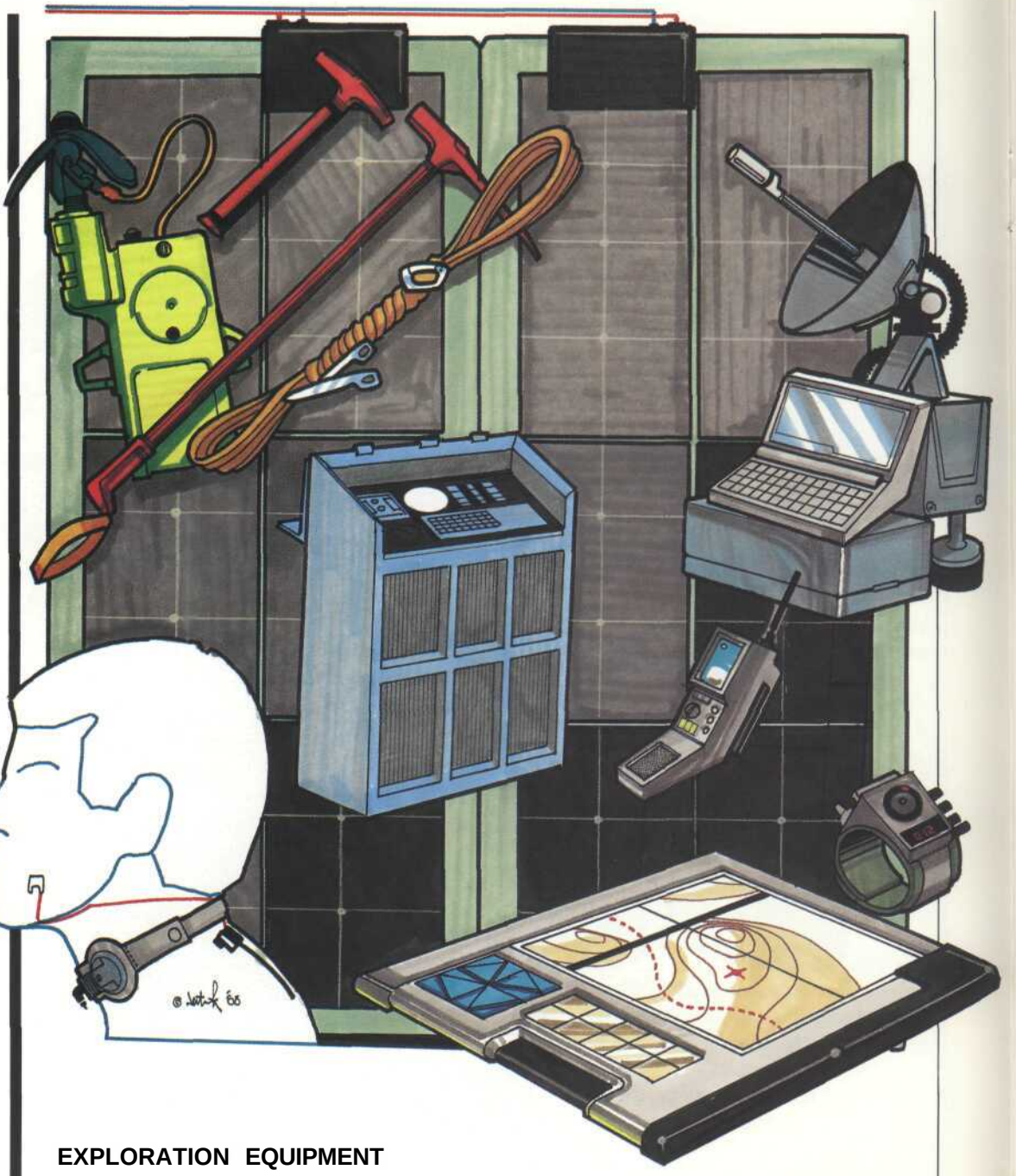
A human also requires approximately two liters of water a day. In extremely warm weather this should be doubled to account for perspiration: in extremely cold weather it should be doubled to account for evaporation. Survival is possible on only one liter in normal weather, but the character will be uncomfortably thirsty.

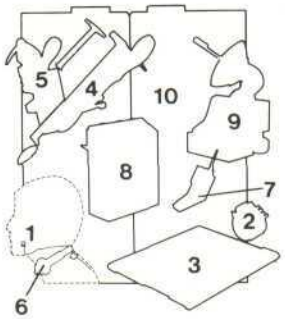


1—Water Purifier
2—Compact Rations
3—Food Synthesizer
4—Biomonitor
5—Backpack
6—Flares
7—Cold Climate Clothing
8—Hostile Environment Suit
9—Pressure Tent

Subdermatalk

Developed by *PsiTech-Corp, the Subdermatalk is a micro-transmitter surgically implanted beneath the skin in the mouth and neck of its user. Instead of picking up sound waves, the Subdermatalk senses vocal chord impulses as the user speaks, and it transmits this information through a power booster and transmitter implanted in one of the user's teeth. Receiving is done through micro-antenna implanted in the user's neck.*





1—Subdermatalk
2—Inertial Compass
3—Inertial Map
4-Climbing Kit
5—Autograpnel
6—Throat Communicator
7—Hand Communicator
8—Backpack or Vehicle Communicator
9—Tight Beam Up-Link Communicator
10—Fuel Station

EXPLORATION EQUIPMENT

Most colonized worlds have only been partially mapped in any detail, thus, they still hold vast tracts of unexplored or partially explored wilderness. The frontiersmen who travel in such areas commonly find use for the following types of equipment.

Inertial Compass: An inertial compass is a small, wrist-worn unit that always points towards a preset location (usually north). The inertial compass will always indicate the preset direction even if its wearer undergoes movement such as air-flight or underwater travel. *Weight:* 55 gm *Price:* Lv80

Inertial Map: An inertial map is a small computer that contains a detailed map of an area in a memory chip. The map gives a small holographic picture of any 1 0-kilometer square area in its memory. Once the user has plotted in his present coordinates, he is represented as a dot in the center of the screen, and the map moves about that dot as the user travels. Inertial maps are often hooked up to display on other screens, such as the terrain display of a vehicle or combat walker.

Map chips cost Lv15 for a 1000-kilometer square area. Making map chips of uncharted areas and then selling them is an easy way to pick up extra money on many missions. *Weight:* 1 kg *Price:* Lv500

Climbing Kit: A climbing kit includes such tools as pitons, rope, small hammers, and locking rings. Such a kit is necessary if a party wishes to climb vertical rock faces. *Weight:* 12 kg *Price:* Lv150

Autograpnel: An autograpnel is an extremely useful piece of equipment for scaling vertical surfaces of 15 meters or less. It consists of a handheld, battery-powered unit which can fire a small grapnel as much as 15 meters in the air, then pull as much as 100 kilograms up the trailing rope. *Weight: 7* kg *Price:* Lv200

COMMUNICATORS

Communicators allow the transmission of information over long distances. There are various types of communicators available; civilian ones tend to be lower-powered (meaning shorter-ranged) than their military counterparts, and they also broadcast in a wider arc (making them easier to eavesdrop upon).

Throat Communicator: A throat communicator is the most common personal battlefield communications device next to the hand communicator. It is a small, saddle-shaped device that rests on the front of the throat, over the user's larynx. A throat communicator allows its user to make radio communications while keeping his hands free for other work. The unit is battery powered and is automatically activated when the operator speaks. *Weight:* 0.1 kg *Range:* 3 km *Signature:* +0 *Price:* Lv75

Hand Communicator: A hand communicator is a battery-powered, handheld radio unit that broadcasts voice signals at relatively low power. *Weight:* 1 kg *Range:* 20 km *Signature:* + 1 *Price:* Lv50

Backpack or Vehicle Communicator: The backpack or vehicle communicator is a heavier version of the hand communicator. When installed in a vehicle, this communicator is generally linked to the vehicle's power plant to save its battery power. *Weight:* 3 kg *Range:* 200 km *Signature:* +3 *Price:* Lv100

Tight Beam Up-Link Communicator: A tight beam communicator is designed to provide secure communication between a ship in orbit and a ground party. The communicator must be emplaced to work (it cannot be used while moving). Prior to the ground party's landing, the communicator's microprocessor is programmed with the ship's orbit, and the communicator's inertial locator constantly updates its position relative to the ship. When activated, the communicator will point its dish antenna toward the ship's present location and establish a tight beam communication link, provided the ship is above the horizon and in effective communication range. (in most orbits the ship will be in an acceptable comlink position roughly 20 percent of the time. The higher the orbit, the longer the period of possible comlink, but the greater the dead time between comlink periods.)

Two up-link communicators can be used for secure ground communication if a communication satellite is overhead and both communicators are linked to the satellite at the same time. *Weight:* 15 kg *Range:* Orbital *Signature:* 0 *Price:* Lv500

PERSONAL POWER

When a party is on its own in unexplored territory, it has to supply its own power. The most common portable power generator is described here.

Fuel Station: A fuel station is a solar-powered processor which produces electricity from light and then uses it to crack water into hydrogen for vehicle fuel.

The complete station consists of a central unit and 10 panels. A tank in the unit can hold 20 kilograms of liquid hydrogen. The oxygen vent can be connected to a separate oxygen storage tank.

Each solar panel unfolds into a flat square 10 meters X 10 meters. In sunlight (average intensity in the life zone), each panel generates 0.2 megawatts and produces one kilogram of liquid hydrogen per hour (about 40 kilograms of oxygen are also produced and normally vented). The station only works during daylight hours.

The station can also be used to produce direct electrical power (at 0.2 megawatts per panel deployed). *Weight:* 20 kg (with tank empty) *Price:* Lv1200

Several versions of the Subdermatalk exist, including models that have amazing range and channel switching capabilities. The cost of these more advanced units is extremely high, however. The basic model broadcasts at a set frequency and has a fairly short range, but its broadcasts are very difficult to detect. More expensive models have more frequencies and longer ranges, but their broadcasts are easier to detect as well. Weight: *Insignificant* Range: *5 km* Signature: *+0* Price: *Lv500 for the basic unit (Includes implanting and training). (For each extra frequency, double the price. For each 5 km beyond the basic range, double the price.)*

Task: *To detect radio transmissions: Routine. Electronics. 30 seconds.*

Referee: Requires a radio detector.

Task: *To locate a radio transmitter (Uncertain): Difficult. Electronics. 30 seconds.*

Referee: *Requires a minimum of two radio detectors. For each radio detector over two, reduce the difficulty by one level.*

COMBAT SENSORS

One of the most useful types of combat sensor equipment is described here.

Heads-Up Display: *Heads-Up Displays (or HUDs) are small battlefield portacomps installed in combat helmets, flight suit helmets, and occasionally P-suit helmets. A typical HUD displays information such as the number of targets within sight and the range to each, as well as giving computer identification tags for each target. Most HUDs have a laser rangefinder attachment to be mounted on the sights of any weapon being carried.*

HUDs can be wired to visible light sensors, infrared sensors, or radar, depending upon the mission. When using a HUD, the operator gets a bonus of 2 to his rolls to hit a target. Weight: *2 kg* Price: *Lv1000*

SENSORS

Sensors run the gamut from simple sense enhancers to computer watchdogs. All have a basic purpose of making, either actively or passively, environmental information more easily obtained. The most common types are listed below.

Binoculars: The standard visual binoculars available to purchasers in the 24th century incorporate thermal imaging for night visibility and limited visibility in fog, gyrostabilization for high magnification steadiness, and adjustable magnification from 1 x through 20 x. *Weight:* 1 kg *Price;* Lv200

FarSeer: The FarSeer is a newly marketed product that magnifies objects and/or allows night vision by internally enhancing the light received. The main lens is composed of oil, electrostatically-held and manipulated for focus. A read-out of the electrostatic charge that focuses the lens gives approximate distance to the object being focused upon. A backup system, consisting of a pulse laser, gives more accurate readings of any object lined up with a set of cross hairs in front of the lens.

There are two disadvantages to using the FarSeer. One is that the laser is visible to instruments watching for it, and the second is that the electrostatic lens will not hold focus in a strong outside electrical field, such as a nearby lightning storm. The FarSeer magnifies from 1 x to 50 x. *Weight:* 1 kg *Price:* Lv350

Infrared Viewer: An infrared viewer allows a user to see light in the infrared spectrum, allowing objects to be spotted by the heat they radiate. Infrared viewers do not give physical details of objects, just their approximate shapes and heat-emission strengths. Two objects with roughly the same shape and heat output will look the same through an infrared viewer. Most infrared viewers have an effective range of 500 meters, but very hot objects can be seen at much greater distances. *Weight:* 0.2 kg *Price:* Lv300

Light Intensifying Viewer: Light intensifying viewers measure the light from the surrounding area, enhance it, and relay a brighter image to the user. The image the viewer provides is nearly equivalent to normal daylight. However, the viewer will not work if the *wearer* is in an area that is totally devoid of light, such as a totally sealed room, as there will be no image to enhance. Light intensifying viewers work to normal line-of-sight distances. A polarizing filter in each viewer prevents it from suffering damage from sudden bursts of bright light, in turn preventing the user from being blinded as well. *Weight:* 0.2 kg *Price:* Lv800

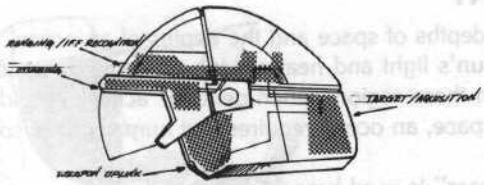
Battle Radar: "Battle Radar" (so called because of its common use by mercenary soldiers) is a portable radar set that can be carried like a backpack. It is often used by exploratory, police, and military ground units to detect moving forms human-sized or larger.

"Battle Radar" can detect human-sized and larger targets in a standard broadcast scanning pattern (a 120-degree arc), or targets as small as a rabbit on a tight-beam scan (a 30-degree arc). In either case, the maximum scanning range is five kilometers. The "Battle Radar's" screen provides a crisp, two-dimensional, monochrome image of the area the radar is sweeping, as well as the direction and distance to identified targets. *Weight:* 10kg *Sensor Range:* 5 km *Price:* Lv450

Radio Detector: A radio detector is used to detect radio transmissions and to locate the transmitter. To detect radio transmissions within five kilometers, the operator must roll for the detection task in the sidebar. To pinpoint the location of the transmitter, at least two radio detectors must be set up a minimum of one kilometer apart, and both operators must succeed at the location task in the sidebar. *Weight: 5* kg *Price:* Lv700

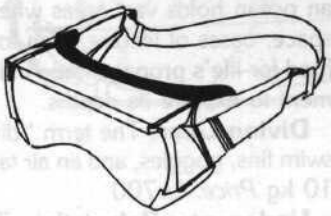
Large Life Form Detector: The large life form detector is a moving point IR sensor which actually works as well on vehicles as it does on life forms. Its short range makes it largely ineffective for military purposes, however. It is designed to be cheap and portable for zoological field teams. *Weight:* 2 kg *Sensor Range:* 1000 m (+1) *Price:* Lv100

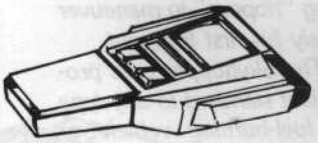
Remote Piloted Drone: A remote piloted drone is a small, battery-powered, rotor-driven aerial sensor. It incorporates a video imager with up to 5x magnification and thermal imaging for night vision and limited visibility in fog or smoke. The video imager outputs directly to a monitor and a video recorder. The drone also includes a microphone for audio data and a large life form detector as described above. *Weight:* 10 kg *Sensor Range:* 1000 m (+ 1) *Signature:* 1 *Maximum Speed:* 200 kph *Cruise Speed:* 150 kph *Combat Movement:* 400 m *Endurance:* 2 hr *Price:* Lv1000



Heads-Up Display

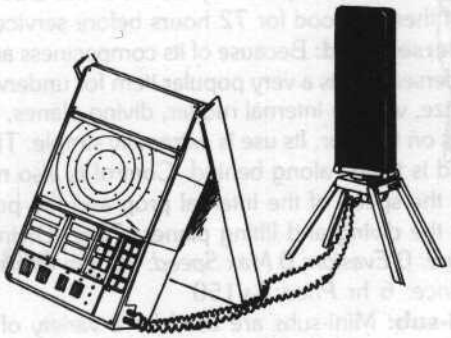
Infrared Viewer





Large Life Form Detector

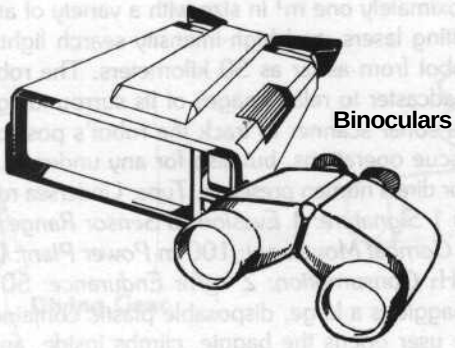
Light Intensifying Viewer



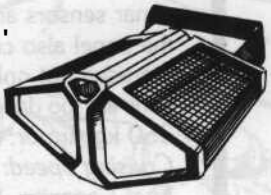
Battle Radar

Radio Detector

Remote Piloted Drone



Binoculars



FarSeer

SKYHOPPER JETPACK

The Skyhopper Jetpack is the most popular model of personal jetpacks available. Internal gyroscopic stabilizers and a highly sophisticated ground-following terrain screen allow even a beginning "hopper" to maneuver safely his first time out.

The Skyhopper uses propellant standard to any type of fuel-burning vehicle or plane. Unfortunately, only a small amount of fuel can be carried on the Skyhopper at a time, limiting flights to about an hour. Type: *Personal flight pack* Crew: *1* Weight: *40 kg* Armor: *None* Signature: 7 Evasion: 6 Max Speed: 720 *kph* Cruising Speed: *60 kph* Combat Movement: 780 *meters* Endurance: 7 *hr* Price: *Lv12,000 (plus Lv100 for 1 hr of fuel)*

OCEANOGRAPHIC EQUIPMENT

There are similarities between the depths of space and the depths of an ocean. Like space, an ocean holds vast areas where a sun's light and heat are too tenuous to support life. Like space, oases of life are often found in these regions when geologic activity provides heat and food for life's propagation. And like space, an ocean requires that humans have special equipment to explore its depths.

Diving Gear: The term "diving gear" is used here to denote a flexible, warm wetsuit with swim fins, goggles, and an air tank. The tank can hold enough air for three hours of use. *Weight:* 10 kg *Price:* Lv700

Underwater Rebreather: The underwater rebreather is the most advanced type of individual diving equipment produced by humans. It is an air-recycling pack that rests upon the user's back, with hoses leading to a mouthpiece. Filters in the rebreather scrub CO2 from the user's exhaled air, and a battery-driven electrolyzer removes oxygen from the surrounding water, adding it into the recycled air. With a rebreather, a diver can remain submerged for days at a time. The only limits are imposed by the life of the CO2 scrubbers and the electrolyzer's battery pack. Each of these is good for 72 hours before service is necessary. *Weight:* 10 kg *Price:* Lv2100

Undersea Sled: Because of its compactness and the increased mobility that it gives to divers, the undersea sled is a very popular item for underwater operations. It is a cylinder about one-half m^3 in size, with an internal rudder, diving planes, and battery-powered prop, and with handgrip controls on the rear. Its use is extremely simple. The user grasps the two hand grips at the sled's rear and is towed along behind. Control is also maintained by means of those grips. Triggers control the speed of the internal prop and the position of the rudder. Sliding thumb switches control the diving and lifting planes. *Type:* Diving aid *Crew:* 1 *Weight:* 60 kg *Armor:* None *Signature:* 0 *Evasion:* 0 *Max Speed:* 40 kph *Cruising Speed:* 20 kph *Combat Movement:* 80 m *Endurance:* 6 hr *Price:* Lv150

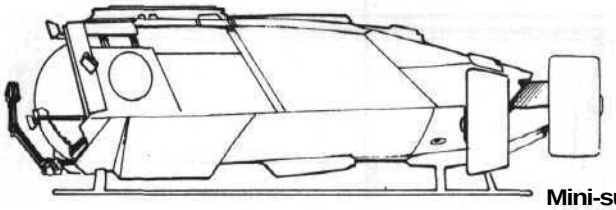
Mini-sub: Mini-subs are used for a variety of operations, including study of deep sea life and for rescue missions. Many versions of the sub are available, but most require a crew of five, which includes a pilot, a navigator, an engineer, a survey/rescue specialist, and a commander who doubles as a survey specialist.

The typical mini-sub is equipped with high-intensity lights on all faces, most of which are mounted on booms that can be moved to different positions. Almost all mini-subs are equipped with some sort of manipulative arms, usually between one and four pairs. These arms come in different sizes and strengths (ranging from strengths capable of lifting 100 kilograms to those that can lift 2000 kilograms) depending on the type of work for which the sub is designed. In addition, all mini-subs carry standard electronics gear, such as radios and sonar. Standard safety features of mini-submarines include self-sealing outer hulls and an emergency oxygen supply. *Type:* Exploratory submarine *Crew:* 5 *Weight:* 2500 kg *Armor: All faces* 1 *Signature: 7 Evasion:* 0 *Sensor Range:* 8 km *Cargo:* 1000 kg *Max Speed:* 50 kph *Cruising Speed:* 30 kph *Combat Movement:* 150 m *Power Plant:* 0.2MW hydrogen fuel cell *Fuel Capacity:* 216 kg H2 *Consumption:* 6 kg/hr *Endurance:* 36 hr *Price:* Lv18,000

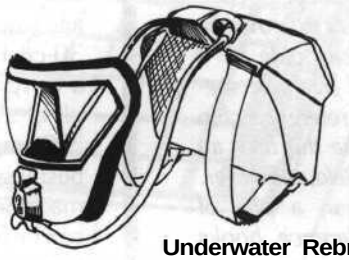
Deep Sea Rescue Robot: The deep sea rescue robot is a self-propelled, torpedo-shaped, mechanical device approximately one m^3 in size with a variety of attached tools, such as lifting arms, oxygen tubes, cutting lasers, and high-intensity search lights. An operator at a remote panel can control the robot from as far as 50 kilometers. The robot has video, infrared, and sonar sensors and a broadcaster to relay images of its surroundings to the control panel, and the panel also contains a sonar scanner to track the robot's position. Deep sea rescue robots are used not only for rescue operations, but also for any undersea operations in which conditions are too dangerous for direct human presence. *Type:* Undersea robot *Crew:* 1 remote *Weight:* 250 kg *Armor: All faces* 1 *Signature:* 1 *Evasion:* 0 *Sensor Range: 2* km *Max Speed:* 35 kph *Cruising Speed:* 20 kph *Combat Movement:* 100 m *Power Plant:* 0.06MW hydrogen fuel cell *Fuel Capacity:* 100 kg H2 *Consumption: 2* kg/hr *Endurance:* 50 hr *Price:* Lv1200

Sea Baggie: A sea baggie is a large, disposable plastic container used for emergency survival in deep water. The user opens the baggie, climbs inside, and seals it behind him. The baggie provides enough heat to prevent hypothermia and enough air to last for approximately five hours. When not in use, the sea baggie fits into a 15-centimeter x 15-centimeter case that clips onto a belt. Each sea baggie may only be used once. *Weight: 2* kg *Price:* Lv20

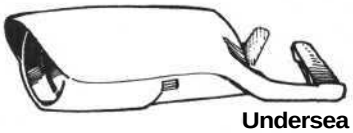
Skyhopper Jetpack



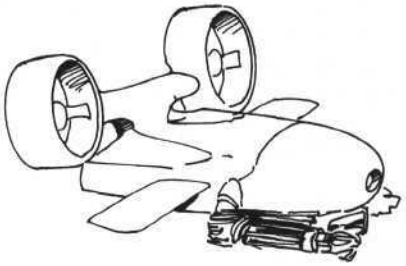
Mini-sub



Underwater Rebreather

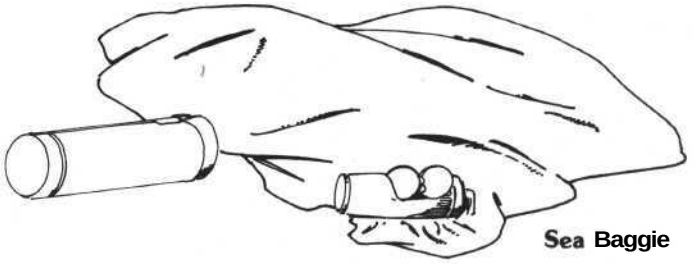


Undersea Sled



Deep Sea Rescue Robot

Diving Gear



Sea Baggie

Computers

Computers in the 24th century are a part of daily life for citizens of the Core worlds, and they are an essential part of nearly any mission group as well.

Portacomp: The portacomp is a small handheld programmable computer, usually carried in a plastic case on the belt or on a shoulder strap. A wide variety of makes and models are available, of which the following is a representative model. The keyboard is a one-handed, five-key hemisphere, roughly 10 centimeters in diameter, designed to be held in the right hand. The monitor is on the back of the hemisphere and is touch-sensitive, allowing an expanded range of inputs while programs are running. Voice input and output are also used, but the keyboard and monitor are useful for a variety of precision inputs and graphic outputs. A flexible 30-centimeter x 20-centimeter monitor expansion (also touch-sensitive) is rolled into a tube in a carrying case. The machine has 10 megabytes of internal memory and is designed to run off of a single 200-megabyte memory/program chip. *Weight:* 0.5 kg *Price:* Lv500

Computer Station: Similar fixed computer stations can be found on board starships, in businesses, in hospitals, and even in some ground vehicles. Anywhere that complex or delicate machinery must be operated, or bulk information must be processed, a typical computer station can be found. These units can easily interact with others on the same network, allowing information to be freely accessed from one unit by another. Most cities have a multitude of individual networks, each devoted to a single function. Banking, company communications, tax accounting, transportation, and information nets are a few common examples. Even with dedicated networks, it is easy enough to access a computer on one network by another on a different network.

One common problem in an age where information is stored and manipulated by computers is the frequency of information theft. Unshielded computers can be monitored, although not controlled, by the radio waves they emanate as a normal effect of their operation. Shielded machines cannot be read in this way, but communication between shielded computers at different locations requires some sort of interface, usually a cable system; and if the cables can be found, they can be tapped easily enough. In the 24th century there is an ongoing war of technology between those who wish to preserve the sanctity of their computer files and those who wish to access them. Penalties for electronic theft are high, but so are the sums that can be gained by blackmail or by the sale of secret information. All that is needed is a quick mind, a thorough knowledge of computer systems, and a computer station from which to work. Such a system typically can be described as follows. *Weight:* 250 kg *Price:* Lv30,000

SUBDERMAL COMPUTERS

Subdermal equipment is implanted under the skin, and as most of the components are of advanced plastics, such equipment is difficult to detect, even by security scanners.

Subdermacalc: The Subdermacalc is a simple calculator merely one centimeter square and almost microscopically thin. It is implanted at the base of the skull and attached to the afferent nerves leading to the dominant hand and the efferent optic nerves leading to the brain. The operator activates the unit by a simple series of neck muscle movements and then begins making hand motions as if performing calculations on a portacomp. Nerve impulses to the hand feed into the Subdermacalc, and results are fed into the optic nerves where they become visible symbols. Power for the Subdermacalc is provided by the electrochemical activity that it reads.

With a Subdermacalc, an operator can perform mathematical calculations at a remarkable speed. (This gives a bonus of 2 to any task roll requiring calculations.) Many versions contain a chronograph at no extra cost. Weight: *Insignificant Price: Lv950 (includes implanting)*

Subdermacomp: The Subdermacomp is installed and operated similarly to the Subdermacalc, but it is about three times as large. Also, it requires more power than the Subdermacalc, and this is provided by the mechanical action of the operator's venous blood movement.

With a Subdermacomp, an operator can perform any function that can be performed with a portacomp. Programs or chips can be installed at the time of purchase, or later if needed. Weight: *Insignificant* Price: *Lv2500 (includes implanting)*

PORTACOMP PROGRAM/ MEMORY CHIPS

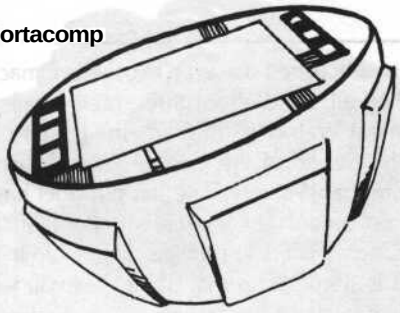
A 200-megabyte Portacomp chip contains roughly the same volume of data as an average encyclopedia. This is sufficient to provide a good reference guide for a single area of scientific specialization. A reference chip does not make the user an expert in a field, however, any more than a pile of chemistry reference books makes the owner an expert chemist.

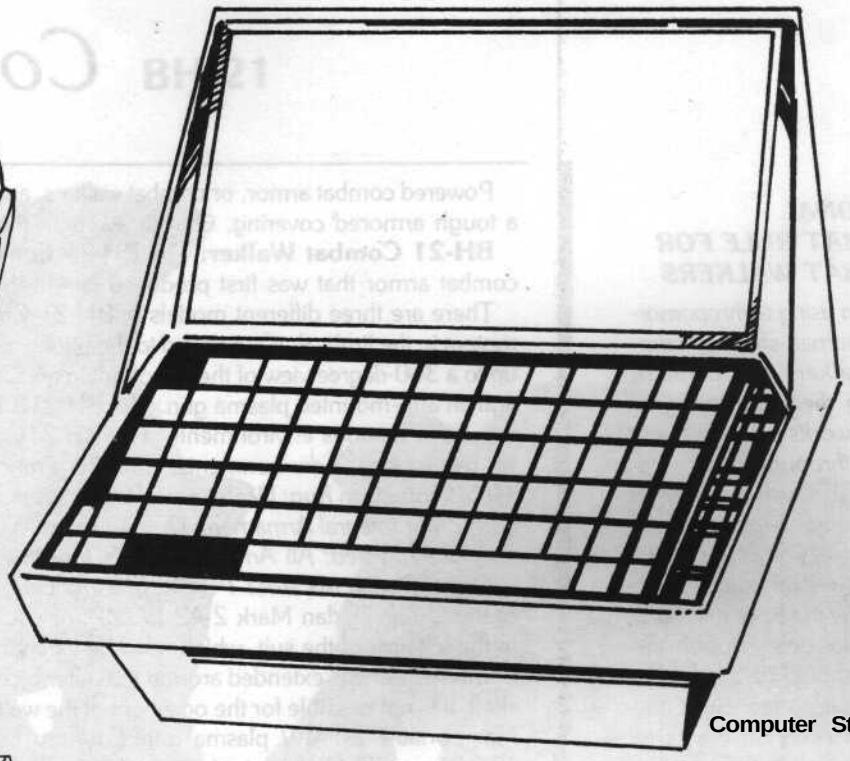
***Translation Chip:** The chip will translate known spoken or written languages. It is purchased with two complete languages on the chip (Taijik-Farsi, for example) and will translate from one to the other at command. Price: Lv10*

***Language Cracker:** A program which will analyze a spoken or written language and attempt to discover contextual similarities between it and the native language of the program. This is generally a slow and painstaking process with considerable trial and error involved. Price: Lv600*

***Reference Guide:** A fairly comprehensive reference guide on any one subject is available on chip for a modest price. Possible subjects include (but are not limited to): biochemistry, physical chemistry, geology of the Earth (or any other well explored world), political history of the Earth (or any other inhabited world), etc. Price: Lv50*

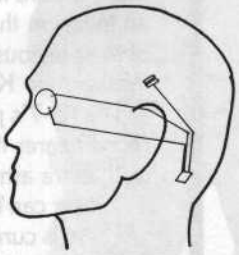
Portacomp



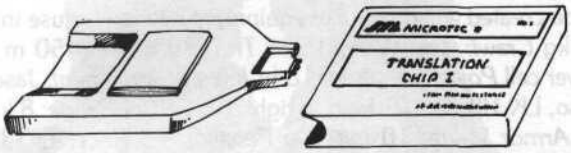


Computer Station

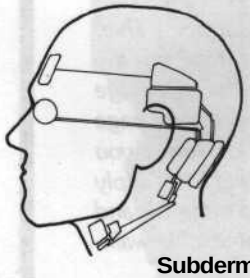
Language Cracker Chip



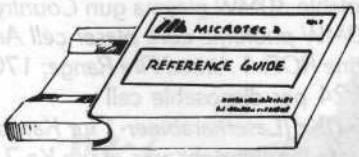
Subdermacalc



Translation Chip



Subdermacomp



Reference Guide Chip

Combat Walkers

OPTIONAL COMBAT RULE FOR COMBAT WALKERS

When using anthropomorphic (human-shaped) combat walkers in combat, treating them like personal armor works well. But with less anthropomorphic combat walkers, use of the target hits diagram begins to make less sense. For example, if a combat walker suffers a leg hit, under the basic rules, any DPV that gets through the armor should be applied to the operator's leg. But if one of the walkers on this page suffers a leg hit, damage that penetrates cannot hit the operator's leg.

Therefore, when performing combat involving nonanthropomorphic combat walkers, use the following rules.

If a combat walker is hit, compare the DPV of the weapon to the armor value of the combat walker. If the DPV is equal to or less than the armor value, the hit does not penetrate and no damage occurs. If the DPV is greater than the armor value, roll 1D10 and add 1 for each 5 DPV in excess of the combat walker's armor. Then compare this total to the Combat Walker Damage chart in the sidebar on page 31 of this book. (Note: If you use this optional rule, apply it to all anthropomorphic and non-anthropomorphic walkers alike.)

Powered combat armor, or combat walkers, are articulated powered exoskeletal machines with a tough armored covering. On the average, they all stand about three meters tall.

BH-21 Combat Walker: The BH-21 Combat Walker is a French-made suit of powered combat armor that was first produced late in the period of the Central Asian War.

There are three different models of BH-21 Combat Walkers. The basic model has powerful motors in the limbs that are slaved to the pilot's movements, an internal monitor that can expand up to a 360-degree view of the surrounding area, heavy filters to provide clean air to the operator, and an arm-mounted plasma gun. The BH-21B is simply a normal BH-21 with air tanks added for use in noxious environments. The BH-21 C has air tanks for vacuum and adds a jet pack for use in zero-G environments. *Country:* France *Weight:* 380 kg *Crawl:* Not allowed *Walk:* 10 m *Trot:* 20 m *Run:* Not allowed *Power Supply:* Internal rechargeable power cell *Power Duration:* 24 hr *Integral Armament:* Quinn-Darlan Mk 4-A1 PGCW *Sensor Range:* 6 km *Signature: 2 Area Protected:* All *Armor Value: 8 Initiative Penalty:* -4 *Price:* Lv17,000

Quinn-Darlan Mk 4-A1 PGCW (Plasma Gun, Combat Walker): The Mark 4-A1 is a variant of the Quinn-Darlan Mark 2-A2 PGMP for use in the BH-21 Combat Walker. It is mounted in the left arm of the suit, which must be extended and locked to fire the weapon. The internal drum magazine is extended around the outer bicep of the walker and is protected by its armored shell. It is not possible for the occupant of the walker to reload the magazine without help. Type: Man-portable 20-MW plasma gun *Country:* France/USA *Action:* Single shot *Ammunition:* 17x91 mm 20-MW photonic core plaser cell *Ammunition Weight:* 0.8 kg *Magazine:* 30 cells in internal drum magazine. *ROF:* 1 *Aimed Fire Range:* 1700 m *DP Value:* As tamped explosion (EP = 4) *Ammo Price:* Lv18 per disposable cell

Kz-7 (Kampfanzug-7) Combat Walker: The Kz-7 Combat Walker was developed by Germany toward the end of the War of German Reunification in preparation for an invasion of France, an invasion that France halted at the Somme, suing for peace and accepting the reunification of the previously separate German states. Intended as a response to the French BH-21 Combat Walker, the Kz-7 was made much stronger and more flexible.

The Kz-7's plasma gun was mounted on the walker's shoulder in order to have its considerable recoil *nearer* the suit's center of balance than if the weapon had been mounted on an arm. As well, extra armament was included on the walker in the form of a laser in the suit's right arm. The laser can be used against soft-skinned targets, saving energy to be used for the plasma gun.

There is currently only one model of Kz-7 Combat Walker, and given the emphasis on mobility, it is unlikely that any variants will be created with the bulky equipment needed for use in space. *Country:* Germany *Weight:* 455 kg *Crawl: 2* m *Walk:* 15 m *Trot:* 30 m *Run:* 50 m *Power Supply:* Internal rechargeable power cell *Power Duration:* 18 hr *Integral Armament:* Jaschonek Fabrikant A-4 Sturmgewehr in torso, LK-1 fKz 35-01 laser in right arm *Sensor Range: 8* km(+1) *Signature:* 1 *Area Protected:* All *Armor Value:* 10 *Initiative Penalty:* -3 *Price:* Lv33,000

Jaschonek Fabrikant A-4 Sturmgewehr: The A-4 is a very high energy plasma gun integral to the Kz-7 Combat Walker. The main gun mechanism is mounted in the chest of the walker, and the weapon itself fires from over the right shoulder. The walker must be stationary to fire the weapon due to the high recoil. The high capacity magazine is reloaded from a port located on the front of the suit's left hip and can be reloaded by the suit operator.

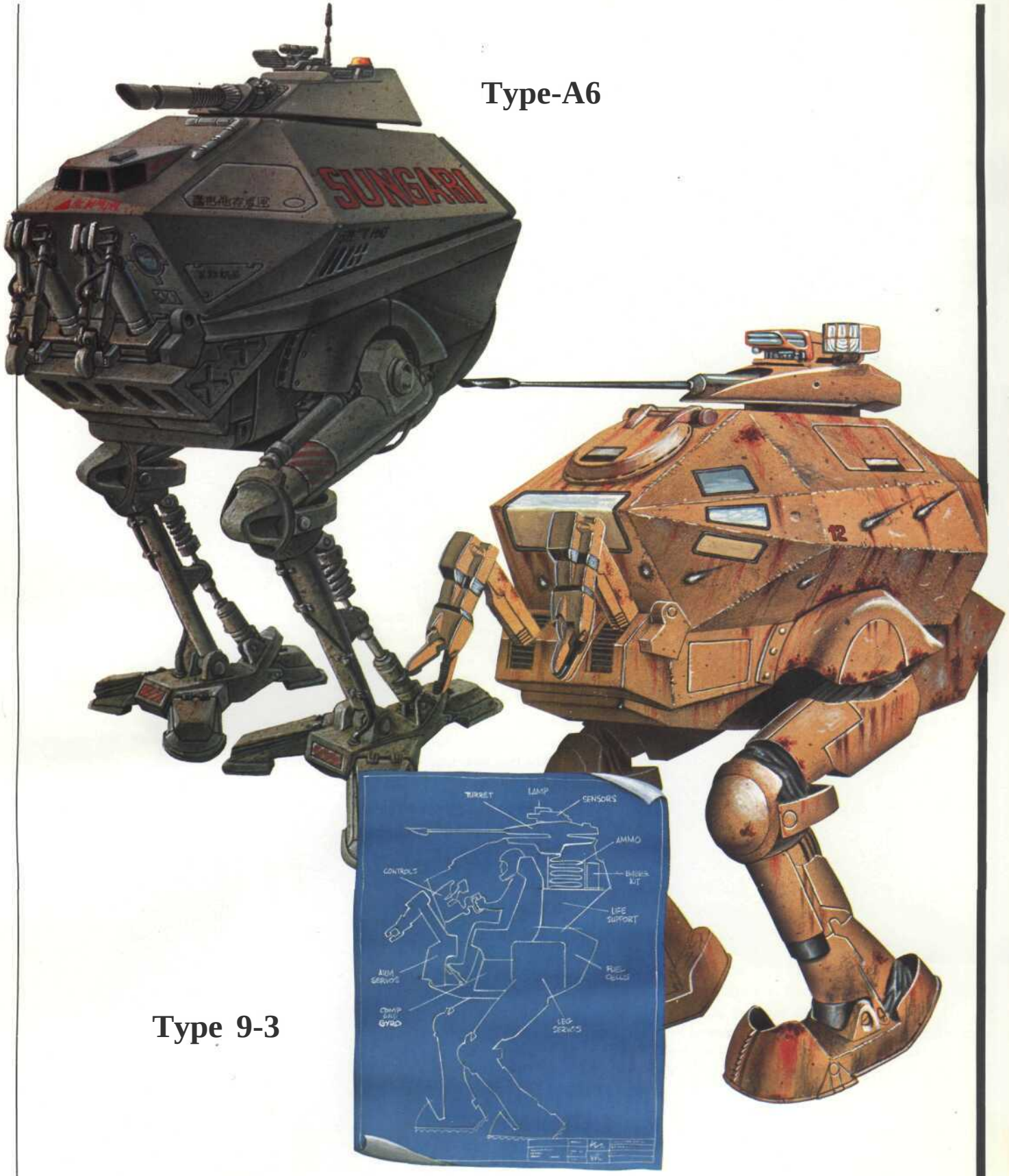
Type: Man-portable 30MW plasma gun *Country:* Germany *Action:* Single shot *Ammunition: 20X 107mm 30MW photonic core plaser cell Ammunition Weight:* 1 kg *Magazine:* 40 cells in internal magazine *ROF:* 1 *Aimed Fire Range:* 1700 m *DP Value:* As tamped explosion (EP = 6) *Ammo Price:* Lv24 per disposable cell

Rorttmann LK-1 fKz (Laserkarabiner-1 fur Kampfanzug): The Rorttmann LK-1 fKz is a variant of the LK-1 mounted in the right arm of the Kz-7 combat walker. The laser operates off of the walker's own power supply. Each pulse fired reduces the power's duration by two minutes. *Type:* 35-01 laser rifle *Country:* Germany *Action:* Single shot *Pulse Energy:* 0.35 megajoules *Muzzle Velocity:* C *ROF: 5 Aimed Fire Range:* 1000 m *DP Value:* 1

BH-21

Kz-7

Type-A6



Type 9-3

Wu-Beijing Type-A6 Combat Walker: Having used combat walkers during the latter part of the Central Asian War, Manchuria was convinced of their utility, but those early walkers were unable to stand up to the French BH-21 and the German Kz-7. Deciding that a new walker design was needed, Manchuria commissioned Wu-Beijing, one of its leading arms manufacturers, to create it. The result was the Wu-Beijing Type-A6, commonly called the "Clamshell" by service members of other nations. The Type-A6 has many innovative aspects that set it off from standard powered combat armor.

First, the Type-A6 is not, strictly speaking, a suit of powered combat armor. The operator's arms and legs do not fit into the machine's limbs. Instead, the operator is entirely enclosed within the body of the walker; the machine's arms are small appendages operated by remote control, and the legs are "walked" by an advanced computer program. The main advantage to all of this is that the main body is much more horizontal, allowing its armor to deflect enemy fire more easily, and making the entire construct much more stable during movement. If a Type-A6 is knocked off its feet by enemy fire, with the legs pulled up close, the walker will almost always roll to its belly, allowing it to regain its feet very easily (task difficulty is Routine).

The Type-A6 is also airtight, allowing it to operate in hazardous atmospheres, and it floats, allowing it to swim small, inland bodies of water. A turret-mounted Type-17 High Energy Plasma Gun completes the system. *Country:* Manchuria *Weight:* 410 kg *Crawl:* Not allowed *Walk:* 20 m *Trot:* 35 m *Run:* 60 m *Power Supply:* Internal rechargeable power cell *Power Duration:* 20 hr *Integral Armament:* Type-17 High Energy Plasma Gun *Sensor Range: 7* km *Signature: 2 Area Protected:* All *Armor Value: 9 Initiative Penalty:* - 3 *Price:* Lv30, 000

Type-17 High Energy Plasma Gun: The Type-17 is a high energy plasma gun mounted in a turret atop the Wu-Beijing Type-A6 Combat Walker. A high capacity magazine is built into the top of the walker, just below the turret, and it must be reloaded from outside. Given enough time, the operator can reload the magazine by use of the external arms, but typically it is reloaded by someone else. *Type:* 25MW plasma gun *Country:* Manchuria *Action:* Single shot *Ammunition:* 18 x 101 mm 25MW photonic core plaser cell *Ammunition Weight:* 0.95 kg *Magazine:* 40 cells in internal drum magazine. *ROF:* 1 *Aimed Fire Range:* 1800 m *DP Value:* As tamped explosion (EP = 5) *Ammo Price:* Lv22 per disposable cell

Chyuantii Defense Systems Type 9-3 Combat Walker: The Type 9-3 Combat Walker was developed by Chyuantii Defense Systems, Syuhlahm (Zeta Tucanae-2) as an inexpensive alternative for smaller nations wanting a combat walker's capabilities, but unable to afford to develop their own or to purchase from a major nation. Using almost 50 years of experience in building noncombat walkers, Chyuantii Defense Systems was able to develop a walker that was cheap and easy to maintain. It is not, however, designed to stand up against more powerful walkers, such as the French BH-21. Instead, it is intended to do what combat walkers were originally designed for, to operate in rough terrain as a type of very heavy infantry.

The Type 9-3 uses the computer-controlled leg design and external arms on its front face for manipulating objects and a turret mount for its autocannon. The autocannon in itself is a concession to economy, providing effective firepower against personnel and light vehicles, but not as effective as the plasma guns common to other combat walkers. (However, some Type 9-3s have been seen with a Guiscard Blindicide-3 missile strapped next to their autocannons, apparently for use against heavier targets.) Also, being of a rather upright design, if the Type 9-3 falls onto its back or side, it is nearly impossible to return to its feet unassisted (task difficulty level is Impossible). *Country:* Generic *Weight:* 320 kg *Crawl:* Not allowed *Walk:* 10 m *Trot:* 20 m *Run:* 30 m *Power Supply:* Internal rechargeable power cell *Power Duration:* 12 hr *Integral Armament:* Wu-Beijing Type-416 Autocannon *Sensor Range:* 3 km *Signature:* 1 *Area Protected:* All *Armor Value:* 5 *Initiative Penalty: -2 Price:* Lv10, 500

Wu-Beijing Type-416 Autocannon: The Type-416 is a large-bore conventional autocannon adapted to mount oh the Type 9-3 Combat Walker. The weapon is mounted in a turret on the walker's top, allowing it to fire in a 240-degree arc. Area fire is possible, thus the walker need not be stationary to use the weapon. The magazine for the weapon is mounted internally on the walker's back and can only be reloaded from the outside. *Type:* 25mm conventional autocannon *Country:* Manchuria *Action:* Single shot or bursts *Ammunition:* 25 x 161 mm fixed cartridge APHE *Ammunition Weight:* 60 kg *Magazine:* 200-round internal drum *ROF:* 5 *Aimed Fire Range:* 1000 m *Area Fire Burst:* 10 (AFV=1) *Area Fire Range:* 800 m *DP Value: 6* (+fragmentation burst radius = 5 m) *Ammo Price:* Lv8 for box of 200 rounds

COMBAT WALKER DAMAGE

1D10	Result
7	No *effect*
2	*No effect*
3	*Secondary*
4	*Operator*
5	*Secondary*
6	*Armament*
7	*Mobility*
8	*Operator*
9	*Armament*
10	*Mobility*
11	*Catastrophic*
12	*Mobility*
13	*Catastrophic*
14	*Armament*
15+	*Catastrophic*

No Effect: *The combat walker is unaffected.*

Secondary: *A system of secondary importance (secondary weapon, nonweapon arm, sensor, etc.) is destroyed. Roll randomly among possible systems.*

Operator: *The combat walker's operator is hit. If a player character, roll for wound potential (normal type damage) using the DPV that penetrated the walker.*

Armament: *The primary weapon is destroyed.*

Mobility: *The walker is stopped, its movement ratings are halved (dropped to 0 after three mobility hits), and the operator must roll for the task below to prevent the combat walker from falling.*

Catastrophic: *The combat walker is destroyed and the operator is killed.*

Task: *To keep a combat walker on its feet: Difficult. Combat Walker. Instant.*

If the task roll is failed, the following task must be rolled to return a combat walker to a standing position.

Task: *To return a combat walker to its feet: Formidable. Combat Walker. One action.*

Space Equipment

The items listed in this chapter are of great use for the crews of space craft.

STANDARD ITEMS

There are two basic problems with working in the vacuum of space. The first is the need for life support, and the second is the difficulty involved in moving about. Each of the following items has been designed to solve these problems.

P-Suit: A P-suit is a close-fitting, flexible pressure suit for use in vacuum, with a bubble helmet and battery-powered, heating and air recycling, life support system. The life support unit duration is eight hours, but bottled oxygen can extend this up to 20 hours (maximum battery life). *Weight:* 15 kg *Armor:* 0.1 *Initiative:* -1 *Price:* Lv1000

Magnetic Grappler: This device is a squat cylinder (five centimeters high by 10 centimeters in diameter) containing a battery-powered electromagnet for attachment to ferrous metals, such as some sections of ship hulls. One face attaches to the metal surface; the other has a lock ring through which to run a safety line for work in zero-G. The battery is good for 12 hours of constant operation. The magnetic grappler will hold up to 250 kilograms. *Weight:* 0.5 kg *Price:* Lv8

Rocket Stake: A rocket stake is used to attach zero-G safety lines to surfaces to which magnetic grapplers and Stik-kits will not adhere, such as the rocky surfaces of small asteroids. Each rocket stake is 20 centimeters long x 5 centimeters in diameter and comes with a recoilless pistol-grip firing mechanism (care must be taken to avoid the stake's backblast area) and a 100-meter reel of safety line. To determine how deeply a rocket stake penetrates a substance, treat it as having a DPV of 1 and penetrating to a distance of (20 cm x DPV)/armor value. *Weight:* 5 kg *Price:* Lv15

EVA Stick: An EVA stick is a very common item used by people working in vacuum and zero-G. In form, it is a meter-long, telescoping rod with a jet in one end, a hook and magnetic grapple on the other end, and a gas shock absorber inside. The jet is used to maneuver in space, and the gas shock absorber is used to slow the operator upon approaching a surface. A valve within the tool can be triggered to prevent the shock absorber from reextending until the operator desires. The jet has a continuous burn duration of five minutes; normal use consumes about three seconds of fuel per maneuver. *Weight:* 3.5 kg *Price:* Lv80

EVA Pack: For crossing longer distances in space, an EVA pack is used, rather than an EVA stick. The jets are arranged on movable arms, allowing their height to be adjusted to match the user's center of balance, and they can fire to both the rear (for gaining momentum) and the front (for reducing momentum). The pack has a continuous burn duration of 30 minutes; an average burn lasts for 10 seconds. An emergency radio beacon is included on the pack.

External Repair Bay: Performing repairs on the outside of a space craft is much more difficult and dangerous than inside. This is largely due to the possibility of rupturing a P-suit. For this reason, the British firm of Gorman Systems, Ltd. has designed a portable external repair bay. The bay is composed of modular sections that bolt together on a ship's hull, creating an 10 meter x 10 meter x2 meter space that can be flooded with atmosphere, allowing unsuited personnel to work on the outer surface of the ship. *Weight:* 800 kg *Price:* Lv2000

SATELLITES

Satellites are generally placed in orbit by ships already in orbit around a world.

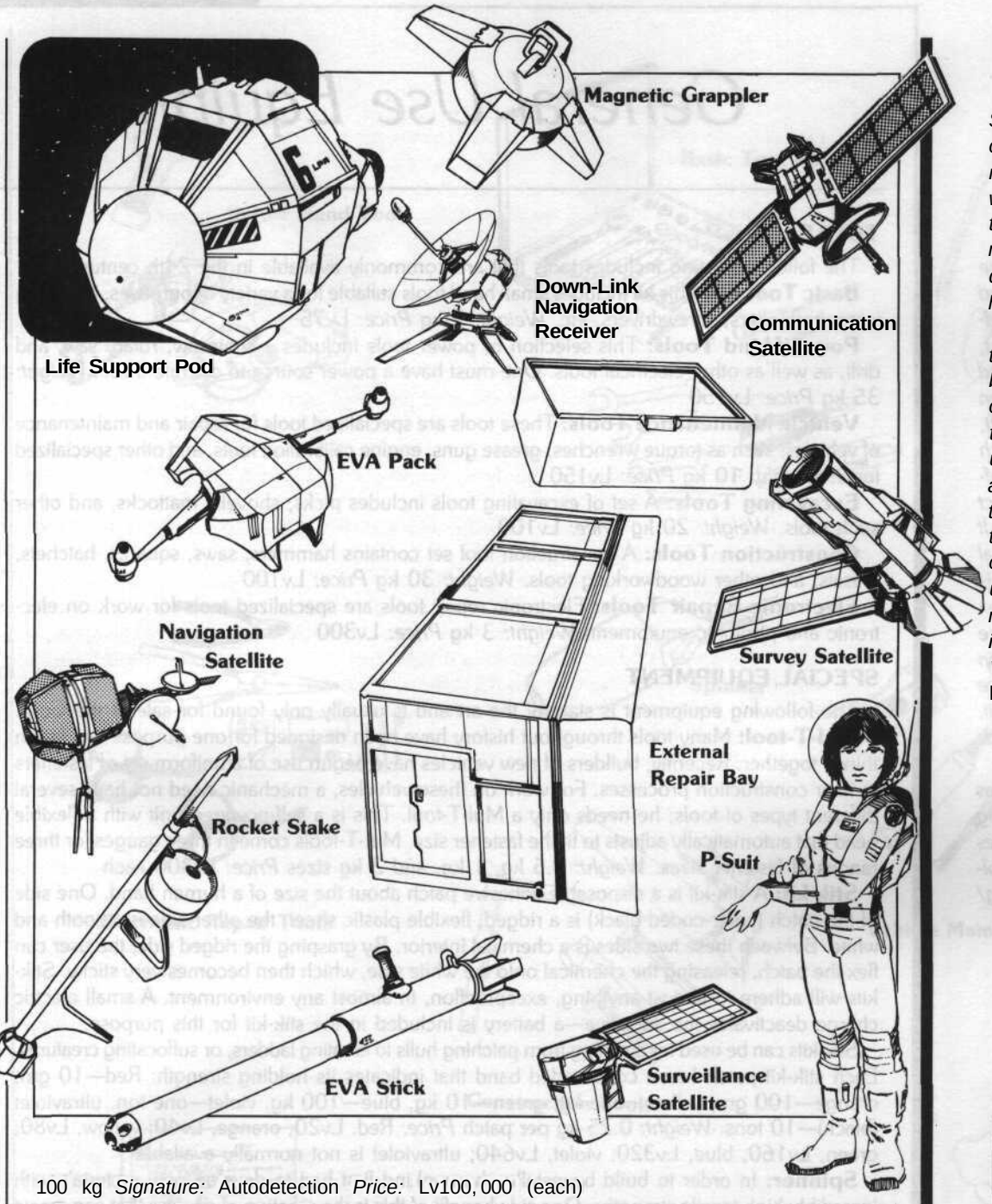
Communication Satellite: A communication satellite is a solar-powered orbital receiver and retransmitter of tight beam or broadcast communication. Each provides 20-percent coverage of a world (see discussion of up-link communicators), while five satellites evenly spaced in the same orbit will provide 100-percent coverage. *Weight:* 20 kg *Signature:* —3 *Price:* Lv50,000

Navigation Satellite: A navigation satellite is a solar-powered orbital broadcast transmitter. Five satellites are required to provide full coverage of a planetary surface. Each satellite continuously broadcasts its identification code and current position. A down-link receiver and microprocessor in a vehicle, or carried by a person, can, by triangulation with the satellites currently transmitting, establish its own correct surface location to within 10 meters. *Weight:*

EMERGENCY EQUIPMENT

When an emergency happens in space, people must be well trained and well equipped to deal with it quickly. The next two pieces of equipment find use in such situations.

Life Support Pod: *Most space craft have some sort of escape pod that can be used in the event of a major catastrophe. These pods typically are designed to provide minimal life support (air and water) for a ship's entire crew over a period of 24 hours. Maneuvering jets are also included for separation from the mother ship, and an automatic emergency distress beacon is built in.* Weight: 500 *kg, plus 150 kg per person to be held* Price: *Lv200, plus Lv100 per person to be held*



100 kg *Signature:* Autodetection *Price:* Lv100,000 (each)

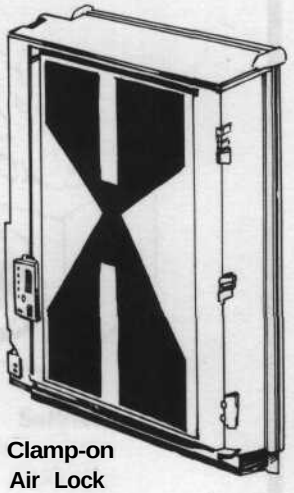
Down-Link Navigation Receiver: A down-link navigation receiver is a portable unit used by ground parties to receive broadcasts from navigation satellites. *Weight:* 5 *kg Signature:* None (receiver only) *Price:* Lv500

Surveillance Satellite: A surveillance satellite is a solar-powered, low-orbit satellite designed to detect vehicular movement on the surface or in the atmosphere of a world. Each satellite will orbit an earth-sized planet roughly three times a day and will scan the area directly below and 50 kilometers to either side of its orbit. (This amounts to scanning each 100-kilometer hex along its orbit three times a day.) *Weight:* 150 kg *Signature:* +4 *Sensor Range:* Orbital (surface targets count as regular range; airborne targets count as half range) *Price:* Lv500,000

Survey Satellite: A survey satellite is a solar-powered photographic satellite for mapping a planet and collecting meteorological data. The satellite is placed in geosynchronous orbit to provide surface mapping and data on atmospheric weather conditions. *Weight:* 50 kg *Signature:* -1 *Price:* Lv250,000

Clamp-on Air Lock: *Sometimes a normal air lock cannot be used, and a hull must be breached quickly without jeopardizing the integrity of its interior atmosphere. In such cases, a damp-on air lock can be handy.*

The clamp-on air lock attaches to the outside of a hull by means of magnetic pads, chemical adhesives, or electrical spot welds (depending upon the hull material), allowing a hole to be cut through the hull for access to the interior of the ship. If a clamp-on air lock is to be used for more than several minutes, it is usually welded in place permanently. Weight: 2000 kg *Price:* Lv 10,000



Clamp-on Air Lock

General Use Equipment

SOFSTUF

SofStuf was originally the name for a particular brand of foam tissue, but the product became so popular that, as often happens, the brand name became the common public term. SofStuf is a soft, absorbent substance which foams up and cures to a fluffy consistency upon contact with atmospheric nitrogen. It is widely used as a facial tissue; as the foamy part is torn from the top of the box in which it is packaged, the substance below comes In contact with the atmosphere and foams up to replace it. It takes less than two seconds for curing to finish.

SofStuf is also used as bandages, rags, bathing cloths, and towels. It comes in a variety of decorator colors. Weight: *0.25kg/ package* Price: *Lv3*

TOOLS

The following listing includes tools that are commonly available in the 24th century.

Basic Tool Kit: This kit includes small hand tools suitable for a variety of purposes, including wrenches, pliers, screwdrivers, etc. *Weight:* 5 kg *Price:* Lv75

Power Hand Tools: This selection of power tools includes a chainsaw, rotary saw, and drill, as well as other electrical tools. One must have a power source to operate these. *Weight:* 35 kg *Price:* Lv150

Vehicle Maintenance Tools: These tools are specialized tools for repair and maintenance of vehicles, such as torque wrenches, grease guns, engine calibration tools, and other specialized tools. *Weight:* 10 kg *Price:* Lv150

Excavating Tools: A set of excavating tools includes picks, shovels, mattocks, and other such tools. *Weight:* 20 kg *Price:* Lv100

Construction Tools: A construction tool set contains hammers, saws, squares, hatchets, chisels, and other woodworking tools. *Weight:* 30 kg *Price:* Lv100

Electronic Repair Tools: Electronic repair tools are specialized tools for work on electronic and photonic equipment. *Weight:* 3 kg *Price:* Lv300

SPECIAL EQUIPMENT

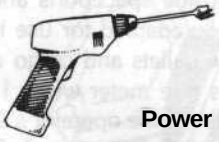
The following equipment is state of the art and is usually only found for sale at the Core.

Mul-T-tool: Many tools throughout history have been designed for one purpose—to fasten things together. Recently, builders of new vehicles have begun use of a uniform set of fasteners in their construction processes. For work on these vehicles, a mechanic need not have several different types of tools; he needs only a Mul-T-tool. This is a self-powered unit with a flexible head that automatically adjusts to fit the fastener size. Mul-T-tools come in three gauges for three ranges of fastener sizes. *Weight:* 0.5 kg, 1 kg, and 2 kg sizes *Price:* Lv300 each

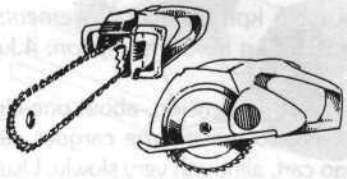
Stik-kit: A stik-kit is a disposable adhesive patch about the size of a human hand. One side of the patch (color-coded black) is a ridged, flexible plastic sheet; the other side is smooth and white. Between these two sides is a chemical interior. By grasping the ridged side, the user can flex the patch, releasing the chemical onto the white side, which then becomes very sticky. Stik-kits will adhere to almost anything, except teflon, in almost any environment. A small electric charge deactivates the adhesive—a battery is included in the stik-kit for this purpose.

Stik-kits can be used for anything from patching hulls to creating ladders, or suffocating creatures. Each stik-kit patch has a color-coded band that indicates its holding strength: Red—10 gm, orange—100 gm, yellow—one kg, green—10 kg, blue—100 kg, violet—one ton, ultraviolet (black)—10 tons. *Weight:* 0.25 kg per patch *Price:* Red, Lv20; orange, Lv40; yellow, Lv80; green, Lv160; blue, Lv320; violet, Lv640; ultraviolet is not normally available

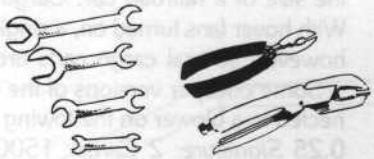
Spinner: In order to build beanstalks, humankind first had to develop new materials with incredibly high tensile strengths. One side benefit of this is the creation of devices that can create monofilament strings by mixing a liquefied, chemical base with a catalyst. One such device is the spinner, a hand-held mechanism that "spins" a strong, continuous, one-millimeter-thick, monofilament polymer cable. The device consists of two reservoirs (one for the base chemical and another for the catalyst), a curing chamber, and an exit tube with a crimping mechanism that allows the cable end to be gripped. The cable is nonconductive to electricity and is extremely strong, supporting as much as 1000 kilograms. It is very difficult to cut; for this reason, the spinner also contains an enzyme capable of dissolving the cable. Cable from a spinner has a number of uses. It can be used to tie down cargo which has a tendency to "wander" in zero-G. Also, some rock-climbing teams use it as an emergency backup rope. Care must be taken, however, when weight is being supported by Spinner cable, that soft materials (such as human flesh) are not cut due to the cable's thinness. Each spinner creates up to two kilometers of cable. *Weight:* 1.5 kg *Price:* Lv500



Power Hand Tools

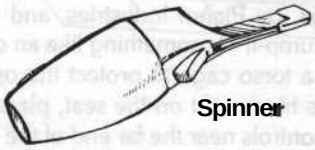


Basic Tool Kit

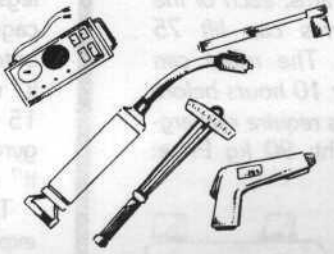


Excavating Tools

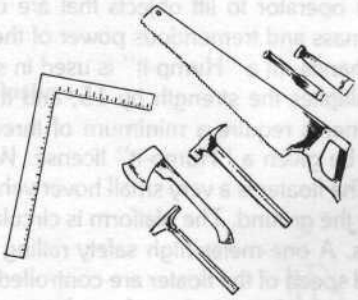
Electronic Repair Tools



Spinner

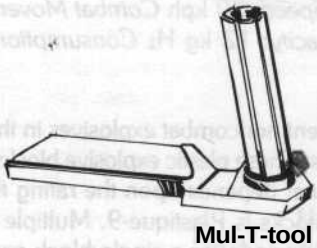


Vehicle Maintenance Tools



Construction Tools

Stik-kit



Mul-T-tool

SofStuf

SORTECH EXPLORER

The Sortech Explorer, manufactured by America's Sortech Enterprises, is a 0. 75-meter-tall, battery-operated, maintenance and repair robot. It is sometimes also used for rescue operations, such as in cave-ins. The Explorer is remotely controlled by the same control panel as a 4020 HMHPAT Cargo Mover. The robot is equipped with audio and visual sensors, with a broadcast unit to radio information back to the control panel.

The Explorer has one large cargo arm and two smaller fine-manipulation arms. The large arm can lift 500 kilograms; each of the smaller arms can lift 75 kilograms. The robot can operate for 10 hours before its batteries require recharging. Weight: *90 kg* Price: *Lv1000*

CARGO HANDLING EQUIPMENT

The following equipment will commonly be found at groundside spaceports and catapult facilities. Spaceside facilities will have similar equipment specially adapted for use in zero-G.

Cargo Mule: A cargo mule is a one-man truck used to tow pallets and cargo carts from one location to another within a warehouse or port facility. It is one meter wide, 1.6 meters long, and 1.2 meters tall, including the protective cage that rises above the operator's seat. *Type:* Cargo towing vehicle *Crew:* 1 *Weight:* 450 kg *Armor: All faces* 0.4 *Signature:* 1 *Evasion:* 0 *Cargo:* 5000 kg (towed) *Max Speed: 8* kph *Cruising Speed:* 6 kph *Combat Movement:* 12 m *Power Plant:* 0. 13 MW hydrogen fuel cell *Fuel Capacity:* 192 kg H2 *Consumption:* 4 kg/hr *Endurance:* 48 hr *Price:* Lv2000

Cargo Cart: A cargo cart is a freight container, with a hover suspension, about one-eighth the size of a railroad car. Cargo carts are used in freight yards to move large cargoes easily. With hover fans turned on, a single human can push the cargo cart, although very slowly. Usually, however, several cargo carts are hooked in a line and towed by a small vehicle.

Some cheaper versions of the cargo cart do not have built-in hover fans, but are instead connected to a blower on the towing vehicle. *Type:* Cargo car *Crew:* None *Weight:* 350 kg *Armor:* 0.25 *Signature: 2 Cargo:* 1500 kg *Price:* Lv1000

Pichot 4020 Heavy Materials Handler Human Physical Analogue Tool (4020 HMHHPAT): The Pichot 4020 HMHHPAT, usually called simply a "Hump-it," is a battery-powered, articulated exoskeletal framework used for lifting small, heavy objects. It was originated in Australia, by Pichot Industries, and has since found widespread use in America as well.

The "Hump-it" is something like an oversized human skeleton in appearance, with arms and legs, and a torso cage to protect the operator's head and body. The operator climbs into the cage, rests his weight on the seat, places his feet into the feet of the "Hump-it" and his hands onto the controls near the far end of the arms. When the operator moves his limbs, the "Hump-it" moves its limbs in response, but it enhances the operator's movement, allowing him to lift 15 times as much weight as he could lift unassisted. Walking is made simple through gyrostabilizers and automatic locks that virtually prevent falls. The long arm span of the "Hump-it" allows the operator to lift objects that are up to two meters across.

The great mass and tremendous power of the "Hump-it" can be extremely dangerous in inexperienced hands. (If a "Hump-it" is used in some form of combat, it has an initiative penalty of -4, it multiplies the strength by 15, and it is too open to provide an armor value.) Most local governments require a minimum of three to six weeks in training simulators before an operator can be given a "Hump-it" license. *Weight:* 400 kg *Duration:* 12 hr *Price:* Lv3500

Floater: The floater is a very small hover vehicle capable of lifting 500 kilograms up to seven meters above the ground. The platform is circular, standing one meter tall and having a diameter of 2.5 meters. A one-meter high safety railing encircles the platform's upper surface. Height, direction, and speed of the floater are controlled by an operator seated toward the vehicle's rear. Room is left at the floater's front for a figure to stand.

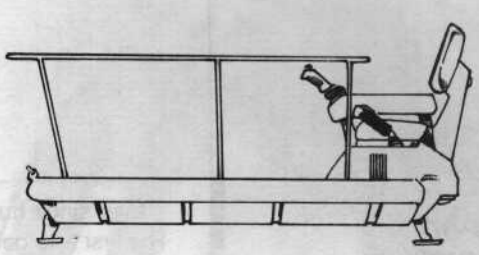
The floater is most commonly used for inspecting the exteriors of large objects, such as buildings or landed spacecraft. Some floaters are used among urban police forces as small patrol vehicles. These versions are sometimes mounted with forward firing weapons. *Type:* Small hover vehicle *Crew:* 1 *Weight:* 300 kg *Armor:* None *Signature:* 1 *Evasion:* 4 *Cargo:* 1 passenger *Max Speed:* 50 kph *Cruising Speed:* 30 kph *Combat Movement:* 90 m *Power Plant:* 0.03 MW hydrogen fuel cell *Fuel Capacity:* 12 kg H2 *Consumption: 2* kg/hr *Endurance: 6* hr *Price:* Lv1500

EXPLOSIVES

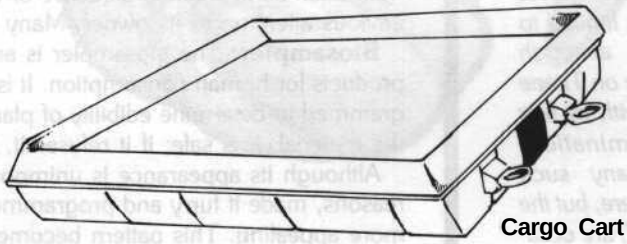
The most prevalent noncombat explosives in the 24th century are industrially produced blocks of plastic explosives. These plastic explosive blocks are all of a uniform weight—one kilogram—but their explosive power depends upon the rating they hold. The most commonly used rating for plastic explosive blocks is Plastique-9. Multiple blocks of this explosive can be used together to create larger explosions, or a single block can be broken down to a fragment of its size for smaller blasts.

It should be noted that possession of explosives requires a local license on most worlds, and the penalties for noncompliance are severe. *Weight:* 1 kg *DP Value:* As explosion (EP = 10) *Price:* Lv15

Cargo Mule

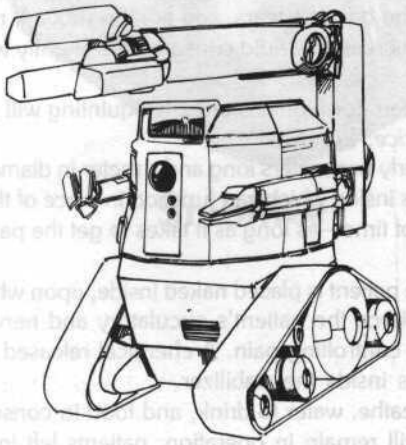


Floater

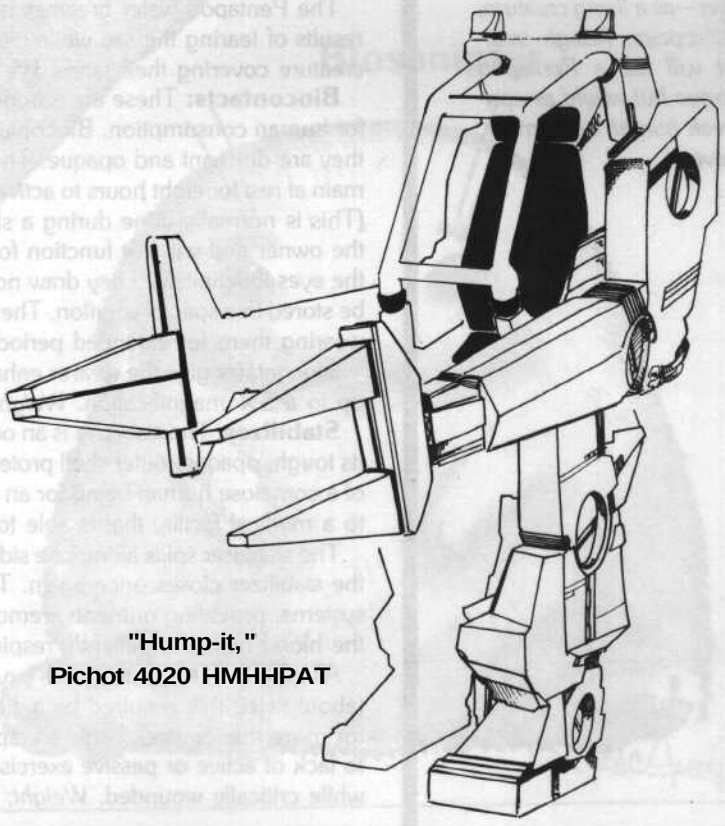


Cargo Cart

Explosives



Sortech Explorer



"Hump-it,"
Pichot 4020 HMHHPAT

Pentapod Products

PENTAPOD ANALOGUE AVAILABILITY

Pentapod analogues exist for much of the human equipment listed in this book, but they are not widespread in human space. Most of them are limited to the French Arm, although some are available on Tirane as well. (Earth, with its fear of alien contamination, seldom allows any such items in its biosphere, but the very rich, as usual, are occasionally able to have an exception made.)

If a Pentapod analogue is available (up to the referee), it costs at least twice as much as normal human equipment, but it will last nearly forever—as a living creature, it self-repairs. Rough treatment will kill a Pentapod analogue but would as easily break human equipment, however.

Ever since humans first met Pentapods, Pentapods have been pursuing two related goals. The first is to gain an understanding of human culture and psychology; the second is to provide bioengineered products that will appeal to human buyers. No human is certain as to which of those goals is the Pentapods' primary one. It might be that they are trying to understand humans in order to better market their products, or it might be that through test marketing, they hope to gain a better knowledge of human psychology. In any case, humans also study the products that Pentapods provide, in order to gain insights into Pentapod thought processes.

There is a certain amount of status to be gained by owning a Pentapod produced item, as well. Each item, whether attractive or unattractive to humans, is so completely alien as to draw envious attention to its owner. Many Pentapod items are simply useful, as well.

Biosampler: The biosampler is among the first Pentapod mass-produced, bioengineered products for human consumption. It is an animal biochemically similar to a human being, programmed to determine edibility of plant and animal tissue. Communication is simple: if it eats the material, it is safe; if it refuses it, it is toxic.

Although its appearance is unimportant to its function, the Pentapods have, for marketing reasons, made it furry and programmed a limited pattern of semi-random behavior to make it more appealing. This pattern becomes predictable after long viewing, but the creatures have become popular as children's pets on many Frontier worlds. *Weight:* 0.5 kg *Price:* Lv20

Water Breather: Just recently, the Pentapods have released a new product on the market: the water breather. It is a shelled creature that fits tightly to the human face, with a clear section over the eyes, a tube that projects into the mouth, and an expandable sac at the chin. The sac expands as the wearer exhales and contracts as the wearer inhales. Meanwhile, the creature filters oxygen out of the surrounding water and exudes it into the sac, while filtering carbon dioxide out of the exhaled air.

The Pentapod water breather is very popular for casual diving, but some humans fear the results of tearing the sac while working at deep levels. Others feel suffocated to have a living creature covering their faces. *Weight:* 0.5 kg *Price:* Lv75

Biocontacts: These are among the first Pentapod mass-produced bioengineered products for human consumption. Biocontacts are transparent lenses worn in the eye. When purchased, they are dormant and opaque. The purchaser must insert them, keep his eyes closed, and remain at rest for eight hours to activate the contacts and allow them to adapt to his body chemistry. (This is normally done during a sleep period.) Once activated, the biocontacts are specific to the owner and will not function for anyone else. They can be removed and stored or kept in the eyes indefinitely. They draw nourishment from the owner's tears, and so, if removed, must be stored in a special solution. The wearer needs to increase his fluid consumption slightly while wearing them for extended periods of time.

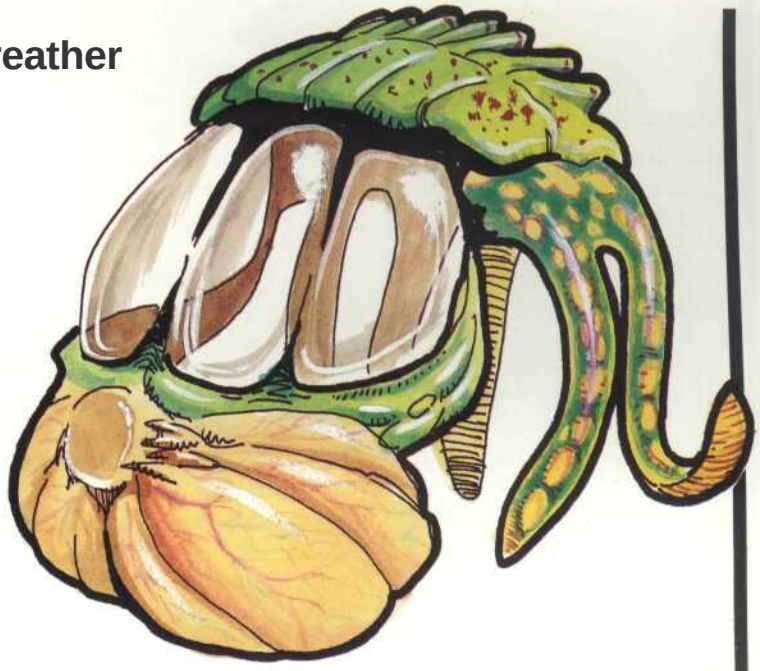
Biocontacts give the *wearer* enhanced infrared vision (for night vision) and squinting will give up to a 5x magnification. *Weight:* Insignificant *Price:* Lv500.

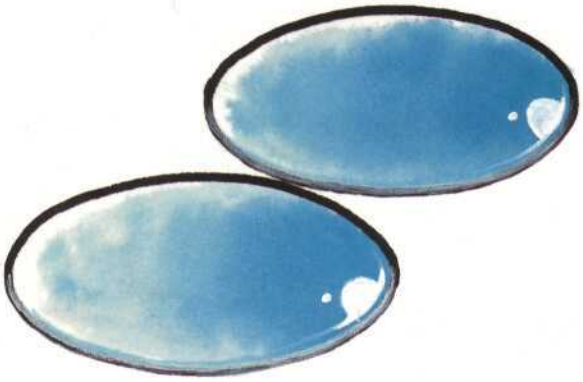
Stabilizer: The stabilizer is an organic cocoon nearly two meters long and a meter in diameter. Its tough, opaque, outer shell protects delicate organs inside which can function in place of those of a comatose human being for an indefinite period of time—as long as it takes to get the patient to a medical facility that is able to treat him.

The stabilizer splits along one side to open, and the patient is placed naked inside, upon which, the stabilizer closes once again. Tiny projections pierce the patient's circulatory and nervous systems, providing nutrients, removing wastes, and controlling pain. A chemical released into the blood halts the patient's respirations while he is inside the stabilizer.

As long as the construct has oxygenated air to breathe, water to drink, and food to consume (about twice that required by a single human), it will remain in operation; patients left inside for more than a week begin to rapidly lose muscle tone, body weight, and joint flexibility due to lack of active or passive exercise. Of course, this is a small price to pay for remaining alive while critically wounded. *Weight:* 400 kg *Price:* Lv5000

Water Breather





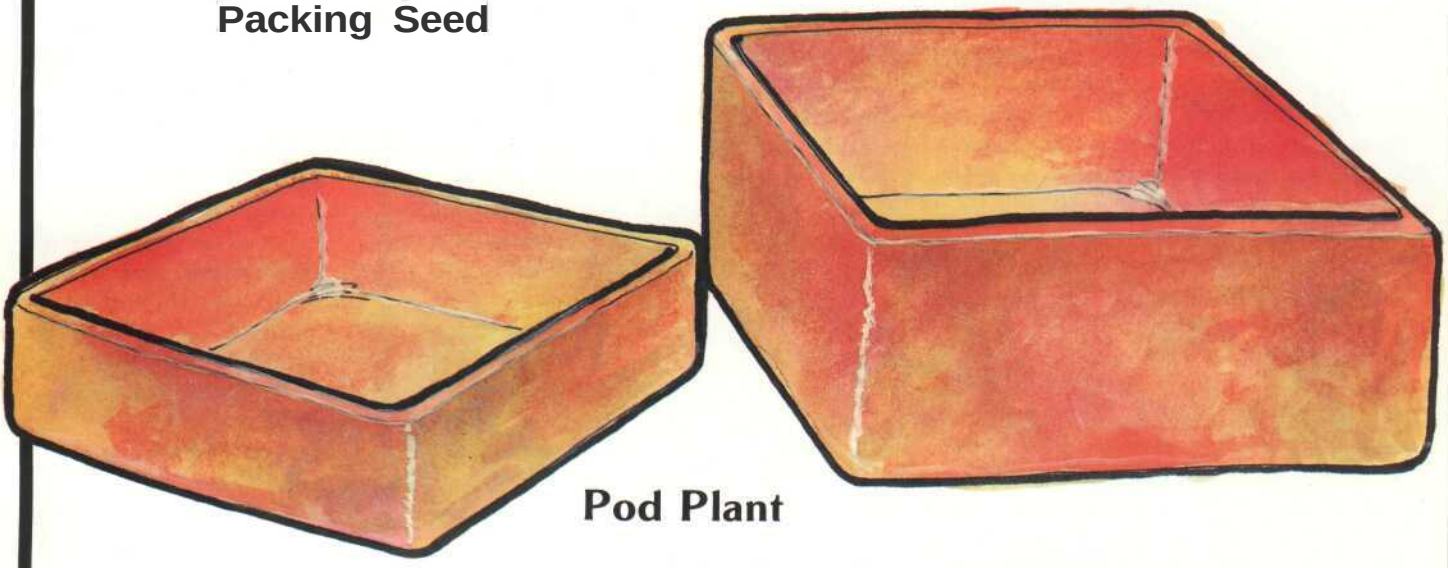
Bio Contacts

Stabilizer

Biosampler

Packing Seed

Pentapod Earplugs



Pod Plant

Direction Finder

Pest Controller

Direction Finder: One product produced by the Pentapods that did not have widespread success among humans was their first direction finder. In form, it was a slimy green translucent creature with metallic bronze flecks inside, resting on a gray-brown, shell-like base. Regardless of how the creature was turned, the bronze flecks would always congregate toward planetary north. Needless to say, humans neglected to rush out and purchase this product in volume.

The Pentapod compass can be acquired wherever other Pentapod products are sold, usually for free. *Weight:* 1 kg *Price:* None

Pest Controller: Given the failure of the direction finder in human markets, the Pentapods turned their thoughts to how the creature could be adapted into a successful product. They discarded the idea of simply revising the creature and rereleasing it as the "new" direction finder. Instead, they chose to develop the creature into a totally different product. Noticing in humans what seemed to be an obsession with unwanted insects in the home, the Pentapods decided to change the direction finder into a pest controller. The shell-like base was retained, as was the gelatinous ball of slime on top. Even worse, the creatue now chemically attracted insects, caught them in its sticky surface, and slowly absorbed them. But a second, upper shell was added to hide the digestive process, with small openings for the insects to enter. With a tasteful color pattern engineered into the shell, the Pentapods had a success. *Weight* 1.5 kg *Price:* Lv250.

Pentapod Earplugs: In a wide variety of environments, hearing protection is desirable. Heavy equipment and weaponry often create intense noise. One of the problems with most hearing protectors is that some necessary sounds are dulled or lost. This problem can range from a minor irritation, such as a conversation being difficult to hear, to a real danger, such as an enemy being undetected when close by.

Advanced electronics have made possible the creation of hearing protectors that work only in the presence of intense noise, becoming inactive when levels return to normal. But these products are very expensive to purchase and maintain. An alternative is a living earplug produced by Pentapod bioengineers. This creature is largely a tube of muscle the approximate diameter of the human ear canal possessing its own sense of hearing. When noise reaches a dangerous level, the creature clenches shut, protecting delicate human hearing mechanisms. When the noise level drops, the creature relaxes, allowing normal hearing once again.

The Pentapod earplug cannot be worn for more than six hours at a time or it perishes from lack of nutrients. When not being worn, it is to be stored inside an opaque vial of fluid containing simple sugars and specially prepared vitamins. The creature can survive on a minimum of sugar water, but it loses its ability to clench shut until normal nutrients are provided once again. *Weight:* Insignificant *Price:* Lv300, plus Lv10 for one month of nutrient bath

Pod Plant: The pod plant is a Pentapod creation that has become a very common crop on colony worlds, particularly along the French Arm. In form, it is a hardy, dark green, vining plant that produces pods similar to Terran gourds, but with much stronger shells (stronger than Terran ironwood). Pods are harvestable when they reach a size of one quarter of a liter interior volume; but if left to grow, they can attain volumes of up to 500 liters. While growing, they are very sensitive to long-term outside pressure, and as a consequence, if a wire-mesh form is built around a developing pod, the pod will grow to fill the space the form marks out. Pods can be grown to nearly any shape and size before harvesting, making them of great use as crates, barrels, furniture, canteens, or many other commonly needed items.

Once the pod is harvested, one end is opened and the pulp inside is scooped out. The shell is then allowed to air cure for several hours. Fittings such as reclosable necks are then affixed if the pod is to become a reusable container. If the pod is to be used as a shipping crate, the item to be packed is placed inside, and packing material is inserted. The opening is then reclosed by gluing the removed piece back into place, making an airtight seal. *Weight:* Variable *Price:* Up to Lv60 for a large crate, more if made into furniture, etc.

Packing Seed: "Packing seed" is an agricultural product created by the Pentapods and commonly used with pod plants. Packing seed plants are small, hardy bushes that produce a fruit with a tough skin that shrinks when dried, placing the fibrous meat inside under considerable pressure. When using packing seed as a packing material, an item is placed inside a container, packing seed is dumped in around it, and a sharpened stick is run forcefully down through the fruit, rupturing the skin and allowing the meat inside to expand and fill the container. Packing seed can be a little difficult to remove, but it absorbs shock well, making it an excellent packing material for items shipped by orbital catapult. *Weight (ruptured):* 3 kg per m^3 *Price:* Lv1 per m^3

PENTAPOD MARKETING SKILLS

When it comes to humans as customers, Pentapod marketing successes have been rather spotty. Apparently, to a Pentapod, all that matters is that an item works. It does not matter that it is aesthetically displeasing (or even disgusting) to humans; in fact, Pentapods have had some difficulty, even comprehending such a reaction.

But the Pentapods are very adaptable. Their more recent releases, while still obviously alien in origin, have met much more successfully with human preferences. For examples of this, compare the direction finder with the pest controller. Both are somewhat distasteful to human senses. But in the case of the direction finder, that distastefulness had nothing to do with the item's function, instead, appearance was simply not considered. With the pest controller, on the other hand, a function that is considered "not pretty" by many humans, has been disguised in such a way as to make it acceptable.

Kafer Equipment

KAFER OFFICERS

Any human who has seen a Kafer ground force in action knows that, for some reason, Kafers are very slow to react intelligently to an unexpected threat. When ambushed, for example, Kafers will mill about as if they are unsure of what to do; some will begin firing wildly in every direction, while others will attempt to hide behind obviously inadequate cover.

But there are always a few Kafers in the group, the officers, who will react quickly to danger. Their first priority is usually to begin organizing their disordered subordinates into an effective fighting force. To get their troops' attention, these officers resort to beatings, electrical shock, and, occasionally, summary execution. Within a few minutes, the lesson seems to have been learned, and what remains of the band becomes an incredibly efficient fighting machine.

Most human research and theorizing about Kafer intelligence has concerned the question of how and why Kafer soldiers can make such a leap in intelligence. Considering the difficulties involved in capturing a Kafer and then keeping it alive in captivity, it is possible that this question may never be answered. But a related question that deserves some consideration is, taking into account the typically slow Kafer response to danger, how do Kafer officers react to danger so quickly?

Captured Kafer equipment is carefully studied to locate any clues that can be gained concerning the psychology of the Kafer mind. This chapter lists a broad sampling of Kafer equipment that has been found among the remains of Kafer ground forces on planets of the French Arm. The names listed are human names; Kafer names for these items are unknown. Each entry includes both a physical description and a conjecture as to the function of the item in question.

"Cattle Prod": This is a device carried by Kafer officers, ostensibly as a badge of office. It generates a high-voltage, low-amperage current at one end when a stud on the other end is pressed. Humans who have seen it in action explain that it is used by Kafer officers to goad their subordinates into action.

When the device is used on humans, it causes severe pain, disorientation, and stun effects. Repeated use on a human may cause short- to long-term paralysis of affected limbs, hysteria, and panic reactions. *Weight:* 0.8 kg *Length:* 38 cm *DP Value:* 0.5 (stun only)

"Scepter": This is another device carried by Kafer officers, apparently as a badge of authority. It is similar to the "cattle prod," above, in function, but includes a device which magnetically propels a small, iron pellet at great speed (though not enough to make it lethal).

Humans who have seen it used by Kafers claim that, like the "cattle prod," it is used from a distance to attract the attention of subordinates and stimulate them into action. *Weight:* 2.6 kg *Length:* 86 cm (Bulk=2) *Range:* 20 m *DPV:* pellet 0.4 (normal), contact 0.5 (stun from electric shock)

"Kafer Baseball Bat": The "Kafer baseball bat" is a one-meter tube of dense wood or heavy plastic found in Kafer encampments and sometimes seen in the possession of Kafer officers. A common assumption is that it is a practice weapon or possibly a staff of authority. It is possible that it is intended for use like a "cattle prod" or "scepter," or it may just be a simple club. *Weight:* 0.5 kg *Length:* 96 cm (Bulk=1)

"Whip": This is a long, braided leather whip with a massive, T-shaped handle and leather wrist thong. Like a "Kafer baseball bat" and "cattle prod," it is carried by some Kafer officers and seems to be intended as a means to gain the attention of subordinates and stimulate them to action. *Length: 3 to 5 m (Bulk=3) Weight:* 0.5 to 1 kg *Melee Range:* Long *Melee Skill Modifier: -2* (for humans) *DPV:* 0.2

When the device is used on humans, it causes severe pain, disorientation, and stun effects.

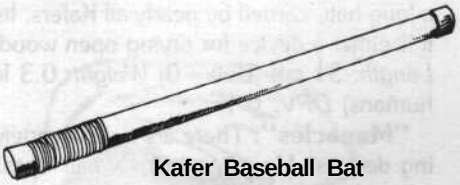
"Gorget": The "gorget" is an asymmetrical metal and plastic device worn by Kafer officers. Some "gorgets" are larger and more elaborate than others; presumably the more elaborate the "gorget," the more senior the officer. All are worn as part of a Kafer battle harness.

"Gorgets" are quite thick and heavy for their size, and they were originally thought to have some special function besides identification. Some people theorized that they were intended to serve as armor; others thought that they contained a communicator, a computer, a tracking device, or the like. But samples captured on Aurore have demonstrated that the device is apparently purely ornamental. *Weight:* Varies, 0.3 to 0.9 kg

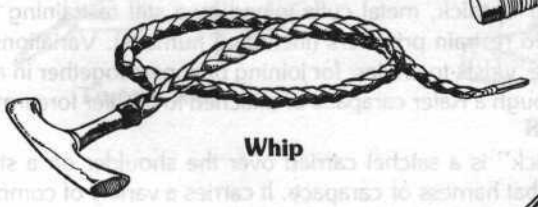
"Helmet": This is a metal and plastic helmet which is oddly shaped and partly open, rather than being designed to closely fit the Kafer skull. It may be intended to indicate rank or status. It is only occasionally worn in the field. *Weight:* 0.3 kg

"Combat Harness": This is a leather, load-bearing harness and belt, with numerous O-ring attachments for scabbards, holsters, and other equipment. It is oddly shaped in order to fit a Kafer's dorsal carapace and will not fit humans without extensive modifications. *Weight:* 0.6 kg

Cattle Prod



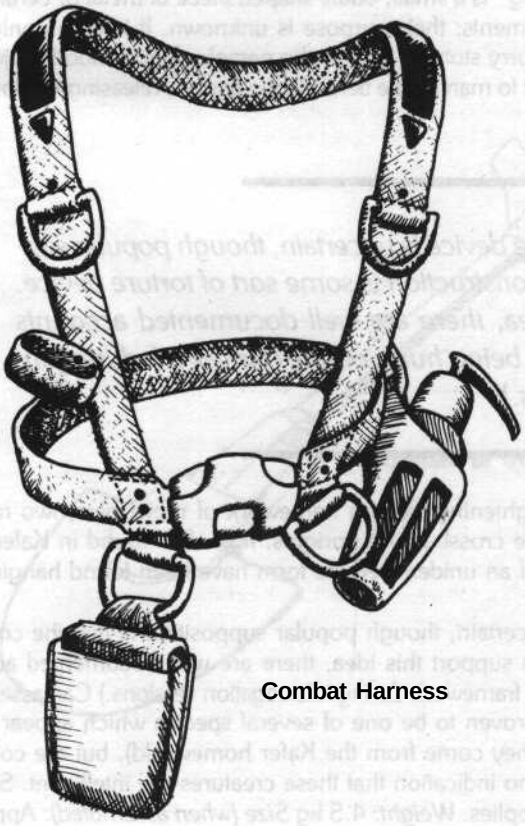
Kafer Baseball Bat



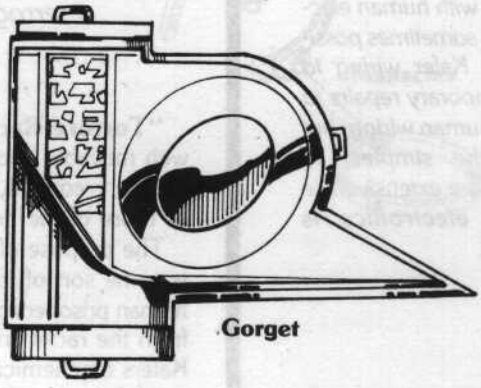
Whip

Helmet

Scepter



Combat Harness



Gorget

USING KAFER GEAR

Occasionally, a human in the field will find the need or desire to use captured Kafer equipment or to pirate its parts for repairs to human equipment. In such cases, the following points should be kept in mind.

Kafer equipment that is designed to be worn will not fit humans.

Handheld melee weapons will work for humans, but not as well as human-designed weapons. Kafer grips are uncomfortable, and the T-shaped handle on most Kafer melee weapons tends to collide with a human's wrist.

Kafer vision devices reproduce images at wavelengths uncomfortable for human eyes. As well, they have no cut-off mechanisms to protect from a sudden increase in outside light. For these reasons, human vision could be damaged if such equipment is used.

Kafer equipment is extremely rugged, in order to stand up to the punishment of daily use by the average Kafer. It is very difficult to disassemble such equipment. Cutting tools are required to open Kafer circuitry boxes, for example.

Kafer electronics are not compatible with human electronics. It is sometimes possible to use Kafer wiring to jury-rig temporary repairs to damaged human wiring, but only in the simplest of devices. More extensive use of Kafer electronics is impossible.

"Combat Knife"; This is a long, double-edged knife worn by most Kafers on their combat harness. It only differs from human knives in its lighter weight and its odd, T-shaped handle for fitting Kafer hands. *Length:* 29 cm (Bulk = 0) *Weight:* 0.6 kg *Melee Range:* Short *Melee Skill Modifier:* -1 (for humans) DPV: 0.1

"Meathook": This is a sharp, wickedly curved, metal hook with a T-shaped handle and a long haft, carried by nearly all Kafers. Its purpose is unknown. Common assumptions are that it is either a device for prying open wooden crates, or it is some type of hand-to-hand weapon. *Length:* 31 cm (Bulk = 0) *Weight:* 0.3 kg *Melee Range:* Short *Melee Skill Modifier:* -3 (for humans) *DPV:* 0.1

"Manacles": There are a wide variety of forms for this item, all apparently used as restraining devices. Most consist of a pair of thick, metal cuffs joined by a stiff restraining bar or by a length of chain. They are used to restrain prisoners (including humans). Variations exist for cuffing wrist-to-wrist, ankle-to-ankle, wrists-to-ankles; for joining prisoners together in a line; and for attaching to a ring snapped through a Kafer carapace or attached to a Kafer forearm. *Weight:* Varies, from 0.3 to 3 kg

"Ration Pack": A "ration pack" is a satchel carried over the shoulder on a strap or attached to 0-rings in a Kafer's combat harness or carapace. It carries a variety of common Kafer food items, including "rotten sausage" and foodsticks. One pack appears to carry enough food to support one Kafer for at least several weeks. *Weight: 2.7* kg

Note: Analysis has determined that Kafer food is preserved, but only after it has become partially rotten. Though unpleasant in taste, texture, and smell, it is not harmful to humans and could support human life for a considerable (though not indefinite) period. Stories that Kafers kill and process humans for food have not been verified.

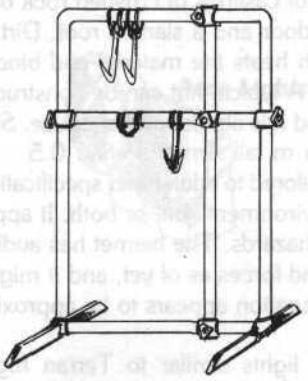
"Hotplate" or "Shovel": This device is a half-moon-shaped, slightly convex, piece of metal at the end of a metal rod with a T-shaped handle, designed to be grasped by Kafer hands. An integral battery pack provides power to heat the metal plate red hot. The purpose of the device is unclear. The best speculations are that it is a digging tool or a hand-to-hand weapon. *Length:* 51 cm *Weight:* 0.4 kg

"Worry Thing": A "worry thing" is a small, oddly shaped piece of metal or ceramic. Many have been found in Kafer encampments; their purpose is unknown. It is commonly believed that they correspond to human "worry stones" (hence the name): small, smooth objects which are comfortable to hold and pleasant to manipulate between the fingers, releasing tension. *Weight:* 0.2 kg or less

The purpose of the device is uncertain, though popular supposition is that the construction is some sort of torture device. (To support this idea, there are well documented accounts of human prisoners being hung on the framework during interrogation sessions.)

"Torture-Rack": This is a frightening-looking framework of metal bars, two meters tall, with movable hooks attached to the crossbar and uprights. It is often found in Kafer encampments. Frequently, the carcasses of an unidentified life form have been found hanging by one or more of the hooks.

The purpose of the device is uncertain, though popular supposition is that the construction is some sort of torture device. (To support this idea, there are well documented accounts of human prisoners being hung on the framework during interrogation sessions.) Carcasses removed from the racks and studied have proven to be one of several species which appear related to Kafers biochemically (suggesting they come from the Kafer homeworld), but are considerably smaller and four-legged. There is no indication that these creatures are intelligent. Some have been found frozen among Kafer supplies. *Weight:* 4.5 kg *Size (when assembled):* Approximately 2 m tall x 2 m wide, on a broad, stable base

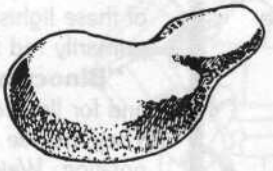


Torture Rack

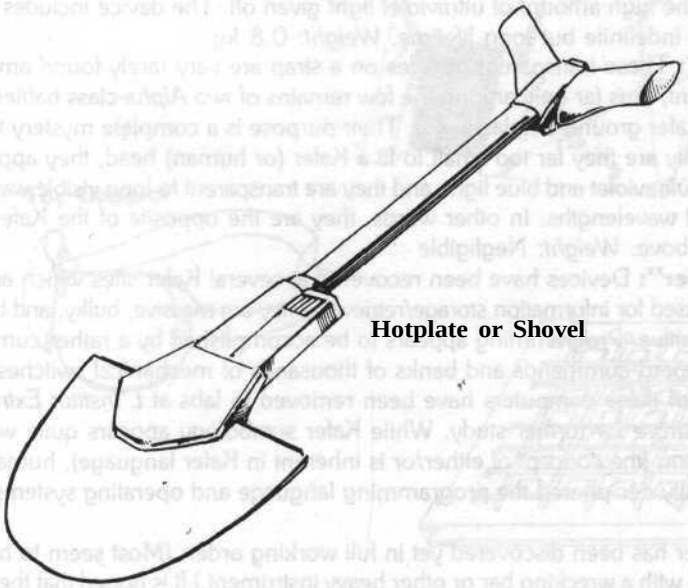
Ration Pack

Combat Knife

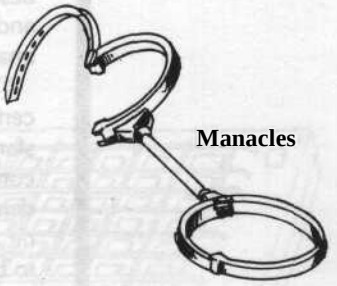
Meathook



Worry Thing



Hotplate or Shovel



Manacles

KAFER MEDICINE

One type of technology that has been visibly missing from captured Kafer devices is examples of medical equipment.

Human soldiers commonly carry at least a single pressure dressing into battle, and medics are almost always assigned to every unit, but this is apparently not so among Kafers.

It is this lack of regard for medical treatment for soldiers that has led some to theorize that Kafer soldiers are members of a separate race considered expendable by Kafer leaders.

"Shelter": A "shelter" is a prefab hut constructed of castings of crushed rock or dirt, consisting of little more than four sloping walls with one door and a slanted roof. Dirt or rock is loaded into a massive, treaded casting machine, which heats the material and binds it with a plastic base, then extrudes it as solid, preformed slabs. A typical hut can be constructed in less than 20 minutes. It cannot be moved once in place, and it is abandoned after use. *Size (typical shelter for four individuals):* 2.5 m x3 m x2.2 to 2.5 m tall *Armor Value:* 0.5

"Environment Suit": This is a pressure garment tailored to adult Kafer specifications, which apparently serves as either a vacuum suit, a hostile environment suit, or both. It appears to be resistant to corrosive, radiological, biological, or toxic hazards. The helmet has audio sensors. The suit has not been encountered among Kafer ground forces as of yet, and it might be used only as a space suit by naval personnel. Life support duration appears to be approximately 15 hours. *Weight:* 35 kg *Armor:* 0.5 *Initiative:* -2

"Area Lights": These are powerful, broad-area lights similar to Terran high-intensity streetlights, arc lights, or security lights. They are generally mounted on 10-meter-Jall poles, but may be fixed instead to buildings or vehicles. Light emitted by these devices appears white to blue-white to human eyes and is rich in ultraviolet. Most humans note that unprotected eyes burn, tear, or itch after a few moment's exposure. *Weight:* 1.2 kg

Note: A common observation by Terran watchers is the use of these lights in conditions of moderate to poor visibility, when peak lighting is in red or red-orange wavelengths. The presence of these lights strongly supports independent observations that Kafers have difficulty seeing in primarily red light, which may be invisible to them.

"Binoculars": These are visual binoculars which include thermal imaging for night visibility and for limited visibility in fog. They are adjustable for magnification from 2x through 14x. They include a built-in rangefinder based on sonar echo return, with range read-out in Kafer notation. *Weight:* 1.2 kg

"Thermal Image Goggles": Only a few examples of this device have been captured. It is a simple imaging device which permits vision over a wide range of the electromagnetic spectrum, from short infrared through visual red-orange. Analysis of the spectrum across which imaging is obtained corroborates the theory that Kafers are blind or near-blind at red and infrared frequencies.

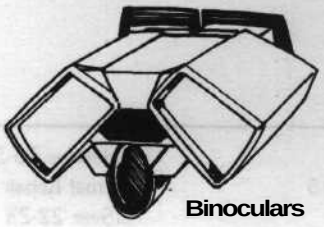
In making the infrared to red spectrum visible to Kafers, this device shifts long-wave radiation to short-wave radiation. A high percentage of the resultant light is in the ultraviolet range. If necessary, the device *can* be used by humans as an infrared imager, but there is a danger of eye damage due to the high amount of ultraviolet light given off. The device includes a built-in power pack with an indefinite but long lifetime. *Weight:* 0.8 kg

"Toy Goggles": These transparent goggles on a strap are very rarely found among captured Kafer equipment, thus far only among the few remains of two *Alpha-class* battleships and in the ruins of one Kafer ground emplacement. Their purpose is a complete mystery to human investigators. Not only are they far too small to fit a Kafer (or human) head, they appear to be designed to *filter out* ultraviolet and blue light, and they are transparent to long visible wavelengths and to most infrared wavelengths. In other words, they are the opposite of the Kafer thermal imagers described above. *Weight:* Negligible

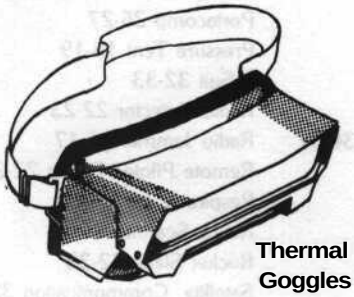
"Kafer Computer": Devices have been recovered at several Kafer sites which are almost certainly computers used for information storage/retrieval. They are massive, bulky, and by human standards, quite primitive. Programming appears to be accomplished by a rather cumbersome combination of keyboard commands and banks of thousands of mechanical switches. Several damaged examples of these computers have been removed to labs at *L'Institut Extraterrestre de la Sorbonne d'Aurore* for further study. While Kafer symbology appears quite well suited to binary programming (the concept of either/or is inherent in Kafer language), human technicians have not yet fully deciphered the programming language and operating systems used by the Kafers.

No Kafer computer has been discovered yet in full working order. (Most seem to have been deliberately smashed with a wrecking bar or other heavy instrument.) It is hoped that the recovery of such a device will lead to breakthroughs in understanding Kafer technology, Kafer design philosophy, and Kafer psychology. *Weight:* Varies, 200 to 500 kg *Size:* Varies; approximately 1 to 3 m wide and deep by 1 to 3 m tall *Power Source:* Internal battery cells or any standard external power source

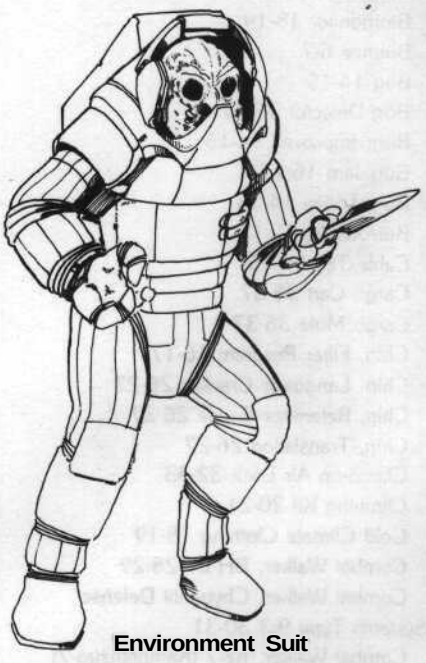
Area Lights



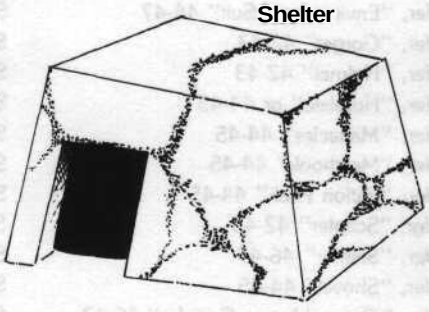
Binoculars



Thermal Image Goggles

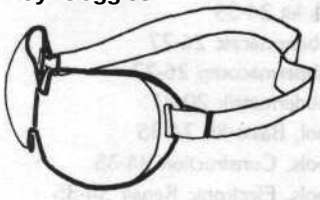


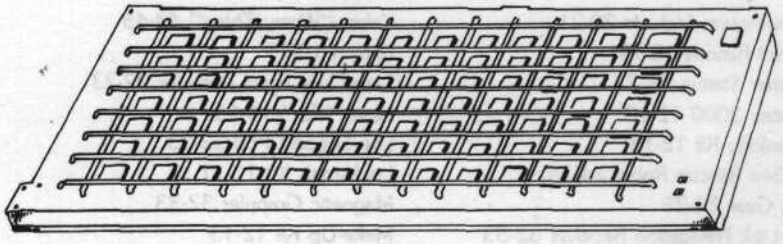
Environment Suit



Shelter

Toy Goggles





Kafer Computer

Index

Equipment Guide

Humans are tool-using creatures, and this is proved nowhere more than in the inhospitable wastes of space. In the reaches between the stars, every breath a human takes depends upon the functioning of his gear. Equipment must be used to regulate his temperature, the pressure of his atmosphere, and to give him mobility, keeping him from drifting, lost, through the darkness of the universe. His equipment must be strong and reliable. And the strength of human tools reflects the firmness of the human will, the determination to dwell among the stars.

EQUIPMENT OF THE FUTURE

The **2300 AD Equipment Guide** is an informative guide to the equipment available in the role-playing setting of **2300 AD**. In this book, you will find all sorts of gear, from resupply packages for a basic first aid kit to the anagathic regimen, from simple mechanical locks to sophisticated retina scanners. Each piece of equipment is described in detail, and all are fully illustrated, many in full color.

This guide is a valuable aid to play. Care has been taken to include items that are useful during adventures. Essential statistics are given in a standard format. Text descriptions focus not only on how the equipment works, but also how it fits into the world of the future. Equipment is divided into logical chapters, so that the reader can easily find the type of equipment that interests him, and an alphabetical index is included so that individual pieces can be located quickly.

A COMPLETE LISTING

But the **Equipment Guide** is not just a guide to new equipment, it is a guide to *all* equipment that a player might use. In this way, the reader is saved from having to search through various publications to find a description he needs. What you will not find in this book are vehicle listings and purely combat weapons, although many of the items described here can be pressed into service in one or another of those capacities. You *will* find the following:

148 Pieces of Equipment

- Medical gear.
- Locks.
- Bugs.
- Scanners.
- Machines that can almost read minds.
- Computers.
- Subdermal electronics.
- Viewers.
- Compasses.
- Rations.
- Food processors.
- Analytical gear.
- Combat walkers and rules
- EVA gear.
- Pentapod products.
- Bizarre Kafer items.

FOR REFEREE AND PLAYER

The **Equipment Guide** is intended to be used by both the player and referee. For players, the lucid descriptions and beautiful illustrations will help to flesh out the world that is **2300 AD**. For the referee, helpful information such as where many of the items are available, new rules, and task statements of how items are to be used, and the basic statistics listed for each item will aid in making adventures in **2300 AD** run smoothly. And it is a sure bet that many of the items listed in this book will serve as a spur to the referee's imagination, suggesting ideas for further adventures in **2300 AD**.

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Equipment Guide is a sourcebook for the **2300 AD** science-fiction role-playing game, detailing the uses and statistics of equipment available in the world of the future.

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Our 15th Year

GDW

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