



Special Supplement 6 Guns, Gear and Gadgets

TRAVELLER

ComStar Games
The Game Is On!
www.comstar-games.com



Approved For Use With

TRAVELLER
Science-Fiction Adventure in the Far Future

Special Supplement 6: Guns, Gear and Gadgets – A Supplement for Traveller

TRAVELLER - SCIENCE FICTION ADVENTURE IN THE FAR FUTURE

BASED ON THE AWARD-WINNING TRAVELLER GAME SYSTEM AND UNIVERSE BY MARC MILLER

CREDITS

Chief Field Tester

Martin J. Dougherty

Special Consultants

Michael Taylor

William Andersen

Quartermaster Corps

Michael Taylor

Omer Golan Joel

Honourable Mentions

Original creators of Traveller gear – equipping the far future since 1977!

Copyright ©2007 Avenger Enterprises in association with Comstar Media, LLC. All rights reserved.

Traveller is a trademark of Far Future Enterprises and is used under license.

2 3 4 5 6 7 8 9 10

Contents

4	Introduction	40	Launchers and Missiles
5	Part 1: Rules Additions	41	Light Tactical Missiles
5	Weapons Ownership and Permits	41	Direct Fire Support Weapons
6	Permits and Local Laws	41	Artillery Weapons
6	General Weapon Characteristics	43	Vehicle Mounted Energy Weapons
7	Weapon Mass and Recoil	44	Part 3: Gadgets and Gear
7	Special Attack Types	44	Personal Protection
9	Area attacks and Suppressive Fire	44	Wearing Armor in Public
9	Armor and Area Fire	44	Standard Armor Types
9	Artillery Combat in Traveller	45	Archaic Armor
10	Direct Fire with Artillery Weapons	45	Anti Laser and Anti Energy Armor
10	Direct Hits with Artillery Weapons	46	Helms and Helmets
11	Random Shelling	46	Complete Suits
12	Part 2: Weapon Listings	48	Other Protective Equipment
12	Hand Weapons	48	Concealment Aids
12	Shock Weapons	48	Shields
12	Blunt Instruments	49	Space and Hostile Environment Equipment
13	Axes and Related Implements	51	Tools and Field Supplies
13	Spears	55	Shelter and Accomodation
14	Swords and Knives	56	Light Sources and Vision Aids
14	Miscellaneous Close Combat Weapons	57	Medical Supplies
15	Archaic Projectile Weapons	59	Drugs and Pharmaceuticals
15	Bows, Crossbows, Slings	60	Security Equipment
16	Archaic Firearms	61	Communications and Electrical Equipment
17	Projectle Weapons	64	Pets, Livestock, Robots and Heavy Equipment
17	Handguns	65	Travel and Accomodation
19	SMGs and Light Assault Weapons		
20	Shotguns		
21	Rifles and Carbines		
23	Light Support Weapons		
24	Low-G Weapons		
24	Snub Weapons		
24	Accelerator Weapons		
25	Energy Weapons		
25	Laser Weapons		
26	High Energy Weapons		
27	Other Weapons		
28	Ammunition and Accessories		
29	Ammunition Costs Table		
30	Magazines, feed devicies and Power Units Table		
31	Non Standard Ammunition		
32	Use of Non Standard Ammunition Types		
32	Weapon Accessories		
32	Ammunition Devices		
32	Sighting Aids		
33	Other Devices		
33	Grenades, Missiles, Support and Artillery Weapons		
34	Artillery Weapon Types		
35	Artillery Weapon Payload Size Classes		
35	Payloads and Warheads		
38	Grenades and Rifle Grenades		
38	Hand Grenades		
38	Launched Grenades		
39	Grenades Table		
39	Bombs, Missile Warheads and Shells		

INTRODUCTION

This book contains a compilation of equipment, weaponry and personal protection from the entire Classic Traveller range of rulebooks, adventures and supplements as well as later editions of the game. It could be considered a 'shopping list' for adventurers, though it does include a few things that most people could manage quite happily without. Also included is a brief guide to life in the Far Future, including costs for accommodation, local travel and other essentials.

Special thanks are due to Omer Golan Joel, who compiled and submitted an impressive list of gear, apparently just for fun.

There are no rules in here, nor any Great Truths. But there are times when knowing the price of a box of snub pistol ammunition or a crate of beer can make all the difference. This book is for those moments. Happy shopping!

MJD, April 2007.

STANDARDS AND ASSUMPTIONS

This Special Supplement is compatible with all editions of the Traveller role-playing game, and indeed the content is drawn from all versions. Where stats (eg damage) are required, they are given in Classic Traveller terms, either directly (eg Damage: 3D) or by way of comparison (eg Armor Value: As Reflec). Conversion to other rules sets is thus a very simple matter.

In order to make use of this supplement you will need a set of rules (probably some version of Traveller) plus the usual accoutrements and paraphernalia of gaming - some dice as appropriate to your chosen rules set plus pens, pencils, paper and probably some kind of furniture to improve player and Referee comfort. A suitable gaming area with appropriate atmosphere and gravity conditions is taken as a given.

Warning! Items described in this supplement are intended for use by persons of good conscience and in accordance with the law. The publishers cannot be held responsible for misuse or accidents incurred while undertaking hazardous activity. All items are assumed fit for purpose but field testing has not in all cases been undertaken. Do not attempt to halt moving components with body parts. This supplement does not provide protection from small arms fire or hard vacuum, and use in such circumstances is at the purchaser's own risk. Risk of choking if eaten. May contain nuts. Do not use in the shower or while sleeping. Consult a doctor before undertaking vigorous exercise or if symptoms persist. Not to be taken internally. Care has been taken to remove all bones, but some may remain. Wash hands after use.

INTRODUCTION

This book contains a compilation of equipment, weaponry and personal protection from the entire Classic Traveller range of rulebooks, adventures and supplements as well as later editions of the game. It could be considered a 'shopping list' for adventurers, though it does include a few things that most people could manage quite happily without. Also included is a brief guide to life in the Far Future, including costs for accommodation, local travel and other essentials.

Special thanks are due to Omer Golan Joel, who compiled and submitted an impressive list of gear, apparently just for fun.

There are no rules in here, nor any Great Truths. But there are times when knowing the price of a vac suit or a crate of beer can make all the difference. This book is for those moments. Happy shopping!

MJD, April 2007.

PART 1: RULES ADDITIONS

Most of the items presented in this book use the standard Classic Traveller rules found in Books 1-4. However, some items require special rules for use. These include chemical and non-lethal weapons, artillery and some general concepts not covered elsewhere in the rules. Most of what follows is drawn directly or extrapolated from Traveller canon. If no special rules apply, none are listed here and the standard Traveller rules will cover all eventualities.

WEAPONS OWNERSHIP AND PERMITS

Many societies consider that citizens have a right to own and carry weaponry for self-defense, though usually some kind of limits are placed upon what is reasonable for a private citizen to own. These limits are to some extent encapsulated in the system of Law Levels used by Traveller but in some areas an additional level of accountability is required.

As a rule, a society with a strong central authority will prefer not to allow its citizens outgun its law enforcers and troops, while a more decentralized society may place an onus on its citizens to have suitable weaponry to not only defend themselves but also to prevent the government from getting out of hand. Much depends on the nature of society.

As a rule, weaponry can be separated into five categories, and whatever the law level higher-category weapons will tend to be more strictly controlled or harder to obtain than lower-category ones.

The Imperium (applying equally to the Third and the Fourth, depending on the setting) uses the following system. Many other interstellar states have a similar one. As a rule, the more accountable an individual (i.e. the more they have invested in the well-being of their society) the easier they will find it to obtain permits for heavier weapons.

Note that even though a character may have a permit to own a given weapon, he may still be prohibited from owning or carrying it in a given locale by the laws that apply there. The permits system is a blanket across the Imperium and does not supersede local laws.

This comment is worth repeating – possession of a weapon license does not allow a character to ignore local laws. Much depends on the circumstances. A government that hires a properly accredited mercenary unit will normally allow it to retain and use its weapons, whatever laws are in place, since this is necessary for the function desired of the unit. Similarly, bodyguards for foreign dignitaries will usually be permitted to carry weapons.

However, a demobbed Imperial Army soldier will not be allowed to wander around with an assault rifle in a high-law level without a good reason. Trying to do so is a good way to get that ex-military Category 3 permit revoked and

yourself filled full of small but painful holes by people who are permitted to carry weapons as part of their duties...

CATEGORY 1: UNRESTRICTED WEAPONS

Correctly speaking, there is no such thing as a 'Cat 1' permit. No permit is required to own or obtain these items. So long as the weapon is legal in this locality, even someone convicted of weapons-related crime can usually carry it without interference, though some localities place restrictions on felons, which supersede the permit system. Note that although weapons may be unrestricted in the permit system, local law or custom may still prohibit them.

Category 1 Examples:

All melee weapons (cutlasses, daggers, batons, shock batons and so forth)
Non-Lethal 'Firearms' (Tranq guns, Thud guns)
All bow weapons

CATEGORY 2: CIVILIAN SMALLARMS

To obtain a 'Cat 2' permit, the purchaser must demonstrate "the capability of safe use" – either presenting any existing weapons permit or half an hour's accreditation and safety training on the range. No actual skill or reason for purchase is required.

Category 2 Examples:

Revolvers and most pistols, semi-automatic rifles, shotguns and similar non-military weapons

CATEGORY 3: PARAMILITARY SMALLARMS

To obtain a 'Cat 3' permit the purchaser must show that he or she can use the weapon responsibly and safely, which equates to having an actual skill level (or default skill from other weapons training) and demonstrate "suitable need". The latter is covered by occupations such as shipboard security operative, skip tracer, bodyguard, etc. References from employers may be taken. Employment by an accountable person or body (starship captain, corporation, port authority or similar) is desirable. Note that all Imperial Services personnel who are honorably discharged automatically have a General Category 3 permit for weapons and armor, unless it is revoked for criminal activity.

Category 3 Examples:

Light Automatic Weapons (Autorifle, SMG, Assault Rifle, Autoshotgun, Snub SMG)
Special ammunition (HEAP) for snub weapons
Laser pistols, rifles and carbines
Heavy Ballistic Cloth body armor

CATEGORY 4: MILITARY EQUIPMENT

Category 4 weapons are treated much as Category 3, but restrictions are tighter. Service as an accredited mercenary or similar employment is usually required. Imperial personnel leaving the service with a "Weapon" benefit are assigned a

permit for its use and ownership and retain this unless it is revoked. Some localities permit such persons to retain their weapon even if normally prohibited by local law, but most do not consider even a weapon of honor to be above local law.

Category 4 Examples:

Military Shotguns
Gauss Weapons (Rifles and Pistols)
Advanced Combat Rifles (ACRs)
Mid-Tech support weapons (grenade launchers, LAWs, Light Machineguns)
Powerful mid-tech weapons, e.g. Anti-Tank rifles.
Combat Environment Suit
Military-grade electronics (advanced sighting equipment etc)
Military body armor

CATEGORY 5: RESTRICTED MILITARY EQUIPMENT

Category 5 weapons are only available to accredited mercenary units or personnel with a good record of serving in such a unit, while actively seeking a suitable unit or employer. This does not prevent a merchant captain from shipping quantities of such weapons from one place to another, provided they are properly crated and documented, but they cannot be sold without proper permits in place. Of course, in zero-law areas there is often no-one to enforce such restrictions so the point may be academic unless an Imperial law enforcement agency takes an interest.

Examples:

Plasma and Fusion Weapons
Gauss Support Weapons
Tac missiles
Military Combat Vehicles
Battle Dress and Combat Armor

PERMITS AND LOCAL LAW

Some organizations (merc units, Huscarles, corporate security units) and some high-security starships generally have a "Blanket Permit" for weapons use by personnel as directed by the unit's legitimate command or employer. Some non-weapon systems fall into these categories and are similarly restricted; e.g. nuclear mining explosives (cat 5), conventional explosives (cat 3), Starship lasers (cat 3), military-grade starship lasers (cat 4). Use of permitted weapons in accordance with the organization's remit (eg a mercenary infantry unit involved in combat with the enemies it was hired to fight) is not considered to be misuse of weapons. Similarly, self-defense with legally-held weapons is rarely considered to be a crime.

Permits do not automatically overrule local law, but in some cases an individual or group may be permitted to retain weapons that are not allowed under local law. For example a mercenary unit equipped with military support weapons operating in government service on a high law world will be

granted an exception to local law until the contract ends. A retired Imperial soldier who has retained his service rifle as a 'weapon of honor' may be allowed to keep it at his home even though it would be illegal on his homeworld. This is likely only if a need is perceived by the authorities, and therefore such weapons more common on backwoods ranches than in the middle of a well-policed city.

Characters wandering around with military-grade weapons that are illegal locally will face arrest and punishment even if they have permits for their weapons, unless they have a special dispensation from an appropriate authority. However, if the same group were challenged in a locality without weapons laws they could still be prosecuted for having unlicensed weapons even though they were not specifically prohibited in that area.

In short, a permit shows that an individual or group has a valid reason to own a given weapon. It is not a right to carry the weapon anywhere the character goes.

The main reason for the permit system is to prevent 'armament tourists' from visiting low-law worlds to stock up on deadly weaponry. The Imperium is not much concerned with private ownership of even light automatic weapons as these cannot really harm the combat armor that equips Imperial military forces. However, the restrictions can be used as a tool to deal with miscreants where necessary or to disarm potential troublemakers. The system also helps restrict the proliferation of heavy weapons that could challenge Imperial troops.

GENERAL WEAPON CHARACTERISTICS

Weapon damage is given in Classic Traveller terms, sometimes with modifiers. For example, a light autopistol might be listed as delivering 3D-2 damage rather than the usual 3D. This simply means roll 3D (3d6) and subtract 2 from the total.

Where a positive damage modifier exists, it is treated as a separate die and can be assigned to the target's STR, DEX or END as normal. A negative modifier can be subtracted from any damage die but obviously cannot reduce damage to less than zero for that die.

Many rifles and similar longarms do not cause significantly greater damage than handguns. This is because pistol bullets, while travelling at lower velocity, tend to be of larger caliber. They tend to deliver more of their energy to the target than many rifle shots, which often tear right through and go on their way without delivering all their energy.

At close range against an unarmored foe there is not much to choose from between a large handgun and a rifle. However at longer range, or when armor must be penetrated, handguns are far less useful. Rifles usually carry more ammunition, too, and may be capable of fully-automatic fire. Submachineguns

offer a good compromise for close combat, as do shotguns under some circumstances. However, there is no perfect weapon; each has its advantages and drawbacks and a wise combatant chooses his tool to fit the occasion.

WEAPON MASS AND RECOIL

Some people are simply too lightly built to cope with the recoil of powerful weapons, or simply not strong enough to effectively use a heavy hand weapon. For this reason, some weapons are given ratings to indicate their difficulty of use. For hand weapons this is based solely on strength, and the same system is used for bows, inasmuch as the heavier bows and crossbows are a struggle to pull for weaker characters. For firearms, the ability to absorb recoil is a function of STR and END, which represents body mass.

A character who does not have the requisite attributes to effectively use a given weapon suffers a DM (Die Modifier, ie an alteration to the skill throw to hit) of -1 when making a combat throw using it for each point of STR or END he lacks. For example, a character with a STR of 7 who needs 9 to use a given weapon suffers a DM of -2 to hit with it as he struggles to even lift the weapon. Damage is normal; if he manages to connect with a clumsy swing, the weapon's mass will cause damage as usual.

The exception to this rule is a crossbow of any kind; if a character is 1-2 points short of the required STR (eg needing 9 and having a 7 for STR), he can cock it eventually, but it takes three times as long as normal. If he falls short by more than two points he cannot cock the weapon at all. However, if someone else cocks it for him, he can shoot without penalty.

Note that these rules do not supercede the limitations imposed by the recoil of some weapons, such as the one-shot-per-2-rounds due to recoil for some plasma guns.

Weapons are rated as Very Light, Light, Standard, Heavy and Very Heavy. Anyone can use a Very Light weapon without penalty. For firearms, character needs a STR and END total that equals or exceeds the requisite value when added together (so a big, weak character can sometimes control a heavy firearm as well as a smaller but strong person). For hand weapons, thrown weapons and bows, the character needs a STR attribute equal to or exceeding the listed value.

Anyone wearing powered battle dress can use without penalty any weapon personal weapon they can carry. Similarly, lasers and flame weapons are recoilless and can be used by anyone without penalty.

Optional Rule: At the Referee's option a character may add his skill level with the weapon to his attribute and calculate a bonus from that effective value. Thus a skilled character may be able to offset recoil or weapon weight by the use of good technique, stance etc.

Weapon Type	Required Attribute value	
	STR (Hand)	STR+ END (Firearms)
Very Light (VL)	3	6
Light (L)	5	9
Standard (no abbreviation; default value)	7	12
Heavy (H)	9	15
Very Heavy (VH)	11	18

Note that two-handed weapons require lower levels of physique to use them effectively and are usually rated one category lower than if used in one hand. If a weapon is not rated in the weapons category, it is considered to be a Standard weapon.

Example: A character with a STR of 11 but an END of just 4, which might represent a strong but slightly built (eg wiry) individual, has a net total of 15 for handling firearms. He can use a Heavy handgun without penalty. He can also manage to wield Very Heavy hand weapons despite his slight build, since these use his straight STR bonus. However, if he decides to use a Very Heavy firearm he falls 3 points short of what he needs and suffers a -3 DM to hit as he struggles to control his weapon.

SPECIAL ATTACK TYPES

Some weapons use unusual attack types, such as poison or tranquilizing chemicals, or a stunning effect. Rules for handling these are presented here.

• CHEMICAL ATTACKS

Chemical attacks include injected drugs and poisons, gases that may be breathed, and even biological equivalents to these, such as snake or scorpion venom. All drugs and toxins have a Potency value, normally ranging from 1 to 5.

When a character is subjected to a chemical attack, roll a number of dice equal to the weapon's Potency for each target (default is 3D). If the total is greater than the target's END he has received a sufficient dose to intoxicate or drug him and he suffers the effects. Equal to or less than END means that the character is not intoxicated.

Potency may be reduced by the Referee for partial exposure. For example a character who is in a cloud of nerve gas, which can attack by inhalation or skin contact, and who has a respirator on but some exposed skin, may be attacked at a Potency of 4 instead of the more usual 5 for lethal nerve gases.

Obviously, a character must be exposed to and not protected from the agent's mode of attack. Most gases do not have any effect on skin contact, so a character in a Tranq gas cloud cannot be affected if he is wearing a filter mask.

Note that while injected or ingested toxins are a one-time effect, gas clouds are persistent. A character who stays in a spore cloud from toxic fungi or a chlorine gas leak is attacked by the agent each round until he departs or is affected.

Example Agent	Potency	Effect
Strong Nerve Gas	5D	3D Wounds, Decreasing
Weaker Nerve Gas	4D	2D Wounds, Decreasing
Tear Gas or Pepper Spray	3D	Partial Incapacitation
Toxic Gas, eg Chlorine	4D	END Damage, Insidious
Strong Animal Venom	4D	Wounds, Insidious
Weaker Animal Venom	2D	Wounds, Insidious
Tranquilizer	3D	Incapacitation
Ingested Poison, Weak	2D	Wounds, Insidious
Ingested Poison, Strong	4D	Wounds, Insidious

• Effects

The effects of different agents vary. Explanations are found below.

Nerve Agents deliver a number of dice in wounds immediately. Each round thereafter the intoxicated character takes one die of wounds less than last round. However, if he is still exposed to the agent he may be re-intoxicated and takes full damage that round, beginning the process of decreased damage again. A character who collapses in a gas cloud will almost certainly die.

Tear Gas and Pepper Spray cause partial incapacitation due to irritation of the eyes and nasal passages, vomiting etc if the target is successfully intoxicated. The effects last for 2D rounds. A partially incapacitated character can reel about, struggle to escape and so forth. He may even fight but suffers a DM of -4 to all actions. Most people will only fight in self-defense; they are usually too busy trying to get away from the agent or rolling about on the floor in pain. If he is still exposed to the agent at the end of the period of intoxication, he is automatically re-intoxicated and gets to do it all over again.

Toxic Gases such as Chlorine have an insidious effect. 1D rounds after the character is intoxicated, the character begins to suffer a -2DM to all actions due to irritation to his respiratory tract and eyes. After another 2D rounds this rises to a -4 penalty. After this there is a period when the victim seems to recover. However, 12 hours after intoxication the character's END begins to be reduced 1 point every hour. This continues for 3D hours. If it reaches zero the character dies, effectively drowning in fluid in his lungs. END is recovered at the rate of 1 point per day after this, if the victim survives.

Animal Venom delivers wounds over time. 1 point of damage is taken every combat round for a number of rounds equal to the venom's potency. A suitable antidote will halt the damage if administered in time.

Tranquilizer agents cause total incapacitation (unconsciousness) 1D rounds after intoxication. The subject normally remains 'out' for 3D minutes before coming around. He will be disorientated and nauseous for an additional 3D minutes, suffering a -2 DM on all tasks in this period.

Ingested Poisons begin to take effect 1D hours after intoxication. 1 point of END damage is taken (much as per toxic gases, though the symptoms are quite different) every hour for a number of hours equal to the poison's potency.

These general rules can be adapted to cover most eventualities. For example, a poison may be all-or nothing lethal, ie the character either dies immediately he is intoxicated or there is no effect – or they may cause wounds if they are not lethal. The Referee must rule on the effects and potency of specific toxins.

• STUNNERS AND SIMILAR WEAPONS

Some weapons are designed to stun or incapacitate an enemy without causing serious harm, or have a stunning effect in addition to their normal damage. Chemical incapacitants such as pepper spray or tear gas jets are treated as chemical attacks. Electrical, Neural and Impact stunners are subject to these rules.

Like chemical attacks, a stunning attack has, in addition to its normal damage (if any) a Potency rating assigned to it. This is normally in the range 1-5 and represents the number of dice rolled for the attack. If this total exceeds the target's END score, he is incapacitated for a period determined by the weapon type. If the attack roll is equal to or less than the target's END, he suffers normal damage (eg 1D for shock weapons) but is not incapacitated.

Incapacitation may mean that the target is unconscious, unable to act due to neural interference or simply that he is badly winded or in sufficient pain not to be able to act. The Referee must determine exactly what 'stunned' means depending on the attack type. The game mechanics are the same in all cases – the target is down and cannot act.

Weapon	Potency	Effect
Shock Weapon	2D	Stunned 1D rounds
Shotgun 'Beanbag' Round	2D	Stunned 1D rounds
Concussion Grenade	3D	Stunned 1D rounds
Thud Gun Baton Round	3D	Stunned 1D rounds
Neural Weapon	4D	Stunned 2D rounds

AREA ATTACKS AND SUPPRESSIVE FIRE

Some attacks are not directed at a specific target but instead scatter fragments, spray an area with bullets or otherwise make a small region hazardous to be in. Whether or not a character who is in such an area is actually hit is to some extent a matter of luck and what he is doing at the time. Someone who is flat on the ground is a lot less likely to be hit by area fire than a character who is running about trying to rally his men.

When an area fire attack is made, a successful hit roll indicates that the target area has been endangered, ie the grenade has gone off where it should, the shell has arrived in the target area or the chosen section of countryside has been swept by automatic fire. If this hit roll is not made, it is usually safe to assume that the attack had no effect – bullets went into the sky, the shell was a dud or came down somewhere nobody was standing, adding to the general misery of those involved without any real effect on the battle in progress. Fighting fools may want to determine exactly where every deviated shell or ‘over’ goes and who receives it, but Traveller is not a simulationist wargame so this is not usually necessary.

If the target area is hit, anyone in the weapon’s primary or secondary radius may be affected. This is somewhat random. It is possible to be right next to a grenade and unscathed while another person further away is riddled with fragments, though the odds work the other way around.

Primary and secondary burst radii are given for area-effect weapons in the appropriate listings. For suppressive or area fire from firearms, there is only a single area of effect. The Intensity of an attack is the number of dice thrown to obtain a hit on a target in the swept zone. Intensity is treated a 1D less in the secondary radius.

Attack Type	Area of Effect	Intensity
Autofire	3m	2D
Rapid-Fire	4m	3D
Very Rapid Fire	5m	4D
Artillery Weapons	Varies	2D (Default)
Performance vs. armor		Additional DM

Damage for area fire with projectile weapons is the weapon’s base damage, ie it is not multiplied for autofire, RF or VRF fire. Area fire scatters ammunition around rather than concentrating on destroying the target.

To determine if a character is hit by area fire, roll the Intensity of the attack and apply DMs as noted below. If this exceeds the character’s DEX, he is hit. If it is equal to or lower, he is not. Most of the time a character who is changing position, kneeling to shoot and generally moving about a bit is considered to be ‘fighting in the open’ ie there is no particular DM.

Most artillery weapons and grenades have an Intensity equal to Autofire, ie 2D. Exceptions are noted under the artillery ammunition rules.

Area Fire DMs

Factor	DM
Asking for it	+4
Making a good target	+2
Fighting in the open	None
Prone in the open	-2
Partial Cover	-2
Fighting from fairly complete cover	-4
Cowering in good cover (not fighting)	-6
Secondary Area of Effect	-3

‘Making a good target’ applies to characters who are standing still or are on top of something in plain view. The ‘Asking for it’ DM is applied at the referee’s discretion when a character is taking extreme risks or doing something very unwise.

A character who throws himself on a grenade is automatically hit with no roll needed, but he does count as Partial Cover for anyone else nearby.

• ARMOR AND AREA FIRE

Armor modifiers apply normally for direct-fire weapons used for area fire, eg a machine-gun used to hose and area and suppress anyone in it. For HE and Fragmentation/Bomblet munitions, the armor modifiers for 40mm RAM grenades using Flechette warheads are used as per Book 4: Mercenary. For reference, they are reproduced here:

Nothing	Jack	Mesh	Cloth	Reflec	Ablat	Battle
+7	+7	+3	-2	+7	+3	-6

These modifiers apply to all grenades and artillery munitions up to Light (100mm). After this, additional modifiers apply:

Size Class	Caliber	DM
Medium	125mm	+1
Medium-Heavy	150mm	+2
Heavy	175mm	+3
Very Heavy	200mm	+4
Extremely Heavy	250mm	+6
Enormous	300mm	+8
Gigantic or Larger	400mm+	+10

ARTILLERY COMBAT IN TRAVELLER

The big artillery guns are more likely to be part of the backdrop to a Traveller game than its focus. Characters may have to move from a place because it is being shelled, or may have to undertake a desperate mission to neutralize a heavy artillery piece, but situations where the characters are the specific target of 200mm artillery shells should be rare.

Smaller artillery and support weapons may come into play as the characters fire or throw the odd grenade, or someone daringly mans an abandoned anti-tank gun during a low-tech combat the characters have become involved in. In most cases the characters will be involved in direct fire combat, which governed by the normal combat rules. Point the weapon at the target, make the skill throw, and see if a hit is scored as normal. The same procedure applies to guided weapons, which are likely to land a direct hit.

Where area-effect and indirect fire weapons come into play, the procedure is not much different. Getting an indirect-fire weapon onto the target requires either visual correction by the firer or communication with a forward observer. A hit indicates that the weapon has scored a hit somewhere near the target; close enough to threaten it.

If the hit throw is a double-six then the target might conceivably suffered a direct hit. This is still very unlikely unless it is a large static target. If the Referee wants to assign a chance for a direct hit he may do so. If one is not scored then a radius-of-effect hit has been scored. Throw 1D. On 1-2 the target is in the weapon's primary radius of effect. On 3-6 it is in the secondary radius. A miss means the shell came down somewhere, but we do not usually need to worry about here. We can assume that it has contributed to the general mayhem and unhealthiness of the battlefield.

A direct hit applies the weapon's contact effect against the target, if any. Whether or not it has a contact effect, a direct hit also imposes double the weapon's primary effect against the target; this cannot be avoided. A person who takes a direct hit from an 8" naval shell is both extremely unlucky, and dead.

Anything and anyone within the primary or secondary radius of effect is subject to an Area Fire attack. The Intensity of this attack is normally 2D, modified for performance vs. armor, though some weapons have additional modifiers.

Within the Primary burst radius the weapon does full damage if the character fails to avoid being hit, and half damage if he succeeds. Half damage is taken in the secondary area of effect if the character fails to avoid being hit and no damage if he is successful. In addition, the chance of being harmed is smaller.

DIRECT FIRE WITH ARTILLERY WEAPONS

Damage ratings for artillery weapons assume the usual practice of lobbing shells about and hoping they come down somewhere near the target. Direct hits with artillery are uncommon; it is more usual to gradually wear down the target with bombardment than to drop a single shell right on top of it. Thus artillery weapons have relatively low damage ratings considering the size and velocity of the projectile.

For weapons whose damage comes more from impact than the warhead itself, we use a slightly different system. Low-velocity weapons such as black powder cannon, grenades and lobbed artillery shells that somehow make a direct hit deliver are treated as roundshot or solid shot of the same rating.

High-velocity weapons designed for the direct-fire role, such as tank armament and anti-tank guns, normally use specialist ammunition (eg AP, HEAP) whose increased damage reflects the hitting power of the round. If a direct hit is scored with, say, an HE round from a high-velocity tank gun it is considered to be roundshot.

Canister damage is always based on 'bombardment' value rather than direct-fire damage.

DIRECT HITS WITH ARTILLERY WEAPONS

Normally an artillery weapon striking nearby uses the RAM grenade modifiers as per Indirect Fire. However, in the event of direct fire or a lucky direct hit, a second hit throw must be immediately made. If this is failed, the weapon has detonated nearby and does its usual area damage, using indirect-fire modifiers. If this throw is made, the weapon has hit the target and penetrated its armor, delivering direct-hit damage. This mode of attack only applies to relevant ammunition types, eg solid shot, armor-piercing and of course those weapons intended for direct fire anyway, such as autocannon.

This second throw uses the following Armor modifiers, which are NOT found in Book 4, Mercenary.

Generic Artillery

Weapon	Single Shot	Autofire
Nothing	-	+3
Jack	-	+3
Mesh	-1	+2
Cloth	-2	+1
Reflec	-	+3
Ablat	-1	+2
Battle	-3	0

These modifiers may be altered for some ammunition types. This takes the form of a blanket DM applied to all columns above, only for the purposes of determining if a potential direct hit is effective. In addition, some ammunition types do additional damage on a direct hit. Direct lucky hits with artillery shells are treated as solid shot.

Type	Blanket DM	Damage
Solid Shot	-	x1.5
Armor-Piercing	+3	x2
APDS etc	+4	x2.5
HEAP or Shaped Charge	+2	x2
Shaped Charge, Advanced	+5	x2.5
Directed Plasma	+8	x3
Hypervelocity	+10	x4

In addition a modifier for the size of the firing weapon applies:

Size Class	Caliber	DM
Light or lighter	-	-
Medium	125mm	+1
Medium-Heavy	150mm	+2
Heavy	175mm	+3
Very Heavy	200mm	+4
Extremely Heavy	250mm	+6
Enormous	300mm	+8
Gigantic or Larger	400mm+	+10

RANDOM SHELLING

Characters who feel the need to wander around areas that are being shelled (or are fighting in a battle under semi-random shellfire) may be attacked by area fire. If an abstract system is needed, throw 1D every 3D combat rounds (ie once every 18-108 seconds) and on a 1, the character is within the burst radius of an artillery weapon of a suitable size based on what the opposition has available. Throw the usual 1D: 1-2 indicates primary burst radius and 3-6 indicates secondary.

The occasional near miss should keep characters on their toes. Those who think they are invincible and ignore the shelling may be exposed to more – attacks occur on a 1-2 or even 1-3 against heroes who feel the need to disregard their own safety.

ARTILLERY COMBAT AND SUPPRESSIVE FIRE – SUMMARY OF GENERAL PROCEDURE

When seeking to obtain a hit with an artillery or similarly large weapon, whether firing indirect or direct, an initial hit roll is made without modifiers for armor. If this is failed the warhead has missed the target area and does not affect anyone located there. If a hit on the general area is obtained, a second hit roll is necessary. The same procedure is used for suppressive fire with automatic weapons.

For suppressive fire with direct-fire weapons, eg autocannon or machineguns, use the Area Fire rules, modifying the Intensity of the area fire attack by the weapon's characteristics against whatever armor the target is wearing as per Armor and Area Fire, above.

For artillery indirect fire use the Area Fire rules, modifying the Intensity of the area fire attack by the weapon's characteristics against whatever armor the target is wearing. This is based on the characteristics of a 40mm RAM grenade and modified by warhead size as per Armor and Area Fire, above.

For attempts at direct hits use the Direct Fire With Artillery rules, above. In this case the second hit throw is made using the characteristics for the Generic Artillery Weapon defined in those rules and modified for whatever ammunition type is being used. If this throw is successful, a direct hit has been obtained. If not, a close detonation may or may not cause damage depending on the weapon type.

PART 2: WEAPON LISTINGS

The vast majority of weapons presented here are variations on items found in Books 1-5 and similar in performance against armor to those. For example, a Light Autopistol is basically similar to an Autopistol in general performance characteristics. Where there are significant differences, these are detailed.

Hand Weapons

Guns jam, bowstrings snap and ammunition runs out. When it happens, you need a backup. And of course in some situations a hand weapon is the best tool for the job.

Hand weapons fall into three broad categories – pointed, sharp or blunt. Pointed weapons cause damage to the target by driving a narrow spike deep into tissue seeking a vital organ. They penetrate armor better than other types. Sharp weapons cut their target by a combination of impact and slicing action of a sharp blade, while blunt instruments rely on impact to cause trauma. Some weapons are a combination of these, types, for example the elegant foil which can slash or impale. Others are somewhere in between two types, such as an axe which may be fairly blunt but heavy.

Hand weapons are legal in most locations, and can be as lethal as any laser or projectile weapon, although they lack range.

SHOCK WEAPONS

Some weapons (stun batons, stunguns etc) contain a high-voltage power source, which shocks the target on contact. Such weapons can be used to merely touch the target (for shock damage only) or to add shock damage to a normal melee attack. |

In theory, any melee weapon can be constructed to deliver shock upon contact (though special construction is required, tripling the cost). After delivering a shock, such weapons need to recharge for 1D combat rounds, during which time they can be used as a normal melee weapon but recharging must begin anew each time a target is contacted.

Shock weapons deliver 1D extra damage upon a successful hit and may cause incapacitation, but only if an unarmored part of the target is struck. If the target is wearing any armor, the extra shock damage and any shock effect is negated.

BLUNT INSTRUMENTS

Blunt weapons are easy to improvise and generally lack sophistication. However, high-tech weapons do offer some interesting options.

Brass Knuckles (VL) (Cr10, TL0, negligible weight) A heavy knuckle-duster (which may or may not be made of actual brass), brass knuckles increase brawling damage to 2D. They use Brawling skill since they are simply an extension of the character's own fists. Heavy boots or specially modified shoes with hard striking surfaces can also be considered to function as brass knuckles.

Cudgel (Or Club) (L) (Cr10, TL0, 1kg) A constructed or improvised blunt instrument suitable for braining an opponent or breaking his bones. Cudgel type weapons include staves of a sort carried for fighting or walking. A cudgel can be

improvised from a handy stick, a large spanner or even a rifle, or might be carved and lovingly shaped from hardwood. A purchased cudgel (e.g. a sports bat of some kind) might cost Cr10. Length: 500mm to 2,000mm. Damage: 2D

Mace, Great (VH) (Cr50, TL2, 3kg) A heavy metal weight (often spiked or flanged) on a long haft, the great mace is used in both hands and is designed for smashing armored personnel to bits. Length: 1,500mm to 1,700mm. Damage: 4D.

Mace, Heavy (H) (Cr30, TL1, 2kg) A heavy metal weight (often spiked or flanged) on a haft, the heavy mace is sometimes a badge of rank and sometimes a potent infantry weapon. Heavy maces can be thrown a short distance for 3D damage. Length: 1,000mm to 1,500mm. Damage: 3D. A large sledgehammer is treated as a heavy mace.

Mace, Light (Cr25, TL1, 1.5kg) A light mace is a one-handed weapon carried as a sidearm by some low-tech troops. It consists of a heavy crushing head on a short haft. Maces can be thrown for 2D damage Length: 500mm to 1,000mm. Damage: 2D+2. A hammer or similar tool would be treated as a light mace.

Martial Arts Flail (Cr10, TL1, 500g): Effectively two or three pieces of wood or similar material fastened together by cord or light chain, a martial arts flail is actually a peasant's agricultural tool turned into an improvised weapon. It does 2D damage. Very skilled users can do clever things with an MA flail, such as entangling an opponent and throwing him to the ground, but for the most part these weapons are just flexible cudgels.

Morningstar Flail (H) (Cr100, TL2, 3kg) The morningstar flail consists of a spiked mace head on a chain attached to a long haft and wielded in both hands. It is a deadly battlefield weapon but poses a severe threat to an untrained user. Length: 1500mm to 2000mm. Damage: 5D. The morningstar is considered to be a mace weapon for purposes of penetrating armor.

Shock Baton (L) (Cr350, TL8, 750g) The shock baton resembles a light security baton, much like a police billy club. In addition to the normal damage, 1D extra is delivered if the target has no armor. Damage: 2D (+1D shock).

Stunfist (VL) (Cr100, TL8, Weight negligible) A stunfist is a high-technology knuckle-duster containing a shock unit (and insulation for the user). A stunfist is subject to the usual rules for shock weapons. It strikes as brass knuckles (2D damage) plus 1D shock damage and possible incapacitation. Stunfists use Brawling skill.

AXES AND RELATED IMPLEMENTS

Axe-type weapons include the obvious chopping and fighting axes and also military weapons like halberds and war picks,

all of which rely on a heavy blade or spike propelled by a haft of varying length.

Axe, Stone (Cr0, TL0, 1.5kg) A simple weapon constructed by attaching a weight (usually a rock) to a branch or bone handle. Similar implements can be constructed from high-tech equipment if the need arises. Length: 500mm to 1,000mm. Damage: 2D.

Axe, Battle (H) (Cr40, TL1, 1.25kg) A large axe with one or two blades and welded in one or both hands, the battle axe is a basic low-tech infantry weapon. Large wood axes and fire rescue axes have a similar performance. Treat as a Standard weapon if used in both hands. Length: 1,000mm to 2,000mm. Damage: 3D

Axe, Great (VH) (Cr150, TL2, 2kg) A very large axe with a long haft, welded in one or both hands, the great axe is a fearsome low-tech infantry weapon. Length: 1500mm to 2000mm. Damage: 5D

Axe, Hatchet (L) (Cr25, TL1, 750g) A light axe head on a short haft, hatchets are basic work tools and are carried as sidearms in some areas. They are also found in survival and field kits. Length: 300mm to 600mm. Damage: 2D.

Halberd (H) (Cr75, TL1, 2.5kg) There are many possible halberd-type weapons, most of which are a sort of hybrid spear and axe type weapon. Halberds are powerful and versatile weapons and popular with low-tech infantry. Length: 1,500mm to 2,500mm. Damage: 3D.

Axe, Boarding (H) (Cr100, TL9, 2kg) A modern version of the halberd with a short haft, the boarding axe is a combination of axe and spear for close assault work. Most have an optional spade head, which can be swapped for the axe in a few seconds. Damage: 3D.

Pick, War (Cr75, TL2, 1.5kg) War picks are designed for punching through armor, and are marginally effective against even modern protection. A war pick is used on one hand like an axe. It does 3D damage but ignores the protective effects of Jack, or Mesh armor.

SPEARS

A spear is essentially a point of some kind at the end of a haft. Whether this is a high-tech bayonet attached to a gauss rifle or a sharp rock tied to a branch, the effect is much the same. Spears increase the reach of the user, and by flexion of the shaft can also increase his ability to penetrate the target.

Spear (Cr10, TL0, 2kg) A long (3,000mm) polearm with a pointed tip, usually of metal. A basic spear can be made from a sharpened stick with a fire-hardened end. More advanced versions are basically the same in principle but may have a more durable head, crosspieces to prevent an impaled

animal advancing up the shaft, and so forth. Damage: 2D. A fisherman's trident or similar implement is treated as a spear. Spears ignore the protective effects of Jack armor.

Pike (H) (Cr40, TL1, 3kg) A long (3,000 to 4,000mm) polearm with some form of flat blade tip. A long horseman's lance may be very similar in construction to a pike. Damage: 3D. A lance charged home by a mounted opponent does 6D damage, but such an attack requires a headlong charge. Pikes ignore Jack armor or its equivalent.

SWORDS AND KNIVES

There are many kinds of sword; the term refers generally to a weapon with a long metal blade designed for cutting or stabbing, or both, with some kind of handguard. Swords are normally used in one hand, though some are wielded in both. Shorter blades include knives, daggers and a machete-sized weapon called a Blade.

Knife (VL) (Cr5, TL1, 150g) More a tool than a weapon, any small bladed or pointed implement can be pressed into service in an emergency. This includes screwdrivers, chisels and even items like scissors. Damage from such emergency implements or small knives is 1D.

Dagger (VL) (Cr10, TL1, 250g) Knives intended for fighting are normally referred to as Daggers. Various types exist, from large Bowie-type knives to stiletos and boot knives. Daggers typically have a sharp, pointed (or both) blade some 200mm in length and some kind of handgrip. Damage: 2D.

Sword (Cr150, TL1, 1kg) Sword is a catch-all term for most long-bladed hilt weapons. Most have some kind of point and/or one or two sharp edges. There are many types of sword. Commonest at higher tech levels are slightly curved 'cavalry saber' type slashing swords. The Sword can be taken as representative of a range of weapons including knightly sidearms, katanas, cavalry sabers, estocs and all manner of other bladed hilt weapons. Blade length is typically in the 700 to 950mm range. Damage: 2D.

Broadsword (H) (Cr300, TL2, 2.5kg) The largest of the sword weapons, the broadsword is also called a two-handed sword because it requires both hands to use. The blade is extremely heavy, two-edged, and about 1000 to 1200mm in length. The hilt is relatively simple, generally a cross-piece only, with little basketwork or protection. When carried, the broadsword is worn in a metal scabbard attached to the belt; less frequently, the scabbard is worn on the back, and the broadsword is drawn over the shoulder. Damage: 4D.

Bayonet (VL) (Cr10, TL3, 250g) A knife-like weapon similar to a dagger or blade, a bayonet may or may not have a cutting edge; it will always have a stabbing point. When not attached to a rifle, a bayonet is treated as a dagger and will normally be carried in a belt scabbard. When attached to the muzzle of a rifle or similar weapon, it transforms the gun into a

polearm and increases the length of the weapon by 200mm. Characters with Combat Rifleman skill are considered to be able to use a fixed bayonet at their Combat Rifleman skill level. More advanced bayonets may incorporate tools such as wire cutters and bottle openers but the basic function is the same. Damage: as dagger or 3D if fixed.

Blade (L) (Cr50, TL3, 350g) A hybrid knife weapon with a heavy, flat single or double edged blade nearly 300mm in length. There are two basic types of Blade; the shortsword type has a double straight edge and an effective point; the machete type has a single curved edge and no point. There is no real difference in the performance of these types. Because of the bulk of the Blade, it is generally carried in a belt scabbard. Blades are as much survival tools as weapons, and are often found in emergency kits, lifeboats etc. Damage: 2D. The shortsword type costs cr70 and is better at punching through armor. Damage is the same but Jack armor is ignored.

Cutlass (H) (Cr100, TL3, 1.25kg) A heavy, flat-bladed, single-edged weapon sometimes featuring a full basket hilt to protect the hand. The cutlass is the standard ship-board blade weapon and sometimes kept in lockers on the bulkhead near important locations; when worn, a belt scabbard is used. Blade length varies from 600 to 900mm. Damage: 2D.

Foil (L) (Cr100, TL3, 500g) Also known as the rapier, this weapon is a light, sword-like weapon with a pointed, edged blade 800mm in length, and a basket or cup hilt to protect the hand. Foils are worn in scabbards attached to the belt. A variant, the 'Navy Foil' exists. This is a slightly curved version used mainly for slashing and not well suited for thrusting. Both weapons are similar in performance. Blade length is typically 900mm. Damage: 1D.

MISCELLANEOUS CLOSE-COMBAT WEAPONS

Various hand-to-hand weapons exist that are not categorized. Most can be considered to be either a dagger-type or a cudgel-type weapon.

Bottle (VL) (Cr0, TL1, negligible weight): A bottle can be used as a cudgel until it breaks (which can take longer than most entertainment vids might lead travellers to believe). There is a 3 in 6 chance that a bottle will break on any given blow. If it does, there is a 3 in 6 chance that it will be useable as a dagger afterwards. Otherwise too little is left for the wielder to do much but injure himself with.

Handmine (VL) (Cr200, TL8, negligible weight): A handheld shaped-charge explosive weapon, the handmine is sometimes hazardous to the user but very dangerous to the target. A successful brawling attack is necessary to hit the target. If successful, the mine is triggered and the target takes 4D damage. There is a 3 in 6 chance that the user also

takes 2D damage from his own weapon. It takes one round to arm a handmine.

Handspikes (VL) (Cr10, TL0, negligible weight): Essentially a heavy knuckle-duster with spikes rather than just relying on impact, handspikes are much the same as brass knuckles in effect, in that they increase brawling damage to 2D. They are rather intimidating and leave a very nasty wound. They are used with Brawling skill.

Weapon Butts, Handguards etc are treated as cudgels (2D damage). Characters with Combat Rifleman skill are considered to have the same level of skill with the butt of their weapon as with the other end, but this does not carry over to non-rifle weapons. Sword hilts etc can be struck with using Brawling, or the relevant blade skill, whichever is highest.

ARCHAIC PROJECTILE WEAPONS

Despite all the advances that can be made in weapons technology, it remains true that an arrow or even a thrown rock can harm or kill a character.

Thrown and Hurling Weapons

Thrown and hurled weapons (typically rocks, javelins, knives and axes) have a short range but can still be deadly.

Bola (L) (Cr5, TL0, 600g) Two or three weights fastened together with a cord, the bola is used to bring down an opponent or prey. It does 0/1D damage. In addition, the target may be entangled around the legs and tripped up.

Boomerang (L) (Cr5, TL0, 200gr) A shaped wooden object designed to harm an unarmoured target, boomerangs use Throwing skill and do 0/2D damage.

Rock, Large (H) (Cr0, TL0, weight varies) A rock or similar object requiring both hands to lift and hurl will cause considerable damage but makes for a clumsy and short-ranged weapon. Damage: 3D.

Rock, Small (Cr0, TL0, weight varies) A smallish rock or similar object can be thrown at an opponent to cause harm. Something suitable can usually be found lying around. Damage: 1D.

Axe, Throwing (Cr35, TL1, 750g) A hatchet or tomahawk-like weapon balanced for throwing, the axe has a short range but heavy impact. It can double as a hand-to-hand weapon, in which case treat it as a Hatchet. Length: 300mm to 600mm. Damage: 2D.

Javelin: (Cr15, TL1, 750g) A short spear designed for throwing, a javelin can be pressed into service as a spear, and vice versa, though neither is ideal outside its intended role. Damage: 2D.

Knife, Throwing (VL) (Cr25, TL2, 150g) A small blade weapon designed for throwing, a knife is easy to conceal and carry. Throwing knives can double as hand-to-hand weapons but are not very effective. Length: 100mm to 250mm. Damage: 1D.

Net: (VL) (Cr10, TL1, weight varies): A net causes no damage but may entangle the target.

Throwing Steel (VL) (Cr15, TL3, 100gr) A range of small blades can be thrown, including darts, stars and caltrops. They are not especially damaging, and useless against armor, but popular with martial artists who, for whatever reason, eschew firearms. Damage: 1D.

BOWS, CROSSBOWS AND SLINGS

Bows, crossbows and slings all use Bow Combat skill and have a somewhat greater effective range than hand-hurled weapons.

Sling (L) (Cr10, TL0, negligible weight) A projectile weapon that propels small stones or metal bullets using rotational energy. Slings are powerful but require a certain amount of skill to use effectively; all shots made using a sling suffer a -2DM to hit. Damage is 2D

Bow, Short (Cr200, TL1, 1kg) A light bow with a weak pull, the short bow is primarily a hunting weapon but sees use in combat from time to time. Short Bows are sometimes used from animal-back. Damage: 1D.

Crossbow, Military (H) (Cr350, TL2, 8kg) A heavy weapon, cocked with a stirrup or windlass device, the military crossbow is powerful and simple to learn how to use. It is slow-firing, however, taking 3 combat rounds to load. Damage: 3D.

Crossbow, Repeating (L) (Cr450, TL 2, 5kg) A quick-firing crossbow cocked by a lever and fed from a magazine of bolts, repeating crossbows are weak and somewhat unreliable. Damage: 2D.

Crossbow, Siege (VH) (Cr800, TL2, 12kg) A very heavy weapon, the low-tech equivalent of a battlefield support weapon, the siege crossbow is normally used from a fixed mount. It is very powerful but takes 10 combat rounds to reload. Damage: 5D.

Crossbow, Sporting (Cr200, TL2, 2.5kg) A light crossbow intended mainly for hunting or shooting game, the sporting crossbow is quicker to load than its heavy cousin but is far less powerful. Damage: 2D.

Long Bow (H) (Cr300, TL2, 1.5kg) A long symmetrical or asymmetric bow, the long bow is a powerful low-tech weapon. The same stats can also be used for powerful recurve bows, which are shorter than the standard longbow stave and sometimes used by horse archers. Damage: 2D.

Compound Cam Bow: (H) (Cr200, TL5, 500gr) A short bow made with advanced materials and incorporating a pulley device, the compound cam bow is as more powerful than a long bow and also much handier. Damage: 3D.

Crossbow, Advanced: (Cr250, TL7, 4kg) A modern version of the sporting crossbow using advanced materials. It is functionally little different. Damage: 3D.

ARCHAIC FIREARMS

Most archaic (i.e. low-tech) firearms use black powder as a propellant. They tend to be clumsy and slow to load even though they may be beautifully made. Most black powder weapons are smoothbores and thus very inaccurate. They can be quite deadly.

One interesting alternative to black powder is the compressed-air weapon. Similar in concept to 'toy' air guns, compressed-air guns are used with an air cylinder which holds 4 shots worth of compressed air and is 'reloaded' with a hand pump – a long and slow process. Air weapons are silent and can be quite dangerous in the right hands.

At slightly higher tech levels, percussion weapons are available. These still use black powder as a propellant but instead of a flintlock or matchlock system they are initiated by a percussion cap struck by a hammer. These weapons are somewhat more reliable than flintlocks. They are certainly more resistant to environmental conditions.

All archaic firearms are prone to malfunctions. Throw 4+ on 2D to avoid a misfire. If a misfire occurs, the character can try to shoot again the next round, this time needing 8+ to avoid a misfire. A third attempt can be made at 12+ and if a misfire occurs this third time the weapon will need to be carefully cleared and cleaned before it will function properly. This applies to all black powder personal weapons and artillery.

Black Powder Carbine (Cr100, TL2, 2.5kg) A short-barreled rifle-like weapon (or an extremely large pistol), the carbine fires a pistol ball out to a greater effective range. Carbines are usually carried by low-tech cavalry and possibly artillerymen. Damage: 3D

Black Powder Coach Pistol (H) (Cr75, TL2, 1.25kg) Essentially a sawn-off double-barreled black powder shotgun, the Coach Pistol is deadly at close range but useless for ranged fire. It is more of a deterrent than an effective weapon. The firer can choose to discharge one or both barrels. In the latter case, a single hit roll is made – either the target is hit by both barrels or not at all. Damage: 4D or 6D if both barrels are discharged at the same target. Coach pistols use normal shotgun rules.

Black Powder Musket (H) (Cr 350, TL2, 3.5kg) A basic infantry firearm, the musket is more powerful than a carbine and has a greater range. It is normally issued with a large spike bayonet to make a crude pike, though a musket also makes a pretty decent cudgel in its own right. Damage: 3D.

Black Powder Pistol, Large (H) (Cr 150, TL2, 1kg) A long, heavy pistol which is awkward to carry, the Large Pistol often has a metal-shod butt, making it a reasonable cudgel once discharged. It is sometimes referred to as a Horse Pistol, as these weapons are favored by cavalry. Damage: 3D.

Black Powder Pistol, Light (Cr 120, TL2, 500g) A smaller weapon, the light pistol is better suited for carry as a sidearm. It is not very effective, but certainly better than nothing. Damage: 2D.

Black Powder Shotgun (H) (Cr100, TL2 3.5kg) Little different from a modern shotgun other than the fact that it uses loose ammunition and powder rather than all-in-one cartridges, the black powder shotgun has similar performance to more modern versions. Some shotguns are single barreled, often with a bell mouth, creating a 'blunderbuss' or 'mob gun'. If the weapon has two barrels, the firer can choose to discharge one or both barrels at a time. In the latter case, a single hit roll is made – either the target is hit by both barrels or not at all. Damage: 4D, or 6D if both barrels are discharged at the same target. Black powder shotguns are subject to all shotgun rules.

Black Powder Rifle: (Cr500, TL2, 3kg) Basically a musket with a rifled barrel, the black powder rifle is slow-loading but accurate out to a respectable distance and penetrates armor better than a musket. Damage: 3D.

Duck's Foot Pistol (H) (Cr150, TL2, 750g) Essentially a tool for intimidating a mob, the duck's foot pistol has several splayed barrels which are all discharged at once. Its effects are fairly random, and are treated as Panic Fire. Damage: 3D.

Cap-And-Ball Revolver (Cr125, Tech Level 4, 1kg) A basic revolving-cylinder handgun in a caliber around 10-12mm. The cylinder holds six rounds which are loaded in a somewhat lengthy process taking 1D combat rounds per round loaded. The weapon can be partially or fully loaded. Damage: 3D.

Air Rifle, Reservoir: (Tech Level 3, 3kg) A rifle whose projectile is propelled by compressed air. It is charged by pumping an internal reservoir to the required pressure. One shot can be fired before the reservoir needs recharging. This is not a toy – weapons of this type are designed to kill, though the time spent pumping the reservoir (10 rounds) makes them more useful for hunting than combat. Damage: 2D.

Air Rifle, Cylinder: (Tech Level 4, 3.5kg) An advance on the 'reservoir' rifle, the cylinder type uses a detachable 'cylinder' (which is in fact usually spherical with a valve on top). A fully

changed cylinder is good for 4 shots and can be recharged using a hand pump in 60 combat rounds. The weapon is a single-shot muzzle or breech loader but is faster to fire than a musket and has the advantage of being silent. Damage: 3D.

Cap-And-Ball Revolver, Light: (L) (Cr125, Tech Level 4, 0.75kg) A weapon very similar to the standard cap-and-ball revolver but chambered for 8-10mm ammunition, the light cap-and ball revolver has fairly poor stopping power but is a big advance over one-shot black powder pistols of similar caliber. Damage: 2D.

Rifle-Musket, Percussion: (Cr125, Tech Level 4, 3.5kg) A rifled single-shot weapon firing a shaped bullet rather than a ball but still using black powder propulsion (albeit initiated by percussion cap), the rifle-musket shoots faster, further and more accurately than a smoothbore musket. Damage: 3D.

PROJECTILE WEAPONS

Although personal energy weapons are available, it is still most cost-effective to disable an enemy using a large dose of kinetic energy administered by a high-speed projectile. Most projectile weapons use a conventional chemical propellant system, though advanced propellants and even electromagnetic (gauss) propulsion are used in some weapons. Conventional projectile weapons are colloquially termed 'Slugthrowers'.

Gauss weapons are military hardware, pure and simple. Instead of a large projectile propelled by chemicals, the various gauss weapons use a small needle accelerated to immense velocities by a linear magnetic field. Gauss weapons have a fairly low recoil and are not as noisy as slug throwers (though the 'crack!' is distinctive). They are capable of semi-automatic or burst fire.

Sniper versions of the standard gauss rifle are available, and VRF (Very Rapid Fire) gauss guns are mounted on some vehicles as anti-personnel weapons. The gauss shotgun is an experimental weapon that fires bundles of gauss needles in a conical pattern. The concept has never really caught on, though examples do reach the market from time to time.

Gauss propulsion is also used in the Gauss Flamer concept. Gauss weapons are included alongside the standard weapons of the type and can be used with the relevant skill, e.g. a gauss pistol uses handgun (or pistol) skill.

Weapons that deliver autofire attacks deliver double damage to the target and can endanger additional targets as per the normal rules.

Rapid Fire (RF) weapons deliver tripled damage to the target. Very Rapid Fire (VRF) weapon deliver quadrupled damage to the target.

HANDGUNS

The basic self-defense sidearm is a handgun; a small weapon holding a limited amount of ammunition and capable of being fired using either one or both hands. Two common types of slug throwing handgun exist: revolvers and self-loading pistols (often known as semi-automatics, automatics or autopistols).

Revolvers are (as a rule) slightly more robust, simpler to use, and generally more idiot-proof. They are fed from a revolving cylinder which normally holds six rounds (or less in very powerful weapons) and places each round under the hammer in turn. Revolvers are thus somewhat bulky, but they have the advantage that if a round malfunctions, it is usually possible to simply pull the trigger again to fire the next one. They are also slow-loading, requiring each round to be manually placed in the cylinder. A variety of devices (stripper clips, half-moon clips and speedloaders) exist to speed up this process. It is extremely difficult to silence a revolver; few silenced versions exist.

Autopistols are fed from a magazine (sometimes incorrectly named a "clip"), which is usually inserted in the handgrip. Autopistols are slightly more complex than revolvers, though they are not really any more difficult to use. They are prized mainly for their high magazine capacity and speed of reloading.

Two less common variants on the handgun concept are the derringer and the body pistol. Derringers are very small single or double barreled weapons intended for concealment. They are reloaded manually, but if a situation exists where you need to reload your derringer then you definitely should have brought a bigger gun.

- Body pistols include a variety of small, concealable handguns. Low-tech versions are simply difficult to spot due to their small size, but more advanced ones use specialist non-metallic materials to make detection by automated equipment difficult. Such low-detectability (or "stealth") weapons are illegal in most areas.

Body pistols come in two general types: the derringer and the true pistol. Derringer types are sometimes built into innocuous-seeming objects as a single-shot surprise package. The true "body pistol" is a tiny semi-automatic weapon fed from a magazine, (usually with a capacity of 5 rounds), and can be quickly reloaded.

Weapons come in various calibers throughout Charted Space. Standard weapons typically are chambered for rounds in the 9mm to 11mm range. Lighter weapons, designed for small size or low recoil, are typically chambered in 5mm to 7mm. Heavy weapons using 12mm, 14mm and even larger calibers are more unusual but by no means unknown.

Ammunition comes in various calibers but these have been standardized for many centuries. Thus, other than for very unusual weapons, it is not hard to obtain suitable ammunition. Standard-caliber ammunition is interchangeable among derringers, revolvers, autopistols and even submachineguns; the same goes for small-caliber ammunition.

Note that these weapons are representative. It is possible to buy an autopistol with a 19-round magazine, or one that holds 11 rounds. Such minute details are beyond the scope of a rules set and should be implemented by the Referee if it seems like a good idea.

All handguns use Handgun (or Pistol) skill.

Derringer, Heavy (H) (Cr200, TL 4, 600g) A simple single or double-barreled pistol chambered for a standard cartridge. The derringer is not a repeating weapon; each barrel must be reloaded after firing. If both barrels are fired together, a single hit roll is made for both. Damage: 3D, or 4D if both barrels are fired together at the same target.

Derringer, Light (Cr150, TL 4, 500g) A simple single or double-barreled pistol chambered for a light cartridge. The derringer is not a repeating weapon; each barrel must be reloaded after firing. If both barrels are fired together, a single hit roll is made for both. Damage: 2D, or 3D if both barrels are fired together at the same target.

Revolver (Cr125, TL4, 1kg) A basic revolving-cylinder handgun using standard pistol ammunition, the revolver is easy to use and reload. Six cartridges are inserted one at a time into the cylinder. If reloading with individual ammunition, three rounds can be inserted each combat round. If a device such as a speedloader is used, the weapon can be fully reloaded in one round. Damage: 3D.

Revolver, Light (L) (Cr100, TL4, 650g) A simple and basic handgun, the light revolver is easy to use and reload, with low recoil due to its smaller cartridge. Six cartridges are inserted one at a time into the cylinder. If reloading with individual ammunition, three rounds can be inserted each combat round. If a device such as a speedloader is used, the weapon can be fully reloaded in one round. Damage: 2D.

Shot Pistol (L) (Cr60, TL4, 300g) A single, shot, break-open smoothbore handgun designed to fire light shotgun cartridges or flechette ammunition, mainly to deal with snakes and similar vermin. The Shot Pistol is useless beyond 5m. For Cr75, a double-barreled version is available, which weighs 400g. Damage: 2D, or 3D if both barrels hit the same target at once.

Autopistol (Cr200, TL5, 1kg) A medium-caliber semi-automatic handgun fed from a 15-round magazine, the autopistol is a standard sidearm throughout Charted Space. It is simple to use, even for untrained personnel. Changing magazines takes one combat round. Damage: 3D.

Autopistol, Light (L) (Cr150, TL5, 500g) A small-caliber semi-automatic handgun fed from a 15-round magazine, the light autopistol is a standard carry weapon among personnel who are not really expecting trouble. It is simple to use, even for untrained personnel. Changing magazines takes one combat round. Damage: 2D.

Purse Gun (VL) (Cr50, TL5, 150g) An extremely light handgun built around a cut-down version of the already underpowered Survival Rifle round, the Purse Gun is a double-action semi-automatic pistol fed from a 6-round internal magazine. Unusually, the magazine is not removable but is reloaded manually (2 rounds per combat round). Performance against armor is similar to the body pistol. Many users consider purse guns to be disposable items. Damage: 1D.

Revolver, Heavy (H) (Cr400, TL5, 1.5kg) A more robust and solidly built version of the standard revolver, a heavy revolver is based on the same principle. Six cartridges are inserted one at a time into the cylinder. If reloading with individual ammunition, three rounds can be inserted each combat round. If a device such as a speedloader is used, the weapon can be fully reloaded in one round. Damage: 3D+3. Heavy revolvers are equivalent to most Magnum calibers.

Target Pistol (L) (Cr 500, TL5, 800g) An extremely accurate handgun chambered for light autopistol ammunition. Single-shot and magazine-fed versions are available. The latter holds 5 rounds. When shooting at medium range or longer, the target pistol allows a DM of +1 to hit providing the user is taking careful aim rather than conducting point-and-shoot fire. Damage is 2D.

Autopistol, Heavy (H)(Cr500, TL6, 1.5kg) A heavy-frame semi-automatic handgun fed with large-caliber ammunition from a 9-round magazine, the heavy autopistol packs a powerful punch but is heavy and bulky to carry. Recoil is too unpleasant for some users. Changing magazines takes one combat round. Damage: 3D+3.

Autopistol, Light, Slimline (Cr175, TL6, 400r) A small-caliber semi-automatic handgun fed from an 8-round magazine, the slimline autopistol is simply a smaller version of the standard light autopistol, designed for concealed carry in a pocket or bag. Changing magazines takes one combat round. Damage: 2D.

Autopistol, Light, Universal (Cr150, TL8, 500g) A small-caliber semi-automatic handgun designed to be used by a variety of alien hands and appendages, enabling the Imperial armed forces to issue a standard sidearm to non-human personnel. The weapon is known as a 'staple gun' for its shape and is of modest effectiveness. It is fed by a 10-round magazine. Damage: 2D.

Revolver, Very Heavy (VH) (Cr1,000, TL6, 2.25kg) A very solidly built revolver, often using cut-down big game rifle cartridges, Very Heavy Revolvers are unpleasant to shoot

and uncontrollable by most users. The cylinder holds only 4 rounds and speedloaders are not usually available. Damage: 4D.

Autopistol, Very Heavy (VH) (Cr1,250, TL7, 1.75kg) An extremely heavy-frame semi-automatic handgun using 14mm, 16mm or even larger ammunition in a 7-round magazine, the very heavy autopistol is too powerful for most users. Changing magazines takes one combat round. Damage: 4D.

HEAP Gun: (Cr350, TL8, 200g) A variant on the derringer principle, the HEAP Gun fires Snub Pistol ammunition, and is specifically built around the snub pistol HEAP round. It is a small handgun fed by a 4-round magazine. If HEAP rounds are not available, any snub pistol ammunition can be used but performance is not impressive with ball rounds. Recoil is low compared to the weapon's stopping power, and it is favored as a concealed-carry weapon or 'purse gun' by some users. Damage: 2D (ball), or 4D (HEAP).

Body Pistol (L) (Cr520, TL9, 300g) A small, non-metallic semi-automatic pistol designed to evade detection by most weapon detectors. One cartridge is fired for each pull of the trigger. Pre-loaded magazines may be inserted into the pistol when it is empty, taking one combat round to do so. Body pistol ammunition is typically of very small (5mm) caliber and is not interchangeable with the ammunition for any other types of guns. It is made of the same non-metallic materials as the pistol and is designed to be difficult to detect. Note that Body Pistols are not silent, though silenced versions are possible. Damage: 2D.

Body Pistol, Concealed (L) (Cr2000 or more, TL9, mass negligible) A single-shot variant of the Body Pistol built into an otherwise innocuous object like a pen, belt buckle or attaché case handle, the concealed body pistol is a single-shot weapon that requires dismantling to reload, but can be used to deliver a nasty surprise to an enemy. They are illegal almost everywhere. Damage: 2D.

Body Pistol, Heavy (H) (Cr300, TL9, 400g) A single or double-barrel version of the body pistol firing a single large (13mm) cartridge in the manner of a derringer. Heavy Body pistol ammunition is not interchangeable with the ammunition for any other types of guns. Damage: 3D.

Spurt Gun (Cr300, TL12, 200g) Spurt guns are illegal in most areas, and are very unreliable. Effectively, the spurt gun is a small disposable pistol that fires 200 small ceramic balls in a single burst, becoming very hot in the process. The firer takes one point of damage if the weapon is dropped immediately after firing, and 1D more if he keeps hold of it. After firing, the spurt gun is effectively destroyed and useless. Spurt guns cannot be reloaded. A spurt gun can make only one form of attack, ie a Rapid Fire autofire attack on a single target. Damage: 3D (RF).

Gauss Pistol, 4mm, Army Model (Cr2,500, TL 13, 1.25kg) An advanced weapon using electrometric acceleration to propel metal darts, the gauss pistol is a common sidearm in high-tech military forces. The detachable 40-round magazine contains a battery to power the weapon; changing a magazine takes one combat round. Gauss pistols can use full-automatic, semi-automatic or burst fire modes. Damage: 3D (Autofire).

Gauss Pistol, 4mm, Navy Model (Cr3,000, TL 13, 1.400kg) Identical in function to the more common 'Army Model' gauss pistol, the 'Navy' version has longer barrel and uses a 50-round magazine which does not fit in the Army version. Gauss pistols can use full-automatic, semi-automatic or burst fire modes. Damage: 3D (Autofire).

SUBMACHINEGUNS AND LIGHT ASSAULT WEAPONS

Submachineguns normally use light and medium caliber pistol ammunition, which is interchangeable with that in handguns, though magazines are usually not. Most submachineguns (SMGs) are intended to be used in both hands and were designed with the idea of automatic fire in mind. They usually have a selector allowing semi-automatic, burst fire or full-automatic modes to be chosen. Some lower-tech SMGs are full-auto only. Unless otherwise noted, SMGs require SMG skill to use properly.

Assault Pistol (H) (Cr750, TL5, 1kg) Essentially an autopistol converted to fire bursts of fully-automatic fire, assault pistols are horribly inaccurate and suffer a -2 DM to hit when using burst or autofire modes. They use standard 15-round magazines which can be emptied very quickly. Changing a magazine takes 1 combat round. Assault pistols can be used with either Handgun or SMG skill. Damage: 3D (Autofire).

Assault Pistol, Light (Cr600, TL5, 800g) A version of the standard assault pistol based around a lighter cartridge, the light assault pistol shares all the sins of its larger cousin but the lower recoil reduces the DM to -1. The weapon is capable of full-auto fire or semi-automatic mode. It uses standard 15-round magazines. Changing a magazine takes 1 combat round. Assault pistols can be used with either Handgun or SMG skill. Damage: 2D (Autofire).

Submachinegun (Cr520, TL5, 3kg) A small automatic weapon designed to fire pistol ammunition. Magazines holding 30 cartridges are inserted into the weapon forward of the trigger guard or in the pistol grip, depending on the design. Submachineguns are usually capable of full-automatic, burst fire or semi-automatic modes. Replacement of an empty magazine requires one combat round. Submachinegun rounds (and in some cases, magazines) are interchangeable with autopistol and revolver ammunition. Most submachineguns are equipped with slings for ease of carrying and some have

a bayonet lug. Some are small enough to be carried in a shoulder or hip holster. Damage: 3D (Autofire)

Submachinegun, Light (Cr400, TL5, 2.5kg) A version of the standard SMG using small-caliber ammunition, the light SMG is otherwise identical. Damage: 2D (Autofire).

Submachinegun, Light, Rapid-fire (Cr800, TL6, 3kg) A version of the light SMG using small-caliber ammunition, the light SMG RF is fed by a 50-round magazine and has a very high rate of fire. It can be used to deliver several attacks using autofire or the entire magazine in a single Rapid-Fire (RF) attack. Damage: 2D (Autofire or RF).

Submachinegun, Assault, Heavy (H) (Cr1,000, TL7, 3.5kg) A version of the standard SMG using heavy autopistol ammunition, the assault SMG is quite bulky and heavy, though it is still shorter than a rifle and handy in close action. It is fed by a top-mounted 50-round box magazine or a smaller 20-round 'carry' magazine. Damage: 3D+3 (Autofire).

Submachinegun, Boarding, Heavy (H) (Cr1200, TL9, 4kg) A slightly different approach to the SMG concept, the Boarding Gun, or 'deck sweeper' is a heavy SMG with an integral single-shot 20mm under-barrel grenade launcher. The low-powered 20mm grenades used in this launcher are not compatible with other weapons and are based on cut-down Light Assault Gun cartridges. The SMG or the grenade launcher can be fired every round, but not both. SMG skill is used with both weapons. The SMG component is fed by a top-mounted 50-round box magazine or a smaller 20-round 'carry' magazine. The grenade launcher is manually reloaded and carries a single round in the breech. The only grenades available are HEAP 'breaching' rounds for putting holes in doors and bulkheads and a multiple projectile round. Damage: 3D+3 (Autofire). Grenades: As per type (see Grenades, below).

Assault Grenade Launcher, 25mm (Cr1000, TL9, 4.5kg) A short-barreled light semi-automatic grenade launcher resembling a blocky shotgun in some ways, the AGL is fed by a top-loading 10-round magazine and can launch small HE or flechette rounds. Recoil is light due to the weapon's very low velocity, which limits range but can be useful in low-g assaults. A 'sticky' shaped-charge breaching grenade is available but has never proven very effective. If using flechette ammunition damage is 5D. HE rounds do 4D damage in a 1m primary radius and a 1m secondary radius beyond that. Loaded magazines are bulky and weigh 2.5kg.

Gauss Assault Weapon, 2mm (Cr2,300, TL 13, 7kg) A heavy but short gauss weapon using lighter needles than the standard 4mm rifle and pistol, the gauss assault weapon is essentially an assault shotgun using electromagnetic acceleration. Each pull of the trigger fires a 3-round burst, with each round being bundle of 24 2mm steel needles. The result is a combination of shotgun and RF weapon effects.

The feed device is a bulky 3kg, 60-round block that fits over the top of the barrel and contains the power source as well as ammunition. The weapon gains the Shotgun at Close Range bonus (+2 DM) and is treated as a RF attack. Base damage is 3D (RF).

SHOTGUNS

Shotguns are smoothbore weapons which usually fire a number of sub-caliber projectiles from a single cartridge. They are inaccurate but have an area effect, making them suitable for hunting small game. At close range, shotguns have impressive knockdown power but they are not useful for ranged combat. Shotguns used at close range or closer get a +2 DM to hit. This applies only to shot or flechette ammunition. Solid slug and other single projectiles do not gain this bonus.

If both barrels of a double-barreled weapon are fired simultaneously at the same target, they are not treated as two separate attacks but as a single, larger, shotgun attack. Damage is 1.5 times normal, e.g. 6D for a double-barrel attack with a standard (4D) shotgun.

Shotgun, Combat (H) (Cr160, TL5, 4.5kg) The combat shotgun is a single-barrel smoothbore weapon fed from an internal magazine. Operation may be semi-automatic, pump-action, or both at the user's choice, depending on the design. The combat shotgun uses 18mm diameter shells containing either six 7mm bullets, or one hundred and thirty 3mm pellets. This magazine can be manually reloaded (at the rate of three shells per combat round) and typically holds six rounds. Some versions of the combat shotgun use detachable magazines holding up to ten rounds, but these are bulky and awkward to carry. Changing detachable magazines takes one round. Damage: 4D.

Shotgun, Sporting, Light (Cr120, TL5, 2kg) A double-barreled sporting shotgun using light shotgun ammunition to bring down small game. Light shotguns have low recoil and are useful for lighter individuals if stopping power is not a major issue. Damage: 2D or 3D if both barrels are discharged together.

Shotgun, Short (H) (Cr125, TL5, 2.5kg) Simply a smaller and stockless version of the standard combat shotgun, the short shotgun holds 3 round in its magazine and one in the breech. It is popular as a vermin-control tool and for close-range self-defense. Damage: 4D.

Shotgun, Sporting (Cr150, TL5, 3kg) A double or single barreled shotgun for hunting purposes, the sporting shotgun uses standard shotgun ammunition. Each barrel must be manually reloaded after firing. One or both barrels can be reloaded per combat round. The firer can choose whether to discharge one or both barrels at the same time. In the latter case, a single hit roll is made for both barrels. Damage: 4D (6D if both barrels are discharged at once).

Shotgun, Sporting, Sawn-off (H) (Cr150, TL5, 1.5kg) Popular more as a threat than a serious combat weapon, a sawn-off is a sporting shotgun with the barrels greatly shortened and the stock removed. The sawn-off has a very short range but a wide spread of shot that gives a +4 DM to hit at close range. Damage: 4D (6D if both barrels are discharged at once). A sawn-off shotgun is ineffective beyond Short range.

Shotgun, Assault (VH) (Cr750, TL7, 4.5kg) A heavy shotgun fed from a 7-round detachable box or a bulky 20-round drum, the assault shotgun is capable of semi-automatic or burst fire. It uses the same ammunition as other shotguns. Reloading with either type of magazine takes one round. Damage: 4D (Autofire)

Shotgun, Gauss (Cr2,500, TL13, 3.5kg) A high-tech close assault weapon using gauss technology to launch bundles of needles in the manner of an assault shotgun. Range is short but the effects are deadly. The gauss shotgun is fed from a 30-round magazine and can be used in semi-automatic or burst-fire mode, or can make an autofire attack. If 10 or more rounds remain and the weapon is emptied, this can be treated as a Rapid-Fire attack. Damage: 6D (Autofire/RF).

RIFLES AND CARBINES

Various weapons are known by the blanket designation of 'rifle'. Generally speaking any two-handed projectile weapon with a rifled barrel that does not fit into another category is termed a rifle of one sort or another. Most rifles either use a light round (usually in the 5-6mm range) or a heavy one (in the 7-8mm range). Although these calibers are lower than those used in handguns the cartridge is longer and contains more propellant. Coupled with a longer barrel this makes for a higher muzzle velocity and greater penetration of the target. All weapons in this section use Rifle or Combat Rifleman skill.

Rifle, Bolt (Cr175, TL 4, 4kg) A standard low-tech military weapon, firing a large-caliber bullet at high velocity. 5 rounds are held in an internal magazine. These are reloaded manually (3 rounds can be inserted in one combat round) or using a clip which allows complete reloading in one round. It is possible to chamber a round manually each time the rifle is fired, retaining a full magazine for emergency fire. Military rifles usually have a shoulder sling and a bayonet mounting. Most civilian hunting rifles are broadly similar in function to this weapon. Damage: 3D.

Rifle, Heavy, Bolt (Cr175, TL 4, 5.5kg) A powerful rifle normally used by mid-tech snipers and hunters, the Heavy Bolt-action rifle holds 4 rounds are held in an internal magazine. These are reloaded manually (3 rounds can be inserted in one combat round) or using a clip which allows complete reloading in one round. Damage: 4D.

Rifle, Varmint, Bolt (L) (Cr125, TL 4, 3kg) A smaller-caliber version of the military bolt-action rifle, a 'varmint' rifle may

be used for hunting small game or to drive off threats. It has some use in combat. 6 rounds are held in an internal magazine. These are reloaded manually (3 rounds can be inserted in one combat round). Loading clips are uncommon. Light rifles usually have a shoulder sling but no bayonet mounting. Damage: 2D.

Carbine-Revolver (L) (Cr200, TL4, 2.75kg) Essentially a light 5-shot revolver with an extremely long barrel and a rifle-type stock, the carbine-revolver is a low-tech attempt to create a repeating longarm. Reloading is a clumsy business; 2 rounds can be loaded every combat round. Damage: 2D

Carbine (Cr210, TL 5, 2.75kg) A short, semi-automatic rifle firing a small-caliber round. A magazine containing ten rounds is inserted into the underside of the carbine ahead of the trigger guard or behind the handgrip and one round is fired with each pull of the trigger. Replacement of an empty magazine takes one combat round. Carbine ammunition is interchangeable light rifle ammunition. A sling usually allows the carbine to be carried on the shoulder, out of the way. Damage: 3D.

Carbine, Bullpup (Cr300, TL 8, 2.5kg) A short, semi-automatic rifle firing a small-caliber round. A magazine containing twenty rounds is inserted into the underside of weapon behind the pistol grip, allowing a reasonable barrel length despite a short overall weapon. This configuration is known as 'Bullpup' and for this reason most carbines of this type are referred to as 'Bullpups'. One round is fired with each pull of the trigger. Replacement of an empty magazine takes one combat round. Carbine ammunition is interchangeable with light rifle ammunition. Bullpups usually have a sling; some also have attachments for advanced sights and possibly a bayonet lug. Damage: 3D.

Rifle (Cr 220, TL5, 4.5kg) A standard mid-tech infantry weapon, the Rifle is a semi-automatic weapon fed with heavy rifle ammunition from a 20-round detachable magazine. Standard equipment includes provisions for attaching a bayonet and telescopic sights, and a shoulder sling. Replacement of the empty magazine takes one combat round. Damage: 3D.

Rifle, Big Game, Bolt (VH) (Cr500, TL5, 5kg) A bolt-action rifle firing heavy ammunition that is not compatible with other rifles. It is fed by a 5-round internal magazine in the manner of the bolt-action rifle, below. Recoil is high but stopping power is impressive. Big game rifles sometimes use armor-piercing or explosive ammunition to deal with truly impressive creatures. Damage: 4D+4.

Autocarbine (Cr400, TL 6, 3.25kg) The forerunner of the assault rifle, an autocarbine is simply a carbine capable of automatic fire. It is fed by a 20-round magazine and uses standard light rifle/carbine ammunition. Replacement of an empty magazine takes one combat round. Damage: 3D (autofire).

Rifle, Automatic (Autorifle) (H) (Cr1,000, TL6, 5kg) A highly refined and tuned version of the rifle, capable of full automatic as well as semi-automatic fire. Its heavy caliber round produces a lot of recoil, making autofire very inaccurate. The weapon is fed by a 20-round magazine. Changing magazines takes one combat round. Damage: 3D (Autofire).

Rifle, Poni Gun, Double-Barrel: (VH) (Cr1,500, TL6, 8kg) A heavy double-barreled rifle firing adapted Light Assault Gun ammunition that 'can bring down a charging Poni head-on' (A Poni is an eight-legged creature considerably larger than a horse). The Poni Gun is breech-loaded and can fire one barrel at a time. It is not possible (nor desirable) to discharge both at once. Used by the 'lunatic fringe' of hunters, the Poni Gun has awesome recoil but is the only personal weapon that can stop some large creatures. Ball ammunition is normally used but specialist rounds are available. Damage: 6D.

Rifle, Survival (VL) (Cr50, TL6, 2kg) The rather puny "survival rifle" is a simple double-barreled, collapsible weapon included in survival kits. It can fire a weak rifle cartridge (not compatible with other rifle ammunition) from one barrel and an equally unimpressive shotgun round from the other. Both cartridges are roughly the same in terms of performance, which is equivalent to a body pistol against armor. The survival rifle is really only any use for knocking over small game. Damage: 1D.

Rifle, Assault (Cr300, TL7, 3kg) The assault rifle is a lighter version of the autorifle using a lighter round (which is compatible with carbines) to improve controllability under autofire. Assault rifles are lighter and more efficient than autocarbines. The weapon is fed by a 30-round magazine and can use semi-automatic, burst-fire or full-automatic fire modes. Damage: 3D (Autofire).

Advanced Combat Carbine (ACC) (Cr700, TL10, 2.25kg) Favored by Naval security units, the ACC is a stripped-down version of the light ACR (below). It has a short barrel with an 'assault' foregrip, being intended for use at very close range in boarding actions. It does not have a grenade launcher or long-range sights, nor a bayonet lug. The ACC may use semi-automatic, burst fire or full-automatic modes and is fed from a 50-round magazine. Changing a magazine takes a whole combat round. High-Explosive and Discarding-Sabot ammunition are both available, and for operations in a base or environment controlled area low-penetration ball rounds are used. Damage: 4D (Autofire) with HE, 3D (Autofire) with DS, or 2D (Autofire) if low-penetration ammunition is used. Light ACR and ACC ammunition are compatible with one another, but do not fit other weapon types.

Advanced Combat Rifle (ACR), Heavy: (Cr1,200, TL10, 3.750kg) A progressive development of the assault rifle, the heavy ACR uses advanced propellants and a large-caliber round to deal out major damage. The heavy ACR is somewhat bulkier than the light version (below) but only very slightly longer. It comes with an integral single-shot RAM

grenade launcher. Either the rifle or the launcher may be fired each round. The rifle may use semi-automatic, burst fire or full-automatic mode and is fed from a 50-round magazine. Reloading a grenade or changing a magazine takes a whole combat round. Damage: 5D with HE ammunition, 4D with DS. (Autofire). Heavy ACR ammunition is not compatible with other weapons except support versions of the same family.

Advanced Combat Rifle (ACR), Light (L) (Cr1,000, TL10 3kg) A progressive development of the assault rifle, the light ACR is an advanced rifle designed with the needs of light infantry, who must constantly move in and out of vehicles, in mind. This makes for a short, handy weapon ideal for urban combat. The light ACR comes with an integral single-shot RAM grenade launcher. Either the rifle or the launcher may be fired each round. The rifle may use semi-automatic, burst fire or full-automatic modes and is fed from a 100-round magazine. Reloading a grenade or changing a magazine takes a whole combat round. Damage: 4D (HE) or 3D (DS) (Autofire). ACR and ACC ammunition are compatible with one another but not with other weapon types.

Advanced Combat Rifle (ACR), Rapid-Fire (Cr1,800, TL10, 3.25kg) The RF ACR is an experimental weapon that did not find favor in the market but is preferred by some mercenary units for its incredible firepower. It is virtually identical to the light ACR (above) but has an additional mode – Rapid-Fire. This increases the cyclic rate of the weapon such that it will empty itself on a single pull of the trigger. An RF ACR may deliver a Rapid-Fire attack if it has 50 or more rounds remaining. This uses all available ammunition up and is used mainly for room clearance in urban warfare. Damage: 4D (HE) or 3D (DS) (Autofire or RF).

Gauss Rifle, 4mm (Cr1,500, TL 12, 3.5kg) The ultimate development of the slug thrower, the gauss rifle generates an electromagnetic field along the length of the barrel which accelerates a bullet to high velocities. The round itself consists of a dense armor piercing core surrounded by a softer metal covering, ending in a hollow point. This gives the round excellent stopping power and good armor penetration. A single-shot RAM grenade launcher is fitted as standard. Gauss rifles may use semi-automatic, burst-fire or full-automatic modes; either the rifle or the grenade launcher may be fired in a given round. Magazine capacity is 100 rounds. Damage: 4D (Autofire).

Gauss Sniper Rifle, 5.5mm (Cr31,000, TL 12, 14.4kg) A heavy version of the standard gauss rifle firing larger-caliber ammunition at similar velocity, this weapon eats up power cells but hits hard at long ranges. Semi-automatic mode only is available, but the weapon does have a holographic interface for its built-in ballistic computer. This is good for a +3 DM when firing at all ranges, doubled to +6 if the firer is taking careful aim (2 rounds aiming for each round shooting). Ammunition feed is from a 20-round magazine which includes a power supply. Damage: 6D.

LIGHT SUPPORT WEAPONS

Most infantry units include a support gunner armed with a heavier weapon than the rest of the squad. Light support weapons are sometimes little more than overgrown rifles or may be custom-designed weapons. When employed in the infantry support role these weapons may be used with Combat Rifleman (but not Rifle) or Heavy Weapons skill.

Note that these weapons include lighter autocannon which are not quite large enough to be considered artillery weapons. They are thus subject to small arms rather than artillery rules.

Rifle, Antitank (VH) (Cr2,400, TL5, 18kg) An oversized rifle weapon, normally bolt-action but sometimes semi-automatic, designed to attack hard targets like primitive tanks and heavy equipment. Antitank rifles can use armor-piercing or explosive ammunition, which is not compatible with any other weapon. This weapon is too bulky to fire on the move; it must be rested on its integral bipod. Rifle or Combat Rifleman skill can be used, or Heavy Weapons skill. Damage with standard ball (anti-personnel) ammunition: 6D.

Heavy Machine Gun (HMG) (Cr4500, TL5, 36kg unloaded) A large support weapon designed to be used from a tripod or other fixed mount, the HMG is fed by a belt of ammunition, typically of 10-13mm caliber. HMGs normally use Ball ammunition but can fire AP or APDS. Damage: 5D (Autofire).

General Purpose Machine Gun (GPMG) (H) (Cr2,000, TL6, 10kg unloaded) A squad support weapon fed by a belt of ammunition which is interchangeable with that used in rifles and autorifles. The belt may be carried loose or in a box. Belts of any length can be constructed, though 50, 100 or 250-round belts are common. The GPMG is functionally similar to the LMG (below) but it is purpose designed as a support weapon rather than being an overgrown rifle. The GPMG is therefore slightly more robust and capable of more sustained fire. It can still be used with Combat Rifleman skill as well as Heavy Weapons. The normal mode of use is autofire, though single shots can be fired. Damage: 3D (Autofire).

Light Machine Gun (LMG) (Cr1,200, TL6, 6.5kg unloaded) A heavier, belt-fed, version of the automatic rifle, the LMG can be fired from the hip like an overgrown rifle, and may use Combat Rifleman skill instead of Heavy Weapons. LMGs use light rifle ammunition compatible with that used in carbines and assault rifles, and many can use the magazines for those weapons too. An LMG belt may be loose or carried in a box; in the latter case 100 rounds is normal and a loaded box will weigh 2500g. Reloading a belt (whether boxed or not) takes 3 rounds if the weapon is manned by a single individual, one round if a loader is present. If using rifle magazines, reloading takes one round. An LMG normally uses autofire but may fire single shots. Damage: 3D (Autofire).

Light Machine Gun, RF (LMG, RF) (H) (Cr2,500, TL6, 7.5kg unloaded) Essentially an LMG with an extremely high rate of fire, the RF LMG can use autofire mode or make an RF attack if it has sufficient ammunition available. RF fire causes excessive heating, and the weapon must afterward cool for 2 rounds without firing. If the weapon is fired without cooling, problems may occur. Throw 8+ each round the LMG is fired to avoid a mishap, DM -4 if firing in RF mode. A Mishap, in this case, means that the weapon 'runs away' and fires off all its remaining ammunition unless someone stops it, e.g. by breaking the belt. A weapon that has run away will be too hot to use for some time afterward and has a 50-50 chance of ruining its barrel. Ammunition feed is as per the standard LMG. Damage: 3D (Autofire or RF).

Light Autocannon (Cr20,000, TL6, 90kg) A light (15-25mm) rapid-fire belt-fed weapon capable of engaging light armored vehicles and aircraft. Some light autocannon are little more than overgrown machineguns; others are more robust. Light Autocannon are generally mounted on light armored vehicles, aircraft, or in bunkers. They can use armor-piercing, other specialist ammunition, but the default loading is anti-personnel light HE. Damage: 8D (Autofire).

Machine Gun, Vulcan (VMG) (Cr12,000, TL7, 70kg unloaded). Essentially a Vulcan machinegun is several machineguns (usually six) which together generate very rapid fire without undue heating by rotating the barrels. Each cools and is reloaded in turn as the next moves into position and is fired. Barrel rotation is electrical. The VMG is normally chambered for heavy rifle-caliber ammunition compatible with GPMGs and fed from 1000-round belts. A VMG can only use Rapid-Fire (RF) mode. It fires 100 rounds in a single burst. Damage: 3D (RF).

Light Autocannon, Vulcan (Cr65,000, TL7, 120kg) A multi-barrel light autocannon capable of extremely rapid fire by rotating the barrels, thus allowing each to cool as the next others fire. Vulcan mounts are capable of autofire or rapid-fire. Damage: 8D (Autofire or RF)

Light Assault Gun (LAG) (VH) (Cr600, TL8, 4kg) Essentially a heavy (20mm caliber) rifle fed by a 5-round magazine, the LAG can deliver a variety of ammunition types including explosive, armor-piercing and flechette rounds. Damage: with ball (antipersonnel) ammunition, 7D.

Advanced Support Weapon (ASW) (Cr2,750, TL10, 5kg). Essentially a long-barreled version of the heavy ACR, the ASW is intended to provide infantry squads with a measure of fire support. Its main advantage is that it shares magazines with the heavy ACR and can be used by any rifleman. The ASW has no grenade launcher but has an improved sighting system and a bipod for support work. It can use standard ACR magazines or a 100-round box. Damage: 5D with HE ammunition, 4D with DS. (Autofire). Ammunition is compatible with the Heavy ACR but not with other weapons.

Very Rapid Fire (VRF) Gauss Gun (Cr200,000, TL10, 2000kg) A support weapon using gauss technology to achieve extremely high rates of fire, the VRF gauss gun is often used as an antipersonnel weapon aboard advanced armored vehicles. A tripod-mounted infantry version is available. Ammunition expenditure is prodigious and requires a large hopper co-located with the gun to ensure an adequate supply. Damage: 10D (VRF).

Gauss Machinegun, 4mm (Cr8,500, TL 12, 7.5kg) Essentially a heavy-duty gauss rifle fitted with a long barrel, bipod and large (500-round) ammunition box, plus a high-output power supply, the Gauss MG is found as a squad support weapon in some militaries. Ammunition is interchangeable with the rifle, and the weapon can take rifle magazines as needed. There is no grenade launcher but holographic sights are fitted as standard. Gauss machineguns may use semi-automatic, burst-fire or full-automatic modes. Damage: 4D (Autofire).

Gauss Machinegun, 4mm, RF (Cr16,000, TL 12, 38kg) A somewhat larger version of the standard squad-support gauss MG, this variant is capable of RF fire. The extra weight comes mainly from the extra cooling and power supply equipment; each 1000-round ammo pack contains a disposable power cell for the fire and cooling systems and weighs 15kg (base weight of the weapon is with one pack aboard). This weapon is normally used aboard light vehicles but can be found in tripod mounts as a heavy infantry support weapon. Damage: 4D (RF).

LOW-G WEAPONS

Specialist weapons for use in low- and zero-gravity conditions are grouped together as 'low-g weapons'. There are two broad types: snub weapons and accelerator weapons. Lasers are also excellent for use in these conditions but are considered to be a different category since they use a very different means to cause damage.

SNUB WEAPONS

Snub weapons are designed for shipboard use in low-g. They have a large caliber and short barrel, firing low-velocity rounds to minimize recoil. All snub weapons use the same ammunition, which is normally ball (i.e. standard bullets) but can include tranquilizer, gas, flechette and high-explosive armor piercing. The standard shipboard security weapon is the snub revolver, though autopistol and SMG variants are available.

Snub Derringer (Cr180, TL8, 100g) A double-barreled derringer type weapon designed to use snub pistol ammunition. Snub weapons can use a range of ammunition types. For standard ball ammunition, damage is 2D or 3D if both barrels are fired at once.

Snub Pistol (L) (Cr200, TL8, 250g) A low-velocity autopistol designed for shipboard and zero-g environments, the snub pistol is fed by a 15-round magazine. Snub weapons can use

a range of ammunition types. For standard ball ammunition, damage is 0/3D.

Snub Revolver (L) (Cr150, TL8, 200gr) A low velocity revolver designed for use shipboard and in zero-g environments. The cylinder holds six rounds; ammunition is identical to Snub Pistol rounds. For standard ball ammunition, damage is 3D. HEAP and HE rounds do 4D damage.

Snub SMG (L) (Cr600, TL8, 1.5kg) The snub SMG is a submachinegun version of the snub pistol intended for shipboard combat. It is fed by a 30-round magazine using standard snub weapon ammunition. Damage: Depends on ammunition type. Ball: 3D. HEAP and HE rounds do 4D damage.

Snub Carbine (VL) (Cr800, TL8, 2.25kg) The snub carbine is a semi-automatic longarm using standard snub pistol rounds from a 50-round magazine. It fires 3-round bursts only, which are treated as a single-shot attack but with a +1DM to hit at ranges out to Medium. A folding stock is used to keep the weapon short and handy, and some versions carry a bayonet lug for some reason. Damage: Depends on ammunition type. Ball: 3D. HEAP and HE rounds do 4D damage.

ACCELERATOR WEAPONS

Accelerator weapons reduce recoil by using a two-stage propellant. A minimal charge sends the projectile up the barrel, at which point its own internal rocket motor ignites and accelerates it to the target. Accelerator rifles are reasonably effective, and the larger version, the Assault Rocket Launcher has found some favor. Accelerator pistols have never been popular, however.

Accelerator Pistol (VL) (Cr700, TL9, 1kg) Designed specifically for zero-g combat, the accelerator pistol fires a low-velocity round which upon leaving the barrel is accelerated by a secondary propelling charge. Normally the weapon fires bursts of three rounds per pull of the trigger, but may be adjusted to fire single rounds. The short barrel makes this weapon inaccurate; it suffers a -1 DM to hit at all ranges. Damage: 2D.

Accelerator Rifle (VL) (Cr900, TL9, 2.5kg) Designed specifically for zero-g combat, the accelerator rifle fires a low-velocity round which upon leaving the barrel is accelerated by a secondary propelling charge. Normally the rifle fires bursts of three rounds per pull of the trigger, but may be adjusted to fire single rounds. Damage: 3D.

Assault Rocket Launcher (L) (Cr2,000, TL9, 3.5kg) The ARL fires small rockets similar to those used in the Accelerator Rifle, only larger. It is capable of full-automatic or semi-automatic fire, and can use standard antipersonnel ammunition, explosive or HEAP rounds. Damage: 4D with anti-personnel 'ball' ammunition.

ENERGY WEAPONS

Energy Weapons either deliver directed energy (lasers) or superheated gas (plasma and fusion weapons) to damage their target. Flame weapons are also included in this category since their mode of operation is similar.

Flame weapons gain the same +2 DM to hit at close range as shotguns. They have very little recoil and can be used by anyone who can manage to carry the weapon's weight.

Flame damage is 'persistent', ie a character who is flamed will take additional damage each round until the fire goes out. Damage drops by 2D each round. A character who is flamed again whilst on fire takes only the largest damage of all flame attacks – there is a limit to how on fire a person can be.

Example: 'Pyro' Pete hoses an enemy soldier down for 6D damage. Next round, Pete switches to another target and the hapless victim takes 4D damage. In the third round, Pete decides to flame his original target again, so he takes 6D damage. The remaining 2D is lost amid the general inferno. Assuming there is anything left of the target, he takes 4D damage, then 2D, before the fire dies down in a couple of rounds. Unless of course Pete feels the need to apply more flame...

Flamethrower (Cr500, TL5, 15kg) A crude device consisting of fuel tanks, a compressor and an aimable nozzle, the flamethrower is a devastating weapon that can be hazardous to its user and her comrades. Low-tech or improvised flamethrowers are prone to leaks and even explosions; more advanced versions are a little safer but remain vulnerable to enemy fire. Flamethrowers are often used as area-clearance weapons. A tank of fuel contains enough for 12 combat rounds' worth of short bursts or one good hosing. Changing tanks takes 20 combat rounds, though it is possible to shrug out of the harness more quickly at need. Damage: 6D (Flame).

Flame Rifle: (Cr1,500, TL9, 5kg) An advanced version of the flamethrower, the flame rifle uses a smaller amount of more efficient fuel for a similar effect. It is self-contained, fed from a bulky tank under the weapon. Flame rifles are somewhat less prone to disaster than backpack-type flamethrowers, but many users cite their self-contained nature as their best feature – the user is not strapped to the weapon and can throw it away at need! A fuel tank holds enough for 8 rounds of fire. Changing tanks takes 3 rounds. Damage: 6D (Flame)

Hand Flamer (Cr1,200, TL 10, 2kg) A smaller version of the flame rifle, the hand flamer's short nozzle makes it handy in room-clearance operations but also poses a greater hazard to the user. Capacity is small and range short, rendering these weapons rather less than useful on the battlefield. The fuel tank holds enough for three shots. Changing a magazine takes a single combat round. Damage: 5D (Flame).

Gauss Flamer (Cr 7,000, TL13, 6kg) An alternative to the standard flame weapon, the gauss flamer (also known as a Gauss-Thermite Superflamer, or GTS) accelerates metallic flechettes to high speed and ignites them, creating a cone of incredible heat. Spread is somewhat erratic however. For this and other reasons, plasma weapons are generally preferred. An under-barrel fuel tank contains enough for eight shots; changing tanks takes 2 rounds. Damage: 9D (Flame).

LASER WEAPONS

Laser weapons damage their target by dumping vast quantities of energy into a concentrated spot, causing massive heating that can lead to explosions, especially where fluids are turned to steam. Lasers less effective in an atmosphere and can be defeated by smoke, rain etc, but have the advantage of being silent and recoilless.

Some lasers use direct-injection power, usually from a backpack- or belt-mounted power supply. These weapons have the advantage that they can be plugged into a power feed aboard a starship or vehicle, gaining effectively unlimited firepower. Other laser weapons employ one-use chemical energy cartridges, which liberate large quantities of electrical energy (enough to fuel one shot from a laser weapon) before burning out. These weapons can be somewhat lighter than a direct-injection unit but are more limited in firepower. Chemical cartridges make autofire laser smallarms possible; thus far DI lasers capable of autofire have never been feasible.

Lasers have no recoil and can be used by anyone.

Assault Laser, Cartridge (Cr9,000, TL14, 7kg) An advanced laser weapon fed by one-use chemical-energy cartridges rather than an external powerpack, the assault laser is an attempt to create a 'laser submachinegun' that has met with mixed success. It is fed by either a 15-round 'carry' magazine (loaded cost Cr70, 1.25kg) identical to that used by the cartridge laser carbine, or a 35-round 'assault' magazine (loaded cost Cr150, 2.75kg). A weighty weapon, the assault laser is somewhat difficult to handle but does have good firepower. It is capable of full-automatic fire or single shots. Damage: 4D (Energy/Autofire).

Laser Carbine (Cr2,500, TL8, 5kg) A lightweight version of the laser rifle, firing high energy bolts using current from a backpack battery/power pack. The laser carbine fires a 2mm beam of energy, aimed by integrated optic sights. The power pack costs Cr1000 and weighs an additional 3kg. It is capable of producing 50 shots before it requires recharging, which requires at least eight hours connected to a high-energy source such as a starship power plant. The laser carbine is connected to the power pack by a heavy-duty cable. Damage: 4D (Energy).

Laser Carbine, Cartridge (Cr7,500, TL13, 5,kg) An advanced laser weapon fed by one-use cartridges rather than an external powerpack, the cartridge laser carbine uses a 15-round magazine (loaded cost Cr70, 1.25kg). Less bulky than the rifle version, the cartridge laser carbine is handier for close action or moving in and out of vehicles. Damage: 4D (Energy).

Laser Pistol (Cr 4,000, TL 12, 2kg) At higher tech levels it becomes possible to focus a laser beam in a much shorter distance, allowing a pistol equivalent of the laser carbine to be created. The weapon is still dependent on a bulky belt power pack, which costs Cr750 and weighs 2kg and is good for 50 shots. Performance is modest but the short length of the weapon appeals to some users. Damage: 3D.

Laser Pistol, Cartridge (Cr 2,500, TL13, 2.5kg) An advanced laser weapon fed by one-use cartridges rather than an external powerpack, the cartridge laser pistol uses a 14-round magazine (loaded cost Cr55, 500g) inserted in the handgrip. Damage: 3D.

Laser Rifle (Cr3,500, TL9, 6kg) The standard high-energy weapon, firing energy bolts in the same manner as the laser carbine. Heavier, the laser rifle is also capable of longer sustained action and is somewhat sturdier. The power pack (Cr1500, 4kg) can provide 100 shots before recharging. As in the laser carbine, the laser rifle is connected to the power pack by a heavy-duty cable. Power packs are not interchangeable between the two weapons. Damage: 5D.

Laser Rifle, Cartridge (Cr 9,000, TL13, 9kg) An advanced laser weapon fed by one-use cartridges rather than an external powerpack, the cartridge laser rifle is fed by a 10-round magazine (loaded cost Cr 70, 2kg). It is quite a bulky weapon which uses heavy ammunition, and is not as popular as the lower-tech standard ('direct electrical input') laser rifle. It is, however, capable of fully-automatic fire. Damage: 5D (autofire)

Personal Defense Laser (Cr 2,500, TL13, 3kg) An advanced laser weapon fed by one-use cartridges rather than an external powerpack, the personal defense laser (PDL) uses a 25-round extended magazine (loaded cost Cr100, 1kg) inserted in the handgrip. Ammunition is identical to that used by the cartridge laser pistol. The PDL is capable of fully-automatic fire or single shots and is carried as a sidearm by some personnel. Being somewhat more bulky than a pistol, the PDL has room for a heavy-duty cooling system and can use autofire. Damage: 3D (autofire).

Support Laser (Cr12,000, TL11, 14kg) A powerful version of the laser rifle, a support laser can only be used on a tripod or vehicle mount, or on a special Battle Dress mount. The detachable powerpack masses 6kg and contains enough energy for 20 shots; changing packs takes one combat round. Battle Dress-mounted support lasers are fed from the suit's power supply. Damage: 10D.

Gatling Defense Laser (Cr14,000, TL12, 26kg) Normally carried on a vehicle mount or a battle dress backpack, the gatling defense laser uses the same powerpack as the support laser, though it only gets 8 shots from a pack. Its rapid pulses are of only moderate intensity compared with a support laser but can burn a missile out of the air or chew up infantry. Damage: 6D (Autofire). A defense laser is used with Heavy Weapons or Laser Weapons skill.

HIGH-ENERGY WEAPONS

High-energy weapons (plasma and fusion weapons) hurl bolts of superheated gas, which in some cases proceeds to fusion. They are devastating in effect, but in many cases require battle dress to operate due to the weight of the weapon and its power supply. Higher-tech weapons include gravitic compensation, and can be used by an unarmored soldier. High-energy weapons require careful maintenance, since a containment failure poses an extreme hazard to friendly personnel.

High-energy weapons are normally employed in a squad support role by power-armored troops. It is unusual for a whole unit to be equipped in this way. Apart from anything else, high-energy weapons are somewhat imprecise and cause immense collateral damage, secondary fires and so on. Of course, there are times when that is desirable.

Plasma and (occasionally) fusion weapons are sometimes encountered in bunkers or on tripod mounts. They are more commonly used as the main armament of light combat vehicles.

Plasma Bazooka (VH) (TL9, Cr 67,500, unloaded weight 27kg): The Plasma Bazooka is a rather crude high-energy weapon capable of delivering a plasma stream out to a reasonable range. It is extremely bulky and is fed by a weighty 16kg cartridge, which costs Cr400. The weapon has a large backblast area (10m) and a huge signature when firing. It takes two combat rounds to reload. Damage: 9D.

Plasma Gun, Man Portable-12 (PGMP-12) (VH) (Cr10,000, TL12, 6kg) The PGMP-12 consists of a power pack carried on the firer's back, the weapon itself, and a flexible power link. The powerpack powers a laser ignition system in the weapon itself, which heats hydrogen fuel to a plasma state. The plasma is contained in the ignition chamber briefly and then released through a magnetically focused field along the weapon's barrel. The initial plasma jet is 2cm in diameter but begins to dissipate rapidly. A powerpack costs Cr25,000, weighs 3kg and has sufficient energy to discharge 40 plasma bolts before recharging is required. Each pull of the trigger discharges one plasma bolt. Because of the recoil and intense heating of this weapon, it may only be fired once every two rounds. Damage: 10D.

Plasma Gun, Man-Portable-13 (PGMP-13) (VH) (Cr65000, TL13, 9kg) Designed to be used exclusively with Battle

Dress armor, the PGMP-13 is a powerful close support weapon capable of destroying light armored vehicles. The strength enhancement units of the armor serve as a recoil carriage, allowing the weapon to be fired each round. The PGMP-13 is sometimes referred to as a 'Plasma Rifle' as it is used much in the manner of a combat rifle. Powerpacks cost Cr50,000 and weigh 7kg. They are good for 20 shots before they need recharging. Damage: 12D.

Fusion Gun, Man Portable-14 (FGMP-14) (VH) (Cr100,000, TL14, 1kg) The fusion gun is similar in design and function to the PGMP, differing only in that it contains the plasma slightly longer until a fusion reaction begins to take place. The weapon is therefore somewhat more powerful than a plasma gun, and may only be used by individuals wearing Battle Dress. Its recoil is such that it may only be fired once every two rounds. A powerpack is good for 50 shots, costs Cr65,000 and weighs 9kg. Damage: 16D.

Plasma Gun, Man-Portable-14 (PGMP-14) (VH) (Cr300,000, TL14, 9kg/50g) The ultimate development of the plasma gun, the PGMP-14 incorporates a gravitic field generator that provides near total recoil compensation. This enables personnel not in powered armor to both carry the weapon and fire it every round. The weight listed before the slash is the weight of the weapon with the gravity field generator off, the weight listed after the slash is with the gravity field generator on. A PGMP-14 requires battle dress if it is to be used without the gravitic compensation unit for some reason. A powerpack costs Cr250,000, weighs 1.6kg (90g with the compensator on) and is good for 50 shots. Damage: 12D.

Fusion Gun, Man-Portable-15 (FGMP-15) (VH) (Cr400,000, TL15, 1kg/50g) The FGMP-15 incorporates a gravitic field generator similar to that used on the PGMP-14, allowing use by firer's wearing non-powered armor every round. The weight listed before the slash is the weight of the weapon with the gravity field generator off, the weight listed after the slash is with the gravity field generator on. A powerpack costs Cr300,000, weighs 200g (110g with compensation) and is good for 70 shots. Damage: 16D.

OTHER WEAPONS

Various other weapons see use from time to time. These include non-lethal weapons, sprayers and other weapons that do not fall into any particular category. They are thus dealt with here.

Garrote (VL) (Cr1, TL1, negligible weight) Any piece of cord can be used to strangle someone. Custom-made garrotes sometimes have handles to make it easier to apply force, but the effect is much the same. A garrote cannot be used effectively unless the target is unaware or else unable to defend. On a successful attack the garrote is in place and inflicts 2D wounds each round automatically unless the defender makes a successful escape or the attacker lets him go.

Baton Gun (VL) (Cr15, TL5, Weight 100g) A baton gun, or 'magic wand' as it is sometimes known, is a short handheld rod containing a single light shotgun cartridge. Useless beyond 5m, the baton gun may be triggered by hard contact with an opponent (i.e. being rammed into him) or by a stud on the shaft. In the former case it can be used to make a brawling attack and, if successful, automatically inflicts its light shotgun damage as well. If fired at a more distant target, the weapon receives the shotgun at close range bonus to hit. Baton guns are disposable and not usually reloaded. Damage: Brawling plus 2D.

Thud Gun (L) (Cr100, TL5, 1kg) A single-shot discharger firing a heavy but soft projectile for non-lethal knockdown. Damage: 1D plus Special.

Speargun (VL) (Cr15, TL6, 1kg) An underwater weapon launching a harpoon or spear using compressed gas. The spear may or may not be attached to the gun by a line. Spearguns must be manually reloaded after every shot, which takes an entire combat round. Spearguns use Rifle skill. Spears weigh 1kg and cost Cr10. Damage: 2D.

Stun Gun (VL) (Cr250, TL7, 200g) A hand-held-range weapon that delivers a non-lethal electric shock to the victim, rendering him helpless for a short time. Stun guns use Handgun skill. Damage; 1D (Shock) plus possible incapacitation.

Tranq Pistol (VL) (Cr75, TL7, 350g) Used by vets, among others, the Tranq pistol fires a needle formed of a compound that dissolves in the target's flesh and delivers a sedative effect. This can take several combat rounds however, so combat use is limited. Single-shot versions and a 5-round magazine model are available. Damage: Chemical.

Shock Whip (L) (Cr250, TL9, 500g) A shock whip is more an instrument of torture than a useful weapon. It is normally used on a low setting to inflict pain from both the whip and a low-level shock effect. If used as a weapon it delivers 1D damage as a whip and 1 point of damage from the shock if the target has no armor. A shock whip can be turned right up to discharge itself in one strike. In this case whip damage is 1D plus 1D for the shock, and the attack may also cause incapacitation as per the Shock Weapons rules. The whip must then build up charge for 1D rounds before it can be used again. If it is used to strike in this time the charge is dissipated and the charging cycle must start again.

Neural Pistol (VL) (Cr225,000, TL16, 500g) Experimentation with neural weaponry has met with very patchy progress, but weapons scientists theorize that at TL16 a reliable hand-held neural weapon may become available. Telepathically operated, a neural pistol allows the user to make an attack similar to a psionic assault, delivering 2D damage and possibly incapacitating the target for 1D rounds due to pain and mental disorientation.

AMMUNITION AND ACCESSORIES

The performance of many weapons can be enhanced by the use of various accessories. Non-standard ammunition is probably the most important of these. Smallarms ammunition is considered here. Many heavier weapons use larger versions of these rounds but these are considered under Artillery weapons, as are grenades and the like.

Most weapons normally fire a 'ball' round, i.e. a solid projectile which relies on impact to cause damage. Variations on the theme such as hollow points, expanding bullets, jacketed rounds and so on are all considered to be within the parameters of ball rounds. Specialist ammunition can be used by various weapons, and requires extra rules to deal with its effects.

In the real world weapons come in many calibers; rifles are available in 7.65, 7.62 NATO, 7.62 Soviet, .30, .303, .223... and none of them are compatible with one another. However, Traveller is about Adventure in the Far Future, not Bean-Counting in Imaginary Gunshops as characters try to work out if they already bought ammo for the 7.65 pistols... or was that the 9mms?

For simplicity, we are assuming that weapon calibers are heavily standardized and that compatibility is high. Referees who want more complexity can create a plethora of ammunition types and calibers. This kind of detail can make the world more vibrant or drive players insane. It is up to the Referee to decide what is appropriate. The following calibers are approximate.

HANDGUNS

There are five standard calibers of handgun:

Body Pistol ammunition is a 5mm 'stealth' caliber incompatible with most other weapons. An equivalent, non-stealth version referred to as superlight pistol is available at a fraction of the price.

Light Pistol is a 7mm round used in light revolvers, light autopistols, light assault pistols and light submachineguns. Occasionally other weapons turn up that are chambered for this round.

Pistol, or Standard Pistol, is a 9mm or 10mm round used in the vast majority of handguns (autopistols, revolvers), assault pistols and submachineguns. It is the standard sidearm caliber in Charted Space. Standard pistol ammunition costs Cr0.1 when bought in small quantities.

Heavy Pistol is a powerful 11mm round used in heavy handguns (revolvers and autopistols) and some powerful SMGs.

Very Heavy Pistol ammunition is an exception to the standardization rule. It may represent 11mm Magnum or calibers as big as 14mm. Very Heavy Pistol ammunition is normally custom-made for a single type of pistol and is quite hard to come by.

LONGARMS

There are six standard calibers of longarm ammunition:

Survival Rifle ammunition is a special small-caliber round (ball and shot versions are available). It is unusual to see other weapons chambered for these rather weak rounds.

Light Rifle ammunition is equivalent to 5.56 or .223 caliber. It is used in carbines, autocarabines, light bolt-action rifles and light machineguns.

Heavy Rifle ammunition is equivalent to .30 or 7.62 caliber. It is used in Rifles, Autorifles, Heavy Bolt-Action Rifles and General-Purpose Machineguns.

Light ACR ammunition is an advanced 6mm round used in light Advanced Combat Rifles and Advanced Combat Carbines. It is not compatible with non-ACR weapons.

Heavy ACR ammunition is an advanced 9mm round used in heavy Advanced Combat Rifles and Advanced Support Weapons. It is not compatible with non-ACR weapons.

Light Assault Gun ammunition is a powerful 20mm round used in the Light Assault Gun and some other, less common, weapons.

SHOTGUNS

There are two standard shotgun calibers

Shotgun is the standard ammunition type compatible with most weapons of the type. It is equivalent to 18mm/12-gauge.

Light Shotgun is a less common cartridge used in some sporting guns and a few specialist weapons.

SNUB WEAPONS

Snub Pistol ammunition fits all snub weapons (revolvers, autopistols and submachineguns).

OTHER WEAPONS

Other calibers do exist. For example accelerator rifles have their own ammunition type, as do Anti-Tank rifles. These rounds are not compatible with other weapons unless they are custom-designed to use the round.

AMMUNITION COSTS

Basic costs for ball ammunition are given below. Ammunition is normally bought by the box (50 rounds) or the crate (20 boxes, ie 1000 rounds) by civilian and private users. Buying in bulk (a pallet of 10 crates, ie 10,000 rounds is cheaper but normally only available to organizations, merc units and the like, who may additionally manage to negotiate a discount or a supply deal.

NB: Specialist ammunition types, eg AP or HEAP, are subject to price modifiers which apply to this base cost. Gauss ammunition does not include the power supply, which is incorporated into the magazine in most cases.

Table: Ammunition Costs for Projectile Small Arms and Cartridge Lasers

Ammunition Type	Cost in Credits per box (50 Rounds)	Cost in Credits per crate (1000 rounds)	Cost in Credits per pallet (10,000 rounds)
Arrows	20	350	3000
Crossbow Quarrels	15	275	2500
Black Powder Pistol	15	250	2000
Black Powder Musket or Shotgun	20	350	3000
Black powder Rifle	40	750	7000
Cap-and-Ball Pistol	45	800	7000
Percussion Rifle	60	1100	10000
Superlight Pistol (eg Purse Gun)	30	550	5000
Body Pistol	250	4500	40000
Light Pistol	40	750	7000
Standard Pistol	50	900	8000
Heavy Pistol	75	1350	12500
Very heavy Pistol	100	1900	18000
Survival Rifle	50	900	8000
Light Rifle	80	1500	12500
Heavy Rifle	120	2200	20000
Light ACR	200	3750	35000
Heavy ACR	250	4750	45000
Light Assault Gun	300	5750	55000
Light Shotgun	60	1100	10000
Standard Shotgun	70	1250	11500
Snub Pistol	40	750	7000
Accelerator Pistol	65	1250	12000
Accelerator Rifle	80	1500	14000
Assault Rocket Launcher	100	1900	18000
Gauss Pistol, 4mm	20	375	3500
Gauss Rifle, 4mm	30	550	5000
Heavy Gauss Rifle, 5.5mm	40	750	7250
Gauss Shotgun	35	650	6250
Heavy Machinegun	250	4500	40000
Light Autocannon	400	7500	70000
Laser Pistol Cartridge	150	2800	26000
Laser Carbine Cartridge	175	3250	30000
Laser Rifle Cartridge	200	3500	34000

Table: Magazines, Feed Devices and Power Units for Small Arms

Weapon	Feed Device Cost in Credits	Comments
Revolver (Speedloader)	5	
Body Pistol	10	'Stealthy' Construction
Autopistol	5	
Snub Pistol	5	
Accelerator Pistol	15	
Accelerator Rifle	20	
Assault Rocket Launcher	25	
Rifle or Carbine	10	
Rifle Assault Box	25	
LMG or GPMG Assault Box	25	
Light ACR or ACC	30	
Heavy ACR	35	
Light Assault Gun or		
Anti-Tank Rifle	20	
Submachinegun	10	
SMG Assault Box	25	
Shotgun Magazine	10	
Shotgun Drum	25	Assault Shotguns Only
Gauss Pistol	150	Includes Rechargeable Power Supply
Gauss Rifle	250	Includes Rechargeable Power Supply
Gauss Shotgun	250	Includes Rechargeable Power Supply
Gauss Machinegun	2000	Includes Rechargeable Power Supply
Laser Pistol	750	Belt Power Pack
Laser Carbine	1000	Small Backpack
Laser Rifle	1500	Backpack
Gatling/Support Laser	5000	Fits to Weapon
Laser Pistol, Cartridge	15	Magazine only
Personal Defense Laser	25	Magazine only Uses Laser Pistol ammunition
Laser Carbine, Cartridge	20	Magazine only
Assault Laser, Cartridge	30	Magazine only. Uses Laser Carbine ammunition
Laser Rifle, Cartridge	30	Magazine only
Hand Flamer	100	Refillable for Cr25
Flame Rifle	200	Refillable for Cr50
Flamethrower	300	Refillable for Cr75
Gauss-Thermite Superflamer	1000	Includes Rechargeable Power Supply
Plasma Bazooka	400	One Shot
PGMP-12	25,000	Rechargeable
PGMP-13	50,000	Rechargeable
PGMP-14	250,000	Rechargeable
FGMP-14	65,000	Rechargeable
FGMP-15	300,000	Rechargeable

NB: Costs are generalized for simplicity. A 5-shot revolver speedloader can be assumed to cost the same as a 6-shot one; a 7mm SMG magazine can be assumed to cost the same as a 12mm equivalent.

NON-STANDARD AMMUNITION

Various specialist rounds are available. Not all rounds are compatible with all weapons.

Armor Piercing (AP): As the name implies, these rounds are specifically designed to penetrate ballistic cloth and other types of armor. Pistol AP rounds are not very effective. They give an additional DM of +1 to hit against all armor types (but not unarmored foes) but reduce damage by 1 point per die. Treat damage rolls of 1 as 1; damage reduction cannot completely eliminate a weapon's capacity to hurt people.

Rifle AP rounds are somewhat more effective. Apply a DM of +1, + 1 per 2 full dice of damage done by the weapon, against armored foes as above. Thus a rifle doing 3D damage gets a net +2 to score a penetrating hit on an armored foe. For a rifle doing 4D damage, the DM is +3. Rifle AP reduces damage as per pistol ammunition. Cost: 5x per round.

Beehive: Beehive is an antipersonnel round intended for use with Light Assault Guns. It is essentially a larger and much more lethal version of Flechette ammunition. A beehive round does normal damage for the firing weapon and is treated as an Autofire attack. A burst of 10 beehive rounds counts as Rapid-Fire. Range is halved. Cost is x3 per round.

Buckshot: Buckshot is the standard load for all shotguns. At very short range it is highly lethal and gains the 'shotgun at close range' bonus to hit (DM of +2). However, its effective range is very short. Damage is halved (i.e. a 4D shotgun does only 2D damage) at ranges beyond Short. Cost is normal.

Chemical (i.e. Tranquilizer and Poison): While virtually any weapon can be treated so as to be more likely to cause wound infection (black powder weapons are particularly prone to this anyway), deliberate delivery of chemicals with a rapid effect is more problematical. Poison ammunition is strictly controlled and subject to harsh penalties. Poison and Tranq rounds use the Chemical Attack rules if they penetrate the target – rounds stopped by armor obviously do not deliver their payload. Cost starts at x15 per round for poisons and x5 per round for Tranq, which is not regulated since it is considered a non-lethal (Category 1) weapon.

Discarding Sabot Armor Piercing (DSAP) Rounds: DSAP (as distinct from APDS, an artillery/tank gun ammunition type) is a more advanced armor-piercing round that can be used only from longarms such as rifles, carbines and gauss rifles and their larger support equivalents. DSAP Rounds have a base DM of +2 plus +1 per full 2D damage done by the weapon against armored foes. Damage is reduced as per AP ammunition. Cost: 5x per round.

Flechette, Birdshot or Snakeshot: These rounds break apart in flight releasing numerous small, sharp shards of metal or very small projectiles. These increase the chance of hitting

the target at close range but inflict considerably less damage. The weapon thus gains the 'shotgun at close range' hit bonus (+2 DM) but damage is greatly reduced.

Each normal die of damage is treated as a half-die (i.e. the normal number of damage dice are rolled with 1-2 indicating 1 point, 3-4 indicating 2 points and 5-6 indicating 3 points). Flechettes are useful for dispersing rioters without seriously harming them or for dealing with small game. Flechette rounds do no damage whatsoever to an opponent who has any armor. Cost is x2 per round.

High Explosive Armor Piercing (HEAP) (Snub Weapons): High-explosive armor piercing ammunition is available for snub weapons. It is designed to offset the low velocity of the round with a shaped explosive effect, enabling snub weapons to punch through armor and do respectable damage despite their low impact. Snub HEAP is carefully controlled as a Cat 3 weapon and less readily available than Ball ammunition. Cost is X10 per round.

High Explosive Armor Piercing (HEAP) (Support Weapons): High-explosive armor piercing ammunition is also available for heavier weapons such as LAGs. It combines the ability to punch through armor with an explosive effect for maximum damage. HEAP increases damage one die, and in addition is treated as AP for purposes of attacking armored opponents (DM = 1 + 1 per 2D of base damage done by the weapon). Thus a LAG using HEAP would do 8D damage instead of 7D, and have a DM of + 5 versus armored foes. Cost is x10 per round.

High-Explosive (HE): These rounds are designed to explode once they penetrate a target, inflicting one extra die of damage. Cost is x5 per round.

Gas: Gas rounds deliver a quantity of gas; usually soporific or tear/vomit inducing. Lethal agents such as nerve gas are available but are strictly controlled. Gas rounds use the Chemical Attack rules below and normally affect only a single target unless fired into a close group. Cost is x5 per round.

Slug: Shotguns may use a solid slug instead of buckshot. Damage is the same but range is doubled. The weapon loses its Shotgun at Close Range bonus. Explosive slugs are also available; these gain an extra die of damage. Cost is x3 per round for slug and x5 per round for explosive slug.

Stunbag or Baton: Available for shotguns and dischargers, stunbag rounds do not inflict damage as such but instead use the 'Stunner' rule below. Cost is x2 per round for shotguns; normal for Thud Guns.

USE OF NON-STANDARD AMMUNITION TYPES

Not all weapons can use every ammunition type. Some are fairly pointless even though they can be used. Autocannon-delivered tranquilizers are not generally very useful.

Autopistols and Revolvers can deliver AP, flechette and chemical rounds. Standard, heavy and very heavy handguns can use HE.

Black Powder Weapons can use only ball rounds.

Bows and Crossbows can use AP heads.

Gauss Weapons can use AP and DSAP rounds.

Light Assault Guns can deliver any ammunition type.

Machinerguns can deliver HE, AP, DSAP, chemical and flechette rounds.

Rifles and Carbines can deliver HE, AP, DSAP, chemical and flechette rounds.

Shotguns can use buckshot, slug, explosive slug, flechette, gas and chemical rounds.

SMGs can deliver AP, flechette and chemical rounds

Snub Weapons can deliver AP, HE, HEAP (Snub), flechette, gas, and chemical rounds.

WEAPON ACCESSORIES

Various weapon-enhancing accessories are available. Higher-tech versions of any given item may be smaller, more effective or possibly cheaper, though in many cases the standard version is the most efficient.

AMMUNITION DEVICES

Various ammunition feed and holder devices are available, some of which actually do enhance the capabilities of a weapon. For example, high-capacity magazines which extend further out of the weapon than normal are available for many weapons, but there are reasons why they are not more commonly used.

Cartridge Holders (Cr5, TL3, negligible weight) A set of cartridge loops designed to fit on a belt, strap or sling, a cartridge holder can carry 7 individual shotgun cartridges, 20 pistol rounds or 14 rifle rounds. A different holder must be purchased for each ammunition type.

Snail Drum Autopistol Magazines (Cr25, TL4, 750g loaded) A 45-round extension magazines for Light and Standard autopistols, the snail drum is clumsy and awkward to use.

Speedloaders (Cr5, TL4, negligible weight) Several variants of the speedloader exist. Their purpose is to refill a revolver completely in one go, shortening reloading time. The standard version is a plunger-activated device which pushes six rounds into the cylinder at once. A speedloader cannot be used to partially refill a weapon, nor can it be used for a different type. For example, standard-caliber speedloaders cannot be used for a light revolver.

Assault Box (Cr25, TL5, Weight 100g + ammunition) Assault Boxes are available for GPMGs and LMGs. They hold one belt of ammunition (typically 100 rounds) and prevent it from dragging on the ground. Assault boxes are also available for assault rifles and autorifles. They contain 60 rounds in a bulky super-sized magazine that makes it impossible to use the rifle lying down. Assault boxes for SMGs hold 80 rounds.

High-Capacity Autopistol Magazines (Cr10, TL5, negligible weight) 20-round and 30-round magazines are available for Light, Standard and Heavy autopistols. (Cr 25, TL6, Mass 500g loaded). A 15-round version exists for Very Heavy autopistols, with the same cost and mass.

SIGHTING AIDS

Various aids to aiming and sighting are available.

Toughened Sights (Details vary) Ruggedized versions of these sights are available at one tech level higher, and at 1.5 x the cost. Ruggedized sights are extremely tough; they can be used to hit someone over the head and will remain accurate afterwards.

Telescopic Sights (Cr200 TL4, 800gr): High-quality telescopic sights for attachment to weapons, for increasing their accuracy, especially at longer ranges. A weapon equipped with such sights gains a +4 DM to hit at Long and Very Long range. Low-tech telescopic sights are delicate, however, and may be jarred out of alignment by any violent action (such as being left untended in a moving truck, a close explosion, or being dropped) on a throw of 9+ on 2D. When the sights go out of adjustment, the basic throw to hit should not be revealed to the firer, and he or she will always miss.

Electronic Sights (Cr2000, TL6, 1500g) Electronic sights with image enhancement and light intensifications capabilities are available to provide the capability to see and hit in the dark. Treat any low-light conditions as normal lighting for weapons equipped with such sights. These sights are treated like telescopic sights for damage and reliability, and function similarly, but do not increase the weapon's range increment.

Electronic Telescopic Sights (Cr3000, TL7, 1.8kg) Electronic sights combining the capabilities of both electronic and telescopic sights. They are still rather fragile.

Laser Dot Pointer (Cr750, TL7, negligible weight) A laser dot pointer can be fitted to most weapons. It is not useful beyond Short range but at Close or Short range it grants a +2 DM on all hit rolls.

Holographic Sights (Cr2000, TL10, 500g) Holographic sights project an image of the aim point for the user, and automatically compensate for wind, gravity etc. They are not

useful in a close-range point-and-shoot situation but grant a +2 DM to shots made at Medium range (beyond 50m).

Personal Heads-Up Display (HUD) (Cr1500, TL9, 500gr)
A personal HUD projects an aim point on an image of the target, automatically correcting for wind and gravity etc. Various display devices are available, ranging from a vacc suit helmet visor to a pair of designer shades. At TL 11 the HUD is a holographic projector and no obvious visual device need be worn. These HUDs cost the same as the standard TL9 version but have negligible mass. A HUD grants a +2 DM on all hit rolls at all ranges, for any weapon it is keyed to. Pickups for additional weapons cost Cr250 each and require an hour or so to fit and calibrate. There is no real limit on how many weapons can be calibrated to one HUD.

OTHER DEVICES

Various other enhancements are available for use with weapons.

Bayonet Lug (Cr10, TL3, 100g) Many weapons come with a bayonet attachment as standard, but it is possible to convert any pistol, shotgun, carbine or rifle weapon to carry a bayonet. Most such conversions are clumsy and difficult to shoot or fight with.

Shoulder Stock (Cr75, TL4, 1kg) It is possible to produce a shoulder stock which may be attached temporarily to a pistol or revolver, resulting in a crude carbine arrangement and some greater accuracy at longer ranges. The overall length of the pistol is increased by the length of the stock, and the pistol cannot be holstered. Attaching the stock (or detaching it) requires five combat rounds. A shoulder stock allows a DM of +1 on all aimed shots made with the weapon.

Folding Stock (Cr100 TL6, 500g) Carbines, rifles, and shotguns can be equipped with folding stocks which make it possible to reduce the overall length of the weapon by 300mm.

Rifle Suppressor (Cr500, TL5, 600g) It is possible to more or less silence a rifle, though this requires dropping the muzzle velocity to subsonic levels, which imposes a reduction in damage of -1 point per die (eg a 3D weapon delivers 3D-3 damage, though no damage die can be taken below 1 point of damage by this reduction). Special ammunition must be used, which costs double the base price of normal ball rounds. Suppressed ammunition cannot be armor-piercing or DSAP.

Pistol Silencer (Cr200, TL6, 600g) Devices are available which will muffle or eliminate the sound of guns firing, but so far they have proven practical only when applied to body pistols, a very small number of specially made revolvers, automatic pistols and submachine-guns. A silencer attaches to the muzzle of the pistol, increasing its total length and

making it impossible to holster until the silencer is removed. Silencers are not interchangeable; one must be purchased for each specific model of pistol used.

GRENADES, MISSILES, SUPPORT AND ARTILLERY WEAPONS

Since Traveller is a roleplaying game and not a simulationist wargame, there is no need to precisely define the characteristics of every single mortar, gun, rocket or missile that could ever exist. Instead, we use a simple system to rate grenades, rockets, missiles, artillery shells and such like by their game effects.

These rules may be superseded by detailed design sequences allowing very precise values to be defined for various weapons. For the average Traveller game this is not necessary, so we group warheads for grenades, artillery rounds, bombs and missile payloads into various size categories. For most weapons it is enough to simply note what class of shell the weapon can deliver, out to what sort of range. People on the receiving end probably do not care if that was a 100mm or 105mm shell that just went off next to them, anyway!

Mortars, bombs, missiles and rocket warheads tend to have somewhat different characteristics, so it is entirely possible that a fairly large shell might have similar performance to a relatively small rocket warhead. We are interested in effect, not size, though as a rule calibers will be in the same general class. Note that warhead sizes are nothing to do with weapon classifications.

For all grenades and artillery weapons, the same system is used to rate the weapon:

Size: A rating of the general characteristics of the weapon.

Range: How far the warhead can travel, in km.

Caliber: An equivalent gun caliber, for reference.

Burst radius: The primary danger area from an exploding warhead. Some payloads have a contact effect as well, and most have a secondary danger area equal in radius to the primary one. Thus a mortar bomb with a 3m burst radius poses a severe threat to anyone in its primary 3m burst radius, and a lesser threat to anyone in the secondary radius, which is also 3m across. Anyone more than 6m away should be reasonably safe.

ARTILLERY WEAPON TYPES

Artillery warheads can be delivered by various means, the most common ones being:

- Emplacement or hand delivery, e.g. by manually throwing.
- Explosive/Chemical Propulsion out of a smoothbore or rifled barrel.
- Electromagnetic Propulsion out of a smoothbore or rifled barrel.
- Rocket Propulsion with or without in-flight guidance.
- Air-dropping from an aircraft or similar vehicle, with or without guidance.

The actual weapons used come down to several basic types:

Grenade Launchers fire a small payload off the end of a rifle or from a tube launcher (the grenades used in each case are different).

Mortars are high-angle (usually) smoothbore weapons with a short barrel that lob a bomb over a relatively short distance. Very large mortars are sometimes used for siege work but are uncommon.

Howitzers are short-barreled guns which are more mobile than full-length guns but have a consequently shorter effective range. Howitzers can fire 'over open sights', i.e. directly at the target, but have a short range and are thus not very effective.

Guns are the 'industry standard', using explosive, chemical or other means to propel a shell over fairly long distances. Other propulsion systems are possible, such as compressed-air guns used to deliver an explosive charge. Guns can fire 'over open sights', i.e. directly at the target and are usually fairly effective in this role though they are vulnerable to counter-fire. Artillery guns are thus used as low-tech anti-air and anti-tank weapons before specialized weapons become available.

Mass Driver Guns are simply artillery guns using electric acceleration instead of a chemical charge to accelerate the warhead up the barrel. Mass Driver Guns have a base range 1.5 times as long as the conventional equivalent.

Rockets are unguided weapons. They may be used in direct fire (e.g. from aircraft) or more commonly as an indirect-fire artillery system.

Missiles are essentially guided rockets.

Bombs are normally delivered by being dropped from an air vehicle. The term is sometimes used to refer to an emplaced explosive device or a mortar projectile.

Certain other weapons are not artillery in the traditional sense but need to be defined here:

Autocannon are automatic weapons, usually of smallish caliber (under 60mm) with a reasonably to very high rate of fire. They serve in all manner of roles, from aircraft armament to anti-air and antipersonnel. Autocannon are often the main armament of light combat vehicles.

Cannon are direct-fire weapons usually of fairly large caliber.

The term normally applies to vehicle armament but cannon are used in emplacements or anti-air mounts too. The word Cannon also refers to a primitive black-powder gun capable of direct fire or bombardment.

Petards are very short-ranged cannon of large caliber, normally employed for demolishing enemy fortifications by specialist engineering vehicles.

Lasers, Plasma and Fusion Guns are direct-fire weapons which cannot arch a payload over an obstruction and are thus only suited to the direct-fire role. Lasers burn though the target or superheat it, often causing a secondary explosion. Plasma and fusion weapons deliver massive heat energy and tend to cause a lot of secondary 'splash' damage.

Meson Guns are a revolutionary form of artillery as they can 'shoot through' virtually any obstruction. If the gunners have a target location (from spotters or sensors) and the target is in range, it can be hit. The only defense is a meson screen. Meson guns are often buried in deep bunkers where they are hard to find and destroy. Other ploys include moving the meson array around in a submarine in deep water.

ARTILLERY WEAPON PAYLOAD SIZE CLASSES

Size	Typical Caliber	Range (Km)	Burst Radius (m)	Base Damage	Comments and Examples
Grenade	40mm	0.5	1.5m	6D	Hand, Launched or RAM
Extremely Light	60mm	6	3m	6D	Light Mortars
Very Light	80mm	9	4.5m	8D	Medium Mortars, Strafing Rockets Light Air-Dropped Bombs
Light	100mm (4")	12	6m	10D	Light artillery/howitzers
Medium	125mm (5")	15	7.5m	12D	Heavy Mortars Medium Air-Dropped Bombs
Medium-Heavy	150mm (6")	18	9m	14D	Medium Artillery Guns
Heavy	175mm (7")	21	10.5m	16D	Light Artillery Rockets Heavy Air-Dropped Bombs
Very Heavy	200mm (8")	24	12m	18D	Heavy Artillery Guns
Extremely Heavy	250mm (10")	27	13.5m	20D	Heavy Artillery Rockets, Superheavy Mortars
Enormous	300mm (12")	30	15m	24D	Huge Guns
Gigantic	400mm (16")	40	18m	28D	Immense Guns
Special	800mm (32")	50	24m	32D	Special Project

Typical Caliber refers to a gun, howitzer or mortar with a bore in this size range. A missile, bomb or rocket, with its differently shaped warhead, may not be of the same size but has an equivalent effect.

Range is in kilometers and refers to a gun of this caliber. A smoothbore mortar has 1/3 the range listed and a howitzer (a short-barreled artillery piece) has 2/3 this range. Range of a rocket system is half the listed range.

Burst Radius is the primary burst radius of an explosive or fragmentation warhead fired from the weapon. Special warheads may have an increased or decreased area of effect.

Base Damage indicates the damage done within the primary area of effect by an explosive/fragmentation warhead of this size

PAYLOADS AND WARHEADS

Most support and artillery weapons can deliver a range of warheads whose effects vary according to the type and size of the payload. Unless otherwise noted all the payloads below deliver their listed damage within the primary area of effect and half effect within the secondary.

Aerosol: Aerosol grenades release an anti-laser aerosol that will prevent laser weapons and laser designators from affecting anything in the radius of effect. The aerosol will persist for 1D+6 rounds (1D in windy conditions) if Light or smaller, and ten times as long if delivered by heavier artillery. Example: local forces drop a salvo of aerosol rounds from 100mm artillery on their forward position to confound enemy lasers. Burst radius for a 100mm gun is 6m, so the shells fill a 12m radius (primary + secondary) with anti-laser aerosols.

Armor Piercing: A mid-tech anti-armor round, AP is essentially a pointed projectile of some dense or very hard material and is more advanced than Solid Shot. It causes damage on a direct hit only. AP ammunition does tripled base damage and receives a blanket +3

Armor Piercing Discarding Sabot (APDS): Representing several variations on the theme of a rod penetrator launched with a sabot and featuring increasingly long acronyms, APDS is a mid-high technology anti-armor round representative of various efforts to get through armor. It causes damage on a direct hit only, in which case damage is multiplied by 4.

Baton/Stunbag: Only available for grenade launchers and the like, baton rounds allow the user to deliver a non-lethal attack. They do not do damage as such but may disable an opponent. Specialist launchers ("Thud Guns") that can only fire baton rounds exist and are used by riot and security forces.

Bomblets: Bomblets are antipersonnel weapons that can be delivered by artillery weapons of Medium caliber and above. They are only available for use with artillery, mortars, rockets and tac missiles. They are scattered above the target to rain down within an area equal to double the weapon's normal burst radius. Anything in the (doubled) primary radius receives an area attack for normal damage. Anything in the (doubled) secondary radius is attacked for half damage. Bomblet attacks

are considered to be Very Rapid Fire attacks for Area Fire purposes, ie they have an Intensity of 4D.

Canister: Also representing beehive, grapeshot and flechette ammunition for artillery weapons, canister is used for close-range defense against enemy infantry and is the artillery version of a multiple projectile round. It effectively turns the gun (canister cannot be used with rockets, missiles or mortars) into a giant shotgun. The projectiles have a base range equal to five times the burst radius of the weapon. Within this distance they deliver an Area Fire attack against all targets. Anyone on a line from the gun's muzzle to the aim point, or within the weapon's burst radius each side of it, is subject to this attack. If hit they suffer 1.5x the weapon's base damage. Canister is considered to be a Rapid Fire attack, ie Intensity is 3D.

Extended Range: Extended Range (or ER) rounds use a rocket boost to increase their velocity and therefore effective range. This increases range by 25% but takes up payload space. Damage and burst radius are both halved. ER ammunition can be combined with most other special features but only for indirect fire rounds. It thus cannot be used with AP, APDS, solid shot, canister and so forth.

Flashbang/Concussion: Used for training purposes and as a distraction in a close assault, flashbangs are non-lethal grenades that burst with a loud noise and a bright flash. They are intended to stun opponents for a moment to gain an advantage. An alternative version, which has little flash but an impressive noise, is referred to as a Concussion grenade. The effects of both are similar. Anyone within the primary radius of a flashbang, who is not in sealed armor or protected by an intervening wall, may be stunned. There is no secondary radius of effect.

Flechette/Fragmentation: This is the standard anti-personnel warhead, inflicting the weapon's listed base damage against any targets within the primary blast radius and half that to targets within its secondary radius. Example: a hand-thrown frag grenade lands 2m from a soldier who is caught in the open. He is in the secondary radius and is attacked by Area Fire. Since this is the secondary radius he takes half damage if he is unsuccessful and no damage if successful.

Fuel/Air: Fuel-air warheads can only be used by weapons of Heavy class or above. A fuel-air weapon dispenses a cloud of highly flammable droplets which are then ignited once they have mixed with air (this only works on worlds with an oxygen atmosphere). The resulting airborne explosion has been compared to a nuclear detonation. Multiply the weapon's primary and secondary burst radii by 10 and 20 respectively. Damage within the primary radius is multiplied by 10 and within the secondary radius by 5.

Example: Hostile forces detonate a 240mm fuel-air warhead. The primary burst radius is 135m, and secondary radius is 270m beyond that (i.e. damage occurs out to about 400m).

Damage is 200D to anyone in the primary radius and 100D within the secondary.

Gas: Gas rounds will fill a radius equal to four times the weapon's primary burst radius (e.g. $4 \times 1.5\text{m} = 6\text{m}$ for hand grenades) with gas. Anyone within this radius may be affected unless they have a suitable mask or other protective equipment. The cloud will persist for 1D+6 rounds (1D in windy conditions). Typical gas payloads are tranquilizer, tear gas or nerve agents, though the latter are strictly controlled.

High Explosive (HE): The basic artillery warhead, HE is mainly used against infantry and light structures. HE warheads are the baseline for rating artillery weapons; they have the damage characteristics listed above. Injury is largely caused by fragments of the casing and secondary objects thrown about by the explosion, in addition to blast effects.

High Explosive Armor Piercing (HEAP): High Explosive Armor Piercing warheads are a special rating for grenades and small rockets only. Larger weapons use Shaped Charge warheads instead. HEAP grenades have a small blast radius, so primary blast radius is halved. Targets suffering a direct hit are subjected to an attack for double the weapon's base (HE) damage. Anyone within a primary blast radius will take the weapon's base (HE) damage. There is no effect in the secondary radius.

Hypervelocity: Hypervelocity rounds can only be used in direct fire from hypervelocity weapons (usually guns, sometimes missiles). They are by definition anti-armor weapons and tend to be of much smaller caliber than the equivalent conventional piece (e.g., a Light artillery piece might be 100mm whereas a Light hypervelocity gun may be only 10mm in bore and still achieve a similar same effect. Hypervelocity weapons inflict damage only on a direct hit and do have a high penetration and damage factored in.

Illuminating/Flare: Illuminating rounds are designed to shed light over an area. Artillery, RAM and launcher types are designed to be fired into the air and descend on a parachute (this is only useful where there is an atmosphere). Hand flare grenades are thrown or placed on the ground. The light created by such means is brighter than daylight, but it is harsh and casts stark shadows which can confuse the eye.

Treat a scene lit by an overhead flare as normal daylight, and one lit by ground flares as twilight. Thermal and light-intensification equipment is designed to cut out and protect the user's sight, so these grenades cannot be used to blind the enemy, though they will make advanced sighting gear less useful and thus level the playing field for those without it. Flare rounds do burn, and will cause fires in flammable material. Anyone within 1m of a burning flare will take 1D damage per round unless wearing sealed armor (including vacc suits). A flare will not unduly harm a vacc suit unless it goes off in a pocket.

Incendiary: Incendiary warheads are designed to set fire to things. They burn very hotly for 10 to 120 seconds, and will cause flammable material close by to catch fire. The incendiary effect has no effect on hardened structures like bunkers or the outer hull of an armored vehicle or starship, but will damage the internal components of such a vehicle if it is set off inside. Damage is equal to the half weapon's base damage (flame) per round within the primary radius and quarter base damage per round within the secondary radius.

Micronuke: Micronukes are not normally available on the open market. They can be fired from weapons of Medium size or bigger. Primary Burst radius is multiplied by 200, and secondary burst radius by 500. Anything in the primary radius is destroyed. Anything in the secondary radius is irradiated and smashed up pretty good. Larger nuclear warheads are even more destructive. Precise rules for nuclear munitions seem unnecessary – if people are firing nukes at one another in close proximity to the travellers, they really need to be elsewhere.

Multiple Projectile: Multiple Projectile grenades are only available for tube-type grenade launchers. They are in effect a giant shotgun shell used for riot work and room clearance. The projectiles have a base range of 5m. Damage is equal to the weapon's base damage (6D), dropping by 1D per 2m further the target is from the weapon. A multiple projectile grenade has a cone effect. Targets directly in front of the grenade are attacked with a +2 DM to hit. Anyone within 1m of a target that is hit may be subject to a secondary attack. Roll to hit with a -2 DM; damage is 2D less than in the primary attack zone. The secondary zone is dangerous out to 10m, after which the projectiles are too dispersed to seriously harm anything.

Plasma: Plasma warheads are an advanced version of high explosive – area effect weapons for use against soft targets. Burst radii are doubled for plasma warheads and damage is multiplied by 3.

Plasma, Directed: Directed Plasma warheads are an advanced version of shaped charge weapons (see below) intended to attack hard targets. Directed Plasma rounds count as shaped charge weapons but do doubled damage. They have no secondary burst radius and do half damage within the primary radius.

Roundshot: Roundshot is the name for the spherical iron or stone projectiles fired from primitive cannon. Roundshot only cause damage on a direct hit. They do 1.5x base damage for the weapon type. Direct hits by shells that do not detonate for some reason can be considered to be roundshot (exception: grenades of all types do not move fast enough to qualify for increased damage. RAM and launcher grenades do full damage, whilst hand-thrown grenades are treated as moderately sized rocks). Example: Enemy troops burst from the trees, charging at an artillery position that was delivering

leaflet-loaded propaganda shells. The gunners let fly over open sights and one of the enemy is struck by a 100mm (Light) artillery roundshot attack. Base damage is 10D so the enemy soldier takes 15D damage. His flak jacket seems fairly irrelevant at this point. Propaganda can be a powerful weapon, it seems...

Shaped Charge: Intended for breaching bunkers and destroying armored vehicles, shaped charge warheads have a fairly small blast radius but do impressive damage on contact. A warhead using a shaped charge has no secondary area of effect and does half damage against anything in the primary area of effect. Against contact targets it is considered to do doubled damage. Shaped Charges have various specialist names such as HESH (High Explosive Squash Head) or HEAT (High Explosive Anti-Tank). Example: A 60mm gun is being used with shaped-charge ammunition in direct-fire mode against enemy personnel in battle dress. Base damage is 6D for HE ammunition from a Light piece of this sort. If it somehow scores a direct hit on someone, the gun will have a penetration of 12D damage – enough to kill most people a few times over. Of course, hitting someone is the trick. A close miss will do just 3D damage.

Shaped Charge, Advanced (ASC): A higher-tech version of the standard shaped charge, an ASC does relatively little extra damage but has much better penetration. Treat as a normal Shaped Charge attack but the modifier to determine if a direct hit has been obtained is increased by 1.

Smoke: Smoke rounds release a thick cloud of smoke that rapidly engulfs an area equal to four times the weapon's burst radius, reducing visibility down to half a meter. This effectively gives everyone in the cloud excellent concealment but of course will not prevent stray shots. The cloud will persist for 1D+6 rounds (1D in windy conditions) if delivered by a grenade and ten times as long from artillery

Smoke (Thermal): Smoke rounds obscure the visible spectrum and block lasers but do not help much against electronic sensors. Thermal smoke contains hot particles that make it quite unpleasant for unprotected troops to move through, but has the advantage that it clocks thermal sensing. It otherwise functions as standard smoke.

Smoke (Multispectral): Multispectral smoke contains metallic fragments as well as hot particles, creating a barrier to radar and similar sensors as well as thermal and optical instruments. It otherwise functions as standard smoke.

Solid Shot: A basic anti-armor round, solid shot is essentially a pointed projectile of some dense or very hard material. It causes damage on a direct hit only, in which case damage is 1.5x base for the weapon type.

Plastic Explosive: Plastic explosive may be molded and shaped allowing the user to direct and control to a fair degree the force of the blast. It cannot easily be used as a grenade

but one could be improvised. Plastic Explosive is normally used in demolition work.

TDX: A gravitationally polarized explosive. Unlike conventional explosives, TDX expends its energy only along the horizontal plane of the blast. For example, a TDX explosive set 1 meter off the ground would inflict its damage on anything within its blast radius that is also at a height of 1 meter. Objects above or below this level would not be affected. Because of this effect, TDX is quite useful at tasks such as felling trees, cutting the supports of a bridge or trestle, etc. It is not normally used in artillery warheads but some specialist applications do exist.

GRENADES AND RIFLE GRENADES

Grenades are normally thrown by hand. Rifle grenades are designed to be launched from a fitting on a rifle, though specialist weapons designed to launch rifle grenades do exist. Hand and rifle grenades are very different and cannot be interchanged. However, a character with Combat Rifleman skill can also use these weapons at his Combat Rifleman skill level – grenades are part of a rifleman's arsenal, just like the bayonet.

HAND GRENADES

The majority of grenades are hand-thrown and weigh 1kg each. At lower tech levels (up to 9) they are mechanically fused. The normal mode of operation is to have dual trigger. The user removes a safety pin, holding down a spring-loaded lever or "spoon" while the grenade is held. Once it is thrown, the lever is no longer held in place and the fuse (normally 2-5 seconds) is initiated. After the preset delay, the grenade bursts or ignites. Pins can be reinserted, making the grenade safe, so long as the lever has not been released.

At TL 9 and above, electronic fusing is standard. This electronic version of the pin and fuse allows grenades to be set for a time delay between 1-10 seconds after throwing. Again, a spring-loaded lever is normally used to prevent accidental discharges. A more sophisticated Multimode Fusing System is available, which grants extra capabilities at the price of doubling cost and increasing the accident rate under combat conditions somewhat.

With MFS, a grenade can be set for timed delay, or to explode on impact (there is a short "arming" distance in case the grenade is dropped, but this is not 100% reliable). Impact fusing can be very hazardous to the user. Long-delay timed fusing is also possible, as is "trembler" fusing, which allows a primed grenade to be left behind as a booby trap, to detonate if it is disturbed. Finally, MFS grenades can be part of a remote-controlled defensive system, detonated at will from a central command position.

LAUNCHED GRENADES

Grenades fired from a launcher are sent on their way by a charge in the same manner as a bullet. After that they are

unpowered and unguided, travelling in a high arc to drop onto the target. Grenade launchers can be standalone weapons, fitted under a rifle, or even belt-fed support weapons. Launched grenades have a minimum safe distance within which they will not arm. The unarmed grenade is still a heavy object moving fast, and will do 2D damage to anyone stuck by it. The projectiles fired from the Infantry Recoilless can be considered to the launched grenades, though their trajectory is more direct. Grenades designed to be launched in this manner include all types listed below. Launcher grenades usually weight 500g.

Rocket-Assisted Multipurpose (RAM) and Rifle Grenades
RAM grenades have a built-in booster system, which ignites upon firing, vastly increasing the velocity (and thus the range) of the round. RAM grenades may be fired from special launchers mounted on the ACR and the gauss rifle. Rifle grenades are available at lower tech levels. They are typically launched from the end of a standard combat rifle by firing a bullet into the base. Both types can be considered functionally similar.

Table: Grenades

The table lists the characteristics and effects of all common RAM, launcher and hand grenades.

Type	Range	Cost Each	Burst Radius	Base Damage	Comments
Thrown	100m	x1	1.5m	By type	
Launched	200m	x2	1.5m	By type	
RAM	500m	x3	1.5m	By type	
Aerosol	-	Cr12	1.5m	Special	
Baton/Stunbag	-	Cr5	Contact	Special	
Dynamite	-	Cr10	1.5m	4D	Commercial explosive
Flashbang	-	Cr12	3m	Special	
Fragmentation	-	Cr12	1.5m	6D	
Gas, Nerve	-	Cr60	6m	Nerve Poison	
Gas, Poison	-	Cr45	6m	Poison	
Gas, Tear	-	Cr15	6m	Special	
Gas, Tranq	-	Cr15	6m	Special	
High Explosive	-	Cr12	1.5m	6D	
HEAP	-	Cr15*	Contact	6D	Launcher or RAM only
Illuminating/Flare	-	Cr15	-	1D (Flame)	
Incendiary	-	Cr20	-	3D (Flame)	
Multiple Projectile	-	Cr20*	Contact	6D	Launcher or RAM only
Smoke	-	Cr12	6m	Special	
Smoke (Thermal)	-	Cr16	6m	Special	
Smoke (Multispectral)	-	Cr24	6m	Special	

* Costs for HEAP and Multiple Projectile grenades do not include the multiplier for launcher or RAM type, even though these grenades are not available in hand-thrown configurations.

BOMBS, MISSILE WARHEADS AND SHELLS

Tac missiles, light artillery pieces and mortars deliver similar warheads to grenades, only larger. Missiles and, at higher tech levels, some artillery shells are guided in various ways: operator-guidance, heat-seeking and radar-seeking are common. Some are designed to home in on the spot "painted" by a laser designator, which can allow the missile to be launched in an indirect trajectory and to then receive targeting information while in flight. At higher tech levels, multimode target seeking is common, whereby the missile uses more than one seeker mode to improve accuracy and resistance to countermeasures.

LAUNCHERS AND MISSILES

All weapons in this section require Heavy Weapons skill to use properly, with the exception of rifle-mounted grenade launchers, which can be used with Combat Rifleman skill. Grenades fired from launchers (even under-barrel ones fitted to a rifle) are different to rifle and hand grenades.

Grenades of all types (thrown, rifle and launched) are rated as grenades and are roughly equivalent in performance. Launchers are rated in the way as artillery weapons but have much shorter ranges. Launchers are ineffective beyond 1km or so.

Grenade Launcher (Cr200, TL 5, 3kg) A grenade launcher allows users to lob grenades of typically 40mm caliber over ranges far exceeding normal throwing distance. Grenade launchers rely on the destructive power of the warhead alone, as there is little kinetic energy behind their attack. Grenade launchers may be fired once per round, and require a full round to reload. A grenade launcher may fire any type of grenade out to a maximum distance of 1000 meters. Damage: as per any Grenade type. Base 6D for HE/Fragmentation.

Rifle-Mounted Grenade Launcher (Cr50+, TL5, 2kg) A grenade launcher may be attached to an assault rifle for the cost of the assault rifle and the grenade launcher plus an additional Cr50. Grenade Launchers can be fitted under the barrel of certain rifles. Damage: as per any Grenade type. Base 6D for HE/Fragmentation.

Disposable Launcher, Light (Cr400, TL 6, 6kg) A lightweight, self-contained, disposable, non-reusable weapon that launches a small (60mm or so) rocket. Disposable Launchers are designed to fire HEAP warheads only and are rated as Extremely Light artillery weapons. They are also known as Light Antitank Weapons (LAW) or Light Anti-Armor Weapons (LAAW). Damage: 12D (HEAP).

Disposable Launcher, Medium (Cr750, TL 7, 9kg) A self-contained, disposable, non-reusable weapon that launches a fairly large (90mm or so) rocket. The Medium launcher is rated as a Very Light artillery weapon. Disposable Launchers are designed to fire HEAP warheads only. They are also known as Light Antitank Weapons (LAW) or Light Anti-Armor Weapons (LAAW). Damage: 16D (HEAP).

Disposable Launcher, Medium, Incendiary (Cr1500, TL 7, 8kg) A self-contained, disposable, non-reusable weapon that launches a fairly large (90mm or so) rocket-propelled incendiary warhead. The Medium incendiary launcher is rated as a Very Light artillery weapon. Damage: 4D (Flame).

Disposable Launcher, Heavy (Cr1100, TL 8, 13kg) A self-contained, disposable, non-reusable weapon that launches a large (110mm or so) rocket. The Heavy launcher is the 'big game hunter' of infantry anti-armor weapons and is rated as

a Light artillery weapon. Disposable Launchers are designed to fire HEAP warheads only. They are also known as Light Antitank Weapons (LAW) or Light Anti-Armor Weapons (LAAW). Damage: 20D (HEAP).

Disposable Launcher, Plasma (Cr3000, TL 12, 8kg) A self-contained, disposable, non-reusable weapon that launches an 80mm rocket-propelled directed plasma warhead. The plasma launcher is a deadly weapon that can kill even high-technology armored vehicles. It is a favored import with mid-tech forces that need a deterrent against higher-tech foes. The Plasma launcher is rated as a Very Light artillery weapon and is sometimes known as a Light Anti-Armor Weapon (Plasma), or PLAAW. Damage: 16D (Directed Plasma).

Riot Cannon (Cr3000, TL7, 7kg) A paramilitary version of the thud gun and fed by a 3-round magazine, the riot cannon is normally used by law enforcement units to deploy tear gas but can also fire flechette ammunition and a heavy buckshot round. The latter does 6D damage.

RAM Launcher (Cr400, TL8, 4kg) Designed to fire RAM (Rocket-Assisted Multipurpose) grenades at targets as far away as 1000 meters, the RAM launcher is essentially a 3-round magazine-fed grenade launcher. It can deliver any standard RAM grenade. The launcher is semi-automatic and can be fired once per combat round. Changing magazines takes a full round. Damage: Varies by grenade type. Basic HE round 6D.

Semi-auto RAM Grenade Launcher (Cr800, TL8, 6kg) A variant of the standard RAM launcher, the semi-auto GL is fed by a bulky 6-round magazine or can use the standard 3-round RAM GL magazine. It can fire single shots or a 3-round burst of grenades. This is impressively inaccurate but handy for dropping a lot of fairly indiscriminate support fire on an enemy position. Damage: Varies by grenade type. Basic HE round 6D.

RAMAuto-Grenade Launcher (Cr2,200, TL8, 6.5kg unloaded) A tripod or vehicle mounted grenade launcher fed from a 20-round boxed belt weighing 9kg, the RAM AGL fires single shots, 3-round bursts or can deliver autofire. It can have two belts connected at once and can switch between them at will, though any given burst must come from one belt to the other. Damage: depends on ammunition type. HE: 6D.

Disposable Guided Launcher, Medium (Cr1750, TL9, 10kg) Similar to the standard medium disposable launcher, the disposable guided launcher uses a missile with multimode tracking, capable of attacking armor or aircraft. It is a "fire-and-forget" weapon, self-homing on the target after launch. The disposable carry/launch tube cannot be re-used. Damage: 16D (HEAP).

Light Tac Launcher (Cr15,000, TL10, 22kg) A tripod-mounted support weapon capable of firing battlefield tactical (tac) missiles. Tac launchers use a variety of missiles including

anti-armor, explosive and anti-aircraft warheads. Some versions have a small nuclear warhead, though the use of such munitions is rather rare. Damage: Varies by missile type.

LIGHT TACTICAL MISSILES

Tactical (Tac) Missiles see extensive use on the battlefield as soon as they become available. Although they are expensive, the benefits of guidance are such that they become a necessity for most users. Some Tac missiles are fire-and-forget weapons that self-guide once they are launched (but need to be given a good target lock by the operator before launch) and some require constant guidance by the operator. The effect is the same in game terms.

The following selection of light tac missiles is by no means exhaustive. Almost any warhead and guidance system can be combined at need. Light Tac missiles are rated as Light artillery weapons.

Tac Missile, Anti-Air, Light (Cr3000, TL9, 50kg) A light missile optimized for tracking and intercepting airborne threats, including grav vehicles, this missile can be fired from a vehicle, ground or shoulder launcher. Its HE/fragmentation warhead has a modest performance but can deliver significant damage on a solid hit. Damage: 10D (HE/Fragmentation).

Tac Missile, Anti-Armor, Light (Cr4000, TL9, 60kg) A light missile optimized for tracking and intercepting vehicles, including low-flying grav vehicles, this missile can be fired from a vehicle, ground or shoulder launcher. Its shaped-charge warhead can penetrate many vehicles. Damage: 20D (HEAP)

Tac Missile, Anti-Personnel, Light (Cr1200, TL9, 42kg) A cheap and light missile intended for attacking infantry positions and bunkers. The normal warhead is a standard HE/Fragmentation charge but for Cr1800 the missile is available with a bomblet submunitions dispenser and software to allow it to deliver its payload as it passes over the target. Damage: 10D (HE or Bomblets).

DIRECT-FIRE SUPPORT WEAPONS

Various support weapons are available. Some are essentially very large small arms while those listed here are large enough to be considered light artillery. Lasers and directed-energy weapons are considered separately.

Direct-Fire support weapons can use most of the special ammunition types listed for artillery weapons. The default values damage given here are for whatever the weapon's standard antipersonnel ammunition may be – usually ball or light HE.

Medium Autocannon (Cr55,000, TL6, 200kg) A medium-caliber (30-45mm) rapid-fire belt-fed weapon capable of

engaging light armored vehicles and aircraft. Autocannon are generally mounted on light armored vehicles, aircraft, or in bunkers. They are too big and bulky to be used as mobile infantry support weapons, other than on a vehicular or towed mount. Damage: 12D (Autofire).

Heavy Autocannon (Cr95,000, TL6, 600kg) A heavy (60-65mm) rapid-fire belt-fed weapon capable of engaging light armored vehicles and aircraft. Heavy Autocannon are generally carried in vehicle mounts or aboard maritime vessels. They are too big and bulky to be used as mobile infantry support weapons, other than on a vehicular or towed mount. Damage: 14D (Autofire).

ARTILLERY WEAPONS

It seems fairly unlikely that the average band of travellers will become involved in a situation where heavy artillery is necessary, but one never knows...

Field Cannon, 9lb (Cr2,600, TL2, 150kg) A simple smoothbore black-powder cannon capable of delivering roundshot out to 1km or so without any real degree of accuracy (DM of -2 at all ranges unless firing canister). An explosive/fragmentation round (termed 'common shell' is available but it is expensive and unreliable. Roundshot is more commonly used. Within 150m, canister rounds can be fired against enemy personnel. The Field Cannon is rated as a Light artillery weapon and requires a crew of 6 or so trained men plus several horses to move it around. Base damage is 10D for shell; 20D for roundshot and 10D with canister ammunition.

Field Gun, Rifled, 10lb (Cr4,500, TL3, 175kg) A rifled muzzle-loading cannon mounted on a horse-drawn carriage and requiring a crew of 6 or more men, a 'field rifle' is far more accurate than a smoothbore cannon and has an effective range of about 1.5km. It can deliver explosive shells as well as roundshot but the rifling causes unpredictable effects when firing canister. Damage: Base damage is 12D for shell; 24D for roundshot and 8D with canister ammunition.

Artillery Piece, Compressed-Air, 'Dynamite Gun' (Cr 9,500, TL4, 58kg) A lightweight artillery piece capable of delivering an explosive charge out to about 1km by use of compressed-air propulsion. Dynamite Guns have the advantage of being much lighter than the equivalent conventional guns and howitzers but the weapon's trajectory is badly affected by wind, imposing a -2DM on all fire. The weapon cannot fire anything except its own specialist ammunition. Damage: 10D (HE).

Mortar, Infantry, Light (Cr6,500, TL4, 20kg) A light man-portable support weapon capable of delivering small explosive/fragmentation bombs out to about 2km. Bombs weigh 1.25kg. Damage: 6D (HE).

Mortar, Support, Medium (Cr 8,500, TL4, 55kg) A heavier mortar requiring a crew of three men and capable of delivering

a 3.5kg HE/fragmentation bomb out to about 3km, though without a great degree of accuracy. Damage: 8D (HE).

70mm Strafing Rocket Pod (Cr4000, TL5, 16kg) A small pod containing 7 small rockets with high-explosive warheads. The pod can be fitted to most vehicles and aircraft and is aimed by pointing the craft. Rockets can be fired one at a time or 'rippled' off in a rolling salvo. Damage: 8D (HE).

Antitank Gun (Cr56,000, TL5, 1150kg) A towed antitank gun intended for the direct-fire role, this high-velocity 60mm gun normally fires solid shot and is fairly effective against light armored vehicles. A canister round is available for self-defense. Damage: 12D (solid shot), 6D (canister)

100mm Light Howitzer (Cr50,000, TL5, 1000kg) A short-barreled artillery piece crewed by six personnel and moved by animal power or towed by a vehicle, the light howitzer can deliver a range of payloads to targets about 8km distant. It can also fire over open sights but is not very effective in this role. The light howitzer is rated as a Light artillery piece. Base damage is 10D with high explosive ammunition.

200mm Demolition Gun (Cr38,000, TL5, 600kg) A short barreled petard weapon designed to deliver a large explosive charge over a short distance (150m maximum). The demolition gun is normally used aboard engineering or assault support vehicles, to demolish fortifications and flatten obstructions. It can only fire HE rounds. Damage: 18D (HE)

280mm Railway Gun (MCr6, TL5, 218,000kg) A fairly practical weapon as these things go, the 280mm Railway Gun needs tracks to move on but is relatively mobile and can come into action within hours. It can deliver its payload out to 30km (38km with ER ammunition). An 11" maritime naval gun or coast-defense weapon of the same tech level is equivalent in performance. Damage: 24D (HE).

800mm Superheavy Siege Cannon (MCr22, TL5, 1,350,000kg) The largest artillery piece on record, the 800mm siege cannon must be moved in parts and assembled in its firing position, making it unwieldy and prone to counter-battery fire by lesser but more practical pieces. Its awesome warhead can be delivered to a target 50km away. This gun cannot deliver nuclear munitions but a higher-tech version could. Damage: 32D (HE). Note that a direct hit from the 5000kg shell would flatten a tank or even a maritime vessel with ease – before detonating.

180mm Bombardment Rocket Rack (Cr17,000, TL6, 245kg) A self-contained rack suitable for mounting on the back of a truck or similar vehicle. It contains containing 12 fairly large rockets with high-explosive warheads. Alternative warheads are sometimes used, including incendiaries and chemical weapons. Rockets can be fired one at a time or 'rippled' off in a rolling salvo. Range is about 12km. Damage: 16D (HE).

Infantry Recoiless (Cr900, TL7, 14kg) A light support weapon capable of being carried by an infantry team or mounted on a light tripod, the Infantry Recoiless is a relatively large caliber weapon (80-110mm on average) but is rated as an Extremely Light artillery weapon. Its maximum range is 1km and muzzle velocity is rather low. The usual round is an antipersonnel HE warhead but shaped charge and other specialist ammunition is also available. Damage: 6D (HE), 12D (Shaped Charge).

Support Rosette, Infantry, Disposable (Cr2,000, TL7, 22kg) A remote-controlled disposable multiple launch system for rifle grenades, the support rosette is designed to be emplaced before combat and called upon to launch its 16 projectiles as needed. Any number can be fired at once to a range of about 1km. HE/Fragmentation rounds are commonest but other warheads can be used; the rosette can launch any standard rifle grenade. Damage: 6D (HE).

75mm Cannon (Cr160,000, TL8, 100kg) A light vehicle-mounted direct-fire weapon, the 75mm cannon is a Very Light artillery piece which normally fires Armor Piercing ammunition. Canister rounds for anti-personnel and HE for support work are also carried by most combat vehicles. This weapon can also be encountered as a towed anti-tank gun in some circumstances. Damage: 8D (HE), 16D (AP), 8D (Canister).

120mm Cannon (Cr400,000, TL8, 180kg) A main-caliber gun which arms many mid-tech armored fighting vehicles, the 120mm cannon is a Medium artillery piece. It can fire HE for support work or APDS for anti-vehicle combat. Canister is rarely carried; tanks normally have support units to deal with infantry. Damage: 12D (HE), 42D (APDS).

175mm Gun (Cr220,000, TL9, 9200kg) A fairly standard artillery piece on many worlds, the 175mm gun is usually mounted on a vehicle. It is a Heavy artillery piece capable of delivering a range of munitions. Some versions can handle small nuclear warheads but this is not usual. The weapon has a range of 21km and a standard HE round does 16D. This weapon is theoretically capable of firing over open sights but it is extremely ineffective in this role.

MLR Pod, Disposable (Cr 22,000, TL10, 95kg) A lightweight pod containing six 240mm inertial-guided bombardment rockets. Pods of this sort are designed to be emplaced by engineers or airdropped across a potential combat zone to be called upon where necessary. Range is about 15km. The rockets are given a target location download and self-guide to that location using a fairly basic internal system. They do not home on the target and cannot be jammed. Any or all the rockets can be launched at once. Damage: 20D (HE).

120mm Light Mass Driver Cannon (MCr1, TL11, 18,000kg) An advanced tube artillery piece using electromagnetic acceleration to hurl its payload up to 30km, a light mass

driver will normally be carried on a vehicle of some kind. It requires a crew of 8 including power technicians as well as gunners and is fairly effective in the direct-fire role. Rated as a Medium artillery piece. Damage: 8D (HE), 16D (AP in direct fire mode).

15mm Medium-Heavy Hypervelocity Cannon (MCr4, TL13, 22,000kg) A very powerful electromagnetically-accelerated weapon intended to put holes in enemy armor or anything else that comes near it, the hypervelocity cannon is often emplaced on mounts capable of tracking airborne targets. It can hit spacecraft in low orbit, though it is not very effective in this role. It can only use hypervelocity ammunition. Damage: 56D (hypervelocity)

VEHICLE-MOUNTED ENERGY WEAPONS

The following are all direct-fire weapons intended to support infantry or engage vehicles. Damage is given in personnel terms and scales at 1:4 to vehicles. High-energy weapons do not act as an Area Fire attack in the manner of conventional artillery; damage is taken by everything in the target area.

Gatling Laser (MCr0.75 TL8, 7000kg) A basic and relatively low-powered vehicle-mounted laser weapon. It uses several cryogenically cooled barrels fired in succession to deliver a fair amount of damage. Contemporary tube cannon are more effective in an anti-vehicle role, and also cheaper, so the gatling laser is normally found as an air-defense weapon where the aiming advantages of lasers are most useful. Damage: 7D (Laser/Autofire)

Laser Cannon: (MCr1 TL9, 6000kg) A single barrel laser main gun for vehicle mount, the laser cannon is the first really effective vehicle energy weapon. It consumes large amounts of power but is capable of damaging a light starship. Damage: 12D

Plasma A Gun (MCr1, TL10, 4000kg) A fairly crude heavy plasma gun for vehicle mounting, A guns are encountered aboard grav vehicles and some aircraft. It is more a support weapon than a main anti-vehicle armament. Damage: 20D in a 2.5m radius, with half damage to targets within 5m.

Plasma B Gun (MCr1.5, TL11, 4000kg) A more advanced heavy plasma gun for vehicle mounting, B guns are encountered as main armament aboard some vehicles. Damage: 22D in a 4m radius, with half damage to targets within 8m.

Plasma C Gun (MCr2, TL12, 4000kg) The most advanced heavy plasma gun available, C guns are encountered as main armament aboard combat vehicles or in fixed defensive positions. Damage: 24D in a 5m radius, with half damage to targets within 10m.

Fusion X Gun (MCr3, TL12, 4000kg) An early vehicle-mount fusion gun, the X-gun is primarily a support weapon, though everything is relative. Damage: 26D in a 6m radius, with half damage to targets within 12m.

Aerospace Defense Laser (MCr6 TL12, 11,000kg) A powerful laser weapon designed for emplaced or mobile aerospace defense, the ADL consumes immense power but delivers impressive damage. Damage: 34D (Laser).

Fusion Y Gun (MCr5, TL13, 4000kg) A more advanced vehicle-mount fusion gun, the X-gun is capable of destroying virtually anything. The fusion stream does immense damage to everything in its path. Damage: 28D in a 7.5m radius, with half damage to targets within 15m.

Fusion Z Gun (MCr10, TL14, 4000kg) The most advanced vehicle-mounted fusion gun, the Z-gun almost a starship-grade weapon, though, it lacks range. Damage: 30D.

Battlefield Meson Accelerator (MCr30, TL15, 60,000kg) A battlefield meson gun requires several support vehicles and a huge power supply. Anything smaller than a starship within the 20m radius of effect is destroyed. Within an additional 20m radius, all targets take 40D damage.

PART 3: GADGETS AND GEAR

The two big 'survival assets' possessed by most (but not all) sentient races are brains to invent tools and thumbs to use them. The following assortment of equipment ranges from basic work tools to satellite launchers, covering all the needs of the well-equipped traveller.

PERSONAL PROTECTION

As a rule it is better to avoid hazards, including being shot at, or at least not to be hit. However, sometimes a character needs protection against incoming claws, bullets or grenade fragments. Armor is the last line of defense against such hazards. Adventurers are better off using their intellect and clever tactics to avoid coming into contact with hazardous materials such as airborne lead, but in the event that it becomes inevitable, some kind of personal protection is desirable.

Armor comes in several general types, within which there are many variations on a theme. For example, archaic chain mail and splint mail are very similar in performance although the method of construction is rather different.

Most modern armor is good against the majority of threats – thorns, bullets, claws and knives as well as more advanced weapons. Archaic (low-tech) armor is not very useful against high-powered projectiles. Laser and other energy weapons require a special kind of protection to defeat them; standard armor is not very effective.

The weight of armor (other than vacc suits) and clothing is not counted when calculating the total weight a person is carrying, unless it is being carried rather than worn.

WEARING ARMOR IN PUBLIC

As a rule, armor is not specifically prohibited in local laws. However, openly wearing body armor in public may be grounds for interest from local law enforcers. Military armor (flex, combat and of course battle dress) is generally prohibited anywhere that there is law (ie law levels 1+) other than for combat troops, mercs and the like who have a legitimate reason for wearing it. Note that the fact that a merc unit is on combat duty 200km away is not normally considered an acceptable reason for wearing armor on a weekend pass into the capital's nigh spots.

Lighter armor, such as Cloth, would give anyone spotting it grounds for concern (why does this person think he needs ballistic protection in our local bank?) and is not normally permitted at law levels 4+. Reflec and Ablat are generally considered to be similar. Mesh and Jack armor are more acceptable and are generally permitted at all law levels, so long as there is some acceptable reason for owning or wearing it.

Local laws tend to vary somewhat. Many localities permit ownership of any form of body armor, but wearing it in situations other than where there is an immediate need or possibility of one is not allowed. Thus a character guarding the group's grounded starship in his Cloth armor might not even get a second glance, but if he strolls into a bar after his shift without removing it, people will become alarmed.

The following summary should act as a rule of thumb rather than hard-and-fast rules; local circumstances vary.

Military Armor (Flex, Combat, Battle Dress): Illegal at law Level 1 or higher other than for permitted persons such as mercs on ticket or local military. Flex is considered a Category 4 (Military) item for purposes of obtaining a permit (See Special Supplement 6). Combat Armor and Battle Dress are Category 5 (Restricted Military) items.

Paramilitary Armor (Cloth, Flak Jacket, Reflec Ablat): illegal at law level 4 and higher other than for permitted persons such as people working with high-energy equipment (Reflec, Ablat) or security personnel (Flak, Cloth). All these items are considered to be Category 3 (Paramilitary) items. Obtaining a permit for such is not very difficult.

Jack and Mesh are in some areas not considered armor at all but necessary protection from wildlife, thorns and the like; ie just tools of the outdoor-worker's trade. In more settled areas they still have many legitimate uses so purchase is not normally restricted. Both types are considered Category 1 (unrestricted) items for purposes of obtaining a permit, ie one is not needed. Note that this does not mean that it will always be acceptable to tool around in a Mesh jacket. Local law enforcers or militia will take an interest in people who do not conform to polite custom regarding wearing armor – even if they do not know what that custom is.

STANDARD ARMOR TYPES

Standard armor offers good all-round defense against most likely attacks including guns, blades and fists.

Jack: (Cr50, TL5) A jacket or body suit of tough natural or synthetic material such as leather, Pseudohide or something similar covering the torso and upper arms and legs. Jack may be actual armor or simply a tough piece of clothing. Jack is somewhat better than ordinary clothing or bare skin when defending against blades and fairly useless against higher-velocity attacks.

Cloth: (Cr250, TL6) A heavy-duty coverall tailored from ballistic cloth, containing light metal or ceramic plates at critical points. The fabric absorbs impact energy, distributing the blow over the body of the target and possibly resulting in bruising. Cloth armor is almost the best and the most versatile modern armor available. This early version is effective, but somewhat cumbersome. Armor Value: 5 (flexible)

Flak Jacket: (Cr100, TL7) A less expensive military version of ballistic cloth armor, generally only covering the torso and groin. It is treated as Cloth +1, except where this would make it less effective than Mesh.

Mesh: (Cr150, TL7) A jacket or body suit made of natural or synthetic leather and reinforced with a lining of flexible metal mesh, similar to chain mail but lighter and stronger. Mesh reduces or stops penetration by blades and has some effectiveness against guns; it is ineffective against laser fire.

Slash: (Cr75, TL7) Slash is a complete suit of tough material designed to prevent melee weapons from penetrating. It is useful against blades, flechettes, grenade fragments, impaling melee weapons and low-velocity projectiles like arrows. It is also useful against natural hazards such as thorns and small animals. It is totally ineffective against high-velocity projectiles (bullets), lasers, and bludgeoning weapons. It does work against shotgun buckshot. Slash can be built into normal civilian clothing, and disguised as such, for double the cost. Many items of utility wear (e.g. engineers' coveralls) are made from this material at TL 9+ as a matter of workplace safety. Slash is treated as Mesh +1 against all melee weapons, bows and thrown weapons, fragments, animal attacks and shotguns but counts as no armor against firearms, lasers etc.

Flex: (Cr500, TL8) Sometimes known as Enhanced Cloth, Flex armor uses a base of Cloth onto which heavy ceramic or metal plates are added, to create a "bulletproof breastplate". This improves protection but at the expense of weight and bulk. The resulting armor is almost as good as Combat Armor for stopping bullets, but less versatile as it can only cover the torso and cannot be sealed against vacuum, gas or flames. A complete suit of Flex would restrict the user so much as to be useless in combat conditions, and would still be vulnerable at the joints. If the user does not need to move quickly, a full suit could be worn (at triple the cost and weight), but the applications of such a suit are limited to static functions such as Explosive Ordnance Disposal as the user can only waddle along. Treat as Cloth-1.

Diplo Vest: (Cr500, TL9) Advanced materials allow a very light version of Cloth armor to be constructed. While not quite as good as regular cloth, Diplo can be tailored into what appear to be normal clothes, making it difficult to detect. For this reason it is sometimes known as "diplo" (diplomatic) armor. Treat as Flak Jacket (ie Cloth +1 unless this would make it less effective than Mesh)

ARCHAIC ARMOR

Occasionally characters may encounter enemies encased in primitive body armor. Whilst inefficient, it can be fairly effective against light weapons.

Breastplate: (Cr160, TL1) A breastplate covers the front and back of the torso, offering good protection from hand weapons and archaic projectiles. It is less useful against firearms. Treat as Mesh -1 against hand weapons and low-velocity projectiles such as arrows and as Mesh against firearms.

Leather/Padded/Quilted Body Armor: (Cr500, TL1). The standard armor of low-tech ('barbarian') light infantry, a leather or quilted body covering is treated as Jack.

Ringmail/Scalemail Coat: (Cr1,000, TL1) A padded or leather coat enhanced by metal scales or rings, ring mail is heavy but affords good protection from hand weapons but is little use against firearms. Treat as Mesh against hand weapons and low-velocity projectiles such as arrows and as Mesh against firearms

Chainmail Hauberk: (Cr2,500, TL2) A knee-length coat of interlocking metal rings in a leather backing, a hauberk offers excellent protection against hand weapons. It is used mainly by heavy infantry and cavalry. A hauberk has short mail sleeves and covers much of the legs, so is considered to offer all-over protection. Treat as Mesh-2 against hand weapons and low-velocity projectiles such as arrows and as Mesh against firearms

Mailshirt: (Cr1,500, TL2) A (relatively) light shirt of chainmail protects only the torso. It is the archaic equivalent of a flak jacket, covering only the vital torso locations. Treat as Mesh against hand weapons and low-velocity projectiles such as arrows and as Mesh+2 against firearms

Half-Plate: (Cr2,500 TL2) Favored by heavy cavalry even after infantry have lost their armor, half-plate consists of articulated plates backed by light mail and padding. It covers only the torso and parts of the limbs, so does not give whole-body protection. Treat as Battle +2 against hand weapons and low-velocity projectiles such as arrows and as Mesh against firearms

Full Plate: (Cr3,000, TL2) A complete suit of armor consisting of shaped and fitted metal plates riveted and interlocked to cover the entire body. It includes gauntlets, heavy leather boots, and a visored helmet. Plate is designed to distribute the weight over the body, so it hampers movement less than might be expected. However, it is heavy and tiring to wear. Treat as Battle +1 against hand weapons and low-velocity projectiles such as arrows and as Mesh-1 against firearms

ANTI-LASER AND ANTI-ENERGY ARMOR

Lasers and energy weapons require a special type of protection that is not afforded by standard types.

Fireproof Suit (Cr200, TL7) A fireproof suit is a complete body suit of light flexible material designed to resist heat

and shed burning chemicals. It resembles the suits worn by racing drivers under their coveralls. It has no value against any weapons other than those delivering energy – lasers, energy weapons and flame guns. Treat as Ablat+2 against lasers as Ablat against flame weapons

Ablat: (Cr75, TL9) Ablat is a cheap alternative to Reflec, and is fashioned from a material that will ablate (vaporize) when hit by laser fire or other energy weapons. The ablation of the material carries away the energy of the laser, and protects the wearer. Continued fire against Ablat degrades its effectiveness, but the armor is cheap and easily replaceable. Ablat also has some value against other forms of attack.

Reflec: (Cr1500, TL10) Reflective material on a plastic base can be tailored into a body suit which is ineffective against most weapons, but superior in defense against laser fire. Unlike other forms of armor, Reflec is worn under other clothing. Reflec is expensive and often difficult to obtain. Armor Value: 7E (0).

HELMS AND HELMETS

Characters wearing body armor can normally be assumed to be wearing appropriate headgear, and most attacks hit the torso anyway. However, it may sometimes become important to know what sort of helmet a character is wearing. Complete suits of armor (battle dress, combat armor, and vacc suits) of course include a helmet that matches the rest of the suit. Indeed, without such a helmet, many of the benefits of the armor are lost. Combat environment suits, combat armor and vacc suits will not provide protection against vacuum, gas, smoke, heat etc without being “buttoned up” with an appropriate helmet in place.

Some kinds of headgear are only really effective against a melee attack. Archaic armor and certain security products fit into this category.

In the event that a character is hit in the head, either deliberately or as a result of bad luck, the armor equivalent of his headgear (if any) is used instead of his body armor.

Hat: (Cr2, TL0) A tough hat offers a little protection from blows to the head. Examples include primitive hunters' headgear, a TL 3 solder's shako, or a paranoid traveler's extra-stout leather hat. Treat as Jack.

Composite Helm: (Cr15, TL1) A covering of hardened leather over a metal framework, a composite helm offers reasonable protection against melee attacks. Treat as Jack-1.

Open Helm: (Cr25, TL2): A solid metal helmet with little face protection other than a nasal bar and/or cheek pieces, an open helm allows good vision and reasonable protection. Examples range from Roman helms through Norman conical helms to the dragoon and cuirassier helms worn by some mid-tech cavalry. Treat as Mesh +1 against melee attacks

and low-velocity projectiles such as arrows. Otherwise treat as Mesh.

Closed Helm: (Cr35, TL2): A full helm with neck and face protection, a closed helm is hard to see out of but protects the user well. Examples include the ancient Greek barbut and knightly great helms. Treat as Mesh +2 against melee attacks and low-velocity projectiles such as arrows. Otherwise treat as Mesh.

Steel Helmet: (Cr5, TL5) A simple metal headpiece offers basic protection against shell fragments and projectiles. Treat as Mesh.

Ballistic Helmet: (Cr20, TL 7) An advanced version of the Steel Helmet using metal and ceramic components, the Ballistic Helmet offers good protection and is a standard item of infantry equipment. Treat as Cloth.

Security Helmet: (Cr35, TL8) An advanced, lightweight helmet with a face guard, used by riot police and security guards to protect against melee attacks. The security helmet gives some, but not much, protection against projectiles. Safety helmets used by aircraft and grav-bike (and motorcycle) pilots have similar characteristics. Treat as Mesh.

Flex Helmet: (Cr50, TL9) A highly advanced infantry helmet constructed of advanced lightweight materials, the Flex Helmet is often paired up with a Flex body protector for heavy combat duty. Treat as Cloth-1.

COMPLETE SUITS

Some armor comes as a complete suit and is rarely worn other than complete with helmet and any additional gear such as air tanks attached. Suits, if sealed, offer total protection from gas and airborne biological agents. Unlike normal clothes or armor, a vacc suit's weight does count when calculating the total weight carried by a character.

Emergency Hostile Environment Suit (Cr9000, TL9, 15kg) A disposable emergency vacc suit designed to protect the wearer from corrosive, insidious and similarly hazardous atmospheres (and of course vacuum). The suit is good for 6-8 hours, after which there is a 1 in 6 (non-cumulative) chance that it will fail every hour. Emergency suits are usually carried by starships to allow engineering crew to make emergency repairs under unusual conditions. The suit can be refurbished for 75% of its initial cost, but each refurbishment adds 1 in 6 to the chance of failure after the “safe” time, and additionally reduces time to failure by 1 hour. Once the failure chance has reached 4 in 6 the suit is too degraded to be any further use. An emergency HE Suit has an armor value equivalent to Mesh.

Emergency Softsuit (Cr1,000, TL9, 5kg) A disposable emergency vacc suit including gloves and a soft, collapsible “bubble” helmet, the softsuit has no armor value and offers

no protection against hostile environments. Starships are required to carry enough emergency suits or rescue balls to allow the crew and all passengers to survive depressurization. Softsuits are more difficult to use, and require vacc suit skill, so are normally used for crew only. Well-equipped ships include a softsuit at each crew position and a few spares at strategic points, in addition to the crewmember's own vacc suit.

The softsuit includes a small air bottle (4 hours' worth) and can be plugged into shipboard life-support points to prolong this supply. It is rather flimsy, and it offers no protection against radiation, making it a poor choice for repair work or routine duty and a desperate last resort for EVA work. It has no armor value.

Vacc Suit-6 (Cr12,000 TL6, 12kg) A very basic pressure suit, the Vacc Suit-6 is clumsy and somewhat prone to damage. It carries its own communicators, oxygen tanks for four hours, and other basic survival appurtenances. Treat as Jack armor.

Vacc Suit-9 (Cr10,000, TL9, 8kg) The basic TL9 vacuum or space suit is designed to protect the individual from vacuum, tainted or noxious atmospheres, and some radiation situations. It carries its own communicators, oxygen tanks for six hours, and other basic survival appurtenances. Vacc suits are armored against space debris and similar hazards. Treat as Diplo armor.

Combat Environment Suit (Cr1,000, TL10, 2kg) A neck to toe air-tight, loose fitting suit constructed of ballistic cloth. Generally worn open at the neck and wrists, the combat environment suit can be sealed by donning gauntlets and a clear flexible plastic head bag, thus giving complete protection against most chemical agents, tainted atmospheres, biological agents, and a moderate defense against radiation. It is treated as Diplo armor.

Combat Armor (Cr20,000, TL11, 7kg) Combat armor is a complete vacc suit-like array of metal and synthetic armor. Combat armor is strictly military and not available on the open market. It contains oxygen tanks for six hours and a rebreather unit that can more than double this endurance if the user is not exerting himself unduly. Combat Armor is a standard Classic Traveller armor type.

Vacc Suit-12 (Cr7,000, TL12, 2kg) The TL-12 vacuum suit is a standard model throughout much of Charted Space. It carries its own communicators, oxygen tanks for six hours, and other basic survival appurtenances. It is far lighter than the TL-9 version yet more robust. Treat as Cloth armor.

Rescue Suit-12 (Cr14,000, TL12, 6kg) A Rescue Suit is a heavy vacc suit designed for emergency situations such as damage control or entering a damage spacecraft. It is very tough, and some models are sold as 'boarding suits' to

mercenary forces that cannot afford or obtain combat armor. The rescue suit carries oxygen tanks for six hours and a variety of tools for use in an emergency situation. Treat as Combat Armor+2.

Hostile Environment Suit: (Cr28,000, TL10, 14kg) A hardened version of the vacc suit, offering heavier protection from the elements and physical damage in hostile environments such as nearby volcanic activity or within a corrosive. HE Suits are heavier and more expensive than Combat Armor, but nearly as effective and available to the general public. Treat as Flex armor.

Battle Dress, Basic: (Cr200,000, TL13, 26kg) The ultimate in individual protection, Battle Dress is an advanced and powered version of combat armor. Battle Dress enhances the strength and senses of individuals wearing it with variable feedback personal controls, servo-powered limbs, and various kinds of electronic assistance. Treat battledress-equipped troops as having a STR attribute 3 points higher for the purposes of carrying and combat (not taking damage) unless otherwise noted. The basic model does not come with any weapons built in; troops are usually armed with the best small arms and energy weapons available. It is not uncommon for Battle Dress to be fitted with an integral grav belt and/or decoy launchers, but this is not universal. Battle Dress is a standard Classic Traveller armor type and equivalent to Combat Armor but with extra capabilities.

Battle Dress, Close Support: (Cr240,000, TL13, 32kg) Close Support Battle Dress is designed to operate with normally-equipped infantry. It is equally mobile and well protected. A support laser is fitted in the left arm of the suit and each shoulder mounts a fully-automatic RAM grenade launcher. Each is fed from a dual 24-round magazine. This means that each weapon has 48 grenades available. Magazines can be selected between when firing, allowing for multiple ammunition types to be used. The magazines are designed for fast reloading from a feeder clip. Close Support troopers usually also carry a hand-held fusion or plasma weapon. Treat as Combat Armor/Battle Dress.

Battle Dress, Combat Pioneer: (Cr290,000, TL13, 27kg) Combat Pioneer battle dress is slightly heavier than standard. It mounts no weapons but has a specialist sensor package designed to detect explosives and other hazards and can utilize a range of backpack-mounted powered tools including drills, shovels and decontamination equipment. The suit can self-decontaminate. Treat as Combat Armor/Battle Dress-1.

Battle Dress, Command: (Cr225,000, TL13, 27kg) The Command configuration is used by officers. Its defensive capabilities are much the same as those of standard infantry, but it carries a more comprehensive communications suite and command-assist computer software. No weapons are fitted as standard. Treat as Combat Armor/Battle Dress.

Battle Dress, Infantry, Assault: (Cr230,000, TL13, 30kg) Assault Battle Dress sacrifices mobility for extra armor and firepower. A short-barreled laser rifle is fitted in the suit's left arm, and a RAM grenade launcher on the right shoulder allows for self-support and the engagement of various special target types. The launcher is fed from three 6-round magazines. The magazine is selected at the time of firing, allowing for different types of ammunition. A hand-held weapon is almost always carried by assault troops. Treat as Combat Armor/Battle Dress-1.

Battle Dress, Infantry, Scout: (Cr290,000, TL13, 27kg) Scout Battle Dress is normally used by reconnaissance units, artillery spotters and the like. Some officers and rapid-assault units also favor it for its superior mobility. A grav belt is fitted as standard, as is an uprated sensor package. Scout Battle Dress offers less protection than standard versions but is somewhat faster. Treat as Combat Armor/Battle Dress+1.

Battle Dress, Support, Electronic Warfare. (Cr300,000, TL13, 28kg) Support Battle Dress is a little slower than the standard suit. It is a platform for a variety of systems. The Electronic Warfare variant uses a backpack ECM/ECCM unit to jam or monitor enemy signals, and provides protection to other members of the unit with a small decoy launcher. The suit contains no weapons; smallarms are carried as normal. Treat as Combat Armor/Battle Dress.

Battle Dress, Support, Heavy Support. (Cr300,000, TL13, 36kg) Support Battle Dress is a little slower than the standard suit. It is a platform for a variety of systems. The Heavy Support variant uses a backpack mount to carry heavy weapon systems. The usual mount is a battlefield tac missile launcher, which can engage ground or airborne targets with light tac missiles. The suit carries one missile on the rails and three reloads; reloading takes three combat rounds. A short-range gatling laser can also be carried for defense against missiles. The suit contains no close-combat weapons; smallarms are carried as normal. Treat as Combat Armor/Battle Dress.

Battle Dress, Support, Logistics. (Cr200,000, TL13, 32kg) Support Battle Dress is a little slower than the standard suit. It is a platform for a variety of systems. The Logistics Suit allows personnel to carry small-vehicle loads of ammunition and supplies into places where only infantry can go. Standard packs include field repair kits (with spares), bulk ammunition boxes and fast-load kits for close support grenade launchers. The suit contains no weapons; smallarms are carried as normal. Treat as Combat Armor/Battle Dress.

Tailored Vacc Suit-14: (Cr9,000, TL14, negligible weight) A tailored vacc suit is very much what it sounds. Made of a lightweight but strong material, the suit is tailored to the user allowing for a more comfortable fit and allowing the wearing much more freedom of mobility than with a standard vacc suit. A tailored vacc suit may not be used by anyone other

than the person it was tailored to fit. It is not so robust as a heavy suit and is treated as Diplo armor.

OTHER PROTECTIVE EQUIPMENT

Various other items exist that can be used for personal defense. Most can be applied to clothing or armor, or to a covering draped over whatever is to be hidden from view.

CONCEALMENT AIDS

Camouflage (Cr20, TL3, negligible weight): Using natural or artificial material to break up the distinctive outline of a person or equipment, camouflage makes it more difficult to detect enemy personnel or vehicles. Camouflage imposes a -2DM to detect and hit at ranges of Long and greater, due to the difficulty of seeing the target. Camouflage is defeated by infrared and other detection systems that operate beyond the visual spectrum.

Chameleon Technology (Cr5,000, TL12, negligible weight): This technology can be applied to any vacc suit, combat environment suit, combat armor, or battle dress. It is designed to mimic the color, temperature, and shading of the wearer's current physical environment, helping to render them difficult to track by both the naked eye and IR systems. First available at TL12, a more advanced version becomes available at TL14.

Chameleon technology does not render the user invisible, though it does make him hard to see. Any shot directed at a Chameleon-suited opponent at Medium range or longer suffers a -4 DM to hit unless the firer has instruments that can see the target in some other spectrum. The same applies to attempts to locate the chameleon-equipped target.

The TL 12 version can be detected by careful use of infrared devices while spotting the TL 14 version requires full-spectrum vision equipment. In both cases this requires an active attempt to spot concealed targets or aim at them; a normal, cursory watch is unlikely to spot approaching enemies if they are being careful.

SHIELDS

The principle behind the shield is an old one. Essentially a shield is a portable obstacle to be placed in the way of incoming blows and attacks.

Buckler (Cr10, TL1, 500g) A small metal shield held in the hand and used to parry incoming blows, a buckler may also be used to strike with using Brawling skill. If so it is treated as a Cudgel. Defense with a buckler is active rather than passive – that is, the user must parry with it; bucklers are too small to simply cower behind. A character equipped with a buckler counts his skill with whatever weapon he is fighting with as doubled when determining his DM for defense. E.g., a character fighting with foil and buckler, who has skill Foil-2, defends as if he had a skill of Foil-4.

Shield (Cr25, TL2, 2kg) Various shields exist; round shields, kite shields, the Roman Scutum and the Greek Hoplon. Some are only good for defense against hand weapons, such as wicker or stretched-hide shields. Most offer a little protection against firearms; their sturdy construction of wood and metal can deflect bullets or even stop them if the user is lucky. Shields are used in much the same manner as a buckler against melee attacks and in addition impose a -2DM on attempts to hit the user with a firearm or projectile from the front – but only if the shield is of suitable construction. A shield may be used to strike in the same manner as a buckler. If so it is treated as a cudgel.

Riot Shield (Cr50, TL6, 2kg) A riot shield is the modern equivalent of the large shield. It may be round or rectangular, clear or opaque. Riot shields are somewhat more resilient than their archaic counterparts and impose a DM of -3 against firearms, energy weapons, thrown objects, flame weapons and other projectiles attempting to hit the character from the front. Against melee attacks they are treated as bucklers.

Boarding/Entry Shield (Cr150, TL9, 5kg) Used by some shipboard security personnel and also law enforcement special-response teams, the boarding/entry shield is a large movable obstacle. It cannot be used to parry with; it is simply a means of providing cover where there is none, so it is of no use against a melee combatant who runs around it to attack the user. Most boarding shields have a vision block; some also have a firing port in the front surface. The boarding shield imposes a -4 DM on attempts to hit the user against all weapons, and can take repeated hits from most weapons. Plasma and Fusion gun fire will destroy the shield in a single hit however.

Other Protection

Artificial Psionic Shield Helmet (Cr4000, TL12, 1,000gr): An artificial psionic shield helmet can be built into armor or be worn as a separate unit. It acts as a shield against psionic influences, though not always perfectly.

SPACE AND HOSTILE ENVIRONMENT EQUIPMENT

Vacc Suits are dealt with in the section on armor. Other environmental protection and breathing gear is listed here.

Artificial Gill (Cr4,000, TL8, 4kg) An artificial gill extracts oxygen from water to allowing the wearer to breathe for an unlimited time while submerged under water. Functions only on worlds with thin, standard, or dense (type 4 through 9) atmospheres. Artificial gills are used with a mask of some kind, such as the life-support mask.

Body Pressure Sleeve (Cr15,000, TL10, 1.5kg) A form-fitting garment similar to a wetsuit, worn as an under-uniform by some spacegoing services. The body pressure sleeve is designed to protect the user in low pressure

environments (allowing normal function in Very Thin and Trace atmospheres) and to give some protection against vacuum. The ankles seal to boots, and a set of gloves are normally carried in a belt pouch. To be any use, the suit's hood must be pulled up and sealed to a Life-Support Mask (not included in the price of the suit).

The Body Pressure Sleeve is designed to give personnel a survival margin in an emergency. It is not a substitute for a proper vacc suit, though it can be worn under one. A user with a proper mask can function indefinitely in Very Thin atmosphere, for about 15 minutes in Trace Atmosphere, and for about 5 minutes in hard vacuum. After this period, the character begins to take damage from vacuum exposure, though not as quickly as an unprotected character.

Bulkhead Patches (Cr150, TL10, 4kg) A set of variously-sized rigid and flexible bulkhead patches, plus adhesives and sealant to allow pressure breaches in a starship or space vessel to be temporarily repaired. The patches are no substitute for a real repair, and tend to fail after 6-24 hours. They are mainly used to allow the crew to make a more permanent repair.

Cold Weather Clothing, Advanced (Cr500, TL10, treated as clothes) Using quick-drying, waterproof and super-insulating materials, advanced cold weather clothing protects against frigid weather (-20° Celsius or below). The suit is not heated, but it is designed to allow temperature to be regulated by openings and partial removal.

Cold Weather Clothing (Cr200, TL0, treated as clothes): A set of heavy outer garments designed to protect the wearer from extremely cold temperatures. Natural materials are used at lower techs. Higher-tech clothing is less bulky and protects the wearer better. The clothing is quite clumsy at low tech levels but usability improves with TL.

Deep-Diving Suit (Cr50,000, TL7, 100kg) A heavy, armored suit designed to allow the user to operate in extremely deep water. The deep-diving suit includes an advanced gel-breathing system which is tremendously unpleasant to use but allows 6 hours of operation. The gel is tiring to breathe, and there is a hazard in both donning and removing the suit, in that the character must "drown" in the gel, and then get it out of her lungs afterwards.

Desert Suit, Advanced (Cr1,000, TL9, treated as clothes) An all-in-one suit designed to minimize moisture loss by trapping sweat between the porous inner layer and impermeable outer one. The suit is reflectorized to reduce the heating effect of the sun (though a dulled or camouflage option is also available). It includes a hood, face mask and goggles.

Dive Suit (Cr60, TL6, treated as clothes): A basic wet or dry diving suit designed to give a swimmer some protection from cold water.

Dive Suit, Heated (Cr650, TL8, treated as clothes) An insulating suit fitted with small heater coils powered by a belt battery unit. A heated dive suit allows the user to operate without harm in very cold water for several hours.

Goggles/Shades (Cr20, TL5, negligible weight) Sunglasses or full goggles designed to protect the eyes from damage by bright lights. At TL7, reactive lenses are available that allow the user to keep his shades on while moving from dark to light conditions. At TL9, shades can (for ten times the cost) include automatic protection against very bright light such as lasers, nearby flares or nuclear detonations. The shades remain very dark for a full minute after protecting the user in this way, and must be removed if the wearer wants to be able to see anything.

Heatproof Suit (Cr100, TL8, 3kg) A reflective and insulating suit and helmet, the heatproof suit protects the wearer from all but the most extreme temperature conditions. The suit is rather clumsy, and all skill throws are made at a -1DM. Treat as a Fireproof Suit against flame weapons and Ablat against lasers.

Heatsuit (Cr340, TL8, treated as clothes) A coverall-like garment incorporating battery-powered heater coils. The heatsuit eliminates the ill effects of temperatures down to -60 Celsius. It is not damaged by immersion in water, but will not function while the user is immersed. The battery lasts 12 hours and can be recharged or replaced. The suit can also be directly powered from the output socket of a vehicle plant or a fusion still.

Magnetic Grips (Cr20, TL5, negligible weight) A set of permanent magnets which may be attached to the gloves and boots of a vacc suit, allowing the wearer to cling to a metal surface, such as a starship hull, under zero-G conditions. Grips may be installed or removed in a few minutes.

Mask, Combination (Cr150, TL5, negligible weight) A combination of both filter mask and respirator, which allows breathing of very thin, tainted atmospheres (type 2), plus all atmospheres listed under filter and respirator masks.

Mask, Face (Cr20, TL5, negligible weight) A basic face mask and goggles used by aviators and riders of open vehicles. Protects against windblown dust and similar hazards.

Mask, Environment (Cr50 TL5, negligible weight) An environment mask functions as per the TL5 combination mask. In addition it is designed to fit with NBC or environment suiting, creating a sealed environment for the user and thus protecting against chemical and biological threats. The environment mask is designed to allow communications devices to be used, and included a drinking apparatus. An environment mask will not function in vacuum or underwater.

Mask, Filter (Cr10, TL3, negligible weight) A filter set that allows an individual to breathe tainted atmospheres (types 4, 7, and 9). Also protects against the inhalation of heavy smoke or dust. The mask may or may not include goggles.

Mask, Life-Support (Cr1,000, TL7, 2kg) The Life-Support, or "space" mask is functionally similar to the TL5 environment mask, but can be used in space or underwater down to a depth of 5m. It gives a full seal with NBC or other emergency suiting such as a body pressure sleeve. The mask has integral filters but is normally connected by a hose to a belt-mounted filter/blower unit or 1-hour air tank. Using the belt filter makes breathing easier and reduces fatigue. The air tank is necessary for vacuum or underwater use. A filter unit and a single air tank are included in the mask price. Additional units cost Cr500 and mass 1.5kg.

NBC Suit (Cr100, TL8, 1kg) An advanced protective suit composed of "breathable" fabric that prevents heat buildup while protecting the user from airborne contaminants, biological or chemical weapons, and radioactive fallout. It offers no protection from direct radiation or vacuum, and requires an environment or life support mask to be effective. NBC suiting is designed to be easy to decontaminate and is only slightly more cumbersome than the normal field uniform worn by soldiers.

Oxygen Tanks (Cr500, TL5, 5kg) A complete set of compressed oxygen tanks, which allow independent breathing in smoke, dust, gas, or exotic (type A) atmosphere. Two tanks last 6 hours. Refill of proper atmospheric mixture for any given race costs Cr20.

Portable Airlock (Cr1,000, TL9, 6kg) A flexible pressure tent kept rigid by a collapsible frame, the portable airlock has two openings and thus can be sealed to a bulkhead to create an emergency airlock. It is most commonly used when cutting into a starship hull for rescue purposes, to preserve the environment inside, but can be also used to seal a building against NBC conditions. The airlock is big enough for two vacc suited persons at once, and is reasonably robust. It comes with a small air bottle to inflate it, but normally relies on pressure from the area being cut into.

Radiation Suit (Cr5,000, TL6, 6kg) A standard NBC suit will protect a user against contamination from radiated particles of dust and such like, but offers little or no protection against direct radiation such as solar flares or a reactor breach. A vacc suit will offer some protection, but for areas of hard radiation a dedicated radiation suit is required.

Rescue Ball (Cr150, TL7, 5kg) A rescue ball is intended to allow personnel to survive a pressure breach in a space vessel. It consists of a 2m-diameter ball of reflectorized plastic and a small air bottle good for 4 person-hours. Rescue balls are mandatory aboard passenger-carrying starships. They are located at strategic points around the

ship and in staterooms. Intended for untrained personnel, they are very easy to use. The character opens a zipped flap, climbs inside and zips the opening shut, then triggers the air bottle to inflate the ball. A clear section allows vision, and most rescue balls have a “glove” that a character can insert her arm into in order to manipulate outside objects in addition to a towing or securing tether.

The ball is reasonably robust, and gives a good radar return due to the metallic coating. A person inside one can move around (assuming there is some gravity) by walking on the inside, treadmill fashion. Balls are normally intended for the use of a single person, though more than one individual can get into one at need.

Respirator (Cr100, TL5, negligible weight) A small compressor that allows an individual to breathe in very thin atmospheres (type 3).

Suit, Protective (Cr1,000, TL6, 7kg) A sealed, air-conditioned suit designed to allow the user to survive in corrosive atmospheres. The suit’s internal air supply is good for 6 hours. A heavy version is available at TL7. Mass is the same but the cost is Cr1400. The Heavy Protective Suit also protects against insidious atmospheres. Note that this is not a vacc suit; it will protect against low pressure (very thin atmospheres) but will fail after a short time in trace atmosphere or vacuum situations due to internal pressure.

Thrust Pack (Cr3,000, TL9, 5kg) An advanced maneuvering system incorporated in a vacc suit backpack, the Thrust pack allows four hours of moderate maneuvering or about 15 minutes of near-continuous thrust. The unit includes a simple inertial autopilot and stabilizer/spin-correction computer.

Thrust Pistol: (Cr1,000, TL7, 2kg) A handheld reaction jet using compressed gas, a thrust pistol allows independent maneuver during EVA (Extra-Vehicular Activity, or “Spacewalk”) operations. The pistol’s internal reserves allow for an hour of moderate maneuvering or three minutes of continuous thrust.

Underwater Air Tanks (Cr800, TL5, 5kg) Equivalent to oxygen tanks but designed for use underwater. Two tanks last 6 hours. Refill of proper atmospheric mixture for race and expected depth cost Cr20.

Vacc Suit Cr10,000, TL8, 10kg) A full vacuum suit must be worn in vacuum, trace, exotic, or corrosive atmospheres. May also be worn in very thin or tainted atmospheres if desired. Includes oxygen tanks, short-range communicators, and other required equipment. Vacc suits are dealt with in the Armor section as they give significant protection from hazards and combat.

Vacc Suit Emergency Kit (Cr500, TL8, 1kg) A belt-carried pack, the emergency kit is designed to allow a vacc suit user to save himself or someone else in the event of an accident,

and to increase the chances of a search finding him. Yanking a lanyard will release a tethered balloon reflector. This is somewhat similar to a rescue ball, but filled at very low pressure. It inflates into a 3m-diameter radar reflector which is tethered to the user’s belt. It vastly increases the user’s radar cross-section and makes a search more likely to find him.

The kit itself contains a radio beacon/repeater, a handheld strobe beacon, tethering cord, suit patches, spray sealant for multiple small holes, a 30-minute replacement air bottle and two hand-held gas thruster units. The latter are designed to allow the stranded spacefarer a last-ditch attempt to reach safety. The kit also contains a metallic reflectorized blanket that will increase radar detectability and somewhat reduce absorbed radiation in the event that the spacefarer is caught outside in a solar flare.

TOOLS AND FIELD SUPPLIES

While not the most exciting of items, field supplies can be amongst the most essential. A group of travellers that has to camp in the open in a downpour, or ascend a cliff without ropes, will quickly come to understand that logistics, not tactics, is the key to success.

Attaché Case (Cr75, TL5, 1kg) A lightweight metal case used to transport documents, scientific instruments and other items throughout Charted Space. If used as cover, an attaché case can function as a Shield.

Axe, Ice (Cr50, TL3, 2kg) A small axe optimized for digging into ice when climbing. Treat as a Hatchet in combat.

Backpack (Cr45, TL3, treat as clothes) A basic carrying bag with shoulder straps and external pockets. From TL6, backpacks are more waterproof; enough to keep the contents dry during a brief immersion if properly sealed. At TL7 and for Cr 150, a “Bivvy Pack” is available, which includes a waterproof blanket and hood that fold out of the lining, allowing the emptied pack to be used as a sleeping bag or ready-made bivouac.

Boots, Hiking (Cr50, TL1, treat as clothes) A set of sturdy boots that will protect the wearer’s feet and ankles from rough ground, thorns and such like. Higher-tech boots are lighter and more comfortable.

Breaching Charge (Cr100, TL8, 2kg) A prepacked, shaped charge in a small canister fitted with adhesive pads for easy deployment. A breaching charge has very little area effect but is effective at blasting holes in walls, doors etc, or in light armored vehicles. Charges have many legitimate uses but require a suitable license to purchase in most areas. Typically characters with Demolitions skill will possess such a license.

Cable (Cr100, TL9, 3kg) 10 meters of strong fiber or metal cable suitable for climbing or light towing applications. Very similar to the cargo tethers used aboard merchant starships.

Canteen (Cr30, TL3, 1.5kg) A belt-mounted metal or plastic container for water (or other liquids); some versions include a detachable mess-kit as well. Contains 1.5 liters of liquid.

Chain, Medium (Cr100, TL4, 10kg) 10m of moderately heavy chain, suitable for heavy lifting or towing applications, or to anchor a light water vessel.

Chain Saw (Cr500, TL6, 8kg) A motorized saw for cutting and shaping trees. The chain saw could possibly be used as a weapon, but it is very awkward and imposes a DM of -2 to hit the target. Damage is 6D if it does strike home.

Climbing Hoist (Cr175, TL8, 1.5kg) The hoist is a battery-powered motor which drives a reel with 25 meters of cable. It has a hook on one side for attachment to a belt or harness and another hook on the opposite side of the cable. A rocker switch in the handle controls directions and an adjustable clutch controls speed; the reel could also freewheel. The battery lasts for one hour. A hand brake can lock the cable in position and a centrifugal brake keeps the cable from unwinding too rapidly.

Climbing Kit, Advanced (Cr500, TL8, 2kg) Includes a lightweight harness suitable for abseiling or rappelling, expanding mini-pitons for small rock crevices, and more advanced versions of the accessories in the basic kit.

Climbing Kit, Basic (Cr100, TL4, 2kg) A set of accessories designed to make climbing easier. Includes a safety harness, gloves and rock shoes, belt with secure holders for tools, and head protection.

Compass, Magnetic (Cr10, TL3, negligible weight) Indicates direction of magnetic north, if any exists.

Cutting Gear, Laser (Cr4,000, TL9, 8kg) A backpack power supply and laser or plasma cutting unit, this cutting gear is standard for use aboard starships. It can cut through most materials, though superdense hull armor will require a very long time to breach.

Cutting Torch (Cr500, TL5, 30kg) A basic cutting tool using incandescent gas fed by a heavy canister. Cutting torches are effective against most metals and alloys, but will not work on starship hulls or armored vehicles constructed at TL10 or higher.

Desert Kit, Individual (Cr450, TL5, 2kg) A basic desert outfit including loose-fitting trousers and shirt, a wide-brimmed hat, sunglasses, large water bottle (2 liters) and mineral tablets.

Disguise Kit (Cr1,000, TL7, 5kg) Allows change of personal appearance on a temporary basis. Very limited results will be achieved unless the character possesses Disguise skill.

Duct Tape (Cr5, TL6, negligible weight) A strong, fabric-based, multi-purpose adhesive tape. Useful for hasty repair work as well as for restraining and gagging prisoners, among many other things.

Field Kit, Personal (Cr100, TL3, 2kg) A basic field operations and survival kit containing a bush hat, pants, shirt and a warm jerkin, a waterproof poncho/blanket, water bottle, belt pack with fire-starting equipment and 1 day's (almost inedible) iron rations, and a machete (treat as Blade). Boots must be purchased separately. Above TL6, the kit also includes half a dozen chemical lightsticks.

Fire Extinguisher (Cr50, TL5, 5kg) A simple handheld firefighting device. More advanced units reduce weight by 0.5kg per TL down to a minimum of 1.5kg, and can be tailored to specific fire types.

Flare, Distress (Cr12, TL6, 250g) A free-standing incendiary flare that gives off a bright light and large amounts of colored smoke. The distress flare is designed to float upright in water. It is triggered by a lanyard and is very difficult to extinguish once lit. It will burn underwater.

Flare, Illuminating (Cr25, TL5, 250g) A small parachute flare designed to be fired from a launcher to illuminate an area. The flare casts harsh, bright light for 1 minute before falling to the ground in a standard or dense atmosphere, half a minute in thin atmosphere. It may start fires if it hits the ground before burning out. A free-standing area-illuminating flare costs Cr50 and burns for 2 hours.

Flare Launcher (Cr75, TL5, 1kg) A simple pistol or tube type launcher for use with signaling or illuminating flares. Used as a weapon, a flare gun is highly inaccurate, imposing a -2 DM on all hit rolls and does 1D damage only, though it may set flammable objects on fire.

Flare, Signaling (Cr10, TL5, 250g) A colored flare designed to be highly visible but which casts little light, launched from a flare launcher.

Fusion Still (Cr4,500, TL13, 65kg) A fusion still is built around a small fusion unit which will run continuously for 5 years. The still has a hopper which can take fluids or organic matter. Collection areas within the still allow potable water to be extracted, or a just-about-edible nutrient product normally known as "glop". The exact composition of glop varies depending upon what is put into the still, and in some cases vital nutrients will be missing. The still's readout advises the user as to how good his or her glop will be today, but even the best technology cannot make glop taste any better. Glop can be output as dry, jaw-busting bars or a damp and

fairly disgusting porridge. The still can also be set to simply produce pure water, or water with a high mineral content.

The still has a power output socket and a cable for recharging items like powered tools, and includes two rechargeable hand lamps which can be connected by cable or taken elsewhere. They will run for 6 hours if unplugged. It also has a built-in light unit and a heater that can be used to warm a shelter or to provide localized heat for cooking.

Marooned starfarers with a fusion still will usually find that their food and water needs are taken care of. However, many users cite the still's food output as the single greatest drain on their will to live. Fortunately, the still can also be used to distil alcoholic beverages into spirits for medical or recreational use.

Generator, Internal Combustion (Cr50, TL5, 25 kg) A portable 10 kw/h generator burning liquid hydrocarbon fuel in an internal combustion motor to generate electricity. Uses 2.5 liters of hydrocarbon fuel per hour.

Generator, Microturbine (Cr170, TL8, 17kg) A portable 10 kw/h generator burning liquid or gaseous in a turbine to generate electricity. Uses 2 liters of liquid hydrocarbon fuel per hour.

Grapnel and Cable (Cr35, TL2, 5kg) A hooked device used to attach a rope for climbing purposes, plus 10m of stout cord. Grapnels can be thrown or propelled by a launcher. Getting one to attach can be tricky and requires a DEX-based throw at a difficulty level depending upon the surface. A rugged rockface, wall or tree would require 8+; attaching to smooth surfaces or when trying to get the grapnel to bite into soil may be much higher.

Grapnel Launcher (Cr100, TL7, 10kg) A grenade launcher-like device used to propel a grapnel to its target. If used as a weapon, damage is 2D.

Ice Terrain Kit, Personal (Cr50, TL1, 2kg) A set of accessories that make crossing ice or climbing icy surfaces a little less hazardous. Includes crampons for boots, snowshoes, rope and a brightly-colored "rescue blanket". The ice terrain kit does not include clothing.

Ice Terrain Kit, Vehicular (Cr1,000, TL5, 20kg) Comprises tire studs or chains, a light snowplow blade and "winterizing" of components to allow a vehicle to cross icy or snow terrain with lesser chance of mishap. A suitably equipped vehicle reduces penalties for driving in icy conditions.

Inertial Locator (Cr1,200, TL9, 1.5kg) Indicates direction and distance traveled from the starting location.

Iris Valve Opener (Cr2,000, TL10, 10kg) A crank device designed to allow Iris valves to be slowly opened or closed

when no power is available. This task is slow and strenuous, taking 3-5 minutes.

Janitorial Kit (Cr100, TL6, 5kg) A basic set of cleaning tools. Includes a vacuum cleaner, chemical storage and dispensing systems, along with other basic cleaning tools and supplies.

Laser Drill (Cr7,500, TL9, 10kg) A heavy-duty, semi-portable laser used for mining, the laser drill is a tripod-mounted projector much more powerful than the laser rifle. It is also more cumbersome and far less accurate, being intended for work at short ranges. A power pack (not interchangeable with those used for lighter laser weapons) can be hooked to the drill, providing about 1 hour of intermittent use (or the equivalent of 200 shots in combat); a cable can also be run to the power source of a ship, vehicle, or prospector's buggy which provides unlimited power at the cost of mobility. The Laser Drill's tripod weights an additional 1 kg, and the power-pack another 8 kg; extra powerpacks cost Cr3,000, and extra tripods cost Cr250.

Laser Scalpel (Cr2,000, TL10, 0.5kg) A low-power but high-precision handheld laser "knife" the size of a pen, used for medical and other delicate cutting purposes. It carries an internal battery which could support up to 30 minutes of continued operation, and it could be hooked up (by a flexible power cord) to an external power source for longer-duration work or for recharging.

Parachute (Cr250, TL4, 15kg) A basic parachute kit including harness and reserve chute.

Parachute, Grav (Cr2,500, TL10, 15kg) A personal harness incorporating a smaller version of the Grav Belt. The chute can be manually controlled or set to activate at a given altitude. Instead of relying upon atmospheric resistance, a grav chute uses a localized contra-grav field to slow the user's descent. It does not allow much more lateral movement than a standard parachute but functions even on worlds with no atmosphere. It can be cut in and out, or used for slight braking rather than the all-or-nothing available with a conventional chute. The internal batteries are good for one descent.

A grav parachute cannot be used to give "lift" for upward movement. It will slow the user's fall whichever way up he or she may be. Internal safety devices will normally ensure that the user makes a soft landing, often at very low speed, even if unconscious.

Parawing (Cr 400, TL7, 5kg) An advanced parachute that allows much more control over where the user lands. The parawing kit includes a reserve chute and harness.

Personal Re-Entry Kit (Cr15,000 TL8, 14.5kg) A personal re-entry kit is designed to permit a character to survive insertion

into a planetary atmosphere without a vehicle. Normally used as a last-ditch survival measure, the technique of meteoric assault has been developed by the military into a standard combat tactic. It is also an extreme sport in some areas.

A re-entry kit consists of an alignment thruster, altimeter and a parawing, plus an ablative heat shield. The latter is deployed in the form of a frame and a foam covering that sets hard in seconds. If the user gets it just right, she can make a controlled re-entry to any world with a Thin atmosphere or better, protected from heat by the shield and finally making a descent by parawing. The procedure is complex and dangerous when inserting into a Standard atmosphere. Thin and Dense atmospheres represent an even greater challenge, for different reasons.

Some individuals make a sport of personal re-entry. It is banned on many worlds, for safety reasons. Re-entry computers are available, which can function as an autopilot for emergency re-entry. The computer costs Cr 2500 (more than the kit itself!) and allows an untrained user to attempt re-entry with a reasonable chance of success.

Pitons (Cr5, TL4, 300g) Metal spikes designed to be hammered into rock crevices to secure a rope for climbing.

Piton Hammer (Cr10, TL2, 1kg) A small hammer used for hammering pitons into rock.

Pocket Magnet (Cr20, TL3, negligible weight) a small but very powerful horseshoe magnet capable of lifting 1 kilogram against 1G. Size and weight are negligible.

Pocket Saw (Cr25, TL6, 250g) A slim but sharp collapsible saw which can be folded into a 12cm x 6 cm x 6 cm box.

Reflectorized Tarpaulin (Cr400, TL7, 300g) An thin and flexible metallic sheet whose shiny surface reduces incoming radiation by reflection. The standard version measures 5 by 10 meters.

Return Mirror (Cr500, TL4, negligible weight) Used in surveying, a return mirror is used to reflect a light beam directly back along its path from within a 15° arc. It is usually used with a laser rangefinder to give very accurate results. Dimensions: 250 x 300 x 200mm.

Rope (Cr20, TL5, 3kg) 10m of strong but light rope made from natural or artificial fibers.

Scientist's Field Kit (Cr100, TL4, 1kg) A basic set of scientific equipment for taking and examining samples. Includes a small microscope, sample containers, gloves etc. A metallurgist's kit will contain slightly different equipment to that used by a forensic scientist, but the basic cost remains the same. The field kit does not include any electronic sensors or similar complex equipment.

Skis (Cr75, TL3, 2kg) A set of skis and poles. Skis make travel over snow much faster and less fatiguing.

Slaplock (Cr40, TL4, 200g) A simple mechanical or combination lock that can be "slapped" onto any door or container to secure it. The Slaplock will prevent the portal or lid from opening by accident and will defeat casual attempts at entry, but it is not particularly robust and can be easily broken. The primary use of slaplocks is to prevent casual pilfering, to detect intrusion or to secure a broken portal for the time being.

Snowshoes (Cr60, TL1, treated as clothes) A pair of wide shoes designed to spread the user's weight and make walking on soft surfaces like snow or volcanic dust safer.

Solar 'Vaporator' (Cr1,250, TL10, 8kg) A device which uses solar panels to generate power during the day (and store it in an internal battery) and collects moisture from the air, especially at night. Yields 2 liters of water per 24 hours in standard or dense atmospheres, 1 liter per 24 hours in thin atmospheres, and half a liter per 24 hours in very thin atmospheres. The 'Vaporator' is stored in a compact (50 cm x 20 cm x 20 cm) package and is unfolded for use.

Spade/Shovel (Cr5, TL3, 1kg) A basic digging tool with many uses.

Survival Kit, Personal (Cr50, TL6, 4kg) A small backpack or belt pack containing personal survival equipment. Higher-tech versions include more advanced equipment, but basic functionality is the same. Contents include:

- Small knife
- Fire-starting equipment
- Blanket/poncho
- 4 days' preserved rations
- Water bottle
- Compass
- Light cord or string
- Mirror
- Water purification tablets
- Survival manual

Survival Kit, Vehicle (Cr8,000, TL7, 150kg) A standard survival kit carried aboard ATVs, lifeboats and small craft throughout Charted Space. Each kit is designed to equip 4 people. Imperial Law requires that all spacegoing vessels include one kit per 4 passengers or crew. Contents include:

- 1 Survival Rifle, plus 50 rounds shot and 50 ball
- 1 Hatchet
- 1 Field Medical Kit
- 4 Personal Survival Kit
- 4 Field Kit, Personal
- 4 Sets/Emergency Cold Weather Clothing
- 4 Combination Masks plus extra filters

Canned Field Rations for 60 person-days (15 days for 4 people)
4 Bulk water storage containers (5 liters each) with filters
1 Water Purification Kit, Group
2 Pressure Tents

Swimming Equipment (Cr200, TL3, 5kg) Includes swim fins, face mask and a snorkel. Improves speed and maneuverability underwater.

Tool Laser (Cr500, TL12, 1kg) A handheld laser welder/cutting-torch powered by a small internal powerpack (which provides for up to 20 minutes of continual use). The Tool Laser's energy output is variable, and thus it could be used from anything from gentle electronic welding to small-scale metalwork or cutting through several centimeters of steel; anything beyond that would require a heavier welding torch. At TL12 the Tool Laser is about the size of a large flashlight and weighs 1 kg, and at TL13 or above it is as small as a pen and weighs 250 grams.

Tool Set, Carpentry (Cr 300, TL2, 25kg) A basic set of woodworking tools that includes standard tools necessary to cut, shape and build with wood.

Tool Set, Electronic (Cr2,000, TL7, 5kg) Necessary tools for basic electronic assembly and repair including instruments, soldering gear etc.

Tool Set, Excavation (Cr200, TL3, 20kg) A set of basic digging tools; shovels, picks and sledgehammers to equip 2-3 people. Working with improvised tools takes at least four times as long.

Tool Set, Mechanical (Cr1,000 TL5, 20kg) A set of standard mechanical and plumbing tools including everything necessary to repair and alter mechanical devices; wrenches, pliers and a largish hammer, among other things.

Tool Set, Metalwork (Cr3,000, TL5, 100kg) A basic set of tools for working, welding and shaping metal.

Tool Set, Rescue (Cr2,000, TL7, 20kg) A comprehensive set of supports, cutting gear and other tools used to reach and rescue trapped persons. The kit does not include any sensors.

Tool Set, Starship Engineer (Cr4,000, TL12, 5kg) A full tool kit for shipboard engineering personnel, including PRIS goggles, Iris valve opener, electronic and gravitic test and repair equipment, wrenches, sockets and a large hammer.

Towel (Cr10, TL1, 250g) A thick cloth towel of 120 cm in length and 60 cm in width, having a wide array of uses, from drying oneself after falling into a muddy river, though serving as a makeshift wound-dressing to making a soft spot to sit on when resting in rocky terrain.

Water Dye (Cr25, TL4, 100g) A tube of liquid dye which could be used to highlight a patch of water with a bright, easily spotted color visible from the air. The primary drawbacks of this form of signaling are the short duration of the colored patch (which lasts 15 minutes in calm waters and far less in stormy weather) and the fact that it cannot be spotted at night. At TL9 the latter problem is overcome by using a phosphorescent dye which is visible both at day and at night.

Water Purification/Distillation Kit, Group (Cr75, TL7, 1kg) Designed to provide safe drinking water for 4 persons, the kit contains chemical tablets and filters, plus a collapsible still (which requires a heat source; normally this is heat tablets provided with the kit) to distil liquids.

Water Purification Kit (Cr5, TL5, negligible weight) A basic set of filters and chemical purification tablets.

Welding Kit, Advanced (Cr5,000, TL10, 20kg) A composite plasma/electric arc welding kit useful for many light and medium applications. Repairs to higher-tech materials require an advanced welding unit.

Welding Kit, Electric (Cr1,500, TL5, 50kg) A basic arc welding kit useful for many light applications. It is self-powered from batteries but requires an external power source for big jobs. Arc welding gear is really only useful on devices built up to TL10. More advanced welding systems are needed, otherwise weld points become a serious area of weakness and in some cases will not 'take' at all.

Wrist Watch (Cr Varies, TL4, negligible weight) A simple timepiece. Price determines quality and functionality. A variety of gimmicky 'survival watches' and 'space crew chronometers' are available. Some contain reasonably useful accessories but most are suitable only as gifts to be given by misguided but well-meaning relatives.

SHELTER AND ACCOMMODATION

Characters venturing out into the field will need some kind of shelter from the elements. Advanced versions of the basic tent, tarpaulin etc may be easier to set up and give better protection from wind and rain, but they are functionally the same.

Advanced Base (Cr20,000, TL8, 4,500kg) A modular unpressurized shelter capable of withstanding anything less than hurricane force winds. Offers excellent protection from precipitation and all but the most extreme of temperature conditions.

The base consists of a small power unit equivalent to the Fusion Still (available separately) and a main cabin to house it plus associated support equipment – water tanks, food storage and freshers. This central unit supports up to four

cabin modules which connect to it in a variety of ways. All modules are 6m long by 4m wide by 3m high and can be placed end to end, side to side or even stacked, though this can result in stability problems.

The main power/galley/storage area takes about 16 man-hours to set up. It powers the other modules and handles recycling of water and similar tasks for them. Additional modules beyond the basic four can be added but adding extra units can strain the fusion plant. However, empty modules used for storage need not be heated, lit nor use water most of the time so the extra load is only significant if power is needed.

The unpowered modules are the same size as the main unit and take about 4 man-hours each to assemble. A set of accommodation furnishings is fitted, though these can be removed. The usual setup is for three modules each to house two people with the fourth used as a common area, with freshers and other facilities shared by all personnel. The base is easily able to support six residents, though there is little room for work. If more than living quarters are required (eg a field laboratory) then additional modules must be purchased.

A 'blank' unpowered module costs Cr2,500 separately, while a powered version capable of supporting 4 other modules costs Cr7,500. Basic equipment such as seats, work surfaces and shelves are included in the price if desired, but instruments and computers must be purchased separately.

Dismantled and ready for shipment, the advanced base displaces 6 ship tons with each additional cabin taking up 0.5 tons of cargo space when properly crated.

Pre-Fabricated Cabin (Cr2,000, TL6, 800kg) A basic unpowered 6m x 4m x 3m hut with windows and a door but no heating, lighting or sanitary facilities fitted. The cabin is capable of withstanding light to severe winds, offering shelter from precipitation, storms, and temperatures down to -10° Celsius. It requires 8 man-hours to erect or dismantle. A 'heat and light' pack is normally purchased with the cabin. This costs Cr1,000 and slots into ready holders but requires an external power source. There is no plumbing.

The prefab cabin is often used as an adjunct to an Advanced Base as a work unit or additional storage space, but can be used as living quarters for two people or even four in a bunk-rack arrangement. Dismantled and ready for shipment, the cabin displaces 1 ton of cargo space.

Pressure Tent (Cr2,000, TL7. 25kg) Basic pressurized shelter for two persons, providing standard atmosphere and conditions, along with protection from precipitation, storms, and fairly strong winds. There is no airlock: the tent must be depressurized to enter or leave it.

Pressurized Base (Cr75,000, TL8, 8,000kg) Basically a pressurized version of the Advanced Base, this unit has the same modular construction but comes with two airlock units and is of generally much more sturdy construction. Additional modules cost Cr 5,000 (unpowered) and Cr 10,000 (powered).

Most purchasers pay an additional Cr5,000 for the 'foam dome' option. This is essentially a framework over which a light covering is stretched and then sprayed with a fast-setting foam similar to that used in personal re-entry kits. The foam dome hardens in moments and provides improved protection against micrometeorites and inclement weather.

Sleeping Bag (Cr50, TL5, 1kg) A warm, lightweight and somewhat waterproof personal sleeping bag. Two or more can be fastened together to make a larger enclosure.

Tarpaulin (Cr10, TL1, 2kg) A canvas or waterproof cloth sheet used to create a temporary shelter 2 by 4 meters. Protects against precipitation and can withstand light winds.

Tent (Cr200, TL2, 3kg) Basic shelter for two persons offering protection from precipitation, storms, and temperatures down to 0° Celsius, and withstanding light to moderate winds. Larger, more elaborate tents capable of sheltering more people, or resisting higher winds or colder temperatures weigh and cost more.

LIGHT SOURCES AND VISION AIDS

Light is mainly appreciated when it is absent. Well-prepared adventurers carry some kind of light source with them.

Binoculars, Optical (Cr 75, TL3, 1kg) Binoculars magnify the appearance of objects being viewed through them, effectively increasing the visual range of the user. The effective field of view is reduced however as the magnification increases. Price stays the same across tech levels, though the weight may be reduced through the use of lighter components.

TABLE: Binocular Magnification

Tech Level	Magnification
TL3-4	x5
TL5-6	x10
TL7-9	x50
TL10-12	x100
TL13+	x1000

Binoculars, Electronic (Cr750, TL8, 2kg) Similar to optical binoculars, electronic binocs also include a laser rangefinder and a light intensification function that allows vision in all conditions of poor lighting except for total darkness. Electronic Binoculars do not allow the user to see where there is an obstruction such as smoke or thick foliage. From TL10 they incorporate an image-processing unit that can help make out partially seen objects.

Binoculars, PRIS (Cr3,500, TL12, 2kg) PRIS (Portable Radiation Imaging System) binocs or goggles have no lenses, but instead project an image for the user as if she were using optical binocs. The image can be gathered using a variety of wavelengths: optical, infrared, ultraviolet, radio and x-ray to name a few. The binocs do not emit these wavelengths, they merely read emissions and reflections of naturally-occurring wavelengths, then convert the data into an optical display using false color. Composite images using different spectra are possible and can highlight things missed when viewing in just one mode, but very confusing to an unskilled user.

PRIS goggles are used by engineers for a variety of applications. One of their most important features is the ability to see stresses and cracks in materials long before they become visible to the unaided eye.

Chemical Lightstick (Cr1, TL6, 100g) a 10cm rod of clear plastic containing chemical s which, when mixed by twisting the stick, give off a soft glow. Lightsticks last for about 24 hours and are bright enough to read by or find your way around in a cave.

Cold Light Lantern (Cr20, TL6, 250g) A fuel cell powered version of the electric torch which will last 3 days with continuous use. Produces a wide cone of light up to 18 meters away with a radius of 6 meters at the end of the beam. Also capable of producing a tight beam of light up to 36 meters away with a 1 meter radius or be used to illuminate a 10 meter radius.

Combination Viewer (Cr1,250 TL9, negligible weight): A set of goggles or a suit visor incorporating IR and light intensification functions, along with brightness-linked safety cutouts. The viewer can be used in optical, IR or thermal mode, or any combination of the three, though this can be disorientating to unskilled users.

Electric Torch (Cr10, TL5, 500g) The common flashlight. It is battery powered and will last for about 6 hours of continuous use. A torch produces a wide cone of light up to 18 meters long with a radius of 6 meters at the end of the beam. Later TL models have adjustable beams allowing them to also produce a tight beam of light up to 36 meters long, with a 1-meter radius, or be used to illuminate a circle of 10 meters radius.

Electric Torch, IR (Cr50, TL8, 500g) A version of the Electric Torch which emits infra-red light instead of visible-spectrum light; consequently, only those equipped with IR vision aides could see the illumination. Has an integral battery which provides 6 hours of continued illumination.

Gas or Oil Lamp (Cr10, TL2, 500g) A lamp lasts about 6 hours on a half-liter of oil or gas, and will illuminate a 5-meter radius to the equivalent of normal daylight. The fuel poses a fire hazard if spilled.

Goggles, Infrared (Cr500, TL6, negligible weight) A headset with goggles or an adaptation to the visor of armor that will allow the user to see by visible light or thermal imaging. Thermal imaging allows temperature differences to be detected. This makes warm objects like animals, people and vehicles very obvious unless there is a lot of "heat clutter" in the area, but does not allow the user to find his way around in a cave or similar environment where everything is much the same temperature.

Goggles, Light Intensifier (Cr500, TL7, negligible weight) These goggles allow clear, monochrome vision up to 18 meters in anything less than total dark. While some light is required to produce this effect, anything approaching normal daylight conditions severely degrades the clarity of the view and the range.

NBC Alarm (Cr250, TL9, 250g) A personal alarm unit that automatically monitors for radiation, chemical and biological threats, and gives both alarm and an indication of severity (Mild-Moderate-High-Severe-Extreme). It does not indicate the specific threat but will inform the user whether the hazard is radiation, biological or chemical. For Cr1000, a more detailed output is available that will indicate the specific threat if known to the unit's database.

Torches (Cr1, TL0, 250g) A bundle of flammable material on a handle or stick of some kind. A torch will last about one hour and illuminate 6-meter radius, producing a thick, heavy smoke.

Personal HUD (Cr1,500, TL9, 500g) A personal HUD (heads-up display) can be fitted to a set of goggles or shades, a monocle, or the inside of a helmet faceplate. The HUD displays information from a variety of sources. Incoming messages and video from a character's personal comm, data pulled up from a handcomp or an aiming reticule for weapon can all be displayed.

Tying any given device or weapon into the HUD and calibrating it properly takes an hour and costs Cr100. Information exchange can be by cable or wireless means. The latter creates a certain amount of radio "noise" which can be detected or jammed, so military HUDs normally use fiber-optic cable.

MEDICAL SUPPLIES

Adventuring is a dangerous business. Some kind of medical supplies will be useful.

AutoDoc (Cr1,000,000, TL13, 0.5t) An autodoc is a small self-contained diagnostic, pharmaceutical, and surgical system about the size of a Low Berth chamber or large coffin. Often found on starships, it is capable of diagnosing and treating disease, infection, injuries and other medical conditions as if a qualified doctor was attending the patient. A restock of basic supplies for an autodoc costs Cr100,000.

At TL 14, an Autodoc is capable of reanimation, provided no more than 15 minutes have passed since the subject's death. This period can be extended by extremely cold conditions or placing the corpse in a low berth.

Automedic, Personal (Cr15,500, TL11, 500g) A personal automedic is basically a small personal electronic pharmacy tailored to a specific user's body chemistry. When worn (usually on upper arm, thigh, or lower back) it is always active and constantly monitors the wearer's bio-signs for any changes. As needed the automedic will dispense anti-toxins, antibiotics, stimulants, sedatives, and other pharmaceuticals needed to keep the user at peak efficiency or prevent collapse.

Under normal (adventuring) conditions a personal automedic will need to be restocked and the batteries recharged every 4 weeks. Of course heavier demands on the automedic may considerably reduce the available drug supply much sooner.

In the event of poisoning or infection, a personal automedic will administer a specific antidote if it possesses the right one and recognizes the threat. If not, it will react to general symptoms and use general or broad-spectrum remedies as its database thinks best.

Most automedics are also equipped to store and dispense a single dose of Medical Slow drug should it ever be needed. If the wearer is ever seriously injured or dying (two or three physical attributes at zero) the automedic will automatically use the Medical Slow drug if it is available and there is not a risk of overdose. The user can activate the Medical Slow at any time if needed. If desired, this can be replaced with a dose of Slow, Combat, or other drugs instead.

It is very dangerous to attempt to use an Automedic that has been tailored to another person's body chemistry. If such an attempt is made, throw 3D. If the result exceeds the user's END, he immediately suffers a Traumatic Shock injury. He takes 2D damage and the unit will not work for him.

If the first throw is made (ie equal to or less than the character's END), a second throw is made on 2D. If this is also equal to or less than the character's END, the unit works passably well for him. If the throw fails, the automedic does not work but the user suffers no ill effects.

A Personal Automedic costs Cr15,000, plus Cr500 for basic supplies. Specialized drugs must be purchased separately.

First Aid Kit-0 (Cr100, TL0, 1kg) At TL0, a first aid kit consists of little more than material for a splint, and a few herbs and plants that are reputed to have medicinal qualities, but it is better than nothing. A basic kit can be thrown together by a resourceful individual from local materials.

Field Surgical Kit (Cr1,000, TL5, 5kg) Tools for performing surgery including scalpels, saws and forceps. At low tech levels, the kit is rather basic but fulfils the same functions as its more advanced cousins. It is possible to perform surgery using improvised tools but the results (and patient survival rates) are rather better with the correct equipment. The kit does not include anesthetics or other drugs. The cost indicated is for a very basic set of workmanlike tools. The price is much higher for a more complete or higher-quality set.

First Aid Kit-4 (Cr125, TL4, 1kg) A basic belt-carried kit containing clean bandages, safety pins and a small blade as well as a quantity of basic pharmaceuticals (antibiotics, painkillers and possibly alcohol to sterilize a wound). More advanced versions are available, which are basically similar in terms of contents. Beyond a certain point a first aid kit is a first aid kit – whatever the tech level the principles are much the same. At TL8 a personal medikit becomes available that is more useful while not weighing much more, so people feeling the need for emergency medical gear normally carry one of those instead. However, a basic first aid kit can be quickly thrown together by a knowledgeable person from handy materials.

Field Medical Kit-5 (Cr500, TL5, 8kg) A basic satchel or backpack-sized medical kit for use by a doctor or paramedic. The kit contains drugs, surgical supplies, and diagnostic materials as well as fairly basic tools for surgery. Higher tech level kits cost more but offer a better range of treatment options and quality of care, increasing the odds of successful treatment.

Field Medical Kit-8 (Cr1,000, TL8, 8kg) A satchel or backpack-sized medical kit for use by a doctor or paramedic. Contains drugs, surgical supplies, and diagnostic materials as well as fairly basic tools for surgery.

Field Medical Kit-13 (Cr5,000, TL13, 10kg) A comprehensive satchel or backpack-sized medical kit for use by a doctor or paramedic. Contains drugs, surgical supplies, and diagnostic materials as well as fairly basic tools for surgery. A set of handheld electronic medical instruments is also included, greatly aiding diagnosis.

Medical Kit, Vehicle-8 (Cr3,000 TL8, 20kg) A larger version of the Field Medical Kit-8 designed to be carried in an ambulance or similar vehicle and allowing treatment of more patients. The kit also contains more technological equipment including a defibrillator, electronic monitors and so on.

Medical Kit, Vehicle-13 (Cr15,000 TL13, 30kg) A larger version of the Field Medical Kit-13 designed to be carried in an ambulance or similar vehicle and allowing treatment of more patients. The kit also contains more technological equipment including an automated medical unit capable of diagnostic work and assistance such as monitoring life signs and feeding drugs as needed. The unit cannot perform

any work such as inserting needles, but once in place can perform much routine work itself, as needed.

Mediscanner, Personal (Cr500 TL12, 200g) A small bio-monitoring unit normally worn on the belt or upper arm. A personal mediscanner monitors a character's life signs and data such as blood composition, blood sugar and body temperature. It warns when exhaustion or dehydration are becoming dangerous, gives information to the user or medical personnel about poisoning and other hazardous conditions, and allows a quick diagnosis of many ailments.

Mediscanner, Portable (Cr2,000 TL12, 1.5kg) A general version of the personal mediscanner for use by field medics. The device is not optimized for a single user, so takes up to 2 minutes to calibrate itself to each new subject. It gives the same data as the personal version (though slightly less detailed), allowing a +2DM on Medical skill throws once it is calibrated. Most mediscanners are able to deal with all common species, and add-on chips for other species are available at Cr 500 each.

Personal Medikit-8 (Cr250, TL8, 2kg) The TL 8 personal medikit only vaguely resembles its low-tech predecessors. It contains a set of high-quality tools including surgical steel blades, some basic pharmaceuticals (which are a lot more effective than the TL4 versions) and simple instruments to measure patient condition.

Personal Medikit-12 (Cr6,000, TL12, 2kg) The TL 12 personal medikit is a development of the TL8 version with still better drugs and instruments capable of communicating with a hospital or field medical center's autodocs to ensure the best chance of successful treatment. A small handheld multi-med scanner monitors a patient's life signs and can sound an alarm if they drop too low. The unit can almost auto-diagnose and offer basic advice to a casualty or responder.

DRUGS AND PHARMACEUTICALS

Drugs can come from a variety of sources, and two very different compounds may have identical effects on the user. For this reason it is possible to find low-tech drugs that are effectively plant parts eaten straight from the branch that are every bit as effective as high-technology synthesized drugs. Availability is a factor too. Obviously, where a drug can be picked growing wild on everyone's doorstep it will be cheaper than the list price given here.

Anagathics (Cr200,000 per dose, TL15) are a specialized drug treatment that can slow or halt the effects of aging. They are illegal in some areas. The drug must be taken regularly each month for as long as the age retarding effects are desired. It takes approximately one year of regular dosage for the full effect to develop. This means that during the first year on Anagathics a character will continue to age normally. After that first year, as long as the regular monthly dose is

taken, the character will effectively remain at their present physical age.

Once past the first year, a character can miss one month without suffering ill effects, but if a user misses two or more doses, they must abstain completely for one year before once against restarting the treatments. The one-year build-up period must be again completed before the character gains any benefits. Characters who interrupt their anagathics course and do not abstain for a year run the risk of severe, possibly fatal, side effects.

Antibiotics (Cr 50 per dose, TL6) Antibiotics are effective against bacterial disease, infection, and secondary conditions associated with viral diseases.

Broad Spectrum Anti-Toxin: (Cr 250 per dose, TL12) Broad-Spectrum Anti-Toxins become widely available and prove effective against all but the rarest of diseases. Even viral diseases can be treated in this manner.

Combat Drug (Cr750 per dose, TL9): Combat Drug enhances alertness and energy, increasing performance in combat. Two rounds after a dose is taken, strength and endurance are both increased by two points. This effect lasts for 30 combat rounds, at which point the user takes 1D in wounds. The extra points of STR and DEX can be used to soak up damage before 'real' attribute points are lost. However, they wear off before the 1D wounds are taken.

Combat drug use can lead to psychological dependency, and there is a danger of overdose if more than one dose is taken in a 24-hour period. Each time a dose is taken within a day of the last, the user must. Roll 8+, DM +1 if Endurance 8+) to avoid ill effects. If the throw is failed, the character collapses unconscious for 1D hours and suffers 4D in wounds.

Fast Drug (Cr2,000 per dose, TL9) Fast drug speeds up the apparent passage of time for the user, to the point that 60 days will pass for the user as 1 day. The drug slows the metabolism of the user by a factor of 60, reducing the effect of aging and reducing the need for consumable supplies such as food, water, and air during the period the user is under the effects of the drug. An antidote does exist which can be taken to cancel the remaining effects of Fast Drug.

Fast Drug Antidote is available at TL12 and costs Cr900 per dose.

Medical Drug (Cr100 per dose, TL8) "Medical Drug" is a slang catch-all term for the various pharmaceuticals and other compounds used by medical personnel. Doctors do not use the term as they know the proper names for the drugs they prescribe.

Medical Slow Drug (Cr100 per dose, TL7) Medical Slow Drug renders the patient immediately unconscious in a coma-like

state for the next 20+1D hours. If the patient is dying, the slow drug will stabilize their condition for the period of the coma, ensuring no further deterioration. If the patient is not dying and merely injured the slow drug will heal 2D points of damage. If more than one dose of medical slow drug is taken within a period of one week there is a high probability of a severe overdose. Each time a dose is taken within a week of the last, the user must roll 11+, DM +2 if END 9+) to avoid ill effects. If the throw is failed, the character collapses unconscious for 2D days and suffers 6D in wounds. This may be fatal.

Metabolics (Cr1,000 per dose, TL8) Metabolics are designed to alter the metabolism of the subject to enhance his or her ability to fight a specific disease. They are only effective against that disease.

Recreational Drugs (Cost and TL vary). Recreational drugs are sometimes known colloquially as 'Drug Drug' for reasons now lost in history. They vary widely in terms of cost and effect. Many cultures have a legal recreational drug, such as alcohol. Most legal drugs are relatively mild in effect but can be harmful in large doses. More potent drugs are usually illegal, especially those that affect the user in such a way as to make him or her dangerous to others. Manufacturers and suppliers will charge whatever the market will stand.

- **Slow Drug (Cr5,000 per dose, TL8)** Slow Drug makes the universe seem to move more slowly from the user's perspective. Twice normal speed and double the normal actions are allowed each combat round. The effects last for 40 combat rounds, after which the user must throw 10+, DM +1 if AND 9+ or collapse exhausted. In this case STR and END both drop to 1 and recover at the rate of 1 point of each per hour of rest.

Truth Serum (Cr500 per dose, TL5) Truth serum is intended to force the subject to answer questions truthfully. It must be tailored to the species being questioned, and carries some risks. One dose usually forces the subject to be truthful for 2 minutes. The character can try to resist the drug by throwing 9+, DM +1 if END 8+. At the end of the 2 minute period, the subject takes 2D damage and becomes unconscious for 1 hour. Truth serum tends to make the recipient vague and confused, so his answers may be nonsensical even though he is not deliberately lying. Obtaining useful information from a subject is one use of Interrogation skill.

Vaccine, Specific (Cr15 per dose, TL5) Vaccines increase the body's immunity to a given disease.

Vaccine, Broad-Spectrum (Cr20 per dose, TL10) Broad-Spectrum Vaccines increase the body's immunity to a number of similar diseases.

SECURITY EQUIPMENT

Travellers may at times have to secure a place or person by various means. Something can usually be improvised but it helps to have the right tools for the job.

Handcuffs (Cr25, TL2, 300g) Handcuffs are simple mechanical restraints designed to deny the subject free use of his hands. Higher tech levels produce stronger and lighter designs. Variations on the theme include leg shackles and similar items.

Intrusion Kit, Advanced (Cr500, TL8, 1kg) A similar kit to the basic version, the advanced intrusion kit is constructed of more advanced materials and includes test probes for investigating electronic locks.

Intrusion Kit, Basic (Cr300, TL5, 1kg) A small kit containing lock picks, wire, small screwdrivers and a saw designed to make illicit entry into mid-tech secured areas easier. It contains everything found in a set of lock picks but considerably more and is thus bulky and hard to conceal.

Laser Microphone (Cr475, TL9, 800g) This device bounces a beam of laser light off rigid objects, and detects any sounds made near that object by analyzing the changes in the reflected beam. A Laser Microphone is about the size of an autopistol, has a range of 500 meters, and comes with a pair of headphones for direct monitoring of the conversations being eavesdropped on, though it could be connected by a cable to a hand computer or to other information-gathering devices.

Lock Pick Set (Cr10, TL4, negligible weight) A set of small tools that allows picking of ordinary mechanical locks if the user has suitable skills (Mechanical or Intrusion). Lockpicks are illegal on worlds of law level 8+; on such worlds the cost rises to Cr100 or more.

Lock Pick Set, Electronic (Cr250, TL7, 250g) A set of small electronic tools that allows bypassing of electronic locks by someone with the relevant skills (Intrusion and Electronics). Electronic lockpicks are illegal on worlds of law level 8+; on such worlds the cost rises to Cr500 or more. An electronic toolkit could do this job as well, but an electronic lock pick set includes only the few tools necessary for dealing with electronic locks and thus is far smaller, lighter and cheaper than a full electronic toolkit.

Perimeter Alarm (Cr1,000, TL9, 1kg) A simple automated unit that detects motion and thermal traces, sounding an alarm either on itself or at a central command unit. Can be programmed to ignore individuals carrying code emitters keyed to the alarm's security system.

Security Kit (Cr1,750, TL7, 3kg) A suitcase containing basic security equipment for two guards, including 2 batons, 2 autopistols, 6 autopistol magazines, 2 combination masks, 2 short-range communicators, 1 metal detector, 4 sets of

handcuffs, 1 IR binoculars, 2 electric torches and 1 lockpick set plus belts and webbing to hold all the gear.

COMMUNICATIONS AND ELECTRONIC EQUIPMENT

It has been said that warriors with money to spend will buy bigger guns; professional soldiers will upgrade their communications technology. Whatever the truth of this adage, comms gear can be vital to a group of travellers.

Atmosphere Tester (Cr150, TL7, 1kg) A hand-held device that monitors air breathability and quality. A simple readout indicates pressure ("Thin", "Dense" etc) and whether the air is within breathable parameters. An audible alarm and flashing warning indicates unbreathable or toxic gas mixes, but the unit does not indicate what the hazard composition is.

Beacon, Emergency (Cr750, TL9, 1kg) A multi-frequency beacon/repeater designed to assist rescuers. The beacon transmits an emergency signal and can record a simple message to be played if the beacon receives a signal (usually this is the direction or location of the beacon's users, if they have had to move). The beacon will also signal with a siren and flashing strobe light if manually triggered or if it receives an activation signal on the civilian or military emergency channels.

Beacon, Navigational (Cr500, TL8, 1kg) A simple radio beacon that can be set to respond to a specific signal or to transmit constantly.

Bio-Analysis Unit (Cr70,000, TL8, 7kg) A bulky biological mini-lab that can analyze most biological compounds and give an indication of their nature within a few minutes. More detailed analysis takes much longer. Using the unit to its best effect requires Biology skill, but an individual can be taught how to run basic tests and interpret the results in a few minutes, allowing an untrained person to determine if a fruit is edible or a strange dust is actually a harmful bio-warfare agent.

Biohazard Alarm (Cr1,000, TL9, 500g) A handheld device that can also be emplaced to give early warning of biological threats. The biohazard alarm detects airborne proteins and can be used to give early warning of biological hazards such as airborne bacteria, spores or bioweapons.

Biosniffer (Cr20,000, TL12, 2kg) A portable biological detection and analysis unit, the biosniffer can be used to detect traces of organic processes (i.e. life) or to analyze the composition of matter. Its internal database allows rapid indications to be made as to the nature of biological matter and whether it poses a threat to travellers. Results are obtained automatically and faster than with lower-tech devices.

Biosniffers can be emplaced and used for remote analysis and monitoring and can be programmed to indicate the presence of specific types of creature. They can thus be used to indicate, for example, whether a given game trail is used by humans, Vargr or the local predators, or to give warning of the approach of any large carnivore. Biosniffers are most commonly used by field scientists surveying planets or by botanists searching for new species.

Bug Detector, Advanced (Cr1,000, TL15, 1kg) A handheld scanning device designed to detect electronic listening devices. The standard bug detector can only be used to scan for bugs, but for Cr7500 a detector/jammer is available. This unit has two more settings: it can overload and destroy bugs within range (a few meters) or simply jam their output for a time, leaving them functional after the jammer is switched off. The advanced detector only detect, jam or destroy bugs up to TL 15.

Bug Detector (Cr1,000, TL12, 500g) A handheld scanning device designed to detect electronic listening devices. The basic bug detector can only be used to scan for bugs, but for Cr2,500 (and an additional kilogram) a detector/jammer is available. This unit has two more settings: it can overload and destroy bugs within range (a few meters) or simply jam their output for a time, leaving them functional after the jammer is switched off. The detector can only detect, jam or destroy bugs up to TL12.

Bugging Kit (Cr750, TL12, 150g) A set of small electronic listening/transmitting devices and a receiver unit. More advanced kits are available at TL13, TL14 and TL15. Each TL adds Cr2000 to the price of the kit but makes detection a little harder.

Bull-Horn (Cr120, TL5, 500g) A mechanical device whose shape amplifies a voice, allowing it to carry up to half a kilometer away. A bullhorn is very bulky and awkward to carry.

Camera, Advanced Digital (Cr100, TL13, 300g) An advanced version of the digital camera capable of recording and displaying moving holographic images.

Camera, Digital (Cr25, TL8, 250g) A basic digital visual recording device capable of interfacing with a computer or personal comm.

Camera (Film) (Cr30, TL5, 1kg) A basic photographic device using chemical film to record images.

Chemical Alarm (Cr250, TL8, 500g) A handheld device, which can also be mounted on clothing or a pack strap, or positioned upwind of a camp. The alarm gives audible and visible warning when dangerous chemicals (examples include industrial chemicals, sulphurous emissions from a volcanic vent or chemical weapons) are detected. It does

not detect radioactive fallout or biological hazards such as spores or bio-weapons.

Chemical Analysis Unit (Cr10,000, TL8, 5kg) A small portable lab unit that can analyze gases or liquids, or even small samples of solids such as rock and metal. The unit gives a readout of composition and can monitor for certain compounds automatically, functioning as a chemical-threat alarm system.

Combination Analysis Unit (Cr25,000, TL10, 7kg) A Biological/Chemical lab unit in a portable housing, capable of all the functions of the bio and chemical analysis units but faster and with greater accuracy. The unit's database contains many common and uncommon compounds and can advise on the properties of (and hazards posed by) most known substances.

Communicator, Laser (Cr2,500, TL8, 1.5kg) A line-of-sight communications device, a laser comm has limited range but is almost completely secure and undetectable. At TL10, microwave lasers can be used, which allow faster data transfer. The cost is the same as for a basic laser unit.

Communicator, Long Range (Cr500, TL6, 15kg) A backpack mounted radio capable of ranges up to 500 km and contact with ships in orbit. Ten separate channels. At tech level 7 the unit's weight drops to 1.5 kg and it becomes belt or sling mounted.

Communicator, Medium Range (Cr200, TL5, 10kg) A belt-mounted or sling carried radio set capable of up to 30 km range, and contact with official radio channels. Five separate channels. At tech level 7, the unit's weight drops to 500 grams.

Communicator, Short Range (Cr100, TL5, 5kg) A belt-mounted radio capable of 10 km range (much shorter underground or underwater). Three separate channels. At tech level 7 the unit's weight drops to 300 grams and it becomes hand-held.

Communicator, Personal ("Comm") (Cr50, TL8, 100g) A hand-held, single channel communication device. On world with a tech level of 8 or higher a personal communicator is able to tap into the world's satellite communication network and with the proper address, contact any other communicator in the world (for a small fee). The channel is private, but not secure and may be monitored on some worlds. Usually network access can be arranged at the local starport for a few credits per week. On worlds without a comm network and satellites or ground relays to make long-distance communication possible, personal communicators will not work except for direct comm-to-comm contact over distances of not more than a few hundred meters.

Many individuals purchase accessories for their comm. The most useful is a specialized computer device called an Aide,

available from TL9 onward. The Aide stores a considerable amount of information that the character feels he may find useful, downloads news or market information when available, and reminds the character about his schedule at appropriate times. Many travellers conduct their business by comm while on the move. An Aide costs Cr250.

Communicator, Personal, Advanced (Cr300, TL9, 100g) A more capable version of the basic hand-held comm, normally worn as a wristband. The advanced comm incorporates all the functions of an Aide, and has more memory available for specialist functions.

Commsat, Short-Term (Cr25,000, TL9, 25kg) A simple communications-relay device designed to be placed in orbit from a starship or ground launcher. It will last about 4-8 weeks in orbit and is not reusable.

Commsat, Standard (Cr150,000, TL7, 100kg) A simple communications-relay device designed to be placed in orbit from a starship or ground launcher. It will last about 6 months to a year in orbit and is not reusable.

Densitometer (Cr15,000, TL13, 7kg) A bulky device used by field scientists and engineers to determine the thickness and density of materials. Densitometers can give an indication of the likely composition of a material and can be used to map underground areas or buildings without entering them. A TL 14 version costs Cr12,000 and weights half as much.

Depth Gauge (Cr25, TL6, negligible weight) The depth gauge allows a character to know how far underwater he or she is. It is a simple device at TL6. More advanced versions have more functions including air-remaining calculations and decompression-halt warnings.

Field Surveillance Radar (Cr5,000, TL9, 20kg) The field surveillance radar is designed to provide surveillance of open-approach areas in conditions of limited visibility. It has a range of 500 meters and comes with a tripod mount. It detects moving objects of 0.1 liters of volume or more within range, and requires external power (a generator or a vehicle's power plant) to operate.

Hand Calculator (Cr10, TL7, 100g) Provides basic mathematical calculations. The hand calculator is the basic tool of any competent astrogator and a weapon of last resort when the ship's computer is down. Plotting a Jump by hand, even with a calculator, is a very long process requiring days of intense effort.

Hand Computer (Cr1,000, TL8, 500g) The 'handcomp' provides services of a small computer, plus serves as a computer terminal when linked (by its integral radio, network interface jack, or by other circuit) to a standard computer. A Hand Computer is also capable of audio recording and playback, and includes an integral digital camera.

Map Box (Cr2,500, TL9, 1kg) A compact (250 x 250 x 10 mm, expanding to 1000 x 1000 x 10 mm when opened) storage system for computer generated maps of a world. Scale may be adjusted. Most inhabited planets have insert chips available for Cr150. When not available, two orbital sweeps of the world are required to obtain the necessary data to construct a map chip. Blank map chips are available for Cr30.

Metal Detector (Cr300, TL6, 1kg) A handheld device that Indicates presence of metal within a 3 meter radius (including underground), with the indicating signal growing stronger as it gets closer to the source.

Navsat (Cr35,000, TL9, 100kg) A simple orbital beacon to assist navigation in space or on the ground. It can be deployed by a starship with missile launchers (in which case its orbital duration is indefinite, though systems will eventually fail) or from a ground launcher, in which case orbital life is a few weeks.

Neural Activity Detector (Cr35,000, TL14, 20kg) A large and bulky unit that detects brainwave activity and can indicate the order of the creature emitting it (i.e. Human-equivalent might be Vargr, Aslan or Droyne; Dog-equivalent might actually be a horse or a kian), and the number of emissions (individuals) within an area. The unit is not very reliable or precise; it can be fooled by large numbers of low-order brainwave emissions. At TL15, the unit weighs only 10kg and costs Cr65,000. TL15 units are also more reliable.

Portacomp (Cr1,000, TL7, 1kg) A laptop or briefcase-sized computer capable of interfacing with a personal comm and larger computers. A portacomp can run a range of programs, and can be used to provide additional processing power to a translator or analysis unit, or simply to store data. Higher tech versions are more capable.

Radiation Counter (Cr250, TL5, 1kg) Indicates presence and intensity of radioactivity within a 30-meter radius. The indicating signal will grow stronger as the detector is brought closer to the source.

Radio Jammer, Man-Portable (Cr20,000, TL7, 6kg) A backpack (or suitcase) barrage-jammer capable of jamming radio communications within a 10 km radius, powered by a battery capable of 24 hours of continued operation. The jammer could also be hooked up to a generator or a vehicle's power plant for longer-duration operation.

Satellite Ground Station (Cr5,000, TL8, 5kg) A portable ground control and communications station allowing satellites to be controlled or maneuvered in orbit. The ground station does not include launch capability.

Satellite Launcher, Field (Cr100,000, TL9, 500kg) A semi-mobile ground launch unit for small satellites. The package

includes a gantry and control unit, plus a single booster, but no satellites. Additional boosters cost Cr 50,000 and weigh 200kg. The launcher can only put temporary satellites into low orbit.

Survey Satellite (Cr100,000, TL11, 50kg) A Sursat can be launched from a shipboard missile system or a ground launcher. It is capable of undertaking basic communications and beacon functions and quite sophisticated mapping and survey operations. Sursat can report on weather and atmospheric conditions constantly. Life is 3-5 years if placed in a stable orbit.

Scanner, Comms (Cr250, TL8, 500g) A handheld communications detector that allows the user to intercept and listen to (but not jam) radio traffic. Scanners cannot decrypt or record transmissions, nor can the device detect bugs and similar low-power transmitters.

Scrambler Unit (Cr200, TL8, 100g) A small com-scrambler and encryption unit that can be used with a personal comm or other communications devices.

Signal Mirror (Cr10, TL2, negligible weight) A simple handheld mirror which could be used to reflect sunlight and thus catch the attention of a distant observer. Includes a small sighting hole that enables the signaler to direct the flashes of light at a particular target.

Sonar Rangefinder (Cr1,000, TL7, 10kg) A simple sonar unit used primarily to determine the depth of water under a diver or the keel of a boat. Simple sonar units are not very accurate, and are fooled by seabed clutter, fish and similar false returns. This personal unit is of little use in combat.

Translator (Cr100, TL8, 100g) A handheld device capable of translating audible language into Galanglic (or any other language). The basic translator is set for several dialects and the common languages of the region. Additional language chips are available for Cr500 per language.

The translator cannot translate an unknown tongue. It is not "smart", but merely recognizes sounds and converts them. A unit capable of translating nonverbal communication (pheromones, sign language etc.) costs five times as much as the basic version. One example is the Voder used by Hivers to communicate with non-Hivers.

PETS, LIVESTOCK, ROBOTS AND HEAVY EQUIPMENT

It is not possible to detail every possible purchase here, but a few of the commonest and most useful ones are listed, along with labor-saving equipment.

Cargobot (C30,000, TL9, 1,000kg) Not a true robot, the cargobot is a powerful lifting/carrying unit operated from close by. Most cargobots use a "waldo" system, whereby the user directly controls the bot with his or her own body motions.

Cargo Hoist (Cr5,000, TL8, 50kg) A portable powered hoist used to maneuver heavy objects (such as cargo containers) outside a starship or in a frontier port with no facilities available.

Cargo Walker (Cr45,000, TL10, 1,300kg) a variation on the cargobot theme, a Cargo Walker is basically a powered exoskeleton similar to that used in Battle Dress. It is much more bulky and a lot clumsier but permits an individual to act like a walking forklift truck, which can be useful in tight spaces.

Companion Animal, Small (Cr1 to Cr100, TL0, 1kg to 10kg) A cat, parrot or similar animal kept as a pet. Animals of this type are unlikely to be much use for anything except possibly target practice.

Companion Animal, Medium (Cr10 to Cr1,000, TL0, 10kg to 30kg): A dog or similar animal kept as a pet or working animal. Fighting or guard dogs and similar animals start at five times the price.

Dozerbot (Cr50,000, TL9, 2,000kg) Not a true robot, the dozerbot is an earthmoving unit operated from close by. It is fitted with a dozer blade and a small backhoe. A properly used dozerbot is capable of doing the work of 8 men.

Food Animal, Large (Cr1,000 to Cr10,000, TL1, 500kg to 5,000kg) A live cow or similarly sized food animal. Good breeding stock animals may cost upwards of 20 times the price of a beat intended for slaughter.

Food Animal, Medium (Cr100 to Cr500, TL1, 10kg to 500kg) A live sheep or similarly sized food animal.

Food Animal, Small (Cr1 to Cr10, TL1, 500gr to 10kg) A live chicken or similarly sized food animal.

Janitorial Robot (Cr5,000, TL10, 20kg) A small, automated robot that can be 'taught' which areas to look after. It will run a pre-programmed cleaning routine or can operate semi-autonomously, vacuuming, dusting and sweeping at intervals and also responding to cues like the sound of breaking crockery. The basic model is rather stupid and tends to bang into things, trip people up and get kicked across the room. A more advanced version (at three times the price) has better

software and is generally better-behaved. Janitorbots have been observed following pets around or trying to 'tidy up' people who have stood still too long in the wrong place. It is said that a true indication of a person's social class is now annoying his janitorbot is.

Kian (Cr1,000, TL1, 200kg) An alternative riding animal to the horse, Kian are large flightless birds encountered throughout Charted Space. Like horses, they take a considerable amount of feeding and general looking-after but can provide mobility on areas where vehicles are inappropriate.

Prowlerbot (Cr10,000, TL10, 10kg) Not a true robot, the prowlerbot is an automated security unit. It trundles about at walking speed on four inflatable tires and can be programmed with a route or 'taught' to patrol a given area in a semi-random manner. The Prowlerbot has thermal and movement detectors and sounds a shrill alarm if it discovers something untoward. Alternatively, it can be instructed to quietly alert a supervisor and act like it has not detected anything. Prowlerbots are not usually armed as special licensing is needed for security robots.

Repair Walker (Cr70,000, TL11, 1,200kg) Similar to the Cargo Walker, a Repair Walker is a powered exo-skeleton similar to that used in Battle Dress, but more bulky and somewhat clumsier. The exoskeleton is fitted with attachments for a range of powered tools including grabs, cutting jaws, drills and cutting/welding torches. The tool fit can be quickly swapped by a trained support team, enabling the walker to do the work of a whole repair gang in a space only two or three men could get into.

At TL12 and for 120,000 credits a sealed version is available with the user encased in a life-support bubble for work in space or underwater. The walker incorporates emergency air takeoffs and propulsion gear for its intended environment. The ultimate Repair Walker costs Cr15,000 and is treated to resist corrosive and insidious atmospheres, enabling work in almost any environment.

Riding Horse (Cr1,000, TL1, 200kg) A horse of reasonable quality for riding. Horses take a considerable amount of feeding and general looking-after but can provide mobility on areas where vehicles are inappropriate. Specialist animals such as cavalry mounts or racehorses start at five times the price; high-quality animals have no upper limit to their cost.

Security Robot, Laser (Cr30,000, TL12, 120kg) Security bots with lethal armament are uncommon and require a number of expensive licenses. Where they do exist, energy weapons are typical armament. The 'laserbot' mounts a Laser Carbine on a swivel arm, in addition to an array of sensors. Security bots are not designed for heavy combat but are armored as Flex.

Security Robot, Non-Lethal (Cr20,000, TL12, 100kg)

Security bots with non-lethal armament are more common than their deadly cousins. Licensing is still rigorous but still more obtainable. The standard model 'Thudbot' mounts a Stunbag launcher (treat as Thud Gun) fed from a 6-round magazine and a chemical sprayer capable of delivering tear gas or similar chemicals. It also has an array of sensors available. Security bots are not designed for heavy combat but are armored as Flex.

TRAVEL AND ACCOMMODATION

Daily life for adventurers can get expensive. Temporary lodgings, food and drink, and local travel can all be quite costly. This section deals with these staples of daily life. It should be noted that prices vary from one locality to another, and that there are some places that you just can't get a decent lobster omelet for any amount of credits.

LIVING EXPENSES

Characters need to feed themselves and have a place to live while not involved in adventures. It is not possible to live forever off ration bars and glop from a fusion still. Farmers and low-tech barbarians in their home environment can be considered to live "for free" from farming, gathering, hunting and trapping what they need, but everyone else needs to pay for long-term subsistence.

BASIC CUISINE ON A DAILY BASIS

Food is available in a variety of forms and qualities. Prices indicated are per person.

Restaurant meals of ordinary quality cost Cr10 per day. Excellent quality meals range in price from Cr20 to Cr50 per person. Travellers' Aid Society facilities provide excellent quality meals to members and guests for Cr20.

Food purchased from vendors for preparation at home costs about Cr5 per day, and weighs about 1 kg.

Preserved foods for rations on expeditions may be canned or packaged (Cr20 per day, weighs .5 kg) or dehydrated (Cr25 per day, weighs .2 kg, dependent on locally supplied water).

SUBSISTENCE ON A LONG TERM BASIS

In situations where time passes quickly, personal survival or subsistence costs can be assumed to be the values given below:

Starvation Level: A person must consume at least 1kg of food per day or they will begin starving. A day's ration of canned, packaged, or dehydrated food is equal to the 1kg of standard fare, regardless of actual weight. A character can survive for a number of days equal to their Endurance before starting to suffer the effects of starvation, but they will not heal from any injuries during this period. For each extra day spent beyond this period with insufficient food supplies, a character will suffer 1 point of damage. This is recovered at 1 point per day once subsistence-level food is available. Note that Starvation level food is not enough to allow recovery

– characters do not recover from starvation while they are hovering on the brink of it.

Subsistence Level: A character spending less than less than required by their Social Standing on food and lodging (see Ordinary Living, below) are considered to be existing at subsistence level. While at this level, their Social Standing will be temporarily lowered to a value equal to the level of support the character can afford. For example a character with a normal Social Standing of 9 can currently only afford to spend Cr600 per month on food and lodging. This amount is enough to support a normal Social Status of 6, so the character's effective SOC is 6 until he can regain the trappings of his accustomed lifestyle.

Ordinary Level: A character must spend Cr100 per point of Social Standing each month on food and lodging to support the lifestyle that comes with their status.

High Living: A character that spends Cr250 per point of Social Standing a month or more is considered to be living the high life, the best of foods, high quality lodging, etc. Of course, what is high living to someone with a Social Standing of 3 is quite different than someone with a Social Standing of 9.

Starships: Passengers and crewmembers have their food and lodging provided. This is part of the cost of operating a starship and is built into the operating budget.