Equipment Repair, Construction, and Identification

A sturdy suit of armor and a trustworthy weapon are a wastelander's best friends. Keeping on good terms with these companions often requires the attention of a skilled artisan and the expense of valuable spare parts.

Tech Levels

An item's degree of technological sophistication is given by its *Tech Level*, ranging from 0 to 5. A full description of each tech level is given in the Artifacts and Equipment chapter, but the levels can be summarized briefly here. Tech levels are often abbreviated "TL", such as referring to a pile of steel washers as being "a unit of TL 1 spare parts".

Tech Levels	
0	Neolithic stone tools and crude weaving.
1	Medieval to Renaissance-level technology.
2	Steam power, gunpowder, small-scale factories.
3	Late 20th-century technology.
4	Civilian-grade Old Terran technology.
5	Restricted or milspec Old Terran equipment.

Damaging Goods

Equipment condition is measured as one of seven progressively worse states. Clean, well-tuned, perfectly operating equipment is in Perfect condition. From there, abuse can lower the object's state of repair.

When a character rolls a 1 or 2 on an attack roll, their weapon degrades by one step of condition. When a character is hit with a 19 or 20 on the attack die, the armor they're wearing degrades by one step of condition. If a character rolls a 2 or 3 on a skill check, any equipment being used in that skill check degrades by one step. This wear and tear can happen only once per fight or instance in which the equipment is employed, though intentionally abusing the gear can wear it down much more quickly.

Equipment Condition	
Perfect	No penalty to use
Worn	No penalty to use
Light Damage	-1 to hit, damage, -1 to skill checks using the item
Moderate Damage	-2 to hit, damage, -1 to skill checks using the item, 2 in 10 chance of failing
Heavy Damage	-3 to hit, damage, -2 to skill checks using the item, 2 in 6 chance of failing
Broken	The device is inoperable or unusable.
Ruined	The device is beyond repair and fit only for salvage.

Weapons and equipment that become too badly damaged begin to apply penalties to a character's attack rolls, damage, or skill checks. Armor is usually sturdy enough to hold up with no loss of effectiveness until it becomes Broken, after which it is no use to the wearer and grants no armor class benefit. Devices that are not simple melee weapons will fail to activate on a roll of 2 or less on 1d10 when moderately damaged, and on a roll of 2 or less on 1d6 if heavily damaged. This failure wastes the action used to trigger them and forces a new attempt next round.

Fixing Goods

Repairing an item requires a relevant Tech skill, a toolkit, and a supply of spare parts of the appropriate tech level. The technician expends one unit of spare parts and rolls an appropriate Intelligence/Tech skill check against a difficulty equal to 5 plus the tech level of the gear. For every 2 points by which he beats the difficulty, he removes one step of damage. A minimum of one step is fixed on a success. Failure means that the spare parts are wasted, but the technician can keep trying. A repair attempt on a man-portable piece of equipment usually takes one hour, while repairing a vehicle or other larger piece of gear requires six hours and requires six units of spare parts- or even more.

Some equipment is too complex for an unskilled character to even try to fix it, but TL0 or TL1 gear allows attempts at repair even by characters lacking any Tech skills. Primitive spare parts also tend to be easier to find, but any warrior who has attempted to find just the right flints for his arrowheads or the correct wood for a bow can affirm that even TL0 materials aren't necessarily free for the taking. If necessary, use the Foraging rules to find units of primitive spares, finding one unit in place of one ration of food.

Creating Goods

Skilled artisans can create gear out of spare parts. Creating goods usually requires, at a minimum, a toolkit and workshop of the appropriate tech level. Creating a TL0 workshop may require nothing more sophisticated than unpacking a toolkit and clearing a space on the ground. Building a facility capable of brewing Old Terran stims, on the other hand, is likely to require finding or salvaging an Old Terran lab. The GM makes the final determination as to whether or not a given facility is sufficient for creating a given type of equipment.

Once a workshop is built or found, the artisan can assemble salvaged parts into the desired gear. Four units of spare parts are necessary to build twenty rounds of ammunition, one Type A energy cell, one stim, or some other consumable good. Eight units of spare parts are necessary to build hand-held equipment, twenty units are necessary to build a suit of armor, and as many as sixty units are necessary to build a vehicle or other large object from scratch. GMs may require that the spare parts have something to do with the finished product to prevent a cache of useful knapping flints from being turned into finished flasks of lamp oil, but this degree of specificity is usually not necessary, and it's easier to leave the exact nature of "spare parts" as something vague.

As a general rule, a crafter must have an appropriate Tech skill at a level equal to the tech level of the object to create it without plans. Manufacturing handbooks and schematics can grant an effective skill level bonus toward creating the objects they describe; a repair and maintenance manual dealing with the Helios-model laser pistol might grant an effective +1 Tech/Postech for purposes of building those pistols, while a complete manufacturing schematic would grant as much as +3. When multiple guides are available, only the best adds to the crafter's effective Tech skill. Using a guide requires at least level-0 expertise in the appropriate Tech skill to begin with, or else it baffles the untrained reader. Literate teammates can read schematics to illiterate techs.

Construction of a object generally requires one day of work per tech level, with a minimum of one day. Bullets, arrows, or bolts can be fashioned in batches of twenty. Pharmaceuticals generally cannot be created more than one dose at a time without locating special batch processing equipment, and industrial-scale manufacture of any type of gear will require its own set of complex and bulky equipment. The total time required to build something is divided by the number of techs working on the project, provided all of them have sufficient skill. Multiple techs can share the same guide materials.

These construction times and guidelines assume that the crafter is using salvaged parts to assemble devices rather than attempting to create the materials and components from scratch. In many cases, creating the microfibers, chip interfaces, refined alloys, and memory plastics involved in high-tech spare parts is essentially impossible for all but the tiniest fraction of enclaves. The practicality of extracting the equivalent of spare parts out of a natural resource or manufacturing facility is up to the GM.

Spare Parts

The wreckage of Old Terra comes in countless fragments. Rather than keeping track of every screw and polylaminate plate, spare parts are simply measured in "units". Spare parts can be bundled for encumbrance purposes, up to four units per bundle. Parts are for a particular tech level- a unit of TL1 parts, or TL3 parts, or so forth.

Parts are not interchangeable by tech level; if you need a unit of TL1 parts to fix your broken metal knife, having a unit of TL5 pretech components won't do you any good. Aside from that, it's generally not useful or important to track the exact nature of a given unit of parts.

Identifying Enigmatic Relics

Most Old Terran equipment does not need to be specially identified before the PCs are able to use it. Enough stories and ruined examples have come down through the years that only the most backward and primitive peoples are ignorant of the general ideas behind relic weaponry, armor, and equipment. The usual -2 penalty remains for using weaponry for one which lacks an appropriate Combat skill, however, and it can be difficult to find trainers for some of the more advanced military hardware.

Sometimes a piece of ancient technology is found that has no obvious purpose and no visible relation to known technology. Most of these items were originally intended to interface with an owner's internal Link and to so provide any necessary explanations or cues required. The actual physical controls were merely a set of failsafes in case of some issue with the user's Link. With the fading of the Dust and the general lack of Links, this enigmatic aesthetic of smooth, unmarked surfaces and inset buttons can make it difficult to even guess at what the object was meant to be. These "Enigmatic" devices function exactly like a more clearly-labeled version of the

device, but give no clue as to what will happen when a trigger is depressed or an activation button is pushed. Most weapons have a recognizable pistol or rifle shape, but other objects might not even mark the end that the radiation comes out of.

A character who wants to decipher an Enigmatic device must make a Tech saving throw with a bonus equal to the better of his Intelligence or Wisdom modifier, plus twice his or her score in the relevant Tech specialty. Abilities that grant automatic saving throw successes do *not* help with this save. If the save is successful, the character gets a general idea of the device's purpose and use. If the Tech saving throw is failed, the device is abused and drops one step of condition before the character finally figures out what it was meant to do. If the character rolls an unmodified 1 or 2 on the saving throw, however, the device also goes off unexpectedly, hitting him automatically if it is a weapon or using up one pharmaceutical dose or device charge on him.

Characters that have a Link can automatically recognize those Enigmatic devices that aren't specifically locked down to particular Mandate personnel. In such cases, even the Linked are forced to experiment in order to figure out how to use the object.

Salvaging Goods

Sometimes useful spare parts can be salvaged from a device. A character with the appropriate Tech skill can attempt to strip a device for parts, making an Intelligence/Tech roll at a difficulty equal to 5 plus the device's tech level. On a success, the object is destroyed, but provide parts for devices of that tech level. On a failure, the object is ruined but nothing terribly useful is obtained from it. Man-portable objects provide one unit of spare parts, while human-sized devices grant two and salvaging something the size of a car might provide four. Salvaging takes about half an hour per unit of salvage recovered.

Stripping down buildings and ancient architectural wreckage is rarely profitable, even for primitive low-tech parts. Much of the construction of Old Terra was made of cast-formed polycomposites that have turned brittle with damage and Dust contamination. Even finding a piece sharp and sturdy enough to serve as a knife or spearhead can be a challenge, and working the remains is often impossible. Most salvagers are forced to strip their parts from devices that once served a specific purpose rather than random detritus.

Good, Superior, and Masterwork Items

The items and equipment listed in the Equipment and Artifacts chapter are all assumed to be of average quality- sturdy and well-made, but nothing remarkable. Some artisans are capable of crafting exquisite examples of their art, and these higher-grade items are noticeably more effective than the cruder work of lesser scrapsmiths.

A good quality weapon grants a bonus of +1 to hit and damage rolls when using it in combat. Ammunition cannot be made high-quality, but guns, bows, and other projectile weapons confer their bonus when fired. Superior weapons grant +2 to hit and damage, and the vanishingly rare masterworked items grant +3 to hit and damage.

Good quality armor gives a bonus of -1 to the suit's armor class, while superior grants -2 and masterworked harness gives a -3 bonus. Shields cannot normally be made high-quality. Good equipment designed for a particular skill allows a +1 bonus on relevant skill checks. Superior equipment is merely sleeker and more finely-wrought than its good counterpart, but masterwork equipment grants a +2 bonus to the skill checks.

While prized by all lucky enough to own such equipment, acquiring it is a challenge. Good gear usually costs at least ten times the price of an ordinary grade of item, superior gear is fifty times as expensive when it can be found for sale at all, and masterwork items are generally unavailable at any price.

Crafting high-quality gear is much more difficult than building ordinary equipment. While success in building common gear is automatic for techs with sufficient expertise, attempting to attain just the right balance of qualities in high-grade gear runs the risk of ruining the attempt.

To build a high-quality object, the crafter must have a total Tech skill equal to the item's tech level +2 for good gear, +4 for superior gear, and +6 for masterwork gear. Thus, to make a masterwork spear requires a Tech/Postech skill of 6. As usual, blueprints or schemata may be used to add to a crafter's effective skill level, so if the adventurers somehow stumble across an Old Terran plan for a modified monomolecular hedge-lopping tool that grants +3 to build spears, a crafter with Tech/Postech-3 could attempt to fashion a masterwork weapon out of it.

Next, spare parts are needed of the appropriate tech level, with a minimum TL of 3 for good gear, TL4 for superior, and TL5 for masterwork. A giant mound of flint is not going to get you the raw materials you need to make a vorpal obsidian knife; the crafter needs higher-tech inputs to craft something truly effective. Total parts needed are as normal, multiplied by 2 for good items, x4 for superior items, and x8 for masterwork items. Thus, trying to make a superior suit of hide armor would require 80 units of TL4 spare parts to locate just the right fittings and elements to make such magnificent harness.

The crafter must then make the item, rolling at a difficulty equal to the item's tech level +6 for good quality, +8 for superior, and +10 for masterwork. That superior suit of hide armor would thus require a successful Int/Tech/Postech roll at difficulty 8. Blueprints do not add to the skill check, as only the character's native intellect and skill apply. Scroungers *can* use their class special ability on this check- for them, the challenge is more in accumulating the raw materials and any necessary schematics than in the actual assembly.

On a success, the item is created. Failure means the loss of all the spare parts that were to go into the work.

Once created, the item is subject to all the usual rules for item damage and wear. Repair requires spare parts of the same TL used to build the device at the same difficulty as its creation.