



102

Vehicles

by
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Revision 1.1

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Introduction

Travellers travel. Starships ply the spacelanes, but more hours are spent travelling between cities than between worlds. This compendium contains a wide variety of vehicles, carefully selected to both provide a range of common designs and some intriguing hooks for adventure.

This supplement contains more than 100 civilian vehicles, ranging from simple

Bronze Age carts to sophisticated Imperial grav yachts.

Military vehicles will be covered in other BITS supplements. Rather than merely a list of vehicles, these supplements will contain information about units, operations, doctrine, and tactics. The first of these supplements, **101 Spaceborne**, is being written now.

Assumptions

All vehicles in this book were created using the **Infini-V** application. **Infini-V** implements the rules in Imperium Games' **Central Supply Catalog**, and is available from BITS. Exceptions to the rules, if any, are noted in the individual vehicle descriptions.

Two optional rules were used in all designs. First, vehicle performance was

calculated using both loaded and unloaded weights. Second, vehicle acceleration was limited by chassis strength: that is, if the chassis was rated for 1.0Gs, then the acceleration was limited to 1.0Gs when calculating speed and agility.

Credits

Vehicle designs: Robert Prior
Editing: Dom Mooney

Useful suggestions: Doug Berry, Richard Hough, Steven Hudson, Dom Mooney, Eris Reddoch

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Introduction to BITS

BITS (short for “British Isles Traveller Support”) is a UK based organisation dedicated to providing a forum for Marc Miller’s **Traveller** Roleplaying Game. It was founded in 1995 by Andy Lilly (who still co-ordinates the organisation). Within this remit, BITS supports all versions of Traveller (Classic, MegaTraveller, The New Era, GURPS Traveller and Marc Miller’s Traveller) by:

- organising tournaments and demonstrations in the UK (and beyond).
- publishing quality adventures and supplements for Traveller.
- aiding and encouraging members' submissions to magazines.
- helping to find/swap and sell out of print material.
- collecting and publishing software role-play aids.
- bringing together players through a contact list.

Although BITS was founded in the UK, it has a small number of European and North American members. BITS is (at the time of writing) one of the two groups licensed by FarFuture Enterprises to produce Traveller material, the other being Steve Jackson Games for their GURPS Traveller line.

BITS publishes a variety of products, including the “Little White Books” which include the 101 Series.

BITS Traveller Sourcebooks



A deal's a deal, right?

If you view interstellar trade as simple rolling a few random items from the trade tables, think again! This BITS **Traveller** supplement will breathe life into your cargos and remind the players that not everything can be boxed up, left in the hold and forgotten about until they reach their next port of call...

- Instant Adventure Links containing novel rules for generating ‘generic’ plots for almost any piece of cargo, to give many thousands of possible adventures!
- Shipping Codes for cargo containers—from size and mass to those lethal hazards and pain-in-the-butt handling requirements that every merchant needs to know.
- 101 Pregenerated Cargos for your campaign: Natural Resources (from rocks to wallabies), Processed Resources (the raw components of industry), Manufactured Goods (the fruits of industry), Information (knowledge is a valuable thing) and Novelties (variety is the spice of life)!
- Library data for the companies and items mentioned elsewhere in the book.
- Detailed random generation of cargos of many different types for speculative trading.

Order Code 101C: 101 Cargos (2nd Edition): A5, 40 pages, colour cover.



Just looking for something to do?

This BITS Traveller supplement help referees survive those gaming sessions where things just aren't going the way they thought they would...

- Patrons. A common source of adventure, patrons always need someone to do their dirty work for them and they're usually willing to pay.
- Introductions. Those little tie-ins which bring your players into contact with useful organisations and people.
- Job Advertisements. The notices in the starport bar - whether it's just a few days' cash or a dodgy job needs doing.
- Red Herrings. More notices, but perhaps not so profitable!
- Information. Sometimes notices aren't for jobs but can still be a mine of information.
- Personals. With plenty of potential to confuse, distract, and perhaps amuse.
- Gimmicks. Devices, gadgets, whizz-bangs, what-nots, or whose-a-ma-jiggers that appeal to players for their novelty, potential worth, or just usefulness.

Order Code 101P: 101 Plots A5, 40 pages, colour cover.



They hand over the ticket...

...they step aboard, their luggage is stored in the hold, and a week goes by as the merchant ship carries them through jumpspace to the next planet. But...

Who are these interstellar travellers? Hijackers or Smugglers? Should the crew be watching their every move? Or is one of the passengers a customs inspector—watching the crew? This BITS Traveller supplement provides 101 pregenerated characters (or groups of NPCs) - passengers who may book passage on the players' ship or be encountered on other ships.

- Each traveller is described using the standard Traveller statistics (Strength, Dexterity, etc.) and career, rank, race, sex, age and a list of their skills, cash and special equipment/luggage.
- A brief description of their initial appearance is given, followed by a detailed background including their reason for travelling between the stars—from touring pop stars to secret agents.
- Each traveller has suggestions for how they may be used as patrons, links to adventures, as a source of useful information or skills, or perhaps just as an amusement/annoyance!

Order Code 101T: 101 Travellers, A5, 44 pages, colour cover.



We'll meet at, er, well, a bar? Which bar? Er...

Your players encounter new worlds, alien peoples, high tech wonders, but usually the starport bar has about as much background as a cardboard cut-out, and the characters within it are just as wooden. This Traveller supplement from BITS provides 101 stimulating locations, from the Yellow Crucible Night Club to the Rewint Animalzone, offering services from taxis (Itzjuscumin) to security (ViProtect).

- Every rendezvous is given a likely location within a town or starport, with a description of the building, outside and in
- Specific details of the facilities and operation are given, including the costs for entrance, accommodation, dining, etc.
- Each location has a description of the most notable character(s) associated with it, including whatever dark secrets they may be hiding behind their doors.
- Each entry also play options which you may wish to exploit (including how to play the NPCs and suggested adventure plot ideas).

Order Code 101R: 101 Rendezvous, A5, 44 pages, colour cover.



Aaarrgh! It's a hideous alien monster!

Or is it just the quite harmless, but rather unpleasant looking Bolungian Jubwibble? The only way to find out is to get this Traveller supplement from BITS!

- Detailed descriptions of 101 different alien creatures, plants and other 'lifeforms', divided according to their habitat types.
- Each entry describes the lifeform using the standard Traveller statistics, in addition to notes on how commonly the lifeform is encountered and in what numbers it is found.
- Each lifeform description begins with its physical appearance, and continues with the creature's special attack and/or defence forms, its preferred food, its habitat and lifestyle.
- A number of the entries are illustrated to show these alien flora and fauna 'in the flesh'.
- Sets of tables are provided summarising each lifeform and its environment, to aid you in creating encounter tables.
- Includes B&W illustrations of some creatures.

Order Code 101L: 101 Lifeforms, A5, 44 pages, colour cover.



Governments from A to Z...

...from worlds without governments (mindless anarchies or liberated Gardens of Eden?) to worlds with too much government (oppressive regimes focused solely upon maintaining the rulership of paranoid dictators), every Traveller should be aware of the implications on the local culture, laws and trade.

- This Traveller supplement from BITS provides 101 pregenerated governments with which to flesh out Traveller worlds, grouped by the Scout Corps' government coding system.
- Each government has a basic description including the information that would commonly be available to Travellers through a ship's library or other database.
- Referee's notes detail those areas of each government which might not be apparent to normal Travellers.
- Each entry also has a plot idea for use as a hook into an adventure for your players.
- Contains a small number of B&W illustrations.

Order Code 101G: 101 Governments, A5, 56 pages, colour cover.



What is the meaning of life?

From our primitive ancestors to the time of the Third Imperium, society has created a wonderfully diverse range of religions and beliefs.

- This Traveller supplement from BITS provides 101 religions, beliefs and cults with which to populate Traveller worlds, grouped by the Imperial Interstellar Scout Services' religion coding system.
- Each religion has a basic description including the information that would be commonly available to Travellers.
- Referee's notes detail the more secretive aspects of each religion.
- Each entry also has one or more plot ideas for quick generation of adventures for your players.

Order Code 101E: 101 Religions, A5, 48 pages, colour cover.

BITS Traveller Software



GT Shipyard

A simple application for designing **GURPS Traveller** starships. Currently available for the Macintosh, with a PC version being programmed.

HG Shipyard

A simple application for designing classic Traveller starships, using the rules from **Supplement 5: High Guard**. Available soon for the Macintosh and PC.



Imperial Grand Survey

A simple application for detailing Traveller domains. Currently in beta test for the Macintosh.



Infini-V

A simple application for designing T4 vehicles. Currently available for the Macintosh.



QSDS

A simple application for designing T4 starships. Currently available for the Macintosh.

Demonstration versions of all BITS software can be freely downloaded from the BITS web site. They are identical to the full version, except that printing and saving have been disabled. Details on how to purchase the full version are included with each demonstration package.

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Private Transport

Most vehicles are owned by individuals. From primitive boats to high-tech gravcars, this section contains a wide variety of vehicles, with purposes ranging from urban commuting to wilderness recreation.

Shalu Skiff (TL2)

Summary:

1.00 displacement ton open-topped wedge; 5.56 tonnes; kCr 20.2

Chassis:

14.0 kL open-topped wedge (7.5 m long x 2.10 m wide x 1.9 m high);
Structure: 421 kg of heavy wood, rated for 1.0Gs, body 0.30 cm thick, 0 armour rating

Performance:

300 kW TL1 sail
Propulsion System: 300 kW watercraft;
Maximum Speed: 7 km/h loaded, 12 km/h unloaded; Range: 0 km; Agility: +3DM (0.0G);

Crew & Passengers:

Crew roster: helmsman; 1 crew station; 6 cramped passenger seats

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

4.27 kL of cargo space (2.14 tonnes)

Most cultures living near water quickly learn to use it for fast, easy transport. The *Shalu* skiff is a typical utility craft, capable of transporting mix of passengers and cargo for short distances in relatively sheltered waters. Virtually the entire cost of the skiff is its sail. In an emergency, the owner will rescue the sail and let the hull sink.

Aurens Motorbike (TL5)

Summary:

0.10 displacement ton open-topped close structure; 1.38 tonnes; kCr 23.9

Chassis:

1.40 kL open-topped close structure (2.4 m long x 1.8 m wide x 41 cm high);
Structure: 112 kg of hard steel, rated for 1.0Gs, body 0.010 cm thick, 1 armour rating

Performance:

200 kW TL5 imp. internal combustion engine; Fuel: 200 L of high-grade hcarb (200 kg), 8 hours supply
Propulsion System: 200 kW wheels; Maximum Speed: 117 km/h loaded, 119 km/h unloaded;
Range: 938 km loaded, 954 km unloaded; Agility: +1DM (0.1G);

Crew:

Crew roster: driver; 1 external crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

45.2 L of cargo space (22.6 kg)

Humans, especially adolescent males, have a burning desire for speed at any cost. The *Aurens* motorbike is targeted at that market. Bare-bones, with not even a windscreen for comfort, the *Aurens* provides an intimate acquaintance with speed, as well as hours of enjoyment tinkering with its finicky engine. Curiously, the latter has been an asset rather than a liability: true *Aurens* riders disdain anyone who can't field-strip their motorbike!

Rolls Royce Luxury Groundcar(TL5)

Summary:

1.00 displacement ton box; 4.61 tonnes; kCr 71.6

Chassis:

14.0 kL box (3.7 m long x 1.9 m wide x 1.9 m high);

Structure: 449 kg of hard steel, rated for 1.0Gs, body 0.10 cm thick, 2 armour rating

Performance:

500 kW TL5 imp. internal combustion engine; Fuel: 312 L of high-grade hcarb (312 kg), 5 hours supply

Propulsion System: 500 kW wheels with smooth suspension;

Maximum Speed: 88 km/h loaded, 98 km/h unloaded;

Range: 439 km loaded, 492 km unloaded; Agility: +3DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 4 roomy passenger seats

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Options: wet bar

Safety Features: anti-theft system, fire suppression system

1.00 kL of cargo space (500 kg)

The epitome of luxury and conspicuous consumption, the *Rolls Royce* is the ultimate low-tech luxury vehicle. Relatively fast, the *Rolls* sports an exceptionally smooth suspension so that its wealthy passengers can enjoy the wet bar without risk.

Swallow Sailboat (TL5)

Summary:

1.00 displacement ton open-topped box; 4.26 tonnes; kCr 11.9

Chassis:

14.0 kL open-topped box (3.7 m long x 1.9 m wide x 1.9 m high);

Structure: 337 kg of heavy wood, rated for 1.0Gs, body 0.30 cm thick, 0 armour rating

Performance:

240 kW TL1 sail

Propulsion System: 240 kW watercraft;

Maximum Speed: 10 km/h loaded, 15 km/h unloaded; Range: 0 km; Agility: +3DM (0.0G);

Crew & Passengers:

Crew roster: helmsman; 1 crew station; 5 cramped passenger seats

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

3.00 kL of cargo space (1.50 tonnes)

Built for utility, not speed, the *Swallow* is a typical small sailboat, capable of carrying five passengers and three cubic metres of cargo. No sensors or communications gear is installed; if carried, these are usually personal models.

Similar boats can be encountered on many worlds, even at higher tech levels. Solid construction means that, with proper care, a *Swallow* can last for over a century.

Airstream Camper (TL6)

Summary:

2.00 displacement ton box streamlined; 7.30 tonnes; kCr 63.3

Chassis:

28.0 kL box streamlined (4.7 m long x 2.4 m wide x 2.4 m high);

Structure: 1.07 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

803 kW TL4 internal combustion engine; Fuel: 642 L of hydrocarbons (642 kg), 8 hours supply

Propulsion System: 800 kW wheels; Maximum Speed: 99 km/h loaded, 111 km/h unloaded;

Range: 789 km loaded, 886 km unloaded; Agility: +3DM (0.2G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 5 roomy passenger seats

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Options: recreation space, kitchen for 6 simultaneous meals; 1.60 kL of cargo space (799 kg)

On many urbanized worlds, the wilderness holds a special allure. Discontented urbanites long to “return to the wilderness”, as long as it contains flush toilets and showers. The *Airstream* Camper is a low-tech vehicle catering to that need. In spite of its name, it is totally unsuitable for real camping, being little more than a mobile bedroom and kitchen; on worlds where this type of vehicle is found, there are special ‘campgrounds’ providing suitably rustic parking spaces, flush toilets, and hot showers.

Armadillo Armoured Limousine (TL6)

Summary:

1.20 displacement ton box; 10.8 tonnes; kCr 99.10

Chassis:

16.8 kL box (3.10 m long x 2.1 m wide x 2.1 m high);

Structure: 507 kg of hard steel, rated for 1.0Gs, body 1.0 cm thick, 6 armour rating

Performance:

1.00 MW TL4 internal combustion engine; Fuel: 800 L of hydrocarbons (800 kg), 8 hours supply

Propulsion System: 1.00 MW wheels with puncture-proof tires;

Maximum Speed: 100 km/h loaded, 104 km/h unloaded;

Range: 800 km loaded, 833 km unloaded; Agility: +3DM (0.2G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 4 roomy passenger seats

Communications:

Subcontinental Radio (100 W, TL6, SmVcl); Range: 300 km

Sensors:

No sensors installed.

Other:

Options: wet bar; Safety Features: anti-theft system; 852 L of cargo space (426 kg)

Many VIPs need to travel in comfort and safety. Many more want the cachet of seeming to need protection. Whether the dangers are real or imaginary, the *Armadillo* provides excellent protection.

The one megawatt Olson-Bliinu internal combustion power plant provides speed and comfort, Piiran tires contribute excellent handling, and one centimetre of hardened steel is proof against small arms and light anti-tank weaponry. The driver can be in constant communication, while up to four passengers travel in comfort, soothed by a built-in wet bar.

Arvadi Scooter (TL6)

Summary:

0.07 displacement ton open-topped box; 626 kg; Cr 5116

Chassis:

980 L open-topped box (1.5 m long x 80 cm wide x 80 cm high);

Structure: 28.6 kg of fiber laminate, rated for 1.0Gs, body 0.15 cm thick, 1 armour rating

Performance:

60.0 kW TL4 internal combustion engine; Fuel: 29.10 L of hydrocarbons (29.10 kg), 5 hours supply

Propulsion System: 60.0 kW wheels; Maximum Speed: 86 km/h loaded, 94 km/h unloaded;

Range: 430 km loaded, 471 km unloaded; Agility: +1DM (0.2G);

Crew & Passengers:

Crew roster: driver; 1 external crew station; 1 external passenger seat; Protection: front

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

106 L of cargo space (53.5 kg)

Slow but cheap, the *Arvadi* is a popular vehicle in poor regions, and also in crowded wealthier areas. The single passenger scrunches behind the driver — most owners rarely transport passengers they are not in friendly terms with! Over 100 litres of cargo space are more than adequate for trundling around the city.

Astraan Dirtbike (TL6)

Summary:

0.06 displacement ton open-topped close structure; 693 kg; Cr 9869

Chassis:

840 L open-topped close structure (2.0 m long x 1.5 m wide x 35 cm high);

Structure: 60.3 kg of light alloy, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

100 kW TL5 imp. internal combustion engine; Fuel: 62.5 L of high-grade hcarb (62.5 kg), 5 hours supply

Propulsion System: 100 kW wheels with off-road suspension;

Maximum Speed: 130 km/h; Range: 648 km; Agility: +1DM (0.2G)

Crew:

Crew roster: driver; 1 external crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Off-road motorbike racing is very popular with lower-social-standing inhabitants of many worlds. Races are typically run over convoluted courses requiring speed, endurance, and skill to complete.

The *Astraan* is an ideal bike for a cross-country race. It is fast, maneuverable, and has excellent off-road handling. An alloy frame and improved internal combustion engine lower mass, increasing speed by over 20 km/h over the slightly cheaper *Mishnak*. Most serious racers find the extra performance well worth the slight increase in price. This model is stripped down to the bare essentials, which lowers price and increases speed.

Sandpiper Dune Buggy (TL6)

Summary:

0.20 displacement ton open-topped open frame; 1.29 tonnes; Cr 9142

Chassis:

2.80 kL open-topped open frame (6.1 m long x 87 cm wide x 87 cm high);
Structure: 384 kg of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

100 kW TL4 internal combustion engine; Fuel: 100 L of hydrocarbons (100 kg), 10 hours supply
Propulsion System: 100 kW wheels with off-road suspension;
Maximum Speed: 69 km/h loaded, 72 km/h unloaded;
Range: 695 km loaded, 724 km unloaded; Agility: +1DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 1 cramped passenger seat

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

101 L of cargo space (50.7 kg)

Small and cheap, the *Sandpiper* dune buggy is little more than a tubular frame with a pair of seats and a motor. Its low maximum speed isn't an impediment, because it is intended for off-road use in desert terrain.

Loon Bush Plane (TL6)

Summary:

2.00 displacement ton cylinder airframe; 4.07 tonnes; kCr 338

Chassis:

28.0 kL cylinder airframe (7.5 m long x 2.2 m wide x 2.2 m high, wingspan 13 m);
Structure: 245 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

300 kW TL5 imp. internal combustion engine; Fuel: 562 L of high-grade hcarb (562 kg), 15 hours supply
Propulsion System: 300 kW aircraft with STOL capability and floats
Maximum Speed: 97 km/h loaded, 129 km/h unloaded;
Take-Off Speed: 44 km/h loaded, 33 km/h unloaded;
Runway Length: 38 m loaded, 14 m unloaded; Take-Off Time: 6 s loaded, 3 s unloaded
Range: 1460 km loaded, 1937 km unloaded; Agility: +3DM (0.2G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 3 cramped passenger seats

Communications:

Subcontinental Radio (100 W, TL6, SmVcl); Range: 300 km

Sensors:

No sensors installed.

Other:

2.00 kL of cargo space (1.00 tonnes)

Before the invention of contragrav most transport is by ground vehicle over a prepared road network. In frontier areas where this network is not available small aircraft are used instead.

The *Loon* is typical of these planes. It is cheap, durable, and requires only 38 metres to take-off and land. Floats give it the capacity to land on water, making any lake or calm river an instant airstrip. The *Loon* can transport three passengers and two cubic metres of cargo almost 1500 km.

Luftwagen Airship(TL6)

Summary:

25.00 displacement ton cylinder streamlined; 45.9 tonnes; kCr 253

Chassis:

Gondola: 350 kL cylinder streamlined (17 m long x 5.1 m wide x 5.1 m high);

Structure: 1.32 tonnes of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

1.00 MW TL5 imp. internal combustion engine;

Fuel: 2.50 kL of high-grade hcarb (2.50 tonnes), 20 hours supply

Propulsion System: 1.00 MW lighter-than-air; Maximum Speed: 82 km/h loaded, 84 km/h unloaded;

Range: 1638 km loaded, 1675 km unloaded; Agility: +3DM (0.1G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 4 roomy passenger seats; Sanitary facilities

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Options: recreation space, wet bar; Safety Features: fire suppression system

2.00 kL of cargo space (1.00 tonnes)

One of the first private airships, the *Luftwagen* is slower than many private cars. However, to those caught up in the romance of flight, this is a minor consideration compared to the freedom of the open skies.

Mishnak Dirtbike (TL6)

Summary:

0.06 displacement ton open-topped close structure; 825 kg; Cr 8977

Chassis:

840 L open-topped close structure (2.0 m long x 1.5 m wide x 35 cm high);

Structure: 120 kg of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

100 kW TL4 internal combustion engine; Fuel: 50.0 L of hydrocarbons (50.0 kg), 5 hours supply

Propulsion System: 100 kW wheels with off-road suspension;

Maximum Speed: 109 km/h; Range: 545 km; Agility: +1DM (0.2G);

Crew:

Crew roster: driver; 1 external crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Off-road motorbike racing is very popular with lower-social-standing inhabitants of many worlds. Races are typically run over convoluted courses requiring speed, endurance, and skill to complete.

The *Mishnak* is an ideal bike for a cross-country race. It is fast, maneuverable, and has excellent off-road handling. This model is stripped down to the bare essentials, which lowers price and increases speed.

Pyrdan Range Truck (TL6)

Summary:

0.80 displacement ton open-topped box; 6.98 tonnes; kCr 58.3

Chassis:

11.2 kL open-topped box (3.5 m long x 1.8 m wide x 1.8 m high);

Structure: 580 kg of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

650 kW TL4 internal combustion engine; Fuel: 649 L of hydrocarbons (649 kg), 10 hours supply

Propulsion System: 650 kW wheels with offroad suspension;

Maximum Speed: 84 km/h loaded, 116 km/h unloaded;

Range: 837 km loaded, 1163 km unloaded; Agility: +3DM (0.2G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 1 roomy passenger seat

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

3.90 kL of cargo space (1.95 tonnes)

The *Pyrdan* is a typical low-tech offroad vehicle: tough, and without any frills whatsoever. Its rugged suspension can carry up to two tonnes of cargo through the wilderness. Lack of environmental controls and the fabric roof guarantee that any trip will be a true wilderness experience.

Top unloaded speed is 116 km/h.

Trexwan Minivan (TL6)

Summary:

1.00 displacement ton box; 4.29 tonnes; kCr 33.8

Chassis:

14.0 kL box (3.7 m long x 1.9 m wide x 1.9 m high);

Structure: 168 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

400 kW TL4 internal combustion engine; Fuel: 320 L of hydrocarbons (320 kg), 8 hours supply

Propulsion System: 400 kW wheels;

Maximum Speed: 84 km/h loaded, 117 km/h unloaded;

Range: 671 km loaded, 933 km unloaded; Agility: +3DM (0.2G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 4 roomy passenger seats

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Options: automatic sunroof

2.42 kL of cargo space (1.21 tonnes)

Perfect for a growing family, the slow but spacious *Trexwan* is popular among the middle class of many low-tech worlds.

Baja Dune Buggy (TL7)

Summary:

0.20 displacement ton open-topped open frame; 1.25 tonnes; Cr 6622

Chassis:

2.80 kL open-topped open frame (6.1 m long x 87 cm wide x 87 cm high);
Structure: 384 kg of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

100 kW TL4 internal combustion engine; Fuel: 100 L of hydrocarbons (100 kg), 10 hours supply
Propulsion System: 100 kW wheels with off-road suspension;
Maximum Speed: 87 km/h loaded, 94 km/h unloaded;
Range: 867 km loaded, 941 km unloaded; Agility: +1DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 1 cramped passenger seat

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

149 L of cargo space (74.7 kg)

Small and cheap, the *Baja* dune buggy is little more than a tubular frame with a pair of seats and a motor. Its low maximum speed isn't an impediment, because it is intended for off-road use in desert terrain.

Kaalin Dirtbike (TL7)

Summary:

0.06 displacement ton open-topped close structure; 645 kg; Cr 7349

Chassis:

840 L open-topped close structure (2.0 m long x 1.5 m wide x 35 cm high);
Structure: 60.3 kg of light alloy, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

100 kW TL5 imp. internal combustion engine;
Fuel: 62.5 L of high-grade hcarb (62.5 kg), 5 hours supply
Propulsion System: 100 kW wheels with off-road suspension;
Maximum Speed: 167 km/h; Range: 836 km; Agility: +1DM (0.2G);

Crew:

Crew roster: driver; 1 external crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Off-road motorbike racing is very popular with lower-social-standing inhabitants of many worlds. Races are typically run over convoluted courses requiring speed, endurance, and skill to complete.

The *Kaalin* is an ideal bike for a cross-country race. It is fast, maneuverable, and has excellent off-road handling. Essentially an upgraded *Astraan*, the *Kaalin* is almost 50 km/h faster. Manufacturing improvements have lowered the price by over Cr2000, as well. This model is stripped down to the bare essentials, which lowers price and increases speed.

Mallard Bush Plane (TL7)

Summary:

2.00 displacement ton cylinder airframe; 3.80 tonnes; kCr 236

Chassis:

28.0 kL cylinder airframe (7.5 m long x 2.2 m wide x 2.2 m high, wingspan 13 m);
Structure: 245 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

300 kW TL5 imp. internal combustion engine; Fuel: 562 L of high-grade hcarb (562 kg), 15 hours supply
Propulsion System: 300 kW aircraft with STOL capability and floats
Maximum Speed: 114 km/h loaded, 154 km/h unloaded;
Take-Off Speed: 41 km/h loaded, 30 km/h unloaded;
Runway Length: 33 m loaded, 12 m unloaded; Take-Off Time: 5 s loaded, 2 s unload Range: 1703 km loaded, 2311 km unloaded; Agility: +3DM (0.2G)

Crew & Passengers:

Crew roster: pilot; 1 crew station; 3 cramped passenger seats

Communications:

Subcontinental Radio (100 W, TL7, SmVcl); Range: 300 km

Sensors:

No sensors installed.

Other:

2.00 kL of cargo space (1.00 tonnes)

Before the invention of contragrav most transport is by ground vehicle over a prepared road network. In frontier areas where this network is not available small aircraft are used instead.

The *Mallard*, a lineal descendant of the *Loon*, is typical of these planes. It is cheap, durable, and requires only 33 metres to take-off and land. Floats give it the capacity to land on water, making any lake or calm river an instant airstrip. The *Loon* can transport three passengers and two cubic metres of cargo over 1700 km.

Sbarro Speedster (TL7)

Summary:

0.10 displacement ton open-topped open frame; 1.19 tonnes; kCr 14.7

Chassis:

1.40 kL open-topped open frame (4.9 m long x 69 cm wide x 69 cm high);
Structure: 60.5 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

225 kW TL5 imp. internal combustion engine;
Fuel: 140 L of high-grade hcarb (140 kg), 5 hours supply
Propulsion System: 225 kW wheels;
Maximum Speed: 204 km/h loaded, 206 km/h unloaded;
Range: 1019 km loaded, 1025 km unloaded; Agility: +1DM (0.2G);

Crew:

Crew roster: driver; 1 external crew station; Protection: front

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

15.7 L of cargo space (7.84 kg)

The ultimate in stylish speed, the *Sbarro* is a sleek street-legal bike. With no provision for passengers or cargo, this is the ultimate recreational vehicle for the dedicated urbanite.

Seadoo Personal Watercraft(TL7)

Summary:

0.05 displacement ton open-topped wedge; 463 kg; Cr 3939

Chassis:

700 L open-topped wedge (2.8 m long x 1.1 m wide x 70 cm high);

Structure: 28.6 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

100 kW TL5 imp. internal combustion engine, water-cooled;

Fuel: 50.0 L of high-grade hcarb (50.0 kg), 4 hours supply

Propulsion System: 100 kW watercraft; Maximum Speed: 58 km/h; Range: 232 km; Agility: +1DM (0.1G)

Crew:

Crew roster: helmsman; 1 external crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Periodically in favour with the yuppie “outdoorsman”, the *Seadoo* can frequently be found shattering the silence near fashionable resorts. Utterly useless in anything except calm waters, with virtually no endurance, the *Seadoo* is nothing more than an expensive toy for those who believe that the great outdoors comes with 200 holoivid channels and air conditioning.

Unconfirmed rumours hold that some planets treat the killing of *Seadoo* operators as public duty rather than murder.

Bograt All Terrain Vehicle (TL8)

Summary:

3.00 displacement ton box; 11.5 tonnes; kCr 24.9

Chassis:

42.0 kL box (5.4 m long x 2.8 m wide x 2.8 m high); Structure: 350 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

402 kW TL4 Internal Combustion power plant; Fuel: 1.93 kL of hydrocarbons (1.93 tonnes), 48 hrs supply

Propulsion System: 400 kW wheels with off-road suspension;

Maximum Speed: 52 km/h;

Range: 2514 km; Agility: +3DM (0.1G)

Crew & Passengers:</DT>

Crew roster: driver; 1 crew station; 6 roomy passenger seats

Communications:

Subcontinental Radio (100 W, TL8, SmVcl)

Sensors:

No sensors installed.

Other:

Options: recreation space, kitchen for 4 simultaneous meals

13.3 kL of cargo space

The *Bograt* is more of an off-road camper than a true all-terrain vehicle, but ATV sounds better in the ads. Slow but inexpensive, it can carry six in relative comfort, although only four meals can be heated at once. Cargo capacity is 13 kL; plenty of room for supplies, and even enough to carry fuel for an additional seven days of continuous driving. Unloaded maximum speed is close to 100 km/h.

Ngola Dune Buggy (TL8)

Summary:

0.20 displacement ton open-topped open frame; 1.25 tonnes; Cr 4582

Chassis:

2.80 kL open-topped open frame (6.1 m long x 87 cm wide x 87 cm high);
Structure: 384 kg of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

100 kW TL4 internal combustion engine; Fuel: 100 L of hydrocarbons (100 kg), 10 hours supply
Propulsion System: 100 kW wheels with off-road suspension;
Maximum Speed: 101 km/h loaded, 110 km/h unloaded;
Range: 1011 km loaded, 1098 km unloaded; Agility: +1DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 1 cramped passenger seat

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

197 L of cargo space (98.7 kg)

Small and cheap, the *Ngola* dune buggy is little more than a tubular frame with a pair of seats and a motor. Although fast enough for highway use, its short wheelbase and off-road suspension are unstable at high speeds.

Muskrat Swamp Scooter (TL8)

Summary:

0.06 displacement ton open-topped wedge streamlined; 597 kg; Cr 3551

Chassis:

840 L open-topped wedge streamlined (2.9 m long x 1.2 m wide x 74 cm high);
Structure: 32.3 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

80.0 kW TL4 internal combustion engine; Fuel: 32.0 L of hydrocarbons (32.0 kg), 4 hours supply
Propulsion System: 80.0 kW hover skirt;
Maximum Speed: 121 km/h; Range: 482 km; Agility: +1DM (0.2G);

Crew:

Crew roster: driver; 1 external crew station; Protection: front

Communications:

Subregional Radio (1 W, TL8, SmVcl); Range: 10 km

Sensors:

No sensors installed.

Cheap, small, and fast, the *Muskrat* is perfect for scaring the local wildlife, but otherwise fairly useless. A wetlands version of the ubiquitous *Seadoo*, it is easily unstable and easily upset on all but the smoothest of surfaces. Those famous ads of beautiful people speeding through the Waterglades required numerous takes using highly skilled stunt-doubles.

Snipe Bush Plane (TL8)

Summary:

2.00 displacement ton cylinder airframe; 3.58 tonnes; kCr 158

Chassis:

28.0 kL cylinder airframe (7.5 m long x 2.2 m wide x 2.2 m high, wingspan 13 m);
Structure: 245 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

300 kW TL5 imp. internal combustion engine;
Fuel: 562 L of high-grade hcarb (562 kg), 15 hours supply
Propulsion System: 300 kW aircraft with STOL capability and floats
Maximum Speed: 131 km/h loaded, 182 km/h unloaded;
Take-Off Speed: 39 km/h loaded, 28 km/h unloaded;
Runway Length: 29 m loaded, 10 m unloaded; Take-Off Time: 5 s loaded, 2 s unloaded
Range: 1960 km loaded, 2721 km unloaded; Agility: +3DM (0.2G)

Crew & Passengers:

Crew roster: pilot; 1 crew station; 3 cramped passenger seats

Communications:

Subcontinental Radio (100 W, TL8, SmVcl); Range: 300 km

Sensors:

No sensors installed.

Other:

2.00 kL of cargo space (1.00 tonnes)

Before the invention of contragrav most transport is by ground vehicle over a prepared road network. In frontier areas where this network is not available small aircraft are used instead.

The *Snipe*, a lineal descendant of the *Loon*, is typical of these planes. It is cheap, durable, and requires only 29 metres to take-off and land. Floats give it the capacity to land on water, making any lake or calm river an instant airstrip. The *Loon* can transport three passengers and two cubic metres of cargo almost 2000 km.

Aeron Family Car (TL9)

Summary:

1.50 displacement ton box; 2.58 tonnes; kCr 19.0

Chassis:

21.0 kL box (4.3 m long x 2.2 m wide x 2.2 m high);

Structure: 220 kg of fiber laminate, rated for 1.0Gs, body 0.20 cm thick, 1 armour rating

Performance:

150 kW TL7 fuel cell; Fuel: 12.7 kL of liquid hydrogen (908 kg), 10 hours supply

Propulsion System: 150 kW contra-grav with 6 minutes emergency power;

Maximum Speed: 104 km/h loaded, 110 km/h unloaded;

Range: 1045 km loaded, 1101 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 3 roomy passenger seats

Communications:

Regional Radio (10 W, TL9, SmVcl); Range: 30 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 2.0 cm per km of range

Other:

Safety Features: Roadgrid

262 L of cargo space (131 kg)

An early version of the personal contra-grav car, the *Aeron* is a reasonably cheap means of transportation. Short-range radar interfaces with the prototype Roadgrid system to provide a reasonable degree of safety; however, in crowded urban areas frequent delays result when too many vehicles overload the collision-avoidance software.

To keep costs down, fuel cells are used instead of a fusion power plant (Fusion Plus not being invented yet), which results in over half its internal volume being devoted to hydrogen tanks.

Biilan Sprite Swamp Buggy(TL9)

Summary:

0.80 displacement ton open-topped slab; 4.09 tonnes; kCr 20.9

Chassis:

11.2 kL open-topped slab (7.6 m long x 2.2 m wide x 69 cm high);

Structure: 181 kg of fiber laminate, rated for 1.0Gs, body 0.15 cm thick, 1 armour rating

Performance:

500 kW TL4 internal combustion engine; Fuel: 500 L of hydrocarbons (500 kg), 10 hours supply

Propulsion System: 500 kW hoverskirt;

Maximum Speed: 110 km/h loaded, 119 km/h unloaded;

Range: 1098 km loaded, 1187 km unloaded; Agility: +3DM (0.2G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 3 roomy passenger seats

Communications:

Subregional Radio (1 W, TL9, SmVcl); Range: 10 km

Sensors:

No sensors installed.

Other:

Options: wet bar

610 L of cargo space (305 kg)

Popular on resort worlds, the *Biilan Sprite* provides the thrill of speeding through wetlands scaring the local wildlife and risking instant decapitation from low branches. Although the passenger seats swivel to permit 'trolling', few seriously believe that the passengers are trying to catch fish.

Canrith Mechsteed (TL9)

Summary:

0.14 displacement ton cylinder; 1.66 tonnes; kCr 71.3

Chassis:

1.96 kL cylinder (3.1 m long x 90 cm wide x 90 cm high);

Structure: 83.3 kg of light alloy, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

250 kW TL7 turbine, gas; Fuel: 187 L of high-grade hcarb (187 kg), 5 hours supply

Propulsion System: 200 kW legs with soft ground suspension;

Maximum Speed: 43 km/h loaded, 44 km/h unloaded;

Range: 217 km loaded, 219 km unloaded; Agility: +1DM (0.1G);

Crew:

Crew roster: driver; 1 external crew station

Communications:

Regional Radio (10 W, TL9, SmVcl); Range: 30 km

Sensors:

No sensors installed.

Other:

33.5 L of cargo space (16.7 kg)

As any rancher knows, nothing beats hands-on knowledge of your range. Sure, aircars are faster, but the only way to know land is to ride it. The *Canrith* model mechanical steed takes the drudgery out of range-riding, leaving the pure pleasure and real experience you need.

Dust Bunny Range Runner (TL10)

Summary:

0.13 displacement ton box; 1.51 tonnes; kCr 39.1

Chassis:

1.82 kL box (1.9 m long x 98 cm wide x 98 cm high);

Structure: 96.1 kg of crystaliron, rated for 1.0Gs, body 0.010 cm thick, 1 armour rating

Performance:

250 kW TL10 fusion plus generator; Fuel: 12.5 L of enriched water (12.5 kg), 100 hours supply

Propulsion System: 250 kW legs with toughened suspension;

Maximum Speed: 89 km/h loaded, 102 km/h unloaded;

Range: 8934 km loaded, 10195 km unloaded; Agility: +1DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 external crew station; 1 external passenger seat; Protection: front

Communications:

Regional Radio (10 W, TL10, SmVcl); Range: 30 km

Sensors:

No sensors installed.

Other:

373 L of cargo space (186 kg)

A legged version of the all-terrain cycle, the *Dust Bunny* can race across the roughest terrain at over 100 km/h. Most commonly used by urban cowboys, the *Dust Bunny* is nicknamed "Seadoo of the plains" by those loving the quiet outdoors. (Although the Fusion Plus power plant is silent, the transmission makes a loud buzzing-whining sound that repels most wildlife - although tales of *Dust Bunnies* and riders suffering the ardent advances of large rutting herbivores are common pub tales.)

Wanax Aerial Yacht (TL10)

Summary:

5.00 displacement ton disk streamlined; 15.4 tonnes; kCr 156

Chassis:

70.0 kL disk streamlined (7.7 m long x 7.7 m wide x 1.5 m high);

Structure: 2.19 tonnes of crystaliron, rated for 2.0Gs, body 0.02 cm thick, sealed to 1 atm

Armour: 3 front (0.04 cm), 2 sides (0.02 cm), 2 rear (0.02 cm), 2 top (0.02 cm), 2 bottom (0.02 cm)

Performance:

2.01 MW TL10 fusion plus generator; Fuel: 502 L of enriched water (502 kg), 500 hours supply

Propulsion System: 1.50 MW contragrav with 6 minutes emergency power;

Maximum Speed: 176 km/h loaded, 268 km/h unloaded;

Range: 87719 km loaded, 133804 km unloaded; Agility: +1DM (2.0G);

Crew & Passengers:

Crew roster: pilot, 4 stewards; 5 crew stations; 12 roomy passenger seats

Standard life support, sanitary and shower facilities; Hatches: 3 power; Grav Compensation (1G), Whole vehicle compensated

Communications:

Orbital Radio (10.00 kW, TL10, SmVcl); Range: 30000 km

Sensors:

Active Regional Radar (1.00 kW); Range: 30 km; Resolution: 5.0 mm per km of range

Other:

Options: automatic sunroof, entertainment centre, recreation space, wet bar, kitchen for 12 simult. meals

Safety Features: licensed for orbital use, anti-hijack system, anti-theft system, Roadgrid, 6 emergency wall patches, fire suppression system; 10.6 kL of cargo space (5.30 tonnes)

Aimed at the luxury market, the *Wanax* resembles an old-fashioned yacht more than a modern grav car. Up to a dozen passengers travel in luxurious style, pampered by four stewards, with the latest in entertainment facilities. Full kitchen and washroom facilities ensure that they arrive at their destination fresh and alert; state-of-the-art anti-hijack systems and Roadgrid ensure that they arrive safely.

Styling is very personal. While the basic chassis is a disk, every *Wanax* is hand-finished to individual specifications. Most owners choose a theme from a favourite period of history.

Aphrodite Skimmer (TL11)

Summary:

0.22 displacement ton needle; 259 kg; Cr 2527

Chassis:

3.08 kL needle (5.4 m long x 75 cm wide x 75 cm high);

Structure: 44.4 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

50.0 kW TL11 sail

Propulsion System: 50.0 kW high performance watercraft;

Maximum Speed: 121 km/h; Range: unlimited; Agility: +2DM (0.1G);

Crew:

Crew roster: helmsman; 1 crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

The ultimate sailboat, the *Aphrodite* can reach over 120 km/h under the right wind conditions. Polysynthetic sails and a structurecomp hull reduce the mass to barely more than the helmsman, while hydrofoils lift the boat out of the water to reduce drag.

The *Aphrodite* is a racing skimmer. Everything that might interfere with performance, including a radio communicator, has been stripped from the design. Nothing remains but the hull, sails, and pilot.

This vehicle was designed using the rules in the **Central Supply Catalog**, with the following variations: uses synthetic sails, realistic stress.

Baxzat Speeder (TL11)

Summary:

0.07 displacement ton open-topped needle streamlined; 761 kg; kCr 10.0

Chassis:

980 L open-topped needle streamlined (3.7 m long x 51 cm wide x 51 cm high);

Structure: 82.7 kg of structurecomp, rated for 4.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

203 kW TL11 fusion plus generator; Fuel: 8.03 L of enriched water (8.03 kg), 100 hours supply

Propulsion System: 200 kW contragrav with 6 minutes emergency power;

Maximum Speed: 948 km/h loaded, 956 km/h unloaded;

Range: 94493 km loaded, 95258 km unloaded; Agility: -3DM (4.0G);

Crew & Passengers:

Crew roster: pilot; 1 external crew station; 1 external passenger seat; Protection: front

Grav Compensation (1G), Whole vehicle compensated

Communications:

Regional Radio (10 W, TL11, SmVcl); Range: 30 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 1.0 mm per km of range

Other:

Safety Features: anti-theft system, Roadgrid

12.2 L of cargo space (6.12 kg); illuminated SmartCoat display on all unused surface area

Raw speed. Sometimes nothing else will do. The *Baxzat* Speeder is built for speed and nothing else. The ultralight structurecomp chassis is reinforced for 4G maneuvers, while pilot and passenger are protected by 1G grav compensators and a windscreen. Roadgrid and active radar provide electronic assistance to the pilot. Complete SmartCoat coverage lets the *Baxzat* reflect its owner's every mood.

Dsalpor Luxury Aircar (TL11)

Summary:

1.10 displacement ton box; 2.25 tonnes; Cr 9765

Chassis:

15.4 kL box (3.9 m long x 2.0 m wide x 2.0 m high); Structure: 119 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

300 kW TL11 Fusion Plus power plant; Fuel: 11.8 L of enriched water (11.8 kg), 100 hours supply

Propulsion System: 300 kW contragrav with 6 minutes emergency power;

Maximum Speed: 1144 km/h; Range: 113973 km; Agility: -7DM (9.5G)

Crew & Passengers:

Crew roster: pilot; 1 crew station; 6 roomy passenger seats

Communications:

Subcontinental Radio (100 W, TL11, SmVcl)

Sensors:

No sensors installed.

Other:

Options: automatic sunroof, entertainment centre, wet bar

Safety Features: anti-theft system, Roadgrid; 1.50 kL of cargo space

Billed as a luxury aircar, the *Dsalpor* is affordable by almost anyone, and holds none of the social cachet of, for example, a *Merton*. In essence, it is a family aircar with the addition of an entertainment centre and a wet bar. No sensors are installed, limiting the *Dsalpor* to the ground-based Roadgrid™ on most civilized worlds. Although the *Dsalpor* is capable of reaching orbit, its thin skin and lack of life support make any such trips unlicensed; an offense usually punishable by confiscation of the offending vehicle.

Joran Camper (TL11)

Summary:

3.00 displacement ton box; 10.9 tonnes; kCr 27.8

Chassis:

42.0 kL box (5.4 m long x 2.8 m wide x 2.8 m high);

Structure: 233 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

1.00 MW TL11 fusion plus generator; Fuel: 395 L of enriched water (395 kg), 1000 hours supply

Propulsion System: 1.00 MW contragrav with 6 minutes emergency power;

Maximum Speed: 165 km/h loaded, 522 km/h unloaded;

Range: 164547 km loaded, 520907 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 5 roomy passenger seats

Sanitary and shower facilities; Hatches: 1 manual, 3 power

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Options: automatic sunroof, entertainment centre, recreation space, kitchen for 6 simultaneous meals

Safety Features: anti-theft system, Roadgrid, fire suppression system

14.10 kL of cargo space (7.48 tonnes)

Perfect for a family vacation, the *Joran* is popular with upwardly-mobile professionals on many worlds. Roadgrid, and entertainment centre, top-quality kitchen and lots of multi-use cargo space ensure that you can take it with you when you get away from it all.

El Aurens Gravbike (TL12)

Summary:

0.10 displacement ton open-topped disk streamlined; 777 kg; Cr 8975

Chassis:

1.40 kL open-topped disk streamlined (2.1 m long x 2.1 m wide x 41 cm high);
Structure: 24.2 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

109 kW TL12 fusion plus generator; Fuel: 3.42 L of enriched water (3.42 kg), 100 hours supply
Propulsion System: 100 kW contragrav with 6 minutes emergency power;
Maximum Speed: 232 km/h loaded, 354 km/h unloaded;
Range: 23148 km loaded, 35344 km unloaded; Agility: ODM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 external crew station; 1 external passenger seat; Protection: front
Grav Compensation (1G), Only seating compensated

Communications:

Continental Radio (1.00 kW, TL12, SmVcl); Range: 3000 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 0.200 mm per km of range

Other:

Safety Features: anti-theft system, Roadgrid
536 L of cargo space (268 kg)

Inspired by the *Aurens* motorbike, the *El Aurens* gravbike is named after an ancient Terran hero who fought enemies and built the pyramids. Built for speed and little else, it appeals mainly to young humans suffering from hormonal imbalances.

Merton Luxury Aircar (TL12)

Summary:

1.20 displacement ton box; 3.03 tonnes; kCr 32.8

Chassis:

16.8 kL box (3.10 m long x 2.1 m wide x 2.1 m high); Structure: 126 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, sealed to 1 atm
Armour: 3 front (0.04 cm), 2 sides (0.03 cm), 2 rear (0.03 cm), 2 top (0.03 cm), 2 bottom (0.03 cm)

Performance:

272 kW TL12 Fusion Plus power plant; Fuel: 8.53 L of enriched water (8.53 kg), 100 hours supply
Propulsion System: 200 kW contragrav with 6 minutes emergency power;
Maximum Speed: 561 km/h; Range: 55902 km; Agility: -6DM (9.4G)

Crew & Passengers:

Crew roster: pilot; 1 crew station; 6 roomy passenger seats
Basic life support; Grav Compensation (2G), Whole vehicle compensated

Communications:

Continental Radio (1.00 kW, TL12, SmVcl)

Sensors:

Active Regional Radar (1.00 kW) Resolution: 0.200 mm per km of range

Other:

Options: entertainment centre, wet bar
Safety Features: licensed for orbital use, anti-theft system, Roadgrid, fire suppression system
2.65 kL of cargo space; SmartCoat display on all unused surface area

The *Merton* represents the epitome of luxury, an exquisite blend of hand-finished details and high-tech safety features. Six passengers travel in roomy comfort, cushioned with grav compensators and diverted by a state-of-the-art entertainment centre. Creature comforts are satisfied by a fully-stocked wet bar. Roadgrid and modern navigational electronics ensure that the pilot delivers his charges safely, even to orbital destinations. As a final touch, the SmartCoat surface allows the owner to display the most fitting colours for any occasion.

Zarathustran Luxury Aircar (TL12)

Summary:

1.10 displacement ton box streamlined; 2.22 tonnes; kCr 25.5

Chassis:

15.4 kL box streamlined (3.9 m long x 2.0 m wide x 2.0 m high);

Structure: 119 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, sealed to 1 atm, 1 armour rating

Performance:

342 kW TL12 fusion plus generator with vacuum radiators;

Fuel: 10.7 L of enriched water (10.7 kg), 100 hours supply

Propulsion System: 300 kW contragrav with 6 minutes emergency power;

Maximum Speed: 244 km/h loaded, 317 km/h unloaded;

Range: 24304 km loaded, 31622 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 6 roomy passenger seats

Standard life support; Grav Compensation (1G), Whole vehicle compensated

Communications:

Orbital Radio (10.00 kW, TL12, SmVcl); Range: 30000 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 0.200 mm per km of range

Other:

Options: entertainment centre, wet bar

Safety Features: anti-theft system, Roadgrid, 1 emergency wall patch

1.03 kL of cargo space (514 kg)

“Affordable luxury” is the *Zarathustran’s* motto, and for once there is truth in advertising. Spacious seating around a state-of-the-art entertainment console, smooth grav compensation, and Roadgrid™ guidance makes even the longest journey enjoyable.

Zhasdri Aircar (TL13)

Summary:

0.80 displacement ton disk streamlined; 2.24 tonnes; kCr 19.4

Chassis:

11.2 kL disk streamlined (4.2 m long x 4.2 m wide x 83 cm high);

Structure: 322 kg of crystaliron, rated for 1.0Gs, body 0.002 cm thick, 1 armour rating

Performance:

417 kW TL13 fusion plus generator; Fuel: 10.4 L of enriched water (10.4 kg), 100 hours supply

Propulsion System: 400 kW contragrav with 6 minutes emergency power;

Maximum Speed: 323 km/h loaded, 402 km/h unloaded;

Range: 32199 km loaded, 40102 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 4 roomy passenger seats

Hatches: 3 manual; Grav Compensation (1G), Only seating compensated

Communications:

Subcontinental Radio (100 W, TL13, SmVcl); Range: 300 km

Sensors:

No sensors installed.

Other:

Options: automatic sunroof

Safety Features: Roadgrid

881 L of cargo space (440 kg)

The *Zhasdri* is common in Solomani space. Simple and relatively cheap, its designers eschewed innovation for the sake of innovation, preferring tried-and-true methods and materials. Fast, solid, and extremely low maintenance, some *Zhasdri*s have been in the same family for two or more generations—a point emphasized in recent advertising campaigns.

Arden Aircar (TL15)

Summary:

1.50 displacement ton box streamlined; 3.51 tonnes; kCr 37.4

Chassis:

21.0 kL box streamlined (4.3 m long x 2.2 m wide x 2.2 m high);

Structure: 473 kg of bonded superdense, rated for 1.0Gs, body 0.001 cm thick, sealed to 1 atm, 1 armour

Performance:

532 kW TL15 fusion plus generator with vacuum radiators;

Fuel: 8.15 L of enriched water (8.15 kg), 100 hours supply

Propulsion System: 500 kW contra-grav with 6 minutes emergency power and orbital package;

Maximum Speed: 257 km/h loaded, 391 km/h unloaded;

Range: 25661 km loaded, 38960 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 4 roomy passenger seats

Standard life support; Grav Compensation (1G), Whole vehicle compensated

Communications:

Orbital Radio (10.00 kW, TL15, SmVcl); Range: 30000 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 0.005 mm per km of range

Other:

Options: entertainment centre, recreation space, wet bar

Safety Features: anti-theft system, Roadgrid, 1 emergency wall patch

2.39 kL of cargo space (1.20 tonnes)

The *Arden* is a fairly typical high-tech mid-range vehicle. It can easily accommodate five adults in comfortable seats; the wet bar and entertainment system help to ease long trips, while the Roadgrid takes care of the flying.

Econobox Aircar (TL15)

Summary:

0.35 displacement ton box; 910 kg; Cr 3168

Chassis:

4.90 kL box (2.6 m long x 1.4 m wide x 1.4 m high);

Structure: 55.8 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

50.0 kW TL15 fusion plus generator; Fuel: 765 mL of enriched water (765 g), 100 hours supply

Propulsion System: 50.0 kW contra-grav with 6 minutes emergency power;

Maximum Speed: 99 km/h loaded, 158 km/h unloaded;

Range: 9883 km loaded, 15783 km unloaded; Agility: +1DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 3 cramped passenger seats

Communications:

Subregional Radio (1 W, TL15, SmVcl); Range: 10 km

Sensors:

No sensors installed.

Other:

Safety Features: Roadgrid

680 L of cargo space (340 kg)

No matter what its brand name, this vehicle is called an “econobox” (or worse) by its owner. The bare minimum of creature comforts helps hold the price down to less than 10% of a luxury aircar. While small, slow, and cramped, the *Econobox* is cheap enough to be affordable by almost everyone.

Judeksow Speeder (TL15)

Summary:

0.10 displacement ton open-topped needle streamlined; 879 kg; kCr 17.1

Chassis:

1.40 kL open-topped needle streamlined (4.2 m long x 58 cm wide x 58 cm high);

Structure: 209 kg of structurecomp, rated for 8.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

201 kW TL15 fusion plus generator; Fuel: 3.09 L of enriched water (3.09 kg), 100 hours supply

Propulsion System: 200 kW contragrav with 6 minutes emergency power;

Maximum Speed: 1643 km/h loaded, 1715 km/h unloaded;

Range: 163661 km loaded, 170839 km unloaded; Agility: -7DM (8.0G);

Crew & Passengers:

Crew roster: pilot; 1 external crew station; 1 external passenger seat; Protection: front

Grav Compensation (1G), Whole vehicle compensated

Communications:

Regional Radio (10 W, TL15, SmVcl); Range: 30 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 0.005 mm per km of range

Other:

Safety Features: anti-theft system, Roadgrid

73.9 L of cargo space (36.10 kg); illuminated SmartCoat display on all unused surface area

Raw speed. Sometimes nothing else will do. The *Judeksow Speeder* is built for speed and nothing else. The ultralight structurecomp chassis is reinforced for 8G maneuvers, while pilot and passenger are protected by 6G grav compensators and a windscreen. Roadgrid and active radar provide electronic assistance to the pilot. Complete SmartCoat coverage lets the *Judeksow* reflect its owner's every mood.

Mass Transport

Most worlds have some form of mass transportation, whether government-run or privately owned. This chapter contains a selection vehicles serving a wide variety of markets.

Guday Airliner (TL5)

Summary:

40.00 displacement ton box streamlined; 521 tonnes; MCr 1.66

Chassis:

Gondola: 560 kL box streamlined (12 m long x 6.6 m wide x 6.6 m high);
Structure: 7.89 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

2x 3.01 MW TL5 imp. internal combustion engines;
Fuel: 37.6 kL of high-grade hcarb (37.6 tonnes), 50 hours supply
Propulsion System: 6.00 MW lighter-than-air; Maximum Speed: 49 km/h loaded, 50 km/h unloaded;
Range: 2483 km loaded, 2531 km unloaded; Agility: +3DM (0.1G)

Crew & Passengers:

Crew roster: pilot, navigator, 2 engineers, 10 stewards; 14 crew stations; 100 roomy passenger seats
Sanitary facilities

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Options: recreation space, kitchen for 20 simultaneous meals
Safety Features: fire suppression system
20.0 kL of cargo space (10.0 tonnes)

The *Guday* is not terribly fast, but its spacious accommodations and many stewards make it a favourite choice for long distance voyages among the 'airship set'.

Offwhite Canine Bus (TL5)

Summary:

7.00 displacement ton box; 20.8 tonnes; kCr 226

Chassis:

98.0 kL box (7.2 m long x 3.7 m wide x 3.7 m high);
Structure: 2.47 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

2.00 MW TL4 internal combustion engine;
Fuel: 1.100 kL of hydrocarbons (1.100 tonnes), 10 hours supply
Propulsion System: 2.00 MW wheels; Maximum Speed: 117 km/h loaded, 98 km/h unloaded;
Range: 1168 km loaded, 982 km unloaded; Agility: +3DM (0.1G)

Crew & Passengers:

Crew roster: driver; 1 crew station; 40 roomy passenger seats

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

3.61 kL of cargo space (1.00 tonnes)

A simple people-mover, the *Offwhite Canine*—named after a Terran animal legendary for its speed—is a mainstay of long-haul public transit on low-tech worlds with developed roadnets.

Snobolen Schoolbus (TL6)

Summary:

4.00 displacement ton box; 9.85 tonnes; kCr 39.7

Chassis:

56.0 kL box (5.9 m long x 3.1 m wide x 3.1 m high);

Structure: 1.70 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

500 kW TL4 internal combustion engine; Fuel: 149 L of hydrocarbons (149 kg), 3 hours supply

Propulsion System: 500 kW wheels; Maximum Speed: 45 km/h loaded, 45 km/h unloaded;

Range: 137 km loaded, 137 km unloaded; Agility: +3DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 52 cramped passenger seats

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

57.4 L of cargo space (28.7 kg)

Bureaucracies are notorious for mismanaged decisions, and this schoolbus is a perfect example. Although it meets all specifications, that only illustrates how incomplete the specifications were. Cramped, slow, and unheated, *Snobolens* are a perfect example of the triumph of short-term nearsightedness over long-range public good.

Concorde Supersonic Airliner(TL7)

Summary:

75.00 displacement ton needle airframe; 262 tonnes; MCr 112

Chassis:

1050 kL needle airframe (37 m long x 5.3 m wide x 5.3 m high, wingspan 33 m);

Structure: 6.49 tonnes of light alloy, rated for 1.0Gs, body 0.04 cm thick, sealed to 1 atm, 1 armour rating

Performance:

2x 20.1 MW TL7 turbine, gas; Fuel: 90.3 kL of high-grade hcarb (90.3 tonnes), 15 hours supply

Propulsion System: 40.0 MW high performance aircraft

Maximum Speed: 1057 km/h loaded, 1306 km/h unloaded;

Take-Off Speed: 324 km/h loaded, 262 km/h unloaded;

Runway Length: 1355 m loaded, 666 m unloaded; Take-Off Time: 30 s loaded, 18 s unloaded;

Range: 15800 km loaded, 19519 km unloaded; Agility: +3DM (0.3G);

Crew & Passengers:

Crew roster: pilot, navigator, 2 engineers, 8 stewards; 12 crew stations; 200 roomy passenger seats

Communications:

Orbital Radio (10.00 kW, TL7, SmVcl); Range: 30000 km

Sensors:

Active Continental Radar (100 kW); Range: 3000 km; Resolution: 50 cm per km of range

Other:

Options: entertainment centre, wet bar, kitchen for 20 simultaneous meals

Safety Features: 32 emergency wall patches, fire suppression system

100 kL of cargo space (50.0 tonnes)

A high-speed passenger jet with a minimum of cargo space.

Vancouver Ferry (TL7)

Summary:

4.00 displacement ton box; 12.3 tonnes; kCr 60.9

Chassis:

56.0 kL box (5.9 m long x 3.1 m wide x 3.1 m high);

Structure: 424 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

1.00 MW TL4 internal combustion engine;

Fuel: 1.00 kL of hydrocarbons (1.00 tonnes), 10 hours supply

Propulsion System: 1.00 MW hover skirt; Maximum Speed: 70 km/h loaded, 75 km/h unloaded;

Range: 704 km loaded, 750 km unloaded; Agility: +3DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 20 roomy passenger seats

Sanitary facilities; Hatches: 4 manual

Communications:

Regional Radio (10 W, TL7, SmVcl); Range: 30 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 50 cm per km of range

Other:

Options: wet bar

Safety Features: fire suppression system

5.33 kL of cargo space (2.66 tonnes)

The *Vancouver* is a small passenger ferry used mainly as a shuttle in urban areas, although some vehicles in the class are used for long distance transportation.

The vehicle is well equipped with safety features, from its subregional radar to a full fire suppression system. Passenger comfort is assured with roomy seats, a wet bar, and sanitary facilities.

Mavros Charter Aircraft (TL8)

Summary:

1.00 displacement ton cylinder airframe; 2.62 tonnes; kCr 113

Chassis:

14.0 kL cylinder airframe (5.10 m long x 1.7 m wide x 1.7 m high, wingspan 10 m);

Structure: 154 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

250 kW TL5 imp. internal combustion engine;

Fuel: 250 L of high-grade hcarb (250 kg), 8 hours supply

Propulsion System: 250 kW aircraft; Maximum Speed: 224 km/h loaded, 277 km/h unloaded;

Take-Off Speed: 68 km/h loaded, 55 km/h unloaded;

Runway Length: 60 m loaded, 39 m unloaded; Take-Off Time: 6 s loaded, 5 s unloaded;

Range: 1788 km loaded, 2210 km unloaded; Agility: +3DM (0.3G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 5 roomy passenger seats

Communications:

Subcontinental Radio (100 W, TL8, SmVcl); Range: 300 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 10 cm per km of range

Other:

Options: wet bar; 1.00 kL of cargo space (500 kg)

Small and relatively cheap, the *Mavros* is typically operated by charter companies serving medium-distance shuttle routes. Roomy seats and a built-in wet bar ensure a comfortable trip for passengers. While not fast enough to compete with express aircraft, the *Mavros* is considerably cheaper to own and operate, and admirably serves its niche.

Mooney Schoolbus (TL9)

Summary:

3.30 displacement ton box; 9.28 tonnes; kCr 36.2

Chassis:

46.2 kL box (5.6 m long x 2.9 m wide x 2.9 m high);

Structure: 373 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

Primary: 1.00 MW TL12 CI Fusion Plus generator; Fuel: 31.5 L of enriched water (31.5 kg), 100 hrs supply;

Auxiliary: 50.0 kW TL12 CI Fusion Plus generator; Fuel: 1.50 L of enriched water (1.50 kg), 100 hrs supply

Propulsion System: 1.00 MW hoverskirt; Maximum Speed: 97 km/h loaded, 137 km/h unloaded;

Range: 9697 km loaded, 13662 km unloaded; Agility: +3DM (0.2G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 35 cramped passenger seats

Sanitary facilities; Hatches: 2 manual, 1 power

Communications:

Subcontinental Radio (100 W, TL10, SmVcl); Range: 300 km

Sensors:

No sensors installed.

Other:

Options: automatic sunroof; Safety Features: Roadgrid, fire suppression system

5.39 kL of cargo space (2.69 tonnes)

Most human societies train young people in segregated classes at least some of the time. These societies need a safe, reliable, and efficient means of transporting their children. With a Roadgrid™ guidance system, emergency floatation capability, and an integral fire suppression system the *Mooney* can be trusted to bring them back alive every time.

Seating 35 young students, and equipped with sanitary facilities, the *Mooney* can cruise almost 10,000 km between fuel stops. While not fast, the hoverskirt provides decent off-road capabilities, allowing service to outlying districts. (Rivers are frequently used as hover-highways on colony worlds.)

Ragoon Citibus (TL9)

Summary:

7.00 displacement ton box; 11.9 tonnes; kCr 28.1

Chassis:

98.0 kL box (7.2 m long x 3.7 m wide x 3.7 m high);

Structure: 616 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

1.20 MW-hr TL9 storage bank

Propulsion System: 400 kW wheels; Maximum Speed: 51 km/h; Range: 153 km; Agility: +3DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 46 roomy passenger seats; Hatches: 1 manual, 1 power

Communications:

Subregional Radio (1 W, TL9, SmVcl); Range: 10 km

Sensors:

No sensors installed.

Light, cheap, and non-polluting, the *Ragoon* is ideal for urban regions with developed roadnets. Its storage bank holds enough energy for three hours continuous operation, longer when the bus is frequently stationary—most transit systems provide charge sockets at major terminals for continual recharging.

Ormatii Gravbus (TL10)

Summary:

5.00 displacement ton box streamlined; 10.0 tonnes; kCr 49.3

Chassis:

70.0 kL box streamlined (6.4 m long x 3.3 m wide x 3.3 m high);

Structure: 1.10 tonnes of crystaliron, rated for 1.0Gs, body 0.01 cm thick, sealed to 1 atm

Armour: 3 front (0.04 cm), 2 sides (0.01 cm), 2 rear (0.01 cm), 2 top (0.01 cm), 2 bottom (0.01 cm)

Performance:

803 kW TL10 fusion plus generator; Fuel: 40.2 L of enriched water (40.2 kg), 100 hours supply

Propulsion System: 800 kW contragrav with 6 minutes emergency power;

Maximum Speed: 144 km/h loaded, 223 km/h unloaded;

Range: 14372 km loaded, 22276 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 30 roomy passenger seats

Basic life support; Hatches: 2 power

Communications:

Continental Radio (1.00 kW, TL10, SmVcl); Range: 3000 km

Sensors:

Active Regional Radar (1.00 kW); Range: 30 km; Resolution: 5.0 mm per km of range

Other:

Safety Features: Roadgrid, 4 emergency wall patches, fire suppression system

7.11 kL of cargo space (3.55 tonnes)

A basic people-mover, the *Ormatii* Gravbus is a simple, cheap way to provide mass transit on a high-tech world. Although relatively slow, it can carry 30 passengers in comfort at speeds adequate for most purposes. The *Ormatii* qualifies for an orbital license on all Imperial worlds.

Vikram Airbus (TL10)

Summary:

8.00 displacement ton box; 17.7 tonnes; kCr 92.5

Chassis:

112 kL box (7.5 m long x 3.9 m wide x 3.9 m high);

Structure: 2.25 tonnes of crystaliron, rated for 1.5Gs, body 0.02 cm thick, sealed to 1 atm

Armour: 3 front (0.04 cm), 2 sides (0.02 cm), 2 rear (0.02 cm), 2 top (0.02 cm), 2 bottom (0.02 cm)

Performance:

2.02 MW TL10 fusion plus generator; Fuel: 100 L of enriched water (100 kg), 100 hours supply

Propulsion System: 2.00 MW contragrav with 6 minutes emergency power and orbital package;

Maximum Speed: 204 km/h loaded, 282 km/h unloaded;

Range: 20375 km loaded, 28119 km unloaded; Agility: +1DM (1.5G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 45 roomy passenger seats

Standard life support, sanitary facilities; Airlocks: 1 normal; Hatches: 2 power

Communications:

Orbital Radio (10.00 kW, TL10, SmVcl); Range: 30000 km

Sensors:

Active Regional Radar (1.00 kW); Range: 30 km; Resolution: 5.0 mm per km of range

Other:

Options: entertainment centre, wet bar

Safety Features: licensed for orbital use, Roadgrid, 5 emergency wall patches, fire suppression system

9.73 kL of cargo space (4.87 tonnes)

The *Vikram* was designed as a long-haul airbus, servicing extended and orbital routes. Extensive safety features, state-of-the-art electronics, and spacious seating make it popular with well-off travellers who do not use their own transportation.

Delswa Schoolbus (TL11)

Summary:

4.20 displacement ton box; 7.16 tonnes; kCr 22.2

Chassis:

58.8 kL box (6.0 m long x 3.1 m wide x 3.1 m high);

Structure: 292 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

300 kW TL11 Fusion Plus power plant; Fuel: 11.9 L of enriched water (11.9 kg), 100 hours supply

Propulsion System: 300 kW contragrav with 6 minutes emergency power;

Maximum Speed: 109 km/h; Range: 10933 km; Agility: 0DM (2.9G)

Crew & Passengers:

Crew roster: pilot; 1 crew station; 56 cramped passenger seats

Communications:

Subcontinental Radio (100 W, TL11, SmVcl)

Sensors:

Active Subregional Radar (100 W) Resolution: 1.0 mm per km of range

Other:

Safety Features: Roadgrid, fire suppression system; 797 L of cargo space

Even with advanced communications systems, children learn best when they are physically present with their peers and instructors, especially when they are young. The *Delswa* grav vehicle is designed as a schoolbus. It can seat 56 children in comfort (or 56 adults in discomfort) and safety. Speed is not an issue on most routes; the *Delswa's* 109 km/h maximum is quite adequate. Grav compensation can be added, but it increases the price to over kCr 37; most school systems prefer to install a governor limiting the acceleration to 1G. Roadgrid and an standard fire suppression system make the *Delswa* a safe method of transporting children.

Palimqua Gravbus (TL12)

Summary:

5.00 displacement ton box streamlined; 9.57 tonnes; kCr 62.5

Chassis:

70.0 kL box streamlined (6.4 m long x 3.3 m wide x 3.3 m high);

Structure: 1.10 tonnes of crystaliron, rated for 1.0Gs, body 0.02 cm thick, sealed to 1 atm

Armour: 3 front (0.04 cm), 2 sides (0.02 cm), 2 rear (0.02 cm), 2 top (0.02 cm), 2 bottom (0.02 cm)

Performance:

803 kW TL12 fusion plus generator; Fuel: 25.1 L of enriched water (25.1 kg), 100 hours supply

Propulsion System: 800 kW contragrav with 6 minutes emergency power;

Maximum Speed: 151 km/h loaded, 222 km/h unloaded;

Range: 15049 km loaded, 22168 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 30 roomy passenger seats; Basic life support; Hatches: 2 power

Communications:

Continental Radio (1.00 kW, TL12, SmVcl); Range: 3000 km

Sensors:

Active Regional Radar (1.00 kW); Range: 30 km; Resolution: 0.200 mm per km of range

Other:

Safety Features: Roadgrid, 4 emergency wall patches, fire suppression system

6.15 kL of cargo space (3.07 tonnes)

A basic people-mover, the *Palimqua* Gravbus is a simple, cheap way to provide mass transit on a high-tech world. Although relatively slow, it can carry 30 passengers in comfort at speeds adequate for most purposes. The *Palimqua* qualifies for an orbital license on all Imperial worlds.

Weyrai Airbus (TL15)

Summary:

5.50 displacement ton box streamlined; 11.5 tonnes; kCr 81.8

Chassis:

77.0 kL box streamlined (6.6 m long x 3.4 m wide x 3.4 m high);

Structure: 350 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

2.00 MW TL15 fusion plus generator; Fuel: 30.6 L of enriched water (30.6 kg), 100 hours supply

Propulsion System: 2.00 MW contragrav with 6 minutes emergency power;

Maximum Speed: 315 km/h loaded, 464 km/h unloaded;

Range: 31387 km loaded, 46254 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 30 roomy passenger seats; Sanitary facilities

Communications:

Continental Radio (1.00 kW, TL15, SmVcl); Range: 3000 km

Sensors:

No sensors installed.

Other:

Safety Features: Roadgrid, fire suppression system

7.37 kL of cargo space (3.69 tonnes)

Speedy yet cheap, the *Weyrai* is typically encountered on standardized routes. Lack of sensors mean total reliance on Roadgrid™ for safety.

Cargo Transport

Even more than people, industrialized society relies on the movement of goods. The vehicles in this chapter can be found shipping everything from bulk raw materials to luxury consumer trinkets, in a variety of environments and tech levels.

Tilb Merchant Ship (TL2)

Summary:

20.00 displacement ton cylinder; 131 tonnes; kCr 123

Chassis:

280 kL cylinder (16 m long x 4.7 m wide x 4.7 m high);

Structure: 2.28 tonnes of heavy wood, rated for 1.0Gs, body 0.30 cm thick, 0 armour rating

Performance:

1.61 MW TL1 sail

Propulsion System: 1.60 MW watercraft;

Maximum Speed: 4 km/h loaded, 8 km/h unloaded; Range: 0 km; Agility: +3DM (0.0G)

Crew & Passengers:

Crew roster: helmsman, captain, 2 officers, 10 seamen; 14 crew stations; 10 roomy passenger seats

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Options: kitchen for 10 simultaneous meals; Safety Features: fire suppression system

228 kL of cargo space (114 tonnes)

Slow and unwieldy, *Tilb*-class ships form the backbone of many low-tech worlds' merchant marine. Built to maximize cargo capacity at the expense of speed, *Tilbs* are used for routine commerce.

Haambo Merchant Cog (TL3)

Summary:

35.00 displacement ton cylinder; 239 tonnes; kCr 165

Chassis:

490 kL cylinder (19 m long x 5.7 m wide x 5.7 m high);

Structure: 3.31 tonnes of heavy wood, rated for 1.0Gs, body 0.30 cm thick, 0 armour rating

Performance:

2.44 MW TL1 sail

Propulsion System: 2.43 MW watercraft;

Maximum Speed: 3 km/h loaded, 7 km/h unloaded; Range: 0 km; Agility: +3DM (0.0G)

Crew:

Crew roster: helmsman, captain, officer, 10 sailors; 13 crew stations

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Options: recreation space, kitchen for 13 simultaneous meals; 432 kL of cargo space (216 tonnes)

Waterborne vehicles are the cheapest way to transport cargo, and on many worlds sailing ships remain in use for decades after they are technologically 'obsolete'.

The *Haambo* is a typical small merchant vessel, suitable for sheltered coastal waters (it lacks the hull strength necessary for deep-sea sailing). Although slower than other means of transport, it is much cheaper, making it suitable for bulk transport of non-perishable goods.

Morag Autocart (TL3)

Summary:

4.00 displacement ton open-topped box; 36.3 tonnes; kCr 81.5

Chassis:

56.0 kL open-topped box (5.9 m long x 3.1 m wide x 3.1 m high);

Structure: 1.70 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

500 kW TL3 early steam engine; Fuel: 500 L of wood (250 kg), 5 hours supply

Propulsion System: 500 kW wheels;

Maximum Speed: 14 km/h loaded, 29 km/h unloaded;

Range: 74 km loaded, 148 km unloaded; Agility: +3DM (0.0G);

Crew:

Crew roster: driver, engineer, 2 stokers; 4 crew stations

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

44.9 kL of cargo space (22.4 tonnes)

One of the first large-scale cargo haulers, the *Morag* usually runs fixed routes—mainly because many low-tech roads can't carry its bulk. One advantage of the early steam engine is that the crew can refuel it at any stand of trees.

Bombat Mixed Cargo Ship (TL4)

Summary:

100.00 displacement ton box; 1735 tonnes; MCr 3.53

Chassis:

1400 kL box (17 m long x 9.0 m wide x 9.0 m high);

Structure: 14.5 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

50.0 MW TL4 steam engine, water-cooled; Fuel: 450 kL of coal (900 tonnes), 240 hours supply

Propulsion System: 50.0 MW watercraft;

Maximum Speed: 9 km/h loaded, 11 km/h unloaded;

Range: 2389 km loaded, 2848 km unloaded; Agility: +3DM (0.0G);

Crew & Passengers:

Crew roster: helmsman, 5 engineers, 3 deckhands, steward; 10 crew stations; 20 roomy passenger seats

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Options: recreation space, kitchen for 10 simultaneous meals

Construction Equipment: crane can lift 8.00 tonnes

558 kL of cargo space (279 tonnes)

Slow but steady, the *Bombat* excels at long-haul transport in enclosed waters (where sail cannot be effectively used). While the passenger quarters are spartan, tickets are usually cheap, with deck space available to those who cannot afford even the price of a room.

Victraa Hauler (TL4)

Summary:

2.00 displacement ton open-topped box; 19.4 tonnes; kCr 75.10

Chassis:

28.0 kL open-topped box (4.7 m long x 2.4 m wide x 2.4 m high);

Structure: 1.07 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

500 kW TL4 steam engine; Fuel: 187 L of coal (375 kg), 10 hours supply

Propulsion System: 500 kW wheels;

Maximum Speed: 22 km/h loaded, 44 km/h unloaded;

Range: 222 km loaded, 445 km unloaded; Agility: +3DM (0.0G);

Crew:

Crew roster: driver; 1 crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

22.8 kL of cargo space (11.4 tonnes)

Slow but steady, the *Victraa* is a common sight on thinly-populated low-tech worlds, filling in the gaps between rail and canal systems.

Huron Tanker (TL5)

Summary:

10.00 displacement ton cylinder; 140 tonnes; kCr 649

Chassis:

140 kL cylinder (12 m long x 3.7 m wide x 3.7 m high);

Structure: 2.87 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

5.75 MW TL4 internal combustion engine;

Fuel: 5.75 kL of hydrocarbons (5.75 tonnes), 10 hours supply

Propulsion System: 5.75 MW wheels;

Maximum Speed: 79 km/h loaded, 159 km/h unloaded;

Range: 793 km loaded, 1587 km unloaded; Agility: +3DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 1 cramped passenger seat

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

100 kL of cargo space (100 tonnes)

Low tech societies frequently run on petrochemical power. Even if petrochemicals are unavailable, industrial processes require large quantities of liquids. For circumstances where pipelines are uneconomical, and water-borne transport impossible, self-propelled tankers provide the solution.

The *Huron* is typical of these tankers. A large cylindrical tank is towed by a smaller propulsion module. No comforts are installed, because the *Huron* is intended for short-haul routes.

Penguin Cargo Plane (TL6)

Summary:

100.00 displacement ton cylinder airframe; 121 tonnes; MCr 5.57

Chassis:

1400 kL cylinder airframe (27 m long x 8.1 m wide x 8.1 m high, wingspan 50 m);

Structure: 6.66 tonnes of light alloy, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

4x 1.50 MW TL5 imp. internal combustion engines;

Fuel: 11.3 kL of high-grade hcarb (11.3 tonnes), 15 hours supply

Propulsion System: 6.00 MW aircraft with STOL capability

Maximum Speed: 157 km/h loaded, 294 km/h unloaded;

Take-Off Speed: 97 km/h loaded, 41 km/h unloaded;

Runway Length: 184 m loaded, 22 m unloaded; Take-Off Time: 13 s loaded, 3 s unloaded;

Range: 2349 km loaded, 4395 km unloaded; Agility: +3DM (0.2G);

Crew & Passengers:

Crew roster: pilot, navigator, engineer; 3 crew stations; 3 roomy passenger seats

Communications:

Subcontinental Radio (10.00 kW, TL6, SmVcl, MilSpec); Range: 300 km

Sensors:

No sensors installed.

Other:

140 kL of cargo space (70.0 tonnes)

Slow and lumbering, the *Penguin* is a workhorse for low-tech worlds. Hauling up to 70 tonnes of cargo out of short rutted airstrips in the middle of nowhere, *Penguins* are usually held together with baling wire and good intentions. Limited passenger seating is provided; extra passengers must travel in the cargo hold.

Berigan EcoHauler (TL7)

Summary:

200.00 displacement ton cylinder; 533 tonnes; kCr 263

Chassis:

2800 kL cylinder (34 m long x 10 m wide x 10 m high);

Structure: 5.28 tonnes of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

6.00 MW TL7 sail

Propulsion System: 6.00 MW watercraft;

Maximum Speed: 7 km/h loaded, 14 km/h unloaded; Range: 0 km; Agility: +3DM (0.0G);

Crew:

Crew roster: helmsman, captain, 4 deckhands; 6 crew stations

Sanitary and shower facilities

Communications:

Continental Radio (1.00 kW, TL7, SmVcl); Range: 3000 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 50 cm per km of range

Active Subregional Sonar (100 W); Range: 10 km; Resolution: 50 cm per km of range

Other:

Options: recreation space, kitchen for 6 simultaneous meals

2739 kL of cargo space (500 tonnes)

Before the discover of cheap portable fusion power, many worlds are constrained by the availability of chemical power sources. The *Berigan* is typically encountered on worlds too poor in chemical power to waste it on bulk cargo transport. Slow and with all the grace of a drunk hippopotamus, the best that can be said about the *Berigan* is that it never runs out of gas.

This vehicle was designed using the rules in the **Central Supply Catalog**, with the following variations: uses synthetic sails, realistic unloaded speed, realistic stress.

Bromii Tanker (TL7)

Summary:

300.00 displacement ton cylinder; 4346 tonnes; MCr 1.87

Chassis:

4200 kL cylinder (40 m long x 11 m wide x 11 m high);

Structure: 27.7 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

50.0 MW TL5 turbine, steam, water-cooled;

Fuel: 714 kL of hydrocarbons (714 tonnes), 200 hours supply

Propulsion System: 50.0 MW watercraft;

Maximum Speed: 7 km/h loaded, 14 km/h unloaded;

Range: 1490 km loaded, 2981 km unloaded; Agility: +3DM (0.0G);

Crew:

Crew roster: helmsman, captain, 3 engineers, 5 deckhands; 10 crew stations

Sanitary and shower facilities

Communications:

Continental Radio (1.00 kW, TL7, SmVcl); Range: 3000 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 50 cm per km of range

Passive Subregional Optical (1 W); Range: 10 km; Resolution: 10 cm per km of range

Other:

Options: entertainment centre, recreation space, kitchen for 10 simultaneous meals

3300 kL of cargo space (3300 tonnes)

The cheapest method to move bulk good and raw materials is by water. While pipelines can carry liquids, there are many circumstances where this is uneconomical. In these cases ships like the *Bromii* fill the gap, carrying kilotonnes cheaply (if slowly).

Guppy Bulk Air Transport (TL7)

Summary:

100.00 displacement ton cylinder airframe; 167 tonnes; MCr 6.35

Chassis:

1400 kL cylinder airframe (27 m long x 8.1 m wide x 8.1 m high, wingspan 50 m);

Structure: 6.66 tonnes of light alloy, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

10.0 MW TL5 imp. internal combustion engine;

Fuel: 12.5 kL of high-grade hcarb (12.5 tonnes), 10 hours supply

Propulsion System: 10.0 MW aircraft; Maximum Speed: 310 km/h loaded, 611 km/h unloaded;

Take-Off Speed: 201 km/h loaded, 81 km/h unloaded;

Runway Length: 787 m loaded, 85 m unloaded; Take-Off Time: 28 s loaded, 7 s unloaded;

Range: 3097 km loaded, 6091 km unloaded; Agility: +3DM (0.2G);

Crew:

Crew roster: pilot, co-pilot, engineer, navigator; 4 crew stations

Sanitary facilities; Hatches: 2 manual, 2 power

Communications:

Continental Radio (1.00 kW, TL7, SmVcl); Range: 3000 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 50 cm per km of range

Other:

Safety Features: fire suppression system

1332 kL of cargo space (100 tonnes)

High-paced industrial development frequently requires fast transport of bulk goods. When rail is impractical and sea too slow, the *Guppy* fills the gap. Their cavernous cargo holds filled with up to 100 tonnes of high-priority freight, *Guppies* are a common sight on low-tech industrial worlds.

The *Guppy's* operational range of 3000 km covers most transcontinental and transoceanic routes, during which continuous radio contact with its home base can be maintained. Its low runway requirements ensure that the *Guppy* can operate out of most airports.

Knorr Container Truck (TL7)

Summary:

6.50 displacement ton box; 45.9 tonnes; kCr 168

Chassis:

91.0 kL box (6.10 m long x 3.6 m wide x 3.6 m high);

Structure: 2.35 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

3.00 MW TL4 internal combustion engine;

Fuel: 3.00 kL of hydrocarbons (3.00 tonnes), 10 hours supply

Propulsion System: 3.00 MW wheels;

Maximum Speed: 134 km/h loaded, 269 km/h unloaded;

Range: 1339 km loaded, 2679 km unloaded; Agility: +3DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 1 roomy passenger seat

Communications:

Regional Radio (10 W, TL7, SmVcl); Range: 30 km

Sensors:

No sensors installed.

Other:

Safety Features: anti-theft system

70.0 kL of cargo space (35.0 tonnes)

Before a world is fully integrated into the Third Imperium, there is frequently a brief period—usually less than a generation—when Imperial technology is concentrated in certain areas. The *Knorr* is a typical flatbed container carrier with one extra feature: it is optimized to carry standard Imperial five displacement ton shipping containers. This is a powerful selling feature on worlds which have not yet been granted access to Fusion Plus and contragrav.

Knorr II Container Carrier (TL7)

Summary:

6.50 displacement ton box; 45.9 tonnes; kCr 50.3

Chassis:

91.0 kL box (6.10 m long x 3.6 m wide x 3.6 m high);

Structure: 2.35 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

3.50 MW TL11 fusion plus generator;

Fuel: 1.38 kL of enriched water (1.38 tonnes), 1000 hours supply

Propulsion System: 3.00 MW contragrav with 6 minutes emergency power;

Maximum Speed: 117 km/h loaded, 495 km/h unloaded;

Range: 117525 km loaded, 493263 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 1 roomy passenger seat

Communications:

Regional Radio (10 W, TL7, SmVcl); Range: 30 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 50 cm per km of range

Other:

Safety Features: anti-theft system

power socket supplies 500 kW; 70.0 kL of cargo space (35.0 tonnes)

The original *Knorr* was a wheeled flatbed container truck optimized to carry standard Imperial five displacement ton shipping containers. With the arrival of Fusion Plus and contragrav wheeled transport becomes uneconomical.

Many companies, however, have a considerable investment in vehicles, and prefer to retrofit existing fleets rather than purchasing completely new vehicles. The engine and fuel tank are replaced with much smaller Fusion Plus units; the wheeled transmission by contragrav lifters. A short-range radar unit completes the refit.

The *Knorr II* is odd-looking, but typical of these hybrids. Aside from the radar dome mounted over its radiator, modified vehicles almost indistinguishable from the original model; even the wheels are left in place as landing gear. Smugglers have been known to remove the radar dome and run the truck along the ground until they need to make a fast off-road getaway.

Mandan Hauler (TL7)

Summary:

4.00 displacement ton box; 36.10 tonnes; kCr 113

Chassis:

56.0 kL box (5.9 m long x 3.1 m wide x 3.1 m high);

Structure: 3.40 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

2.00 MW TL4 internal combustion engine;

Fuel: 4.00 kL of hydrocarbons (4.00 tonnes), 20 hours supply

Propulsion System: 2.00 MW wheels; Maximum Speed: 87 km/h loaded, 151 km/h unloaded;

Range: 1752 km loaded, 3018 km unloaded; Agility: +3DM (0.1G)

Crew & Passengers:

Crew roster: driver; 1 crew station; 1 cramped passenger seat

Communications:

Regional Radio (10 W, TL7, SmVcl); Range: 30 km

Sensors:

No sensors installed.

Other:

36.0 kL of modular cargo space (19.8 tonnes)

The *Mandan* is representative of many low-tech cargo haulers. Its simple design and modular cargo pod make its type common on many pre-contact worlds. However, once a world has contacted the Third Imperium, the *Mandan's* incompatibility with standard Imperial cargo containers virtually ensures its replacement.

Tlapia Frontier Air Transport (TL7)

Summary:

100.00 displacement ton cylinder airframe; 167 tonnes; MCr 6.35

Chassis:

1400 kL cylinder airframe (27 m long x 8.1 m wide x 8.1 m high, wingspan 50 m);

Structure: 6.66 tonnes of light alloy, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

10.0 MW TL5 imp. internal combustion engine;

Fuel: 12.5 kL of high-grade hcarb (12.5 tonnes), 10 hours supply

Propulsion System: 10.0 MW aircraft with STOL capability

Maximum Speed: 207 km/h loaded, 407 km/h unloaded; Take-Off Speed: 134 km/h loaded, 54 km/h unloaded;

Runway Length: 350 m loaded, 38 m unloaded; Take-Off Time: 18 s loaded, 5 s unloaded;

Range: 2064 km loaded, 4061 km unloaded; Agility: +3DM (0.2G);

Crew:

Crew roster: pilot, co-pilot, engineer, navigator; 4 crew stations; Sanitary facilities; Hatches: 2 manual, 2 power

Communications:

Continental Radio (1.00 kW, TL7, SmVcl); Range: 3000 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 50 cm per km of range

Other:

Safety Features: fire suppression system; 1332 kL of cargo space (100 tonnes)

Industrial development requires transport of bulk goods. When land and sea transport are impractical or impossible, the *Tlapia* fills the gap. A STOL variant of the ubiquitous *Guppy* transport, *Tlapias* are useful when developing outlying regions which do not have an established ground transport net. Their cavernous cargo holds can carry up to 100 tonnes of freight and passengers.

The *Tlapia's* operational range of 2000 km covers most transcontinental and transoceanic routes, during which continuous radio contact with its home base can be maintained. Its extremely low runway requirements ensure that the *Tlapia* can operate out of most airstrips.

Foriq Transporter (TL11)

Summary:

5.00 displacement ton open-topped box; 38.5 tonnes; kCr 37.8

Chassis:

70.0 kL open-topped box (6.4 m long x 3.3 m wide x 3.3 m high);

Structure: 2.19 tonnes of crystaliron, rated for 2.0Gs, body 0.010 cm thick, 1 armour rating

Performance:

1.50 MW TL11 fusion plus generator; Fuel: 59.3 L of enriched water (59.3 kg), 100 hours supply

Propulsion System: 1.50 MW contragrav with 6 minutes emergency power;

Maximum Speed: 70 km/h loaded, 401 km/h unloaded;

Range: 7009 km loaded, 39960 km unloaded; Agility: +1DM (2.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 1 cramped passenger seat

Communications:

Subcontinental Radio (100 W, TL11, SmVcl); Range: 300 km

Sensors:

No sensors installed.

Other:

Construction Equipment: crane can lift 11.0 tonnes

63.5 kL of cargo space (31.8 tonnes)

The *Foriq* Transporter is a bare-bones design intended for bulk transport in remote regions. Lacking any creature comforts except a canvas roof, it is simply an open box with a set of contragrav lifters. Unloved by their drivers, *Foriqs* are usually found carrying ore between mine shaft and smelter, servicing operations too small to warrant their own loading cranes.

Vheria Freighter (TL12)

Summary:

12.25 displacement ton box; 91.1 tonnes; kCr 154

Chassis:

171 kL box (8.6 m long x 4.5 m wide x 4.5 m high);

Structure: 3.98 tonnes of crystaliron, rated for 1.0Gs, body 0.002 cm thick, 1 armour rating

Performance:

2x 2.00 MW TL12 CI Fusion Plus generators;

Fuel: 126 L of enriched water (126 kg), 100 hours supply

Propulsion System: 4.00 MW contragrav with 6 minutes emergency power;

Maximum Speed: 79 km/h loaded, 514 km/h unloaded;

Range: 7907 km loaded, 51244 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 1 roomy passenger seat; Sanitary facilities

Communications:

Continental Radio (1.00 kW, TL12, SmVcl); Range: 3000 km

Sensors:

No sensors installed.

Other:

Safety Features: anti-theft system, Roadgrid

140 kL of modular cargo space (77.0 tonnes)

The *Vheria* is a ubiquitous sight on Sylean worlds. Standard Cleon Industries power modules make the *Vheria* slightly cheaper than its competition in a field where every centicredit counts. In addition to its driver and 10-ton cargo container, the freighter can carry one passenger (usually a replacement driver).

Xian Cargo Lighter (TL13)

Summary:

12.50 displacement ton box; 99.8 tonnes; kCr 207

Chassis:

175 kL box (8.7 m long x 4.5 m wide x 4.5 m high);

Structure: 10.9 tonnes of soft steel, rated for 1.5Gs, body 0.02 cm thick, sealed to 1 atm

Armour: 3 front (0.02 cm), 2 sides (0.007 cm), 2 rear (0.007 cm), 2 top (0.007 cm), 2 bottom (0.007 cm)

Performance:

4.00 MW TL13 fusion plus generator; Fuel: 200 L of enriched water (200 kg), 200 hours supply

Propulsion System: 4.00 MW contra-grav with 6 minutes emergency power and orbital thrusters;

Maximum Speed: 72 km/h loaded, 322 km/h unloaded;

Range: 14423 km loaded, 64153 km unloaded; Agility: +1DM (1.5G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 1 roomy passenger seat

Basic life support, sanitary facilities; Hatches: 2 manual

Communications:

Continental Radio (1.00 kW, TL13, SmVcl); Range: 3000 km

Sensors:

Active Regional Radar (1.00 kW); Range: 30 km; Resolution: 0.050 mm per km of range

Other:

Options: wet bar

Safety Features: licensed for orbital use, Roadgrid, 1 emergency wall patch, fire suppression system

140 kL of modular cargo space (77.4 tonnes)

Highports need a cheap way of transporting freight to and from the surface. True spacecraft cost millions of credits, while cargo lighters can do the same job for a fraction of the cost. The *Xian* is a typical lighter, being little more than an armoured box with a contra-grav drive, navigational aids, and a crew compartment attached. The cargo bay is sized to take module 140kL shipping containers (10 displacement tons). While the *Xian's* maximum loaded speed is only 72 km/h, sanitary facilities and a wet bar permit longer orbital journeys without violating union regulations.

Commercial Vehicles

Commercial vehicles are present everywhere, and ignored everywhere. The selection of designs in this chapter will lend a bit of background to any Traveller campaign.

Weland Tinker's Cart (TL1)

Summary:

0.20 displacement ton box; 9.53 tonnes; kCr 10.7

Chassis:

2.80 kL box (2.2 m long x 1.1 m wide x 1.1 m high);

Structure: 115 kg of heavy wood, rated for 1.0Gs, body 0.30 cm thick, 0 armour rating

Performance:

40.0 kW TL0 draft animals; Fuel: grazing

Propulsion System: 40.0 kW wheels; Maximum Speed: 3 km/h loaded, 3 km/h unloaded; Agility: +1DM (0.0G)

Crew:

Crew roster: driver; 1 external crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

1.0 m³ of lab space; 1.34 kL of cargo space (669 kg)

Low tech worlds still depend on technology, and the people who keep it functioning. A housewife who's pot has sprung a leak cannot repair it on her own; a farmer with a broken plowshare needs a blacksmith to weld the pieces together. Small settlements cannot support dedicated workers, and so rely on travelling technicians.

The *Weland tinker's cart* is simply an enclosed box containing a small workshop and space for personal effects. The driver's seat is outside, sheltered from the elements by a small awning. The cart isn't fast, but neither is the pace of life.

Belsan Delivery Van (TL5)

Summary:

0.80 displacement ton box; 6.73 tonnes; kCr 45.5

Chassis:

11.2 kL box (3.5 m long x 1.8 m wide x 1.8 m high);

Structure: 580 kg of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

400 kW TL4 internal combustion engine; Fuel: 480 L of hydrocarbons (480 kg), 12 hours supply

Propulsion System: 400 kW wheels; Maximum Speed: 48 km/h loaded, 92 km/h unloaded;

Range: 577 km loaded, 1105 km unloaded; Agility: +3DM (0.1G)

Crew & Passengers:

Crew roster: driver; 1 crew station; 1 cramped passenger seat

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

6.43 kL of cargo space (3.21 tonnes)

Most urban areas have a niche for slow-but-spacious delivery vehicles. The *Belsan* fills that niche, having room for over 6 kL of cargo. Its slow maximum speed is rarely an issue for two reasons. First, most of its cargo is lighter than the design rating, so it can often travel faster. More importantly, most urban regions have speed restrictions or traffic patterns that preclude faster travel.

Pinkerton Armoured Car (TL5)

Summary:

2.00 displacement ton box; 20.3 tonnes; kCr 203

Chassis:

28.0 kL box (4.7 m long x 2.4 m wide x 2.4 m high); Structure: 713 kg of hard steel, rated for 1.0Gs, body 0.30 cm thick, 4 armour rating

Performance:

1.50 MW TL4 Internal Combustion power plant; Fuel: 1.50 kL of hydrocarbons (1.50 tonnes), 10 hours supply

Propulsion System: 1.50 MW wheels with bulletproof tires;

Maximum Speed: 90 km/h; Range: 897 km; Agility: +3DM (0.1G)

Crew & Passengers:

Crew roster: driver; 1 crew station; 1 cramped passenger seat

Communications:

Subregional Radio (1 W, TL5, SmVcl)

Sensors:

No sensors installed.

Other:

15.3 kL of cargo space

Whenever valuable goods must be transported, there are those who would steal them. Thieves stand no chance against the *Pinkerton* armoured car. 3mm hard steel armour and bulletproof tires foil any attempt to open the truck, while the standard-issue radio allows the guard to call for assistance in the unlikely event that the assailants set up a roadblock.

Ziv Delivery Van (TL5)

Summary:

2.00 displacement ton box; 17.5 tonnes; kCr 113

Chassis:

28.0 kL box (4.7 m long x 2.4 m wide x 2.4 m high);

Structure: 1.07 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

1.00 MW TL4 internal combustion engine; Fuel: 799 L of hydrocarbons (799 kg), 8 hours supply

Propulsion System: 1.00 MW wheels;

Maximum Speed: 55 km/h loaded, 105 km/h unloaded;

Range: 445 km loaded, 842 km unloaded; Agility: +3DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 1 cramped passenger seat

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

19.5 kL of cargo space (9.76 tonnes)

Often described as a “bare-bones box with an engine,” the *Ziv* van is optimized for one purpose: delivery of goods within an urban area. Its total lack of comfort, environmental controls, and speed render it useless in extreme climates and the countryside.

Gilkan Ice Cream Cart (TL6)

Summary:

0.15 displacement ton open frame; 1.52 tonnes; Cr 1451

Chassis:

2.10 kL open frame (5.6 m long x 79 cm wide x 79 cm high); Structure: 79.3 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

5.50 kW TL1 Rowers power plant; Fuel: 0 mL of food (0.000 g), 0 hours supply

Propulsion System: 5.00 kW wheels; Maximum Speed: 2 km/h;

Range: 0 km; Agility: +1DM (0.0G)

Crew:

Crew roster: driver; 1 external crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Options: kitchen for 1 simultaneous meal

451 L of cargo space

Kids! What would summer be like without the merry sound of an ice cream cart? Next summer, earn extra pocket money selling ice cream from a *Gilkan* cart. Modern fibre laminate construction and a space-efficient serving unit make the *Gilkan* a joy to peddle, while almost 500 litres of storage holds enough ice cream to satisfy the hungriest crowd.

(Obviously, the CSC design system does not work very well for peddle-powered vehicles! Most of the mass in this design are the “rowers” that power the vehicle.)

Todd Mobile Kitchen (TL6)

Summary:

2.00 displacement ton box; 9.89 tonnes; kCr 52.3

Chassis:

28.0 kL box (4.7 m long x 2.4 m wide x 2.4 m high);

Structure: 1.07 tonnes of soft steel, rated for 1.0Gs, body 0.03 cm thick, 1 armour rating

Performance:

610 kW TL4 internal combustion engine; Fuel: 305 L of hydrocarbons (305 kg), 5 hours supply

Propulsion System: 600 kW wheels;

Maximum Speed: 54 km/h loaded, 109 km/h unloaded;

Range: 272 km loaded, 545 km unloaded; Agility: +3DM (0.1G);

Crew & Passengers:

Crew roster: driver; 1 crew station; 2 roomy passenger seats

Hatches: 4 manual

Communications:

Regional Radio (10 W, TL6, SmVcl); Range: 30 km

Sensors:

No sensors installed.

Other:

Options: recreation space, kitchen for 20 simultaneous meals

Safety Features: anti-theft system, fire suppression system

9.90 kL of cargo space (4.95 tonnes)

Larger cities tend to have many occasional gatherings, at which people naturally want food. When circumstances do not warrant building a permanent facility, mobile kitchens like the *Todd* find a niche.

Although it is too slow to travel outside a built-up area, the *Todd* is ideal for urban events. Almost ten cubic metres of pantry space can supply the kitchen for most of a day while the two-cook kitchen can prepare 20 meals at a time.

Aero Utility Vehicle (TL10)

Summary:

4.00 displacement ton open-topped box; 24.4 tonnes; kCr 10.1

Chassis:

56.0 kL open-topped box (5.9 m long x 3.1 m wide x 3.1 m high);

Structure: 943 kg of crystaliron, rated for 1.0Gs, body 0.010 cm thick, 1 armour rating

Performance:

200 kW TL10 fusion plus generator; Fuel: 10.0 L of enriched water (10.0 kg), 100 hours supply

Propulsion System: 200 kW contragrav with 6 minutes emergency power;

Maximum Speed: 14 km/h loaded, 171 km/h unloaded;

Range: 1477 km loaded, 17086 km unloaded; Agility: +2DM (0.5G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 5 roomy passenger seats

Communications:

Subcontinental Radio (100 W, TL10, SmVcl); Range: 300 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 5.0 mm per km of range

Other:

Safety Features: anti-theft system

44.5 kL of cargo space (22.3 tonnes)

Small, cheap utility vehicles are very common in the Third Imperium. The Ling Standard Products *Aeron* fits into standard 4-ton vehicle bays, such as those used by the Imperial Interstellar Scout Service. LSP offers generous licenses to local manufacturers, which makes the *Aeron* one of the most common models.

Khoi Delivery Airvan (TL10)

Summary:

1.50 displacement ton box; 10.4 tonnes; kCr 14.10

Chassis:

21.0 kL box (4.3 m long x 2.2 m wide x 2.2 m high);

Structure: 490 kg of crystaliron, rated for 1.0Gs, body 0.010 cm thick, 1 armour rating

Performance:

500 kW TL10 fusion plus generator; Fuel: 25.0 L of enriched water (25.0 kg), 100 hours supply

Propulsion System: 500 kW contragrav with 6 minutes emergency power;

Maximum Speed: 86 km/h loaded, 460 km/h unloaded;

Range: 8623 km loaded, 45838 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 1 roomy passenger seat

Communications:

Subcontinental Radio (100 W, TL10, SmVcl); Range: 300 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 5.0 mm per km of range

Other:

Safety Features: anti-theft system, Roadgrid

16.9 kL of cargo space (8.47 tonnes)

A simple contragrav lifter, the *Khoi* and similar vehicles are so ubiquitous that they are virtually invisible in most urban settings.

Noraq Delivery Van (TL11)

Summary:

2.00 displacement ton box; 13.8 tonnes; kCr 12.4

Chassis:

28.0 kL box (4.7 m long x 2.4 m wide x 2.4 m high);

Structure: 178 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

400 kW TL11 fusion plus generator; Fuel: 15.8 L of enriched water (15.8 kg), 100 hours supply

Propulsion System: 400 kW contragrav with 6 minutes emergency power;

Maximum Speed: 52 km/h loaded, 560 km/h unloaded;

Range: 5213 km loaded, 55785 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 1 cramped passenger seat

Communications:

Regional Radio (10 W, TL11, SmVcl); Range: 30 km

Sensors:

No sensors installed.

Other:

Safety Features: anti-theft system, Roadgrid

25.0 kL of cargo space (12.5 tonnes)

Cheap and reliable, *Noraq* vans (or their equivalents) are a common sight on many worlds. Little more than a simple structurecomp box with contragrav lifters and a Fusion Plus power plant, they are the cheapest means of shuttling goods within a city. Lack of sensors limit the basic model to use within urban Roadgrid control areas; a radar (permitting off-grid use) adds 3kCr to the price.

Even when outdated, *Noraqs* are frequently used until they wear out. Many examples can be found on Sylea and other high-tech worlds within the fledgling Third Imperium.

Beirish Delivery Van (TL12)

Summary:

2.00 displacement ton box; 13.6 tonnes; kCr 18.9

Chassis:

28.0 kL box (4.7 m long x 2.4 m wide x 2.4 m high);

Structure: 178 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

2x 200 kW TL12 CI Fusion Plus generators;

Fuel: 12.0 L of enriched water (12.0 kg), 100 hours supply

Propulsion System: 400 kW contragrav with 6 minutes emergency power;

Maximum Speed: 52 km/h loaded, 521 km/h unloaded;

Range: 5277 km loaded, 51907 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 1 cramped passenger seat

Communications:

Regional Radio (10 W, TL12, SmVcl); Range: 30 km

Sensors:

No sensors installed.

Other:

Safety Features: anti-theft system, Roadgrid

24.5 kL of cargo space (12.3 tonnes)

Cheap and reliable, *Beirish* vans are a common sight on Sylea and neighbouring worlds. Little more than a simple structurecomp box with contragrav lifters and a Cleon Industries Fusion Plus unit, they are the cheapest means of shuttling goods within a city. Lack of sensors limit the basic model to use within urban Roadgrid control areas; a radar (permitting off-grid use) adds 3kCr to the price.

Alcos Delivery Van (TL15)

Summary:

2.00 displacement ton box; 13.5 tonnes; kCr 18.6

Chassis:

28.0 kL box (4.7 m long x 2.4 m wide x 2.4 m high);

Structure: 178 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

400 kW TL15 fusion plus generator; Fuel: 6.12 L of enriched water (6.12 kg), 100 hours supply

Propulsion System: 400 kW contragrav with 6 minutes emergency power;

Maximum Speed: 53 km/h loaded, 575 km/h unloaded;

Range: 5319 km loaded, 57323 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 1 cramped passenger seat

Communications:

Regional Radio (10 W, TL15, SmVcl); Range: 30 km

Sensors:

No sensors installed.

Other:

Safety Features: anti-theft system, Roadgrid

24.6 kL of cargo space (12.3 tonnes)

Cheap and reliable, *Alcos* vans are a common sight on many high-tech worlds. Little more than a simple structurecomp box with contragrav lifters and a Fusion Plus power plant, they are the cheapest means of shuttling goods within a city. Lack of sensors limit the basic model to use within urban Roadgrid control areas; a radar (permitting off-grid use) adds 3kCr to the price.

Emergency Vehicles

Emergencies happen even in the most well-regulated environment. When used by highly-trained crews, the vehicles in this chapter can do much to mitigate disasters.

Galen Ambulance (TL7)

Summary:

1.50 displacement ton box; 7.41 tonnes; kCr 67.0

Chassis:

21.0 kL box (4.3 m long x 2.2 m wide x 2.2 m high);

Structure: 220 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

1.00 MW TL4 internal combustion engine; Fuel: 1.00 kL of hydrocarbons (1.00 tonnes), 10 hours supply

Propulsion System: 1.00 MW wheels; Maximum Speed: 146 km/h loaded, 156 km/h unloaded;

Range: 1457 km loaded, 1558 km unloaded; Agility: +3DM (0.2G)

Crew & Passengers:

Crew roster: driver/medic, paramedic; 1 crew station; 3 roomy passenger seats; Hatches: 3 manual

Communications:

Subcontinental Radio (100 W, TL7, SmVcl); Range: 300 km

Sensors:

No sensors installed.

Other:

Options: lab/working space; Safety Features: anti-theft system, fire suppression system; 964 L of cargo space (482 kg)

Primitive though pre-stellar medicine is, timely medical attention can be the difference between life and death. The *Galen* is typical of purpose-built emergency medical vehicles. It is fast enough to quickly arrive at an emergency site, and equipped with a two-way radio so that the attending medics can remain in constant contact with distant experts.

Meerside Rescue Craft (TL7)

Summary:

3.00 displacement ton box; 14.2 tonnes; kCr 122

Chassis:

42.0 kL box (5.4 m long x 2.8 m wide x 2.8 m high);

Structure: 350 kg of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

1.50 MW TL5 imp. internal combustion engine; Fuel: 1.88 kL of high-grade hcarb (1.88 tonnes), 10 hours supply

Propulsion System: 1.50 MW hovercraft; Maximum Speed: 91 km/h loaded, 104 km/h unloaded;

Range: 913 km loaded, 1040 km unloaded; Agility: +3DM (0.1G)

Crew & Passengers:

Crew roster: driver, gunner, captain, deckhand; 4 crew stations; 4 roomy passenger seats; Sanitary facilities

Armament:

<i>Weapon</i>	<i>Damage</i>	<i>Range</i>	<i>Shots</i>	<i>Reloads</i>	<i>Notes</i>
Water Cannon-6	1	Very Short	1	turret, 1 gunner	

Communications:

Subcontinental Radio (100 W, TL7, SmVcl); Range: 300 km

Sensors:

Active Regional Radar (1.00 kW); Range: 30 km; Resolution: 50 cm per km of range

Other:

Options: recreation space; Safety Features: fire suppression system

Construction Equipment: crane can lift 7.00 tonnes; 3.48 kL of cargo space (1.74 tonnes)

Small and speedy, equipped with both water cannon and crane, the *Meerside* is an excellent general-purpose rescue craft.

Garibaldi Riot Vehicle (TL8)

Summary:

1.50 displacement ton box; 10.0 tonnes; kCr 48.1

Chassis:

21.0 kL box (4.3 m long x 2.2 m wide x 2.2 m high);

Structure: 588 kg of hard steel, rated for 1.0Gs, body 1.0 cm thick, 6 armour rating

Performance:

610 kW TL4 internal combustion engine; Fuel: 487 L of hydrocarbons (487 kg), 8 hours supply

Propulsion System: 600 kW wheels with offroad suspension;

Maximum Speed: 90 km/h loaded, 76 km/h unloaded; Range: 723 km loaded, 606 km unloaded; Agility: +3DM (0.1G)

Crew & Passengers:

Crew roster: driver, gunner; 2 crew stations; 7 roomy passenger seats

Armament:

<i>Weapon</i>	<i>Damage</i>	<i>Range</i>	<i>Shots</i>	<i>Reloads</i>	<i>Notes</i>
Water Cannon-6	1	Very Short	1	40	turret, 1 gunner

Communications:

Subcontinental Radio (10.00 kW, TL8, SmVcl, MilSpec); Range: 300 km

Sensors:

No sensors installed.

Other:

142 L of cargo space (71.2 kg)

The *Garibaldi* is popular with rapid response anti-riot units of pre-stellar governments. It carries a squad of riot police, can withstand rifle fire, and mounts a water cannon in its turret for use against determined crowds.

Swarup Emergency Response Centre (TL8)

Summary:

30.00 displacement ton box; 269 tonnes; MCr 1.17

Chassis:

420 kL box (11 m long x 6.0 m wide x 6.0 m high);

Structure: 1.63 tonnes of fiber laminate, rated for 1.0Gs, body 0.13 cm thick, 1 armour rating

Performance:

Primary: 13.0 MW TL7 turbine, gas; Fuel: 19.5 kL of high-grade hcarb (19.5 tonnes), 10 hours supply;

Auxiliary: 10.0 MW TL5 turbine, steam; Fuel: 71.4 kL of hydrocarbons (71.4 tonnes), 100 hours supply

Propulsion System: 13.0 MW hover skirt with rough terrain skirts;

Maximum Speed: 104 km/h loaded, 139 km/h unld Range: 1042 km loaded, 1393 km unloaded; Agility: +3DM (0.1G)

Crew & Passengers:

Crew roster: driver, 3 medics; 4 crew stations; 20 roomy passenger seats

Sanitary and shower facilities; Hatches: 4 manual

Communications:

Continental Radio (1.00 kW, TL8, SmVcl); Range: 3000 km

Continental Radio (1.00 kW, TL8, SmVcl); Range: 3000 km; powered by auxiliary generator

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 10 cm per km of range

Other:

Options: recreation space, kitchen for 40 simultaneous meals; Safety Features: fire suppression system

9.0 m³ of lab space; power socket supplies 10.0 MW from auxiliary generator; 135 kL of cargo space (67.9 tonnes)

Experts agree that swift response in emergencies is critical to saving lives. The *Swarup* Emergency Response Centre is designed for swift deployment to emergency sites, where it serves as a command post, or as an entire aid centre if no other resources are available. As a hovercraft it is amphibious, with a range of over 1000 km.

The *Swarup's* auxiliary generator can supply 10MW to the emergency site for over four days. Its medical lab doubles as an operating theatre and small clinic, while the kitchen can feed 40 people per hour. Coordination and planning is aided by the onboard computer system. Emergency supplies are stored in the 135 kL cargo bay.

Hippocrates Ambulance (TL11)

Summary:

1.20 displacement ton box; 3.85 tonnes; kCr 37.3

Chassis:

16.8 kL box (3.10 m long x 2.1 m wide x 2.1 m high);

Structure: 126 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

1.06 MW TL11 fusion plus generator; Fuel: 41.9 L of enriched water (41.9 kg), 100 hours supply

Propulsion System: 1.00 MW contragrav with 6 minutes emergency power;

Maximum Speed: 469 km/h loaded, 513 km/h unloaded;

Range: 46788 km loaded, 51181 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot/medic, paramedic, 2 patients; 1 crew station; 3 roomy passenger seats

Hatches: 3 manual; Grav Compensation (1G), Whole vehicle compensated

Communications:

Continental Radio (1.00 kW, TL11, SmVcl); Range: 3000 km

Sensors:

Active Regional Radar (1.00 kW); Range: 30 km; Resolution: 1.0 mm per km of range

Other:

lab/working space; Safety Features: anti-theft system, Roadgrid, fire suppression system; 660 L of cargo space (330 kg)

Timely medical attention can be the difference between life and death. The *Hippocrates* is typical of purpose-built emergency medical vehicles. It is fast enough to quickly arrive at an emergency site, and equipped with a two-way radio so that the attending medics can remain in constant contact with distant experts. The small on-board medical lab is specialized for trauma care.

Hyland Ambulance (TL11)

Summary:

1.20 displacement ton box; 4.04 tonnes; kCr 70.7

Chassis:

16.8 kL box (3.10 m long x 2.1 m wide x 2.1 m high);

Structure: 190 kg of structurecomp, rated for 1.5Gs, body 0.30 cm thick, sealed to 1 atm

Armour: 3 front (1.0 cm), 2 sides (0.30 cm), 2 rear (0.30 cm), 2 top (0.30 cm), 2 bottom (0.30 cm)

Performance:

1.07 MW TL11 fusion plus generator; Fuel: 42.3 L of enriched water (42.3 kg), 100 hours supply

Propulsion System: 1.00 MW contragrav with 6 minutes emergency power;

Maximum Speed: 446 km/h loaded, 469 km/h unloaded;

Range: 44509 km loaded, 46774 km unloaded; Agility: +1DM (1.5G);

Crew & Passengers:

Crew roster: pilot/medic, paramedic, 2 patients; 1 crew station; 3 roomy passenger seats

Standard life support; Hatches: 3 manual; Grav Compensation (1G), Whole vehicle compensated

Communications:

Continental Radio (1.00 kW, TL11, SmVcl); Range: 3000 km

Sensors:

Active Subcontinental Radar (10.00 kW); Range: 300 km; Resolution: 1.0 mm per km of range

Other:

Options: recreation space

Safety Features: licensed for orbital use, anti-theft system, Roadgrid, 1 emergency wall patch, fire suppression system

1.0 m³ of lab space; 391 L of cargo space (195 kg)

Timely medical attention can be the difference between life and death. The *Hyland*, a thicker-skinned variant of the *Hippocrates* licensed for orbital use, is typical of purpose-built emergency medical vehicles. It is fast enough to quickly arrive at an emergency site, and equipped with a two-way radio so that the attending medics can remain in constant contact with distant experts.

Specialized Vehicles

No set of categories can completely describe all possible vehicles. This chapter contains vehicles designed for a wide variety of specialized functions: some mundane, some exotic.

Brummel Steam Shovel (TL4)

Summary:

1.00 displacement ton open-topped box; 5.16 tonnes; kCr 139

Chassis:

14.0 kL open-topped box (3.7 m long x 1.9 m wide x 1.9 m high);

Structure: 674 kg of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

83.0 kW TL4 steam engine; Fuel: 24.9 L of coal (49.8 kg), 8 hours supply

Propulsion System: 80.0 kW tracks with wide tracks;

Maximum Speed: 8 km/h; Range: 66 km; Agility: +3DM (0.0G);

Crew:

Crew roster: driver; 1 crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Construction Equipment: shovel can dig 6.0 m deep and excavate 12.0 kL per hour

With the invention of mobile non-muscle power plants, massive construction projects become routine. The *Brummel* steam-powered shovel can dig more in an hour than the average work gang can dig in a day.

Deere Harvester (TL5)

Summary:

1.00 displacement ton open-topped open frame; 8.31 tonnes; kCr 44.8

Chassis:

14.0 kL open-topped open frame (10 m long x 1.5 m wide x 1.5 m high);

Structure: 1.12 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

310 kW TL4 internal combustion engine; Fuel: 309 L of hydrocarbons (309 kg), 10 hours supply

Propulsion System: 100 kW wheels;

Maximum Speed: 9 km/h loaded, 18 km/h unloaded;

Range: 97 km loaded, 187 km unloaded; Agility: +3DM (0.0G);

Crew:

Crew roster: driver; 1 crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Cutter: cuts plants and directs to winnower

Winnower: separates edible from non-edible parts

4.00 kL of cargo space (4.00 tonnes)

The *Deere* Harvester is a popular item on low-tech agricultural worlds. The Tull Farmers Cooperative manufactures a variety of cutter and winnow modules, allowing the *Deere* to harvest a variety of agricultural products.

Merrick Trawler (TL5)

Summary:

3.00 displacement ton wedge; 24.4 tonnes; kCr 80.9

Chassis:

42.0 kL wedge (10 m long x 4.3 m wide x 2.8 m high);

Structure: 1.75 tonnes of soft steel, rated for 1.0Gs, body 0.02 cm thick, 1 armour rating

Performance:

1.00 MW TL4 internal combustion engine, water-cooled;

Fuel: 6.01 kL of hydrocarbons (6.01 tonnes), 60 hours supply

Propulsion System: 1.00 MW watercraft;

Maximum Speed: 11 km/h loaded, 16 km/h unloaded;

Range: 664 km loaded, 963 km unloaded; Agility: +3DM (0.0G);

Crew:

Crew roster: helmsman, 5 deckhands; 6 crew stations

Communications:

Regional Radio (10 W, TL5, SmVcl, DirAnt, DirFnd); Range: 30 km

Sensors:

No sensors installed.

Other:

Construction Equipment: crane can lift 5.00 tonnes

21.8 kL of cargo space (10.9 tonnes)

Aquatic environments provide a good source of protein on most worlds. At low population densities gathering is more economical and less labour-intensive than farming. Vessels like the *Merrick* are commonly encountered within a day of their home port, steaming slowly through the seas trailing their nets.

No refrigeration equipment is installed, thus the trawler must reach a factory before too many days have passed.

Tabaguchi Bulldozer (TL5)

Summary:

0.75 displacement ton open-topped box; 3.92 tonnes; kCr 102

Chassis:

10.5 kL open-topped box (3.4 m long x 1.8 m wide x 1.8 m high);

Structure: 556 kg of soft steel, rated for 1.0Gs, body 0.20 cm thick, 2 armour rating

Performance:

102 kW TL4 internal combustion engine; Fuel: 152 L of hydrocarbons (152 kg), 15 hours supply

Propulsion System: 100 kW tracks with wide treads;

Maximum Speed: 18 km/h; Range: 275 km; Agility: +3DM (0.0G);

Crew:

Crew roster: driver; 1 crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

Construction Equipment: blade can move 100 kL per hour

An utterly bare-bones design, the *Tabaguchi* bulldozer is a common feature at every construction site.

Big Blue Political Machine (TL8)

Summary:

200.00 displacement ton wedge; 1678 tonnes; MCr 35.1

Chassis:

2800 kL wedge (43 m long x 17 m wide x 11 m high);

Structure: 28.8 tonnes of soft steel, rated for 1.0Gs, body 1.0 cm thick, sealed to 1 atm, 4 armour rating

Performance:

4.14 MW TL1 rowers; Fuel: 496 kL of food (496 tonnes), 600 hours supply

Propulsion System: 4.00 MW legs;

Maximum Speed: 1 km/h loaded, 1 km/h unloaded;

Range: 617 km loaded, 653 km unloaded; Agility: +3DM (0.0G);

Crew & Passengers:

Crew roster: driver, premier, 21 cabinet ministers, 94 backbenchers; 117 crew stations with ejection seats; 200 roomy ejection passenger seats

Standard life support, sanitary and shower facilities; Airlocks: 10 custom

Armament:

<i>Weapon</i>	<i>Damage</i>	<i>Range</i>	<i>Shots</i>	<i>Reloads</i>	<i>Notes</i>
Water Cannon-6	1	Very Short	1	40	coaxial turret

Communications:

Regional Jammer (10 W, TL8, SmVcl); Range: 30 km

Sensors:

No sensors installed.

Other:

Options: entertainment centre, recreation space, wet bar

Safety Features: anti-hijack system, 137 emergency wall patches

Construction Equipment: blade can move 800 kL per hour, shovel can dig 40 m deep and excavate 80.0 kL per hour

184 kL of cargo space (92.3 tonnes)

A archetypical political machine, the Big Blue Machine favours internal logic over real-world sense.

Hordes of poorly-paid peons keep the machine in motion, using legs to trample any signs of opposition. The chassis, of course, is a wedge (thin end, for the insertion of), armoured and sealed against outside influences. The crew and their staff (passengers) are provided with ejection seats with golden parachutes, the cost of which is not included in the official statistics. While living inside the Machine, all life support needs are provided, as well as full sanitary facilities (which also clean money). Entertainment facilities and recreation space make the members' stay a pleasant one. No communications facilities are necessary, although a jammer is used to disruption communications in the vicinity of the machine. No sensors are needed whatsoever, as nothing that happens outside the machine is important. A large blade is useful for bulldozing measures through the legislature, while a large shovel is useful for slinging fecal matter and digging in heels.

The optional turret mounts a water cannon for breaking up special interest groups (any group of three or more opponents).

A bit of insanity, I'll admit. But then, insanity may be the only rational response to irrational situations.

*Peta*in AutoVintner (TL9)

Summary:

0.50 displacement ton open frame; 2.04 tonnes; kCr 25.8

Chassis:

7.00 kL open frame (8.3 m long x 1.2 m wide x 1.2 m high);
Structure: 353 kg of light alloy, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

55.0 kW TL7 fuel cell; Fuel: 4.66 kL of liquid hydrogen (332 kg), 10 hours supply
Propulsion System: 50.0 kW legs; Maximum Speed: 8 km/h loaded, 16 km/h unloaded;
Range: 88 km loaded, 160 km unloaded; Agility: +2DM (0.0G)

Crew:

Crew roster: 0 crew members; 0 crew station

Communications:

Subregional Radio (1 W, TL9, SmVcl); Range: 10 km

Sensors:

Passive Subregional Optical (1 W); Range: 10 km; Resolution: 5.0 mm per km of range

Other:

Manipulators: 3 Very Light Arms, Light Arm; 1.83 kL of cargo space (915 kg)

Picking fruit is backbreaking work, and few citizens of high-tech worlds willingly seek it out. Some worlds import labourers, others mechanize farms and orchards. The *Peta*in is an example of the latter approach. The special-purpose R3 dedicated system controls high-resolution optical sensors, four legs, and four manipulator arms, giving the *Peta*in more than a passing resemblance to a large, shortsighted, and rather dim-witted metal spider.

Stanley Explorer (TL10)

Summary:

3.00 displacement ton box; 16.5 tonnes; kCr 371

Chassis:

42.0 kL box (5.4 m long x 2.8 m wide x 2.8 m high);
Structure: 779 kg of crystaliron, rated for 1.0Gs, body 0.02 cm thick, sealed to 1 atm, 2 armour rating

Performance:

2.03 MW TL10 fusion plus generator; Fuel: 1.01 kL of enriched water (1.01 tonnes), 1000 hours supply
Propulsion System: 2.00 MW legs with reinforced suspension;
Maximum Speed: 78 km/h loaded, 102 km/h unld; Range: 78611 km loaded, 101833 km unld; Agility: +3DM (0.1G)

Crew & Passengers:

Crew roster: driver; 1 crew station; 4 roomy passenger seats
Standard life support, sanitary and shower facilities; Airlocks: 1 cramped; Hatches: 2 manual

Communications:

Continental Radio (1.00 kW, TL10, SmVcl); Range: 3000 km

Sensors:

Active Subregional Radar (100 W); Range: 10 km; Resolution: 5.0 mm per km of range
Active Subregional Gravitic (100 W); Range: 10 km; Resolution: 2.0 m per km of range

Other:

Options: recreation space, kitchen for 5 simultaneous meals
Safety Features: 1 emergency wall patch, fire suppression system
Manipulators: 2 Light Arms, 2 Heavy Arms; 4.0 m³ of lab space; 7.52 kL of cargo space (3.76 tonnes)

One of the more unusual vehicles encountered on the Imperial Fringes, the *Stanley* Explorer is a high-tech all terrain vehicle, fully equipped with all the bells and whistles: fire suppression system, compact lab, general purpose computer, gravitic sensor suite, life support, external manipulators, and a generous cargo bay.

While grav vehicles are more common (and cheaper), environmental conditions sometimes dictate a ground vehicle. The *Stanley's* walker suspension gives better cross-country capability than wheels or tracks.

Berriette Grav Skid (TL11)

Summary:

0.15 displacement ton open-topped open frame; 1.07 tonnes; Cr 774

Chassis:

2.10 kL open-topped open frame (5.6 m long x 79 cm wide x 79 cm high); Structure: 52.9 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

8x 1.00 kW TL11 Storage Bank power plants

Propulsion System: 1.00 kW contragrav; Maximum Speed: 1 km/h; Agility: +1DM (0.0G)

Crew:

Crew roster: pilot; 0 crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

2.00 kL of cargo space

Spaceports need an easy means of shifting cargo. The *Berriette* grav skid is a simple platform with contragrav lifters and an eight-hour storage bank. Although limited motive power can be obtained from the lifters, most dockworkers move the skid with old-fashioned muscle power.

A simple range sensor prevents the skid from being raised more than 30 cm from the ground. Overriding this sensor is a Simple Electronics task.

Berry Grav Skid (TL11)

Summary:

1.02 displacement ton open-topped open frame; 7.24 tonnes; Cr 2808

Chassis:

14.3 kL open-topped open frame (10 m long x 1.5 m wide x 1.5 m high); Structure: 189 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

57.0 kW TL11 Fusion Plus power plant; Fuel: 2.25 L of enriched water (2.25 kg), 100 hours supply

Propulsion System: 5.00 kW contragrav; Maximum Speed: 1 km/h;

Range: 124 km; Agility: +3DM (0.0G)

Crew:

Crew roster: pilot; 0 crew station

Communications:

No communicators installed.

Sensors:

No sensors installed.

Other:

14.0 kL of cargo space

Spaceports need an easy means of shifting cargo. The *Berry* grav skid is a simple platform with contragrav lifters and a small Fusion Plus power plant. Although limited motive power can be obtained from the lifters, most dockworkers move the skid with old-fashioned muscle power.

A simple range sensor prevents the skid from being raised more than 30 cm from the ground. Overriding this sensor is a Simple Electronics task.

Karin Mobile Schoolroom (TL11)

Summary:

17.00 displacement ton box; 15.0 tonnes; kCr 52.3

Chassis:

238 kL box (9.6 m long x 4.10 m wide x 4.10 m high);

Structure: 742 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

1.01 MW TL11 fusion plus generator; Fuel: 399 L of enriched water (399 kg), 1000 hours supply

Propulsion System: 1.00 MW contragrav with 6 minutes emergency power;

Maximum Speed: 120 km/h loaded, 182 km/h unloaded;

Range: 119754 km loaded, 181509 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot, 3 teachers; 4 crew stations; 60 roomy passenger seats

Sanitary facilities

Communications:

Continental Radio (1.00 kW, TL11, SmVcl); Range: 3000 km

Sensors:

No sensors installed.

Other:

Options: entertainment centre, recreation space, kitchen for 20 simultaneous meals

Safety Features: anti-theft system, fire suppression system

10.2 kL of cargo space (5.11 tonnes)

The *Karin* Mobile Schoolroom is a self-contained facility containing three complete classroom with audiovisual and computer facilities. A small kitchen allows pre-prepared meals to be quickly reheated (for both staff and students).

Nomadic societies must relocate on a regular basis. It makes little sense to invest valuable credits in a structure that will only be used infrequently at best, and may be damaged while vacant at worst. Mobile school facilities are an ideal solution for these societies.

Poorer settlements frequently cannot afford a full-time instructor. While distance learning can provide many basics, there is no substitute for a caring, skilled professional — especially for children with special needs. Outlying districts often 'club together' to purchase and run a mobile schoolroom, which travels a circuit serving each settlement in turn.

Mons Andrei Cargo Lifter (TL11)

Summary:

4.60 displacement ton open frame; 32.8 tonnes; kCr 19.4

Chassis:

64.4 kL open frame (17 m long x 2.5 m wide x 2.5 m high);

Structure: 1.04 tonnes of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

400 kW TL11 fusion plus generator; Fuel: 15.8 L of enriched water (15.8 kg), 100 hours supply

Propulsion System: 400 kW contragrav with 6 minutes emergency power;

Maximum Speed: 22 km/h loaded, 353 km/h unloaded;

Range: 2192 km loaded, 35234 km unloaded; Agility: +2DM (0.8G);

Crew:

Crew roster: pilot; 1 crew station

Communications:

Subregional Radio (1 W, TL11, SmVcl); Range: 10 km

Sensors

No sensors installed.

Other:

56.0 kL of modular cargo space (30.8 tonnes)

Spaceports need a simple means of shifting standardized cargo containers. The *Mons Andrei* cargo lifter is designed to shift standard four ton cargo containers from place to place within the starport. It is an open framework of structurecomp with a small power plant, some contragrav lifters, an operator station, and cargo grapples.

Ralston Cargo Lifter (TL11)

Summary:

1.20 displacement ton open frame; 8.44 tonnes; Cr 6956

Chassis:

16.8 kL open frame (11 m long x 1.6 m wide x 1.6 m high);

Structure: 422 kg of structurecomp, rated for 1.0Gs, body 0.04 cm thick, 1 armour rating

Performance:

95.0 kW TL11 fusion plus generator; Fuel: 3.75 L of enriched water (3.75 kg), 100 hours supply

Propulsion System: 95.0 kW contragrav with 6 minutes emergency power;

Maximum Speed: 20 km/h loaded, 230 km/h unloaded;

Range: 2025 km loaded, 22993 km unloaded; Agility: +2DM (0.8G);

Crew:

Crew roster: pilot; 1 crew station

Communications:

Subregional Radio (1 W, TL11, SmVcl); Range: 10 km

Sensors:

No sensors installed.

Other:

14.0 kL of modular cargo space (7.70 tonnes)

Spaceports need a simple means of shifting standardized cargo containers. The *Ralston* cargo lifter is designed to shift standard one ton cargo containers from place to place within the starport. It is an open framework of structurecomp with a small power plant, some contragrav lifters, an operator station, and cargo grapples.

Reuter News Van (TL11)

Summary:

2.50 displacement ton box; 5.39 tonnes; kCr 97.7

Chassis:

35.0 kL box (5.1 m long x 2.6 m wide x 2.6 m high);

Structure: 413 kg of structurecomp, rated for 2.0Gs, body 0.30 cm thick, sealed to 1 atm

Armour: 3 front (0.50 cm, radical slope), 2 sides (0.30 cm), 2 rear (0.30 cm), 2 top (0.30 cm), 2 bottom (0.30 cm)

Performance:

735 kW TL11 fusion plus generator; Fuel: 29.1 L of enriched water (29.1 kg), 100 hours supply

Propulsion System: 500 kW contragrav with 6 minutes emergency power;

Maximum Speed: 167 km/h loaded, 182 km/h unloaded;

Range: 16682 km loaded, 18130 km unloaded; Agility: +1DM (2.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 5 roomy passenger seats

Standard life support, sanitary facilities; Hatches: 1 manual, 2 power; Grav Compensation (1G), Whole vehicle compensated

Communications:

Orbital Radio (10.00 kW, TL11, SmVcl); Range: 30000 km

Regional Maser (10 W, TL11, SmVcl); Range: 30 km

Sensors:

Active Regional Radar (1.00 kW); Range: 30 km; Resolution: 1.0 mm per km of range

Passive Subregional Optical (1 W); Range: 10 km; Resolution: 0.200 mm per km of range

Other:

Options: recreation space, wet bar

Safety Features: licensed for orbital use, anti-hijack system, anti-theft system, Roadgrid, 1 emergency wall patch, fire suppression system

4.0 m³ of lab space; power socket supplies 100 kW; 862 L of cargo space (431 kg); illuminated SmartCoat display on all unused surface area

Where there's smoke, there's reporters. With the *Reuter* news van, any media organization has all the resources it needs to cover any story.

The *Reuter's* roomy interior includes a mini-studio (the lab), supported by a rating-2 computer system. Additionally, the manipulator arm mounts a remote-operated camera and the extensive sensor suite is integrated into the media production system to further enhance media productions.

With roomy seating for up to five passengers, sanitary facilities, a wet bar, grav compensation and full life support, the *Reuter* is extremely popular with its crews.

Rhodes Constructor (TL12)

Summary:

0.31 displacement ton open frame; 2.69 tonnes; kCr 24.3

Chassis:

4.34 kL open frame (7.1 m long x 1.0 m wide x 1.0 m high);
Structure: 285 kg of crystaliron, rated for 1.0Gs, body 0.002 cm thick, 1 armour rating

Performance:

72.0 kW TL12 fusion plus generator; Fuel: 2.25 L of enriched water (2.25 kg), 100 hours supply
Propulsion System: 50.0 kW legs;
Maximum Speed: 10 km/h loaded, 10 km/h unloaded;
Range: 1004 km loaded, 1014 km unloaded; Agility: +2DM (0.0G);

Crew:

Crew roster: driver; 1 crew station
Hatches: 1 manual

Communications:

Subregional Radio (1 W, TL12, SmVcl); Range: 10 km

Sensors:

No sensors installed.

Other:

Construction Equipment: crane can lift 24.0 tonnes; 2x heavy arm
53.8 L of cargo space (26.9 kg)

Even in a high-tech society, there are times when heavy loads must be moved with precision. The *Rhodes* Constructor is a versatile self-propelled crane with two heavy manipulators for precise load positioning and legs for easy navigation of construction sites.

Shugalnii Maintainer (TL12)

Summary:

2.00 displacement ton box; 7.51 tonnes; kCr 120

Chassis:

28.0 kL box (4.7 m long x 2.4 m wide x 2.4 m high);
Structure: 178 kg of structurecomp, rated for 1.0Gs, body 0.30 cm thick, sealed to 1 atm
Armour: 3 front (1.0 cm), 2 sides (0.30 cm), 2 rear (0.30 cm), 2 top (0.30 cm), 2 bottom (0.30 cm)

Performance:

2.00 MW TL12 CI Fusion Plus generator;
Fuel: 126 L of enriched water (126 kg), 200 hours supply
Propulsion System: 1.00 MW contragrav with 6 minutes emergency power and orbital thrusters;
Maximum Speed: 240 km/h loaded, 285 km/h unloaded;
Range: 47941 km loaded, 56875 km unloaded; Agility: +2DM (1.0G);

Crew & Passengers:

Crew roster: pilot; 1 crew station; 3 roomy passenger seats
Standard life support, sanitary facilities; Airlocks: 1 normal; Hatches: 2 manual

Communications:

Orbital Radio (10.00 kW, TL12); Range: 30000 km

Sensors:

Active Subcontinental Radar (10.00 kW); Range: 300 km; Resolution: 0.200 mm per km of range

Other:

Options: recreation space
Safety Features: Roadgrid, 1 emergency wall patch, fire suppression system
Manipulators: 2 very light arms, 2 heavy arms
4.0 m3 of lab space; power socket supplies 950 kW; 2.36 kL of cargo space (1.18 tonnes)

Most high-tech worlds have numerous orbital installations, which require periodic maintenance. The *Shugalnii* Maintainer is designed to deliver a fully equipped maintenance crew into orbit

Ghermal Cloud Miner (TL13)

Summary:

50.00 displacement ton disk airframe; 216 tonnes; MCr 10.5

Chassis:

700 kL disk airframe (16 m long x 16 m wide x 3.3 m high, wingspan 51 m);

Structure: 62.4 tonnes of superdense, rated for 10.0Gs, body 0.26 cm thick, sealed to 100 atm, 7 armour rating

Performance:

34.1 MW TL13 fusion plus generator; Fuel: 851 L of enriched water (851 kg), 100 hours supply

Propulsion System: 34.0 MW contragrav with 6 minutes emergency power and emergency boosters;

Maximum Speed: 1419 km/h loaded, 1741 km/h unloaded;

Range: 141405 km loaded, 173469 km unloaded; Agility: -7DM (10.0G);

Crew:

Crew roster: pilot, engineer; 2 crew stations

Standard life support, sanitary facilities; Airlocks: 1 cramped; Hatches: 2 manual; Grav Compensation (4G), Only seating compensated

Communications:

Orbital Radio (10.00 kW, TL13, SmVcl); Range: 30000 km

Subcontinental Maser (100 W, TL13, SmVcl); Range: 300 km

Sensors:

Active Regional Radar (1.00 kW); Range: 30 km; Resolution: 0.050 mm per km of range

Active Regional Sonar (1.00 kW); Range: 30 km; Resolution: 0.050 mm per km of range

Other:

Options: wet bar

Safety Features: 2 emergency wall patches, fire suppression system

2x heavy arms

560 kL of cargo space (40.0 tonnes)

Most spacers think of gas giants as sources of rather dirty hydrogen fuel. Industrialists know differently. A gas giant's atmosphere is a soup of complex organic molecules, free for the taking. Even the virtually free energy of fusion power doesn't free industrial processes from the need for raw materials, and skimming organics is frequently cheaper than synthesizing them.

Cloud miners, such as the *Ghermal*, cruise the middle strata of a gas giant, scooping the atmosphere into their gaping maws, separating the organics, and storing them in vast tanks. When the tanks are full, the skimmers head for higher altitudes where they rendezvous with floating refineries, transfer loads and crews, and drop deep again.

Skimmers—the term refers to both the ships and their crews—are tough. Superdense armour can withstand 100 atmospheres pressure. Massive contragrav units are augmented by the lifting-body airframe and backed up by ballistic emergency boosters. Grav compensation counteracts up to 4Gs. Even with all these advantages losses occur, especially when taking a hellride: skimming a deep upwelling, where the rarest organics are found.

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