



T20
system

TRAVELLER[®]

Science-Fiction Adventure in the Far Future



TRAVELLER'S AIDE #3

ON THE GROUND

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ON THE GROUND

*Based on the award winning TRAVELLER science fiction universe
by Marc Miller*

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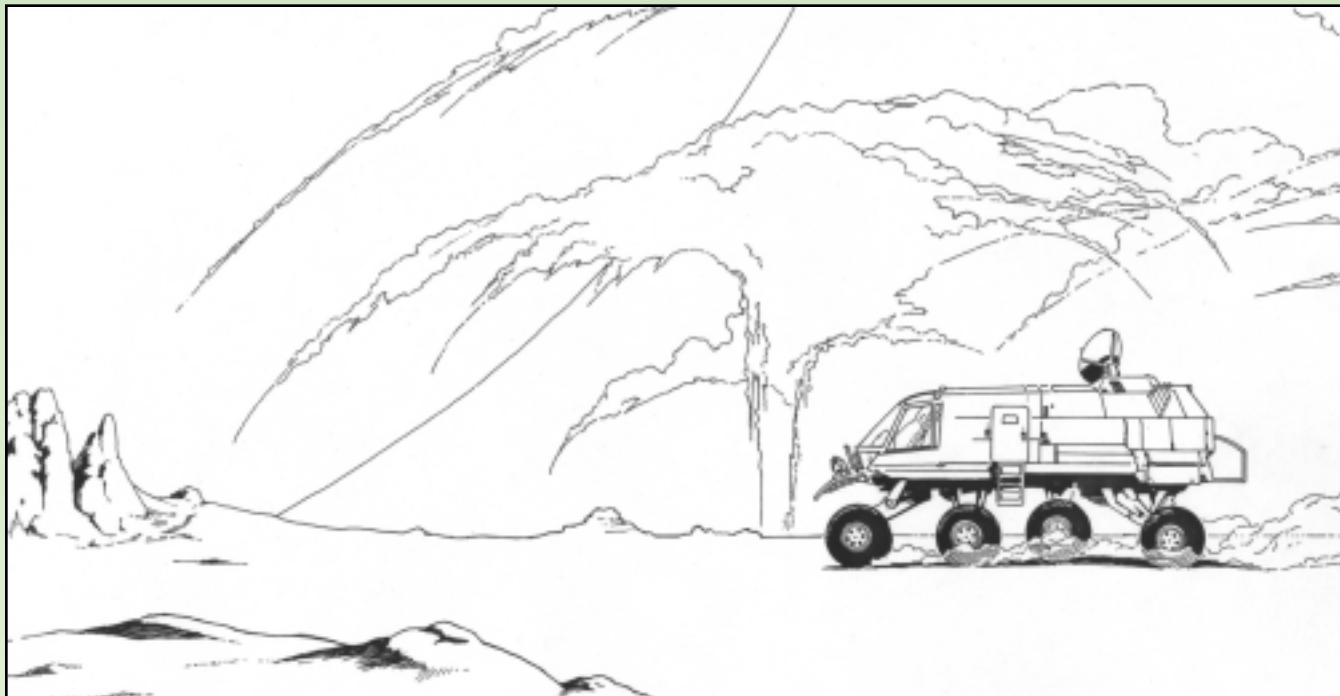
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ABOUT THIS SUPPLEMENT

This book is intended for use with Classic Traveller (CT) and T20 - Traveller for the D20 system. Background material is of course also fully compatible with other versions of Traveller.

This volume is the first in a series dealing with vehicles in use in the Traveller universe. It details the range of ground vehicles available to travellers at various tech levels. Note that specialist military vehicles - AFVs etc- are not covered, being detailed in the forthcoming Military Hardware volume.

To produce this volume, QuikLink Interactive, LIC has joined forces with the well-respected Yian Caardee Design Bureau and a team of freelance experts of interstellar renown. However, inaccuracies are possible, and QLI LIC cannot accept responsibility for any harm or injury incurred due to use or misuse of the vehicles described herein.

Additionally, opinions expressed in the text are those of contributors, and are not those of the editors or publishers.

YIAN CAARDEE DESIGN BUREAU

Yian Caardee Design Bureau, LIC is a premiere designer of vehicles and equipment throughout the Trailing sectors of the Imperium. Founded on Terra in -192, Yian Caardee supplies detailed work prints, prototypes, and provides consulting for manufacturing design. Our catalog provides a listing of local manufacturers and sales locations for your shopping needs. If you have a specific need your local supplier cannot meet, please contact our helpful sales staff about custom design work.

GROUND VEHICLES: TECHNOLOGY DISCUSSION

YIAN CAARDEE DESIGNERS TIP: TRACKED VS. WHEELED VEHICLES

Most vehicle purchasing guidelines provide a simple rule: Wheeled vehicles for on road, tracked vehicles for off road. Our design tip shows you the exceptions to that rule.

Tracked vehicles generally do better off road. The long broad tracks spread the weight of the vehicle over a larger area to ensure it won't get bogged down and the extra traction provided by the track design allows getting out of tricky situations. However, within Charted Space there are numerous worlds without a large hydrosphere. Such worlds tend not to create rough or soggy land requiring tracked drivetrains. For such smooth, hard surfaces, a less expensive and easier to maintain wheeled drivetrain vehicle may well be more appropriate.

Wheels, being smaller and lighter than tracks, allow wheeled drivetrains to achieve much higher top speeds. However, wheels generally require roads, and constructing roads is an expensive and time-consuming project. Even where roads are available, tracked vehicles are still useful as heavy load haulers. Their higher traction offers better pulling power and lower ground pressure does less damage to the roadway if equipped with specialized road tracks.

For vehicles under 5000 vl, wheeled drivetrains are best. Such vehicles are light and small enough to avoid the worst terrain and carrying extraction equipment takes almost no space. Note that this is general advice; for specific cases it is always best to consult a local expert.

YIAN CAARDEE DESIGNERS TIP: TUNED VS. MULTIROLE ENGINES.

Air breathing power plants, including internal combustion, turbines and fuel cells come in two types: Tuned engines and Multirole or multi-fuel engines. The environments on the myriad of worlds in and around the Imperium can be tough on engines. Varying levels of oxygen and other atmospheric gasses and variations in fuel types can damage or destroy a power plant. For example, internal combustion engines are very sensitive to fuel contaminants or additives, and an engine not designed to handle them will work reduced level of efficiency - or not at all. Fuel cells are sensitive to atmospheric taint; even contaminants which don't normally bother people can damage or destroy the catalysts.

The most common air breathing engines are tuned engines, optimized for a specific atmosphere and available fuels. Since people only rarely move air-breathing vehicles from world to world, not being able to adjust the engine for a new environment is no great problem. Such engines are smaller and more powerful than their multi-fuel counterparts, creating cost and weight savings.

If you are planning to move a vehicle from world to world, for example for use on a multi-world scouting expedition, you will require a multirole engine design. Built more strongly and designed to be adjusted in the field to suit local conditions, advanced multirole engines use onboard sensors and computer controlled systems to tune the engine.

When mounting an expedition to another world, you may be able to buy or rent what you need locally. However, if you have joined the ranks of star-hopping travellers, investing in a multi-fuel engine for your favorite ATV or ground car can save time and money.

YIAN CAARDEE DESIGNERS TIP: AIR BREATHING ENGINES IN A LOW OXYGEN ENVIRONMENT.

Air breathing power plants, including steam engines, internal combustion engines, turbines and fuel cells all require oxygen to burn fuel and provide power. On worlds where the atmospheric pressure falls below 0.5 atmospheres, rises above 3 atmospheres, or where there is no oxygen in the atmosphere, these engines are of no use. It is possible to supply the required oxygen and allow air-breathing engines to function properly.

Vehicles specifically designed for low oxygen worlds have a split fuel tank, one half containing the normal fuel and the other a compressed or liquid oxygen supply. Refueling is more time consuming and the vehicle has half the usual range. It is possible to convert a conventional power plant to use an onboard oxygen supply. Many dealers for All Terrain Vehicles can supply the parts required as a kit; most will install it for a fee.

Referee's note: In Traveller terms, the world's atmosphere UWP code must be between 4 (thin) and 9 (Dense, Tainted) for the air breathing plant to work properly. An atmosphere without oxygen has a UWP code of A (Exotic) or B (Corrosive). Steam engines, internal combustion plants and turbines all require an oxygen supply equal to the fuel consumption of the plant. Fuel cells require an oxygen supply equal to half the fuel consumption of the plant. If the players want to replace the fuel tank, the vehicle now has half the range, two-thirds with a fuel cell. Alternatively, they can add an appropriate size fuel tank, which occupies cargo space.

Players wanting to install the conversion kit (which costs Cr100) should make a T/Mechanical roll against DC 15 (CT: Mechanical Skill) to install it correctly. Failure indicated the engine either doesn't work at all, or catches fire and explodes at the referee's discretion.

GROUND VEHICLES AND ROADS

Wheeled vehicles do best when they travel on roads. The most basic roads are simply flattened ground, a smoothed layer of gravel or dirt. These dirt tracks, while being only slightly better than no road at all, are simple to construct and easy to maintain. More advanced roadway construction uses fitted stone or brick and allows for faster travel.

At TL 5, when the internal combustion engines allow the widespread adoption of powered vehicles, road building technology keeps up. Surfaces are constructed of gravel with a binder material (concrete or asphalt are common, but other materials are known) permitting faster travel and heavier loads. The ultimate road surface is fusion forming; using high temperature plasma to melt a layer of sand (or other material) until it fuses into a solid mass. Since construction firms use whatever is most available and cheapest, you can find some unusual road surface materials. On very cold worlds, fusion formed road surfaces consist of ice mixed with strengtheners. Another example is Kukelu (C272688-6) with its concentration of heavy metals. Since metal is ridiculously cheap, the world surfaces its highways with a layer of stainless steel.

Referee's Note: Dirt or gravel roads restrict vehicles to half-maximum speed or twice off road speed, whichever is higher. Stonework roads restrict vehicles to three-quarters maximum speed. Other roads allow full movement speed, with the fusion formed roads able to take heavier loads without damage.

ROAD MAINTENANCE AND COSTS

Road maintenance is expensive and usually paid for by drivers through a combination of tolls, licensing fees and taxes. Who does the actual road maintenance and who collects the various fees varies from world to world. About half the worlds of the Imperium commission private corporations to collect fees and perform roadwork, the other half have created various government agencies collect the taxes and oversee the work.

Road tolls are between Cr0.1 and Cr5 depending upon the length of the trip. Fuel taxes are between Cr0.1 and Cr10 per liter. Inspection fees are usually between Cr10 and Cr100 to ensure the vehicle meets current standards. License fees for registering the vehicle are between Cr20 and Cr200. License fees for drivers to ensure they have proper skills are between Cr10 and Cr100. Companies that haul cargo tend to pay higher taxes because the large trucks do more damage to the roads. Since the agency in charge of collection sets amounts and types of fees and tolls, significant variation is encountered from system to system.

When importing vehicles, many worlds impose limits based upon weight, dimensions, or other criteria and may refuse to issue a license if the vehicle exceeds regulated values, or if it lacks certain required equipment. Vehicles within regulation limits are subject to additional fees for inspections to ensure they meet current standards. Usually these inspection fees range from Cr100 to Cr1000, and inspectors may impose a further cost of Cr1,000 to Cr10,000 to install or upgrade equipment on the vehicle.

Referee's Note: The restrictions on importation of vehicles is to avoid the problem of excessive property damage caused by characters driving their tank-like ATV through crowded city streets. If the players insist that they need to take their vehicle off the starport grounds, roll a check against DC equal to the world's Law level (CT: roll higher than Law Level on 2D). If this check fails, government regulations do not allow the vehicle. If the check succeeds, have the characters make a P/Admin check against DC 10 plus the World's Law Level (CT: Roll 8+ on 2D, DM Admin skill). If this check succeeds, impose a 2d6 x Cr100 fee for registration and inspection. If the check fails, add a 2d6 x Cr1,000 fee for new equipment installation including safety equipment, special tires or tread coverings, speed governors, fuel converters, emissions equipment, and so on. In either case, the process takes 2d6 weeks for the inspection, plus an additional 1d6 weeks for any required vehicle modifications.

VEHICLES IN THE IMPERIUM

At the lowest tech levels, ground vehicles are animal drawn carts and wagons. Roads are simple dirt tracks with a few stone roadways connecting the large and important population centers. A common powered vehicle on low-tech worlds is a biofuel steam engine supplied as a kit for converting locally produced wagons or carriages. At TL4 the first locally manufactured motorized carriages begin to appear. These first few motor cars sell only the rich, to show off their wealth, or to eccentric tinkers looking for new equipment to work with. Due to the poor state of the roads, the few imported vehicles have off-road capability even when appointed with luxury interiors.

As technology advances people become wealthy enough to enjoy the benefits of powered vehicles, and the manufacturing techniques allow production of models inexpensive enough for many people to buy them. A vehicle support infrastructure built by government and industry emerges, including a fuel distribution system, an entire profession specialising in fixing and maintaining the vehicles, and an extensive road network connecting the major population centers and the little towns in between. These middle tech levels are where the ground vehicle dominates. Grav vehicles are expensive, imported luxuries.

On worlds where technology has matured further, the main form of transport becomes the Grav vehicle. Faster and immune to the effect of the terrain below, they offer the speed and freedom of the skies. Even on these worlds the ground vehicles still fulfill several specialized roles. Worlds which slowly adopted Grav vehicles maintain their road networks for cargo transport. The road networks, largely emptied of passenger traffic, are sufficient for speedy delivery by haulers who prefer the less expensive wheeled trucks.

Another role is emergency and support vehicles in places where the airspace is already crowded. For example, most starports maintain a small fleet of wheeled emergency vehicles and fuel tankers. The response time for these vehicles is as fast as grav vehicles and they avoid interfering with the takeoff and landing of the starships.

Worlds with sealed arcologies may use ground vehicles as support vehicles. Governments ban flying vehicles to prevent accidents both inside and outside the sealed environments. Ithukar (B4438BF-A) has its entire population sequestered in more than 80 small domes. Regulations restrict travel between the cities to a network of public buses and cargo trucks, all of which are wheeled.

NEW DESIGN FEATURES

HOW BIG IS MY VEHICLE?

The volumes (vls) used by the T20 vehicle design system represents both weight and volume. This is an abstraction to make the vehicle design process easier and faster. You can calculate the real world sizes for vehicles by doing the following. Calculate a vehicle's volume by multiplying the vls by 5 to get the size in liters, then divide by 1000 to get cubic meters, and again by 14 to get starship tons. A vehicle's loaded weight in kg is equal to its size in vls. To get an empty weight, subtract 100kg for each passenger and 1kg for each 1vl of cargo.

IMPROVED SUSPENSION

A wheeled or tracked vehicle's agility, its ability to make violent maneuvers, is determined by its contact with the ground. At TL8 a number of technologies are perfected including all-wheel steering, active suspensions and anti-lock braking systems which allow the vehicle to be much more agile without having to increase the size of the power plant. Improved suspension increases the cost of a wheeled or tracked drivetrain by an additional 50% and adds +1 to the vehicle's agility and initiative. This is cumulative with the agility rating based upon the excess Energy Points (THB p xx), but does not allow the vehicle to exceed the agility limits of its drivetrain.

OVERSIZED WHEELS VS. MORE WHEELS

Improving off-road speed for either wheeled or tracked vehicles requires adding more wheels or tracks you can design a vehicle with improved off road performance without adding more wheels or tracks by making the wheels or tracks larger. The vl and cost required to make wheels or tracks larger is the same as adding additional pairs.

For example, the wheeled ATV has 8 wheels. The ATV normally has an off-road speed of 10 kph, but adding 3 additional pairs of wheels adds +15 kph to the offroad speed. Instead of 8 wheels, the ATV could be built with 4 oversized wheels, with the effective wheel size of 8 wheels. This 4-wheeled ATV has the same vl and cost for the wheeled drive train and has the same off-road speed.

TIRES

Tires are what connect the wheels in a wheeled drivetrain to the ground. The T20 vehicle combat system treats the tires as part of the wheeled drivetrain. As an option, you can treat the tires as a separate component, allowing characters to target the wheels in order to slow or stop a wheeled vehicle without destroying it. The vehicle's armor does not protect tires, making them attractive targets.

Each tire weighs 0.5kg times the number of wheeled drivetrain units installed in the vehicle. If you didn't construct the vehicle, use the number of EP for the drivetrain. Tires cost Cr25 per kg. Calculate the SI of tires per the Structural Integrity table. If you are replacing the tires on a vehicle, they must all be of the same type. There are three options for tires other than the standard inflated polycarbon design.

Heavy-duty tires are reinforced and filled with foam, making them self-sealing against small punctures. Heavy-duty tires cost four times as much as standard tires and have an armor rating of one.

Off-road tires are broader and designed with more traction by adding deeper treads or spikes. Off-road tires cost four times as much as standard tires, but add 3kph to the vehicles off-road speed.

Solid tires, constructed of solid reinforced polycarbon cost ten times as much as standard tires, but have an armor rating of two.

Characters wanting to damage tires must target them specifically. For most cars, the tires are small size targets and are -6 to hit. As accumulating damage destroys the tires, the vehicle loses thrust because the wheels no longer connect to the road and the top speed of the vehicle drops correspondingly. In addition, each tire destroyed forces a control check.

When the vehicle has no tires left, the driver must still make a control check (CT: Drive roll as above) to bring the

TIRES CONTROL CHECK

Tires left	DCCheck
5+	10
4	15
3	20
2	25
1	30
0	30

CT: Roll 8+ to maintain control. +DM: Drive skill. -DM: -2 per tire missing.

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vehicle to a controlled stop. Failing any of these control rolls means the vehicle crashes (THB p.xx). If attacks destroy two or more tires in the same round, use the most difficult DC check.

TRACKS

Tracks are to tracked drive trains what tires are to wheeled drivetrains; they are what connects the vehicle to the ground. As an option, you can treat the tracks as a separate component, allowing characters to target the tracks in order to slow or stop a tracked vehicle without destroying it. Unlike tires, the vehicle's armor protects the tracks.

Each Track weighs 0.75kg times the number of tracked drive train units installed in the vehicle; if you didn't construct the vehicle, use the number of EP for the drivetrain. Tracks cost Cr3 per kg. Calculate the SI of tracks per the Structural Integrity table.

One option for tracks, other than the standard metal link design, are lighter weight road tracks allowing for faster (and less damaging) road movement. Road tracks cost the same as standard tracks. Using them adds 10% to the road speeds, but drops the off road speed by 10kph.

Characters wanting to damage tracks must target them specifically. For most tracked vehicles, tracks are small size and are -6 to hit. As accumulating damage destroys the tracks, the vehicle loses thrust as the tracks fall off and the top speed of the vehicle drops accordingly. In addition, each track destroyed forces a control check.

TRACKS CONTROL CHECK

Tracks left	DC Check
3+	20
2	25
1	30
0	30

CT: Roll 8+ to maintain control. +DM: Drive skill. -DM: -4 per track missing.

When the vehicle has no tracks left, the driver must still make a control check to bring the vehicle to a controlled stop. Failing any of these control rolls means the vehicle crashes. If attacks destroy two or more tracks in the same round, use the highest DC check.

HALF-TRACKS

Half-tracks are a combination of tracks and wheels or skids. The large track offers superior off road performance, while the front wheels or skids make the drivetrain lighter, improving on road performance and maneuverability.

First available at TL5, half-track drivetrain produces 6 units of thrust (TH) per EP of power applied per round. 10vl per unit installed. Cr25 per unit. Half-tracks have a maximum agility of 4. Calculate off-road speed the same as tracks.

AMPHIBIOUS VEHICLES

Amphibious modifications allow ground vehicles, which are usually restricted to dry land, to travel through water.

For air breathing engines, the wading option adds a snorkel and exhaust system to allow the vehicle to ford rivers, streams and other wet areas. Water sucked into an air-breathing engine will damage it, which can happen if the vehicle travels through water deeper than about 20cm. The snorkel ensures that no water gets into the working parts of the engine unless the vehicle is completely submerged. The snorkel system costs 1/100 the cost of the power plant, and may be installed at any time.

The amphibious option adds a floatation system to the vehicle and a watercraft drive train. Design a ground vehicle normally, but add a surface water drivetrain. The vehicle uses the two drivetrains independently and the power plant needs to supply enough power for one drivetrain at a time. Switching between drive trains is a full round action by the driver.

GRAV/WHEELED COMBINATION VEHICLES

Grav/Wheeled or Grav/Tracked combined vehicles have two drivetrains, the ground (wheeled or tracked) drivetrain and the Grav drivetrain. The vehicle uses the two drivetrains independently and the power plant needs to supply enough power for one drivetrain at a time. Switching between drive trains is a full round action by the driver.

RAM PLATE

Ram plates are a reinforced front (or rear) mounting designed to absorb impacts, allowing the vehicle to do more damage in a collision without suffering additional damage itself. Military organizations like to mount ram plates on their urban assault vehicles, allowing them to overcome the frequent barriers in the city. Private security firms frequently have a ram plate mounted on their vehicles to avoid uncomfortable situations. Some police vehicles mount them, either as a specialized

assault carrier or in places where lawless drivers have begun to take the upper hand.

Ram plates take space and cost as much as two points of armor, multiply the chassis armor factor by the Tech Level modifier and then by two to get the vl, Cost is Cr3,000 + Cr9 per vl. The ram plate adds 25% to the vehicles SI for collisions (THB p.xx), both for calculating damage done and taken by the vehicle. If the damage taken in the collision does not exceed the additional SI given by the ram plate, the vehicle takes no damage at all. Ram plates do not add to the AR or AC of the vehicle and adding a ram plate does not affect how much armor can be mounted.

BUSH CUTTER

A bush cutter is a large front mounted blade designed for clearing brush, shrubs, and other obstacles from the path of the vehicle. Military designers were the first, and still most frequent, bush cutter users.

Bush cutters take space and cost as much as one point of armor, multiply the chassis armor factor by the modifier for Tech level to get vls. Cost is Cr3,000 plus Cr9 per vl. Like the ram plate, the Bush Cutter adds 25% to the SI of the vehicle when determining collision damage. Unlike the ram plate, if the damage done to the vehicle exceeds the additional SI granted by the Bush Cutter, the collision destroys blade and the owner must replace the blade (at full cost). Bush cutters do not add to the AR or AC of the vehicle and adding a bush cutter does not affect how much armor can be mounted. You cannot mount both a bush cutter and a ram plate on a vehicle.

ADAPTING APPENDAGES TO NEW USES

Appendages in the T20 vehicle design system (THB p.xx) are intended to represent robot arms, but you can use the appendages to represent a wide variety more mundane lifting apparatus. Usually these lifting tools are limited to Dex 0, making them useless as combat tools and in fact dangerous to their operators if they are not careful. If you build a lifting tool, give it enough strength so the rated load is at the high end of the Medium Load for the arm strength, a safety margin in case something unexpected occurs.

Unit	Size	Cost	EP	Notes
1 Ton lift	18	1,800	3.6	A 1-ton hydraulic lift.
Tow Hook	23.5	2,350	4.7	A small crane for hauling vehicles up to 5,000vl
Tow Hook	26	2,600	5.2	A small crane for hauling vehicles up to 10,000 vl

A long arm for lifting weighs 3kg, takes 15vl, and costs Cr50. Multiply by the length of the arm in meters. To attach a motor to the arm, add an appendage capable of lifting the arm plus 500kg, the load the arm can hold before collapsing. You can make the arm stronger, multiply the weight and cost of the arm by the same amount you need to increase the load. For example, an arm capable of holding 1,500kg (three times the basic capacity) would weigh 9kg and cost Cr150 per meter.

A ladder weighs 3kg, takes 30vl, and costs Cr50. Multiply by the height of the ladder in meters. To attach a hydraulic lift to the ladder, add an appendage capable of lifting the ladder plus 1,000kg, the load the ladder can hold before collapsing. You can purchase a stronger ladder; multiply the weight and cost by the same amount you need to increase the load. For example, a ladder capable of holding 3,000kg would weigh 9kg and cost Cr150 per meter.

TRAILERS AND TOWING

Trailers are unpowered vehicles moved by attaching them to powered vehicles, allowing a single vehicle to have a larger cargo capacity at the cost of reduced performance. Build a trailer like any other wheeled or tracked vehicle, except you omit the power plant, fuel and controls.

To build a tractor, a vehicle designed specifically for towing, add a specific volume for "Towing Capacity" to the vehicle description. Include this volume in the total vehicle size, meaning the vehicle cost, controls and drivetrain will all be larger than a similar sized vehicle. This reflects the space and cost for strengthening the frame, adding towing attachment points, increasing the transmission power, and similar enhancements. Calculate performance for the full size vehicle, including the towing capacity. As long as the size of the trailer does not exceed the tractor's towing capacity, the performance does not change. When calculating vehicle size and SI values for the tractor remember to remove the Towing capacity from the vehicles overall size.

For example, the Steam Powered Tractor has a size of 1,500vl and a towing capacity of 1,000vl. The drivetrain is for a 1,500 vl vehicle, allowing the tractor to pull a trailer up to 1,000vl without affecting its performance. When calculating the vehicle's size and SI, subtract off the towing capacity, making the actual tractor only 500vl.

Other vehicles can also tow trailers, even if not specifically designed for it. This requires recalculating the vehicle's performance. When you attach a trailer to a towing vehicle, recalculate the top speed based upon the total of the vehicle and trailer vls. (This method can also be used for tractors towing trailers that exceed their designed towing capacity.)

For example, the ground car has a size of 2000 vl and a drive train which puts out 300 TH, which gives it a top speed of 150kph (300 TH / 2 TH required). If we add a 500 vl trailer, the total vehicle size becomes 2,500 vl, the top speed drops to 120kph (300 TH / 2.5 TH required), and the acceleration drops to 12.

GROUND VEHICLE MANUFACTURERS

The following firms are all active in the field of ground vehicle manufacture. Some are specialist firms while others manufacture components either directly or through their subsidiaries.

* Naasirka, one of the oldest megacorporations, specializes in the manufacture of information storage and processing equipment and software, computers, robots and other complex electronic devices. Naasirka's broader interests include energy, transport and luxury goods.

* Sternmetal Horizons is primarily engaged in mining and manufacturing. It produces mostly power generation equipment of all types, including power plants for starships, air and ground vehicles, cities and industrial installations. Additionally, Sternmetal is the largest manufacturer of food synthesis equipment in the Imperium.

* TransInnovations, founded during the Sylean Federation, was one of the first pure design bureau firms in the Imperium. Since its founding the company has moved into vehicle manufacture, primarily in the Imperial core. The firm supports one of the largest databases of vehicle designs in the Imperium.

* Dakaan Emergency designs and manufactures emergency response vehicles. Found throughout Ley sector, Dakaan Emergency fire response vehicles have been given a Recommended rating by the Imperial Starport Authority review board.

* Irekaraar is one of the many subsidiaries of Naasirka, specializing in military vehicles. Irekaraar's wheeled vehicle division fills a specialist market niche, building unarmed military-grade vehicles for small mercenary companies, very low-tech worlds and the rugged individualist markets.

* Titanstorm Mobile, a subsidiary of Sternmetal Horizons, specializes in personal transport vehicles with distribution throughout the Titanstorm subsector. Well regarded, and frequently luxuriously appointed, Titanstorm Mobile's cars and motorbikes are frequently sold on to secondary markets throughout Ley Sector.

* Lowdrag Longwheels designs and builds specialty vehicles like ambulances and armored cars and ships throughout the Satyressia subsector. Their internal ergonomics are outstanding and frequently copied. With the recent shift in Imperial government, the firm is expecting to make huge gains in the Highlord and Outteaumer subsectors.

* Justovian Custom Wheels designs and hand builds high performance wheeled vehicles for people willing to pay for quality. The small crew produces only a few vehicles per year but the firm boasts a large following among vehicle enthusiasts.

* El Jerarquía Heavy Haulers holds a monopoly on heavy vehicle manufacture on El Jerarquía. They build a variety of specialized cargo transports, and recently have expanded their market beyond El Jerarquía.

* Statakii, located on Asili, is another manufacturer with a local world monopoly now looking to break into the interstellar market. Competitors ridicule Statakii vehicles as unsafe and lacking in passenger comfort, but the extremely cheap vehicles still find markets throughout the subsector.

VEHICLES

The Yian Caardee Design Bureau catalog presents a mélange of ground vehicles to demonstrate the variety of available designs. This is merely a teaser to spark interest. Specialized catalogs for each category of ground vehicle are available if the example design presented doesn't quite meet your requirements.

You will note there are no specifically military vehicles in this catalog. While many examples of wheeled or tracked tanks exist - our full catalog has several hundred designs - almost all military ground vehicles are produced and consumed locally. We have found that when governments decide the local manufacturing is not up to producing the quantity or quality of armed vehicles and look to import, they generally decide to import Grav vehicles. The additional mobility, firepower capability, and armor of Grav vehicles make them a first choice of militaries throughout the Imperium despite their hugely expensive nature.

However, most of these vehicles can be adapted for light military work. Many are already built to meet or exceed the standards of the Imperial Army, and any qualified technician can add a pintle mount for a light weapon or two. If you are serious about military upgrades for one or more of these vehicles, please contact your local dealer or one of our friendly sales staff.

STEAM POWERED MOTORIZED CARRIAGE

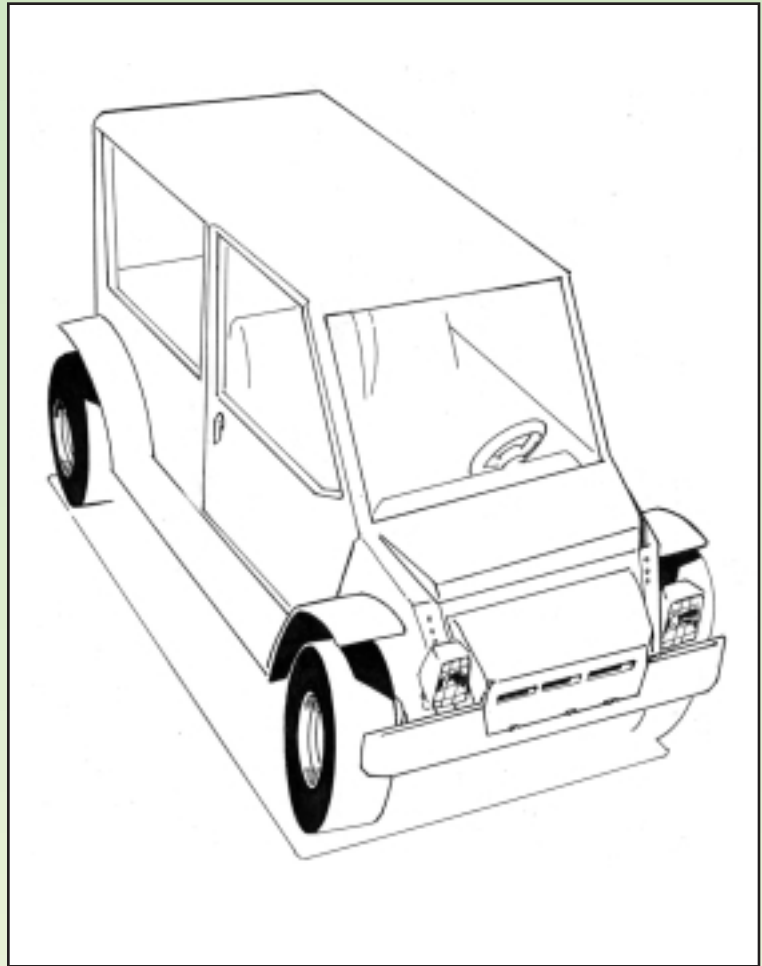
Large Ground Vehicle

TL4, Cr1175, 750vl. A small enclosed carriage, powered by a steam engine. The cab carries two passengers and up to 124 kg of cargo. The fuel bunker holds fuel and water for 7 hours of travel, but part of the cargo space is frequently filled with additional supplies for longer range. External combustion engines spew smoke, soot and still-burning cinders, though better designs, like the Sternmetal engine, do better in this regard.

Below is a typical example of Sternmetal Horizons' biofuel conversion system in completed form. The kit, costing Cr500, supplies a small steam engine, a heavy-duty axle, and steering apparatus that a cart maker attaches to an already completed wagon or carriage. While the engine is low-tech, requiring only simple fuels and a supply of water, its construction is extremely high-tech, using the latest in composite materials. The design ensures the boiler can't explode; the entire system requires no maintenance and should last for fifty years or more.

Locally produced variations are less safe, but are generally more powerful and allow for larger cargo and more passengers. The most common variations are carriages with space for four to six passengers and cargo hauling carts with load capacities up to 1 ton. Very few steam cars are designed to go any faster, because the neither the vehicles nor the roads they are driven on can handle the higher speeds.

There are a number of steam powered car enthusiast groups scattered throughout the Imperium. Members like to design, build and race their own steam-powered cars. In Ley sector, Shamokin and Integron both host large and active steam engine car clubs.



Combat Statistics

Initiative:+0	Agility: 0 AC: 9	AR: 0	SI: 32
Passengers/Crew: 3			
Off-road: 7kph, Very Slow: 0-2kph, Slow: 3-6kph, Cruising: 7-12kph, Fast: 13-18kph, Maximum: 19-25kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
750 vl Chassis	-750	750	-	-	-	32
Controls	150	375	-	-	-	18
Wheeled Drivetrain (4)	22.5	93.75	-1.875	-	-	8
Steam Engine	50	50	+2	-	-	11
Fuel	3.5	-	-	84 km	-	2
Passenger Seats (2)	400	200	-	-	-	
Cargo	124	-	-	-	-	
Subtotals	0	Cr1,469 (Cr1,175 with 20% production model discount)				



STEAM POWERED TRACTOR

Large Ground Vehicle

TL4, Cr2195, 1500vl. A wheeled tractor used throughout farming communities. Hitches and power attachment points are fitted for hauling farm equipment and trailers of various types. There are few, if any, amenities for the driver, and no provisions for passengers or cargo. The four oversized wheels provide good off road performance. The fuel bunker and water tank hold supplies for up to 8 hours of operation.

Our example here, the Statakii all-purpose tractor, is typical. The four oversized wheels haul large loads on or off road with equal ease. The geared down transmission allows moving loads at a mere fourteen meters per hour. As with all Statakii designs, this is a no-frills design, lacking even a top for the driver, a common after-market addition. The Statakii engine burns fuel hotter than most steam engines, resulting in fewer cinders and less ash. This makes the boiler hotter, but the overbuilt steam chamber and multiple pressure relief valve system results in almost no chance of dangerous overloading. Statakii has done an excellent job of providing multiple hitch points and the dealers we spoke to have a wide array of adapters for the various powered farming implements.

The Statakii all-purpose is relatively small as tractors go; larger designs can haul 50 tons or more. Despite their low-tech nature,

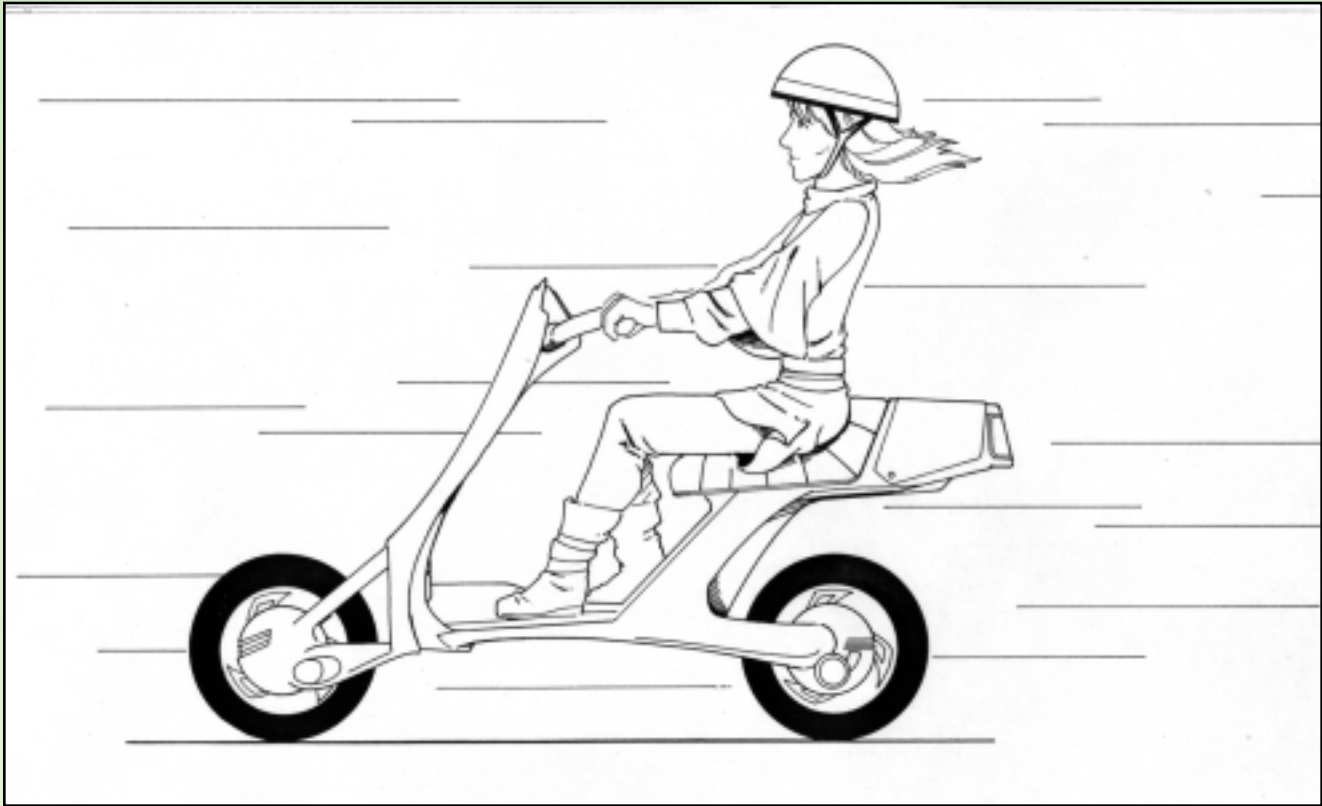
these tractors are simple to maintain and very insensitive to variations in fuel. These facts ensure you may find these tractors somewhere in the backlands of even the most advanced worlds.

Combat Statistics

Initiative:+0	Agility: 0 AC: 9	AR: 0	SI: 28
Passengers/Crew: 1			
Off-road: 17kph, Very Slow: 0-2kph, Slow: 3-6kph, Cruising: 7-12kph, Fast: 13-18kph, Maximum: 19-25kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
1,500 vl Chassis	-1500	1,500	-	-	-	28
Controls	300	750	-	-	-	25
Wheeled Drivetrain (8)	48.75	375	-3.75	-	-	11
Steam Engine	118.75	118.75	+4.75	-	-	16
Fuel	9.5	-	-	96 km	-	5
Cargo	23	-	-	-	-	6
Towing Capacity	1000					
Subtotals	0	Cr2,744	(Cr2,195 with 20% production model discount)			



SCOOTER

Medium Ground Vehicle

TL9, Cr889, 150vl. A small, one-person cycle for short-range commuting. The performance is unimpressive with a cruising speed of 15kph, a top speed of 30kph and a cargo capacity of 32 kg. The battery pack gives an hour's worth of driving. These light and inexpensive scooters are found on many worlds as private commuter vehicles.

The battery powered YC-4750, shown here, is designed for orbital habitats and ground starports where travel distances are no longer than a really long walk and recharging outlets are never far away. The lightweight aluminum frame, carbon fiber reinforced wheels, and the powerful air-gel battery give the scooter a curb weight of 18 kg. The scooter disassembles into a convenient, small package using only a single, included tool. Soft saddle bags or a cargo box are a frequent addition. There are variants that use a small internal combustion or a fuel cell engine for better performance and longer range. With the performance enhancements available for scooters, the line between the high end scooters and the low end motorcycles becomes blurred.

Combat Statistics

Initiative:+0	Agility: 0 AC: 10	AR: 0	SI: 18
Passengers/Crew: 1			
Off-road: 3kph, Very Slow: 0-3kph, Slow: 4-7kph, Cruising: 8-15kph, Fast: 16-22kph, Maximum: 23-30kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
150 vl Chassis	-150	150	-	-	-	18
Controls	110	275	-	-	-	15
Wheeled Drivetrain (2)	4.95	11.25	-0.45	-	-	5
Battery	2.7	675	-	15 km	-	3
Cargo	32.35	-	-	-	-	-
Subtotals	0	Cr1,111 (Cr889 with 20% production model discount)				



MOTORCYCLE

Medium Ground Vehicle

TL8, Cr807, 215vl. A two person personal wheeled transport, the driver and passenger sit on open saddle seats. Motorcycles have little or no cargo space and generally only carry one passenger. The cruising speed of 75kph and a 5.5 hour duration fuel tank gives the bike a 425km range. Not generally designed for off road travel, the bike can make a respectable 15kph.

The Titanstorm Knight represents the middle range of cruisers; motorcycles designed for longer ranged travel. The heavy chassis and powerful engine are customary for this style of bike, and many reviewers feel the Knight offers the best handling, winning design awards for more than 200 years. The hard saddle bags are spacious and easy to access. Titanstorm, never a firm to crimp on luxuries, offers a variety of windscreens, from the low cut for the wind-in-your-face feeling to a complete bubble to keep out all the elements while still enjoying the riding experience. The integrated personal intercom, stereo, and cellular phone system allow driver and passenger to keep in touch.

The Titanstorm Emperor is even larger and more powerful, with more than 30vl of cargo space. There is an entire class economy or commuter bikes, which are smaller, lighter, and shorter range, designed for the stop and go style of driving in an urban environment. Two rarely-seen additions are small trailers for more cargo capacity and sidecars with a small passenger seat.

Combat Statistics

Initiative:+2	Agility: 2	AC: 11	AR: 0	SI: 25
Passengers/Crew: 2				
Off-road: 15kph, Very Slow: 0-15kph, Slow: 16-37kph, Cruising: 38-75kph, Fast: 76-112kph, Maximum: 113-150kph				

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
215 vl Chassis	-215	215	-	-	-	22
Controls	110	275	-	-	-	15
Wheeled Drive train (2)	35.475	80,625	-3.225	-	-	10
Internal Combustion engine	26.325	263.25	+5.265	-	-	9
Fuel	15	-	-	425km	-	7
Passenger saddle (1)	10	25	-	-	-	-
Two way radio	1	150	0.04	50km	-	2
Cargo	17.2	-	-	-	-	-
Subtotals	0	Cr1009 (Cr807 with 20% production model discount)				

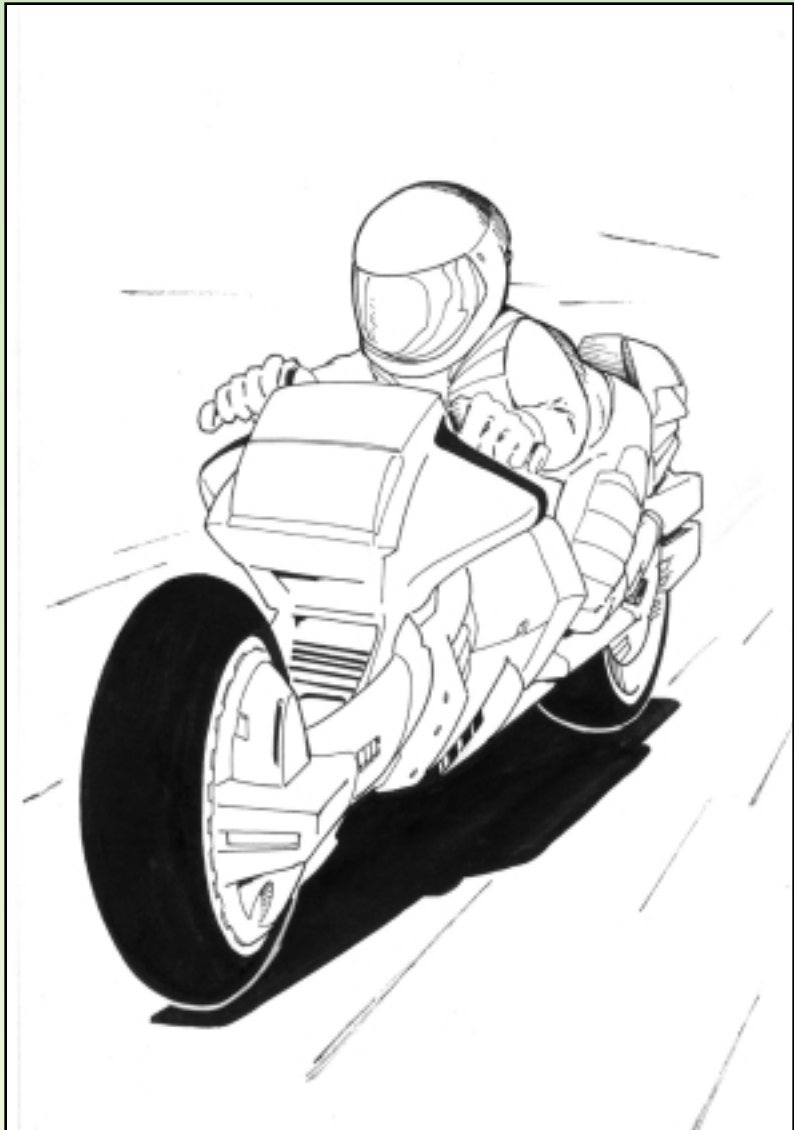
PERFORMANCE MOTORCYCLE

Medium Ground Vehicle

TL7, Cr937, 245vl. A performance motorcycle designed for speed and agility. A single operator sits on an open saddle seat. With a top speed of 300kph, but with no capacity for cargo or additional passengers, the motorcycle design is for speed of transport. The small fuel tank only allows a 235km range at cruising speed, but can make that distance in under an hour.

For as long as people have been making vehicles go, there have been those who like to see how fast they will go. The TransInnovations Blur is a classic example. Tuning the lightweight ceramic engine to use one of any number of different hydrocarbon fuel sources is a simple task, and add-on kits for more exotic fuels are easily available. The simple aerodynamic fairings are an established layout and never seem to go out of style. The balance of pure speed and handling for the Blur are a standard to which all other performance cycles are measured. TransInnovations has been selling the "Blur" design since the days of the Sylean federation, and it goes to show the combination of high power and good looks always find a market, even after a thousand years.

The most frequent alteration to the Blur is the addition of a larger fuel tank to give the motorcycle a longer range. Other designs trade agility for more speed, with some racing bikes capable of 400kph or more. Other designs prefer agility, pushing the limits of the driver to keep the cycle on the road. The more powerful bikes are frequently heavily restricted or banned altogether because their excessive speed and the reckless nature of their riders poses a hazard to other drivers on the road.



Combat Statistics

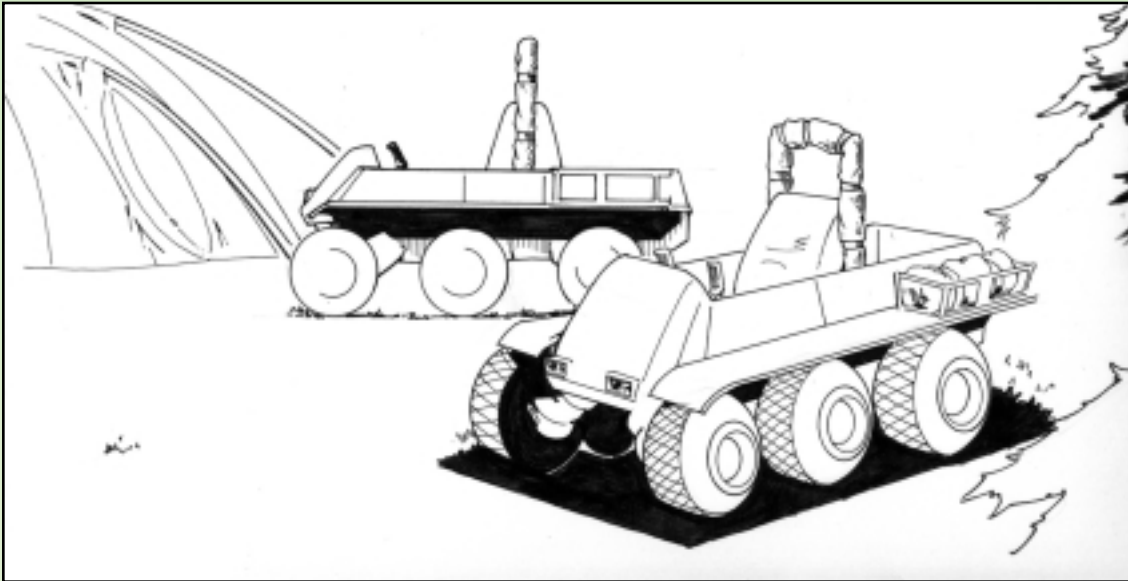
Initiative:+2 Agility: 2 AC: 12 AR: 0 SI: 24

Passengers/Crew: 1

Off-road: 30kph, Very Slow: 0-30kph, Slow: 31-75kph, Cruising: 76-150kph, Fast: 151-225kph, Maximum: 226-300kph

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
245 vl Chassis	-245	245	-	-	-	24
Controls	110	275	-	-	-	15
Wheeled Drivetrain (2)	80.85	183.75	-7.35	-	-	13
Internal Combustion	46.75	467.5	+9.35	-	-	11
Fuel 7.4	-	-	237km	-	6	
Subtotals	0	Cr1,171	(Cr937 with 20% production model discount)			



PERSONAL ATV - WHEELED

Large Ground Vehicle

TL9, Cr1652, 400vl. A small, two person open topped cross-country vehicle designed only for light, mostly recreational, duties. The small ATV has a cruising speed of 30kph, and the six wheel design moves at 16kph off-road. A 24.5-hour fuel tank can carry the vehicle 735km. The external cargo strap down can hold up to 137vl.

Irekaraar's Akikhe, based upon a TransInnovations design, is another old but still well regarded vehicle. The handlebar steering system and all hand controls make the Akikhe drive like a motorbike. With an all-wheel electric motor drive and the instant start fuel cell, the large-capacity fuel tank can last a week or more. The completely silent fuel cell and the almost silent drive system make the Akikhe a favorite of hunters trying to quietly approach prey. The older fuel cell design is finicky about fuel changes, but used with an approved fuel purification system the manufacturer offers a 50-year warranty. The added heavy-duty winch makes the Akikhe ideal for the gentleman farmer who may undertake some occasional medium-heavy clearing work.

These light ATV's are frequently used by hunters for quick travel through brush or prairie country. Slightly larger ATVs, sometimes armed, are adopted by mid-tech armies for light scout duties or as fast assault vehicles. Low-tech armies frequently purchase them as messenger carriers, as larger vehicles are too expensive to purchase or support, but the small, light, and inexpensive vehicles are ideal.

Combat Statistics

Initiative:+0	Agility: 0 AC: 11	AR: 0	SI: 24
Passengers/Crew: 2			
Off-road: 16kph, Very Slow: 0-6kph, Slow: 7-15kph, Cruising: 16-30kph, Fast: 31-45kph, Maximum: 46-60kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
400 vl Chassis	-400	400	-	-	-	24
Controls	110	275	-	-	-	15
Wheeled Drivetrain (6)	31.2	180	-2.4	-	-	13
Fuel Cell power plant	5.4	810	+2.7	-	-	11
Fuel 10	-	-	735km	-	6	
Winch, St: 30	6	300	0.3	-	-	5
Passengers (1)	100	100	-	-	-	
Cargo	137.4	-	-	-	-	
Subtotals	0	Cr2,065	(Cr1,652 with 20% production model discount)			

SNOWMOBILE

Large Ground Vehicle

TL7, Cr720, 300vl. A small, two person tracked ATV, even more specialized than the wheeled ATV, suitable for terrain like snow and sand, where wheeled ATVs can become bogged down. These half-track designs are capable of cruising at 30kph or making 20kph off-road. The 9vl fuel tanks lasts for six hours at cruising speed, allowing a range of 270km. In addition to the driver, a typical snowmobile can carry a single passenger on an open seat, or alternatively up to 36vl of cargo.

Another one of TransInnovations' very old and well-established designs, the Snow Owl snowmobile is specifically designed for the ice and snow. The electric starting system for the titanium block engine means starting the engine on the coldest days is a snap. A lack of cargo space and the light duty tracks restricts the Snow Owl to recreation duties, and serious snowmobile reviews complain the sled is under-powered and difficult to handle. The low price and easy maintenance make it favorite of the day trip snowmobilers. Like all of TransInnovations designs, the engine is multi-fuel capable with only a few adjustments, and while not as fuel efficient as specific built engines, the ability to move the Snow Owl from world to world makes it a favorite with interstellar tourists.

Variants include both larger and smaller models. Like the wheeled ATV's, these are occasional adapted by specialized units of armed forces or mercenaries looking for an efficient mode of travel. Most working snowmobiles have larger engines, but rely upon towed sleds for hauling cargo.



Combat Statistics

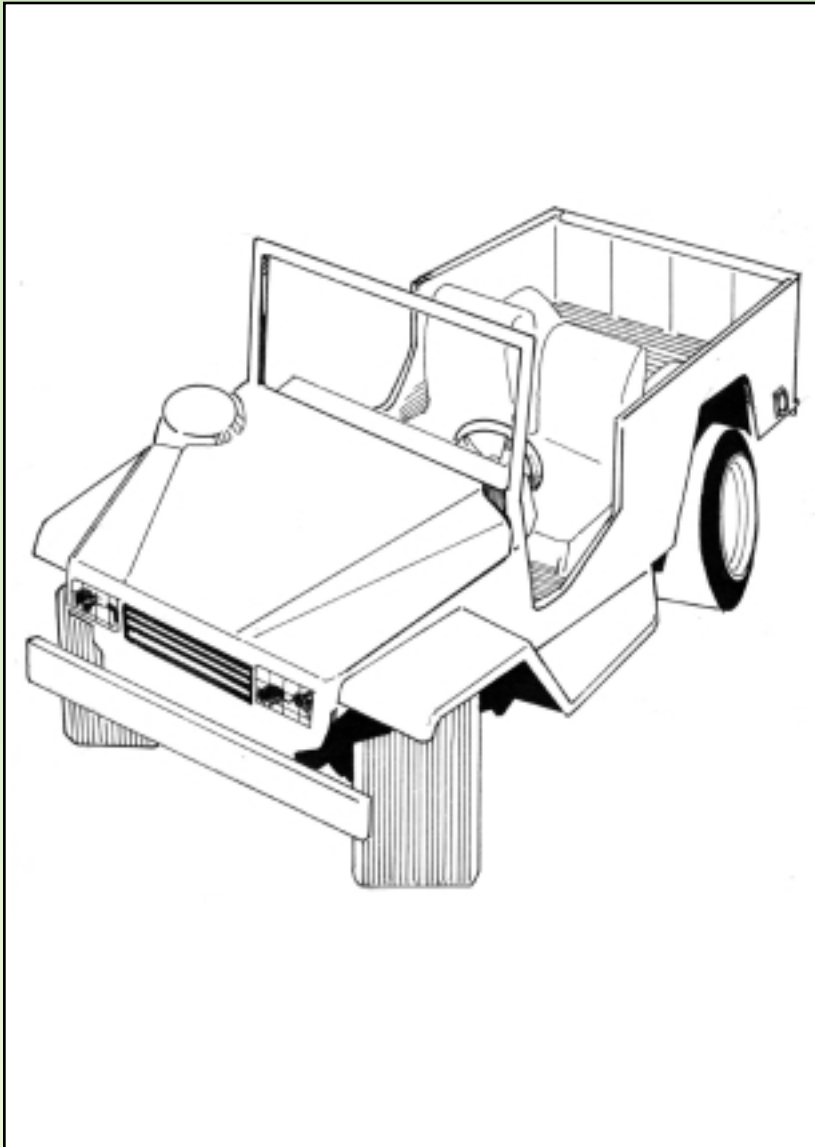
Initiative:+0 Agility: 0 AC: 11 AR: 0 SI: 25

Passengers/Crew: 2

Off-road: 20kph, Very Slow: 0-6kph, Slow: 7-15kph, Cruising: 16-30kph, Fast: 31-45kph, Maximum: 46-60kph

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
300 vl Chassis	-300	300	-	-	-	25
Controls	110	275	-	-	-	15
Halftrack drivetrain	30	75	-3	-	-	5
Internal Combustion	15	150	+3	-	-	7
Fuel 9	-	-	270km	-	6	
Passengers (1)	100	100	-	-	-	
Cargo	36	-	-	-	-	
Subtotals	0	Cr900 (Cr720 with 20% production model discount)				



JEEP

Large Ground Vehicle

TL 5, Cr2720, 1000 vl. This is an open-topped general-purpose ground vehicle, used for both passengers and light cargo. Designed for ease of construction and maintenance, it lacks all comforts. Jeeps are widely adapted by mid-tech armies as a light support vehicle, scout, ambulance, and just about every other duty.

The Statakii jeep is typical of these vehicles; simple, tough vehicles without regard for driver or passenger comfort. The Statakii has a number of features that have attracted the attention of enthusiasts, including a manual self-jacking system for fast wheel changes and a multi fuel system allowing the use of different hydrocarbon fuels without any expensive refits. A major "innovation" is the inclusion of a roll cage. Statakii advertises it as a basic pintle mounting, but it is sturdy enough to support the jeep when rolled over. With a high ground clearance, the jeep makes good speed off-road, and the four-wheel drive system rarely get stuck even in the most inhospitable terrain.

Planetary armies frequently sell surplus jeeps on to hunters, survivalists, and others looking for simple but rugged transportation. A frequent modification is to remove the rear 2 passenger seats, adding 200vl of cargo space. Jeeps sold directly to civilians come with a canvas or nylon tops to keep out the weather. Several manufacturers sell upgraded version of the jeep with better seats, a roll cage, a real top, and other comforts.

Combat Statistics

Initiative:+2	Agility: 2	AC: 11	AR: 0	SI: 35
Passengers/Crew: 4				
Off-road: 17kph, Very Slow: 0-12kph, Slow: 13-30kph, Cruising: 31-60kph, Fast: 61-90kph, Maximum: 91-120kph				

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
1000 vl Chassis	-1000	1,000	-	-	-	35
Controls	200	500	-	-	-	21
Wheeled Drive train	144	600	-12	-	-	17
Internal Combustion engine	100	1,000	+20	-	-	14
Fuel 100	-	-	600 km	-	14	
Passenger Seats (3)	300	300	-	-	-	
Cargo	156	-	-	-	-	
Subtotals	0	3,400 (Cr2,720 with 20% production model discount)				

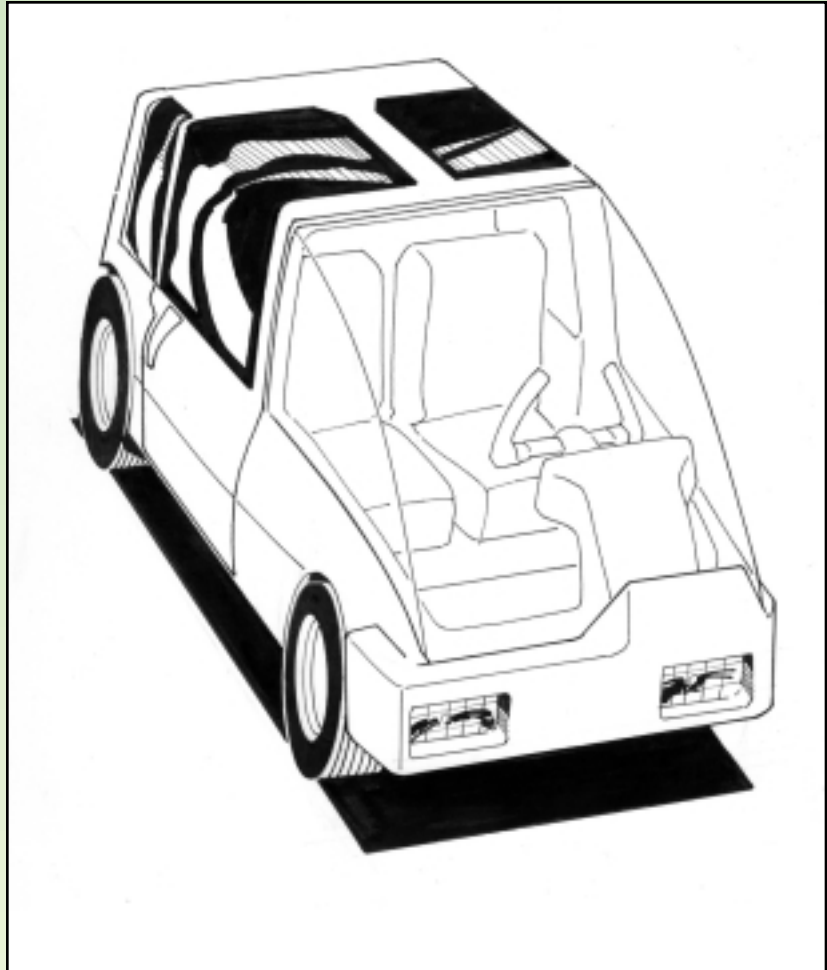
GROUND CAR

Huge Ground Vehicle

TL 5, Cr5120, 2000 vl. An ordinary self-powered wheeled vehicle suitable for local use in civilized areas or on roads. Typically, a ground car has a cruising range of 750 km at a speed of 75 kph, and has a maximum speed of 150 kph. If capable of off-road travel at all, speed is generally limited to 20 kph. Fuel for a ground car depends on local tech level and fuel sources; it is usually chemical fuel (hydrocarbons or hydrogen), or electric battery. A car can carry four additional passengers plus luggage (140vl). Ground cars are mass production items manufactured for a specific world; they will tend to malfunction when transferred to a world not similar to their world of origin.

Our example here, the YC-4482, is a generic five-person car design. The design goal for this car was simplicity of manufacture and maintenance. The oversized engine compartment tolerates a variety of different engines. Many consider the body design to be dull and uninspired, but it allows quick access to the cargo and for the passengers. Despite the upturned noses by vehicle experts, this inexpensive ground car found throughout the Imperium and the worlds beyond continues to be the transport of choice.

Variations on this vehicle abound. Below are four: a sport car, a limousine, a pickup truck and a van. Other changes include different engine types, better styling, more cargo space and additional passengers. While few cars (outside of the sports cars) are turbine powered, either batteries for short distance commuting or fuel cells for the more modern cars are common.

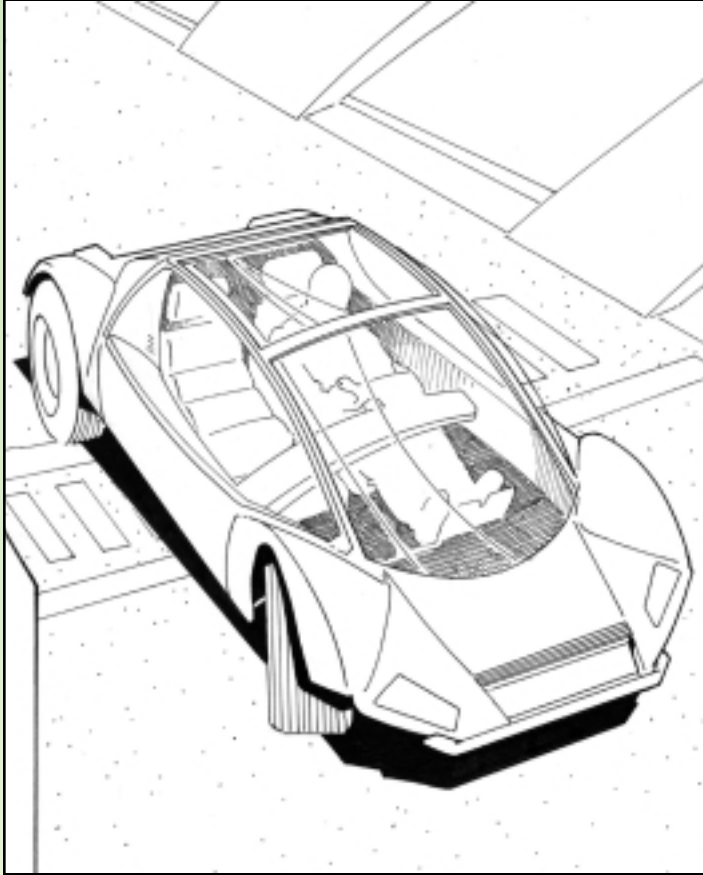


Combat Statistics

Initiative:+0	Agility: 0 AC: 8	AR: 0	SI: 50
Passengers/Crew: 5			
Off-road: 20kph, Very Slow: 0-15kph, Slow: 15-37kph, Cruising: 28-75kph, Fast: 76-112kph, Maximum: 113-150kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
2000 vl Chassis	-2,000	2,000	-	-	-	50
Controls	400	1,000	-	-	-	27
Wheeled Drivetrain (4)	360	1,500	-30	-	-	26
Internal Combustion engine	150	1,500	+30	-	-	18
Fuel 150	-	-	750 km	-	18	
Passenger Seats (4)	800	400	-	-	-	
Cargo	140	-	-	-	-	
Subtotals	0	Cr6,400 (Cr5,120 with 20% production model discount)				



SPORTS CAR

Huge Ground Vehicle

TL8, Cr25050, 2000vl. A two-person high performance ground car. The cruising speed of 242kph is faster than the top speeds of most ground vehicles, and the top speed of 484kph can outrun anything except airplanes and Grav vehicles. The fuel tank holds enough fuel for four hours, giving a range of almost 1000km. A single passenger and no cargo ensure this vehicle is purely for showing off.

Sports cars, like the performance motorcycles, are an expression of the owner. While ground cars have gone out of fashion with much of the Imperium, there are followers of the style. The Ruribiniikikhe Ruribin, a Justovian Custom Wheels design, is a prime example. The turbine power plant gives this car jet powered performance. With the highly tuned and active suspension offering superb handling, it becomes a driver's dream. The streamlined chassis and computerized adaptive aerodynamics eliminates the usual wing spoilers, but still gives a 0.045 drag coefficient and 1.8G downward force at speed, sticking the car to the road and making sure it stays there. Sleek styling makes the Ruribin look like it's moving at Mach speed even while sitting at the curb, attracting the eye of every single sophont who passes by. The distinctive whine of the Justovian turbine, one of the company's signatures, draws a crowd whenever one drives by.

Most sports cars are either turbine powered or use an internal combustion engine. Enthusiasts disdain fuel cells or fusion engines, feeling that a performance vehicle should be loud as well as fast and agile. Like the performance motorcycles, governments usually heavily restrict or ban these vehicles as being a danger to themselves or others. Individuals who have the wherewithal to purchase, fuel and maintain a Ruribin usually have capital to build private racetracks to appreciate the car's capabilities.

Combat Statistics

Initiative:+4	Agility: 4 AC:12	AR: 0	SI: 50
Passengers/Crew: 2			
Very Slow: 0-48kph, Slow: 49-121kph, Cruising: 122-242kph, Fast: 242-363kph, Maximum: 363-484kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
2,000 vl Chassis	-2,000	2,000	-	-	-	50
Streamlined Chassis	-	4,000	-	-	-	-
Controls	400	1,000	-	-	-	27
Wheeled Drivetrain (4)	1056	4,400	-88	-	-	36
Improved Suspension	-	2,200	-	-	-	-
Turbine Engine	224	11,200	+112	-	-	24
Fuel 112	-	-	968km	-	15	-
Passenger Seats (1)	200	100	-	-	-	-
Two way radio	1	150	-0.04	50km	-	2
Cargo	7	-	-	-	-	-
Subtotals	0	Cr25,050				

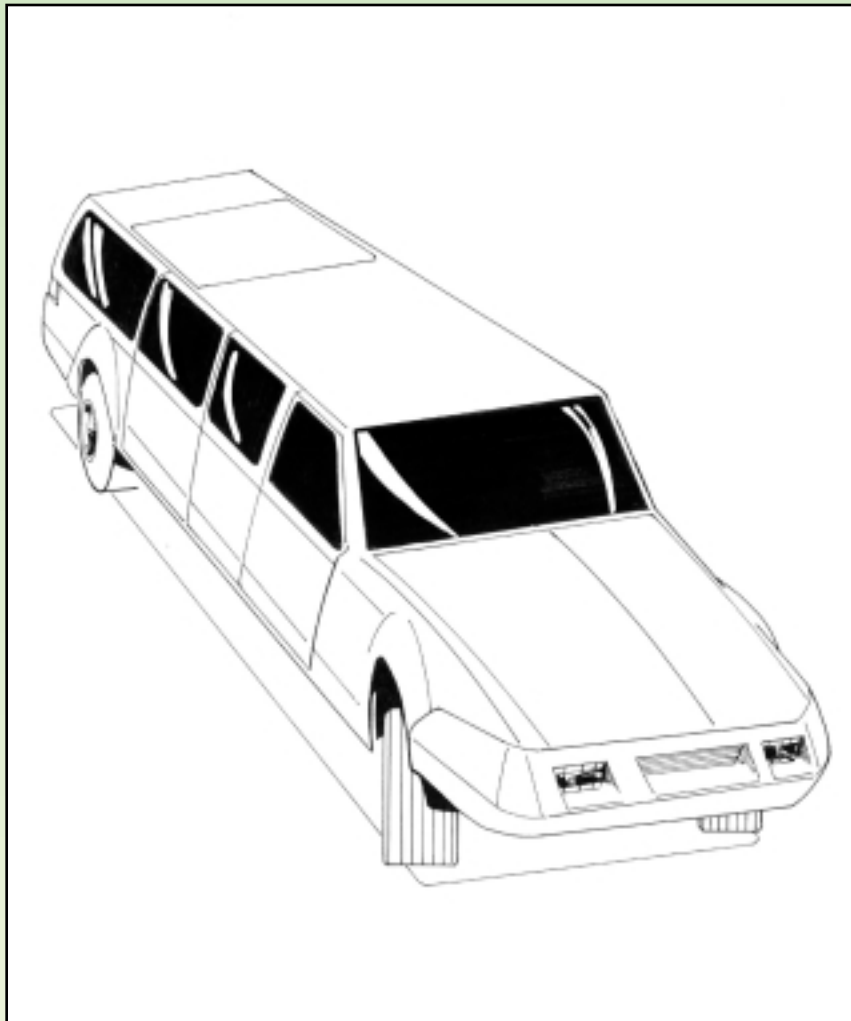
LIMOUSINE

Huge Ground Vehicle

TL7, Cr15880, 5000vl. A large and luxurious passenger vehicle. The driver sits in a compartment separated from the passenger space, which gives the vehicle's four passengers privacy with extra room to stretch, plus a wet bar and a complete entertainment system. A cruising speed of 75kph allows the limousine to make good time, and it has a top speed of 150kph. The 5-hour duration fuel tank gives a 375km range. Many of the rich and powerful feel a need to express their wealth through display; automobiles are a traditional means.

The Titanstorm R5000 is an outstanding example of limousine style. Passengers relax in sumptuous surroundings while being efficiently whisked to their destination. The soundproofing is almost total, ensuring distractions will not intrude. A wet bar is ingeniously hidden throughout the side panels, and the addition of a folding table in the center floor is a brilliant touch.

The Titanstorm R6000 is an upgraded version for the corporate security market, adding armor all the way around, a larger engine, a front mounted ram plate and an improved suspension. For approved customers, Titanstorm offers an interesting array of defensive weaponry.

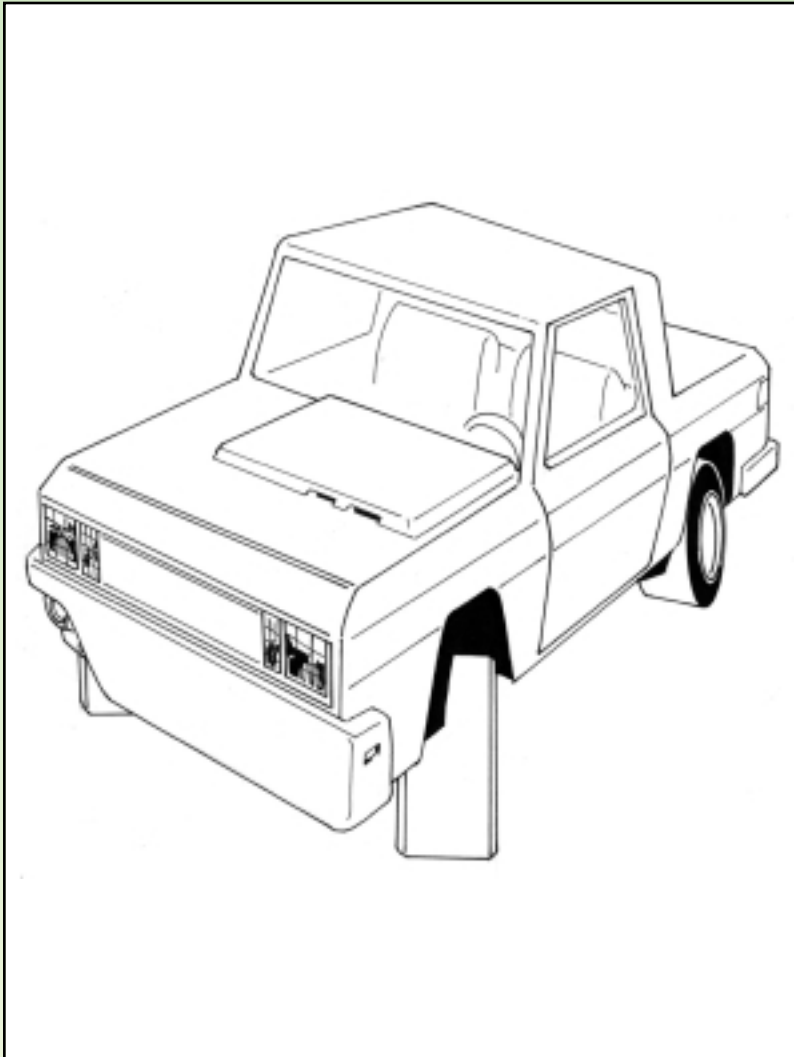


Combat Statistics

Initiative:+0	Agility: 0 AC:8	AR: 0	SI: 55
Passengers/Crew: 5			
Off-road: 15kph, Very Slow: 0-15kph, Slow: 16-37kph, Cruising: 38-75kph, Fast: 76-112kph, Maximum: 113-150kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
5000 vl Chassis	-5,000	5,000	-	-	-	55
Controls	1,000	2,500	-	-	-	35
Wheeled Drivetrain (4)	1,200	5,000	-100	-	-	27
Internal Combustion	500	5,000	+100	-	-	28
Fuel 250	-	-	375km	-	25	
Passenger seats (4x2)	1,600	1,200	-	-	-	
Galley	250	1,000	-	-	-	25
Two way radio	1	150	-0.04	50km	-	2
Cargo	199	-	-	-	-	
Subtotals	0	Cr19,850 (Cr15,880 with 20% production model discount)				



PICKUP TRUCK

Huge Ground Vehicle

TL5, Cr7280, 3000vl. A very light cargo truck, with seating for only the driver and one passenger, and an open cargo bed. Like a ground car, a pickup is used for personal transportation and hauling small loads about. The truck has a top speed of 150kph, a cruising speed of 75kph, and a range of 750km on a 10-hour fuel tank. The advantage of the open cargo space is you can overload it; the disadvantage is the cargo is exposed to the elements.

The Statakii light cargo truck is an excellent example of the baseline pickup truck. A tailgate offers access to an open cargo bay, and the vehicle has a closed cab. Characteristic of Statakii, seating is utilitarian and controls are minimal but functional. The cargo space is larger than most other trucks, and the impressive 1,300kg cargo capacity make this otherwise ugly vehicle useful.

Statakii doesn't offer many options for their pickup truck, but other manufacturers have a long list of upgrades. Most frequent are driver comforts, including better seating, climate controls, and entertainment systems. Most trucks are smaller, with a corresponding reduction in cargo capacity.

Titanstorm Mobile builds a variety of pickup truck accessories for the cargo space. The most basic is a hard shell cover for protecting the contents of the cargo space. Others include lockable toolboxes and equipment

mounting racks. Irekaraar dealers sell a camper; a large box containing a sleeping space for two or three and a small galley, which will fit into the cargo space of most pickups.

Combat Statistics

Initiative:+0	Agility: 0 AC: 8	AR: 0	SI: 51
Passengers/Crew: 2			
Off-road: 20kph, Very Slow: 0-15kph, Slow: 15-37kph, Cruising: 28-75kph, Fast: 76-112kph, Maximum: 113-150kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
3,000 vl Chassis	-3,000	3,000	-	-	-	51
Controls	600	1,500	-	-	-	30
Wheeled Drivetrain (4)	540	2,250	-45	-	-	29
Internal Combustion engine	225	2,250	+45	-	-	23
Fuel 225	-	-	750 km	-	23	
Passenger Seats (1)	200	100	-	-	-	
Cargo	1,300	-	-	-	-	
Subtotals	0	Cr9,100 (Cr7,280 with 20% production model discount)				

VAN

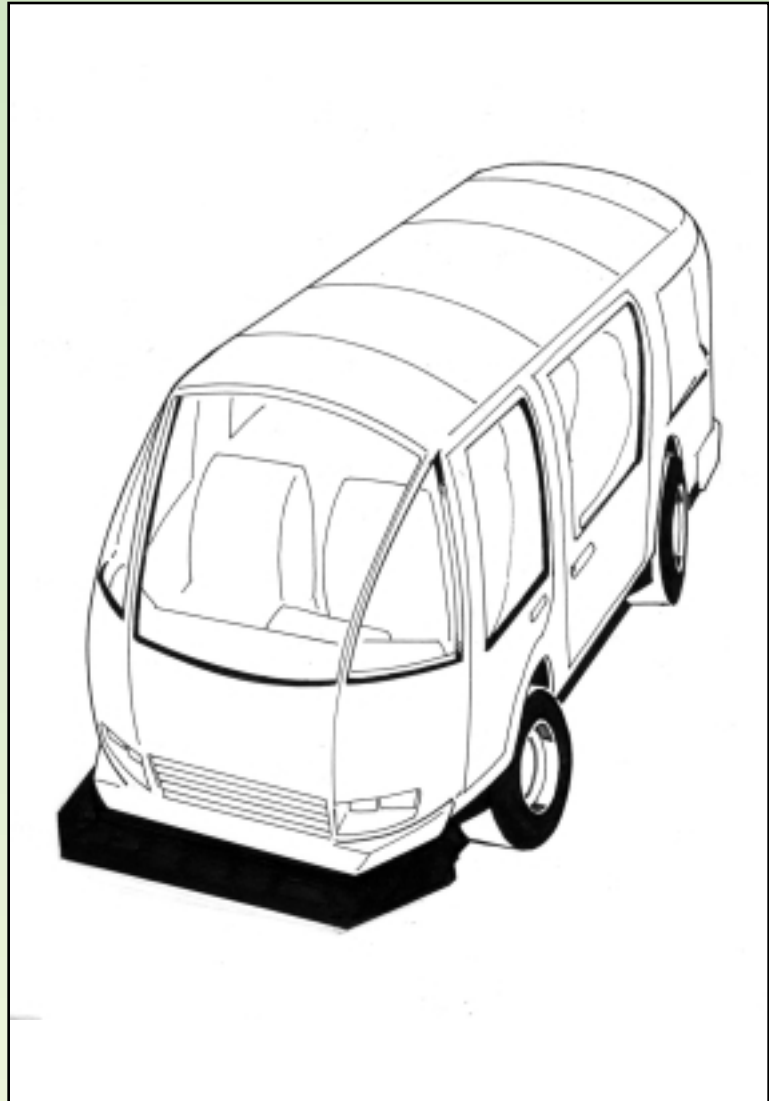
Huge ground Vehicle

TL7, Cr7760, 3000vl. A larger ground car designed for hauling passengers, the van holds seven passengers but only a little cargo. Operators can remove van seats, improving cargo capacity at the cost of passenger seating. Vans, like ground cars, have only moderate performance with a top speed of 150kph and a cruising speed of 75kph. The 10-hour fuel supply will take a van an average of 750km.

The Titanstorm D250 is a good example of a Van. Designed as a small school bus, the access to the interior is through small steps. The seats are comfortable and each has a safety harnesses adjustable for children. The padded and sound-proofed interior protects youngsters in cases of accidents, even if they are not where they are supposed to be. Titanstorm offers the D250 in a bright reflective color scheme and many bright flashing running lights, all of which can be supplemented to meet local regulations for child transportation.

Titanstorm also offers the DX250, for the more security conscious market. Layers of ballistic cloth armor hidden in the side and floor panels offer all around protection. A reinforced front end acts as a ram plate for driving through the unexpected roadblocks.

In addition to options offered by Titanstorm, dealers can also customize the van. A frequent change is to strip the interior to convert it to a light duty delivery vehicle. Another favorite conversion is to replace the seats with a sleeping area for two and a small galley.



Combat Statistics

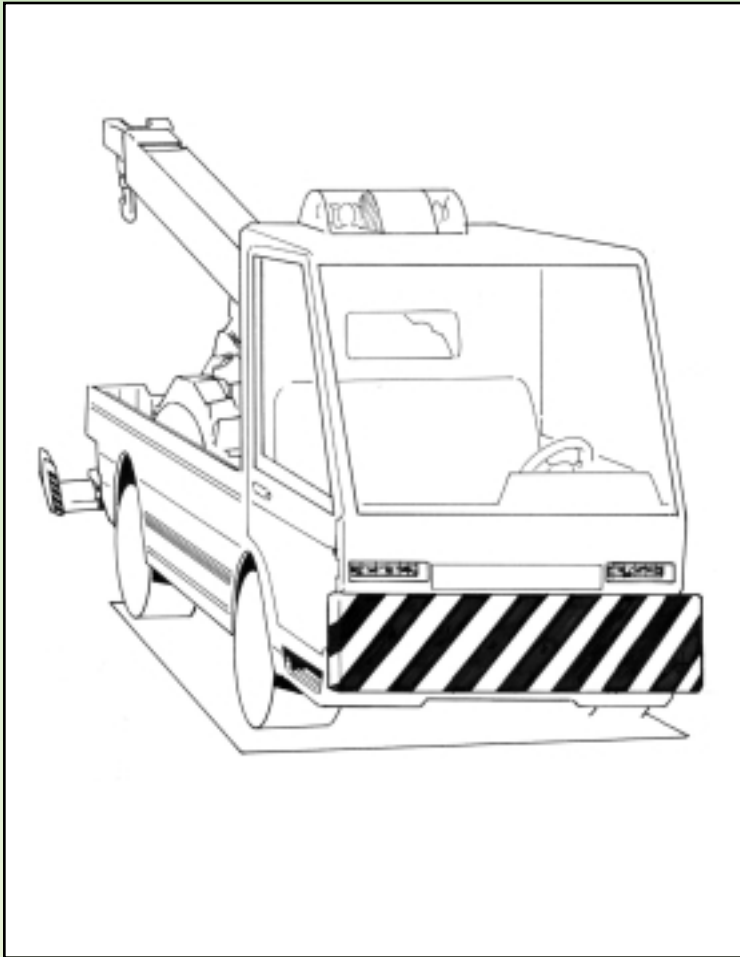
Initiative:+0 Agility: 0 AC: 8 AR: 0 SI: 51

Passengers/Crew: 8

Off-road: 20kph, Very Slow: 0-15kph, Slow: 15-37kph, Cruising: 28-75kph, Fast: 76-112kph, Maximum: 113-150kph

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
3,000 vl Chassis	-3,000	3,000	-	-	-	51
Controls	600	1,500	-	-	-	30
Wheeled Drivetrain (4)	540	2,250	-45	-	-	29
Internal Combustion engine	225	2,250	+45	-	-	23
Fuel	225	-	-	750 km	-	23
Passenger Seats (7)	1,400	700	-	-	-	-
Cargo	100	-	-	-	-	-
Subtotals	0	Cr9,700 (Cr7,760 with 20% production model discount)				



TOW TRUCK

Huge Ground Vehicle

TL5, Cr19336, 7000vl. A large truck designed to assist with broken down ground vehicles. It mounts a small rear crane for partly lifting a variety of vehicles up to 5,000 vl. The truck supports a normal towing capacity of up to 3,200 vl, with a top speed of 120kph and a cruising speed of 60kph. With a full 5,000vl load, the top speed drops to 95kph and cruising at 48kph. The 10-hour fuel tank gives a normal range of 600km.

Dakaan Emergency designed the FC class tow trucks for servicing the private car market. The tow hook uses a better-regarded front wheel gripping system rather than a frame attachment chain hook, which has been known to damage the chassis of the towed vehicle. The extra long cable for the winch and higher ground clearance mean that the FC class is easily able to assist drivers who have wandered a little too far from the road. Dakaan uses a tuned internal combustion engine, giving better overall performance and larger towing capacity. The FC's passenger space is unusual, but Dakaan explains that allowing the tow truck operator to provide a safe and comfortable ride for the distressed driver makes a positive impression.

A common variant is to have a winch to haul the disabled vehicle onto a hydraulically tilted bed, moving the disabled vehicle without having to haul it along the ground. Larger tow trucks exist for assisting larger vehicles, though only a few trucks

are smaller. The Dakaan Emergency NC class Tow Truck includes a vehicle shop to fix the ground vehicle on the spot.

Combat Statistics

Initiative:+0	Agility: 0 AC:8	AR: 0	SI: 53
Passengers/Crew: 3			
Off-road: 17kph, Very Slow: 0-12kph, Slow: 13-30kph, Cruising: 31-60kph, Fast: 61-90kph, Maximum: 91-120kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
7000 vl Chassis	-7,000	7,000	-	-	-	53
Controls	1,400	3,500	-	-	-	41
Wheeled Drivetrain (6)	1,092	6,300	-84	-	-	37
Internal Combustion	420	4,200	+84	-	-	27
Fuel 420	-	-	600km	-	27	
Passenger Seats (2)	400	200	-	-	-	
5,000 vl Tow Hook	23.5	2,350	4.7	-	-	8
Winch Str: 47	9.4	470	-0.47	-	-	5
Two way radio	1	150	-0.04	50km	-	2
Cargo	34.1	-	-	-	-	
Towing Capacity	3,200	-	-	-	-	
Subtotals	0	Cr24,170 (Cr19,336 with 20% production model discount)				

AMBULANCE

Huge Ground Vehicle

TL9, Cr107560, 3000vl. An emergency response vehicle for transporting injured sophonts from the scene of a disaster to a medical care facility. The onboard sickbay can treat even the most serious injuries en route to the hospital. With a top speed of 200kph, the ambulance can make good time both to and from the scene of an accident. The 10-hour fuel supply gives a range of 1000km.

Made by LowDrag LongWheels, the Angel of Mercy ambulance shows why the company's designs are so highly regarded. The layout of the medical bay leaves all the supplies within arm's reach of the technician, without making the space seem crowded. The small medical diagnosis computer is top notch and integrated with the communications system, automatically downloading patient status information and ambulance ETA to local hospitals. The computer also communicates with the local traffic network and displays the best route to medical facilities. The active suspension system isolates the patient and technician from dangerous road conditions; the driver concentrates upon getting to the hospital without worrying too much about affecting his charges.

The Angel of Mercy works best for civilized locations where only a few patients need medical care at one time. Less expensive ambulances don't include the large medical sick bay, providing only space for one or two stretchers and a few supplies. For more dangerous areas, ambulances are either larger, to accommodate more patients at one time, or are smaller and with fewer supplies to allow more of them to be deployed. Ambulances that are more expensive replace the Sickbay with an autodoc, guaranteeing the patient's arrival at the hospital.



Combat Statistics

Initiative:+2	Agility: 2 AC:10	AR: 0	SI: 51
Passengers/Crew: 3			
Off-road: 25kph, Very Slow: 0-20kph, Slow: 21-50kph, Cruising: 51-100kph, Fast: 101-150kph, Maximum: 151-200kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
3,000 vl Chassis	-3,000	3,000	-	-	-	51
Controls	600	1,500	-	-	-	30
Wheeled Drivetrain (6)	780	4,500	-60	-	-	32
Fuel Cell Power plant	168	25,200	+84	-	-	19
Fuel 126	-	-	1000km	-	16	-
Passenger Seats (1)	200	100	-	-	-	-
Sick Bay	1,000	100,000	-	-	-	-
Two way radio	1	150	-0.04	50km	-	2
Cargo	125	-	-	-	-	-
Subtotals	0	Cr134,450 (Cr107,650 with 20% production model discount)				



FIRE TRUCK - PUMPER

TL12, Cr67136, 14000vl. The most common fire and emergency response vehicles. The onboard tank holds 6,000 liters of water, specialized fire-retardant foam, or an absorption material for chemical spills. The cargo space holds 100 meters of hose to connect the onboard pumps to a water supply and supply up to 6 hose teams. With a top speed of 200kph and a cruising speed of 100kph, the Pumper has a range of 1000km.

The Dakaan Emergency Flying Grebe is found in many larger starports throughout Ley sector. The advanced fuel cells use the same hydrogen source as starships to reduce operating costs. Crew layout is standard, driver with two passengers in the front, four partly open seats along the sides, and additional hand-holds for up to six more in the rear. The Sternmetal induction pumps handle a variety of fire fighting materials and the internal plumbing makes on-site mixing of a retardant as simple as punching a button.

The most dangerous aspect of a starship accident is the potential fuel-air bomb from the boiling liquid hydrogen. Dakaan manufactures the Flying Grebe to avoid sparking the volatile hydrogen; all surfaces are non-sparking, the entire electrical system is sealed and components are not grounded through the frame.

The Flying Grebe's tank holds enough water for five minutes at full pump output, enough to either put out the fire or make a start while the truck is hooked up

to a larger water source. Variants of the pump trucks change the size of the included water tank. For rural areas lacking a municipal water supply, trucks will have larger tanks. For urban environments with a more reliable source of water, the tank would be smaller or non-existent.

Combat Statistics

Initiative:+2	Agility: 2 AC: 10	AR: 0	SI: 73
Passengers/Crew: 7			
Off-road: 25kph, Very Slow: 0-20kph, Slow: 21-50kph, Cruising: 51-100kph, Fast: 101-150kph, Maximum: 151-200kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
14,000 vl Chassis		-14,000	14,000	-	-	73
Controls	2,800	7,000	-	-	-	51
Wheeled Drivetrain (6)	3,640	21,000	-280	-	-	53
Adv. Fuel cell	588	39,200	+392	-	-	29
Fuel 196	-	-	1000km	-	21	
Passenger Seats (2+4)	800	600	-	-	-	
Winch Str: 47	9.4	470	-0.47	-	-	5
High Pressure Pump (6)	24	1500	-2.5	-	-	8
Two way radio	1	150	-0.04	50km	-	2
Water Tank	6,000	-	-	-	-	
Hose Storage	500	-	-	-	-	
Cargo	441.6	-	-	-	-	
Subtotals	0	Cr83,290 (Cr67,136 with 20% production model discount)				

FIRE TRUCK - LADDER

Huge Ground Vehicle

TL12, Cr21776, 4000vl. A fire and emergency response vehicle. The ladder truck holds a powered ladder for fast access to the upper levels or roof of a structure or starship. With a top speed of 200kph and a cruising speed of 100kph, the Ladder has a range of 1000km.

Dakaan Emergency has optimized the Long Armed Arcebean ladder truck for work in a starport environment. Like the Flying Grebe, the Arcebean uses non-sparking materials and a sealed electrical system to avoid the possibility of setting off the volatile hydrogen. The 20-meter ladder is short for urban fire fighting, in the starport it is more than sufficient to allow crews to get over the top of most landed (or crashed) spaceships. The Arcebean is another favorite for starport emergency crews, who often refer to the lightweight, fast and agile trucks as ladder-rockets.

With the advent of Grav vehicles, the ladder trucks become particularly anachronistic; a mobile flying platform is more useful. However, in some of the poorer worlds beyond the Imperial trailing border, ladder trucks are still used and loved by their crews. Ladders are 50 meters or more, with several ingenious methods of folding and mounting them to allow the trucks to pass through narrow city streets.

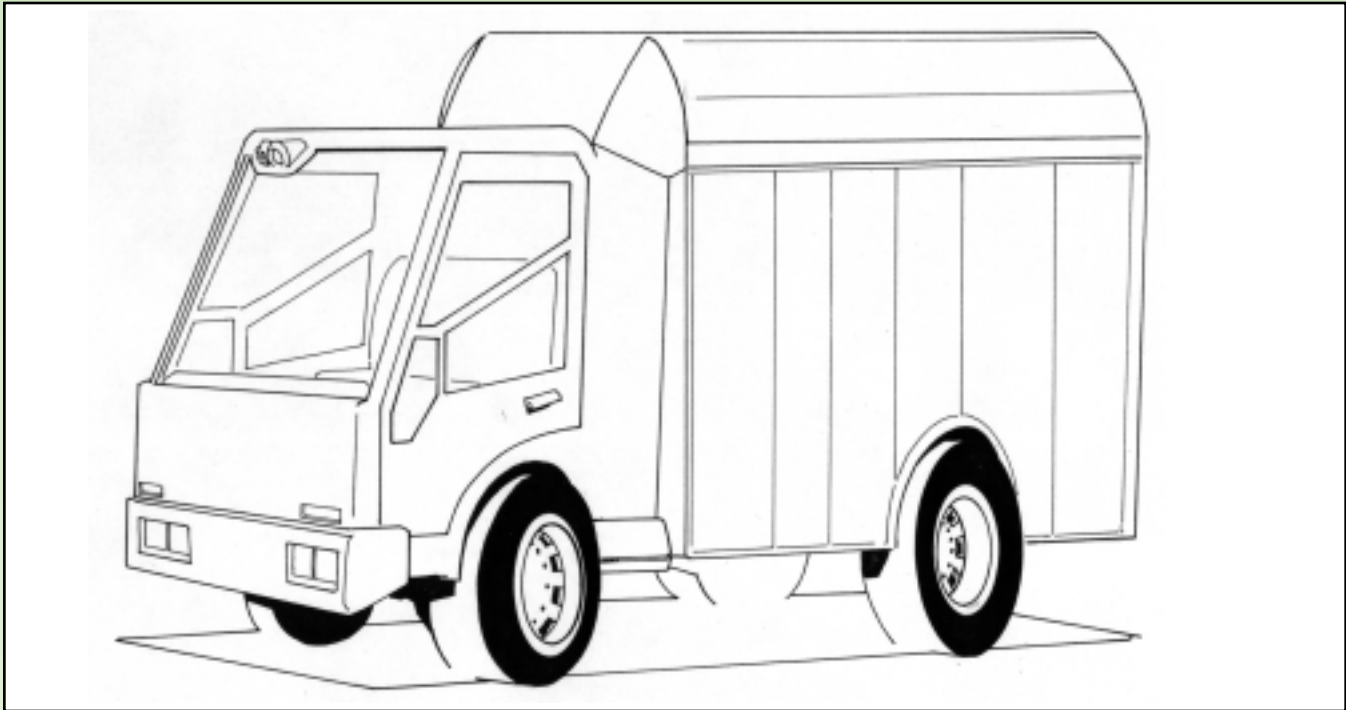


Combat Statistics

Initiative:+2	Agility: 2 AC: 10	AR: 0	SI: 73
Passengers/Crew: 7			
Off-road: 25kph, Very Slow: 0-20kph, Slow: 21-50kph, Cruising: 51-100kph, Fast: 101-150kph, Maximum: 151-200kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
4,000 vl Chassis	-4,000	4,000	-	-	-	55
Controls	800	2,000	-	-	-	35
Wheeled Drivetrain (6)	1,040	6,000	-80	-	-	32
Adv. Fuel cell	168	11,200	+112	-	-	25
Fuel	56	-	1000km	-	22	-
Passenger Seats (2+4)	800	600	-	-	-	-
Winch Str:	47	9.4	470	-0.47	-	5
Two way radio	1	150	-0.04	50km	-	2
20 Meter Power Ladder	600	2,800	-3.6	-	-	-
Hose Storage	500	-	-	-	-	-
Cargo	23.6	-	-	-	-	-
Subtotals	0	Cr27,220 (Cr21,776 with 20% production model discount)				



LIGHT CARGO TRUCK

Huge Ground Vehicle

TL5, Cr12080, 5000 vl. A typical, no-frills commercial delivery/cargo truck with a 2,500 kg cargo capacity. The truck only has room for one passenger other than the driver. These cargo trucks have an average speed of 60kph and are capable of top speeds reaching 120kph. At cruising speed, a cargo truck has a range of 440km.

El Jerarquía Heavy Haulers' newest entry in the interstellar truck market, the ATN class, has received mixed reviews. El Jerarquía copied the controls from their very successful larger trucks, but on these smaller vehicles they feel stiff and unresponsive. Range is unimpressive and by some standards is too short to be useful. A low cargo deck is a plus and a simple to use loading ramp makes access to the interior cargo box quick and easy. Despite its shortcomings, the truck is inexpensive and has firmly established itself in the market as a cheap vehicle for the "last 10km" delivery routes found in so many cities. El Jerarquía offers a variety of options for replacing the simple box cargo space, including a flatbed and small crane for construction supplies, a refrigeration option for temperature-sensitive cargo, a large tank for delivery of fuel or other liquids, and three different configurations of cargo access doors.

Combat Statistics

Initiative:+0	Agility: 0 AC: 8	AR: 0	SI: 55
Passengers/Crew: 2			
Off-road: 22kph, Very Slow: 0-12kph, Slow: 13-30kph, Cruising: 31-60kph, Fast: 61-90kph, Maximum: 90-120kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
5000 vl Chassis	-5,000	5,000	-	-	-	55
Controls	1,000	2,500	-	-	-	35
Wheeled Drivetrain (6)	780	4,500	-60	-	-	32
Internal Combustion engine	300	3,000	+60	-	-	25
Fuel 220	-	-	440km	-	22	
Passenger Seats (1)	200	100	-	-	-	
Cargo	2,500	-	-	-	-	
Subtotals	0	Cr15,100 (Cr12,080 with 20% production model discount)				

ARMORED CAR

Huge Ground Vehicle

TL5, Cr25240, 5000vl. A light cargo truck with enough armor to resist the effects personal weapons. These vehicles haul currency or other extremely valuable cargo. While seldom armed, the armor has sufficient gun ports to allow the well-armed guards to fight off almost any attack. The armored car cruises at 60kph, with a top speed of 120kph, but moves at only 22kph off road. A 10-hour fuel tank gives the armored car a 600 km range.

LowDrag LongWheels Rolling Safe design is an introductory level truck. Armor meets Interstellar Mercenary Review Board's recommendation for Level One threat protection, stopping all civilian small arms fire. The adjustable heavy suspension offers moderate agility, but an impressive cargo capacity. The rear-mounted ramp allows for faster loading and unloading of precious cargo. Standard options include the automatic door locks, public address system, a sealed engine compartment and armored fuel tanks. Lowdrag also offers a variety of upgrades including hidden gun ports, high security alarm, multiple battery powered radio communicators, reinforced ram plates and an electro-shock system. A frequent modification is adjusting the armor; removing some armor improves cargo capacity for light threat areas or adding armor for heavy threat areas. Lowdrag's armoring options include replacing the armor with a lightweight composite to achieve an IMRB Level Two threat protection (AR:5) or the advanced crystaliron to achieve IMRB Level Three threat protection (AR:8).

Armored cars frequently find a secondary use with mercenary companies looking for inexpensive armored personnel carriers. Although not as mobile (particularly off road) or as well armed as real APCs, they are significantly cheaper.

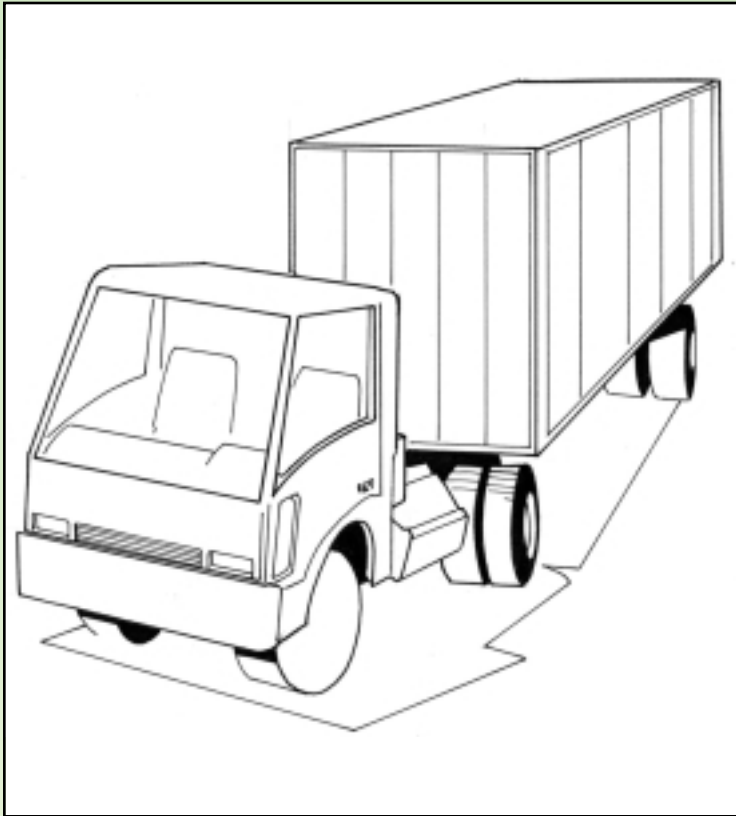


Combat Statistics

Initiative:+0	Agility: 0 AC: 11	AR: 0	SI: 55
Passengers/Crew: 2			
Off-road: 22kph, Very Slow: 0-12kph, Slow: 13-30kph, Cruising: 31-60kph, Fast: 61-90kph, Maximum: 90-120kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
5000 vl Chassis	-5,000	5,000	-	-	-	55
Controls	1,000	2,500	-	-	-	35
Armor (AR:3)	800	10,200	-	-	-	-
Wheeled Drivetrain (6)	780	4,500	-60	-	-	32
Internal Combustion engine	300	3,000	+60	-	-	25
Fuel 300	-	-	600km	-	22	-
Passenger Seats (1)	200	100	-	-	-	-
Cargo	1,620	-	-	-	-	-
Subtotals	0	Cr25,300	(Cr20,240 with 20% production model discount)			



CARGO TRUCK, HEAVY

Gargantuan Ground Vehicle

TL13, Cr604770, 49000vl. This large heavy-duty cargo truck is designed for long distance hauling of large cargo loads. These trucks allow modern cities survive and grow. The six-wheeled tractor hauls a 4-wheeled trailer at up to 175kph with a cruising speed of 88kph.

The El Jerarquía FXZ class heavy cargo truck is the top of the line. El Jerarquía imports the Sternmetal vehicular fusion plants, adds a 41-day fuel supply, onboard galley, fresher, and sleeping area, all of which allow a team of two or three to drive non-stop for almost unlimited range. Drivers new to the El Jerarquía designs are nervous about the fusion power plant sitting right in front of them. Truckers who have driven the FXZ love them for their ease of handling and comfortable control systems. The open frame trailer has multiple hitches for attachment of the Imperial standard 8-ton cargo containers. The ability to load cargo directly from starship to truck saves time and costs for shippers, and El Jerarquía open frame trailer design is widely adapted throughout Ley sector, even if it's not their tractors hauling them.

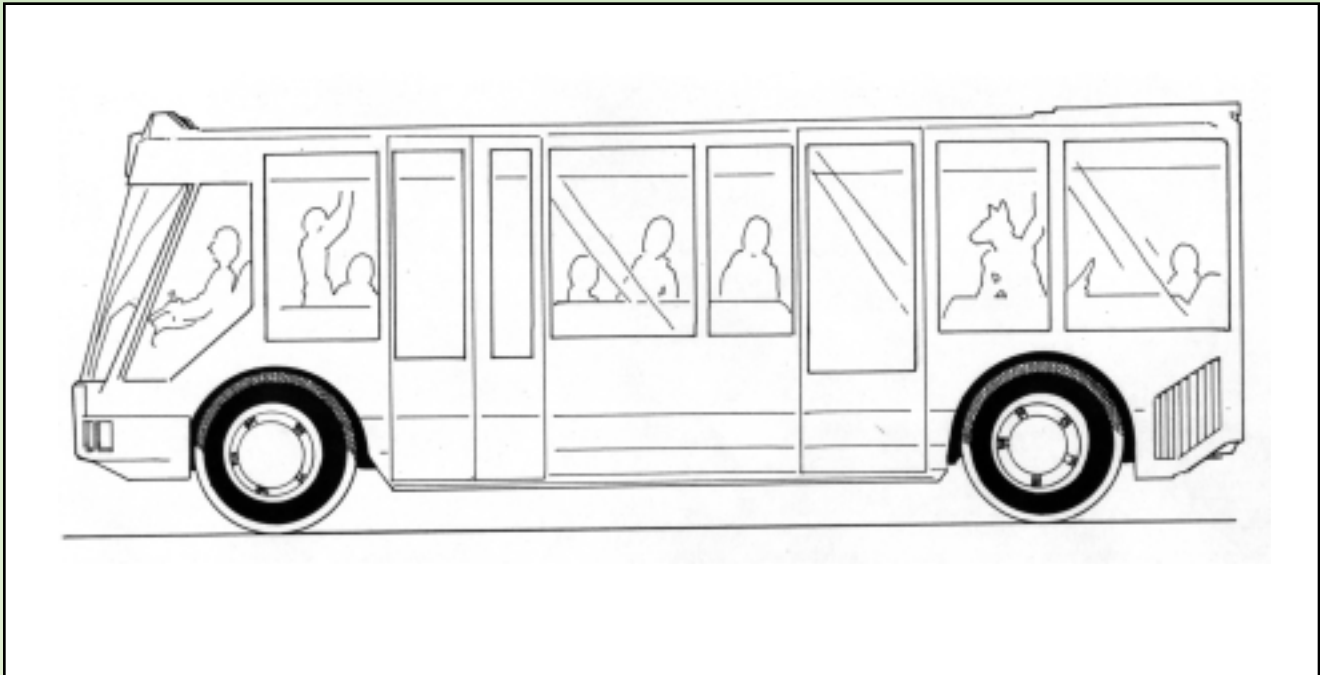
Most heavy cargo trucks use a more conventional fuel cell plant, which has a shorter range and is much less expensive. El Jerarquía EXZ class tractors use a fuel cell with a range of 1200km, and cost Cr349,890. Omitting the galley and fresher make the tractor a touch smaller as well, though long haul trucks always include the bunk space for the driver to sleep.

Combat Statistics

Initiative:+0	Agility: 0 AC: 6	AR: 0	SI: 83
Passengers/Crew: 3			
Off-road: 37kph, Very Slow: 0-17kph, Slow: 18-44kph, Cruising: 45-88kph, Fast: 89-131kph, Maximum: 132-175kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
49,000 vl Chassis	-49,000	49,000	-	-	-	83
Controls	9,800	24,500	-	-	-	65
Wheeled Drivetrain (6)	11,148	64,313	-857.5	-	-	67
Modern Fusion	2,655	584,100	+885	-	-	51
Fuel 1,810	-	-	-	-	47	
Passenger Seats (1)	200	100	-	-	-	
Passenger Bunk (1)	150	250	-	-	-	
Galley	200	1000	-	-	-	21
Fresher	200	750	-	-	-	21
Climate Control	266	6,650	26.6	-	-	25
Auto-pilot (1)	50	25,000	2	-	-	11
Two way radio (long Range)	2	300	0.08	5,000km	-	1
Cargo	119	-	-	-	-	
Towing Capacity	22,400	-	-	-	-	
Subtotals	0	Cr755,963 (Cr604,770 with 20% production model discount)				



PUBLIC BUS

Huge Ground Vehicle

TL14, Cr551315, 7500vl. A large, short -range passenger vehicle. Many cities use a system of public buses, like these, to reduce congestion on the roadways. Buses travel a fixed route connecting the residential areas with shopping and industrial areas. With a top speed of 75kph and a cruising speed of 37kph, the four hour duration on the batteries allow a range of 150km. Other commuter buses use a small internal combustion engine or fuel cell, for both lower cost and longer range.

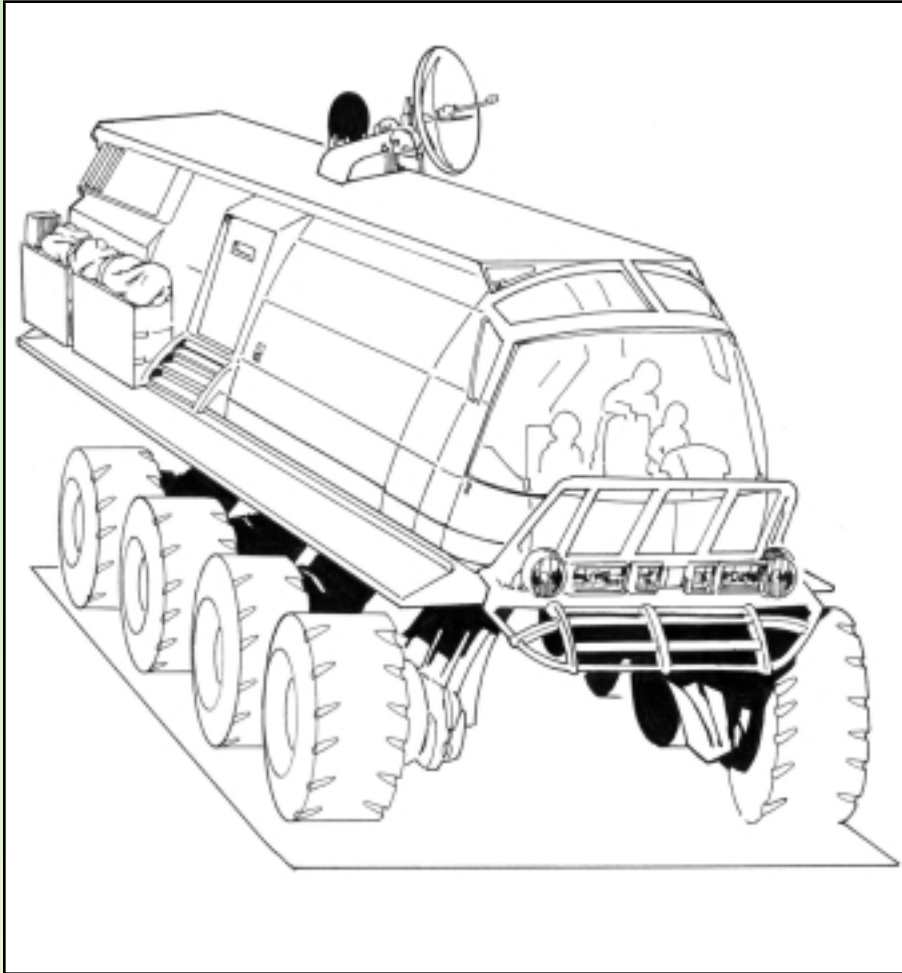
Naasirka designs and builds this commuter bus, originally for their own internal company use to transport their employees from company housing to workplace or manufacturing facilities. As a true zero emissions vehicle, it is ideally suited for environmentally sealed habitats. The fast recharger on the batteries can recharge a partially discharged cell in an hour, with a full deep cycle recharge in five hours. Many purchasers feel the battery powered bus is overpriced, largely due to the cost of the batteries. However, Naasirka's use of advanced power cell designs, magnetically supported electric drive, and drive by wire control system all require virtually no maintenance, reducing total cost of ownership. If you purchase the Naasirka maintenance package, the warrantee extends indefinitely with customer testimonials showing examples still running smoothly after 300 years.

Combat Statistics

Initiative:+0	Agility: 0 AC: 8	AR: 0	SI: 60
Passengers/Crew: 51			
Off-road: 12kph, Very Slow: 0-7kph, Slow: 8-19kph, Cruising: 20-37kph, Fast: 38-56kph, Maximum: 57-75kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
7,500 vl Chassis	-7,500	7,500	-	-	-	60
Controls	1,500	3,750	-	-	-	42
Wheeled Drivetrain (4)	675	2,813	-56.25	-	-	31
Advanced Batteries	135	675,000	+56.25	150km	-	17
Passenger Stands (50)	5,040	80	-	-	-	-
Cargo	150	-	-	-	-	-
Subtotals	0	Cr689,143 (Cr551,315 with 20% production model discount)				



WHEELED ALL TERRAIN VEHICLE

Huge Ground Vehicle

TL12, Cr57, 960, 10,000vI.

[TAS1]An 8-wheeled vehicle intended for world surface exploration or for transport across undeveloped areas. An all terrain vehicle (abbreviated ATV) has a range of 2160 km, cruises on roads at 60kph, and can achieve a maximum speed of 120kph. Off roads, speed depends on terrain; on open plain, it will approach normal road performance while in difficult terrain, average speed will be 27kph or less. This ATV uses hydrogen for fuel, recharged from a ship's power plant. Other ATV designs use batteries or a small fusion pack. The ATV designs serve admirably on many different worlds under widely varying conditions, including vacuum and insidious atmospheres, and high or low gravity. An ATV requires one driver, and may carry up to 16 passengers for fairly short periods. The fully pressurized interior contains complete (though cramped) longer-term eating, sleeping, and travel facilities for eight.

Combat Statistics

Initiative:+0 Agility: 0 AC: 8 AR: 0 SI: 65

Passengers/Crew: 17

Off-road: 27kph, Very Slow: 0-12kph, Slow: 13-30kph, Cruising: 31-60kph, Fast: 61-90kph, Maximum: 90-120kph

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
10,000vI Chassis	-10,000	10,000	-	-	-	65
Controls	2,000	5,000	-	-	-	50
Wheeled Drivetrain (8)	1,680	12,000	-120	-	-	45
Adv. Fuel Cells	375	25,000	+250	-	-	26
Fuel 450	-	-	2160 km	-	27	
Pressurized Interior	500	12,500	-125	-	-	28
Passenger Seats (8)	1,600	800	-	-	-	
Passenger Bunks (8)	1,200	2,000	-	-	-	
Galley (4)	1,000	4,000	-	-	-	35
Fresher/Shower	350	850	-	-	-	
Long Range Radio	2	300	-0.08	-	-	2
Cargo	843	-	-	-	-	
Subtotals	0	Cr72,450 (Cr57,960 with 20% production model discount)				

TRACKED ALL TERRAIN VEHICLE

Huge Ground Vehicle

TL12, Cr54960, 10000vl.

[TAS2]The tracked ATV is a somewhat larger version of the wheeled ATV, but with better off-road speed and handling. An all terrain vehicle (abbreviated ATV) has a range of 1620 km, cruises on roads at 45kph, and can achieve a maximum speed of 90kph. Off roads, speed depends on terrain; on open plain, it will approach normal road performance, while in difficult terrain, average speed will be 20kph or less. The ATV's fuel cell uses hydrogen for fuel, recharged from a ship's power plant. Other ATV designs use batteries, or a small fusion pack. The ATV designs to serve admirably on many different worlds under widely varying conditions, including vacuum and insidious atmospheres, and high or low gravity. A tracked ATV requires one driver, and may carry up to 16 passengers for fairly short durations. The fully pressurized interior contains complete (though cramped) longer-term eating, sleeping, and travel facilities for eight.



Combat Statistics

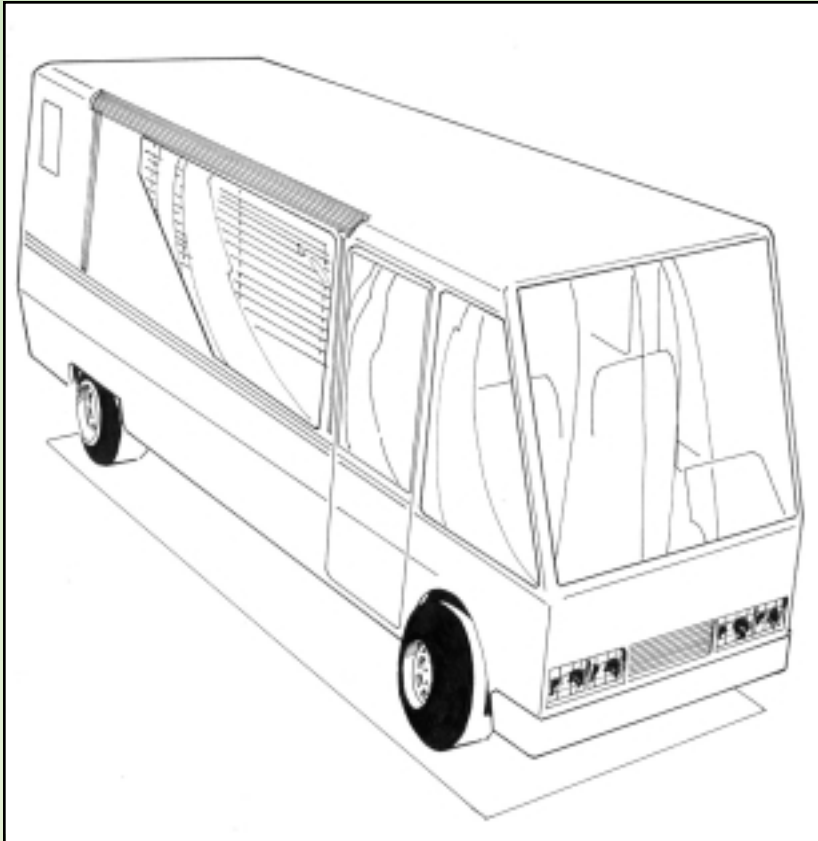
Initiative:+0 Agility: 0 AC: 8 AR: 0 SI: 65

Passengers/Crew: 17

Off-road: 27kph, Very Slow: 0-9kph, Slow: 10-22kph, Cruising: 23-45kph, Fast: 46-67kph, Maximum: 78-90kph

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
10,000vl Chassis	-10,000	10,000	-	-	-	65
Controls	2,000	5,000	-	-	-	50
Tracked Drivetrain (2)	1620	2,250	-180	-	-	44
Adv. Fuel Cells	465	31,000	+310	-	-	28
Fuel 558	-	-	1620 km	-	29	-
Pressurized Interior	500	12,500	-12	-	-	28
Passenger Seats (8)	1,600	800	-	-	-	-
Passenger Bunks (8)	1,200	2,000	-	-	-	-
Galley (4)	1,000	4,000	-	-	-	35
Fresher/Shower	350	850	-	-	-	-
Long Range Radio	2	300	-0.08	-	-	2
Cargo	843	-	-	-	-	-
Subtotals	0	Cr68,700	(Cr54,960 with 20% production model discount)			



RECREATIONAL VEHICLE

Huge Ground Vehicle

TL8, Cr22040, 7000vl. Similar to the ATVs, the Recreational Vehicles carry a small group of passengers with all the comforts of home. Unlike an ATV, the RV is strictly for on road use, exploring the wilds where others have already cut a trail. An RV has a range of 600 km, cruises on roads at 60kph, and can achieve a maximum speed of 120kph. RV's rely upon external hookups for electrical power, fresh water and sewage disposal when stopped. Most RVs have a water/sewage capacity for two or three days, and electrical power for as long as the engine fuel lasts.

The recently upgraded Titanstorm Mobile MV950 shows why the company keeps receiving accolades from the motor press associations. The MV950 has almost every single luxury imagined by the consumer. The onboard entertainment system matches most home entertainment systems. An active suspension system and drive by wire control system make control smooth and easy, even on bad roads or in poor driving conditions. The all around automatic

awning and electronic pest control system allow comfortable relaxation at the destination.

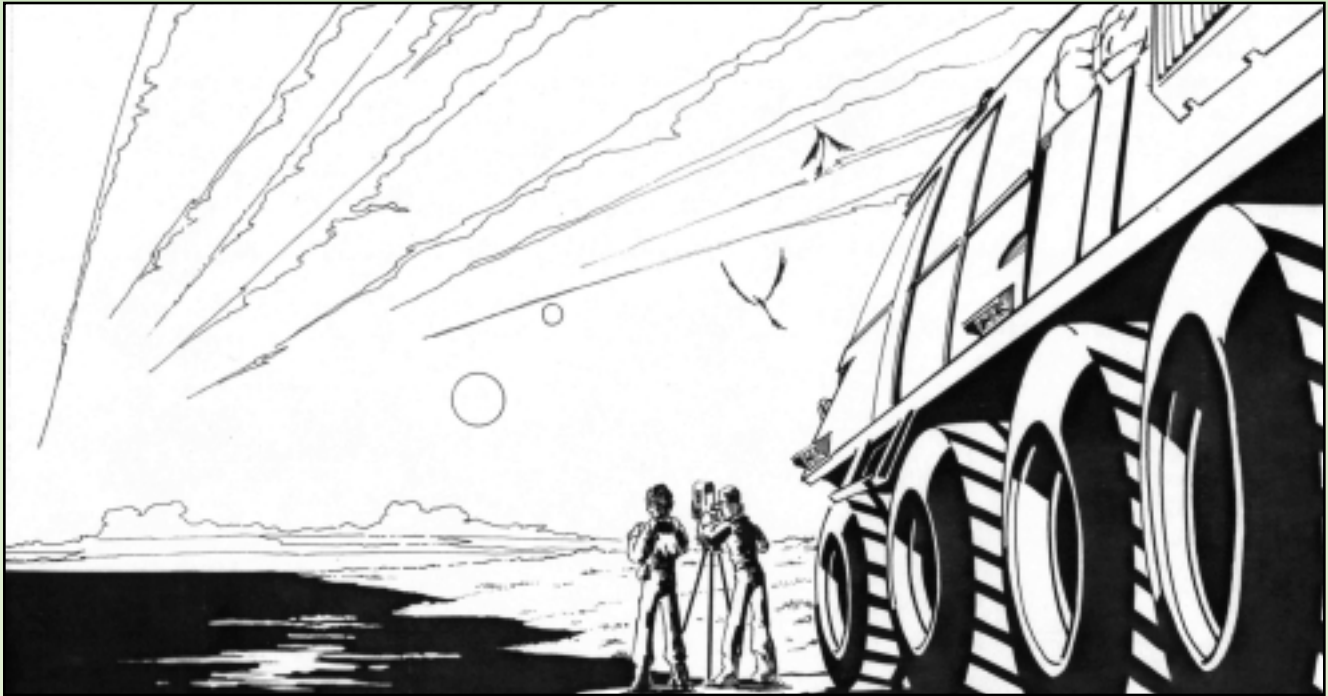
The MV950 is a moderate sized RV, with some models handling up to eight sleeping spaces. Another option for RV living is a conversion kit for larger ground vehicles like vans or pick up trucks, adding sleeping space for two to four and a small galley space.

Combat Statistics

Initiative:+0	Agility: 0 AC: 8	AR: 0	SI: 65
Passengers/Crew: 9			
Off-road: 17kph, Very Slow: 0-12kph, Slow: 13-30kph, Cruising: 31-60kph, Fast: 61-90kph, Maximum: 90-120kph			

Design Specifications

Installed Components	Size	Cost	EP	Range	Damage	SI
7,000 vl Chassis	-7,000	7,000	-	-	-	65
Controls	1,400	3,500	-	-	-	50
Wheeled Drivetrain (4)	1008	4,200	-84	-	-	45
Internal Combustion	455	4,550	+91	-	-	26
Fuel 455	-	-	600km	-	27	
Climate Control	70	1,750	-7	-	-	28
Passenger Seats (4)	800	400	-	-	-	
Passenger Bunks (4)	600	1,000	-	-	-	
Galley (2)	1,000	4,000	-	-	-	35
Fresher/Shower	350	850	-	-	-	
Long Range Radio	2	300	-0.08	-	-	2
Cargo	860	-	-	-	-	
Subtotals	0	Cr27,550 (Cr22,040 with 20% production model discount)				



VEHICLE SUMMARY

Vehicle	Size (vl)	Cubic Meters	Starship Tons	weight (kg)	Cost (Cr)
Scooter	150	0.75	0.05	17	889
Motorcycle	215	1.075	0.08	99	807
Sport Motorcycle	245	1.225	0.09	145	937
Snowmobile	300	1.5	0.10	64	720
Wheeled ATV	400	2	0.15	63	1,652
Steam Tractor	500	2.5	0.2	377	2,195
Steam Car	750	3.75	0.3	326	1,175
Jeep	1,000	5	0.35	444	2,720
Ground car	2,000	10	0.72	1,360	5,120
Sports car	2,000	10	0.72	1,793	25,050
Pickup	3,000	15	1.1	1,500	7,280
Van	3,000	15	1.1	2,100	7,760
Ambulance	3,000	15	1.1	2,675	107,650
Tow Truck	3,800	19	1.4	3,466	19,336
Ladder	4,000	70	1.45	3,276	21,776
Limousine	5,000	25	1.80	4,301	15,880
Light Cargo truck	5,000	20	1.8	2,300	12,080
Armored Car	5,000	25	1.8	3,180	20,240
RV	7,000	25	2.5	5,240	22,400
Bus	7,500	37.5	2.7	2,350	551,315
ATV	10,000	50	3.6	7,457	57,960
Tracked ATV	10,000	50	3.6	7,457	54,960
Pumper	14,000	35	5	6,858	67,136
Heavy Cargo Truck	26,600	133	9.5	26,181	604,770

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