

Vehicles

Vehicles are essential tools for **Travellers**: they extend the ability of characters to move to other locations with both ease and relative safety.

The term vehicle is used for any independent device that can move passengers or freight from one location to another. Although starships and spacecraft are technically within this definition, they are handled separately.

UNDERSTANDING VEHICLES

Vehicles are a basic component of any technological society.

Each specific vehicle has a Longname which describes its function, and a Model which abbreviates the LongName.

With an understanding of Vehicles and Terrain (and Weapons, Armor, and Combat), players can generally make use of any available Vehicles.

Types of Vehicles

Vehicles are available in five basic types, each with its own importance and governing rules:

Ground Vehicles are civilian passenger and cargo ground transport. They include road and offroad vehicles, and wide-ranging exploratory vehicles.

Military Vehicles are troop and weapon ground transport. They are intended for use on the battlefield, and include armored fighting vehicles and tanks.

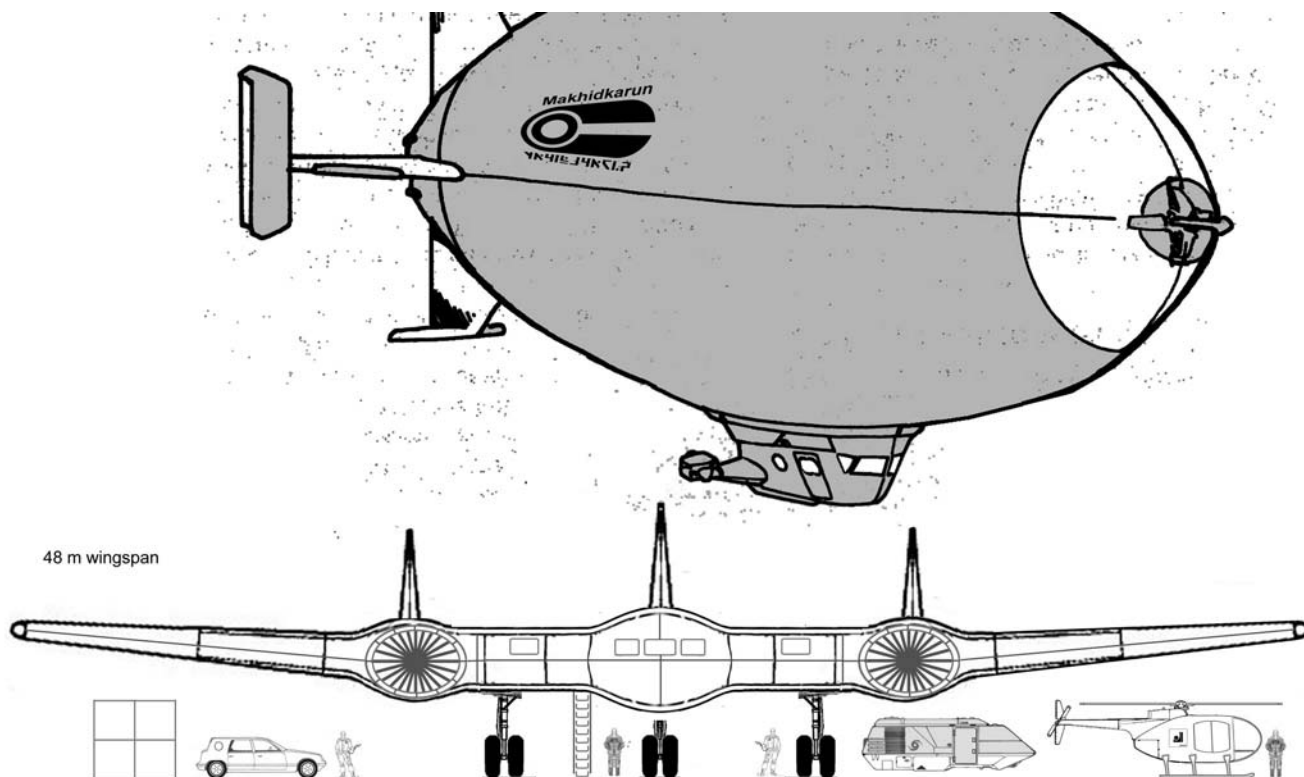
Flyers travel above world surfaces, generally in atmospheres and unimpeded by terrain. They include both civil and military vehicles.

Watercraft travel on and under oceans or bodies of water. They include surface craft and submersibles.

Small Craft travel out of atmosphere (or from world surface to beyond atmosphere). They may be civil or military,

Grav and Lifter Vehicles

Some vehicles within each of these types are based on Grav or Lifter technology. They are classified according to their primary use: Ground, Military, Flyer, or Watercraft.



Left to Right. Cargo Pod (shown end on = 3 meters wide by 3 meters high). Wheeled GroundCar-4. GCarrier-10. Helicopter-9. Transport Aircraft-8. Blimp-9.

VEHICLE DESCRIPTION

Model	LongName (Bulk - Motive - Mission - Type -User - <u>TL</u>)
VhWCF	Vheavy Winged Cargo Flyer-15
The basic information required to <u>describe</u> a vehicle.	

Vx: VEHICLE EXTENSION

Tons	Speed	Load	Stage	Environ	Endurance	QREBS	Options
Vx: Tons=122	Speed=10	Load=16	Adv	Sealed	Continental		
The basic information required to <u>use</u> a weapon.							

DESCRIBING VEHICLES

Vehicles can be described in many ways depending on the format and information required: any format which presents the required information is acceptable.

The Vehicle Description

Vehicles are described in a series of elements to form the LongName or abbreviated to form the Model. The LongName or Model contains enough information to allow a character to describe a Vehicle.

Elements of a LongName not necessary for a proper understanding may be omitted. The LongName consists of the following elements:

Bulk - Motive - Mission - Type - User - TL

Type identifies the basic function of the Vehicle. For example, Truck.

Mission elaborates on the activity the Vehicle is designed for. For example, Cargo or Explorer.

Motive details the Vehicles transport mechanism. For example, Wheeled, or Tracked.

Bulk describes the vehicles relative weight, mass, or bulk of the weapon. For example, Vlight, Light, Heavy, or Vheavy.

User identifies the intended or designed user. Blank assumes the user is Human or Man. For example, Man or Hiver.

Tech Level identifies the Technological Level at which the Weapon is commonly manufactured. TL is required.

Model. LongName elements have abbreviations which are used to create the Vehicle Model.

Model is a jargon-abbreviated Longname. Once a character is familiar with a specific Vehicle, references to it devolve to its abbreviation. Given the restrictions of the alphabet, element abbreviations are not necessarily unique.

The Vehicle Extension

The capabilities of a Vehicle are contained in the Vehicle Extension: a string of values detailed enough to allow a character to use a Vehicle. The Vehicle Extension is a variable length string: only required information should be included.

The Prefix. The Vehicle extension begins with the prefix Vx:

The Elements. Following the prefix, the Vehicle Extension includes

Vx: Tons - Speed - Load - Stage - Environ - Endurance - QREBS - Options

Tons is calculated Volume Tonnage.

Speed is calculated Speed of the Vehicle.

Load is calculated cargo or transport space for the Vehicle in tons.

Stage is the Vehicle's position in the spectrum of sophistication in the developmental life cycle.

Environ is the Vehicle's structural protection against hostile environments.

Endurance is the Vehicle's duration of operation before refueling or maintenance.

QREBS is the Vehicle's values on the QREBS scale.

Options is a statement of installed options for the Vehicle.

The Armor Extension

Most vehicles have some form of Armor. The Armor values for the Vehicle are shown with an Armor Extension. Because the Armor is integral to the Vehicle, note that values for Cost, Mass, and QREBS are not required.

Ax: ARMOR EXTENSION

Cost	Mass	QREBS	Ar=	Ca=	Fl=	Ra=	So=	Ps=	In=	Se=
AX:			Ar=43	Ca=04	Fl=26	Ra=40	So=24	Ps=00	In=90	Se=60
The basic information required to <u>use</u> armor.										

USING VEHICLES

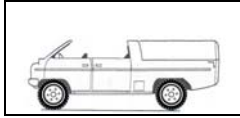
Vehicles transport passengers and cargo between locations.

Vehicle operation is governed by skills and knowledges. Vehicle movement is constrained by terrain (including roads) for surface vehicles and watercraft, and by atmosphere for flyers. Vehicles can be damaged or destroyed by natural events, or by attacks.

The **Vehicle Operations Chart** details the tasks associated with vehicle operations.

The **Traveller Vehicle System** creates five distinct Types of Vehicles: Ground Vehicles, Military Vehicles, Flyers, Watercraft, and Small or Space Craft. Each has its own distinct uses and advantages; each has its own specific restrictions and shortcomings.

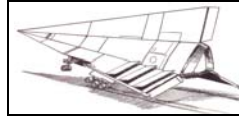
THE TYPES OF VEHICLES



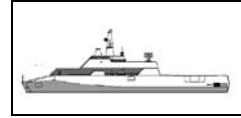
Ground



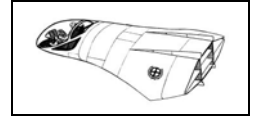
Military



Flyer



Water



Small Craft

CREATING VEHICLES

Vehicles can be designed and created (randomly or with purpose) using the Vehicle Design Tables.

The Vehicle Charts. Each Vehicle (one for each Type of Vehicle) provides the basic information about possible Vehicles, their Mission or Use, and their Motive Power. Selecting the details from the Chart produces a basic or common version of the Vehicle.

The Options. The Options Chart provides additional features for Vehicles to customize them for specific uses.

The Fill Form. The Vehicle Fillform provides a standardized process for creating Vehicles. The final information it produces documents the capabilities and costs of the vehicle.

The Combat Chart. The Combat Chart provides a ready reference for the Vehicle and is supports use of the vehicle in combat or adverse situations.

VEHICLE TYPES

Vehicle type is a descriptive term identifying function.

Civil Vehicles

Civil vehicles are used in ordinary society for personal, commercial, and recreational purposes.

Car. A basic vehicle for transporting people and a small quantity of luggage.

Van. A utility vehicle with enclosed passenger space for 2-6 occupants and an enclosed cargo bed.

Truck. A basic vehicle for transporting cargo.

Mover. A vehicle design to pull cargo or passengers modules, but with no cargo capacity of its own..

Transport. A cargo vehicle generally larger or more powerful than a truck.

Vehicle. A means of transport not otherwise defined.

Military Vehicle Types

Military vehicles are specialized vehicles used by armed forces in their operations.

Tank. A military vehicle capable of powerful attacks, strong defense, and rapid movement over a variety of terrain types.

A Tank carries a turret or vehicle-mount weapon, strong or extensive armor and protections.

Carrier. An armored fighting vehicle with an available cargo space which can be used for a variety of purposes.

A Carrier features strong or extensive armor and protections. It is essentially a tank-like vehicle which replaces the tank's turret or vehicle-mount weapon with an available cargo (or other function) space.

Vehicle. A military fighting vehicle which does not qualify for the Tank or Carrier designation.

Watercraft Types

Watercraft may be based on four distinct types of locomotion.

Ship. The vehicle moves floating on water.

Sail. The vehicle moves on water and powered by wind.

Sub. The vehicle moves fully submerged within water.

Grav. The vehicle moves using the Gravitic Drive (G-Drive). Grav Watercraft operate near water surfaces and are governed by Watercraft skill.

Flyer Types

Flyers are available in six types:

Wings. Winged craft include airplanes and lifting bodies; they are the most common type of Flyers. Wings provide lift and allow aircraft to move efficiently in atmosphere.

Add-On Wings. Other Flyer types may have Add-On Wings; despite this addition, the Flyer retains its non-Wing character.

Rotorcraft. Rotorcraft include helicopters (and a variety of esoteric systems of no practical value: autogyros, gyrodynes). Rotors provide lift for aircraft and allow vertical takeoff and landing. The typical rotorcraft is a helicopter.

Flappers. Flappers are moving wings in imitation of bird wings. They provide lift through wing motion.

LTA. Lighter Than Atmosphere Craft use buoyant gases to provide lift.

Liftcraft. Aircraft with lifters create a cancelled or counteracted gravity effect which lifts them above a world surface.

Lifters do not require atmosphere.

Lifters provide very small horizontal or vectored thrust. Additional thrust is provided through the High Powered Option.

Grav. Grav vehicles use a Gravitic or G-Drive to provide lift. G-Drives are more powerful than Lifters and provide greater horizontal thrust.

MISSION

Mission is the differentiating descriptor for some Vehicles.

Ground Vehicles

Passenger. The vehicle carries passengers.

Cargo. The vehicle carries cargoes or freight.

Utility. The vehicle is capable of carrying passengers or cargo or both. It is designed for a wide range of work assignments.

Explorer. The vehicle is designed for exploratory duties.

Watercraft

Watercraft missions include:

Cargo. The vehicle carries cargoes or freight.

Patrol. The vehicle is designed for security or recon missions.

Explorer. The vehicle is designed for exploration.

Transport. The vehicle is designed to carry freight or cargo, especially bulky or oversized objects.

Military

Military Vehicle missions include:

Weapon. The vehicle is designed to carry a large Weapon.

Troop. The vehicle is designed to carry troops on the battlefield.

Supply. The vehicle is designed to transport goods and supplies on the battlefield.

Recon. The vehicle is designed for recon or security duties.

Flyers

Flyer missions include:

Attack (or Combat). A flyer designed for offensive military missions.

Bomber. A flyer designed to carry destructive power to targets.

Cargo. A flyer designed to carry freight or cargo.

Protector. A flyer designed for defensive military missions.

Scientific. A flyer designed for research or exploration.

Flyer. A flyer not otherwise defined.

MOTIVE

The foundation of vehicles is their system of locomotion. Locomotion types differ between ground vehicles, flyers, and watercraft.

Ground Vehicle Locomotion

Ground vehicles may be based on a variety of motive systems.

Wheeled. The vehicle moves on wheels.

Tracked. The vehicle moves on endless tracks.

Air Cushion. The vehicle moves on a bed of high pressure atmospheric gases.

Legged. The vehicle moves on articulated legs. Legged vehicles are Units created using the Armor rules.

Mole. The vehicle is equipped to burrow under a world surface. A Mole is equipped with Tracks.

Lifters. The vehicle moves on anti-gravity lifter plates. Lift Ground Vehicles operate close to the surface and are governed by Driver skill.

Grav. The vehicle moves using the Gravitic or G-Drive. Grav Ground Vehicles operate close to the surface and are governed by Driver skill.

Flyer Locomotion

Flyers may be based on five distinct locomotion types.

Winged. The flyer moves using lift generating by wings (or lifting body surfaces). An airplane is a winged flyer.

Rotor. The flyer moves using a rotary wing which generates lift. A helicopter is a rotary wing flyer.

Flapper. The flyer moves using flapping wings which generate lift. An ornithopter is a flapping wing flyer.

LTA Lighter Than Atmosphere. The flyer is constructed to be less dense than surrounding atmosphere. A blimp or dirigible is an LTA flyer.

Lifters. The vehicle moves on anti-gravity lifter plates. Lift Flyers operate at higher levels of the atmosphere and are governed by Flyer skill.

Grav. The vehicle moves using the Gravitic or G-Drive. Grav Flyers operate at higher levels of the atmosphere and are governed by Flyer skill.

Watercraft Locomotion

Watercraft do not add Motive to their Type.

Small Craft

Small craft are spacecraft powered by Gravitic Drives (G-Drives).

BULK

Vehicles may be identified by their bulk or relative size.

Wlight. The vehicle is small and light. Its performance and capabilities are at the low end of those available.

Light. The vehicle is smaller than standard.

Medium (or Blank). The vehicle size and capabilities are typical.

Heavy. The vehicle is built to carry larger than normal loads.

VHeavy. The vehicle is large and massive. Its capabilities are at the upper limits for this type of vehicle.

ENVIRONMENT

Vehicles are manufactured to cope with local environment.

Air. The vehicle depends on local air for ventilation and breathing gases. The vehicle provides environmental controls for heating and cooling. Interior Air equal Atm for the world. For example, if Atm= 4 Thin Tainted, then the air in the interior of the vehicle is also 4 Thin Tainted.

Air-N. The vehicle processes local atmosphere to produce Air-N. An Air-6 Standard vehicle on an Atm=4 world processes the local Atm=4 Thin Tainted to remove (filter) the Taint and compress it from Thin to Standard.

Enclosed. The vehicle is enclosed to protect against the elements: wind, rain, snow, and weather.

Sealed. The vehicle is Sealed against exterior air pressure. Internal Air can be programmed to any of the Atm levels (from 3 Thin to 9 Dense). For those sophonts who require it, Taint of common types can be added.

Sealed is a Protection; the standard level provided is =20.

Double Sealed. In addition to Sealed, the vehicle includes an Air Lock which enables occupants to enter or leave the vehicle without losing air pressure or exposing those inside to outside environment.

Protected. The vehicle has Protections against most environmental threats. Minimum Armor=12, Sealed =20. Insulated=18.

Insulated. Most vehicles with an enclosed passenger space are Insulated = 12.

STAGE

Stage is the spectrum of effects based on the technological product development cycle.

Standard or (blank). The vehicle has no modifications or effects based on Stage.

Fossil. The vehicle is powered by (more-or-less) readily available fossil fuels or petrochemicals.

Renewables. The vehicle is powered by renewable fuels. The most common renewable fuel is organically produced alcohol.

PowerCell. The vehicle is powered by electric storage batteries.

Advanced. The vehicle is significantly better than the standard version, and features additional features and efficiencies. The vehicle is powered by a Fusion Module.

Early. The vehicle is a preliminary design with the bugs not yet worked out. The vehicle is powered by a Fusion Module.

Improved. The vehicle features small improvements. The vehicle is powered by a Fusion Module.

Alternate. The vehicle uses an alternate technology for some or all of its functions. The vehicle is powered by a Fusion Module.

ENDURANCE TYPES

Vehicles are classified by the territory they cover. Endurance is calculated last in the design sequence.

Endurance

Vehicle Endurance is the time that a vehicle can operate before it needs refueling, resupply, or maintenance. For most vehicles, Endurance is measured in hours: the vehicle does not accommodate sleeping, meals, or general living.

Endurance is selected as a component of Vehicle Design.

Hours. The Vehicle can operate for Hours (varies from 1 to 24) but less than a Day.

Days. The Vehicle can operate for Days (varies from 1 to 7) but less than a Week.

Weeks. The Vehicle can operate for Weeks (varies from 1 to 4) but less than a Month.

Months. The Vehicle can operate for Months (varies from 1 to 12) but less than a Year.

Years. The Vehicle can operate for Years (varies from 1 to 3).

Range

Range is the expected distance that a Vehicle can travel based on its Endurance and its Speed.

The Endurance to Range Table converts Vehicle Endurance to Range.

Local. The vehicle can travel in and around a specific location and within a Terrain Hex. A car used for city driving or a delivery truck are Local. Such vehicles occasionally venture into adjacent Terrain Hexes.

Regional. The vehicle can travel within a Region (a World Hex). Many Cargo Trucks or Truck Trains are Regional. Such vehicles occasionally venture into adjacent World Hexes.

Continental. The vehicle can travel within a Continent (a World Triangle).

World. The vehicle can travel anywhere on the World.

A territory classification assumes the vehicle will venture occasionally into neighboring territories. For example, a Regional vehicle will sometimes or even often visit adjacent regions.

THE CALCULATED VALUES

During the Vehicle Creation process produces three calculated values: Tons, Speed, and Load.

Tons is the tonnage of the vehicle. This value is an approximate measure.

Speed is the Vehicle Speed Value. Its equivalent in Kph is provided by the Base Vehicle Speed Table.

Load is the available payload capacity of the vehicle.

QREBS

Any acquired vehicle is ordinarily assumed to be QREBS=00000 (no effects under QREBS system).

If the Vehicle Design System imposes any QREBS elements (for example, B= -2), that imposed element applies to the Vehicle.

As Issued. A Vehicle with only the imposed QREBS elements is considered **As Issued**. It is typical of the Vehicle as used. Most Vehicles are in this state, and any reasonable character can research and determine this information.

Used. Any character may ask for a **Used** Vehicle instead. The Referee then evaluates the weapon under QREBS and records this information.

THE CARGO MODULE

Commercial vehicles are built around the Cargo Module, a standardized container for goods.

VEHICLE FITTINGS

Vehicle Fittings are its controls and communications installations.

Controls

Vehicles are controlled by an operator through an established set of controls.

Manual. A system of controls (hand, manipulator, foot, head-movement, voice, and other) operate the unit. Manual controls are present on Vlite and Lite vehicles.

Powered Controls. A system of controls (hand, manipulator, foot, head-movement, voice, and other) operate the unit, assisted by power boosts and other enhancements. Power controls are the equivalent of Power Steering and Power Brakes (or Fly-By-Wire).

Power Controls are present on Medium, Heavy, and Vheavy vehicles (and are an option on Lite Vehicles).

AutoPilot Option. Powered systems can be equipped with the AutoPilot option. The operator enters a destination and the system self-operates while the user sleeps or attends other functions. AutoPilot is distinct from Grid: AutoPilot is self-contained on the vehicle; Grid is a centralized traffic control system.

Requires Power Controls.

Grid Connection. Any vehicle at TL All vehicles include at least rudimentary manual controls.

Requires Power Controls and Grid Controller Channel.

Wafer. The user is directly connected to the operating controls via his wafer jack. Operation is transparent to the user.

Requires Power Controls and Vehicle TL 11+.

Communications

Vehicles may be fitted with a communications system.

Entertainment Channel. Reception of entertainment broadcasting.

Grid Controller Channel. Communication with the Central Traffic Control Grid (required on Hi Pop worlds). Connects the vehicle controls to the central Traffic Grid.

Net. Provides individual access to the local communications network. Operates within Range=6 of a commercial communications center/tower. Charges may apply.

Standard. Open channel radio broadcast system to Range=5.

LOS. Direct Line-Of-Sight (Laser or similar) system. Secure against eavesdropping. Self-directed (user direction not required). R=6.

LR LOS. Direct Long Range Line of Sight (Laser or similar) system for communication. R= 10.

Battlefield (Military Vehicles). Provides radio voice and data contact to Range= 6, with subchannels for individual communications.

Command (Military Vehicles). Enhanced Battlefield system to Range=8. Typically installed in Officer's systems for communications with higher levels.

Relay Option (Military Vehicles). Automatic capability to receive and retransmit Battlefield or LOS to the intended recipient.

Flyer Options

A variety of options are available for Flyers.

High Powered. The Flyer has greater than standard performance based on improved engines or thrusters.

Slave. The Flyer is intelligently piloted by computer. It flies in formation with the Master aircraft and reproduces its maneuvers and operations.

Remote. The Flyer is remotely operated by a pilot or operator on the ground or on another aircraft.

VTOL Mod. The Flyer (usually Winged) is modified to allow Vertical Takeoff and Landing. The Flyer can use any Landing Ground.

STOL. The Flyer (usually Winged) is modified to enable it to use shorter runways. The Flyer can use an Airport one size smaller than that normally required. Available on Heavy or smaller Flyers.

Wilderness Kit. The Flyer (usually Winged) is adapted to landing on open flat ground and does not require a runway. This kit includes STOL capability. Available on Heavy or smaller Flyers.

Weapon Mount. The Flyer is fitted with a weapons mount.

Floats. The Flyer has flotation landing gear allowing landing on water.

Hybrid VTOL. The Hybrid Vertical Take-Off and Landing option allows a winged aircraft to eliminate the need for an Airport by installing additional mechanisms (vectored thrust jets, tilt-rotors, lifters, or G-drives).

Add-On Wings. Some non-winged aircraft may add Wings to provide greater lift.

Floats. Aircraft may have seaplane landing floats to allow landing on bodies of water.

Parasite Nipple. Provision for an in-flight connection by a flyer to a larger Mother Flyer in flight.

On-Board Brain

A Vehicle with Power Controls and TL 11+ may be equipped with an On-Board Brain. The installation transforms the vehicle into a Strangeform Robot capable of self-directed movement.

on.
The Vehicle's Hobby. PB and SOCB require a Hobby (an outside interest) to maintain sanity. Select the Hobby from the Citizen Life Table.

Beginning and Final Intelligence. Brains are purchased based on their tested C4 Int as they leave the factory. Actual C4 Int gradually settles in over the course of the first year.

At the one-year anniversary of the brain construction, apply Flux to each D.

PASSENGERS AND CREW

The number of persons a Vehicle can carry is determined by a variety of factors.

A Vlite can carry one operator.

A Lite can carry two operators.

Standard or larger can carry operators and passengers equal to tonnage.

But,

A Tank has a crew equal to its tonnage divided by 2.

Supply vehicles can carry passengers equal to five times cargo capacity.

Non-Human Passengers. If a passenger is substantially larger than a human, adjust capacity on the basis of one per two humans or one per three humans.

THE VEHICLE CHARTS

Vehicles travel on world surfaces and their activity is constrained by terrain.

The **Vehicle Operators Chart** details how drivers, flyers, and seafarers actually operate their vehicles.

The **Vehicle Chart Altitudes** shows the available altitudes at which flyers and grav vehicles may operate.

The **Vehicle Chart Depths** shows the depths of oceans and lakes and the expected pressures at depths.

The **Vehicle Chart Terrain** shows the types of terrain vehicles may encounter and the limits which terrain imposes.

The **Vehicle Chart Beastpower** shows the relative values of Beastpower (a more universal form of Horsepower) for the comparison of vehicle performance.

The **Vehicle Chart Design Box** allows an estimate of the tonnage of a vehicle from its dimensions or from a drawing.

FLYER RANGE BAND MOVEMENT

Flyers can move one surface Range Band per Round.

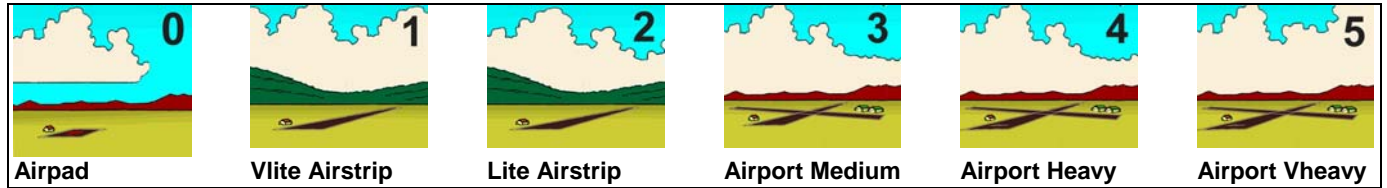
The actual Range to a Flyer with Altitude and Range is the greater of the two: a Flyer at Vlong Range R=5 and

Altitude= NOP = 2 is at Range=5 for combat purposes.

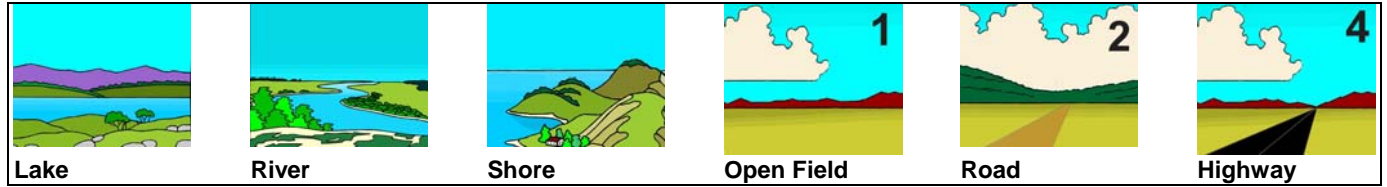
Flyers may maintain Range unchanged (the equivalent of Hover or Circling).

Flyers move at their designed Speed unless a deliberate change is made. A Winged Flyer must maintain a minimum Speed = 6 to remain airborne.

LANDING GROUNDS



ALTERNATIVE LANDING GROUNDS



LANDING GROUNDS

Size	Type	Length	Facilities	Which Flyers?	Where?
0	Airpad	50 m	Fuel	Non Wing. Non LTA.	City. Suburb. Town. Archology. Starport.
1	Vlite Airstrip	1000 m	None	Vlite Winged	
2	Light Airstrip	2000 m	Sparse	Light Winged	Town.
3	Medium Airport	3000 m	Standard	Standard Winged	Suburb.
4	Heavy Airport	4000 m	Very Good	Heavy Winged	Archology.
5	Vheavy Airport	5000 m	Excellent	All Flyers	City
1	Open Field	200 m	None	Non-Winged	Clear Single Hex
2	Road	2000 m	None		
4	Highway	4000 m	None		
	Lake				
	River				
	Shore				

Most flyers require a specified or dedicated landing ground.

A Landing Ground can accept any Flyer equal or less than it s Bulk (a Standard Landing Ground can accept Standard, Light, or Vlite flyers).

A Flyer with Floats can land on Lake, River, or calm Ocean.

What is the proper role for aircraft?

When compared to anti-gravity technology, aircraft are always cheaper. Anti-gravity can be imported to low tech worlds, but it becomes extremely expensive, considering that they cannot be repaired locally, and even skilled technicians must be imported to maintain them.