Airbike

Zen Arms K1-33 propeller-powered airbike The term is a misnomer, but “airbike” is used to describe most small, flight-capable vehicles that have no cockpit and are “mounted” by the pilot. They've been around a long time, in some form or another, as they are meant to be economical (more so than larger vehicles) and personal. Produced by any number of companies, including Zen Armaments, the technology that goes into them varies greatly. Between the two empires currently in operation, Democratic Imperium of Nepleslia is a bigger net user, as public transportation has never been as highly favored there as it is on Yamatai (Planet) and its worlds.

See Also: Airbike Equipment

Technical information

Propulsion (lift and thrust) – The cheapest and easiest-to-produce propulsion system uses simple propellers of varying sizes and locations to lift the vehicle up from the ground, then push or pull the vehicle forward. The props are noisy and can break down, but they require very little power, relatively speaking. Other systems include anti-gravity generators, small ion thrusters, magnetic repulsors and jet turbines. A few use steam as a manuvering device, but it is rare to find a bike solely propelled by it.

Engines – The actual powerplants in these vehicles will also vary. Propeller-powered bikes tend to use one or more electric motors of some type. Anti-gravity, ion and magnetic propulsion tend to run on some form of electric generator as well, but the purpose of the motor is secondary (i.e. a powerplant, not something directly linked to producing propulsion) as the three systems mentioned above are usually encapsuled in themselves. There are bikes that utilize ancient combustion engines, but these tend to be relics found in the hands of the rich, not the poor.

Fuel – Except for the combustion engine-powered ones, airbikes are powered by electrical energy. How said energy is garnered for power is another story. Some utilize powerplants running on various fuels to produce the needed energy. Others just use batteries. The quality of batteries tends to be the determining factor as to how efficient an airbike is. For example, chemical batteries are much cheaper than hydrogen fuel cells, but their capacity-to-weight ratio is much lower. Ion batteries are the most efficient but also require higher quality conductors because of the amount of energy they can produce, and they're the most expensive.

Chassis – Chassis design ranges greatly, as many styles and shapes have appeared over the years. Essentially, however, designs occupy one or more of three sections – touring, racing and agricultural.

Touring frames tend to be the most comfortable, with the pilot lying mostly on their stomach in a “bed” of cushions. Controls are mostly at the hands using buttons and some switches. They are in the top when it comes to size, usually being 2.5 meters or longer. Comfort and range is the name of the game, so sleek aerodynamics are combined with interior and exterior panniers. Expensive, lightweight metals are done away with for longer lasting material. Extendable equipment also helps: some have canopies, while others have small wings for stablization over long distances.

Agricultural is a deragatory name, but is the most common term for the budget bikes that make up the thick of the market. They tend to be economical machines, sometimes crudely built but practically indestructable through the use of heavier, tougher materials. The pilot tends to “mount” the bike, relying on metallic stirrups with thick bottoms to hold the feet in place. Controls are found through basic switchgear on the handlebars or yoke and around the stirrups. As many use propellers of one sort or another, panels that fit on the frame tend to be molded around them.

Racing frames are the shortest and the least comfortable. They are the smallest, lightest chassis type; abrasion-resistant fibers are common on these bikes. They also have short, narrow profiles, as they tend to rely on small, lightweight propulsion systems. Some buck this trend, however, resembling long cylinders with a rider straddling them. These are not durable by any stretch, and the frames require constant maintanance and repair, as they are under stress from handling tight turns.

On the ZA K1-33 itself

Designer and manufacturer: Zen Arms

Type: Airbike Class: General purpose **Engines:** Two electric motors (90 kW for thrust, 62 kW for lift) **Powerplant:** One hydrogen fuel cell for initial lift-off, then four chemical batteries **Chassis:** Titanium cradle **Materials:** High-grade titanium for frame and handlebars; aluminum for propellers and wings (folding); polymers for body panels and instruments

Crew: 1 pilot, 1 pillion (passenger)

Instruments: Speedo, 2 tachs, altimeter (build into speedo face), 4 battery charge meters

Length: 2.2 meters Width: 1.7 meters (wings out), 0.6 meters (wings in) Height: 1 meter (at the bars), 1.3 meters (tip of the windscreen) **Seat height:** 0.8 meters **Inseam:** 83 centimeters (about 33 inches) Mass: 200 kilograms dry, 232 wet

Speed (aerial): 227 kph cruising, 310 kph full roll-on **Range (distance):** About 400 kilometers vertical distance before cell must be refueled. **Flight ceiling:** 134 meters

Description

Folded up and turned off, the K1 resembles one of the wheeled vehicles of the ancients. However, the vehicle carries a 0.5-meter nose that holds one of the four chemical batteries. The K1 has a windscreen (angled at 35 degrees) that extends upward over the instruments (clocks) and handlebars. The handlebars are wide for better flickability. No engine parts are exposed; body panels cover the entire machine. The seat is black and cushy. A propeller about 0.4 meters long is on the bottom of the craft, surrounded on three sides by a body panel with a molded hood. Another 0.6-meter-long prop is on the back of the bike, also covered mostly by a hood.

Air is fed to the props through a ram duct in the nose. Each battery uses the power generated by the props and motors to keep themselves charged.

The wings fold down and out. Though extendable, the flaps are made much like those on commercial intraplanetary transports, and considering the relatively low speeds of the airbike, they provide excellent handling. To activate the flaps, simply press on the foot switch for that flap. Throttle is engaged with a twist of the right grip, while the left grip engages lift. Once the K1 is in the air and under its own power, the left grip is locked into place.

The bike has two waterproof panniers at the back, with enough room for one passenger.