

Aeromobile Inc.

Proudly Presents



The Aeromobile 2000 Amphibian Air Cushion Vehicle (Hovercraft)

This revolutionary craft is state of the art in amphibian air cushion vehicles (or ACVs) . It is powerful, fully controllable, suitable for all terrain and all weather conditions. It is ideal for:

- ♦ Airport Water Crash Rescue
- ♦ Marine fire fighting
- ♦ Search and Rescue
- ♦ Marine Law Enforcement
- ♦ Ecologic Survey
- ♦ Coast Guard Patrol
- ♦ Harbor Management
- ♦ Fish and Wildlife Survey
- ♦ Geologic Exploration
- ♦ Drug Enforcement
- ♦ Thin Ice Rescue
- ♦ Year Round Boating

Advantages of Gimbal Fan Aeromobiles:

A. Controllability

1. Absolute, positive, powerful control of the craft in all directions by the driver, despite winds, grades, rapids, etc.
2. Instant availability of the total propulsion force in any direction, instantly cancelable, reversible, and in appropriate force metered to the needs of the driver.
3. High speed braking in any direction, with full steering, impossible for conventional ACVs, is inherent in Gimbal Fan Aeromobiles.
4. User friendly servo controls anyone can fly with little training. The control levers are moved in the direction of the desired movement of the appropriate Gimbal Fan at that end of the craft.
5. No vexing weather cocking at low speed or in high cross winds since there are no vertical rearward surfaces as with a conventional ACV.
6. Safety of operation despite gusts, uneven surfaces, obstacles, etc.
7. The turning circle is smaller and tight turns are possible at high speed by outward thrust of the Gimbal Fans tilted to provide inward radial force.
8. In a Twin Gimbal Fan Aeromobile, each end of the craft has 50% of the total thrust force for omni directional force to control the bow or stern.
9. Road and runway crowns, and limited side hill negotiation are possible by directing Gimbal Fan thrust appropriately to yield both forward and lateral thrust.
10. Pivoting in place is possible with Gimbal Fans tilted in opposite directions.
11. Full sideways or diagonal travel, whether slow or fast, impossible for conventional ACV's, can be accomplished by tilting both Gimbal Fans in the same direction,

The A-2000-1 in motion, with both front and rear Gimbal Fans in action.



Gimbal Fan Technology allows for precise controllability, braking, and immunity to cross winds.

Advantages, Cont'd:



Dr. Bertelsen, shown here piloting an early Aeromobile, began his innovative endeavors in the late 1950s.

The A-2000-2 is the culmination of many years of pioneering efforts.

12. With both Gimbal Fans untilted with vertical fan shaft at full throttle, 100% of the slipstream is dedicated to lift, which is useful for passing over porous substrates and for "rocking" the craft off a "hang-up".

13. The "user friendly" control system makes new drivers easily trained to be very competent and safe operators.

B. Economics and Versatility

1. Like outboard motors, Gimbal Fans can be mass produced at low cost.

2. Mass produced Gimbal Fans can be installed in single units, or two, three, four, or more to design larger Aeromobiles to carry more payload.

3. Flexibility of customer missions and Aeromobile design is possible since any size craft can be built using any number of stock Gimbal Fans.

4. The installed engine power in our stock 36" diameter ducted fan (placed in our 44" O.D. spherical Gimbal ring) can vary from 40 h.p. to 300 h.p. according to the customer demand.

5. Retrofitting of conventional ACV's with Gimbal Fans can increase sales of the mass produced units.

6. The run out, or damaged Gimbal Fan unit can be unplugged, removed, and exchanged in short order with minimum cost and delay.

7. Spare Gimbal Fan units can be kept on hand for rapid exchange of damaged units.

8. Each Gimbal Fan unit is self sufficient in having its own fuel tank, battery, control, and servo system, and electrical system.

9. Each Gimbal Fan produces lift, thrust, and steering independent of all the others. Multiple Gimbal Fans increase not only the performance, but, the total reliability of the Aeromobile.

10. Gimbal Fan Aeromobiles can negotiate difficult surfaces in all climates pole to pole in all weather to act as ferries, freighters, rescue craft, military landing craft, sport craft, etc.

Advantages, Cont'd:



The A-2000-1 performing perfectly well in inclement weather.

C. General Advantages

1. High speed is attainable in all directions up to 50 MPH, including: diagonally, sideways and end ways.
2. The low thrust line of the "over the deck" slipstream of the thrust air prevents pitch down and plow-in in water, a bane of the high thrust line stern propelled ACV'S.
3. The low mount of the Gimbal Fan power plants result in an overall low silhouette, and low center of gravity, which increases stability on cushion in turns and in high seas.
4. Having the power systems on the ends of the craft leaves the payload space at the center of lift and avoids vexing trim problems of stern mounted power systems.
5. The ducted Gimbal Fans are inherently quieter than open propellers.
6. The fans are remote from personnel and guarded against entry of hands or foreign objects.



The Man Behind the Machines

Dr. William Bertelsen pioneered air cushion vehicle (hovercraft) development in the late 1950s and has continued to innovate to the present day. To give ACVs the maximum power and controllability, he invented the Gimbal Fan. His goal for forty years has to develop the best possible ACVs. With the Aeromobile 2000, he has certainly accomplished this goal.



His Vision of the Future

Dr. Bertelsen's vision of the future of ground transportation is a very bright one. He has adapted his revolutionary Gimbal Fan air cushion craft to run in grooves (tubes). The result is efficient, low polluting, completely automated transportation. He sees this as the solution to the many disadvantages of the current system of wheeled transportation.

Why Are Our Air Cushion Vehicles Superior?



One Gimbal Fan can power an Aeromobile. Two Gimbal Fans give more control and power.

To power large vehicles, multiple Gimbal Fans can be used in the same chassis.



The inside of the craft is as attractive as the outside, and includes state of the art controls.

Aeromobile Inc., alone, among ACV manufacturers, has solved the Gordian Knot of controllability of the frictionless air cushion vehicle with the invention of The Gimbal Fan.

Until the Gimbal Fan System of integrated lift, propulsion, and control was evolved, there was no adequate air cushion vehicle control. All other ACVs are unable to negotiate cross winds without weather cocking. They typically have no ability to back up, and no reverse thrust for high speed braking with steering, and cannot go down wind slowly. In contrast, Gimbal Fan Aeromobile ACVs are positively and sharply controllable. Earlier models, the Aeromobiles 13, 14, 15, And 16, proved enormously successful and outperformed all other air cushion vehicles. With the Gimbal Fan System, only Aeromobile Inc. has a production, user friendly, fully steerable ACV, flyable safely by minimally trained drivers.

By definition, the word "gimbal" comes from the nautical compass mount, with ability to stay level and tilt in two degrees of freedom, fore, aft and laterally. Inside the Gimbal Fan there is a ducted fan in a spherical outer shroud. The engine and reduction gear are mounted above the fan. This Gimbal Fan assembly is mounted over a circular opening in the deck of the craft and its bottom end discharge is flush with the deck when the fan shaft is vertical. The deck aperture is slightly larger than the diameter of the Gimbal exterior sphere. It can tilt up to 90 degrees in all 360 degrees direction.

Each Gimbal Fan unit has installed in it three times as much power as is needed for lift. At any Gimbal tilt angle, even high tilt angles, a portion of the slipstream is constantly injected below the deck into the lift chamber and is sufficient to maintain cushion pressure

The Gimbal Fan discharge into the lift chamber of the Aeromobile produces lift up when the fan shaft is vertical or not tilted. Having the total slipstream power available for lift is very valuable to maintain lift when passing over porous substrates. The remaining two thirds of the slipstream can, by tilting the Gimbal Fan, jet out over the deck and exert powerful thrust in any direction. The Aeromobile 2000 adds state of the art engines, reduction gear, fans, hydraulic controls, and instruments to the indispensable Gimbal Fans.

Why Superior, Cont'd:

Gimbal Fan Aeromobiles can travel at high speed in any direction, forward, backward, sideways or pivot in place. Only the Twin Gimbal Fan Aeromobiles can move sideways or diagonally. And, these Aeromobiles have high speed braking with steering. Moving sideways is impossible with the conventional stern thrusted ACV, and is a critical capability in rescue missions to approach victims, or wreckage, or to get at fires, and move quickly away from danger. No ACV except the Twin Gimbal Fan Aeromobiles can do this.

In the twin Gimbal Fan Aeromobiles, the worlds' best ACVs, the driver has two simple control sticks which are hydraulic valves directing variable pressure to the hydraulic servo units. Moving the sticks in any direction proportionately tilts the Gimbal Fans accordingly. Moving the rear Gimbal Fan control stick forward tilts the rear Gimbal Fan forward directing its slipstream rearward and thrusting the craft forward. Moving the rear stick sideways, tilts that Gimbal Fan sideways resulting in side thrust to force the rear end of the craft sideways, resulting in a turn. Moving both sticks together forces the Aeromobile in any direction the sticks are tilted.

The Gimbal Fan is to ACVs as the outboard motor is to boats. They are a distinct and separate market for retrofitting conventional ACVs, or for supplying other new ACV manufacturers with integrated lift, propulsion, and control. They can be installed singly, in twins, three, four or more units. Adding more units increases not only payload of the craft, but performance, and reliability. Each unit is self sufficient in fuel, controls, electrical system, and can be unplugged, removed, and exchanged quickly.

All power boaters who want to go faster on water with no increase in power, need Gimbal Fan Aeromobiles. They can enjoy fast, year round amphibious capability on ice, in shallows, rapids, mud, sand, travel over submerged obstacles, and, for the first time, drive their craft ashore, perhaps home.

A view of the A-2000-2 during a test in our workshop. The twin Gimbal fans in the stern of the craft give it greater thrust and speed.



A recent photo of the Gimbal Fan, the invention that makes our ACVs unique.

Aeromobile 2000 Specifications

Length, hard structure of welded aluminum	26 feet
Width, hard structure (trailerable flotation deflated)	8 Ft. 4 in.
Length with Wing Inflatable 24" diameter flotation	28 feet
Width with Wing Inflatable 24" diameter flotation	10 Ft. 4 in.
Deck height off cushion, on Wing Inflatable flotation	25 inches
Deck height on cushion, with 8" skirt segments	34 inches
Deck height off cushion, with Wing Inflatable deflated	18 inches
Air cushion segments height below Wing Inflatable flotation	8 inches
Cockpit length	12 Feet
Cockpit width	5 Feet
Cockpit floor to roof	48 inches
Estimated chassis empty weight	2500 lbs.
Gross weight	4500 lbs.
Pay load	2000 lbs.
Lift base area	185 Sq. ft.
Estimated cruise speed on the "hump" in any direction	50 MPH
Flotation with Wing Inflatable 24" diameter flotation	15,000 lbs.
Flotation of cockpit displacement	5,000 lbs.
Total flotation	20,000 lbs.

Specifications, Cont'd

Power	Three Hirth Gimbal Fans with 120 h.p. Hirth engines, two mounted on the stern of the airframe, the other on the bow.
Gimbal Fan	44" OD Gimbal Sphere with 36" (with 16 blades) internal fan ducts. They tilt zero to 90 degrees in all directions by hydraulic rotary actuators.
Control	One "Joy stick" will control the bow Gimbal Fan, and a second stick will control the two stern Gimbal Fans.
Fuel Capacity	Two 16 gallon tanks. Range is 150 miles (3 hours).
Canopy	Canopy is aluminum, with hatches and doors as ordered. Windshield and wipers are included.
Options/Pricing	As designed, 6 passengers and a driver, but will be outfitted as needed for any mission, rescue, fire fighting freight hauling, etc. Contact us about pricing.

Aeromobile Inc.

113 Commercial Street
P.O. Box 77
Neponset, IL 61345 USA

1-309-594-2041

www.aeromobile.com
aeromobile@aeromobile.com

We are Aeromobile Inc., founded by Dr. Bertelsen to promote his unique vehicles. We have many years of experience in all air cushion applications, and have as our goal the production of the finest ACVs.

Visit our Web site to learn more about us and see additional photos and video footage of our Gimbal Fan vehicles. If you want to discuss the purchase of a craft, please give us a call.