



The Skycar Volantors

Moller International

1222 Research Park Drive, Davis CA 95618 – (530) 756-5086



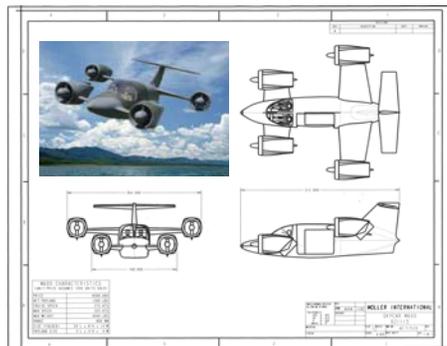
High-speed VTOL Aircraft

With the Vertical Take-off and Landing (VTOL) capabilities of a helicopter and the maximum speed of a high performance aircraft, without the limitations of either, Moller International's M600 can shave critical minutes from a variety of missions where flexibility and speed are imperative. The VTOL payload of 1,250 lbs allows for up to six passengers or a combination of crew and cargo. Suggested configuration for SAR/Medivac is a pilot and medic, with space for two injured. STOL (200' rollout) provides for net payloads of over 2,000 lbs.

Similar to its predecessor, the M400, Moller's M600 can take-off and land vertically with one engine out and can maintain flight with several non-operational engines. It has no catastrophic failure component such as a helicopter's main rotor or a light airplane's single engine. The design ensures that critical systems such as propulsion, stabilization, communications and navigation all to have emergency backups, so that the failure of any one primary will not be flight critical. In the highly unlikely event that a key combination of engines fail, two ballistic parachutes will immediately deploy and allow for a safe vehicle descent.

The agility of the M600 allows for significant changes in velocity and direction in a fraction of a second. This provides the maneuverability required for operation in close quarters and turbulent conditions. A computerized vehicle condition management system constantly monitors the engines and other elements of the vehicle and warns of maintenance needed or impending component failure. The M600 is much less dangerous for ground personnel than a helicopter or light airplane. The fans are contained in Kevlar-lined housings with intake screens to provide complete protection.

M600 Skycar® Volantor



Design Status: M400 Working Prototype



Propulsion

Moller International has been developing rotary engines since 1968 when its predecessor M Research was the first company to bring rotary engines into the US from Germany for research. Since then it has undertaken a continuous development of charge-cooled rotary engines. During this period it has undertaken engine development contracts with NASA Lewis (Glenn), General Electric and Infinite Machines. It acquired all the rotary engine assets of OMC Corporation (only company other than Mazda to put rotary engines in to volume production) and also acquired the rotary engine assets of Infinite Machines Inc. Later it acquired the production rotary engine tooling developed for General Motors. It has four rotor displacement models ready to move into production. In addition virtually anyone who has played a significant role and remains active in the rotary engine development (except Mazda) is presently working in some capacity with Moller International.



Features

Multiple engines—The Skycar® has four engine nacelles, each with two computer-controlled, Rotapower engines. All engines operate independently and allow for a vertical controlled landing should any one fail.

Multiple computers—The Skycar® has been designed with quadruple-redundant, independent voting computers to manage all flight systems including vehicle stability and control.

Multiple parachutes—Two airframe parachutes are programmed to automatically deploy in the event of a critical failure of the aircraft. With these parachutes, the pilot, passengers and the Skycar® can be recovered safely.

Rotapower engines—Wankel-type rotary engines are very reliable as a result of their simplicity. The three moving parts in a two rotor Rotapower engine are approximately seven percent of those in a four-cylinder piston engine.

Enclosed ducted fans—Each nacelle fully encloses the engines and fans, greatly reducing the possibility of injury to individuals near the aircraft.

Redundant fuel monitoring—Multiple systems check and report on fuel for quality and quantity.

Aerodynamically stable—In the unlikely event that insufficient power is available to land vertically, the Skycar's aerodynamic stability and good glide slope allow the pilot to maneuver to a local airport for a transitional landing or if all power is lost to use the airframe parachutes.

Automated stabilization—Onboard computers control the Skycar® stability during hover and transition, reducing the required pilot input to speed, direction, rate of climb and altitude.

Emergency options—The Skycar® can land almost anywhere, and therefore avoid dangerous situations created by a sudden weather change or equipment failure.

M400 Skycar® Volantor Performance Specifications

Maximum Speed @ 25,000'	315 mph
Maximum Speed @ Sea Level	350 mph
Cruise Speed @ 20,000'	290 mph
Rate of Climb @ Sea Level	5,100 fpm
Maximum Range	750 miles
Maximum Mileage	~20 mpg
Maximum Net Payload	750 lbs
Nominal Power (continuous)	865 hp
Boost Power Available	1,155 hp
Disc Loading	140 lb/ft ²
Maximum Lift/Drag Ratio	12.5

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