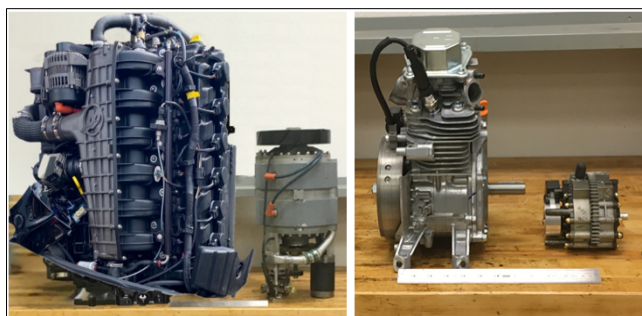


Moller Aeronautics, Freedom Motors and RotaPower LLC

Moller Aeronautics (MA) was previously known as Moller International (MI) prior to a planned name change that more descriptively reflects its mission statement. Moller International and Freedom Motors (FM) created the revolutionary Rotapower engine through contributions from both companies with each possessing rights to specific markets. FM retains the exclusive right to manufacture and market Rotapower engines for worldwide commercial and industrial applications, while MA will retain the exclusive right to manufacture and market this engine exclusively for aircraft and ducted fan applications. To fund engine production and avoid documenting a 25-year history, FM recently transferred its engine IP and hard assets to RotaPower LLC (RP) in return for majority control. RP will fund and exclusively control engine manufacturing, worldwide licensing and distribution of Rotapower engines for all applications except aircraft and ducted fans. MA expects to purchase many of its aircraft and ducted fan engine parts from RP including rotor, crankshaft, stationary gear, seals, and some accessories.

Opportunity to capitalize on Rotapower engine technology

Freedom Motors had developed four displacements of its Rotapower engine and extensively tested engines in various applications including BD aircraft, hybrid car, jet boat, jet ski, mud-boats, genset, weed-eater, military/civilian drones, ATV, motor-scooter and both Skycar and Neuera air taxis. FM began its multi-year Rotapower engine development program following the acquisition of the rotary engine assets of General Motors (GMC), Outboard Marine Corporation (OMC) and Infinite engine company (IEC). These three companies spent over \$2 billion in today's dollars developing market ready rotary engines for their respective products. Features of FM's two rotor Rotapower1060 cc engine are summarized as follows:



Model	Mercury Marine	Rotapower® Engine	Predator Scooter	Rotapower® Engine
Power (HP)	250	250 or 175 (5-Stroke)	6.5	12 or 7.6 (5-Stroke)
Critical Moving Parts	52	3	12	3
HP/Lbs	0.94	3.33 or 2.92 (5-Stroke)	0.25	2.45 or 1.55 (5-Stroke)
HP/Ft ³	59.5	312.5 or 218.8 (5-Stroke)	20.3	200 or 127 (5-Stroke)
Equiv. displacement (cc)	2600	2120	212	104

Light and compact

- Power to weight ratio (HP/LB) = 3.33 vs less than 1 for competition (Rotax)
- Power to volume ratio (HP/CUBIC FEET) = 312 vs 60
- Five stroke version expected to achieve more than 3.5 horsepower per lb. (patent pending)

Fewer moving parts

- Three moving parts compared to twenty-seven for 4 stroke piston engine with same instantaneous torque (6 cylinder)
- Charge or air-cooled rotor reduces many parts required with the oil-cooled rotor in the Mazda rotary engine
- Disassembled and reassembled in less than 30 minutes
- Few moving parts reduce direct and indirect operating costs

Reduced fuel consumption

- Specific fuel consumption is 0.4 lb./ hp-hr. compared to 0.45 lb./hp-hr. for the average commercial 4 stroke piston engine
- Six stroke version expected to achieve less than 0.35 lb./hp-hr. (patent pending)

Low emissions

- Carbon monoxide (CO) and unburned hydrocarbon (HC) are much lower than 4 stroke piston engines as measured by CARB
- Nitrous oxide (NOx) emissions are significantly lower

Multi-fuel capable

- Tested while fueled by gasoline, natural gas, methanol, ethanol, propane, hydrogen and spark ignited diesel, kerosene and jet fuel. Alcohol is the preferred fuel for maximum power

Low vibration level

- Perfect radial balance allows rigid mounting and engine can be an integral part of the chassis
- Instantaneous torque is identical to six-cylinder 4 stroke piston engine

Very long life

- Dynamometer tests show that wear surface and seals should have a 20,000-hour life

Opportunity to capitalize on drone technology

Morgan Stanley predicts that the advanced air mobility (AAM) market composed of drones and air taxis will total \$1 trillion by 2040 or more than today's total airline industry and \$9 trillion by 2050 or equal to the combined GNP of Japan and Germany. The Grand View Research "Market Analysis Report indicates that by 2040 the value of the drone market could be one third of a trillion dollars which suggests that the air taxi market could approach two thirds of a trillion dollars. MA is initially concentrating on the unmanned aircraft or drone market where FAA certification is not involved in this immediate market opportunity.



Airforce drone

Morgan Stanley predicts that the advanced air mobility (AAM) market composed of drones and air taxis will total \$1 trillion by 2040 or more than today's total airline industry and \$9 trillion by 2050 or equal to the combined GNP of Japan and Germany. The Grand View Research "Market Analysis Report" indicates that by 2040 the value of the drone market could be one third of a trillion dollars which suggests that the air taxi market could approach two thirds of a trillion dollars. MA is initially concentrating on the unmanned aircraft or drone market. This avoids FAA certification while addressing an immediate market opportunity. MI has delivered drones capable of carrying various

payloads to the US Army, Navy and Air Force under highly classified contracts. Shown is one of two Rotapower engine powered drones delivered to the US Air Force at Wright Patterson Air force base. The Air Force needed a drone that could operate following a nuclear attack. MI was awarded the contract because its drone was small enough (less than 8 cubic feet) to minimize its radar signature while carrying a 100 lb. payload for 100 miles at 100 miles an hour. Achieving this performance goal was possible because the Rotapower engine produced more than 3 horsepower per lb. or three times more than competing engines, which would have reduced the payload and range. Drones powered by batteries were not viable in this application due to their very limited payload and range. Drones using Rotapower engines have undergone many hours of flight and wind tunnel testing and could enter production as soon as engines are available. The Neuera based 200-XR drone is designed to carry a 500 lb. payload at 100 mph for 300 miles. Skycar 100 and Skycar 200 based drones are projected to carry 300 to 600 lb. payloads at 200 mph for 500 miles.



200 XR drone

Operating the Skycar first as a drone would establish its reliability, which is the number one criterion for FAA certification.

Opportunity to capitalize on air taxi technology

If Morgan Stanley is correct, the air taxi market by 2040 should approach 2/3 of a trillion



dollars and personal travel by air is commonplace enough that economy of scale makes it affordable. Today 85% of automobiles carry one or two passengers while 4 to 6 passenger air taxis, which presently dominate development, will be used primarily for ridesharing, which will not change the demographics of personal transport.

An Uber study indicates that one and two passenger air taxis, through economy of scale, will see a cost per passenger mile that is substantially less than for an automobile. The recent “Mosaic rule” will simplify FAA certification of one and two passenger air taxis while 4 to 5 passenger air taxis must be certified under the “Powered



Lift” category. No civilian aircraft has ever achieved FAA certification under this category including Westland-Augusta despite spending over \$10 billion and 20 years seeking certification for their tilt rotor WA609. **The FAA recently required ridesharing air taxis like the Joby S4 and Archer to be certified under this “Powered Lift” category which could lead to development cost of \$4 to \$5 billion per model and travel cost of \$7 to \$9 per passenger mile.**

Prediction

Within a decade, one and two passengers Skycar **like** air taxis utilizing the high power to weight ratio of Rotapower **like** engines and state-of-the-art batteries (watt/lb.), together with

the high energy to weight ratio of carbon neutral fuel (watt-hr./lb.) will lead to **autonomous hybrid** air taxis that change the paradigm of personal transportation.

Note1: For reference material supporting the above presentation, click on the following links:

https://www.freedom-motors.com/brochures/Air_Taxi_Path_to_FAA_Certification.pdf

[https://www.freedom-](https://www.freedom-motors.com/brochures/Review_of_Selected_Advanced_Air_Mobility_Aircraft_February_2025.pdf)

[motors.com/brochures/Review_of_Selected_Advanced_Air_Mobility_Aircraft_February_2025.pdf](https://www.freedom-motors.com/brochures/Review_of_Selected_Advanced_Air_Mobility_Aircraft_February_2025.pdf)

https://www.freedom-motors.com/brochures/The_Future_of_Advanced_Air_Mobility_Aircraft_May_2024.pdf

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