



**1997**

### **Freedom Motors Formation**

- Freedom Motors (FM) was formed as an engine division of Moller International, in the state of Nevada, USA, and it acquired the intellectual property and physical assets of Outboard Marine Corporation (OMC) and of Infinite Engine Company (IEC), the physical assets of General Motors Company (GMC) Rotary Engine business and all assets. and all assets of Infinite Engine Company (IFC).

**2001**

### **Independent C Corporation**

- All physical assets, intellectual property related to rotary engine technology of Moller International were transferred to Freedom Motors and it became an independent corporation Freedom Motors is a corporation in good standing in the State of Nevada.

**2001**

### **Fuel Injection System**

- Undertook a cost analysis where we tested diamond dust particles in a nickel-plating process.
- Developed a stratified charge fuel injection system while exploring the use of the Ficht fuel injection nozzle to accomplish this. This is a major undertaking because it required substantial changes to the rotor housing and the development of a unique control algorithm for the fuel and ignition system.

**2002**

### **Multi Fuel Capable**

- Undertook alternative fuel studies using:
  - Natural gas
  - Alcohol-water
    - Alcohol
  - Gasoline-water
    - Diesel
- Developed high pressure fuel injection system for diesel fueled Rotapower® engine. This was a nine-month program.
  - Single rotor 530cc installed in an all-terrain vehicle (ATV)

# 2003

## Newer Engines Design

- Designed metric 650cc engine.
- Began non-metric 650cc series engine development for licensee RotaMax.
- Developed 150cc series metric engine (funded by investment from RotaMax).
  - Began development of diesel fueled 530cc Rotapower® engine.
  - Two-rotor 530cc engine installed in jet-boat.

# 2004

## Exhaust & 15% Power Boost

- Developed two-rotor test nacelle for testing ducted fan version of the Rotapower® engine. Carried out tests over a one-year program.
- Explored intake and exhaust tuning on dyno to provide dynamic intake charging leading to a 15% boost in power.
  - Several contracts underway during this period.
  - ATV engine design (single rotor).
- Auxiliary diesel engine for trucking industry (single rotor 450cc engine).

# 2005

## Beta Production Run

- Beta production run of 530cc, 1060cc, and 1590cc Rotapower® engines.
- 650cc and 1300cc engines entered beta production by licensee RotaMax.
  - Designed 150cc engine, prototype nearing testing.
  - Design and development of 27cc underway.

# 2006

## Dyno & Emission Tests, Modular

- Dyno testing of 150cc engine underway.
- Carried out extensive emission tests using different fuels.
- Research program continued into less expensive wear coating (ceramics, iron-moly, etc.)
  - Modular form of 530cc engine developed.
  - Compound engine design being explored.

**2007**

## **530cc Modular Engine**

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- 530cc compound engine developed and tested in year-long program (patentable).

**2008**

## **Beta Production, Jetboat, Skycar**

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- Began beta production of 150cc engines.
  - Optimization studies of compound engine underway.
  - Letters of intent to purchase engines reached 900,000 engines.
  - Three-rotor 530cc engine installed in Jet-boat and thoroughly field tested.
- Developed high power 1060cc Rotapower® engine for Skycar® (208 hp and 65 lbs.).

**2009**

## **15KW Genset, Ryobi Contract**

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- Developed a 15 Kw gen-set capable of providing variable frequency and viable voltage. Weight was 20% of competing gen-set.
  - Produced a specific 27cc engine under contract from Ryobi and integrated it into a weed-whacker.

**2010**

## **Compound Engine, One-way Valve**

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- Second compound engine version developed and tested.
- One-way valve critical to compound engine developed and endurance tested (patentable).

**2011**

## **Rotor Cooling, Fuel Injection**

- Developed and tested entirely new cooling path through rotor that improved rotor cooling by 30% (patentable).
- Developed and tested fuel injection directly into rotor that improves fuel economy by timing fuel charge to be richer near plug (patentable).

**2012**

## **Magneto Ignition, Rotor Housing**

- Developed a magneto ignition required for aircraft use of our engine.
- Redesigned the rotor housing to use two side-by-side spark plugs in place of following and leading plug. This arrangement improves fuel consumption by 8%.

**2013**

## **Diesel Fuel in Otto Cycle**

- Developed water injection phase change cooling system for rotor that allows sufficient cooling to enable doubling the power output through turbo charging (patentable).
- Quantified our discovery that we could use diesel fuel in the Otto cycle in a proprietary (trade secret) combination of engine displacement, engine RPM and brake mean effective pressure BMEP. This greatly simplifies the use of diesel in smaller engines.
  - Letters of intent reaches 3.5 million.

**2014**

## **2-Wheeler Rotapower® Scooter**

- Developed a motor scooter compatible 150cc engine and installed it in a charger scooter under a \$600,000 contract from ALIFE Automotive in Singapore. This was a year-long program of design, development, and testing.

**2015**

## **3-Wheeler, Aircraft Engine Redesign**

- Developed an engine and integrated into a three-wheel vehicle for ALIFE Automotive.
- Redesigned engines for Neuera 200 including integrating sound attenuating system, new starter and direct fuel injection system in place of carburetors.
  - Developed new fan/hubs to fit engines.

**2016**

## **Compound 27cc Engine**

- Designed layout in newly leased facility to fit the R&D needs temporarily.
  - Designed compound version of 27cc engine.
  - Completed move to newly leased facility.

**2017**

## **Mobile Dyno & Biogas**

- Developed mobile dynamometer and began testing of Rotapower® engine operating on biogas. Explored this application as a new business opportunity.

**2019**

## **27cc Compound Engine Prototype**

- Developed an untested prototype of our 27cc compound engine
- The 27cc engine is the foundation for the compound 25cc and 50cc and based on its performance, the compound versions should not only be the most powerful engine for its size in the world, but also the one with the highest efficiency.
  - Signed contracts with OneH2 Corporation and Alife Air.

**2020**

## **Charge Transfer Arrangement**

- Developed a patentable charge transfer arrangement to be used on the compound Rotapower® engine. This design eliminates a number of moving parts and is the result over 1,000 hrs. of design and hundreds of experiments. This is the single most rewarding accomplishment in our 50 years of engine design.

**2021**

## **OneH2 Corporation**

- Produced four 150cc prototype engines and one 530cc prototype engine for OneH2 Corporation.
- Partnered with OneH2 Corporation to develop a state of the art hydrogen fuel test lab to perform tests on the prototypes to operate on hydrogen fuel.
- Moved into permanent facilities for office and R&D

**2022**

## **Hydrogen Rotapower®**

- Successfully tested the prototype engines on hydrogen fuel, with OneH2 Corporation.
- Developed the generator armature with our partner to produce electricity with hydrogen fuel.
- Developed a design document to produce Rotapower® engines based generators for DC fast charging (30 KW and 200 KW).
  - Leased manufacturing facility

**2023**

## **New Manufacturing Facility**

- Finished flooring, lighting, air conditioning and other upgrades and moved heavy equipment into the facility.
  - Partnered with the Singapore Group to capture Asian Markets
  - Moved into brand new engine testing and inventory facility

**2024**

## **Financial Model & Company Valuation**

- Built a comprehensive financial model based on the manufacturing plan
  - Engaged SVG Group for company valuation
- Built a investment package and reached out to several entities
  - Engaged DelMorgan & Co. Investment Bank