

Market Development

1965 Fichtel Sachs Wankel engine used in snowmobile, but was underpowered and unreliable.

1973 OMC develops a snowmobile Wankel engine. Used as a test product in anticipation of stricter marine emission standards.

1974 Mazda develops Wankel auto engine but poor fuel economy and energy crisis limit future to sports car.

1976 Snowmobile market plateaus, OMC exits market despite their reliable Wankel engine.

1978 John Deere purchases Curtiss Wright Wankel assets, but aero-design market costs limit market opportunity.

1980 Stricter pollution standards do not materialize and OMC offers orphan Wankel engine assets for sale.

1995 New federal standards set for industrial and auto engines emissions. Full impact not expected until 2000.

1997 Ultra-low emissions standards are set for CA. Rotapower® engine demonstrates ability to meet these extreme standards in hybrid car without catalytic converter.

1999 Two stroke engines continue to be outlawed in many parts of the world. CARB and EPA mandate emission limits for marine market.

2001 Snowmobiles are banned in all National Parks due to CO emissions.

2004 Hand-held power tool market comes under attack due to emissions.

2005 Trucking industry mandated to eliminate truck idling for auxiliary power.

Hybrid car provides ideal candidate to showcase Rotapower® engine.

2011 Receives numerous requests from Hybrid car industry for Rotapower® engines – Letters of Intent total now exceeds 3,500,000 engines.

Rotapower® Engine Development

1965 P. Moller begins discussions with Curtiss Wright and initiates Aero program at UC Davis w/ Wankel engine test lab.

1968 Moller forms MI Research company to develop Wankel powered personal commuter aircraft.

1974 Fichtel Sachs Wankel engine used in XM-4 (M200X predecessor) but was underpowered.

1985 Purchases OMC Wankel snowmobile engine production technology, engineering time, and hardware.

1989 Modified version of OMC engine powers M200X (Neuera) in flight before International press.

1994 Develops a twin rotor (1600cc/2-rotor) engine for GE to be produced by Infinite Engine Co. for UAV applications.

1995 Develops prototype, 1060cc twin rotor, liquid cooled engine. Receives patent for lubrication-less coating.

1996 Acquires the assets of Infinite Engine Co. (NASDAQ listed company). Assets include OMC liquid cooled rotary engine marine technology licensed from OMC.

1999 Rotapower® engine demonstrates ability to Operate on alcohol, diesel, and natural gas. Additional key technologies are patented.

2001 Freedom Motors is spun off as independent company with license to manufacture and distribute Rotapower® engines for all applications except aircraft and ducted fans.

2005 Develops 27cc Rotapower® engine for power tool market under contract from Techtronics.

2006 Develops 150cc Rotapower® engine under contract from Thermofan.

Demonstrates and has patents in progress for compound version of Rotapower® engine.

2011 Develops improved rotor cooling to allow air-only charge cooling. Makes direct fuel injection possible.

2016

ROTAPOWER® engines can:

- Replace most engines worldwide
- Become the engine of choice for hybrid cars
- Effectively competes with the 4 stroke piston engine in markets like auxiliary power units (APU) where weight, size and multi-fuel capability are important