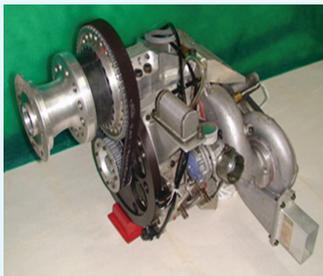


The indigenous Wankel engine development program was originated from DRDO through Vehicles Research & Development Establishment (VRDE), Ahmednagar, and was jointly designed, developed and successfully flight tested by CSIR-NAL, VRDE, and ADE. Under this program the 55 hp Wankel engine was developed for ADE's NISHANT UAV. NAL designed and developed the core engine; VRDE and ADE were in-charge of peripheral systems and flight testing respectively.

The Wankel engine is the first of its kind to be totally designed and developed in the country. Very few countries in the world have the capability to develop and master this technology. CEMILAC accorded the Certificate for 'Limited Series Production' on 7th February 2013. Twenty Wankel engine are being manufactured by VRDE, DRDO.



55 Hp Wankel engine



UAV-Nishant maiden successful flight with Wankel engine

Features:

Type	Single rotor Wankel engine
Cycle	Otto cycle
Power	55 hp (41 kW) @ 8000 rpm at ISA-sea level
Thrust	90 kgf with 1 m diameter propeller
Compression ratio	9.2
Housing Cooling	Water-Glycol mixture
Rotor cooling	Air
Lubrication	Total loss forced lubrication system
Ignition	CDI system
Carburettor	Diaphragm type
Specific fuel consumption	335 to 365 g/ kWh (0.55 to 0.60 lb/ hp/ h)
Engine weight (dry)	25 kg

Other Applications:

This type of engines are used for powering smaller air vehicles and also in automotive (Mazda, and Racing Cars), hybrid vehicles as range extenders, out-board motor for boats and other industrial applications in particular for compact power generators.

Cost Economics:

Presently this technology is direct substitute for an imported 51 hp engine for DRDO's NISHANT UAV. The cost of the indigenous engine is around 40 percent less than the imported one during the limited series production stage. The cost will further come down during the mass production.

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