

ROTAX[®]
AIRCRAFT ENGINES



POWERFUL LIGHT EFFICIENT



OVERVIEW

NAME

Bombardier Recreational Products Inc. (BRP)

HEADQUARTERS

Valcourt, Québec (Canada)

EMPLOYEES

6.000 worldwide

MANUFACTURING SITES

Austria, Canada, USA, Mexico, Finland

OWNERSHIP

50 % Bain Capital, 35 % Bombardier Family,
15 % Caisse de dépôt et placement du Québec

BRP THE COMPANY

At BRP, we believe that passion and innovation moves the powersports world. We are a world leader in the design, manufacturing, distribution and marketing of motorized recreational vehicles and power sports engines.

Built on a 70-year tradition of excellence and head-quartered in the Canadian town of Valcourt, Québec, BRP owns manufacturing facilities in Canada, the United States, Mexico, Finland and Austria and has a total workforce of about 6.000 passionate people.

BRP products are distributed in more than 100 countries by over 5.000 dealers and distributors.

Our internationally recognized product lines include:

- Ski-Doo® and Lynx® (snowmobiles)
- Sea-Doo® (watercraft boats)
- Evinrude® and Johnson® (outboard engines)
- Can-Am® (ATVs/quads, Side-by-side vehicles and roadsters)
- Rotax® (engines)



BRP-POWERTRAIN THE DIVISION

Decades of experience, a top workforce and leading research: engines manufactured by BRP-Powertrain are the driving force – within the corporate group and for Austria as a business location.

BRP-Powertrain sets the pace in its industry. High-performance engines power the world of motor sports. Refining the optimum every day for more fun and fewer emissions.

Engines produced by BRP-Powertrain set global benchmarks in the industry: maximum performance with a light weight and high fuel efficiencies, low noise and reduced emissions, longevity and reliability are what characterize the engines.

BRP-Powertrain manufactures engines for Ski-Doo and Lynx snowmobiles, Sea-Doo watercraft and boats, Can-Am ATVs, Side-by-side vehicles and roadsters, karts, aircraft and motorcycles.

Out of this extensive know-how arises top quality products: maintaining fixed value, maturity and being continually at the forefront of technology – offering a leading power to weight ratio.

In the past 50 years more than 350 engine models have been developed and more than 7 million engines have been manufactured.

OVERVIEW

NAME

BRP-Powertrain

DIVISION HEADQUARTERS

Gunskirchen, Austria

EMPLOYEES

1.700 worldwide

MANUFACTURING SITES

Austria, USA, Mexico

OWNERSHIP

100 % Subsidiary of BRP

TIMELINE

- 1920** Formation of the "Rotax-Werk AG" in Dresden, Germany
- 1943** Relocation to Wels, Austria
- 1970** Bombardier acquires Rotax
- 1975** Certification of the first Rotax Aircraft Engine
- 1977** Large orders of snowmobile spare engines Rotax 185, 248, 284, 294 – also used in microlite aircraft
- 1978** Ultralight engines 501, 505 developed (based on snowmobile engine 503)
- 1984** Start of development of Rotax 912
- 1989** Type certificate for Rotax 912 A
- 1994** Type certificate for Rotax 912 F
- 1996** Type certificate for Rotax 914 F
- 1998** Type certificate for Rotax 912 S
- 2003** Bombardier sells its recreational products division. A new company is born under the name: BRP (Bombardier Recreational Products Inc.)
- 2003** Design Organisation Approval by EASA
- 2005** 912/914 Series compliant to Light Sport Aircraft Norm ASTM
- 2005** Production Organisation Approval by EASA
- 2006** 582 engine compliant to Light Sport Aircraft Norm ASTM
- 2009** 912 Series' TBO (Time Between Overhauls) increased from 1.500 hrs to 2.000 hrs
- 2010** 914 Series' TBO increased from 1.200 hrs to 2.000 hrs
- 2011** 40.000 912/914 engines produced
- 2012** Introduction of the Rotax 912 iS



ROTAX AIRCRAFT ENGINES HISTORY

The success story of Rotax aircraft engines, started in 1973 as the company's products began to revolutionise the ultralight market.

Since then, Rotax has established itself through ground breaking innovations, consistent development and the highest standards of quality, as one of the world leading aircraft engines manufacturer.

ROTAX AIRCRAFT ENGINES

THE PRODUCT / THE BRAND

Rotax aircraft engines offer outstanding performance, continued reliability and reduced emissions.

More than 170.000 units of Rotax aircraft engines have been sold in total. Since 1989 BRP-Powertrain already manufactured more than 40.000 units of the 912/914 engines family.

In 2012, the evolution of the Rotax 912 series of engines continued with the Rotax 912 iS – a powerful, economical and even more efficient engine. The 912 iS enhances the flying and ownership experience while maintaining the same level of reliability as the well known 912 family.

All Rotax aircraft engines are approved for use with Ethanol 10 fuel, MOGAS and AVGAS. Considering the approved usage of MOGAS and the low fuel consumption the fuel costs of a Rotax 912 ULS engine are up to 50 % lower than for a comparable 100 hp air-cooled piston engine.¹⁾

With low operating costs, leading class power to weight ratio, well known reliability, it is no surprise that Rotax aircraft engines are the first choice of more than 220 aircraft manufacturers worldwide.

Rotax – an engine brand you can rely on.





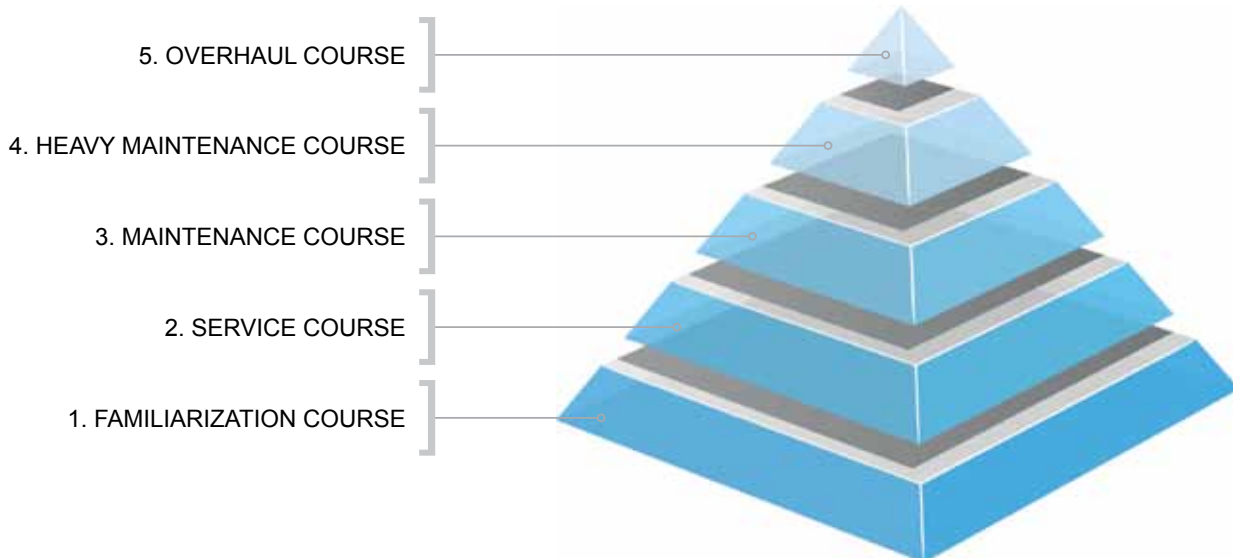
ROTAX AIRCRAFT ENGINES WORLDWIDE SERVICE & DISTRIBUTION NETWORK

The sales and service of Rotax aircraft engines is provided by authorized distributors and their network. In total Rotax aircraft engines, parts and relevant services are available at more than 200 points of sale through a worldwide distribution network, guaranteeing service, warranty and parts availability for at least 10 years.

Furthermore a globally standardized training program, called "iRMT" (independent Rotax Maintenance Technician), was introduced in order to provide the network with qualified technical training.

All manuals, catalogues and other useful documentation are downloadable free of charge at www.flyrotax.com

OUR TRAINING PYRAMID BUILDS ON 5 MAIN LEVELS OF THE iRMT TRAINING:



ROTAX AIRCRAFT ENGINES

912 iS/iSc | 100 hp

- 4-cylinder
- 4-stroke liquid-/air-cooled engine with opposed cylinders
- Dry sump forced lubrication with separate oil tank, automatic adjustment by hydraulic valve tappet
- Redundant electronic fuel injection
- Engine management system
- Electric starter
- Propeller speed reduction gearbox
- Air intake system



Picture: 912 iS with options

ENGINE FACTS

Developed and designed on the basis of the concept of the 912 S/ULS the new Rotax 912 iS engine offers all well known advantages of the Rotax 4-stroke engine series. The new Rotax 912 iS is a serious improvement in the field of modern aviation engines by a reduction in fuel consumption as well as emissions.

These characteristics combined with even easier operation and state of the art engine management systems make the engine ideal for all kinds of modern and innovative light airplanes. The Rotax 912 iS engine offers a TBO of 2.000 hrs.

ENGINE DATA 912 iS¹/iSc²

WEIGHT	kg	lb
Engine with propeller speed reduction unit i = 2.43 with overload clutch	63.6	140.2
Exhaust system	4.3	9.5
Air guide hood	0.4	0.8
External alternator	3.0	6.6
Fuel pumps assy.	1.6	3.5
Engine mount	2.0	4.4

PERFORMANCE		
73.5 kW	100 hp	5800 1/min.
TORQUE		
121 Nm	89 ft. lb.	5800 1/min.
MAX RPM*		5800 1/min.

* Limited for max. 5 min.

BORE		STROKE	
84.0 mm	3.31 in	61.0 mm	2.4 in
DISPLACEMENT		FUEL	
1352 cm ³	82.6 cu in	min. MON 85 RON 95* min. AKI 91*	

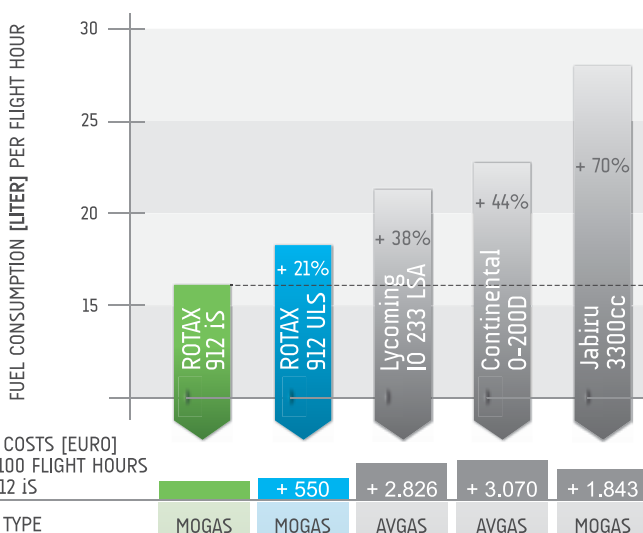
* leaded, unleaded, AVGAS 100LL or E10

1) iS = non-certified

2) iSc = certified acc. to CS-E

available after receipt of type certificate

FUEL CONSUMPTION AND FUEL COSTS ²⁾



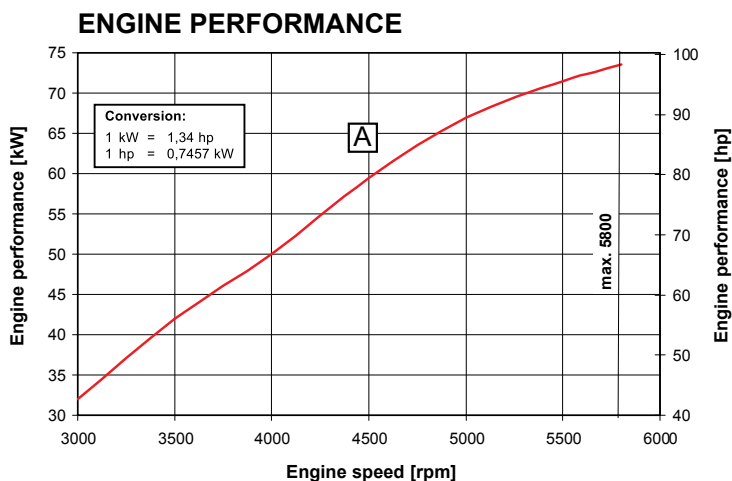
ROTAX AIRCRAFT ENGINES

912 ULS/S | 100 hp

- 4-cylinder
- 4-stroke liquid-/air-cooled engine with opposed cylinders
- Dry sump forced lubrication with separate oil tank, automatic adjustment by hydraulic valve tappet
- 2 carburetors
- Mechanical fuel pump
- Dual-electronic ignition
- Electric starter
- Propeller speed reduction gearbox
- Air intake system



Picture: 912 ULS – DCDI with options



ENGINE FACTS

In comparison to the 80 hp version of the Rotax 912 series the 100 hp product line offers more power while keeping the same weight. This engine series offers a time between overhauls of 2.000 hrs and the best power to weight ratio in its class – no surprise that this engine is the best selling 4-stroke aircraft engine. This series is available as non-certified (Rotax 912 ULS) and certified engine (Rotax 912 S) according to FAR33.

ENGINE DATA 912 ULS¹/S²

WEIGHT	kg	lb
Engine with propeller speed reduction unit i = 2,43	56.6	124.5
Exhaust system	4.0	8.8
Overload clutch	1.7	3.7
External alternator	3.0	6.6
Engine mount	2.0	4.4
Air guide hood	0.4	0.8

PERFORMANCE		
73.5 kW	100 hp	5800 1/min.
TORQUE		
128 Nm	94 ft. lb.	5100 1/min.
MAX RPM*		5800 1/min.

* Limited for max. 5 min.

BORE		STROKE	
84.0 mm	3.31 in	61.0 mm	2.4 in
DISPLACEMENT		FUEL	
1352 cm ³	82.6 cu in	min. MON 85 RON 95* min. AKI 91*	

* leaded, unleaded, AVGAS 100LL or E10

1) ULS = non-certified

2) S = certified acc. to FAR 33

ROTAX AIRCRAFT ENGINES

912 UL/A/F | 80 hp

- 4-cylinder
- 4-stroke liquid-/air-cooled engine with opposed cylinders
- Dry sump forced lubrication with separate oil tank, automatic adjustment by hydraulic valve tappet
- 2 carburetors
- Mechanical fuel pump
- Dual electronic ignition
- Electric starter
- Propeller speed reduction gearbox



Picture: 912 UL – DCDI with options

ENGINE FACTS

This series was BRP's first Rotax engine dedicated for aircraft application only. The Rotax 912 series is well regarded for its reliability and efficiency and is primarily targeted as the entry level motor in the light aviation industry. The 80 hp version of the Rotax 912 series offers a time between overhauls of 2.000 hours and is available as non-certified (Rotax 912 UL) as well as certified version according to FAR 33 (Rotax 912 F) and JAR 22 (Rotax 912 A).

ENGINE DATA 912 UL¹/F²/A³

WEIGHT	kg	lb
Engine with propeller speed reduction unit i = 2.27	55.4	122.0
Exhaust system	4.0	8.8
Overload clutch	1.7	3.7
External alternator	3.0	6.6
Air guide hood	0.4	0.8
Engine mount	2.0	4.4

PERFORMANCE		
59.6 kW	80 hp	5800 1/min.
TORQUE		
103 Nm	75.9 ft. lb.	4800 1/min.
MAX RPM*		5800 1/min.

* Limited for max. 5 min.

BORE		STROKE	
79.5 mm	3.13 in	61.0 mm	2.4 in
DISPLACEMENT		FUEL	
1211.2 cm ³	73.91 cu in	min. MON 85 RON 91* min. AKI 87*	

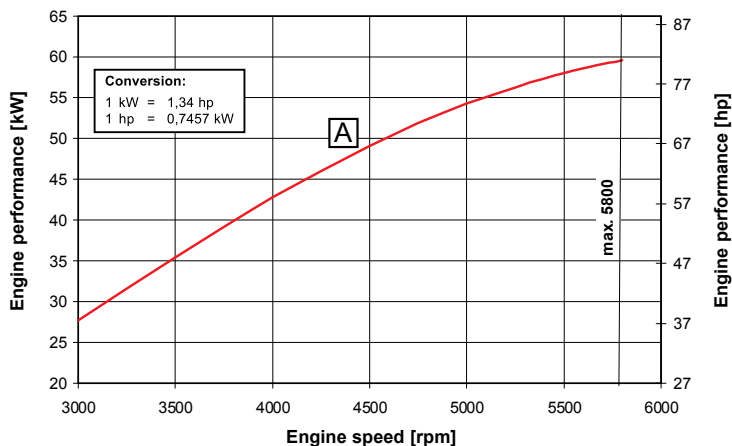
* leaded, unleaded, AVGAS 100LL or E10

1) UL = non-certified

2) F = certified acc. to FAR 33

3) A = certified acc. to JAR 22

ENGINE PERFORMANCE



ROTAX AIRCRAFT ENGINES

914 UL/F | 115 hp

- 4-cylinder
- 4-stroke liquid-/air-cooled engine with opposed cylinders
- With turbo charger
- With automatic waste gate control
- Dry sump forced lubrication with separate oil tank
- Automatic adjustment by hydraulic valve tappet
- 2 carburetors
- Dual electronic ignition
- Electric starter
- Propeller speed reduction gearbox
- Engine mount assembly
- Air intake system
- Exhaust system



Picture: 914 UL – DCDI with options

ENGINE FACTS

The turbo charged Rotax 914 series offers more performance at high altitudes while delivering lower weight engines.

This series offers a time between overhauls of 2.000 hrs and is available as non-certified version (Rotax 914 UL) and certified version (Rotax 914 F) according to FAR 33 and JAR-E.

ENGINE DATA 914 UL¹/F²

WEIGHT	kg	lb
Engine with propeller speed reduction unit i = 2.43	64.0	140.8
Exhaust system	4.0	8.8
Engine mount	2.0	3.7
Overload clutch	1.7	3.7
External alternator	3.0	6.6

PERFORMANCE		
84.5 kW	115 hp	5800 1/min.
TORQUE		
144 Nm	106 ft. lb.	4900 1/min.
MAX RPM*		5800 1/min.

* Limited for max. 5 min.

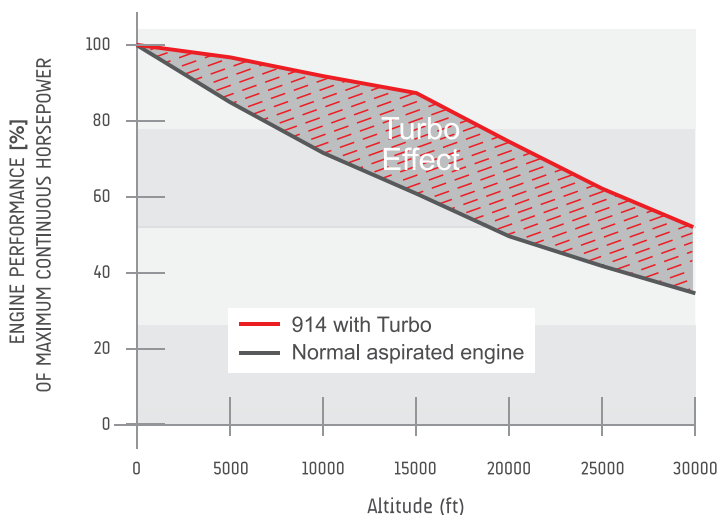
BORE		STROKE	
79.5 mm	3.13 in	61.0 mm	2.4 in
DISPLACEMENT		FUEL	
1211.2 cm ³	73.91 cu in	min. MON 85 RON 85* min. AKI 91*	

* leaded, unleaded, AVGAS 100LL or E10

1) UL = non-certified

2) F = certified acc. to FAR 33 and JAR-E

TURBO EFFECT



ROTAX AIRCRAFT ENGINES

582 UL | 65 hp

- 2-cylinder
- 2-stroke liquid-cooled engine with rotary valve intake
- Dual electronic ignition
- Integrated water pump and thermostat
- Exhaust system
- Carburetors



Picture: 582 with options

ENGINE FACTS

Over 30.000 units of this popular Rotax 2-stroke engine have been sold. This engine type is well regarded for its easy maintenance and robustness.

ENGINE DATA 582 UL

WEIGHT	kg	lb
Engine	29.1	64.0
2 Carburetors	1.8	4.0
Exhaust system	5.1	11.2
Electric starter	3.5	7.7
Propeller speed reduction unit "B" / i = 2.58	4.5	9.9
Propeller speed reduction unit "C" / i = 2.62 / 3.0 / 3.47 / 4.0	8.0	17.6
Propeller speed reduction unit "E" / i = 2.62 / 3.0 / 3.47 / 4.0	11.2	24.7

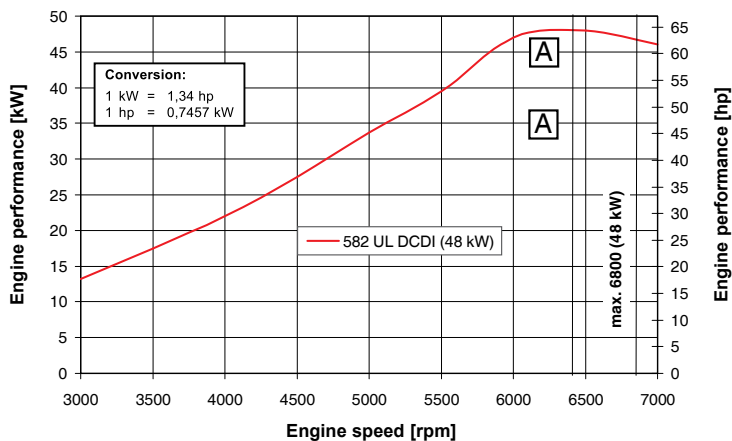
PERFORMANCE		
48 kW	65 hp	6500 1/min.
TORQUE		
75 Nm	55.3 ft. lb.	6000 1/min.
MAX RPM		6800 1/min.

BORE		STROKE	
76.0 mm	2.99 in	64.0 mm	2.52 in
DISPLACEMENT		FUEL	
580 cm ³	35.4 cu in	min. MON 83 RON 91* min. AKI 87*	
MOTOROIL		MIXING RATIO	
2 Super Stroke – Motoroil API-TC-Classification**		1:50 or optional with fresh oil pump	

* leaded, unleaded, AVGAS 100LL or Ethanol 10

** please check relevant service instructions for information

ENGINE PERFORMANCE





THE WORLD IS OUR PLAYGROUND

Nothing is more valuable than your playtime. That is why BRP is dedicated to continually finding new and better ways to help you enjoy your favorite power sports. From snow to water to both on- and off-road fun, our passion for adventure fuels the innovations that result in the ultimate power sports experience for our customers.



We value the land and water we play on and are committed to protecting it. Our desire to thrill is paired with an emphasis on rider responsibility, placing personal safety above all else. So that each outing can be the most enjoyable, memorable and thrilling experience possible. Because your free time should always be your best time.

www.brp.com



SKI-DOO® LYNX® SEA-DOO® EVINRUDE®
JOHNSON® ROTAX® CAN-AM®

1) Source: Midwest Flyer Magazine, Feb./March 2010, Article by Ed Leinenweber.

2) Based on cruise power setting at 5.000 rpm at 5.000 ft MSL and comparable fuel consumption according to the following sources (Feb. 2012):

www.tcmlink.com/EngSpecSheetDocs/O200B.pdf, www.lycoming.com/news-and-events/pdfs/233-engine.pdf, www.jabiru.net.au/images/6-cylinder/3300%20Aero%20Engine%20Flyer.pdf, Costs of fuel: Mogas EUR 1,60 / liter and Avgas EUR 2,408 / liter - airport Wels 1. Feb. 2012

Note: ROTAX® UL aircraft engines do not comply with federal safety regulations for standard aircraft. This engine is for use in experimental and ultralight uncertified aircraft only and only in circumstances in which an engine failure will not compromise safety. Before operating the engine read operator's manual. Information is available from your local authorized ROTAX®-distributor.

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