

TYPE CERTIFICATE

EASA.E.122

This Type Certificate is issued by EASA, acting in accordance with Regulation (EC) No. 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation and in accordance with Commission Regulation (EU) No. 748/2012 to

BRP-ROTAX GmbH & Co KG

ROTAXSTRASSE 1
4623 GUNSKIRCHEN
AUSTRIA

and certifies that the product type design listed below complies with the applicable Type Certification Basis and environmental protection requirements when operated within the conditions and limitations specified on the associated:

Type Certificate Data Sheet Number: EASA.E.122

Type Design:

Rotax 914 Series

Model:

Rotax 914 F2
Rotax 914 F3
Rotax 914 F4

Date of Issue:

15 May 1996
15 May 1996
15 May 1996

For the European Aviation Safety Agency

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TYPE CERTIFICATE – 10026501 – BRP-ROTAX GmbH & Co KG – 301057





TYPE-CERTIFICATE DATA SHEET

No. E.122

for Piston Engines

Rotax 914

Type Certificate Holder

BRP-Rotax GmbH & Co KG

Rotaxstraße 1

A-4623 Gunskirchen

Austria

For Models: Rotax 914 F2
 Rotax 914 F3
 Rotax 914 F4

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I. General

1. Type/ Model/ Variants

Rotax 914/ Rotax 914 F2, Rotax 914 F3, Rotax 914 F4

2. Type Certificate Holder

BRP-Rotax GmbH & Co KG
Rotaxstraße 1
A-4623 Gunskirchen, Austria
DOA EASA.21J.048

3. Manufacturer

As above

4. Date of Application

Date of Application according FAR 33:

Certification Basis	Rotax 914 F2	Rotax 914 F3	Rotax 914 F4
FAR 33	20 December 1993	20 December 1993	20 December 1993

Date of Application according JAR-E:

Certification Basis	Rotax 914 F2	Rotax 914 F3	Rotax 914 F4
JAR-E	29 June 1995	29 June 1995	29 June 1995

5. EASA Type Certification Date

Rotax 914 F2	Rotax 914 F3	Rotax 914 F4
15 May 1996	15 May 1996	15 May 1996

Note: EASA type certificate for all these models is granted in accordance with article 2 paragraph 3(a) of EU Commission Regulation 1702/2003 replacing the BAZ/ACG Austria certification of these products (Austrian Type Certification no. TW10-ACG).



II. Certification Basis

1. State of Design Authority Certification Basis

Not applicable

2. Reference Date for determining the applicable airworthiness requirements

Refer to section 4 (Date of Application) of part I. General.

3. EASA Certification Basis

3.1. Airworthiness Standards

FAR Part 33 Amdt. 15

Elect to Comply: FAA NPRM Doc. # 24922, Notice no. 92-14

JAR-E Change 9, dated 21 October 1994

3.2. Special Conditions (SC)

SC1 Turbo Charger Control Unit

3.3. Equivalent Safety Findings

Propeller governor:

Conformity with FAR 33.25, attachment of components has been proven.

3.4. Deviations

None

3.5. Environmental Protection

None (not required for piston engines)



III. Technical Characteristics

1. Type Design Definition

As defined by the type design definition no. 30.914.0033

2. Description

The ROTAX 914 engine is a 4-stroke engine with turbo super charger and electronic turbo charger control unit (TCU) 4 cylinder horizontally opposed, spark ignition engine with, propeller drive via integrated reduction gear, liquid cooled cylinder heads, ram-air cooled cylinders, dry sump forced lubrication.

Bore	79,5 mm	3.13 in.
Stroke	61 mm	2.40 in.
Displacement	1211 cm ³	73.9 cu.in.
Compression ratio	9:1	
Gear ratio (crankshaft : propeller shaft)	2,4286:1	

Model 914 F2

Basic model: 4 cylinder, horizontally opposed, 4-stroke engine with turbo supercharger and electronic turbocharger control unit, one central camshaft, push-rods, overhead valves, liquid cooled cylinder heads, ram-air cooled cylinders, dry sump forced lubrication, dual breakerless capacitor discharge ignition, two constant depression carburetors, two electrical fuel pumps, fixed pitch propeller configuration, drive output via reduction gear with integrated shock absorber and overload protection, superior steel exhaust system, engine mount, electric starter, integrated AC generator, vacuum pump drive (optional), external alternator (optional).

Model 914 F3

Same as 914 F2, except: additional drive and adapter for hydraulic governor, hydraulic governor and propeller shaft for constant speed propeller

Model 914 F4

Same as 914 F3, except: prepared for hydraulic governor for constant speed propeller (without drive, adapter and governor).

3. Equipment

Description	German	English
See Illustrated Parts Catalog (IPC)	ETK-914	IPC-914



4. Dimensions

Description	mm	in.
Overall length	665,1	26.19
Overall height	531,0	20.90
Overall width	576,0	22.68

5. Dry Weight

Description	kg	lbs.
With ignition unit and internal generator, carburetors, turbocharger, TCU, engine suspension frame, overload clutch, muffler, oil tank and electric starter but without fuel pumps and radiator	71,7	158
With propeller flange P.C.D. 75/80 mm/4 in., drive gear, adapter and hydraulic governor for constant speed propeller	74,4	164
External alternator	3,0	6.61
Center of gravity: see Installation Manual EBHB-914 (German), IM-914 (English)	-	-

6. Ratings

*) see note 4

Description	kW	hPa*)	in.HG*)	rpm
Max. continuous performance at sea level pressure altitude up to critical altitude of 16000 ft / 4875 m (with turbo control unit Version 4.3 / Rotax 21, up to engine s/n 4,420.199)	73,5	1150	34.0	5500
Max. continuous performance at sea level pressure altitude up to critical altitude of 16000 ft / 4875 (with turbo control unit Version 4.6 / Rotax 99, from engine s/n 4,420.200 onwards)	73,5	1180	34.9	5500
Take-off performance (max. 5 minutes) at sea level pressure altitude up to critical altitude of 8000 ft / 2450 m (with turbo control unit Version 4.3 / Rotax 21, up to engine s/n 4,420.199 onwards)	84,5	1300	38.4	5800
Take-off performance rpm (max. 5 minutes) at sea level pressure altitude up to critical altitude of 8000 ft / 2450 m (with turbo control unit Version 4.6 / Rotax 99, from engine s/n 4,420.200 onwards)	84,5	1320	39.0	5800



7. Control System

All Rotax 914 engines are equipped with an electronic turbo charger control unit (TCU). Refer to the Installation / Operator's Manuals for further information.

8. Fluids (Fuel, Oil, Coolant, Additives)

Fuel

Description	German	English
See Operator's Manual	HB-914	OM-914
See Service Instruction	SI-914-019	SI-914-019

Oil

Description	German	English
See Operator's Manual	HB-914	OM-914
See Service Instruction	SI-914-019	SI-914-019

Coolant

Description	German	English
See Operator's Manual	HB-914	OM-914
See Service Instruction	SI-914-019	SI-914-019

9. Aircraft Accessory Drives

Model 914 F series							
Accessory	F2	F3	F4	Rotation facing drive pad	Speed ratio to crankshaft $i = 2,4286$	max. torque Nm	max. overhang moment Nm
Starter	*	*	*	CW	25,25:1	0,5	-
Alternator	**	**	**	CCW	1,24:1	1,6	-
Vacuum pump	**	-	**	CCW	0,548:1	0,9	0,4
Governor	-	*	-	CCW	0,548:1	1,8	1,04
Fuel pump	*	*	*	CW	0,41:1	-	0,14
Tachometer	**	**	**	CW	0,25:1	-	-
Water pump	*	*	*	CCW	0,87:1	0,5	-
Oil pump	*	*	*	CCW	0,50:1	0,7	-
" - "	Indicates "does not apply"						
" * "	Standard						
" ** "	Optional						
" CW "	Clockwise						
" CCW "	Counter-clockwise						



10. Maximum Permissible Air Bleed Extraction

Not applicable

IV. Operating Limitations

1. Temperature Limits

914 F series:

Temperature limits (max. permissible)	°C	°F
Cylinder head temperature in use of conventional coolant	135	275
Coolant exit temperature in use of conventional coolant (according installation manual EBHB-914 (German), IM-914 (English) and operator's manual HB-914 (German), OM-914 (English))	120	248
Cylinder head temperature in use of waterless coolant	135	275
Oil temperature at inlet	130	266
Air temperature maximum	72	161.6
Airbox temperature maximum, from engine s/n 4,420.200 onwards) see note 4	88	190.4

914 F series (engine type designation extended with suffix "-01"):

Temperature limits (max. permissible)	°C	°F
Coolant temperature (according installation manual EBHB-914 (German), IM-914 (English) and operator's manual HB-914 (German), OM-914 (English))	120	248
Oil temperature at inlet	130	266
Air temperature maximum	72	161.6
Airbox temperature maximum, from engine s/n 4,420.200 onwards) see note 4	88	190.4

2. Speed Limits

Description	1/min	rpm
Take-off speed, maximum 5 minutes	5800	
Max. continuous speed	5500	



3. Pressure Limits

3.1 Fuel Pressure

Fuel pressure at carburettor inlet		bar	psi
Minimum	airbox pressure +	0,15	2.18
Maximum	airbox pressure +	0,35	5.08
Normal	airbox pressure +	0,25	3.63

3.2 Oil Pressure

Oil pressure	bar	psi
Normal operating range above 3500 rpm	2,0 ÷ 5,0	29 ÷ 72.5
Normal operating range above 3500 rpm up to incl. s/n 4,420.085	1,5 ÷ 5,0	21.76 ÷ 72.5
Minimum below 3500 rpm	0,8	11.6
Minimum below 3500 rpm up to incl. s/n 4,420.085	1,5	21.76
At cold start and warming up period (maximum)	7,0	101.5

3.3 Manifold Pressure

Manifold Pressure	hPa	in.Hg.
Take-off power (maximum *) see note 4	1350	39.9
Take-off power (minimum *) see note 4	1300	38.4
Max. continuous power *) see note 4	1200	35.4
Min. continuous power *) see note 4	1150	34.0

4. Oil capacity, consumption limit

Engine oil	Lit	liq pt	US gal.
Oil capacity (maximum-mark tank)	3,0	6.34	0.79
Oil capacity (minimum-mark tank)	2,5	5.28	0.66
Oil consumption per hour (maximum)	0,06	0.127	0.016



5. Accelerations

Time limit for engine operations at weightless condition and with negative gravity acceleration is max. 5 sec. at max. -0.5 g.

V. Operating and Service Instructions

Description	German	English
Operator's Manual	HB-914	OM-914
Installation Manual	EBHB-914	IM-914
Maintenance Manual Line	WHBL-914	MML-914
Maintenance Manual Heavy	WHBH-914	MMH-914
Overhaul Manual	GHB-914	OHM-914
Overhaul Manual, Appendix	GHBA-914	OHMA-914
Illustrated Parts Catalog	ETK-914	IPC-914
Service Bulletins, Service Instructions and Service Letters	as issued	as issued

VI. Notes

Note 1: Generator / Alternator parallel operation

For the certification of the optional external alternator the aerospace standard AS 8020 has been determined as applicable requirement.

However compliance to the applicable parts for parallel operation of the internal generator (as integrated part of the engine) and the optional external alternator has not been demonstrated.

Note 2: Vacuum pump

Conformity with FAR 33.25 attachment of component has been proven.

Note 3: TBO

For recommended TBO see Service Bulletin SB-914-027.

Note 4: TCU

Built standard and software status is defined in "Software Accomplishment Summary" Certification Report no. 18.

Note 5: 914 F engine type designation extended with suffix "-01"

New cylinder heads have been introduced for the Rotax 914 F engine series in order to standardize the cylinder head raw part with the Rotax 912 iSc Sport engine series. As a result the measurement position of the temperature sensor on the cylinder head has changed as well as the measurement medium (former aluminium, now coolant).



As a consequence for all Rotax 914 F engines which type designations are extended with suffix “-01” the engine temperature measurement methods have been amended from CHT (cylinder head temperature) and CT (coolant temperature) to only CT (coolant temperature). Therefore only the coolant temperature limit applies.

Exemplification for identification: “Rotax 914 F3 -01”

For further details refer to Service Bulletins SB-914-047 and SB-914-049 (respectively latest revision).

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

ACG	Austro Control GmbH
AS 8020	Aerospace Standard: General minimum performance standards for generators/starter-generators and associated voltage regulators for use in direct current (DC) electric systems for civil aircraft
AVGAS	Aviation Gasoline
CHT	Cylinder Head Temperature
CT	Coolant Temperature
CW	clockwise
CCW	counter-clockwise
CS-E	Certification Specifications Engines
EASA	European Aviation Safety Agency
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
HIRF	High Intensity Radiated Fields
IM	Installation Manual
IPC	Illustrated Parts Catalog
JAR	Joint Aviation Requirements
JAR-E	Joint Aviation Requirements Engines
MMH	Maintenance Manual Heavy
MML	Maintenance Manual Line
OM	Operators Manual
OHM	Overhaul Manual
OHMA	Overhaul Manual, Appendix
rpm	revolutions per minute
RTCA	Radio Technical Commission for Aeronautics
SB	Service Bulletin
SI	Service Instruction
TBO	Time between Overhaul
TCDS	Type Certificate Data Sheet
TCU	Turbo Control Unit



II. Type Certificate Holder Record

Before June 15, 2016	BRP-Powertrain GmbH & Co KG Rotaxstraße 1 A-4623 Gunskirchen Austria DOA EASA.21J.048
Before March 15, 2014	BRP-Powertrain GmbH & Co KG Welser Straße 32 A-4623 Gunskirchen, Austria
Before February 3, 2009	BRP-Rotax GmbH & Co. KG Welser Straße 32 A-4623 Gunskirchen, Austria DOA EASA.21J.048
Before June 16, 2004	Bombardier-Rotax GmbH & Co. KG Welser Straße 32 A-4623 Gunskirchen, Austria
Before December 29, 2001	Bombardier-Rotax Gesellschaft mbH Welser Straße 32 A-4623 Gunskirchen, Austria

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	02 April 2007	Initial Issue	Initial Issue, 02 April 2007
Issue 02	01 April 2008	Change of illustrated parts catalogue no., installation manual no., maintenance manual no., overhaul manual no. and operator's manual no.	Initial Issue, 02 April 2007
Issue 03	26 February 2010	Change of company name from BRP-Rotax GmbH & Co.KG to BRP-Powertrain GmbH & Co KG, detailing of the history of type certificate holder.	Issue 1, 26 February 2010
Issue 04	14 May 2014	Change of the street name of type certificate holder from Welser Straße 32 to Rotaxstraße 1	TE.TC.00090-002, 14 May 2014
Issue 05	14 April 2014	TCDS with new layout: TE.CERT.00052-001; Major Change: CHT/CT Measurement Method EASA Proj. No. 0010035055;	14 April 2014
Issue 06	05 Sept. 2016	Name change to BRP-Rotax GmbH & Co KG as of June 15, 2016	

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