

**MINISTÉRIO DA AERONÁUTICA  
DEPARTAMENTO DE PESQUISAS E DESENVOLVIMENTO  
CENTRO TÉCNICO AEROESPACIAL**

**TYPE CERTIFICATE DATA SHEET Nº EM-1999T02**

Type Certificate Holder:

**BOMBARDIER- ROTAX GmbH**  
Welser Straße 32  
A-4623 Gunskirchen  
ÁUSTRIA

EM-1999T02

Sheet 01

ROTAX

914F2

914F3

914F4

February 1999

Engines of models described herein conforming with this data sheet, which is part of Type Certificate No. 1999T02, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Brazilian Aeronautical Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other instructions.

<b>MODEL</b>	914F2, 914F3, 914F4		
<b>TYPE</b>	Four cylinder, horizontally opposed, four stroke engine with turbosupercharger and electronic turbocharger control unit, reduction gear driven, liquid cooled cylinder heads, ram air cooled cylinders, dry sump pressure lubrication		
<b>RATINGS</b>	914F2	914F3	914F4
	Max. Continuous, hp - rpm full throttle at:		
	Sea level pressure altitude:	100 - 5 500	100 - 5 500
	Takeoff (5 min.), hp - rpm full throttle at:		
	Sea level pressure altitude:	115 - 5 800	115 - 5 800

		914F2	914F3	914F4
<b>FUEL TYPE</b>	Regular gasoline, unleaded, minimum RON 95 EN 228 Super, EN 228 Super plus or AVGAS 100 LL		All models	
<b>CARBURETION / INJECTION</b>	2 x BING constant pressure carburetor type 64/32 main nozzle 162		All models	
<b>OIL, LUBRICATION</b>	Oil capacity (l):	3	--	--
	Oil specification: see operator's manual:	P/N 897 810	--	--
<b>TEMPERATURE LIMITS</b>	Maximum permissible:			
	Cylinder head, °C:	135	--	--
	Oil inlet, °C	130	--	--
<b>PRESSURE LIMITS</b>	See Note 1		All models	
<b>IGNITION</b>	Dual Magnetos:	See Note 3	--	--
	Timing – Ignition Circuit A:	26° BTDC	--	--
	Ignition Circuit B:	22° BTDC	--	--
	Spark plugs:	See Note 3	--	--
<b>COMPRESSION</b>	Bore, mm:	79.5	--	--
	Stroke, mm:	61	--	--
	Displacement, cm <sup>3</sup> :	1211	--	--
	Compression rate:	9.0:1	--	--
<b>WEIGHT</b>	See Note 4	74.7	77.4	74.7
<b>CENTER OF GRAVITY</b>	See Installation Manual		All models	
<b>PROPELLER SHAFT- SPECIFICATIONS</b>	See Wartunshandbuch P/N: 897782 Chapter 8.5.10		All models	

914F2      914F3      914F4

**COOLANT**                      See operator's manual:                      P/N 897 810                      --                      --

**REDUCTION GEAR RATIO**    2.4286:1    All models

“--” Indicates same as preceding

**IMPORT REQUIREMENTS**    Each engine imported separately and/or spare parts must be accompanied by an Airworthiness Certificate for Export issued by ACG, attesting that the particular engine and/or parts were submitted to the governmental quality control before delivery and are in conformity with the CTA approved type design.

<b>CERTIFICATION BASIS</b>	RBHA 33 (Brazilian Requirements for Aeronautical Certification), which endorses the FAR 33 Amendt. 15		Application	Issued TC
		914F2	16 Sept. 1996	03 Feb. 1999
		914F3	16 Sept. 1996	03 Feb. 1999
		914F4	16 Sept. 1996	03 Feb. 1999

**NOTES**

**NOTE 1**    Pressure Limits:

Fuel pressure at inlet to carburetor:

- Max. airboxpressure + 0.35 bar (5.0)
- Min. airboxpressure + 0.15 bar ( 2.1psi)
- Normal airboxpressure + 0.25 bar (3.6 psi)

Oil pressure:

- Min. 1.5 bar (22 psi)
- Max. 7 bar (102 psi)
- Normal operation 1.5 bar – 5 bar (22 – 73 psi)

**NOTE 2** Accessory drive or mounting provisions

Accessory	914F2	914F3	914F4	Rotation facing Drive Pad	Speed Ratio to Crankshaft	Max. Torque (Nm)	Max. Overhang Moment (Nm)
Starter	*	*	*	C	25.25:1	0.5	#
Alternator	**	**	**	CC	1.24:1	1.6	#
Vacuum Pump	**	#	**	CC	0.54:1	0.9	0.4
Governor	#	*	#	CC	0.54:1	1.8	1.04
Tachometer	**	**	**	C	0.25:1	#	#
Water Pump	*	*	*	CC	0.87:1	0.5	#
Oil Pump	*	*	*	CC	0.5:1	0.7	#
"#" Does not apply	* Standard		** Optional	"C" Clockwise	"CC" Counter Clockwise		

**NOTE 3** Equipment:

- Turbocharge: Exhaust gas turbochager Garret T25 with wastegate, P/N 887120.
- Turbo Control Unit: Contec Electronic TUR 31.3, P/N 996470, See Note 12.
- Fuel pump: 2 x electrical Pierburg fuel pump, P/N 996735.
- Ignition system: ROTAX Dual magnetic high-voltage condenser ignition, contless SMD type, P/N 886675.
- Spark plugs: ND X27EPR-U9, P/N 897257.
- Integrated generator: DUCATI, permanent magnet generator with external rectifier regulator.
- External alternator: NIPPODENSO F3A with integrated regulator (optional), P/N 887251.
- Starter: NIPPODENSO 12V / 0.6 KW, engagement via reduction gear and freewheel.
- Vacuum pump: AIRBORN 211C, incl. drive (optional).
- Rpm counter: Electronic tachometer, mechanical tachometer (optional).
- Governor: WOODWARD () 21 786 (F3 only), P/N 886730, See Note 10.

**NOTE 4** Engine weight

Version F2 / F4	77.4 Kg	With carburetors, generator, ignition and oil tank, electric starter, muffler, engine mount, turbosupercharger and control unit ( without radiator )
Version F3	74.7 Kg	Similar to F2 except propeller shaft flange and additional drive for hydraulic governor for constant speed propeller .
External alternator	3.0 Kg	

**NOTE 5** Model description

Basic Model F2	Four cylinder, horizontally opposed, four stroke engine with turbosupercharger and electronic turbocharger control unit, one central camshaft, push-rods-OHV, liquid cooled cylinder heads, ram air cooled cylinders, dry sump forced lubrication, dual breaker less capacitor discharge ignition, 2 constant depression carburetors, 2 electrical fuel pumps, propeller shaft with flange for fixe pitch propeller, drive via reduction gear with integrated shock absorber and overload protection , superior steel exhaust system, engine mount, electric starter, integrated DC generator
F3	Similar to F2, except propeller shaft with flange and additional drive for hydraulic governor for constant speed propeller.
F4	Similar to F3, except propeller shaft with flange for fixe pitch propeller, prepared for installation of a hydraulic governor for constant speed propeller (without drive and governor)

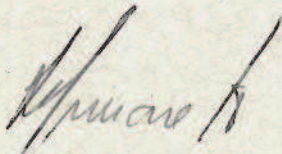
**NOTE 6** Operating and Service Instructions:

Operator's Manual for Rotax 914 F series Aircraft Engine - P/N 897 810  
Installation Manual for Rotax 914 F series Aircraft Engine - P/N 897 816  
Maintenance Manual for Rotax 914 F series Aircraft Engine - P/N 897 812  
Overhaul Manual for Rotax 914 series Aircraft Engine -P/N 897 814

**NOTE 7** Engine overhaul:


May only be accomplished by engine manufacturer until such time as the Engine Overhaul Manual is published

- NOTE 8** 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 been demonstrated.
- NOTE 9** Vacuum Pump:  
Compliance has only been shown to the attachment requirements specified in FAR 33.25
- NOTE 10** Governor:  
Compliance has only been shown to the attachment requirements specified in FAR 33.25
- NOTE 11** Parts Identification and Marking:  
Is subject of ROTAX "Technisches Betriebshandbuch" Section C, VA-No. LG-11-001/B or later approved revision.
- NOTE 12** Built standard and software status is defined in "Software Accomplishment Summary" Certification Report No. 18



**LUIZ ALBERTO C. MUNARETTO – Ten.-Cel.-Av.**

**Chefe da Divisão de Homologação Aeronáutica  
(Chief, Divisão de Homologação Aeronáutica)**



**Maj.-Brig.-do-Ar REGINALDO DOS SANTOS**

**Diretor do Centro Técnico Aeroespacial  
(Director, Centro Técnico Aeroespacial)**