European Aviation Safety Agency

EASA

TYPE-CERTIFICATE
DATA SHEET

Number : E.208
Issue : 01
Date : 26 February 2010
Type : BRP-Powertrain GmbH & Co KG
Rotax 501 / Rotax 505 series engines

Models

Rotax 501
Rotax 505
Rotax 505 without decompressor
Rotax 505 A
Rotax 505 A without decompressor

List of effective Pages:

Page	1	2	3	4	5	6	7											
Issue	1	1	1	1	1	1	1											

Intentionally left blank

I. General

1. Type / Models:

Rotax 501
Rotax 505
Rotax 505 without decompressor
Rotax 505 A
Rotax 505 A without decompressor

2. Type Certificate Holder:

Since February 3, 2009	BRP-Powertrain GmbH & Co KG Welser Straße 32 A-4623 Gunskirchen, Austria DOA EASA.21J.048
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

3. Manufacturer:

As above

4. Certification Application Date:

Rotax 501	Rotax 505	Rotax 505 without decompressor	Rotax 505 A	Rotax 505 A without decompressor
09 October 1978	09 October 1978	21 April 1982	28 April 1986	28 April 1986

5. EASA Certification Date:

Rotax 501	Rotax 505	Rotax 505 without decompressor	Rotax 505 A	Rotax 505 A without decompressor
19 December 1978	24 June 1980	21 April 1982	28 April 1986	28 April 1986

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. TW 3/78)

II. Certification Basis

1. Airworthiness Standards:

LFSM 1975, Appendix D, airworthiness requirements for engine powered sailplanes issued by Luftfahrt-Bundesamt Braunschweig, BRD (publication November 1st, 1975)

2. Special Conditions (SC):

none

3. Deviations:

none

4. Equivalent Safety Findings (ESF):

none

5. Environmental Protection Requirements:

none

III. Technical Characteristics

1. Type Design Definition:

As defined the type design definition number 79.501 (for Rotax 501 series engines) and 79.505 (for Rotax 505 series engines)

2. Description:

ROTAX 501 series engine:

2 cylinders in line, two stroke engine, ram air cooling, mixture lubrication, single magneto ignition, 2 diaphragm carburetor, belt driven propeller, electric starter, alternator, fuel pump

Weight (dry):	33,5 kg (with muffler and starter)
Bore:	2 x 72 mm
Stroke:	61 mm
Displacement:	496,7 cm^3
Compression Ratio:	10,8
Crankshaft drive rotation:	counter clockwise (viewed from front)

ROTAX 505 series engine:

2 cylinders in line, two stroke engine, ram air cooling, mixture lubrication, dual magnetic high-voltage condenser ignition, contact less, diaphragm carburetor, propeller drive by belt, electric starter, alternator, fuel pump

Weight (dry):	34,4 kg (with muffler and electric starter)
Bore:	2 x 72 mm
Stroke:	61 mm
Displacement:	496,7 cm^3
Compression Ratio:	10,8
Crankshaft drive rotation:	counter clockwise (viewed from front)

3. Equipment:

ROTAX 501 series engine:

Carburetor:	2 diaphragm carburetor Tillotson type HR., or 2 diaphragm carburetor Mikuni type BN 38
Fuel pump:	Mikuni diaphragm pump
Ignition system:	magneto ignition system (BOSCH) Generator SCP 2, 12 V, 140 W ignition point, 2,1 mm BTC Zündpunkt 2,1 mm v. OT
Spark plugs:	NGK B 8 ES, Bosch W 250 T2
Starter:	Bosch pinon starter, Type DG or screw drive-starter AB
Power drive:	Trapper 1:10, 30 mm ∅
Revolution measurement:	supply for an electronic tachometer, VDO

ROTAX 505 series engine:

Carburetor:	2 diaphragm carburetor Tillotson type HR, or 2 diaphragm carburetor Mikuni type BN 38
Fuel pump:	Mikuni diaphragm pump
Ignition system:	Dual magnetic high-voltage condenser ignition, contactless 12 V 100 W gen. Ignition-box Bosch or Ducati
Spark plugs:	For ignition-box Bosch: B8ES; Bosch W3CC, W3CP For ignition-box Ducati: BR8ES; Bosch WR3CC, WR3CP
Starter:	Bosch pinon starter, Type DG or screw drive-starter AB
Power drive:	Trapper 1:10, 30 mm ∅
Revolution measurement:	supply for an electronic tachometer, VDO

4. Dimension:

not determined

5. Dry Weight:

not determined

6. Ratings:

ROTAX 501 / 505 engine:

	kw	**PS**	**1/min**
Take off power:	31,7	43	6200
max. continous:	29,5	40	6050

ROTAX 505 A engine:

	kw	PS	1/min
Take off power:	31,6	43	6800
max. continous:	31,6	43	6800

7. Fluids (Fuel/Oil/Additives/Coolant):

7.1 Fuel

Fuel: 2 stroke mixture
super gasoline min 96 ROZ or AVGAS 100 LL

Description	Rotax 501 series engines		Rotax 505 series engines	
	German	English	German	English
See Operator's Manual	HB-501	OM-501	HB-505	OM-505
See Service Instruction	n.a.	n.a.	n.a.	n.a.

7.2 Oil

Lubrication: Mixture lubrication
mixing ratio 1:50
with super two stroke oil

Description	Rotax 501 series engines		Rotax 505 series engines	
	German	English	German	English
See Operator's Manual	HB-501	OM-501	HB-505	OM-505
See Service Instruction	n.a.	n.a.	n.a.	n.a.

7.3 Coolant

Description	Rotax 501 series engines		Rotax 505 series engines	
	German	English	German	English
See Operator's Manual	HB-501	OM-501	HB-505	OM-505
See Service Instruction	n.a.	n.a.	n.a.	n.a.

8. Aircraft Accessory Drives:

none

IV. Operational Limitations

1. Temperature Limits:

Cylinder head temperature	max. 250°C
measured with thermo couple under hottest cylinder	

2. Speed Limits:

ROTAX 501 / 505 engine:

max. RPM	6800
recommended Cruising RPM:	6050
idling RPM:	approx. 2000

ROTAX 505 A engine:

max. RPM	6800
recommended Cruising RPM:	6800
idling RPM:	approx. 2000

V. Operational and Service Instructions

Description	**Rotax 501 series engines**		**Rotax 505 series engines**	
	german	**english**	**german**	**english**
Operation- and Maintenance instruction	HB-501	OM-501	HB-505	OM-505
Installation Manual	EBHB-501	n.a.	EBHB-505	n.a.
Repair Manual	RHB-501	RM-501	RHB-505	RM-505
Service Bulletins, Service Instructions and Service Letters	as issued	as issued	as issued	as issued

VI. Notes

Note 1: Fuel consumption

ROTAX 501 / 505 engine:
At 100 % power approx. 22,4 l/h (5,92 Gal/h) and at 75 % power approx. 17,2 l/h (5,54 Gal/h).

ROTAX 505 A engine:
At 100 % power approx. 22 l/h (5,9 Gal/h) and at 75 % power approx. 16 l/h (5,5 Gal/h).
