ROTAX
AIRCRAFT ENGINES

SERVICE INSTRUCTION

INTRODUCTION OF A NEW AIRBOX PART NO. 667167 FOR ROTAX® ENGINE TYPE 914 (SERIES)

SI-914-015

OPTIONAL

Repeating symbols:

Please, pay attention to the following symbols throughout this document emphasizing particular information.

▲ WARNING: Identifies an instruction, which if not followed, may cause serious injury or even death.

■ CAUTION: Denotes an instruction which if not followed, may severely damage the engine or could lead to suspension of warranty.

◆ NOTE: Information useful for better handling.

1) Planning information

1.1) Engines affected

All versions of the engine type:

- 914 F from S/N 4,420.412
  additional: 4,420.395 / 4,420.398 / 4,420.407 / 4,420.409
- 914 UL from S/N 4,418.634
  additional: 4,418.475 / 4,418.488 / 4,418.512 / 4,418.515 / 4,418.523 / 4,418.526 / 4,418.534 / 4,418.550 / 4,418.555 / 4,418.564 / 4,418.580 / 4,418.584 / 4,418.586 / 4,418.601 / 4,418.619 / 4,418.622 / 4,418.624 / 4,418.628 / 4,418.632
- and from airbox S/N 03.0545.

1.2) Concurrent ASB/SB/SI and SL

Further to this Service Instruction the following additional Service Instruction must be observed and complied with:

- SI-914-013,"Introduction of a new airbox" current issue.

1.3) Reason

Due to our comitment to product improvement and to permit further development, a new modified airbox has been introduced.

1.4) Subject

Introduction of a new airbox.

1.5) Compliance

Optional: in case of replacement of the current airbox part no. 667162.

1.6) Approval

The technical content of this document is approved under the authority of MOT, DOA Nr. MOT. JA. 03.

1.7) Manpower

Estimated man-hours:
engine installed in the aircraft - - - manpower time will depend on installation and therefore no estimate is available from the engine manufacturer.

1.8) Mass data

change of weight - - - none.
moment of inertia - - - unaffected.

1.9) Electrical load data

no change

1.10) Software accomplishment summary

no change

d03155

1.11) References

In addition to this technical information refer to current issue of

- Illustrated Parts Catalog (IPC)
- Maintenance Manual (MM)
- all relevant Service Bulletins (SB)

1.12) Other publications affected

None

1.13) Interchangeability of parts

At exchange take care of the following

- parts requirement per engine, see section 2.3.

◆ NOTE: At conversion from airbox part no. 867753 to the new airbox part no. 667167, all work has to be performed in accordance with the SI-914-013 current issue.

2) Material Information

2.1) Material - cost and availability

Price and availability will be supplied on request by ROTAX® Authorized Distributors or their Service Center.

2.2) Company support information

None

2.3) Material requirement per engine

To replace the existing airbox part no. 667162 the following parts are necessary.

Fig. No	New p/n	Qty/engine	Description	Old p/n	Application
-	664860	1	connecting line.		ROTAX® 914
-	667167	1	airboxset	667162	ROTAX® 914
consisting of:					
12		1	airbox assy.		ROTAX® 914
27	851060	1	screw hose clamp 60	851065	Air intake hose
24	641071	1	hex. screw M6x6	-	Airbox
25	230415	1	copper ring	-	Hex. screw
14	244216	1	washer 6.2/14/1	-	Pressure sensor
11	430205	1	o-ring 6,4x1,8 FPM 75	-	Pressure sensor
13	840391	1	machine head screw M6x14	-	Pressure sensor
1	860660	1100 mm	hose 4x7	-	Airbox
30	940558	2	hose nipple	-	Airbox
21	242031	1	hex. nut BM6 DIN 439	-	Airbox
20	940554	1	hose nipple M6	-	Power jet
23	240480	1	plug screw 1/8-27 NPT -		Airbox
18	966060	950 mm	spiral wrap 6.5x8.5x0.6	-	Pressure lines
31	853010	1	cable clamp 32/M6	-	Engine susp. frame
22	960150	1	rubber buffer 20x15xM6	-	Airbox
32	842040	1	lock nut M6	-	Cable clamp
33	927941	1	washer 6.0/12/1	-	Cable clamp

2.4) Material requirement per spare part

Fig. No	New p/n	Qty/engine	Description	Old p/n	Application
-	667167	1	Airbox assy.		ROTAX® 914

2.5) Rework of parts

None

2.6) Special tooling/lubricant-/adhesives-/sealing compound - Price and availability

Price and availability

- Price and availability will be supplied on request by ROTAX® Authorized Distributors or their Service Centers.

parts requirement:

Fig. No	New p/n	Qty/engine	Description	Old p/n	Application
-	899785	as required	LOCTITE® 221	-	Airbox

3) Accomplishment / Instructions

Accomplishment

All the measures must be taken and confirmed by the following persons or facilities:

- ROTAX® -Airworthiness representative
- ROTAX® -Distributors or their Service Centers
- Persons approved by the respective Aviation Authority

▲WARNING: Proceed with this work only in a non-smoking area and not close to sparks or open flames. Switch off ignition and secure engine against unintentional operation. Secure aircraft against unauthorized operation. Disconnect negative terminal of aircraft battery.

▲WARNING: Perform work on a cold engine only.

▲WARNING: Should removal of a locking device (namely lock tabs, self-locking fasteners) be required when undergoing disassembly/assembly, always replace with a new one.

◆ NOTE: All work has to be performed in accordance with the relevant Maintenance Manual.

3.1) General

The modifications concern certain partial adjustment ranges of the new airbox part no. 667167.

3.2) Partial adjustment range modifications are the following:

3.2.1) Laser marking

(See fig. 3)

Laser marking of the airbox with indication of the respective main jet of the relevant carburetor.

3.2.2) Enrichment jet

(See fig. 4)

Position of the enrichment jet (20) have been optimized.

3.2.3) Tube length

(See fig. 4)

Tube length have been adapted to the new enrichment jet position.

3.2.4) Main jet

By the optimization of the airbox also an adaptation of the main jets have been necessary.

Carburetor 1/3 (new part no. 887094): Main jet 156.

Carburetor 2/4 (new part no. 887099): Main jet 158.

3.3) Instruction

3.3.1) Dismantling present airbox part no. 667162

(See fig. 1)

- Remove connecting line of pressure sensor (5).
- Dismantle pressure connections (1) and clamps (2)(19) and pressure sensor (5).
- Disconnect fuel lines (6) by removing banjo bolts (7) of fuel-pressure regulator (8).
- Remove fuel-pressure regulator (8) from airbox.
- Remove airbox.

3.3.2) Setting nozzle-needle position

(See fig. 2)

- Adjust the 1/3 cylinder side carburetor nozzle-needle to position 2 and carburetor 2/4 to position 2 as per currently valid Maintenance Manual 914 F.

■ CAUTION: The above mentioned nozzle-needle position is the basic setting for airbox part no. 667167.

3.3.3) Replace of the main jet

- Conversion the carburetor 1/3 to main jet 156 and carburetor 2/4 to main jet 158 as per currently valid Maintenance Manual 914 F.

3.3.4) Pre-installation

◆ NOTE: The airbox has been factory pre-completed as far as possible.

(See fig. 1 and fig. 5)

- Insert o-ring (11) for pressure sensor (5) into groove of airbox (12). Apply LOCTITE® 221 to allen screw (13) M6x14 and attach pressure sensor, along with washer (14), into airbox. Tightening torque 5 Nm (44.25 in.lb).
- Pre-install fuel-pressure regulator (8) by means of hex. screws (15) M6x16 and lock washers (16). Do not tighten.
- Install 3-way solenoid valve (9) onto airbox. The electric plug-in connection must point to the 2/4 carburetor (17).
- Slightly coat hose nipple (30) with LOCTITE® 221 film and screw into airbox. Tightening torque 3 Nm (26 in.lb).
- Cut pressure connections (1) and spiral wrap (18) into sections as per fig. 4 and cover hose with spiral wrap. Push lines onto fittings as far as they will go and secure with appropriate clamps 8 (2).

■ CAUTION: Take care to use the correct clamps 6, 8 (19) for the 3-way solenoid valve. Distinguishing features: Color is bright gold.

■ CAUTION: You will need to route all pressure connections such that there will be no sharp bends or chafing.

- Screw enrichment jet (20) into the airbox and tighten lock nut (21).

■ CAUTION: The counter sinking on the hexagon must stand perpendicular to the airbox (see fig. 5).

- Screw rubber buffer (22) into airbox.
- Slightly coat plug screw (23) with LOCTITE® 221 film and screw into airbox. Tightening torque 15 Nm (135 in.lb).
- Slightly coat plug hex. screw (24) with LOCTITE® 221 film and screw it into airbox along with washer (25). Tightening torque 5 Nm (44.25 in.lb).

3.3.5) Fitting to engine:

(See fig. 4)

- Slide connection tubes (26) and 2 each hose clamps (27) onto airbox flanges and slip onto the carburetor flange as far as they will go. Afterwards adjust airbox such that it is positioned parallel to the engine suspension frame.

◆ NOTE: The carburetor flange (28) must not be contacting the airbox flange (29) but shall have a clearance of 2 to 5 mm (0.079 to 0.197 in.).

After setting-up, tighten the airbox by the 2 hose clamps (27).

- Slide cable clamp (31) on engine suspension frame and connect to rubber buffer (22) of airbox. Screw on lock nut (32) and washer (33).

◆ NOTE: Take care not to twist rubber buffer (22) while tightening screw.

- Shorten air intake hose (34) to 210 mm (8.267 in.). Slide onto turbocharger and airbox and tighten with hose clamps (27).

◆ NOTE: Lower hose clamp (27) remains the same and may be reused. Replace upper hose clamp (27) with new clamp supplied with airbox.

■ CAUTION: Take care to ensure the airbox is level.

- Adjust fuel lines (6) to fuel-pressure regulator for a stress free fit, such that the banjo bolts (7) can be screwed on easly by hand. Mount ring hose nipples (35) for fuel supply and fuel return with banjo bolt and sealing rings (36) and tighten. Tightening torque 15 Nm (135 in.lb)
- Tighten fuel-pressure regulator. Tightening torque 8 Nm (70 in.lb)
- Connect and check connecting line of the pressure sensor (5).

- Restore aircraft to original operating configuration.
- Connect negative terminal of aircraft battery.

3.4) Test run

Start engine and warm up.

Conduct engine test run including ignition check and leakage test.

3.5) Summary

These instructions (section 3) have to be conducted in compliance with section 1.5.

Approval of translation to best knowledge and judgment - in any case the original text in the German language and the metric units (SI-system) are authoritative.

4) Appendix

the following drawings should convey additional information:

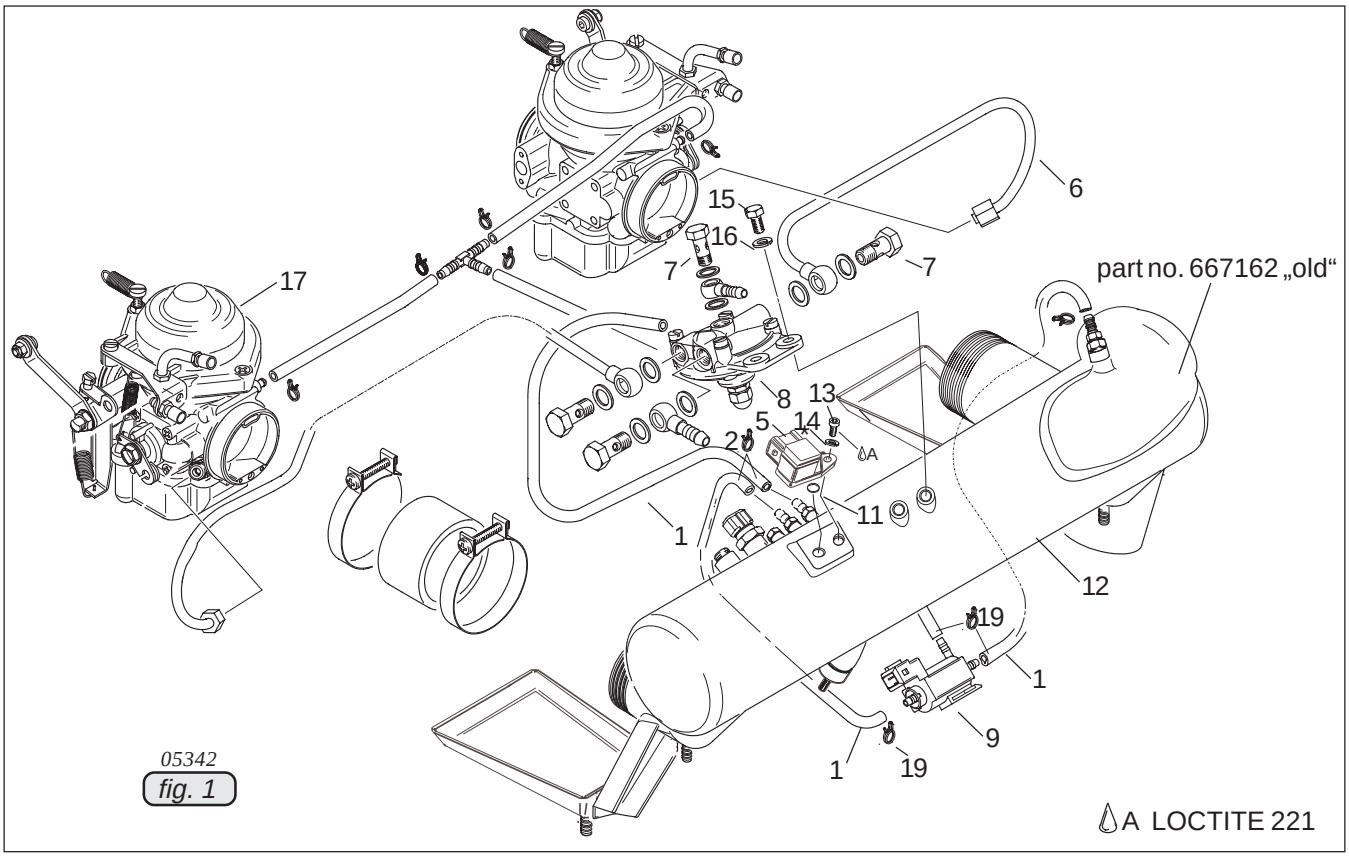

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fig. 1

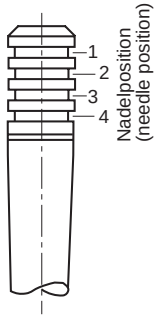

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fig. 2

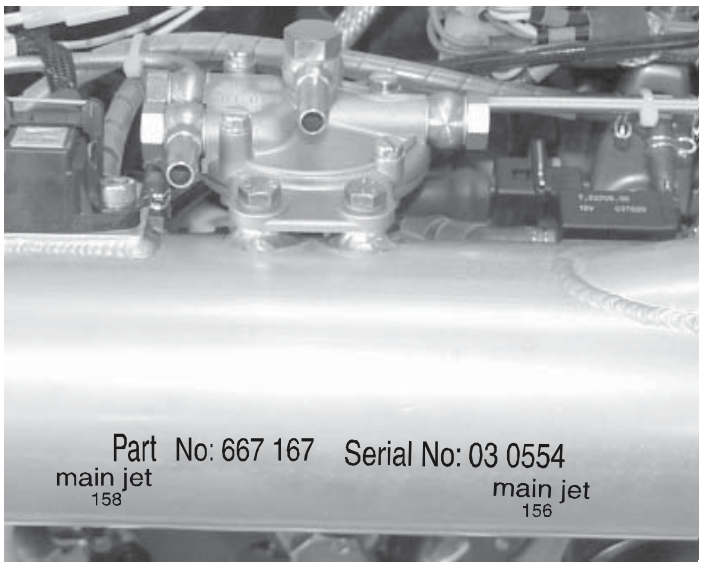

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fig. 3

Identification of the new airbox:
- part no.
- serial No.
- 2x amount of main jet

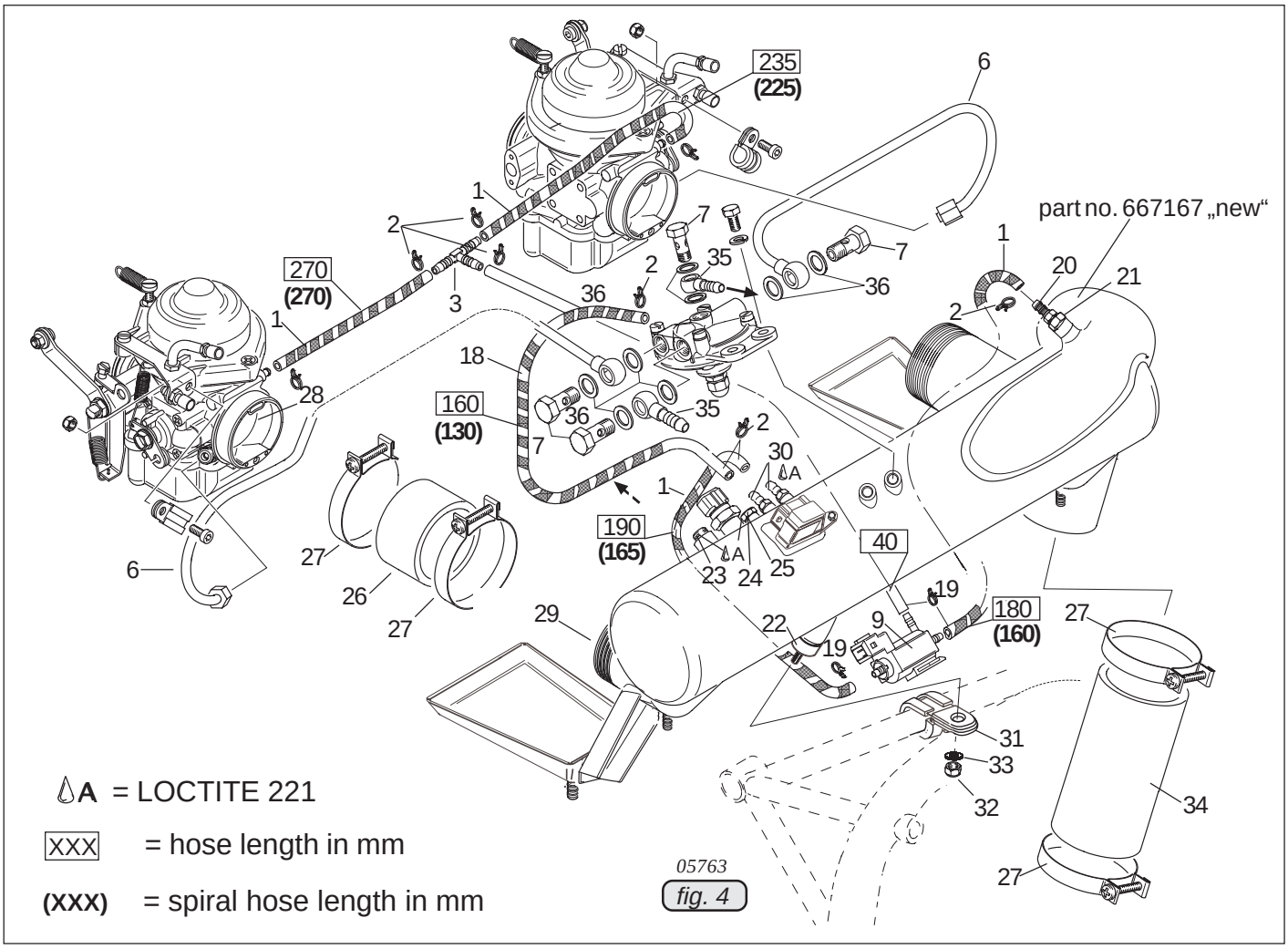

fig. 4

Position of the enrichment jet:
counter sinking on the hexagon

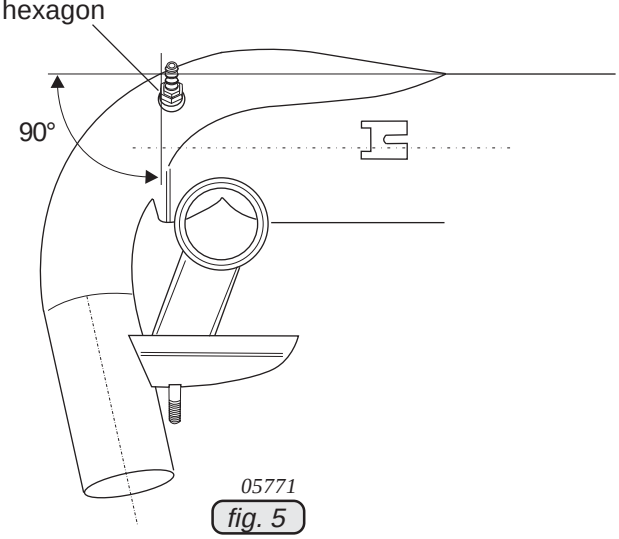

fig. 5

Conversion table

40 mm	1.574 in.	190 mm	7.480 in.
130 mm	5.118 in.	225 mm	8.859 in.
160 mm	6.299 in.	235 mm	9.251 in.
165 mm	6.496 in.	255 mm	10.039 in.
180 mm	7.087 in.	270 mm	10.629 in.

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◆ NOTE: The illustrations in this document show the typical construction. They may not represent full detail or the exact shape of the parts which have the same or similar function.
Exploded views are **not technical** drawings and are for reference only. For specific detail, refer to the current documents of the respective engine type.