



AIRCRAFT ENGINES

SERVICE INSTRUCTION

INTRODUCTION OF A NEW AIRBOX

FOR ROTAX® ENGINE TYPE 914 (SERIES)

SI-914-013

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 starting from S/N 4,420.372
- 914 UL starting from S/N 4,418.269

1.2) Concurrent ASB/SB/SI and SL

Further to this service instruction the following additional service bulletin must be observed and complied with:
- SB-914-003, "Calibration of the mixture enrichment jet" current issue.

1.3) Reason

Due to our commitment 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. 867753.

1.6) Approval

Not required

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

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)

d01899

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.

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. 867753 the following parts are necessary.

Fig. No	New p/n	Qty/engine	Description	Old p/n	Application
37	664860	1	connecting line.		ROTAX [®] 914
-	667162	1	airboxset	867753	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	900 mm	spiral wrap 6.5x8.5x0.6	-	Pressure lines
31	853010	1	cable clamp 32/M6	-	Engine susp. frame
22	960150	1	rubberbuffer 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
-	667162	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
-	-	as required	LOCTITE [®] 221	854381	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) Instructions

3.1.1) Dismantling present airbox part no. 867753

(See fig. 1)

- Remove wiring harness of TCU control.
- Dismantle pressure connections (1) and clamps (2)(19), T-peace for hoses (3), filter (4), and pressure sensor (5).
- Disconnect fuel lines (6) by removing banjo bolts (7) of fuel-pressure regulator (8).
- Disconnect fuel inlet, fuel return, and fuel pressure lines (depending on configuration of airframe) connected to the fuel pressure regulator.
- Remove fuel-pressure regulator (8) from airbox.
- Remove 3-way solenoid valve (9) and clamp (10) from engine suspension frame.

3.1.2) Setting nozzle-needle position

(See fig. 5)

- Adjust the 1/3 cylinder side carburetor nozzle-needle to position 1 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. 667162.

3.1.3) Pre-installation

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

(See fig. 2 and fig. 3)

- 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).
- Cut pressure connections (1) and spiral wrap (18) into sections as per fig. 3 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 in power jet (20) as per latest issue Service Bulletin SB-914-003 "Calibrating Mixture Enrichment Jet" and lock with hex. nut (21).
- 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).

3.1.4) Fitting to engine:

(See fig. 3)

- 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).

- Slightly coat hose nipple (30) with LOCTITE[®] 221 film and screw into airbox. Tightening torque 3 Nm (26 in.lb).

- 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 can be screwed on easily 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)

3.1.5) Mounting new wiring harness / connecting line:

(See fig. 4)

- Connect and check connecting line (extension) (37) part no. 664860 between current wiring harness and airbox pressure sensor.

- Restore aircraft to original operating configuration.

- Connect negative terminal of aircraft battery.

3.2) Test run

Start engine and warm up.

Inspect regulation power jet as per SB-914-003 and adjust if necessary and lock.

Conduct engine test run including ignition check and leakage test.

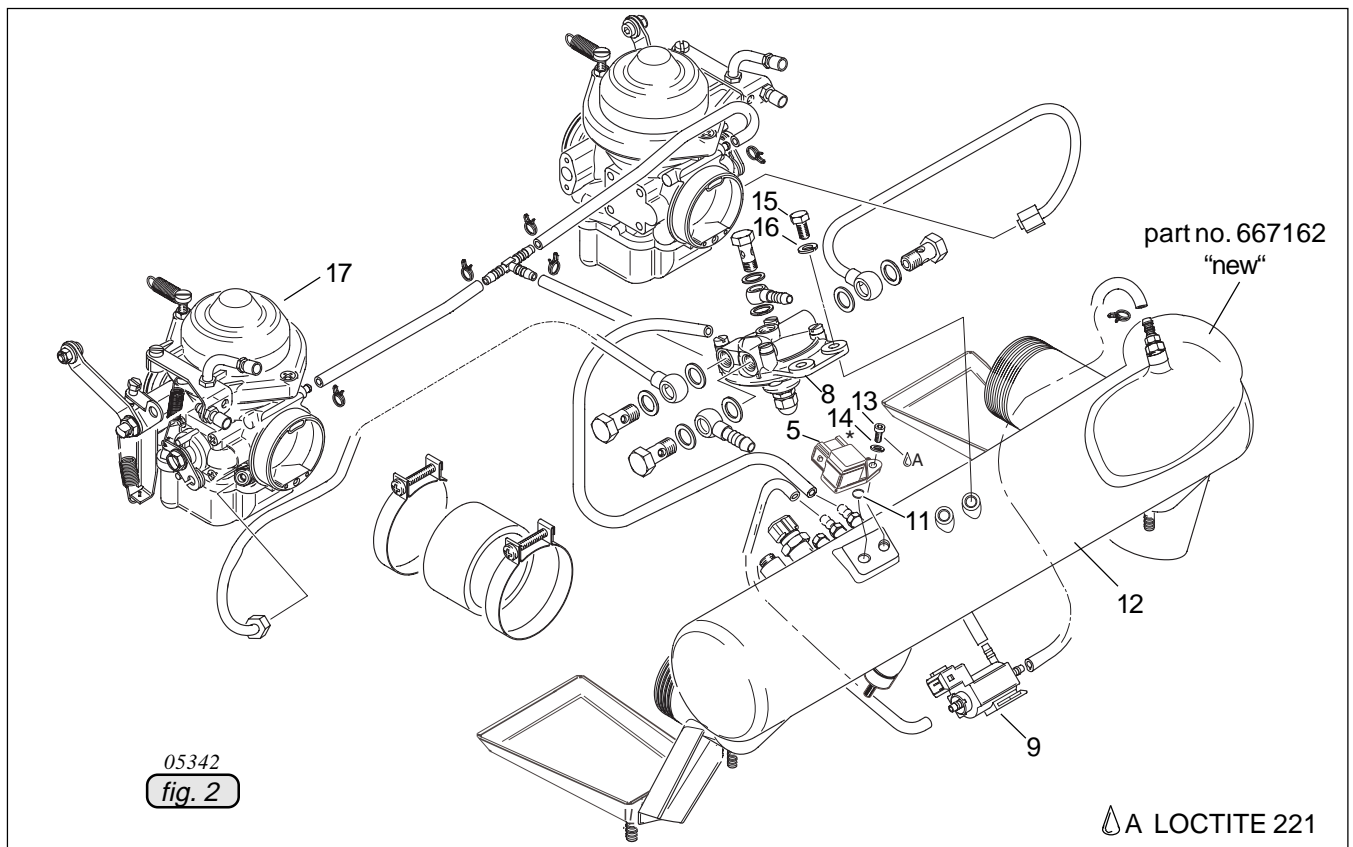
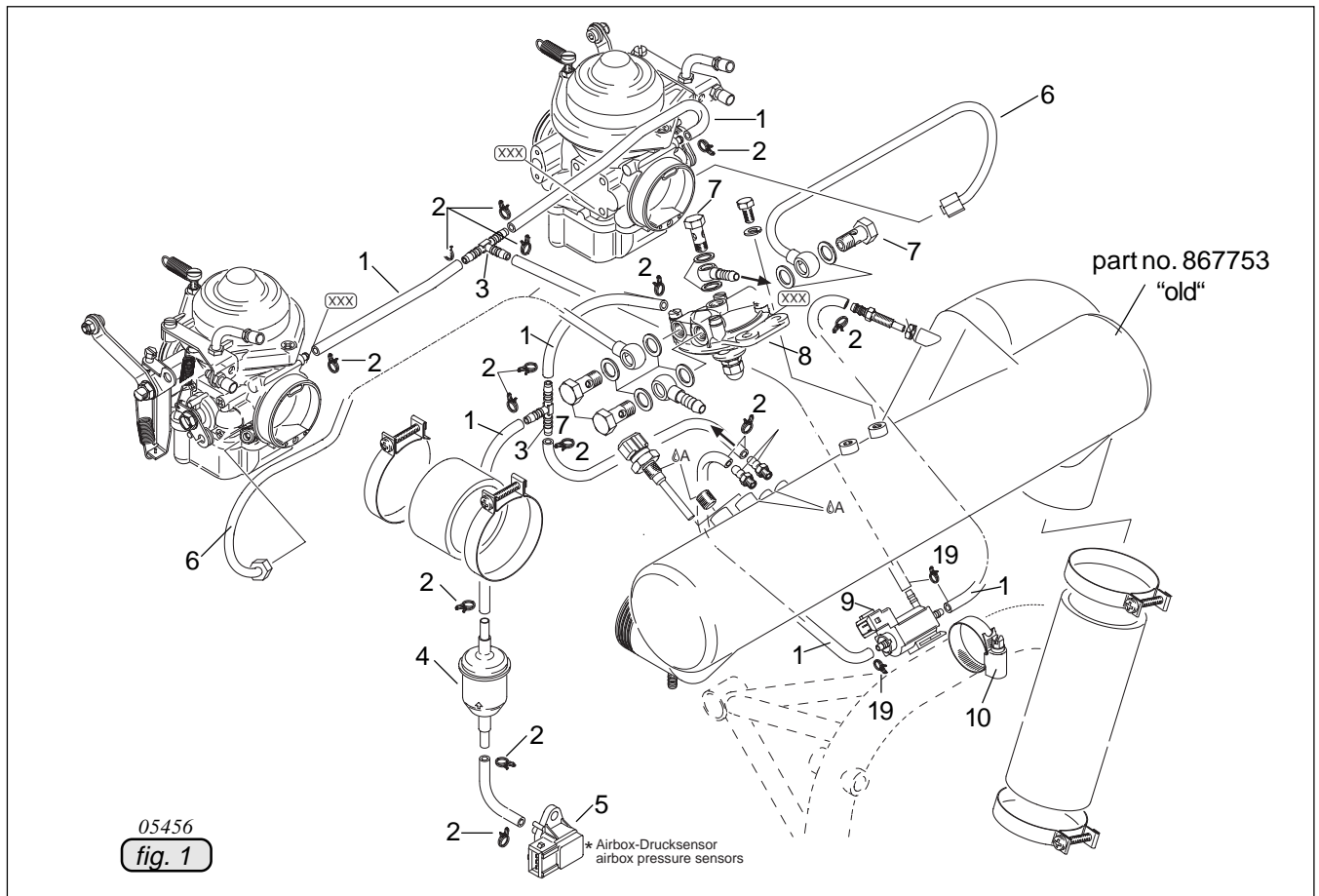
3.3) Summary

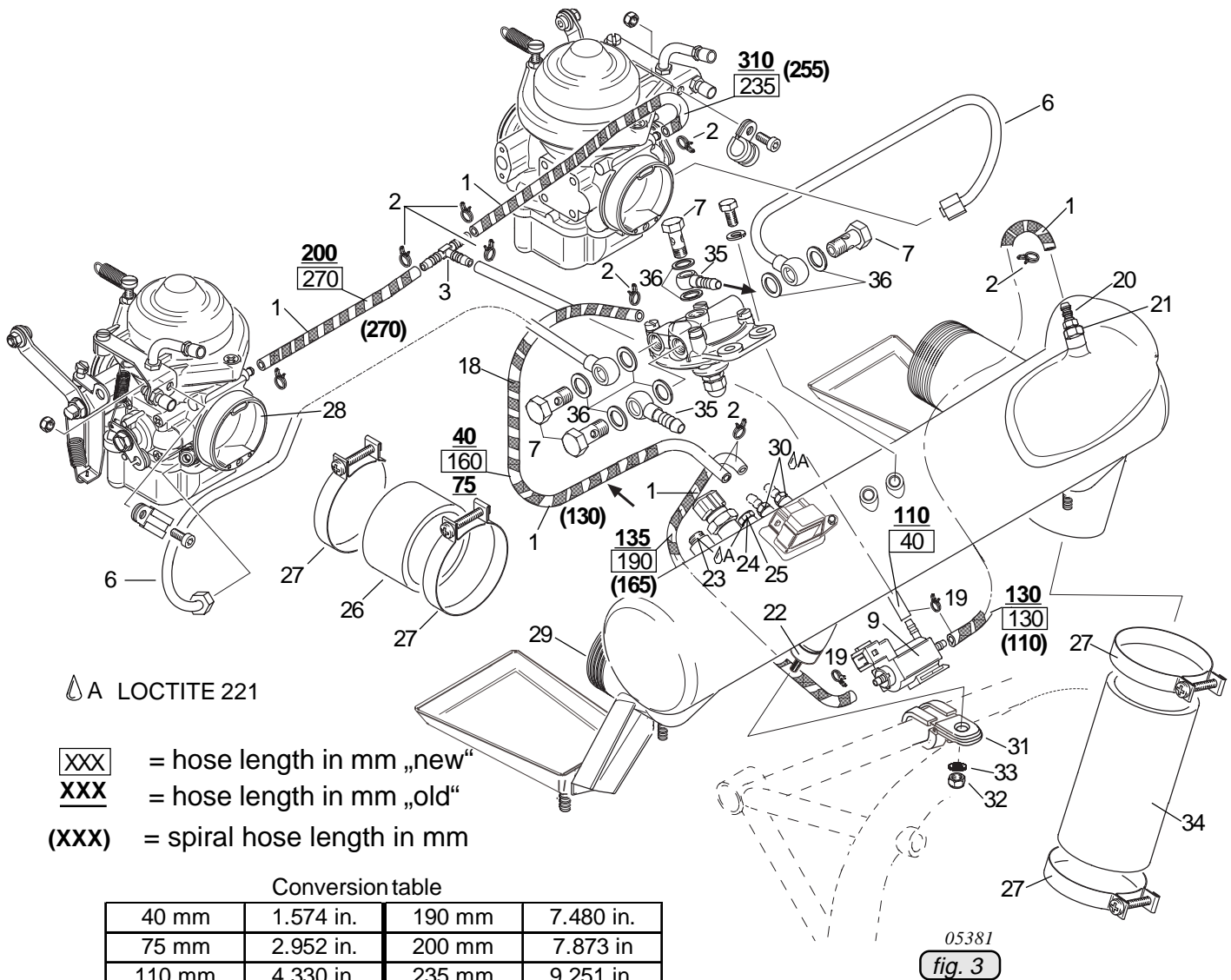
These instructions (section 3) have to be conducted in compliance with section 1.5.

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:





Conversion table

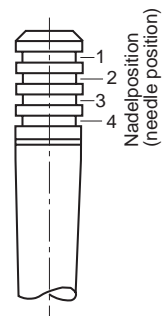
40 mm	1.574 in.	190 mm	7.480 in.
75 mm	2.952 in.	200 mm	7.873 in.
110 mm	4.330 in.	235 mm	9.251 in.
130 mm	5.118 in.	255 mm	10.039 in.
135 mm	5.314 in.	270 mm	10.629 in.
160 mm	6.299 in.	310 mm	12.204 in.
165 mm	6.496 in.		

05531



05468

fig. 4



00033

fig. 5

◆ 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.