

SERVICE BULLETIN

Inspection of turbocharger assy. for ROTAX® Engine Type 915 i A and 915 i B (Series)

ATA System: 78-10-00 Exhaust system

MANDATORY

1) Planning information

To obtain satisfactory results, procedures specified in this publication must be accomplished with accepted methods in accordance with prevailing legal regulations.

BRP-Rotax GmbH & Co KG cannot accept any responsibility for the quality of work performed in accomplishing the requirements of this publication.

1.1) Applicability

All versions of ROTAX® engine types 915 i A and 915 i B Series are affected, if at least one of the following criteria applies:

Criterion A) Engine serial number:

| Engine type | Serial number |
|-------------|--|
| 915 iSc A | from S/N 9127301 up to S/N 9127316 inclusive |
| 915 iSc B | from S/N 9122510 up to S/N 9122522 inclusive |

If they are equipped with the genuine ROTAX® turbocharger part no. 893106 with serial numbers listed within Criterion B).

NOTE: Engines with S/N higher than the range listed above, inspection has already been completed during serial production.

Criterion B) Turbocharger part no. 893106:

| Turbocharger assy. | Serial number |
|--------------------|--|
| Part no. 893106 | S/N 202-01-171114-00020 / SN 202-01-171130-00013 S/N 202-01-171130-00014 / SN 202-01-171201-00001 S/N 202-01-171201-00002 / S/N 202-01-171201-00006 S/N 202-01-171201-00007 / S/N 202-01-171201-00008 S/N 202-01-171201-00009 / S/N 202-01-171201-00013 S/N 202-01-171201-00015 / S/N 202-01-171208-00003 S/N 202-01-171208-00007 / S/N 202-01-171208-00009 S/N 202-01-171214-00011 / S/N 202-01-171214-00023 S/N 202-01-180112-00002 / S/N 202-01-180112-00006 S/N 202-01-180112-00007 / S/N 202-01-180112-00009 S/N 202-01-180112-00016 / S/N 202-01-180112-00017 S/N 202-01-180112-00019 / S/N 202-01-180112-00024 S/N 202-01-180112-000257 / S/N 202-01-180306-000021 S/N 202-01-180306-000027 / S/N 202-01-180315-000006 S/N 202-01-180315-000016 |

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See Fig. 1 on information how to find the part no. and serial number S/N on the turbocharger assy.

NOTE: Turbocharger with S/N higher than the range listed above, inspection has already been completed during serial production.

Criterion C) Spare parts:

Further all engines are affected, which have been equipped with turbocharger with part no. 893106 and with serial numbers listed within Criterion B) above during engine repair, maintenance or general overhaul or any other exchange action.

1.2) Concurrent ASB/SB/SI and SL

In addition to this Service Bulletin the following Service Instruction must be observed and complied with:

- Service Instruction-SI-915 i-003, "Purging of lubrication system", current issue

1.3) Reason

Internal quality checks have shown that in isolated cases, an oil supply gallery within the turbocharger Center Housing Rotating Assembly (CHRA) may not be present. In rare cases, this may lead to inadequate lubrication causing turbocharger damage and subsequently loss of engine power.

1.4) Subject

Inspection of turbocharger assy. for ROTAX® Engine Type 915 i A and 915 i B (Series).

1.5) Compliance

- Immediately, on undelivered engines / spare parts
- Before the initial installation of engine and/or spare part, but at the latest by 31. December 2019, the "Inspection of the turbocharger assy." must be conducted according to the following instructions in section 3
- Carry out this inspection on the engines listed in section 1.1, according to the instructions in section 3 at the next ROTAX® scheduled maintenance event or within the next 25 hours of operation, but at the latest after 200 days (from the date of the initial issue of this Service Bulletin)
- At strong oil odor, smoke emission due to overheated oil, slow decrease in oil pressure over operating time, or unusual engine operating behavior carry out an inspection in accordance to this Service Bulletin before the next flight

WARNING

Non-compliance with these instructions could result in engine damage, personal injuries or death.

1.6) Approval

The technical content of this document is approved under the authority of DOA ref. EASA.21J.048.

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1.7) Labor time and credit

A labor credit will be provided for work performed by a technician with current applicable iRMT rating.

| Work performed | iRMT rating required | Labor credit |
|---|------------------------|--------------|
| Inspection, re-work and re-assembly as per section 3. | iRMT Maintenance Heavy | 1.5 hour |

To apply for labor credit, contact your ROTAX® Authorized Distributor or their independent Service Centers.

1.8) Mass data

Change of weight - - - none.

Moment of inertia - - - unaffected.

1.9) Electrical load data

No change.

1.10) Software modifications

No change.

1.11) References

In addition to this technical information refer to current issue of

- Illustrated Parts Catalog (IPC)
- Installation Manual (IM)
- Maintenance Manual Line (MML)
- Maintenance Manual Heavy (MMH)

NOTE: The status of the Manuals can be determined by checking the table of amendments. The 1st column of this table shows the revision status. Compare this number to that listed on the ROTAX website: www.flyrotax.com. Updates and current revisions can be downloaded for free.

1.12) Other Publications affected

None.

1.13) Interchangeability of parts

- All parts are interchangeable

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2) Material Information

2.1) Material

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

2.2) Company support information

None.

2.3) Material requirement and credit per engine

parts requirement for connector gasket replacement:

| Part number | Qty/ engine | Description | Application / Remark |
|-------------|----------------|--------------------|-------------------------|
| 950141 | 2 | Sealing ring 8x13 | Turbo pressure oil line |
| 230150 | 3 | Sealing ring 10x10 | Oil return line |
| 250640 | 1 | Sealing ring 12x18 | Valve housing |

NOTE: These parts are included in the oil pump housing kit packaged part no. 481550 and would not need to be ordered separately, when combining this work.

2.4) Material requirement and credit per spare part

None.

2.5) Rework of parts

None.

2.6) Special tooling/lubricants- /adhesives- /sealing compounds

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

| Description | Qty/engine | Part no. | Application |
|-------------------|------------|----------|---------------|
| Pin removal tool* | 1 | n.a. | Valve housing |
| Pin seating tool* | 1 | n.a. | Valve housing |

* or equivalent

NOTICE

If using these special tools observe the manufacturers specifications.

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3) Accomplishment/Instructions

- ROTAX reserves the right to make any amendments to existing documents, which might become necessary due to this standardization, at the time of next revision or issue.

NOTE: Before maintenance, review the entire documentation to make sure you have a complete understanding of the procedure and requirements.

Accomplishment

All measures must be implemented and confirmed by at least one of the following persons or organizations:

- ROTAX® - Authorized Distributors or their independent Service Centers
- Persons with approved qualifications for the corresponding engine types. Only authorized persons (iRMT, Level Heavy Maintenance) are entitled to carry out this work.

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

Safety notice

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

CAUTION Identifies an instruction which, if not followed, may cause minor or moderate injury.

NOTICE Identifies an instruction which, if not followed, may severely damage the engine or could void any warranty.

ENVIRONMENTAL NOTE
Environmental notes give you tips on environmental protection.

NOTE: Indicates supplementary information which may be needed to fully complete or understand an instruction.

3.1) Remove the turbocharger oil inlet

Following steps are important, read them carefully!

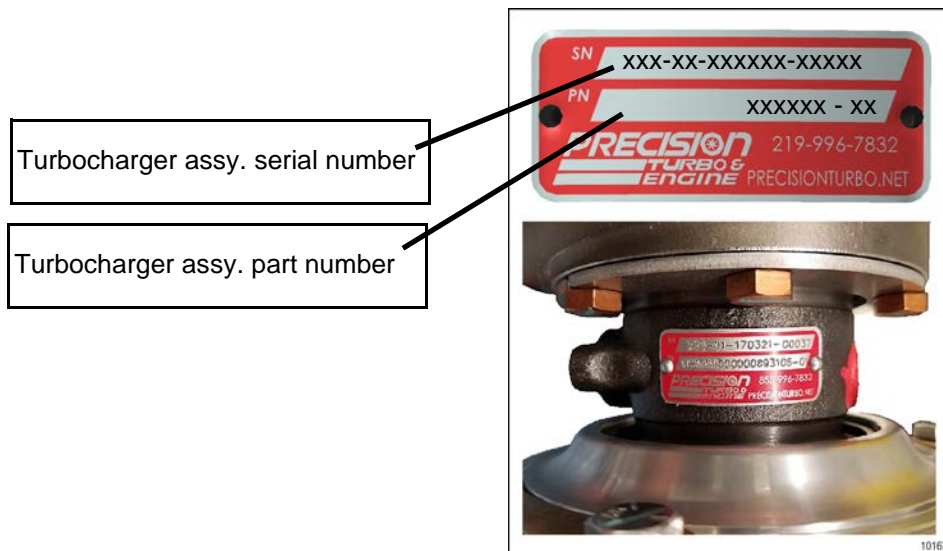
WARNING Danger of severe burns and scalds! Allow the engine and exhaust system to cool to ambient temperature before starting work.

See Fig. 1.

| Step | Procedure |
|------|---|
| 1 | Check the engine and/or turbocharger serial number S/N if the turbocharger is affected. |

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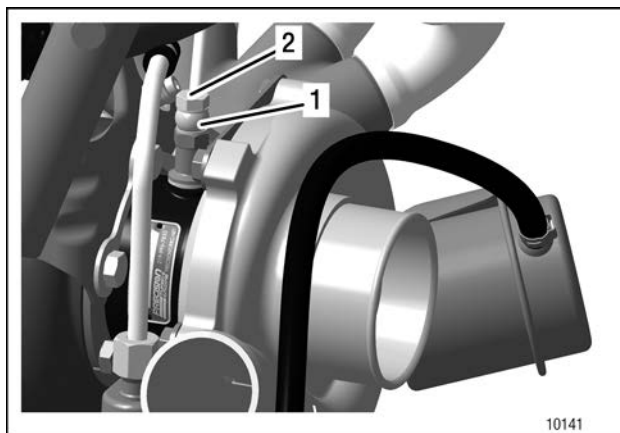
Turbocharger assy. serial number

Turbocharger assy. part number

Fig. 1

See Fig. 2.

| Step | Procedure |
|------|--|
| 2 | Depending upon the aircraft, remove cowling. Follow the instructions of the aircraft manufacturer. |
| 3 | Disconnect the turbo pressure oil line (1) by removing banjo bolt M8 (2) and sealing ring from turbocharger. |



1 Turbo pressure oil line
2 Banjo bolt M8x17

Fig. 2

See Fig. 3.

| Step | Procedure |
|------|--|
| 4 | Disconnect oil line clamps (3) and remove turbo pressure oil line (1). |

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- 1 Turbo pressure oil line
- 2 Turbo return line
- 3 Oil line clamps

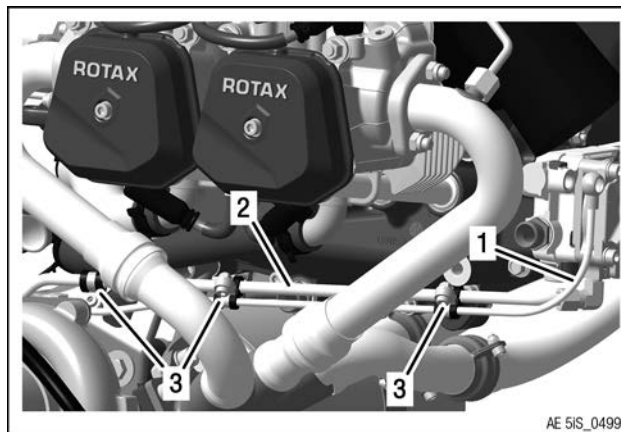


Fig. 3

See Fig. 4.

| Step | Procedure |
|------|--|
| 5 | Remove the ball (4) and compression spring (5). |
| 6 | Remove turbo oil inlet valve housing (6) and discard sealing ring (7). |

- 4 Ball
- 5 Compression spring
- 6 Valve housing
- 7 Sealing ring 12x18

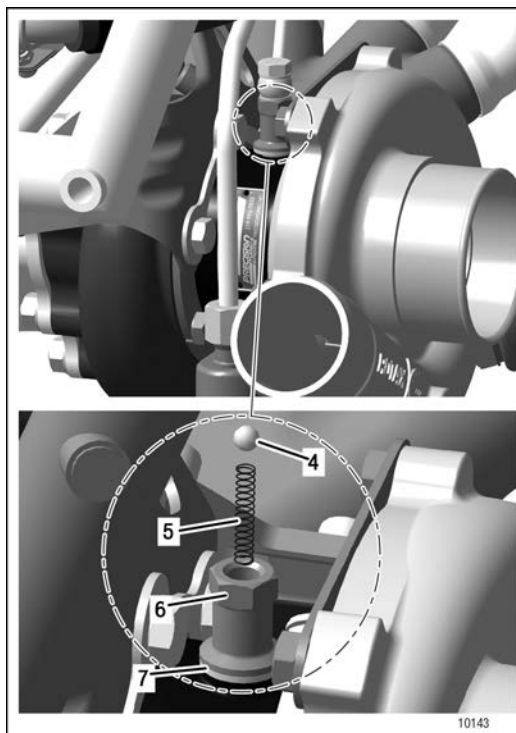


Fig. 4

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See Fig. 5.

| Step | Procedure |
|------|---|
| 7 | Install pin removal tool (8, 10) into turbo oil inlet (9) and carefully thread the screw (10) into inner valve. |
| 8 | Tighten by hand until threaded hex spacer (8) is seated. |

8 Pin removal tool:
 threaded hex spacer
 9 Turbo oil inlet
 10 Pin removal tool: screw

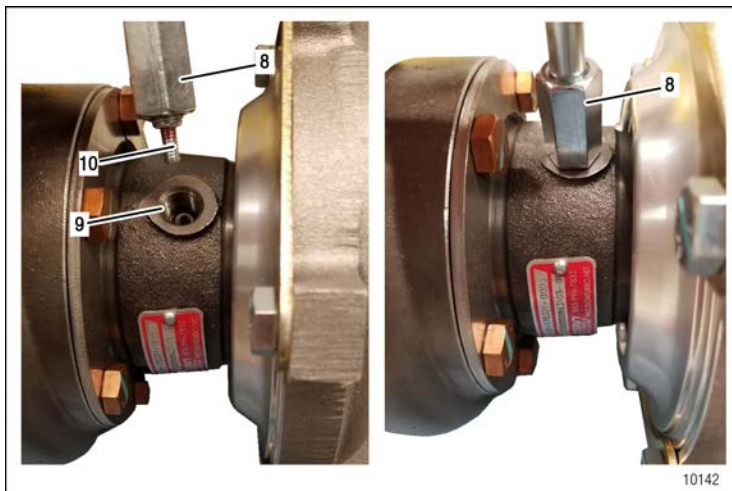


Fig. 5

See Fig. 6.

| Step | Procedure |
|------|---|
| 9 | Tighten the threaded hex. spacer (8) clockwise with one wrench (13 mm), while holding the screw (10) with an other wrench (13 mm). This will pull out the pin (11). |
| 10 | Pull out the pin (11) completely and lay it aside. |

NOTICE

Be certain not to move the rotor group (turbo rotor shaft) while the pin is removed. If it is, the bearing may not line up with the pin hole.

11 Pin



Fig. 6

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3.2) Inspect bearing housing for oil holes

See Fig. 7.

| Step | Procedure |
|------|--|
| 1 | With good lighting, inspect the CHRA oil inlet for lubrication bores. 2 drilled oil bores must be present on turbine and compressor side of CHRA. NOTE: If possible or necessary record your findings by means of a camera from a smart device (e.g. cell phone). |
| 2 | If both drilled lubrication bores are present, the turbocharger is not affected per section 3.2. NOTE: If both bores are present, mark the center housing with a green dot near the oil inlet. |
| 3 | If one of the 2 oil bores is missing, the turbocharger must be replaced by following the instructions of the latest Maintenance Manual Heavy for the respective engine type. This turbocharger is defective and must be removed and quarantined. Circle the oil inlet with red marker. NOTE: Contact your nearest ROTAX® Authorized Distributor or their independent Service Centers for required parts and next steps. |

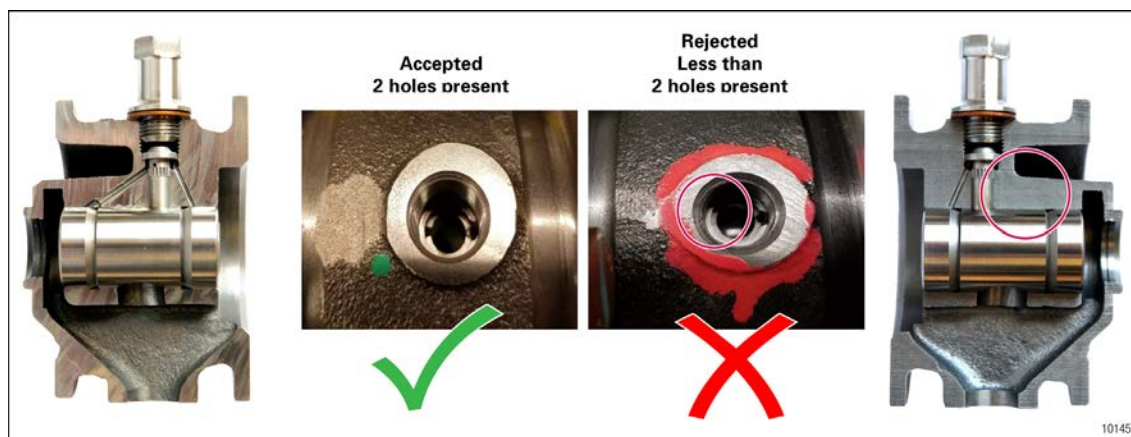


Fig. 7

See Fig. 8.

| Step | Procedure |
|------|--|
| 4 | Check to make sure the bearing has not been disturbed and the bearing hole is in line with the pin hole. NOTE: The bearing must be rotated with a pick, if the holes are not in line. |

NOTICE Failure to check for that and to do so may result in damage when installing the pin.

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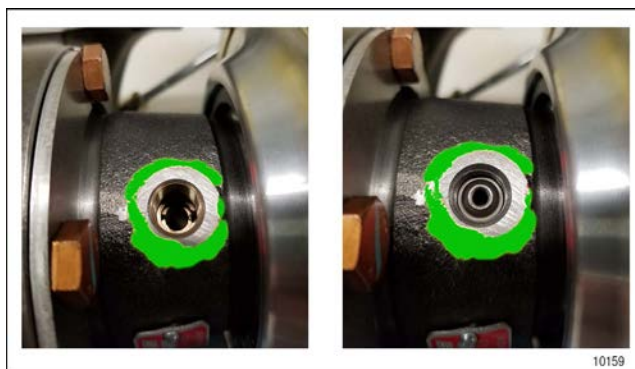


Fig. 8

3.3) Install of turbocharger oil inlet

See Fig. 9.

| Step | Procedure |
|------|--|
| 1 | Ensure that all components are clean and that CHRA oil inlet is free of any debris or contamination. |
| 2 | Install the pin. The pin will slip into place below the oil inlet sealing surface. |
| 3 | Screw in the pin seating tool (1) a few turns by hand. |

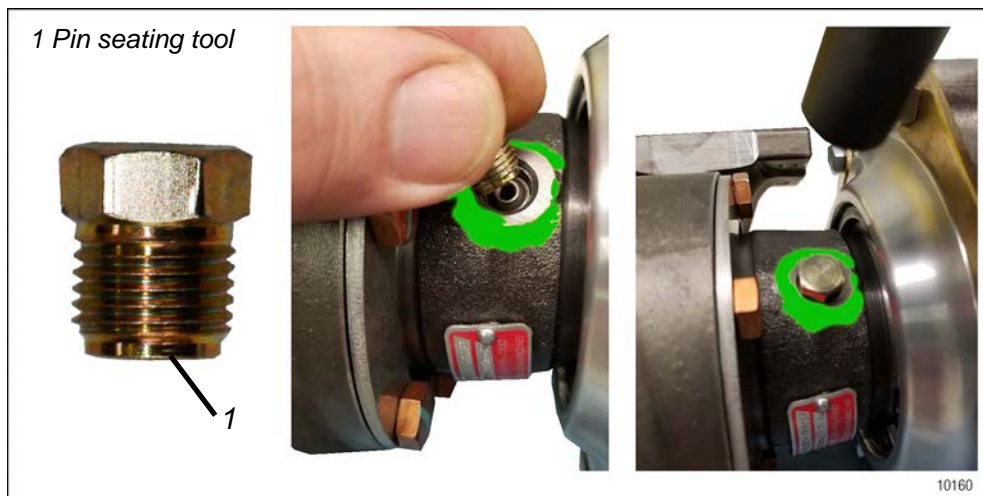


Fig. 9

See Fig. 10.

| Step | Procedure |
|------|---|
| 4 | Seat the pin by tightening the pin seating tool (1). The pin seating tool will nearly bottom out when pin is seated as shown. Tightening torque 17 Nm (150 in. lb). |

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3.4) Re-assembly of turbo pressure oil line

See Fig. 10.

| Step | Procedure |
|------|---|
| 1 | Install turbo oil inlet valve housing (1) with new sealing ring (2). Tightening torque 25 Nm (18 ft.lb). |
| 2 | Install the compression spring (3) with ball (4) into the valve housing (1). |

NOTICE

Severe engine damage can result!
The ball must be on top of the spring and not below the spring.

- 1 Valve housing
- 2 Sealing ring 12x18
- 3 Compression spring 22.0
- 4 Ball

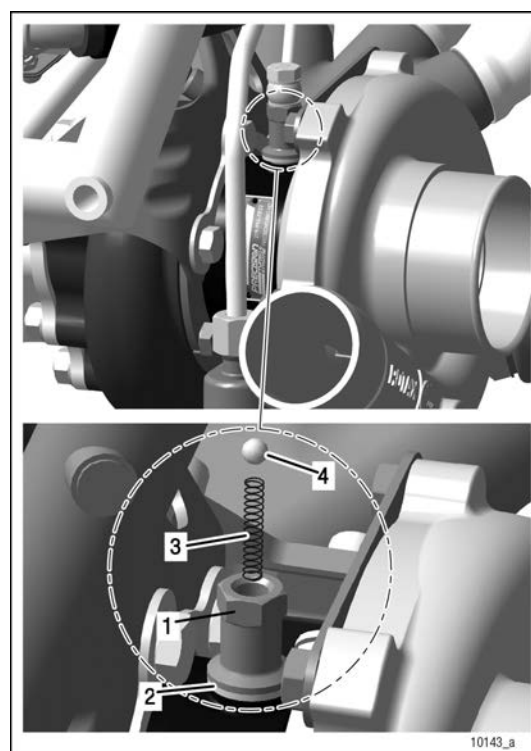


Fig. 10

See Fig. 11.

| Step | Procedure |
|------|---|
| 3 | Install turbo pressure oil line (5) with banjo bolt (6) and three new sealing gaskets (7 and 8) at CHRA. Install finger tight only. |

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- 5 Turbo pressure oil line
- 6 Banjo bolt M8x1x17
- 7 Sealing ring A 8x13
- 8 Sealing ring A 12x18

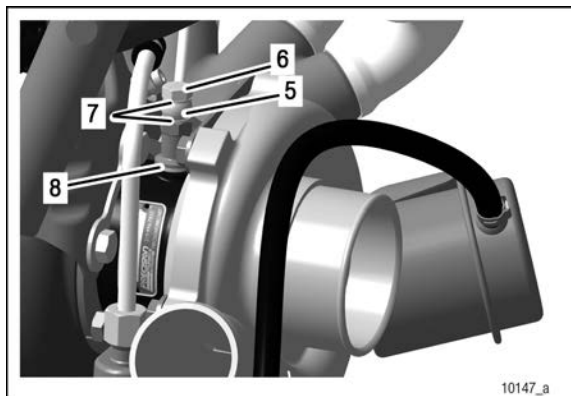


Fig. 11

See Fig. 12.

| Step | Procedure |
|------|--|
| 4 | Install turbo pressure oil line (9) with banjo bolt (10) and three new sealing gaskets (11) at oil pump (12). Install finger tight only. |

- 9 Turbo pressure oil line
- 10 Banjo bolt M10x1x30
- 11 Sealing ring 10x14
- 12 Oil pump
- 13 Governor pressure oil line

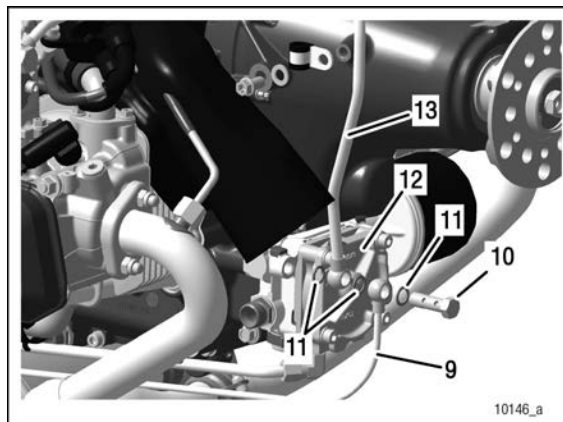


Fig. 12

See Fig. 13.

| Step | Procedure |
|------|--|
| 5 | Attach clamps (14) between turbo pressure line (15) and turbo oil suction line (16). Ensure that clamps do not induce any stress within the oil lines. |
| 6 | Tighten banjo bolts to 12 Nm (106 in. lb). |
| 7 | Clean up any residual oil and degrease to allow proper leak inspection. |

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- 14 Clamps 8/M5, 5/M5
- 15 Turbo pressure line
- 16 Turbo oil suction line

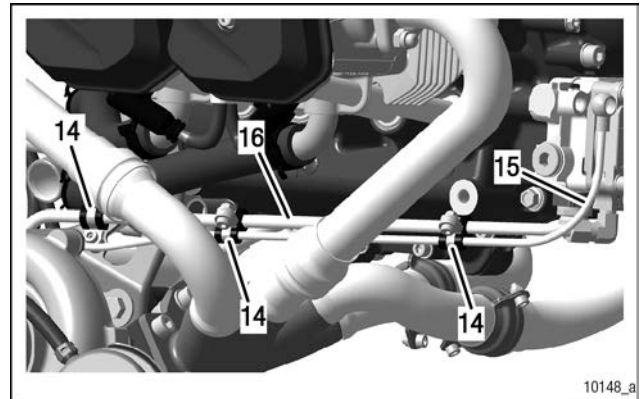


Fig. 13

3.5) Finishing work

Purge the oil system. See Chapter 79-00-00 of the latest Maintenance Manual Line for the respective engine type.

3.6) Test run

Conduct test run. See Chapter 12-20-00 of the latest Maintenance Manual Line for the respective engine type.

3.7) Summary

These instructions (section 3) have to be followed in accordance with the deadlines specified in section 1.5.

The execution of the mandatory Service Bulletin must be confirmed in the logbook.

! A revision bar outside of the page margin indicates a change to text or graphic.

Translation into other languages might be performed in the course of language localization but does not lie within ROTAX® scope of responsibility.

In any case the original text in English language and the metric units are authoritative.

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.

3.8) Inquiries

Inquiries regarding this Service Bulletin should be sent to the ROTAX® Authorized Distributor of your area.

A list of all ROTAX® Authorized Distributors or their independent Service Centers is provided on www.flyrotax.com.