

### Inspection and/or replacement of oil spray nozzle for ROTAX® Engine Type 912 i, 915 i and 916 i (Series)

ATA System: 24-20-00 Internal generator

**MANDATORY\***

\* This Service Bulletin could be subject to an EASA airworthiness directive (AD).

#### 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 engines of Series 912 iSc Sport, 915 iSc A, 915 iSc C24, 916 iSc A, 916 iSc C24 and 916 iSc B are affected if at least one of following criteria applies:

##### Criterion A) Engine production date and S/N:

These engines have been originally delivered from the factory with the possibility of blockage of the oil spray nozzle:

**NOTE:** Engine S/Ns from the list below with minimum 200 hours of operation are excluded from this Service Bulletin as cooling of the stator is sufficient.

| Engine type   | Serial number                                  |
|---------------|--|
| 912 iSc Sport | from S/N 7702217 up to S/N 10008922 inclusive  |
| 915 iSc A     | from S/N 9127550 up to S/N 10008739 inclusive  |
| 915 iSc C24   | from S/N 9152016 up to S/N 10002607 inclusive  |
| 916 iSc A     | from S/N 9148004 up to S/N 10006944 inclusive  |
| 916 iSc C24   | from S/N 10002846 up to S/N 10006286 inclusive |
| 916 iSc B     | from S/N 10001198 up to S/N 10008794 inclusive |

##### Criterion B) Spare parts:

Further all engines are affected which have been equipped with overhaul kits with engine blocks part no.:

- 893246 OVERHAUL-KIT 912 iS W. ENGINE BLOCK
- 893249 OVERHAUL-KIT 915 iS W. ENGINE BLOCK

during engine repair, maintenance or general overhaul, delivered as spare parts from January 1<sup>st</sup>, 2022 up to October 31<sup>st</sup>, 2024 included.

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### 1.2) Concurrent ASB/SB/SI and SL

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

- SI-912 i-011 Maintenance information on plug screw M22x1.5 part no. 940520 for ROTAX 912 i Series
- SI 912 i-028, SI-915 i-008 Change of oil cooling of stator for ROTAX® Engine Type 915 i A (Series) and 912 i (Series).
- SI-912 i-001,SI-912-016,SI-914-019,SI-915 i-001,SI-916 i-001 Selection of suitable operating fluids for Rotax Engine Type 916 i (Series), 915 i (Series), 912 i (Series), 912 and 914 (Series).
- in general, all relevant Alert Service Bulletins (ASB), Service Bulletins (SB), Service Instructions (SI), Service Letters (SL), Service Instruction - Parts and Accessories (SI-PAC) with relevance to perform this maintenance, repair or overhaul task.

### 1.3) Reason

Due to a deviation in the manufacturing process, excessive application of LOCTITE at the sprag clutch housing and/or oil spray nozzle may lead to blockage of the nozzle. This could lead to inadequate cooling and possible damage to the stator assy. up to failing of one LANE.

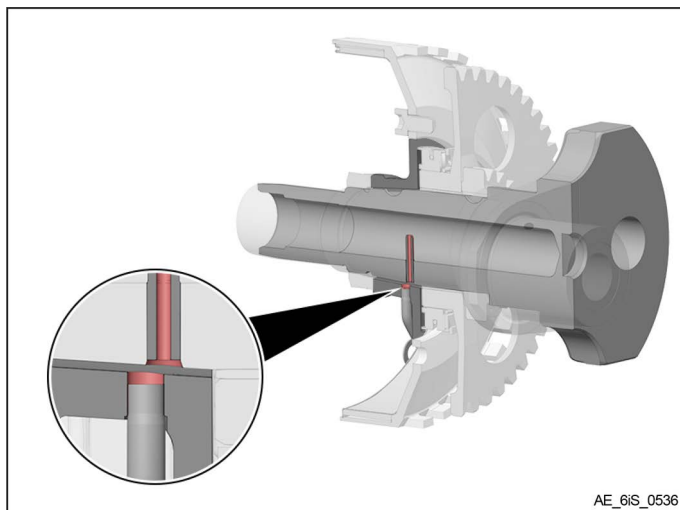


Fig. 1

### 1.4) Subject

Inspection and/or replacement of oil spray nozzle for ROTAX® Engine Type 912 i, 915 i and 916 i (Series).

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## 1.5) Compliance

- On undelivered engines / spare parts prior to delivery
- Before the initial installation of the engine / spare part
- At next scheduled maintenance event or at least within the next 25 hours of operation carry out this check of the oil spray nozzle on the engines listed in section 1.1) according to the following instructions in section 3, but at the latest after 1 year (from the date of the initial issue of this Service Bulletin).



**WARNING**

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

## 1.6) Approval

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

## 1.7) Labor time

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

| Work performed                           | iRMT rating required | Labor credit           |
|--|----------------------|------------------------|
| Inspect oil spray nozzle on aircraft     | Maintenance Line     | 1.2 hr per inspection  |
| Cleaning of oil spray nozzle on aircraft | Maintenance Heavy    | 7.3 hr per replacement |

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.

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### 1.11) References

In addition to this technical information refer to current issue of

- In general Illustrated Parts Catalog (IPC) and in particular Chapters 72-20-00 & 24-20-00
- In general Operators Manual (OM)
- In general Installation Manual (IM)
- In general Maintenance Manual Line (MML) and in particular Chapter 12-20-00
- In general Maintenance Manual Heavy (MMH) and in particular Chapters 24-20-00, 72-20-00, 75-00-00 & 80-10-00

NOTE: The status of the Manuals can be determined by checking the table of amendments. The 1<sup>st</sup> column of this table shows the revision status. Compare this number to the one listed on the ROTAX® website:  
[www.flyrotax.com](http://www.flyrotax.com). Updates and current revisions can be downloaded for free.

### 1.12) Other Publications affected

None

### 1.13) Interchangeability of parts

None.

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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

- Any possible support by BRP-Rotax will be provided on request by ROTAX® Authorized Distributors or their independent Service Centers
- This exchange program and cost sharing is valid until December 31st 2025. Up to this date limited reimbursement of costs can be applied for
- Shipping costs, downtime costs, loss of income, telephone costs etc. or costs of conversion to other engine versions or additional work, as for instance simultaneous engine overhauls are not covered in this scope and will not be borne or reimbursed by ROTAX®.

### 2.3) Material requirement per engine

Parts requirement for inspection, see Fig. 2.

| Fig.no. | Part no. | Qty/<br>engine | Description                             | Application      |
|---------|----------|----------------|---|------------------|
| 2-1     | 950141   | 1              | SEALING RING A 8X13                     | Locking pin bolt |
| 2-2     | 430225*  | (1)            | O-RING - 15.9X2.3                       | Plug screw *     |
| 2-3     | 250057** | (1)            | O-RING - 18X2.5                         | Plug screw **    |
| -       | -        | AR             | ENGINE OIL XPS / AEROSHELL SPORT PLUS 4 | Oil level check  |

\* only applicable to 912i Series

\*\* only applicable to 915i and 916i Series

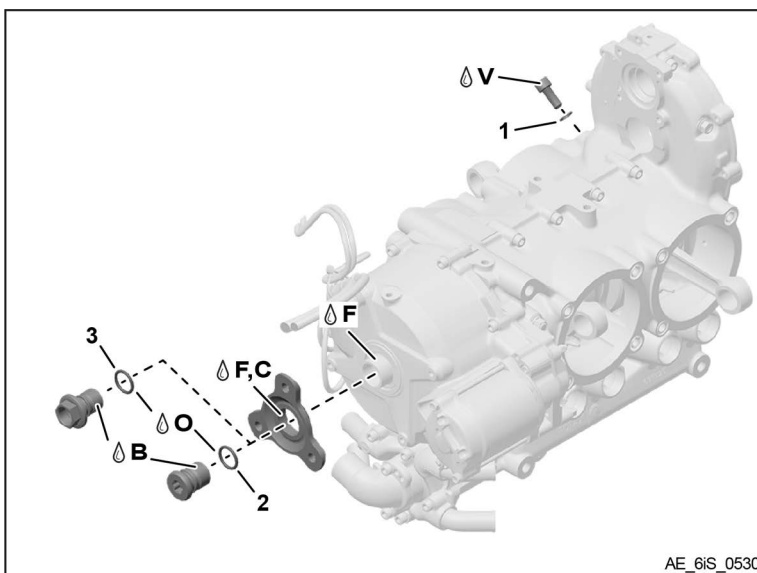


Fig. 2

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Parts requirement for cleaning and replacement, see Fig. 3:

| Fig.no. | Part no. | Qty/<br>engine | Description                             | Application               |
|---------|----------|----------------|---|---------------------------|
| 3-1     | 831929   | 1              | O-RING 5X2                              | Ignition housing          |
| 3-2     | 246055   | 1              | WOODRUFF KEY                            | Crankshaft / sprag clutch |
| 3-3     | 456540   | 1              | OIL SPRAY NOZZLE ASSY.                  | Sprag clutch housing      |
| 3-4     | 230429   | 1              | OIL SEAL                                | Ignition housing          |
| 3-5     | 850983   | (1)            | GASKET                                  | Water pump housing        |
| 3-6     | 230415   | (1)            | SEALING RING A 6X10                     | Water pump drain screw    |
| -       | i        | AR             | ENGINE OIL XPS / AEROSHELL SPORT PLUS 4 | Oil level check           |
| -       | i        | AR             | ENGINE COOLANT                          | Coolant level check       |

<sup>i</sup> See SI-912 i-001,SI-912-016,SI-914-019,SI-915 i-001,SI-916 i-001 Selection of suitable operating fluids for Rotax Engine Type 916 i (Series), 915 i (Series), 912 i (Series), 912 and 914 (Series).

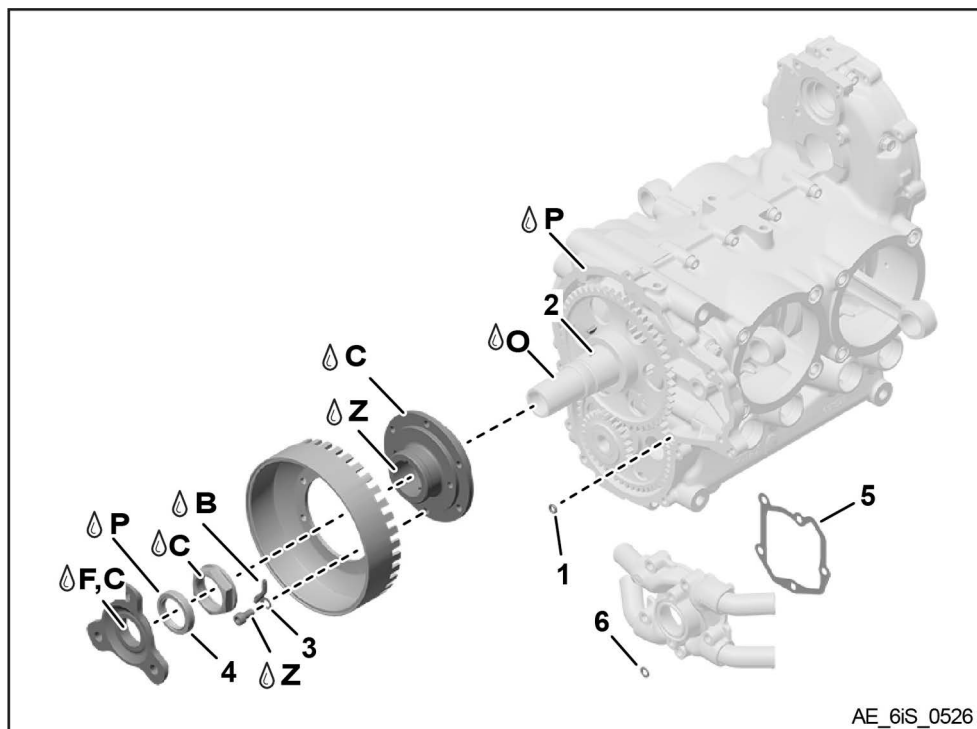


Fig. 3

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### 2.4) Special tooling/lubricants- /adhesives- /sealing compounds

| Part no. | Description  | Application                              |
|----------|--|--|
| 240880   | LOCKING PIN  | Crankshaft locking                       |
| 876010   | PULLER ASSY.   | Ignition housing                         |
| 877375   | PULLER ASSY.   | Sprag clutch assy.                       |
| 877419   | PROTECTION MUSHROOM  | Puller assy.                             |
| 876020   | INSERTION JIG  | Ignition housing, oil seal               |
| 976740   | TEST TOOL OIL SPRAY NOZZLE ASSY.   | Blockage test                            |
| -        | FLOW-METER (0 - 10 l/min) digital or analog (for operating medium of compressed air and with an unidirectional flow) | Blockage test                            |
| -        | PNEUMATIC PRESSURE REGULATOR (pressure regulation range 0,1 bar to 6 bar)  | Blockage test                            |
| -        | PNEUMATIC SHUT OFF VALVE   | Blockage test                            |
| -        | ALLEN SCREW M6x120   | Blockage test                            |
| 897651   | LOCTITE 243 BLUE. 10 CC. (B)   | Oil spray nozzle                         |
| 899788   | LOCTITE 648 GREEN. 5 CC (C)  | Hex. nut                                 |
| 297438   | LOCTITE ANTI SEIZE 8151 400 ML (E)   | Sprag clutch                             |
| -        | LOCTITE 7063 (F)   | Cleaner / degreaser for oil spray nozzle |
| -        | ENGINE OIL (O)   | Crankshaft                               |
| 899791   | LOCTITE 5910. 50 ML (P)  | Ignition housing, oil seal               |
| 898570   | LOCKING PAINT 20 ML (V)  | Lock pin, Allen screw                    |
| 899789   | LOCTITE 603 GREEN. 10 CC. (Z)  | Sprag clutch assy.                       |

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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® - Airworthiness representatives
- ROTAX® - Authorized Distributors or their independent Service Centers
- Persons approved by the respective Aviation Authorities
- Persons with approved qualifications for the corresponding engine types. Only authorized persons (iRMT, Level Line / Heavy Maintenance) are entitled to carry out this work
- Persons with type-specific training

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



All work has to be performed in accordance with the relevant ROTAX® Instructions for Continued Airworthiness (ICA) of the respective engine type.

### General

Further material on general inspection, maintenance and repair can also be found in relevant Advisory Circular AC 43.13 from FAA.

### Advisory Circular

The Advisory Circular (AC) contains maintenance methods, techniques and practices.

### Procedure

| Step | Procedure   |
|------|---|
| 1    | Check the criteria given on page 1, section 1.1, if the aircraft engine or spare part is affected by this SB. |
| 2    | Check the engine logbook and maintenance documentation, if this SB has already been accomplished.             |

### 3.1) Illustrated Parts Catalog - related information



See current Illustrated Parts Catalog (IPC) for the respective engine type, Chapters 72-20-00 & 24-20-00.

### 3.2) Installation - related information



See current Installation Manual (IM) for the respective engine type.



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### 3.3) Operation - related information



See current Operators Manual (OM) for the respective engine type.  
 See also Aircraft Flight Manual (AFM) / Pilot Operating Handbook (POH).

### 3.4) Maintenance (Line) - related information

#### 3.4.1) Inspection of oil spray nozzle

See Fig. 4

| Step | Procedure   |
|------|---|
| 1    | Lock the crankshaft.<br>See current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-20-00, Section Locking / loosen of the crankshaft.             |
| 2    | Loosen plug screw (1 or 2).   |
| 3    | If equipped, remove the optional generator flange assy. (3).<br>See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 72-20-00 and SI-PAC-023. |

- 1 Plug screw 915 i/916 i (Series)
- 2 Plug screw 912 i (Series)
- 3 Generator flange assy. (optional part)

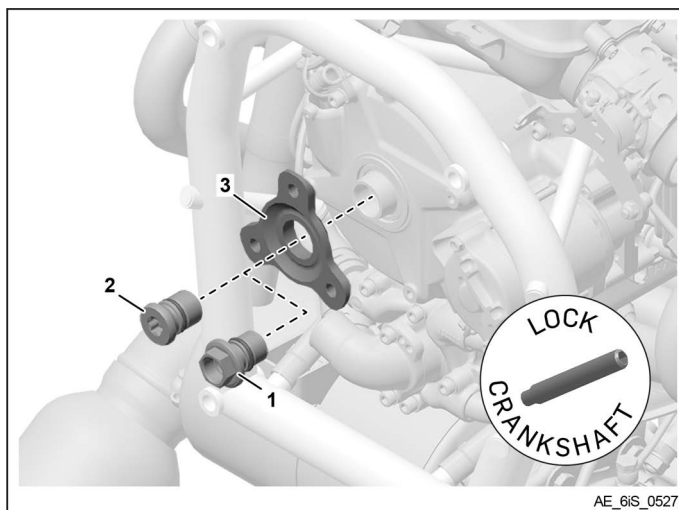
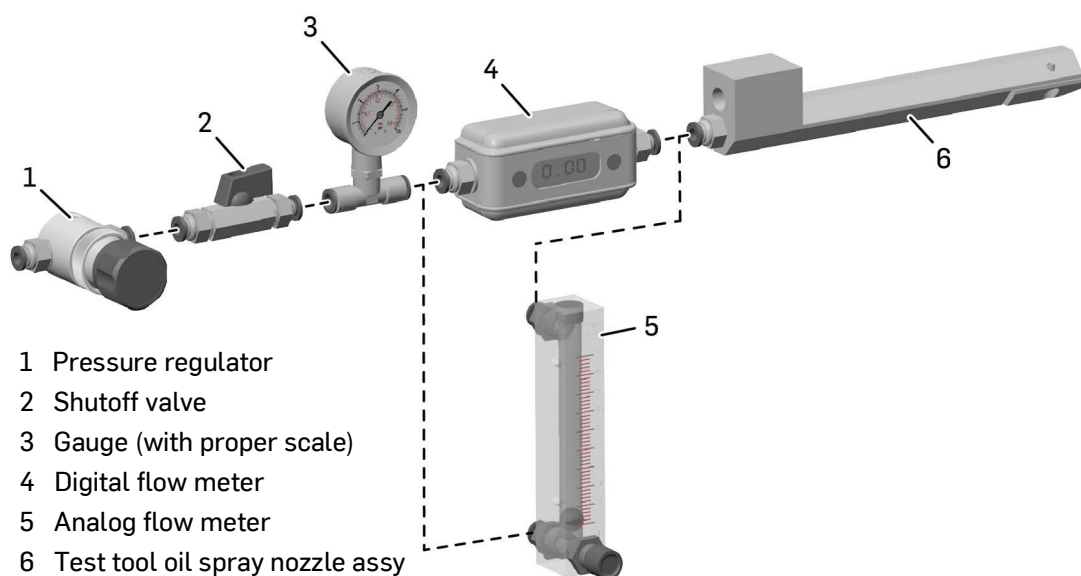


Fig. 4

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See Fig. 5

| Step | Procedure   |
|------|---|
| 4    | Attach a pressure regulator (1), shutoff valve (2) and a flow meter (4 or 5) to the measurement adapter tool.<br><b>NOTE:</b> For measurement a flow meter is required, either a digital or analog one; if using an analog type, this one needs to be in vertical position while the measurement is done, otherwise the measurement will be inaccurate. |
| 5    | Connect the regulator (1) input to a compressed air source.   |
| 6    | Open the shutoff valve (2) and set the regulator (1) to 300 mbar (4.35 psi). close the shutoff valve.   |



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Fig. 5

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See Fig. 6

| Step | Procedure   |
|------|---|
| 7    | Carefully insert the measurement adapter tool (1) into the crankshaft, capturing the internal oil nipple (2). |
| 8    | Slide the rod (3) into the tool until approximately 25 mm (0.98 in.) is still protruding from the tool.       |

- 1 Adapter tool
- 2 Oil nipple
- 3 Rod  
(e.g. Allen screw M6x120 - not  
scope of delivery)

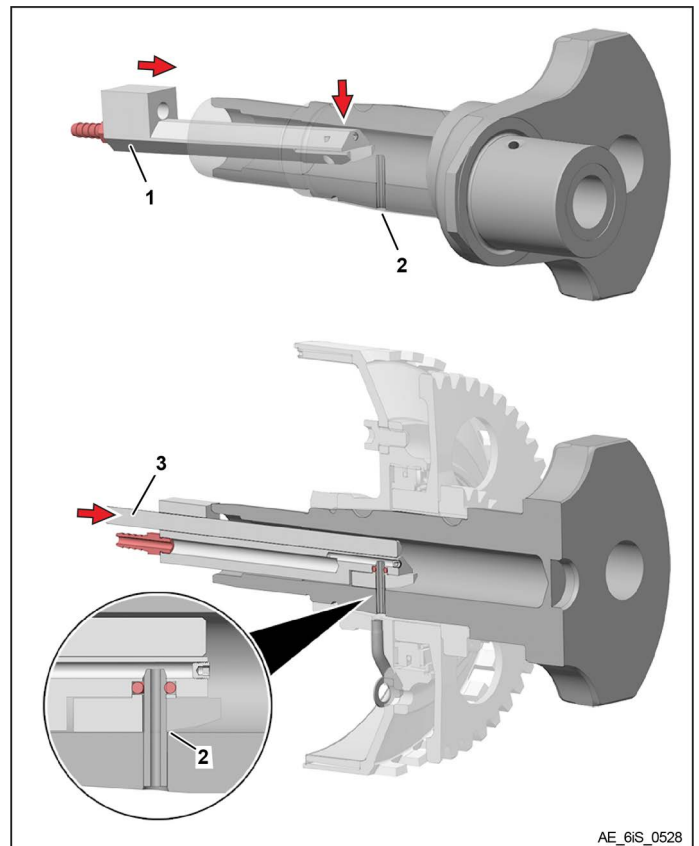


Fig. 6

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See Fig. 7

| Step | Procedure   |
|------|---|
| 9    | Open shutoff valve and record the flow reading.   |
| 10   | If the flow reading is < 4 l/min (1.05 gal/min), the oil spray nozzle is un-serviceable. Continue to <a href="#">Section 3.5</a> .  |
| 11   | If the flow reading is >= 4 l/min (1.05 gal/min), the oil spray nozzle is serviceable.  |
| 12   | Remove the test tool oil spray nozzle assy.   |
| 13   | If equipped, install the optional generator flange assy. (4).<br>See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 72-20-00 and SI-PAC-023.  |
| 14   | Install plug screw (1 or 2) with a new O-ring (3).<br>See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 24-20-00, Section Installation.  |
| 15   | Remove locking pin and install Allen screw M8x20 (5) with new sealing ring A 8x13 (6).<br>See current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-20-00, Section Locking / loosen of the crankshaft. Continue to <a href="#">Section 3.6</a> . |

- 1 Plug screw 915 i / 916 i
- 2 Plug screw 912 i
- 3 O-ring
- 4 Generator flange assy.
- 5 Allen screw M8x20
- 6 Sealing ring A 8X13

- B - LOCTITE 243
- C - LOCTITE 648
- F - LOCTITE 7063
- O - Engine oil
- V - Locking paint

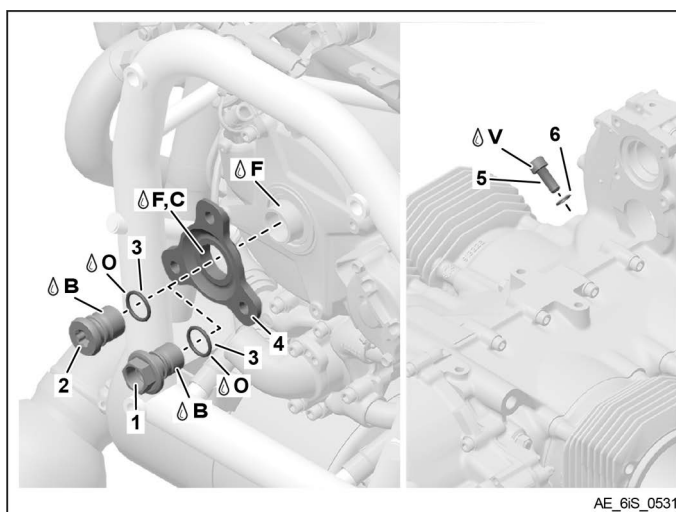


Fig. 7

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## 3.5) Maintenance (Heavy) - related information (only applicable if the oil spray nozzle is classified as un-serviceable as per inspection in section 3.4.1)

### 3.5.1) Inspection of stator assy.

See Fig. 7

| Step | Procedure   |
|------|---|
| 1    | Drain the engine coolant.<br>See current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-20-00, Section Cooling System.                                  |
| 2    | Remove the water pump housing.<br>See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 75-00-00.  |
| 3    | Remove the electric starter.<br>See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 80-10-00.  |
| 4    | Remove the ignition housing.<br>See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 24-20-00.  |
| 5    | Visually inspect the stator and wiring for signs of overheating or discoloration.   |
| 6    | Check the resistance value of generators A and B.<br>See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 24-20-00.                                 |
| 7    | If the stator shows signs of discoloration or overheating and/or the resistance values are outside of the nominal range, the stator assy. is un-serviceable and must be replaced. |

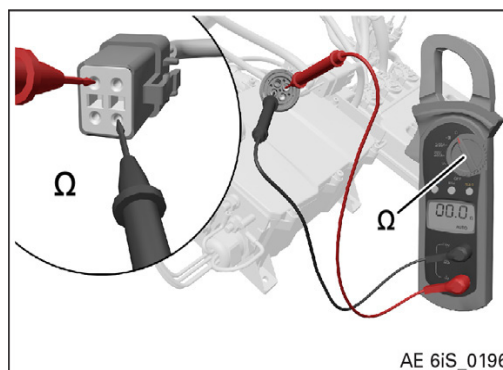


Fig. 8

| Limit        | (Phase -1 to Phase -2)<br>[Ohms] | (Phase -1 to Phase -3)<br>[Ohms] | (Phase -2 to Phase -3)<br>[Ohms] |
|--------------|----------------------------------|----------------------------------|----------------------------------|
| <b>GEN A</b> | 0.6                              | 0.6                              | 0.6                              |
| <b>GEN B</b> | 0.3 - 0.4                        | 0.3 - 0.4                        | 0.3 - 0.4                        |

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### 3.5.2) Replacement of oil spray nozzle

#### Disassembly:

See Fig. 9

| Step | Procedure   |
|------|---|
| 1    | Remove the magneto flywheel assy. (1), sprag clutch assy. (2) and oil spray nozzle (3). Disassemble sprag clutch assy. See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 74-20-00. |

- 1 Magneto flywheel assy.
- 2 Sprag clutch assy.
- 3 Oil spray nozzle

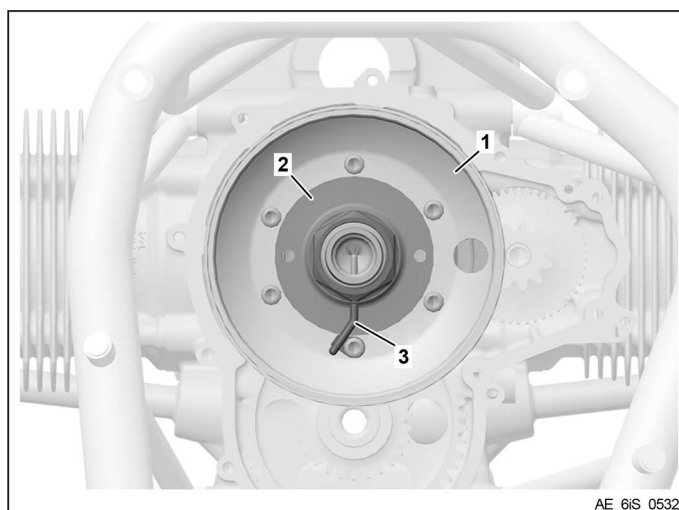


Fig. 9

#### Cleaning:

See Fig. 10

| Step | Procedure  |
|------|--|
| 1    | Clean residual LOCTITE from all threads and contact surfaces.  |
| 2    | Clean the sprag clutch housing oil bore (1) with LOCTITE 7063 (F).   |
| 3    | If necessary, clean the crankshaft oil spray nozzle (2) using a 1.2 mm (0.047 in.) hand drill followed by a punch ground to a diameter of 1.45 mm (0.057 in.) and LOCTITE 7063 (F) from the top side of crankshaft (outer diameter) to the internal side of crankshaft.<br>NOTE: Remove any residual from the internal diameter of the crankshaft. |

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- 1 Sprag clutch housing oil bore
- 2 Crankshaft oil spray nozzle

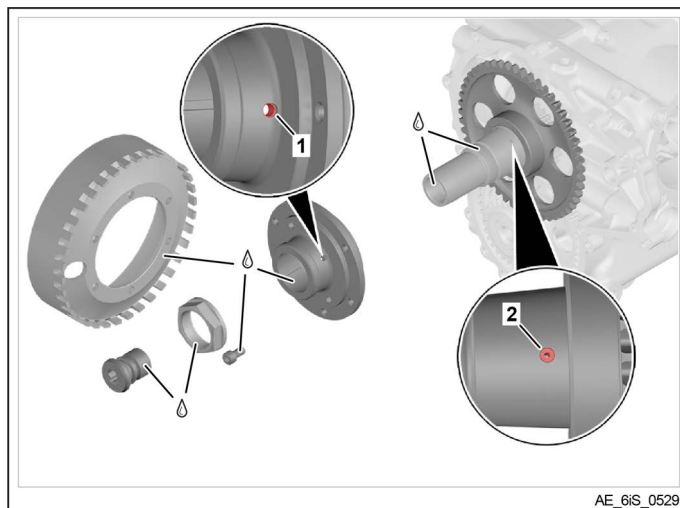


Fig. 10 (TYPICAL)

**Assembly:**  
 See Fig. 11 and 12

| Step | Procedure  |
|------|--|
| 1    | Assemble and install the sprag clutch assy. (1) and the magneto flywheel (2) along with a new oil spray nozzle part no. 456540 (3). See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 74-20-00. |

- 1 Sprag clutch assy.
- 2 Magneto flywheel
- 3 Oil spray nozzle

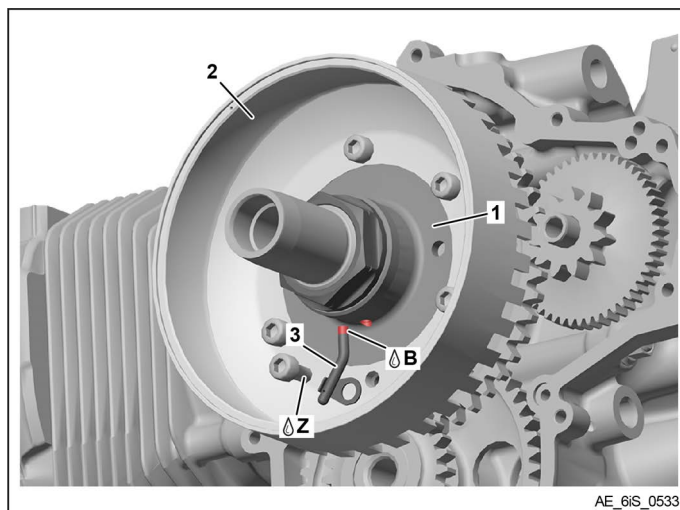


Fig. 11

**NOTICE**

Do not apply excessive amounts of LOCTITE to prevent oil spray nozzle from clogging. Clean bore with brake cleaning fluid before installation.

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| Step | Procedure  |
|------|--|
| 2    | Perform the oil spray nozzle inspection as in <a href="#">section 3.4.1</a> .<br>NOTE: If minimum airflow value is not achieved, contact the ROTAX® Authorized Distributor of your area.                                       |
| 3    | Remove the TEST TOOL OIL SPRAY NOZZLE ASSY.  |
| 4    | Install the ignition housing.<br>See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 24-20-00.  |
| 5    | Install the water pump housing.<br>See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 75-00-00.  |
| 6    | Install the electric starter.<br>See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 80-10-00.  |
| 7    | If equipped, install the optional generator flange assy. (7).<br>See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 72-20-00 and SI-PAC-023.   |
| 8    | Install plug screw (4 or 5) with a new O-ring (6), see current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 24-20-00, section Installation.  |
| 9    | Remove locking pin and install Allen screw M8x20 (8) with new sealing ring A 8x13 (9), see current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-20-00, section Locking / loosen of the crankshaft. |
| 10   | Replenish operating fluids or check filling levels, see current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-10-00 section Coolant check/replenish and Oil level check/replenish.                  |
| 11   | Purge the oil system, see current Installation Manual (IM) for the respective engine type, Chapter 79-00-00, section Purging the lubrication system.   |
| 12   | Make an entry in the engine logbook stating the execution of this Service Bulletin and the inspection findings.  |
| 13   | Perform a leakage check of the whole system, see current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-20-00, section Leakage check.  |

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- 4 Plug screw 915 i / 916 i
- 5 Plug screw 912 i
- 6 O-ring
- 7 Generator flange assy.
- 8 Allen screw M8x20
- 9 Sealing ring A 8X13

- B - LOCTITE 243
- C - LOCTITE 648
- F - LOCTITE 7063
- O - Engine oil
- V - Locking paint

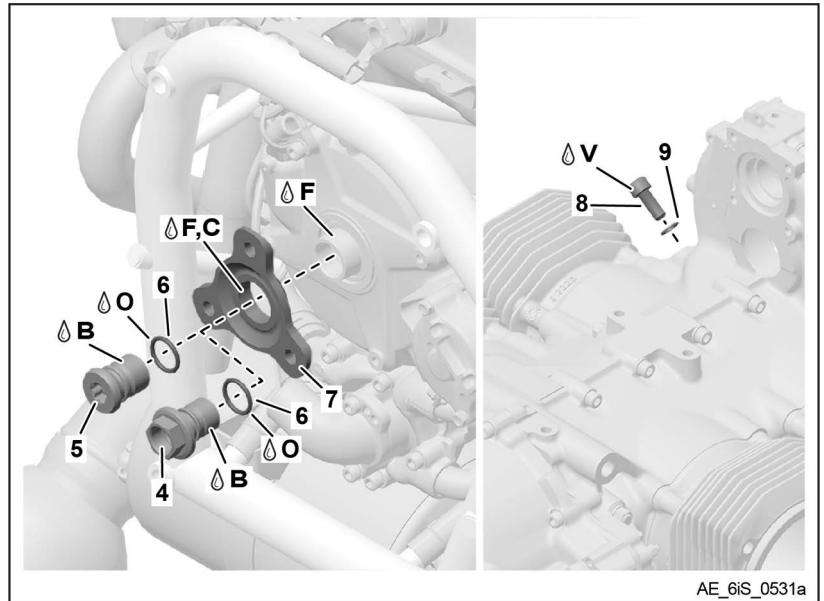


Fig. 12

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### 3.6) Finishing work

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

### 3.7) Test run

Conduct test run.

In case of uninstalled engines test run is accomplished with the mandatory test run after installation into aircraft.



See Chapter 12-20-00 of the latest Maintenance Manual Line (MML) for the respective engine type.

### 3.8) 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.

**NOTE:** Work on EASA certified parts might affect the EASA Form 1 and does require appropriate documentation by authorized persons. Repairs must be entered into the engine logbook and also do apply for the EASA Form 1.

| 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.

### 3.9) 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 <https://dealerlocator.flyrotax.com>.