

ALERT SERVICE BULLETIN

Inspection of the propeller gearbox of ROTAX® 915 i and 916 i (Series) Aircraft Engines

ATA System: 72-10-00 Propeller gear assy.

MANDATORY	OBLIGATORY	RECOMMENDED	OPTIONAL
X			

Description:

Mandatory: unsafe condition, therefore legally binding after publishing an (E)AD as referenced in EASA CM-21.A-J-001.

Obligatory: no unsafe condition, but BRP-Rotax demands to implement measures referred to in this document.

Recommended: no unsafe condition, BRP-Rotax assumes it is advisable to implement measures referred to in this document.

Optional: no unsafe condition, advancement but no need to implement measures referred to in this document.

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

Regardless of whether previous revisions have already been cleared, this revision of the Alert Service Bulletin must be observed.

All ROTAX® certified injected turbo engines of following types are affected if they have installed one of the propeller gearbox with S/N listed in the Chapter 4) Appendix:

Engine type
915 iSc2 A
915 iSc3 A
915 iSc2 C24
915 iSc3 C24
916 iSc2 A
916 iSc3 A
916 iSc2 C24
916 iSc3 C24
916 iSc3 B

This applies either when the propeller gearbox was:

- installed in the original delivery configuration (see columns 2 and 3 of the appendix), or
- subsequently installed during repair, maintenance, or any other gearbox replacement.

1.2) Concurrent ASB/SB/SI and SL

In addition to this Alert Service Bulletin the following documents must be observed:

- SI-915 i-001 / 916 i-001, Selection of suitable operating fluids for ROTAX® Engine Types 916 i & 915 i (Series), current revision.

d07234.fm

ALERT SERVICE BULLETIN

- 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

Following a field-reported incident, a deviation in the assembly process of the propeller gearbox was identified. Specifically, the omission of the M40x1.5 collar nut can, in the worst case, result in the propeller shaft being pulled out of the housing during operation. This condition constitutes a potential unsafe situation that could lead to loss of propeller retention and possible in-flight engine failure.

1.3.1) Reason for revision

- Correction of table in section 1.1
- Correction of appendix header and the S/N of the affected gearboxes was added

1.4) Subject

Inspection of the propeller gearbox of ROTAX® 915 i and 916 i (Series) Aircraft Engines.

1.5) Compliance

- On stored engines: prior to delivery.
- On uninstalled engines: before the initial installation.
- On installed engines: Carry out this inspection before next flight on the engines listed in section 1.1, according to the instructions in section 3, but at the latest after 1 year (from the date of the initial issue of this Alert 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. 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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ALERT SERVICE BULLETIN

1.11) References

In addition to this technical information refer to current issue of

- in general Illustrated Parts Catalog (IPC) and in particular:
Chapters 61-20-00 and 72-10-00
- in general Operators Manual (OM)
- in general Installation Manual (IM)
- in general Maintenance Manual Line (MML)
- in general Maintenance Manual Heavy (MMH) and in particular:
Chapters 61-20-00 and 72-10-00

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 the one 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

None.

ALERT SERVICE BULLETIN

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.

2.3) Material requirement per engine

Parts requirement for inspection:

Fig.no.	New part no.	Qty/ engine	Description	Application
1-1	825016	1	OIL FILTER PACKAGED	Inspection
1-2	*	AR	ENGINE OIL XPS / AERO-SHELL SPORT PLUS 4	Oil level check
1-3	230150	5	SEALING RING A 10X14	Oil line assy.

* 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).



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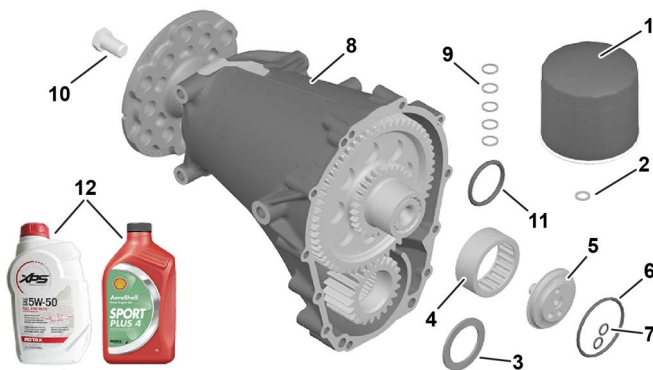
Fig. 1
Parts requirement for inspection

ALERT SERVICE BULLETIN

Parts requirement for gearbox replacement:

Fig.no.	New part no.	Qty/ engine	Description	Application
2-1	825016	1	OIL FILTER PACKAGED	Inspection
2-2	950141	1	SEALING RING A 8X13	Lock pin bolt
2-3	845431	1	FRICITION WASHER VS30	Drive gear
2-4	832953	1	NEEDLE BEARING 40-52-20	Overload clutch
2-5	810310	1	OIL INLET FLANGE	Torsion shaft
2-6	430175	1	O-RING 46X3	Governor flange
2-7	830415	2	O-RING 7X2	Governor flange
2-8	686810	(1)	GEARBOX 2.54 - 3 916 iS (Series)	Propeller gearbox replacement 916 i (Series)
2-8	686790	(1)	GEARBOX 2.54 - 3 915 iS (Series)	Propeller gearbox replacement 915 i (Series)
2-9	230150	5	SEALING RING A 10X14	Oil line assy.
2-10	841153	(1)	HEX. SCREW - M12X20	V2 Torsion shaft
2-11	950380	1	O-RING -32X4	Governor flange
2-12	*	AR	ENGINE OIL XPS / AERO-SHELL SPORT PLUS 4	Oil level check

* 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).



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Fig. 2
Parts requirement for gearbox replacement

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ALERT SERVICE BULLETIN

2.4) Material requirement per spare part

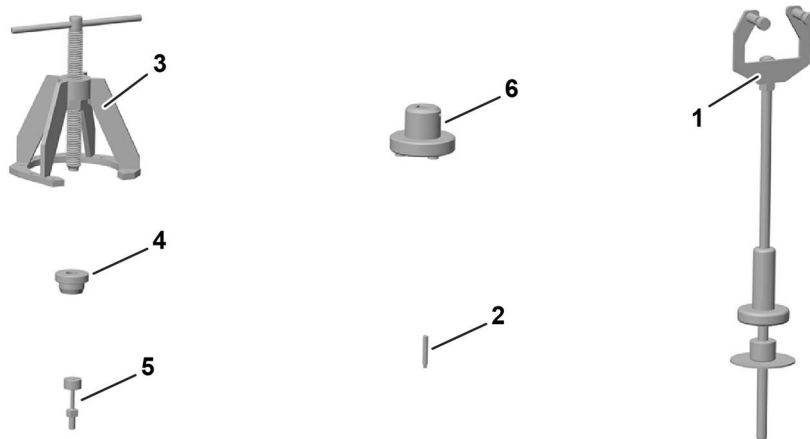
None.

2.5) Rework of parts

None.

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

Fig. no.	Description	Qty/ engine	Part no.	Application
3-1	Puller assy.	1	877660	Propeller gearbox
3-2	Locking pin	1	240880	Crankshaft
3-3	Extractor assy.	1	877615	Propeller shaft, Needle bearing
3-4	Press-in jig	1	276000	Needle bearing
3-5	Pull stud	1	276004	Needle bearing
3-6	Twist tool	1	276962	Overload clutch
-	LOCTITE 7063	AR	-	Cleaning / degreasing
-	LOCTITE 243	AR	897651	Oil inlet flange, Countersunk screw
-	LOCTITE 603	AR	899789	Collar nut M40X1.5
-	LOCTITE 648	AR	899788	Hex. nut M30X1.5
-	LOCTITE 5910.	AR	899791	Propeller gearbox



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Fig. 3
Special tools

NOTICE

If using these special tools observe the manufacturers specifications.

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ALERT SERVICE BULLETIN

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 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 Procedure

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

Step	Procedure
1	Check the criteria given on page 1, section 1.1, if the aircraft engine 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 61-20-00 and 72-10-00.

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ALERT SERVICE BULLETIN

3.2) Installation - related information



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

3.3) Operation - related information



See current Operators Manual (OM) for the respective engine type.

3.4) Maintenance (Line) - related information



See current Maintenance Manual Line (MML) for the respective engine type.

ALERT SERVICE BULLETIN

3.5) Maintenance (Heavy) - related information

3.5.1) Inspection of the propeller gearbox

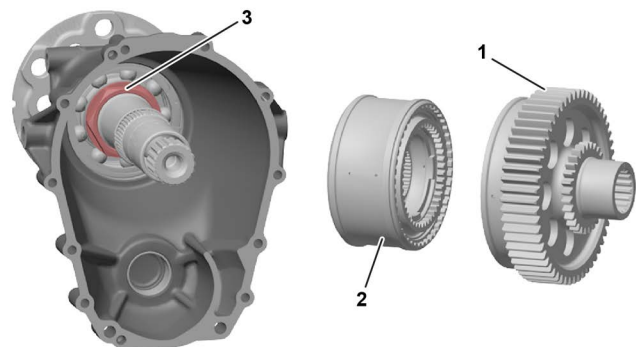
Before the propeller gearbox is removed, the work described below must be carried out:

- General visual inspection, see current Maintenance Manual Line (MML) for the respective engine type, Chapter 05-20-00, Section Visual inspection.
- Remove the surrounding assemblies, see current airframe and propeller manufacturer's instructions.
- If installed, remove the gearbox oil line assy, see current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 61-20-00, Section Removal.
- If installed, remove the external alternator, see current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 24-30-00, Section Removal.

See Fig. 4

Step	Procedure
1	Inspect the oil filter and magnetic plug. See current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-20-00, Section - Inspection of the oil filter components. NOTE: If contamination is found, contact your local ROTAX® Authorized Distributors or their independent Service Centers. If no contamination is present, proceed to step 2.
2	Remove the propeller gearbox. See current Maintenance Manual Line (MML) for the respective engine type, Chapter 05-50-00, Section - Removal of the propeller gearbox.
3	Remove the overload clutch assy. (1) and damping clutch assy. (2). See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 72-10-00, Section - Disassembly of the propeller gearbox.
4	Inspect for the presence of Collar nut M40x1.5 LH (3). NOTE: If collar nut is present, proceed to step 5. If no collar nut is present, proceed to section 3.5.2.

- 1 Overload clutch assy.
- 2 Damping clutch assy.
- 3 Collar nut



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Fig. 4

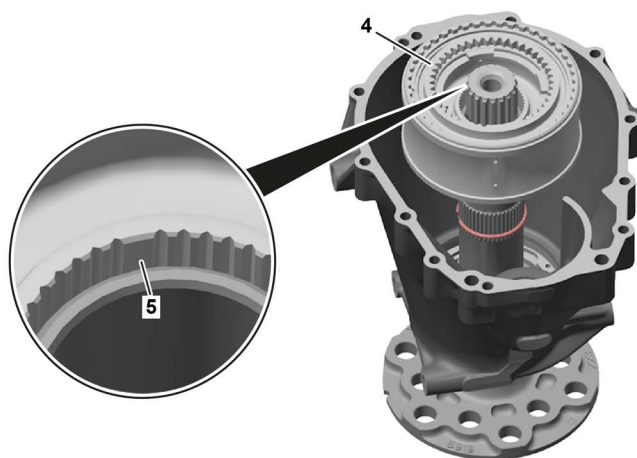
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ALERT SERVICE BULLETIN

See Fig. 5

Step	Procedure
5	Install damper clutch (4) into the housing. See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 72-10-00, Section - Damper clutch installation. NOTE: There is only one position to install the damper clutch. It is indexed through the splines of the propeller shaft (5).

4 Damper clutch
5 Splines



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Fig. 5
Collar nut torque check

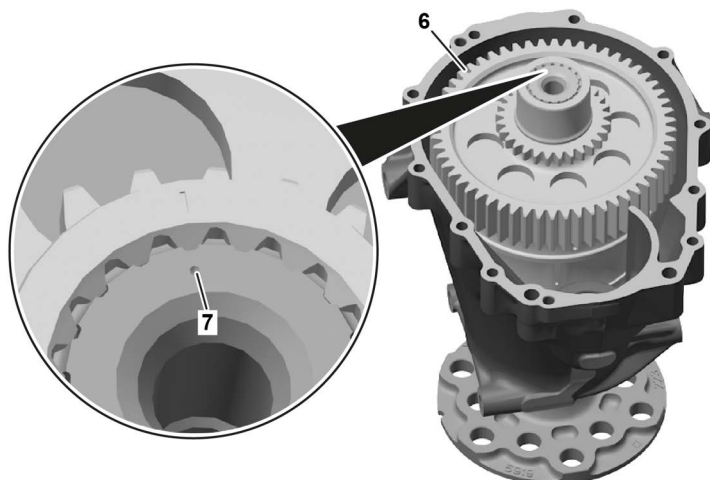
See Fig. 6

Step	Procedure
6	Install overload clutch (6) so, that the marks of torsion bar and carrier of the clutch are properly aligned (7). See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 72-10-00, Section - Overload clutch installation.

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ALERT SERVICE BULLETIN

6 Overload clutch
7 Alignment marks



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Fig. 6
Overload clutch

Step	Procedure
7	Install the propeller gearbox. See current Maintenance Manual Line (MML) for the respective engine type.

- Install the gearbox oil line assy, see current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 61-20-00, Section Installation.
- If equipped, install the external alternator, see current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 24-30-00, Section Installation.
- Install the surrounding assemblies, see current airframe and propeller manufacturer's instructions.
- Replenish operating fluids or check filling levels, see current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-00-00.
- Purge the oil system, see current Installation Manual (IM) for the respective engine type, Chapter 79-00-00, section Purging the lubrication system.
- Make an entry in the engine logbook stating the execution of this Alert Service Bulletin and the operations performed.
- Restore aircraft to original operating configuration.
- Connect negative terminal of aircraft battery.
- Proceed to section 3.6

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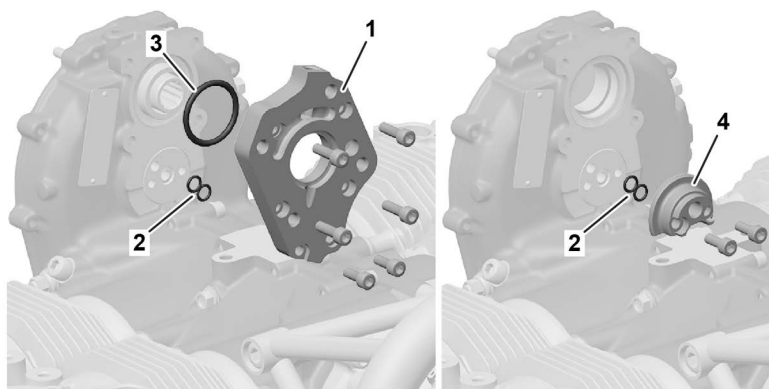
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3.5.2) Replacement of propeller gearbox

See Fig. 7

Step	Procedure
1	Remove governor flange (1), O-rings 7x2 (2) and o-ring 32x4 (3) (configuration 3). Remove oil inlet flange adapter (4) and o-rings 7x2 (2) (configuration 2). See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 61-20-00.

- 1 Governor flange
- 2 O-ring 7x2
- 3 O-ring 32x4
- 4 Oil inlet flange adapter



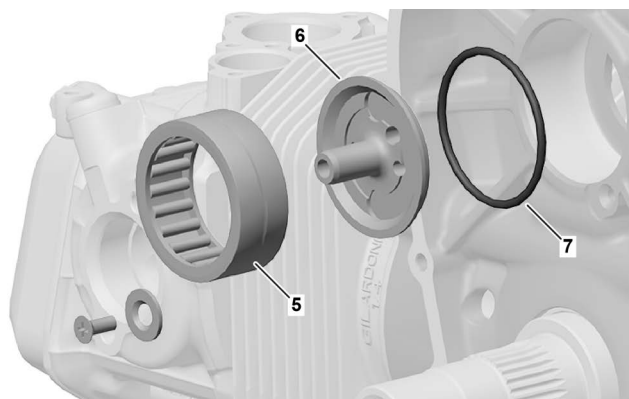
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Fig. 7

See Fig. 8

Step	Procedure
2	Remove and replace the needle bearing (5), oil inlet flange (6) and o-ring 46x3 (7). See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 72-10-00.

- 5 Needle bearing
- 6 Oil inlet flange
- 7 O-ring 46X3



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Fig. 8

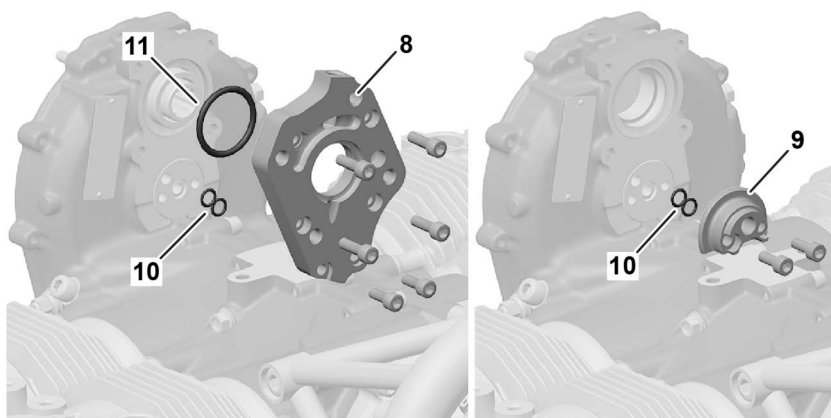
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See Fig. 9

Step	Procedure
3	Install governor flange (configuration 3) (8) or oil inlet flange adapter (configuration 2) (9) with new o-rings 7X2 (10) and O-ring 32X4 (11). See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 61-20-00.

- 8 Governor flange
- 9 Oil inlet adapter
- 10 O-ring 7X2
- 11 O-ring 32X4



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Fig. 9

See Fig. 10

Step	Procedure
4	Lock the crankshaft into place. See current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-20-00, Section - Lock / loosen the crankshaft.
5	Remove and replace the Hex. nut M30x1.5 (12), drive gear (13) and friction washer (14) from the crankshaft. See current Maintenance Manual Line (MML) for the respective engine type, Chapter 05-50-00 Section - Drive gear removal.

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ALERT SERVICE BULLETIN

- 12 Socket wrench SW 41
- 13 Hex. nut M30x1.5
- 14 Friction washer VS30

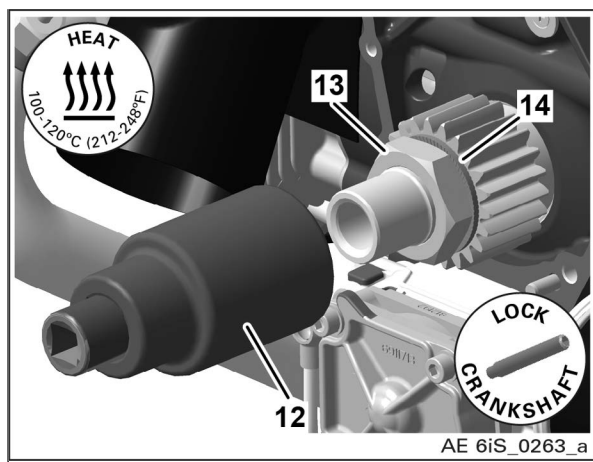


Fig. 10

Step	Procedure
6	<p>Replace the propeller gearbox (part no. 686810 for 916 i Series and part no. 686790 for 915 i Series). See current Maintenance Manual Line (MML) for the respective engine type, Chapter 05-50-00, Section - Installation of the propeller gearbox.</p> <p>NOTE: Before installing the new gearbox, verify the configuration of your engine (2 or 3) and ensure the correct hex screw (M12x20) is used. New units are supplied with part no. 841150, for configuration type 3, already installed. Refer to the current Illustrated Parts Catalog (IPC) for the respective engine type, Chapter 72-10-00.</p>

- Remove locking pin and install Allen screw with new sealing ring. See current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-20-00.
- Install the gearbox oil line assy, see current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 61-20-00, Section Installation.
- If equipped, install the external alternator, see current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 24-30-00, Section Installation.
- Install the surrounding assemblies, see current airframe and propeller manufacturer's instructions.
- Replenish operating fluids or check filling levels, see current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-00-00.
- Purge the oil system, see current Installation Manual (IM) for the respective engine type, Chapter 79-00-00, section Purging the lubrication system.
- Make an entry in the engine logbook stating the execution of this Alert Service Bulletin and the operations performed.
- Restore aircraft to original operating configuration.
- Connect negative terminal of aircraft battery.

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ALERT SERVICE BULLETIN

3.6) Test run

Conduct test run.

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



See current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-20-00, Section - Test run of engine.

Perform a leakage check of the whole system, see current Maintenance Manual Line (MML) 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 this Alert 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.

3.8) Inquiries

Inquiries regarding this Alert 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>.

4) Appendix

| See attached S/N list of affected (suspect) propeller gearboxes, with engine S/N on which latest known to be installed (certified engines types (iSc); ASTM engines types (iS)).

| **NOTE:** To search for serial numbers, please use the search function (Ctrl+F) in the PDF.

Gearbox S/N	last known to be installed on	
	Engine type	Engine S/N
240695	915 iS2 A	10006706
240696	915 iS2 A	10006707
240697	915 iS2 A	10006708
240819	915 iS2 A	10007093
241150	915 iS2 A	10008274
241160	915 iS2 A	10008275
241155	915 iS2 A	10008287
240820	915 iS2 A	10008288
241156	915 iS2 A	10008294
241158	915 iS2 A	10008295
241154	915 iS2 A	10008296
241157	915 iS2 A	10008297
241159	915 iS2 A	10008298
240975	915 iS3 A	10007833
240972	915 iS3 A	10008290
241151	915 iS3 A	10008291
241161	915 iS3 A	10008292
241162	915 iS3 A	10008293
240702	915 iS3 A	10009760
241096	915 iS3 A	10009766
240681	915 iS3 A	10009946
240680	915 iS3 A	10009947
240310	915 iS3 A	10010062
240789	915 iSc2 A	10006959
240790	915 iSc2 A	10006962
240794	915 iSc2 A	10006964
240796	915 iSc2 A	10006965
240797	915 iSc2 A	10006967
240798	915 iSc2 A	10006968
240804	915 iSc2 A	10006984
240806	915 iSc2 A	10006986
240906	915 iSc2 A	10007404
240909	915 iSc2 A	10007405
240907	915 iSc2 A	10007406
240908	915 iSc2 A	10007407
240917	915 iSc2 A	10007408
240585	915 iSc3 A	10009945
240716	916 iS2 A	10006779
240744	916 iS2 A	10006848
240746	916 iS2 A	10006849
240745	916 iS2 A	10006850
241163	916 iS3 A	10008299
241164	916 iS3 A	10008300
241128	916 iS3 A	10008311
241167	916 iS3 A	10008312
241169	916 iS3 A	10008313

Gearbox S/N	last known to be installed on	
	Engine type	Engine S/N
241166	916 iS3 A	10008314
241171	916 iS3 A	10008315
241168	916 iS3 A	10008316
241170	916 iS3 A	10008317
241172	916 iS3 A	10008318
241187	916 iS3 A	10008358
241188	916 iS3 A	10008361
241189	916 iS3 A	10008363
241196	916 iS3 A	10008380
241195	916 iS3 A	10008381
241287	916 iS3 A	10008606
241323	916 iS3 A	10008711
241331	916 iS3 A	10008715
241327	916 iS3 A	10008719
240708	916 iS3 A	10009761
240871	916 iS3 A	10009762
240550	916 iS3 A	10010290
250278	916 iS3 A	10010289
240754	916 iS3 A	10010291
240575	916 iS3 A	10010479
240577	916 iS3 A	10010480
240779	916 iSc2 A	10006935
240780	916 iSc2 A	10006936
240781	916 iSc2 A	10006937
240778	916 iSc2 A	10006938
240783	916 iSc2 A	10006939
240782	916 iSc2 A	10006940
240784	916 iSc2 A	10006941
240786	916 iSc2 A	10006942
240785	916 iSc2 A	10006943
240787	916 iSc2 A	10006944
240992	916 iSc3 B	10007881
240997	916 iSc3 B	10007882
241109	916 iSc3 B	10008216
241119	916 iSc3 B	10008217
241112	916 iSc3 B	10008219
241113	916 iSc3 B	10008220
241110	916 iSc3 B	10008221
241114	916 iSc3 B	10008222
241120	916 iSc3 B	10008223
241116	916 iSc3 B	10008225
241117	916 iSc3 B	10008227
241122	916 iSc3 B	10008229
241124	916 iSc3 B	10008241
241123	916 iSc3 B	10008243
241126	916 iSc3 B	10008244

Gearbox S/N	last known to be installed on	
	Engine type	Engine S/N
241226	916 iSc3 B	10008247
241131	916 iSc3 B	10008250
241136	916 iSc3 B	10008251
241139	916 iSc3 B	10008263
241140	916 iSc3 B	10008264
241141	916 iSc3 B	10008265
241142	916 iSc3 B	10008266
241143	916 iSc3 B	10008267
241146	916 iSc3 B	10008268
241144	916 iSc3 B	10008269
241148	916 iSc3 B	10008270
241149	916 iSc3 B	10008272
241173	916 iSc3 B	10008334
241174	916 iSc3 B	10008335
241177	916 iSc3 B	10008336
241176	916 iSc3 B	10008337
241178	916 iSc3 B	10008338
241175	916 iSc3 B	10008339
241181	916 iSc3 B	10008340
241179	916 iSc3 B	10008341
241180	916 iSc3 B	10008342
241183	916 iSc3 B	10008354
241184	916 iSc3 B	10008356
241186	916 iSc3 B	10008357
241222	916 iSc3 B	10008452