

SERVICE BULLETIN NO. MSB-AE50R-004

I. TECHNICAL DETAILS

1.1 Category

Mandatory

1.2 Engines affected

Engine affected: **AE50R Series**

Serial Numbers affected: **AE50RAB** #1011 – 1036, 1040, 0250, 0270 and 0541
IAE50R-AA #2009, 2011, 2017, 2028-2033 and 2038 - 2044

1.3 Date of effectivity

This Service Bulletin becomes effective on the 2nd October, 2009.

1.4 Time of compliance

Measure 1: To be considered from the date of effectivity.

Measure 2: At the next scheduled maintenance action but not later than 1st June, 2010.

1.5 Subject

Rotor R1A-70-200-000 / R1B-70-200-000

1.6 Reason

Recently severe engine failures including cracks of the engine housing due to a released radial dowel of the engine rotor occurred. Investigation of the damages has shown that these failures have been caused by an insufficient welding of the dowel.

These flaws in welding are limited to certain production batches of rotor assemblies which are installed in the above mentioned engines.

1.7 Concurrent documents

None.

1.8 Approval

The technical content of this document has been approved under the authority of DOA No. EASA.21J.052.

1.9 Coordination, Austro Engine

After Sales Support (Austro Engine GmbH)
service@austroengine.at
Tel No. +43-2622-23000-2525

1.10 Measures

Measure 1: Self launching is not allowed until measure 2 has been carried out.
It is recommended not to operate the engine until measure 2 has been carried out.

Measure 2:

- Remove engine in accordance with the Aircraft Maintenance Manual.
- Send engine to Austro Engine GmbH. For further details contact Austro Engine After Sales Support (see 1.9)

Note: The rotor will be exchanged at Austro Engine in accordance with the internal WI-MSB-AE50R-004.

- After receiving back the engine install engine in accordance with the Aircraft Maintenance Manual

CAUTION: Engine operation without performing measure 2 may cause severe damage to the engine.

1.11 Recurring actions

None

1.12 Mass (Weight) and CG

None

II. PLANNING INFORMATION

For coordination of measure 2 contact Austro Engine After Sales Support (see 1.9)

2.1 Material and availability

N.a.

2.2 Special tools

N.a.

2.3 Labor consumption

N.a.

2.4 Reference documents


N.a.

2.5 Credit

For credit contact Austro Engine GmbH.

III. REMARKS

1. Due to the complexity of the work and the needed special tooling the change of the rotor can only be done at the Austro Engine GmbH facility.
2. Accomplishment of the measures must be confirmed in the log book.
3. In case of any doubt, contact Austro Engine GmbH.

	Work Instruction No. WI-MSB-AE50R-004/1	Austro Engine GmbH Rudolf-Diesel-Strasse 11 A-2700 Wiener Neustadt Tel: +43 2622 23000 FAX: +43 2622 23000-2711
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WORK INSTRUCTION

WI-MSB-AE50R-004/1
Supersedes WI-MSB-AE50R-004

"EXCHANGE OF THE AE50R ROTOR"

I GENERAL INFORMATION

I.1 Subject:

All AE50R engines that are affected by service bulletin MSB-AE50R-004.

I.2 Reference documents:

Customer Test Record Sheet FOP08 - latest effective issue
Build Manual E1.08.03 - latest effective issue
Build Manual E1.08.05 - latest effective issue

I.3 Remarks:

Rev. 1: Added point III.4 Completion (IAE50R-AA) and point III.8 Completion (AE50RAB)

II DRAWINGS, SPECIAL TOOLS & MATERIALS

II.1 Drawings:

Not applicable.

II.2 Special Tools:

Due to the complexity and the fact that each engine has to be treated slightly different please contact Austro Engine for the special tools.

II.3 Materials:

Due to the special treatment of each engine please contact Austro Engine GmbH for a maintenance kit.



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III INSTRUCTIONS

III.1 Disassembly of the engine (IAE50R-AA):

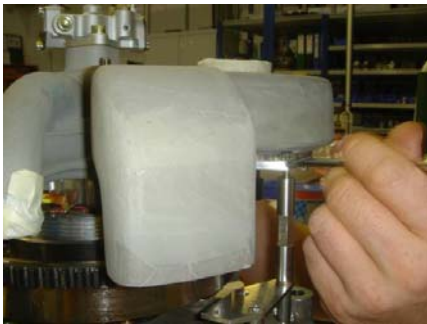
Step 1: Dismounting the oil lines

Release the tightening screws and dismount the oil lines.



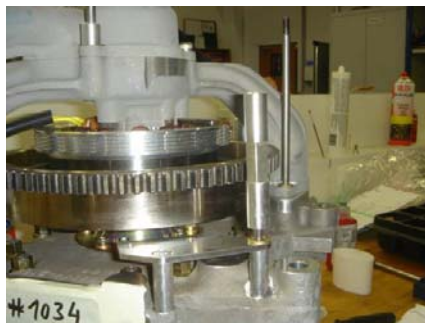
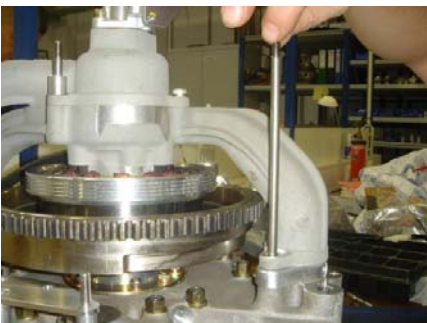
Step 2: Dismounting the fan

Release the screws shown and detach the fan from the engine.
Special attention has to be paid to the position of the shim spacers of the fan studs.



Step 3: Dismounting the fan attachment points and spacers

Dismount the studs and spacers as shown below.
Attention: all studs are Loctite secured.





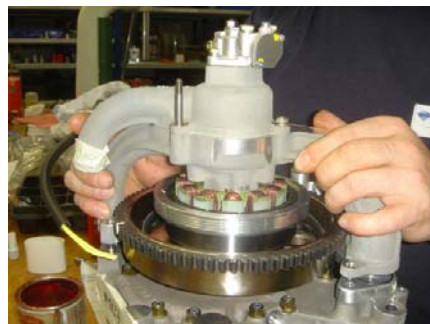
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Step 4: Dismounting the water pump

Release the shown screws and remove the water pump from the engine. Special attention has to be paid to the centre bolts.



Step 5: Dismounting the starter plate

Release the shown screws and remove the starter plate from the engine.





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Step 6: Dismounting the generator

Release the screws shown and remove the generator from the flywheel.
Attention: all screws are Loctite secured.



Step 7: Dismounting the flywheel

Release the main nut and remove the flywheel from the eccentric shaft. There is a special tool required for this action, so please contact Austro Engine for purchasing the tool.



Step 8: Dismounting the backplate

Remove the oilseal-ring and the woodruff key.
Release the nuts shown and remove the backplate with caution.





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Step 9: Removing the eccentric shaft

Mark the rotor and the sealing parts and dismantle the sealings clockwise. The rotor has to be adjusted to the correct position to make it possible to remove the eccentric shaft. Take out the eccentric shaft with caution as shown.



Step 10: Removing the rotor

Pick up the rotor as shown and take it out of the trochoid slowly. Take caution as some of the rotor sealings are likely to fall off the rotor during this process.



The disassembly of the engine is done with this last step..

III.2 Exchange of the rotor (IAE50R-AA):

Clean the eccentric shaft, the flywheel, the bearing and the balancing weight.

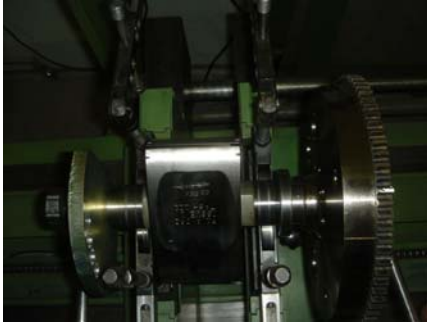
As the rotor is paired to the eccentric shaft in diameter and to the stationary gear in gear grade the eccentric shaft diameter (main bearing) has to be measured with a appropriate measuring tool accurate to microns. This value and the number of the gear grade have to be sent to Austro Engine. Austro Engine will then provide a new rotor which fits to the group mentioned.



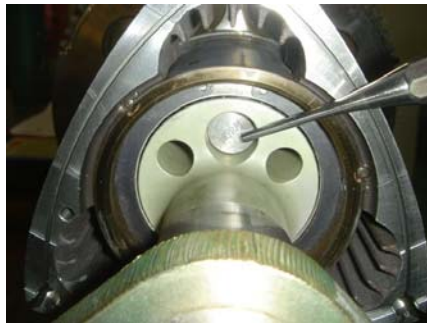
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Take the new rotor part no. R1A-70-200-000-010 and assemble it with the cleaned parts to a balancing group.



Insert the compensation weight of the sealings into the eccentric shaft.



Perform a balancing of the whole group on a balancing machine pt. no. MWT 059/1 until a sufficient balancing is reached.

Caution: Only drill the balancing weight right to the face of the front plate and the flywheel in the area of massive steel.

III.3 Assembly of the engine (IAE50R-AA):

The assembly process of the engine is vice versa to the disassembly process.

Caution: All parts have to be cleaned before assembly of the engine. Special attention has to be paid on using only new sealings and to secure all screws with the appropriate Loctite and to use the appropriate torque to tighten the screws.

III.4 Completion (IAE50R-AA):

Perform an engine run on a test bench according to the build manual E1.08.05 Chapter 2, latest effective issue. Use the "Customer Test Record Sheet" FOP08 for documentation of the required values, which are defined on the sheet itself.



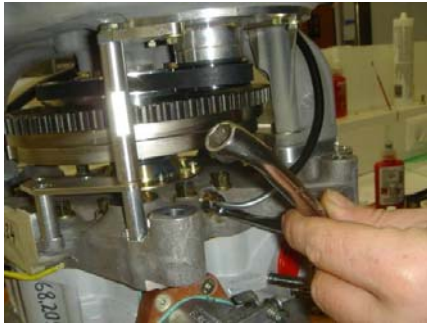
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III.5 Disassembly of the engine (AE50RAB):

Step 1: Dismounting the oil lines

Release the tightening screws and dismount the oil lines.



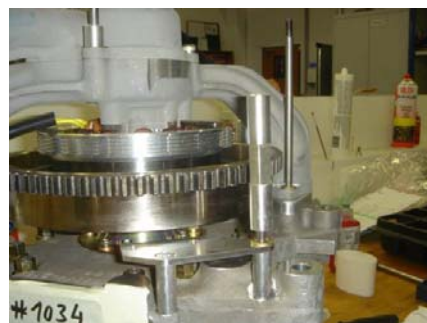
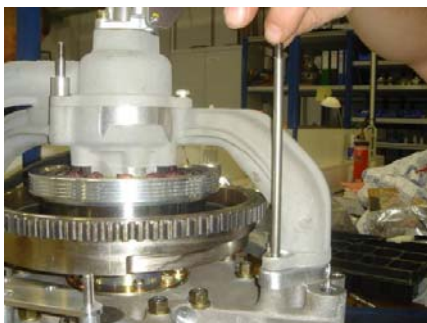
Step 2: Dismounting the fan

Release the screws shown and detach the fan from the engine.
Special attention has to be paid to the position of the shim spacers of the fan studs.



Step 3: Dismounting the fan attachment points and spacers

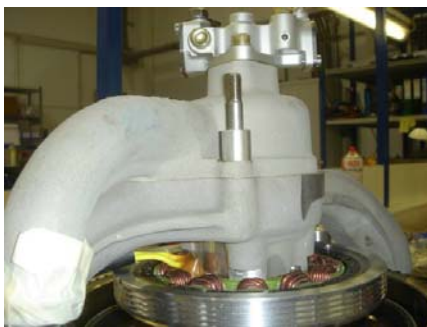
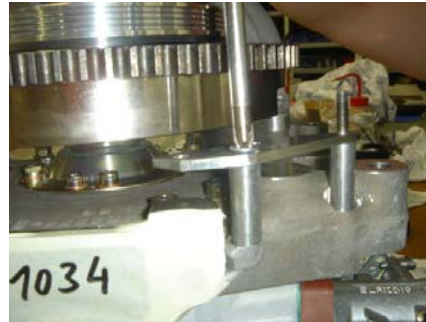
Dismount the studs and spacers as shown below.
Attention: all studs are Loctite secured.





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Step 4: Dismounting the water pump

Release the shown screws and remove the water pump from the engine. Special attention has to be paid to the centre bolts.





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Step 5: Dismounting the starter plate

Release the shown screws and remove the starter plate from the engine.



Step 6: Dismounting the generator

Release the screws shown and remove the generator from the flywheel.
Attention: all screws are Loctite secured.



Step 7: Dismounting the flywheel

Release the main nut and remove the flywheel from the eccentric shaft. There is a special tool required for this action, so please contact Austro Engine for purchasing the tool.





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Step 8: Dismounting the backplate

Remove the oilseal-ring and the woodruff key.
Release the nuts shown and remove the backplate with caution.



Step 9: Removing the eccentric shaft

Mark the rotor and the sealing parts and dismantle the sealings clockwise. The rotor has to be adjusted to the correct position to make it possible to remove the eccentric shaft.
Take out the eccentric shaft with caution as shown.



Step 10: Removing the rotor

Pick up the rotor as shown and take it out of the trochoid slowly. Take caution as some of the rotor sealings are likely to fall off the rotor during this process.





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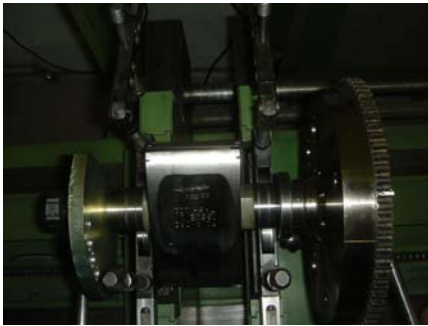
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III.6 Exchange of the rotor (AE50RAB):

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Take the new rotor part no. R1B-70-200-000-010 and assemble it with the cleaned parts to a balancing group.



Insert the compensation weight of the sealings into the eccentric shaft.




Perform a balancing of the whole group on a balancing machine pt. no. MWT 059/1 until a sufficient balancing is reached.

Caution: Only drill the balancing weight right to the face of the front plate and the flywheel in the area of massive steel.

III.7 Assembly of the engine (AE50RAB):

The assembly process of the engine is vice versa to the disassembly process.

Caution: All parts have to be cleaned before assembly of the engine. Special attention has to be paid on using only new sealings and to secure all screws with the appropriate Loctite and to use the appropriate torque to tighten the screws.

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III.8 Completion (AE50RAB):

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IV APPENDIX

Not applicable