



Mandatory Service Bulletin
No. MSB-E4-014/2

Austro Engine GmbH
Rudolf-Diesel-Strasse 11
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MANDATORY SERVICE BULLETIN

No. MSB-E4-014/2
SUPERSEDES MSB No. MSB-E4-014/1

1. BASIC INFORMATION

1.1. SUBJECT

Replacement of the Fuel Return Line and Banjo Fitting

1.2. ENGINES AFFECTED

Type: E4 Engine

Serial Number: E4-A-00001 to E4-A-00099
E4-B-00001 to E4-B-00379
E4-C-00001 to E4-C-00020

1.3. REASON

Service experience showed cracks in the fuel return line after about 600 engine operating hours due to inappropriate routing which could lead to fuel leakage.

Additionally this MSB introduces a new return line design which is required to be installed for operating the engine with Diesel fuel.

1.4. TIME OF COMPLIANCE

Time of Compliance from MSB issue date:

- At next 600h maintenance action, **or**
- if the engine is required to be operated with Diesel fuel,

but not later than 31.12.2014.

NOTE: Prior compliance with MSB E4-014 does not preclude compliance with this MSB.

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1.5. RECURRING ACTION

None.

1.6. CONCURRENT DOCUMENTS / REFERENCES

Maintenance Manual – Doc. No.: E4.08.04, latest effective issue

1.7. OTHER PUBLICATIONS AFFECTED

None.

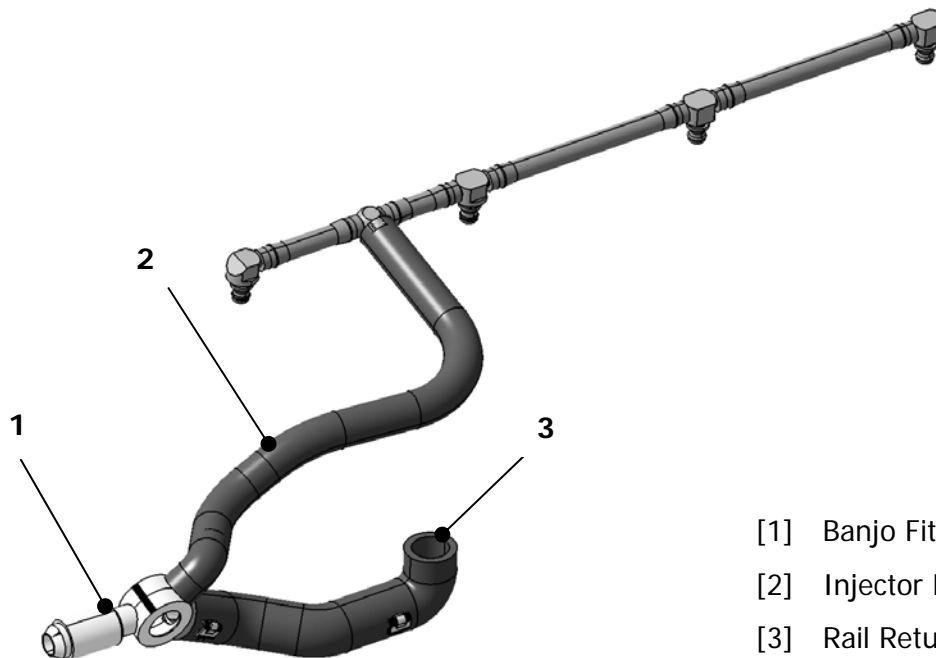
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2. TECHNICAL DETAILS

2.1. ACCOMPLISHMENT / INSTRUCTIONS

The following instructions have to be followed to comply with this MSB.

1. "Removal of the Injector Cover" according to Maintenance Manual E4.08.04, chapter 85-00-11.
2. Replacement of the Injector Return Line and Banjo Fitting according the following steps:



- [1] Banjo Fitting
- [2] Injector Return Line
- [3] Rail Return Line

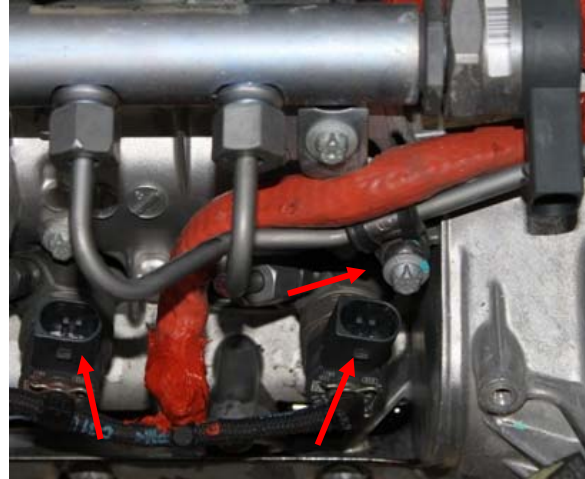
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Step 1

Initial situation.


Step 2

Disconnect the harness.


Step 3

Disconnect the Banjo Fitting [1].


Step 4


Plug the High Pressure Pump outlet to avoid contamination of the fuel system.



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Step 5

Disconnect the Rail Return Line [3].

 Take care not damaging the Rail Return Line while demounting the fire sleeve. The Rail Return Line including Clamps need to be reinstalled.


Step 6

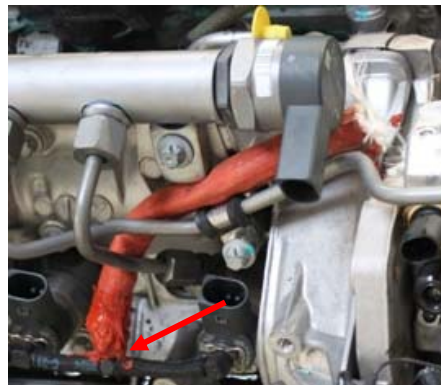
Plug the Rail outlet to avoid contamination of the fuel system.


Step 7

It is possible to cut the Injector Return Line [2] for an easier disassembly.


Step 8

Leave the rest of the Injector Return Line [2] connected till the final assembly to avoid contamination of the fuel system.



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Step 9

Disassemble the Rail Return Line [3] from the old Banjo Fitting [1] and clean them from remaining sealant and fire sleeve.



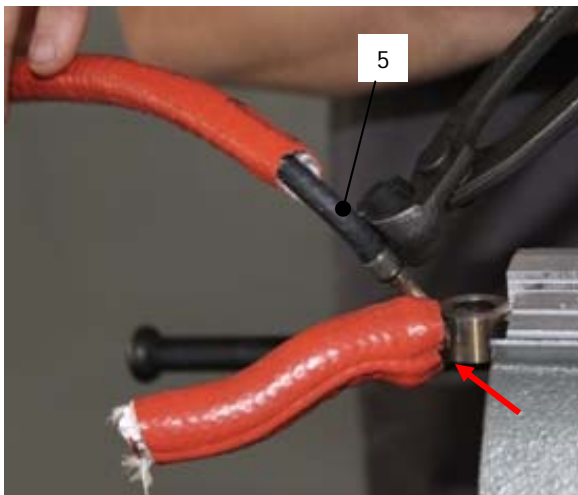
Step 10

Take the new Banjo Fitting [4] and assemble them with the Rail Return Line [3], clamp and new fire sleeve.



Step 11

Assemble the new Injector Return Line [5] with the new clamp and the new fire sleeve to the Banjo Fitting [4]. Pull the fire sleeves over the clamps.



Step 12


Use sealant (for material specification see chapter 3.1) to insulate the fire sleeve ends.



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Step 13

Disassemble the Injector Return Line [2].

 Take care **not** damaging the connector.

Step 14

Before assembly blast the preassembly to avoid contamination of the fuel system.


Step 15

Route the hose as shown and connect the Injector Return Line [5] with new clamp.


Step 16


Connect the Rail Return Line [3] to the Rail outlet using clamp tool.



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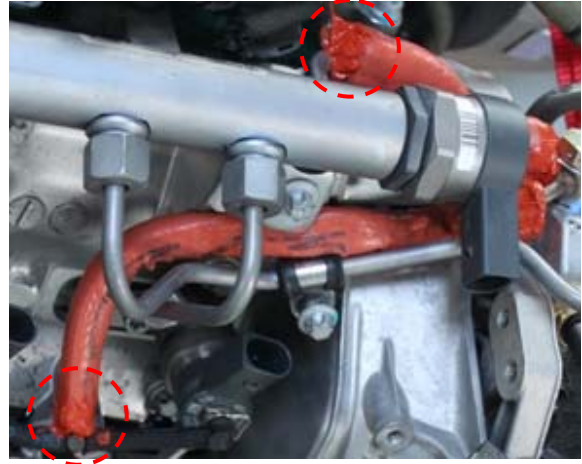
Step 17


Torque the Banjo Fitting [4] with the Banjo Bolt with 25Nm.

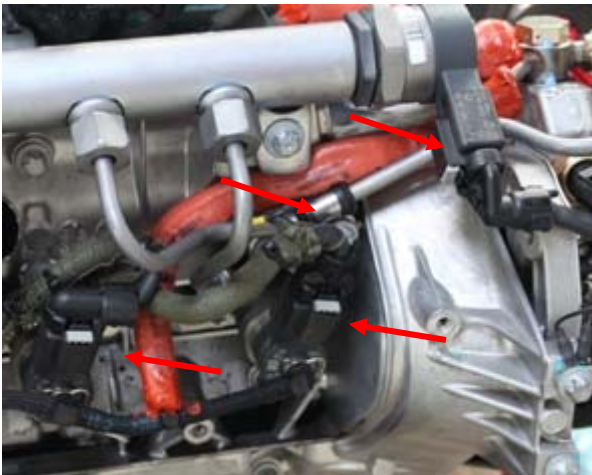
 Do not forget to use two new washers.


Step 18

Pull the fire sleeves over the clamps and use sealant (for material specification see chapter 3.1) to insolate the fire sleeve ends.


Step 19

 Do not forget to reconnect the harness.




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3. Clean surface and install the oil separator hose and injector cover according the following steps:

Step 20

Clean hose connection [1] on the cylinder head cover by using a dry and clean rag only.

 Do not use any detergent to avoid engine oil contamination.



Step 21

Guide the oil separator hose [2] beneath the high pressure fuel lines as shown.



Step 22

Preassemble the hose clamp [3] to the oil separator hose as shown.



Step 23

Disconnect the injector plug [4] for an easier mounting of the oil separator hose, if required.




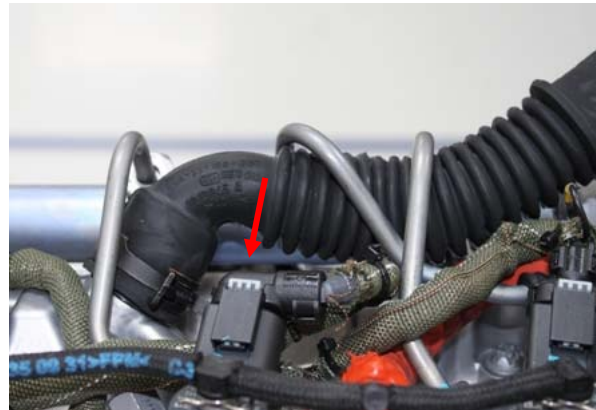
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Step 24

Push the oil separator hose [2] over the hose connection [1] and fix it with the hose clamps [3].

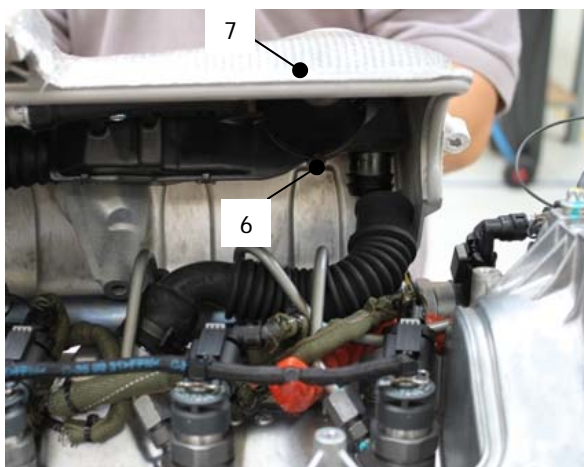

Step 25

 Do not forget to reassemble the injector plug [4].



Step 26: In case the oil separator hose has been disassembled from the oil separator assembly:

After assembly of the oil separator hose to the cylinder head cover, the hose needs to be connected to the oil separator assembly [6] which is installed on the injector cover [7].




Step 27: In case the oil separator hose has been disassembled from the oil separator assembly:

Push the oil separator hose [2] on to the oil separator assembly [6] and fix them with the hose clamps [3].




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Step 28

 Please take care during the oil separator hose installation that the hose is not stressed by torsion.


Step 29

 Close the injector cover carefully to avoid stress to or jamming of the oil separator hose.


Step 30

 Before mounting of the injector cover slightly push the hose towards the direction shown. This helps to avoid jamming of the oil separator hose.



4. For final installation refer to Maintenance Manual E4.08.04 chapter 85-00-12 – *“Installation of Injector Cover”*.
5. After engine ground run (which is part of scheduled maintenance procedure) torque the Banjo Bolt again with 25Nm.

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2.2. ILLUSTRATIONS

Refer to chapter 2.1.

2.3. MASS (WEIGHT)

No change.

2.4. APPROVAL STATEMENT

The technical information or instructions contained in this document relate to the Basic Type Design which has been approved by EASA and to the Design Change Report No. MDC-E4-276 which has been approved under the authority of DOA No. EASA.21J.399.

The technical content of this document has been approved under the authority of DOA No. EASA.21J.399.

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3. PLANNING INFORMATION

3.1. MATERIAL & AVAILABILITY

Amount	Part Name	Part Number	Rev. Number
1	Banjo Fitting	E4A-33-400-000	030
2	Washer	DIN7603-12x16x2.0	---
1	Injector Return Line	E4A-32-100-804	010
1	Fire Sleeve Ø 10mm x 200mm	E4A-32-100-805	010
1	Fire Sleeve Ø 13mm x 90mm	E4A-32-100-806	010
2	Clamp (1-Ear clamp with insert 8.5-10mm)	E4A-32-100-807	010
---	Heat Resistant/Sealant	DOW_CORNING_736	---

3.2. SPECIAL TOOLS

No special tools required.

3.3. LABOR EFFORT

Replacement of Fuel Return Line: 1/2 hours

3.4. CREDIT

1/2 hour labor effort for installation
 (1 hour of labor effort is credited with EUR 68,- per working hour).

Parts mentioned in 3.1, except DOW_CORNING_736.

Transport of required parts is paid by AE.

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4. REMARKS

NOTE:

- All measures must be carried out by a certified engine station and certified engine mechanic.
- The accomplishment of the instructions shown under chapter 2.1 must be confirmed in the respective engine log book.
- The accomplishment of the instructions must be carried out within the time of compliance according chapter 1.4.
- In case of doubt please contact the Austro Engine GmbH – After Sales Support (e-mail: service@austroengine.at; Tel: +43 2622 23000 2525).
- For credit information contact Austro Engine GmbH – After Sales Support (e-mail: service@austroengine.at; Tel: +43 2622 23000 2525)

5. EXPLANATORY NOTES

5.1. SYMBOL EXPLANATION



WARNING: Disregarding these safety rules can cause personal injury or even death



CAUTION: Disregarding these special instructions and safety measures can cause damage to the engine or other components.



NOTE: Additional note or instruction for better understanding of an instruction

6. APPENDIX

None.

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EXECUTION REPORT TO SERVICE BULLETIN MSB-E4-014/2

ENGINE DATA

Engine Serial Number: _____

Airplane Registration: _____

Engine operating hours: _____

Date of exchange: _____

Date, Name, Signature

Please fax the completed form to Fax No.: +43(0)2622-23000-2709 or e-mail to service@austroengine.at.

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