



Mandatory Service Bulletin  
No. MSB-E4-017/2

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# MANDATORY SERVICE BULLETIN

**No. MSB-E4-017/2**

SUPERSEDES DOC. No. MSB-E4-017/1

## 1. BASIC INFORMATION

### ■ SUBJECT

Check/Replacement of timing chain.

### ■ ENGINES AFFECTED

Type: E4

Model(s): E4

Serial number(s): All

### ■ REASON

On a few engines considerable wear of the timing chain has been detected, which could lead to a fracture of the timing chain and a subsequent loss of power. The check of the condition of the timing chain including instructions for replacing the timing chain and the chain wheel if applicable are given in the maintenance manual of the E4 engine.

Windmilling restarts cause high stress onto the timing chain. Therefore, windmilling restarts as part of normal operation has already been removed from the Operation Manual. In addition, a mandatory timing chain replacement for engines with known in-flight restarts by wind milling has been defined.

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## ■ TIME OF COMPLIANCE

For engines with known windmilling restarts:

At 900 hours operation time of the timing chain replace the timing chain.

■ **NOTE:** For timing chains with more than 900 hours operation time replace the timing chain within the next 100 hours operation time.

■ **NOTE:** Prior compliance with MSB-E4-017 and MSB-E4-017/1 does not preclude compliance with this MSB for airplanes with known windmilling restarts.

For engine without known windmilling restarts:

Check the timing chain in the scheduled maintenance intervals according to Maintenance Manual E4.08.04 section 05-20-00.

## ■ CONCURRENT DOCUMENTS / REFERENCES

Maintenance Manual – Doc. No.: E4.08.04, latest effective issue  
MM-TR-MDC-E4-396

Operation Manual – Doc. Nos.: E4.01.01, latest effective issue  
OM-TR-MDC-E4-359b

## ■ OTHER PUBLICATIONS AFFECTED

None.

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## 2. TECHNICAL DETAILS

### ■✎ ACCOMPLISHMENT

For engines with known windmilling restarts:

- Make sure Maintenance Manual E4.08.04 revision 26 or higher is used and MM-TR-MDC-E4-396 is inserted into the Maintenance Manual E4.08.04.
- Replace the timing chain according to section 85-40-50 and subsequent of the Maintenance Manual E4.08.04.
- Make sure OM-TR-MDC-E4-359b is inserted into the Operation Manual E4.01.01 or a revision of the OM with the Temporary Revision incorporated is used.
- For engines installed in airplanes with normal operation procedures for inflight restart, make sure that an applicable Temporary Revision (e.g. TR-MÄM-42-973) is inserted into the Airplane Flight Manual (AFM) that lists windmilling only as an emergency operation procedure.

For engines without known windmilling restarts:

- Make sure Maintenance Manual E4.08.04 revision 26 or higher is used and MM-TR-MDC-E4-396 is inserted into the Maintenance Manual E4.08.04.
- Check the timing chain according to section 85-40-40 and subsequent of the Maintenance Manual E4.08.04.
- Make sure OM-TR-MDC-E4-359b is inserted into the Operation Manual E4.01.01 or a revision of the OM with the Temporary Revision incorporated is used.
- For engines installed in airplanes with normal operation procedures for inflight restart, make sure that an applicable Temporary Revision (e.g. TR-MÄM-42-973) is inserted into the Airplane Flight Manual (AFM) that lists windmilling only as an emergency operation procedure.

### ■✎ ILLUSTRATIONS

None.

### ■✎ MASS (WEIGHT)

Not affected.

### ■✎ APPROVAL STATEMENT

The technical content of this document has been approved under the authority of DOA ref. EASA.21J.399.

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### 3. PLANNING INFORMATION

#### ■ MATERIAL & AVAILABILITY

Required material for checking the tension of the timing chain:

Amount	Part Name	Part Number	Rev. Number	<i>E4 Engine configuration</i>	
				-A	-B/-C
1	Seal Boost Pressure Manifold	E4A-04-000-004	000		X
1	Seal Alu	E4A-75-600-401	000	X	X

Required material if the timing chain and the timing chain wheel have to be replaced:

Amount	Part Name	Part Number	Rev. Number
6	Toothed Washer	DIN 6797 A6,4-VZ	---
2	Ring Seal	DIN 7603-C12x16x2 CU	---
4	Ring Seal	E4A-03-000-801	000
4	Screw (Injector Fixing)	E4A-03-000-802	000
1	Seal Boost Pressure Manifold	E4A-04-000-004	000
3	O-Ring Oil Return Line	E4A-05-000-103	000
1	Seal Oil Return Line	E4A-05-000-104	000
1	Chain wheel	E4A-07-000-101	000
3	Screws for chain wheel	E4A-07-000-402	000
1	O-Ring Sensor Housing CAS 2	DIN 3771-84x4xFPM70	---
1	Timing chain, open version	E4A-75-100-000	020

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## SPECIAL TOOLS

Required material for checking the tension of the timing chain:

Amount	Part Name	Part Number
1	Timing chain measuring tool	AEP-00150

Required material if the timing chain and the timing chain wheel have to be replaced:

Amount	Part Name	Part Number
1	Camshaft adjusting tool	AE300T009
1	Sealant Pistol	AE300T027
1	Sealant (black)	AE300T028 <sup>*)</sup>
1	Grease for Injectors	AE300T029
1	Chain guiding bar	AEP-00139
1	Chain opening tool	AEP-00158
1	Chain closing tool	AEP-00159
1	Chain coupling	AEP-00160

\*) Alternatively Loctite 5970 can be used.

## LABOR EFFORT

Not specified; conducted during line maintenance.

## CREDIT

None.

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## 4. REMARKS

### **NOTE:**

- All measures must be carried out by a certified engine station and certified engine mechanics.
- The accomplishment of the instructions shown under section 2 TECHNICAL DETAILS must be confirmed in the respective engine log book.
- The accomplishment of the instructions must be carried out within the time of compliance according to section 1 TIME OF COMPLIANCE.
- In case of doubt please contact the Austro Engine GmbH – After Sales Support (e-mail: [service@austroengine.at](mailto:service@austroengine.at); Tel: +43 2622 23000 2525).
- For credit information contact Austro Engine GmbH – After Sales Support (e-mail: [service@austroengine.at](mailto:service@austroengine.at); Tel: +43 2622 23000 2525).

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## 5. EXPLANATORY NOTES

### 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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