

# MANDATORY SERVICE BULLETIN

## MSB 40NG-046/2

supersedes MSB 40NG-046/1

### **I TECHNICAL DETAILS**

#### **I.1 Category**

Mandatory.

#### **I.2 Airplanes affected**

Type: DA 40 NG

Serial numbers: 40.N001 and subsequent

All airplanes converted to DA 40 NG via OSB D4-080  
(D4.001 and subsequent).

#### **I.3 Date of effectivity**

30-Jun-2016

#### **I.4 Time of Compliance**

For all airplanes:

- Initial inspection of the V-clamp within the next 50 flight hours from the date of effectivity but not later than 31-Sep-2016.
- Recurring inspection of the V-clamp every 100 flight hours thereafter.

In addition for airplanes, in which the turbocharger V-clamp E4A-41-000-002 was installed or last replaced on 01-Jan-2015 or later or where the date of replacement is uncertain:

- Replacement of V-clamp E4A-41-000-002 with D44-9081-26-03 within the next 100 flight hours from the date of effectivity but not later than 31-Dec-2016.

#### **I.5 Subject**

Inspection of turbocharger V-clamp.

ATA-Code: 81-00

#### **I.6 Reason**

Cracked V-clamps have been detected in the field. Failure of the V-clamps can lead to an engine power loss down to 30 % power. Investigation suggests that this is isolated to a certain batch of the V-clamps, nevertheless correct installation of the V-clamp is critical to all V-clamps. This Service Bulletin prescribes an inspection of the turbocharger V-clamp on all airplanes and the replacement with an improved V-clamp within 100 flight hours on airplanes with potentially affected V-clamps.

#### **I.7 Concurrent Documents**

None.

**I.8 Approval**

The technical information or instructions contained in this document relate to the Design Change Advisory No. MÄM 40-853/b, which has been approved under the authority of EASA Design Organization Approval ref. EASA.21J.052.

The technical content of this document has been approved under the authority of DOA ref. EASA.21J.052.

**I.9 Accomplishments / Instructions**

See WI-MSB 40NG-046, latest effective issue

**I.10 Mass (Weight) and CG**

No change.

**II PLANNING INFORMATION****II.1 Material and Availability**

None.

**II.2 Special Tools**

None.

**II.3 Labour Effort**

Approx. 0.5 hours.

**II.4 Credit**

None

**II.5 Reference Documents**

DA 40 NG Airplane Maintenance Manual, Doc. No. 6.02.15, latest effective issue.

**III REMARKS**

1. All work must be done by a certified aircraft service station or a certified aircraft maintenance mechanic.
2. All work, particular that which is not especially described in this Service Bulletin, must be done in accordance with the referenced Maintenance Manual.
3. Completion of all work must be recorded in the log book.
4. In case of doubt contact Diamond Aircraft Industries GmbH.

## EXECUTION REPORT TO SERVICE BULLETIN MSB 40NG-046/2

### AIRPLANE INFORMATION

Airplane Serial Number \_\_\_\_\_

Airplane Registration \_\_\_\_\_

Airplane Operator \_\_\_\_\_

Hours of operation of airplane \_\_\_\_\_

No. of landings \_\_\_\_\_

Hours of operation-engine \_\_\_\_\_

Typical operation of airplane private, club, training, other \_\_\_\_\_

P/N of the installed V-clamp:

E4A-41-000-002 (2 segments)

D44-9081-26-03 (3 segments)

Findings:

\_\_\_\_\_  
Date, Name, Sign

Please fax the completed form to Fax No. +43-2622-26700-1369 or e-mail to  
executionreports@diamond-air.at

# WORK INSTRUCTION

## WI-MSB 40NG-046

### **I GENERAL INFORMATION**

#### **I.1 Subject**

Inspection of turbo connector V-clamp.

#### **I.2 Reference Documents**

DA 40 NG Series Airplane Maintenance Manual, Doc. No. 6.02.15, latest effective issue.

#### **I.3 Remarks**

- a) All work must be done by a certified aircraft service station or a certified aircraft maintenance mechanic.
- b) All work, in particular if not described in this work instruction, must be done in accordance with the referenced maintenance manual.
- c) For conversion factors between SI units and US/Imperial units refer to AMM Chapter 02.
- d) In case of doubt, contact Diamond Aircraft Industries GmbH.

### **II DRAWINGS, SPECIAL TOOLS & MATERIALS**

#### **II.1 Drawings**

None.

#### **II.2 Special Tools**

None.

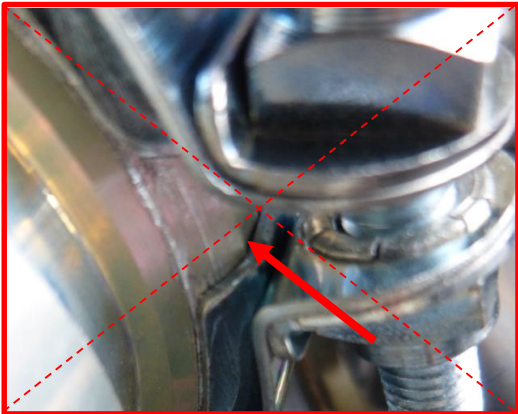

#### **II.3 Material**

Quantity	Part No.	Description
a.r.	D44-9081-26-03	V-clamp
a.r.	BN175-M6-ZP	Hexagon Nut, self-locking
a.r.	DS SW1-690-530-006-C1	Shim 0.6 mm
a.r.	DS SW1-690-530-003-C1	Shim 0.3 mm

Material is available from Diamond Aircraft Industries.

### III INSTRUCTIONS

#### III.1 Inspection of V-clamp

1	Make sure AMM-TR-MÄM-40-853/b is incorporated into the AMM.
2	Make sure the airplane is safe.
3	Remove the cowling i.a.w. AMM Section 71-10.
4	<p>Inspect the V-clamp (all V-Clamp P/Ns) on the pressure side of the turbo-charger:</p> <ul style="list-style-type: none"> <li>Inspect for positive clearance between the flanges of the turbocharger/aluminium charged air tube and the base of the V-clamp on the complete circumference. If there is NO positive clearance (refer to Figure 1) replace the V-clamp i.a.w. Section III.2. Refer to Figures 1 and 2.</li> </ul> <div data-bbox="306 801 475 1169" style="border: 1px solid red; padding: 5px; margin: 10px 0;"> <p><b>NOT acceptable</b>        (NO positive clearance,        contact to the base)</p> </div> <div data-bbox="708 766 1228 1178" style="border: 1px solid red; margin: 10px 0;">  </div> <div data-bbox="909 1178 1021 1214" style="text-align: center;"> <p>Figure 1</p> </div> <div data-bbox="293 1245 434 1975" style="border: 1px solid green; padding: 5px; margin: 10px 0;"> <p><b>Acceptable installations</b>        (positive clearance, NO contact)</p> </div> <div data-bbox="485 1245 1407 1975" style="border: 1px solid green; margin: 10px 0;">  </div> <div data-bbox="890 1975 1005 2011" style="text-align: center;"> <p>Figure 2</p> </div>

- Inspect for signs of cracks in the edges of the ends of the V-bands of the V-clamp with flashlight and mirror. If signs of cracks are detected, replace the V-clamp i.a.w. Section III.2. Refer to Figure 3.



Figure 3

5 For V-clamp E4A-41-000-002 only:

If the V-clamp is not secured with lock wire, secure the V-clamp with lock wire. Refer to Figure 4.



Figure 4

Make sure that the distance between V-flanges on the lock is between 6 and 10 mm (refer to Figure 5). If necessary, insert turbo connector shims to obtain the required distance (refer to Figure 6).

6 -10 mm



Figure 5

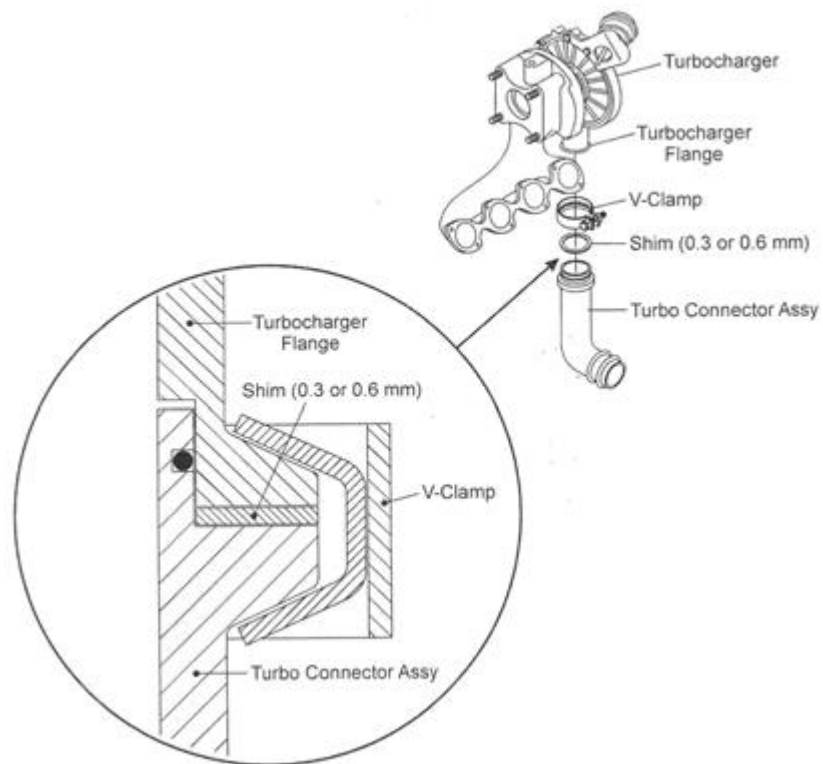


Figure 6

6	Install the cowling i.a.w. AMM Section 71-10.
7	Clean working areas, check for foreign objects.
8	Check all altered, replaced, repaired parts for proper function.
9	Test all systems in working area for function.
10	Make all necessary entries in the airplane logs.

### **III.2 Replacement of V-clamp E4A-41-000-002 with D44-9081-26-03**

1	Make sure AMM-TR-MÄM-40-853/b is incorporated into the AMM.
2	Make sure the airplane is safe.
3	Remove the cowling i.a.w. AMM Section 71-10.
4	Remove the V-clamp from the pressure side of the turbo-charger.
5	Install nut BN175-M6-ZP on the end of the screw of the new V-clamp so that there is no gap. Refer to Figure 7.

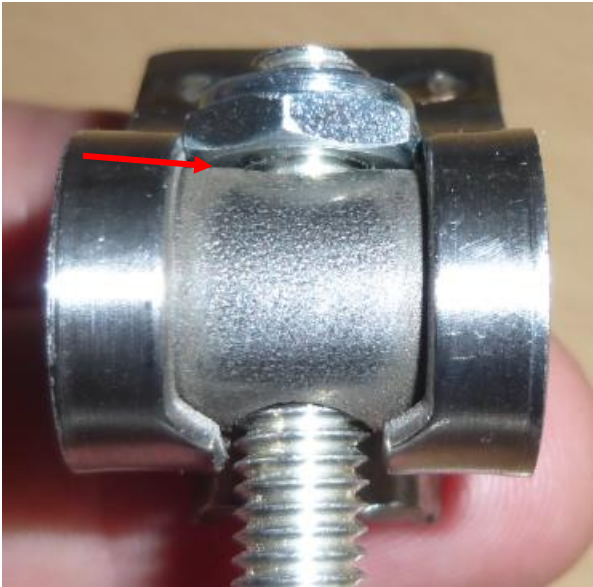


Figure 7



6 Install the V-clamp.

- Put the V-clamp in position on the flanges.

Note Do not pull the V-clamp over the turbocharger tube since the V-clamp will be permanently deformed. Refer to Figure 8.



Figure 8

- Position the screw of the V-clamp as shown in Figure 9.
- Before tightening the V-clamp make sure that there is no gap between the aluminium charged air tube and the turbocharger flange. When correctly installed the aluminium charged air tube must fit into the turbocharger flange without tension.
- Tighten V-clamp with  $5.5 \pm 0.5$  Nm ( $4.0 \pm 0.4$  lbf.ft).



Figure 9

- Make sure that the distance between V-flanges on the lock is between 6 and 10 mm (refer to Figure 10). If necessary, insert turbo connector shims to obtain the required distance (refer to Figure 11).

6 -10 mm



Figure 10

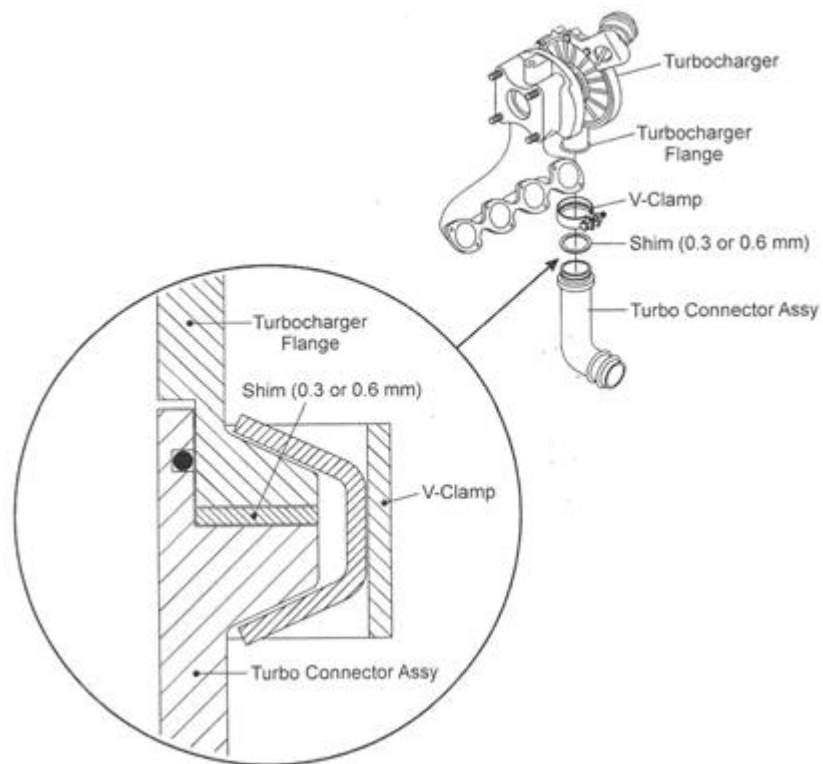


Figure 11

- Make sure the circumferential gap to the turbocharger is equal (if not, use rubber mallet to tap V-clamp into position). If tapping with a rubber mallet was required, retighten to  $5.5 \pm 0.5$  Nm ( $4.0 \pm 0.4$  lbf.ft). Refer to Figure 12.

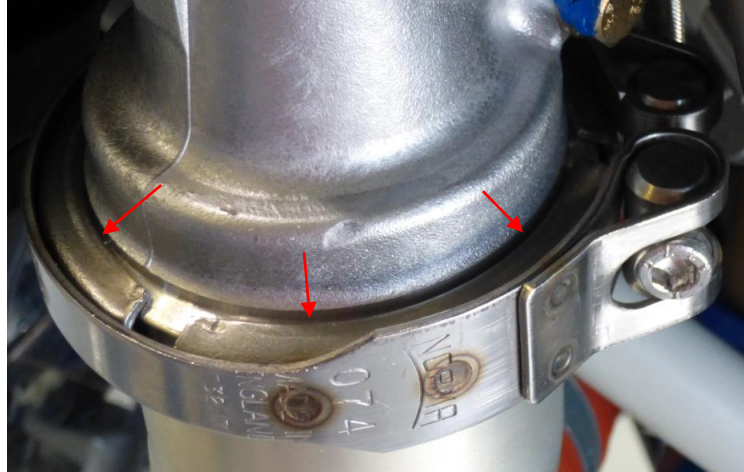


Figure 12

7	Install the cowling i.a.w. AMM Section 71-10.
8	Clean working areas, check for foreign objects.
9	Check all altered, replaced, repaired parts for proper function.
10	Test all systems in working area for function.
11	Record MÄM 40-853/b as installed in the airplane log.
12	Make all necessary entries in the airplane logs.