

MANDATORY SERVICE BULLETIN

MSB 40NG-018/1

SUPERSEDES MSB 40NG-018

I TECHNICAL DETAILS

I.1 Category

Mandatory.

I.2 Airplanes affected

Type: DA 40 NG

Serial numbers: 40.N001 through 40.N084

Airplanes converted to DA 40 NG with WI-OSB 40-080 up to Rev. 6.

NOTE Airplanes originally modified with RSB 40NG-011 are also affected.

I.3 Date of effectivity

22-Nov-2012

I.4 Time of Compliance

Action 1: Within the next 50 flight hours or at next maintenance action whichever occurs first and every 50 flight hours thereafter until Action 2 is carried out.

Action 2: Within the next 200 flight hours or 12 month from the date of effectivity which ever occurs first.

I.5 Subject

Exchange of charged air tubing.

ATA-Code: 81-00

I.6 Reason

Leakages of the charge air tubing due to improper installation and maintenance as well as chafing of aluminum tubing on the firewall because of small clearances making the installation critical required a new design providing more clearance. This service bulletin describes the retrofit installation of the new design.

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 40-630, 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

Action 1: Inspection

Inspect of the charge air tubing from the turbo charger to the intercooler:
Look especially for marks of chafing. No chafing marks allowed.

If chafing marks are detected either replace parts per AMM or comply with Action 2.

Action 2: Installation of new charge air tubing:

Comply with WI-MSB 40NG-018, latest effective issue.

I.10 Mass (Weight) and CG

The change in mass and CG is negligible.

II PLANNING INFORMATION

II.1 Material and Availability

See WI-MSB 40NG-018, latest effective issue.

II.2 Special Tools

None.

II.3 Labour Effort

Approx. 1.5 hours.

II.4 Credit

For airplanes in warranty:

- Action1: None for inspection only. In case of findings, replacement parts may be ordered free of charge.
- Action 2: Material as listed in WI-MSB 40-018 and 1.5 hours of labour.

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 those that are 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. If material and/or labor hours are subject to be credited through Diamond Aircraft Industries, the Service Bulletin must be carried out by an authorized Diamond Service Center and the Warranty Application incl. Work Report must be sent not later than 30 days after the end of time of compliance.
5. In case of doubt contact Diamond Aircraft Industries GmbH.



Diamond Aircraft Industries GmbH
N. A. Otto-Straße 5
A-2700 Wiener Neustadt
Austria

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EXECUTION REPORT TO SERVICE BULLETIN MSB 40NG-018/1

AIRPLANE DATA

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 _____

Date, Name, Sign

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

WORK INSTRUCTION

WI-MSB 40NG-018

I GENERAL INFORMATION

I.1 Subject

Replacement of charge air tubes.

I.2 Reference Documents

DA 40 NG Airplane Maintenance Manual, Doc. No. 6.02.15, latest effective issue.
DAI SI 40NG-007 Installation and tightening torque of worm drive clamps.

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

If RSB 40NG-011 or MÄM 40-506 or MÄM 40-502 was carried out, use the material below:

Quantity	Part Number	Description
1	D44-8122-20-00_2 or D44-8122-20-00_4	Turbo Connector Assy
1	D44-8126-00-05_2	Charge Air Tube
1	DIN 3771 46.2x3.55 MVQ 70	O-Ring
8	TORRO_60-80_12_W1	Worm drive Clamps

If RSB 40NG-011 or MÄM 40-506 or MÄM 40-502 was **NOT** carried out, use the material below:

Quantity	Part Number	Description
1	D44-8126-00-08	Charged Air Hose
1	D44-8122-00-10_1	Elbow 45° (Hose)
8	TORRO_60-80_12_W1	Worm Drive Clamps
1	DIN 933-M8x16-YZP	Hexagon head screw
1	D44-8122-20-00_2 or D44-8122-20-00_4	Turbo Connector Assy
1	D44-8126-00-05_2	Charge Air Tube
1	DIN 3771 46.2x3.55 MVQ 70	O-Ring

Material is available from Diamond Aircraft Industries.

III INSTRUCTIONS

If RSB 40NG-011 or MÄM 40-506 or MÄM 40-502 was carried out:

1	Make sure AMM-TR-MÄM 40-530 has been incorporated into the AMM.
2	<p>Remove cowlings (i.a.w. AMM section 71-10).</p> <p>WARNING DO NOT STAND WITHIN THE DANGER AREA OF THE PROPELLER. IF THE ENGINE STARTS, THE PROPELLER CAN CAUSE DEATH OR INJURY TO PERSONS.</p> <p>WARNING MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU WORK ON THE ENGINE CONTROLS. IF THE PROPELLER TURNS IT CAN CAUSE INJURY TO PERSONS.</p>
3	<p>Remove current charge air tubing between turbo charger and intercooler:</p> <ul style="list-style-type: none"> • Remove and discard all used (8) worm drive clamps on the turbo connector assy D44-8122-20-00 and the charge air tube D44-8126-00-05_1. • Remove and discard the turbo connector assy D44-8122-20-00 (including o-ring) and charge air tube D44-8126-00-05_1.
4	<p>Install charge air tube D44-8126-00-05_2 and turbo connector assy D44-8122-20-00_2 (or D44-8122-20-00_4). (refer to SI 40NG-007 latest revision)</p> <ul style="list-style-type: none"> • Install the Turbo Connector Assy including o-ring DIN 3771 46.2x3.55 MVQ 70. Do NOT tighten the V-Clamp at the turbo charger at this time. • Install the charge air hose D44-8126-00-08 to the turbo connector assy D44-8122-20-00_2 (or D44-8122-20-00_4). • Install the charge air tube D44-8126-00-05_2 to the charge air hose D44-8126-00-08 and move the 8 new worm drive clamps into position (refer to SI 40NG-007 latest revision). • Connect the charge air tube D44-8126-00-05_2 to the charge air hose D44-8122-00-10_1. <p>CAUTION DO NOT TIGHTEN THE WORM DRIVE CLAMPS WITH THE ENGINE BEING HOT. THIS CAN DAMAGE THE SILICONE HOSES AND MAY RESULT IN LOSS OF ENGINE POWER.</p>

5 Position the charge air tube and turbo connector assy.

- Make sure that the charge air tube has at **least** 12 mm clearance to the firewall and at **least** 5 mm clearance to the coolant tube aft of the engine (refer to Figure 1 and 2 below).

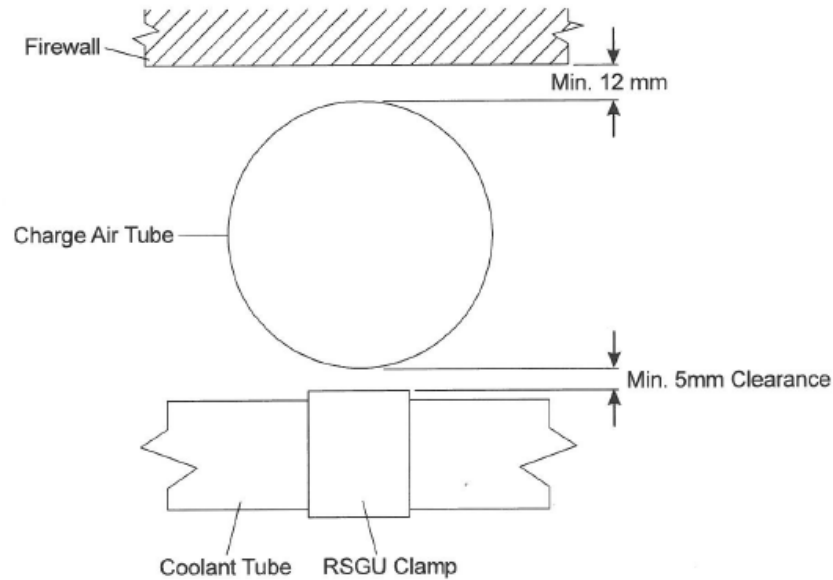


Figure 1: Clearance between charge air tube to firewall and coolant tube

- Make sure that the charge air tube has at **least** 3 mm clearance to the oil line aft of the engine (refer to Figure 2 below).

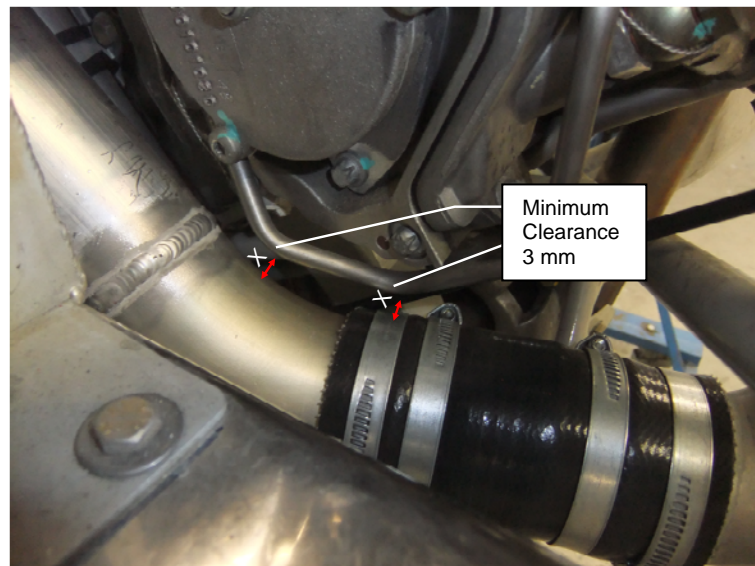


Figure 2: Attachment of charge air tube

- 6 Make sure the Alternate Air Bowden Cable is routed as shown in figures 3 and 4.



Figure 3: Bowden Cable Installation - Top View

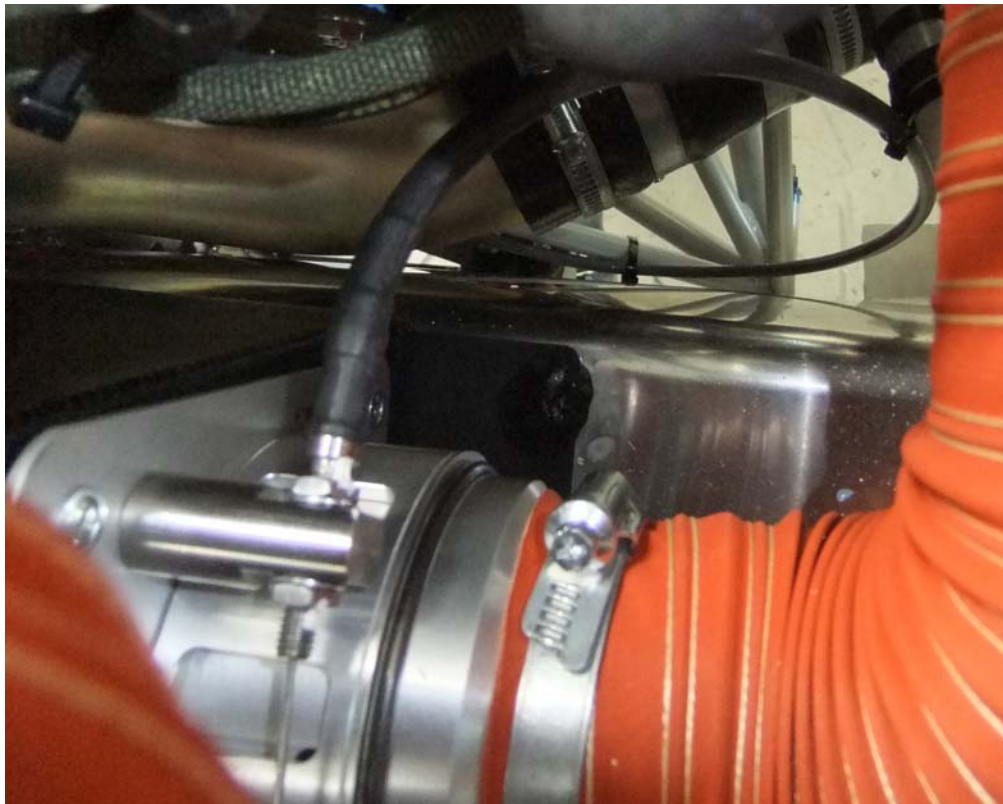
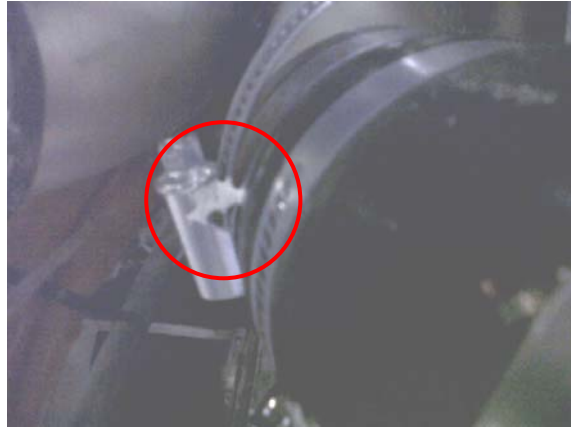


Figure 4: Bowden Cable Installation – View from RH side

7	<p>Tighten worm drive clamps (SI 40NG-007, latest revision):</p> <ul style="list-style-type: none"> Position and tighten the worm drive clamps on the charge air hoses D44-8122-00-10_1 and D44-8126-00-08 according to SI 40NG-007 latest revision. <p>CAUTION DO NOT TIGHTEN THE WORM DRIVE CLAMPS WITH THE ENGINE BEING HOT. THIS CAN DAMAGE THE SILICONE HOSES AND MAY RESULT IN LOSS OF ENGINE POWER.</p> <ul style="list-style-type: none"> Apply torque seal on the worm drive clamps (see Figure 3 below). <div data-bbox="588 645 1161 1070" data-label="Image">  </div> <p>Figure 5: Worm drive clamp torque seal</p> <ul style="list-style-type: none"> Tighten the V-clamp on the turbo connector assy with 5 Nm.
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	Make all necessary entries in the airplane logs.

If RSB 40NG-011 or MÄM 40-506 or MÄM 40-502 was NOT carried out:

12	Make sure AMM-TR-MÄM 40-530 has been incorporated into the AMM.
13	<p>Remove cowlings (i.a.w. AMM section 71-10).</p> <p>WARNING DO NOT STAND WITHIN THE DANGER AREA OF THE PROPELLER. IF THE ENGINE STARTS, THE PROPELLER CAN CAUSE DEATH OR INJURY TO PERSONS.</p> <p>WARNING MAKE SURE THAT THE ENGINE IS SAFE BEFORE YOU WORK ON THE ENGINE CONTROLS. IF THE PROPELLER TURNS IT CAN CAUSE INJURY TO PERSONS.</p>

14 Remove current charge air tubing:

- Remove and discard all used (8) worm drive clamps between turbo charger and intercooler.
- Remove and discard the charge air elbow hose SNS5X-O-60_72-90°.
- Remove the turbo adapter D44-8126-70-01 from turbo charger.
- Remove the P-clamp, which holds the charged air tube on the air filter box (refer to Figure 4 below).

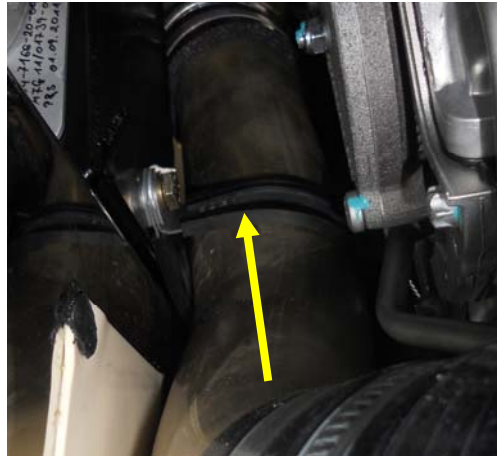


Figure 6: Attachment of charged air tube

- Remove and discard charge air tube D44-8126-00-05.
- Remove and discard charge air hose D44-8122-00-10.

15 Install charge air tube D44-8126-00-05_2 and turbo connector assy D44-8122-20-00_2 (or D44-8122-20-00_4).
(refer to SI 40NG-007, latest revision)

- Install the hexagonal head screw DIN 933-M8x16-YZP with washer into the air filter box where the P-clamp was previously removed.
- Install the Turbo Connector Assy including o-ring DIN 3771 46.2x3.55 MVQ 70. Do NOT tighten the V-Clamp at the turbo charger at this time.
- Install the charge air hose D44-8126-00-08 to the turbo connector assy D44-8122-20-00_2 (or D44-8122-20-00_4).
- Install the charge air tube D44-8126-00-05_2 to the charge air hose D44-8126-00-08 and move the 8 new worm drive clamps into position (refer to SI 40NG-007, latest revision).
- Connect the charge air tube D44-8126-00-05_2 to the charge air hose D44-8122-00-10_1.

CAUTION DO NOT TIGHTEN THE WORM DRIVE CLAMPS WITH THE ENGINE BEING HOT. THIS CAN DAMAGE THE SILICONE HOSES AND MAY RESULT IN LOSS OF ENGINE POWER.

16 Position the charge air tube and turbo connector assy.

- Make sure that the charge air tube has at **least** 12 mm clearance to the firewall and at **least** 5mm clearance to the coolant tube aft of the engine (refer to Figure 7 and 8 below).

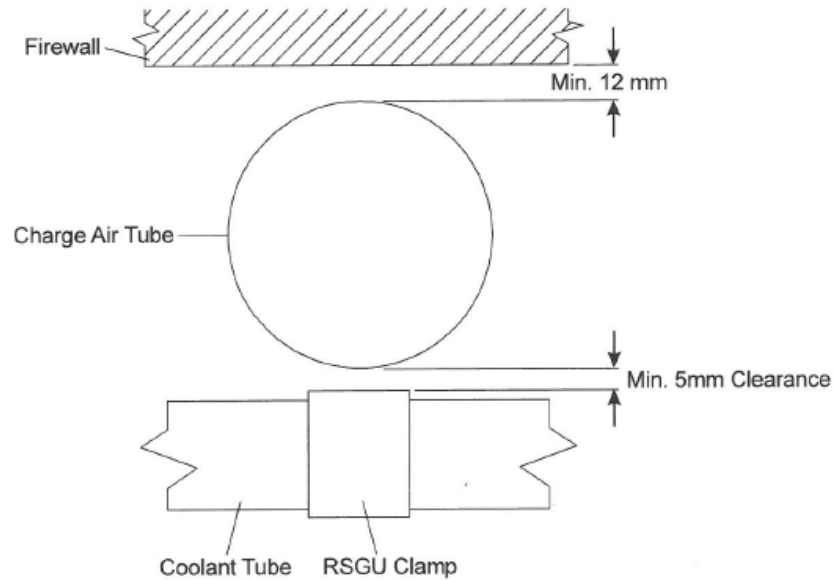


Figure 7: Clearance between charged air tube to firewall and coolant tube

- Make sure that the charge air tube has at **least** 3 mm clearance to the oil line aft of the engine (refer to Figure 8 below).

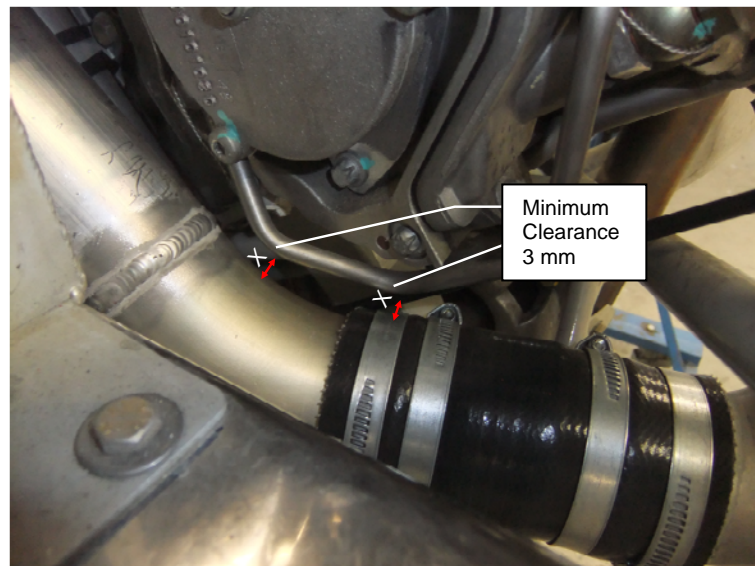


Figure 8: Attachment of charged air tube

- 17 Make sure the Alternate Air Bowden Cable is routed as shown in figures 9 and 10.



Figure 9: Bowden Cable Installation - Top View

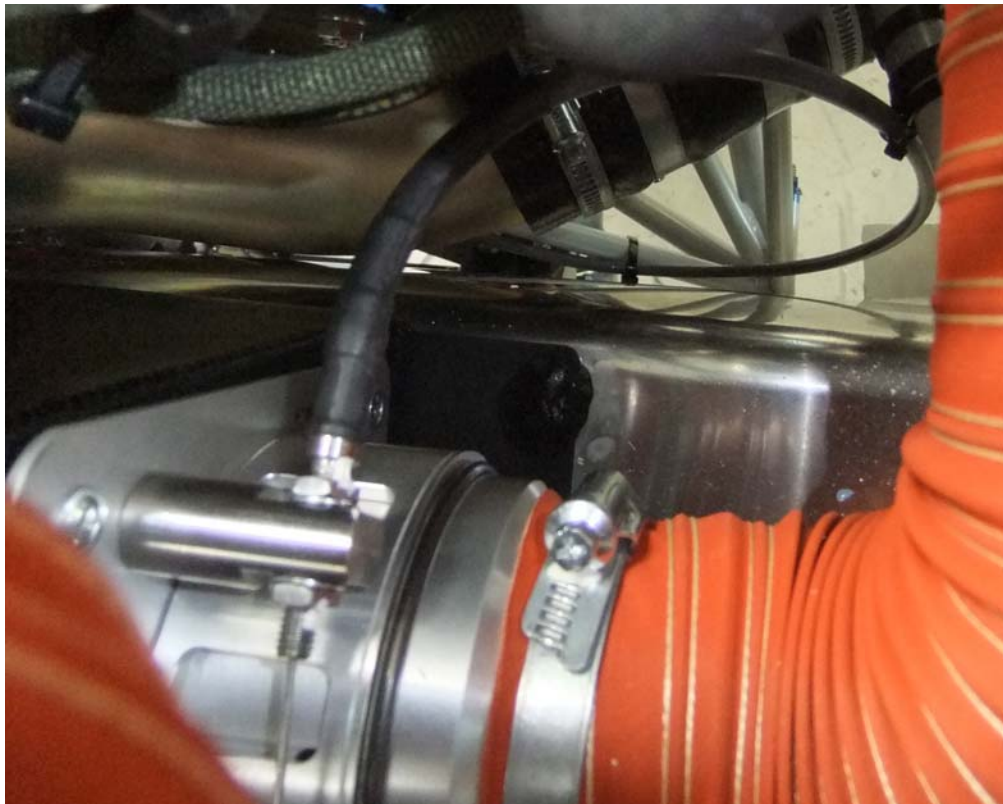
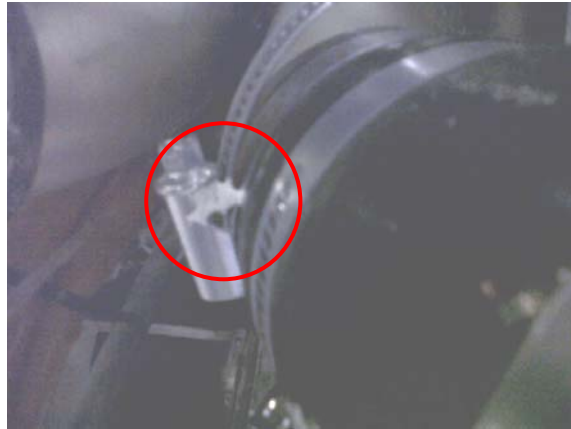


Figure 10: Bowden Cable Installation – View from RH side

18	<p>Tighten worm drive clamps (SI 40NG-007, latest revision):</p> <ul style="list-style-type: none"> Position and tighten the worm drive clamps on the charge air hoses D44-8122-00-10_1 and D44-8126-00-08 according to SI 40NG-007 latest revision. <p>CAUTION DO NOT TIGHTEN THE WORM DRIVE CLAMPS WITH THE ENGINE BEING HOT. THIS CAN DAMAGE THE SILICONE HOSES AND MAY RESULT IN LOSS OF ENGINE POWER.</p> <ul style="list-style-type: none"> Apply torque seal on the worm drive clamps (see Figure 11 below). <div data-bbox="588 663 1161 1090" data-label="Image">  </div> <p>Figure 11: Worm drive clamp torque seal</p> <ul style="list-style-type: none"> Tighten the V-clamp on the turbo connector assy with 5 Nm.
19	Clean working areas, check for foreign objects.
20	Check all altered, replaced, repaired parts for proper function.
21	Test all systems in working area for function.
22	Make all necessary entries in the airplane logs.
23	Make all necessary entries in the airplane logs.