
RECOMMENDED SERVICE BULLETIN NO. RSB 40NG-076 REV. 0

I TECHNICAL DETAILS

I.1 Category

Recommended.

I.2 Airplanes Affected

Type: DA 40 NG

S/N: All where interference between engine sensors and the upper cowling's right-hand air duct is discovered.

I.3 Date of Effectivity

17 March 2022

I.4 Time of Compliance

At owner's discretion.

I.5 Subject

Upper cowling air duct modification.

I.6 Reason

It has come to Diamond's attention that some DA 40 NGs have shown damage on the right-hand upper cowling air duct due to interference from sensors at the front of the engine. The interference may be exacerbated on aircraft using fuel pressure sensor P/N AEP-00284-901, which is larger than the previous sensor. This service bulletin describes a modification to the upper cowling air duct to ensure sufficient clearance between the duct and the engine sensors.

I.7 Concurrent Documents

None.

I.8 Approval

The technical information and instructions contained in this document are approved as part of the type design.

I.9 Accomplishment/Instructions

Comply with WI-RSB 40NG-076, 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-RSB 40NG-076, latest effective issue.

II.2 Special Tools

None.

II.3 Labour Effort

Approximately 4 hours will be required to accomplish this service bulletin.

This estimate is for direct labour performed by a technician, and it does not include setup, planning, familiarization, cure time, part fabrication, or tool acquisition.

II.4 Credit

Parts and labour for affected aircraft.

II.5 Reference Documents

DA 40 NG series 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, in particular 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 logbook.
4. In case of doubt, contact Diamond Aircraft Industries Inc.

To obtain satisfactory results, procedures specified in this service bulletin must be accomplished in accordance with accepted methods and current government regulations. Diamond Aircraft cannot be responsible for the quality of work performed in accomplishing the requirements of this service bulletin. Diamond Aircraft reserves the right to void continued warranty coverage in the area affected by this service bulletin if it is not incorporated.

If you no longer own the aircraft to which this service bulletin applies, please forward it to the current owner, and send the name of the current owner to Diamond Aircraft at the address below.

Diamond Aircraft Industries Inc.
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EXECUTION REPORT TO SERVICE BULLETIN RSB 40NG-076 REV. 0

AIRPLANE DATA

Airplane serial number _____

Airplane registration _____

Airplane operator _____

Hours of operation of airplane (TSN) _____

Typical operation of airplane private, club, training, other: _____

MAINTENANCE DATA

Date of maintenance _____

Maintenance carried out by _____

During scheduled inspection? Yes No

Name Signature Date

Please e-mail the completed form to Techpubs@diamondaircraft.com.

WORK INSTRUCTION WI-RSB 40NG-076 REV. 0

I GENERAL INFORMATION

I.1 Subject

Upper cowling air duct modification.

I.2 Reference Documents

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

I.3 Remarks

1. All work must be done by a certified aircraft service station or a certified aircraft maintenance mechanic.
2. All work, in particular which is not especially described in this work instruction, must be done in accordance with the referenced maintenance manual.
3. In case of doubt, contact Diamond Aircraft Industries Inc.

II DRAWINGS, SPECIAL TOOLS & MATERIALS

II.1 Drawings

None.

II.2 Special Tools

None.

II.3 Material

Item	Part No.	Qty	Description
1	N/A	2	2.4 mm Cleco temporary fastener
2	D44-7116-30-00_02-SB	1	Air intake, secondary duct
3	L20	A/R	Resin
3a	L285	alt.	Resin
4	H91	A/R	Hardener
4a	H286	alt.	Hardener
5	1321300	A/R	Universal colour paste, deep black (RAL 9005)
6	W260 white	A/R	Cotton flocks

Item	Part No.	Qty	Description
7	Aerosil 380	A/R	Aerosil
8	SC804	A/R	Paint, matte black
9	DH42*	A/R	Hardener
10	UR40*	A/R	Reducer

* Alternate DH and UR series hardeners and reducers may be used. Refer to the paint manufacturer's technical data sheets.

III INSTRUCTIONS

1. Ensure the engine is safe.
2. Remove the top cowling. Refer to AMM Section 71-10.
3. Inspect the right-hand air duct on the top cowling for damage.
4. Inspect the sensors near the high pressure pump for damage. Pay special attention to the fuel pressure sensor.
5. Cut and grind out the existing secondary air duct. See Figures 1 & 2.
6. Position the new secondary air duct (item 2), and temporarily secure it with tape. See Figures 3 & 4.
7. Install the cowling on the aircraft, and check the clearance. Adjust the position of the duct if required.
8. Once an appropriate position is determined, mark the position.
9. Drill two 2.5 mm diameter holes through the duct. See Figure 5.



Figure 1. View after removing the secondary air duct, looking forward.



Figure 2. View after removing the secondary air duct, looking towards the top surface of the cowling.



Figure 3. Position of the new secondary air duct. Areas to be bonded shown by arrows.



Figure 4. Position of the new secondary air duct (closer view).



Figure 5. Location of the Cleco fasteners.

CAUTION: REFER TO AMM SECTION 51-20 FOR WORKSHOP CONDITIONS TO BE MET DURING BONDING AND PAINTING.

10. Prepare surfaces for bonding:

- A. Remove the paint from the cowling at the bonding surface (if the cowling is painted). Use water and a scraper. The surface of the paint may have to be scored to allow the water to affect the paint.
- B. Sand the bonding surface on the cowling and the new duct using 80 to 120 grit sandpaper. Ensure there are no shiny surfaces to ensure a good bonding surface.
- C. Clean the bonding surfaces by vacuuming or rinsing with water. Do not blow dust off with pressurized air.

WARNING: DO NOT GET ACETONE, FILLER, OR PAINT ON YOUR SKIN. ACETONE, FILLER AND PAINT CAN CAUSE SKIN DISEASE.

WARNING: DO NOT BREATHE ACETONE, FILLER, OR PAINT FUMES. ACETONE, FILLER, AND PAINT FUMES CAN CAUSE SKIN DISEASE.

CAUTION: THERE MUST BE NO GREASE OR DUST IN THE COWLING. GREASE AND DUST PREVENT A GOOD BOND.

- D. Wet a clean, lint free cloth with acetone and wipe the repair areas. Immediately wipe off with another clean, lint-free cloth. Do not pour acetone onto the parts. Do not allow the acetone to dry on the surface. Do not reuse cloths.

11. Prepare bonding paste using either L285/H286 or L20/H91:
 - A. For L285/H286:
 - I. Prepare mixed resin per AMM Section 51-30.
 - II. Pigment the mixed resin using black pigment (item 5, maximum 3% by weight).
 - III. Prepare bonding paste per AMM Section 51-20.
 - B. For L20/H91:
 - I. Prepare mixed resin. Mix 100 parts of L20 to 27±2 parts of H91 by weight.
 - II. Pigment the mixed resin using black pigment (item 5, maximum 3% by weight).
 - III. Prepare bonding paste per AMM Section 51-20.
12. Bond the new secondary air duct (item 2) into position:
 - A. Refer to Figure 3.
 - B. Bond the flange of the new secondary air duct to the existing main duct. Apply bonding paste all around the flange.
 - C. Bond the tab of the new secondary air duct to the upper surface of the cowling.
13. Use waxed 2.4 mm diameter Cleco fasteners to hold the duct in position.
14. Cure the repair. Maintain a temperature of the repair from 20 °C to 25 °C for 12 hours.
15. Fill the holes left by the Cleco fasteners. Use black pigmented bonding paste.
16. Ensure there is a smooth transition inside the duct. Apply a coat of black pigmented bonding paste if required.
17. Cure the repair. Maintain a temperature of the repair from 20 °C to 25 °C for 12 hours.
18. Paint the inner surface of the secondary air duct:
 - A. Sand the inner surface with 320 grit sandpaper.
 - B. Clean the bonding surfaces by vacuuming or rinsing with water. Do not blow dust off with pressurized air.

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- C. Wet a clean, lint free cloth with acetone and wipe the repair areas. Immediately wipe off with another clean, lint-free cloth. Do not pour acetone onto the parts. Do not allow the acetone to dry on the surface. Do not reuse cloths.
 - D. Mix the paint (item 8), hardener (item 9), and reducer (item 10). Refer to the manufacturer's technical data sheet for the mixing ratio.
 - E. Paint the inner surface of the secondary duct. Use a paint gun or a brush.
19. If the inside surface of the cowling is coated with intumescent paint, paint the outside surface of the new duct, and touch up the areas affected by the repair with intumescent paint. Refer to AMM Chapter 71.
- NOTE: The new duct (item 2) is coated with fire-resistant resin. If the inside surface of the cowling is coated with fire-resistant resin, it is not required to paint the outer surface of the new duct.
20. Locally post-cure the assembly:
- A. If L258/H286 was used in the bonding paste, maintain the temperature of the repair at 80 °C for 6 hours.
 - B. If L20/H91 was used in the bonding paste, maintain the temperature of the repair at 65 °C for 4 hours. Alternatively, post-cure for 7 days at 20 °C to 25 °C.
21. Install the cowling. Refer to AMM Chapter 71.
22. Clean the working areas and check for foreign objects.
23. Test all systems in the working areas for proper function.
24. Make all necessary entries into the logbooks.
25. Submit the execution report to Techpubs@diamondaircraft.com.

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