

# SERVICE BULLETIN



Service Bulletin No.: DAC1-79-01 Rev 0

Date Issued: November 9, 1999

Title: Powerplant Cooling

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- 1. ATA Code:** 7920
- 2. Effectivity:** All DA20-C1 Aircraft.
- 3. General:** This service bulletin addresses improvements to engine cooling, specifically the lowering of the engine oil temperatures when operating in high ambient temperature conditions.  
This service bulletin consists of two parts:  
**Part One** addresses proper baffle sealing, the installation of an apron baffle support and the optional installation of improved apron baffle seals.  
**Part Two** addresses optional installation of a higher capacity oil cooler.
- 4. Compliance:** Compliance with this service bulletin is optional.  
Do **Part One** and/or **Part Two**.
- 5. Approval:** The engineering data referenced or contained in this service bulletin is approved as part of the type design.
- 6. Labour:** Approximately 3 hours will be required to accomplish **Part One** of this service bulletin and approximately 5 hours will be required to accomplish **Part Two** of this service bulletin.  
*This estimate is for direct labor performed by a technician and it does not include setup, planning, familiarization, cure time, part fabrication or tool acquisition.*

7. Material:	Part Number	Description	Qty
<b>Part One</b>			
	22-7521-80-15	Left Apron Baffle Seal	1
	22-7521-80-16	Right Apron Baffle Seal	1
	41012	Rivet, Button Head	4
	AN960-4	Washer, Flat	4
	22-7123-10-00	Apron Baffle Support Bracket	1
	BSPQ-04-04	Rivet	2
The material for Part One may be ordered as individual items.			
<b>Part Two</b>			
	22-7923-01-00	Oil Cooler Assembly (SW 10599T)	1
	22-7923-00-01	Duct Hose, Oil Cooler	1
	22-7521-93-00	Inlet Flange, Oil Cooler, Aft Baffle	1
	22-7923-99-00	Drill Guide Template	1
	079-810	Clamp, Hose	2
	AN3-5A	Bolt, Hex	4
	AN3-7A	Bolt, Hex	4
	AN960-10	Washer, Flat	8
	MS21044N3	Nut, Self Locking	4
	BSPQ-04-04	Rivet	2
	AN960-4	Washer, Flat	2
The material for Part Two may be ordered as kit DAC1-79-01-AMK0.			

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7. Material: (cont'd)	Part Number	Description	Qty
		Materials required but not supplied – procure locally.	
	DP110	Adhesive	A/R
	N/A	80 Grit Sandpaper	A/R
	N/A	Adhesive tape	A/R

**8. Special Tools:** Grinder

**9. References:** DA20-C1 Maintenance Manual (MM), Document # DA201-C1.  
DA20-C1 Illustrated Parts Catalogue (IPC), Document # DA203-C1.

## 10. Accomplishment Instructions:

**10.1 Part One:** For efficient and consistent airflow through the cooling passages, it is important to ensure the correct alignment of the baffle seals. All unfastened seal edges must be turned toward the inside of the cooling passages (Figure 1). This is particularly important in the areas where the seal goes around sharp corners like the extreme left and right edges of the apron baffle.

To prevent excess deflection of the apron baffle, which can result in the unseating of the baffle seals, it is recommended to install the apron baffle support bracket, as detailed in 10.1.3.

**10.1.1** Inspect for the correct seating of the baffle seals.

**10.1.1.1** The unfastened seal edges should seat on the cowling as shown in Figure 1a.

**10.1.1.2** If the seating is unsatisfactory, an improved fitting baffle seal configuration (Figure 3) is available. Installation of these seals is detailed in 10.1.2

**10.1.2** Replace the Apron Baffle Seals.

**10.1.2.1** Remove the upper and lower engine cowlings.

**10.1.2.2** Remove the fastening hardware from the upper corners of the left and right apron baffle seals.

**10.1.2.3** Remove the left and right apron baffle seals by stretching and lifting them out from under each rivet head.

**10.1.2.4** Install the right Apron Baffle Seal (P/N 22-7521-80-16) and the left Apron Baffle Seal (P/N 22-7521-80-15) by stretching each hole over its matching existing rivet head. Use the Left Apron Baffle Seal as a template to drill the two new mounting holes in the apron (Figure 3). Install the rivets (P/N BPSQ-04-04) and the washers (P/N AN960-4) into the new holes.

**10.1.2.5** Install the fastening hardware into the upper corners of the left and right apron baffle seals.

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- 10.1.2.6 Install the lower and upper cowlings. Ensure all the seal edges are turned in toward the cooling passages.
    - 10.1.3 Install the Apron Baffle Support Bracket (P/N 22-7123-10-00).
      - 10.1.3.1 Remove the upper cowling.
      - 10.1.3.2 Put the Apron Baffle Support Bracket (P/N 22-7123-10-00) in its correct position (Figure 2) and temporarily fasten it to the cowling with adhesive tape. Ensure the support bracket is aligned as square as possible to the surface of the apron baffle and leave a gap of 1/4" to 3/8" between the tip of bracket and the underside of the baffle.
      - 10.1.3.3 Remove the lower cowling.
      - 10.1.3.4 Use the bracket as a template to drill two mounting holes (#30 drill bit) in the lower cowling.
      - 10.1.3.5 Install the bracket with two rivets (P/N BSPQ-04-04) (Figure 2).
      - 10.1.3.6 Install the lower and upper cowlings. Ensure all the seal edges are turned in toward the cooling passages.
    - 10.1.4 Make a log book entry stating that Part One of this service bulletin has been incorporated.
  - 10.2 **Part Two:** Installation of the higher capacity oil cooler.
    - 10.2.1 Remove the upper and lower engine cowlings.
    - 10.2.2 Remove the oil cooler duct hose.
    - 10.2.3 Modify the Aft Baffle.
      - 10.2.3.1 Remove the aft baffle (MM Chap. 75-00-00).
      - 10.2.3.2 Grind off the existing Oil Cooler Inlet Flange.
      - 10.2.3.3 Open the hole in the baffle to allow the new Inlet Flange (P/N 22-7521-93-00) to fit through from the front. The hole must be moved outboard (approx. 1/8") and down (approx. 3/16") to avoid the baffle seal, the engine mount, and the grommet (Figure 4).
      - 10.2.3.4 Roughen the front surface of the baffle under the Inlet Flange with 80 grit sand paper.
      - 10.2.3.5 Trim the flange of the inlet as required for clearance.
      - 10.2.3.6 Drill the two holes (#30 drill bit) for the rivets. Locate around the circumference as required to fit.
      - 10.2.3.7 Bond the Inlet Flange to the front side of the baffle using DP110 adhesive and fasten with the rivets (P/N BSPQ-04-04) and the washers (P/N AN960-4) (Figure 4).
      - 10.2.3.8 Install the Aft Baffle.

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**10.2.4** Remove and replace the oil cooler and its associated parts.

**10.2.4.1** Remove the oil cooler assembly from the firewall (MM Chap 79-00-00).

**10.2.4.2** Align the Drill Guide Template on the firewall (Figure 4) and drill the four holes (#10 drill bit) through the firewall.

**10.2.4.3** Install the higher capacity Oil Cooler Assembly (P/N 22-7923-01-00) at the four new holes with indicated hardware (Figure 4).

**10.2.4.4** Drill the two holes (#10 drill bit) from the aft side of the firewall through the top two old mounting holes into the top oil cooler mounting bracket. Use an appropriate shield between the firewall and the oil cooler plenum to avoid piercing the plenum with the drill bit.

**10.2.4.5** Fill the four old oil cooler mounting holes with the old cooler mounting hardware. To prevent crushing the firewall insulation, do not tighten the hardware too much.

**10.2.4.6** Install the Oil Cooler Duct Hose (P/N 22-7923-00-01) with the two hose clamps (P/N 079-810 ) (Figure 5).

**10.2.4.7** Torque the oil cooler hose fittings to 150 to 250 in.lbs. (Figure 6) (MM Chap. 79-00-00).

**Note: Ensure oil lines are not twisted or kinked after torquing.**

**10.2.4.8** Install the lower and upper cowlings. Ensure all the seal edges are turned in toward the cooling passages.

**10.3** Make a log book entry stating that Part One and/or Part Two of this service bulletin has been incorporated.

**10.4** Update the aircraft weight and balance records with the information provided in section 11.

**11. Weight and Balance: Part One:** The weight and balance is not affected.

**Part Two:** The dry weight increases by 1.27 lbs. at an arm of -38.4".

**12. Availability:** Contact Diamond Aircraft.

**13. Credit Terms and Conditions: Part One and Part Two:**

Parts – This item is not covered under the terms and conditions of the warranty program.

Labour – This item is not covered under the terms and conditions of the warranty program.

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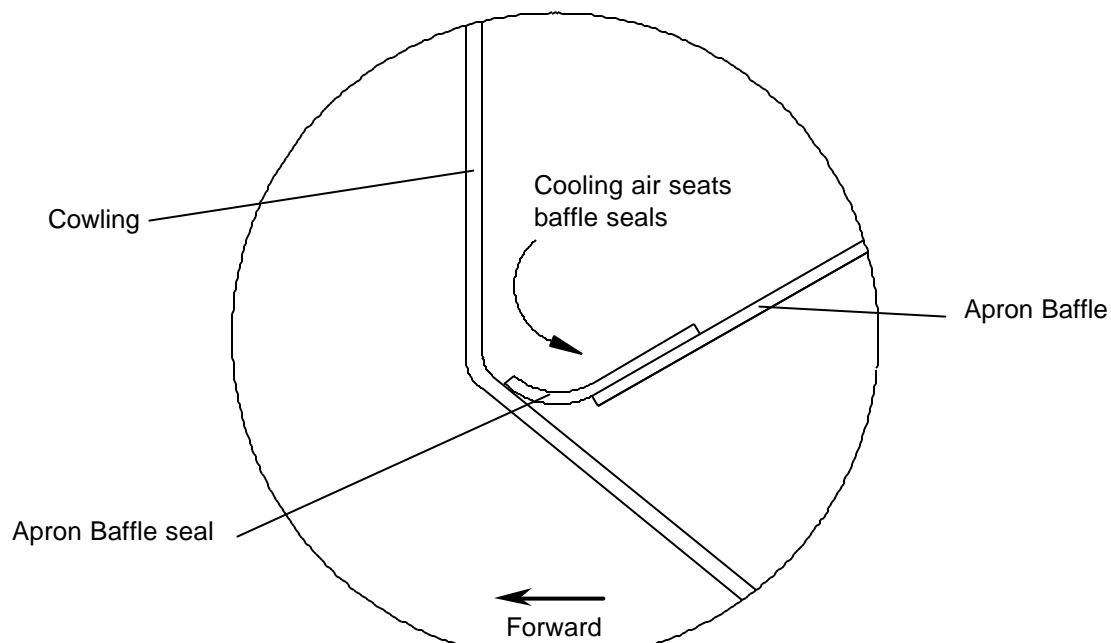


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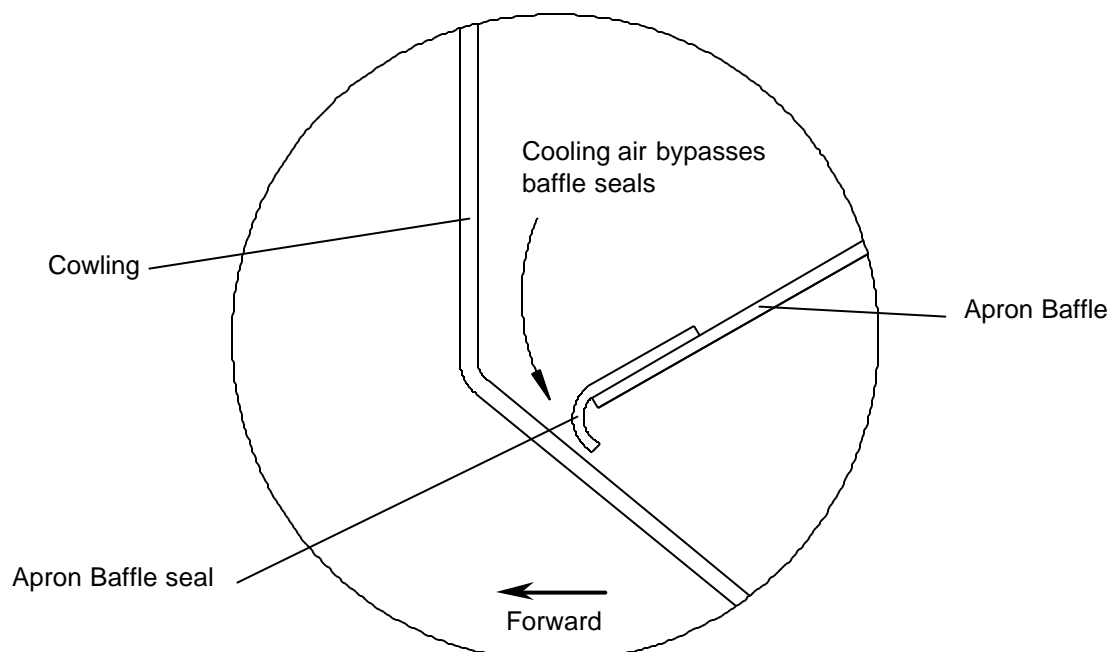
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**Figure 1a**  
Seal Aligned Correctly



**Figure 1b**  
Seal Aligned Incorrectly

**Figure 1**  
Apron Baffle Sealing

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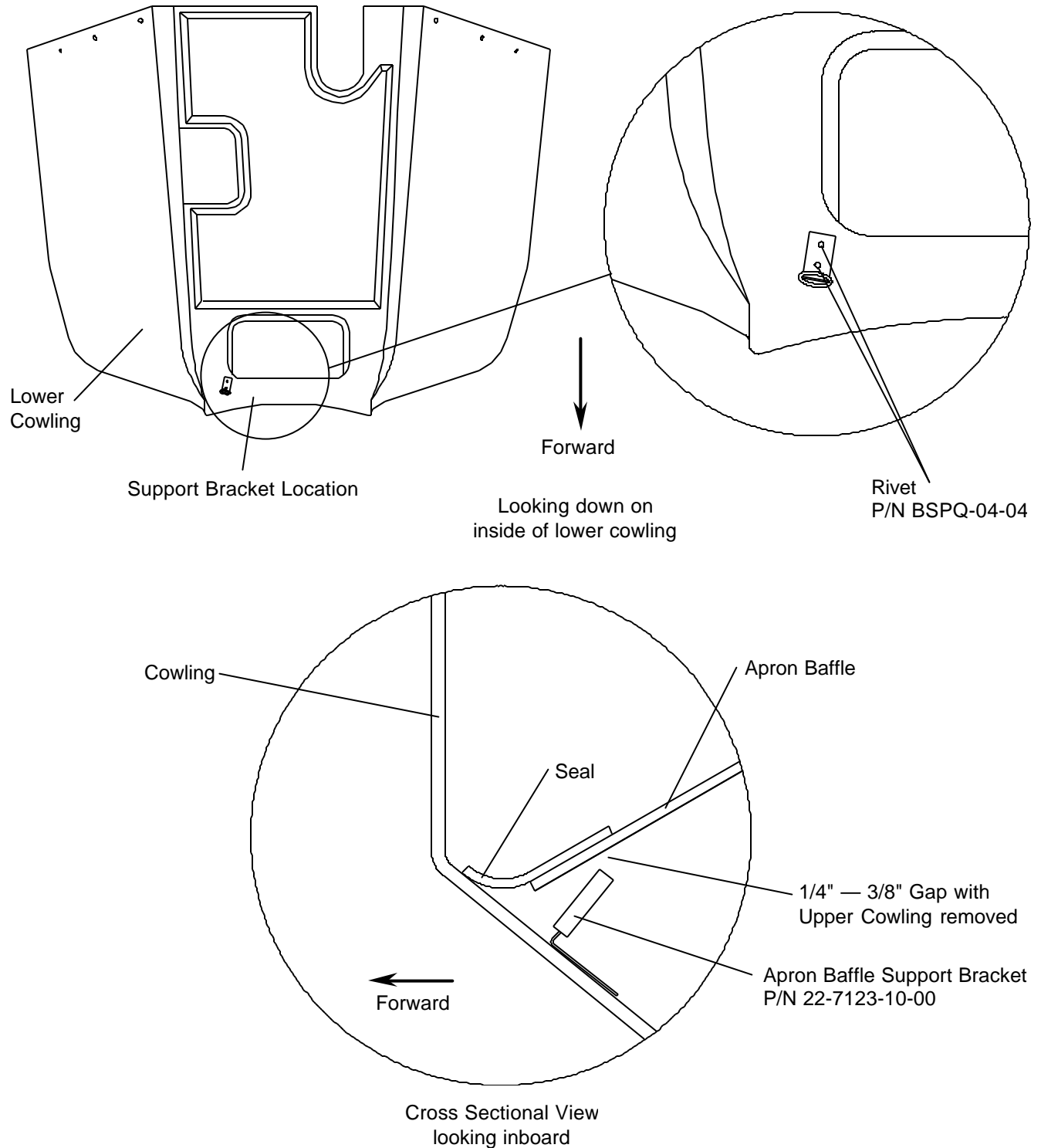


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**Figure 2**  
Apron Baffle Support Bracket

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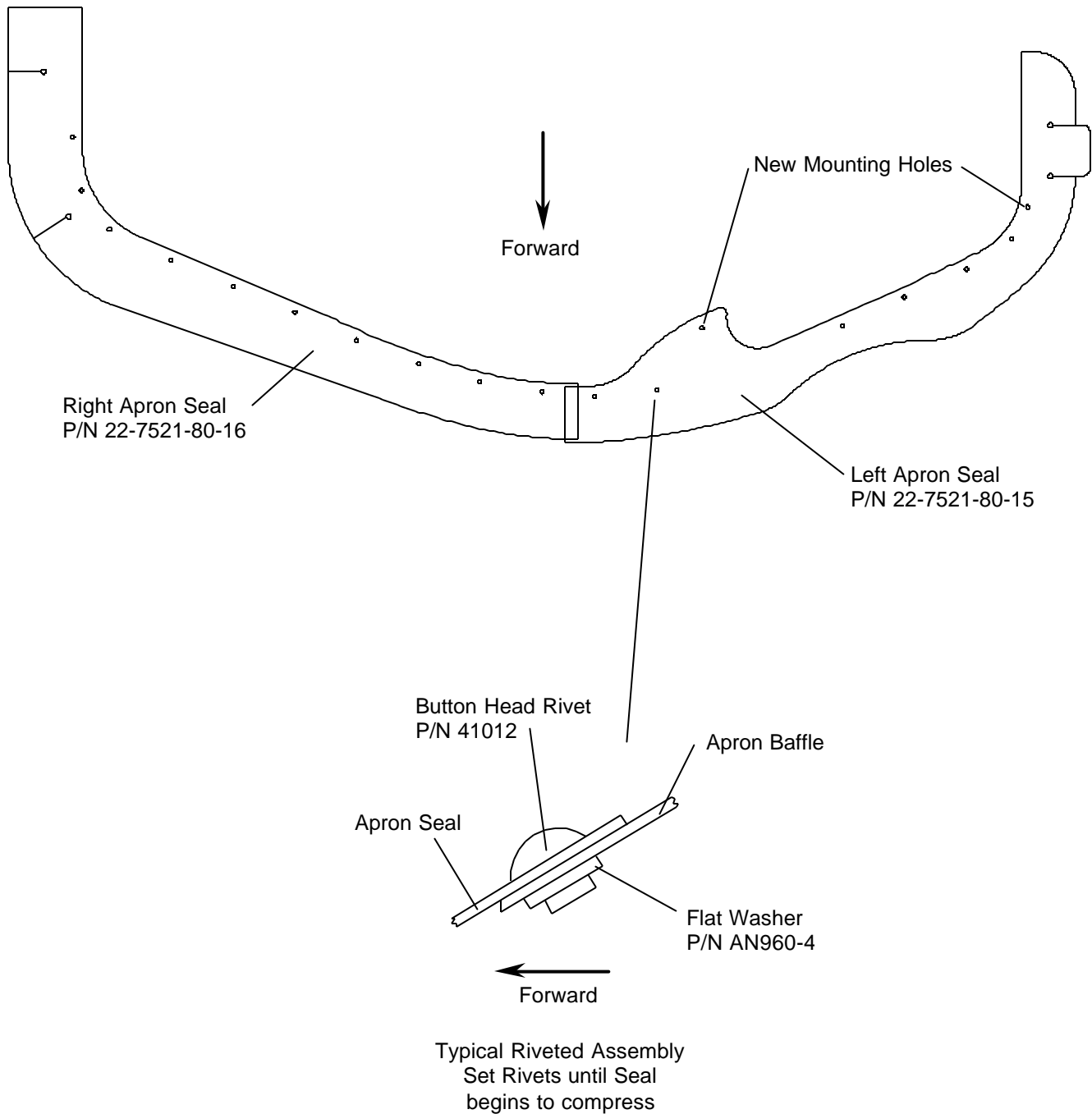


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**Figure 3**  
Apron Baffle Seals

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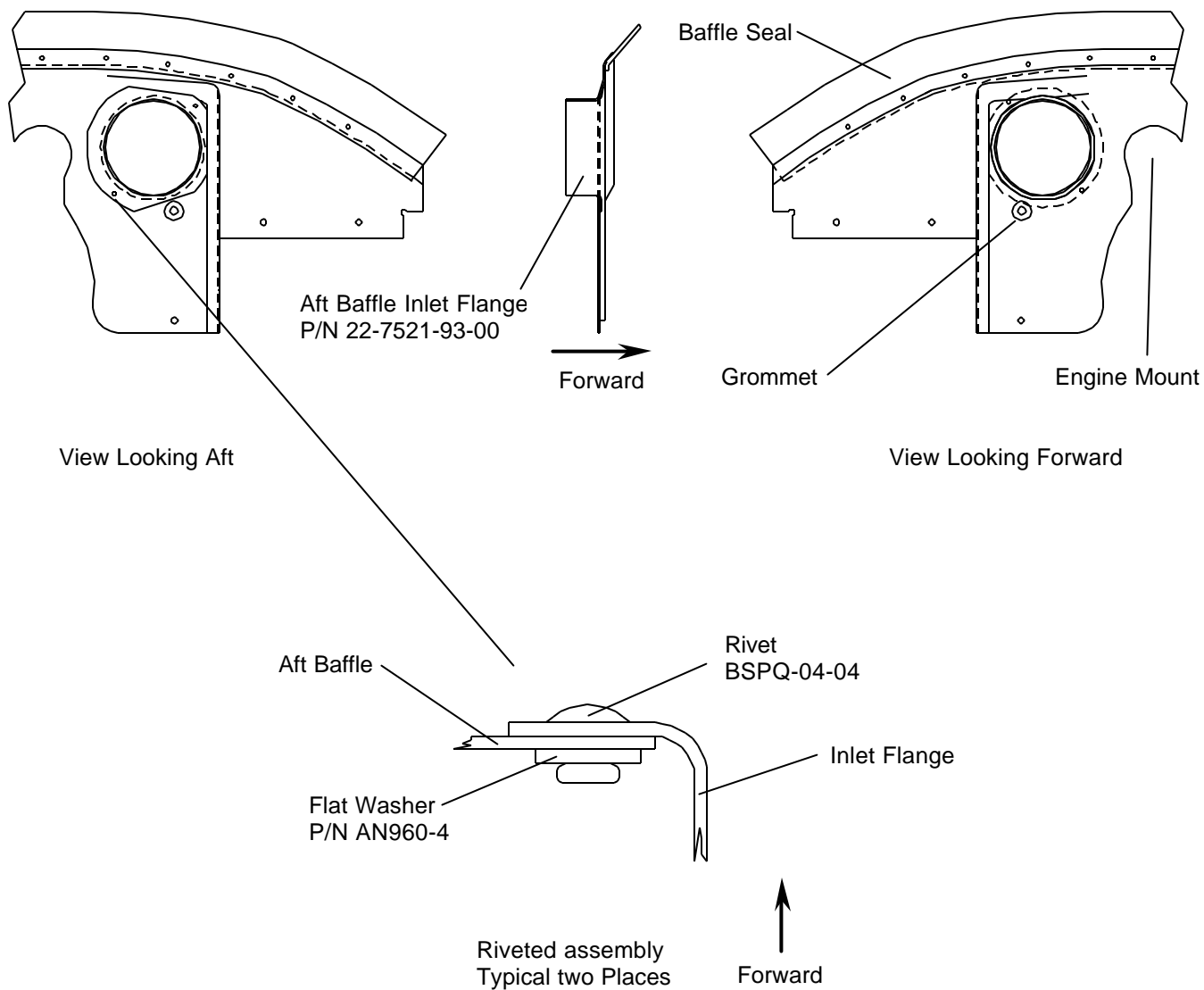


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**Figure 4**  
Aft Baffle Oil Cooler Air Inlet



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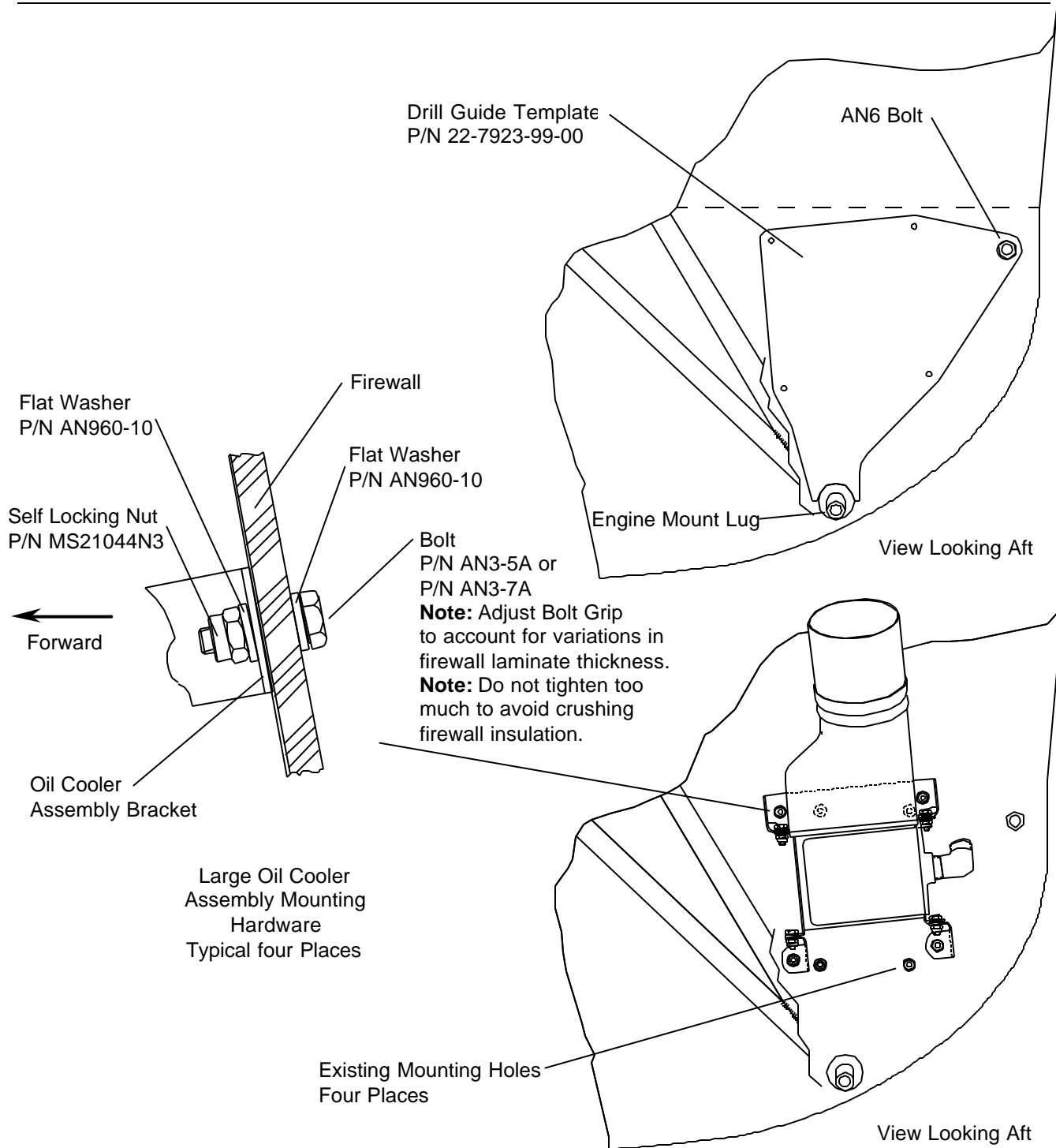


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**Figure 5**  
Oil Cooler Mounting

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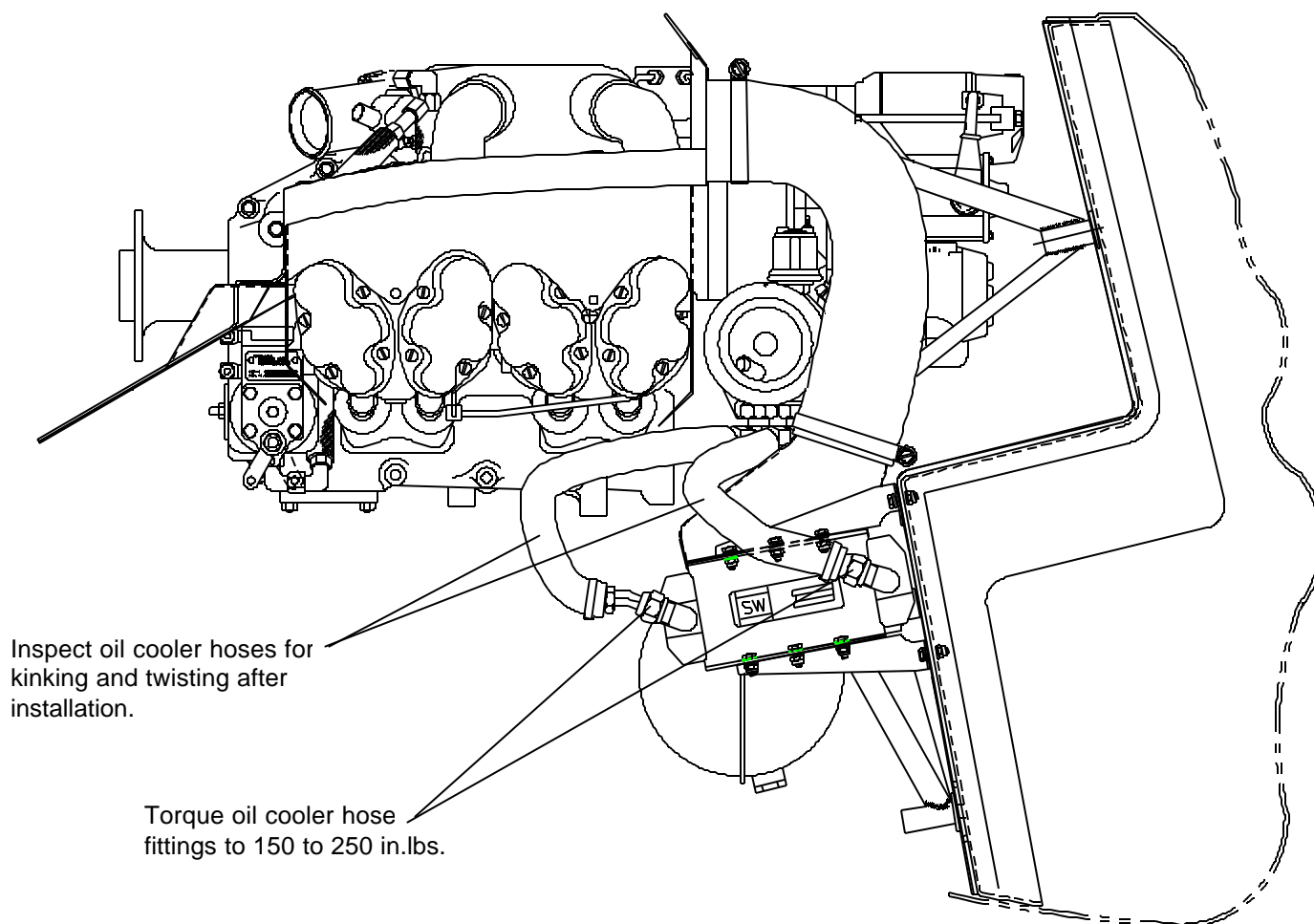


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**Figure 6**  
Oil Cooler Assembly Installation  
General View

*To obtain satisfactory results, procedures specified in this service bulletin must be accomplished in accordance with accepted methods and current government regulations. Diamond Aircraft Industries Inc. 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 Industries, Inc., at the address below.*

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