



A Textron Company

## TECHNICAL BULLETIN

**407-17-125**

21 August 2020

**MODEL AFFECTED:** 407

**SUBJECT:** AFT FUSELAGE 2-PIECE UPPER LEFT  
LONGERON ASSEMBLY 407-030-067-105,  
INSTALLATION OF.

**HELICOPTERS AFFECTED:** Serial numbers 53000 through 53900, 53911  
through 54166, 54300 through 54752, 54805 and  
subsequent.

**COMPLIANCE:** At customer's option.

**DESCRIPTION:**

-NOTE-

Compliance with this bulletin meets the intent of PART V of  
Alert Service Bulletin 407-11-95.

Bell is introducing a new 2-piece aft upper left longeron assembly 407-030-067-103 (for Production) and 407-030-067-105 (for Spares) for the 407 model. The serial number 54807, 54808, 54869 through 54871, and 54877 and subsequent will have the 407-030-067-103 longeron installed prior to delivery. The serial number 53989 was modified and has a 407-030-067-105 longeron assembly installed. Similar to the aft upper left longeron assembly 206-031-314-237B (Technical Bulletin 407-12-96), this part is also not affected by the recurring inspections required by the Alert Service Bulletin 407-11-95. While the 407-030-067-103/105 and the 206-031-314-237B have the same structural strength, the new 2-piece longeron configuration is simpler to manufacture. This bulletin provides the instructions to install the new 407-030-067-105 on helicopters with all previous upper left longeron configurations as a future Spares replacement. It also provides additional information concerning the proper configuration of aft fuselage bulkhead that can be installed at STA 231.47 in combination with the new 2-piece upper left longeron.

Applicability of this bulletin to any spare part shall be determined prior to its installation on an affected helicopter.

## APPROVAL:

The engineering design aspects of this bulletin are Transport Canada Civil Aviation (TCCA) approved.

## CONTACT INFO:

For any questions regarding this bulletin, please contact:

Bell Product Support Engineering  
Tel: 1-450-437-2862 / 1-800-363-8023 / productsupport@bellflight.com

## MANPOWER:

Approximately 35 man-hours are required to complete this bulletin. This estimate is based on hands-on time and may vary with personnel and facilities available.

## WARRANTY:

There is no warranty credit applicable for parts or labor associated with this bulletin.

## MATERIAL:

### Required Material:

Some of the following material is required for the accomplishment of this bulletin and may be obtained through your Bell Supply Center.

The following material can be procured under the kit **407-704-010-101** (See note 1).

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty (Note)</u>
206-032-307-139	Clip	1
206-032-307-153	Clip	1
407-030-067-105	Upper Left Longeron Assembly	1
407-704-010-107	Clip	1
110-223-04-02	Blind Fastener	4 (2)
110-223-04-03	Blind Fastener	12 (2)
110-223-05-02	Blind Fastener	3 (2)
110-223-05-04	Blind Fastener	10 (2)
110-223-05-05	Blind Fastener	6 (2)
110-223-05-07	Blind Fastener	2 (2)
MS20426AD5-4	Rivet	2 (2)
MS20470AD4-4	Rivet	6 (2)
MS20470AD4-5	Rivet	7 (2)
MS20470AD5-6	Rivet	14 (2)

MS20470AD5-7	Rivet	3 (2)
MS20470E4-6	Rivet	2 (2)
NAS1198-5-6	Rivet	4 (2)
NAS1198-5-7	Rivet	2 (2)
NAS9307M-4-03	Rivet	8 (2)
NAS9307M-4-04	Rivet	4 (2)
NAS9309M-4-03	Rivet	13 (2)
NAS9309M-4-04	Rivet	3 (2)
NAS9309M-4-05	Rivet	2 (2)

The following material can be procured under the kit **407-704-010-109** (See note 1 and 3).

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty (Note)</u>
407-030-700-191	Strap Doubler	1 (4)
407-030-700-193	Strap Doubler	1 (5)
407-030-700-195	Strap Doubler	1 (6)

The following material can be procured under the kit **407-704-010-111** (See note 1 and 7).

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty (Note)</u>
407-704-010-103	Doubler	1
100-145-6-5	Bolt	1
100-145-6-6	Bolt	1
110-223-05-03	Blind Fastener	8 (2)
30-277-6	Collar	2
MS20426AD4-4	Rivet	2 (2)
MS20426AD4-5	Rivet	5 (2)
MS20426AD5-5	Rivet	1 (2)
MS20470AD4-5	Rivet	8 (2)
NAS1149E0316R	Washer	1
NAS1149E0332R	Washer	1
NAS9304B-4-03	Rivet	11 (2)
NAS9307M-5-04	Rivet	8 (2)
NAS9311ML-4-03	Blind Rivet	11 (2)

The following material can be procured under the kit **407-704-010-113** (See note 1 and 8).

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty (Note)</u>
407-030-027-107	Aft Fuselage Bulkhead	1
407-030-028-101	Taper Shim	1
100-145-6-5	Bolt	1
100-145-6-6	Bolt	1
110-223-05-03	Blind Fastener	8 (2)
30-277-6	Collar	2
MS20426AD3-4	Rivet	2 (2)
MS20426AD3-5	Rivet	12 (2)
MS20426AD4-5	Rivet	5 (2)
MS21061L3	Nutplate	1
MS21075L3N	Nutplate	6
NAS1149E0316R	Washer	1
NAS1149E0332R	Washer	1
NAS9304B-4-03	Rivet	11 (2)
NAS9307M-5-04	Rivet	8 (2)
NAS9311ML-4-03	Blind Rivet	11 (2)

The following material can be procured under the kit **407-704-010-115** (See note 1 and 9).

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty (Note)</u>
407-030-018-115	Filler	1
407-030-018-119	Filler	1
407-030-018-121	L/H Frame Clip	1
407-704-010-123	L/H Clip	1
407-704-010-105	Clip	1
120-098-05B47	Shim	1
MS20470AD4-5	Rivet	18 (2)
MS20470AD5-5	Rivet	4 (2)
NAS9301B-4-02	Rivet	18 (2)
NAS9307M-4-05	Rivet	5 (2)
NAS9307M-4-06	Rivet	5 (2)
NAS9307M-5-05	Rivet	2 (2)
NAS9307M-5-06	Rivet	3 (2)

The following material can be procured under the kit **407-704-010-119** (See note 1 and 10).

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty (Note)</u>
407-704-010-121	Clip	1
407-704-010-105	Clip	1
120-098-05B18	Shim	1
MS20470AD5-5	Rivet	2 (2)
MS20615-4MP4R	Rivet	4 (2)
MS20615-4MP5R	Rivet	4 (2)
NAS9307M-4-06	Rivet	2 (2)
NAS9307M-5-06	Rivet	1 (2)

**NOTES:**

1. Parts can be procured separately when available.
2. Length of fasteners may vary from one helicopter to another. The correct length of fasteners must be determined at installation.
3. The kit 407-704-010-109 is only required if the three external strap doublers are not already installed as per instructions of ASB 407-11-95.
4. Strap doubler 407-530-020-115 may be used as an alternate.
5. Strap doubler 407-530-020-117 may be used as an alternate.
6. Strap doubler 407-530-020-119 may be used as an alternate.
7. The kit 407-704-010-111 is only required if an existing aft fuselage bulkhead 407-030-027-101 is reused during the accomplishment of this bulletin.
8. The 407-704-010-113 is only required if a new aft fuselage bulkhead 407-030-027-107 is being installed during accomplishment of this bulletin.
9. The kit 407-704-010-115 is only required during accomplishment of this bulletin on helicopter serial numbers 53001 through 53559, regardless if Installation Instruction BHT-407-II-33 has been already accomplished, or not.
10. The kit 407-704-010-119 is only required during accomplishment of this bulletin on helicopter serial numbers 53560 through 53900, 53911 through 53988, 53990 through 54166, 54300 through 54806, 54809 through 54868 and 54872 through 54876.

**Consumable Material:**

The following material is required to accomplish this bulletin, but may not require ordering, depending on the operator's consumable material stock levels. This material may be obtained through your Bell Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty (Note)</u>	<u>Reference *</u>
2230-00425-00	Epoxy Primer	1 PT (1)	C-204
2010-12792-01	Sealant	1 PT (1)	C-251
2110-00010-00	Aliphatic Naphtha	1 GAL (1)	C-305
2010-00134-00	Sealant	1 QT (1, 2)	C-308
2000-01022-00	General Purpose Adhesive	1 PT (1, 2)	C-317
2010-00118-00	Sealant	3.5 OZ (1)	C-328
2100-06673-00	Isopropyl Alcohol	1 GAL (1, 3)	C-385
2100-00345-00	Chemical Film, Alodine 7075T6 Aluminum flat stock 0.032 inch (0.813 mm) thick	1 QT (1) A/R (1, 4)	C-100

\* C-XXX numbers refer to the consumables list in the BHT-ALL-SPM, Standard Practices Manual

**NOTES:**

1. Quantity indicated is the format that the product is delivered in. Actual quantity required to accomplish the instructions in this bulletin may be less than what has been delivered.
2. Only if required as per step 25 of this bulletin.
3. Toluene (C-306) or Ethyl Alcohol (C-339) can be used as substitute.
4. Obtain commercially.

**SPECIAL TOOLS:**

Tailboom attachment drill plate (Figure 1).  
Appropriate drill bushings, reamers and drill bits.

**WEIGHT AND BALANCE:**

Not affected.

**ELECTRICAL LOAD DATA:**

Not affected.

**REFERENCES:**

407-MM, Maintenance Manual, Chapters 53, 65, and 71.  
BHT-ALL-SPM, Standard Practices Manual, Chapters 3 and 4.

Alert Service Bulletin 407-11-95 Revision D or subsequent.  
Technical Bulletin 407-07-78 Revision A or subsequent.  
Technical Bulletin 407-12-96 Revision A or subsequent.  
GEN-04-99, General Information Letter, Superseded rivets.  
BHT-407-II-33, Installation Instruction, Oil cooler support kit.

**PUBLICATIONS AFFECTED:**

BHT-407-IPB, Illustrated Parts Breakdown, Chapter 53.  
Alert Service Bulletin 407-11-95.  
Technical Bulletin 407-07-78.

**ACCOMPLISHMENT INSTRUCTIONS:**

-NOTE-

If the replacement of the existing aft upper left longeron assembly is associated with an incident/accident damage, it shall be accomplished with the helicopter installed in a Bell approved fuselage fixture holding a valid and current Bell certification tag.

1. Fabricate a tailboom attachment drill plate (Figure 1).
2. Prepare helicopter for maintenance.

-NOTE-

The following procedure provides instructions to replace the aft upper left longeron assembly without removing the left aft fuselage panel (1, Figure 2).

3. Gain access to the aft upper left longeron assembly (2) by removing the following items (407-MM, Chapter 53, 65, and 71 as applicable):
  - a. Engine cowling assembly (3).
  - b. Aft fairing assembly (4).
  - c. Engine assembly (5).
  - d. Segmented short shaft assembly (6).
  - e. Tailboom access cover (7)
  - f. Tailboom assembly (8).
  - g. Any duct, door or equipment for which removal is required for access purposes.
  - h. Baggage compartment door and aft baggage compartment liner.
  - i. Air dam cover (9).

4. Protect or remove any electrical, electronic, air conditioning and heating equipment that may be mounted on the canted web inside the aft fuselage area.
5. Remove all fasteners securing the left aft fairing retainer (10). Break sealant between faying surfaces using a thin blade warm putty knife. Remove the retainer (10).

<b>CAUTION</b>
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It is not a requirement but additional access to the aft upper left longeron assembly can be obtained by removing the aft fuselage top skin. However, great precautions must be taken during this process to prevent delamination of the aft fuselage panel carbon fiber plies.

6. If desired for better access, remove the aft fuselage top skin (11) as follows:
  - a. Remove all fasteners securing the right aft fairing retainer (12). Break sealant between faying surfaces using a thin blade warm putty knife. Remove the retainer (12).
  - b. Remove all fasteners securing the aft fuselage top skin (11) to the aft fuselage. Break sealant between faying surfaces using a thin blade warm putty knife. Take note that the removal of additional fasteners on each side may be required to release pressure on the aft fuselage top skin where it can carefully be bent and slid out from the top. Remove the aft fuselage top skin (11).
7. Confirm the condition of the tailboom attachment drill plate on aircraft prior to next step. All four attachment holes should align between airframe and drill plate.
8. Remove fasteners securing the aft fuselage bulkhead (13) located at FS 231.47. Break sealant between faying surfaces using a thin blade warm putty knife. Remove the aft fuselage bulkhead (13).

-NOTE-
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If required, four spacers (7, Figure 3) of equivalent thickness (within 0.001 inch (0.25 mm)) may be used between each tailboom attachment fitting (2, 3, 4, and 5) and the drill plate (8) to prevent a possible interference with the aft fuselage panel skins. As an alternate method, the drill plate may be trimmed accordingly to prevent this possible interference.

9. Verify that the fuselage-to-tailboom four attachment bolt hole pattern in aft fuselage match with the drill plate as follows;



- a. Position and align the drill plate (8) (and the four spacers (7) if used) against the four longeron assemblies (2, 3, 4 and 5) using all four attachment bolts. Do not install the aft fuselage bulkhead (6) between the longeron assemblies (2, 3, 4 and 5) and the drill plate (8) (Figure 3).
- b. Verify that each attachment hole of each longeron assembly (2, 3, 4 and 5) matches the hole in the drill plate (8).
- c. The bolt at each position should move freely without any binding or interference while the 3 others are still installed in the adjacent longeron assemblies.
- d. If interference exists at any of the four longeron assemblies (2, 3, 4 or 5), refer to TB 407-07-78 or contact Product Support Engineering for assistance.
- e. If each hole in the aft fuselage-to-tailboom attachment fitting matches the drill plate (8) without any interference, remove the drill plate (8).

-NOTE-

It is not necessary to disassemble the existing aft upper left longeron assembly; the new aft upper left longeron assembly 407-030-067-105 will replace existing parts as a unit.

10. Drill all remaining rivets securing the aft upper left longeron assembly (1, Figure 4) to the aft fuselage.
11. Remove and discard existing clips (8, 9, 10, 12) (1, Figure 6).
12. Use a thin blade warm putty knife to break sealant between the upper flange of the aft upper left longeron assembly (1, Figure 4) and the left aft fuselage panel (16) and faying surfaces common with all surrounding bulkhead sections. Remove the aft upper left longeron assembly (1) from the aft fuselage assembly by gently sliding (pulling) it out of position toward the aft of the helicopter.
13. Clean any cured sealant from aft fuselage faying surfaces for the upcoming installation of the new upper left longeron assembly 407-030-067-105.

-NOTE-

This bulletin partially incorporates the Paragraph 1-5 of the Installation Instruction BHT-407-II-33 on helicopter serial numbers 53001 to 53559 which have not previously been modified. Please note that helicopter serial numbers 53001 to 53559 which have been previously modified as per the BHT-407-II-33 and aircraft 53560 and subsequent also need their clip (12) to be replaced to fit the new installation.

14. Countersink the two holes (2, Figure 6) and plug with rivets (3).
15. Position the new aft upper left longeron assembly (4) in place in the aft fuselage. If required, it is acceptable to slightly trim the sections shown on Section C-C, as per Note 1, to obtain an acceptable clearance between the new aft upper longeron and the airframe.

-NOTE-

If required, four spacers (7, Figure 3) of equivalent thickness (within 0.001 inch (0.25 mm)) may be used between each tailboom attachment fitting (2, 3, 4, and 5) and the drill plate (8) to prevent a possible interference with the aft fuselage panel skins. As an alternate method, the drill plate may be trimmed accordingly to prevent this possible interference.

16. Temporarily secure the drill plate (8) to the upper right longeron assembly (4) and both lower left and right longeron assemblies (3 and 5) using existing bolts, washers, and nuts. Do not install the bulkhead (6) at this point. Torque each nut to 50 inch-pounds (5.65 N-m).

-NOTE-

It is acceptable to hold the new aft upper left longeron assembly (2) against the drill plate (8) using a C-clamp until it is completely riveted to the fuselage structure.

17. Center and secure the aft upper left longeron assembly (2) to the drill plate (8) using a 3/16 inch (4.76 mm) diameter bolt, washers, and a nut through existing pilot hole already drilled in the stainless-steel fitting of the aft upper left longeron assembly (2). Torque nut to 50 inch-pounds (5.65 N-m). Verify that no gap exists between the aft upper left longeron assembly (2) and the drill plate (8) or the spacer (7).
18. Position the forward portion of the aft upper left longeron assembly (1, Figure 4) tight against the lower surface of the oil cooler blower support panel (21). Temporarily clamp the aft upper left longeron assembly (1) to the forward left engine pan longeron assembly (13).

19. Verify and record gaps between the new aft upper left longeron (1) and the left aft fuselage panel (16). Pay attention to areas forward and aft of the bulkhead at FS 217.84 as shown in Figure 5. Verification must be done over a minimum of four rivets on each side of the bulkhead:
  - a. Final gap(s) should not exceed 0.032 inch (0.813 mm) thick.
  - b. Prepare applicable flat or tapered shim(s) (considering the aft fuselage top skin (15, Figure 4) not being present if previously removed).
  - c. Minimum thickness of a tapered shim shall not be less than 0.005 inch (0.127 mm) thick.
  - d. Apply chemical film (C-100) and primer (C-204) to shims prior to final installation (BHT-ALL-SPM, Chapters 3 and 4).
  - e. Secure the shim(s) in place between the left aft fuselage panel (16, Figure 4) and the upper flange of aft upper left longeron assembly (1) before drilling holes.
20. Verify and record gaps between the new aft upper left longeron (1) and all surrounding parts. If applicable, fabricate and fit any additional shim that would be required to fill gaps of 0.010 inch (0.254 mm) to 0.040 inch (1.016 mm) using 7075T6 aluminum. Apply chemical film (C-100) and primer (C-204) to additional shims prior to final installation (BHT-ALL-SPM, Chapters 3 and 4). General purpose adhesive (C-317) can be used to fill gap below 0.010 inch (0.254 mm).

<b>CAUTION</b>
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One specific hole will not be reused for the new installation and must not be marked and drilled in the new aft upper left longeron assembly (Figure 4, Sheet 7, and Note 3).

21. Mark all rivet holes that will need to be transferred from the airframe to the new aft upper left longeron assembly, including the lower splice doubler (14) at FS 192.00, using a felt pen (Figure 4, View I).
22. Remove the aft upper left longeron assembly (1) from the fuselage and inspect each hole for a minimum edge distance of 2D at all rivet locations. If all fastener holes are acceptable, install the aft upper left longeron assembly (1) in place and repeat acceptable fit verification from steps 16 through 20.

**CAUTION**

One specific hole will not be reused for the new installation and must not be marked and drilled in the new aft upper left longeron assembly (Figure 4, Sheet 7, and Note 3).

23. Transfer all fastener holes to aft upper left longeron assembly (1) while installing Clecos after each drilling operation.
24. Position the new clips (1, 5, 6, 7, and 8, Figure 6), and transfer the existing holes from the aft fuselage and drill the new holes (Figure 6).
25. Identify what aft fuselage bulkhead (13, Figure 2) will be installed:
  - a. It is not acceptable to use an older sheet metal aft fuselage bulkhead 206-032-308-103 and 206-032-308-121 during this process.
  - b. If it was previously installed, it is acceptable to use the same machined aft fuselage bulkhead 407-030-027-101, but it must be modified as follows prior to installation:
    - (1) Position the doubler (2, Figure 7) on the inner flange of the aft fuselage bulkhead (1) as shown and drill both parts simultaneously in preparation of the eight rivets to be installed.
    - (2) Remove the doubler (2) from the inner flange of the aft fuselage bulkhead (1), deburr the holes, and clean with Isopropyl Alcohol (C-385).
    - (3) Bond the doubler (2) to the aft fuselage bulkhead (1) with adhesive (C-317) and secure with rivets (3).
    - (4) Plug the two holes (4) using rivets (5).
    - (5) Leave open the two holes (6).
    - (6) Countersink hole (7) on both sides and plug with a double-flush rivet (8) (Figure 7).
  - c. A previously installed, or a new, machined aft fuselage bulkhead 407-030-027-107, or subsequent, may be installed.
    - (1) If installing a new aft fuselage bulkhead, fit it using the instructions found in TB 407-07-78. Do not fully open the tailboom attachment hole located in the upper left area of bulkhead. This step will be carried out in the instructions below of this bulletin.

26. Remove all Clecos, the drill plate (8, Figure 3), the aft upper left longeron assembly (4, Figure 6), the clips (1, 5, 6, 7, and 8), the applicable shims and the aft fuselage bulkhead (9) from the airframe. Deburr all rivets holes and clean with Isopropyl Alcohol (C-385).
27. If required, it is acceptable to spotface one specific area on inboard face of the aft upper left longeron. This will allow a flat surface for the rivet that may possibly be positioned in the transition zone created by the machining process thicker section of the aft upper left longeron near STA 217.84. (Figure 6, Section F-F and H-H).
28. Apply sealant (C-251) to faying surfaces of aft upper left longeron assembly (4, Figure 6), aft fuselage bulkhead (9), clips (1, 5, 6, 7, and 8, Figure 6), all shims (except for shims made in step 19 (Figure 5)), and splices joining affected bulkhead sections.

-NOTE-

During next step, do not install rivets common to the oil cooler fairing retainers (10, 12, Figure 2), the left aft fuselage panel (16, Figure 4) and the aft fuselage top skin (11, Figure 2) but secure any applicable shims with Clecos. If the three external strap doublers (4, 5 and 6, Figure 9) are not already installed on the helicopter, do not install the rivets for this specific location at this point.

29. Install all parts in place using the drill plate (8, Figure 3) and Clecos. Secure the aft upper left longeron assembly (4, Figure 6), the clips (1, 5, 6, 7, and 8), the applicable shims and the aft fuselage bulkhead (9) with wet installed rivets using sealant (C-251).
30. If previously removed, install the aft fuselage top skin (11, Figure 2) with wet installed rivets using sealant (C-251). Make sure that any shim made in step 19 is located between the top flange of the aft upper left longeron assembly (4, Figure 6) and underneath of the aft fuselage top skin (11, Figure 2).
31. Coat mating surfaces of both left and right oil cooler fairing retainers (10 and 12) with sealant (C-251) and secure with wet installed rivets using sealant (C-251). Rivet layout is identical for both retainers.

-NOTE-

The left upper fitting is made of CRES material and is difficult to drill. Low speed drilling is required to avoid overheating of the material. Drill by increasing size of drill bit in sequence until final reamed dimension can be achieved. Drilling by step increments will require a variety of bushing sizes that

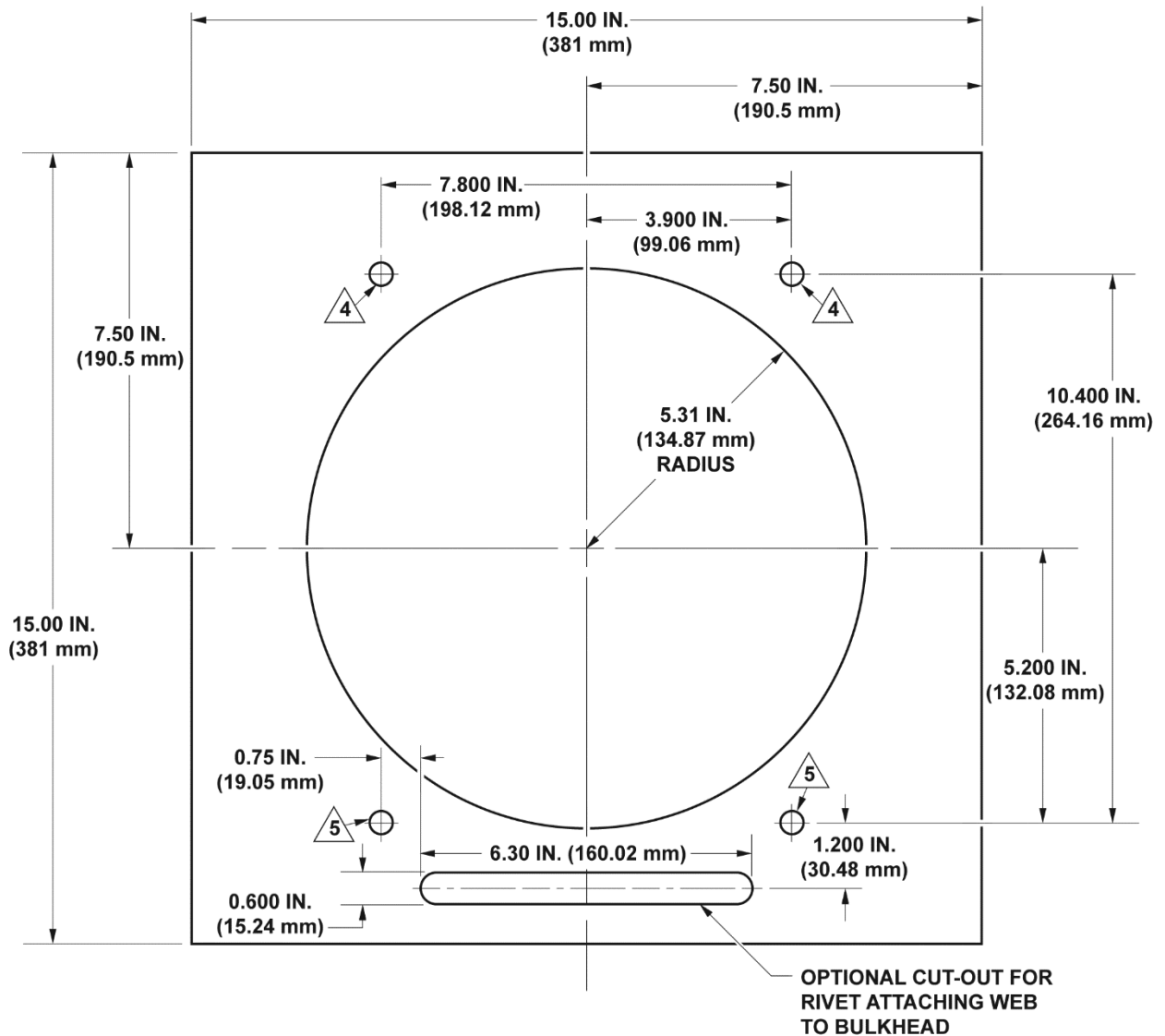
are not listed in this bulletin; it is the responsibility of the operator to use proper tooling.

32. Remove the 3/16 inch (4.76 mm) diameter bolt, washers, and nut (or C-clamp if used) from the aft upper left longeron assembly (4, Figure 6). Drill by increasing size of drill bushings and drill bit until a final reaming of 0.4385 inch to 0.4405 inch (11.13 mm to 11.18 mm) is obtained through the aft upper left longeron fitting (4) and the aft fuselage bulkhead (9).
33. Remove drill plate (8, Figure 3) from aft fuselage.
34. Apply sealant (C-251) to edge of aft fuselage top skin (15, Figure 4) and aft fuselage panels (16 and 23).

-NOTE-

The three external strap doublers (4, 5, and 6, Figure 9) may have been already installed on the helicopter as per instructions found in ASB 407-11-95.

35. If not previously accomplished, install the three external strap doublers (4, 5, and 6, Figure 9) using the instructions found in PART III of ASB 407-11-95 and in Figure 9 of this bulletin.
36. Coat all tips of new rivets visible from the inside of the fuselage with sealant (C-251) as shown (Figure 10).
37. Refinish internal and external surfaces with primer (C-204) and paint as required (BHT-ALL-SPM, Chapter 4).
38. Remove all protective covers previously installed on equipment located on canted web.
39. Reassemble aircraft by installing all items that have been previously removed in steps 3 and 4 (407-MM, Chapter 53, 65, and 71).
40. Make an entry in the helicopter logbook and historical service records indicating compliance with this Technical Bulletin.

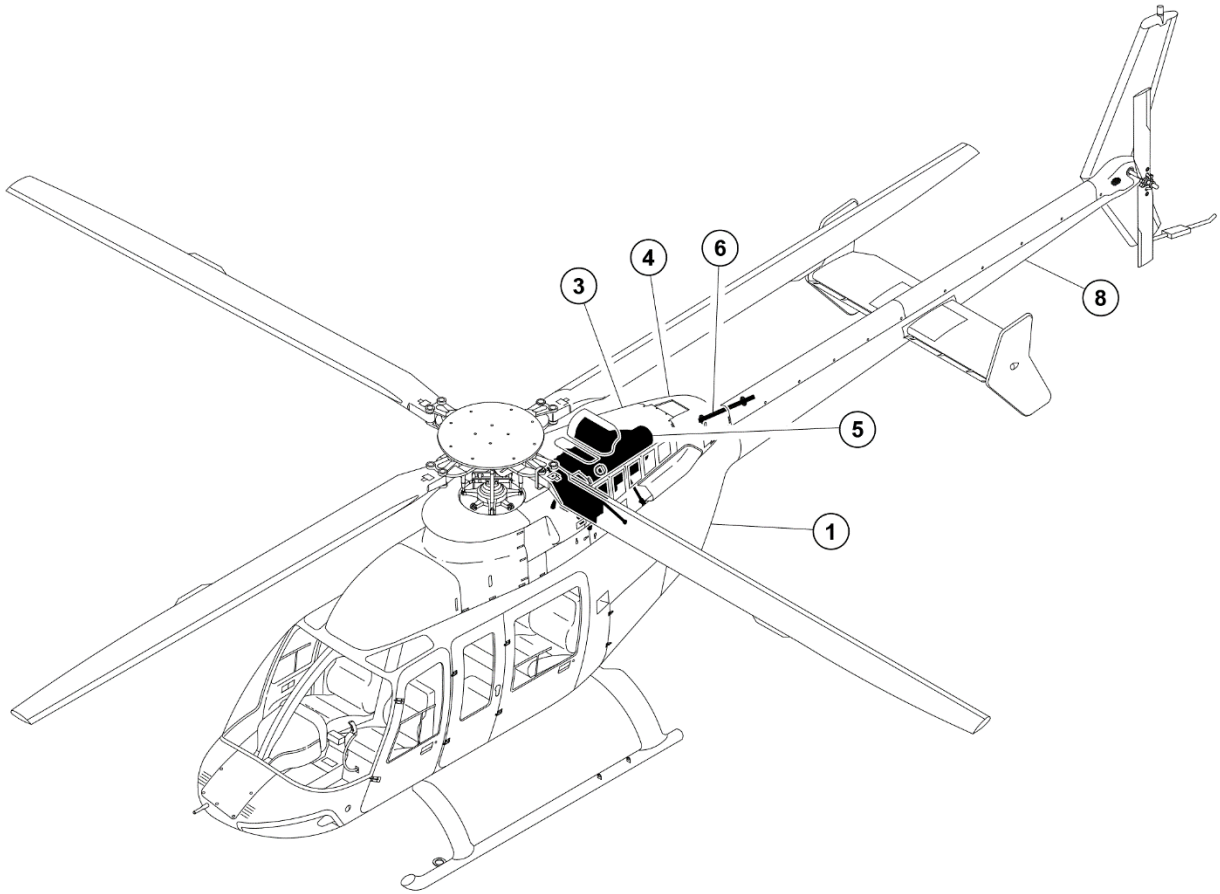


### NOTES

1. Make from 0.50 Aluminum plate-surface flat within  $\pm 0.001$  inch (0.0254 mm).
  2. Install drill bushings in four holes for extended plate life.
  3. Tolerance (in inches) .XXX =  $\pm 0.003$ , .XX =  $\pm 0.01$ , except as noted.
- △4 Drill and ream perpendicular to surface 0.4385 to 0.4405 inch (11.138 to 11.189 mm).
- △5 Drill and ream perpendicular to surface 0.3760 to 0.3780 inch (9.550 to 9.601 mm).

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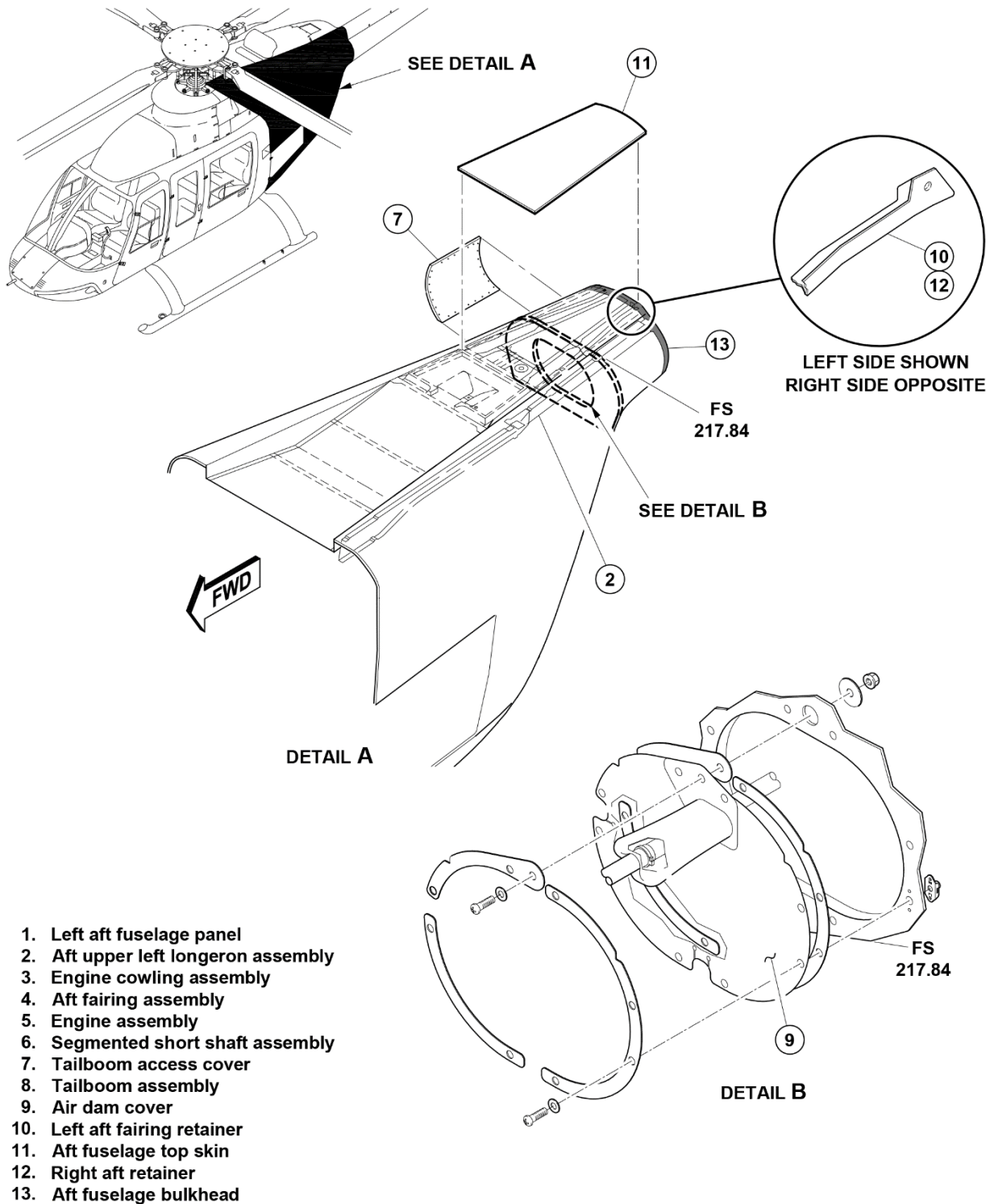
**Figure 1 - Fabrication of Drill Plate**



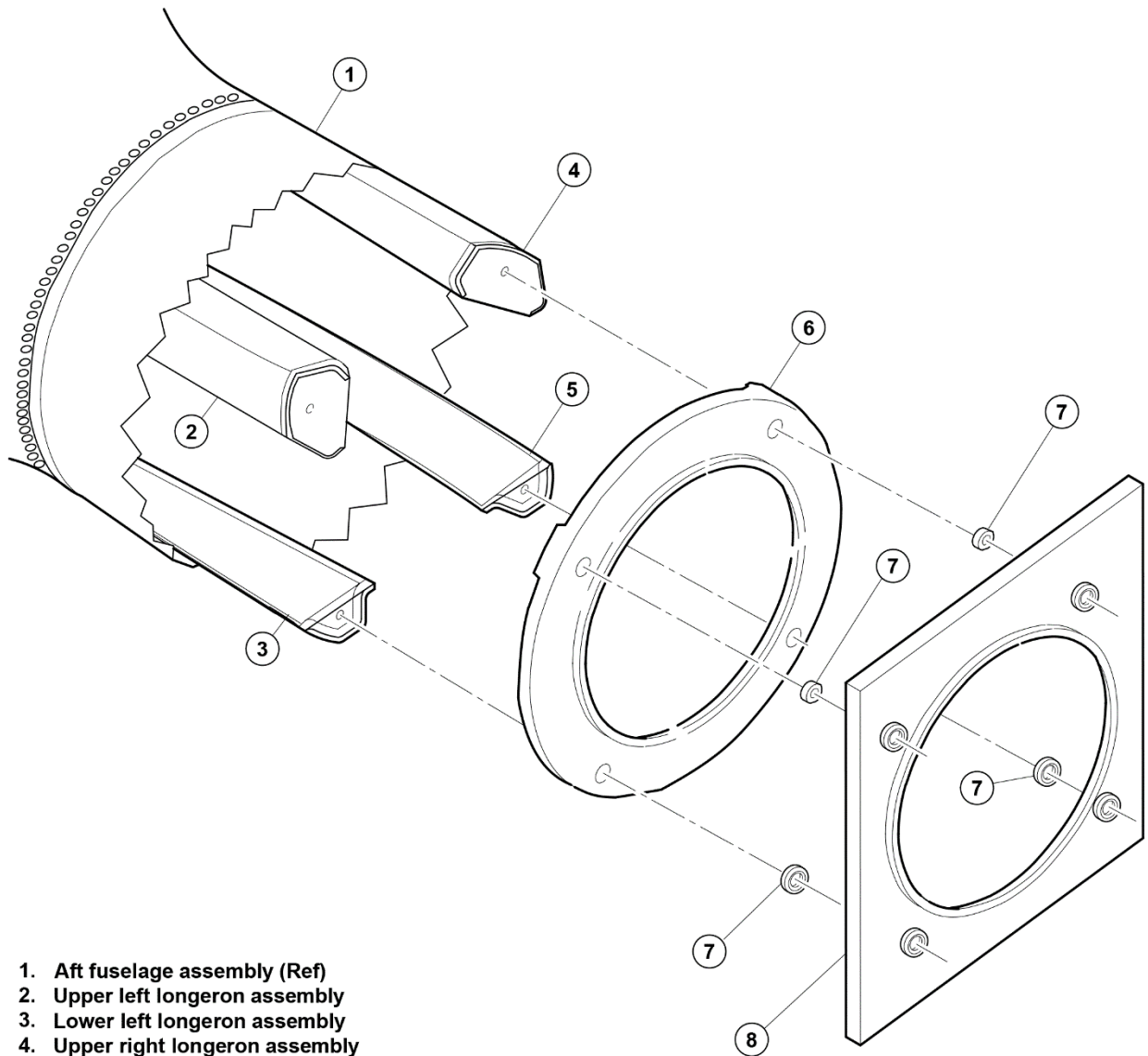
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**Figure 2 - Preparation for Replacement of Aft Upper Left Longeron (Sheet 1 of 2)**





**Figure 2 - Preparation for Replacement of Aft Upper Left Longeron (Sheet 2 of 2)**



- 1. Aft fuselage assembly (Ref)
- 2. Upper left longeron assembly
- 3. Lower left longeron assembly
- 4. Upper right longeron assembly
- 5. Lower right longeron assembly
- 6. Aft fuselage bulkhead
- 7. Spacer
- 8. Drill plate

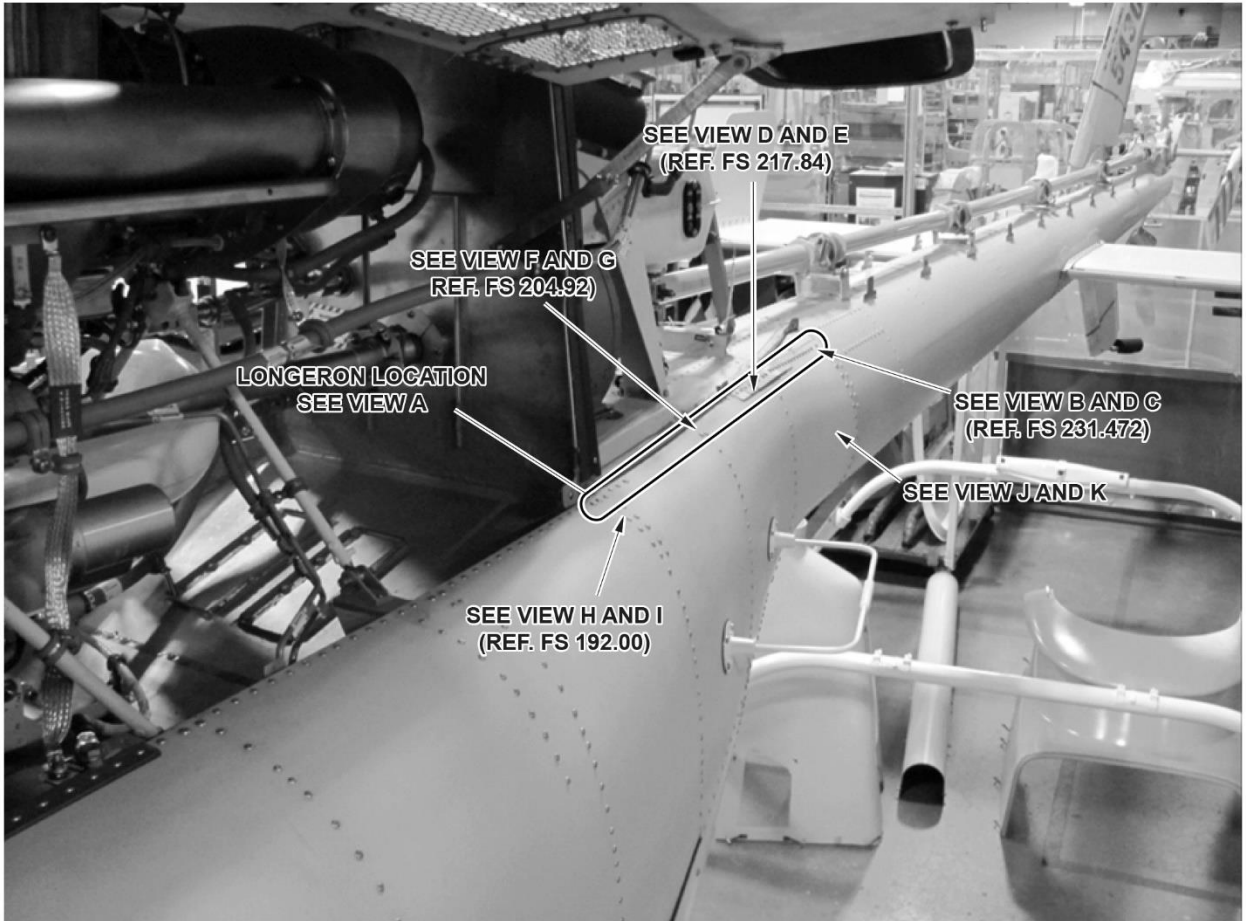
**INSTALLATION OF  
DRILL PLATE**

**NOTE**

A quantity of four spacers of same thickness within 0.001 inch (.025 mm) may be used to clear interference between drill plate and aft fuselage skins. Verify that there is no gap between longeron and aft fuselage bulkhead.

16681\_003

**Figure 3 - Installation of Drill Plate on Aft Fuselage**



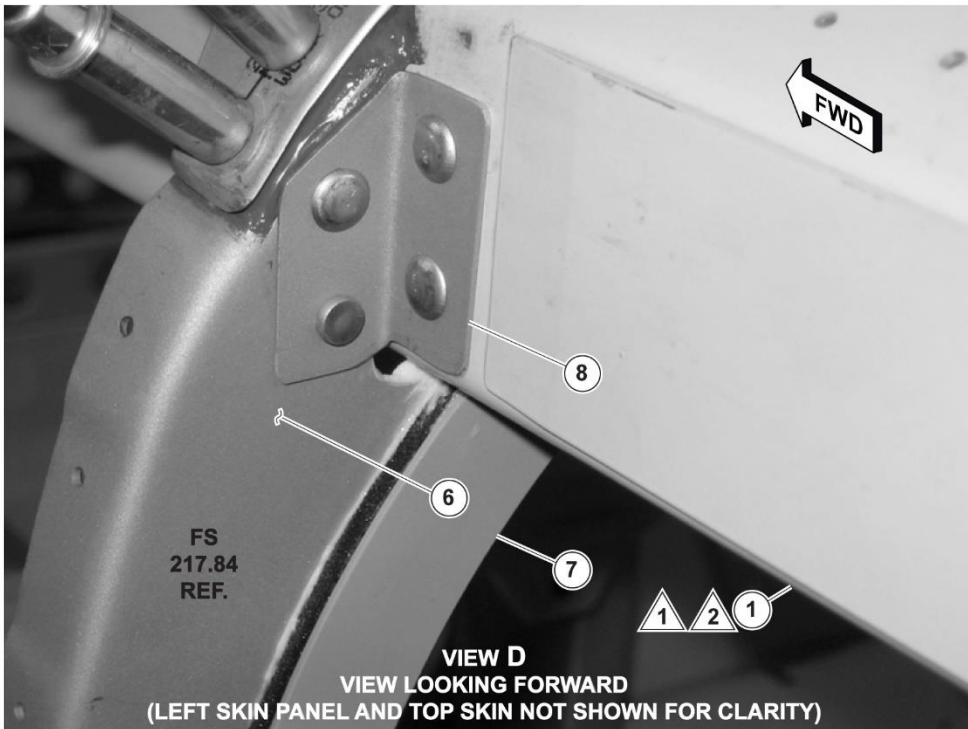
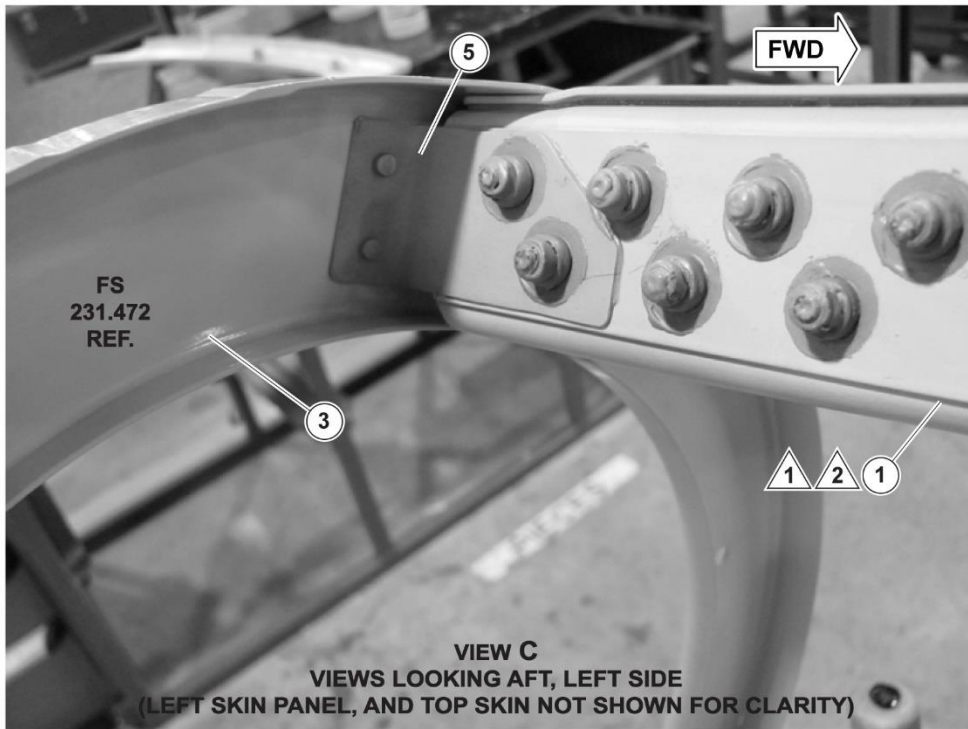
11549\_004a

**Figure 4 – Removal of Aft Upper Left Longeron Assembly (Sheet 1 of 8)**



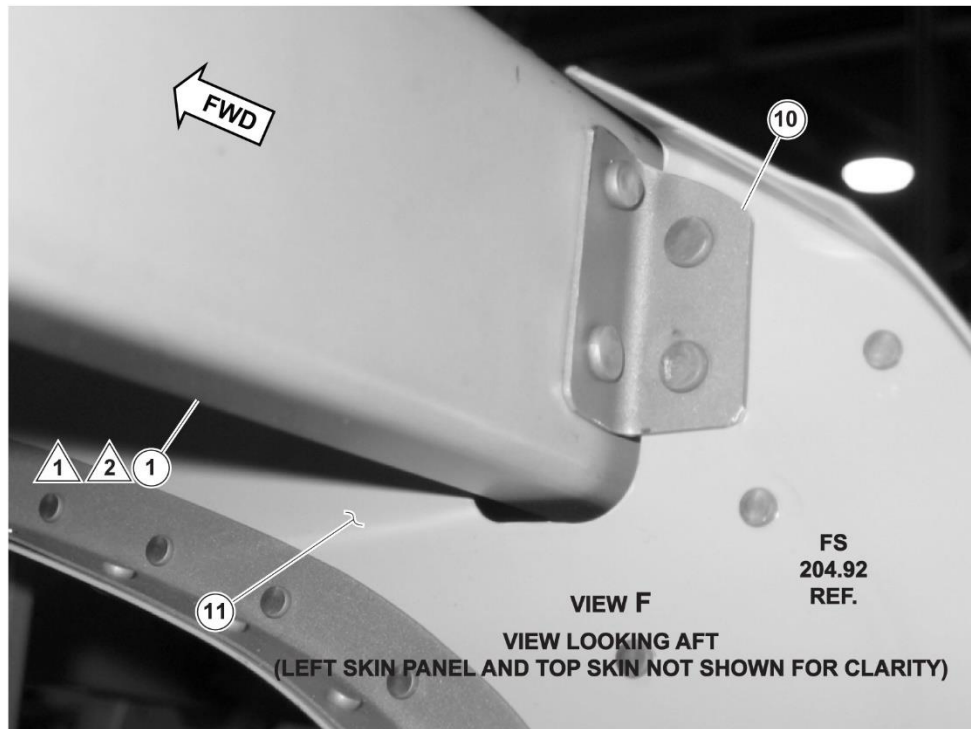
16681\_004b

Figure 4 – Removal of Aft Upper Left Longeron Assembly (Sheet 2 of 8)



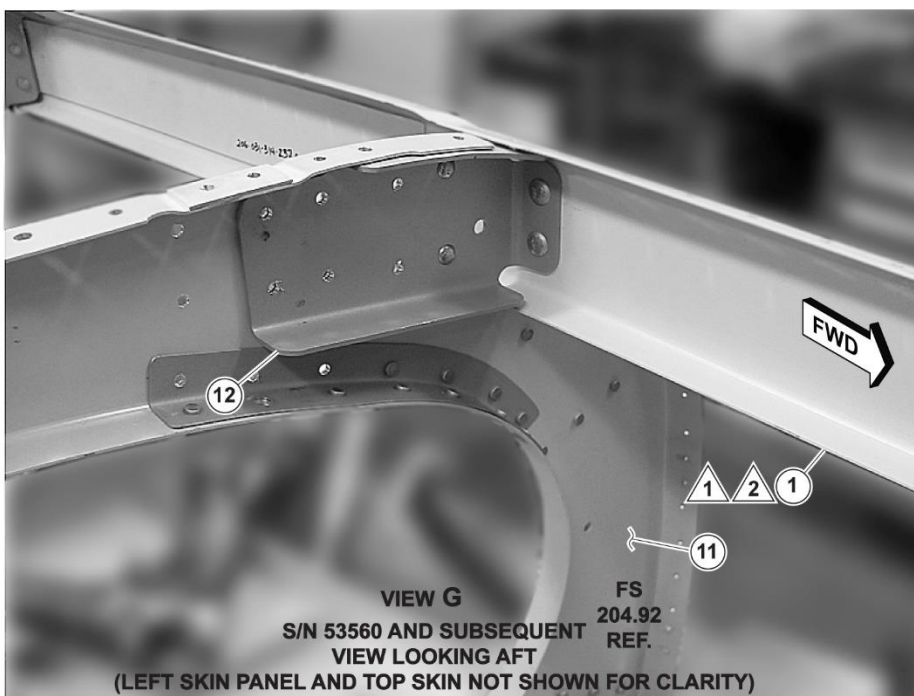
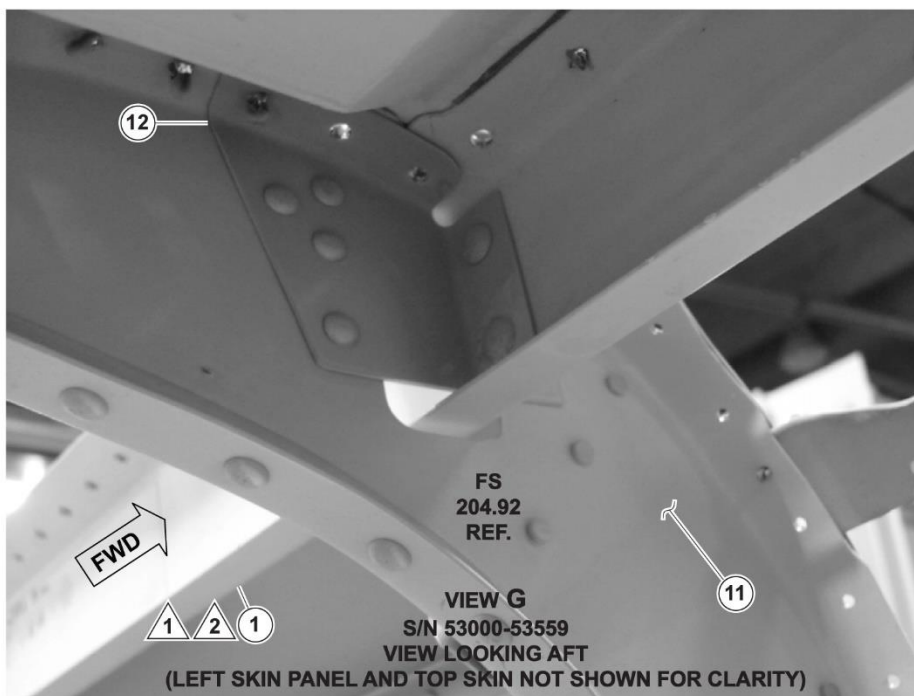
16681\_004c

**Figure 4 – Removal of Aft Upper Left Longeron Assembly (Sheet 3 of 8)**



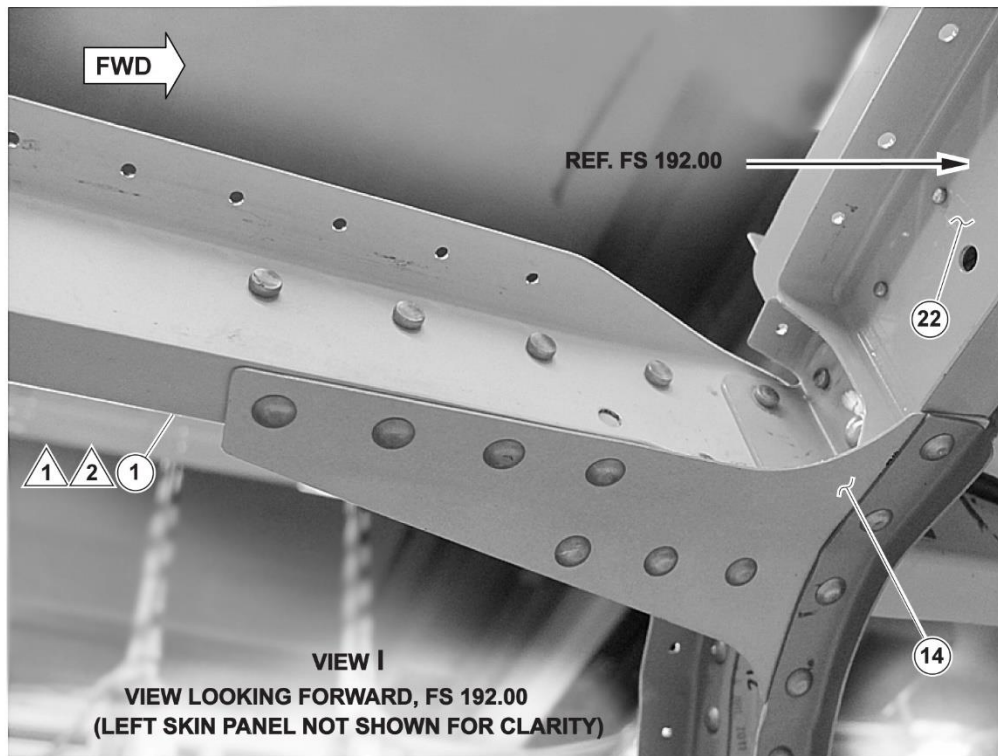
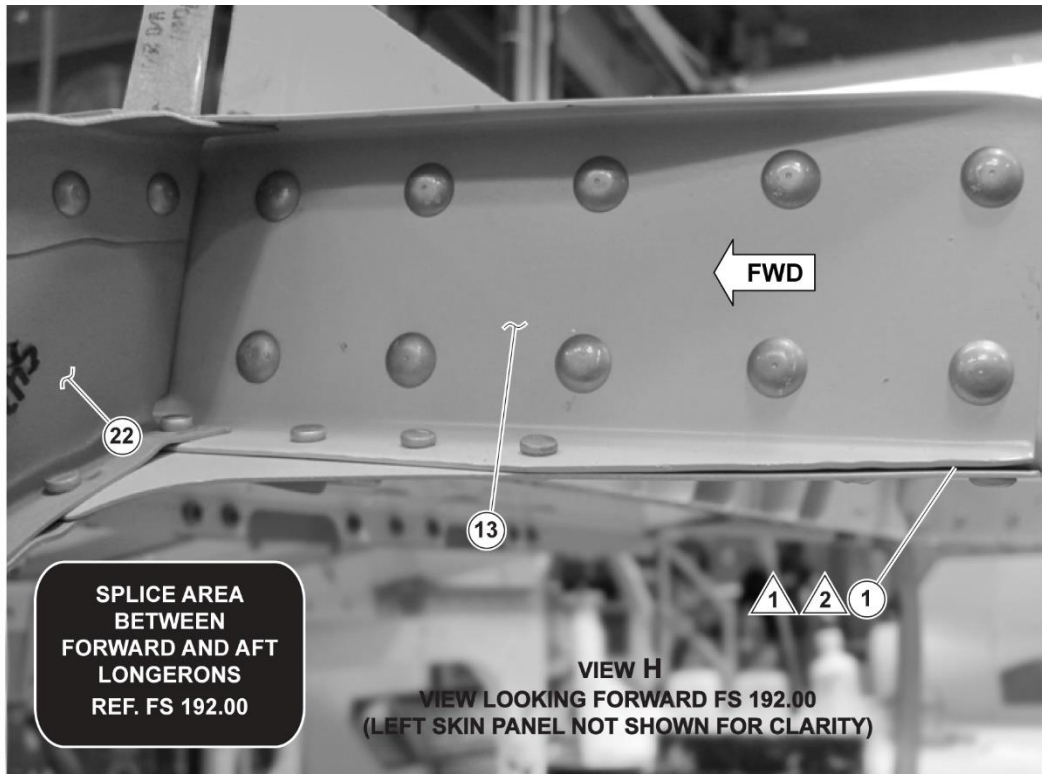
16681\_004d

Figure 4 – Removal of Aft Upper Left Longeron Assembly (Sheet 4 of 8)



16681\_004e

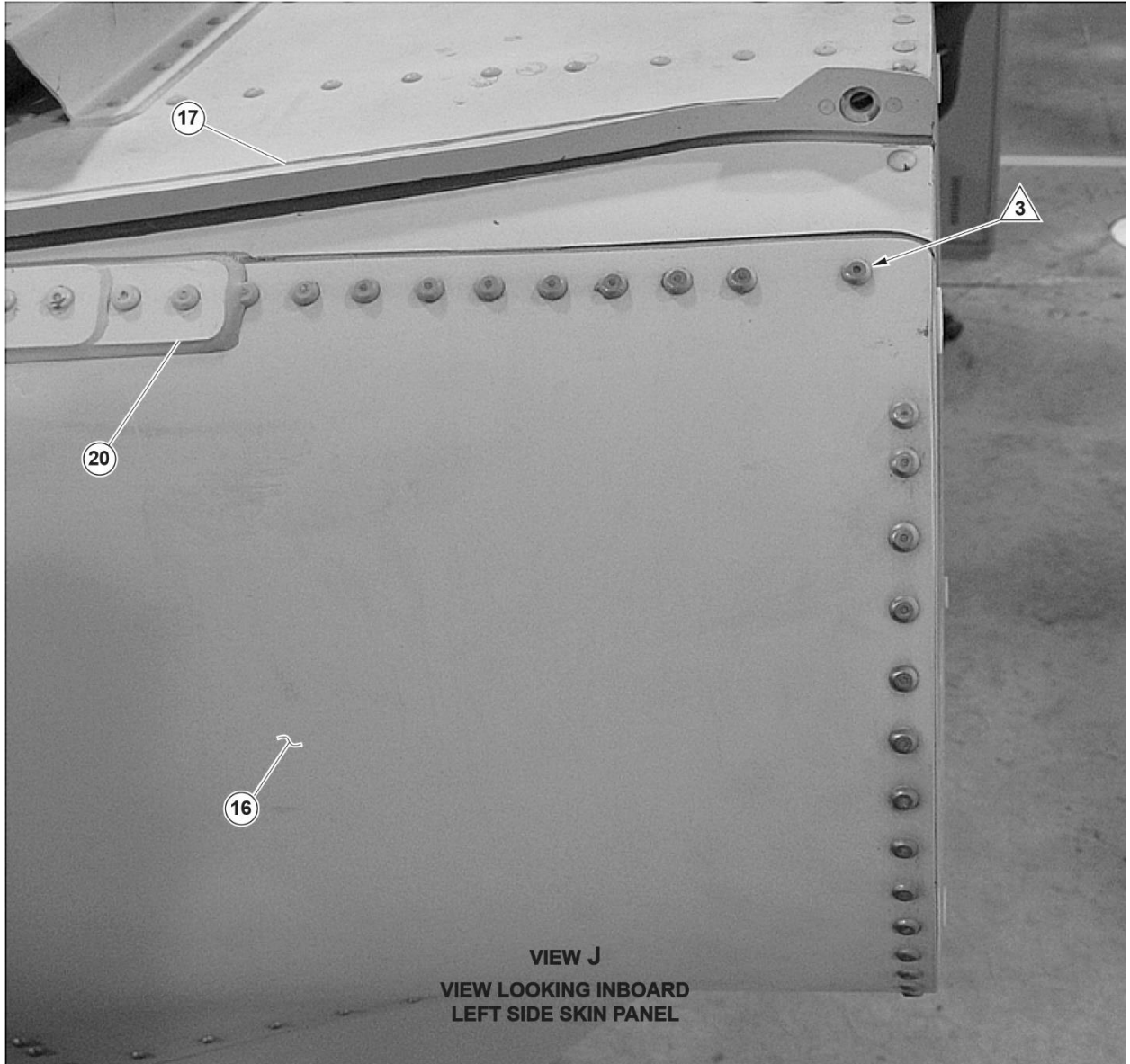
Figure 4 – Removal of Aft Upper Left Longeron Assembly (Sheet 5 of 8)



16681\_004f

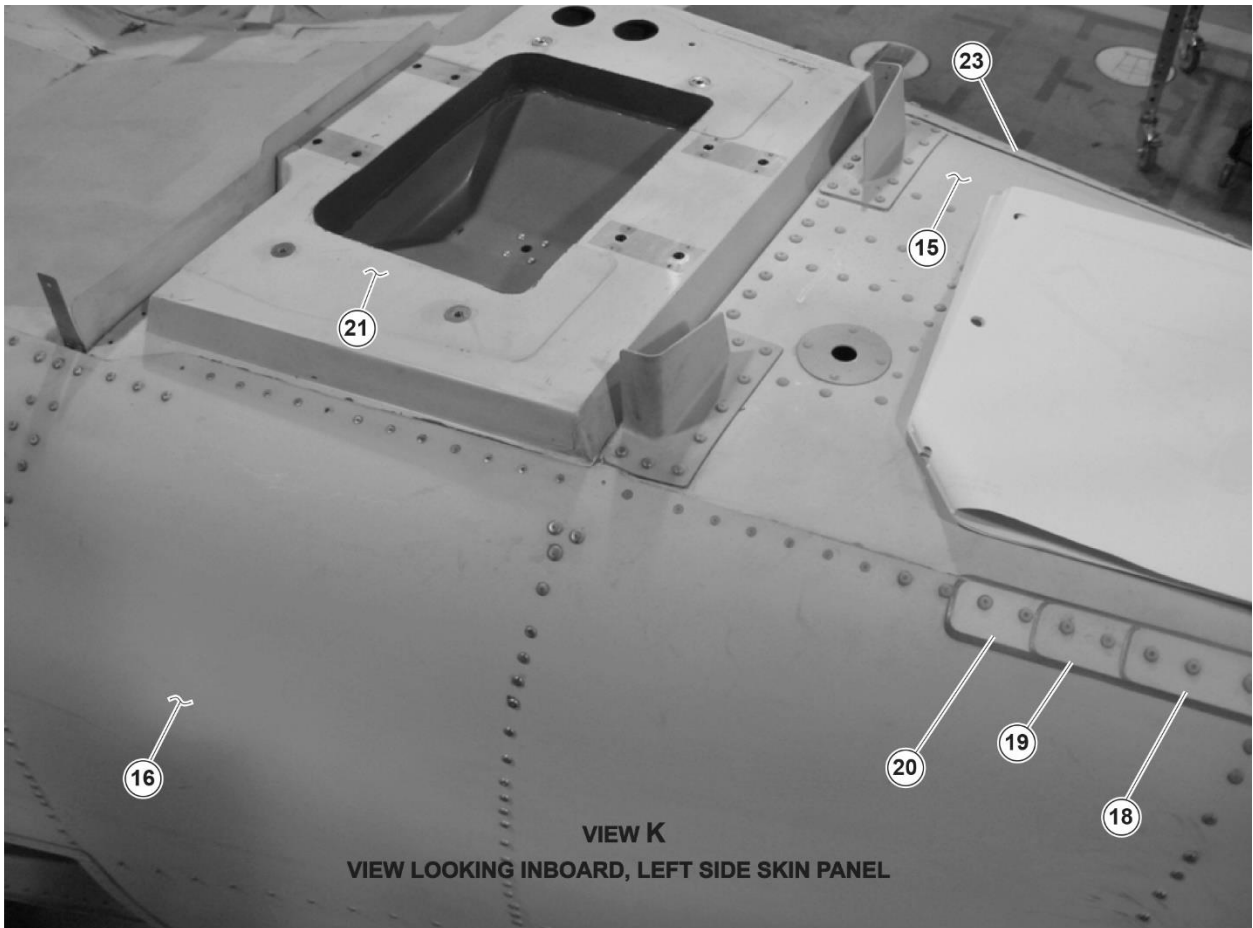
**Figure 4 – Removal of Aft Upper Left Longeron Assembly (Sheet 6 of 8)**





16681\_004g

**Figure 4 – Removal of Aft Upper Left Longeron Assembly (Sheet 7 of 8)**



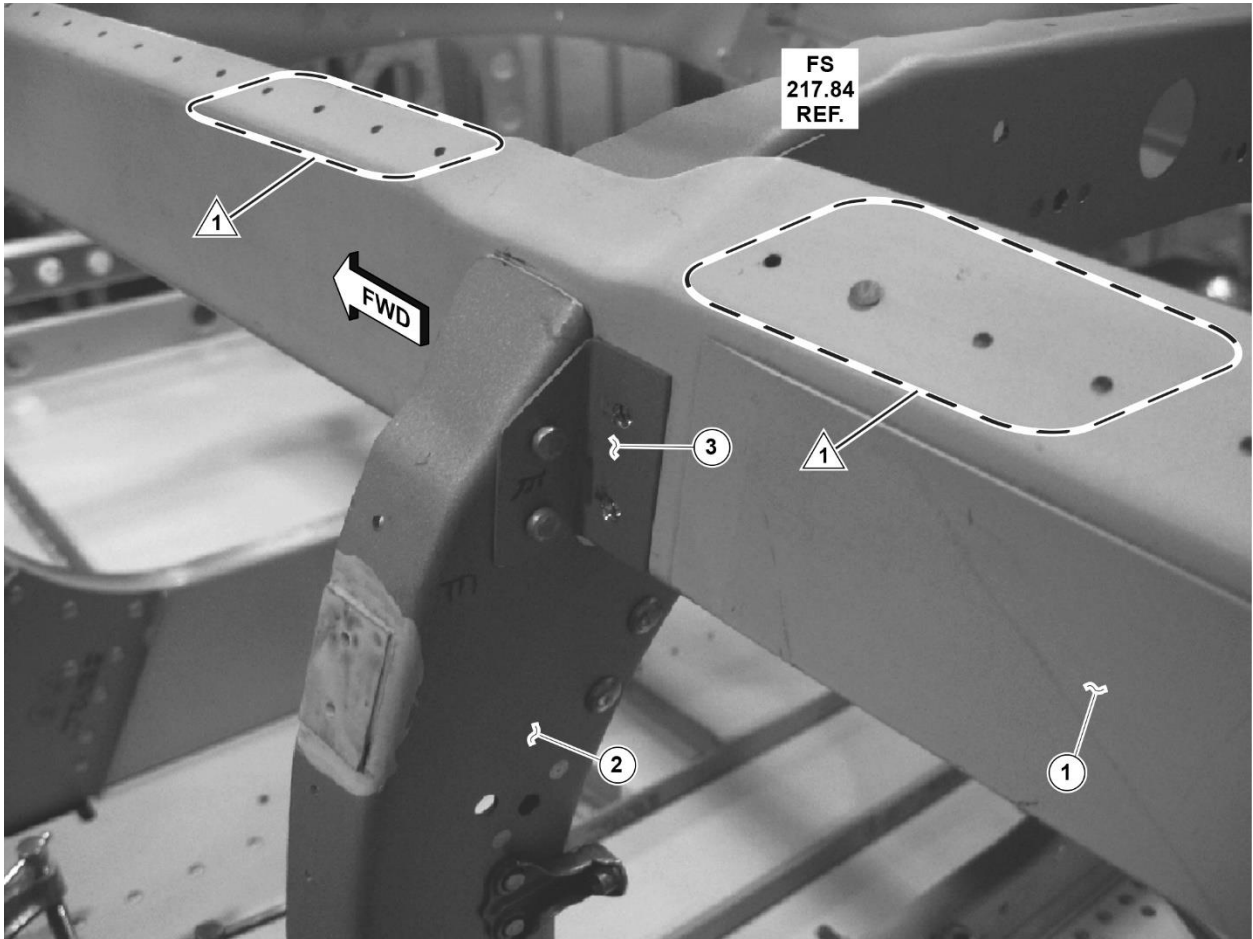
- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Aft upper left longeron assembly</li> <li>2. Frame (FS 217.84) (Ref)</li> <li>3. Aft fuselage bulkhead (FS 231.472)</li> <li>4. Outboard clip (FS 231.472)</li> <li>5. Inboard clip (FS 231.472)</li> <li>6. Frame (FS 217.84)</li> <li>7. Air dam retainer (Ref)</li> <li>8. Outboard clip (FS 217.84)</li> <li>9. Inboard clip (FS 217.84)</li> <li>10. Outboard clip (FS 204.92)</li> <li>11. Frame (FS 204.92) (Ref)</li> <li>12. Inboard clip (FS 204.92)</li> </ol> | <ol style="list-style-type: none"> <li>13. Forward left engine pan longeron (Channel)</li> <li>14. Lower splice doubler (FS 192.00)</li> <li>15. Aft fuselage top skin</li> <li>16. Left aft fuselage panel</li> <li>17. Left aft fairing retainer</li> <li>18. External strap doubler 407-530-020-119 or 407-030-700-195</li> <li>19. External strap doubler 407-530-020-117 or 407-030-700-193</li> <li>20. External strap doubler 407-530-020-115 or 407-030-700-191</li> <li>21. Oil cooler panel (Ref)</li> <li>22. Frame (FS 192.00) (Ref)</li> <li>23. Right aft fuselage panel (Ref)</li> </ol> |
|---|---|

**NOTES**

1. Do not disassemble inner angle, channel or fitting from longeron assembly.
2. Break sealant using a warm blade putty knife and pull longeron assembly from aft end of the fuselage.
3. Do not reinstall fastener. Fill hole on skin with sealant (C-251).

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**Figure 4 – Removal of Aft Upper Left Longeron Assembly (Sheet 8 of 8)**



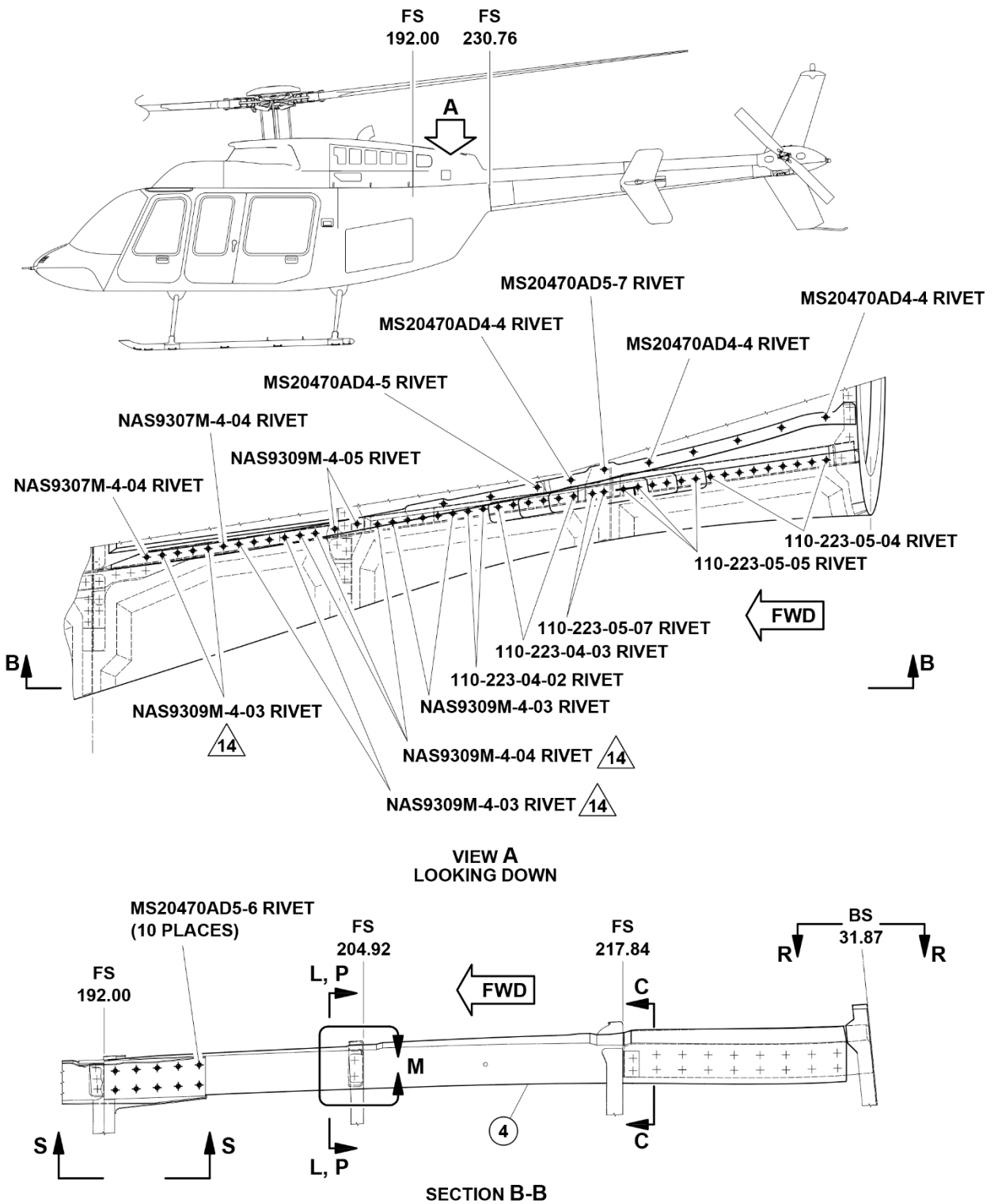
1. Aft upper left longeron assembly (Ref)
2. Frame Sta. 217.84 (Ref)
3. Outboard clip (Ref)

#### NOTES

- 1** Inspect for gaps between upper flange of longeron assembly and side skin panel at areas shown and install solid shim. Shim to be located between upper flange of longeron and the underside of aft fuselage top skin at the area indicated before rivets are installed.
2. Make shims from 7075-T6 material.
3. Minimum shim thickness to be 0.005 inch (0.127 mm) thick.  
Maximum shim thickness to be 0.032 inch (0.812 mm) thick.
4. Deburr all holes and break all sharp edges on shim before installation.
5. Coat shims faying surfaces with general purpose adhesive (C-317) before installation.

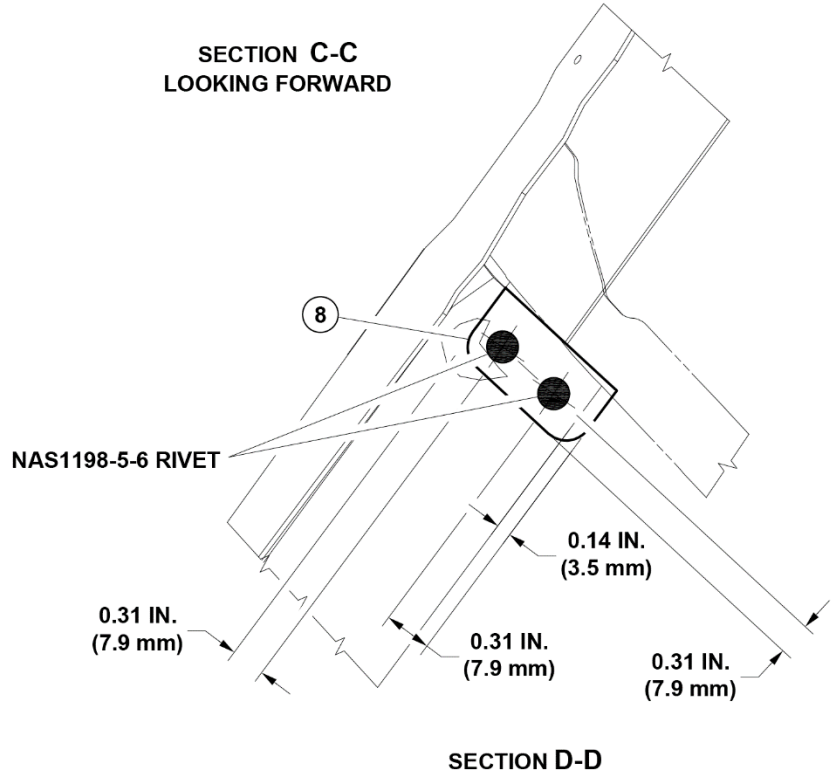
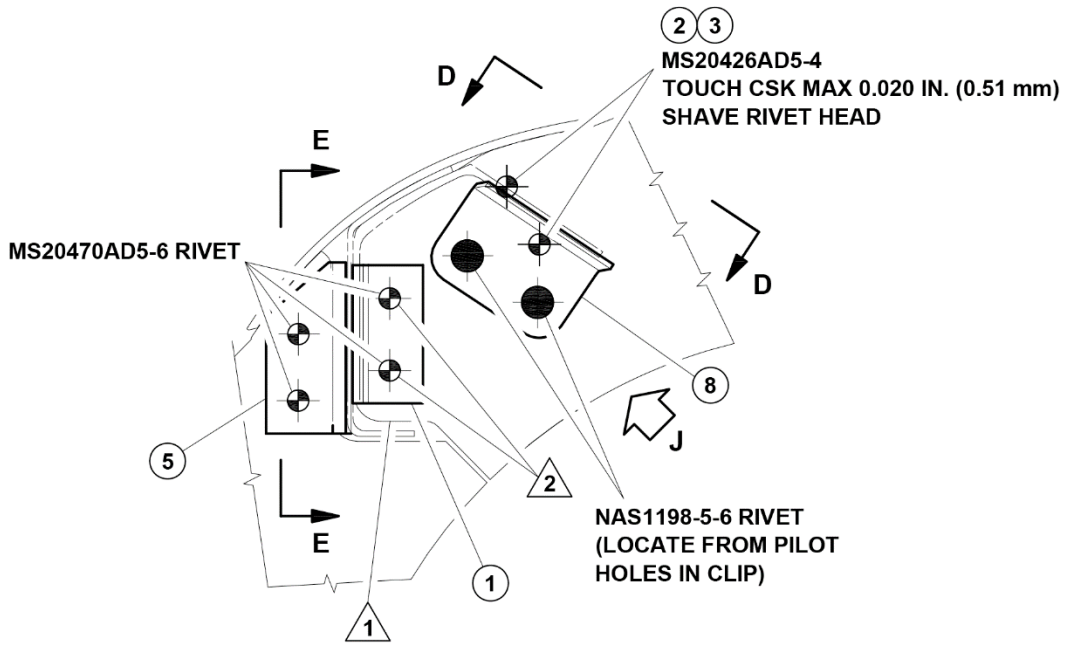
16681\_005

**Figure 5 - Verification for Gaps, Station 217.84**



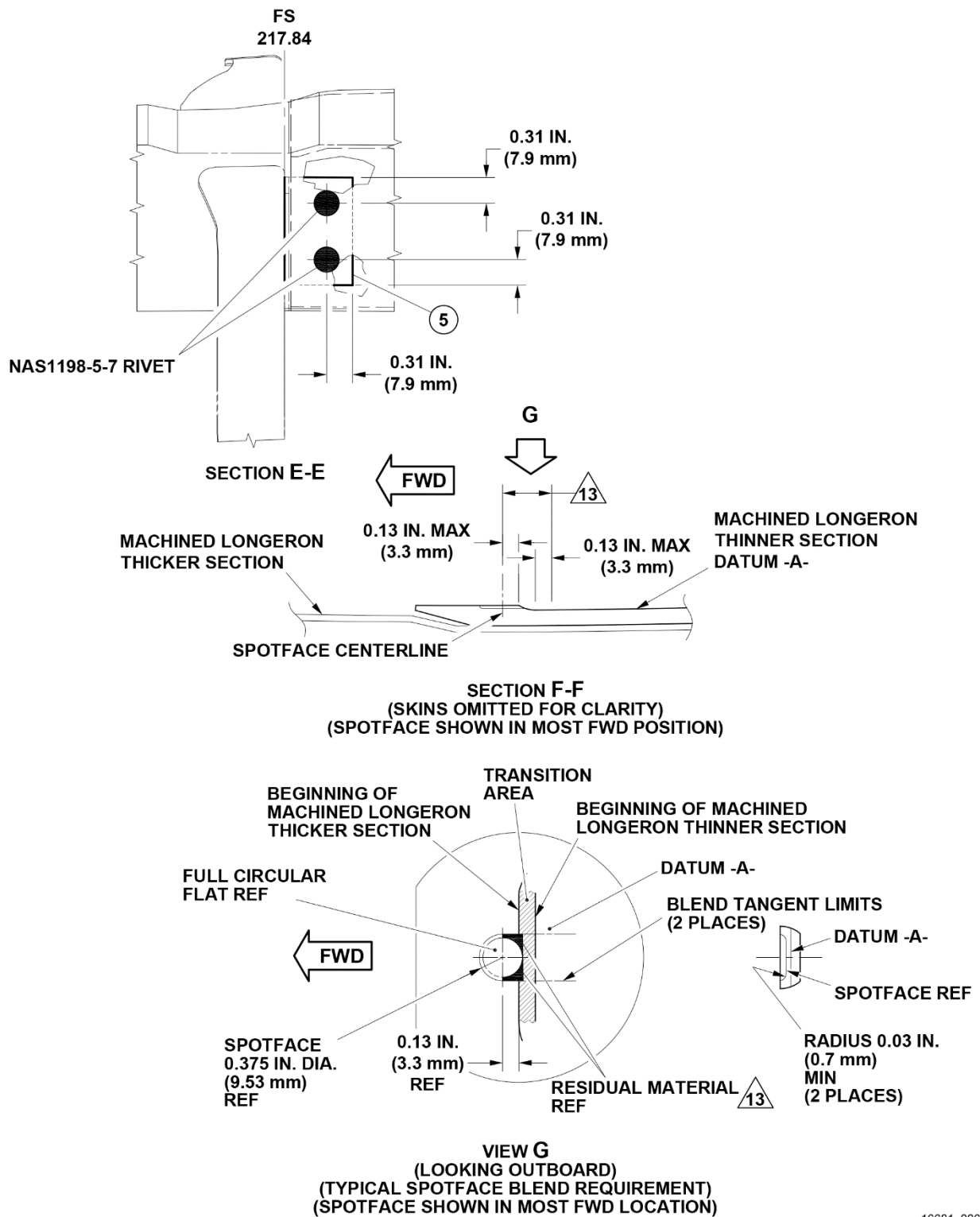
16681\_006a

**Figure 6 - Installation of New Aft Upper Left Longeron (Sheet 1 of 10)**



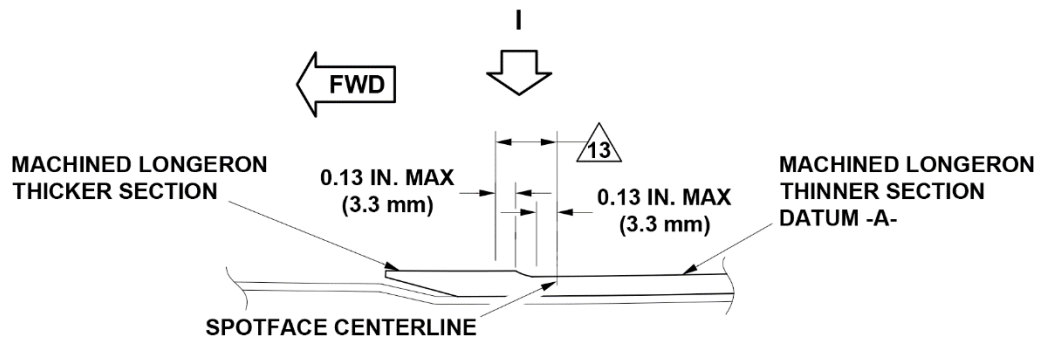
16681\_006b

**Figure 6 - Installation of New Aft Upper Left Longeron (Sheet 2 of 10)**

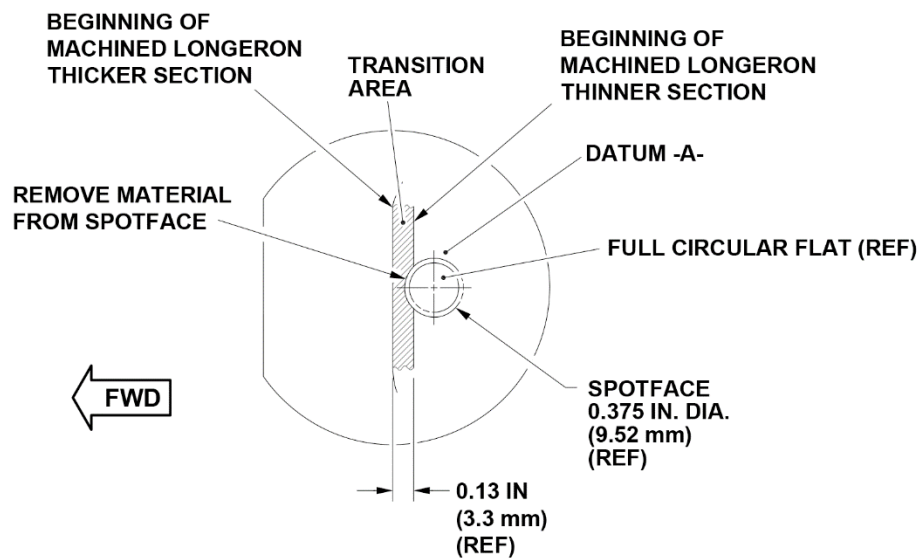


16681\_006c

Figure 6 - Installation of New Aft Upper Left Longeron (Sheet 3 of 10)



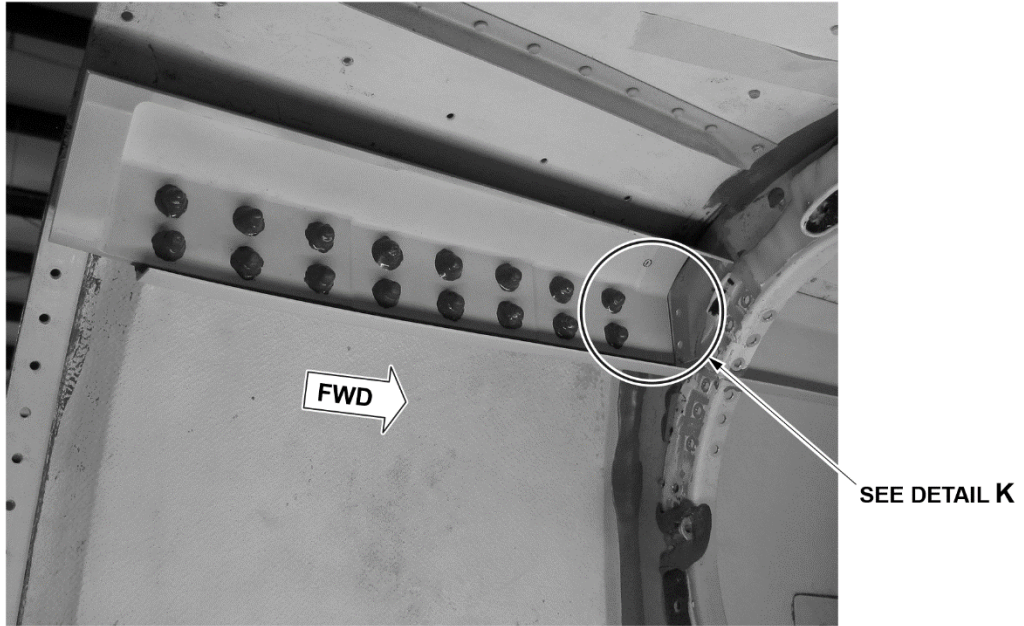
**SECTION H-H**  
 (SKINS OMITTED FOR CLARITY)  
 (SPOTFACE SHOWN IN MOST AFT POSITION)



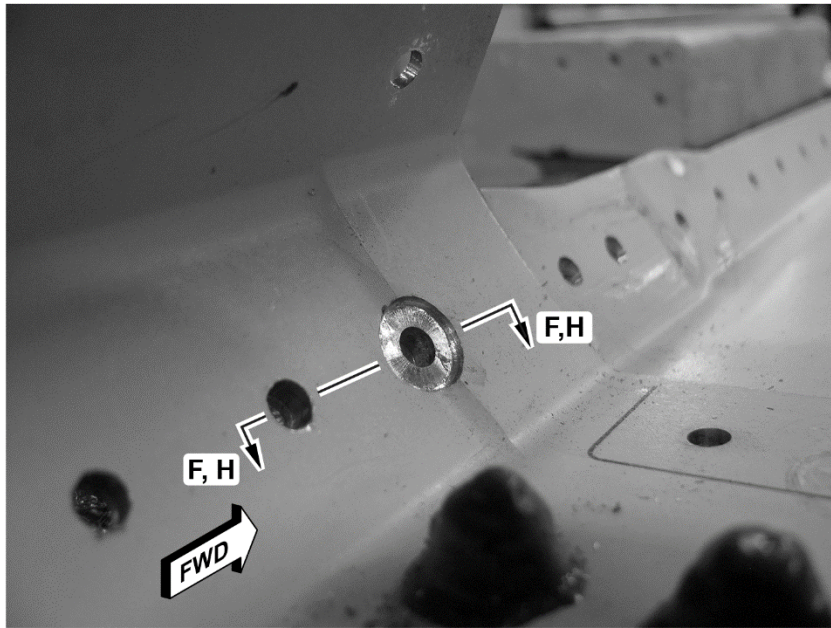
**VIEW I**  
 (LOOKING OUTBOARD)  
 (SPOTFACE SHOWN IN MOST AFT LOCATION)

16681\_006d

**Figure 6 - Installation of New Aft Upper Left Longeron (Sheet 4 of 10)**



**VIEW J**  
**(LOOKING OUTBOARD)**

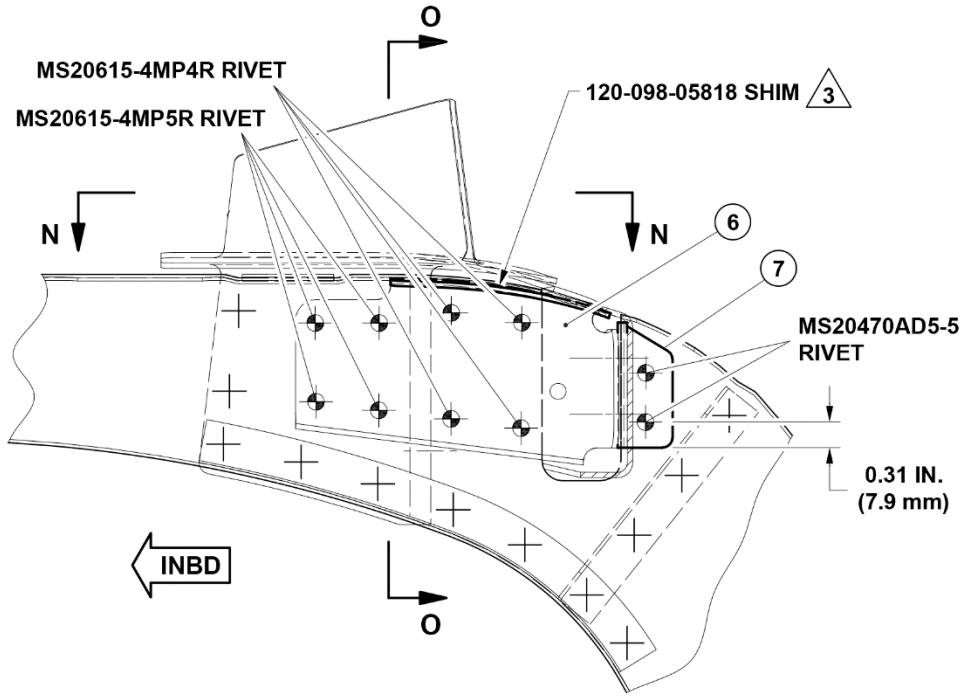


**DETAIL K**  
**(LOOKING OUTBOARD AND FORWARD)**

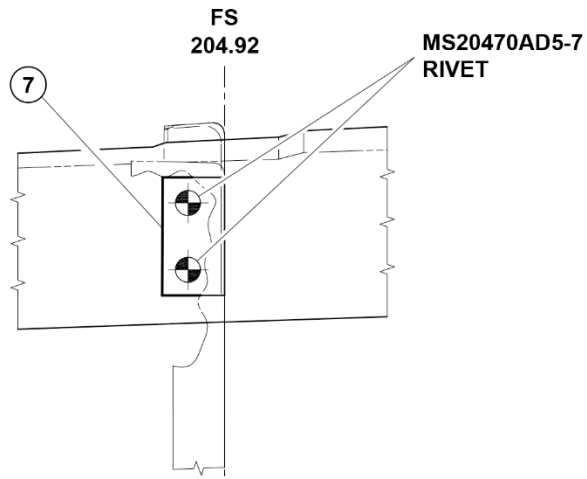
16681\_006e

**Figure 6 - Installation of New Aft Upper Left Longeron (Sheet 5 of 10)**





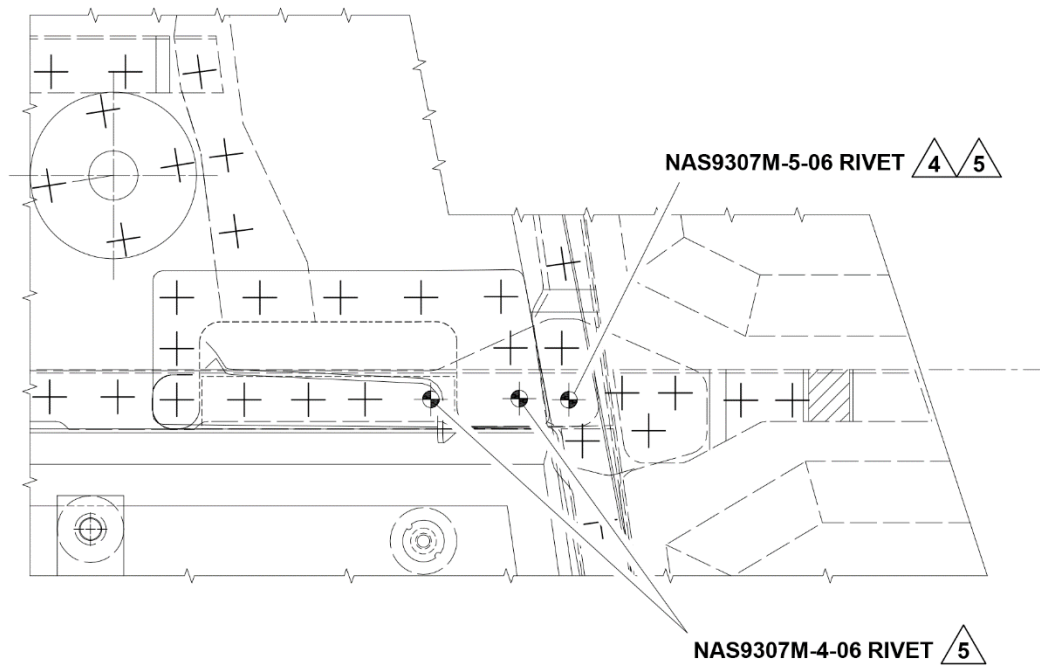
SECTION L-L  
 (S/N 53560 AND SUBSEQUENT)



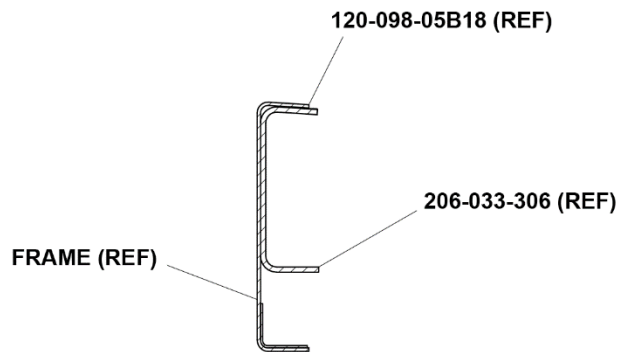
VIEW M

16681\_006f

Figure 6 - Installation of New Aft Upper Left Longeron (Sheet 6 of 10)



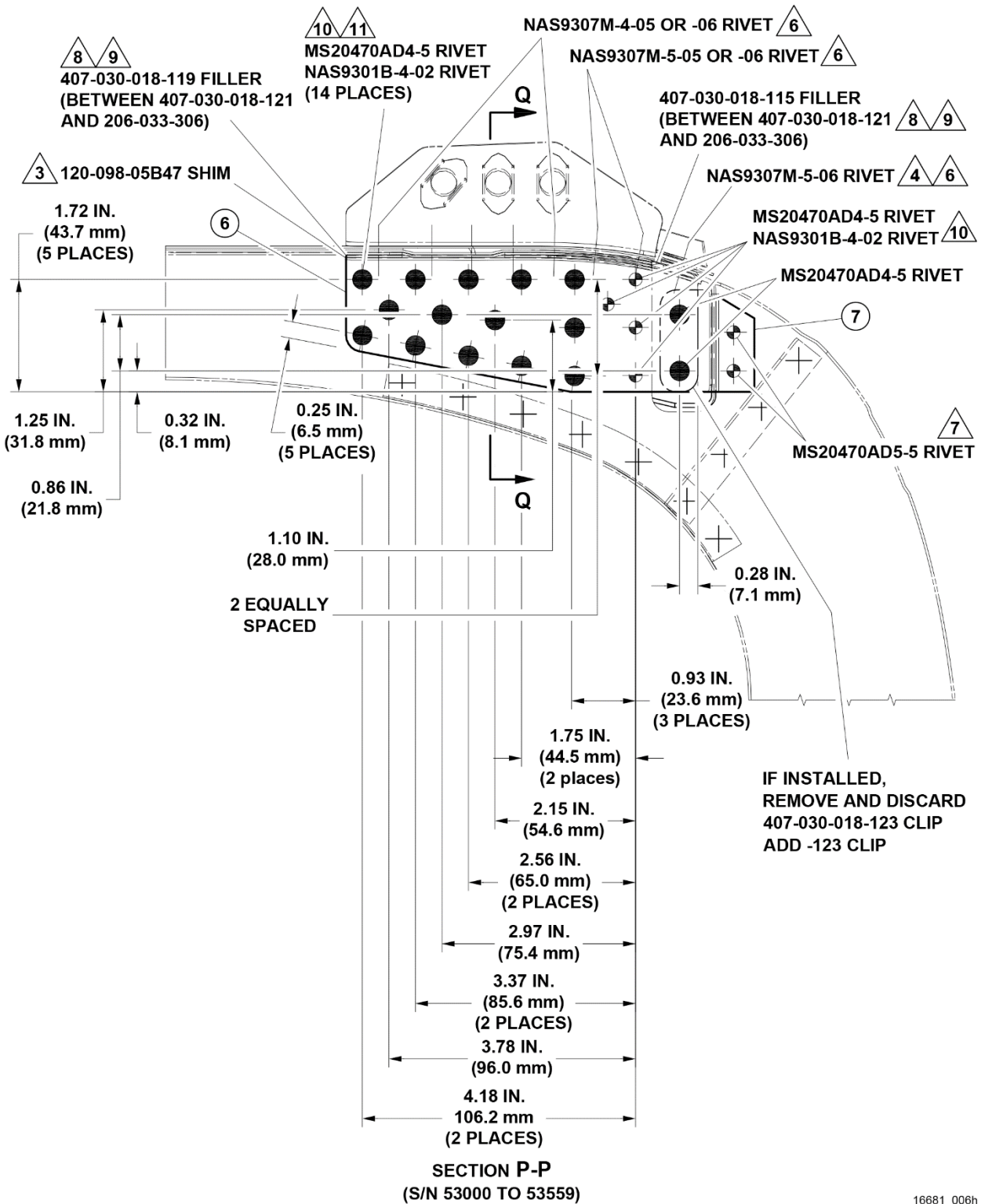
**SECTION N-N**



**SECTION O-O**  
(PARTS OMITTED FOR CLARITY)

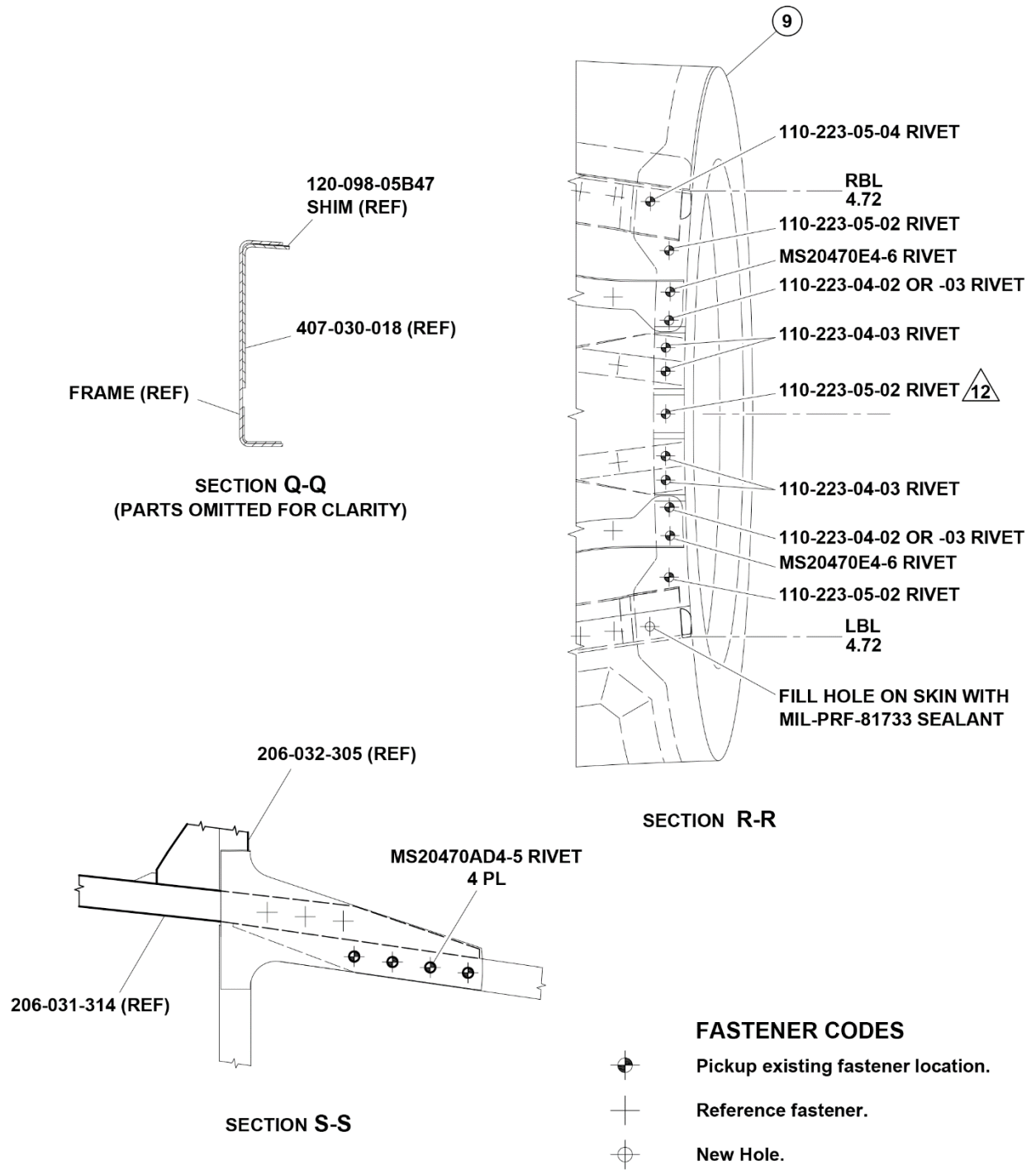
16681\_006g

**Figure 6 - Installation of New Aft Upper Left Longeron (Sheet 7 of 10)**



16681\_006h

Figure 6 - Installation of New Aft Upper Left Longeron (Sheet 8 of 10)



16681\_006i

**Figure 6 - Installation of New Aft Upper Left Longeron (Sheet 9 of 10)**

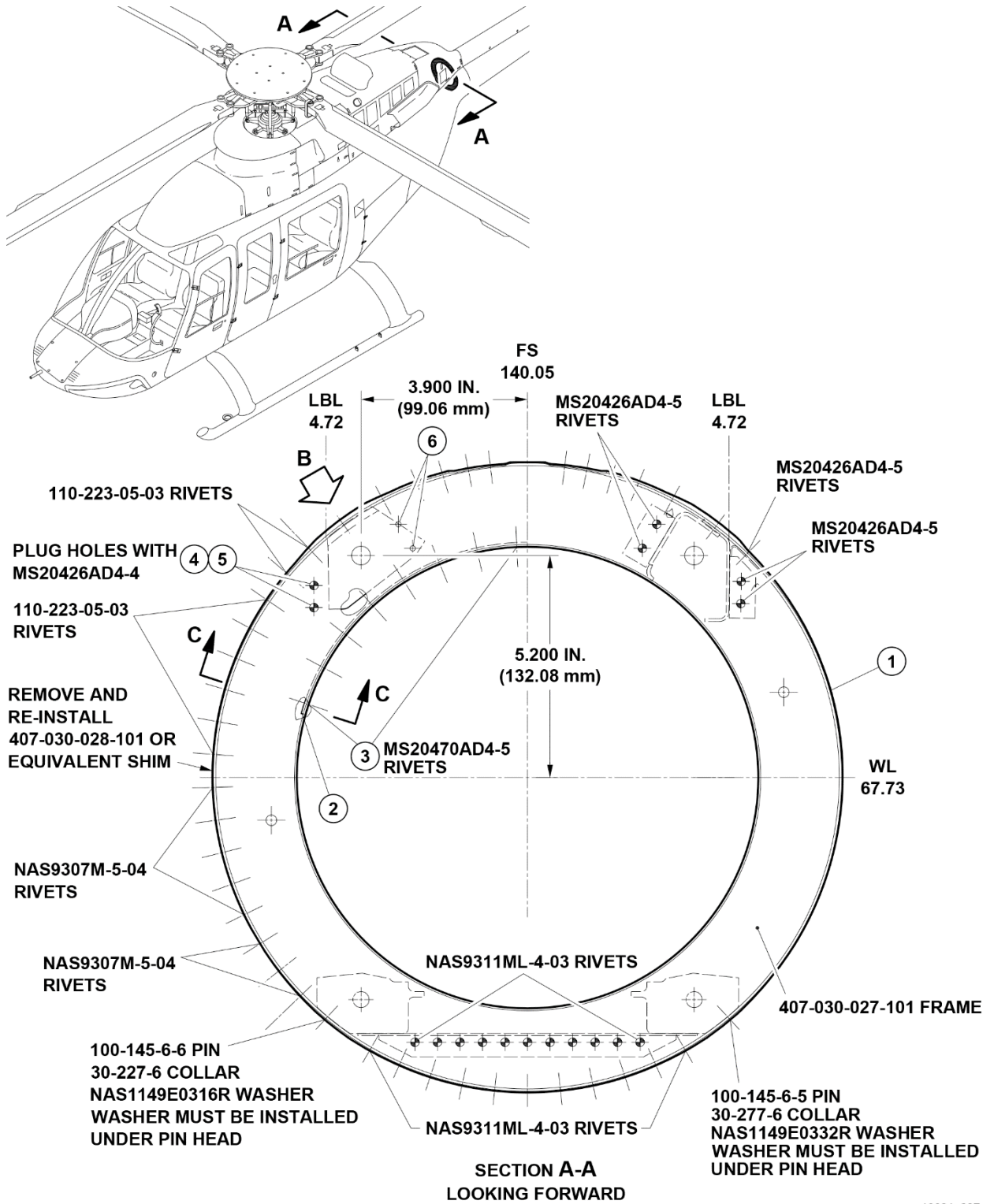
1. Middle clip (FS 217.84)
2. Existing holes to be plugged
3. Rivets
4. New aft upper left longeron assy
5. Outboard clip (FS 217.84)
6. Inboard clip (FS 204.92)
7. Outboard clip (FS 204.92)
8. Inboard clip (217.84)
9. Aft fuselage bulkhead

## NOTES

- 1 It is permissible to trim indicated edge of 206-032-307 frame while maintaining minimum 2D edge distance with existing fastener hole location in order to increase clearance with longeron bottom flange. Make sure that fillet and corner radii are 0.13 inch minimum after trimming.
- 2 If new fastener heads are found to fall into bend radius of clip, it is acceptable to repair IAW ALL-SRM 3-4-4 using only 2 fasteners common to clip and frame for radius block installation. If fastener hole is found to fall into bend radius of clip, contact Bell Product Support Engineering.
- 3 For gap of 0.008 inch or less, it is acceptable to shim using general purpose adhesive (C-317) and discard new shim. Otherwise, install shim between clip and frame with general purpose adhesive (C-317).
- 4 After installation, overcoat indicated fastener tail end inside aft fuselage with sealant (C-308).
- 5 Wet install fasteners with sealant (C-308).
- 6 Locate rivets from existing holes.
- 7 Make sure to maintain 2D minimum edge distance with clip fasteners.
- 8 Seal faying surfaces with sealant (C-308).
- 9 If 407-030-018-115/119 fillers are installed, they must be reused. If not, they must be added.
- 10 Blind rivets NAS9301B type may be used in lieu of solid rivet MS20470AD type to facilitate fastener installation where shown.
- 11 Fasteners to be located from the existing structure if clip 407-030-018-121 was previously installed.
- 12 It is permissible to have a minimum of 1.5D edge distance in surrounding structure.
- 13 If fastener hole centerline is located within shown area, then it is permissible to spotface DIA 0.375 inch with 0,030 minimum radius; depth to ensure full circular flat (minimum depth) up to datum 'A' feature (maximum depth) to make sure fastener head is fully seated on a flat surface. Blend any residual material created from the spotfacing operation tangent to spotface diameter and down to the same depth. Refinish with primer (C-204) as required.
- 14 It is permissible to use NAS9307M-4-03 and NAS9307M-4-04 as substitute rivets if holes exist in the retainer due to protruding head fastener usage where shown. On later configuration, some NAS9309M flush head rivets shown in view A are not common to the retainer.

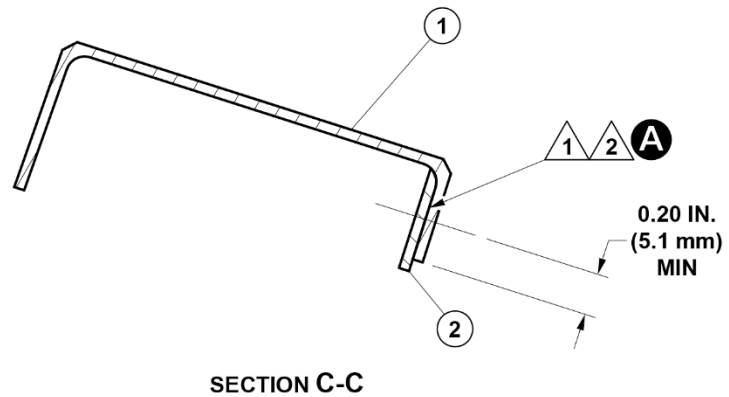
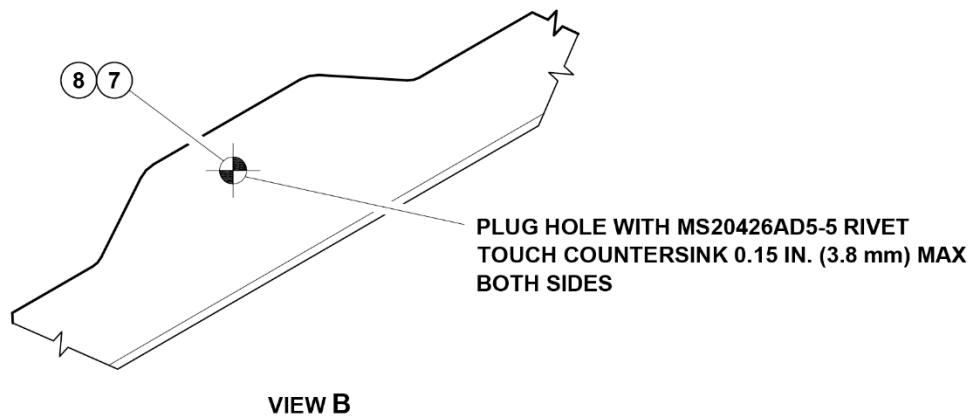
16681\_006j

## Figure 6 - Installation of New Aft Upper Left Longeron (Sheet 10 of 10)



16681\_007a

**Figure 7- Installation of a Machined Aft Fuselage Bulkhead 407-030-027-101 (Sheet 1 of 2)**



1. Aft fuselage bulkhead
2. Doubler
3. Rivets
4. Holes to be plugged
5. Rivets
6. Holes to be left open
7. Hole to be countersunk and plugged
8. Rivets

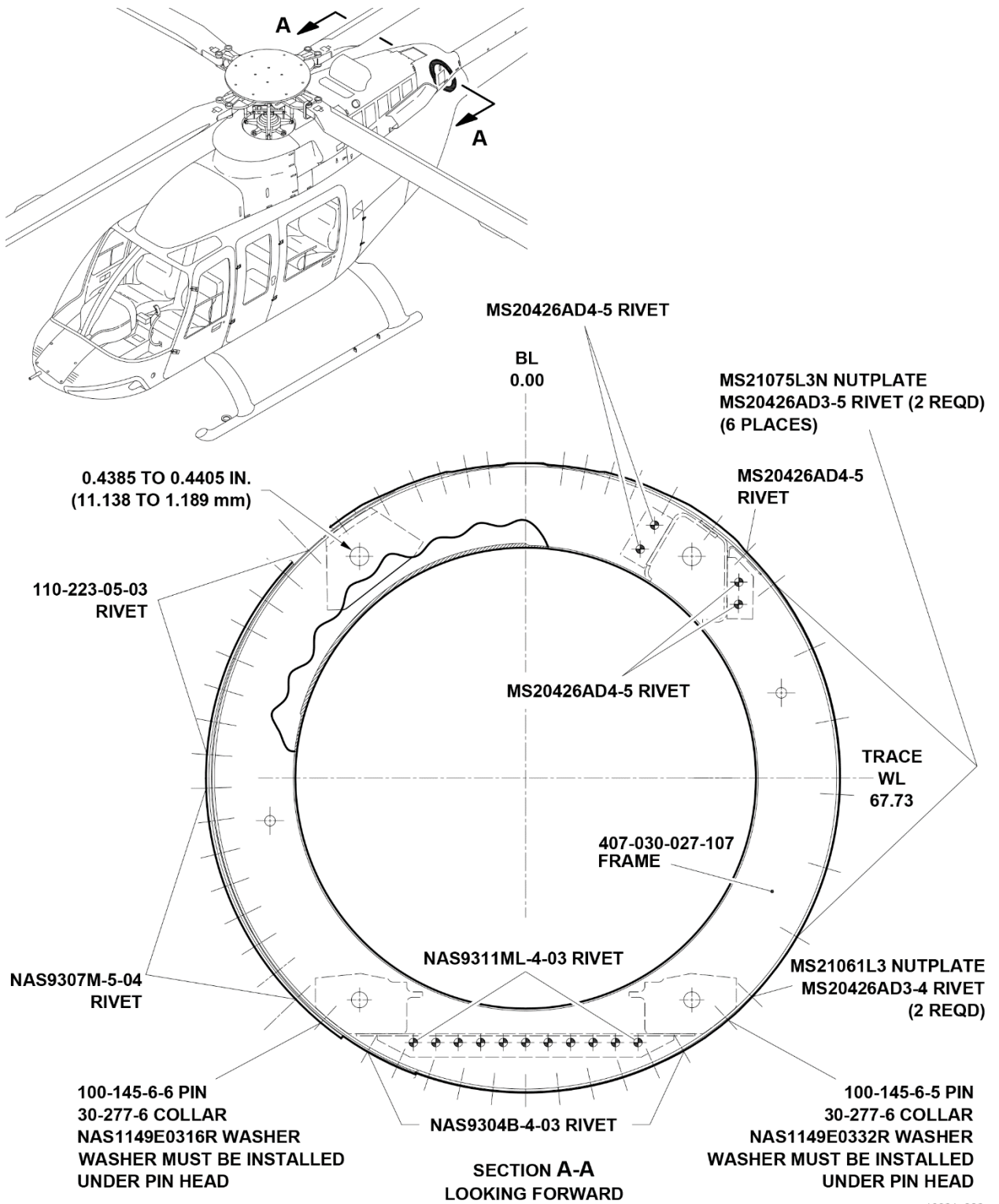
**A** ADHESIVE (C-317)

**NOTES**

- 1** Prepare surface for bonding in accordance with BHT-ALL-SRM paragraph 3-2-5.
- 2** Bond doubler to Aft Fuselage Bulkhead with adhesive (C-317)

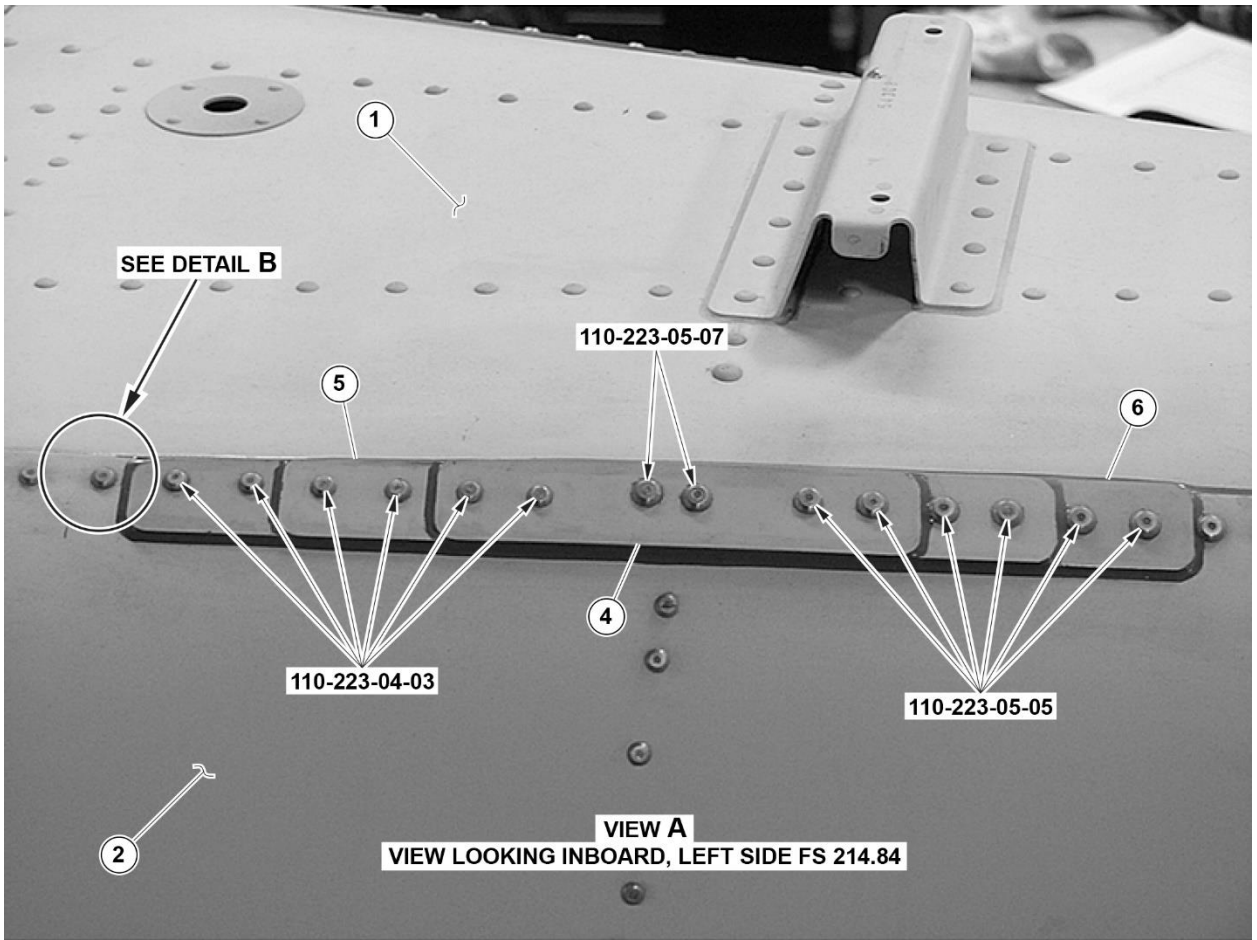
16681\_007b

**Figure 7- Installation of a Machined Aft Fuselage Bulkhead 407-030-027-101  
(Sheet 2 of 2)**



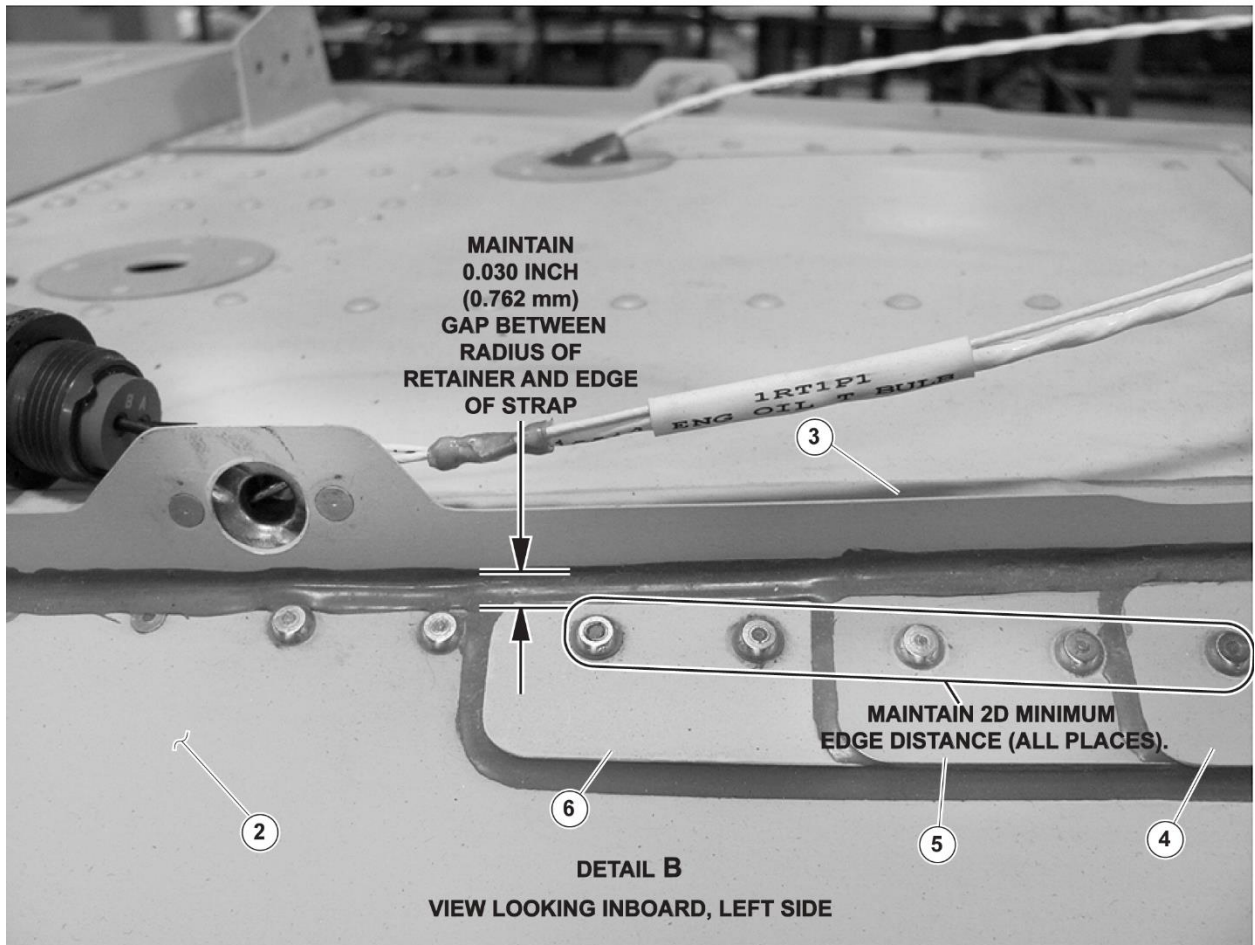
**Figure 8 - Installation of a Machined Aft Fuselage Bulkhead 407-030-027-107**





16681\_009a

**Figure 9 - Installation of External Strap Doublers (Sheet 1 of 2)**



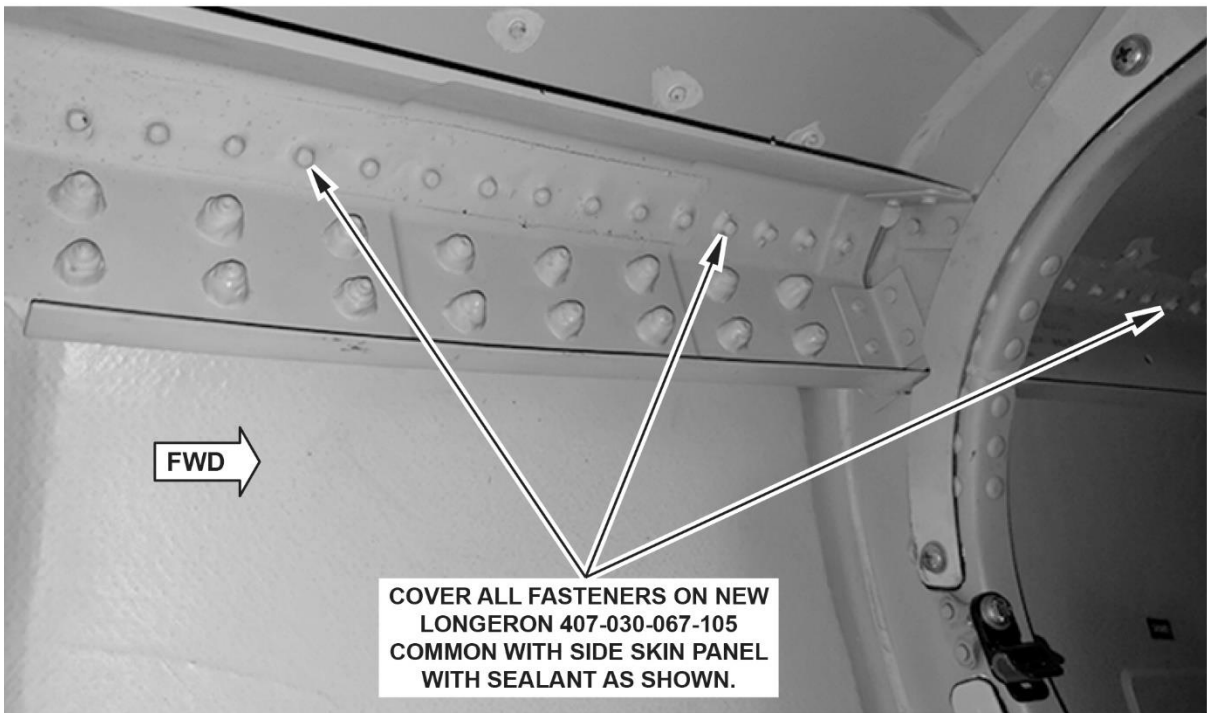
1. Aft fuselage top skin (Ref.)
2. Side skin panel (Ref.)
3. Oil cooler fairing retainer (Ref.)
4. External doubler 407-530-020-119 or 407-030-700-195.
5. External doubler 407-530-020-117 or 407-030-700-193.
6. External doubler 407-530-020-115 or 407-030-700-191.

#### NOTES

1. Fasteners grip length may vary from those indicated.
2. Install all fasteners wet with sealant (C-251).

16681\_009b

**Figure 9 - Installation of External Strap Doublers (Sheet 2 of 2)**



**VIEW A**  
LOOKING INBOARD, LEFT SIDE  
AT FS 217.84

16681\_010

**Figure 10 - Coating of Fasteners Common with Skin Panel**