

**MU-2**

SERVICE BULLETIN

MITSUBISHI HEAVY INDUSTRIES, LTD.
NAGOYA AEROSPACE SYSTEMS WORKS
10, OYE-CHO, MINATO-KU, NAGOYA, JAPAN

No. 245
Subject: Wing Spacer Plate – Inspection and Replacement of
Effectivity: MU-2B-20/-25/-26: S/N 102 and 121 through 347 except 313 and 321
MU-2B-30/-35/-36: S/N 502 through 696 except 652 and 661
Purpose: To ensure the continued airworthiness of the wing structures, conduct a one-time fluorescent penetrant inspection for the wing spacer plates and replace them, if necessary.
Background: As part of aging aircraft program, one-piece and three-piece main wings were subject of detailed teardown inspections, and cracks were found in the wing spacer plates attached to the forward lower spar at W.STA580. The cracks resulted from fatigue to be caused by flight load.
Compliance: Mandatory
Approval: JCAB Approved
Time of Compliance: a) For aircraft with flight time 7,500 hours or over
- within 200 hours, or 12 months whichever comes first after receipt of this Service Bulletin.
b) For aircraft with flight time less than 7,500 hours
- to be include in 7,500 hours inspection.
Responsible Agency of Compliance: MU-2 Owners/Operators
Disposition of Removed Parts: Scrap
Spare Parts Affected: Replacement Kit (P/N 035A-900021-101/-102)
Required Man Hours: Inspection ~approximately 4 man hours for each side
Replacement ~approximately 40 man hours for each side excluding preparation and restoration
Special Tools Required: None
Weight and Balance Change: Negligible
Flight Manual Revision: None

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INSTRUCTIONS

Refer to applicable Maintenance Manual, Illustrated Parts Catalog and Structural Repair Manual to comply with this Service Bulletin.

1. INSPECTION PROCEDURE

NOTE

Identify and store all removed parts and attaching hardware. If it is necessary to remove further parts for access, inspection and replacement, you can remove those parts beyond following process. If you can access, inspect and replace without removing the parts instructed in following process, it is not necessary to remove the parts.

1.1 PREPARATION

- (1) Electrically ground the aircraft.
- (2) Remove the wing center lower fillet and the inner wing leading edge in accordance with applicable Maintenance Manual.
- (3) Remove sealant and primer from the inspection area between the spacer plate and the skin with a nonmetallic scraper. See Figure 1 and 2.
- (4) Clean and expose the inspection surface.

1.2 INSPECTION

- (1) Conduct a fluorescent penetrant inspection to the inspection area shown in Figure 1 and 2 on both left and right sides of wing in accordance with applicable Maintenance Manual.

NOTE

Personnel performing fluorescent penetrant inspection must be qualified and certified as a Level II or higher based on the requirements of National Aerospace Standard NAS410 or equivalent standard.

- (a) When a crack of 0.6 inches or greater is found
Replace the discrepant spacer plate with a new improved spacer plate (P/N 017A-11102-13/-14) and scrap the discrepant spacer plate. Replacement procedure is instructed in Section 2.
- (b) When a crack of less than 0.6 inches is found
It is allowed to monitor the crack growth by repetitive inspection at the interval of 600 hours. However, the spacer plate must be replaced when the crack length grows beyond 0.6 inches.

1.3 RESTORATION

- (1) Clean up the inspection area and apply Alodine and zinc chromate primer.
- (2) Apply sealant to fill the gaps between the spacer plates and the skin in accordance with applicable Maintenance Manual.
- (3) Restore the inner leading edge.
- (4) Restore the wing center lower fillet.

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2. REPLACEMENT PROCEDURE

NOTE

Replacement Kit may be purchased from Mitsubishi Heavy Industries America, Inc. (MHIA) through Mitsubishi MU-2 Authorized Service Center Network.

Replacement of the spacer plate should be conducted in accordance with the installation drawing contained in Replacement Kit.

2.1 PREPARATION

NOTE

Removal of the engines, each system, the wing and the other attaching hardware should be accomplished in accordance with applicable Maintenance Manual.

- (1) Electrically ground the aircraft.
- (2) Drain fuel and purge fuel tanks.
- (3) Remove all wing-fuselage fillets, the fuel system, the engines, the air conditioning and wing de-icer system, the electrical and instrument system, and the flight control system from the wing.
- (4) Remove the wing and set appropriate support.
- (5) Remove the inner wing leading edge.
- (6) Remove the shut off valves.
- (7) Remove the fuel tank access doors.

2.2 REPLACEMENT

- (1) Remove sealant inside the integral tank with a nonmetallic scraper.
- (2) Remove the outer wing-fuselage fitting and the inner support fitting. If shims are installed, record thickness and location, and store.
- (3) Drill out and cut off the fasteners on and around the spacer plate.

NOTE

Several tack rivets and a nut plate are hidden under the skin and sealant as shown in Figure 4. Be careful not to damage adjacent structural components when removing the spacer plate.

- (4) Peel up the skin and slide out the spacer plate from the wing.
- (5) Remove remaining sealant inside of the integral tank. Clean up the integral tank and the outer wing-fuselage fitting and the inner support fitting.
- (6) Duplicate all fastener holes to a new spacer plate from the removed spacer plate. Do not apply countersink to the holes for tack rivets and nut plate installing rivets.
- (7) Temporary locate the new spacer plate and drill out the holes for tack rivets to the skin by picking up the existing tack rivet holes on spar through the new spacer plate.
- (8) Drill out the holes for nut plate installing rivets to the skin by picking up the existing holes on spar through the new spacer plate.
- (9) Remove the new spacer plate and clean up.

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- (10) Apply sealant to the new spacer plate and the existing structure where sealant should be applied before fastening in accordance with the installation drawing (refer to Figure 5), and locate the spacer plate.
- (11) Install all fasteners to the spacer plate, a nut plate and tack rivets in accordance with the installation drawing (refer to Figure 3 and 4).
- (12) Adjust the gap between the outer wing-fuselage fitting and the spacer plate with laminated shim within 0.005 inches (refer to Figure 3).
- (13) Touch up the laminated shim with zinc chromate primer.
- (14) Install the outer wing-fuselage fittings and the inner support fitting.
- (15) Clean up inside and outside of the integral tank.
- (16) Apply integral tank sealant and dry in accordance with applicable Maintenance Manual and the installation drawing (refer to Figure 5).
- (17) Apply sealant to fill the gaps between the spacer plate and the skin shown by the hatched area in Figure 2 in accordance with applicable Maintenance Manual.

2.3 FUEL LEAKAGE CHECK

- (1) Conduct the integral tank leakage test in accordance with applicable Maintenance Manual.
- (2) If fuel leakage is found, rework sealing.

2.4 RESTORATION

NOTE

Restoration of the disrupted systems, including rigging and operational tests, should be accomplished in accordance with applicable Maintenance Manual.

- (1) Install the fuel tank access doors.
- (2) Install the fuel shut off valves.
- (3) Install the inner wing leading edge.
- (4) Install the wing.
- (5) Install the flight control system, the electrical and instrument system, the air conditioning and wing de-icer system, the engines, the fuel system and all wing-fuselage fillets.
- (6) Refuel full and check no leakage.

3. RECURRING INSPECTION

- (1) If no crack is found during the inspection, repeat the inspection in accordance with the revised Maintenance Requirement Manual at the interval of 2,000 hours.
- (2) If the crack of less than 0.6 inches is found, repeat the inspection at the interval of 600 hours for crack growth monitoring in accordance with this Service Bulletin. When the crack length exceeds 0.6 inches, replace the cracked spacer plate with a new improved spacer plate.
- (3) Once the spacer plate is replaced with a new improved spacer plate (P/N 017A-11102-13/-14), recurring (repetitive) inspection is not required.

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4. LOGBOOK ENTRY

Upon completion of this Service Bulletin, make an appropriate maintenance entry in the logbook similar to "Service Bulletin No. 245 complied with on (date) by (name), number/stamp."

5. COMPLETION

Complete the enclosed compliance card and mail back to Mitsubishi Heavy Industries America, Inc. in care of Turbine Aircraft Services, Inc.

Turbine Aircraft Services, Inc.
4550 Jimmy Doolittle Drive
Addison, Texas 75001

Attention: Manager, Publications
Phone: (972) 248-3108 X 209
Fax: (972) 248-3321

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Parts and Material Required

The following parts and material are required to comply with this Service Bulletin.

Replacement Kit may be purchased from Mitsubishi Heavy Industries America, Inc. (MHIA) through Mitsubishi MU-2 Authorized Service Center Network.

All the parts and material except for Replacement Kit may be procured locally.

PART NUMBER	DESCRIPTION	QTY/SHIP		REMARKS
		LH (-101)	RH (-102)	
KIT number 035A-900021-101 to replace LH spacer plate				
KIT number 035A-900021-102 to replace RH spacer plate				
035A-11076	DRAWING	1	1	
017A-11102-13	SPACER PLATE	1		
017A-11102-14	SPACER PLATE		1	
017A-11102-15	LAMINATED SHIM	1	1	
800-0115-10	LOCK-O-SEAL	14	14	change PN of 800-015-10
NAS1149D0363H	WASHER	14	14	
NAS1149D0316H	WASHER	4	4	
MS20002C7	WASHER	2	2	
MS20002-7	WASHER	2	2	
NAS679A3W	NUT	16	16	
H20-7	NUT	2	2	
NAS1473A3	DOME NUT	1	1	
MS20426AD3-10	RIVET	4	4	not contained in the KIT
MS20426AD4-5	RIVET	6	6	not contained in the KIT
MS20426AD5-12	RIVET	9	9	not contained in the KIT
MS20426AD5-7	RIVET	3	3	not contained in the KIT
MS20470AD3-10	RIVET	2	2	not contained in the KIT
MS20470AD3-11	RIVET	2	2	not contained in the KIT
MS20470AD3-7	RIVET	1	1	not contained in the KIT
MS20470AD4-5	RIVET	15	15	not contained in the KIT
MS20470AD5-12	RIVET	11	11	not contained in the KIT
MS20470AD5-13	RIVET	6	6	not contained in the KIT
MS20470AD5-7	RIVET	9	9	not contained in the KIT
MS20470AD5-9	RIVET	6	6	not contained in the KIT
NAS1097AD4-9	RIVET	16	16	not contained in the KIT
AMS-S-8802 Class A or equivalent	SEALANT	AR	AR	not contained in the KIT
AMS-S-8802 Class B or equivalent	SEALANT	AR	AR	not contained in the KIT
TT-P-1757 or equivalent	PRIMER	AR	AR	not contained in the KIT

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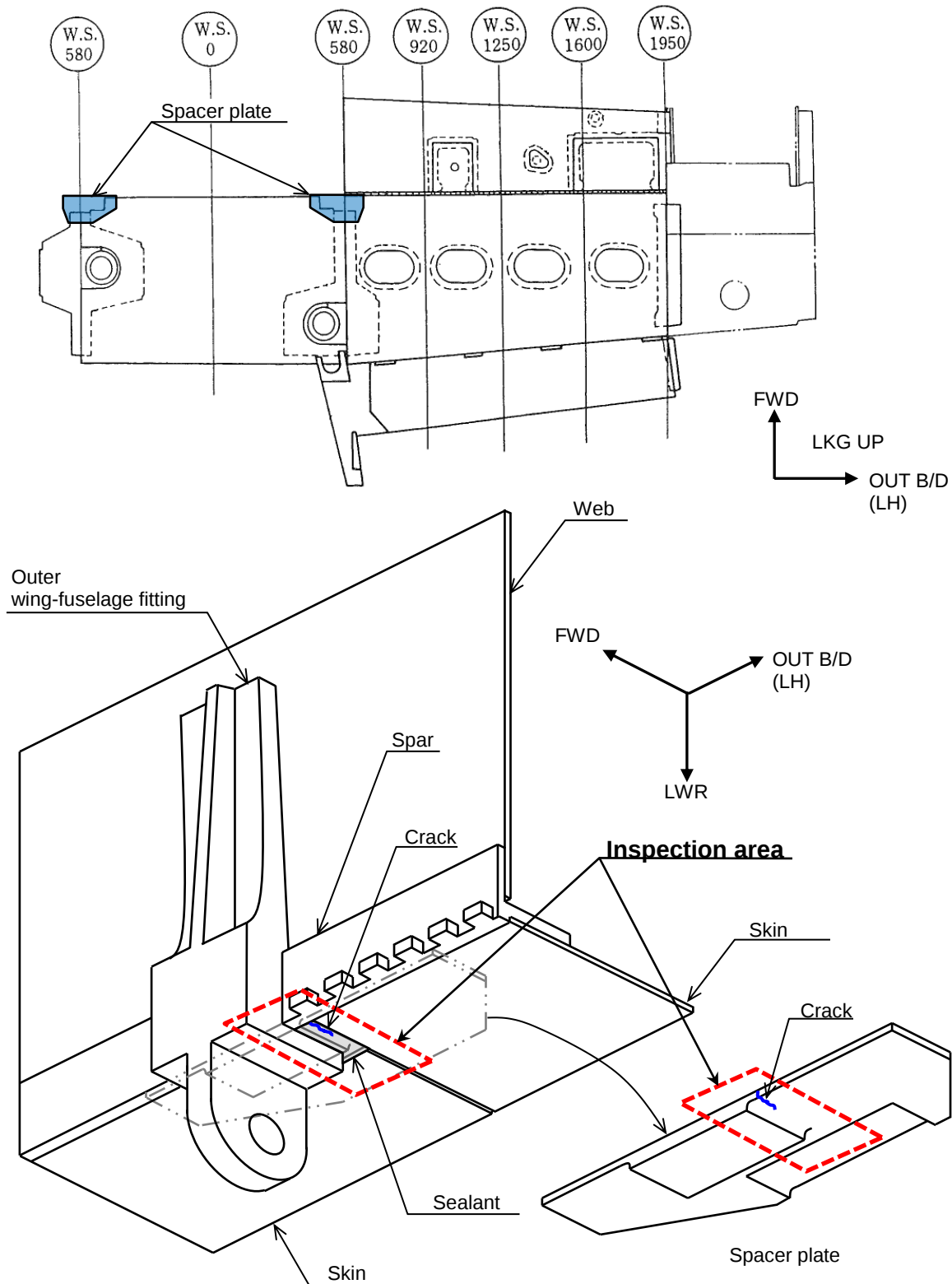


Figure 1: LOCATION OF SPACER PLATE INSPECTION
(Typical, LH side shown, RH side opposite.)

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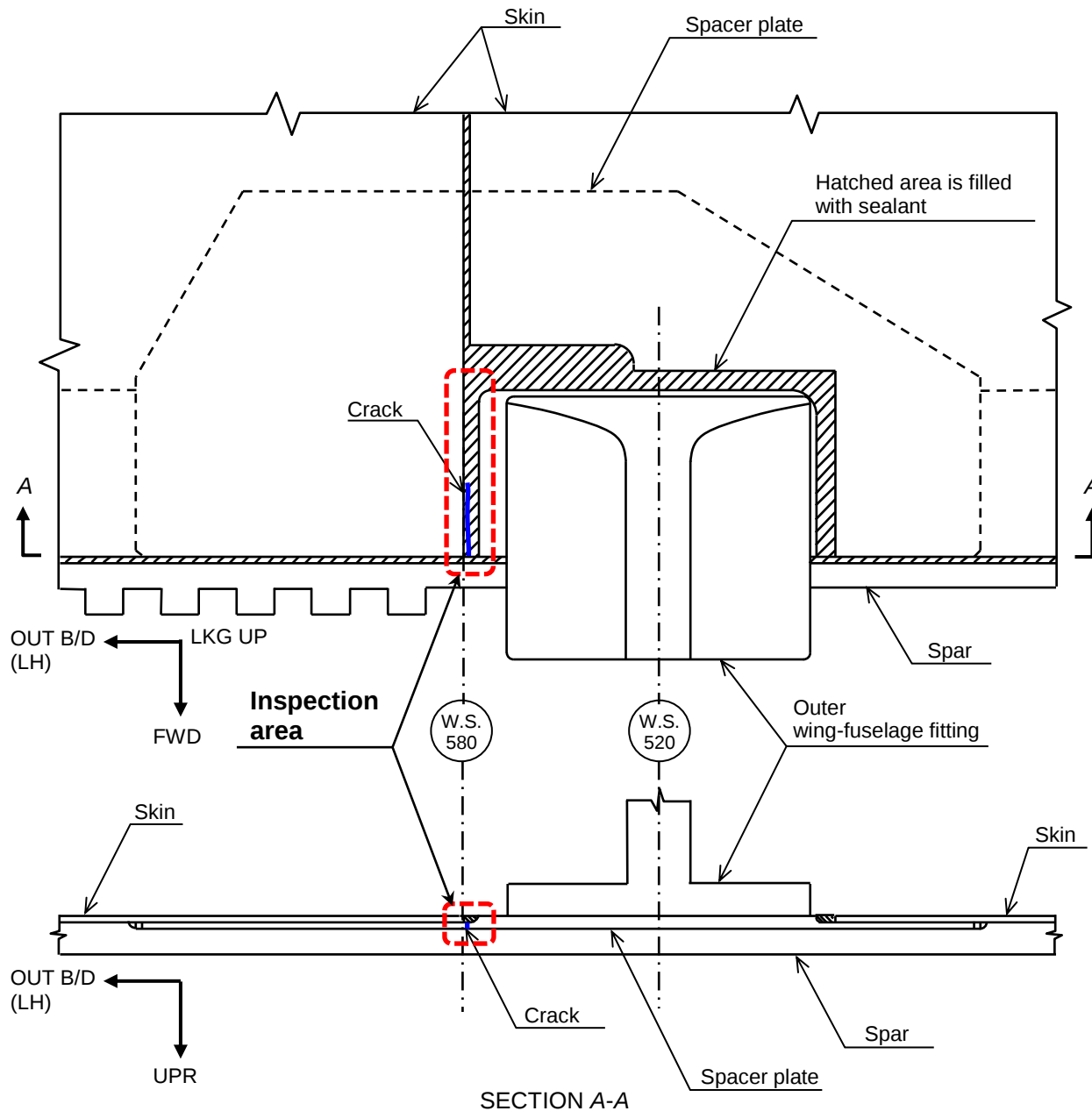


Figure 2: DETAILED INSPECTION AREA OF SPACER PLATE
(Typical, LH side shown, RH side opposite.)

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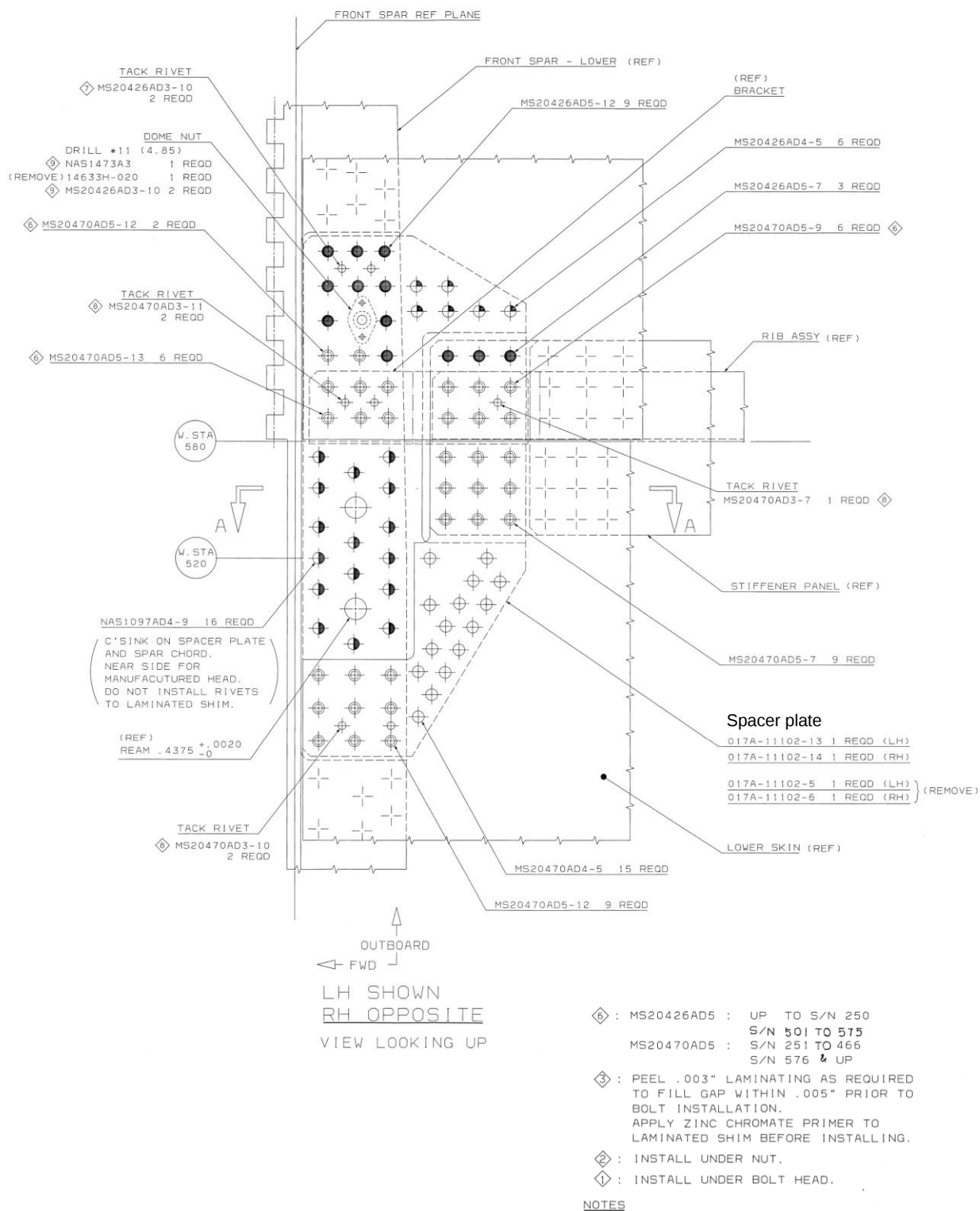


Figure 3: INSTALLATION OF NEW SPACER PLATE (1/2)
(Typical, LH side shown, RH side opposite.)

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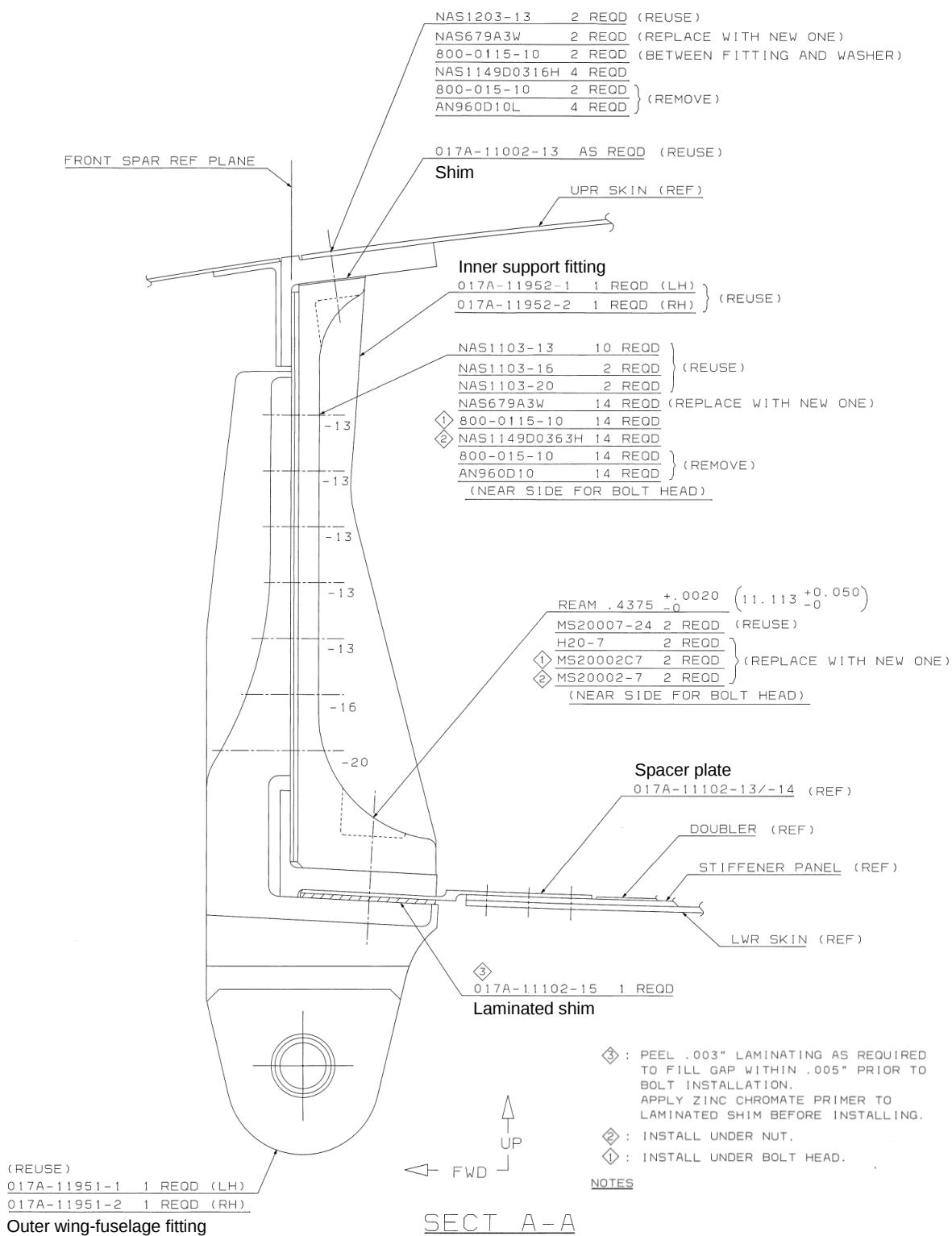
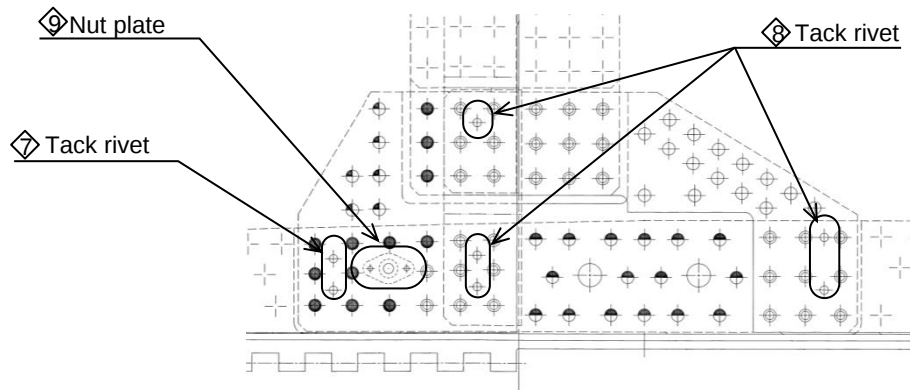


Figure 3: INSTALLATION OF NEW SPACER PLATE (2/2)
(Typical, LH side shown, RH side opposite.)

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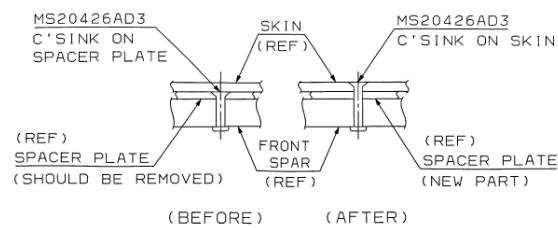
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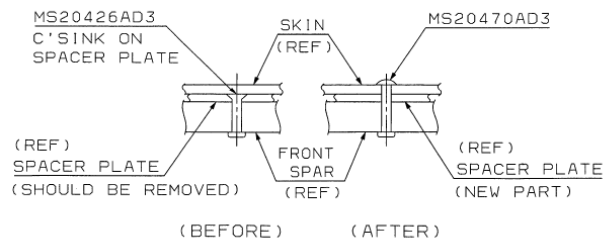


Note: Tack rivets and a nut plate are installed under the skin originally.

7 : INSTALL RIVET MS20426AD3 AS SHOWN.



8 : INSTALL RIVET MS20470AD3 AS SHOWN.



9 : INSTALL RIVET MS20426AD3 AND DOME NUT AS SHOWN.

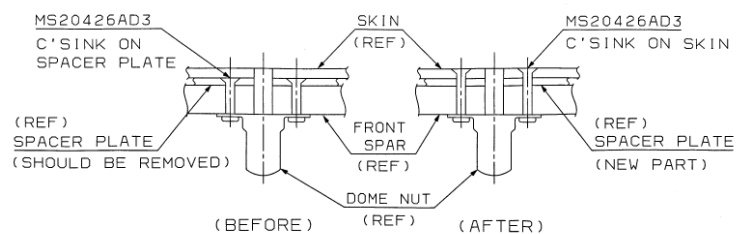


Figure 4: INSTALLATION OF TACK RIVET AND NUT PLATE
(Typical, LH side shown, RH side opposite.)

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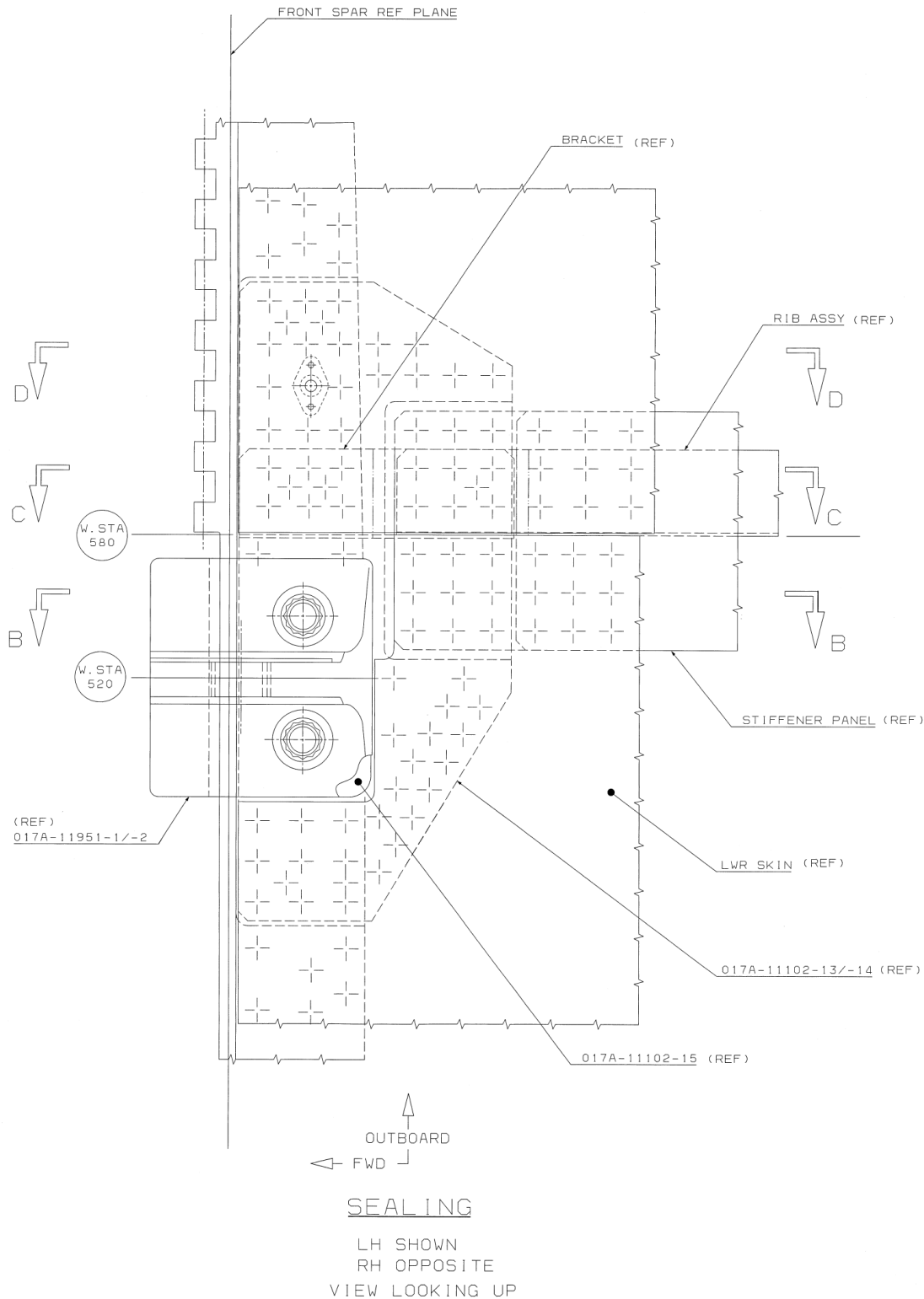


Figure 5: SEALING INSTRUCTION (1/3)
(Typical, LH side shown, RH side opposite.)

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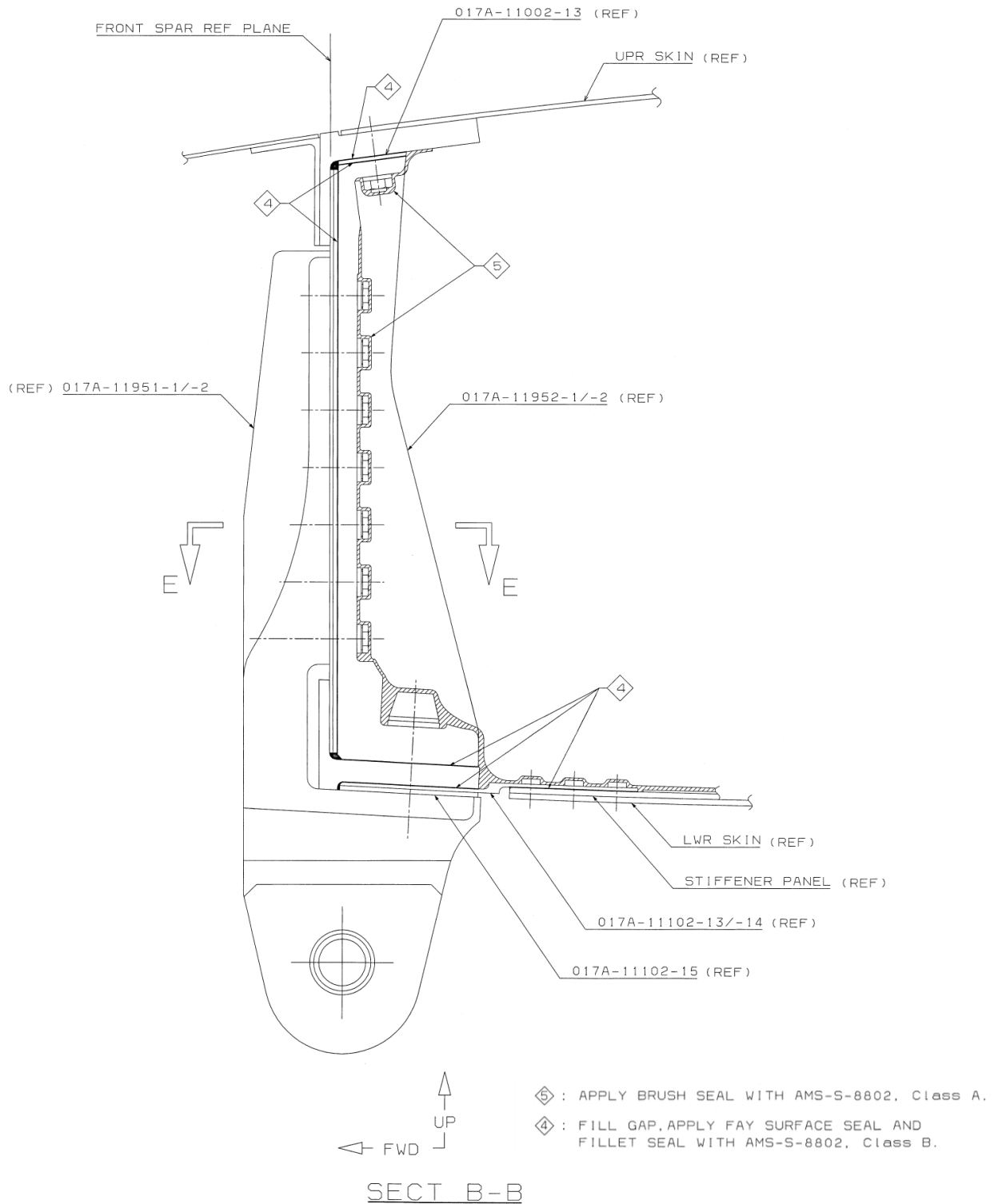


Figure 5: SEALING INSTRUCTION (2/3)
(Typical, LH side shown, RH side opposite.)

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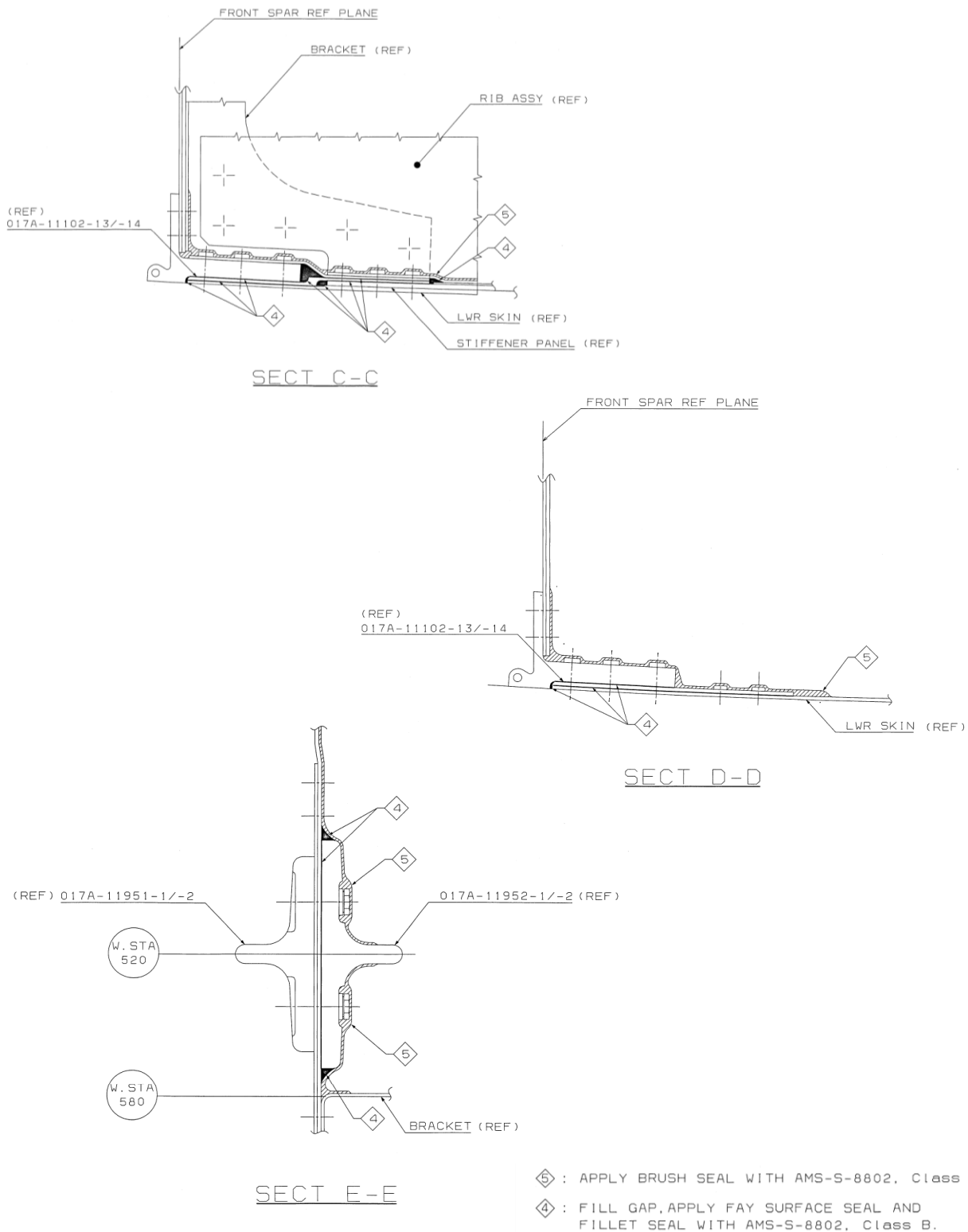


Figure 5: SEALING INSTRUCTION (3/3)
(Typical, LH side shown, RH side opposite.)