Section IV

BODY GROUP

4-1. BODY GROUP.

4-2. The main fuselage sections of the F-106A and F-106B airplanes are semi-monocoque in design and of riveted, high-strength, all-metal construction. The fuselage structures differ only in that portion of the structure from station 102.00 to station 472.00. The difference is basically due to the single-place cockpit in the F-106A and the two-place, tandem cockpit in the F-106B, with their attendant differences in fuselage fuel tank and electronic bay locations.

4-3. DESCRIPTION OF FUSELAGE SECTIONS.

4-4. The fuselages of the F-106A and F-106B airplanes are divided into four main sections. These sections are the fuselage nose section, the forward and aft intermediate sections, and the fuselage aft section or tail cone. All sections except the aft or tail cone sections are joined by manufactured splices; the tail cone is pinned to the aft intermediate section and is readily removable. Figure 4-1 shows the fuselage components and gives a figure index for individual component illustrations. Fuselage stations for the F-106A and F-106B are shown on figures 4-2 and 4-3.

4-5. Fuselage Nose Section—F-106A.

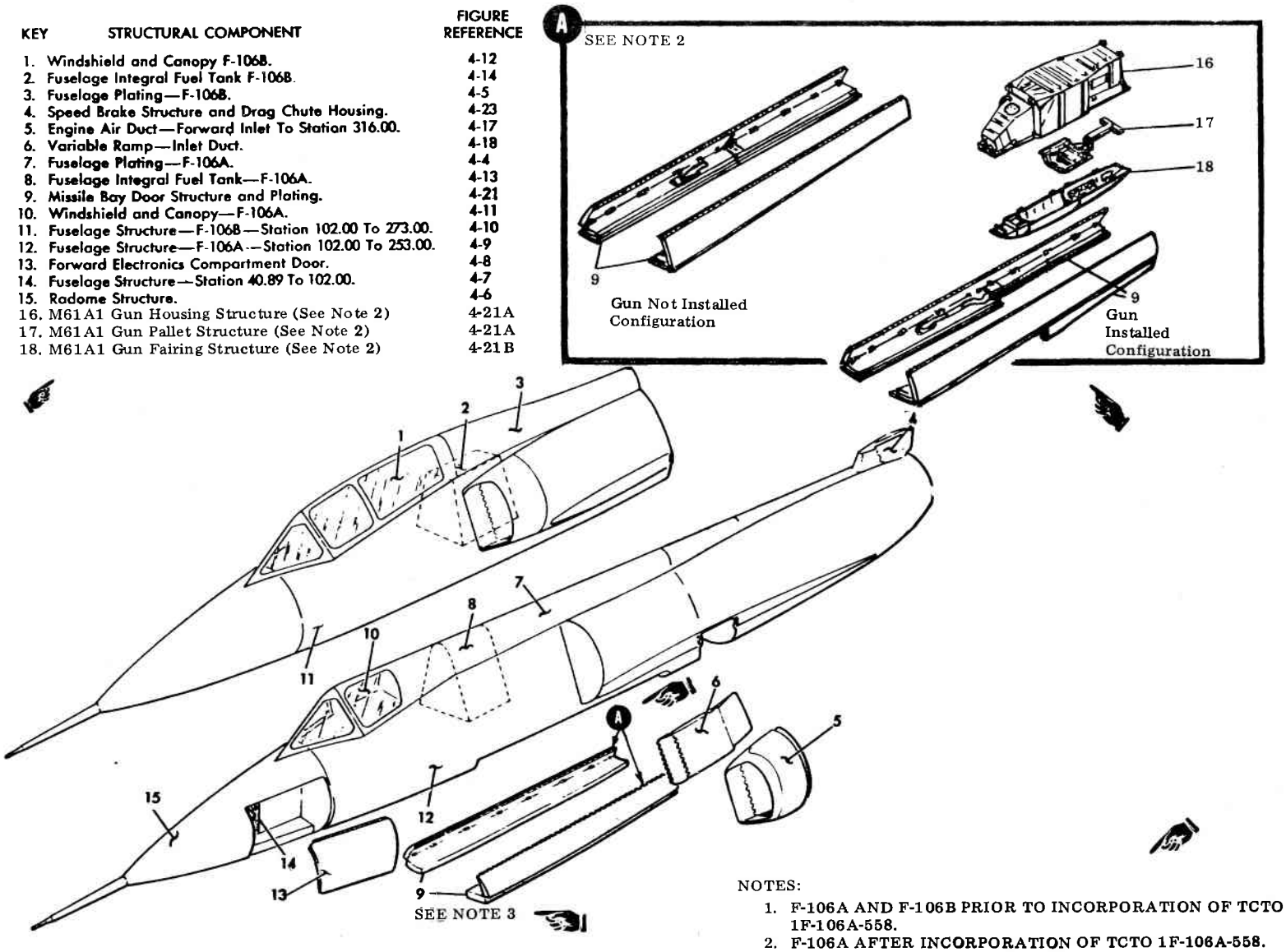
4-6. The fuselage nose section extends from the airspeed boom aft to station 253. Located in this nose section is the removable fiberglass radome, the forward electronics compartment, cockpit, nose wheel well, fuselage fuel tank, and the upper and lower aft electronic compartments. The cone-shaped radome is of the continuous fiberglass, filament wound type. The fiberglass is reinforced with low-pressure laminating resin, Specification MIL-R-7575, or equivalent, used as a bonding agent. See figure 4-6 for repair limitations and refer to paragraph 4-33 for repair information. The radome is equipped with an aluminum mounting ring at the large end. Four bolts connect the radome to the fuselage bulkhead at station 40.89. A neoprene seal, extruded inserts, and retainers fitted to the radome ring assembly provide the required sealing at the joint between the radome and the fuselage structure. The forward tip of the radome is fitted with an adapter for the attachment of the boom and the pitot tube. The forward radar electronics compartment is constructed basically of stressed aluminum alloy.

4-7. The forward bulkhead at station 40.89 is of the built-up type construction and provides the framework for attachment of the radome. Four longerons, two upper and two lower, extend aft from this bulkhead at station 40.89 to the bulkhead at station 102.00. A shear web, made of stressed aluminum alloy and reinforced with extruded aluminum angles, extends from the fuselage bulkhead at station 40.89 to the fuselage bulkhead at station 102.00. This shear web is considered a structural member and should be treated as such when designing any repair for it. The forward radar electronics compartment is enveloped by stressed aluminum alloy plating on the upper and lower surfaces; this plating is attached to the fuselage structure with flush-head rivets. Access doors, on the left and right sides of the forward radar electronics compartment, complete the envelopment of the fuselage structure in this area. These doors are of the panel type and consist of a stressed aluminum alloy outer skin attached to the door ribs and angles with flush-head rivets. The doors are hinged to the upper portion of the fuselage structure and are held in the closed position by stressed panel Camloc fasteners. See figures 4-4, 4-5, 4-7 and 4-8 for illustrations showing fuselage structure, plating and door structure in this area. Refer to Section I for information pertaining to stressed panel Camloc fasteners.

4-8. The lower section of the fuselage structure from station 102.00 to station 253.00 (shown on figure 4-9) consists principally of a series of semicircular zee and channel spliced beltframes with forged and built-up bulkheads connected by longerons, gussets and intercostals. The fuselage framework is enveloped by stressed aluminum alloy skins attached with flush-head rivets and other fasteners. This portion of the fuselage provides the space for the nose landing gear wheel well and attachment framework for the nose landing gear and gear door.

4-9. The pilot's compartment for the F-106A is pressurized and its structural framing consists of a series of closely spaced vertical frame assemblies reinforced by longitudinal stiffeners. The web flooring is supported by channels and zee stiffeners riveted to the built-up type bulkheads at stations 102.00 and 171.50. The two upper,

KEY	STRUCTURAL COMPONENT	FIGURE REFERENCE
1.	Windshield and Canopy F-106B.	4-12
2.	Fuselage Integral Fuel Tank F-106B.	4-14
3.	Fuselage Plating—F-106B.	4-5
4.	Speed Brake Structure and Drag Chute Housing.	4-23
5.	Engine Air Duct—Forward Inlet To Station 316.00.	4-17
6.	Variable Ramp—Inlet Duct.	4-18
7.	Fuselage Plating—F-106A.	4-4
8.	Fuselage Integral Fuel Tank—F-106A.	4-13
9.	Missile Bay Door Structure and Plating.	4-21
10.	Windshield and Canopy—F-106A.	4-11
11.	Fuselage Structure—F-106B—Station 102.00 To 273.00.	4-10
12.	Fuselage Structure—F-106A—Station 102.00 To 253.00.	4-9
13.	Forward Electronics Compartment Door.	4-8
14.	Fuselage Structure—Station 40.89 To 102.00.	4-7
15.	Radome Structure.	4-6
16.	M61A1 Gun Housing Structure (See Note 2)	4-21A
17.	M61A1 Gun Pallet Structure (See Note 2)	4-21A
18.	M61A1 Gun Fairing Structure (See Note 2)	4-21B



NOTES:

1. F-106A AND F-106B PRIOR TO INCORPORATION OF TCTO 1F-106A-558.
2. F-106A AFTER INCORPORATION OF TCTO 1F-106A-558.
3. TCTO 1F-106A-558 IS APPLICABLE TO F-106A VERTICAL INSTRUMENTED AIRCRAFT.

Figure 4-1. Fuselage Components and Figure Index

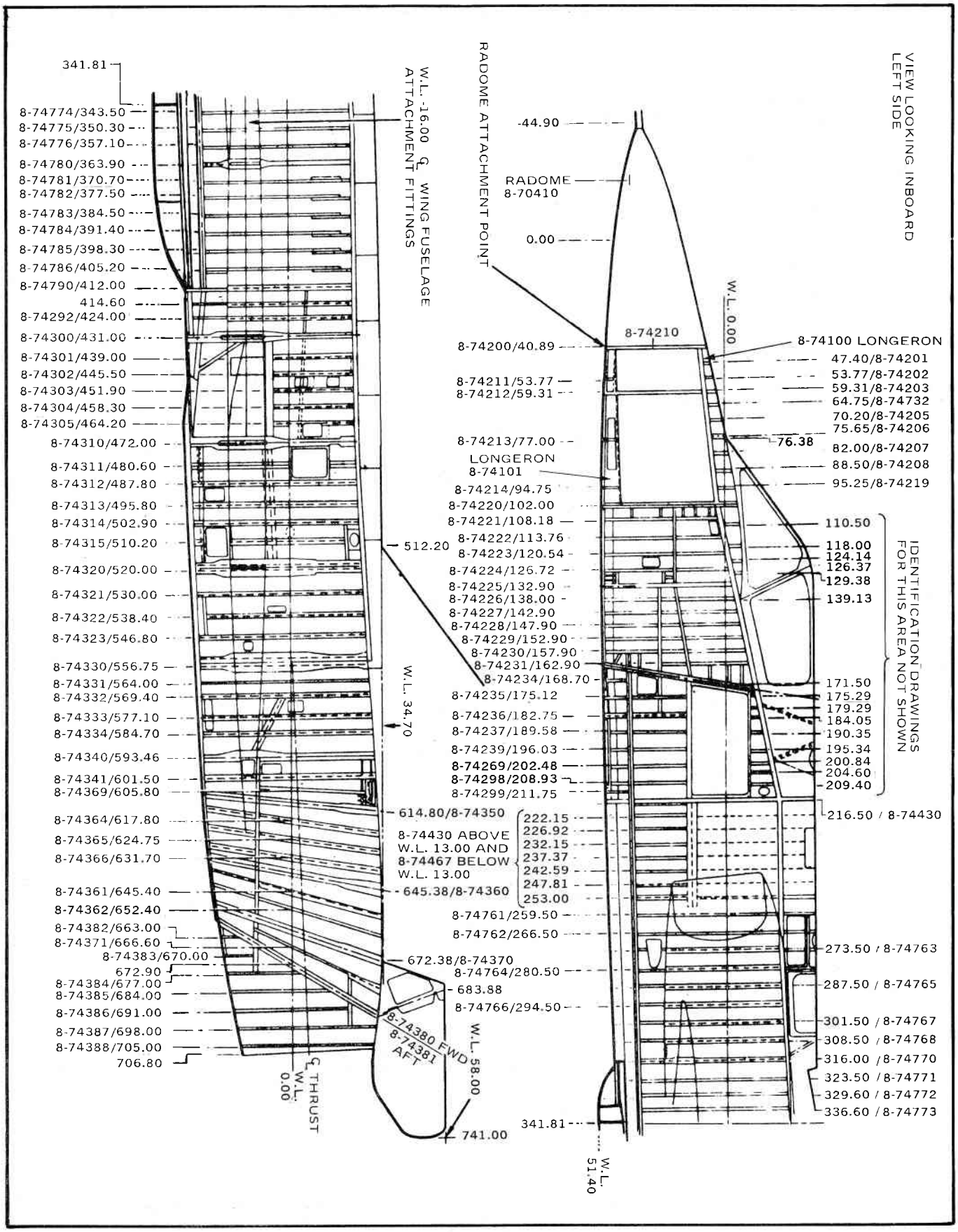


Figure 4-2. Fuselage Station Diagram — F-106A

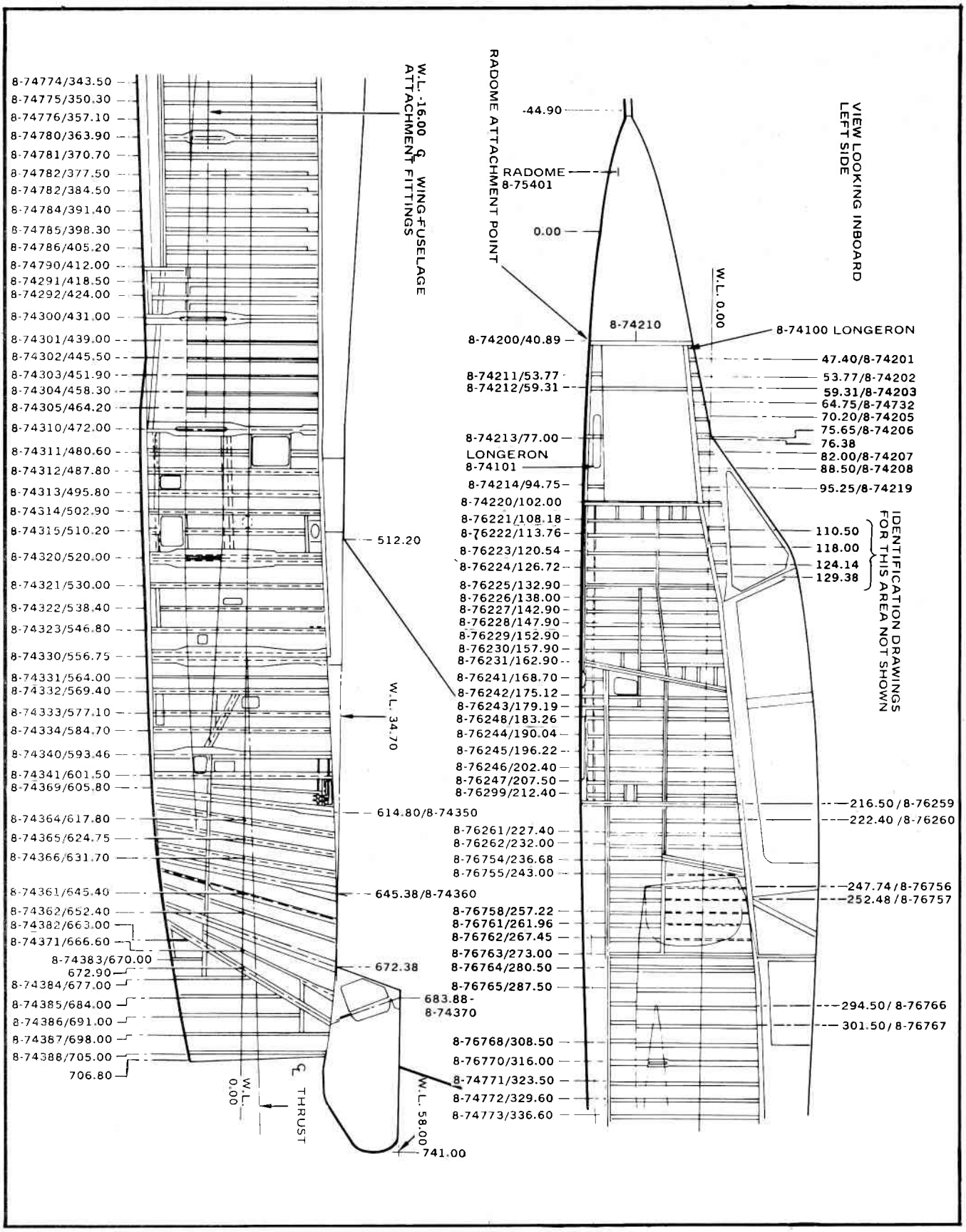


Figure 4-3. Fuselage Station Diagram — F-106B

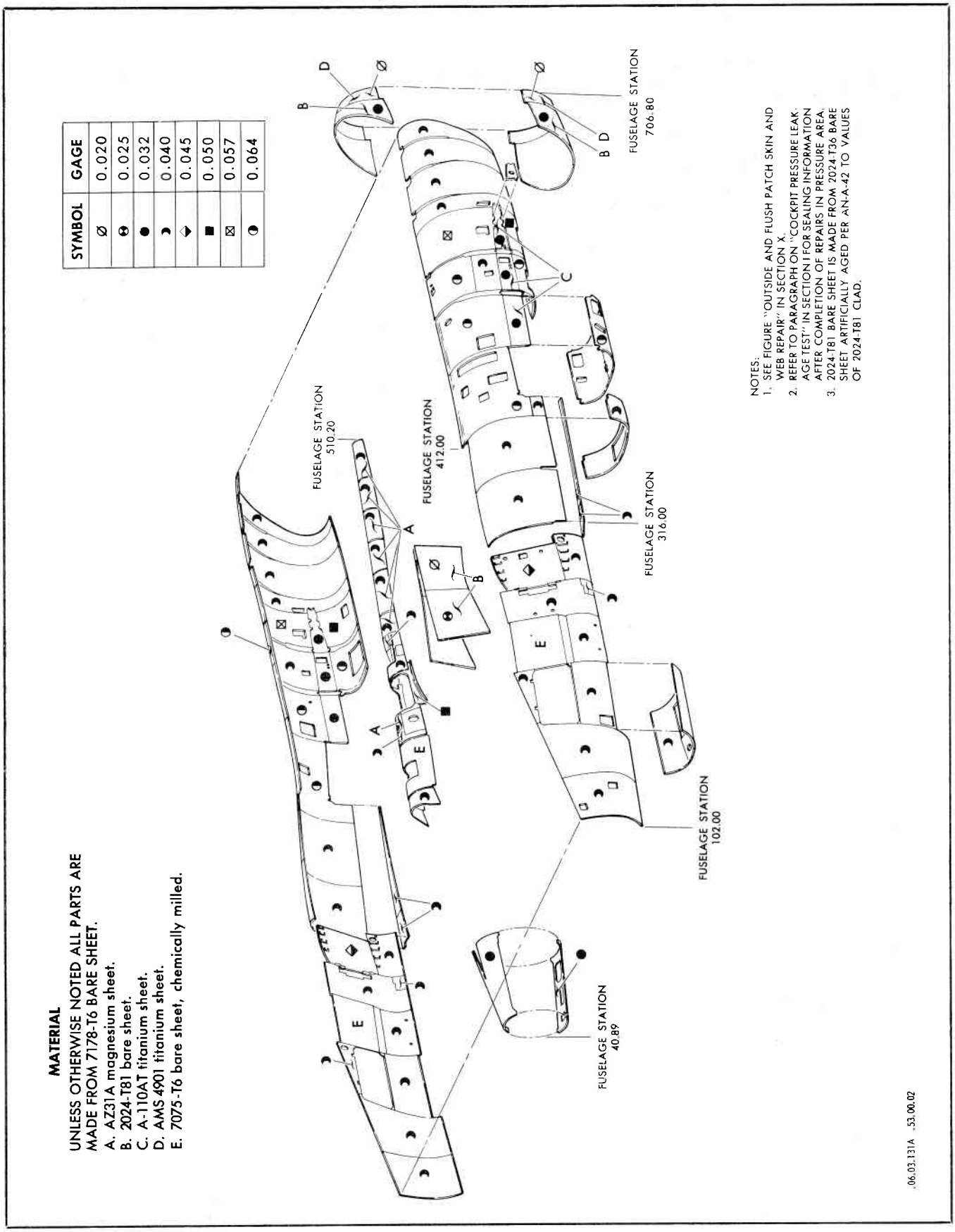


Figure 4-4. Fuselage Plating Diagram — F-106A

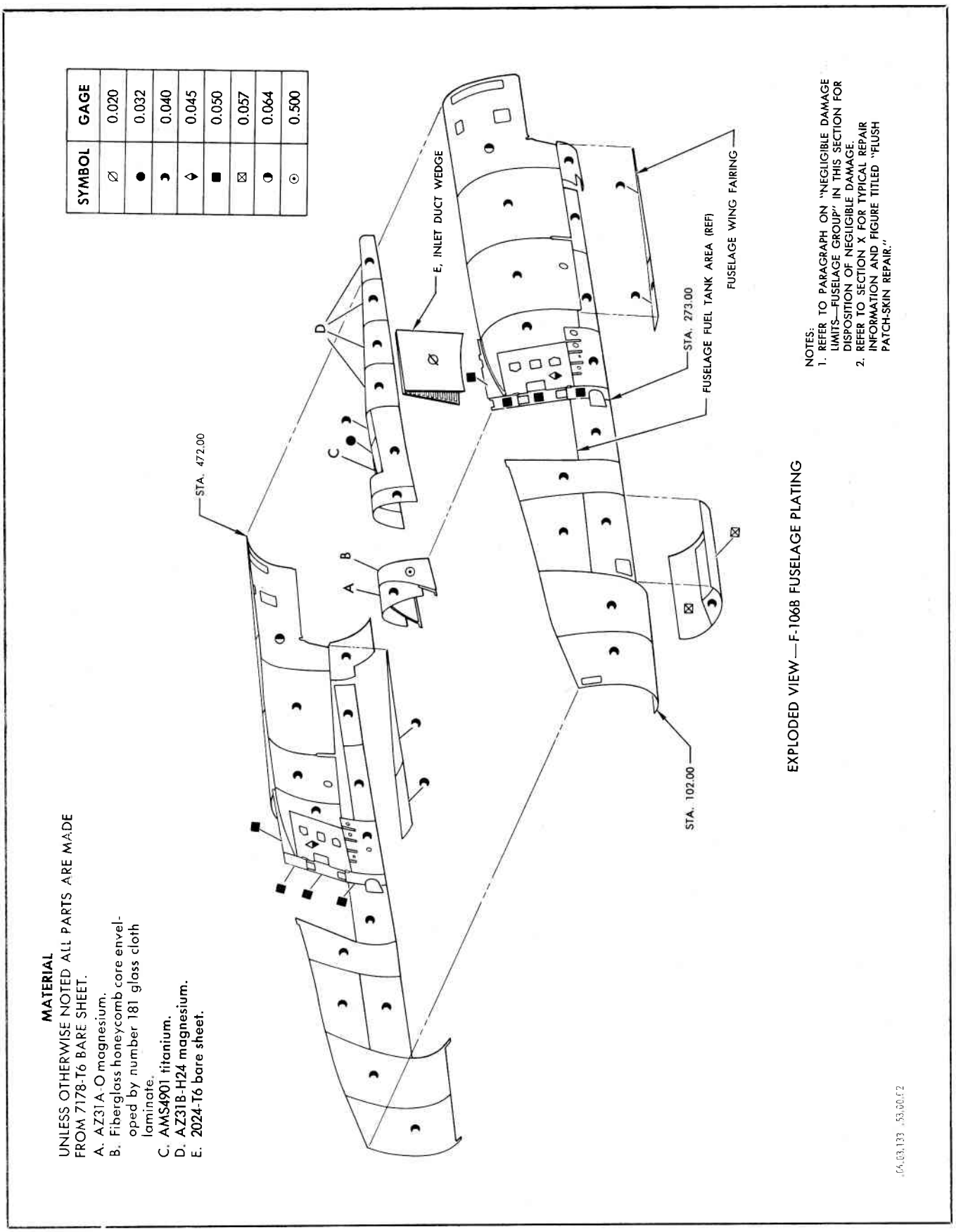


Figure 4-5. Fuselage Plating Diagram — F-106B

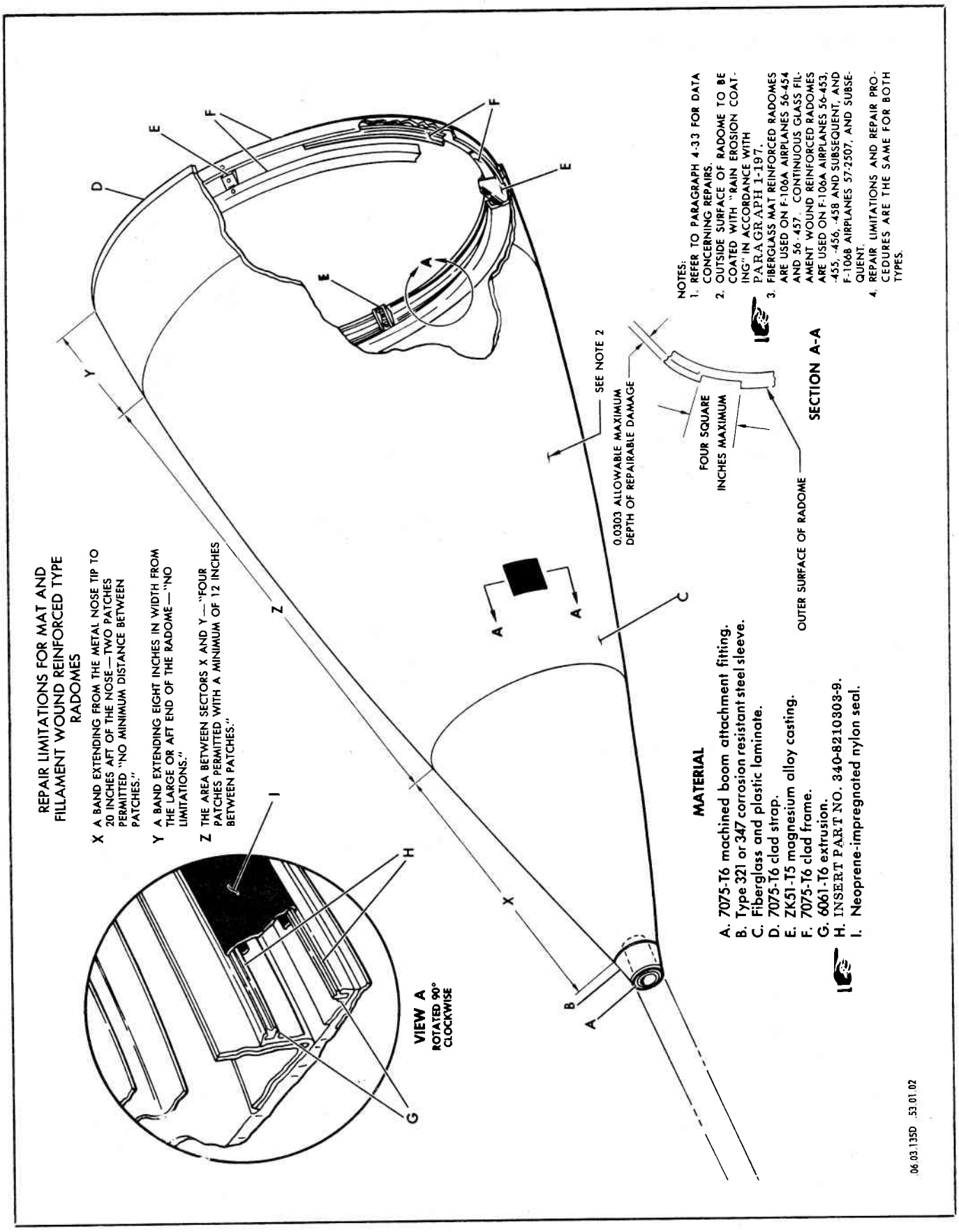
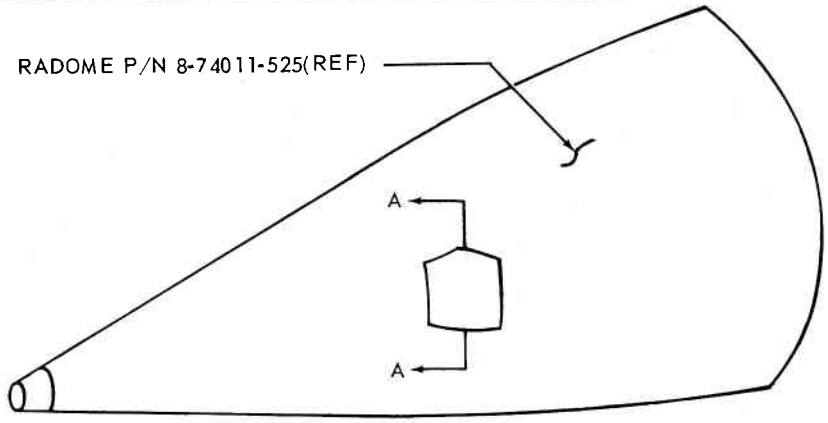
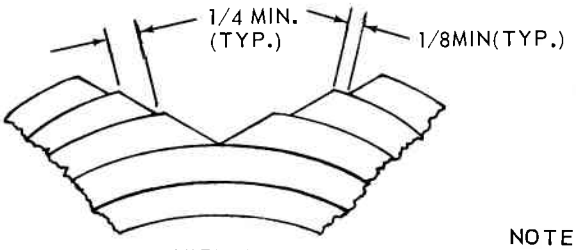
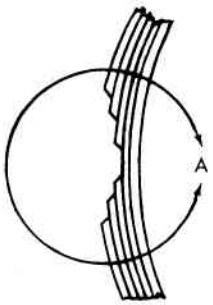


Figure 4-6. Radome Structure





VIEW A



A–A

REPAIR PREPARATION TYPICAL

NOTE

1. 1/4 INCH MINIMUM BEVEL ALL EDGES OF EACH LAYER OF THE REWORKED AREA.

a. Inspect the radome to determine extent of damage and method of repair.
   1. Condemn the radome if the damage extends into the fourth lamination.

NOTE

THE RADOME IS CONSTRUCTED WITH 5 LAMINATIONS. THE OUTSIDE (FIRST), CENTER (THIRD) AND INSIDE (FIFTH) LAMINATIONS ARE CIRCUMFERENTIALLY WOUND. THE SECOND AND FORTH LAMINATIONS CONSIST OF ROVING LAID LONGITUDINALLY.

2. DELETED

   3. Condemn the radome if it is permanently distorted.
   4. Repair all other damage within the limits of Paragraphs a (1), a (2), and a (3) using the following procedures.

b. Prepare the damaged area for lay-up.
   1. Remove all loose strands. Short frayed ends and short loose fibers on strands will aid adhesion and are acceptable.
   2. Scarf the edges of the reworked area as illustrated in View A.
   3. Remove the outer layer of circumferentially wound filament from the entire circumference when the damage exceeds 45 degrees of the circumference and/or 5 inches in length. Chamfer the edges as illustrated in View A.
   4. Remove resin dust and loose material with a soft brush and low pressure blow gun.
   5. Clean the area with methyl-ethyl-keytone. Do not allow the methyl-ethyl-keytone to dry on the surface. Blot up the liquid with lint free paper towels. Do not rub.
   6. Inspect for and remove any lint, paper particles, etc., from the area with tweezers.

CAUTION

DO NOT HANDLE THE ROVING OR THE REWORKED AREA WITH THE BARE HANDS. USE LINT FREE COTTON OR NYLON GLOVES. SKIN OILS AND OTHER CONTAMINATION WILL PREVENT ADHESION.

c. Lay-up. Small repairs up to 5 inches in length and 45 degrees width may be built up with layers of glass cloth and resin. Maintain 45 to 50 percent glass cloth to resin ratio.
d. Lay-up of third and second layers.
   1. Cut strands of roving, wet them with activated resin, and lay them parallel to the original roving.
      (a) Use varying lengths of roving to match the taper of the rewprked area. Strands shall lie flat and straight.
      (b) Work out all bubbles and excess resin.
      (c) Fill the reworked area of third and/or second layer. The outer surface of the fill shall be smooth and confrom to the contour of the second layer.

Figure 4-6A. Randome Fiberglass Repair For Overhaul Facilities (Sheet 1 of 2)

e. Lay-up of the outer layer, circumferentially wound.
   1. Mount the radome on the Fixture, SMAMA Drawing Number 65SCJ6237.
   2. Start the winding in the bottom of the reworked area by passing the roving around the radome and crossing over the free end of the roving at the end of the first turn.
   3. Apply resin sparingly but adequately to assure complete wetting of the roving. The resin may be applied before winding or during the winding.
   4. Carefully feed the roving on to the radome maintaining a ½ to 2 pound tension on the roving. Do not relax this tension until the entire area is filled with the roving. Anchor the loose end of a spool of roving by lapping with the first turn of the next spool. Build up the outer layer with even layers of roving, filling all voids. Occasional inspections shall be made to detect and eliminate bubbles in the resin. The finished surface shall be smooth and contoured to the original radome shape.

f. Cover the repaired area with PVC film and apply 10 to 20 psi load (20 to 30 in HG vacuum) to the repaired area.

CAUTION

DO NOT APPLY TAPE TO THE SURFACE OF THE RADOME.

g. Cure the resin.

h. Testing of repaired radomes:
   1. Subject the radome to a bursting pressure of of 6 psig at room temperature.
   2. Subject the radome to a collapsing load of 9 psi (18 in HG vacuum) at room temperature.
   3. With the radome securely attached to aircraft attaching points (similated aircraft installation) slowly apply a 250 lb load at right angles to the axis of the radome at the boom attach fitting, P/N 8-72973.
   4. Apply one load in a direction away from and towards the repaired area. Use Fixture, SMAMA Drawing Number 65SCJ6237.

i. Inspect for evidence of failure. Cracks, delamination, bulging and/or distortion are causes for rejection.

j. Subject the radome to electrical tests according with TO-1-1-24 and 1-1-24A.

MATERIALS

1. Roving, Fiberglass Cordage, MIL-Y-1140, Class C. Form 2.
2. Resin and Catalyst, MIL-R-25042, Type III, Epocast Resin, H1468, and Hardener, 9816, manufactured by Furane Plastics.
3. Glass Cloth, MIL-C-9084.
4. Film (PVC), or equal.

EQUIPMENT

1. Fixture - Repair and Test, F-106 Radome, SMAMA Drawing Number 65SCJ6237.
2. Plate, plug and fittings for pressure and vacuum testing.

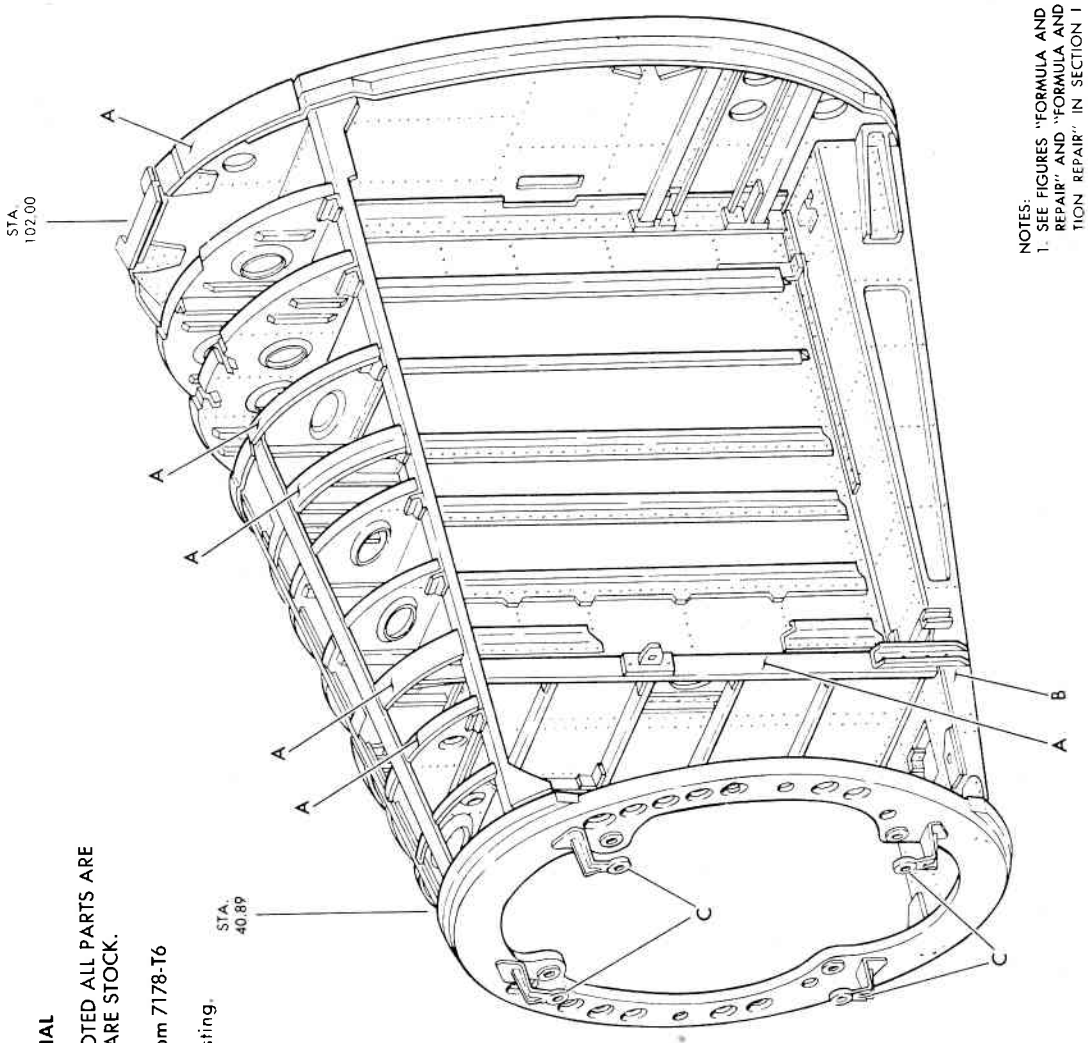
SAFETY NOTES

Contact with some of the resin formulation may cause nasal or skin irritations, therefore, adequate ventilation will be provided in impregnating and lay-up areas. To prevent skin irritation, personnel handling resins should wash with soap and water at frequent intervals. Solvents may cause infections and irritations when used to remove resins from the skin.

REFERENCES

T.O. 1-1-24, and 1-1-24A Maintenance, Repair and Electrical Requirements of Fiber Laminate and Sandwich Constructed Airborne Radomes.

Figure 4-6A. Randome Fiberglass Repair For Overhaul Facilities (Sheet 2 of 2)



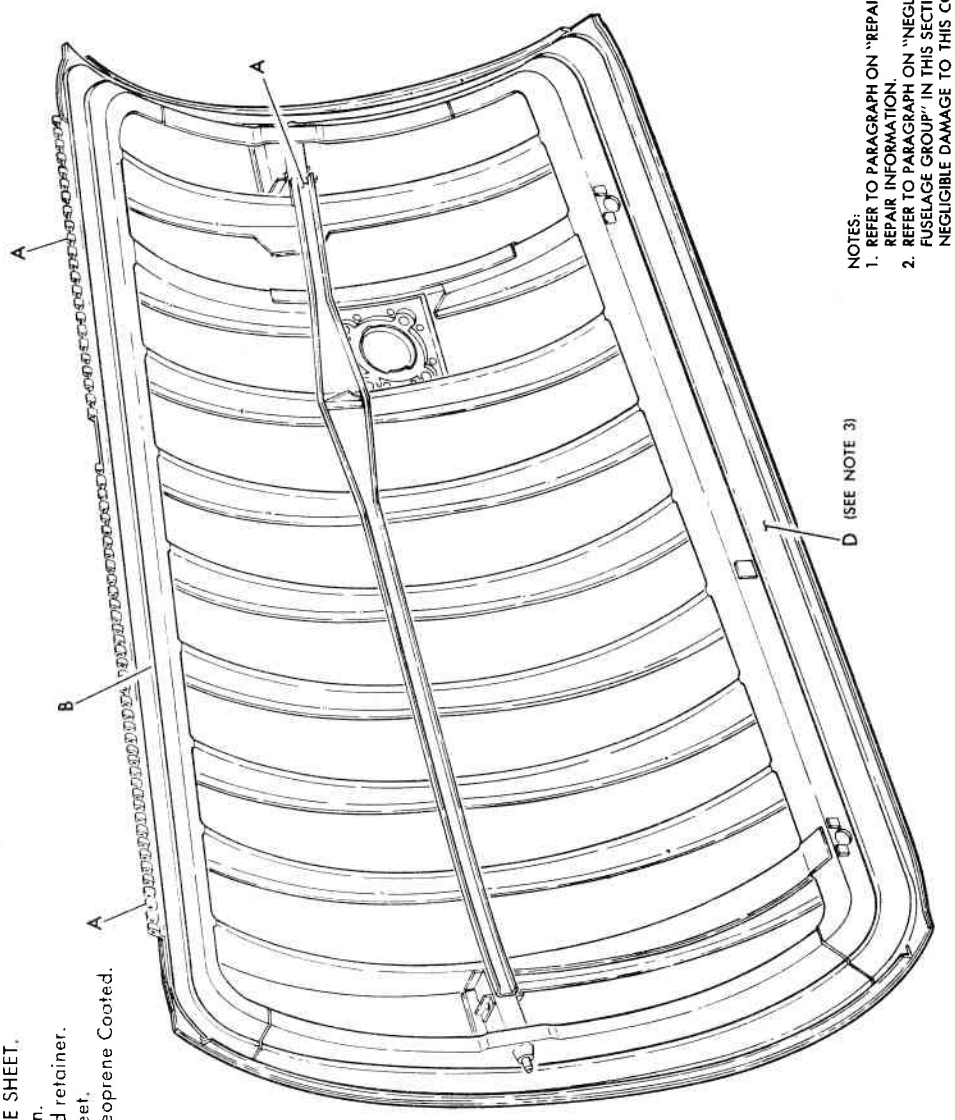
NOTES:
1. SEE FIGURES "FORMULA AND METHOD FOR PATCH REPAIR" AND "FORMULA AND METHOD FOR INSERTION REPAIR" IN SECTION I FOR FORMULA AND METHOD OF REPAIR. REFER TO PARAGRAPH ON "TYPICAL RIB AND SPLICE REPAIR" IN SECTION X FOR TYPICAL REPAIRS.
2. REFER TO SECTION IX FOR ILLUSTRATIONS SHOWING THE UNDERSIDE OF THIS STRUCTURE.

MATERIAL

UNLESS OTHERWISE NOTED ALL PARTS ARE MADE FROM 7178-T6 BARE STOCK.
A. 7178-T6 extrusion.
B. 7178-T6 machined from 7178-T6 bar stock.
C. AZ91 Magnesium casting.

06.03.137A, 53.02.02

Figure 4-7. Fuselage Structure — Station 40.89 to 102.00



MATERIAL

UNLESS OTHERWISE NOTED ALL PARTS ARE MADE FROM 7178-T6 BARE SHEET.

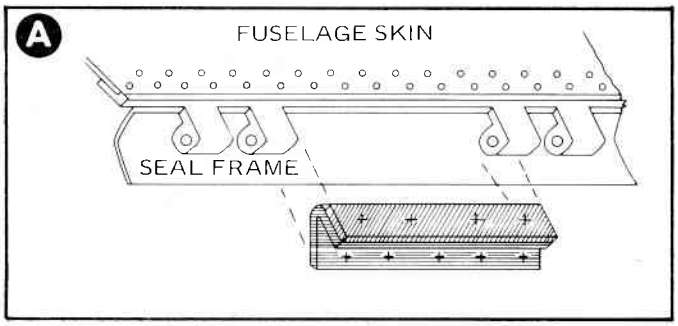
A. 7178-T6 extrusion.
B. 6061-T6 extruded retainer.
C. 7075-T6 bare sheet.
D. Nylon Fabric, Neoprene Coated.

NOTES:
1. REFER TO PARAGRAPH ON "REPAIRS" IN THIS SECTION FOR REPAIR INFORMATION.
2. REFER TO PARAGRAPH ON "NEGLIGIBLE DAMAGE LIMITS—FUSELAGE GROUP" IN THIS SECTION FOR DISPOSITION OF NEGLIGIBLE DAMAGE TO THIS COMPONENT.
3. NYLON FABRIC, NEOPRENE COATED SEAL HELD IN PLACE BY INSERT PART NO. 340-8210303-9.

.06.03.136 .53.02.02

Figure 4-8. Forward Electronics Compartment Door Structure

IN AREA WHERE NODES ARE MISSING/REMOVED PER-- LIMITATIONS SHOWN IN NOTES. FABRICATE ANGLE FILLER TO FAIR IN GAPS LEFT BY NODE REMOVAL AS SHOWN IN DETAIL A

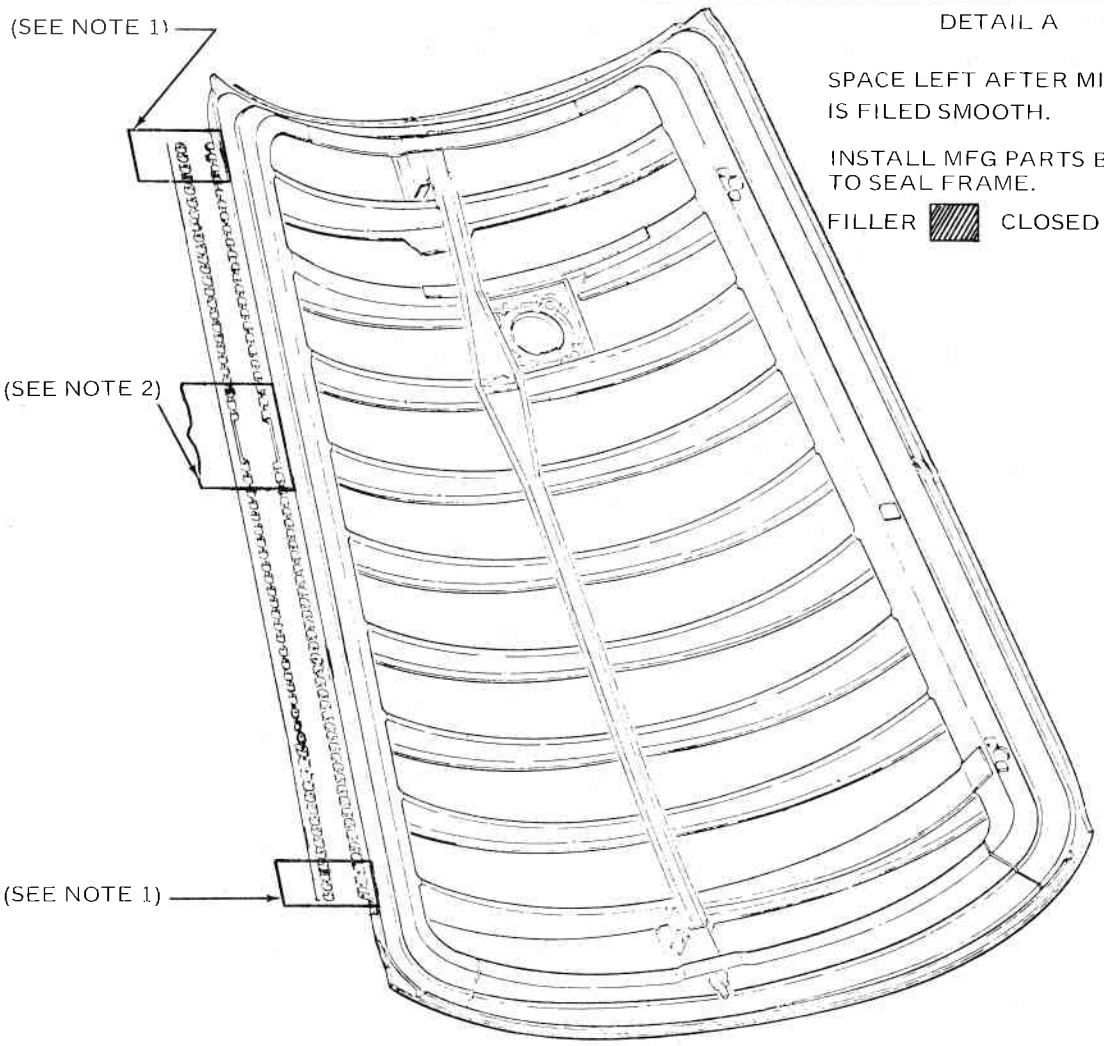


DETAIL A

SPACE LEFT AFTER MISSING NODE (S) IS FILED SMOOTH.

INSTALL MFG PARTS BY RIVETING TO SEAL FRAME.

FILLER CLOSED ANGLE



NOTES

1. MAXIMUM OF ONE NODE MAY BE MISSING IN FIRST THREE NODES.
2. MAXIMUM OF TWO NODES MAY BE MISSING EITHER SIDE OF CUT OUT.
3. MAXIMUM OF THREE NODES MAY BE MISSING FROM ENTIRE HINGE WITH AT LEAST THREE GOOD NODES BETWEEN MISSING NODES, EXCEPT AS NOTED IN NOTES 1 AND 2.

Figure 4-8A. Forward Electronics Compartment Door

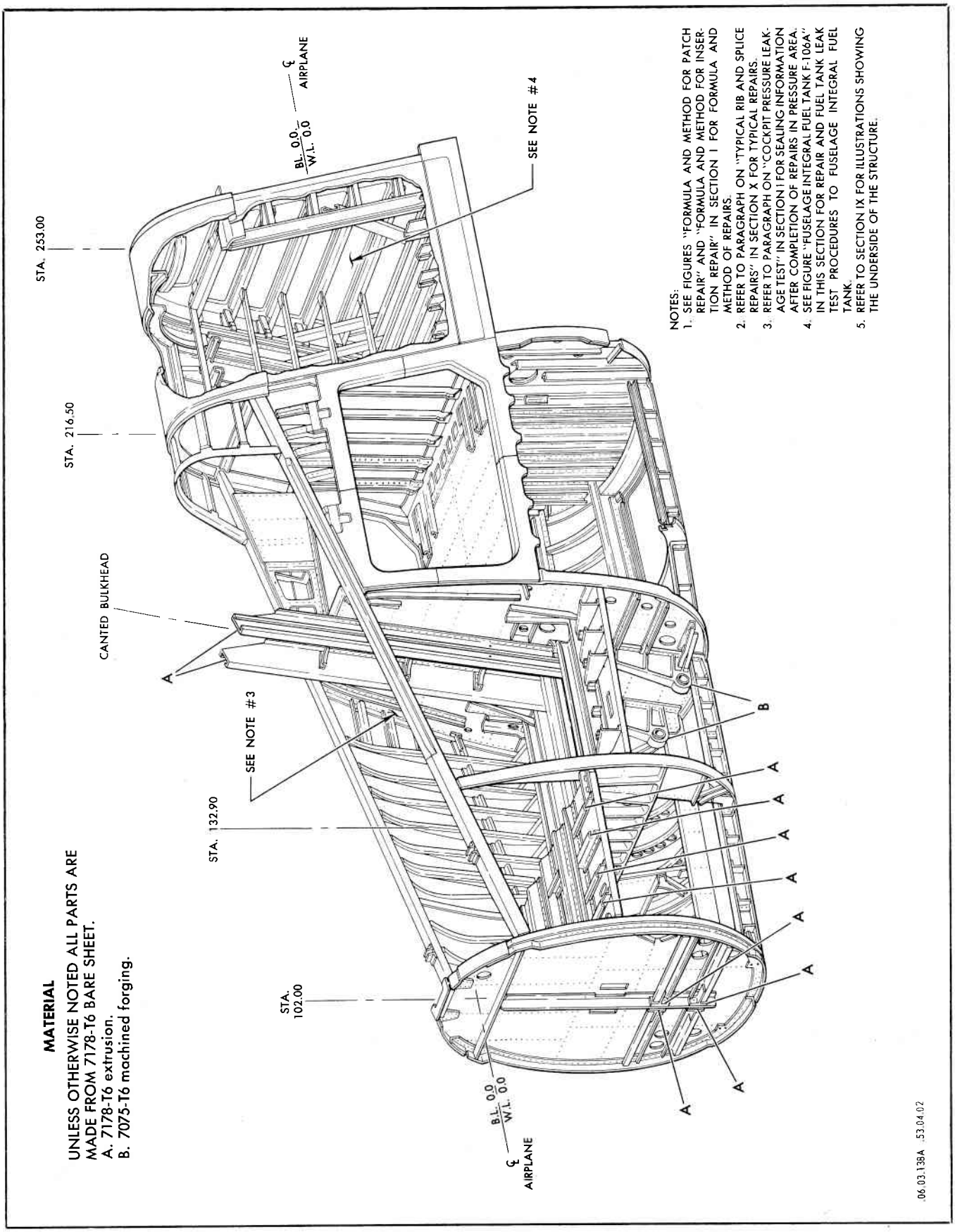


Figure 4-9. Fuselage Structure — Station 102.00 to 253.00 — F-106A

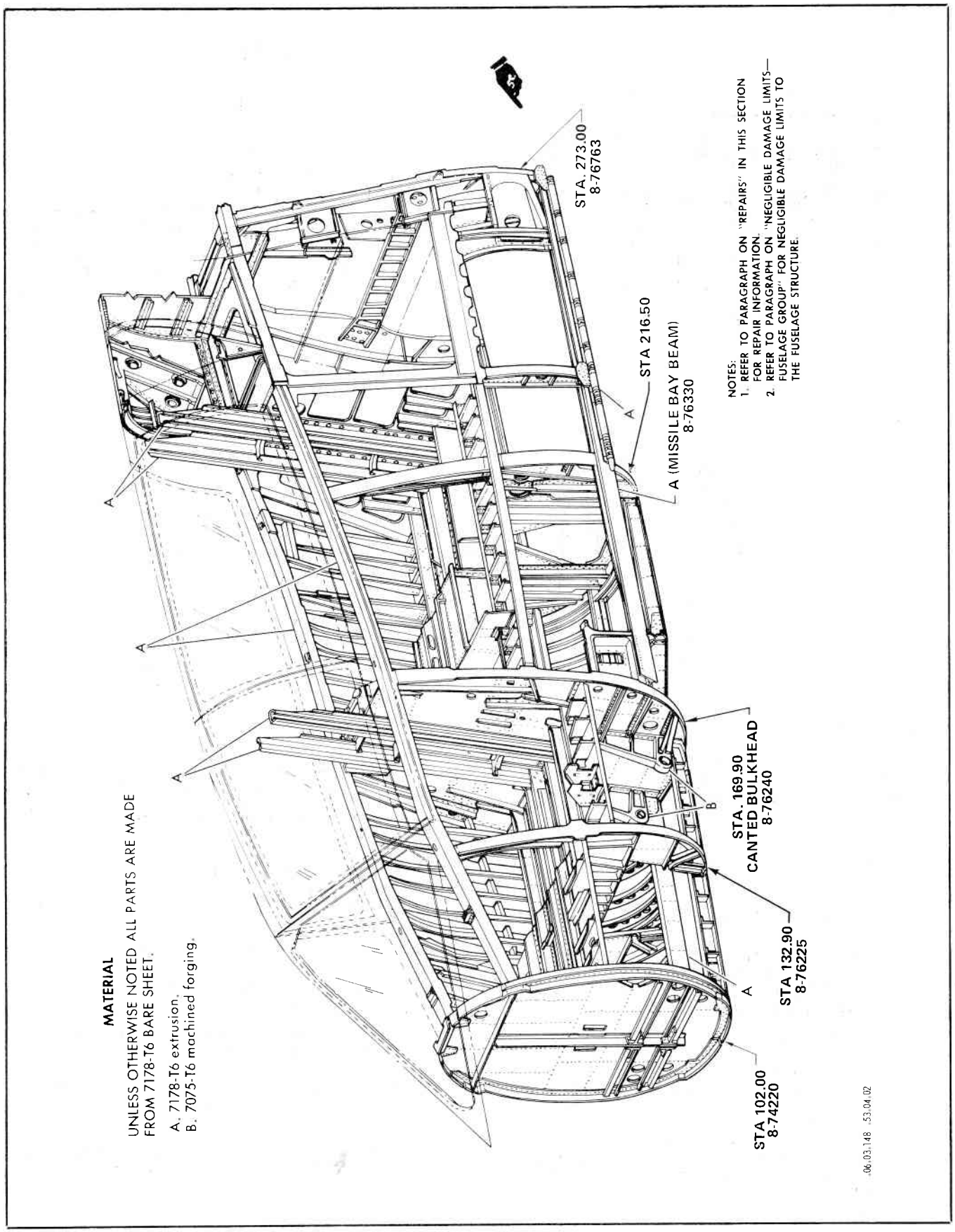
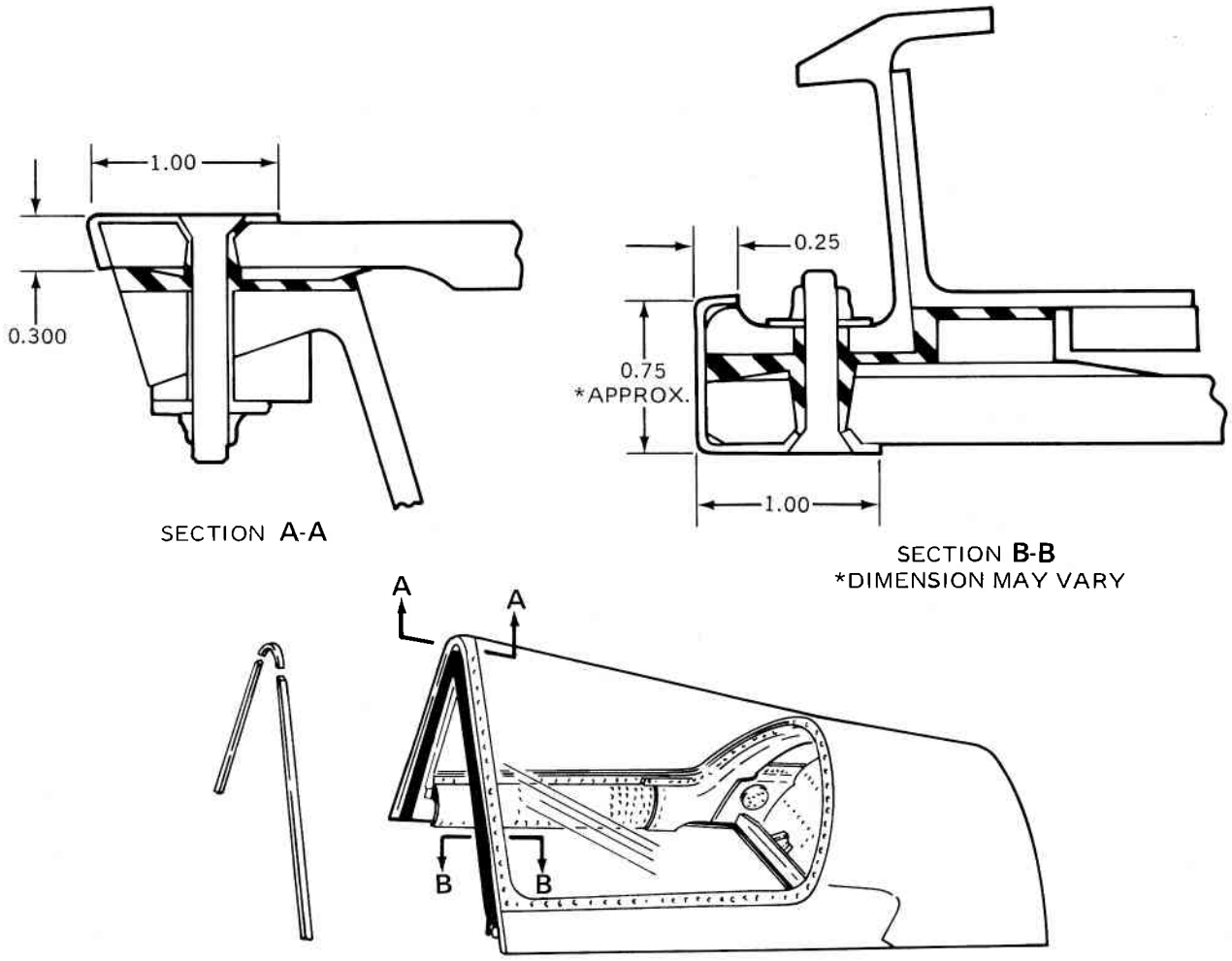


Figure 4-10. Fuselage Structure — Station 102.00 to 273.00 — F-106B



REPAIR PROCEDURE

1. CLOSE CANOPY AND LOCK. CHECK CLEARANCE BETWEEN CANOPY LEADING EDGE AND WINDSHIELD FRAME, MARK AREA TO BE TRIMMED.

NOTE

- ALL CANOPY GLASSES WHICH HAVE EROSION BEYOND THE FORWARD EDGE OF THE SCREW HOLES SHALL BE REPLACED.
- ALL NEW CANOPY GLASSES SHALL HAVE STAINLESS STEEL STRIPS INSTALLED AT TIME OF INSTALLATION.

2. REMOVE CANOPY.
3. SHAVE LEADING EDGE OF CANOPY GLASS TO OBTAIN PROPER CLEARANCE FOR STRIP. SEE FIGURE 1-25.
4. MANUFACTURE THE APEX STRIP, 0.016 TYPE 321 MIL-S-6721 STAINLESS STEEL, PICKING UP FOUR HOLES ACROSS APEX AND DIMENSIONS SHOWN IN SECTION A-A. HAND FIT TO CANOPY CONTOUR.
5. REMOVE SCREWS FROM CANOPY APEX. (RETAIN FOR REINSTALLATION.) PLACE APEX STRIP FLAT AGAINST THE GLASS LEADING EDGE PRIOR TO PICKING UP THE SCREW HOLES.
6. DIMPLE HOLES IN APEX STRIP, REMOVE ALL BURRS AND SHARP EDGES AND INSTALL USING RETAINED HARDWARE. (DISCARD DIMPLED WASHERS.)
7. MANUFACTURE THE SIDE STRIPS FROM 0.016 TYPE 321 MIL-S-6721 STAINLESS STEEL, 28 INCHES LONG AND DIMENSIONS SHOWN IN SECTION B-B.
8. REPEAT STEPS 5 AND 6 FOR EACH SIDE STRIP ONE SIDE AT A TIME.
9. REINSTALL CANOPY, CHECK FOR FIT AND PROPER CLEARANCE AT THE WINDSHIELD FRAME.
10. REPAIR FOR F-106B AIRCRAFT IS THE SAME AS ABOVE EXCEPT APEX STRIP IS NOT REQUIRED.

Figure 4-11. Canopy Glass Erosion Repair

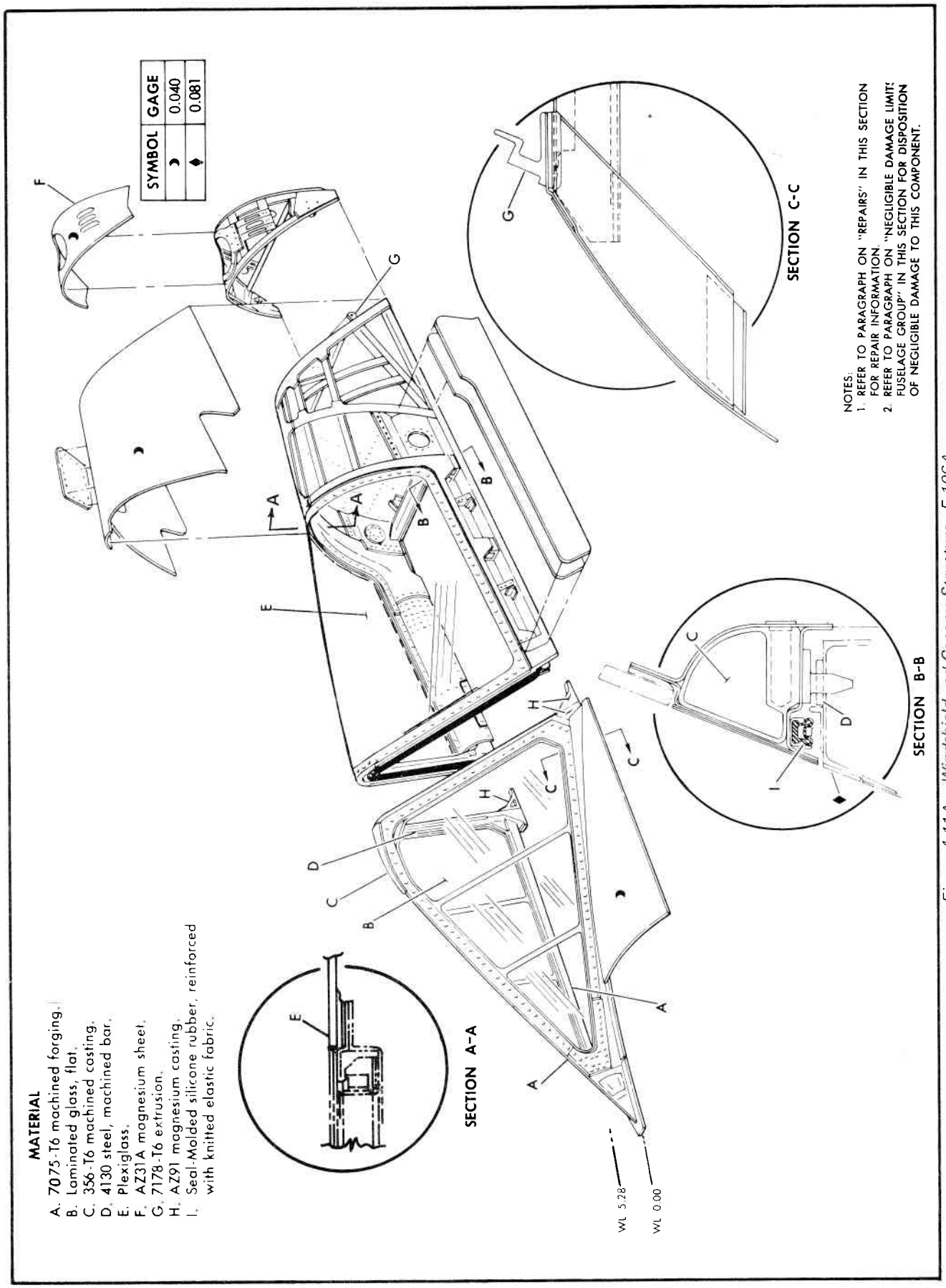


Figure 4-11A. Windshield and Canopy Structure - F-106A

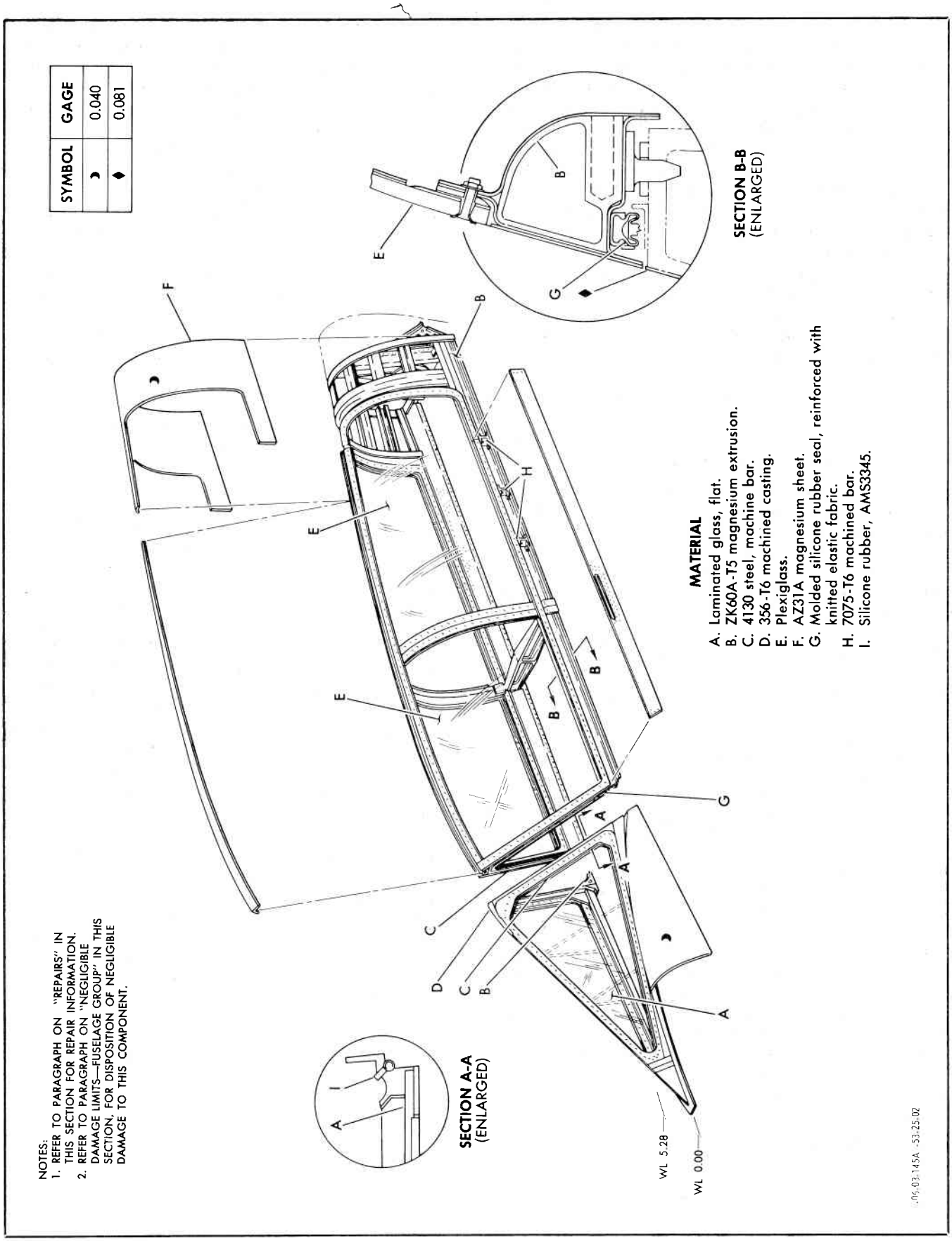


Figure 4-12. Windshield and Canopy Structure — F-106B

heavy-gage, parallel longerons interconnect the bulkheads and provide the support for windshield and canopy structures. The windshield and canopy assemblies for the F-106A are commonly referred to as the optimum vision type due to their "V"-shaped configuration and large single transparent panel assemblies. The windshield assembly consists basically of a framework of special extrusions and two laminated glass panel assemblies. The glass panels are secured to an extruded sill of the framework by retainers and flush-head screws. Rubber seals, attached to the structure with an application of EC-524 sealer, provide airtight seams. The canopy is constructed of built-up framework incorporating a plexiglas panel assembly in each side of the forward section, and a beltframe and reinforced bulkhead closed in by three sections of outer skin in the aft section. The plexiglas panel assemblies are fitted with laminated orlon strips along the perimeter and are secured to the canopy framework longerons by means of flush-head screws. The windshield and canopy are shown on figure 4-11. Refer to T.O. 1F-106A-2-2-2-2 for canopy and windshield panel removal and replacement procedures.

4-10. The fuselage integral fuel tank is located in the upper portion of the fuselage nose section just aft of the upper aft electronics compartment and consists basically of a forward bulkhead at station 216.00, and an aft bulkhead at station 253.00. These bulkheads are of the integral rib sculptured type. The two bulkheads are connected by a bottom horizontal skin at water line −12.90, and by left and right vertical skins. The bottom and the left and right skins are of the integral-rib, sculptured type. The fuselage integral fuel tank is made fuel-tight by the use of machined aluminum alloy bar corner fittings, Scotchweld structural adhesive bonding tape and Straylor fuel-tight rivets. See figure 4-13. Refer to paragraphs 1-131 and 1-133 for installation and removal procedures for Straylor rivets. Refer to paragraphs 2-33 and 2-35 for information pertaining to Scotchweld tape. Refer to paragraph 4-43 for the fuel tank leak testing procedure after repairs.

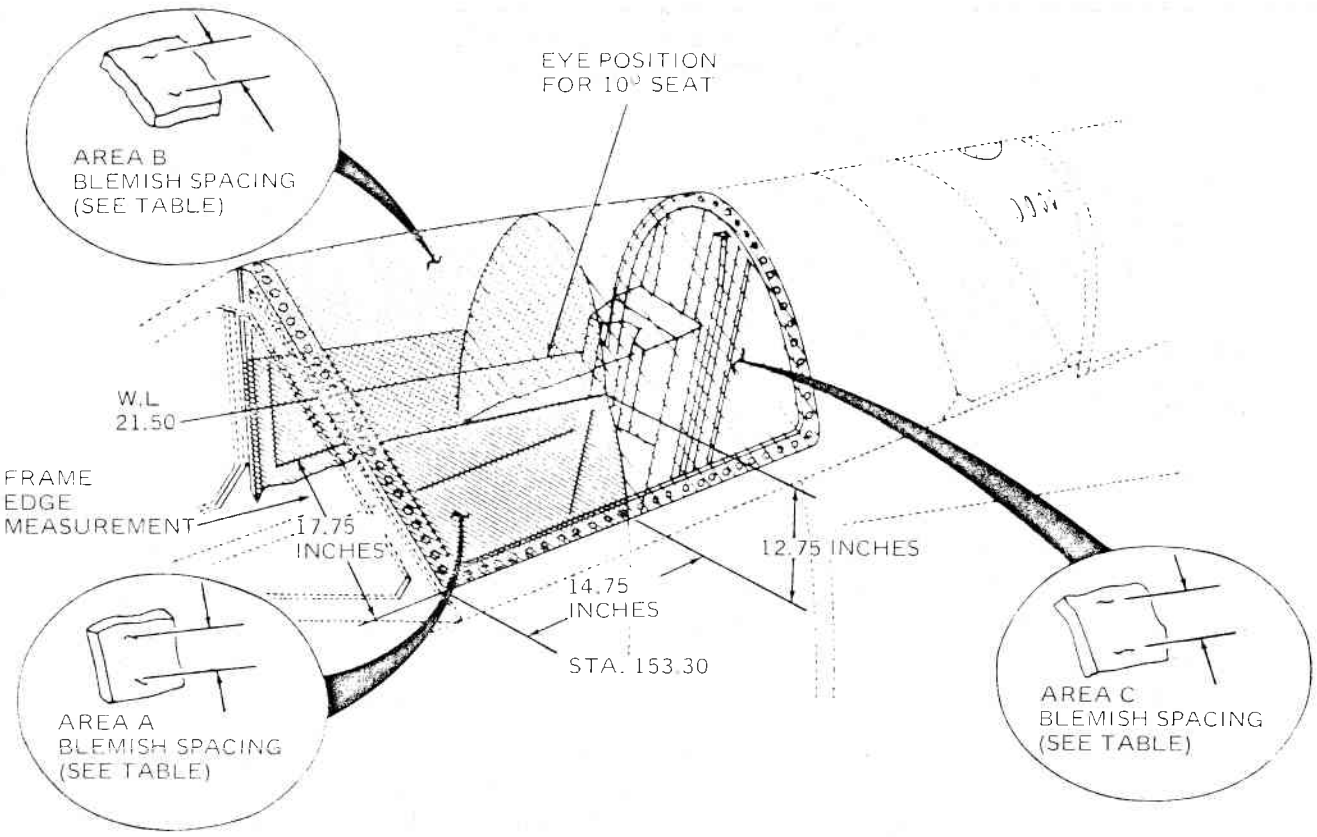
4-11. The upper aft electronics compartment doors on the left and right sides of the fuselage are located between stations 171.50 and 216.00, and are constructed principally of 7178-T6 bare sheet. See figure 4-15 for an illustration of the upper aft electronics compartment door structure. The doors are attached to the fuselage framework by two hinges along the upper edge of the doors, and are secured in the closed position by Camloc fasteners around the perimeter of the doors. The fuselage plating for the F-106A in the fuselage nose section area consists of 7178-T6 bare sheet; see figure 4-4 for the plating arrangement and material type and gage. To provide the required aerodynamic smoothness, all plating is attached with flush-head rivets and fasteners.

4-11A. F-106A CLEAR TOP CANOPY. *Applicable after incorporation of TCTO 1F-106A-556.*

4-11B. The F-106A airplane canopy is an aluminum frame structure consisting of a machined arch assembly at the forward end and built up frames and sheeting in the aft portion. The canopy panel consists of a one-piece, single-ply stretched acrylic clear top transparency having a thickness of 0.330 to 0.380 inch except at the forward apex area which has a thickness of 0.215 to 0.245 inch. The panel is reinforced at the attachment areas with a laminate of nylon fabric which is bonded to the panel with acrylic resin. Acrylic shear strips are bonded to the inside forward and side edges of the panel assembly which engage frame installed aluminum shear strips upon panel installation. The panel is attached to the canopy frame with countersunk screws spaced approximately one inch apart. This improved canopy configuration provides the pilot with increased visibility above and to the rear, and provides additional head room above and to the sides. The panel does not incorporate the coated surface defog system.

4-11C. F-106A CLEAR TOP CANOPY BLEMISH LIMITS. *Applicable after incorporation of TCTO 1F-106A-556.*

4-11D. The canopy panel should be inspected and reworked or replaced as necessary to permit continued operation of the aircraft with the panel having a minimum number of blemishes. Small separate scratches having a maximum depth of 0.003 inch are acceptable but should be waxed with paste wax to minimize appearance. Figure 4-12A defines the use areas of the canopy panel and provides spacing limitations for blemishes that do not require rework. Refer to paragraph 4-11G for blemish depth measuring procedures. If the limits of figure 4-12A are exceeded, rework of the affected areas to the requirements of paragraphs 4-11E through 4-11J will be required. Scratches that exceed 0.003 inch in depth and nicks that exceed the limits of figure 4-12A that do not exhibit evidence of cracks, are acceptable if they can be sanded and/or buffed out without reducing the panel thickness to less than 0.31 inch in all areas except the forward apex area. The forward apex area which comprises a radius area of five inches from the panel top forward point, must not be reduced in thickness to less than 0.20 inch when working out scratches or nicks. Any sanding or polishing out of scratches or nicks must have a blend out slope of at least ten to one. Occasional areas of light crazing are acceptable providing no area is larger than three inches in any direction and no closer than 15 inches to the next crazed area. Crazed areas should not exceed four per canopy. Any conditions that exceed the rework limitations in paragraphs 4-11E through 4-11J, or any cracks in the panel assembly will be cause for panel replacement.



BLEMISH LIMITS

AREA	AREA VISION USE	BLEMISH QUANTITY LIMIT PER AREA	BLEMISH MINIMUM SPACING PER AREA
A	Taxiing and flying	8	3 Inches
B	Overhead and outboard scanning	10	3 Inches
	Rear view scanning	12	2 Inches

Note

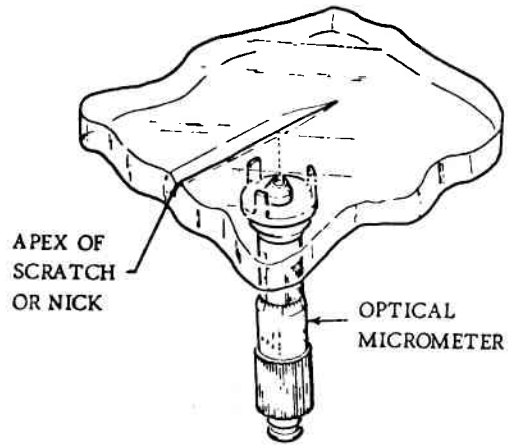
There are two A areas in the canopy panel. Where two or more blemishes appear in adjacent areas, limits of the area of least permissible blemishes shall apply.

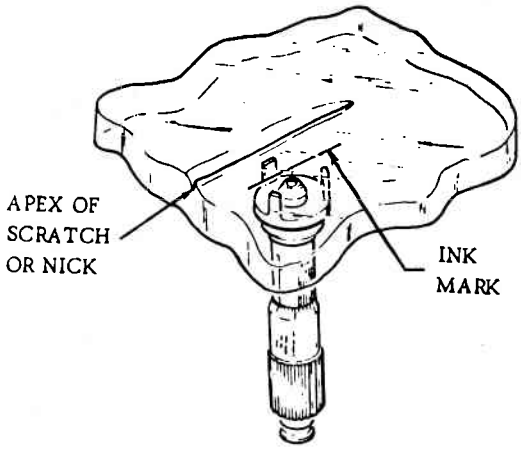
ACCEPTABLE BLEMISHES

SCRATCHES	Not exceeding 0.003 inch depth and are within blemish spacing limits. Wax affected area to make scratches less noticeable.
NICKS	Not exceeding 0.02-inch depth and 0.04-inch diameter, having no evidence of cracking and are within blemish spacing limits. Wax affected area to make nick less noticeable.
RAIN EROSION	Canopy glasses which have erosion beyond the forward edge of the screw holes shall be replaced.

Figure 4-12A. F-106A Clear Top Canopy Limits of Blemishes Not Requiring Rework

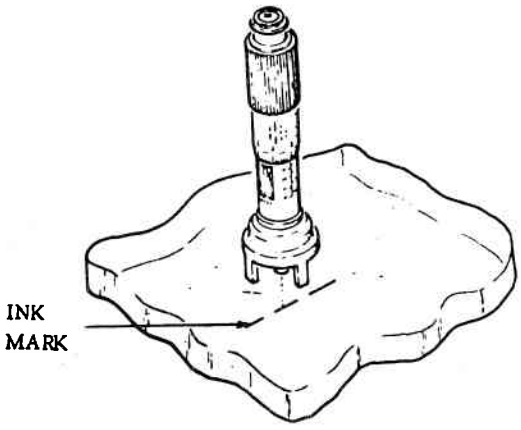
DAMAGED AREA MEASUREMENT
(PRIOR TO REWORK)

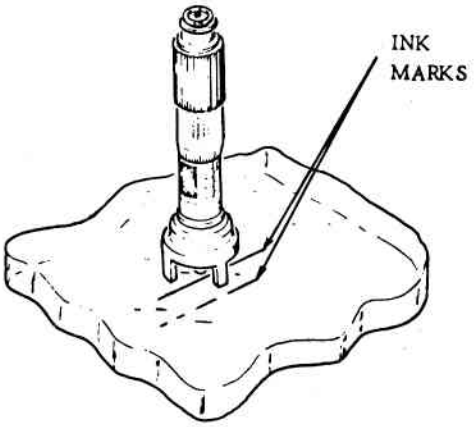




a. Stain apex of scratch or nick with ink.
b. Focus micrometer on scratch or nick apex from far side.
c. Record micrometer reading.
d. Make ink mark with felt tip pen on side opposite scratch or nick.
e. Focus micrometer on ink mark.
f. Record micrometer reading.
g. Find the difference between the two readings by subtracting the second reading from the first reading.
h. Multiply the difference by the refraction constant 1.5. Result is thickness of undamaged area.
i. Remove ink marks.

REWORKED AREA MEASUREMENT





a. Make ink mark on far side.
b. Focus micrometer on ink mark.
c. Record micrometer reading.
d. Make ink mark on near side.
e. Focus micrometer on ink mark.
f. Record micrometer reading.
g. Find the difference between the two readings by subtracting the second reading from the first reading.
h. Multiply the difference by the constant 1.5. Result is thickness of refinished area.
i. Remove ink marks.

Figure 4-12B. Canopy Panel Thickness Measurements

4-11E. CLEAR TOP CANOPY PANEL BLEMISH REFINISHING.

4-11F. EQUIPMENT REQUIRED.

FIGURE	NAME	TYPE	ALTERNATE	USE
	Buffing Wheel	Unstitched canton flanel - 6 inches diameter x 20 ply		For buffing blemishes.
	Drill Motor Arbor	1/4 inch		To hold buffing wheel.
	Flo-Master Felt Tips	1/4 inch round, N10, Esterbrook Pen Co. (81697)		For buffing blemishes.
	Drill Motor	Pneumatic, 1300 rpm or less		To power buffing equipment.
	Sanding Block	Hard rubber		To hold abrasive paper.
	Optical Micrometer	Model 966A1 (6650-A31-5532)		To measure depth of blemishes.
	Polishing Compound	MIL-W-18767, Type 1 (RM 7930-634-5340-6500)	Wilco Anti-Static Plastic Cleaner - Wilco Co., Los Angeles	For polishing canopy panel.
	Buffing Compound	Plastipol - Lasalco, Inc., St. Louis, Mo.	Equivalent	To buff blemishes (Ref. AN01-1A-12).
	Rouge	Chrome Rouge XZ-Lasalco, Inc., St. Louis, Mo.		To buff blemishes.
	Felt Tip Pen	Local Procurement		For marking canopy surfaces for thickness measurements.
	Wax	Simonize Paste Wax Simonize Co., Chicago, Ill.		To wax scratches.
	Disposable Paper Wipes	Brand 05316 Scott Paper Co., Philadelphia, Pa.	Equivalent	For cleaning panel surfaces.
	Abrasive Paper, wet or dry	No. 400		For sanding blemishes.
	Abrasive Paper, wet or dry	No. 600		For sanding blemishes.
	Polishing Cloth	Fed. Spec. DD-C-441, Type I (G7920-2051656)		For polishing panel surfaces.

4-11G. THICKNESS MEASUREMENT OF CLEAR TOP CANOPY PANEL.

4-11H. Prior to and after refinishing of a deep nick or scratch area in the canopy panel, measurements must be taken to determine that an acceptable thickness of material will or does remain after the nick or scratch has been worked out. See figure 4-12B for this procedure. In all areas of the canopy panel except the forward apex area, a minimum of 0.31-inch thickness of material must remain. In the forward apex area (five-inch radius from the top forward point), a minimum of 0.20-inch thickness of material must remain.

4-11J. PROCEDURE.

a. Small scratch or nick refinishing (scratch or nick exceeding 0.003-inch depth but not requiring sanding).

(1) Install a Flo-Master tip in the drill motor chuck.

(2) Sharpen the tip with a file.

(3) Apply Chrome Rouge XZ buffing compound to the tip.

(4) With motor running as slowly as possible, apply the tip point into the scratch or nick and work along the length of the scratch or to the depth of the nick. Resharpen tip and apply compound as required until a fingernail will no longer hang on the scratch or nick.

(5) Blend the reworked area into the surrounding local area using the six inch buffing wheel and Plastipol buffing compound. Do not run motor over 1300 rpm.

b. Large scratch or nick refinishing (requiring sanding).

(1) Measure undamaged panel depth at scratch or nick to determine advisability of rework. See figure 4-11G for this procedure. Replace panel if it is determined that rework will create an area in panel not acceptable in thickness. Refer to T.O. 1F-106A-2-2-2-2 for this procedure.

(2) To refinish a scratch, sand out scratch using rubber block and No. 400-A abrasive paper and water. Using a circular motion, sand an area approximately twice the diameter as the length of the scratch until the scratch is removed.

NOTE

All reworked areas must have a blend-out slope of at least ten to one.

(3) To refinish a nick, sand out nick using rubber block and No. 400-A abrasive paper and water. Using a circular motion, sand the area around the nick to create a minimum of at least a ten to one blend-out slope.

(4) Flush area thoroughly with water.

(5) Repeat step (2) or (3) using No. 600A abrasive paper and water over a slightly larger area until all No. 400 A sanding scratches are gone.

(6) Flush area thoroughly with water; dry area.

(7) Buff sanded area using six inch buffing wheel and Plastipol buffing compound. Apply buffing compound to wheel and apply wheel lightly to the sanded area. Move wheel and motor assembly in a direction 90° to the motor rotation. Do not let motor rpm exceed 1300 rpm. Buff until sanded area regains original luster.

(8) Clean area with plastic cleaner.

(9) Wax area to a high gloss finish.

c. After rework completion, check the canopy panel from the pilot's position that visual impairment or severe optical distortion was not created by the rework. When vision through a reworked area is distracted and is caused to focus on the panel surface, then a vision impairment condition exists. Severe optical distortion or vision impairment that cannot be alleviated by additional sanding and buffing is cause for canopy panel replacement.

d. Check for acceptable thickness of the panel reworked area using the optical micrometer. Refer to parageaph 4-11J for this procedure. Refer to paragraph 4-11E for panel thickness limitations.

4-11K. F-106A CANOPY PANEL BONDED COMPONENT PARTIAL SEPARATION REPAIR, *Applicable after incorporation of TCTO 1F-106A-556.*

4-11L. In the event that inspection reveals partial separation of a panel shear strip or of the nylon edge reinforcement, rebonding of the affected area is required prior to continued use of the canopy panel.

NOTE

Complete separation of shear strips from the panel panel will require panel replacement. Depot level repair is required for proper relocation of shear strips.

4-11M. PROCEDURE.

a. Remove panel from the canopy frame. Refer to T.O. 1F-106A-2-2-2-2 for this procedure.

b. Mask off area adjacent to area being bonded using tape, Federal Specification PPP-T-60, Type 3, Class I.

c. Clean area being bonded using Aliphatic Naphtha, Federal Specification TT-N-95

d. Inject bonding cement PS-18 (77902) into area being bonded using a clean metal point syringe. Refer to paragraph 11-45D for cement mixing and handling procedures.

Exercise care that all air pockets have been eliminated by application of the bonding cement.

e. Clamp bond area using spring clamps spaced to provide even pressure along entire length of bond area.

f. Remove any excess cement from bond area before cement has had time to set.

g. Allow repair area to cure for eight hours at 70°F temperature.

CAUTION

Do not use heat lamps for bond curing. Uncontrolled heating can cause the panel material to soften and distort.

h. Clean cement from the syringe before residual cement has had time to harden using methylene chloride.

WARNING

Methylene chloride is toxic if its vapors are inhaled over a period of time. Provide adequate ventilation when working with this material.

i. Remove clamps and masking tape. Clean the panel with plastic cleaner.

j. Install panel in canopy frame. Refer to T.O. 1F-106A-2-2-2-2 for this procedure.

4-11N. F-106A CANOPY LEDGE (PN 7144504-01) REPAIR.

1. Remove canopy assembly Part No. 7144504-01 from aircraft in accordance with T.O. 1F-106A-2-2-2-1.

2. Remove glass assembly from canopy frame in accordance with T.O. 1F-106A-2-2-2-2, Task 6-214.

NOTE

Measure glass position in frame for reinstallation.

3. Remove splices, Part No. 7144504-05 and 7144504-06, frame, Part No. 7144504-03, shear strip, Part No. 7144504-17, splices, Part No. 7144504-07 and 7144505-08, and ledge Part No. 7144504-01. Note: All parts are reusable except 7144504-01.

4. Clean all surfaces of old sealant, check and treat for corrosion, and paint as required.

5. Manufacture spacers in accordance with Air Force Drawing 8044104.

6. Manufacture new ledge in accordance with Air Force Drawing 8044105.

7. Fit and install new spacers and ledge in accordance with Air Force Drawing 8044106.

8. Reidentify repaired canopy ledge to Part No. 8044106.

9. Install glass assembly in accordance with T.O. 1F-106A-2-2-2-2, Task 6-215.

10. Install canopy assembly in accordance with T.O. 1F-106-2-2-2-1.

11. Pressure check cockpit for leaks.

4-12. Fuselage Nose Section—F-106B.

4-13. The F-106B fuselage nose section is similar to that of the F-106A, except between stations 102.00 and 472.00. See figures 4-5, 4-10, 4-12, and 4-14 for illustrations showing the structure and plating of the F-106B airplane. The principal difference between the F-106A and F-106B airplanes is basically the lengthening of the pilot's compartment and canopy to provide the two-place, tandem seating arrangement of the F-106B. Due to the increase in length of the pilot's compartment, the fuselage integral fuel tank is reduced in size from that of the F-106A and moved aft between stations 236.00 and 273.00. The equipment located in the upper aft electronic bay of the F-106A is moved aft to the center of the forward missile bay area in the F-106B. The lower halves of the missile bay doors are shortened to conform to this change in equipment location.

4-14. Fuselage Forward Intermediate Section—F-106A.

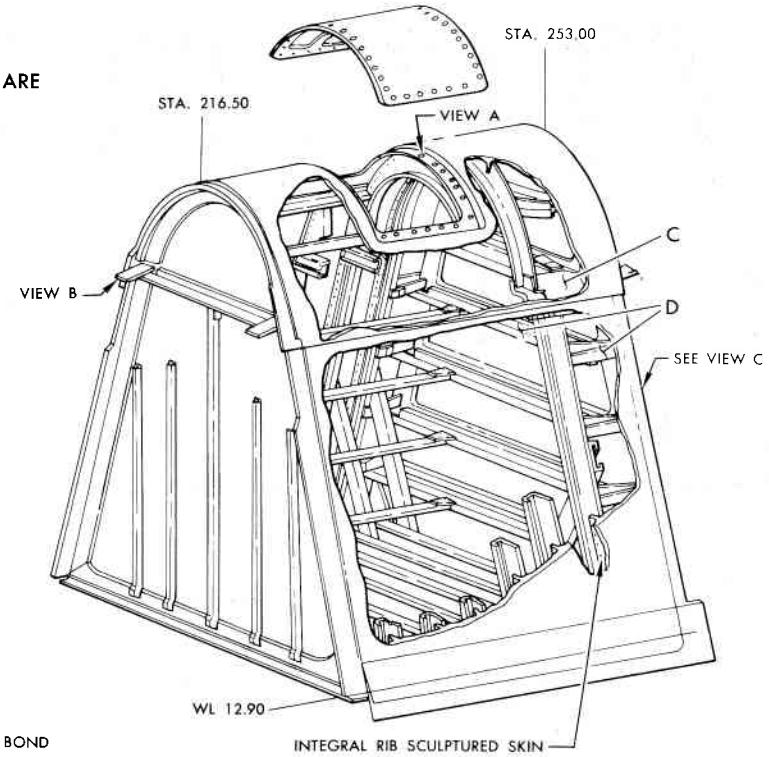
4-15. The forward intermediate section of the fuselage includes the fuselage structure, the engine air intake ducts, the variable ramp, the missile bay area with its missile bay doors, the engine air scroll, the main landing gear compartment, and the fuselage inner and outer plating. The wing attaching fittings for spars 1, 2, and 3 are located in this section of the fuselage structure. The fuselage structural framework in this section consists principally of a series of semicircular zee and channel spliced belt frames and forged and built-up type bulkheads connected by longerons, gussets and intercostals. See figure 4-16 for an illustration of fuselage framework. The fuselage plating in this section consists of stressed aluminum alloy. All plating in this area is attached with flush-head rivets and fasteners to meet the aerodynamic smoothness requirements as outlined in Section I. The engine air intake ducts are joined to the fuselage in such a way as to make them an integral part of the

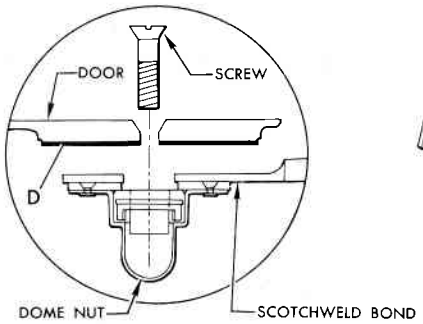
fuselage framework (see figures 4-17 and 4-18). The framework of the engine air ducts is made of a series of evenly spaced semicircular zee and channel spliced beltframes interconnected by gussets and intercostals. The inner and outer plating of the engine air duct is made of stressed aluminum alloy and is attached by flush-head rivets and fasteners. Thermal anti-icing is provided in the forward area of the engine air intake duct. The variable ramp consists of three separate panels constructed of stressed aluminum alloy plating, press-formed channel ribs, and extruded channel stiffeners. Extruded hinges and steel hinge pins connect the forward and aft panels to the center panel. The center panel is slotted to bleed off boundary layer air when the variable ramp is in operation. The slot members are riveted to the plate and reinforced with 2024-T6 aluminum alloy clips. Cracked clips may be replaced and slot members repaired. See figure 4-19A for variable ramp panel hinge node and pin retention repair procedures. Expanded hinge node repairs may be accomplished in accordance with Air Force Drawing No. 7645110. Refer to paragraph 4-46 for repair procedures of peeled nickel plate on the variable ramp duct leading edge. Damage exceeding those illustrated shall be referred to an aeronautical structures engineer. See figure 4-19 for an illustration of the variable ramp structure and plating. Refer to T.O. 1F-106A-2-4-2-1 for removal and installation of the variable ramp. The engine air scroll consists principally

MATERIAL

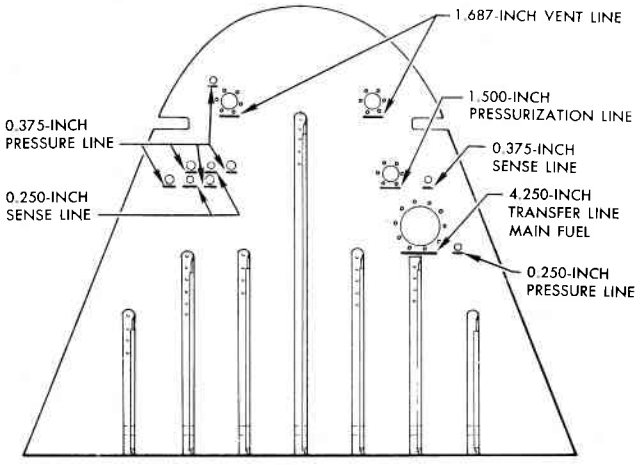
UNLESS OTHERWISE NOTED ALL PARTS ARE MADE FROM 7075-T6 BARE SHEET.

A. 7075-T6 extrusion.
B. 2014-T6 machined bar.
C. 7178-T6 bare sheet.
D. Fairprene seal.

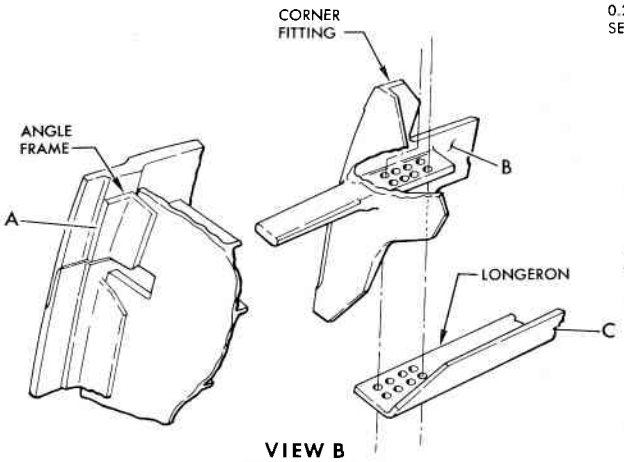




VIEW A



VIEW C



VIEW B
(EXPLODED)

NOTES:
1. REFER TO PARAGRAPH ON "REPAIRS" IN THIS SECTION FOR REPAIR INFORMATION.
2. REFER TO PARAGRAPH ON "NEGLIGIBLE DAMAGE LIMITS—FUSELAGE GROUP" IN THIS SECTION FOR DISPOSITION ON NEGLIGIBLE DAMAGE TO THIS COMPONENT.
3. REFER TO PARAGRAPH ON "REPAIRS" IN SECTION II FOR DOME NUT REPLACEMENT DATA.
4. REFER TO PARAGRAPH "FUSELAGE INTEGRAL FUEL TANK PRESSURE TEST" IN THIS SECTION FOR FUSELAGE FUEL TANK PRESSURE TEST PROCEDURE.

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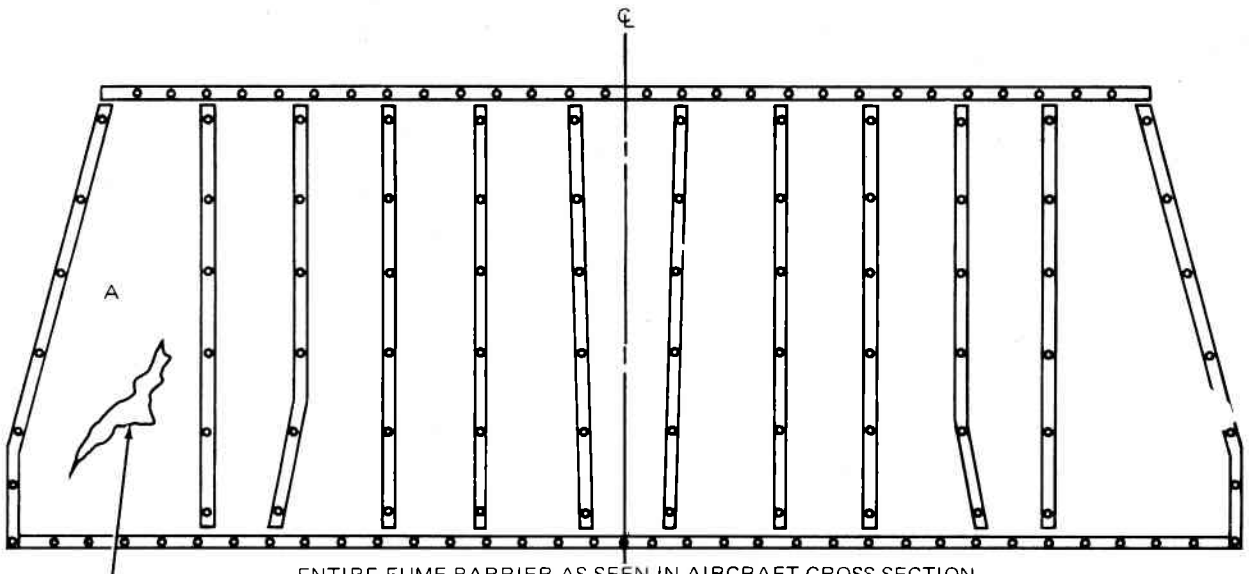
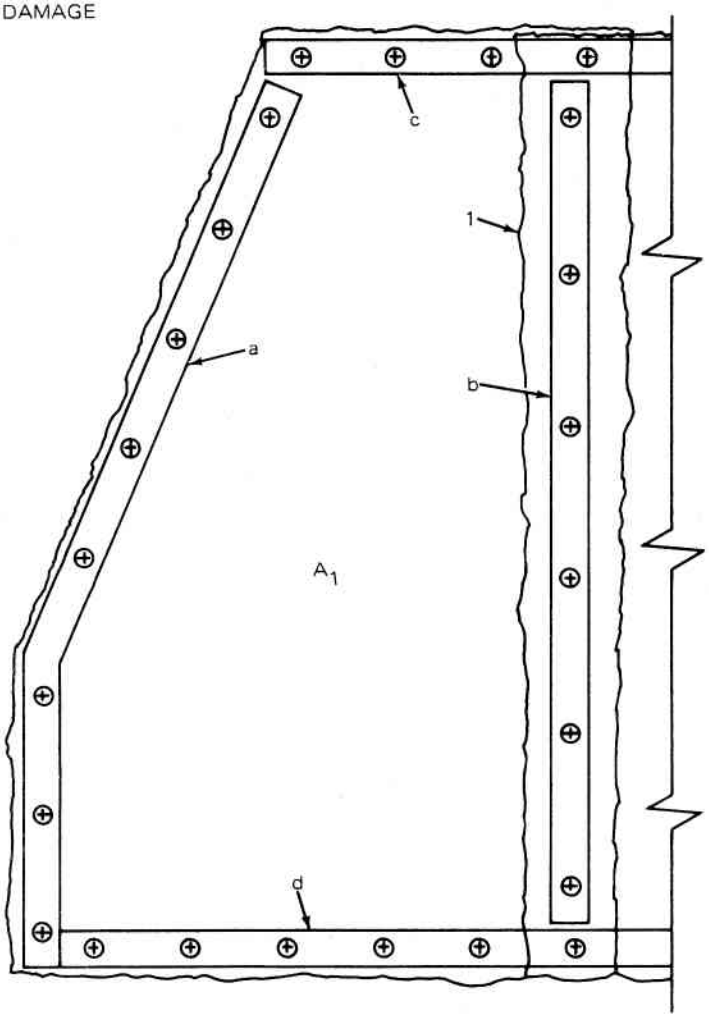
Figure 4-13. Fuselage Integral Fuel Tank — F-106A



ENTIRE FUME BARRIER AS SEEN IN AIRCRAFT CROSS-SECTION

AREA OF ASSUMED DAMAGE



REPAIR PROCEDURE

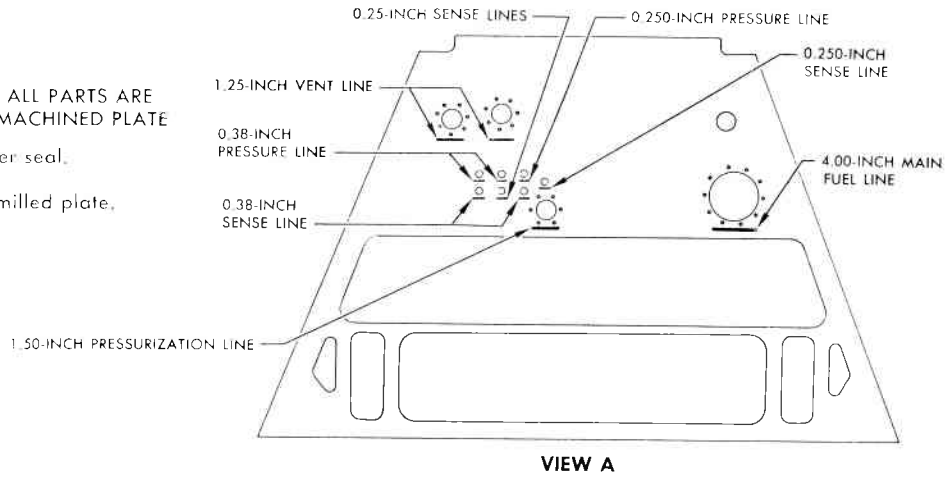
1. REMOVE a & b , LOOSEN c & d .
2. CUT DAMAGED BARRIER ALONG LINE 1 & REMOVE DAMAGED SECTION, AS ILLUSTRATED, A
3. CUT NEW PIECE A1 ; PUNCH HOLES AS NEEDED AND INSTALL.
4. APPLY THIN COAT MIL-S-8802 (OR EQUAL) SEALER TO ALL FAYING SURFACES
5. REINSTALL a & b , TIGHTEN c & d.

Figure 4-13A. Fume Barrier-Typical Repair-F-106A

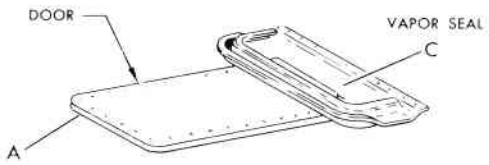
MATERIAL

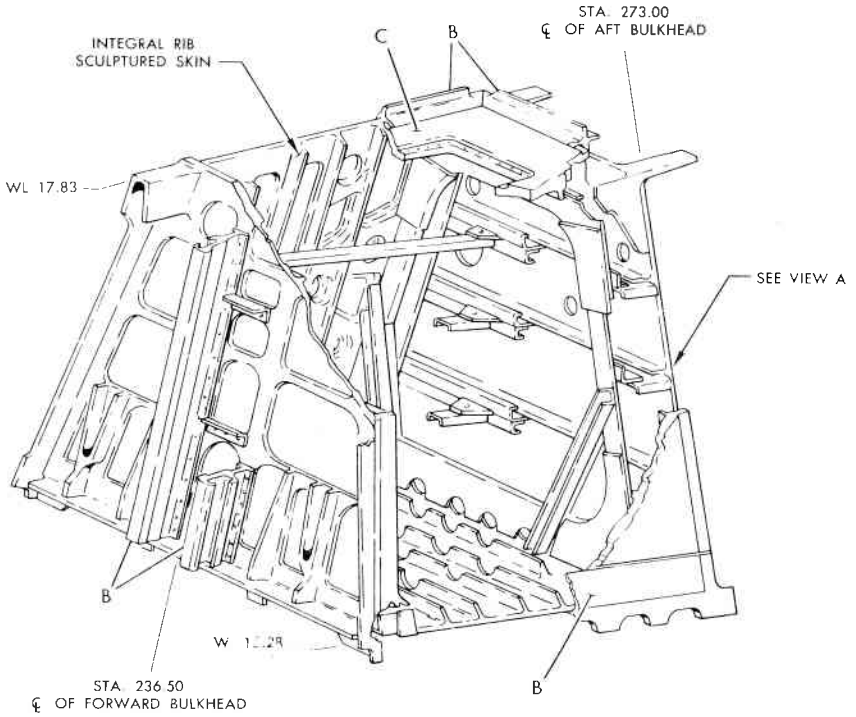
UNLESS OTHERWISE NOTED ALL PARTS ARE MADE FROM 7075-T6 BARE MACHINED PLATE

A. W54P white silicone rubber seal.
B. 7178-T6 extrusion.
C. 7075-T6 bare chemically milled plate.



VIEW A





NOTES:
1. REFER TO PARAGRAPH ON "REPAIRS" IN THIS SECTION FOR REPAIR INFORMATION.
2. REFER TO PARAGRAPH ON "NEGLIGIBLE DAMAGE LIMITS--FUSELAGE GROUP" IN THIS SECTION FOR DISPOSITION OF NEGLIGIBLE DAMAGE TO THIS COMPONENT.
3. REFER TO PARAGRAPH ON "REPAIRS" IN SECTION II FOR DOME NUT REPLACEMENT DATA.
4. REFER TO PARAGRAPH "FUSELAGE INTEGRAL FUEL TANK PRESSURE TEST" IN THIS SECTION FOR FUEL TANK PRESSURE TEST PROCEDURE.

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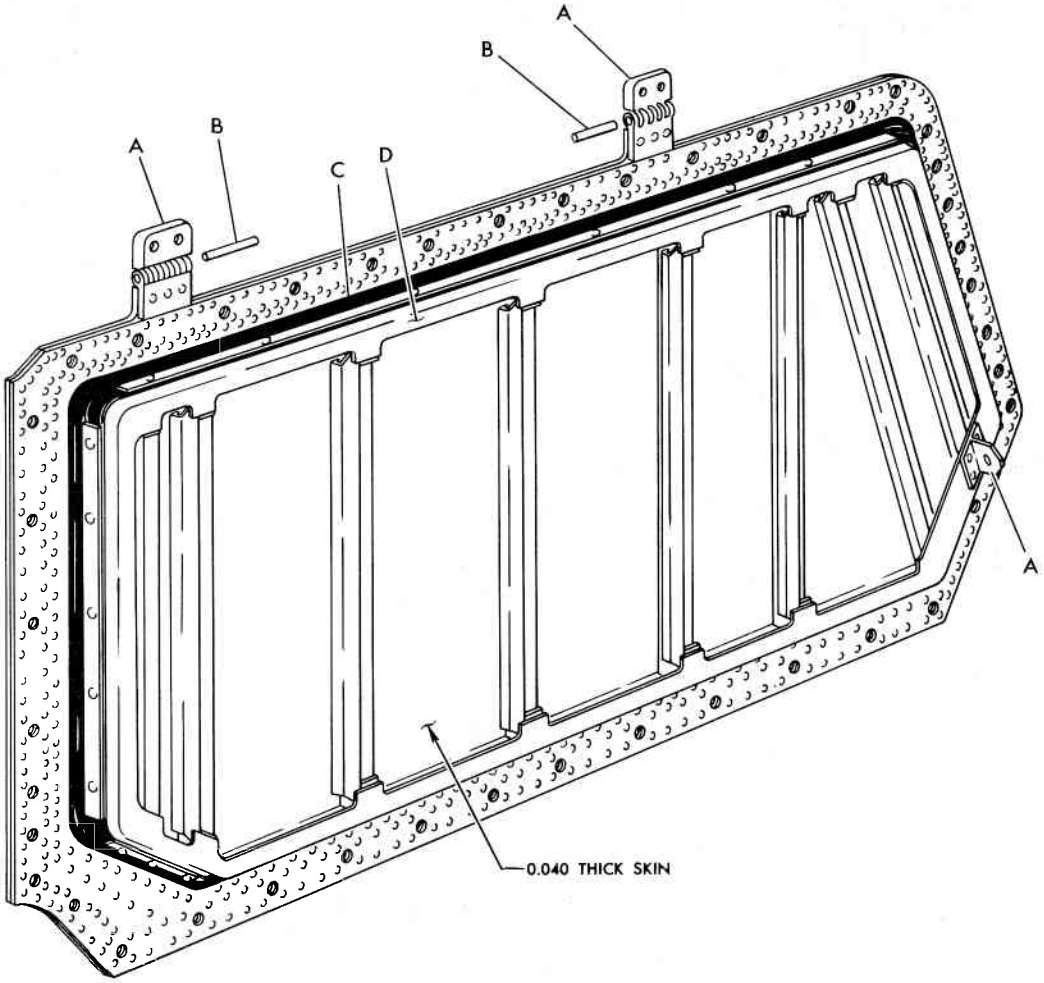
Figure 4-14. Fuselage Integral Fuel Tank — F-106B

MATERIAL

UNLESS OTHERWISE NOTED ALL PARTS ARE MADE FROM 7178-T6 BARE SHEET.

A. 7075-T6 extrusion.
B. 302 corrosion resistant steel.
C. Silicone rubber.
D. 7075-T6 clad sheet.



NOTES:
1. REFER TO PARAGRAPH ON "REPAIRS" IN THIS SECTION FOR REPAIR INFORMATION.
2. REFER TO PARAGRAPH ON "NEGLIGIBLE DAMAGE LIMITS—FUSELAGE GROUP" IN THIS SECTION FOR DISPOSITION OF NEGLIGIBLE DAMAGE TO THIS COMPONENT.
3. NUTS SECURING HINGE TO FUSELAGE MAY BE REPLACED WITH PLATE NUTS OF SAME SIZE AND MATERIAL WHEN REPLACEMENT OF HINGE IS NECESSARY.

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Figure 4-15. Upper Aft Electronics Compartment Door Structure—F-106A

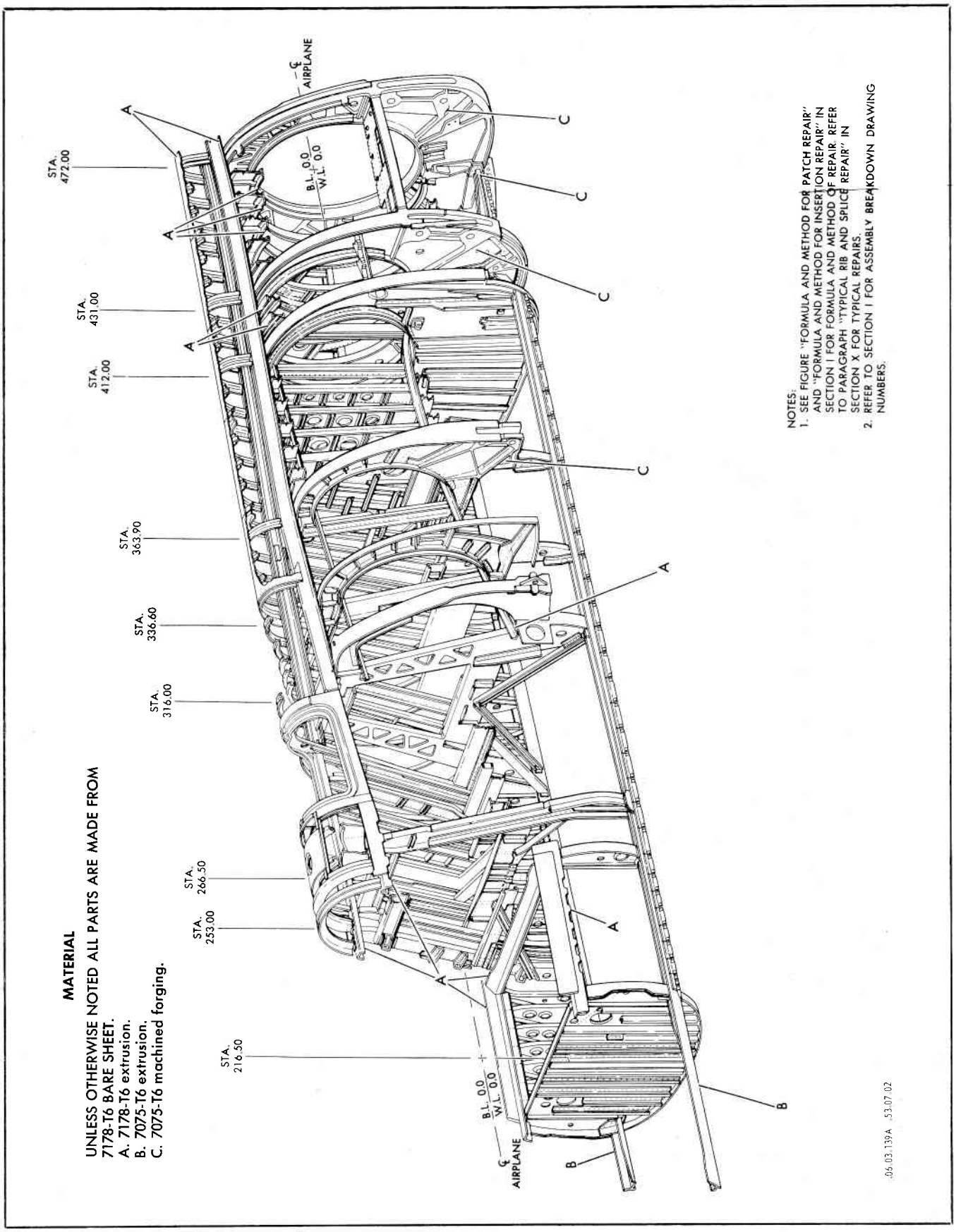
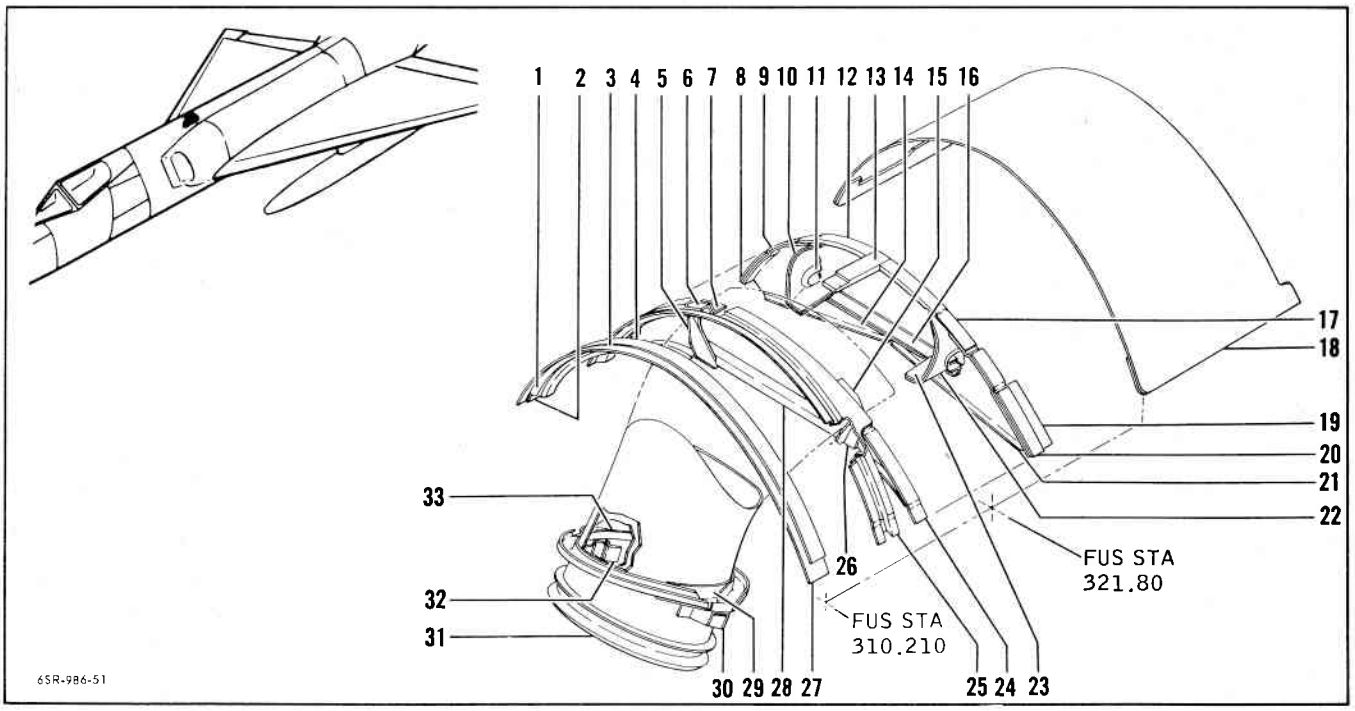


Figure 4-16. Fuselage Structure — Station 216.00 to 472.00 — F-106A



KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	66C40239-1	Seal		Silicone Rubber	MIL-R-25988	Replace
2	66J40690-15	Retainer	0.025 x 0.5 x 30.8	Cres Typ 301	MIL-S-5059	Replace
					Cond 1/4 Hd	
3	66D39731-1	Zee	0.04 x 2.0 x 50.0	7178-T6	QQ-A-250/14(T6)	10-7, 10-10A
4	66J40690-14	Filler	0.056 x 0.78 x 28.4	7178-T6	QQ-A-250/14(T6)	Replace
5	66J40690-12	Angle	0.032 x 1.71 x 3.75	Cres Typ 301	MIL-S-5059	Replace
					Cond 1/4 Hd	
6	66J40690-8	Support	0.032 x 6.8 x 7.0	Cres Typ 302	MIL-S-5059	10-10A, 10-10B,
					Cond 1/4 Hd	10-10C
7	66J40690-10	Angle	0.032 x 1.3 x 3.7	Cres Typ 301	MIL-S-5059	Replace
					Cond 1/4 Hd	
8	66J40690-2	Filler	0.05 x 0.750 x 3.63	2024-T3	QQ-A-250/4(T3)	Replace
9	66J40690-3	Filler	0.05 x 1.6 x 6.85	2024-T3	QQ-A-250/4(T3)	Replace
10	66D40693-2	Doubler	0.062 x 13.0 x 13.0	Cres Typ 301	MIL-S-5059	Replace
					Cond 1/4 Hd	
11	66C40692-1	Seal	0.062 x 3.0 x 6.0	Rubber Asbestos	MIL-A-7021CL Medium	Replace
				0.062		
12	66E40694-2	Shim	0.75 x 1.5 x 10.5	2024-T4	QQ-A-225/6(T4)	Replace
13	66J40690-17	Filler	0.19 x 1.2 x 4.1	7178-T6	QQ-A-250/14(T6)	Replace
14	66J40690-6	Support	0.032 x 6.0 x 11.5	Cres Typ 302	MIL-S-5059	10-10A, 10-10B
					Cond 1/4 Hd	
15	66J40690-9	Angle	0.032 x 1.3 x 3.7	Cres Typ 301	MIL-S-5059	Replace
					Cond 1/4 Hd	
16	66J40690-4	Channel	0.032 x 2.2 x 10.3	Cres Typ 301	MIL-S-5059	Replace
					Cond 1/4 Hd	
17	66E40694-1	Shim	0.75 x 1.5 x 10.5	2024-T4	QQ-A-225/6(T4)	Replace
18	66J40691-2	Skin	0.04 x 11.59 x 38.0	7178-T6	QQ-A-250/14(T6)	4-18F, 10-1
19	66J40690-3	Filler	0.05 x 1.6 x 6.25	2024-T3	QQ-A-250/4(T3)	Replace
20	66J40690-2	Filler	0.05 x 0.75 x 3.63	2024-T3	QQ-A-250/4(T3)	Replace
21	66J40690-5	Support	0.032 x 6.0 x 11.5	Cres Typ 302	MIL-S-5059	10-10A, 10-10B
					Cond 1/4 Hd	

Figure 4-16A. Aerial Refueling Dorsal Section, F-106A Stations 308.5 to 322.0 (Sheet 1 of 2)

Applicable after incorporation of TCTO 1F-106-986

KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
22	66C40692-1	Seal	0.062 x 3.0 x 6.0	Asbestos Rubber	MIL-A-7021 Medium	Replace
23	66D40693-1	Doubler	0.062 x 13.0 x 13.0	Cres Typ 301	MIL-S-5059 Cond 1/4 Hd	Replace
24	66J40690-7	Support	0.032 x 6.8 x 7.0	Cres Typ 302	MIL-S-5059 Cond 1/4 Hd	10-10A
25	66D39732-1	Hat	0.05 x 3.0 x 50.0	7178-T6	QQ-A-250/14(T6)	10-10A, 10-10C
26	66J40690-11	Angle	0.032 x 1.71 x 3.75	Cres Typ 301	MIL-S-5059 Cond 1/4 Hd	Replace
27	66J40690-16	Retainer	0.032 x 1.34 x 30.8	7178-T6	QQ-A-250/14(T6)	*
28	66J40690-13	Channel	0.032 x 1.88 x 19.7	Cres Typ 301	MIL-S-5059 Cond 1/4 Hd	10-5
29	66J40235-11	Gusset	0.04 x 2.8 x 4.8	Cres Typ 321/347	MIL-S-6721	Replace
30	66J40235-9	Clip	0.04 x 3.1 x 5.6	Cres Typ 321/347	MIL-S-6721	Replace
31	66J40235-2	Duct (Weldment)		Cres Typ 321/347	MIL-S-6721	10-10D
32	66J40235-10	Clip	0.04 x 3.1 x 5.6	Cres Typ 321/347	MIL-S-6721	Replace
33	66J40235-12	Gusset	0.04 x 2.8 x 4.8	Cres Typ 321/347	MIL-S-6721	Replace

*Remove damaged area. Insert new piece picking up three rivets (minimum)

Figure 4-16A. Aerial Refueling Dorsal Section, F-106A Stations 308.5 to 322.0 (Sheet 2 of 2)
Applicable after incorporation of TCTO 1F-106-986

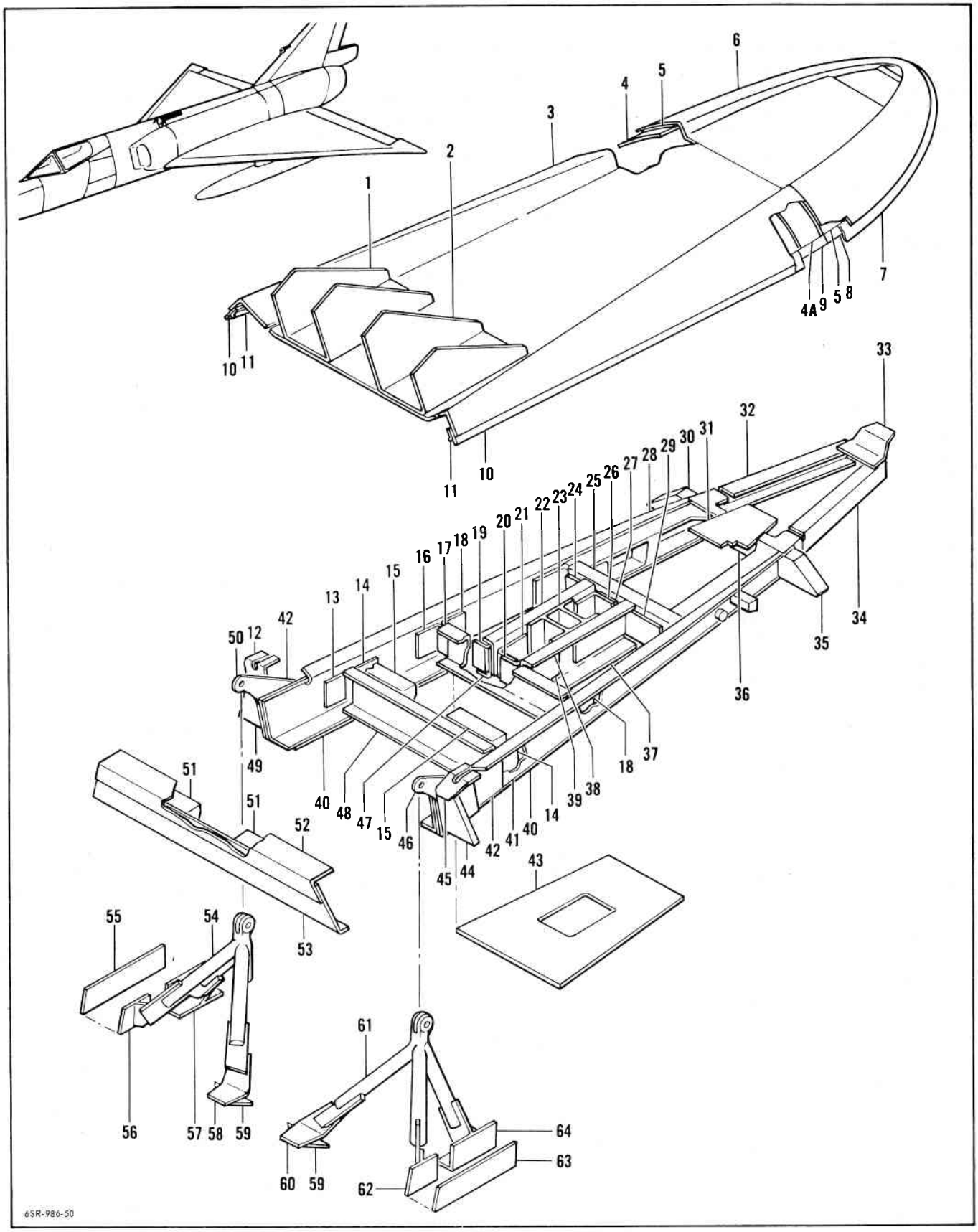


Figure 4-16B. Aerial Refueling Slipway Door and Hinge Supports, F-106A (Sheet 1 of 3)
Applicable after incorporation of TCTO 1F-106-986

KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	66D40674-6	Channel	0.19 x 8.5 x 12.0	4130 Cond A	MIL-S-18729	10-10E
		(Cad. Plat)				
2	66D40674-5	Channel	0.19 x 8.5 x 12.0	4130 Cond A	MIL-S-18729	10-10B
		(Cad. Plat)				
3	66J40525-1	Fairing	0.125 x 24.0 x 31.0	Cres Typ 301	MIL-S-5059	10-2, 10-10B
					Cond 1/4 HD	
4	66C39710-1	Plate	0.25 x 2.41 x 4.10	Cres Typ 301		Replace
4A	66C39710-2	Plate	0.25 x 2.41 x 4.10	Cres Typ 301	MIL-S-5059	Replace
					Cond 1/4 HD	
5	66J40259-3	Filler	0.032 x 1.0 x 3.0	2024-T3	QQ-A-250/4(T3)	Replace
6	66J40689-1	Fairing	0.09 x 20.5 x 26.0	Cres Typ 302	MIL-S-5059	10-10E*
					Cond A	
7	66J40259-8	Seal	0.093 x 12.5 x 15.0	Syn Rub	AMS 3208	Replace
					Shore 50	
8	66D39721-1	Retainer	0.060 x 0.7 x 17.0	2024-T3	QQ-A-250/4(T3)	Replace
9	66J40259-7	Retainer	0.063 x 0.7 x 3.0	7075-T6	QQ-A-250/12(T6)	Replace
10	66J40259-9	Seal	0.093 x 12.5 x 15.0	Syn Rub	AMS 3208	Replace
					Shore 50	
11	66D39720-1	Retainer	E491002 x 24.5	2024-T4	QQ-A-200/3(T4)	Replace
12	66C39722-2	Bracket	0.071 x 1.7 x 6.0	7075-T6	QQ-A-250/12(T6)	Replace
13	66C40688-1	Angle	0.071 x 2.0 x 2.7	7075-T6	QQ-A-250/12(T6)	Replace
14	66C40688-2	Angle	0.071 x 2.0 x 5.4	7074-T6	QQ-A-250/12(T6)	Replace
15	66C40673-1	Adapter	1.0 x 2.5 x 3.5	7075-T651	QQ-A-250/12(T651)	Replace
16	66C40688-3	Angle	0.071 x 1.6 x 2.9	7075-T6	QQ-A-250/12(T6)	Replace
17	66C40684-2	Rib	0.071 x 3.8 x 11.2	7075-T6	QQ-A-250/12(T6)	10-10A, 10-10C
18	66C40688-4	Angle	0.071 x 1.8 x 3.4	7075-T6	QQ-A-250/12(T6)	Replace
19	66C39717-4	Bracket	0.071 x 1.8 x 3.7	7075-T6	QQ-A-250/12(T6)	Replace
20	66C39723-1	Bracket	0.071 x 3.0 x 6.8	7075-T6	QQ-A-250/12(T6)	Replace
21	66C39717-2	Bracket	0.071 x 1.8 x 4.3	7075-T6	QQ-A-250/12(T6)	Replace
22	66C39723-2	Bracket	0.071 x 3.0 x 6.8	7075-T6	QQ-A-250/12(T6)	Replace
23	66D40429-1	Support		7079-T651	QQ-A-250/17(T651)	Replace
24	66C39715-4	Bracket	0.071 x 2.2 x 3.0	7075-T6	QQ-A-250/12(T6)	Replace
25	66D40685-2	Rib	0.071 x 4.0 x 7.5	7075-T6	QQ-A-250/12(T6)	10-10A, 10-10C
26	66C39718-2	Bracket	0.71 x 1.5 x 3.4	7075-T6	QQ-A-250/12(T6)	Replace
27	66C39718-1	Bracket	0.071 x 1.5 x 3.4	7075-T6	QQ-A-250/12(T6)	Replace
28	66E39724-2	Beam	0.071 x 10.0 x 20.0	7075-T6	QQ-A-250/12(T6)	10-10A, 10-10C
29	66C39715-3	Bracket	0.071 x 2.2 x 3.0	7075-T6	QQ-A-250/12(T6)	Replace
30	66E40671-2	Stop	2.5 x 5.0 x 12.25	7079-T651	QQ-A-250/17(T651)	Replace
31	66C39711-1	Plate	0.125 x 3.45 x 3.18	Cres Typ 301	MIL-S-5059	Replace
					Cond 1/4 HD	
32	66D39713-4	Channel	0.071 x 1.44 x 8.71	7075-T6	QQ-A-250/12(T6)	10-10C
33	66C39725-1	Beam	0.100 x 2.9 x 2.9	7075-T6	QQ-A-250/12(T6)	Replace
34	66D39713-3	Channel	0.071 x 1.44 x 8.71	7075-T6	QQ-A-250/12(T6)	10-10C
35	66E40671-1	Stop	2.5 x 5.0 x 12.25	7079-T651	QQ-A-250/17(T651)	Replace
36	66C39712-2	Channel	0.8 x 1.25 x 6.06	7075-T6	QQ-A-250/12(T6)	Replace
37	66C39716-1	Bracket	0.071 x 3.0 x 6.8	7075-T6	QQ-A-250/12(T6)	Replace
38	66C39717-1	Bracket	0.071 x 1.8 x 4.3	7075-T6	QQ-A-250/12(T6)	Replace
39	66C39717-3	Bracket	0.071 x 1.8 x 3.7	7075-T6	QQ-A-250/12(T6)	Replace
40	66J40259-6	Strap	0.071 x 1.3 x 27.6	7075-T6	QQ-A-250/12(T6)	10-10E
41	66E39724-1	Beam	0.071 x 13.7 x 25.8	7075-T6	QQ-A-250/12(T6)	10-10A, 10-10C
42	66C39719-1	Filler	0.1 x 2.36 x 5.30	7075-T6	QQ-A-250/12(T6)	Replace
43	66J40259-2	Plate	0.16 x 7.0 x 8.3	2024-T3	QQ-A-250/4(T3)	Replace
44	66C39714-1	Channel	0.071 x 4.2 x 3.9	7075-T6	QQ-A-250/12(T6)	Replace
45	66C39722-1	Bracket	0.071 x 1.7 x 6.0	7075-T6	QQ-A-250/12(T6)	Replace
46	66C40675-1	Hinge Plate	0.25 x 4.1 x 5.2	4130 Cond A	MIL-S-18729	Replace
47	66C39716-2	Bracket	0.071 x 3.0 x 6.8	7075-T6	QQ-A-250/12(T6)	Replace
48	66C40684-1	Rib	0.071 x 3.8 x 11.2	7075-T6	QQ-A-250/12(T6)	10-10A, 10-10C

*Leave in as welded condition.

Figure 4-16B. Aerial Refueling Slipway Door and Hinge Supports, F-106A (Sheet 2 of 3)

Applicable after incorporation of TCTO 1F-106-986

KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
49	66C39714-2	Channel	0.071 x 4.2 x 3.9	7075-T6	QQ-A-250/12(T6)	Replace
50	66C40675-2	Hinge Plate	0.25 x 4.1 x 5.2	4130 Cond A	MIL-S-18729	Replace
51	66C40672-1	Adapter	1.5 x 3.0 x 4.0	7075-T651	QQ-A-250/12(T651)	Replace
52	66C40686-1	Angle	0.071 x 2.7 x 11.0	7075-T6	QQ-A-250/12(T6)	10-10A
53	66C40687-1	Angle	0.08 x 4.5 x 16.8	7075-T6	QQ-A-250/12(T6)	10-10A
54	66E40248-2	Support		4130 Cond A or N	MIL-S-18729	Replace
		(Weldment)				
55	66J40429-7	Plate	0.125 x 1.7 x 6.0	4130 Cond A or N	MIL-S-18729	Replace
56	66D40255-2	Support		4130 Cond A or N	MIL-S-18729	10-10E
		(Weldment)				
57	66D40262-2	Support		4130 Cond A or N	MIL-S-18729	10-10E
		(Weldment)				
58	66J40249-4	Angle	0.19 x 2.31 x 4.5	4130 Cond A or N	MIL-S-18729	Replace
59	66J40249-6	Plate	0.125 x 1.7 x 2.3	7075 Cond A or N	QQ-A-250/12	Replace
60	66J40249-3	Angle	0.19 x 2.31 x 4.5	4130 Cond A or N	MIL-S-18729	Replace
61	66E40248-1	Support		4130 Cond A or N	MIL-S-18729	Replace
		(Weldment)				
62	66D40255-1	Support		4130 Cond A or N	MIL-S-18729	10-10E
		(Weldment)				
63	66J40249-5	Plate	0.125 x 1.7 x 6.0	4130 Cond A or N	MIL-S-18729	Replace
64	66D40262-1	Support		4130 Cond A or N	MIL-S-18729	10-10E
		(Weldment)				

Figure 4-16B. Aerial Refueling Slipway Door and Hinge Supports, F-106A (Sheet 3 of 3)
Applicable after incorporation of TCTO 1F-106-986

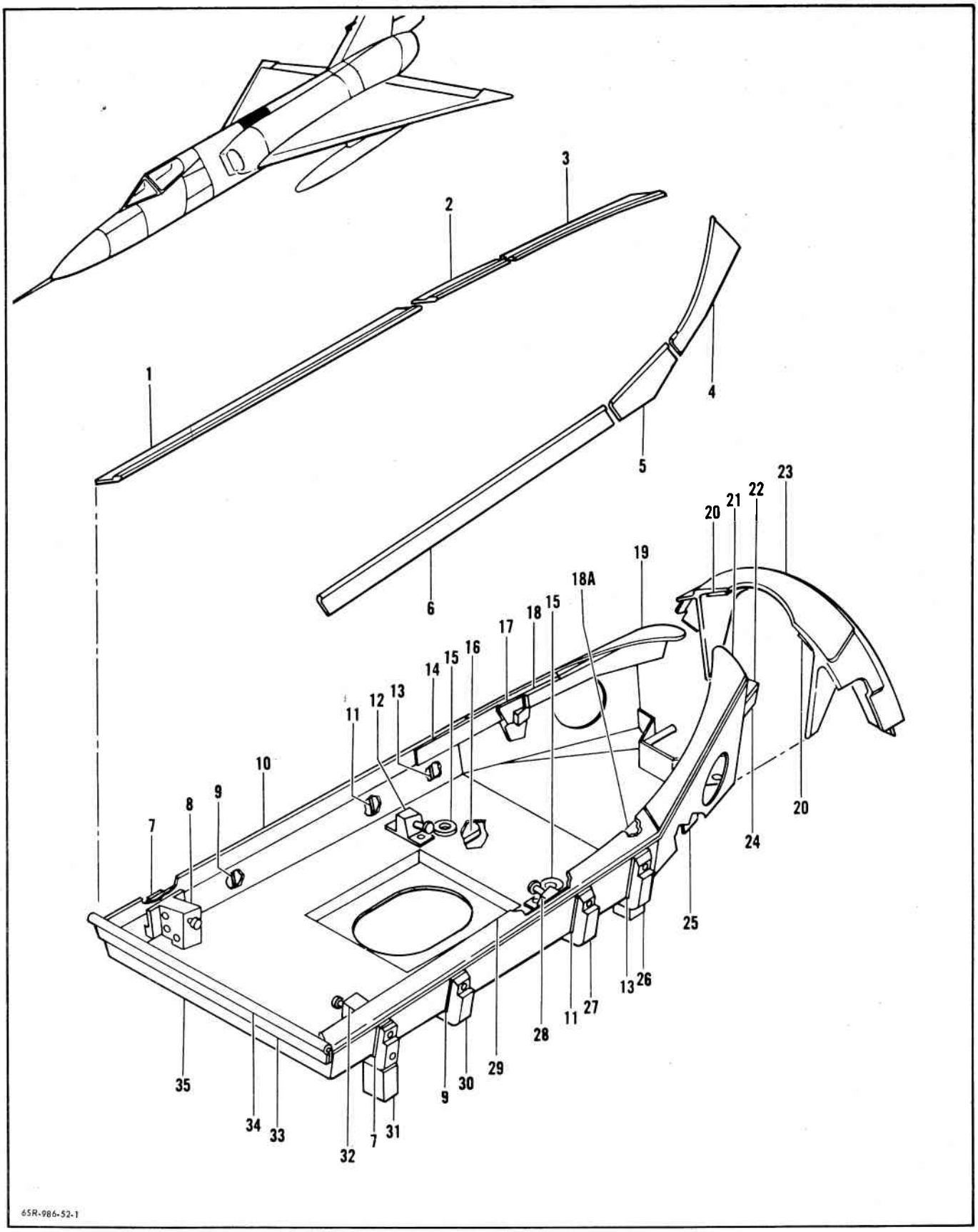


Figure 4-16C. Aerial Refueling Dorsal Sections, F-106A, Stations 320.0 to 370.7 (Sheet 1 of 4)
Applicable after incorporation of TCTO 1F-106-986

KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	66C39842-2	Guard	0.25 x 1.4 x 24.0	7075-T6	QQ-A-250/12(T6)	Replace*
2	66C39845-2	Striker	0.25 x 3.0 x 7.0	7075-T6	QQ-A-250/12(T6)	Replace
3	66C39843-2	Striker	0.25 x 2.5 x 10.0	7075-T651	QQ-A-250/12(T651)	Replace
4	66C39843-1	Striker	0.25 x 2.5 x 10.0	7075-T651	QQ-A-250/12(T651)	Replace
5	66C39845-1	Striker	0.25 x 3.0 x 7.0	7075-T6	QQ-A-250/12(T6)	Replace
6	66C39842-1	Guard	0.25 x 1.4 x 24.0	7075-T6	QQ-A-250/12(T6)	Replace*
7	66J40246-5	Shim	0.032 x 2.40		AMS 4013	Replace
8	66D39811-2	Stop	2.5 x 3.5 x 3.5	7079-T651	QQ-A-250/17(T65)	Replace
9	66J40246-4	Shim	0.032 x 2.60		AMS 4013	Replace
10	66D39818-2	Angle	0.10 x 4.0 x 28.0	7075-T6	QQ-A-250/13(T6)	Replace
11	66J40246-3	Shim	0.032 x 2.90		AMS 4013	Replace
12	66D39810-2	Stop	1.25 x 1.375 x 2.75	7079-T651	QQ-A-250/17(T651)	Replace
13	66J40246-2	Shim	0.032 x 3.00		AMS 4013	Replace
14	66D39819-4	Angle	0.10 x 8.0 x 10.0	7075-T6	QQ-A-250/13(T6)	Replace
15	MS35489-14	Grommet	1/16 x 5/16	Rubber	MIL-G-3036	Replace
16	66J39816-7	Channel	0.050 x 3.50 x 3.50	2024-T3	QQ-A-250/4(T3)	Replace
17	66C39804-2	Receptacle	1.0 x 2.75 x 3.5	7075-T651	QQ-A-250/12(T651)	Replace
18	66C39851-2	Probe	0.875 x 2.25 x 9.0	7075-T651	QQ-A-250/12(T651)	Replace
18A	66D39819-3	Angle	0.10 x 8.0 x 11.0	7075-T6	QQ-A-250/13(T6)	Replace
19	66D39817-6	Angle	0.10 x 5.0 x 12.0	7075-T6	QQ-A-250/13(T6)	Replace
20	66J39840-27	Filler	0.125 x 0.8 x 1.5	2024-T6	QQ-A-250/12(T6)	Replace
21	66D39817-5	Angle	0.10 x 5.0 x 12.0	7075-T6	QQ-A-250/13(T6)	Replace
22	66C39851-1	Probe	0.875 x 2.25 x 9.0	7075-T651	QQ-A-250/12(T651)	Replace
23	66J40443-1	Dorsal Section	4.0 x 7.75 x 19.5	7079-T651	QQ-A-250/17(T651)	10-9
24	66J40443-3 ***	Dorsal Section	4.0 x 7.75 x 19.5	7075-T651	QQ-A-250/12(T651)	10-9
25	66J39840-24	Filler	0.160 x 1.35 x 1.5	2024-T3	QQ-A-250/4(T3)	Replace
26	66C39804-1	Receptacle	1.0 x 2.75 x 3.5	7075-T651	QQ-A-250/12(T651)	Replace
27	66D39824-1	Strap (Weldment-Cad. Plate)		4130	MIL-S-18729	Replace
28	66D39826-1	Strap	0.625 x 1.25 x 21.5	4130-Cond N	MIL-S-18729(N)	Replace
29	66D39810-1	Stop	1.25 x 1.375 x 2.75	7079-T651	QQ-A-250/17(T651)	Replace
30	66D39818-1	Angle	0.10 x 4.0 x 28.0	7075-T6	QQ-A-250/13(T6)	Replace
31	66D39856-1	Strap	0.625 x 1.25 x 20.5	4130-Cond N	MIL-S-18729(N)	Replace
32	66D39825-1	Strap (Weldment-Cad. Plate)		4130	MIL-S-18729	Replace
33	66D39811-1	Stop	2.5 x 3.5 x 3.5	7079-T651	QQ-A-250/17(T651)	Replace
34	66J39816-5	Strap	0.050 x 0.63 x 20.0	2024-T3	WW-T-700/6 Typ 1(T3)	Replace
35	66J39816-11	Seal	18.0	Silicone Rubber	MIL-R-25988	Replace
36	66J39816-9	Pan (Weldment)		6061-T6	QQ-A-250/11(T6)	10-2, 10-10B, 10-10E**
37	66J39806-2	Skin Assy (Weldment)		7075-T6	QQ-A-250/12(T6)	4-18G
38	66E39841-1	Skin Assy (Weldment)		2024-T3	QQ-A-250/4(T3)	4-16F, 4-16G, 10-10C
39	66J39840-29	Clip	0.5 x 1.16 x 2.68	2024-T6	QQ-A-250/12(T6)	Replace
40	66J39840-28	Clip	0.5 x 1.16 x 2.68	2024-T6	QQ-A-250/12(T6)	Replace
41	67E36507-1	Hat	0.040 x 2.5 x 50.0	7075-T6	QQ-A-250/12(T6)	10-10A, 10-10C
42	66J39806-1	Skin Assy (Weldment)		7075-T6	QQ-A-250/12(T6)	4-18G
43	66J39840-17	Angle	0.063 x 1.6 x 2.67	2024-T42	QQ-A-250/4(T42)	Replace
44	66C39796-2	Intercostal	0.063 x 5.0 x 5.0	7075-T6	QQ-A-250/12(T6)	Replace
45	66J39840-4	Angle	0.063 x 1.6 x 2.67	2024-T42	QQ-A-250/4(T42)	Replace
46	66J39840-19	Angle	0.063 x 1.6 x 2.64	2024-T42	QQ-A-250/4(T42)	Replace
47	66C39798-2	Intercostal	0.063 x 4.2 x 5.4	7075-T6	QQ-A-250/12(T6)	Replace
48	66J39840-6	Angle	0.063 x 1.6 x 2.64	2024-T42	QQ-A-250/4(T42)	Replace
49	66J39840-21	Angle	0.063 x 1.6 x 2.74	2024-T42	QQ-A-250/4(T42)	Replace

*Portion of guard may be replaced. Butt joints must be above dorsal ribs.

Seal repair using EC1291. * Suitable sub for 66J40443-1

Figure 4-16C. Aerial Refueling Dorsal Sections, F-106A, Stations 320.0 to 370.7 (Sheet 2 of 4)

Applicable after incorporation of TCTO 1F-106-986

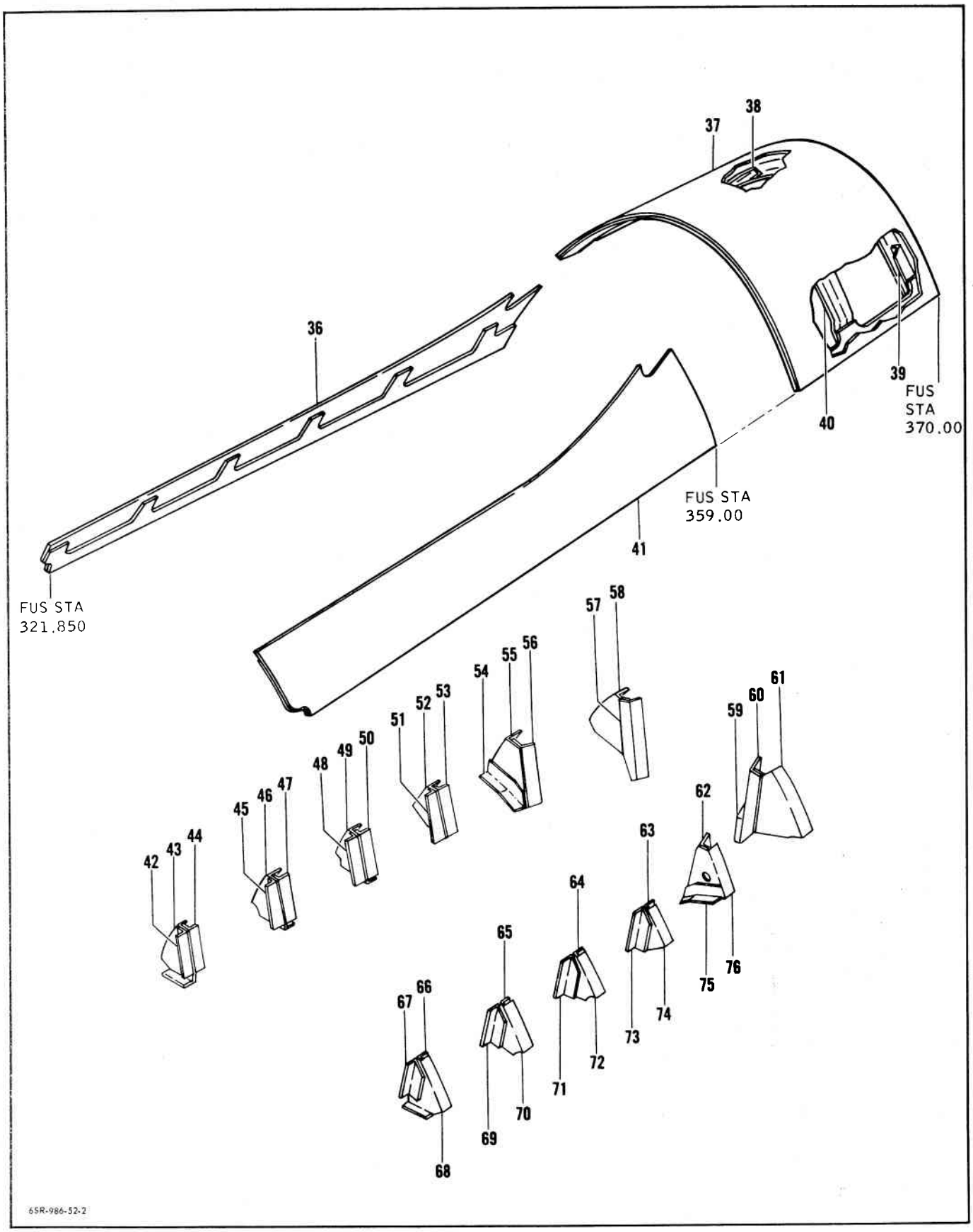
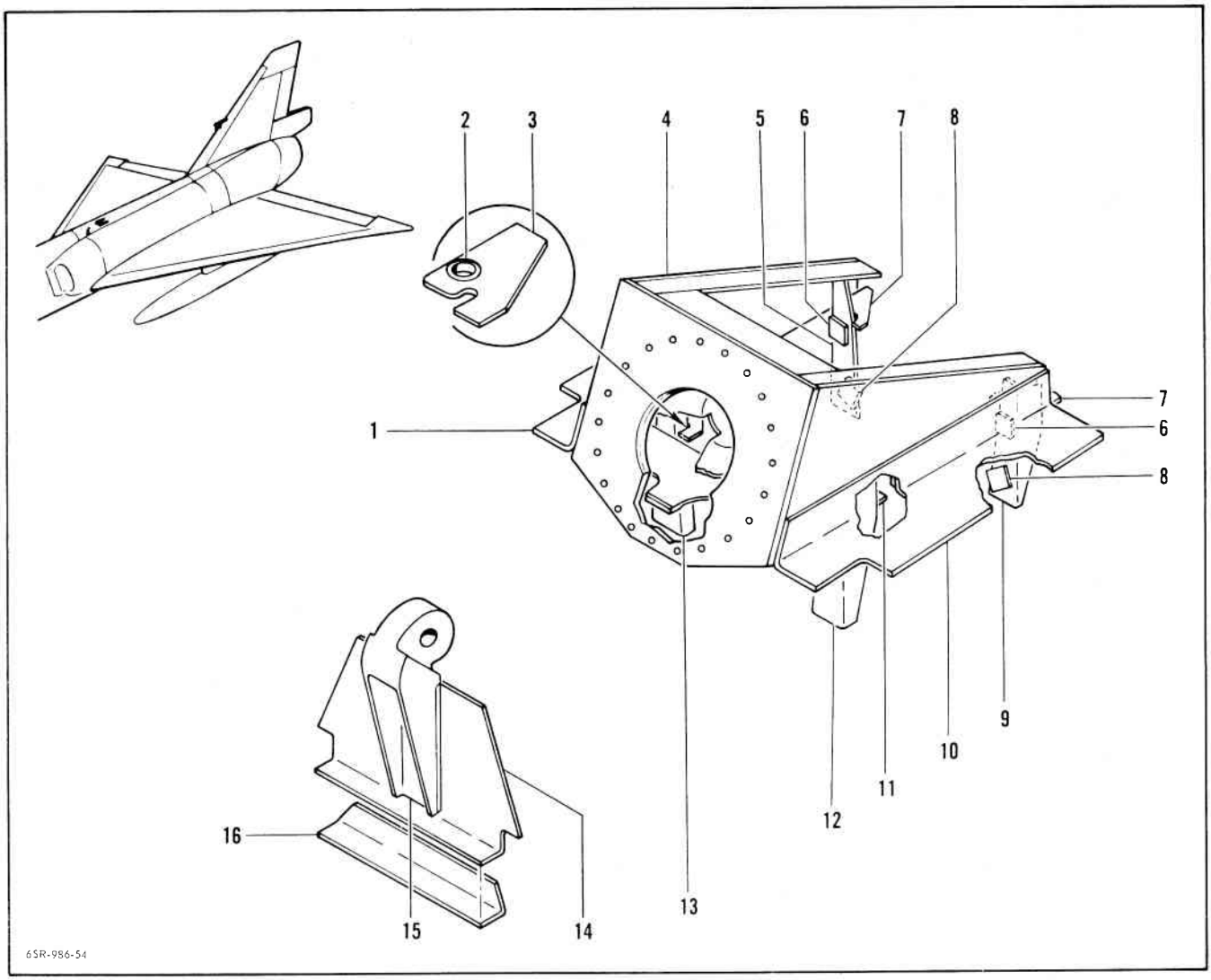


Figure 4-16C. Aerial Refueling Dorsal Sections, F-106A, Stations 320.0 to 370.7 (Sheet 3 of 4)
Applicable after incorporation of TCTO 1F-106-986

KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
49	66C39798-4	Intercostal	0.063 x 4.5 x 5.5	7075-T6	QQ-A-250/12(T6)	Replace
50	66J39840-8	Angle	0.063 x 1.6 x 2.74	2024-T42	QQ-A-250/4(T42)	Replace
51	66J39840-23	Angle	0.063 x 1.6 x 2.93	2024-T42	QQ-A-250/4(T42)	Replace
52	66C39799-2	Intercostal	0.063 x 3.3 x 4.3	7075-T6	QQ-A-250/12(T6)	Replace
53	66J39840-10	Angle	0.063 x 1.6 x 2.93	2024-T42	QQ- A-250/4(T42)	Replace
54	66J39840-26	Angle	0.163 x 1.5 x 3.5	2024-T42	QQ-A-250/4(T42)	Replace
55	66C39797-2	Support	0.050 x 4.4 x 5.8	7075-T6	QQ-A-250/12(T6)	Replace
56	66J39840-12	Angle	0.063 x 1.5 x 4.12	2024-T42	QQ-A-250/4(T42)	Replace
57	66J39840-14	Angle	0.063 x 1.5 x 6.5	2024-T42	QQ-A-250/4(T42)	Replace
58	66C39803-2	Support	0.05 x 5.8 x 5.8	7075-T6	QQ-A-250/12(T6)	10-10A, 10-10B
59	66J39840-2	Filler	0.160 x 0.8 x 1.0	7075-T6	QQ-A-250/12(T6)	Replace
60	66J39840-13	Angle	0.063 x 1.5 x 6.5	2024-T42	QQ-A-250/4(T42)	Replace
61	66C39803-1	Support	0.05 x 5.8 x 5.8	7075-T6	QQ-A-250/12(T6)	10-10A, 10-10B
62	66J39840-11	Angle	0.063 x 1.5 x 4.12	2024-T42	QQ-A-250/4(T42)	Replace
63	66J39840-9	Angle	0.063 x 1.6 x 2.93	2024-T42	QQ-A-250/4(T42)	Replace
64	66J39840-7	Angle	0.063 x 1.6 x 2.74	2024-T42	QQ-A-250/4(T42)	Replace
65	66J39840-5	Angle	0.063 x 1.6 x 2.64	2024-T42	QQ-A-250/4(T42)	Replace
66	66J39840-3	Angle	0.063 x 1.6 x 2.67	2024-T42	QQ-A-250/4(T42)	Replace
67	66J39840-16	Angle	0.063 x 1.6 x 2.67	2024-T42	QQ-A-250/4(T42)	Replace
68	66C39796-1	Intercostal	0.063 x 5.0 x 5.0	7075-T6	QQ-A-250/12(T6)	Replace
69	66J39840-18	Angle	0.063 x 1.6 x 2.64	2024-T42	QQ-A-250/4(T42)	Replace
70	66C39798-1	Intercostal	0.063 x 4.2 x 5.4	7075-T6	QQ-A-250/12(T6)	Replace
71	66J39840-20	Angle	0.063 x 1.6 x 2.74	2024-T42	QQ-A-250/4(T42)	Replace
72	66C39798-3	Intercostal	0.063 x 4.5 x 5.5	7075-T6	QQ-A-250/12(T6)	Replace
73	66J39840-22	Angle	0.063 x 1.6 x 2.93	2024-T42	QQ-A-250/4(T42)	Replace
74	66C39799-1	Intercostal	0.063 x 3.3 x 4.3	7075-T6	QQ-A-250/12(T6)	Replace
75	66J39840-25	Angle	0.163 x 1.5 x 3.5	2024-T42	QQ-A-250/4(T42)	Replace
76	66C39797-1	Support	0.050 x 4.4 x 5.8	7075-T6	QQ-A-250/12(T6)	Replace

Figure 4-16C. Aerial Refueling Dorsal Sections, F-106A, Stations 320.0 to 370.7 (Sheet 4 of 4)
Applicable after incorporation of TCTO 1F-106-986



KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	66J40250-9	Angle	0.16 x 4.4 x 11.2	7075-T6	QQ-A-250/12(T6)	Replace
2	MS35489-11	Grommet	1/16 x 7/32	Rubber	MIL-G-3036	Replace
3	66J40250-13	Plate	0.05 x 2.0 x 3.0	7075-T6	QQ-A-250/13(T6)	Replace
4	66J40971-1	Support (Weldment)		6061-T651	QQ-A-250/11(T651)	10-10E
5	66J40250-18	Support	0.09 x 2.5 x 4.95	7075-T6	QQ-A-250/12(T6)	Replace
6	66J40250-6	Filler	0.08 x 0.8 x 0.8	7075-T6	QQ-A-250/12(T6)	Replace
7	66J40250-12	Plate	0.05 x 2.0 x 2.5	7075-T6	QQ-A-250/13(T6)	Replace
8	66J40250-7	Filler	0.125 x 0.8 x 0.8	7075-T6	QQ-A-250/12(T6)	Replace
9	66J40250-17	Support	0.09 x 2.5 x 4.95	7075-T6	QQ-A-250/12(T6)	Replace
10	66J40250-8	Angle	0.16 x 4.4 x 11.2	7075-T6	QQ-A-250/12(T6)	Replace
11	66J40250-14	Plate	0.05 x 2.0 x 3.0	7075-T6	QQ-A-250/13(T6)	Replace
12	66J40250-2	Support	0.09 x 3.7 x 9.0	7075-T6	QQ-A-250/12(T6)	Replace
13	66J40250-3	Support	0.09 x 3.7 x 9.0	7075-T6	QQ-A-250/12(T6)	Replace
14	66J40250-16	Support	0.063 x 7.0 x 9.0	7075-T6	QQ-A-250/12(T6)	Replace
15	66D40251-1	Support	2.0 x 2.5 x 7.0	7075-T651	QQ-A-250/12(T651)	Replace
16	66J40250-10	Angle	0.063 x 1.8 x 6.6	7075-T6	QQ-A-250/12(T6)	Replace

Figure 4-16D. Aerial Refueling Receptacle Support, F-106A
Applicable after incorporation of TCTO 1F-106-986

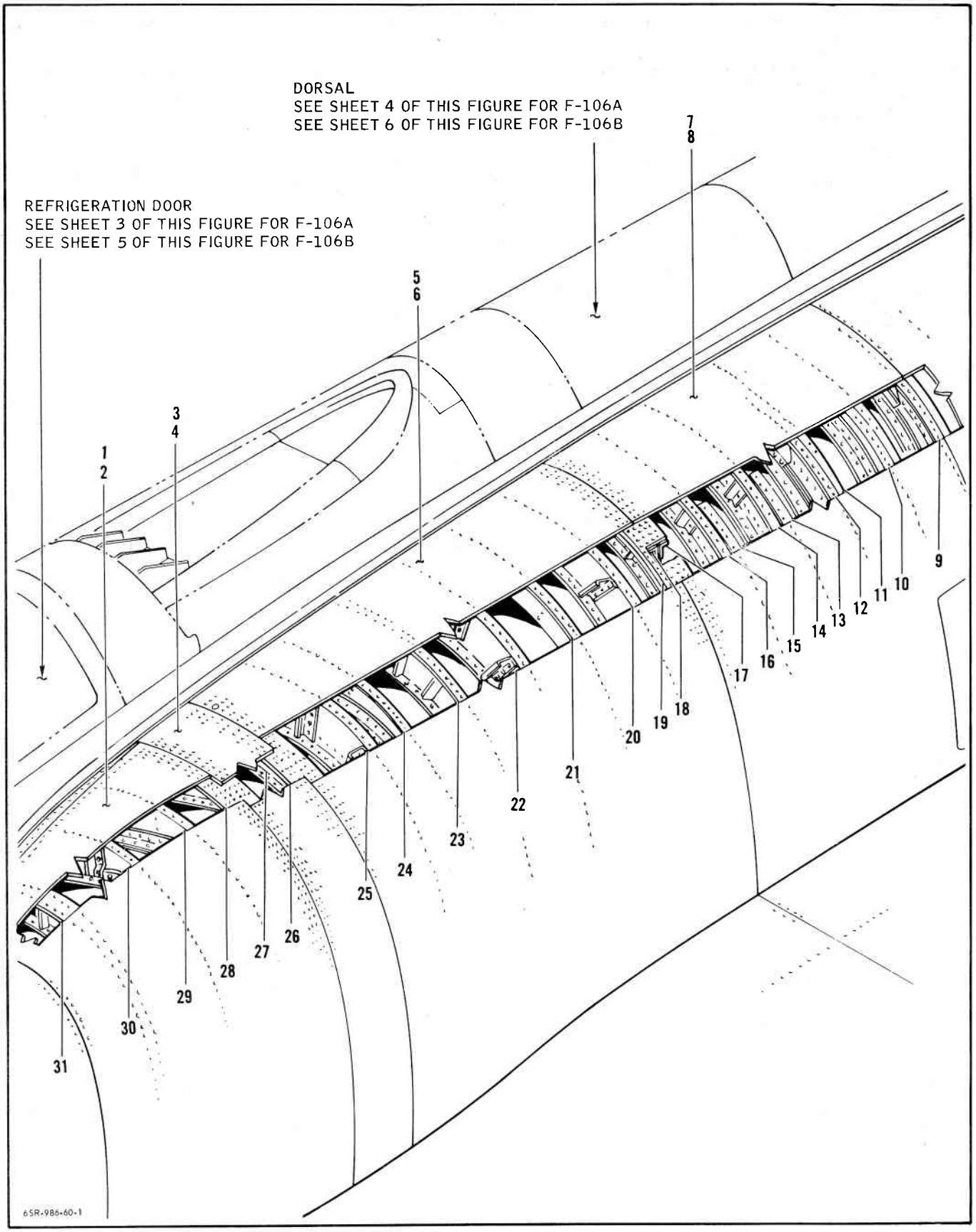


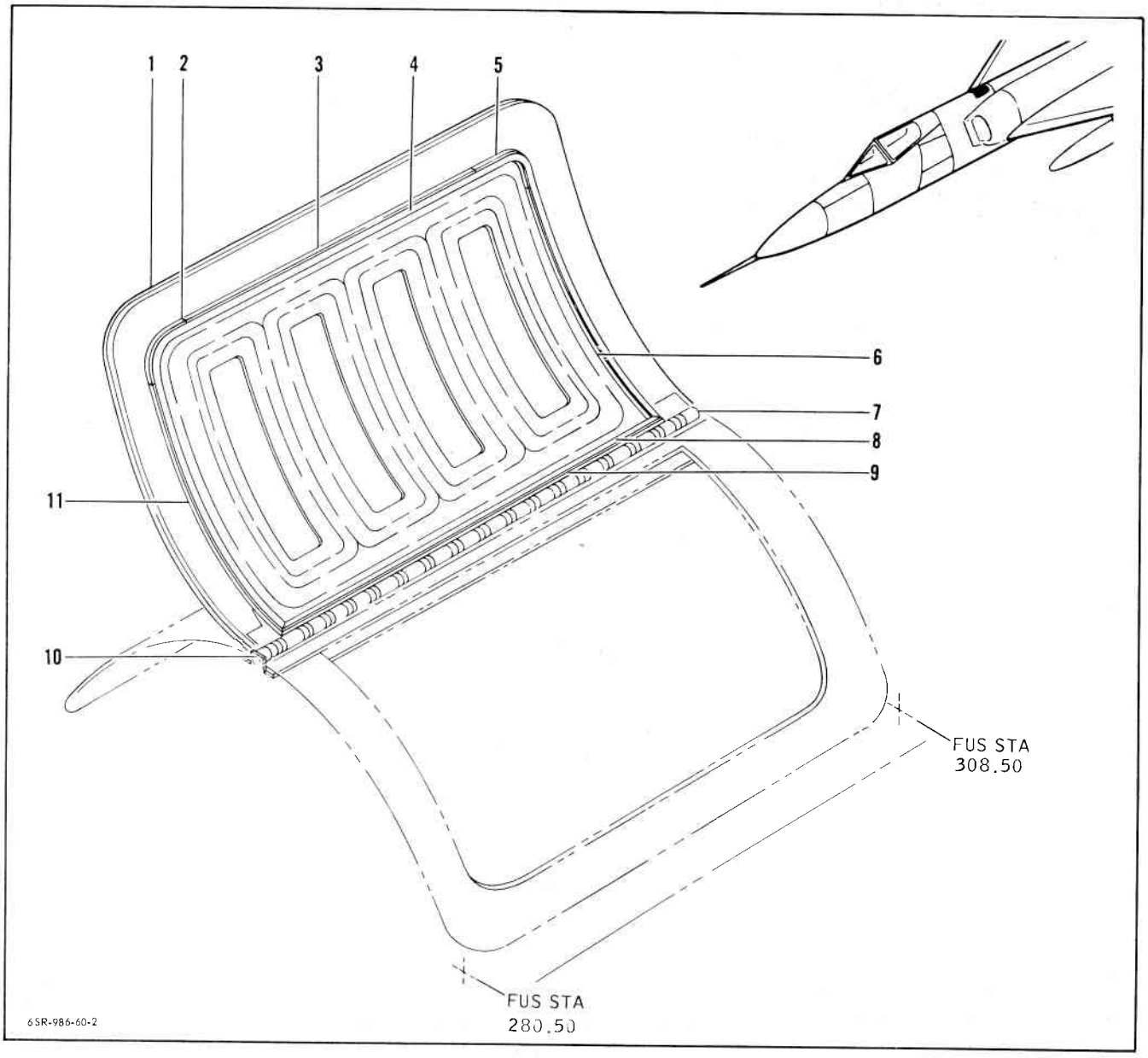
Figure 4-16E. Aerial Refueling Adjacent Area Structure F-106A and F-106B (Sheet 1 of 6)

KEY NO.	*DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	8-74566-7(-17)	Skin, F-106A	0.04 x 28.5 x 71.5	7178-T6	MIL-A-9180(T6)	4-18B
2	8-76566-69(-71)	Skin, F-106B	0.04 x 28.5 x 71.5	7178-T6	MIL-A-9180(T6)	4-18B
3	8-74566-11(-12)	Skin, F-106A	0.04 x 8.0 x 66.0	7178-T6	MIL-A-9180(T6)	4-18B
4	8-76566-11(-12)	Skin, F-106B	0.04 x 8.0 x 66.0	7178-T6	MIL-A-9180(T6)	4-18B
5	8-74476-7(-8)	Skin, F-106A	0.04 x 49.0 x 66.0	7178-T6	MIL-A-9180(T6)	4-18B**
6	8-76476-7(-8)	Skin, F-106A	0.04 x 49.0 x 66.0	7178-T6	MIL-A-9180(T6)	4-18B**
7	8-74477-733(-734)	Skin, F-106B	0.05 x 48.1 x 65.0	7178-T6	MIL-A-9180(T6)	4-18B**
8	8-74477-739(-739)	Skin, F-106B	0.05 x 48.1 x 65.0	7178-T6	MIL-A-9180(T6)	4-18B**
9	8-74785-7(-8)	Frame Channel	0.045 x 30.3 x 40.1	7178-T6	MIL-A-9180(T6)	10-10A
10	8-74784-7(-8)	Frame Channel	0.045 x 31.8 x 39.4	7178-T6	MIL-A-9180(T6)	10-10A
11	8-74783-7(-8)	Frame	0.05 x 35.0 x 59.0	7178-T6	MIL-A-9180(T6)	10-10A
12	8-74783-111(-112)	Channel	0.05 x 17.5 x 52.9	7178-T6	MIL-A-9180(T6)	10-10A
13	8-74782-129(-130)	Frame Channel	0.05 x 15.2 x 50.0	7178-T6	MIL-A-9180(T6)	10-10A
14	8-74782-85(-86)	Channel	0.05 x 34.7 x 59.0	7178-T6	MIL-A-9180(T6)	10-10A
15	8-74781-11(-12)	Frame	0.05 x 34.6 x 58.1	7178-T6	MIL-A-9180(T6)	10-10A
16	8-74781-97(-98)	Channel	0.05 x 20.6 x 47.0	7178-T6	MIL-A-9180(T6)	10-10A
17	8-74780-9(-10)	Bulkhead Angle	0.08 x 3.0 x 62.0	7178-T6	MIL-A-9180(T6)	10-10A
18	8-74780-11(-12)	Bulkhead Angle	0.08 x 3.0 x 62.0	7178-T6	MIL-A-9180(T6)	10-10A
19	8-74780-13(-14)	Strap	0.188 x 4.5 x 71.2	7178-T6	MIL-A-9180(T6)	Table 4-1
20	8-74776-19(-20)	Frame	0.063 x 43.5 x 58.2	7178-T6	MIL-A-9180(T6)	10-10A
21	8-74775-35(-36)	Frame	0.063 x 44.2 x 46.8	7178-T6	MIL-A-9180(T6)	10-10A
22	8-74774-15(-16)	Frame	0.063 x 32.5 x 60.0	7178-T6	MIL-A-9180(T6)	10-10A
23	8-74773-7(-8)	Frame	0.063 x 29.1 x 57.3	7178-T6	MIL-A-9180(T6)	10-10A
24	8-74772-83(-84)	Frame	0.063 x 46.0 x 46.0	7178-T6	MIL-A-9198(T6)	10-10A
25	8-74771-7(-8)	Frame	0.064 x 45.5 x 50.0	7178-T6	MIL-A-9198(T6)	10-10A
26	8-74770-7(-8)	Doubler	0.05 x 5.2 x 63.0	7178-T6	MIL-A-9180(T6)	Table 4-1
27	8-74798-83(-84)	Bulkhead	1.75 x 50.0 x 60.0	7075-T6	0-01027	10-9
28	8-74580-7(-9)	Frame	0.05 x 32.0 x 51.0	7178-T6	MIL-A-9180(T6)	10-10A
29	8-74579-67(-68)	Frame	0.063 x 29.0 x 51.0	7178-T6	MIL-A-9180(T6)	10-10A
30	8-74578-7(-8)	Frame	0.063 x 29.0 x 50.0	7178-T6	MIL-A-9180(T6)	10-10A
31	8-74577-75(-76)	Frame	0.05 x 28.5 x 49.0	7178-T6	MIL-A-9180(T6)	10-10A

*Dash numbers following drawing numbers are for left inlet duct.
Dash number in parenthesis is for right inlet duct.

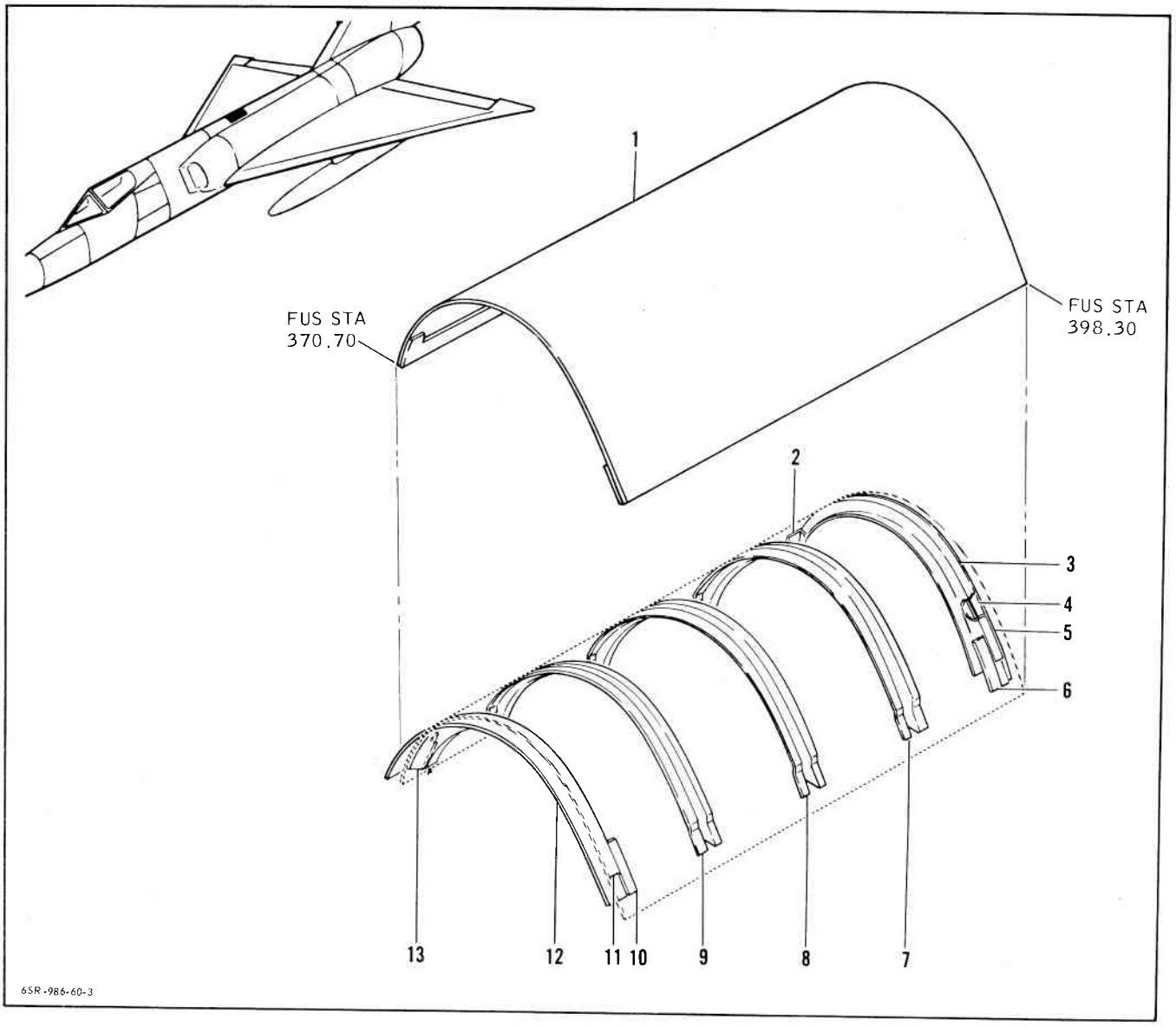
**This repair is limited to the upper 25 inches of this skin with the following exceptions:
(1) These repairs do not apply where CRES rivets (XA14) Q4304 (97-67001-XXX) are used.
(2) No cutout hole permitted in repair doubler.
(3) Use 2-1/2 rows of NAS 1399MW4 rivets.
(4) Two inner rows of rivets to be at 0.50 inch pitch; outer row at 1.00 inch pitch.

Figure 4-16E. Aerial Refueling Adjacent Area Structure F-106A and F-106B (Sheet 2 of 6)



KEY NO.	*DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	8-74946-19(-20)	Door (Weldment)	0.063 x 18.9 x 27.8	7178-T6	MIL-A-9180	4-16F
2	8-74946-33(-34)	Retainer	E571001 x 6.1	6061-T6	QQ-A-270(T6)	Replace
3	8-74946-35(-36)	Retainer	E571001 x 16.9	6061-T6	QQ-A-270(T6)	Replace
4	8-74946-15(-15)	Seal	MFQ2531 x 53.8	Rubber	Rub. Extr. 351975	Replace
5	8-74946-39(-40)	Retainer	E571001 x 6.1	6061-T6	QQ-A-270(T6)	Replace
6	8-74946-37(-38)	Retainer	E571001 x 11.7	6061-T6	QQ-A-270(T6)	Replace
7	8-77726-7(-7)	Hinge	E491134 x 27.6	7178-T6	MIL-A-9186	**
8	8-74946-17(-17)	Seal	MFQ2531 x 23.9	Rubber	Rub. Extr. 351975	Replace
9	8-74946-29(-30)	Retainer	E571001 x 24.1	6061-T6	QQ-A-270(T6)	Replace
10	8-74946-23(-23)	Pin	0.120 x 27.6	Cres Typ 302	QQ-W-423 Cond B	Replace
11	8-74946-31(-32)	Retainer	E571001 x 12.7	6061-T6	QQ-A-270(T6)	Replace
*Dash numbers following drawing number is for left inlet duct. Dash numbers in parenthesis is for right inlet duct.						
**Cut out damaged section and replace; no splice required.						

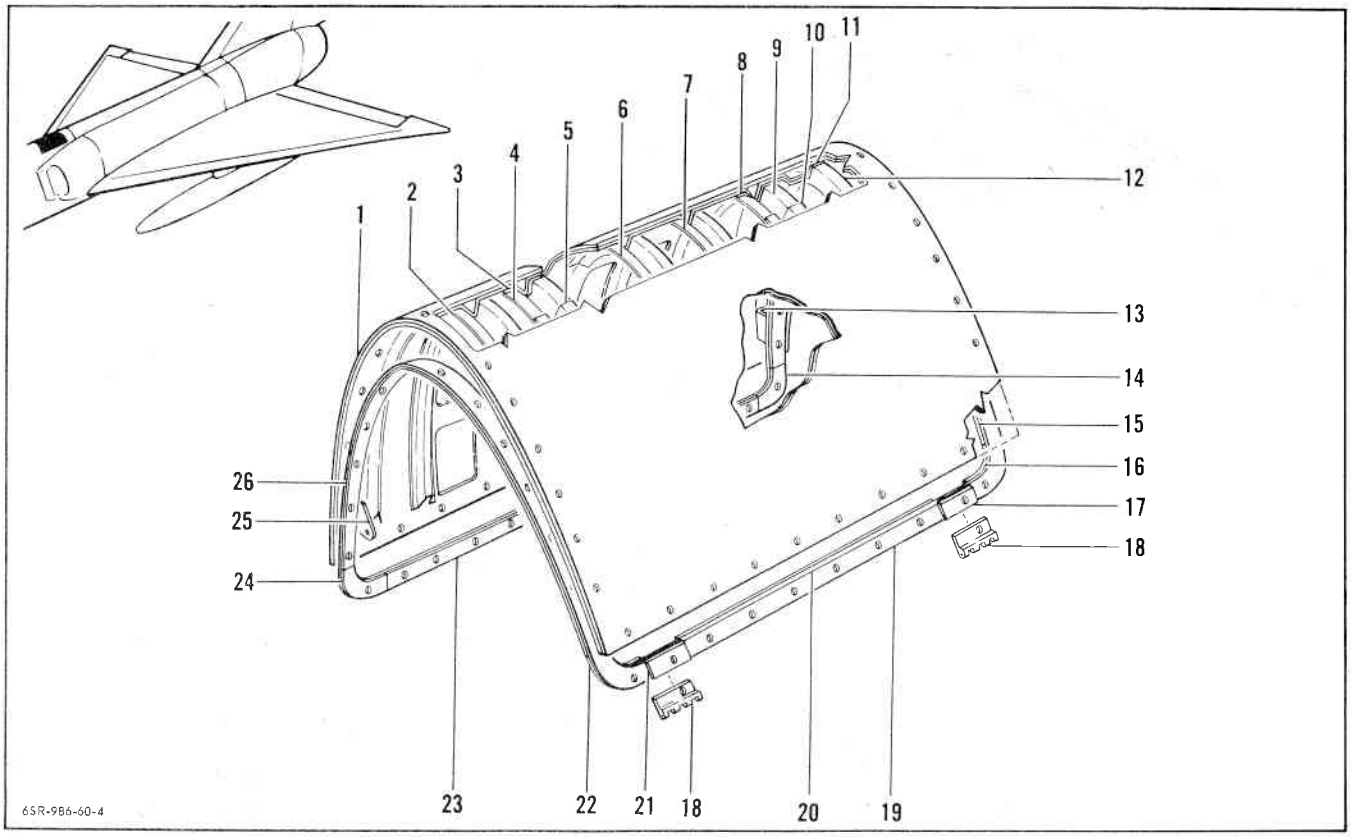
Figure 4-16E. Aerial Refueling Adjacent Area Structure F-106A and F-106B (Sheet 3 of 6)



KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	8-74498-141	Skin (Weldment)	.040 x 25.00 x 19.00	AZ31A	QQ-M-44	10-10C, 10-10E
2	8-74498-152	Clip	0.05 x 1.20 x 2.70	7178-T6	MIL-A-9180(T6)	Replace
3	8-74498-49	Zee	0.04 x 2.40 x 21.20	7178-T6	MIL-A-9180(T6)	10-10C
4	8-74498-69	Filler	0.025 x .50 x 21.10	7178-T6	MIL-A-9180(T6)	*
5	8-74498-79	Retainer	0.02 x 1.10 x 20.90	Cres Typ 301	MIL-S-5059(1/4 Hd)	*
6	8-74498-151	Clip	0.05 x 1.20 x 2.70	7178-T6	MIL-A-9180(T6)	Replace
7	8-74498-109	Stiffener	0.036 x 2.5 x 21.7	7178-T6	MIL-A-9180(T6)	10-10A, 10-10C
8	8-74498-107	Stiffener	0.036 x 2.5 x 21.8	7178-T6	MIL-A-9180(T6)	10-10A, 10-10C
9	8-74498-105	Stiffener	0.036 x 2.5 x 22.10	7178-T6	MIL-A-9180(T6)	10-10A, 10-10C
10	8-74498-135	Clip	0.05 x 1.2 x 2.7	7178-T6	MIL-A-9180(T6)	Replace
11	8-74498-47	Zee	0.04 x 2.00 x 22.50	7178-T6	MIL-A-9180(T6)	10-10C
12	8-74498-89	Plate	0.025 x 1.00 x 22.50	Cres Typ 301	MIL-S-5059(1/4 Hd)	*
13	8-74498-136	Clip	0.05 x 1.2 x 2.7	7178-T6	MIL-A-9180(T6)	Replace

*Cut out damaged section and replace; no splice required.

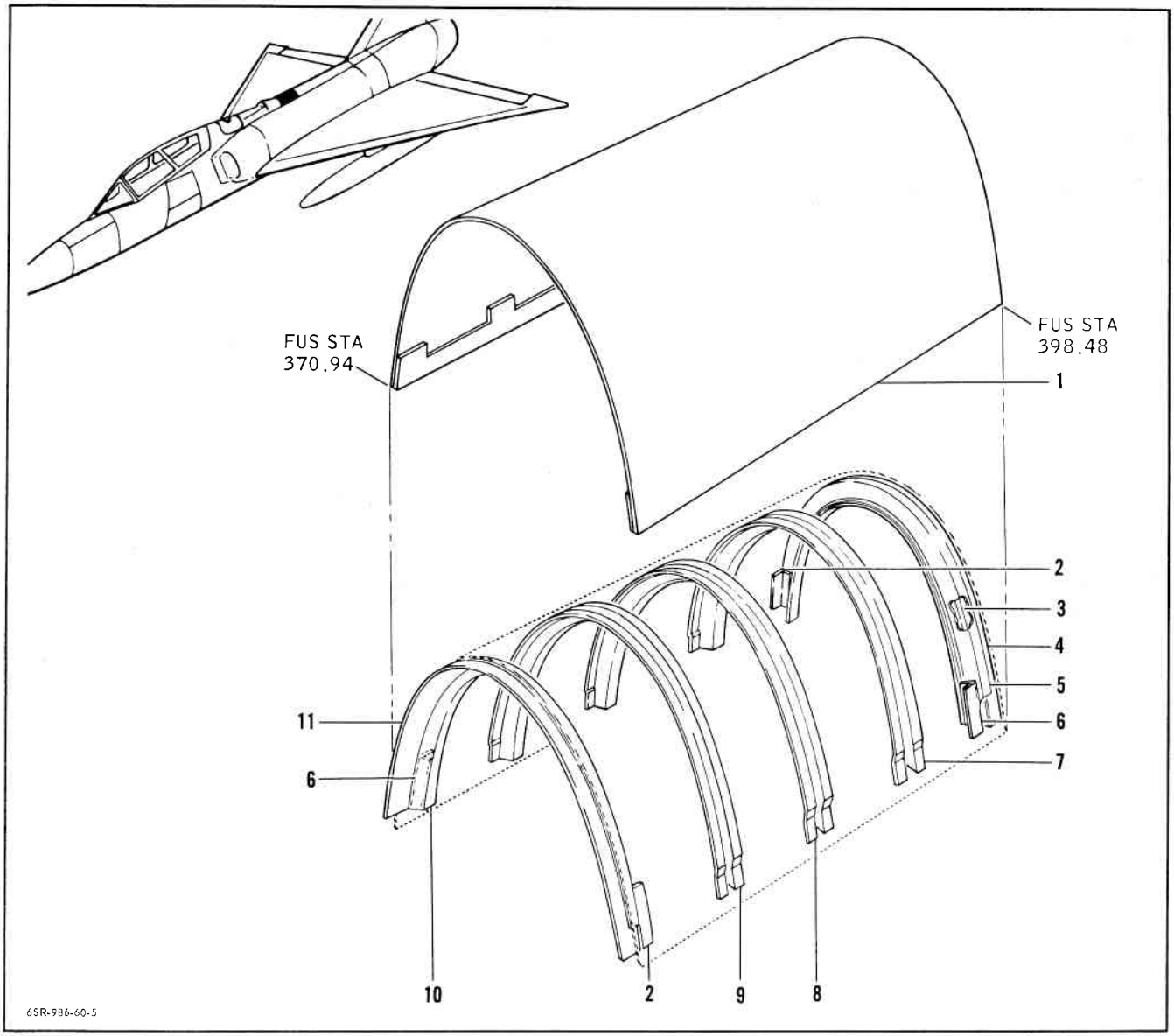
Figure 4-16E. Aerial Refueling Adjacent Area Structure F-106A and F-106B (Sheet 4 of 6)



KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	8-76942-87	Skin (Weldment)	0.063 x 18.9 x 27.8	7178-T6	MIL-A-9180(T6)	4-16F
2	8-76942-65	Splice	0.04 x 3.8 x 8.0	7178-T6	MIL-A-9180(T6)	Replace
3	8-76942-58	Frame	0.04 x 5.0 x 34.6	7178-T6	MIL-A-9180(T6)	10-10A, 10-10C
4	8-76942-61	Splice	0.04 x 5.0 x 8.0	7178-T6	MIL-A-9180(T6)	Replace
5	8-76942-57	Frame	0.04 x 5.0 x 34.6	7178-T6	MIL-A-9180(T6)	10-10A, 10-10C
6	8-76942-11	Hat	0.04 x 3.8 x 8.0	7178-T6	MIL-A-9180(T6)	10-10C
7	8-76942-67	Splice	0.04 x 3.8 x 8.0	7178-T6	MIL-A-9180(T6)	Replace
8	8-76942-60	Frame	0.04 x 5.0 x 34.6	7178-T6	MIL-A-9180(T6)	10-10A, 10-10C
9	8-76942-63	Splice	0.04 x 5.0 x 8.0	7178-T6	MIL-A-9180(T6)	Replace
10	8-76942-59	Frame	0.04 x 5.0 x 34.6	7178-T6	MIL-A-9180(T6)	10-10A, 10-10C
11	8-76942-13	Hat	0.04 x 3.8 x 8.0	7178-T6	MIL-A-9180(T6)	10-10C
12	8-76958-1	Stiffener	0.05 x 18.4 x 25.9	7075-T6	QQ-A-283(T6)	10-5
13	8-76942-15	Clip	0.063 x 1.3 x 1.8	7075-T6	QQ-A-283(T6)	Replace
14	8-76942-81	Retainer	0.09 x 3.3 x 3.4	2024-T6	QQ-A-362(T3)	Replace
15	8-76942-69	Retainer	0.09 x 0.8 x 40.5	2024-T3	QQ-A-362(T3)	*
16	8-76942-83	Retainer	0.09 x 2.9 x 3.0	2024-T3	QQ-A-362(T3)	Replace
17	8-76942-39	Filler	0.063 x 0.8 x 3.0	2024-T6	QQ-A-362(T3)	Replace
18	8-76915-7	Hinge Half	0.25 x 1.5 x 3.0	7075-T6	QQ-A-282(T6)	Replace
19	8-76942-93	Seal	Q2756 x 84.0	SUITABLE SUB-BAC1521-144		Replace
20	8-76942-71	Retainer	0.09 x 0.8 x 23.8	2024-T3	QQ-A-362(T3)	*
21	8-76942-37	Filler	0.063 x 0.8 x 3.0	2024-T6	QQ-A-362(T3)	Replace
22	8-76942-73	Retainer	0.09 x 2.6 x 3.3	2024-T3	QQ-A-362(T3)	Replace
23	8-76942-79	Retainer	0.09 x 0.8 x 30.4	2024-T6	QQ-A-362(T3)	*
24	8-76942-77	Retainer	0.09 x 3.3 x 3.4	2024-T3	QQ-A-362(T3)	Replace
25	8-76942-41	Bracket	0.063 x 2.0 x 2.4	2024-T6	QQ-A-362(T3)	Replace
26	8-76942-75	Retainer	0.09 x 0.8 x 47.0	2024-T3	QQ-A-362(T3)	*

*Cut out damaged section and replace; no splice required.

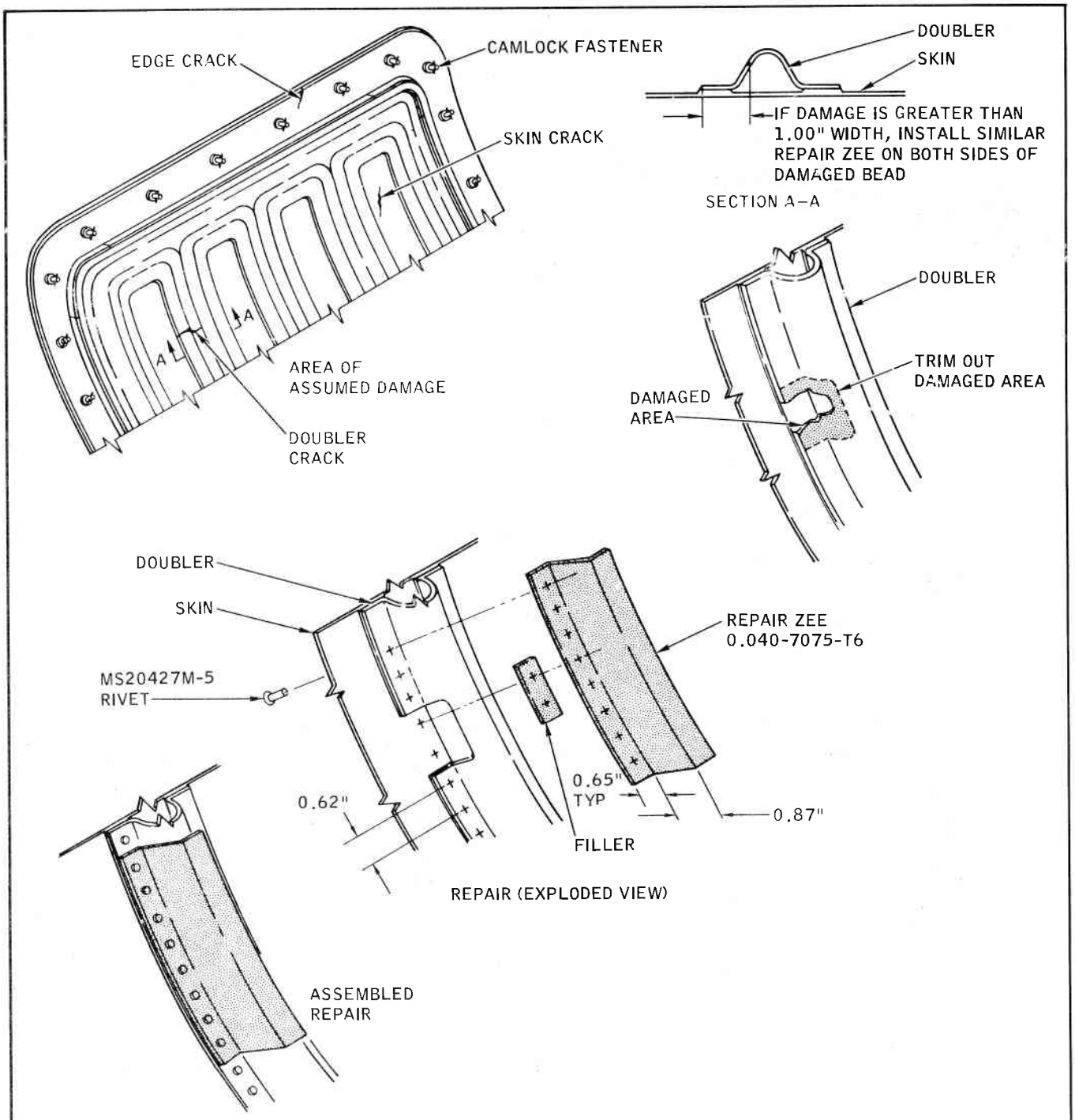
Figure 4-16E. Aerial Refueling Adjacent Area Structure F-106A and F-106B (Sheet 5 of 6)



KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	8-76498-15	Panel Assembly	0.040 x 27.7 x 37.0	AZ31B-H24	QQ-M-44(H24)	10-10C, 10-10E
		(Weldment)				
2	8-76498-39	Clip	0.05 x 1.2 x 2.7	7178-T6	MIL-A-9180	Replace
3	8-76498-41	Filler	0.025 x 50 x 29.0	7178-T6	MIL-A-9180	*
4	8-76498-97	Retainer	0.025 x 1.10 x 29.0	Cres Typ 301	MIL-S-5059(1/4 HD)	*
5	8-76498-57	Stiffener	0.040 x 2.2 x 29.0	7178-T6	MIL-A-9180	10-7, 10-10A
6	8-76498-40	Clip	0.05 x 1.2 x 2.7	7178-T6	MIL-A-9180	Replace
7	8-76498-69	Stiffener	0.040 x 2.3 x 30.1	7178-T6	MIL-A-9180	10-10A, 10-10C
8	8-76498-67	Stiffener	0.040 x 2.3 x 31.1	7178-T6	MIL-A-9180	10-10A, 10-10C
9	8-76498-65	Stiffener	0.040 x 2.3 x 30.0	7178-T6	MIL-A-9180	10-10A, 10-10C
10	8-76498-49	Stiffener	0.040 x 2.0 x 34.4	7178-T6	MIL-A-9180	10-7, 10-10A
11	8-76498-89	Plate	0.025 x 1.0 x 34.0	Cres Typ 301	MIL-S-5059(1/4 HD)	*

*Cutout damaged section and replace; no splice required.

Figure 4-16E. Aerial Refueling Adjacent Area Structure F-106A and F-106B (Sheet 6 of 6)



REPAIR PROCEDURE

a. Repair skin per flush patch skin repair or flat plate edge repair in Section X. Patch doubler may be installed on external side of skin where installation difficulty is encountered. Chamfer edges of external patch doubler 45 degrees. Install flush plate where needed as a filler.

b. Edge cuts or cracks of less than 0.75 inch length and not closer than 0.50 inch from Camloc fasteners, may be stop drilled and edges smoothed.

c. Repair doubler bead by trimming out damaged area.

d. Fabricate zee repair part from 0.040 - 7075 stock. Dimension and heat treat as shown.

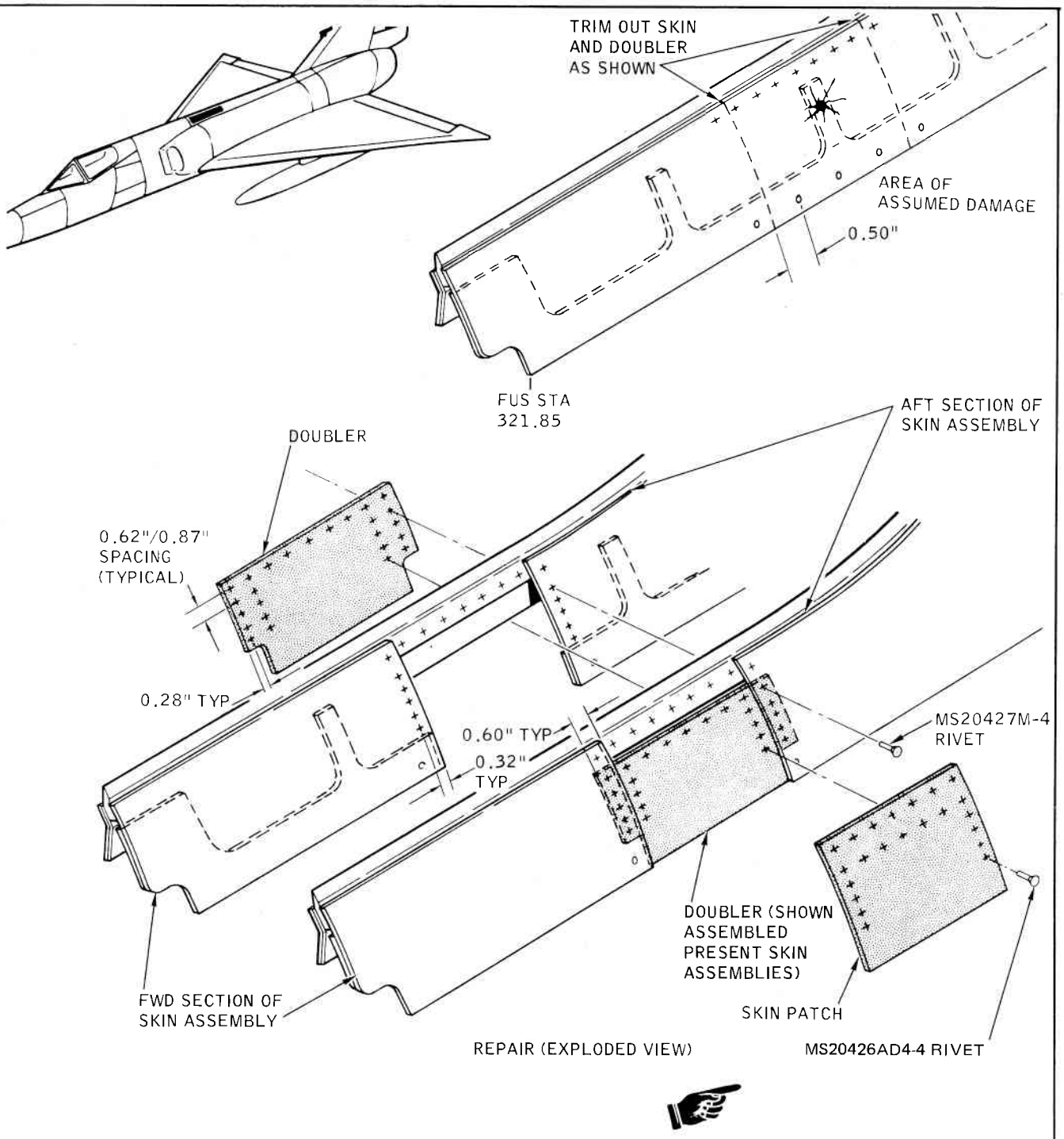
e. Refer to Section I for finish requirements of repair parts.

f. Drill rivet pattern as shown; countersink holes.

g. Install repair.

6SR-986-68

Figure 4-16F. Refrigeration Compartment Access Door Repair, Typical



REPAIR PROCEDURE

a. Trim out skin and doubler in area of damage making the cuts so that the cut edge falls halfway between two rivets on upper edge, and halfway between screw holes on lower edge or one half inch from screw hole whichever is less. Cutout must include one screw below and one screw hole on each side of doubler vertical leg.

NOTE

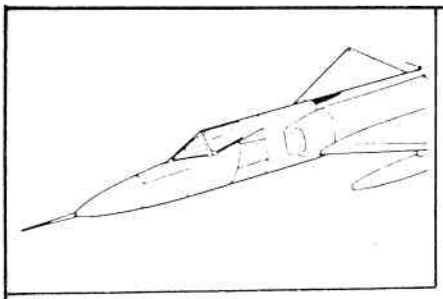
IF DAMAGE OCCURS OUTSIDE DOUBLER AREA, USE FIGURE 10-1 REPAIR EXCEPT USE ONLY A SINGLE ROW OF MS20427M-4 RIVETS TO ATTACH DOUBLER. ATTACH PATCH TO DOUBLER USING MS20426AD4-4 RIVETS.

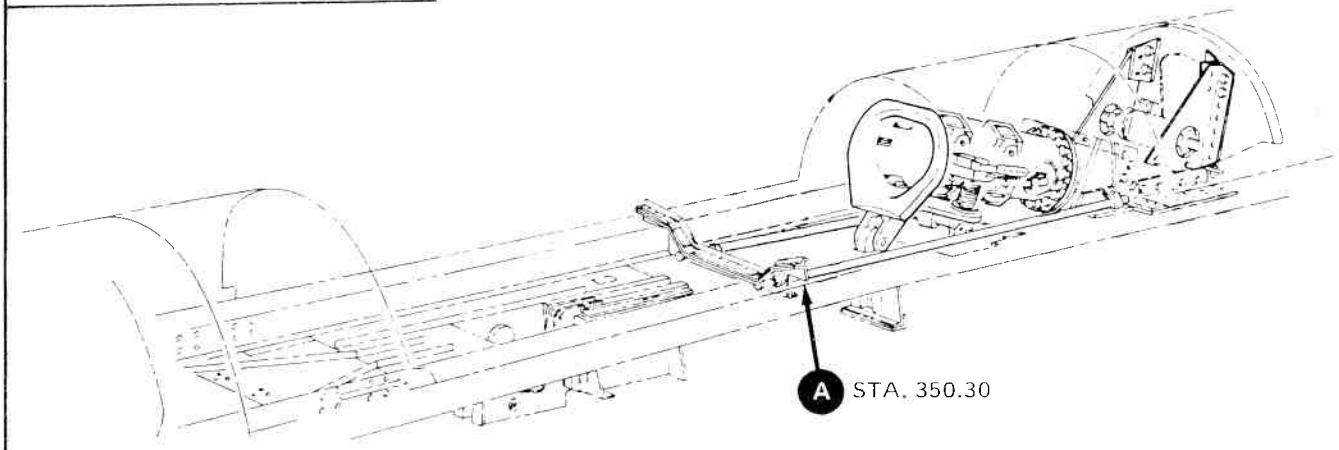
b. Fabricate repairs of same material and gage as damaged area.

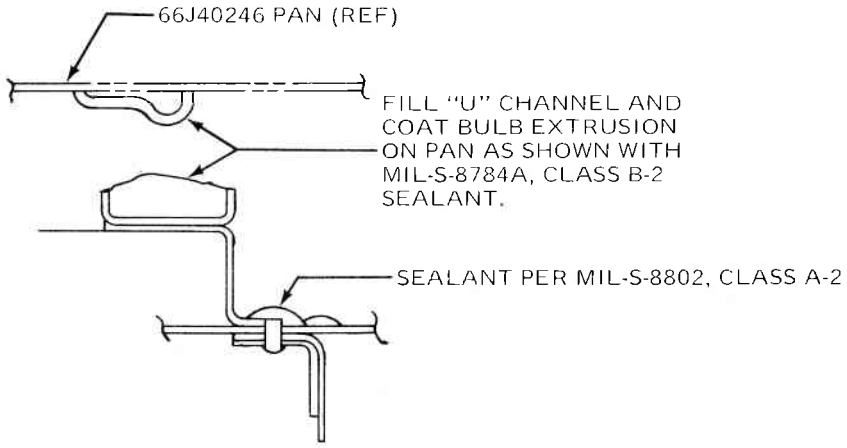
c. Refer to Section I for finish requirements of repair surfaces.

6SR-986-70

Figure 4-16G. Dorsal Skin and Doubler Repair, F-106A, Station 321.0 to 359.0
Applicable after incorporation of TCTO 1F-106-986







Detail **A**

NOTE

SHOULD ADDITIONAL INFORMATION BE REQUIRED - REFER TO AIR FORCE DRAWING 67J36505.

TYP APPLICATION OF SEALANT FWD DAM. CLEAN PAN AND CHANNEL WITH NAPTHA, DRY. ASSEMBLE IMMEDIATELY AND ALLOW TO CURE. HEAT, 100° TO 130°F FOR 2 HOURS MAY BE USED TO SPEED CURE.

NOTE: THIS INSTALLATION TO BE ACCOMPLISHED ONLY AFTER FINAL PRE-FIT OF DORSAL INSTALLATION.

Figure 4-16H. Dorsal Area Repair - Station 350.30

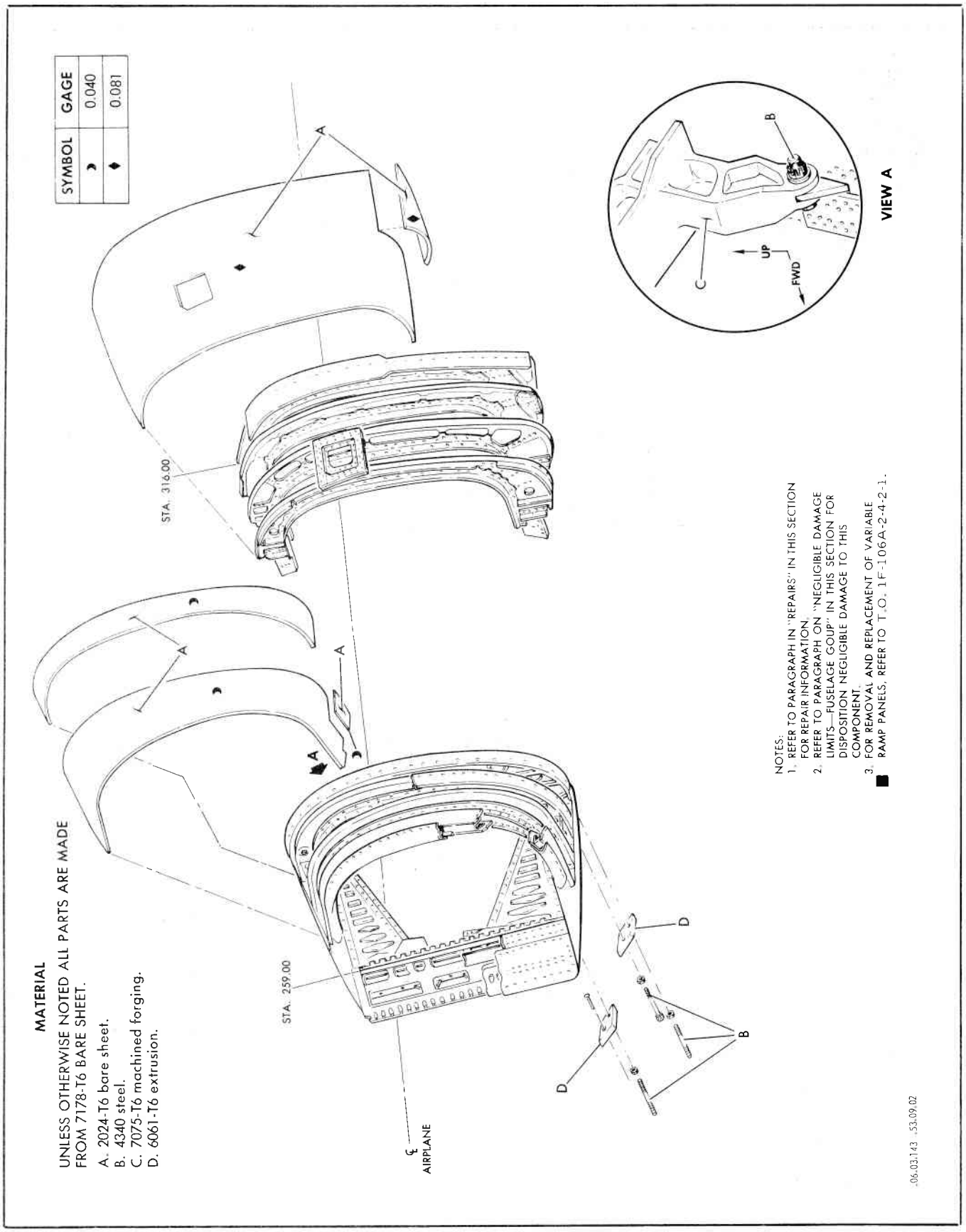


Figure 4-17. Engine Air Duct — Forward Inlet to Station 316.00
Applicable to F-106A airplane 56-455 and F-106B airplane 57-2507

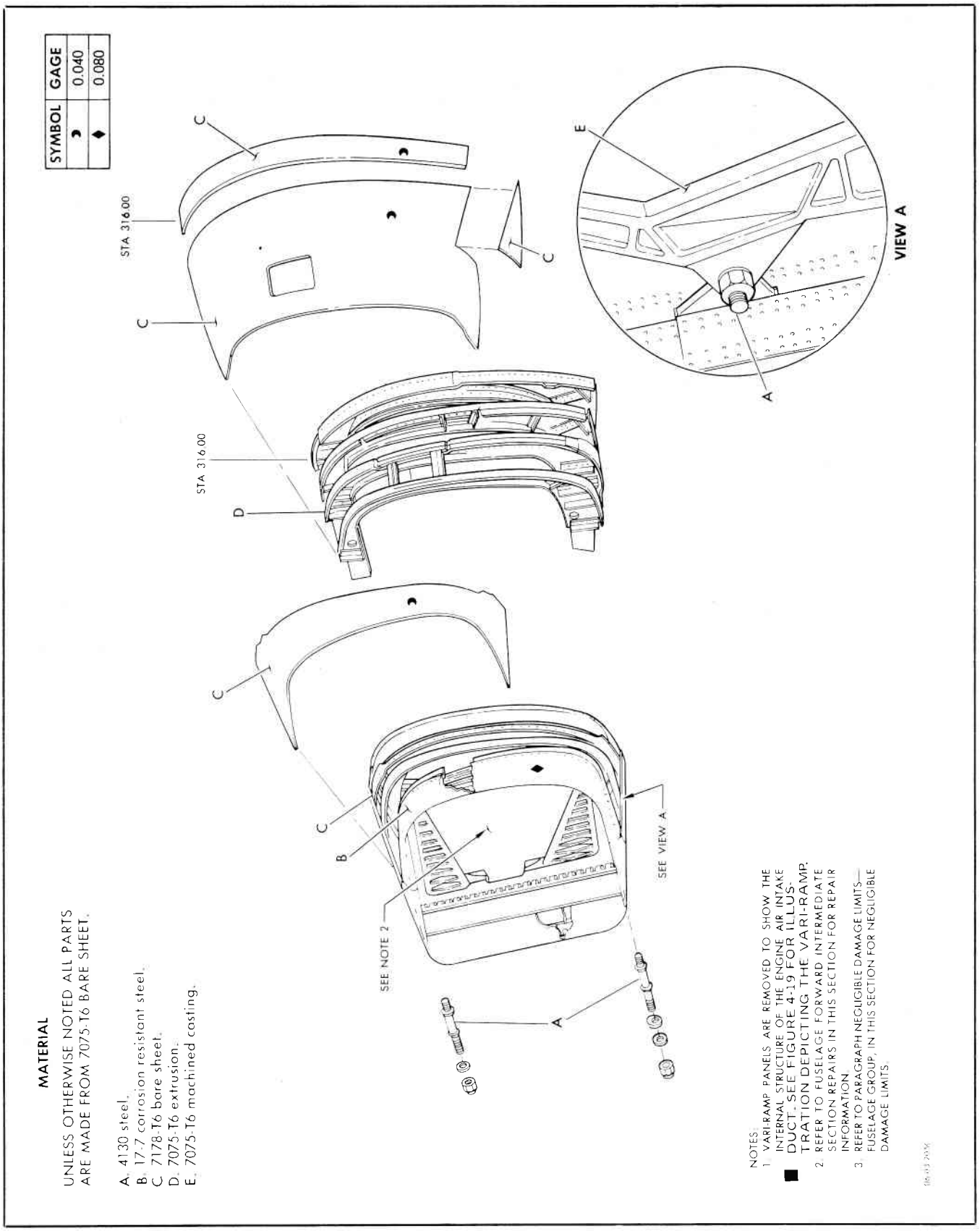
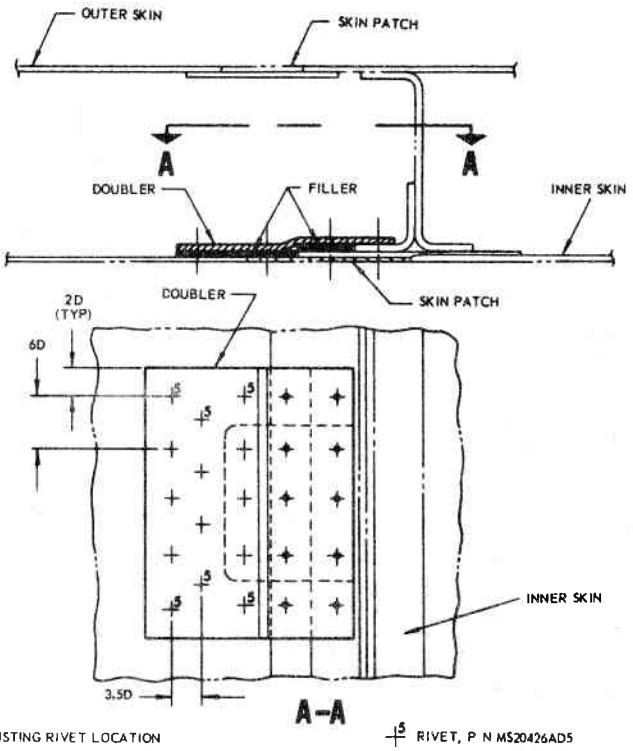


Figure 4-18. Engine Air Duct — Forward Inlet to Station 316.00
Applicable to F-106A airplanes 56-453, -454, 56-456 and subsequent, and F-106B airplanes 57-2508 and subsequent



DUCT INNER SKIN REPAIR PROCEDURES

A. ROUT OUT THE DAMAGED AREA TO A SMOOTH CONTOUR. CARE MUST BE EXERCISED NOT TO DAMAGE THE UNDERLYING STRUCTURE. WHENEVER A DAMAGED AREA IS TRIMMED AND IT IS NOT MORE THAN 4.5 INCHES FROM ANOTHER DAMAGED AREA (OLD OR NEW) THE TWO AREAS SHOULD BE CONSOLIDATED INTO ONE LARGE PATCH. IF A SERIES OF PATCHES EXIST AT A BUTT JOINT, CONSOLIDATE INTO ONE LARGE PATCH.

B. CUT ACCESS HOLES AS SHOWN IN FIGURES 4-18A AND 4-18B.

C. FABRICATE THE INNER SKIN PATCH, FILLERS, AND DOUBLERS FROM THE SAME MATERIAL AS THE INNER SKIN. THE SKIN PATCH SHOULD BE THE SAME THICKNESS AS THE EXISTING SKIN. THE FILLERS SHOULD BE THE SAME THICKNESS AS THE STIFFENER FLANGE. THE DOUBLERS SHOULD BE ONE SIZE THICKER THAN THE SKIN PATCHES.

D. REMOVE ENOUGH RIVETS FROM THE INNER SURFACE OF THE DUCT, IF REQUIRED, TO ALLOW ATTACHMENT OF THE REPAIR ASSEMBLY. THESE RIVETS ARE TO BE REPLACED WITH RIVETS OF THE SAME SIZE AND TYPE.

E. DRILL HOLES THROUGH THE INNER SKIN PATCH AND DOUBLERS USING EXISTING HOLES IN DUCT SKIN AS A GUIDE.

F. REMOVE THE INNER SKIN PATCH AND DOUBLERS. CLEAN ALL BURRS AND CHIPS FROM THEM AND THE DUCT STRUCTURE.

G. INSERT THE INNER SKIN PATCH, FILLERS, AND DOUBLERS AND INSTALL CLECOS FOR THE RIVETS REMOVED IN STEP E.

H. DRILL THE REMAINING HOLES THROUGH THE INNER SKIN PATCH, FILLERS, AND DOUBLERS AS INDICATED. USE A NO. 21 (0.159-INCH) DRILL. MAINTAIN AN EDGE DISTANCE OF 2D AND A RIVET SPACING OF 6D.

DUCT INNER SKIN REPAIR PROCEDURES

I. REMOVE THE REPAIR ASSEMBLY AND CLEAN ALL BURRS AND CHIPS FROM IT AND THE DUCT STRUCTURE.

J. APPLY A COAT OF SEALER, SPECIFICATION MIL-S-81733, TO THE FAYING SURFACES OF THE REPAIR ASSEMBLY AND THE DUCT SKIN AND STRUCTURE.

K. INSERT THE REPAIR ASSEMBLY AND INSTALL THE RIVETS. APPLY A COAT OF SEALER, SPECIFICATION MIL-S-81733, TO EACH RIVET AS IT IS INSTALLED.

L. FILL THE GAP BETWEEN THE SKIN PATCH AND THE INNER DUCT SKIN WITH SEALER, SPECIFICATION MIL S 81733 OR MIL S 8802.

M. APPLY PAINT FINISH TO REPAIR AREA AS INDICATED IN T.O. 1F-106A-23.

N. INSTALL OUTER SKIN PATCHES AND DOUBLERS. USE PROCEDURES OUTLINED ON FIGURE 4-18B.

O. TOLERANCES: RIVET SPACING: ± 0.1
RIVET EDGE DISTANCE: 2D ± .03 MINIMUM
X – ± 0.1
XX – ± 0.03
XXX – ± 0.010

NOTE

INTAKE DUCT INNER SKINS, WHICH HAVE AREAS OF MINOR CORROSION, SHOULD BE CLEANED AND TREATED IN ACCORDANCE WITH T.O. 1-1-2. AREAS WITH DEEP CORROSION SHOULD BE REPAIRED IN THE SAME MANNER AS SHOWN ON FIGURES 4-18A AND 4-18B.

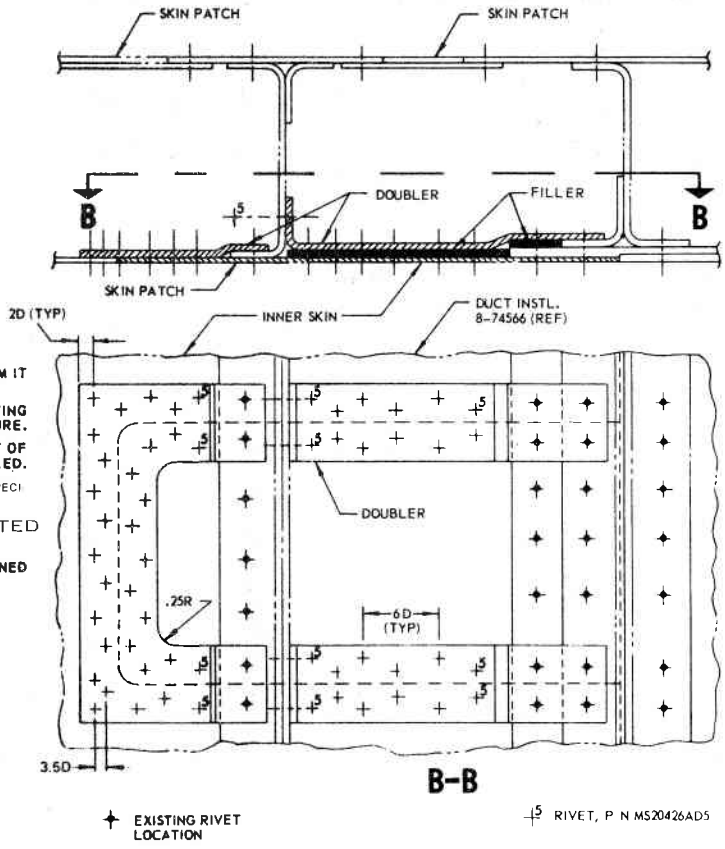


Figure 4-18A. Intake Duct Inner Skin Typical Repair (Sheet 1 of 2)

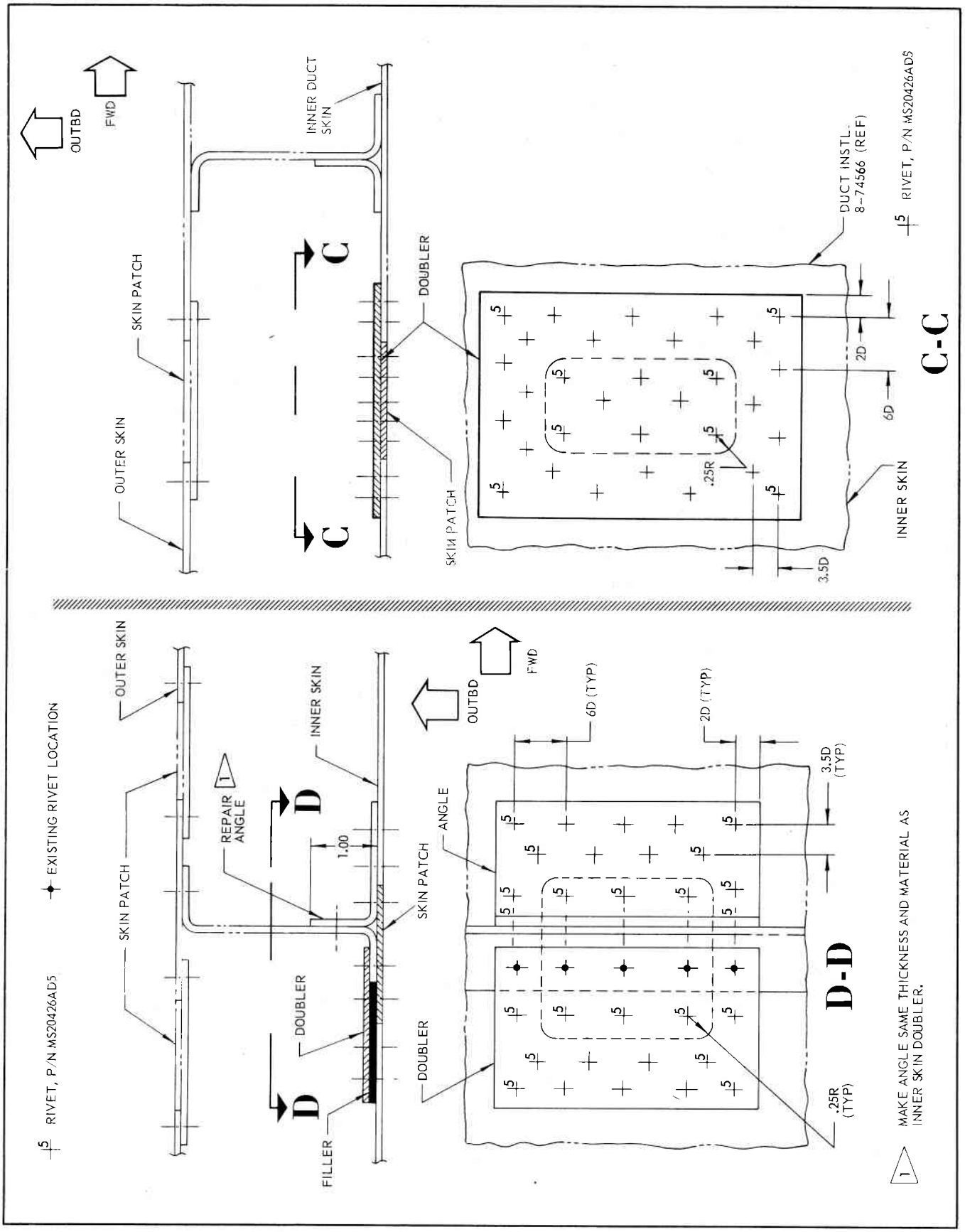


Figure 4-18A. Intake Duct Inner Skin – Typical Repair (Sheet 2 of 2)

DUCT OUTER SKIN REPAIR PROCEDURES

A. FABRICATE A SKIN PATCH FROM 7075-T6 ALUMINUM SHEET OF SAME THICKNESS AS EXISTING SKIN. IN ACCORDANCE WITH DIMENSIONS SHOWN IN VIEW A.

B. FABRICATE TWO DOUBLERS AND TWO SPLICE STRAPS FROM 7075-T6 ALUMINUM SHEET, ONE GAGE THICKER THAN THE SKIN, IN ACCORDANCE WITH DIMENSIONS SHOWN IN VIEW A.

NOTE

FABRICATE THE DOUBLER IN ONE PIECE AND DELETE THE SPLICE STRAPS IN LOCATIONS WHERE THERE IS ROOM TO INSTALL A ONE-PIECE DOUBLER.

C. LOCATE AND DRILL ONE ROW OF HOLES IN THE SKIN PATCH. SEE FIGURE 1-32 FOR RIVET SPACING AND RIVET EDGE DISTANCE INFORMATION. USE A NO. 39 (0.0995-INCH) DRILL.

D. LOCATE AND DRILL TWO ROWS OF HOLES IN EACH DOUBLER AND SPLICE STRAP. SEE FIGURE 1-32 FOR RIVET SPACING AND RIVET EDGE DISTANCE INFORMATION. USE A NO. 39 (0.0995-INCH) DRILL.

E. CENTER THE TWO DOUBLERS AND SPLICE STRAPS OVER THE ACCESS OPENING IN THE DUCT SKIN AND CLAMP IN PLACE.

F. USING THE PRE-DRILLED HOLES IN THE DOUBLERS AS A GUIDE, DRILL HOLES IN THE DUCT SKIN. USE A NO. 39 (0.0995-INCH) DRILL.

NOTE

TO ASSURE ALIGNMENT OF HOLES BETWEEN THE DOUBLER AND DUCT SKIN, INSERT CLECOS THROUGH DOUBLERS AND DUCT SKIN IMMEDIATELY AFTER DRILLING EACH HOLE.

G. REMOVE THE DOUBLER AND REMOVE ALL BURRS, CHIPS, AND OTHER FOREIGN MATERIAL FROM THE DOUBLERS AND DUCT STRUCTURE.

H. PREPARE THE DOUBLER FOR INSTALLATION BY TREATING THE REPAIR MATERIAL AS OUTLINED IN T.O. 1F-106A-23.

I. APPLY A COAT OF SEALER, SPECIFICATION MIL-S-81733, TO THE FAYING SURFACES OF THE DOUBLER AND DUCT SKIN.

J. INSERT THE DOUBLERS AND SPLICE STRAPS THROUGH THE ACCESS OPENING IN THE DUCT SKIN AND ALIGN THE HOLES IN THE DOUBLER WITH THOSE IN THE DUCT SKIN. HOLD THE DOUBLERS AND SPLICE STRAPS IN PLACE WITH CLECOS.

K. REAM THE HOLES IN THE DUCT SKIN AND DOUBLERS THAT ARE NOT FILLED WITH CLECOS, WITH A NO. 30 (0.1285-INCH) DRILL.

L. RIVET THE DOUBLERS TO THE DUCT WITH RIVETS, PART NO. MS20426AD4.

M. REMOVE THE CLECOS AND PERFORM STEPS K AND L IN THAT ORDER TO COMPLETE RIVETING OF DOUBLERS TO DUCT SKIN.

N. APPLY A FILLET OF SEALER, SPECIFICATION MIL-S-81733, AROUND THE PERIPHERY OF THE DOUBLERS AND FILL THE GAP BETWEEN THE DOUBLERS.

NOTE

APPLY A SUFFICIENT AMOUNT OF SEALER, SPECIFICATION MIL-S-81733, TO OVERLAP THE DOUBLERS 0.25 INCH AND OVERLAP THE DUCT SKIN 0.25 INCH. ALSO OVERLAP SEALER 0.25 INCH EACH SIDE OF GAP BETWEEN DOUBLERS.

O. INSERT THE SKIN PATCH INTO THE DUCT SKIN ACCESS OPENING.

P. USING THE PRE-DRILLED HOLES IN THE SKIN PATCH AS A GUIDE, DRILL HOLES THROUGH SKIN PATCH AND DOUBLERS. USE A NO. 39 (0.0995-INCH) DRILL.

Q. REMOVE THE SKIN PATCH AND REMOVE ALL BURRS, CHIPS, AND OTHER FOREIGN MATERIAL FROM THE SKIN PATCH AND DOUBLERS.

R. APPLY A COAT OF SEALER, SPECIFICATION MIL-S-81733, TO THE FAYING SURFACES OF THE SKIN PATCH AND DOUBLERS.

S. REINSERT THE SKIN PATCH AND HOLD IN PLACE WITH CLECOS.

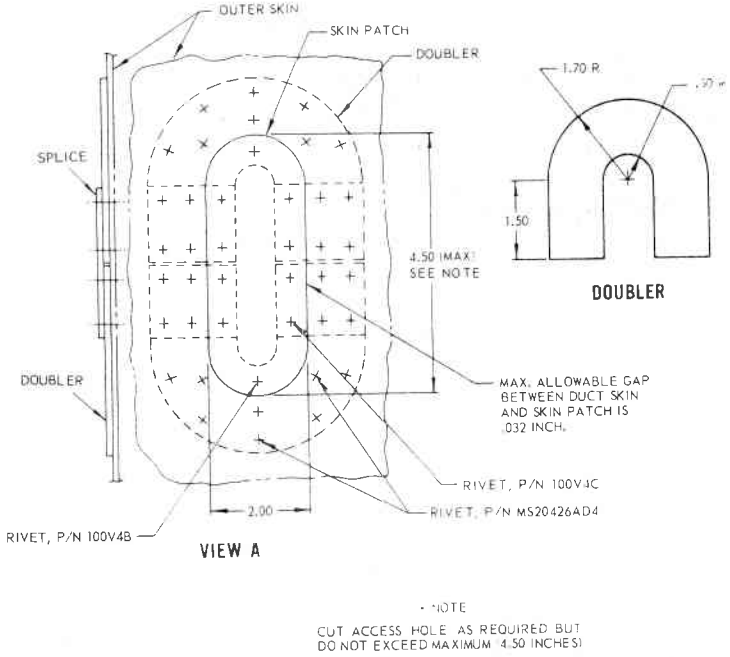
T. REAM THE HOLES IN THE SKIN PATCH AND DOUBLERS THAT ARE NOT FILLED WITH CLECOS WITH A NO. 30 (0.1285-INCH) DRILL.

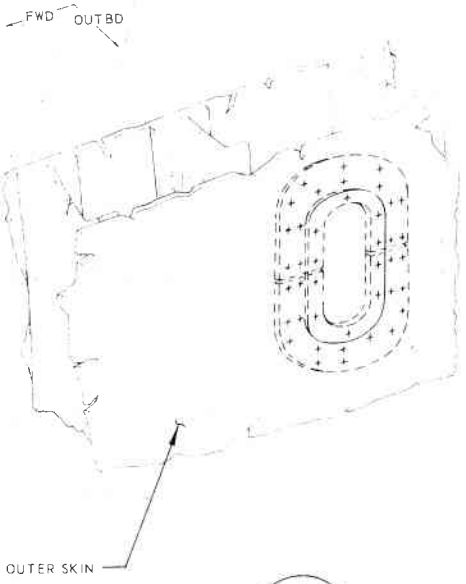
U. RIVET THE SKIN PATCH TO THE DOUBLERS WITH HUCK BLIND RIVETS. REFER TO TABLES I-XLII AND I-XLIII IN SECTION I FOR RIVET INFORMATION.

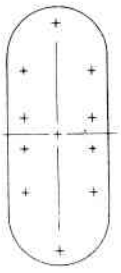
V. REMOVE THE CLECOS AND COMPLETE RIVETING THE SKIN PATCH TO THE DOUBLERS BY THE PROCEDURES OUTLINED IN STEPS T AND U.

W. FILL THE GAP BETWEEN THE SKIN PATCH AND DUCT SKIN WITH SEALER, SPECIFICATION MIL-S-81733.

X. FINISH THE REPAIR IN ACCORDANCE WITH PROCEDURES OUTLINED IN T.O. 1F-106A-23.





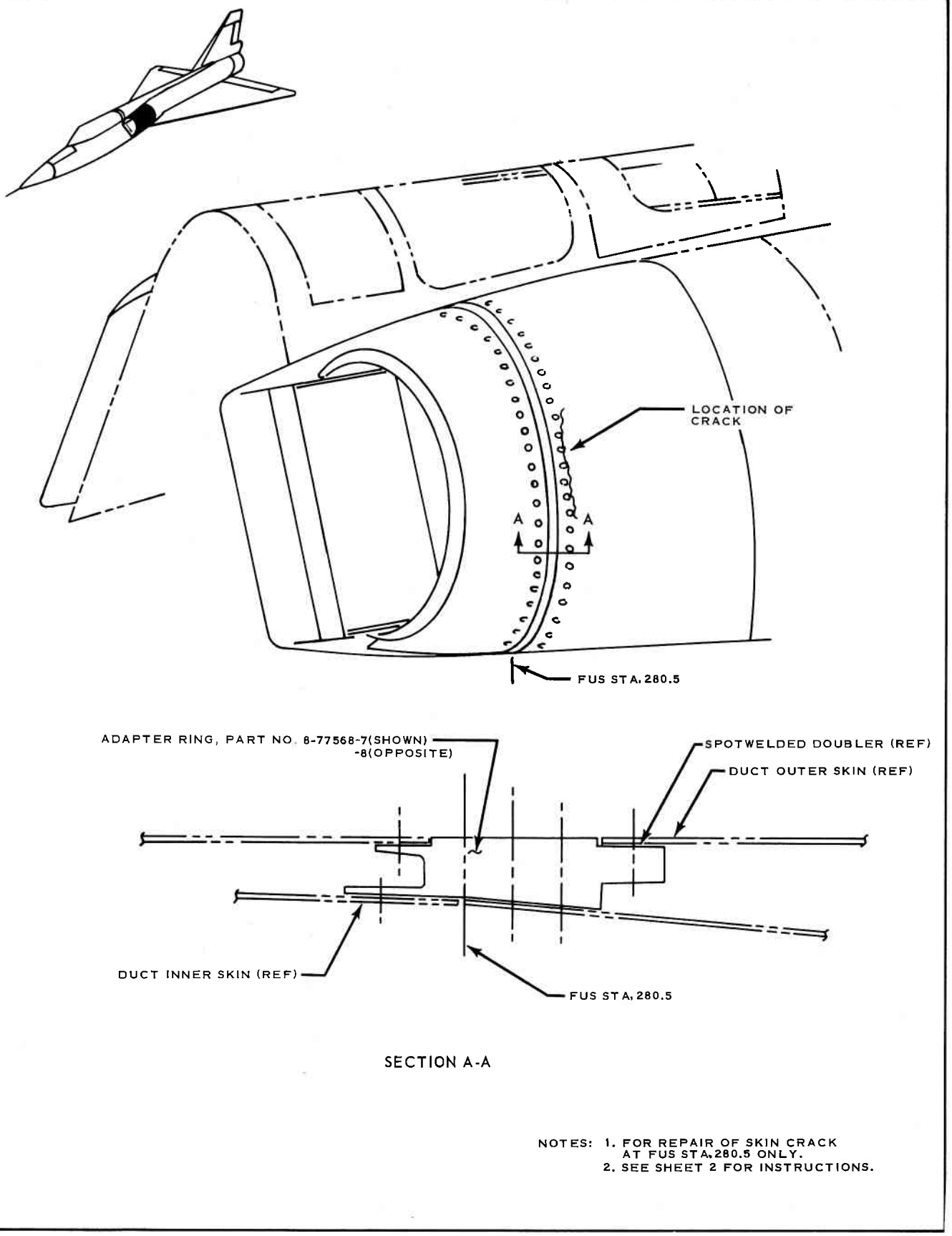


SKIN PATCH
SEE VIEW 'A'

NOTE

CUT ACCESS HOLE AS REQUIRED BUT DO NOT EXCEED MAXIMUM 4.50 INCHES.

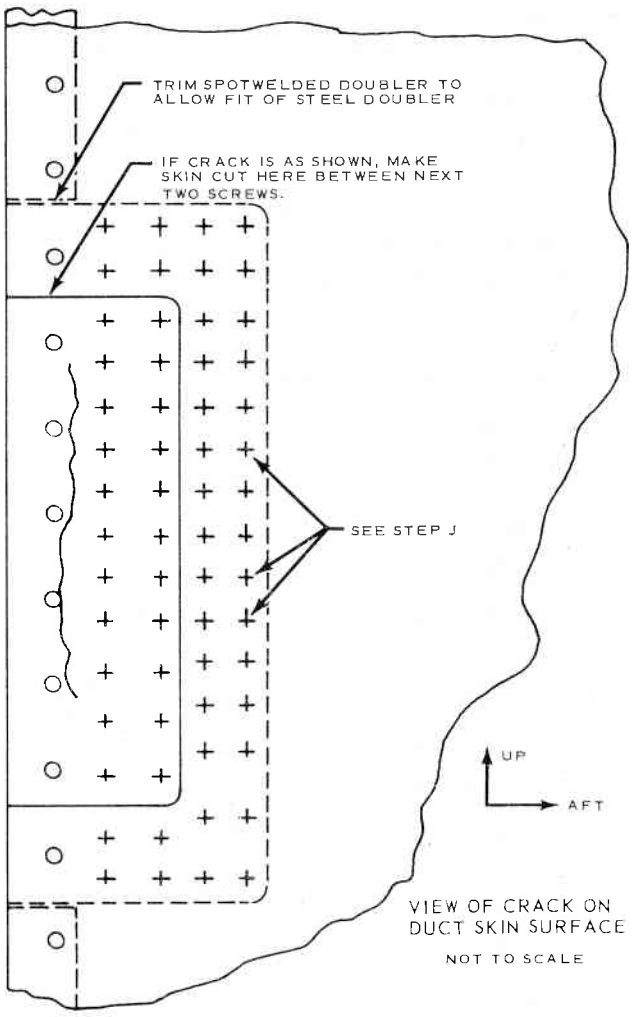
Figure 4-18B. Intake Duct Outer Skin Repair

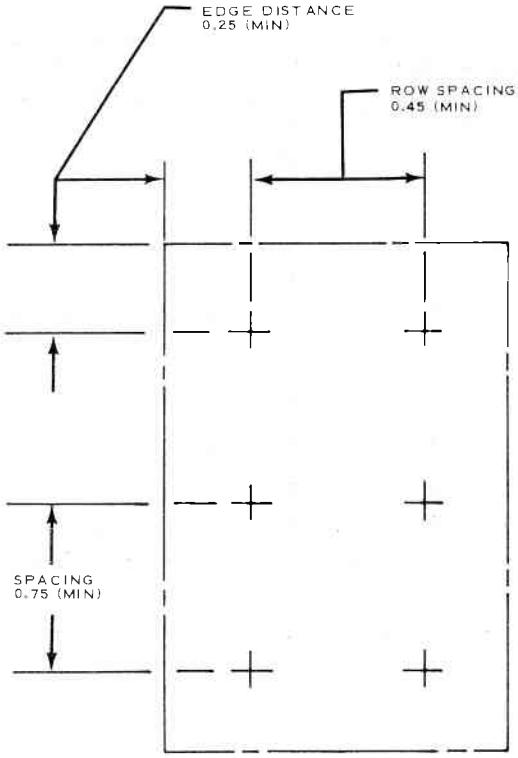


NOTES: 1. FOR REPAIR OF SKIN CRACK AT FUS STA. 280.5 ONLY.
2. SEE SHEET 2 FOR INSTRUCTIONS.

Figure 4-18D. Air Intake Duct, Skin Crack – Typical Repair (Sheet 1 of 3)

Pages 4-20E, 4-20F, 4-20G, & 4-20H Deleted





REPAIR PROCEDURES.

a. Determine the length of skin crack. Make the outlines for the repair. Allow for two rows of rivets in both the flush filler patch and the doubler.

NOTE
THIS REPAIR IS LIMITED TO CRACKS 20 INCHES IN LENGTH OR LESS, 10 INCHES ABOVE AND BELOW W.L. 0.00.

b. Fabricate the doubler as shown (width 3.00 minimum) using one of the following:
   1. 0.020 inch thick 301-¼ hard corrosion resistant steel.
   2. 0.020 inch thick 302-¼ hard corrosion resistant steel.

c. Fabricate the filler patch (width 2.00 minimum) from 0.040 inch thick 7075-T6 aluminum alloy.

d. Cut the skin midway between the screws.

e. Lift up the corners of the existing skin and trim back the spotwelded doubler to allow a flush fit (0.032 maximum clearance) of the new steel doubler.

CAUTION
LIFT THE CORNERS OF THE SKIN JUST ENOUGH TO ACCOMPLISH TRIMMING OF THE DOUBLER.

f. Mark the rivet pattern on the skin. Drill rivet holes through the skin and doubler using a No. 30 (0.1285) drill.

g. Attach doubler with Clecos. Using a hole finder or similar instrument, locate and drill the screws holes with No. 11 (0.191) drill through the filler patch and the doubler; mark and drill rivet holes through filler patch and doubler using a No. 30 (0.1285) pilot drill and a No. 29 (0.136) finish drill. Drill "skin to doubler" holes with a No. 29 (0.136) finish drill.

h. Remove all parts and clean up all chips and burrs.

i. Apply primer to all new surfaces as indicated in T.O. 1F-106A-23. Seal all surfaces with sealer, MIL-S-81733. ■

j. Attach doubler and filler patch using 100 degree countersunk explosive rivets, Dupont part number PN-134-100-X 1/16 or blind locked spindle rivet part number NAS1399-MW4-2.

k. Fill all voids with sealer, MIL-S-81733 and finish in accordance with T.O. 1F-106A-23. ■

Figure 4-18D. Air Intake Duct, Skin Crack – Typical Repair (Sheet 2 of 3)

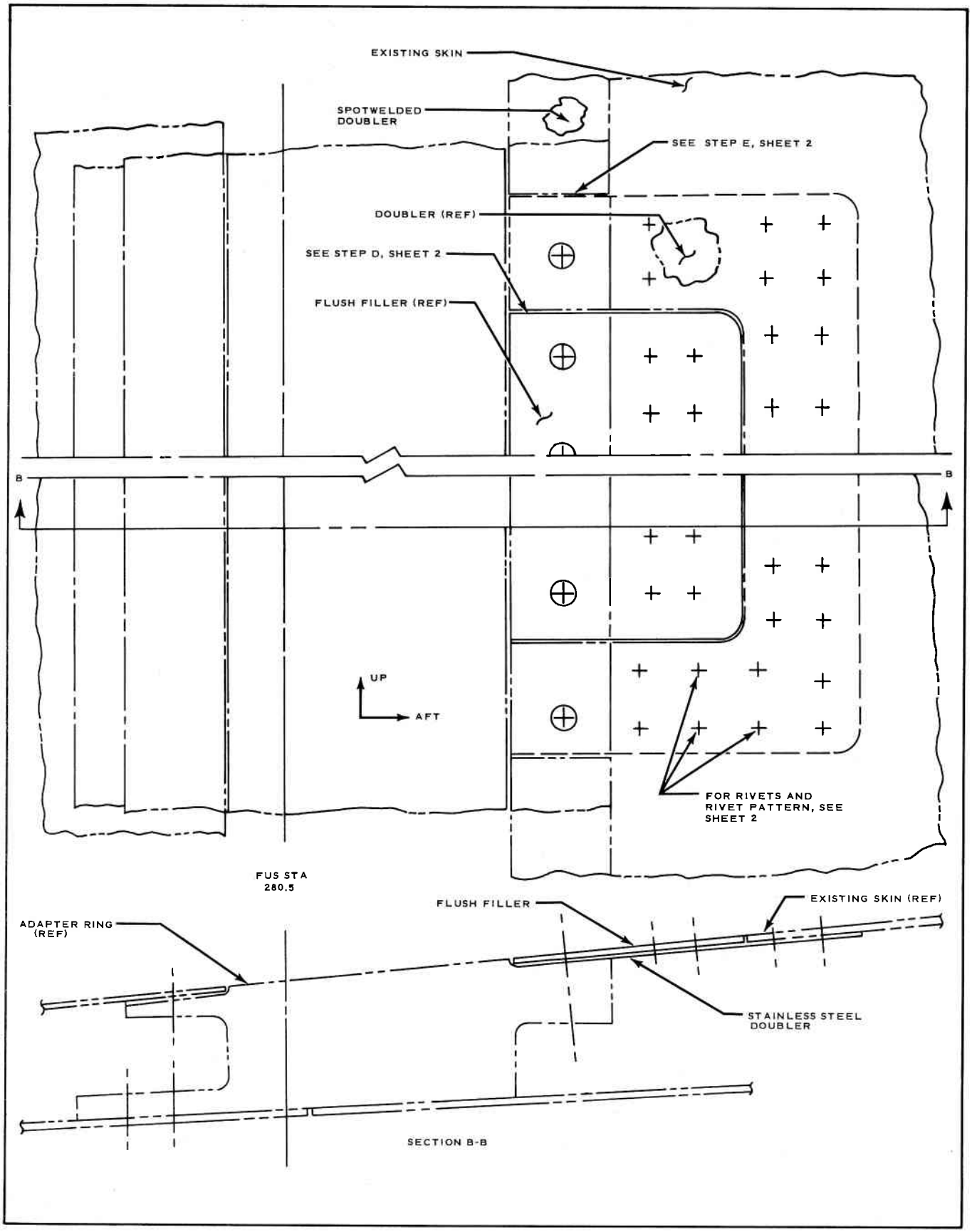
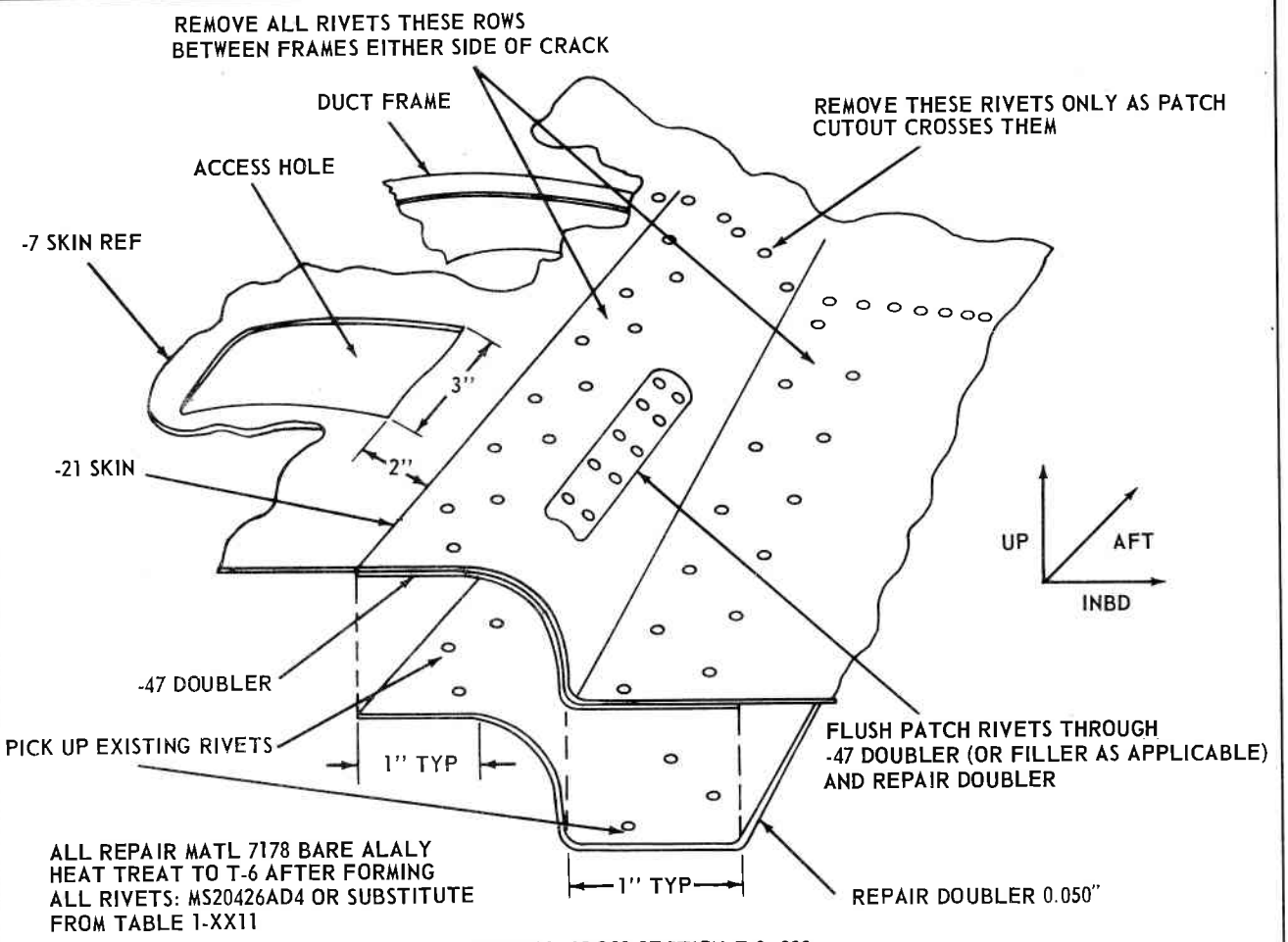


Figure 4-18D. Air Intake Duct, Skin Crack – Typical Repair (Sheet 3 of 3)



TYPICAL CROSS SECTION F.S. 293

REPAIR PROCEDURE

INTAKE DUCT OUTER SKIN (P/N 8-77586) FS280.5 to 316.0

1. Cut an access hole (3" wide and as long as necessary to clean out debris and buck rivets) centered between frames and starting 2" outboard of 8-77586-21 skin.
2. Cut out skin the length of crack and at least one inch wide. If more than one crack exists in adjacent areas it may be desirable to cut out one large piece of skin rather than several smaller ones.

CAUTION

DO NOT DAMAGE DOUBLER BENEATH SKIN

3. Remove rivets indicated in sketch – clean out all debris.
4. Fabricate doubler contoured to nest beneath the 8-77586-47 doubler long enough to extend between any two frames bounding the crack and wide enough to pick up existing rivets, as shown in sketch.

NOTE

IF CRACK EXTENDS ACROSS A FRAME, PUT A DOUBLER ON EACH SIDE OF FRAME EXTENDING EITHER TO THE NEXT FRAME OR AT LEAST THREE RIVETS BEYOND THE END OF THE PATCH CUTOUT.

5. Fabricate flush patch of the same size and contour as the skin cutout. Maximum gap between patch and cutout will be 0.032".
6. Apply primer to all new surfaces as indicated in T.O. 1F-106A-23. Seal all surfaces with sealer MIL-S-81733.
7. Install repair doubler under existing -47 doubler picking up existing rivet holes. Where it is impossible to buck rivets, use substitute blind fasteners (Ref Table 1-XX11).
8. Secure flush patch using at least two rows of rivets to maintain the contour.

NOTE

WHERE THE -47 DOUBLER DOES NOT CONTINUE BETWEEN THE PATCH AND THE REPAIR DOUBLER, INSTALL A 0.050" FILLER BETWEEN PATCH AND REPAIR DOUBLER.

9. Repair access hole IAW Fig 4-18B.

Figure 4–18E. Air Intake Outer Skin (P/N 8-77586) Repair F.S. 280.5-316.0

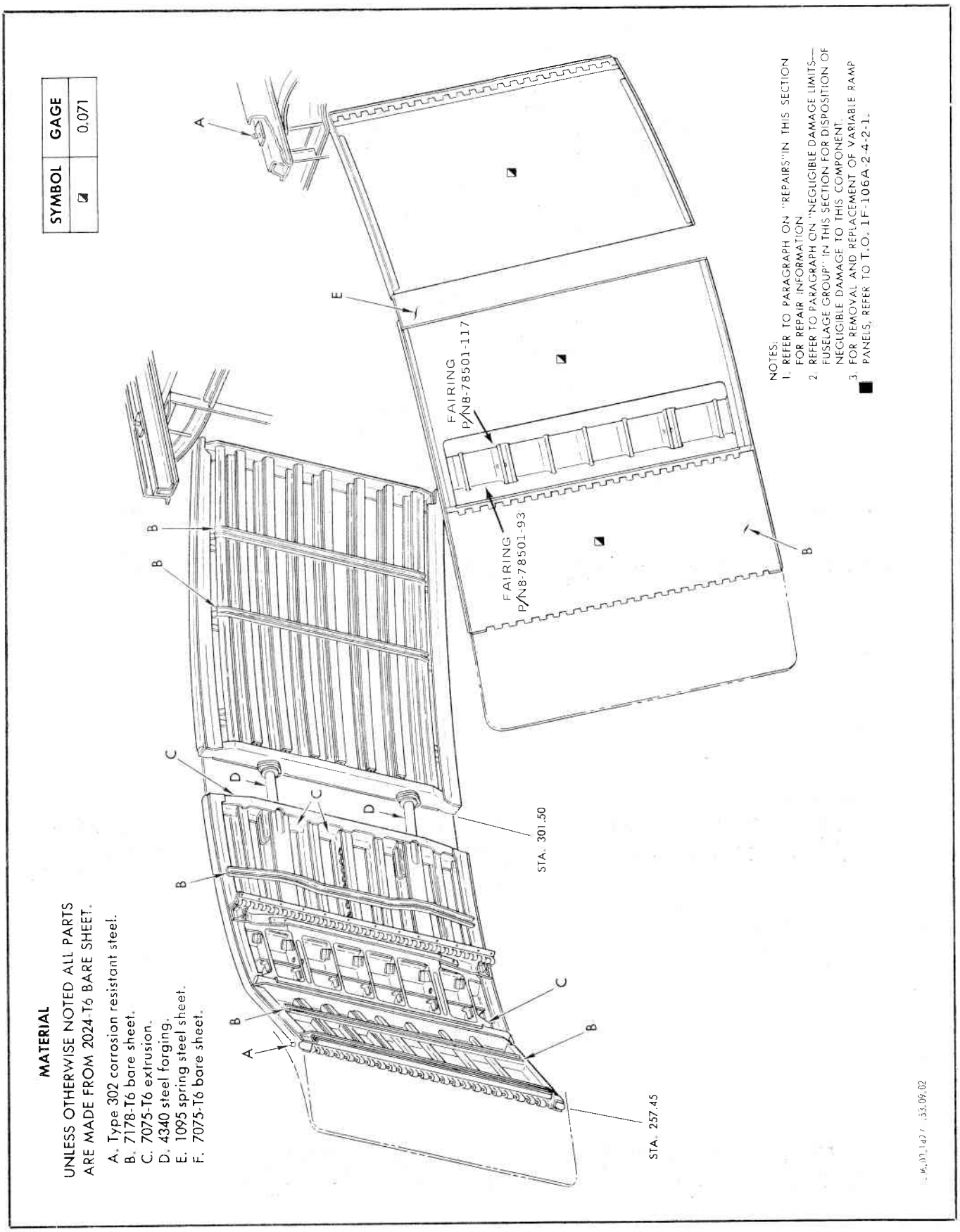


Figure 4-19. Variable Ramp Inlet Duct

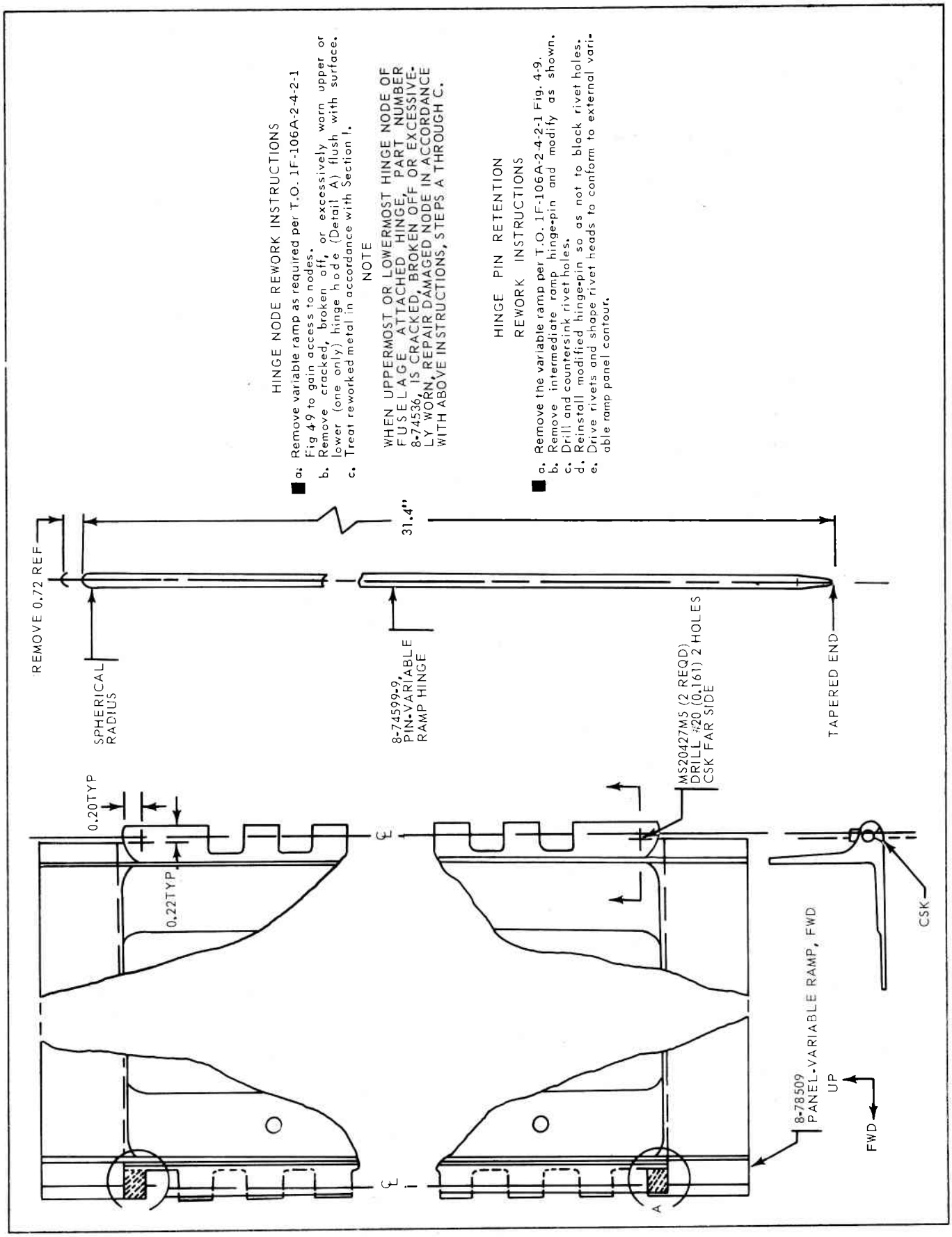


Figure 4–19A. Variable Ramp Panel Hinge Node and Pin Retention Repair Procedures

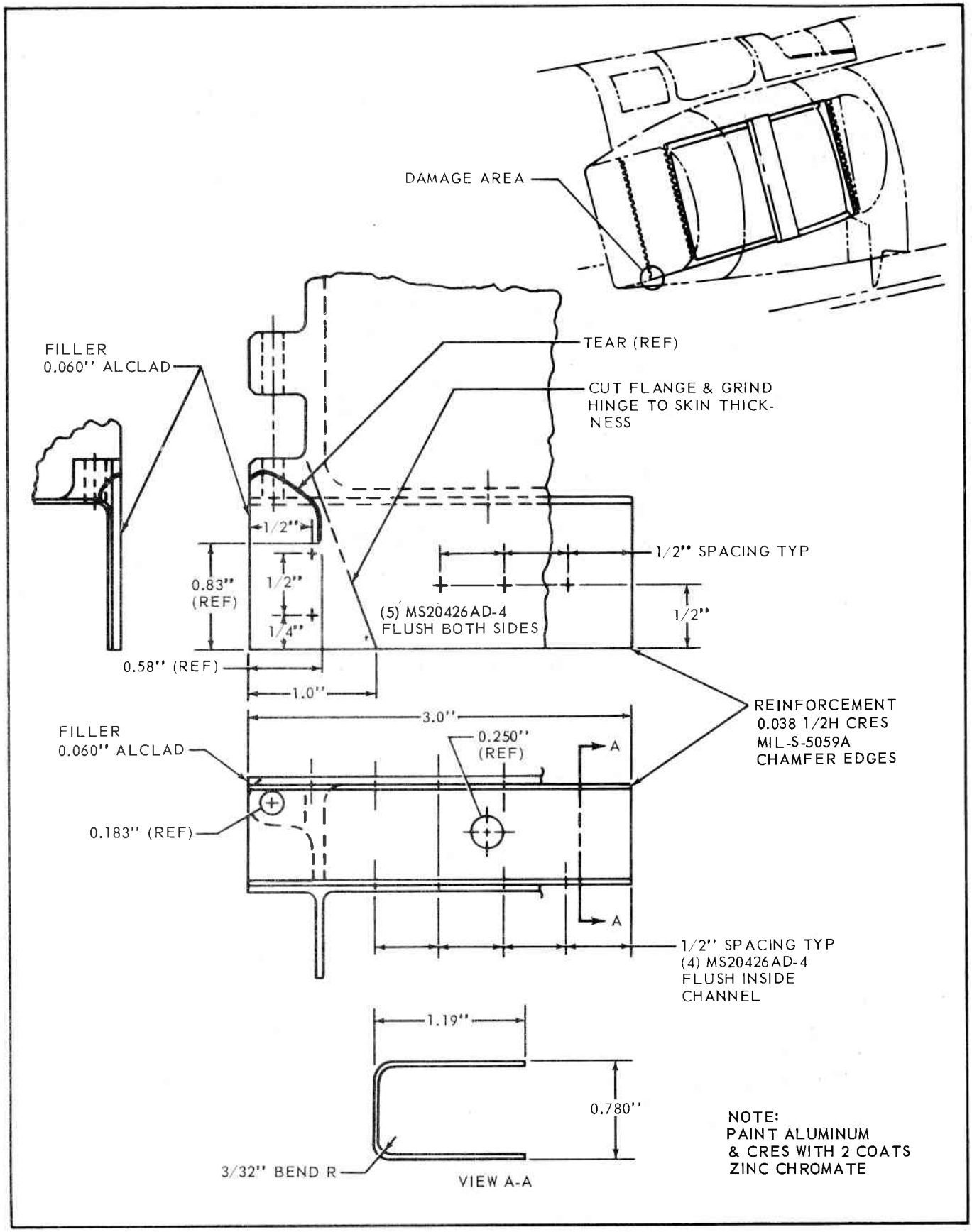


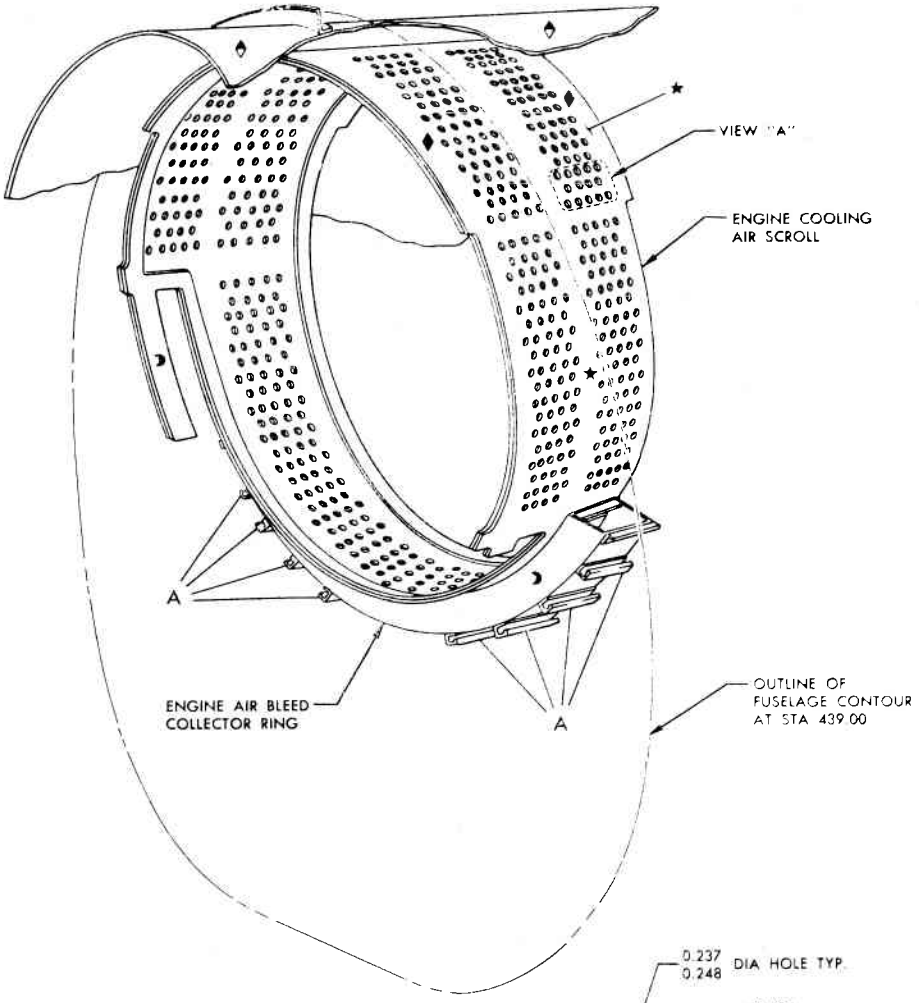
Figure 4-19B Variable Ramp Panel End Lobe and Channel Repair

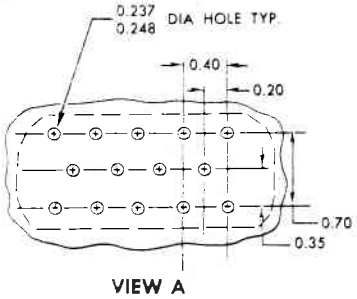
MATERIAL

UNLESS OTHERWISE NOTED ALL PARTS ARE MADE FROM 7178-T6 BARE SHEET.

A. 7178-T6 extrusion.

SYMBOL	GAGE
☽	0.040
ϕ	0.045
♦	0.080
★	0.125





NOTES:

1. ENGINE AIR SCROLL IS MILLED FROM 0.125 TO 0.080 GAGE IN THE FORWARD AND AFT ATTACHMENT AREAS.

2. Refer to figure 4-20A and paragraph on "fuselage forward intermediate section repairs" in this section for repairs to the engine air scroll.

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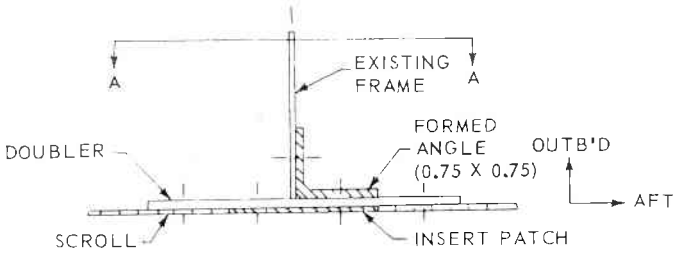
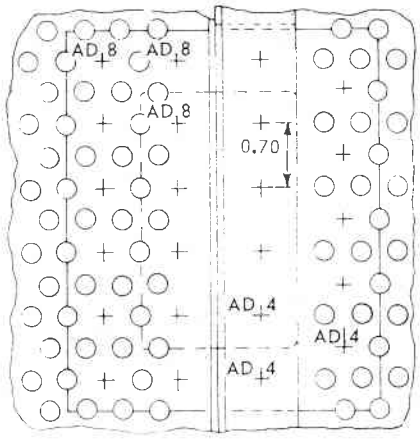
Figure 4-20. Engine Cooling Air Scroll





VIEW A – A

REPAIR A
STATION 439.0 or 445.5
REPAIR INSTRUCTIONS

a. Determine the extent of corrosion damage and mark outline for the repair as shown in repair A. Allow for two and a half rows of scroll holes in the insert patch on the aft side of the existing frame and two and a half rows of scroll holes for installation of rivets around the insert patch in the doubler.

b. Remove enough rivets attaching the scroll to the existing frame to allow removal of damage. These rivets will be replaced with MS20426AD4.

c. Cut the scroll on each side of the existing frame as required to remove the damaged area as shown in repair A.

d. Cut the flange of the existing frame to allow the doubler to be positioned between the scroll skin and the existing frame as shown in repair A.

e. Fabricate the insert patch, doubler, formed angle, and shims from 7178-T6 aluminum alloy. The insert patch should be the same thickness as the cut out portion of the scroll. The doubler shall be one guage thicker than the insert patch and the angle shall be the same thickness as the existing frame. The angle shall be long enough to pick up two existing rivets through frame flange on each side of repair cut out. Fabricate shims as required to go under ends of angle to match thickness of doubler.

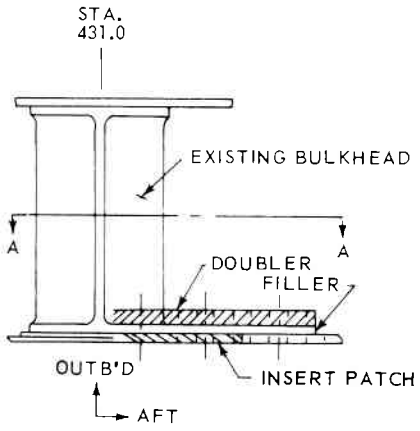
f. Drill rivet hole pattern thru the formed angle and existing frame as shown in above sketch. Drill existing scroll hole pattern thru the insert patch and doubler as shown in figure 4-20 of T.O. 1F-106-3 with 1/4 drill.

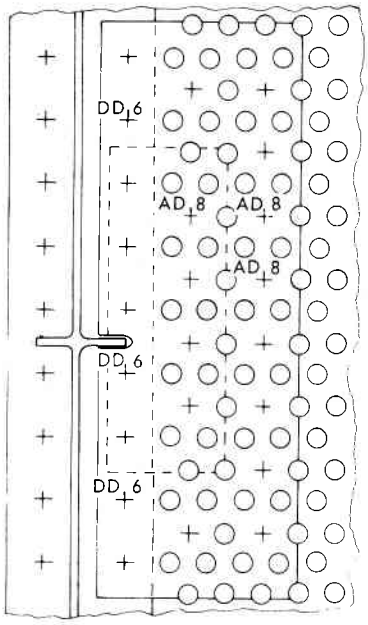
g. Drill rivet hole as shown in above sketch pattern in the insert patch, doubler, and formed angle using 1/8 drill. Select scroll holes to be used for rivet holes and countersink all rivet holes in the insert patch and scroll skin 100°.

h. Remove the insert patch, doubler, and formed angle. Clean all burrs and chips from them and the duct structure. Apply primer per T.O. 1F-106A-23 to all new surfaces. Seal all surfaces with sealer, MIL-S-81733.

i. Attach formed angle to existing frame using MS20470AD4 rivets, attach insert patch and doubler to formed angle using MS20426AD4 rivets, attach insert patch or scroll to doubler using MS20426AD8 rivets.

Figure 4-20A. Typical Repairs for Engine Cooling Air Scroll (Sheet 1 of 2)





VIEW A–A

REPAIR B
STATION 431.0
REPAIR INSTRUCTIONS

a. Determine the extent of corrosion damage and mark outline for the repair as shown in repair B. Allow for two rows of scroll holes in the insert patch and two and a half rows of scroll holes for installation of rivets around the insert patch in the doubler.
b. Remove enough 5/32 stainless steel rivets attaching the scroll to the aft flange of bulkhead to allow removal of damaged area and installation of doublers. These rivets will be replaced with MS20426DD6.
c. Cut the scroll along the center of the bulkhead and aft as required to remove the damaged area as shown in the above sketch.
d. Fabricate the insert patch, filler and doubler from 7178-T6 sheet. The insert patch shall be the same thickness as the cut out portion of scroll. The doubler shall be one guage thicker than the insert patch and the filler thick enough to allow the doubler to fit flush on top of the bulkhead flange. Notch doubler and filler as required to clear bulkhead web stiffeners.
e. Drill existing scroll hole pattern through the doubler and filler and add scroll hole pattern in insert patch, doubler and filler as shown in figure 4-20 of T.O. 1F-106-3 with 1/4 drill.
f. Select scroll holes to be used for rivet holes as shown in repair B and countersink 100° for MS20426AD8 rivets.
g. Enlarge 5/32 holes through bulkhead flange to 3/16 and countersink for MS20426DD6 rivets.
h. Remove the insert patch, filler and doubler. Clean all burrs and chips from them and the duct structure.
i. Apply primer per T.O. 1F-106A-23 to all new surfaces. Seal all surfaces with sealer, MIL-S-81733.
j. Install insert patch, filler and doubler with MS20426AD8 and MS20426DD6 rivets in previously drilled holes.

Figure 4-20A. Typical Repairs for Engine Cooling Air Scroll ***(Sheet 2 of 2)***

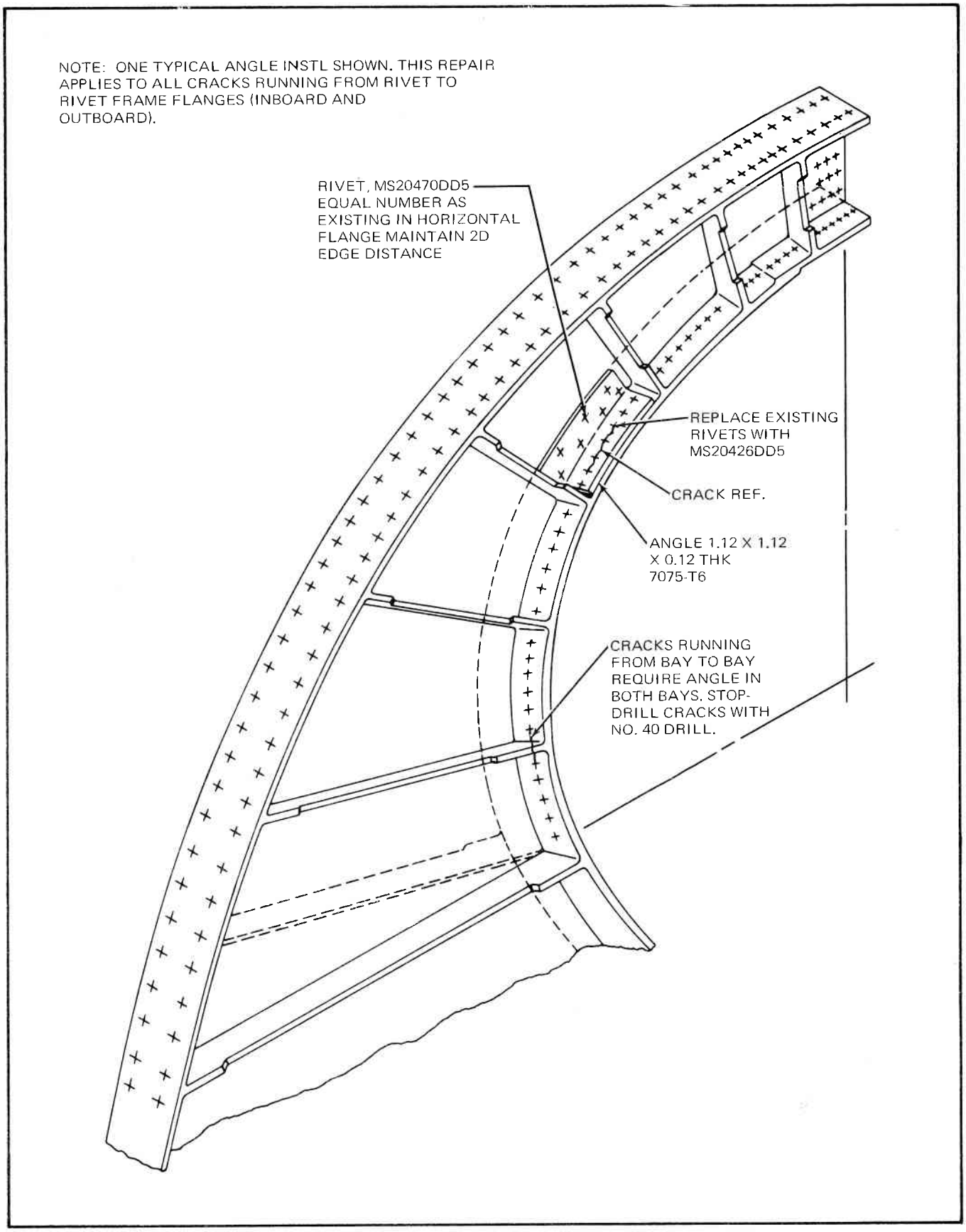


Figure 4-20B. Typical Repairs-Bulkhead Fuselage Station 431

of 7178-T6 bare sheet and is attached with flush-head rivets to the fuselage framework between stations 431.00 and 445.50. The engine air scroll supplies cooling air to the engine by bleeding air from the engine air intake duct. This bleed air passes through the perforated scroll into the engine air bleed collector ring located at the bottom of the engine air scroll and then aft to the engine. See figure 4-20 for an illustration of the engine cooling air scroll.

4-16. The missile bay area is contained within the lower section of the fuselage between stations 216.00 and 412.00, and is enclosed by hinged, double missile bay doors on each side of the fuselage center line. The missile bay doors are constructed so as to be aerodynamically smooth with the outside contour of the airplane when in the closed position. The missile bay doors on each side of the fuselage center line consist principally of an upper and lower door made of aluminum alloy inner and outer plating and a series of evenly spaced press-formed channel ribs interconnected by gussets and intercostals enclosed within the plating. The two missile bay doors on each side are hinged together by hinge fittings and pins, and each set of doors is attached to the fuselage structure in the same manner. See figure 4-21 for an illustration of the missile bay door structure and plating.

4-17. Fuselage Forward Intermediate Section—F-106B.

4-17A. Fuselage Forward Intermediate Section *Applicable after incorporation of TCTO 1F-106-986.* After incorporation of the above specified modification, the airplanes are equipped for aerial refueling. The changed areas are in the fuselage dorsal sections aft of the refrigeration compartment access door. New structure consists of dorsal fairing sections, slipway door, and support structure for the aerial refueling receptacle. See figures 4-16A through 4-16H and 4-22A through 4-22F for illustrations of the aerial refueling structure, and for repair data and reference.

NOTE

All repairs made in the dorsal aerial refueling fuel-tight area are to be sealed using sealer, Specification MIL-S-8802, Class B2.

4-18. The fuselage forward intermediate section of the F-106B is similar to that of the F-106A, except for the location of the electronic equipment in the forward section of the missile bay area. See figure 4-21 for the differences between the F-106A and F-106B missile bay doors, and figure 4-22 for differences in fuselage structure.

4-19. Fuselage Aft Intermediate Section.

4-20. The aft intermediate sections of the fuselage on the F-106A and F-106B are identical. This section consists principally of a series of spliced semicircular zee and channel beltframes, and forged and built-up type bulkheads interconnected by longerons, gussets, and intercostals. The fuselage framework is enveloped by stressed skins of aluminum, magnesium, and titanium that are attached to the structure by means of flush-head rivets and fasteners. The wing attach fittings for spars 4, 5, 6, and 7 are located in this section of the fuselage structure. The vertical fin is also permanently attached to this section of the fuselage. This aft intermediate section is illustrated on figure 4-23. The speed brake and drag chute housing is attached to spar number 5 of the fin structure and to the upper fuselage structure; this section is shown on figure 4-24. The drag chute housing structure consists of rectangular frame assemblies attached to the fuselage structure by means of longitudinal channels and angles. The built-up structure of the drag chute housing is reinforced by canted channels, and is enveloped by stressed aluminum alloy sculptured plating. Two doors of clam-type configuration are hinged to the aft end of the housing structure. These doors serve a dual function: that of enclosing the drag chute housing, and as speed brakes when opened. The speed brake doors are constructed of magnesium alloy sand castings. A seal is located along the inside edge of the doors and around their perimeter to provide weathertightness to the drag chute housing and to serve as a buffer between the two fast-acting speed brake doors. See figure 4-26 for an illustration of the tail hook installation.

4-21. Fuselage Aft Section.

4-22. The fuselage aft section is commonly referred to as the tail cone and is constructed principally of a series of semicircular zee and channel belt frames interconnected by gussets and intercostals. The tail cone is enveloped by aluminum and titanium stressed skins attached to the framework by means of flush-head rivets and other fasteners. The tail cone is attached by pin-type latches to the main portion of the fuselage structure. Figure 4-25 shows the tail cone structure.

4-23. INDEXING.

4-24. Figure 4-1 shows the components of the fuselage and gives a figure index for individual drawings of the various fuselage components. These individual component drawings in turn reference applicable repair illustrations and instruction.

4-25. REPAIRS.

4-25A. Repairs to cracks in fuselage bulkhead, Station 593.46, in AFT engine mount area, will be accomplished as shown in figure 4-23B.

4-26. Although there are some structural differences between the F-106A and F-106B airplanes between stations 102.00 and 472.00, all repairs may be made in the same manner for both airplanes. For repairs of the lower surface of the airplane, refer to Section IX for illustrations of the underside of the fuselage structure.

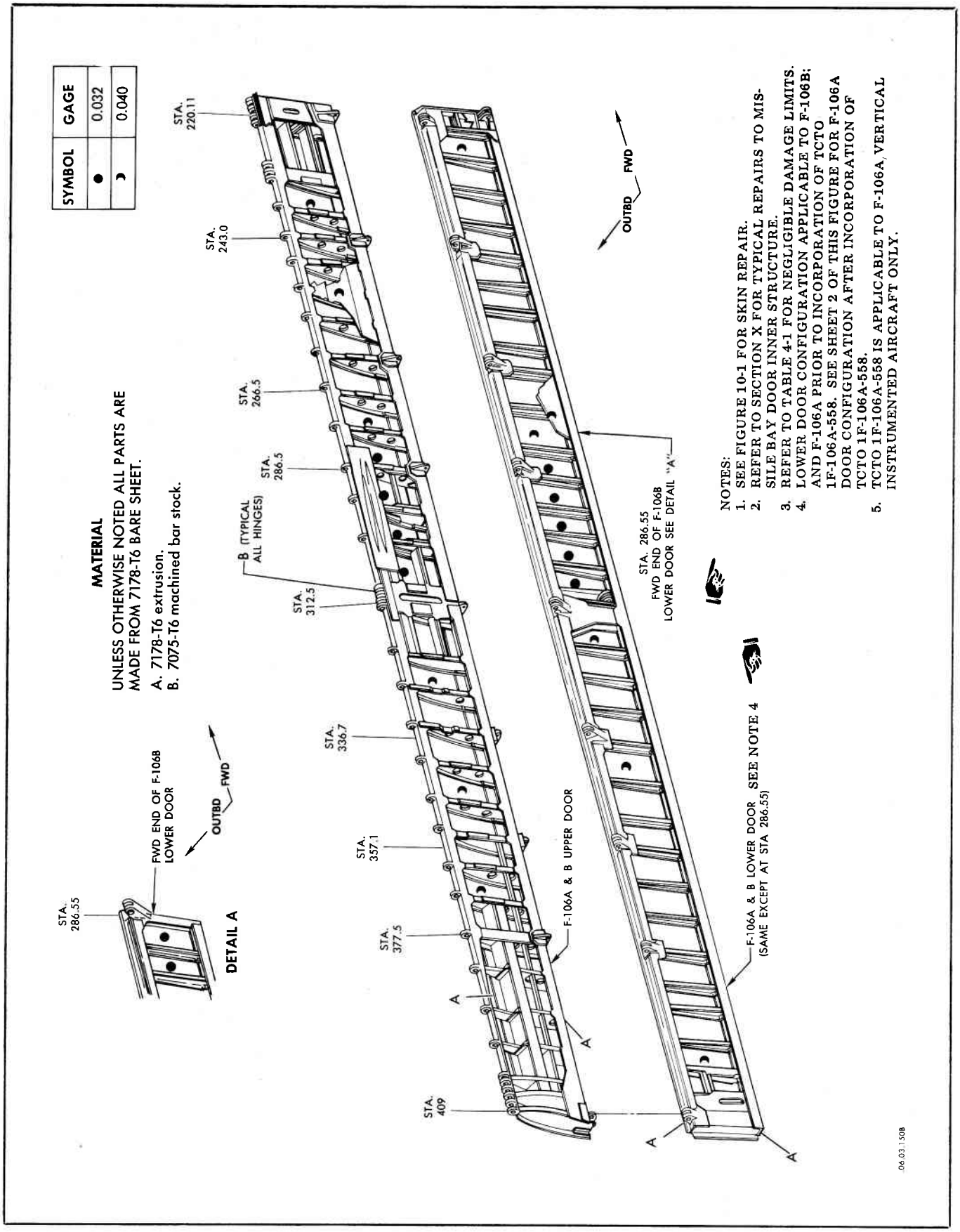


Figure 4-21. Missile Bay Door Structure and Plating (Sheet 1 of 2)

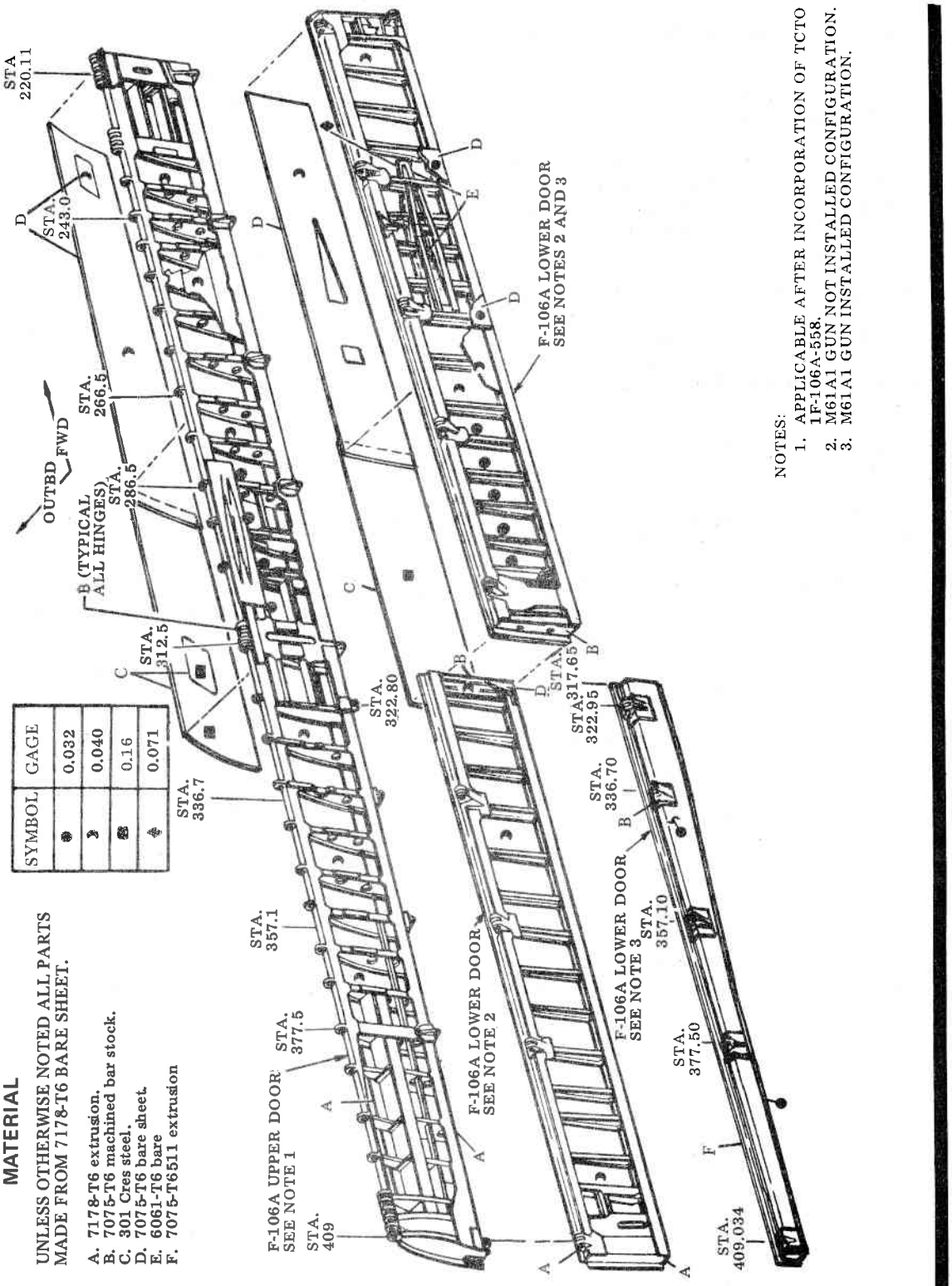


Figure 4-21. Missile Bay Door Structure and Plating (Sheet 2 of 2)
Applicable to F-106A Vertical Instrumented Aircraft after incorporation of TCTO 1F-106A-558.

4-26A. Expanded Metal Repair (F-106A Gun Air Outlet Covers).

4-26B. The F-106A gun assembly external fairing incorporates four gun cooling air outlet openings equipped with expanded metal covers shaped to the contour of the gun fairing assembly. The two forward side-by-side openings each have expanded metal covers having dimensions of 6.25 inches by 18.50 inches (115.62 square inches area each). The two aft side-by-side openings each have expanded metal covers having dimensions of 5.50 inches by 7.50 inches (41.25 square inches area each). The combined area of the four expanded metal covers is approximately 313.74 square inches. The covers are made of type 304-2B 0.050-inch stainless steel sheet expanded into diamond shaped openings of approximately 0.750 inch by 1.812 inches. Each expanded metal cover is bonded into a fiberglass frame which is riveted to the gun fairing assembly.

4-26C. Two types of repairs are recommended for the cover assemblies expanded metal.

a. Misshaped and broken strands of expanded metal with no metal lost may be repaired as follows:

(1) Reshape distorted area to original contour using a plastic mallet with a wood block or shot bag backup. Straighten strands to original position and contour.

WARNING

Keep Methyl-ethyl-ketone (MEK) away from sparks and flames. Use only in well-ventilated area. Avoid prolonged breathing of vapors. Avoid eye and repeated skin contact.

(2) Clean paint from area to be welded by sanding and wire brushing. Finish paint removal using a cloth dampened with methy ethyl ketone (MEK), Specification TT-M-261.

(3) Cut piece of copper sheet (0.040) slightly larger than area of damage.

Note

Copper sheet backup plate is required to hold expanded metal contour during welding.

(4) Drill holes (2) for 1/8-inch bolts (one at each end of copper plate).

(5) Shape plate to outside contour of stretched metal cover.

(6) Bolt plate to outside surface of stretched metal cover over damaged area. Use washers under nuts to aid gripping grid of the stretched metal.

Note

If requirement for welding occurs within 0.75 inch of the fiberglass frame material, pack fiberglass area adjacent to area to be welded using wet asbestos, Specification MIL-A-17472 or equivalent, to prevent heat transfer into fiberglass bond.

(7) On the inside surface of the cover, heli-arc weld the broken strands to their original position using 321/347 stainless welding rod.

(8) Remove copper backing plate and asbestos packing if used.

(9) Shape and remove excess welding by filing.

(10) Refinish cover inner surface in area of repair by applying two coats of MIL-C-83268 urethane coating, insignia white color number 17875 of Federal Standard 595 per Specification MIL-F-18264.

(11) Refinish cover exterior surface in area of repair by applying two coats of MIL-C-83286 urethane coating, aircraft color number 16473 of Federal Standard 595 per Specification MIL-F-18264.

b. Damaged stretched metal covers having metal broken out may be repaired as follows:

Note

This repair is to used only if the total area of all existing and required repair plates does not exceed 2 percent of the total square inch area of all four air outlets combined as specified in paragraph 4-26B. Required repairs exceeding this limit will necessitate replacement of damaged parts.

(1) Reshape damaged area to original contour using a plastic mallet with a wood block or shot bag backup. Straighten strands to original position and contour.

WARNING

Keep methyl-ethyl-ketone away from sparks and flames. Use only in well-ventilated area. Avoid prolonged breathing of vapors. Avoid eye and repeated skin contact.

(2) Clean paint from area to be welded by sanding and wire brushing. Finish paint removal using a cloth dampened with methyl ethyl ketone (MEK), Specification TT-M-261.

(3) Cut piece of 0.050 inch 304-2B stainless sheet large enough to cover area of lost expanded metal with 0.50-inch overlap. Keep plate as small as possible, yet adequate to cover area and to facilitate welding.

(4) Chamfer edges of repair plate and shape plate to inside contour of repair area.

(5) Clamp repair plate to inside surface to cover assembly over repair area.

Note

If requirement for welding occurs within 0.75 inch of the fiberglass frame material, pack fiberglass area adjacent to area to be welded using wet asbestos, Specification MIL-A-17472 or equivalent, to prevent heat transfer into fiberglass bond.

(6) Heli-arc weld repair plate to cover assembly expanded metal using 321/374 stainless welding rod.

(7) Remove clamps and asbestos packing if used. Shape and remove excess weld by filing.

(8) Refinish cover inner surface in area of repair by applying two coats of MIL-C-83286 urethane coating, insignia white color number 17875 of Federal Standard 595 per specification MIL-F-18264.

(9) Refinish cover exterior surface in area of repair by applying two coats of MIL-C-83286 urethane coating, aircraft grey color number 16473 of Federal Standard 595 per Specification MIL-F-18264.

4-27. Rivet Substitution.

4-28. All rivets used in the fuselage of the F-106A and F-106B airplanes may be substituted with different types of rivets which have either the same or a greater strength value than the original rivet, except for the following restrictions:

a. Blind rivets may be used inside of air intake ducts and forward of air induction system only when impossible to use solid rivets. Refer to Section X, paragraph 10-7 for use and substitution of blind rivets/fasteners in these areas.

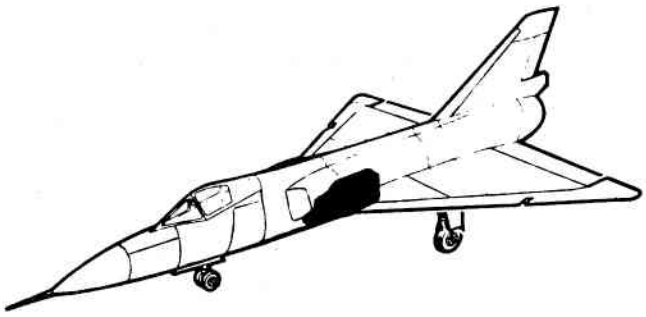
b. Flush rivets must be replaced by flush rivets. Refer to Table I-XXII for rivet substitution data.

4-29. Negligible Damage Limits — Fuselage Group.

4-30. Table 4-1 indicates the maximum allowable classifications of the five types of negligible damage for the fuselage (damage allowed to remain "as is" after minor rework, such as stop drilling cracks and fairing in nicks or scratches). The maximum allowable damage classification will be found to the right of the component name of the vertical column under the "Type of Damage" heading. After classification is determined, see figures 1-17 through 1-19 for the damage limits allowed for each class; I, II, or III. The limits given on figures 1-17 through 1-19 apply only for a damaged area after rework, as shown on figures 1-20 and 1-21. An aeronautical structures engineer must be consulted for damages exceeding the limits on figures 1-17 through 1-19, and for damage to components not listed in this table.

4-30A. SPEED BRAKE HINGE BUSHING REPAIR AND LOWER HINGE FITTING INSTALLATION HARDWARE.

4-30B. Refer to figure 4-41G for repair of speed brake hinge and speed brake door bushings and Figure 4-41H for lower hinge fitting installation hardware.



MATERIAL

UNLESS OTHERWISE NOTED, ALL PARTS ARE MADE FROM 7075 STOCK.

A. 7075 T-0, HEAT TREATED TO T-73
B. 7075-T-6, HEAT TREATED TO T-73
C. 7075 T-651, HEAT TREATED TO T-7351
D. 6061 T-6

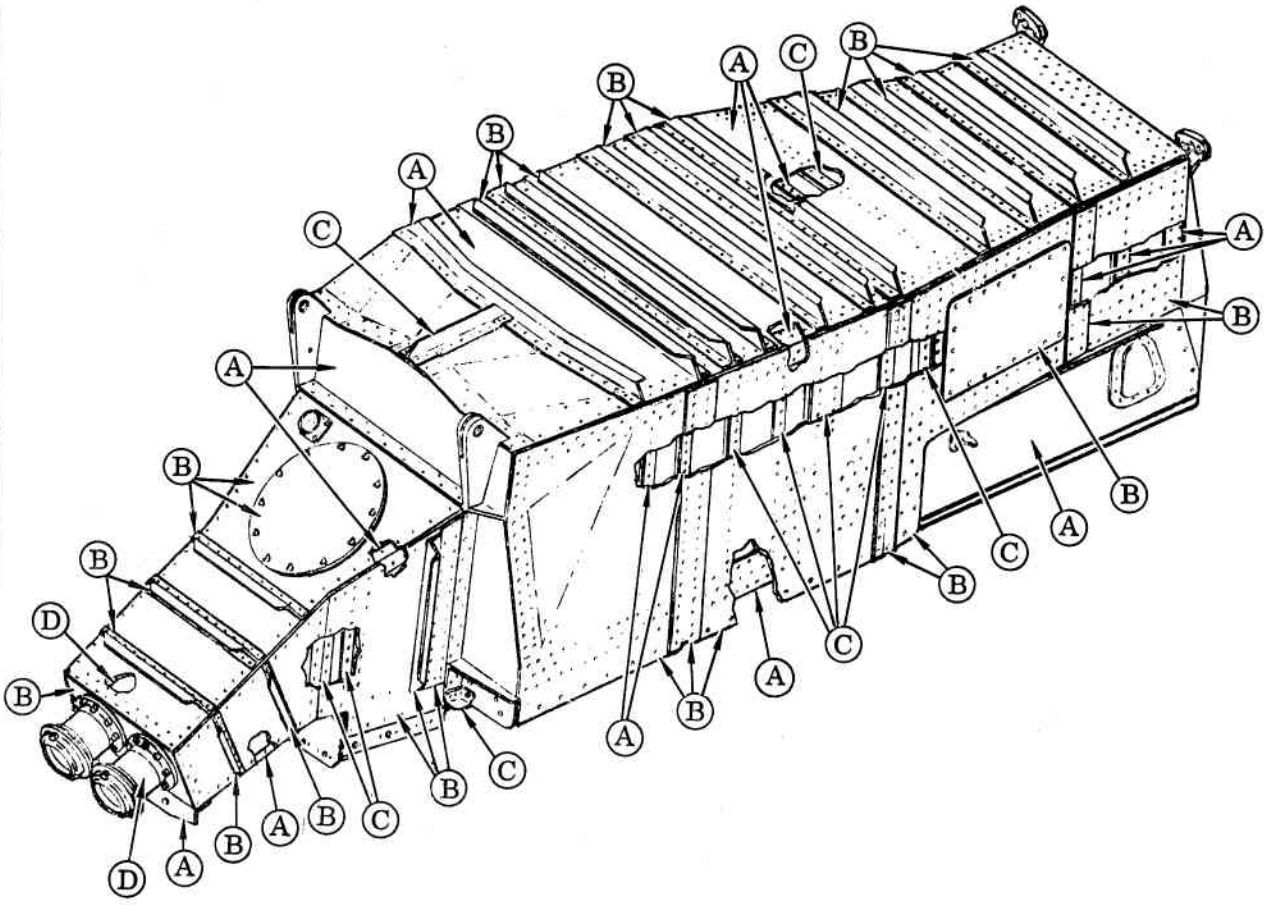
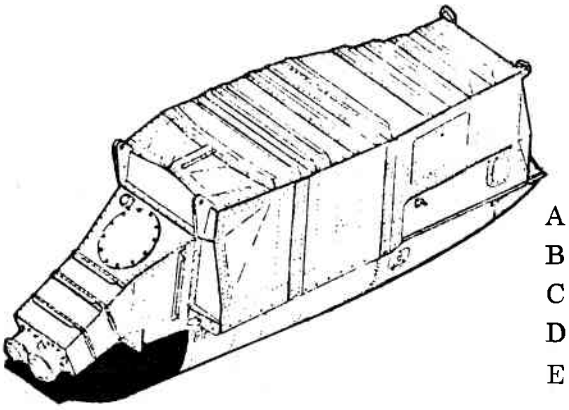


Figure 4-21A. F-106A Gun Housing Structure
Applicable to F-106A Vertical Instrumented Aircraft after incorporation of TCTO 1F-106A-558.



MATERIAL

A. 7075 T-0 HEAT TREATED TO T-73
B. 7075 T651 HEAT TREATED TO T73511
C. 321 CRES, COMPOSITION T-1
D. 6061 T-0 HEAT TREATED TO T-6
E. 321 CRES, FINISH 2D

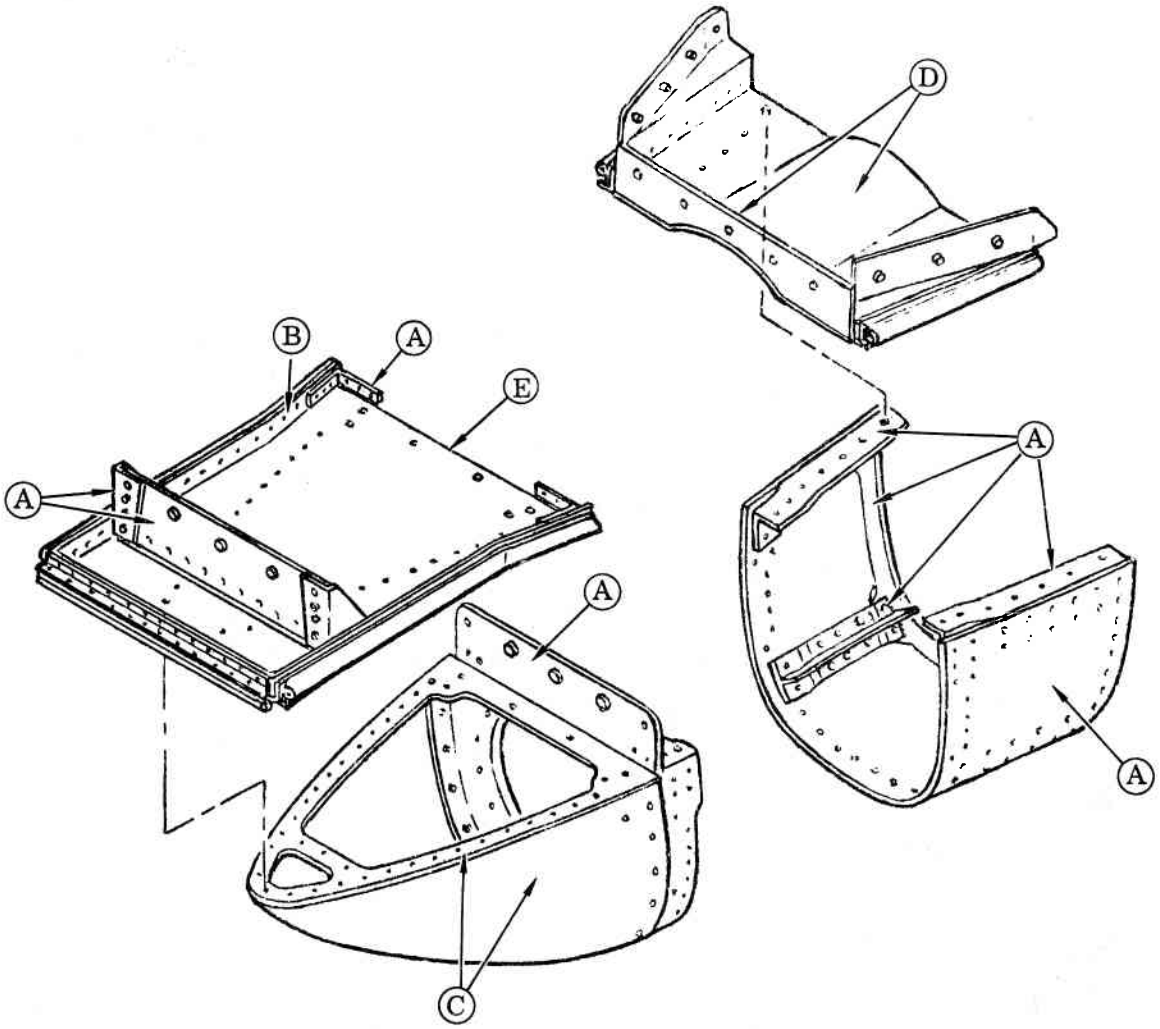
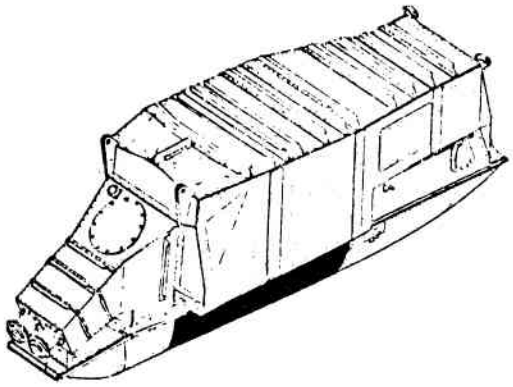


Figure 4-21B. F-106A Gun Fairing Structure (Sheet 1 of 3)
Applicable to F-106A after incorporation of TCTO 1F-106A-558.



MATERIAL

UNLESS OTHERWISE NOTED, ALL PARTS ARE MADE FROM 7075-T0 STOCK THEN HEAT TREATED TO THE T73 CONDITION

A. 7075-T651 MACHINED FROM BAR STOCK AND HEAT TREATED TO T7351
B. 17-4PH CRES, AMS5643, COND. A, H1100 MACHINED FROM 17-4PH CRES, AMS5643, COND. A BAR STOCK
C. 7075-T73 MACHINED FROM 7075-T6 EXTRUSION
D. 7075T-0 MACHINED FROM BAR STOCK AND HEAT TREATED TO T73

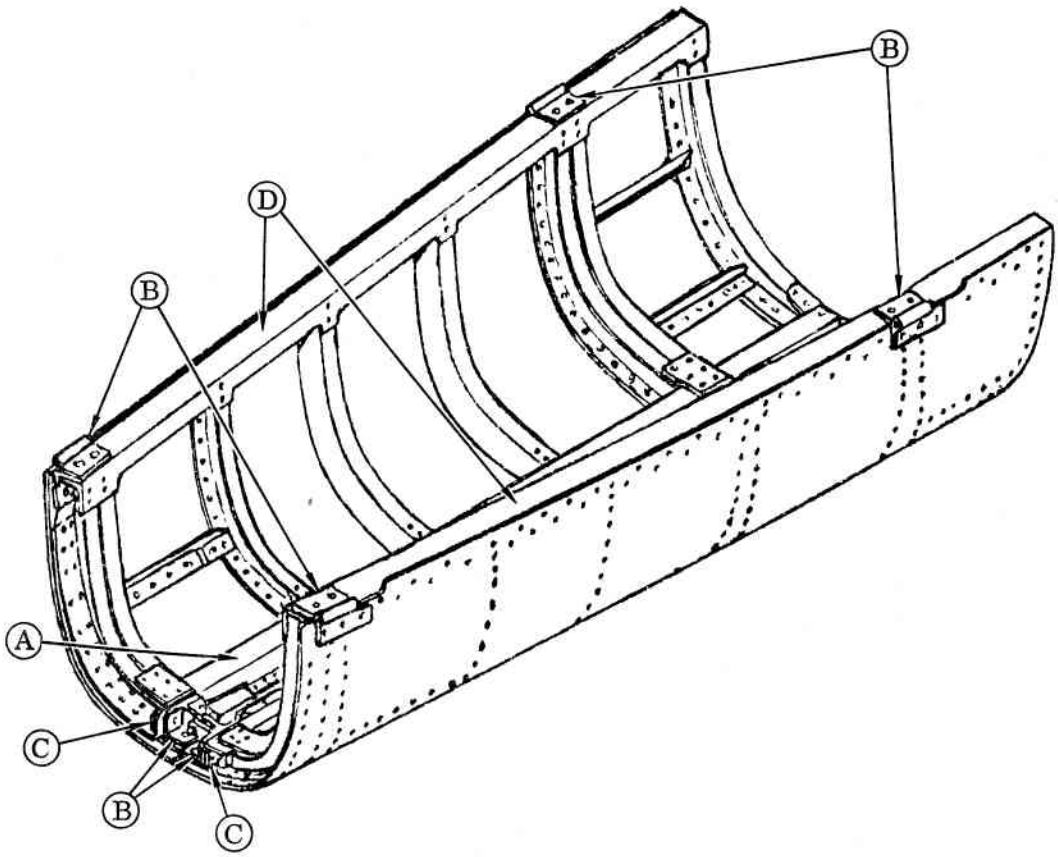
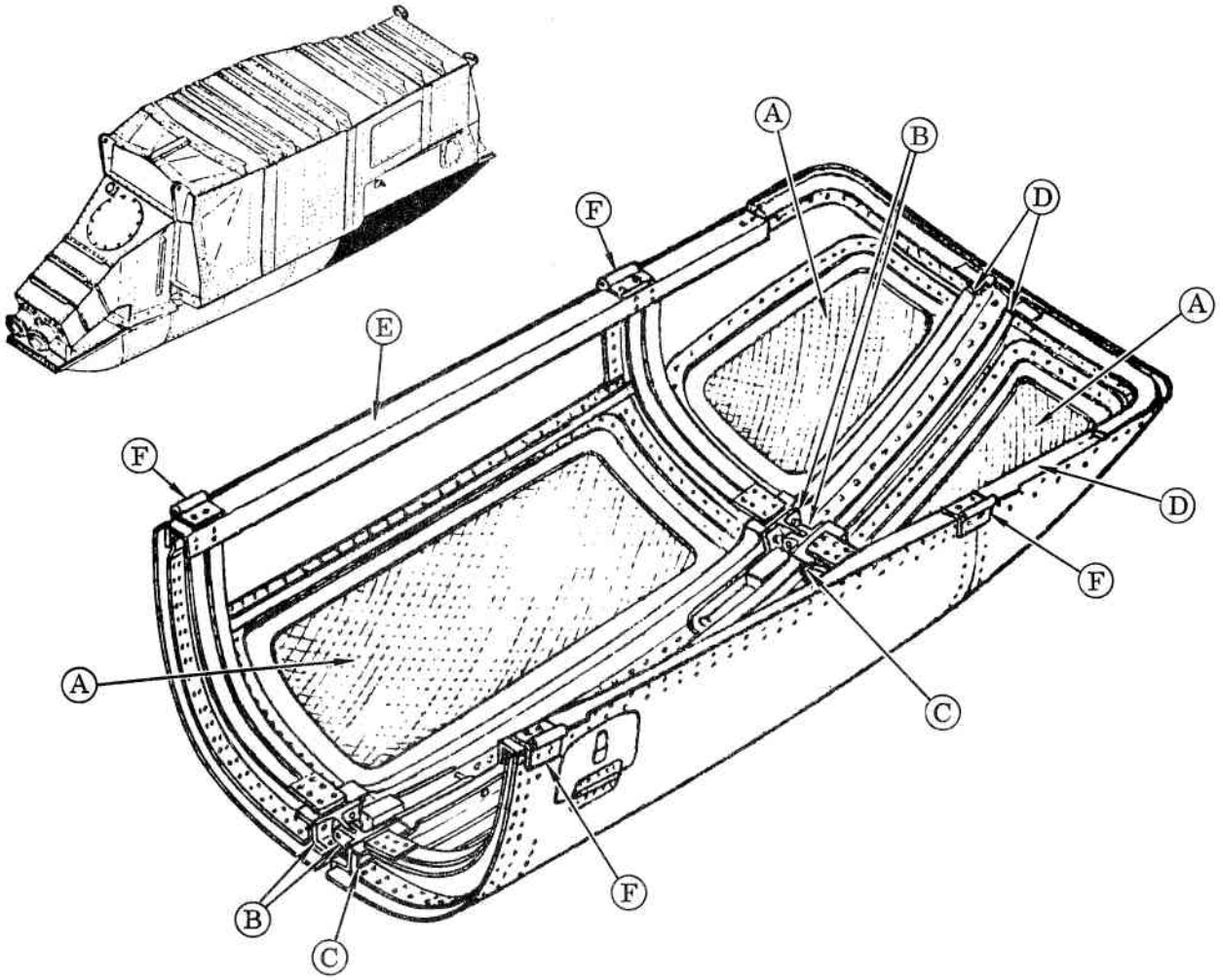


Figure 4-21B. F-106A Gun Fairing Structure (Sheet 2 of 3)
Applicable to F-106A after incorporation of TCTO 1F-106A-558.



MATERIAL

UNLESS OTHERWISE NOTED, ALL PARTS ARE MADE FROM 7075 STOCK THEN HEAT TREATED TO THE T73 CONDITION

A. 3/4 NO. 16 GLOBE (11432)
B. 17-4PH CRES, AMS5643, H1100 MACHINED FROM 17-4PH CRES, AMS5643, COND. A BAR STOCK
C. 7075-T73 MACHINED FROM 7075-T6 EXTRUSION
D. 7075-T651 MACHINED FROM BAR STOCK AND HEAT TREATED TO T-7351
E. 7075-T6 MACHINED FROM BAR STOCK AND HEAT TREATED TO T-73
F. 17-4PH CRES, AMS5643, COND. A, H1150 MACHINED FROM 17-4PH CRES, AMS5643, COND. A BAR STOCK

Figure 4-21B. F-106A Gun Fairing Structure (Sheet 3 of 3)
Applicable to F-106A after incorporation of TCTO 1F-106A-558.

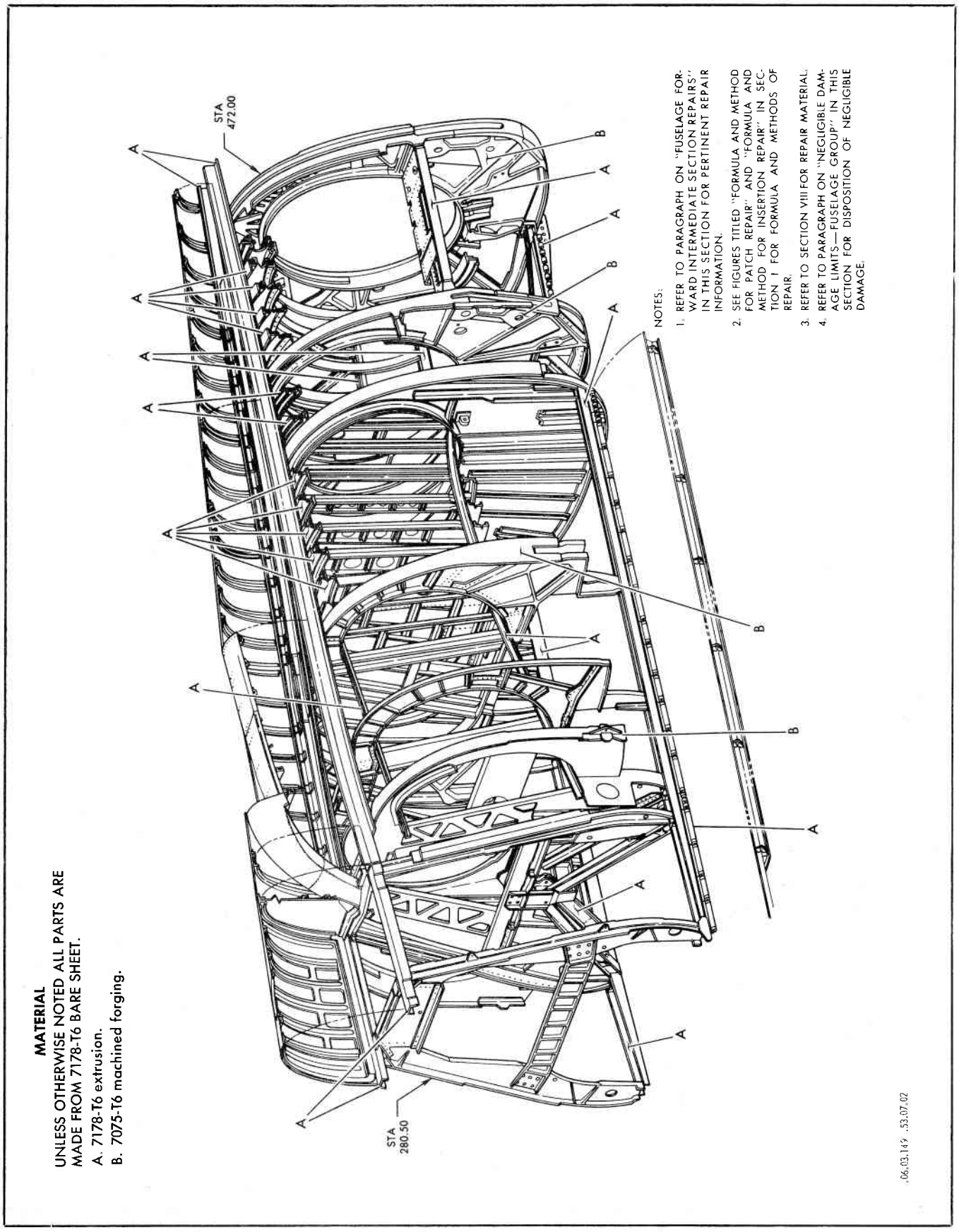
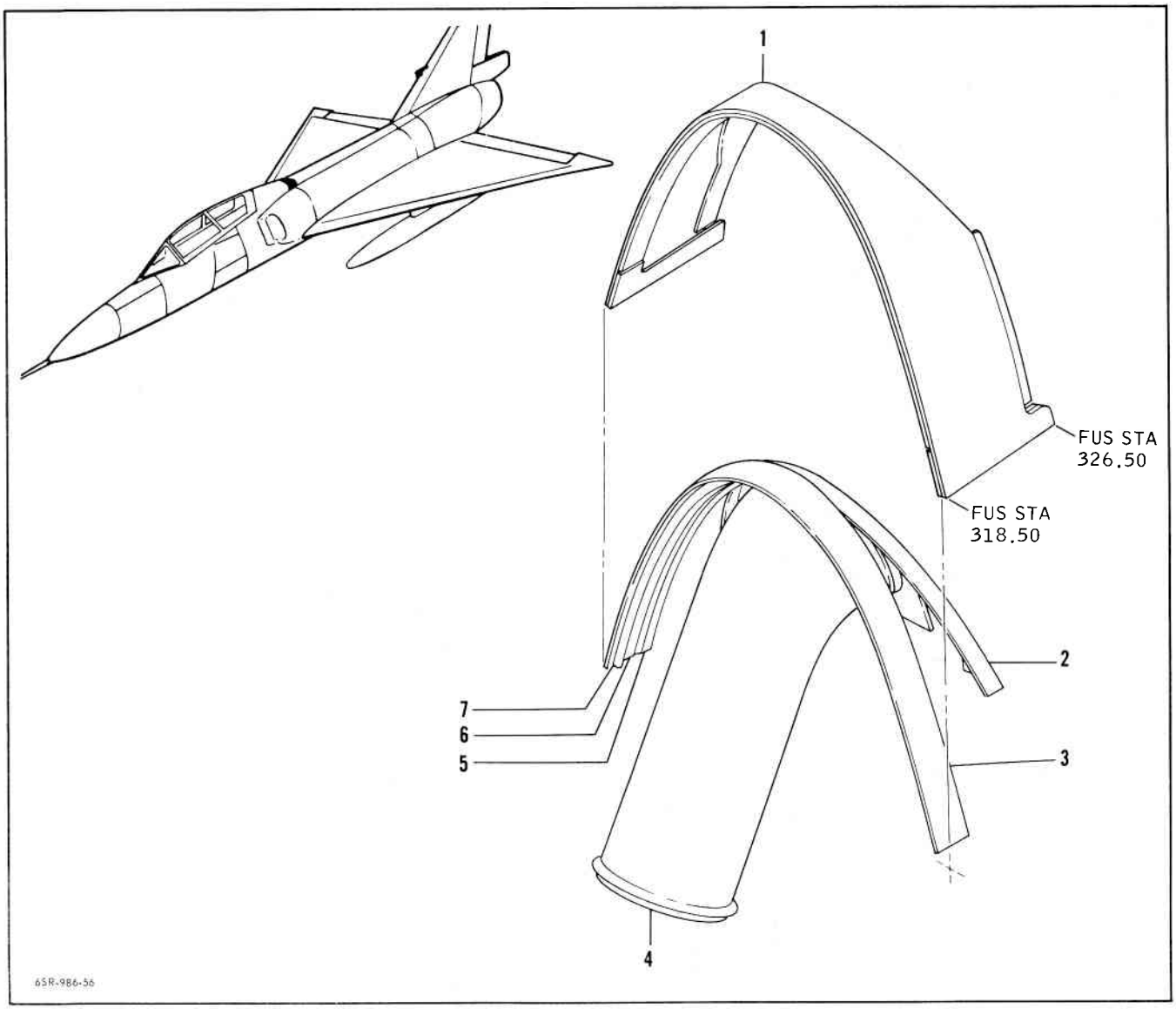


Figure 4-22. Fuselage Structure — Stations 273.00 to 472.00 — F-106B



KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	66J39734-2	Skin (Weldment)	0.05 x 9.4 x 52.5	7075-T6	QQ-A-250/12(T6)	4-16F, 10-1
2	66E39736-1	Support	0.032 x 11.7 x 20.5	Cres Typ 302	MIL-S-5059 Cond A	10-10A
3	66E39738-1	Retainer	0.025 x 2.1 x 43.0	Cres Typ 301	MIL-S-5059 Cond 1/4 Hd	**
4	66J40237-1	Duct (Weldment)		Cres Typ 321/347	MIL-S-6721	10-10D
5	66E39737-1	Support	0.04 x 2.5 x 43.0	7075-T6	QQ-A-250/12(T6)	10-10C*
6	66J40666-8	Retainer	E491002-24-0 x 53.0	2024-T0	QQ-A-200/3(T0)	Replace
7	66J40666-6	Seal		Silicone Rubber	MIL-R-25988	Replace
*Use portion of repair as required.						
**Remove damaged area. Insert new piece picking up three rivets (minimum)						

Figure 4-22A. Aerial Refueling Dorsal Section, F-106B, Station 318.5 to 326.5

Applicable after incorporation of TCTO 1F-106-986

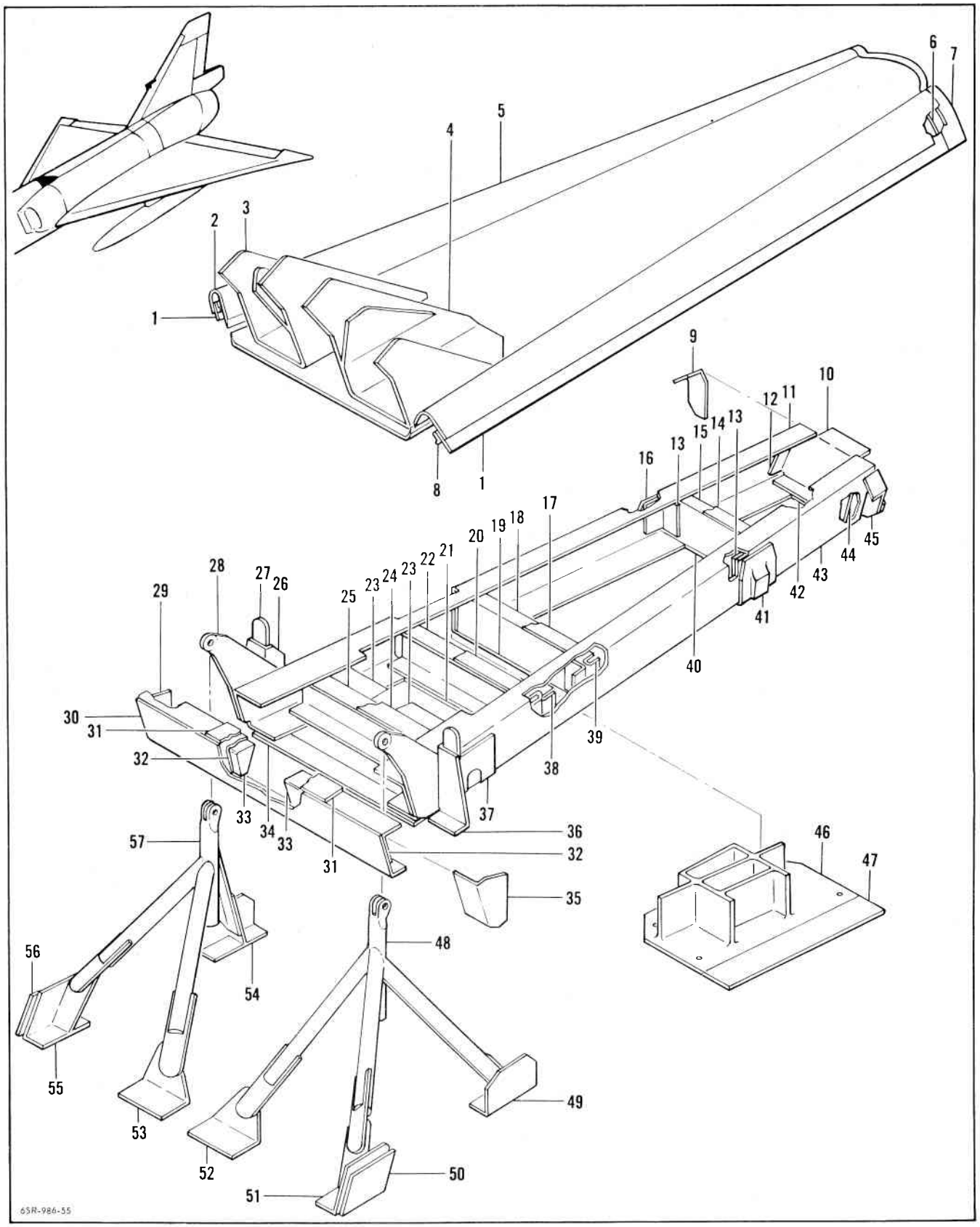


Figure 4-22B. Aerial Refueling Slipway Door and Hinge Supports, F-106B (Sheet 1 of 3)

Applicable after incorporation of TCTO 1F-106-986

KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	66J40670-23	Seal	3/32 x 35.0	Syn. Rubber	AMS3208	Replace
2	66J40670-6	Retainer	E491002 x 35.0	2024-T4	QQ-A-200/3(T4)	Replace
3	66E40547-4	Vane (Weldment)		4130 Cond A	MIL-S-18729	10-10B, 10-10E
4	66E40547-3	Vane (Weldment)		4130 Cond A	MIL-S-18729	10-10B, 10-10E
5	66J40372-1	Trough	0.125 x 26.0 x 40.0	Cres Typ 301	MIL-S-5059 Cond 1/4HD	10-1, 10-10B
6	66J40670-10	Retainer	0.04 x 1.5 x 10.0	2024-T3	QQ-A-250/4(T3)	Replace
7	66J40670-24	Seal	3/32 x 35.0	Syn. Rubber	AMS3208	Replace
8	66J40670-5	Retainer	E491002 x 35.0	2024-T4	QQ-A-200/3(T4)	Replace
9	66C40702-4	Attachment	0.071 x 3.0 x 4.5	7075-T6	QQ-A-250/12(T6)	Replace
10	66D40366-1	Rib	0.08 x 4.5 x 7.1	7075-T6	QQ-A-250/12(T6)	10-10A
11	66D40016-1	Channel	0.08 x 6.0 x 32.5	7075-T6	QQ-A-250/12(T6)	10-5, 10-10A, 10-10C
12	66C40702-6	Attachment	0.071 x 3.0 x 3.5	7075-T6	QQ-A-250/12(T6)	Replace
13	66C40701-1	Attachment	0.071 x 1.8 x 2.6	7075-T6	QQ-A-250/12(T6)	Replace
14	66J40670-18	Filler	0.08 x 0.9 x 3.9	2024-T3	QQ-A-250/4(T3)	Replace
15	66C40683-1	Rib	0.071 x 4.3 x 8.8	7075-T6	QQ-A-250/12(T6)	10-10A
16	66D40261-2	Stop	2.5 x 2.5 x 2.5	7079-T651	QQ-A-250/17(T651)	Replace
17	66J40670-20	Filler	0.08 x 0.9 x 5.9	2024-T3	QQ-A-250/4(T3)	Replace
18	66J40670-19	Filler	0.08 x 0.9 x 4.5	2024-T3	QQ-A-250/4(T3)	Replace
19	66C40682-1	Rib	0.071 x 4.1 x 9.0	7075-T6	QQ-A-250/12(T6)	10-10A
20	66J40670-16	Filler	0.08 x 0.9 x 6.4	2024-T3	QQ-A-250/4(T3)	Replace
21	66J40670-15	Filler	0.08 x 1.9 x 4.8	2024-T3	QQ-A-250/4(T3)	Replace
22	66C40681-1	Rib	0.071 x 4.1 x 9.5	7075-T6	QQ-A-250/12(T6)	10-10A
23	66C40361-1	Fitting	1.5 x 4.0 x 2.25	7079-T651	QQ-A-250/17(T651)	Replace
24	66J40670-22	Filler	0.08 x 1.96 x 6.2	2024-T3	QQ-A-250/4(T3)	Replace
25	66C40371-1	Rib	0.071 x 3.9 x 9.4	7075-T6	QQ-A-250/12(T6)	10-10A
26	66C40698-2	Attachment	0.08 x 2.98 x 4.2	7075-T6	QQ-A-250/12(T6)	Replace
27	66C40370-1	Filler	0.19 x 1.3 x 4.1	2024-T3	QQ-A-250/4(T3)	Replace
28	66D40359-2	Hinge	0.25 x 6.5 x 8.0	4130 Cond MA	MIL-S-18729	Replace
29	66C40697-2	Attachment	0.071 x 4.0 x 4.0	7075-T6	QQ-A-250/12(T6)	Replace
30	66C40365-1	Angle	0.08 x 3.34 x 14.6	7075-T6	QQ-A-250/12(T6)	10-10A, 10-10B
31	66J40670-14	Filler	0.08 x 2.0 x 8.2	2024-T3	QQ-A-250/4(T3)	Replace
32	66C40364-1	Angle	0.08 x 4.0 x 10.4	7075-T6	QQ-A-250/12(T6)	10-10A, 10-10B
33	66C40360-1	Fitting	2.0 x 2.5 x 3.6	7079-T651	QQ-A-250/17(T651)	Replace
34	66J40670-4	Skin	0.05 x 10.1 x 30.3	2024-T3	QQ-A-250/4(T3)	10-2, 10-10B
35	66C40697-1	Attachment	0.071 x 4.0 x 4.0	7075-T6	QQ-A-250/12(T6)	Replace
36	66C40698-1	Attachment	0.08 x 2.98 x 4.2	7075-T6	QQ-A-250/12(T6)	Replace
37	66D40359-1	Hinge	0.25 x 6.5 x 8.0	4130 Cond MA	MIL-S-18729	Replace
38	66C40699-1	Attachment	0.071 x 2.2 x 1.7	7075-T6	QQ-A-250/12(T6)	Replace
39	66C40700-1	Attachment	0.071 x 1.8 x 2.25	7075-T6	QQ-A-250/12(T6)	Replace
40	66J40670-17	Filler	0.08 x 1.2 x 2.9	2024-T3	QQ-A-250/4(T3)	Replace
41	66D40261-1	Stop	2.5 x 2.5 x 2.5	7079-T651	QQ-A-250/17(T651)	Replace
42	66J40670-11	Filler	0.08 x 0.9 x 1.1	2024-T3	QQ-A-250/4(T3)	Replace
43	66E40362-1	Channel	0.08 x 6.0 x 32.5	7075-T6	QQ-A-250/12(T6)	10-5, 10-10A, 10-10C
44	66C40702-5	Attachment	0.071 x 3.0 x 3.5	7075-T6	QQ-A-250/12(T6)	Replace
45	66C40702-3	Attachment	0.071 x 3.0 x 4.5	7075-T6	QQ-A-250/12(T6)	Replace
46	66E40358-1	Support	4.0 x 6.5 x 10.8	7079-T651	QQ-A-250/17(T651)	Replace
47	66J40670-21	Filler	0.12 x 1.62 x 8.8	2024-T3	QQ-A-250/4(T3)	Replace
48	66J39730-1	Support (Weldment)		4130 Cond N	MIL-S-18729	Replace
49	66D39729-1	Support (Weldment)		4130 Cond N	MIL-S-18729	10-10E
50	66J40264-9	Plate	0.25 x 1.7 x 3.7	4130 Cond N	MIL-S-18729	Replace
51	66D39727-1	Support (Weldment)		4130 Cond N	MIL-S-18729	10-10E
52	66D39728-6	Support (Weldment)		4130 Cond N	MIL-S-18729	10-10E

Figure 4-22B. Aerial Refueling Slipway Door and Hinge Supports, F-106B (Sheet 2 of 3)
Applicable after incorporation of TCTO 1F-106-986

KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
53	66D39728-7	Support (Weldment)		4130 Cond N	MIL-S-18729	10-10E
54	66D39729-2	Support (Weldment)		4130 Cond N	MIL-S-18729	10-10E
55	66D39727-2	Support (Weldment)		4130 Cond N	MIL-S-18729	10-10E
56	66J40264-10	Plate	0.25 x 1.7 x 3.7	4130 Cond N	MIL-S-18729	Replace
57	66J39730-2	Support (Weldment)		4130 Cond N	MIL-S-18729	Replace

Figure 4-22B. Aerial Refueling Slipway Door and Hinge Supports, F-106B (Sheet 3 of 3)

Applicable after incorporation of TCTO 1F-106-986

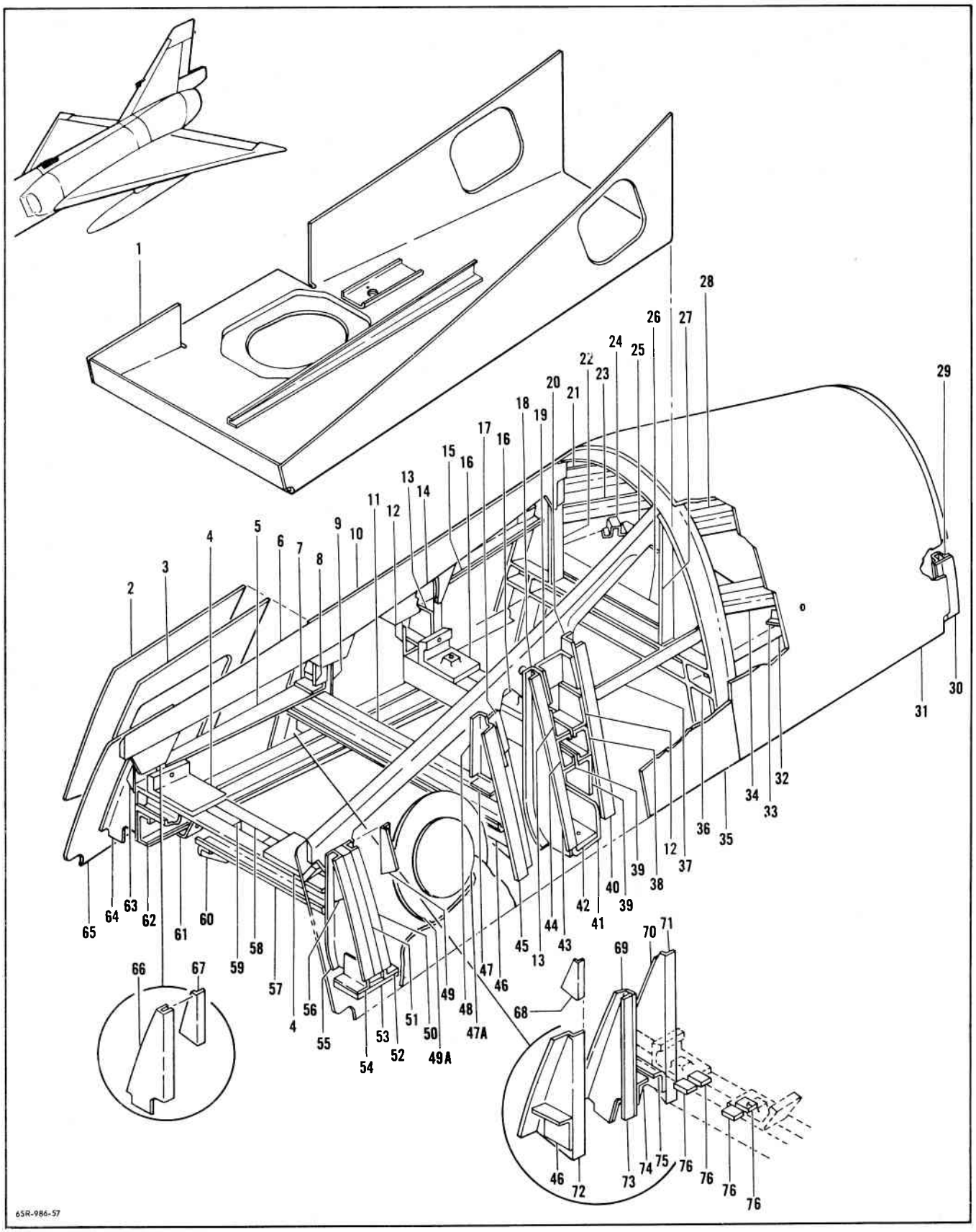


Figure 4-22C. Aerial Refueling Dorsal Sections, F-106B, Stations 325.0 to 377.5 (Sheet 1 of 3)
Applicable after incorporation of TCTO 1F-106-986

KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	66J40241-1	Pan (Weldment)		6160-T6	QQ-A-250/11(T6)	10-2, 10-10B,
						10-10E
2	66J39753-3	Skin	0.05 x 11.0 x 12.5	7075-T6	QQ-A-250/12(T6)	10-1
3	66J39753-2	Doubler	0.05 x 11.0 x 12.5	7075-T6	QQ-A-250/12(T6)	*
4	66D39801-1	Support	1.5 x 4.0 x 3.0	7079-T651	QQ-A-250/17(T651)	Replace
5	66C39774-1	Angle	0.08 x 3.5 x 13.0	7075-T6	QQ-A-250/12(T6)	10-10A
6	66J39772-1	Longeron	1.37 x 5.4 x 35.75	7075-T651	QQ-A-250/12(T651)	Replace
7	66C40704-2	Angle	0.08 x 1.9 x 3.7	7075-T6	QQ-A-250/2(T6)	Replace
8	66C40705-1	Angle	0.09 x 3.0 x 4.5	4130	MIL-S-18729 Cond A	Replace
9	66J40666-7	Plate	0.032 x 4.12 x 9.5	7075-T6	QQ-A-250/12(T6)	10-2, 10-10B
10	66J39755-1	Skin (Weldment)		7075-T6	QQ-A-250/12(T6)	4-16G
11	66D39744-4	Channel	0.1 x 4.3 x 18.0	7075-T6	QQ-A-250/12(T6)	10-8
12	66C39763-2	Angle	0.08 x 2.5 x 3.0	7075-T6	QQ-A-250/12(T6)	Replace
13	66C39763-1	Angle	0.08 x 2.5 x 3.0	7075-T6	QQ-A-250/12(T6)	Replace
14	66C39764-2	Channel	0.08 x 1.5 x 4.8	7075-T6	QQ-A-250/12(T6)	Replace
15	66C39777-2	Bracket	0.05 x 2.3 x 10.8	7075-T6	QQ-A-250/12(T6)	10-10A
16	66D39802-1	Support	2.0 x 2.5 x 4.0	7079-T651	QQ-A-250/17(T651)	Replace
17	66C40705-3	Angle	0.063 x 2.4 x 2.4	4130	MIL-S-18729 Cond A	Replace
18	66D39770-1	Support	0.08 x 4.7 x 10.1	7075-T6	QQ-A-250/12(T6)	Replace
19	66C39764-1	Channel	0.08 x 1.5 x 4.8	7075-T6	QQ-A-250/12(T6)	Replace
20	66D39761-1	Support	0.08 x 6.0 x 11.5	7075-T6	QQ-A-250/12(T6)	Replace
21	66C39786-4	Stiffener	0.04 x 3.7 x 9.5	2024-T3	QQ-A-250/4(T3)	10-10A, 10-10C
22	66C39773-2	Angle	0.10 x 4.5 x 8.8	7075-T6	QQ-A-250/12(T6)	10-10A
23	66C39786-2	Stiffener	0.04 x 3.7 x 7.8	2024-T3	QQ-A-250/4(T3)	10-10A, 10-10C
24	66C39853-2	Bracket	0.04 x 2.0 x 2.1	2024-T3	QQ-A-250/4(T3)	Replace
25	66J39771-1	Longeron	0.10 x 4.5 x 8.8	7075-T651	QQ-A-250/12(T651)	Replace
26	66C39787-1	Plate	0.1 x 1.6 x 16.4	7075-T6	QQ-A-250/12(T6)	Replace
27	66C39773-1	Angle	0.10 x 4.5 x 8.8	7075-T6	QQ-A-250/12(T6)	10-10A
28	66C39786-3	Stiffener	0.04 x 3.7 x 9.5	2024-T3	QQ-A-250/4(T3)	10-10A, 10-10C
29	66E39750-1	Support	0.04 x 3.0 x 40.0	7075-T6	QQ-A-250/12(T6)	10-10C
30	66J40666-16	Doubler	0.04 x 2.0 x 47.0	7075-T6	QQ-A-250/13(T6)	**
31	66J39751-1	Skin (Weldment)		7075-T6	QQ-A-250/12(T6)	10-10E
32	66E39783-1	Pan	0.05 x 6.8 x 24.7	7075-T6	QQ-A-250/12(T6)	10-2, 10-10B,
						10-10E
33	66C39853-1	Bracket	0.04 x 2.0 x 2.1	2024-T3	QQ-A-250/4(T3)	Replace
34	66C39786-1	Stiffener	0.04 x 3.7 x 7.8	2024-T3	QQ-A-250/4(T3)	10-10A, 10-10C
35	66D39752-1	Skin (Weldment)	0.05 x 15.0 x 35.0	7075-T6	QQ-A-250/12(T6)	10-1
36	66J40260-1	Dorsal Sect	2.5 x 18.0 x 19.0	7079-T651	QQ-A-250/17(T651)	10-9
		(Machined)				
37	66C39777-1	Bracket	0.05 x 3.0 x 11.5	7075-T6	QQ-A-250/12(T6)	10-10A
38	66D39744-2	Channel	0.1 x 4.3 x 18.0	7075-T6	QQ-A-250/12(T6)	10-8
39	66C40703-1	Angle	0.08 x 2.9 x 2.9	7075-T6	QQ-A-250/12(T6)	Replace
40	66D39762-1	Support	0.08 x 5.0 x 10.7	7075-T6	QQ-A-250/12(T6)	Replace
41	66D39766-2	Channel	0.9 x 3.75 x 7.0	7075-T6	QQ-A-250/4(T6)	Replace
42	66C39781-1	Plate	0.371 x 2.0 x 1.7	7075-T6	QQ-A-250/4(T6)	Replace
43	66D39769-1	Support	0.08 x 4.5 x 10.1	7075-T6	QQ-A-250/12(T6)	Replace
44	66D39744-3	Channel	0.1 x 4.3 x 18.2	7075-T6	QQ-A-250/12(T6)	10-8
45	66D39749-1	Support	0.08 x 6.5 x 10.0	7075-T6	QQ-A-250/12(T6)	10-10A
46	66C40703-2	Angle	0.08 x 2.5 x 3.0	7075-T6	QQ-A-250/2(T6)	Replace
47	66C40704-1	Angle	0.08 x 1.9 x 3.7	7075-T6	QQ-A-250/2(T6)	Replace
47A	66J39752-6	Door	0.1 x 5.0 x 5.0	7075-T6	QQ-A-250/12(T6)	Replace
48	66C40705-2	Angle	0.09 x 3.0 x 4.5	4130	MIL-S-18729 Cond A	Replace
49	66C40706-1	Angle	0.063 x 2.7 x 4.0	4130	MIL-S-18729 Cond A	Replace
49A	66J39752-5	Retainer	0.063 x 9.0 x 9.0	7075-T6	QQ-A-250/12(T6)	Replace
50	66D39779-1	Support	0.08 x 4.8 x 7.8	7075-T6	QQ-A-250/12(T6)	Replace

*Stop drill cracks where 1.0 edge distance.

**Remove damaged area. Insert new piece picking up four rivets (minimum).

Figure 4-22C. Aerial Refueling Dorsal Sections, F-106B, Stations 325.0 to 377.5 (Sheet 2 of 3)

Applicable after incorporation of TCTO 1F-106-986

KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
51	66D39745-1	Stiffener	0.75 x 8.0 x 9.0	7075-T651	QQ-A-250/12(T651)	Replace
52	66C39746-1	Angle	AND10133-1403 x	7075-T6511	QQ-A-200/11(T6511)	Replace
			1.65			
53	66C39747-1	Plate	0.5 x 1.8 x 3.0	7075-T651	QQ-A-250/12(T651)	Replace
54	66C39746-2	Angle	AND10133-1403 x	7075-T6511	QQ-A-250/11(T6511)	Replace
			1.65			
55	66D39780-1	Support	0.08 x 4.8 x 7.8	7075-T6	QQ-A-250/12(T6)	Replace
56	66D39778-1	Bracket	0.063 x 3.5 x 5.0	4130 Cond A	MIL-S-18729	Replace
57	66D39744-1	Channel	0.1 x 4.4 x 15.8	7075-T6	QQ-A-250/12(T6)	10-8
58	66C40708-1	Channel	0.1 x 4.8 x 15.4	7075-T6	QQ-A-250/4(T6)	Replace
59	66D39743-1	Stiffener	0.75 x 8.5 x 11.0	7075-T651	QQ-A-250/12(T651)	Replace
60	66J40666-14	Bracket	0.10 x 3.25 x 3.62	7075-T6	QQ-A-250/12(T6)	Replace
61	66J40666-18	Clip	0.09 x 1.5 x 2.56	7075-T6	QQ-A-250/12(T6)	Replace
62	66C40707-1	Channel	0.1 x 5.9 x 23.3	7075-T6	QQ-A-250/4(T6)	10-8
63	66D39778-2	Bracket	0.063 x 3.5 x 5.0	4130 Cond A	MIL-S-18729	Replace
64	66D39742-1	Support	0.08 x 8.0 x 9.0	7075-T6	QQ-A-250/12(T6)	10-10A
65	66E39754-1	Skin (Weldment)		7075-T6	QQ-A-250/12(T6)	4-16G
66	66D39741-1	Support	0.08 x 6.5 x 8.5	7075-T6	QQ-A-250/12(T6)	10-10A
67	66C40706-2	Angle	0.063 x 2.7 x 4.0	4130	MIL-S-18729 Cond A	Replace
68	66C40705-4	Angle	0.063 x 2.4 x 2.4	4130	MIL-S-18729 Cond A	Replace
69	66D39768-1	Support	0.08 x 5.5 x 11.0	7075-T6	QQ-A-250/12(T6)	Replace
70	66D39759-1	Support	0.08 x 4.7 x 10.7	7075-T6	QQ-A-250/12(T6)	Replace
71	66D39760-1	Support	0.08 x 4.8 x 10.7	7075-T6	QQ-A-250/12(T6)	Replace
72	66D39748-1	Support	0.08 x 7.0 x 10.0	7075-T6	QQ-A-250/12(T6)	10-10A
73	66D39767-1	Support	0.08 x 5.5 x 11.0	7075-T6	QQ-A-250/12(T6)	Replace
74	66C39757-1	Angle	0.08 x 2.3 x 3.3	7075-T6	QQ-A-250/12(T6)	Replace
75	66C39756-1	Angle	0.08 x 2.3 x 3.3	7075-T6	QQ-A-250/12(T6)	Replace
76	66J40666-12	Plate	0.025 x 0.75 x 1.2	7075-T651	QQ-A-250/12(T651)	Replace

Figure 4-22C. Aerial Refueling Dorsal Sections, F-106B, Stations 325.0 to 377.5 (Sheet 3 of 3)
Applicable after incorporation of TCTO 1F-106-986

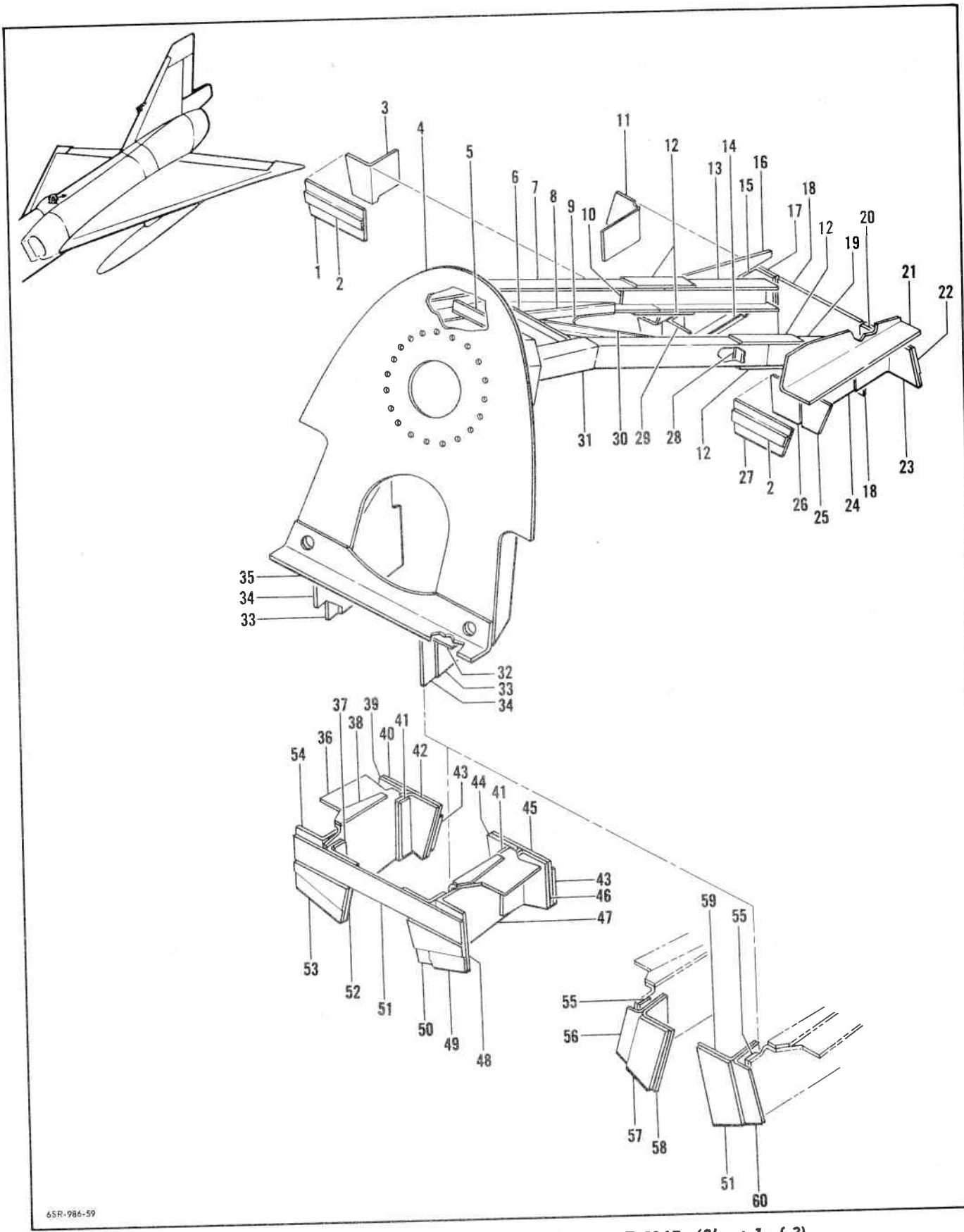


Figure 4-22D. Aerial Refueling Receptacle Support, F-106B, (Sheet 1 of 3)

Applicable after incorporation of TCTO 1F-106-986

KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
1	66J40257-21	Doubler	0.125 x 2.3 x 4.0	7075-T6	QQ-A-250/12(T6)	Replace
2	66J40257-2	Filler	0.071 x 0.9 x 3.7	7075-T6	QQ-A-250/12(T6)	Replace
3	66J40257-12	Angle	0.08 x 2.25 x 3.65	7075-T6	QQ-A-250/12(T6)	Replace
4	66J40405-1	Support (Weldment)		6061-T651	QQ-A-250/11(T651)	10-10E
5	66J40257-22	Angle	0.05 x 1.2 x 7.6	7075-T6	QQ-A-250/12(T6)	Replace
6	66J40257-33	Angle	0.05 x 1.3 x 7.6	7075-T6	QQ-A-250/12(T6)	Replace
7	66E39850-2	Support (Weldment)		4130 Cond A	MIL-S-18729	10-10E
8	66J40257-25	Angle	0.05 x 1.6 x 11.6	7075-T6	QQ-A-250/12(T6)	10-10A
9	66J40257-26	Web	0.032 x 7.6 x 14.9	7075-T6	QQ-A-250/12(T6)	10-2, 10-10B
10	66D39849-2	Spacer	0.19 x 1.3 x 12.2	4130 Cond A	MIL-S-18729 Cond A	Replace
11	66J40257-10	Angle	0.08 x 2.35 x 4.07	7075-T6	QQ-A-250/12(T6)	Replace
12	66J40257-41	Plate	0.019 x 1.5 x 6.6	4130 Cond A	MIL-S-18729 Cond A	Replace
13	66J40257-43	Channel	0.125 x 3.5 x 9.1	4130 Cond A	MIL-S-18729 Cond A	Replace
14	66J40257-4	Intercostal	0.1 x 4.9 x 6.3	7075-T6	QQ-A-250/12(T6)	Replace
15	66J40257-8	Angle	0.08 x 2.2 x 4.78	7075-T6	QQ-A-250/12(T6)	Replace
16	66J40257-18	Angle	0.125 x 8.5 x 11.5	7075-T6	QQ-A-250/12(T6)	Replace
17	66C39830-2	Plate	0.08 x 2.25 x 4.0	7075-T6	QQ-A-250/12(T6)	Replace
18	66J40257-40	Doubler	0.063 x 4.5 x 4.6	7075-T6	QQ-A-250/12(T6)	Replace
19	66J40257-42	Channel	0.125 x 3.5 x 9.1	4130 Cond A	MIL-S-18729 Cond A	Replace
20	66J40257-7	Angle	0.08 x 3.0 x 5.0	7075-T6	QQ-A-250/12(T6)	Replace
21	66J40257-17	Angle	0.125 x 8.5 x 11.5	7075-T6	QQ-A-250/12(T6)	Replace
22	66C39830-1	Plate	0.08 x 2.25 x 3.875	7075-T6	QQ-A-250/12(T6)	Replace
23	66J40257-9	Angle	0.08 x 2.35 x 4.07	7075-T6	QQ-A-250/12(T6)	Replace
24	66J40257-3	Intercostal	0.1 x 6.0 x 6.3	7075-T6	QQ-A-250/12(T6)	Replace
25	66J40257-11	Angle	0.08 x 2.25 x 3.65	7075-T6	QQ-A-250/12(T6)	Replace
26	66J40257-5	Angle	0.08 x 2.3 x 3.5	7075-T6	QQ-A-250/12(T6)	Replace
27	66J40257-20	Doubler	0.125 x 2.3 x 4.0	7075-T6	QQ-A-250/12(T6)	Replace
28	66D39849-1	Spacer	0.19 x 1.3 x 12.2	4130 Cond A	MIL-S-18729 Cond A	Replace
29	66J40257-6	Angle	0.08 x 2.3 x 3.5	7075-T6	QQ-A-250/12(T6)	Replace
30	66J40257-24	Angle	0.05 x 1.6 x 11.6	7075-T6	QQ-A-250/12(T6)	10-10A
31	66E39850-1	Support (Weldment)		4130 Cond A	MIL-S-18729	10-10E
32	66J40257-37	Filler	0.188 x 0.8 x 12.2	7075-T6	QQ-A-250/12(T6)	Replace
33	66J40257-44	Plate	0.25 x 4.5 x 4.8	6061-T6	QQ-A-250/11(T6)	Replace
34	66J40257-45	Plate	0.25 x 6.0 x 9.0	7075-T6	QQ-A-250/12(T6)	Replace
35	66J40257-38	Angle	0.125 x 3.5 x 14.5	7075-T6	QQ-A-250/12(T6)	10-10A
36	66J40257-28	Intercostal	0.08 x 6.0 x 6.9	7075-T6	QQ-A-250/12(T6)	Replace
37	66J40257-39	Filler	0.16 x 0.8 x 4.2	7075-T6	QQ-A-250/12(T6)	Replace
38	66C39832-1	Plate	0.04 x 0.7 x 3.6	7075-T6	QQ-A-250/12(T6)	Replace
39	66J40257-16	Angle	0.08 x 3.3 x 3.7	7075-T6	QQ-A-250/12(T6)	Replace
40	66J40257-34	Doubler	0.063 x 3.7 x 3.9	7075-T6	QQ-A-250/12(T6)	Replace
41	66J40257-19	Filler	0.16 x 0.7 x 3.6	7075-T6	QQ-A-250/12(T6)	Replace
42	66J40257-32	Angle	0.08 x 2.8 x 3.9	7075-T6	QQ-A-250/12(T6)	Replace
43	66J40257-35	Filler	0.05 x 3.6 x 3.7	7075-T6	QQ-A-250/12(T6)	Replace
44	66J40257-31	Angle	0.08 x 2.8 x 3.9	7075-T6	QQ-A-250/12(T6)	Replace
45	66J40257-33	Doubler	0.063 x 3.7 x 3.9	7075-T6	QQ-A-250/12(T6)	Replace
46	66J40257-15	Angle	0.08 x 3.3 x 3.7	7075-T6	QQ-A-250/12(T6)	Replace
47	66J40257-27	Intercostal	0.08 x 6.0 x 6.9	7075-T6	QQ-A-250/12(T6)	Replace
48	66J40257-13	Angle	0.08 x 3.8 x 4.1	7075-T6	QQ-A-250/12(T6)	Replace
49	66C39829-1	Plate	0.19 x 2.4 x 3.6	7075-T6	QQ-A-250/12(T6)	Replace
50	66J40257-29	Angle	0.08 x 3.0 x 4.3	7075-T6	QQ-A-250/12(T6)	Replace
51	66J40257-36	Filler	0.125 x 1.7 x 12.8	7075-T6	QQ-A-250/12(T6)	Replace
52	66J40257-30	Angle	0.08 x 3.0 x 4.3	7075-T6	QQ-A-250/12(T6)	Replace
53	66C39829-2	Plate	0.19 x 2.4 x 3.6	7075-T6	QQ-A-250/12(T6)	Replace
54	66J40257-14	Angle	0.08 x 3.8 x 4.1	7075-T6	QQ-A-250/12(T6)	Replace
55	66J40257-52	Filler	0.25 x 0.8 x 3.94	7075-T6	QQ-A-250/12(T6)	Replace
56	66J40257-48	Angle	0.08 x 4.0 x 5.0	7075-T6	QQ-A-250/12(T6)	Replace
57	66J40257-51	Filler	0.1 x 2.05 x 5.0	7075-T6	QQ-A-250/13(T6)	Replace
58	66J40257-50	Angle	0.08 x 4.5 x 5.0	7075-T6	QQ-A-250/12(T6)	Replace

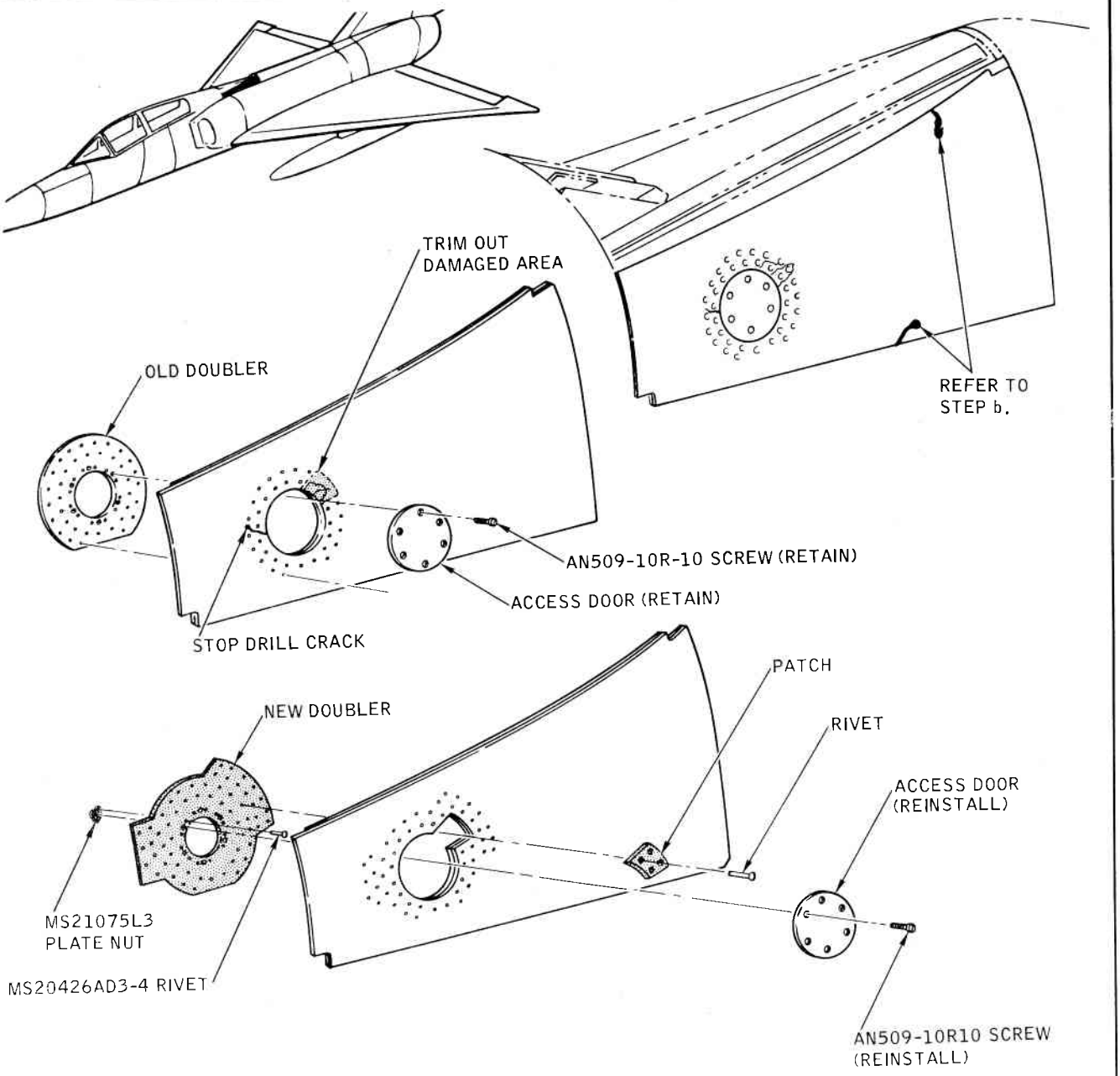
Figure 4-22D. Aerial Refueling Receptacle Support, F-106B, (Sheet 2 of 3)

Applicable after incorporation of TCTO 1F-106-986

KEY NO.	DRAWING NUMBER	NAME	STOCK SIZE	MATERIAL	MATERIAL SPECIFICATION	REPAIR FIGURE
59	66J40257-49	Angle	0.08 x 4.5 x 5.0	7075-T6	QQ-A-250/12(T6)	Replace
60	66J40257-47	Angle	0.08 x 4.0 x 5.0	7075-T6	QQ-A-250/12(T6)	Replace

Figure 4-22D. Aerial Refueling Receptacle Support, F-106B, (Sheet 3 of 3)

Applicable after incorporation of TCTO 1F-106-986



REPAIR PROCEDURE

a. Skin areas not covering structure doublers may be repaired using flush patch skin repair in Section X.

b. Skin upper edge cracks or cuts not exceeding 1.2 inches length and lower edge cracks not exceeding 0.75 inch (1-1/2D edge distance minimum from nearest attachment), stop drill and smooth out surface and edges.

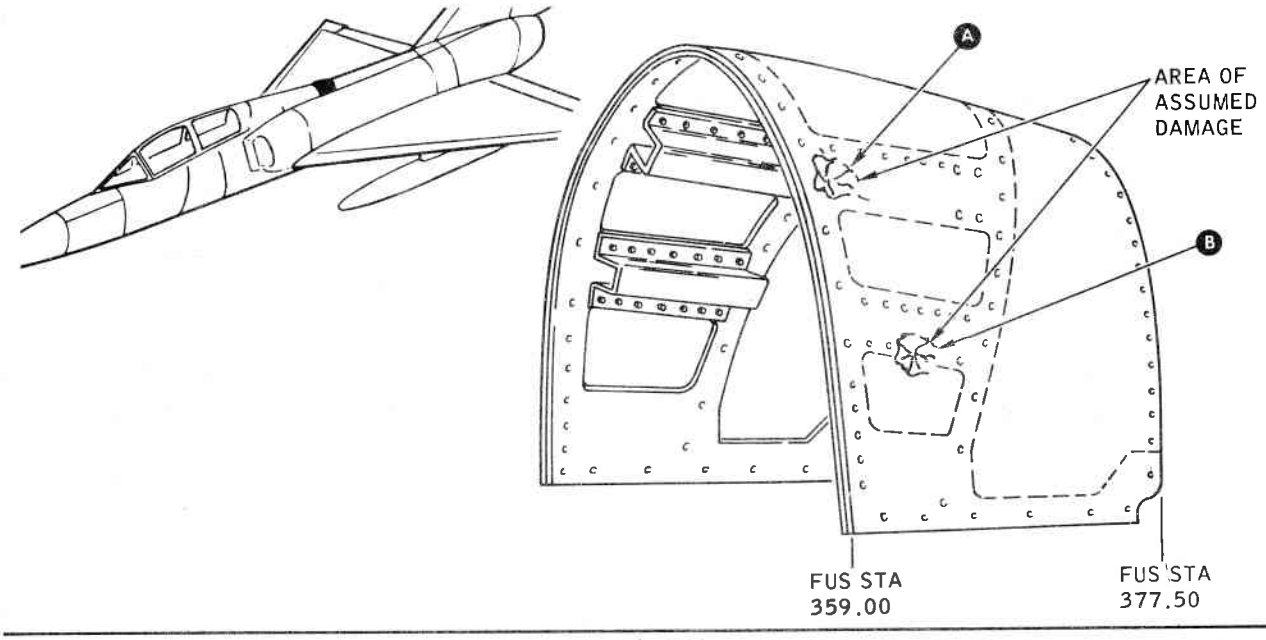
c. For access hole repair, remove old doubler. Trim out damaged area or stop drill crack. Fabricate doubler one gage heavier and patch of same material and gage as original parts. Doubler rivet pattern to be two rivets beyond damaged area in all directions.

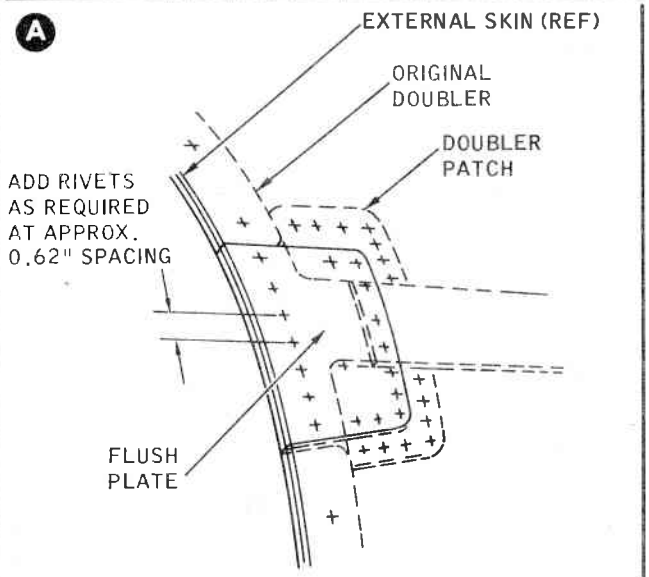
d. Refer to Section I for surface treatment of repair parts and sealing.

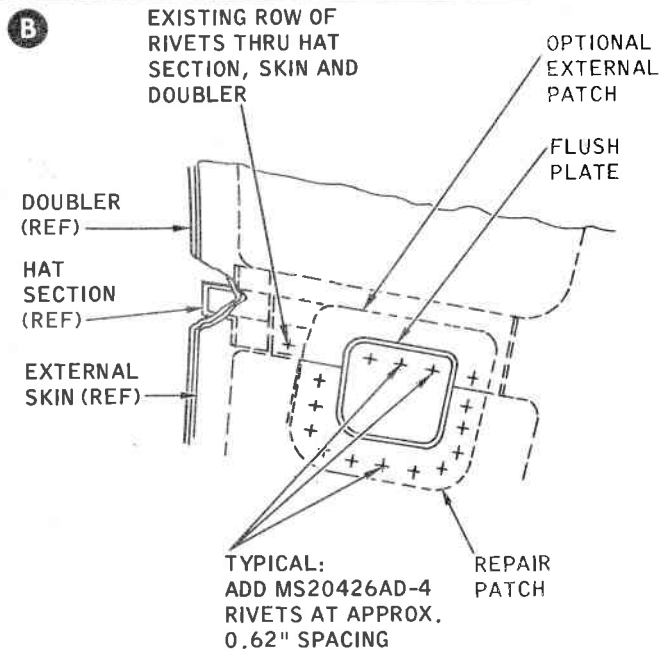
e. Skin replacement may be accomplished by installing a 0.100 inch thick 7075-T7 skin in place of present skin and doubler assembly. This removes skin and doubler spot weld requirement.

6SR-986-69

Figure 4-22E. Dorsal Skin Repair, F-106B, Stations 325.0 to 359.0
Applicable after incorporation of TCTO 1F-106-986







REPAIR PROCEDURE

a. Skin areas not covering structure or doublers may be repaired using flush patch skin repair in this section, except use single row of MS20426AD-4 rivets at approximately 0.62 spacing.

b. Skin edge cracks not exceeding 0.62 inch in length (1.0 edge distance minimum from nearest attachment) may be stop drilled with surfaces and edges smoothed out.

c. Trim out damaged area of skin and doubler. Fabricate patch and plate of same material and gage as original parts.

d. Refer to Section I for surface treatment of repair parts.

NOTE

EXTERNAL PATCH, IN LIEU OF INTERNAL PATCH, MAY BE USED WHERE INSTALLATION DIFFICULTY IS ENCOUNTERED. OVERLAP THE EXTERNAL PATCH ALL AROUND CUTOUT EXCEPT FOR EDGE OF SKIN; CHAMFER EDGES OF PATCH 45 DEGREES. INSTALL FLUSH PATE WHERE NEEDED AS FILLER.

6SR-986-71

Figure 4-22F. Dorsal Skin Repair, F-106B, Station 359.0 to 377.5

Applicable after incorporation of TCTO 1F-106-986

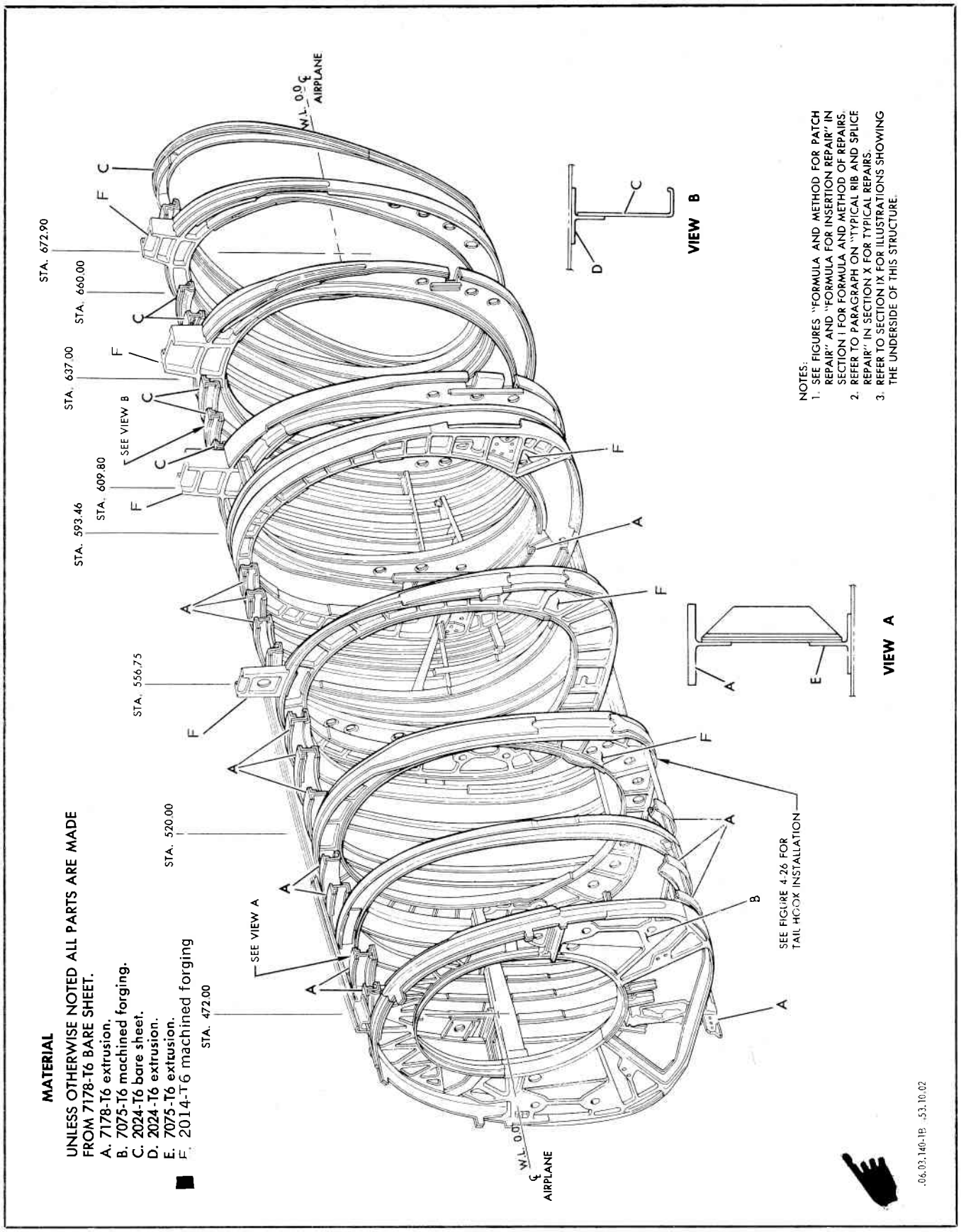
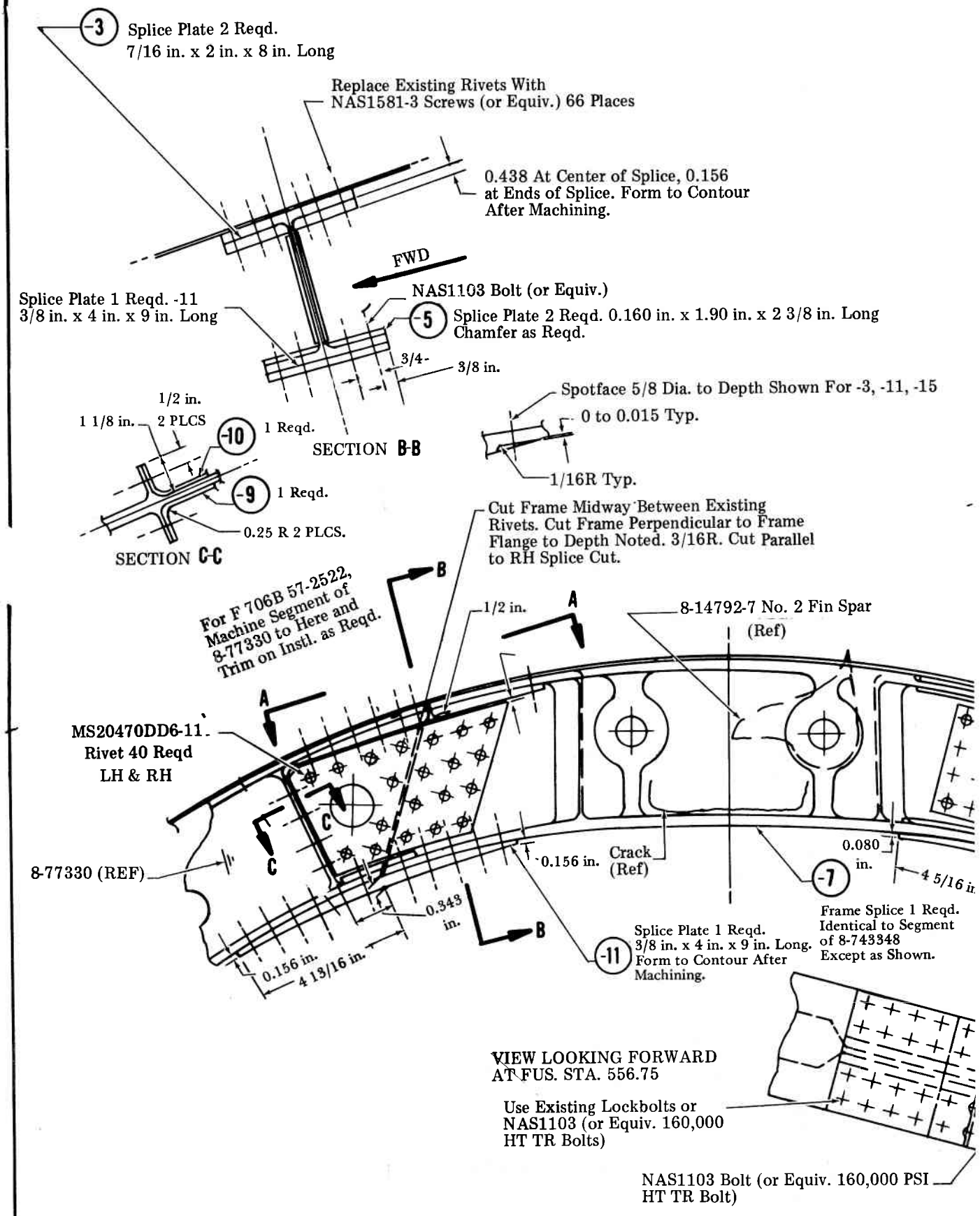
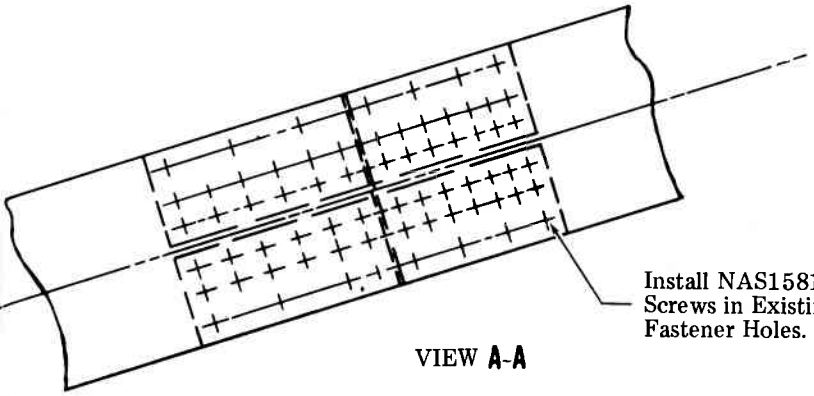


Figure 4-23. Fuselage Structure — Stations 472.00 to 672.00

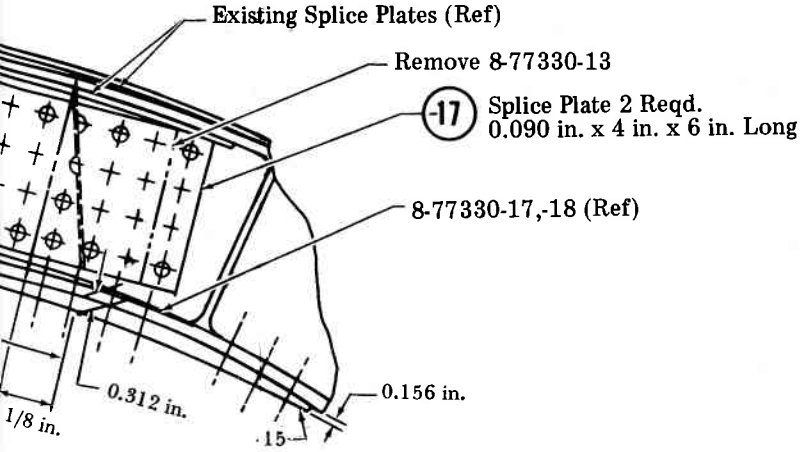

-3 Splice Plate 2 Reqd.
7/16 in. x 2 in. x 8 in. Long
Replace Existing Rivets With
NAS1581-3 Screws (or Equiv.) 66 Places
0.438 At Center of Splice, 0.156
at Ends of Splice. Form to Contour
After Machining.
FWD
NAS1103 Bolt (or Equiv.)
Splice Plate 1 Reqd. -11
3/8 in. x 4 in. x 9 in. Long
-5 Splice Plate 2 Reqd. 0.160 in. x 1.90 in. x 2 3/8 in. Long
Chamfer as Reqd.
3/4-
3/8 in.
Spotface 5/8 Dia. to Depth Shown For -3, -11, -15
0 to 0.015 Typ.
1/16R Typ.
1/2 in.
1 1/8 in.
2 PLCS
-10 1 Reqd.
SECTION B-B
-9 1 Reqd.
0.25 R 2 PLCS.
SECTION C-C
Cut Frame Midway Between Existing
Rivets. Cut Frame Perpendicular to Frame
Flange to Depth Noted. 3/16R. Cut Parallel
to RH Splice Cut.
For F 706B 57-2522,
Machine Segment of
8-77330 to Here and
Trim on Instl. as Reqd.
1/2 in.
8-14792-7 No. 2 Fin Spar
(Ref)
MS20470DD6-11
Rivet 40 Reqd
LH & RH
8-77330 (REF)
0.156 in.
Crack
(Ref)
0.080
in.
4 5/16 in.
-7 Frame Splice 1 Reqd.
Identical to Segment
of 8-743348
Except as Shown.
0.343
in.
0.156 in.
4 13/16 in.
-11 Splice Plate 1 Reqd.
3/8 in. x 4 in. x 9 in. Long.
Form to Contour After
Machining.
VIEW LOOKING FORWARD
AT FUS. STA. 556.75
Use Existing Lockbolts or
NAS1103 (or Equiv. 160,000
HT TR Bolts)
NAS1103 Bolt (or Equiv. 160,000 PSI
HT TR Bolt)

NOTES

1. 1/4 Corner Radius for all Holes Near Edge of Part.
2. Finish for -7, -9, -10, -17, -3, -5, -11 Per T.O. 1F-106A-23.
3. Dip all Fasteners in MIL-P-23377 & Install While Wet.
4. Scale Dimensions not Shown.
5. 3/8 E.D. & 3/4 Between Fasteners in -9, -10, -17.
6. Install .063 2024-T3 Shim Under Upper Part of -11 to Fill Gap Caused by Mismatch of 2 Frames.
7. Increase Length of Insulation Blanket Standoffs as Reqd.
8. -7 Frame Splice May be Made From 2014-T6 Hand Forging Per Spec MIL-A-22771 or 2014-T6 Bar Per Spec QQ-A-200/2.
9. -3, -5, -11, -15 & -17 Splice Plates May be Made From 7075-T73 AL Alloy Per Spec QQ-A-250/12 or 24.
10. -9 and -10 Angles May be Made From 2024-T^{O} AL Alloy (Heat Treat to T-81) Per Spec QQ-A-250/5.



VIEW **A-A**



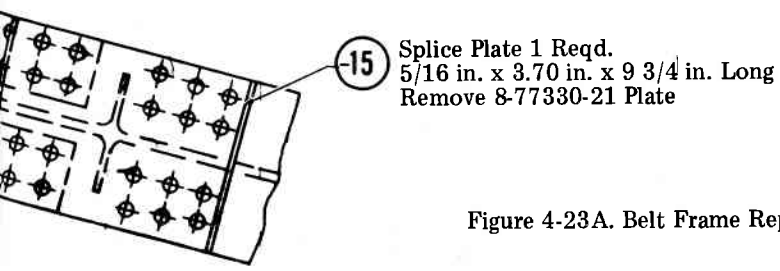


Figure 4-23A. Belt Frame Repair (Depot) Fuselage Station 556.75

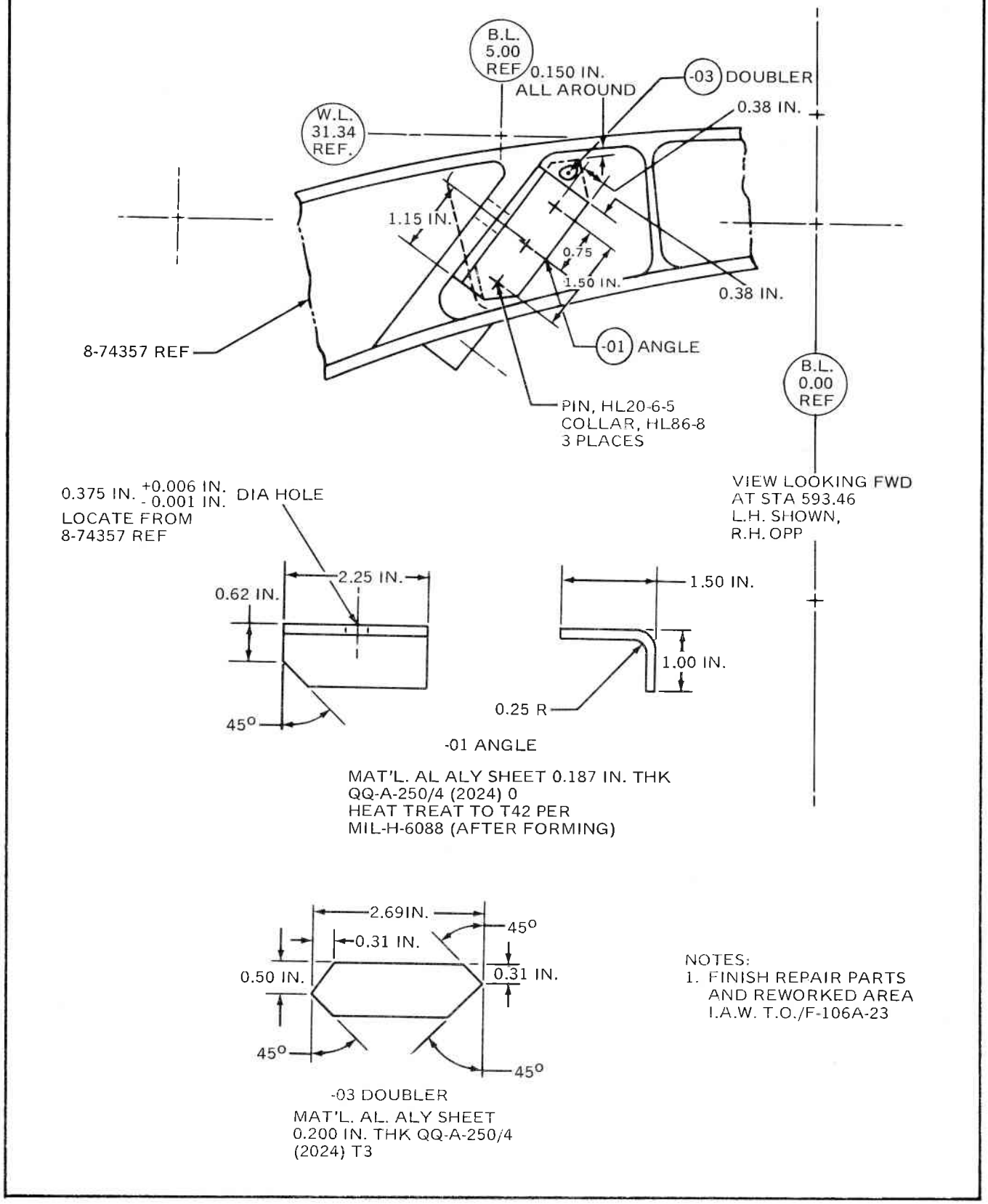


Figure 4-23B. Repair of Fuselage Bulkhead Station 593.46

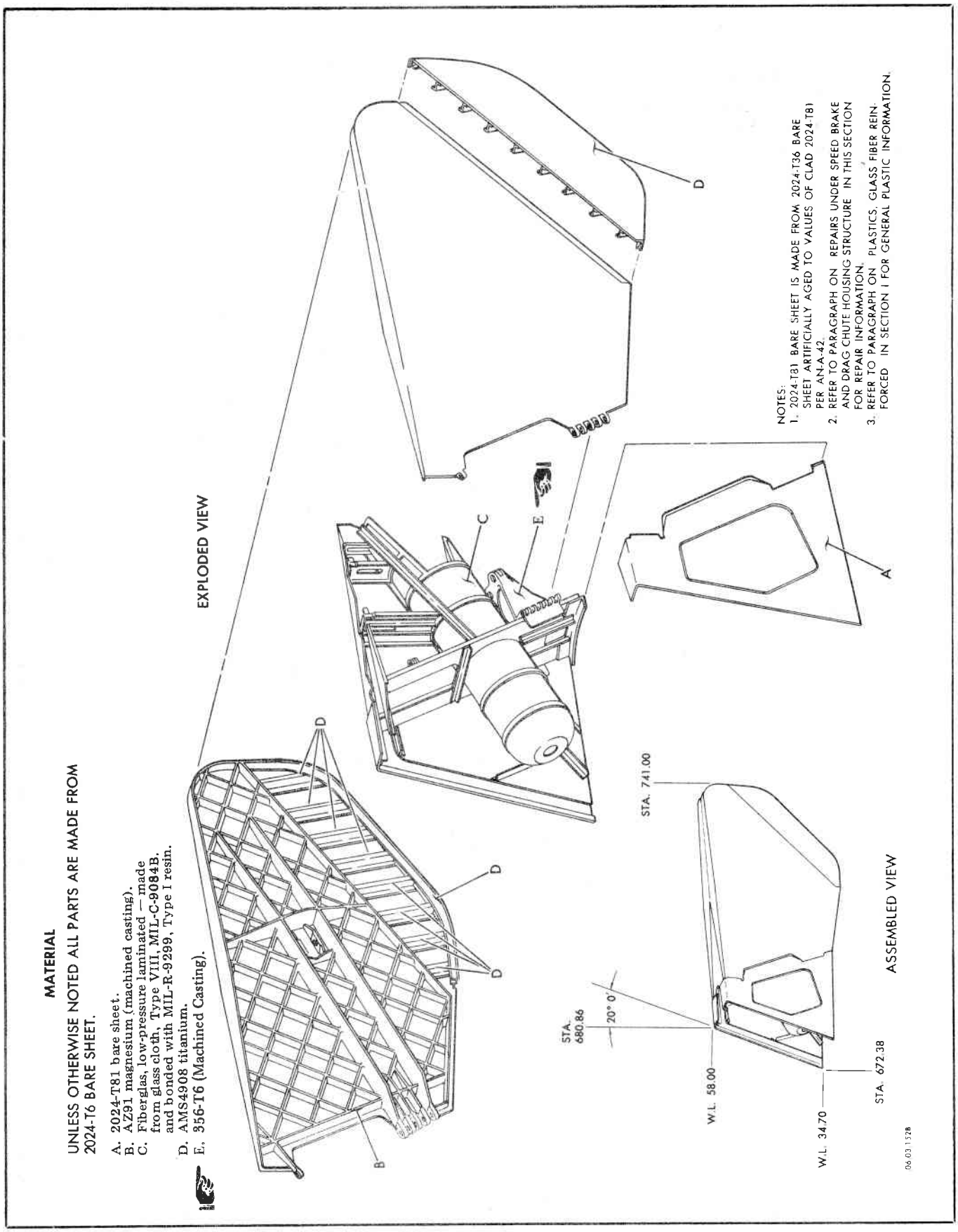
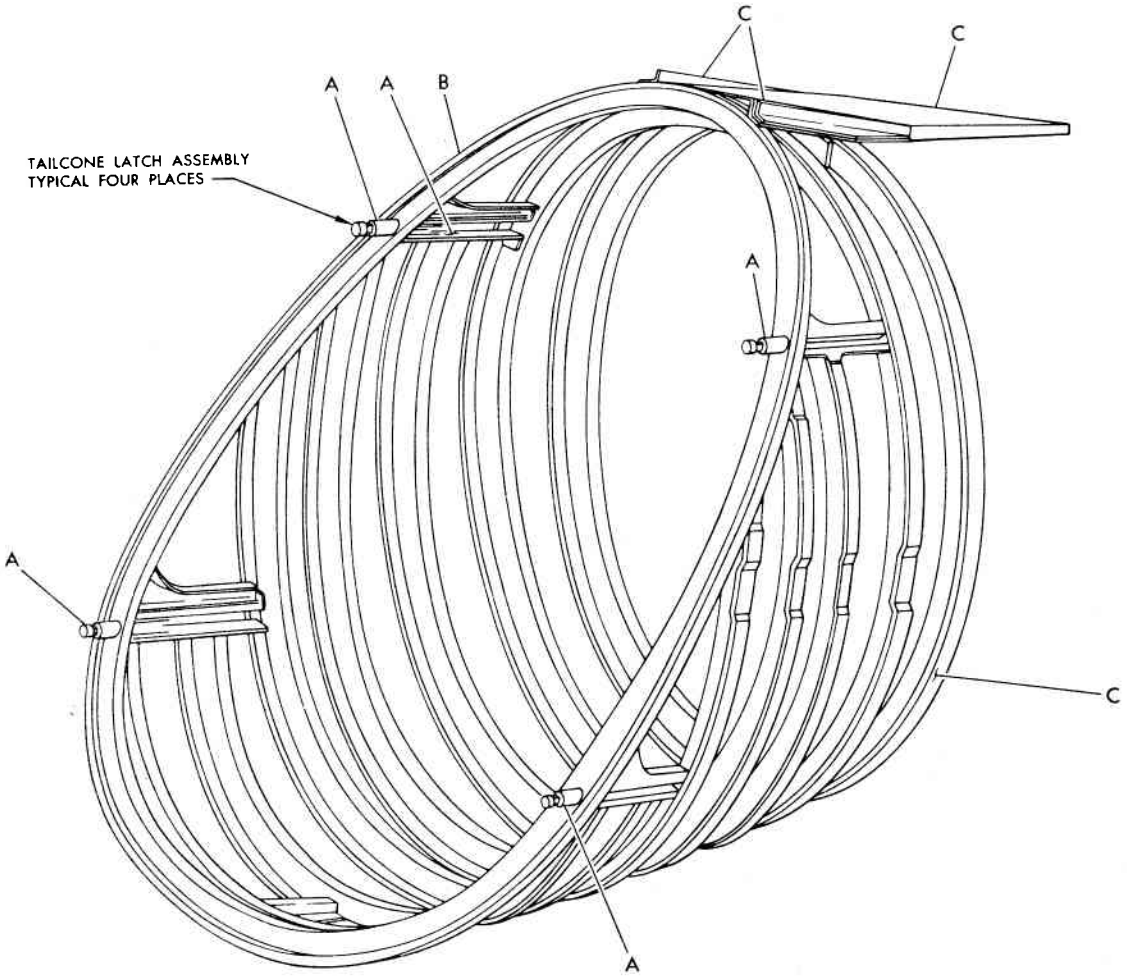


Figure 4-24. Speed Brake Structure and Drag Chute Housing

MATERIAL

UNLESS OTHERWISE NOTED ALL PARTS ARE MADE FROM 2024-T6 BARE SHEET.

A. 4130 steel, machine bar.
B. 2024-T6 extrusion.
C. AMS4908 titanium.



NOTES:
1. SEE FIGURES TITLED "FORMULA AND METHOD FOR PATCH REPAIR" AND "FORMULA FOR INSERTION REPAIR" IN SECTION I FOR FORMULA AND METHOD OF REPAIRS.
2. REFER TO SECTION X FOR TYPICAL REPAIRS.

.06.03.140-2A .53.15.02

Figure 4-25. Tail Cone Structure

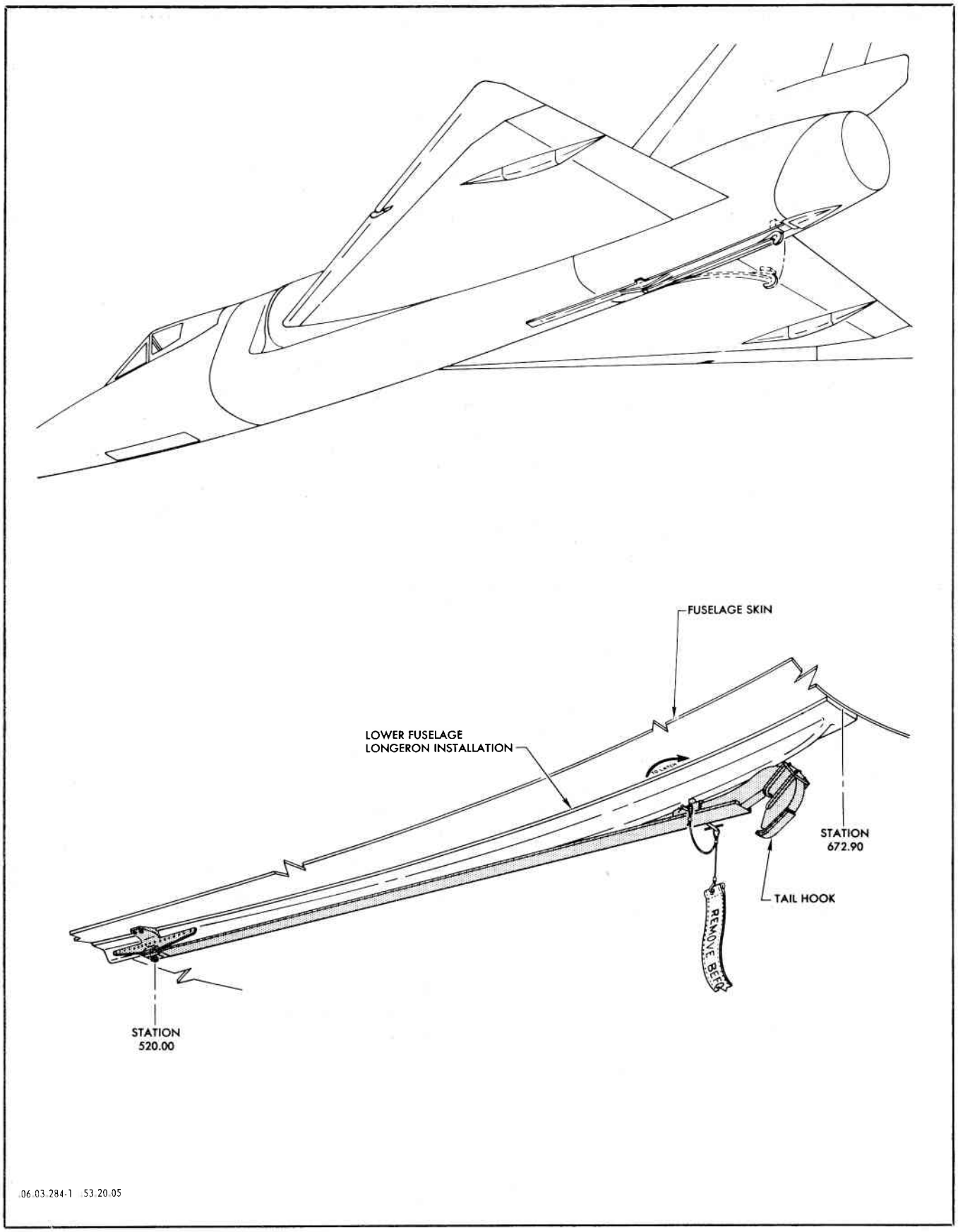
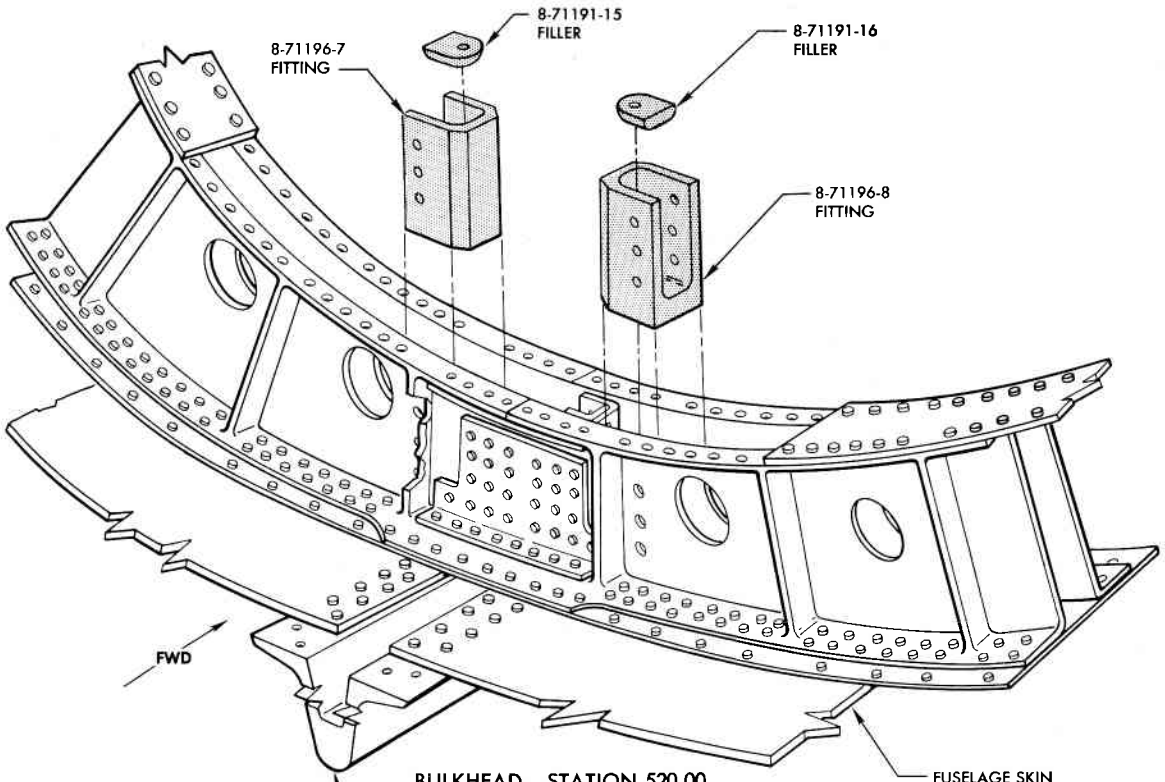
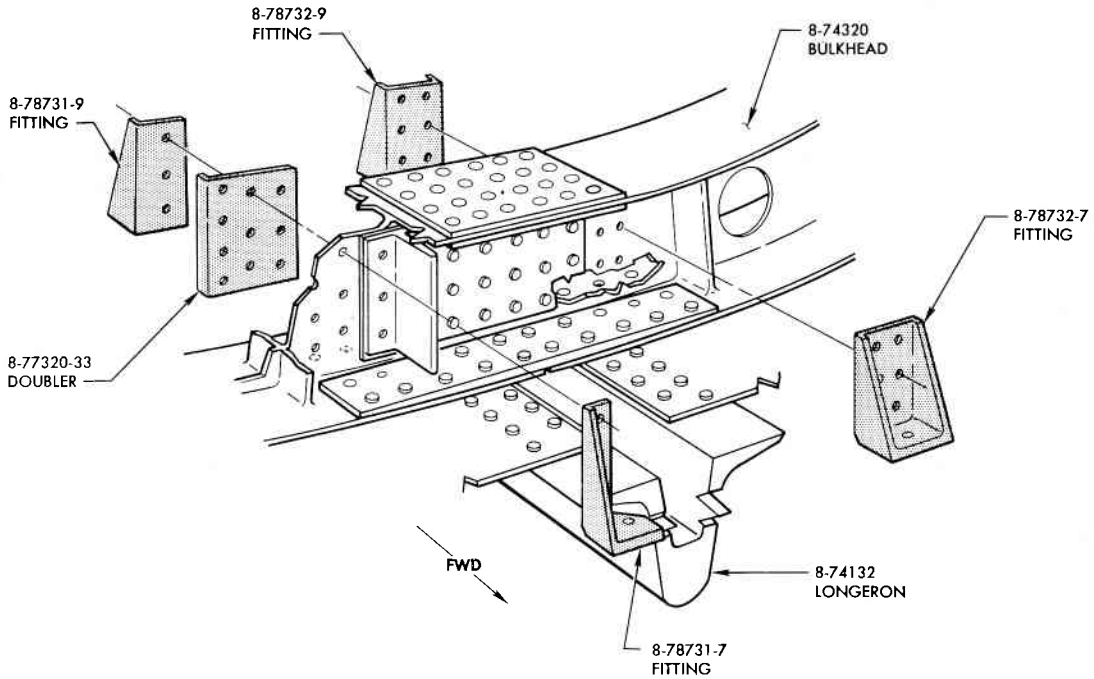


Figure 4-26. Tail Hook Installation (Sheet 1 of 2)



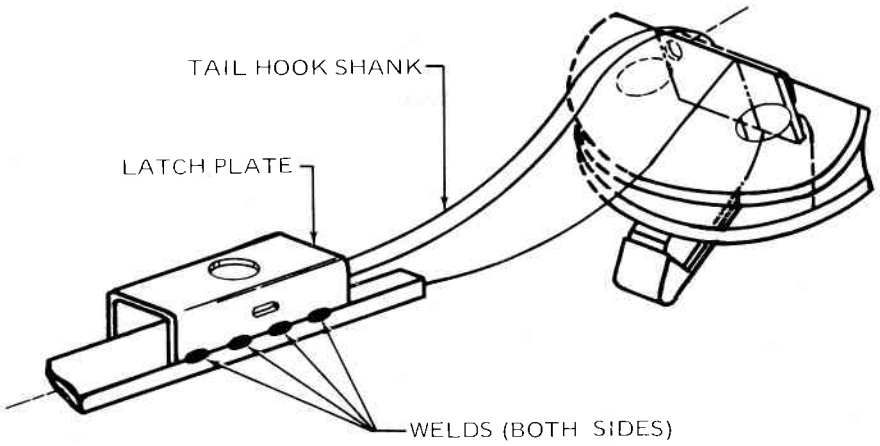
BULKHEAD—STATION 520.00
APPLICABLE TO F-106A AIRPLANES 57-246 THRU 57-2464, AND F-106B AIRPLANES 57-2515 THRU 57-2521.



BULKHEAD—STATION 520.00
APPLICABLE TO F-106A AIRPLANES 56-453, -454, 56-456 THRU 57-245, AND 57-2465 AND SUBSEQUENT; AND F-106B AIRPLANES 57-2508 THRU 57-2514, AND 57-2522 AND SUBSEQUENT.

06.03.284-2A

Figure 4-26. Tail Hook Installation (Sheet 2 of 2)



LATCH PLATE - TO - SHANK CRACKED WELDS SHALL BE REPAIRED AS FOLLOWS:

A. CLEAN AND STRIP PER T.O. 1-1-1 AND T.O. 1-1-2.

B. FLUORESCENT PENETRANT INSPECT PER T.O. 33B-1-1.

C. GRIND OUT CRACKED WELDS WITHOUT DAMAGING HOOK SHANK.

D. REWELD IN ACCORDANCE WITH MIL-W-8611 USING 17-4 FILLER ROD (TACK WELDS TO BE OF SAME TYPE AND IN SAME LOCATION AS THOSE REMOVED).

CAUTION

EXTREME CARE SHALL BE EXERCISED DURING THE WELDING OPERATION TO PREVENT EXCESSIVE HEAT APPLICATION TO THE TAIL HOOK SHANK.

E. PENETRANT INSPECT FOR CRACKED WELDS.

F. PRIME AND PAINT PER T.O. 1F-106A-23.

Figure 4-26A. Tail Hook Shank Latch Plate Repair

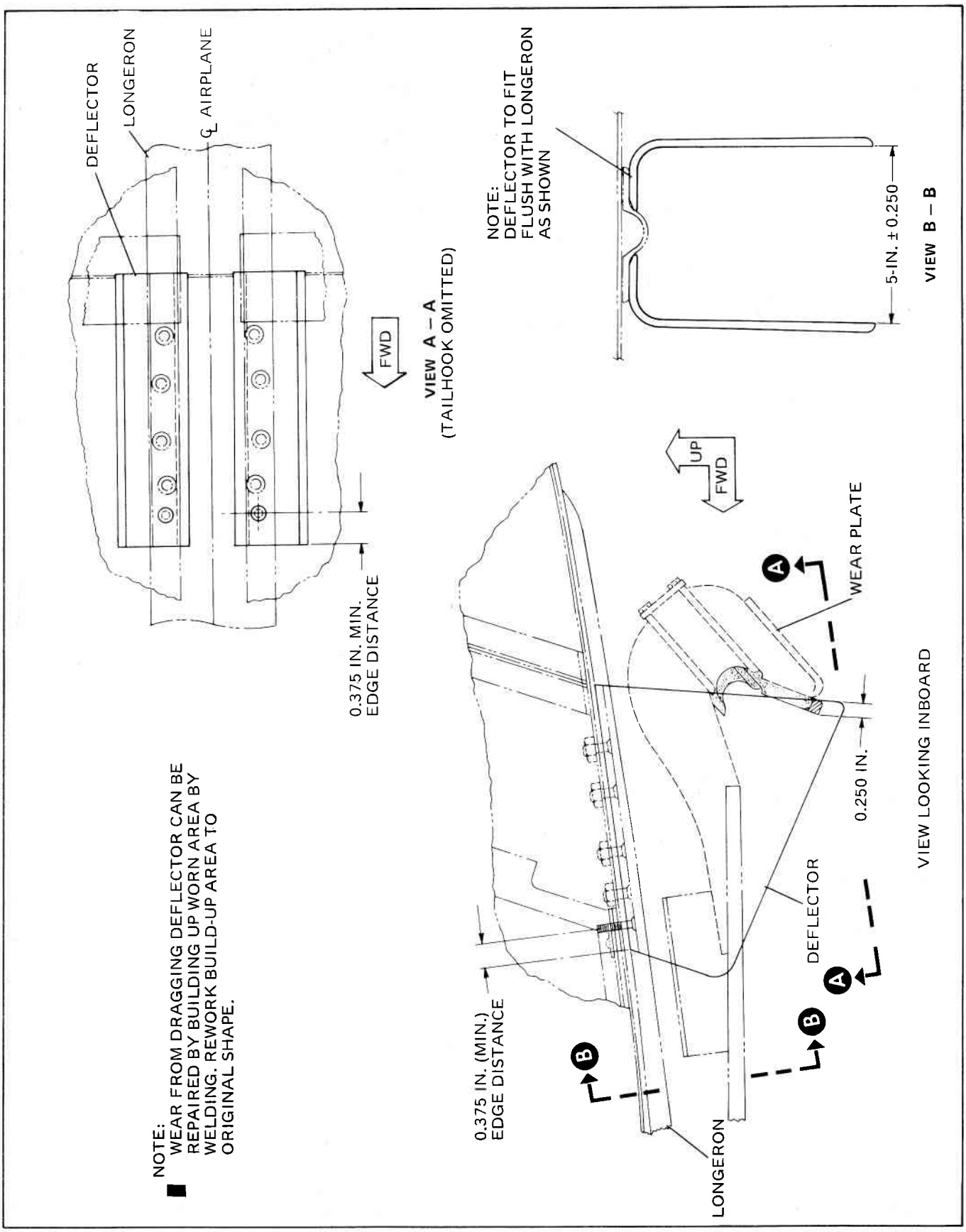


Figure 4-26B. Tail Hook Cable Deflector Installation.

NOTES:

1. TO CORRECT TAIL HOOK VIBRATION PROBLEMS INSTALL BUMPER PLATE AND PAD AS FOLLOWS:
2. EC1653 COMPOUND ON HOOK "HUMP" SHOULD BE PER CONVAIR DWG 8-05359.
3. MAKE BUMPER PLATE OF SUFFICIENT THICKNESS TO FILL GAP "A" FROM 7075-T6 AL ALLOY SHEET.
4. GAP "B" IS 0.125 INCH (MINIMUM) PLUS GAP "A"
5. FORM THE BUMPER PLATE TO CONFORM TO THE CONTOUR OF THE KEEL; FIT PLATE BETWEEN DEFLECTORS AND HOOK FAIRING.
6. PAINT PLATE WITH ZINC CHROMATE PRIMER AND FINISH WITH ENAMEL TO MATCH TAIL AREA.
7. ATTACH PLATE WITH MS20470AD6 RIVETS USING EXISTING HOLES OR BY DRILLING NEW HOLES.

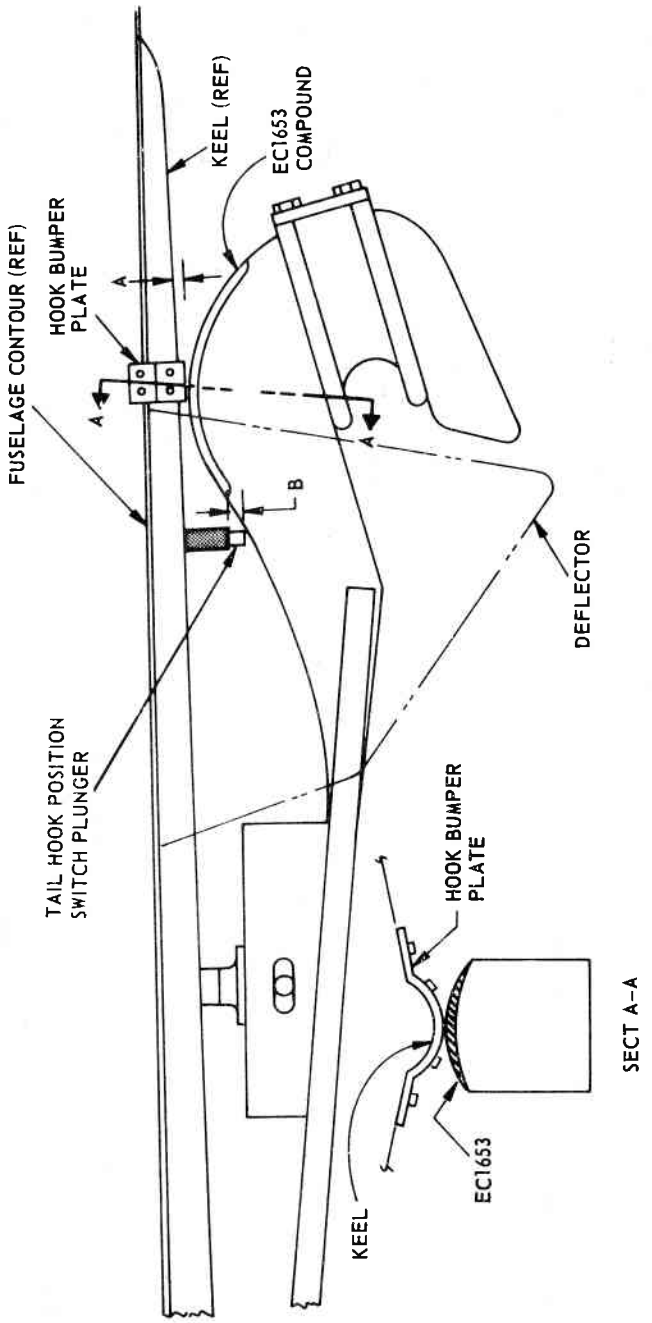


Figure 4-26C. Tail Hook Bumper Pad and Bumper Plate Installation (Sheet 1 of 2)

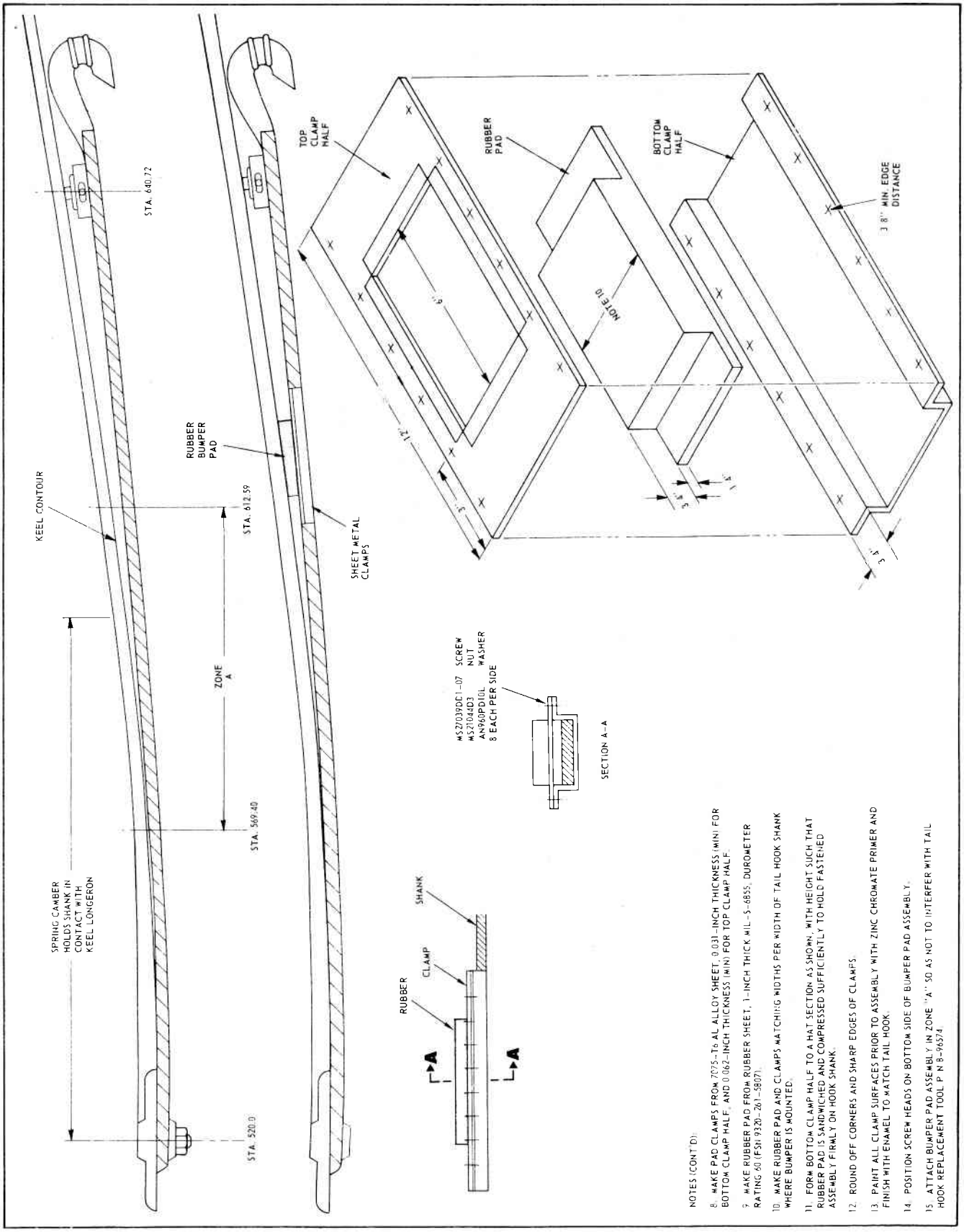


Figure 4-26C. Tail Hook Bumper Pad and Bumper Plate Installation (Sheet 2 of 2)

4-31. Separation of Fuselage Bonded Components.

4-32. Metalbond 4021 structural adhesive is utilized on surfaces faying with the skin from station 102.00 to the canted bulkhead at station 171.50, and from the canopy longeron down to the nose wheel well opening. This adhesive process forms a strong metal-to-metal bond and the components cannot readily be separated. The following method, however, can be used to separate these bonded components:

a. Remove all fasteners from the parts to be separated.

b. Fabricate a wedge from micarta or any non-metallic material that will not nick, dent or gouge the fuselage structure.

c. Apply a layer of dry ice over the horizontal part to be removed. If the particular area in which the components are located is somewhat on a vertical plane, tape bags of dry ice over the part to be removed.

d. The dry ice should be left in contact with the part to be removed until a layer of frost appears on the opposite side of the components.

Note

Gaseous CO_2 can be substituted for dry ice in the preceding steps (c and d). The gaseous CO_2 should be applied along the bonded seam.

e. Place the sharp edge of the wedge against the faying surface of the components to be separated.

f. Using a leather or plastic mallet, strike the wedge with a single, sharp blow.

g. Repeat steps "e" and "f" at spaced intervals along the part to be removed to assure positive breaking of the bond.

CAUTION

Do not attempt to drive the wedge completely between the components being separated.

After the bonded components have been separated, the remaining tape and adhesive may be removed with a stripper (Cee-Bee "A" 202 manufactured by the Cee-Bee Chemical Co., Inc., 9250 Cee-Bee Drive, Downey, Calif.) by the following procedure:

WARNING

A face shield and/or goggles must be worn to protect the face and eyes and a rubber apron and rubber gloves worn to protect the hands and other portions of the body. In case the stripper material accidentally contacts the skin, wash the affected skin area with soap and water and rinse with alcohol. For protection of eyes, flush with large amounts of water and report to the dispensary immediately. For over-inhalation, move the affected person to an area where fresh air may be obtained. For ingestion, administer castor oil or olive oil with milk of magnesia.

a. Apply stripper to remaining adhesive with a brush.

b. After approximately ten minutes, use a plastic or micarta scraper to remove the loosened material.

c. Reapply stripper with brush.

d. Again, after a ten-minute period, scrape all loosened material.

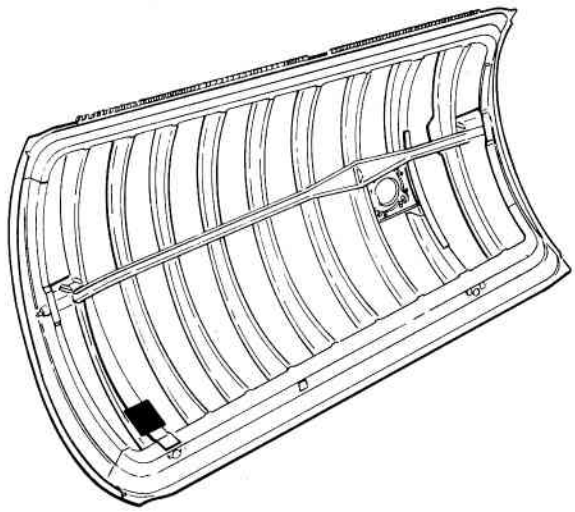
e. Repeat stripper applications and scraping until metal bond is removed.

CAUTION

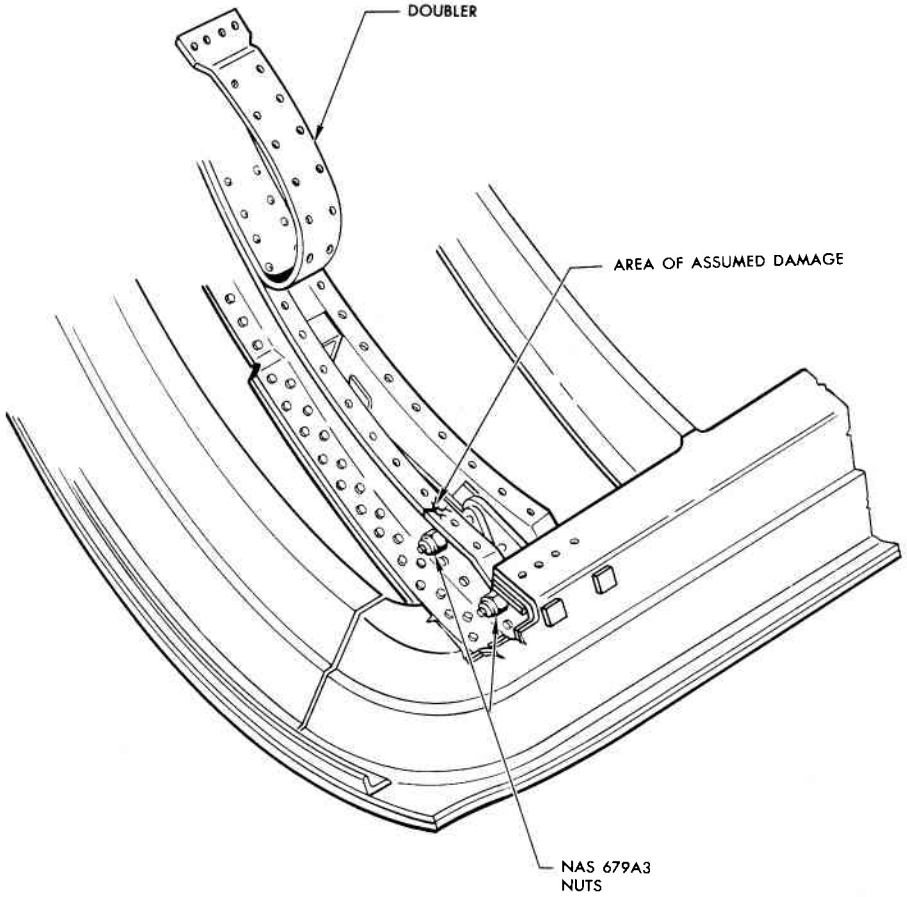
Do not use Cee-Bee "A" 202 chemical to clean titanium.

4-33. Fuselage Nose Section Repairs.

4-34. Damage to the fiberglass reinforced plastic portion of the radome structure must, in all cases, be evaluated from a radar scanning performance standpoint in addition to the loss of structural strength. Cracks, holes or any major damage to the fiberglass reinforced plastic are difficult to repair because of the strict requirements for accuracy in processing techniques and the exacting quality standards of the completed repair; refer to Specification MIL-P-8013A, type III. Completed repairs must be tested for deflections or interruptions of radar transmission. For these reasons, advanced base repairs to the radome plastic section are not advisable, and damage, as described above, shall be referred to a qualified antenna engineer for disposition. For advance base repair limitations see figure 4-6. See figure 4-6A for overhaul facilities limitations and repair procedure. Repair and maintenance of the rain erosion protective coating of the radome is described in Section I. Replacement procedure for the tubing and harness nylon retaining blocks, bonded to the inside of the radome, is contained in paragraph 4-35. For method of repair to the aluminum components of the radome see figure 1-23. The temper designations and physical characteristics of the materials used in the fuselage nose section structure are varied; therefore, each part should be given individual consideration when making repairs. For repairs



AREA OF ASSUMED DAMAGE



.06.03.251-1 .52.03.03

Figure 4-27. Repair of Forward Electronics Compartment Door (Sheet 1 of 4)

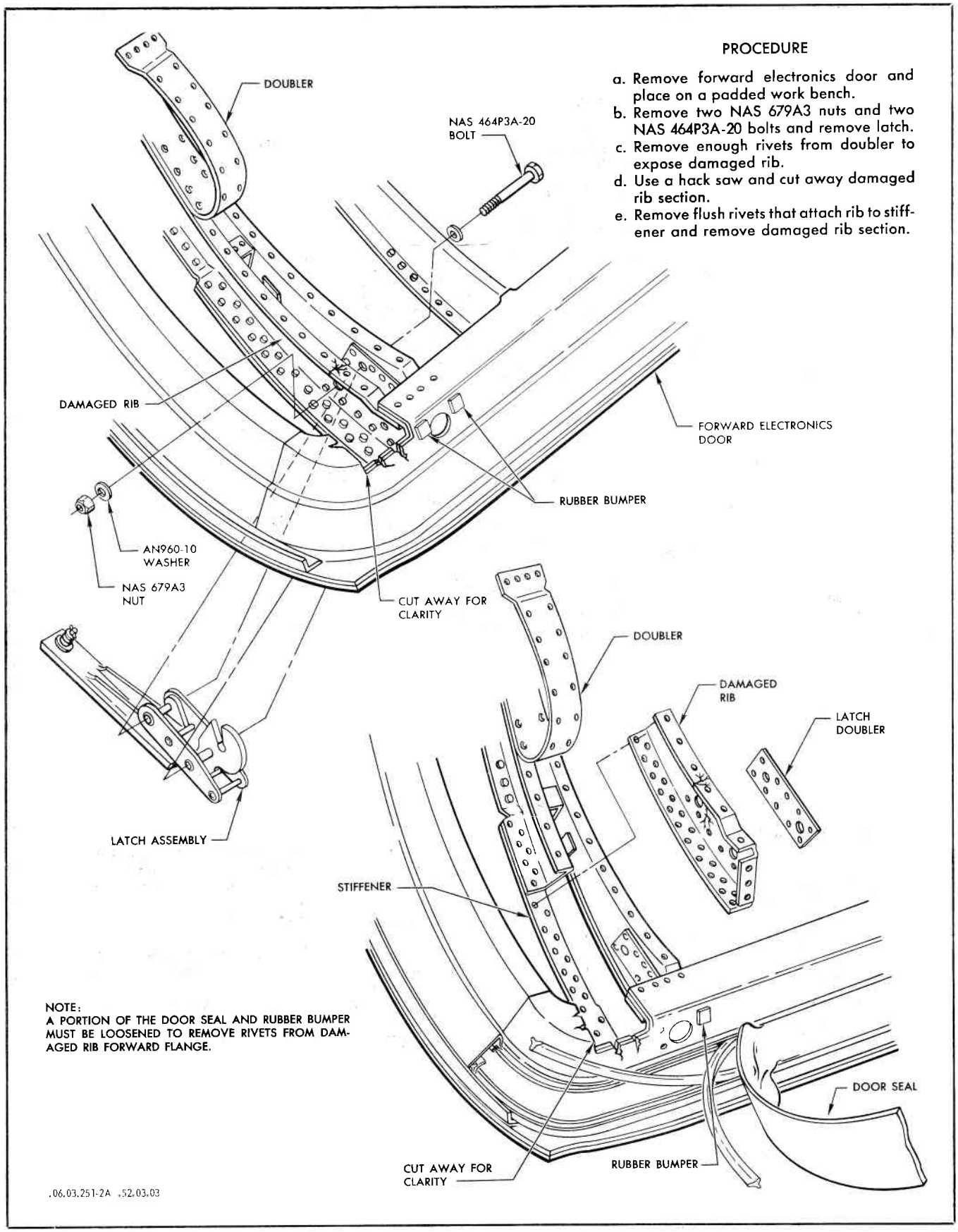
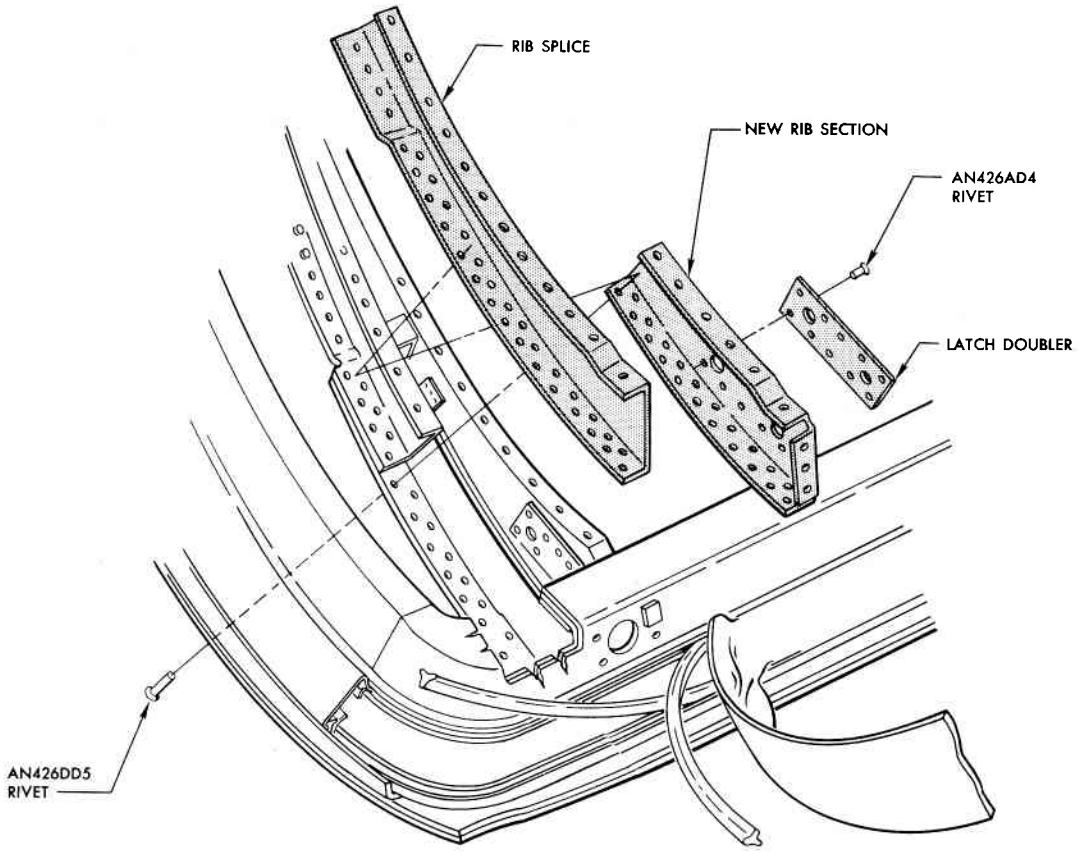


Figure 4-27. Repair of Forward Electronics Compartment Door (Sheet 2 of 4)

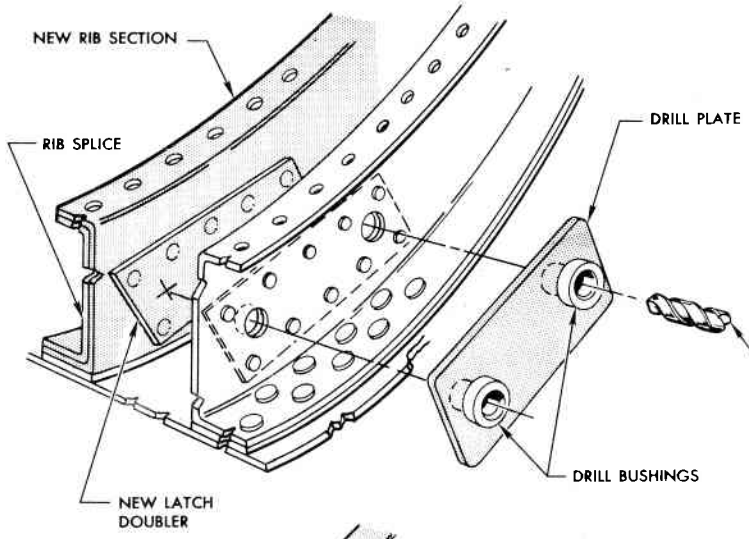


PROCEDURE (CONT)

f. Fabricate new rib section from .045" 7178-0 aluminum alloy.
g. Fabricate new latch doubler from .40" 7178-0 aluminum alloy.
h. Heat treat new rib section and latch doubler to T6 conditions.
i. Drill rivet holes through latch doubler and rib. Use damaged rib as pattern for holes and latch doubler location.
j. Countersink holes and rivet latch doubler to rib. Use AN426AD4 rivets.
k. Clamp rib in place and pick up rivet holes from existing holes in stiffener and door angle.
l. Rivet forward section of rib to stiffener. (Leave holes to install rib splice.)
m. Fabricate rib splice from .051" 7178T6 aluminum alloy.
n. Rivet rib splice in place. Use AN426DD5 rivets through splice and skin and AN470DD5 rivets through splice and rib.
o. Pick up existing holes from doubler and rivet doubler in place. Use AN470DD5 rivets through rib splice AN470AD5 through rib.

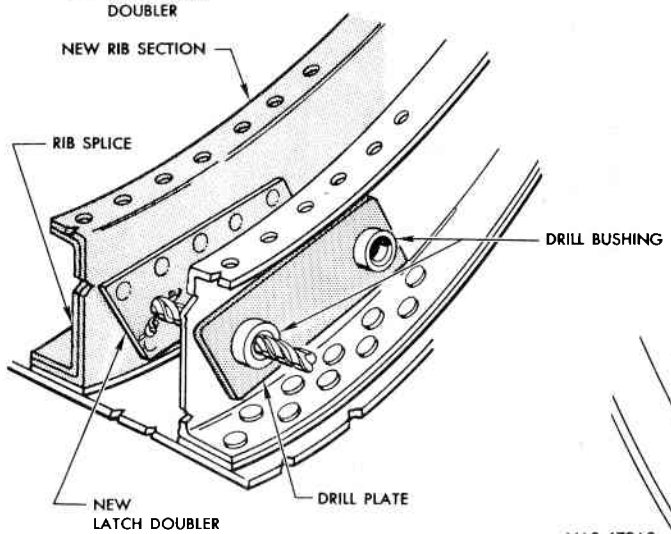
.06.03.251-3A .52.03.03

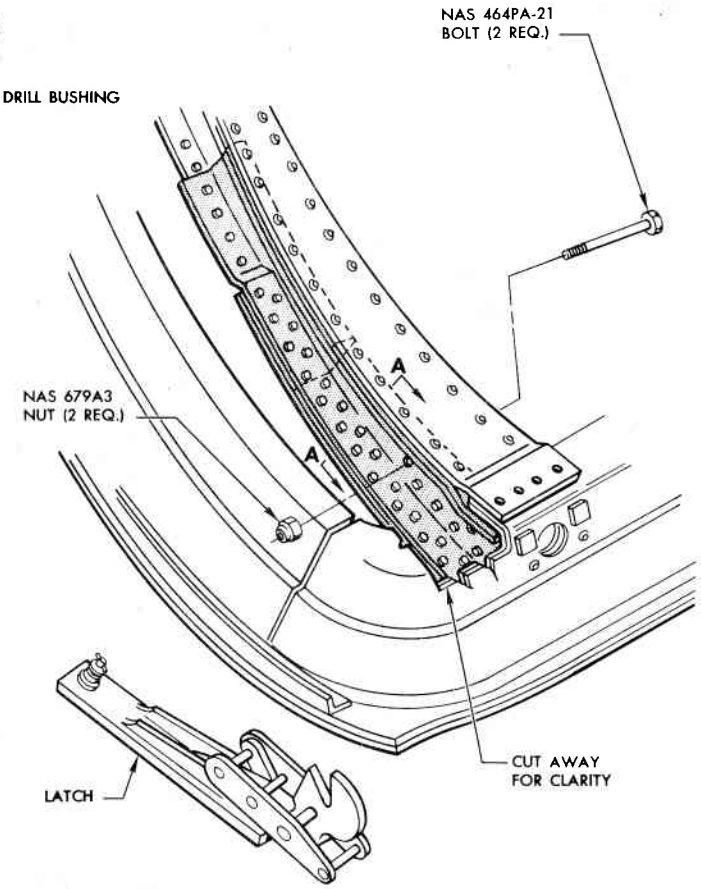
Figure 4-27. Repair of Forward Electronics Compartment Door (Sheet 3 of 4)

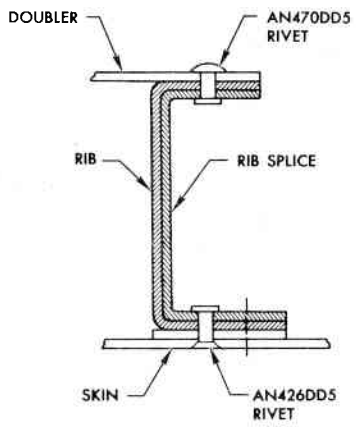


PROCEDURE (CONT)

p. Fabricate drill plate as shown.
q. Pick up latch mounting holes with pilot drill.
r. Ream latch mounting holes to 0.190" +.0015" —.0000".
s. Assemble latch assembly and replace rubber cushion. Use NAS 464PA-21 bolts to mount latch.
t. Reinstall door seal, and rubber bumper.
u. Reinstall door.



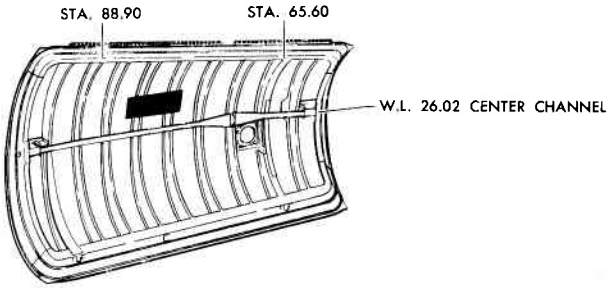




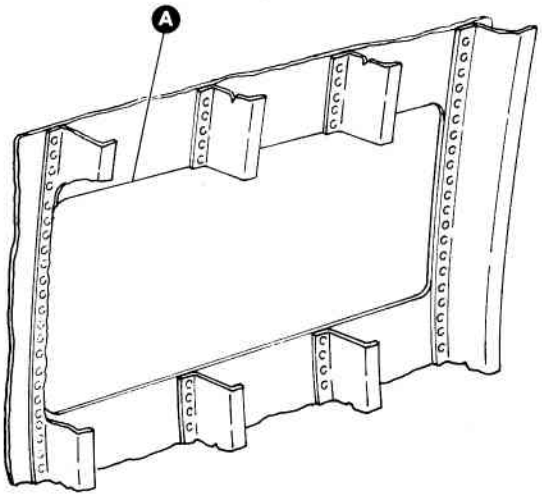
SECTION A-A

.06.03.251-4 .52.03.03

Figure 4-27. Repair of Forward Electronics Compartment Door (Sheet 4 of 4)



AREA OF ASSUMED DAMAGE

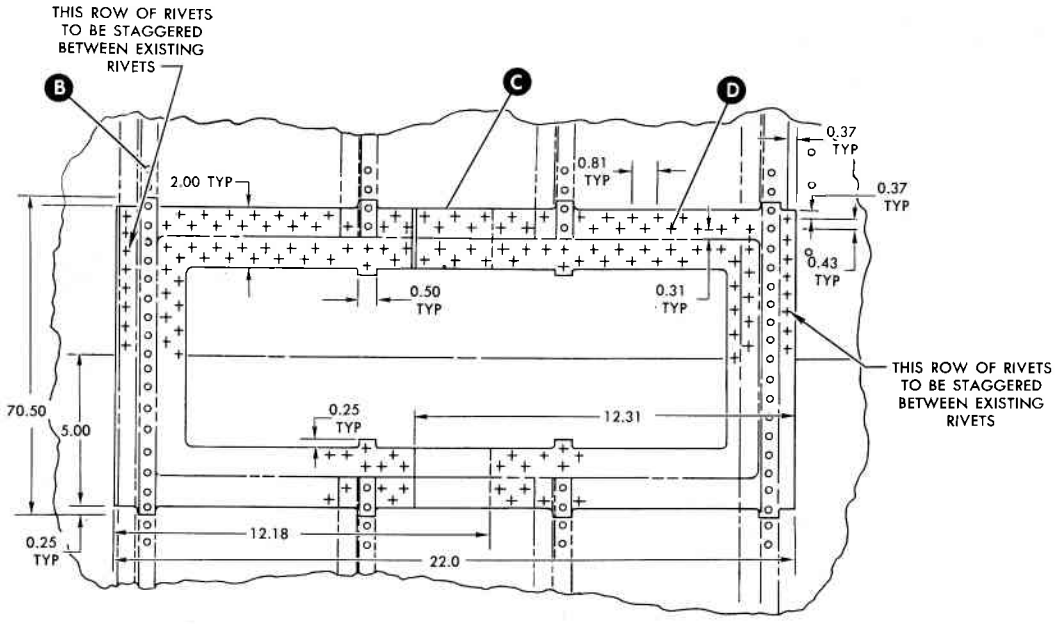


A Clean up damaged area to regular shape. Cut away damaged skin and zees as shown, and remove. For required strength, extend skin cut to nearest undamaged zee each side as shown. Round all corners to 0.38 inch radius and break all sharp edges.

B Using a No. 30 (0.128) drill remove existing rivets as indicated by (0).

C Fabricate doubler in two sections from 0.040 gage bare 7178-T6 material as shown.

D Layout rivet pattern on doubler as dimensioned and drill No. 30 (0.128) holes. Pattern typical both sides except slight variation around cutoff zees as shown.



VIEW LOOKING OUTBOARD

.06.03.141-1 .53.18.03

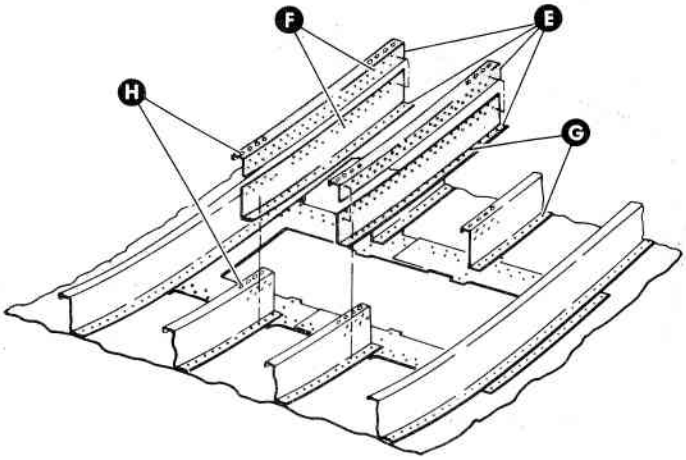
Figure 4-28. Forward Electronics Compartment Door Repair (Sheet 1 of 2)

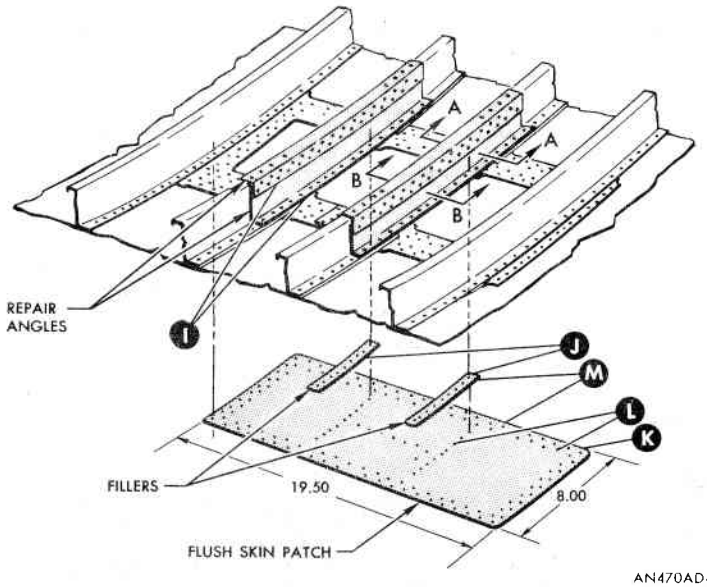
E Fabricate splice angles from 0.040 gage bare 7178-T6 material of sufficient length to pick up four rivets on zees as shown.

F Layout and drill No. 30 (0.128) holes for staggered rivet row at 0.70 inch typical on legs of splice angles. Continue pattern on legs of zees as indicated by (+).

G Pick up rivet pattern on zee bottom flange and continue across bottom flange of splice angle. Drill No. 30 (0.128) holes.

H Layout and drill No. 30 (0.128) holes on top flange of zees and top flange of splice angles as indicated by (0).





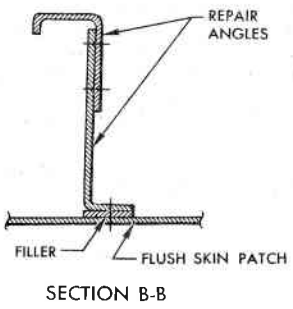
I Position splice angles and install with AN-470AD4 rivets. Use AN426AD4 flush head rivets where parts are attached through outside skin.

J Fabricate filler strips of 0.040 gage bare 7178-T6 material. Pick up rivet pattern on splice angles and use as guide to drill No. 30 (0.128) holes in filler strips.

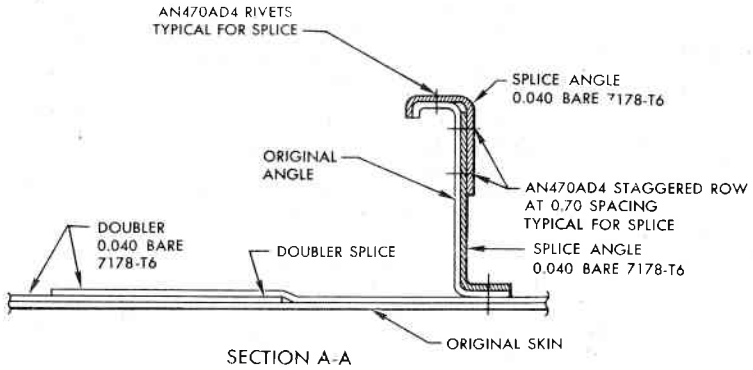
K Fabricate flush patch of 0.036 gage material as dimensioned.

L Pick up existing rivet patterns in doubler sections and splice angles and drill No. 30 (0.128) holes in flush patch. Countersink holes 100°x0.235 far inside.

M Position fillers and flush patch and install with AN426AD4 rivets.



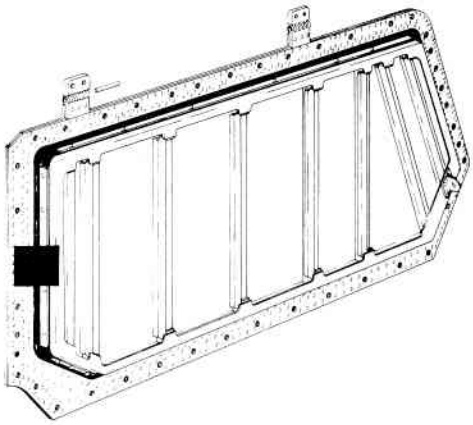
SECTION B-B



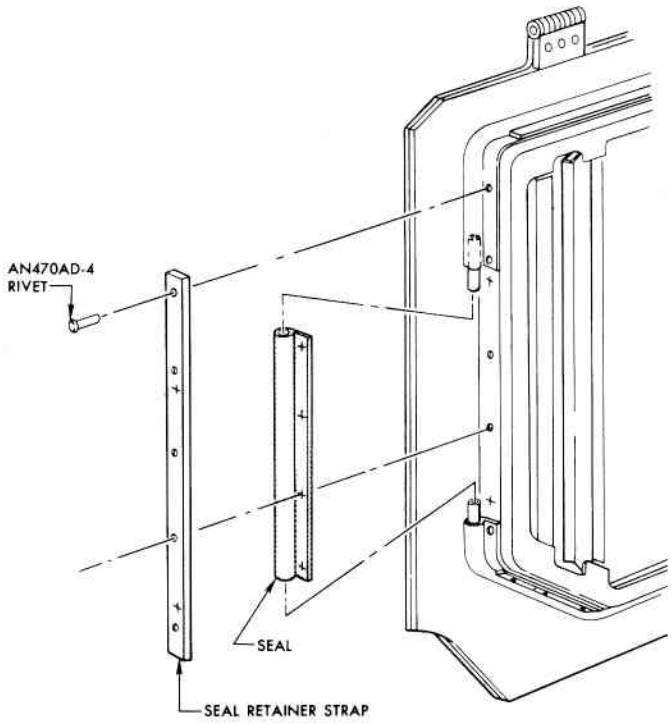
SECTION A-A

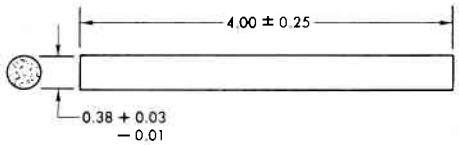
.06.03.141-2A .53.18.03

Figure 4-28. Forward Electronics Compartment Door Repair (Sheet 2 of 2)



AREA OF ASSUMED DAMAGE





SEAL SPLICE
(SEE NOTE)

NOTE:
SEAL SPLICE TO BE MADE FROM SILICONE SPONGE RUBBER ROD CONFORMING TO SPECIFICATION MIL-R-5847.

REPAIR PROCEDURE

a. Remove door and place on a padded work bench. Refer to T.O. 1F-106A-2-2-2-2 for removal procedure.
b. Use a No. 30 (0.128) drill and remove rivets that attach seal to door.
c. Remove strap and hold for reinstallation.
d. Cut out damaged section of seal as shown.
e. Clean seal faying surface of door. Use a cloth dampened with Aliphatic Naphtha, Federal Specification TT-N-95A, for cleaning.
f. Cut a section of new seal to fit cutout area.
g. Cut two seal splices as shown from Silicone sponge rubber rod conforming to Specification MIL-R-5847.
h. Roughen surface of splices with rough sand paper and wipe clean with a cloth dampened with Aliphatic Naphtha, Federal Specification TT-N-95A.
i. Clean inside surface of existing seal at each end with a cloth dampened with Aliphatic Naphtha, Federal Specification TT-N-95A.
j. Thoroughly mix four parts, by weight, of Cohrlastic C-319A Catalyst with one hundred parts, by weight, of Cohrlastic C-319 Cement. The work life of mixed cement is thirty to sixty minutes.

NOTE
C-319 CEMENT AND C-319A CATALYST IS MANUFACTURED BY THE CONNECTICUT HARD RUBBER COMPANY, 407 EAST STREET, NEW HAVEN 9, CONNECTICUT.

j. Paint seal splices with a uniform coat of prepared cement and insert splices into ends of existing seal as shown.
k. Hold seal splices in place by squeezing existing seal with fingers and sliding new seal section into place. Allow cement to cure for 24 hours at room temperature.
l. Place retainer strap over new seal section flange and punch a hole at each end of new seal section. Use an ice pick or similar pointed tool to punch hole.
m. Fasten retainer strap and new seal section to door with cleco fasteners.
n. Drill holes through new seal, using holes retainer strap as a guide. Use a No. 30 (0.128) drill.
o. Rivet retainer strap and seal to door with AN470AD-4 rivets.
p. Reinstall door. Refer to T.O. 1F-106A-2-2-2-2 for installation procedure.

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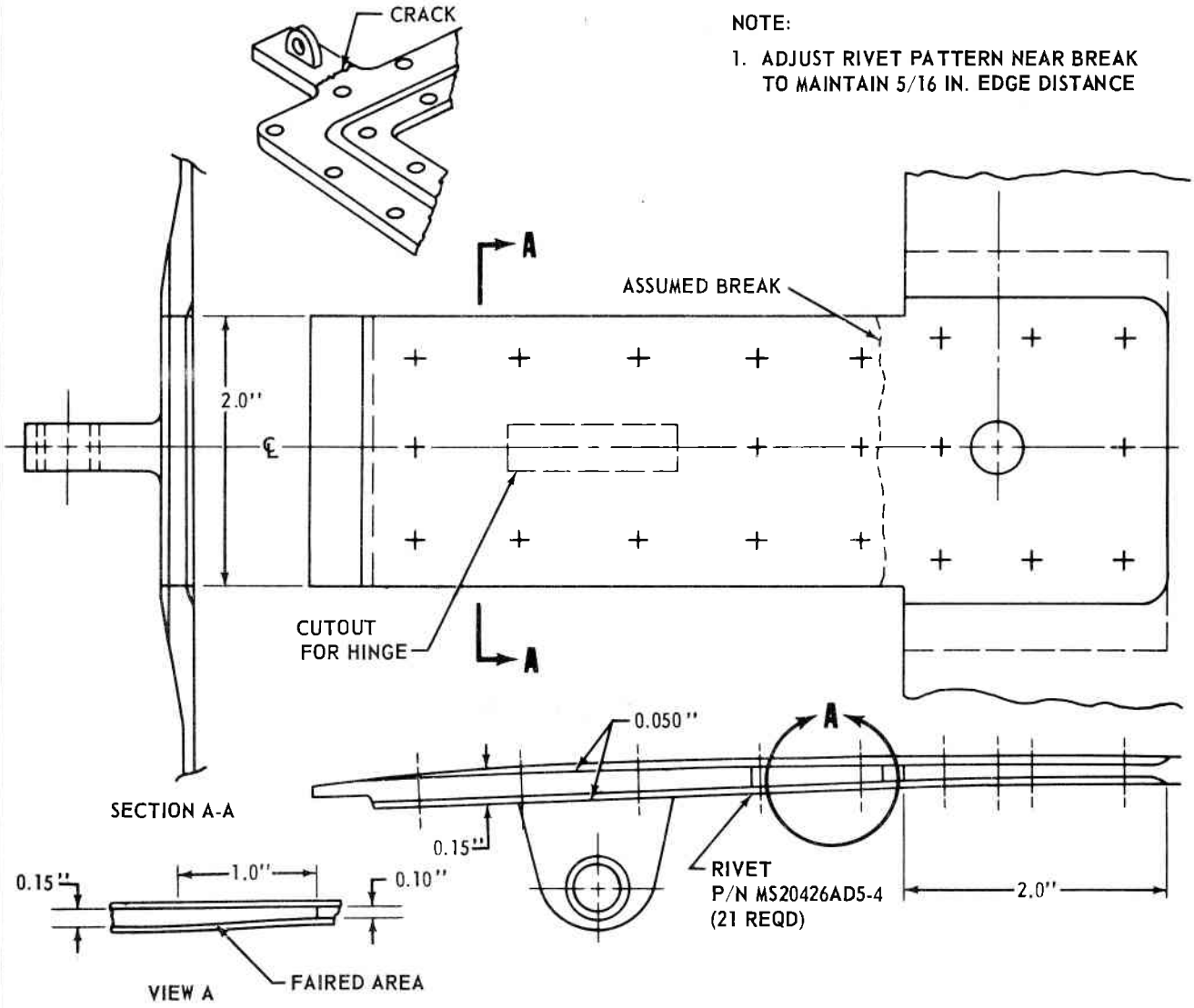
Figure 4-29. Aft Electronics Door Seal Repair



REPAIR PROCEDURE

1. Reuse of broken tab.

a. If broken tab is intact, smooth inner and outer surfaces along break line for reinstallation.

b. Fabricate repair doubler plates from 0.050 inch thick SAE-4130 steel sheet to cover full length of tab.

c. Machine outside of tab and door to allow plate to rest flush as shown.

d. Machine inside of door to allow plate to rest flush. Fair inside of tab for smooth transition of plate between door and tab. Transition to be approximately one inch as shown in View A.

e. Locate and drill 21 each (0.159 inch) holes as indicated with 5/16 inch edge distance.

f. Locate and drill one hole for Camloc fastener as shown.

g. Heat treat doubler to 140,000-160,000 psi. Cadmium plate and prime, using zinc chromate primer.

h. Install repair doubler as shown.

2. If broken tab is unserviceable.

a. Fabricate new tab (0.100 inch thick) and new lug of 6061T-4 aluminum alloy plate. Extend lug base 0.050 inch to allow for thickness of inside doubler plate.

b. Locate and weld lug onto tab.

c. Fabricate doubler plates and proceed with repair as applicable in paragraph 1 above.

Figure 4–29A. Repair of Midbay Electronic Access Door Hinge

FIG. 4–29B DELETED

applicable to the various components, see figures 1-22 through 1-24, and applicable figures in this section.

Also refer to Section X for typical repair information and to Section XI for repair materials. See figures 4-27, 4-28, and 4-29 for repair of the forward and aft electronics compartment doors. Refer to Table 4-I for disposition of negligible damage to the components of the nose section. The pilot's compartment is pressurized and any damage to the components in this area must be repaired to restore complete airtightness of the compartment. Damaged castings, fittings and glass panels must be replaced. Damaged extrusions of irregular shapes that present complex repairs should be replaced. When making repairs that involve resealing for pressurization, thoroughly clean all faying surfaces before applying sealant. The sealant must be applied at the inboard edge of all faying surfaces in a continuous bead or fillet at least $\frac{1}{16}$ inch thick where cabin air leakage is likely to occur. The sealant should be continuous and extend approximately $\frac{3}{16}$ inch to each side of a crevice or surface edge. In areas where it is difficult to apply sealant after assembly, it is permissible to apply the sealant to the faying surface prior to riveting, provided riveting or clamping pressure is applied immediately after spreading sealant. Use sealer, Military Specification MIL-S-8802, for pressure sealing, except at faying surfaces and joints of the windshield where RTV Silastic sealer shall be used. A rubber plug may be used for holes and openings up to 7/16 inch wide. Select an appropriate size plug and coat with sealer, Military Specification MIL-S-8802, prior to installation; trim the excess rubber and complete the final seal. Where air pressure leaks occur at rivets, the rivets in question should be removed and replaced. Holes should be filled with sealer, Military Specification MIL-S-8802, and new rivets installed immediately. Remove excess sealant from surface as soon as the rivet is driven, as partially cured sealant material is difficult to remove. Refer to paragraph 1-38 for cockpit pressure leak test procedures after repair. All repairs to the fuselage fuel tank must be made to conform with fuel-tight requirements given in Section II for wing repairs. Refer to paragraph 4-43 for fuselage integral fuel tank pressure test procedures. All repairs to the fuselage plating shall be of the flush-type patch. These repairs shall be designed to restore the full strength of the damaged part and preserve the aerodynamic contour of the fuselage. See figure 1-32 for rivet spacing requirements and refer to Section X for typical repair information. Refer to Table 4-1 for disposition of negligible damage to the components of this section. For repair of the upper aft electronics compartment doors, see figure 4-15 for material specifications and gage. Cracks in the F-106A upper aft electronic compartment door frame (seal 0.040 aluminum alloy) that extend up to six-inches in length and are located between the two radii may be repaired by stop drilling. Stop drill cracks with a 1/8 inch drill being careful not to drill parts behind or adjacent to affected part. Cracks in excess of six-inches and cracks extending beyond either radius are to be repaired in accordance with figure 10-4.

4-35. Radome Assembly Nylon Retaining Block Replacement.

4-36. The nylon retaining blocks installed inside the radome assembly, along the top and bottom, may be replaced by bonding. With the radome assembly removed and radome electrical harness and tubing free and clear of the retaining block installation area, rebond the blocks to the inside surface of the radome assembly as follows:

a. Thoroughly clean retaining block and radome faying surfaces with a cheesecloth dampened in aliphatic naphtha (6810-238-2118).

b. Lightly sand faying surfaces with 320-grit sandpaper or equivalent. Wipe off all loose particles after sanding with a clean cheesecloth dampened in aliphatic naphtha.

c. Apply one coat of phenol-alcohol with a clean acid brush to radome and retaining block faying surfaces. The phenol-alcohol solution shall consist of one part commercial phenol to ten parts denatured alcohol (measured by weight). The denatured alcohol shall conform to Specification MIL-A-6091. One manufacturer of phenol is the Braun Chemical Company of Los Angeles, Calif.

d. Apply Narmco 3135 adhesive to faying surfaces of block and radome, and assemble immediately for bonding. Use just sufficient pressure to assure contact over all portions of the bonding area.

e. Allow a 24-hour curing time at room temperature before reinstalling electrical harness and tubing. Curing time may be reduced to approximately two hours by exposing the bonded area to temperatures of 93.3°C (200°F) to 121.1°C (250°F) for 45 to 90 minutes.

CAUTION

Allow adhesive to thoroughly set (approximately 20 minutes) before moving radome or applying any heat.

4-37. Airspeed Tubing Drain Trap Reinforcement — Station 102.00 Bulkhead.

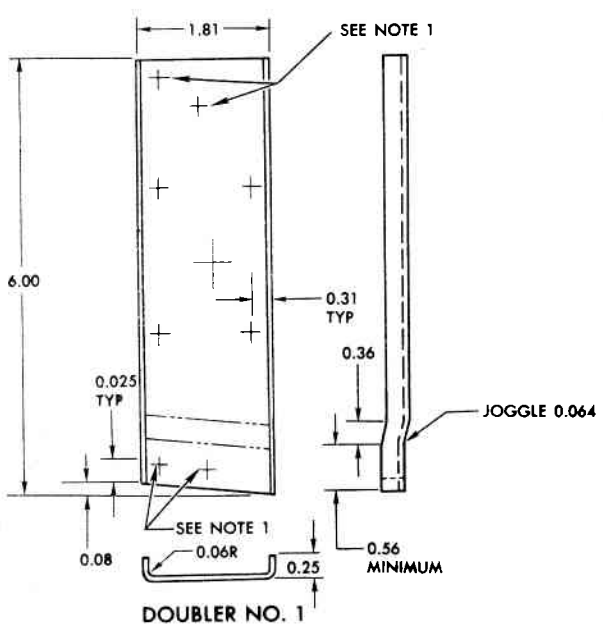
4-38. See figure 4-30 for airspeed tubing drain trap reinforcement procedure.

4-39. Airspeed Tubing Drain Trap Installation Repair — Station 102.00 Bulkhead.

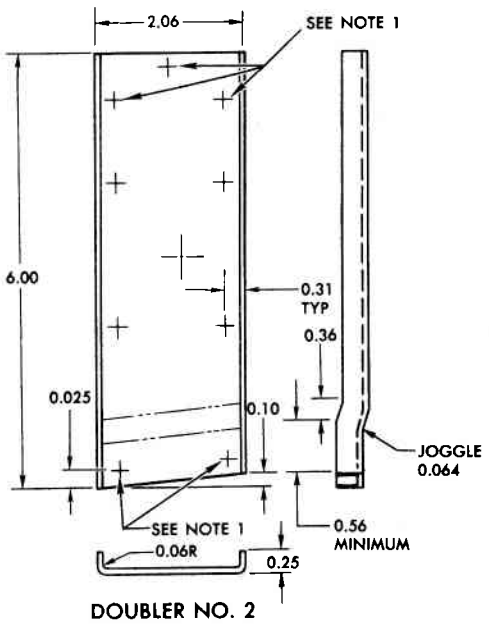
4-40. The airspeed tubing drain trap installations on the aft side of station 102.00 bulkhead are accessible from the airplane's nose wheel well. On airplanes not incorporating reinforcing doublers, cracks may develop in the bulkhead, and will run from the airspeed tubing holes out. See figure 4-31 for airspeed tubing drain trap installation crack repair procedure.

4-41. Fuselage Side Panel Splice Angle Crack Repair.

4-42. See figures 4-32 and 4-33 for repair procedures on cracks located in the forward end of splice angle which is attached to the intake duct lip casting.



DETAIL A



DETAIL B

NOTES:
1. LOCATE THESE HOLES FROM AN470AD-4 HOLES IN STATION 102.00 BULKHEAD (SEE INSTALLATION VIEW).
2. REFER TO SECTION FOR STANDARD MINIMUM RIVET SPACING.

REINFORCEMENT PROCEDURE

a. Remove ADF antenna cover and antenna located between station 77.00 and 94.75. Gain access from underside of airplane.
b. Enter area vacated by antenna. Remove NAS221 screws from left and right frame covers at station 94.75. Disconnect airspeed tubing at forward side of station 102.00 bulkhead and at nearest accessible connection forward of bulkhead. Remove tubing and frame covers from the airplane.
c. Enter nose wheel well, disconnect and remove drain traps from aft side of station 102.00 bulkhead.
d. Fabricate two doublers from 0.040 gage 7075-0 bare sheet as shown in details A and B. Heat treat doublers to -T6 condition in accordance with specification MIL-H-6088 after forming.
e. Remove AN470AD-4 rivets in aft side of station 102.00 bulkhead as indicated in installation view. Use a No. 30 (0.128) drill.
f. Lay out and predrill all rivet holes in doublers as indicated in details A and B. Use a No. 39 (0.099) drill.
g. Cleco doublers to aft side of station 102.00 bulkhead as indicated in installation view.
h. Enter area vacated by antenna, reach through station 94.75 frame holes, and scribe airspeed tubing holes on the backs of both attached doublers.
i. Drill all rivet holes through doublers and station 102.00 bulkhead from bulkhead aft side. Use a No. 30 (0.128) drill.
j. Remove doublers. Drill airspeed tubing holes through doublers to sizes obtained from scribing in step "h."
k. Remove burrs from doublers and station 102.00 bulkhead.
l. Apply protective coating to doublers and station 102.00 bulkhead disturbed areas. See figure "Primer and Paint Coatings" in Section I.
m. Apply a coat of sealer, Military Specification MIL-S-81733 to faying surfaces of doublers.
n. Reinstall doublers with clecos and install AN470AD-4 rivets.
o. Remove clecos and finish riveting.
p. Enter area vacated by antenna and clean out frame area extending from station 94.75 to 102.00.
q. Reinstall drain traps and airspeed tubing.
r. Remove old sealer, Military Specification MIL-S-81733 from station 94.75 left and right frame cover faying surfaces.
s. Apply a new coat of sealer, Military Specification MIL-S-81733 to faying surfaces of station 94.75 left and right frame covers.
t. Reinstall station 94.75 frame covers with NAS221 screws.
u. Reinstall ADF antenna and cover.
v. Perform pitot-static system operational check and leak test in accordance with applicable maintenance manual.
w. Perform operational check of systems affected by removal and reinstallation of ADF antenna in accordance with applicable maintenance manual.

NOTE

CHECK ANTENNA COVER GASKET FOR SERVICEABILITY. IF A NEW GASKET IS REQUIRED, APPLY SEALER, MILITARY SPECIFICATION MIL-S-8802 BETWEEN NEW GASKET AND COVER.

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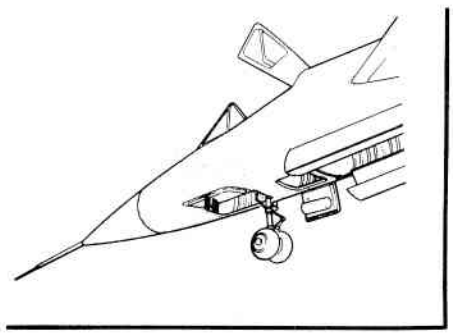
Figure 4–30. Airspeed Tubing Drain Trap Reinforcement–Station 102.00 Bulkhead (Sheet 1 of 2)



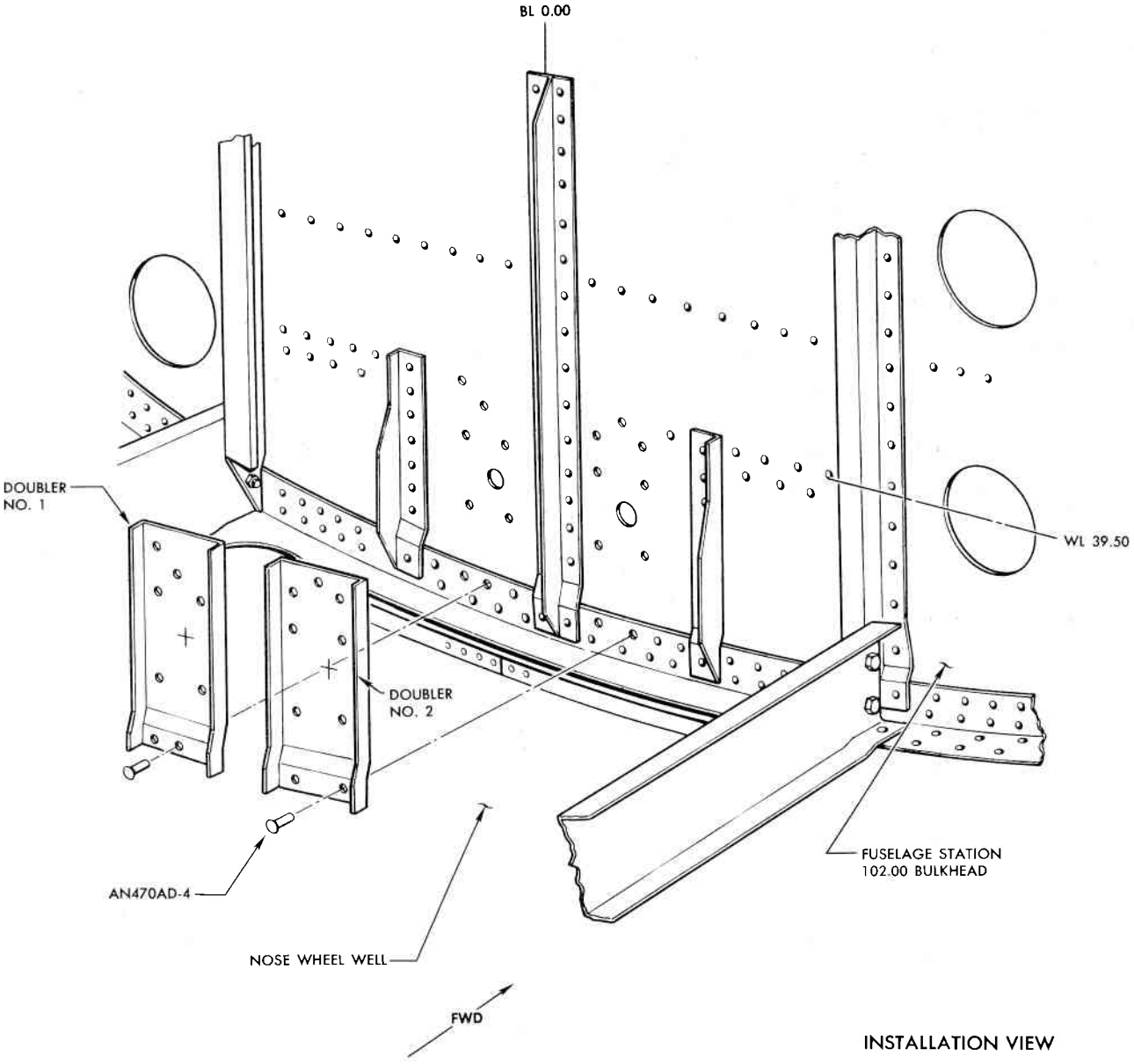


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Figure 4-30. Airspeed Tubing Drain Trap Reinforcement — Station 102.00 Bulkhead (Sheet 2 of 2)

AREA OF ASSUMED DAMAGE

DAMAGE REMOVAL PROCEDURE

a. Remove ADF antenna cover and antenna located between station 77.00 and 94.75. Gain access from underside of airplane.
b. Enter area vacated by antenna. Remove NAS221 screws from left and right frame covers at station 94.75. Disconnect airspeed tubing at forward side of station 102.00 bulkhead and at nearest accessible connection forward of bulkhead. Remove tubing and frame covers from the airplane.
c. Enter nose wheel well, disconnect and remove drain traps from aft side of station 102.00 bulkhead.
d. Using a cloth dampened with methyl ethyl ketone, Specification TT-M-261, remove all protective coating from station 102.00 bulkhead cracked area.
e. Perform a fluorescent penetrant inspection to determine extent of bulkhead crack. Refer to Section I for fluorescent penetrant inspection procedures.

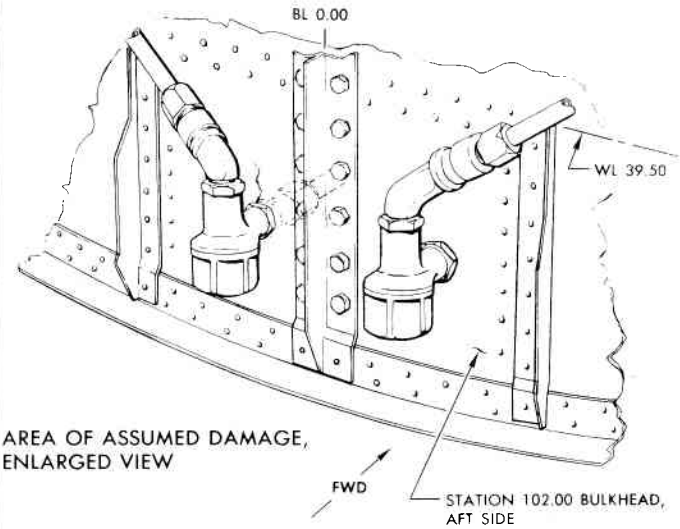
NOTE

IF OVERALL LENGTH OF ANY SINGLE CRACK EXCEEDS 1.25 INCH, CONSULT AN AERONAUTICAL STRUCTURES ENGINEER.

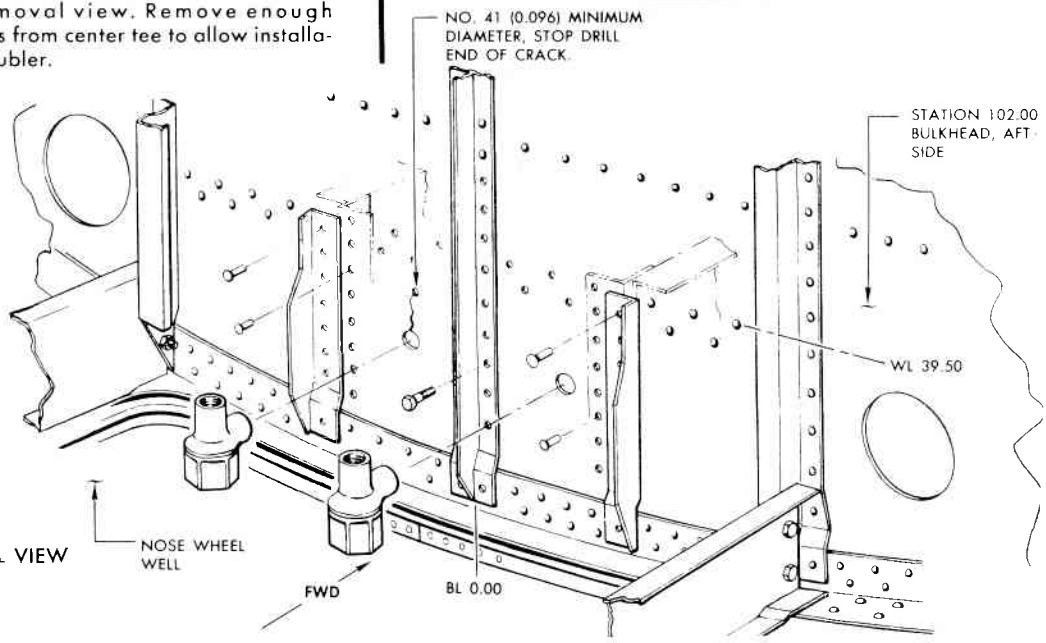
f. Stop drill crack and clean up edges.
g. Remove rivets indicated in damage removal view. Remove stiffener angles on aft side of station 102.00 bulkhead. Use a No. 30 (0.128) drill for 1/8-inch diameter rivets and a No. 20 (0.161) drill for 5/32-inch diameter rivets.
h. Remove NAS464 bolts from center tee as indicated in damage removal view. Remove enough AN470AD-5 rivets from center tee to allow installation of repair doubler.

REPAIR INSTALLATION PROCEDURE

a. Fabricate a doubler from 0.040 gage 7075-T6 bare sheet as shown in doubler fabrication detail.
b. Pick up rivet pattern from stiffener angles removed from aft side of station 102.00 bulkhead and transfer pattern to doubler as indicated in doubler fabrication detail and repair installation view. Lay out a two-row staggered rivet pattern at bottom of doubler as indicated in doubler fabrication detail. Predrill rivet holes. Use a No. 39 (0.099) drill to predrill 1/8-inch diameter rivet holes and a No. 30 (0.128) drill to predrill 5/32-inch diameter rivet holes.



AREA OF ASSUMED DAMAGE, ENLARGED VIEW



DAMAGE REMOVAL VIEW

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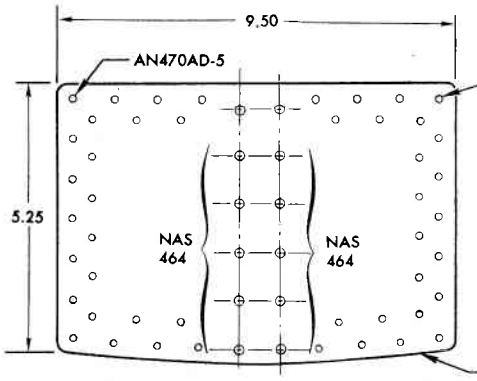
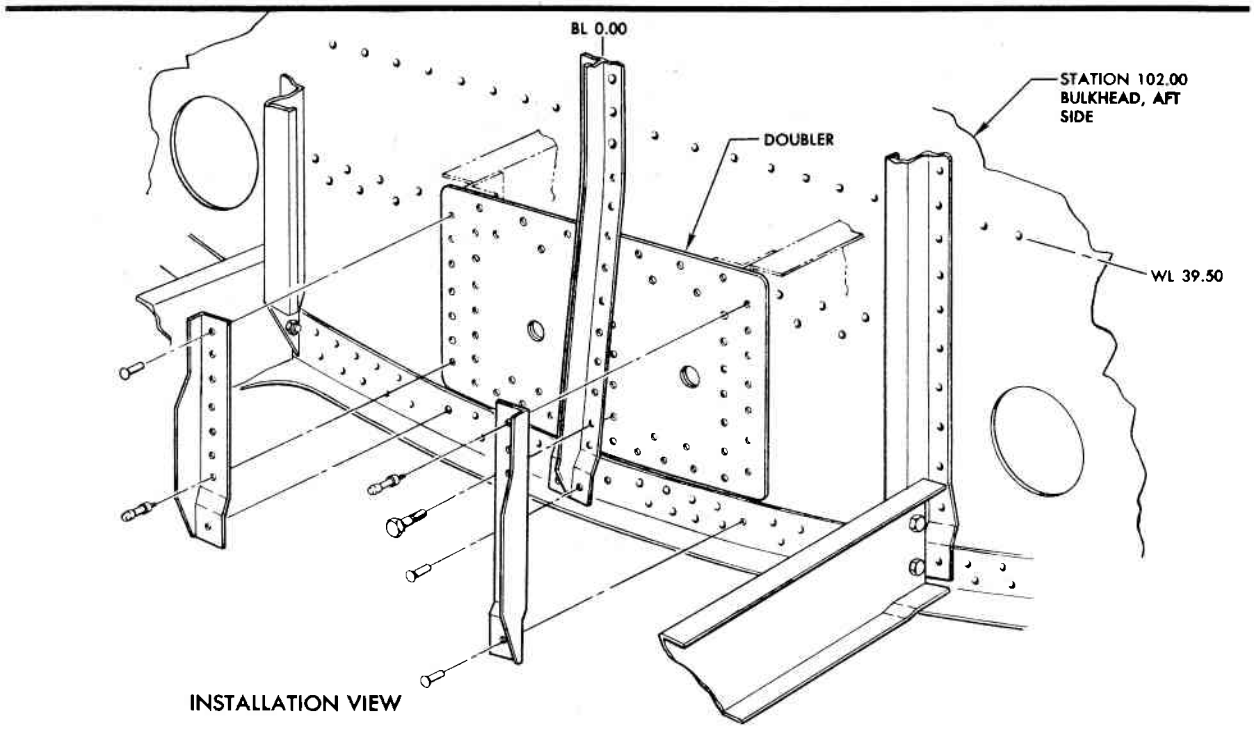
Figure 4-31. Airspeed Tubing Drain Trap Installation Repair — Station 102.00 Bulkhead (Sheet 1 of 3)



DOUBLER FABRICATION DETAIL.

NOTES:

1. FASTENER HOLES NOT INDICATED ON DOUBLER ARE FOR AN470AD-4 RIVETS.
2. NAS464 BOLT HOLES ON DOUBLER ARE LOCATED FROM EXISTING HOLES IN STATION 102.00 BULKHEAD CENTER TEE (SEE DAMAGE REMOVAL VIEW).
3. THE TWO ROWS OF AN470AD-4 RIVET HOLES AT THE TOP OF DOUBLER ARE LOCATED FROM EXISTING HOLES IN STATION 102.00 BULKHEAD AT WL 39.50 (SEE DAMAGE REMOVAL VIEW). REFER TO SECTION I FOR LOCATING BLIND HOLES.
4. THE TWO ROWS OF RIVETS AT THE LEFT AND RIGHT SIDES OF THE DOUBLER ARE LOCATED FROM EXISTING HOLES IN STATION 102.00 BULKHEAD AND FROM ANGLE STIFFENERS REMOVED FROM AFT SIDE OF BULKHEAD (SEE DAMAGE REMOVAL VIEW). REFER TO SECTION I FOR LOCATING BLIND HOLES.
5. THE TWO-ROW STAGGERED RIVET HOLE PATTERN AT THE BOTTOM OF DOUBLER SHALL BE IN ACCORDANCE WITH STANDARD MINIMUM RIVET SPACING IN SECTION I.



INSTALLATION VIEW

c. Install doubler and angles on the aft side of station 102.00 bulkhead with clecos, and predrill all rivet and NAS464 bolt holes in doubler as indicated in doubler fabrication detail and repair installation view. Use a No. 39 (0.099) drill to predrill 1/8-inch diameter rivet holes, and a No. 30 (0.128) drill for 5/32-inch diameter rivet holes, and a No. 15 (0.180) drill for NAS464 bolt holes.

d. Drill all rivet holes as shown in repair installation view. Use a No. 30 (0.128) drill for 1/8-inch diameter rivets and a No. 20 (0.161) drill for 5/32-inch diameter rivets. Ream 464 bolt holes in doubler to 0.1900 inch (+0.0015/-0.0000).

e. Enter area vacated by antenna, reach through station 94.75 frame holes, and scribe airspeed tubing holes on the back of attached doubler.

f. Remove doubler and angles from aft side of station 102.00 bulkhead. Drill airspeed tubing holes in doubler to sizes obtained from scribing in step "e".

g. Remove burrs from doubler and station 102.00 bulkhead.

h. Apply protective coating to doubler and station 102.00 bulkhead disturbed areas. See figure "Primer and paint Coatings" in Section I.

i. Apply a coat of sealer, Military Specification MIL-S-81733 to doubler faying surface.

j. Reinstall doubler as shown in installation view with clecos.

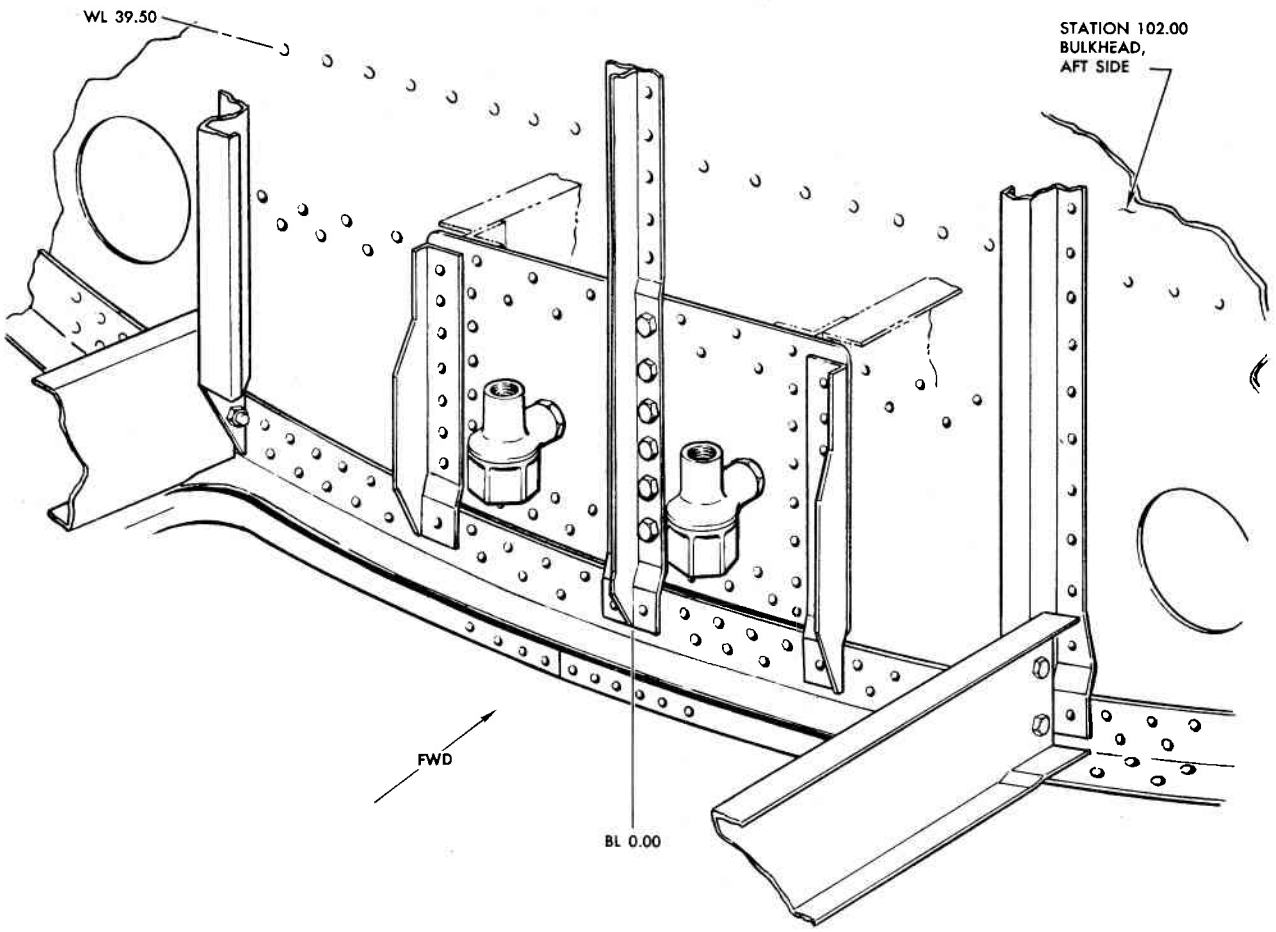
k. Install AN470AD-4 and -5 rivets as indicated in repair installation view.

NOTE

FOR ELONGATED OR OVERSIZED HOLES, RIVETS OF THE NEXT LARGER SIZE MAY BE USED PROVIDED MINIMUM RIVET EDGE DISTANCE AND SPACING REQUIREMENTS ARE MET.

.06.03.313-2A

Figure 4–31. Airspeed Tubing Drain Trap Installation Repair–Station 102.00 Bulkhead (Sheet 2 of 3)



COMPLETED REPAIR

l. Install NAS464 bolts as indicated and repair installation view.

NOTE

NAS464 BOLTS SHALL BE REPLACED WITH NAS464 BOLTS HAVING ONE GRIP LENGTH LONGER THAN THOSE REMOVED.

m. Enter area vacated by antenna and clean out frame area extending from station 94.75 to 102.00.

n. Reinstall drain traps and airspeed tubing.

o. Remove old sealer from station 94.75 left and right cover faying surfaces.

p. Apply a new coat of sealer, Military Specification MIL-S-81733 to faying surfaces of station 94.75 left and right frame covers.

q. Reinstall ADF antenna and cover.

NOTE

CHECK ANTENNA COVER GASKET FOR SERVICEABILITY. IF A NEW GASKET IS REQUIRED, APPLY SEALER MILITARY SPECIFICATION MIL-S-8802 BETWEEN NEW GASKET AND COVER.

r. Perform pitot-static system operational check and leak test in accordance with applicable maintenance manual.

s. Perform operational check of systems affected by removal and reinstallation of ADF antenna in accordance with applicable maintenance manual.

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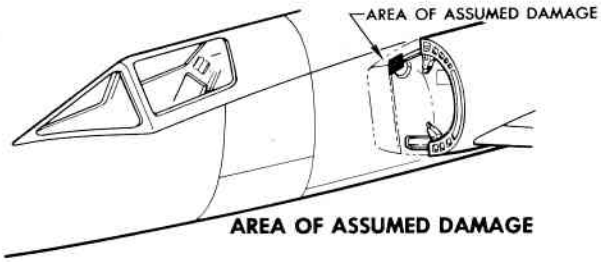
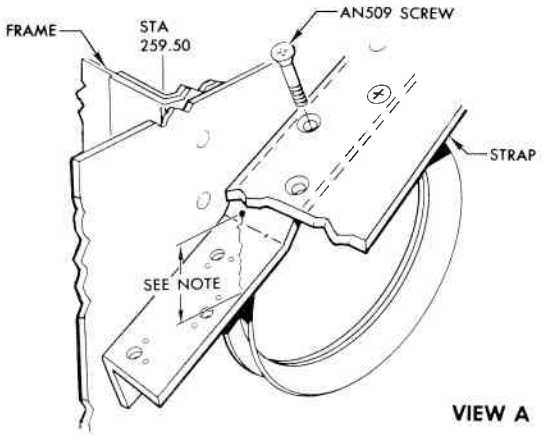
Figure 4–31. Airspeed Tubing Drain Trap Installation Repair–Station 102.00 Bulkhead (Sheet 3 of 3)





VIEW A

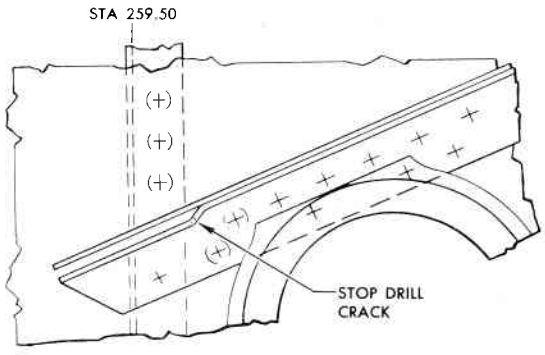
DAMAGE REMOVAL PROCEDURE

NOTE
THIS REPAIR IS *APPLICABLE TO F-106A AIRPLANES* WHEN CRACKS EXIST AT FORWARD END OF SPLICE ANGLES.

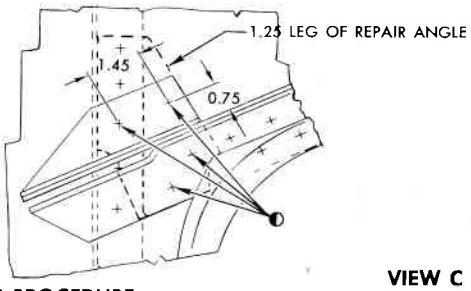
a. Remove duct lip structure; place on padded bench.
b. Remove two AN509 screws immediately aft of splice angle joggle. See View A.
c. Remove all paint from damaged area; use a cloth dampened with methyl ethyl ketone, Specification TT-M-261.
d. Perform a fluorescent penetrant inspection to determine length of crack.

NOTE
IF LENGTH OF CRACK EXCEEDS 1.50 INCHES, FROM FORWARD END, USE REPAIR NO. 2. IF LENGTH OF CRACK EXCEEDS 5.00 INCHES, FROM FORWARD END, CONSULT AN AERONAUTICAL STRUCTURE ENGINEER.

e. Insert scrap material between angle and strap. Stop drill crack with a No. 15 (0.180) drill. See View B.



VIEW B



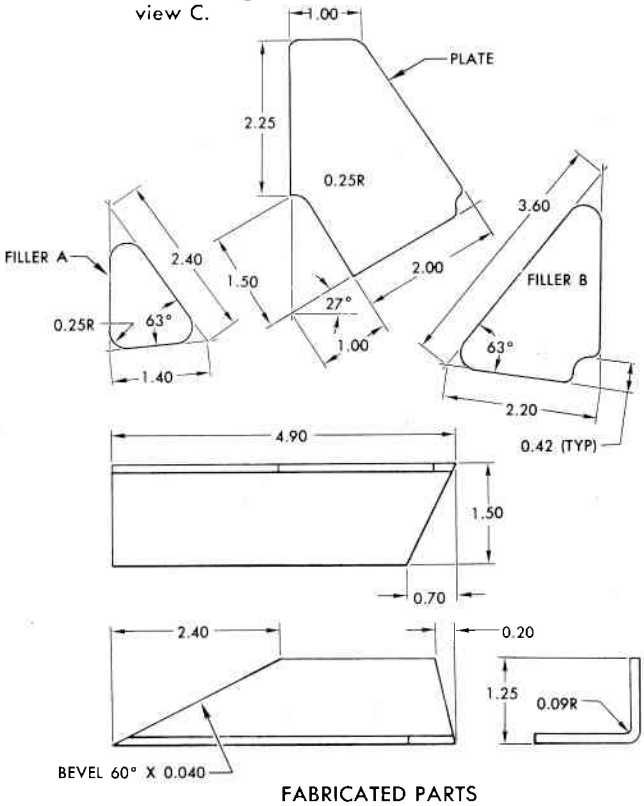
VIEW C

REPAIR PROCEDURE

a. Fabricate filler A from 0.030 gage 7075-T6 bare sheet material.

NOTE
2024-T4 SHEET MATERIAL MAY BE USED AS A SUBSTITUTE MATERIAL FOR FILLER A, FILLER B, AND PLATE.

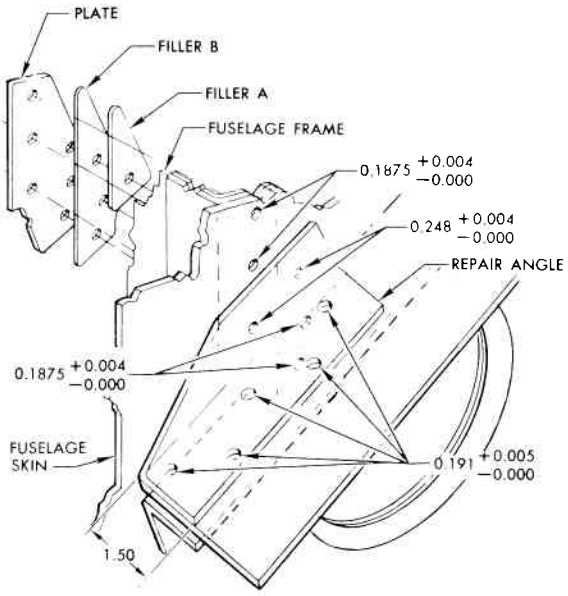
b. Fabricate filler B from 0.100 gage 7075-T6 bare sheet material.
c. Fabricate plate from 0.160 gage 7075-T6 bare sheet material.
d. Fabricate angle from 0.50 gage 302 corrosion resistant steel.
e. Drill out five existing rivets (indicated by (+); use a No. 30 (0.128) drill. See View B.
f. Position repair angle, as shown, and clamp in place. See View C.
g. Drill through repair angle to pick up existing rivet hole in fuselage skin and frame; use a No. 30 (0.128) drill.
h. Lay out pattern for second and third hole in 1.25 leg of repair angle. Drill holes through repair angle and fuselage skin; use a No. 30 (0.128) drill. See view C.



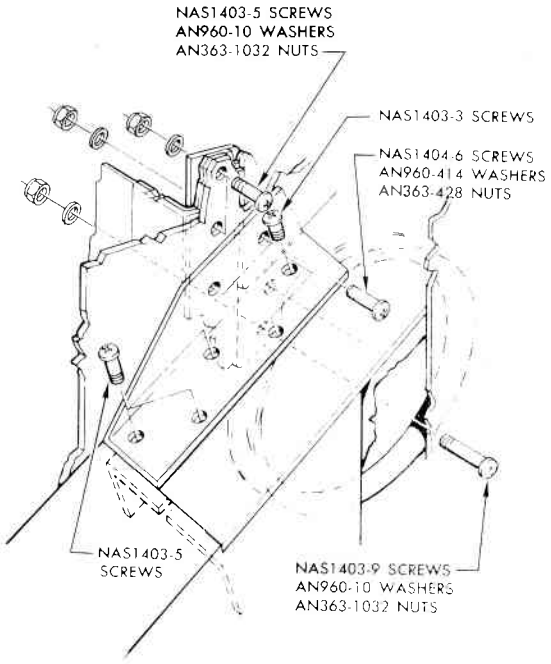
FABRICATED PARTS

.06.03.316-1

Figure 4-32. Fuselage Side Panel Splice Angle Crack Repair No. 1 (Sheet 1 of 2)



VIEW D



VIEW E

i. Position filler A, as shown in view D, and secure in place with masking tape.

NOTE
THE 63° ANGLE EDGE OF FILLER A SHALL BUTT AGAINST AFT EDGE OF FUSELAGE FRAME AND LOWER EDGE SHALL COINCIDE WITH TOP EXTERNAL STRAP.

j. Position filler B as shown in view D; route aft lower edge minimum amount to clear existing rivet.

NOTE
THE 63° ANGLE EDGE OF FILLER B SHALL BUTT AGAINST AFT EDGE OF FUSELAGE FRAME AND TOP, AND AFT EDGES SHALL COINCIDE WITH TOP AND AFT EDGES OF FILLER A.

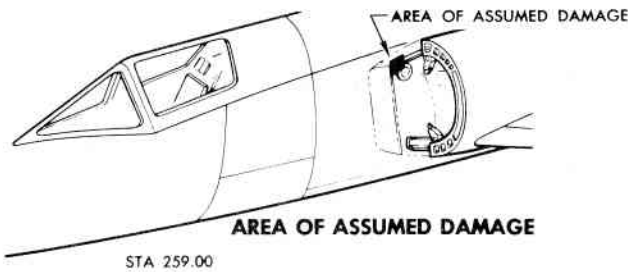
k. With filler A and filler B positioned per steps "i" and "j," use No. 30 (0.128) drill to drill holes through filler indicated by ◐ in view C. Remove fillers.
l. Clamp filler B to plate so that aft and lower edges of plate and filler coincide. Using filler B as a jig; drill 4 holes in plate with a No. 30 (0.128) drill.
m. Position filler A, filler B, and plate; secure in place with clecos.
n. Using the forward hole in the repair angle and existing rivet holes in skin and fuselage frame as a jig, drill 3 holes in plate with a No. 30 (0.128) drill.
o. Drill and line ream 2 existing holes in repair angle, filler B, and plate to 0.248 (+0.004, −0.000) inch. See View D. Install two NAS1404-6 screws, with AN960-414 washer, and AN363-428 nut.
p. Drill and line ream remaining holes to 0.1875 (+0.004, −0.000) inch. See view D.
q. On 1.50 leg of repair angle, pick up existing holes in strap and splice angle, final drill to 0.191 (+0.005, −0.000) inch. See view D.
r. Fabricate fillers for strap countersinks by drilling off heads from AN509-10R screws; use a No. 10 (0.1935) drill.
s. Remove repair parts; remove burrs.
t. Clean all repair parts and damage area of splice angle with aliphatic naphtha, Federal Specification TT-N-95.
u. Paint repair parts and damage area of splice angle as indicated in T.O. 1F-106A-23.
v. Remove paint from close tolerance holes in repair parts.
w. Install fillers (heads of AN509-10R screws) in strap countersinks with wet prime.
x. Install repair parts with screws, washers, and nuts, see view E.

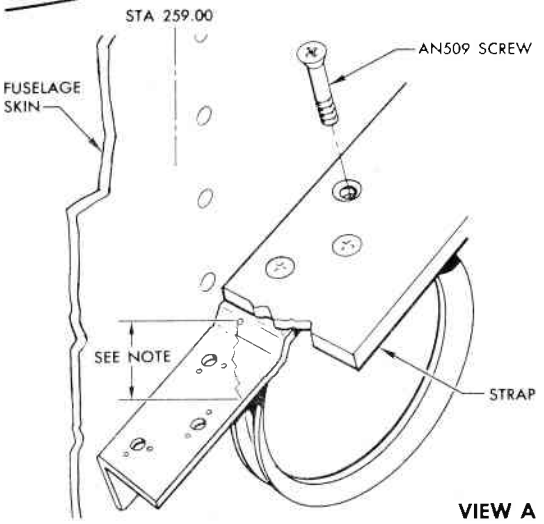
NOTE
NAS221 and NAS222 SCREWS MAY BE SUBSTITUTED FOR NAS1403 AND NAS1404 SCREWS RESPECTIVELY.

y. Install duct lip structure.

.06.03.316-2

Figure 4-32. Fuselage Side Panel Splice Angle Crack Repair No. 1 (Sheet 2 of 2)





VIEW A

DAMAGE REMOVAL PROCEDURE

NOTE

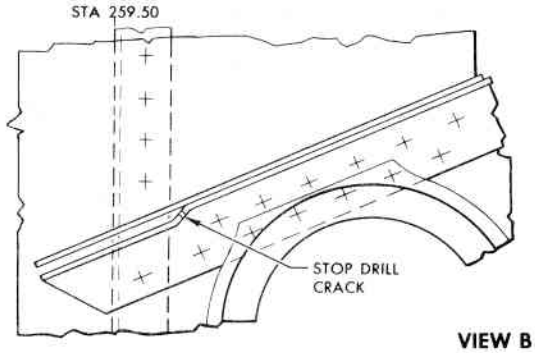
THIS REPAIR IS *APPLICABLE TO F-106A* AIRPLANES WHEN CRACKS EXIST AT FORWARD END OF SPLICE ANGLES.

a. Remove duct lip structure; place on padded bench.
b. Remove four AN509 screws immedately aft of splice angle joggle. See view A.
c. Remove all paint from damaged area; use a cloth dampened with methyl ethyl ketone, Specification TT-M-261.
d. Perform a fluorescent penetrant inspection to determine length of crack.

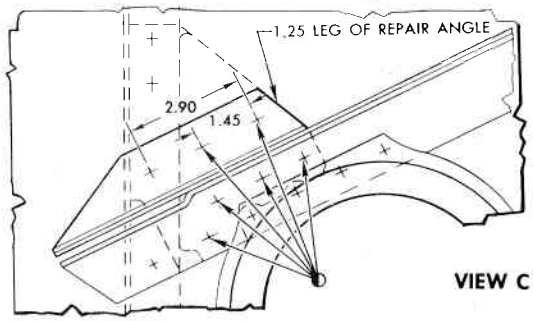
NOTE

IF LENGTH OF CRACK IS LESS THAN 1.50 INCHES FROM FORWARD END, USE REPAIR NO. 1. IF LENGTH OF CRACK EXCEEDS 5.00 INCHES FROM FORWARD END, CONSULT AN AERONAUTICAL STRUCTURE ENGINEER.

e. Insert scrap material between angle and strap. Stop drill crack with a No. 15 (0.180) drill. See view B. Remove scrap material.



VIEW B



VIEW C

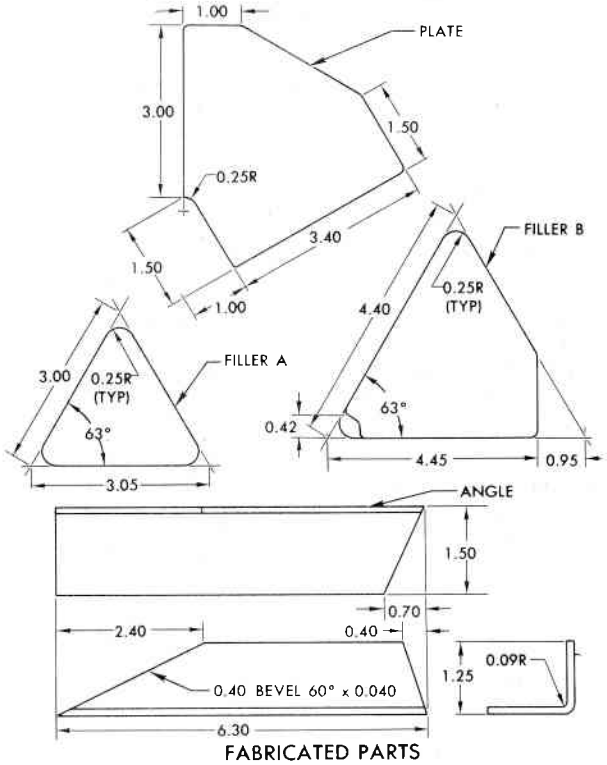
REPAIR PROCEDURE

a. Fabricate filler A from 0.300 gage 7075-T6 bare sheet material.

NOTE

2024-T4 SHEET MATERIAL MAY BE USED AS A SUBSTITUTE MATERIAL FOR FILLER A, FILLER B, AND PLATE.

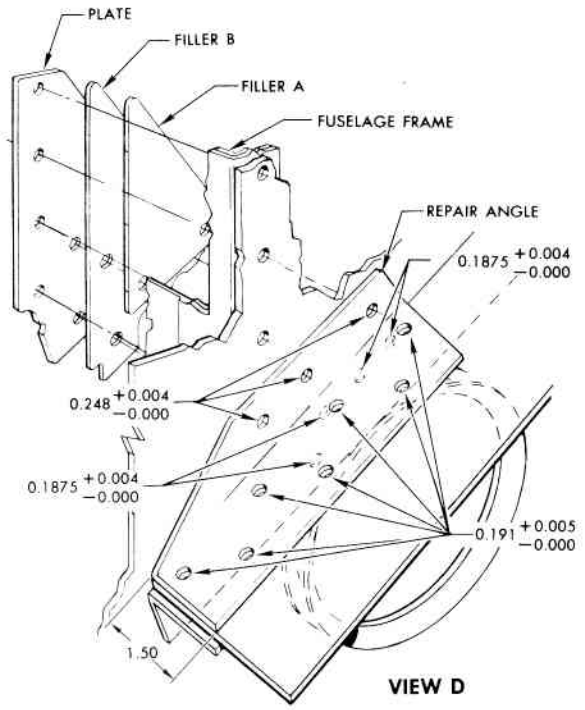
b. Fabricate filler B from 0.100 gage 7075-T6 bare sheet material.
c. Fabricate plate from 0.160 gage 7075-T6 bare sheet material.
d. Fabricate angle from 0.50 gage 302 corrosion resistant steel.
e. Drill out eight existing rivets (indicated by (+); use a No. 30 (0.128) drill. See view B.
f. Position repair angle, as shown, and clamp in place. See view C.
g. Drill through repair angle to pick up existing rivet hole in fuselage skin and frame; use a No. 30 (0.128) drill.
h. Lay out pattern for second and third hole in 1.25 leg of repair angle. Drill holes through repair angle and fuselage skin; use a No. 30 (0.128) drill. See view C.



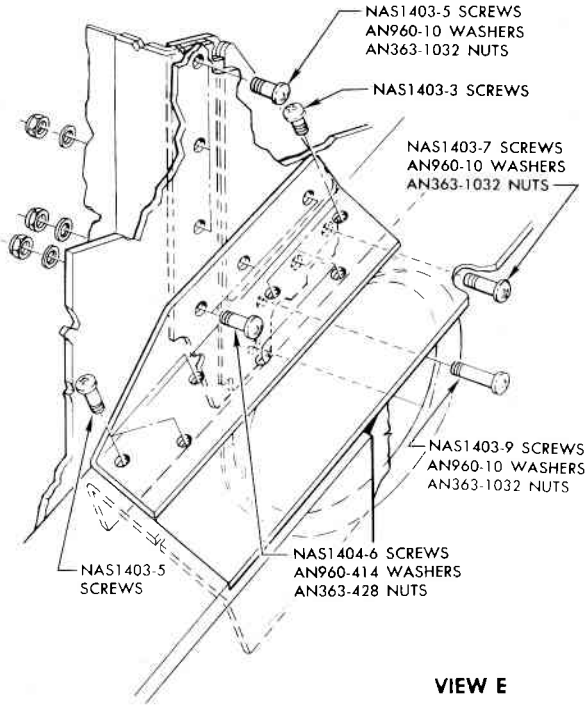
FABRICATED PARTS

.06.03.317-1

Figure 4-33. Fuselage Side Panel Splice Angle Crack Repair No. 2 (Sheet 1 of 2)



VIEW D



VIEW E

i. Position filler B as shown in view D; route aft lower place with masking tape.

NOTE
THE 63° ANGLE EDGE OF FILLER A SHALL BUTT AGAINST AFT EDGE OF FUSELAGE FRAME AND LOWER EDGE SHALL COINCIDE WITH TOP OF EXTERNAL STRAP.

j. Positionfiller B as shown in view D; route aft lower edge minimum amount to clear existing rivets.

NOTE
THE 63° ANGLE EDGE OF FILLER B SHALL BUTT AGAINST AFT EDGE OF FUSELAGE FRAME AND THE LOWER EDGE SHALL COINCIDE WITH THE LOWER EDGE OF SPLICE ANGLE.

k. With filler A and filler B positioned per steps "i" and "j" use No. 30 (0.128) drill to drill holes indicated by ◐ in view C. Remove fillers.
l. Position plate on fuselage frame, as shown in detail C. Use a pencil to mark location of aft edge of fuselage frame on plate. Remove plate and draw line between marks.
m. Clamp filler B to plate so that lower edge of plate and filler coincide and that forward edge of filler coincides with pencil mark on plate. Using filler B as a jig, drill 6 holes in plate with a No. 30 (0.128) drill.
n. Position filler A, filler B, and plate; secure in place with clecos.
o. Using the forward hole in the repair angle and existing rivet holes in skin and fuselage frame as a jig, drill 4 holes in plate with a No. 30 (0.128) drill.
p. Drill and line ream 3 existing holes in repair angle, filler B, and plate to 0.248 (+0.004, —0.000) inch. See view D. Install two NAS1404-6 screws, with AN960-414 washer, and AN363-428 nut.
q. Drill and line ream remaining holes to 0.1875, (+0.004, —0.000) inch.
r. On 1.50 leg of repair angle, pick up existing holes in strap and splice angle, final drill to 0.191 (+0.005, —0.000) inch. See view D.
s. Fabricate fillers for strap countersinks by drilling off heads from AN509-10R screws; use a No. 10 (0.1935) drill.
t. Remove repair parts; remove burrs.
u. Clean all repair parts and damage area of splice angle with aliphatic naphtha, Federal Specification TT-N-95.
v. Paint repair parts and damage area of splice angle as indicated in T.O. 1F-106A-23.
w. Remove paint from close tolerance holes in repair parts.
x. Install fillers (heads of AN509-10R screws) in strap countersinks with wet prime.
y. Install repair parts with screws, washers, and nuts, see view E.

NOTE
NAS221 AND NAS222 SCREWS MAY BE SUBSTITUTED FOR NAS1403 AND NAS1404 SCREWS RESPECTIVELY.

z. Install duct lip structure.

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Figure 4-33. Fuselage Side Panel Splice Angle Crack Repair No. 2 (Sheet 2 of 2)

4-43. Fuselage Integral Fuel Tank Pressure Test.

4-44. The fuselage integral fuel tank ("F" tank) shall be pressure tested as follows after completion of repairs involving fuel-tightness.

a. Open the air-conditioning compartment access doors. See figure 1-2.

b. Disconnect and cap the following lines which are located on the aft, upper left-hand side of the "F" tank fuel-tight bulkhead at station 253.00. (Refer to Section II for equipment required, and to T.O. 1F-106A-2-5-2-1 for the fuel system schematic.)

1. One 0.25-inch pressure sense line leading to the "F" tank air pressure regulator.
2. Two 0.25-inch ambient sense lines leading from the "F" tank to the ambient sense ports.
3. One 0.25-inch fuel pressure line leading to the refueling pilot valve.
4. One 0.38-inch air pressure line to the left and right pilot float valves.
5. One 0.38-inch air pressure line to the check valve manifold and the high-level pilot float valve.
6. One 0.38-inch air pressure line from the high level pilot float valve.
7. One 0.38-inch emergency air pressure line to the left and right CG fuel shutoff valves.
8. One 4.50-inch fuel transfer line (disconnect and cap in left-hand main landing gear wheel well).
9. One 0.38-inch air pressure line leading to forward and aft vent valves.
10. One 1.50-inch air pressure vent line.

c. Remove the "F" tank access door.

d. Install an air test dummy door on the "F" tank opening in place of the access door removed in the previous step. See figure 2-33 for general requirements for door fabrication.

e. Deleted.

f. Connect a regulated air pressure line not exceeding 20 psi from the source to the inlet fitting on the air test dummy door.

g. Deleted.

CAUTION

Close all valves tightly on mercury manometer test stand before connecting air pressure line from air pressure source.

h. Deleted.

i. Deleted.

j. Slowly open the valve on the 20-psi air pressure line and pressurize the "F" tank to 7.0 (±0.5) psi.

k. Apply bubble fluid to the repair area and check for leaks.

l. If a leak is detected, relieve all air pressure from "F" tank, remove the air test dummy door and repair the leak. Replace the air test dummy door and recheck for leaks by repeating steps "j" and "k."

m. Increase pressure to 10.0 (±0.5) psi.

n. Apply bubble fluid and check for leaks. If a leak is detected, repair as directed in step "l."

WARNING

High pressures are used in the following steps. Before proceeding with remainder of test, rope off the pressure test area, and hang warning signs indicating that a pressure test is in progress. Remove personnel from area not actually engaged in the pressure test. Place a steel cargo net over the "F" tank and tie down with ropes under the fuselage. Personnel performing this test shall work from behind safety screens or equivalent while accomplishing steps "p" through "s."

o. Introduce a small amount of Freon 12 gas into the "F" tank.

NOTE

Check for escaping Freon 12 gas around air inlet fittings and pressure relief valves. Escaping gas will contaminate air around tank and make test invalid.

p. Increase air pressure in "F" tank to 15 (±0.5) psi.

q. Check for leaks using a General Electric H-2 medium scale leak detector.

r. If a leak is detected, reduce the air pressure in the "F" tank to 0 psi, remove air test dummy door and repair all leaks. Replace the air test dummy door and recheck for leaks by repeating steps "p" and "q." Repeat this process until no leaks are detected.

s. If no leaks were detected in step "q," increase pressure to 20 (±0.5) psi and hold for three minutes.

t. Reduce pressure to 10 (±0.5) psi and check for leaks by application of bubble fluid.

u. If a leak is detected while performing step "t," relieve the "F" tank of all air pressure, remove the steel cargo net and air test dummy door and thoroughly check the repair for a structural failure. If it is determined that a structural failure has occurred, completely rework the repair and perform a new pressure test by repeating steps "o" through "t." If a leak is detected in the sealant, apply a fillet of sealant, Military Specification MIL-S-8802, over leak on fuel side of tank and

retest by repeating steps "m" and "n." In no case shall leaks be permitted upon completion of pressure testing.

v. If no leaks were detected after step "t," remove the steel cargo net, air test dummy door, and all test equipment from area.

w. Remove all pressure caps from lines that were capped in step "b."

CAUTION

Failure to remove all caps and plugs used during test could result in structural damage to fuel cell or failure of fuel system components during subsequent fueling, defueling and fuel system check out operations.

x. Reconnect all lines that were disconnected in step "b."

y. Replace "F" tank access door removed in step "c."

z. A fuel system operational check must be performed upon completion of step "y". Refer to T.O. 1F-106A-2-5-2-1 for procedure.

4-45. Fuselage Forward Intermediate Section Repairs.

4-46. The temper designations and physical characteristics of the material used in the fuselage forward intermediate section are varied; therefore, each part should be given individual consideration when making repairs. For repairs applicable to the various fuselage components in this area, reference should be made to figures 1-22 through 1-24, to applicable figures in the section, and to Section X for typical repair information. Due to the stresses involved in the engine air intake ducts, any repairs made to these ducts must conform to the original strength of the component being repaired. Any repairs to the variable ramp intake panels normally will require removal of these panels. Removal and replacement instructions of the variable ramp panels are given in Technical Order (TO) 1F-106A-2-4-2-1. See figure 4-19A for variable ramp panel hinge node and pin retention repair procedures. Peeled nickel plate on the variable ramp duct leading edge may be repaired as follows:

a. Grind off the peeled nickel plate from the vari-ramp duct edge (Duct Station 246.00). The nickel is a 7 5/8 inch wide "band" around the duct. Follow the grinding procedure outlined in TO 1-1-2.

(1) Use only aluminum oxide abrasive wheel with 120 grain size abrasive.

(2) Observe grinding speed limit for the particular size of wheel used.

(3) Grind off completely the peeled nickel plate. Grind lightly the nickel plated area with good bonding to remove oxide.

CAUTION

Use goggles or face shield during grinding operation.

b. Wash the reworked area with alkaline waterbase aircraft cleaner in accordance with T.O. 1-1-1 (Section III).

c. Rinse with cold water and dry.

d. Mask the adjacent area 7 5/8 inches from edge of the duct. Use barrier paper per Specification MIL-B-121 and masking tape per Specification UU-T-106, or equivalent according to T.O. 1-1-8.

e. Treat the repair area with brush-on conversion coating for aluminum alloys per Specification MIL-C-5541.

f. Cold water rinse.

g. Deleted.

h. Apply two coats of epoxy-polymide primer per Specification MIL-P-23377 according to TO 1-1-8.

i. Apply two coats of polyurethane protective coating (gray color) per Specification MIL-C-83286.

NOTE

Damage exceeding those illustrated shall be referred to an aeronautical structures engineer.

Repairs to the outer surface of the variable ramp panels in all cases must conform to aerodynamic smoothness requirements. Refer to Section I for rivet specifications and tolerances in this area. The holes in the engine cooling air scroll are not only designed to permit the flow of bleed air, but are designed to such size as to prevent foreign material, such as nuts, bolts, etc., from entering the engine air cooling system. Therefore, when a crack is detected in the perforated area of the engine cooling air scroll, drills used for stop drilling and router bits used for routing must be held to a maximum size of 0.125-inch diameter. If a crack is detected that runs from one hole to any adjacent hole, it is permissible to rout out the crack, leaving a slotted area between the two holes. This type of repair must be held to one routed slot to every two square inches of perforation. For repair of damage in excess of this permissible repair and in excess of the

negligible damage limits shown in Table 4-1, repair damage in accordance with Figures 4-20 and 4-20A. All repairs of the fuselage plating in the fuselage forward intermediate section and to the plating of the missile bay doors must be of the flush-type repair to conform to the aerodynamic smoothness requirements. See figures 4-34 and 4-35 for repair of refueling and ram air turbine access doors and figures 4-36 through 4-38 for repair of missile bay doors.

4-46A. Inspection, Dehydration, Repair and Seal Surfaces Containing Honeycomb Core Applicable to Ram Air Turbine Door will be accomplished as follows:

a. Remove ram air turbine door in accordance with instructions contained in T.O. 1F-106A-2-2-2-2.

b. X-ray ram air turbine door to determine if moisture is present and/or core is damaged.

c. Utilizing low temperature boil procedure, dehydrate assembly using set moisture removal FSN 4920-ND00062P. Vacuum shall be between 10 psig to 12 psig to assure boiling of water at as low as 160°F and temperature shall not exceed 180°F. 4 to 8 hours may be required for dehydration of core assembly, dependent on the amount of water in core.

NOTE

A vacuum chamber capable of safely maintaining 12.3 psig vacuum at 160°F to 180°F with adequate safety provisions to assure preventing excess temperature or collapsing from excess vacuum may be used as a suitable substitute.

d. Re-x-ray assembly to determine that all moisture has been removed.

e. When all moisture has been removed from assembly or x-ray reveals no moisture present, repair any damage in accordance with applicable procedures outlined in this technical order.

f. Reinstall ram air turbine door in reverse order of removal.

4-46B. REPAIR OR REPLACEMENT OF SKIN AND CORE OF RAM AIR TURBINE DOOR - DEPOT LEVEL ONLY.

WARNING

Accomplish all work in authorized areas with proper protection devices to safeguard health. Work involving application of potentially harmful materials must be accomplished in an exhaust ventilated area.

a. Replacement of the skin.

(1) Remove the damaged skin as follows:

(a) Remove fasteners AS REQUIRED.

(b) Remove the skin using dry ice and wooden wedges.

(2) Clean any fuel contaminated honeycomb with trichloroethylene; invert and dry for 8 hours at 180°F.

(3) Repair the core as necessary.

(4) Vapor degrease the assembly.

(5) Make a new skin from 2024-T6, clad, 0.020 inch. Use the old skin as a template.

(6) Clean the skin for bonding in the plating shop.

(7) Bond the skin as follows:

(a) Use MIL-A-25463, Type I, Class 2 film adhesive. Align the skin to the pan with tack rivets.

(b) Install the door in a bond form, vac-bag and put into the autoclave.

(c) Retain in the autoclave for 1 hour at 250°F and 15 psig net.

(d) Cool for 1 hour. Remove all the vac-pac materials.

(8) Grind off the excess adhesive.

(9) Install fasteners AS REQUIRED

(10) Inspect the door for honeycomb bond integrity using tap test. TEST SPECIMEN IN ACCORDANCE WITH PARA 4-46B c.

b. Replacement of the skin and core.

(1) ~~Replace~~ REMOVE one skin as specified above.

(2) Remove and replace the core as required. Cut the core on the Do-all saw. Use adhesive, foaming core splice in accordance with AMS 3688 to fill voids around edges of core. Clean skin, core and pan for bonding in the plating shop. Follow steps a.(4) thru a.(10) above.

c. Prepare a lap shear specimen with the same adhesive used in the honeycomb repair and cure it simultaneously with the repair piece. Use the lap shear specimen tester in the shop. A minimum value of 2000 psi must be attained.

4-46C. REPAIR OF ELECTRONIC COOLING CHECK VALVE FLAPPER HINGE HOLES. Elongated hinge holes of the electronic cooling check valves flapper will be repaired in accordance with figure 4-39B.

4-47. Fuselage Aft Intermediate Section Repairs.

4-48. The temper designations and physical characteristics of the material used in the fuselage aft intermediate section are varied; therefore, each part should be given individual consideration when making repairs. All repairs to the fuselage plating in the fuselage aft intermediate section must be of the flush-type to conform to the aerodynamic smoothness requirements. Due to the type of material used in the construction of the drag chute housing and speed brake door plating, an aeronautical structures engineer should be consulted before making a repair. In any case, all repairs must provide airtightness to the drag chute housing structure. For repairs applicable to the fuselage aft intermediate section components, see figures 1-22 through 1-24, applicable figures in this section, and refer to Section X for typical repair information. Refer to Table 4-I for disposition of negligible damage to the components of this section of the fuselage. Repairs to, or replacement of, the gaskets used in sealing

4-48A. Fin/Fuselage Drag Angles, Part nos 8-74103-151 and -152 Repair.

4-48B. Replace defective fin/fuselage drag angles with like angles fabricated from 7075-0 material with a bend radius increased to 0.12 and heat treat to T6 condition after fabrication.

4-49. Fuselage Lower Longeron Repairs.

4-50. See Figure 9-7 for crack tolerances and cross section damage limits. Because of the wide difference in cross section area and the stress loads imposed upon the longeron, repair of areas not covered by crack and damage tolerances in Figure 9-7 must be designed by an aeronautical structures engineer.

4-51. Fuselage Tail Cone Repairs.

4-52. The fuselage tail cone is constructed of aluminum and titanium materials and any repairs in this area must be made of the same material as the original part. All repairs to the plating of the tail cone must be of the flush type in order to conform to the aerodynamic smoothness requirements. Refer to Table 4-1 for the neglible damage limits in the tail cone area and for disposition of damage classified as negligible. Should crack damage occur within a spot weld, repair damage by stop drilling crack with a Number 40 or equivalent drill bit. Cracks that extend beyond spot weld circumference must be removed and patched. There shall be no more than three stop drill repairs per 12 inches of seam. Figures 1-22 through 1-24 give methods for typical repairs for the various components in the tail cone. Refer to Section X for typical repair information and to Section XI for repair materials. See figure 4-42 for tail cone cracked frame repair procedure and figure 4-43 for tail cone alignment procedures.

4-52A. DORSAL AERIAL REFUEL CAVITY LEAK CHECK.

4-52B. Equipment Required.

FIGURE	NAME	TYPE	ALTERNATE	USE
4-33A	Aerial Refuel Cavity Test Fixture Kit.	66J40057-1 (F-106A) 66J40058-1 (F-106B)		To leak check the dorsal aerial refuel cavity.
	Regulated Air Pressurize Source			To pressurize test area.
	Drainage Receptacle	20 gallons capacity		Receiver for test fluid.
	Distilled Water (20 gallons).			Leak test fluid.
	Analine Dye (red).			To color leak test fluid.

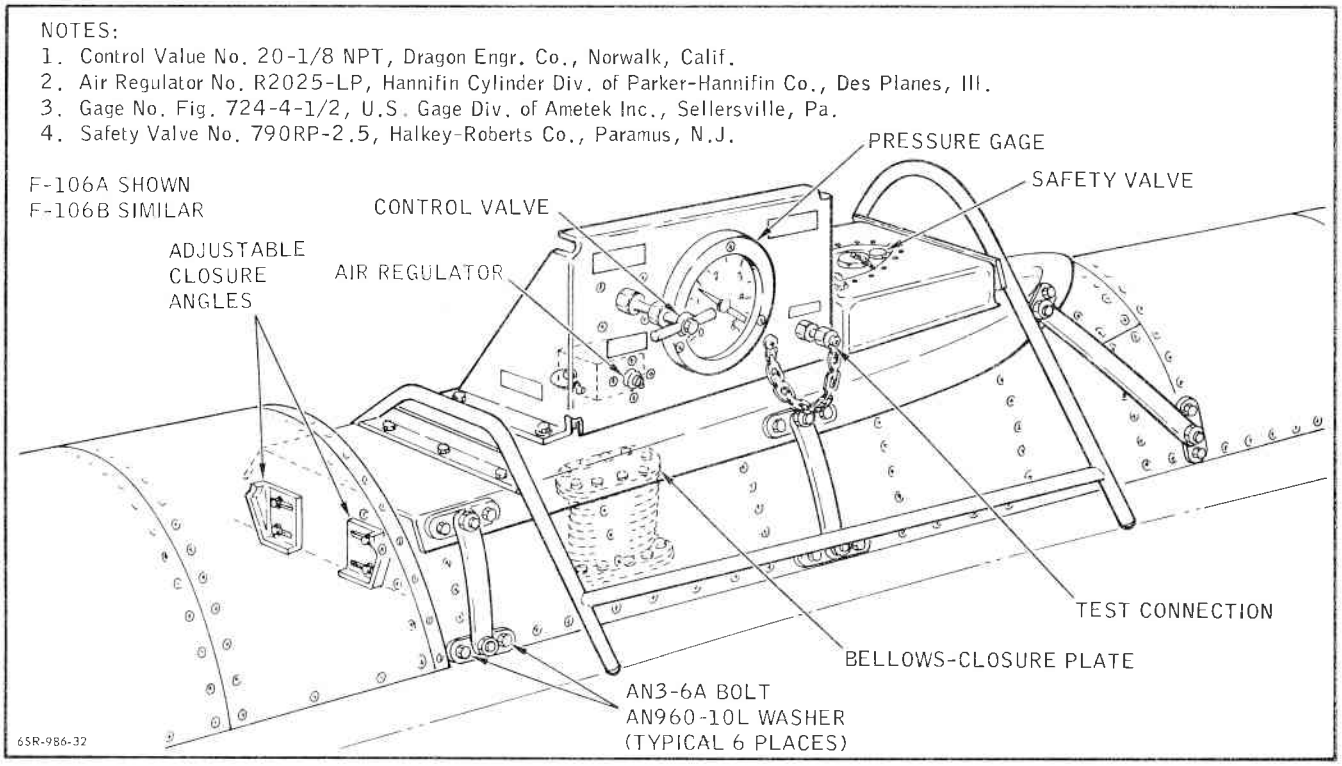


Figure 4-33A. Aerial Refueling Dorsal Cavity Leak Tester Installation.

4-52C. Preparation, F-106A.

a. Remove aerial refueling slipway door. Leave door actuator boot installed on airplane. Refer to T.O. 1F-106A-2-5-2-1 for this procedure.

b. Open refrigeration compartment access door.

c. Apply sealant MIL-S-8802 to flanged surface of slipway actuator boot. Install 66J40057-4 cover plate on boot using AN3-6A bolts (8).

d. Loosen bolts attaching 66J40057-5 and -6 bracket assemblies to forward end of test fixture; slide brackets inboard.

NOTE

If repair to the fiberglass portion of the test fixture is required, refer to Section I for fiberglass repair information.

e. Carefully position test fixture over the dorsal slipway cavity. Insure that the test fixture is bearing on the dorsal surface aft of the refueling cavity area.

f. Align test fixture hold-down straps as shown in figure 4-33A. Remove dorsal attachment screws (12) where straps attach; hold for reinstallation. Secure straps using bolts AN3-6A(12) and washers AN960-10(12). Do not torque bolts beyond 25 inch pounds.

g. Finger tighten strap nuts.

h. Slide 66J40057-5 and -6 bracket assemblies outboard until the fixture seals compress approximately 3/16 inch against sides of the dorsal pan. Tighten bracket attachment bolts.

i. Starting with the fixture aft straps, tighten each strap nut approximately eight turns. Tighten forward straps, then the center straps.

j. Close test fixture air shutoff valve and verify that the filler plug is tight.

k. Turn fixture air regulator adjustment screw several turns counterclockwise; do not remove screw.

l. Connect regulated external air (250 psi maximum) pressure source to fixture control panel.

m. Connect hose AN6270-4-60 to adapter 66J40057-3 using union MS24392-4. Install plug MS24404-4 in hose open end.

n. Install adapter assembly (step m) on fuselage overboard drain located on right side of fuselage at station 370.70 using MIL-S-8802 as attachment adhesive. Support hose weight by taping to fuselage skin. Place end of hose in 20 gallon container.

4-52D. Preparation, F-106B.

a. Remove aerial refueling slipway door. Refer to T.O. 1F-106A-2-5-2-1 for this procedure.

b. Open refrigeration compartment access doors.

c. Apply sealant MIL-S-8802 to flanged surfaces of slipway door actuator boot. Install cover plate 66J40058-3 on boot using AN3-6A bolts (9). Reinstall boot to dorsal pan assembly.

d. Loosen bolts attaching 66J40058-5 and -6 bracket assemblies to test fixture; slide brackets inboard.

NOTE

If repair to the fiberglass portion of the test fixture is required, refer to Section I for fiberglass repair information.

e. Carefully position test fixture over the dorsal slipway cavity. Insure that the test fixture is bearing on the dorsal surface aft of the refueling cavity area.

f. Align test fixture hold-down straps as shown in figure 4-33A. Remove dorsal attachment screws (12); hold for reinstallation. Secure straps using bolts AN3-6(12) and washers AN960-10(12). Do not torque bolts beyond 25 inch pounds.

g. Finger tighten strap nuts.

h. Slide 66J40058-5 and -6 bracket assemblies outboard until the fixture seals compress approximately 3/16 inch against the sides of the dorsal pan. Tighten bracket attachment bolts.

i. Starting with the fixture aft straps, tighten each strap nut approximately eight turns. Tighten forward straps, then the center straps.

j. Close test fixture air shutoff valve and verify that the filler plug is tight.

k. Turn fixture air regulator adjustment screw several turns counterclockwise; do not remove screw.

l. Connect regulated external air (250 psi maximum) pressure source to fixture control panel.

m. Connect hose AN6270-6-120 to adapter 66J40058-7 using union MS24399-8. Install plug MS24404-6 hose open end.

n. Install adapter assembly (step m) on dorsal left hand overboard drain using MIL-S-8802 as attachment adhesive. Support hose weight by taping to fuselage skin. Place end of hose in 20 gallon container. Plug dorsal left hand overboard drain using plug 66J40058-24.

4-52E. Procedure.

a. Slowly open air shutoff valve while monitoring fixture pressure gage.

NOTE

If fixture pressure gage reading exceeds 2.0 psig, immediately close air shutoff valve and turn regulator adjustment screw counterwise; do not remove screw.

b. Slowly turn regulator adjustment screw clockwise until pressure gage indicates 2.0 psig.

c. Check test area for indications of leaks. Note areas of leakage.

d. Close air shutoff valve and slowly remove filler bleed plug to vent air pressure.

e. Remove test fixture and repair leaks. Clean area for sealant application using aliphatic naptha, Federal Specification TT-N-95; dry area. Warm area with heat lamp to approximately 100°F-130°F. Apply sealant, Specification MIL-S-8802 to areas that require sealing.

f. Repeat preparation procedure steps e through l.

g. Repeat steps a through c of this procedure until all obvious leaks have been repaired. Reduce pressure to zero.

h. Fill test fixture - dorsal cavity area with approximately 20 gallons of test fluid consisting of distilled water and enough red aniline dye to well color the water.

i. Close fixture bleed plug, open air shutoff valve and pressurize test area to 2.0 psig pressure.

j. Check outer surfaces of cavity area for leaks. No leakage is allowable through the aft bulkhead area. A quantity of 18 drops per minute maximum total is allowable through all other areas when pressurized at 2.0 psig for five minutes.

k. If leakage above specified limits is found, reduce air pressure to zero, remove plug from drain hose and drain fluid into the container.

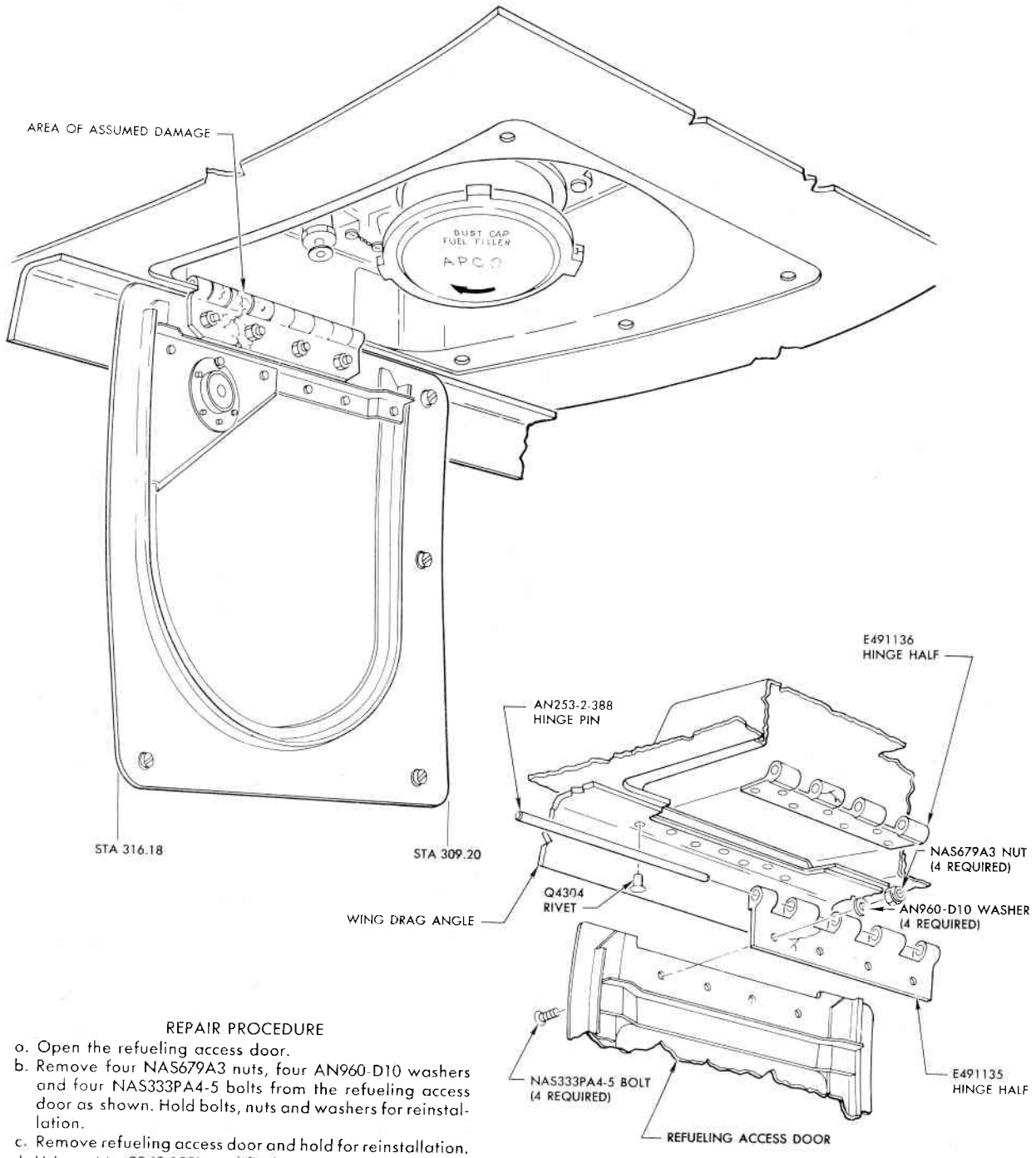
l. Conduct procedures of step e.

m. Repeat preparation procedure steps e through l.

n. Repeat steps h through j of test procedure until requirements of step j are met.

o. Reduce air pressure to zero, drain test fluid, and remove test equipment. Install screws removed in preparation step f.

p. Install slipway door. Refer to T.O. 1F-106A-2-5-2-1 for this procedure.

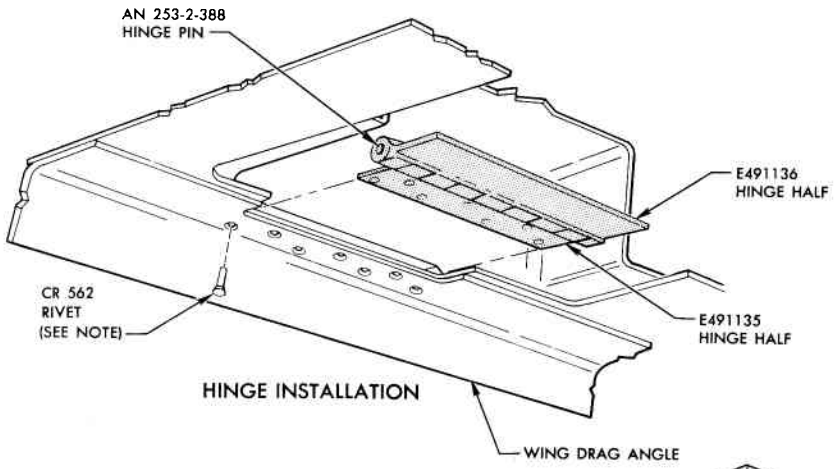


REPAIR PROCEDURE

a. Open the refueling access door.
b. Remove four NAS679A3 nuts, four AN960-D10 washers and four NAS333PA4-5 bolts from the refueling access door as shown. Hold bolts, nuts and washers for reinstallation.
c. Remove refueling access door and hold for reinstallation.
d. Using a No. 30 (0.128) modified drill similar to the modified high-speed drill for titanium shown in Section I, remove the Q4304 rivets attaching the refueling access door hinge half to the fuselage.
e. Remove the hinge from the fuselage.

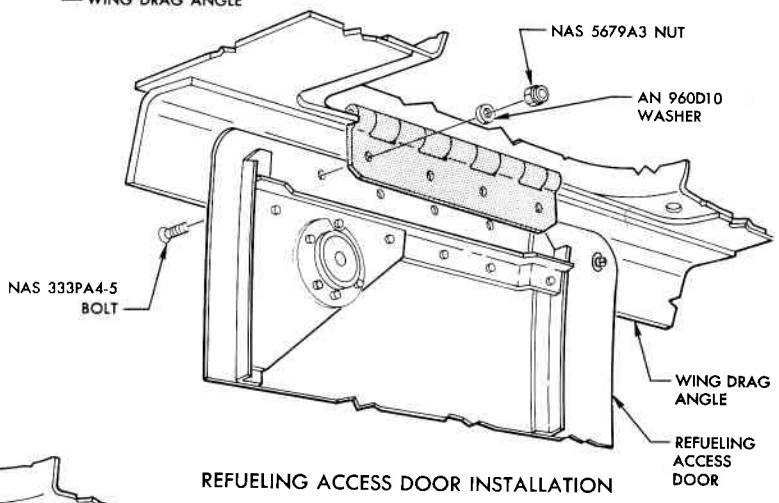
06.03.262-1B

Figure 4-34. Replacement of Refueling Door Hinge (Sheet 1 of 2)

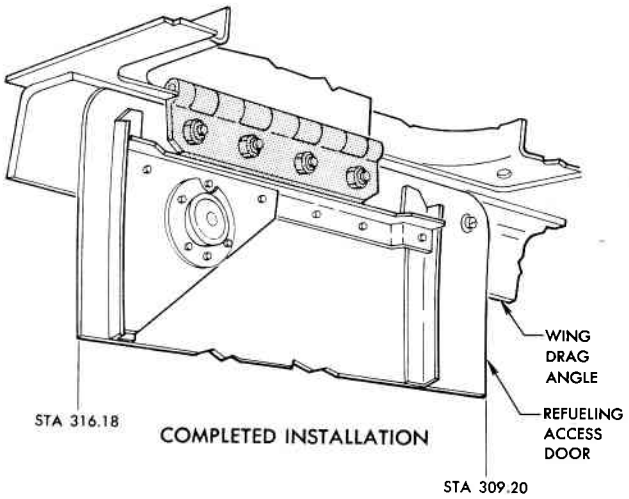


HINGE INSTALLATION

NOTE:
REFER TO TABLE I-XXIII
FOR RIVET BASIC COPE.



REFUELING ACCESS DOOR INSTALLATION



COMPLETED INSTALLATION

f. Make new hinge halves from MS 2000X14-0400 and MS 20001Y14-0400.

NOTE
MS 20001X14-0400 HINGE HALF ATTACHES TO FUSELAGE, AND MS 20001Y14-0400 HINGE HALF ATTACHES TO REFUELING ACCESS DOOR.

g. Make a new hinge pin from AN 253-5-388.

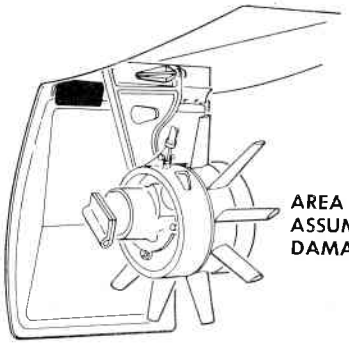
h. Mate the two hinge halves together and install hinge pin.

NOTE
CRIMP ENDS OF HINGE PIN AFTER INSTALLATION TO SECURE PIN IN PLACE.

i. Install new hinge in fuselage as shown.
j. Using existing holes in fuselage as a guide, drill holes through new hinge. Use a No. 30 (0.128) drill.
k. Ream holes drilled in step "J" with a No. 20 (0.161) drill.
l. Remove the hinge and remove all burrs from hinge and fuselage.
m. Countersink 100° all holes in exterior surface of fuselage for 5/32" diameter flush rivets.
n. Reinstall hinge and rivet in place as shown.
o. Install refueling access door as shown.
p. Using existing holes in refueling access door as a guide, drill holes through hinge. Use a 3/16" (0.1875) drill.
q. Remove the door and remove all burrs from door and hinge.
r. Reinstall door and secure in place with bolts, washers and nuts which were removed in step "B."

.06.03.262-2 .53.03.03

Figure 4-34. Replacement of Refueling Door Hinge (Sheet 2 of 2)



AREA OF ASSUMED DAMAGE

REPAIR PROCEDURE

a. Remove the ram air turbine door. Refer to T.O. 1F-106A-2-2-2-2 for removed procedure.

b. Using a cloth dampened with Methyl Ethyl Ketone, Federal Specification TT-M-261, remove all paint, primer and other foreign material from the hinge area of the ram air turbine door.

c. Using a No. 39 (0.099) drill, remove the rivets attaching the hinge to the door. Remove the hinge.

d. Using a 3/16" (0.187) drill, remove the rivets attaching the two hinge halves to the fuselage longeron. Remove the hinges.

e. Using the hinge removed in step "c" as a guide, cut a new hinge to proper size from extruded aluminum. Alcoa die number E451124.

f. Using the hinge halves removed in step "d" as a guide, cut new hinge halves to proper size from extruded aluminum. Alcoa die number E451125.

NOTE

IF EXTRUDED MATERIAL IS NOT AVAILABLE HINGES MAY BE MACHINED FROM 7075-T6 ¼-INCH PLATE ACCORDING TO DIMENSIONS GIVEN ON CONVAIR ENGINEERING BLUE PRINTS, 8-45961 AND 8-45962.

g. Apply one coat of wash primer to new hinges per Specification MIL-C-8514.

h. Apply one coat of zinc chromate primer to new hinges per Specification TT-P-1752.

i. Install new hinge in ram air turbine door as shown, and hold in place with clamps.

j. Using existing holes in door as a guide, drill holes through new hinge. Use a No. 39 (0.099) drill.

k. Remove hinge from door and remove all burrs from door and hinge.

l. Reinstall new hinge in door and rivet in place with MS20426AD-3 rivets.

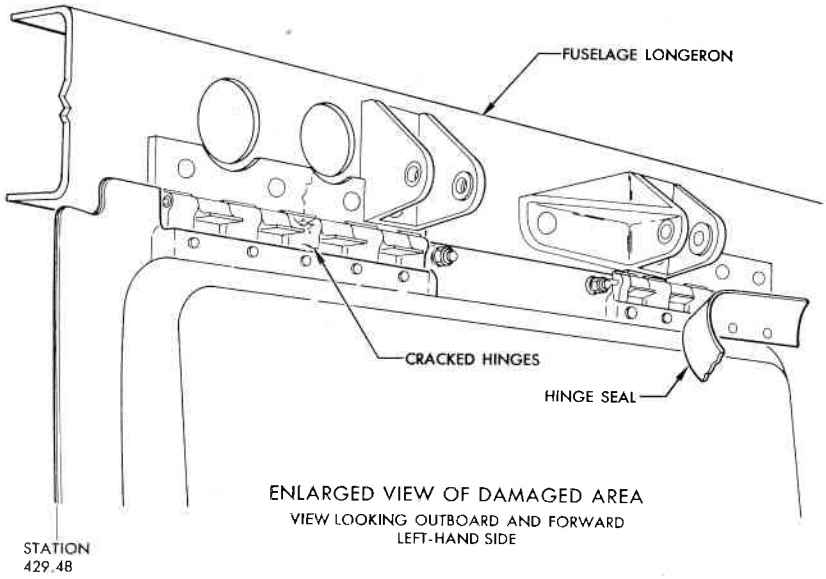
m. Install new hinge halves to fuselage longeron and hold in place with clamps.

n. Mate door hinge to fuselage hinges and install hinge pins.

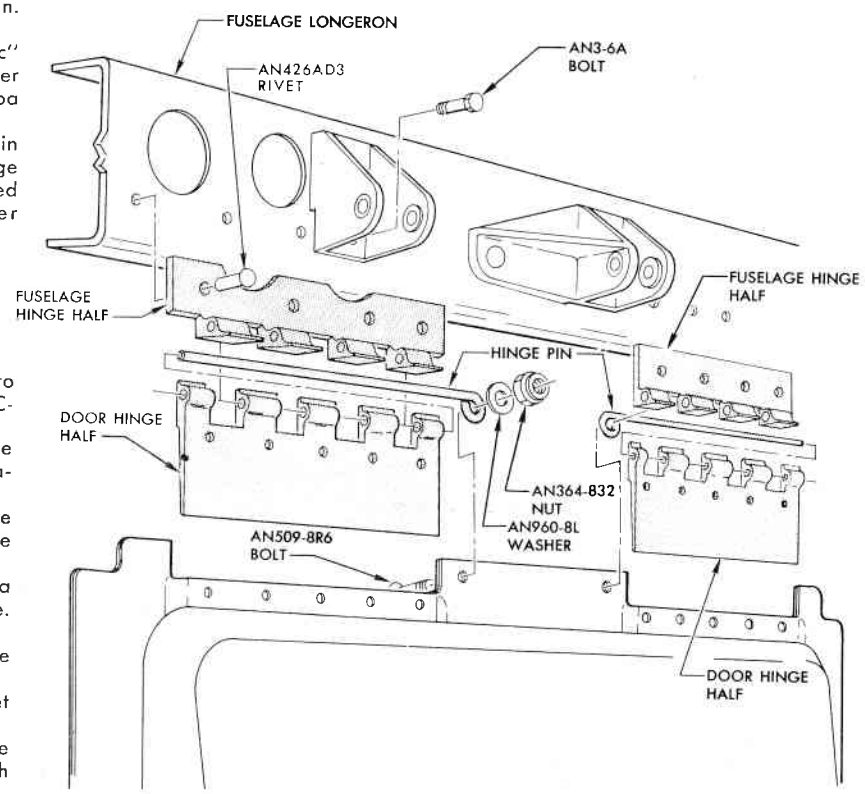
NOTE

DO NOT INSTALL HINGE PIN BOLTS AT THIS TIME.

06.03.260.1B

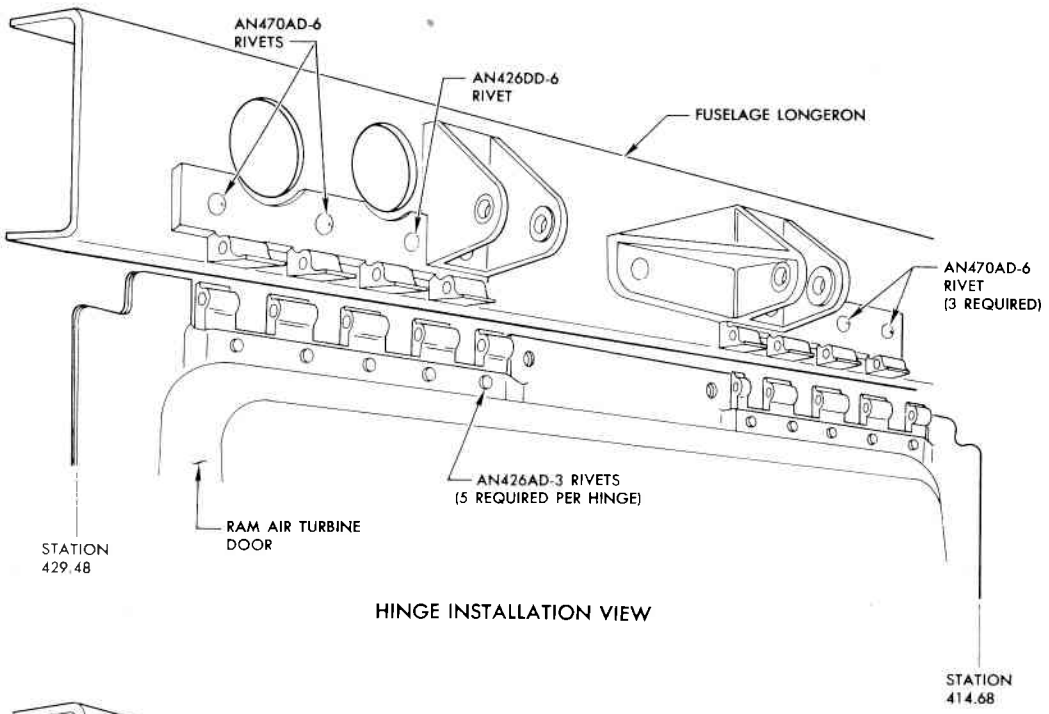


ENLARGED VIEW OF DAMAGED AREA
VIEW LOOKING OUTBOARD AND FORWARD
LEFT-HAND SIDE

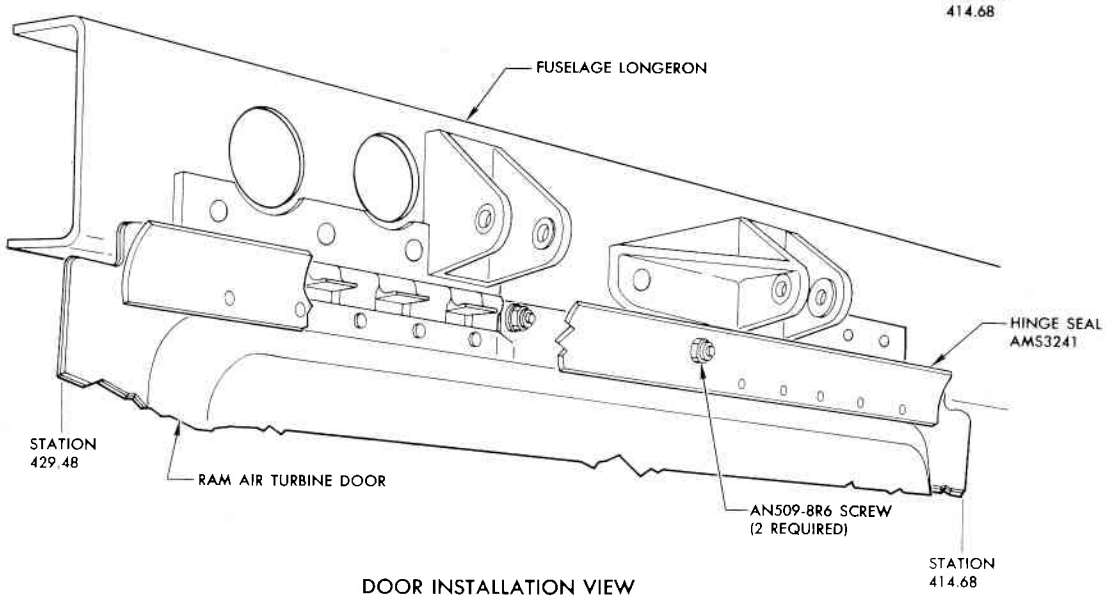


EXPLODED VIEW OF DOOR AND DOOR HINGES

Figure 4-35. Replacement of Ram Air Turbine Door Hinge (Sheet 1 of 2)



HINGE INSTALLATION VIEW

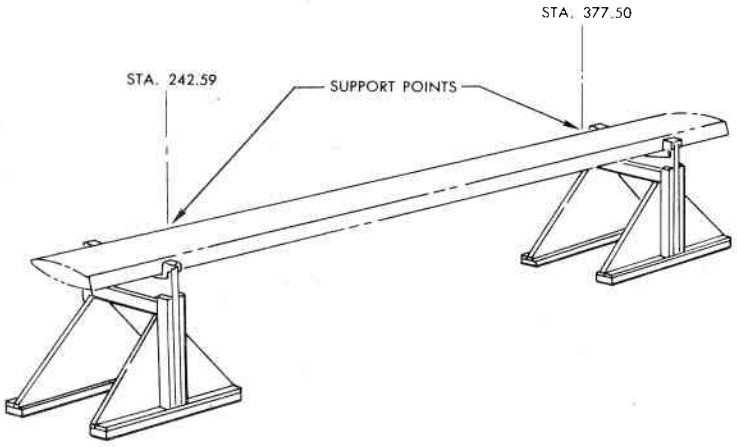


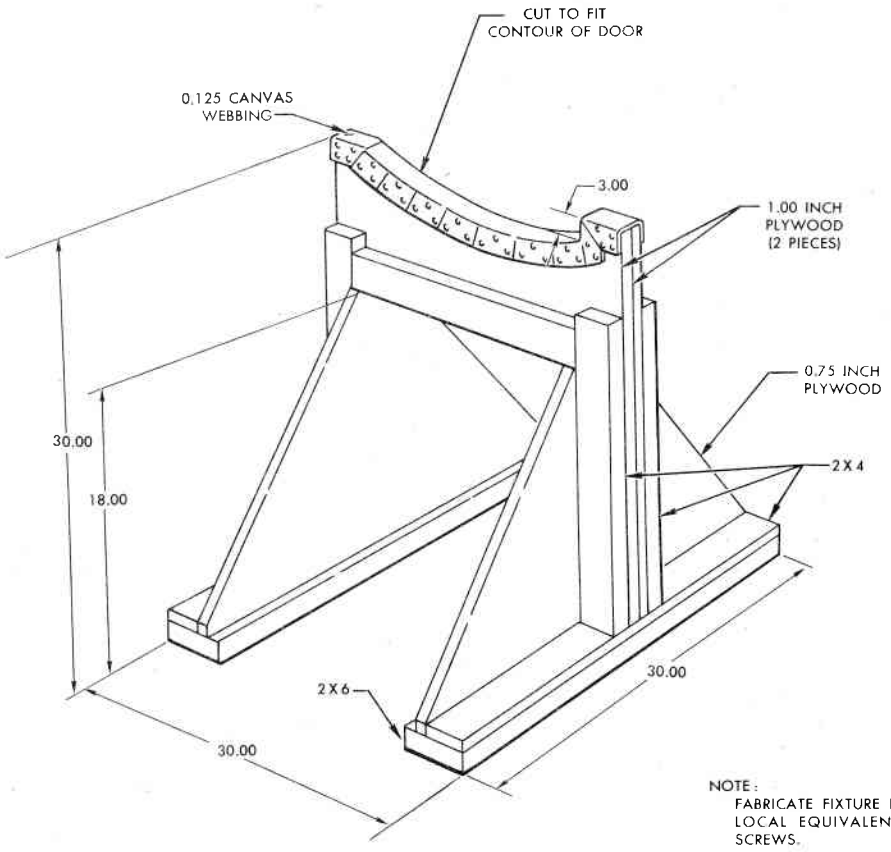
DOOR INSTALLATION VIEW

o. Close and open door manually to check position of door. Move hinge halves clamped to fuselage longeron as necessary to insure correct position of door.
p. Remove hinge pins and remove door.
q. Using existing holes in fuselage longeron as a guide, drill holes through new hinge halves.
r. Rivet new hinge halves to fuselage longeron with 3/16" (0.187) diameter rivets as shown.
s. Reinstall door and perform functional checkout ■ according to procedures given in T.O. 1F-106A-2-2-2.
t. Paint the exterior surface of door according to appropriate finish schedule given in Section I.

06.03.260-2B

Figure 4-35. Replacement of Ram Air Turbine Door Hinge (Sheet 2 of 2)

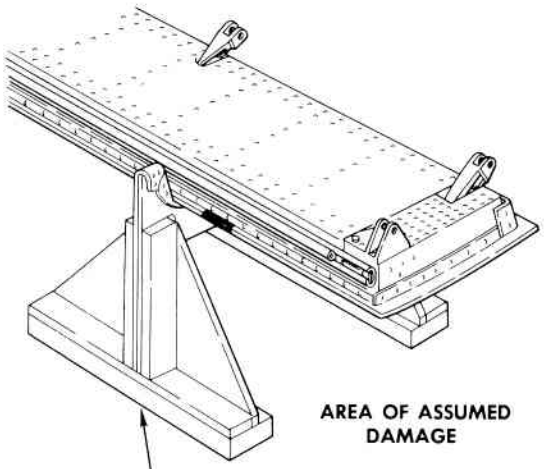




NOTE:
FABRICATE FIXTURE FROM DOUGLAS FIR OR LOCAL EQUIVALENT, USING BOLTS AND SCREWS.

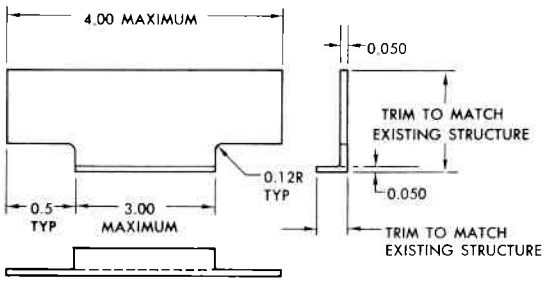
.06.03.151 .53.07.01

Figure 4-36. Missile Bay Door Repair

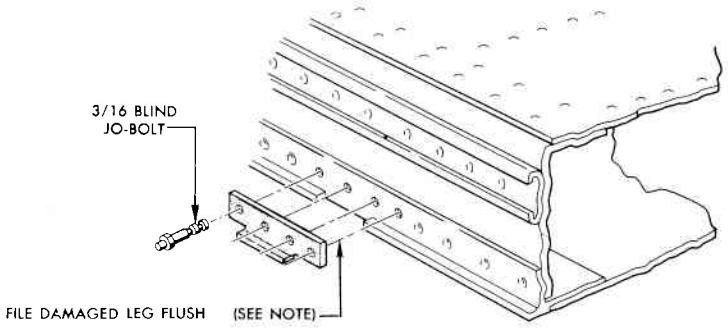


AREA OF ASSUMED DAMAGE

SEE FIGURE 4-35 FOR DETAIL VIEW OF MISSILE BAY DOOR SUPPORT FIXTURE



DETAIL OF REPAIR PART
(SEE NOTE)



REPAIR PROCEDURE

a. Open missile bay doors and install safety locks. Refer to T.O. 1F-106A-2-12-2-1 for door opening and safety lock installation procedure. Door may be removed from airplane and supported as shown.
b. Remove damaged portion of angle with a file.

CAUTION

OBSERVE REPAIR LIMITATIONS AS SHOWN IN THIS ILLUSTRATION.

c. Fabricate a repair part as shown.

NOTE
MAKE REPAIR PART FROM 7075-T6 EXTRUSION, ALCOA DIE NO. 22526.

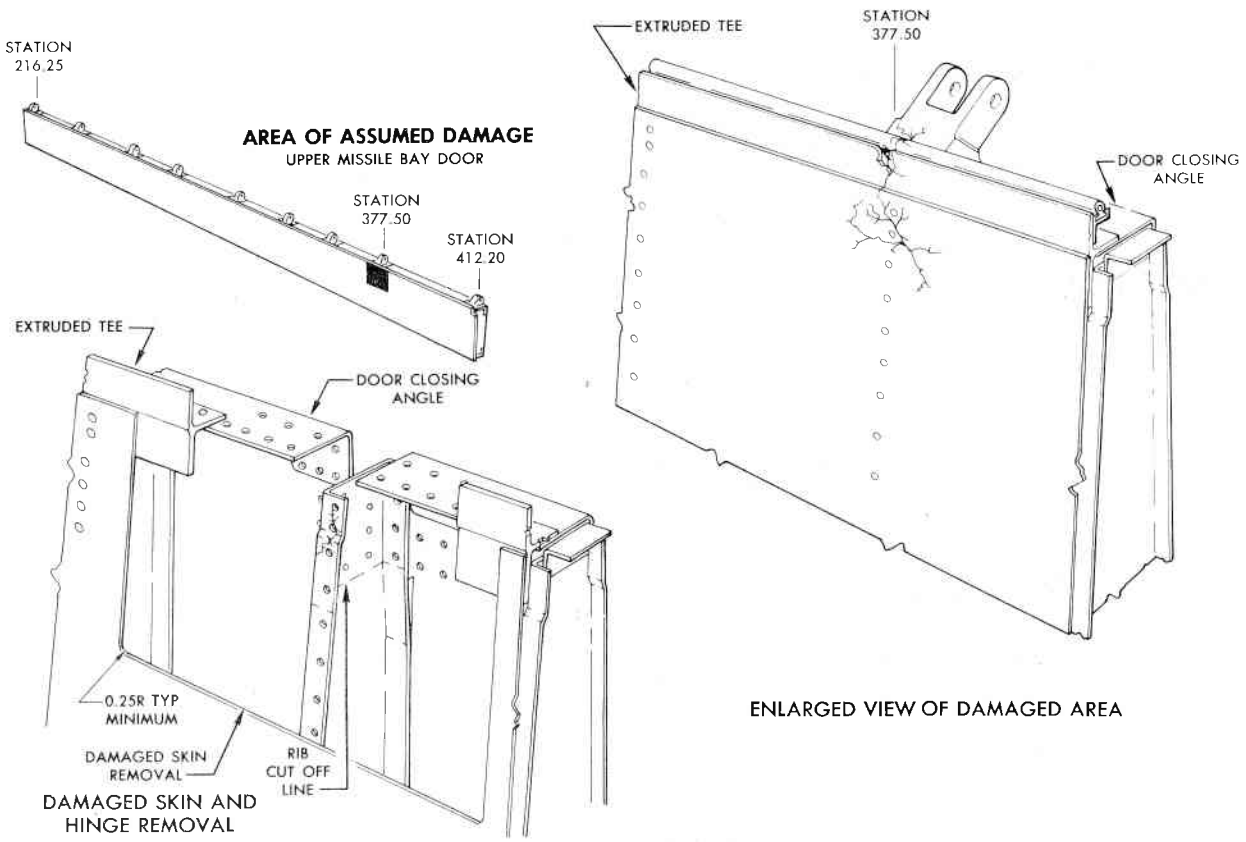
d. Remove rivets from damaged extrusion over cutout and one rivet each side of cutout. Use a No. 30 (0.128) drill.
e. Install repair part and pick up existing holes in missile bay door. Refer to Section I for method of locating blind holes.
f. Remove repair part and remove all drill chips and burrs from the repair part and missile bay door.
g. Reinstall repair part and rivet in place with DR rivets. Refer to Table 1-XXIII for rivet basic code.
h. Fill all gaps between repair part and missile bay door with MIL-S-38228 aerodynamic smoothing compound.
i. Lay a fillet of MIL-S-38228 aerodynamic smoothing compound around edge of repair part.
j. Refinish exterior surface of missile bay door according to applicable paint schedule given in Section I.
k. Reinstall door, if removed, or remove missile bay door safety locks and close missile bay doors. Refer to T.O. 1F-106A-2-12-2-1 for procedures.

REPAIR LIMITATIONS

a. Maximum length of repair—4 inches.
b. Minimum distance between repairs—12 inches.
c. Maximum number of repairs allowed per door is limited to replacing 40 per cent of the rivets in the original angle.

06.03.2348

Figure 4-37. Lower Inboard Missile Bay Door Angle Repair



DAMAGE REMOVAL PROCEDURE

a. Remove missile bay door and place upon a suitably padded work bench. Refer to T.O. 1F-106A-2-12-2-1 for removal procedure.
b. Remove cotter pins, bolts and nuts attaching lower door to upper door. Hold bolts and nuts for reinstallation.
c. Perform fluorescent penetrant inspection on all bolts.
d. Separate upper door from lower door and place upper door in safe storage area.
e. Remove rubber seal from lower door. If seal has not been damaged, hold for reinstallation. Damaged seals must be replaced by new seals.
f. Using a cloth dampened with Methyl Ethyl Ketone, Federal Specification TT-M-261, remove all varnish, paint and primer from damaged area of door.
g. Perform fluorescent penetrant inspection to determine extent of damage in door skin.
h. Remove rivets from damaged area of door skin. Use a No. 30 (0.128) drill.
i. Cut out damaged skin. Use metal cutting hand shears and hand files for cutting.
j. Remove rivets attaching hinge to door. Use a No. 30 (0.128) drill to remove 1/8-inch diameter rivets, and use a No. 20 (0.161) drill to remove 5/32-inch diameter rivets.
k. Cut out damaged sections of extruded tee and extruded seal retainer.
l. Remove damaged hinge.
m. Remove primer from damaged rib. Use a cloth dampened with Methyl Ethyl Ketone, Federal Specification TT-M-261 to remove primer.
n. Perform fluorescent penetrant inspection to determine extent of damage to rib.
o. Cut out damaged section of rib. Use metal cutting hand shears and hand files for cutting.
p. Treat all bare surfaces of missile bay door with Alodine 1200. Refer to Table 11-VII for application of Alodine 1200.

REPAIR PARTS FABRICATION PROCEDURE

a. Fabricate skin splice doublers, as shown in Detail "A," from 7178-0 bare sheet.
b. Fabricate rib repair parts, as shown in Detail "B," from 7178-0 bare sheet.
c. Fabricate repair angles for extruded tee, as shown in Detail "C," from 7178-0 bare sheet.

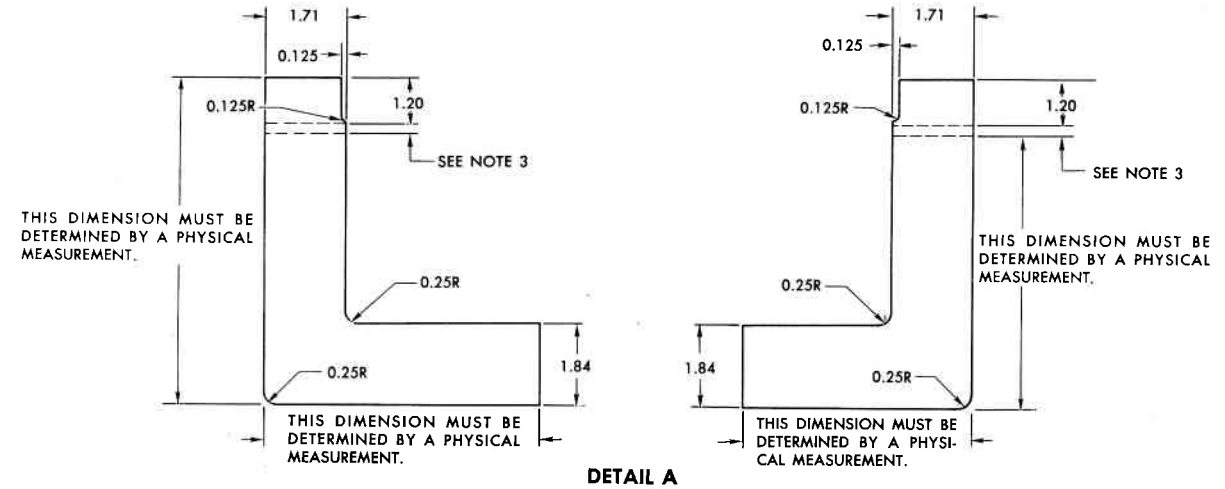
NOTE

7178-0 BARE SHEET MUST BE HEAT TREATED TO -T6 CONDITION PER SPECIFICATION MIL-H-6088 AFTER FORMING. IF 7178 BARE SHEET IS NOT AVAILABLE, 7075-0 BARE SHEET ONE GAGE THICKER THAN GAGES SHOWN FOR 7178, MAY BE USED AS AN ALTERNATE. HEAT TREAT 7075-0 TO -T6 CONDITION PER SPECIFICATION MIL-H-6088.

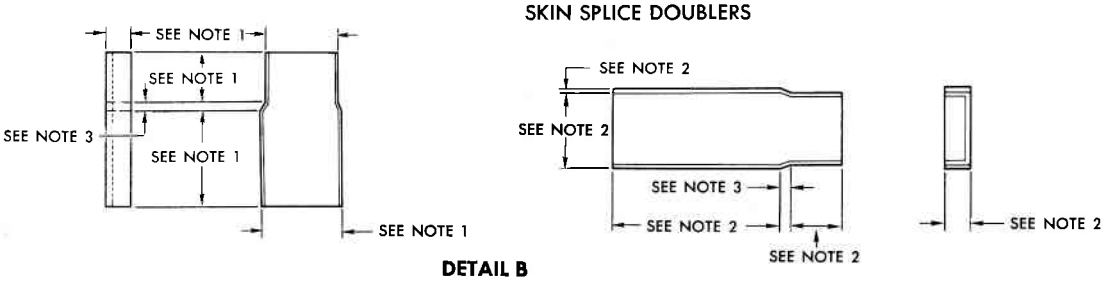
d. Tee repair part is cut from extruded aluminum alloy, Convair part No. E801202 (Alcoa Die No. 71915).
e. Seal retainer repair part is cut from extruded aluminum alloy, Convair part No. E571002 (Alcoa Die No. 80701).
f. Fabricate flush skin patch from 0.040 gage 7178-T6 bare sheet.
g. Apply one coat of wash primer to all repair parts per Specification MIL-C-8514.
h. Apply one coat of zinc chromate primer to all repair parts per Specification MIL-P-8585.

06.03.263-1B

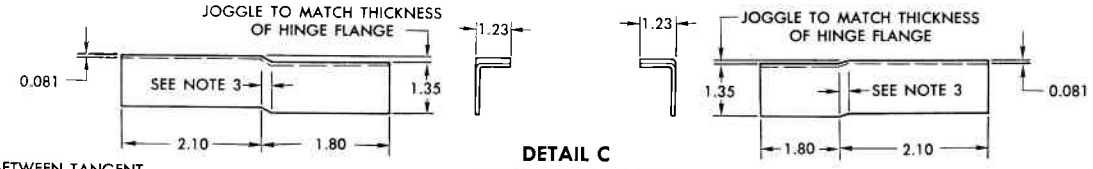
Figure 4-38. Missile Bay Door Repair (Sheet 1 of 5)



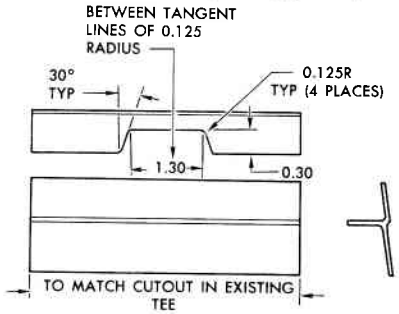
DETAIL A
SKIN SPLICE DOUBLERS



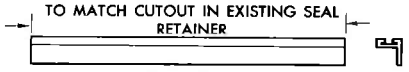
DETAIL B
RIB REPAIR CHANNELS



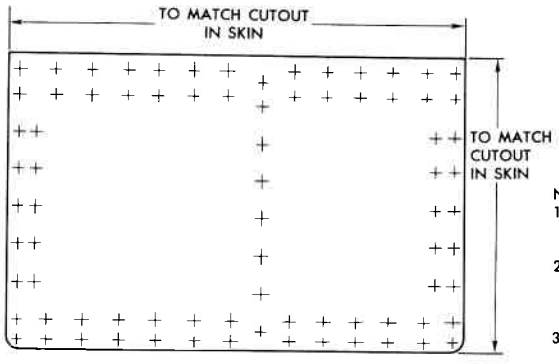
DETAIL C
REPAIR ANGLES FOR EXTRUDED TEE



DETAIL D
EXTRUDED TEE
ALCOA DIE NO. 71915



DETAIL E
EXTRUDED SEAL RETAINER
ALCOA DIE NO. 80701

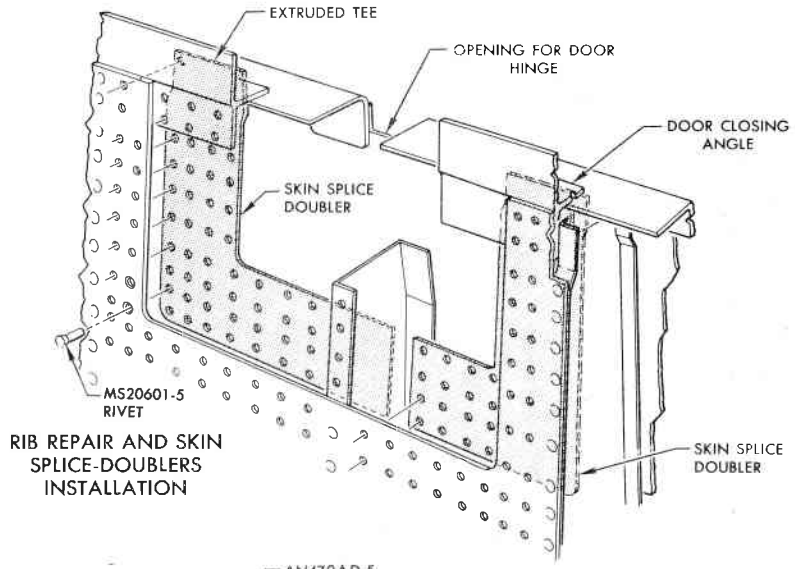


DETAIL F
FLUSH SKIN PATCH

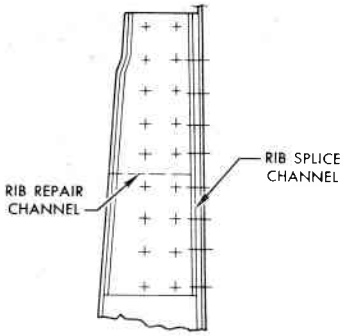
NOTES:
1. DIMENSIONS AND THICKNESS MUST MATCH THOSE OF ORIGINAL RIB.
2. FORM TO FIT INSIDE OF RIB. THICKNESS OF REPAIR PART TO BE ONE GAGE THICKER THAN EXISTING RIB.
3. LENGTH OF JOGGLE TO BE THREE TIMES DEPTH OF JOGGLE.
4. REFER TO SECTION I FOR FLAT PATTERN LAYOUT INFORMATION.

06.03.263-2B

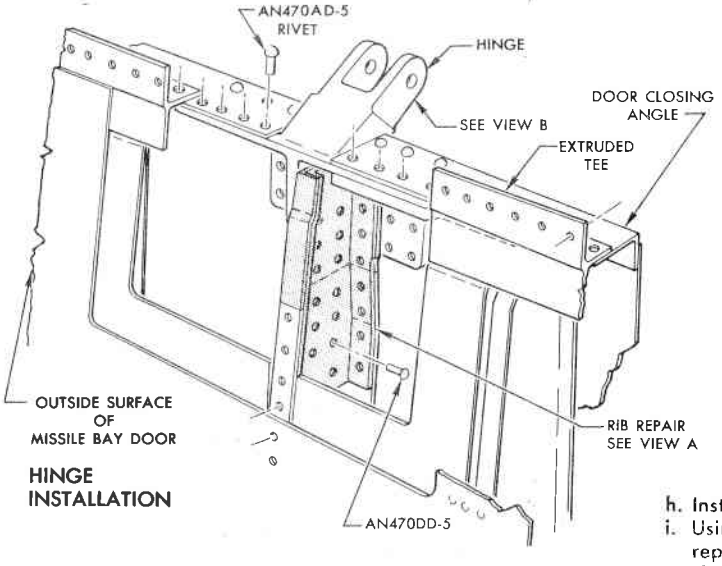
Figure 4-38. Missile Bay Door Repair (Sheet 2 of 5)



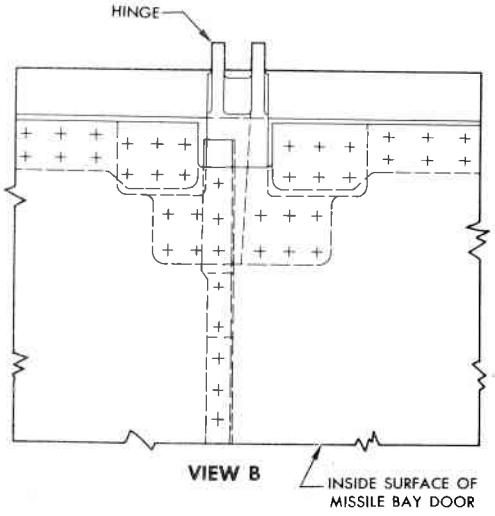
RIB REPAIR AND SKIN SPLICE-DOUBLERS INSTALLATION



VIEW A



HINGE INSTALLATION



VIEW B

REPAIR INSTALLATION PROCEDURE

a. Install rib repair channels and hold in place with clamps.
b. Using existing holes in missile bay door inside skin as a guide, drill holes through rib repair parts. Use a No. 30 (0.128) drill through skin, tapered and rib repair part. Use a No. 20 (0.161) drill through skin and rib repair part.
c. Predrill holes through remaining flanges of rib repair part with a No. 30 (0.128) drill.
d. Remove clamps and install clecos to hold rib repair parts in place.
e. Install new hinge and hold in place with clamps.
f. Using existing holes as a guide, drill holes through new hinge. Use a No. 30 (0.128) drill through skin and hinge. Use a No. 20 (0.161) drill through rib and hinge.
g. Remove clamps and install clecos to hold repair parts in place.

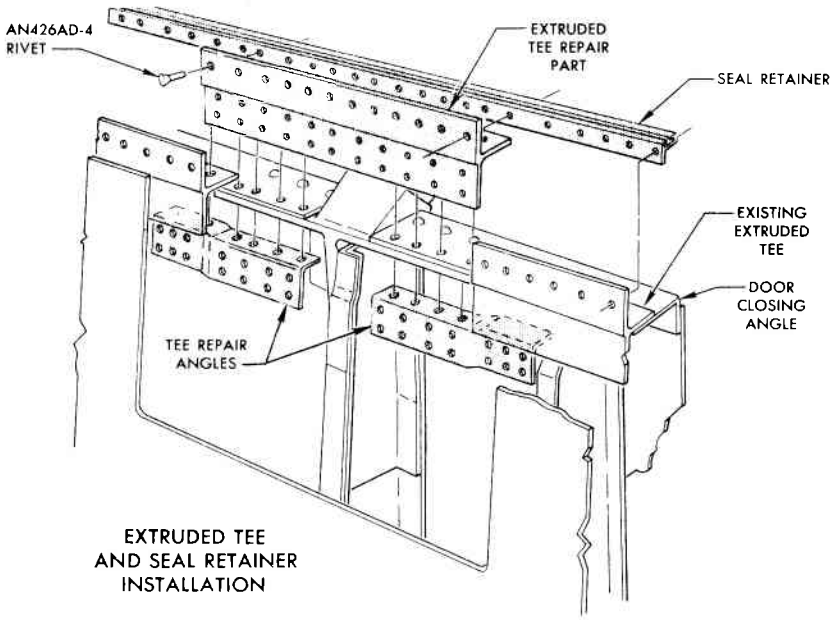
NOTE

CHECK ALIGNMENT OF NEW HINGE BY ALIGNING BOLT HOLES IN NEW HINGE WITH BOLT HOLES IN ADJACENT HINGES.

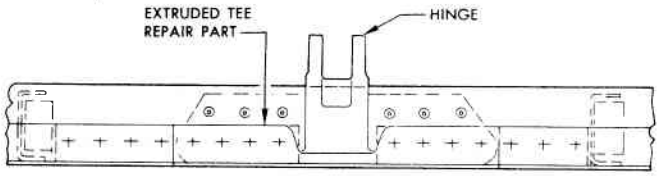
h. Install tee repair angles and hold in place with clamps.
i. Using existing holes as a guide, drill holes through tee repair angles. Use a No. 30 (0.128) drill through door closing angle and tee repair angles. Use a No. 20 (0.161) drill through door closing angle, hinge and tee repair angles.
j. Predrill holes through remaining flange of tee repair angles. Use a No. 30 (0.128) drill.
k. Remove clamps and install tee repair part.
l. Hold tee repair part and tee repair angles in place with clamps.
m. Using existing holes as a guide, drill holes through tee repair part. Use a No. 30 (0.128) drill through tee repair angles, door closing angle, and tee repair part. Use a No. 20 (0.161) drill through tee repair angles, door closing angle, hinge, and tee repair part.
n. Remove clamps and install clecos to hold repair parts in place.
o. Install skin splice doublers and hold in place with clamps.
p. Using predrilled holes in doublers as a guide, drill holes through skin and rib. Use a No. 30 (0.128) drill.
q. Remove doublers and remove all burrs.
r. Machine countersink 100° by 0.225 all holes in skin.

.06.03.263-3 .53.18.03

Figure 4-38. Missile Bay Door Repair (Sheet 3 of 5)



EXTRUDED TEE
AND SEAL RETAINER
INSTALLATION



VIEW C
(SEAL RETAINER NOT SHOWN FOR CLARITY)

s. Apply a coat of MIL-S-81733 to faying surfaces of doublers and skin.

t. Reinstall doublers and hold in place with clecos.
u. Rivet doublers to skin with AN426DD-5 rivets.
v. Remove tee repair part, tee repair angles, rib repair parts and new hinge. Remove all burrs from removed parts and from missile bay door.
w. Reinstall parts removed in step "v" and hold in place with clecos.
x. Rivet parts together with AN470DD-5 rivets.
y. Install flush skin patch.
z. Using predrilled holes in patch as a guide, drill holes through doublers. Use a No. 30 (0.128) drill.
aa. Using existing holes in tee and rib as a guide, drill holes through patch. Use a No. 30 (0.128) drill.

NOTE
REFER TO SECTION I FOR METHODS OF LOCATING BLIND HOLES.

ab. Remove patch and remove burrs from patch and door.
ac. Machine countersink 100 degrees by 0.225 all holes in patch.
ad. Apply a coat of MIL-S-81733 to faying surfaces of patch, tee, doublers and rib.

ae. Reinstall patch and hold in place with clecos.
af. Rivet patch in place with MS20601AD-5 rivets.
ag. Fill gap between patch and existing skin with MIL-S-38228.

ah. Install seal retainer part and hold in place with clamps.
ai. Lay out pattern on seal retainer repair part. Use pattern in existing seal retainer as a guide for laying out rivet pattern in seal retainer repair part.
aj. Drill through seal retainer repair part and tee with a No. 30 (0.128) drill.
ak. Remove seal retainer repair part and remove all burrs.
al. Machine countersink all holes in exterior surface of tee 100 degrees by 0.225.
am. Reinstall seal retainer repair part and hold in place with clecos.
an. Rivet seal retainer repair part to tee with AN426AD-4 rivets.
ao. Refinish outside surface of missile bay door according to applicable point schedule given in Section I.
ap. Refinish inside surface of missile bay door by procedure given in Section I.
aq. Apply a coat of A-4004 primer to seal retainer. Refer to Table 11-IX for application of A-4004 Primer.
ar. Apply a coat of A-4000 cement to faying surface of seal.
as. Reinstall upper door to lower door. Use bolts and nuts removed in step "e" of Damage Removal Procedure.
at. Install new AN-381-2-12 cotter pins through bolts.
au. Reinstall missile bay doors to airplane. Refer to T.O. 1F-106A-2-12-2-1 for installation procedure.

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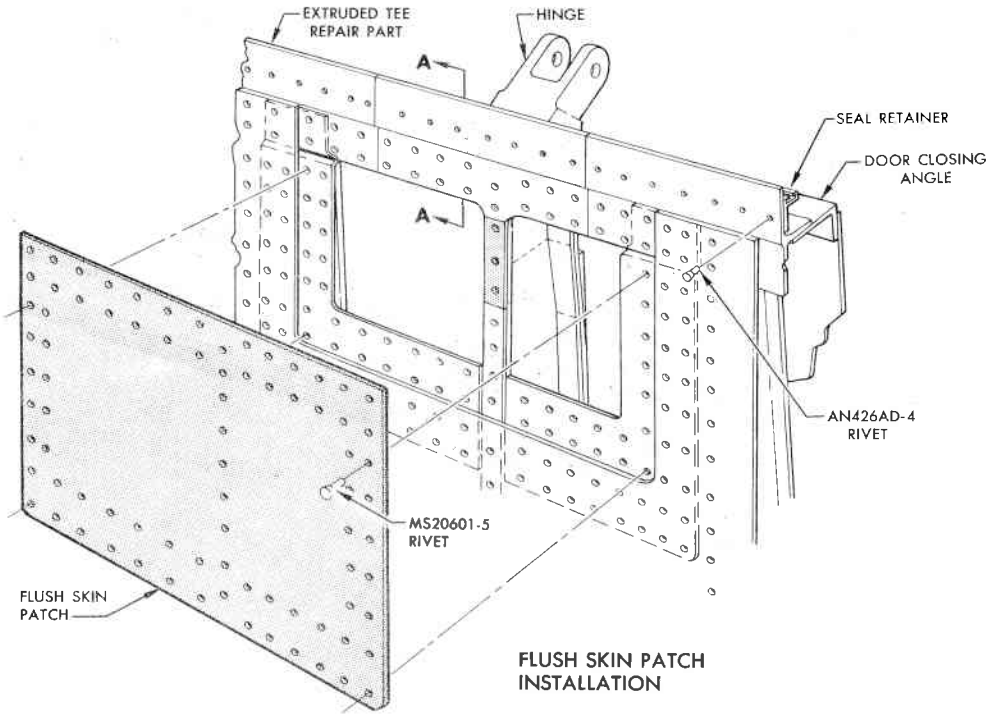
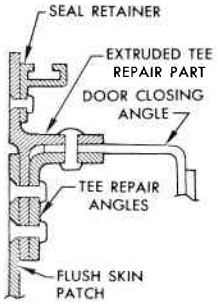
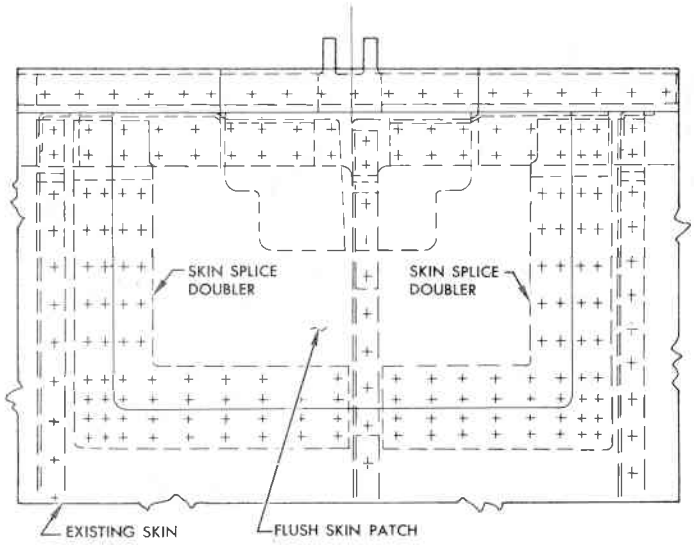
Figure 4-38. Missile Bay Door Repair (Sheet 4 of 5)



FLUSH SKIN PATCH INSTALLATION



SECTION A-A



VIEW E

PLAN VIEW—OUTSIDE SURFACE OF MISSILE BAY DOOR

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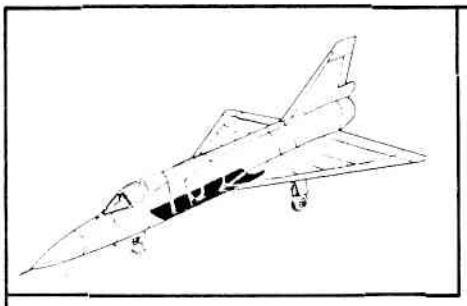
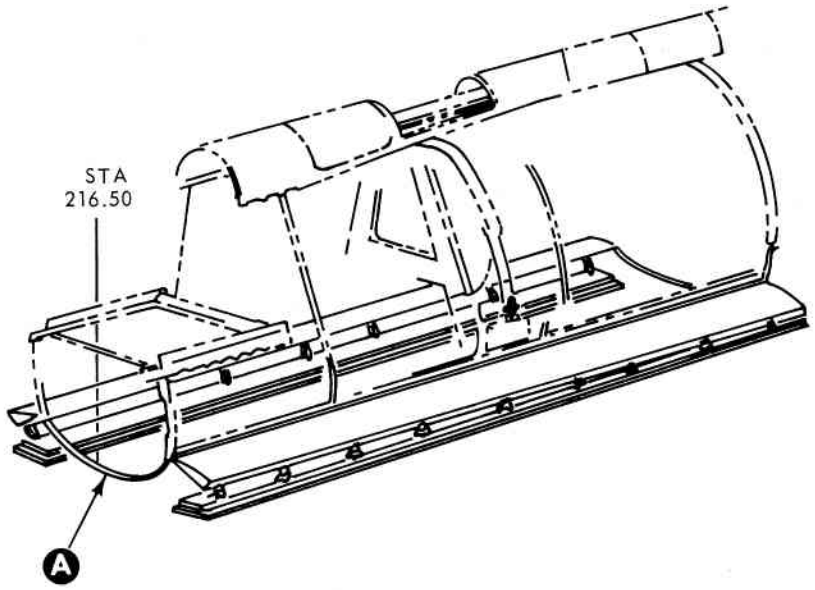
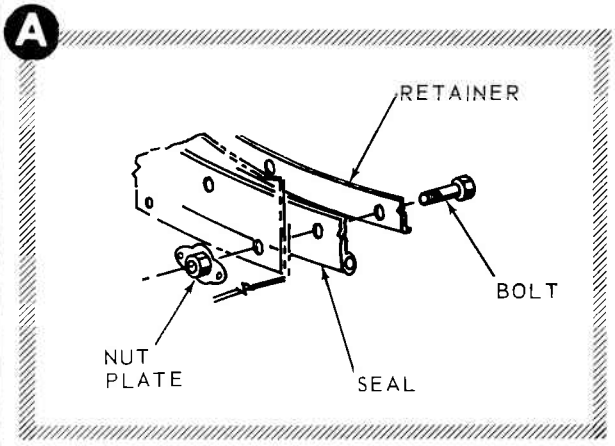
Figure 4-38. Missile Bay Door Repair (Sheet 5 of 5)







VIEW A

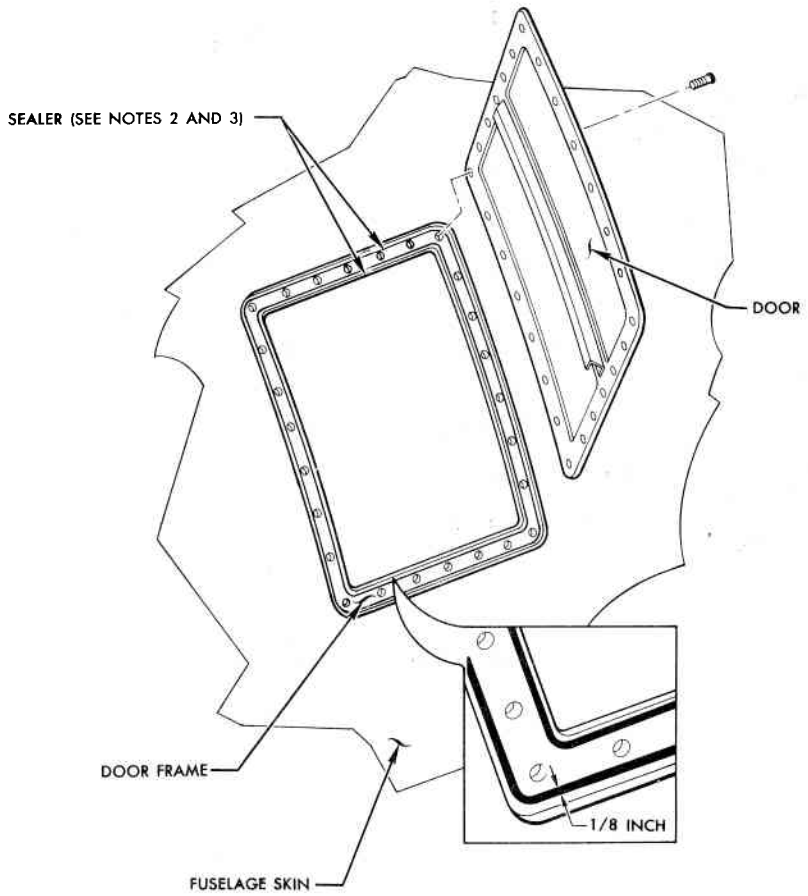
INSTALLATION OF NUT-PLATES AT TIME OF FORWARD MISSILE BAY DOOR SEAL (PART NUMBER 8-77314) REPLACEMENT.

a. Remove lower aft electronic equipment panel.
b. Remove nuts NAS679A3, bolts AN3-4A and AN3-5A, seal retainer 8-74665-21 and seal 8-77314.
c. Install nut-plates NAS696A3 (self-locking) with countersunk rivets MS40426AD as shown in View A.
d. Reinstall seal (new) and seal retainer with bolts AN3-4A and AN3-5A.
e. Reinstall electronic equipment panel.

NOTE

IF ELECTRONIC EQUIPMENT IS REMOVED TO GAIN ACCESS, CHECKOUT THE MA-1 SYSTEM IN ACCORDANCE WITH T.O. 1F-106A-2-27-2.

Figure 4-38A. Missile Bay Door Fwd Seal Nut-Plate Installation Station 216.50 - F-106A



FUSELAGE ACCESS DOORS SEALING PROCEDURE

a. Scrape off defective sealer with a plastic scraper.
b. Clean surfaces thoroughly with a cloth dampened with aliphatic naphtha, Federal Specification TT-N-95.
c. Apply sealer, Military Specification MIL-S-8802 to fuselage opening in a continuous pattern, 1/8-inch wide and 1/32-inch thick. Refer to T.O. 1-1-3 for sealer mixing and curing instructions.
d. Apply a thin coat of Petrolatum, Specification VV-P-236, to the under surface of access door to prevent adhesion of door to sealer.
e. Reinstall door and tighten fasteners. Wipe off excess sealer with a cloth dampened in aliphatic naphtha, Federal Specification TT-N-95.
f. Check door for gap and mismatch in accordance with tolerances given in Section I.
g. Allow sealer to cure. Refer to Table 11-X.

NOTE
1. SPOT REPAIRS MAY BE MADE TO SLIGHTLY DAMAGED SEALS BY REMOVING THE DEFECTIVE PART OF SEAL AND APPLYING SEALER AS OUTLINED ABOVE.
2. DOORS SECURED WITH SCREWS OR BOLTS REQUIRE A SINGLE BEAD OF SEALER AROUND OUTER EDGE OF DOOR FRAME.
3. DOORS SECURED WITH SPRING TYPE FASTENERS REQUIRE A BEAD OF SEALER AROUND OUTER AND INNER EDGES OF DOOR FRAME.

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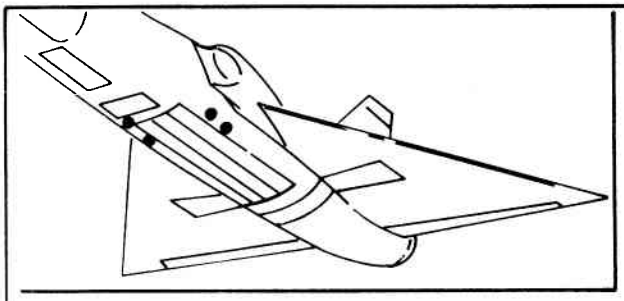
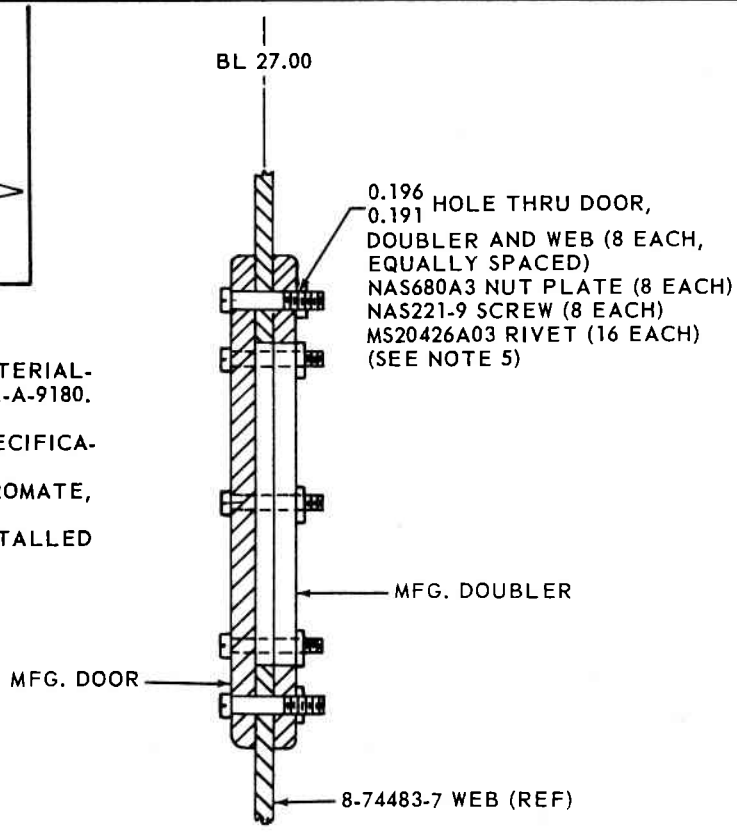
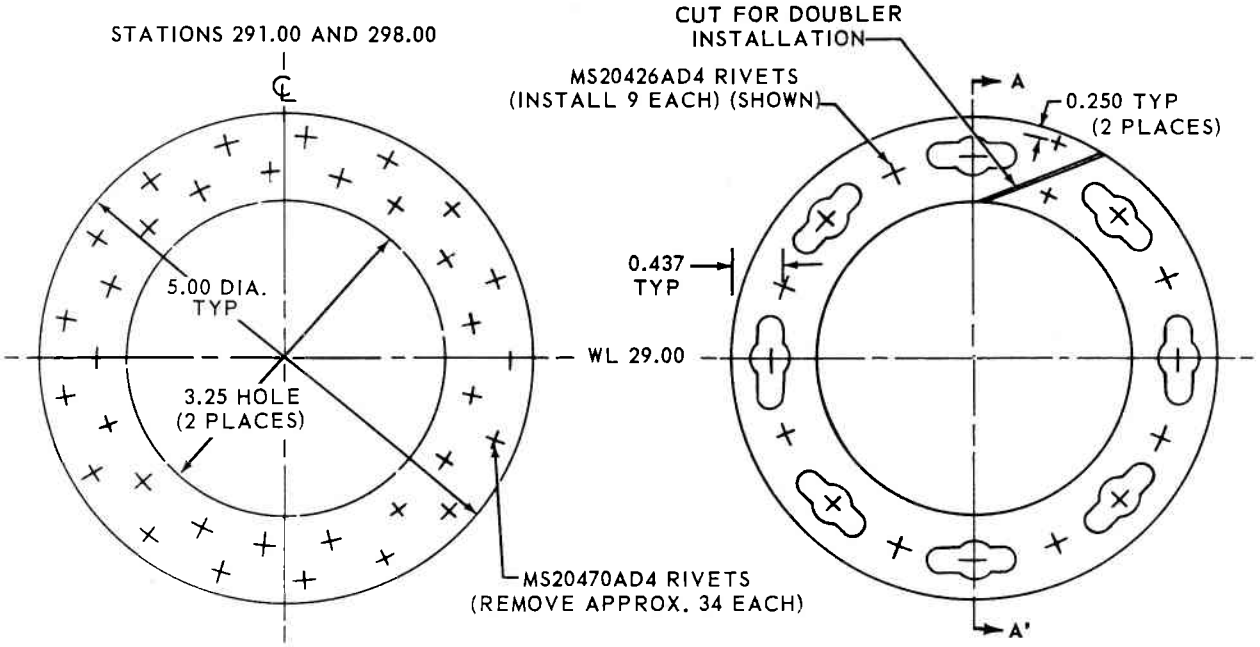
Figure 4-39. Fuselage Access Doors — Formed Gasket — Sealing Procedure



NOTES:
1. MANUFACTURE DOOR AND DOUBLER, MATERIAL-0.050, x 7178-16 AL ALY, SPECIFICATION MIL-A-9180.
2. BREAK ALL SHARP EDGES.
3. SEAL FAYING SURFACE OF DOOR WITH SPECIFICATION MIL-S-81733.
4. COAT ALL METAL SURFACES WITH ZINC CHROMATE, SPECIFICATION MIL-P-8585.
5. RIVETS ATTACHING NUT PLATES TO BE INSTALLED THRU WEB AND DOUBLER.



SECTION A A'



DETAIL A - EXISTING INSTALLATION
VIEW LOOKING INBD LH AND RH SIDE OF COVER PLATE, 8-74483-61, INSTALLATION.

DETAIL B - PROPOSED REPLACEMENT INSTALLATION

Figure 4-39A. Missile Bay Area Cover Plate Installation and Replacement

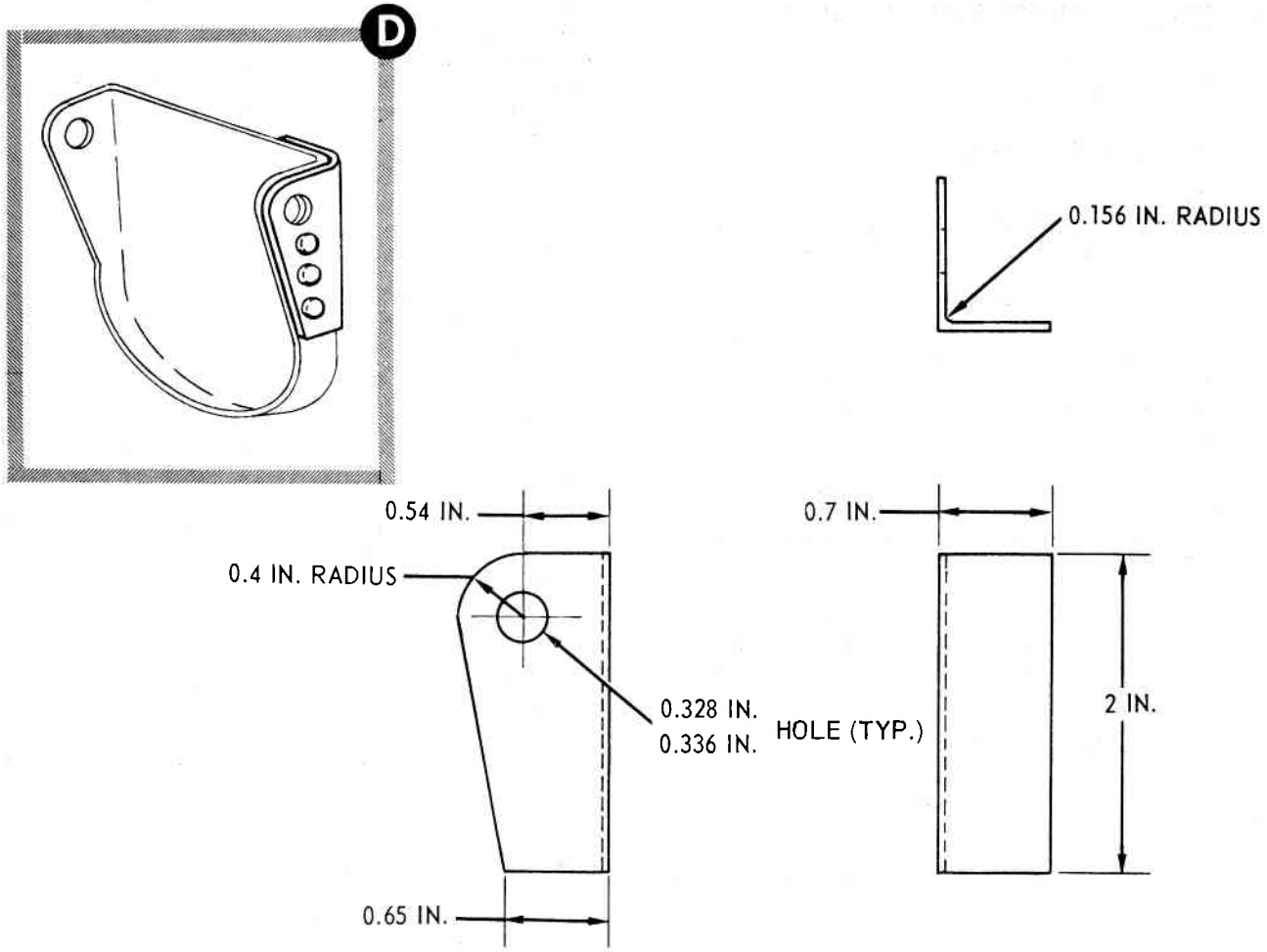


Figure 4-39B. Typical Repair for Flapper Door

4-52F. INSPECTION, REPAIR, PAINTING AND REINSULATION OF HOT BLEED AIR DUCTS (DEPOT ONLY).

a. Remove insulation.

b. Inspect duct for corrosion.

(1) If no corrosion exists, the duct will be passivated, painted and reinsulated in accordance with instructions outlined in paragraphs 4-52J, 4-52K and 4-52L.

NOTE

Stains, braze material, discoloration and grey or tan light oxide films are not to be construed as corrosion for the purpose of this inspection.

(2) If only minor corrosion exists which has not materially weakened the duct, the corrosion will be removed in accordance with instructions outlined in paragraph 4-52H.a.

(3) Corrosion pits in the duct wall which are visible to the unaided eye are not acceptable and will be reapired in accordance with instructions outlined in paragraphs 4-52H.a. and b.

4-52G. REPAIR OF STARTER DUCTS.

a. Clean with stainless steel rotary type brush in and around cracked areas.

b. Heliarc (TIG) or plasma needle arc weld entire crack or damaged area.

c. Weld rod must by type 347 MIL-R-5032 Class C15/15A AMS 5680.

d. Stress relieving not required.

e. NDI weld area for additional cracks and weld voids.

4-52H. CORROSION REWORK PROCEDURE.

a. All ducts with evidence of corrosion are to be reworked as follows:

(1) Etch part number inside one end of duct.

(2) Clean the entire external area of the duct by wet-blasting with 325 grit, or finer, non-metallic abrasive, or by dry-blasting with 200-325 grit glass beads. The glass beads must not be treated with silicones. Other anti-caking materials which will not interfere with subsequent processing of finishing of the ducts may be used. Edges of ports, flanges, etc., which form faying surfaces, must be protected to prevent entry of blasting abrasives into the faying surface. Protection of faying surfaces may be accomplished by masking to prevent entry of abrasives. Rubber bands of sufficient width and size to provide reisitance to movement by the blast of abrasive or rubber electricians' tape are suitable materials for masking. After blasting, the masking shall be removed and the areas protected by the masking shall be cleaned by stainless steel wire brushing. Avoid handling ducts with bare hands. Rinse free of abrasive.

CAUTION

Avoid excessive local blasting which may result in reducing the wall thickness or distortion of the duct.

b. Corrosion and Crack Repair: Repair of corroded areas and cracks shall be as shown in figures 4-40, 4-40A, and 4-40B. The following requirements and restrictions apply:

(1) The reinforcement strap must completely and circumferentially cover all corrosion pits or cracks in that immediate area, i.e., there must be no exposed corrosion pits or cracks within 1/4 inch of the edge of the reinforcement strap prior to welding.

(2) The duct in the area being repaired must be free of wrinkles.

(3) The repair straps are to be made of annealed AISI321 or annealed AISI347 corrosion-resistant steel.

(4) The thickness of the repair straps is to be one gage heavier than the duct wall being repaired.

(5) The form of the strap, prior to welding, must conform closely to the form of the duct.

(6) Only INERT GAS SHIELDED TUNGSTEN ARC (TIG) welding will be used, and welders are to be certified as Group II in accordance with Military Specification MIL-T-5021, or equivalent.

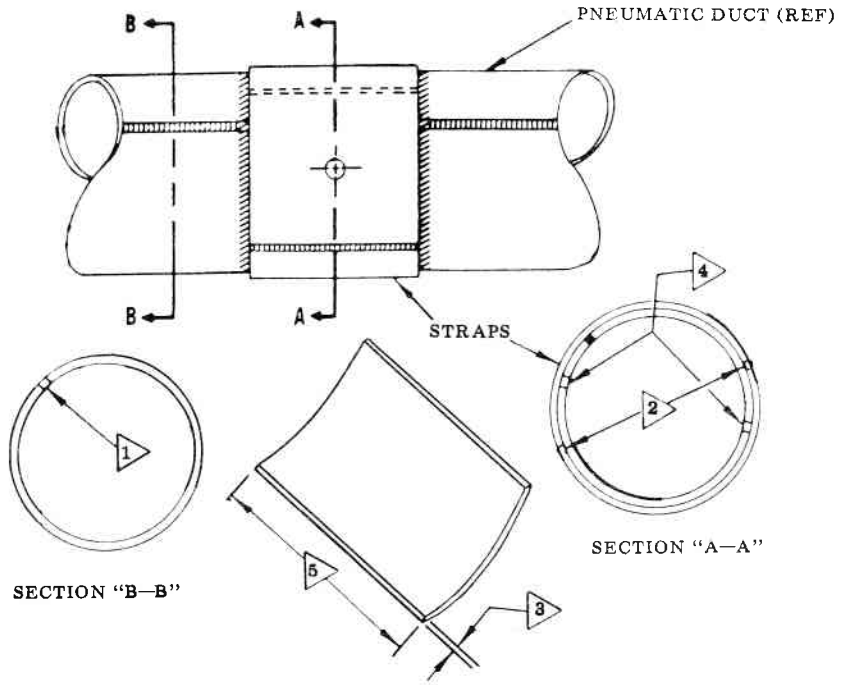
(7) The longitudinal welds in the doublers are to extend to and be fused with the circumferential fusion welds.

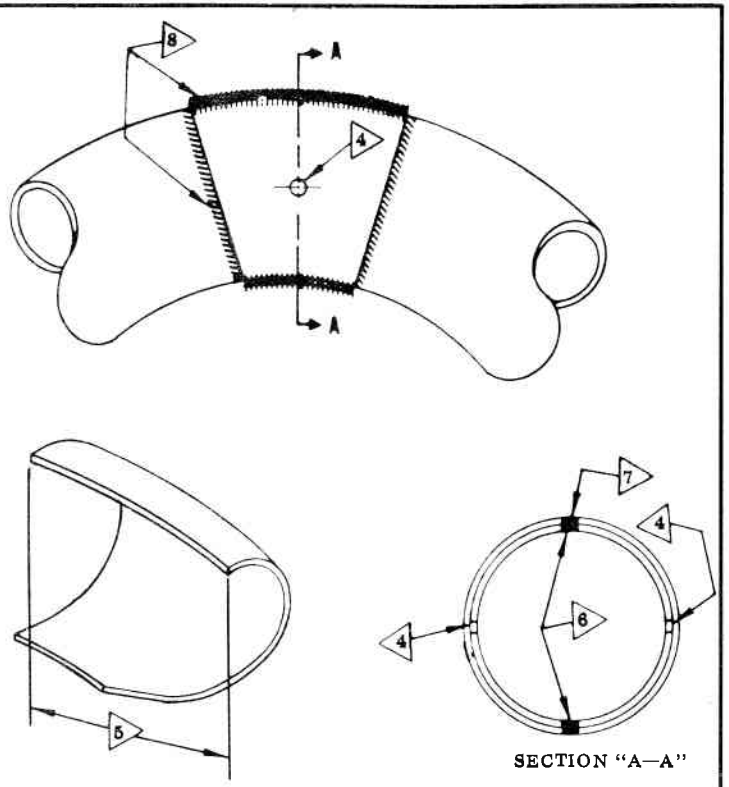
(8) Repair of cracks in end flanges or bellows is not permitted. Unserviceable flanges or bellows must be replaced.

(9) A maximum of three repairs per duct is allowed on ducts 4 feet or less in length. Repairs on ducts longer than 4 feet may be increased proportionately.

(10) Deleted.

(11) After being repaired, ducts must be hydrostatically-tested to the room temperature proof pressure





CORROSION REPAIR IN CURVED LENGTHS OF HALF SHELL DUCTS

LEGEND

1. THE LONGITUDINAL MACHINE WELDED AND SIZED BEAD IS THE SAME THICKNESS AS THE DUCT WALL AND IN SOME CASES MAY BE DIFFICULT TO DISCERN IN DUCTS WHICH HAVE BEEN IN SERVICE.

2. THE STRAP ENDS ARE TO BE BUTT WELDED AND WELDED TO THE DUCTS AFTER THE CIRCUMFERENTIAL WELDS ARE COMPLETED. THE LOCATION OF THE BUTT WELDS RELATIVE TO THE LONGITUDINAL MACHINE WELD IS OPTIONAL. THE BUTT WELDS ARE TO EXTEND TO AND BE FUSED WITH THE CIRCUMFERENTIAL FUSION WELDS.

3. THICKNESS OF REPAIR STRAPS TO BE ONE GAGE HEAVIER THAN DUCT WALL.

4. PRIOR TO STRAP INSTALLATION, DRILL PRESSURE RELIEF HOLES IN DUCT WALL AS FOLLOWS:
   1. DRILL SIZE NO. 30 (0.1285).
   2. LOCATE PRESSURE RELIEF HOLE(S) UNDER EACH STRAP HALF.
   3. MAINTAIN 1/4 INCH MINIMUM DISTANCE BETWEEN RELIEF HOLES AND ANY EXISTING OR SUBSEQUENT WELD LOCATIONS.
   4. DEBURR ALL PRESSURE RELIEF HOLES PRIOR TO STRAP INSTALLATION.

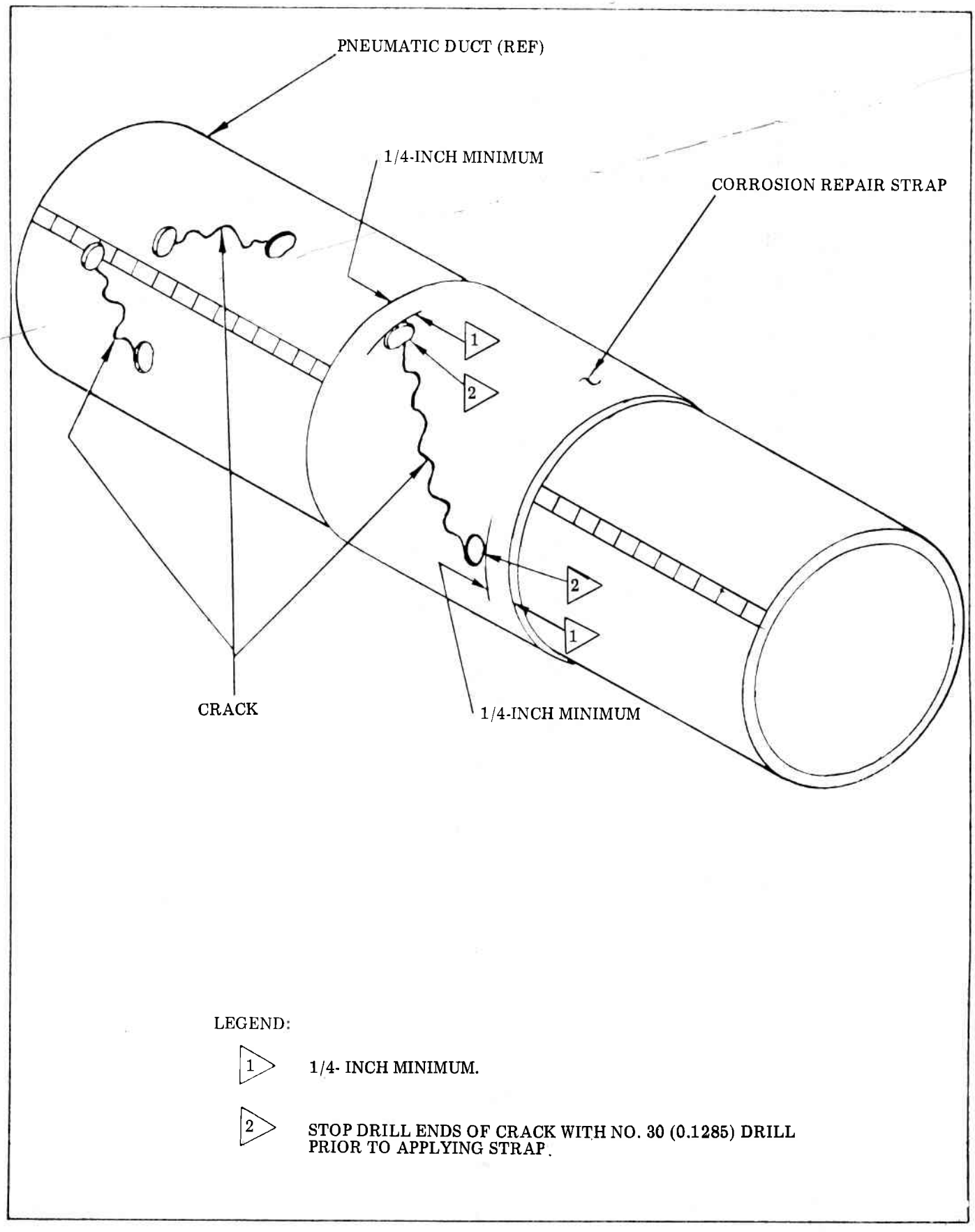
5. THIS DIMENSION IS TO BE FROM A MINIMUM OF 1 INCH TO A MAXIMUM OF 6 INCHES WITHIN THESE LIMITS.

6. THESE LONGITUDINAL WELD BEADS ARE THICKER THAN THE DUCT WALL AND ARE QUITE OBVIOUS FOR HALF SHELL DUCTS.

7. THE TWO STRAP HALVES ARE TO BE BUTT WELDED AND WELDED TO THE PRIOR LONGITUDINAL FUSION WELDS AFTER THE CIRCUMFERENTIAL WELDS ARE COMPLETED. THE BUTT WELDS ARE TO EXTEND TO AND BE FUSED WITH THE CIRCUMFERENTIAL FUSION WELDS.

8. WELD WITH INERT-GAS SHIELDED TUNGSTEN ARC PROCESS.

Figure 4-40. Strap Installation Corrosion Repair — Bleed Air Duct



LEGEND:

1 — 1/4- INCH MINIMUM.

2 — STOP DRILL ENDS OF CRACK WITH NO. 30 (0.1285) DRILL PRIOR TO APPLYING STRAP.

Figure 4-40A. Strap Installation — Crack Repair — Bleed Air Duct

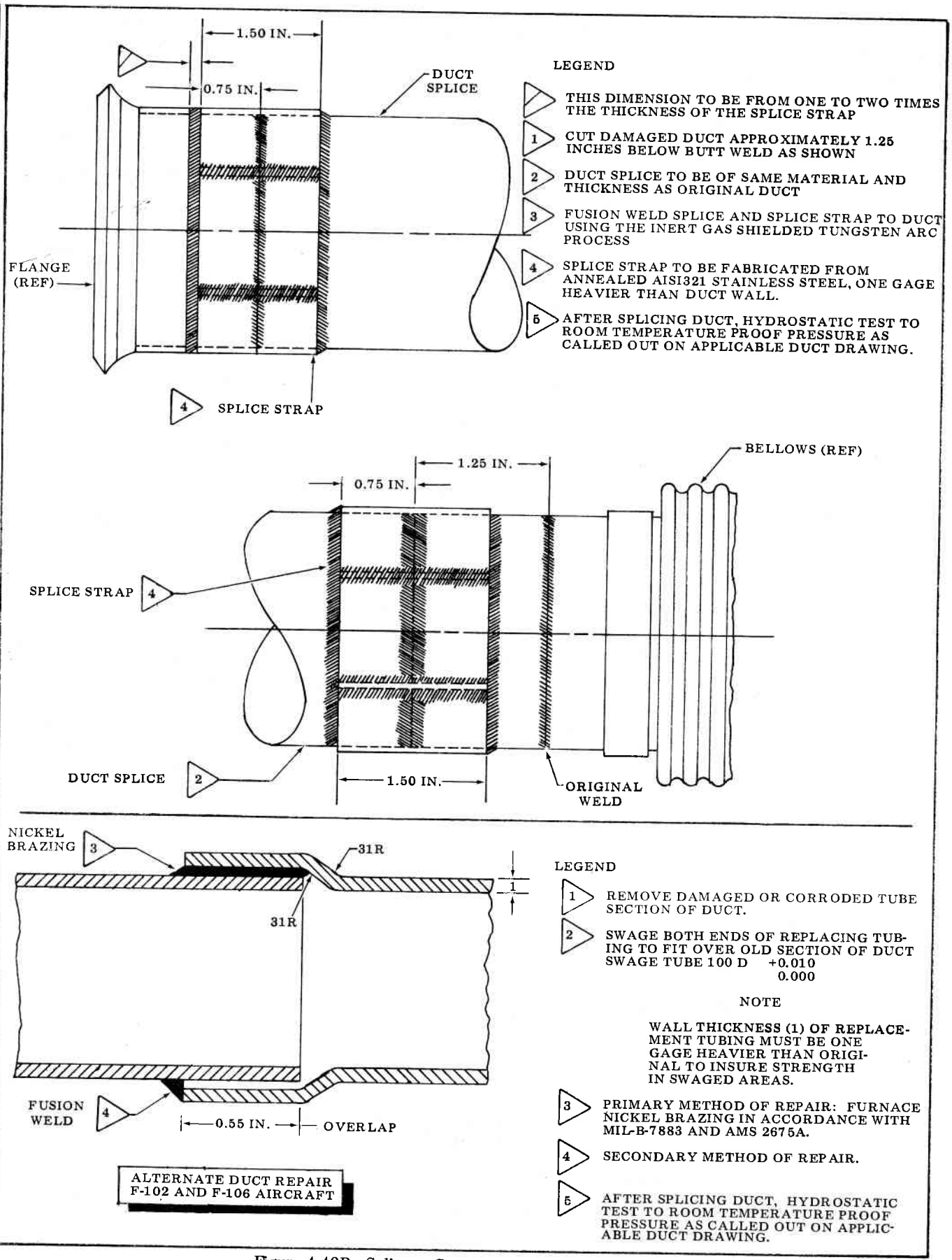


Figure 4-40B. Splice — Corrosion Repair — Bleed Air Duct

(optional product test) which is called out on the applicable duct drawing.

WARNING

Do not use air to pressurize or test ducts.

(12) The corrosion repair straps and crack repair strap applied to areas of ducts made from machine welded and sized tubing may be fabricated from one piece.

4-52J. PASSIVATION:

After final blast cleaning or wire brushing, the ducts are to be passivated as follows:

a. Clean the ducts in an alkaline cleaner solution as follows:

(1) Alkaline cleaner shall be the following, or equivalent. The cleaner make-up and control are to be as follows:

Material	Make-Up (lbs-100 gal)	Operating Temp. °F
Kelite Anodyne Kelite Corp.	40	160-190
Wyandotte Max. Amp. Wyandotte Chem. Corp.	40	160-190
Alkaline Rust Turco Products, Inc.	200	190-210
Remover Rustripper Oakite Products, Inc.	200	190-210
Ferlon Wyandotte Chem. Corp.	200	190-210
Oakite 90 Oakite Products, Inc.	4400	160-190

(2) The recommended make-up procedure for the alkaline cleaner is as follows:

(a) Fill tank one-half full with water.

(b) Heat to within 20 degrees of the maximum operating temperature.

(c) Distribute cleaner uniformly over the surface, while agitating, until the required amount has been added. Add amount proportional to volume of tank.

(d) Add water to about two inches below operating level.

(e) Heat to operating temperature.

(f) Add water to operating level and agitate until the concentration is uniform throughout tank.

(3) The alkaline cleaner shall be maintained free of surface contamination, such as floating debris or oily films.

(4) If the cleaning efficiency decreases, as evidenced by increased cleaning time required for soil removal, cleaner additions should be made in amounts equal to ten per cent of the original make-up quantity. These additions may be repeated, as required, until the total of additions equals the original make-up.

(5) Rinse free of cleaning material with water.

b. Immerse duct for one-half hour in a nitric acid solution made up as follows:

(1) The nitric acid solution is to be made up by mixing equal volumes of water and concentrated (technical grade 12° Baume) nitric acid.

WARNING

Do not pour water in concentrated nitric acid. Always dilute by pouring acid in water.

(2) The solution must be maintained to prevent the concentration of silver ion from exceeding 12 grams per liter by solution withdrawal and replacement.

c. Rinse thoroughly with water and dry.

4-52K. Re-insulate the ducts in accordance with the procedures outlined in convair drawing No. 8-02293, type B. Stencil the following adjacent to the stenciled part number with 1/4-inch letters: INSP & REWK DATA
SM-ALC

4-52L. BOUNDARY LAYER INTAKE DUCT LIP REPAIR. Allowable limits and repair instructions for dents and cracks in boundary layer intake duct lip area. The following limits and repair instructions apply:

a. Limits: Dents with no cracks that are within the limits shown in class 1, figure 1-19 (page 1-18) need not be repaired.

b. Repair:

(1) All dents with cracks and dents with no cracks exceeding two inches in length should be repaired by removing damaged area and welding (Heli-Arc) in a piece (flush insert) of 6061-0 aluminum alloy material of like thickness.

(2) Cracks that are not dented may be welded (Heli-Arc) without removing damaged area.

(3) Dents with no cracks exceeding limits shown in class 1, figure 1-19, but exceeding two inches in length, may be repaired by filling with weld bead (Heli-Arc).

(4) All welding beads must be dressed down to original contour (see figure 1-25 Aerodynamics Smoothness Requirements).

(5) All repairs requiring welding will be accomplished as follows:

WARNING

Use goggles or face shield during grinding operation.

(a) First grind off the plating from the duct lip one inch beyond the area to be repaired. Follow the grinding procedures outlined in TO 1-1-2.

(b) Use only aluminum oxide abrasive wheel with 120 grain size abrasive.

(c) Observe grinding speed for the particular size of wheel used.

(d) Wash the ground-out and adjacent area with alkaline waterbase aircraft cleaner in accordance with TO 1-1-1, section III.

(e) Cold water rinse and dry.

WARNING

Welding procedures on aircraft must be accomplished by welders certified in accordance with MIL-T-5021D. Prior to welding on aircraft, approval must be obtained from the Aircraft Maintenance Officer, Fire Chief, and Ground Safety Officer and proper precautions taken to prevent the possibility of fire or other mishap.

(f) Repair by welding as required and dress welding beads down to original contour.

(g) Repeat steps (5) (d) and (e) above.

(h) Mask the adjacent area using barrier paper per specification MIL-B-121 and masking tape per specification UU-T-106 or equivalent, according to TO 1-1-8.

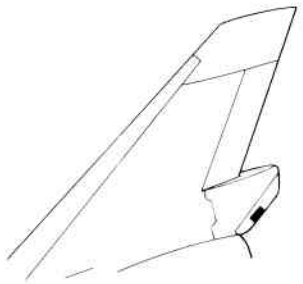
(i) Treat the repair area with brush-on conversion coating for aluminum alloy per specification MIL-C-5541.

(j) Cold water rinse and dry.

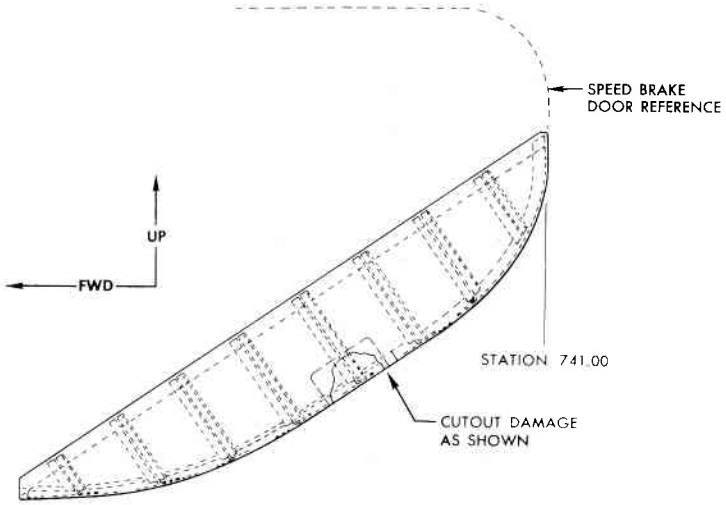
(k) Apply two coats of epoxy-polymide primer per specification MIL-P-23377 according to TO 1-1-8.

(l) Apply two coats of polyurethane coating MIL-C-83286 (gray color number 16473) in accordance with TO 1-1-8.

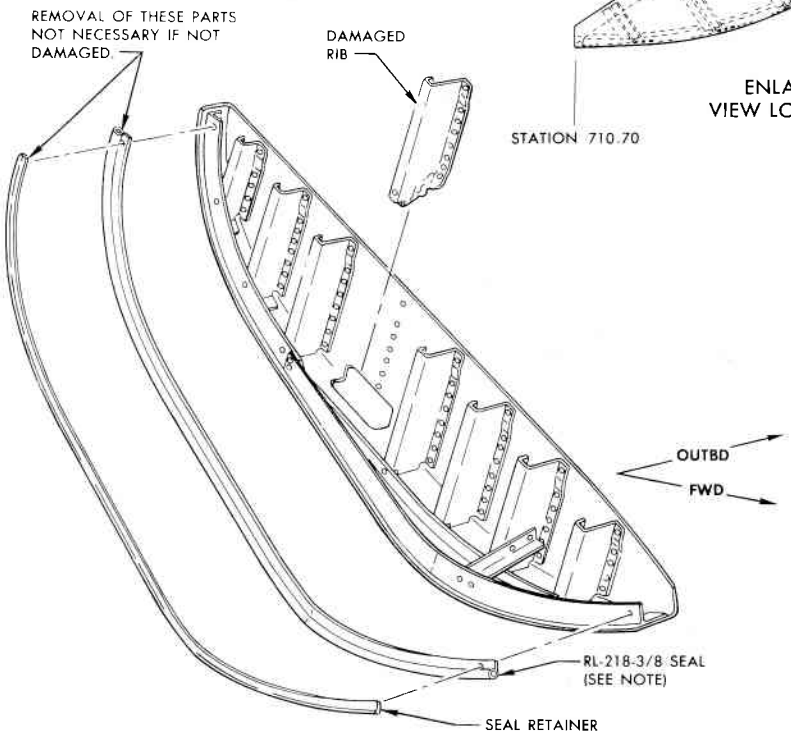
4-52M. Deleted.



AREA OF ASSUMED DAMAGE



ENLARGED VIEW OF DAMAGED AREA
VIEW LOOKING INBOARD—LEFT-HAND SIDE



DAMAGE REMOVAL PROCEDURE
VIEW LOOKING OUTBOARD—LEFT-HAND SIDE

NOTE:
RL-218-3/9 SEAL IS MANUFACTURED BY RAYBESTOS-MANHATTAN INC., PASSAIC, NEW JERSEY.

REPAIR PROCEDURE

a. Open the speed brake doors and install safety locks. Refer to T.O. 1F-106A-2-7-2-1 for opening of speed brake doors and safety lock installation procedure.
b. Perform fluorescent penetrant inspection to determine extent of damage. Refer to Section I for fluorescent penetrant inspection procedure and materials.
c. Remove damage as shown.
d. Fabricate repair parts as shown.

NOTE
REPAIR PARTS MAY BE MADE FROM STAINLESS STEEL IF TITANIUM IS NOT AVAILABLE.

e. Predrill holes in doublers as shown. Use a No. 40 (0.099) drill.
f. Install repair rib and hold in place with clamps.
g. Using the existing holes in speed brake door cap as a guide, drill holes through repair rib. Use a No. 30 (0.128) drill.
h. Remove repair rib and remove all burrs from repair rib and speed brake door cap.
i. Layout and drill holes through remaining portion of repair flange. Use a No. 40 (0.099) drill.
j. Reinstall rib and hold in place with clecos.
k. Install doublers and hold in place with clamps.
l. Using predrilled holes in doublers as a guide, drill holes through existing skin of speed brake door cap. Use a No. 40 (0.099) drill.

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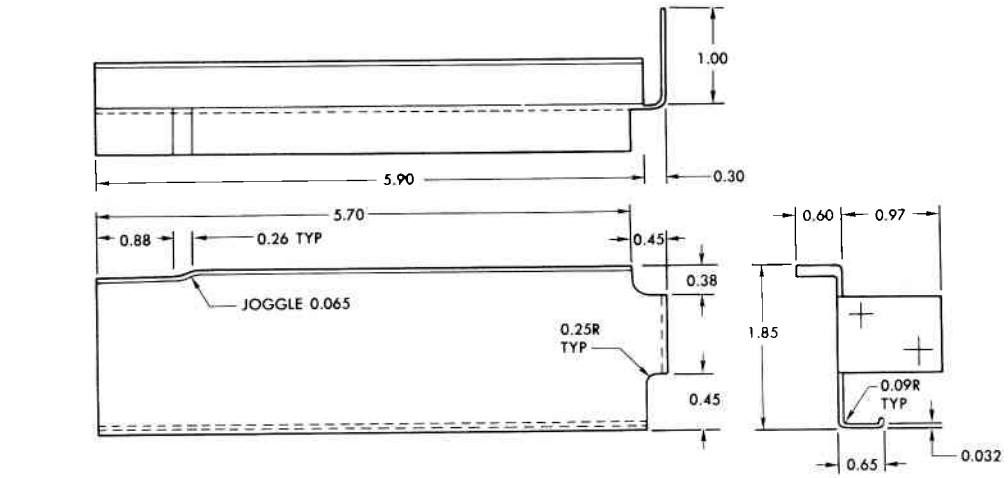
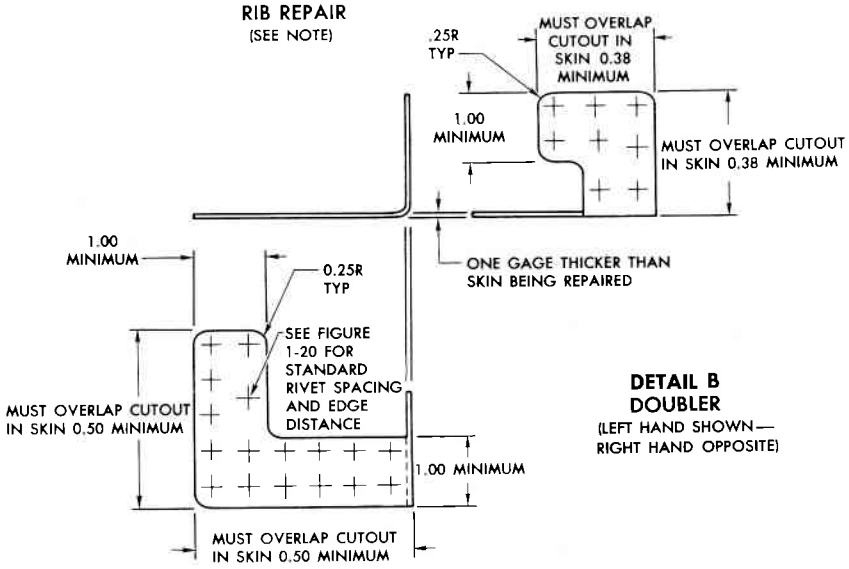
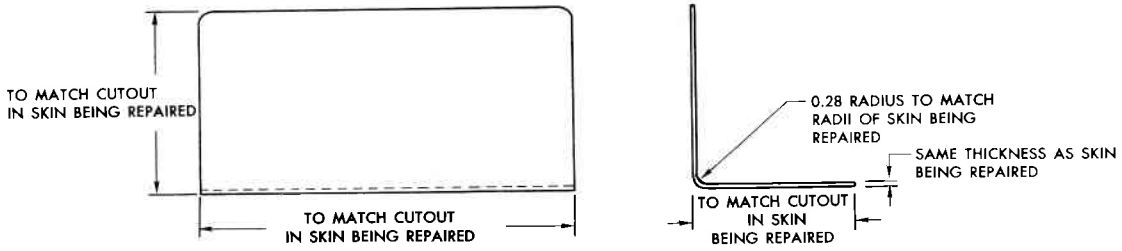
Figure 4-41. Speed Brake Door Cap Repair (Sheet 1 of 3)



DETAIL A
RIB REPAIR
(SEE NOTE)



DETAIL B
DOUBLER
(LEFT HAND SHOWN—
RIGHT HAND OPPOSITE)



DETAIL C
FLUSH SKIN PATCH

NOTE:
DIMENSIONS GIVEN FOR RIB REPAIR ARE FOR RIB SHOWN ONLY. DIMENSIONS FOR OTHER RIBS MUST BE GAINED BY A PHYSICAL MEASUREMENT.

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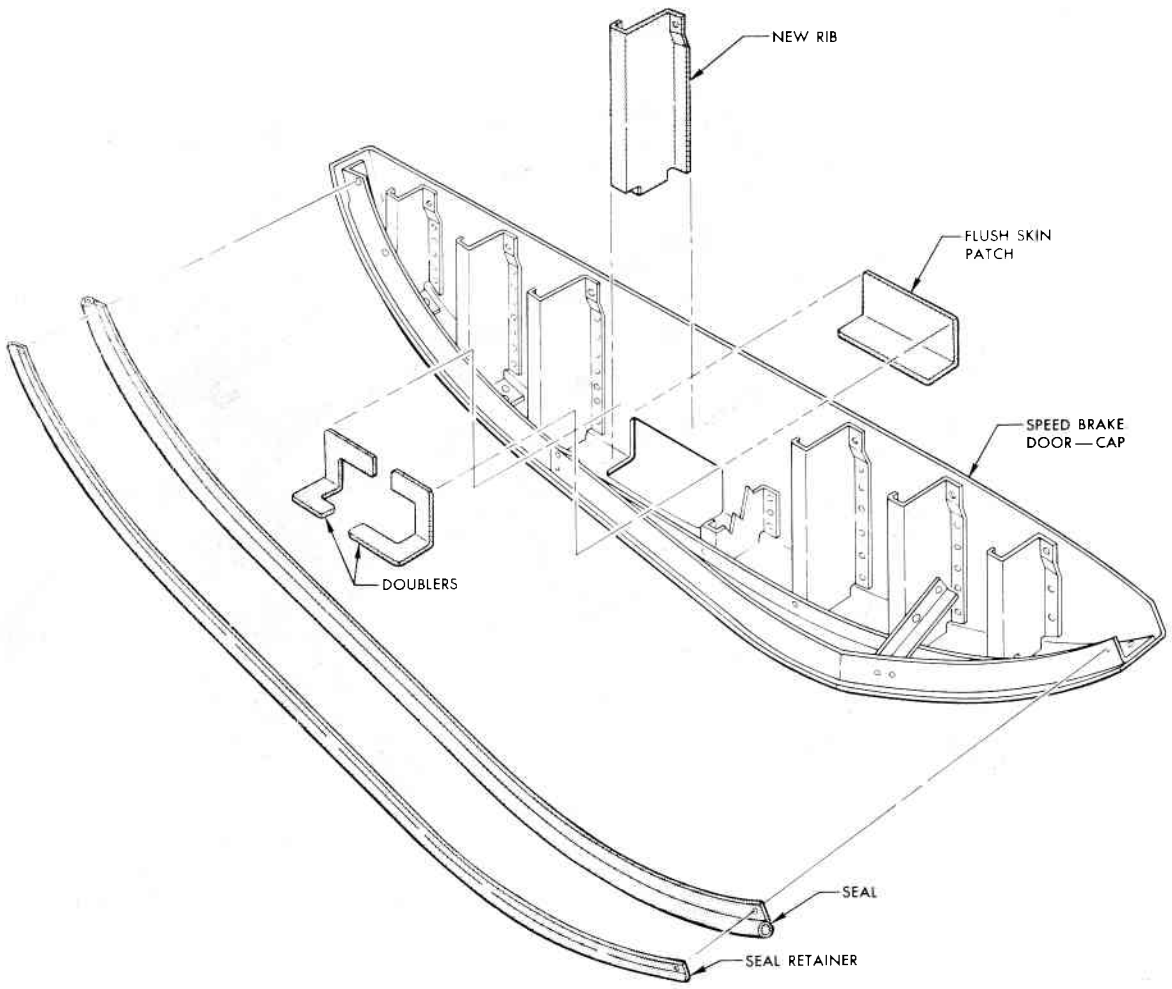
Figure 4-41. Speed Brake Door Cap Repair ***(Sheet 2 of 3)***



REPAIR INSTALLATION PROCEDURE

m. Insert clecos through holes drilled in step "l" and remove clamps.
n. Install flush skin patch.
o. Using predrilled holes in doublers and repair rib as a guide, drill holes through flush skin patch. Use a No. 40 (0.099) drill.

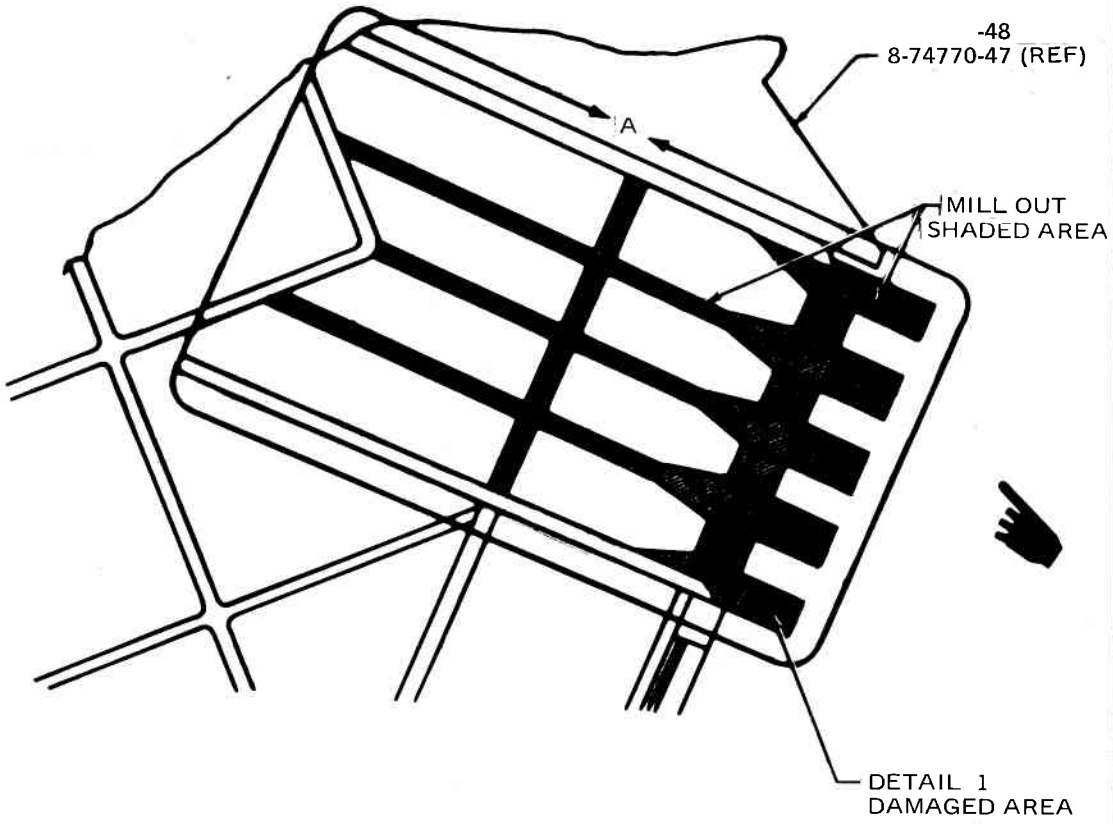
NOTE
INSERT CLECOS THROUGH HOLES IN FLUSH SKIN PATCH AS THEY ARE DRILLED TO KEEP FLUSH PATCH FROM SLIPPING OUT OF ALIGNMENT.

p. Ream holes drilled in steps "l" and "o" with a No. 30 (0.128) drill.
q. Countersink 100° all holes in existing skin and flush skin patch.
r. Remove repair parts and remove all burrs from repair parts and speed brake door cap.
s. Apply a coat of Sta-Bond C-875 to faying surface of repair parts and speed brakes door cap. Refer to Table 11-VII for application of Sta-Bond C-875.
t. Reinstall all repair parts and hold in place with clecos.
u. Rivet repair parts to speed brake door cap, as shown, with AN427M-4 rivets.
v. Fill any gaps between flush skin patch and existing speed brake door cap skin with Sta-Bond C-875.
w. Remove speed brake door safety locks and close speed brake door. Refer to T.O. 1F-106A-2-7-2-1 for procedure on removal of safety locks and closing of door.

06,03,256-3 ,53,10,93

Figure 4-41. Speed Brake Door Cap Repair (Sheet 3 of 3)

REPAIR PROCEDURE (Figure 4-41A)



a. Mill out the webs in damaged area of the hinge as noted in detail 1.
b. Dress up damaged edge of door as noted in detail 1.
c. Remove the -12 retainer and the -20 seal from door. Retain for reinstallation.
d. Remove all paint from reworked area.
e. Fabricate one each hinge assy from 3 1/2 x 5 x 10 in, 7075-T6 aluminum alloy. See detail 2. Hinge will be milled out similar to original item including webs and hinge nodes.
f. Temporarily secure hinge in door while drilling No. 11 (0.191 inch dia) holes. Holes will be countersunk 100 degree on outer surface of skin.
g. Treat reworked magnesium areas with chrome pickle MIL-M-3171 (Type 1), treat aluminum hinge with alodine 1200 MIL-C-5541. Mate and bolt surfaces while wet with zinc chromate primer.
h. Finish reworked area with aircraft gray acrylic nitrocellulose lacquer MIL-L-19537, Color 16473 per Federal Standard 595.

Figure 4-41A. Speed Brake Door Hinge – Typical Repair (Sheet 1 of 2)

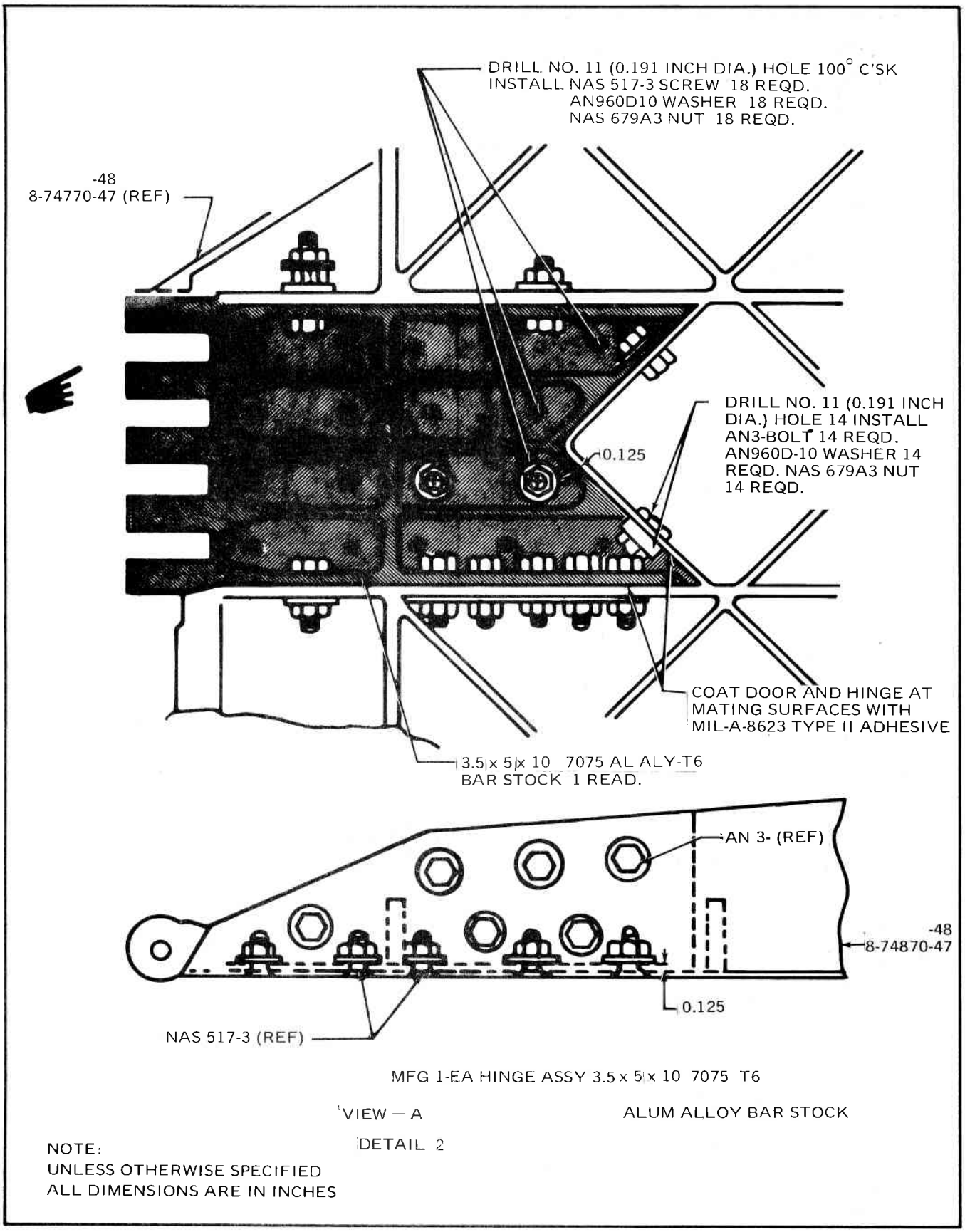
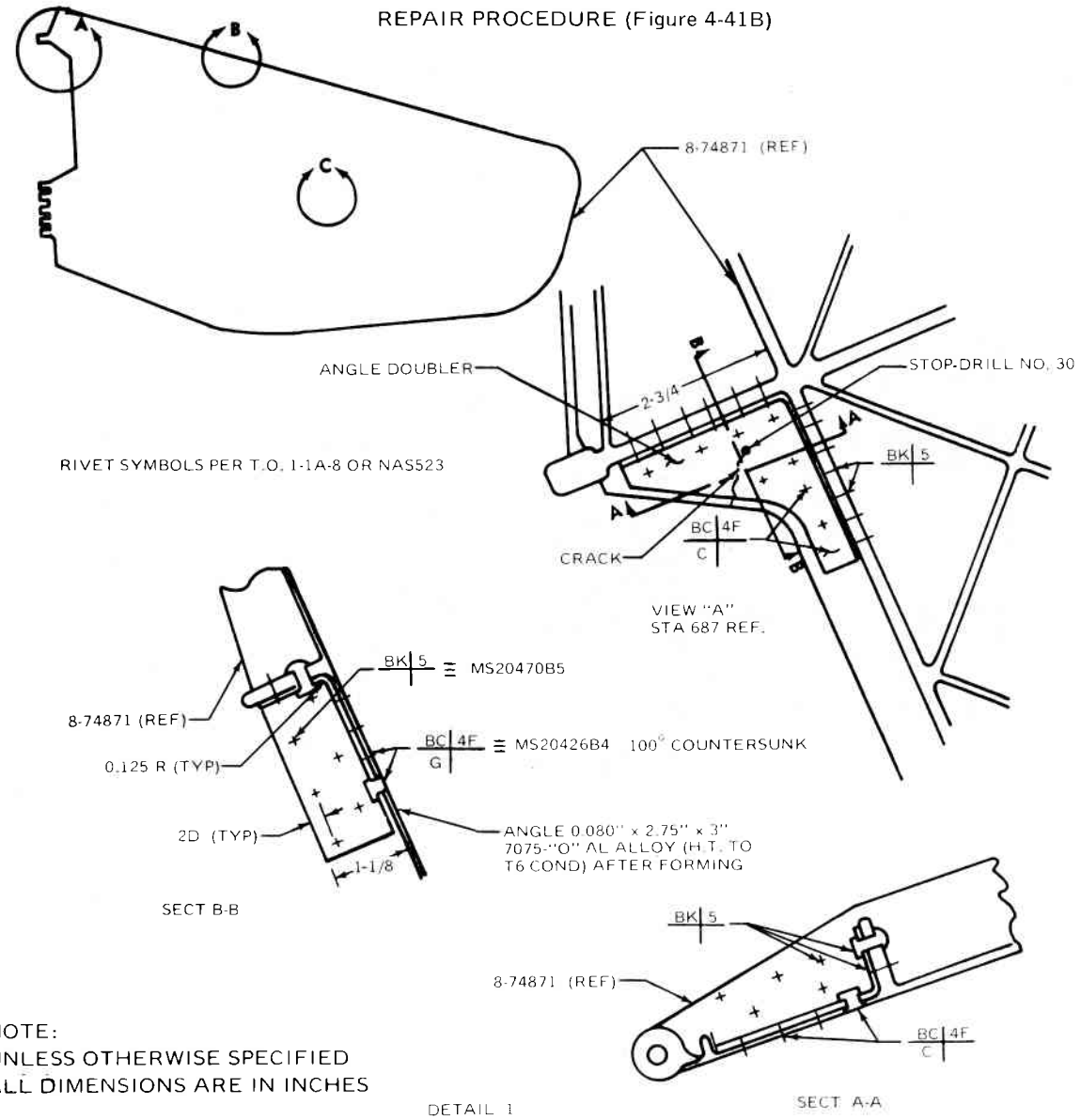


Figure 4-41A. Speed Brake Door Hinge – Typical Repair (Sheet 2 of 2)

REPAIR PROCEDURE (Figure 4-41B)



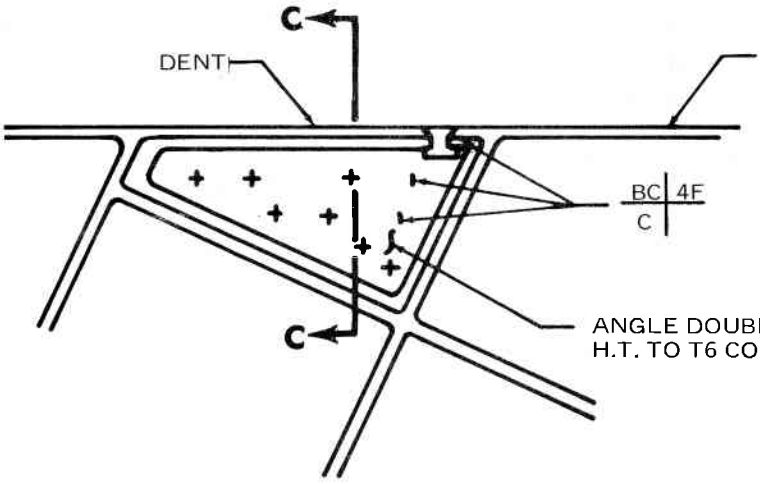
NOTE:
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES

DETAIL 1

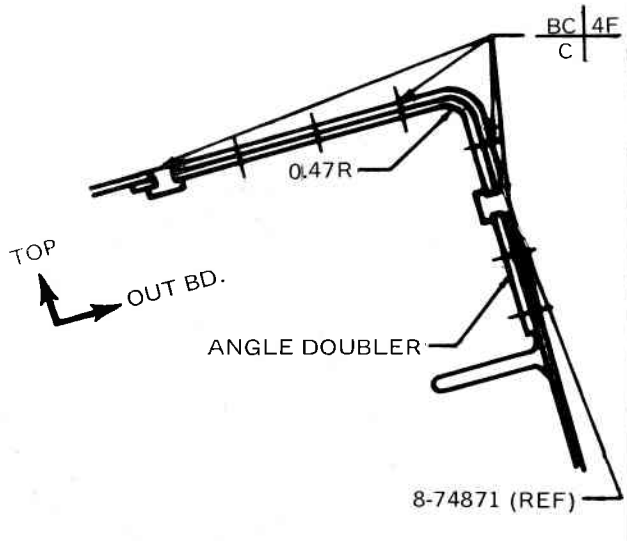
a. Remove all paint from damaged areas.
b. Fluorescent penetrant inspect the area to determine extent of damage.
c. Stop-drill the cracks with No. 30 size (0.128 inch dia.) drill (See detail 1, View A).
d. Fabricate angle doubler from 0.080 7075-0 aluminum alloy (after forming, H.T. to T6 condition).
e. Blend out all scratches and gouges around dented area (See detail 2, View B).
f. Fabricate angle doubler from 0.080, 7075-0 aluminum alloy (after forming, H.T. to T6 condition).
g. Clean up hole and make filler to fit. (See detail 3 and 4, View C). Use 7075-T6 aluminum alloy for filler. Thickness and diameter to be determined at time of fabrication.
h. Fabricate angle doubler from 0.050 7075-0 aluminum alloy (H.T. to T6 after forming).
i. Treat exposed magnesium surfaces with Chemical Film, Specification MIL-M-3171, Type 1.
j. Temporarily secure doubler angles in place and drill No. 30 size (0.128 inch dia) holes through doubler and casting. Maintain 2D edge distance on rivets and install approximately as shown.
k. Prime coat fabricated parts and reworked area with zinc primer MIL-P-8585.
l. Coat mating surfaces of doubler angles and casting with MIL-A-8623 Type II, before final assembly.

Figure 4-41B. Speed Brake Door – Typical Repair (Sheet 1 of 4)

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES



VIEW — B
STA. 703 REF
ROTATED APPROX. 20° CCW

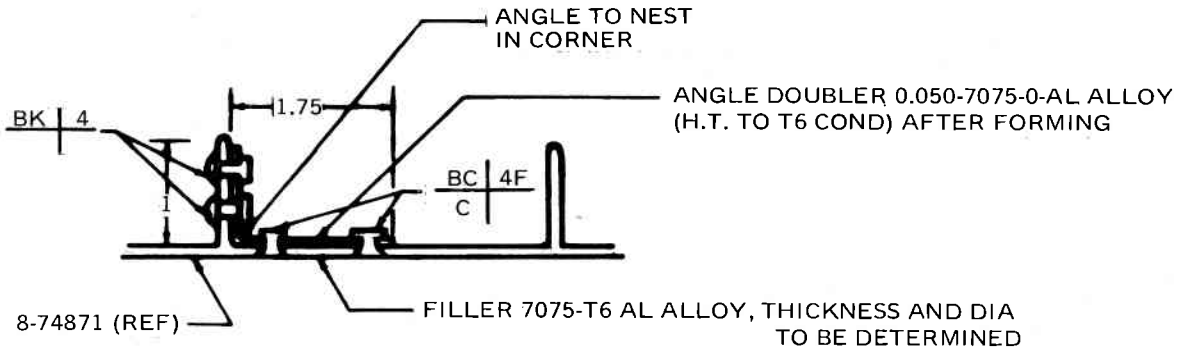


NOTE: SHAPE OF DOUBLER ANGLE AND RIVET PATTERN TO BE DETERMINED AT TIME OF REWORK.

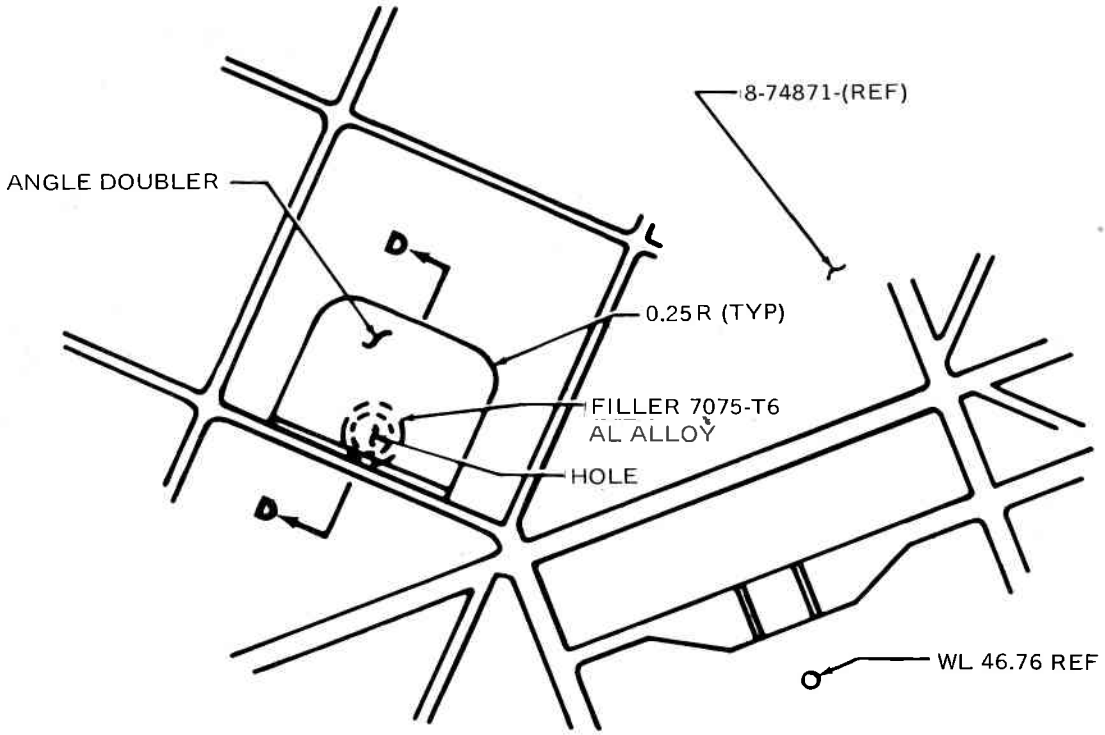
SECT C-C
ROTATED APPROX. 15° CCW

DETAIL 2

Figure 4-41B. Speed Brake Door — Typical Repair (Sheet 2 of 4)



SECT D-D

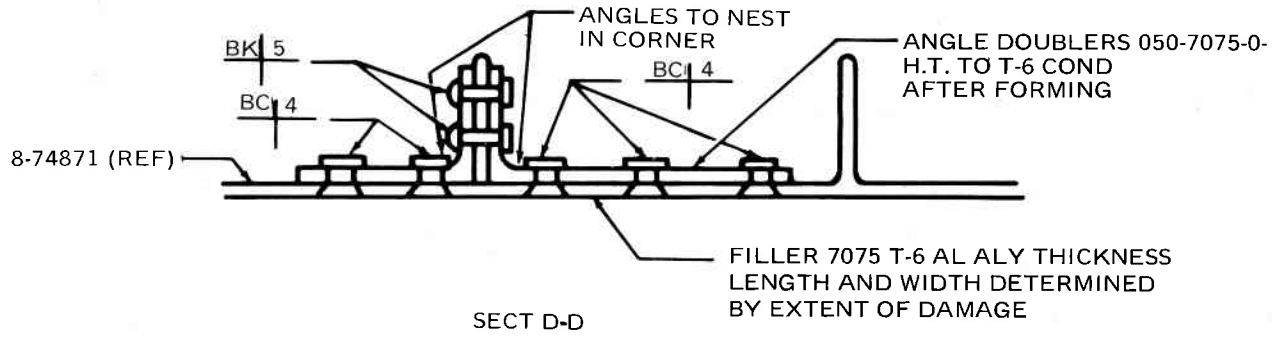


DETAIL 3

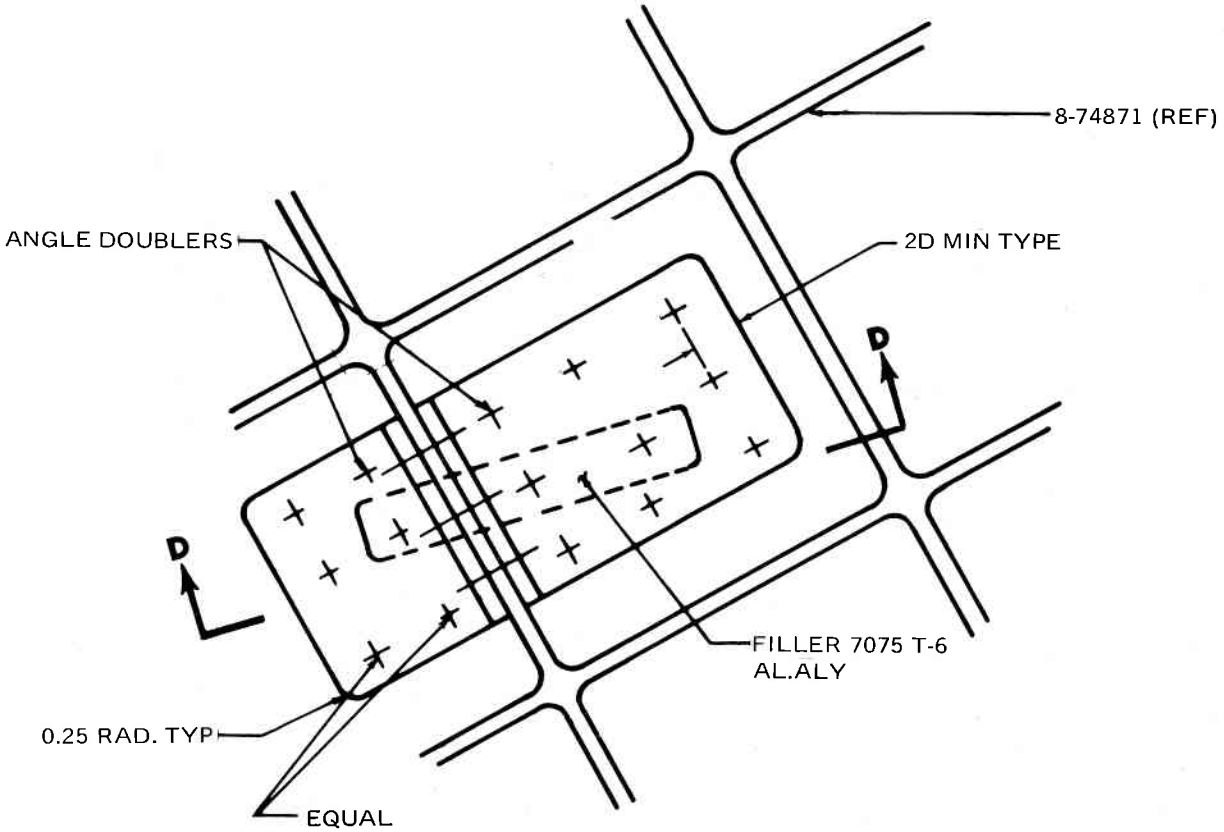
NOTE:
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES

Figure 4-41B. Speed Brake Door – Typical Repair (Sheet 3 of 4)

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES



SECT D-D



VIEW-C

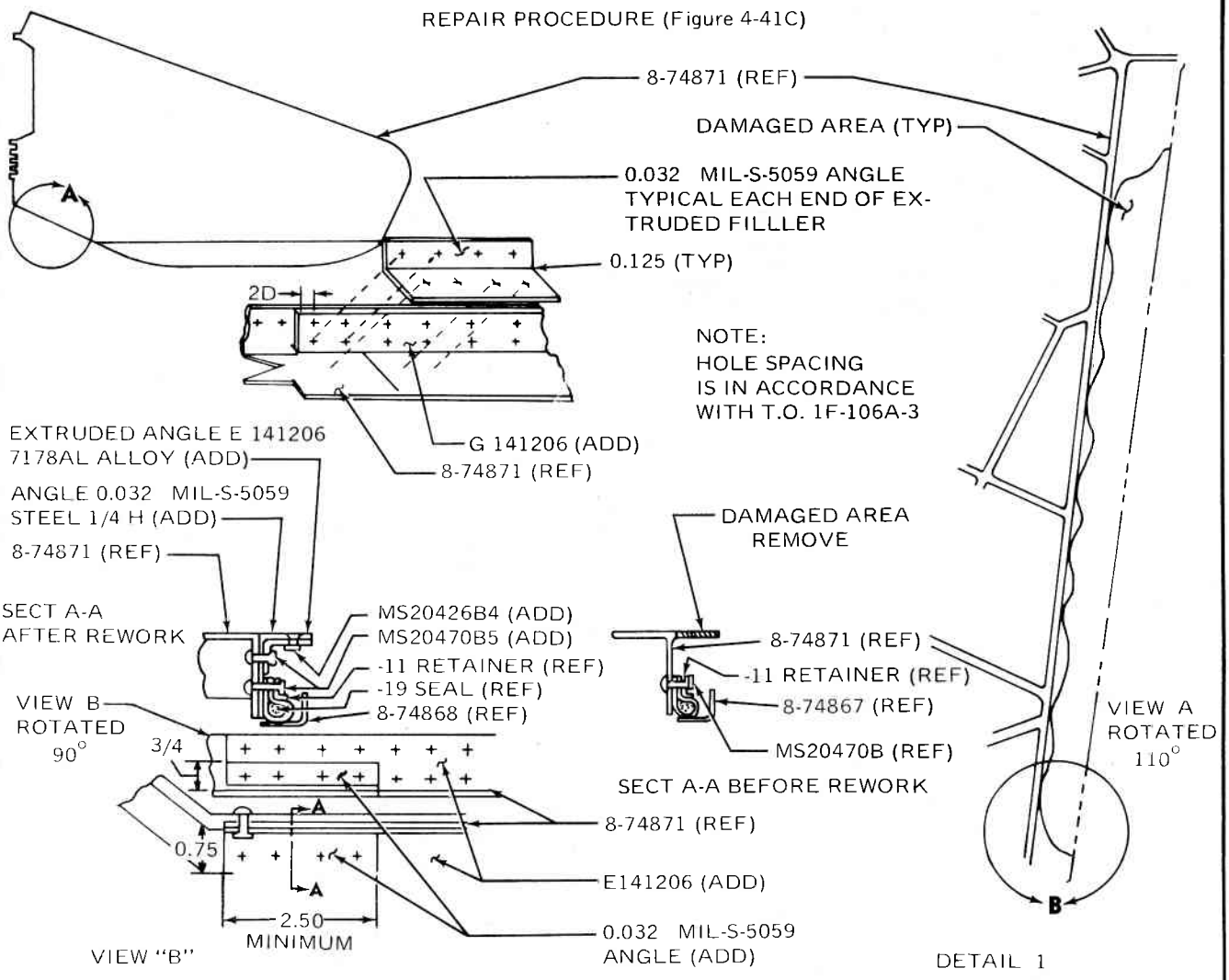
NOTE

EXTEND FILLER UNDER VERTICAL STIFFNER AS SHOWN ONLY IF CRACK EXTENDS UNDER OR IS CLOSER THAN 0.125 TO THE VERTICAL STIFFNER

DETAIL 4

Figure 4-41B. Speed Brake Door – Typical Repair (Sheet 4 of 4)

REPAIR PROCEDURE (Figure 4-41C)

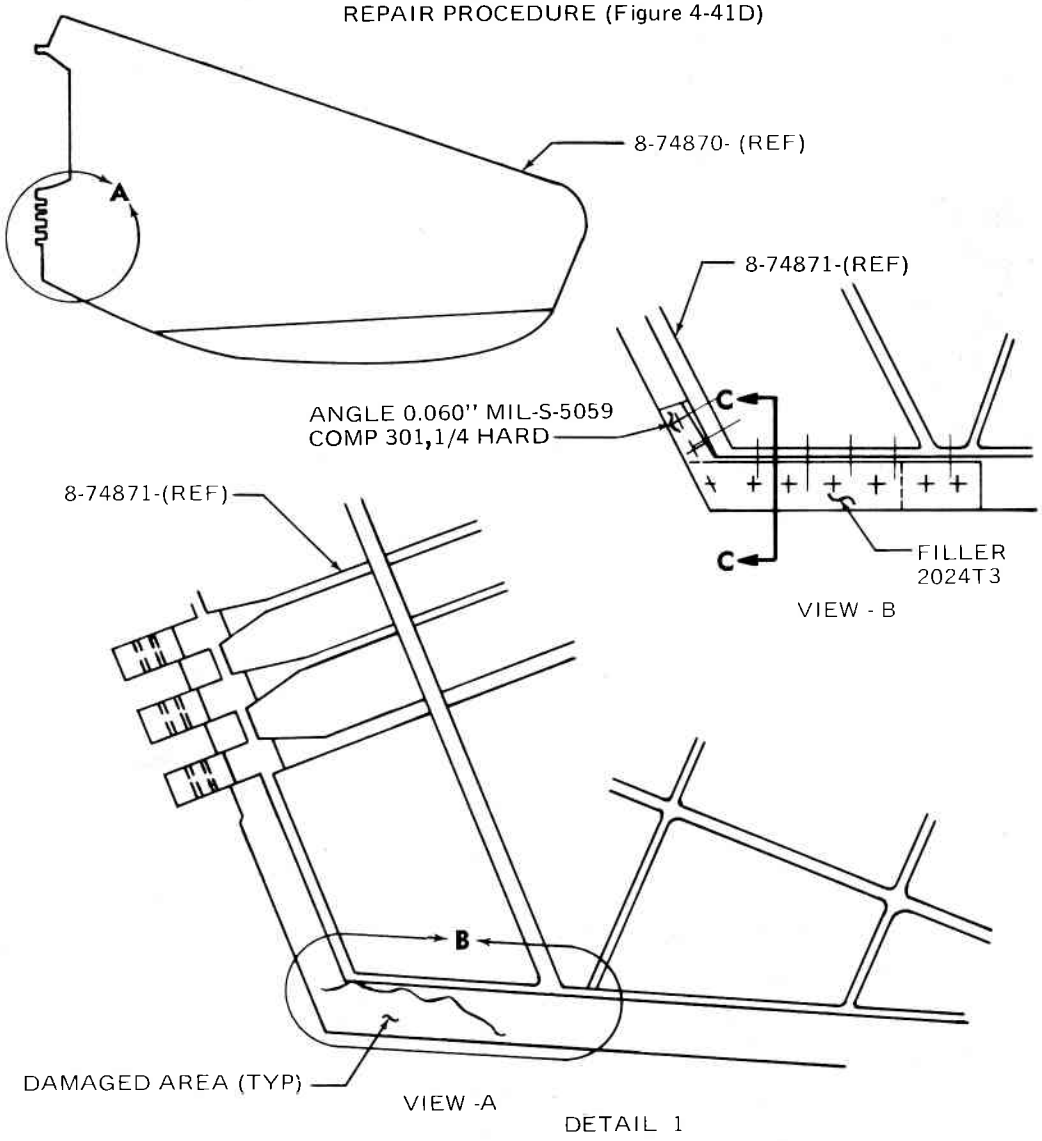


a. Remove the -11 retainer and -19 seal, retain for reinstallation.
b. Remove paint from rework area.
c. Fluorescent penetrant inspect the area to determine extent of damage.
d. Remove damaged area indicated in detail 1.
e. Treat exposed magnesium surface with Chemical Film, Specification MIL-M-3171, Type 1.
f. Fabricate filler from extruded angle E 141206, 7178 aluminum alloy. Trim extrusion to required size.
g. Temporarily secure filler in place. Use the -19 seal attaching holes as template for locating upper row of holes in extruded angle filler. Drill holes to No. 20 (0.161 inch dia).
h. Drill lower row of No. 20 drill size (0.161 inch dia) holes in filler and web of door.
i. Fabricate two 0.032 angles from MIL-S-5059A, Comp, 301, 1/4 hard material. Drill four No. 20 drill size (0.161 dia) holes in upper face of angle, using lower row of holes (reference paragraph h) in filler and web as a template.
j. Drill four each No. 30 drill size (0.128 inch dia) holes in lower edge of angle. Use the holes as template for locating holes in door and extruded angle filler.
k. Extruded angle shall be anodized or treated per MIL-C-5541 after fitting and drilling.
l. After anodizing extruded angle, apply two coats of Zinc Chromate Primer, MIL-P-8585A in accordance with MIL-P-6808.
m. Apply two coats of Zinc Chromate Primer, MIL-P-8585A in accordance with MIL-P-6808 to the 0.032 angles.
n. Secure extrusion angles, -19 seal and -11 retainer to door with MS20426B4 and MS20470B5 rivets, in accordance with View B, detail 1.
o. Finish repaired area with aircraft gray as indicated in T.O. 1F-106A-23. ■

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES

*Figure 4-41C. Speed Brake **Flange Repair***

REPAIR PROCEDURE (Figure 4-41D)



a. Remove the -11 retainer and -19 seal, retain for reinstallation.
b. Remove paint from rework area.
c. Fluorescent penetrant inspect the area to determine extent of damage.
d. Remove damaged area as necessary to assure a satisfactory repair. (See detail 1).
e. Treat exposed magnesium surface with chemical film, Specification MIL-M-3171, Type 1.
f. Fabricate filler from 0.080 2024-T3 aluminum alloy.
g. Fabricate two 0.060 angles from MIL-S-5059A, Comp 301, 1/4 Hard Material. (See detail 2).
h. Drill No. 30 drill size (0.128 inch dia.) holes in lower edge of angle. Use these holes as template for locating holes in door and filler. Countersink holes in lower side of filler and door to 100 degrees. (See detail 2).
i. Drill No. 20 drill size (0.161 inch dia) holes in upper surface of angle (See detail 2).
j. Use angle as template for locating holes.
k. Apply two coats of Zinc Chromate Primer, MIL-P-8585A per MIL-A-6808 to 0.080 filler.
l. Apply two coats of Zinc Chromate Primer, MIL-P-8585A, per MIL-A-6808 to 0.060 angle.
m. Secure filler to angle using MS20426B4 rivets as shown in detail 2.
n. Secure repair angle, -19 seal and -11 retainer to door with MS20470B5 rivets as shown in detail 2.
o. Finish repaired area with Aircraft Gray acrylic nitrocellulose lacquer MIL-L-19537, color 16473 per Federal Standard 595.

Figure 4-41D. Speed Brake Door Flange Repair (Sheet 1 of 2)

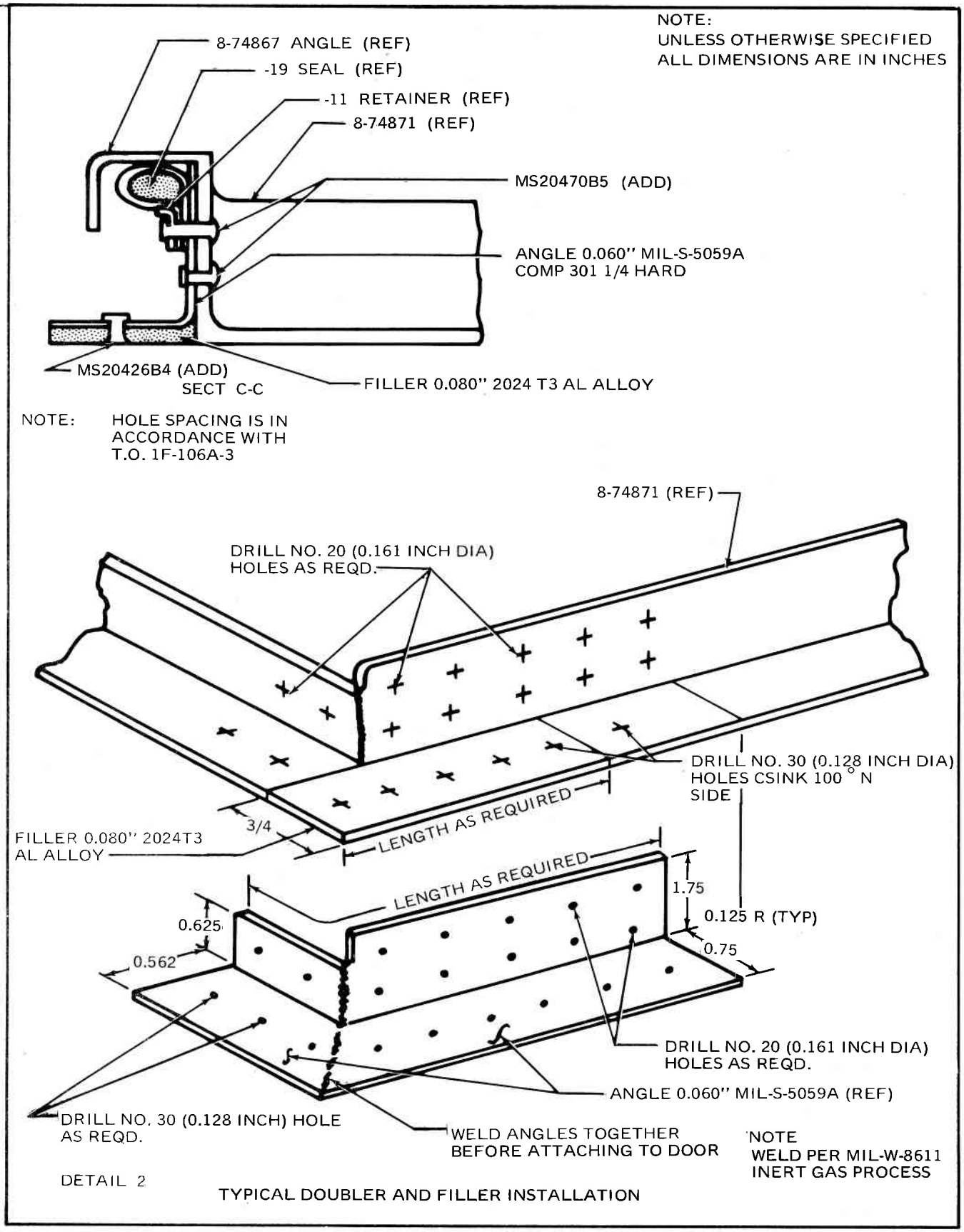
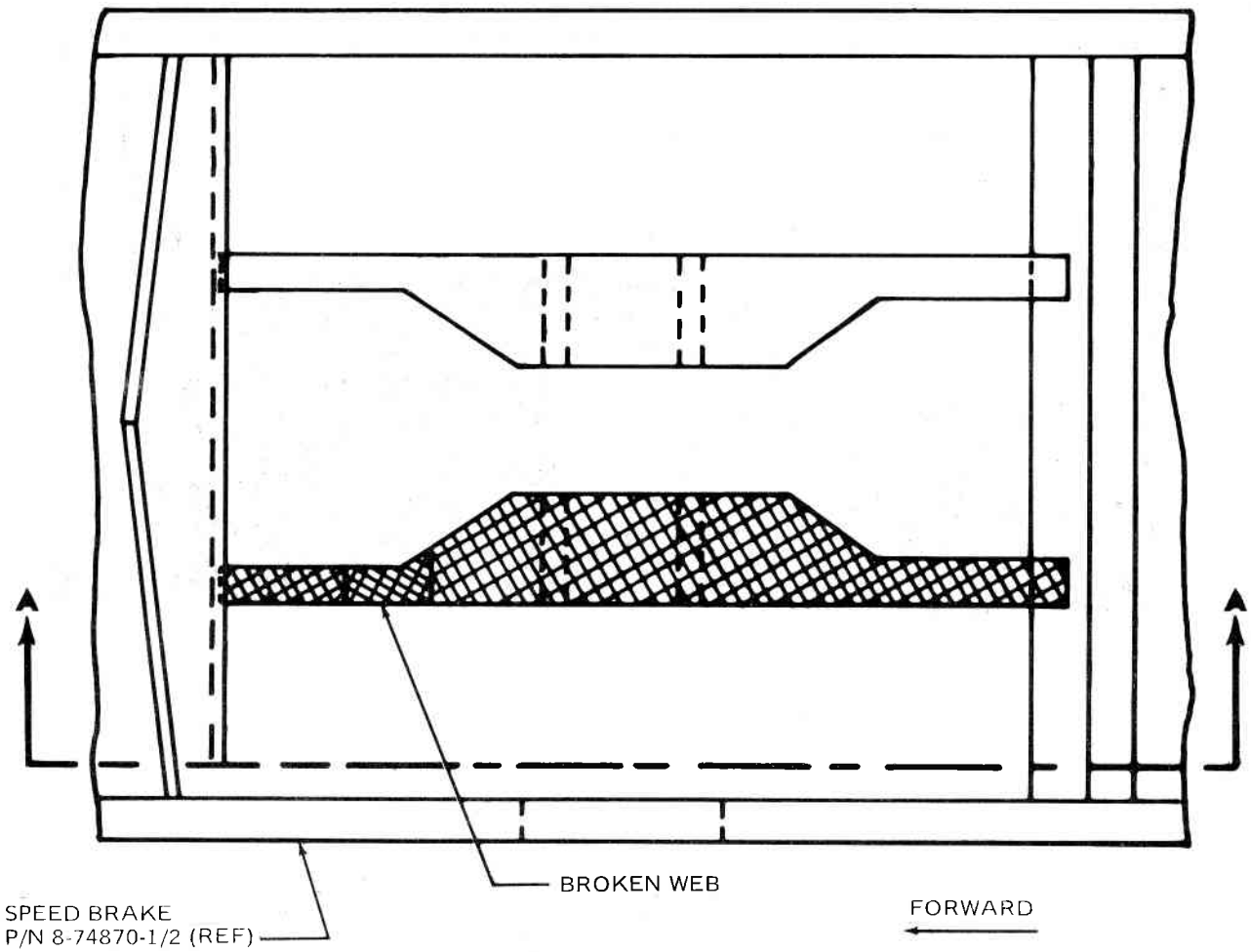


Figure 4-41D. Speed Brake Door Flange Repair (Sheet 2 of 2)

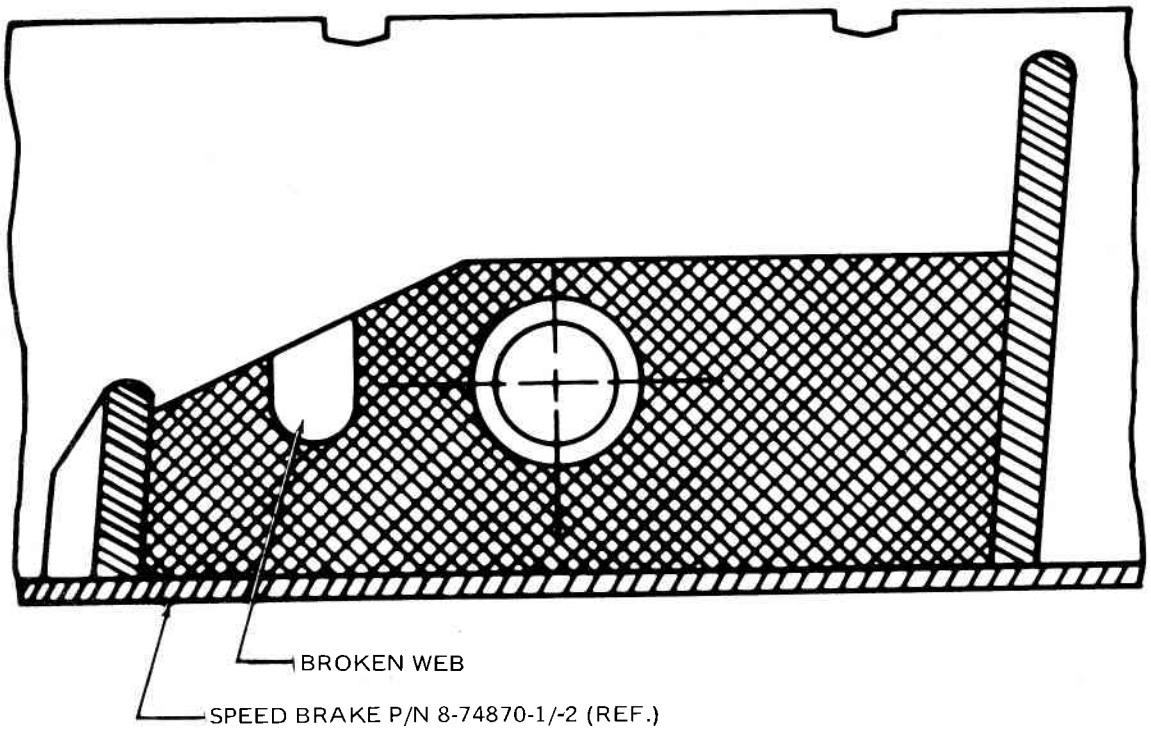
REPAIR PROCEDURE (Figure 4-41E)



DETAIL 1

a. Remove double cross hatched portion by milling as shown in detail 1 and Section A-A, detail 2.
b. Remove paint from rework area; treat exposed magnesium surface with chemical film, Specification MIL-M-3171, Type 1.
c. Manufacture new actuator fitting identical to milled portion with flanges so that fitting can be bolted to skin and webs. Fitting will be made blank and actuator bolt hole will be line-drilled after installation of fitting. Install bushing same as original bushing. (See detail 3 and instructions on detail 2.)
d. Temporarily install fitting and drill eight number 11 drill size holes (0.191 dia), five holes through skin and three holes through webs. The five holes through the skin are to be counter sunk 100 degree on the outside of the skin. (See detail 3 and detail 2 instructions.)
e. Coat mating surfaces with MIL-A-8623 Type II, at final assembly.
f. Hardware required: Five NAS 517-3 screws, three AN3 bolts, eight NAS 679A3 nuts, and eight AN960D-10 washers.
g. Apply zinc chromate primer, MIL-P-8585A per MIL-P-6808A, to exposed surfaces on fitting and door.

Figure 4-41E. Speed Brake Door Web Repair (Sheet 1 of 3)



SECTION A - A

REMOVE DOUBLE CROSSHATCHED PORTION BY MILLING (DETAIL 1 AND SECT. A - A DETAIL 2)
REMOVE PAINT FROM REWORK AREA, TREAT EXPOSED MAGNESIUM SURFACE WITH CHEMICAL FILM SPEC MIL-M-3171, TYPE 1.
MANUFACTURE NEW ACTUATOR FITTING FROM 2 x 2 x 6 INCH 7075-T6 ALUMINUM ALLOY (DETAIL 3).
DRILL NO. 11 DRILL SIZE HOLES (0.191 DIA.) (5) THRU OUTER SKIN 100° C'SINK OUTSIDE (3) THRU WEBS. ON ASSY INSTALL 5 NAS 517-3 SCREWS, 3 AN3 BOLTS, 8 AN960D-10 WASHERS AND 8 NAS 679A3 NUTS. USE MIL-A-8673 TYPE II ADHESIVE ON ALL MATING SURFACES AT FINAL ASSY.
FITTING WILL BE MADE BLANK AND ACTUATOR BOLT HOLE WILL BE LINE-DRILLED AFTER ASSY.
APPLY ALODINE 1200 MIL-C-5541 TO FITTING BEFORE ASSY.
APPLY ALODINE TO INSIDE OF BOLT HOLE AFTER LINE DRILLING.

DETAIL 2

Figure 4-41E. Speed Brake Door Web Repair (Sheet 2 of 3)

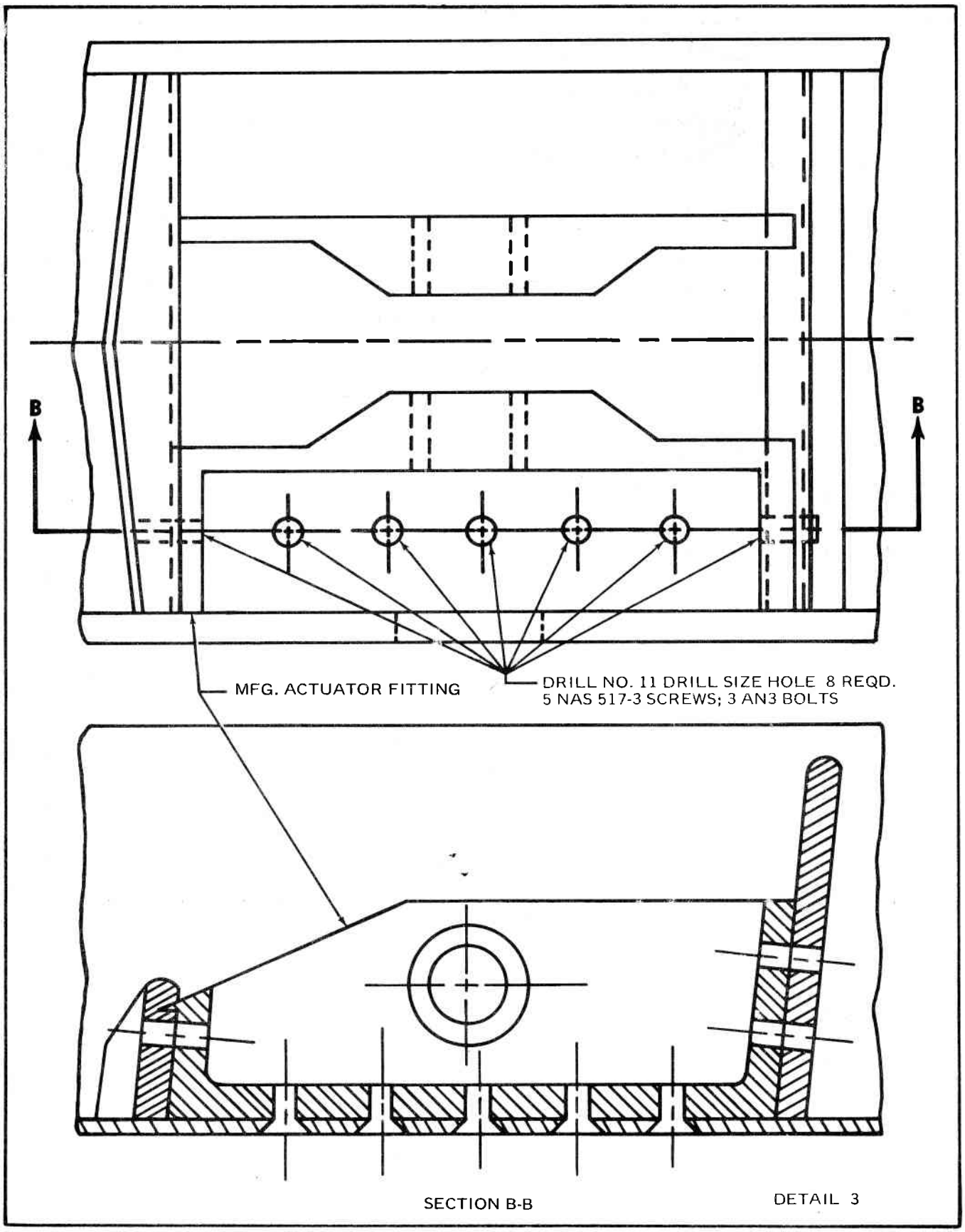


Figure 4-41E. Speed Brake Door Web Repair (Sheet 3 of 3)

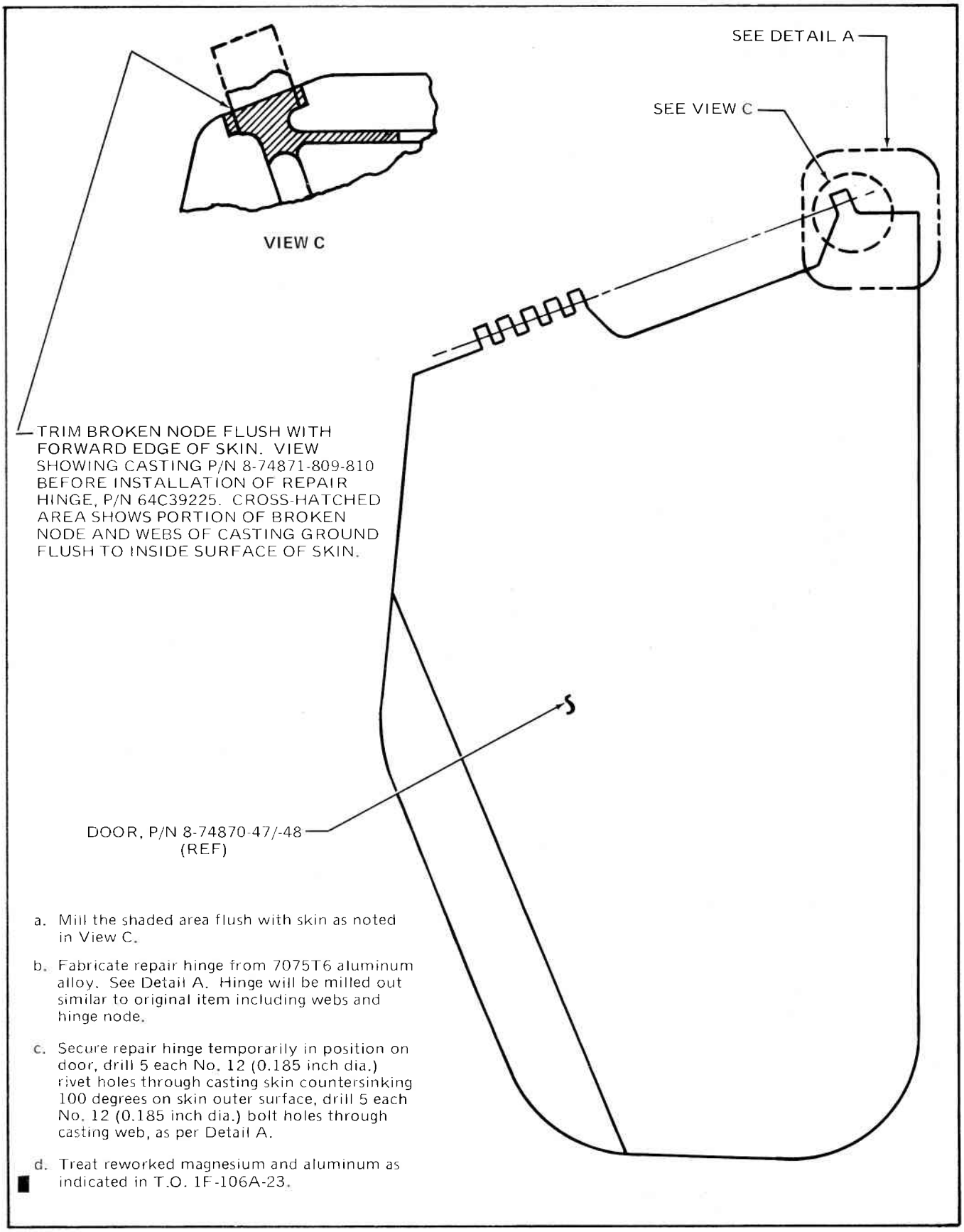
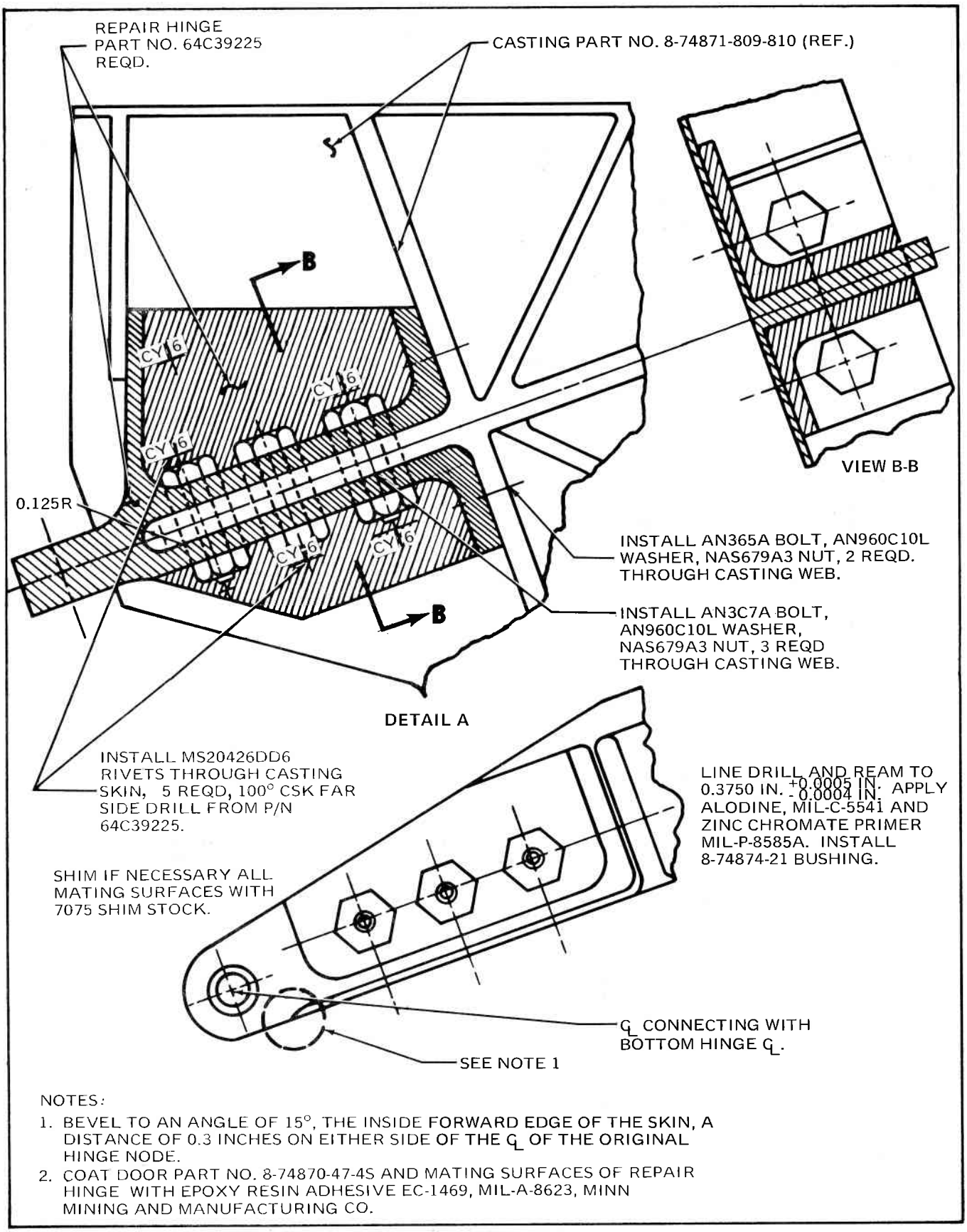


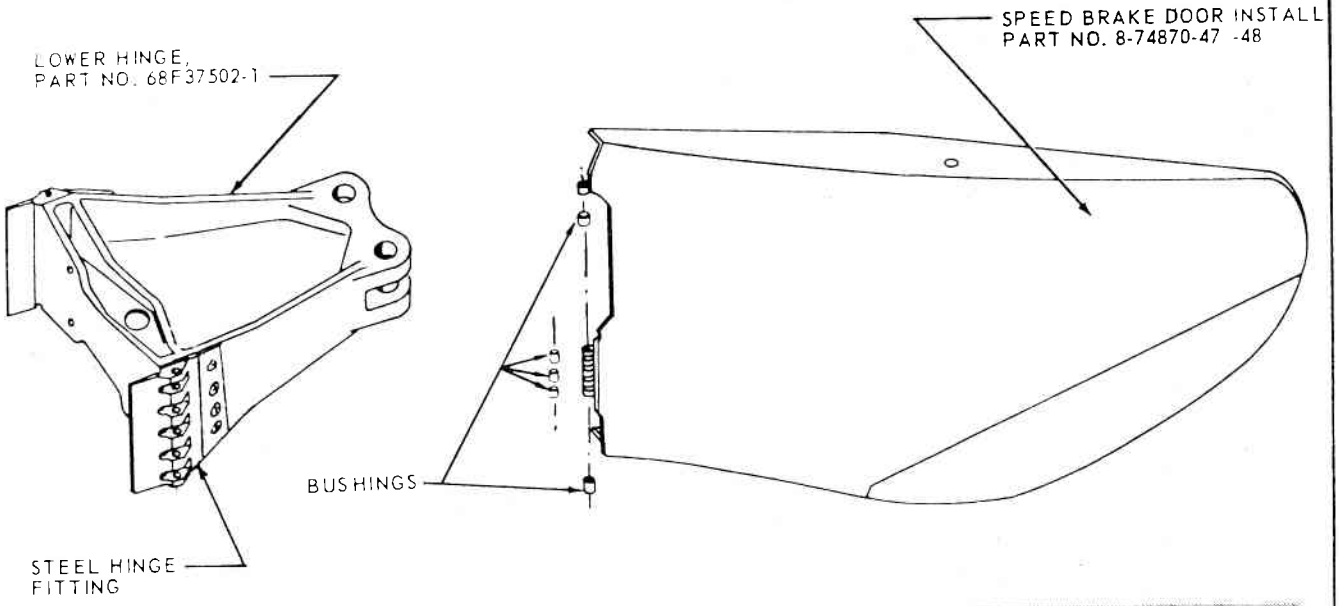
Figure 4-41F. Speed Brake Door Upper Hinge Repair (Sheet 1 of 2)



NOTES:

1. BEVEL TO AN ANGLE OF 15°, THE INSIDE FORWARD EDGE OF THE SKIN, A DISTANCE OF 0.3 INCHES ON EITHER SIDE OF THE ℄ OF THE ORIGINAL HINGE NODE.
2. COAT DOOR PART NO. 8-74870-47-4S AND MATING SURFACES OF REPAIR HINGE WITH EPOXY RESIN ADHESIVE EC-1469, MIL-A-8623, MINN MINING AND MANUFACTURING CO.

Figure 4-41F. Speed Brake Door Upper Hinge Repair (Sheet 2 of 2)



REWORK INSTRUCTIONS

A. Remove speed brake door. Refer to T.O. 1F-106A-2-7-2-1 for procedure.

B. Remove all loose worn hinge bushings that do not have the required press fit.

C. Remove all bushings with ID exceeding 0.2500-inch plus 0.0017-inch minus 0.0000-inch service wear limits.

D. Using back-cutting reamer from the lower side, ream worn/elongated hinge pode holes in the speed brake door and/or hinge fittings as required to 0.3245 inch plus 0.0005 inch minus 0.0004 inch ID.

E. Fluorescent penetrant — inspect the hinge fitting and speed brake hinge for cracks and/or defects.

F. Treat rework hole cavities in accordance with T.O. 1F-106A-23.

G. Manufacture 0.012-inch oversize bushings (reference Drawing 8-74874) and install to an interference fit of 0.0005 – 0.0015-inch. Freeze bushings in dry ice alcohol solution 5 minutes prior to installation.

H. Reinstall speed brake doors (refer to T.O. 1F-106A-2-7-2-1 for procedure).

I. Install bushings as required in worn/elongated hinge cavities in lower hinge steel fitting, in accordance with above rework instructions (see Paragraph C for wear limits).

Note

Reinstall loose bushings not exceeding the wearout limits in paragraph C with loctite, Specification MIL-R-46082, Type 1, and locquic primer, Specification MIL-S-22473, Grade T, Form R.

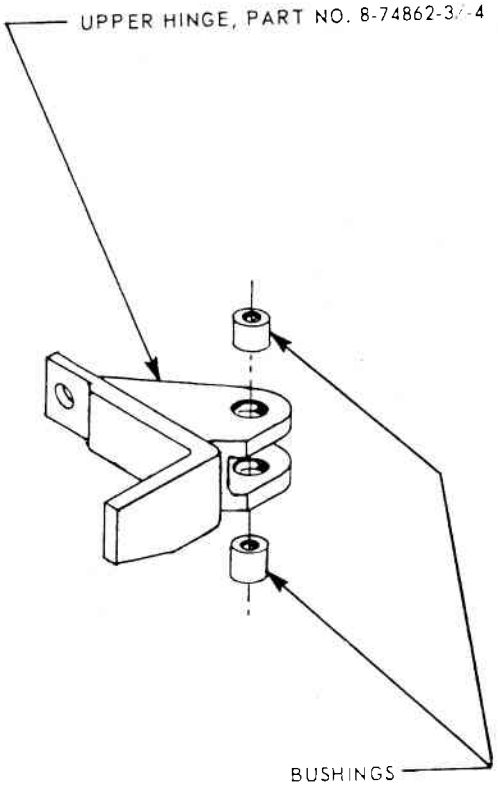


Figure 4-41G. Speed Brake Hinge **Bushing Repair** - F-**106 Aircraft**

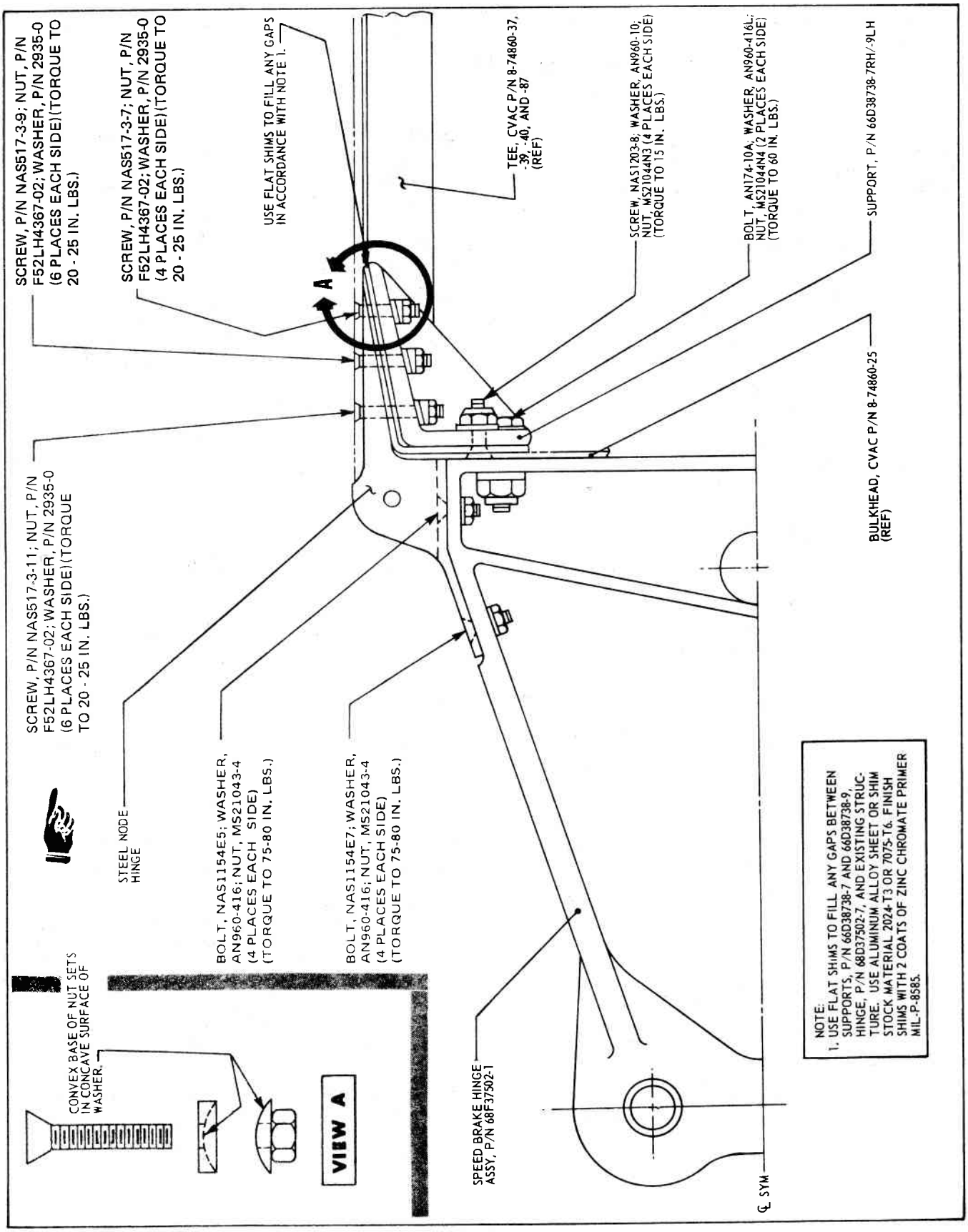
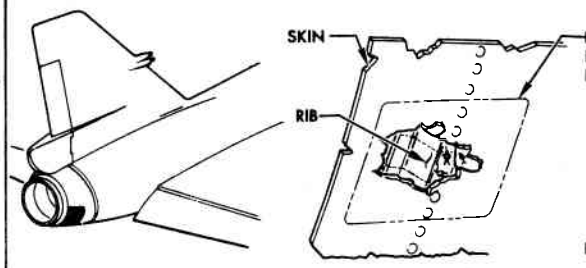
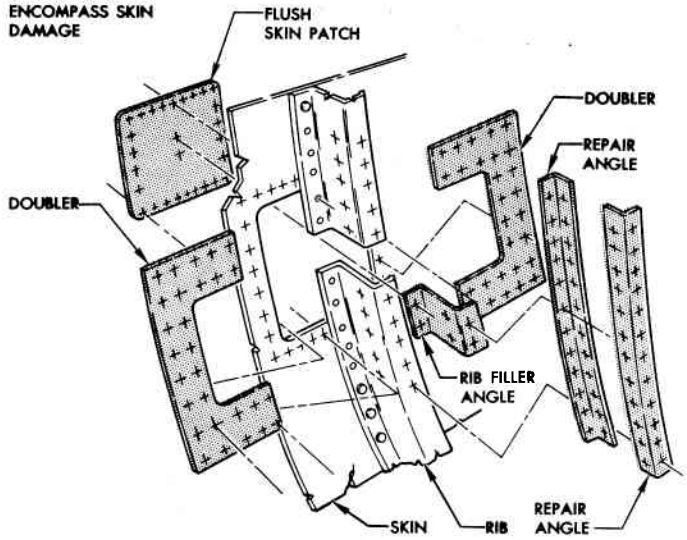


Figure 4-41H. Speed Brake Hinge Fitting Installation Hardware

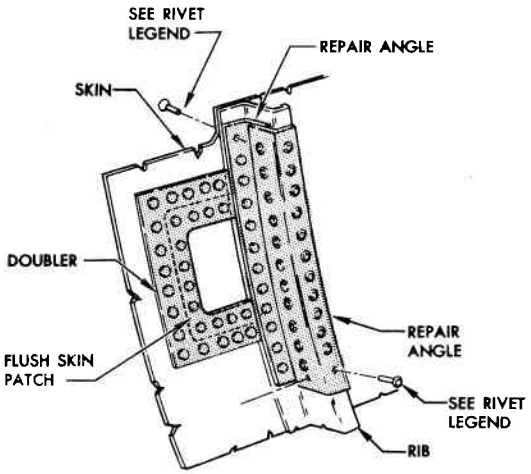
.06.03.153-1B



AREA OF ASSUMED DAMAGE



EXPLODED REPAIR
VIEW ROTATED 180°



ASSEMBLED REPAIR
VIEW ROTATED 180°

RIVET LEGEND	
INTERNAL RIVETS FWD. OF STA. 698,00	MS20470AD-4
INTERNAL RIVETS AFT. OF STA. 698,00	MS20615M-4
EXTERNAL RIVETS FWD. OF STA. 698,00	MS20426AD-4
EXTERNAL RIVETS AFT. OF STA. 698,00	MS20427M-3

REPAIR PROCEDURE

a. Remove the tail cone. Refer to T.O. 1F-106A-2-4-2-1 for tail cone removal procedure.
b. Locate the damage area and perform a fluorescent penetrant inspection to determine extent of damage. Refer to Section I for fluorescent penetrant inspection procedures and materials.

NOTE
IF DAMAGE IS IN PAINTED AREA OF TAIL CONE REMOVE PAINT. USE METHYL ETHYL KETONE, FEDERAL SPECIFICATION TT-M-261 FOR PAINT REMOVAL.

c. Using metal cutting hand shears, remove damaged portion of skin as shown.
d. Using metal cutting hand shears, remove damaged portion of rib as shown.
e. Fabricate repair parts as shown.

NOTE
REPAIR PARTS FORWARD OF STATION 698.00 ARE TO BE MADE FROM 2024-T81. REPAIR PARTS AFT OF STATION 698.00 ARE TO BE MADE FROM AMS4901 TITANIUM. ONE-QUARTER HARD 301 STAINLESS STEEL MAY BE USED AS AN ALTERNATE FOR AMS4901.

f. Install repair angles and hold in place with clamps.
g. Install rib filler angle and hold in place with clamps.
h. Using predrilled holes in repair angles and existing holes in the rib as a guide, perform drilling operation. Use a No. 30 (0.128) drill forward of station 698.00. Use a No. 39 (0.099) drill aft of station 698.00.
i. Remove repair parts and remove all burrs from repair parts and tail cone.

NOTE
IF REPAIR PARTS ARE MADE FROM ALUMINUM, REFER TO SECTION I FOR APPLICABLE PAINT FINISH.

j. Reinstall repair angles and hold in place with clecos.
k. Rivet repair angles together as shown.
l. Install doublers and hold in place with clamps.
m. Using predrilled holes in doublers as a guide, drill holes through existing skin. Use a No. 30 (0.128) drill forward of station 698.00. Use a No. 39 (0.099) drill aft of station 698.00.
n. Install flush skin patch.
o. Using predrilled holes in patch and existing holes in rib as a guide, perform drilling operation. Use a No. 30 (0.128) drill forward of station 698.00. Use a No. 39 (0.099) drill aft of station 698.00.
p. Remove doublers and patch and remove all burrs.

NOTE
SKIN REPAIRS FORWARD OF STATION 698.00 REQUIRE MACHINE COUNTERSUNK HOLES IN EXTERIOR SURFACE OF SKIN. SKIN REPAIRS AFT OF STATION 698.00 REQUIRE HOLES IN EXTERIOR SURFACE TO BE HEAT DIMPLED.

q. Reinstall doublers and patch and hold in place with clecos.
r. Rivet doublers and skin patch in place as shown.
s. Refer to applicable finish requirements in Section I if touch-up painting is required.
t. Reinstall tail cone. Refer to T.O. 1F-106A-2-4-2-1 for installation procedure.

.06.03.153-1B

Figure 4-42. Tail Cone Skin and Rib Repair (Sheet 1 of 2)

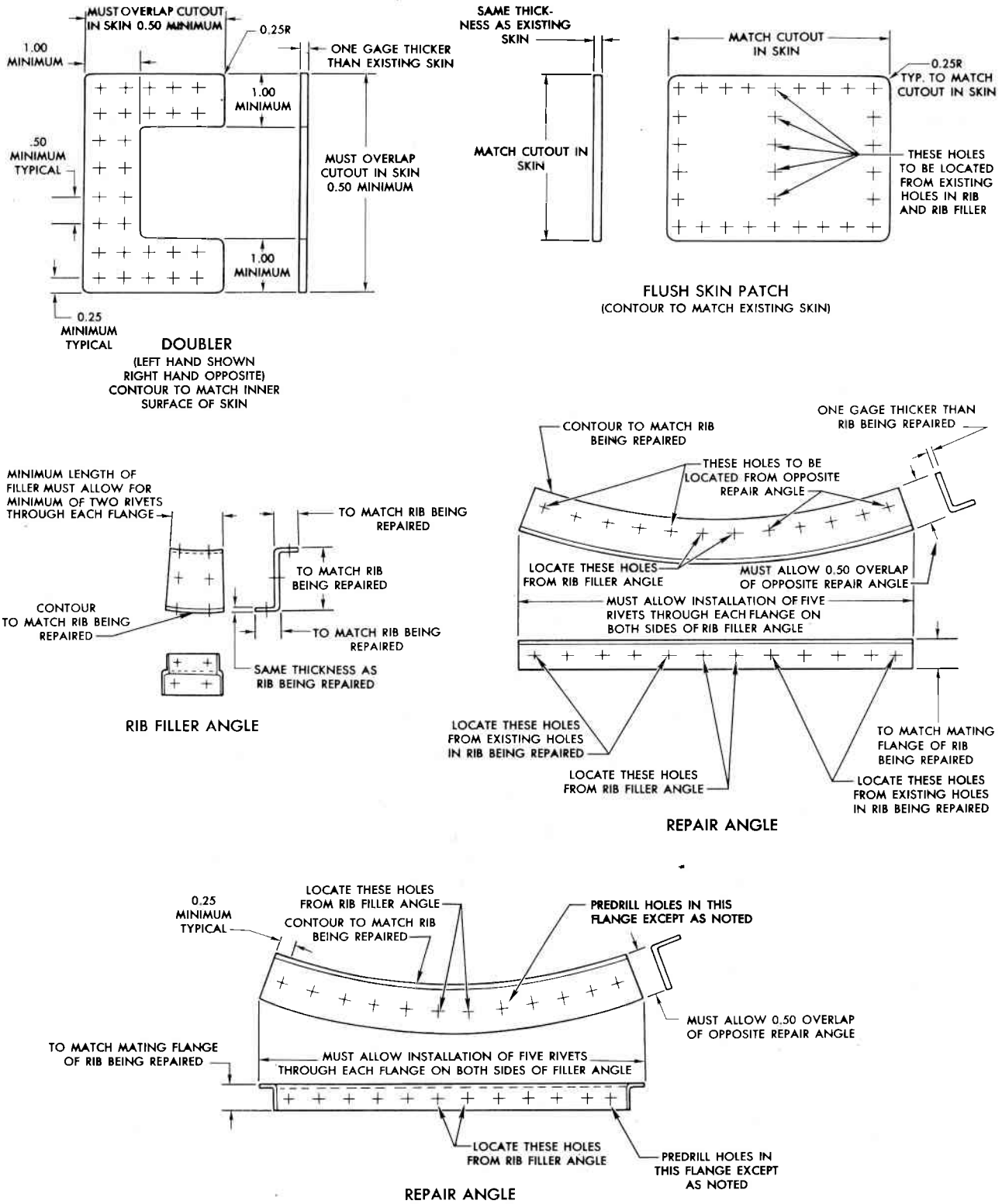
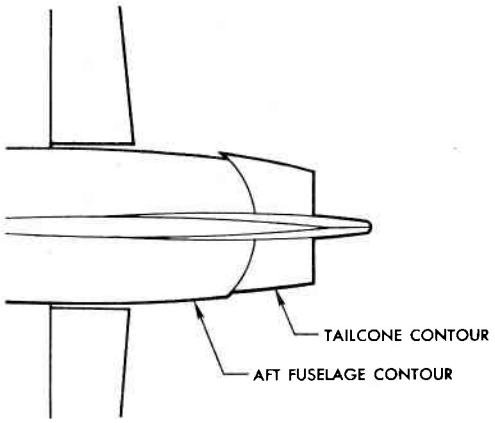


Figure 4-42. Tail Cone Skin and Rib Repair (Sheet 2 of 2)



VIEW A
(AREA OF MISMATCH)

REPAIR PROCEDURE

a. When tail cone is out of alignment with fuselage as shown in view A, shims must be added to tail cone structure as follows:

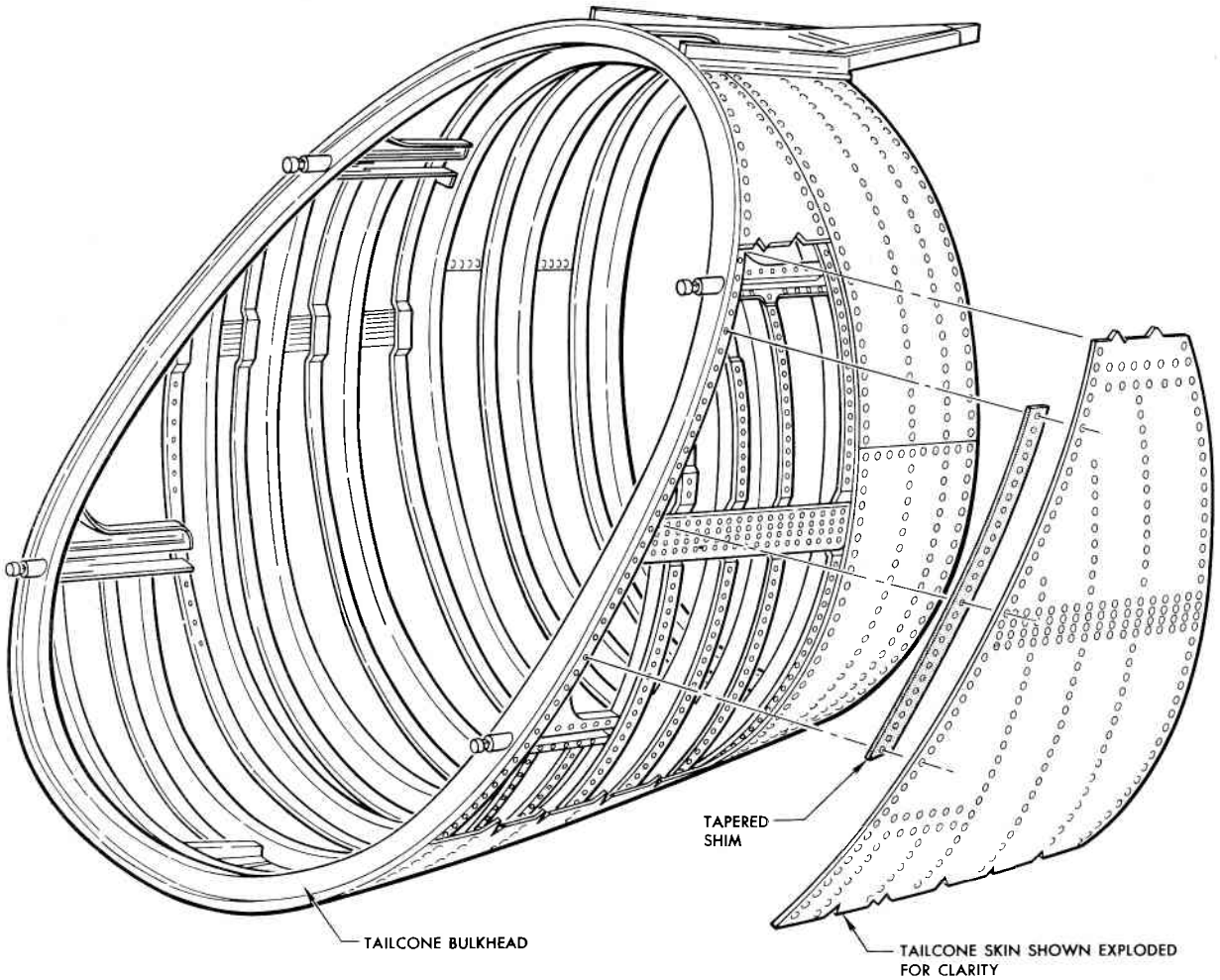
1. Drill out rivets from tail cone skin in area of misalignment.
2. Fabricate shims from 2024-T3 aluminum alloy. Taper shims as required to build up and align tail cone outer skin with fuselage contour.

CAUTION

TO PREVENT STRETCHING SKIN, SHIMS SHOULD NOT EXCEED 0.064" IN THICKNESS.

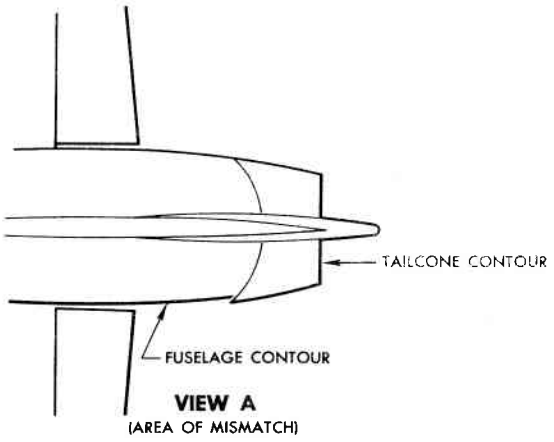
3. Insert shims between tail cone skin and bulkhead, and pick up rivet holes through shims from existing holes in skin.

NOTE
IF ANY RIVET HOLES HAVE BEEN MISALIGNED BECAUSE THE SHIM HAS BEEN ADDED, REDRILL HOLES FOR NEXT LARGER SIZE RIVETS.



.06.03.308-1 .53.15.03

Figure 4-43. Tail Cone Alignment (Sheet 1 of 2)



REPAIR PROCEDURE

a. When fuselage is out of alignment with tail cone as shown in view A, shims must be added to fuselage aft canted bulkhead as follows:

1. Drill out rivets from skin in area of misalignment.
2. Fabricate shims from 2024-T3 aluminum alloy. Taper shims as required to build up and align skin with tail cone.

CAUTION

TO PREVENT STRETCHING SKIN, SHIMS SHOULD NOT EXCEED 0.064" IN THICKNESS.

3. Insert shims between bulkhead and skin; pick up rivet holes from existing holes in skin and canted bulkhead.

NOTE

IF SHIM THICKNESS IS GREATER THAN 0.035", USE MS20427M4C RIVETS AS REPLACEMENT RIVETS. ■

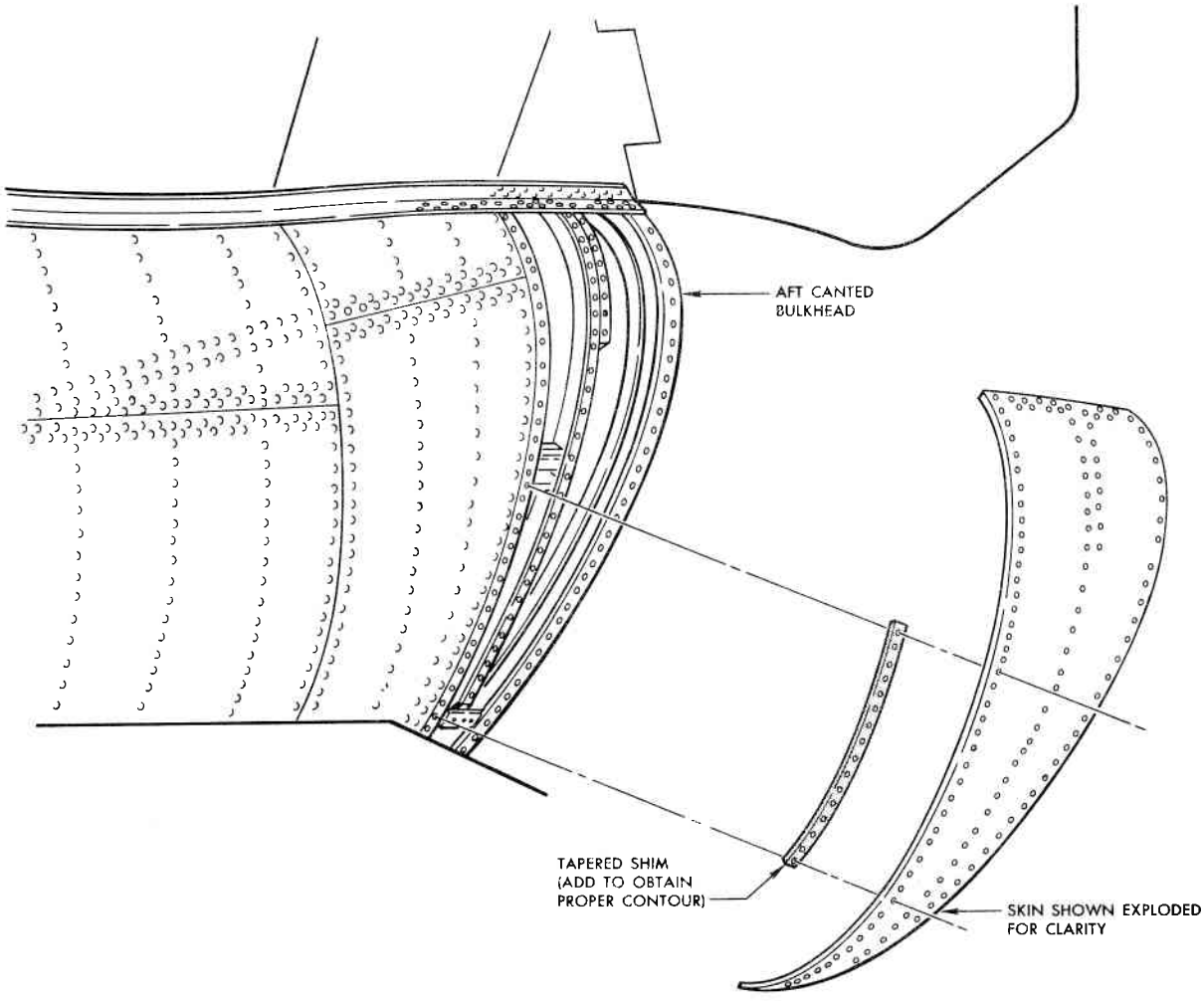


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Figure 4-43. Tail Cone Alignment (Sheet 2 of 2)

4-53 to 4-57. Deleted.

4-58. FUSELAGE LOADING/SHIPPING STAND PROCEDURES.

4-59. SHIPPING STAND PREPARATION.

a. Loosen wood cradle support stops to allow slight side movement of the cradle during fuselage loading. (The cradles must be free to slide to either side. The cradles may have to be moved manually to position snugly to aircraft contour.)

b. Install cable assembly, Part No. 7037480-50, to shipping stand on I-beam side as shown on Drawing 7037483, sheet 1 of 2.

c. Remove anchor, Part No. 7037479-10, from stand. The anchor is located on the right side of the stand at fuselage station 472.

d. Remove NLG. Installation hardware shall be kept handy for reuse.

e. Install Adapter, Part No. 7346939-10, to the 3 NLG connecting points using same hardware (as required) removed in step 4 above. Remove cable Part No. 7037480-70, from the adapter assembly to avoid its getting in the way during fuselage loading.

4-60. FUSELAGE PREPARATION.

a. Remove all projecting tubes, lines, and other attachments that may be damaged or will interfere during fuselage loading on stand.

b. Install adapters, Part No. 7037482-10 and -30, on fuselage wing attaching slots at fuselage station 363.90 as shown on Drawing 7037483. Use the same wing bolts and nuts.

c. Install fuselage lifting adapters, Part No. 7037481-10 and -30, per T.O. 1F-106-3, figure 1-65, sheet 2 of 3.

d. The F-106 Fuselage sling, Part No. 8-96039, FSN 1730-555-4599, already installed on 15-ton crane will be connected to fuselage adapters, Part No. 7037481-10 and -30. Use aircraft T.O. lifting procedures.

4-61. FUSELAGE LOADING.

a. Raise fuselage to remove fuselage support stands.

b. Lower fuselage to an approximate height of 3 feet from the ground.

c. Place stand parallel and to the right side of the fuselage. Slide the stand under the fuselage until the left side is directly under and parallel to the fuselage belly centerline.

d. Using two 10,000 LB forklifts, one each placed approximately 3 feet from the stand ends, raise stand from its' right side to approximately 45°. (The 45° angle on the stand is reached when the lower outside I-beam flange is 65 inches from the ground. This measurement shall be taken on both ends of the stand.)

e. Secure stand to forklifts with chains to prevent stand from sliding on the ground and/or slipping from the forklifts during fuselage loading. The chains shall have a little slack to allow the stand I-beam to roll on the forklift hooks as it is raised. The chain shall have grab hooks on both ends, to allow locking chain loops to hold stand to forklift.

CAUTION

Forklift hook ends must not extend more than 8 inches beyond I-beam flange, otherwise they may damage the fuselage.

The stand must be placed such to have the wood cradle supports as close to the respective fuselage bulkheads centerlines as possible.

g. As the fuselage is lowered to the stand, it must constantly be watched for bulkhead alignment, and fuselage contour fit to the stand wood support cutouts. One each alignment operator will be placed on the rear, front, and on the left side of the stand. The front and rear alignment operators will be responsible for seeing that the fuselage is placed snugly on the wood supports. The alignment operator on the left of the stand will be responsible for the placement of fuselage bulkhead centerline as close to the center of the wood supports.

h. Coordination of the three alignment operators is essential while lowering fuselage onto the stand.

All data on pages 4-74A thru 4-74D, deleted.

(5) Cleaning supplies: clean cotton rags (lint and oil free) or clean cheese cloth, wiping tissues, solvent dispensing cans (safety type), small plastic wash bottles, etc.

d. Process.

WARNING

- MEK is hazardous. Do not inhale the vapors from this volatile material and avoid skin contact. Wear protective gloves and face protection when applying this material.

- Pasa-Jell 105 is an acidic corrosive chemical. Any spill of this material should be immediately washed away with water. Residues may be treated with sodium bicarbonate to neutralize any remaining acid.

- The adhesive materials listed in paragraph b(3),, b.(4), and b.(8) contain chemicals and volatile ingredients known to be toxic and irritating to the skin and eyes. These adhesives can cause dermatitis if skin contact occurs. Avoid skin contact with these adhesives.

- Adequate local ventilation should be provided where the volatile material discussed in paragraph f.(1) is handled on work benches. If possible this material should not be used in the layup room. The ventilation system shall provide lateral exhaust ventilation of 100 feet/minute at the work bench. The type of ventilation system shall be coordinated with bioenvironmental Engineering prior to planning and installation.

- At the end of the day or after completion of the adhesive or solvent handling operations for the day, wash your hands thoroughly and then apply skin conditioner. Remember, cleanliness is the best defense against dermatitis.

- Accomplish all work in authorized/approved area with proper protection devices to safeguard health and safety. Environmental assessment has been made of this process.

NOTE

This process is abbreviated. Shop workers are assumed to be trained in structural adhesive bonding techniques.

(1) Remove the curved skin from the door.

(2) Mechanically abrade off the old adhesive from the faying surface around the honeycomb.

(3) Determine if hydraulic oil is present in the honeycomb by placing the stripped door, honeycomb side down, on absorbent paper in an oven at 200°F. Oil present, rupture the adhesive blocking off each cell with a scribe. Soak in clean Freon and drain. Repeat soak-drain cycle with new solvent until all trace of oil is gone (as indicated by oven test).

(4) Repair dents in honeycomb with EA-934.

(5) Sand the honeycomb surface so that the curved skin will conform.

(6) Cut and fit the aluminum skin and drill 5/32" rivet holes for alignment during assembly.

(7) Prepare doubler, Z-members, and spacer strips as required for repair of the door.

(8) Degrease and Pasa-Jell treat the inside of the skin and other aluminum parts. Do not Pasa-Jell pan and honeycomb.

(9) Move the pan with honeycomb and all cleaned aluminum parts to the lay-up room.

(10) Remove roll of expandable core adhesive from the cold box. Allow to come to room temperature and cut strips to fit into the grooves around the edges of the honeycomb. Wearing cotton gloves, remove the polyethylene protector from both sides of the film and place into the grooves.

(11) Remove roll of FMS-1013 Film Adhesive from the cold box and allow to warm to room temperature. Cut piece to fit the door. Remove the green protector from one side of adhesive and press adhesive into place. Cut off excess adhesive from the edges. Remove the other green protector.

(12) Punch through the film adhesive at 5/32" holes with a scribe to allow easy placement of alignment rivets. Insert the liner strip with its layer of film adhesive if required.

(13) Place the skin on the exposed film adhesive. Align the assembly with 5/32" rivets.

(14) Tape the curved metal plate to the bond form with Mystic tape. Place the door on the form and secure with hinge pins. Place the necessary doublers, patches, Z-members, etc.

(15) Proceed with the standard vacuum pack according to paragraph f.(4).

(16) Cure in the autoclave as follows:

Apply a uniformly distributed load of 45 ± 5 psi over the facing area during the cure cycle. Heat from room temperature to $350^{\circ} \pm 10^{\circ}$F at a uniform rate in 35 ± 5 minutes. Hold at $350^{\circ} \pm 10^{\circ}$F for 60 ± 10 minutes.

(17) Allow to cool, release vacuum when the temperature of the piece reaches 180°F and remove from the autoclave. Strip off the vacuum pack. Sand off the excess epoxy. Seal off the bleed holes with EA-934.

(18) Install the necessary brackets, strips, plates, hinges, and other hardware.

(19) Treat for corrosion using Alodine. Route to inspection and paint shop.

e. Inspection or Testing:

(1) Inspect the unit after bonding for voids using the auditory "coin tapping" method.

f. References.

(1) Standard Pasa-Jell Process for Treating Aluminum, Aluminum Alloys, and Titanium Prior to Adhesive Bonding. Ref T.O. 1F-111A-3.

(2) Quality Standard for Honeycomb Core Defects. (Ref General Dynamics Specification FPS-1017 and FPS-1009D.)

(3) Standard Process for Storing, Handling and Applying Film Adhesives and Preimpregs. (Ref General Dynamics Specification FMS-1009D, and FPS-1016B).

(4) Standard Vacuum Bag Process (Ref General Dynamics Specifications FPS-1009D, FPS-1016B and T.O. 1F-111A-2-2-1).

(5) Ram Air Door Assembly.

(a) Door assembly, Part No. 8-45958-31.

(b) Outer skin, Part No. 8-45958-7.

(c) Strip, Part No. 8-45958-11, -23.

(d) Pan, Part No. 8-45958-9.

(e) Plate, Part No. 8-45958-713.

(f) Core, Part No. 8-45958-17.

(g) Hinge, Part No. 8-45961.

4-58. FUSELAGE LOADING/SHIPPING STAND PROCEDURES.

4-59. SHIPPING STAND PREPARATION.

a. Loosen wood cradle support stops to allow slight side movement of the cradle during fuselage loading. (The cradles must be free to slide to either side. The cradles may have to be moved manually to position snugly to aircraft contour.)

b. Install cable assembly, Part No. 7037480-50, to shipping stand on I-beam side as shown on Drawing 7037483, sheet 1 of 2.

c. Remove anchor, Part No. 7037479-10, from stand. The anchor is located on the right side of the stand at fuselage station 472.

d. Remove NLG. Installation hardware shall be kept handy for reuse.

e. Install Adapter, Part No. 7346939-10, to the 3 NLG connecting points using same hardware (as required) removed in step 4 above. Remove cable Part No. 7037480-70, from the adapter assembly to avoid its getting in the way during fuselage loading.

4-60. FUSELAGE PREPARATION.

a. Remove all projecting tubes, lines, and other attachments that may be damaged or will interfere during fuselage loading on stand.

b. Install adapters, Part No. 7037482-10 and -30, on fuselage wing attaching slots at fuselage station 363.90 as shown on Drawing 7037483. Use the same wing bolts and nuts.

c. Install fuselage lifting adapters, Part No. 7037481-10 and -30, per T.O. 1F-106-3, figure 1-65, sheet 2 of 3.

d. The F-106 Fuselage sling, Part No. 8-96039, FSN 1730-555-4599, already installed on 15-ton crane will be connected to fuselage adapters, Part No. 7037481-10 and -30. Use aircraft T.O. lifting procedures.

4-61. FUSELAGE LOADING.

a. Raise fuselage to remove fuselage support stands.

b. Lower fuselage to an approximate height of 3 feet from the ground.

c. Place stand parallel and to the right side of the fuselage. Slide the stand under the fuselage until the left side is directly under and parallel to the fuselage belly centerline.

d. Using two 10,000 LB forklifts, one each placed approximately 3 feet from the stand ends, raise stand from its' right side to approximately 45°. (The 45° angle on the stand is reached when the lower outside I-beam flange is 65 inches from the ground. This measurement shall be taken on both ends of the stand.)

e. Secure stand to forklifts with chains to prevent stand from sliding on the ground and/or slipping from the forklifts during fuselage loading. The chains shall have a little slack to allow the stand I-beam to roll on the forklift hooks as it is raised. The chain shall have grab hooks on both ends, to allow locking chain loops to hold stand to forklift.

CAUTION

Forklift hook ends must not extend more than 8 inches beyond I-beam flange, otherwise they may damage the fuselage.

The stand must be placed such to have the wood cradle supports as close to the respective fuselage bulkheads centerlines as possible.

g. As the fuselage is lowered to the stand, it must constantly be watched for bulkhead alignment, and fuselage contour fit to the stand wood support cutouts. One each alignment operator will be placed on the rear, front, and on the left side of the stand. The front and rear alignment operators will be responsible for seeing that the fuselage is placed snugly on the wood supports. The alignment operator on the left of the stand will be responsible for the placement of fuselage bulkhead centerline as close to the center of the wood supports.

h. Coordination of the three alignment operators is essential while lowering fuselage onto the stand.

i. The wood supports shall be watched very closely so that they may be shifted to either side as required.

j. Once the fuselage mates the stand, connect two cables, Part No. 7037480-30, to adapter, Part No. 7037482-10, and to the two lugs welded at a 45° angle on the stand left side I-beam. (Reference drawing 7037483 sheet 1 of 2.) Leave cable with one inch slack.

k. Connect 2 each cable assembly, Part No. 7037480-50, to adapter, Part No. 7037482-30.

l. Connect 2 each cable assembly, Part No. 7037480-10, between adapter, Part No. 7037481-10, and I-beam lug at fuselage station 472. Leave cable with one inch slack.

m. The fuselage will then be lowered slightly loading fuselage on the cradle. The stand will then slowly be lowered by the forklifts. As the stand is lowered, the crane operator will coordinate lowering of the fuselage and at the same time adding a little side load by moving the crane forward to help the fuselage roll with the stand and to keep the fuselage sling legs from contacting the fuselage.

NOTE

The crane forward movement must be controlled to prevent aircraft sling from coming in contact with the fuselage.

n. Remove forklifts when stand sits flat on the ground.

o. Release (slowly) all tension from the fuselage sling.

p. Remove fuselage sling.

q. Check tilt indicator on adapter, Part No. 7037482-10, located at fuselage station 363 left side. The tilt should be very close to 45°.

r. Install anchor, Part No. 7037479-10, to adapter, Part No. 7037481-30 in accordance with Drawing 7037483, sheet 3 of 3. Mount adapter, Part No. 7037479-10, to I-beam in accordance with Drawing 7037483, sheet 1 of 2. Washers, Part No. MS122044, will be used as shims as required.

s. Install cable Part No. 7037480-70 to adapter Part No. 7346939-10. To connect cable to stand drill a 3/4 diameter hole to stand I-beam or cross channel. The hole shall be located such to keep the cable in-line with the adapter and to allow installation with a little room for cable final adjustment.

t. Remove tail hook at station 520. Save hardware. Install adapter, Part No. 7346952-10, on tail hook bolt. The adapter ears shall be positioned to face aft and to project away from fuselage. Add cable assembly, Part No. 7037480-90, to the adapter. Connect cables to the stand by drilling 3/4 diameter holes to the I-beam outer top flange. Angle of holes shall be as required. The location of the holes shall be such to keep the cables as close aligned to adapter ear angle and to allow connection to the I-beam and have slack for final adjustment.

u. Tighten all cables tautly.

v. Tighten all nuts.

w. Tighten all wood cradle support stops.

i. The wood supports shall be watched very closely so that they may be shifted to either side as required.

j. Once the fuselage mates the stand, connect two cables, Part No. 7037480-30, to adapter, Part No. 7037482-10, and to the two lugs welded at a 45° angle on the stand left side I-beam. (Reference drawing 7037483 sheet 1 of 2.) Leave cable with one inch slack.

k. Connect 2 each cable assembly, Part No. 7037480-50, to adapter, Part No. 7037482-30.

l. Connect 2 each cable assembly, Part No. 7037480-10, between adapter, Part No. 7037481-10, and I-beam lug at fuselage station 472. Leave cable with one inch slack.

m. The fuselage will then be lowered slightly loading fuselage on the cradle. The stand will then slowly be lowered by the forklifts. As the stand is lowered, the crane operator will coordinate lowering of the fuselage and at the same time adding a little side load by moving the crane forward to help the fuselage roll with the stand and to keep the fuselage sling legs from contacting the fuselage.

NOTE

The crane forward movement must be controlled to prevent aircraft sling from coming in contact with the fuselage.

n. Remove forklifts when stand sits flat on the ground.

o. Release (slowly) all tension from the fuselage sling.

p. Remove fuselage sling.

q. Check tilt indicator on adapter, Part No. 7037482-10, located at fuselage station 363 left side. The tilt should be very close to 45°.

r. Install anchor, Part No. 7037479-10, to adapter, Part No. 7037481-30 in accordance with Drawing 7037483, sheet 3 of 3. Mount adapter, Part No. 7037479-10, to I-beam in accordance with Drawing 7037483, sheet 1 of 2. Washers, Part No. MS122044, will be used as shims as required.

s. Install cable Part No. 7037480-70 to adapter Part No. 7346939-10. To connect cable to stand drill a 3/4 diameter hole to stand I-beam or cross channel. The hole shall be located such to keep the cable in-line with the adapter and to allow installation with a little room for cable final adjustment.

t. Remove tail hook at station 520. Save hardware. Install adapter, Part No. 7346952-10, on tail hook bolt. The adapter ears shall be positioned to face aft and to project away from fuselage. Add cable assembly, Part No. 7037480-90, to the adapter. Connect cables to the stand by drilling 3/4 diameter holes to the I-beam outer top flange. Angle of holes shall be as required. The location of the holes shall be such to keep the cables as close aligned to adapter ear angle and to allow connection to the I-beam and have slack for final adjustment.

u. Tighten all cables tautly.

v. Tighten all nuts.

w. Tighten all wood cradle support stops.

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All data on pages 4-76 thru 4-79, including figures 4-44 thru 4-46, deleted.

TABLE 4-I

Negligible Damage Limits — Fuselage Group

COMPONENT	TYPE AND CLASS OF DAMAGE ALLOWED AFTER REWORK					REMARKS
	Scratch	Nick	Dent	Hole	Crack	
FUSELAGE PLATING						
A-110AT—Titanium	I	I	I	*	*	
AZ31A—Magnesium	I	I	I	*	*	
2024-T6 Clad	I	I	I	*	*	
2024-T81 Bare	I	I	I	*	*	
7178-T6 Bare	I	I	I	*	*	
MAIN BULKHEADS—STATIONS 40.89 TO 711.40 FOR F-106A						
Station 40.89 Channel	II	II	*	I	I	
Station 59.31 Web	III	III	III	II	II	
Stiffeners	III	III	I	III	III	
Station 102.00 Web	II	III	III	II	II	
Zees	II	II	I	I	I	
Angles	II	II	*	I	I	
Station 162.90 Doublers	II	III	III	II	II	
Webs	II	III	III	II	II	
Zees	II	II	I	I	I	
Angles	II	II	*	I	I	
Channels	II	II	I	I	I	
Station 216.50 Webs	II	III	III	II	II	
Doublers	II	III	III	II	II	
Tees	II	II	*	I	I	
Zees	II	II	I	I	I	
Angles	II	II	*	I	I	
Station 253.00 Web	II	III	III	II	II	
Angles	II	II	*	I	I	
Stiffeners	III	III	I	III	III	
Station 316.00 Webs	II	II	III	II	II	
Doubler	II	II	III	II	II	
Rails	I	I	I	I	I	
Inner Strap	I	I	I	I	I	
Angles	II	II	I	I	I	
Stiffeners	III	III	I	III	III	

*Component must be repaired or replaced.

*U.S. GOVERNMENT PRINTING OFFICE: 1982-669-062/4334 Region 7.

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TOOL FUNCTION

To mate the fuselage central barrel section to the fuselage nose section and fuselage aft barrel section.

OPTICAL TOOLING EQUIPMENT REQUIRED

a. One Jig Transit
b. One Sight Level.
c. Two Optical Squares.
d. Two M8J 172 TOAC.
e. Two Alignment Telescopes.
f. Two 2¼-inch diameter targets with light source.
g. Four 3½-inch diameter Spherical Balls.
h. One 1½-inch diameter Plastic Target on Pin.
i. Two 1½-inch diameter Plastic Targets.
j. One precision white face scale (Keuffel & Esser No. 7092 or equivalent).
k. One 12-inch Master Spirit Level.
l. One set of 30-foot inside Micrometers.

l. One set of 30-inch inside Micrometers.

MASTERING PROCEDURE

a. Level fixture and establish alternate line of sight as follows:
   (1) Set up sight level to one side of fixture.
   (2) Refer to Section I for leveling procedures using the sight level.
   (3) Establish a horizontal plane between points A, B, C and D so as to establish the alternate line of sight (ALOS) at WL -48.00 and BL 465.00, left-and right-hand sides.

NOTE

THE ALOS WILL BE USED TO MAINTAIN FIXTURE ALIGNMENT.

BASIC LINE OF SIGHT

b. Establish a basic line of sight (BLOS) as follows:
   (1) Install adjustable cup mounts at points E, F, G and H.
   (2) Install alignment telescopes at points E and F with spherical balls.
   (3) Install targets with light source in spherical balls at points G and H.

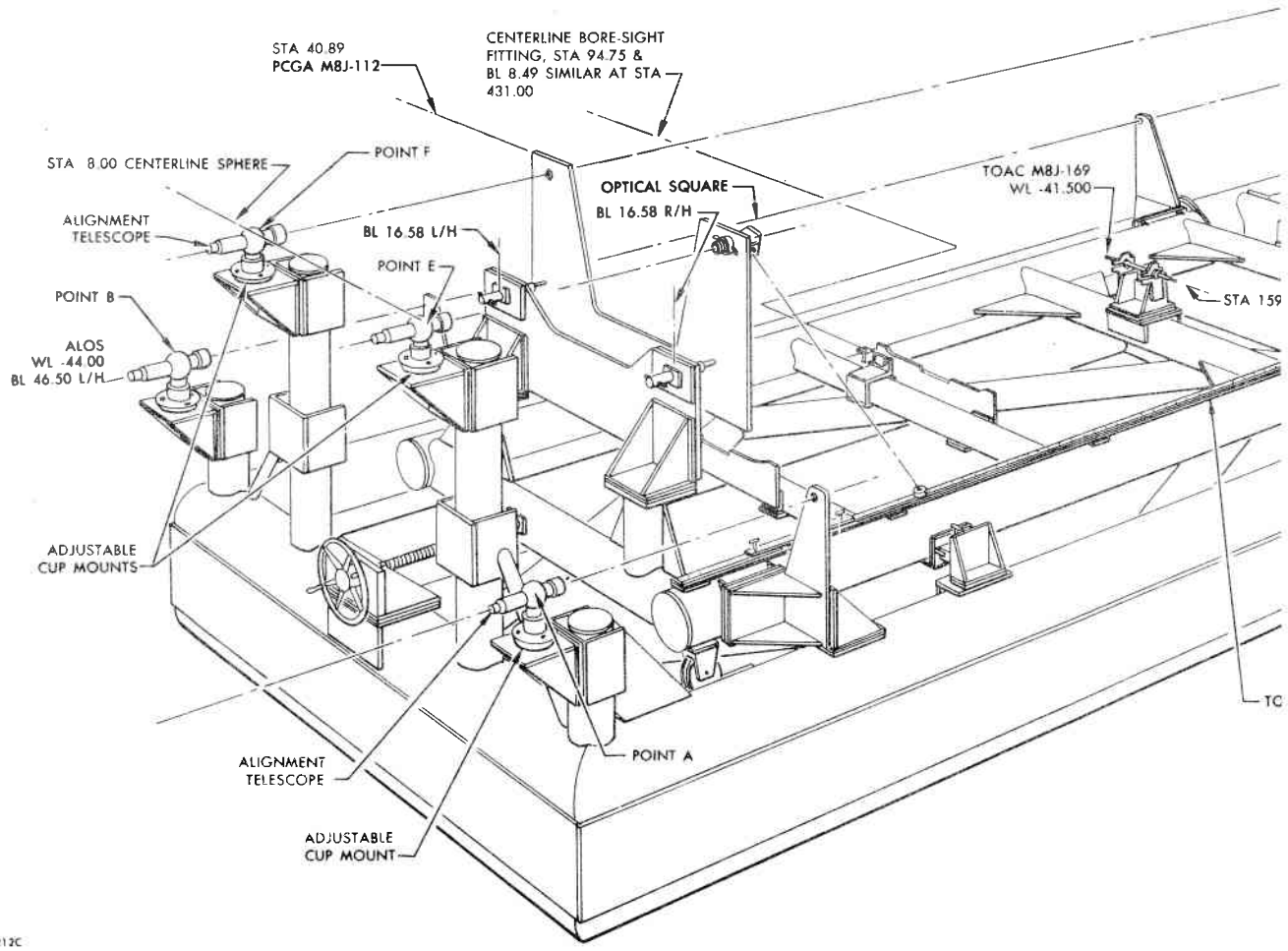
Center l
on static
measure
c. Use
spre
poin
d. Posi
plat
e. Use
brin
f. Usin
stati

STA 472.00,

STA 431.00, CENTERLINE SPAR 3, TOAC M8J-163-3 FCGA (800098)

STA 363.90, CENTERLINE SPAR 2, TOAC M8J-163-2 FCGA (800096)

STA 316.00, CENTERLINE SPAR 1, TOAC M8J-163-1 FCGA (800094)



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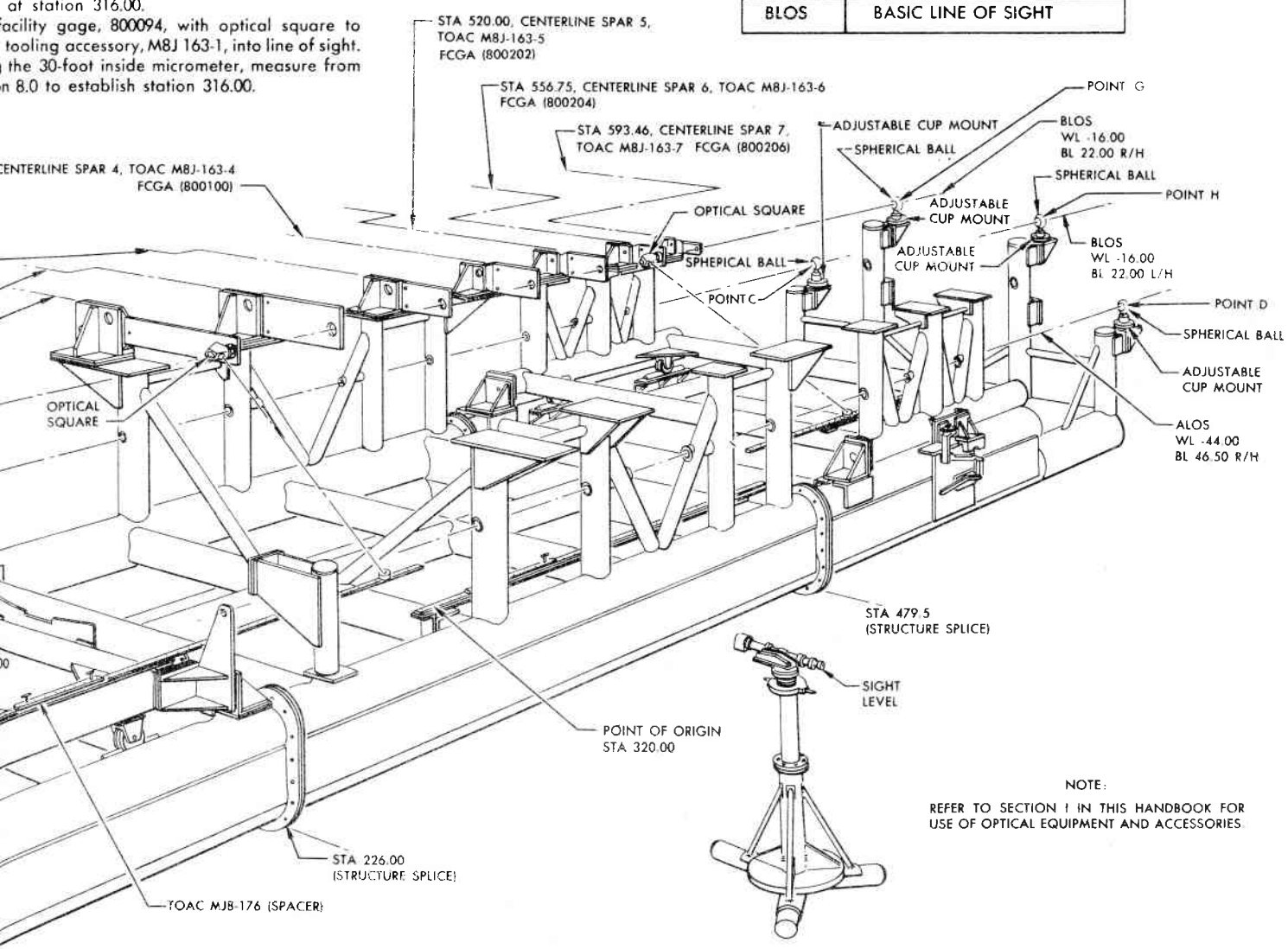
ne of spherical balls at points E and F to be
n 8.00. This establishes the basis for all linear
ment.
facility gage M8J-112, to control 44.000 inch
d between points E and F, and between
s G and H.
on tooling accessory M8J 163-1 and angle
at station 316.00.
facility gage, 800094, with optical square to
tooling accessory, M8J 163-1, into line of sight.
the 30-foot inside micrometer, measure from
n 8.0 to establish station 316.00.

LEGEND	
TOAC	TOOLING ACCESSORY
FCGA	FACILITY GAGE
TOGA	TOOLING GAGE
ALOS	ALTERNATE LINE OF SIGHT
BLOS	BASIC LINE OF SIGHT



NOTE:
REFER TO SECTION I IN THIS HANDBOOK FOR USE OF OPTICAL EQUIPMENT AND ACCESSORIES.

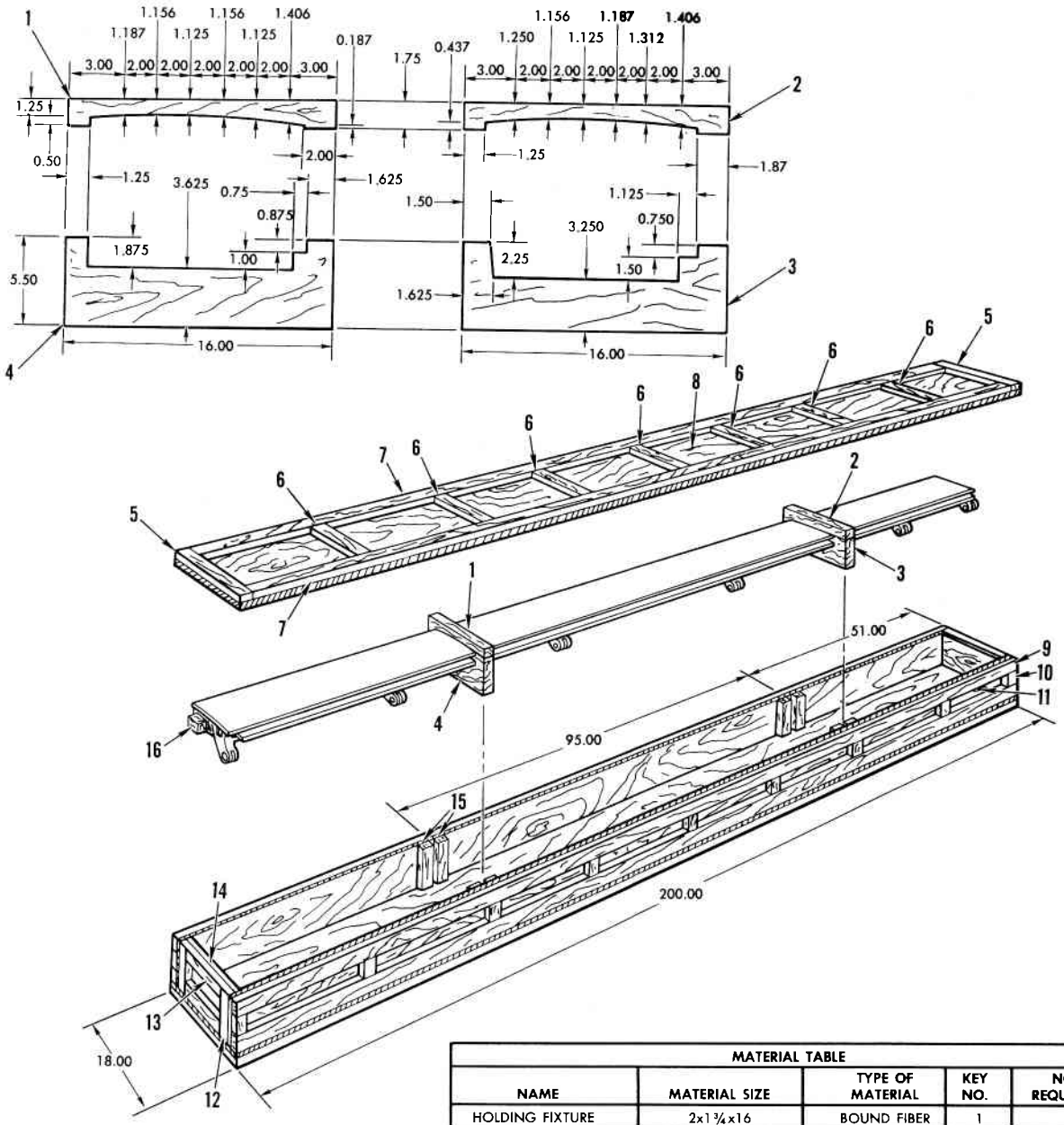
C M8J-175 (TOOLING BAR)

g. Using the 12-inch master spirit level, check the equipment at station 316.000 for rotation.
h. With optical square attached to locating surface of facility gage, 800206, mount facility gage on forward surface of tooling accessory, M8J 163-7.
   (1) Mount tooling accessory M8J 163-7, at station 593.46.
   (2) Bring optical square into the basic line of sight and check for rotation with the 12-inch master spirit level.
   (3) Position facility gage for station location with optical square directed at tooling bar. Use white face scale for accurate measurement.
i. Repeat procedure outlined in step "h.(3)" to position tooling accessories and facility gages at stations 363.900, 431.000, 472.000, 520.000 and 556.750.

Recheck station 316.000.

NOTE
ACCOMPLISHMENT OF STEPS "d" THROUGH "g" ESTABLISHES THE WING TO FUSELAGE ATTACH POINTS.

Figure 4-44. Master Tooling — Fuselage Mating



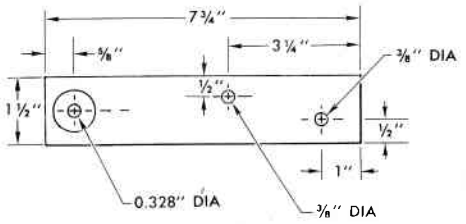
MATERIAL TABLE				
NAME	MATERIAL SIZE	TYPE OF MATERIAL	KEY NO.	NO. REQUIRED
HOLDING FIXTURE	2x1 3/4x16	BOUND FIBER	1	1
HOLDING FIXTURE	2x1 3/4x16	BOUND FIBER	2	1
HOLDING FIXTURE	2x5 1/2x16	BOUND FIBER	3	1
HOLDING FIXTURE	2x5 1/2x16	BOUND FIBER	4	1
CROSS CLEAT	3/4x1 3/4x18	PLYWOOD	5	4
FILLER CLEAT	3/4x1 3/4x14 1/2	LUMBER	6	14
LONGERON CLEAT	3/4x1 3/4x196 1/2	LUMBER	7	4
PANEL	1/4x18x200	PLYWOOD	8	2
LONGERON CLEAT	3/4x1 3/4x200	LUMBER	9	4
VERTICAL CLEAT	1 5/8x1 3/4x3 3/4	LUMBER	10	18
PANEL	1/4x7 1/4x200	PLYWOOD	11	2
VERTICAL CLEAT	3/4x1 3/4x7 1/4	LUMBER	12	4
PANEL	1/4x7 1/4x200	PLYWOOD	13	2
HORIZONTAL CLEAT	3/4x1 3/4x12 1/2	LUMBER	14	4
BLOCK	1 5/8x2 1/2x5 1/2	LUMBER	15	2
CLEAT	3/4x1 3/4x7 1/4	LUMBER	16	8

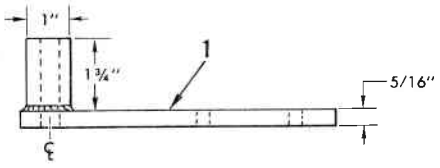
NOTE:

PAD ALL POINTS OF CONTACT OF PART AND CRATE WITH PAPER, SPECIFICATION MIL-B-121, GRADE A, AND DUNNAGE, FEDERAL SPECIFICATION PPP-C-843, TYPE III.

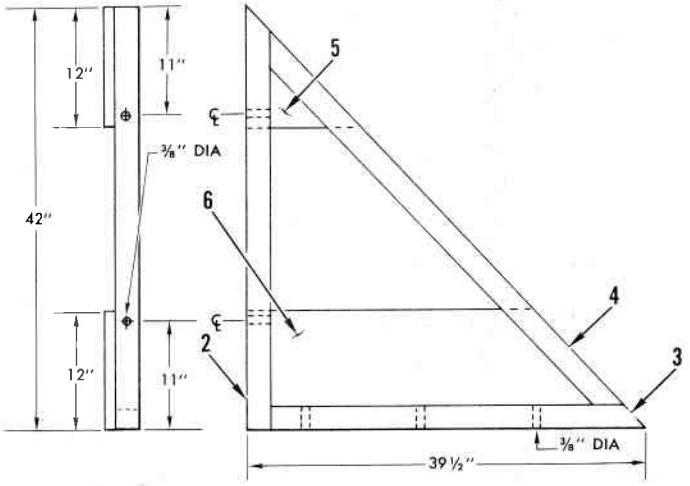
06.03.254B

Figure 4-45. Packing and Crating — Missile Bay Door

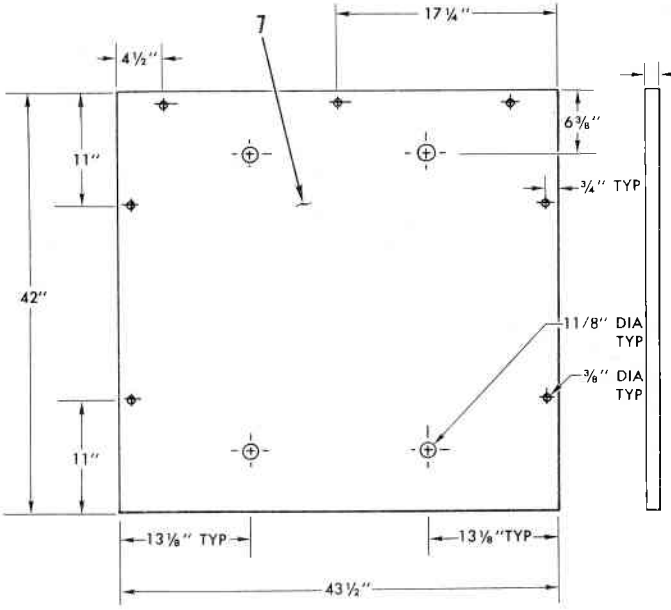




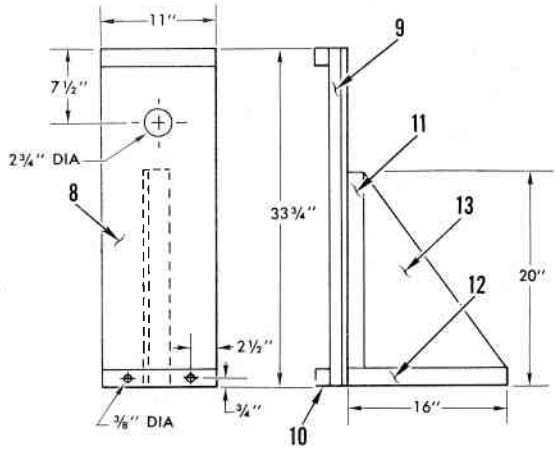
DETAIL 1



DETAIL 2



DETAIL 3

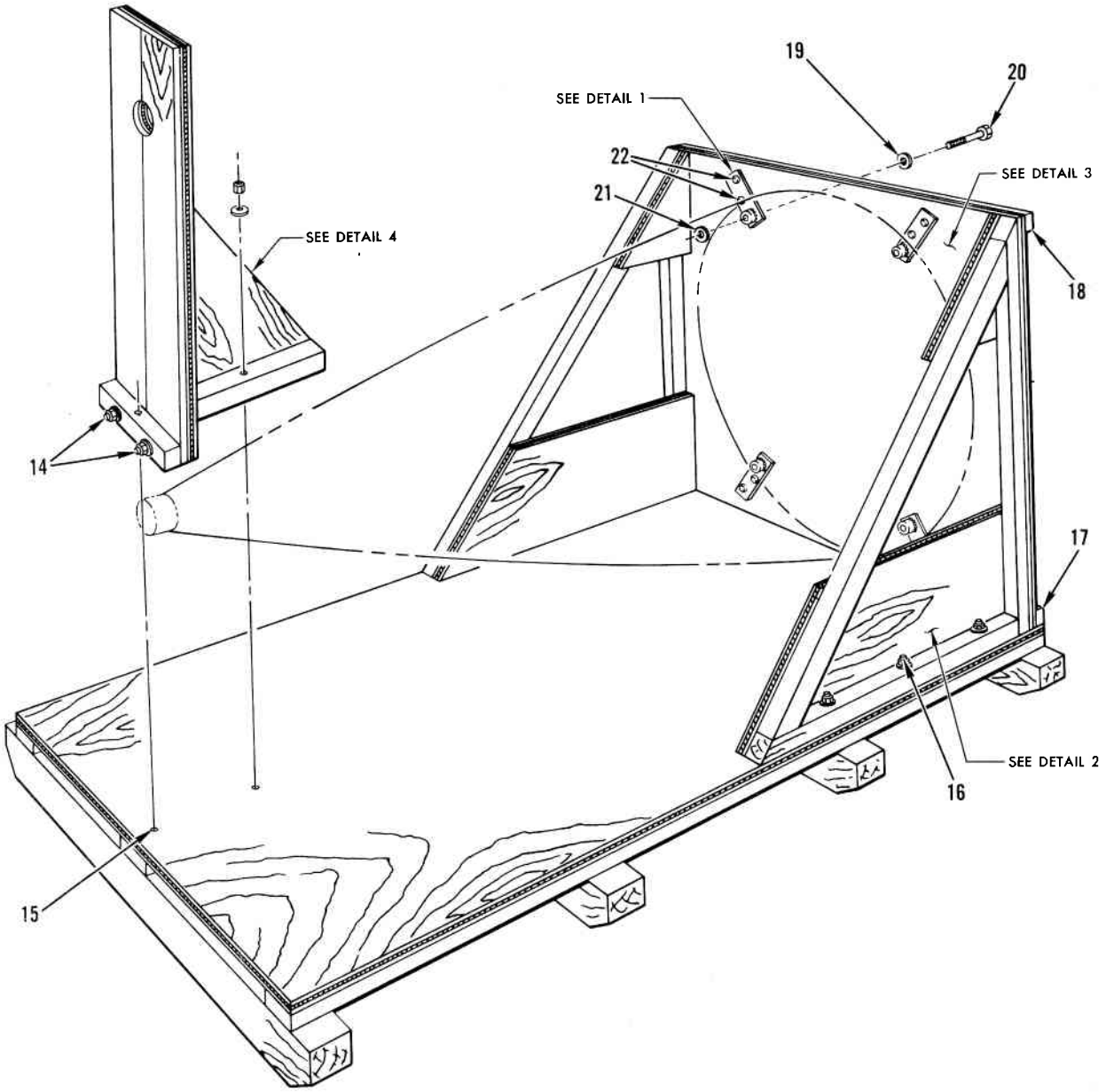


DETAIL 4

MATERIALS				
NAME	DESCRIPTION	TYPE	PART NO.	NO. REQUIRED
MOUNTING BRACKET		STEEL	1	4
VERTICAL SUPPORT MEMBER	1-⅝" x 1-⅝" x 42"	LUMBER	2	2
HORIZONTAL SUPPORT MEMBER	1-⅝" x 1-⅝" x 39-½"	LUMBER	3	3
DIAGONAL SUPPORT MEMBER	1-⅝" x 1-⅝" x 54"	LUMBER	4	2
REINFORCING PLATE	⅜" x 12" x 12"	PLYWOOD	5	2
REINFORCING PLATE	⅜" x 12" x 39-½"	PLYWOOD	6	2
MOUNTING PLATE	¾" x 42" x 43½"	PLYWOOD	7	1
FRONT SUPPORT MEMBER	¾" x 5-½" x 33-¾"	LUMBER	8	2
FRONT SUPPORT PLATE	5/16" x 11" x 33-¾"	PLYWOOD	9	2
FRONT SUPPORT CLEAT	1-⅝" x 1-⅝" x 11"	LUMBER	10	2
VERTICAL MEMBER	1-⅝" x 1-⅝" x 18-¾"	LUMBER	11	1
HORIZONTAL MEMBER	1-⅝" x 1-⅝" x 16"	LUMBER	12	1
REINFORCING PLATE	5/16" x 16" x 20"	PLYWOOD	13	1

.06.03.280-1 .53.01.04

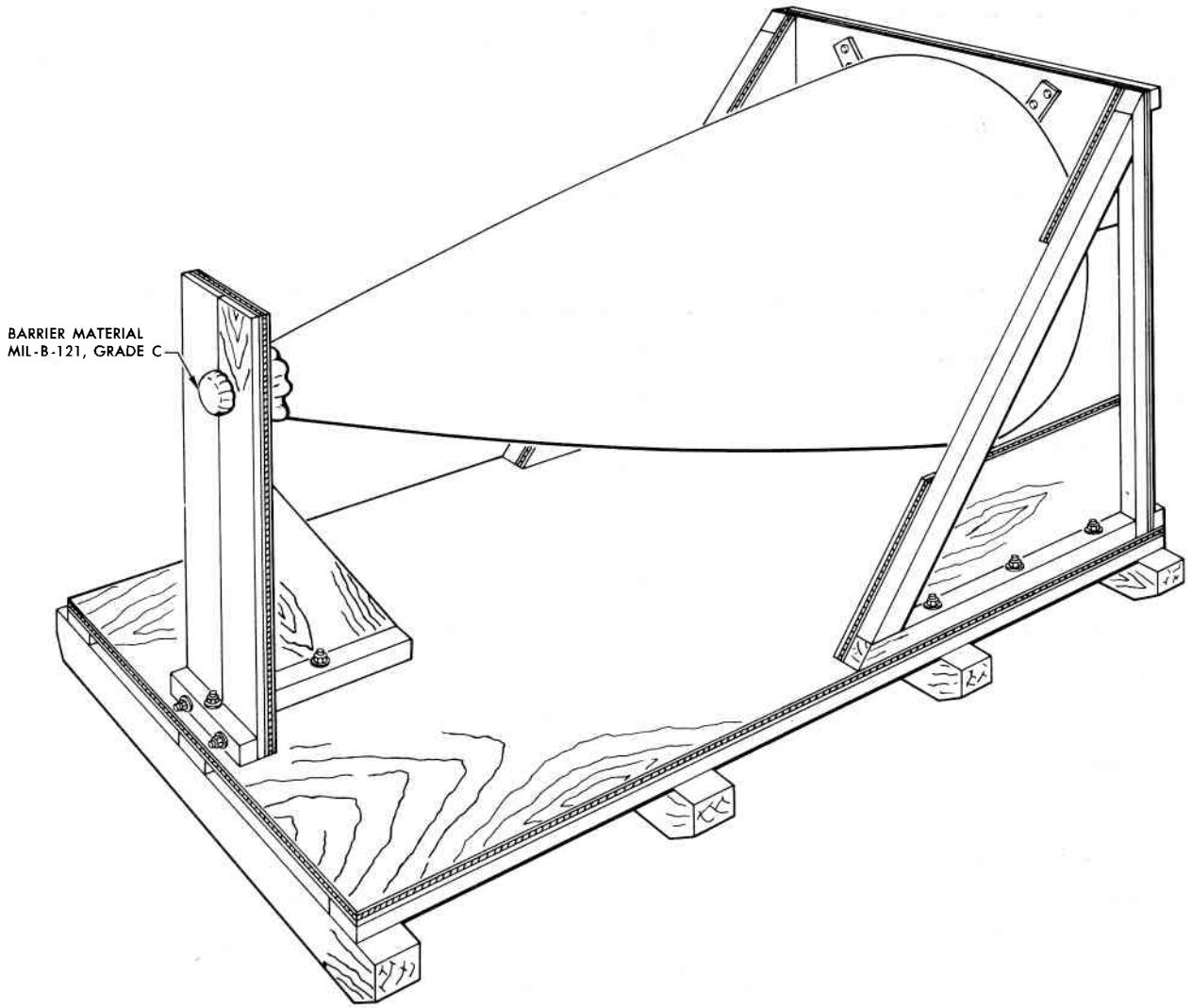
Figure 4-46. Packing and Crating — Radome (Sheet 1 of 3)



MATERIALS				
NAME	DESCRIPTION	TYPE	PART NO.	NO. REQUIRED
CARRIAGE BOLT	⅜" x 3"	STEEL	14	9
CARRIAGE BOLT	⅜" x 6"	STEEL	15	6
CARRIAGE BOLT	⅜" x 4-¼"	STEEL	16	5
LOAD BEARING MEMBER	1-⅜" x 1-⅜" x 43-½"	LUMBER	17	1
STIFFENER CLEAT	1-⅜" x 1-⅜" x 43-½"	LUMBER	18	1
WASHER	1" OD x 11/32" ID x 1/16"	STEEL	19	4
AIRCRAFT BOLT	5/16" x 24"	STEEL	20	4
WASHER	1" OD x 11/32" ID x 1/16"	STEEL	21	4
CARRIAGE BOLT	⅜" x 1-¾"	STEEL	22	8

.06.03.280-2A .53.01.04

Figure 4-46. Packing and Crating — Radome (Sheet 2 of 3)



.06.03.280-3 .53.01.04

Figure 4-46. Packing and Crating — Radome (Sheet 3 of 3)

TABLE 4-I

Negligible Damage Limits — Fuselage Group

COMPONENT	TYPE AND CLASS OF DAMAGE ALLOWED AFTER REWORK					REMARKS
	Scratch	Nick	Dent	Hole	Crack	
FUSELAGE PLATING						
A-110AT—Titanium	I	I	I	*	*	
AZ31A—Magnesium	I	I	I	*	*	
2024-T6 Clad	I	I	I	*	*	
2024-T81 Bare	I	I	I	*	*	
7178-T6 Bare	I	I	I	*	*	
MAIN BULKHEADS—STATIONS 40.89 TO 711.40 FOR F-106A						
Station 40.89 Channel	II	II	*	I	I	
Station 59.31 Web	III	III	III	II	II	
Stiffeners	III	III	I	III	III	
Station 102.00 Web	II	III	III	II	II	
Zees	II	II	I	I	I	
Angles	II	II	*	I	I	
Station 162.90 Doublers	II	III	III	II	II	
Webs	II	III	III	II	II	
Zees	II	II	I	I	I	
Angles	II	II	*	I	I	
Channels	II	II	I	I	I	
Station 216.50 Webs	II	III	III	II	II	
Doublers	II	III	III	II	II	
Tees	II	II	*	I	I	
Zees	II	II	I	I	I	
Angles	II	II	*	I	I	
Station 253.00 Web	II	III	III	II	II	
Angles	II	II	*	I	I	
Stiffeners	III	III	I	III	III	
Station 316.00 Webs	II	II	III	II	II	
Doubler	II	II	III	II	II	
Rails	I	I	I	I	I	
Inner Strap	I	I	I	I	I	
Angles	II	II	I	I	I	
Stiffeners	III	III	I	III	III	

*Component must be repaired or replaced.

TABLE 4-I

Negligible Damage Limits — Fuselage Group (Cont)

COMPONENT	TYPE AND CLASS OF DAMAGE ALLOWED AFTER REWORK					REMARKS
	Scratch	Nick	Dent	Hole	Crack	
MAIN BULKHEADS—STATIONS 40.89 TO 711.40 FOR F-106A (cont)						
Channels	II	II	I	I	I	
Station 365.90 Webs	II	II	III	II	II	
Rails	I	I	I	I	I	
Angles	II	II	I	I	I	
Stiffeners	III	III	I	III	III	
Channels	II	II	I	I	I	
Station 412.00 Webs	II	II	III	II	II	
Doublers	II	II	III	II	II	
Inner Strap	I	I	*	I	I	
Angles	I	I	*	I	I	
Zees	I	I	I	I	I	
Station 431.00 and 472.00 Webs	II	II	III	II	II	See Figure 9-8
Splice Angles	I	I	*	*	I	
Splice Strap	I	I	*	*	I	
Intercostal	II	II	II	II	II	
Station 520.00 Splice Angles	I	I	Refer to an Aeronautical Structural Engineer			
Plates	I	I	I	I	I	
Straps	I	I	*	I	I	
Station 593.46 Webs	II	II	III	II	II	
Rails	I	I	*	I	I	
Stiffeners	III	III	I	III	III	
Straps	I	I	*	I	I	
Station 614.80 Rails	I	I	*	I	I	
Splice Plates	I	I	*	I	I	
Webs	II	II	III	II	II	
Splice Angles	I	I	*	I	I	
Stiffeners	III	III	I	III	III	
Station 645.38 Rails	I	I	*	I	I	
Splice Straps	I	I	*	I	I	
Splice Plates	I	I	*	I	I	

*Component must be repaired or replaced.

TABLE 4-I

Negligible Damage Limits — Fuselage Group (Cont)

COMPONENT	TYPE AND CLASS OF DAMAGE ALLOWED AFTER REWORK					REMARKS
	Scratch	Nick	Dent	Hole	Crack	
MAIN BULKHEADS—STATIONS 40.89 TO 711.40 FOR F-106A (cont)						
Splice Angles	I	I	*	I	I	
Webs	II	II	III	II	II	
Stiffeners	III	III	I	III	III	
Station 672.38 Rails	I	I	*	I	I	
Splice Straps	I	I	*	I	I	
Splice Plates	I	I	*	I	I	
Splice Angles	I	I	*	I	I	
Webs	II	II	III	II	II	
Stiffeners	III	III	I	III	III	
Station 672.90 Rails	I	I	*	I	I	
Splice Angles	II	II	*	II	II	
Straps	II	II	*	II	II	
FRAMES AND BULKHEADS—STATIONS 169.00 TO 316.00 FOR F-106B						
Bulkheads Station 169.00 280.50 and 316.00						
Channels	II	II	*	II	II	
Webs	II	II	III	II	II	
Doublers	II	II	III	II	II	
Angles	II	II	*	II	II	
Zees	II	II	I	II	II	
Tees	II	II	*	II	II	
Frames Station 216.50 to 308.50						
Angles	II	II	*	II	II	
Frame	I	I	*	I	I	
Channels	II	II	I	II	II	
Zee	II	II	I	II	II	
BELTFRAMES—STATIONS 102.00 TO 711.40						
Station 102.00 to 357.10						
Angles	II	II	*	I	I	
Stiffeners	III	III	I	III	III	
Channels	II	II	I	I	I	
Station 357.20 to 464.20 Webs	II	II	III	II	II	

*Component must be repaired or replaced.

TABLE 4-I

Negligible Damage Limits — Fuselage Group (Cont)

COMPONENT	TYPE AND CLASS OF DAMAGE ALLOWED AFTER REWORK					REMARKS
	Scratch	Nick	Dent	Hole	Crack	
BELTFRAMES—STATIONS 102.00 TO 711.40 (cont)						
Angles	II	II	*	I	I	
Zees	II	II	I	II	II	
Channels	II	II	I	II	II	
Station 464.20 to 672.90 Webs	II	II	III	II	II	
Angles	II	II	*	I	I	
Stiffeners	III	III	I	III	III	
Tees	II	II	I	II	II	
Straps	I	I	*	I	I	
Channels	II	II	I	II	II	
Station 672.90 to 711.40 Zees	II	II	I	II	II	
Angles	II	II	*	I	I	
Doublers	II	III	III	II	II	
MAIN LONGERONS						
Station 40.89 to 216.50 Upper Longerons	I	I	*	I	I	
Lower Longerons	I	I	*	I	I	
Station 216.50 to 556.75 Upper Longerons	I	I	*	I	I	
Station 450.00 to 657.00 Lower Longeron	I	I	*	I	I	See Figure 9-7
Station 216.50 to 412.00 Missile Bay Longerons.	I	I	*	I	I	
PILOTS COMPARTMENT STRUCTURE FOR F-106A AND F-106B						
Panel Frames	I	I	*	II	II	
Floor Webs	II	II	III	II	II	
Floor Zees	II	II	I	II	II	
Floor Tees	II	II	I	II	II	
Floor Channels	II	II	I	II	II	
MAIN AIR INDUCTION DUCTS FOR F-106A AND F-106B						
Frames	I	I	I	I	*	
Leading Edge	I	I Refer to an Aeronautical Structural Engineer				
Inner Skin	I		*	*	*	See Figures 4-18A & 4-18B
Variable Ramp Slip Joint Adapters	II (a)	I (a)	*	*	*	

*Component must be repaired or replaced. (a) Refinish by Touch-up Plating

TABLE 4-I

Negligible Damage Limits — Fuselage Group (Cont)

COMPONENT	TYPE AND CLASS OF DAMAGE ALLOWED AFTER REWORK					REMARKS
	Scratch	Nick	Dent	Hole	Crack	
RADAR COMPARTMENT DOORS FOR F-106A AND F-106B						
Skin	II	II	*	*	*	
Pan	II	II	III	II	II	
Frames	II	II	II	II	II	
Hinge Fittings	II	II Refer to an Aeronautical Structural Engineer				
MISSILE BAY AREA STRUCTURES						
Webs, Roof & Sides	II	II	III	II	II	
Stiffeners, Roof & Sides	III	III	I	III	III	
Drag Arms (Except 8-57803)	III	III	Refer to an Aeronautical Structural Engineer			See Note 1
MISSILE BAY DOORS STRUCTURES						
Inner Skins	II	II	III	II	II	
Outer Skins	II	II	*	*	*	
Doublers	II	II	II	II	II	
Ribs	II	II	I	II	II	
Stiffeners	III	III	I	III	III	
Hinge Fittings	I	I Refer to an Aeronautical Structural Engineer				
ENGINE COOLING AIR SCROLL—STATION 431.00 TO 445.00						
Skins, Perforated	II	II	*	*	*	
Attachment Flanges	I	I Refer to an Aeronautical Structural Engineer				
Formers	II	II	I	I	I	
Stiffeners	III	III	I	II	II	
DRAG CHUTE HOUSING STRUCTURE						
Skin, Ti. AMS 4908	II	II	*	II	II	
Zees, Ti. AMS 4908	II	II	I	II	II	
Angles, Ti. AMS 4908	II	II	*	II	II	
Machined Casting Magnesium	I	I Refer to an Aeronautical Structural Engineer				

*Component must be repaired or replaced.

TABLE 4-I

Negligible Damage Limits — Fuselage Group (Cont)

COMPONENT	TYPE AND CLASS OF DAMAGE ALLOWED AFTER REWORK					REMARKS
	Scratch	Nick	Dent	Hole	Crack	
TAIL CONE STRUCTURE						
Skin	III	III	*	*	*	
Beltframes	III	III	III	II	II	
Splice Angles	III	III	II	I	I	
AERIAL REFUELING SEALING MATERIALS						
Skin	II	II	*	*	*	
Formers	II	II	I	*	*	
Pan	III	III	III	*	I	Seal Cracks with putty, Specification MIL-P-20628.
*Component must be repaired or replaced.						

NOTES:
1. Location or edge magine restrictions not required for corrosion clean-out (REF. FIG. 1-17). Damage to 8-57803 refer to Aeronautical Structural Engineer.