

TECHNICAL MANUAL

**AVIATION UNIT AND AVIATION
INTERMEDIATE MAINTENANCE MANUAL**

CH-47D HELICOPTER

This manual together with TM 55-1520-240-23-1, TM 55-1520-240-23-3, TM 55-1520-240-23-4, TM 55-1520-240-23-5, TM 55-1520-240-23-6, TM 55-1520-240-23-7, TM 55-1520-240-23-8, TM 55-1520-240-23-9, TM 55-1520-240-23-10, TM 55-1520-240-23-11, supersedes TM 55-1520-240-23-1, TM 55-1520-240-23-2, TM 55-1520-240-23-3, TM 55-1520-240-23-4, TM 55-1520-240-23-5, TM 55-1520-240-23-7, TM 55-1520-240-23-8, TM 55-1520-240-23-9, TM 55-1520-240-23-10, 10 May 1983, and TM 55-1520-240-23-6, 6 May 1983, including all changes.

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

**CHANGE
NO. 1**

**HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 30 SEPTEMBER 2003**

**Aviation Unit and Aviation Intermediate
Maintenance Manual**

CH-47D HELICOPTER

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

TM 55-1520-240-23-2, 19 September 2002, is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages

A/(B blank)
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2-7 through 2-14
2-227 through 2-230
2-343 and 2-344
2-389 and 2-390
2-407 and 2-408
2-509 and 2-510
2-611 and 2-612
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2-935 and 2-936
2-939 through 2-942
2-1075 and 2-1076
2-1079 and 2-1080
2-1089 through 2-1094
2-1247 and 2-1248
2-1309 through 2-1312

Insert Pages

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2-343 and 2-344
2-389 and 2-390
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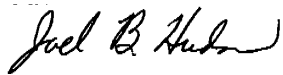
2. Retain this sheet in front of the manual for reference purposes.

TM 55-1520-240-23-2

C1

By Order of the Secretary of the Army:

Official:



JOEL B. HUDSON

Administrative Assistant to the
Secretary of the Army

0320911

PETER J. SCHOOMAKER

General, United States Army

Chief of Staff

WARNING AND FIRST AID DATA

For artificial respiration and other first aid data, refer to FM 21-11.

Personnel performing instructions involving operations, procedures, and practices which are included or implied in this technical manual shall observe the following instructions. Disregard of these warnings and precautionary information can cause serious injury, illness, death, or an aborted mission.

**WARNING**

An operating procedure, practice, etc., which if not correctly followed, could result in personal injury or loss of life.

**CAUTION**

An operation procedure, practice, etc., which if not strictly observed, could result in damage to or destruction of equipment.

NOTE

An operating procedure, condition, etc., which is essential to highlight.

**WARNING**

Cleaning Solvents

Those areas of skin and clothing that come in contact with cleaning solvents should be thoroughly washed immediately.

Saturated clothing should be removed immediately.

Areas in which cleaning solvents are used should be adequately ventilated to keep vapors to a minimum.

If cleaning solvents contact the eyes, nose, or ears, flush them with generous quantities of water, and then seek medical attention immediately.

**WARNING**

Electrical and Electronic Equipment Maintenance

Do not wear rings, watches, or metal jewelry when working around electrical equipment. Serious burns can result.

Be careful when working on 150 and 300 vdc circuits and on ac generator 115 and 200 vac outputs. Serious burns can result.

WARNING

Dangerous Static Charges

Ground the helicopter during parking, fueling, or defueling. Sparks can cause fuel vapor to ignite.

WARNING

Dangerous Voltages at Antenna Terminals

Be careful when working near antenna or antenna terminals. Radio frequency (rf) voltages exist at these points when transmitters are operating. Contact with radiating antennas can cause serious rf burns.

WARNING

Poisonous Carbon Monoxide Fumes

Toxic carbon monoxide fumes may be present inside the helicopter whenever engines or APU are operating with cargo ramp open. Ventilate the cockpit.

WARNING

Corrosive Battery Electrolyte (Potassium Hydroxide)

The electrolyte used in nickel-cadmium batteries contains potassium hydroxide which is a caustic substance.

Contact with skin or eyes will cause burns.

Use rubber gloves, rubber apron, and protective eye covering or face shield when handling battery.

If personal contact with electrolyte occurs, flush immediately with large amounts of only clean water. Get medical attention immediately.

WARNING

Explosive Battery Hazard

Before removing or installing battery, make sure battery switch is OFF and battery has cooled down if overheated.

Connecting or disconnecting battery connector while battery is under load may cause explosion or electrical arcing resulting in injury to personnel.

WARNING

Electrolyte Contamination

Separate nickel-cadmium batteries and lead-acid type batteries as far as possible from each other.

Do not let anything associated with a lead-acid battery, including air, come in contact with a nickel-cadmium battery or its electrolyte. Sulfuric acid fumes from a lead-acid battery could result in damage to a nickel-cadmium battery leading to battery failure and a hazard to personnel.

Do not use same tools or protective clothing for both types of batteries.

If sulfuric acid has been somehow mixed with electrolyte in the battery, the upper areas of the battery cells will appear green in color indicating battery failure or damage and potential danger to personnel unless replaced.

WARNING

Acids and Alkalines

Do not add water to acid. A violent action will result. Add acid to water in small quantities.

Rust stripper is an alkaline solution.

Avoid skin contact. Wear protective clothing. Wash thoroughly after using.

WARNING

Windshield Rain Repellent

Do not let windshield rain repellent contact open flame. Deadly hydrogen fluoride gas could be generated.

Wash hands with soap and water after handling repellent.

WARNING

Antiseize Compounds

Some antiseize compounds are irritants. Avoid inhaling fumes and contact with skin.

Wear protective clothing. Wash thoroughly after using.

WARNING

Paints, Varnishes, Dopes, Thinners, and Lubricants

These materials are generally highly flammable and may be irritants. Work in a well-ventilated area away from open flames.

Avoid inhaling fumes and prolonged contact with skin. Wash thoroughly after using.

WARNING

Epoxy Resins, Cements, and Adhesives

These materials may contain toxic or irritating substances. They may also be flammable. Work in a well-ventilated area away from open flames.

Wear protective clothing. Avoid contact with skin. Wash thoroughly after using.

WARNING

Radiation Hazard

Some instruments contain radioactive material. Do not try to disassemble these instruments. They present no radiation hazard unless seal is broken.

If you think seal is broken, do not remove instrument from helicopter before consulting Base Radioactive Protection Officer (AR 40-46).

Use a beta-gamma radiac meter AN/PDR-27 or equivalent to determine if instrument contains radioactive material (radium).

WARNING

Fire Extinguishing Agents

Monobromotrifluoromethane (CF_3Br) is highly volatile but is not easily detected by smell. It is not toxic, but reduces oxygen available for proper breathing.

If liquid CF_3Br contacts skin, it can cause frostbite or low temperature burns.

If agent touches eyes or skin, immediately flush affected area with running water. Get medical attention.

WARNING**Noise**

Sound pressure levels in this helicopter during some operating conditions exceed the Surgeon General's hearing conservation criteria (TB MED 251).

Hearing protection devices, such as aviator helmet or ear plugs, shall be worn by all personnel in and around the helicopter during operation.

WARNING**FOD**

Make sure area is clear of foreign objects before closing access doors, panels, and fairings.

If area is not clear, damage to components or systems could result in personal injury or death.

WARNING**JP-4/JP-5/JP-8 Fuel MIL-T-5624**

Fuel is flammable. Do not use near welding areas, open flames, or on very hot surfaces.

Use only with adequate ventilation.

Avoid prolonged or repeated contact with skin. Prolonged contact may cause drying and irritation of skin.

Remove saturated clothing immediately.

Do not smoke when handling fuel.

Do not take internally.

Store in approved, metal safety containers.

WARNING**Lubricating Oils MIL-L-23699 or MIL-L-7808**

If oil is decomposed by heat, toxic gases are released.

Prolonged contact with liquid or mist may cause dermatitis and irritation.

If there is prolonged contact with skin, wash affected area with soap and water. If oil contacts eyes, flush with water immediately. Remove saturated clothing.

If swallowed, do not try to vomit. Seek immediate medical attention.

When handling liquid oil, wear rubber gloves. If prolonged contact with mist is likely, wear approved respirator.

WARNING

Lifting Components With Hoist

Lifting or hoisting of components shall only be done by designated personnel.
The load capacity rating shall be clearly marked on hoist. Do not exceed load rating.
Inspection and testing for cracks or defects in hoist system shall be performed on a regular basis.
Before lifting, alert personnel in immediate areas.
Before lifting, balance the load.
Do not stand under load while it is being moved from one area to another on a hoist.
Do not stand under load to do maintenance work.

WARNING

Hydraulic Pressures

High pressures used in testing hydraulic components can cause line rupture or component failure.
Only qualified personnel shall operate, service, and maintain hydraulic test equipment.
Use heavy plastic shielding at least 5/8 inch thick when applying pressures over 250 psi to prevent injury to personnel.

WARNING

Hydraulic Fluid

Hydraulic fluid is toxic. It can irritate skin and eyes and cause burns. When fluid is decomposed by heating, it releases toxic gases.
Avoid inhaling. Use only with adequate ventilation, if prolonged contact with mist is likely, wear an appropriate respirator.
Avoid contact with skin, eyes, or clothing. Wear rubber gloves if handling liquid.
In case of contact with skin, immediately wash skin with soap and water. In case of contact with eyes, flush them immediately with clear water and get medical attention.
If liquid is swallowed, do not induce vomiting; get immediate medical attention.

WARNING**Compressed Air**

Do not use more than 30 psi compressed air for cleaning purposes. Debris propelled under pressure can cause injury to eyes.

Use eye protection to prevent injury to personnel.

WARNING**Flare Dispenser**

Flares can accidentally fire, sometimes from stray voltage. Injury or death can result.

Remove all electrical power from helicopter before installing loaded payload module on dispenser assembly.

Keep hands and face away from end of payload module during installation.

WARNING**Maintenance Platforms/Workstands**

Use only authorized maintenance platforms/workstands or other approved locally procured stands and restraint equipment, when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

WARNING**Black Light Inspection Eyewear**

Do not wear eyeglasses having light sensitive lenses while performing magnetic particle (black light) or fluorescent penetrant inspections.

Such lenses have a 16 to 45 percent light transmission loss.

Wearing them can result in failure to detect flaws and cracks under ultraviolet light.

WARNING**Cadmium-Plated Tools**

Use only chrome-plated or unplated steel tools when working on the helicopter.

Cadmium or zinc-plated tools are not permitted, since these platings are prone to chipping and flaking. The chips and flakes could cause corrosion or fluid contamination.

All tools, regardless of plating type, shall be serviceable and free of chipping.

LIST OF EFFECTIVE PAGES

Insert latest changed pages; dispose of superseded pages in accordance with regulations.

NOTE: On a changed page, the portion of the text affected by the latest change is indicated by a vertical line, or other change symbol, in the outer margin of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by shaded areas.

Dates of issue for original and changed pages are:

Original 19 September 2002
 Change 1 30 September 2003

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a through g	0	2-761 through 2-838	0
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B blank	1	2-935 and 2-936	1
i	1	2-937 and 2-938	0
ii blank	1	2-939 through 2-941	1
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2-612	1		
2-613 and 2-614	0		
2-615 and 2-616	1		
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2-715	1		
2-716	0		
2-717	1		
2-718 through 2-724	0		
2-725 and 2-726	1		
2-727 through 2-758	0		

*Zero in this column indicates an original page.

**AVIATION UNIT AND AVIATION
INTERMEDIATE MAINTENANCE MANUAL
CH-47D HELICOPTER**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can improve this manual. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) located in the back of this manual, directly to: Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-MMC-MA-NP, Redstone Arsenal, AL 35898-5000. A reply will be furnished to you. You may also provide DA Form 2028 information to AMCOM via e-mail, fax, or the World Wide Web. Our fax number is: DSN 788-6546 or Commercial 256-842-6546. Our e-mail address is: 2028@redstone.army.mil. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028. For the World Wide Web use: <https://amcom2028.redstone.army.mil>.

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*This manual together with TM 55-1520-240-23-1, TM 55-1520-240-23-3, TM 55-1520-240-23-4, TM 55-1520-240-23-5, TM 55-1520-240-23-6, TM 55-1520-240-23-7, TM 55-1520-240-23-8, TM 55-1520-240-23-9, TM 55-1520-240-23-10, TM 55-1520-240-23-11, supersedes TM 55-1520-240-23-1, TM 55-1520-240-23-2, TM 55-1520-240-23-3, TM 55-1520-240-23-4, TM 55-1520-240-23-5, TM 55-1520-240-23-7, TM 55-1520-240-23-8, TM 55-1520-240-23-9, TM 55-1520-240-23-10, 10 May 1983, and TM 55-1520-240-23-6, 6 May 1983, including all changes.

CHAPTER 2

AIRFRAME

SECTION I

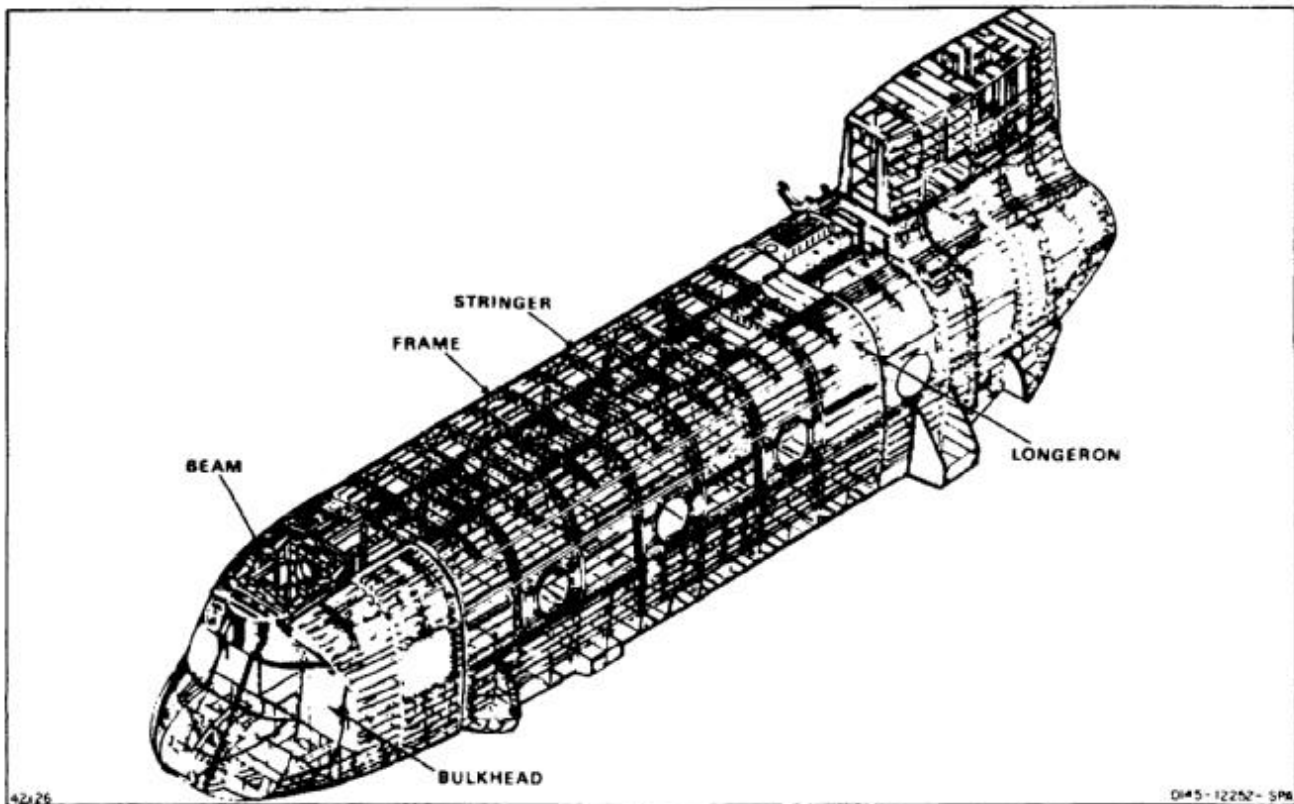
GENERAL STRUCTURAL REPAIR

DESCRIPTION AND OPERATION

The airframe structure consists of two parts — the primary structure and the secondary structure. Both are made mostly of high-strength aluminum alloy.

PRIMARY STRUCTURE

The primary structure is the skeleton framework that gives the helicopter its shape. Stringers and longerons extend fore and aft. They are supported by frames and bulkheads that extend across the width of the fuselage. Formers and beams are used where needed to support loads such as powerplants, transmissions, and landing gear.

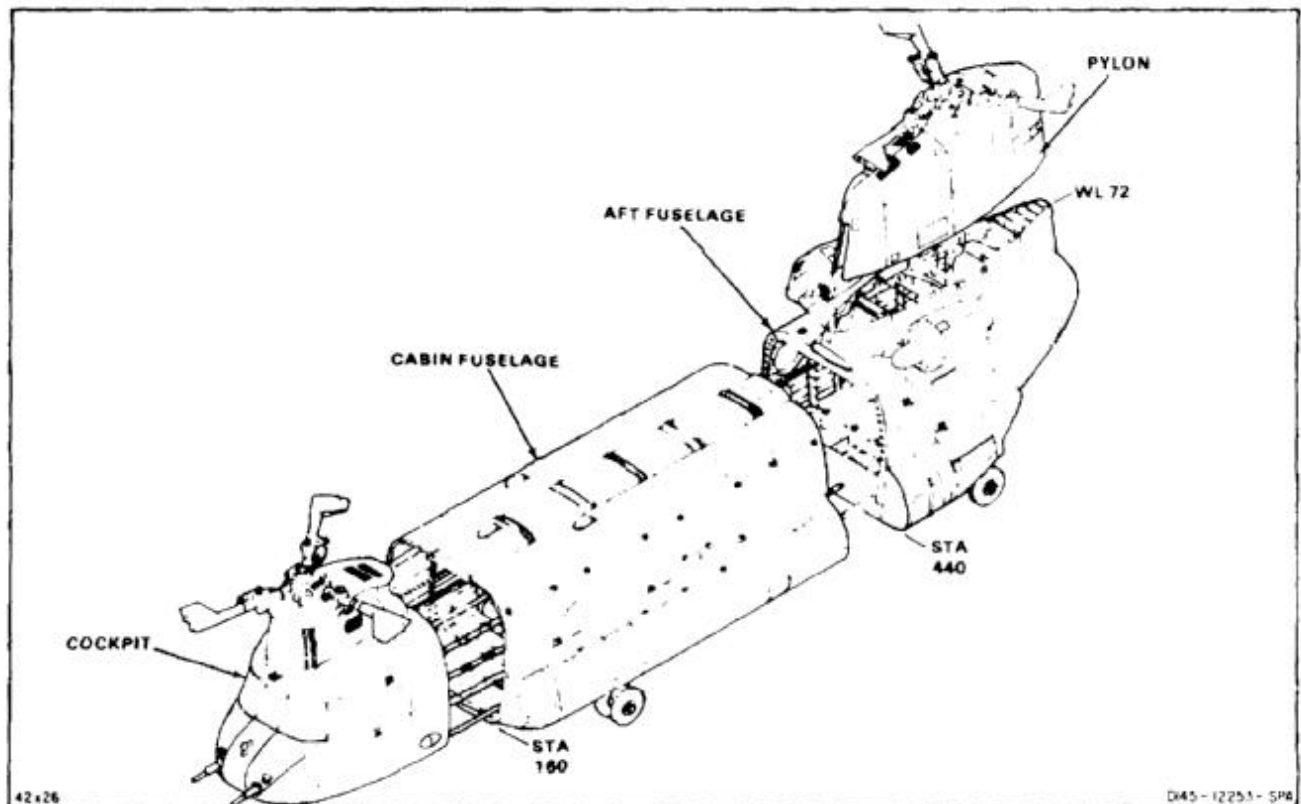


SECONDARY STRUCTURE

The secondary structure is made up of aluminum panels that are riveted to the primary structure. The panels are stressed to help provide strength and stiffness to the helicopter. Other panels protect and provide aerodynamic fairings over components.

The airframe is built in four sections — cockpit, cabin fuselage, aft fuselage, and pylon. The cockpit is spliced to the cabin fuselage at sta. 160. The aft fuselage is spliced to the cabin fuselage at sta. 440. The pylon is attached to the aft fuselage at water line 72.

The cockpit and fuselage sections cannot be separated. The pylon can be removed if needed to transport the helicopter.



COCKPIT

The cockpit section contains controls and the fully adjustable pilot's and copilot's seats. The forward transmission is mounted at the top of the section; covered by a fiberglass fairing. A hinged work platform is built into each side of the fairing.

Three self-tuning dynamic absorbers are installed in the cockpit section. One is in the nose and two are below the cockpit floor, under the seats. The absorbers automatically adjust themselves to lower vibration in the helicopter throughout its normal operating range.

The section contains three doors. A jettisonable door is next to each seat. The main entrance door is at the aft right side of the section.

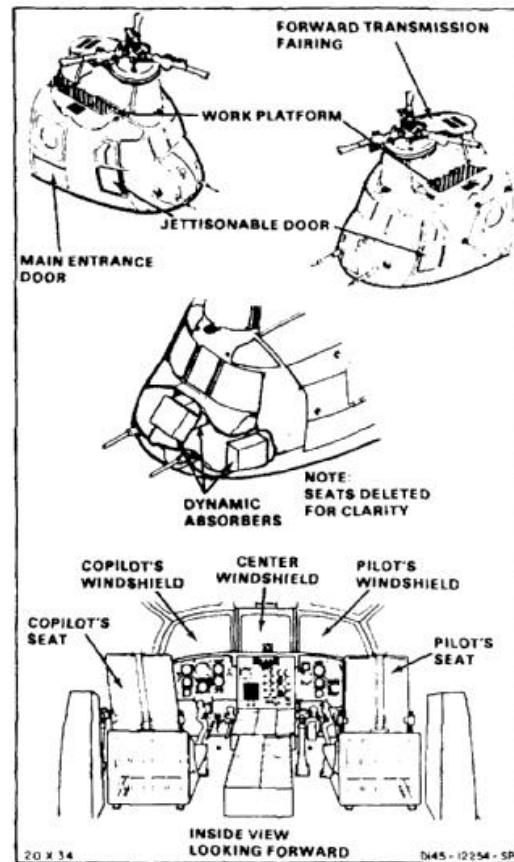
There are three windshields in the cockpit — pilot's, copilot's, and center. Each consists of three layers. The middle layer of all windshields is plastic. Inboard and outboard layers are either glass or plastic. The pilot's and copilot's windshield can be heated electrically for anti-icing or defogging. The center windshield can be heated for defogging only. Each windshield has a temperature sensing element to provide automatic temperature control.

Control Closet structure; location for the flight control linkage and controls.

Heater Closet area; houses the heater assembly, winch assembly, and the absorber control box.

Electronic Equipment compartment; provides mounting area for selected electronic equipment.

Forward Pylon area; located between sta. 120 and 150 above cockpit crown through (tunnel area) which supports hydraulic oil cooler and hydraulic system No. 1 hydraulic module.



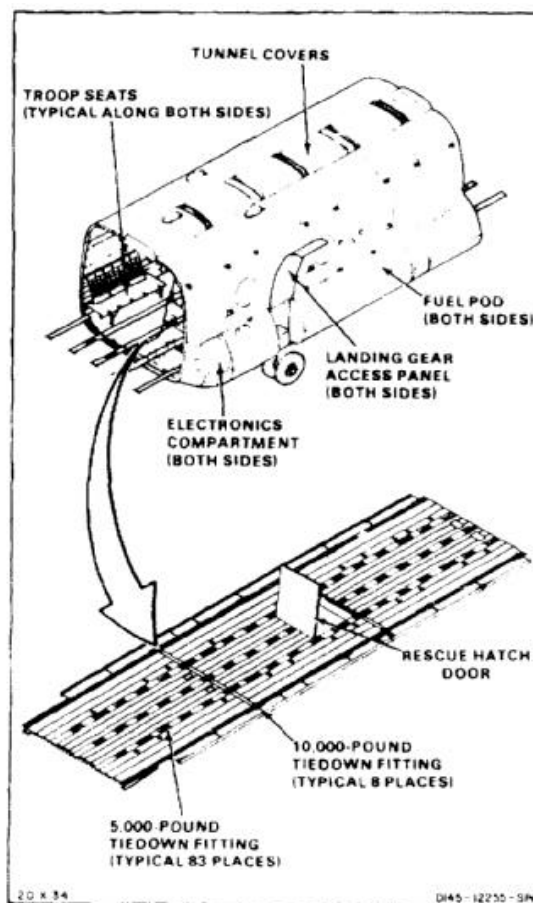
CABIN FUSELAGE

The cabin section located at sta. 160 to sta. 440 provides the major carrying capacity of the helicopter. It can be fitted to carry troops, litters, cargo, or any combination of the three.

The cabin floor consists of 12 removable panels set between five tiedown beams. The panels are made of riveted sections of magnesium alloy. Center panels are covered with non-skid material. Tiedown rings are installed in the tiedown beams. The rings have a capacity of **5,000 or 10,000 pounds**. A rescue hatch door of sandwich honeycomb construction is in the center of the floor. It hinges open for access to an external cargo hook and a movable hatch in the lower skin. The aircraft has a multiple (triple) cargo hook capability. The center cargo hook located at sta. 330 has a lift capacity of **26,000 pounds**. The forward cargo hook is located at sta. 249 and the aft cargo hook located at sta. 409 have a lift capacity of **17,000 pounds** each.

A tunnel along the top of the cabin section houses drive shafting and flight controls. The tunnel consists of six honeycomb covers that hinge open for access to components. A walkway at the right of the tunnel runs the length of the cabin.

Detachable pods on each side of the fuselage section contain the fuel tanks. The forward end of each pod contains components of the electronic and electrical systems. A hinged panel in each pod provides access to the forward landing gear.



AFT FUSELAGE AND PYLON

The aft fuselage and pylon sections together contain the aft transmission and the APU. The engines are mounted inside nacelles at the base of the pylon on each side of the fuselage.

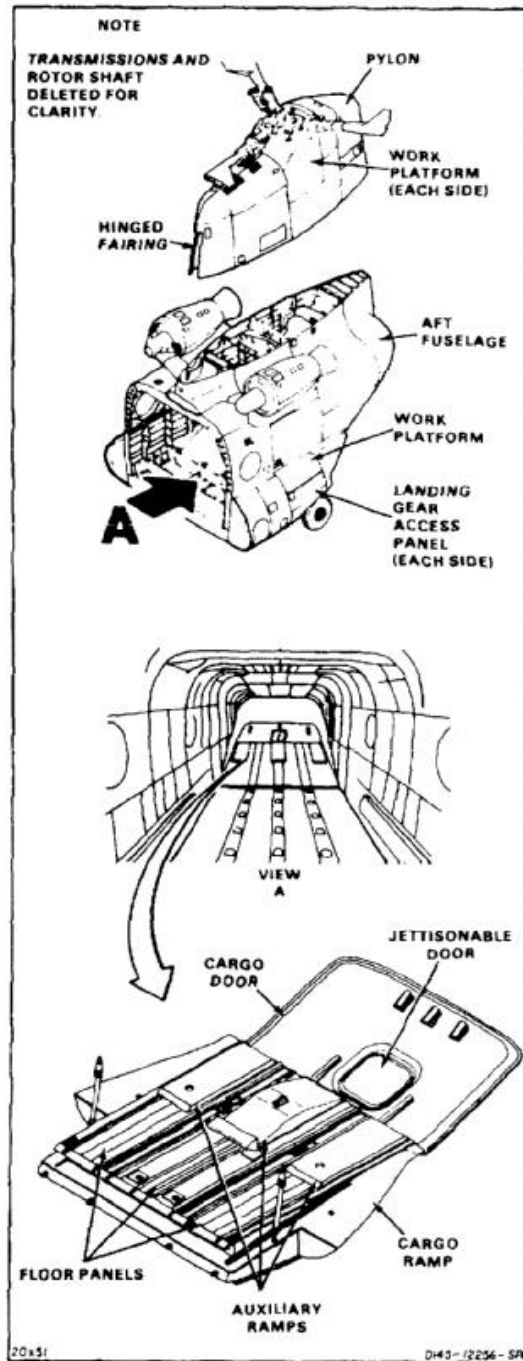
A hydraulically operated cargo loading ramp is at the aft end of the fuselage section. It includes a ramp, a jettisonable cargo door, and three auxiliary loading ramps. Three removable floor panels are set into the cargo ramp. Two **5,000 pound** tiedown fittings are at each side of the ramp. The cargo door retracts inside the ramp when the ramp is lowered and extends when the ramp is raised. A jettisonable door hatch is in the center of the cargo door.

The three auxiliary ramps are hinged at the aft edge of the ramp. In use, they are rotated from their stowed position on the ramp to bridge the gap from the ramp to the ground. The center auxiliary ramp can be used as a work platform for maintenance on the APU.

Pods along the lower edge of each side of the aft fuselage form an extension of the cabin fuselage pods. They contain access panels to the aft landing gear and fold-out work platforms for engine maintenance.

The pylon houses the aft rotor shaft and the combining transmission. The leading edge of the pylon is hinged on each side. It opens at the centerline for access to the combining transmission. A work platform opens to provide access to the rotor shaft.

The pylon is attached to the aft fuselage at water line 72. It can be removed if needed to transport the helicopter.



END OF TASK

SECTION II
GENERAL STRUCTURAL REPAIRS

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

CH-47 Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off



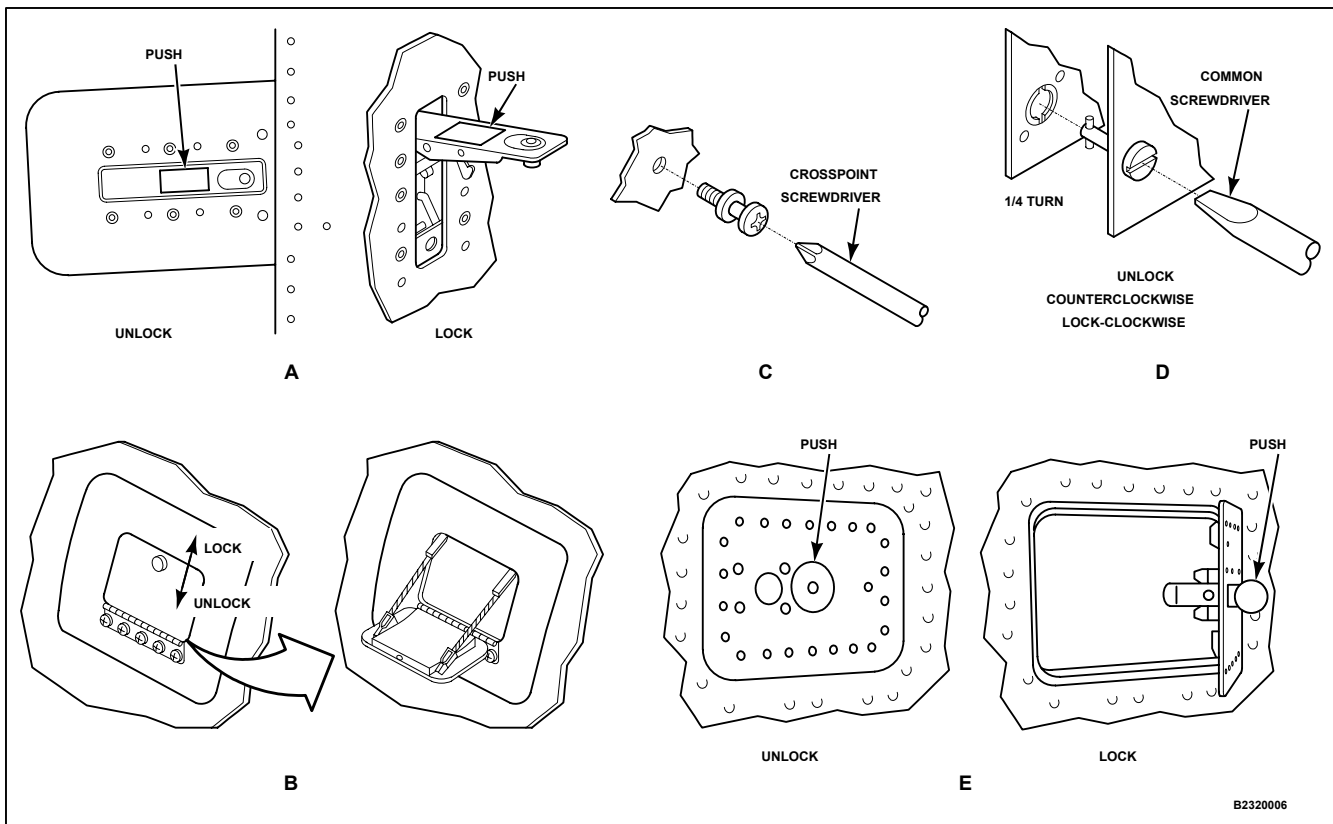
Do not exceed weight limitations as posted on work platform and airframe structure. Damage to structure/components will result.

1. Access provisions for the helicopter are listed in following two tables.
2. Panels, doors, fairings, covers, and work platforms are identified by access numbers in column one.

3. The access each cover provides is listed in column two.

METHODS

4. Types of fasteners used in each cover are listed in column three.
5. Methods for opening and closing each cover are listed in columns four and illustrated below.

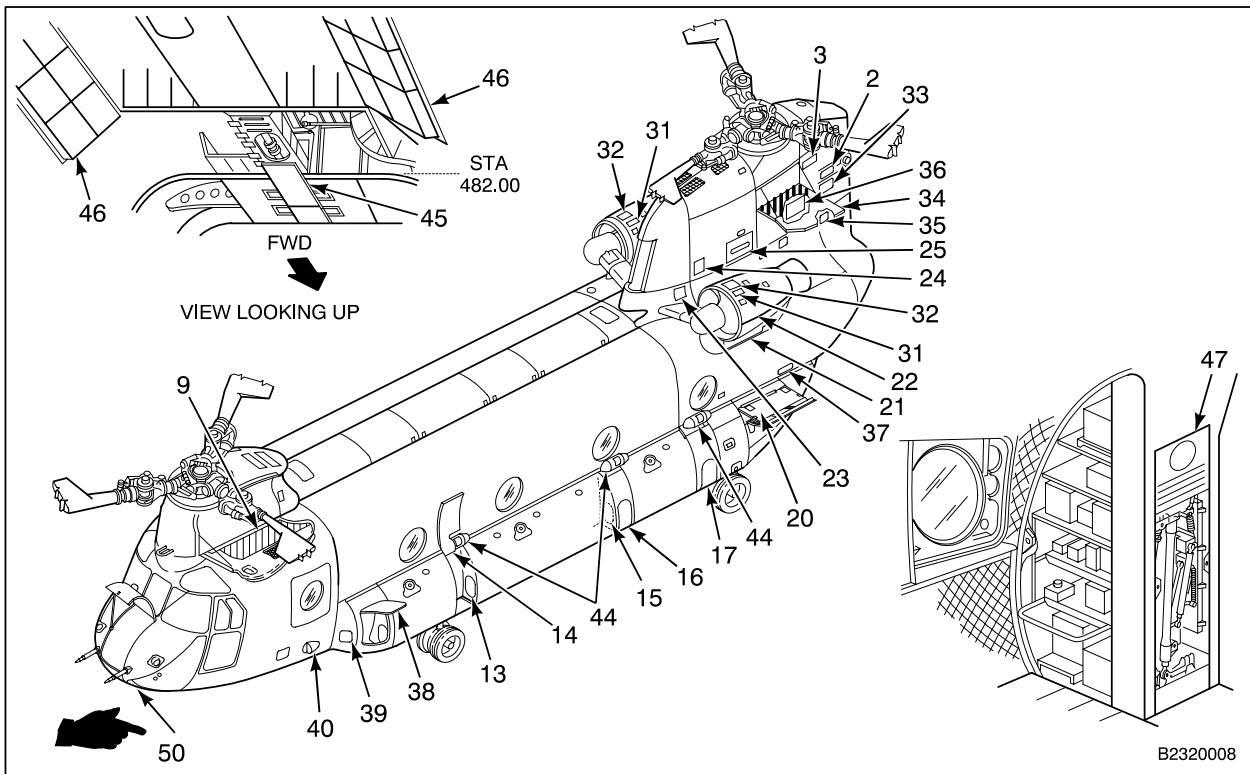
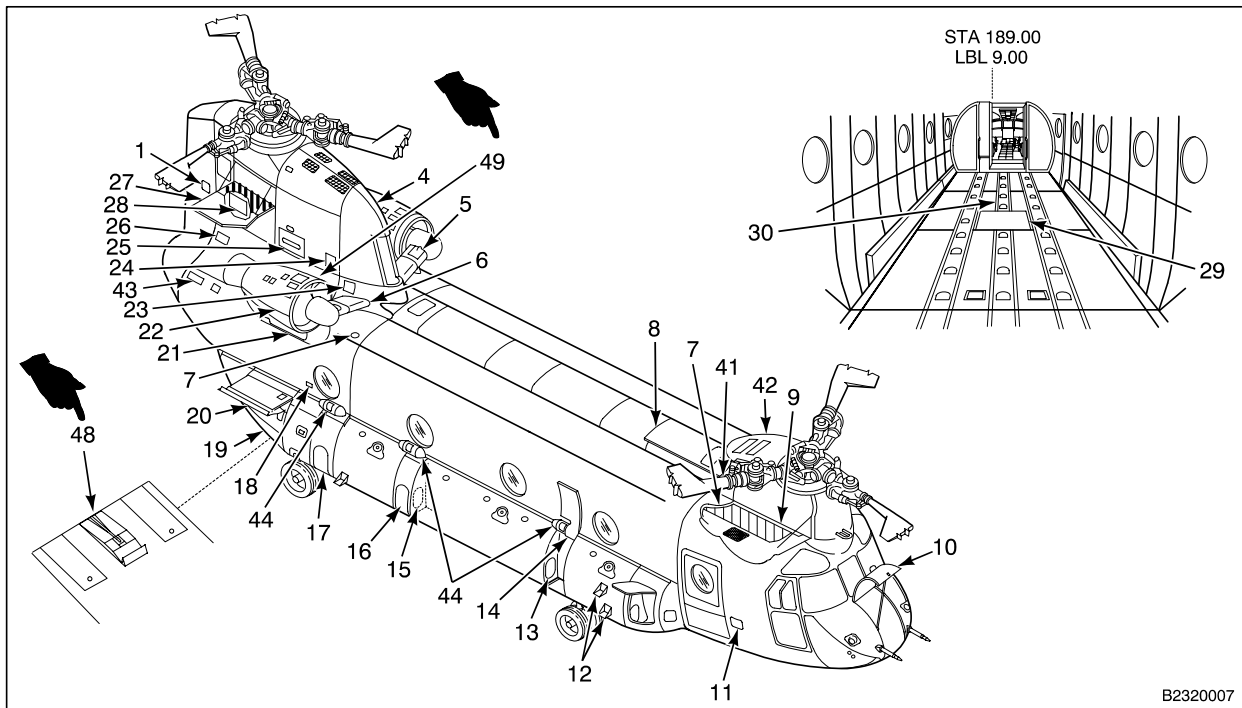


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2-2 OPEN AND CLOSE ACCESS PANELS (Continued)

2-2

ACCESS NUMBER	NAME	ACCESS TO	OPEN/CLOSE	METHOD
1	Panel	Pylon mounting bolts	12 turnlocks	D
2	Door	Radar warning antenna	20 screws	C
3	Panel	Radar warning receiver	20 screws	C
4	Hinged Fairing	Pylon combiner transmission	3 latches	A
5	Hinged Panel	Engine drive shaft	5 turnlocks	D
6	Hinged Panel	Engine drive shaft	2 turnlocks	D
7	Panels	Hoisting unit installation	6 turnlocks	D
8	Covers	Cabin crown tunnel	3 turnlocks	D
9	Work Platform	Forward transmission	3 latches	A
10	Door	Nose compartment		A
11	Door	Forward interphone jack	1 latch	A
12	Foldout Steps	Fuselage	1 thumbscrew	B
13	Panel	Forward fuel boost pump	29 screws	C
14	Panel	Forward landing gear	2 latches	A
15	Panel	Aft fuel boost pump	29 screws	C
16	Panel	Center pod	13 screws	C
17	Panel	Aft pod	13 screws	C
18	Door	Aft interphone jack and ramp control	1 catch	E
19	Panel	Aft landing gear	2 latches	A
20	Work Platform	Engine (powerplant)	1 catch	E
21	Lower Door	Engine	4 turnlocks	D
22	Upper Cover	Engine	4 latches	A
23	Door	Combiner transmission	1 catch	E
24	Door	Hydraulic module inspection	1 catch	E
25	Cover	Reservoir cooler	14 turnlocks	D
26	Door	Generator	8 turnlocks	D
27	Work Platform	Pylon, aft transmission, right side	2 latches	A
28	Cover	Aft transmission	12 turnlocks	D
29	Door	Rescue hatch (cabin floor)	1 catch	E
30	Panel	ADF antenna amplifier	screws	C
31	Door	Engine oil quantity indicator	1 flap	by hand
32	Door	Engine oil filler	3 latches	A
33	Panel	Pylon mounting bolts	12 turnlocks	D
34	Work Platform	Pylon, aft transmission, left side	2 latches	A
35	Panel	Utility hydraulic pump	8 turnlocks	D
36	Cover	Aft transmission	12 turnlocks	D
37	Panel	APU emergency fluid shutoff	1 catch	E
38	Door	Electrical compartment	1 latch	A
39	Door	External power receptacles	1 catch	E
40	Cover	Hydraulic ground test	6 turnlocks	D
41	Cover	Forward transmission hydraulic module	6 turnlocks	D
42	Door	Forward transmission hydraulic module	4 turnlocks	D
43	Panel	Aft ground test connection	2 catches	E
44	Panel	Fuel tank vent	4 turnlocks	D
45	Baffle	Aft drive shafting	2 turnlocks	by hand
46	Baffle	Aft transmission	7 turnlocks	D
47	Panel	Flight controls closet	2 turnlocks	D
48	Work Platform	APU	1 pin	by hand
49	Access Cover	Engine trim adjustment	screws	C
50	Access Cover	Cockpit ducting	screws	C



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-10 Change 1

2-2.1 INSPECT ACCESS PANELS AND WORK PLATFORMS FOR CHAFING

2-2.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Tape, Anti-Chafing (E383.1)

Personnel Required:CH-47 Helicopter Repairer
Inspector**References:**

Task 2-2

Equipment Condition:Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

1. Open access panels and work platforms (Task 2-2).
2. Inspect access panels and work platforms for evidence of chafing on mating surfaces.
3. Apply anti-chafing tape (E383.1) to affected surfaces.
4. Close access panels and work platforms (Task 2-2).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Heat Gun, NSN 4940-00-785-1162

Materials:

Abrasive Pad (E2)
Acetone (E20)
Cloth, Cleaning (E120)
Protective Gloves (E184.1)
Sealant (E336 or E470)
Heat Shrink Tubing (E431)
Goggles (E473)

Personnel Required:

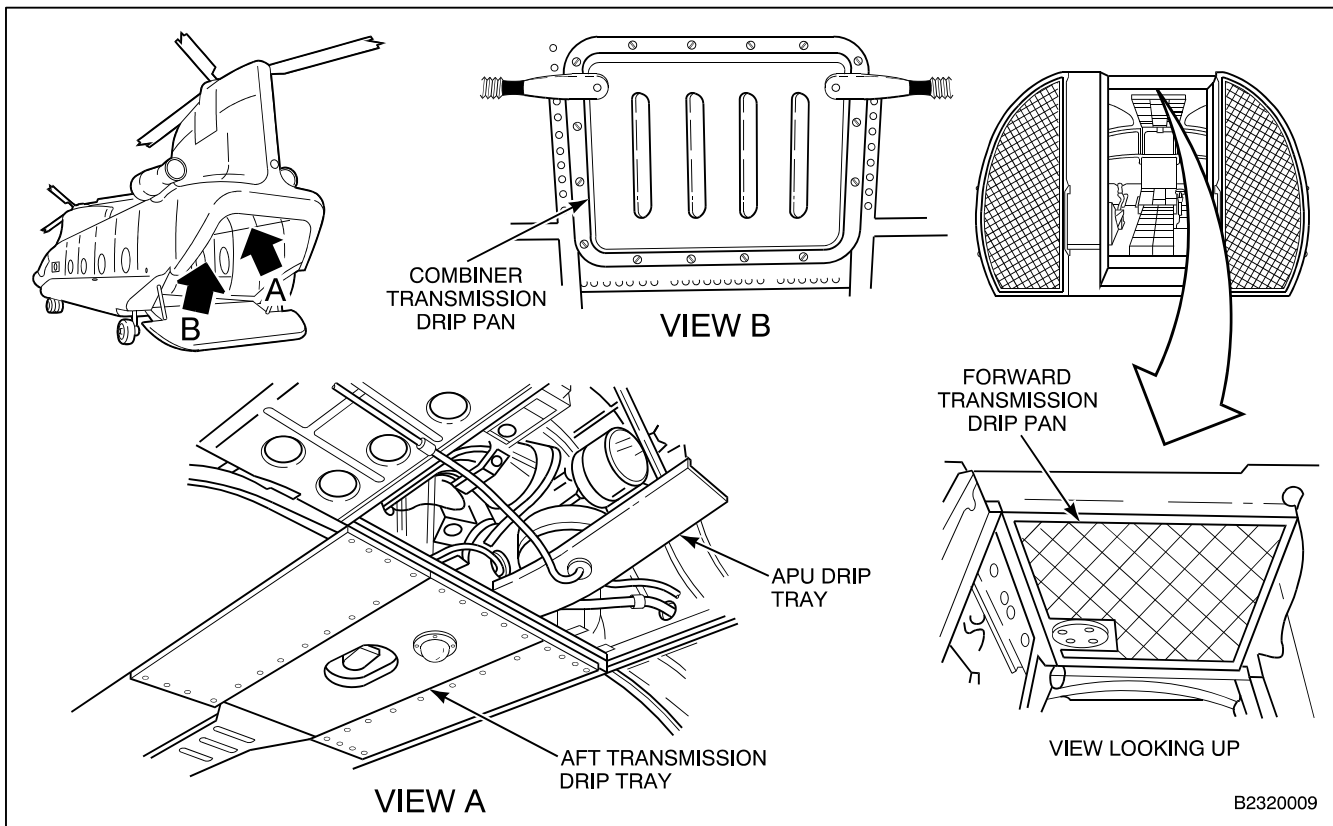
CH-47 Helicopter Repairer

References:

TM 55-1500-345-23

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Cargo Ramp Open and Level (Aft Transmission and APU Drip Pans Only)



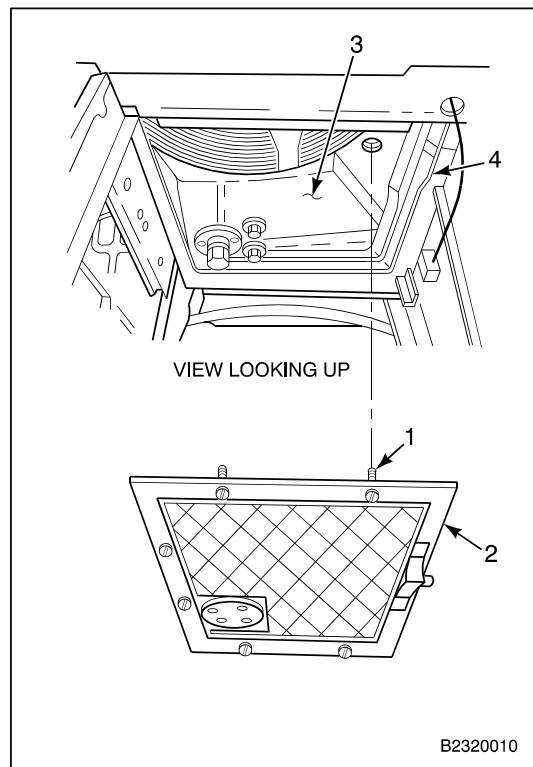
B2320009

REMOVE FORWARD TRANSMISSION DRIP PAN

1. Loosen six turnlock fasteners (1). Remove drip pan (2) from under sump (3).

INSTALL FORWARD TRANSMISSION DRIP PAN

2. Position drip pan (2) on structure (4). Lock six turnlock fasteners (1).

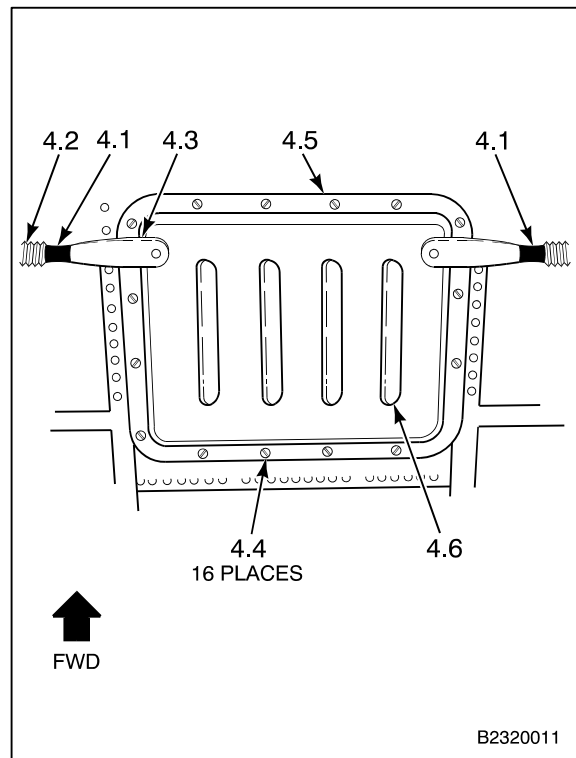


REMOVE COMBINER TRANSMISSION DRIP PAN

NOTE

Be careful not to damage drain line when cutting heat shrink tubing.

3. Cut heat shrink tubing (4.1) at ends of two drip pan drain lines (4.2).
4. Remove drain lines (4.2) from drip pan drain tube assembly (4.3). Let drain lines dangle.
5. Remove sealant from 16 boltheads (4.4).
6. Use nonmetallic scraping tool to remove sealant from edge (4.5) of drip pan.
7. Loosen and remove 16 bolts (4.4) from drip pan (4.6).
8. Remove drip pan (4.6) from helicopter.



INSTALL COMBINER TRANSMISSION DRIP PAN

WARNING

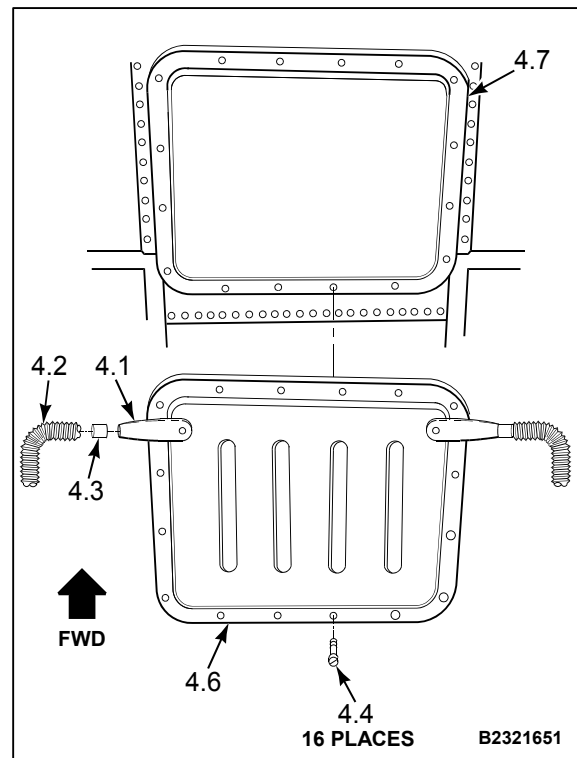
Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, spark, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

9. Clean the faying surface of spacers (4.7) with acetone (E20). Use gloves (E184.1).
10. Install drip pan (4.6) with 16 bolts (4.4).

WARNING

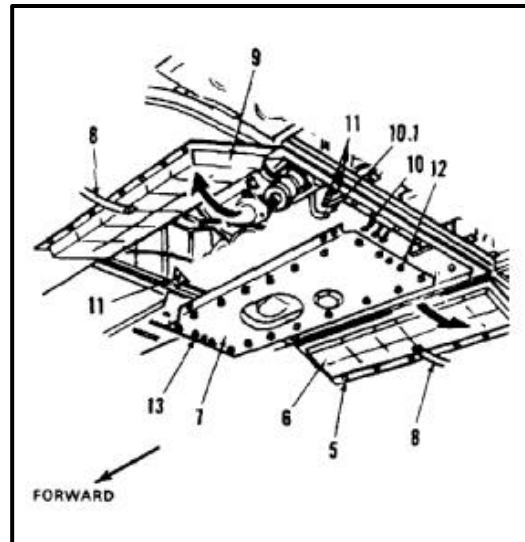
Sealant (E336 or E470) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

11. Seal 16 bolt heads (4.4) with sealant (E336 or E470). Use gloves (E184.1).
12. Fill all gaps and holes with sealant (E336 or E470). Wipe away any excess with clean dry cloth (E120).
13. Clean faying surface of drip pan drain tubes (4.1) with an abrasive pad (E2).
14. Install drain lines (4.2) with **one inch** pieces of heat shrink tubing (E431) (4.3).
15. Use a heat gun to shrink heat shrink tubing (E431).
16. Touch up drip pan IAW TM 55-1500-345-23.



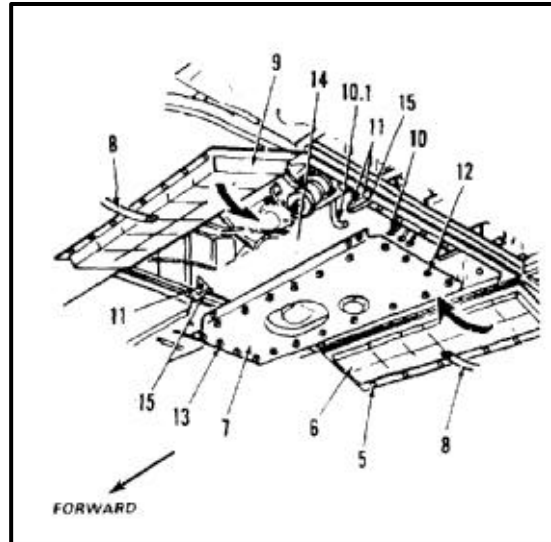
REMOVE AFT TRANSMISSION DRIP PAN

17. Loosen seven turnlock fasteners (5) on baffle (6) at right side of drip pan (7).
18. Swing baffle (6) against side of helicopter. Secure with strap (8).
19. Repeat steps 17 and 18 for baffle (9) at left side of drip pan (7).
20. Disconnect three wires (10) on top of drip pan (7).
21. Remove drain line (10.1) from pan (7).
22. Loosen three turnlock fasteners (11) at each side of pan (7).
23. Loosen five turnlock fasteners (12) at aft end of pan (7).
24. Loosen four turnlock fasteners (13) at forward end of pan (7).
25. Remove pan (7).



INSTALL AFT TRANSMISSION DRIP PAN

26. Position drip pan (7) against structure. Place flange (14) inboard of supports (15) at each side of pan.
27. Tighten four turnlock fasteners (13) at forward end of pan (7).
28. Tighten five turnlock fasteners (12) at aft end of pan (7).
29. Tighten three turnlock fasteners (11) at each side of pan (7).
30. Connect drain line (10.1) to pan (7).
31. Connect three wires (10) on top of pan (7).
32. Release strap (8) on baffle (6). Swing baffle against right side of pan (7). Tighten seven turnlock fasteners (5).
33. Repeat step 18 for left baffle (9).

**REMOVE APU DRIP PAN**

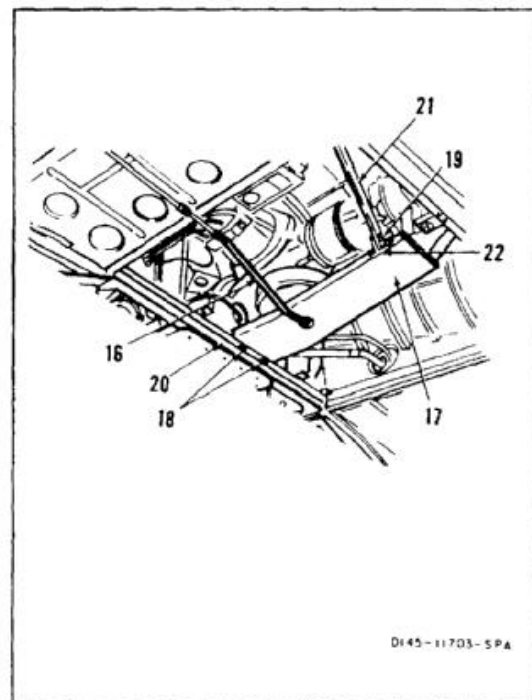
34. Disconnect drain hose (16) from drip pan (17).
35. Loosen two turnlock fasteners (18) at forward end of pan (17).
36. Loosen turnlock fastener (19) at each side of aft end of pan (17). Remove pan.

INSTALL APU DRIP PAN

37. Position drip pan (17) on structure (20). Tighten two turnlock fasteners (18).
38. Align arm (21) with tee (22) at each side of pan (17). Tighten turnlock fastener (19).
39. Connect drain hose (16).

FOLLOW-ON MAINTENANCE:

Close cargo ramp (aft transmission and APU drip pans only).



D145-11703-SPA

END OF TASK

INITIAL SETUP

*General Safety Instructions:***Applicable Configurations:**Without **49****Tools:**

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Shot Bags or Equivalent
 Gram Scale, 100 Gram Capacity
 Tee, 1/4 Inch
 Source of Vacuum
 Infrared Lamp, 140° to 160°F

Materials:

Abrasive Paper, 120 Grit (E7), 280 Grit (E10), 360 Grit (E12)
 Kevlar Fabric, Style 285 (E209)
 Wood Spatula (E424)
 Polyethylene Cup (E157)
 Brush (E86)
 Teflon Tape (E399)
 Epoxy Resin Adhesive (E47)
 Hardener (E459)
 Gloves (E184.1)
 Acetone (E20)
 Peel Ply (E270)
 Epoxy Primer (E292.1)
 Epoxy Coating (E137)
 Cloths (E120)
 Teflon-Impregnated Fabric (E170)
 Temperature Indicating Strips (E413)

Personnel Required:

Aircraft Structural Repairer
 Inspector

Equipment Condition:

Off Helicopter Task (Forward and Aft Transmission and APU Drip Pans Only)

WARNING

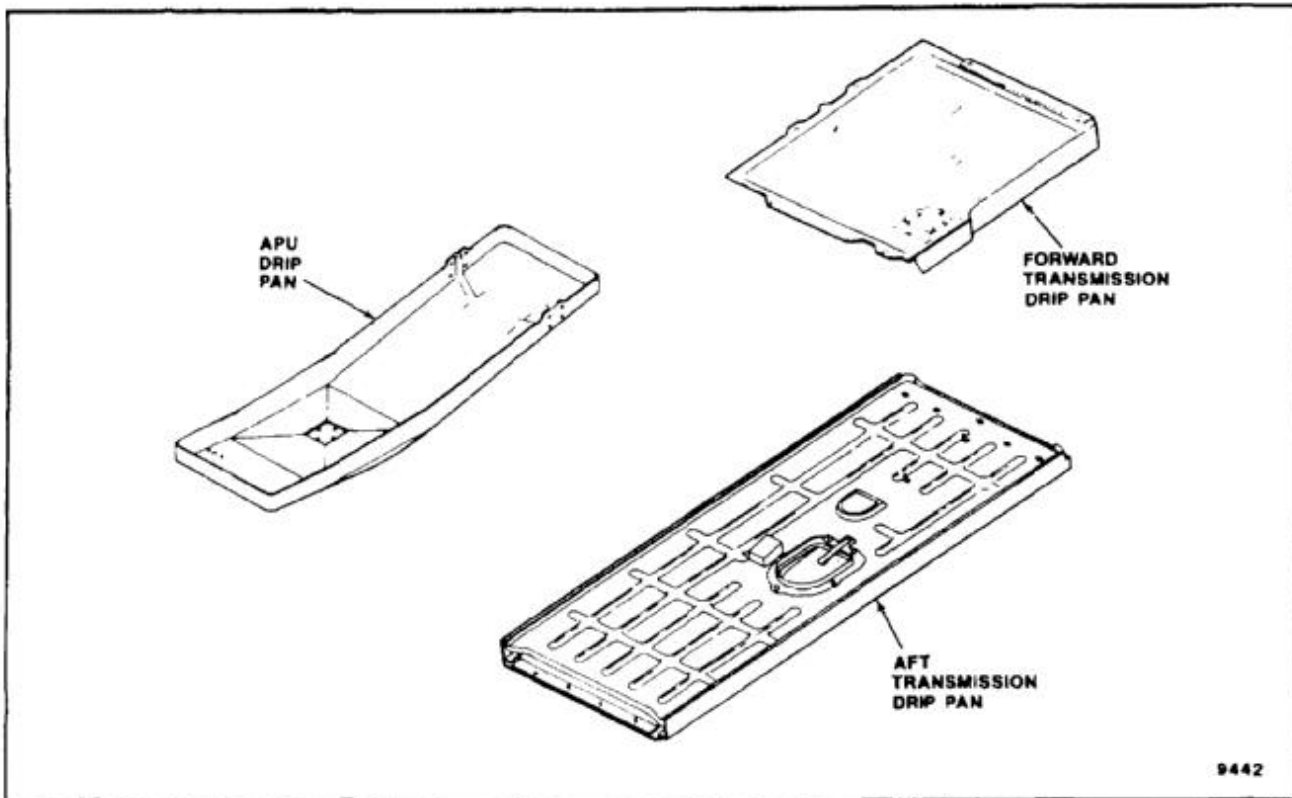
Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, spark, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Epoxy resin adhesive (E47) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

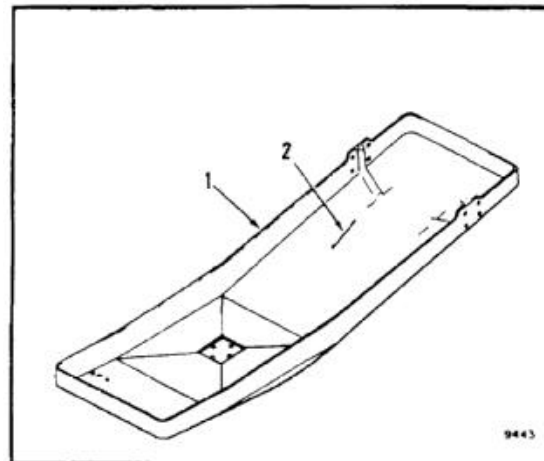
WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

**NOTE**

The same procedure is used to repair all drip pans. Typical repair of the APU drip pan is shown here.

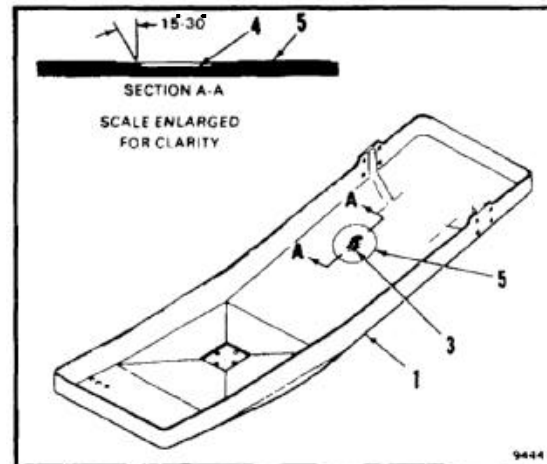
1. Inspect drip pan (1) for extent of damage. Clean damaged area to allow complete inspection. Use acetone (E20) and clean cloths (E120). Wear gloves (E184.1).
2. If drip pan is cracked, stop-drill crack (2) at each end. Sand through crack to an uncracked level. Use abrasive paper (E7).



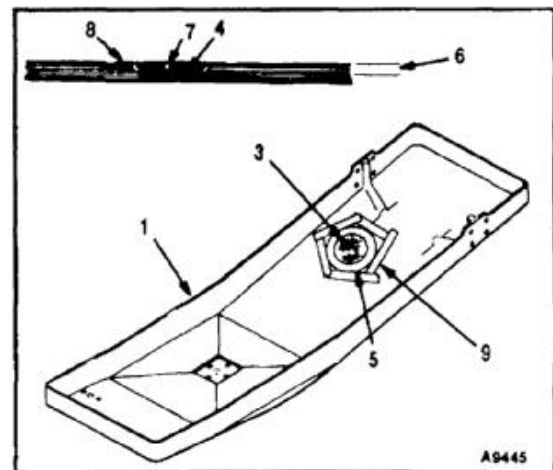
2-3.1 REPAIR TRANSMISSION AND APU DRIP PANS (KEVLAR) (Continued)

2-3.1

3. If tray (1) is torn, ripped, or punctured, clean it for **1.5 inches** beyond damage (3) in all directions. Use acetone (E20) and cloths (E120). Wear gloves (E184.1).
4. File or sand damage (3) to a round or oval shape down to undamaged area (4). Use a file or abrasive paper (E7). Taper the sides of the area to **15° to 30°**.
5. Roughen cleaned area (5) to ensure a good adhesive bond. Use abrasive paper (E12).



6. Note number of plies (6) cut away to reach undamaged area (4). Cut a number of pieces of Kevlar fabric (E209) (7) equal to the number of plies removed. Cut pieces to overlap and match taper of shape.
7. Cut a piece of Kevlar fabric (E209) (8) large enough to overlap damaged area (3) **1 inch** in all directions.
8. Remove pieces (7 and 8) from tray (1).
9. Cover tray (1) around cleaned area (5) with Teflon tape (E399) (9).
10. Measure **50 grams** of resin (E47) and **6 grams** of hardener (E459).



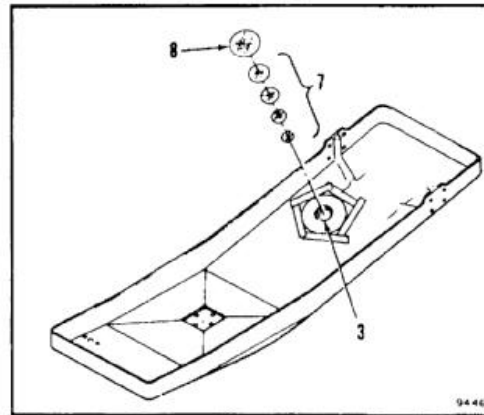
Do not use styrofoam cup. Resin melts styrofoam.

11. Mix resin (E47) with hardener (E459). Use polyethylene cup (E157) and wood spatula (E424). Wear gloves (E184.1).

NOTE

Working life of resin mixture is about **1 hour**.

12. Coat damaged area (3) with resin mixture. Use brush (E86).
13. Beginning with smallest patch of fabric (E209) (7), coat each patch with resin mixture and set it in damaged area (3). Check that each patch overlaps patch below. Last patch (8) shall overlap damaged area **1 inch** in all directions.

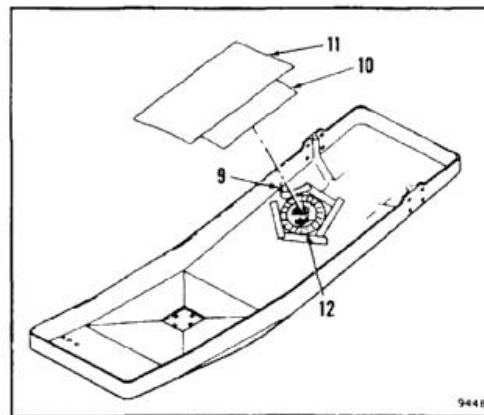
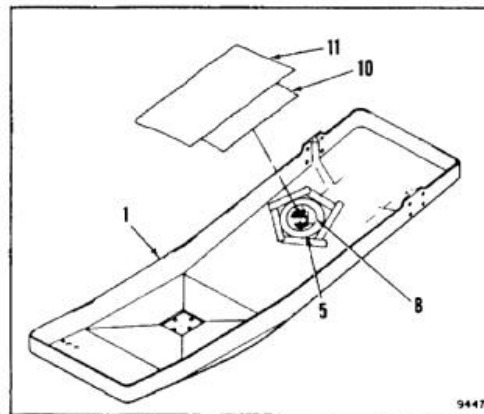


14. Check that repair is slightly higher than surface of tray (1). Add more pieces of fabric under top patch (8), if needed.
15. Cover repair and cleaned area (5) with peel ply (E270) (10). Cover peel ply with Teflon-impregnated fabric (E170) (11).
16. Place weight on repair area to provide **2 to 3 psi** pressure. Use shot bags or equivalent.



If temperature exceeds **150°F (65°C)**, pan can be damaged.

17. Cure resin at **140° to 150°F (60° to 65°C)** for **2 hours**. Use infrared lamp and temperature indicating strips (E413).
18. Remove weight, Teflon-impregnated fabric (11), and peel ply (10). Remove Teflon tape (9).
19. Sand squeezeout (12) until repair area is smooth. Use abrasive paper (E7).
20. Clean repair area with acetone (E20) and clean cloths (E120). Wear gloves (E184.1).
21. Sand repair area with abrasive paper (E10).
22. Clean area with acetone (E20) and clean cloths (E120). Wear gloves (E184.1).
23. Apply **one coat** of epoxy primer (E292.1). Wear gloves (E184.1). Allow primer to dry.
24. Apply **two coats** of epoxy coating (E137). Wear gloves (E184.1). Allow coating to dry.



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-3.2 REPAIR TRANSMISSION DRIP TRAYS (ALUMINUM)

2-3.2

INITIAL SETUP

Applicable Configurations:

With **49**

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

TM 1-1500-204-23
Task 2-8
Task 2-10

Equipment Condition:

Off Helicopter Task

General Safety Instructions:

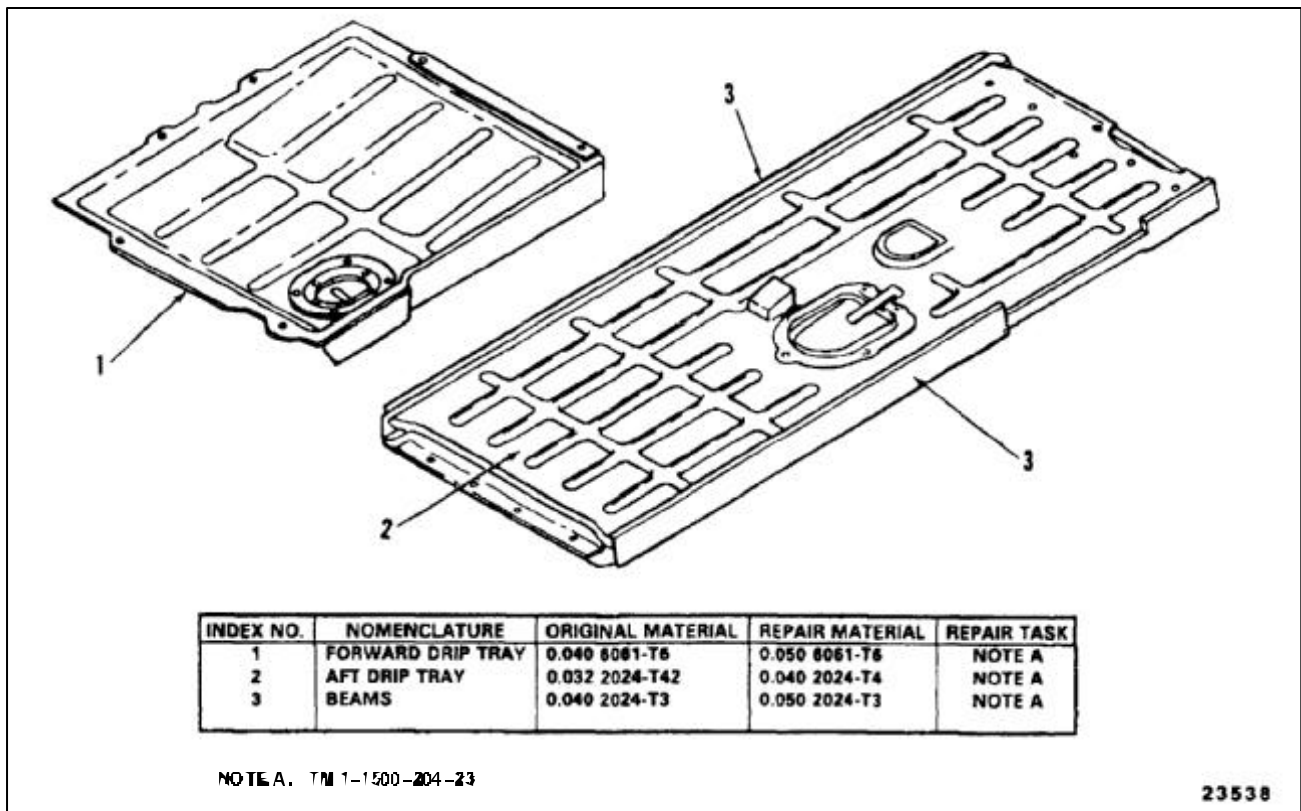
As Required

1. Identify original material and repair material.
2. Classify damage as partial (Task 2-8) or complete (Task 2-10).
3. Refer to TM 1-1500-204-23 for repair procedures.

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:

None

Personnel Required:

Inspector

References:

TM 1-1520-253-23
 TM 1-1500-204-23
 Task 2-324
 Task 2-359

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Refer to TM 1-1500-204-23 for the following:
 - a. Determine depth of nicks and scratches.
 - b. Find if part is magnesium or aluminum.
 - c. Determine type of aluminum alloy.
 - d. Detect unbonding and ply separations.
2. If damage was caused by severe impact, and alignment of structure is required, return the helicopter to depot.
3. Check plates, clips, and doublers in area of damage for distortion, security, and elongated holes.
4. Check bulkheads, formers, stringers, supports, beams, decks, and longerons for distortion, cracks, nicks, dents, scratches, elongated holes, and loose or missing rivets or bolts. No cracks allowed. If a crack is suspected, refer to TM 1-1520-253-23.
5. Check body skin for holes, dents, scratches, cracks, loose or missing rivets. No cracks allowed. If a crack is suspected, refer to TM 1-1520-253-23.
6. Check body skin for oilcanning (Task 2-359).
7. Check bottom skin surfaces (Task 2-359).
8. Check access doors and panels for cracks, dents, distortion, and security. No cracks allowed. If a crack is suspected, refer to TM 1-1520-253-23.
9. Check seals for damage and security.
10. Check entire fuselage structure for watertight sealing (Task 2-324), especially the following areas:
 - a. Access doors and panels.
 - b. Maintenance steps and handgrips.
 - c. Manufacturing splices and seams.
 - d. External electrical connectors.
 - e. Windows and enclosure.
 - f. Under cabin fuselage section floor for moisture and corrosion.
11. Following inspection, classify damage as minor, repairable, or non-repairable.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-5 INSPECTION AFTER LIGHTNING STRIKE**2-5****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:

None

Personnel Required:Inspector
Rotary Wing Aviator (2)**References:**TM 55-1520-240-10
Operational Check of Flight Control Systems (TM
55-1520-240-T)**Equipment Condition:**

None

General Safety Instructions:

As Required

NOTE

Data on helicopters struck by lightning shows that most damage has been to the rotor system.

1. Inspect rotor head for burn marks or pitting following suspected lightning strike. Replace head if marks are visible. Label removed head as being struck by lightning and return head to depot. Inspect drive shaft and flight control bearings for arcing or pits.
2. Inspect the fuselage interior and exterior, the forward and aft landing gear, all wheels and tires. Inspect the static ground wire on the aft left landing gear for burn marks and pitting.
3. Inspect wiring in exposed cabin, fuselage, and pylon areas for burns.
4. Inspect antennas and pitot tubes for burns and pitting.
5. Visually inspect all electrically operated components and lighting systems for damage.
6. Visually inspect communication and navigation equipment for damage.
7. Visually inspect AFCS components for damage.
8. Perform an operational check of the flight control system (TM 55-1520-240-T).
9. Visually inspect rotor blades for unbonding of jumpers and any visual arc burns. Repair or replace blade if above conditions are found.
- 9.1. Visually inspect jumper strips for cracks. Replace strips if cracks are found.
10. Check the magnetic compass for accuracy.
11. Repair any damage and replace damaged components as required using standard maintenance practices.
12. Perform a ground run maintenance operational check of the helicopter. Functionally check the AFCS, all electrical and lighting systems, and the communication and navigation systems (TM 55-1520-240-10).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:

None

Personnel Required:

Inspector

References:Task 2-350
TM 1-1500-204-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

NOTE

Minor damage can exist as is, or can be corrected by simple procedure without placing restrictions on flight.

1. Simple Procedures:

- a. Stop drilling cracks.
 - b. Burnishing or blending scratches or nicks.
 - c. Removal of dents.
 - d. Application of a temporary fabric patch.
 - e. Filling small hole with a rivet.
2. Stop-drill cracks at each sharp corner and at end of crack. Use a **1/32 inch** diameter drill.
 3. Scratches on internal web and formed parts not deeper than **10 percent** of web thickness after burnishing are minor.
 4. Scratches shall not be deeper than **10 percent** of thickness of thinnest leg after burnishing.
 5. Scratches are not permitted on radiuses of any part.
 6. Nicks, dents, cracks, and scratches more than **10 percent** depth for formed parts are minor if they can be cleaned out to a round hole classified as minor.

7. No holes are permitted in any internal web.
8. Holes **3/16 inch** diameter or less shall be plugged with a tight-fitting rivet or bolt.
9. Minor damage shall clear all internal radiuses of formed parts after burnishing.
10. Two adjacent damages classified as minor shall be separated by a **4 inch** length of undamaged material. Distance shall be measured from edges of burnished areas.
11. Refinish reworked areas (Task 2-350).
12. *Loose Fasteners*
 - a. *General*
Residue at fasteners is acceptable structurally, unless fasteners can be moved with the fingers in any direction. (No mechanical tools are to be used.) Looseness or improper fit of fasteners is also indicated by a bright surface area surrounding fastener head or tail. Replace loose fasteners.



Loose Hi-Lok fasteners which were previously repaired by installation of a washer must be replaced if found loose during subsequent inspections.

NOTE

Loose Hi-Lok fasteners may be repaired if there are no cracks and the fastener hole is not elongated/oversize, check protrusion of the Hi-Lok pin grip through structure. If protruding grip is greater than **0.050 inches**, install a AN960JD10 washer and a HL70-6 collar on the existing Hi-Lok pin. If protrusion is less than **0.050 inches**, install a AN960JD10LL washer and HL70-6 collar on the existing Hi-Lok pin. If repairs exceed washer installation, refer to TM 1-1500-204-23 for repair.

b. *Aft Transmission Mounts*

Any residue around fasteners in vertical blades of fittings is unacceptable. These fasteners should be replaced. Residue around any other fasteners in web area is acceptable when in accordance with step a.

c. *Aft Vertical Shaft Mounts*

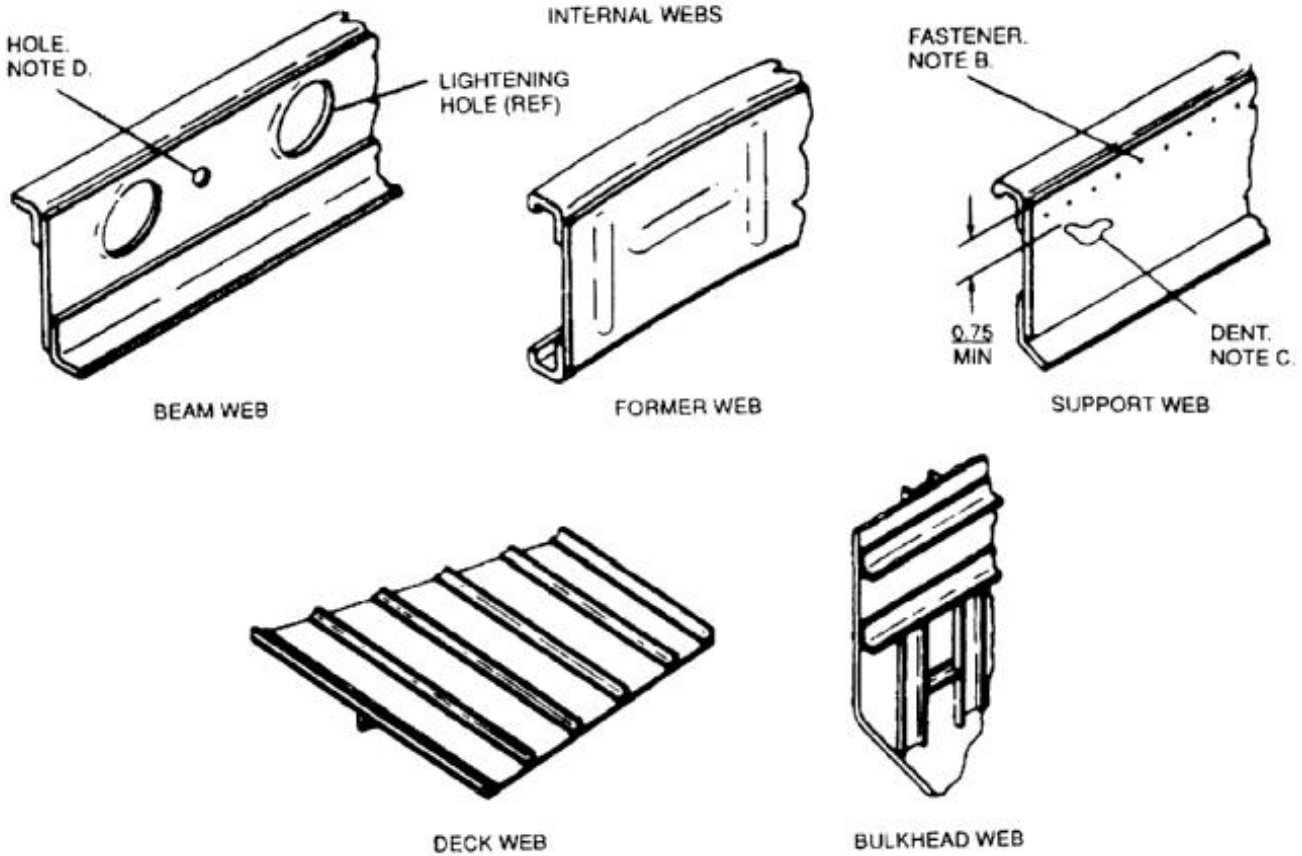
Any residue around fasteners in vertical shaft fittings is to be treated the same as for aft transmission. (Refer to step b.)

d. *Combiner Transmission Mounts*

Any residue around lower twelve fasteners through combiner box blades, and fasteners through pad of fitting and upper four fasteners through vertical blades, is acceptable when in accordance with step a.

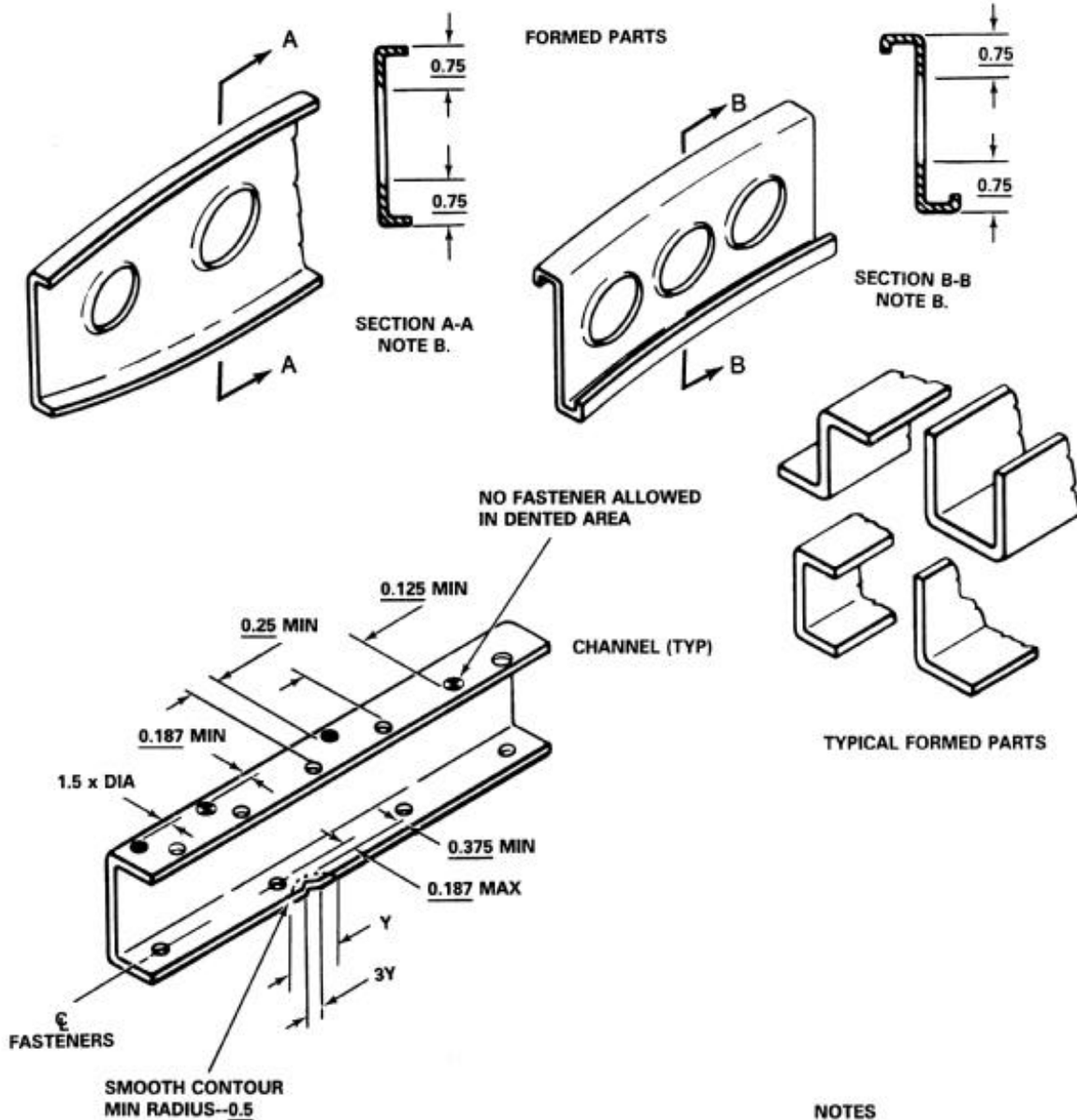
e. *Swiveling/Pivoting Actuator Mounts*

Any residue around fasteners for actuator support fittings in vertical blade is unacceptable. Replace these fasteners. Residue around fasteners in portion of fitting on pad in rear of deck is acceptable when in accordance with step a.



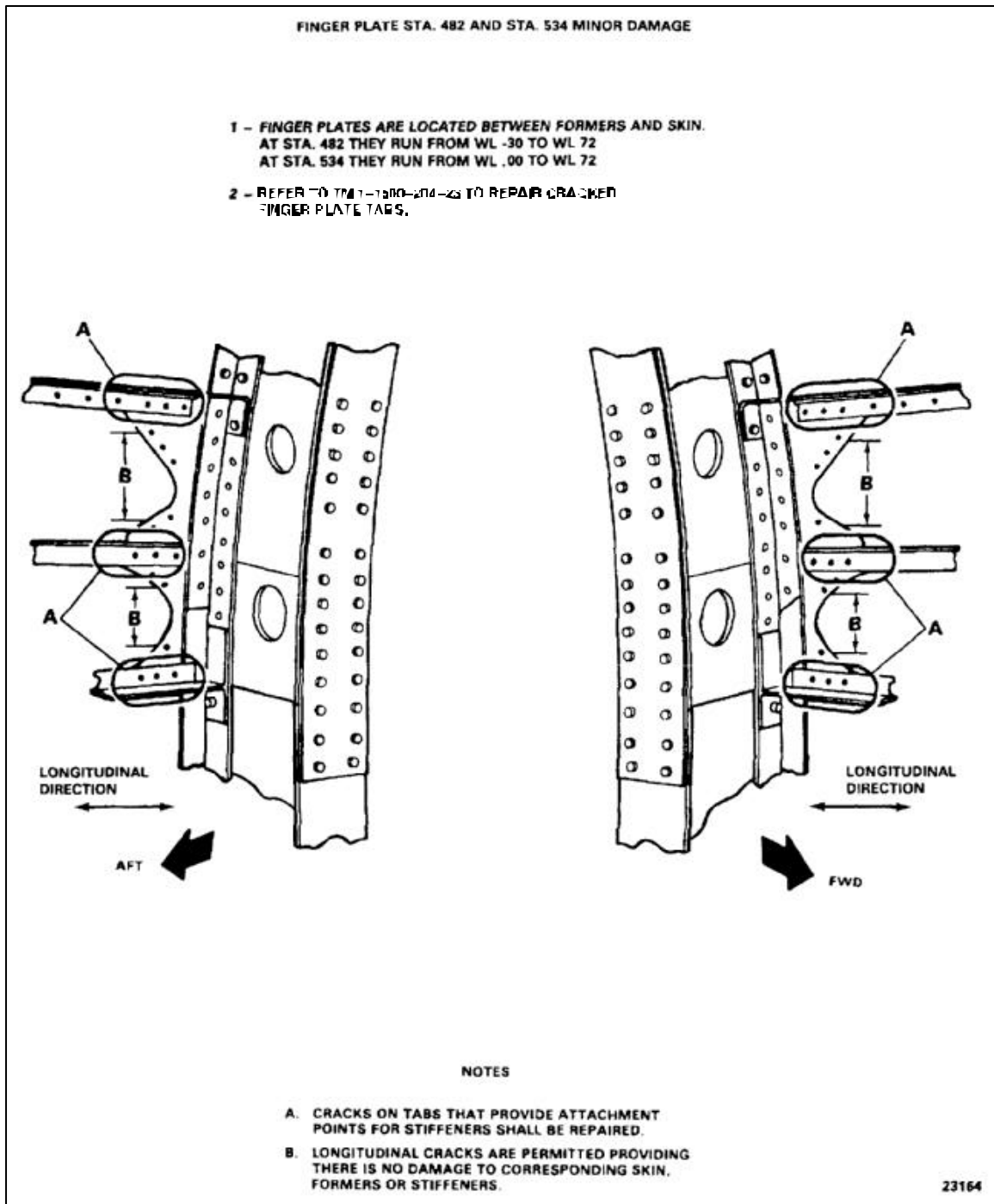
NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. FASTENERS NEAR DAMAGE CLASSIFIED AS MINOR MUST BE CAREFULLY INSPECTED FOR SIGNS OF FAILURE SUCH AS TIPPING OF HEAD, CRACKING OF PRIMER COAT, AND CLEARANCE UNDERNEATH HEAD
- C. SMOOTH DENTS, FREE FROM CRACKS AND ABRASIONS, CAN BE DISREGARDED IF EDGES OF DENT CLEAR EDGES OF A STRUCTURAL MEMBER, WEB SPLICE, LIGHTENING OR ACCESS HOLE, OR A RADIUS BY AT LEAST **0.75**
- D. NO HOLES PERMITTED UNREPAIRED IN ANY WEBS



- SYMBOLS**
- --ATTACHMENT HOLE
 - --0.3125 MAX DIA HOLE.
 - ⊗ --DENT.

- NOTES**
- A. ALL DIMENSIONS ARE IN INCHES
 - B. DAMAGE IN SHADED AREAS AND OVERLAPPING SHADED AND UNSHADED AREAS IS CLASSIFIED AS MINOR OR NOT MINOR ACCORDING TO DIMENSIONS FOR GIVEN CHANNELS. DAMAGE IN UNSHADED AREAS MAY BE CLASSIFIED AS MINOR WHEN THE MAXIMUM DIAMETER OF HOLES IS 0.875 WITH THE DISTANCE BETWEEN TRIMMED EDGES OF ANY TWO HOLES BEING 10 TIMES THE DIAMETER OF LARGER HOLE



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-7 CLASSIFICATION OF REPAIRABLE DAMAGE (GENERAL INFORMATION)**2-7****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

Personnel Required:

Inspector

References:Task 2-6
Tasks 2-8 thru 2-10**Equipment Condition:**

As Required

General Safety Instructions:

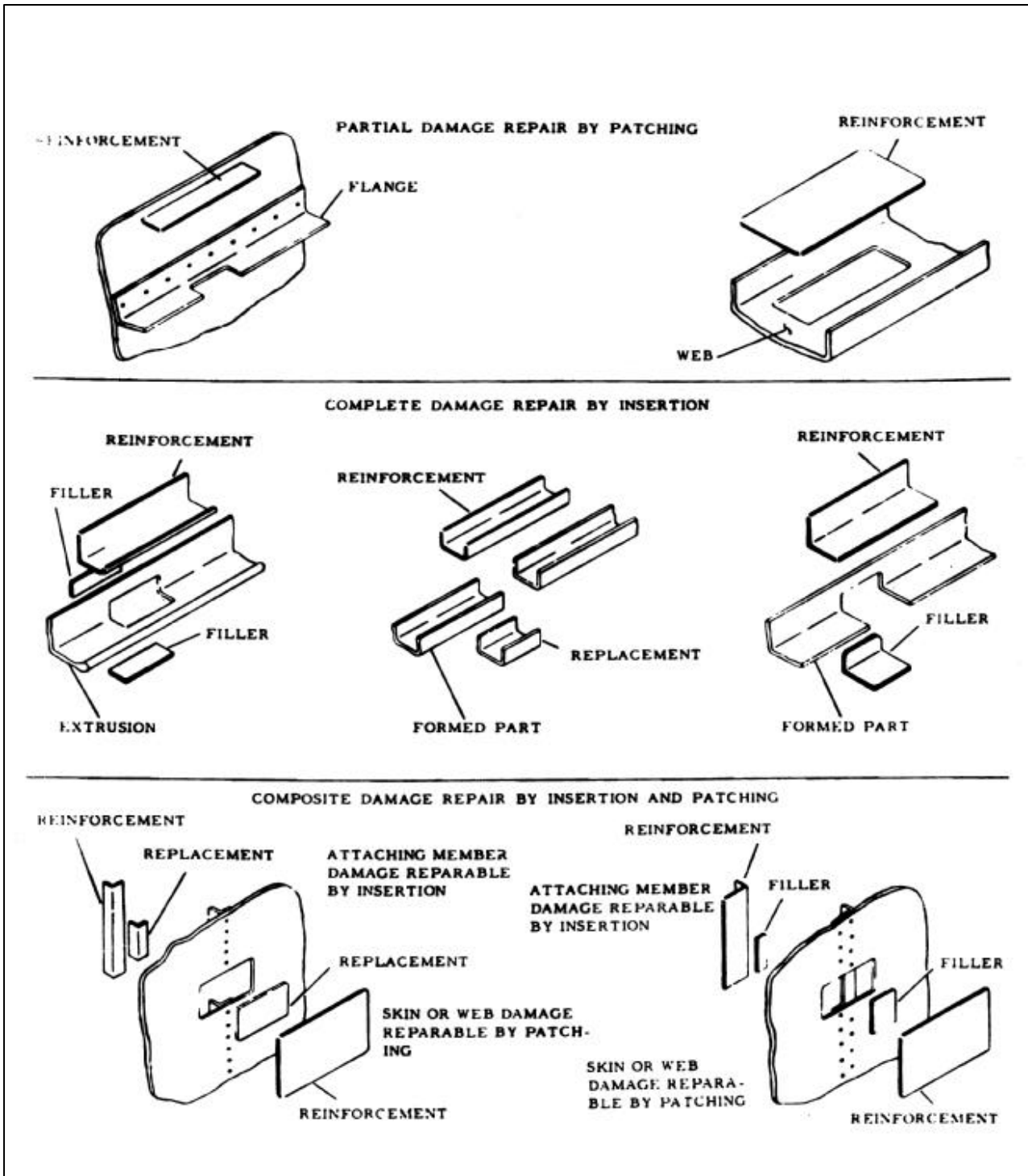
As Required

NOTE

Repairable damage exceeds specified minor limits (Task 2-6) but is confined to a small area of a part and is repairable by patching, subject to area involvement.

Damage that cannot be repaired necessitates replacement. An example is the loss of a major portion of a section of skin or former. Also, a part that cannot be repaired because of the complexity of the design must be replaced.

1. A patch type repair reinforcement generally does not have to extend the full cross section of a part. In webs, reinforcements do not have to extend from boundary member to boundary member.
2. A filler can be used to compensate for thickness of original material removed in damaged area but should not be considered an insertion.
3. Complete (Task 2-10) or composite (Task 2-9) damage is repairable by insertion of a partial replacement, identical to original.
4. Partial replacement (Task 2-8) is accompanied by a reinforcement representing the full cross section of the original part. In webs, partial replacements should extend from boundary member to boundary member.



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-8 PARTIAL DAMAGE REPAIR (GENERAL INFORMATION)**2-8****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
 Inspector

1. Partial damage repair is repair that does not remove more than one flange and may be repaired by patching. Also, repair to skin or webs which is clear of adjacent structural parts after patching.
2. For additional extruded damage repair criteria refer to Tasks 2-336 and 2-336.1.

References:

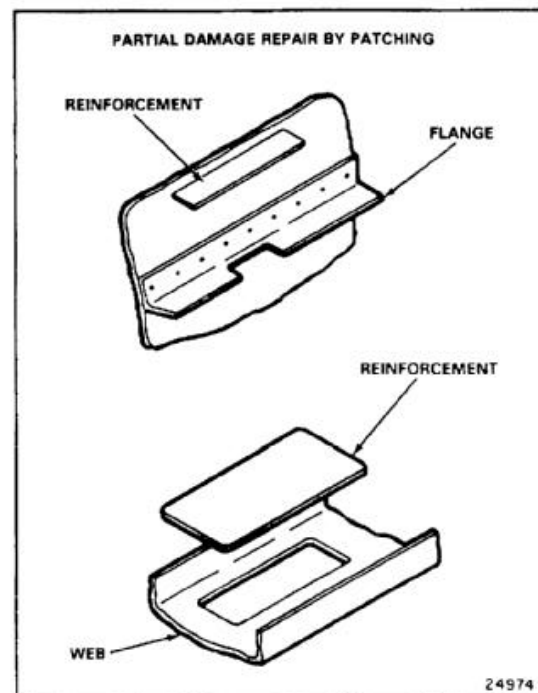
Task 2-336
 Task 2-336.1

Equipment Condition:

As Required

General Safety Instructions:

As Required

**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
 Inspector

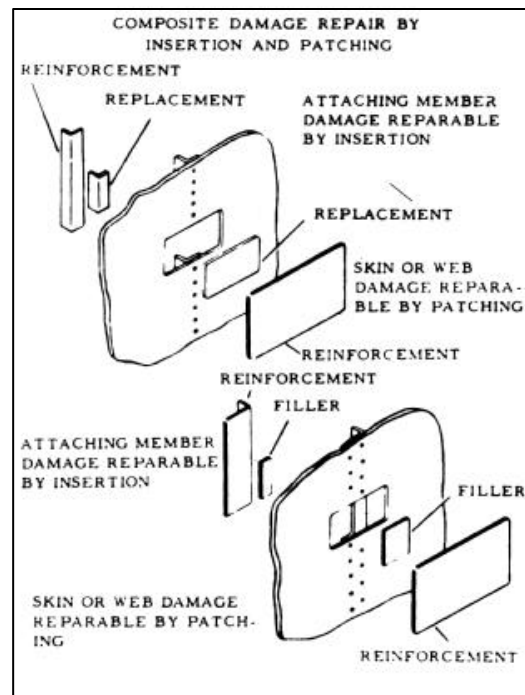
Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Damage greater than minor and occurring to both structural parts and attached skin or web is composite damage.
2. The skin panel, in some cases, will be replaced and attached to the repaired part similar to the original attachment. An exception is the repair area of the part, where the attachments may be governed by the repair of the part.
3. In other cases the skin will be patched when the part is repaired. The method of repair being determined individually for each of the parts under consideration.
4. Extensive damage, such as numerous composite damages, where insufficient undamaged structure remains, or severe distortions or loss of primary parts will, in many instances, necessitate replacement of a structural assembly or complete section of the body group.



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Repairer's Tool Kit, NSN 5180-00-323-4876
 Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

Task 2-8
 Task 2-336
 Task 2-336.1

Equipment Condition:

As Required

General Safety Instructions:

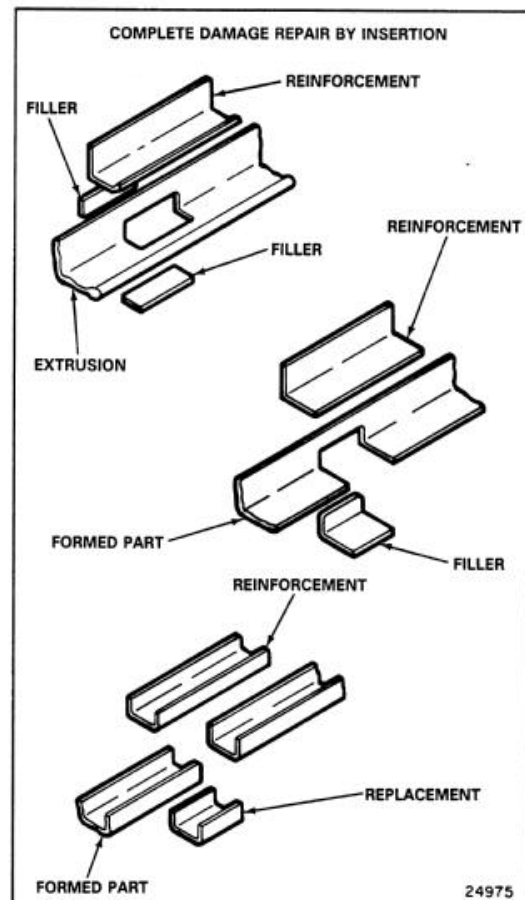
As Required

1. Complete damage repair is damage greater than that defined as partial (Task 2-8) damage, or damage that removes the major portion of the cross section of a part.
 - a. Pre-repair steps that remove the heel of an extrusion, the radiuses of a formed part, or affect two flanges at any one location along the part are classified as complete damage.

NOTE

A small part may be replaced provided it is available or can be made from available material.

- b. Several isolated skin damages too close to permit use of individual patches. Also, isolated damages that require removal of over half the skin or web area between adjacent structural parts are classified as complete damage.
2. Complete damage, except where replacement is more practical, will require repair by insertion.
3. For additional extruded damage repair criteria refer to Tasks 2-336 and 2-336.1.

**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

None

Personnel Required:

Inspector

References:

Tasks 2-12 thru 2-14
 Task 2-166
 Task 2-171
 Task 2-324
 Tasks 2-357 thru 2-359
 TM 1-1500-204-23

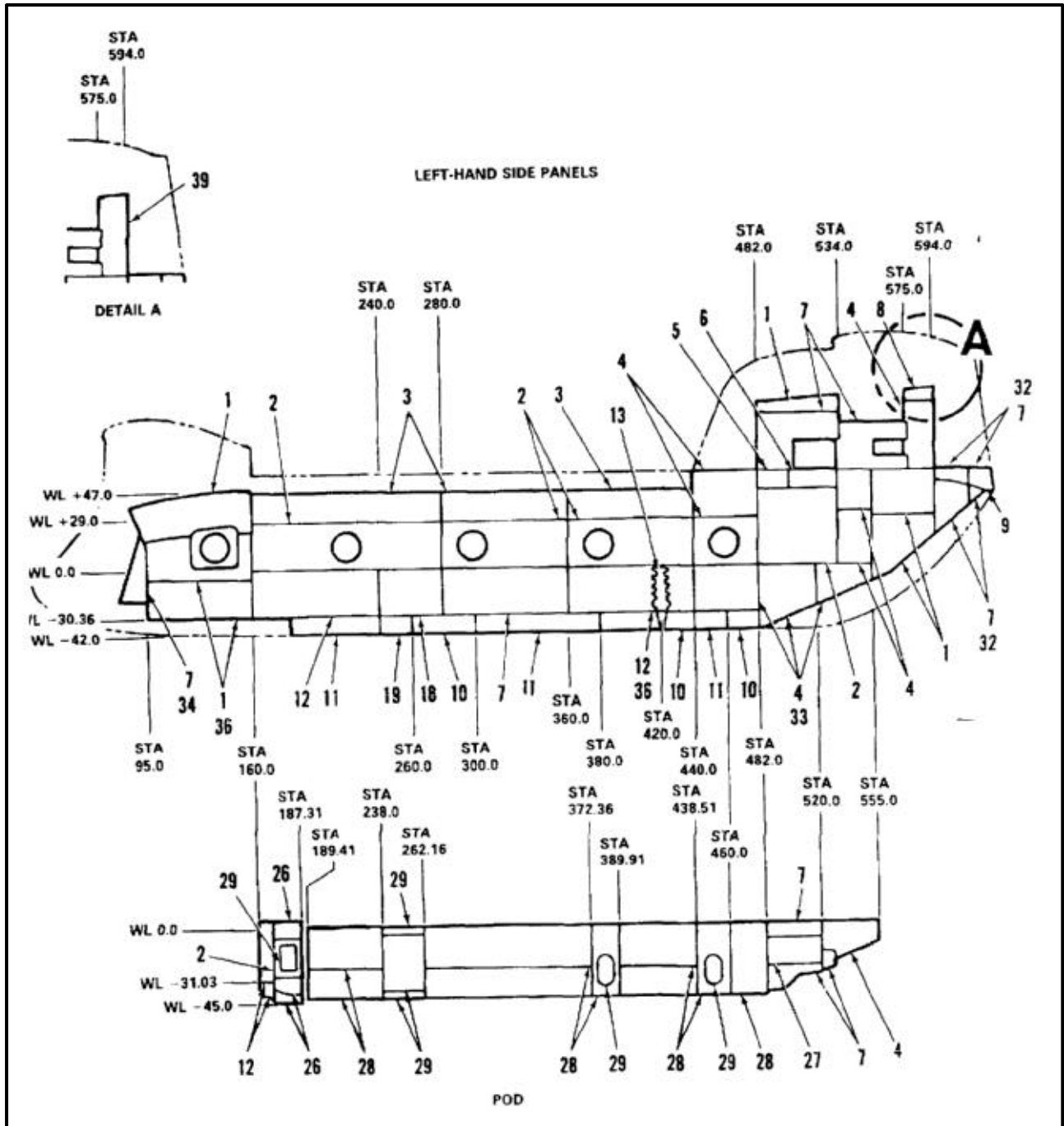
Equipment Condition:

As Required

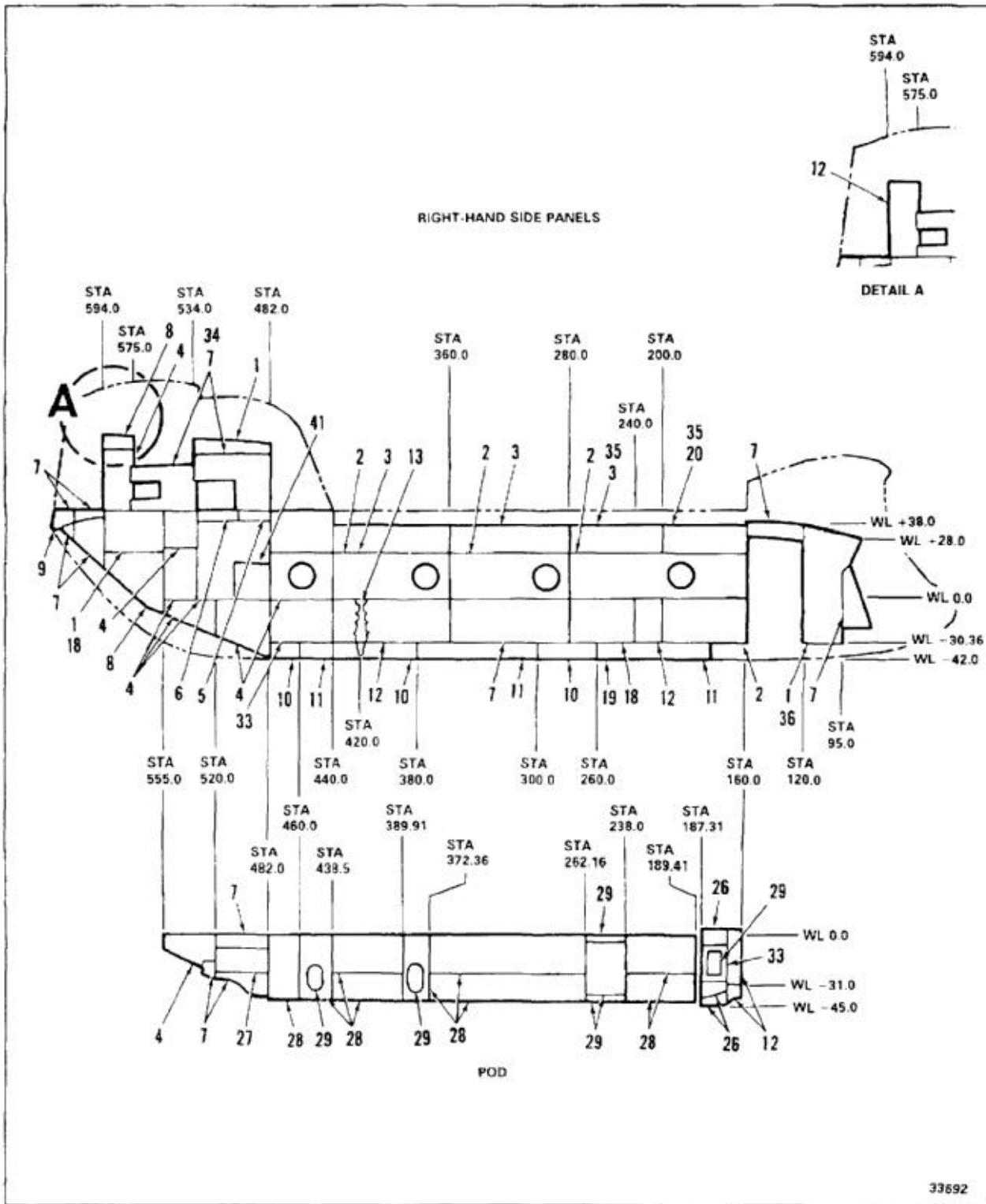
General Safety Instructions:

As Required

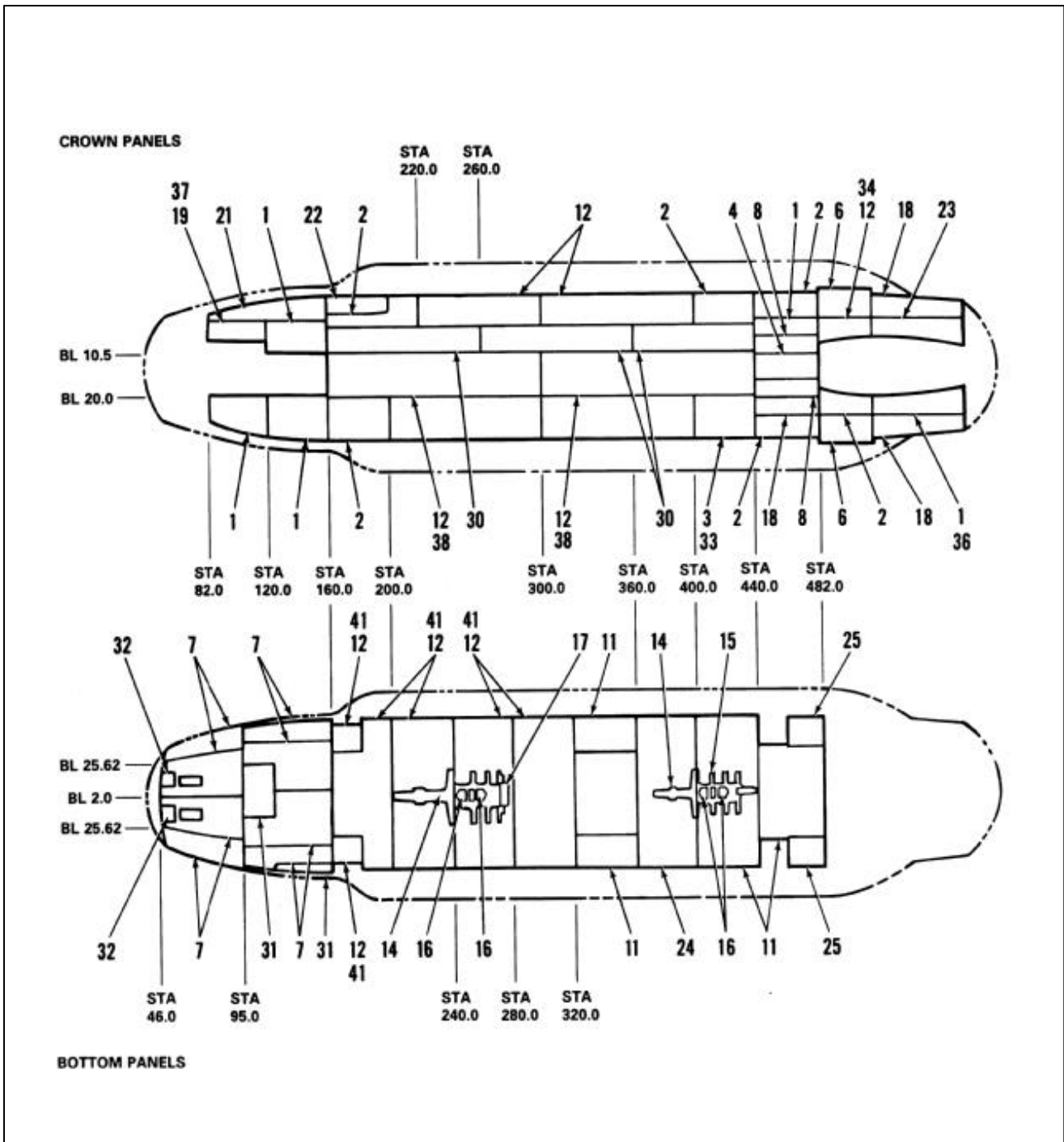
1. The skin panels of the major assemblies of the fuselage and aft pylon are aluminum alloy. Variances in skin fabrication materials, such as sandwich-honeycomb or fiberglass, are described in the component definition.
2. Identify the skin panels, original and repair material. Below the waterline, skin panels are sealed watertight. Above the waterline, the skin panels are sealed weathertight.
3. Classify skin damage as minor (Task 2-12), repairable (Task 2-13), or needing replacement (Task 2-14).



SKIN Repair (Sheet 1 of 5)



Skin Repair - (Sheet 2 of 5)



Skin Repair (Sheet 3 of 5)

LEFT-HAND SIDE, RIGHT-HAND SIDE, CROWN, AND BOTTOM BODY SKIN PANELS

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	SKIN PANEL	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
2	SKIN PANEL	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD
3	SKIN PANEL	0.025 2024-T3 CLAD	0.032 2024-T3 CLAD
4	SKIN PANEL	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD
5	SHELF	0.032 321 (OR 347) ANL CRES	0.040 321 (OR 347) ANL CRES
6	SKIN PANEL	0.020 301 ANL CRES	0.025 301 ANL CRES
7	SKIN PANEL	0.025 2024-T3 CLAD	0.032 2024-T3 CLAD
8	SKIN PANEL	0.063 2024-T3 CLAD	0.063 2024-T3 CLAD
9	TRAILING EDGE CLOSURE PANEL	0.025 2024-T3 CLAD	0.032 2024-T3 CLAD
10	SKIN PANEL	0.040 7075-T6 CLAD	0.050 7075-T6 CLAD
11	SKIN PANEL	0.032 7075-T6 CLAD	0.040 7075-T6 CLAD
12	SKIN PANEL	0.025 2024-T3 CLAD	0.032 2024-T3 CLAD
13	STRAP	0.063 7075-T6 CLAD	0.063 7075-T6 CLAD
14	FINGER PLATE	0.100 7075-T6 BARE	0.100 7075-T6 CLAD
15	FINGER PLATE	0.100 7075-T6 BARE	0.100 7075-T6 CLAD
16	COVER	0.032 2024-T3 CLAD	0.032 2024-T3 CLAD
17	COVER	0.032 7075-T6 CLAD	0.032 7075-T6 CLAD
18	SKIN PANEL	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
19	SKIN PANEL	0.050 7075-T6 CLAD	0.063 7075-T6 CLAD
20	SKIN PANEL	0.050 2024-T3 CLAD	0.063 2024-T3 CLAD
21	SKIN PANEL	0.071 2024-T3 CLAD	0.071 2024-T3 CLAD
22	SKIN PANEL	0.070 2024-T3 CLAD	0.070 2024-T3 CLAD
23	SKIN PANEL	0.050 2024-T3 CLAD	0.063 2024-T3 CLAD
24	SKIN PANEL	0.025 7075-T6 CLAD	0.032 7075-T6 CLAD
25	SKIN PANEL	0.063 7075-T6 CLAD	0.063 7075-T6 CLAD
26	SKIN PANEL	0.020 2024-T3 CLAD	0.025 2024-T3 CLAD
27	SKIN PANEL	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD
28	PANEL	REFER TO NOTE E.	
29	ACCESS PANEL	REFER TO NOTE F.	
30	WALKWAY	REFER TO NOTE G.	
31	SKIN PANEL CHEM MILL	0.110 7075-T73 BARE NOTE H.	0.110 7075-T6 CLAD

- NOTES:**
- A. All dimensions are in inches.
 - B. Stations and waterlines represent the centerline of skin joints.
 - C. Refer to Task 2-359 for information on oilcan inspection and repair and to Task 2-324 for information on watertight sealing.
 - D. See Task 2-12 for minor damage to skin panels.
 - E. The panels (28) are sandwich honeycomb structures. Refer to Task 2-358 for repair information.
 - F. See TM 1-1500-204-23 for information on repair of access doors and panels.
 - G. The cabin crown walkways (30) are sandwich honeycomb structures; refer to Task 2-171.
 - H. This part is used on aircraft serial numbers 92-0367 and 92-0368.

2-11 SKIN (GENERAL INFORMATION) (Continued)

2-11

LEFT-HAND SIDE, RIGHT-HAND SIDE, CROWN, AND BOTTOM BODY SKIN PANELS			
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
32	SKIN PANEL	0.025 2024-T3 CLAD NOTE H.	0.032 2024-T3 CLAD
33	SKIN PANEL	0.032 2024-T3 CLAD NOTE H.	0.040 2024-T3 CLAD
34	SKIN PANEL	0.025 2024-T3 CLAD NOTE H.	0.032 2024-T3 CLAD
35	SKIN PANEL	0.050 2024-T3 CLAD NOTE H.	0.063 2024-T3 CLAD
36	SKIN PANEL	0.040 2024-T3 CLAD NOTE H.	0.050 2024-T3 CLAD
37	SKIN PANEL	0.050 7075-T6 CLAD NOTE H.	0.063 7075-T6 CLAD
38	SKIN PANEL	0.025 2024-T3 CLAD NOTE H.	0.032 2024-T3 CLAD
39	SKIN PANEL	0.063 2024-T3 CLAD NOTE H.	0.063 2024-T3 CLAD
40	SKIN PANEL	0.063 7075-T6 CLAD NOTE H.	0.063 7075-T6 CLAD
41	SKIN PANEL	0.020 7075-T6 CLAD NOTE H.	0.025 7075-T6 CLAD

- NOTES:**
- A. All dimensions are in inches.
 - B. Stations and waterlines represent the centerline of skin joints.
 - C. Refer to Task 2-359 for information on oilcan inspection and repair and to Task 2-324 for information on watertight sealing.
 - D. See Task 2-12 for minor damage to skin panels.
 - E. The panels (28) are sandwich honeycomb structures. Refer to Task 2-358 for repair information.
 - F. See Task 2-357 for information on repair of access doors and panels.
 - G. The cabin crown walkways (30) are sandwich honeycomb structures; refer to Task 2-171.
 - H. This part is used on aircraft serial numbers 92-0367 and 92-0368.

Skin Repair (Sheet 5 of 5)**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

Personnel Required:

Inspector

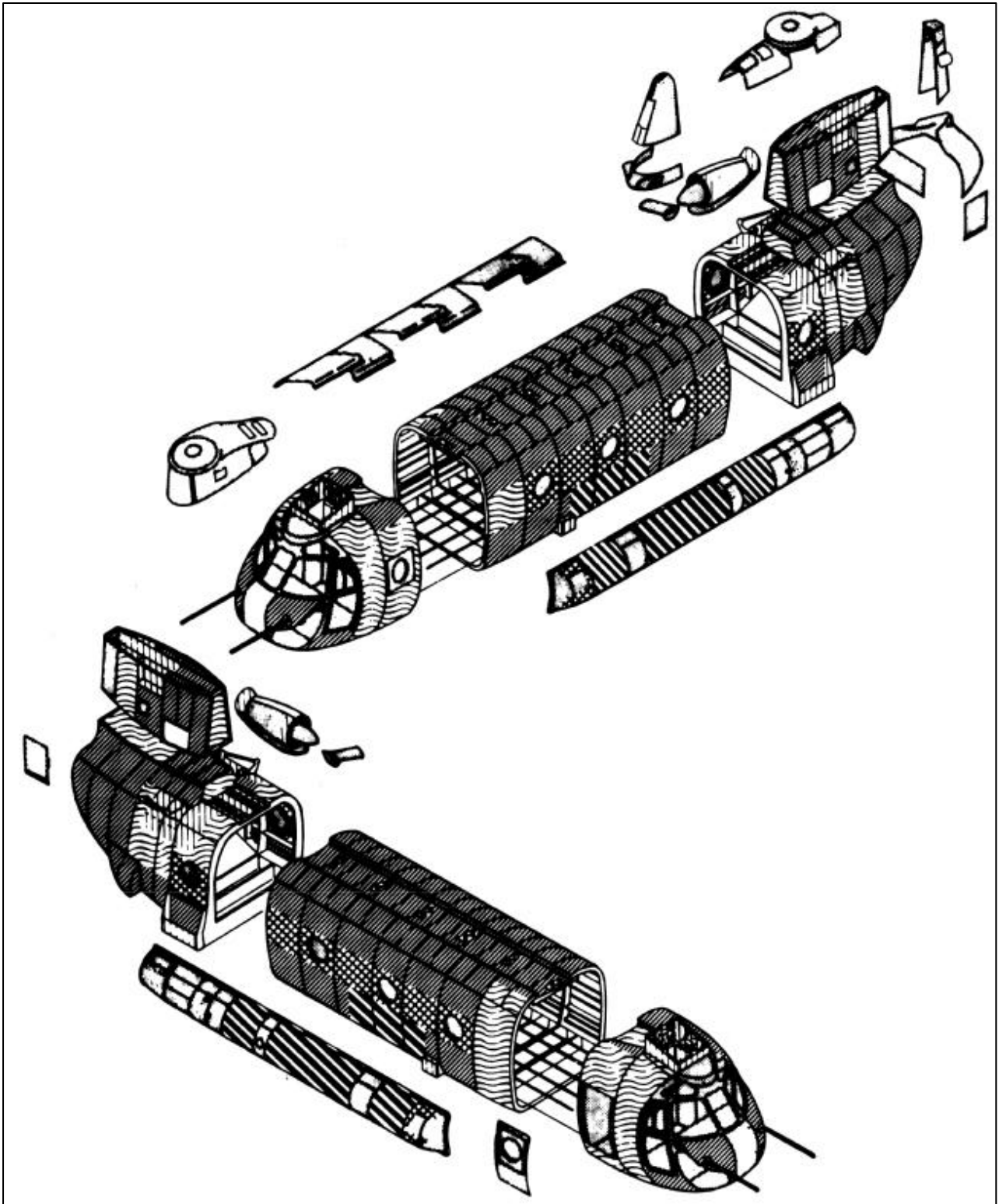
References:Task 2-13
Task 10-10
Task 10-11**Equipment Condition:**

As Required

General Safety Instructions:

As Required

Examples of minor damage are nicks and scratches whose depth after burnishing does not exceed **10 percent** of the thickness of the material. Holes and cracks shall not exceed limits shown in accompanying charts.



REPAIR LIMITATION KEY

<p>■ REFER TO NOTE B.</p> <p>▣ REFER TO NOTE C.</p> <p>■ REFER TO NOTE D.</p>	<p>▨ REFER TO NOTE E.</p> <p>▨ REFER TO NOTE F.</p> <p>▨ REFER TO NOTE G.</p>
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BOTTOM

NOTES

<p>A. ALL DIMENSIONS ARE IN INCHES</p> <p>B. HOLES ARE ALLOWED IN THESE AREAS IF THE PART IS SECURELY ATTACHED TO THE HELICOPTER. THE PART SHOULD BE REMOVED IF YOU ARE NOT SURE THE PART IS ON TIGHT</p> <p>C. HOLES ARE ALLOWED IN THESE AREAS IF NO ONE HOLE EXCEEDS <u>3.0</u> DIAMETER AND THE MINIMUM DISTANCE BETWEEN NEAREST HOLES IS TEN TIMES THE DIAMETER OF THE LARGEST HOLE</p> <p>D. HOLES IN THESE AREAS MUST BE TRIMMED ROUND AND THEIR EDGES SMOOTHED PRIOR TO FLIGHT. THE TRIMMED HOLE SHOULD NOT EXCEED <u>1.0</u> DIAMETER AND THE MINIMUM DISTANCE BETWEEN NEAREST HOLES MUST BE TEN TIMES THE DIAMETER OF THE LARGEST HOLE</p> <p>E. HOLES ARE ALLOWED IN THESE AREAS PROVIDING NONE EXCEED <u>0.5</u> DIAMETER AND THE MINIMUM DISTANCE BETWEEN NEAREST HOLES IS NOT LESS THAN <u>5.0</u>. HOLES IN THESE AREAS CAN RESULT IN FUEL CELL DAMAGE WHICH MUST BE EVALUATED AND REPAIRED AS DIRECTED IN TASK 10-10 AND 10-11.</p> <p>F. HOLES IN THESE AREAS MUST BE REPAIRED, HOWEVER, IF REQUIRED, THE RESTRICTIONS OF NOTE D. CAN BE APPLIED AND A ONE-TIME FLIGHT PERMITTED WITHIN THE FOLLOWING LIMITATIONS:</p>	<p>1. <u>33,000 POUND MAXIMUM GROSS WEIGHT</u></p> <p>2. <u>6 HOUR MAXIMUM FLIGHT DURATION</u></p> <p>3. <u>MINIMUM FLIGHT MANEUVERS</u></p> <p>HOLES MUST BE REPAIRED BEFORE THE LIMITED FLIGHT</p> <p>G. HOLES IN THESE AREAS MUST BE REPAIRED, HOWEVER, IF REQUIRED, THE RESTRICTIONS OF NOTE D. CAN BE APPLIED AND A ONE-TIME FLIGHT PERMITTED WITHIN THE FOLLOWING LIMITATIONS:</p> <p>1. <u>33,000 POUND MAXIMUM GROSS WEIGHT</u></p> <p>2. <u>2 HOUR MAXIMUM FLIGHT DURATION</u></p> <p>3. <u>MINIMUM FLIGHT MANEUVERS</u></p> <p>4. <u>3.0 FEET PER SECOND MAXIMUM LANDING SINK SPEED</u></p> <p>HOLES MUST BE REPAIRED BEFORE THE LIMITED FLIGHT</p> <p>H. CRACKS IN ALL AREAS ARE PERMITTED, ONLY IF THEY ARE WITHIN THE LIMITATIONS FOR HOLES. CRACKS MUST BE STOP-DRILLED TO PREVENT SPREADING. IF POSSIBLE, DAMAGE ABOVE WATERLINE 0.0 SHOULD HAVE A TEMPORARY PATCH APPLIED IN AREAS WHERE WEATHER-TIGHTNESS IS REQUIRED. OPERATIONS OVER WATER SHOULD NOT BE ATTEMPTED IF UNREPAIRED DAMAGE EXISTS BELOW WATERLINE 0.0. ALL DAMAGE SHOULD BE PERMANENTLY REPAIRED AT THE EARLIEST OPPORTUNITY. SEE TASK 2-13 FOR INFORMATION ON PATCHES.</p>
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FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-13 SKIN REPAIRABLE DAMAGE (GENERAL INFORMATION) (AVIM)

2-13

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

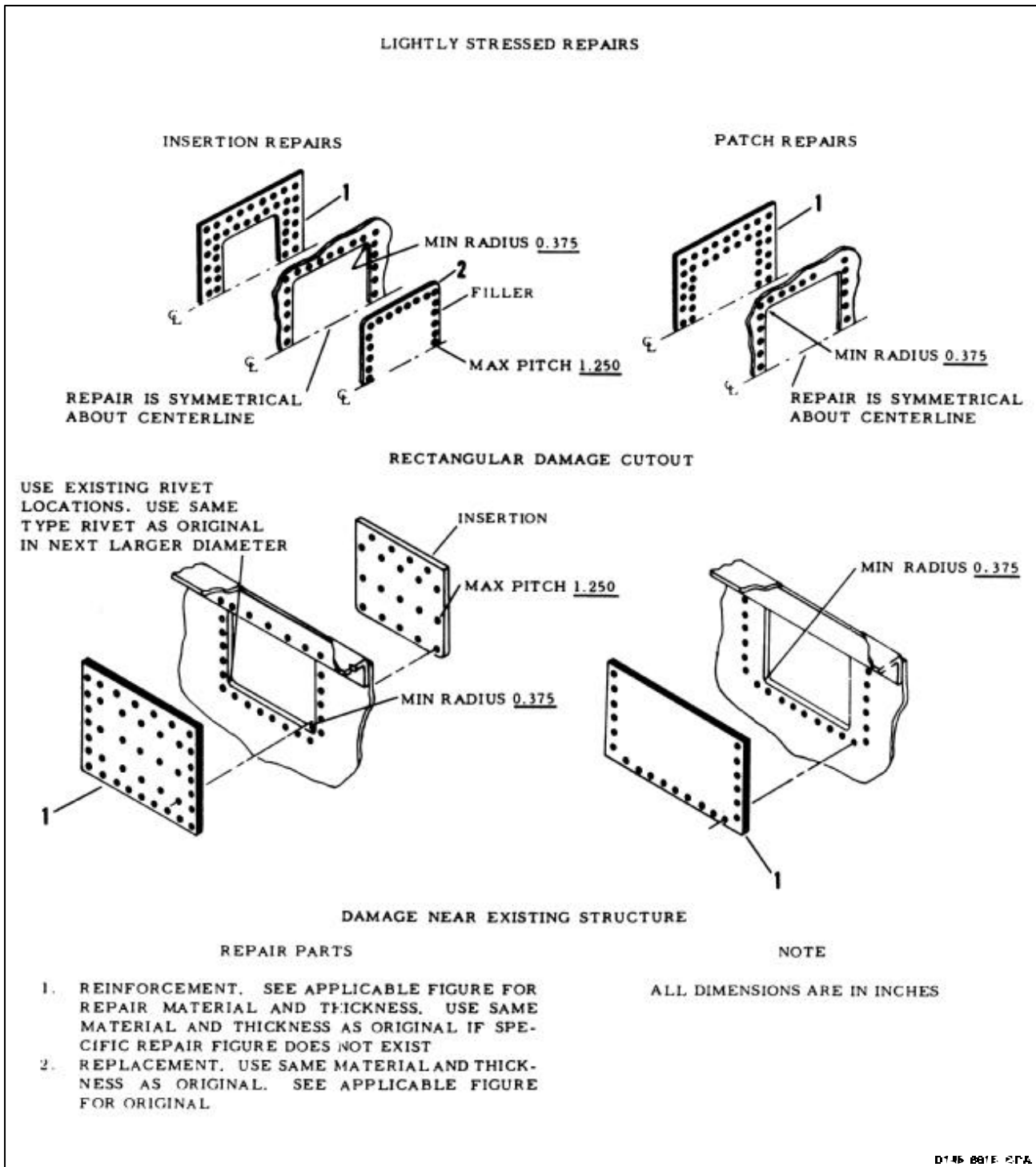
Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-11
Task 2-12**Equipment Condition:**

As Required

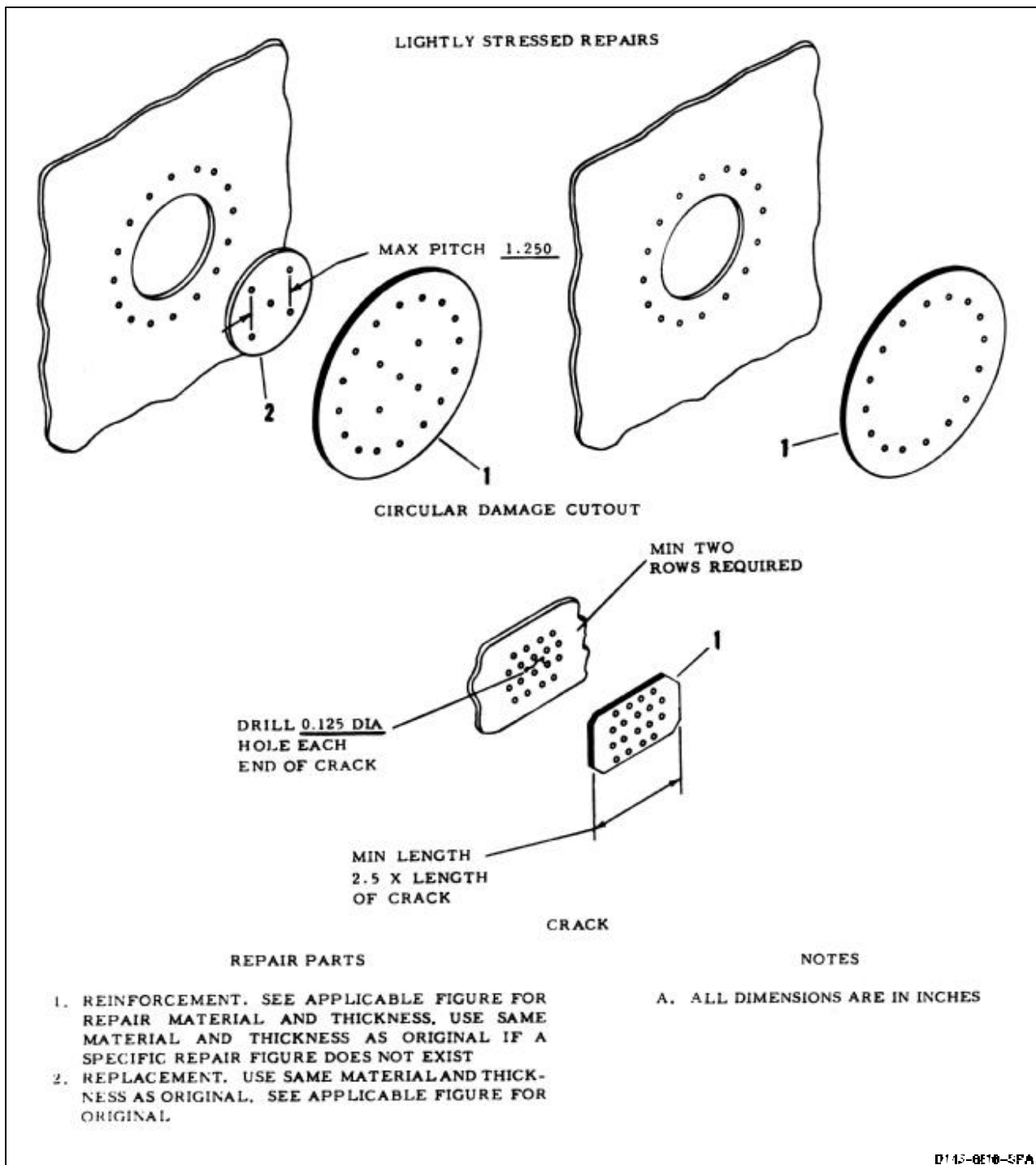
General Safety Instructions:

As Required

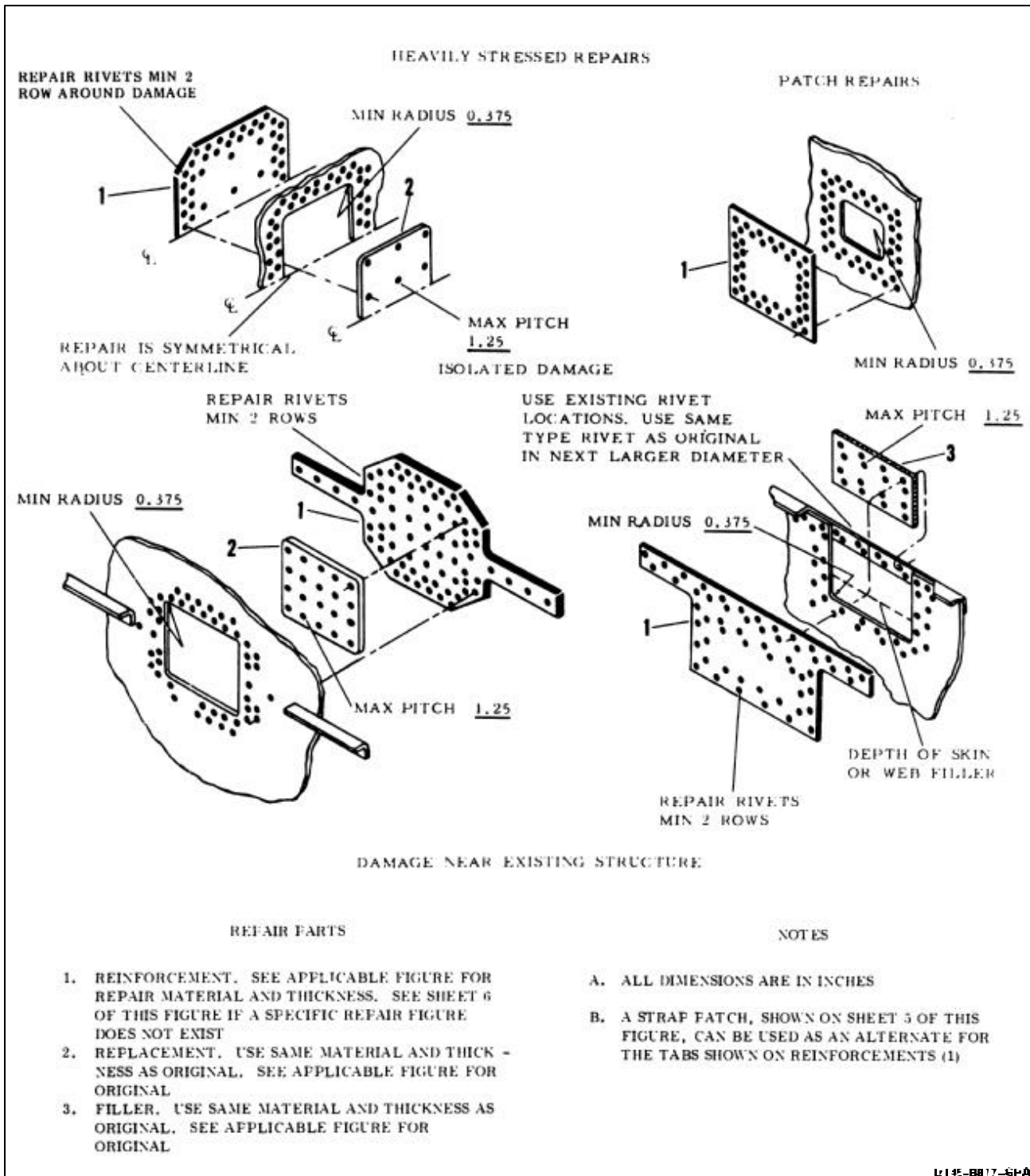
1. Repairable damage is more extensive than minor damage (Task 2-12). After pre-repair steps, repairable damage shall not affect more than **25 percent** of skin area between boundary members and area which clears structural members.
2. Repairable damage requires less than a full skin panel insertion.
3. Refer to Task 2-11 for general location.



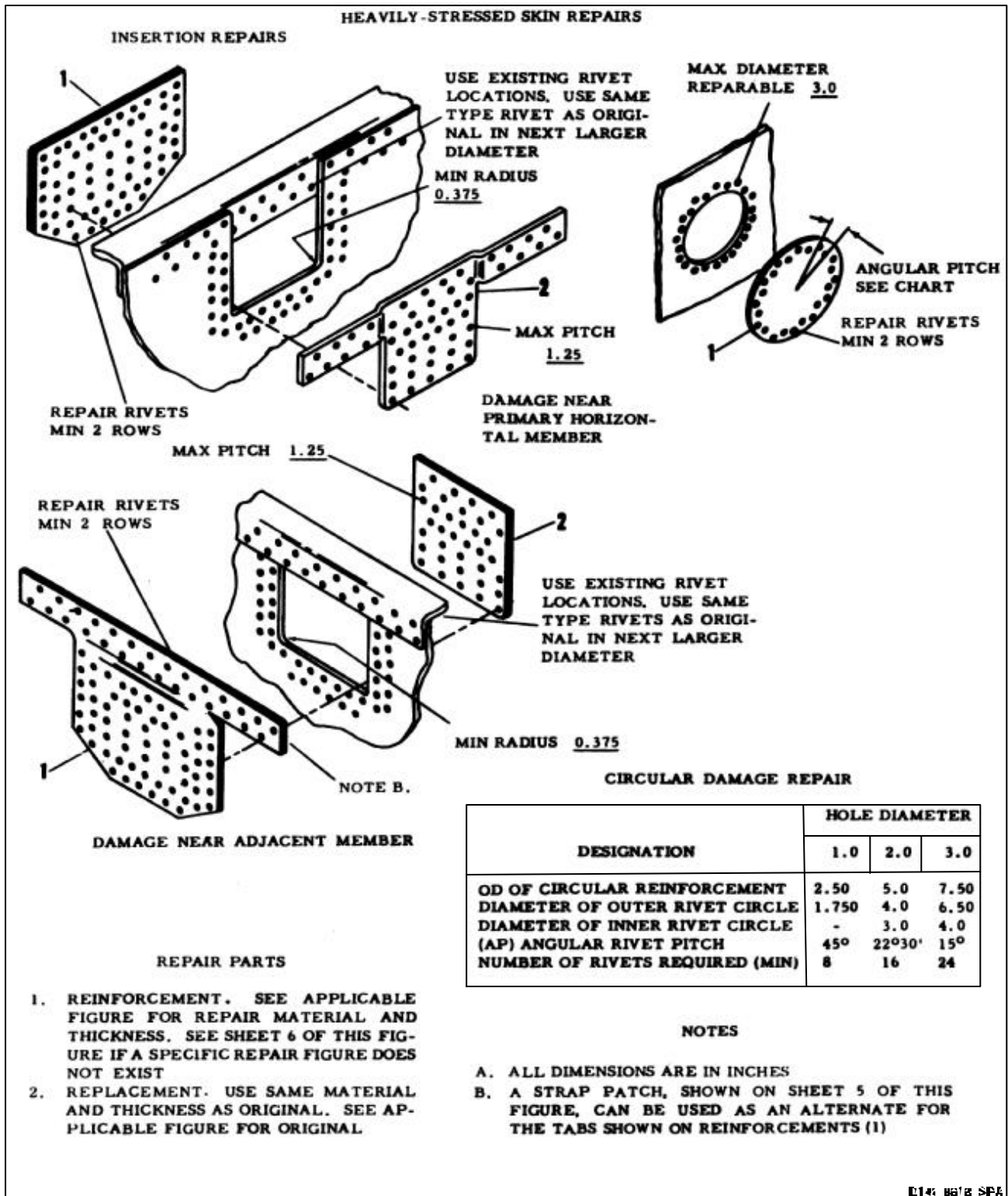
Skin and Web Repairs (Sheet 1 of 9)



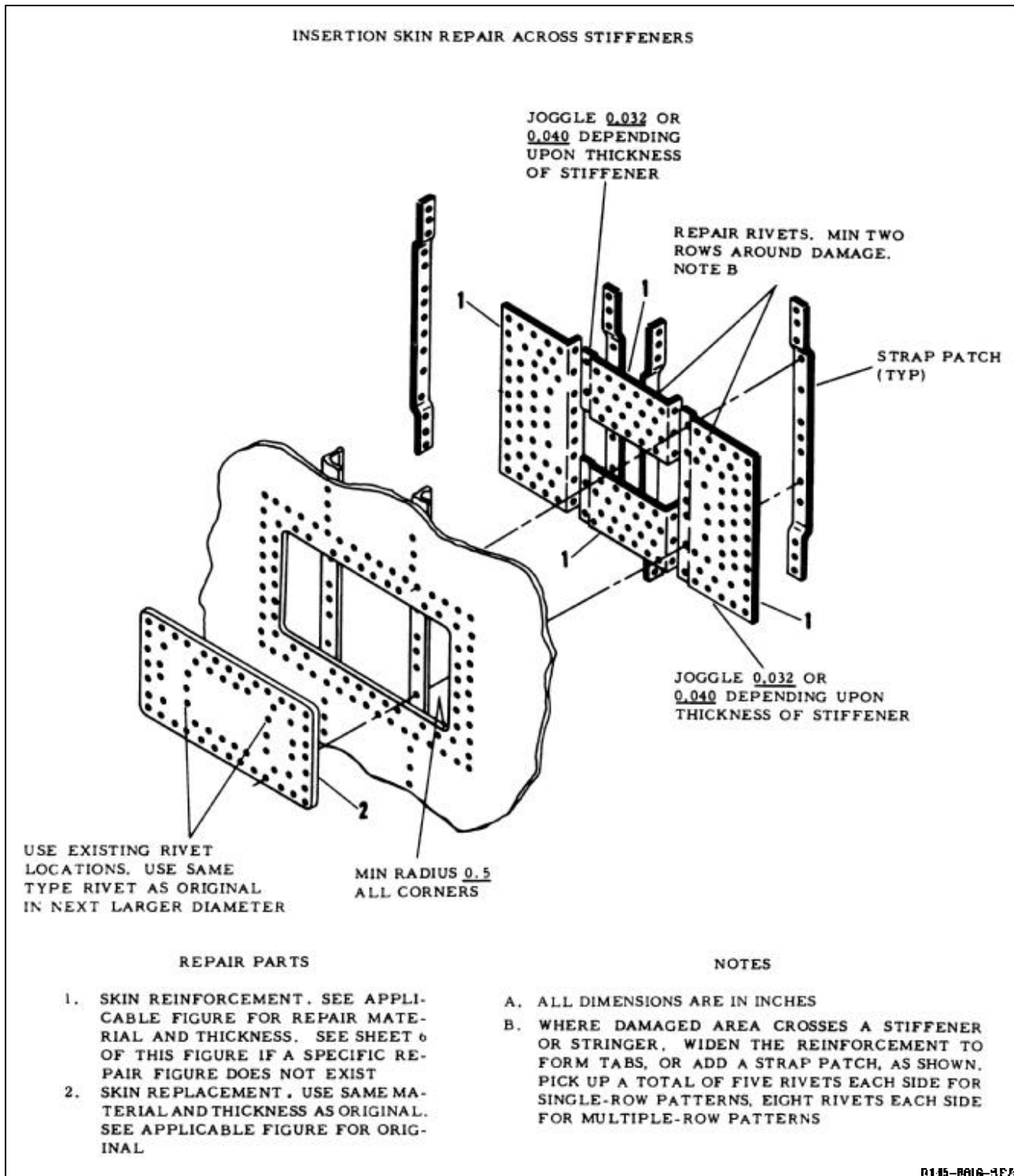
Skin and Web Repairs (Sheet 2 of 9)



Skin and Web Repairs (Sheet 3 of 9)



Skin and Web Repairs (Sheet 4 of 19)



Skin and Web Repairs (Sheet 5 of 9)

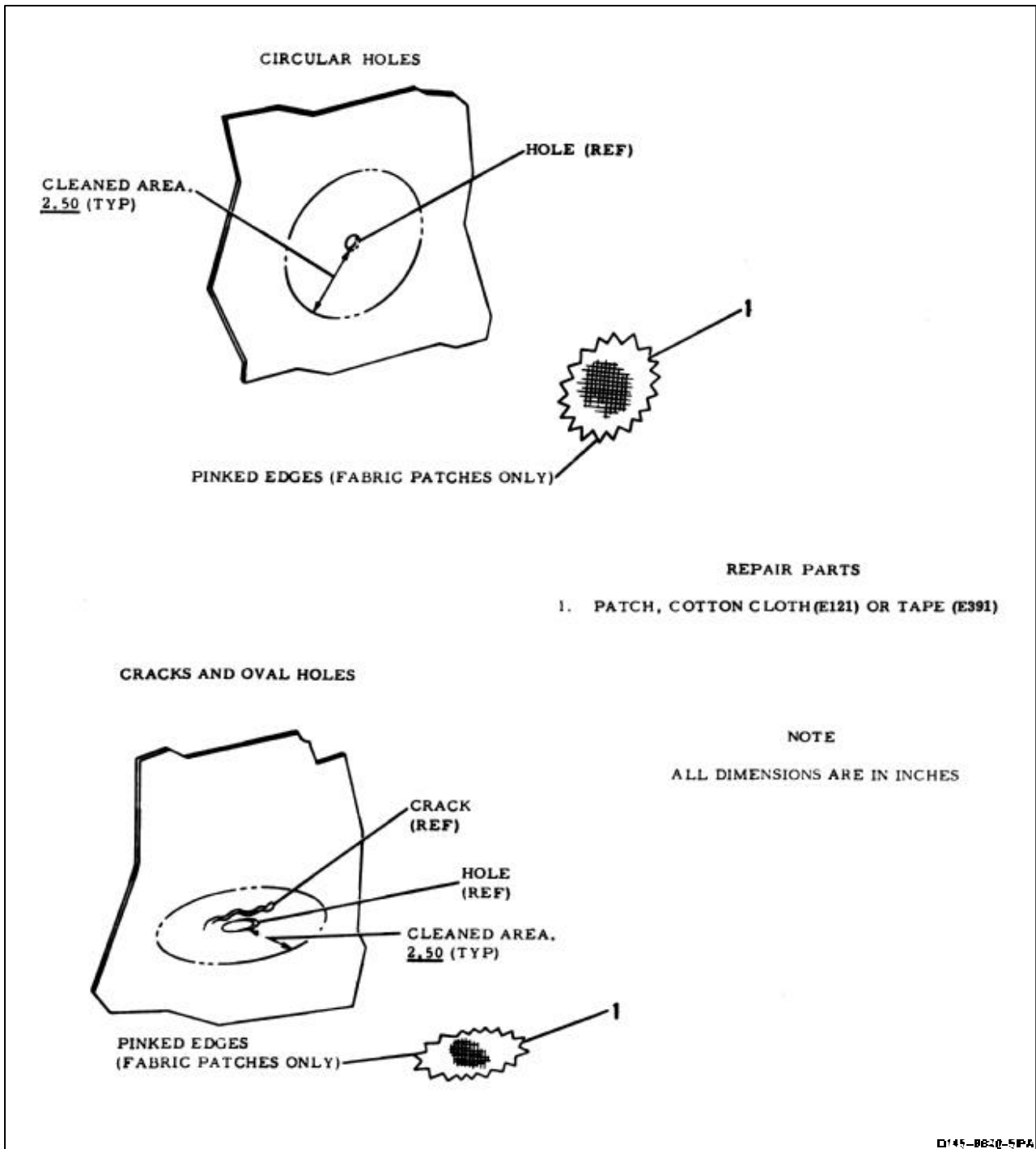
REINFORCEMENT SELECTION

2024-T3 AND T4 REPAIR WITH 2024-T3, AND 7075-T6 REPAIR WITH 7075-T6		7075-T6 REPAIR WITH 2024-T3	
ORIGINAL THICKNESS	REINFORCEMENT THICKNESS	ORIGINAL THICKNESS	REINFORCEMENT THICKNESS
0.012	0.016	0.012	0.020
0.016	0.020	0.016	0.025
0.020	0.025	0.020	0.032
0.025	0.032	0.025	0.040
0.032	0.040	0.032	0.050
0.040	0.050	0.040	0.063
0.050	0.050	0.050	0.071
0.063	0.063	0.063	0.080
0.071	0.071	0.071	0.090
0.080	0.081	0.080	0.100
0.090	0.090	0.090	0.125
0.100	0.100	0.100	0.160
0.125	0.125	0.125	0.160

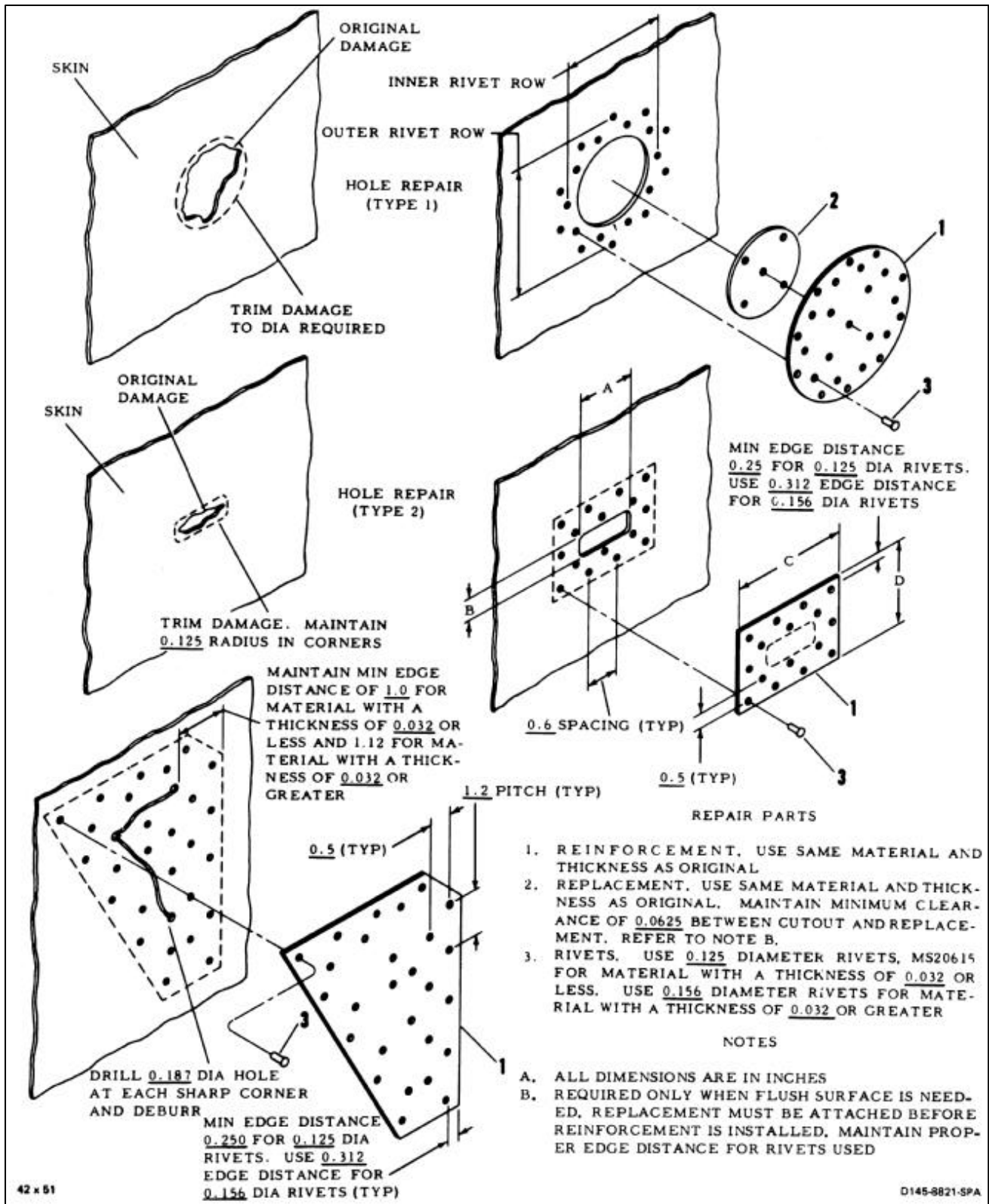
301 AND 302 REPAIR WITH SAME MATERIAL

ORIGINAL THICKNESS	REINFORCEMENT THICKNESS
0.012	0.016
0.016	0.020
0.020	0.025
0.025	0.032
0.032	0.036
0.036	0.040
0.040	0.040

- NOTES: A. All dimensions are in inches.
 B. These charts may be used to select a reinforcement when a specific repair figure, denoting a specific repair material, does not exist for a particular part.



Skin and Web Repairs (Sheet 7 of 9)



Skin and Web Repairs (Sheet 8 of 9)

CRITERIA FOR HOLE REPAIR (TYPE 1)

REPLACEMENT (2) DIAMETER	RIVET ROW DIAMETER*		PATCH (1) DIAMETER*
	INNER**	OUTER	
—	0.75	1.25	1.75
	0.87	1.37	1.87
—	0.875	1.375	1.875
	0.995	1.495	1.995
0.50	1.0	1.5	2.0
	1.12	1.62	2.12
0.625	1.125	1.625	2.125
	1.245	1.745	2.245
0.75	1.25	1.75	2.25
	1.37	1.87	2.37
0.875	1.375	1.875	2.375
	1.495	1.995	2.495
1.0	1.5	2.0	2.5
	1.62	2.12	2.62
1.25	1.75	2.25	2.75
	1.87	2.37	2.87
1.50	2.0	2.5	3.0
	2.12	2.62	3.12
1.75	2.25	2.75	3.25
	2.37	2.87	3.37

* Dimensions above diagonal line are for material thickness less than 0.040. Those below are for material thickness greater than 0.032

** Maintain 0.6 pitch and stagger outer row between inner row.

- NOTES: A. All dimensions are in inches
 B. Determine patch dimensions D and C for hole repair (Type 2) as follows:
1. $D = B + 1.0$, if material thickness is less than 0.04.
 $D = B + 1.62$, if material thickness is greater than 0.032.
 2. $C = A + 1.0$, if material thickness is less than 0.04
 $C = A + 1.12$, if material thickness is greater than 0.032.

Skin and Web Repairs (Sheet 9 of 9)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-14 SKIN DAMAGE REQUIRING REPLACEMENT (GENERAL INFORMATION) (AVIM)

2-14

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-11
Task 2-324**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. This level of damage may be caused by extensive skin damage or numerous isolated damages. Replacement of a full panel is necessary (Task 2-11).
2. Sandwich honeycomb panels shall be replaced with panels of the same type and installed in the same manner.
3. Skin panels are replaced along original boundary members.
4. Joints and seams are sealed the same as the original installation (Task 2-324).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Gloves (E186)
Zinc Chromate Primer (E291)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-16

Equipment Condition:

As Required

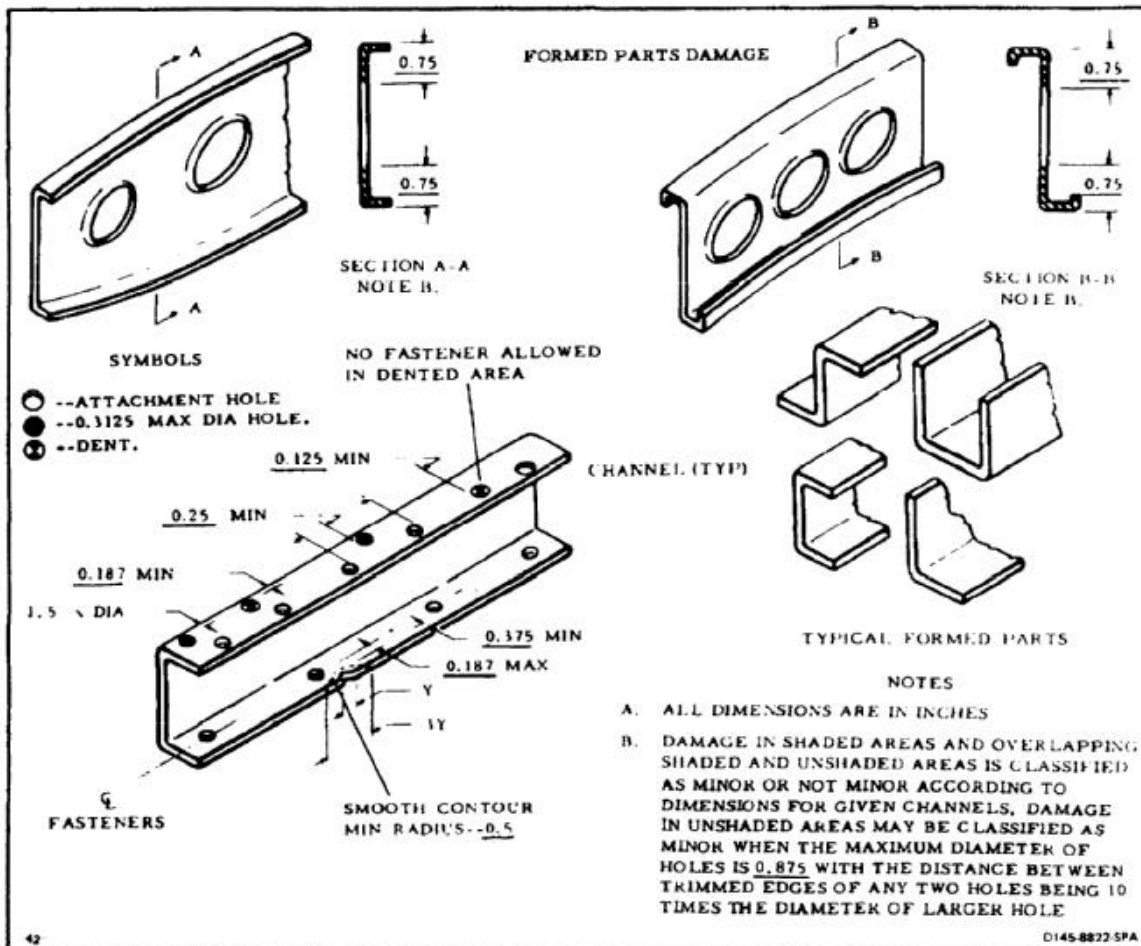
General Safety Instructions:

As Required

1. Minor damage is damage which can exist as is. Also damage that can be corrected by simple procedures like removing dents and small damaged areas, stop-drilling cracks, and plugging small holes is considered minor damage.

2. Examples of minor damage to formed and extruded stringers are as shown (Task 2-16).

3. Nicks, scratches, and small damaged areas can be removed by burnishing if within tolerance. After burnishing, the depth shall not be greater than **10 percent** of thickness of thinnest leg of the extrusion.



CAUTION

Do not use heat to remove a dent.
Heat can alter properties of the original part.

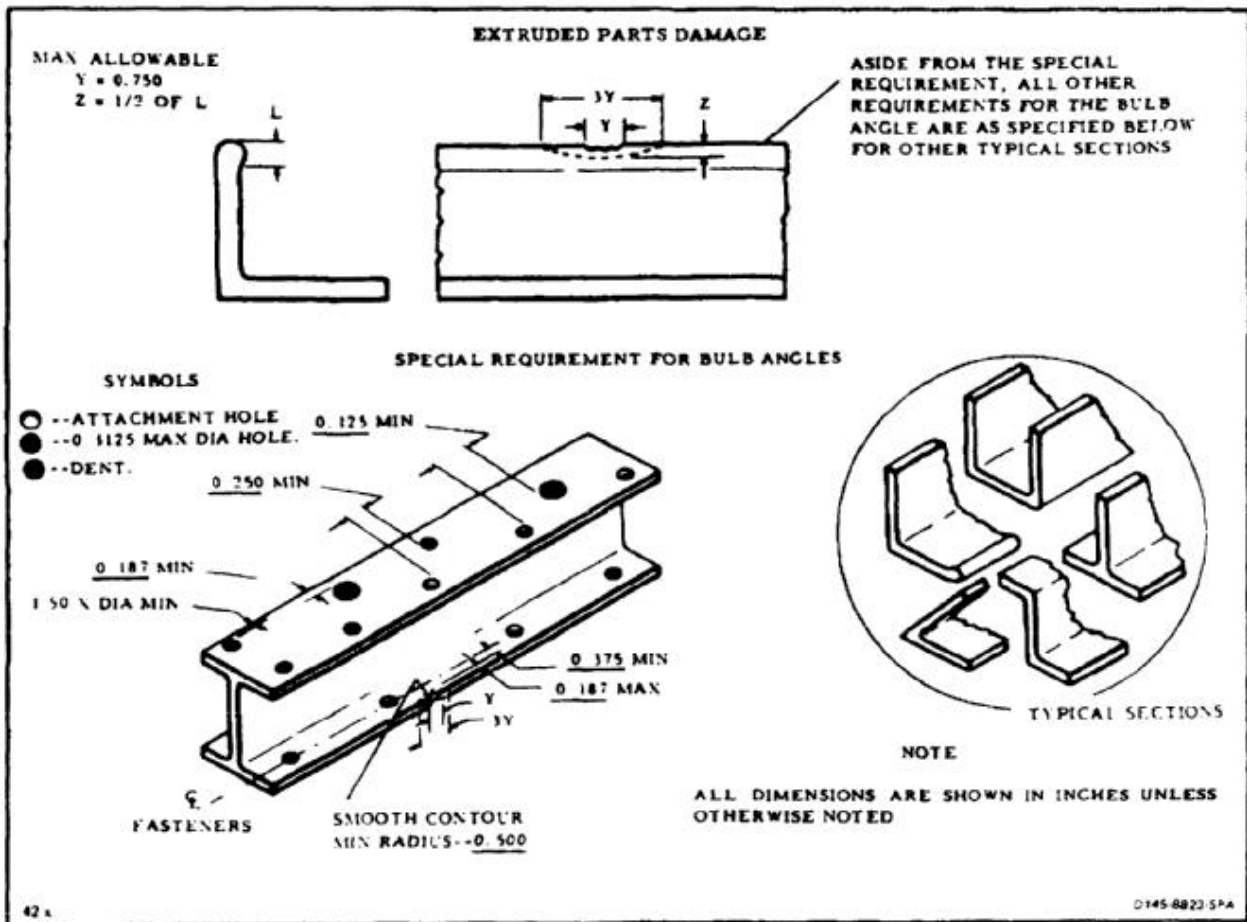
4. Punctures, rough dents, cracks, and nicks and scratches, exceeding the maximum burnished depth are minor only if cleaned out as a round hole classified as minor.
5. Plug all minor damage holes **3/16 inch** diameter or over with a tight fitting rivet or bolt.
6. Holes, plugged or open, and burnished areas, shall clear all radiuses, and shall clear all fasteners a minimum of **3/4 inch**.
7. Smooth dents not exceeding the maximum burnished depth and a maximum of **1/2 inch** diameter are minor.

8. To be classified as minor, two adjacent dents shall be separated by a **4 inch** length of undamaged original extrusion. Measure the distance at the edges of the burnished areas.

WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

9. Apply **two coats** of zinc chromate primer (E291) to burnished areas and edges of holes. Wear gloves (E186).



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Equipment Condition:

As Required

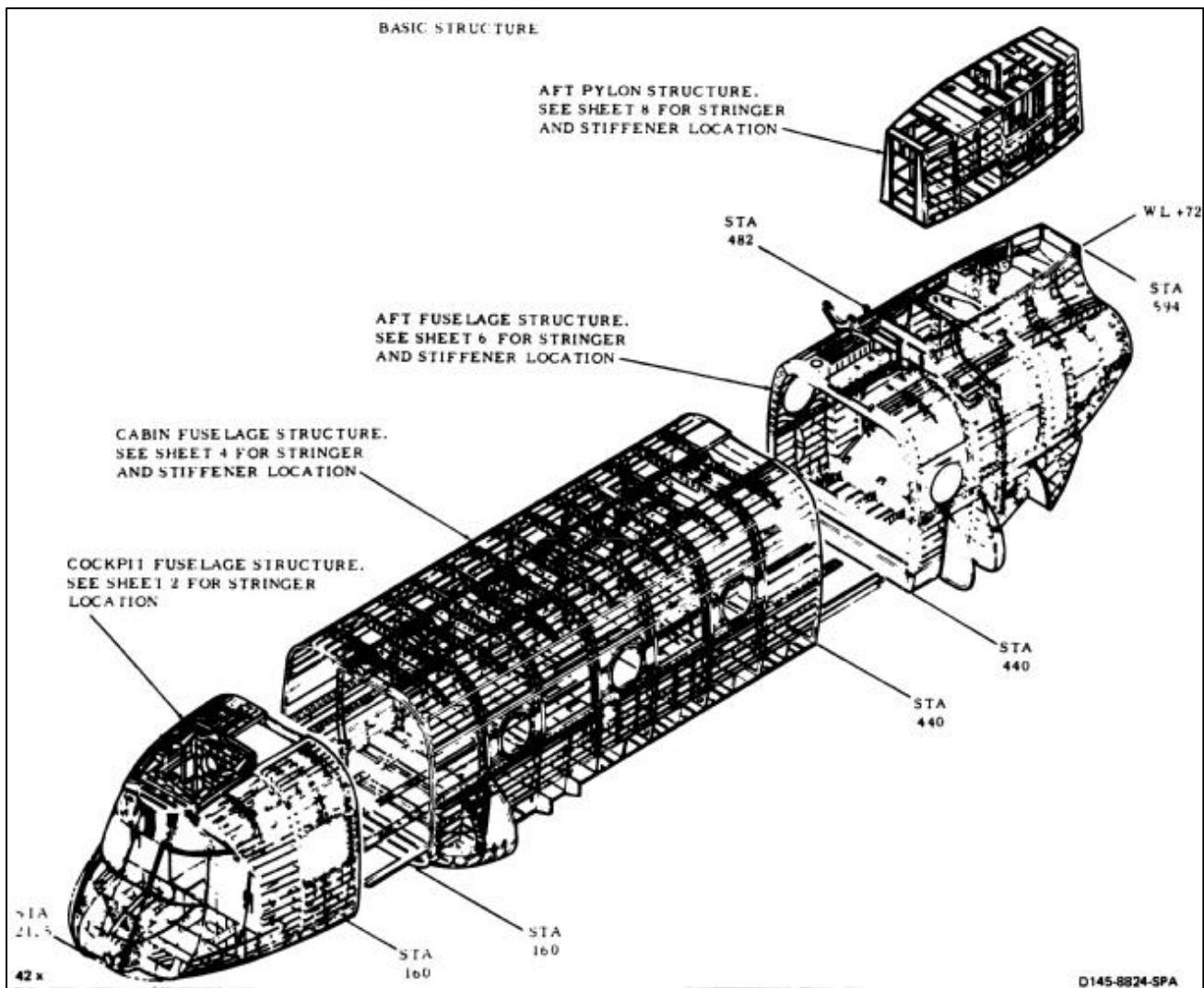
Materials:

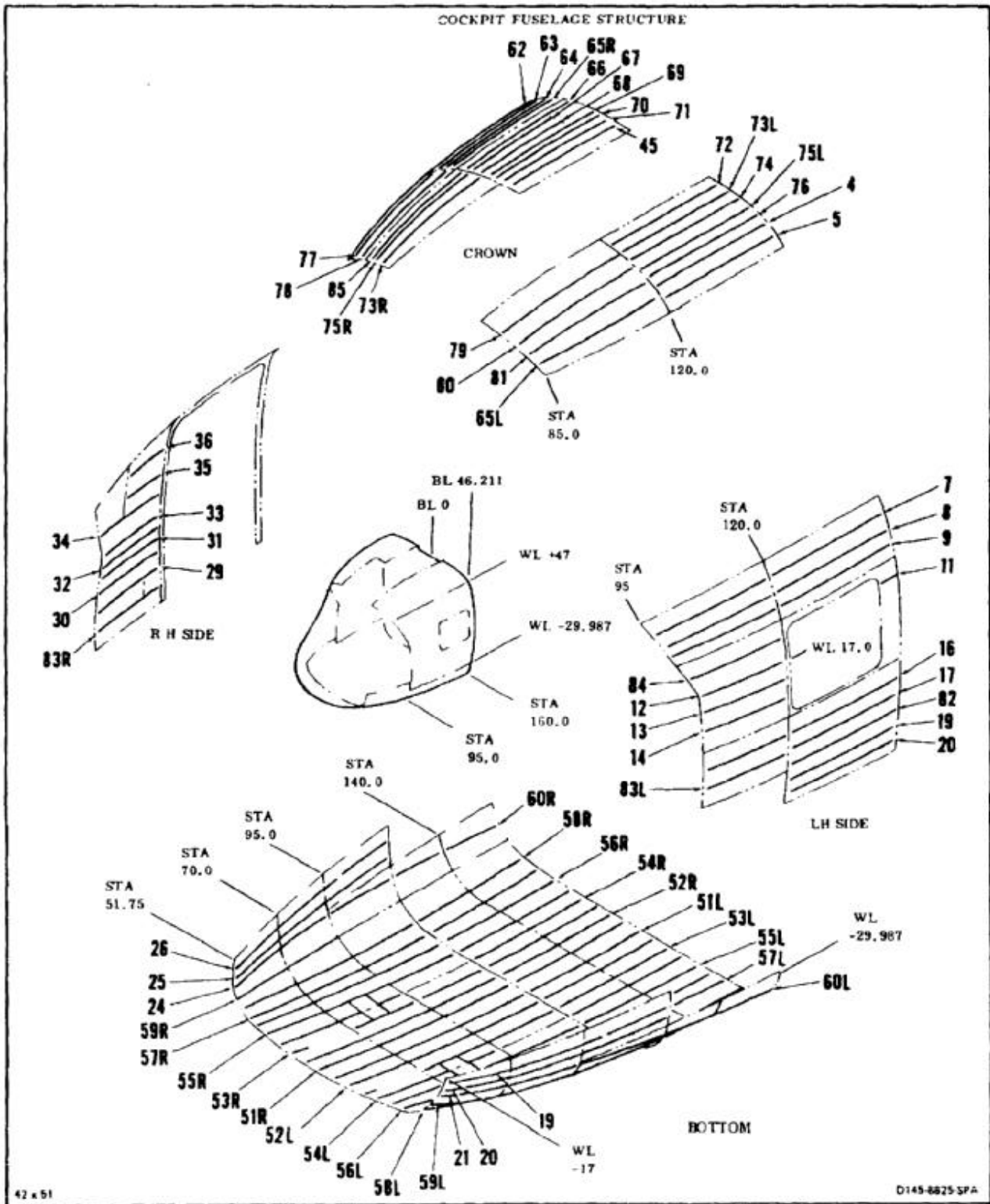
None

Personnel Required:

Aircraft Structural Repairer
Inspector

1. Stringers are formed or extruded sections riveted longitudinally to the side, bottom, and crown panels of the structure.
2. Damage to stringers shall be classified as minor, repairable, or requiring replacement.





STRINGERS — COCKPIT FUSELAGE STRUCTURE

STRINGER NO.	LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
4	37		120 THRU 160	114S1503-21	VS70503-2	7075-T6	0.040	7075-T6
5	42.08		120 THRU 160	114S1502-23	VS70503-2	7075-T6	0.040	7075-T6
7		+42.7	95 THRU 120	114S1501-45	VS70503-3	7075-T6	0.050	7075-T6
		+42.7	120 THRU 160	114S1501-51	VS70503-3	7075-T6	0.050	7075-T6
8		+38	95 THRU 120	114S1501-43	VS70503-2	7075-T6	0.040	7075-T6
		+38	120 THRU 160	114S1501-49	VS70503-3	7075-T6	0.050	7075-T6
9		+33.54	95 THRU 120	114S1501-41	VS70503-2	7075-T6	0.040	7075-T6
		+33.54	120 THRU 160	114S1501-47	VS70503-3	7075-T6	0.050	7075-T6
11		+23.2	154.5 THRU 160	114S1501-33	VS70503-1	7075-T6	0.032	7075-T6
12		+17.04	95 THRU 120	114S1501-37	VS70503-3	7075-T6	0.050	7075-T6
		+17.04	95 THRU 120	145S1581-13	BAC1517-1523	7075-T6	NOTE B.	
13		+11.6	95 THRU 120	114S1501-35	VS70503-3	7075-T6	0.050	7075-T6
		+11.6	95 THRU 120	114S1501-81	VS70503-3	7075-T6	NOTE B.	
14		+5.8	95 THRU 120	114S1501-31	VS70503-3	7075-T6	0.050	7075-T6
		+5.8	95 THRU 120	114S1501-82	VS70503-3	7075-T6	NOTE B.	
16		-5.33	95 THRU 120	114S1501-29	VS70503-3	7075-T6	0.050	7075-T6
		-5.33	120 THRU 160	114S1501-25	VS70503-3	7075-T6	0.050	7075-T6
17		-10.67	120 THRU 160	114S1501-23	VS70503-3	7075-T6	0.050	7075-T6
19		-19.5	51.75 THRU 100.78	114S1504-15	VS70503-2	7075-T6	0.040	7075-T6
		-19.5	51.75 THRU 100.78	145S1584-11	BAC1517-1522	7075-T6	NOTE B.	
		-20.67	100.78 THRU 120	114S1504-93	VS70503-2	7075-T6	0.040	7075-T6
		-20.67	120 THRU 169	114S1501-19	VS70503-2	7075-T6	0.040	7075-T6
		-20.67	120 THRU 160	145S1584-9	BAC1517-1522	7075-T6	NOTE B.	
20		-24	51.75 THRU 120	114S1504-17	VS70503-2	7075-T6	0.040	7075-T6
		-24	51.75 THRU 120	145S1584-10	BAC1517-1522	7075-T6	NOTE B.	
		-25.34	120 THRU 160	114S1501-17	VS70503-3	7075-T6	0.050	7075-T6

- NOTES:** A. All dimensions are in inches.
 B. This part is used on aircraft serial numbers 92-0367 and 92-0368.

STRINGERS — COCKPIT FUSELAGE STRUCTURE

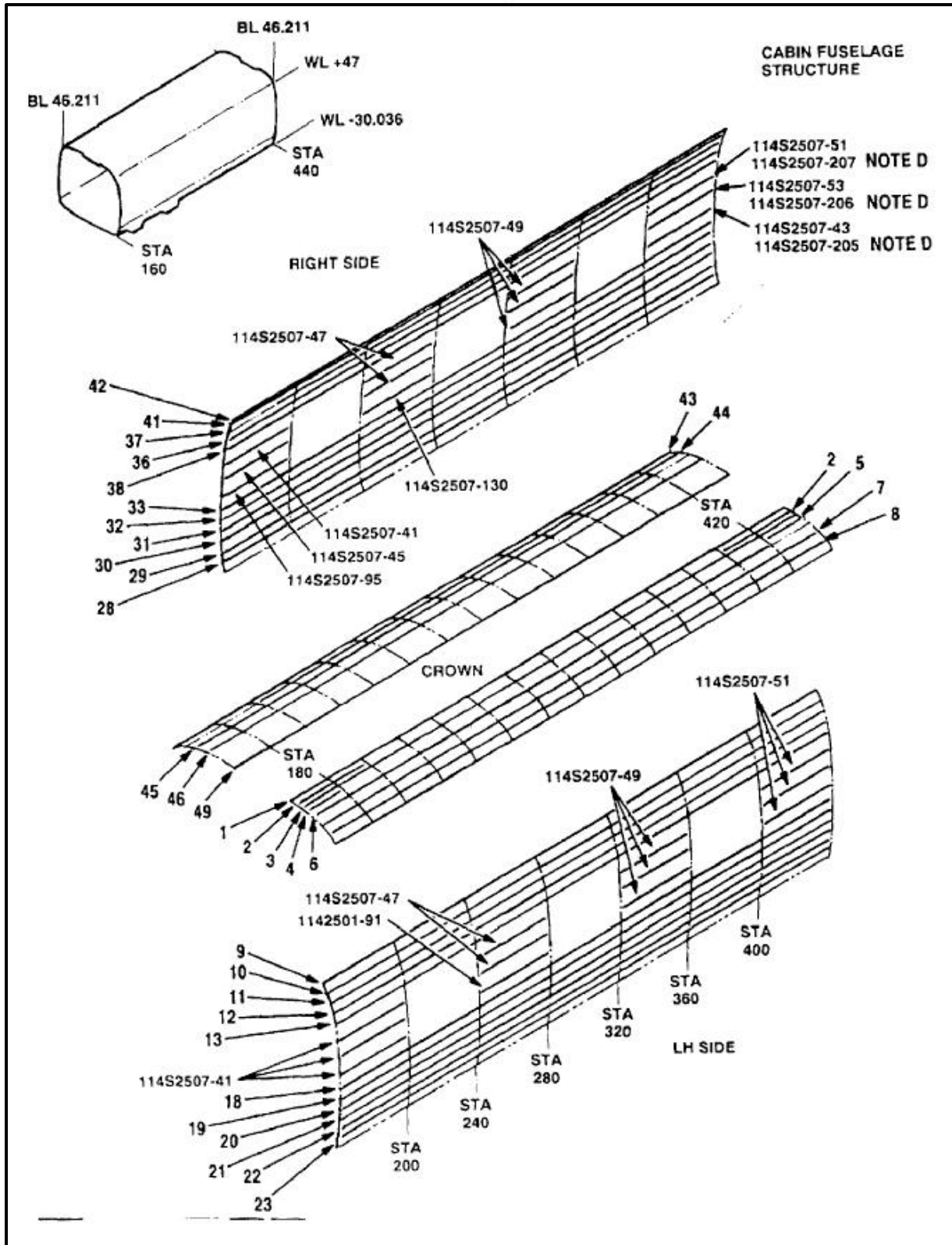
STRINGER NO.	LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
21		-28	51.75 THRU 95	114S1504-21	VS70503-2	7075-T6	0.040	7075-T6
24		-28	51.75 THRU 95	114S1504-22	VS70503-2	7075-T6	0.040	7075-T6
25		-24	51.75 THRU 120	114S1504-18	VS70503-2	7075-T6	0.040	7075-T6
26		-19.5	51.75 THRU 100.78	114S1504-16	VS70503-2	7075-T6	0.040	7075-T6
		-20.67	100.78 THRU 120	114S1504-94	VS70503-2	7075-T6	0.040	7075-T6
29		-5.33	95 THRU 120	114S1502-31	VS70503-3	7075-T6	0.050	7075-T6
30		0	95 THRU 120	114S1502-45	VS70503-3	7075-T6	0.050	7075-T6
31		+5.80	95 THRU 120	114S1502-43	VS70503-3	7075-T6	0.050	7075-T6
32		+11.6	95 THRU 120	114S1502-41	VS70503-3	7075-T6	0.050	7075-T6
33		+17.04	95 THRU 120	114S1502-23	VS70503-3	7075-T6	0.050	7075-T6
34		+23.50	95 THRU 120	114S1502-21	VS70503-3	7075-T6	0.050	7075-T6
		+23.50	95 THRU 120	145S1582-2	BAC1517-1523	7075-T6	NOTE B.	
35		+28	105.75 THRU 120	114S1502-19	VS70503-3	7075-T6	0.050	7075-T6
36		+32	105.75 THRU 120	114S1502-17	VS70503-3	7075-T6	0.050	7075-T6
45R	15.25		120 THRU 160	114S1503-29	VS70503-2	7075-T6	0.040	7075-T6
51R	2.75		48 THRU 120	114S1504-59	VS70503-2	7075-T6	0.040	7075-T6
	2.75		48 THRU 120	145S1584-9	BAC1517-1522	7075-T6	NOTE B.	
			120 THRU 160	114S1504-35	VS70503-1	7075-T6	0.032	7075-T6
51L	2.75		48 THRU 120	114S1504-57	VS70503-2	7075-T6	0.040	7075-T6
	2.75		48 THRU 120	145S1584-19	BAC1517-1522	7075-T6	NOTE B.	
			120 THRU 160	114S1504-33	VS70503-1	7075-T6	0.032	7075-T6
52R	8		48 THRU 120	114S1504-56	VS70503-1	7075-T6	0.032	7075-T6
			48 THRU 100	414S1504-55	BAC1503-1508	7075-T6	NOTE B.	
			120 THRU 160	114S1504-32	VS70503-1	7075-T6	0.032	7075-T6
52L	8		136 THRU 160	414S1504-53	BAC1503-1508	7075-T6	NOTE B.	
			48 THRU 120	114S1504-55	VS70503-1	7075-T6	0.032	7075-T6
			48 THRU 99.2	414S1504-54	BAC1503-1508	7075-T6	NOTE B.	
			120 THRU 160	114S1504-31	VS70503-1	7075-T6	0.032	7075-T6
53R	13		136 THRU 160	414S1504-52	BAC1503-1508	7075-T6	NOTE B.	
			48 THRU 54	114S1504-62	VS70503-1	7075-T6	0.032	7075-T6
			70.62 THRU 105	414S1504-33	BAC1517-1521	7075-T6	NOTE B.	
			70.62 THRU 120	114S1504-51	VS70503-1	7075-T6	0.032	7075-T6
			105 THRU 120	414S1504-30	AND10135-1002	7075-T6	NOTE B.	
53L	13		120 THRU 160	114S1504-32	VS70503-1	7075-T6	0.032	7075-T6
			48 THRU 54	114S1504-61	VS70503-1	7075-T6	0.032	7075-T6
			70.62 THRU 95	114S1504-49	VS70503-1	7075-T6	0.032	7075-T6
			95 THRU 120	114S1504-53	VS70503-1	7075-T6	0.032	7075-T6
			95 THRU 105	414S1504-56	BAC1517-1521	7075-T6	NOTE B.	
			105 THRU 120	414S1504-30	AND10135-1002	7075-T6	NOTE B.	
54R	17.8		120 THRU 160	114S1504-31	VS70503-1	7075-T6	0.032	7075-T6
	18.75		48 THRU 95	114S1504-63	VS70503-1	7075-T6	0.032	7075-T6
			120 THRU 160	114S1504-32	VS70503-1	7075-T6	0.032	7075-T6
54L	17.8		120 THRU 160	145S1584-12	BAC1517-1521	7075-T6	NOTE B.	
	18.75		48 THRU 95	114S1504-47	VS70503-1	7075-T6	0.032	7075-T6
			120 THRU 160	114S1504-31	VS70503-1	7075-T6	0.032	7075-T6
			120 THRU 160	414S1504-28	BAC1517-1521	7075-T6	NOTE B.	
55R	22.22		48 THRU 120	114S1504-65	VS70503-1	7075-T6	0.032	7075-T6
	23.38		120 THRU 160	114S1504-30	VS70503-1	7075-T6	0.032	7075-T6
55L	22.22		48 THRU 120	114S1504-45	VS70503-1	7075-T6	0.032	7075-T6
	23.38		120 THRU 160	114S1504-29	VS70503-1	7075-T6	0.032	7075-T6
56R	26.31		48 THRU 120	114S1504-44	VS70503-1	7075-T6	0.032	7075-T6
	28.75		120 THRU 160	114S1504-28	VS70503-1	7075-T6	0.032	7075-T6

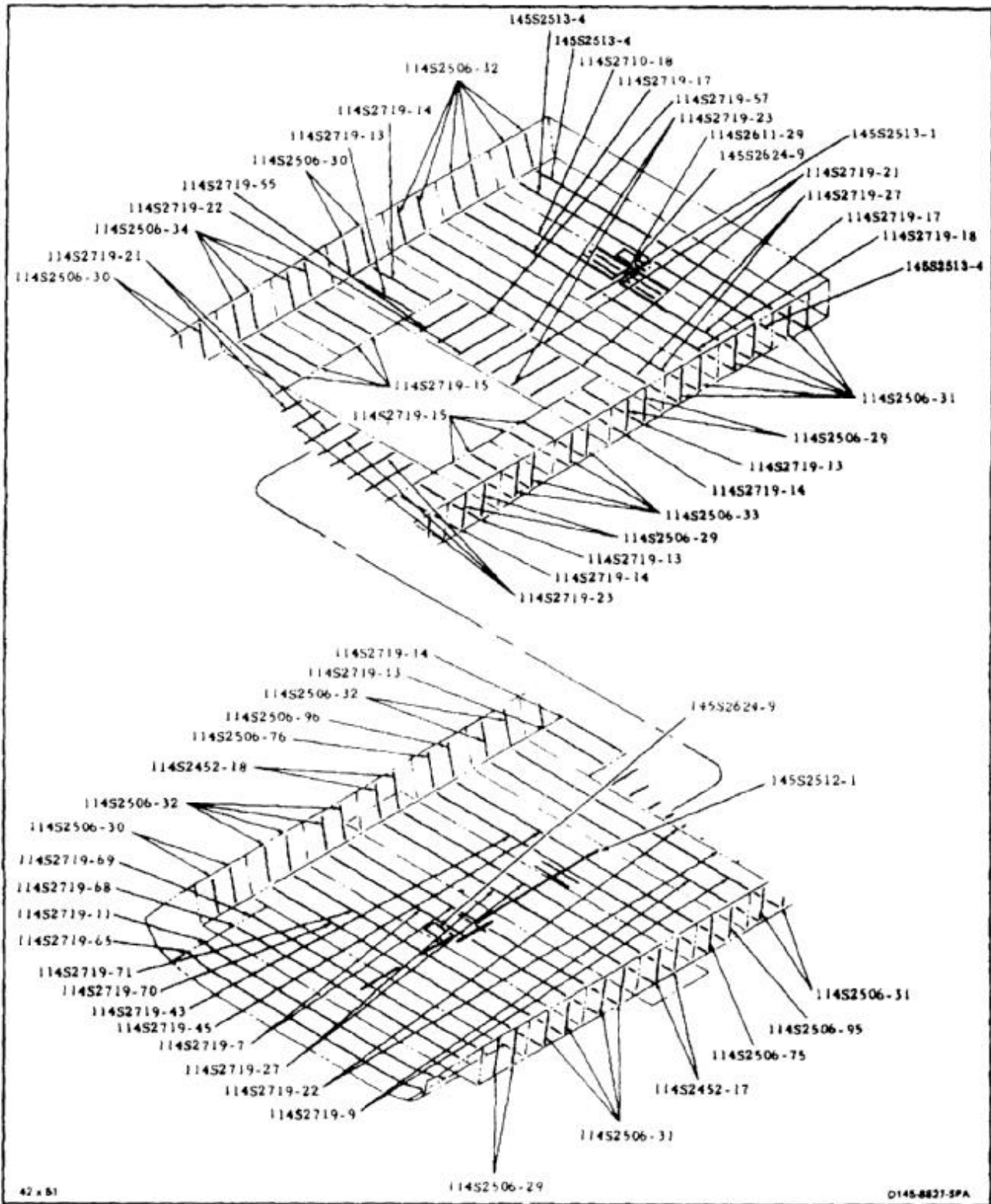
NOTES: A. All dimensions are in inches.
 B. This part is used on aircraft serial numbers 92-0367 and 92-0368.

STRINGERS — COCKPIT FUSELAGE STRUCTURE

STRINGER NO.	LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
56L	26.31		48 THRU 120	114S1504-43	VS70503-1	7075-T6	0.032	7075-T6
	28.75		120 THRU 160	114S1504-27	VS70503-1	7075-T6	0.032	7075-T6
57R	29.65		48 THRU 120	114S1504-98	ALCOA 9802	7075-T6	0.050	4130
	34.38		120 THRU 160	114S1504-26	VS70503-1	7075-T6	0.032	7075-T6
57L	29.65		48 THRU 120	114S1504-41	VS70503-2	7075-T6	0.040	7075-T6
	34.38		120 THRU 160	114S1504-25	VS70503-1	7075-T6	0.032	7075-T6
58R	31.9		48 THRU 120	114S1504-40	VS70503-3	7075-T6	0.050	4130
	40.19		120 THRU 160	114S1504-24	VS70503-1	7075-T6	0.032	7075-T6
58L	31.9		48 THRU 120	114S1504-39	VS70503-3	7075-T6	0.050	7075-T6
	40.19		120 THRU 160	114S1504-23	VS70503-1	7075-T6	0.032	7075-T6
59R	33.67		48 THRU 95	114S1504-38	VS70503-3	7075-T6	0.050	7075-T6
59L	33.67		48 THRU 95	114S1504-119	VS70503-3	7075-T6	0.050	7075-T6
			48 THRU 95	114S1504-166	VS70503-3	7075-T6		NOTE B.
60R	46	33	95 THRU 120	114S1504-73	VS70503-1	7075-T6	0.032	7075-T6
	48	34.5	120 THRU 140	114S1504-67	AND10135-1002	7075-T6	0.063	4130
	50.04	35	140 THRU 160	114S1504-69	AND10135-1002	7075-T6	0.063	4130
60L	46	33	95 THRU 120	114S1504-71	VS70503-1	7075-T6	0.032	7075-T6
	50.04	35	120 THRU 160	114S1504-19	VS70503-1	7075-T6	0.032	7075-T6
62	50.53		120 THRU 160	114S1503-53	HARVEY 17716	7075-T6	0.080	4130
63	47.02		120 THRU 160	114S1503-51	HARVEY 17716	7075-T6	0.080	4130
64	44.28		120 THRU 160	114S1503-49	HARVEY 17716	7075-T6	0.080	4130
65R	40.88		120 THRU 160	114S1503-47	HARVEY 17716	7075-T6	0.080	4130
65L	40		85 THRU 120	114S1503-27	VS70503-2	7075-T6	0.040	7075-T6
66	31.98		120 THRU 160	114S1503-41	VS70503-1	7075-T6	0.032	7075-T6
			120 THRU 160	145S1583-10	BAC1517-1521	7075-T6		NOTE B.
67	29.02		120 THRU 150	114S1503-39	VS70503-1	7075-T6	0.032	7075-T6
			120 THRU 150	145S1583-11	BAC1517-1521	7075-T6		NOTE B.
68	26.03		120 THRU 150	114S1503-37	VS70503-1	7075-T6	0.032	7075-T6
			120 THRU 150	145S1583-12	BAC1517-1521	7075-T6		NOTE B.
69	23.03		120 THRU 160	114S1503-35	VS70503-1	7075-T6	0.032	7075-T6
			120 THRU 160	145S1583-13	BAC1517-1521	7075-T6		NOTE B.
70	20.5		120 THRU 160	114S1503-33	VS70503-1	7075-T6	0.032	7075-T6
			120 THRU 160	145S1563-14	BAC1517-1521	7075-T6		NOTE B.
71	18.09		120 THRU 160	114S1503-31	AND10133-1002	7075-T6	0.100	4130
			120 THRU 160	145S1583-15	AND10133-1002	7075-T6		NOTE B.
72	20.5		120 THRU 160	114S1503-11	VS70503-2	7075-T6	0.040	7075-T6
73	24		85 THRU 120	114S1503-43	VS70503-3	7075-T6	0.050	7075-T6
			85 THRU 120	145S1583-7	BAC1517-1523	7075-T6		NOTE B.
73	24.39		120 THRU 160	114S1503-13	VS70503-2	7075-T6	0.040	7075-T6
74	27.57		120 THRU 160	114S1503-15	VS70503-1	7075-T6	0.032	7075-T6
75	27		85 THRU 120	114S1503-45	VS70503-3	7075-T6	0.050	7075-T6
			85 THRU 120	145S1583-6	BAC1517-1523	7075-T6		NOTE B.
75	30.77		120 THRU 160	114S1503-17	VS70503-1	7075-T6	0.032	7075-T6
76	33.9		120 THRU 160	114S1503-19	VS70503-1	7075-T6	0.032	7075-T6
77	48		85 THRU 120	114S1503-55	VS70503-1	7075-T6	0.032	7075-T6
			85 THRU 120	145S1583-20	BAC1517-1523	7075-T6		NOTE B.
78	43		85 THRU 120	114S1503-57	VS70503-1	7075-T6	0.032	7075-T6
			85 THRU 120	145S1583-21	BAC1517-1523	7075-T6		NOTE B.
79	24		85 THRU 120	114S1503-59	VS70503-2	7075-T6	0.040	7075-T6
			85 THRU 120	145S1583-8	BAC1517-1522	7075-T6		NOTE B.
80	29		85 THRU 120	114S1503-61	VS70503-2	7075-T6	0.040	7075-T6
			85 THRU 120	145S1583-9	BAC1517-1522	7075-T6		NOTE B.
82		-15.67	120 THRU 160	114S1501-21	VS70503-2	7075-T6	0.040	7075-T6
83R		-11.17	95 THRU 120	114S1502-33	VS70503-3	7075-T6	0.050	7075-T6
83L		-11.17	95 THRU 120	114S1501-27	VS70503-3	7075-T6	0.050	7075-T6
84		+24.3	95 THRU 120	114S1501-67	VS70503-3	7075-T6	0.050	7075-T6
85	30		85 THRU 120	114S1503-69	VS70503-3	7075-T6	0.050	7075-T6
			85 THRU 120	145S1583-5	BAC1517-1523	7075-T6		NOTE B.

NOTES: A. All dimensions are in inches.
 B. This part is used on aircraft serial numbers 92-0367 and 92-0368.





STRINGERS — CABIN FUSELAGE STRUCTURE

STRINGER NO. (NOTE B.)	LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
1	20			114S2503-253	VS905113	7075-T6	NOTE C.	
2	22.86		160 THRU 200	114S2503-57	ALCOA 83264	7075-T6	0.050	4130
			400 THRU 440	114S2503-59	ALCOA 83264	7075-T6	0.050	4130
3	25.72		160 THRU 440	114S2503-51	ALCOA 83264	7075-T6	0.050	4130
4	28.56		160 THRU 180	114S2503-55	ALCOA 83264	7075-T6	0.050	4130
5	28.03		420 THRU 440	114S2503-56	ALCOA 83264	7075-T6	0.050	4130
6	31.4		160 THRU 420	114S2503-247	ALCOA 83264	7075-T6	0.050	4130
7	37		160 THRU 440	114S2503-51	ALCOA 83264	7075-T6	0.050	4130
8	42.1		160 THRU 440	114S2503-51	ALCOA 83264	7075-T6	0.050	4130
9	46.21	+47	160 THRU 440	114S2001-27	AND10136-3001	7075-T6	0.125	4130
10		+42.7	160 THRU 440	114S2501-211	ALCOA 83264	7075-T6	0.050	4130
11		+38	160 THRU 440	114S2501-209	ALCOA 83264	7075-T6	0.050	4130
12		+33.54	160 THRU 440	114S2501-45	ALCOA 83264	7075-T6	0.050	4130
			160 THRU 440	145S2571-33	ALCOA 83264	7075-T6	NOTE D.	
13		+29	160 THRU 440	114S2001-19	ALCOA 49225	7075-T6	0.063	4130

- NOTES:**
- A. All dimensions are in inches.
 - B. Stringers and all stiffeners that are not identified by part number.
 - C. Replace with a section corresponding to the original.
 - D. This part is used on aircraft serial numbers 92-0367 and 92-0368 only.

STRINGERS — CABIN FUSELAGE STRUCTURE

STRINGER NO. (NOTE B.)	LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
18		0	160 THRU 440	114S2152-31	VS90315	7075-T6	0.063	4130
			160 THRU 440	145S2571-41	ALCOA 83264	7075-T6	NOTE D.	
19		-5.33	160 THRU 440	114S2501-171	ALCOA 83264	7075-T6	0.050	4130
20		-10.67	160 THRU 440	114S2501-169	ALCOA 83264	7075-T6	0.050	4130
		-10.67	160 THRU 440	145S2571-25	ALCOA 83264	7075-T6	NOTE D.	
21		-16	160 THRU 440	114S2501-167	ALCOA 22878	7075-T6	0.063	4130
22		-20.67	160 THRU 440	114S2501-165	ALCOA 83264	7075-T6	0.050	4130
23		-25.34	160 THRU 440	114S2501-161	ALCOA 83264	7075-T6	0.050	4130
28		-25.34	160 THRU 440	114S2501-163	ALCOA 83264	7075-T6	0.050	4130
	(RH SIDE)	-25.34	160 THRU 440	145S2571-26	ALCOA 83264	7075-T6	NOTE D.	
29		-20.67	160 THRU 440	114S2501-177	ALCOA 83264	7075-T6	0.050	4130
	(RH SIDE)	-20.67	160 THRU 440	145S2571-14	ALCOA 83264	7075-T6	NOTE D.	
30		-16	160 THRU 440	114S2501-175	ALCOA 22878	7075-T6	0.063	4130
	(RH SIDE)	-16	160 THRU 440	145S2571-12	ALCOA 22878	7075-T6	NOTE D.	
31		-10	160 THRU 440	114S2501-173	ALCOA 83264	7075-T6	0.050	4130
	(RH SIDE)	-10	160 THRU 440	145S2571-44	ALCOA 83264	7075-T6	NOTE D.	
32		-5.33	160 THRU 440	114S2501-173	ALCOA 83264	7075-T6	0.050	4130
	(RH SIDE)	-5.33	160 THRU 440	145S2571-42	ALCOA 83264	7075-T6	NOTE D.	
33		0	160 THRU 440	114S2152-33	VS90315	7075-T6	0.063	4130
38		+29	160 THRU 440	114S2001-20	ALCOA 49225	7075-T6	0.063	4130
39		+33.54	160 THRU 440	114S2501-53	ALCOA 83264	7075-T6	0.050	4130
		+33.54	160 THRU 440	114S2501-260	ALCOA 83264	7075-T6	NOTE D.	
40		+38	190 THRU 440	114S2501-55	ALCOA 83264	7075-T6	0.050	4130
		+38	190 THRU 440	114S2501-261	ALCOA 83264	7075-T6	NOTE D.	
41		+42.7	160 THRU 192	114S2501-59	ALCOA 83264	7075-T6	0.050	4130
			200 THRU 429	114S2501-57	ALCOA 83264	7075-T6	0.050	4130
42	46.21	+47	160 THRU 440	114S2001-17	ALCOA 44132	7075-T6	0.100	4130
43	42.1		160 THRU 440	114S2503-67	ALCOA 28172	7075-T6	0.063	4130
44	37		200 THRU 440	114S2503-65	ALCOA 28172	7075-T6	0.063	4130
45	31.4		160 THRU 420	114S2503-248	ALCOA 28172	7075-T6	0.063	4130
46	25.72		160 THRU 440	114S2503-61	ALCOA 83264	7075-T6	0.050	4130
49	10.5		160 THRU 440	114S2503-254	VS90604	7075-T6	NOTE C.	
		+8.8	160 THRU 200	114S2507-41	ALCOA 22477	7075-T6	0.040	4130
		+14.9	160 THRU 200	114S2507-41	ALCOA 22477	7075-T6	0.040	4130
	(LH SIDE)	+21	160 THRU 200	114S2507-41	ALCOA 22477	7075-T6	0.040	4130
	(RH SIDE)	+21	160 THRU 200	114S2507-41	ALCOA 22477	7075-T6	0.040	4130
		+8.8	400 THRU 440	114S2507-43	ALCOA 23160	7075-T6	0.063	4130
		+14.9	160 THRU 200	114S2507-45	ALCOA 22477	7075-T6	0.040	4130
	(LH SIDE)	+21	240 THRU 280	114S2507-47	ALCOA 22477	7075-T6	0.040	4130
	(RH SIDE)	+14.9	240 THRU 280	114S2507-47	ALCOA 22477	7075-T6	0.040	4130
	(LH SIDE)	+21	240 THRU 280	114S2507-47	ALCOA 22477	7075-T6	0.040	4130
	(RH SIDE)	+21	240 THRU 280	114S2507-47	ALCOA 22477	7075-T6	0.040	4130
	(LH SIDE)	+8.8	320 THRU 360	114S2507-49	ALCOA 22477	7075-T6	0.040	4130
	(RH SIDE)	+8.8	320 THRU 360	114S2507-49	ALCOA 22477	7075-T6	0.040	4130
	(LH SIDE)	+14.9	320 THRU 360	114S2507-49	ALCOA 22477	7075-T6	0.040	4130
	(RH SIDE)	+14.9	320 THRU 360	114S2507-49	ALCOA 22477	7075-T6	0.040	4130
	(LH SIDE)	+21	320 THRU 360	114S2507-49	ALCOA 22477	7075-T6	0.040	4130
	(RH SIDE)	+21	320 THRU 360	114S2507-49	ALCOA 22477	7075-T6	0.040	4130
		+8	400 THRU 440	114S2507-51	ALCOA 22477	7075-T6	0.040	4130
	(RH SIDE)	+8.8	400 THRU 440	114S2507-205	ALCOA 23160	7075-T6	NOTE D.	
		+14.9	400 THRU 440	114S2507-51	ALCOA 22477	7075-T6	0.040	4130
	(LH SIDE)	+21	400 THRU 440	114S2507-51	ALCOA 22477	7075-T6	0.040	4130
	(RH SIDE)	+21	400 THRU 440	114S2507-51	ALCOA 22477	7075-T6	0.040	4130
	(RH SIDE)	+21	400 THRU 440	114S2507-207	ALCOA 22477	7075-T6	NOTE D.	
		+14.9	400 THRU 440	114S2507-53	ALCOA 22477	7075-T6	0.040	4130
	(RH SIDE)	+14.9	400 THRU 440	114S2507-206	ALCOA 22477	7075-T6	NOTE D.	
	(LH SIDE)	+8.8	240 THRU 280	114S2507-91	ALCOA 59675	7075-T6	0.040	4130
	(RH SIDE)	+8.8	240 THRU 280	114S2507-130	ALCOA 59675	7075-T6	0.040	4130
		+8.8	160 THRU 200	114S2507-95	ALCOA 23160	7075-T6	0.063	4130

- NOTES: A. All dimensions are in inches.
 B. Stringers and all stiffeners that are not identified by part number.
 C. Replace with a section corresponding to the original.
 D. This part is used on aircraft serial numbers 92-0367 and 92-0368 only.

STIFFENERS — CABIN FUSELAGE STRUCTURE

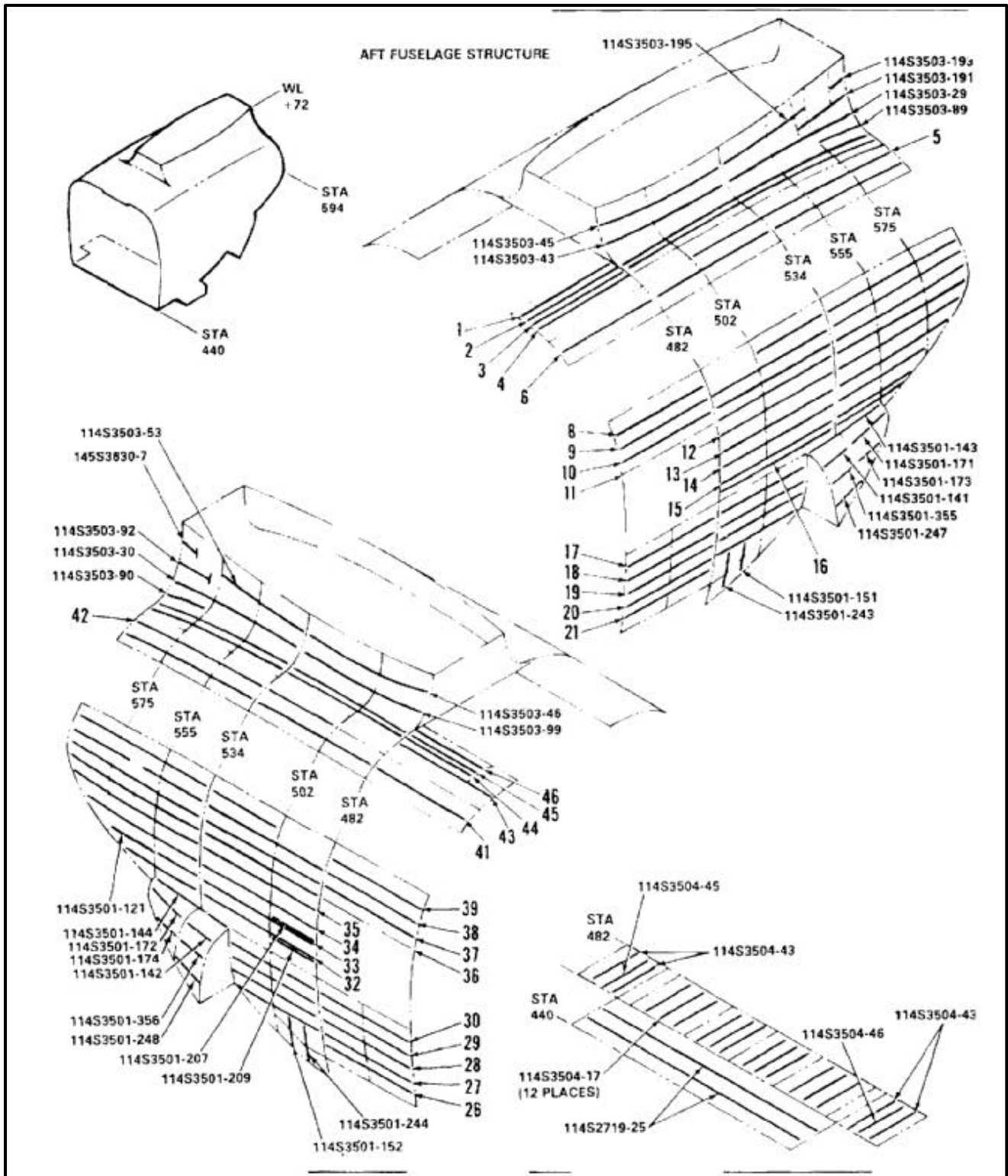
LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
BL	WL	STATION					
	-31 THRU -42	246.5	114S2452-17	AND10133-0601	7075-T6	0.063	4130
	-31 THRU -42	253.5	114S2452-17	AND10133-0601	7075-T6	0.063	4130
	-31 THRU -42	246.5	114S2452-18	AND10133-0601	7075-T6	0.063	4130
	-31 THRU -42	253.5	114S2452-18	AND10133-0601	7075-T6	0.063	4130
	-30 THRU -41	186.5	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	193	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	306.5	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	313	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-31 THRU -41	366.5	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	373	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	186.5	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	193	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	306.5	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	313	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	366.5	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	373	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	206.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	213	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	226.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	233	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	286.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	293	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	386.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	393	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	406.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	413	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	426.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	433	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	206.5	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	213	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	226.6	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	233	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	286.5	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	293	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	386.5	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	393	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	406.5	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	413	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	426.5	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	433	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -42	326.5	114S2506-33	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	333	114S2506-33	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	346.5	114S2506-33	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	353	114S2506-33	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	326.5	114S2506-34	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	333	114S2506-34	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	346.5	114S2506-34	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	353	114S2506-34	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -40	266.5	114S2506-75	AND10134-1003	7075-T6	0.063	4130
	-30 THRU -40	266.5	114S2506-76	AND10134-1003	7075-T6	0.063	4130
	-30 THRU -40	271	114S2506-95	AND10134-1003	7075-T6	0.063	4130
	-30 THRU -40	271	114S2506-96	AND10134-1003	7075-T6	0.063	4130
0		400 THRU 420	114S2611-29	VS90316	7075-T6	0.125	4130
48R THRU 48L		226.5	114S2719-7	0.25	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		233.5	114S2719-7	0.25	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		285.7	114S2719-9	0.25	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		294.3	114S2719-9	0.25	7075-T6 CLAD	0.032	7075-T6
45R THRU 45L		166.5	114S2719-11	0.25	7075-T6 CLAD	0.032	7075-T6
28R THRU 48R		306.5	114S2719-13	ALCOA 83264	7075-T6	0.050	4130
28L THRU 48L		313.5	114S2719-13	ALCOA 83264	7075-T6	0.050	4130
28R THRU 48R		366.5	114S2719-13	ALCOA 83264	7075-T6	0.050	4130
28R THRU 48R		373.5	114S2719-13	ALCOA 83264	7075-T6	0.050	4130

- NOTES:**
- A. All dimensions are in inches.
 - B. Unindexed stringers and all stiffeners are identified by part number.
 - C. Replace with a section corresponding to the original.

STIFFENERS — CABIN FUSELAGE STRUCTURE

LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
BL	WL	STATION					
28L THRU 48L		306.5	114S2719-14	ALCOA 83264	7075-T6	0.050	4130
28R THRU 48R		313.5	114S2719-14	ALCOA 83264	7075-T6	0.050	4130
28L THRU 48L		366.5	114S2719-14	ALCOA 83264	7075-T6	0.050	4130
28R THRU 48R		373.5	114S2719-14	ALCOA 83264	7075-T6	0.050	4130
28R THRU 48R		326.3	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28L THRU 48L		326.3	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28R THRU 48R		332.9	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28L THRU 48L		332.9	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28R THRU 48R		346.6	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28L THRU 48L		346.6	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28R THRU 48R		352.9	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28L THRU 48L		352.9	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
0 THRU 48R		406.5	114S2719-17	0.32	7075-T6 CLAD	0.040	7075-T6
0 THRU 48L		413.5	114S2719-17	0.32	7075-T6 CLAD	0.040	7075-T6
0 THRU 48L		406.5	114S2719-18	0.32	7075-T6 CLAD	0.040	7075-T6
0 THRU 48R		413.5	114S2719-18	0.32	7075-T6 CLAD	0.040	7075-T6
7.2R		300 THRU 320	114S2719-21	ALCOA 83264	7075-T6	0.050	4130
20.8R		300 THRU 320	114S2719-21	ALCOA 83264	7075-T6	0.050	4130
7.2L		360 THRU 380	114S2719-21	ALCOA 83264	7075-T6	0.050	4130
20.8L		360 THRU 380	114S2719-21	ALCOA 83264	7075-T6	0.050	4130
7.2L		300 THRU 320	114S2719-22	ALCOA 83264	7075-T6	0.050	4130
20.8L		300 THRU 320	114S2719-22	ALCOA 83264	7075-T6	0.050	4130
7.2R		360 THRU 380	114S2719-22	ALCOA 83264	7075-T6	0.050	4130
13.7R		300 THRU 320	114S2719-23	AND10136-2006	7075-T6	0.125	4130
0		300 THRU 320	114S2719-23	AND10136-2006	7075-T6	0.125	4130
13.7L		300 THRU 320	114S2719-23	AND10136-2006	7075-T6	0.125	4130
0		360 THRU 380	114S2719-23	AND10136-2006	7075-T6	0.125	4130
13.7L		360 THRU 380	114S2719-23	AND10136-2006	7075-T6	0.125	4130
48R THRU 48L		246.5	114S2719-27	0.025	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		253.5	114S2719-27	0.025	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		386.5	114S2719-27	0.025	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		393.5	114S2719-27	0.025	7075-T6 CLAD	0.032	7075-T6
0 THRU 48R		426.5	145S2513-4	0.032	7075-T6 CLAD	0.040	7075-T6
0 THRU 48L		433.5	145S2513-4	0.032	7075-T6 CLAD	0.040	7075-T6
0 THRU 48L		426.5	145S2513-4	0.032	7075-T6 CLAD	0.040	7075-T6
0 THRU 48L		433.5	145S2513-4	0.032	7075-T6 CLAD	0.040	7075-T6
48R THRU 48L		266.3	114S2719-33	0.025	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		273.6	114S2719-33	0.025	7075-T6 CLAD	0.032	7075-T6
20.8R		360 THRU 380	114S2719-55	ALCOA 22991	7075-T6	0.063	7075-T6
13.7R		360 THRU 380	114S2719-57	AND10136-2006	7075-T6	0.125	4130
45R THRU 45L		173.5	114S2719-63	0.025	7075-T6 CLAD	0.032	7075-T6
45R THRU 45L		185.8	114S2719-68	0.025	7075-T6 CLAD	0.032	7075-T6
45R THRU 45L		193.1	114S2719-69	0.025	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		206.5	114S2719-70	0.025	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		213.5	114S2719-71	0.025	7075-T6 CLAD	0.032	7075-T6

- NOTES:**
- A. All dimensions are in inches.
 - B. Unindexed stringers and all stiffeners are identified by part number.
 - C. Replace with a section corresponding to the original.



STRINGERS — AFT FUSELAGE STRUCTURE

STRINGER NO. (NOTE B.)	LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
1	22.86		440 THRU 482	114S3503-49	ALCOA 28172	7075-T6	0.063	4130
2	25.72		440 THRU 482	114S3503-49	ALCOA 28172	7075-T6	0.063	4130
	25.72		482 THRU 534	114S3503-41	ALCOA 28172	7075-T6	0.063	4130
3	25.72		534 THRU 594	114S3503-27	ALCOA 83264	7075-T6	0.050	4130
	28.53		440 THRU 482	114S3503-49	ALCOA 28172	7075-T6	0.063	4130
4	28.53		534 THRU 594	114S3503-25	ALCOA 83264	7075-T6	0.050	4130
	31.4		440 THRU 482	114S3354-303	AND10136-1406	7075-T6	0.100	4130
5	37		502 THRU 534	114S3503-35	ALCOA 28172	7075-T6	0.063	4130
	37		534 THRU 594	114S3503-23	ALCOA 83264	7075-T6	0.050	4130
6	42.1		440 THRU 482	114S3503-47	ALCOA 28172	7075-T6	0.063	4130
	42.1		482 THRU 534	114S3503-33	ALCOA 83264	7075-T6	0.050	4130
			482 THRU 534	114S3503-251	ALCOA 83264	7075-T6	NOTE C.	
	42.1		534 THRU 594	114S3503-21	ALCOA 83264	7075-T6	0.050	4130
				114S3503-389	ALCOA 83264	7075-T6	0.050	4130

- NOTES:**
- A. All dimensions are in inches.
 - B. Stringers and all stiffeners that are not indexed are identified by part number.
 - C. This part is used on aircraft serial numbers 92-0367 and 92-0368.

STRINGERS — AFT FUSELAGE STRUCTURE

STRINGER NO. (NOTE B.)	LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
8		+42.7	502 THRU 534	114S3501-113	ALCOA 83264	7075-T6	0.050	4130
		+42.7	534 THRU 594	114S3501-135	ALCOA 83264	7075-T6	0.050	4130
		+42.7	440 THRU 482	114S3501-95	ALCOA 83264	7075-T6	NOTE C.	
9		+38	440 THRU 482	114S3501-388	AND10134-1202	7075-T6	0.100	4130
		+38	482 THRU 534	114S3501-111	ALCOA 83264	7075-T6	0.050	4130
		+38	440 THRU 482	145S3571-53	AND10134-1202	7075-T6	NOTE C.	
10		+38	482 THRU 534	114S3501-413	ALCOA 83264	7075-T6	NOTE C.	
		+38	534 THRU 594	114S3501-133	ALCOA 83264	7075-T6	0.050	4130
		+33.54	440 THRU 482	114S3501-91	ALCOA 83264	7075-T6	0.050	4130
11		+33.54	482 THRU 534	114S3501-107	ALCOA 83264	7075-T6	0.050	4130
		+33.54	534 THRU 594	114S3501-131	ALCOA 83264	7075-T6	0.050	4130
		+29	482 THRU 534	114S3501-225	ALCOA 83264	7075-T6	0.050	4130
12		+29	534 THRU 594	114S3501-129	ALCOA 83264	7075-T6	0.050	4130
		+23.2	482 THRU 534	114S3501-107	ALCOA 83264	7075-T6	0.050	4130
		+23.2	534 THRU 594	114S3501-127	ALCOA 83264	7075-T6	0.050	4130
13		+17.04		114S3501-372	ALCOA 83264	7075-T6	0.050	4130
		+17.04	534 THRU 592	114S3501-123	ALCOA 83264	7075-T6	0.050	4130
		+11.6	482 THRU 534	114S3501-371	ALCOA 83264	7075-T6	0.050	4130
14		+11.6	534 THRU 583	114S3501-117	ALCOA 83264	7075-T6	0.050	4130
		+5.8	482 THRU 534	114S3501-391	ALCOA 83264	7075-T6	0.050	4130
		+5.8	534 THRU 537.5	114S3501-115	ALCOA 83264	7075-T6	0.050	4130
15		+5.8	534 THRU 575	114S3501-117	ALCOA 83264	7075-T6	NOTE C.	
		+2.90	492 THRU 534	145S3571-59	ALCOA 83264	7075-T6	NOTE C.	
		+2.90	534 THRU 574.5	114S3501-115	ALCOA 83264	7075-T6	NOTE C.	
16		-5.33	440 THRU 478	114S3501-89	ALCOA 83264	7075-T6	0.050	4130
		-5.33	482 THRU 520	114S3501-153	ALCOA 83264	7075-T6	0.050	4130
		-10.67	440 THRU 478	114S3501-89	ALCOA 83264	7075-T6	0.050	4130
17		-10.67	482 THRU 520	114S3501-153	ALCOA 83264	7075-T6	0.050	4130
		-16	440 THRU 482	114S3501-367	ALCOA 83264	7075-T6	0.050	4130
		-16	440 THRU 482	145S3571-44	ALCOA 83264	7075-T6	NOTE C.	
18		-16	482 THRU 520	114S3501-101	ALCOA 83264	7075-T6	0.050	4130
		-20.67	440 THRU 482	114S3501-367	ALCOA 83264	7075-T6	0.050	4130
		-20.67	440 THRU 482	145S3571-44	ALCOA 83264	7075-T6	NOTE C.	
19		-20.67	482 THRU 520	114S3501-99	ALCOA 83264	7075-T6	0.050	4130
		-25.34	440 THRU 482	114S3501-85	ALCOA 83264	7075-T6	0.050	4130
		-25.34	440 THRU 482	114S3501-86	ALCOA 83264	7075-T6	0.050	4130
20		-20.67	440 THRU 482	114S3501-88	ALCOA 83264	7075-T6	0.050	4130
		-20.67	482 THRU 520	114S3501-100	ALCOA 83264	7075-T6	0.050	4130
		-16	440 THRU 482	114S3501-88	ALCOA 83264	7075-T6	0.050	4130
21		-16	482 THRU 520	114S3501-102	ALCOA 83264	7075-T6	0.050	4130
		-10.67	440 THRU 482	114S3501-90	ALCOA 83264	7075-T6	0.050	4130
		-10.67	482 THRU 520	114S3501-154	ALCOA 83264	7075-T6	0.050	4130
22		-5.33	440 THRU 482	114S3501-90	ALCOA 83264	7075-T6	0.050	4130
		-5.33	482 THRU 520	114S3501-154	ALCOA 83264	7075-T6	0.050	4130
		+5.8	482 THRU 534	114S3501-105	ALCOA 83264	7075-T6	0.050	4130
23		+5.8	534 THRU 573.5	114S3501-116	ALCOA 83264	7075-T6	0.050	4130
		+11.6	482 THRU 534	114S3501-105	ALCOA 83264	7075-T6	0.050	4130
		+11.6	534 THRU 555.8	114S3501-119	ALCOA 83264	7075-T6	0.050	4130
24		+17.04	482 THRU 534	114S3501-108	ALCOA 83264	7075-T6	0.050	4130
		+17.04	482 THRU 534	145S3571-8	ALCOA 83264	7075-T6	NOTE C.	
		+17.04	534 THRU 592	114S3501-125	ALCOA 83264	7075-T6	0.050	4130
25		+23.2	482 THRU 534	114S3501-108	ALCOA 83264	7075-T6	0.050	4130
		+23.2	482 THRU 534	145S3571-37	ALCOA 83264	7075-T6	NOTE C.	
		+23.2	534 THRU 594	114S3501-81	ALCOA 83264	7075-T6	0.050	4130

- NOTES:**
- A. All dimensions are in inches.
 - B. Stringers and all stiffeners that are not indexed are identified by part number.
 - C. This part is used on aircraft serial numbers 92-0367 and 92-0368.

STRINGERS — AFT FUSELAGE STRUCTURE

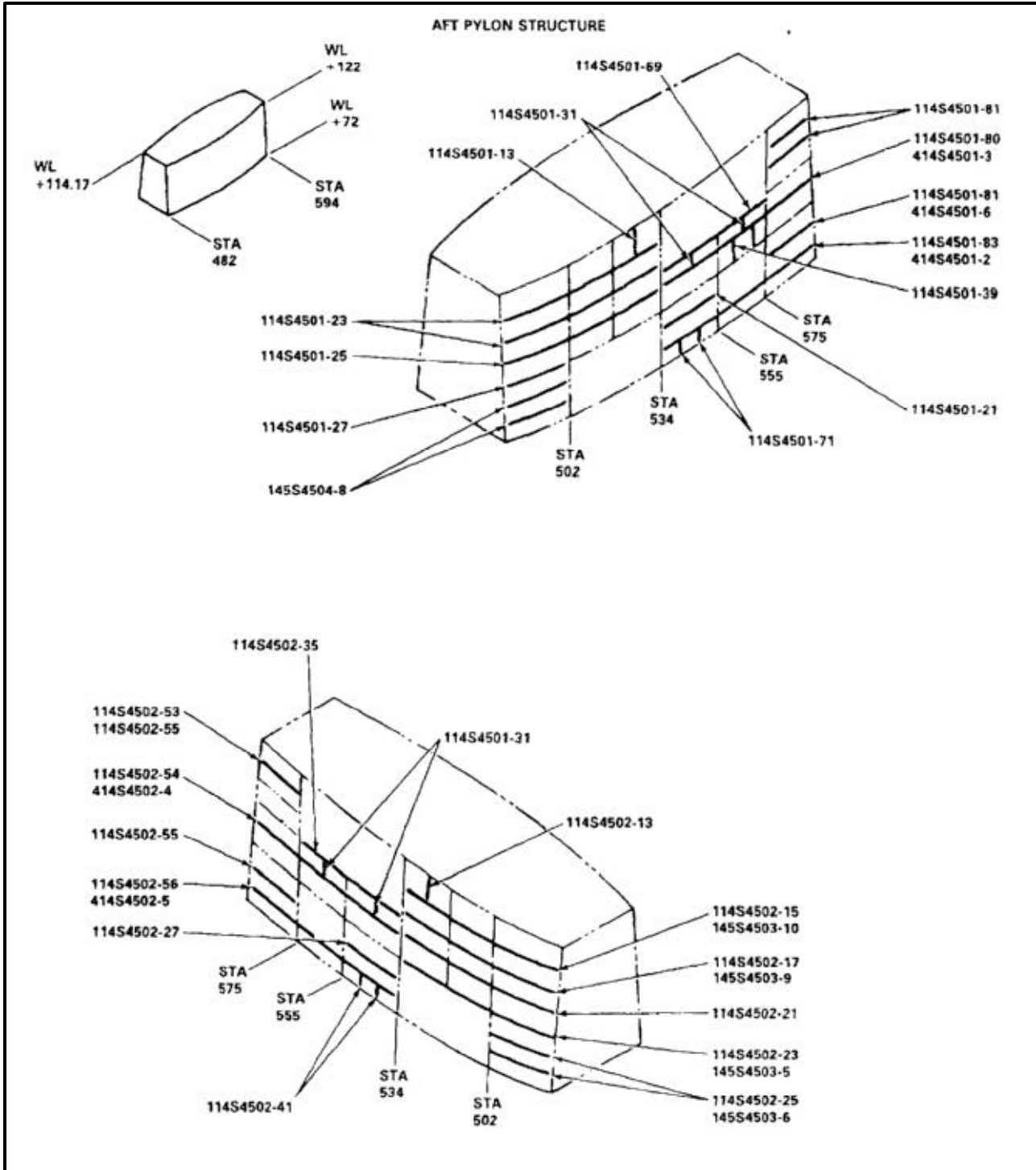
STRINGER NO. (NOTE B.)	LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
36		+29	482 THRU 534	114S3501-226	AND10138-1005	7075-T6	0.080	4130
		+29	534 THRU 594	114S3501-130	ALCOA 83264	7075-T6	0.050	4130
		+29	534 THRU 594	145S3571-36	ALCOA 83264	2024-T4	NOTE C.	
37		+33.54	440 THRU 482	114S3501-92	ALCOA 83264	7075-T6	0.050	4130
		+33.54	482 THRU 534	114S3501-108	ALCOA 83264	7075-T6	0.050	4130
		+33.54	482 THRU 534	145S3571-37	ALCOA 83264	7075-T6	NOTE C.	
		+33.54	534 THRU 594	114S3501-132	ALCOA 83264	7075-T6	0.050	4130
		+33.54	534 THRU 594	145S3571-35	ALCOA 83264	2024-T4	NOTE C.	
38		+38	440 THRU 482	114S3501-228	AND10134-1202	7075-T6	0.100	4130
		+38	440 THRU 482	145S3571-53	AND10134-1202	7075-T6	NOTE C.	
		+38	482 THRU 534	114S3501-112	ALCOA 83264	7075-T6	0.050	4130
		+38	482 THRU 534	145S3571-45	ALCOA 83264	7075-T6	NOTE C.	
		+38	534 THRU 561	114S3501-157	ALCOA 83264	7075-T6	0.050	4130
		+38	569.5 THRU 594	114S3501-175	ALCOA 83264	7075-T6	0.050	4130
		+38	569.5 THRU 594	145S3571-24	ALCOA 83264	7075-T6	NOTE C.	
		+42.7	440 THRU 482	114S3501-96	ALCOA 83264	7075-T6	0.050	4130
39		+42.7	502 THRU 534	114S3501-114	ALCOA 83264	7075-T6	0.050	4130
		+42.7	534 THRU 594	114S3501-136	ALCOA 83264	7075-T6	0.050	4130
		+42.7	534 THRU 594	145S3571-34	ALCOA 83264	7075-T6	NOTE C.	
		+42.7	440 THRU 482	114S3503-55	ALCOA 28172	7075-T6	0.063	4130
41	42.1		440 THRU 482	114S3503-55	ALCOA 28172	7075-T6	NOTE C.	
	42.1		482 THRU 534	114S3505-34	ALCOA 83264	7075-T6	0.050	4130
	42.1		482 THRU 534	114S3503-252	ALCOA 83264	7075-T6	NOTE C.	
	42.1		534 THRU 594	114S3503-22	ALCOA 83264	7075-T6	0.050	4130
	42.1		502 THRU 534	114S3503-36	ALCOA 28172	7075-T6	0.063	4130
42	37		534 THRU 594	114S3503-24	ALCOA 83264	7075-T6	0.050	4130
	37		440 THRU 482	114S3354-288	AND10136-1406	7075-T6	0.100	4130
43	31.4		450 THRU 482	114S3503-51	ALCOA 28172	7075-T6	0.063	4130
	28.52		482 THRU 534	114S3503-40	ALCOA 28172	7075-T6	0.063	4130
44			534 THRU 594	114S3503-26	ALCOA 83264	7075-T6	0.050	4130
	25.72		450 THRU 482	114S3503-51	ALCOA 28172	7075-T6	0.063	4130
	25.72		482 THRU 534	114S3503-42	ALCOA 28172	7075-T6	0.063	4130
45	25.72		534 THRU 594	114S3503-28	ALCOA 83264	7075-T6	0.050	4130
	22.86		450 THRU 482	114S3503-51	ALCOA 28172	7075-T6	0.063	4130
46		+9.85	555.8 THRU 580.4	114S3501-121	ALCOA 83264	7075-T6	0.050	4130
		-2.38	520 THRU 534	114S3501-141	ALCOA 83264	7075-T6	0.050	4130
—		-2.38	520 THRU 534	114S3501-142	ALCOA 83264	7075-T6	0.050	4130
—		0	520 THRU 555	114S3501-143	0.051	2024-T4 CLAD	0.063	2024-T4 CLAD
—		0	520 THRU 555	114S3501-144	0.051	2024-T4 CLAD	0.063	2024-T4 CLAD
—		-2.38	534 THRU 555	114S3501-171	ALCOA 83264	7075-T6	0.050	4130
—		-2.38	534 THRU 555	114S3501-172	ALCOA 83264	7075-T6	0.050	4130
—		-7	534 THRU 546	114S3501-173	ALCOA 83264	7075-T6	0.050	4130
—		-7	534 THRU 546	114S3501-174	ALCOA 83264	7075-T6	0.050	4130
—		-7	520 THRU 534	114S3501-355	ALCOA 83264	7075-T6	0.050	4130
—		-7	520 THRU 534	114S3501356	ALCOA 83264	7075-T6	0.050	4130
—		+59	534 THRU 594	114S3503-29	ALCOA 83264	7075-T6	0.050	4130
—		+59	534 THRU 594	114S3503-30	ALCOA 83264	7075-T6	0.050	4130
—		+60	482 THRU 534	114S3503-43	ALCOA 83264	7075-T6	0.050	4130
—		+66	482 THRU 534	114S3503-45	ALCOA 83264	7075-T6	0.050	4130
—		+66	482 THRU 534	114S3503-46	ALCOA 83264	7075-T6	0.050	4130
—		+66	534 THRU 594	114S3503-53	ALCOA 83264	7075-T6	0.050	4130
—		+66	534 THRU 594	145S3573-12	ALCOA 83264	7075-T6	NOTE C.	
—		+54	575.5 THRU 594	114S3503-89	ALCOA 83264	7075-T6	0.050	4130
—		+54	575.5 THRU 594	114S3503-90	ALCOA 83264	7075-T6	0.050	4130
—		+62	575.5 THRU 594	114S3503-91	ALCOA 83264	7075-T6	0.050	4130
—		+62	575.5 THRU 594	114S3503-191	ALCOA 83264	2024-T4	NOTE C.	
—		+60	482 THRU 534	114S3503-99	ALCOA 83264	7075-T6	0.050	4130
—		+62	569.5 THRU 594	114S3503-191	ALCOA 83264	7075-T6	0.050	4130
—		+66	534 THRU 575	114S3503-193	ALCOA 83264	7075-T6	0.050	4130
—		+66	586 THRU 594	114S3503-195	ALCOA 83264	7075-T6	0.050	4130
—		+66	586 THRU 594	114S3630-7	ALCOA 83264	2024-T4	0.050	4130
—		+66	586 THRU 594	114S3503-193	ALCOA 83264	2024-T4	NOTE C.	
—		+66	534 THRU 594	145S3573-12	ALCOA 83264	7075-T6	NOTE C.	

- NOTES: A. All dimensions are in inches.
 B. Stringers and all stiffeners that are not indexed are identified by part number.
 C. This part is used on aircraft serial numbers 92-0367 and 92-0368.

STIFFENERS — AFT FUSELAGE STRUCTURE

LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
BL	WL	STATION					
48R THRU 48L		446.6	114S2719-25	0.040	7075-T6 CLAD	0.050	7075-T6
48R THRU 48L		453.6	114S2719-25	0.040	7075-T6 CLAD	0.050	7075-T6
	-20 THRU -33	496.3	114S3501-151	ALCOA 67580	7075-T6	0.050	4130
	-20 THRU -33	496.3	114S3501-152	ALCOA 67580	7075-T6	0.050	4130
	+12	482 THRU 502	114S3501-207	ALCOA 83264	7075-T6	0.050	4130
	+4.5	482 THRU 502	114S3501-209	0.063	7075-T6 CLAD	0.071	7075-T6
	-20 THRU -36	489.2	114S3501-243	AND10134-1401	7075-T6	0.100	4130
	-20 THRU -36	489.2	114S3501-244	AND10134-1401	7075-T6	0.100	4130
	+15	520 THRU 534	114S3501-247	0.063	7075-T6 CLAD	0.071	7075-T6
	+15	520 THRU 534	114S3501-248	0.063	7075-T6 CLAD	0.071	7075-T6
5R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
10R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
15R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
26R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
32R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
38R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
5L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
10L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
15L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
26L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
32L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
38L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
53.1R		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0.150	4130
53.1L		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0.160	4130
68.2R		460 THRU 482	114S3504-43	BAC1503 100019	7075-T6	0.160	4130
68.2L		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0.160	4130
57L		460 THRU 482	114S3504-45	AND10137-2601	7075-T6	0.100	4130
57R		460 THRU 482	114S3504-45	AND10137-2601	7075-T6	0.100	4130

- NOTES:** A. All dimensions are in inches.
 B. Unindexed stringers and all stiffeners are identified by part number.



STRINGERS — AFT PYLON STRUCTURE

STRINGER NO. (NOTE B.)	LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
—		+84.5	534 THRU 555.3	114S4501-21	VS70503-1	7075-T6	0.032	7075-T6
—		+103.25	482 THRU 534	114S4501-23	VS70503-1	7075-T6	0.032	7075-T6
—		+109.5	482 THRU 534	114S4501-23	VS70503-1	7075-T6	0.032	7075-T6
—		+97	482 THRU 534	114S4501-25	VS70503-3	7075-T6	0.050	7075-T6
—		+78.25	482 THRU 502.4	114S4501-27	VS70503-1	7075-T6	0.032	7075-T6
—		+78.25	482 THRU 502.4	145S4504-8	BAC1517-1521	7075-T6	NOTE C.	
—		+84.5	482 THRU 502.4	114S4501-27	VS70503-1	7075-T6	0.032	7075-T6
—		+84.5	482 THRU 502.4	145S4504-8	BAC1517-1521	7075-T6	NOTE C.	
—		+90.75	482 THRU 502.4	114S4501-27	VS70503-1	7075-T6	0.032	7075-T6
—		+100	534 THRU 575.5	114S4501-69	HARVEY 15078	7075-T6	0.063	4130
—		+97	534 THRU 594	114S4501-80	0.063	7075-T6 BARE	0.071	7075-T6 BARE
—		+97	534 THRU 594	414S4501-3	0.050	7075-T6 BARE	NOTE C.	
—		+84.5	575 THRU 594	114S4501-81	ALCOA 83264	7075-T6	0.050	4130
—		+84.5	575 THRU 594	414S4501-6	ALCOA 83264	7075-T6	NOTE C.	
—		+109.5	575 THRU 594	114S4501-81	ALCOA 83284	7075-T6	0.050	4130
—		+115.75	575 THRU 594	114S4501-81	ALCOA 83284	7075-T6	0.050	4130
—		+78.25	534 THRU 594	114S4501-83	BAC1517-1523	7075-T6	0.050	4130
—		+78.25	534 THRU 594	414S4501-2	BAC1517-1523	7075-T6	NOTE C.	
—		+109.5	482 THRU 534	114S4502-15	VS70503-1	7075-T6	0.032	7075-T6
—		+109.5	482 THRU 534	145S4503-10	BAC1517-1521	7075-T6	NOTE C.	
—		+103.25	482 THRU 534	114S4502-17	VS70503-1	7075-T6	0.032	7075-T6
—		+103.25	482 THRU 534	145S4503-9	BAC1517-1521	7075-T6	NOTE C.	
—		+97	482 THRU 534	114S4502-21	VS70503-3	7075-T6	0.050	7075-T6
—		+90.75	482 THRU 534	114S4502-23	ALCOA 22477	7075-T6	0.040	4130
—		+90.75	482 THRU 534	145S4503-5	ALCOA 22477	7075-T6	NOTE C.	
—		+78.25	482 THRU 518	114S4502-25	VS70503-1	7075-T6	0.032	7075-T6
—		+78.25	482 THRU 502.4	145S4503-6	BAC1517-1521	7075-T6	NOTE C.	
—		+84.5	482 THRU 518	114S4502-25	VS70503-1	7075-T6	0.032	7075-T6
—		+84.5	482 THRU 502.4	145S4503-6	BAC1517-1521	7075-T6	NOTE C.	
—		+84.5	534 THRU 555.3	114S4502-27	VS70503-1	7075-T6	0.032	7075-T6
—		+100	534 THRU 575.5	114S4502-35	HARVEY 15078	7075-T6	0.063	4130
—		+115.75	575.5 THRU 594	114S4502-53	HARVEY 15152	7075-T6	0.032	7075-T6
—		+115.75	575.5 THRU 594	114S4502-55	ALCOA 832642	7075-T6	NOTE C.	
—		+97	534 THRU 594	114S4502-54	0.063	7075-T6 BARE	0.071	7075-T6 BARE
—		+97	534 THRU 594	414S4502-4	0.050	7075-T6 BARE	NOTE C.	
—		+84.5	575.5 THRU 594	114S4502-55	ALCOA 83264	7075-T6	0.050	4130
—		+78.25	534 THRU 594	114S4502-56	BAC1517-1523	7075-T6	0.050	7075-T6
—		+78.25	534 THRU 594	414S4502-5	BAC1517-1523	7075-T6	NOTE C.	

STIFFENERS — AFT PYLON STRUCTURE

LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
BL	WL	STATION					
	+109 THRU +116	526	114S4501-13	ALCOA 67580	7075-T6	0.050	4130
(LH SIDE)	+97 THRU +100	544.5	114S4501-31	ALCOA 22477	7075-T6	0.040	4130
(LH SIDE)	+97 THRU +100	564	114S4501-31	ALCOA 22477	7075-T6	0.040	4130
(RH SIDE)	+97 THRU +100	544.5	114S4501-31	ALCOA 22477	7075-T6	0.040	4130
(RH SIDE)	+97 THRU +100	564	114S4501-31	ALCOA 22477	7075-T6	0.040	4130
	+90 THRU +97	561	114S4501-39	VS70504-4	7075-T6	0.040	7075-T6
	+90 THRU +97	571	114S4501-39	VS70504-4	7075-T6	0.040	7075-T6
	+72 THRU +78	540.4	114S4501-71	ALCOA 22477	7075-T6	0.040	4130
	+72 THRU +78	547.9	114S4501-71	ALCOA 22477	7075-T6	0.040	4130
	+109 THRU +116	526	114S4502-13	ALCOA 67580	7075-T6	0.050	4130
	+72 THRU +78	540.4	114S4502-41	ALCOA 22477	7075-T6	0.040	4130
	+72 THRU +78	547.9	114S4502-41	ALCOA 22477	7075-T6	0.040	4130

- NOTES:** A. All dimensions are in inches.
 B. Stringers and all stiffeners that are not indexed are identified by part number.
 C. This part is used on aircraft serial numbers 92-0367 and 92-0368.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

TM 1-1500-204-23
Task 2-15
Task 2-16
Task 2-343

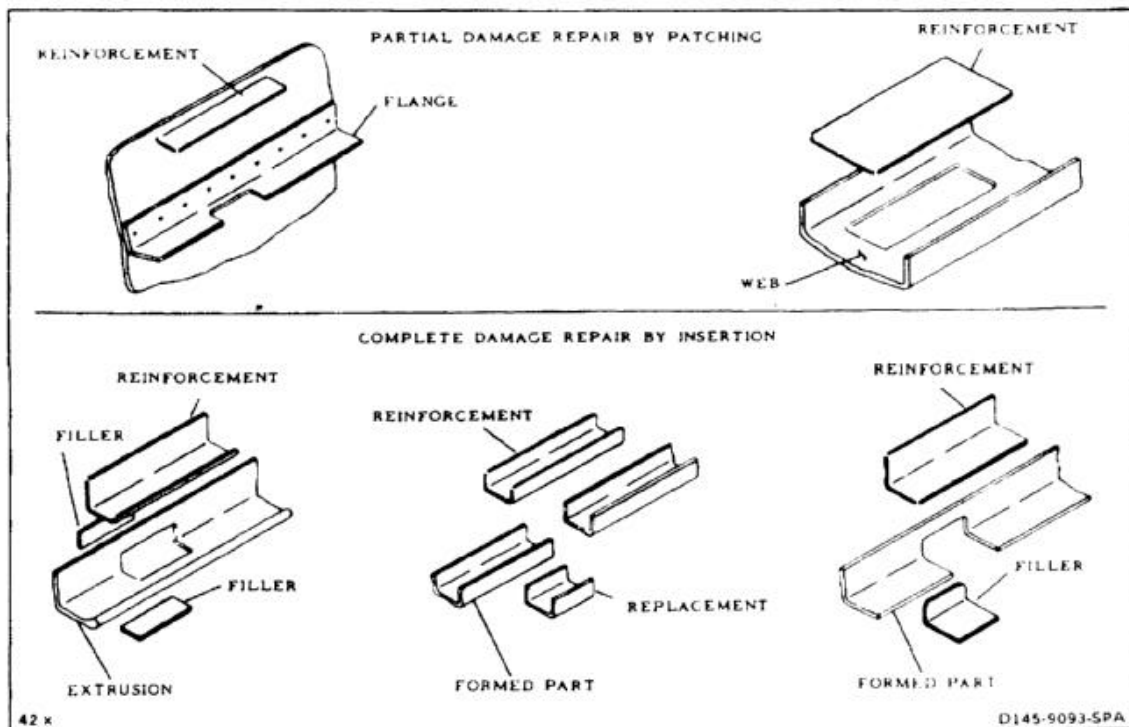
Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Repairable damage is damage more extensive than minor damage (Task 2-15). If damage does not affect more than **one-half** of widest flange of a formed stringer, it can be repaired by patching.
2. Extensive damage exceeds repairable damage. Extensive damage, such as loss of major portion of stringer or numerous isolated damages requires stringer replacement. Refer to Task 2-16 for general stringer location.
3. If damage to formed stringer affects more than **one-half** the widest flange or extends into the radius, repair shall be by insertion.
4. Insertion of partial replacement can be made if material and sectional dimensions in TM 1-1500-204-23 are used.
5. Use protective measures where dissimilar metals are used (Task 2-343).



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

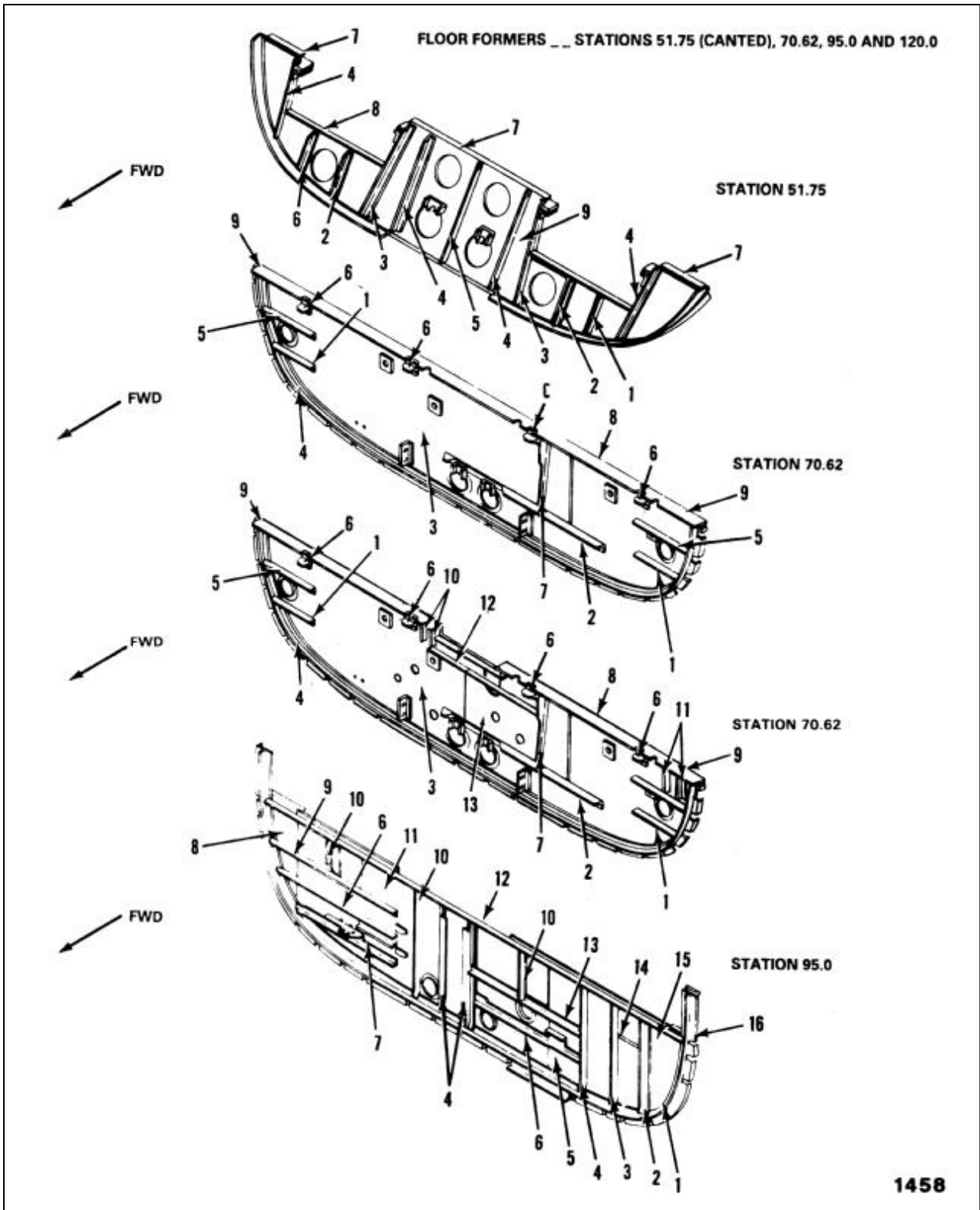
Materials:

As Required

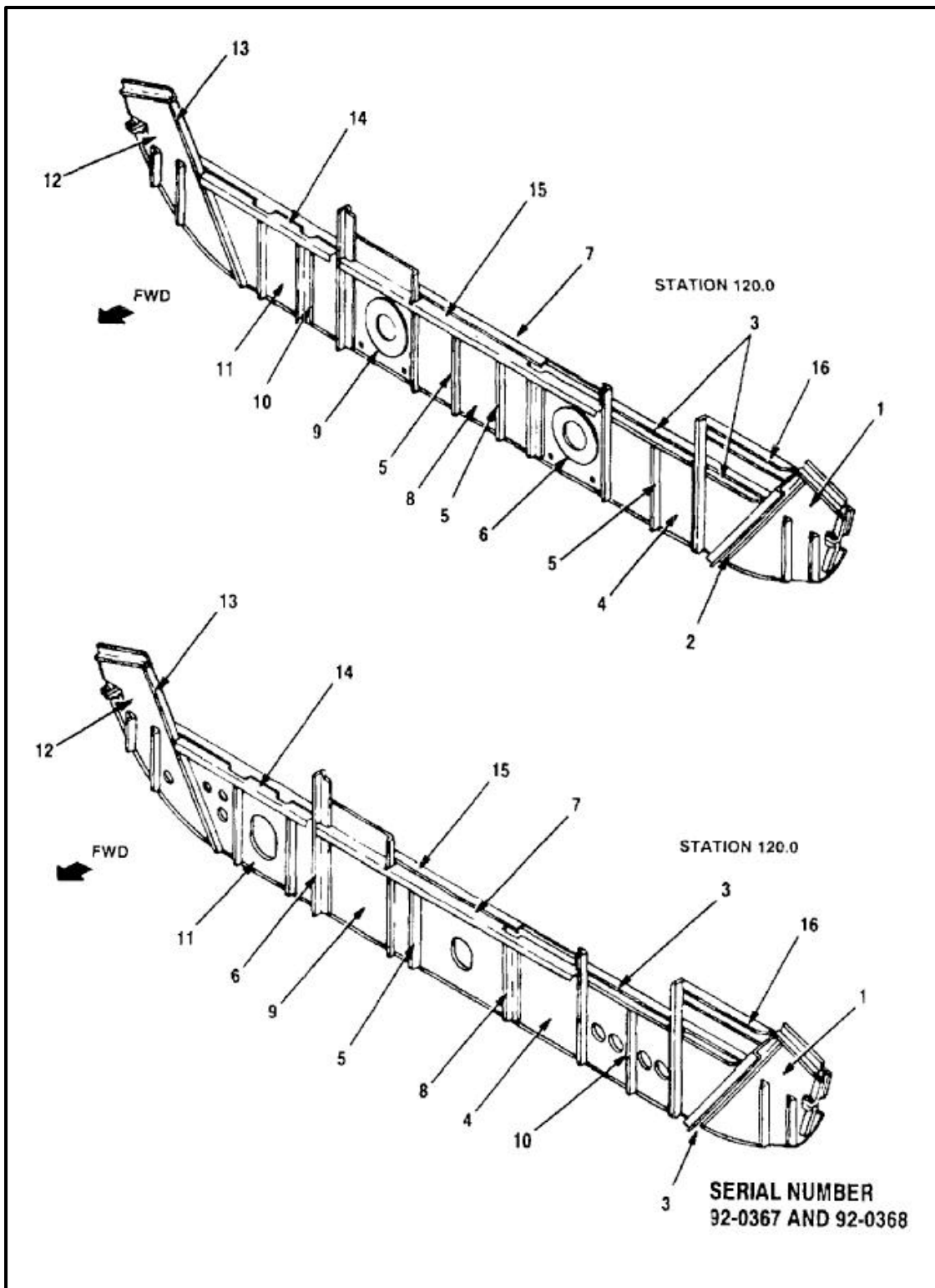
Personnel Required:Aircraft Structural Repairer
Inspector**References:**TM 1-1500-204-23
Task 2-13
Task 2-19
Task 2-20
Task 2-29
Task 2-254
Task 2-304
Task 2-351
Task 2-358**Equipment Condition:**

As Required

1. Formers are members spaced at intervals thru fuselage and ramp assemblies, and aft pylon. Depending on location and function, formers are called partial, full, crown, floor or bottom formers.
2. Formers provide structural reinforcement in a crosswise (tranverse) direction. Also, formers serve as attaching points for stringers, boundary members for major skin splices, and as a base for structural fittings.
3. Detailed information on formers and structure is provided for the following areas:
 - a. Cockpit Fuselage
 - b. Cabin Fuselage
 - c. Pod Installation Cabin Fuselage
 - d. Aft Fuselage
 - e. Cargo Loading Ramp (Task 2-254)
 - f. Aft Pylon (Task 2-304)
4. Damage to formers shall be classified as minor (Task 2-19), repairable, and damage requiring replacement (Task 2-20).



Former Repairs - Cockpit Fuselage Structure (Sheet 1 of 12)



Former Repairs - Cockpit Fuselage Structure (Sheet 2 of 12)

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)**2-18****FLOOR FORMERS STATIONS 51.75 (CANTED), 70.62, 95.0, AND 120.0 FORMER STATION 51.75 (CANTED)**

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	STIFFENER	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-29
2	STIFFENER	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-29
3	STIFFENER	ALCOA 9802	7075-T6	0.063	4130	2-29
4	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
5	STIFFENER	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-29
	STIFFENER	VS70504-2	7075-T6 BARE	0.032	7075-T6 CLAD	NOTE D.
6	STIFFENER	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-29
	STIFFENER DOUBLER	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	NOTE D.
7	CAP	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE C.
	CAP	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE D.
8	CAP	ALCOA 9802	7075-T6	0.063	4130	NOTE C.
	CAP	ALCOA 22892	7075-T6 EXTR	0.063	4130	NOTE D.
9	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
	WEB	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	NOTE D.

FORMER STATION 120.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	STIFFENER	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-29
2	STIFFENER	ALCOA 28546	7075-T6	0.071	4130	2-29
3	WEB	0.020	7075-T6 BARE	0.025	7075-T6 CLAD	2-13
4	CAP	ALCOA 67580	7075-T6	0.063	4130	NOTE C.
5	STIFFENER	0.025	2024-T4 BARE	0.032	2024-T3 CLAD	2-29
6	FITTING	ALCOA 76959	7075-T6	NOTE B.		
7	STIFFENER	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-29
8	CAP	REYNOLDS 11416	7075-T6 BARE	0.071	4130	NOTE C.
9	SKIRT	0.020	301 CRES	0.025	301 CRES	2-29
10	STIFFENER	BAC1503-2731	7075-T6 EXTR	0.050	4130	NOTE D.
11	STIFFENER	HARVEY 15078	7075-T6 EXTR	0.050	4130	NOTE D.
12	CHANNEL	0.050	2024-T3	0.050	2024-T3	NOTE D.
13	DOUBLER	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	NOTE D.

- NOTES:**
- A. All dimensions are in inches.
 - B. Replace fittings with section of original material.
 - C. TM 1-1500-204-23.
 - D. This part is used on aircraft serial numbers 92-0367 and 92-0368.

Former Repairs — Cockpit Fuselage Structure (Sheet 3 of 12)

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)

2-18

FORMER STATION 95.0

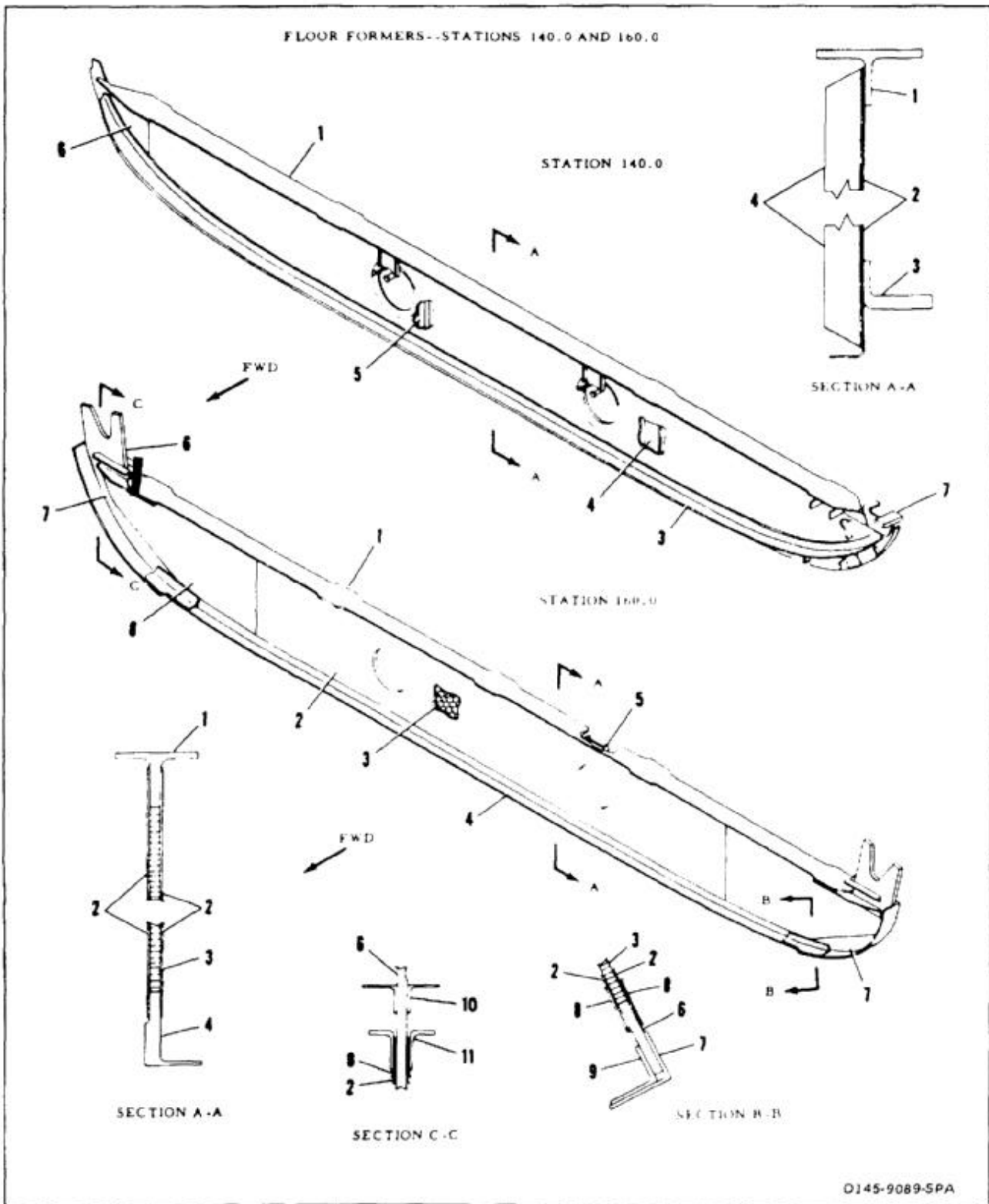
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	ALCOA 80759	7075-T6 511 EXTR	0.190	4130	NOTE C. NOTE D.
2	STIFFENER	AND10133-0601	7075-T6	0.071	4130	2-29
3	STIFFENER	ALCOA 22653	7075-T6	0.080	4130	2-29
	STIFFENER	AND10133-1201	7075-T6 EXTR	0.050	4130	NOTE D.
4	STIFFENER	ALCOA 59675	7075-T6	0.050	4130	2-29
5	WEB	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
6	STIFFENER	0.063	2024-T4 CLAD	0.063	2024-T3 CLAD	2-29
7	STIFFENER	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-29
8	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
9	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
10	SUPPORT	AND10134-1201	7075-T6	0.071	4130	NOTE C.
11	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
	WEB	0.050	7075-T6 BARE	0.063	7075-T6 CLAD	NOTE D.
12	CAP	AND10134-1205	7075-T6	0.100	4130	NOTE C.
13	STIFFENER	AND10134-1003	7075-T6	0.071	4130	2-29
14	STIFFENER	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-29
	STIFFENER	AND10133-0601	7075-T6 EXTR	0.050	4130	NOTE D.
15	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
16	SKIRT	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE C.

FORMER STATION 120.0

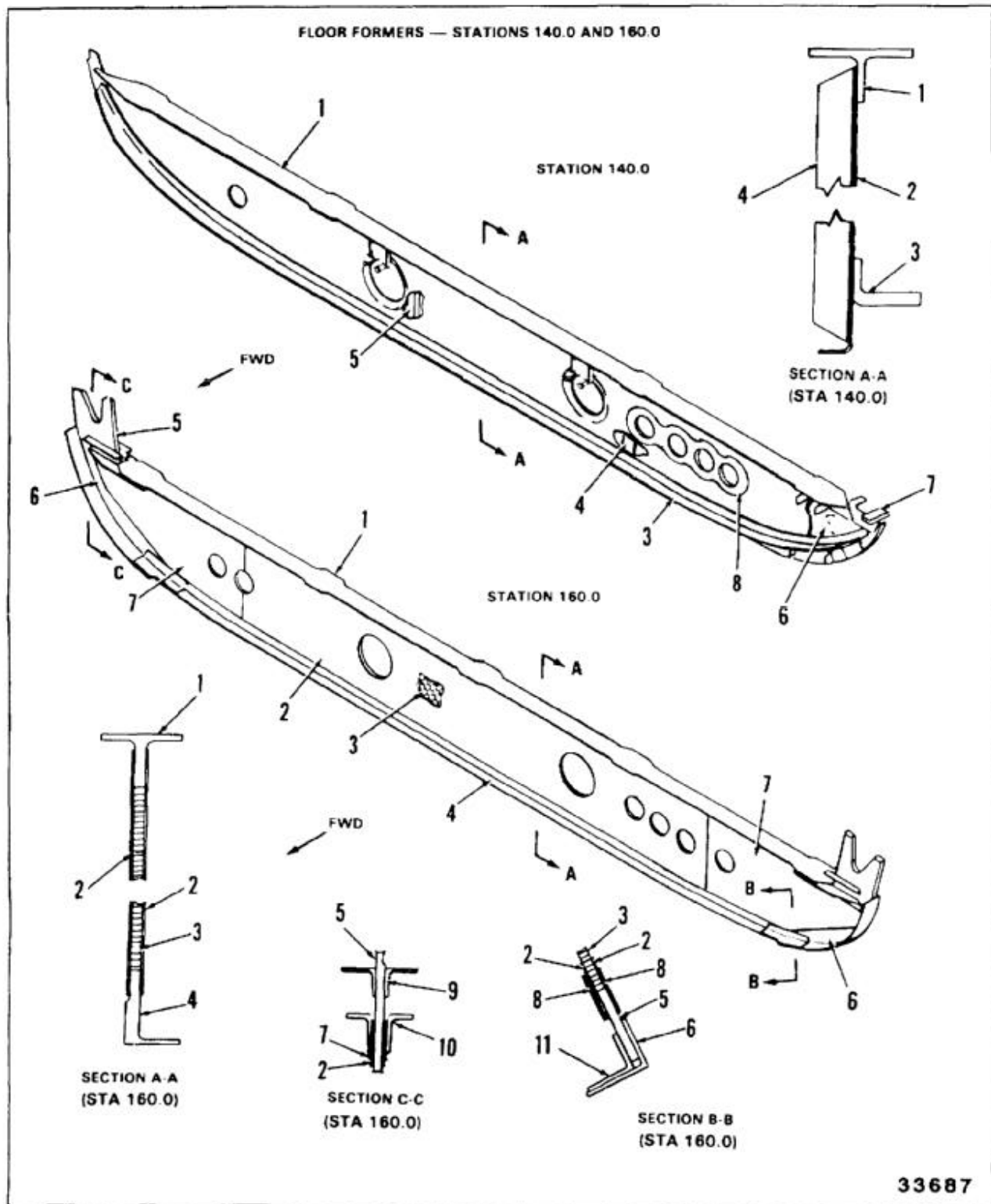
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
2	CAP	ALCOA 2129	7075-T6	0.160	4130	NOTE C.
	CAP	ALCOA 27076	7075-T6	0.050	4130	NOTE D.
3	ANGLE	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	NOTE C.
	SUPPORT	AND10134-1205	7075-T6511	0.100	7075-T6 CLAD	NOTE D.
4	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
	WEB	0.025	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE D.
5	ANGLE	ALCOA 9802	7075-T6	0.063	4130	2-29
6	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
7	CHANNEL	0.063	2024-T3 CLAD	0.070	2024-T3 CLAD	2-13
8	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
9	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
10	STIFFENER	ALCOA 67580	7075-T6	0.063	4130	2-29
11	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
12	WEB	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
13	CAP	0.090	7075-T6 BARE	0.100	7075-T6 CLAD	NOTE C.
14	CHANNEL	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	2-13
15	CAP	0.040	2024-T4 CLAD	0.050	2024-T4 CLAD	NOTE C.
16	CHANNEL	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13

- NOTES:**
- A. All dimensions are in inches.
 - B. Replace fittings with section of original material.
 - C. TM 1-1500-204-23.
 - D. This part is used on aircraft serial numbers 92-0367 and 92-0368.

Former Repairs — Cockpit Fuselage Structure (Sheet 4 of 12)



Former Repairs-- Cockpit Fuselage Structure (Sheet 5 of 12)



Former Repairs - Cockpit Fuselage Structure (Sheet 6 of 12)

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)

FLOOR FORMERS — STATIONS 140.0 AND 160.0 FLOOR FORMER — STATION 140.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	ALCOA 12756	7075-T6	0.160	4130	NOTE F.
2	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
3	CAP	PHS90104	2025-T6	NOTE B.		
4	STIFFENER	ALCOA 22981	7075-T6	0.063	4130	2-29
5	STIFFENER	ALCOA 12883	7075-T6	0.063	4130	2-29
6	PLATE	0.080	7075-T6 BARE	0.090	7075-T6 CLAD	2-13
7	ATTACHMENT	REYNOLDS 6447	7075-T6	NOTE C.		—

FLOOR FORMER — STATION 160.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	VS90302	7075-T6	NOTE D.		—
2	SKIN	0.020	7075-T6 BARE	NOTE D.		—
3	CORE	0.255 3.0 3/8-20N-3003		NOTE D.		—
4	CAP	VS90526	7075-T6	NOTE D.		—
5	BRACKET	0.025	2024-T4 CLAD	NOTE E.		—
6	ATTACHMENT	0.250	7075-T6 BARE	NOTE D.		—
7	CAP	ALCOA 11638	7075-T6	0.100	4130	NOTE F.
8	DOUBLER	0.016	7075-T6 BARE	0.020	7075-T6 CLAD	2-13
9	ANGLE	0.080	7075-T6 BARE	0.090	7075-T6 CLAD	NOTE F.
10	ANGLE	ALCOA 22477	7075-T6	0.050	4130	NOTE F.
11	ANGLE	ALCOA 51919	7075-T6	0.071	4130	NOTE F.

NOTE G.
Reference Sheet 6 of 12

FLOOR FORMERS — STATIONS 140.0 AND 160.0 FLOOR FORMER — STATION 140.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	ALCOA 12756	7075-T6	0.160	4130	NOTE F.
2	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
3	CAP	PHS90104	7075-T6	NOTE B.		
4	STIFFENER	ALCOA 12883	7075-T6	0.063	7075-T6 CLAD	2-29
5	STIFFENER	ALCOA 12883	7075-T6	0.063	7075-T6 CLAD	2-29
6	PLATE	0.080	7075-T6 BARE	0.090	7075-T6 CLAD	2-13
7	ATTACHMENT	REYNOLDS 6447	7075-T6	NOTE C.		—
8	DOUBLER	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	2-13

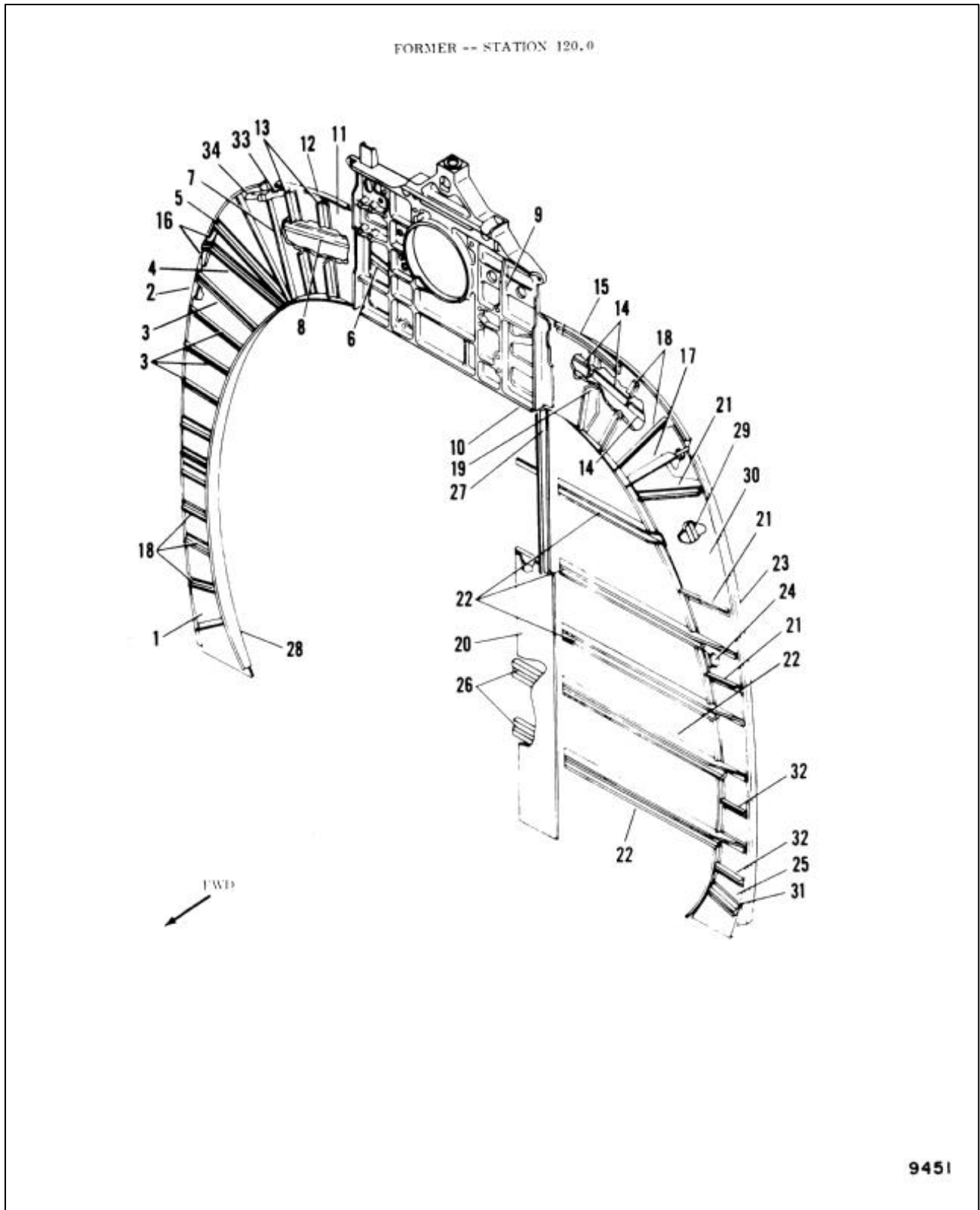
NOTE G.
Reference Sheet 6 of 12

FLOOR FORMER — STATION 160.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	VS90302	7075-T6	NOTE D.		—
2	SKIN	0.020	7075-T6 BARE	NOTE D.		—
3	CORE	0.255 0.005 X AL HONEYCOMB-BMS4-4, 6-20N FORM B		NOTE D.		—
4	CAP	VS90526	7075-T6	NOTE D.		—
6	ATTACHMENT	0.250	7075-T6 BARE	NOTE D.		—
7	CAP	ALCOA 11638	7075-T6	0.100	4130	NOTE F.
8	DOUBLER	0.016	7075-T6 BARE	0.020	7075-T6 CLAD	2-13
9	ANGLE	ALCOA 22477	7075-T6	0.050	7075-T6 CLAD	NOTE F.
10	ANGLE	ALCOA 51919	7075-T6	0.071	4130	NOTE F.
11	ANGLE	0.080	7075-T6 BARE	0.090	7075-T6 CLAD	NOTE F.

- NOTES:
- A. All dimensions are in inches.
 - B. Replace damaged section with a corresponding section of original material.
 - C. Replace with new attachment 11451833-5.
 - D. Component of bonded assembly. Refer to Task 2-358 for information on repair of sandwich honeycomb structures.
 - E. Replace with new bracket 114E4054-9.
 - F. TM 1-1500-204-23.
 - G. This part as used on aircraft serial numbers 92-0367 and 92-0368.

Former Repairs — Cockpit Fuselage Structure (Sheet 7 of 12)



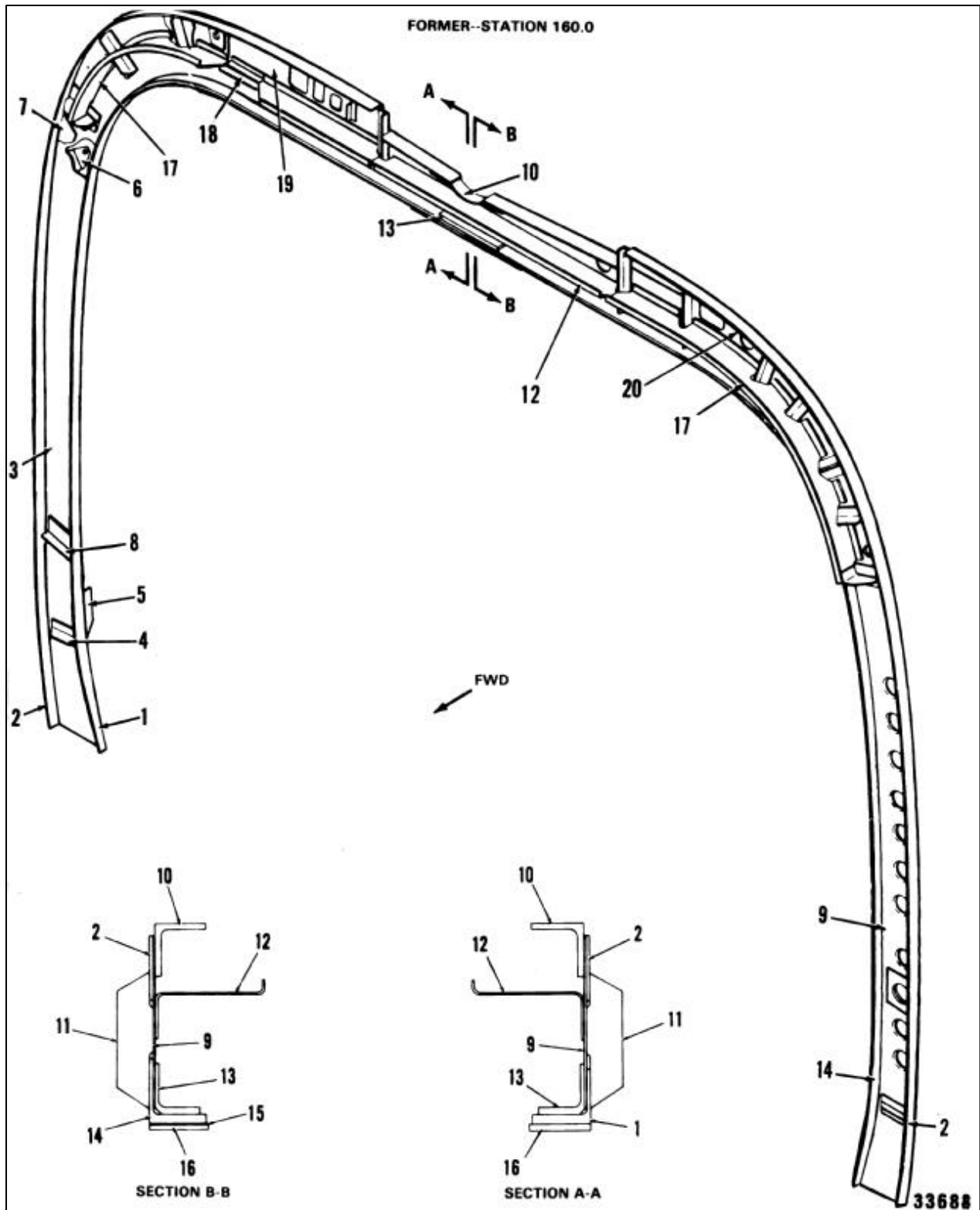
Former Repairs - Cockpit Fuselage Structure (Sheet 8 of 12)

FORMER STATION 120.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.040	7075-T6 BARE	0.063	7075-T6 CLAD	2-13
2	CAP	AND10134-1403	7075-T6	0.100	4130	NOTE G.
3	STIFFENER	ALCOA 12883	7075-T6	0.063	4130	2-29
4	STIFFENER	ALCOA 60246	7075-T6	0.071	4130	2-29
5	STIFFENER	AND10133-0601	7075-T6	0.063	4130	2-29
6	ZEE	0.032	2024-T3	0.032	2024-T3	NOTE G.
7	STIFFENER	ALCOA 11820	7075-T6511	0.080	7075-T6 CLAD	2-29
8	ZEE	0.032	2024-T3	0.032	2024-T3	NOTE G.
9	FITTING		7075-T73652	NOTE B.		—
10	CAP	ALCOA 22892	7075-0	0.094	7075-0	NOTE G.
11	WEB	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	2-13
12	CAP	0.050	7075-0 BARE	0.050	7075-0 CLAD	NOTE G.
13	STIFFENER	ALCOA 11820	7075-T6511	0.080	7075-T6 CLAD	2-29
14	CHANNEL	0.032	2024-T3	0.032	2024-T3	2-13
15	CAP		7075-T73652	NOTE C.		—
16	FITTING		2014-T6	NOTE D.		—
17	STIFFENER	AND10134-1003	7075-T6511	0.062	7075-T6511	2-29
18	STIFFENER	ALCOA 11820	7075-T6511	0.080	7075-T6511	2-29
19	STIFFENER	AND10134	7075-T6511	0.125	7075-T6511	2-29
20	WEB	0.025	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13
21	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
22	CHANNEL	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	2-13
23	CAP	AND10134-1401	7075-T6	0.100	4130	NOTE G.
24	CAP	ALCOA 22892	7075-T6	0.100	4130	NOTE G.
25	WEB	0.032	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
26	HAT	0.063	2024-T4 CLAD	0.063	2024-T3 CLAD	NOTE G.
27	BRACKET	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	NOTE G.
28	CAP	ALCOA 12756	7075-T6	0.160	4130	NOTE G.
29	HAT	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	NOTE G.
30	WEB	0.025	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
31	TEE	AND10136-1501	7075-T6	0.080	4130	NOTE G.
32	STIFFENER	ALCOA 67580	7075-T6	0.036	4130	2-29
33	FITTING		2014-T6	NOTE E.		—
34	FITTING		2014-T6	NOTE F.		—

- NOTES:**
- A. All dimensions are in inches.
 - B. Replace with new fitting 145S1806-1.
 - C. Replace with new fitting 145S1842-1.
 - D. Replace with new fitting 114S1824-1 upper, and 114S1824-3 lower.
 - E. Replace with new fitting 114S1832-1 fwd, and 114S1151-72 aft.
 - F. Replace with new fitting 114S1832-3 fwd, and 114S1831-3 aft.
 - G. TM 1-1500-204-23.

Former Repairs — Cockpit Fuselage Structure (Sheet 9 of 12)



Former Repairs - Cockpit Fuselage Structure (Sheet 10 of 12)

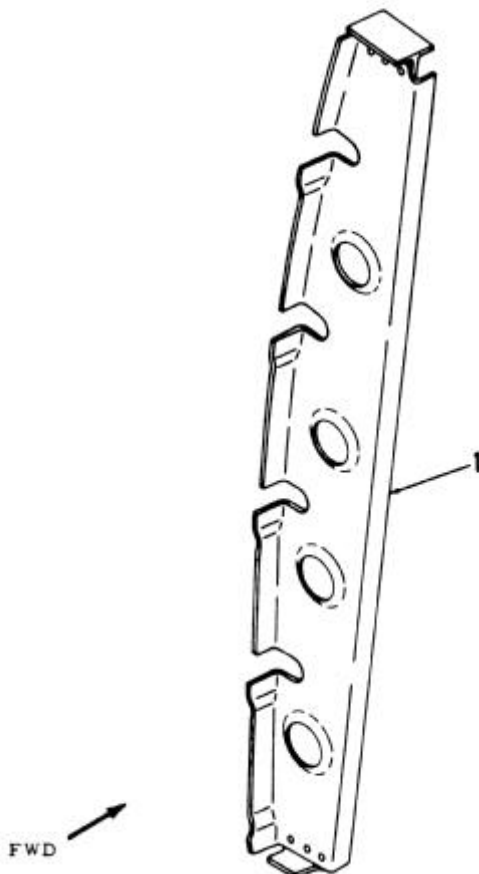
FORMER — STATION 160.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	ALCOA 60278	7075-T6	0.200	4130	NOTE D.
2	CAP	ALCOA 16871	7075-T6	0.100	4130	NOTE D.
3	WEB	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	2-13
4	STIFFENER	ALCOA 27695	7075-T6	0.036	4130	2-29
5	ANGLE	ALCOA 45827	7075-T6	0.080	4130	NOTE D.
6	CLIP	0.050	2024-T4 CLAD	0.063	2024-T3 CLAD	NOTE D.
7	DOUBLER	0.063	7075-T6 BARE	0.080	7075-T6 CLAD	NOTE D.
8	ANGLE	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	NOTE D.
9	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
10	ATTACHMENT	7075-T6 FORGING		NOTE B.		—
11	STIFFENER	ALCOA 31543	7075-T6	0.125	4130	2-29
12	ZEE	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	NOTE D.
13	SPLICE ANGLE	0.71 301 1/2H CRES		NOTE C.		NOTE D.
14	CAP	ALCOA 14202	7075-T6	0.160	4130	NOTE D.
15	FILLER	0.040 301 1/2H CRES		NOTE C.		NOTE D.
16	SPLICE PLATE	0.063 301 1/2H CRES		NOTE C.		NOTE D.
17	CHANNEL	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13
18	ANGLE	AND10134-1006	7075-T6	0.063	4130	NOTE E.
19	DOUBLER	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	NOTE E.
20	DOUBLER	0.050	7075-T6 BARE	0.063	7075-T6 CLAD	NOTE E.

- NOTES:**
- A. All dimensions are in inches.
 - B. Replace with attachment if damage is other than minor with attachment 114S2867-1.
 - C. Replace part if damage is other than minor with a new part same as original.
 - D. TM 1-1500-204-23.
 - E. This part is used on aircraft serial numbers 92-0367 and 92-0368.

Former Repairs — Cockpit Fuselage Structure (Sheet 11 of 12)

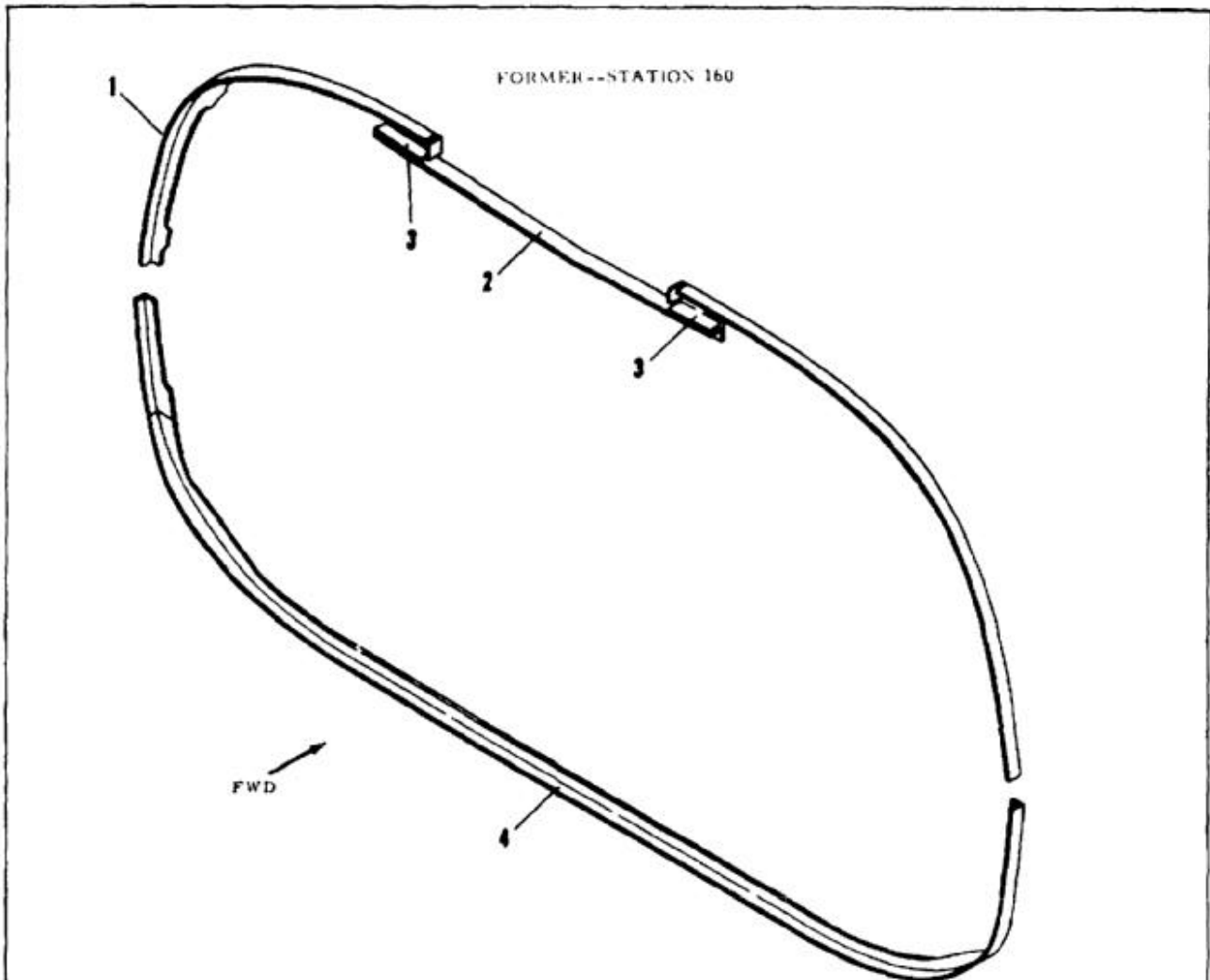
SIDE FORMER --STATION 110.5 LH SIDE



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	FORMER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD	2-13

NOTE
ALL DIMENSIONS ARE IN INCHES

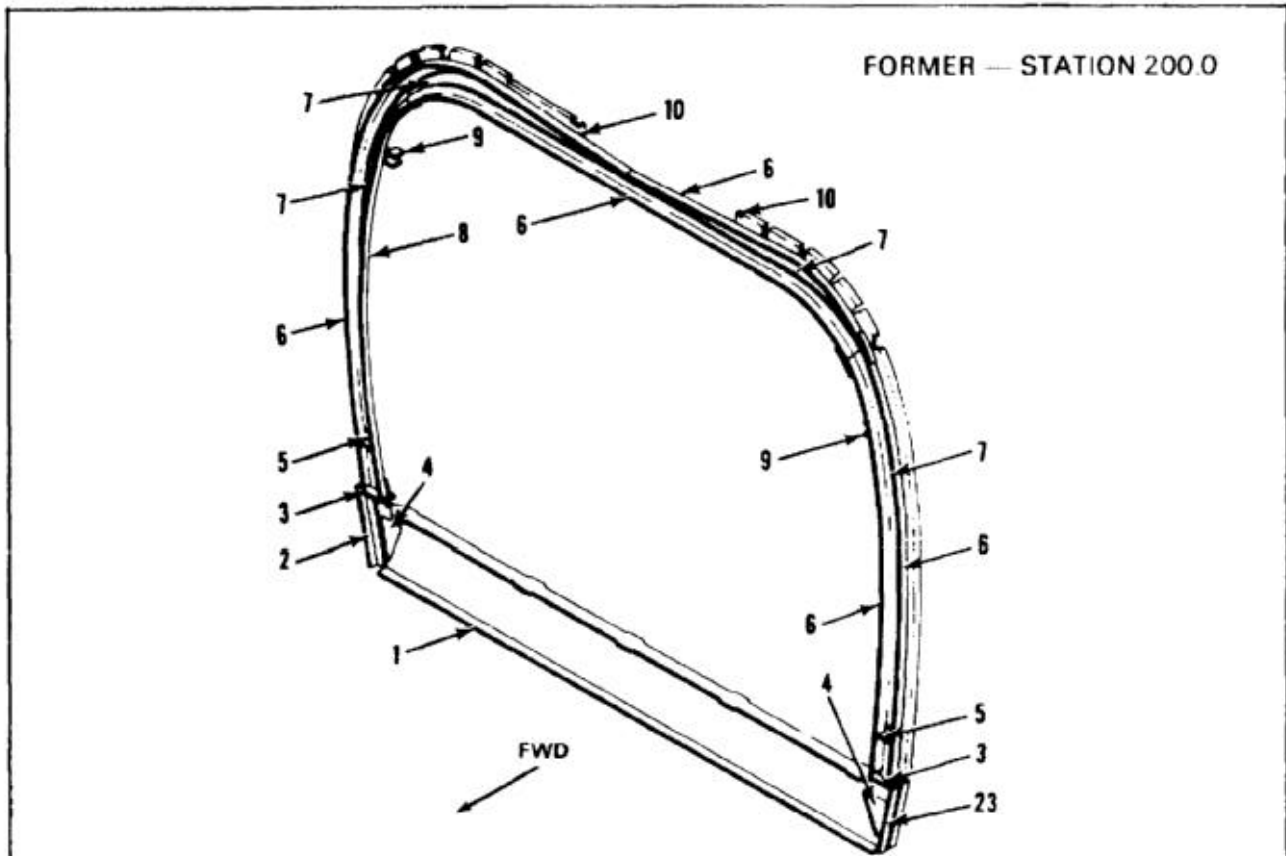
D145-9092-SPA



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	ALCOA 59105 7075-T6	0.071 4130	2-336
2	CAP	ALCOA 30934 7075-T6	0.071 4130	2-336
3	ANGLE	0.063 7075-T6 BARE	0.063 7075-T6 (CLAD)	NOTE B
4	CAP	VS90110 7075-T6	0.090 4130	2-336

NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. TM 1-1500-204-13

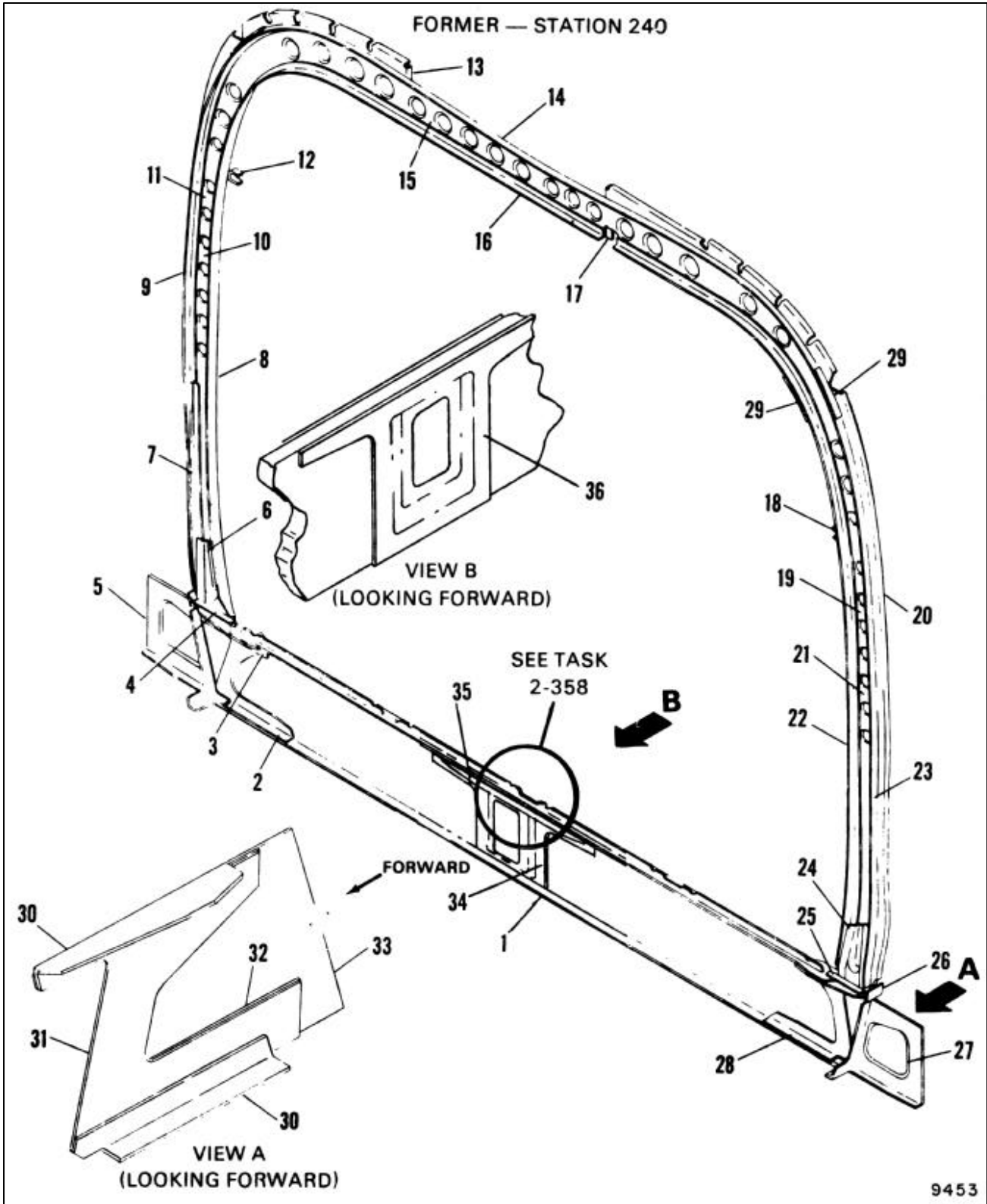


INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	BONDED ASSEMBLY	0.255, 3.0 3/8-20N-3003	NOTE B.	—
2	ANGLE	AND1033-0601 7075-T6	0.071 4130	NOTE E.
3	ANGLE	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE E.
4	FITTING	0.250 7075-T6 BARE	NOTE C.	—
5	STIFFENER	ALCOA 30670 7075-T6	0.125 4130	2-29
6	CAP	0.125 4130	0.160 4130	NOTE E.
7	WEB	0.050 2024-T4 BARE	0.063 2024-T3 CLAD	NOTE E.
8	CAP	REYNOLDS 8033 6075-T6	0.125 4130	—
9	FITTING	2014-T6	NOTE D.	—
10	STIFFENER	ALCOA 22477 7075-T6	0.050 4130	2-29

NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. THE BONDED ASSEMBLY IS OF SANDWICH HONEY-COMB CONSTRUCTION. REFER TO TM 1-1500-204-23 FOR TYPICAL REPAIRS.
- C. INTEGRAL PART OF THE BONDED ASSEMBLY. DAMAGE OTHER THAN NEGLIGIBLE NECESSITATES REPLACEMENT OF THE BONDED ASSEMBLY.
- D. REPLACE WITH NEW FITTING 114S2836-1 LH OR -2 RH IF DAMAGE IS GREATER THAN MINOR.
- E. TM 1-1500-204-23

1459



Former Repairs - Cabin Fuselage Structure Assembly
(Sheet 3 of 15)

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)

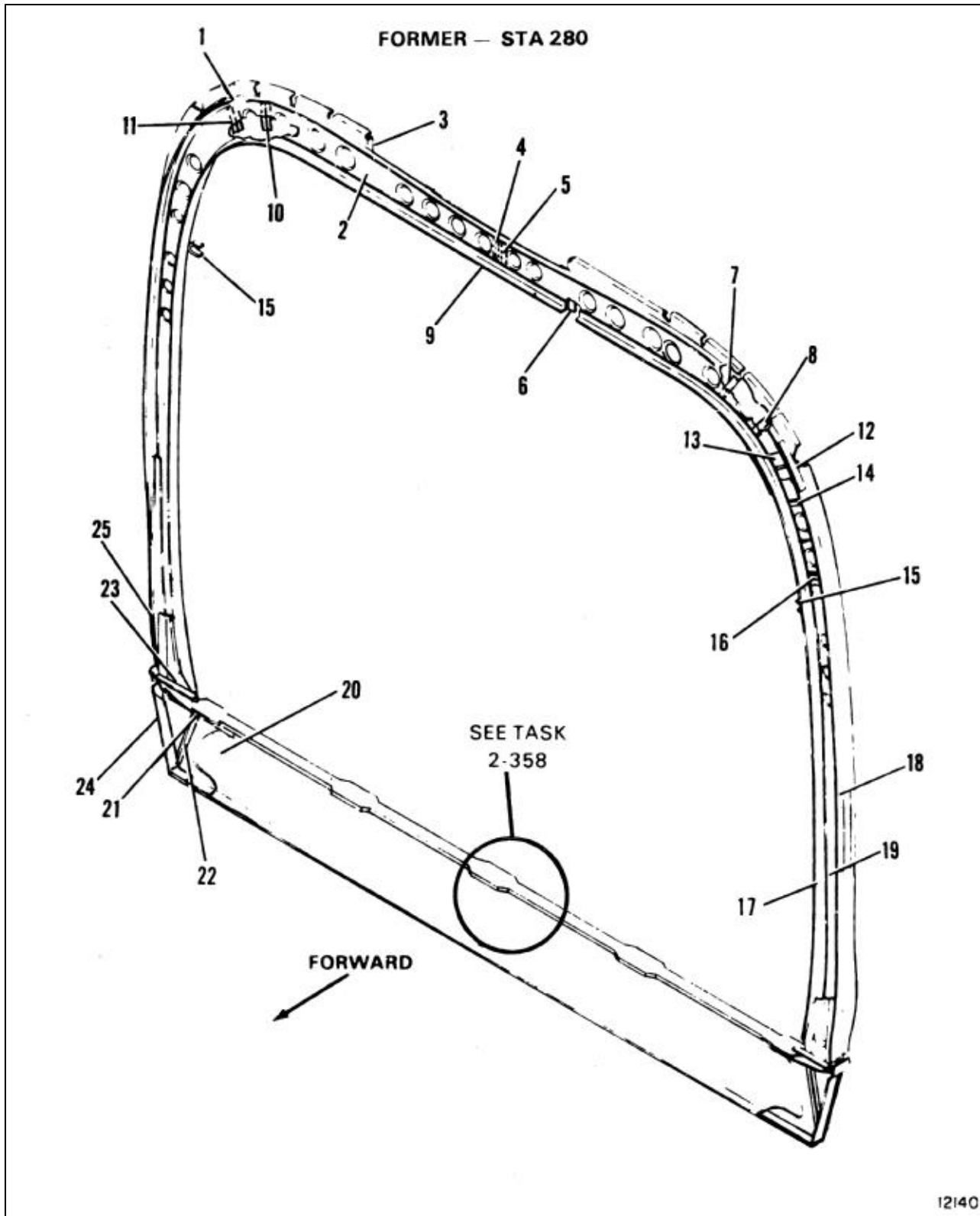
2-18

FORMER — STATION 240

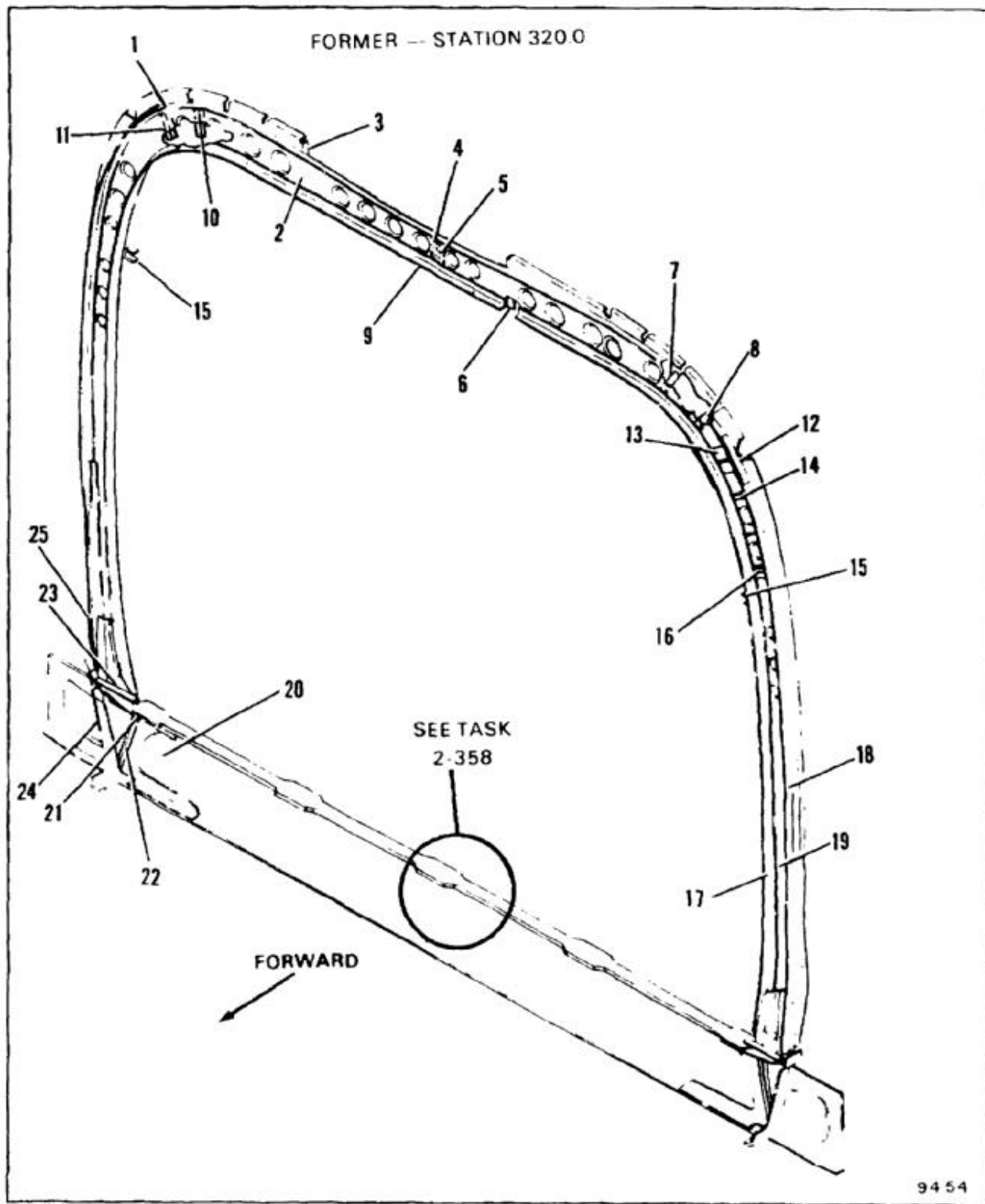
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	BONDED ASSEMBLY	0.405.3.0-3/8-20N-3003		NOTE B.	
2	ANGLE	AND10133-1404	7075-T6	0.190	4130
3	ANGLE	AND10133-1404	7075-T6	0.190	4130
4	ANGLE	0.040	7075-T6 BARE	0.050	7075-T6 CLAD
5	FITTING		7075-T6 FORGING	NOTE C.	
6	CAP	AND10134-1407	7075-T6	0.160	4130
7	CAP	REYNOLDS 7825	7075-T6	0.190	4130
8	CAP	VS90115	7075-T6	0.125	4130
9	CAP	VS90115	7075-T6	0.125	4130
10	WEB	0.063	2024-T4 CLAD	0.063	2024-T3 CLAD
11	WEB	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD
12	FITTING		2014-T6	NOTE D.	
13	STIFFENER	ALCOA 22477	7075-T6	0.050	4130
14	CAP	AND10133-0601	7075-T6	0.071	4130
15	WEB	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD
16	CAP	AND10135-1002	7075-T6	0.071	4130
17	STIFFENER	ALCOA 22477	7075-T6	0.050	4130
18	FITTING		2014-T6	NOTE D.	
19	WEB	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD
20	CAP	VS90115	7075-T6	0.125	4130
21	WEB	0.063	2024-T4 CLAD	0.063	2024-T3 CLAD
22	CAP	VS90115	7075-T6	0.125	4130
23	CAP	REYNOLDS 7825	7075-T6	0.190	4130
24	CAP	and10134-1407	7075-T6	0.160	4130
25	ANGLE	0.040	7075-T6 BARE	0.190	4130
26	ANGLE	AND10133-1404	7075-T6	0.190	4130
27	FITTING		7075-T6 FORGING	NOTE C.	
28	ANGLE	AND10133-1404	7075-T6	0.190	4130
29	STRAP	0.090	7075-T6 BARE	0.190	4130
30	ANGLE		7075-T6511	AND1033-1404 X 11.0	
31	DOUBLER, SPLICE	0.020	7075-T6 BARE	0.020	7075-T6 BARE NOTE B.
32	SHIM	0.020	7075-T6 BARE	0.020	7075-T6 BARE NOTE B.
33	DOUBLER. AFT	0.016	7075-T6 BARE	0.016	7075-T6 BARE NOTE B.
34	DOUBLER (FORWARD)	0.020	7075-T6 BARE	0.020	7075-T6 BARE NOTE B.
35	STRAP	0.050	7075-T6 BARE	0.050	7075-T6 BARE NOTE B.
36	DOUBLER (AFT)	0.050	7075-T6 BARE	0.050	7075-T6 BARE NOTE B.

- NOTES:**
- A. All dimensions are in inches.
 - B. The bonded assembly is of sandwich honeycomb construction.
 - C. The fitting is a part of the bonded assembly. Damage other than minor necessitates replacement of the bonded assembly.
 - D. Replace with new fitting 114S2836-1 LH or -2 RH.

Former Repairs — Cabin Fuselage Structure Assembly (Sheet 4 of 15)



Former Repairs Cabin Fuselage Structure Assembly
(Sheet 5 of 15)



Former Repairs - Cabin Fuselage Structure Assembly
(Sheet 6 of 15)

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)

FORMER — STATION 280

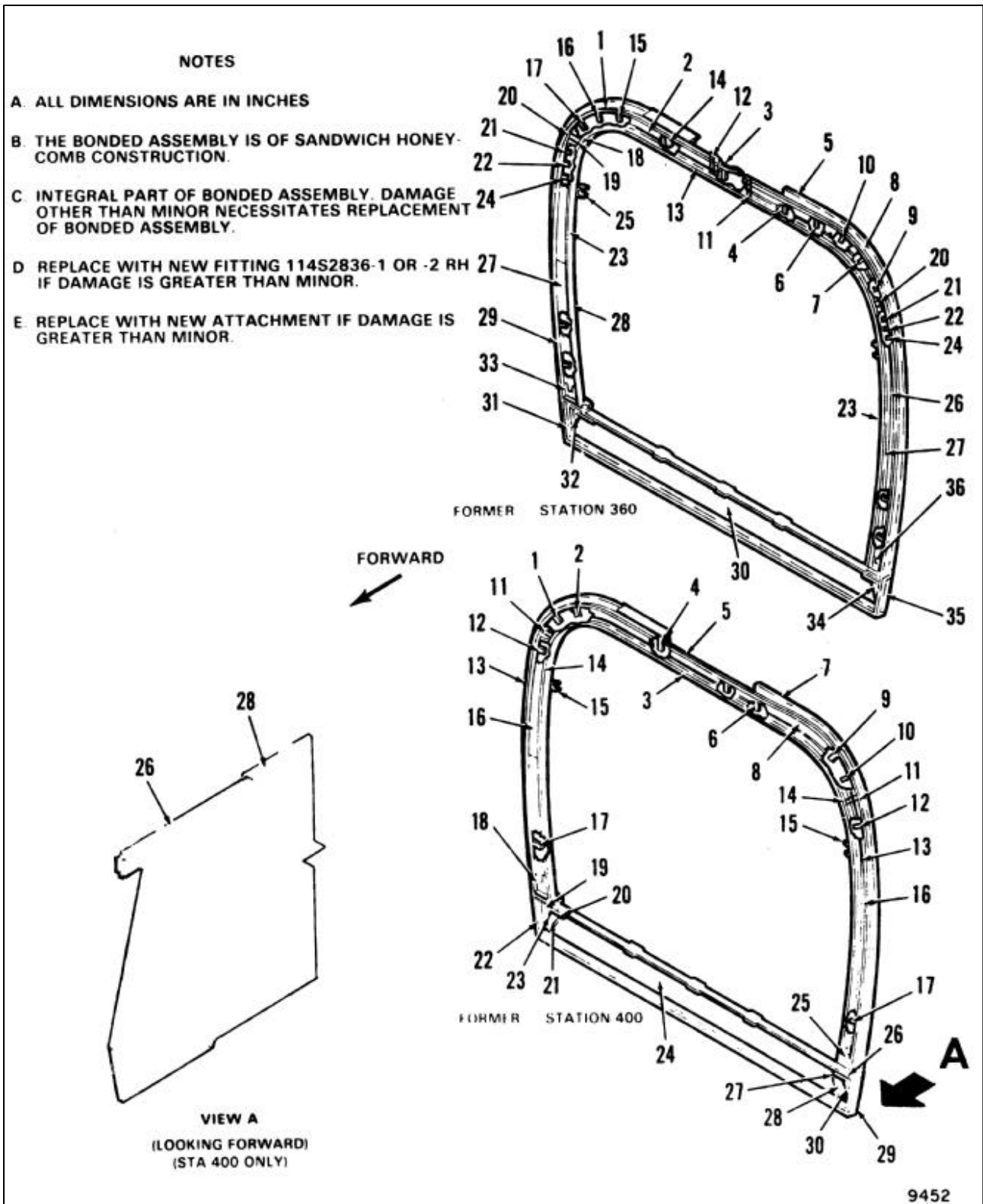
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP	0.125 4130		0.160	4130
2	WEB	0.050	2024-0 CLAD	0.063	2024-0 CLAD
3	SUPPORT	BAC 1503	7075-T6	BAC 1503	7075-T6
4	ANGLE	HARVEY 15078	7075-T6	HARVEY 15078	7075-T6
5	ANGLE	HARVEY 15078	7075-T6	HARVEY 15078	7075-T6
6	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
7	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
8	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
9	CAP	0.125 4130		0.160	4130
10	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
11	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
12	SPLICE	0.125 4130		0.160	4130
13	ATTACHMENT	ALCOA 43774	7075-T6	ALCOA 43774	7075-T6
14	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
15	FITTING		2014-T6	NOTE D.	
16	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
17	CAP	AND10133-0701	7075-T6	0.071	4130
18	CAP	0.125 4130		0.160	4130
19	WEB	0.050	2024-0 CLAD	0.063	2024-0 CLAD
20	BONDED ASSEMBLY	0.255.3.0-3/8-20N-3003		NOTE B.	
21	ANGLE	AND10134-1402	7075-T6	0.160	4130
22	ANGLE	AND10133-0601	7075-T6	0.071	4130
23	ANGLE	0.040	7075-T6 BARE	0.063	7075-T6 CLAD
24	ANGLE	AND10133-0601	7075-T6	0.071	4130
25	FITTING	0.400	7075-T6 PLATE	NOTE E.	

FORMER — STATION 320

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP	0.125 4130		0.160	4130
2	WEB	0.050	2024-0 CLAD	0.063	2024-0 CLAD
3	SUPPORT	BAC 1503	7075-T6	BAC 1503	7075-T6
4	ANGLE	HARVEY 15078	7075-T6	HARVEY 15078	7075-T6
5	ANGLE	HARVEY 15078	7075-T6	HARVEY 15078	7075-T6
6	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
7	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
8	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
9	CAP	0.125 4130		0.160	4130
10	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
11	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
12	SPLICE	0.125 4130		0.160	4130
13	ATTACHMENT	ALCOA 43774	7075-T6	ALCOA 43774	7075-T6
14	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
15	FITTING		2014-T6	NOTE D.	
16	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
17	CAP	AND10133-0701	7075-T6	0.071	4130
18	CAP	0.125 4130		0.160	4130
19	WEB	0.050	2024-0 CLAD	0.063	2024-0 CLAD
20	BONDED ASSEMBLY	0.405.3.0-3/8-20N-3003		NOTE B.	
21	ANGLE	AND10134-1402	7075-T6	0.160	4130
22	ANGLE	AND10133-0601	7075-T6	0.071	4130
23	ANGLE	0.040	7075-T6 BARE	0.063	7075-T6 CLAD
24	ANGLE	AND10133-0601	7075-T6	0.071	4130
25	FITTING	0.400	7075-T6 PLATE	NOTE E.	

- NOTES:**
- A. All dimensions are in inches.
 - B. The bonded assembly is of sandwich honeycomb construction.
 - C. Integral part of bonded assembly, damage other than minor necessitates replacement of bonded assembly.
 - D. Replace with new fitting 11452836-LH or -2 RH if damage is greater than minor.
 - E. Replace with new fitting 114S2409-23 or -24 if damage as greater than minor.

Former Repairs — Cabin Fuselage Structure Assembly (Sheet 7 of 15)



Former Repairs - Cabin Fuselage Structure Assembly
(Sheet 8 of 15)

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)

FORMER — STATION 360

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP	0.1254 130		0.160	4130
2	WEB	0.050	HT T42	0.0063	2024-T3 CLAD
3	ATTACHMENT		4130-STLBAR	NOTE E.	
4	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
5	CAP	AND10136-2001	7075-T6	0.080	4130
6	SUPPORT	BAC 1503-1591	7075-T6	BAC 1503-1591	7075-T6
7	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
8	CAP	0.125 4130		0.160	4130
9	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
10	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
11	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
12	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
13	CAP	0.125 4130		0.160	4130
14	SUPPORT	BAC 1503-1591	7075-T6	BAC 1503-1591	7075-T6
15	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
16	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
17	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
18	SPLICE	0.125 4130		0.160	4130
19	ATTACHMENT	ALCOA 43774	7075-T6	ALCOA 43774	7075-T6
20	SPLICE	0.125 4130		0.160	4130
21	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
22	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
23	CAP	0.125 4130		0.160	4130
24	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
25	FITTING		2014-T6	NOTE D.	
26	CAP	0.125 4130		0.160	4130
27	WEB	0.050	HT T42	0.063	2024-T3 CLAD
28	CAP	TEXAS T2070	7075-T6	0.160	7075-T6
29	CAP	REYNOLDS 19273	7075-T6	0.160	7075-T6
30	BONDED ASSEMBLY	0.255.3 0-3/8-20N-3003		NOTE B.	
31	ANGLE	AND10133-0601	7075-T6	0.071	4130
32	ANGLE	0.040	7075-T6 BARE	0.063	7075-T6 CLAD
33	FITTING	0.250	7075-T6 BARE	NOTE C.	
34	ANGLE	0.040	7075-T6 BARE	0.063	7075-T6 CLAD
35	ANGLE	AND10133-0601	7075-T6	0.071	4130
36	FITTING	0.250	7075-T6 BARE	NOTE C.	

FORMER — STATION 400

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	STIFFENER	AND10133-0601	7075-T6	0.071	4130
2	STIFFENER	AND10133-0601	7075-T6	0.071	4130
3	CAP	ALCOA 28172	7075-T6	ALCOA 28172	7075-T6
4	STIFFENER	ALCOA 22477	7075-T6	0.050	4130
5	CAP	ALCOA 67580	7075-T6	0.063	4130
6	STIFFENER	ALCOA 22990	7075-T6	0.071	4130
7	STIFFENER	AND10133-0601	7075-T6	0.071	4130
8	WEB	0.025	2024-T4 CLAD	0.032	2024-T3 CLAD
9	STIFFENER	AND10133-0601	7075-T6	0.071	4130
10	STIFFENER	AND10133-0601	7075-T6	0.071	4130
11	ATTACHMENT	ALCOA 43774	7075-T6	ALCOA 43774	7075-T6
12	STIFFENER	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
13	CAP	ALCOA 62564	7075-T6	0.080	4130
14	CAP	VS90109	7075-T6	0.080	4130
15	FITTING		2014-T6	NOTE D.	
16	WEB	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD
17	STIFFENER	ALCOA 22477	7075-T6	0.050	4130
18	ATTACHMENT	0.250	7075-T6	NOTE C.	
19	ANGLE	0.040	7075-T6 BARE	0.050	7075-T6 CLAD
20	ANGLE	AND10134-1405	7075-T6	AND10134-1405 X 6.6	
21	DOUBLER	0.032	7075-T6 BARE	NOTE C.	
22	ANGLE	AND10133-0601	7075-T6	0.071	4130
23	ANGLE	AND10133-0601	7075-T6	0.071	4130
24	BONDED ASSEMBLY	0.255.3.00-3/8-20N-3003		NOTE B.	
25	ATTACHMENT	0.250	7075-T6	NOTE C.	
26	ANGLE	0.040	7075-T6 BARE	0.050	7075-T6 CLAD
27	ANGLE	AND10134-1405	7075-T6	AND10134-1405 X 6.6	
28	DOUBLER	0.032	7075-T6 BARE	NOTE C.	
29	ANGLE	AND10133-0601	7075-T6	0.071	4130
30	ANGLE	AND10133-0601	7075-T6	0.071	4130

Former Repairs — Cabin Fuselage Structure Assembly (Sheet 9 of 15)

SIDE FORMERS

STATIONS 212.76, 225.4, 270, 293.3, 306.7, 333.3, 346.7, 379.33, 413.31, AND 426.5

STATIONS 180 AND 419.3

1 AND 2

STATIONS 372.38 AND 387.87

1

FWD

STATIONS 212.76, 225.4, 270, 293.3, 306.7, 333.3, 346.7, 379.33, 389.89, 413.31, 419.3, AND 426.5

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	FORMER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD	NOTE C.

STATION 180

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
2	FORMER	0.025 2024-T4	0.032 2024-T3	NOTE C.

NOTES

A. ALL DIMENSIONS ARE IN INCHES.

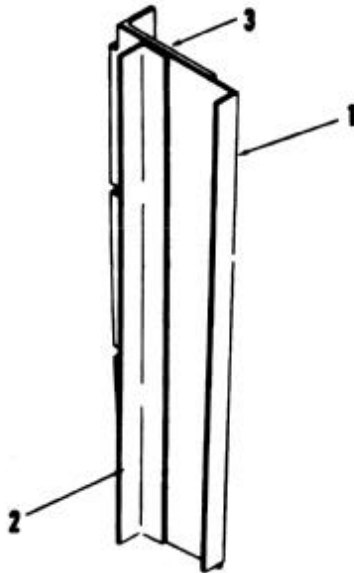
B. THE LH FORMERS ARE SHOWN. THE RH FORMERS ARE SIMILAR IN CONSTRUCTION. THE ORIGINAL AND REPAIR MATERIALS ARE APPLICABLE TO LH AND RH CONFIGURATIONS.

C. TM 1-1500-30E-23

42 X 51 D145-9065-SPA

SIDE FORMERS

STATIONS 189.35, 238.06, 262.10, AND 372.42



NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. THE LH FORMERS ARE SHOWN. THE RH FORMERS ARE SIMILAR IN CONSTRUCTION. THE ORIGINAL AND REPAIR MATERIALS ARE APPLICABLE TO LH AND RH CONFIGURATIONS
- C. REPLACE WITH NEW FITTING 114S2857-1 LH OR -2 RH

STATIONS 189.35, 238.06, 262.10, AND 372.42

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	FORMER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
2	ANGLE	AND10134-0702 2024	0.071 4130
3	TENSION FITTING	--	NOTE C.

STATION 260

STATION 260

PARTIAL FORMERS

NOTES

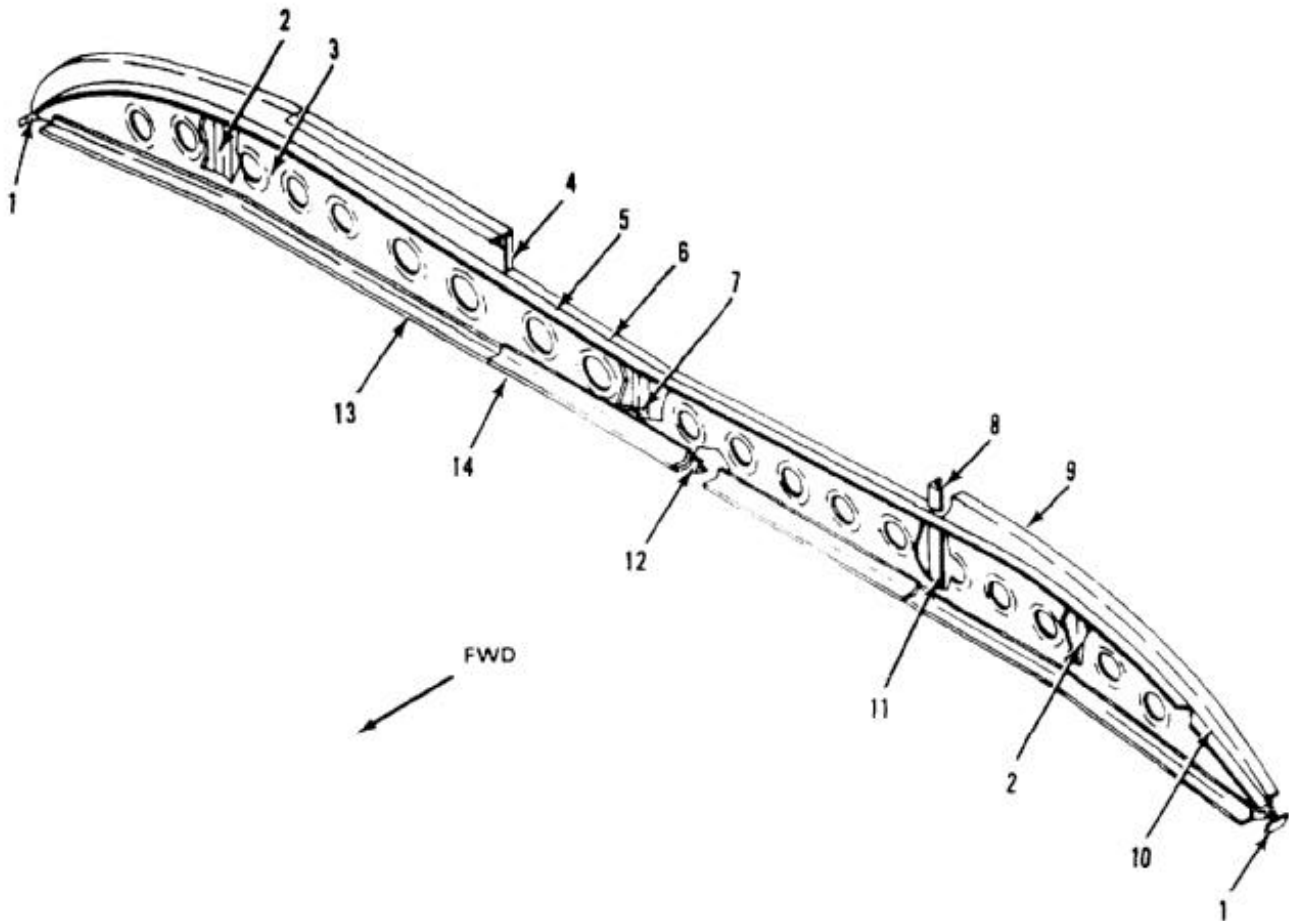
A. ALL DIMENSIONS ARE IN INCHES
 B. THE LH FORMER IS SHOWN. THE RH FORMER IS SIMILAR IN CONSTRUCTION. ORIGINAL AND REPAIR MATERIALS ARE APPLICABLE TO BOTH
 C. REPLACE WITH NEW SUPPORT 114S2106-19 LH OR -20 RH

Index No.	Nomenclature	Original Material	Repair Material
1	CAP	HARVEY 11301-3 7075-T6	0.125 4130
2	CAP	HARVEY 16119 7075-T6	0.160 4130
3	CAP	REYNOLDS 19273 7075-T6	0.080 4130
4	SUPPORT	ALCOA 62564 7075-T6	NOTE C.
5	WEB	0.040 7075-T6 CLAD	0.050 7075-T6 CLAD

42 X 51
D146-9067-SPA

*Former Repairs - Cabin Fuselage Structure Assembly
(Sheet 12 of 15)*

CROWN FORMERS—STA 180, 220, 260, 300, 340, 380, AND 420



STATION 180

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CLIP	ALCOA 52966 7075-6	0.090 4130 NOTE C.	NOTE B.
2	STIFFENER	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
3	WEB	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD	NOTE B.
4	STIFFENER	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
5	CAP	ALCOA 15820 7075-T6	0.080 4130	NOTE B.
7	STIFFENER	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
10	CAP	ALCOA 16820 7075-T6	0.050 4130	NOTE B.
11	STIFFENER	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
13	CAP	ALCOA 67580	0.063 4130	NOTE B.

- NOTES: A. ALL DIMENSIONS ARE IN INCHES.
 B. TM 1-1500-204-23.
 C. FOR DAMAGE OTHER THAN MINOR REPLACE CLIP WITH NEW PART 11452716-1.

Former Repairs — Cabin Fuselage Structure Assembly (Sheet 13 of 15)

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)

FORMER — STATION 220, 300, AND 420

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CLIP	ALCOA 52966	7075-T6	0.090	4130	NOTE B.
3	WEB	0.025	2024-T4 CLAD	0.032	2024-T3 CLAD	2-13
4	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
5	CAP	ALCOA 67580	7075-T6	0.063	4130	NOTE B.
11	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
13	CAP	ALCOA 67580	7075-T6	0.063	4130	NOTE B.

STATION 260

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CLIP	ALCOA 52966	7075-T6	0.090	4130	NOTE B.
2	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
3	WEB	0.32	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13
4	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
5	CAP	VS90109	7075-T6	0.125	4130	NOTE B.
7	STIFFENER	ALCOA 22981	7075-T6	0.063	4130	2-29
8	CLIP	ALCOA 67580	7075-T6	0.063	4130	NOTE B.
9	CAP	AND10136-2001	7075-T6	0.100	4130	NOTE B.
11	STIFFENER	ALCOA 67580	7075-T6	0.063	4130	2-29
13	CAP	ALCOA 15820	7075-T6	0.080	4130	NOTE B.
14	CAP	0.063	2024-T4 CLAD	0.071	4130	NOTE B.

STATION 340

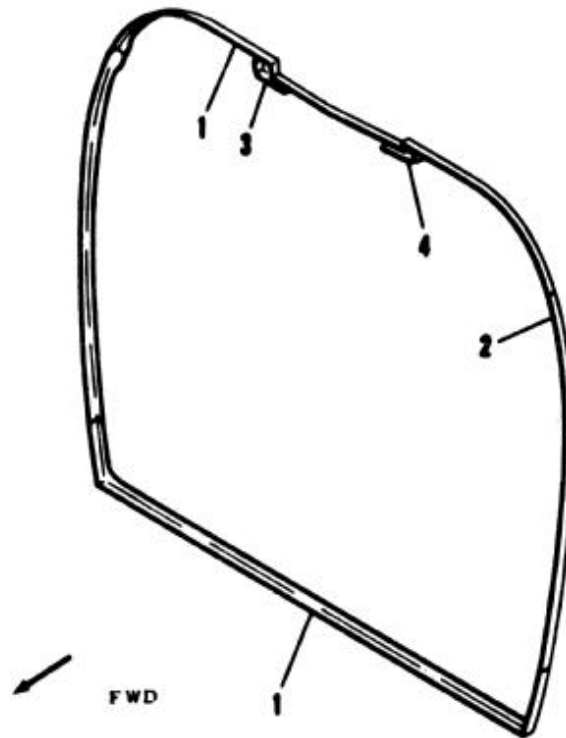
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CLIP	ALCOA 52966	7075-T6	0.090	4130	NOTE B.
2	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
3	WEB	0.025	2024-T3 CLAD	0.032	2024-T4 CLAD	2-13
4	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
5	CAP	ALCOA 15820	7075-T6	0.080	4130	NOTE B.
6	CAP	ALCOA 22477	7075-T6	0.050	4130	NOTE B.
8	CLIP	ALCOA 67580	7075-T6	0.063	4130	NOTE B.
11	STIFFENER	ALCOA 67580	7075-T6	0.063	4130	2-29
12	CAP	ALCOA 22477	7075-T6	0.050	4130	NOTE B.
13	CAP	ALCOA 67580	7075-T6	0.063	4130	NOTE B.

STATION 380

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CLIP	ALCOA 52966	7075-T6	0.090	4130	NOTE B.
2	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
3	WEB	0.025	2024-T4 CLAD	0.032	2024-T4 CLAD	2-13
4	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
5	CAP	ALCOA 15820	7075-T6	0.080	4130	NOTE B.
7	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
10	CAP	ALCOA 15820	7075-T6	0.080	4130	NOTE B.
11	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
13	CAP	ALCOA 67580	7075-T6	0.063	4130	NOTE B.

NOTES: A. All dimensions are in inches.
 B. TM 1-1500-204-23.

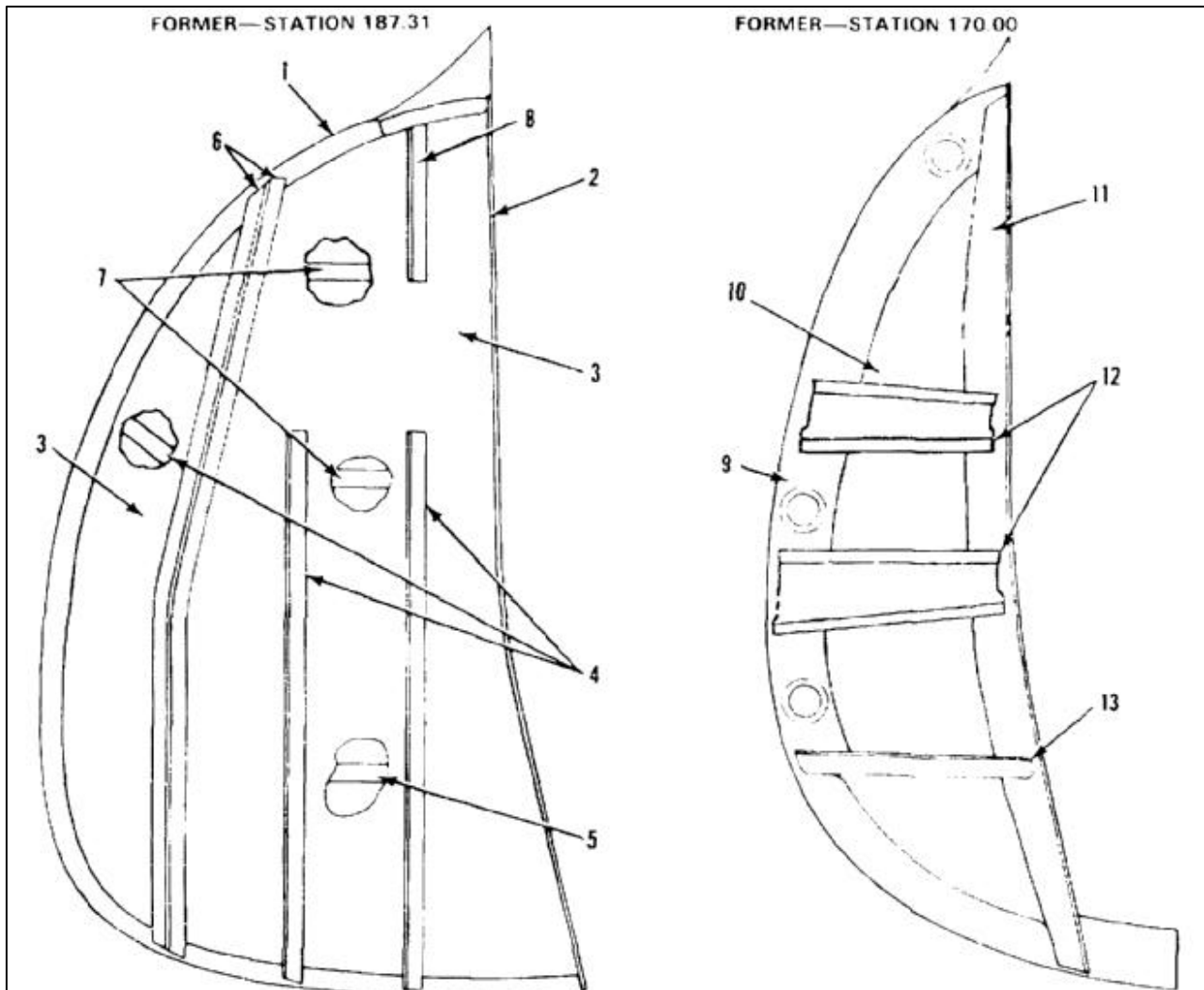
FORMER--STATION 440



INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	VS90110 7075-T6	0.090 4130	NOTE B.
2	ANGLE	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE B.
3	GUSSET	0.063 2024-T4 CLAD	0.063 2024-T3 CLAD	NOTE B.
4	GUSSET	0.063 2024-T4 CLAD	0.063 2024-T3 CLAD	NOTE B.

NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. TM 55-1520-240-23



INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	ALCOA 22008 7075-T6	0.071 4130	NOTE B
2	ANGLE	ALCOA 22885 7075-T6	0.080 4130	NOTE B.
3	WEB	0.032 2024 T3 CLAD	0.040 2024-T3 CLAD	2-13
4	SUPPORT	ALCOA 44076 7075-T6	0.063 4130	NOTE B.
5	SUPPORT	AND10134-1202 7075-T6	0.100 4130	NOTE B
6	ANGLE	ALCOA 44076 7075-T6	0.063 4130	NOTE B.
7	SUPPORT	0.050 2024-0 BARE	0.063 2024-0	NOTE B.
8	ANGLE	ALCOA 28546	0.050 4130	NOTE B.
9	FORMER	0.040 2024 T3 CLAD	0.050 2024-T3 CLAD	NOTE B.
10	WEB	0.020 2024-T3 CLAD	0.025 2024-T3 CLAD	2-13
11	CAP	REYNOLDS 11730 7075-T6	0.090 4130	NOTE B.
12	SUPPORT	0.040 2024-T3 BARE	0.050 2024-T3	NOTE B.
13	SUPPORT	ALCOA 59409 7075-T6	0.063 4130	NOTE B.

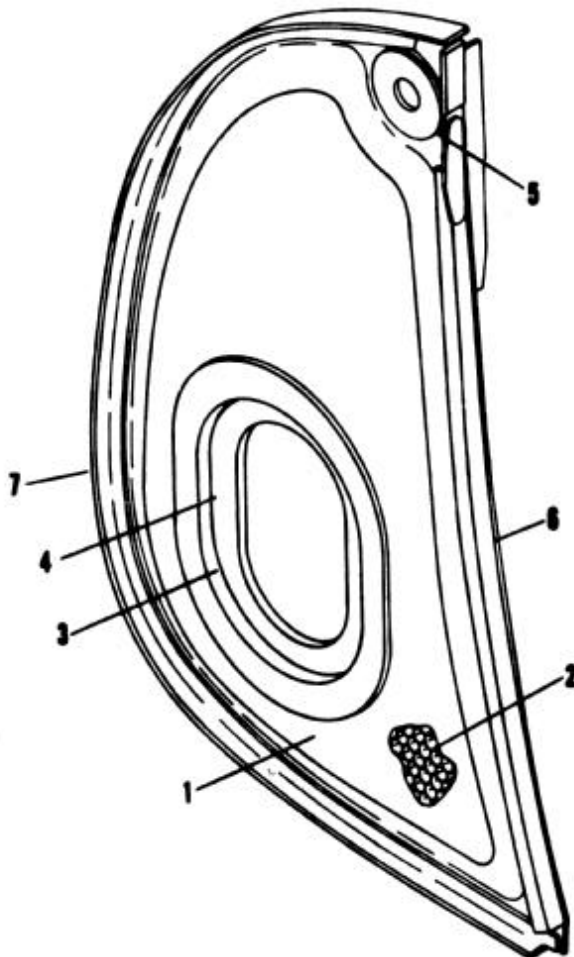
NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. TM 1-1500-204-23

1460

Former Repairs, Pod Installation - Cabin Fuselage Structure
(Sheet 1 of 3)

FORMER-- TYPICAL AT STA 189.41, 238, 262.16, 372.36, 389.91 AND 438.50



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	SKIN	7075-T6 CLAD	--
*2	CORE	0.640, 3.1-3/16-10N 3003	--
**	CORE	0.640, 3.4-1/4-15N 3003	--
3	ADAPTER	NOTE B.	--
4	ADAPTER	NOTE C.	--
5	ADAPTER	NOTE D.	--
6	CAP	AND10137-0707 7075-T6	0.063 4130
***7	CAP	ALCOA 22008 7075-T6	0.071 4130
****	CAP	VS90332 7075-T6	0.071 4130

*USED AT STATIONS 189.41, 238, 372.36, 389.91 AND 438.50 ONLY
 **USED AT STATIONS 262.16 ONLY
 ***USED AT STATIONS 238, 262.16, 372.36, 389.91, AND 438.5 ONLY
 ****USED AT STATIONS 189.41 ONLY

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. REPLACE WITH ADAPTER 11455836-2
- C. REPLACE WITH ADAPTER 11455831-1
- D. REPLACE WITH ADAPTER 11455838-1

42 x 51

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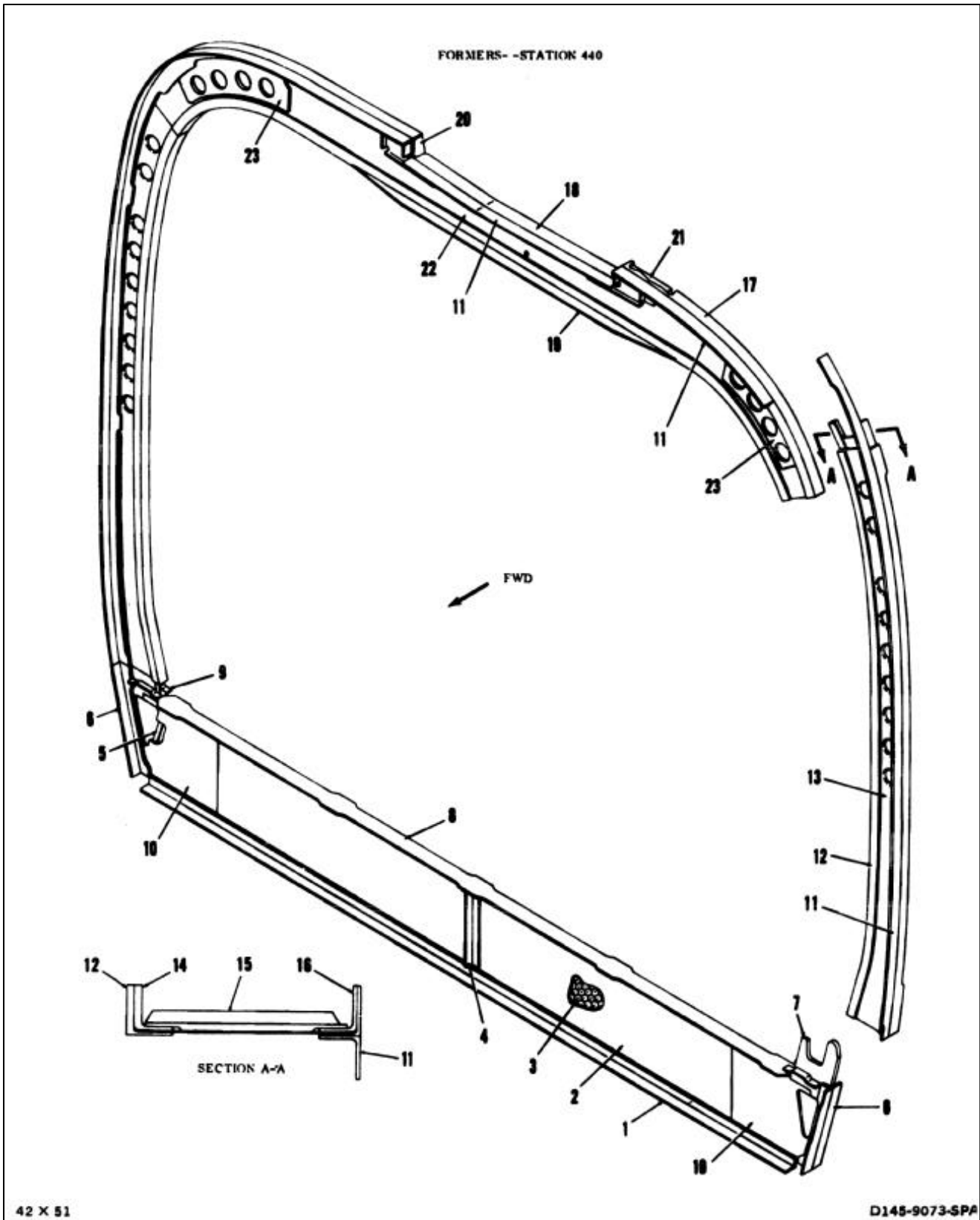
STATION 482

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	ANGLE	ALCOA 44076 7075-T6	0.063 4130	NOTE B.
2	STIFFENER	AND10133-0601 7075-T6	0.071 4130	2-29
3	CAP	ALCOA 22008 7075-T6	0.071 4130	NOTE B.
4	WEB	0.032 7075-T6 CLAD	0.040 7075-T6 CLAD	2-13
5	STIFFENER	AND10133-0601 7075-T6	0.071 4130 STEEL	2-29
6	ATTACH MEMBER	0.050 7075-T6 CLAD	0.063 7075-T6 CLAD	NOTE B.
7	CHANNEL	0.063 7075-T6	0.071 7075-T6	2-13

NOTES

A. ALL DIMENSIONS ARE IN INCHES
 B. IN 1-1500-202-33

*Former Repairs, Pod Installation — Cabin
 Fuselage Structure (Sheet 3 of 3)*



Former Repairs - Aft Fuselage Structure
(Sheet 1 of 32)

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)

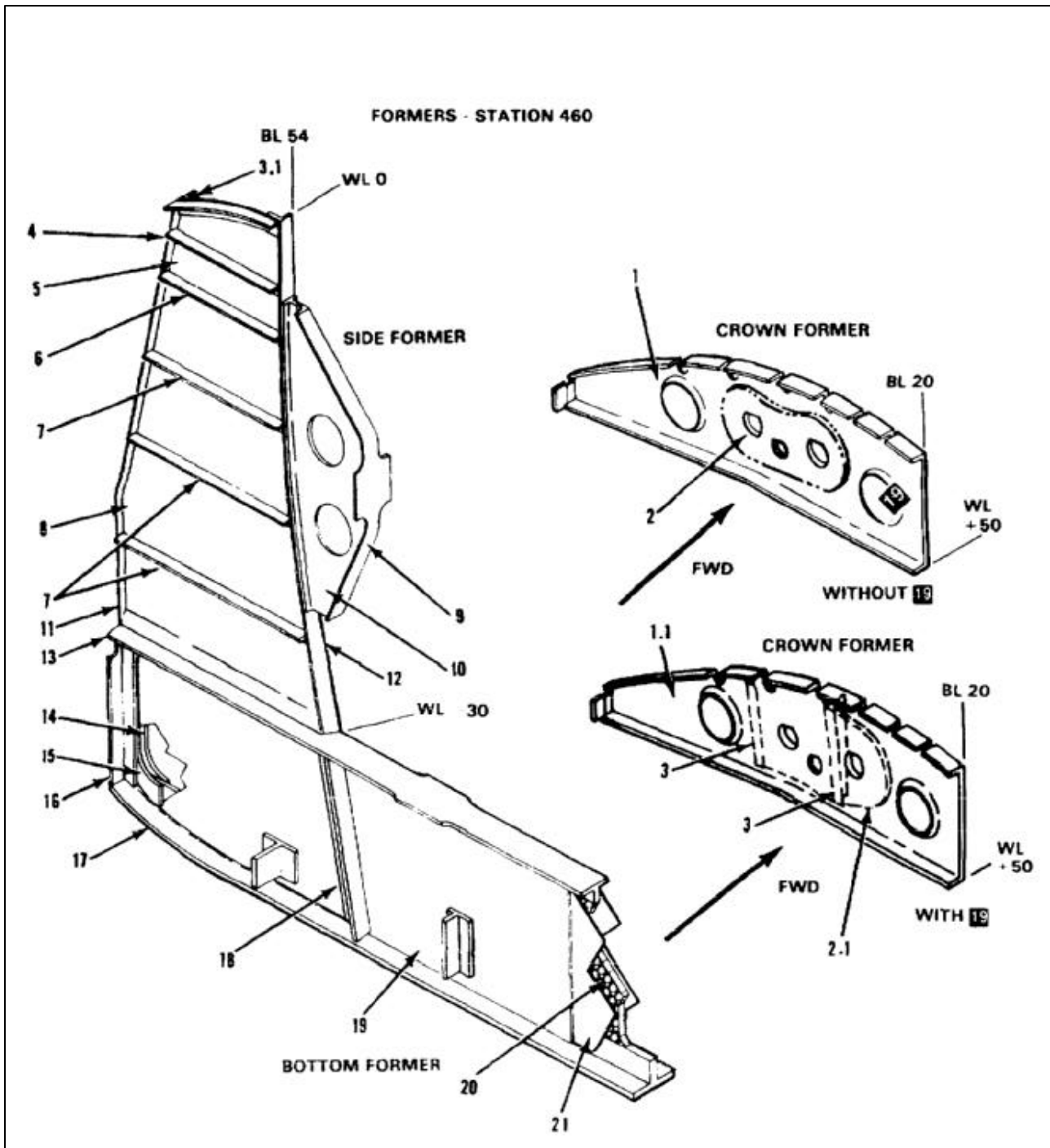
2-18

FORMERS — STATION 440.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	VS90111	7075-T6	NOTE B.		—
2	SKIN	0.020	7075-T6	NOTE B.		—
3	CORE	0.255 3.0 3/8-20N-3003		NOTE B.		—
4	ANGLE	ALCOA 62564	7075-T6	0.080	4130	NOTE E.
5	ANGLE	AND10133-0601	7075-T6	0.071	4130	NOTE E.
6	CAP	VS90110	7075-T6	0.090	4130	NOTE E.
7	ATTACHMENT	0.250	7075-T6 BARE	NOTE B.		—
8	CAP	VS90302	7075-T6	NOTE B.		—
9	ANGLE	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE E.
10	DOUBLER	0.050	7075-T6	NOTE B.		—
11	CAP	VS90110	7075-T6	0.090	4130	NOTE E.
12	CAP	VS90112	7075-T6	0.190	4130	NOTE E.
13	WEB	0.040	2024-T3 CLAD	0.060	2024-T3 CLAD	2-13
14	SPLICE	VS90112	7075-T6	0.190	4130	NOTE E.
15	DOUBLER	ALCOA 44132	7075-T6	0.100	4130	NOTE E.
16	SPLICE	VS90110	7075-T6	0.090	4130	NOTE E.
17	CAP	ALCOA 13816	7075-T6	0.100	4130	NOTE E.
18	CAP	VS90114	7075-T6	0.190	4130	NOTE E.
19	CAP	VS90313	7075-T6	0.190	4130	NOTE E.
20	ATTACHMENT		2014-T6 FORGING	NOTE C.		—
21	ATTACHMENT		2014-T6 FORGING	NOTE D.		—
22	WEB	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD	2-13
23	DOUBLER	0.375	7075-T651	0.375	7075-T651	NOTE E.

- NOTES:**
- A. All dimensions are in inches.
 - B. Component of bonded assembly. Refer to TM 1-1500-204-23 for repair of sandwich honeycomb structures.
 - C. Replace with new attachment 114S3830-5.
 - D. Replace with new attachment 114S3829-1.
 - E. TM 1-1500-204-23.

Former Repairs — Aft Fuselage Structure (Sheet 2 of 32)



*Former Repairs — Aft Fuselage Structure
(Sheet 3 of 32)*

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)**2-18****FORMERS — STATION 460.0 CROWN FORMER**

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13
1.1	WEB	0.032	2024-T3 CLAD	0.040	2024-T3 CLAD	2-13 NOTE D.
2	DOUBLER	0.032	7075-T6 BARE	0.032	7075-T6 CLAD	NOTE C.
2.1	DOUBLER	0.050	7075-T6 BARE	0.050	7075-T6 BARE	NOTES C. & D.
3	ANGLE	0.040	2024-T3 BARE	0.050	2024-T3 BARE	NOTES C., NOTE D.

SIDE FORMERS

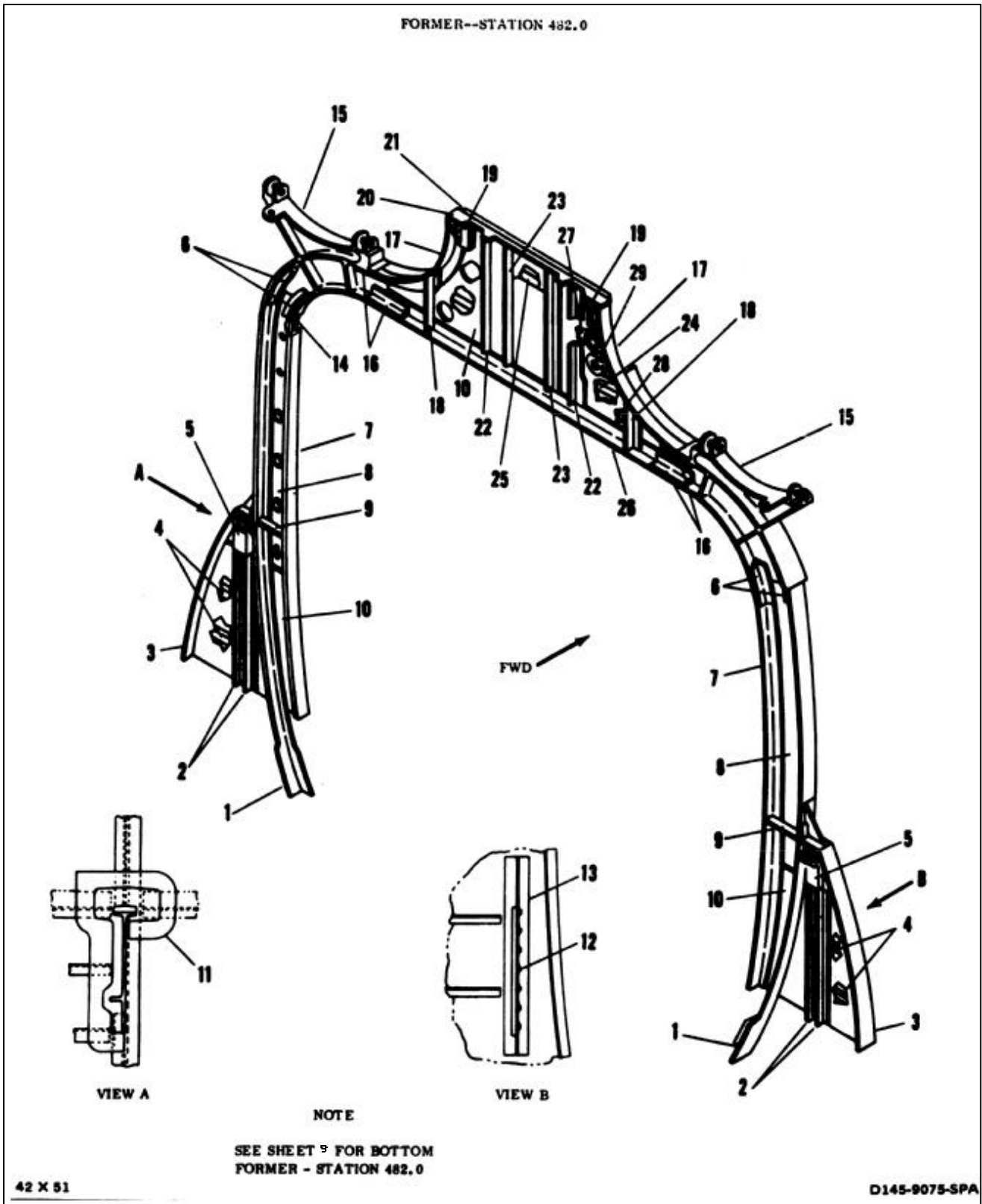
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
3.1	ANGLE	AND10133-1001	7075-T6	0.071	4130	NOTE C.
4	STIFFENER	ALCOA 5401	7075-T6	0.071	4130	2-29
5	WEB	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	2-6
6	STIFFENER	ALCOA 22878	7075-T6	0.071	4130	2-29
7	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
8	WEB	0.025	2024-T4 CLAD	0.032	2024-T3 CLAD	2-13
9	CAP	AND10136-1601	7075-T6	0.100	4130	NOTE C.
10	WEB	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13
11	CAP	AND10133-1001	7075-T6	0.063	4130	NOTE C.
12	CAP	ALCOA 67576	7075-T6	0.160	4130	NOTE C.

BOTTOM FORMER

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
13	CAP	VS90306	7075-T6	0.125	4130	NOTE C.
14	DOUBLER	0.050	7075-T6 CLAD	0.050	7075-T6 CLAD	NOTE C.
15	DOUBLER	0.032	7075-T6	0.040	7075-T6 CLAD	NOTE C.
16	ANGLE	ALCOA 22892	7075-T6	0.100	4130	NOTE C.
17	CAP	VS90303	7075-T6	0.125	4130	NOTE C.
18	ANGLE	AND10133-1002	7075-T6	0.100	4130	NOTE C.
19	DOUBLER	0.032	7075-T6	0.040	7075-T6 CLAD	NOTE C.
20	CORE	0.255.3.0-3/8-20N-3003		NOTE C.		NOTE C.
21	SKIN	0.020	7075-T6	NOTE C.		2-13

- NOTES:**
- A. All dimensions are in inches.
 - B. The LH formers are shown; the RH formers are similar in constructions. The materials listed are applicable to the LH and RH configurations.
 - C. TM 1-1500-204-23.
 - D. With **19**.

Former Repairs — Aft Fuselage Structure (Sheet 4 of 32)



*Former Repairs - Aft Fuselage Structure
(Sheet 5 of 32)*

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)

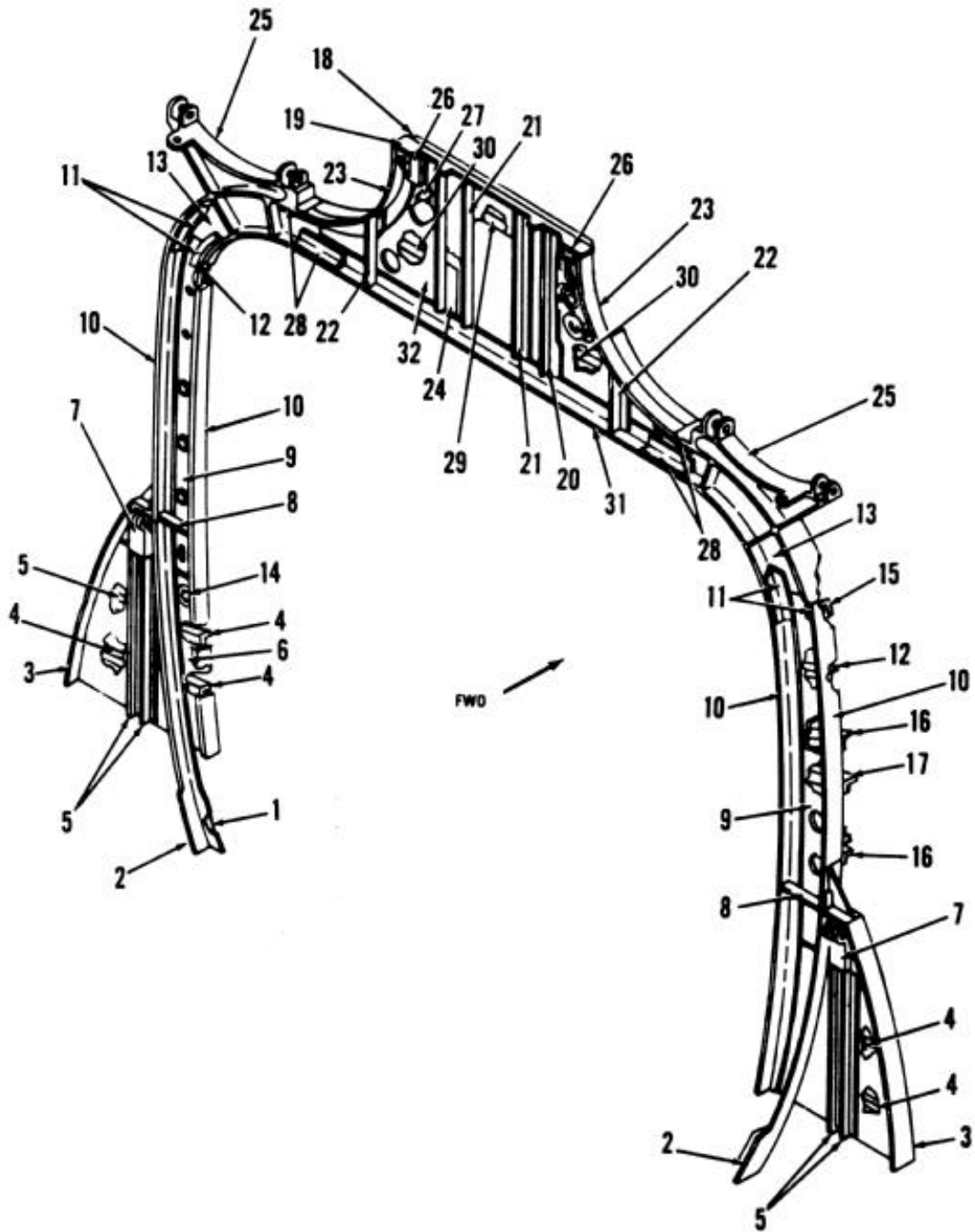
2-18

FORMER — STATION 482.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	ALCOA 51994	7075-T6	0.160	4130	NOTE F.
2	STIFFENER	AND10136-2407	7075-T6	0.125	4130	2-29
3	CAP	REYNOLDS 16908	7075-T6	0.125	4130	NOTE F.
4	STIFFENER	ALCOA 62564	7075-T6	0.090	4130	2-29
5	FITTING		2014-T6		NOTE B.	
6	SPLICE ANGLE	0.125 301 1/4H CRES		0.125 301 1/4H CRES		NOTE F.
7	CAP	ALCOA 51994	7075-T6	0.160	4130	NOTE F.
8	WEB	0.071	2024-T3 CLAD	0.080	2024-T3 CLAD	2-13
9	STIFFENER	ALCOA 59810	7075-T6	0.250	4130	2-29
10	WEB	0.063	7075-T6 BARE	0.080	7075-T6 CLAD	2-13
11	DOUBLER	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE F.
12	CAP	AND10134-1407	7075-T6	0.125	4130	NOTE F.
13	TEE	AND10136-2407	7075-T6	0.125	4130	NOTE F.
14	STRAP	0.125 301 3/4H CRES		0.125 301 3/4H CRES		NOTE F.
15	FITTING		2014-T6		NOTE D.	
16	SPLICE ANGLE	AND10134-1604	7075-T6	0.160	4130	NOTE F.
17	CAP	AND10134-2008	7075-T6	0.190	4130	NOTE F.
18	STIFFENER	REYNOLDS 9097	7075-T6	0.375	4130	2-29
19	FITTING		2014-T6		NOTE E.	NOTE F.
20	CAP	ALCOA 16871	7075-T6	0.100	4130	NOTE F.
21	ANGLE	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	NOTE F.
22	STIFFENER	AND10134-1602	7075-T6	0.125	4130	2-29
23	STIFFENER	AND10134-1408	7075-T6	0.160	4130	2-29
24	STIFFENER	AND10134-2008	7075-T6	0.190	4130	2-29
25	STIFFENER	ALCOA 33811	7075-T6	0.125	4130	2-29
26	CAP	ALCOA 44132	7075-T6	0.190	4130	NOTE F.
27	FLANGE DOUBLER	0.625	7075-T651	0.625	7075-T651	NOTE F.
28	DOUBLER	0.100	7075-T6 BARE	0.100	7075-T6 CLAD	NOTE F.
29	DOUBLER	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE F.

- NOTES:**
- A. All dimensions are in inches.
 - B. For damage other than minor, replace with a new fitting 114S3807-1 LH or -2 RH.
 - C. Insulate dissimilar metals as directed in Task 2-351.
 - D. For damage other than minor, replace with new fitting 114S3817-39 LH or -41 RH.
 - E. For damage other than minor, replace with new fitting 114S3848-19 LH or -21 RH.
 - F. TM 1-1500-204-23.

Former Repairs — Aft Fuselage Structure (Sheet 6 of 32)



NOTE
SEE SHEET 9 FOR BOTTOM
FORMER - STATION 482.0

4950

Former Repairs - Aft Fuselage Structure
(Sheet 7 of 32)

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)

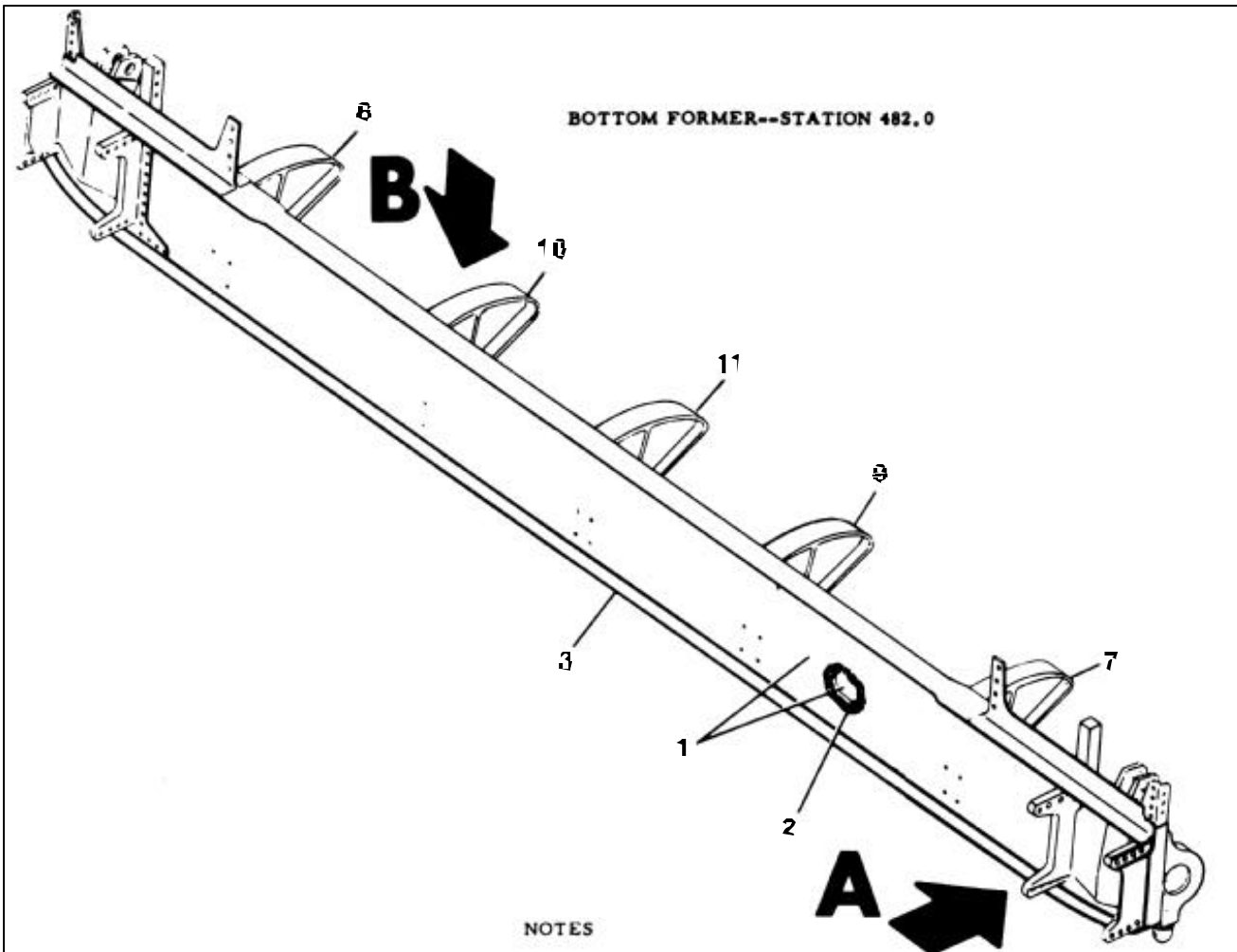
2-18

FORMER — STATION 482.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	AND10134-2001	7075-T6 EXTR	—		NOTE F.
2	ANGLE	BAC1503-9437	7075-T6 EXTR	—		NOTE F.
3	CAP	REYNOLDS 16908	7075-T6 EXTR	0.125	4130	NOTE F.
4	STIFFENER	ALCOA 62564	7075-T6 EXTR	0.090	4130	2-29
5	STIFFENER	AND10134-1602	7075-T6 EXTR	0.125	4130	2-29
6	WEB	0.063	7075-T6 BARE	0.080	7075-T6 CLAD	2-13
7	FITTING			NOTE B.		
8	STIFFENER	ALCOA 59810	7075-T6 EXTR	0.190	4130	2-29
9	WEB	0.072	2024-T3 CLAD	0.080	2024-T3 CLAD	2-13
10	CAP	ALCOA 51994	7075-T6 EXTR	NOTE G.		NOTE F.
11	STRAP	0.125 301 3/4H CRES		0.125 301 3/4H CRES		NOTE F.
12	STIFFENER	AND10134-1006	7075-T6	0.100	4130	2-29
13	WEB	0.071	2024-T3 CLAD	0.080	2024-T3 CLAD	2-13
14	DOUBLER	0.080	7075-T6 CLAD	0.080	7075-T6 CLAD	NOTE F.
15	STIFFENER	REYNOLDS 6447	7075-T6	NOTE G.		NOTE F.
16	STIFFENER	AND10133-0601	7075-T6	0.071	4130	
17	STIFFENER	AND10134-1003	7075-T6	0.071	4130	NOTE F.
18	CAP	ALCOA 13816	7075-T6 EXTR	0.100	4130	NOTE F.
19	ANGLE	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	NOTE F.
20	STIFFENER	AND10134-1602	7075-T6	0.125	41430	2-29
21	STIFFENER	AND10134-1408	7075-T6	0.160	4130	2-29
22	STIFFENER	REYNOLDS 9097	7075-T6	0.375	4130	2-29
23	CAP	AND10134-2008	7075-T6 EXTR	0.190	4130	NOTE F.
24	STIFFENER	AND10133-1002	7075-T6	0.100	4130	NOTE F.
25	ENG MOUNT			NOTE D.		
26	PYLON ATTACH			NOTE E.		
27	DOUBLER	0.091	7075-T6 BARE	0.091	7075-T6 CLAD	NOTE F.
28	SPLICE	AND10134-1604	7075-T6 EXTR	0.160	4130	NOTE F.
29	STIFFENER	ALCOA 33811	7075-T6 EXTR	0.1604130	NOTE F.	
30	STIFFENER	0.188 17-7 PH CRES		0.188 17-7 PH CRES		2-29
31	CAP	ALCOA 44132	7075-T6511	NOTE G.		NOTE F.
32	WEB	0.063	7075-T6 BARE	0.080	7075-T6 CLAD	2-13

- NOTES:**
- A. All dimensions are in inches.
 - B. For damage other than minor, replace with a new fitting 114S3807-1 LH or -2 RH.
 - C. Insulate dissimilar metals as directed in Task 2-351.
 - D. For damage other than minor, replace with new fitting 114S3817-39 LH or -41 RH.
 - E. For damage other than minor, replace with new fitting 114S3848-19 LH or -21 RH.
 - F. TM 1-1500-204-23.
 - G. For damage other than minor, replace with section of original material.

Former Repairs — Aft Fuselage Structure (Sheet 8 of 32)



NOTES

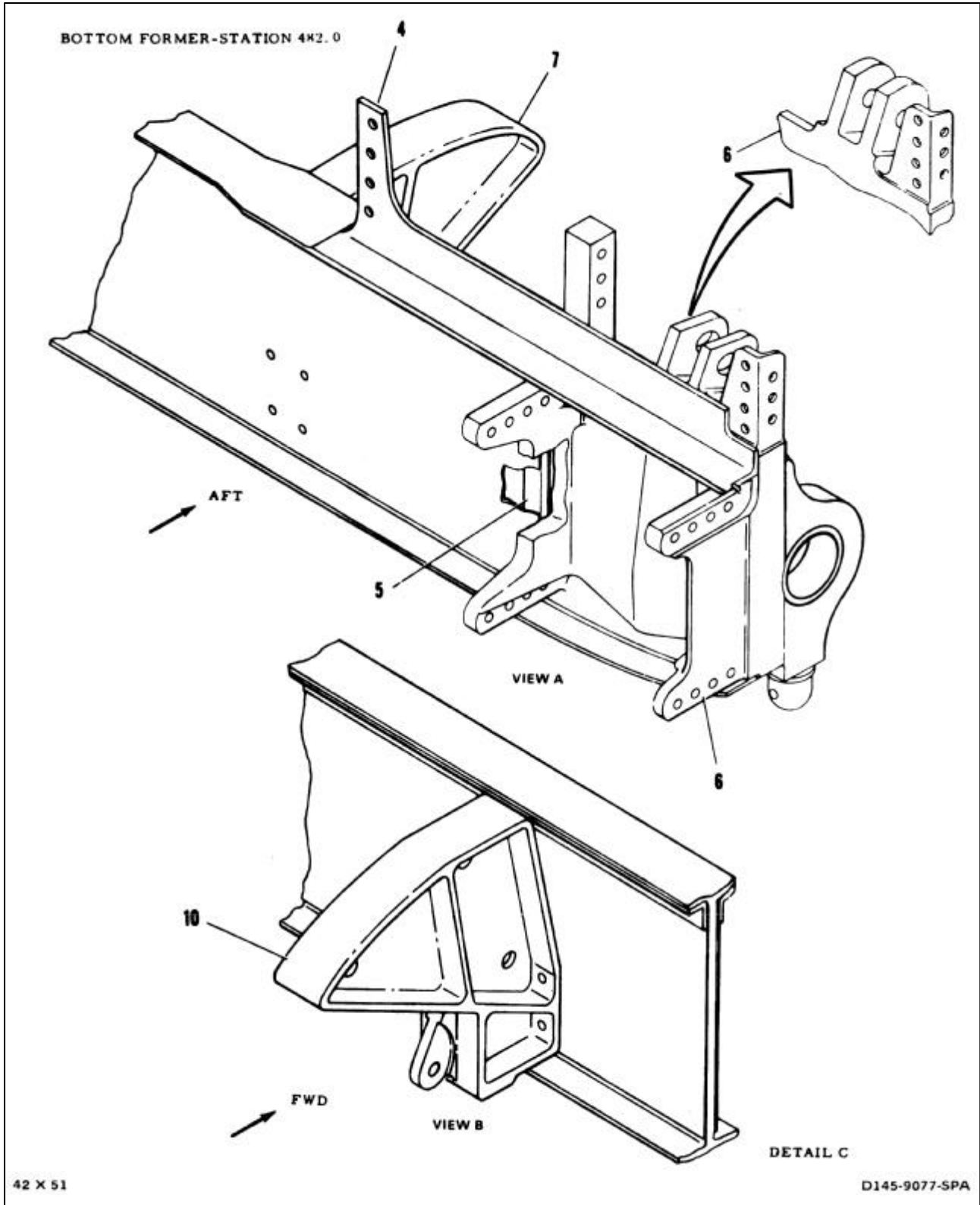
- A. ALL DIMENSIONS ARE IN INCHES
- B. COMPONENT OF A BONDED ASSEMBLY, REFER TO TM 11520-240-23 FOR REPAIR OF SANDWICH HONEYCOMB STRUCTURES
- C. FOR DAMAGE OTHER THAN MINOR REPLACE TRUNNION ASSEMBLY WITH A NEW PART 11453849-1 LH OR -2 RH
- D. FOR DAMAGE OTHER THAN MINOR REPLACE HINGE ASSEMBLY WITH A NEW PART 11453812-41 LH OR -42 RH
- E. FOR DAMAGE OTHER THAN MINOR REPLACE HINGE ASSEMBLY WITH A NEW PART 11453812-22
- F. FOR DAMAGE OTHER THAN MINOR REPLACE HINGE WITH A NEW PART 11453812-13

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	SKIN	0.036 7075-T6	NOTE B.
2	CORE	3.0-3/8-20-N-3003	NOTE B.
3	CAP	VS90310 7075-T6	NOTE B.
4	CAP	VS90523 7075-T6	NOTE B.
5	BLOCK	0.400 7075-T6 BARE	NOTE B.
6	TRUNNION ASSY	2014-T6	NOTE C.
7	HINGE ASSY	AL ALY 7075-T73	A1. ALY 7075-T73 NOTE D.
8	HINGE ASSY	AL ALY 7075-T73	A1. ALY 7075-T73 NOTE D.
9	HINGE ASSY	AL ALY 7075-T73	NOTE E.
10	HINGE ASSY	AL ALY 7075-T73	NOTE E.
11	HINGE	AL ALY 7075-T73	NOTE F.

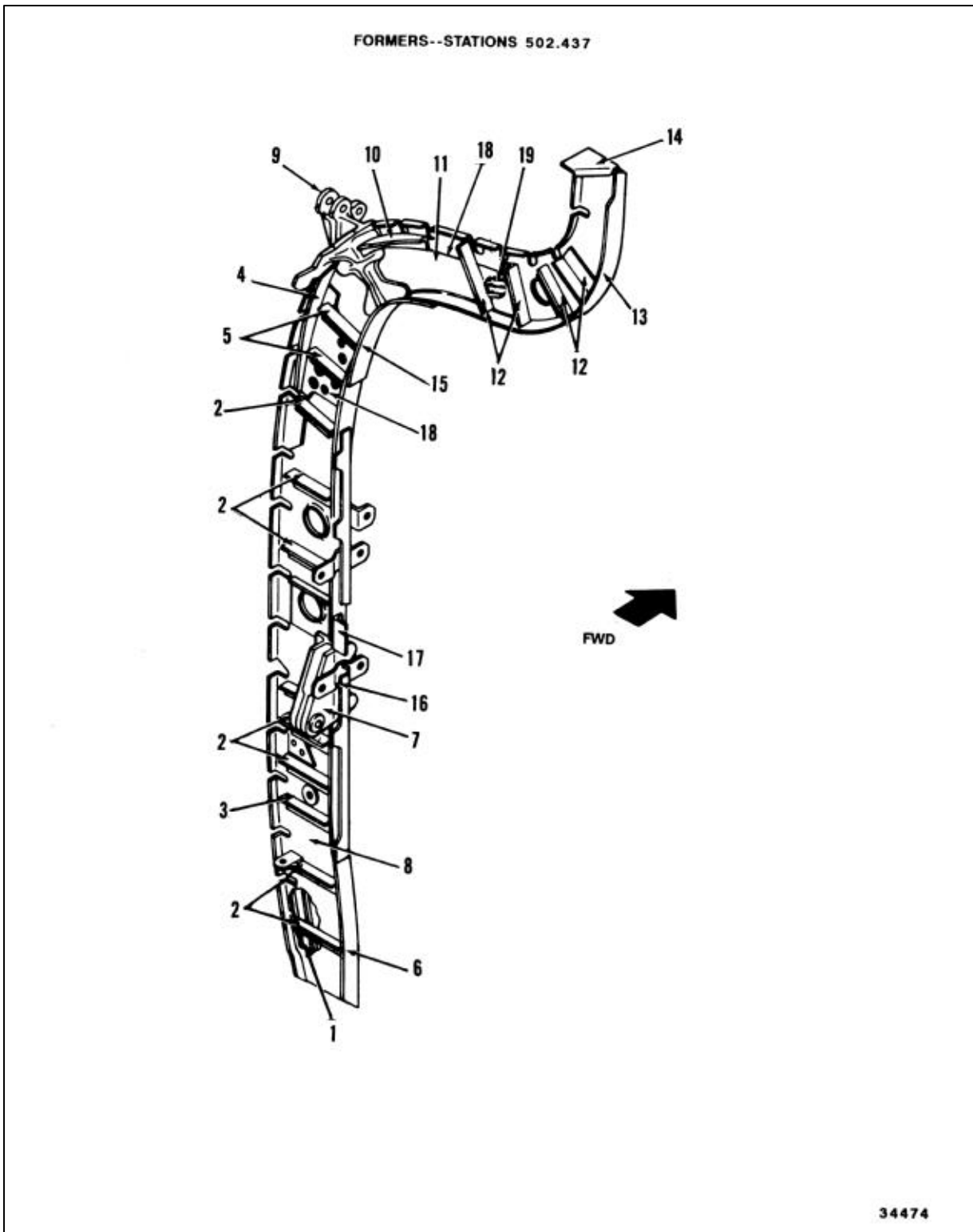
42 X 51

D145-9076-SPA

Former Repairs - Aft Fuselage Structure
(Sheet 9 of 32)



Former Repairs - Aft Fuselage Structure
(Sheet 10 of 32)



*Former Repairs Aft Fuselage Structure
(Sheet 11 of 32)*

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)

2-18

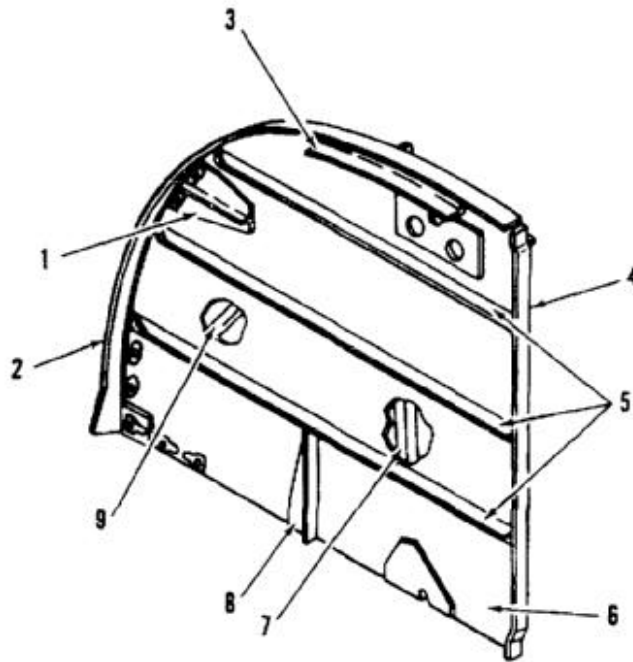
FORMERS — STATION 502.437

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	AND10134-1408	7075-T6	0.160	4130	NOTE D.
2	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
3	STIFFENER	ALCOA 67580	7075-T6	0.063	4130	2-29
4	ANGLE	AND10134-1408	7075-T6	0.160	4130	NOTE D.
5	STIFFENER	VS90112	7075-T6	0.190	4130	2-29
6	CAP	AND10136-2002	7075-T6	0.100	4130	NOTE D.
7	FITTING	VS90530	7075-T6	NOTE B.		—
8	WEB	0.032	7075-T6 CLAD	0.040	7075-T6 CLAD	2-13
9	FITTING		2014-T6	NOTE C.		—
10	ANGLE	AND10134-1406	7075-T6	0.100	4130	NOTE D.
11	WEB	0.050	2024-T3 CLAD	0.050	2024-T3 CLAD	2-13
12	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
13	CAP	HARVEY 15152	7075-T6	0.071	4130	NOTE D.
14	BRACKET	0.032	7075-T6 CLAD	0.040	7075-T6 CLAD	NOTE D.
15	STRAP	0.100 301 1/4H CRES		0.100 301 1/4 H CRES		NOTE D.
16	ANGLE	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	NOTE D.
17	CLIP	ALCOA 61971	7075-T6	0.050	4130	NOTE D.
18	DOUBLER	0.032	2024-T3 CLAD	0.032	2024-T3 CLAD	NOTE D.

- NOTES:**
- A. All dimensions are in inches.
 - B. For damage other than minor, replace with a new fitting 114S3816-1 LH or -2 RH.
 - C. For damage other than minor, replace with a new fitting 114S3819-39 LH or -41 RH.
 - D. TM 1-1500-204-23.

Former Repairs — Aft Fuselage Structure (Sheet 12 of 32)

FORMERS - STATION 520.0



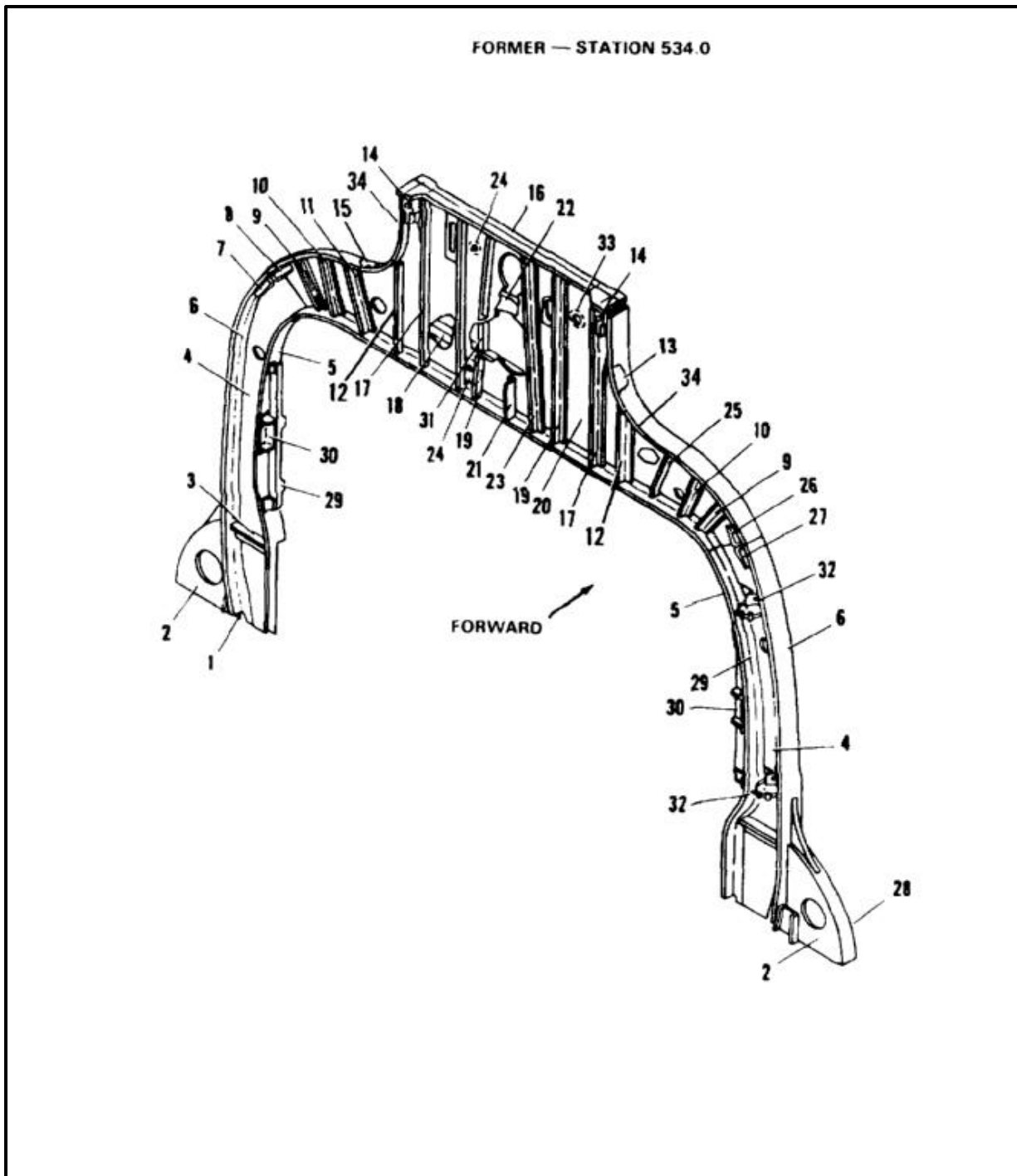
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	STIFFENER	AND10136-3001 7075-T6	0.125 4130	2-29
2	CAP	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE C
3	ANGLE	NOTE D	NOTE E	NOTE C
4	CAP	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE C
5	STIFFENER	ALCOA 22526 7075-T6	0.063 4130	2-29
6	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
7	CAP	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE C
8	STIFFENER	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	2-29
9	STIFFENER	0.050 7075-T6 BARE	0.050 7075-T6 CLAD	2-29

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. THE LH FORMER IS SHOWN. THE RH FORMER IS SIMILAR IN CONSTRUCTION. THE ORIGINAL AND REPAIR MATERIALS LISTED ARE APPLICABLE TO LH AND RH CONFIGURATIONS
- C. TM 1-1520-204-23
- D. 0.040 301 1/4 HARD CRES. SH.T.
- E. REPLACE WITH ORIGINAL MATERIAL

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Former Repairs - At Fuselage Structure
(Sheet 13 of 32)



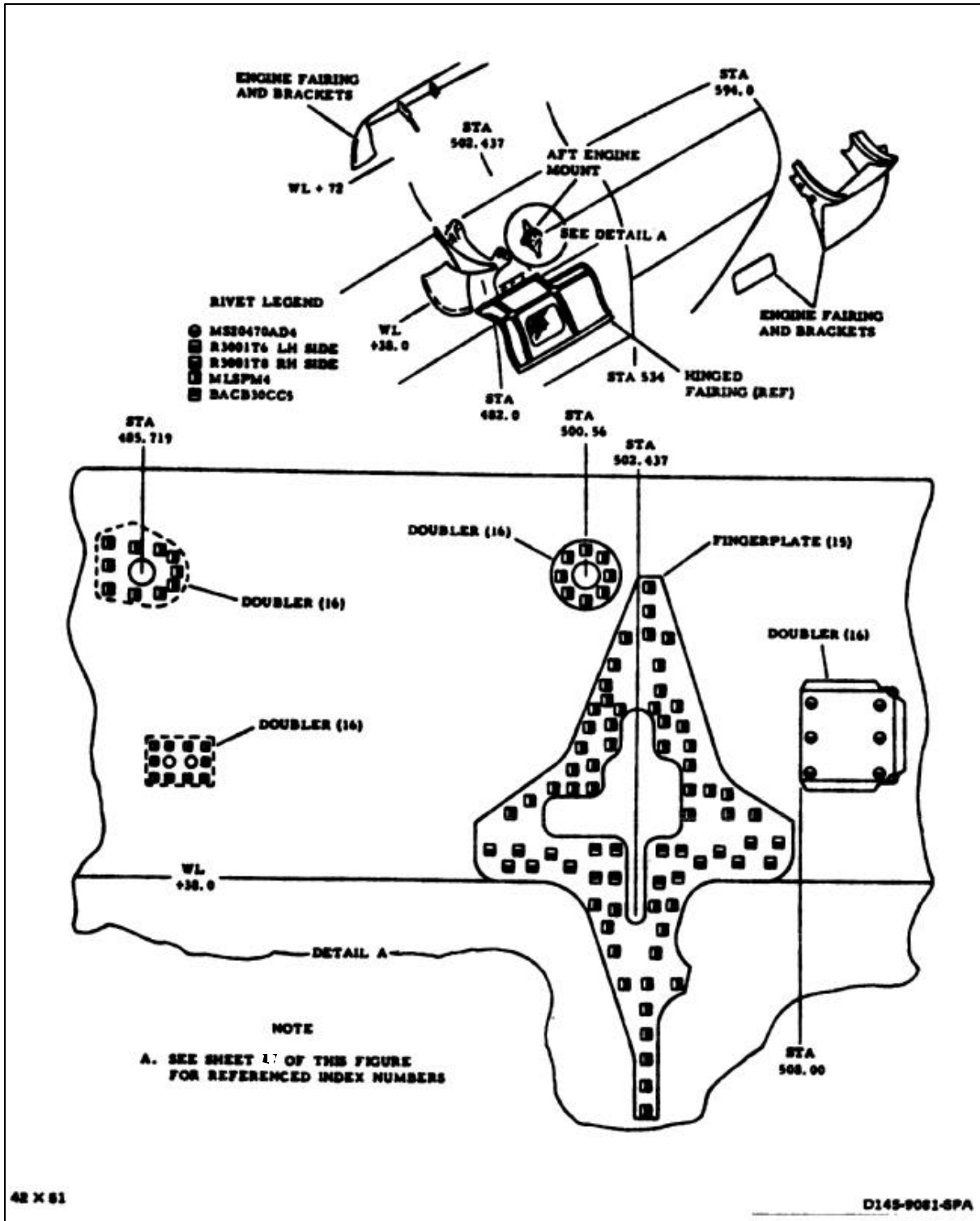
Formers - Repairs - Aft Fuselage Structure
(Sheet 14 of 32)

FORMERS — STATION 534.0

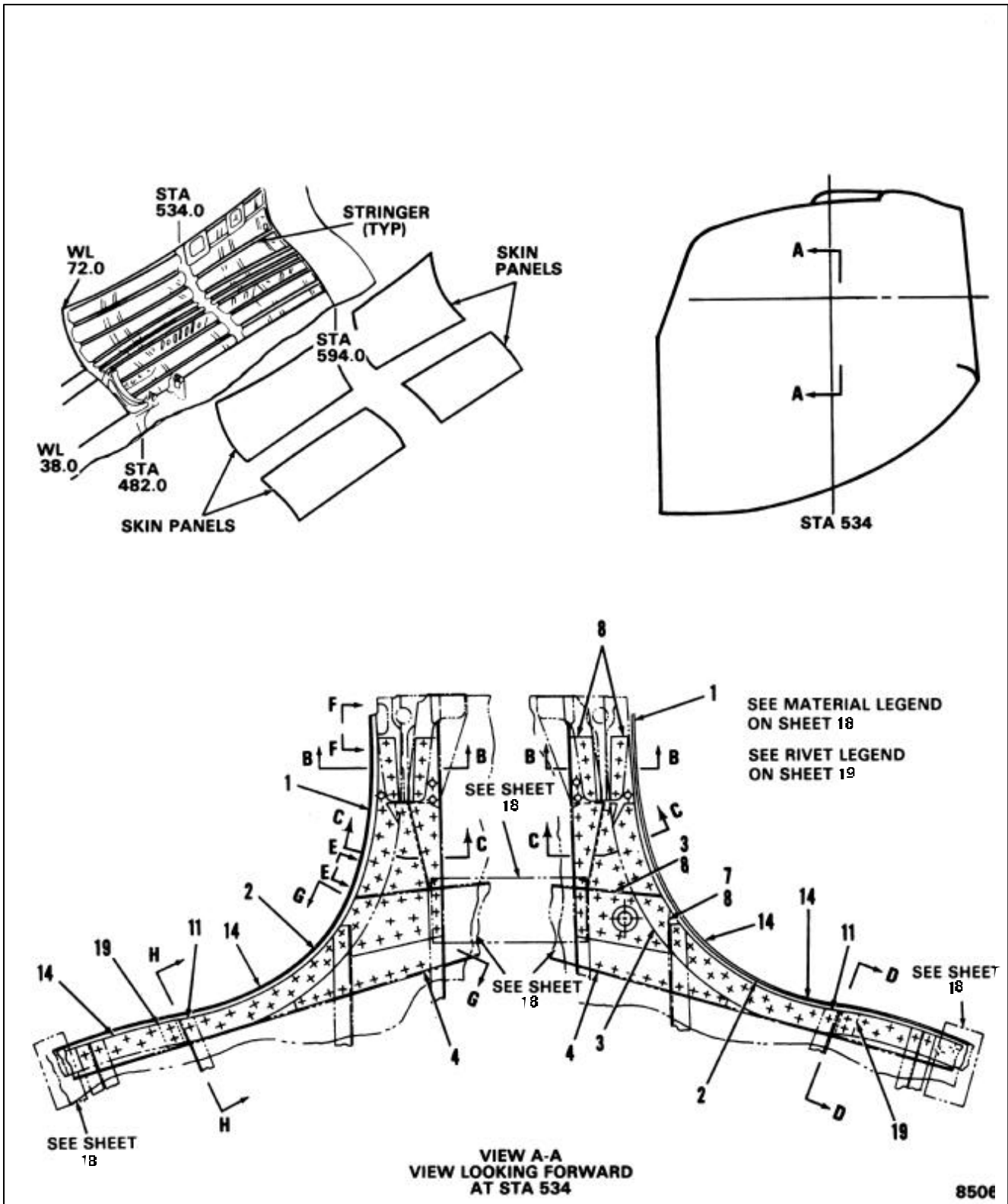
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	REINFORCEMENT	0.080	7075-T6 CLAD	0.090	7075-T6 CLAD	NOTE E.
2	WEB	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13
3	STIFFENER	AND10133-0601	7075-T6	0.071	4130	2-29
4	WEB	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13
5	CAP	ALCOA 43774	7075-T6	0.100	4130	NOTE E.
6	CAP	ALCOA 43774	7075-T6	0.100	4130	NOTE E.
7	FITTING		2014-T6		NOTE B.	—
8	FITTING		2014-T6		NOTE C.	—
9	STIFFENER	AND10136-1401	7075-T6	0.071	4130	2-29
10	STIFFENER	AND10136-1401	7075-T6	0.071	4130	2-29
11	ANGLE	ALCOA		0.100	4130	NOTE E.
12	ANGLE	AND10134-1006	7075-T6	0.100	4130	NOTE E.
13	CAP	ALCOA 43774	7075-T6	0.100	4130	NOTE E.
14	FITTING		2014-T6		NOTE D.	—
15	CAP	ALCOA 43774	7075-T6	0.100	4130	NOTE E.
16	CAP	ALCOA 33495	7075-T6	0.080	4130	NOTE E.
17	STIFFENER	ALCOA 66017	7075-T6	0.100	4130	2-29
18	STIFFENER	ALCOA 9484	7075-T6	0.080	4130	2-29
19	STIFFENER	ALCOA 9484	7075-T6	0.080	4130	2-29
20	WEB	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
21	STIFFENER	ALCOA 9484	7075-T6	0.080	4130	2-29
22	STIFFENER	0.063	7075-T6 BARE	0.080	4130	2-29
23	CAP	VS90312	7075-T6	0.100	4130	NOTE E.
24	DOUBLER	0.071	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE E.
25	ANGLE	AND10134-1006	7075-T6	0.100	4130	NOTE E.
26	FITTING		2014-T6		NOTE C.	—
27	FITTING		2014-T6		NOTE B.	—
28	CAP	ALCOA 22477	7075-T6	0.050	4130	NOTE E.
29	ANGLE	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	NOTE E.
30	BRACKET	0.050	2024-T4 CLAD	0.050	2024-T3 CLAD	NOTE E.
31	ANGLE	ALCOA 52735	7075-T6		4130	NOTE E.
32	BRACKET	0.050 301 CRES		0.050 301 CRES		NOTE E.
33	DOUBLER	0.071	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE E.
34	CAPSTRIP	0.050 CRES SHEET		0.050 CRES SHEET		

- NOTES:**
- A. All dimensions are in inches.
 - B. Replace with new fitting 11493825-13 and -17 (aft and fwd LH respectively) or -15 and -19 (aft and fwd RH respectively).
 - C. Replace with new fitting 114S3825-21 and -23 (aft and fwd LH respectively) or -22 and -24 (aft and fwd RH respectively).
 - D. Replace with new fitting 114S3848-11 and -17 (aft and fwd LH respectively) or -13 and -15 (aft and fwd RH respectively).
 - E. TM 1-1500-204-23.

Former Repairs — Aft Fuselage Structure (Sheet 15 of 32)



Former Repairs - Aft Fuselage Structure
(Sheet 16 of 32)

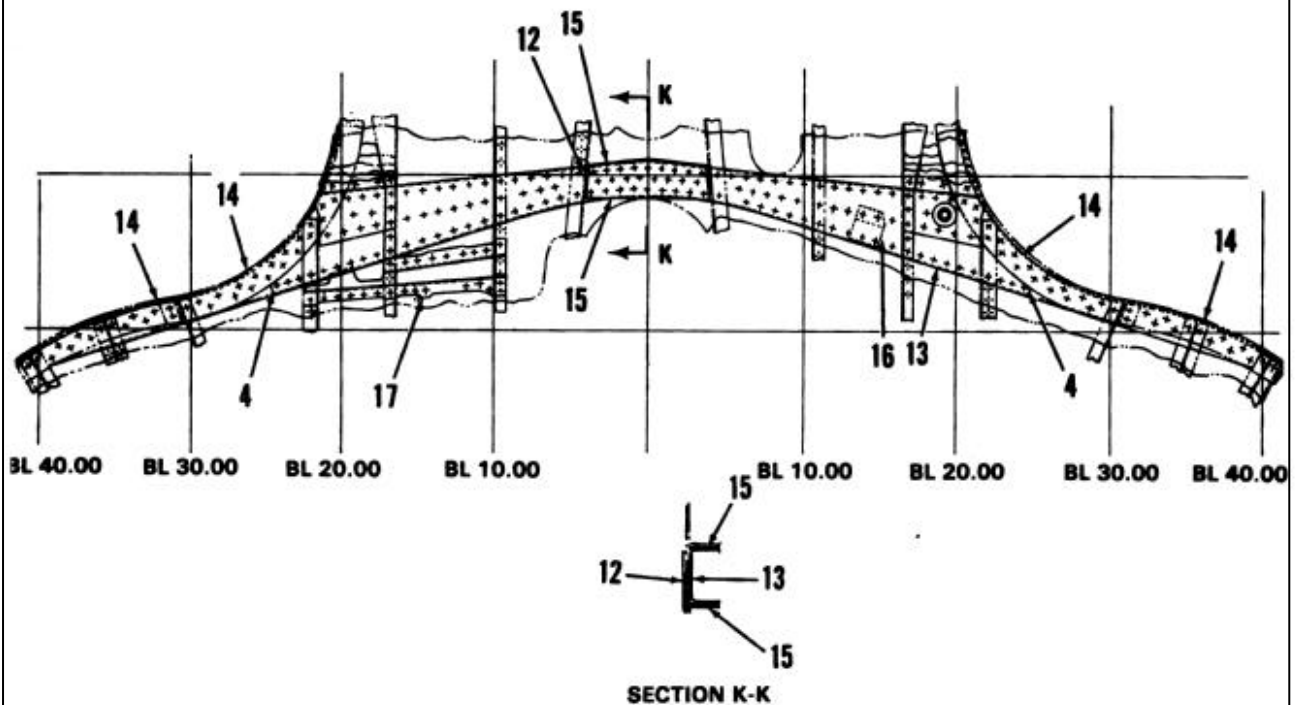


Former Repairs -Aft Fuselage Structure
(Sheet 17 of 32)

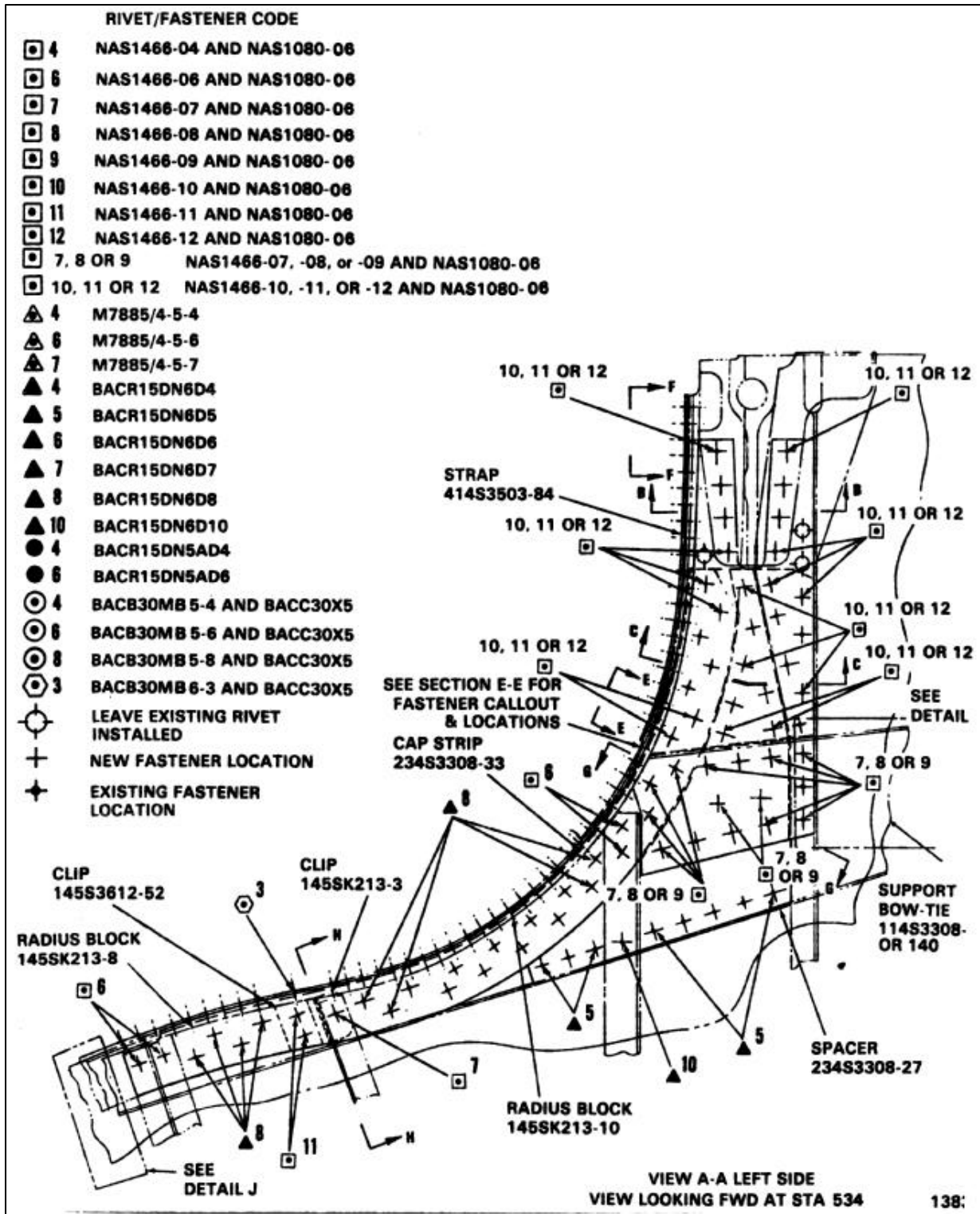
**FORMERS — STATION 534.0
(SHEETS 18 THROUGH 25)**

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR FIG.
1	STRAP	0.080 301 CRES	NOTE A	
2	CAP STRIP	0.050 CRES 17-7PH	NOTE A	
3	FILLER	0.050 2024-T3 CLAD	NOTE A	
4	SPACER	0.050 7075-T6	NOTE A	
6	FILLER	0.090 2024-T3 CLAD	NOTE A	
7	FILLER	0.050 2024-T3 CLAD	NOTE A	
8	REINFORCING PLATE	0.080 301 CRES 1/4 H	NOTE A	
11	CLIP	0.032 2024-T3 CLAD	NOTES A & B	
12	SPLICE	0.080 7075-T6	NOTES A & B	
13	SUPPORT	0.063 7075-T6	NOTE A	
14	RADIUS BLOCK	0.125 2024-T3	NOTES A & B	
15	STRAP	0.080 7075-T6	NOTES A & B	
16	BRACKET	0.040 2024-0 CLAD HT TR T4	NOTE A	
17	SUPPORT BRACKET	0.050 2024-0 CLAD HT TR T4	NOTE A	
18	WEB	0.032 2024-13 CLAD	.040 2024-T3	
19	CLIP	ALCOA 31823 7075-T6	NOTE A	

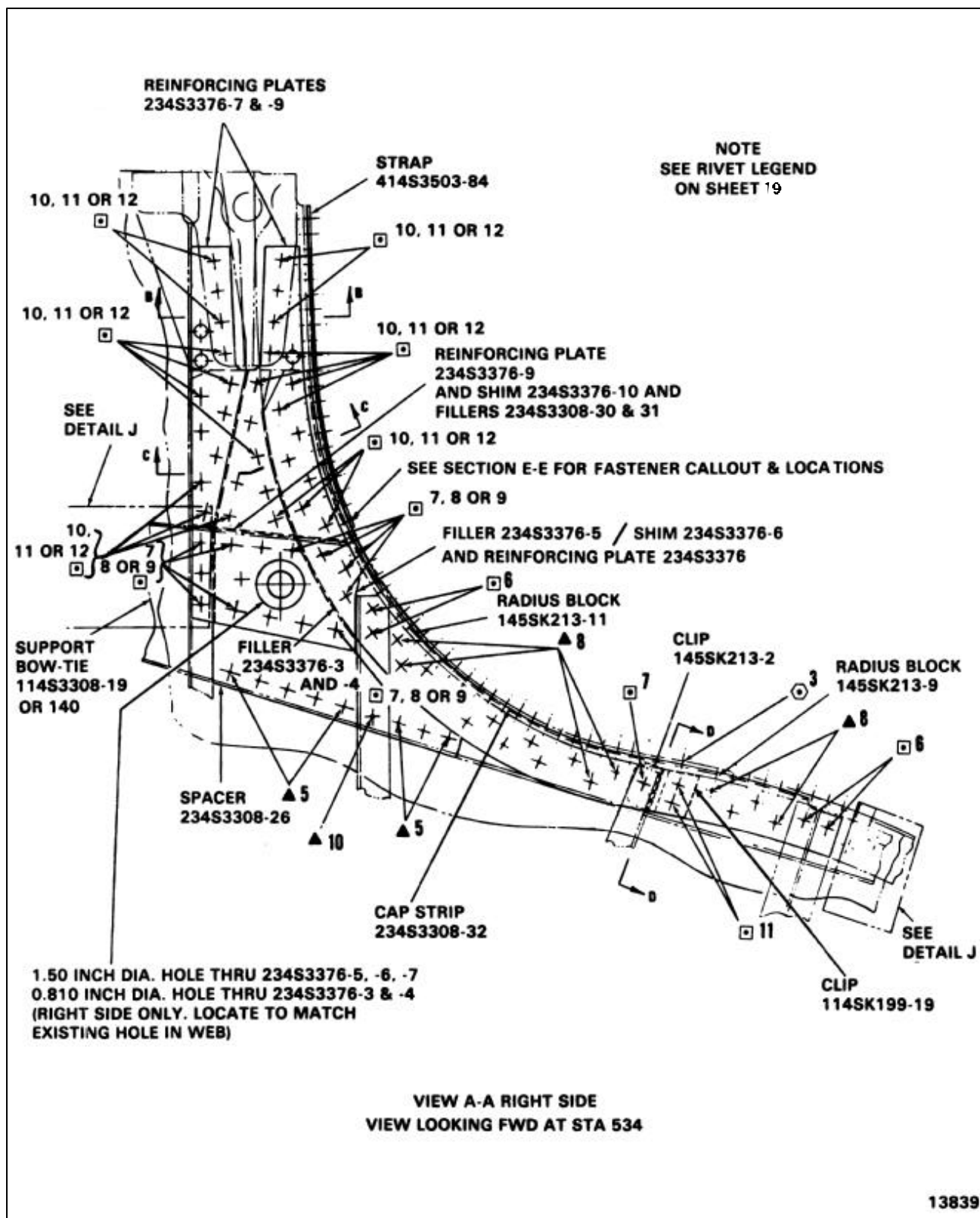
NOTES: A. Fabricate new part from same material as original
 B. Effective only for Mfg. Serial No. M3004 thru M3041.
 (81-23381 thru 81-23389)
 (82-23782 thru 82-23780)
 (83-24102 thru 83-24111)



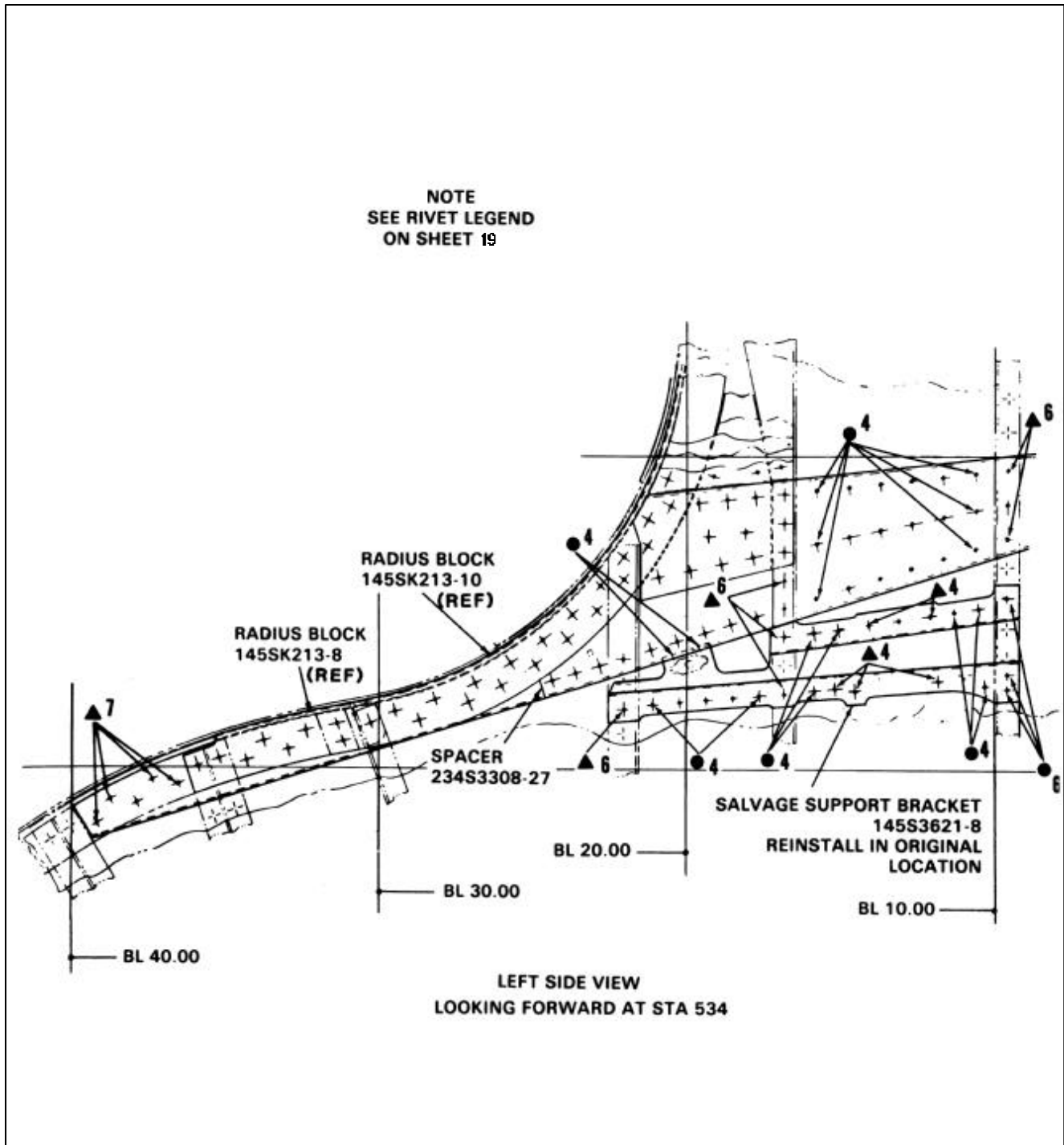
*Former Repairs – Aft Fuselage Structure
(Sheet 18 of 32)*



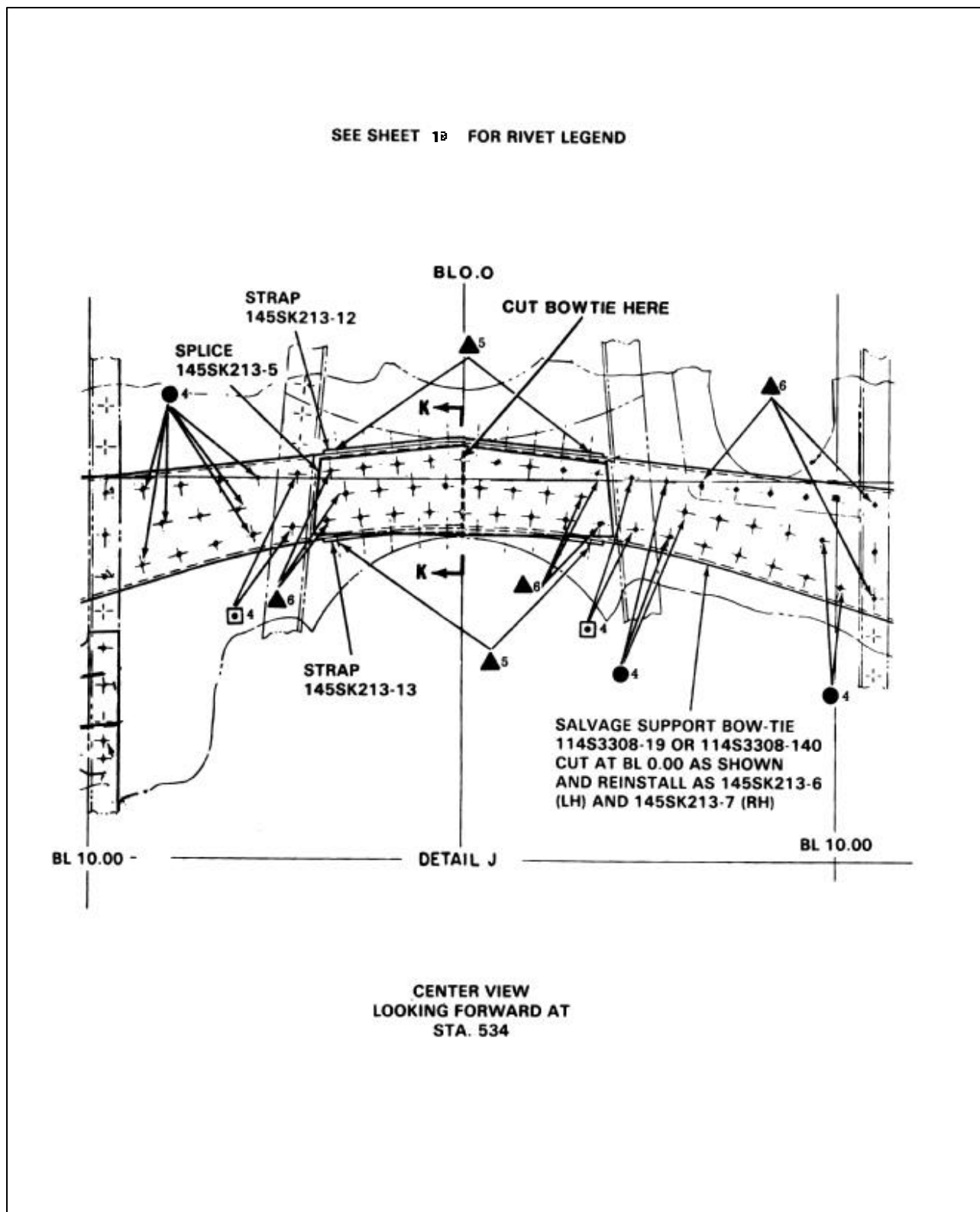
Former Repairs - Aft Fuselage Structure
 (Sheet 19 of 32)



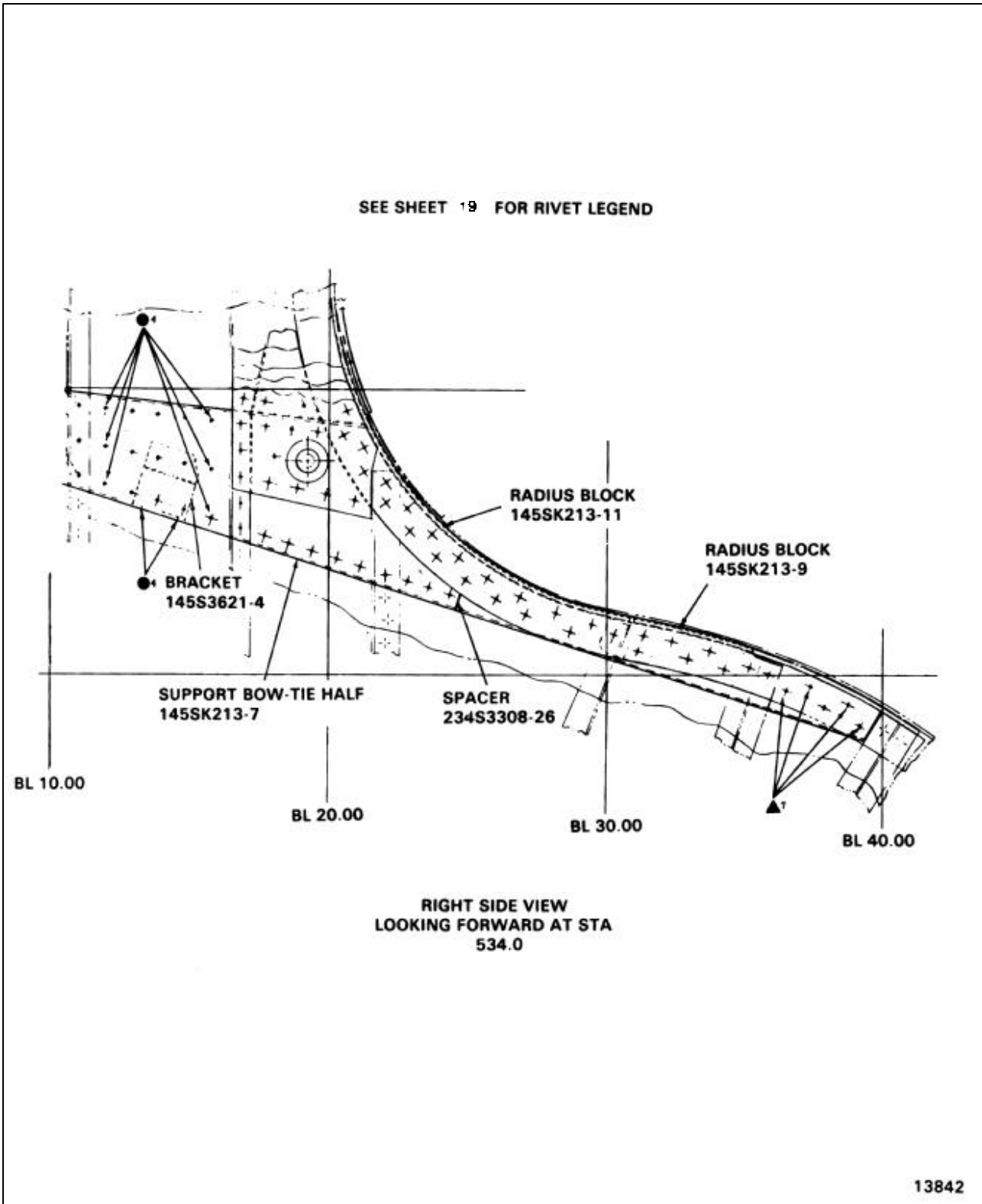
Former Repairs - Aft Fuselage Structure
(Sheet 20 of 32)



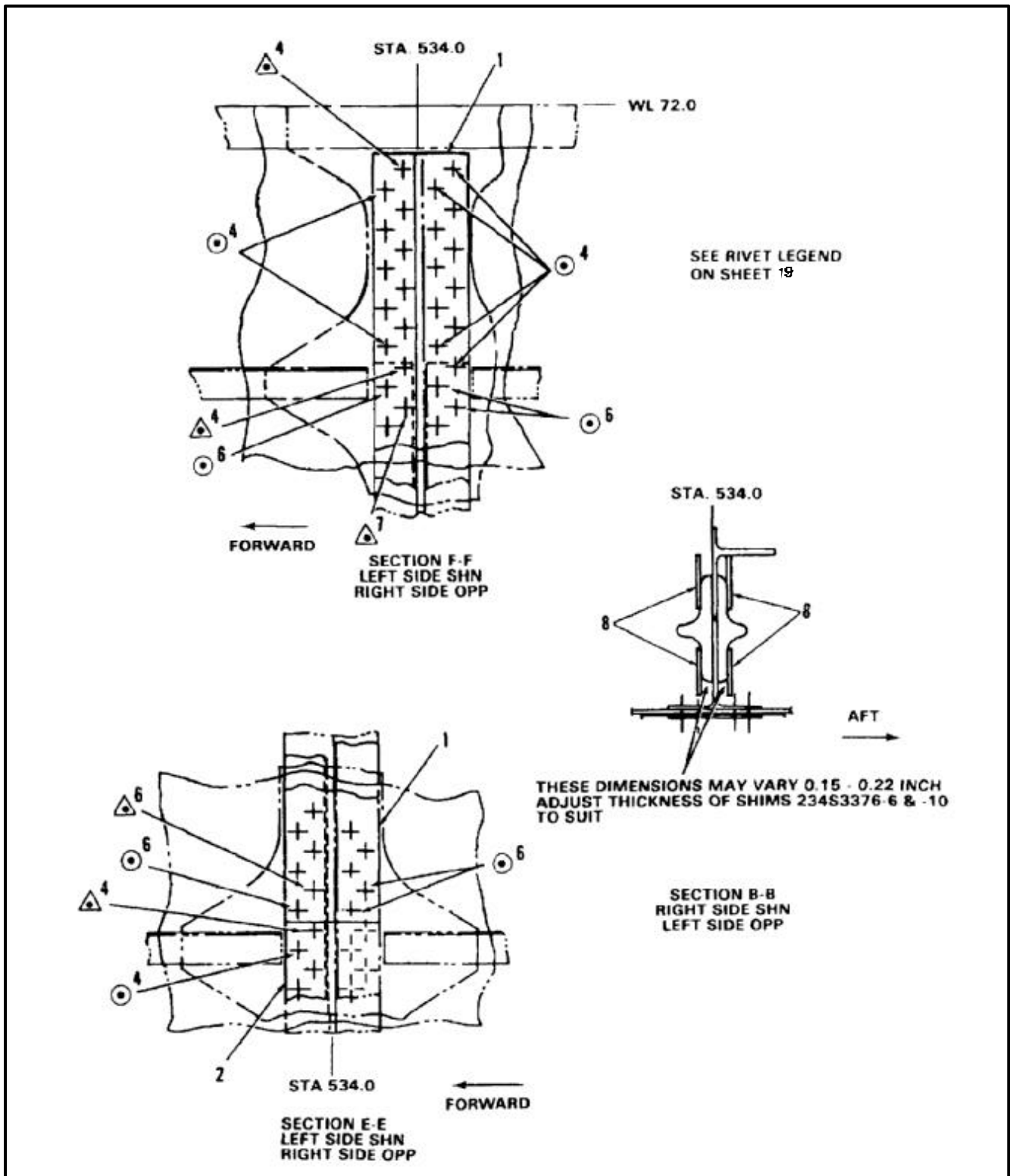
*Former Repairs - Aft Fuselage Structure
(Sheet 21 of 32)*



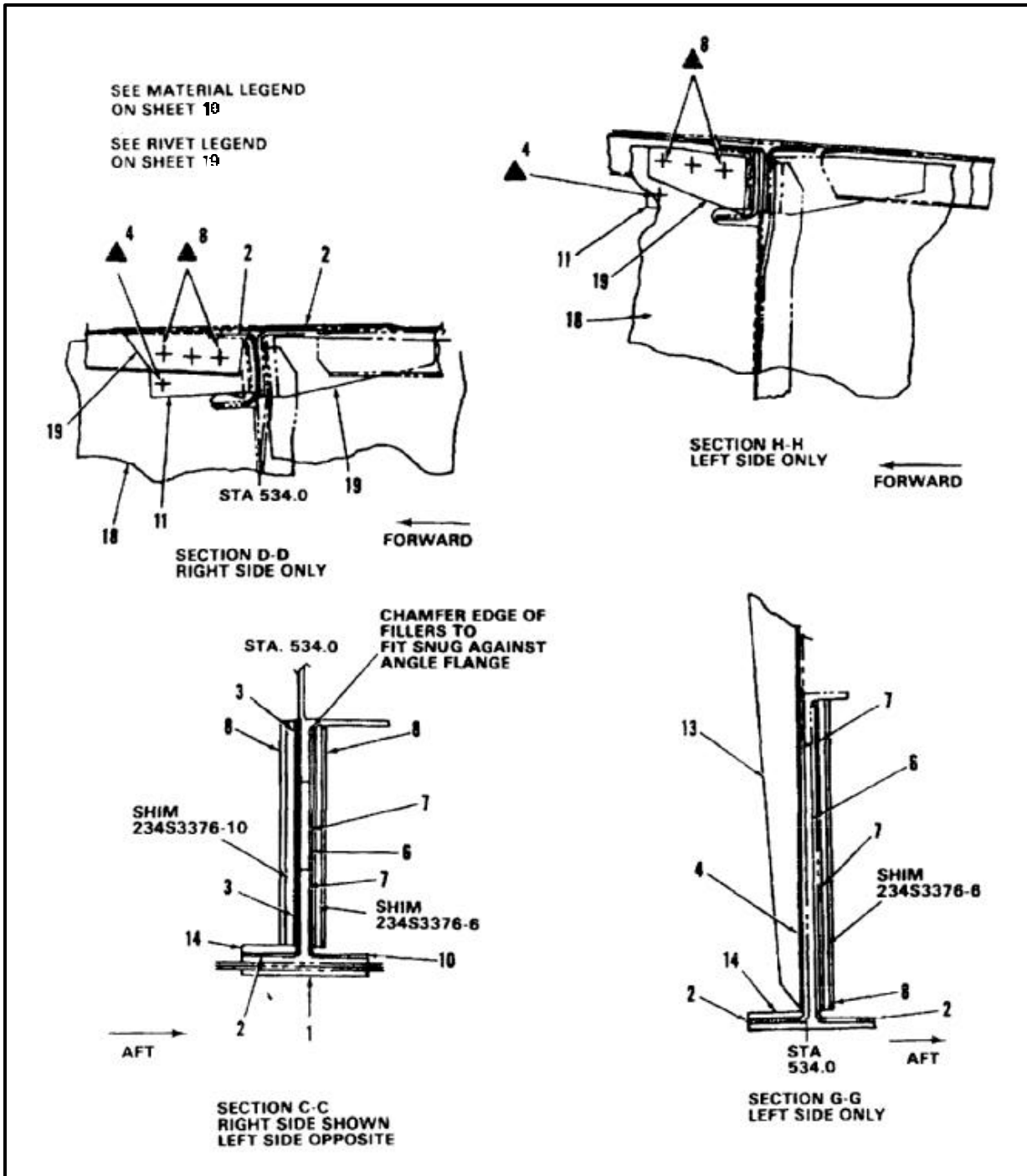
Former Repairs - Aft Fuselage Structure
(Sheet 22 of 32)



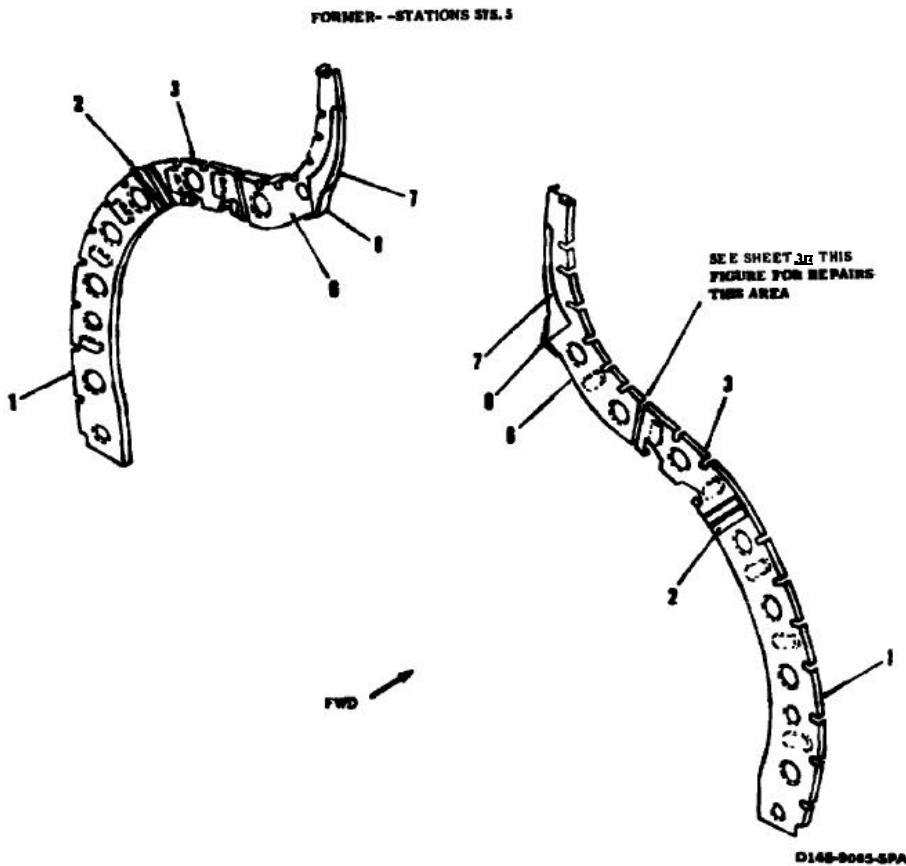
*Former Repairs - A11 Fuselage Structure
(Sheet 23 of 32)*



Former Repairs - Aft Fuselage Structure
(Sheet 24 of 31)



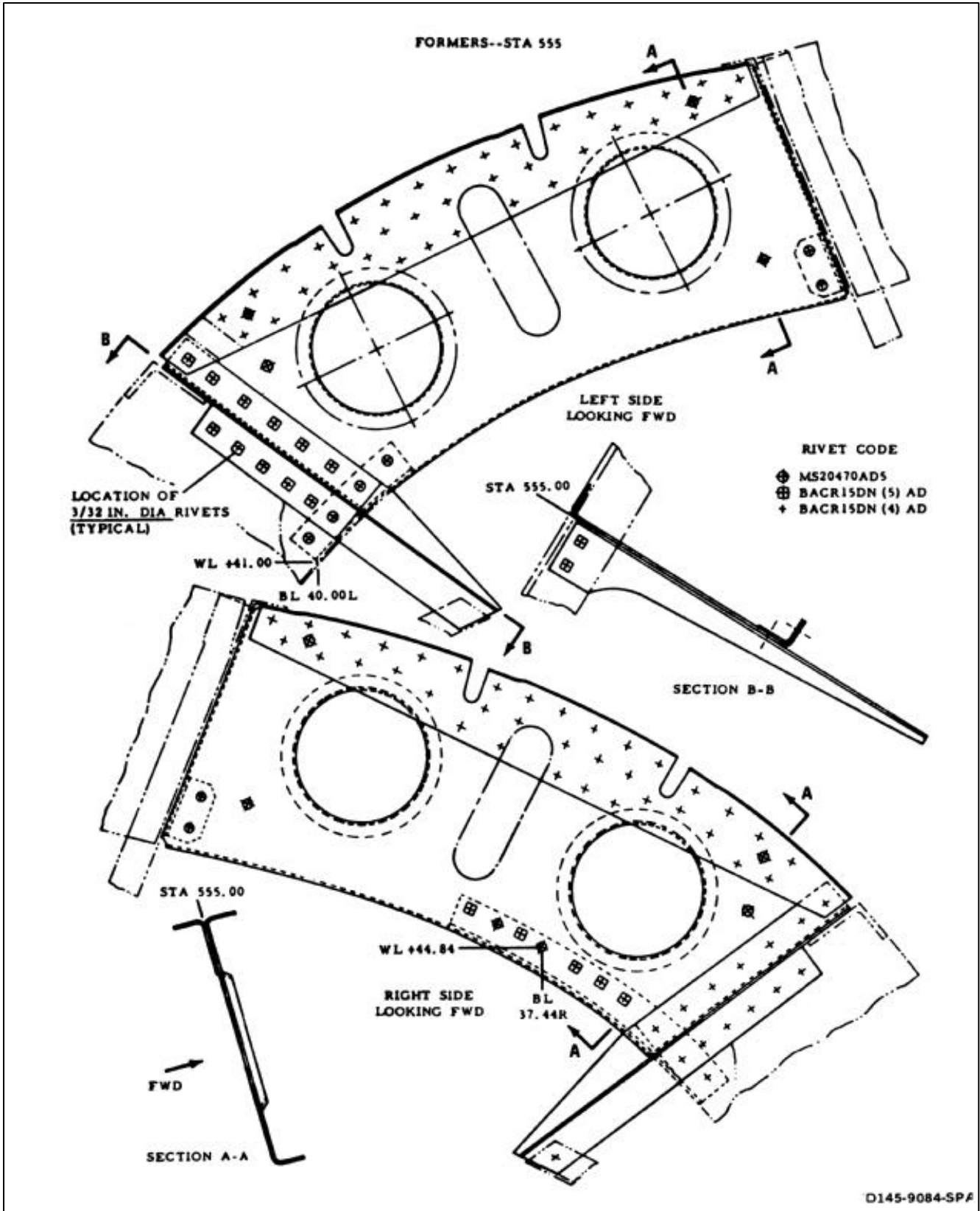
Former Repairs - Air Fuselage Structure (Sheet 25 of 32)



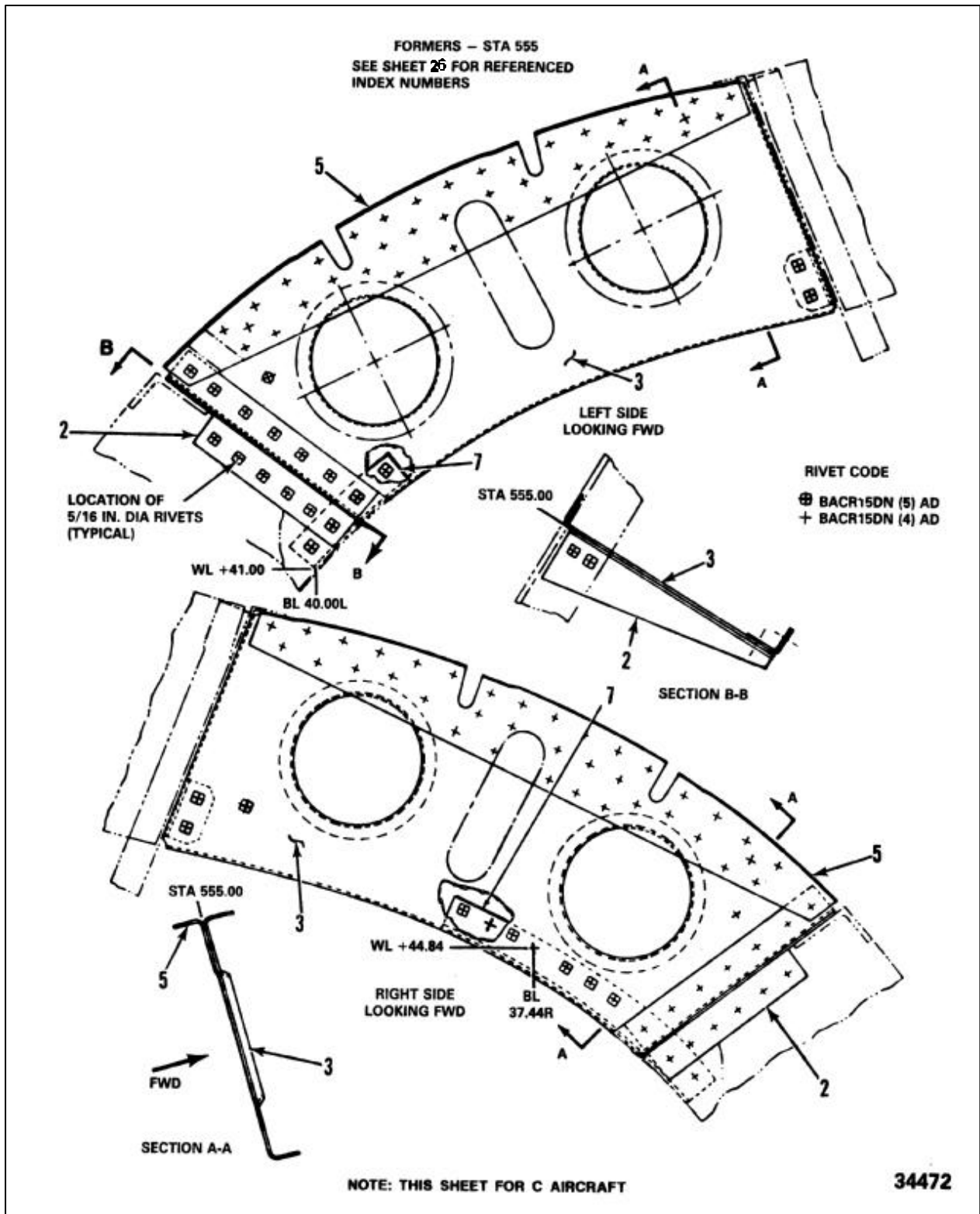
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	WEB	0.040 2024-T3 CLAD 0.040 2024-T42 BARE	0.050 2024-T3 CLAD	2-13 NOTE C.
2	TEE	AND10136-1605 7075-T6	0.100 4130	NOTE B.
3	WEB	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD	2-13
4	DOUBLER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD	NOTE B.
5	ANGLE	0.032 7075-T6 CLAD	0.040 7075-T6 CLAD	NOTE B.
6	FORMER	0.040 2024-T42 BARE 0.040 2024-T42 BARE	0.040 2024-T3 CLAD 0.050 2024-T4 CLAD	2-13 NOTE C.
7	CHANNEL	0.063 2024-T42 BARE 0.063 2024-T42 BARE	0.040 2024-T3 CLAD 0.071 2024-T4 CLAD	2-13 NOTE C.
8	STRAP	0.050 2024-T3 BARE	0.050 2024-T3 CLAD	—

- NOTES:**
- A. ALL DIMENSIONS ARE IN INCHES.
 - B. TM 1-1500-204-23.
 - C. THIS PART IS USED ON AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.

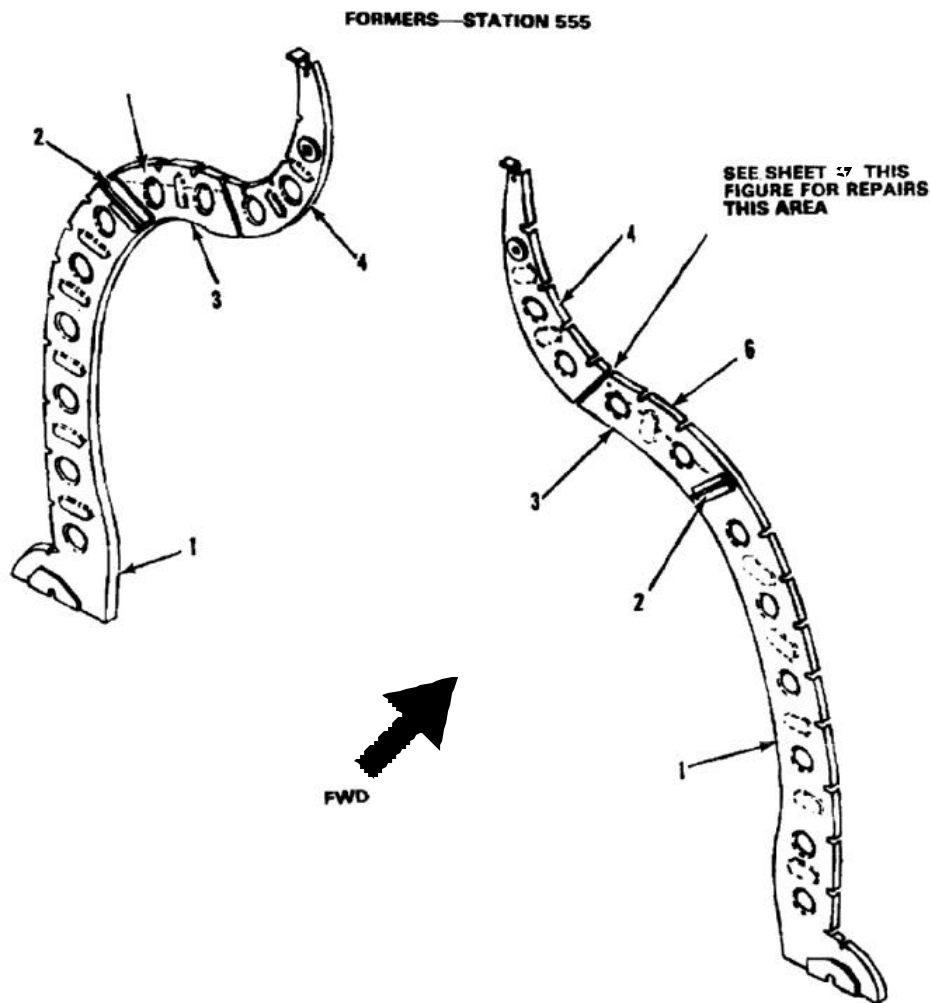
Former Repairs — Aft Fuselage Structure (Sheet 26 of 32)



Former Repairs - All Fuselage Structure (Sheet 27 of 32)



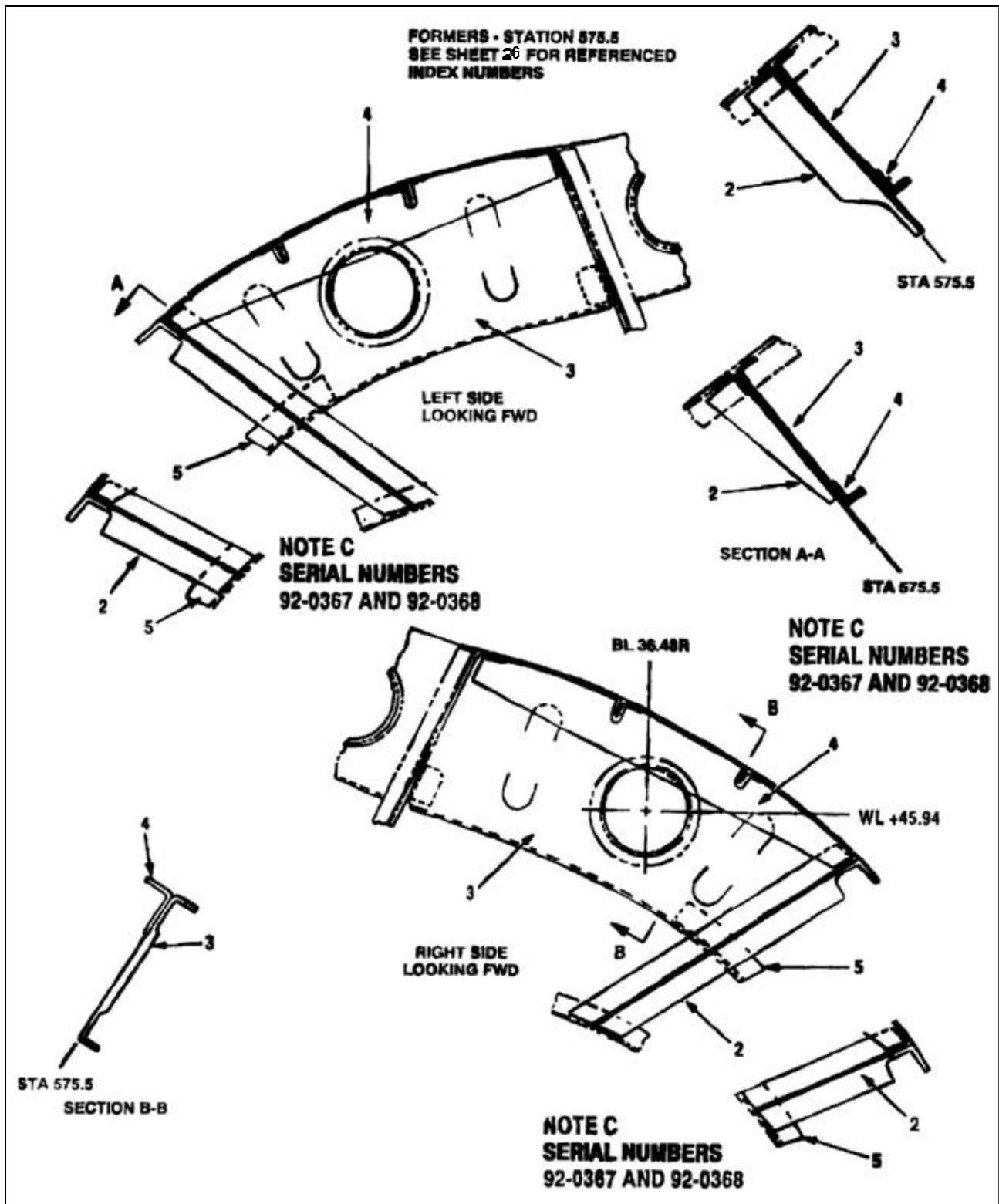
Former Repairs - Aft Fuselage Structure
(Sheet 28 of 32)



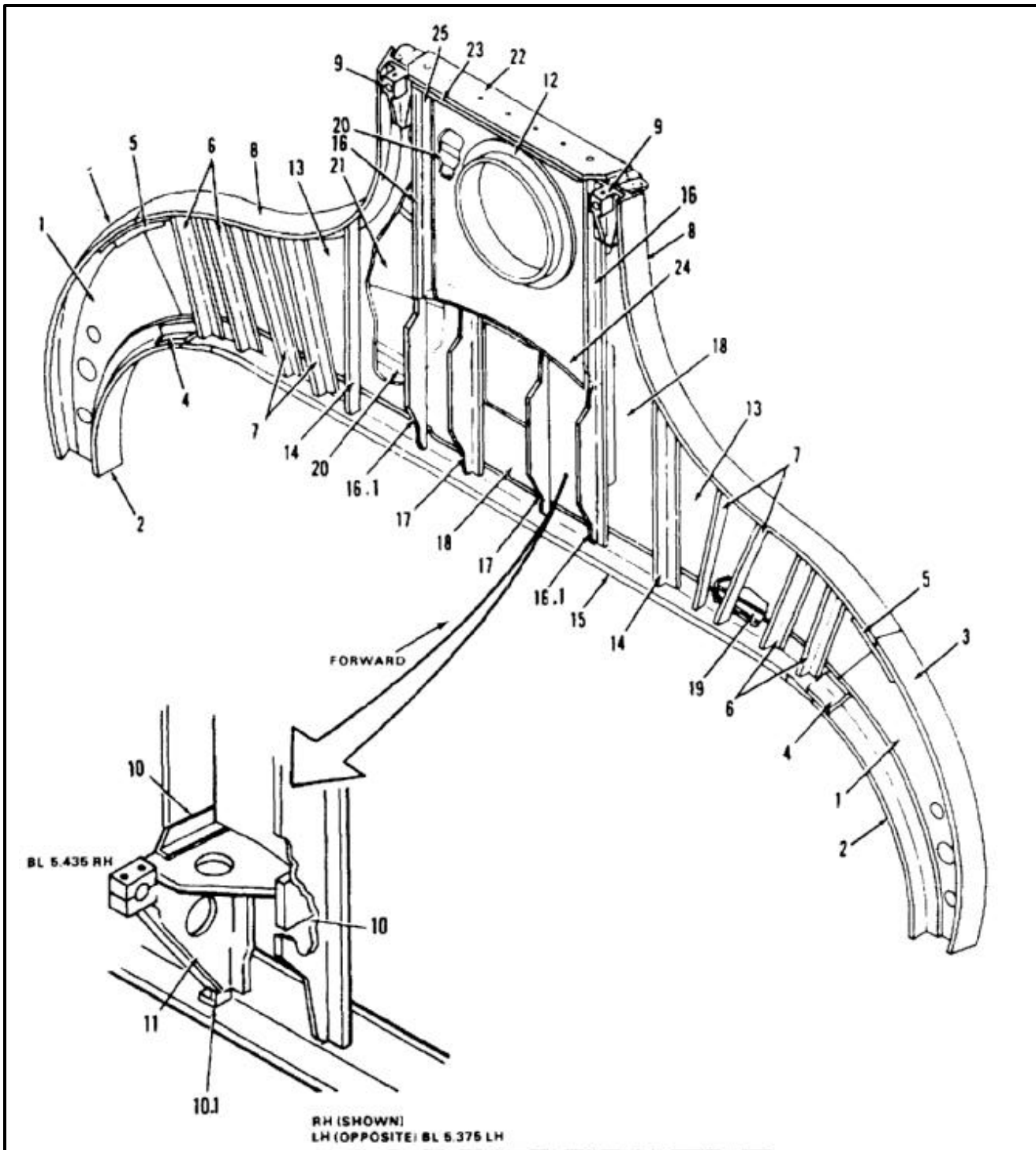
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	WEB	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	2-13
2	FITTING	AND10136-1601 7075-T6	0.100 4130	NOTE B.
3	WEB	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13
4	WEB	0.032 2024-T4 CLAD 0.032 2024-T42 CLAD	0.040 2024-T3 CLAD	213
5	DOUBLER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD	NOTE B., NOTE C.
6	DOUBLER	0.040 2024-T4 CLAD	0.050 2024-T4 CLAD	NOTE B., NOTE C.

- NOTES:**
- A. ALL DIMENSIONS ARE IN INCHES.
 - B. TM 1-1500-204-23.
 - C. THIS PART IS USED ON AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.

Former Repairs — Aft Fuselage Structure (Sheet 29 of 32)



Former Repairs - Aft Fuselage Structure
(Sheet 30 of 32)



**Former Repairs – Aft Fuselage Structure
(Sheet 31 of 32)**

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued)

2-18

FORMER STATION 594

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.050	7075-T6 CLAD	0.050	7075-T6 CLAD	2-13
2	CAP	AND10136-2006	7075-T6	0.125	4130	NOTE D.
3	CAP	VS90307	7075-T6	0.125	4130	NOTE D.
4	ANGLE	AND10134-1205	7075-T6	0.100	4130	NOTE D.
5	ANGLE	VS90307	7075-T6	0.125	4130	NOTE D.
6	STIFFENER	AND10136-1401	7075-T6	NOTE E.		2-29
7	STIFFENER	ALCOA 15820	7075-T6	0.080	4130	2-29
8	CAP	VS90311	7075	0.125	4130	NOTE D.
9	FITTING		2014-T6	NOTE B.		
10	TEE	ALCOA 43774	7075-T6511	ALCOA 43774	7075-T6511	NOTE D.
10.1	TEE	ALCOA 52361	7075-T6511	ALCOA 52361	7075-T6511	NOTE D.
11	SUPPORT			NOTE C.		
12	DOUBLER	0.063	2024-T3	0.063	2024-T3	NOTE D.
	SEAL ASSY	BAC1521-204		NOTE E.		NOTE F.
13	WEB	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	2-13
14	STIFFENER	AND10134-1006	7075-T6	0.100	4130	2-29
15	CAP	VS90312	7075-T6	0.125	4130	NOTE D.
16	STIFFENER	0.080	7075-T6 BARE	0.090	7075-T6 CLAD	2-29
16.1	CHANNEL	0.090 CRES	MIL-S-25043, 17-7 PH	0.090 CRES	MIL-S-25043, 17-7 PH	NOTE D.
	CHANNEL	0.050 CRES	17-7 PH	0.050 CRES	17-7 PH	NOTE F.
17	CHANNEL	0.090 CRES	MIL-S-25043, 17-7 PH	0.090 CRES	MIL-S-25043, 17-7 PH	NOTE D.
18	WEB	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD	2-13
19	STRAP	0.063 CRES	17-7 PH	0.063 CRES	17-7 PH	2-13
20	STIFFENER	AND10133-0601	7075-T6 EXTR	0.070	4130	2-29
21	CHANNEL	0.071	7075-T6 BARE	0.080	7075-T6 CLAD	NOTE D.
22	CAP	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE D.
	STIFFENER	0.080	2024-T42	0.090	2024-T42 CLAD	NOTE F.
23	CAP	ALCOA 33495	BARE	0.040	4130	NOTE D.
			7075-T6511	NOTE E.		
24	STIFFENER	0.090	7075-0	0.090	7075-0	2-29
	DOUBLER	0.063	2024-T3	0.071	2024-T3	NOTE D.
25	STIFFENER	0.080	2024-T3	0.080	2024-T3	2-29

- NOTES:**
- A. All dimensions are in inches.
 - B. Replace with new fitting 11453848.
 - C. Replace with new support 14553805.
 - D. TM 1-1500-204-23.
 - E. For damage other than minor replace with section of original material.
 - F. This part is used on aircraft serial numbers 92-0387 and 92-0368.

Former Repairs — Aft Fuselage Structure (Sheet 32 of 32)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All Aircraft Through Serial #86-1671

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

- Epoxy Primer (E292.1)
- Gloves (E184.1)
- Steel (E368.1)
- Aluminum (E71.2)

Parts:

Rivets

Personnel Required:

Aircraft Structural Repairer
Inspector

Equipment Condition:

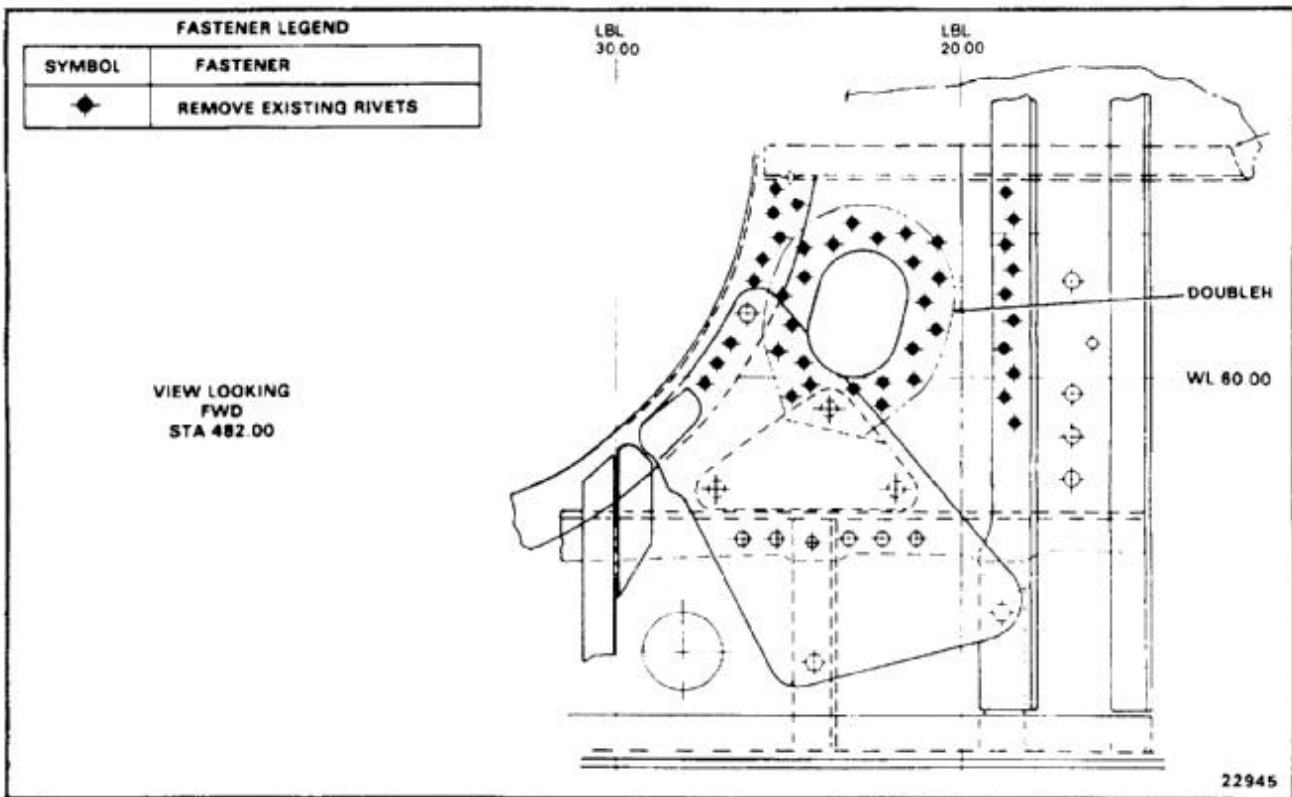
- Battery Disconnected (Task 1-39)
- Electric Power Off
- Hydraulic Power Off
- Walking Beam Bellcrank Removed (Task 11-248)
- Forward and Aft Bellcrank Supports Removed (Task 11-251.1)

General Safety Instructions:

WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

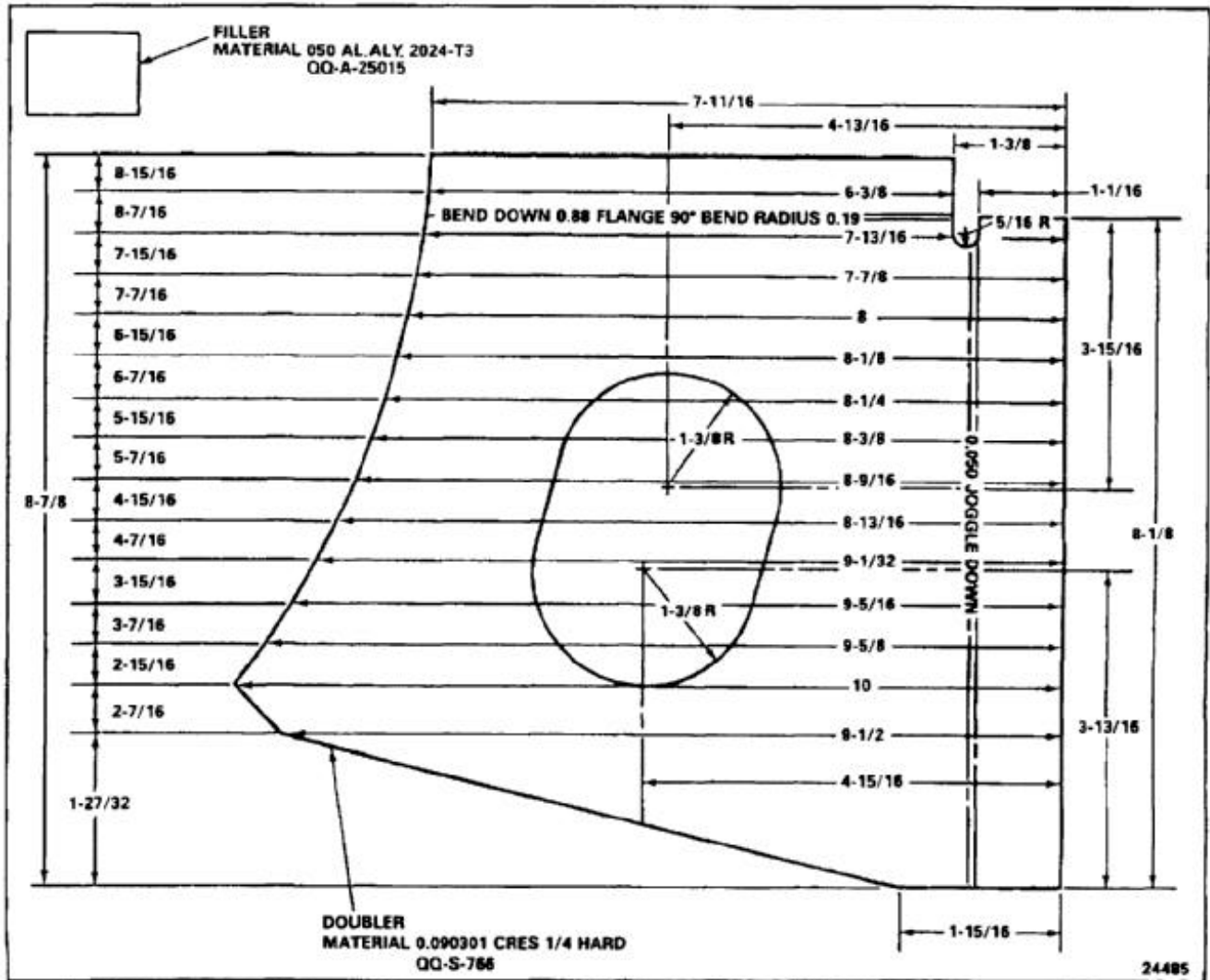
1. Drill out existing rivets. Remove doubler.
2. Drill stop holes at ends of cracks. Use approximately a No. 41 drill bit.



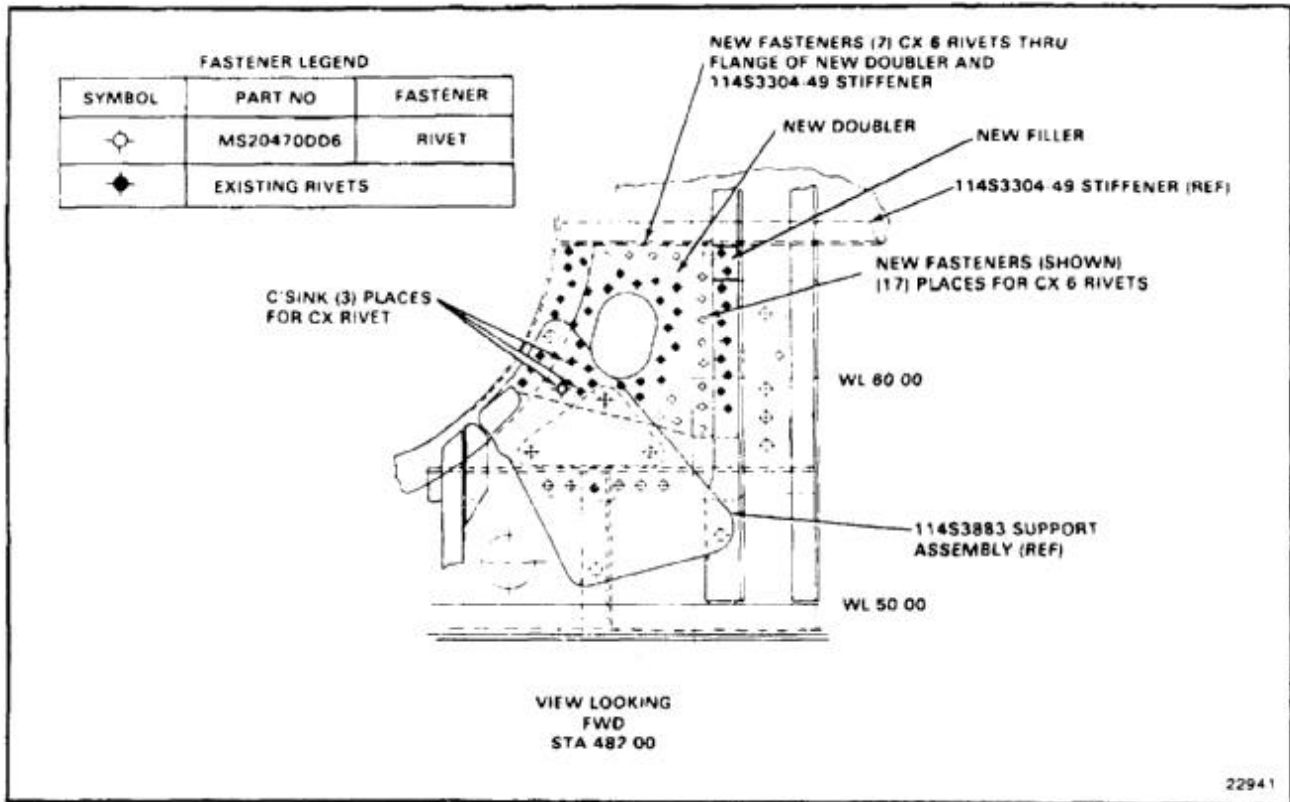
2-18.1 STA. 482 BELLCRANK SUPPORT FITTING FORMER REPAIR (Continued)

2-18.1

3. Fabricate new doubler. Use steel sheet (E368.1) 0.090 thick.
4. Fabricate filler if required. Use aluminum sheet (E71.2).



5. Fit doubler and filler to forward side of frame sta. 482.
 6. Drill existing rivet holes in doubler and filler.
 7. Drill 17 new rivet holes in doubler. Use No. 11 drill bit.
 8. Drill 7 new rivet holes through stiffener (114S3304-49) and flange of doubler. Use No. 11 drill bit.
 9. Countersink 3 holes under support assembly (114S3883) to 100°.
 10. Remove doubler and filler. Deburr as required.
 11. Prime parts. Use epoxy primer (E292.1). Wear gloves (E184.2).
 12. Install doubler and filler.
- INSPECT**
- FOLLOW-ON MAINTENANCE:**
- As Required



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Inspector

References:

Task 2-18

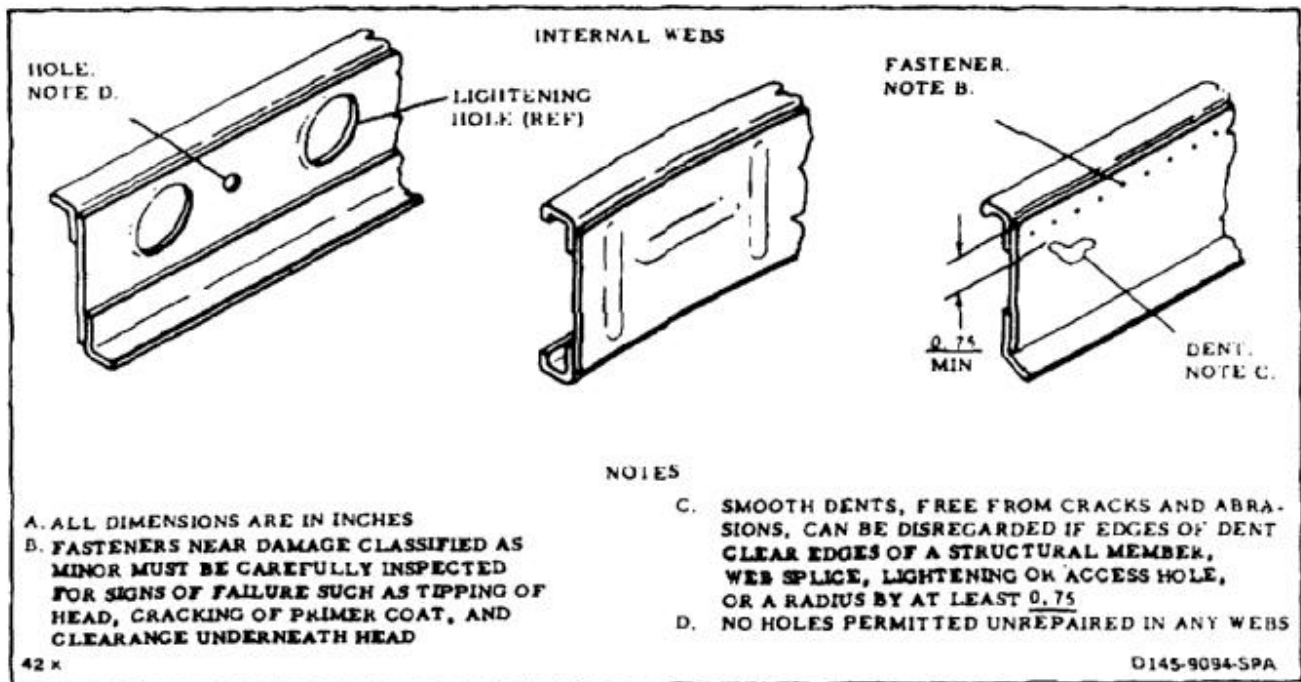
Equipment Condition:

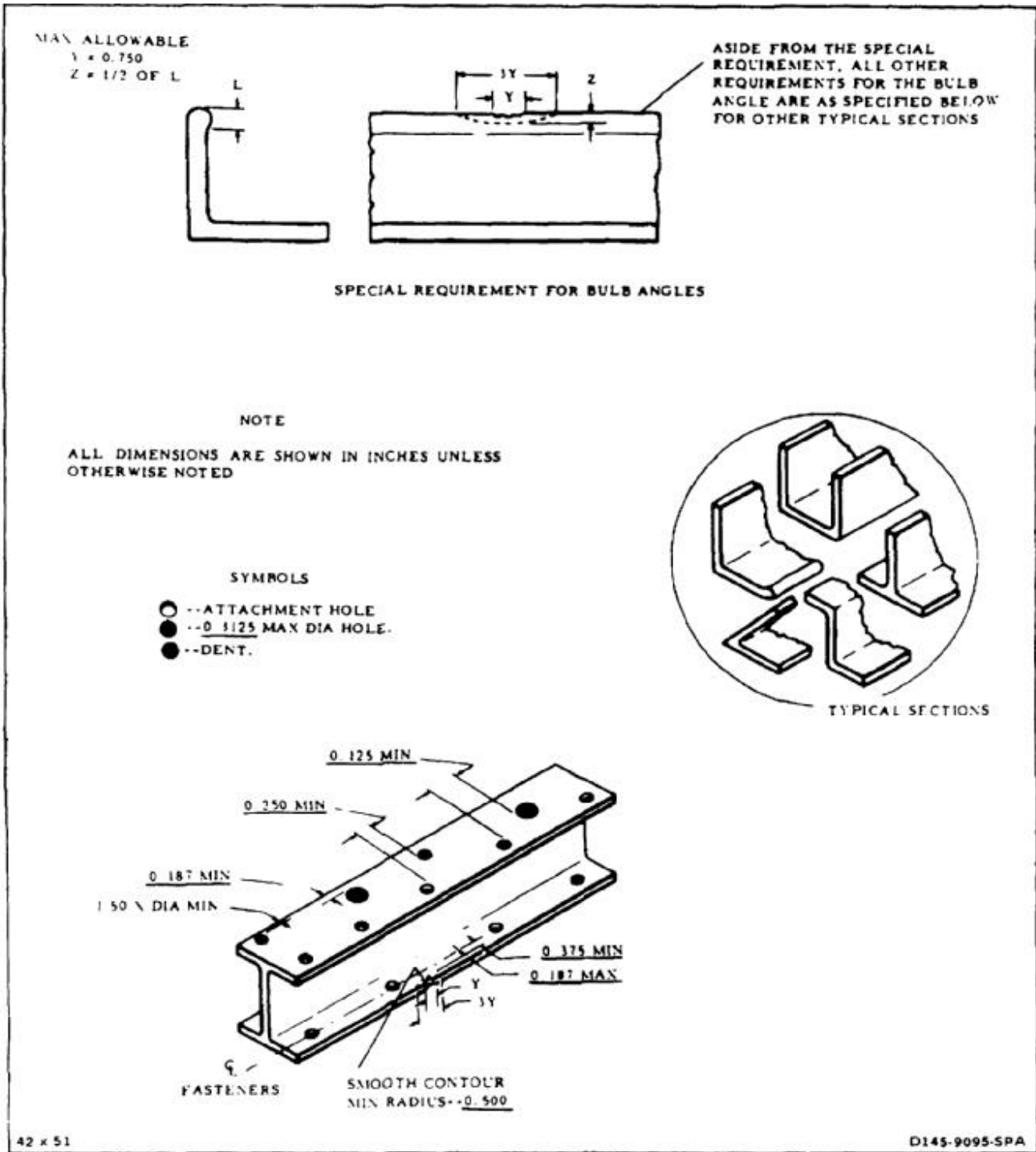
As Required

General Safety Instructions:

As Required

1. Minor damage is damage which can exist as is. Also, damage that can be fixed easily such as burnishing nicks and scratches and removal of small damaged areas is considered minor. For specific former location refer to Task 2-18.
2. Damage must clear bolts, rivets, and radiuses a minimum of **0.75 inch**.
3. Damage to fittings is limited to burnishing which will not reduce area thickness more than **10 percent**.
4. Certain splice attachment hardware holes may be **0.015 inch** oversize.





FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-20 FORMER REPAIRABLE DAMAGE (GENERAL INFORMATION) (AVIM)**2-20****INITIAL SETUP****Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-19
TM 1-1500-204-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Damage more extensive than minor (Task 2-19) but not exceeding **one-half** web cross section shall be repaired by patching.
2. Damage more than **one-half** of web cross section, or that removes the heel of an extruded section shall be repaired by insertion (TM 1-1500-204-23).
3. Extensive damage, as loss of major portion of former or numerous isolated damages requires replacement in whole or part.
4. Damage to fittings joining the bottom sections to the side sections requires replacement of bottom (bonded assembly) section.
5. Damaged fittings, clips, and small brackets or supports require replacement.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

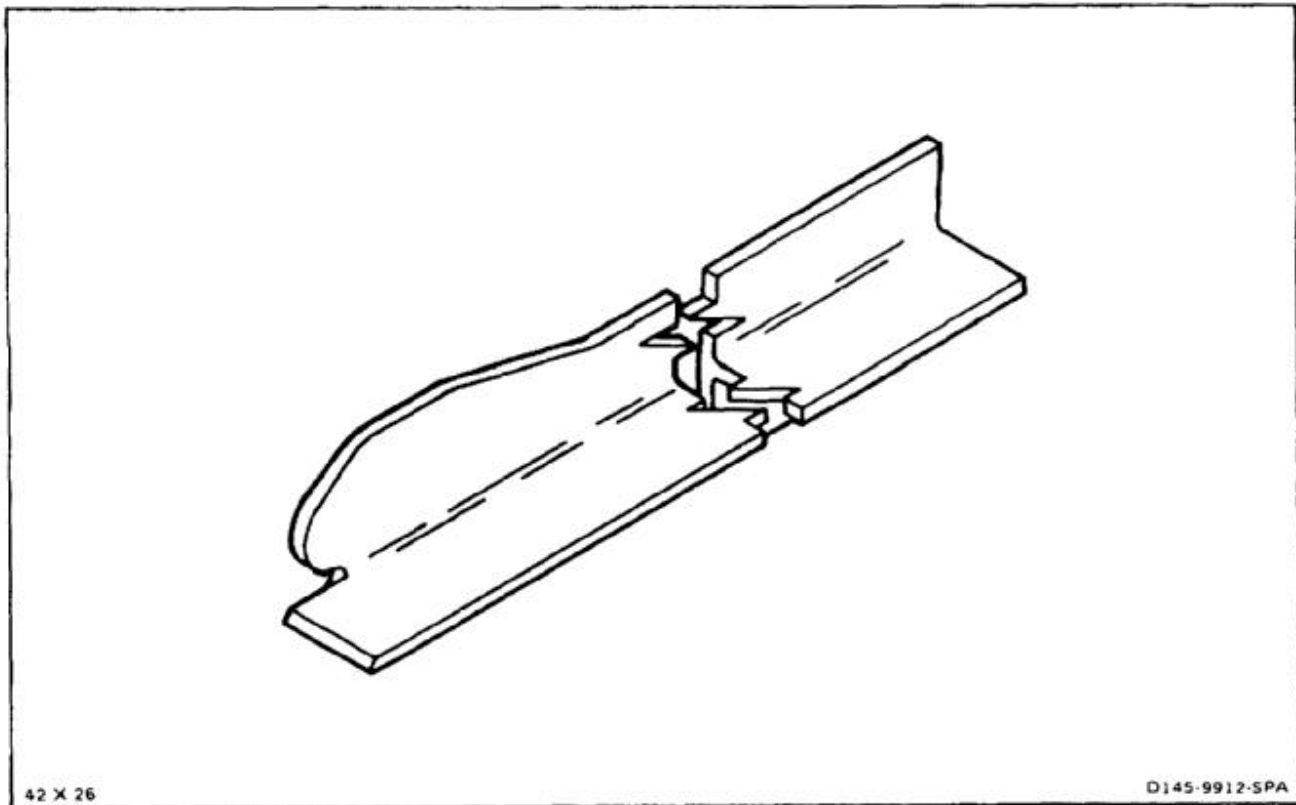
Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-22
Task 2-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Longerons are extruded aluminum alloy members variously located in the fuselage assemblies. Longerons are similar to stringers in function.
2. Damage to longerons shall be classified as minor (Task 2-22) or repairable (Task 2-23).

**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-144

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-23

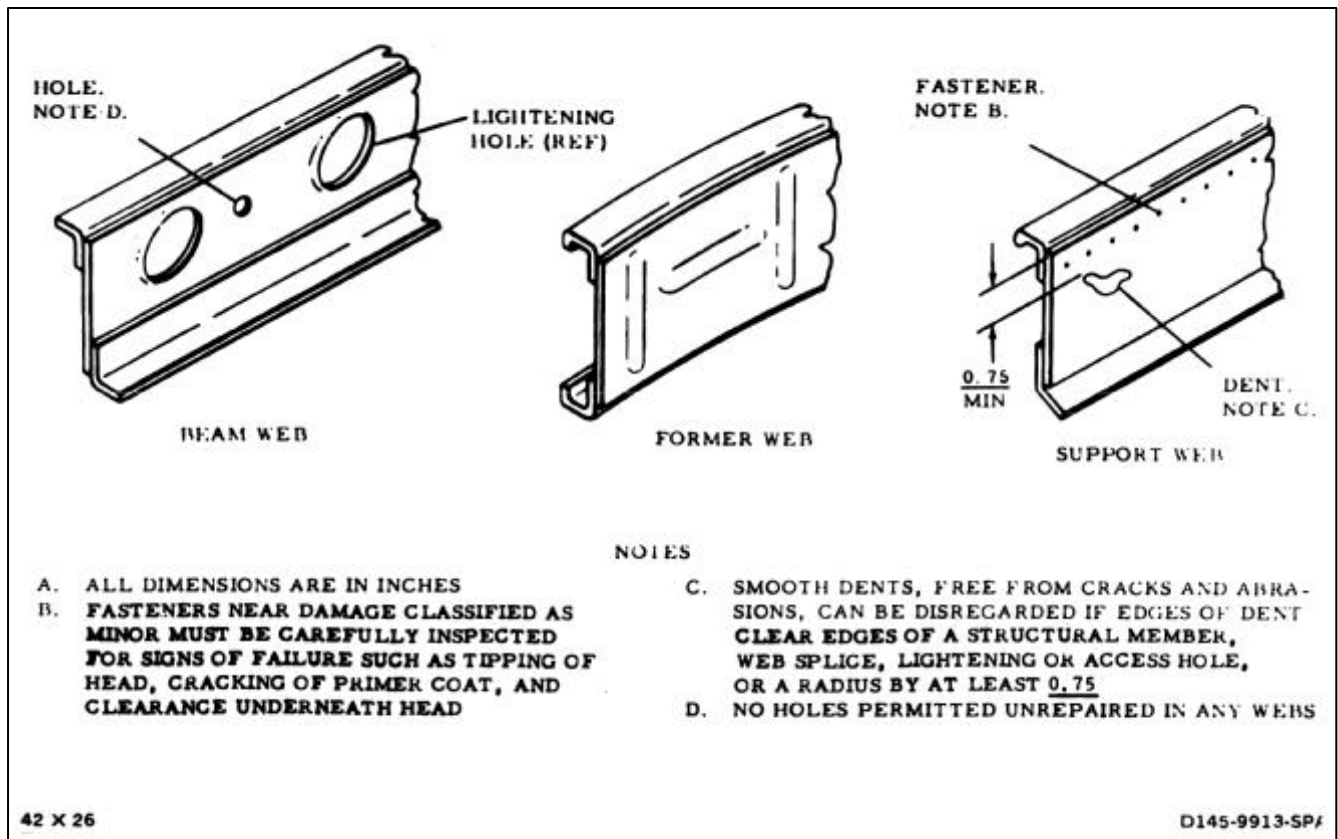
Equipment Condition:

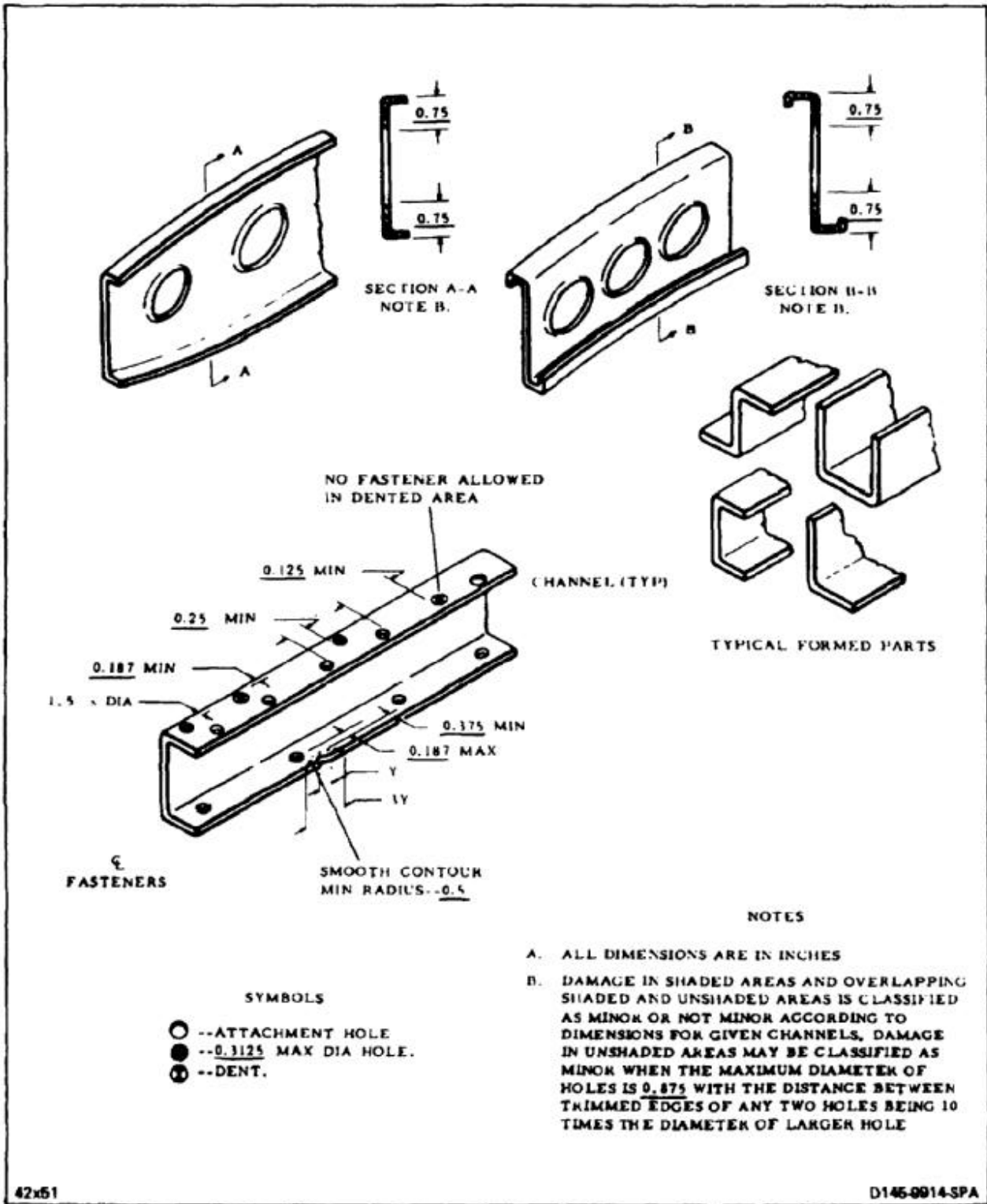
As Required

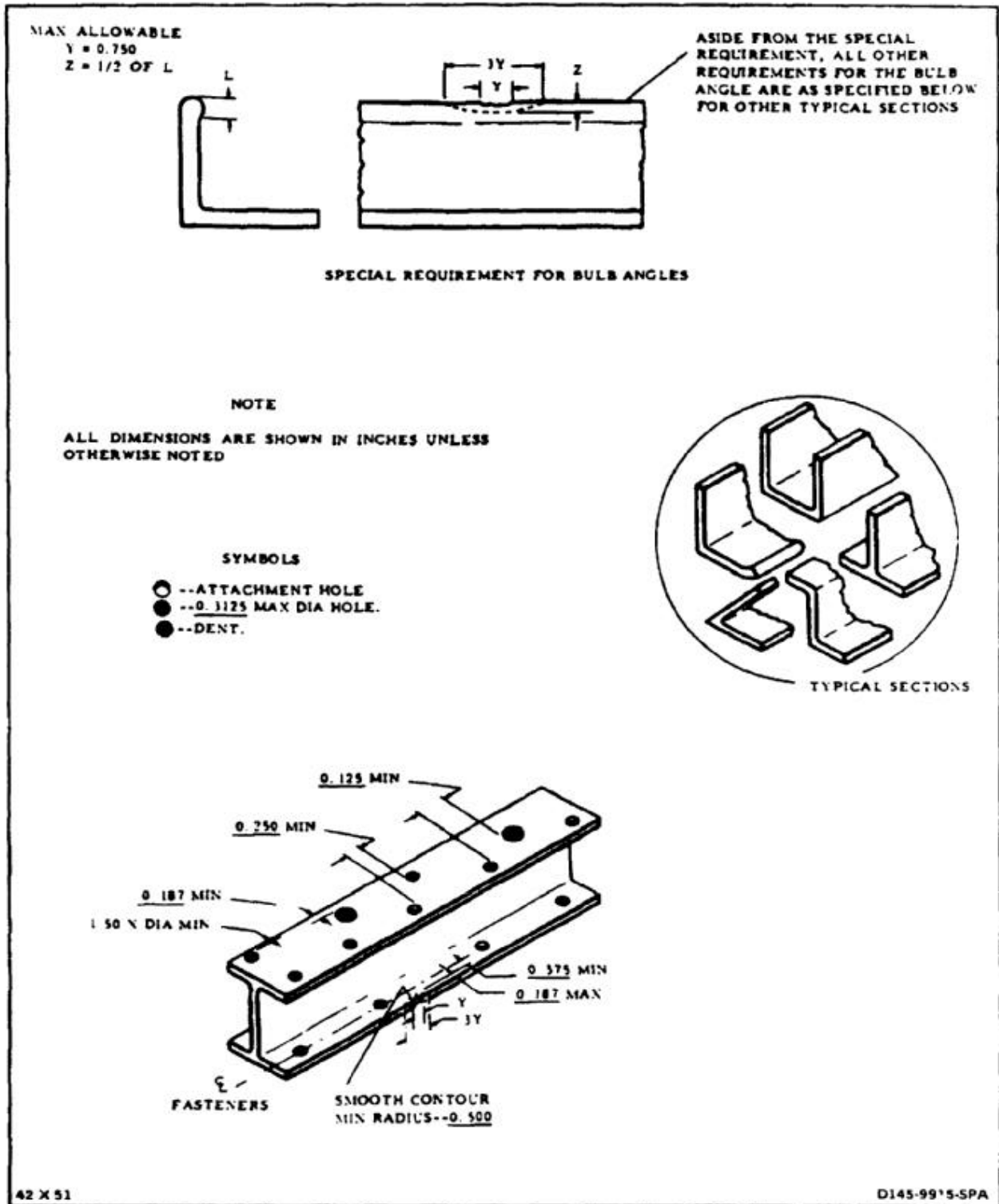
General Safety Instructions:

As Required

1. Minor damage is damage which can be fixed easily, such as burnishing of nicks and scratches and removal of small damaged areas.
2. Burnished areas shall clear bolts, rivets and radiuses a minimum of **0.75 inch** and shall exceed a depth equal to **10 percent** of material thickness.
3. See examples of damage to internal webs and formed parts and to extruded sections.
4. For AVIM damage repair see Task 2-23.







FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-7
Task 2-22
Task 2-336**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. For damage classifications for extruded parts, refer to Tasks 2-22 and 2-336.
2. Repair damage to the web affecting less than **one-half** of a web cross section by patching (Task 2-22).
3. If damage to the web affects more than **one-half** of a web cross section, repair it by insertion (Task 2-7).

4. Replace longeron if a major portion of the longeron is damaged, or if there are many isolated damages (Task 2-336).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-24 REPAIR BEAMS

2-24**INITIAL SETUP****Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

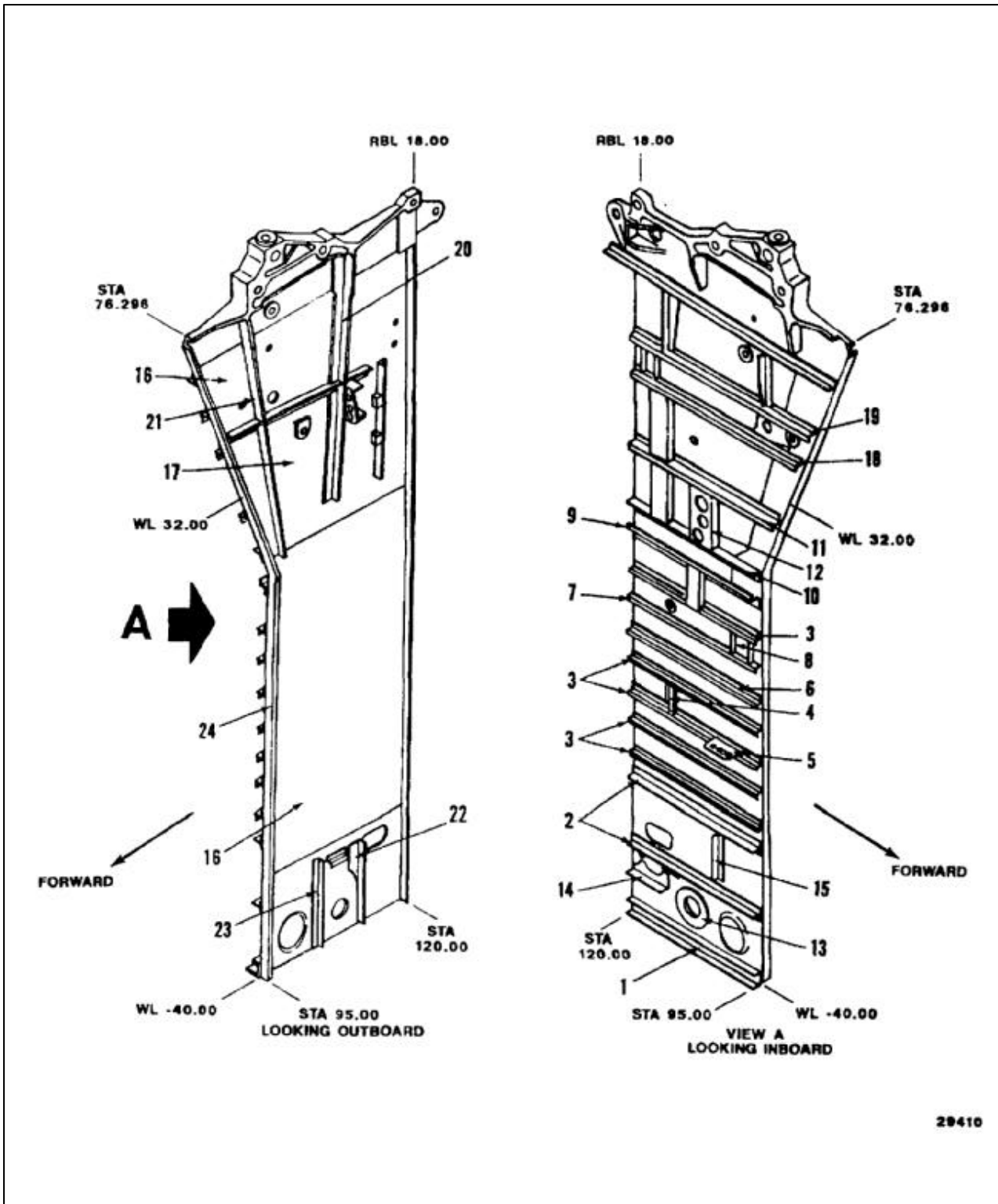
Personnel Required:Aircraft Structural Repairer
Inspector**References:**TM 1-1500-204-23
Task 2-25
Task 2-26
Task 2-310
Task 2-336
Task 16-9.1
Task 16-10**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Beams are made of aluminum alloy webs reinforced with formed and extruded stiffeners. Beams provide support for cockpit, cabin, ramp, aft fuselage and aft pylon structure.
2. Damage to beams shall be classified as minor (Task 2-25), repairable (Task 2-26), and damage requiring replacement.
3. Damage such as loss of a major portion of a beam section or an individual member is considered extensive damage. The beam section or individual member must be replaced.



Beam Repairs – Fuselage Structure Assembly (Sheet 1 of 15)

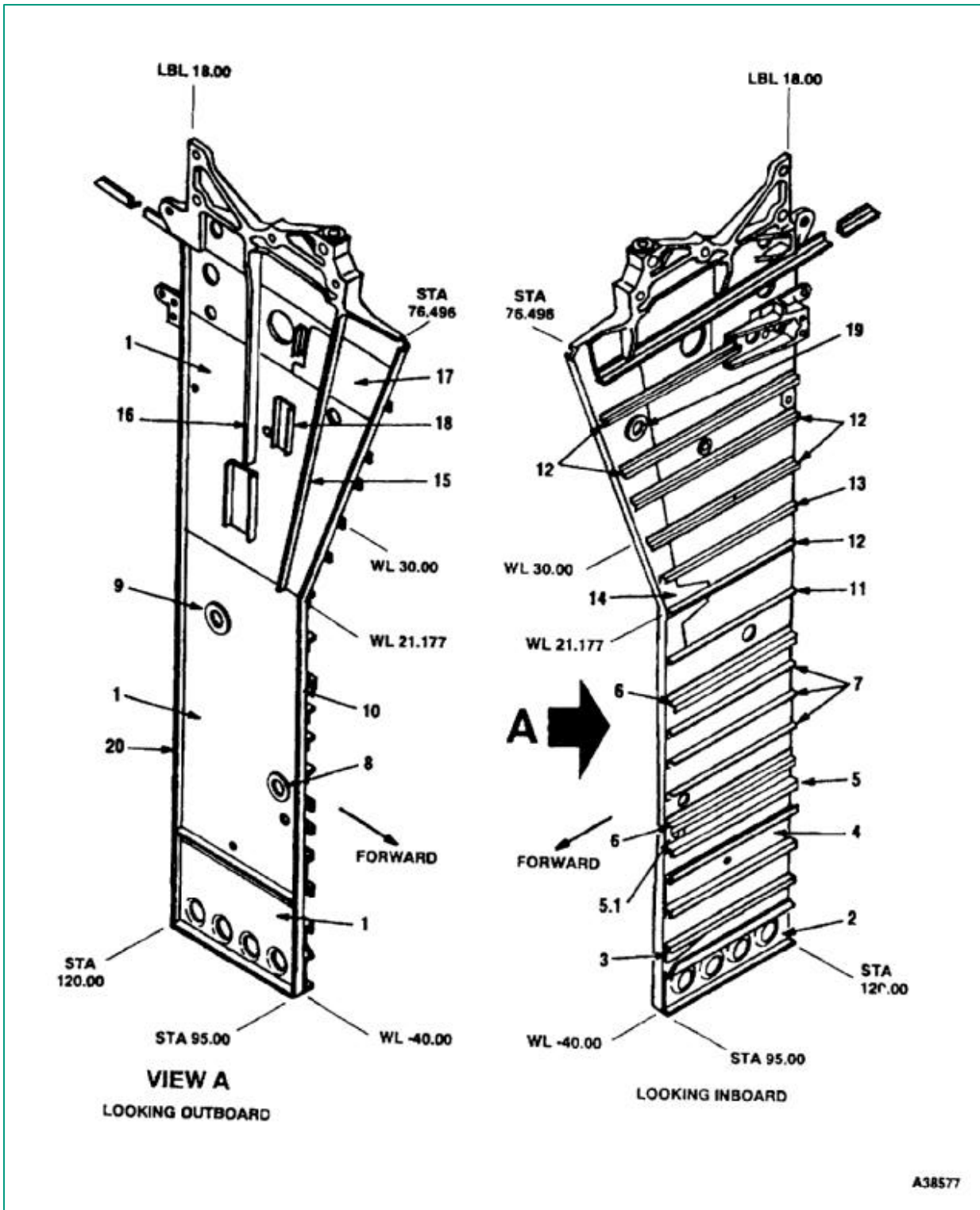
RIGHT SIDE BEAM — BUTT LINE 18.0 STATION 95.0 - 120.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	STIFFENER	ALCOA 22477	7075-T6 EXTR.	0.040	4130	2-30
2	STIFFENER	AND10136-2001	7075-T6 EXTR.	0.080	4130	2-30
3	STIFFENER	0.032	2024-T3 CLAD	0.040	2024-T3 CLAD	2-30
4	ZEE	0.032	2024-T3 CLAD	NOTE B.	NOTE C.	NOTE D.
5	BRACKET	0.050	2024-T3 CLAD	NOTE B.	NOTE C.	NOTE D.
6	STIFFENER	0.032	2024-T3 CLAD	0.040	2024-T3 CLAD	2-30
7	STIFFENER	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	2-30
8	DOUBLER	0.032	2024-T3 CLAD	NOTE B.	NOTE C.	NOTE D.
9	ZEE	0.063	7075-T72 BARE	NOTE C.	—	NOTE D.
10	STIFFENER	AND10133-1203	7075-T6511 EXTR.	0.125	4130	2-30
11	STIFFENER	AND10139-0707	7075-T6511 EXTR.	0.071	4130	2-30
12	BRACKET	0.040	2024-T3 BARE	NOTE C.	—	NOTE D.
13	DOUBLER	0.050	7075-T6 BARE	NOTE C.	—	NOTE D.
14	ANGLE	0.040	2024-T3 CLAD	NOTE C.	—	NOTE D.
15	STIFFENER	AND10136-1403	7075-T6 EXTR.	NOTE B.	NOTE C.	NOTE D.
16	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-15
17	WEB	0.050	7075-T6 BARE	0.100	4130	2-15
18	ANGLE	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-30
19	STIFFENER	0.050	7075-T6 BARE	0.063	7075-T6 CLAD	2-30
20	ANGLE	0.050	7075-T73	0.063	7075-T6 CLAD	2-30
21	ANGLE	AND10134-1604	7075-T6511 EXTR.	0.125	4130	2-336.1
22	TEE	ALCOA 32220	7075-T6 EXTR.	NOTE B.	NOTE C.	NOTE D.
23	STIFFENER	AND1013B-1403	7075-T6 EXTR.	NOTE B.	NOTE C.	NOTE D.
24	CAP	AND10134-2407	7075-T6 EXTR.	0.125	4130	2-336.1

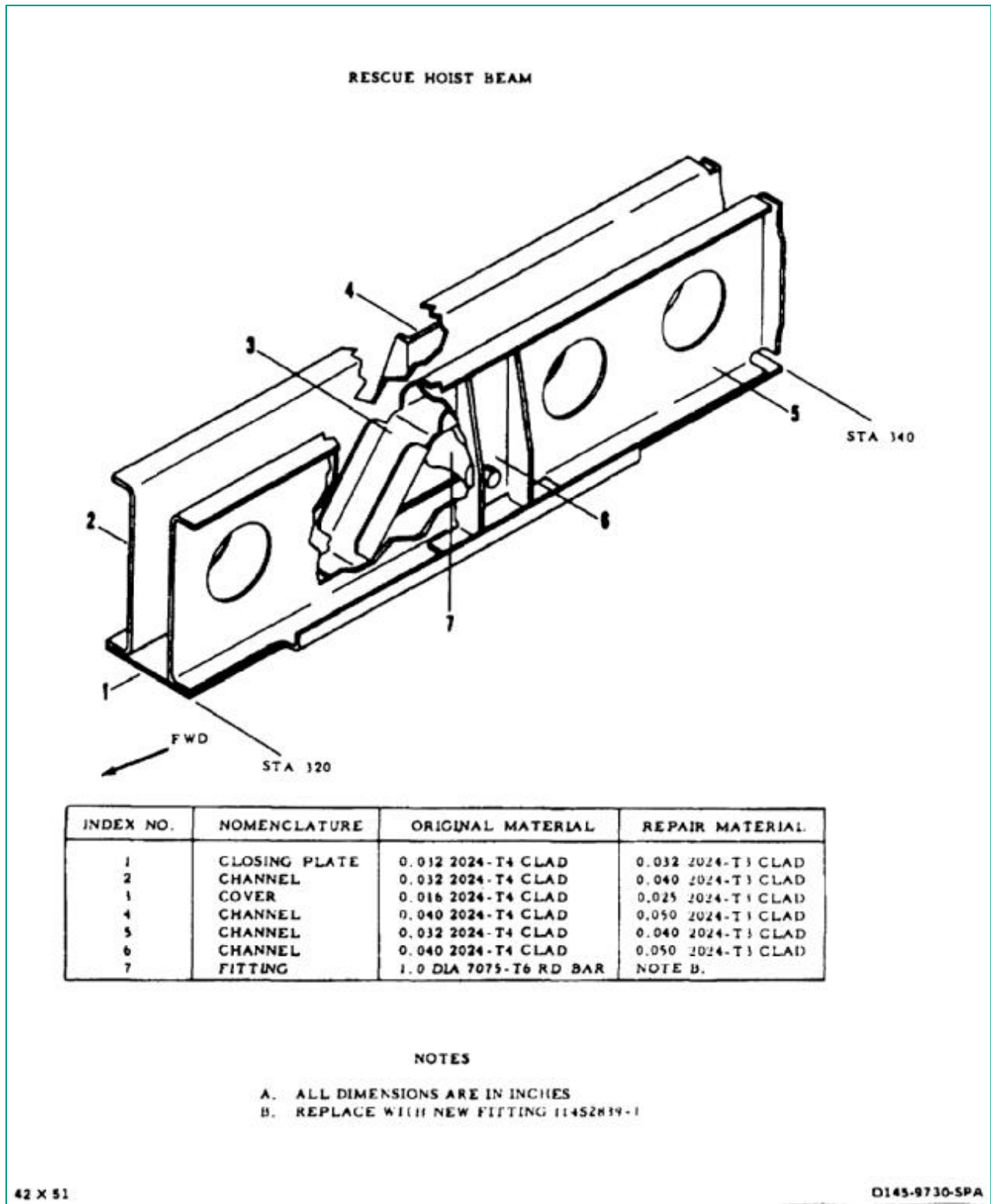
LEFT SIDE BEAM — BUTT LINE 18.0 STATION 95.0 - 120.0

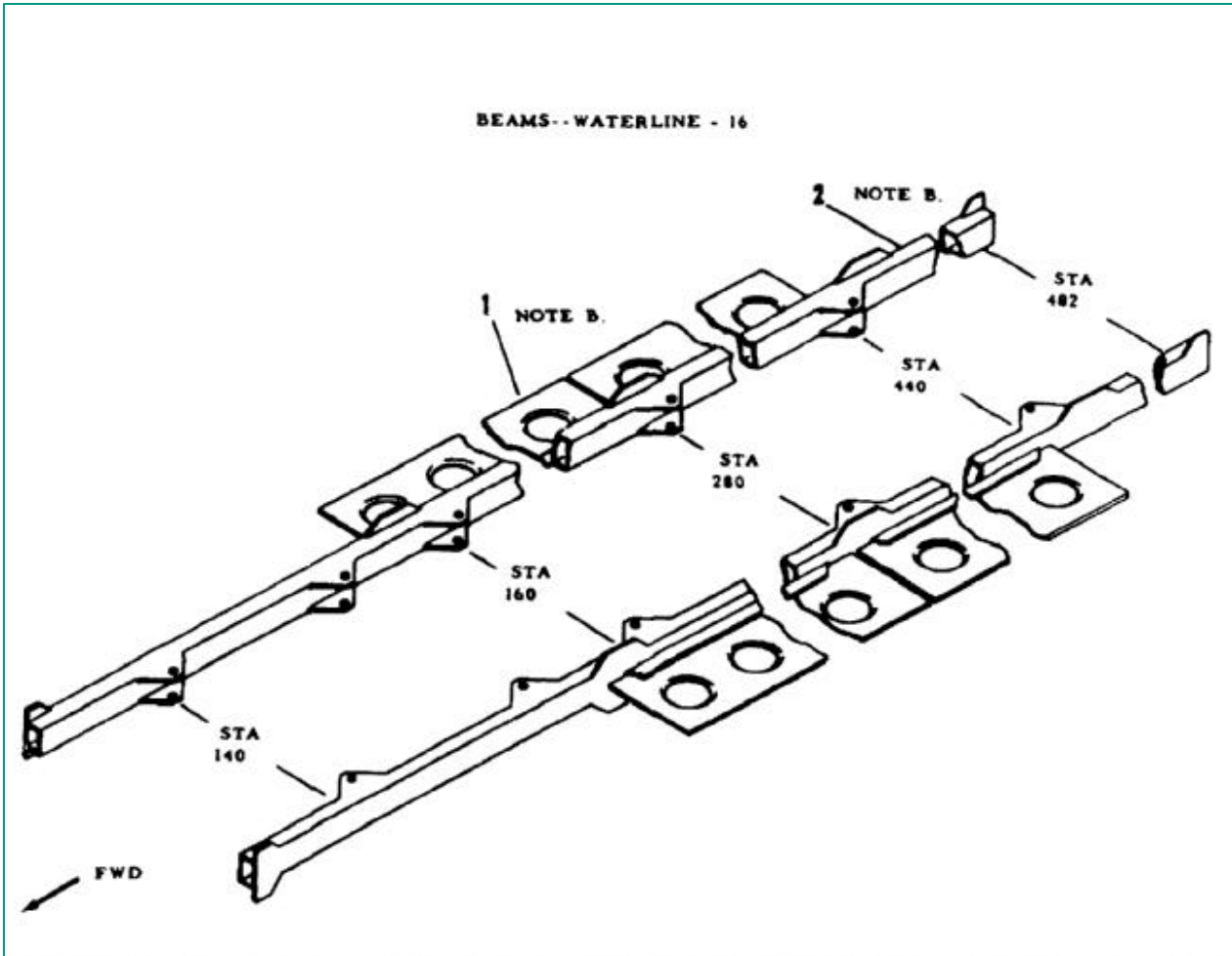
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-15
2	CHANNEL	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	2-30
3	SUPPORT	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	2-30
4	CHANNEL	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	2-30
5	CHANNEL	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-30
5.1	DOUBLER	0.032	7075-T6 BARE	NOTE B.	NOTE E.	NOTES D. & F.
6	STIFFENER	0.032	2024-T3 CLAD	0.040	2024-T3 CLAD	NOTE F.
7	STIFFENER	AND10134-1003	7075-T6511 EXTR.	0.071	4130	NOTE F.
8	DOUBLER	0.032	7075-T6 BARE	NOTE E.	NOTE B.	NOTE D.
9	DOUBLER	VS25604D58J1	—	NOTE C.	—	NOTE D.
10	CAP	AND10134-2407	7075-T6511 EXTR.	0.125	4130	2.336.1
11	ANGLE	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	2-30
12	STIFFENER	0.080	7075-T6 BARE	0.080	7075-T6 CLAD	2-30
13	CHANNEL	0.050	7075-T6 BARE	0.063	7075-T6 CLAD	2-30
14	GUSSET	0.071	7075-T6 BARE	0.071	7075-T6 CLAD	2-15
15	ANGLE	0.090	7075-T6 BARE	0.090	7075-T6 CLAD	2-30
16	ANGLE	0.071	7075-T6 BARE	0.071	7075-T6 CLAD	2-30
17	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-15
18	CHANNEL	0.063	7075-T6 BARE	NOTE B.	NOTE E.	NOTE D.
19	DOUBLER	0.063	7075-T6 BARE	NOTE B.	NOTE E.	NOTE D.
20	CAP	AND134-2403	7075-T6511 EXTR.	0.125	4130	2-336.1

- NOTES:**
- A. All dimensions are in inches.
 - B. More practical to replace.
 - C. Replace/repair with original material.
 - D. TM 1-1500-204-23.
 - E. Replace with CLAD material.
 - F. This part is used on aircraft serial numbers 92-0367 and 92-0368.



Beam Repairs - Fuselage Structure Assembly (Sheet 3 of 15)





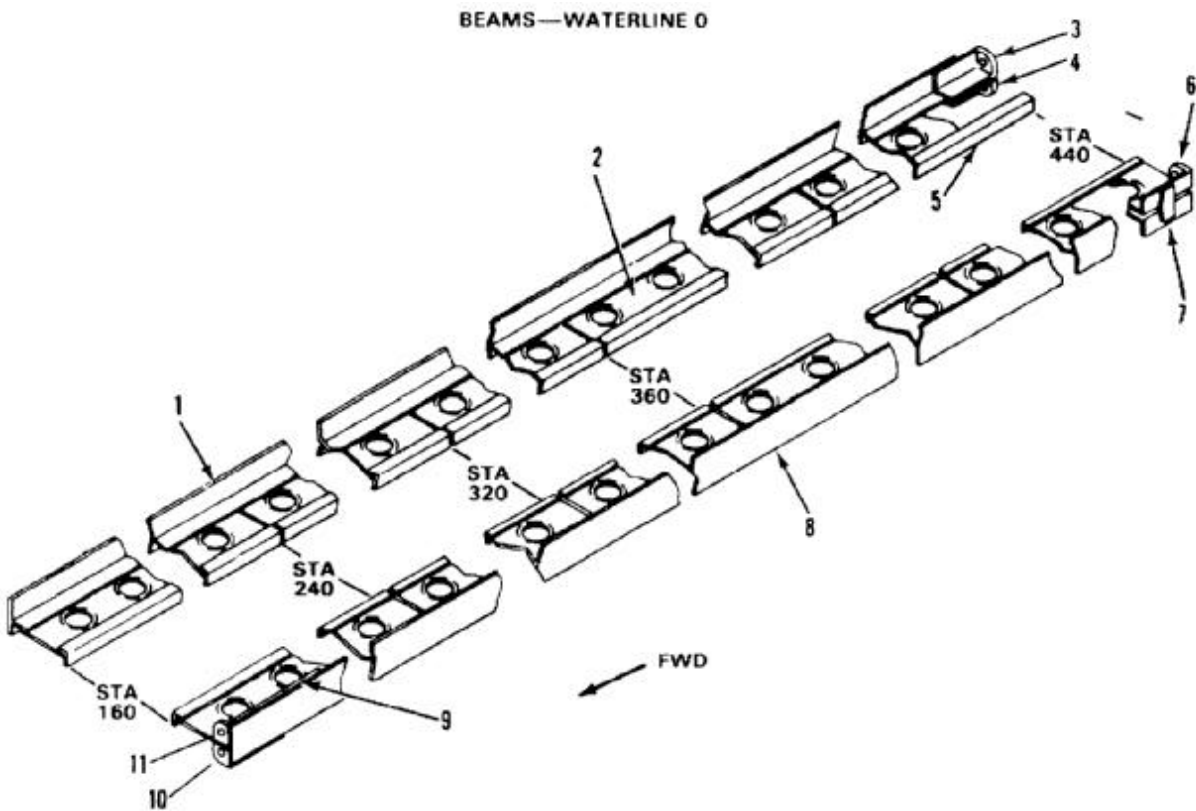
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	WEB	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13
2	SEAT RAIL SUPPORT	V590517 MAG ZK60A-T5	NOTE C.	--

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. ALL WEBS AND SEAT RAIL SUPPORTS ARE SIMILAR IN CONSTRUCTION. ORIGINAL AND REPAIR MATERIALS, AND FIGURE REFERENCES ARE APPLICABLE TO ALL WEBS AND SEAT RAIL SUPPORTS
- C. IF THE SEAT RAIL SUPPORT (2) IS DAMAGED, A LENGTH OF EXTRUSION, MACHINED TO THE CONFIGURATION OF THE ORIGINAL SECTION, SHOULD BE USED AS SHOWN IN TASK 2-336

42 X 51

D145-9731-5PA

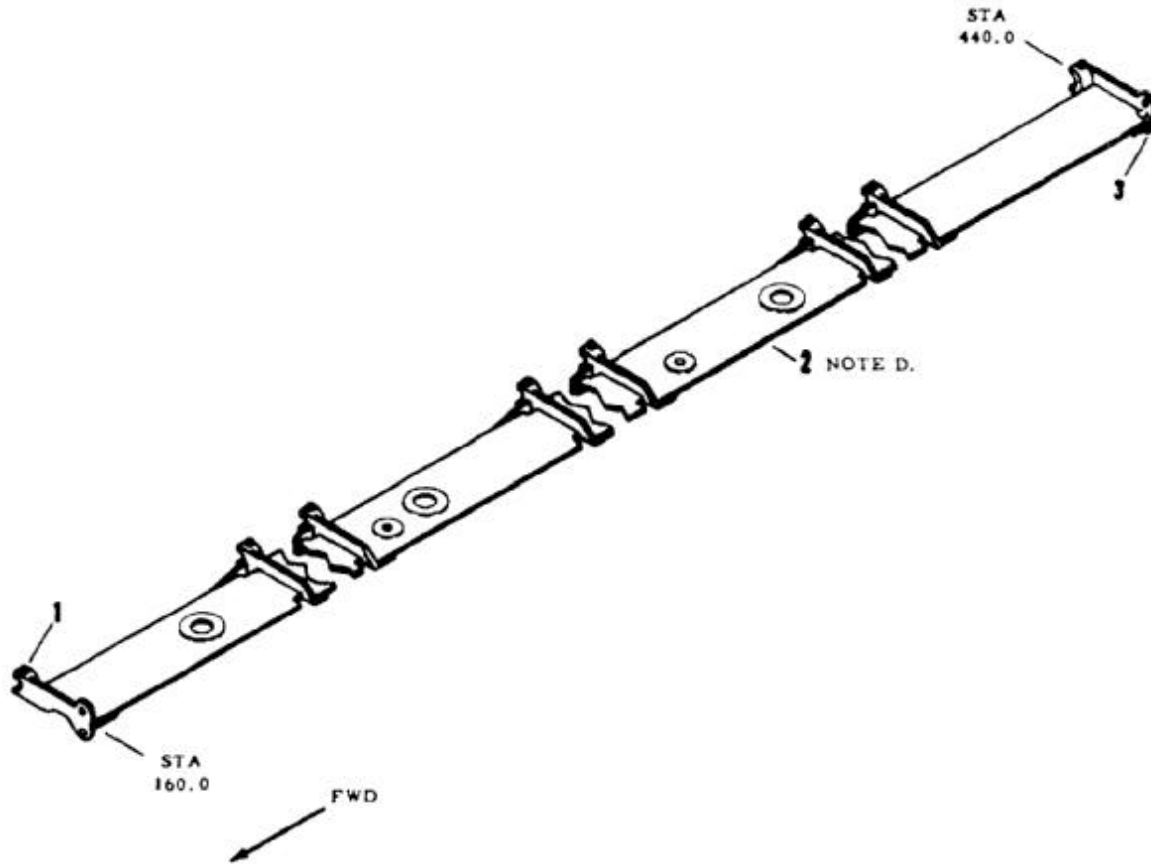


INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	STRINGER, RH	VS90315 7075-T6	0.090 4130	NOTE F.
2	WEB	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	2-13
3	FITTING	7075-T6 EXTRUSION	NOTE C.	—
4	FITTING	7075-T6 EXTRUSION	NOTE D.	—
5	CAP	AND10133-0601 7075-T6	0.071 4130	NOTE F.
6	FITTING	7075-T6 EXTRUSION	NOTE C.	—
7	FITTING	7075-T6 EXTRUSION	NOTE D.	—
8	STRINGER, LH	VS90315 7075-T6	0.090 4130	NOTE F.
9	FILLER	0.063 2024-T4 CLAD	0.063 2024-T3 CLAD	—
10	FITTING	7075-T6 EXTRUSION	NOTE D.	—
11	FITTING	7075-T6 EXTRUSION	NOTE E.	—

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. ONLY ONE WEB (2) AND ONE CAP (5) ARE INDEXED. ALL WEBS AND CAPS ARE SIMILAR IN CONSTRUCTION. REPAIR DATA LISTED IS APPLICABLE TO SIMILAR PARTS
- C. REPLACE WITH NEW FITTING 114S2818-7 LH OR -8 RH
- D. REPLACE WITH NEW FITTING 114S2818-9 LH OR -10 RH
- E. REPLACE WITH NEW FITTING 114S2818-5
- F. TM 55-1520-240-23

TROOP SEAT BACKREST AND LITTER POLE BEAMS -- WATERLINE+29.0



Index No.	Nomenclature	Original Material	Repair Material
1	Fitting	7075-T6	NOTE B.
2	Beam	0.020 7075-T6 CLAD	0.032 7075-T6 CLAD
3	Fitting	7075-T6 FORGING	NOTE C.

NOTES

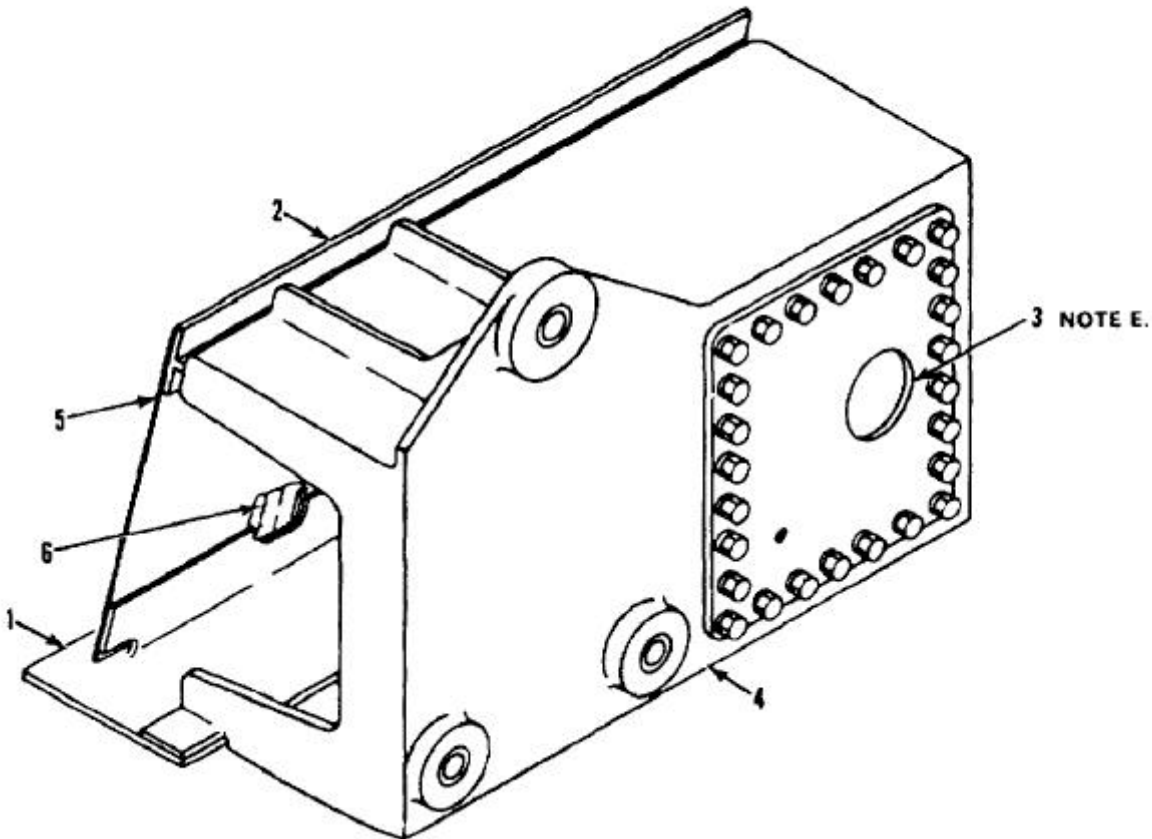
- A. ALL DIMENSIONS ARE IN INCHES
- B. REPLACE WITH NEW FITTING 114S2837-3 LH,
OR -2 RH
- C. REPLACE WITH NEW FITTING 114S2837-1 LH,
OR -5 RH
- D. THE LH BEAM IS SHOWN. THE RH BEAM IS
SIMILAR IN CONSTRUCTION. REPAIR DATA
IS APPLICABLE TO BOTH

42 X 51

D145-9733-SPA

Beam Repairs - Fuselage Structure Assembly (Sheet 7 of 15)

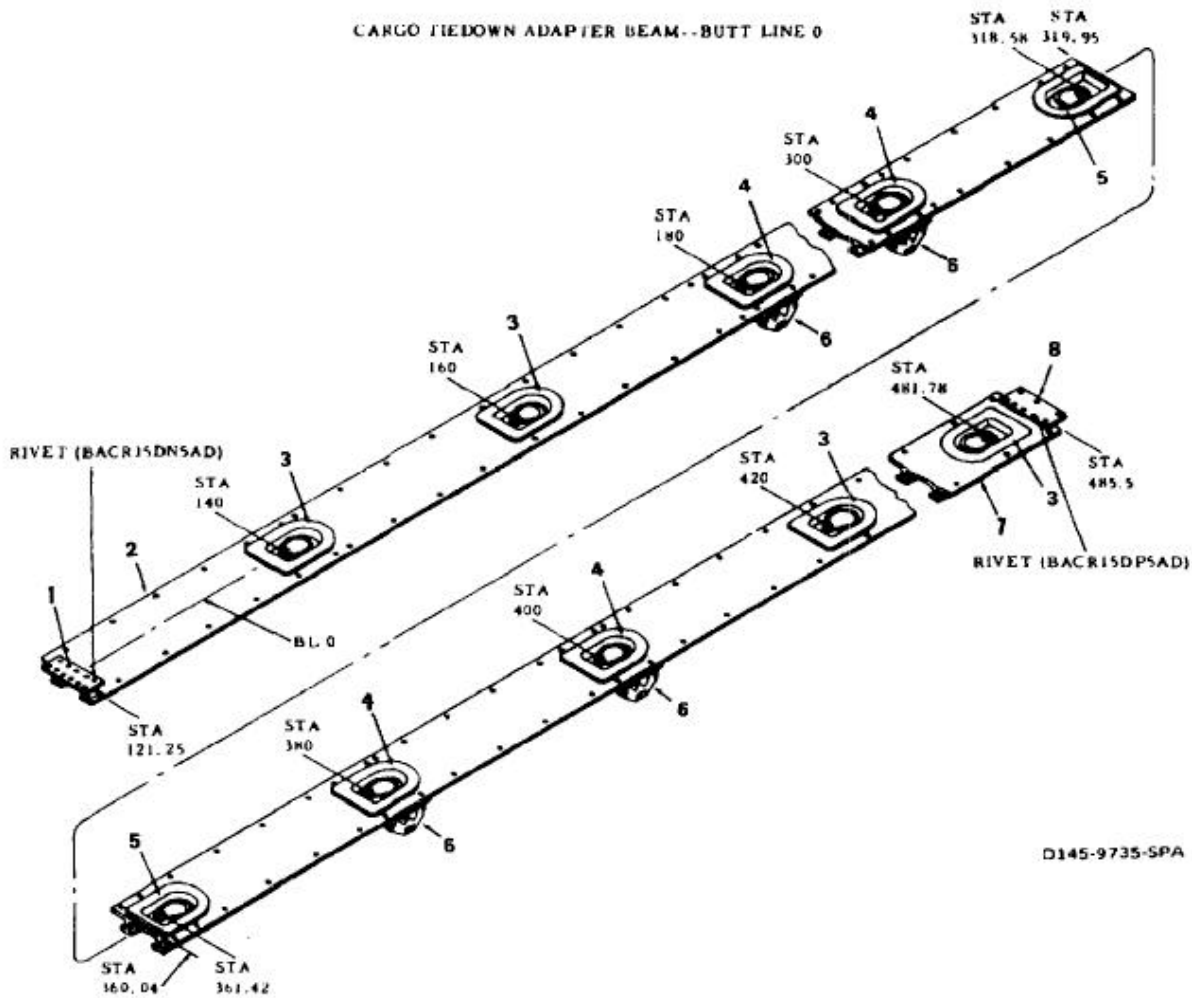
FORWARD LANDING GEAR SUPPORT BEAM



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	T-SECTION	VS90314 7075-T6	NOTE B.	—
2	T-SECTION	VS90311 7075-T6	NOTE B.	—
3	ACCESS DOOR	0.125 7075-T6 BARE 0.250 7050-T6 BARE	0.725 7075-T6 CLAD 0.250 7075-T6 CLAD	2-13 NOTE G.
4	FITTING ASSEMBLY	2014-T6 FORGING	NOTE C.	—
5	SKIN	0.050 7075-T6 CLAD	0.063 7075-T6 CLAD	2-13
6	ANGLE	AND10133-0601 7075-T6	0.063 4130	NOTE F.

- NOTES:**
- A. ALL DIMENSIONS ARE IN INCHES.
 - B. REPLACE WITH NEW T-SECTION CORRESPONDING TO ORIGINAL MATERIAL.
 - C. REPLACE WITH NEW FITTING 114S2B 18-1 LH, OR -2 RH.
 - D. THE FAYING SURFACES OF ALL REPAIR AND REPLACEMENT PARTS AND ALL OPENINGS AND GAPS MUST BE SEALED AS DIRECTED IN TASK 2-324.
 - E. PATCHING IS PERMISSIBLE. IF THE DAMAGE REQUIRES REPAIR BY INSERTION, THE ACCESS DOOR MUST BE REPLACED.
 - F. TM 1-1500-204-23.
 - G. THIS PART IS USED ON AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.

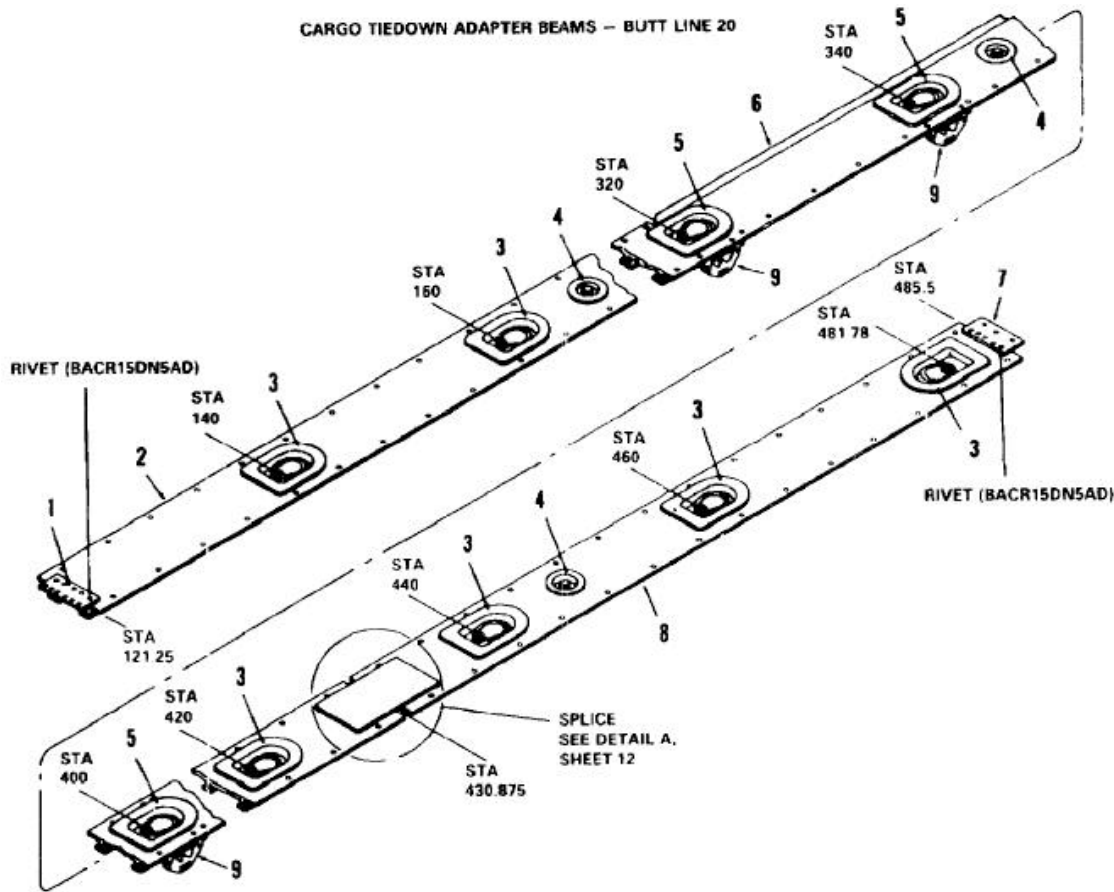
Beam Repairs — Fuselage Structure Assembly (Sheet 8 of 15)



NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. ALL RECEPTACLES BETWEEN STATIONS 180 AND 300 ARE 114S2893-7.
- C. ALL RECEPTACLES BETWEEN STATIONS 420 AND 481.78 ARE 114S2893-12.
- D. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW BEAM 114S2567-7.
- E. REPLACE WITH NEW RECEPTACLE 114S2893-12 OR 114S2893-11 FOR AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.
- F. REPLACE WITH NEW RECEPTACLE 114S2893-1 FOR AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.
- G. REPLACE WITH NEW RECEPTACLE 114S2893-8 OR 114S2893-4 FOR AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.
- H. REPLACE WITH NEW MOUNT 14SS669-1.
- I. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW BEAM 114S2568-4 OR 114S2567-6 FOR AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.
- J. REPLACE WITH NEW PART SAME AS ORIGINAL.
- K. THIS MATERIAL IS USED ON AIRCRAFT PART NUMBERS 92-0367 AND 92-0368.

Beam Repairs — Fuselage Structure Assembly (Sheet 9 of 15)



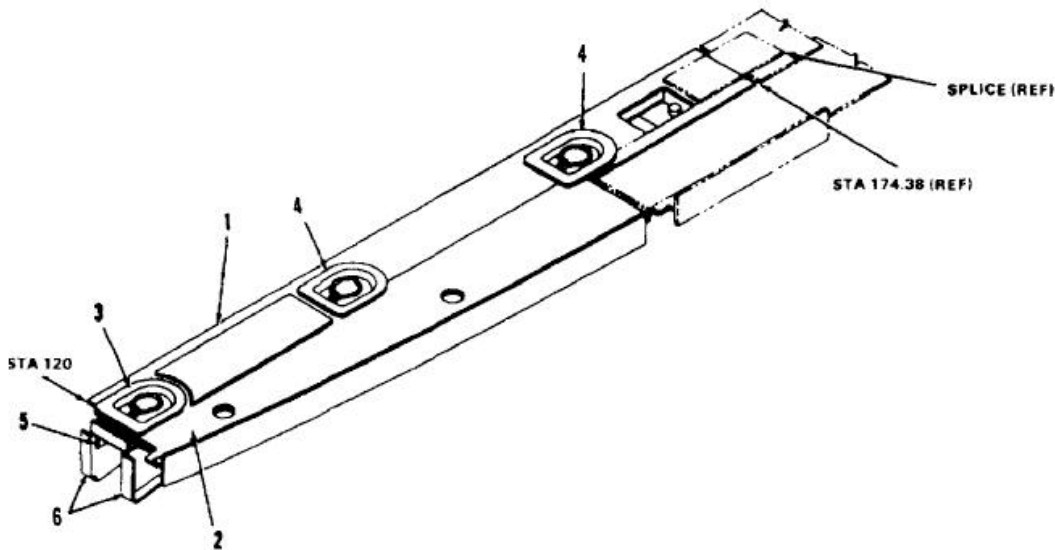
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	PLATE	0.100 2024-T3 CLAD	NOTE I.
2	BEAM	2024-BAC1510-920-T3511	NOTE C.
3	RECEPTACLE	7075-T6 BARE	NOTE D.
4	ADAPTER	—	NOTE E.
5	RECEPTACLE	7075-T6 BARE	NOTE F.
6	SEAL SUPPORT	BAC1517-1459 7075-T6	0.63 4130
7	PLATE	0.50 2024-T3 CLAD	NOTE I.
8	BEAM	2024-BAC1510-920-T3511	NOTE H.
9	MOUNT	—	NOTE H.

NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. ALL RECEPTACLES BETWEEN STA. 180 AND 400 ARE 114S2893-7, EXCEPT FOR NOTE J, THEN 114S2893-1.
- C. REPLACE BEAM IF DAMAGE IS OTHER THAN MINOR WITH NEW BEAM 114S2569-13 LH, 114S2569-14 RH, AND 114S2569-15 LH AND RH AFT.
- D. REPLACE WITH NEW RECEPTACLE 114S2893-11.
- E. REPLACE WITH NEW ADAPTER 114S2559-55.
- F. REPLACE WITH NEW RECEPTACLE 114S2893-7.
- G. REPLACE BEAM IF DAMAGE IS OTHER THAN MINOR WITH NEW BEAM 114S2569-6 LH AND RH.
- H. REPLACE WITH NEW MOUNT 114SS669-1.
- I. REPLACE WITH NEW PART SAME MATERIAL AS ORIGINAL.
- J. THIS PART IS USED ON AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.

Beam Repairs — Fuselage Structure Assembly (Sheet 10 of 15)

CARGO TIEDOWN ADAPTER BEAM — BUTT LINE 44

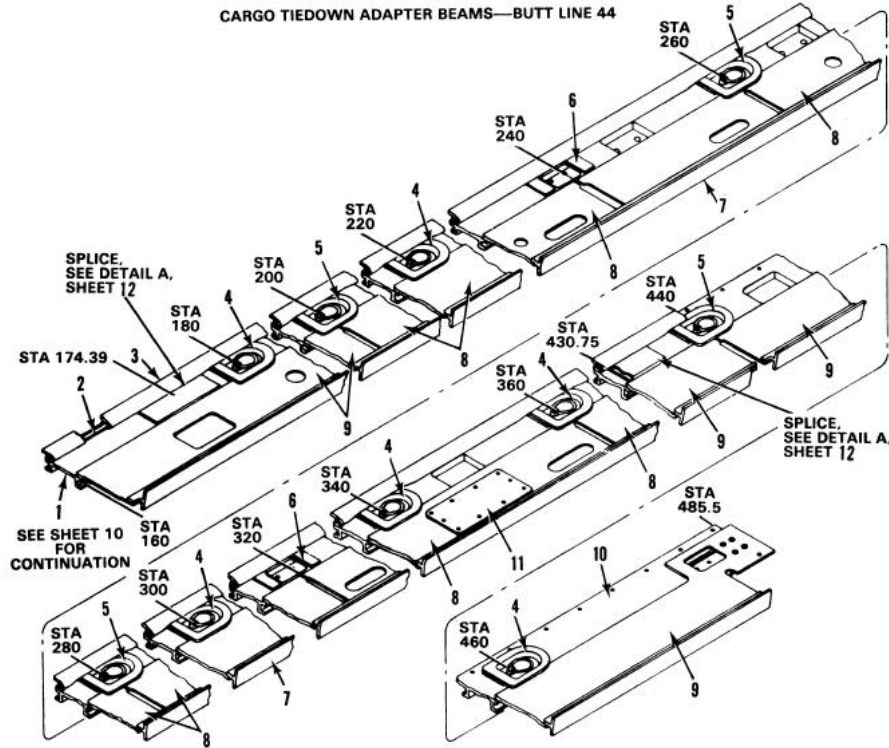


INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	BEAM	2024-T4 BARE BAC1510-921	NOTE B. NOTE F.
2	PLATE	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
3	RECEPTACLE	7075-T6 BARE	NOTE C.
4	RECEPTACLE	7075-T6 BARE	NOTE D.
5	CHANNEL	AND10137-2405 7075-T6	NOTE E.
6	BRACKET	0.050 7075-T6 BARE	NOTE E.
7	DOUBLER	0.050 2024-T3 CLAD	NOTE E.

NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW BEAM 114S1555-30 LH OR-31 RH AND 114S1555-43 LH OR -44 RH FOR AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0369.
- C. REPLACE WITH NEW RECEPTACLE 114S2893-15.
- D. REPLACE WITH NEW RECEPTACLE 114S2893-13.
- E. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW PART SAME AS ORIGINAL.
- F. THIS MATERIAL IS USED ON AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.

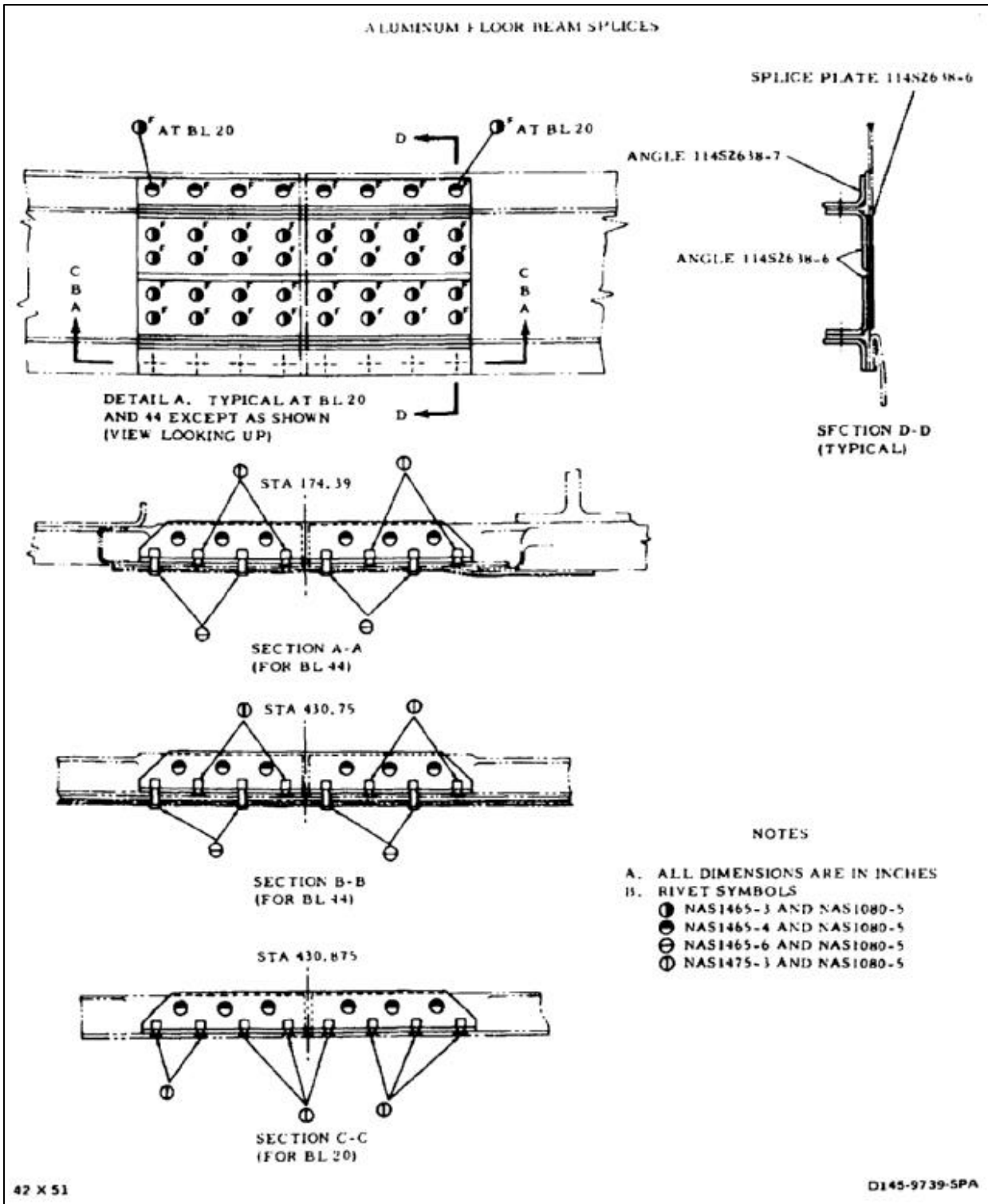
Beam Repairs — Fuselage Structure Assembly (Sheet 11 of 15)



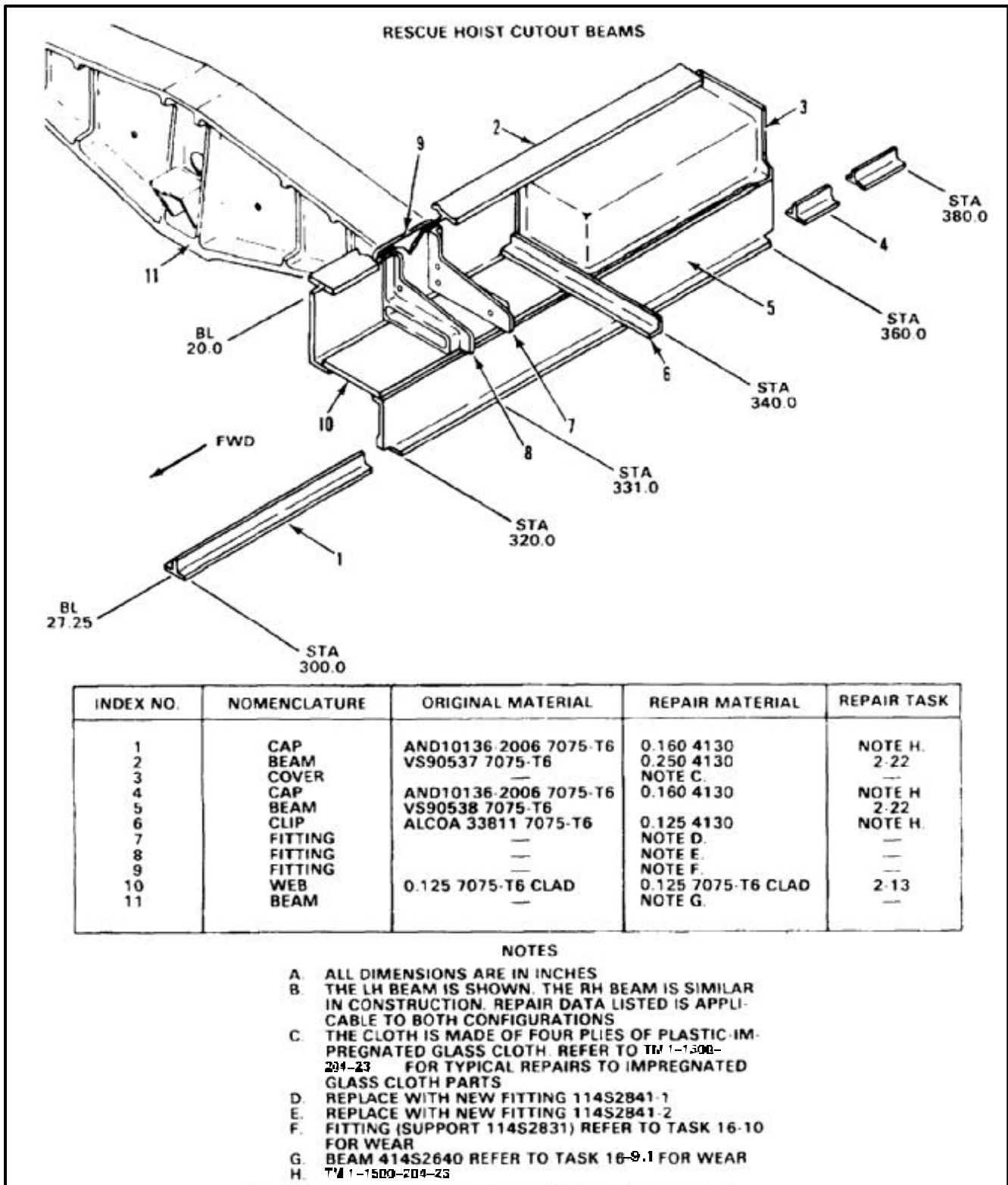
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	BEAM	BAC1510-921 EXTR	NOTE B.	—
2	RETAINER	0.032 2024-T3 CLAD	0.032 2024-T3 CLAD	NOTE H.
3	SEAL	0.063 URETHANE SHEET	0.063 URETHANE SHEET	—
4	RECEPTACLE	7075-T6 BARE	NOTE C.	—
5	RECEPTACLE	7075-T6 BARE	NOTE D.	—
6	SPACER	0.040 2024-T3 CLAD	0.040 2024-T3 CLAD	NOTE H.
7	LONGERON	VS90305 7075-T6	0.100 4130	2-22
8	PLATE	0.040 7075-T6 CLAD	0.040 7075-T6	NOTE H.
9	PLATE	0.050 7075-T6 CLAD	0.050 7075-T6	NOTE H.
10	BEAM	BAC1510-921 EXTR	NOTE E.	—
11	ACCESS PANEL	0.100 MAG AZ31B-H24	NOTE F.	—

NOTES

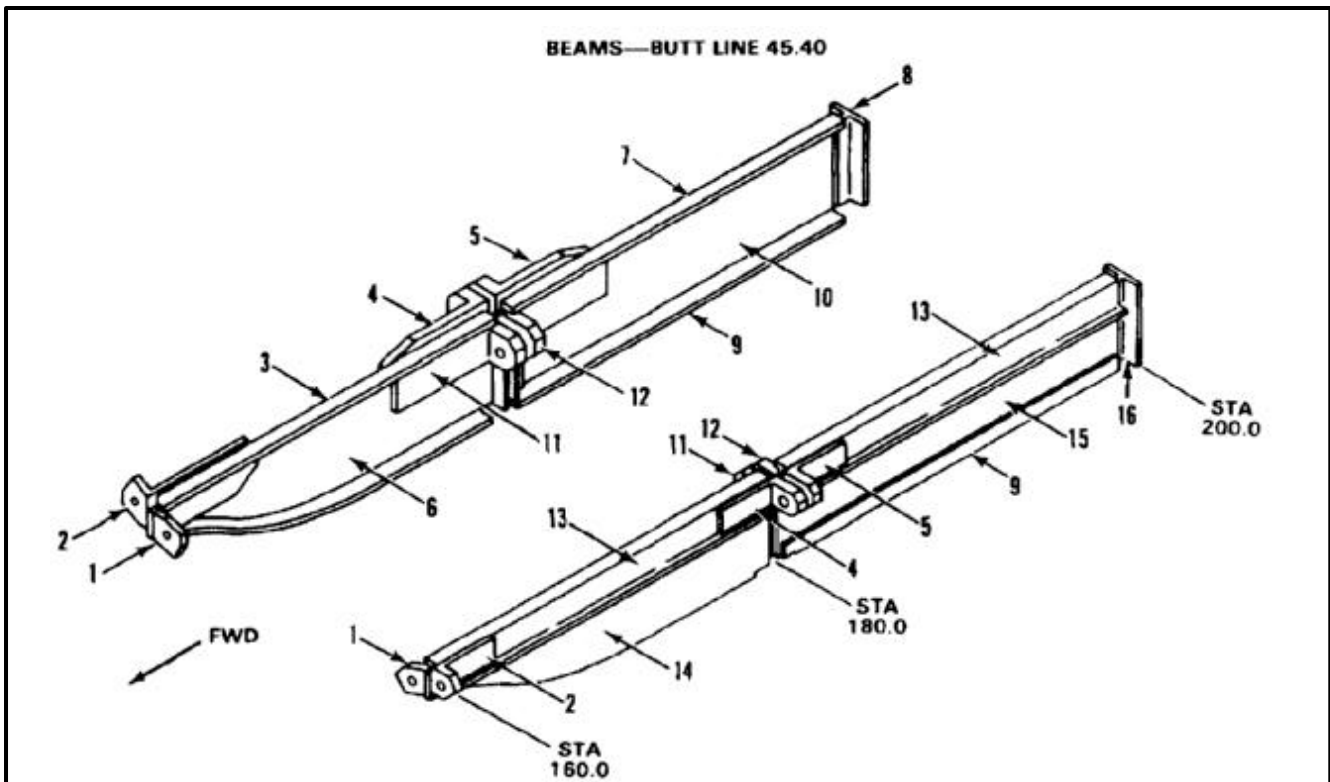
- A. ALL DIMENSIONS ARE IN INCHES.
- B. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW BEAM 114S2570-13 LH OR -14 RH.
- C. REPLACE WITH NEW RECEPTACLE 114S2893-13 FOR AIRCRAFT SERIAL NUMBERS 92-0367 AND 92.0368.
- D. REPLACE WITH NEW RECEPTACLE 114S2893-5 LH OR -17 RH FOR AIRCRAFT SERIAL NUMBERS 92-0387 AND 92-0368.
- E. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW BEAM 114S2570-51 LH OR -52 RH OR 145S2570-21 LH OR -20 RH FOR AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.
- F. REPLACE WITH NEW ACCESS PANEL 114S5657-1.
- G. BETWEEN STA. 360 AND 420 ALL RECEPTACLES ARE 114S2893-14.
- H. TM 1-1500-204-23.



Beam Repairs – Fuselage Structure Assembly (Sheet 13 of 15)



*Beam Repairs - Fuselage Structure Assembly
(Sheet 14 of 15)*

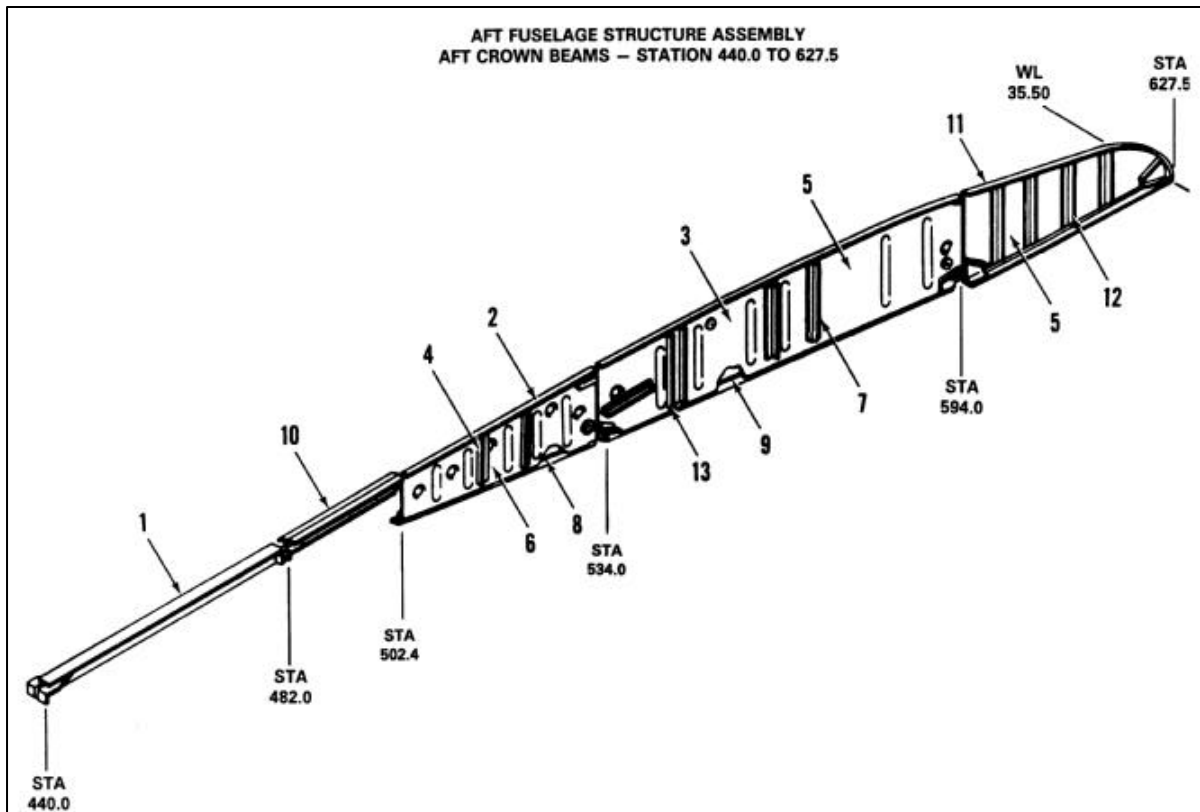


INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	FITTING	—	NOTE B.	—
2	FITTING	—	NOTE B.	—
3	CAP	REYNOLDS 10270 7075-T6	0.160 4130	2-13
4	FITTING	—	NOTE B.	—
5	FITTING	—	NOTE B.	—
6	WEB	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	2-13
7	CAP	REYNOLDS 10270 7075-T6	0.160 4130	NOTE D.
8	CLIP	AND10136-2001 7075-T6	NOTE C.	—
9	CAP	ALCOA 62564 7075-T6	0.090 4130	NOTE D.
10	WEB	0.071 7075-T6 CLAD	0.071 7075-T6 CLAD	2-13
11	FITTING	—	NOTE B.	—
12	FITTING	—	NOTE B.	—
13	CAP	ALCOA 85491 7075-T6	0.160 4130	NOTE D.
14	WEB	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	2-13
15	WEB	0.063 7075-T6 CLAD	0.063 7075-T6 CLAD	2-13
16	CLIP	ALCOA 62564 7075-T6	NOTE C.	—

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. REPLACE FITTINGS (1, 2, 4, 5, 11, AND 12) WITH NEW PARTS:
 (1) 114S2840-11 RH AND -1 LH
 (2) 114S2840-21 RH AND -19 LH
 (4) 114S2840-23 RH AND -5 LH
 (5) 114S2840-25 RH AND -8 LH
 (11) 114S2840-27 RH AND -5 LH
 (12) 114S2840-28 RH AND -7 LH
- C. REPLACE CLIPS WITH A CORRESPONDING LENGTH OF THE SAME TYPE EXTRUSION AS ORIGINAL
- D. TM 1 1500 204 23

**Beam Repairs – Fuselage Structure Assembly
(Sheet 15 of 15)**



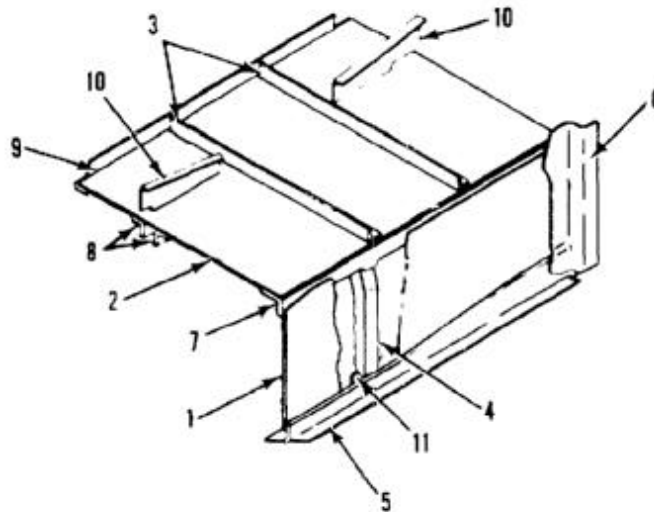
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	STRINGER	AND10136-1406 7075-T6	0.100 4130	NOTE C
2	CAP	0.050 7075-T6 BARE	0.063 7075-T6 BARE	NOTE C
3	CAP	0.050 7075-T6 BARE	0.063 7075-T6 CLAD	2-13/NOTE C
4	ANGLE	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13/NOTE C
5	WEB	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD	2-13
6	WEB	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD	2-13
7	ANGLE	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE C
8	CAP	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE C
9	CAP	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE C
10	ANGLE	0.050 7075-T6 BARE	0.063 7075-T6 CLAD	NOTE C
11	CAP	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE C
12	STIFFENER	VS70504-2 7075-T6	0.032 7075-T6 CLAD	2-29
13	ANGLE	NOTE D	NOTE E	2-336/2-336.1

- A. ALL DIMENSIONS ARE IN INCHES
- B. THE LEFT-HAND BEAM IS SHOWN. REPAIR MATERIALS AND REFERENCED REPAIR FIGURES ARE THE SAME FOR THE RIGHT-HAND BEAM
- C. TM 1-1500-201-23
- D. STIFFENER AND CLIP 0.040 2024-T3 CLAD
- E. INSTALL ANGLE AND CLIP WITH HEX DRIVE FASTENERS WHERE ANGLE ATTACHES TO INBOARD CAP MEMBER (2 PLACES) AND WHERE CLIP ATTACHES TO ANGLE AT OUTBOARD END (2 PLACES)

1466

**Beam Repairs – Aft Fuselage and Pylon Structure Assembly
(Sheet 1 of 6)**

AFT FUSELAGE STRUCTURE ASSEMBLY
AFT LANDING GEAR DRAG BEAM—STATION 460 TO 482

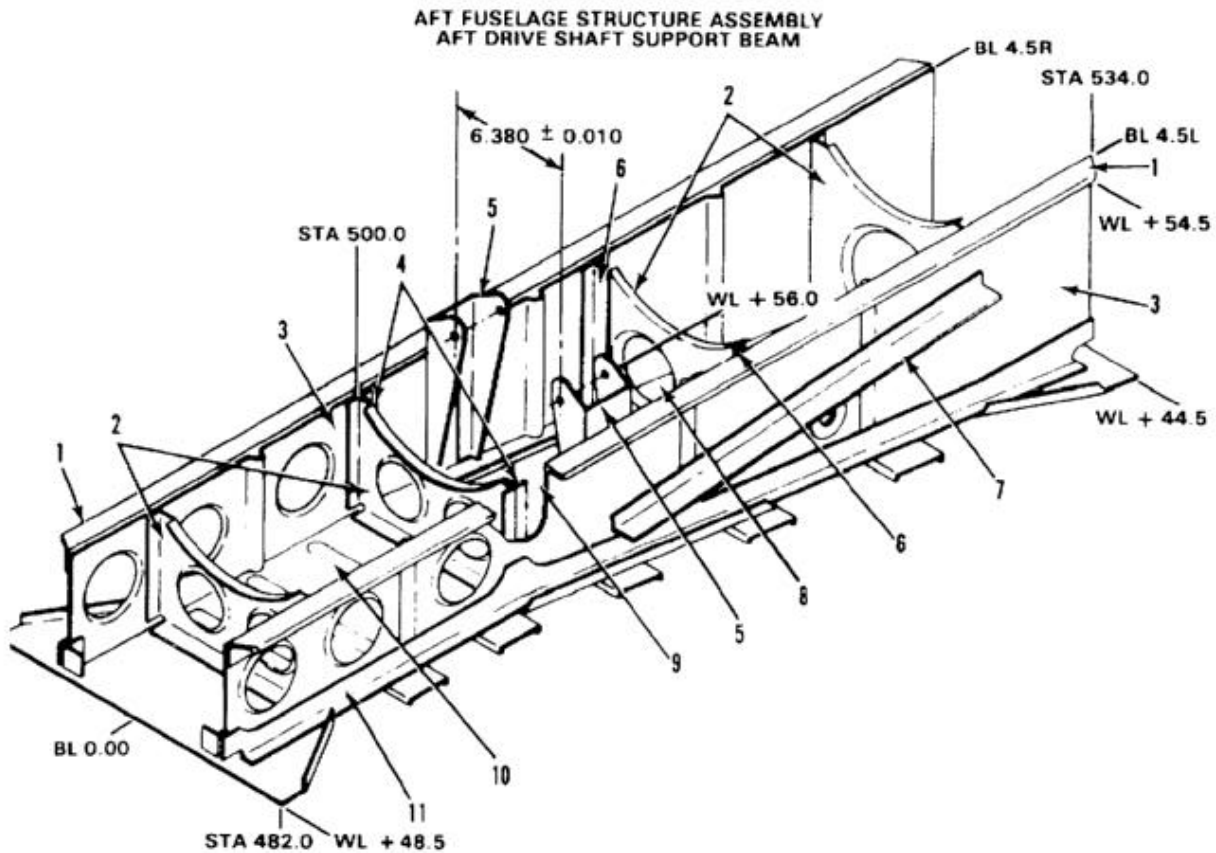


INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	WEB	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	2-13
2	WEB	0.063 7075-T6 BARE	0.071 7075-T6 CLAD	2-13
3	STIFFENER	AND10133-0603 7075-T6	0.125 4130	2-29
4	STIFFENER	AND10133-0602 7075-T6	0.100 4130	2-29
5	CAP	VS90533 7075-T6	NOTE B.	NOTE C
6	ZEE	0.050 7075-T6 BARE	0.063 7075-T6 CLAD	NOTE C.
7	CAP	BAC1514-157 7075-T6	NOTE B.	NOTE C.
8	CAP	ALCOA 29222 7075-T6	0.200 4130	NOTE C.
9	CAP	VS90305 7075-T6	0.063 4130	—
10	BRACKET	0.063 2024-T3 CLAD	0.071 2024-T3 CLAD	NOTE C.
11	STIFFENER	VS90533 7075-T6	NOTE B.	2-29

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. REPAIR USING MATERIAL SAME AS ORIGINAL
- C. TM 1-1500-204-23

*Beam Repairs - Aft Fuselage and Pylon Structure Assembly
(Sheet 2 of 6)*

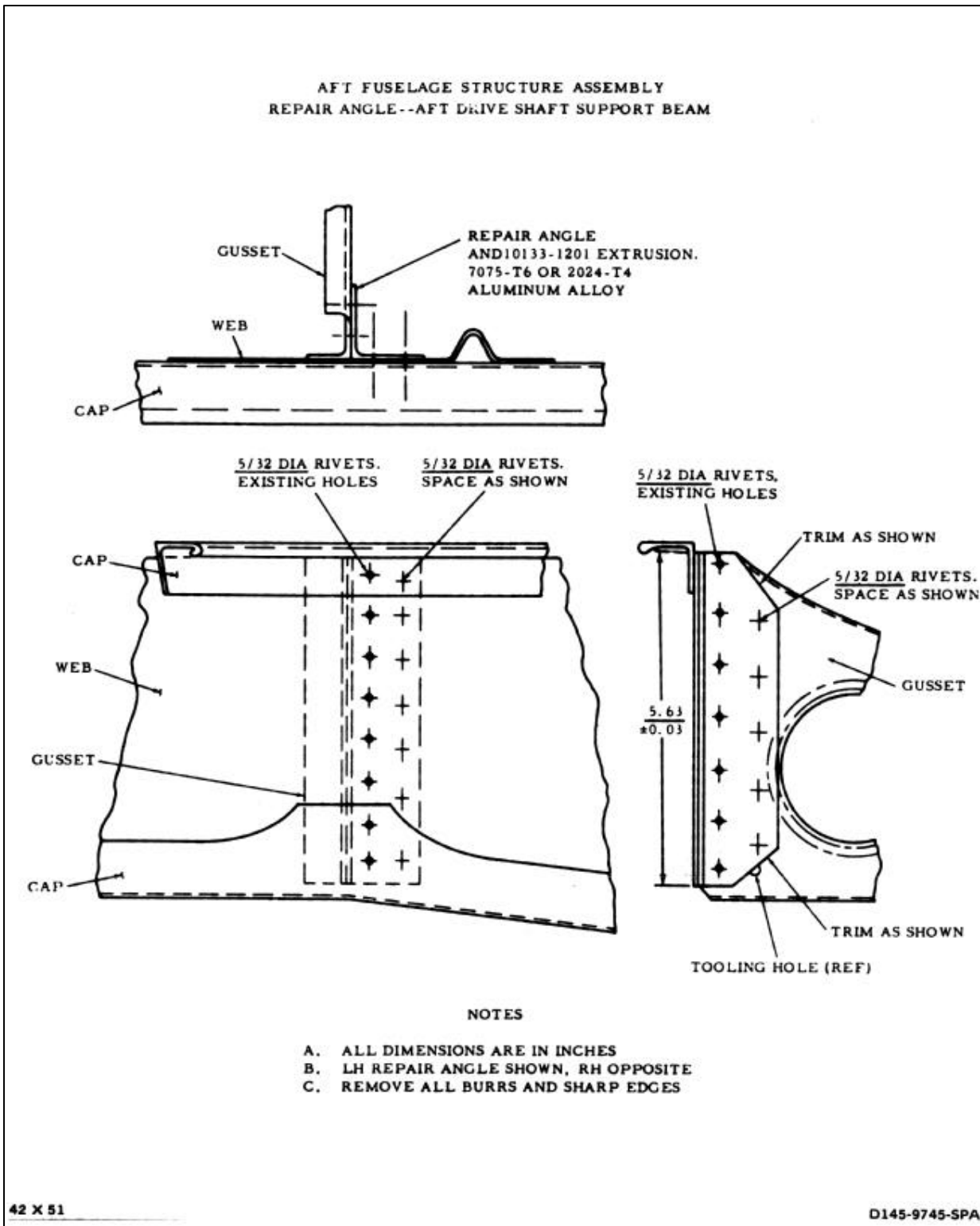


INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	AND10135-1004 7075-T6	0.090 4130	NOTE E.
2	GUSSET	0.025 2024-T4 CLAD	0.032 2024-T4 CLAD	NOTE E.
3	WEB	0.025 2024-T4 CLAD	0.032 2024-T4 CLAD	2-13
4	ANGLE	ALCOA 13637 7075-T6	NOTE B.	
5	BRACKET	0.090 2024-T4 CLAD	NOTE C.	
6	ANGLE	ALCOA 13637 7075-T6	0.063 4130	NOTE E.
7	ANGLE	ALCOA 52735 7075-T6	0.063 4130	NOTE E.
8	WEB	0.025 2024-T4 CLAD	0.032 2024-T4 CLAD	2-13
9	DOOR	0.040 AZ31B-H24 MAG	NOTE D.	
10	WEB	0.025 2024-T4 CLAD	0.032 2024-T4 CLAD	2-13
11	CAP	AND10134-1401 7075-T6	0.100 4130	NOTE E.

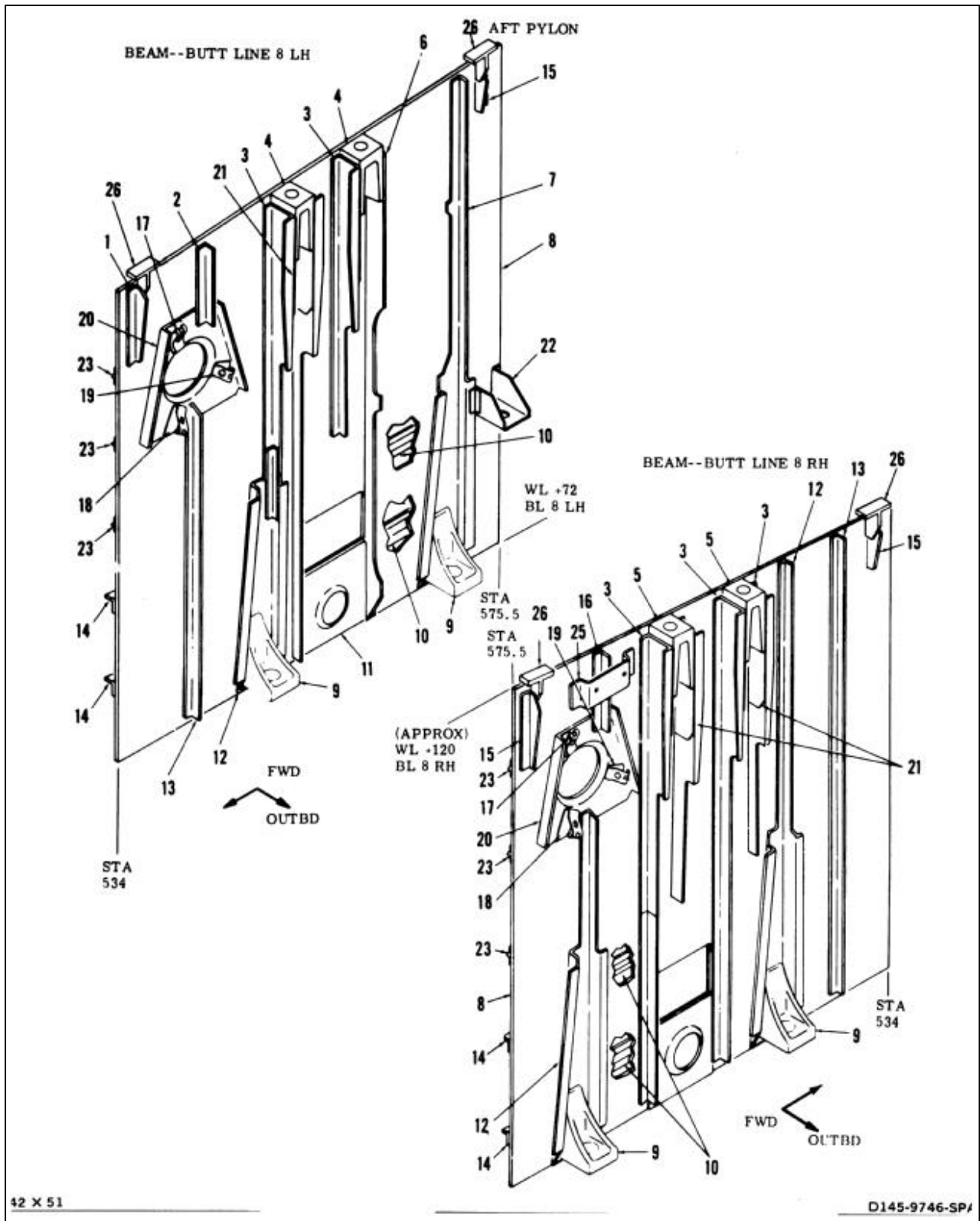
NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. REPLACE WITH NEW ANGLE FABRICATED FROM AND10133-1201 EXTRUSION. SEE SHEET 4 THIS FIGURE.
- C. REPLACE WITH NEW BRACKET 114S3365-37 LH OR -38 RH.
- D. REPLACE WITH NEW DOOR 114S3365-5.
- E. TM 1-1500-204-23.

Beam Repairs — Aft Fuselage and Pylon Structure Assembly (Sheet 3 of 6)



*Beam Repairs - Aft Fuselage and Pylon Structure Assembly
(Sheet 4 of 6)*



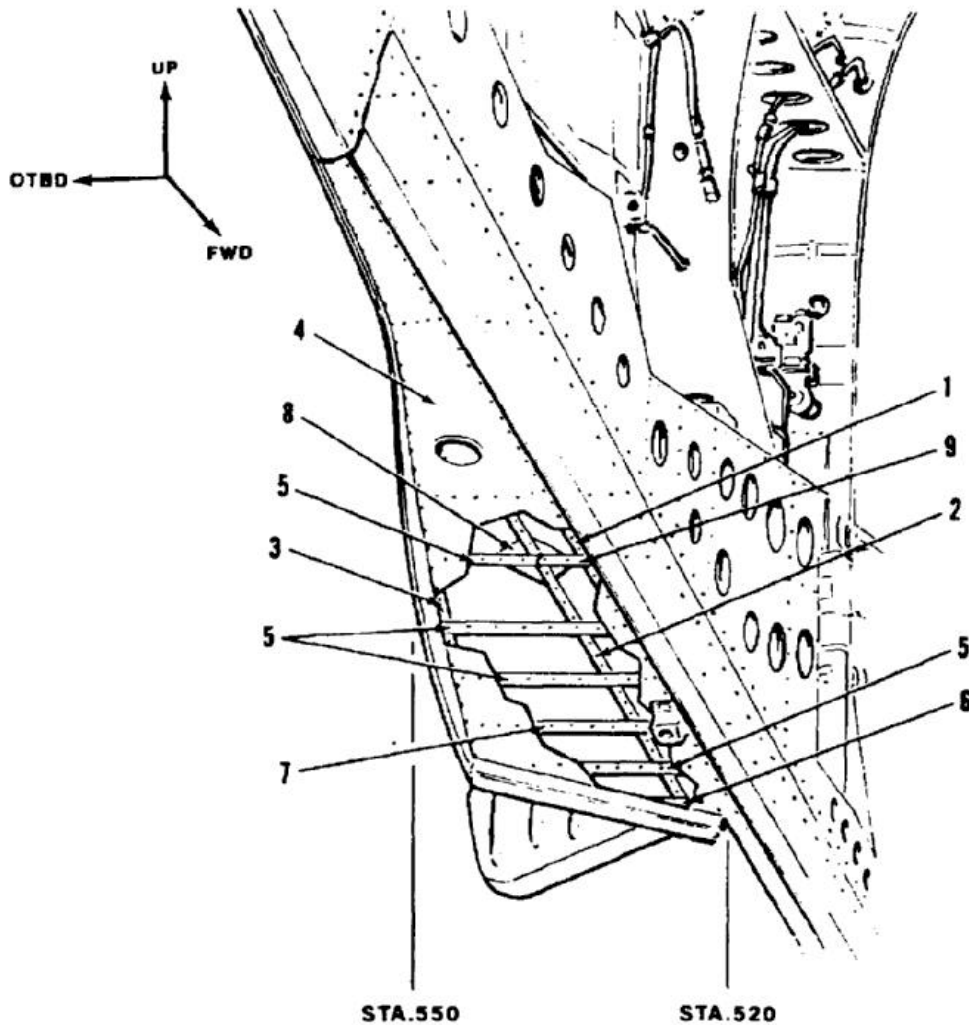
Beam Repairs - All Fuselage and Pylon Structure Assembly
(Sheet 5 of 6)

AFT PYLON BEAMS — BUTT LINE 8 LH AND 8 RH

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	ANGLE	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	NOTE G.
2	ANGLE	0.050	2024-T4 CLAD	0.050	4130	NOTE G.
3	CHANNEL	0.063 301 CRES 1/2H		0.050	7075-T6 CLAD	2-13
4	SUPPORT		2014-T6 FORGING	NOTE B.		—
5	SUPPORT		2014-T6 FORGING	NOTE D.		—
6	ANGLE	0.053 301 CRES 1/2H		0.071	4130	NOTE G.
7	HAT	0.063	2024-T4 CLAD	0.063	2024-T3 CLAD	NOTE G.
8	WEB	0.063	2024-T3 CLAD	0.063	2024-T3 CLAD	2-13
9	ATTACHMENT		2014-T6 FORGING	NOTE C.		—
10	STIFFENER	0.025 301 CRES 1/2H		0.032 301 CRES 1/2H		2-29
11	WEB	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	2-13
12	HAT	0.063	2024-T4 CLAD	0.063	2024-T3 CLAD	NOTE G.
13	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
14	ANGLE	ALCOA 67580	7075-T6	0.063	4130	NOTE G.
15	ANGLE	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE G.
16	ANGLE	0.050	2024-T4 BARE	0.050	2024-T3 CLAD	NOTE G.
17	BRACKET	114SK180-4		NOTE F.		—
18	BRACKET	114SK180-3		NOTE F.		—
19	BRACKET	114SK180-2		NOTE F.		—
20	DOUBLER	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE G.
21	STRAP	0.032 301 CRES 1/2H		0.040 301 CRES 1/2H		NOTE G.
22	BRACKET	0.050	2024-T4 CLAD	0.050	2024-T3 CLAD	NOTE G.
23	STIFFENER	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-29
24	PAD	AN8031-10-013		NOTE E.		—
25	SUPPORT	0.050	2024-T3 CLAD	0.050	2024-T3	NOTE G.
26	TEE	ALCOA 37289	7075-T6	0.071	4130	NOTE G.

- NOTES:**
- A. All dimensions are in inches.
 - B. For damage other than minor, replace with new support 114S4832-3 fwd and -4 aft.
 - C. For damage other than minor, replace with new attachment 114S4805-4. Use locating fixture 114G1247-1, replace attachments one at a time to prevent mislocation.
 - D. For damage other than minor, replace with new support 114S4832-3.
 - E. Replace grommet or pad with new pad AN8031-10-013. Bond pad to bracket. Refer to Task 2-310.
 - F. For damage other than minor, replace with new bracket 114S4118-220. Cut and drill bracket as required for installation.
 - G. TM 1-1500-204-23.

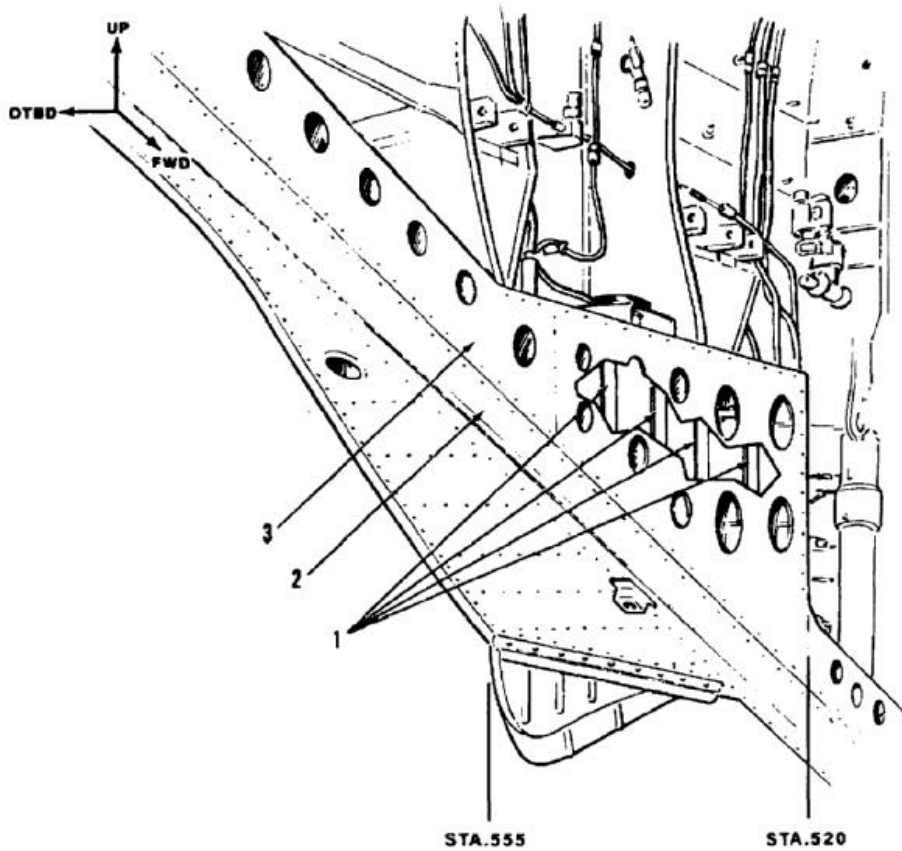
Beam Repairs — Aft Fuselage and Pylon Structure Assembly (Sheet 6 of 6)



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP ANGLE	ALCOA 71369	7075-T6.072	.080	4130	NOTE B.
2	CAP ANGLE	VS90116	7075-T6	.125	4130	NOTE B.
3	CAP, OUTBOARD	.063	7075-T6 BARE	.071	7075-T6	NOTE B.
4	WEB	.025	7075-T6 BARE	.032	7075-T6	2-13
5	STIFFENERS	.040	7075-T6 BARE	.050	7075-T6	2-29
6	CLIP	2024-T4 CLAD	.051	2024-T4 CLAD	NOTE A.	
7	CLIP	.063	7075-T6 BARE	.063	7075-T6 BARE	NOTE A.
8	DOUBLER	.050	7075-T6 BARE	.050	7075-T6 CLAD	NOTE A.
9	CLIP	.051	7075-T6 CLAD	.051	7075-T6 CLAD	NOTE A.

NOTES: A. More practical to replace/manufacture from original material.
 B. TM 1-1500-204-23.

Beam Repairs — Aft Fuselage Structure and Web Sta. 534-555 (L.S. Shown, R.S. Opp.) (Sheet 1 of 2)



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	STIFFENERS	ALCOA 22477	7075-T6 EXTR.	.050	4130	2-8
2	HANGER	.025	2024-T4 CLAD	.025	2024-T4 CLAD	NOTE A.
3	WEB	.032	2024-14 CLAD	.040	2024-T4	2-13

NOTES: A. More practical to replace/manufacture from original material.

Beam Repairs — Aft Fuselage Structure and Web Sta. 534-555 (L.S. Shown, R.S. Opp.) (Sheet 2 of 2)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-25 BEAMS MINOR DAMAGE**2-25****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-6
Task 2-24**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Beam minor damage can exist as is or be fixed by an easy method as burnishing nicks and scratches, and removal of small damaged areas (Tasks 2-24 and 2-6).
2. Damage must clear bolts, rivets, and radiuses **3/4 inch** minimum. Damage shall not affect more than **10 percent** of material thickness after rework.
3. For examples of damage to internal webs, formed parts, and extruded parts, refer to Task 2-6.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-7
Task 2-24**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Damage more than minor but not affecting more than **25 percent** of cross section between attaching members of web shall be patched. However, enough clearance must be maintained from edge members to allow proper rivet spacing (Task 2-24).
2. Damage which affects more than **25 percent** of cross section of web shall be repaired by insertion (Task 2-7).

FOLLOW-ON MAINTENANCE:

As Required

Task 2-27 deleted.

END OF TASK

2-174

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Others As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-29
Task 2-30
TM 1-1500-204-23

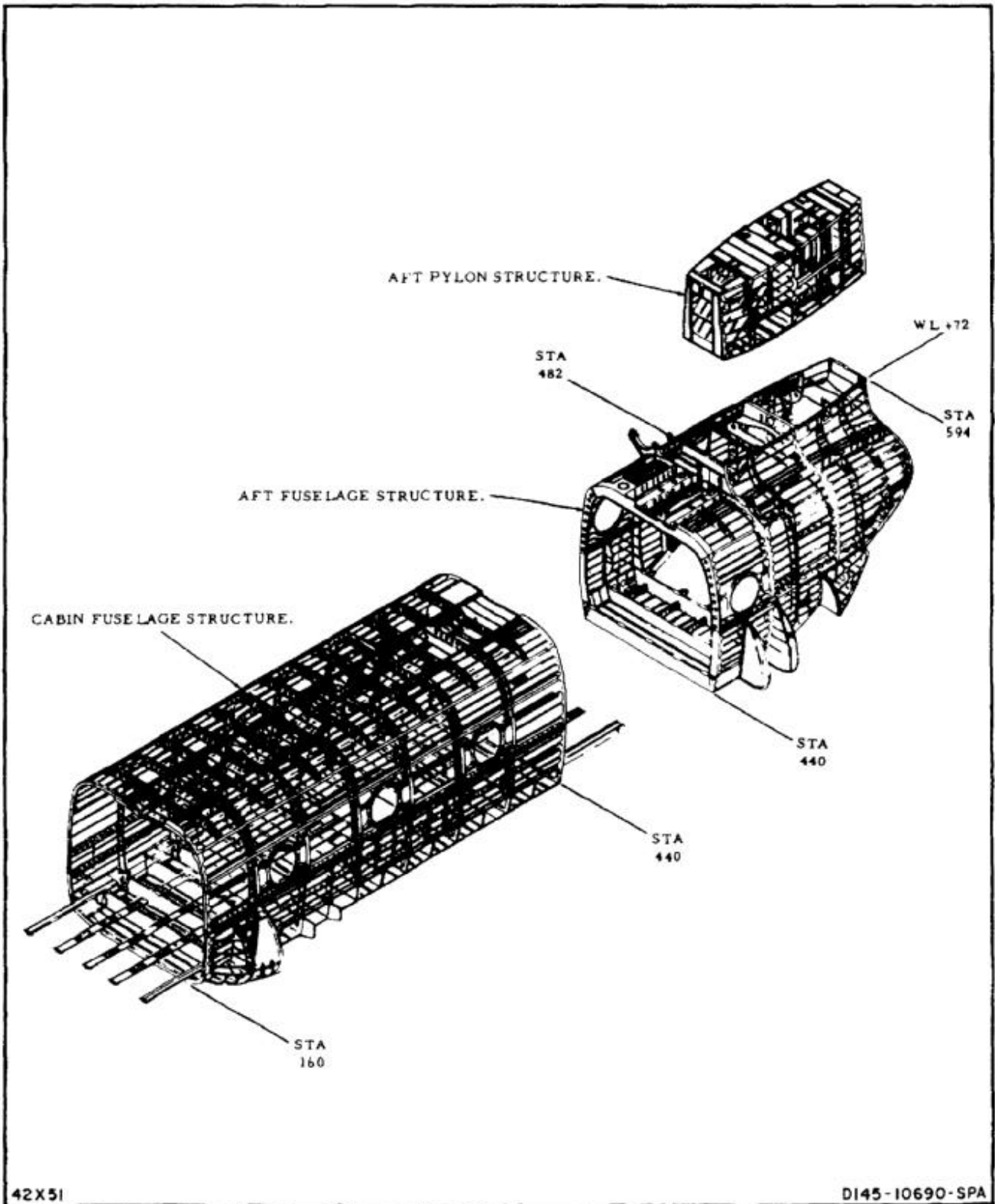
Equipment Condition:

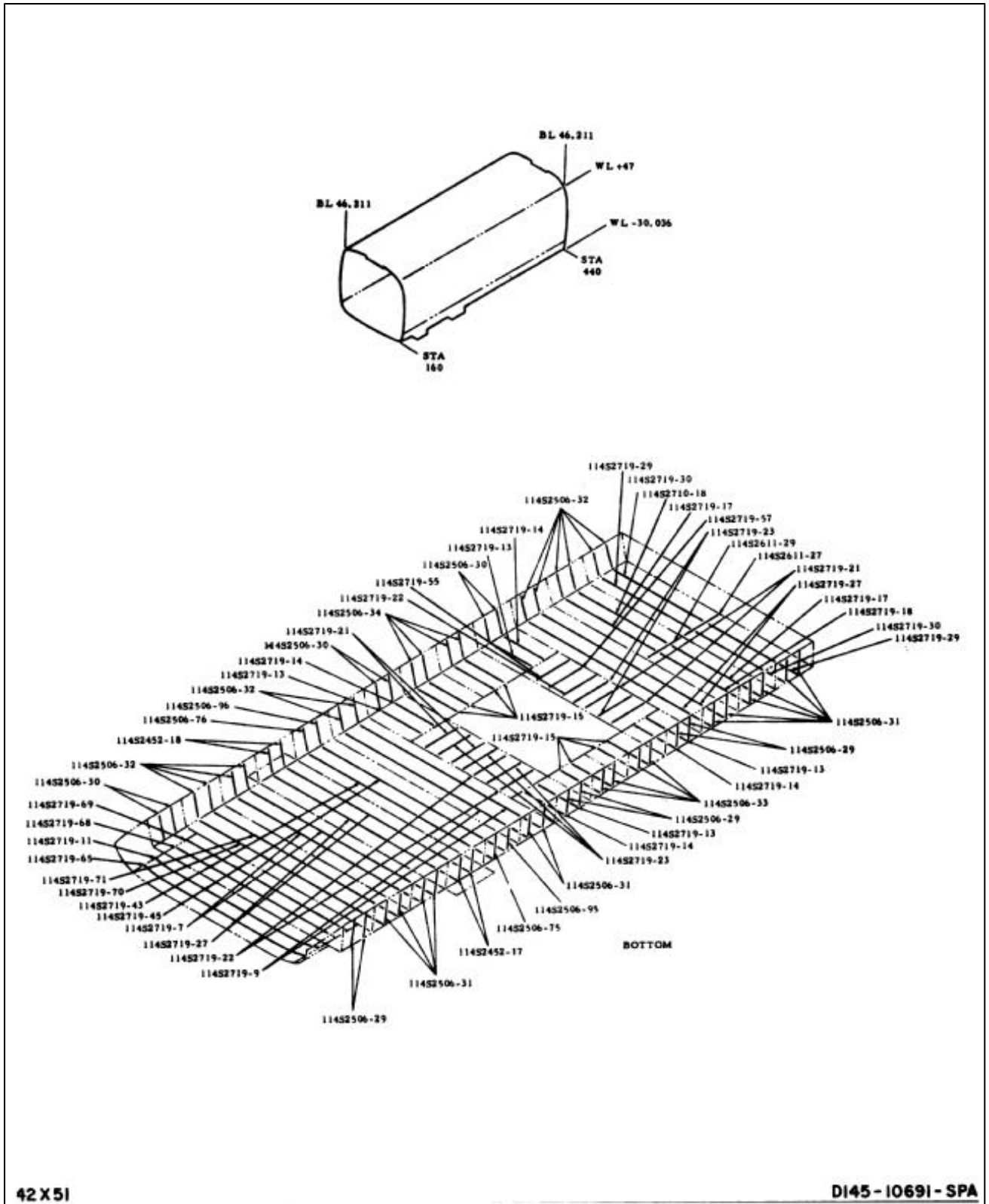
As Required

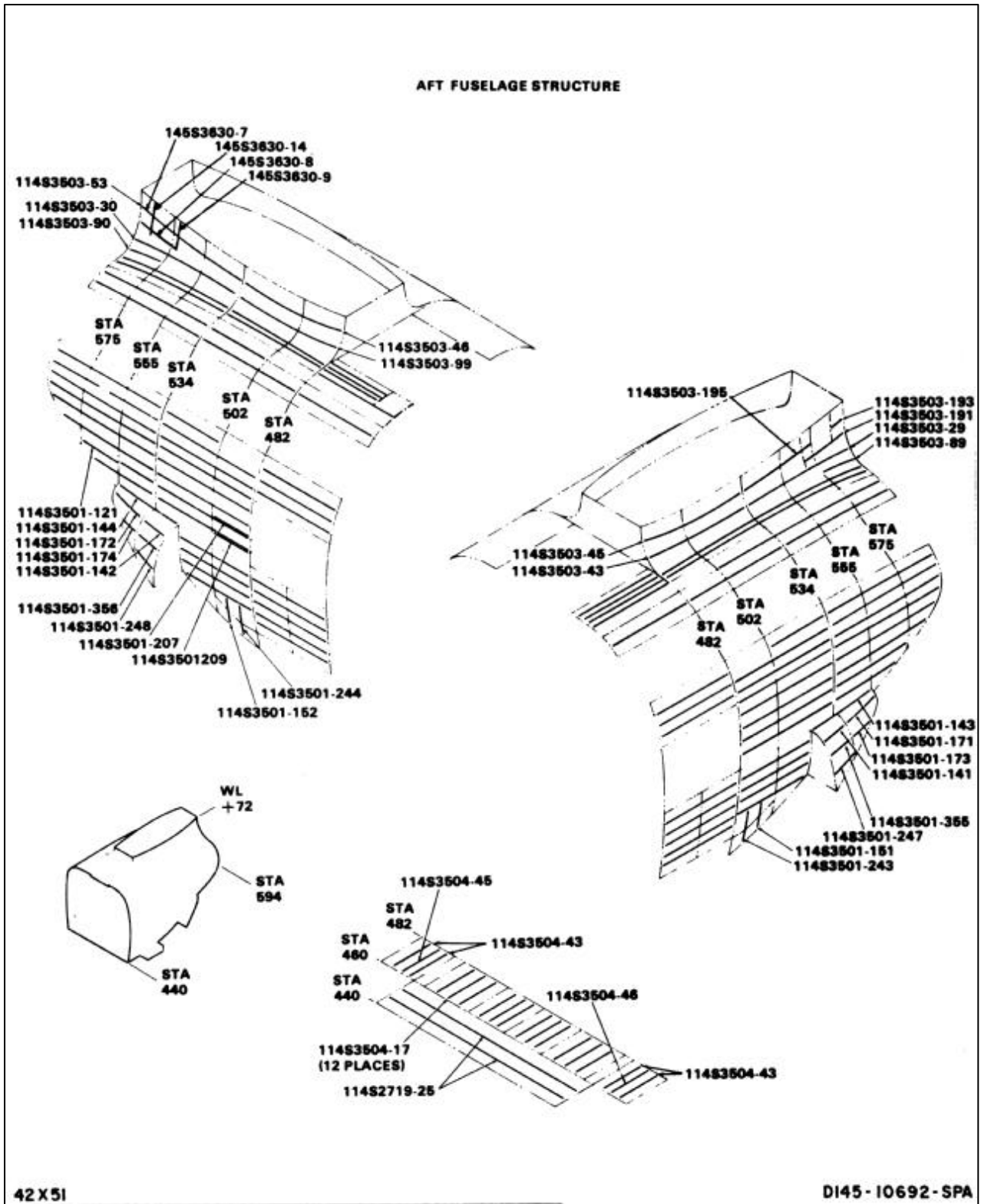
General Safety Instructions:

As Required

1. Skin stiffeners are located on bottom panel and bottom side panel. Transverse stiffeners, except around rescue hatch cutout, extend full-width from hinge to hinge. They are Z-sections formed of 7075-T6 clad aluminum alloy. Stiffeners around rescue hatch cutout are extruded from 7075-T6 aluminum alloy. Longitudinal stiffeners on bottom panel are sections of Alcoa 83264 or AND 10136-2006. Transverse stiffeners are sections of Alcoa 83264 or 55794. Stiffeners on bottom side panels are section of AND 10134-1005, AND 10134-1003, Alcoa 67580, 22477.
2. Repairs are classified as minor damage (Task 2-29), or major damage (Task 2-30).
3. Replace stiffeners that have extensive damage. This includes loss of more than **one-half** of member or several damaged areas. (Refer to TM 1-1500-204-23.)



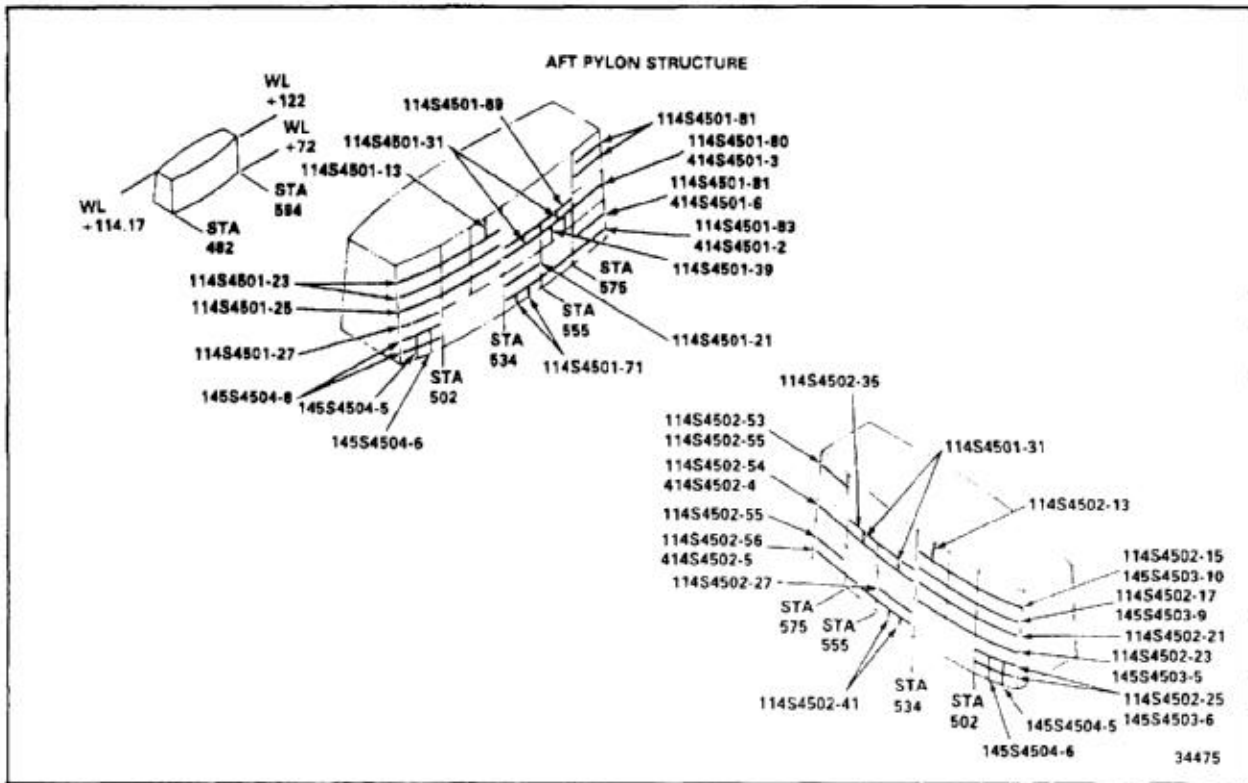




STIFFENERS — AFT FUSELAGE STRUCTURE

LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
BL	WL	STATION					
48R THRU 48L		446.6	114S2719-25	0.040	7075-T6 CLAD	0.050	7075-T6
48R THRU 48L		453.6	114S2719-25	0.040	7075-T6 CLAD	0.050	7075-T6
NOTE C.	-20 THRU -27	520	114S3501-65	0.032	2024-T4 CLAD	0.063	2024-T4
NOTE C.		534.0	114S3501-71	0.040	2024-T4 CLAD	0.050	7075-T6
NOTE C.		482	114S3501-72	0.040	2024-T4 CLAD	0.050	7075-T6
	-20 THRU -33	496.3	114S3501-151	ALCOA 67580	7075-T6	0.050	4130
	-20 THRU -33	496.3	114S3501-152	ALCOA 67580	7075-T6	0.050	4130
	+12	482 THRU 502	114S3501-207	ALCOA 83264	7075-T6	0.050	4130
	+4.5	482 THRU 502	114S3501-209	0.063	7075-T6 CLAD	0.071	7075-T6
	-20 THRU -36	489.2	114S3501-243	AND10134-1401	7075-T6	0.100	4130
	-20 THRU -36	489.2	114S3501-244	AND10134-1401	7075-T6	0.100	4130
	+15	520 THRU 534	114S3501-247	0.063	7075-T6 CLAD	0.071	7075-T6
	15	520 THRU 534	114S3501-248	0.063	7075-T6 CLAD	0.071	7075-T6
5R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
10R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
15R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
26R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
32R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
38R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
5L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
10L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
26L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
32L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
38L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0.050	4130
53.1R		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0.160	4130
53.1L		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0.160	4130
68.2R		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0.160	4130
68.2L		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0.160	4130
57L		460 THRU 482	114S3504-45	AND10137-2601	7075-T6	0.125	4130
57R		460 THRU 482	114S3504-45	AND10137-2601	7075-T6	0.125	4130
NOTE C.	-20 THRU -36	489.2	145S3571-38	AND10134-1401	7075-T6	0.100	4130
575 THRU 592	145S3630-8	0.063	2024-T4 BARE	0.071	2024-T4		
62 THRU 72	145S3630-9	0.050	2024-T4 BARE	0.063	2024-T4		
60 THRU 72	145S3630-14	0.050	2024-T4 BARE	0.063	2024-T4		

- NOTES:** A. All dimensions are in inches.
 B. All stiffeners are identified by part number.
 C. This part is used on aircraft serial numbers 92-0367 and 92-0368.



STIFFENERS — AFT PYLON STRUCTURE

LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL
BL	WL	STATION				
	+109 THRU +116	526	114S4501-13	ALCOA 67580	7075-T6	0.050 4130
(LH SIDE)	+97 THRU +100	544.5	114S4501-31	ALCOA 22477	7075-T6	0.040 4130
(LH SIDE)	+97 THRU +100	564	114S4501-31	ALCOA 22477	7075-T6	0.040 4130
(RH SIDE)	+97 THRU +100	544.5	114S4501-31	ALCOA 22477	7075-T6	0.040 4130
(RH SIDE)	+97 THRU +100	564	114S4501-31	ALCOA 22477	7075-T6	0.040 4130
	+90 THRU +97	561	114S4501-39	VS70504-4	7075-T6	0.040 7075-T6
	+90 THRU +97	571	114S4501-39	VS70504-4	7075-T6	0.040 7075-T6
	+72 THRU +78	540.4	114S4501-71	ALCOA 22477	7075-T6	0.040 4130
	+72 THRU +78	547.9	114S4501-71	ALCOA 22477	7075-T6	0.040 4130
	+109 THRU +116	526	114S4502-13	ALCOA 67580	7075-T6	0.050 4130
	+72 THRU +78	540.4	114S4502-41	ALCOA 22477	7075-T6	0.040 4130
	+72 THRU +78	547.9	114S4502-41	ALCOA 22477	7075-T6	0.040 4130
NOTE C.	+78.25 THRU +84.5	488	145S4503-7	BAC1503-1420	2024-T4	0.063 2024-T4
NOTE C.	+72 THRU 78.25	488	145S4504-5	BAC1503-1420	2024-T4	0.063 2024-T4
(LH SIDE) NOTE C.	+72 THRU 78.25	496.44	145S4504-6	BAC1503-1420	2024-T4	0.063 2024-T4
NOTE C.	+78.25 THRU +84.5	488	145S4504-9	BAC1503-1420	2024-T4	0.063 2024-T4
NOTE C.	+72 THRU +78.25	455	145S4504-5	BAC1503-1420	2024-T4	0.063 2024-T4
(RH SIDE) NOTE C.	+72 THRU +78.25	488	145S4504-6	BAC1503-1420	2024-T4	0.063 2024-T4

- NOTES:**
- A. ALL DIMENSIONS ARE IN INCHES.
 - B. UNNUMBERED STRINGERS AND ALL STIFFENERS ARE IDENTIFIED BY PART NUMBER.
 - C. THIS PART IS USED ON AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-29 REPAIR STIFFENERS — MINOR DAMAGE

2-29**INITIAL SETUP****Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

Epoxy Primer (E292.1)
Gloves (E184.1)
Other Materials As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-28
Task 2-336
TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

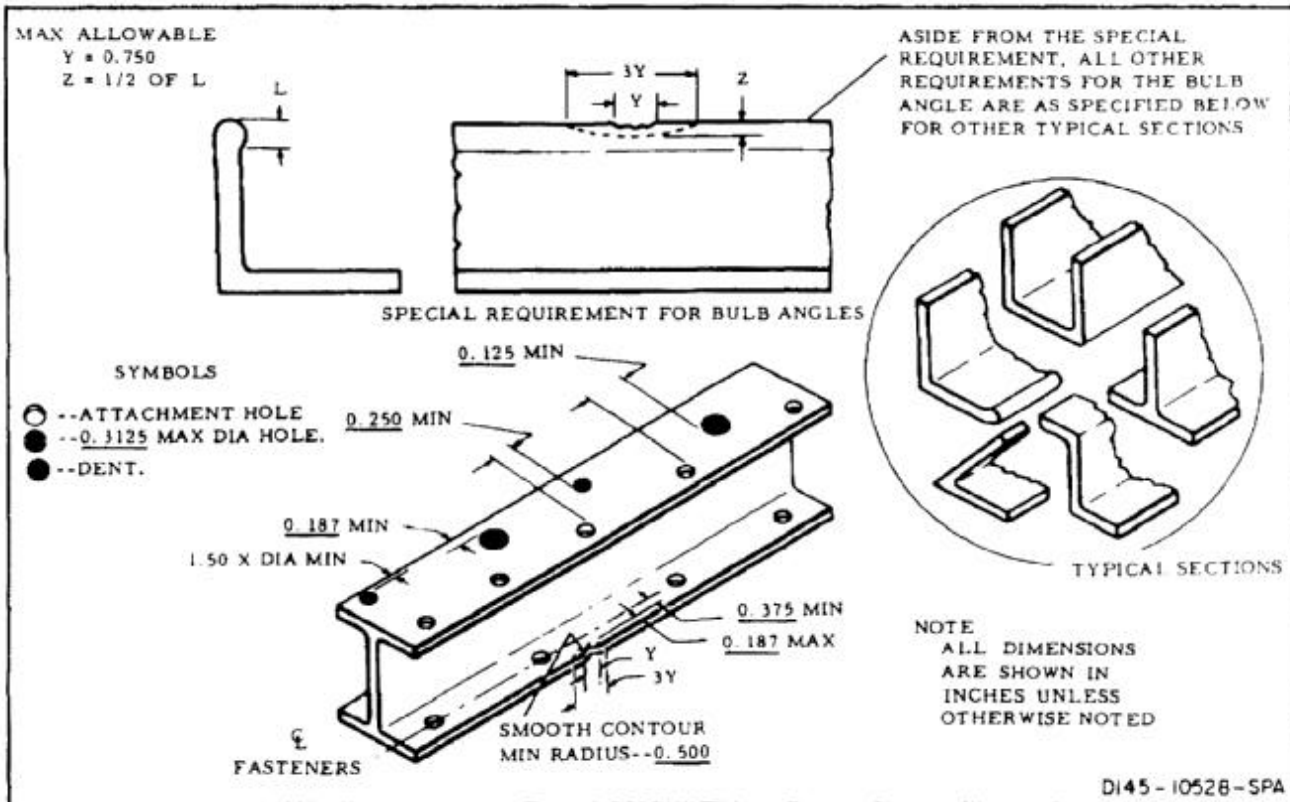
1. Repair minor damage to webs as follows (Task 2-28 and TM 1-1500-204-23):
 - a. Remove small dents.
 - b. Stop drill minor cracks.
 - c. Burnish nicks, scratches and small damage areas.
 - d. Plug holes in webs. Use tight fitting rivet.
2. Repair minor damage to extruded parts of stiffeners (Task 2-336).

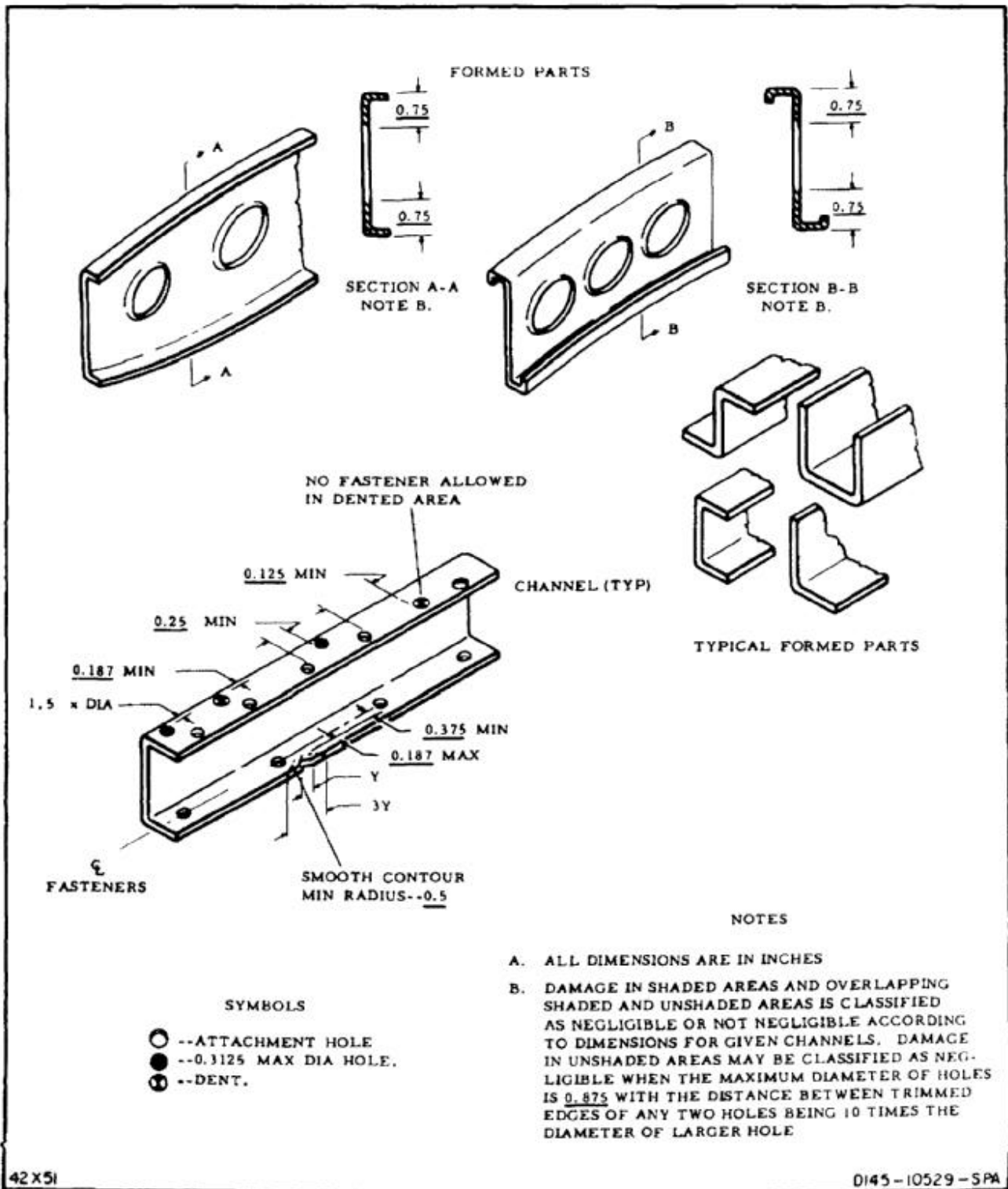
WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

3. Retouch repaired area. Use **two coats** of epoxy primer (E292.1). Use gloves (E184.1).

INSPECT





FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114**Materials:**

As Required

Personnel Required:Aircraft Structural Repairer
Inspector

1. Repair damage to stiffeners, greater than minor damage, as follows (Task 2-28 and TM 1-1500-204-23).
 - a. Patch stiffeners having damage that affects only a single formed flange or less than **one-half** or cross-section.
 - b. Repair damage that affects more than one flange, and **one-half**, or more, of web cross-section by insertion.
2. Refer to Task 2-336 for extrusion parts.

INSPECT**FOLLOW-ON MAINTENANCE:**

Refinish as required (Task 2-346).

References:Task 2-28
Task 2-336
TM 1-1500-204-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

Task 2-31 deleted.

END OF TASK

**SECTION III
FUSELAGE**

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Torque Wrench, 30 to 150 Inch-Pounds

Materials:

Sheet Steel (E370 or E371)
Mylar Tape (E389)
Epoxy Primer (E292.1)
Gloves (E184.1)

Parts:

Shim Stock, 0.020 Inch
Rivets

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-149
Task 2-154
Task 2-205
Task 2-324
Task 2-336
Task 2-351

1. Remove door sill at bottom of door opening.
2. Remove two bolts, washers, and nuts that join upper and lower tension fillings at sta. 120, WL 30, and BL 48 R (Task 2-149).
3. Remove tiedown ring and adapter assembly, and tiedown receptacle at sta. 124 BL 44 R (Task 2-205).
4. If needed for access, unfasten and peel back skin at skin laps along sta. 120 and WL 30.
5. Check areas around cracked longeron for damage. Replace the longeron if a major portion of the longeron is damaged or if there are many isolated damages (Task 2-336).
6. Repair longeron horizontal flange as follows:

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Lower Cabin Door Removed (Task 2-149)
Cabin Door Hinge Fittings Removed (Task 2-153)
Forward Right Floor Panel Assembly Removed (Task 2-204)
Remove Forward Door Coamings and Brackets (Task 2-76)

General Safety Instructions:**WARNING**

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- a. Unfasten and raise floor doubler from tiedown beam. Begin at sta. 120. Work aft until doubler can be raised enough for access to floor plate.
- b. Remove floor plate from horizontal flange of longeron. Remove rivets. Begin at sta. 120. Work aft. Remove at least 16 rivets.

CAUTION

Do not damage support structure under floor plate.

- c. Cut floor plate at sta. 126.4 between outboard edge and BL 46.25 R.

2-32 REPAIR RIGHT LOWER LONGERON (AVIM) (Continued)**2-32**

- d. Remove cut part of floor plate from sta. 119 aft to cut.
- e. Make repair angle. Use sheet steel (E370) 1/2 hard, or sheet steel (E371).

NOTE

Finished angle size may vary because of location.

Use stock size **18.4 inches** long and **4.7 inches** wide. Shape repair angle same as removed section of floor plate except in area shown.

- f. Fit angle to longeron. Locate 16 holes aft of crack and 8 holes forward. Locate 4 holes for rivets forward of sta. 120. Locate three holes for rivets where repair angle overlaps floor plate. Locate two tension filling hardward bolt holes.
- g. Drill and deburr holes as required.
- h. Apply dissimilar metal protection to repair angle (Task 2-351).
- i. Apply mylar tapes (E389) (Task 2-324).
- j. Position angle on longeron.
- k. Install rivets wet. Use epoxy primer (E292.1). Use gloves (E184.1).
- l. Install two bolts, washers, and nuts in upper and lower tension fittings. Torque bolts to **100 inch-pounds** (Task 2-154).
- m. Position floor doubler and tiedown receptacle. Apply mylar tape (E389) (Task 2-324).
- n. Install rivets in floor doubler and receptacle.

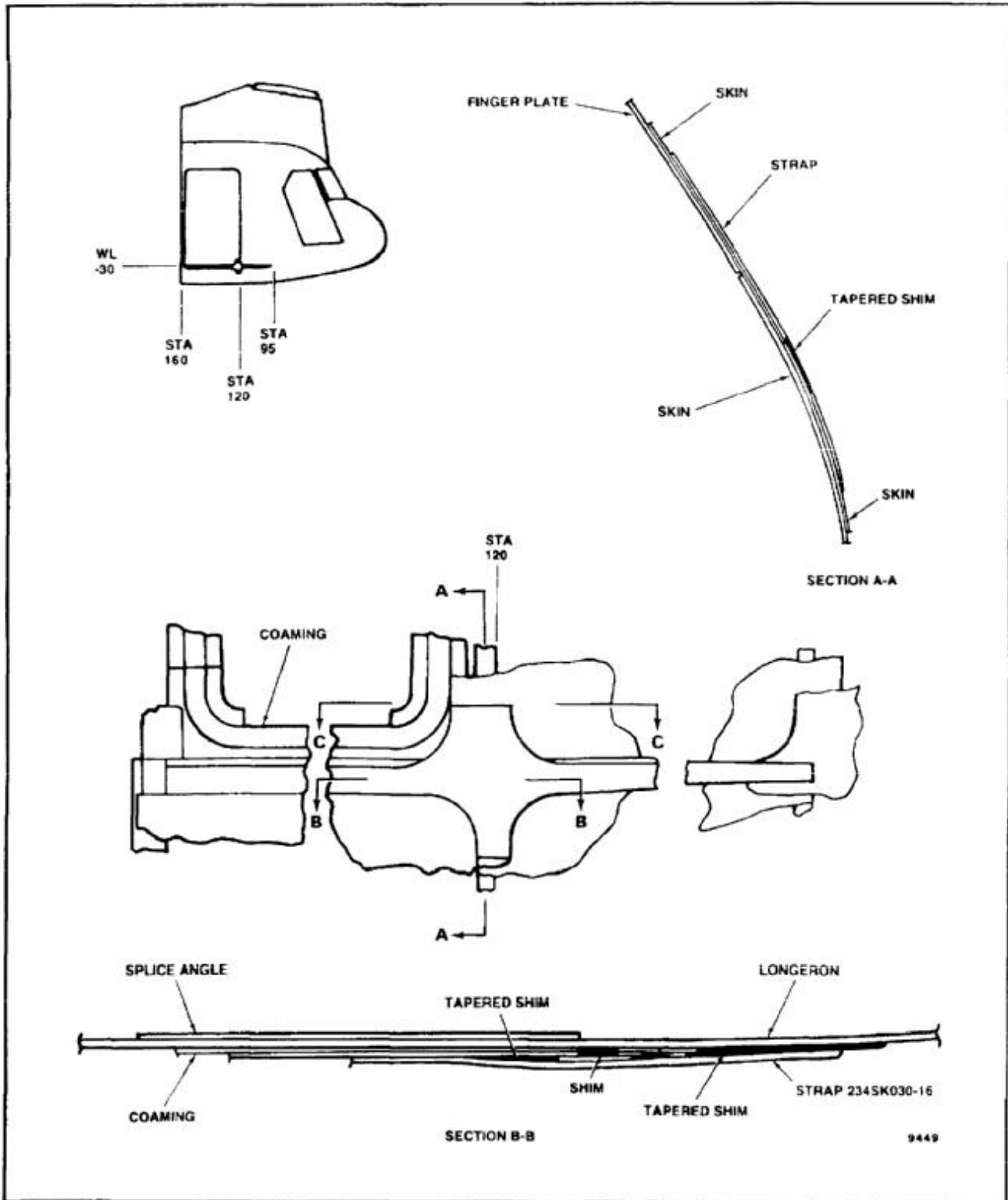
- 7. Repair longeron vertical flange as follows:

- a. Temporarily install outside skin in original position.
- b. Temporarily install aluminum door coaming.
- c. Make repair strap. Use sheet steel (E370) 1/2 hard, or sheet steel (E371).

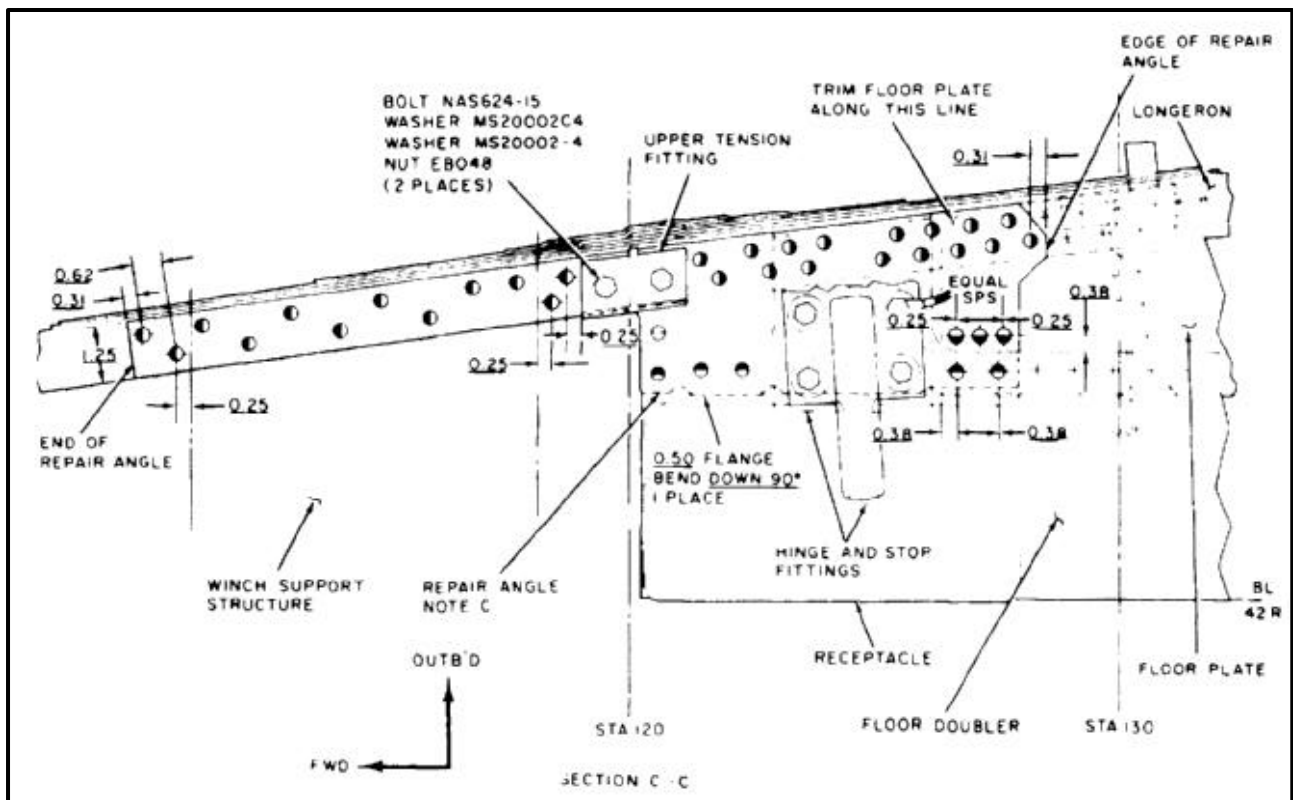
NOTE

Finished strap size may vary because of location.

- d. Drill at least 27 holes in strap for 11 rivets aft of crack, 12 rivets forward of crack and 4 rivets at sta. 120. Follow rivet pattern on skin. Use goggles.
- e. Fit strap to skin. Fill gaps under strap at skin laps. Use **0.020 inch** shim stock.
- f. Provide dissimilar metal protection for strap and shim (Task 2-351).
- g. Apply mylar tape (E389) (Task 2-324).
- h. Position strap and shims on longeron.
- i. Install rivets wet. Use epoxy primer (E292.1). Use gloves (E184.1).
- j. Install rivets, as required, in skin laps and door coaming. Follow original rivet pattern.
- k. Apply fuselage sealing (Task 2-324).
- l. Install door sill.
- m. Drill six holes in repair angle at original door bracket positions.



Repair Lower Right Longeron (Sheet 1 of 2)



Repair Lower Right Longeron (Sheet 2 of 2)

INSPECT

FOLLOW-ON MAINTENANCE:

- Install forward door coamings and brackets (Task 2-76).
- Install forward right floor panel assembly (Task 2-207).
- Install cabin door hinge fittings (Task 2-154).
- Install lower cabin door (Task 2-157).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

As Required

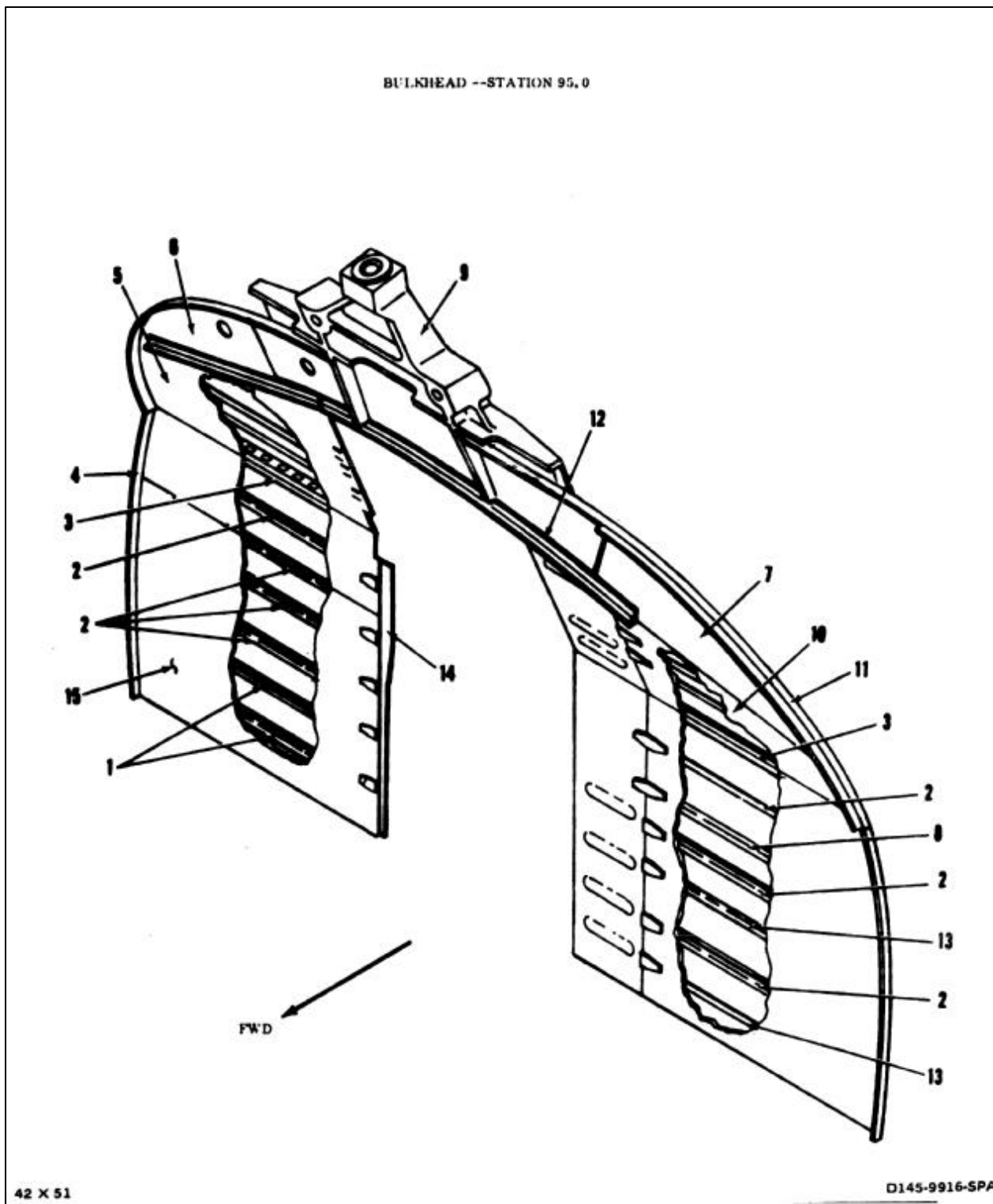
Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-34 thru 2-36
TM 1-1500-204-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

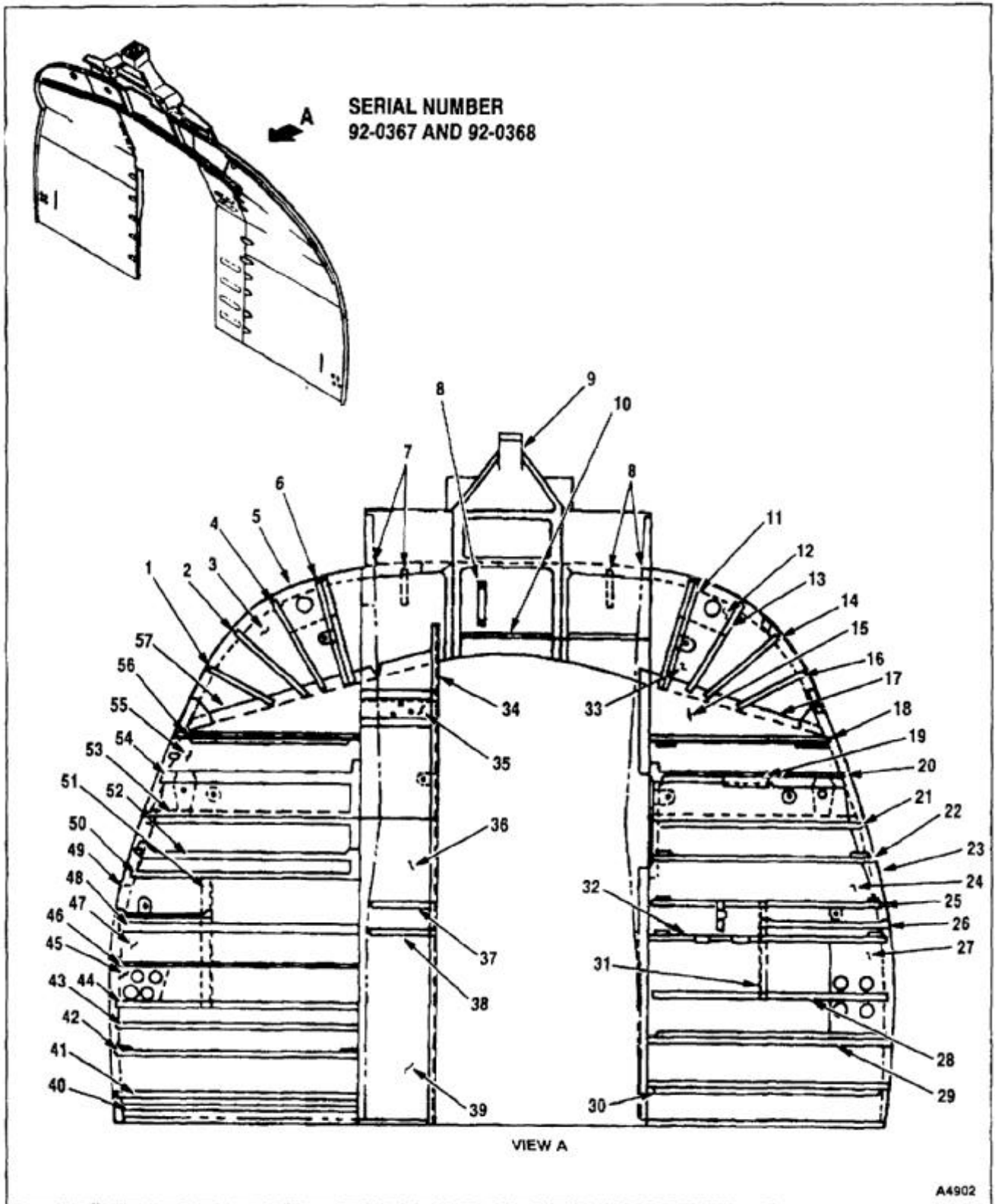
1. The bulkhead consists mostly of six webs and a crown web across the width of the body and the crown. The crown web, beams at BL 18, and five side webs, two on right and three on left side, form support structure for the forward transmission.
2. The webs are reinforced with formed and extruded caps. Formed stiffeners are riveted laterally to the webs.
3. Damage to the bulkhead shall be classified as minor damage (Task 2-34), repairable damage (Task 2-35), and damage requiring replacement (Task 2-36).



BULKHEAD — STATION 95.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	STIFFENER	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	2-29
2	STIFFENER	VS70503-3	7075-T6	0.040	7075-T6 CLAD	2-29
3	CHANNEL	0.071	2024-T4 CLAD	0.071	2024-T3 CLAD	2-13
4	CAP	0.063	7075-T6 BARE	0.071	7075-T6 CLAD	NOTE C.
5	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
6	WEB	0.071	7075-T6 BARE	0.071	7075-T6 CLAD	2-13
7	WEB	0.071	7075-T6 BARE	0.071	7075-T6 CLAD	2-13
8	STIFFENER	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	2-29
9	FITTING		7075-T73652	NOTE B.		
10	WEB	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
11	CAP	ALCOA 16871	7075-T6	0.112	4130	NOTE C.
12	CAP	AND10134-1407	7075-T6	0.160	4130	
13	STIFFENER	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-29
14	CAP	AND10133-0701	7075-T6	0.063	4130	NOTE C.
15	WEB	0.020	7075-T6 BARE	0.025	7075-T6 CLAD	2-13

- NOTES:** A. All dimensions are in inches.
 B. Replace with new fitting 114S1801-1.
 C. TM 1-1500-204-23.



BULKHEAD — STATION 95.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	ANGLE	ALCOA 51406	7075-T6511	0.040	4130	2-34
2	ANGLE	ALCOA 51406	7075-T6511	0.040	4130	2-34
3	WEB	0.071	7075-T6 BARE	0.071	7075-T6 CLAD	2-13
4	ANGLE	ALCOA 51406	7075-T6511	0.040	4130	2-34
5	ANGLE	0.063	7075-T6 BARE	0.071	7075-T6 CLAD	2-34
6	TEE	AND10136-1402	7075-T6511	0.063	4130	2-34
7	BRACKET	0.032	2024-T3 BARE	0.040	2024-T3 CLAD	2-34
8	BRACKET	0.063	2024-T3 CLAD	0.070	2024-T3 CLAD	2-34
9	FITTING		7050-T73652	NOTE B.		2-35
10	ANGLE	0.040	2024-T3 BARE	0.050	2024-T3 CLAD	2-34
11	TEE	AND10136-1402	7075-T6511	0.063	4130	2-34
12	ANGLE	0.090	7075-T6 BARE	0.100	7075-T6 CLAD	2-34
13	ANGLE	ALCOA 51406	7075-T6511	0.040	4130	2-34
14	ANGLE	0.080	7075-T6 BARE	0.090	7075-T6 CLAD	2-34
15	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
16	ANGLE	0.080	7075-T6 BARE	0.090	7075-T6 CLAD	2-34
17	ANGLE	AND10134-1407	7075-T6511	0.080	4130	2-34
18	SUPPORT	0.040	2024-T3 BARE	0.050	2024-T3 CLAD	2-35
19	SUPPORT	0.040	2024-T3 BARE	0.050	2024-T3 CLAD	2-35
20	CHANNEL	0.040	2024-T3 BARE	0.050	2024-T3 CLAD	2-13 and 2-34
21	CHANNEL	0.040	2024-T3 BARE	0.050	2024-T3 CLAD	2-13 and 2-34
22	STIFFENER	BAC1517-1523	7075-T6 BARE	0.050	7075-T6 CLAD	2-29
23	CAP	0.063	7075-T6 BARE	0.071	7075-T6 CLAD	NOTE C.
24	WEB	0.032	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
25	STIFFENER	BAC1517-1523	7075-T6 BARE	0.050	7075-T6 CLAD	2-29
26	STIFFENER	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	2-29
27	DOUBLER	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	NOTE C.
28	STIFFENER	BAC1503-1509	7075-T6511	BAC1503-1509	7075-T6511	2-29
29	STIFFENER	0.040	2024-T3 BARE	0.050	2024-T3 CLAD	2-29
30	STIFFENER	0.040	2024-T3 CLAD	0.050	2024-T3 CLAD	2-29
31	ANGLE	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	2-34
32	STIFFENER	8AC1517-1523	7075-T6 BARE	0.050	7075-T6 CLAD	2-29
33	WEB	0.063	7075-T6 BARE	0.071	7075-T6 CLAD	2-13
34	CAP	AND10133-0701	7075-T6511	0.040	4130	NOTE C.
35	BRACKET	0.032	2024-T3 BARE	0.040	2024-T6 CLAD	2-34
36	WEB	0.020	7075-T6 BARE	0.025	7075-T6 CLAD	2-13
37	STIFFENER	0.032	2024-T3 CLAD	0.040	2024-T3 CLAD	2-29
38	CHANNEL	0.032	2024-T3 BARE	0.040	2024-T3 CLAD	2-13 and 2-34
39	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
40	STIFFENER	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	2-29
41	ANGLE	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	2-34
42	STIFFENER	VS70503-3	7075-T6	0.050	7075-T6 BARE	2-29
43	STIFFENER	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	2-29
44	STIFFENER	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	2-29
45	DOUBLER	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	NOTE C.
46	STIFFENER	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	2-29
47	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
48	STIFFENER	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	2-29
49	CAP	0.063	7075-T6 BARE	0.071	7075-T6 CLAD	NOTE C.
50	STIFFENER	BAC1517-1523	7075-T6 BARE	0.050	7075-T6 CLAD	2-29
51	ANGLE	0.050	2024-T3 BARE	0.050	7075-T6 CLAD	2-34
52	ANGLE	0.063	2024-T3 BARE	0.063	7075-T6 CLAD	2-34
53	CHANNEL	0.040	2024-T3 BARE	0.050	2024-T3 BARE	2-13 and 2-34
54	CHANNEL	0.050	2024-T3 BARE	0.063	2024-T3 CLAD	2-13 and 2-34
55	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
56	STIFFENER	0.040	2024-T3 CLAD	0.050	2024-T3 CLAD	2-29
57	ANGLE	AND10134-1407	7075-T6511	0.080	4130	2-34

- NOTES:** A. ALL DIMENSIONS ARE IN INCHES.
 B. REPLACE WITH NEW FITTING 145S1801-4.
 C. TM 1-1500-204-23.
 D. THIS TABLE AND ILLUSTRATION SHOW MATERIAL FOR AIRCRAFT SERIAL NUMBERS 92-0387 AND 92-0368.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-34 BULKHEAD STA. 95 MINOR DAMAGE

2-34

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

Task 2-33

Equipment Condition:

As Required

General Safety Instructions:

As Required

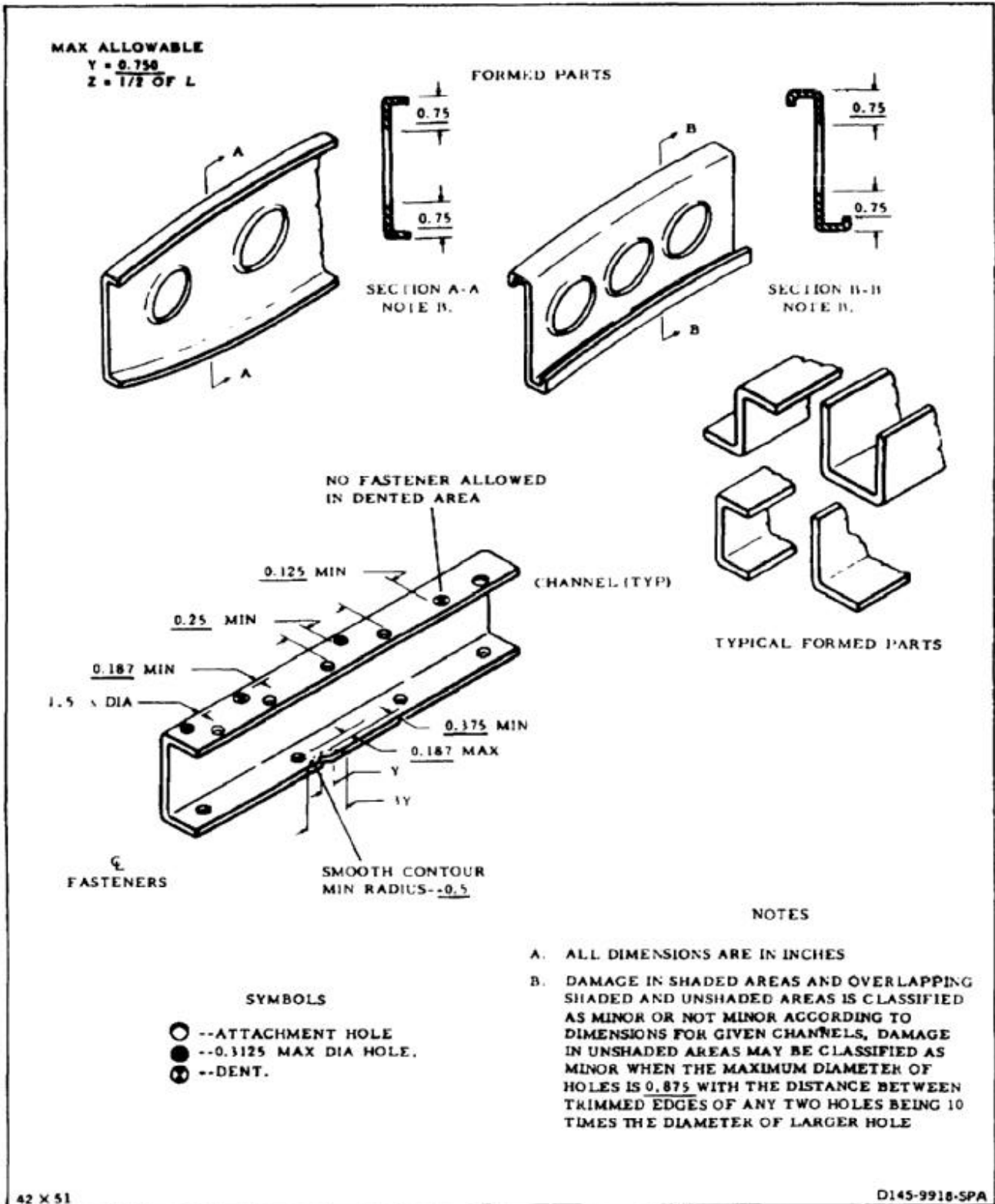
1. Minor damage is permissible and can be fixed simply, as burnishing nicks and scratches and removing small damaged areas (Task 2-33).
2. Burnished areas shall not exceed a depth equal to **10 percent** of material thickness.

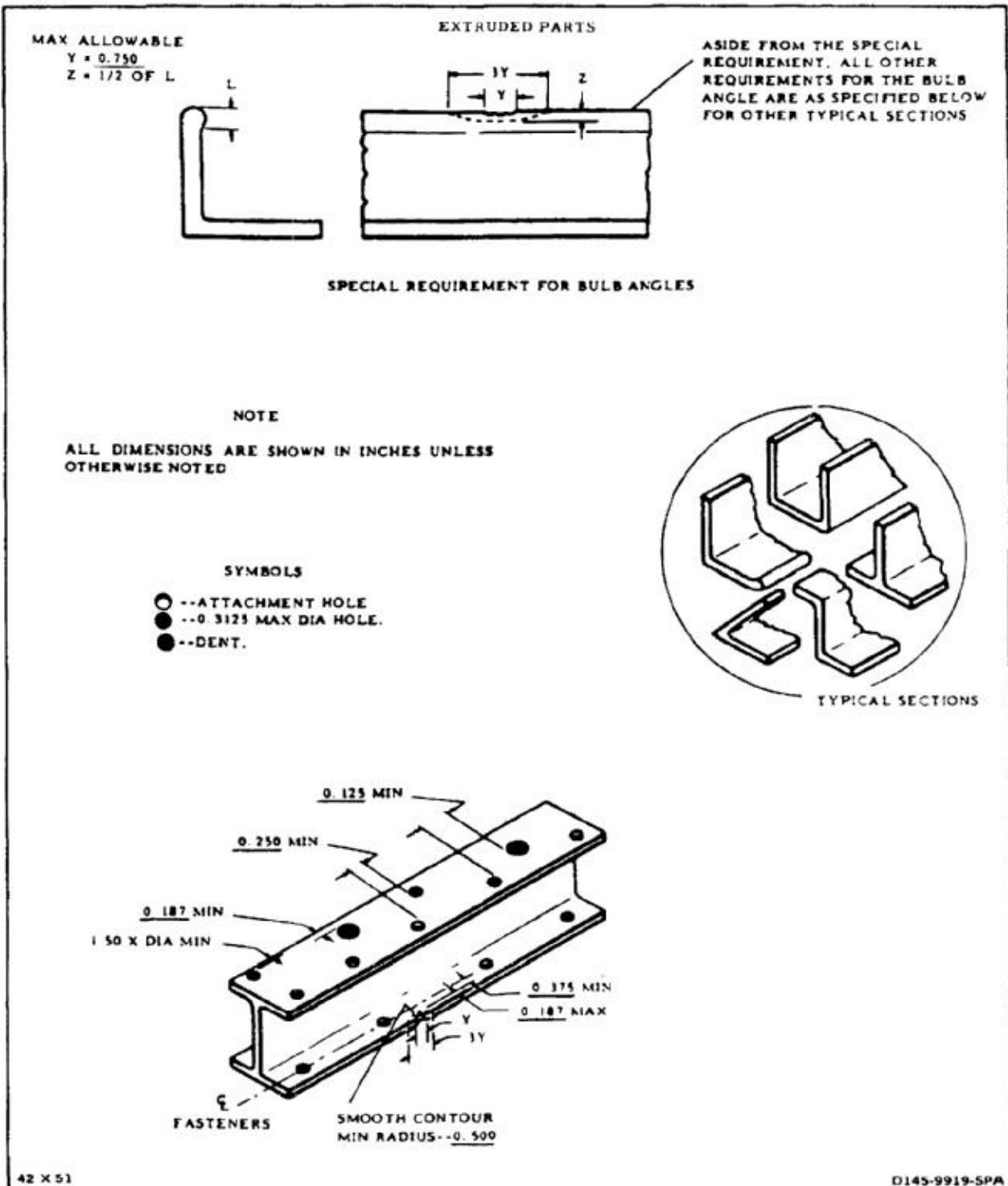
**BULKHEAD WEB****NOTES**

- | | |
|---|--|
| <p>A. ALL DIMENSIONS ARE IN INCHES</p> <p>B. FASTENERS NEAR DAMAGE CLASSIFIED AS MINOR MUST BE CAREFULLY INSPECTED FOR SIGNS OF FAILURE SUCH AS TIPPING OF HEAD, CRACKING OF PRIMER COAT, AND CLEARANCE UNDERNEATH HEAD</p> | <p>C. SMOOTH DENTS, FREE FROM CRACKS AND ABRASIONS, CAN BE DISREGARDED IF EDGES OF DENT CLEAR EDGES OF A STRUCTURAL MEMBER, WEB SPLICE, LIGHTENING OR ACCESS HOLE, OR A RADIUS BY AT LEAST <u>0.75</u></p> <p>D. NO HOLES PERMITTED UNREPAIRED IN ANY WEBS</p> |
|---|--|

42 X 26

D145-9917-SPA





FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

Task 2-33
 Task 2-359

Equipment Condition:

As Required

General Safety Instructions:

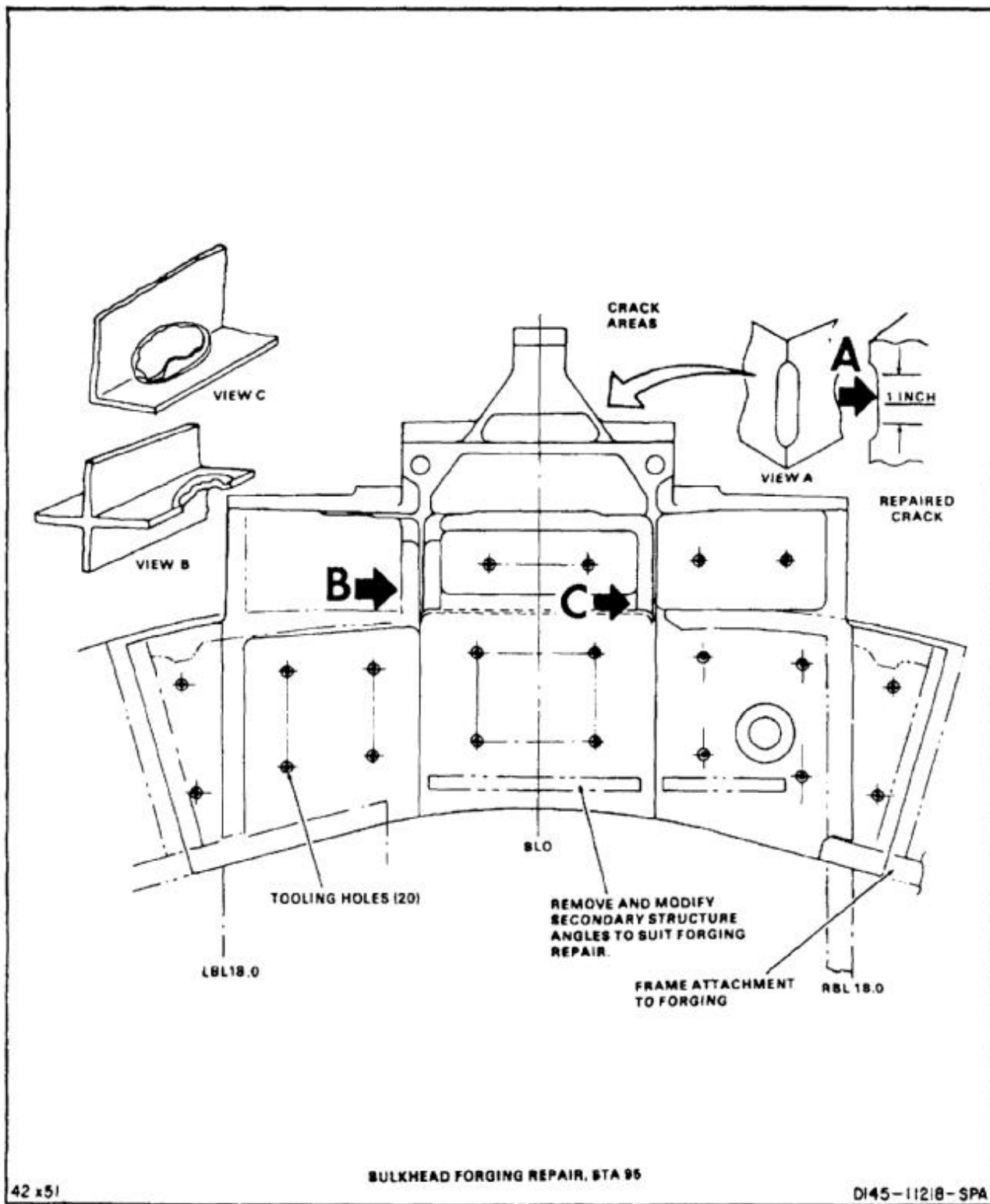
As Required

1. Damage to fabricated sheet metal part of bulkhead greater than minor but affecting less than **25 percent** of web cross section may be repaired by patching. However, there must be enough clearance from adjacent parts for rivet spacing.
2. If damage to fabricated part of bulkhead affects more than **25 percent** of web cross section (Task 2-33), repair it by insertion.
3. Repair dented sections of webs using splice plate. Do not remove dents.
4. Repair cracks in webs if following requirements are met:
 - a. Damage must not be on forged upper portion of bulkhead.
 - b. Crack must be in area where stock-thickness angles or plates will fit.
 - c. There must be space to install approved rivet patterns.
 - d. Repair must not interfere with other parts.
5. Use back-to-back repair angles or splice plates to repair flanges. If damage is longer than **1.25 inches**, use insertion.
6. Use Hilok rivets or Huckbolts for repairs.
7. Repair cracks by filling a **1/4 inch, 45°** chamfer to remove. Bottom of chamfer may not exceed **1 inch** with **1 inch** radius at each end. Penetrant inspect repairs.
8. See Task 2-359 for oilcan inspection.

NOTE

Extensive damage to sheet metal portion of bulkhead, such as the loss of a major portion of part length (Task 2-33) or many isolated damages, shall be repaired by replacement. Damage to web or flanges on forged upper portion of bulkhead shall be repaired by replacement.

Tooling holes in forging do not require matching holes in repairs.



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

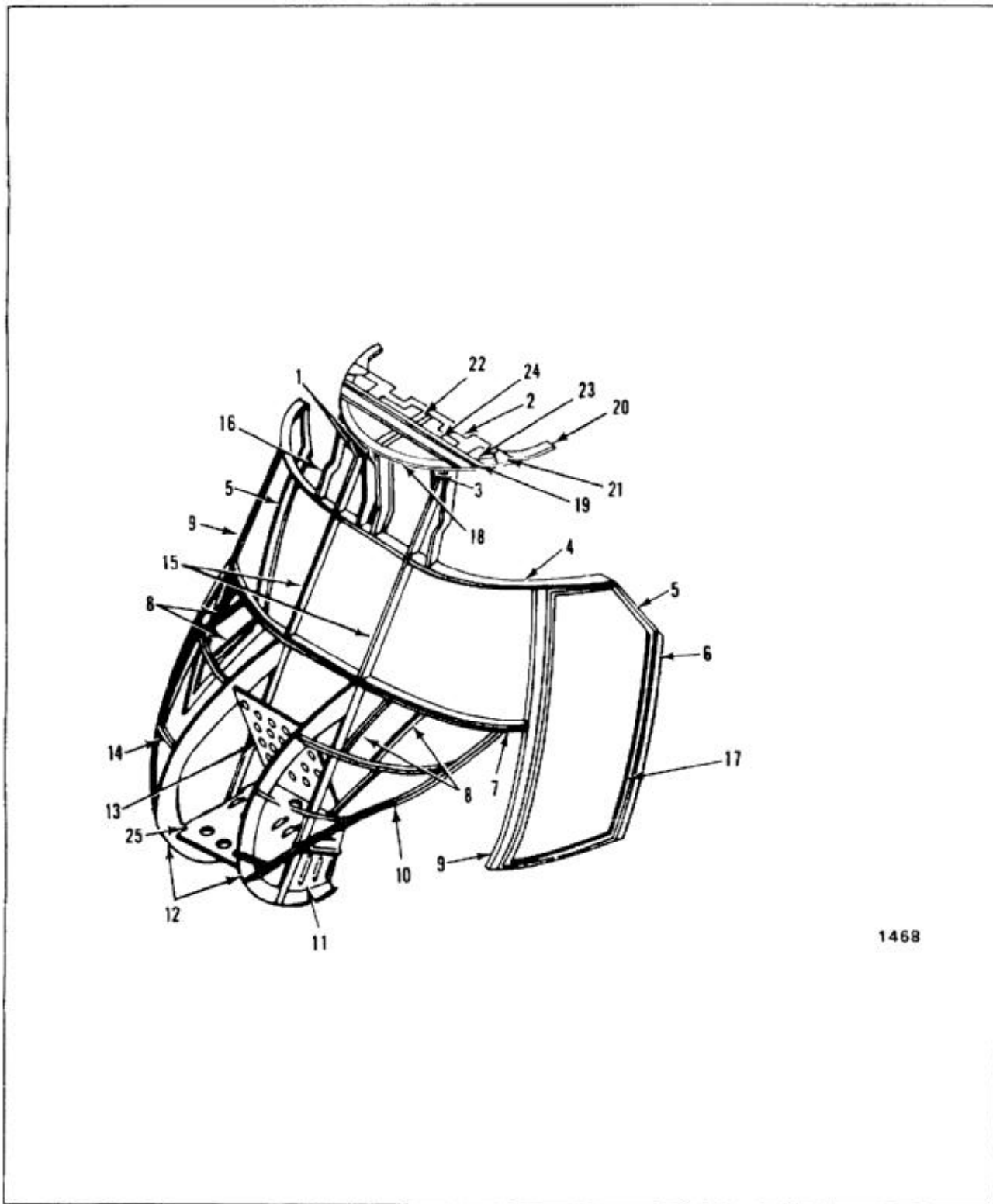
Personnel Required:Aircraft Structural Repairer
Inspector**References:**TM 1-1500-204-23
Task 2-37
Tasks 2-38 thru 2-40**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. The cockpit enclosure consists of three sections of framing, three windshields, four panel assemblies, and two door assemblies.
2. Classification of damage to the cockpit enclosure is classified as minor (Task 2-37) or repairable (Task 2-38).



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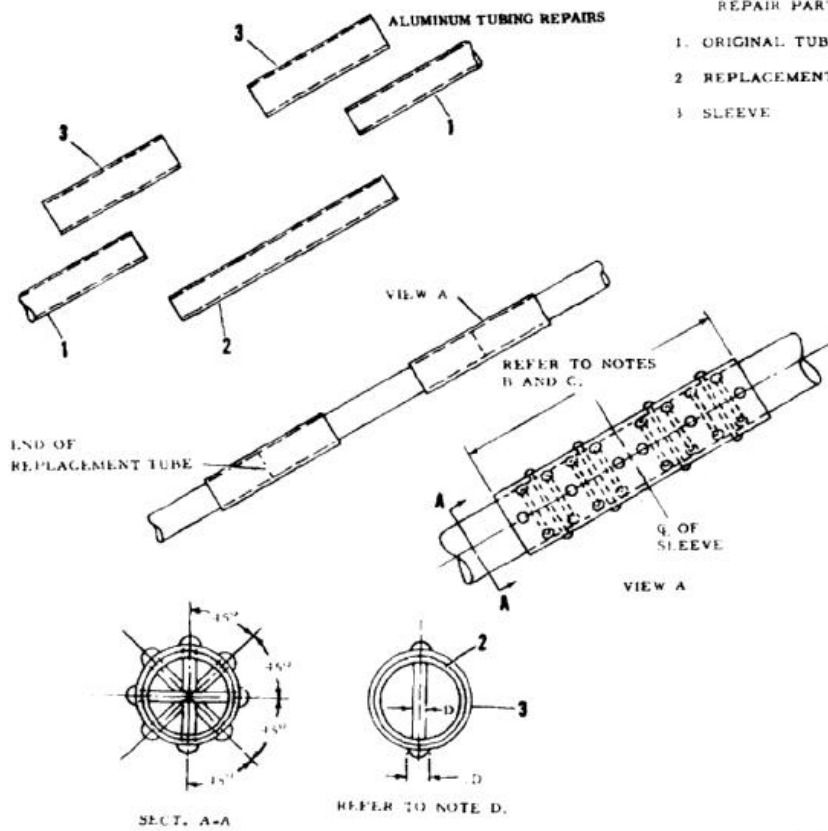
Enclosure Repairs - Cockpit Fuselage Structure (Sheet 1 of 5)

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CHANNEL	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13
2	STIFFENER	0.032 2024-T4 CLAD	0.050 2024-T3 CLAD	2-29
3	GUSSET	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD	NOTE F.
	UPPER FORMER	—	SEE SHEET 5	NOTE G.
4	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
5	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
6	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
7	FORMER	0.042 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
8	STIFFENER	0.032 202444 CLAD	0.040 2024-T3 CLAD	2-29
9	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
10	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
11	WEB	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD	2-13
12	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
13	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
14	STIFFENER	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-29
15	POST	ALCOA T364 7075-T6	NOTE B.	—
	POST	0.065 WX100X1.75 4130	NOTE B.	—
16	CHANNEL	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13
17	SEAL	MOLDED SILICONE RUBBER	NOTE C. AND NOTE D.	—
18	STIFFENER	0.032 2024-T4 BARE	0.050 2024-T3 CLAD	2-29
19	TEE FITTING	145SS107 NOTE E.	145SS107 NOTE E.	NOTE F.
20	FITTING	0.080 4130 NORM	0.100 4130 NORM	NOTE F.
21	GUSSET	0.036 4130 NORM HT TR	0.050 4130 NORM NOTE	NOTE F.
22	CHANNEL	0.032 2024-T4 BARE	0.050 2024-T3 CLAD	2-13
23	WEB	0.036 4130 NORM	0.050 4130 NORM	2-13
24	WEB	0.032 2024-T4 BARE	0.040 2024-T3 CLAD	2-13
25	WEB	0.25 7075-T6 BARE	0.032 7075-T6 BARE	2-13

NOTES

- | | |
|---|---|
| A. ALL DIMENSIONS ARE IN INCHES. | E. HEAT TREAT TO 125 TO 145 KSI. |
| B. REFER TO TASK 2-38 FOR REPAIR PROCEDURE. | F. TM 1-1500-204-23. |
| C. REPAIR WITH ORIGINAL MATERIAL. SEE TASK 2-367. | G. THIS PART IS USED ON AIRCRAFT SERIAL |
| D. REPLACE WITH NEW SEAL 114SS664-3 LH OR -4 RH, IF DAMAGE IS OTHER THAN MINOR. | NUMBERS 92-0367 AND 92-0368. |

Enclosure Repairs — Cockpit Fuselage Structure (Sheet 2 of 5)



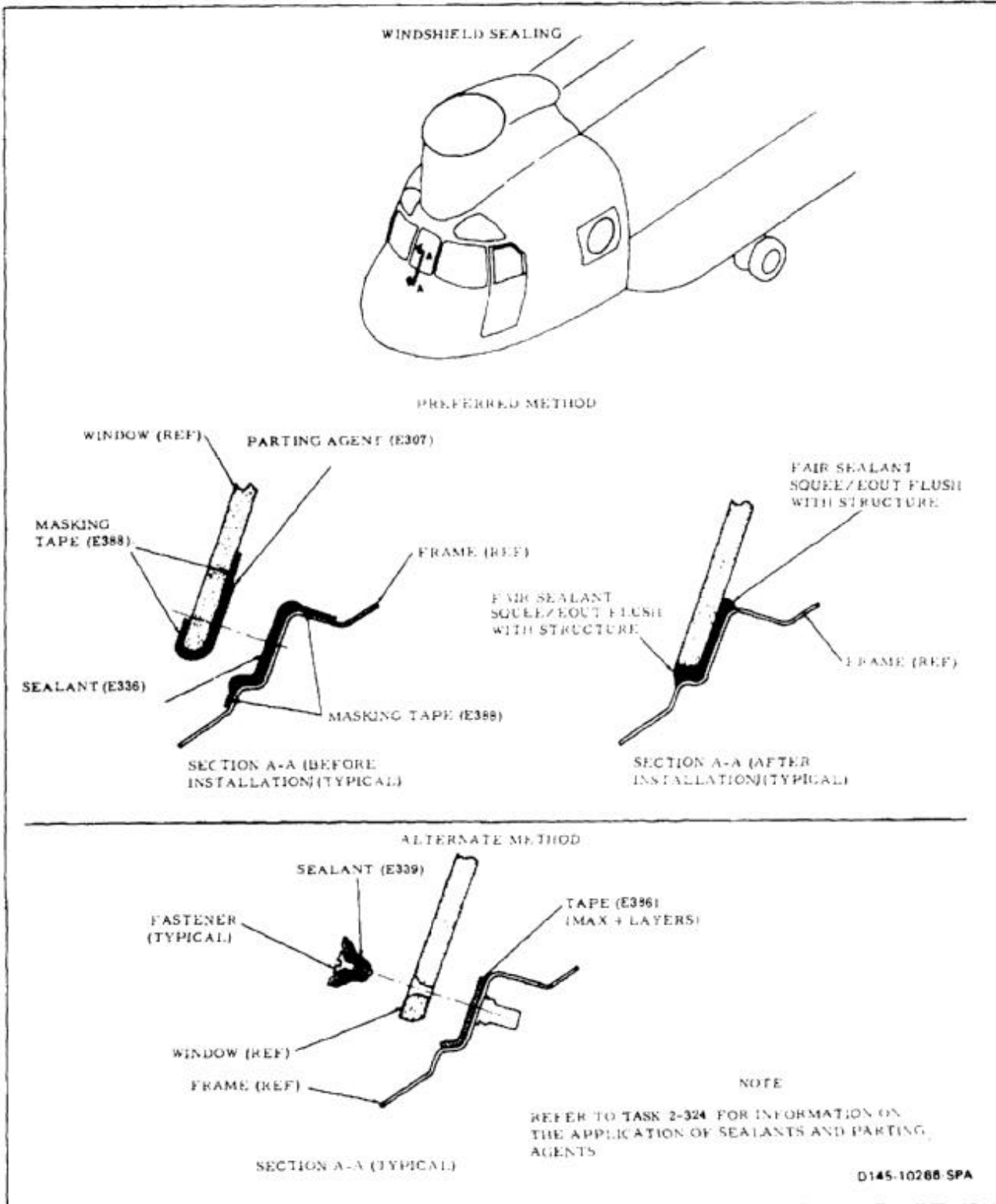
D145-10285-SPA

TUBES (1) AND (2)		SLEEVE (3)			RIVETS REQD
DIA	WALL	DIA	WALL	LENGTH	
0.50	0.035	0.625	0.058	9.375	MS20470AD5
0.75	0.065	0.875	0.058	9.375	MS20470AD5
0.875	0.065	1.0	0.058	9.375	MS20470AD5
1.0	0.065	1.125	0.058	11.25	MS20470AD6
1.25	0.065	1.25	0.058	11.25	MS20470AD6
1.25	0.058	1.375	0.058	11.25	MS20470AD6
1.375	0.058	1.5	0.058	11.25	MS20470AD6
1.5	0.058	1.625	0.058	15.0	MS20470AD8
1.625	0.058	1.75	0.058	15.0	MS20470AD8
1.75	0.058	1.875	0.058	15.0	MS20470AD8
1.875	0.058	2.0	0.058	15.0	MS20470AD8

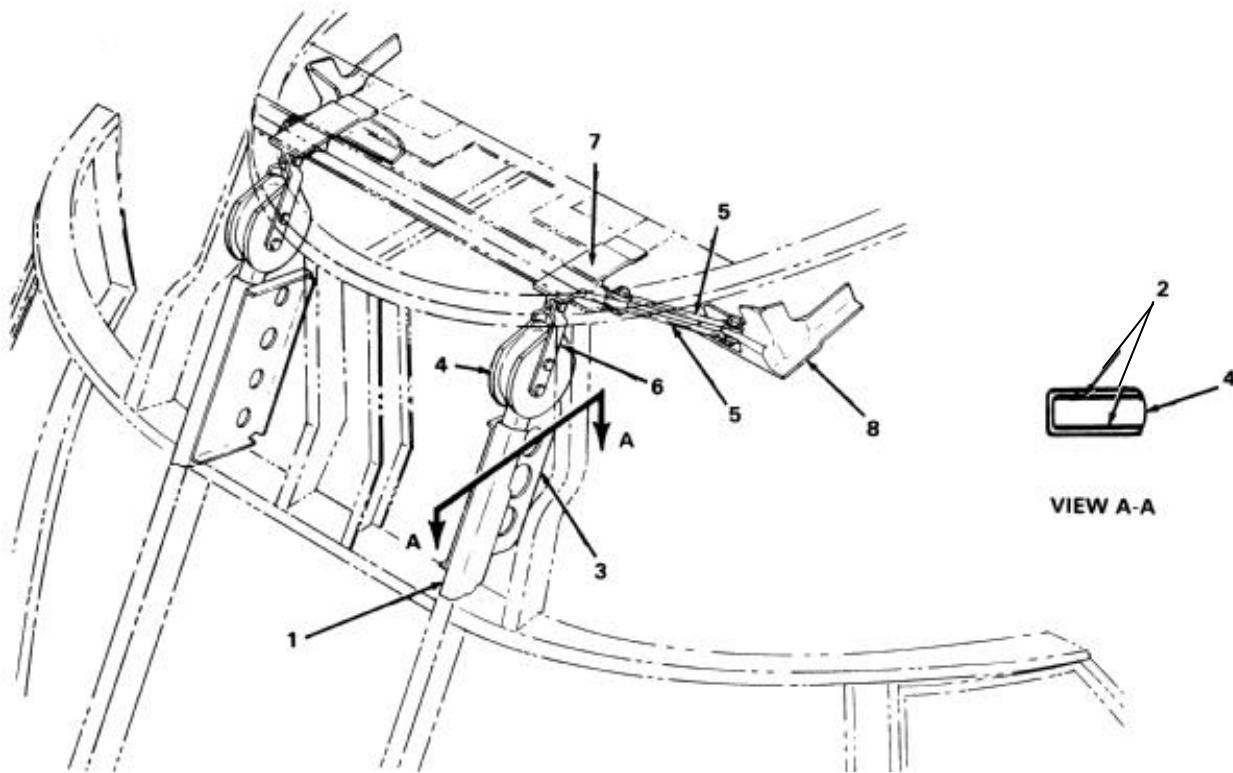
NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. ALL RIVETS 3D PITCH.
- C. TOTAL NUMBER OF RIVETS REQUIRED: 18.9
EACH SIDE OF SLEEVE CENTERLINE.
- D. FORM SHOP HEADS BY HAMMERING
LIGHTLY. SHOP HEADS TO BE APPROXIMATE
HEIGHT OF MANUFACTURED HEAD.
- E. USE SAME TYPE MATERIAL AS ORIGINAL
FOR REPLACEMENT TUBE AND SLEEVE.
- F. REPAIR IS APPLICABLE TO STRUCTURAL
TUBING ONLY. REFER TO TM 1-1500-204-23
FOR INFORMATION ON REPAIR OF FLUID
TUBING.

Enclosure Repairs — Cockpit Fuselage Structure (Sheet 3 of 5)



Enclosure Repairs - Cockpit Fuselage Structure (Sheet 4 of 5)



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIALS	REPAIR TASK
1	FORMER	0.065 W 4130-T2 STEEL	0.065 W 4130-T2 STEEL	NOTE B.
2	SHIM	0.033 AL LAMINATE	NOTE C.	NOTE E.
3	BRACKET	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD	NOTE D.
4	ISOLATOR	—	—	NOTE E.
5	LINK	4340 NORMALIZED STEEL	—	NOTE F.
6	LINK	4130-T2 STEEL	—	NOTE G.
7	FITTING	4340 NORMALIZED STEEL	—	NOTES D. & H.
8	FITTING	4340 NORMALIZED STEEL	—	NOTES D. & I.

NOTES

- A. ALL DIMENSIONS IN INCHES.
- B. REPLACE TUBE USING SAME MATERIAL. REFER TO TASK 2-38.
- C. REPLACE ENTIRE PART WITH BAC1534-33 MATERIAL OF THE SIZE AND SHAPE REQUIRED.
- D. REFER TO TM 1-1500-204-23.
- E. REPAIR IS LIMITED TO REPLACING THE ENTIRE ISOLATOR ASSEMBLY. REFER TO TASKS 2-39 AND 2-40.
- F. REPLACE WITH NEW FITTING 145S1883-1.
- G. REPLACE WITH NEW FITTING 145S1837-1.
- H. REPLACE WITH NEW FITTING 145S1882-3 AND -4.
- I. REPLACE WITH NEW FITTING 145S1884-4 AND -5.

Enclosure Repairs — Cockpit Fuselage Structure (Sheet 5 of 5)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

1. Minor damage is damage which can be corrected easily, as stop drilling cracks, removal of small dents, and damaged areas for formed metal parts (Tasks 2-6 and 2-36).
2. Refinish windshields as required (Task 2-42).

FOLLOW-ON MAINTENANCE:

As Required

References:

Task 2-6
Task 2-36
Task 2-42

Equipment Condition:

As Required

General Safety Instructions:

As Required

END OF TASK

2-208

2-38 REPAIRABLE DAMAGE COCKPIT ENCLOSURE**2-38****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

None

Personnel Required:Aircraft Structural Repairer
Inspector**References:**TM 1-1500-204-23
Task 2-37
Task 2-41
Task 2-324
Task 2-345
Task 2-366**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Damage more extensive than minor (Task 2-37) to formed metal parts of the enclosure shall be repaired by insertion.
2. For typical repairs to formed metal parts and extruded metal parts refer to TM 1-1500-204-23.
3. For information on spot welding aluminum tubing repair, refer to Task 2-366.
4. Refer to Task 2-345 and TM 1-1500-204-23 for information on transparent acrylic plastic parts repair.
5. If windshield or window removal is necessary for access to damage area, seal after reinstallation (Task 2-324).
6. If pilot's assist straps are torn in area of attaching hardware, reinstall using machine screw AN515 with washer AN960.
7. Replace windshields if damaged more than criteria in Task 2-41.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

Aircraft Serial Numbers 92-0367 and 92-0368

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

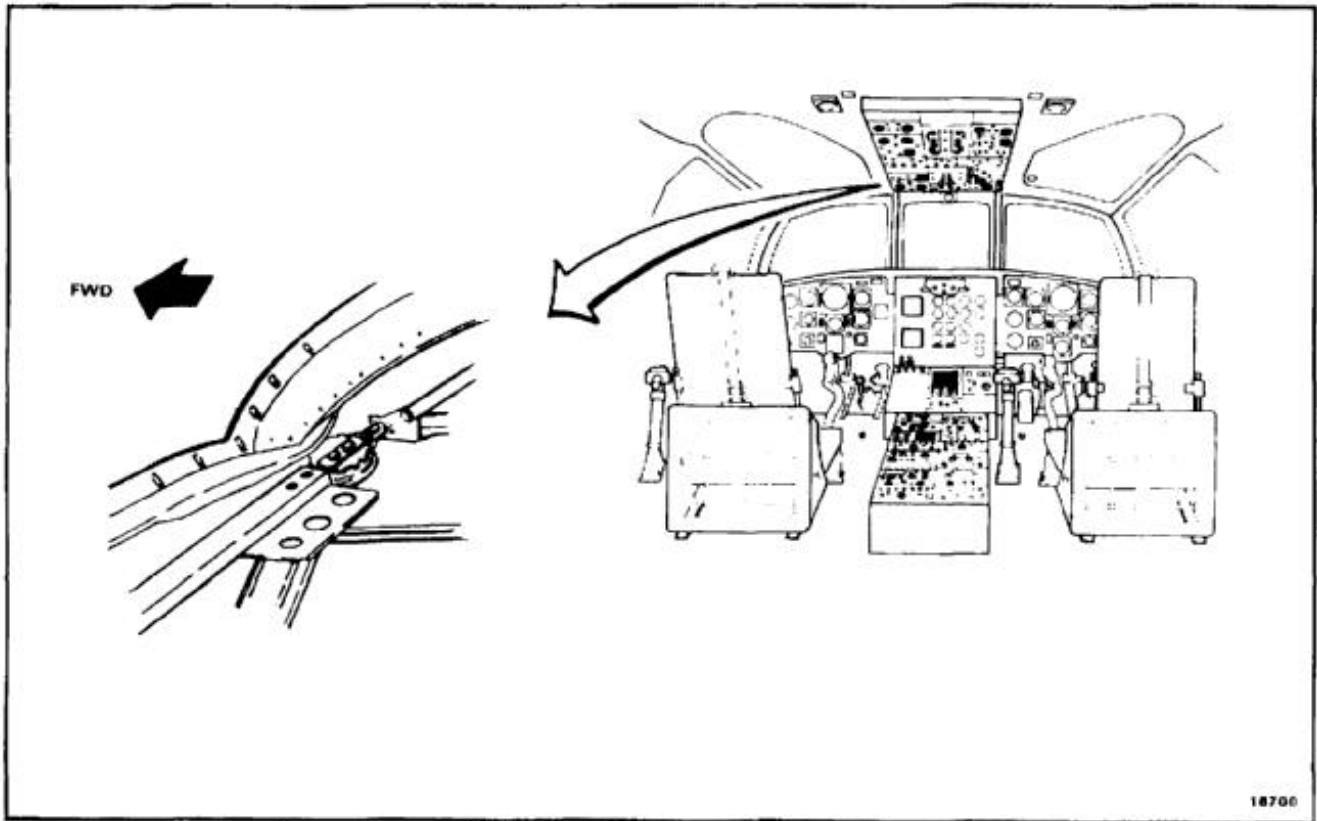
Helicopter Repairer
Aircraft Electrician

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off

References:

Task 2-107
Task 9-97

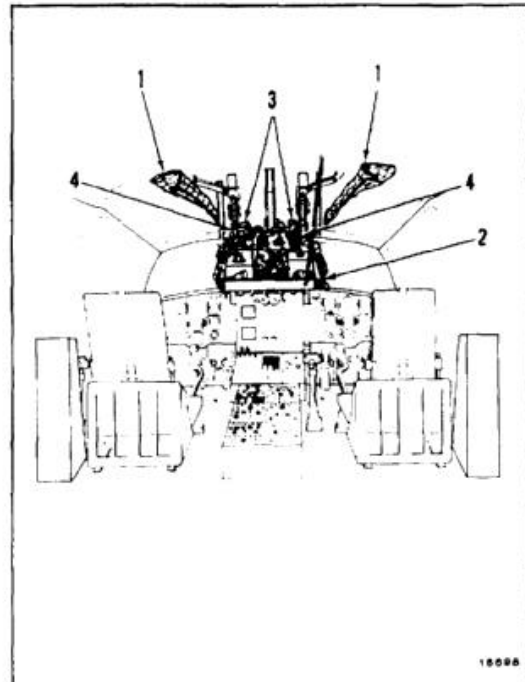


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2-39 REMOVE WINDSHIELD ISOLATION MOUNTS (Continued)

2-39

1. Remove overhead acoustic blankets (1) on both sides of the overhead switch panel (Task 2-107).
2. Remove overhead switch panel (2) (Task 9-97).
3. Disconnect harness connectors from flange (3) on windshield post/former (4).



4. Remove bolts (5) that secure the leg of the isolator (7) to the post (4), and remove the shim (13).
5. Remove bolts (6) that secure the fittings (8) to the isolator.
6. Slide isolator (7) aft and down out of the post and from between the fittings (8).

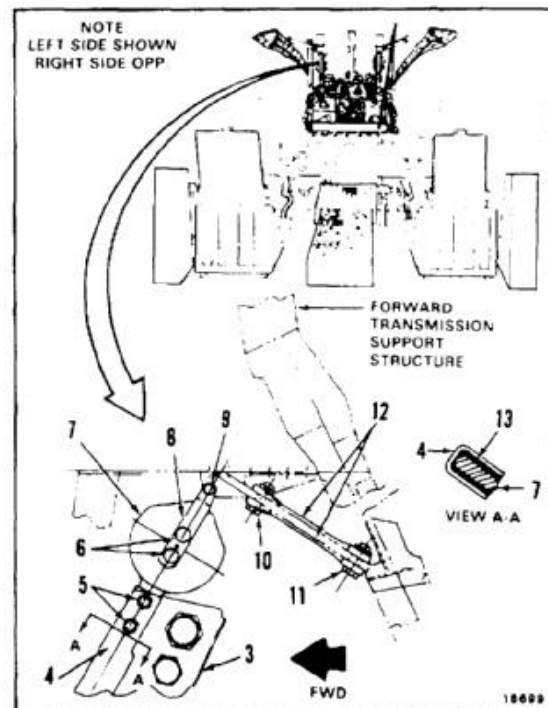
NOTE

Make sure all shim material (13) is removed.

7. If fittings (8) are to be removed, remove bolt (9).
8. If it is necessary to remove the support links (12), remove the bolts (10 and 11), and replace links as a set.
9. Inspect attaching fixtures for cracks and security.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

Aircraft Serial Numbers 92-0367 and 92-0368

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Shim (E465)

Personnel Required:

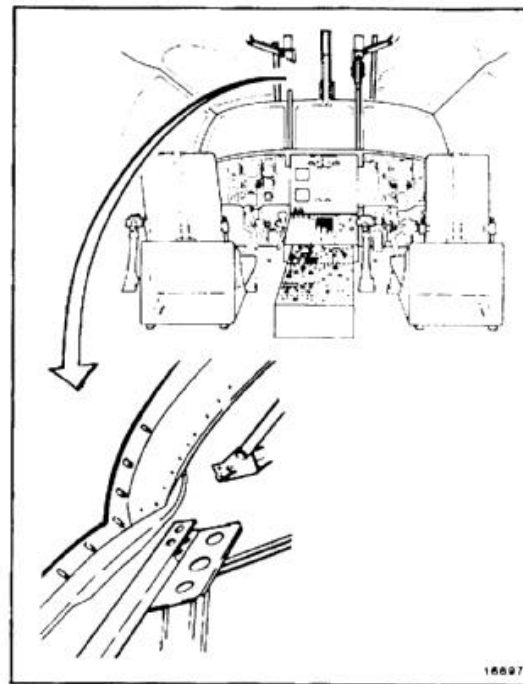
Helicopter Repairer
Aircraft Electrician

References:

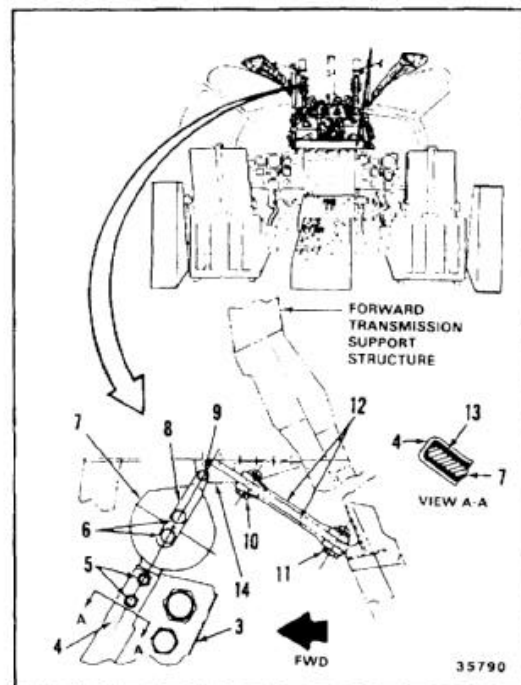
Task 2-37
Task 2-108
Task 9-98

Equipment Condition:

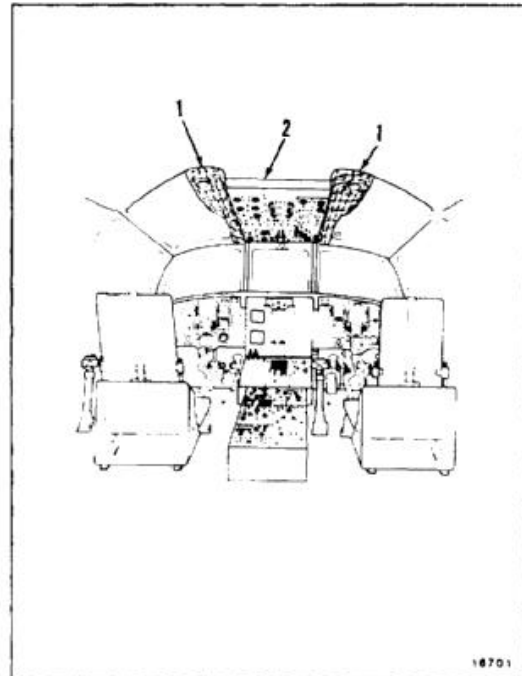
Battery Disconnected (Task 1-39)
Electrical Power Off



1. Install fittings (8) on isolator (7) and torque bolts (6) **480 to 690 inch-pounds**.
2. Position the isolator (7) in the post (4). If loose, use shim (E465) material (13) to ensure a snug fit, **0.010 inch** maximum total clearance is allowed. Make sure the fittings (8) are properly fitted over the upper bracket (14).
3. Install and torque isolator retention bolts (5 and 9), **160 to 190 inch-pounds**.
4. If support links (12) are being replaced, position the new links with bolts (10 and 11) and torque bolts to **290 to 410 inch-pounds**.
5. Reinstall connectors on flange (3).



6. Reinstall the overhead panel (2) (Task 9-98).
7. Install overhead acoustic panels (1) (Task 2-108).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspector's Tool Kit, NSN 5180-00-323-5114
Workstand

Materials:

None

Personnel Required:

Inspector

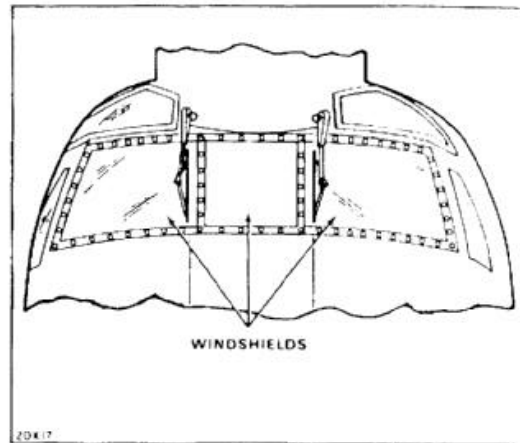
Equipment Condition:

Battery Disconnected (Task 1-39)
Electric Power Off
Hydraulic Power Off
Windshield Cleaned (Task 1-77.1)

NOTE

Windshields may be either plastic or glass. Glass windshield part number is VER-18-007-1, VER-18-008-1, and NP-1040-01-1. Plastic windshield part numbers E132500-1, E132500-2, and E144600-1.

Procedure is same for inspection of pilot's, copilot's and center plastic and glass windshields, however, disposition is different. Pilot's windshield is shown here.



1. Inspect windshield for nicks, dents, scratches, blemishes, and discolorations in critical areas. If defects block or limit pilot's vision, replace windshield, if glass. Repair or replace windshield as required, if plastic.
2. Inspect windshield for cracks and crazing. Replace windshield if cracked or crazed.

NOTE

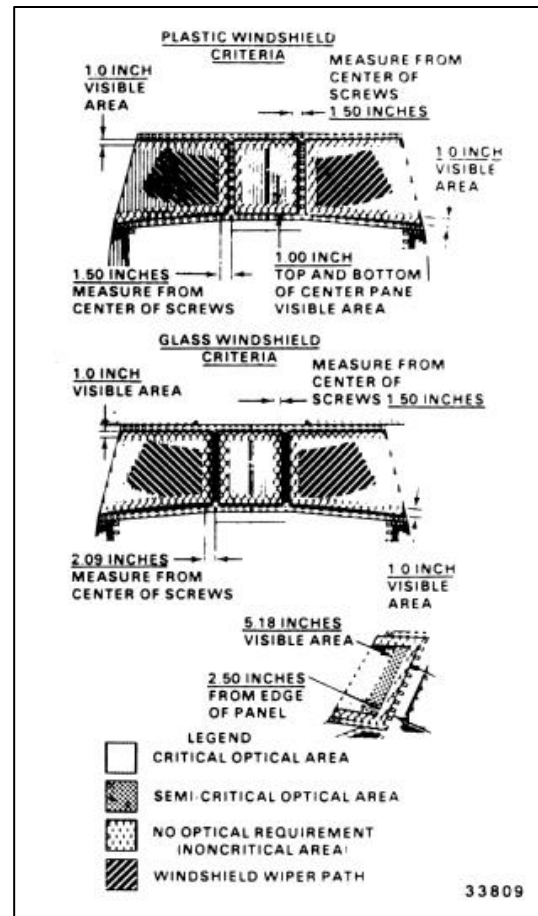
Dark brown and gold discoloration between layers of glass are indications of burnout. Do not mistake burnout colors for light gold tint of heating element.

3. Inspect windshield for burnout. Replace windshield if burnout blocks or limits pilot's vision.

NOTE

Delamination in windshield appear as blisters and air bubbles between layers.

4. Inspect windshield for delaminations (separation of layers). Replace windshield if delamination blocks or limits pilot's vision.



FOLLOW-ON MAINTENANCE:

None

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Technical Inspector's Tool Kit, NSN 5180-00-323-5114
 Workstand
 Portable Disk Sander, 7 Inch
 Stitched Buffing Wheel, 7 Inch
 Unstitched Buffing Wheel, 7 Inch
 Rubber Block, 2 Inches X 2 Inches X 4 Inches
 Water Hose

Materials:

Abrasive Paper (E10 thru E15)
 Buffing Compound (E88)
 Buffing Compound (E89)
 Cleaning Compound (E118)
 Cloth (E128)
 Rain Repellant (E307)
 Rouge (E316)
 Masking Tape (E388)
 Wax (E442)

1. Mask areas adjacent to repair area to protect from damage. Use masking tape (E388).
2. Wrap abrasive paper (E10) around rubber block.
3. Sand surface to be repaired. Use abrasive paper (E10) wet with water.
4. Using a finer grit abrasive paper (E11 thru E15), repeat step 3 until scratches are removed.
5. Flush repaired surface with water to remove loose foreign matter.

Personnel Required:

Aircraft Structural Repairer (2)
 Inspector

References:

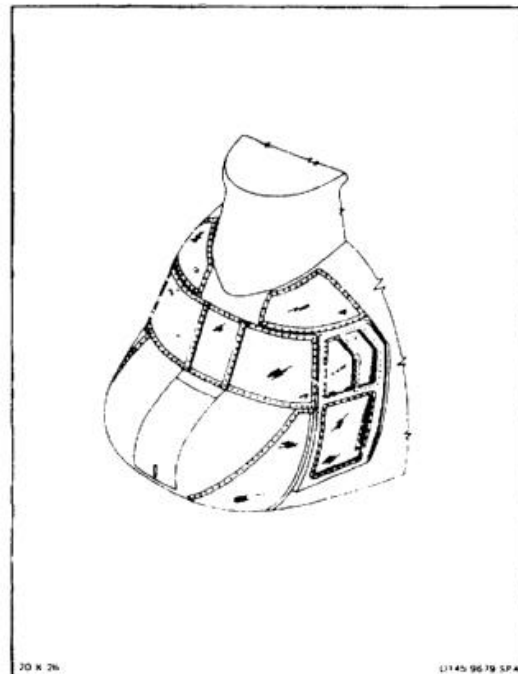
Task 2-41

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Windshield Cleaned (Task 1-77.1)

General Safety Instructions:

Surface to be repaired must be covered with water at all times to prevent further damage.





Machine polishing of critical optical areas by a qualified operator is mandatory. Semicritical and noncritical areas (Task 2-41) only can be polished by hand. Use rouge (E316) applied with a water-moistened pad of cloth (E128).

6. Polish sanded surface, using a stitched buffing wheel mounted in a portable disk and buffing compound (E88).

INSPECT

7. Polish sanded surface, using an unstitched buffing wheel and buffing compound (E89).
8. Using a cleaner-polish (E118) applied with a water-moistened pad of cloth (E128) polish surface to desired luster.
9. If required, a high-luster finish can be obtained by using wax (E442) applied to surface with a water-moistened pad of cloth (E128) and rubbing lightly in a circular motion.



Do not allow rain repellent to come in contact with open flame as deadly hydrogen fluoride gas could be generated. Wash hands with soap and water after handling rain repellent.

10. Apply rain repellent (E307), if required, to windshields using a flannel cloth (E128).

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:

Paper Tags (E264)

Parts:

Cotter Pin

Personnel Required:

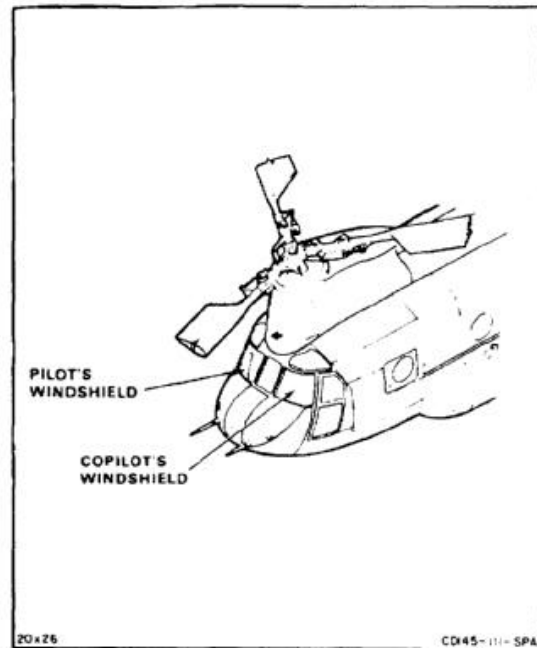
Medium Helicopter Repairer

References:

Task 2-45

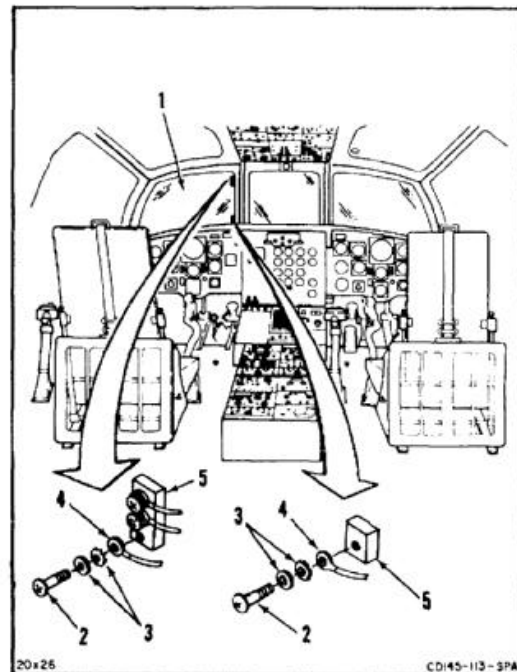
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

**NOTE**

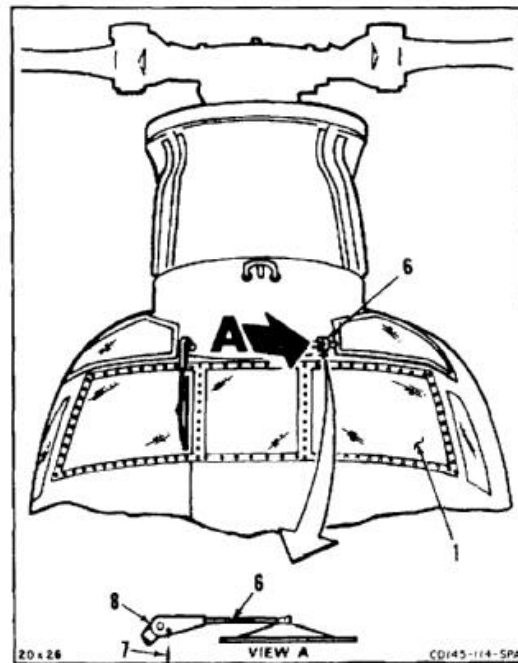
Procedure is same to remove either pilot's or copilot's windshield. Copilot's windshield is shown here.

1. From inside helicopter (1), remove four screws (2), eight washers (3), and four wires (4), from terminal blocks (5). Tag all wires as they are disconnected. Use paper tags (E264).

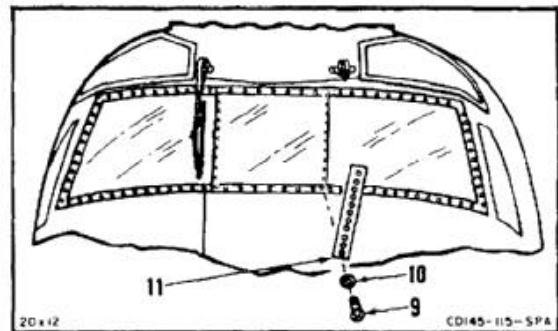


2-43 REMOVE PILOT'S OR COPILOT'S WINDSHIELD (Continued)

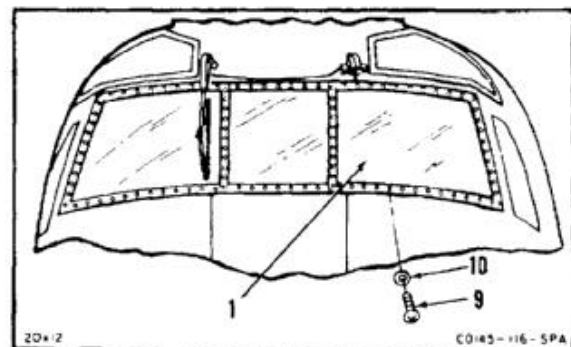
2. From outside helicopter, hold windshield wiper arm (6) away from windshield (1).
3. Put cotter pin (7) through hole in wiper arm (6) near hub (8).



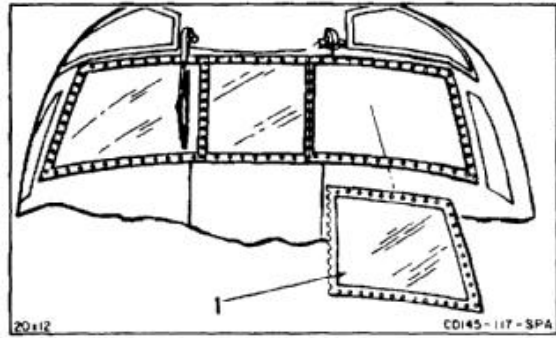
4. Remove 11 screws (9) and washers (10) from retainer (11).
5. Remove retainer (11).



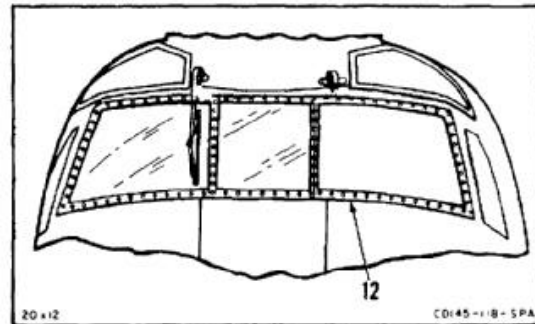
6. Remove other 34 screws (9) and washers (10) from around windshield (1).



7. Remove windshield (1).



8. Check that rubber strip (12) is not loose, cut, or nicked. If damaged or loose, replace strip (Task 2-45).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-220

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692
Workstand

Materials:

Paper Tags (E264)

Personnel Required:

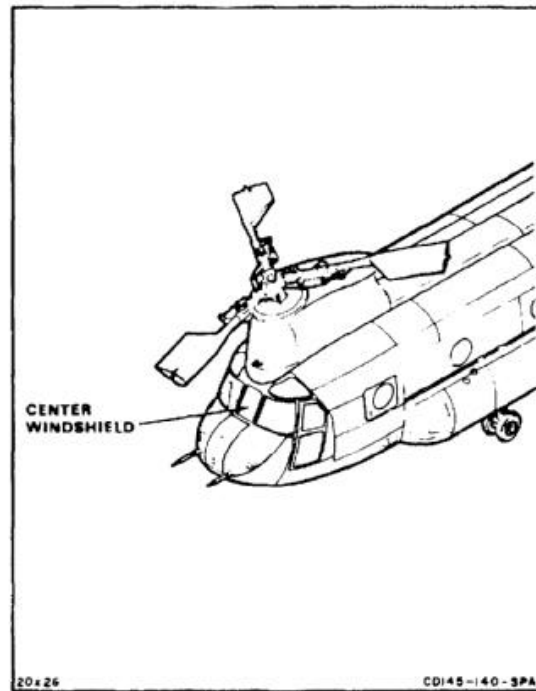
Medium Helicopter

References:

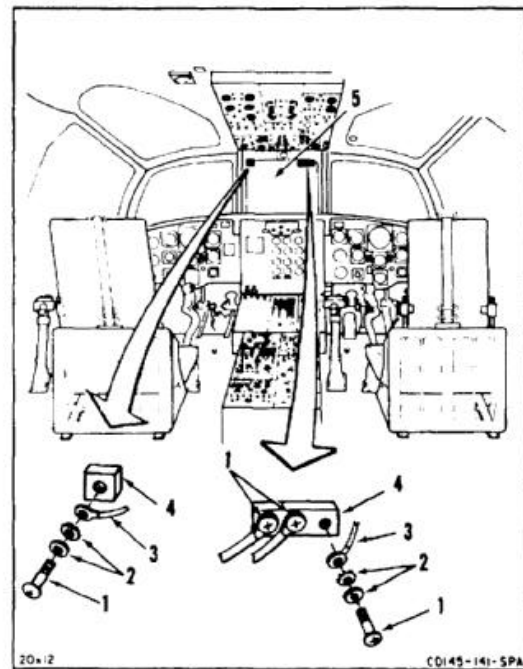
Task 2-45

Equipment Condition:

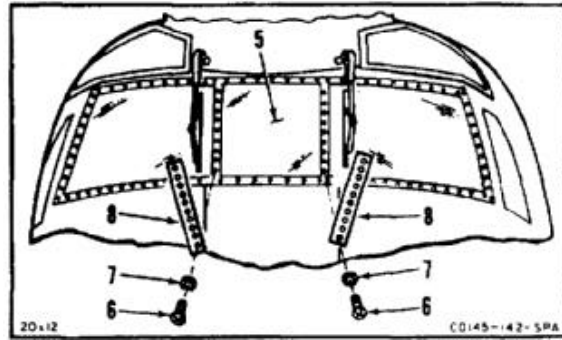
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



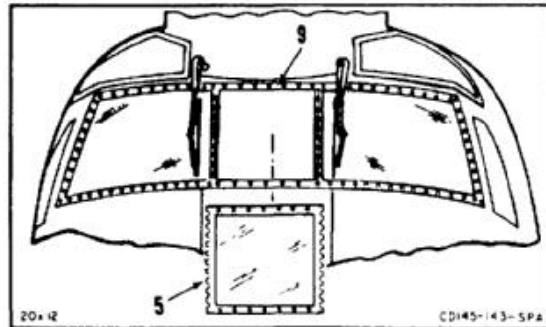
1. From inside helicopter, remove four screws (1), eight washers (2), and four wires (3) from terminal blocks (4) on windshield (5). Tag all wires as they are disconnected. Use paper tags (E264).



2. From outside helicopter, remove 36 screws (6) and washers (7) from around windshield (5).
3. Remove retainers (8).



4. Remove windshield (5).
5. Check that rubber strip (9) is not loose, cut, or nicked. If damaged or loose, replace strip (Task 2-45).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-222

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Acid Swabbing Brush
 Paint Brush
 C-Clamp, 2 Inch (3)
 Workstand

Materials:

Abrasive Paper (E6)
 Cleaning Cloth (E120)
 Gloves (E184.1)
 Acetone (E20)
 Epoxy Primer (E292.1)
 Sheet, Rubber (E319)
 Sealant (E340)
 Sheet Steel, 4 Feet X 2 Inch X 1/16 Inch Thick (E372)

Personnel Required:

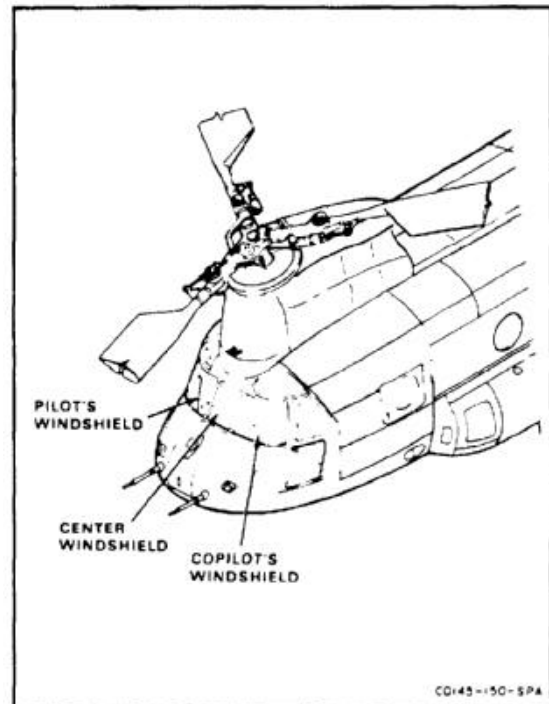
Aircraft Structure Repairer
 Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Windshield Removed (Task 2-43 For Pilot's or
 Copilot's Windshield, or Task 2-44 For Center
 Windshield)

General Safety Instructions:**WARNING**

Sealant (E340) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.



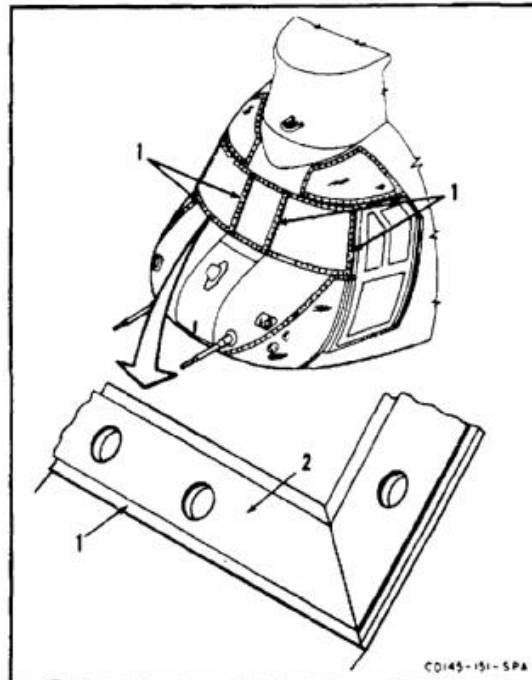
NOTE

Procedure is same to replace rubber strip on pilot's, center, or copilot's windshield support structure.

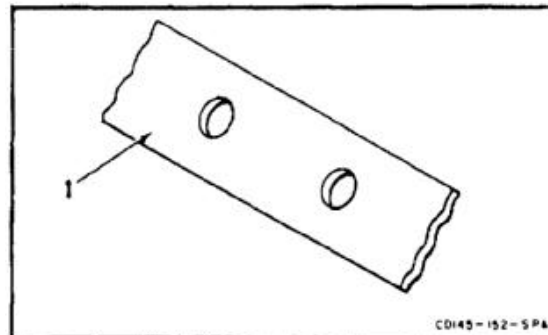
1. At support structure (1) remove old section of rubber strip (2).

WARNING

Acetone (E20) is flammable and toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.



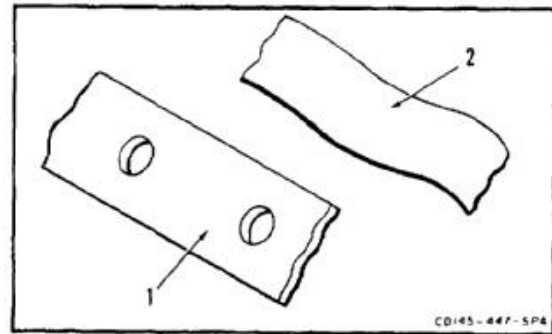
2. Clean surface of windshield support structure (1) with cloth (E120) soaked with acetone (E20). Wear gloves (E184.1).



3. Cut new rubber strip (E319) (2) to fit structure (1). Lightly rub both sides with abrasive paper (E6).

WARNING

Primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

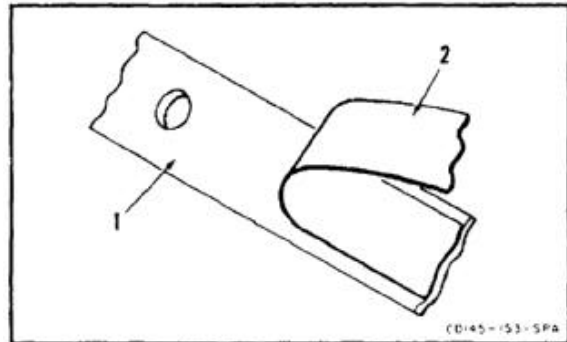


4. Brush **one coat** of primer (E292.1) on structure (1). Wear gloves (E184.1).
5. Let primer (E292.1) dry for at least **30 minutes**.

NOTE

Sealant (E340) cures quickly. Steps 6 thru 9 must be done quickly before sealant dries, to get good bond between rubber strip and structure.

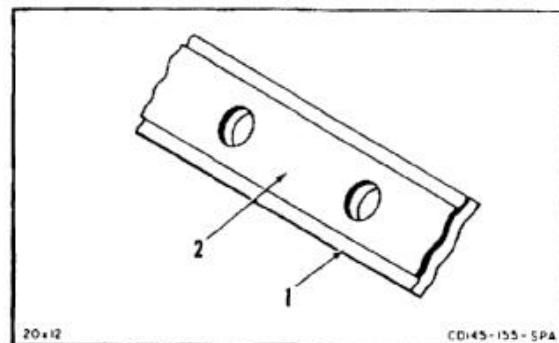
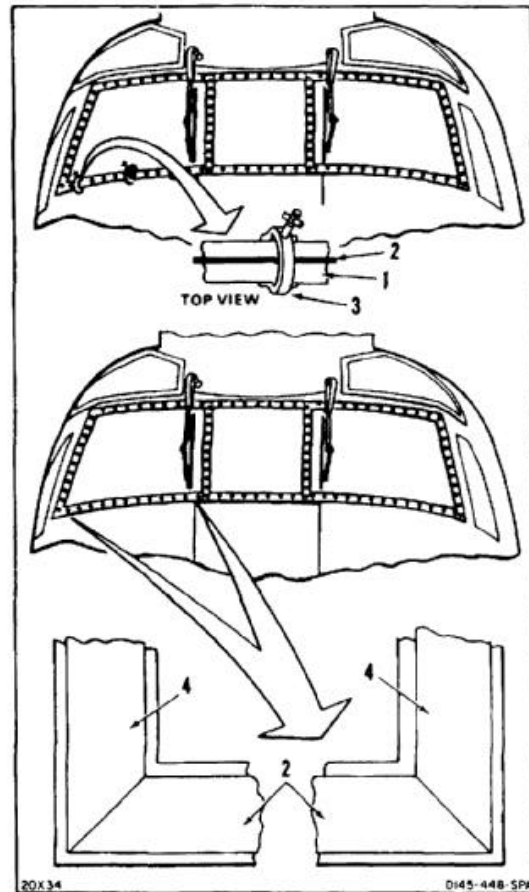
6. Brush sealant (E340) on surface of structure (1).
7. Brush sealant (E340) on one side of rubber strip (2).
8. Position rubber strip (2) on structure (1), with sealant down.



9. Cut piece of sheet metal to fit over new strip (2).
10. Clamp sheet metal in place to hold strip (2) against structure (1). Use at least three C-clamps (3). Put one clamp on each end and one clamp on middle of piece of sheet steel (E372).
11. Let sealant cure for **1 hour**.
12. Remove clamps (3) and sheet steel (E372).
13. Check ends of strips (2 and 4) for gaps. If there are no gaps, perform step 21. If there are gaps, perform steps 14 thru 21.
14. Fit a piece of rubber strip in gap between strips (2 and 4). Make sure there are no overlaps.
15. Remove piece of rubber strip used to fill gap. Lightly rub both sides with abrasive paper (E6).
16. Brush sealant (E340) on surface of structure (1) under gap.
17. Brush sealant (E340) on one side of piece of rubber strip.
18. Position piece of rubber strip on structure (1) to fill gap.
19. Clamp piece of sheet metal to hold section of rubber strip against structure (1).
20. Let sealant cure for **1 hour**; then remove clamp (3) and sheet metal.
21. Punch holes through strip (2), using screw holes in structure (1) as a guide.

INSPECT**FOLLOW-ON MAINTENANCE:**

Install windshield (Task 2-46 for pilot's or copilot's windshield, or Task 2-47 for center windshield). Check windshield for leaks (Task 2-61).



END OF TASK

2-226

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Torque Wrench, 5-50 Inch-Pounds
 Workstand

Materials:

- █ Sealant (E336 or E470)
- █ Gloves (E186)
- █ Goggles (E473)

Personnel Required:

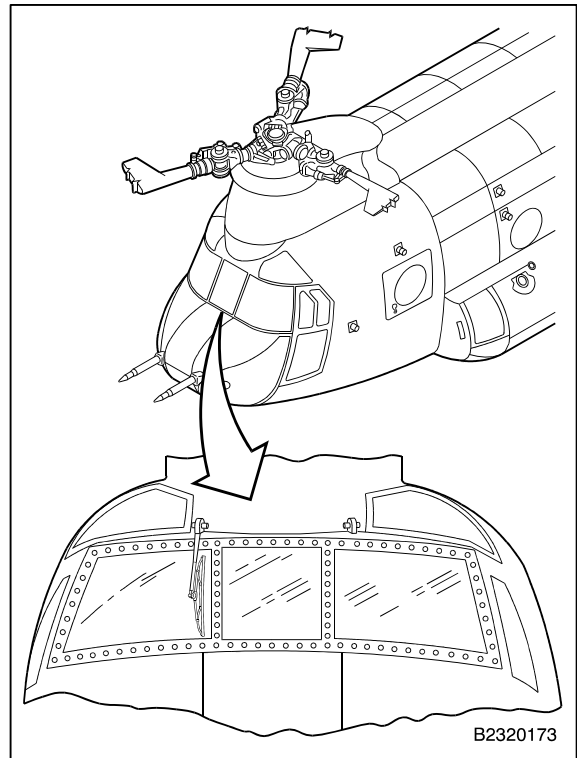
- █ CH-47 Helicopter Repairer (2)
- Inspector

References:

TM 55-1520-240-23P

Equipment Condition:

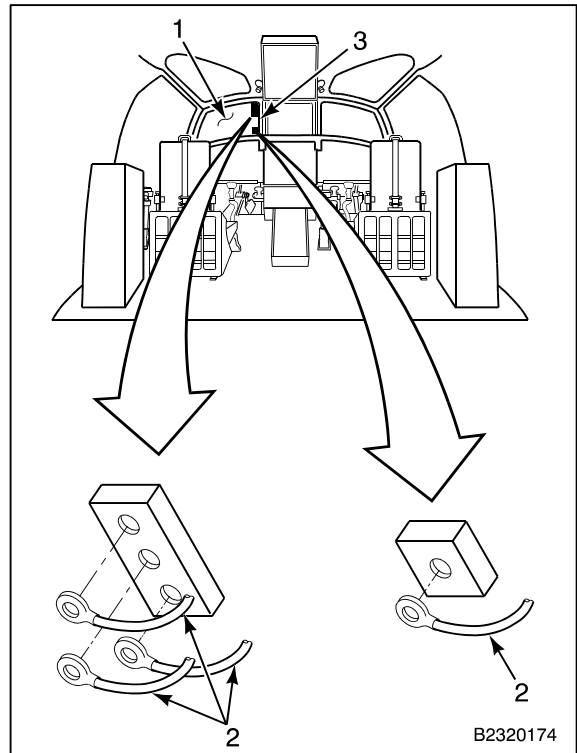
Windshield Heating Element and Sensors Tested
 (Task 12-2)



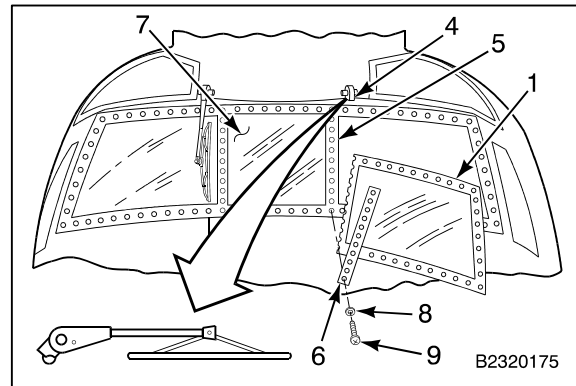
NOTE

Procedure is same to install pilot's or copilot's windshield. Copilot's windshield is shown here.

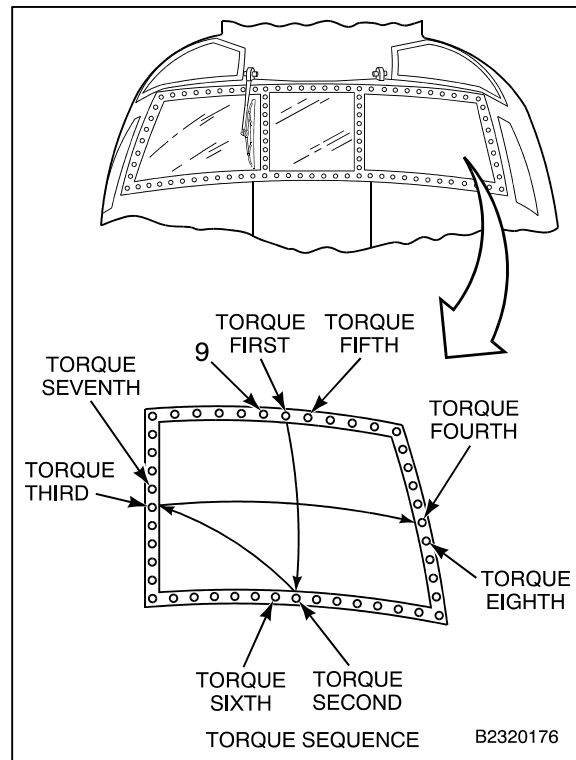
1. Have helper inside cockpit (1) make sure windshield is free of all wires (2). Make sure support structure (3) is free of all wires (2).



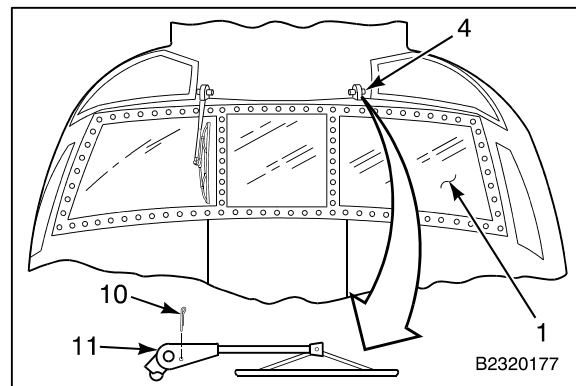
2. Make sure windshield wiper arm (4) is raised and held clear of installation area.
3. Position windshield (1) against rubber strip (5).
4. Install retainer (6) in slot between windshield (1) being installed and center windshield panel (7).
5. Install 45 washers (8) and screws (9).



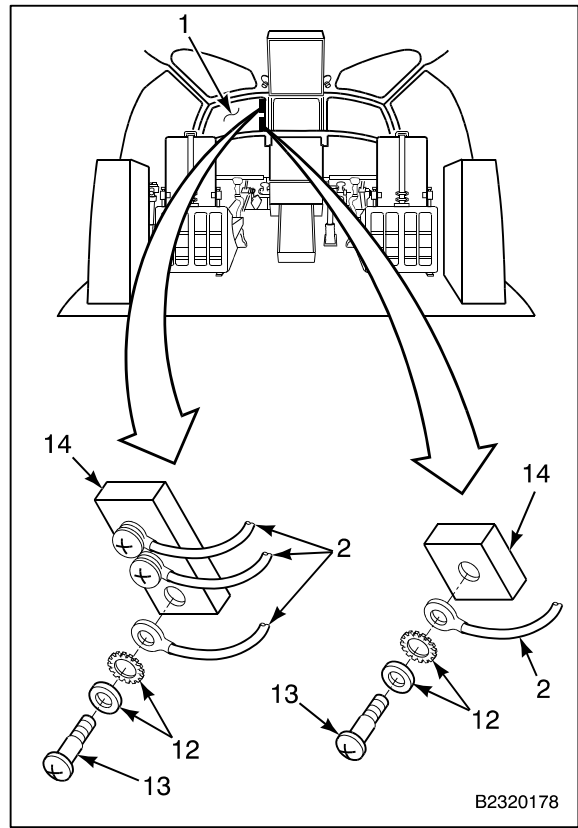
6. Torque screws (9) to **12 inch-pounds**. Torque screws following torque sequence shown.



7. Hold wiper arm (4) and take out cotter pin (10) from hole near hub (11) of wiper arm.
8. Lower wiper arm (4) against windshield (1).



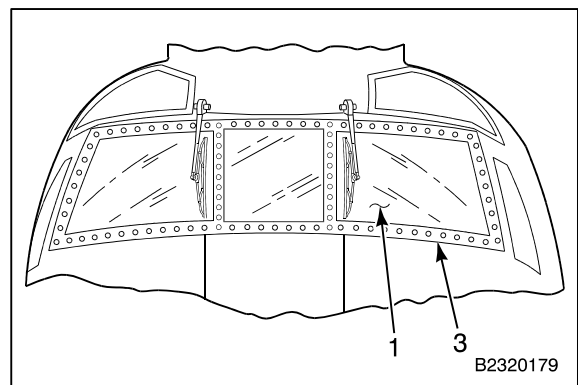
9. From inside helicopter, install four wires (2), eight washers (12), and screws (13) in terminal blocks (14). Remove tags as wires are installed.



WARNING

Sealant (E336 or E470) may irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

10. Apply sealant (E336 or E470) around top, inboard, and bottom edge of windshield (1). Make sealant flush with structure (3). Wear gloves (E186).



INSPECT

FOLLOW-ON MAINTENANCE:

- Check windshield for leaks (Task 2-61).
- Perform windshield anti-icing system operational test (TM 55-1520-240-T).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Workstand
 Torque Wrench, 5-150 Inch-Pounds

Materials:

Sealant (E336)
 Gloves (E186)
 Goggles (E473)

Personnel Required:

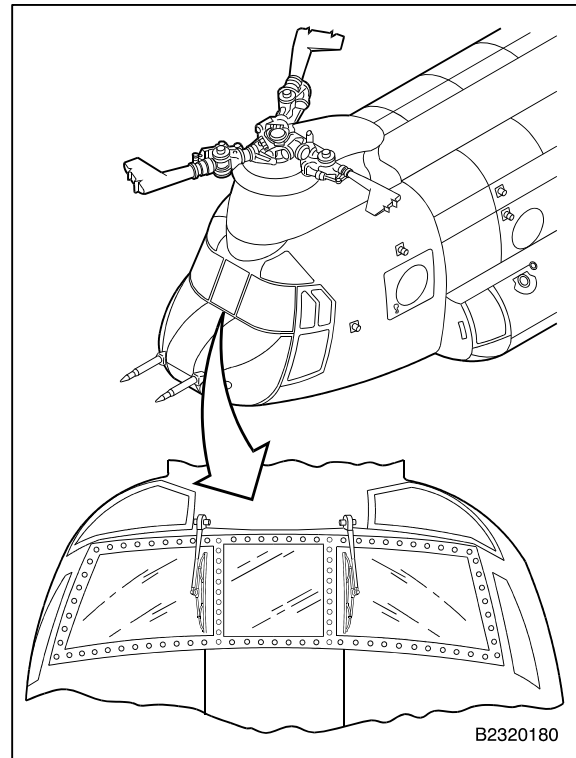
CH-47 Helicopter Repairer (2)
 Inspector

References:

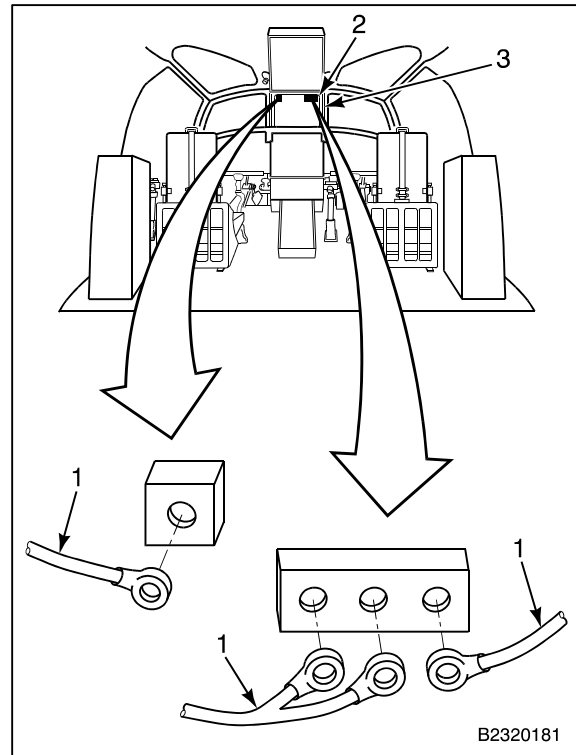
TM 55-1520-240-23P

Equipment Condition:

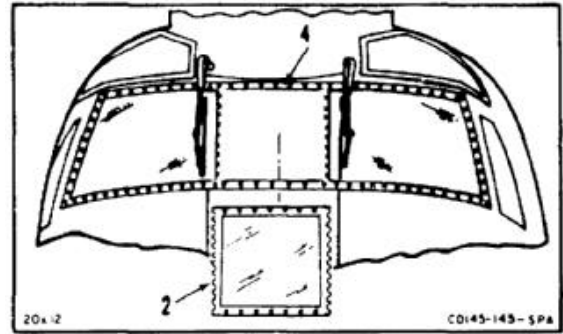
Windshield Panel Heating Tested (Task 12-2)



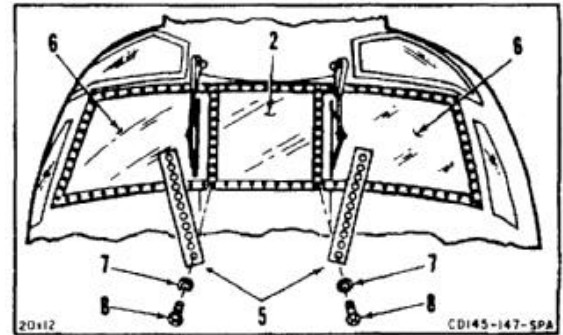
1. Have helper make sure all wires (1) on windshield (2) are free of support structure (3).



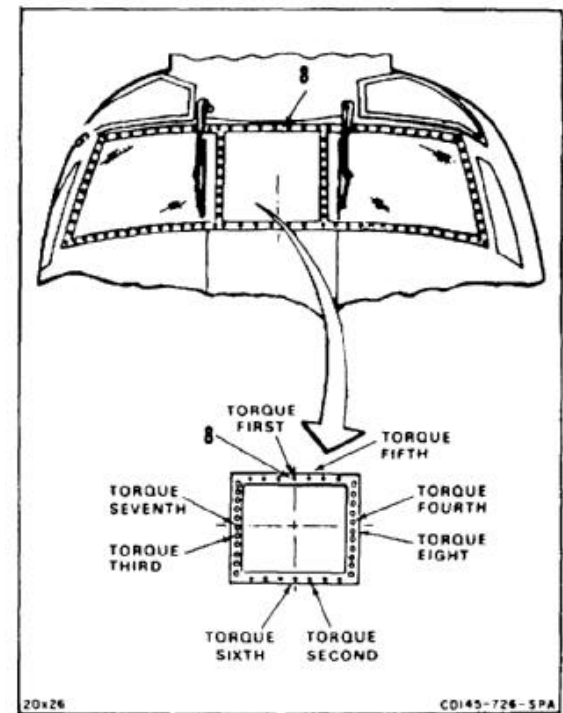
2. Position windshield (2) against rubber strip (4).



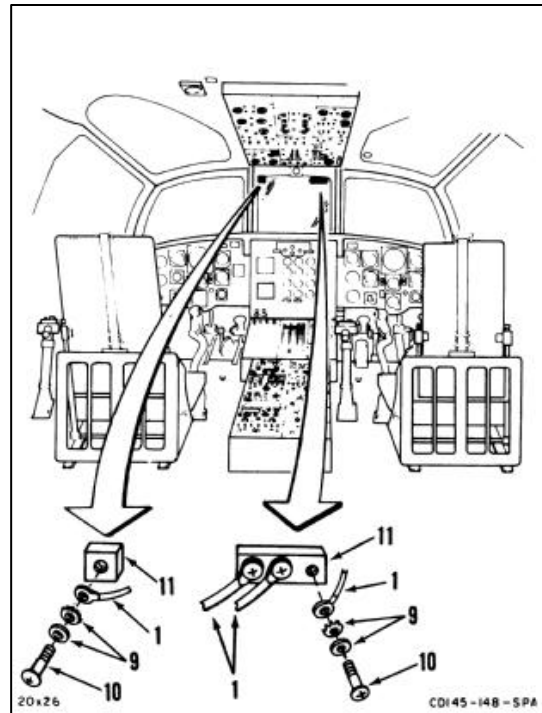
3. Install two retainers (5) in slots between windshield (2) and pilot's and copilot's windshields (6).
4. Install 36 washers (7) and screws (8).



5. Torque screws (8) to **12 inch-pounds**. Torque screws alternately following torque sequence shown.



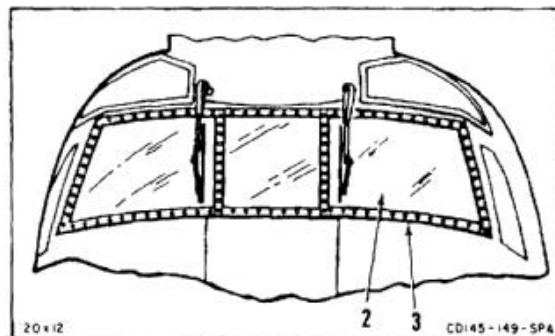
6. From inside helicopter, install four wires (1), eight washers (9), and screws (10) in terminal blocks (11). Remove tags as wires are installed.



WARNING

Sealant (E336) may irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

7. Apply sealant (E336) around edge of windshield (2). Make sealant flush with structure (3). Use gloves (E186).



INSPECT

FOLLOW-ON MAINTENANCE:

Check windshield for leaks (Task 2-61).
Perform windshield heating element operational test (TM 55-1520-240-T).

END OF TASK

2-232

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692
Workstand

Materials:

Paper Tags (E264)

Parts:

Cotter Pin

Personnel Required:

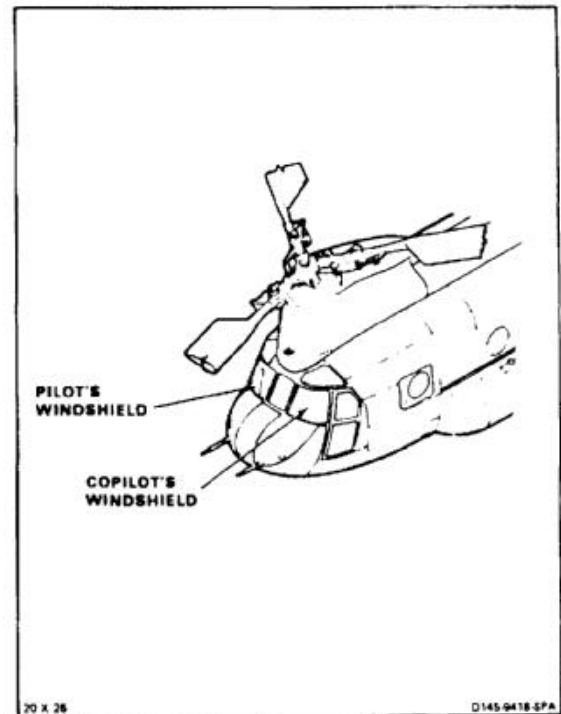
Medium Helicopter Repairer

References:

Task 2-45

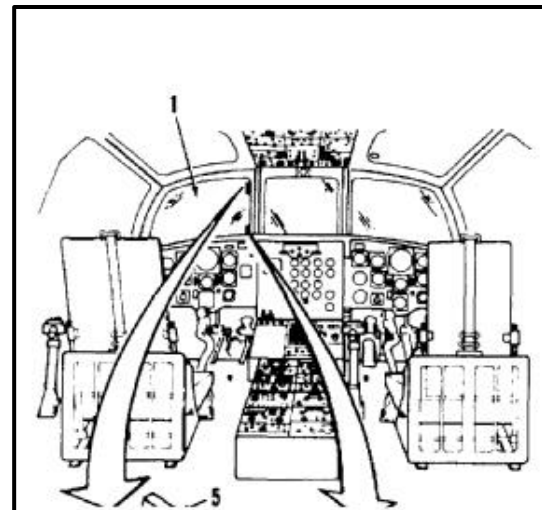
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

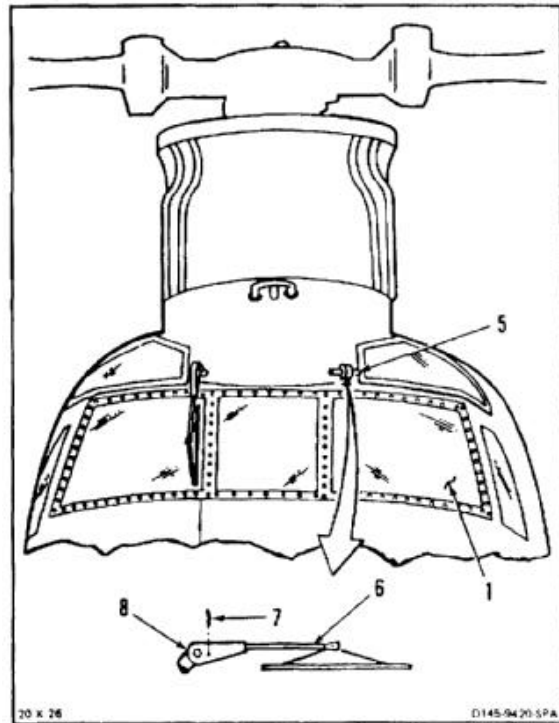
**NOTE**

Procedure is same to remove pilot's or copilot's plastic windshield. Copilot's plastic windshield is shown here.

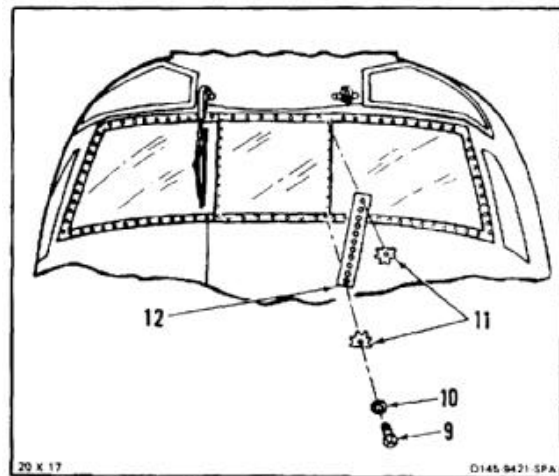
1. From inside windshield (1), remove four screws (2), eight washers (3), and four wires (4) from terminal blocks (5). Use tags (E264) and tag all wires as they are disconnected.



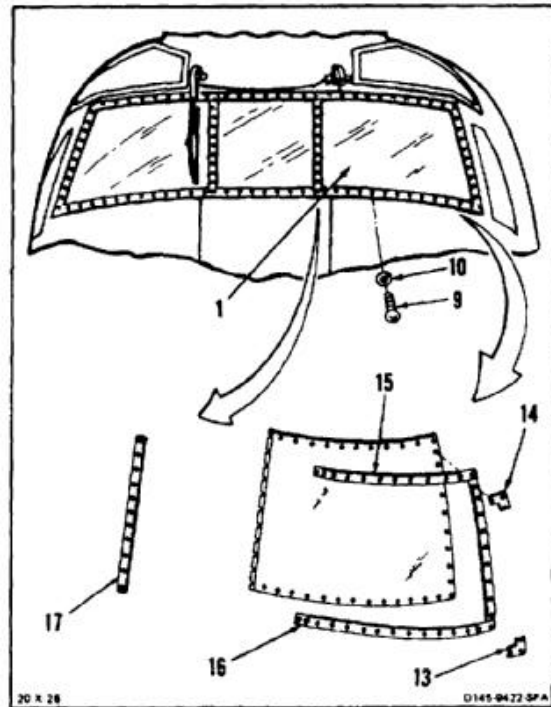
2. From outside helicopter, hold windshield wiper arm (6) away from windshield (1).
3. Put cotter pin (7) through hole in wiper arm (6) near hub (8).



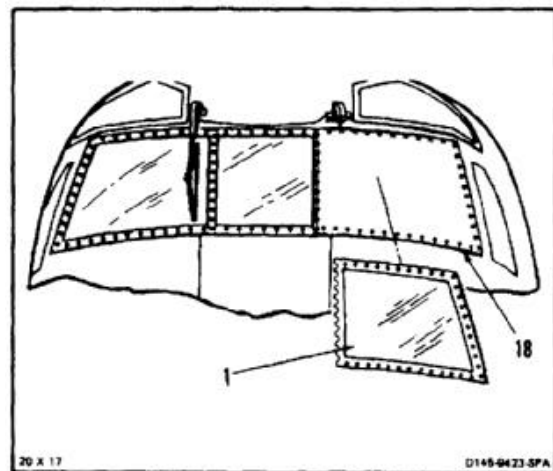
4. Remove 11 screws (9) and washers (10).
5. Remove two T-retainers (11).
6. Remove retainer (12).



7. Remove other 34 screws (9) and washers (10) from around windshield (1).
8. Remove lower corner retainer (13), upper corner retainer (14), top retainer (15), bottom retainer (16), and filler retainer (17).



9. Remove windshield (1).
10. Check that rubber strip (18) is not loose, cut, or nicked. If damaged or loose, replace strip (Task 2-45).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:

Paper Tags (E264)

Personnel Required:

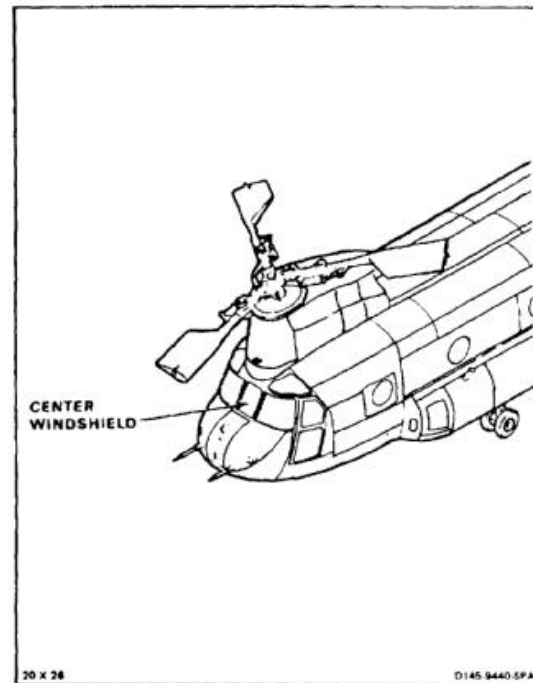
Medium Helicopter Repairer

References:

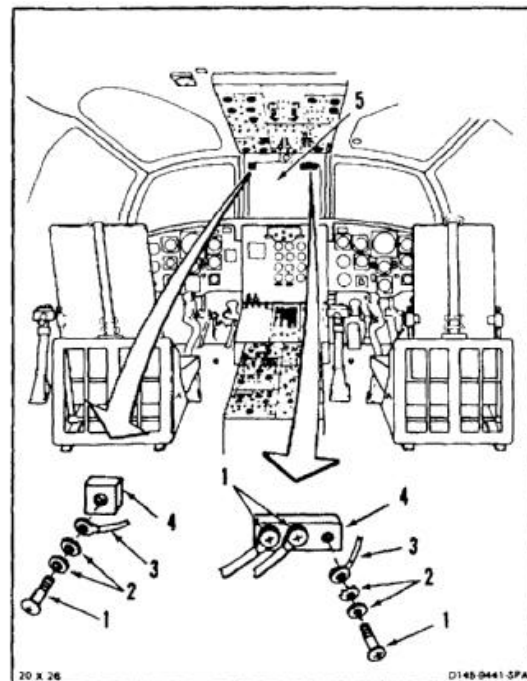
Task 2-45

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



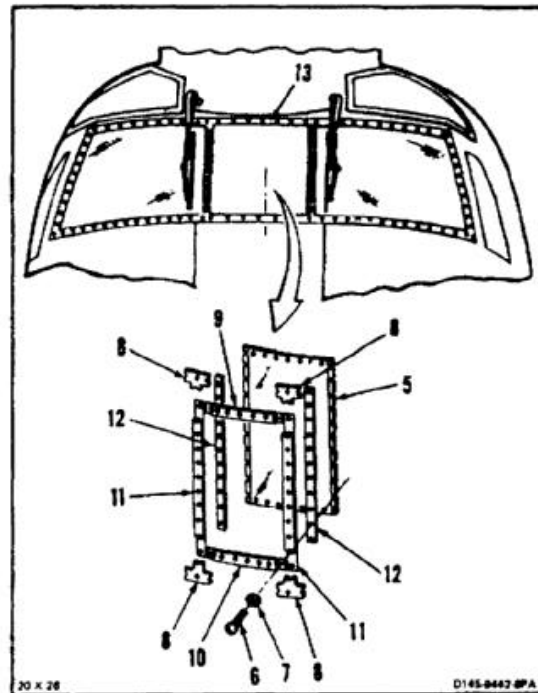
1. From inside helicopter, remove four screws (1), eight washers (2), and four wires (3) from terminal blocks (4) on windshield (5). Tag all wires as they are disconnected. Use paper tags (E264).



2-49 REMOVE CENTER PLASTIC WINDSHIELD (Continued)

2-49

2. From outside helicopter, remove 36 screws (6), and washers (7) from around windshield (5).
3. Remove four T-retainers (8), top retainer (9), bottom retainer (10), retainers (11), and filler retainers (12).
4. Remove windshield (5).
5. Check that rubber strip (13) is not loose, cut, or nicked. If damaged or loose, replace strip (Task 2-45).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Torque Wrench, 5 to 50 Inch-Pounds
 Workstand

Materials:

Sealant (E336)
 Gloves (E186)

Personnel Required:

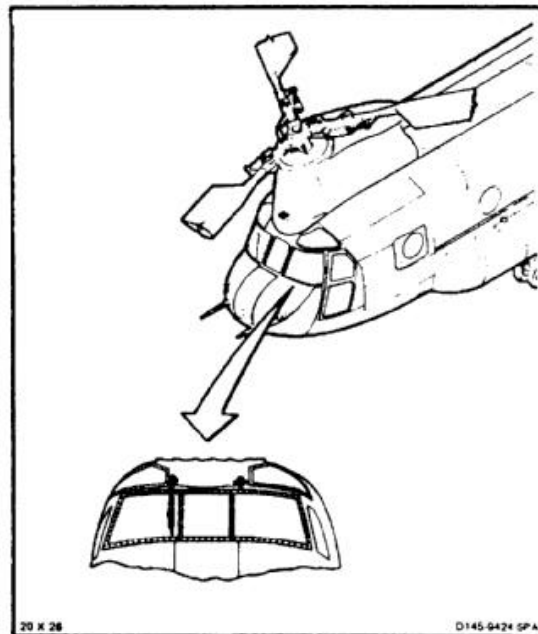
Medium Helicopter Repairer (2)
 Inspector

References:

TM 55-1520-240-23P

Equipment Condition:

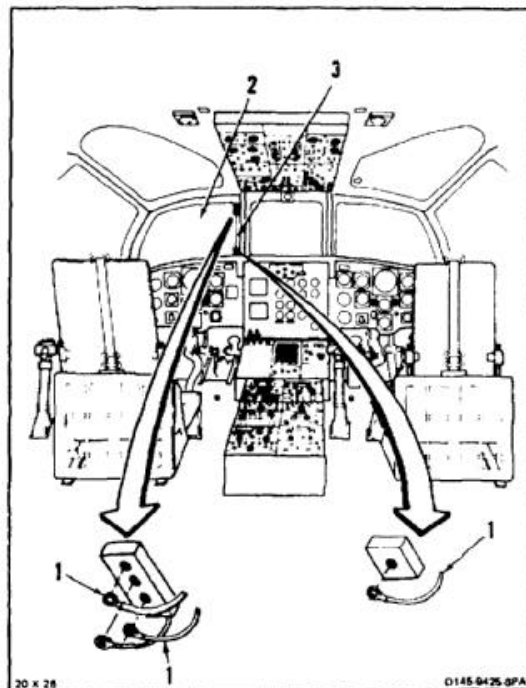
Windshield Heating Element and Sensors Tested
 (Task 12-2)



NOTE

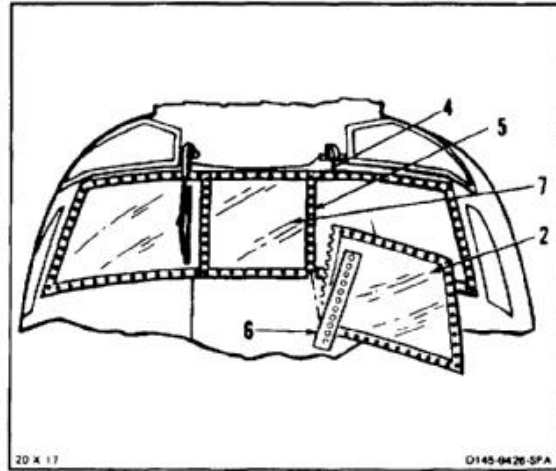
Procedure is same to install pilot's or copilot's plastic windshield. Copilot's plastic windshield is shown here.

1. Have helper make sure all wires (1) on windshield (2) are free of support structure (3).

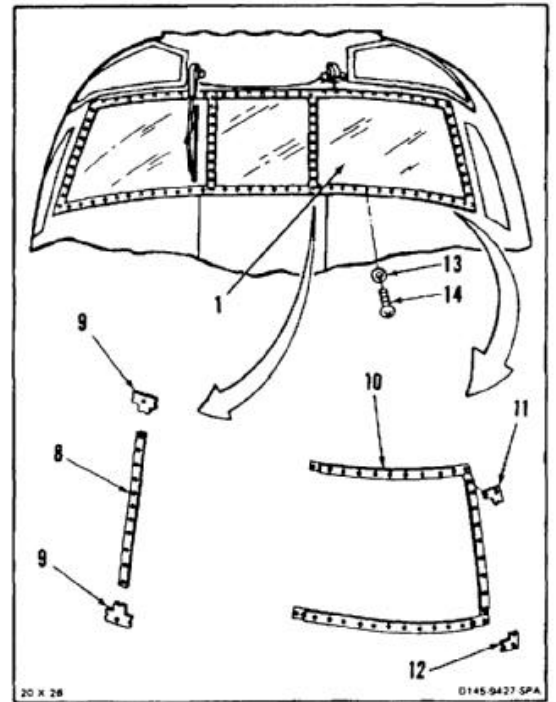


2-50 INSTALL PILOT'S OR COPILOT'S PLASTIC WINDSHIELD (Continued)

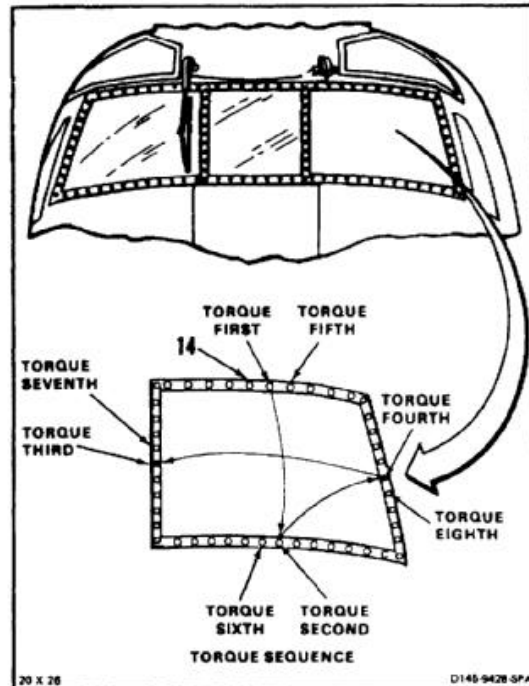
2. Make sure windshield wiper arm (4) is raised and held clear of installation area.
3. Position windshield (2) against rubber strip (5).
4. Install filler retainer (6) in slot between windshield (2) being installed and center windshield panel (7).



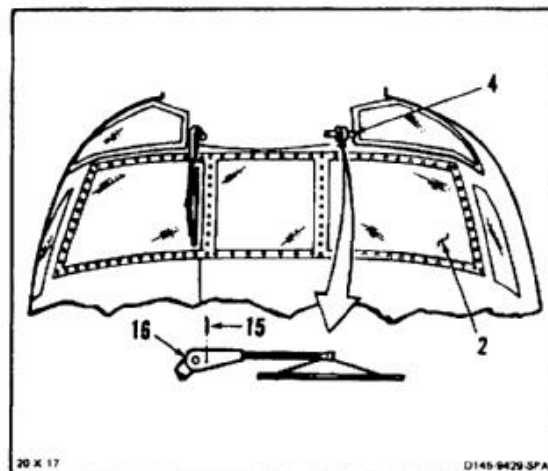
5. Install retainer (8) and two T-retainers (9).
6. Install retainer (10) and two corner retainers (11 and 12).
7. Install 45 washers (13) and screws (14).



8. Torque screws (14) to **12 inch-pounds**. Torque screws following torque sequence shown.



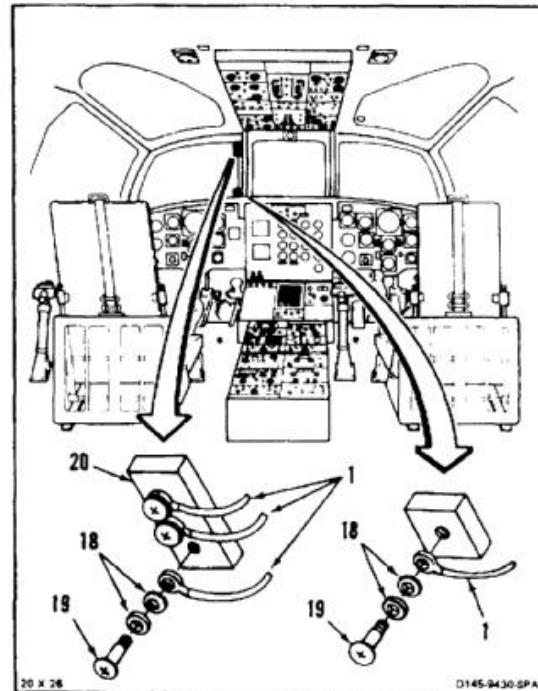
9. Hold wiper arm (4) and take out cotter pin (15) from hole near hub (16) of wiper arm.
10. Lower wiper arm (4) against windshield (2).



11. From inside helicopter, install four wires (1), eight washers (18), and four screws (19) in terminal blocks (20). Remove tags as wires are installed.

WARNING

Sealant (E336) may irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

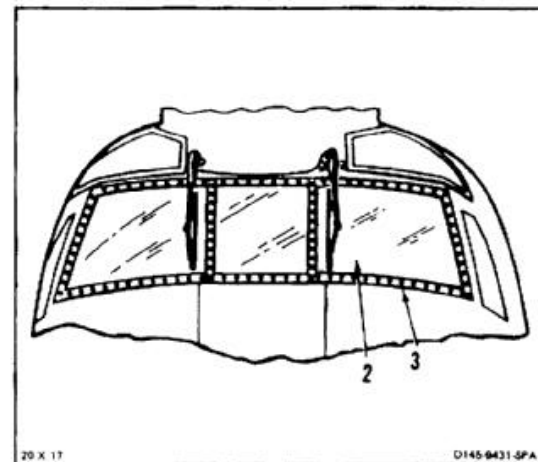


12. Apply sealant (E336) around top, inboard, and bottom edge of windshield (2). Make sealant flush with structure (3). Use gloves (E186).

INSPECT

FOLLOW-ON MAINTENANCE:

- Check windshield for leaks (Task 2-61).
- Perform windshield anti-icing system operational test (TM 55-1520-240-T).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Workstand
 Torque Wrench, 5 to 50 Inch-Pounds

Materials:

Sealant (E336)
 Gloves (E186)

Personnel Required:

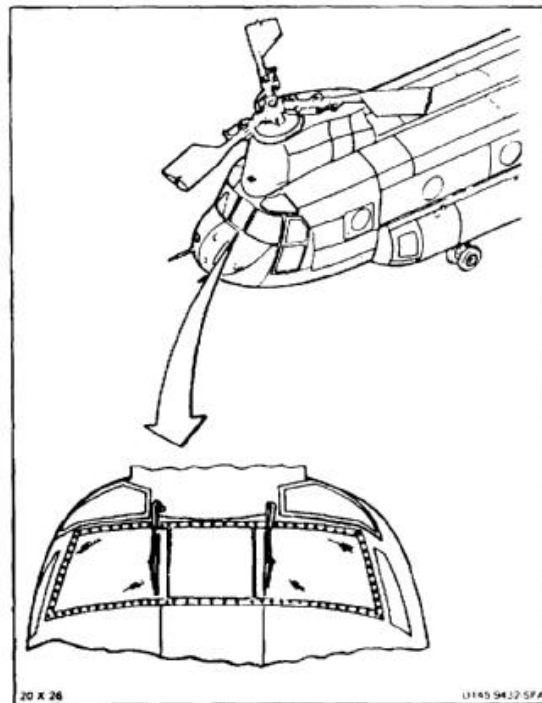
Medium Helicopter Repairer (2)
 Inspector

References:

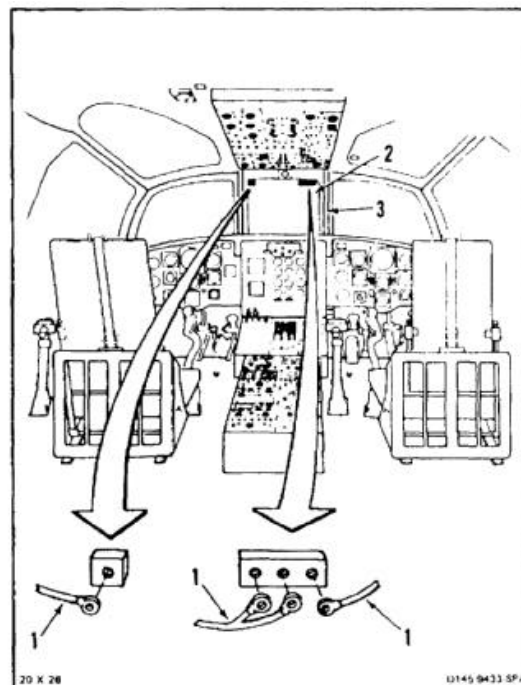
TM 55-1520-240-23P

Equipment Condition:

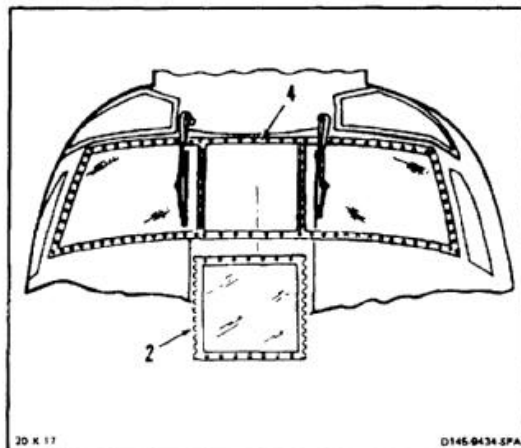
Windshield Panel Heating Element and Sensors
 Tested (Task 12-2)



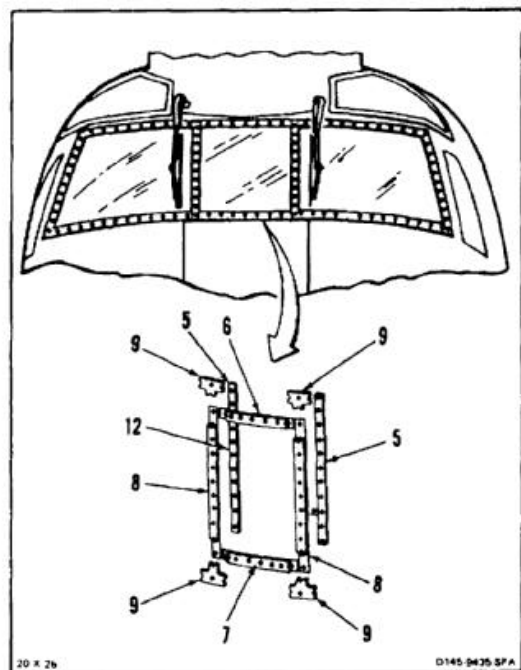
1. Have helper make sure all wires (1) on windshield (2) are free of support structure (3).



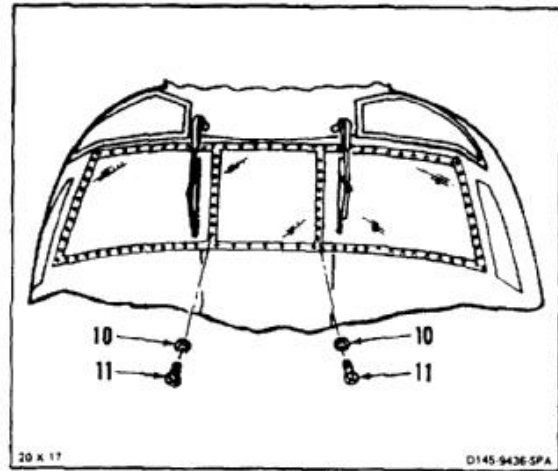
2. Position windshield (2) against rubber strip (4).



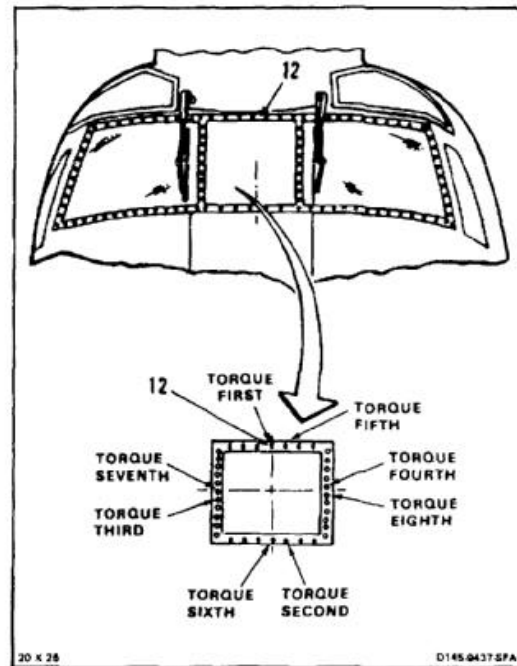
3. Install two filler retainers (5).
4. Install upper retainer (6) and lower retainer (7).
5. Install two retainers (8).
6. Install four T-retainers (9).



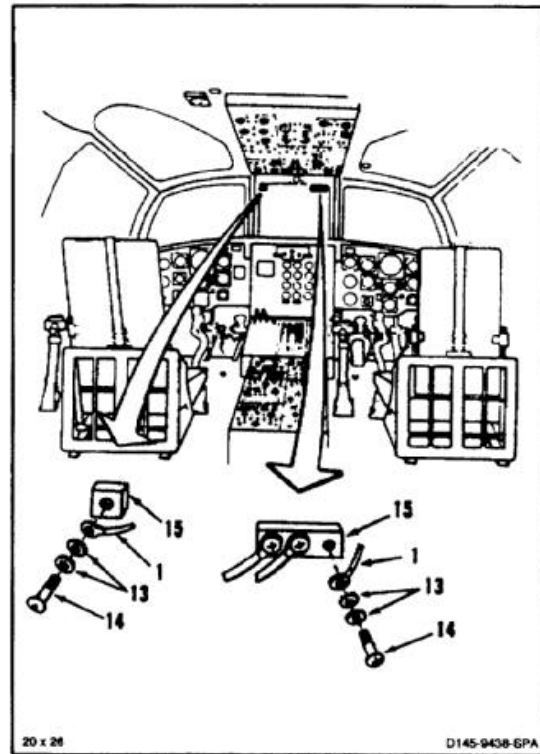
7. Install 36 washers (10) and screws (11).



8. Torque screws (12) to **12 inch-pounds**. Torque screws alternately following torque sequence shown.



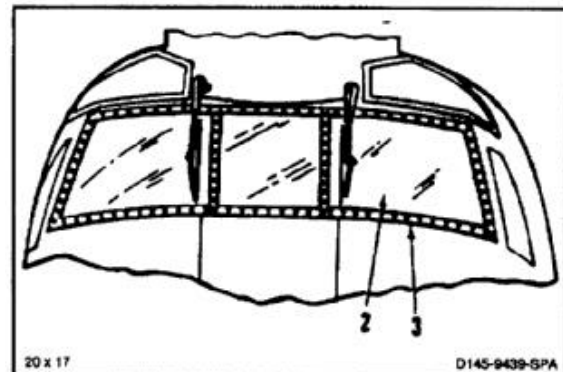
9. From inside helicopter, install four wires (1), eight washers (13), and screws (14) in terminal blocks (15). Remove tags as wires are installed.



WARNING

Sealant (E336) may irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

10. Apply sealant (E336) around edge of windshield (2). Make sealant flush with structure (3). Use gloves (E186).



INSPECT

FOLLOW-ON MAINTENANCE:

- Check windshield for leaks (Task 2-61).
- Perform windshield panel heating element operational test (Task 12-2).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:

Paper Tags (E264)

Personnel Required:

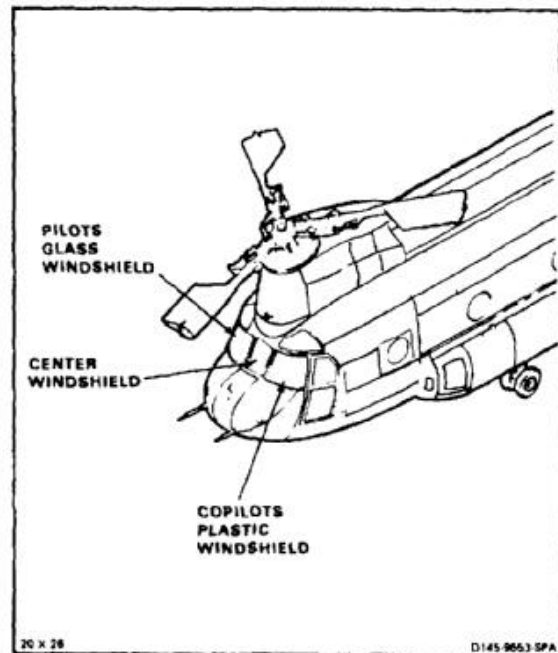
Medium Helicopter Repairer

References:

Task 2-45

Equipment Condition:

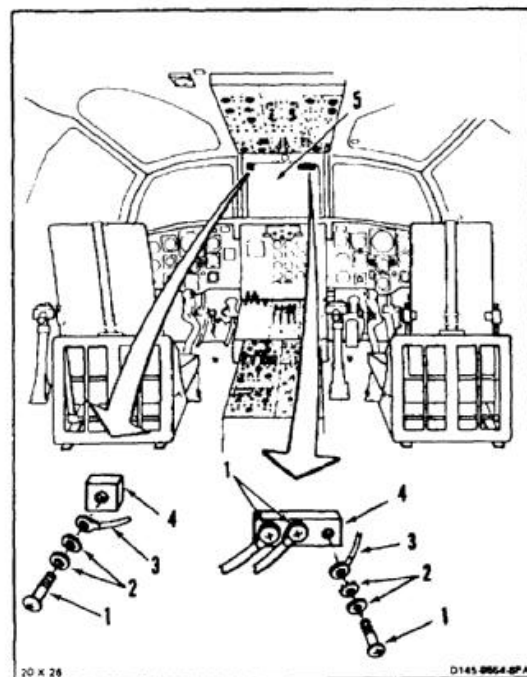
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



NOTE

Procedure is used to remove center windshield from between intermixed glass and plastic windshields. Pilot's glass windshield with copilot's plastic windshield shown here.

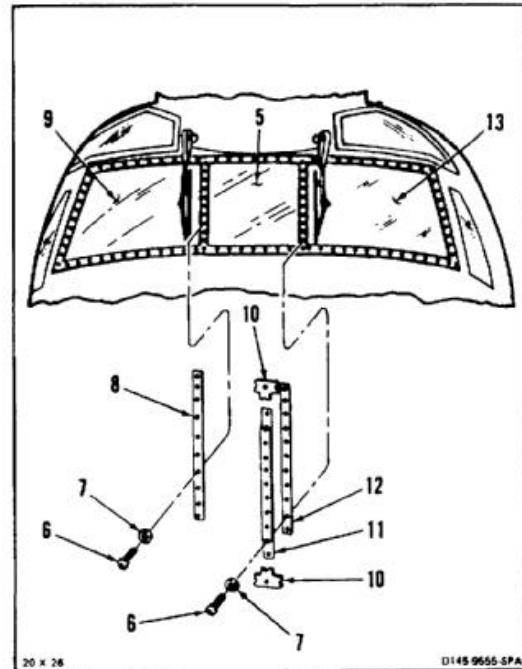
1. From inside helicopter, remove four screws (1), eight washers (2), and four wires (3) from terminal blocks (4) on windshield (5). Tag all wires as they are disconnected. Use paper tags (E264).



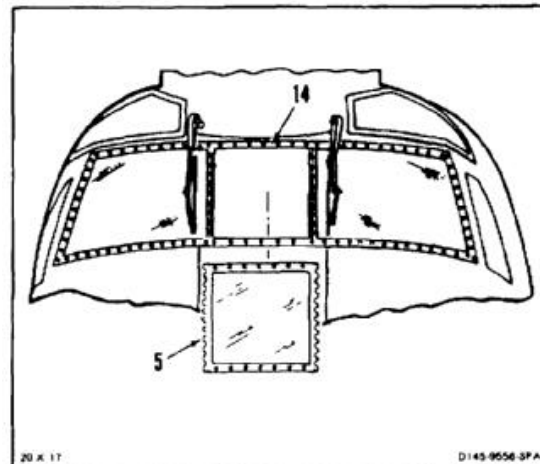
2-52 REMOVE CENTER WINDSHIELD, MIXED INSTALLATION (Continued)

2-52

2. Remove 36 screws (6) and washers (7) from around center windshield (5).
3. Remove retainer (8) between center windshield (5) and glass windshield (9).
4. Remove two T-retainers (10), retainer (11), and filler retainer (12) between center windshield (5) and plastic windshield (13).



5. Remove windshield (5).
6. Check that rubber strip (14) is not loose, cut, or nicked. If damaged or loose, replace strip (Task 2-45).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Workstand
 Torque Screwdriver, 0 to 25 Inch-Pounds

Materials:

Sealant (E336)
 Gloves (E186)

Personnel Required:

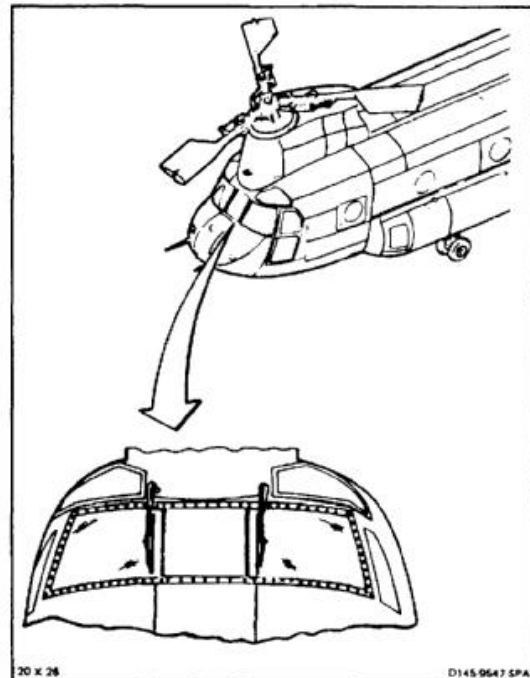
Medium Helicopter Repairer (2)
 Inspector

References:

TM 55-1520-240-23P

Equipment Conditions:

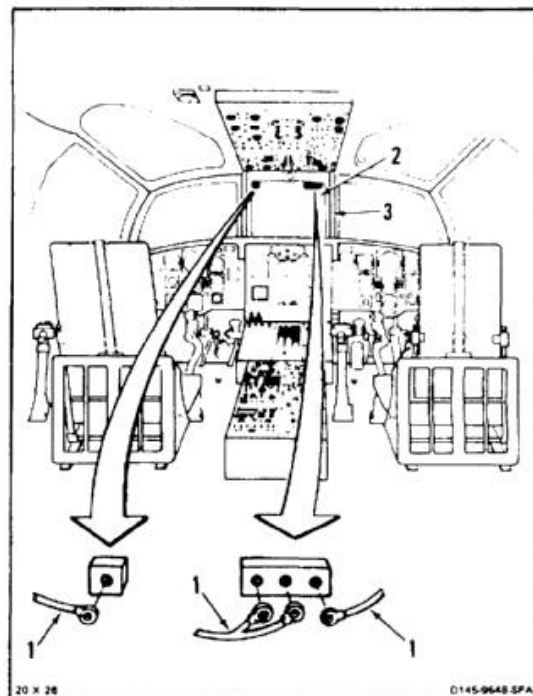
Windshield Panel Heating Element and Sensors
 Tested (Task 12-2)



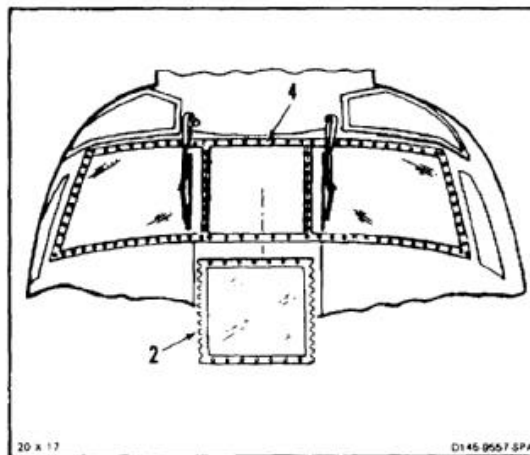
NOTE

Procedure is used to install center windshield between intermixed glass and plastic windshields. Pilot's glass windshield with copilot's plastic windshield shown here.

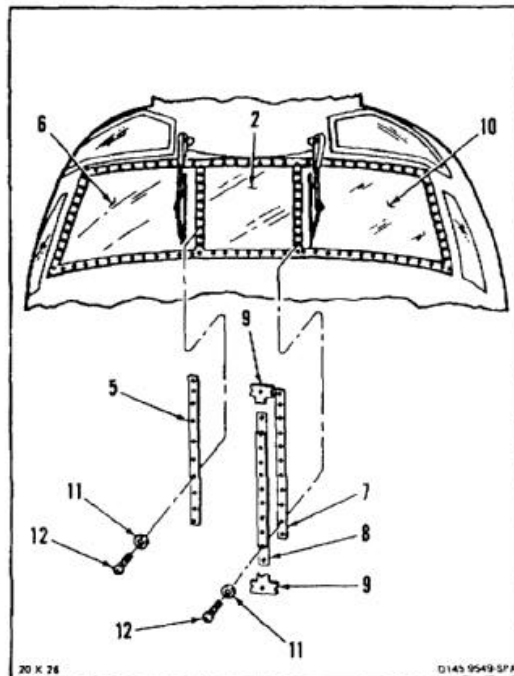
1. Have helper make sure all wires (1) on windshield (2) are free of support structure (3).



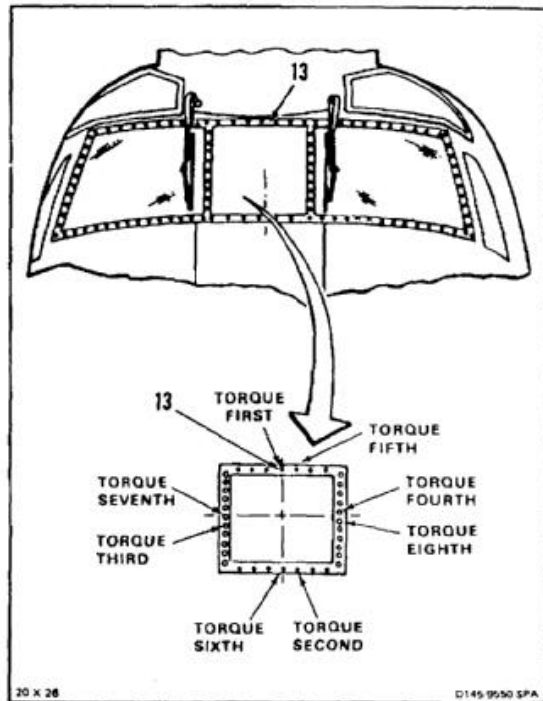
2. Position windshield (2) against rubber strip (4).



3. Position retainer (5) between center windshield (2) and glass windshield (6).
4. Position filler retainer (7), retainer (8), and two T-retainers (9) between center windshield (2) and plastic windshield (10).
5. Install 36 washers (11) and screws (12).



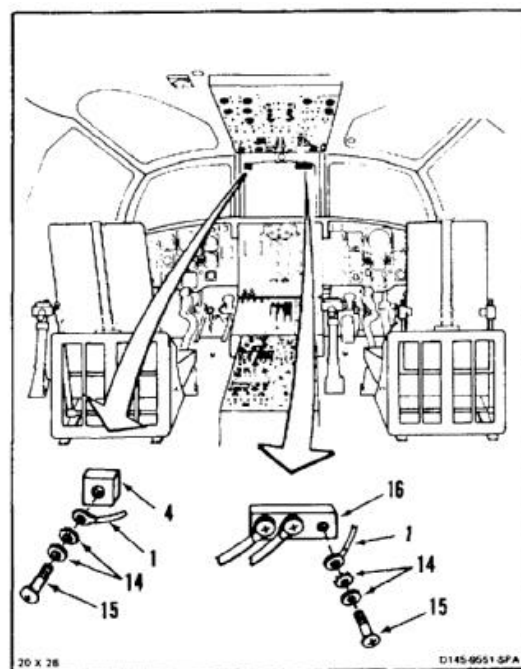
6. Torque screws (13) to **12 inch-pounds**. Torque screws alternately following torque sequence shown.



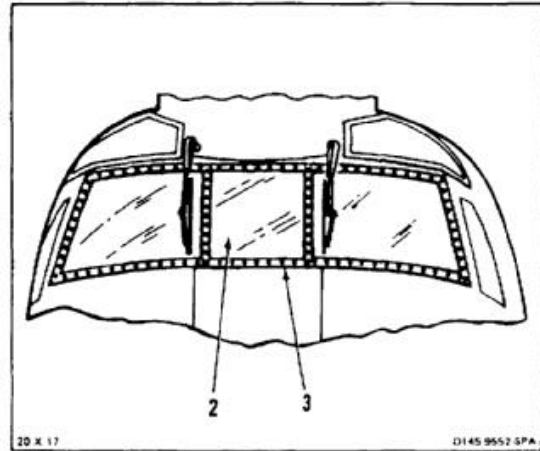
7. From inside helicopter, install four wires (1), eight washers (14), and four screws (15) in terminal blocks (16). Remove tags as wires are installed.

WARNING

Sealant (E336) may irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.



8. Apply sealant (E336) around edge of windshield (2). Make sealant flush with structure (3). Use gloves (E186).

INSPECT**FOLLOW-ON MAINTENANCE:**

- Check windshield for leaks (Task 2-61).
Perform windshield heating element operational test (Task 12-2).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:

None

Personnel Required:

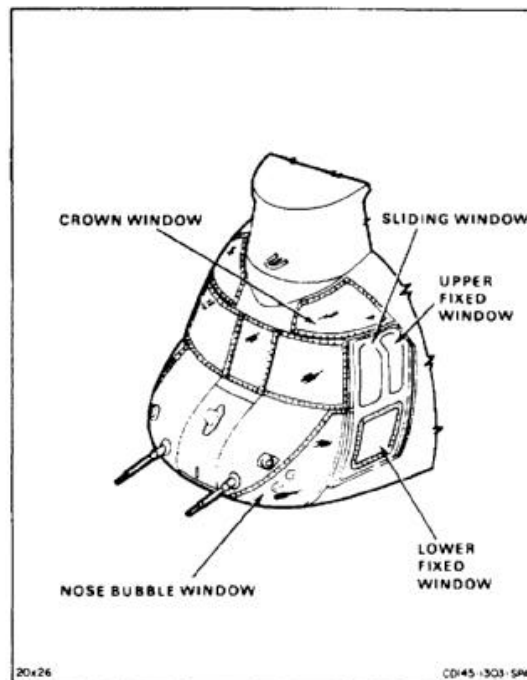
Inspector

Equipment Condition:

Cockpit Windows Clean (Task 1-77.1)

References:

Task 2-42
TM 1-1500-204-23

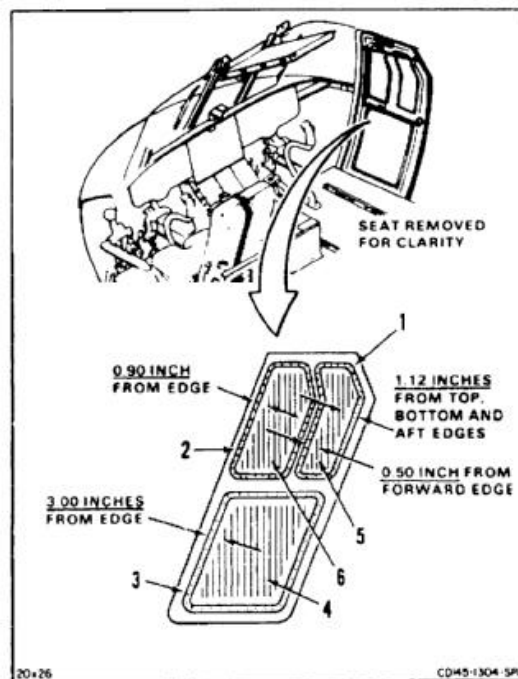


NOTE

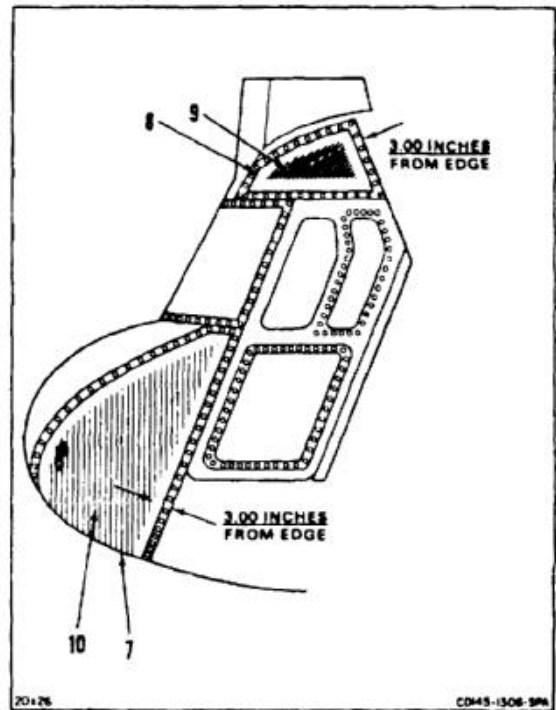
Procedure is same for pilot's or copilot's cockpit windows. Copilot's windows are shown here.

Window discoloration will appear as a light brown or gold colored area.

1. Inspect jettisonable door upper fixed window (1), sliding window (2) and lower fixed window (3). Cracks and crazing that reduce vision in critical areas (4, 5, and 6) are not allowed. Nicks, dents, scratches, blemishes, and discoloration in critical areas of windows 1, 2, and 3 are not allowed unless polishing can correct defects (Task 2-42). If polishing will not correct defects, window must be replaced.



- Inspect nose bubble window (7) and crown window (8). Repair cracks and crazing I/A/W TM 1-1500-204-23. If the cracks and crazing severely reduces pilot's vision through the semi-critical areas (9 and 10), replace the window. Nicks, blemishes, and discoloration in critical areas are not allowed unless polishing can correct defects (Task 2-42). If polishing will not correct defects in critical areas, the window must be replaced.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:

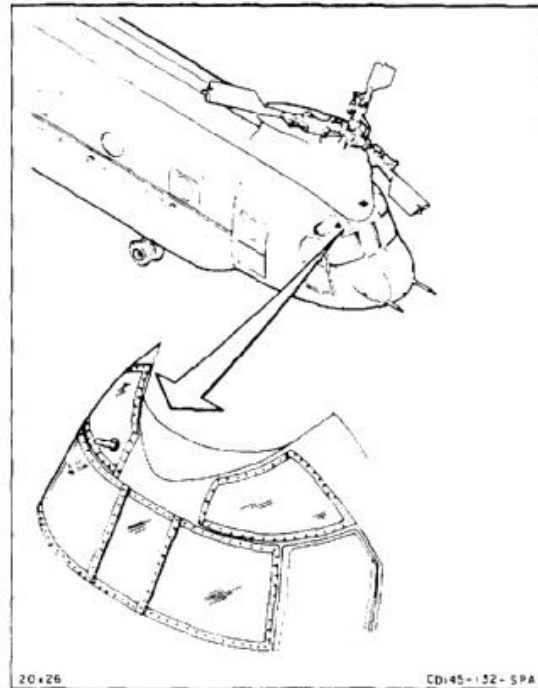
Sealant Tape (E348)

Personnel Required:

Medium Helicopter Repairer

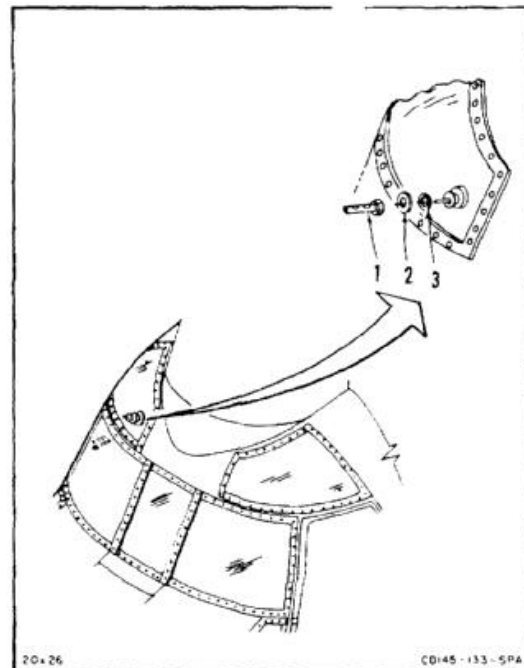
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

**NOTE**

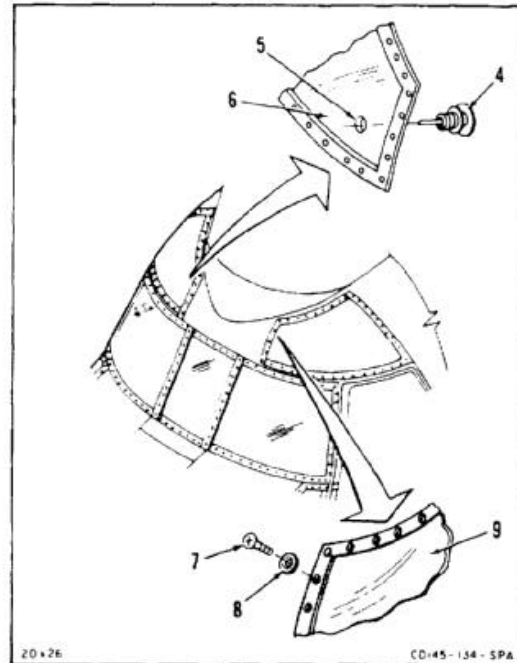
Procedures are same for removing left or right side window panels, except for thermometer on right side. Right side is shown here.

1. Remove sunshield (1), washer (2), and rubber washer (3).



2-55 REMOVE COCKPIT CROWN WINDOW PANEL (Continued)**2-55**

2. Remove thermometer (4) from hole (5) in crown window panel (6).
3. Remove 39 screws (7) and washers (8) from panel (6 or 9). Lift off panel.
4. Check sealant tape on structure for tears or cuts. If damaged, replace sealant tape (E348).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Workstand

Materials:

Wood Block, 2 Inches X 4 Inches X 4 Inches

Personnel Required:

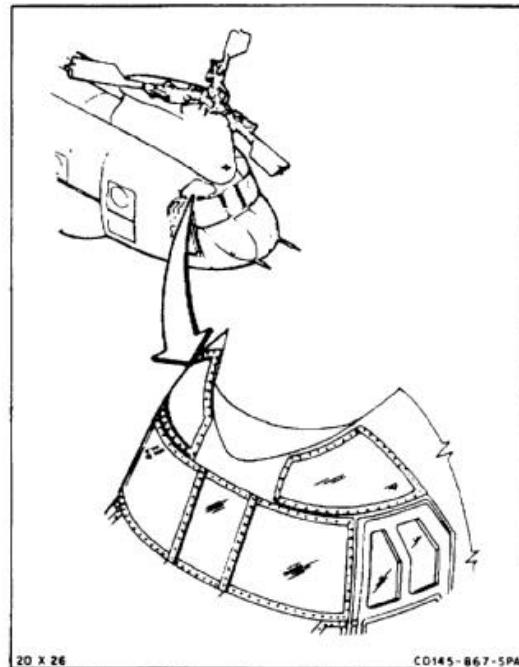
Aircraft Structural Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Cockpit Crown Window Panel Removed (Task 2-55)

References:

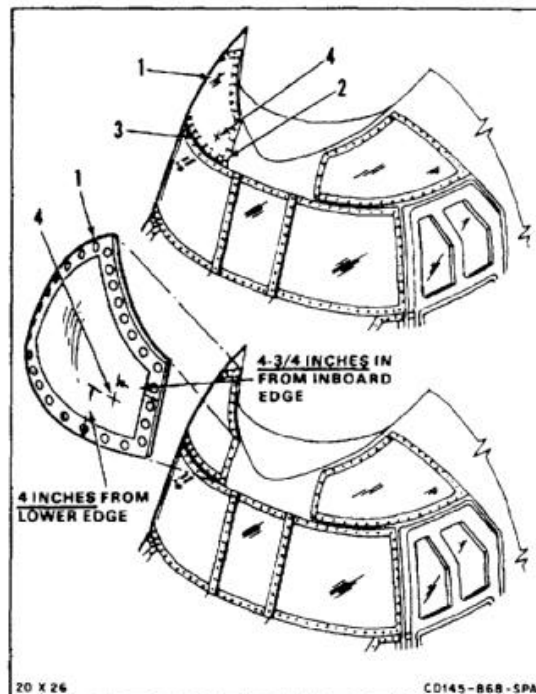
TM 55-1520-240-23P

**NOTE**

Procedures are same for preparing left or right crown window panel for installation. Preparation of right panel is shown here.

Thermometer is installed in right panel only.

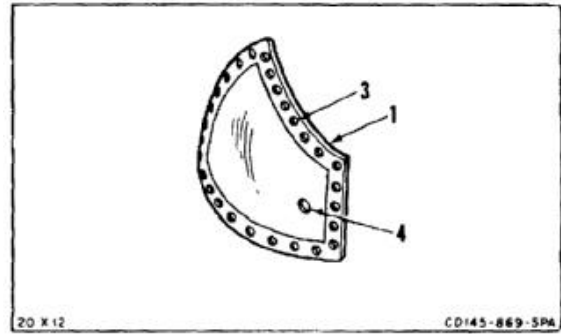
1. Position window panel (1) on support structure frame (2). Have helper hold panel in position.
2. Mark locations for 39 screw holes (3) around edge of panel (1). Use holes in frame (2) as a guide.
3. Mark location for thermometer mounting hole (4). Locate hole **4 inches** from lower edge and **4-3/4 inches** in from inboard edge of window panel (1).
4. Remove panel (1) from structure frame (2).



CAUTION

Support areas being drilled. Use wooden backing block behind area being drilled to prevent window panel from cracking.

5. Drill 39 screw holes (3) at locations marked on edge of panel (1). Use **60° 15/32 inch** drill. Countersink 39 holes. Use **100°** countersink.
6. Drill thermometer mounting hole (4) at location marked. Use **60° 25/64 inch** drill.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Workstand
 Torque Screwdriver, 0 to 25 Inch-Pounds

Materials:

Sealant (E336)
 Gloves (E186)
 Sealant Tape (E348.1)

Personnel Required:

Medium Helicopter Repairer
 Inspector

References:

TM 55-1520-240-23P
 Task 2-56

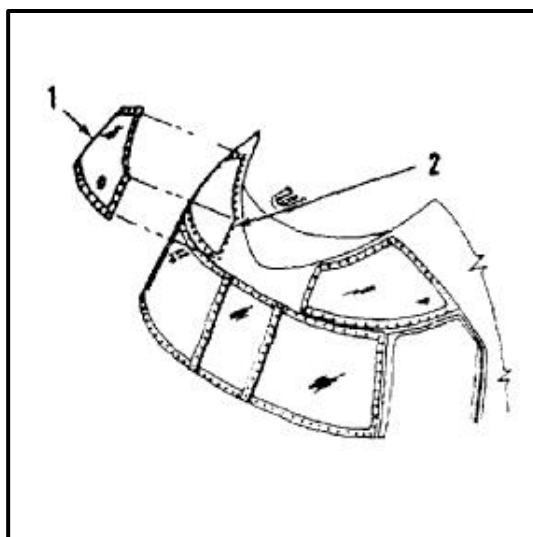
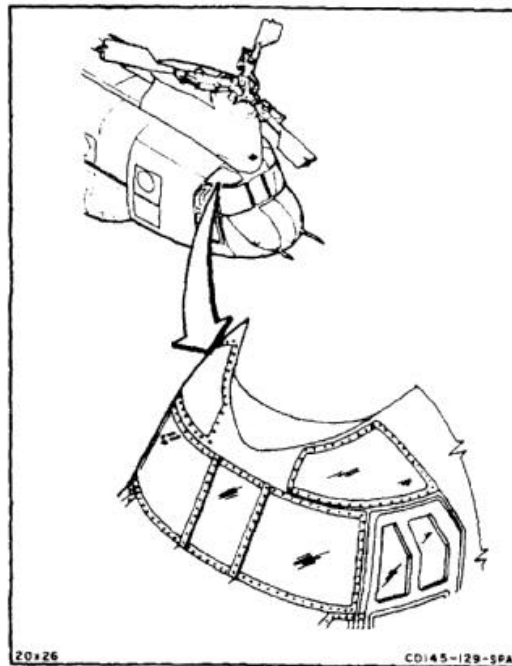
General Safety Instructions:**WARNING**

Sealant (E336) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

NOTE

Procedures are same for installing left or right window panel, except for thermometer on right side. Right side is shown here.

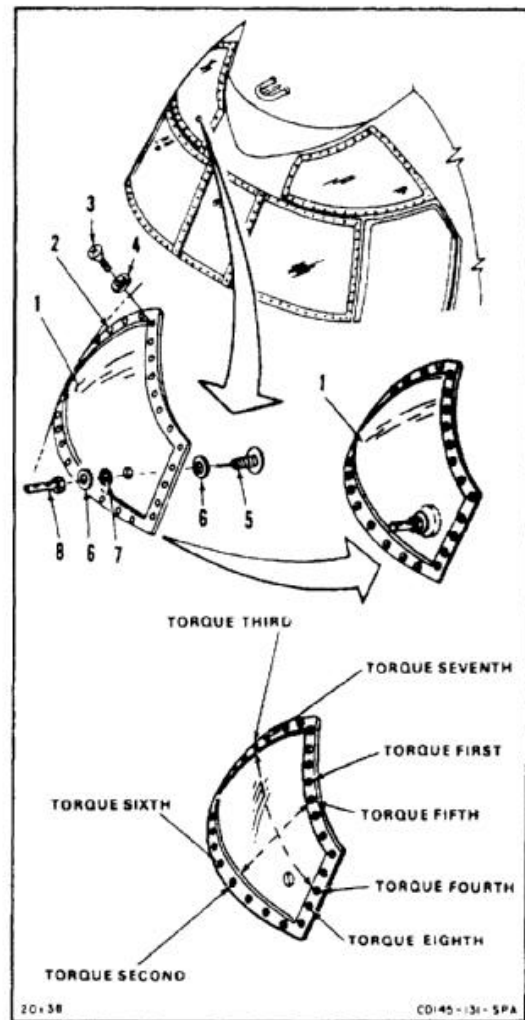
1. Prepare new window panel for installation (Task 2-56).
- 1.1. Check sealant tape on cockpit structure for tears or cuts. If damaged, replace tape (E348.1).
2. Install crown window panel (1) against sealant tape on cockpit structure (2).
3. Make sure holes in panel (1) align with holes in cockpit structure (2).



4. Apply sealant (E336) between each screw (3) and washer (4) and between each washer (4) and panel (1). Wear gloves (E186).
5. Install 39 screws (3) and washers (4) in panel (1) and cockpit structure (2).
6. Torque screws (3) to **12 inch-pounds**. Torque screws following torque sequence shown.
7. Insert thermometer (5) through rubber washer (6) and hole in panel (1) from inside cockpit. Install rubber washer (6) and washer (7) on thermometer from outside.
8. Install sunshield (8) on thermometer (5) on outside.
9. Apply sealant (E336) around edge of panel (1). Make sealant flush with surrounding structure. Wear gloves (E186).

INSPECT**FOLLOW-ON MAINTENANCE:**

Check panel for leaks (Task 2-61).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:

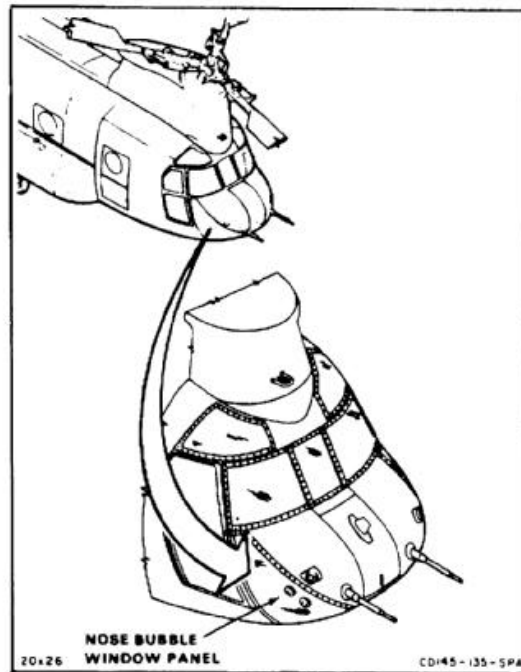
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

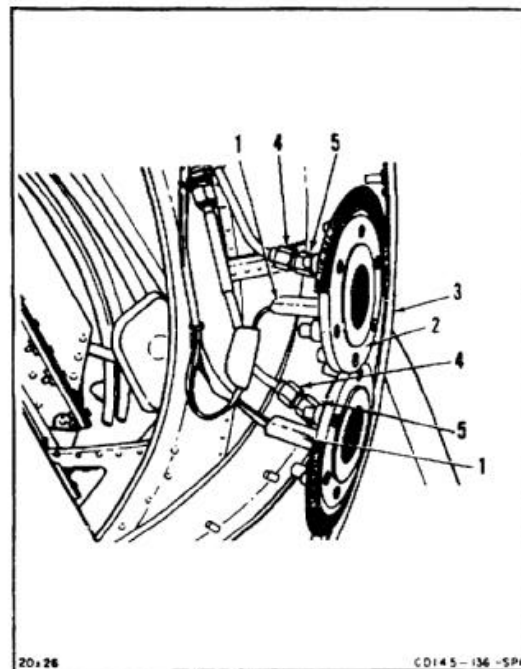
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



NOTE

Procedures are same for removing left or right bubble window panel. Right side is shown here.

1. Unplug electrical connector (1) from sideslip port adapters (2) inside window panel (3).
2. Disconnect tube (4) from fitting (5) on adapter (2) inside window panel (3).



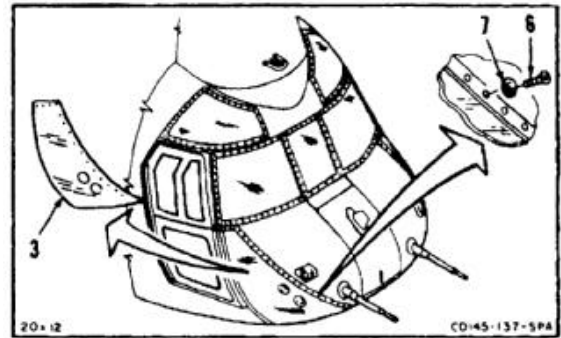
2-58 REMOVE COCKPIT NOSE BUBBLE WINDOW PANEL (Continued)**2-58**

3. Remove 76 screws (6) and washers (7) from panel (3) and structure. Lift off panel.

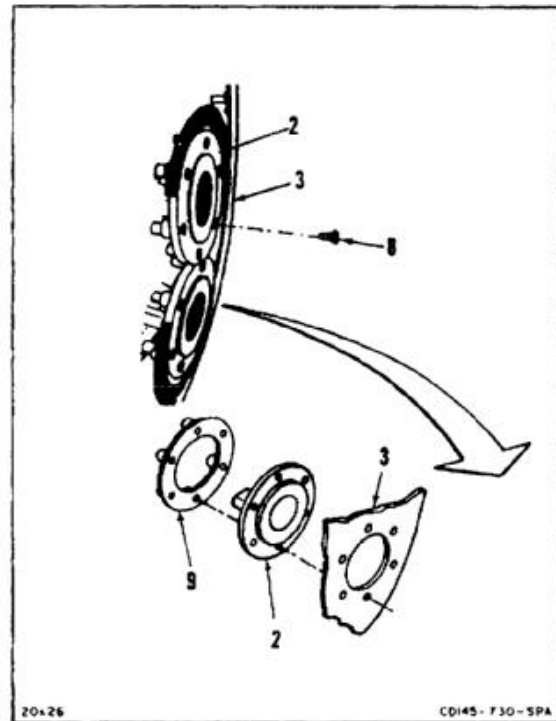
NOTE

If window panel is being removed for access only, task is complete following step 4. If window panel is being replaced, perform steps 5 and 6.

4. Check sealant tape on cockpit structure for tears or cuts. If damaged, replace tape.



5. Remove six screws (8) from each adapter (2) on panel (3).
6. Remove retainer (9) and adapter (2) from panel (3).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

Cement (E102)
Cleaning Cloth (E120)
Glass Cloth (E133)
Naphtha (E245)
Gloves (E186)
Wood Block, 2 Inches X 4 Inches X 4 Inches

Personnel Required:

Medium Helicopter Repairer
Aircraft Structural Repairer

References:

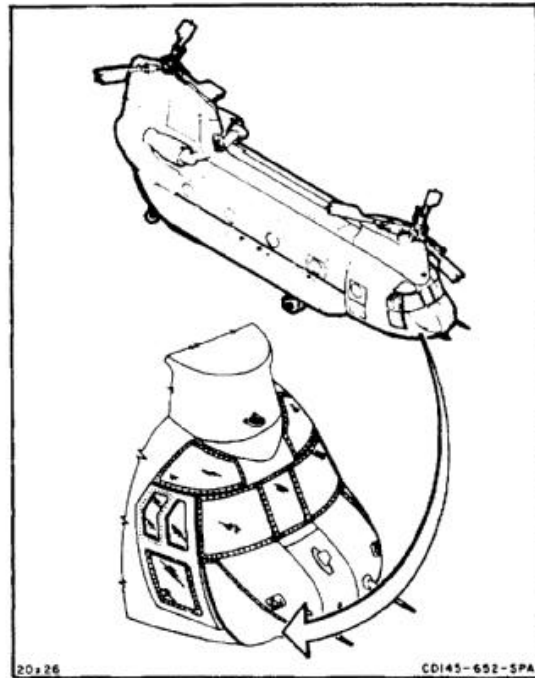
TM 55-1520-240-23P

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Nose Bubble Window Panel Removed (Task 2-58)

General Safety Instructions:**WARNING**

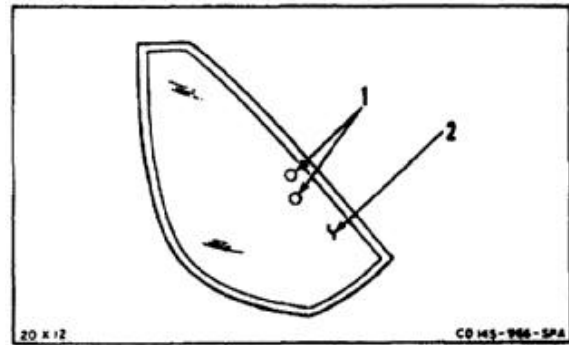
Cement (E102) and naphtha (E245) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.



NOTE

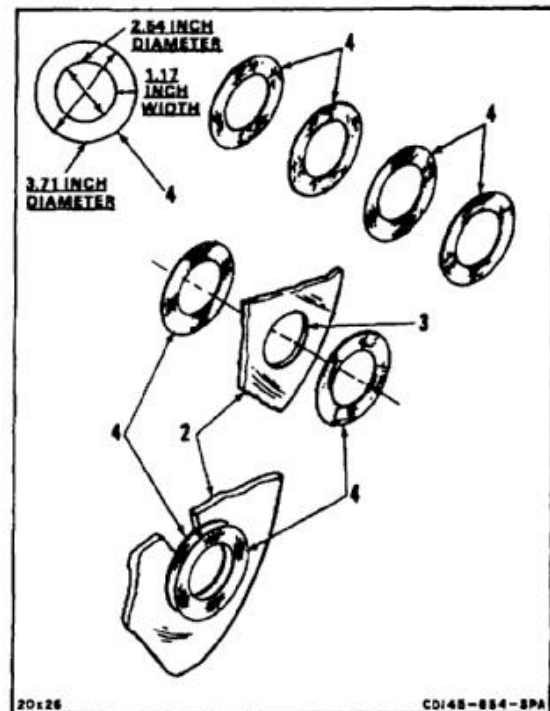
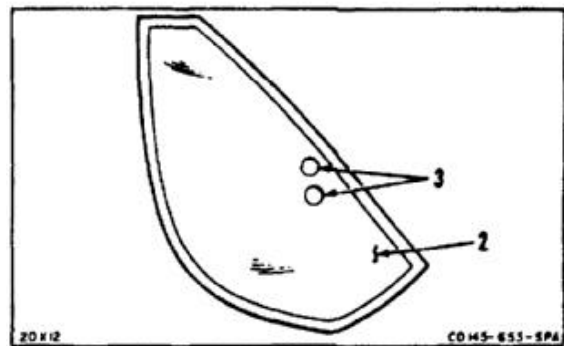
Procedures are same for preparing left or right nose bubble window panel for installation. Right side is shown here.

1. Find two port locations marked by **1/2 inch** diameter marking (1) on surface of panel (2).

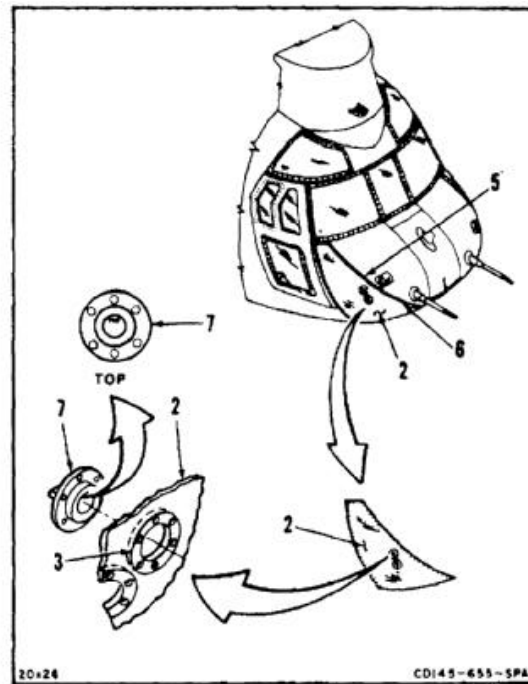
**CAUTION**

Support areas being drilled. Use wooden backing block behind area being drilled to prevent window panel from cracking.

2. Locate center point marks for ports (3).
3. Support panel (2) on wood block. Cut a **2.54 inch** diameter hole at each port (3) location in panel (2).
4. Make two reinforcing strips (4) with two plies of glass cloth (E133) for each port. Cover each cloth strip with cement (E102) and press together while wet. Wear gloves (E186). Let strips dry.
5. Clean reinforcing strips (4) with naphtha (E245). Clean inside and outside surfaces of panel (2) around mounting holes (3).
6. Apply cement (E102) to reinforcing strips (4). Apply cement around each hole (3) on inner and outer surfaces of panel (2). Wear gloves (E186).



7. Position window panel (2) on support structure frame (5).
8. Mark location for 76 screw holes (6) around edge of panel (2), using holes in frame (5) as a guide.
9. Position port adapters (7) in mounting holes in panel (2). Make sure TOP mark is up. Make sure upper and lower bolt holes in flanges of adapters (7) are on vertical center line.
10. Mark 12 screw hole locations for mounting holes of ports (3). Use flanges of adapter (7) as a guide.
11. Remove port adapters (7) from panel (2).
12. Remove panel (2) from structure (5).



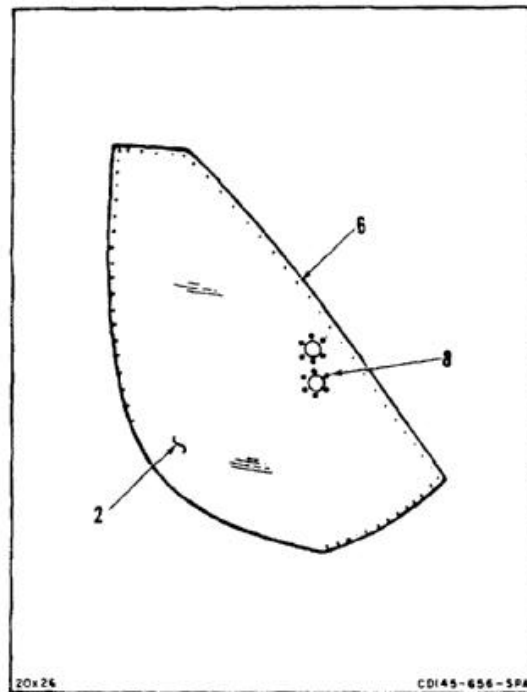
CAUTION

Support areas being drilled. Use wooden backing block behind area being drilled to prevent window panel from cracking.

13. Drill 76 screw holes (6) at locations marked on edge of panel (2). Use **60° 15/32 inch** drill. Countersink 76 holes with **100°** countersink.
14. Drill 12 screw holes (8) at locations marked around sideslip port mounting holes. Use **60° 7/32 inch** drill.
15. Countersink 12 screw holes (8) around sideslip port mounting hole. Use **100°** countersink.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Workstand
 Torque Wrench, 1/4 Inch Drive, 0 to 25 Inch-Pounds
 Socket, 1/4 Inch
 Apex Holder, 1/4 Inch Drive
 Phillips Head Apex

Materials:

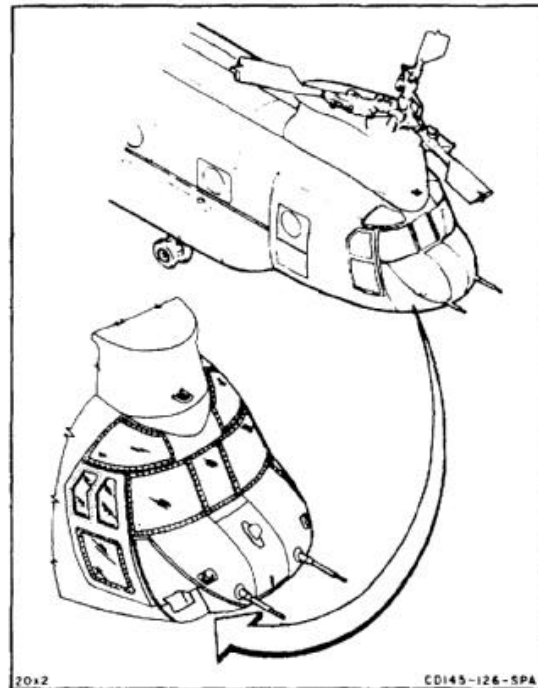
Sealant (E336)
 Gloves (E186)
 Sealant Tape (E348.1)

Personnel Required:

Medium Helicopter Repairer
 Inspector

References:

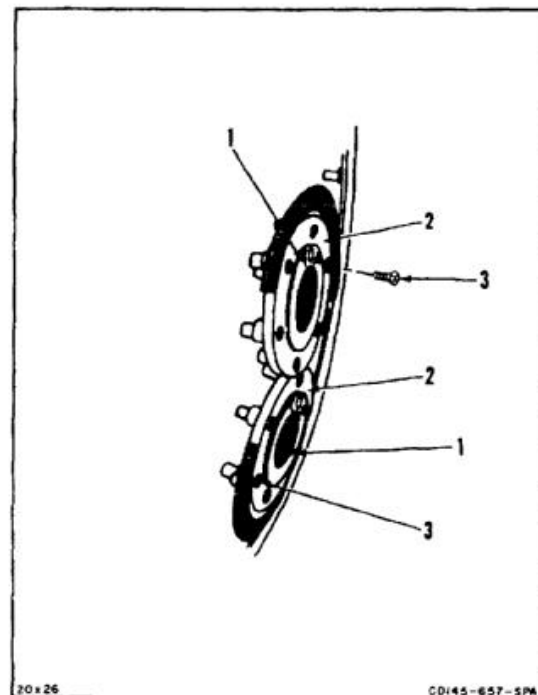
TM 55-1520-240-23P
 Task 2-59

**NOTE**

Procedures are same for installing left or right bubble window panel. Right side is shown here.

If new bubble window panel is being installed, perform steps 1 thru 10. If same bubble is being used, perform steps 4 thru 10.

1. Prepare new panel for installation (Task 2-59).
2. Install each adapter (1) on retainer (2) in port mounting holes. Make sure TOP mark is up.
3. Install six adapter screws (3). Torque screws to **6 inch-pounds**.



4. Check sealant tape on cockpit structure for tears or cuts. If damaged, replace tape (E348.1). Position nose bubble window panel (4) against sealant tape on cockpit structure.
5. Make sure holes in panel (4) align with holes in cockpit structure.
6. Install 76 screws (5) and washers (6).

WARNING

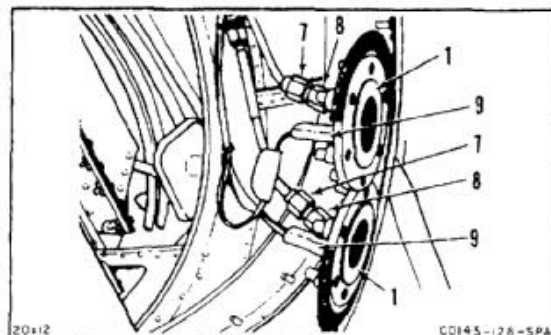
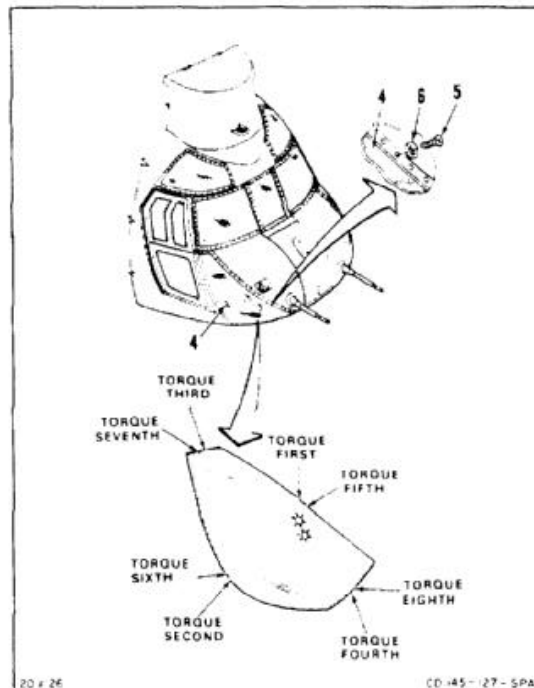
Sealant (E336) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

7. Apply sealant (E336) between each screw (5) and washer (6) and between each washer (6) and panel (4). Wear gloves (E186).
8. Torque screws (5) to **12 inch-pounds**. Torque screws alternately following torque sequence shown.
9. Apply sealant (E336) around edge of window panel (4). Make sealant flush with structure. Wear gloves (E186).
10. Connect tubes (7) to fittings (8) and adapters (1). Make sure tubes are clear.
11. Connect electrical connectors (9) to adapters (1).

INSPECT

FOLLOW-ON MAINTENANCE:

- Purge sideslip line.
- Check port heat operation (TM 55-1520-240-T).
- Check panel for leaks (Task 2-61).



END OF TASK

INITIAL SETUP

Applicable Configurations:

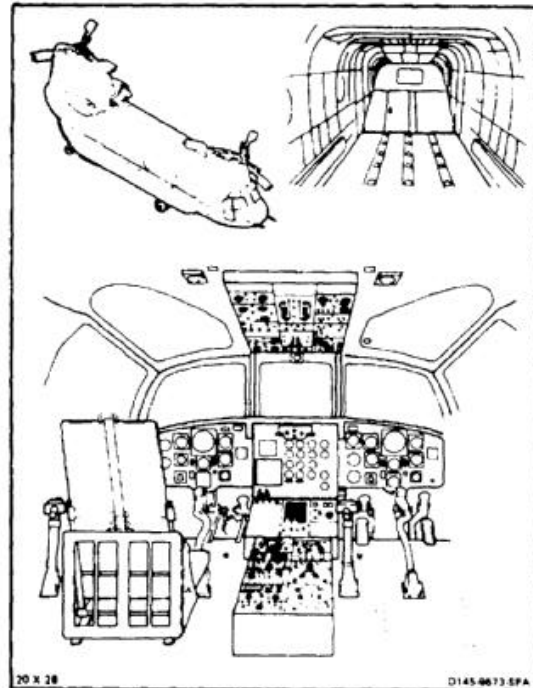
All

Tools:Water Hose
Workstand**Materials:**

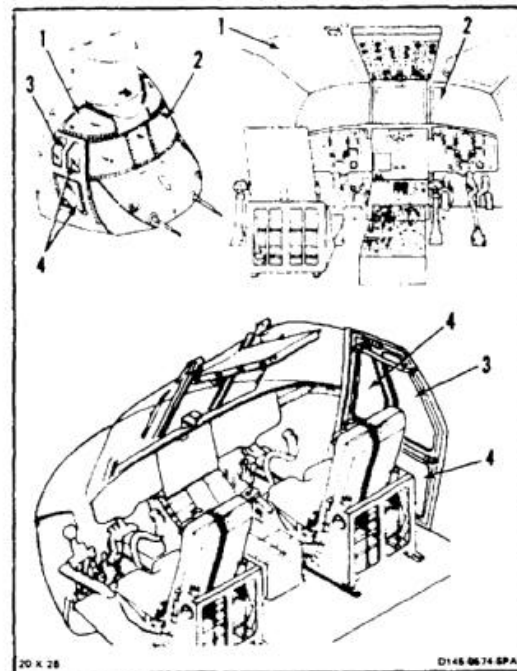
None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Hatches, Windows, and Doors Closed and Secured

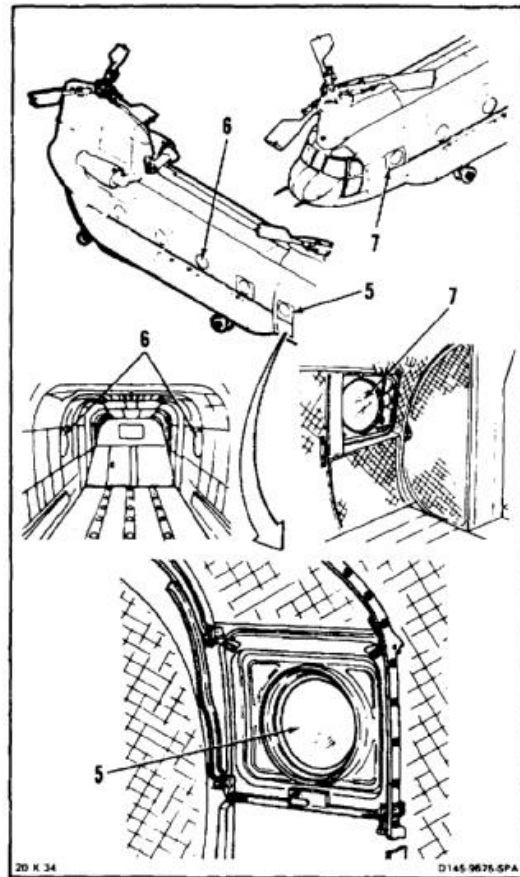
1. Have helper spray water downward on crown windows (1), windshield (2), sliding window (3), and fixed windows (4) for **five minutes**.
2. From inside cockpit, check crown windows (1), windshield (2), sliding window (3), and fixed windows (4) for leaks. There shall be no leaks in cockpit area.



3. Have helper spray water downward on cabin door escape hatch (5), cabin windows (6), and forward cabin escape hatch (7) for **five minutes**.
4. From inside cabin, check escape hatch (5), windows (6), and forward cabin escape hatch (7). There shall be no leaks.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-268

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692
Workstands (2)

Materials:

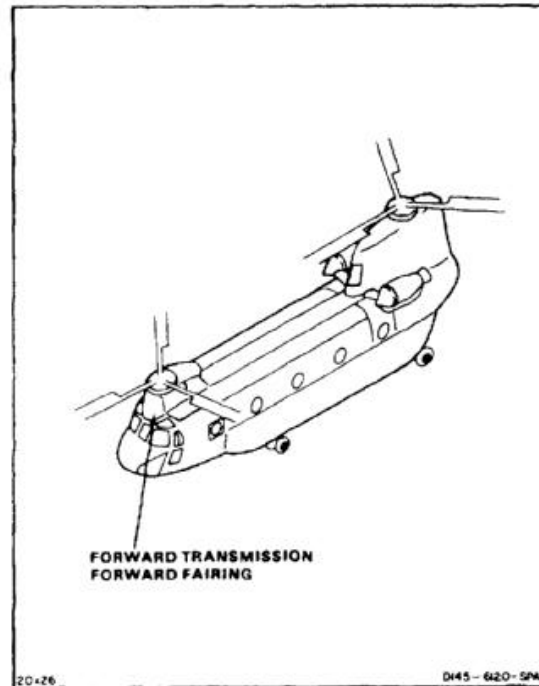
None

Personnel Required:

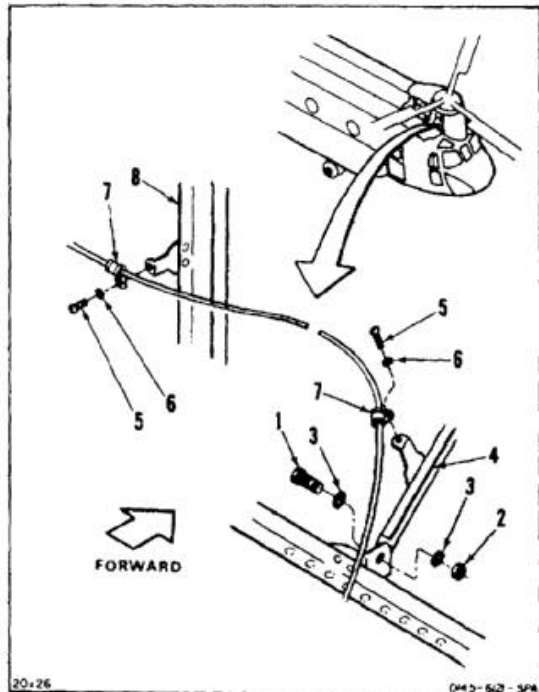
Medium Helicopter Repairer (4)

Equipment Condition:

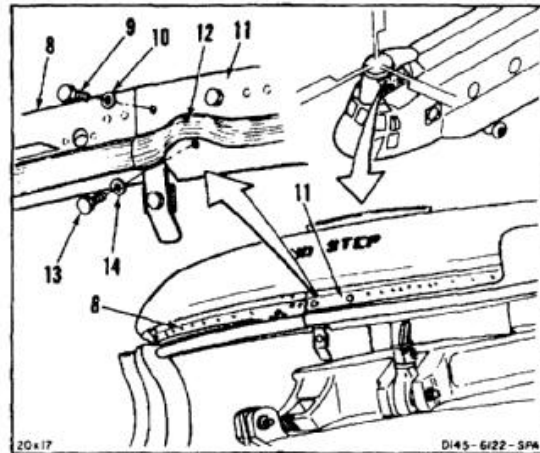
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Forward Work Platforms Opened (Task 2-2)



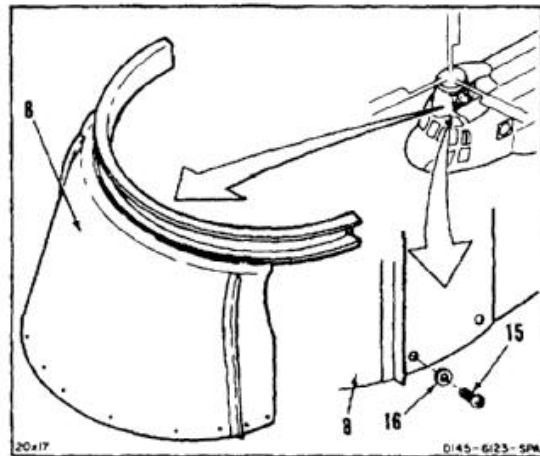
1. Remove two bolts (1), nuts (2), and four washers (3) from braces (4).
2. Remove two screws (5), washers (6), and clamps (7) from brace (4) and forward fairing (8).



3. Remove eight bolts (9) and washers (10) from forward and aft fairings (8 and 11).
4. Roll up edge of seal (12) and remove four bolts (13) and washers (14) from forward and aft fairings (8 and 11).



5. Remove 11 screws (15) and washers (16) from base of fairing (8).
6. With aid of helper, remove fairing (8).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

2-270

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Personnel Required:

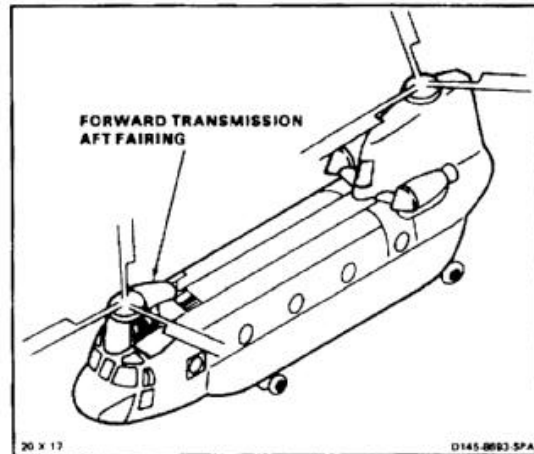
Medium Helicopter

References:

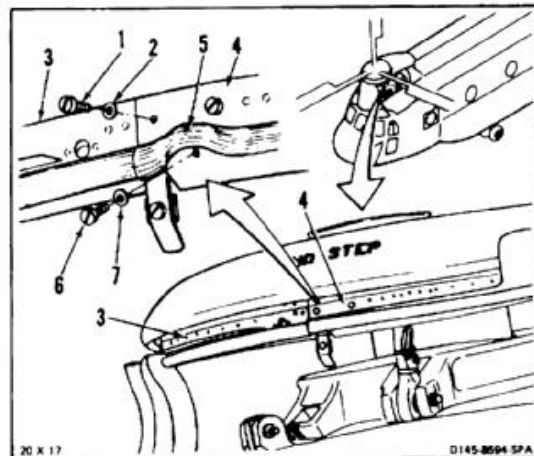
Task 9-85.1

Equipment Condition:

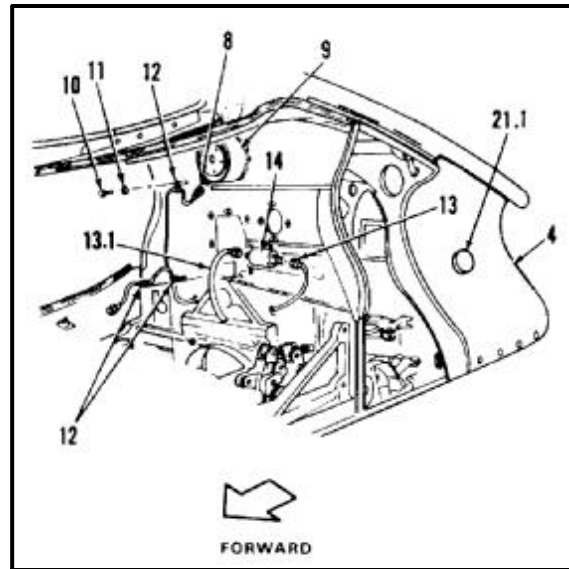
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Forward Work Platforms Opened (Task 2-2)
 Forward Tunnel Cover Opened (Task 2-2)



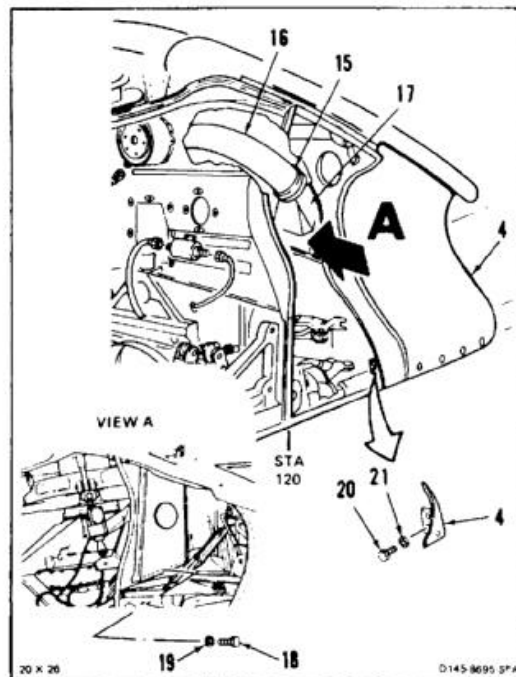
1. With aid of helper, remove two screws (1) and washers (2) from each side of forward and aft fairings (3 and 4).
2. With aid of helper, roll up edge of seal (5) and remove two screws (6) and washers (7) from each side of forward and aft fairings (3 and 4).



3. Disconnect electrical connector (8) from reservoir/cooler blower motor (9).
4. Remove three screws (10), washers (11), and clamps (12) from fairing (4).
5. Disconnect electrical connector (13) and oil pressure line (13.1) from forward transmission transducer (14).
- 5.1. With **17** only, disconnect two electrical connections from two NVG lights (21.1), one on each side of fairing (4).



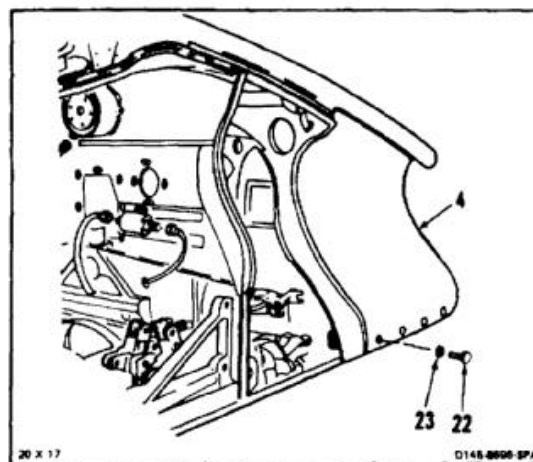
6. Loosen clamp (15) and remove duct (16) from reservoir/cooler (17).
7. Remove ten bolts (18) and washers (19) securing aft fairing (4) at sta. 120.
8. Remove two screws (20) and washers (21) from each side of fairing (4) at sta. 140.



2-63 REMOVE FORWARD TRANSMISSION AFT FAIRING (Continued)

2-63

9. Remove four screws (22) and washers (23) from base on each side of fairing (4).
10. With aid of helper, remove aft fairing (4).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Bond Test Unit

Materials:

As Required

Personnel Required:

Inspector

References:

Task 2-65
Task 2-66
Task 2-356
TM 1-1500-204-23
TM 1-1520-253-23

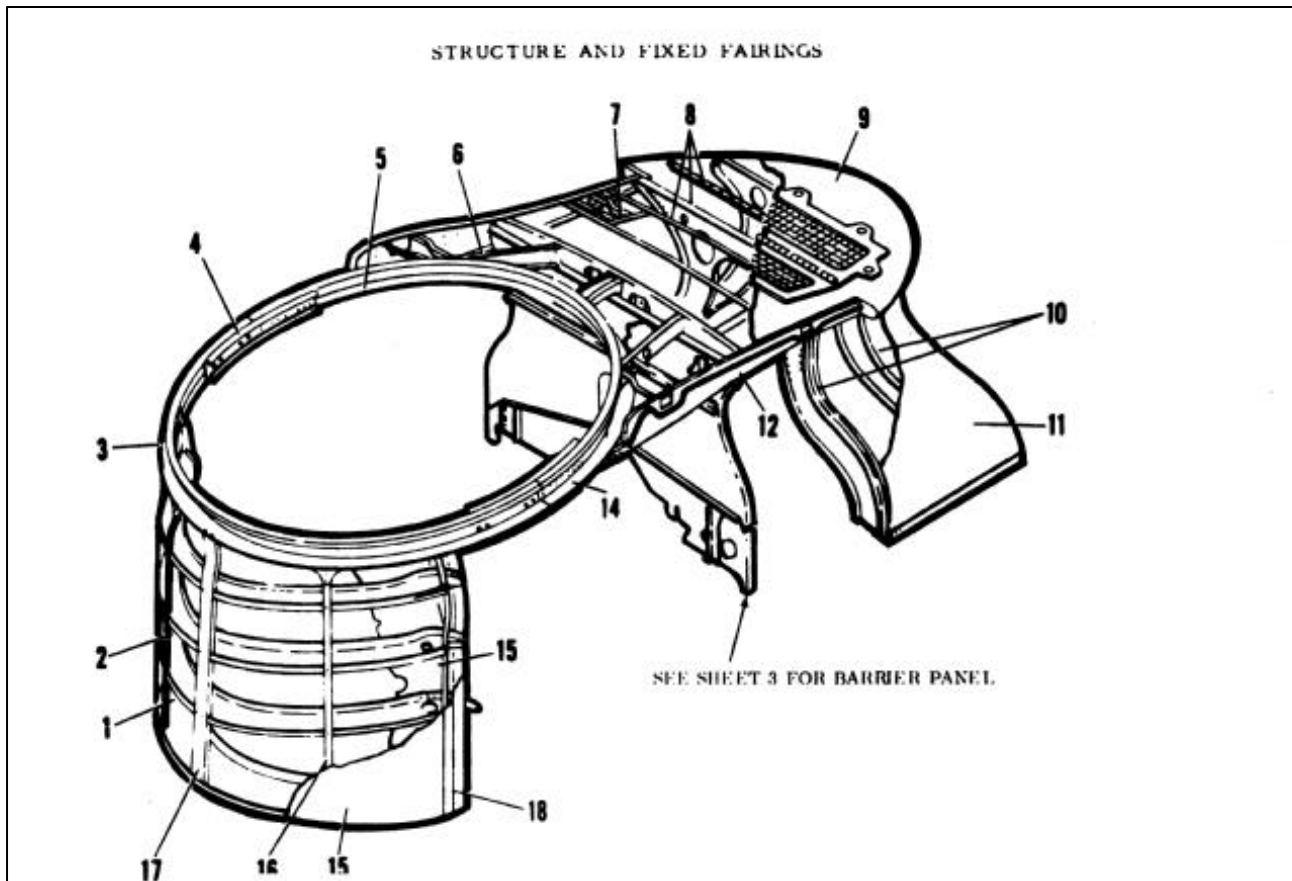
Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Inspect the forward transmission fairing and hinged fairings. No voids allowed. If a void is suspected, refer to TM 1-1520-253-23.
2. Damage classification to the forward transmission fairing is minor (Task 2-65), and extensive damage (Task 2-66).



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	FORMER	0.025 6061-T6 BARE	0.032 6061-T6 CLAD
2	FORMER	0.020 6061-T6 BARE	0.025 6061-T6 BARE
3	ANGLE	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
4	SPLICE	0.080 7075-T6 BARE	0.090 7075-T6 CLAD
5	TEE	ALCADA 22981 7075-T6	0.025 4130
6	STIFFENER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
7	FORMER	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
8	STIFFENER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
9	SKIN	2-PLY GLASS CLOTH	NOTE B.
10	FORMER	0.025 6061-T6 BARE	0.032 6061-T6 BARE
11	SKIN	3-PLY GLASS CLOTH	NOTE B.
12	CHANNEL	0.032 2024-T4 CLAD	0.032 2024-T3 CLAD
13	DELETED		
14	CHANNEL	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
15	SKIN	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD
16	FORMER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
17	STIFFENER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
18	SPOILER	ALUMINUM OR GLASS	0.050 2024-T3 CLAD

- NOTES
- A. ALL DIMENSIONS ARE IN INCHES
 - B. THE SKIN IS LAMINATED POLYESTER IMPREGNATED NO. 181 GLASS CLOTH, MIL-P-8013, TYPE 1, REINFORCED WITH 60 END, 830 GLASS ROVING, IMPREGNATED WITH RESIN IN ACCORDANCE WITH MIL-R-7573

42 X 51

D145-10257-SPA

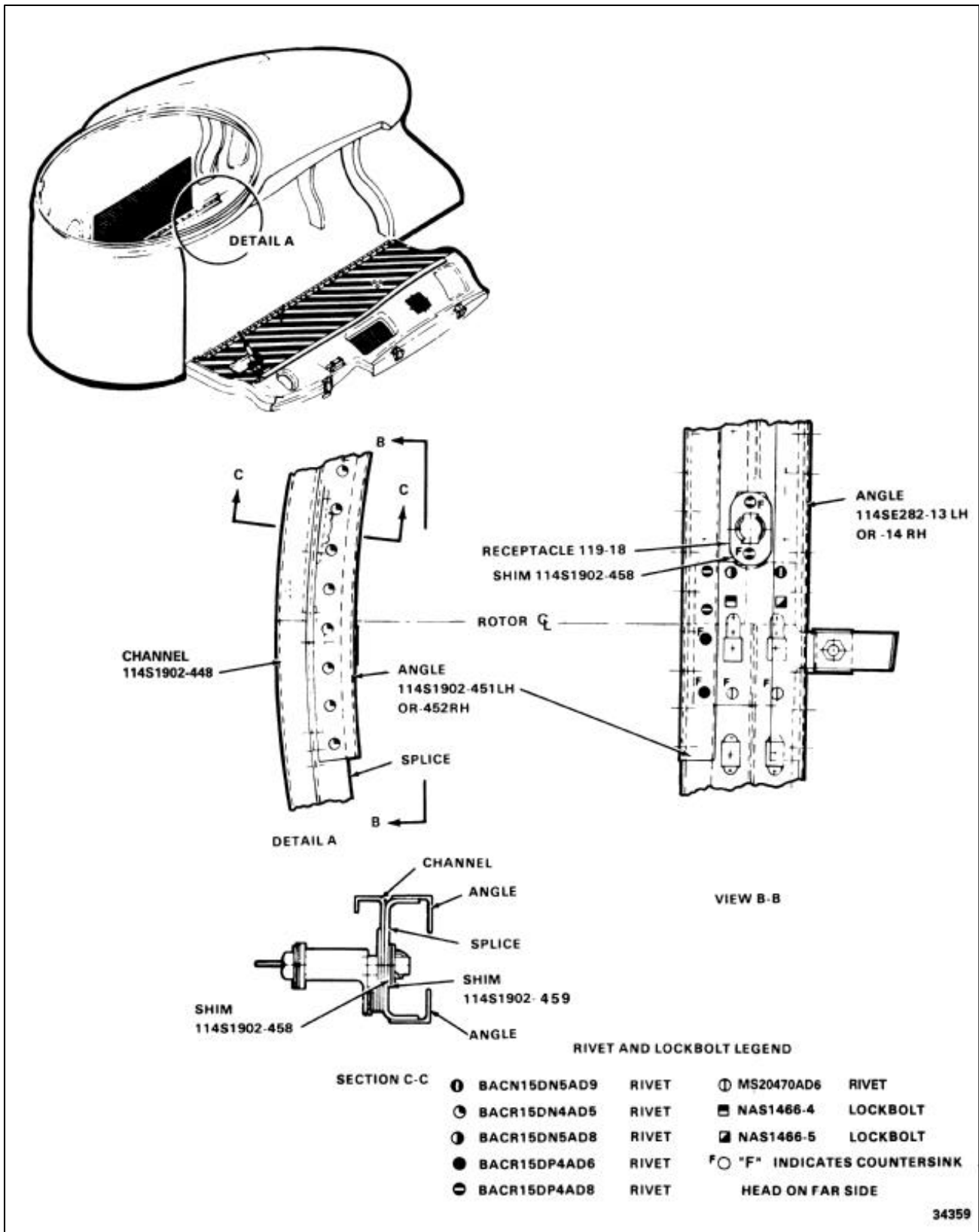
**Forward Pylon Structure and Fairing Repairs –
Cockpit Fuselage Structure (Sheet 1 of 8)**

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	FORMER	0.025 6051-T6 BARE 0.040 2024-T3 CLAD	0.032 6061-T6 CLAD 0.050 2024-T3 CLAD NOTE C.
2	FORMER	0.020 6061-T6 BARE 0.040 2024-T3 CLAD	0.025 6061-T6 BARE 0.050 2024-T3 CLAD NOTE C.
3	ANGLE TEE	0.032 2024-T4 CLAD BAC1505-23760	0.040 2024-T3 CLAD 0.040 7075-0 NOTE C.
4	SPLICE	0.080 7075-T6 BARE 0.080 7075-T6 CLAD	0.090 7075-T6 CLAD NOTE C.
5	TEE	ALCOA 22981 7075-T6	0.025 4130
6	STIFFENER	0.025 2024-T4 CLAD 0.025 2024-T3 CLAD	0.032 2024-T3 CLAD 0.032 2024-T3 CLAD NOTE C.
7	FORMER STIFFENER	0.032 2024-T4 CLAD 0.025 2024-T3 BARE	0.040 2024-T3 CLAD 0.032 2024-T3 CLAD NOTE C.
8	STIFFENER	0.025 2024-T4 CLAD 0.025 2024-T3 CLAD	0.032 2024-T3 CLAD 0.032 2024-T3 CLAD NOTE C.
9	SKIN	3-PLY GLASS CLOTH	NOTE B.
10	FORMER	0.025 6061-T6 BARE	0.032 8061-T6 BARE
11	SKIN	2-PLY GLASS CLOTH	NOTE B.
12	CHANNEL	0.025 2024-T3 CLAD 0.025 2024-T3 CLAD	0.032 2024-T3 CLAD 0.032 2024-T3 CLAD NOTE C.
13	DELETED		
14	CHANNEL	0.025 2024-T4 CLAD 0.050 2024-T3 CLAD	0.032 2024-T3 CLAD 0.063 2024-T3 CLAD NOTE C.
15	SKIN	0.020 2024-T4 CLAD 0.032 2024-T3 CLAD	0.025 2024-T3 CLAD 0.040 2024-T3 CLAD NOTE C.
16	FORMER	0.025 2024-T4 CLAD 0.032 2024-T3 CLAD	0.032 2024-T3 CLAD 0.040 2024-T3 CLAD NOTE C.
17	STIFFENER TEE	0.025 2024-T4 CLAD BAC1505 23760, 7075-T6 EXTR	0.032 2024-T3 CLAD 0.025 4130 NOTE C.
18	SPOILER	0.050 2024-T3 CLAD	0.050 2024-T3 CLAD

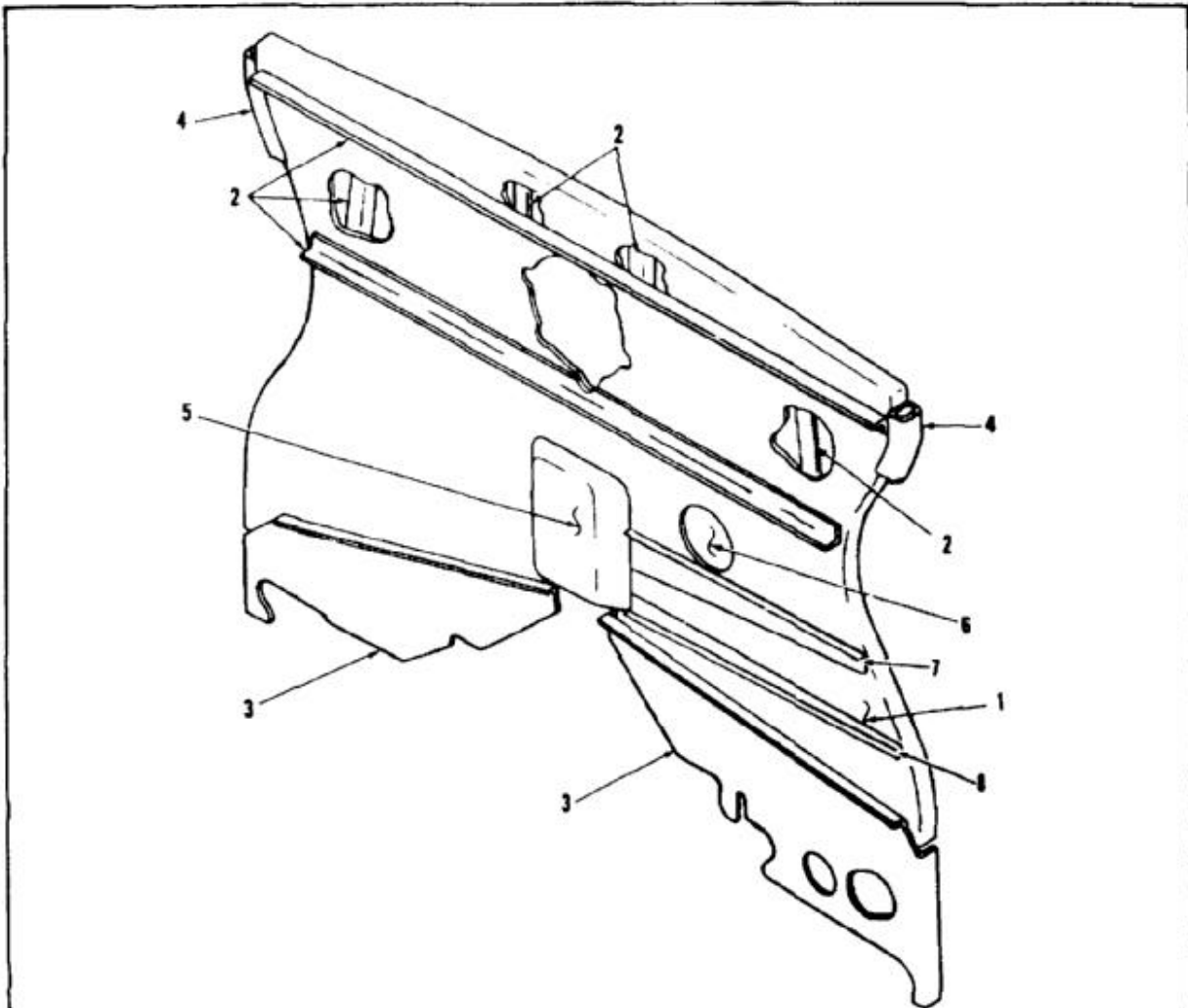
NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. THE SKIN IS LAMINATED POLYESTER IMPREGNATED NO. 181 GLASS CLOTH MIL-P-8013. TYPE 1, REINFORCED WITH 60 END, 830 GLASS ROVING, IMPREGNATED WITH RESIN IN ACCORDANCE WITH MIL-R-7575.
- C. THIS PART IS USED ON AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.

**Forward Pylon Structure Fairing Repairs — Cockpit Fuselage Structure
(Sheet 2 of 8)**



Forward Pylon Structure and Fairing Repairs –
Cockpit Fuse Bay Structure (Sheet 3 of 8)



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	WEB	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD
2	STIFFENER	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD
3	WEB	0.040 2024-T3 CLAD	0.080 2024-T3 CLAD
4	SEAL	VB80872-2	NOTE B
5	COVER	0.080 & 9048.5 KYDEX	
6	COVER	0.032 2024-T3 CLAD	
7	ANGLE	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD
8	ANGLE	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD

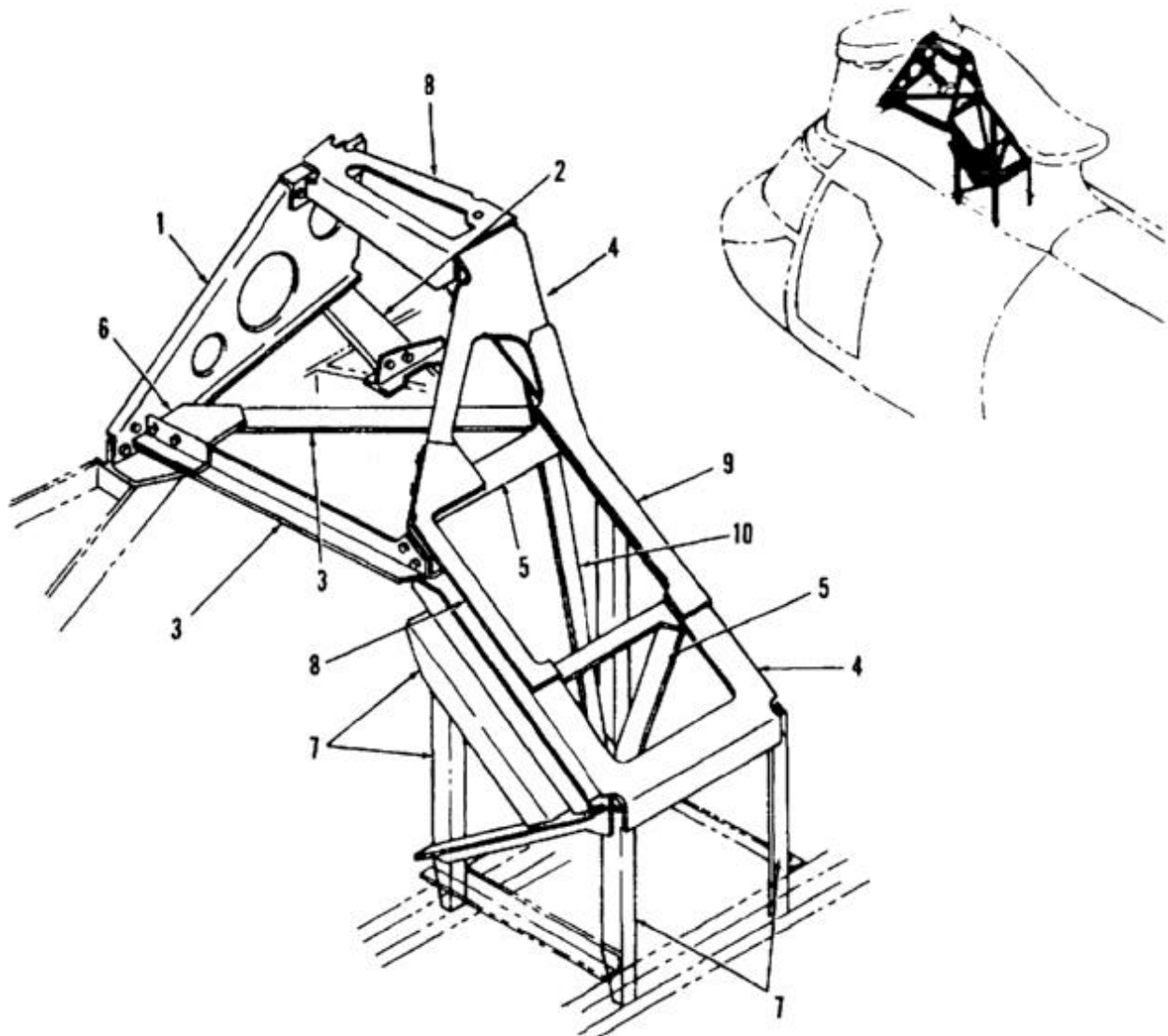
NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. REPLACE WITH SAME MATERIAL AS ORIGINAL

42 X 51

D145-10289-SPA

Forward Pylon Structure and Fairing Repairs -
Cockpit Fuselage Structure (Sheet 4 of 8)

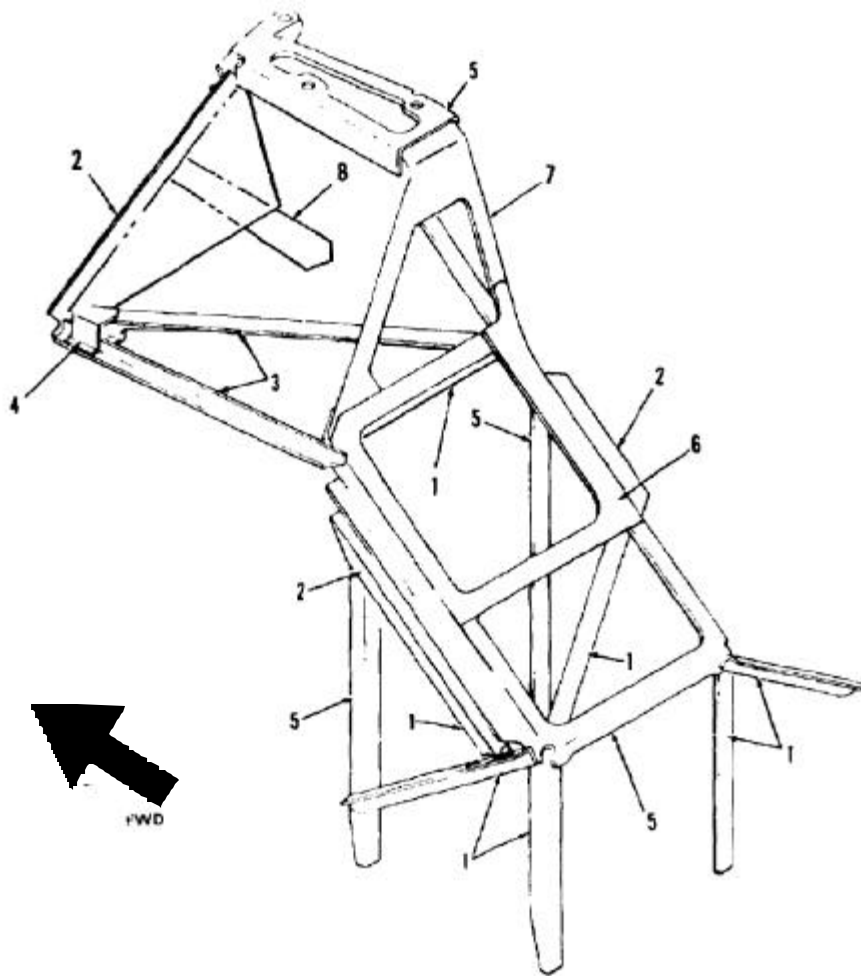


INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATEIAL	REPAIR FIG.
1	BRACE	0.063 2024-T3 CLAD	0.080 2023-T3 CLAD	NOTE B.
2	STRUT	0.071 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
3	ANGLE	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
4	SUPPORT	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
5	ANGLE	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
6	BRACKET	0.063 301 CRES	0.080 301 CRES	NOTE B.
7	SUPPORT	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
8	SUPPORT	0.063 301 1/4 HD CRES	0.063 301 1/4 HD CRES	NOTE B.
9	SUPPORT	0.063 CRES 17-7 PH HT TR 180-200 KSI	0.071 CRES 17-7 PH HT TR 180-200 KSI	NOTE B.
10	STRUT	AND10133-0701 7075-T6511	0.063	NOTE B.

NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. REFER TO TM 1-1500-204-23 FOR FORMED PARTS REPAIR

Forward Pylon Structure and Fairing Repairs
Cockpit Fuselage Structure (Sheet 5 of 8)

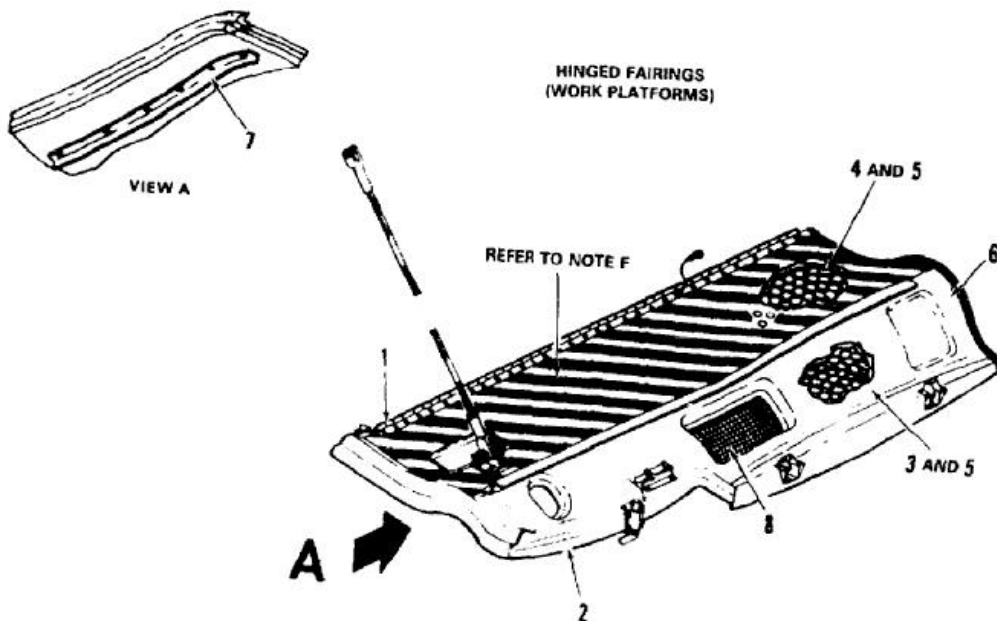


INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR FIG.
1	ANGLE	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
2	SUPPORT	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
3	ANGLE	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
4	BRACKET	0.063 301 1/4 H CRESS	0.063 301 1/4 HD CRES	NOTE B.
5	SUPPORT	301 1/4 HD CRES	0.063 301 1/4 HD CRES	NOTE B.
6	SUPPORT	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
7	CHANNEL	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
8	STRUT	0.071 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.

NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. REFER TO TM 1-1500-204-23 FOR FORMED PARTS REPAIR.
- C. THIS FIGURE SHOWS CONFIGURATION AND REPAIR MATERIAL FOR AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.

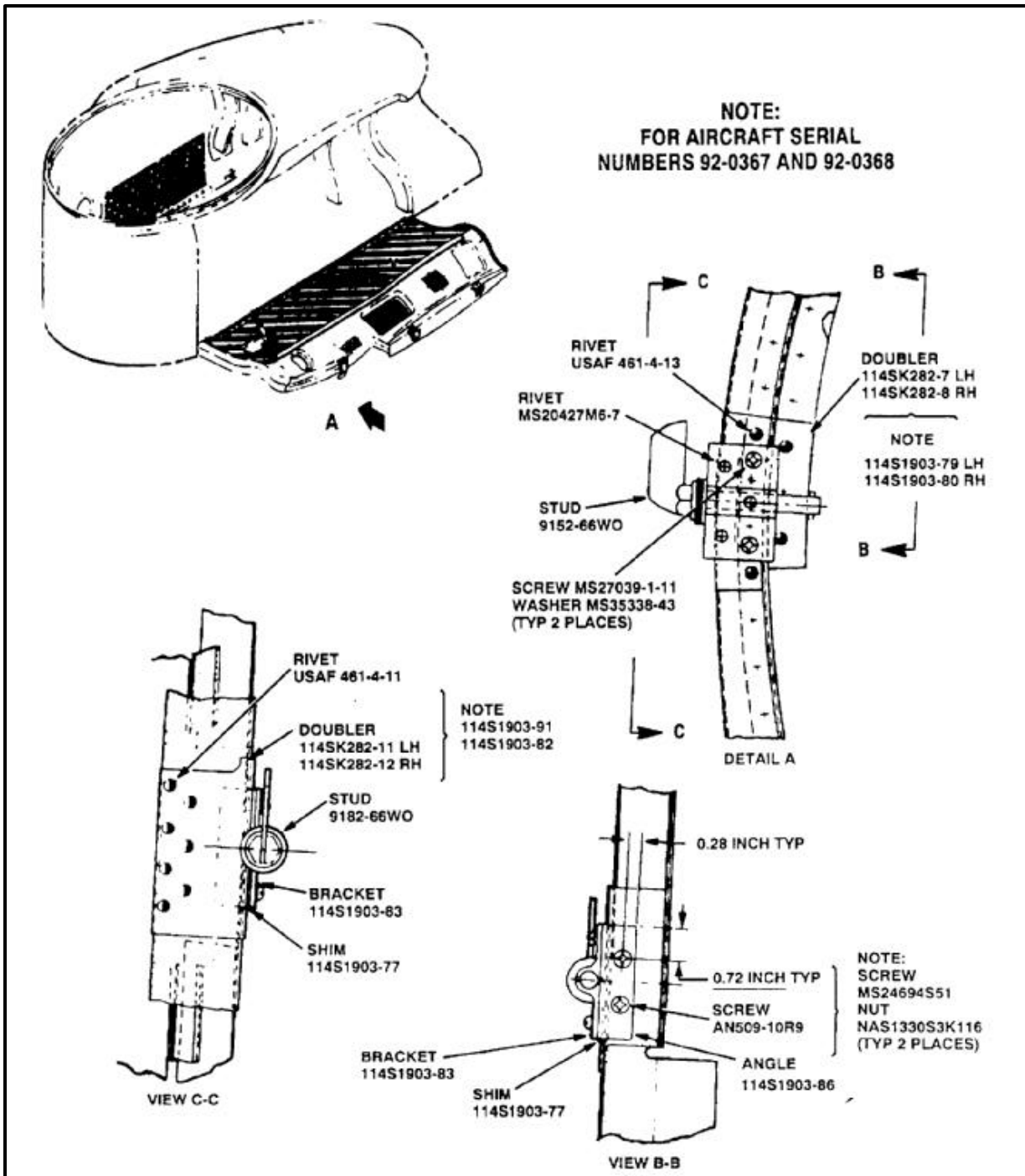
**Forward Pylon Structure Fairing Repairs — Cockpit Fuselage Structure
(Sheet 6 of 8)**



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	HINGE	MS20001PH6 MS20001PH5	NOTE C. NOTE C., NOTE J.
2	SKIN	PREIMPREGNATED GLASS FIBER	NOTE D., OR NOTE E., NOTE J.
3	CORE CORE UPPER	0.710, 5.4-3/16-20N-5052 0.750 BMS4-4, 4-10N FORM B	NOTE B. NOTE B.; NOTE J.
4	CORE LOWER	0.750 BMS4-4, 4-15N FORM B	NOTE J.
5	CORE INSERT	0.710 BMS4-4, 3-2 ON, FORM B	NOTES B. & J.
6	SKIN	PREIMPREGNATED GLASS FIBER	NOTE D., OR NOTE G., NOTE J.
7	SPOILER ANGLE	0.050 2024-T3 CLAD	NOTE H.
8	SCREEN	0.041 DIAMETER CLOTH 0.50 X 0.50 MESH 316 STAINLESS STEEL	NOTE I.

NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. THE PLATFORM AREA IS OF SANDWICH HONEYCOMB CONSTRUCTION. REFER TO TM 1-1500-204-23.
- C. MACHINE TO CONFIGURATION OF ORIGINAL DAMAGED SECTION.
- D. LAMINATED: CONSISTING OF ONE CONTINUOUS LAYER OF BP407-120A NEXT TO THE CORE, TWO PLYS OF BP407-181A AND TWO PLYS OF BP407-120A IN THE LOWER AREA; THREE PLYS OF BP407-120A IN THE UPPER AREA; AND ONE CONTINUOUS PLY OF BP407-120A ON THE OUTSIDE OF THE LAYUP.
- E. LAMINATED: CONSISTING OF 2 PLY BMS-79, TYPE 1581 OR 7781 IN LOWER AREA AND 3 PLY OF BMS8-79, TYPE 120 IN UPPER AREA INCLUDING 1 PLY CONTINUOUS BMS8-79, TYPE 120 NEXT TO CORE AND 1 PLY CONTINUOUS BMS8-79 TYPE 120 ON OUTSIDE OF LAYUP.
- F. APPLY WALKWAY MATERIAL (E440), AS DIRECTED IN TASK 2-356 FOLLOWING REPAIRS TO THIS AREA OR AS REQUIRED BY WEAR.
- G. LAMINATED: CONSISTING OF 2 PLY BMS-79, TYPE 1581 OR 7781 IN LOWER AREA AND 3 PLY OF BMS8-79, TYPE 120 IN UPPER AREA INCLUDING 1 PLY CONTINUOUS BMS8-79, TYPE 120 NEXT TO CORE AND 1 PLY CONTINUOUS BMS8-79 TYPE 120 ON OUTSIDE OF LAYUP PLUS 1 PLY SPUN NYLON FABRIC SCOURED AND HEAT SET (STYLE SN-52).
- H. REPLACE WITH NEW SPOILER ANGLE 114S1981-1 LH OR -2 RH.
- I. REPLACE WITH MATERIAL SIMILAR TO ORIGINAL.
- J. THIS MATERIAL IS USED ON AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.



Forward Pylon Structure and Fairing Repairs - Cockpit Fuselage Structure (Sheet 8 of 8)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-65 MINOR REPAIR — FORWARD TRANSMISSION FAIRING

2-65**INITIAL SETUP****Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-6
Task 2-64**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Minor damage consists of nicks, dents, and scratches that can be removed by burnishing (Task 2-6).
2. Patch cracks and small round or oval holes not exceeding limits (Task 2-64).
3. Patch repair damage affecting less than **25 percent** of the area of a skin panel (Task 2-64).
4. Patch repair damage to formed parts not affecting the radius (Task 2-64).

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-13
Task 2-64**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Repair damage affecting more than **25 percent** of area of skin panel or which affects boundary members by insertion (Tasks 2-13 and 2-64).
2. Repair damage to formed parts affecting the radius by insertion (Tasks 2-13 and 2-64).
3. If damage is extensive, as loss of a major portion of a member or numerous isolated damages, replace in whole or in part (Task 2-64).
4. Replace cracked or badly damaged latch plates (Task 2-13).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-284

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692
Workstands (2)

Materials:

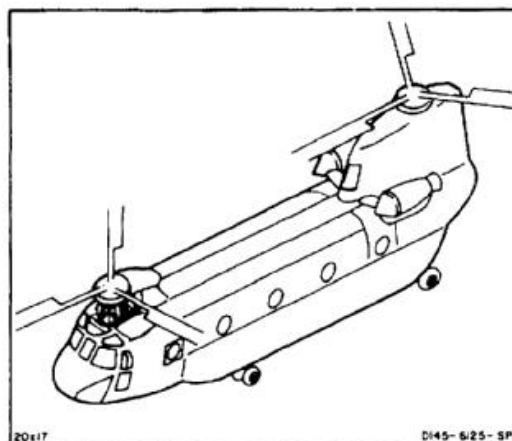
None

Personnel Required:

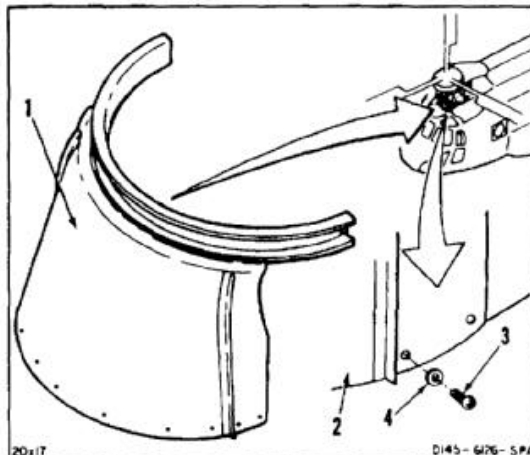
Medium Helicopter Repairer (4)

References:

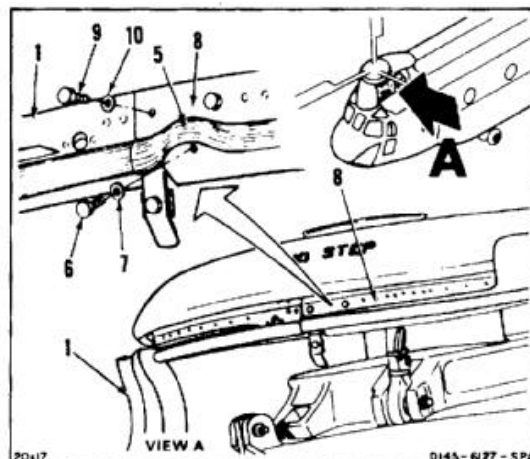
TM 55-1520-240-23P



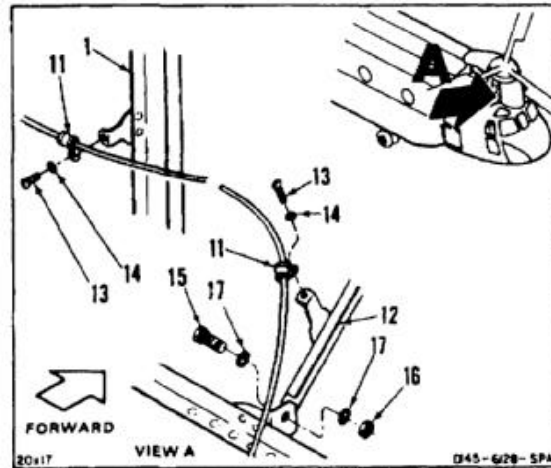
1. With aid of helper, position forward fairing (1) on structure (2).
2. Install 11 screws (3) and washers (4) in base of fairing (1).



3. Roll up edge of seal (5) and install four bolts (6) and washers (7) through forward and aft fairings (1 and 8).
4. Install eight bolts (9) and washers (10) through forward and aft fairings (1 and 8).



5. Position two clamps (11) on forward fairing (1) and brace (12). Install two screws (13) and washers (14).
6. Position two braces (12). Install two bolts (15), nuts (16), and four washers (17).

**FOLLOW-ON MAINTENANCE:**

Close forward work platforms (Task 2-2).

END OF TASK

2-67.1 PREPARE FORWARD TRANSMISSION FORWARD FAIRING FOR INSTALLATION

2-67.1

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692
 Drill Size E
 Drill Size 3/16

Materials:

Gloves (E184.1)
 Epoxy Primer (E292.1)

Personnel Required:

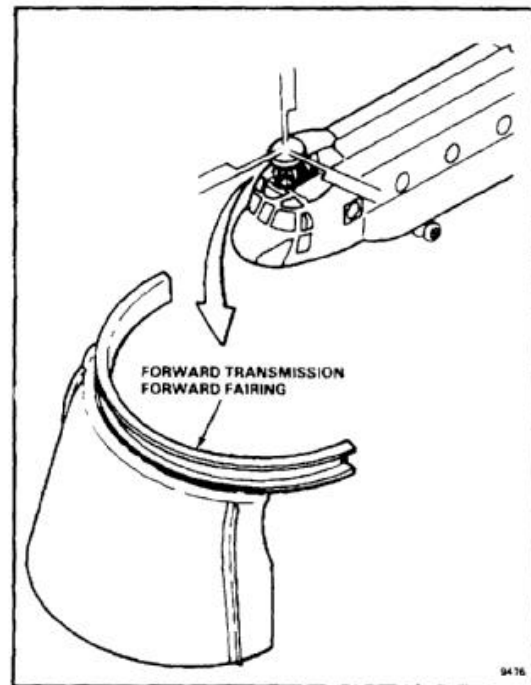
Medium Helicopter Repairer
 Inspector

References:

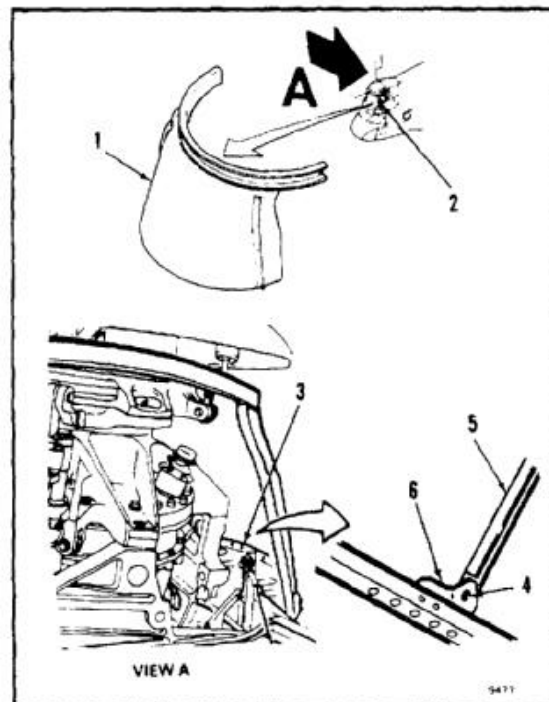
TM 55-1520-240-23P
 Task 2-67

Equipment Condition:

Forward Work Platform Opened (Task 2-2)
 Forward Transmission Forward Fairing Removed
 (Task 2-62)



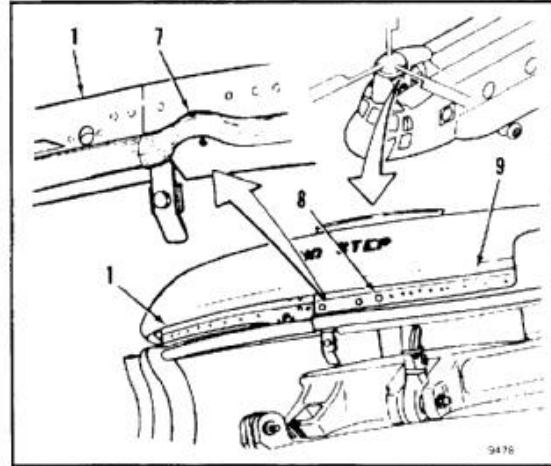
1. Align fairing (1) with structure (2).
2. Have helper hold fairing (1) in place. From inside structure (2), mark 11 holes (3) on fairing (1). Use holes in structure as guide.
3. Mark one hole (4) in two braces (5). Use hole in bracket (6) as guide.



**2-67.1 PREPARE FORWARD TRANSMISSION FORWARD FAIRING FOR
INSTALLATION (Continued)**

2-67.1

4. Roll back edge of seal (7).
5. Mark six holes (8) in fairing (1) (three on each side). Use holes in forward transmission aft fairing (9) as guide.



6. Remove fairing (1) from structure (2).
7. Drill holes (3) in fairing (1). Use drill size 3/16. Deburr holes.
8. Drill holes (4) in two braces (5). Use drill size 3/16. Deburr holes.
9. Drill holes (8) in fairing (1). Use drill size 3/16. Deburr holes.

WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flames. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

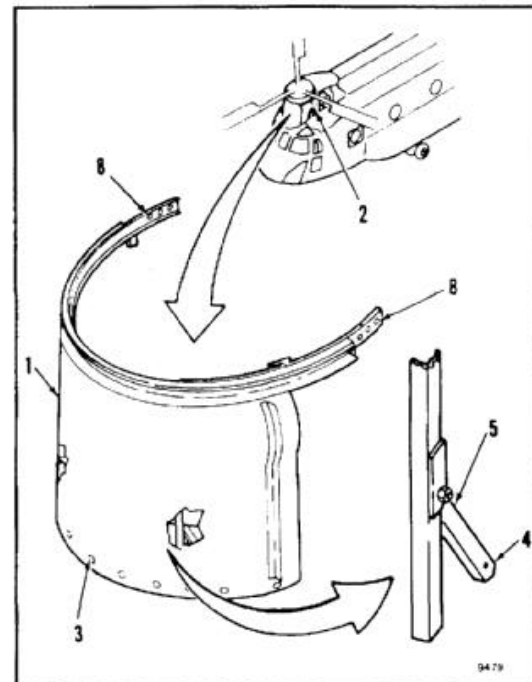
10. Apply primer (E292.1) to drilled holes (3, 4, and 8). Wear gloves (E184.1).

INSPECT

11. Perform Task 2-67.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

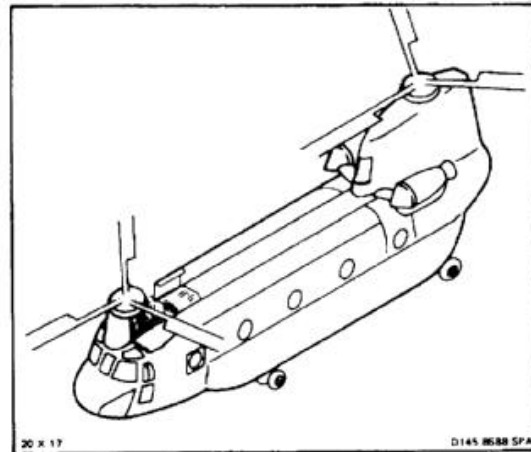
All

Tools:

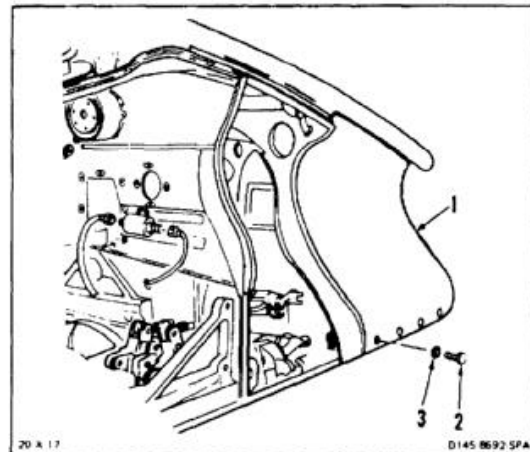
Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

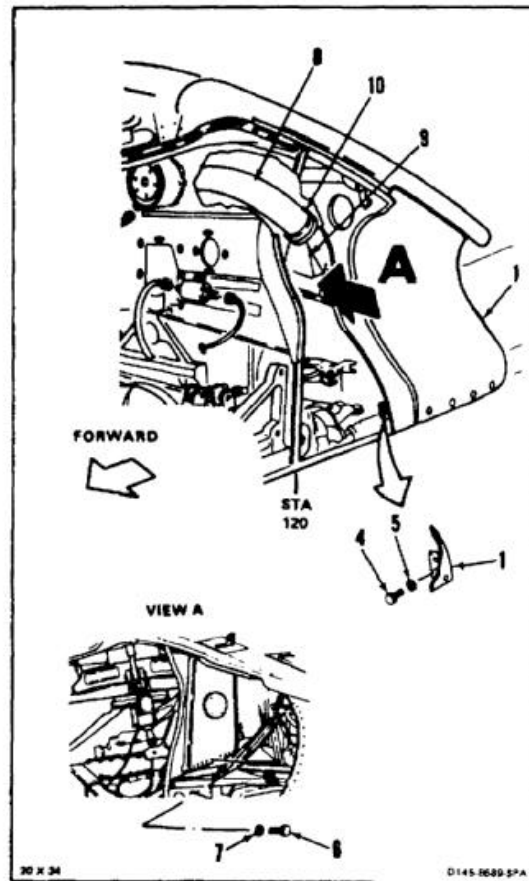
None

Personnel Required:Medium Helicopter Repairer (2)
Inspector**References:**TM 55-1520-240-23P
Task 9-85.2

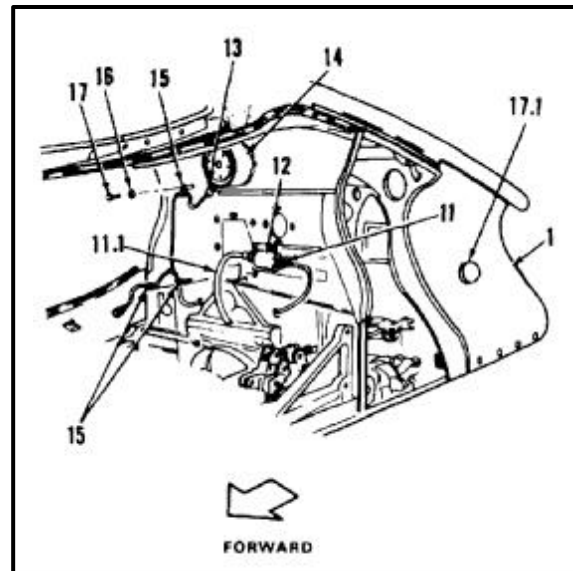
1. With aid of helper, position forward transmission aft fairing (1) on helicopter.
2. Install four screws (2) and washers (3) in base in each side of fairing (1).



3. Install two screws (4) and washers (5) in each side of fairing (1) at sta. 140.
4. Install ten bolts (6) and washers (7) in fairing (1) at sta. 120.
5. Install duct (8) on reservoir/cooler (9). Tighten clamp (10).

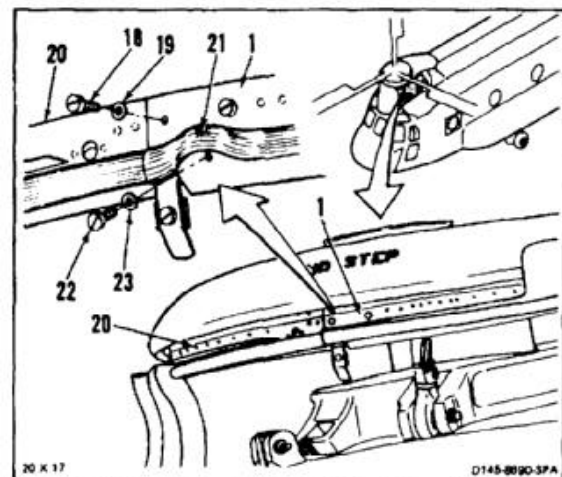


6. Connect electrical connector (11) and oil pressure line (11.1) to forward transmission transducer (12).
7. Connect electrical connector (13) to reservoir/cooler blower motor (14).
8. Install three clamps (15), washers (16), and screws (17) on fairing (1).
- 8.1. With **17** only, connect two NVG lights (17.1) one on each side of fairing (Task 9-85.2).



9. Install two screws (18) and washers (19) in each side of forward and aft fairings (20 and 1).
10. Rollup edge of seal (21) and install two screws (22) and washers (23) in each side of forward and aft fairings (20 and 1).

INSPECT



FOLLOW-ON MAINTENANCE:

- Close forward tunnel cover (Task 2-2).
- Close forward fairing work platform (Task 2-2).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Drill Size E
 Drill Size 3/16

Materials:

Gloves (E184.1)
 Epoxy Primer (E292.1)

Personnel Required:

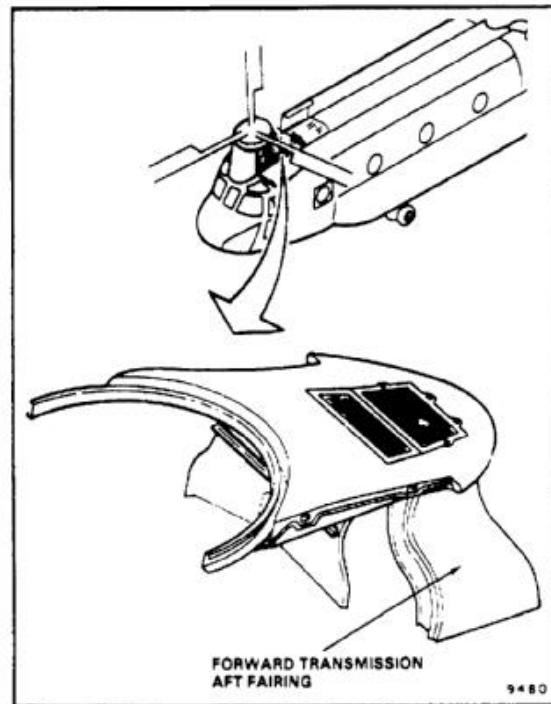
Medium Helicopter Repairer
 Inspector

References:

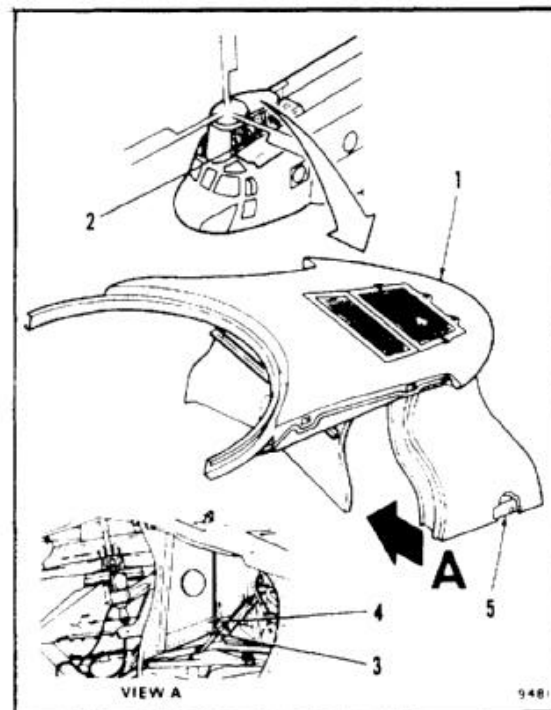
TM 55-1520-240-23P
 Task 2-67
 Task 2-68

Equipment Condition:

Forward Work Platforms Opened (Task 2-2)
 Forward Transmission Aft Fairing Removed (Task 2-63)
 Forward Section of Tunnel Cover Opened (Task 2-2)



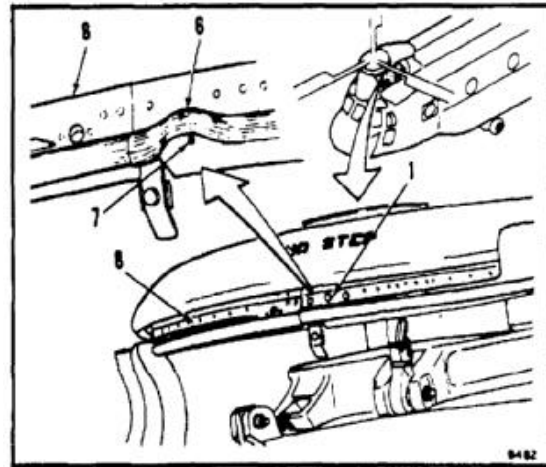
1. Align fairing (1) with structure (2).
2. Have helper hold fairing (1) in place. From inside structure (2), mark nine holes (3) on fairing (1). Use holes in thermal barrier (4) as guide.
3. Mark eight holes (5) (four on each side) in fairing (1). Use holes in structure (2) as guide.



2-68.1 PREPARE FORWARD TRANSMISSION AFT FAIRING FOR INSTALLATION (Continued)

2-68.1

4. Roll back edge of seal (6).
5. Mark six holes (7) in fairing (1) (three on each side). Use holes in forward transmission forward fairing (8) as guide.

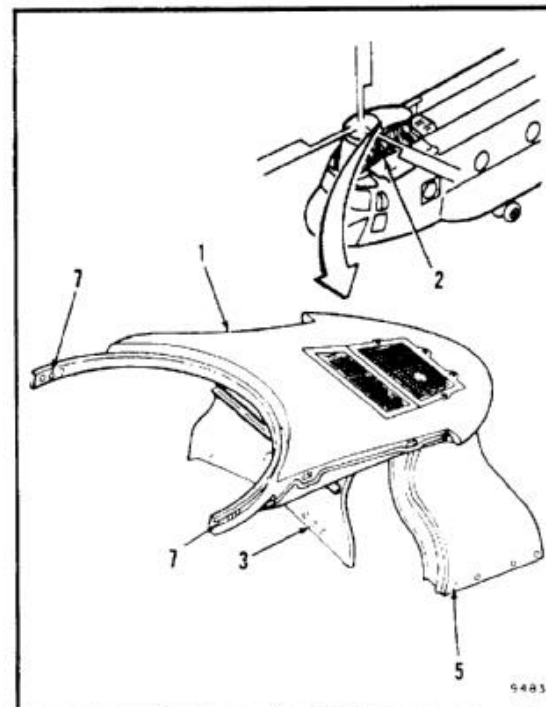


6. Remove fairing (1).
7. Drill holes (9) in fairing (1). Use drill size E. Deburr holes.
8. Drill holes (5) in fairing (1). Use drill size 3/16. Deburr holes.
9. Drill holes (7) in fairing (1). Use drill size 3/16. Deburr holes.

WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

10. Apply primer (E292.1) to drilled holes (3, 5, and 7). Wear gloves (E184.1).

**INSPECT**

11. Perform Task 2-68.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Portable Workstand

Materials:

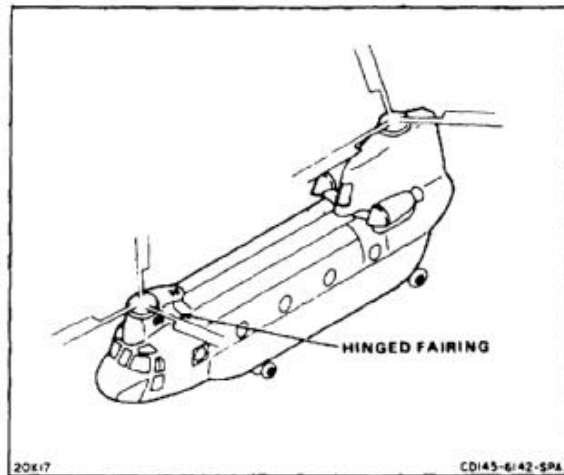
None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

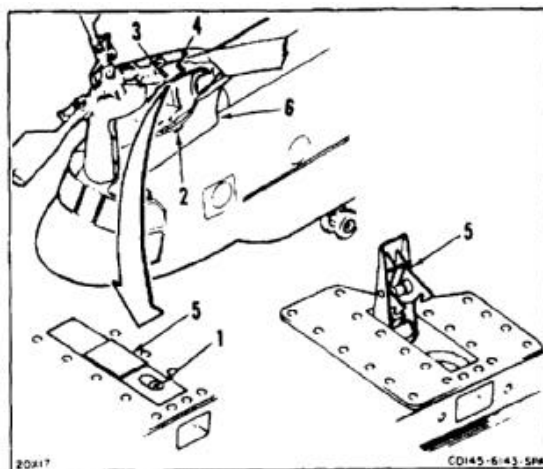
Battery Disconnected (Task 1-39)
 Electrical Power Off



NOTE

Procedure is same to remove right or left forward transmission hinged fairing (work platform). Removal of left fairing is shown here.

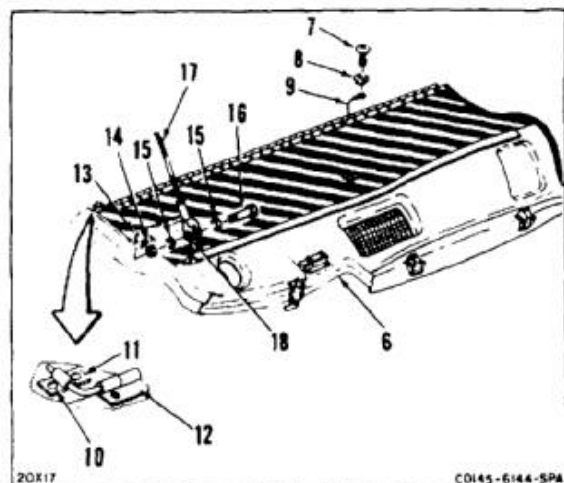
1. Loosen turn lock (1) and pull out.
2. Press in three latch handles (5) and release latches (2, 3, and 4).
3. Pull handles (5) and open hinged fairing (6).



NOTE

Work platform is reached from workstand.

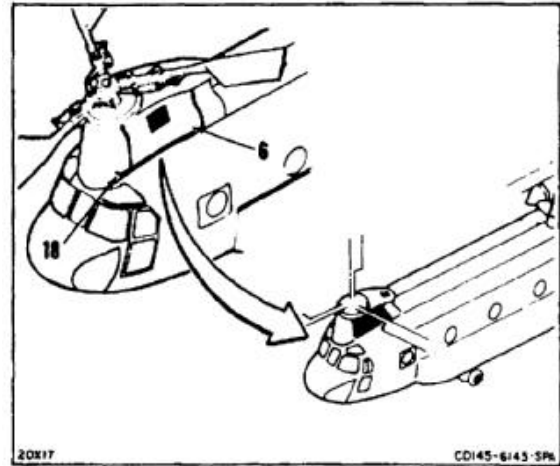
4. Remove screw (7) and washer (8). Disconnect electrical lead (9).
5. Remove screw (10) and hinge clip (11). Rotate hinge (12) outboard.
6. Have helper support fairing (6).
7. Remove cotter pin (13), nut (14), two washers (15), and bolt (16) from cable (17) and fitting (18).



2-69 REMOVE FORWARD TRANSMISSION HINGED FAIRING (WORK PLATFORM) (Continued)

2-69

8. Close fairing (6).
9. Remove hinge pin (18).
10. Remove fairing (6).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Portable Workstand**Materials:**

None

Parts:

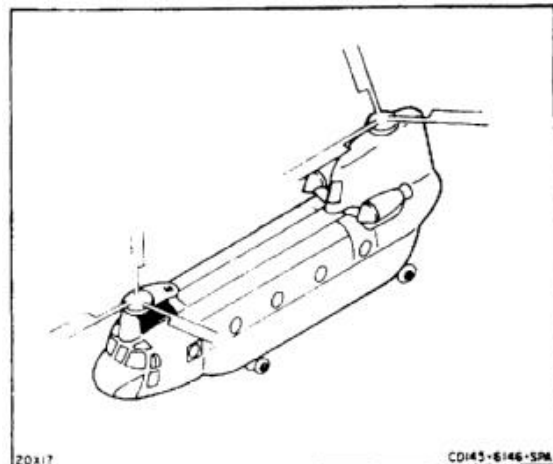
Cotter Pin

Personnel Required:

Medium Helicopter Repairer (2)

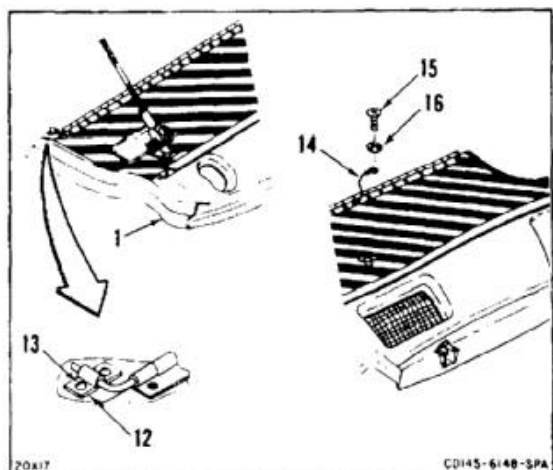
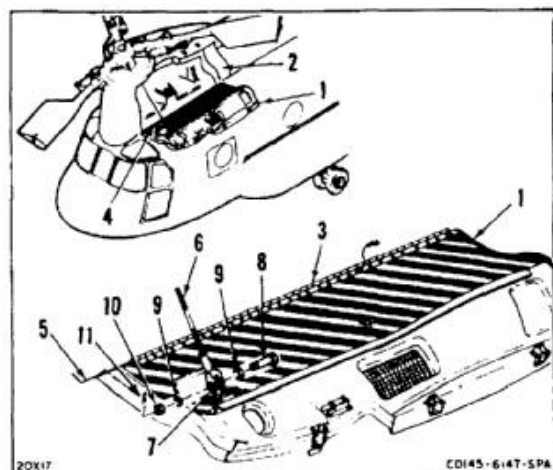
References:

TM 55-1520-240-23P

**NOTE**

Procedure is same to install right or left forward transmission fairing (work platform). Installation of left fairing is shown here.

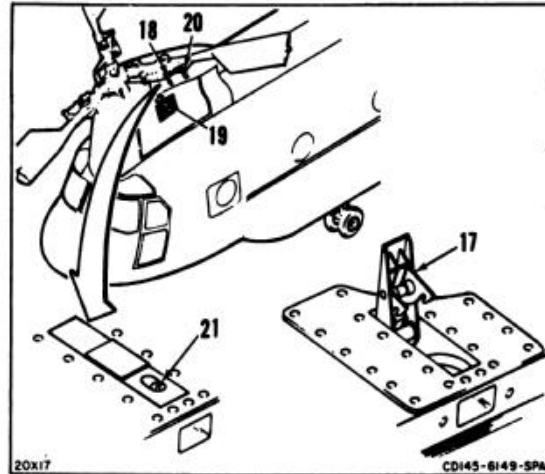
1. Position hinged fairing (1) on fuselage (2).
2. Align hinge leaf (3) on fairing (1) with hinge leaf (4) on fuselage (2).
3. Have helper support fairing (1). Install hinge pin (5).
4. Position cable (6) in fitting (7). Install bolt (8), two washers (9), nut (10), and cotter pin (11) into strap (6) and fitting (7).
5. Install hinge clip (12) and screw (13).
6. Connect electrical lead (14) by installing screw (15) and washer (16).
7. Close fairing (1).



2-70 INSTALL FORWARD TRANSMISSION HINGED FAIRING (WORK PLATFORM) (Continued)

2-70

8. Push in three latch handles (17) and lock latches (18, 19, and 20).
9. Push turn lock (21) in and lock into position.

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Eddy Current Inspection Unit

Materials:

As Required

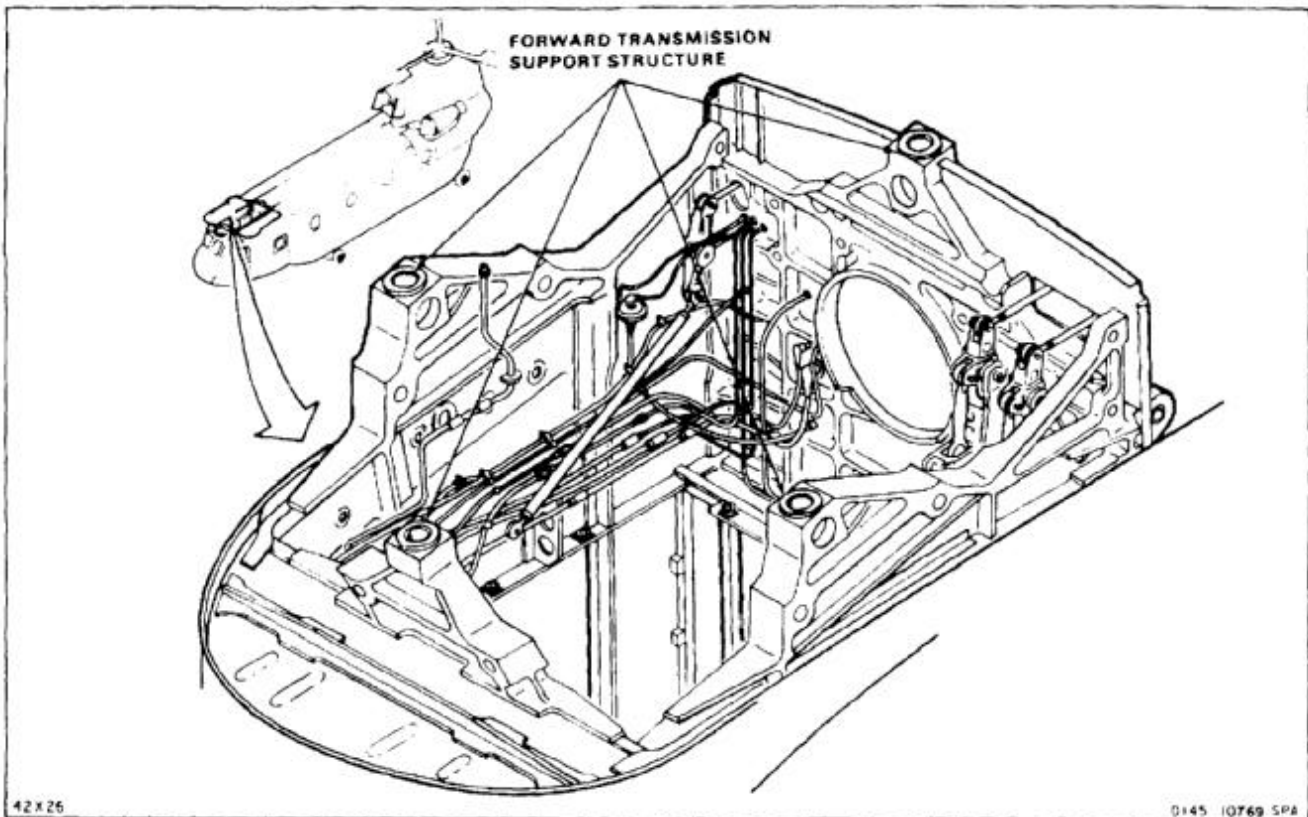
Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-72
Task 2-73
TM 1-1520-253-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Inspect the following support structures in cockpit fuselage structure assembly for damage:
 - a. Forward transmission supports are machined fittings spliced to sheet aluminum webs and reinforced by formed and extruded parts. No cracks allowed. If a crack is suspected, refer to TM 1-1520-253-23.
 - b. Cargo winch and puller supports are integral parts of transmission support fitting.
2. Damage classifications include Minor Damage (Task 2-72) and Major Damage (Task 2-73).

**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-298

INITIAL SETUP

General Safety Instructions:**Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Trip Balance Scale, NSN 6670-00-401-7195
 Teflon Wedge or Plastic Scraper
 Heat Lamp
 Pyrometer
 Heat Gun
 C-Clamp

Materials:

Brush (E86)
 Tape (E388)
 Cloth (E120)
 Brush (E85.2)
 Alodine (E65)
 Gloves (E186)
 Acetone (E20)
 Adhesive (E43)
 Primer (E291.1)
 Nitric Acid (E22)
 Scrim Cloth (E325)
 Cheesecloth (E112)
 Abrasive Paper (E8)
 Epoxy Primer (E292)
 Kevlar Gloves (E187)
 Wood Spatula (E424)
 Polyethylene Cup (E157)
 Temperature Indicating Strips (E413)

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

Task 2-72
 Task 2-73
 MIL-C-5541
 MIL-C-22751

Equipment Condition:

As Required

WARNING

Alodine powder (E65) is an oxidizer. Discard cloths which contain this material in a separate container. If discarded with cloths contaminated with acetone, or other organic solvents, combustion can result. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Adhesive (E43) is toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Acetone (E20) and Nitric acid (E22) are extremely flammable. They can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Primer (E291.1) and Epoxy primer (E292) are flammable and toxic. They can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Wear Kevlar gloves (E187) when handling heated parts. Heated parts can injure unprotected skin.

CAUTION

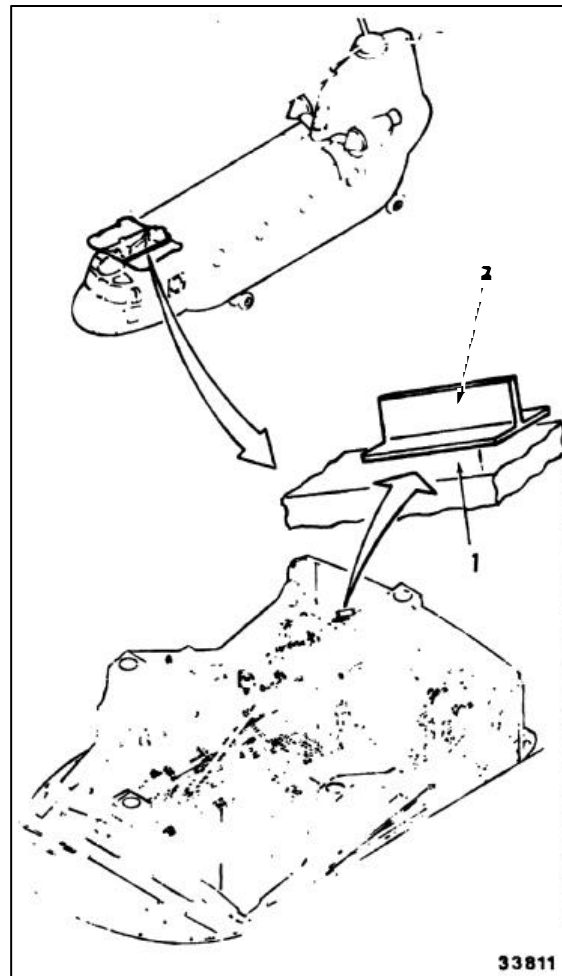
Use care when applying heat to fitting. Damage to structure can occur.

1. Remove tee as follows:
 - a. Heat fitting (1) to **200°F (93°C) for 10 minutes** to soften adhesive holding tee (2). Use heat gun, check temperature with pyrometer. Wear gloves (E187).
 - b. Pry off tee (2). Use Teflon wedge or plastic scraper.
 - c. Mask areas adjacent to repair area to protect from damage. Use masking tape (E388).
 - d. Sand fitting surface (1) to remove adhesive. Go down to bare metal. No waves or uneven surfaces permitted. Use abrasive paper (E8). Wear gloves (E186).
 - e. Remove dust and particles from fitting (1). Use clean dry cloth (E120). Wear gloves (E186).

NOTE

Cleaning and priming must be performed within **2 hours** of exposing bare metal.

- f. Clean repair area. Use clean cloth (E120) damp with acetone (E20). Wear gloves (E186).
- g. Continue wiping until cloth shows no discoloration. Use clean dry cloths (E120).
- h. Dry repair area with clean cloth (E120). Wipe dry before acetone evaporates.



NOTE

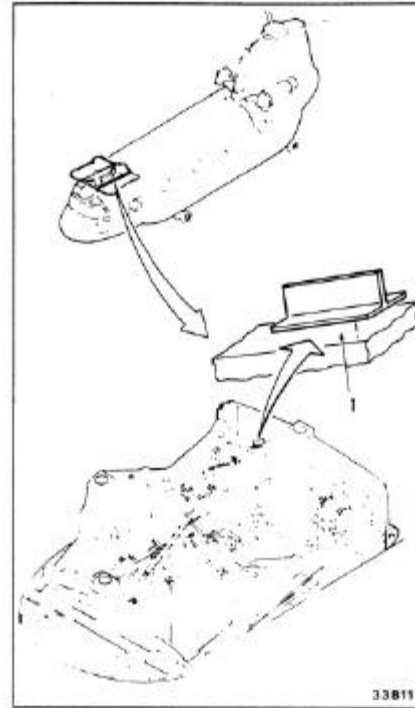
If primer (E291.1) is not available, go to step 3.

PRIMARY METHOD

2. Apply primer (E291.1) as follows:
 - a. Mix primer (E291.1). Mix **4 parts** by volume of primer base with **1 part** by volume of curing solution. Wear gloves (E186).
 - b. Apply a thin film of primer (E291.1) to the repair area of fitting (1). Use cheesecloth (E112). Wear gloves (E186).
 - c. Allow primer to cure at **70° to 80°F (21° to 27°C) for 24 hours** at room temperature or cure primer at **100° to 110°F (38° to 43°C) for 4 hours**. Use heat lamps. Monitor temperature. Use temperature indicating strips (E413).

ALTERNATE METHOD

3. Apply primer (E292) as follows:
 - a. Mix **three ounces** of alodine powder (E65) with **one-half ounce** of concentrated nitric acid (E22). Add mixture to **1 gallon** of water.
 - b. Swab alodine solution on area for **2 to 5 minutes**. Wear gloves (E186). Use brush (E86).
 - c. Rinse surface with cold water and let air dry.
4. Apply **one coat** of epoxy primer (E292). Wear gloves (E186). Let air dry for **1 hour**.

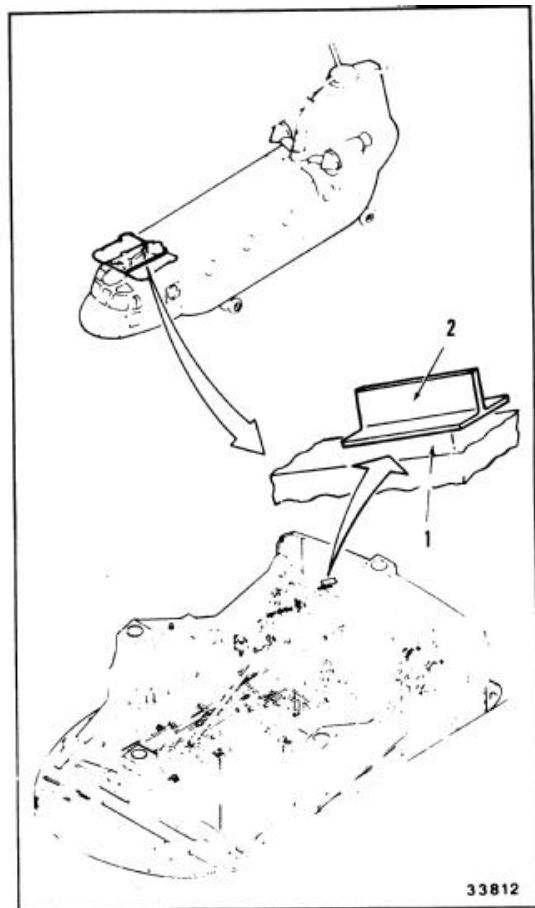


5. Bond tee to fitting as follows:
 - a. Mix adhesive (E43) as follows:
 - b. Mix **5 parts** by weight of white base with **7 parts** by weight of grey hardener. Use clean polyethylene cup (E157) and trip balance scale.
 - c. Stir mixture until color is uniform. Use wood spatula (E424).

NOTE

Adhesive has working life of about **30 minutes**.

- d. Coat fitting surface (1) with adhesive (E43). Use stiff-bristle brush (E85.2). Wear gloves (E186).
- e. Apply single layer of scrim cloth (E325) on fitting surface (1). Work scrim cloth into adhesive (E43) until mesh is completely coated. Use brush (E85.2).
- f. Clean tee (2). Use clean cloth (E120) damp with acetone (E20). Wear gloves (E186).
- g. Dry tee (2) with clean dry cloth (E120). Wipe dry before acetone evaporates.
- h. Coat tee surface (2) with adhesive (E43). Use stiff-bristle brush (E85.2). Wear gloves (E186).
- i. Clamp tee (2) to fitting (1). Use C-clamp.
- j. Allow assembly to cure at **70° to 80°F (21° to 27°C) for 24 hours** at room temperature or cure assembly at **150° to 160°F (65° to 71°C) for 2 hours**. Use heat lamp. Monitor temperature. Use temperature indicating strips (E413).

**INSPECT****FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
 Inspector

1. Burnish minor damage to supports and support backups. Damage depth, after burnishing, may not exceed **10 percent** of material thickness or **0.040 inch**, whichever is less (Tasks 2-6 and 2-71).
2. Repair minor damage to support structure extrusions by burnishing. Damage must be within limits shown in illustration.

References:

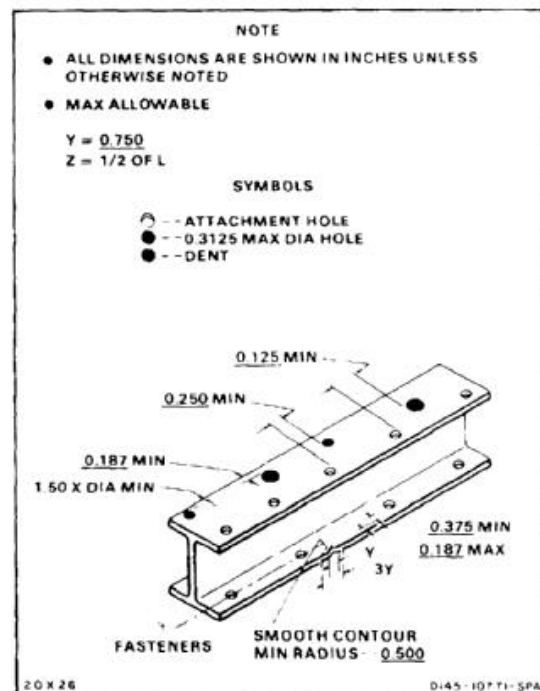
Task 2-6
 Task 2-71

Equipment Condition:

As Required

General Safety Instructions:

As Required



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-7
Task 2-13
Task 2-71
Task 2-335**Equipment Condition:**

As Required:

General Safety Instructions:

As Required

1. Patch major damage to internal webs that does not affect more than **50 percent** of cross-section (Tasks 2-13 and 2-71).
2. Patch damage to formed parts and extruded parts that does not affect radius or heel (Task 2-7).
3. Repair damage to internal webs that affects more than **50 percent** of cross-section by insertion (Task 2-13).
4. Repair damage affecting radius or heel of formed or extruded parts by insertion (Task 2-7).
5. Replace parts with loss of major portion of length or many damages (Task 2-71).
6. Replace bushings that are damaged or have excessive wear (Task 2-335).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-304

2-73.1 REMOVE FORWARD TRANSMISSION SUPPORT STRUCTURE BUSHINGS

2-73.1

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Bushing Puller (APP E-45)

Materials:

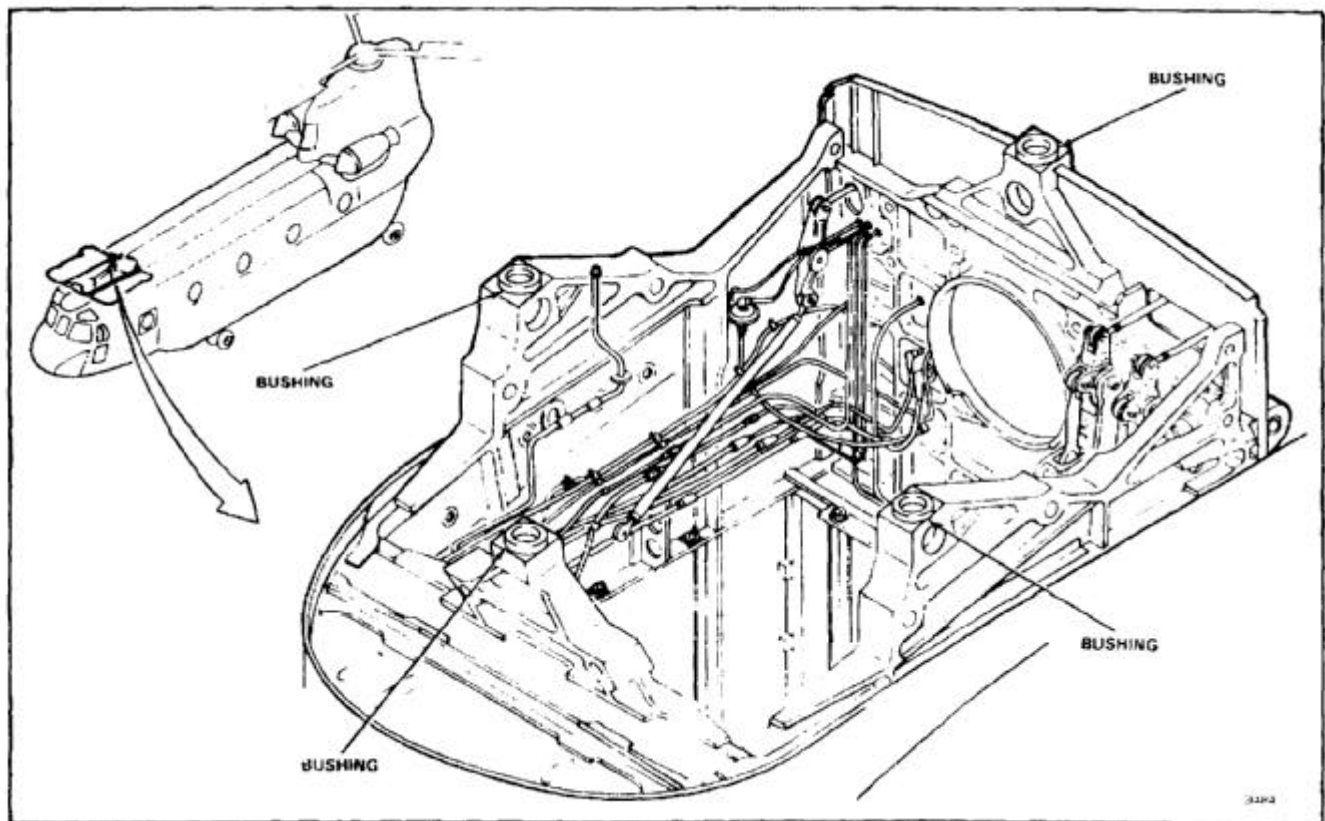
Crocus Cloth (E122)
Acetone (E20)
Cloths (E120)
Protective Gloves (E186)

Personnel Required:

Aircraft Structural Repairer

Equipment Condition:

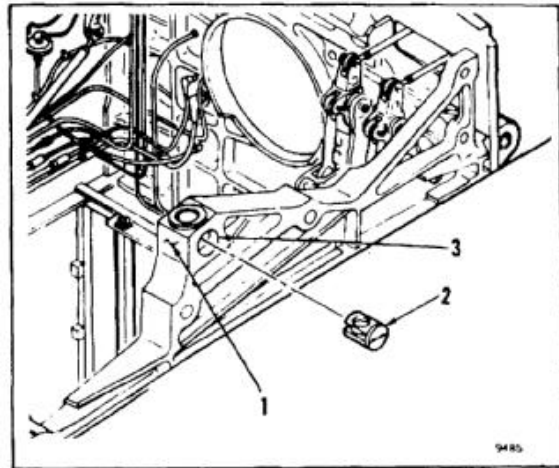
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Forward Transmission Removed (Task 6-46)



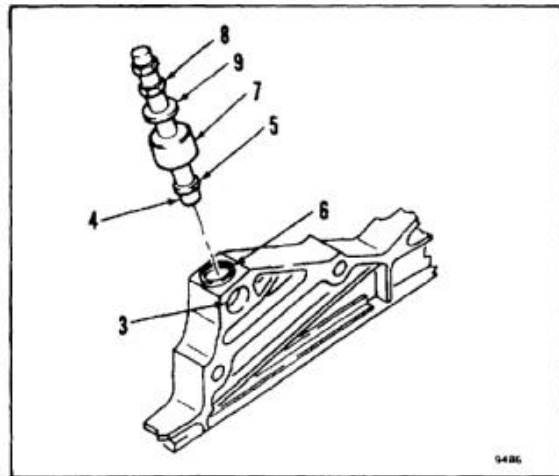
NOTE

Each of four bushings is removed in same manner. Left side shown here.

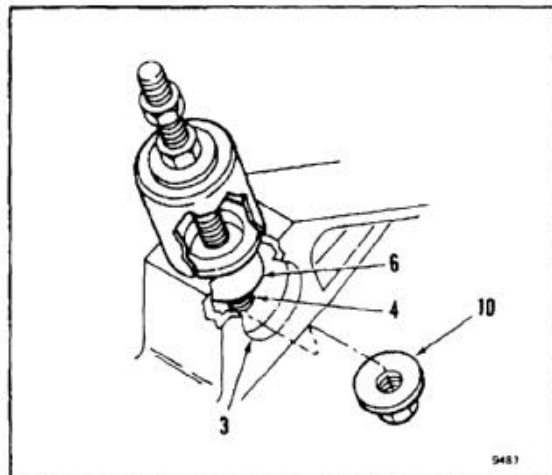
1. Reach behind structure (1) and push barrel nut (2) out of bore (3).
2. Inspect thread of barrel nut (2). Discard nut if thread is worn or damaged.



3. Install stud (4), with guide bar (5) down through bushing (6).
4. Place yoke (7) over bushing (6).
5. Adjust nut (8) against load collar (9) so that bottom of stud (4) is just above center line of bore (3).

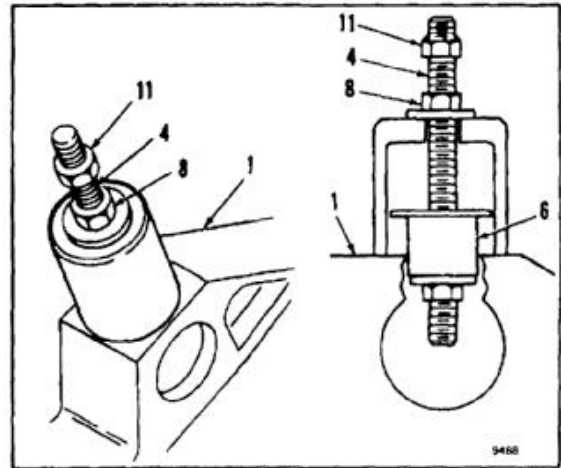


6. Insert nut and washer assembly (10) through bore (3). Install on bottom end of stud (4) against bushing (6).



2-73.1 REMOVE FORWARD TRANSMISSION SUPPORT STRUCTURE BUSHINGS (Continued) 2-73.1

7. Keep stud (4) from turning by holding nut (11) with a wrench. Tighten nut (8) to lift bushing (6) out of structure (1).

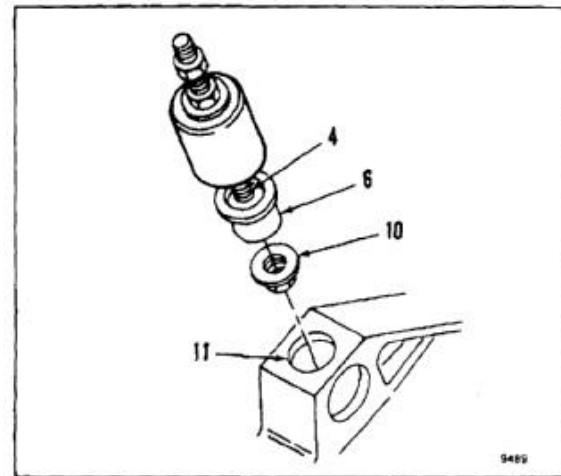


8. Remove nut and washer assembly (10) from stud (4). Remove bushing (6).

WARNING

Acetone (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

9. Inspect bore (11). Clean bore with crocus cloth (E122). Remove residue with clean cloths (E120) damp with acetone (E20). Use gloves (E186).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Heat Gun
 Pyrometer
 Wood Block

Materials:

Epoxy Primer (E292 and E292.1)
 Gloves (E184.1)
 Kevlar Gloves (E187)

Personnel Required:

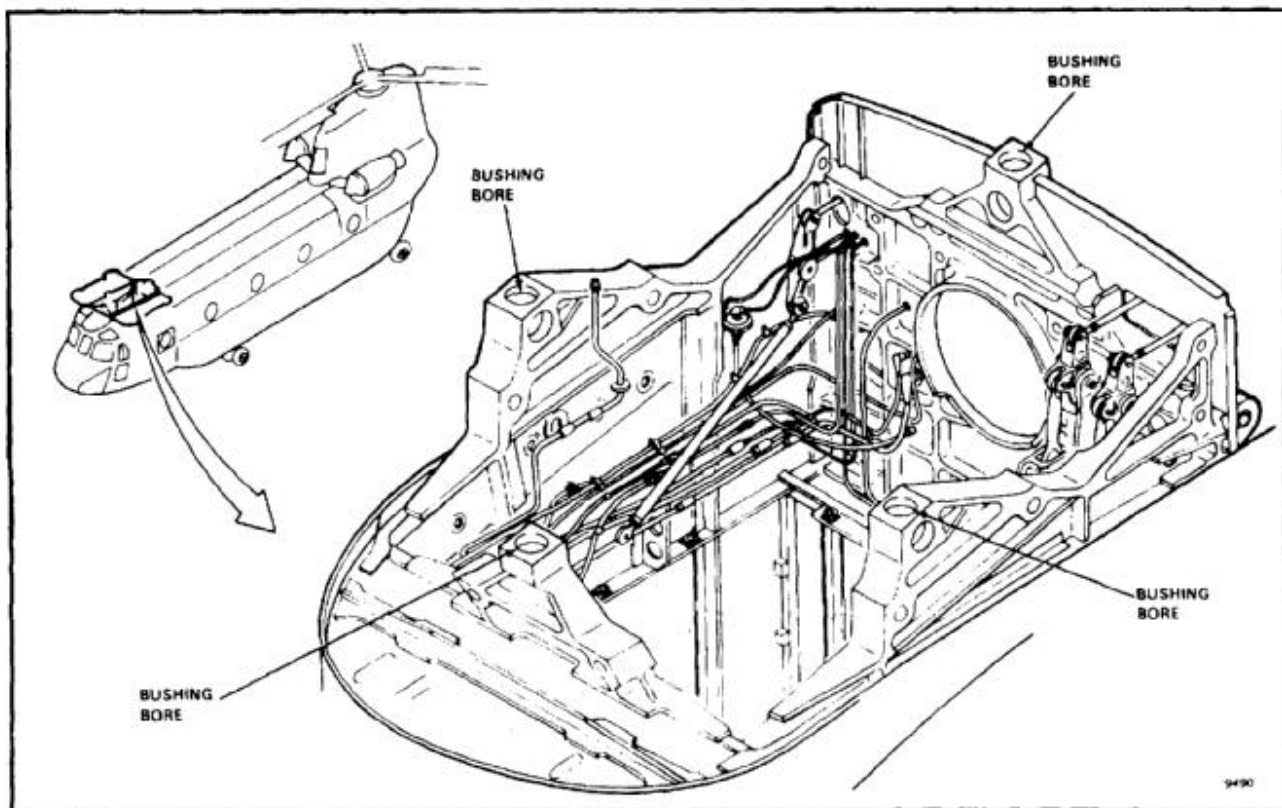
Aircraft Structural Repairer
 Inspector

References:

TM 55-1520-240-23P

General Safety Instructions:**WARNING**

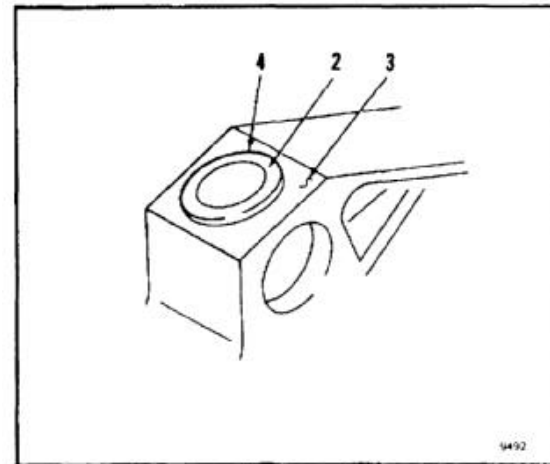
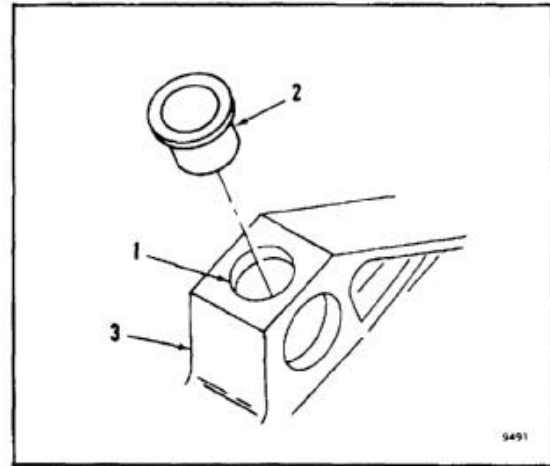
Epoxy primer (E292 and E292.1) are flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.



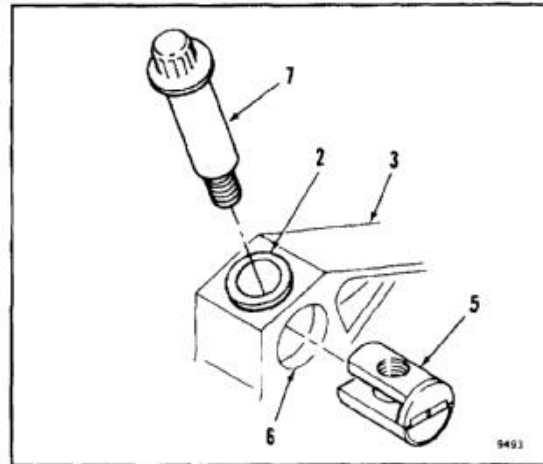
CAUTION

If support structure surface is heated to above **250°F (121°C)**, damage to heat treatment will occur.

1. Heat surface of support structure around bushing bore (1) for at least **15 minutes**. Use a heat gun. Do not heat surface above **250°F**. Monitor temperature with a pyrometer.
2. Coat outside diameter of bushing (2) with epoxy primer (E292). Wear gloves (E184.1).
3. Install bushing (2) wet with primer (E292) in heated support structure (3). Wear Kevlar gloves (E187).
4. Hold bushing (2) in place by pressing bushing flange (4) against face of support structure (3). Use a wood block or equivalent. Hold until structure has cooled.



5. Apply a fillet of epoxy primer (E292.1) around mating line of bushing (2) and support structure (3). Wear gloves (E184.1).
6. Install barrel nut (5) in bore (6).
7. Install forward transmission mounting bolt 1450DS022-4 (7) through bushing (2) into bore of barrel nut (5). Align barrel nut as needed to accept bolt.
8. Remove bolt (7).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

Paint, Non-Skid (E259)
 Primer (E292)
 Gloves (E184.1)

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

TM 1-1500-204-23
 Task 2-10

Equipment Condition:

As Required

General Safety Instructions:

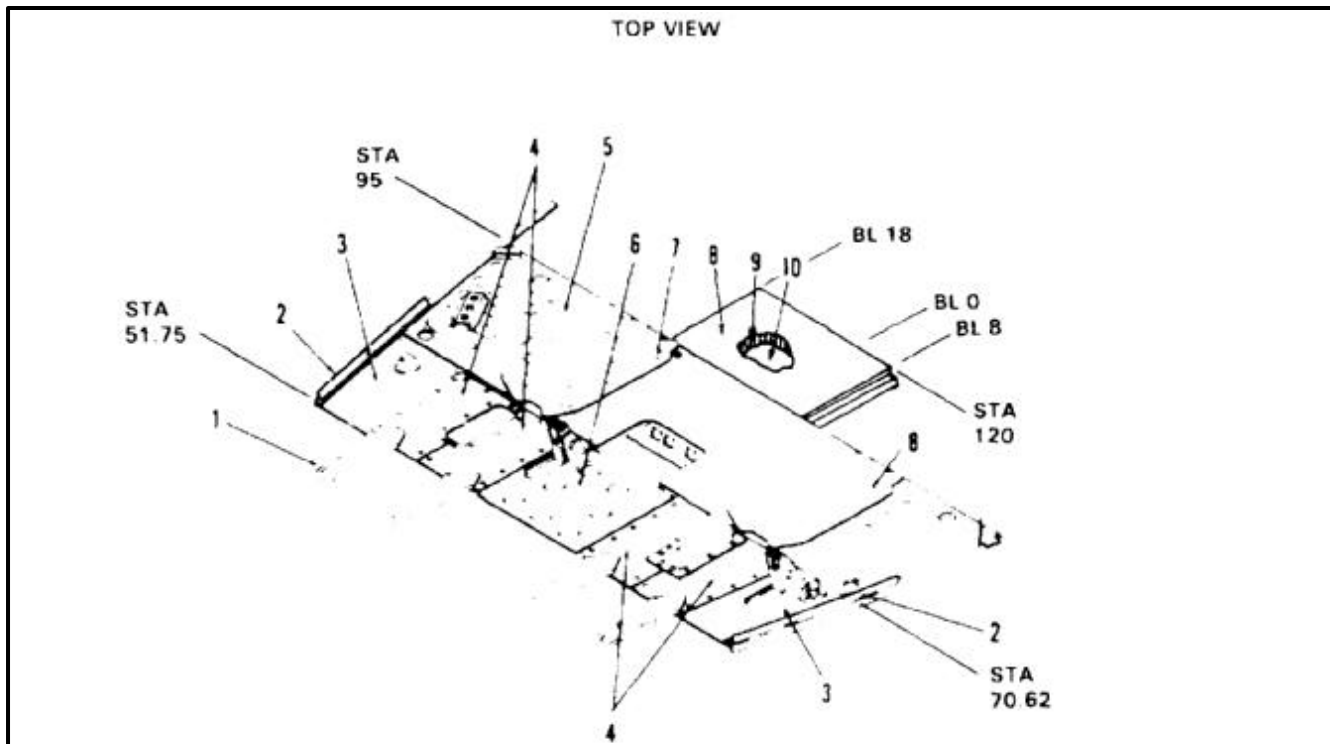
As Required

1. Nicks, dents, and scratches which can be removed by burnishing are permissible.
2. Cracks not exceeding **1 inch** in length which have been stop-drilled are permissible.
3. Small round or oval holes not exceeding a trimmed diameter of **1/2 inch** are permissible.

WARNING

Epoxy primer (E292) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

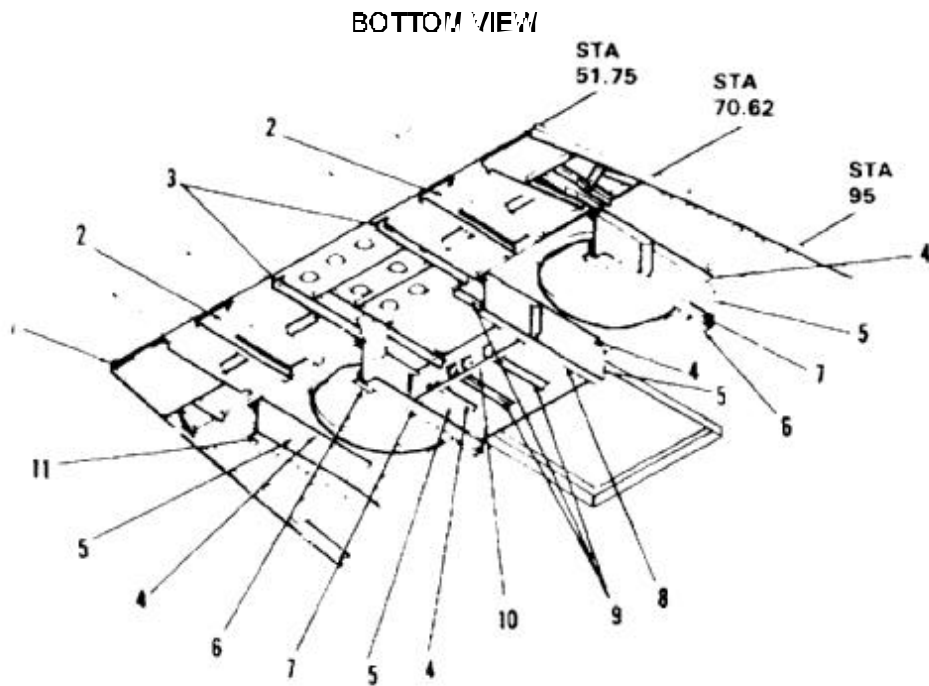
4. Plug holes not exceeding **1/4 inch** in diameter with a type B rivet. Install the rivets wet with primer (E292). Wear gloves (E184.1).



INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	HEEL SLIDE	0.025 17-7 PH CRES	NOTE B	
2	ANGLE	0.050 7075 T6 BARE	0.063 7075 T6 CLAD	NOTE E
3	WEB	0.040 7075 T6 BARE	0.040 7075 T6 CLAD	2 13
4	COVER	0.050 AZ31B-H24 MAG	0.050 AZ31B-H24 MAG	NOTE E
5	WEB	0.040 2024 T3 CLAD	0.050 2024 T3 CLAD	2 13
6	WEB	0.032 7075 T6 BARE	0.040 7075 T6 CLAD	2 13
7	DOOR	0.032 2024 T3 CLAD	0.040 2024 T3 CLAD	NOTE E
8	TOP SKIN	0.020 2024 T4 CLAD (RIGIDIZED)	NOTES C AND D	...
9	CORE	3.4-1/4 15N 3003	NOTE C	...
10	BOTTOM	0.016 7075 T6 CLAD	NOTE C	...

NOTES

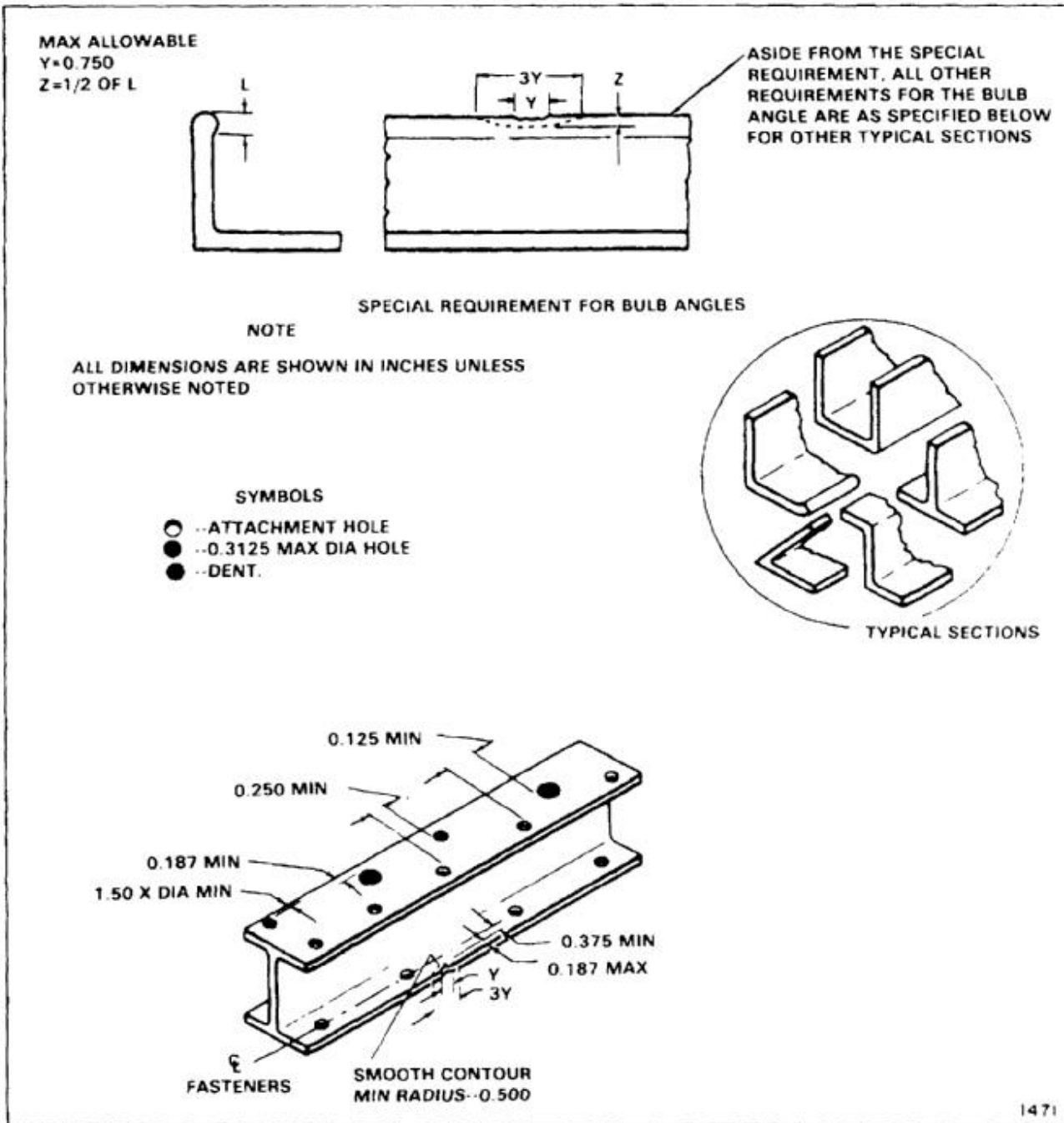
- A. ALL DIMENSIONS ARE IN INCHES
- B. REPLACE WITH NEW HEEL SLIDE, 114S1551-171
- C. REFER TO TM 1-1500-204-23 FOR TYPICAL REPAIRS TO SANDWICH HONEYCOMB STRUCTURE
- D. APPLY NON-SKID PAINT (E259) IF REPAIRS ARE MADE WITHIN WALKWAY AREA OR IF EXISTING COATING IS WORN
- E. TM 1-1500-204-23



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	0.063 7075-T6 BARE	0.071 7075-T6 CLAD	NOTE A.
2	COVER REST	0.050 2024-T4 CLAD	0.063 2024-T3 CLAD	NOTE A.
3	CHANNEL	0.050 7075-T6 BARE	0.063 7075-T6 CLAD	2-13
4	CAP	AND10136-1603 7075-T6	0.100 4130	NOTE A.
5	WEB	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	2-13
6	ANGLE	BAC1503-2731 7075-T6	0.063 4130	NOTE A.
7	ANGLE	AND10133-0601 7075-T6	0.071 4130	NOTE A.
8	CAP	AND10133-0601 7075-T6	0.071 4130	NOTE A.
9	STIFFENER	ALCOA 22885 7075-T6	0.063 4130	2-29
10	CHANNEL	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD	2-10
11	CAP	ALCOA 33495 7075-T6	0.071 4130	NOTE A.

NOTES
A. TPI 1 1500 204 23

- See examples of damage repair to extruded parts.



INSPECT

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-75 MINOR REPAIR CABIN DOOR COAMING**2-75****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

TM 1-1500-204-23

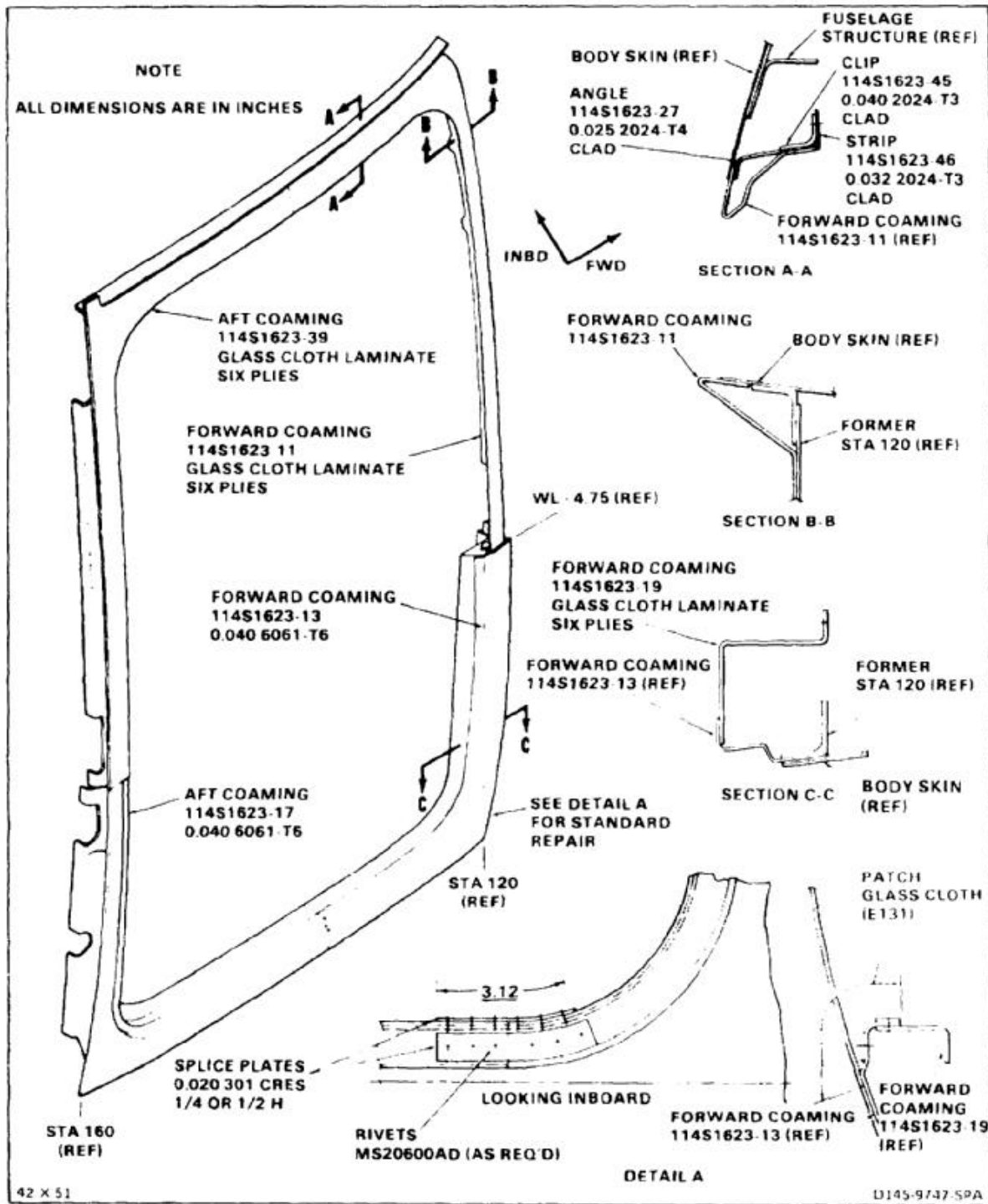
Equipment Condition:

As Required

General Safety Instructions:

As Required

1. The coaming is made of molded, 6-ply, laminated, plastic-impregnated glass cloth. Formed aluminum alloy 6060-T6 parts are riveted to the lower sides and bottom of coaming.
2. An angle made of 2024-T4 clad aluminum alloy is riveted to body skin across top of door opening.
3. Repair damage to impregnated glass cloth parts such as slight voids, small wrinkles, or holes which can be filled with type A rivet.
4. Repair minor damage to formed metal parts such as nicks, dents, and scratches by burnishing. Fill small holes with type A rivet.
5. Damage shall not destroy sealing quality of coaming and must not interfere with door operation.



Cabin Door Coaming Repairs

INSPECT

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Heat Lamps
 Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

Glass Cloth (E130)
 301 Stainless Steel, 0.020 Inch Thick, 1/4 or 1/2 Hard
 Cellophane (E98)
 Gloves (E186)

1. Repair damage to formed metal parts not affecting a radius by patching.
2. Repair cracks in forward lower corner of coaming as follows:

NOTE

The coaming may be cracked because the lower right side longeron is cracked.

- a. Repair right side longeron if cracked (Task 2-32).
- b. Stop-drill cracks or remove damaged material, sand, roughen, and clean as directed in TM 1-1500-204-23.
- c. Cut a patch of glass cloth (E130). This patch shall be bonded to existing coaming and shall be covered by two stainless steel plates. Patch is used to provide a watertight seal.
- d. Fabricate two splice plates from **0.020 inch** thick 301 stainless steel, 1/4 or 1/2 hard. Drill necessary attachment holes in splice plates and coaming. Do not install rivets at this time.

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

TM 1-1500-204-23
 Task 2-32

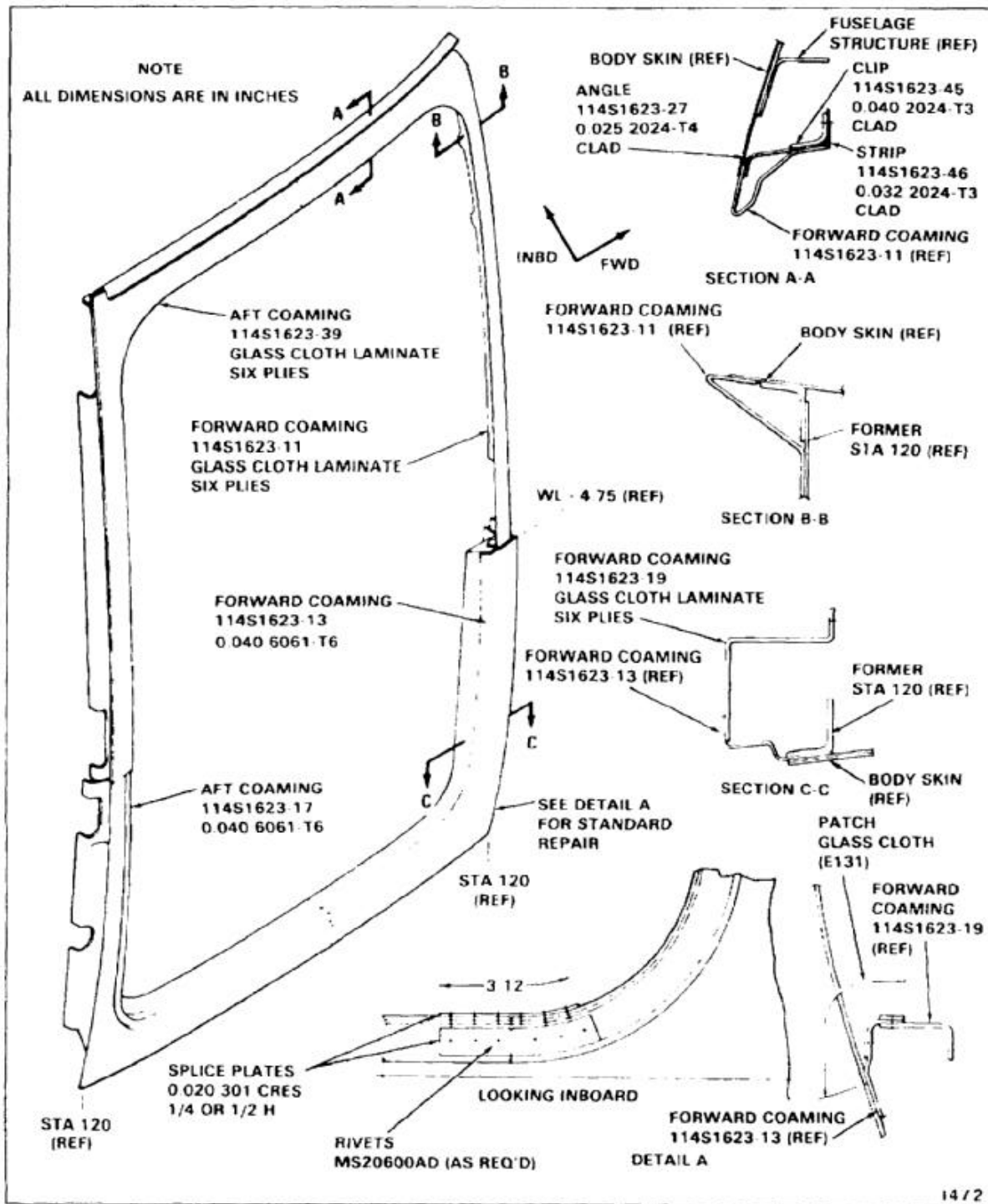
Equipment Condition:

As Required

General Safety Instructions:

As Required

- e. Prepare bonding agent. Refer to TM 1-1500-204-23. Wear gloves (E186).
- f. Impregnate patch of glass cloth by brushing bonding agent into glass cloth.
- g. Wrap patch of glass cloth over damaged area on cabin door coaming.
- h. Place a piece of cellophane (E98) over patch. Press patch with a continual smoothing motion to remove air pockets. Carefully remove cellophane.
- i. Place splice plates on patch. Install splice parts using blind rivets MS20600AD.
- j. Cure patch with heat lamps until exposed portions of patch are hard and tack-free.
- k. Loss of more than **50 percent** of length of member or numerous isolated damages is considered extensive damage and shall be replaced.
- l. Extensive damage to forward or aft coaming shall be repaired by splicing in a section of original coaming.



INSPECT

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-77 REPAIR CABIN DOOR COAMING FORWARD LOWER CORNER (AVIM)**2-77****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Technical Inspector's Tool Kit, NSN 5180-00-323-5114
 Heat Lamp

Materials:

Glass Cloth (E131)
 Cellophane (E98)

Parts:

Rivets
 301 Stainless Steel Plates, 0.020 Inch Thick, 1/4 to
 1/2 Hard As Required

1. Repair damage to forward metal parts on cabin door coaming that does not affect radius. Patch cracks in forward lower corner of coaming as follows

NOTE

Coaming crack may result from cracked lower right side longeron (Task 2-21).

- a. Stop drill cracks or remove damaged material. Sand, roughen, and clean (TM 1-1500-204-23).
- b. Cut patch of glass cloth (E131). Patch will be bonded to coaming and covered by splice plates. Patch provides watertight seal.
- c. Make two splice plates from 1/4 or 1/2-hard 301 stainless steel **0.020 thick**. Drill holes in splice plates and coaming. Do not install rivets at this time.

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

Task 2-21
 TM 1-1500-204-23

Equipment Condition:

As Required

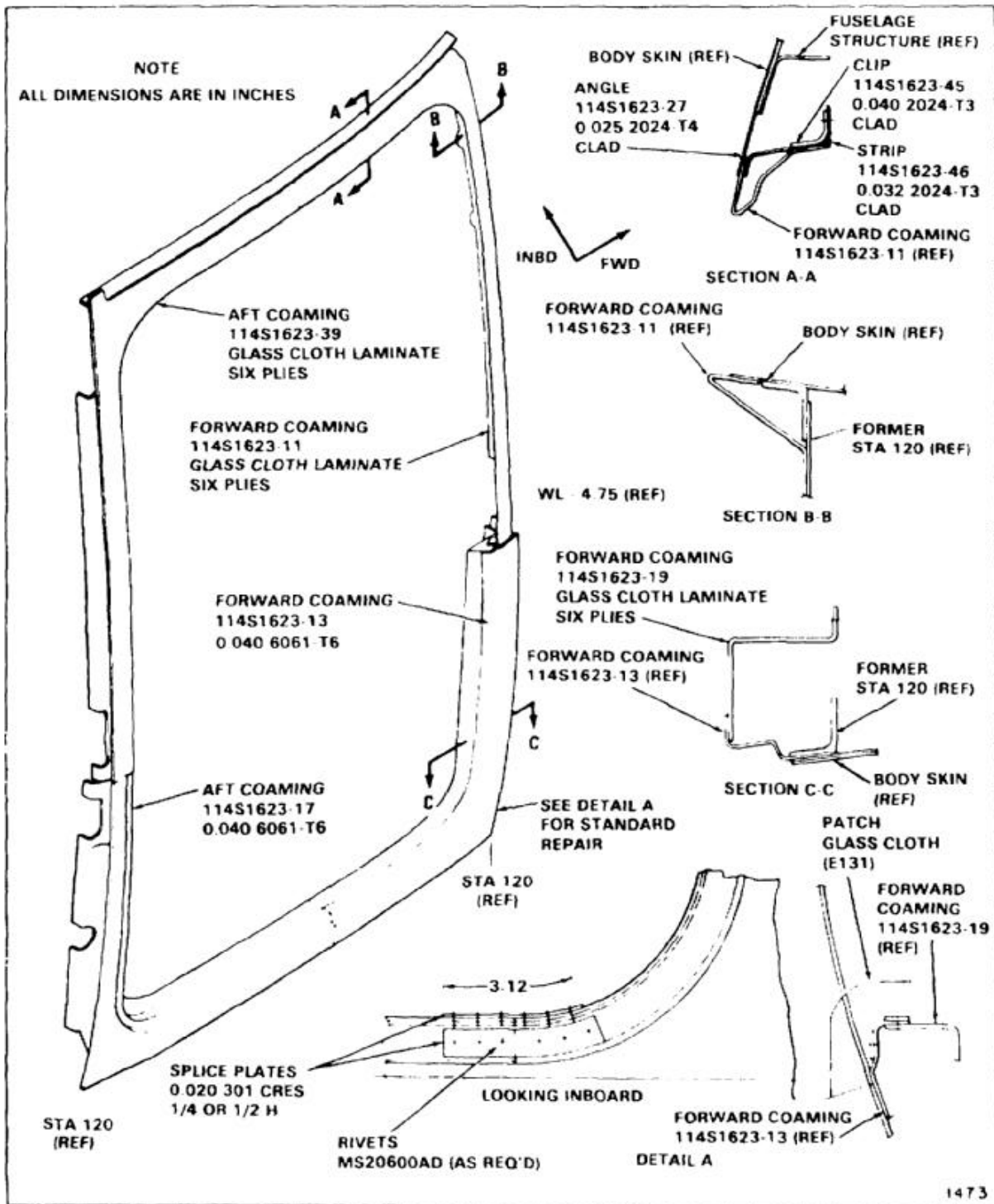
General Safety Instructions:

As Required

- d. Prepare bonding agent (TM 1-1500-204-23).
- e. Brush bonding agent into glass cloth.
- f. Position patch over damaged area.
- g. Place piece of cellophane (E98) over patch. Press out air pocket in smooth continuous motion. Remove cellophane slowly.
- h. Position splice plates on patch. Install rivets MS20600AD.
- i. Cure patch. Use heat lamp. Cure until edges of patch are hard and tack-free.
- j. Repair extensive damage by splicing in section of original coaming.

NOTE

Extensive damage consists of damage to **50 percent** of length of member, or numerous damages.



INSPECT

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-78 REPAIR COCKPIT FLOOR

2-78**INITIAL SETUP****Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-7
Task 2-351**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Patch damage affecting an area less than **25 percent** of a skin panel (Task 2-7).
2. Repair damage affecting an area more than **25 percent** of a skin panel, or which affects boundary members, by insertion (Task 2-7).
3. If magnesium alloys and dissimilar metals are affected, refer to Task 2-351.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

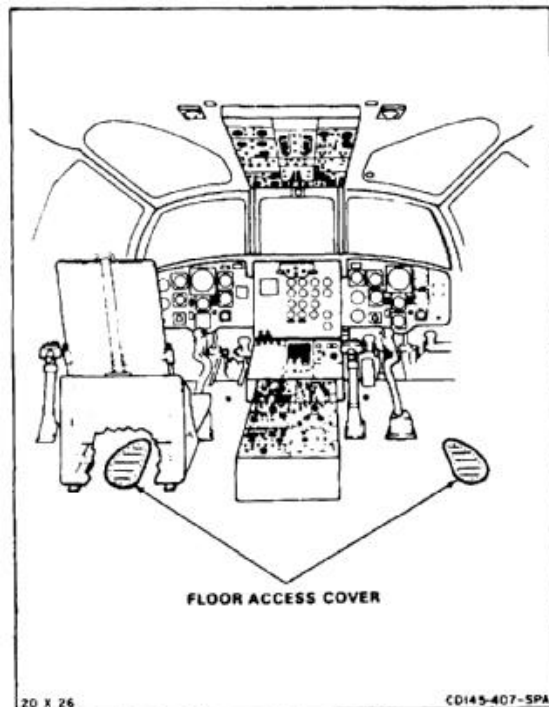
Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off

Seat Removed From Above Access Cover (Task 2-111)

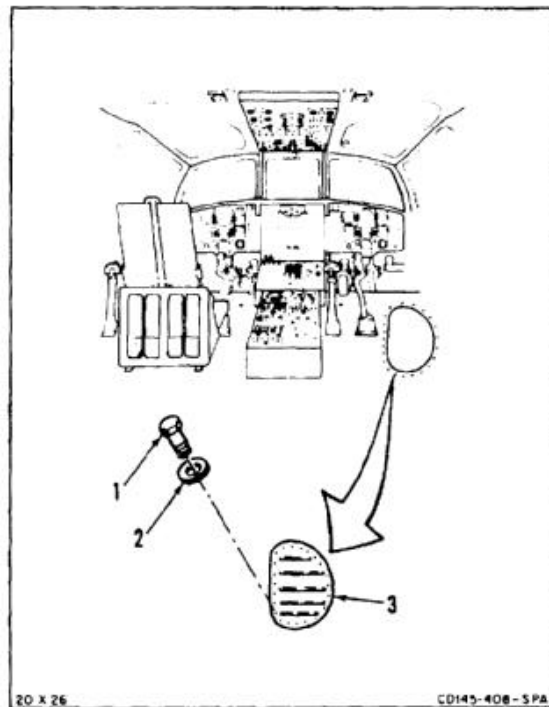
**NOTE**

Procedure is same for access cover under pilot's or copilot's seat. Access cover under pilot's seat is shown here.

1. Remove 23 bolts (1) and washers (2).
2. Lift off access cover (3).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-322

2-80 INSTALL COCKPIT FLOOR ACCESS COVER**2-80****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

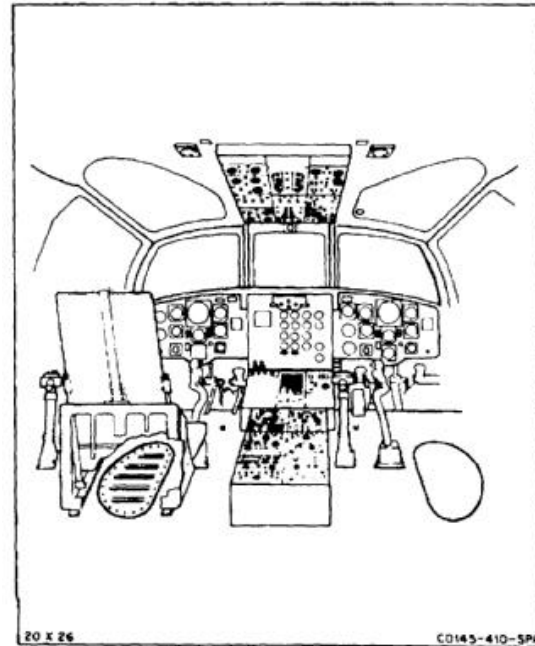
None

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P

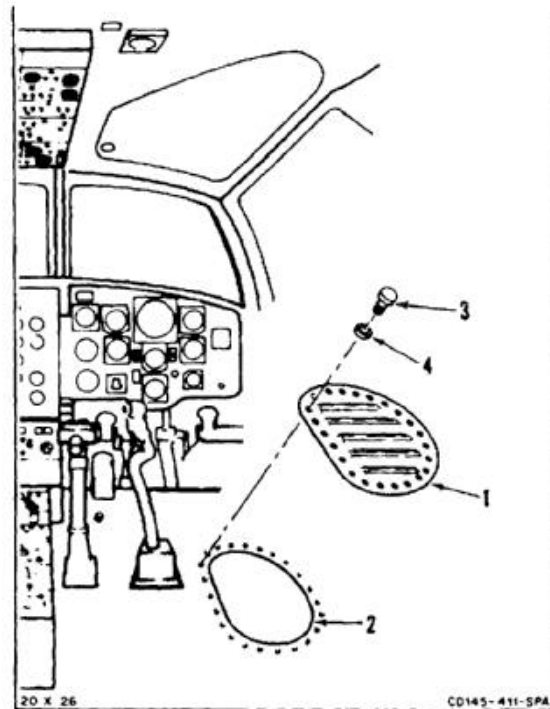
**NOTE**

Procedure is same for access cover under pilot's or copilot's seat. Access cover under pilot's seat is shown here.

1. Position access cover (1) on structure (2).
2. Install 23 bolts (3) and washers (4).

FOLLOW-ON MAINTENANCE:

Install seat above access cover (Task 2-114).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

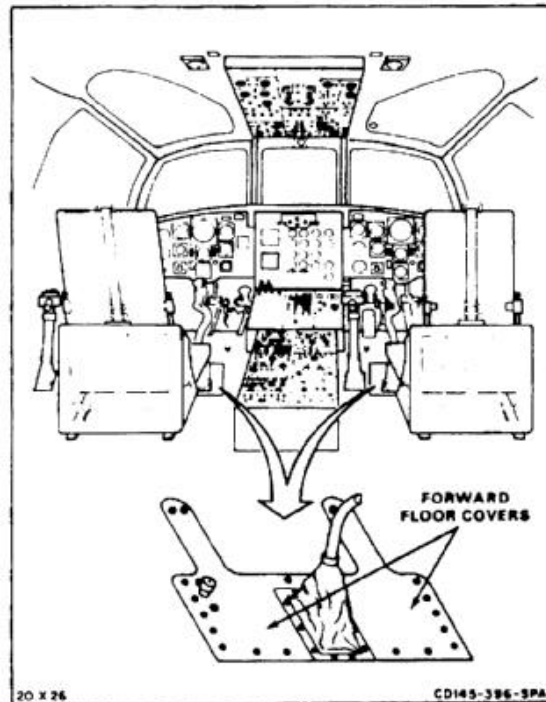
None

Personnel Required:

Medium Helicopter Repairer

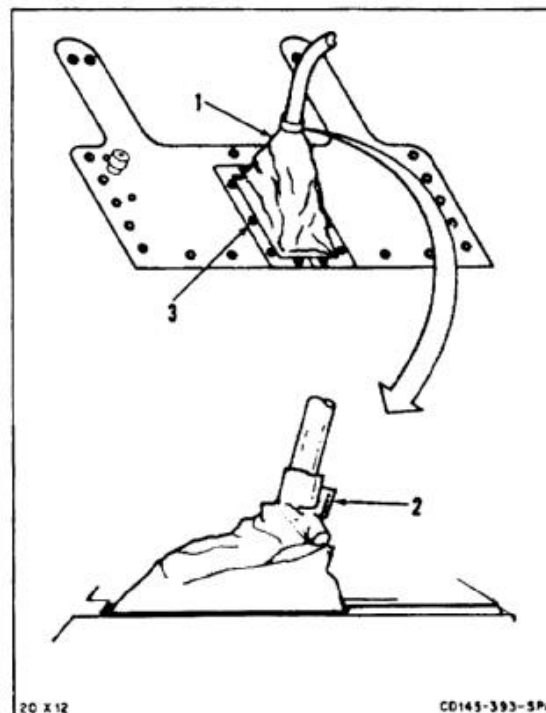
Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off

**NOTE**

Procedure is same for pilot's or copilot's side of cockpit. Pilot's side of cockpit is shown here.

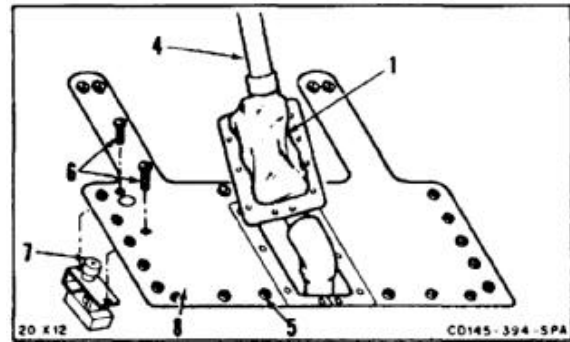
1. Remove control stick boot (1) as follows
 - a. Loosen boot fastener (2).
 - b. Loosen 10 fasteners (3).



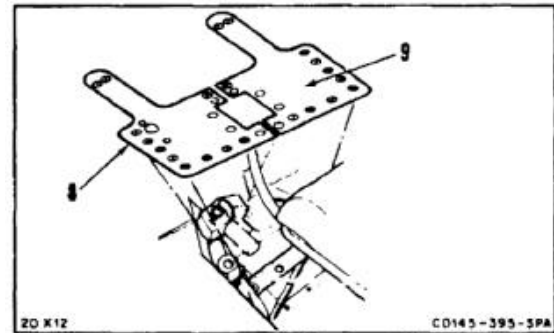
2-81 REMOVE COCKPIT FORWARD FLOOR COVERS (Continued)

2-81

- c. Slide boot (1) up control stick (4) and secure it.
2. Loosen 20 fasteners (5).
3. Remove two screws (6) from switch (7). Lift up cover (8). Remove cover from switch.



4. Remove floor covers (8 and 9).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

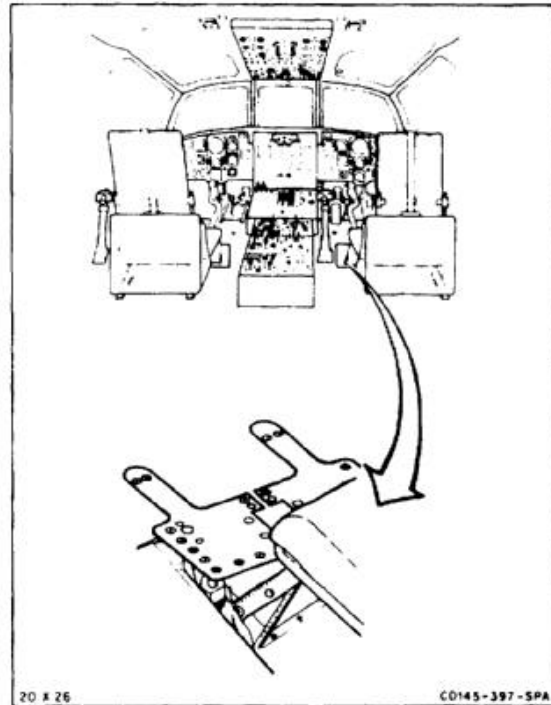
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

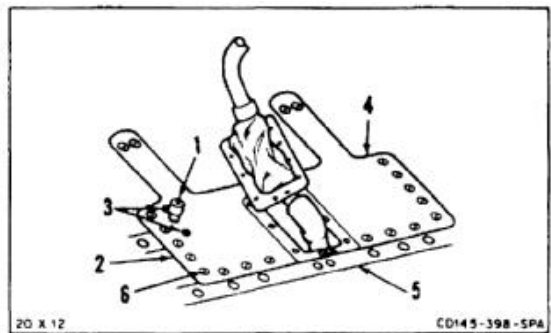
Personnel Required:Medium Helicopter Repairer
Inspector**References:**

TM 55-1520-240-23P

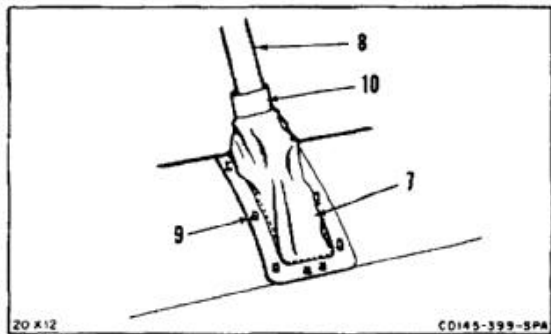
**NOTE**

Procedure is same for pilot's or copilot's side of cockpit. Pilot's side of cockpit is shown here.

1. Align holes in switch (1) with holes in cover (2).
2. Install two screws (3) in cover (2).
3. Install floor covers (4) on supports (5).
4. Install and secure 20 fasteners (6).



5. Install control stick boot (7):
 - a. Slide boot (7) down control stick (8).
 - b. Secure 10 fasteners (9).
 - c. Secure fastener (10).

**INSPECT****FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-83 REMOVE COCKPIT AFT FLOOR PANEL

2-83

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

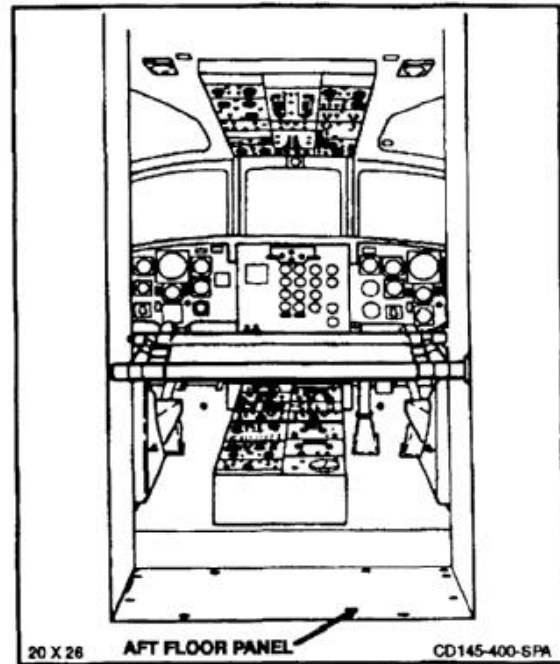
Medium Helicopter Repairer

References:

TM 1-1500-204-23

Equipment Condition:

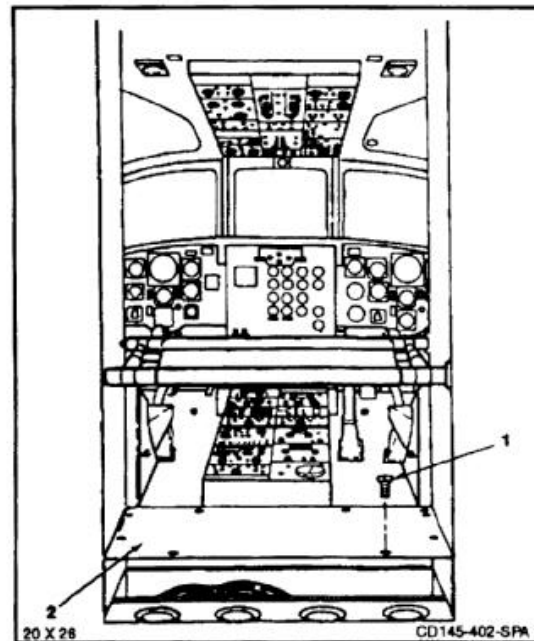
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Troop Commander's Seat Positioned For Use (Task 2-135)



1. Remove nine screws (1).
2. Tilt as needed to clear structure. Lift out floor panel (2).
3. Inspect and repair in accordance with TM 1-1500-204-23.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5160-00-323-4692

Materials:

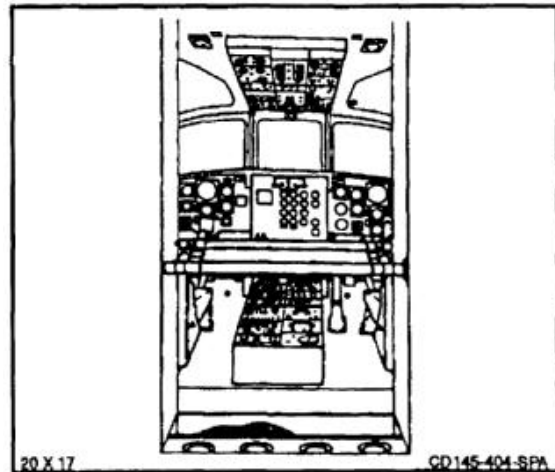
None

Personnel Required:

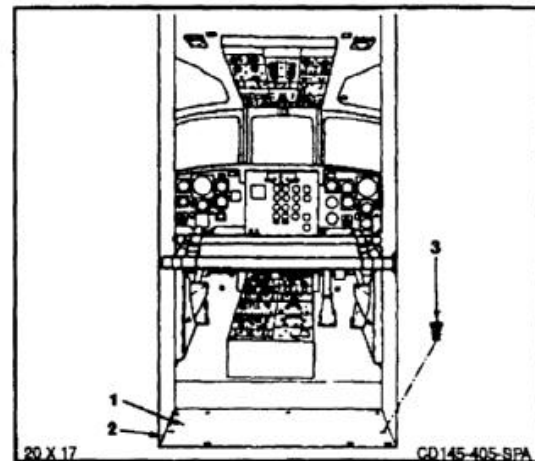
Medium Helicopter Repairer

References:

TM 55-1520-240-23P



1. Install floor panel (1) on structure (2).
2. Install nine screws (3).

**FOLLOW-ON MAINTENANCE:**

Stow troop commander's seat (Task 2-134).

END OF TASK

2-328

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Personnel Required:

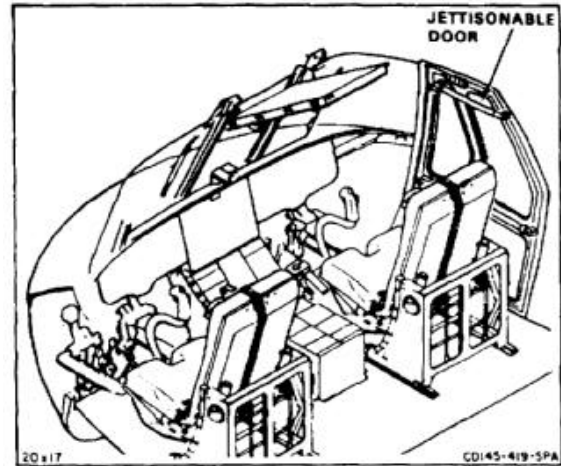
Medium Helicopter Repairer (2)
Inspector

References:

Task 2-86
Task 2-90

Equipment Condition:

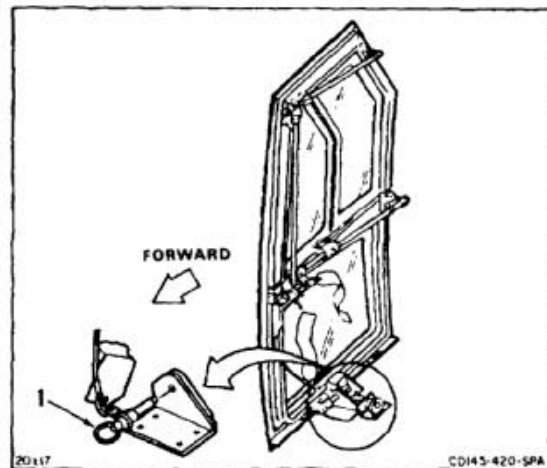
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



NOTE

Procedure is the same to test pilot's or copilot's jettisonable door. Pilot's jettisonable door is shown here.

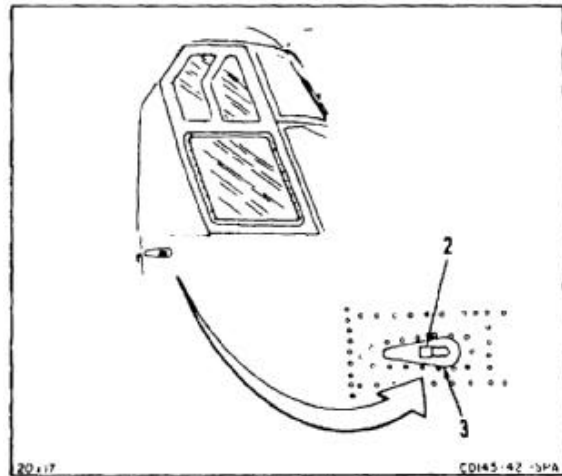
1. Remove door security lock (1).



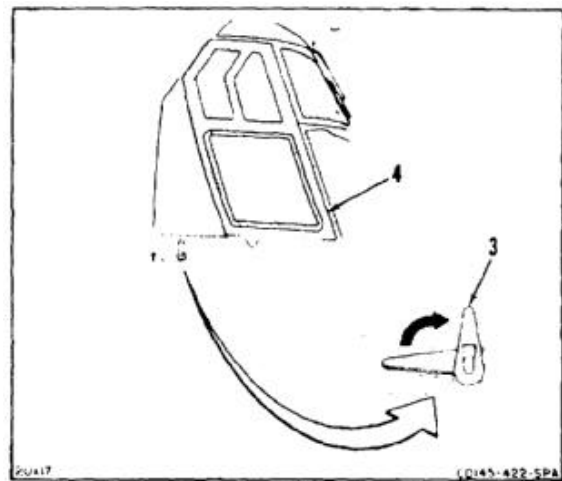
2. Press PUSH button (2) from outside helicopter. Handle (3) should spring out. If it does not, pull out handle.



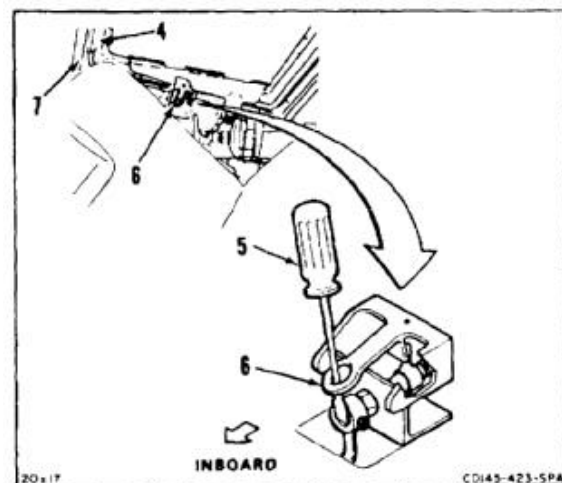
Upper latch plate can be damaged if door is pulled out when lower latch is released. To prevent damage, do not pull out door after lower latch has released.



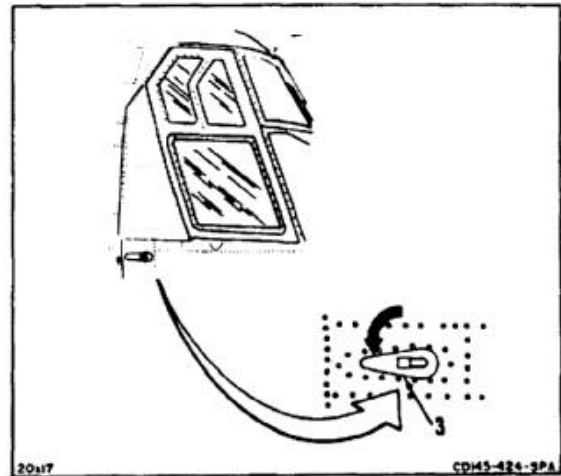
3. Turn handle (3) clockwise while holding door (4) to helicopter. Bottom of door should release. If it does not, perform the following:
 - a. Remove door (Task 2-86).
 - b. Install and adjust door (Task 2-90).
 - c. Go to step 1.



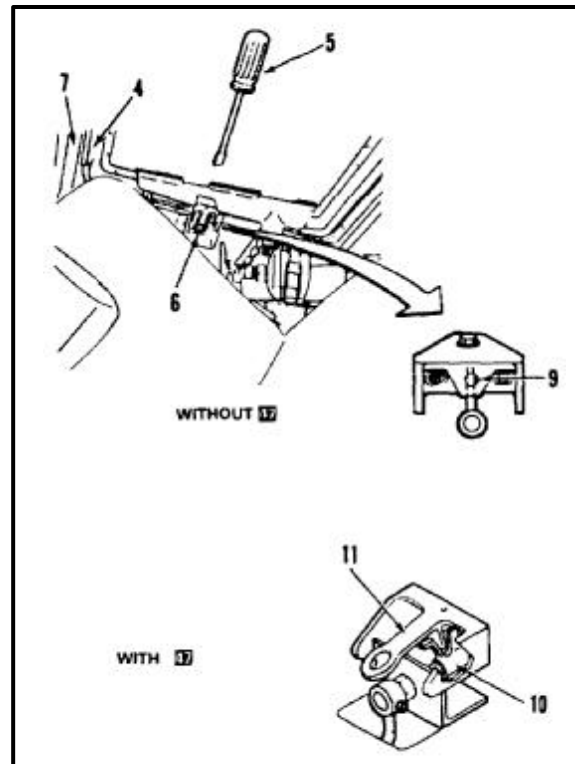
4. Have helper put screwdriver (5) through hole in lower latch plate extension (6).
5. Have helper pull screwdriver handle inboard. This should pull and hold door (4) against frame (7).



6. Turn release handle (3) counterclockwise as far as it will go.
7. Push in and lock handle (3).



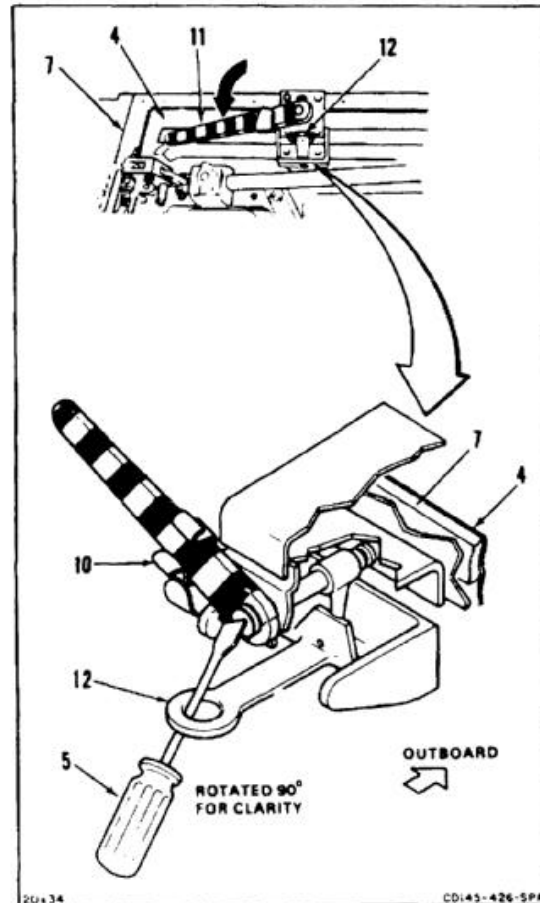
8. Have helper remove screwdriver (5) from latch plate extension (6).
9. Without **47**, check that red index mark shows in inspection hole (9). If it does not, perform the following:
 - a. Remove door (Task 2-86).
 - b. Check door (4) and frame (7) for obstructions. Remove obstructions.
 - c. Install and adjust door (Task 2-90).
 - d. Go to step 1.
- 9.1. With **47**, check that orange tab (10) is not visible on either side of the lower latch plate extension (11). If it is, perform the following:
 - a. Remove door (Task 2-86).
 - b. Check door (4) and frame (7) for obstructions. Remove obstructions.
 - c. Install and adjust door (Task 2-90).
 - d. Go to step 1.



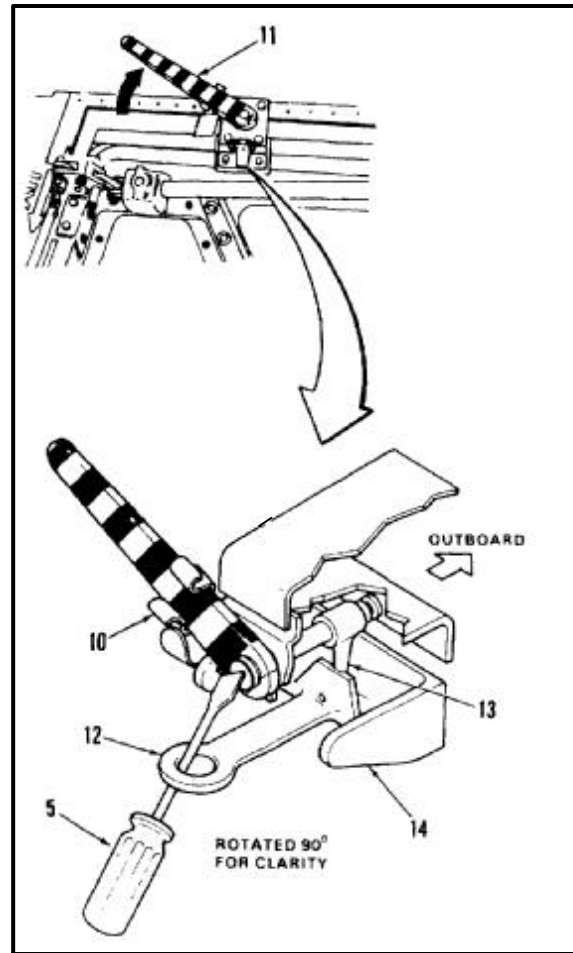
CAUTION

Lower latch plate can be damaged if door is pulled out when upper latch is released. To prevent damage, do not pull out door after upper latch has released.

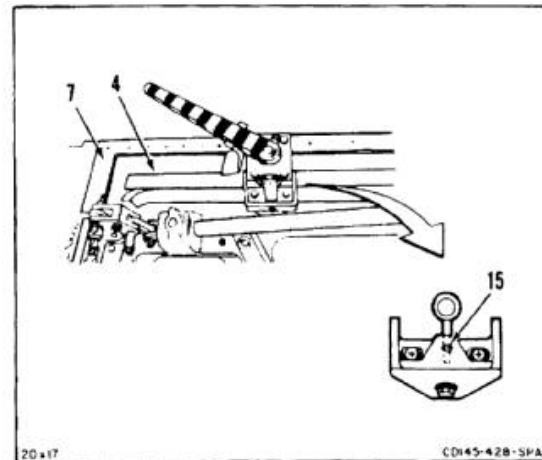
10. Remove retainer clip (10).
11. From inside helicopter, turn handle (11) counterclockwise. Top of door (4) should be released. If it is not, perform the following:
 - a. Remove door (Task 2-86).
 - b. Install and adjust door (Task 2-90).
 - c. Go to step 1.
12. Put screwdriver (5) through hole in upper latch plate extension (12).
13. Pull screwdriver (5) inboard. This should pull and hold door (4) against frame (7).



14. Turn handle (11) clockwise until latch (13) locks in detent of upper latch plate (14).
15. Remove screwdriver (5) from latch plate extension (12).
16. Install retainer clip (10).

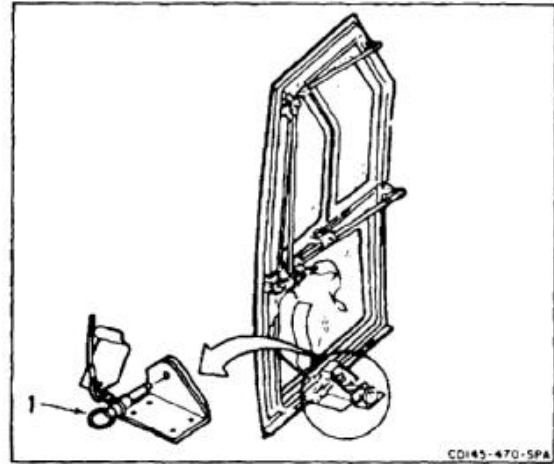


17. Check that red index mark shows in inspection hole (15). If it does not, perform the following:
 - a. Remove door (Task 2-86).
 - b. Check door (4) and frame (7) for obstructions. Remove obstructions.
 - c. Install and adjust door (Task 2-90).
 - d. Go to step 1.



18. Install door security lock (1).

INSPECT



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-334

INITIAL SETUP

Applicable Configurations:

All

Tools:

Workstand

Materials:

None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)

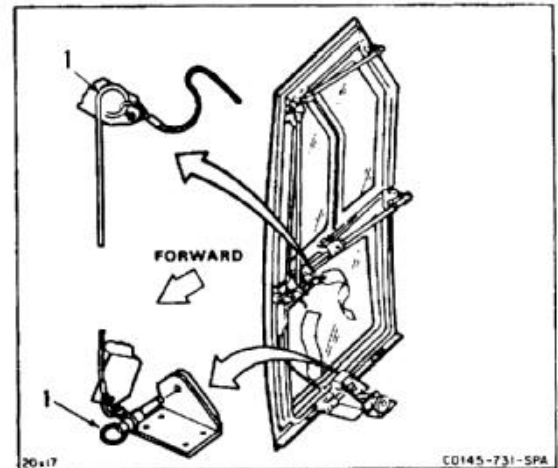
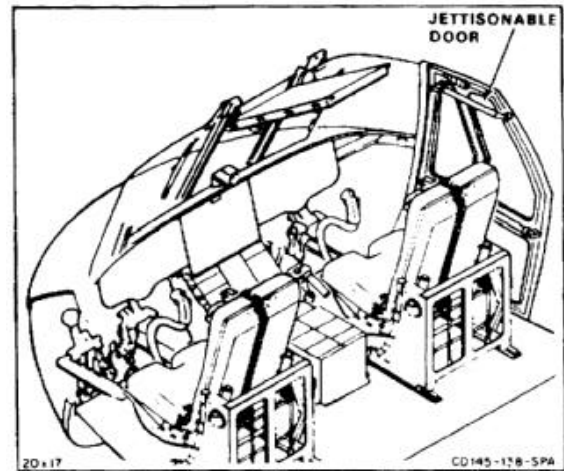
Electrical Power Off

Hydraulic Power Off

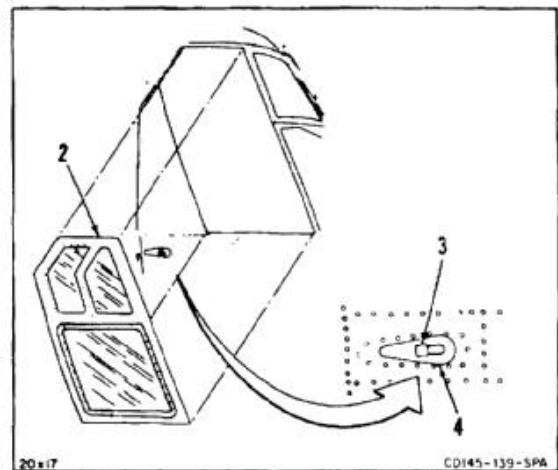
NOTE

Procedure is same for removing pilot's and copilot's jettisonable door. Pilot's door is shown here.

1. From inside helicopter, remove jettisonable door floor and window security lock pins (1).



2. From outside of helicopter, hold door (2) at lower frame to control outward and downward movement.
3. Push in outside jettison handle release button (3). Turn handle (4) until door (2) unlatches.
4. Remove door (2) with aid of helper.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

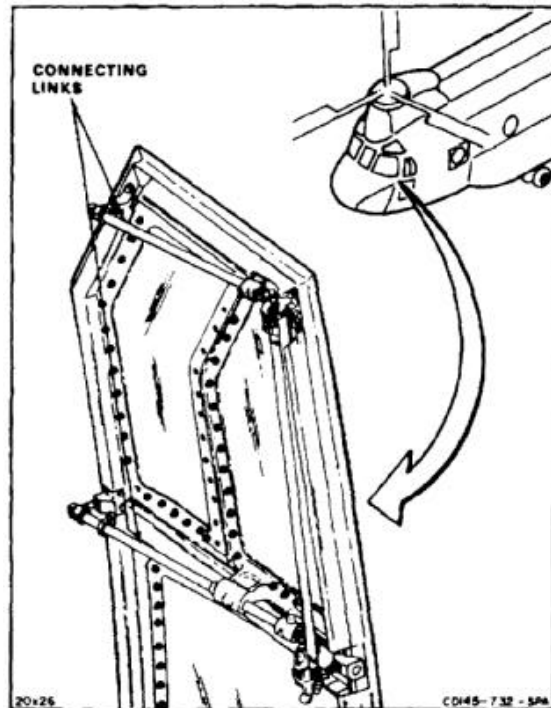
Cleaning Cloth (E120)

Personnel Required:

Medium Helicopter

Equipment Condition:

- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Hydraulic Power Off

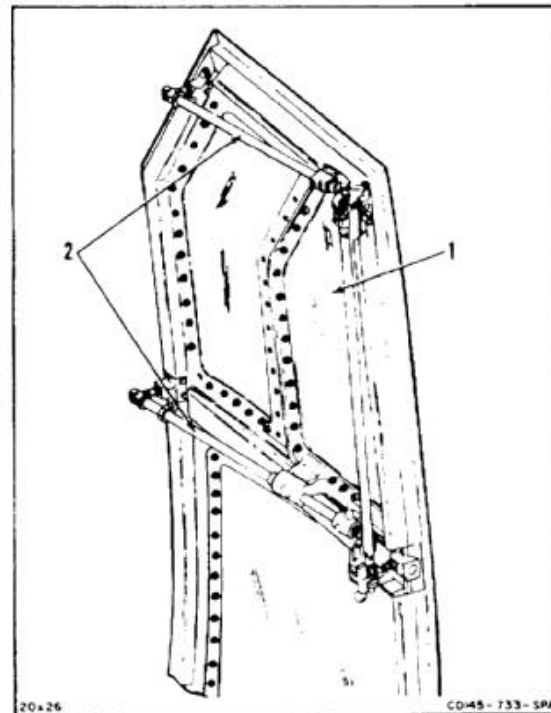


Do not lubricate connecting links. Lubricants hold dirt, causing sliding window to stick.

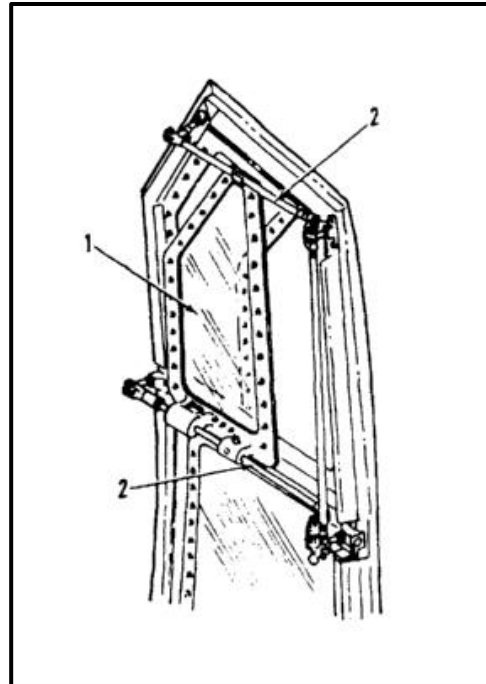
1. Close sliding window (1).
2. Clean aft part of both connecting links (2) with cloth (E120).

NOTE

Dampen cloth with clean water if needed to clean connecting links.



3. Open sliding window (1).
4. Clean forward part of both connecting links (2) with cloth (E120).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Cement (E105)

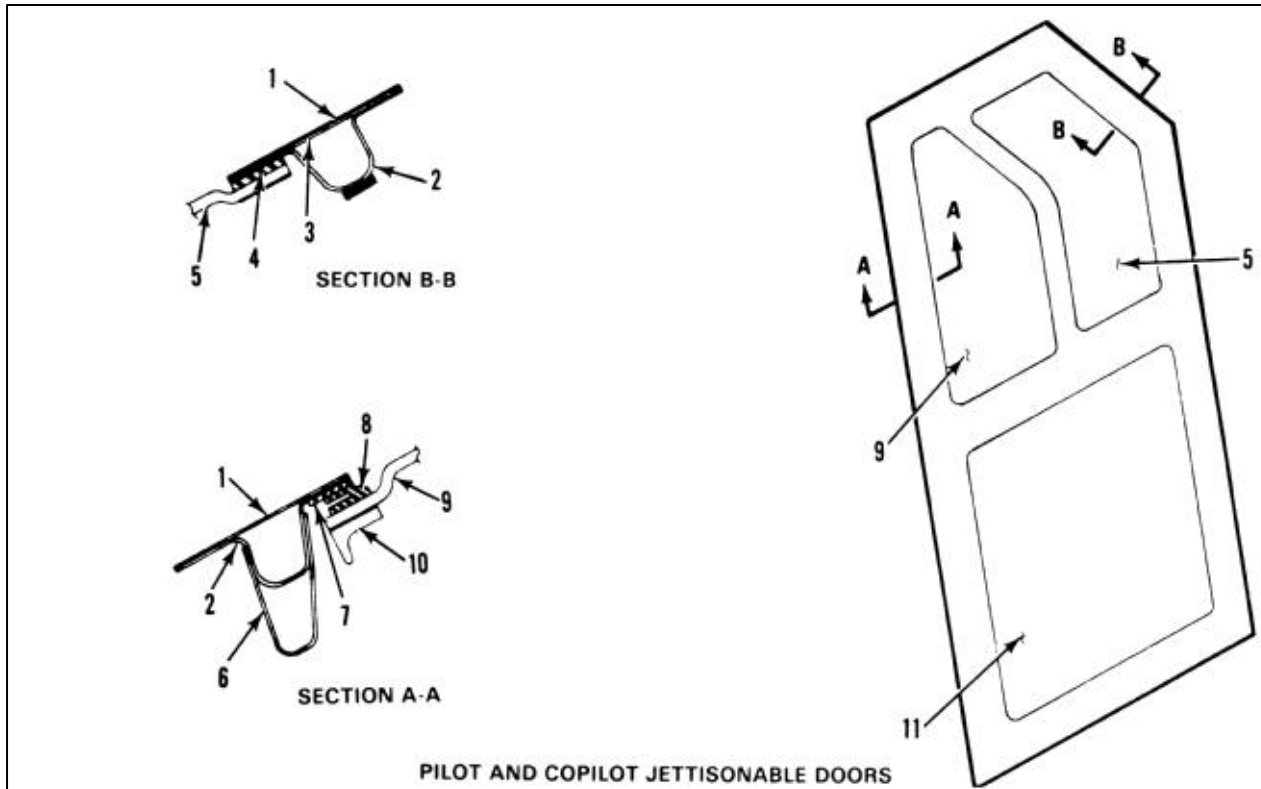
Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-6
Task 2-42
Task 2-54
Task 2-311
Task 2-345
TM 1-1500-204-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Repair minor damage to formed metal parts which can be fixed easy such as stop-drilling cracks and removing small dents and damaged area (Task 2-6).
2. Repair damage larger than minor by patching if door edges are not affected.
3. Repair complete damage to formed metal parts by insertion (Task 2-6) except damage at door edges.
4. Refer to TM 1-1500-204-23 for information on repair of formed parts, spotweld repairs, and acrylic plastic.
5. If required, cement reinforcement strips on the edges of panes. Use cement (E105). Butt joint gaps shall not exceed **0.10 inch**, and shall be fitted with cement (Task 2-311).
6. Extensive damage, such as loss of major portion of door or damage affecting seal requires replacement in whole or in part.
7. Replace damaged seal with new seal (Task 2-311).



PILOT AND COPILOT JETTISONABLE DOORS

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	OUTER SKIN	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD	2-11
2	INNER PAN	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE H.
3	DOUBLER	0.020 2024-T4 CLAD	NOTE B.	NOTE H.
4	SEAL	0.125 SYN RUBBER SHEET	NOTE C.	NOTE H.
5	PANE	0.150 ACRYLIC PLASTIC	NOTE E.	NOTE H.
6	SUPPORT	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE H.
7	SEAL	0.090 SILICONE RUBBER SPONGE	NOTE C.	—
8	SEAL	MOLDED SILICONE RUBBER	NOTE D.	—
9	PANE	0.150 ACRYLIC PLASTIC	NOTE E.	NOTE H.
10	FRAME	ALUMINUM ALLOY CASTING	NOTE F.	—
11	PANE	0.187 ACRYLIC PLASTIC	NOTE E.	NOTE H.

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. DAMAGE TO DOUBLERS NECESSITATES REPLACEMENT OF DAMAGED PORTION WITH SAME MATERIAL AS ORIGINAL
- C. REPLACE WITH NEW SEAL, ORIGINAL
- D. REPLACE WITH NEW SEAL, 114SS668-1 OR -2
- E. REFER TO TASK 2-42 AND TASK 2-345 FOR REPAIR AND REFINISHING OF PANE ASSEMBLIES. REFER TO TASK 2-54 FOR OPTICAL REQUIREMENTS
- F. REPLACE WITH NEW PART, SAME AS ORIGINAL
- G. THE LH DOOR IS SHOWN. REPAIR MATERIALS AND REFERENCED REPAIR FIGURES ARE SAME FOR RH DOOR
- H. TM 1-1500-70-4-23

2526

Pilot and Copilot Jettisonable Doors Repairs - Cockpit Fuselage Structure

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:

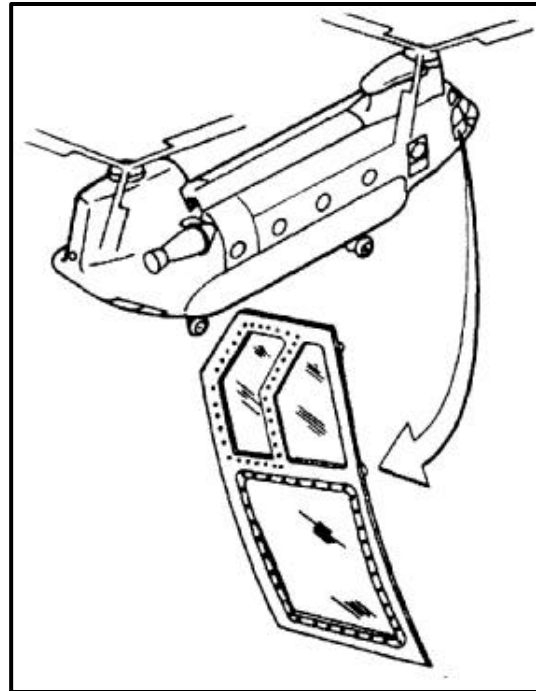
None

Personnel Required:

Medium Helicopter Repairer (2)
Inspector

References:

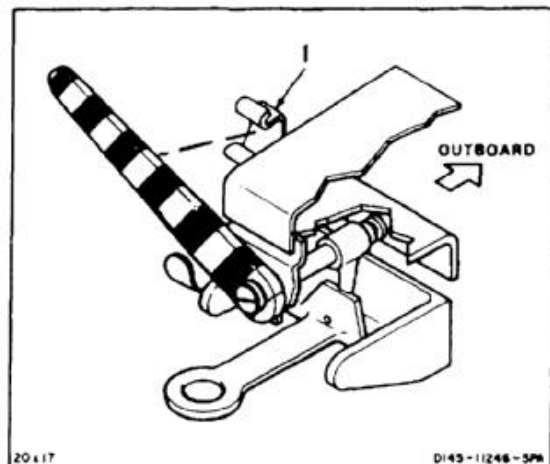
TM 55-1520-240-23P
Task 2-90

**NOTE**

This procedure is only for installing jettisonable door on same helicopter it was removed from. If door was removed for repair or replacement of parts, it requires adjustment (Task 2-90).

Procedure is same for installing pilot's or copilot's jettisonable door. Pilot's door is shown here.

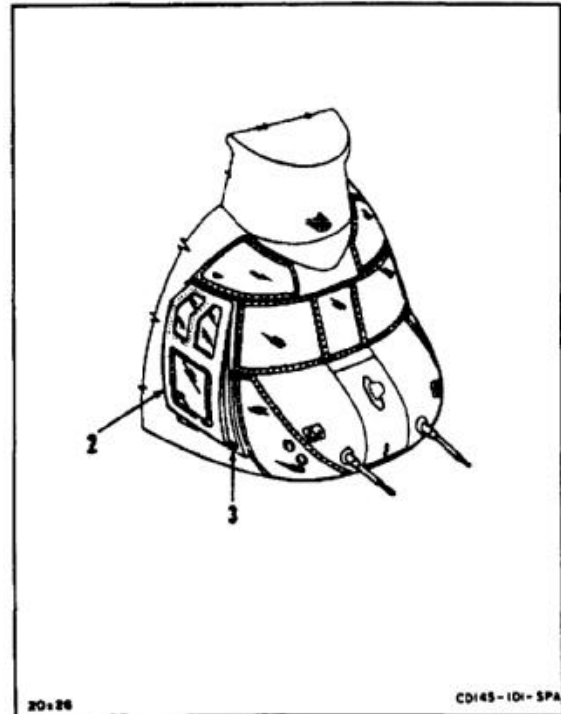
1. Remove retainer clip (1).



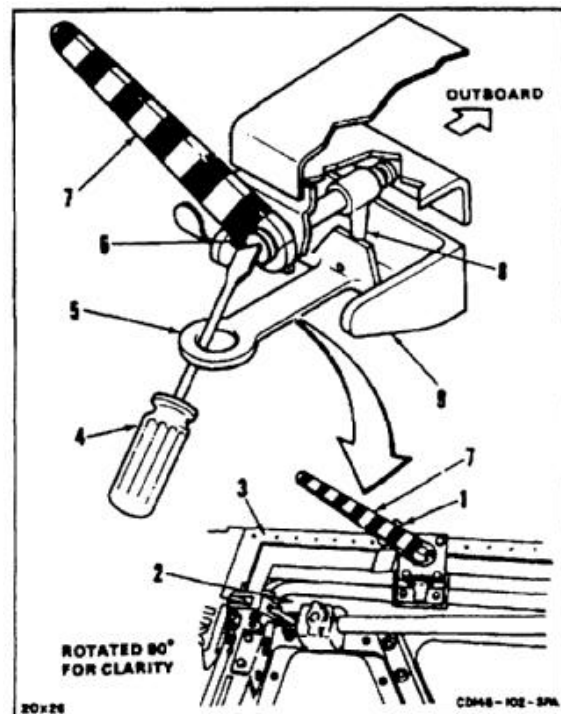
CAUTION

Door shall not make metal-to-metal contact with air frame; door will not jettison properly causing possible loss of life.

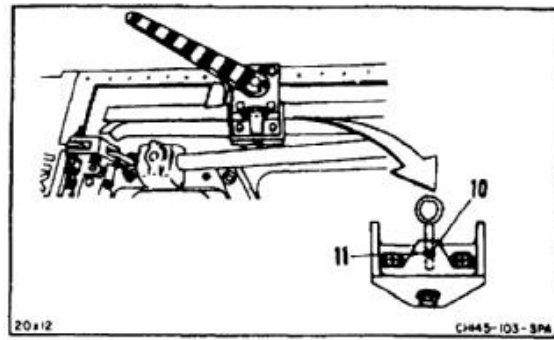
2. Position top of jettisonable door (2) indoor frame (3) with the aid of a helper.



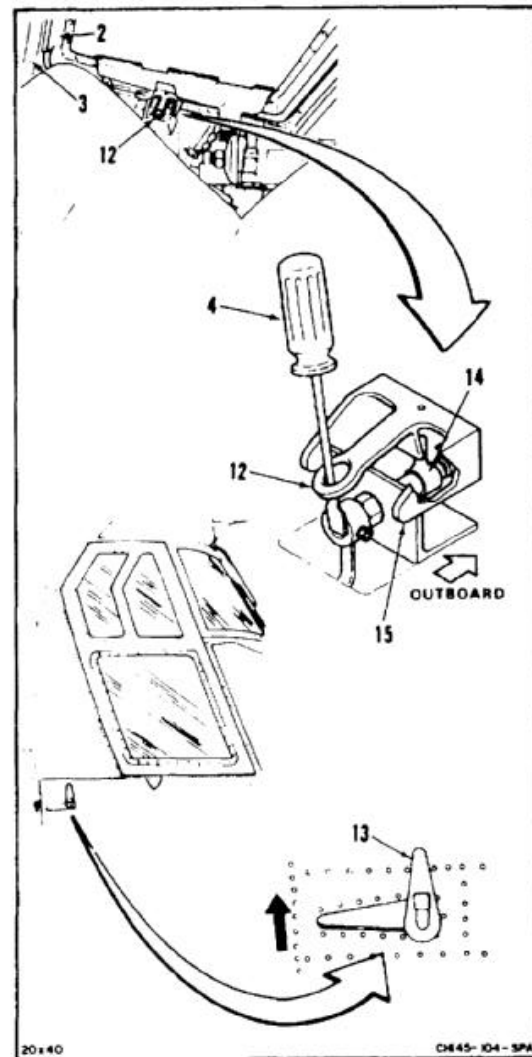
3. Have helper hold door (2) in place from outside helicopter. Hold bottom of door **3 inches** away from bottom frame.
4. Put screwdriver (4) through hole in upper latch plate extension (5) from bottom. Pull screwdriver handle inboard, pressing screwdriver against latch shaft (6) to pull door (2) against frame (3).
5. Hold door (2) against frame (3) with screwdriver (4). Turn upper inside release handle (7) until latch (8) locks in detent of upper latch plate (9).
6. Remove screwdriver (4).
7. Install retainer clip (1).



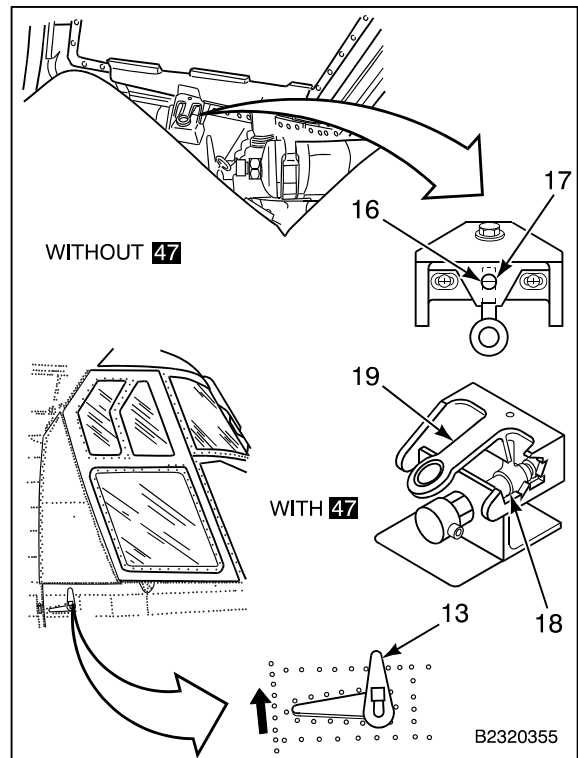
8. Check that red index line (10) shows through inspection hole (11). If it does, go to step 10.
9. If red index line (10) does not show through inspection hole, perform steps 3 thru 8 again. If index line still does not show, remove door. Check door, door frame, and upper latch for obstructions. Repeat steps 3 thru 8.



10. Put screwdriver (4) through hole in lower latch plate extension (12) from top. Pull screwdriver handle inboard to pull door (2) against frame (3).
11. Hold door (2) against frame (3) with screwdriver. Have helper outside helicopter turn door release handle (13) until latch (14) locks in detent of lower latch plate (15).
12. Remove screwdriver (4).



- 13. (Without **47**), check that red index line (16) shows through inspection hole (17). If it does, go to step 15. If it doesn't, go to step 14.
- 13.1. (With **47**), check that orange tab (18) is not visible on either side of the lower latch plate extension (19) when viewed from top. If it isn't, go to step 15. If it is, go to step 14.1.
- 14. If red index line (16) does not show through inspection hole (17), perform steps 10 thru 12 again. If index line still does not show, remove door. Check door, door frame, and lower latch for obstructions. Repeat steps 10 thru 12.
- 14.1. If orange tab is visible, perform steps 10 thru 12 again. If it is still visible, remove door. Check door, door frame, and lower latch for obstructions. Repeat steps 10 thru 12.
- 15. Push in and lock lower door release handle (13).

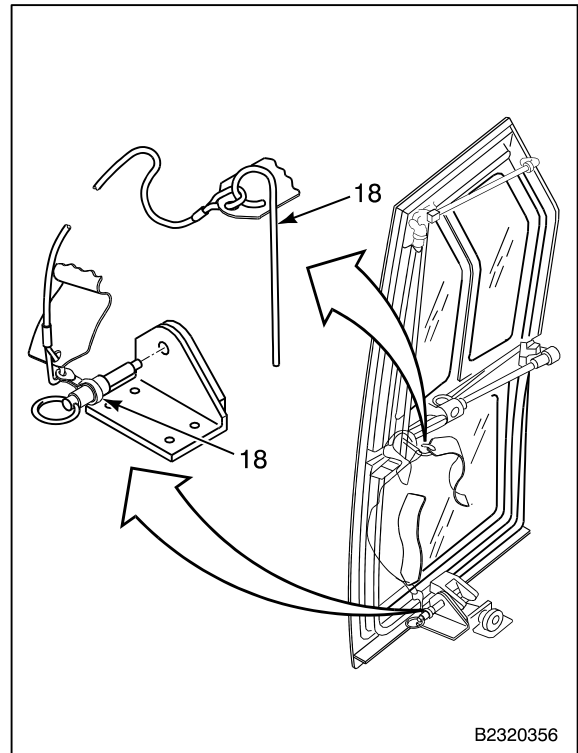


- 16. Install jettisonable door floor and window security lock pins (18).

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Airframe Repairman's Tool Kit, NSN 5180-00-323-4876
- Torque Wrench, 5-50 Inch-Pounds
- Workstand

Materials:

Grease (E190)

Parts:

- Cotter Pins
- Washers
- Shim, 1.5 Inch X 2.1 Inch X 0.09 Inch Max Thick
- 2024-T3 Aluminum

Personnel Required:

- CH-47 Helicopter Repairer (2)
- Inspector
- Aircraft Structural Repairer

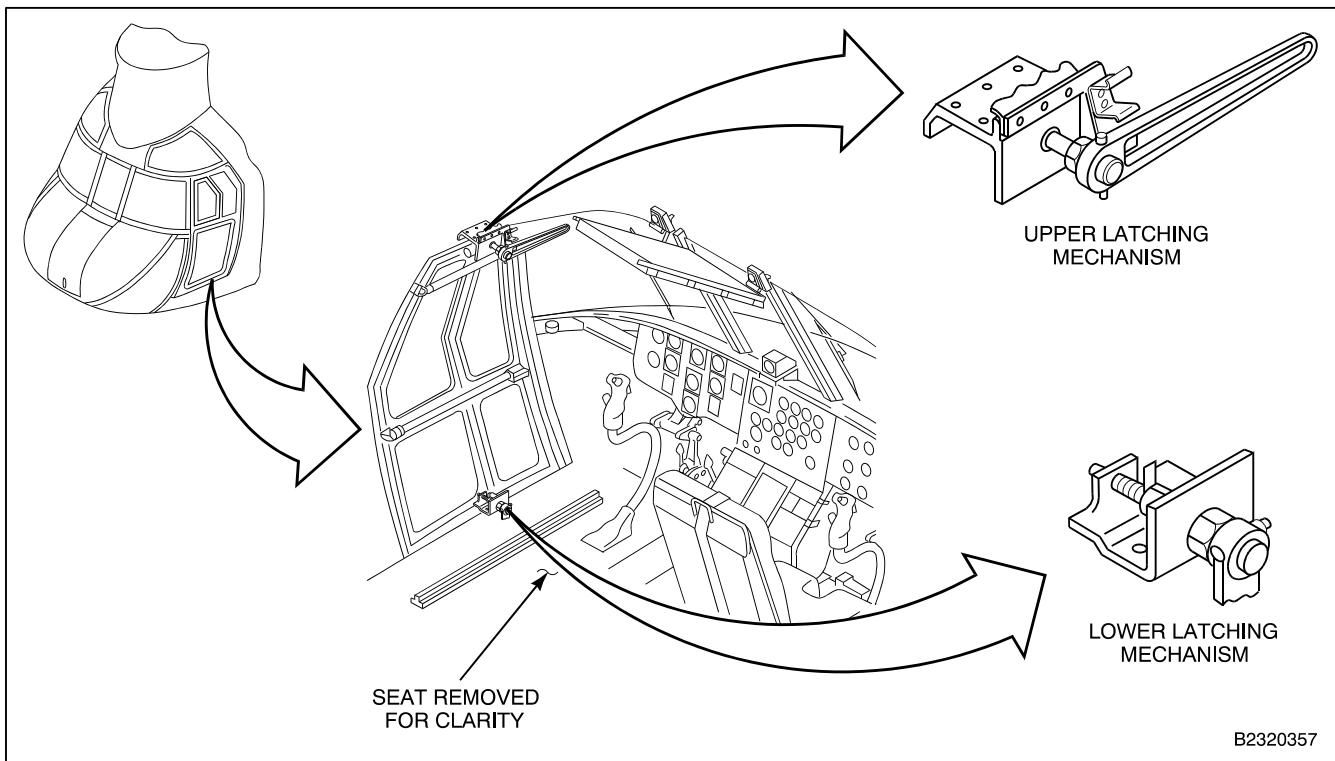
References:

TM 55-1520-240-23P

General Safety Instructions:



If jettisonable door is not installed and adjusted exactly as directed in this procedure, door could be lost in flight.



B2320357

NOTE

This installation is only for installation and adjustment of a jettisonable door that is new or was removed for repair or replacement of parts.

NOTE

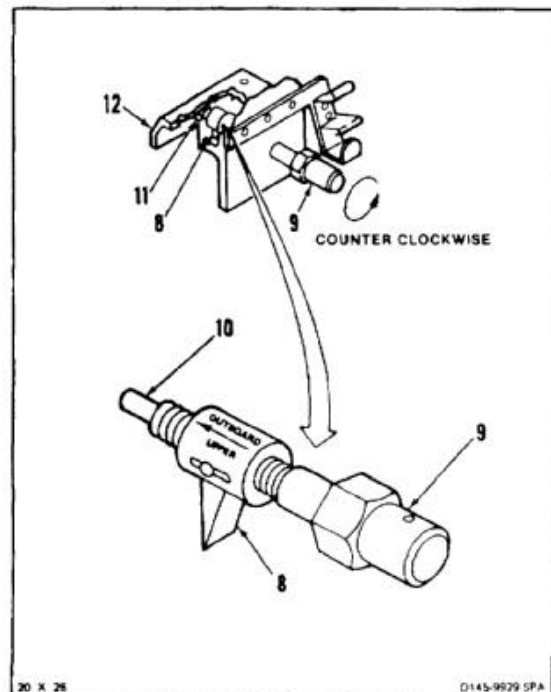
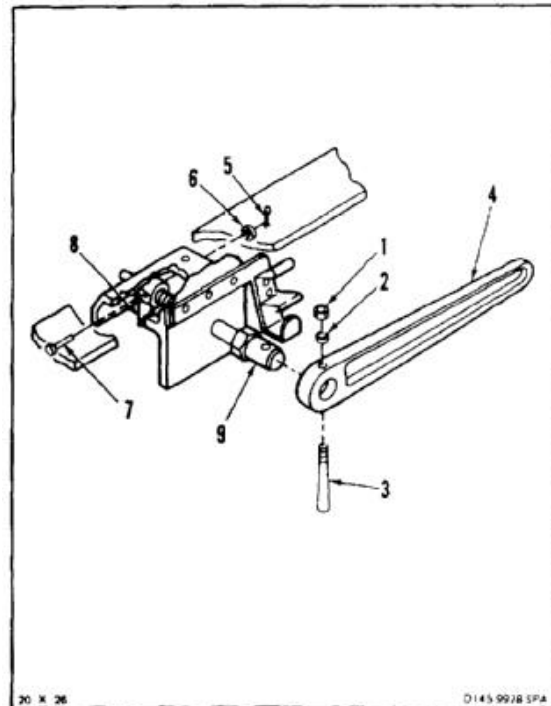
Procedure is same to install and adjust pilot's or copilot's jettisonable door. Copilot's door shown here.

1. Remove nut (1), washer (2), and tapered pin (3) from handle (4).
2. Remove cotter pin (5), washer (6), and pin (7) from upper latch (8).
3. Remove handle (4) from shaft (9).
4. Hold latch (8). Turn shaft (9) counterclockwise. Check that latch turns freely on shaft.
5. Lubricate thread on shaft (9). Use grease (E190).

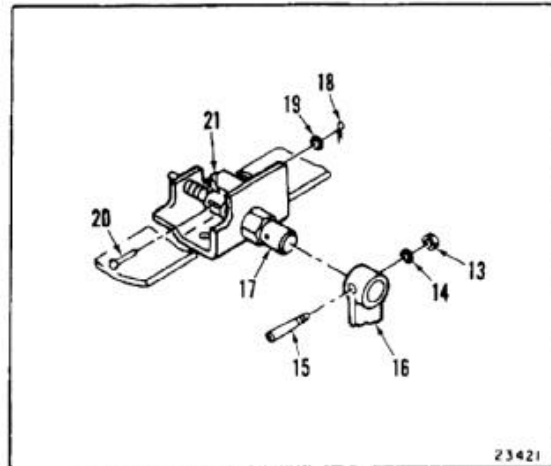


If latch is not installed with arrow pointing outboard, the door will not be properly secured and could be lost in flight.

6. If upper latch (8) was removed in step 4, install it on shaft (9). Make sure raised markings, (OUTBOARD UPPER) and arrow, on latch point outboard.
7. Install pilot (10) of shaft (9) in outer bushing (11) of support (12).



8. Remove nut (13), washer (14), and tapered pin (15) from lever (16).
9. Remove lever (16) from shaft (17).
10. Remove cotter pin (18), washer (19), and pin (20) from lower latch (21).



NOTE

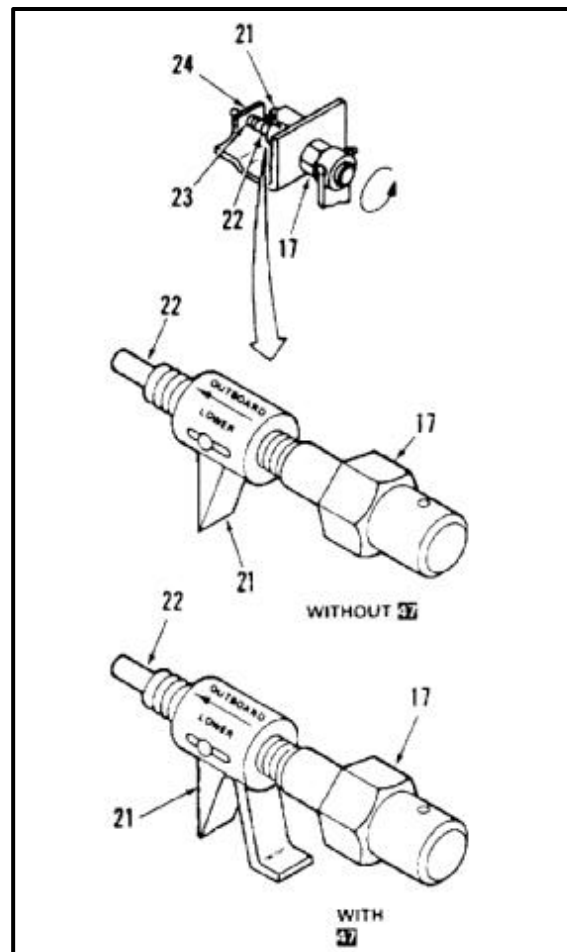
Procedure for adjustment of latch without **47** and latch with **47** are the same.

11. Hold lower latch (21). Turn shaft (17) counterclockwise. Check that latch turns freely on shaft.
12. Lubricate thread on shaft (17). Use grease (E190).

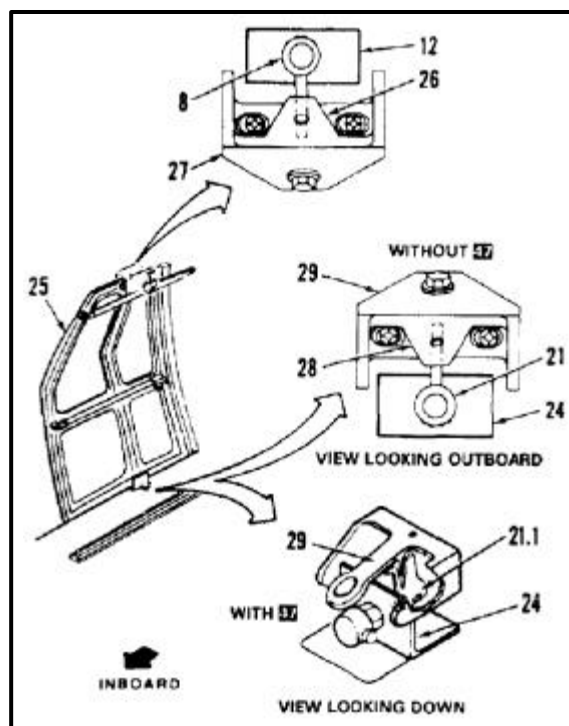


If latch is not installed with arrow pointing outboard, the door will not be properly secured and could be lost in flight.

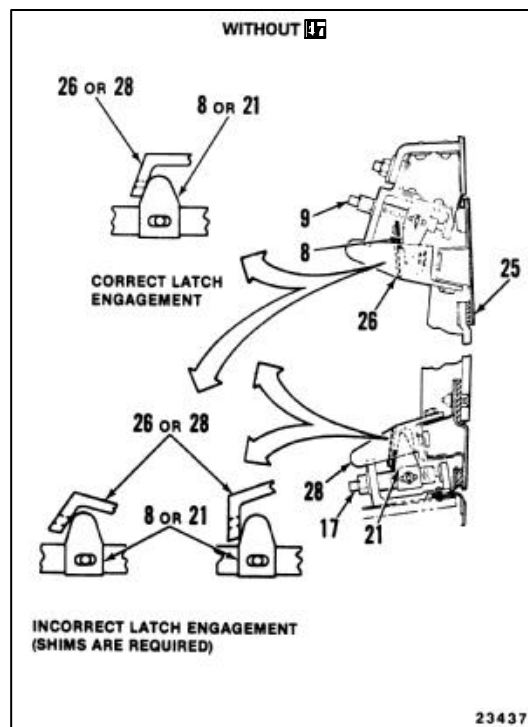
13. If lower latch (21) was removed in step 11, install it on shaft (17). Make sure raised markings (OUTBOARD LOWER) and arrow, on latch point outboard.
14. Install pilot (22) of shaft (17) in outer bushing (23) of support (24).



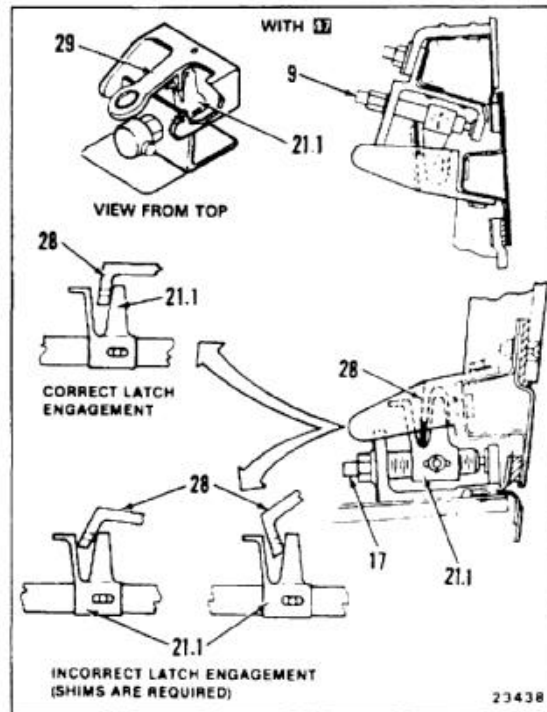
15. Have helper, working from outside, position jettisonable door (25) in door opening.
16. Working in cockpit, rotate upper latch (8) until it engages detent (26) of upper latch plate (27).
17. Have helper push inward on lower part of jettisonable door (25).
18. Without **47**, rotate lower latch (21) until it engages detent (28) of lower latch plate (29).
- 18.1. With **47**, rotate lower latch with tab (21.1) until tab is not visible on either side of the lower latch plate extension (29) when viewed from top.
19. Have helper adjust door (25) vertically and horizontally in door opening until there is equal clearance between supports (12 and 24) and latch plates (27 and 29).



20. Without **47**, check that latches (8 and 21) engage detents (26 and 28) as shown.
21. Without **47**, if latches (8 or 21) do not engage properly with detents (26 or 28), install washers under latch plates (27 or 29).
22. Without **47**, turn upper and lower shafts (9 and 17) clockwise until door (25) is held in position. Do not tighten shafts.



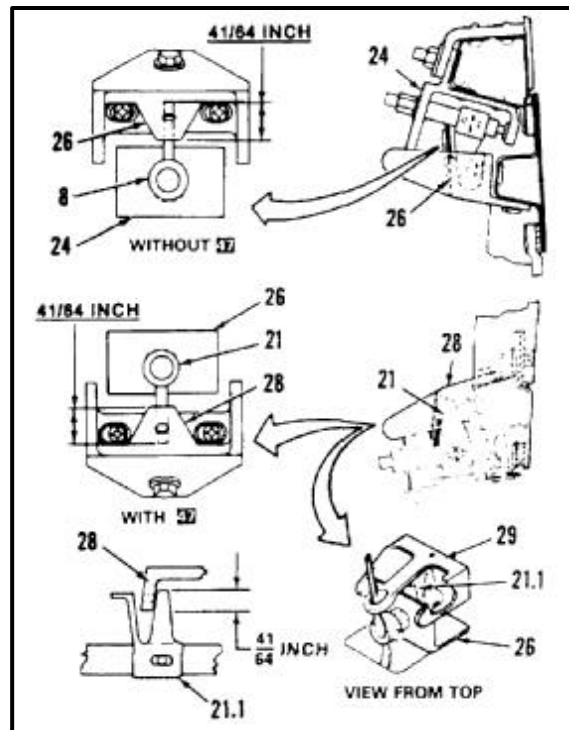
- 22.1. With **47**, check that latch (21.1) engages detent (28) as shown.
- 22.2. With **47**, check that tab on latch (21.1) is not visible on either side of the lower latch plate extension (29) when viewed from top.
- 22.3. With **47**, if latch (21.1) does not engage properly with detent (28), install washers under latch plate (29).
- 22.4. With **47**, turn upper and lower shafts (9 and 17) clockwise until door (25) is held in position. Do not tighten shafts.



- 23. With **47**, check that latches (8 and 21) engage detents (26 and 28) a minimum of **41/64 inch**.
- 23.1. With **47**, check that latch (21.1) engages detent (28) a minimum of **41/64 inch**.
- 24. If latch engagement is not a minimum of **41/64 inch**, install a shim under support (24 or 26).
- 25. Without **47**, check that red index lines on latches (8 and 21) are visible through inspection holes in detents (26 and 28).
- 25.1. With **47**, check that tab on latch (21.1) is not visible on either side of the lower latch plate extension (29) when viewed from top.

INSPECT

- 26. Check that ends of latches (8, 21, and 21.1) are not resting in inspection holes in detents (26 and 28).

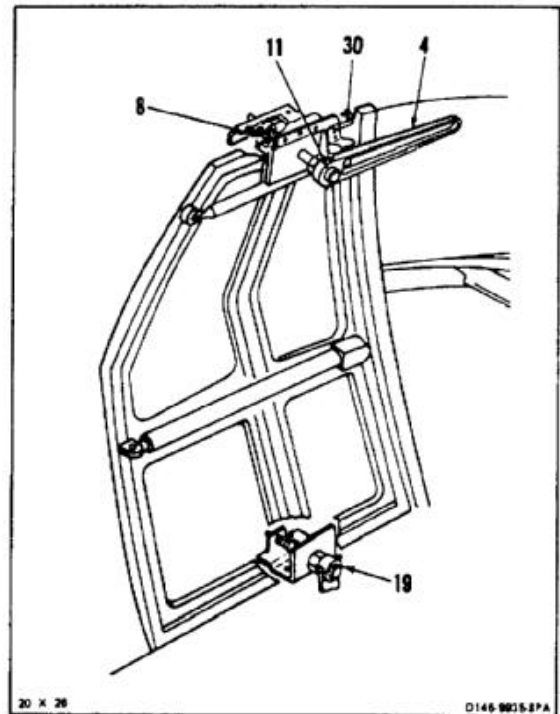


27. Torque shafts (11 and 19) to **20 inch-pounds**.
28. Position handle (4) on shaft (11) and in retainer (30).

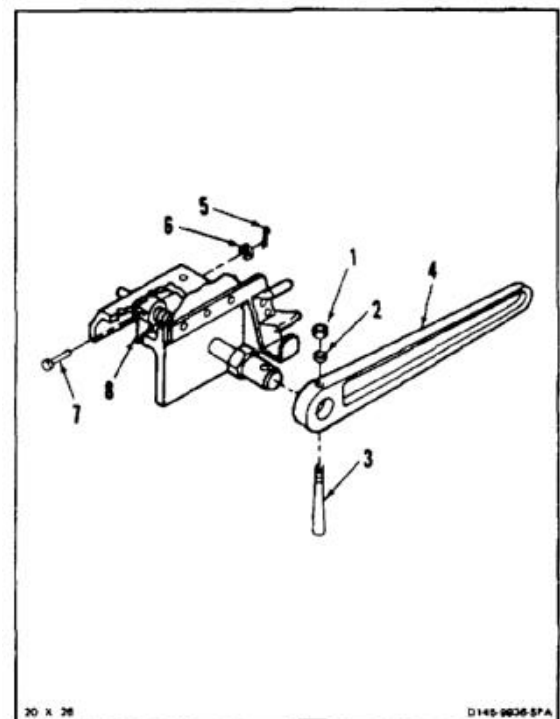
NOTE

A maximum torque of **25 inch-pounds** may be applied when aligning holes in handle, shaft, and latch.

29. Hold handle (4) and turn shaft (11) clockwise until holes in handle (4), shaft (11), and upper latch (8) align.



30. Install tapered pin (3), washer (2), and nut (1) in handle (4).
31. Install pin (7), washer (6), and cotter pin (5) in upper latch (8).

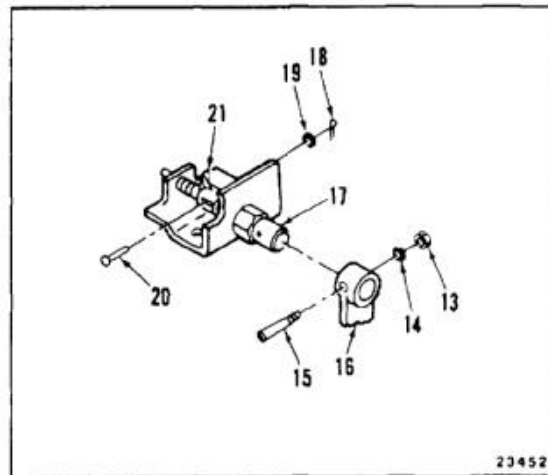


- 32. Position lever (16) on shaft (17).

NOTE

A maximum torque of **25 inch-pounds** may be applied when aligning holes in handle, shaft, and latch.

- 33. Hold lever (16) and turn shaft (17) clockwise until holes in lever, shaft, and lower latch (21) align.
- 34. Install tapered pin (15), washer (14), and nut (13) in lever (16).
- 35. Install pin (20), washer (19), and cotter pin (18) in lower latch (21).

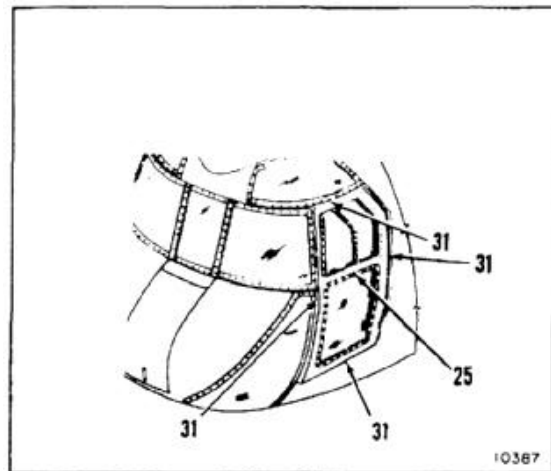


CAUTION

Door shall not make metal-to-metal contact with air frame; door will not jettison properly causing possible loss of life.

- 36. Make sure door (25) fits within the recessed opening (31). Ensure that the door is not overriding the air frame at any point. Minor trimming is permitted. Door should compress the seal evenly all the way around the opening.

INSPECT

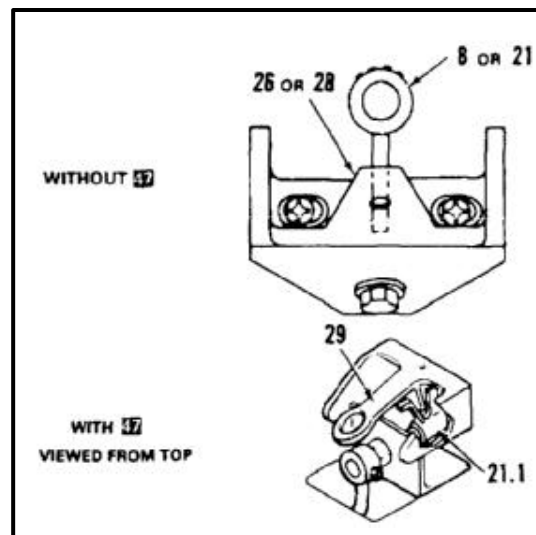


- 37. Without **47**, make sure that latches (8 and 21) are positioned in detents (26 and 28) and red index lines are visible through inspection holes.
- 38. Without **47**, check that tab on lower latch (21.1) is not visible on either side of the lower latch plate extension (29) when viewed from top.

INSPECT

FOLLOW-ON MAINTENANCE:

Test jettisonable door (Task 2-85).



END OF TASK

2-91 REMOVE JETTISONABLE DOOR CONNECTING LINKS**2-91****Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

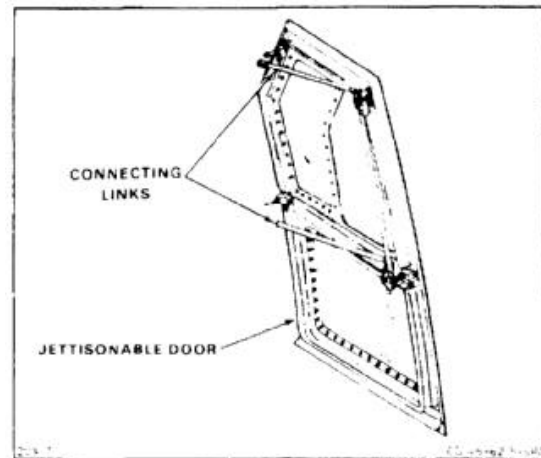
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Off Helicopter Task
 Jettisonable Door Sliding Window Removed (Task 2-93)

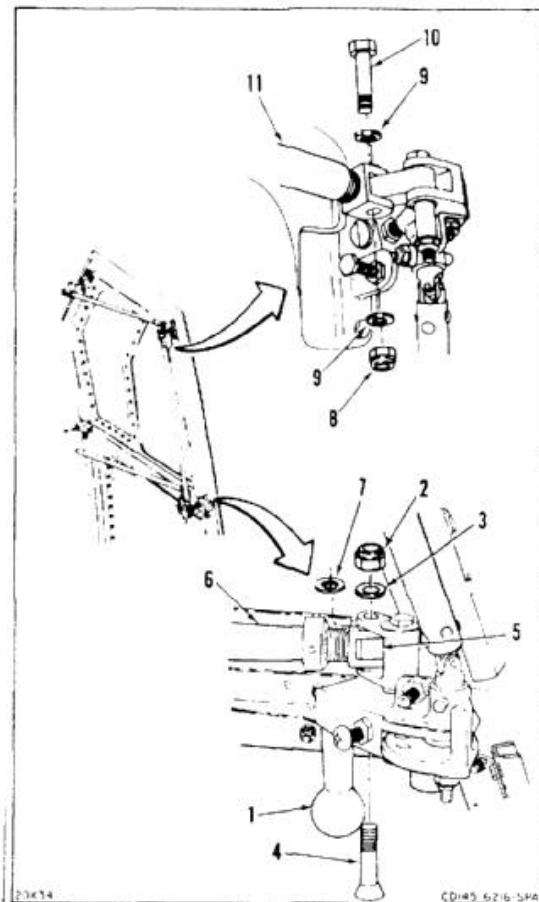
**NOTE**

Procedure is same to remove connecting links on pilot's or copilot's jettisonable door is same. Removal of connecting links on copilot's door is shown here.

1. Set window lock handle (1) to lock position.
2. Remove nut (2), washer (3), bolt (4), and bushing (5).
3. Remove lower connecting link (6) and washer (7).
4. Remove nut (8), two washers (9), and bolt (10).
5. Remove upper connecting link (11).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

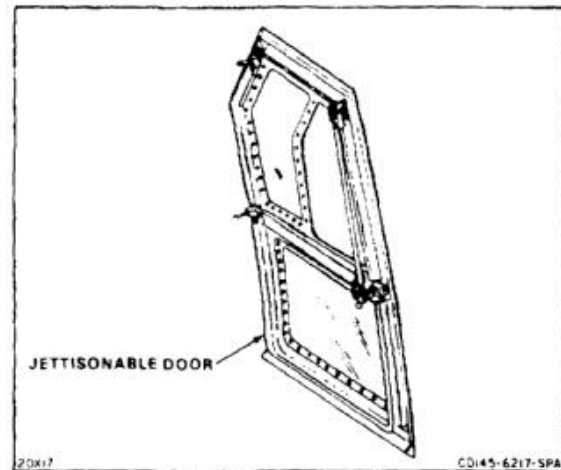
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:Medium Helicopter Repairer
Inspector**References:**

TM 55-1520-240-23P

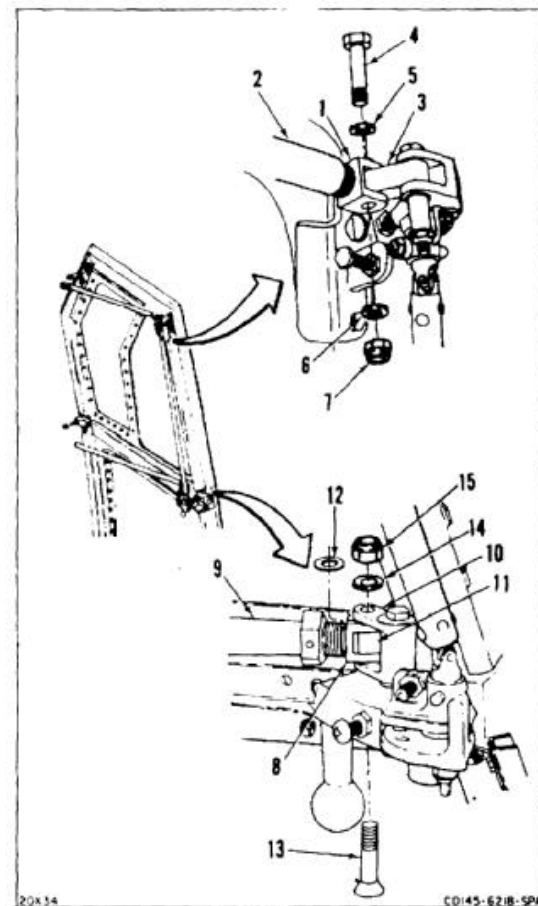
**NOTE**

Procedure is same to install connecting links on pilot's and copilot's jettisonable door. Installation of connecting links on copilot's door is shown here.

1. Position clevis (1) of upper connecting link (2) on link (3). Align holes in clevis (1) and link (3).
2. Install bolt (4), washers (5 and 6), and nut (7).
3. Position clevis (8) of lower connecting link (9) on link (10). Align holes in clevis (8) and link (10).
4. Install bushing (11), washer (12), bolt (13), washer (14), and nut (15).

INSPECT**FOLLOW-ON MAINTENANCE:**

Install jettisonable door sliding window (Task 2-97).
Adjust jettisonable door sliding window (Task 2-98).



END OF TASK

2-352

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

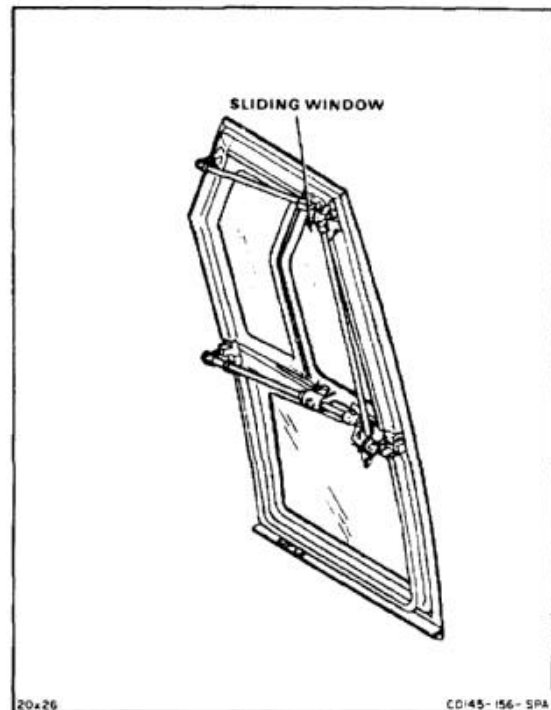
None

Personnel Required:

Medium Helicopter Repairer

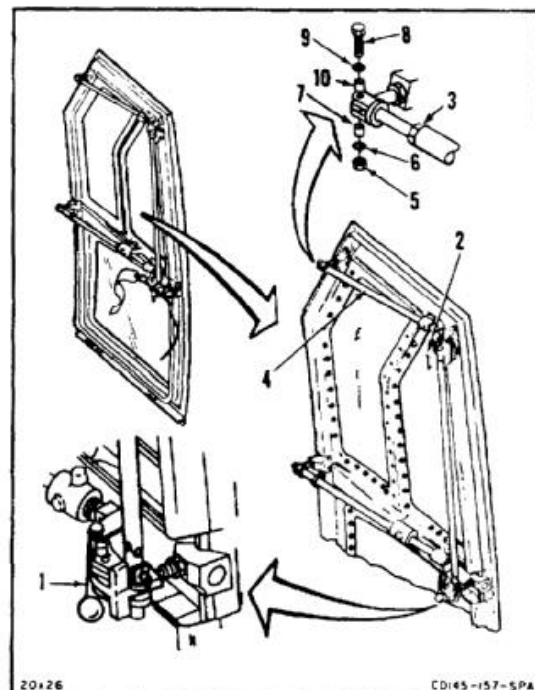
Equipment Condition:

Off Helicopter Task

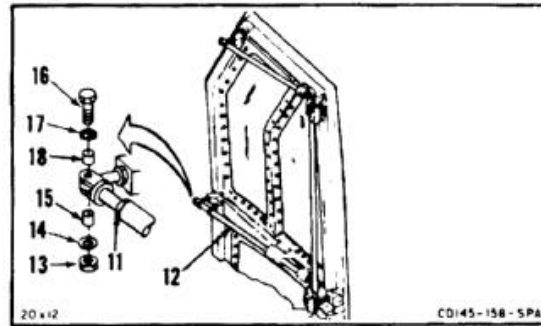
**NOTE**

Procedure is same to remove pilot's or copilot's jettisonable door sliding window. Copilot's sliding window is shown here.

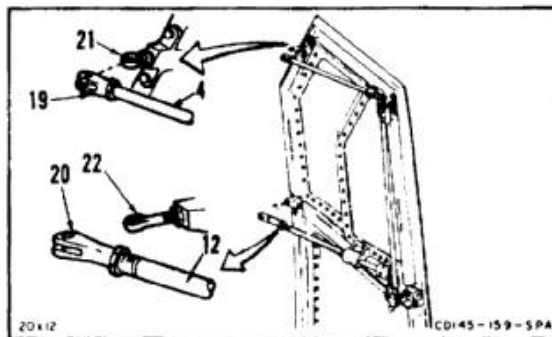
1. Set handle (1) below sliding window (2) to unlocked position.
2. Loosen nut (3).
3. Disconnect connecting link (4):
 - a. Remove nut (5), washer (6), and bushing (7).
 - b. Remove bolt (8), washer (9), and bushing (10).



4. Loosen nut (11).
5. Remove connecting link (12):
 - a. Remove nut (13), washer (14), and bushing (15).
 - b. Remove bolt (16), washer (17), and bushing (18).



6. Pull clevises (19 and 20) away from door rod end bearings (21 and 22). Count and record number of turns needed to remove clevises (19 and 20) from links (4 and 12).

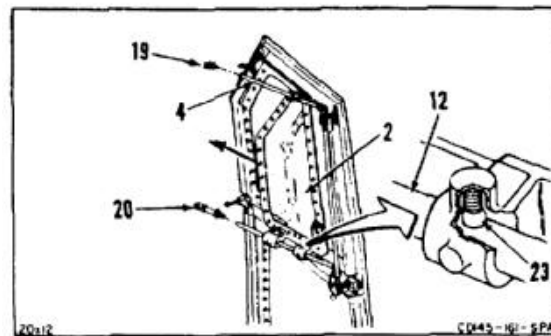


7. Remove clevises (19 and 20).



Detent ball can easily be lost. Remove sliding window carefully from links to prevent losing ball from window detent.

8. Slide window (2) off links (4 and 12). Make sure detent ball (23) is in place.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

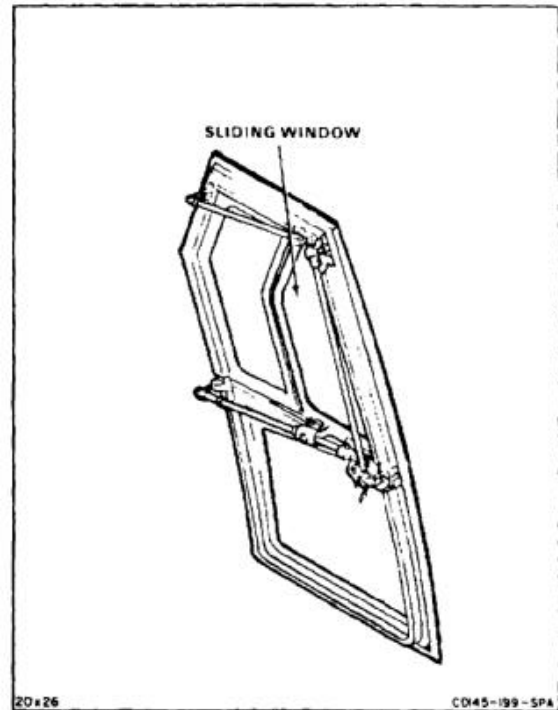
None

Personnel Required:

Medium Helicopter Repairer

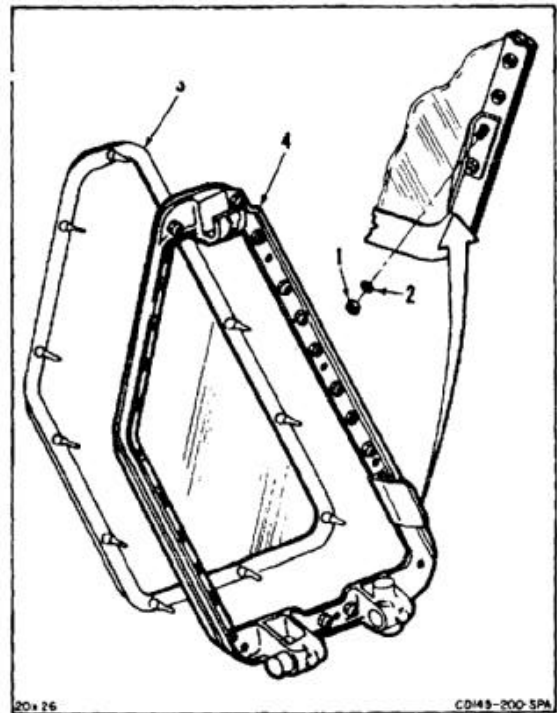
Equipment condition:Jettisonable Door Sliding Window Removed (Task
2-93)

Off Helicopter Task

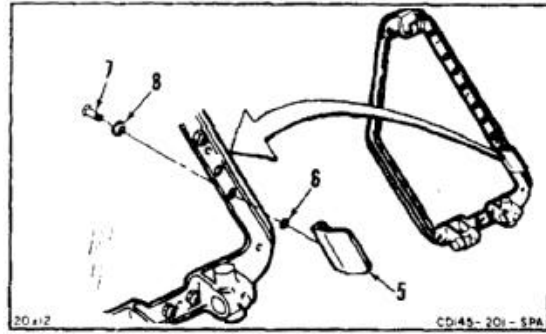
**NOTE**

Procedure is same for pilot's or copilot's sliding window. Copilot's sliding window is shown here.

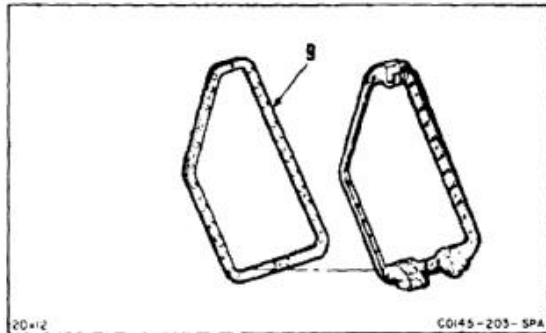
1. Remove 27 nuts (1) and washers (2).
2. Remove seal (3) from window (4).



3. Remove handle (5) and two washers (6).
4. Remove 27 screws (7) and washers (8).



5. Remove window panel (9).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-356

2-95 REPLACE JETTISONABLE DOOR SLIDING WINDOW BUSHINGS**2-95****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Soft Cloth (E128)

Parts:

Bushings

1. Position soft cloth (E128) under window frame (1).
2. Remove bushing (2) from bushing support (3).
3. Insert punch in holes (4) and drive pins (5) from window frame (1) and bushings (6 and 7).
4. Remove bushings (6 and 7).
5. Position new bushings (6 and 7), and align dotted holes in bushings with holes (4) in window frame (1).
6. Install pins (5).
7. Install new bushing (2) in support (3).

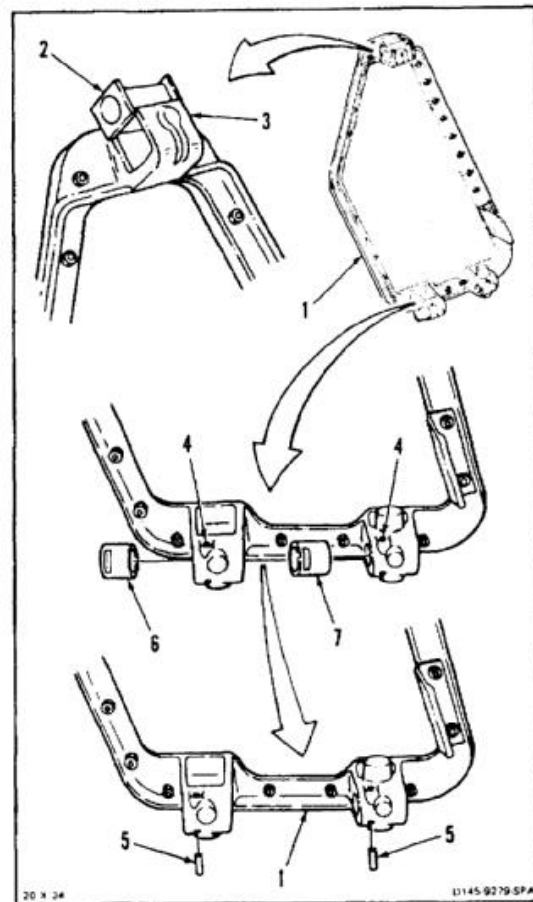
INSPECT**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

Personnel Required:Medium Helicopter Repairer
Inspector**References:**

TM 55-1520-240-23P

Equipment Condition:Off Helicopter Task
Jettisonable Door Sliding Window Removed (Task
2-93)

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Acid Swabbing Brush
 Torque Wrench, 30 to 150 Inch-Pounds
 Torque Wrench, 5 to 50 Inch-Pounds

Parts:

Seal

Materials:

Adhesive (E55 and E56)
 Cloth, Cleaning (E120)
 Naphtha (E246)
 Sealant Tape (E348)
 Gloves (E186)

Personnel Required:

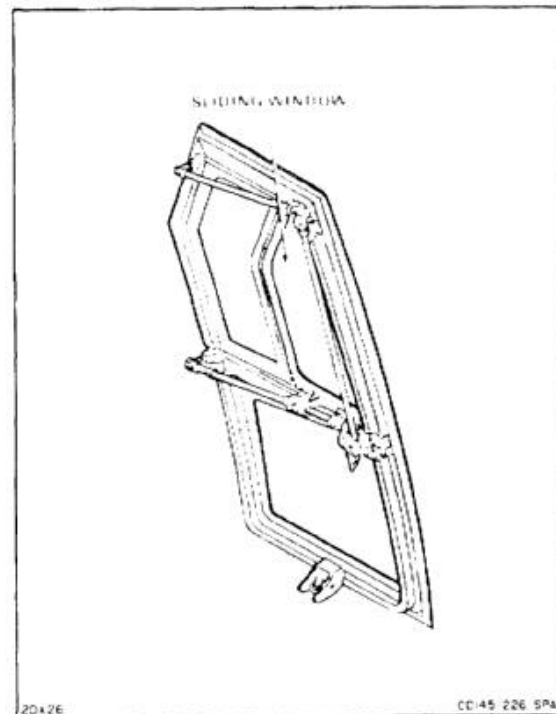
Medium Helicopter Repairer
 Inspector

References:

TM 55-1520-240-23P

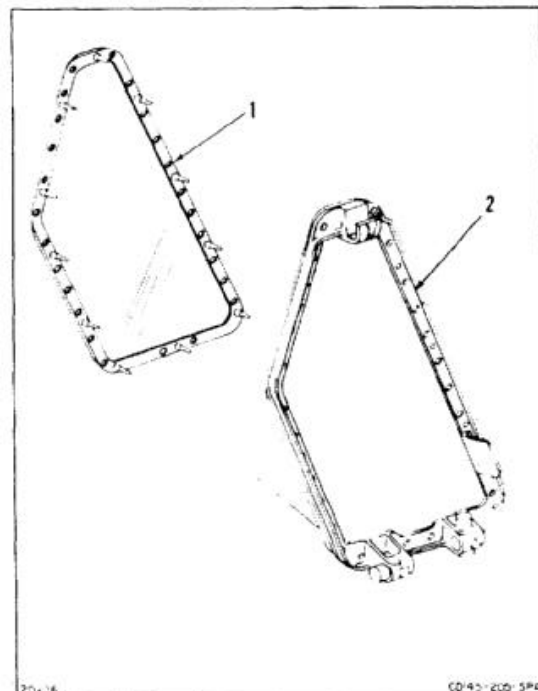
Equipment Condition:

Task to Be Performed in Well-Ventilated Area
 Off Helicopter Task

**NOTE**

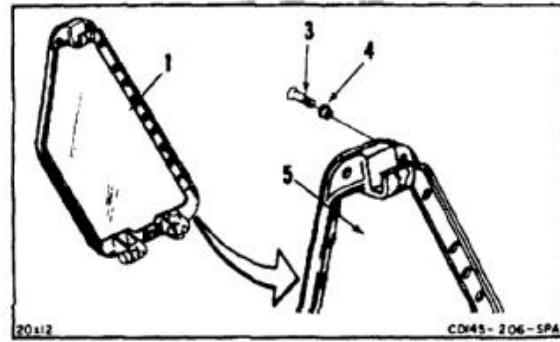
Procedure is same to install pilot's or copilot's sliding window plastic panel. Copilot's window panel is shown here.

1. Install layer of sealant tape (E348) on inside surface of window panel (1) that fits against window frame (2).
2. Install panel (1) with sealant tape against window frame (2), and hold panel in place until secured in step 3.

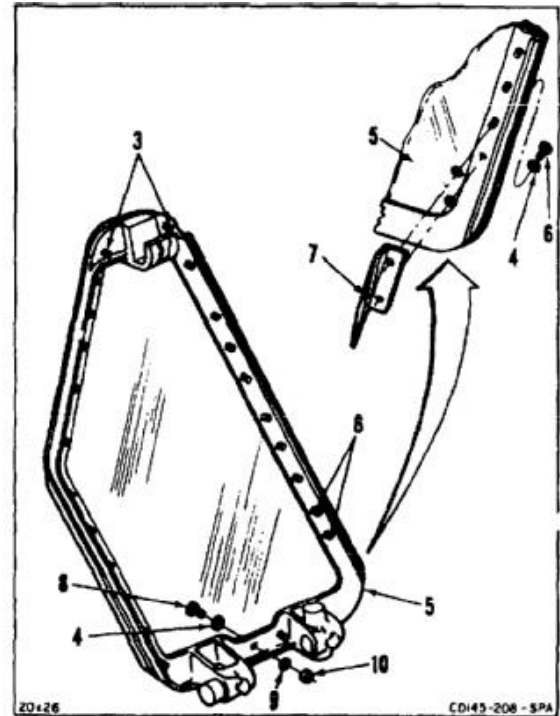


3. Secure panel (1):

- a. Install two screws (3) and washers (4) from outer side of window (5).



- b. Install two screws (6) and washers (4) from outer side of window (5).
- c. Position handle (7) on screws (6).
- d. Install 23 screws (8) and washers (4) from outer side of window (5).
- e. Install 27 washers (9) and nuts (10) on screws (3, 6, and 8).



4. Torque nuts (10) to 12 inch-pounds.

WARNING

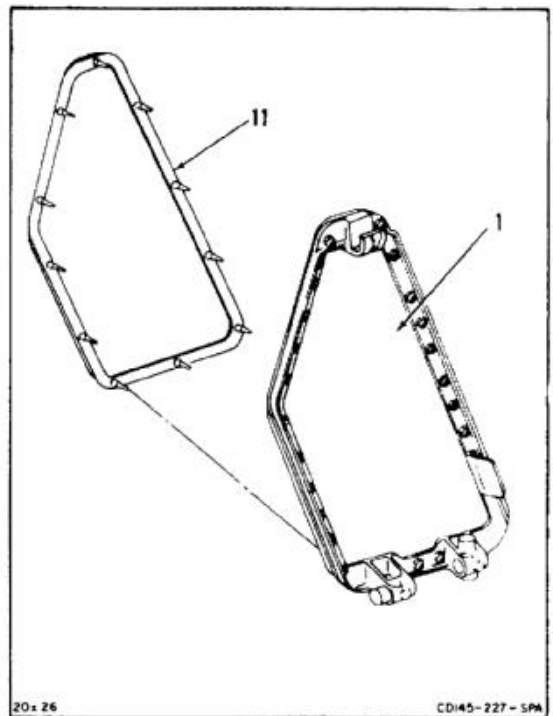
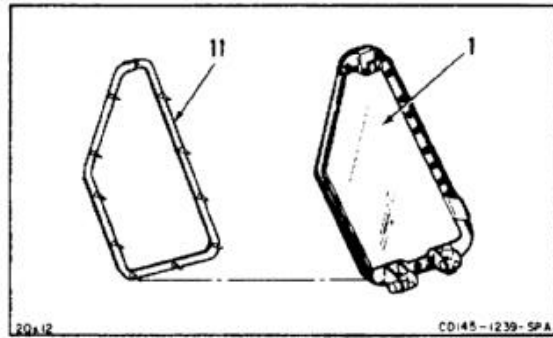
Naphtha (E245) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

5. Clean outer surface of panel (1) with cloth (E120) soaked with naphtha (E246), where new seal (11) will be installed. Wear gloves (E186).

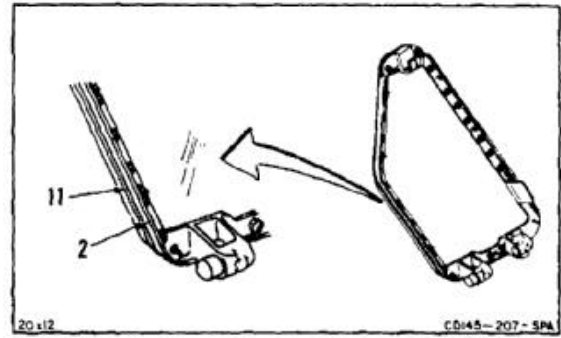
WARNING

Adhesive (E55 and E56) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

6. Coat surface of new seal (11), facing surface of panel (1), with adhesive (E55 and E56). Wear gloves (E186).
7. Install seal (11) with adhesive coated side against panel (1).
8. Press seal (11) flush to panel (1) so adhesive will bond.



9. Check window seal (11). Check that window seal is within **1/16 inch** from edge of window frame (2). If it is not, trim edge of seal.

**INSPECT****FOLLOW-ON MAINTENANCE:**

- Install jettisonable door (Task 2-89).
- Check window for leaks (Task 2-61).
- Install jettisonable door sliding window (Task 2-97).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

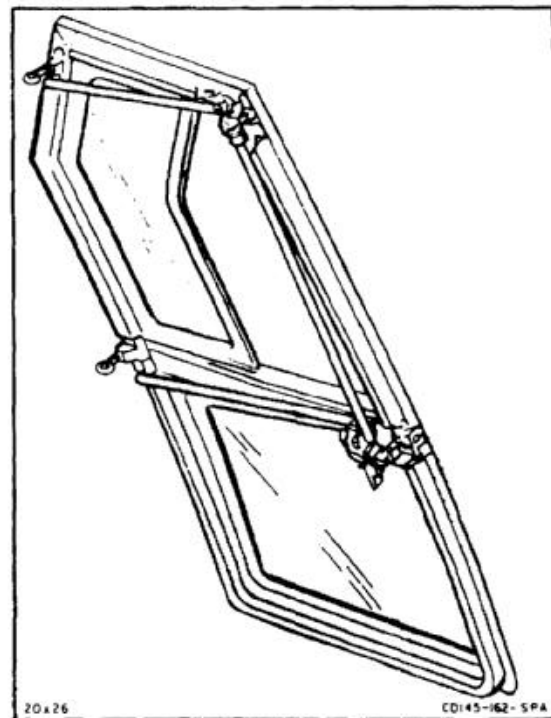
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:Medium Helicopter Repairer
Inspector**References:**

TM 55-1520-240-23P

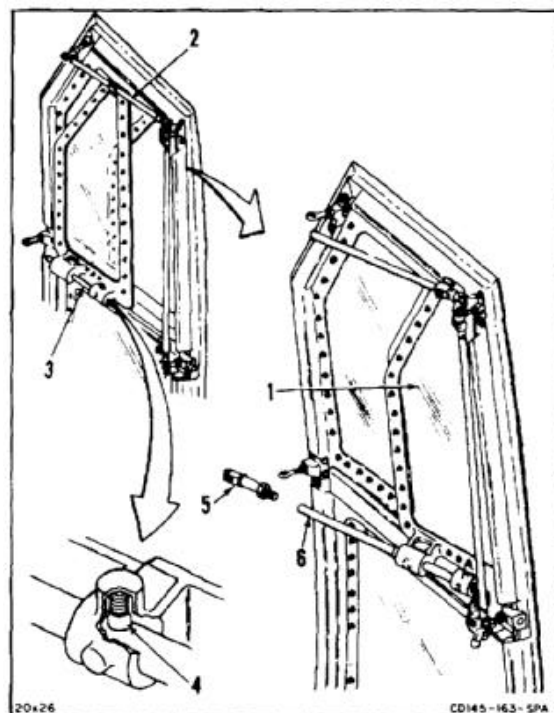


Detent ball can easily be lost. Install sliding window carefully on connecting links to prevent losing ball from window detent.

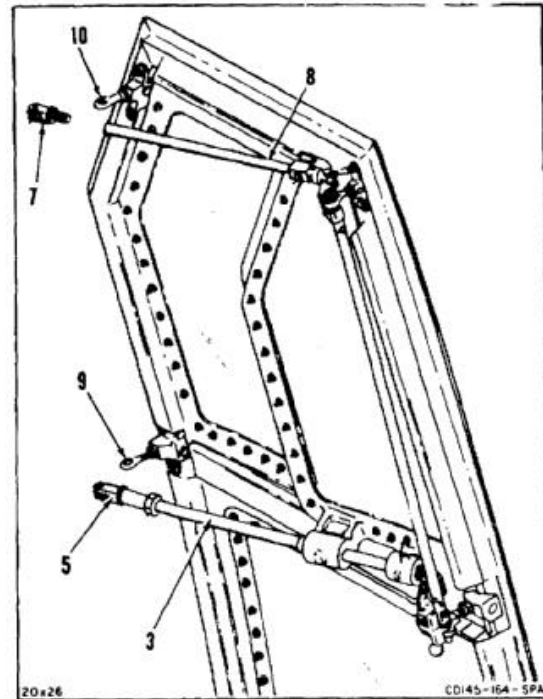
NOTE

Procedure is same to install either pilot's or copilot's jettisonable door sliding window. Copilot's door shown here.

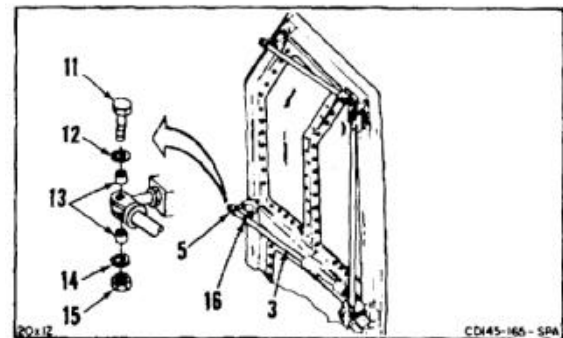
1. Position window (1) on connecting links (2 and 3). Make sure detent ball (4) is in place.
2. Slide window (1) to closed position.
3. Install rod end clevis (5) in link (6) same number of turns recorded at removal.



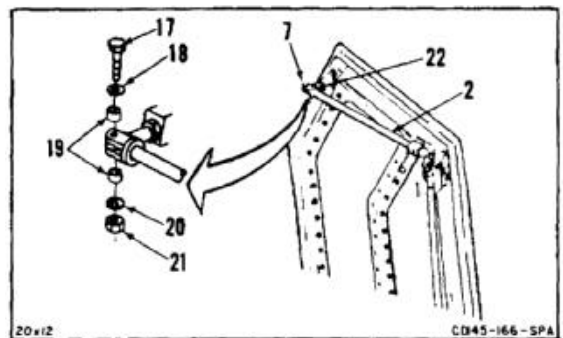
4. Screw rod end clevis (7) in link (8) same number of turns recorded at removal.
5. Fit clevises (5 and 7) to door rod end bearings (9 and 10).



6. Connect clevis (5) by installing bolt (11), washer (12), two bushings (13), washer (14), and nut (15).
7. Tighten nut (16) against end of connecting link (3).



8. Connect clevis (7) by installing bolt (17), washer (18), two bushings (19), washer (20), and nut (21).
9. Tighten nut (22) against end of connecting link (2).



INSPECT

FOLLOW-ON MAINTENANCE:

- Adjust jettisonable door sliding window (Task 2-98).
- Test jettisonable door sliding window (Task 2-105).
- Install jettisonable door (Task 2-89).
- Check window for leaks (Task 2-61).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Torque Wrench, 30 to 150 Inch-Pounds
 Crowfoot Attachment, 1 Inch
 Workstand, Three-Step

Materials:

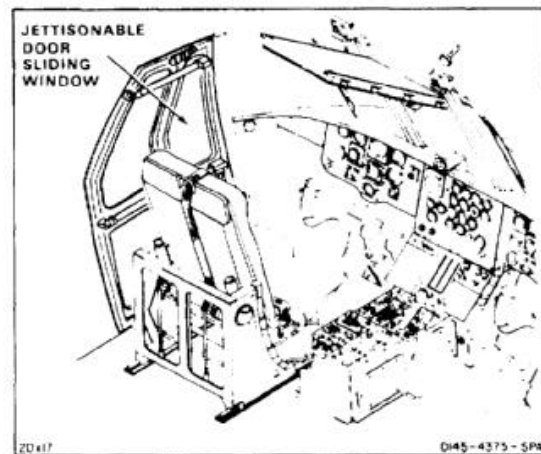
None

Personnel Required:

Medium Helicopter Repairer
 Inspector

Equipment Condition:

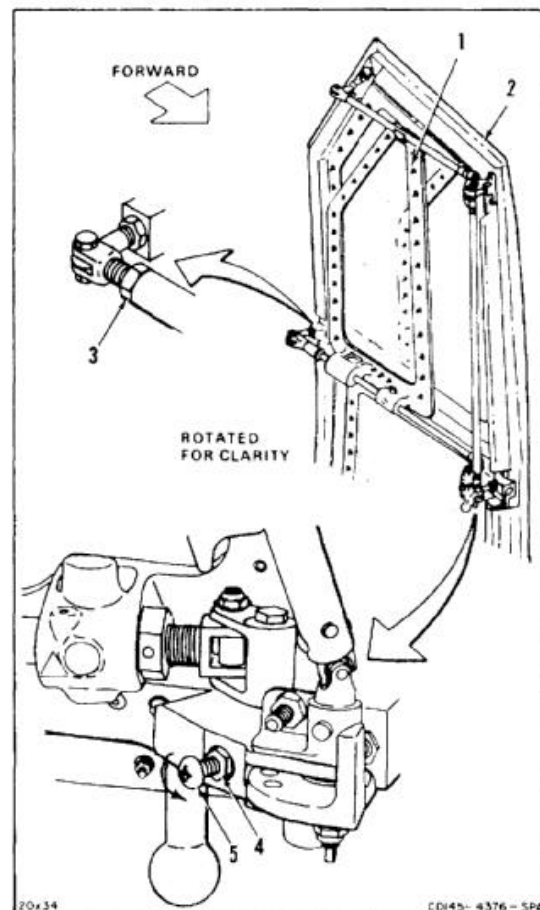
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off

**NOTE**

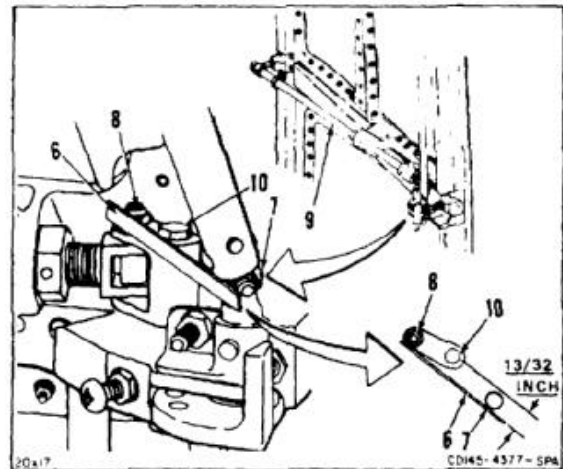
Procedure is same to adjust pilot's or copilot's jettisonable door sliding windows. Copilot's window is shown here.

ADJUST LOWER LINK OVERTRAVEL

1. Close and lock sliding window (1) of jettisonable door (2).
2. Loosen locknut (3).
3. Loosen locknut (4).
4. Turn stop screw (5) **four full turns** counterclockwise.

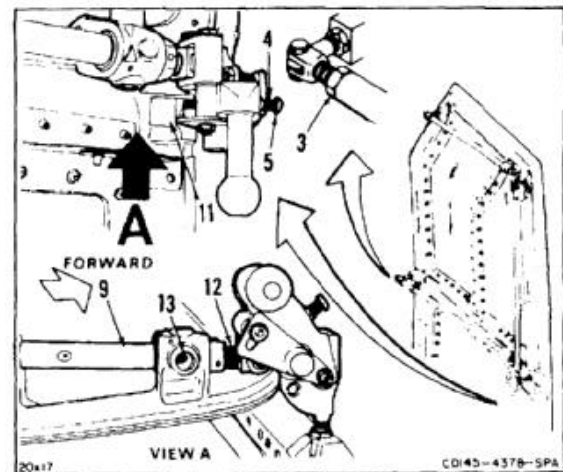


5. Position straightedge (6) between pin (7) and bolt (8).
6. Turn connecting link (9) clockwise or counterclockwise until distance from straightedge (6) to bolthead (10) is **13/32 inch**.



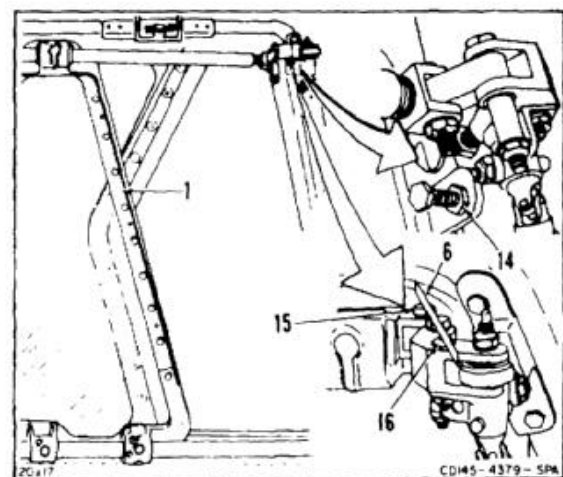
7. Turn stop screw (5) clockwise until stop screw touches stop (11).
8. Tighten locknut (4).
9. Check rod end (12) through inspection hole (13). Rod end shall engage connecting link (9).
10. Torque locknut (3) to **100 inch-pounds**.

INSPECT



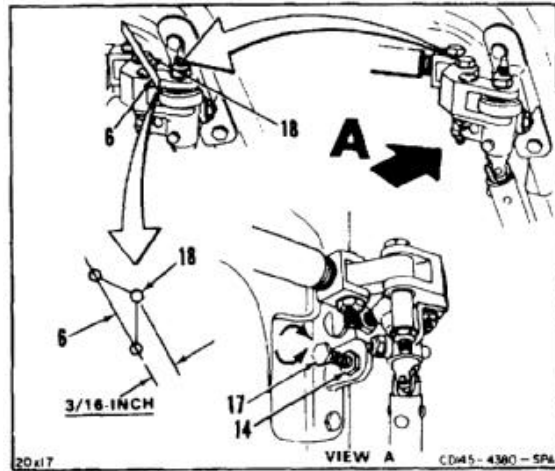
ADJUST UPPER LINK OVERTRAVEL

11. Open sliding window (1) to full detent.
12. Loosen locknut (14).
13. Lock window (1) in open position.
14. Position straightedge (6) between center of bolt (15) and center of bolt (16).



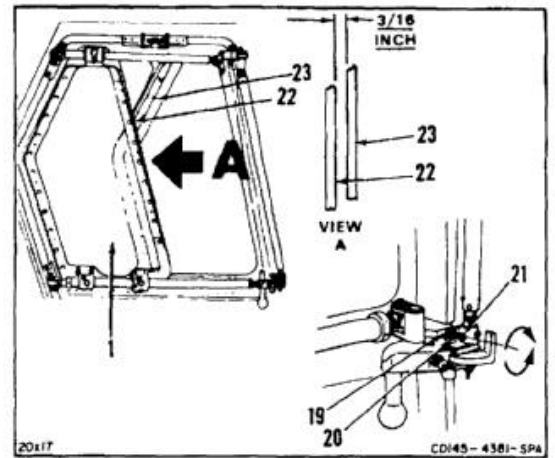
15. Turn stop bolt (17) clockwise or counterclockwise until distance between straightedge (6) and bolt (18) is **3/16 inch**.
16. Tighten locknut (14).

INSPECT

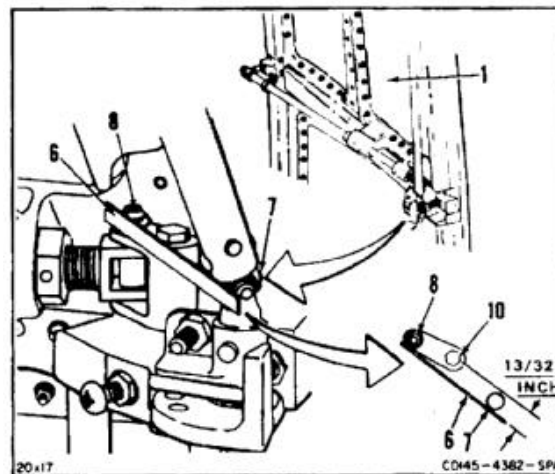


ADJUST CENTER POST CLEARANCE

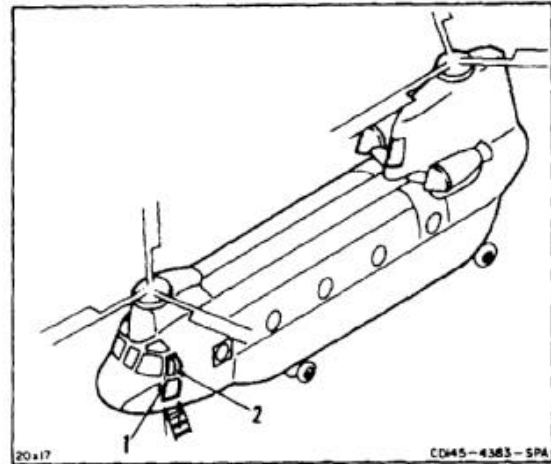
17. Open sliding window (1) to full detent position.
18. Loosen locknuts (19 and 20).
19. Turn stop screw (21) clockwise or counterclockwise until gap between frame (22) of sliding window and center post (23) is **3/16 inch**.



20. Close and lock sliding window (1).
21. Position straightedge (6) between pin (7) and bolt (8).
22. Check distance from straightedge (6) to bolthead (10). Distance shall be **13/32 inch**.



23. From outside, check top and bottom edges of window (1). Window shall fair to contour of door (2) within **1/16 inch**. If it does not, repeat steps 17 thru 22.

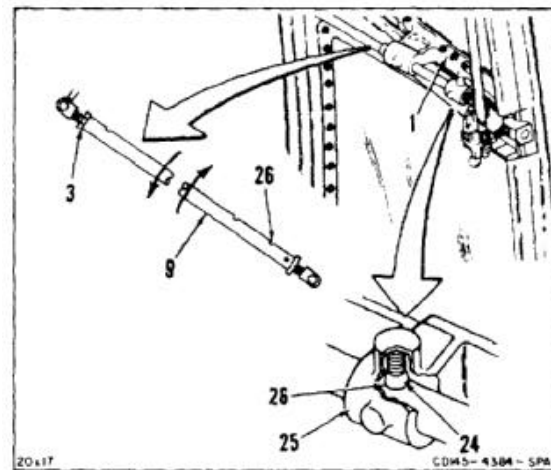
INSPECT**ADJUST DETENT**

24. Close sliding window (1).
 25. Loosen locknut (3).
 26. Turn connecting link (9) clockwise or counterclockwise until detent ball (24) in window guide (25) drops into detent hole (26).

NOTE

Detent ball will click when it drops into detent hole.

27. Torque locknut (3) to **100 inch-pounds**.

INSPECT**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

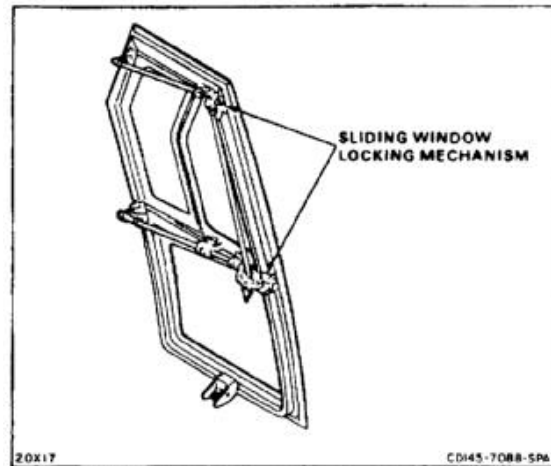
None

Personnel Required:

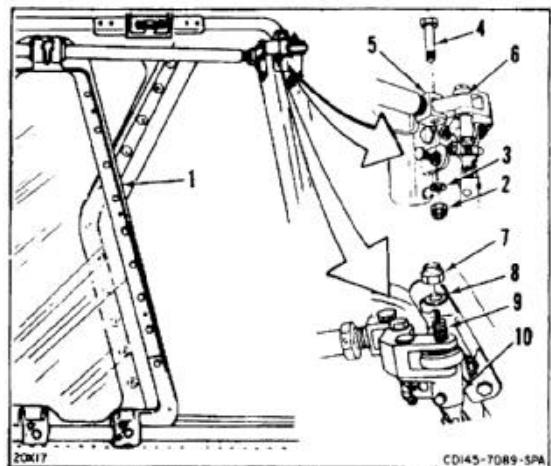
Medium Helicopter Repairer

Equipment Condition:

Off Helicopter Task



1. Open sliding window (1).
2. Remove nut (2), washer (3), and bolt (4) from clevis (5) and link (6).
3. Remove nut (7) and washer (8) from fitting (9) on torque tube (10).

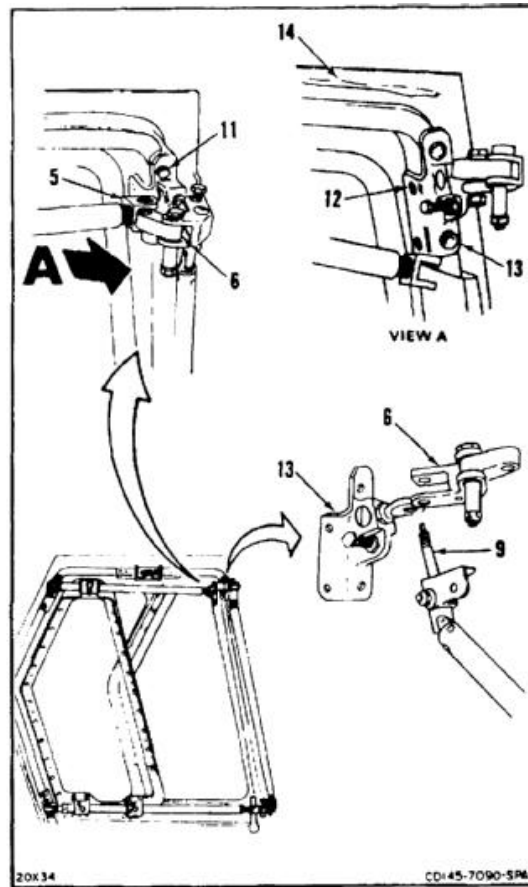


4. Remove clevis (5) from link (6).
5. Remove two bolts (11) and two screws (12) from support (13) and jettisonable door (14).

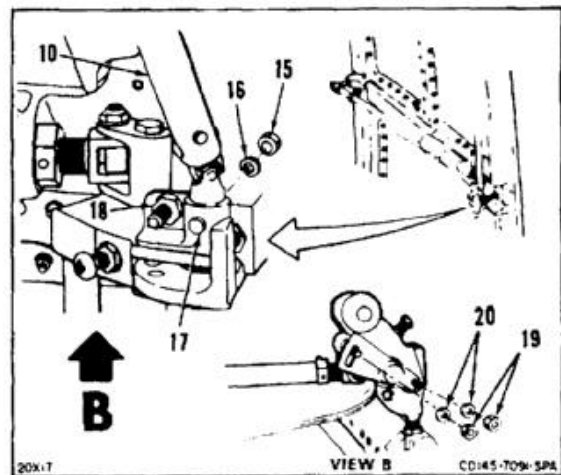
NOTE

Detent ball and spring will fall out of detent housing if housing is tilted.
Remove housing with care.

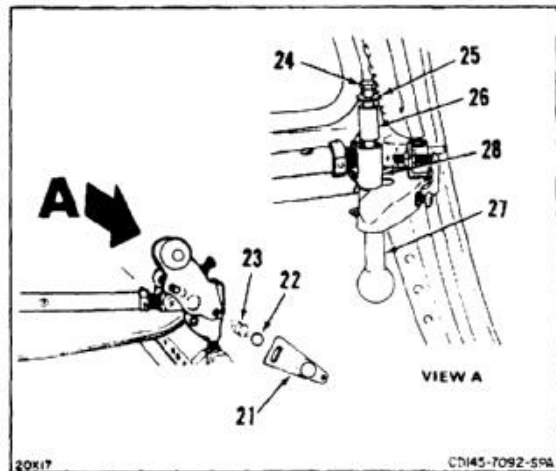
6. Remove support (13) and link (6) from torque tube fitting (9).



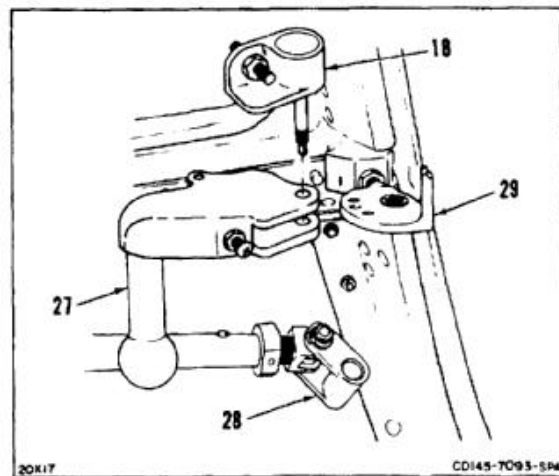
7. Remove nut (15), washer (16), and tapered pin (17) from torque tube (10) and fitting (18).
8. Remove torque tube (10) from fitting (18).
9. Remove two nuts (19) and washers (20).



10. Remove detent housing (21), ball (22), and spring (23).
11. Remove bolt (24), washer (25), and spacer (26) from bellcrank (27) and link (28).



12. Remove link (28) from bellcrank (27).
13. Remove fitting (18) from bellcrank (27).
14. Remove bellcrank (27) from support (29).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-370

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

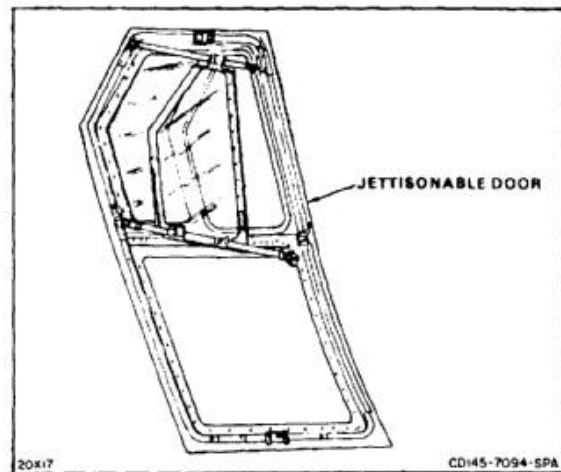
None

Personnel Required:

Medium Helicopter Repairer
Inspector

References:

TM 55-1520-240-23P

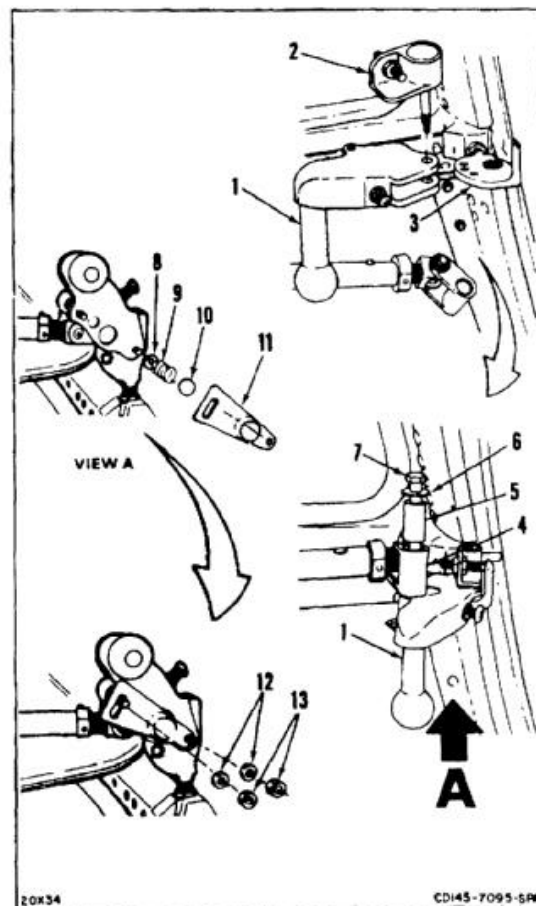


1. Install bellcrank (1) and fitting (2) on support (3).
2. Install spacer (5), washer (6), and bolt (7) on link (4) and bellcrank (1).

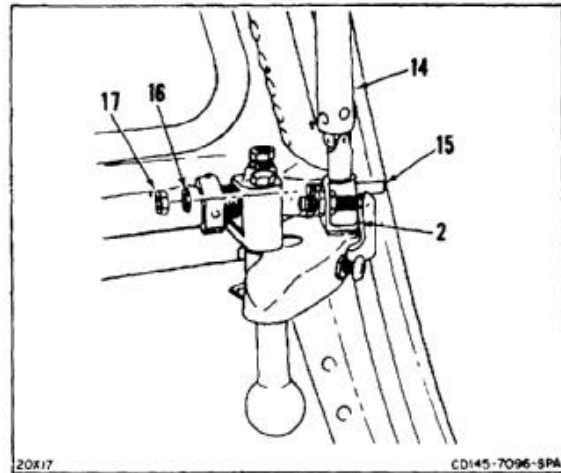
NOTE

Detent ball and spring will fall out of housing if housing is tilted. Install ball, spring, and housing with care.

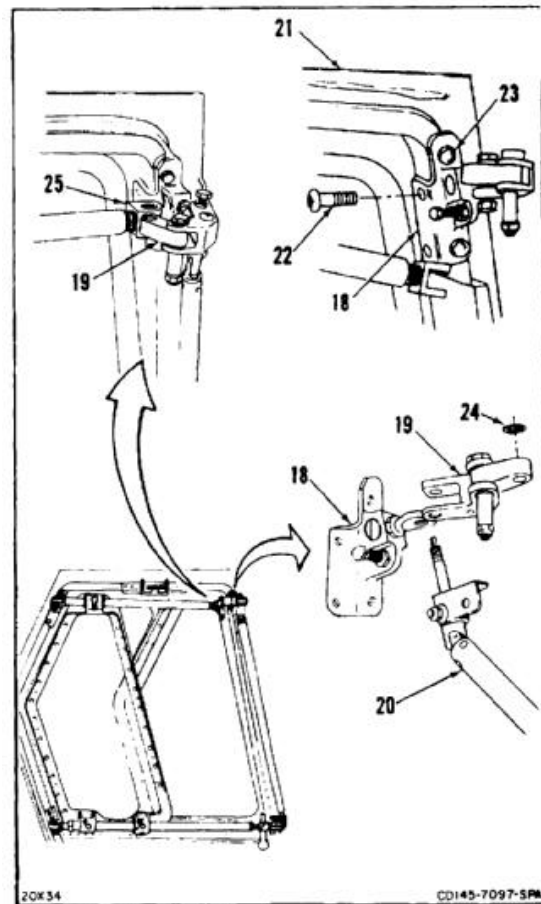
3. Install washer (8), spring (9), ball (10), and housing (11).
4. Install two washers (12) and nuts (13).



5. Position torque tube (14) in fitting (2) and align holes. Install tapered pin (15), washer (16), and nut (17).

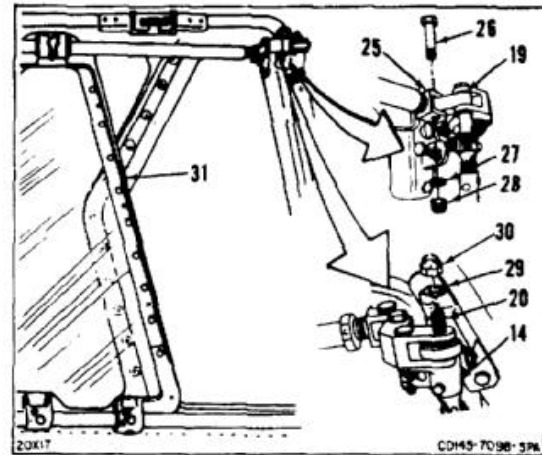


6. Align holes in support (18) and link (19). Position support and link on torque tube fitting (20).
7. Align holes in support (18) and jettisonable door (21). Install two screws (22) and two bolts (23).
8. Position washer (24) and clevis (25) on link (19) and align holes.



2-100 INSTALL JETTISONABLE DOOR SLIDING WINDOW LOCKING MECHANISM (Continued) 2-100

9. Install bolt (26), washer (27), and nut (28) in clevis (25) and link (19).
10. Install washer (29) and nut (30) on fitting (20) of torque tube (14).
11. Close window (31).

INSPECT**FOLLOW-ON MAINTENANCE:**

- Install jettisonable door (Task 2-89).
- Adjust jettisonable door sliding window (Task 2-98).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

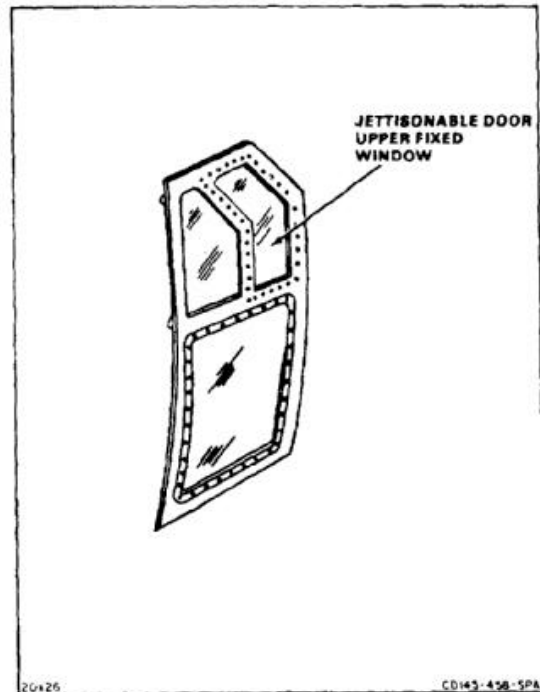
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

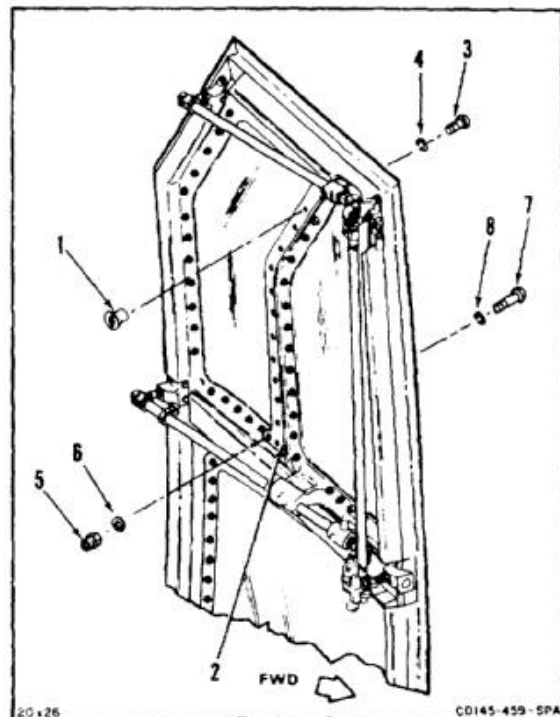
Off Helicopter Task



NOTE

Procedure is same for pilot's or copilot's jettisonable door. Copilot's jettisonable door is shown here.

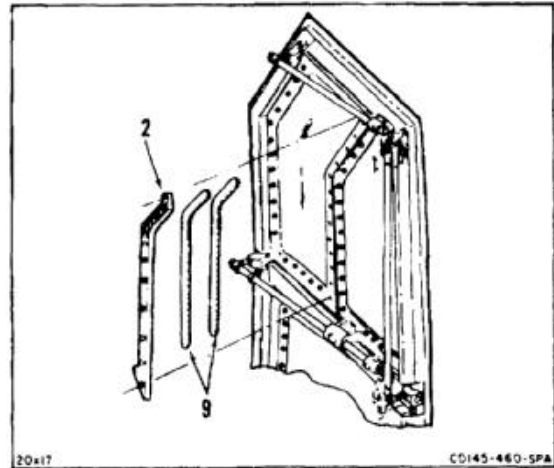
1. Remove 14 nuts (1) from center post (2). Remove 14 screws (3) and washers (4).
2. Remove two nuts (5), washers (6), screws (7), and washers (8).



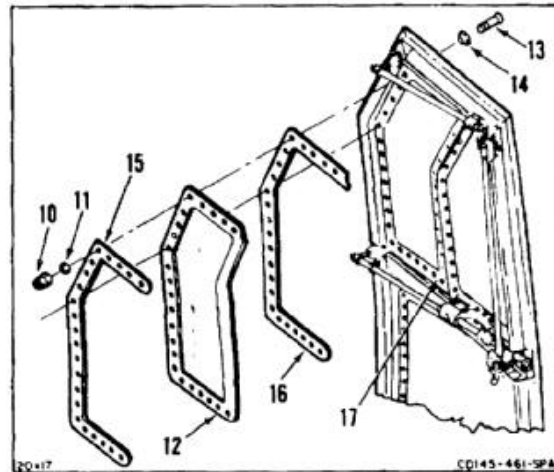
2-101 REMOVE JETTISONABLE DOOR UPPER FIXED WINDOW (Continued)

2-101

3. Remove center post (2) and two seals (9).



4. Remove 20 nuts (10) and washers (11) from around window panel (12).
5. Remove 20 screws (13) and washers (14).
6. Remove retainer (15) from window panel (12).
7. Remove window panel (12).
8. Remove seal (16) from frame (17) and window panel (12).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Torque Wrench, 5 to 50 Inch-Pounds

Materials:

None

Parts:

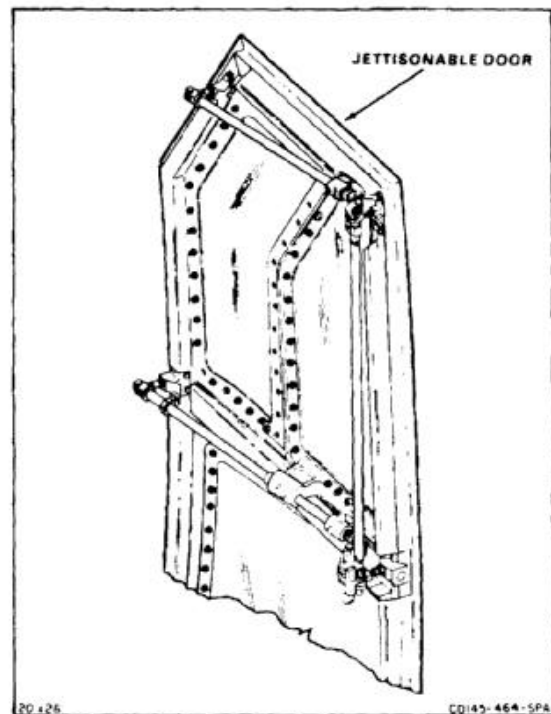
Seals As Required

Personnel Required:

Medium Helicopter Repairer
Inspector

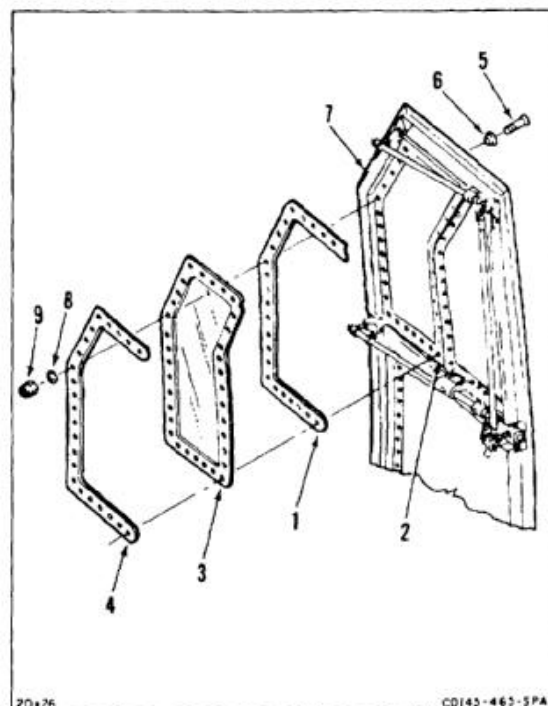
References:

TM 55-1520-240-23P

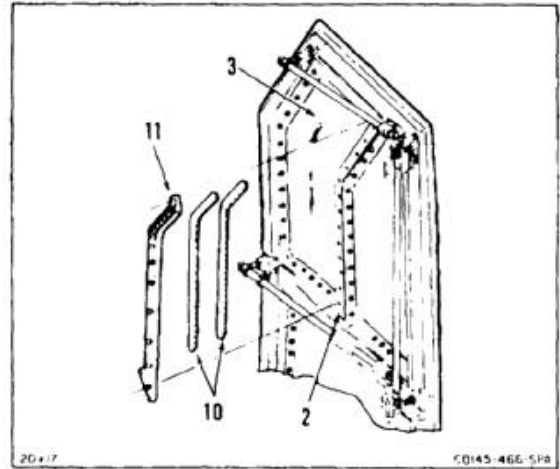
**NOTE**

Procedure is same for pilot's or copilot's jettisonable door. Copilot's jettisonable door is shown here.

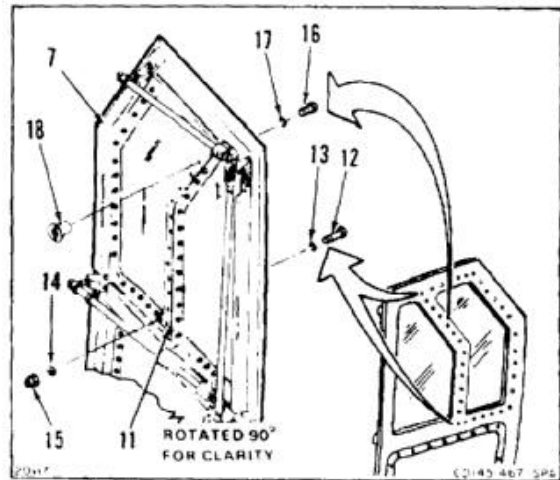
1. Install seal (1) on window frame (2).
2. Install window panel (3) on seal (1).
3. Install retainer (4) on window panel (3).
4. Align screw holes through retainer (4), window panel (3), seal (1), and window frame.
5. Install 20 screws (5) and washers (6) from outside of door (7).
6. Install 20 washers (8) and nuts (9).



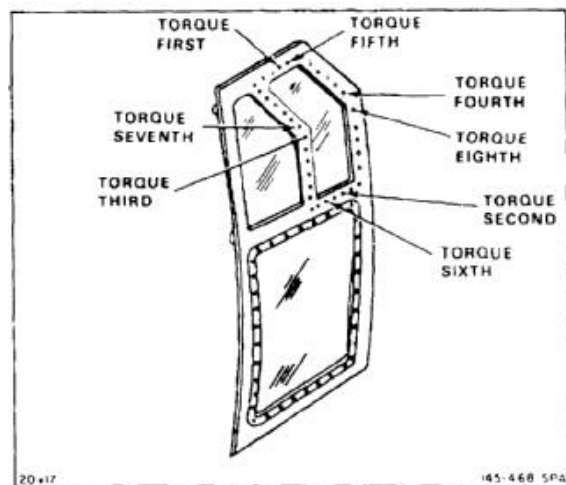
7. Install two seals (10) and center post (11).
8. Align screw holes through center post (11), seals (10), panel (3), and window frame (2).



9. From outside of door (7), install two screws (12) and washers (13) through top and bottom holes of center post (11).
10. Install two washers (14) and nuts (15).
11. From outside of door (7), install 14 screws (16) and washers (17) through center post (11).
12. Install 14 nuts (18) on screws (16).



13. Following torque sequence shown, torque all window screws to **12 inch-pounds**. Use torque wrench.



INSPECT

FOLLOW-ON MAINTENANCE:

Check window for leaks (Task 2-61).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

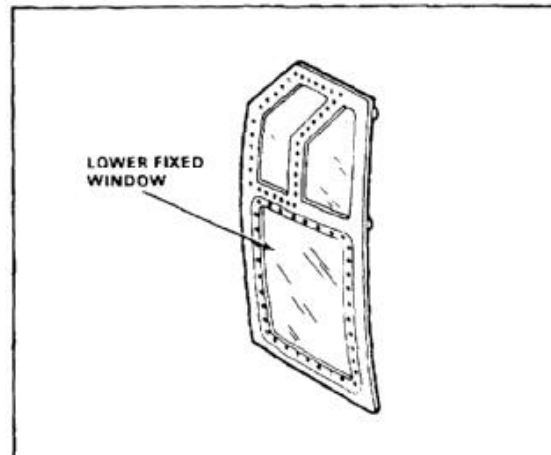
Tape (E348)

Personnel Required:

Medium Helicopter Repairer

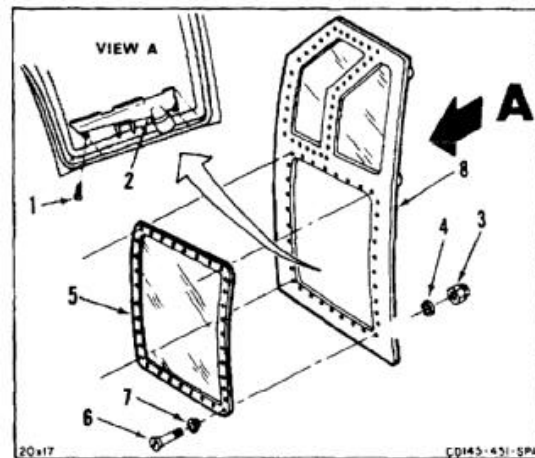
Equipment Condition:

Off Helicopter Task

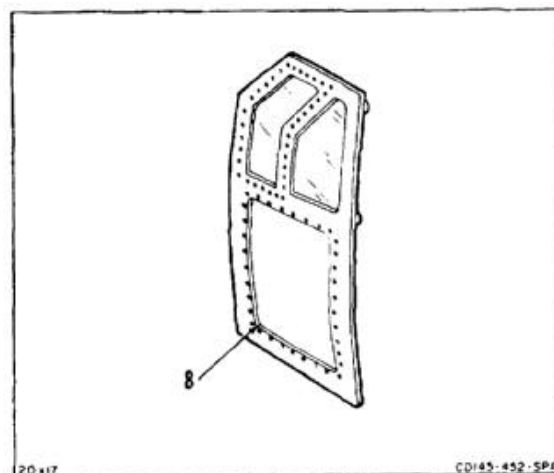
**NOTE**

Procedure is same for pilot's or copilot's jettisonable door. Pilot's jettisonable door is shown here.

1. Remove two screws (1) from duct (2). Remove duct.
2. Remove 43 nuts (3) and washers (4) from around window panel (5).
3. Remove 43 screws (6) and washers (7) from around panel (5).
4. Remove panel (5) from frame (8).
5. Check that sealant tape on window frame (8) is not loose, cut, or nicked. If tape is damaged, remove it and install new sealant tape (E348).

**FOLLOW-ON MAINTENANCE:**

None



END OF TASK

2-378

2-104 INSTALL JETTISONABLE DOOR LOWER FIXED WINDOW

2-104

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Torque Wrench, 5 to 50 Inch-Pounds

Materials:

None

Personnel Required:

Medium Helicopter Repairer
Inspector

References:

TM 55-1520-240-23P

Equipment Condition:

Off Helicopter Task

NOTE

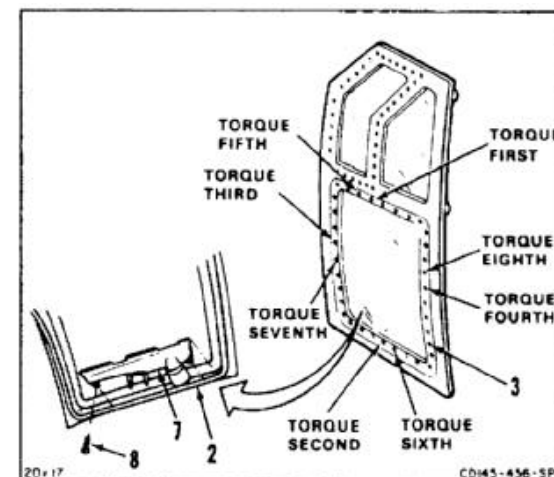
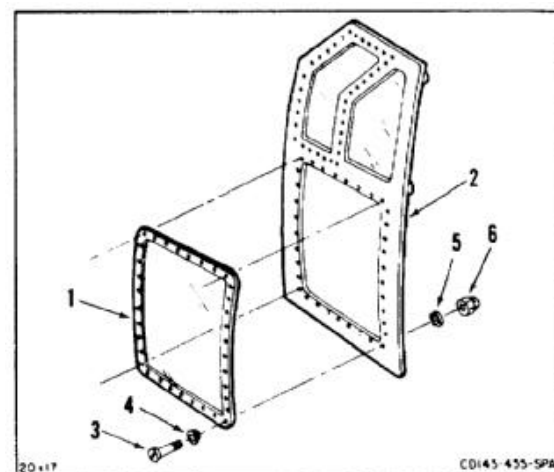
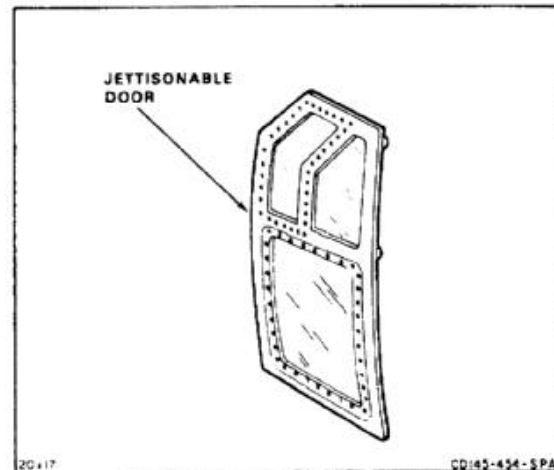
Procedure is same for pilot's or copilot's jettisonable door. Pilot's jettisonable door is shown here.

1. Install window panel (1) on window frame (2).
2. Align screw holes in window panel (1) and window frame (2).
3. Install 43 screws (3) and washers (4) from outside of window panel (1).
4. Install 43 washers (5) and nuts (6) on screws (3).
5. Torque screws (3) to **12 inch-pounds**. Use torque wrench. Torque screws, following torque sequence shown, until all screws have been torqued.
6. Position duct (7) on frame (2). Install two screws (8).

INSPECT**FOLLOW-ON MAINTENANCE:**

Install jettisonable door (Task 2-89).
Check window for leaks (Task 2-61).

END OF TASK



INITIAL SETUP

Applicable Configurations:

All

Tools:

Dial Indicating Scale, 0 to 70 Pounds
 Push-Pull Scale, 0 to 80 Pounds

Materials:

None

Personnel Required:

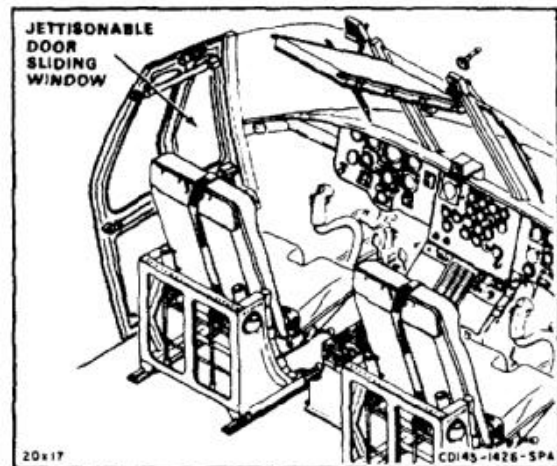
Medium Helicopter Repairer

References:

Task 2-87
 Task 2-93
 Task 2-95
 Task 2-99
 Task 2-100
 Task 2-343

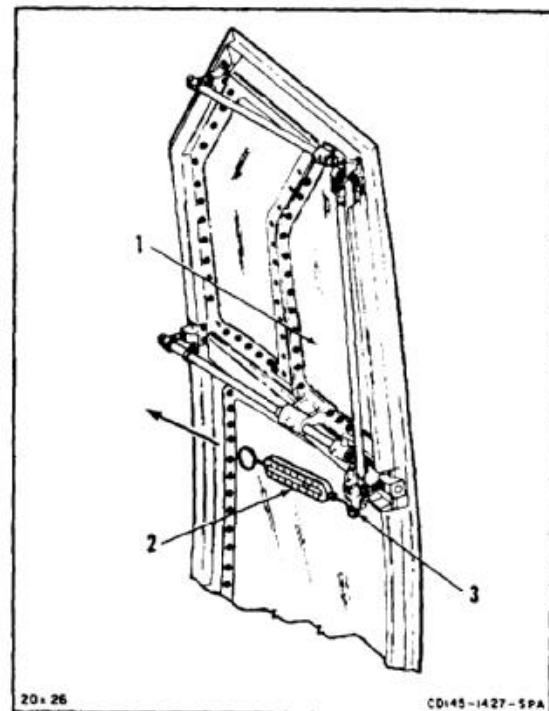
Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off

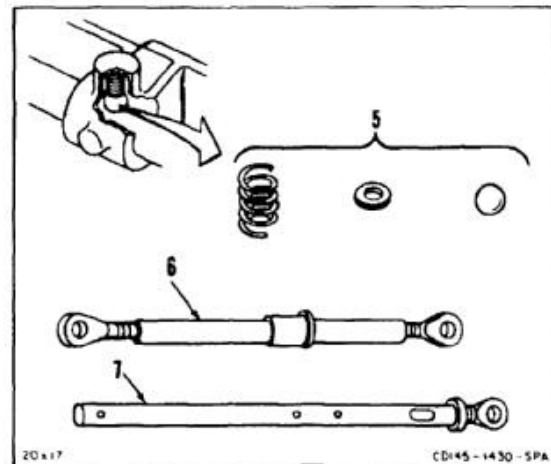
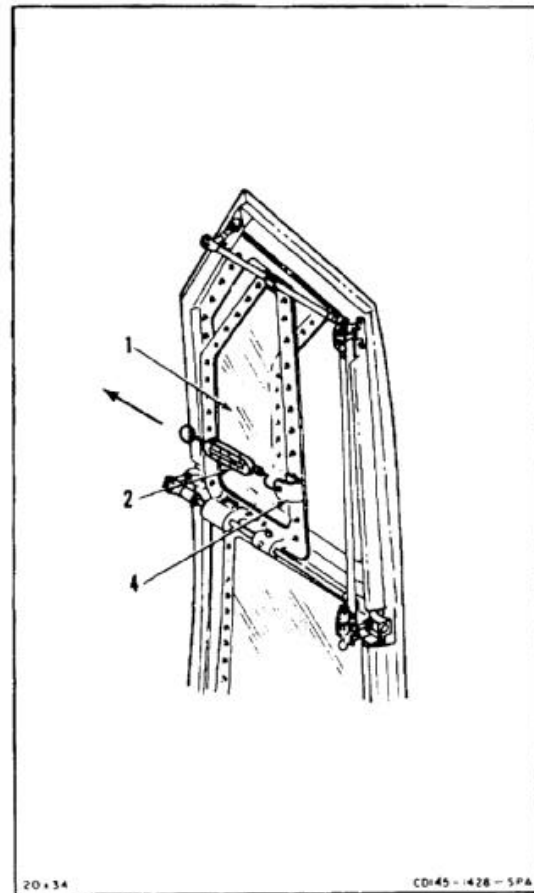
**NOTE**

Procedure is same for pilot's or copilot's sliding window. Copilot's sliding window is shown here.

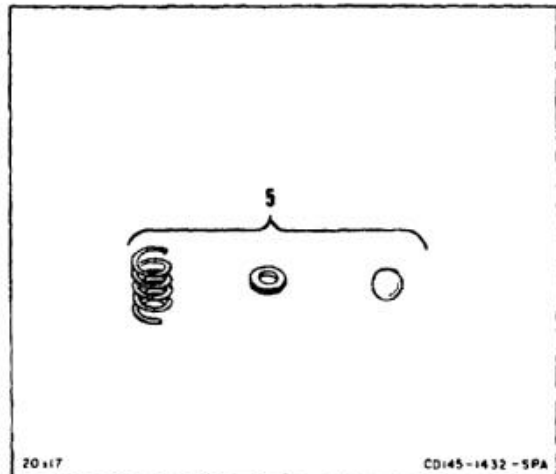
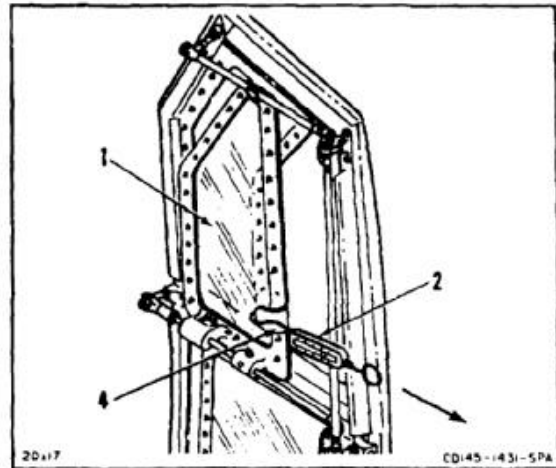
1. Make sure sliding window (1) is closed and locked.
2. Place hook of scale (2) on window handle (3).
3. Pull handle (3) with scale (2) to unlock window (1), while watching scale. Reading should be **50 pounds** maximum. If it is less, go to step 4. If reading is more than **50 pounds**, perform the following:
 - a. Remove sliding window locking mechanism parts (Task 2-99).
 - b. Clean all sliding window locking mechanism parts.
 - c. Check all sliding window locking mechanism parts for corrosion. Remove all corrosion (Task 2-343).
 - d. Check all sliding window locking mechanism parts for cracks and breaks. Replace damaged parts (Task 2-100).



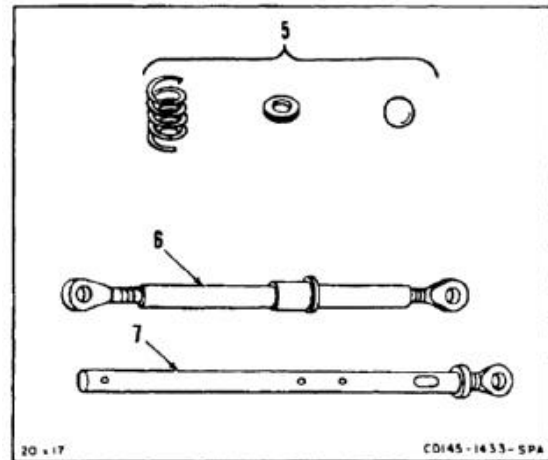
- e. Install sliding window locking mechanism parts (Task 2-100).
4. Place hook of scale (2) on handle (4).
 5. Pull handle (4) with scale (2) to move window (1) to full open position, while watching scale. Reading should be **15 pounds** maximum. If it is less, go to step 6. If reading is more than **15 pounds**, perform the following:
 - a. Clean sliding window connecting links (Task 2-87).
 - b. Move sliding window (1) to closed position.
 - c. Pull handle (4) with scale (2) to move window (1) to full open position, while watching scale. Reading should be **15 pounds** maximum. If it is less, go to step 6. If reading is more than **15 pounds**, go to step d.
 - d. Replace sliding window bushings (Task 2-95).
 - e. Make sure sliding window (1) is at closed position and unlocked.
 - f. Pull handle (4) with scale (2) to move window (1) to full open position, while watching scale. Reading should be **15 pounds** maximum. If it is less, go to step 6. If reading is more than **15 pounds** go to step g.
 - g. Remove sliding window locking mechanism parts (Task 2-99).
 - h. Check sliding window detent parts (5) for corrosion. Remove all corrosion (Task 2-343).
 - i. Check sliding window connecting links (6 and 7) and detent parts (5) for bends, burrs, and breaks. Replace damaged parts.
 - j. Install sliding window locking mechanism parts (Task 2-100).



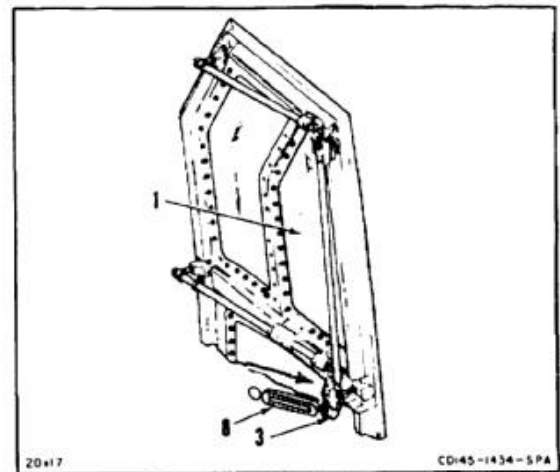
6. Place hook of scale (2) on handle (4).
7. Pull handle (4) with scale (2) to move window (1) to closed position, while watching scale. Reading should be **15 pounds** maximum. If it is less, go to step 8. If reading is more than **15 pounds**, perform the following:
 - a. Clean sliding window connecting links (Task 2-87).
 - b. Move sliding window (1) to open position.
 - c. Pull handle (4) with scale (2) to move sliding window (1) to closed position, while watching scale. Reading should be **15 pounds** maximum. If it is less, go to step 8. If reading is more than **15 pounds**, go to step d.
 - d. Replace sliding window bushings (Task 2-95).
 - e. Make sure sliding window (1) is at open position.
 - f. Pull handle (4) with scale (2) to move sliding window (1) to closed position, while watching scale. Pressure reading should be **15 pounds** maximum. If it is less, go to step 8. If reading is more than **15 pounds**, go to step g.
 - g. Remove sliding window locking mechanism parts (Task 2-100).
 - h. Check sliding window detent assembly parts (5) for corrosion. Remove all corrosion (Task 2-343).



- i. Check sliding window connecting links (6 and 7), and detent parts (5) for bends, burrs, and breaks. Replace damaged parts.
- j. Install sliding window locking mechanism parts (Task 2-100).



8. Place rod end of scale (8) against handle (3).
9. Push scale (8) against handle (3) to lock window (1), while watching scale. Reading should be **50 pounds** maximum. If it is less, go to step 10. If reading is more than **50 pounds**, perform the following:
 - a. Remove sliding window locking mechanism parts (Task 2-99).
 - b. Clean all sliding window locking mechanism parts.
 - c. Check all sliding window locking mechanism parts for corrosion. Remove all corrosion (Task 2-343).
 - d. Check all sliding window locking mechanism parts for cracks and breaks. Replace damaged parts.
 - e. Install sliding window locking mechanism parts (Task 2-100).
10. Remove scale (8) from handle (3).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Container, 14 Quart

Materials:

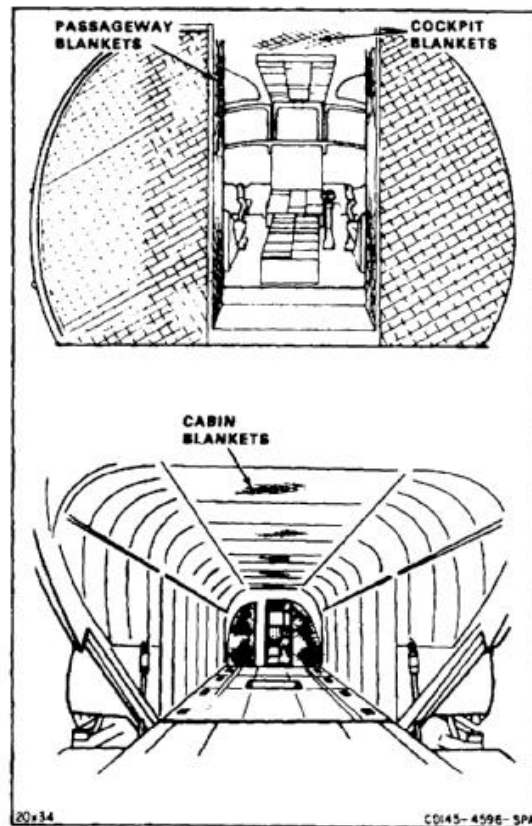
Dry Cleaning Solvent (E162)
Cloths (E120)
Gloves (E186)

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
Electric Power Off
Hydraulic Power Off

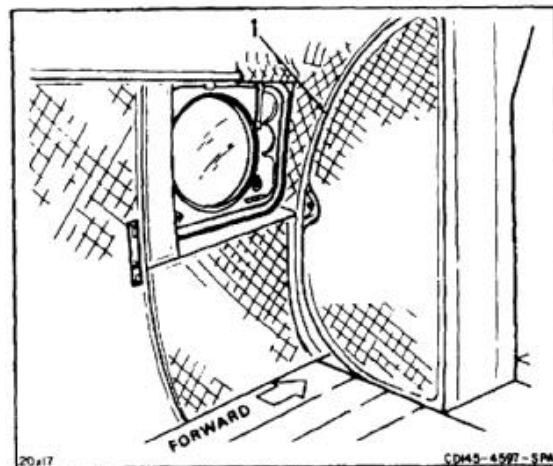
**WARNING**

Dry cleaning solvent (E162) is flammable and gives off toxic fumes. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

NOTE

Do not soak blanket with solvent.

1. Lightly rub blanket (1) with cloth (E120) wet with dry cleaning solvent (E162). Wear gloves (E186).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-384

2-107 REMOVE COCKPIT ACOUSTIC BLANKETS

2-107

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Personnel Required:

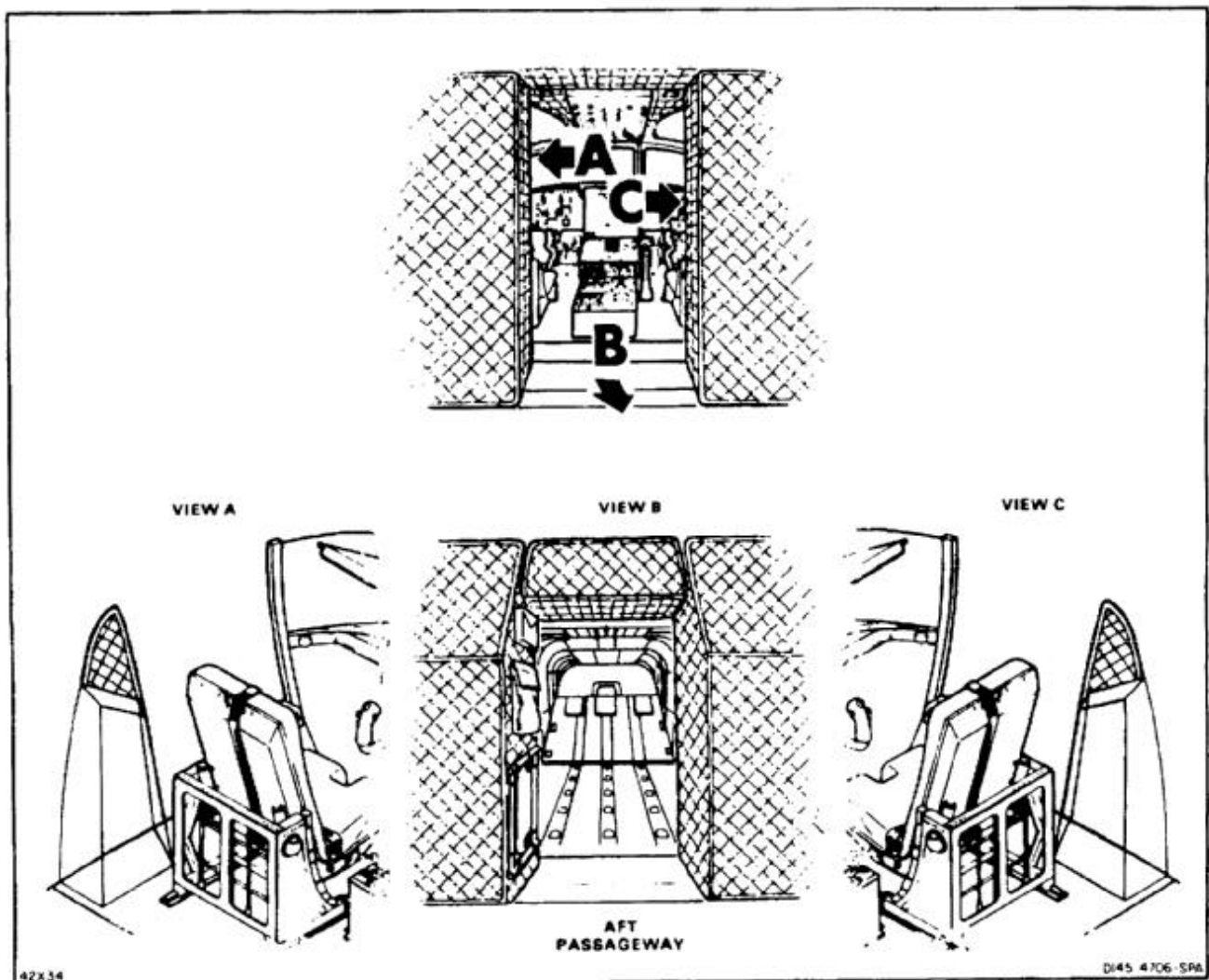
Medium Helicopter Repairer

References:

- Task 2-134
- Task 2-135

Equipment Condition:

- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Hydraulic Power Off



NOTE

Procedure is same to remove overhead acoustic blanket on pilot's or copilot's side. Removal of copilot's blanket is shown here.

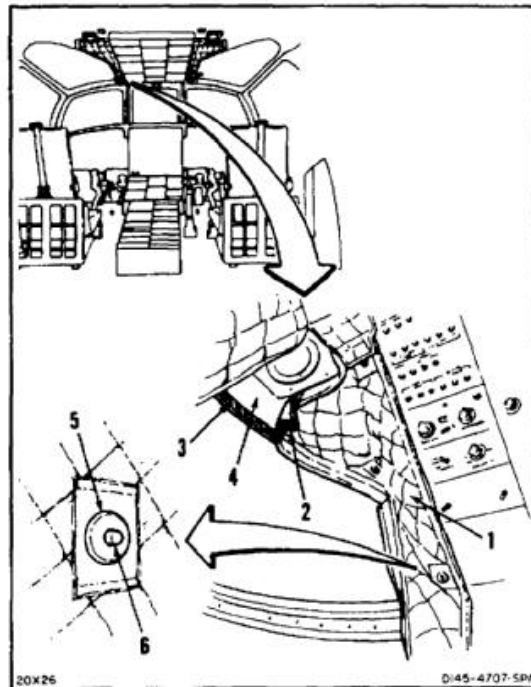
REMOVE OVERHEAD BLANKETS

1. Pull back edges of overhead blanket (1) and separate hook tape (2) on blanket from pile tape (3) on structure (4).

NOTE

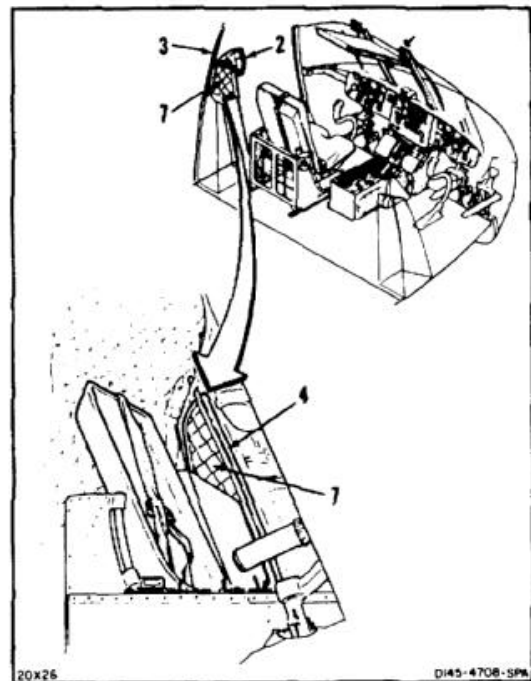
Disconnect fasteners from studs by pulling back that part of blanket around studs.

2. Disconnect socket fasteners (5) on blanket (1) from studs (6) on structure (4).
3. Remove blanket (1).

**REMOVE SIDE BLANKETS****NOTE**

Procedure is same to remove side acoustic blanket on pilot's or copilot's side. Removal of copilot's blanket is shown here.

4. Pull back edges of side blanket (7) and separate hook tape (2) on blanket from pile tape (3) on structure (4).
5. Remove blanket (7).



REMOVE BULKHEAD BLANKETS**NOTE**

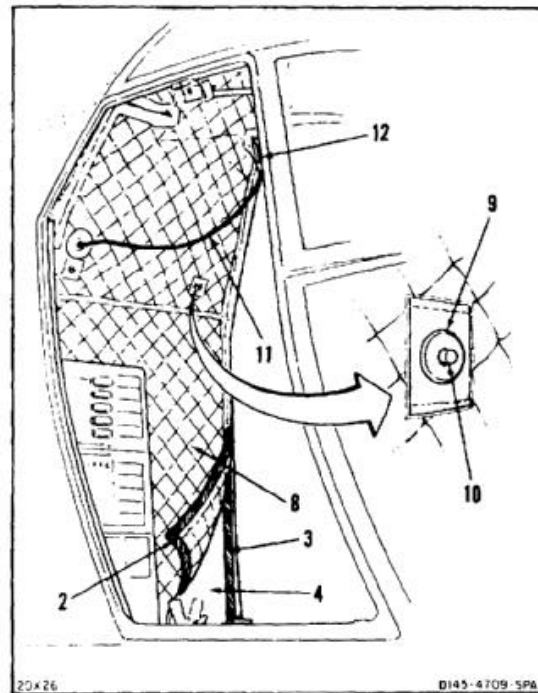
Procedure is same to remove bulkhead acoustic blanket on pilot's or copilot's side. Removal of copilot's blanket is shown here.

6. Pull back edges of bulkhead blanket (8) and separate hook tape (2) on blanket from pile tape (3) on structure (4).

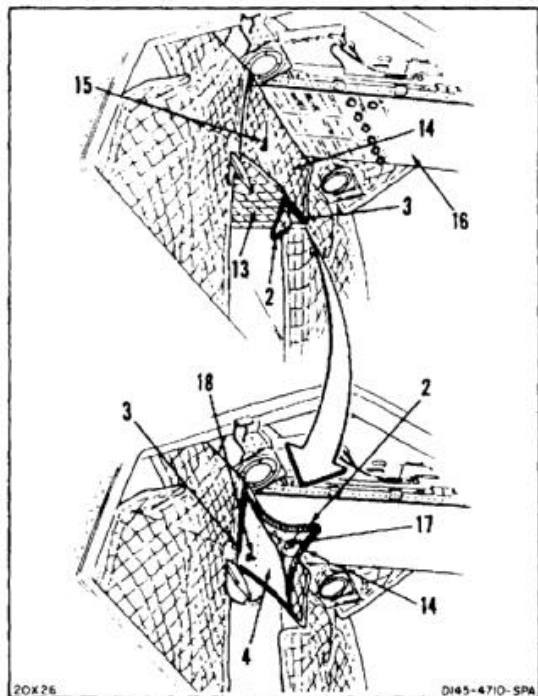
NOTE

Disconnect fasteners from studs by pulling back that part of blanket around studs.

7. Disconnect six fasteners (9) on blanket (8) from studs (10) on structure (4).
8. Pull blanket (8) away from structure (4).
9. Pull interphone cable (11) through hole in blanket (8).
10. Pull strap (12) through hole in blanket (8).

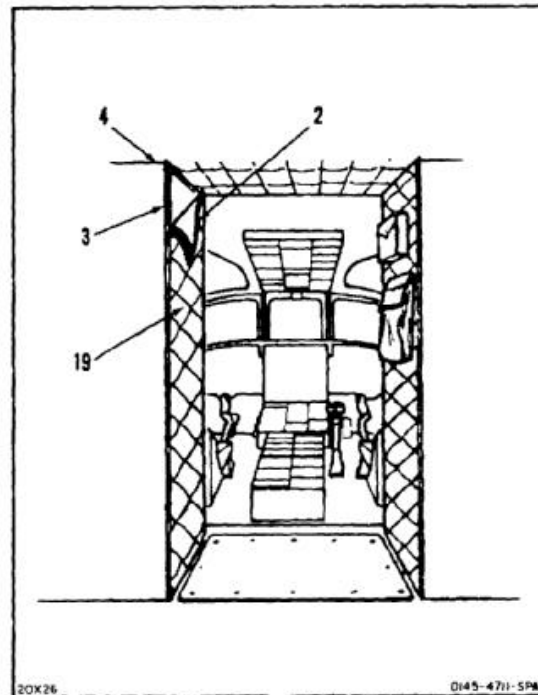


11. Pull back overlapping edge of passageway forward overhead blanket (13) and separate hook tape (2) on blanket from pile tape (3) on bulkhead center blanket (14).
12. Remove two bolts (15) and lower overhead switch panel (16).
13. Pull back edges of blanket (14) and separate hook tape (2) on blanket from pile tape (3) on structure (4).
14. Disconnect six fasteners (17) on blanket (14) from studs (18) on structure (4).
15. Remove blanket (14).

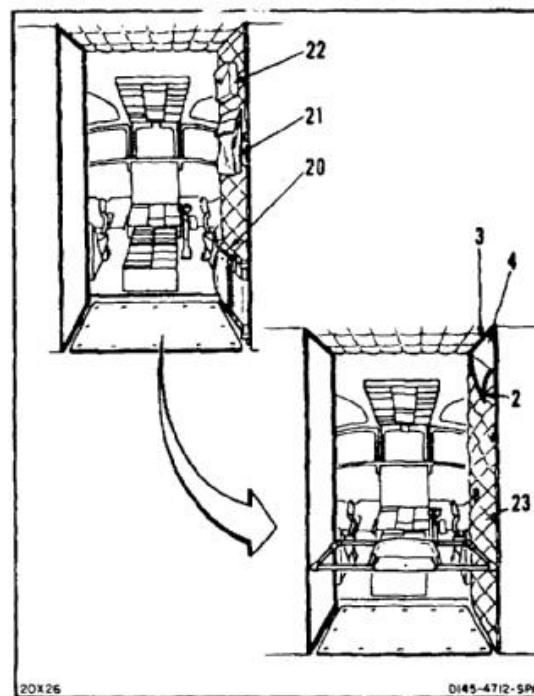


REMOVE PASSAGE WAY BLANKETS

16. Pull back edges of left passageway blanket (19) and separate hook tape (2) on blanket from pile tape (3) on structure (4).
17. Remove blanket (19).



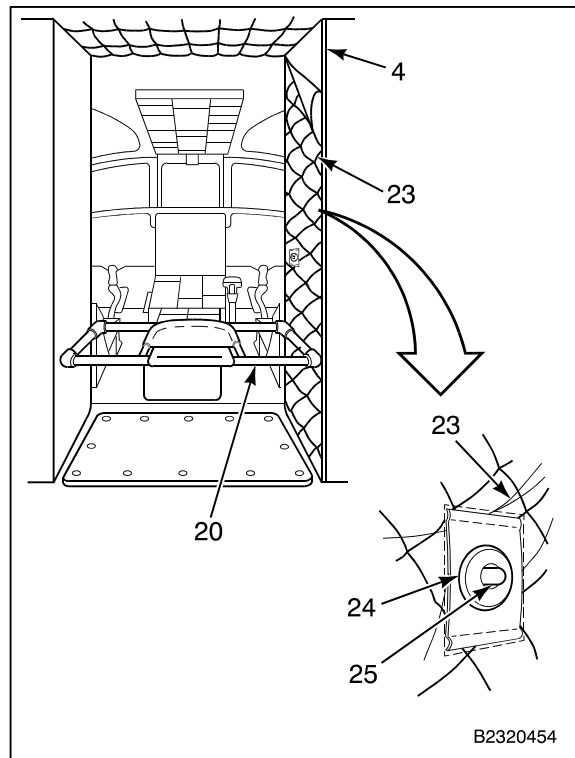
18. Unstow troop commander's seat (20) (Task 2-135).
19. Remove map case (21).
20. Remove first-aid kit (22).
21. Pull back edges of right passageway blanket (23) and separate hook tape (2) on blanket from pile tape (3) on structure (4).



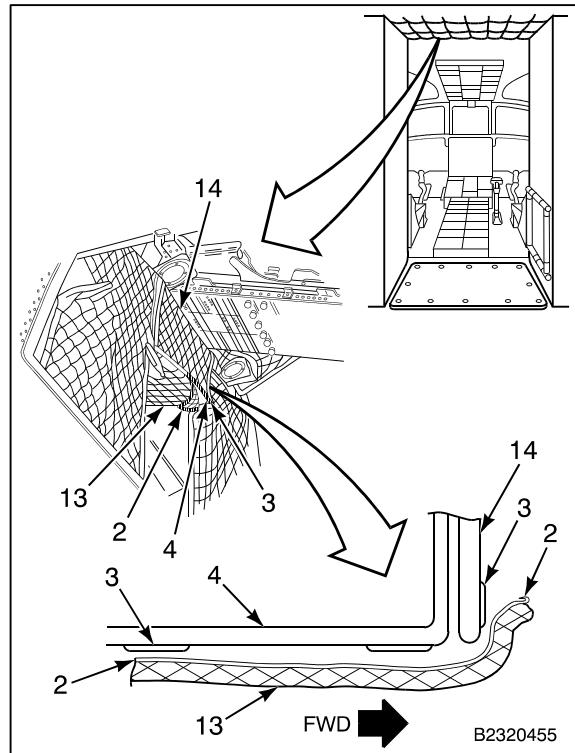
NOTE

Disconnect fasteners from studs by pulling back that part of blanket around studs.

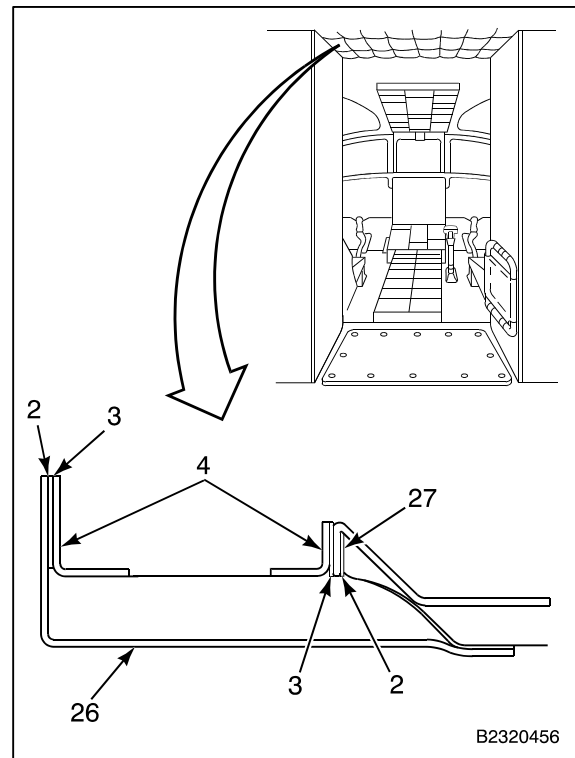
- 22. Disconnect four socket fasteners (24) on blanket (23) from studs (25) on structure (4).
- 23. Remove blanket (23).
- 24. Stow troop commander's seat (20) (Task 2-134).



- 25. Pull back edge of passageway forward overhead blanket (13) and separate hook tape (2) on blanket from pile tape (3) on bulkhead center blanket (14) and structure (4).
- 26. Remove blanket (13).



27. Pull back edge of passageway aft overhead blanket (26) and separate hook tape (2) from pile tape (3) on structure (4).
28. Pull back inner flap (27) on blanket (26) and separate hook tape (2) on flap from pile tape (3) on structure (4).
29. Remove blanket (26).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-390

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Personnel Required:

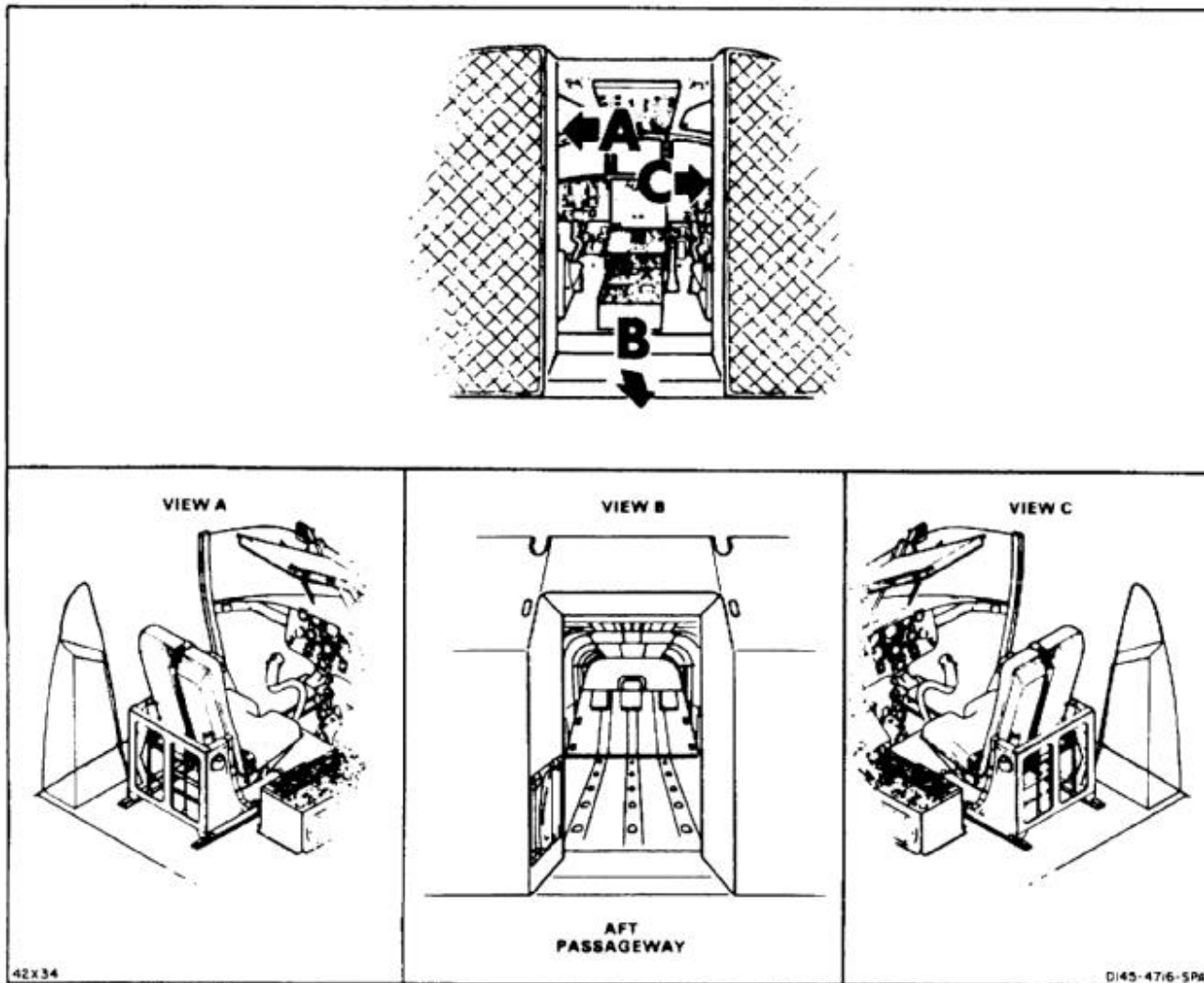
Medium Helicopter Repairer

References:

TM 55-1520-240-23P

Task 2-134

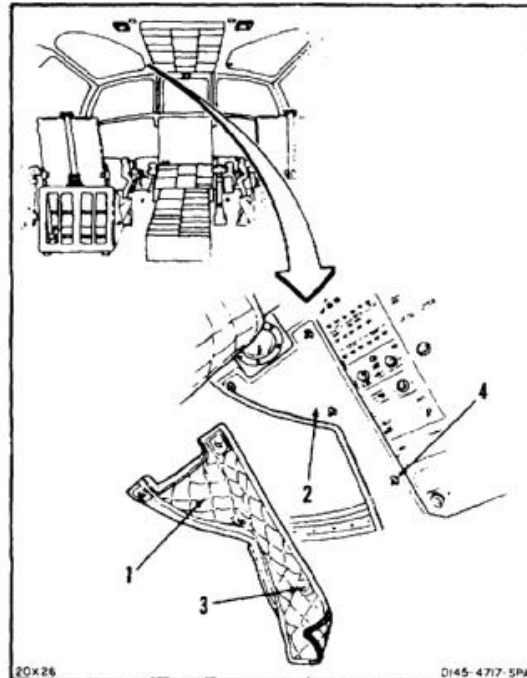
Task 2-135



INSTALL OVERHEAD BLANKETS**NOTE**

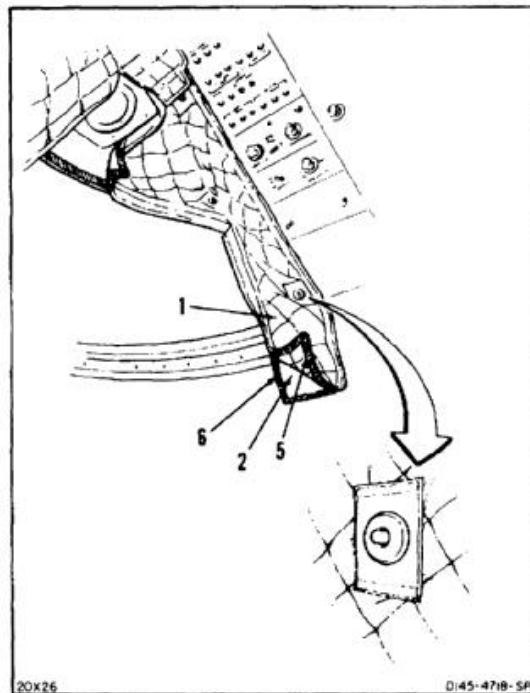
Procedure is same to install overhead acoustic blanket on pilot's or copilot's side. Installation of copilot's blanket is shown here.

1. Position overhead blanket (1) on structure (2) with socket fasteners (3) aligned with studs (4).
2. Press four socket fasteners (3) on studs (4).

**NOTE**

To make blanket fit tight, hold blanket at edge and pull away from stud.

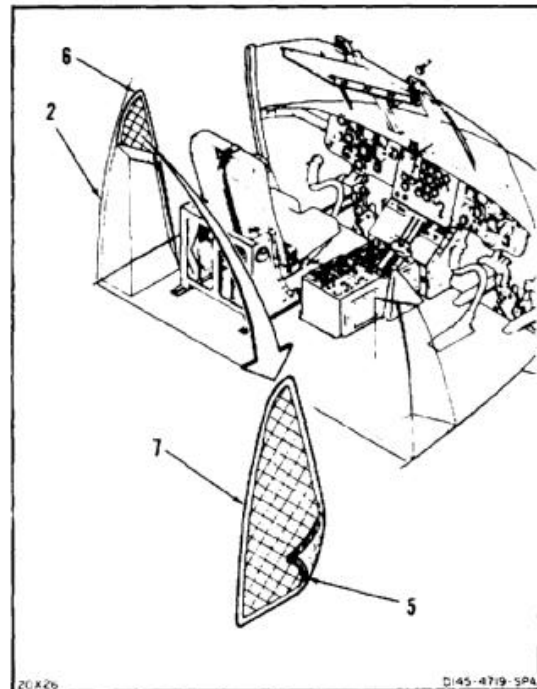
3. Press hook tape (5) on blanket (1) to pile tape (6) on structure (2).
4. Press edges of blanket (1) tight against structure (2). Make sure there are no gaps between blanket and structure.



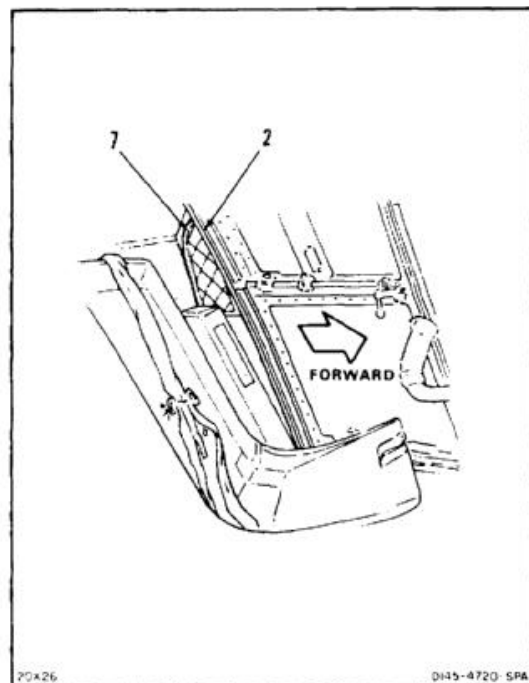
INSTALL SIDE BLANKETS**NOTE**

Procedure is same to install side acoustic blanket on pilot's or copilot's side. Installation of copilot's blanket is shown here.

5. Position side blanket (7) with edge of blanket aligned with edge of structure (2).
6. Press hook tape (5) on blanket (7) to pile tape (6) on structure (2).

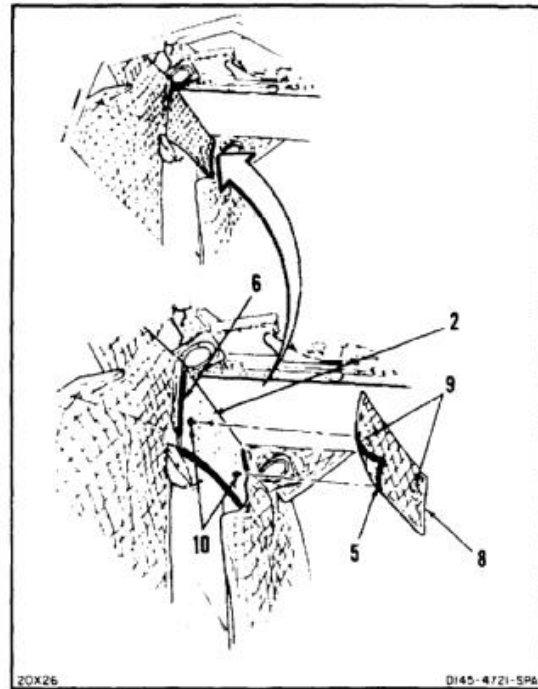


7. Press edges of blanket (7) tight against structure (2). Make sure there are no gaps between blanket and structure.

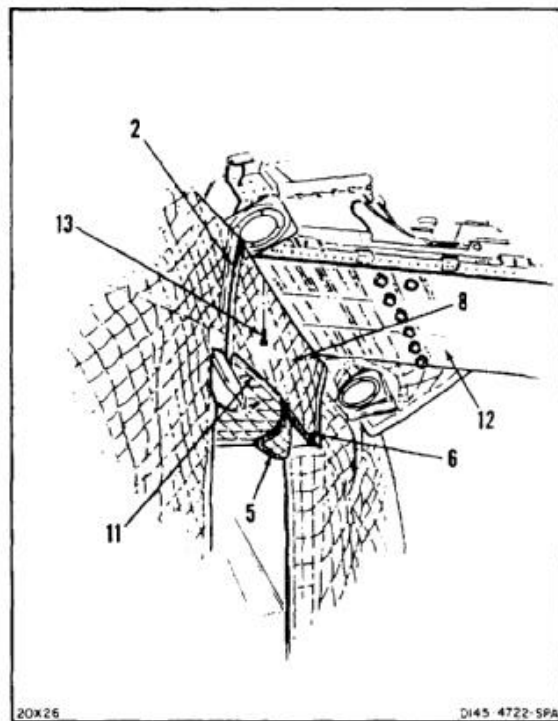


INSTALL BULKHEAD BLANKETS

8. Position bulkhead center blanket (8) on structure (2) with socket fasteners (9) aligned with studs (10).
9. Press three fasteners (9) on studs (10).
10. Press hook tape (5) on blanket (8) to pile tape (6) on structure (2).



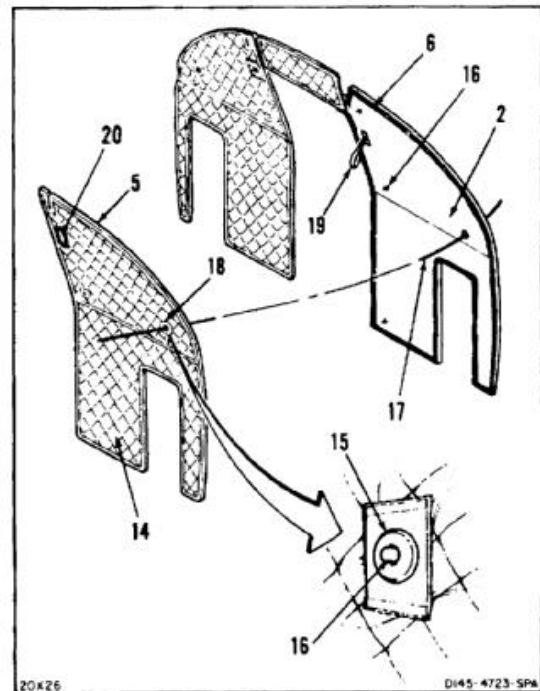
11. Press edges of blanket (8) tight against structure (2). Make sure there are no gaps between blanket and structure.
12. Press hook tape (5) on forward overhead passage blanket (11) to pile tape (6) on blanket (8).
13. Press edge of blanket (11) tight against blanket (8). Make sure there are no gaps between blanket and structure.
14. Raise overhead switch panel (12) and install two bolts (13).



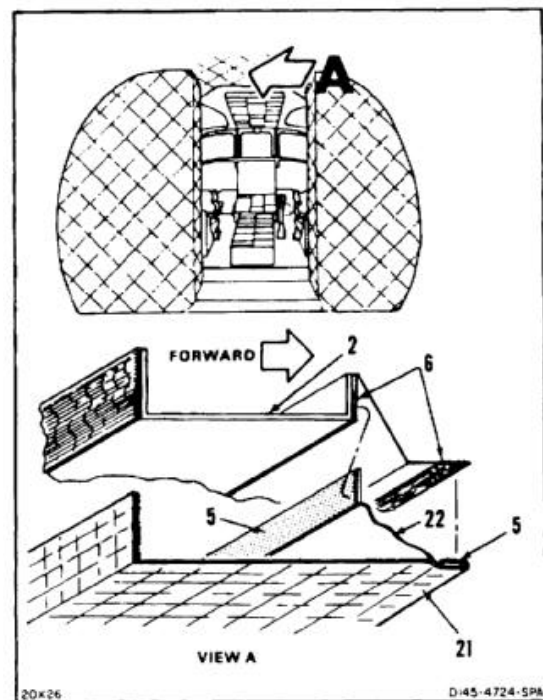
NOTE

Procedure is same to install acoustic blanket on pilot's or copilot's side of cockpit bulkhead. Installation of copilot's blanket is shown here.

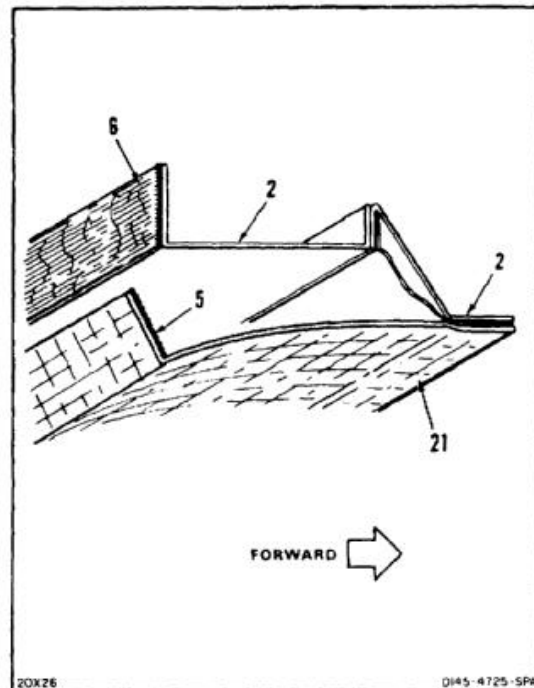
15. Position bulkhead left blanket (14) on structure (2) with socket fasteners (15) aligned with studs (16).
16. Press six fasteners (15) on studs (16).
17. Pull interphone cable (17) through hole (18). Pull strap (19) through hole (20).
18. Press hook tape (5) on blanket (14) to pile tape (6) on structure (2).
19. Press edges of blanket (14) tight against structure (2). Make sure there are no gaps between blanket and structure.

**INSTALL PASSAGE WAY BLANKETS**

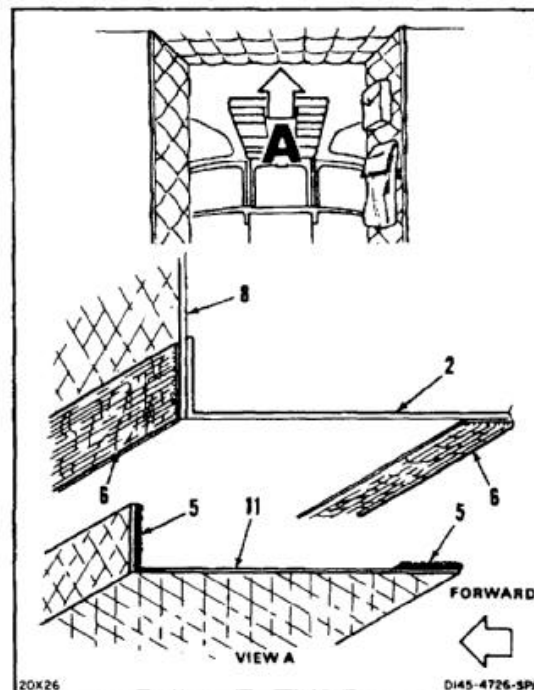
20. Position aft overhead passageway blanket (21) on structure (2) with flap (22) aligned with structure.
21. Press hook tape (5) on flap (22) to pile tape (6) on structure (2).
22. Press edges of flap (22) tight against structure (2). Make sure there are no gaps between blanket and structure.



23. Press hook tape (5) on blanket (21) to pile tape (6) on structure (2).
24. Press edges of blanket (21) tight against structure (2). Make sure there are no gaps between blanket and structure.



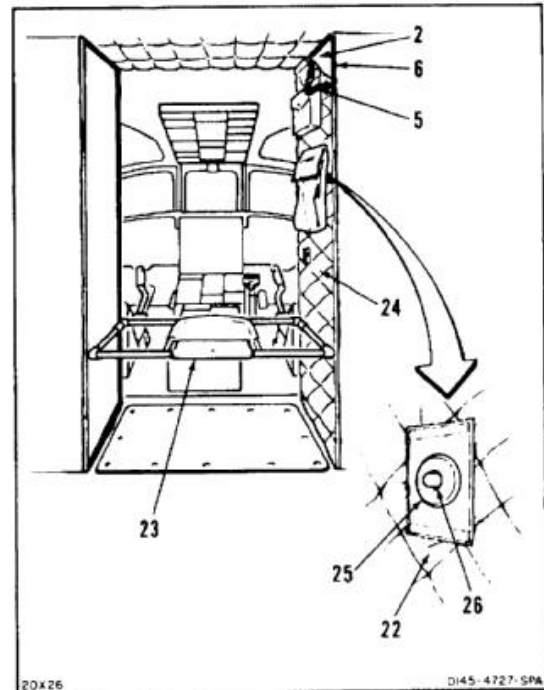
25. Position forward overhead passageway blanket (11) on structure (2) with hook tape (5) on blanket aligned with pile tape (6) on structure and on bulkhead center blanket (8).
26. Press hook tape (5) on blanket (11) to pile tape (6) on structure (2) and blanket (8).
27. Press edges of blanket (11) tight against blanket (8) and structure (2). Make sure there are no gaps between blanket and structure.



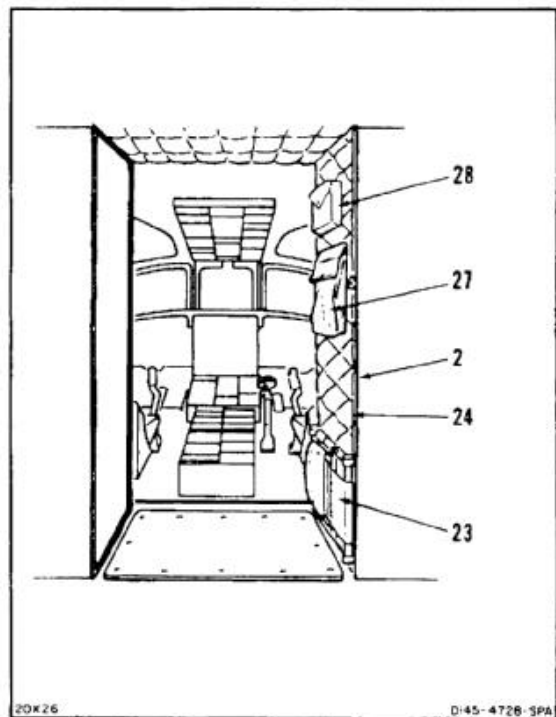
2-108 INSTALL COCKPIT ACOUSTIC BLANKETS (Continued)

2-108

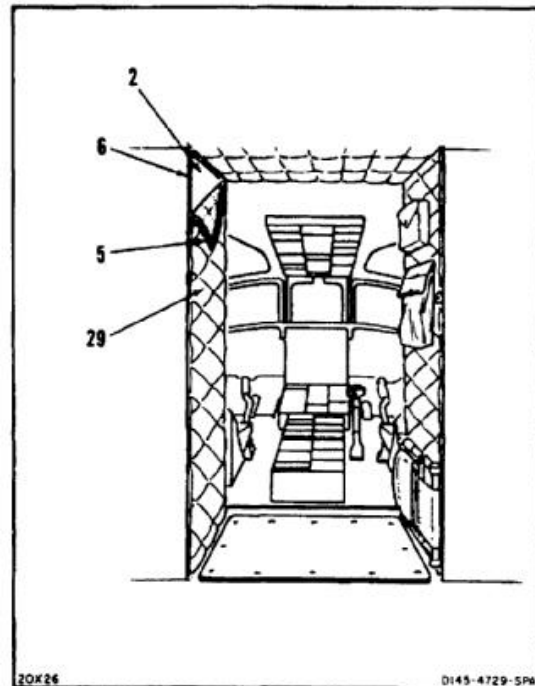
28. Unstow troop commander's seat (23) (Task 2-135).
29. Position right passageway blanket (24) on structure (2) with socket fasteners (25) aligned with studs (26).
30. Press four fasteners (25) on studs (26).
31. Press hook tape (5) on blanket (24) to pile tape (6) on structure (2).



32. Press edges of blanket (24) tight against structure (2). Make sure there are no gaps between blanket and structure.
33. Stow troop commander's seat (23) (Task 2-134).
34. Install map case (27).
35. Install first-aid kit (28).



36. Position left passageway blanket (29) on structure (2) with edge of blanket aligned with edge of structure.
37. Press hook tape (5) on blanket (29) to pile tape (6) on structure (2).
38. Press edges of blanket (29) tight against structure (2). Make sure there are no gaps between blanket and structure.

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

2-398

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

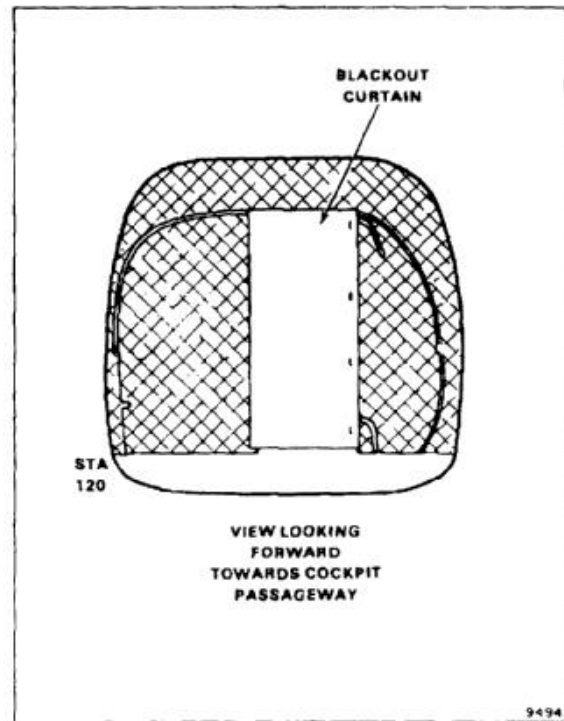
None

Personnel Required:

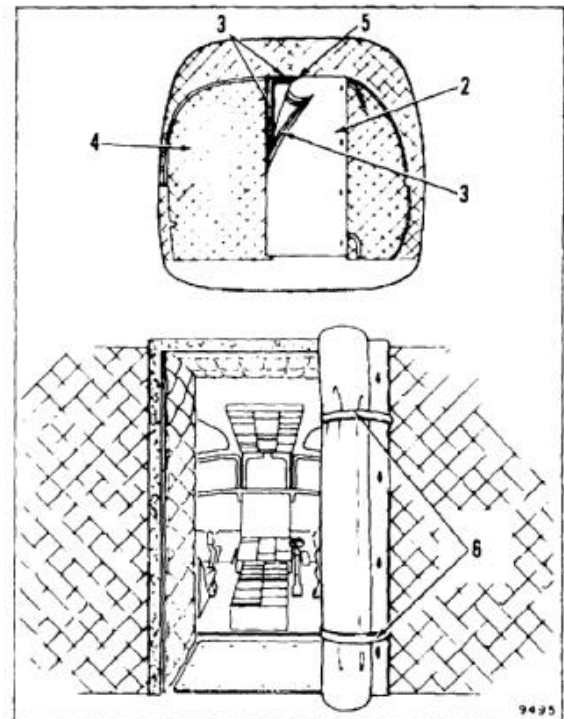
Medium Helicopter Repairer

Equipment Condition:

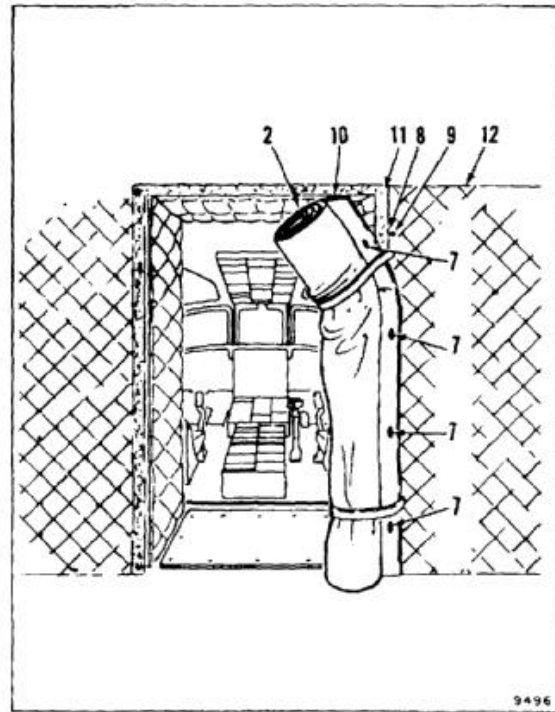
- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Hydraulic Power Off



1. Separate hook tape (1) at top and left side of curtain (2) from pile tape (3) on acoustic blankets (4 and 5).
2. Roll curtain (2) back to right side of passageway. Fasten curtain roll in position with two straps (6).



3. Disconnect four socket fasteners (7) on curtain (2) from studs (8) on structure (9).
4. Separate hook tape (10) on right side of curtain (2) from pile tape (11) on acoustic blanket (12). Remove curtain.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-400

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

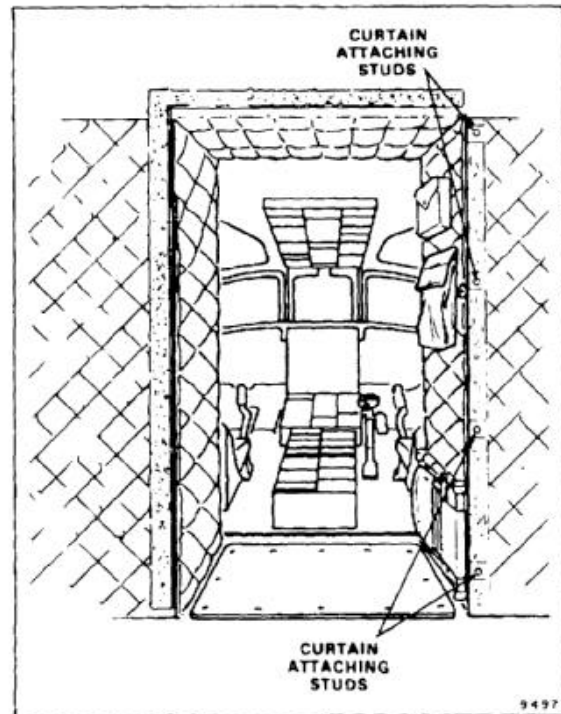
None

Personnel Required:

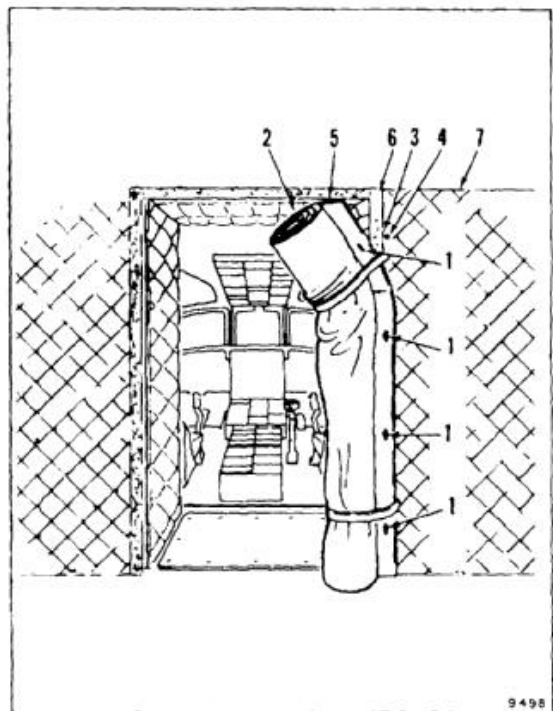
Medium Helicopter Repairer

References:

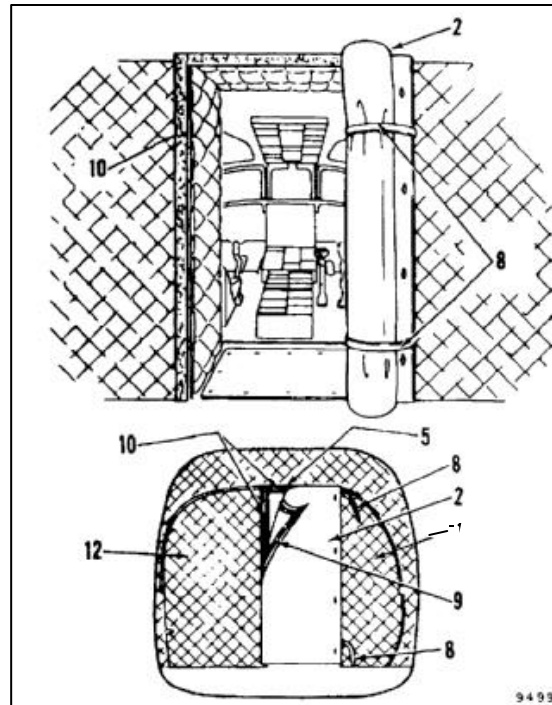
TM 55-1520-240-23P



1. Align four socket fasteners (1) of curtain (2) with studs (3) of structure (4). Press fasteners on studs.
2. Press hook tape (5) of curtain (2) to pile tape (6) of acoustic blanket (7).



3. Separate leading end of two straps (8) from fixed end by pulling back tape.
4. Roll curtain (2) to left side of passageway. Press hook tape (9) of curtain against pile tape (10) of acoustic blanket (11 and 12).
5. Check that there are no gaps between curtain (2) and acoustic blankets (11 and 12).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-402

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

None

Personnel Required:

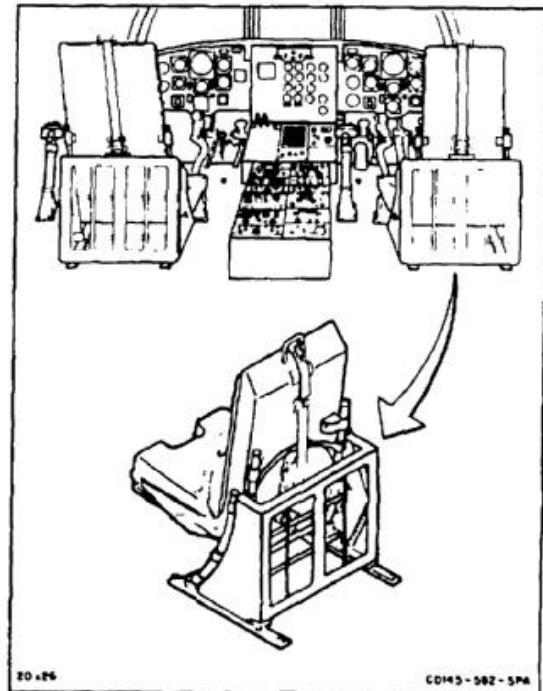
Medium Helicopter Repairer

References:

TM 55-1520-240-T
Task 2-115

Equipment Condition:

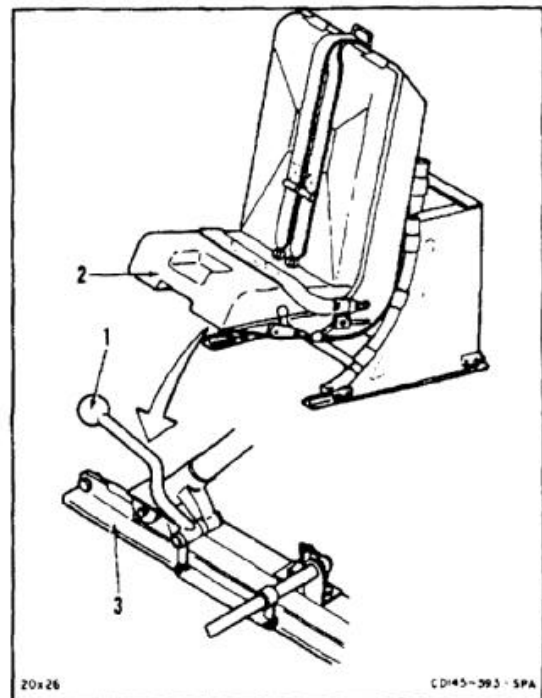
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

**NOTE**

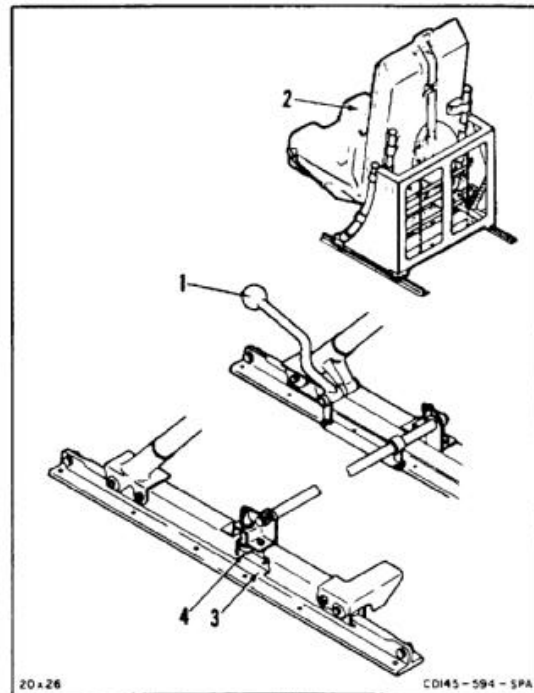
Test procedures must be done while sitting in pilot's or copilot's seat.

TEST FORWARD AND AFT TRAVEL

1. Pull up and hold adjustment handle (1).
2. Slide seat (2) on rails (3) forward and aft as far as it will go. If seat is loose or binds, adjust seat (Task 2-115).

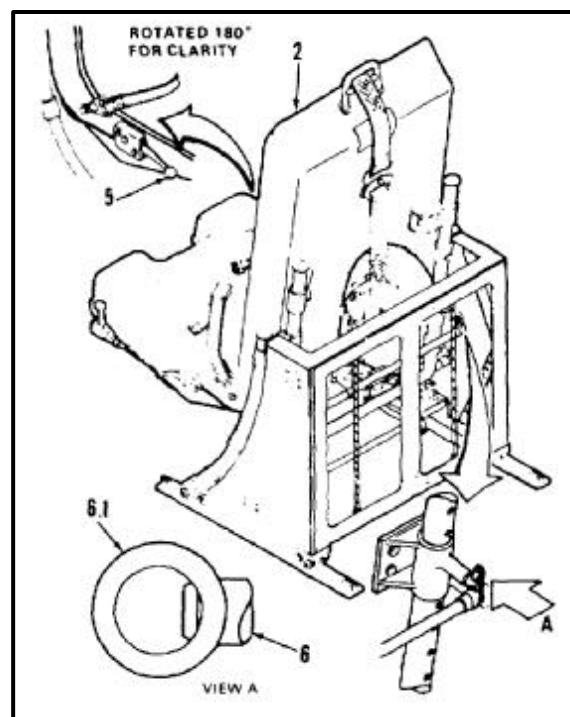


3. Let go of handle (1). Check that pins (4) lock seat (2) on rail (3).
4. Repeat steps 1 thru 3 for all positions going forward and aft.



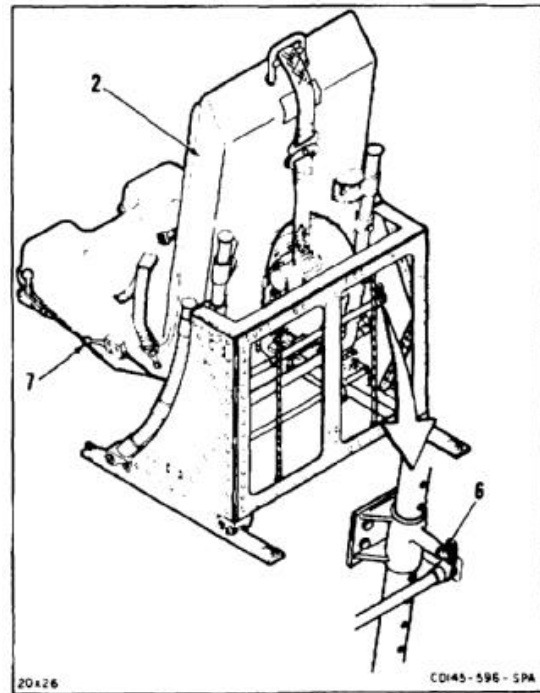
TEST VERTICAL TRAVEL

5. Take weight off seat (2). Pull up and hold vertical adjustment handle (5).
6. Check that seat (2) moves easily up and down. If it does not move easily, troubleshoot (TM 55-1520-240-T). Let go of handle (5).
7. Pull up and hold handle (5).
8. Move seat (2) all way up by pushing feet against floor and shoulders against back of seat. Let go of handle (5).
9. Pull up and hold handle (5). Let seat (2) come down slowly and let go of handle.
- 9.1 Check that pins (6) lock in place with normal shifting of body weight on pins. Look inside lower end of adjustment fitting (6.1). Check that chamfer of pin (6) protrudes completely through wall of fitting.
10. Repeat steps 5 thru 9.1 for all positions going down and up.



TEST NORMAL AND RECLINE POSITION

11. Pull up and hold rotation adjustment handle (7).
12. Move seat (2) all way up and check that seat moves easily in full recline or normal position. Let go of handle (7).
13. Pull up on handle (7). Push feet against floor and shoulders against back of seat (2). As seat starts down, let go of handle.
14. Repeat step 9.1.
15. Repeat steps 11 thru 14 for all normal and recline positions.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Container, 2 Quart

Materials:

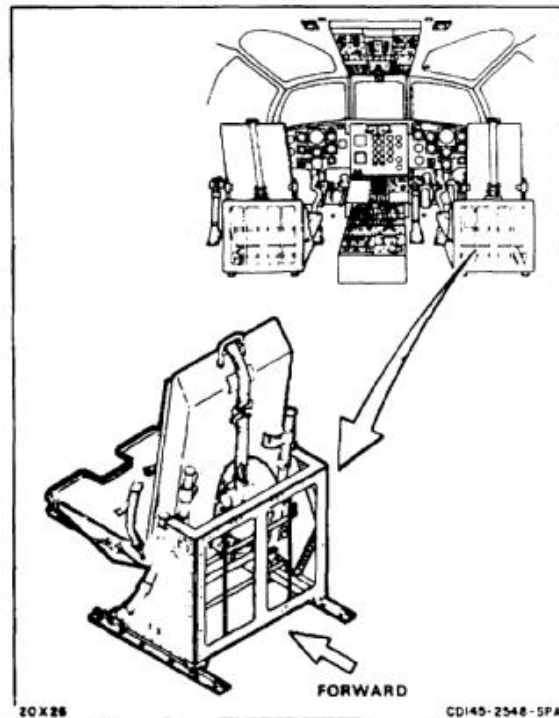
Brush (E85)
 Cloths (E120)
 Gloves (E186)
 Dry Cleaning Solvent (E162)
 Water

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Seat Cushions Removed (Task 2-128)

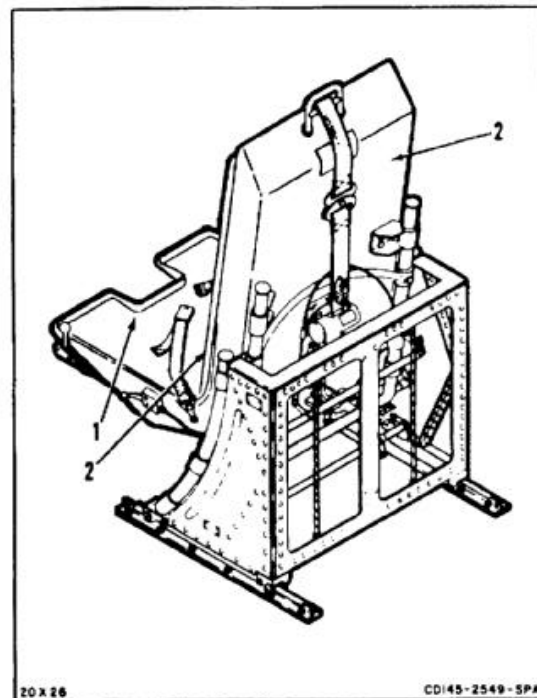
**WARNING**

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

NOTE

Procedure is same for pilot's or copilot's seat. Pilot's seat is shown here.

1. Clean seat bucket (1) using brush (E85) and dry cleaning solvent (E162). Wipe seat bucket dry with cloths (E120). Wear gloves (E186).
2. Clean covers (2) using cleaning cloths (E120) damp with water. Wipe covers dry with cloths (E120).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-406

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Wood Blocks, 2 Inches X 4 Inches X 36 Inches (2)

Personnel Required:

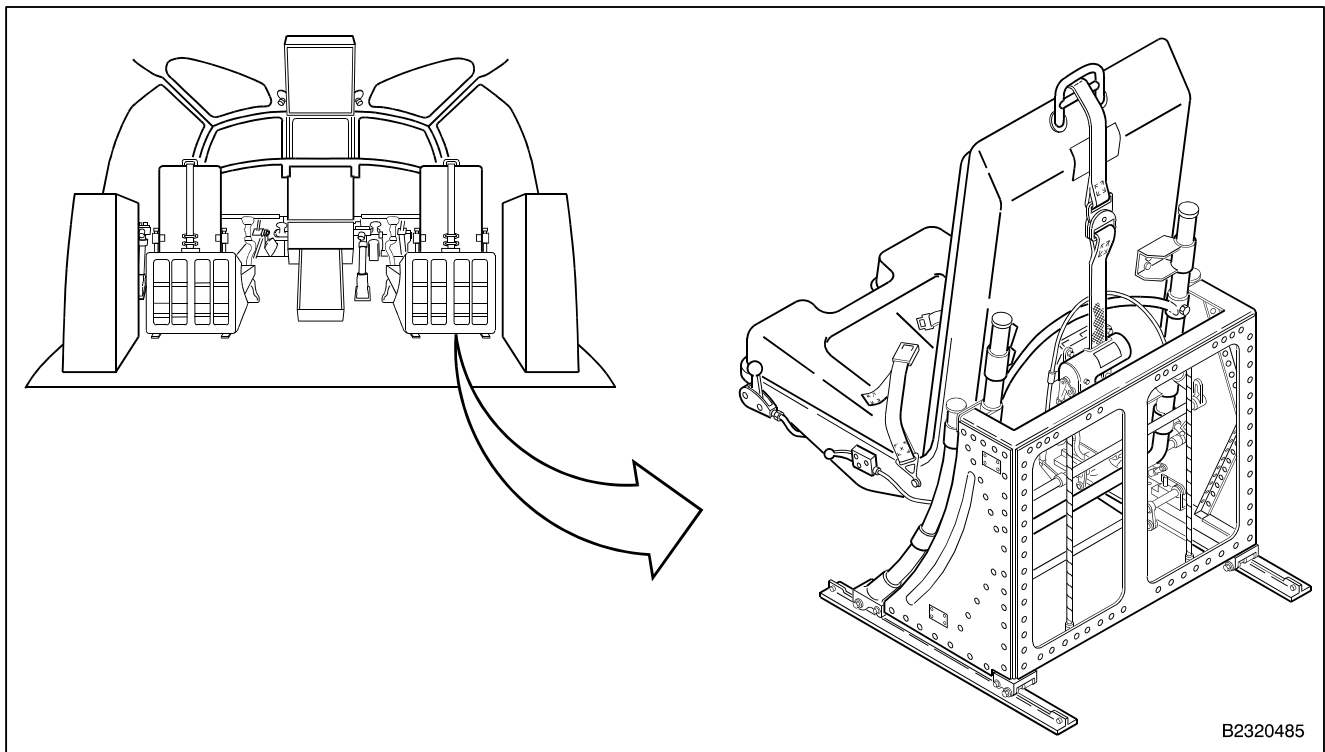
CH-47 Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off



NOTE

Procedures are same for removing pilot's or copilot's seat. Pilot's seat removal shown here.

1. Remove two stop bolts (1), washers (2), and nuts (3) from forward end of both seat rails (4).
2. Loosen two adjustment bolts (5).
3. Pull up and hold adjustment handle (6).
4. Slide seat (7) forward until clear of seat rails (4).
5. Release handle (6).



Pilot's seat can damage instruments if it hits console. Move seat slowly and carefully to prevent damage.

6. With helper lift seat (7) out of helicopter through cabin door opening (8).

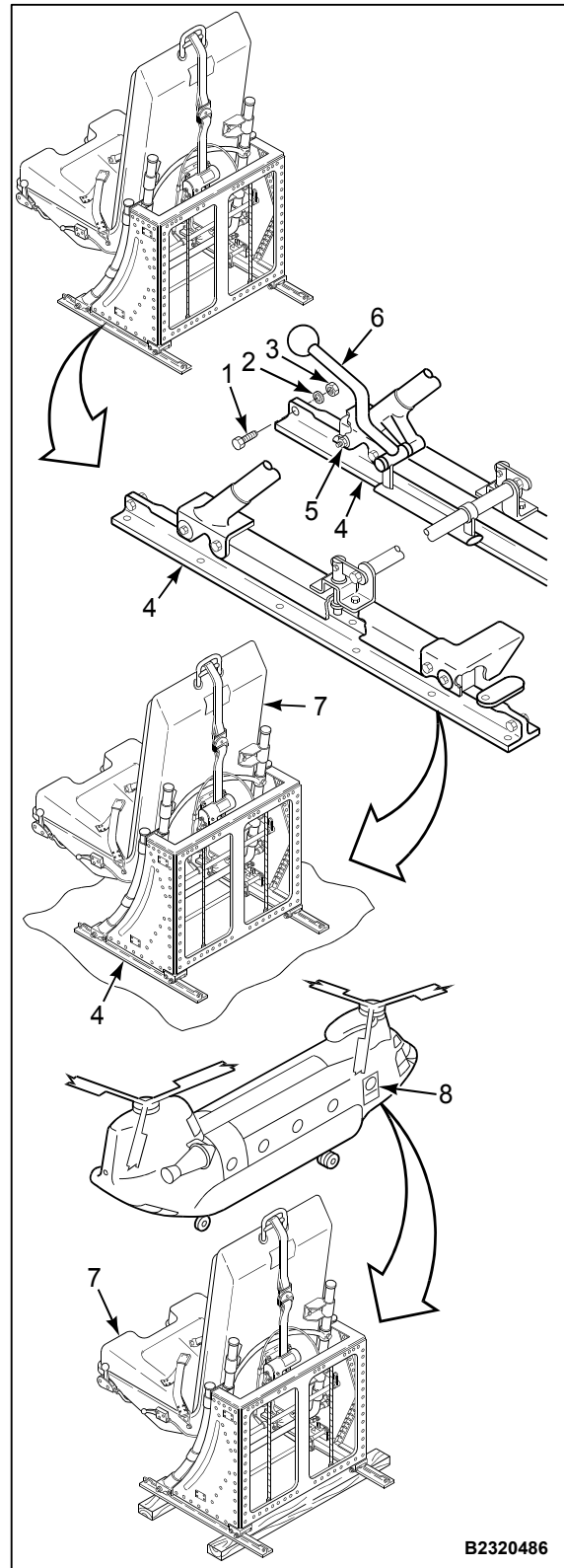


Seat adjustment control levers and tubes (6) can be damaged if seat (7) is not placed on blocks.

7. Place seat (7) on wood blocks.

FOLLOW-ON MAINTENANCE:

As Required



B2320486

END OF TASK

2-112 REMOVE PILOT'S OR COPILOT'S SEAT RAILS

2-112

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

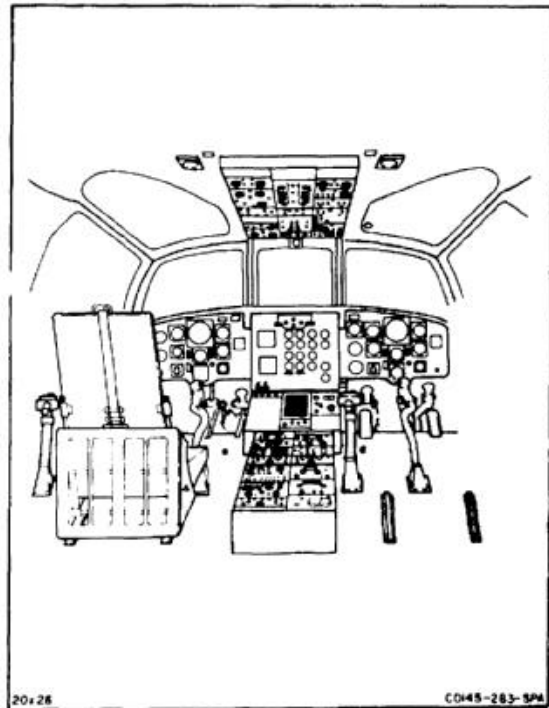
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Pilot's or Copilot's Seat Removed (Task 2-111)

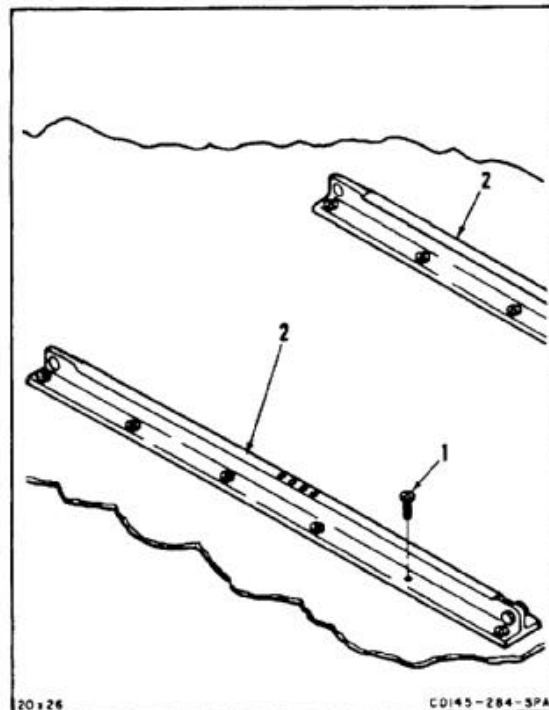
**NOTE**

Procedures are same for removing pilot's or copilot's seat rails. Pilot's side is shown here.

1. Remove 12 screws (1) from each rail (2).
2. Remove rails (2).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

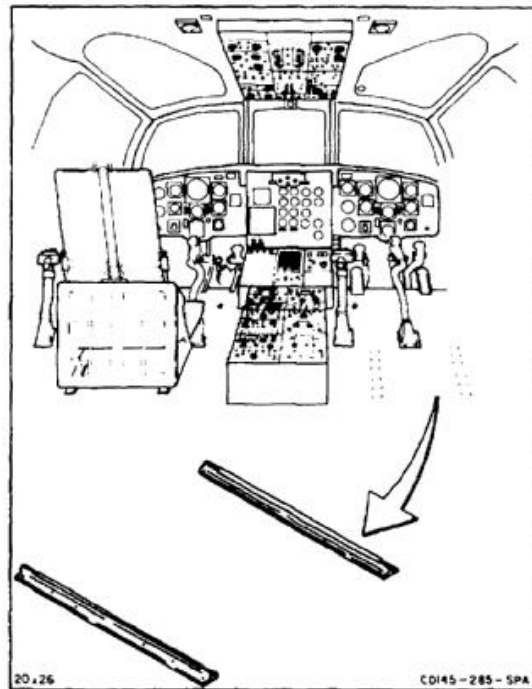
None

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P

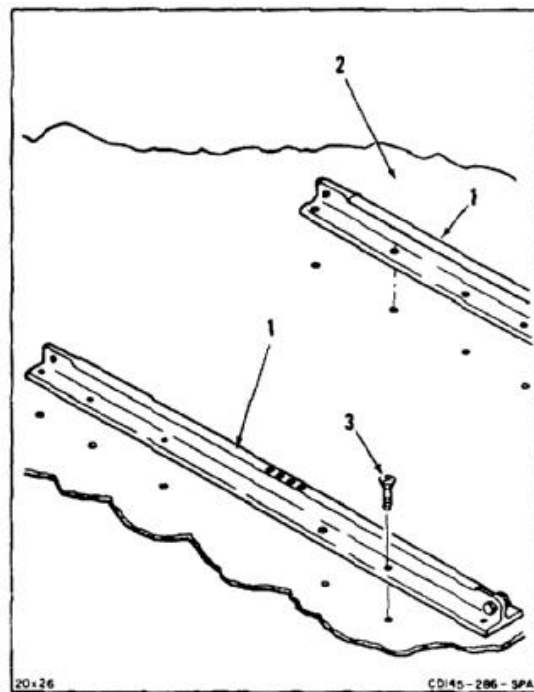
**NOTE**

Procedures are same for installing pilot's or copilot's seat rails. Pilot's side is shown here.

1. Position seat rail (1) on cockpit floor (2).
2. Align screw holes in rail (1) and cockpit floor (2).
3. Install 12 screws (3) through holes in rail (1) and floor (2).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-410

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

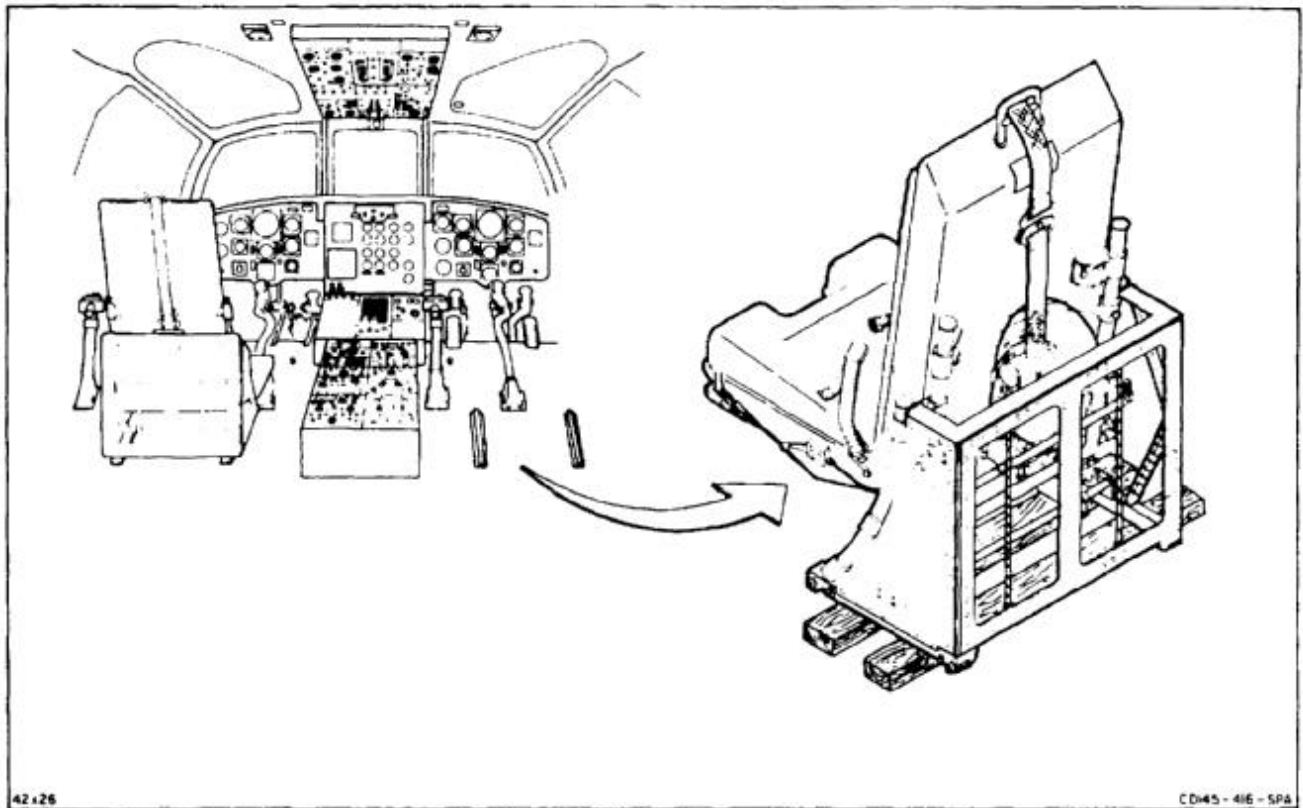
None

Personnel Required:

Medium Helicopter Repairer (2)

References:

TM 55-1520-240-23P



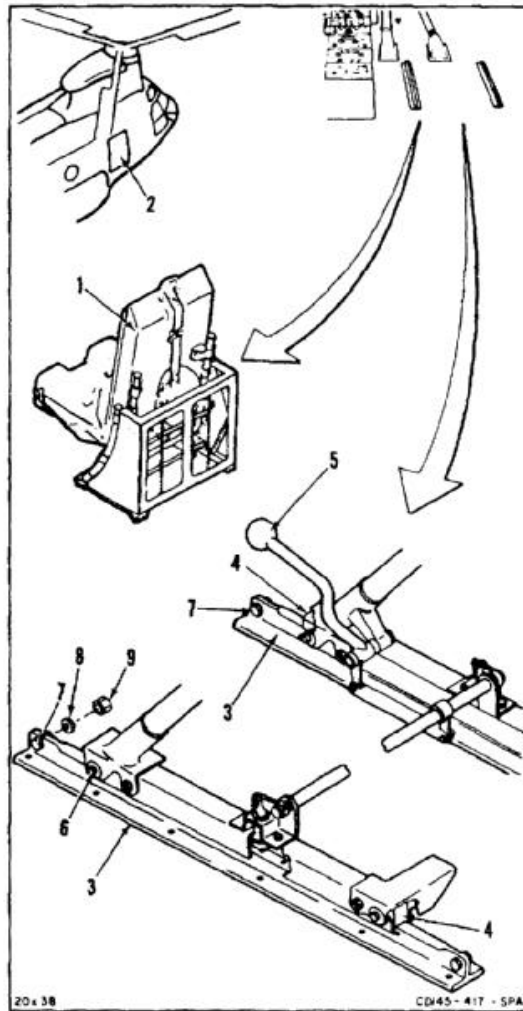
CAUTION

Seat rail can damage instruments if it hits console. Move seat slowly and carefully to prevent damage.

NOTE

Procedures are same for installing pilot's and copilot's seat. Pilot's seat is shown here.

1. Have helper aid in moving seat (1) into cockpit through cabin opening (2).
2. Place seat (1) on forward end of two rails (3).
3. Make sure sliders (4) are positioned properly on rails (3).
4. Pull up and hold adjust handle (5).
5. Slide seat (1) back until sliders (4) clear stop bolt holes in forward end of rails (3).
6. Tighten two slider adjustment bolts (6).
7. Install bolt (7), washer (8), and nut (9) in forward end of both seat rails (3).

**FOLLOW-ON MAINTENANCE:**

Test seat (Task 2-109).

END OF TASK

2-412

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Personnel Required:

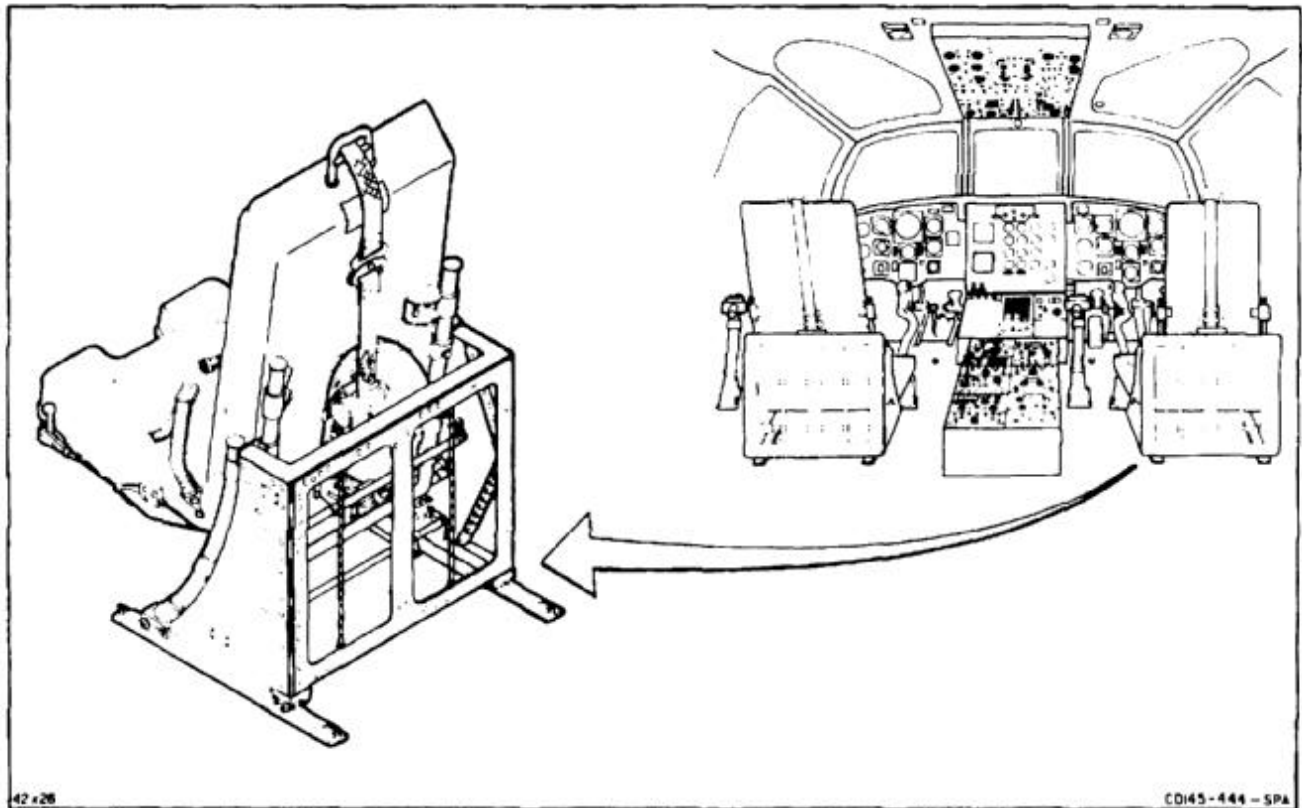
Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

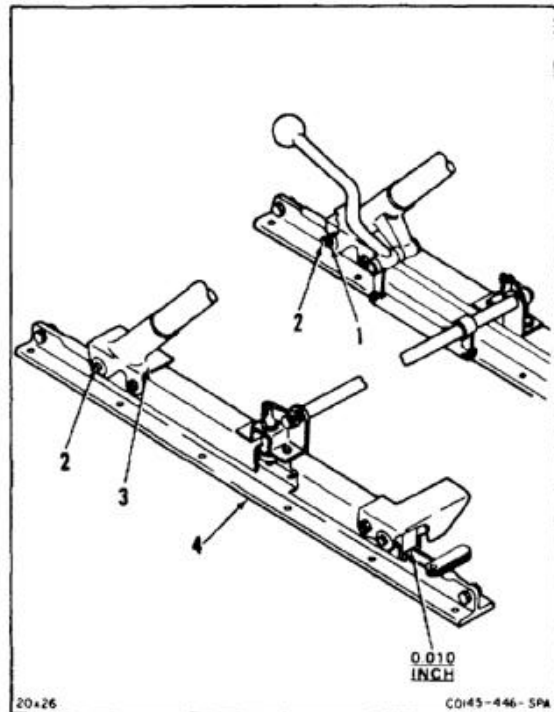
Hydraulic Power Off



NOTE

Procedures are same for adjusting pilot's or copilot's seat. Pilot's seat shown here.

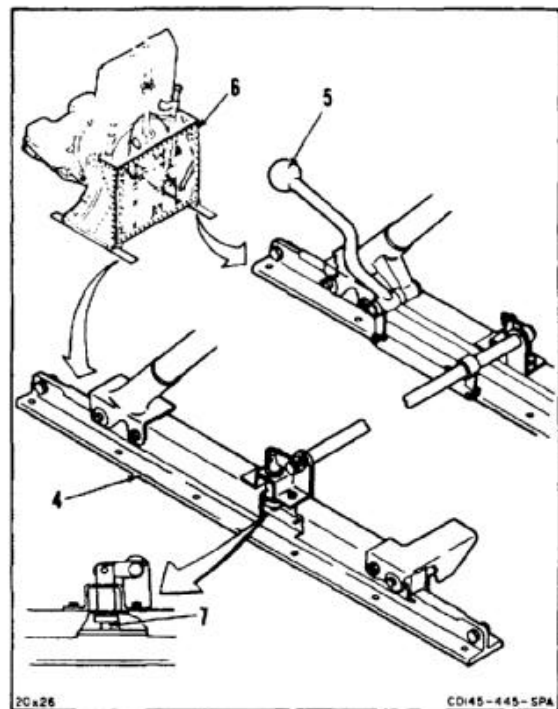
1. Loosen two nuts (1) on bolts (2) going through sliders (3). Turn bolts clockwise to reduce clearance. Turn bolts counterclockwise for more clearance.
2. Make sure there is at least a **0.010 inch** clearance between sliders (3) and rails (4).
3. Tighten two nuts (1).



4. Pull up and hold adjustment handle (5).
5. Slide seat (6) on rails (4) forward and aft as far as it will go. If there is binding or looseness, repeat steps 1 thru 3.
6. Let go of adjustment handle (5). Make sure seat locking pin (7) locks in rail (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-414

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

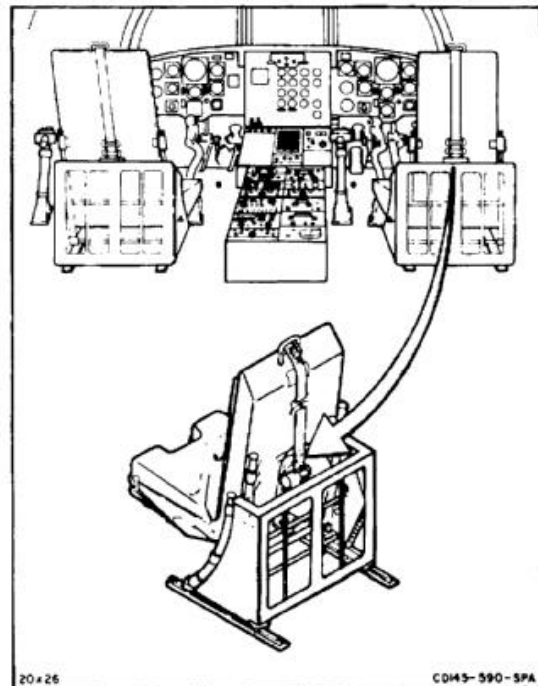
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

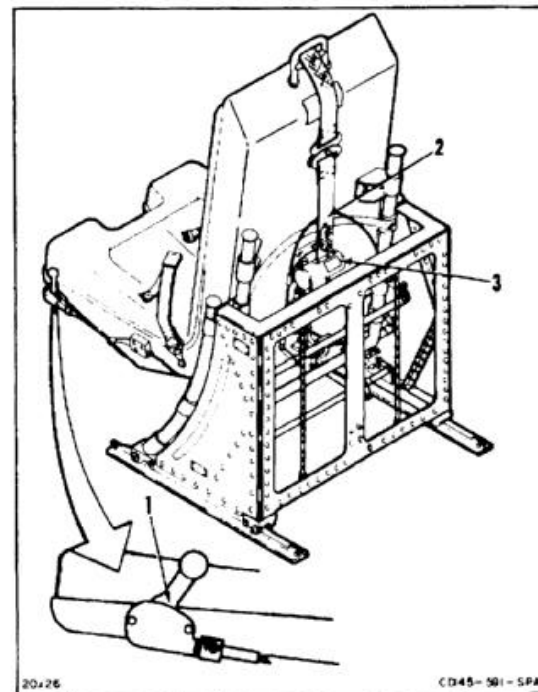
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off

**NOTE**

Procedures are same for testing pilot's or copilot's shoulder harness inertia reel.

Test procedures must be done while sitting in pilot's or copilot's seat.

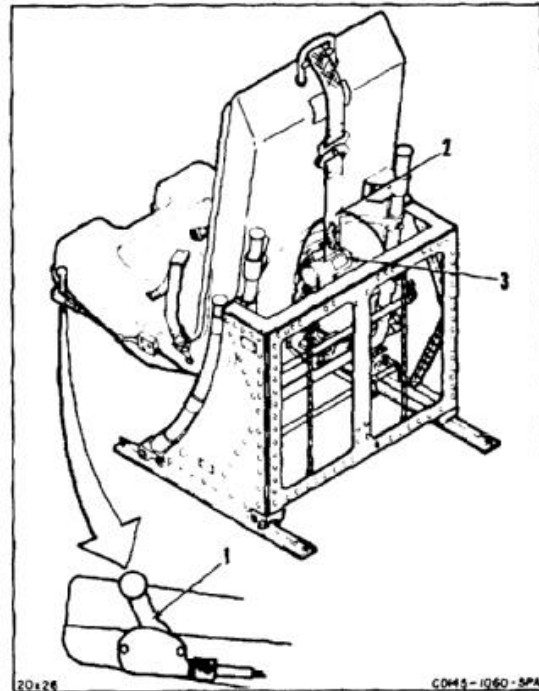
1. Set inertia reel control handle (1) aft (automatic).
2. Move inertia reel strap (2) in and out of reel (3) slowly. Strap should move freely and smoothly.
3. Pull strap (2) about half way out of reel (3) and hold it. Pull strap hard and fast with other hand. Check that reel locks strap.
4. Let go of strap (2). Strap should go in and stay locked.



5. Set handle (1) forward (manual), then aft (automatic).
6. Pull strap (2) in and out of reel (3) slowly. Strap should move freely and smoothly.
7. Pull strap (2) about half way out of reel (3) and hold it.
8. Set handle (1) forward. Pull out on strap (2). Strap should not come out any further.
9. Let go of strap (2). Strap should wind on reel (3) and stay locked.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-416

2-117 REMOVE PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL**2-117****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

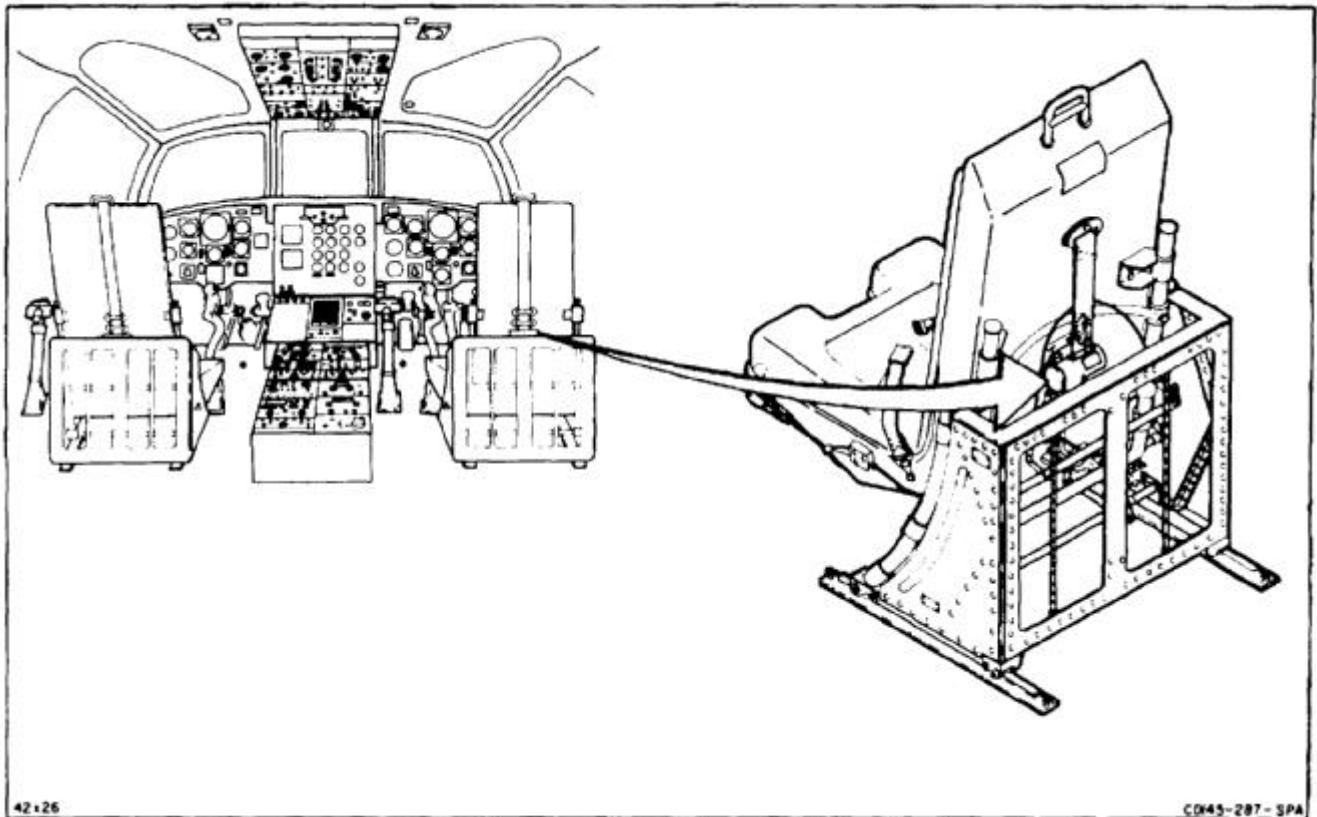
Equipment Condition:

Pilot's or Copilot's Shoulder Harness Removed (Task 2-118 or 2-119)

Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off



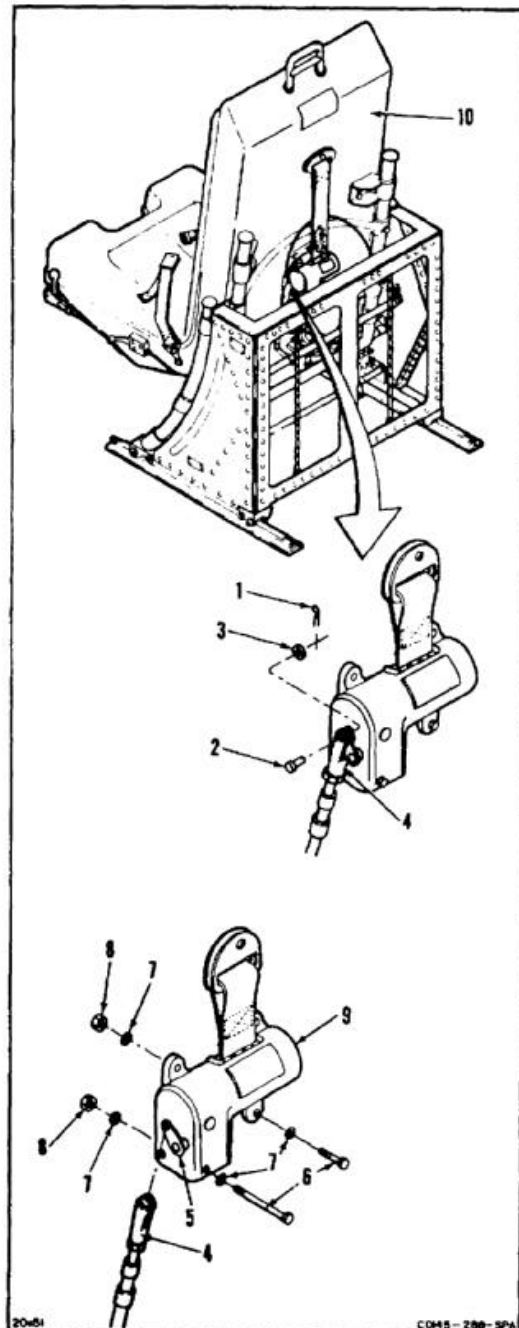
NOTE

Procedures are same for removing pilot's or copilot's shoulder harness inertia reel.

1. Remove cotter pin (1), flat head pin (2), and washer (3) from clevis (4) on control lever (5).
2. Remove clevis (4) from control lever (5).
3. Remove four bolts (6), eight washers (7), and four nuts (8) from reel (9).
4. Remove reel (9) from bucket (10).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-418

2-117.1 INSPECT RESTRAINT EQUIPMENT

2-117.1

INITIAL SETUP**Applicable Configurations:**

All

Tools:

None

Materials:

None

Personnel Required:

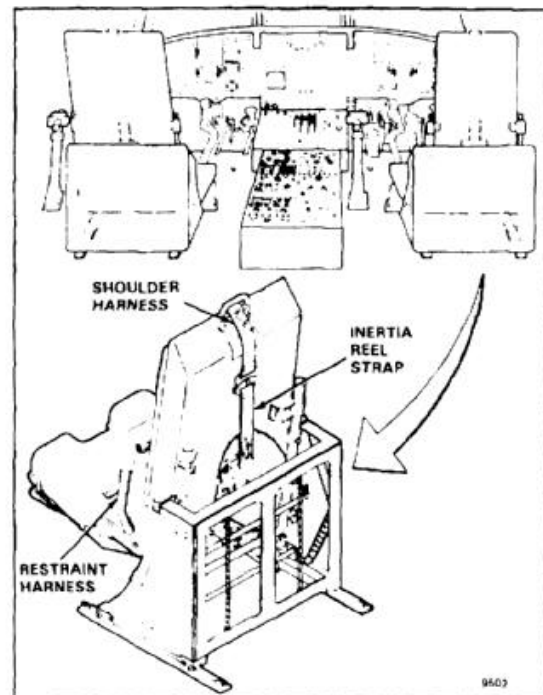
Medium Helicopter Repairer

References:

TM 1-1500-204-23
 TM 55-1520-240-23P

Equipment Condition:

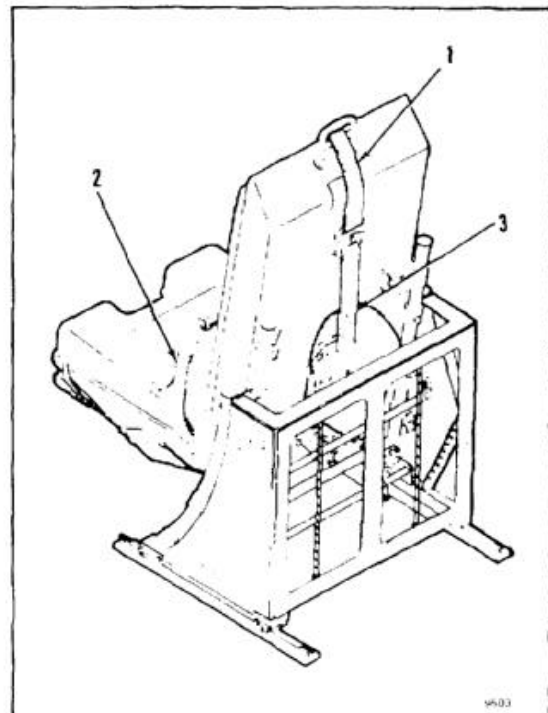
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off



1. Check shoulder harness (1), restraint harness (2), and inertia reel strap webbing (3) for the following:
 - Deterioration and discoloring due to contact with foreign matter.
 - Cuts, broken stitches, and fraying.
 - Corrosion of hardware.
 - Difficulty of operation and movement.
2. Refer to TM 1-1500-204-23 for disposition of components displaying these problems.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-118 REPLACE PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL (WITH PART NUMBERS OTHER THAN 015-870145-3-16)

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

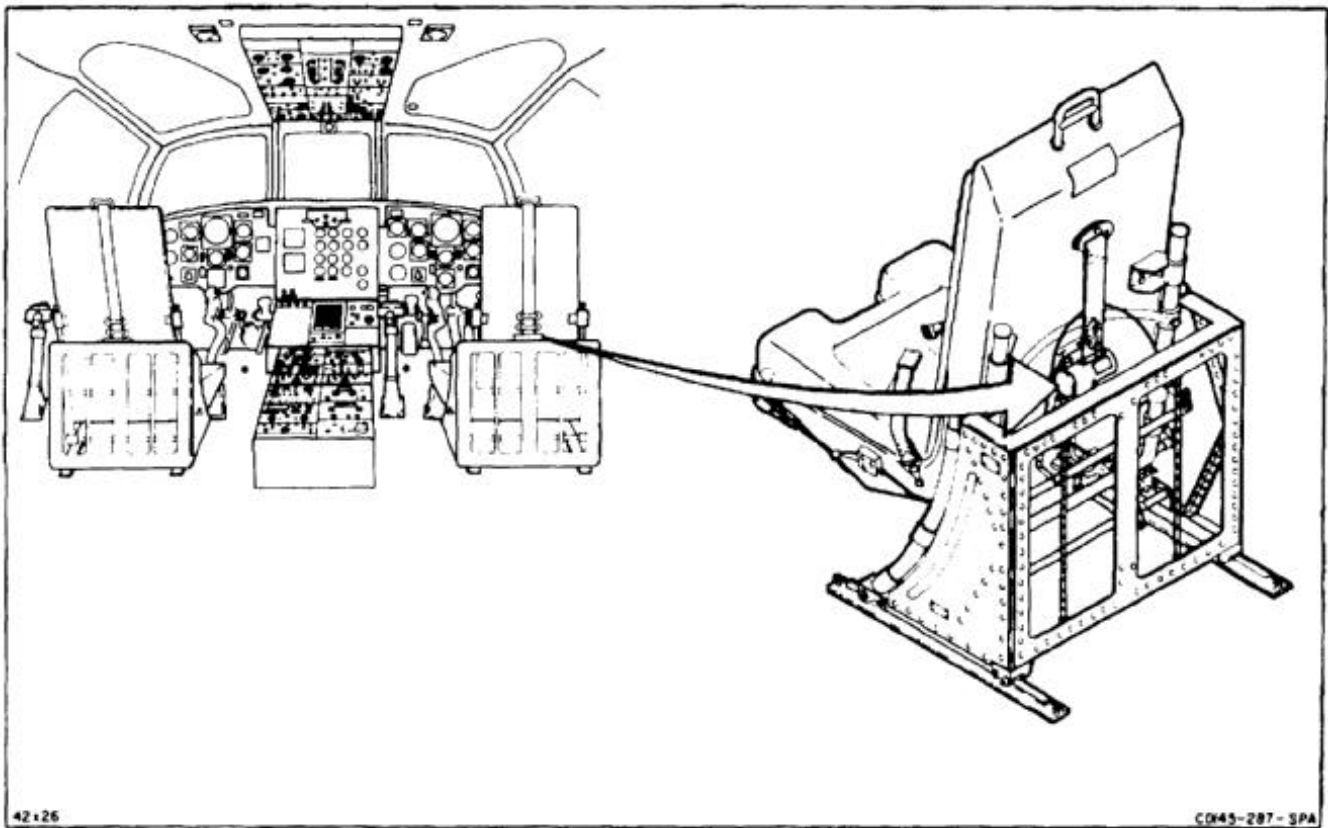
None

Personnel Required:

Medium Helicopter Repairer
Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Pilot's or Copilot's Shoulder Harness Removed (Task 2-120)



2-118 REPLACE PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL (WITH PART NUMBERS OTHER THAN 015-870145-3-16) (Continued)

2-118

NOTE

Procedures are same for replacing pilot's or copilot's shoulder harness inertia reel.

REMOVE

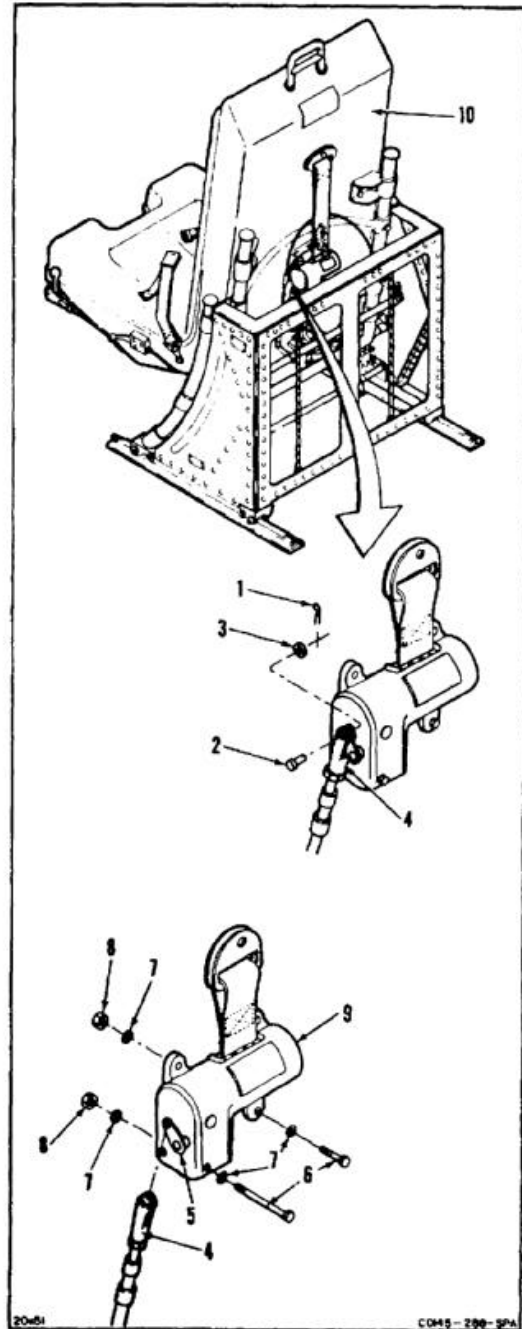
1. Remove cotter pin (1), flathead pin (2), and washer (3) from clevis (4) on control lever (5).
2. Remove clevis (4) from control lever (5).
3. Remove four bolts (6), eight washers (7), and four nuts (8) from reel (9).
4. Remove reel (9) from bucket (10).

INSTALL

5. Position inertia reel (9) on seat bucket (10). Align four bolt holes in reel with seat bucket holes.
6. Install four bolts (6), eight washers (7), and four nuts (8).
7. Place clevis (4) on control lever (5).
8. Connect clevis (4) to control lever (5) with flathead pin (2), washer (3), and new cotter pin (1).

INSPECT**FOLLOW-ON MAINTENANCE:**

Test inertia reel (Task 2-116).



END OF TASK

2-119 REPLACE PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL (WITH PART NUMBER 015-870145-3-16)

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

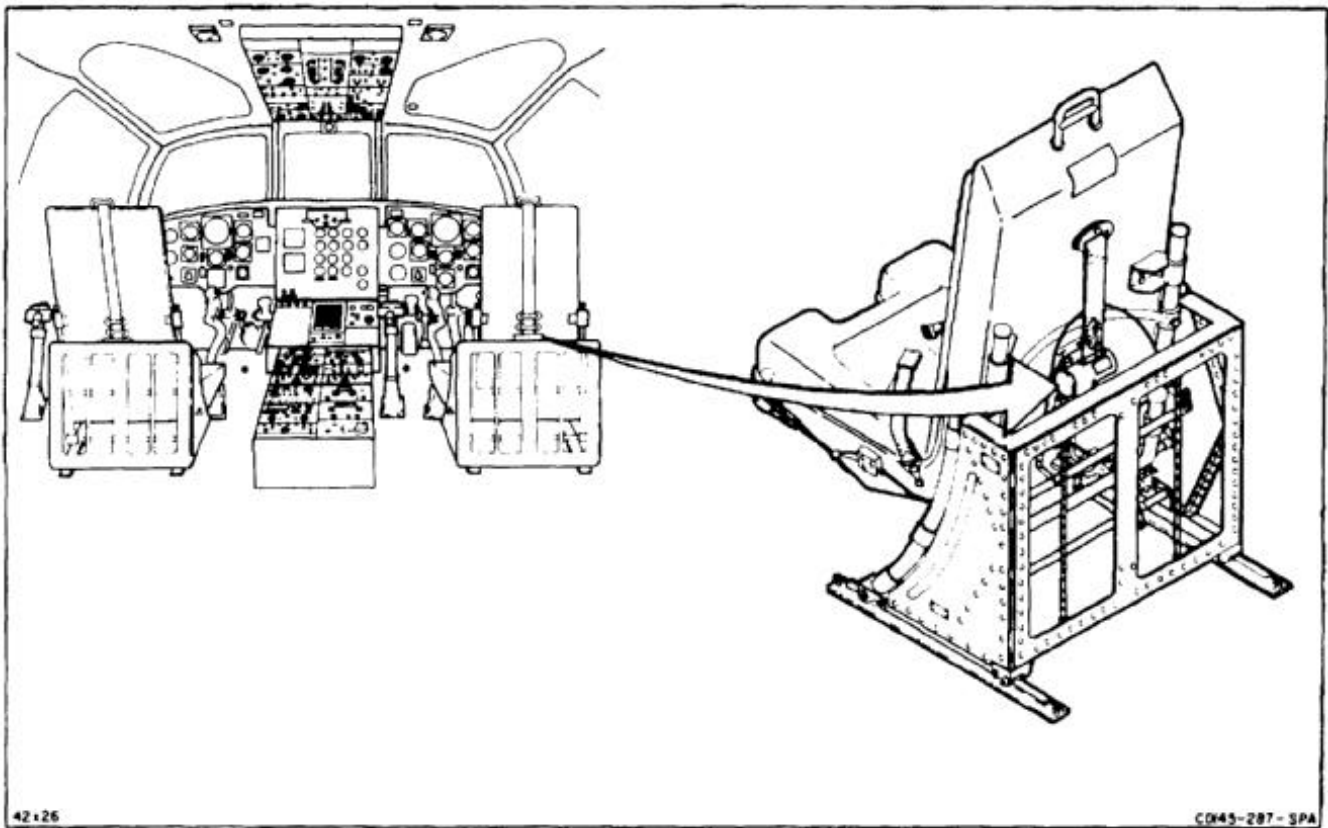
None

Personnel Required:

Medium Helicopter Repairer
Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Pilot's or Copilot's Shoulder Harness Removed (Task 2-120)



2-119 REPLACE PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL (WITH PART NUMBER 015-870145-3-16) (Continued)

2-119

NOTE

Procedures are same for installing pilot's or copilot's shoulder harness inertia reel.

REMOVE

1. Remove four bolts (1), washers (2), and four nuts (3) from reel (4).
2. Remove reel (4) from bucket (5).

NOTE

Add additional washers AN960-10L or AN960-10 as required.

NOTE

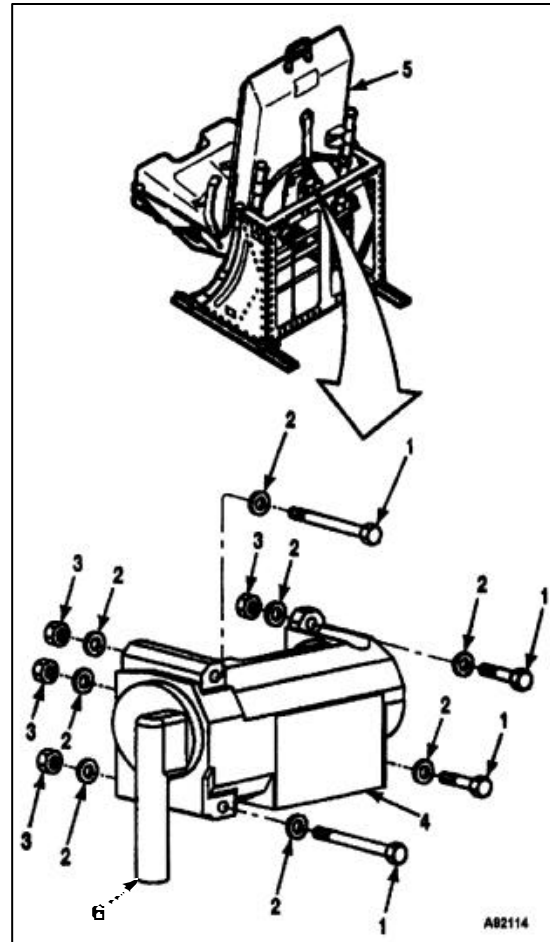
Insure control lever (6) orientation is for CH47 aircraft.

INSTALL

3. Position inertia reel (4) on seat bucket (5). Align four bolt holes in reel with seat bucket holes.
4. Install four bolts (1), washers (2), and four nuts (3).

INSPECT**FOLLOW-ON MAINTENANCE:**

Test inertia reel (Task 2-116).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

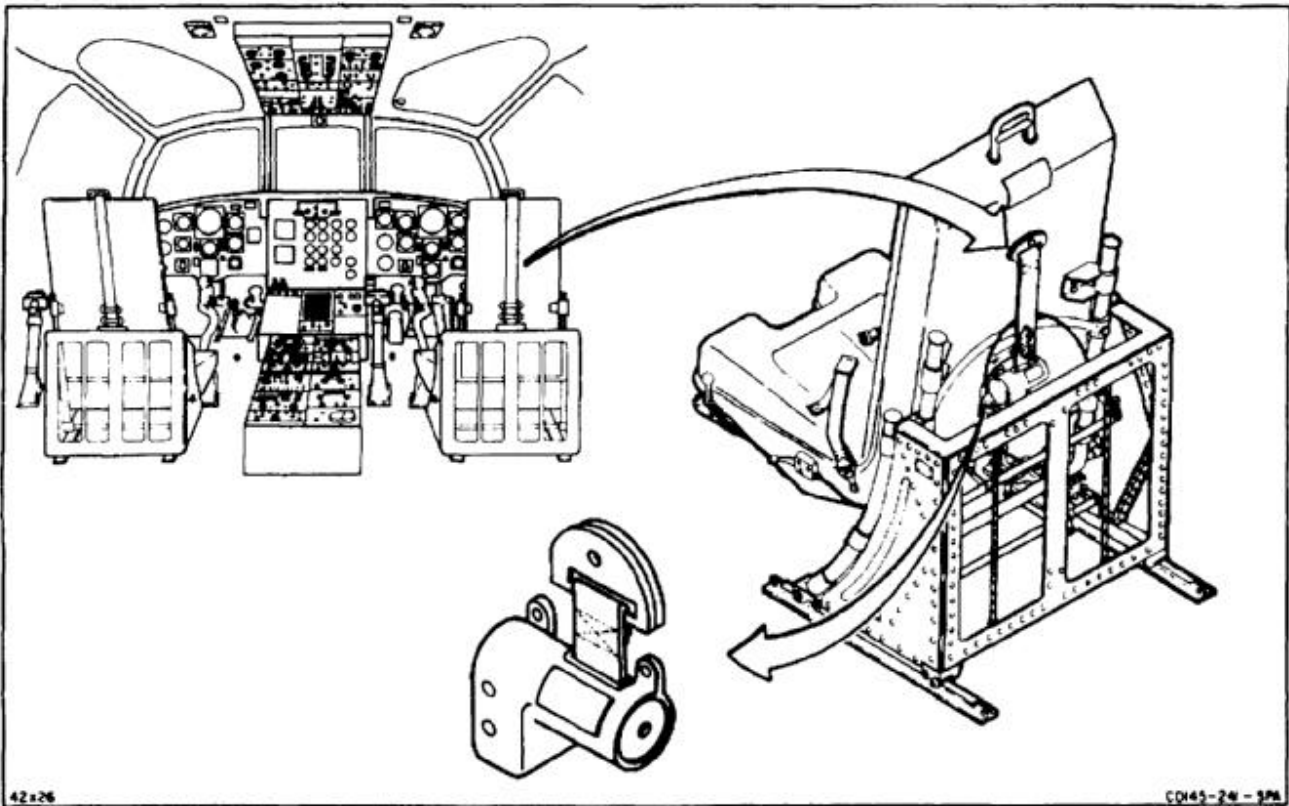
Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off

Pilot's or Copilot's Shoulder Harness Removed (Task 2-118 or 2-119)

Pilot's or Copilot's Inertia Reel Removed (Task 2-117)



2-120 REMOVE PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL STRAP (Continued)

2-120

NOTE

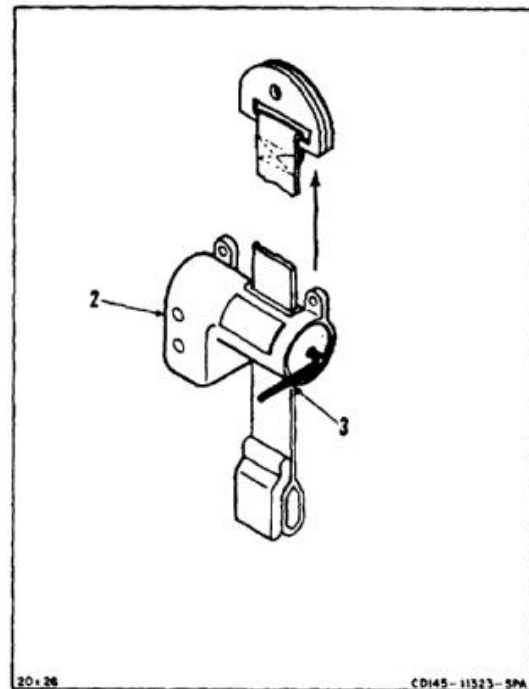
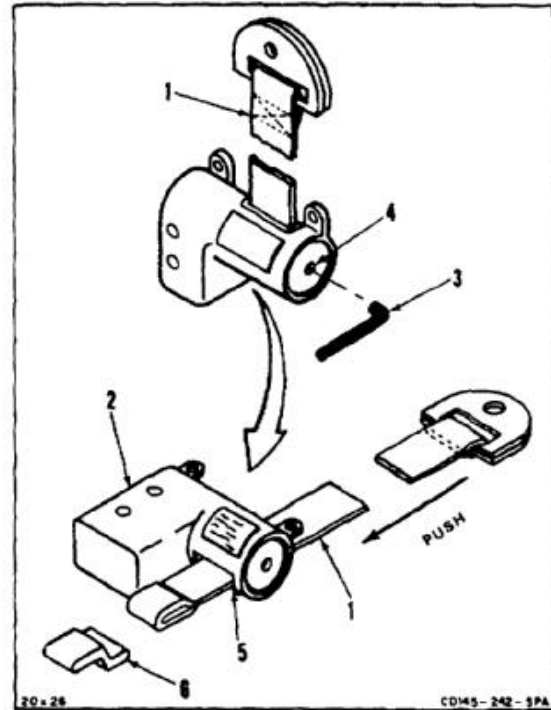
Procedures are same for removing pilot's or copilot's shoulder harness inertia reel strap.

1. With aid of helper, pull strap (1) from inertia reel (2) as far as it will go. Hold it.
2. Place **7/32 inch** socket head screw key (3) in screw (4).

WARNING

Power spring of inertia reel has a strong turning force on main shaft and screw key. Do not let socket head screw key come out of main shaft. Inertia reel strap will reel in fast and can injure personnel.

3. Hold key (3) to keep strap (1) from reeling in. Push strap through reel (2) in direction of arrow.
4. Pull strap (1) out through opening (5) enough to reach insert (6). Remove insert.
5. Pull strap (1) through reel (2) in direction of arrow.
6. Let reel (2) turn slowly under spring tension. Use key (3) to control reel. Remove key when all spring tension is gone.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

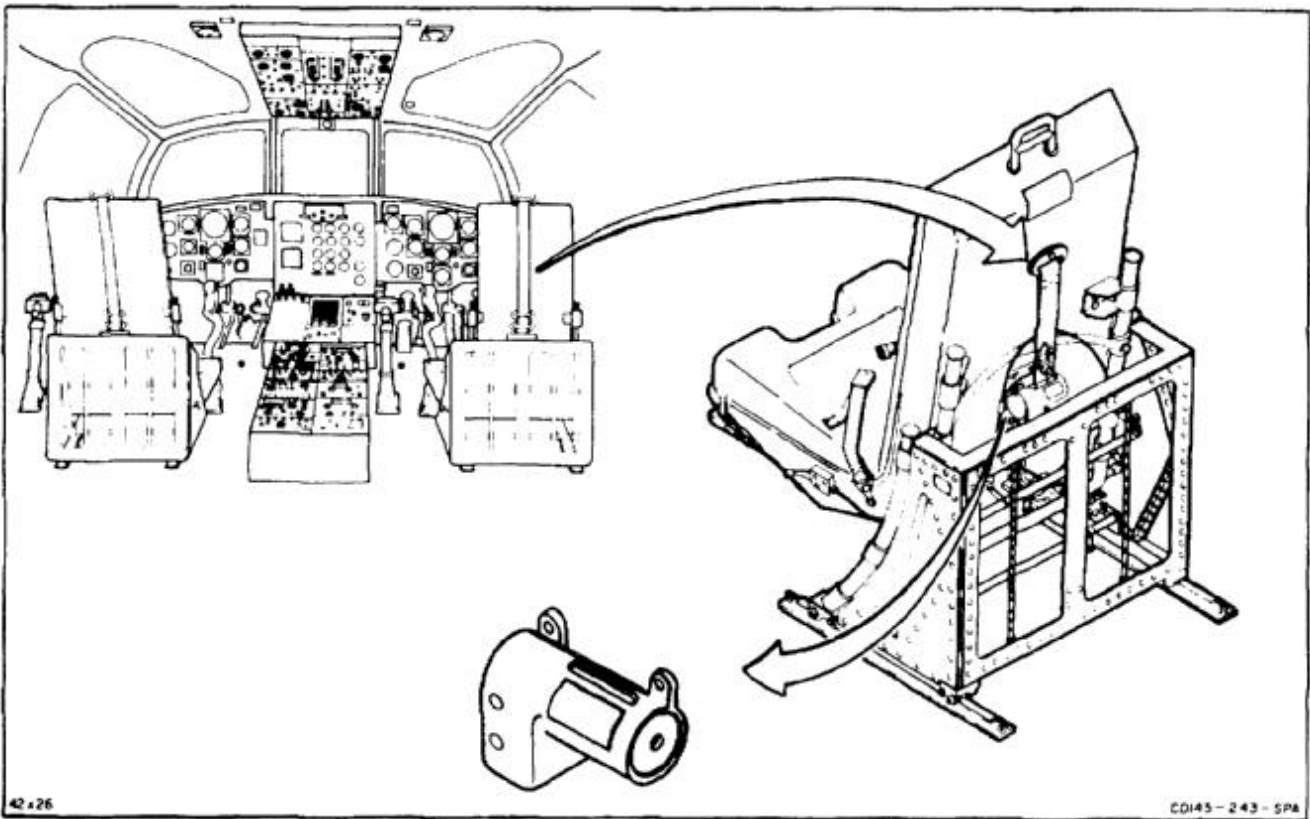
None

Personnel Required:

Medium Helicopter Repairer
Inspector

References:

TM 55-1520-240-23P



2-121 INSTALL PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL STRAP (Continued)

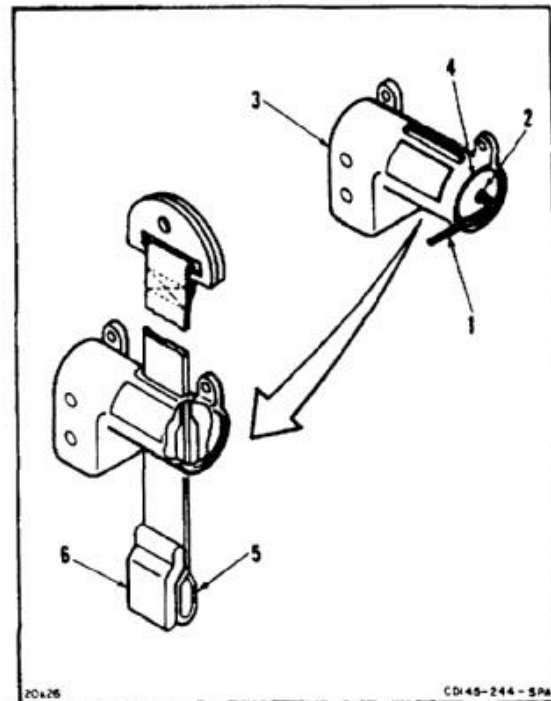
2-121

- Place **7/32 inch** socket head screw key (1) in screw (2) through hole in center of inertia reel (3).

WARNING

Do not let go of key or let it come out of screw in reel shaft. Inertia reel can spin under strong spring tension, causing injury to personnel.

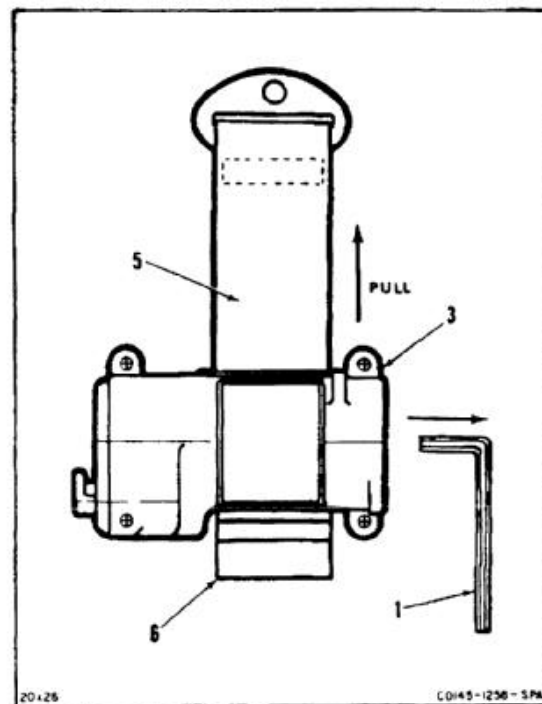
- Turn key (1) counterclockwise and wind reel (3) until tight.
- Unwind reel (3) about **1 turn** clockwise so narrow slot in shaft (4) is up.
- Feed end of strap (5) through reel in direction of arrow. Position insert (6) on strap (5).



- Pull strap (5) with insert (6) back through reel (3) in direction of arrow.
- Make sure strap (5) and insert (6) are tight in reel (3).
- Pull strap (5) in direction of arrow as far as it will go and hold. Remove key (1).

INSPECT
FOLLOW-ON MAINTENANCE:

Install shoulder harness (Task 2-119).
 Install inertia reel (Task 2-122).
 Test inertia reel (Task 2-116).



END OF TASK

2-427

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Parts:

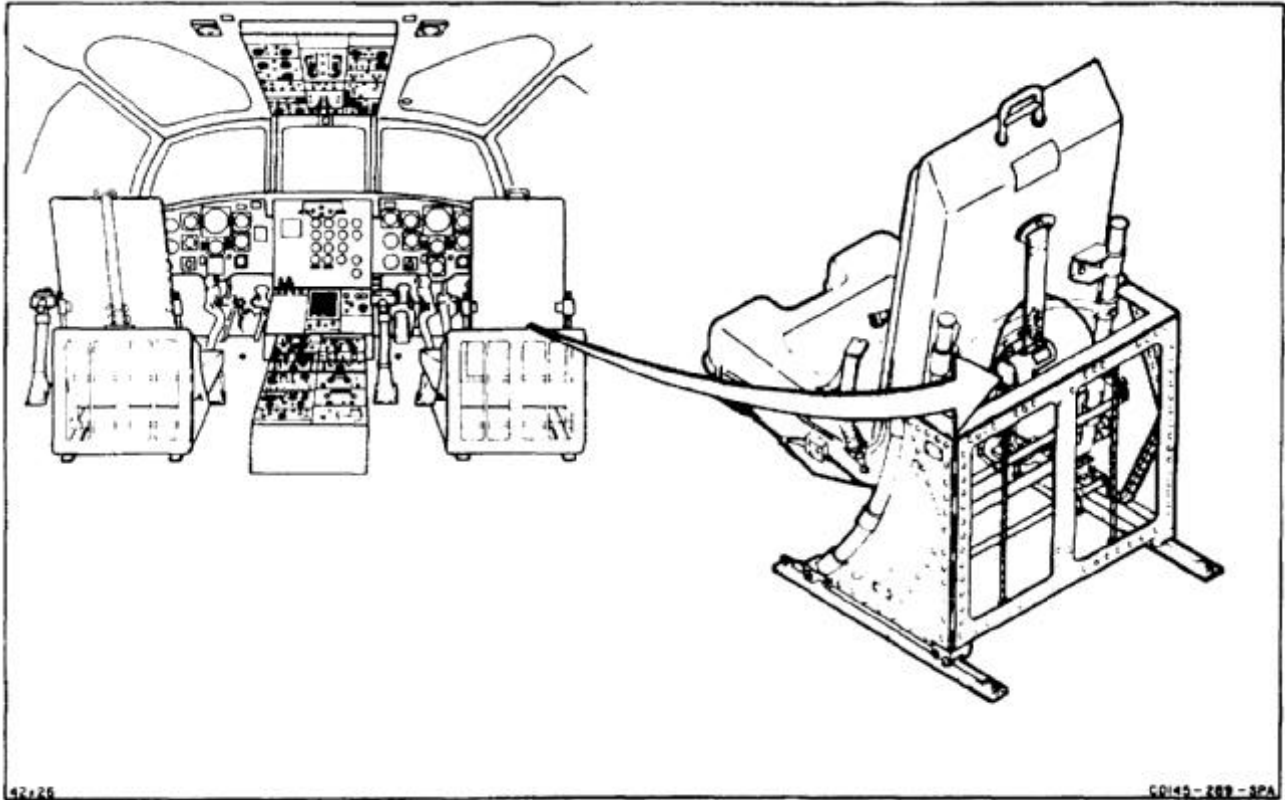
Cotter Pin

Personnel Required:

Medium Helicopter Repairer
Inspector

References:

TM 55-1520-240-23P



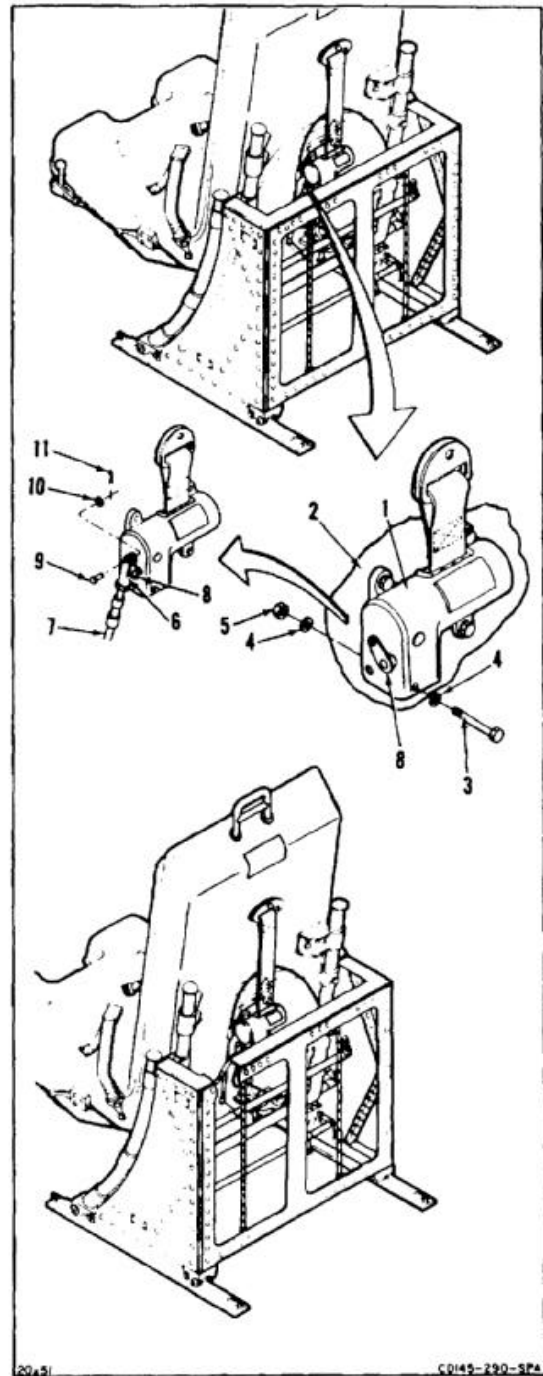
NOTE

Procedures are same for installing pilot's or copilot's shoulder harness inertia reel. Pilot's seat is shown here.

1. Position inertia reel (1) on seat bucket (2). Align four bolt holes in reel with seat bucket holes.
2. Install four bolts (3), eight washers (4), and four nuts (5).
3. Place clevis (6) of cable (7) on control lever (8).
4. Connect clevis (6) to control lever (8) with flathead pin (9), washer (10), and new cotter pin (11).

INSPECT**FOLLOW-ON MAINTENANCE:**

Test inertia reel (Task 2-116).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

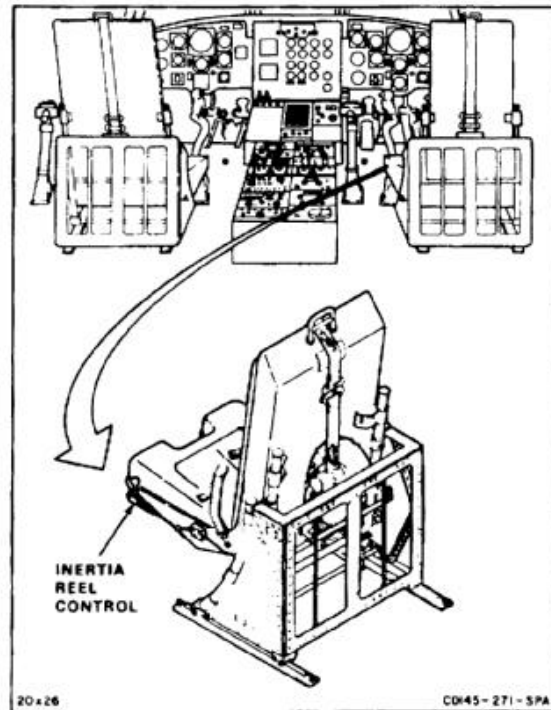
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

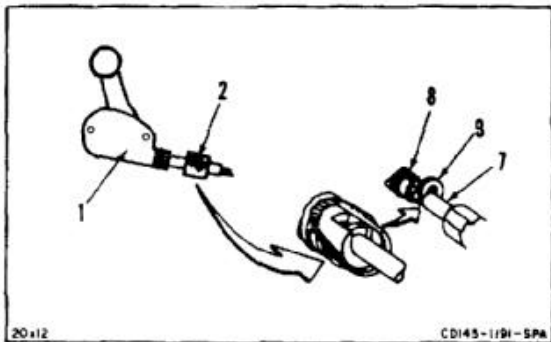
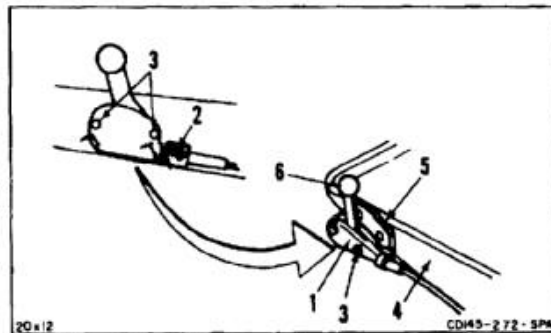
- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Hydraulic Power Off
- Date Marked on Shoulder Harness TM 1-1500-204-23



NOTE

Procedures are same for removing pilot's or copilot's inertia reel control. Pilot's control is shown here.

1. Remove lockwire from control (1) and nut (2).
2. Remove bolts (3) from control (1), seat frame (4), and shim (5).
3. Remove control (1). Set control handle (6) in forward position (manual).
4. Loosen nut (2) where cable (7) connects to control (1). Slide nut back along cable.
5. Pull end of cable (7) from inner shaft socket (8). Remove lockwasher (9) from end of cable.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

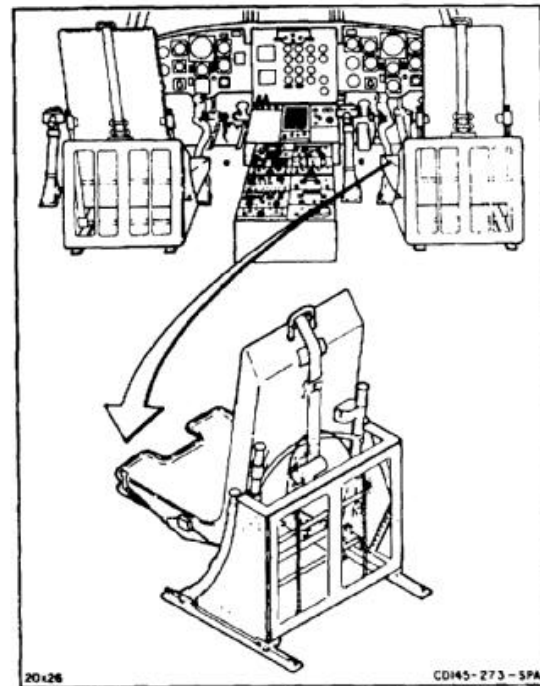
Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Lockwire (E227)

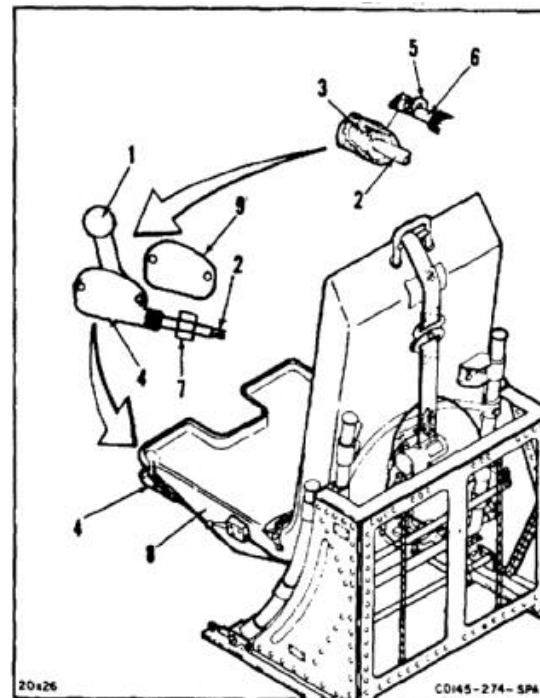
Personnel Required:Medium Helicopter Repairer
Inspector**References:**

TM 55-1520-240-23P

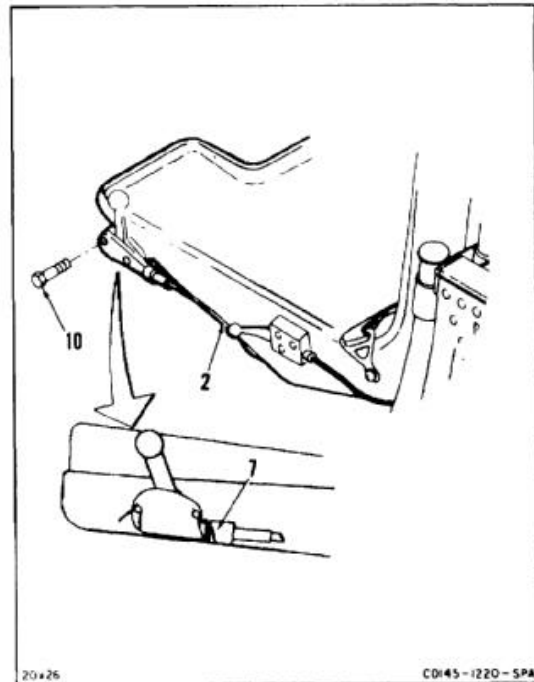
**NOTE**

Procedures are same for installing pilot's or copilot's shoulder harness inertia reel control. Pilot's control is shown here.

1. Make sure control handle (1) is forward (manual).
2. Install end of cable (2) into inner shaft socket (3) of control (4).
3. Install lockwasher (5) in groove (6) at end of cable (2).
4. Move nut (7) along cable (2) to control (4). Install nut hand-tight.
5. Position control (4) on seat frame (8). Install shim (9) behind control.



6. Install two bolts (10).
7. Lockwire (E227) bolts (10) and nut (7).

INSPECT**FOLLOW-ON MAINTENANCE:**

- Connect shoulder harness strap (Task 2-119).
- Install seat cushion (Task 2-129).

END OF TASK

2-432

INITIAL SETUP

Applicable Configurations:

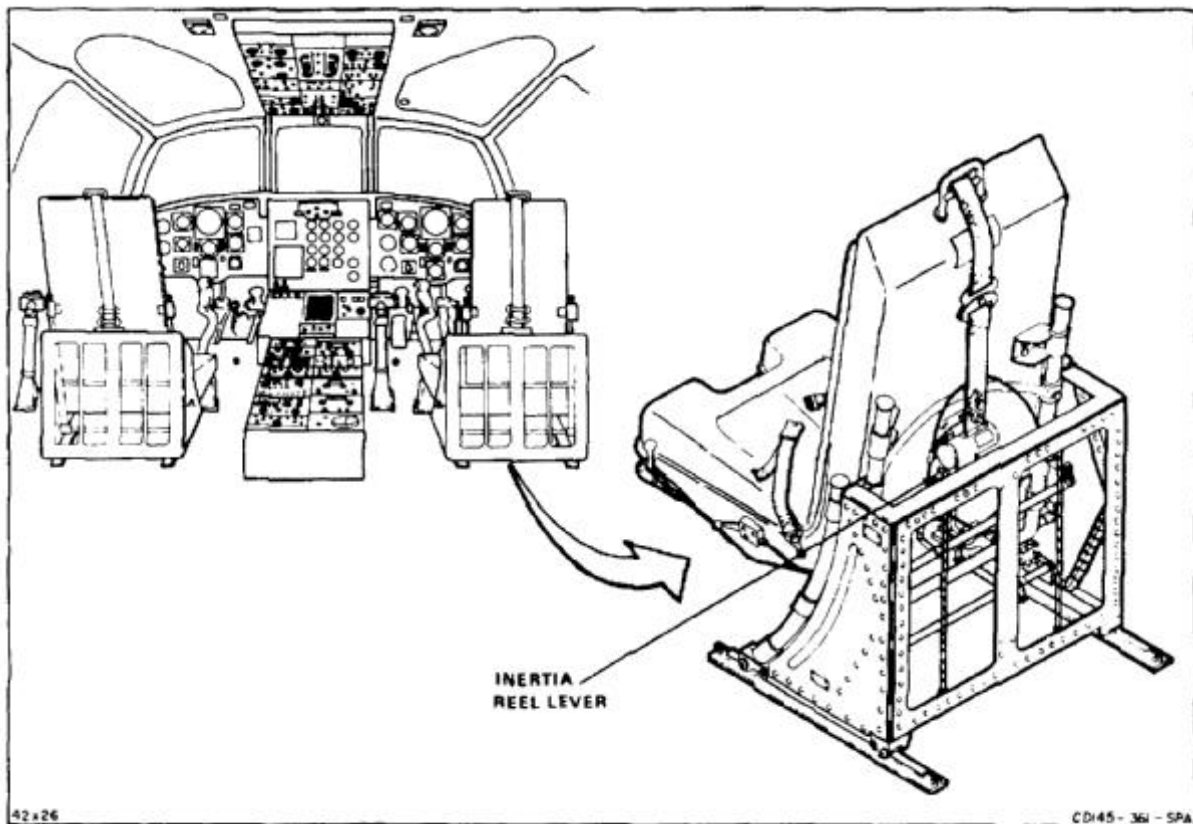
All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

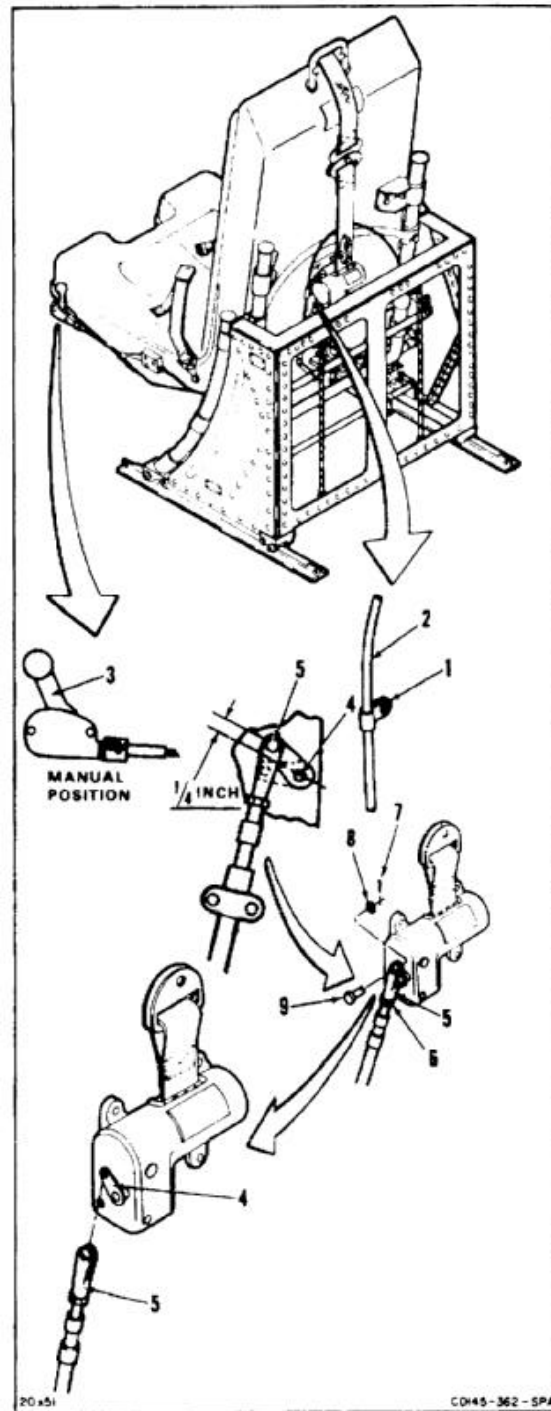
Lubricant (E237)

Personnel Required:Medium Helicopter Repairer
Inspector**Equipment Condition:**Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

NOTE

Procedure is same for adjusting pilot's or copilot's shoulder harness inertia reel lever throw. Pilot's lever throw is shown here.

1. Make sure three clamps (1) are tight on control cable (2).
2. Move control handle (3) forward and aft. If cable (2) is hard to move, lubricate with lubricant (E237). Make sure control handle (3) is in forward (manual) position.
3. Measure distance from center of pivot point of throw lever (4) to center of hole in clevis (5). Distance should be **1/4 inch**. If it is, go to step 10. If it is not, perform steps 4 thru 10.
4. Loosen and back off locknut (6) from clevis (5). Remove cotter pin (7), washer (8), and flathead pin (9).
5. Move lever (4) away from clevis (5).



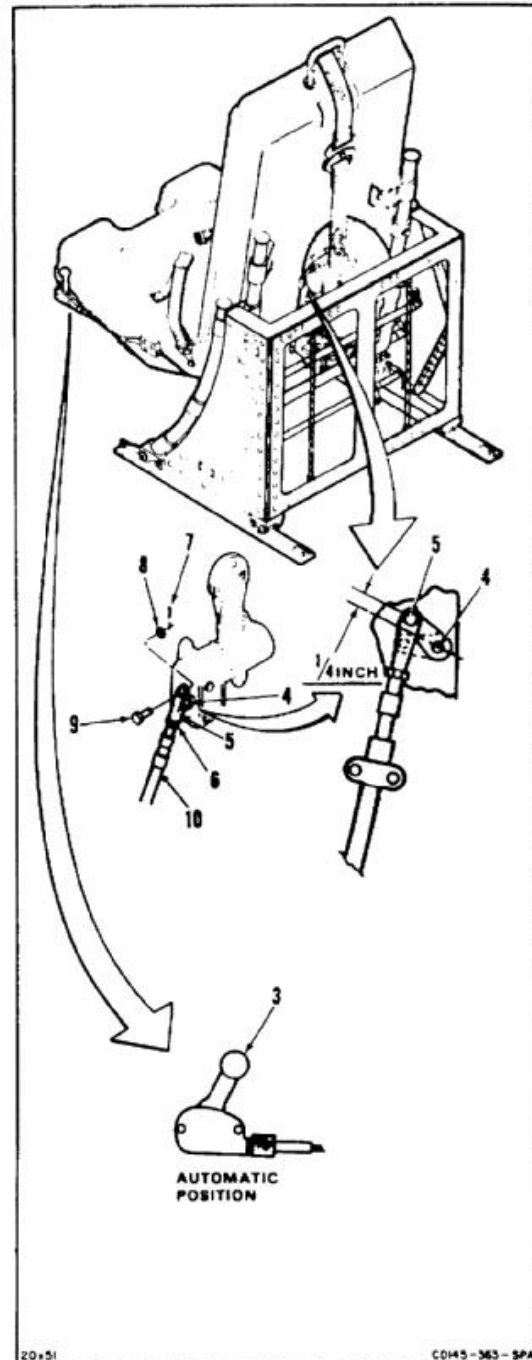
2-125 ADJUST PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL LEVER THROW (Continued)

2-125

6. Turn clevis (5) until center of hole is **1/4 inch** from center of pivot point of throw lever (4).
7. Install flathead pin (9) through lever (4) and clevis (5).
8. Install washer (8) and new cotter pin (7) on pin (9).
9. Tighten locknut (6) against clevis (5).
10. Move control handle (3) aft (automatic).
11. Measure distance from center of pivot point of throw lever (4) to center of hole in clevis (5). Distance should be **1/4 inch**. If it is not, perform steps 4 thru 9 again.

INSPECT**FOLLOW-ON MAINTENANCE:**

Test inertia reel (Task 2-116).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

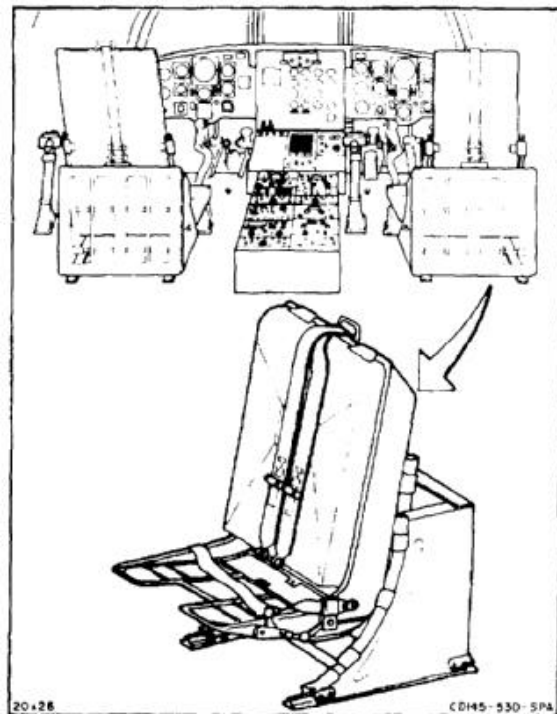
Equipment Condition:

Battery Disconnected (Task 1-39)

Bottom Seat Cushion Removed (Task 2-128)

Electrical Power Off

Hydraulic Power Off

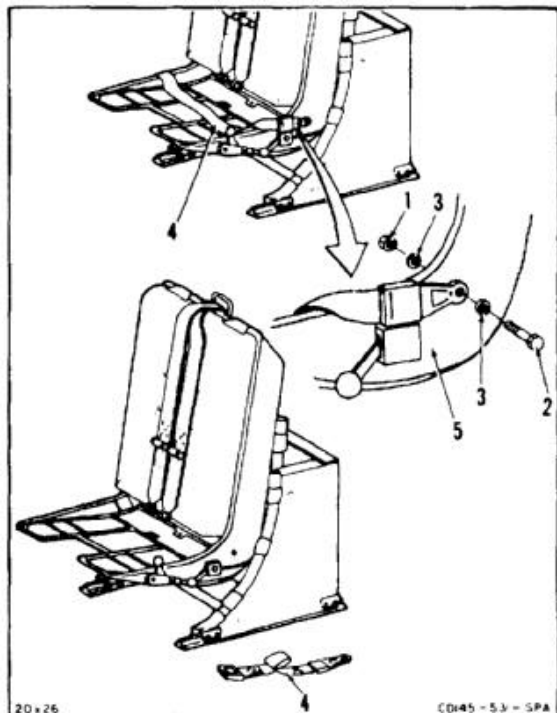
**NOTE**

Procedures are same for removing pilot's and copilot's safety belt.

1. Remove nut (1), bolt (2), and two washers (3) from safety belt (4) and bucket (5).
2. Repeat step 1 for other side (4).
3. Remove safety belt (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-436

INITIAL SETUP

Applicable Configurations:

All

Tools:

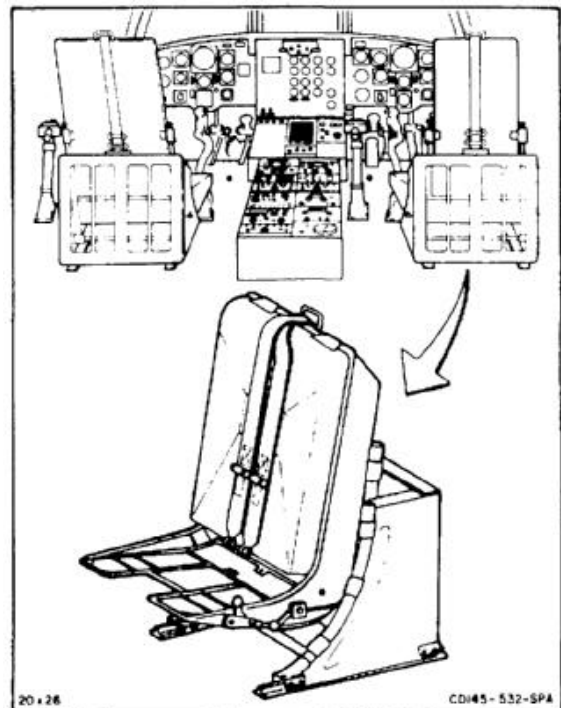
Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Marking Pencil

Personnel Required:Medium Helicopter Repairer
Inspector**References:**

TM 55-1520-240-23P

**WARNING**

Safety belts must be installed with release handle up and pointing left. If it is not, this could prevent quick exit of personnel during emergency.

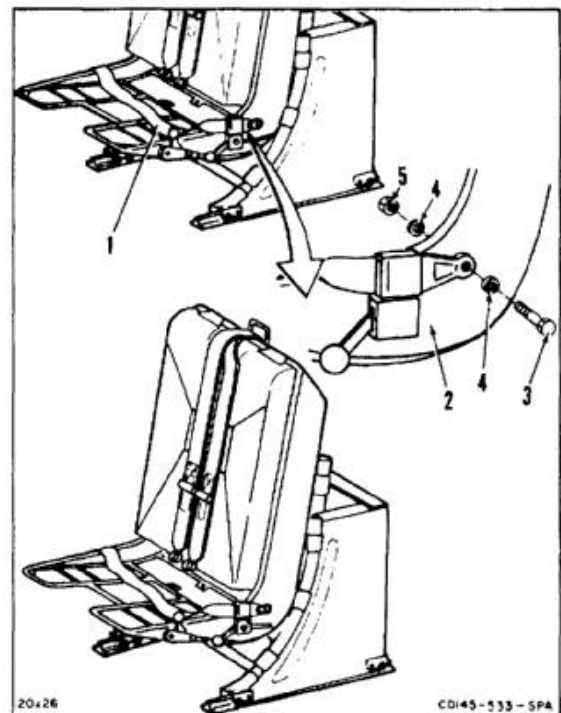
NOTE

Procedures are same for installing pilot's and copilot's safety belt.

1. Position seat belt (1) on seat bucket (2).
2. Align holes in belt (1) and bucket (2).
3. Install bolt (3), two washers (4), and nut (5) through belt (1) and bucket (2).
4. Perform steps 1 thru 3 for other side of belt (1).

INSPECT**FOLLOW-ON MAINTENANCE:**

Install seat cushion (Task 2-129).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

None

Personnel Required:

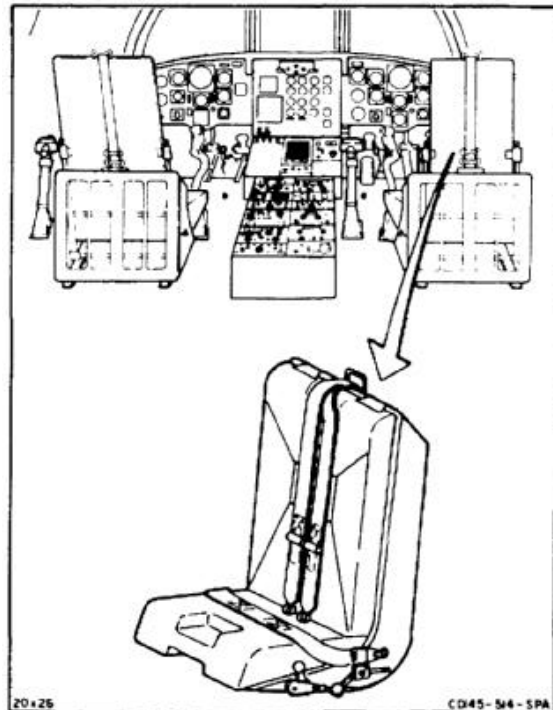
Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)

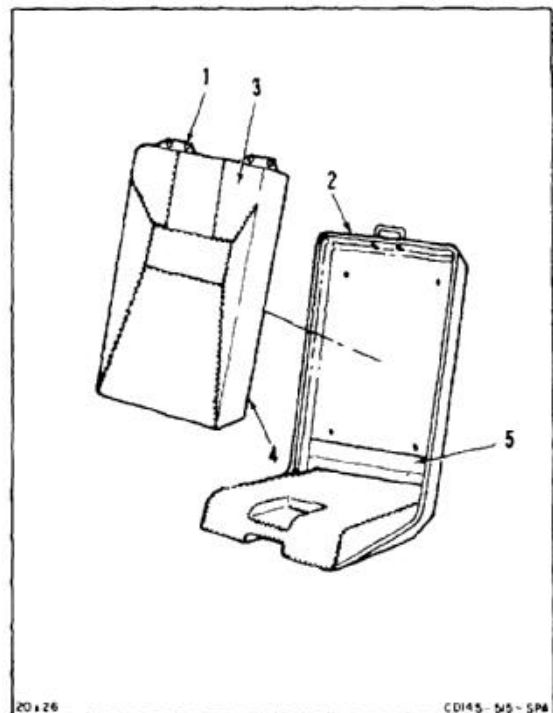
Electrical Power Off

Hydraulic Power Off

**REMOVE BACK SEAT CUSHION****NOTE**

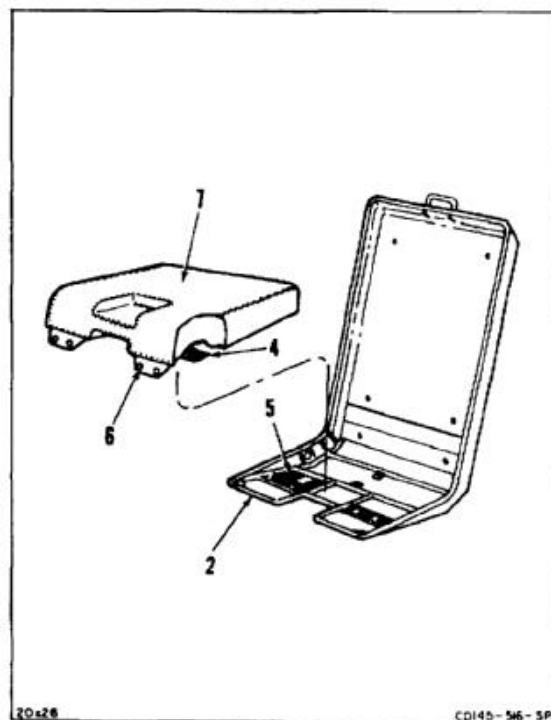
Procedures are same for removing pilot's or copilot's seat cushions.
Pilot's seat is shown here.

1. Unsnap four fasteners (1) from seat bucket (2).
2. Separate hook tape (4) from pile tape (5).
Remove cushion (3).



REMOVE BOTTOM SEAT CUSHION

3. Unsnap four fasteners (6) from seat bucket (2).
4. Separate hook tape (4) from pile tape (5). Lift off cushion (7).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

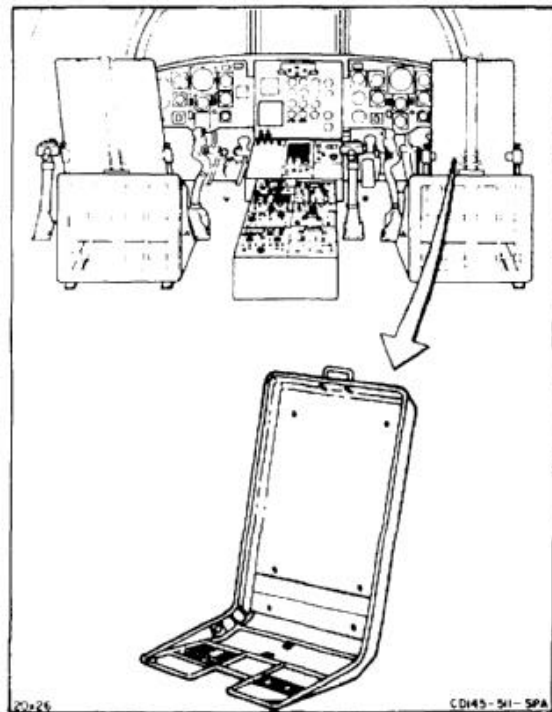
None

Personnel Required:

Medium Helicopter Repairer

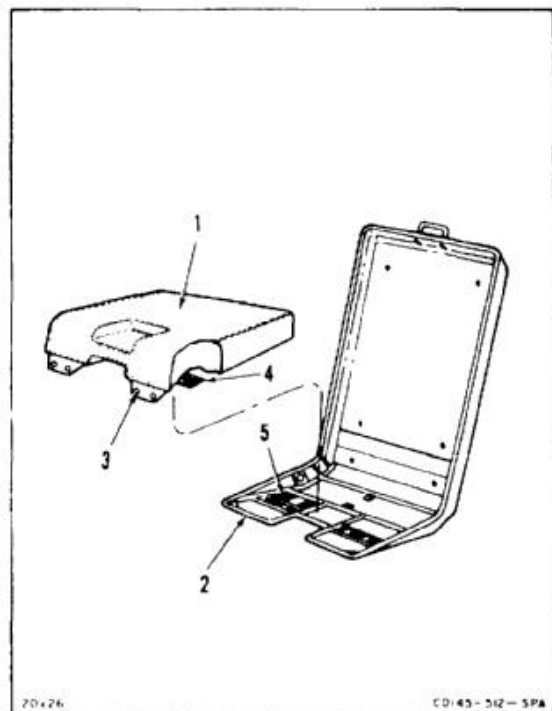
References:

TM 55-1520-240-23P

**INSTALL BOTTOM SEAT CUSHION****NOTE**

Procedures are same for installing both pilot's or copilot's seat cushions. Pilot's seat is shown here.

1. Position bottom cushion (1) in seat bucket (2).
2. Snap four fasteners (3) to bucket (2). Press on cushion so hook tape (4) sticks to pile tape (5).

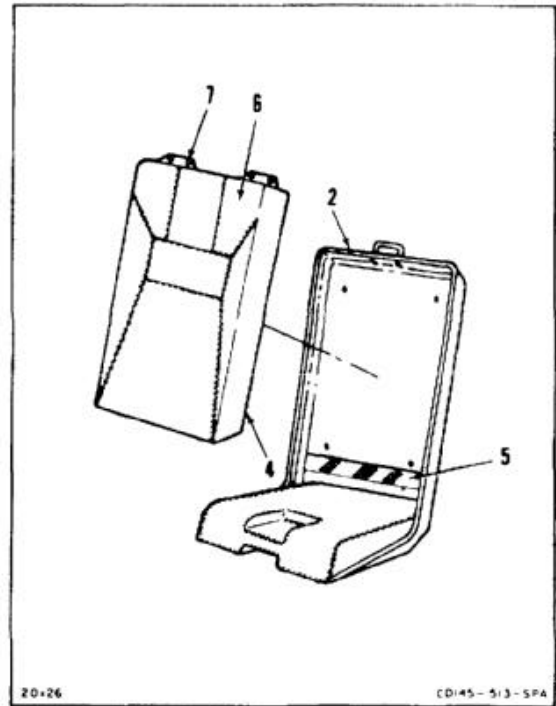


INSTALL BACK SEAT CUSHION

3. Position back seat cushion (6) in seat bucket (2).
4. Snap four fasteners (7) to bucket (2). Press on cushion so hook tape (4) sticks to pile tape (5).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

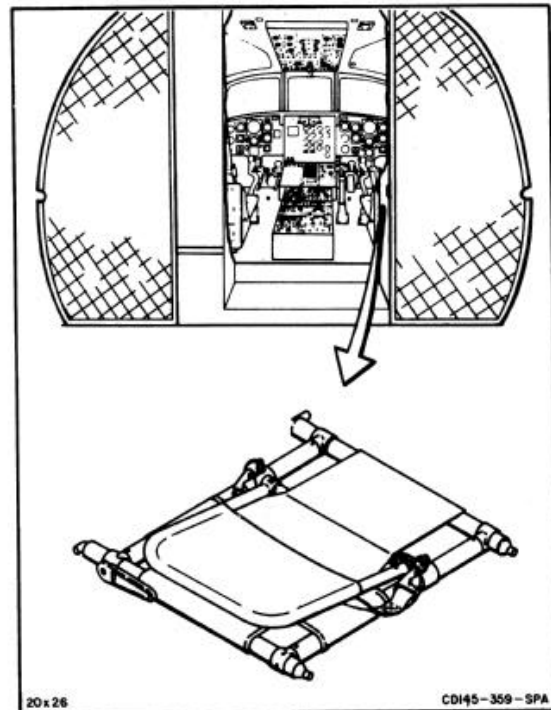
Equipment Condition:

Commander's Seat in Stowed Position (Task 2-134)

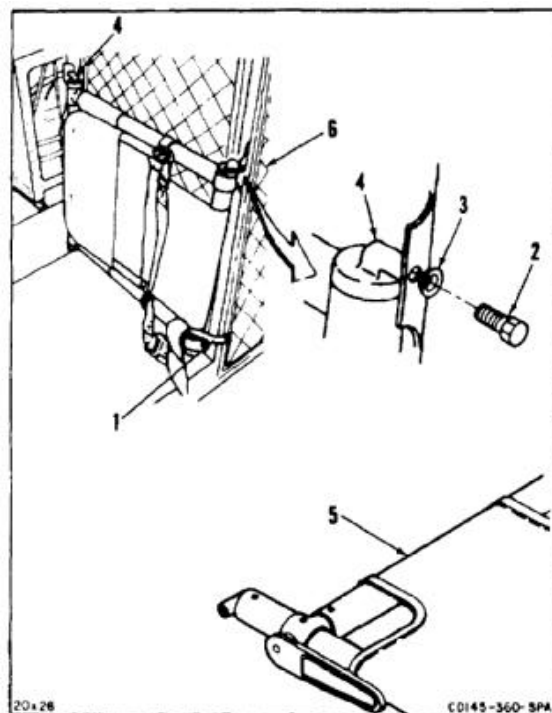
Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off



1. Release seat stowage strap (1).
2. Remove two bolts (2) and bushings (3) from hinges (4) of seat (5). Hold blanket (6) clear if required.
3. Remove seat (5).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-442

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Retaining Ring Pliers

Materials:

Liquid Soap (E352)

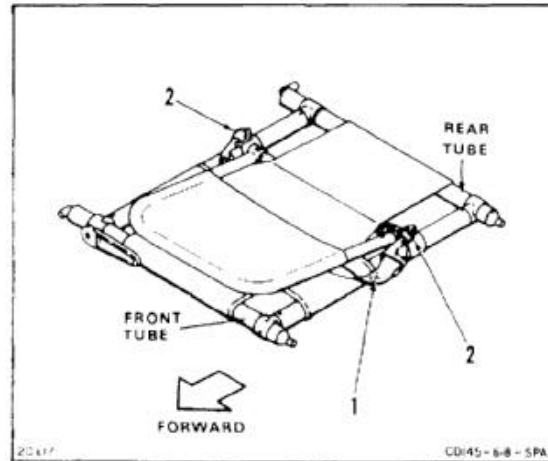
Personnel Required:

Medium Helicopter Repairer

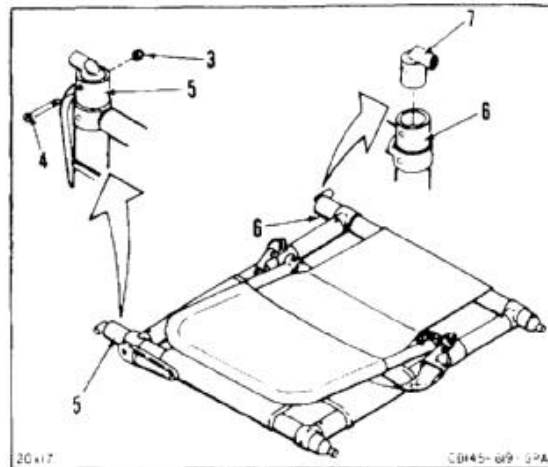
Equipment Condition:

Off Helicopter Task

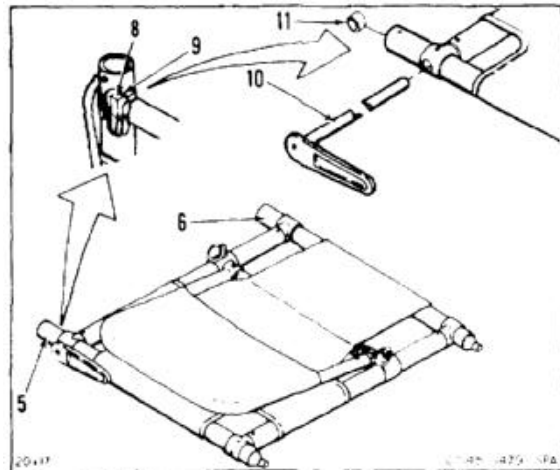
1. Remove seat belt (1) from two retaining rings (2).



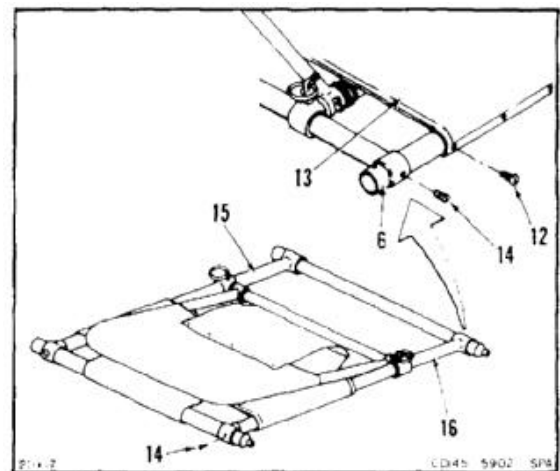
2. Remove two nuts (3) and screws (4) from front and rear tubes (5 and 6). Remove two hinges (7).
3. Check hinges (7) for stripped thread. Replace hinges if damaged.



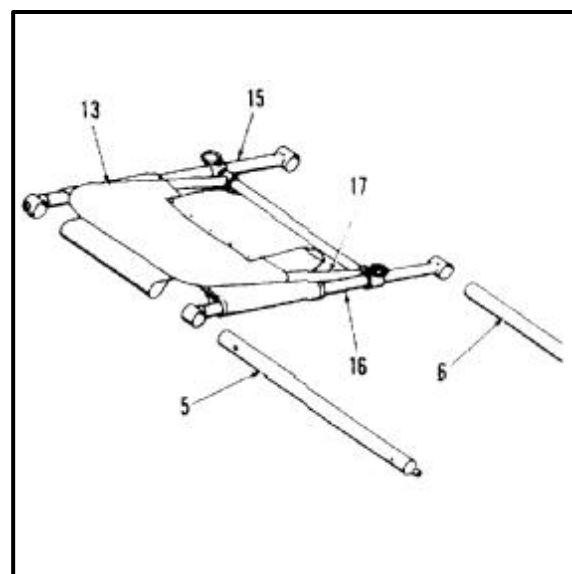
4. Loosen setscrew (8) in actuator blocks (9) inside tubes (5 and 6).
5. Pull handle (10) from tube (5). Remove one nylon bushing (11) from each tube (5 and 6).



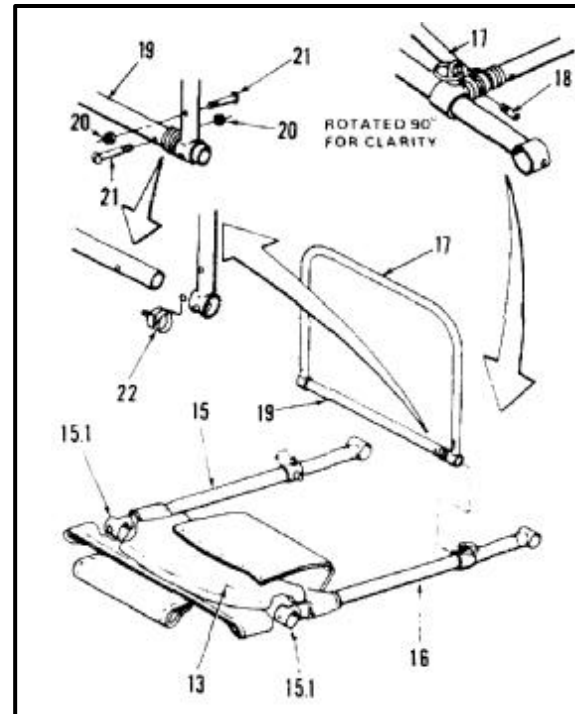
6. Remove five screws (12) from seat fabric (13) and rear tube (6).
7. Remove three screws (14) from side tubes (15 and 16).



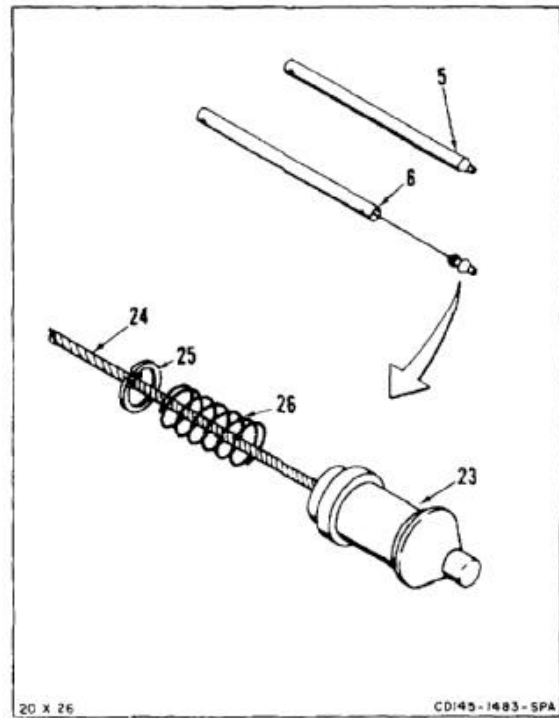
8. Slide front and rear tubes (5 and 6) away from side tubes (15 and 16). Set tubes (5 and 6) aside for disassembly in step 14.
9. Pull up seat fabric (13) from backrest tube (17).



10. Remove two plugs (18) from lower tube (19) of backrest tube (17).
11. Remove two nuts (20) and screws (21) from tubes (17 and 19). Remove spring (22).
12. Remove backrest tube (17) from side tubes (15 and 16).
13. Slide tubes (15 and 16) apart and remove lower backrest tube (19).
- 13.1. Apply liquid soap (E352) to fittings (15.1) on tubes (15 and 16).
- 13.2. Pull seat fabric (13) from tubes (15 and 16).



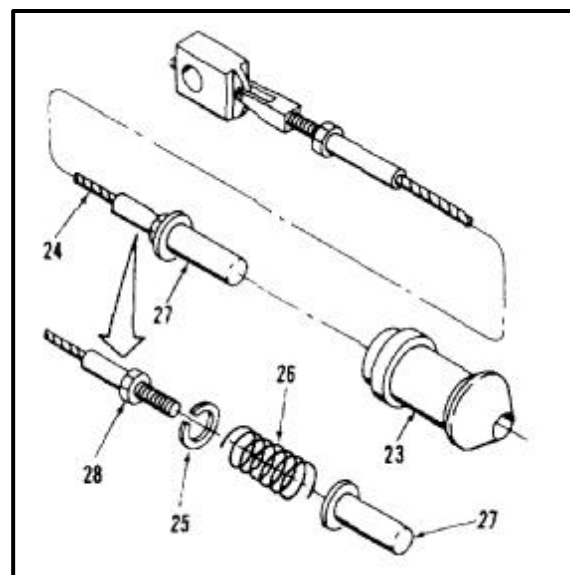
14. Remove housing (23) with wire rope assembly (24) from ends of tubes (5 and 6).
15. Remove retaining ring (25) and spring (26) from housing (23).



16. Remove plunger (27) with wire rope assembly (24). Loosen jam nut (28). Remove plunger from wire rope assembly.
17. Remove retaining ring (25) and spring (26) from wire rope assembly (24).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

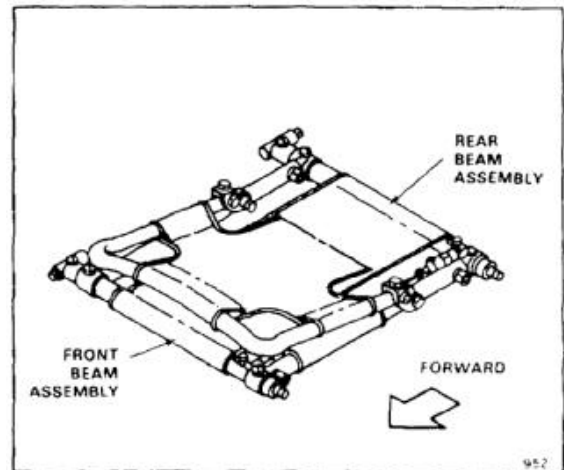
None

Personnel Required:

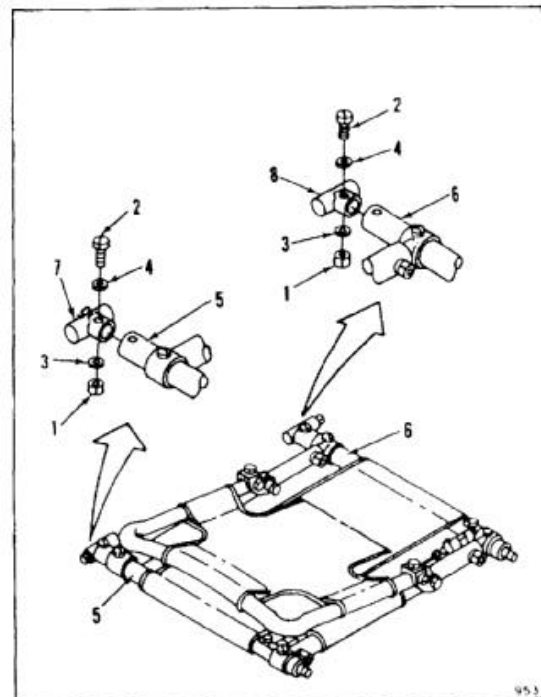
Medium Helicopter Repairer

Equipment Condition:

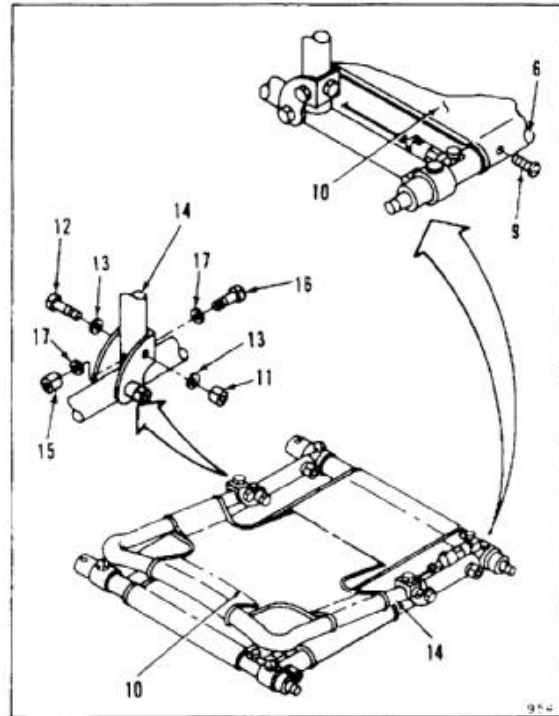
Off Helicopter Task



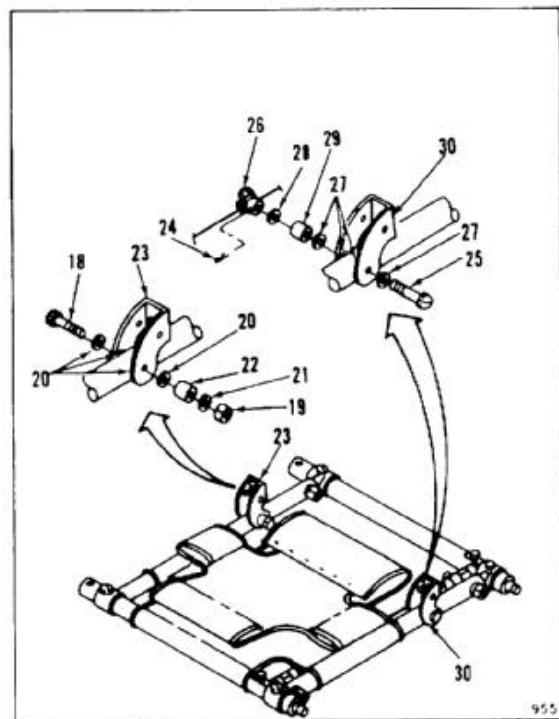
1. Remove two nuts (1), bolts (2), and washers (3 and 4) from front beam assembly (5) and rear beam assembly (6). Remove two hinges (7 and 8).
2. Check hinges (7 and 8) for stripped thread. Replace hinges if damaged.



3. Remove six screws (9) from seat fabric (10) and rear beam assembly (6).
4. Remove two nuts (11), bolts (12), and washers (13) from back frame assembly (14).
5. Remove two nuts (15), bolts (16), and washers (17) from back frame assembly (14).
6. Slide back frame assembly (14) from seat fabric (10). Remove back frame assembly (14).



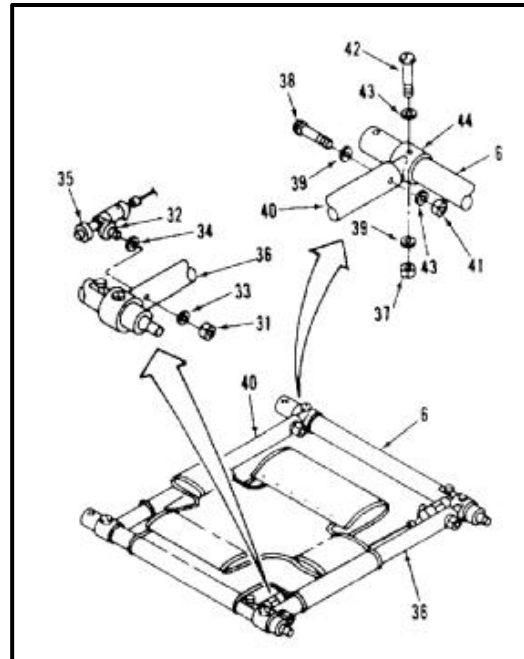
7. Remove bolt (18), nut (19), washers (20 and 21), and spacer (22) from hinge (23). Remove hinge.
8. Remove cotter pin (24), screw (25), thumbscrew (26), washers (27 and 28), and spacer (29) from hinge (30). Remove hinge.



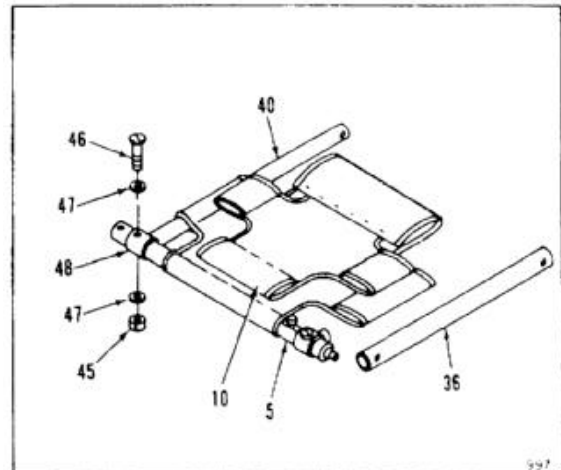
2-131.1 DISASSEMBLE TROOP COMMANDER'S SEAT A-6632 (Continued)

2-131.1

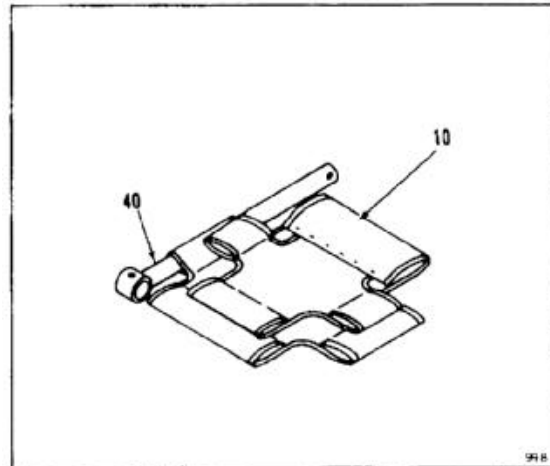
9. Remove two nuts (31), eye bolts (32), washers (33 and 34), and bolts (35) from side tube (36).
10. Remove nut (37), bolt (38), and washers (39) from side tube (40). Remove rear beam assembly (6).
11. Remove nut (41), bolt (42), and washers (43) from bracket (44). Remove bracket (44) from rear beam assembly (6).



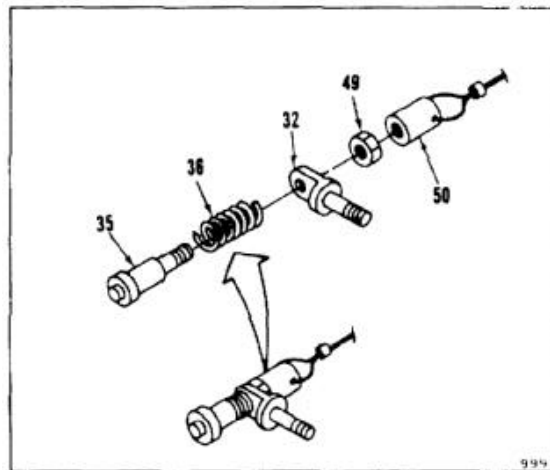
12. Slide side tube (36) from seat fabric (10).
13. Remove nut (45), bolt (46), and washers (47) from bracket (48). Slide side tube (40) with seat fabric (10) from front beam assembly (5).



14. Slide side tube (40) from seat fabric (10).



15. Loosen two nuts (49). Remove adapter (50) from bolts (35).
16. Remove two nuts (49), bolts (35), and springs (36) from eyebolts (32).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-450

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Retaining Ring Pliers

Materials:

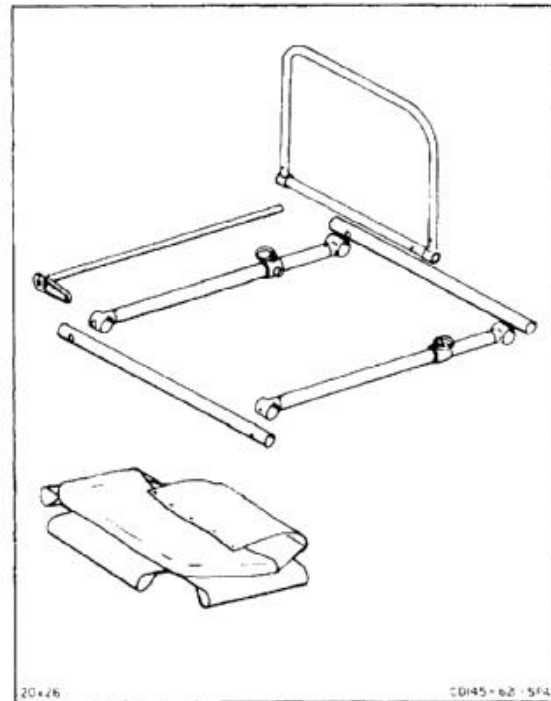
Gloves (E186)
Cloth (E120)
Solvent (E163)
Liquid Soap (E352)

Personnel Required:

Medium Helicopter Repairer

References:

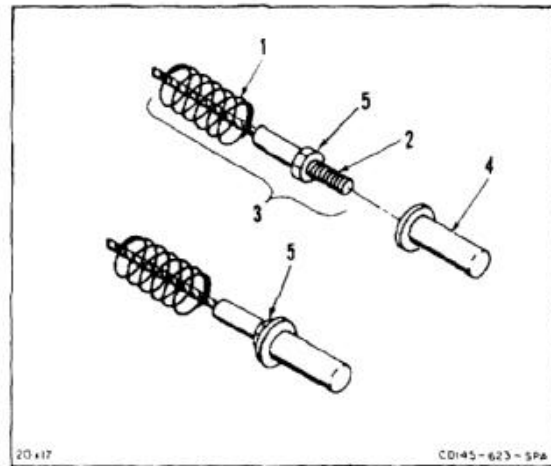
TM 55-1520-240-23P

**WARNING**

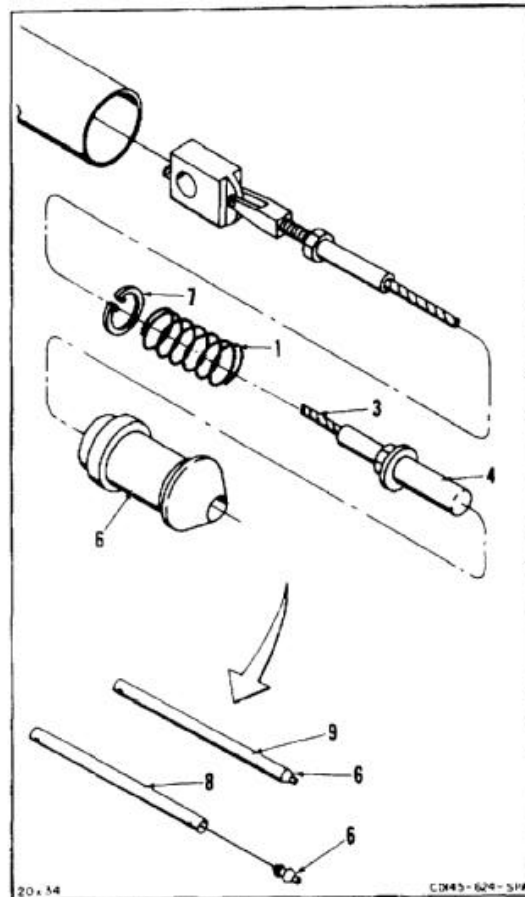
Solvent (E163) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

1. Clean all seat assembly metal tubes and handle with solvent (E163).
2. Clean nylon seat fabric and safety belt with clean cloth (E120) damp with water.

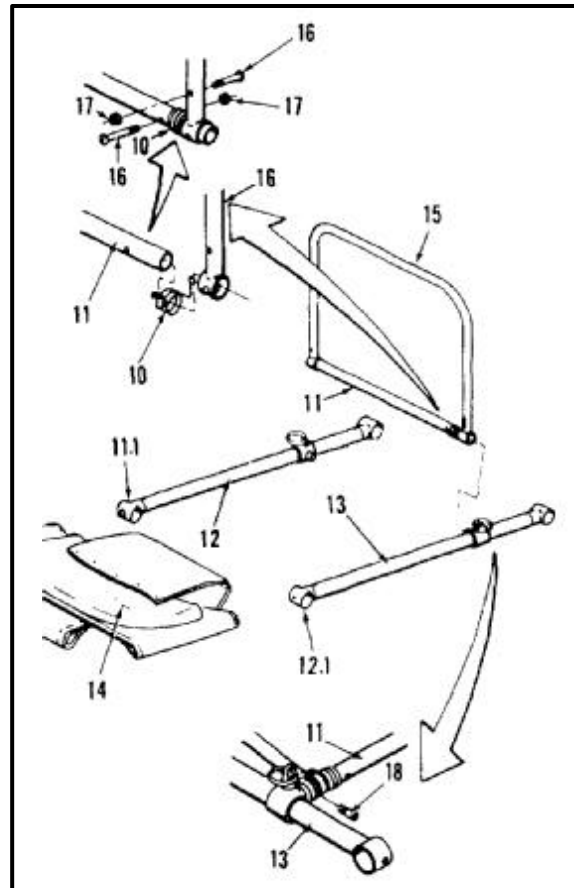
3. Install spring (1) over stud (2) of wire rope assembly (3).
4. Install stud (2) in plunger (4) as far as it will go. Tighten jam nut (5) on plunger.



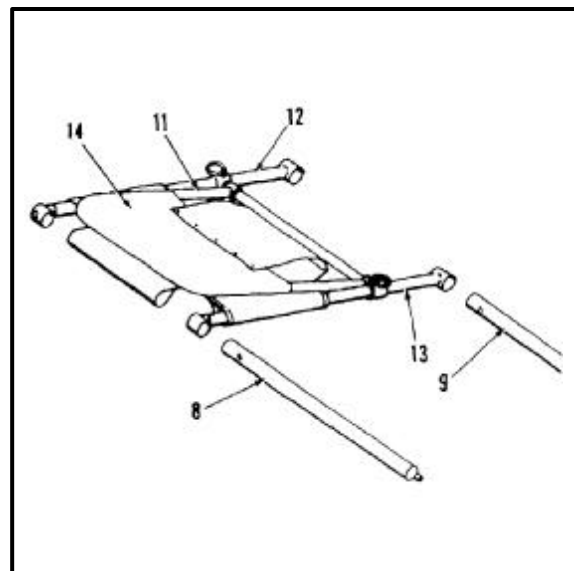
5. Install wire rope assembly (3), plunger (4), and spring (1) in housing (6).
6. Install retaining ring (7) inside housing (6).
7. Install two housings (6) in front and rear tubes (8 and 9).



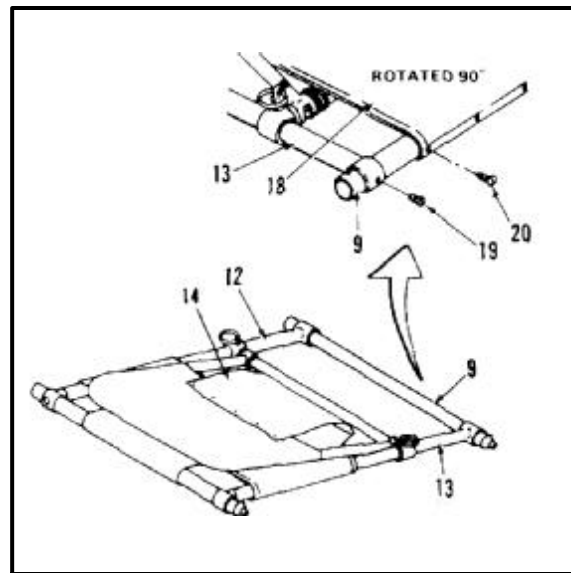
8. Position spring (10) on lower backrest tube (11).
9. Apply liquid soap (E352) to fittings (11.1) of tubes (12 and 13).
10. Slide seat fabric (14) on side tubes (12 and 13).
11. Position lower backrest tube (11) between side tubes (12 and 13).
12. Slide seat fabric (14) on backrest tube (15) and position backrest tube (15) on lower backrest tube (11).
13. Install three screws (16) and nuts (17) through ends of spring (10) and tubes (11 and 15).
14. Install two plugs (18) on lower backrest tube (11).



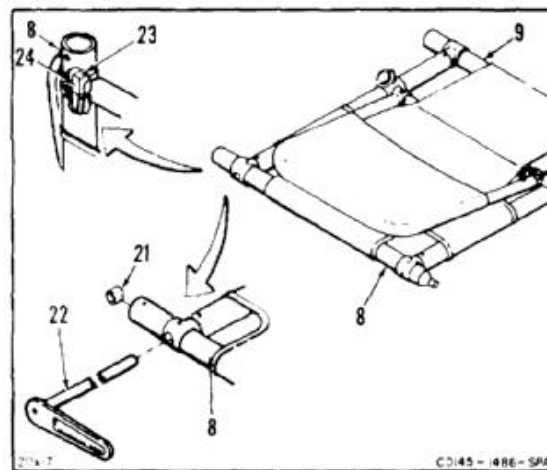
15. Slide front and rear tubes (8 and 9) through side tubes (12 and 13) and seat fabric (14).



16. Install three screws (19) in side tubes (12 and 13) and in rear tube (9).
17. Install five screws (20) in seat fabric (14) and rear tube (9).



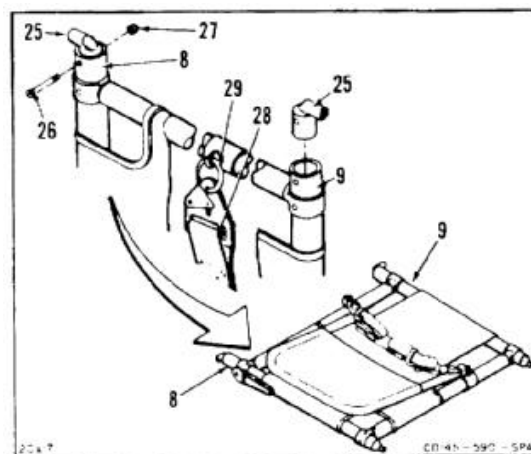
18. Install nylon bushings (21) on front and rear tubes (8 and 9).
19. Install handle (22) through front and rear tubes (8 and 9).
20. Tighten setscrews (23) in actuator blocks (24) inside tubes (8 and 9).



21. Position two hinges (25) on ends of front and rear tubes (8 and 9).
22. Install two screws (26) and nuts (27) on hinges (25).
23. Install seat belt (28) on two retaining rings (29).

FOLLOW-ON MAINTENANCE:

Install troop commander's seat (Task 2-133).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

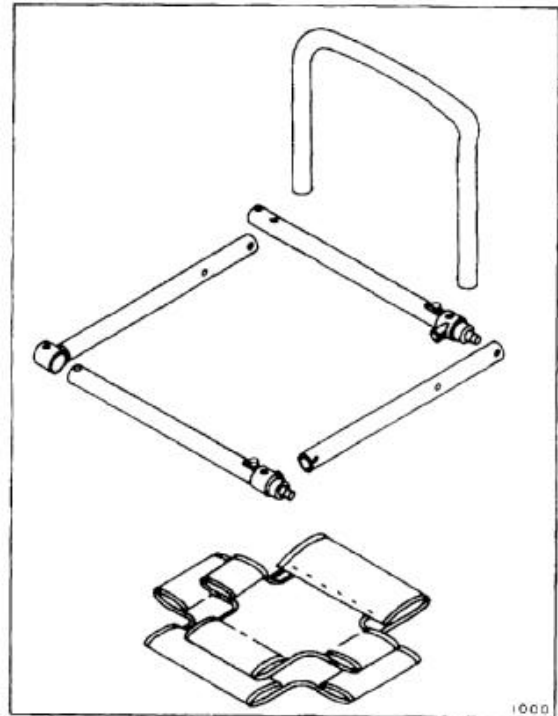
Cloth (E120)
Solvent (E163)

Personnel Required:

Medium Helicopter Repairer (2)

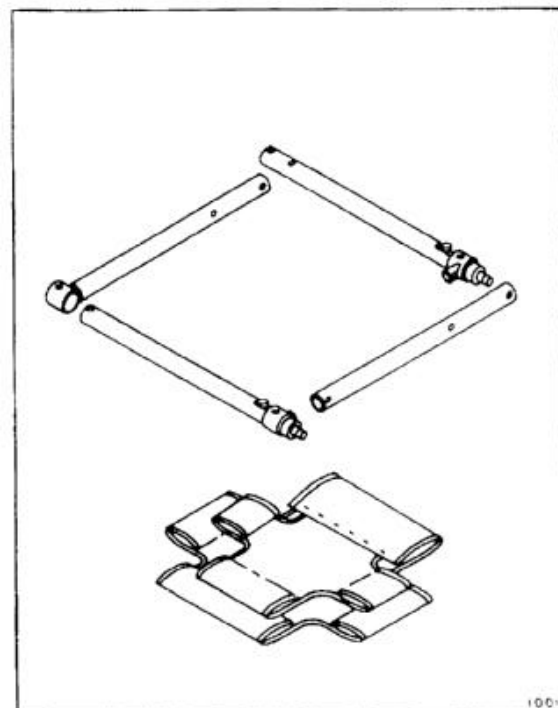
References:

TM 55-1520-240-23P

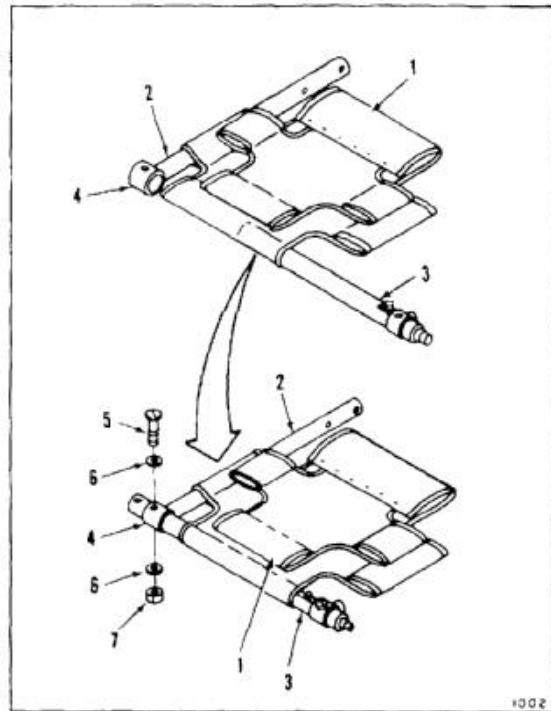
**WARNING**

Solvent (E163) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

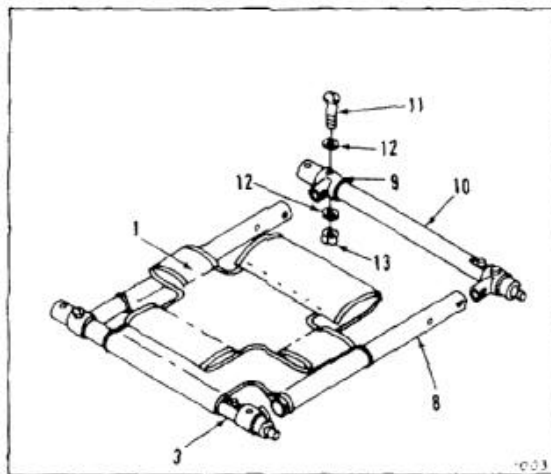
1. Clean all seat assembly metal tubes with solvent (E163).
2. Clean nylon seat fabric with clean cloth (E120) damp with water.



3. Slide seat fabric (1) on side tube (2).
4. Slide front beam assembly (3) through seat fabric (1) and into side tube bracket (4).
5. Install bolt (5), washers (6), and nut (7) through side tube bracket (4) and front beam assembly (3).



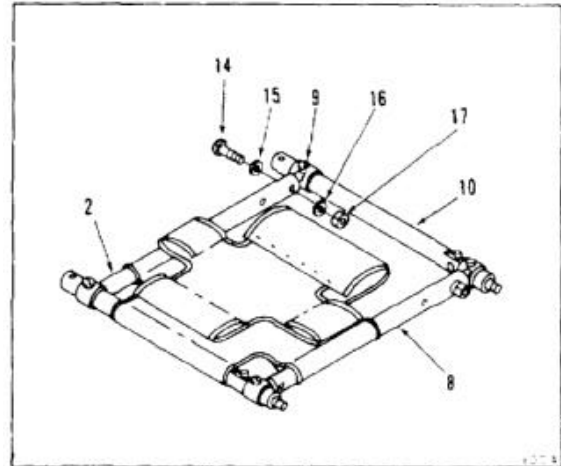
6. Slide side tube (8) through seat fabric (1) and onto front beam assembly (3).
7. Position hinge (9) on rear beam assembly (10).
8. Install bolt (11), washers (12), and nut (13) through hinge (9) and rear beam assembly (10).



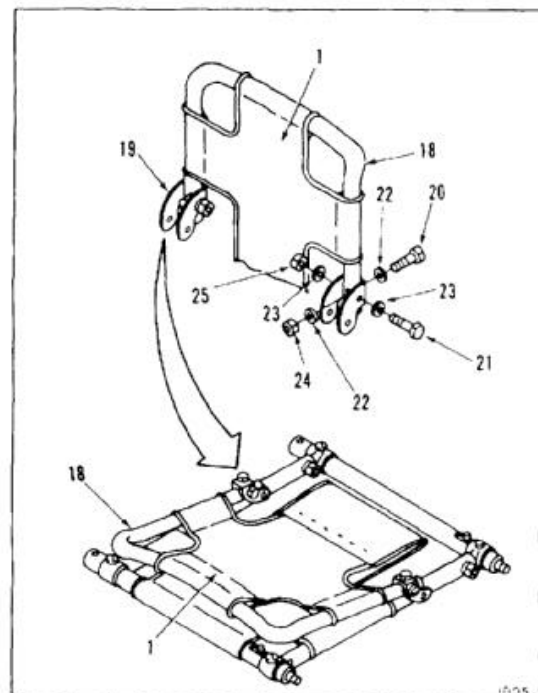
2-132.1 ASSEMBLE TROOP COMMANDER'S SEAT A-6632 (Continued)

2-132.1

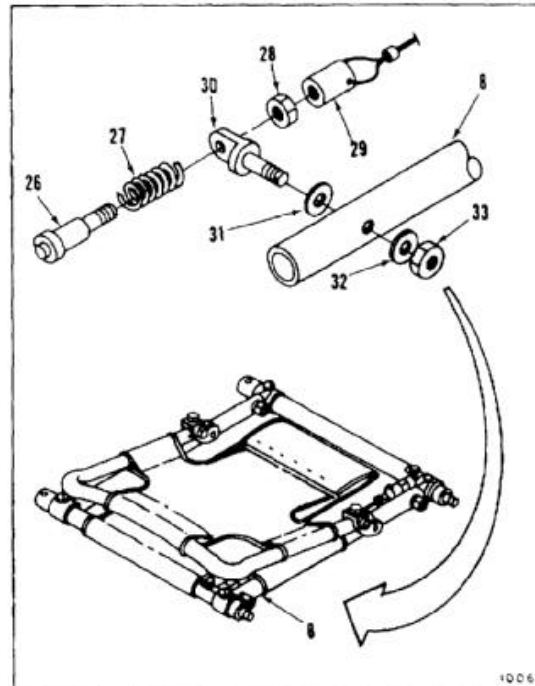
9. Position rear beam assembly (10) on side tubes (2 and 8).
10. Install bolt (14) washers (15 and 16), and nut (17) through side tube (2) and hinge (9).



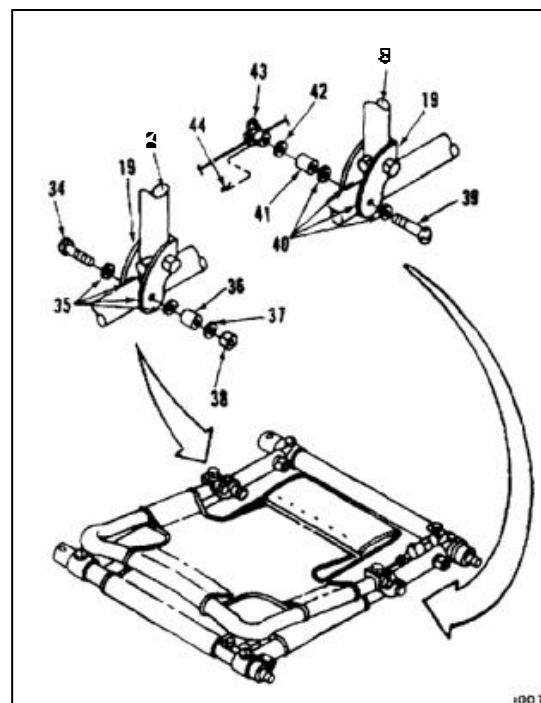
11. Slide back frame assembly (18) through seat fabric (1).
12. Position two hinges (19) on back frame assembly (18).
13. Install bolts (20 and 21), washers (22 and 23), and nuts (24 and 25) through hinges (19) and back frame assembly (18).



14. Install two bolts (26), springs (27), nuts (28), and adapters (29) in eye bolts (30). Do not tighten nuts (28).
15. Depress bolts (26) and springs (27) against eyebolts (30). Install eyebolts (30) through side tube (8). Secure with washers (31 and 32) and nuts (33).



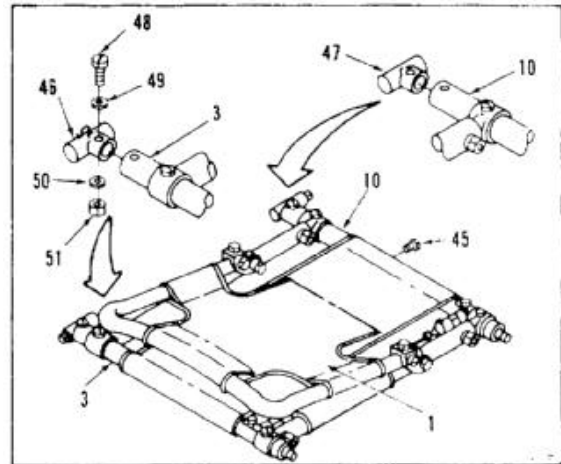
16. Position hinges (19) on side tubes (2 and 8).
17. Install bolt (34), four washers (35), spacer (36), washer (37), and nut (38) (one under bolthead, one each between hinge (19) and side tube (2 or 8) and one under spacer).
18. Install screw (39), three washers (40), spacer (41), washer (42), thumbscrew (43), and cotter pin (44) (one each between hinge (19) and side tube (2 or 8), and one under spacer).



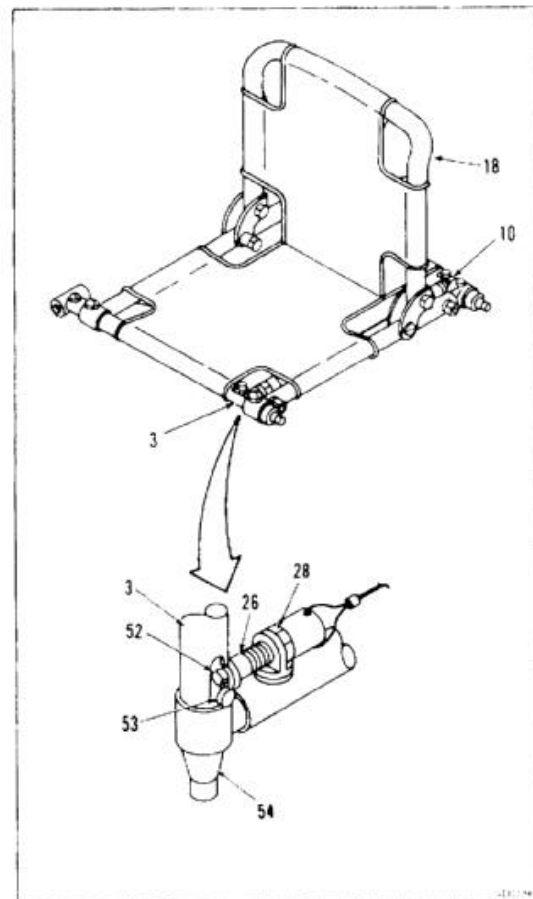
2-132.1 ASSEMBLE TROOP COMMANDER'S SEAT A-6632 (Continued)

2-132.1

19. Install six screws (45) in seat fabric (1) and rear beam assembly (10).
20. Position two hinges (46 and 47) on ends of front and rear beam assemblies (3 and 10).
21. Install two bolts (48), washers (49 and 50), and nuts (51).



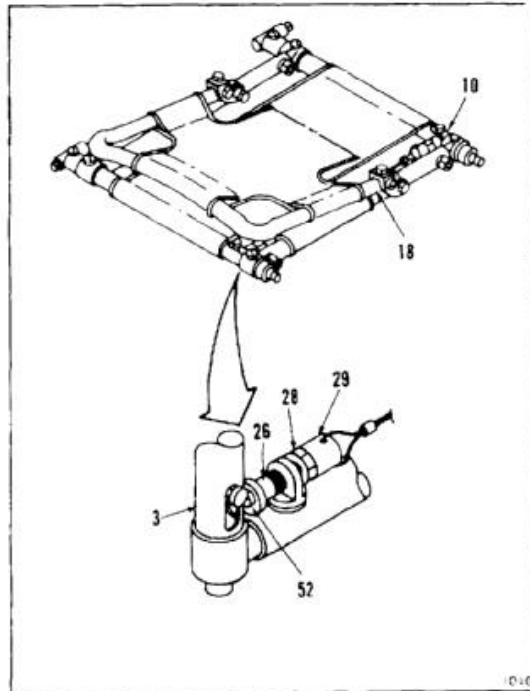
22. Have helper position and hold back frame assembly (18) in the upright position.
23. Hold nuts (28) and adjust bolts (26) in or out until bolt head plungers (52) are engaged in front and rear beam assemblies (3 and 10).
24. Slide two knobs (53) forward until bolt assemblies (54) are fully extended.
25. Release two knobs (53). Bolt assemblies (54) shall remain in the extended position.



26. Have helper position back frame assembly (18) in the stowed position.
27. Hold nuts (28) and adjust bolts (26) until bolt head plungers (52) retract from front and rear beam assemblies (3 and 10).
28. Hold adapters (29) and tighten nuts (28) against adapters.

FOLLOW-ON MAINTENANCE:

Install troop commander's seat (Task 2-133).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

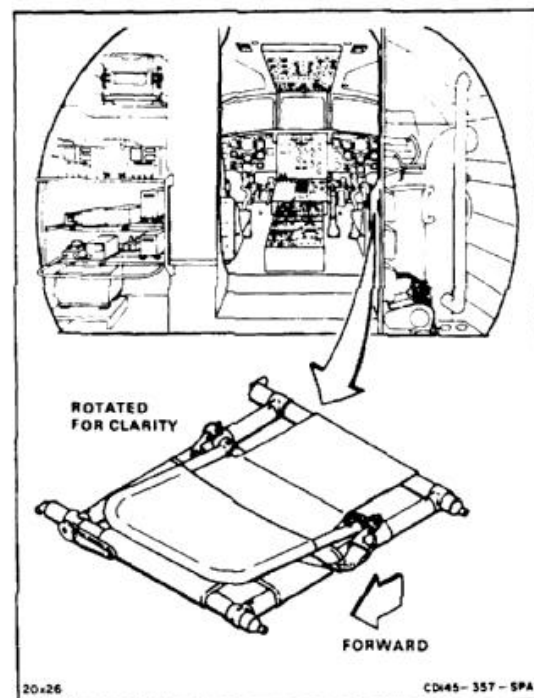
None

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P

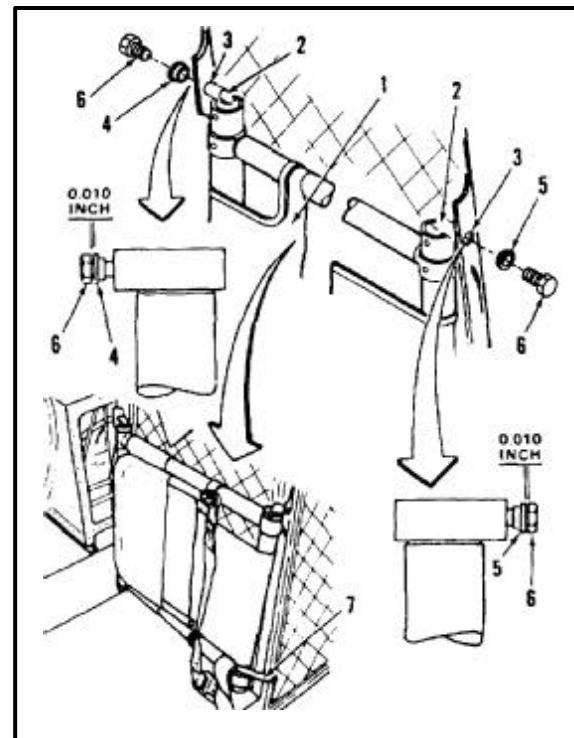


1. Position commander's seat (1) and hinges (2) up between two hinge brackets (3).
2. Align holes in two brackets (3) and two hinges (2).
3. Install **5/16 inch** bushing (4) on cockpit side.
4. Install **1/4 inch** bushing (5) on cabin side.
5. Install two bolts (6). Make sure gap is **0.010 inch** between bushing (4) and head of bolt (6). Make sure gap is **0.010 inch** between bushing (5) and head of bolt (6).

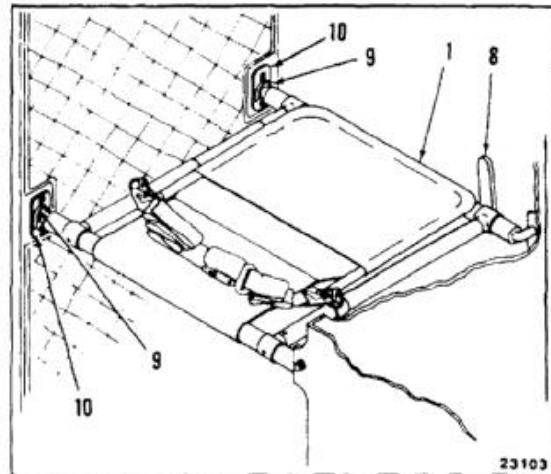
NOTE

Depending on seat configuration, the beam mounted holding pads may require shimming.

6. Make sure seat (1) swings up and down freely on hinges (2). If not, check bolts (6) and bushings (4 and 5).



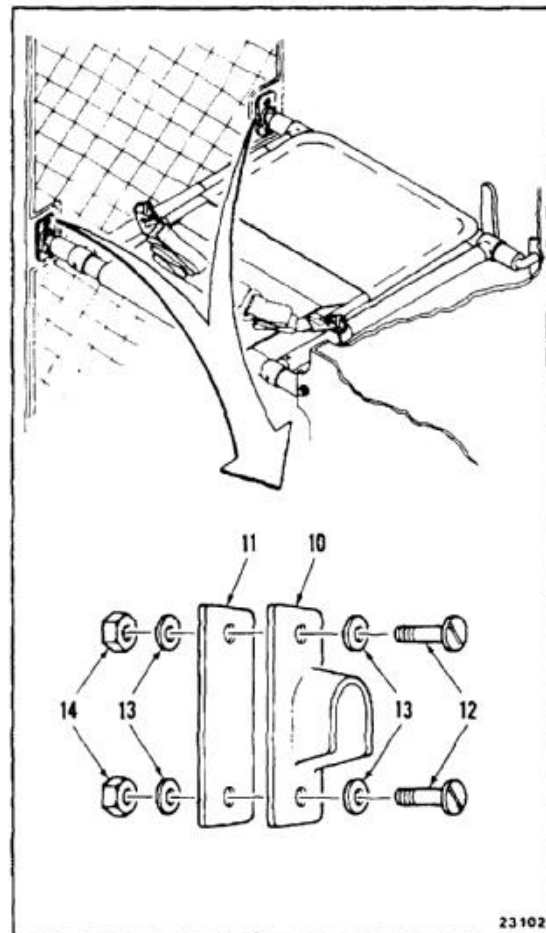
7. Place seat (1) to in use position. Actuate handle (8) to engage pins (9) into holding pads (10). Ensure pins have **0.27 inch** minimum engagement in pads.



8. Add or remove shims (11) under pads (10) to obtain minimum engagement of **0.27 inch** after shimming. Install proper length bolts (12), washers (13), and nuts (14).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

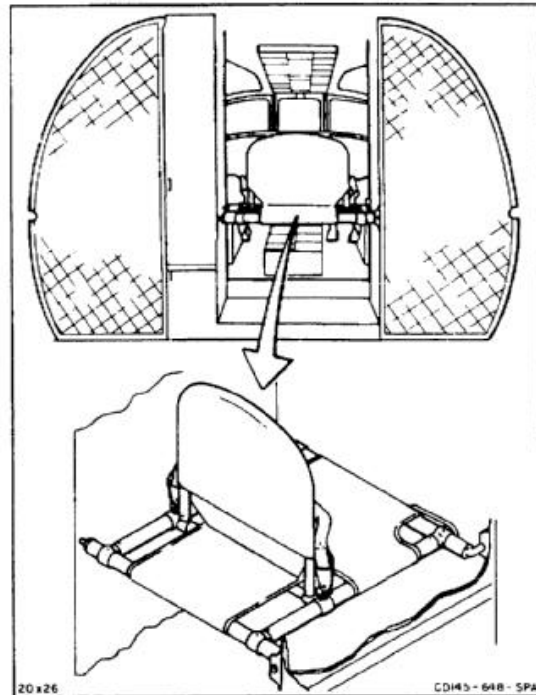
None

Personnel Required:

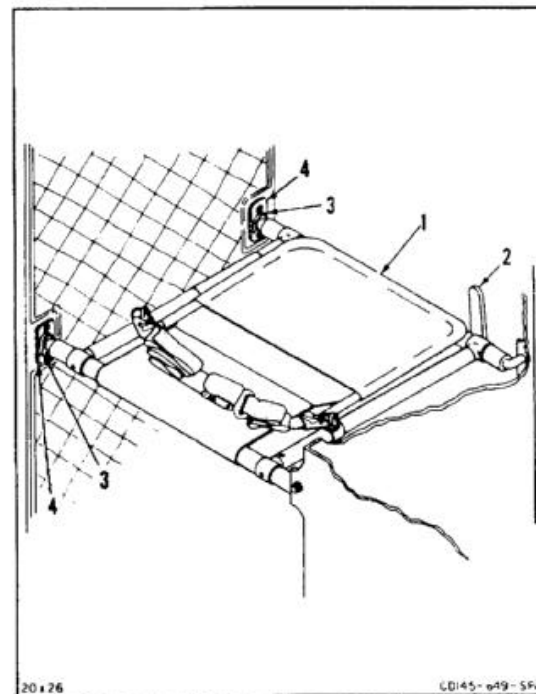
Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Seat in Normal Position (Task 2-135)



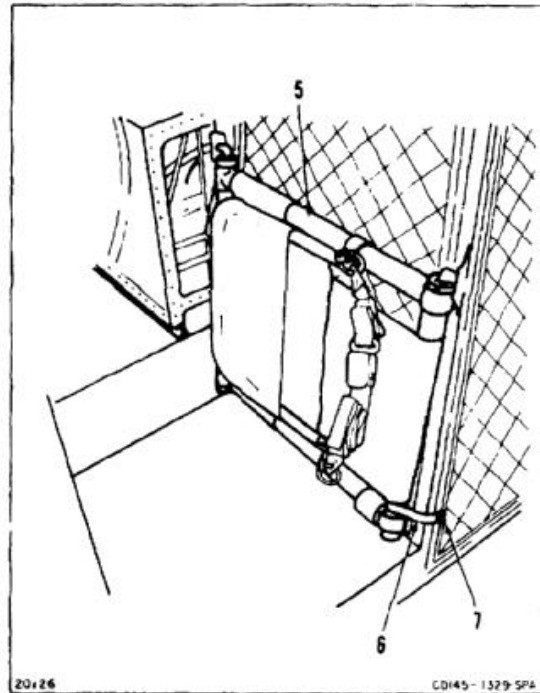
1. Fold seat back (1) down.
2. Turn seat handle (2) to up position so two pins (3) slide out of two keyways (4).



3. Fold seat (5) down against wall on right side of passageway.
4. Put stowage strap (6) around lower part of seat (5) and secure to stud (7).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-464

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

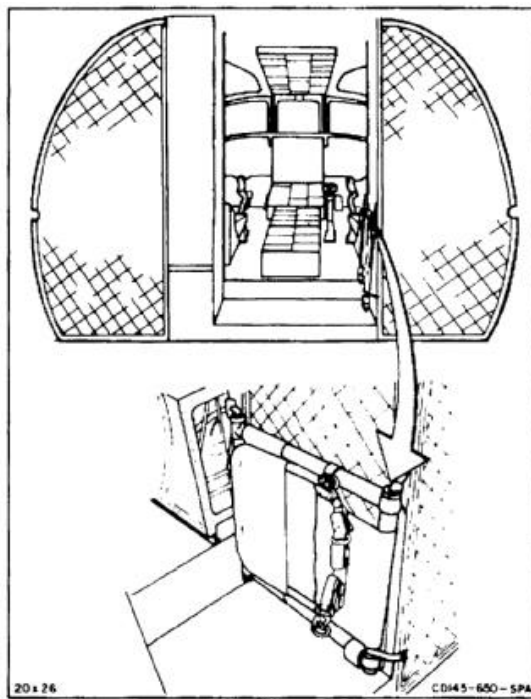
None

Personnel Required:

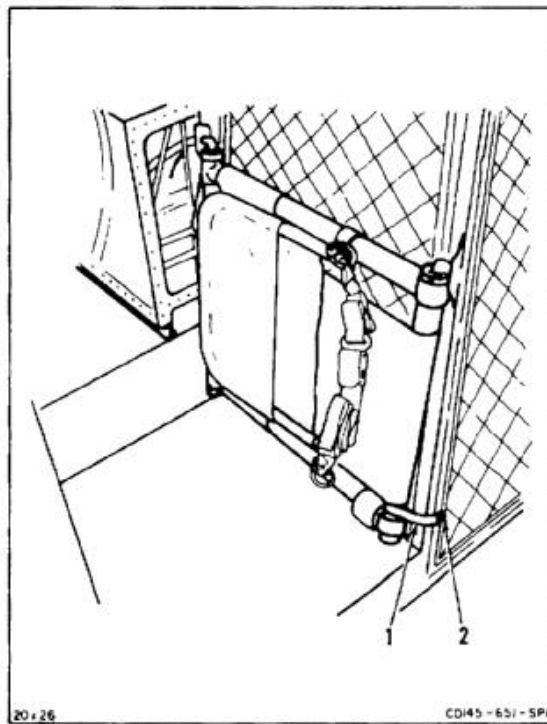
Medium Helicopter Repairer

Equipment Condition:

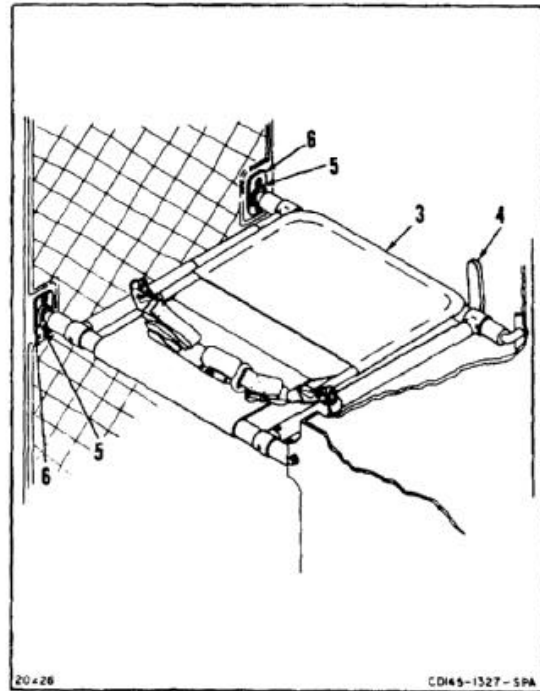
- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Hydraulic Power Off



1. Remove stowage strap (1) from stud (2).



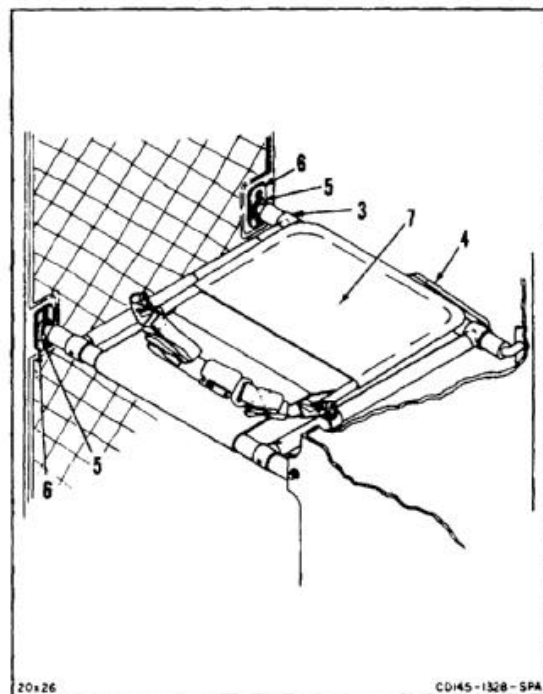
2. Raise seat frame (3) from stowed position.
3. Turn seat handle (4) to up position. Slide two pins (5) down from two holding pads (6). Hold in normal position.



4. Release handle (4). Two pins (5) slide into two holding pads (6).
5. Make sure seat frame (3) is locked in position.
6. Raise seat back (7).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-466

2-136 REMOVE COCKPIT REARVIEW MIRROR

2-136

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

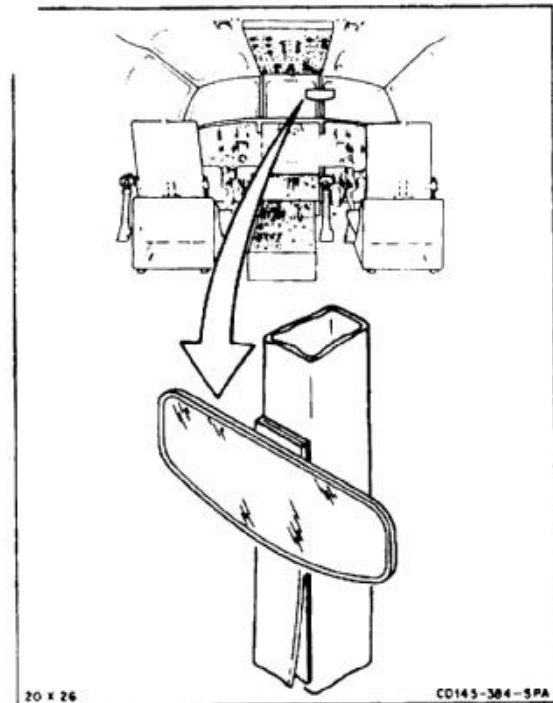
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

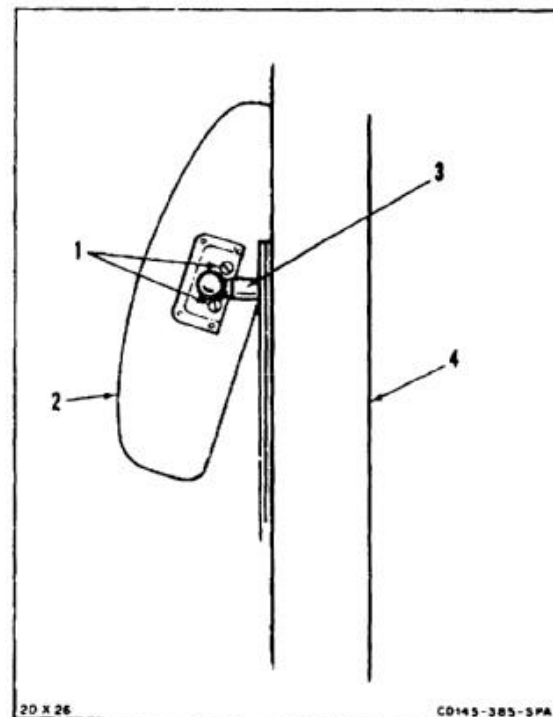
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off



1. Loosen two screws (1).
2. Turn mirror (2) nearly vertical.
3. Remove stud (3) from support (4).
4. Remove mirror (2).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

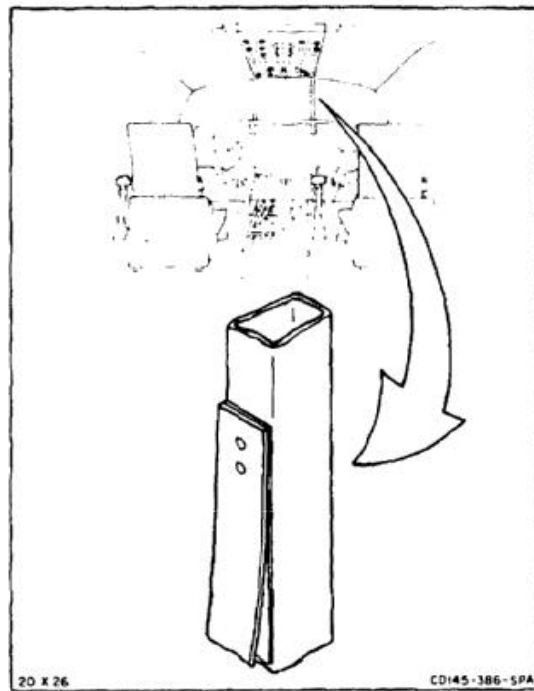
None

Personnel Required:

Medium Helicopter Repairer

References:

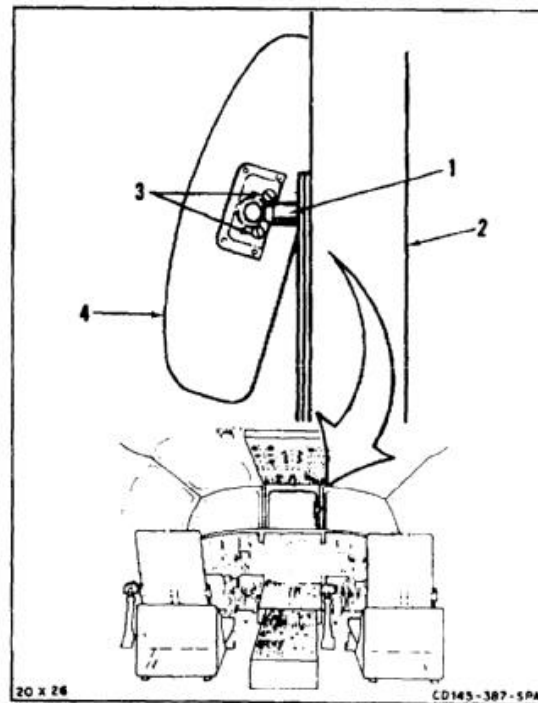
TM 55-1520-240-23P



1. Install stud (1) on windshield support (2).
2. Tighten two screws (3) on mirror (4).

FOLLOW-ON MAINTENANCE:

Adjust as required.



END OF TASK

2-468

2-138 REMOVE NOSE ACCESS DOOR

2-138

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692
Workstand

Materials:

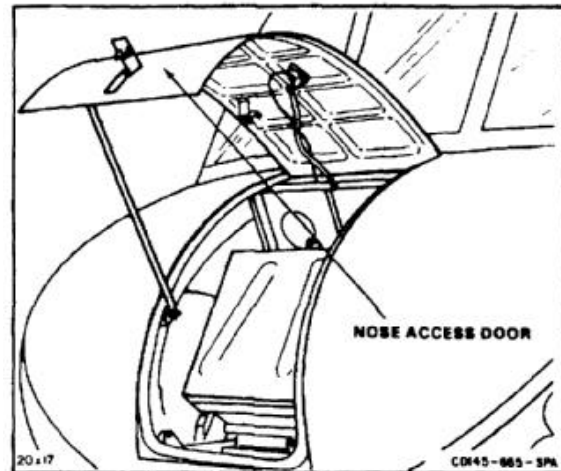
None

Personnel Required:

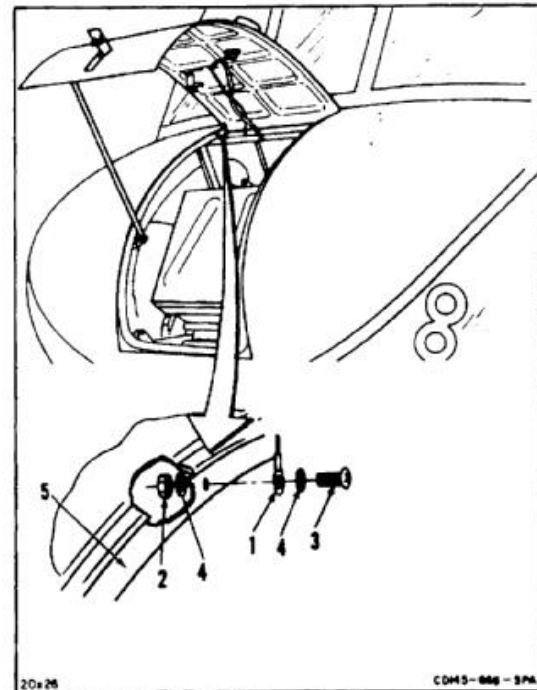
Medium Helicopter Repairer

Equipment Condition:

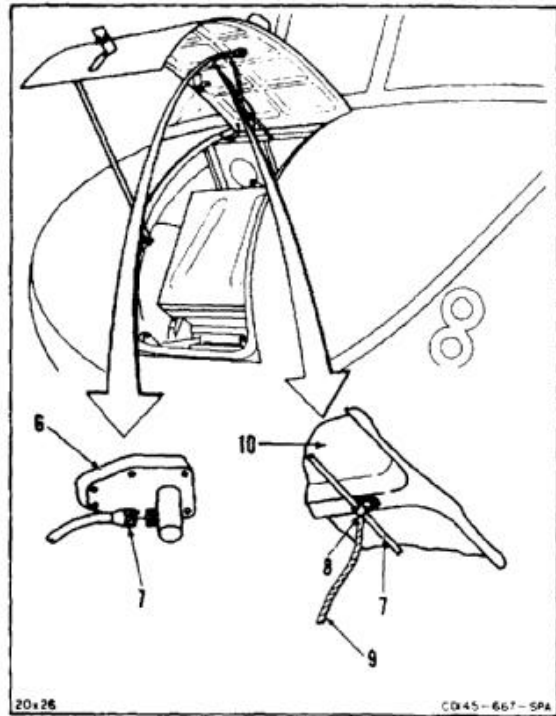
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Nose Access Door Open (Task 2-2)



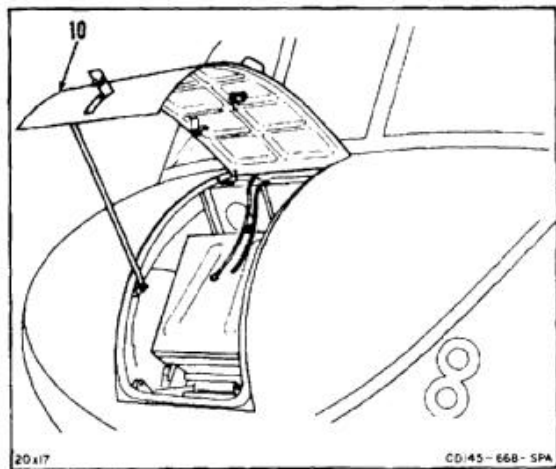
1. Disconnect electrical lead (1) as follows:
 - a. Remove nut (2).
 - b. Remove screw (3) and two washers (4).
 - c. Disconnect end of electrical lead (1) from structure (5).



2. Disconnect antenna (6) as follows:
 - a. Unplug antenna cable (7).
 - b. Remove three clamps (8) that hold cable (7) and strap (9) to door (10).



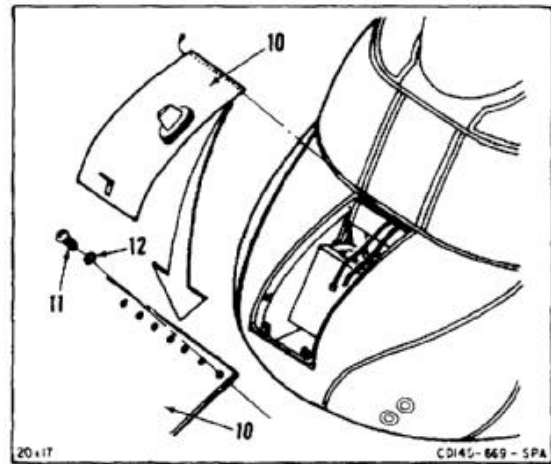
3. Lower door (10).



2-138 REMOVE NOSE ACCESS DOOR (Continued)

2-138

4. Remove 15 screws (11) and washers (12) from door (10).
5. Remove door (10).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-471

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Handling Adapter (T84)
 Hoist, Minimum 300 Pounds Capacity
 Lifting Shackle
 Wire Rope Ring (APP E18)
 Workstand

Materials:

None

Personnel Required:

Medium Helicopter Repairer (2)

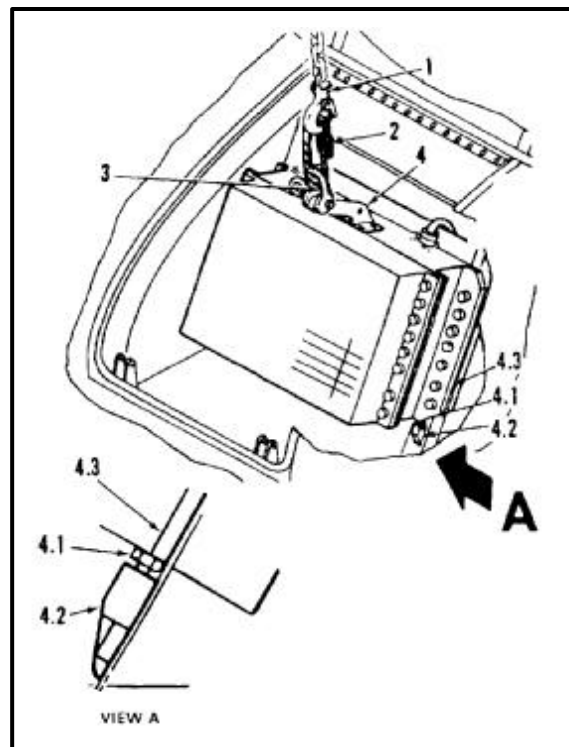
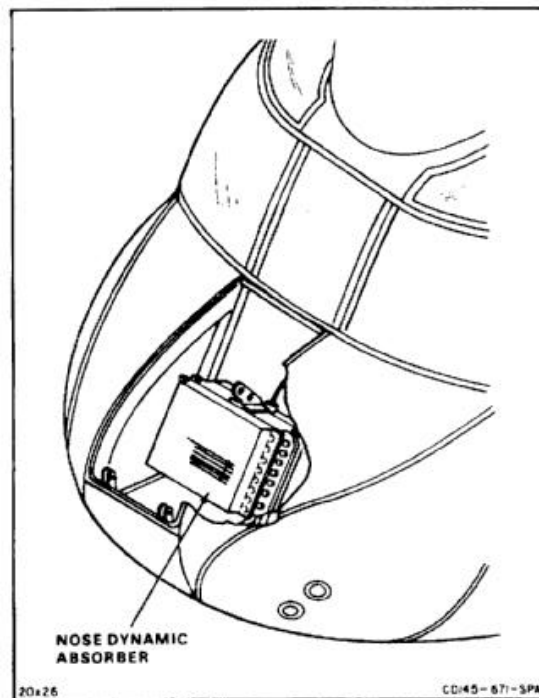
References:

Task 2-140
 Appendix E

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Nose Access Door Removed (Task 2-138)
 Handling Adapter Installed on Transportation Trailer
 (Task 2-140)

1. Attach hoist (1), wire rope ring (APP E18) (2), and shackle (3) to forward hole in bracket (4).
- 1.1. Back two bolts (4.1) away from stops (4.2) until they firmly contact mounting flange (4.3).

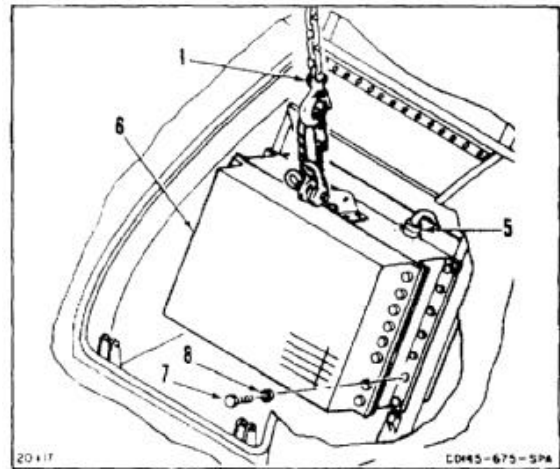


2. Disconnect electrical connector (5).

WARNING

Absorber is heavy and can injure personnel if it drops when bolts are removed. Absorber must be supported by hoist and moved carefully to prevent injury to personnel.

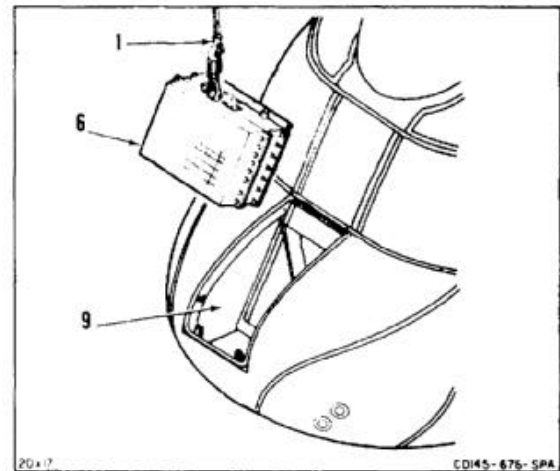
3. Make sure weight of absorber (6) is supported by hoist (1).
4. Remove 14 bolts (7) and washers (8).



CAUTION

Nose compartment and absorber can be damaged. Move absorber slowly and carefully to prevent it from hitting sides of nose compartment.

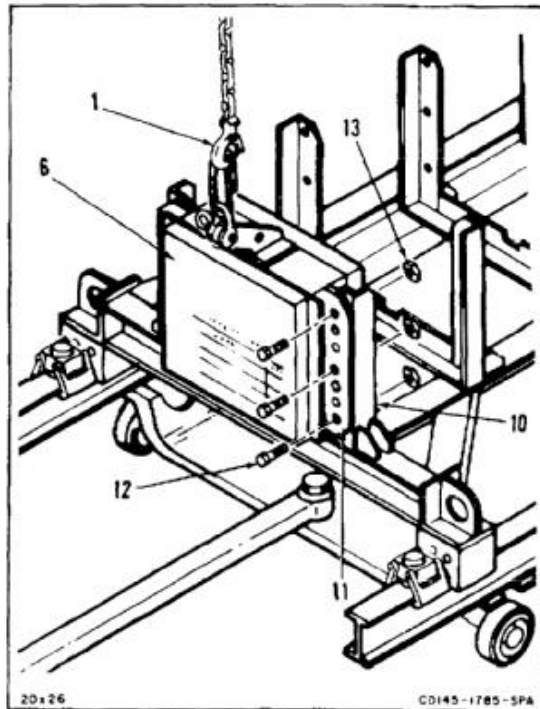
5. Raise lower left side of absorber (6) up and out of nose compartment (9). Lift absorber (6) from nose compartment (9) with hoist (1). With aid of helper, guide absorber.



CAUTION

Absorber cover cannot support weight of absorber. To prevent damage to cover, absorber must be set down so weight is supported by mounting flanges.

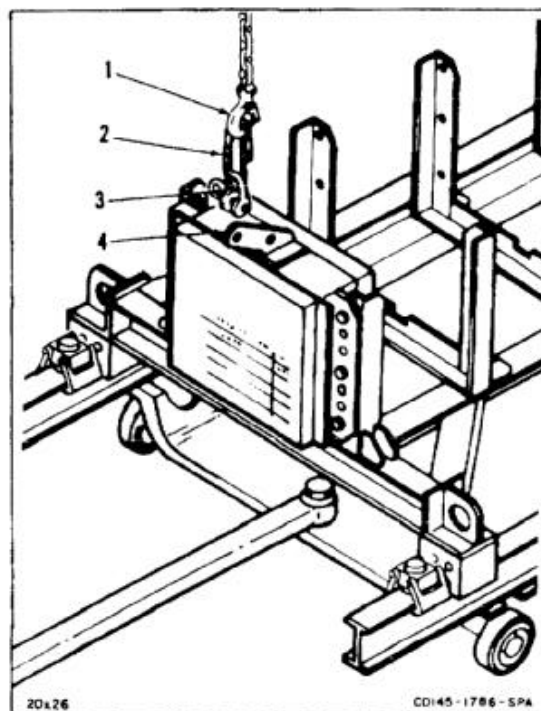
6. Lower absorber (6) on handling adapter (T84) (10) with hoist (1). With aid of helper, guide absorber. Position absorber so mounting flanges (11) rest on handling adapter.
7. Secure absorber (6) to handling adapter (T84) (10). Install three bolts (12) and nuts (13) in flange (11) and adapter (10) on both sides.



8. Remove hoist (1), wire rope ring (APP E18) (2), and shackle (3) from bracket (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-474

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692
Transportation Trailer 2000
Roller Adapter 2550 (4)

Materials:

None

Personnel Required:

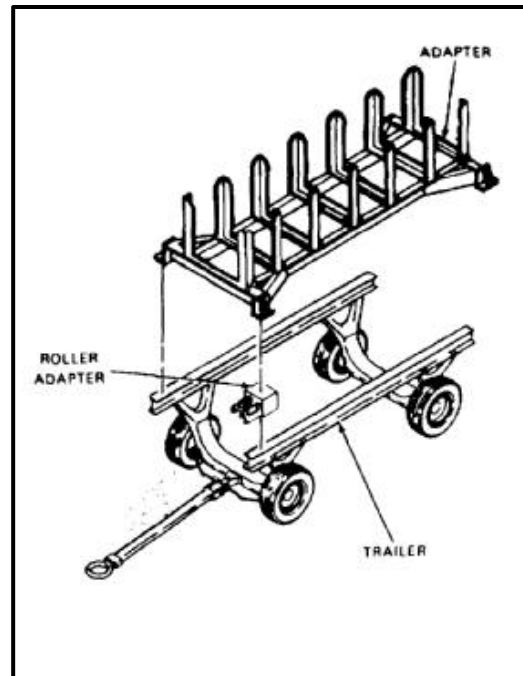
Medium Helicopter Repairer (2)

References:

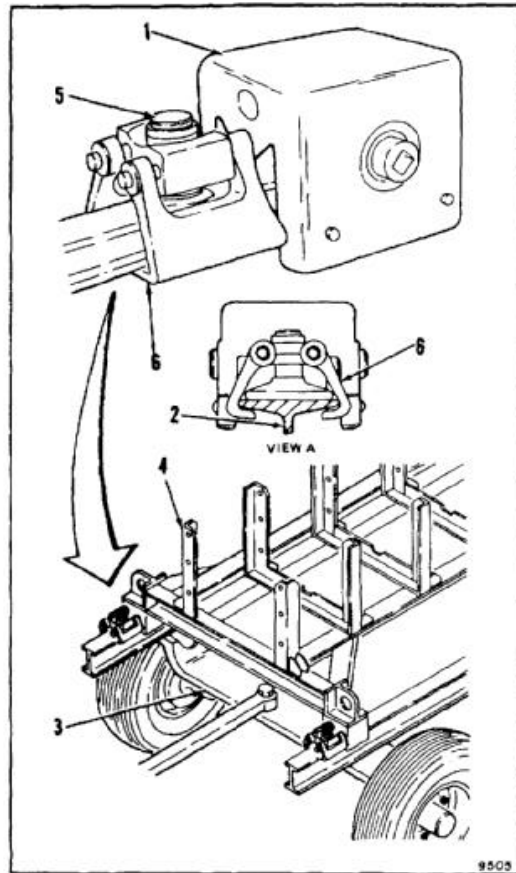
TM 55-1520-240-23P

Equipment Condition:

Off Helicopter Task



1. Fit four roller adapters (1) on two rails (2) of trailer (3).
2. With aid of helper, position adapter (T84) (4) on trailer (3).
3. Turn fitting (5) of each roller adapter (1) clockwise until clamp (6) fits tightly against rail (2).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-476

2-141 REPAIR NOSE COMPARTMENT ACCESS DOOR

2-141

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

Task 2-10

Task 2-11

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Patch repair holes and stop-drilled cracks not more than limits in Task 2-10. Patching shall not affect edges of nose compartment door.
2. See Task 2-11 for examples of typical repairs to outer skin and inner pan.
3. For spot welding repair to inner pan, refer to TM 1-1500-204-23

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. REFER TO TASK 2-324 FOR FUSELAGE SEALING WHEN REPAIRS ARE MADE ON NOSE COMPARTMENT DOOR ASSY
- C. THE HOUSING IS MADE OF 6 PLYS OF 181 IMPREGNATED GLASS CLOTH, MIL-P-8013, TYPE I. REFER TO TM 1-1500-204-23 FOR INFORMATION ON REPAIR OF IMPREGNATED GLASS CLOTH STRUCTURES
- D. THE HINGE IS MADE OF 2024-T4 ALUMINUM ALLOY EXTRUSION REFER TO TASK 2-326 FOR INFORMATION ON REPAIR OF HINGES
- E. REPLACE WITH NEW SHAFT 114S1632-35
- F. REFER TO TASK 2-366 FOR INFORMATION ON TUBE REPAIR
- G. REPLACE WITH NEW ANGLE 114S1632-17 LH OR -18 RH
- H. REPLACE WITH NEW ANGLE 114S1632-19 LH OR -20 RH

INDEX	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	SKIN--OUTER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
2	SKIN--INNER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
3	HOUSING	NOTE C.	--
4	HINGE	NOTE D.	--
5	SHAFT	0.31 SQ ROLLED BAR 2024-T4	NOTE E.
6	STRUT	0.050 SMLS TUBE 0.035 6061-T6	NOTE F.
7	ANGLE	0.032 2024-T4 CLAD	NOTE G.
8	ANGLE	0.032 2024-T4 CLAD	NOTE H.

42 X 51
D145-9749-SPA

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

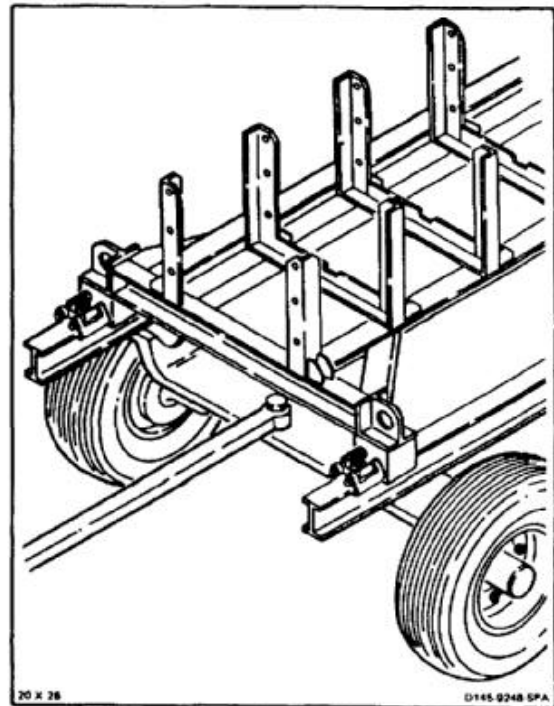
None

Personnel Required:

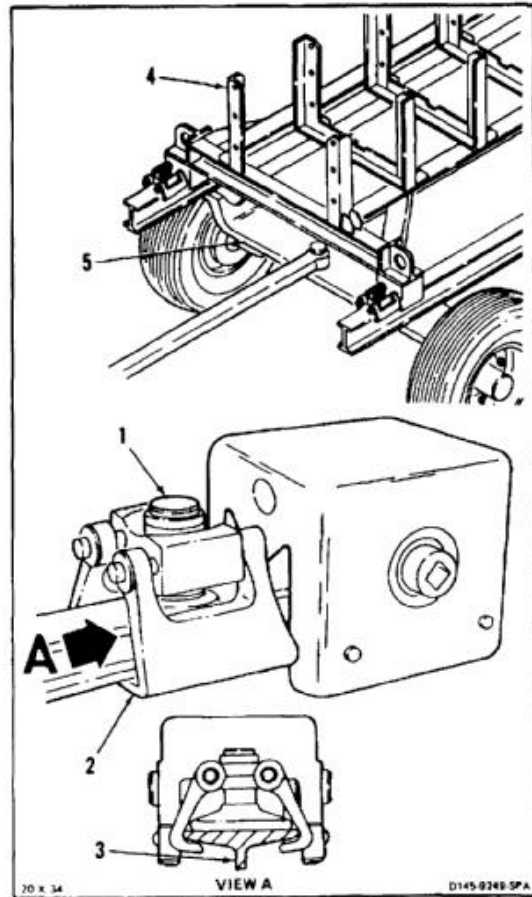
Medium Helicopter Repairer (2)

Equipment Condition:

Off Helicopter Task



1. Turn four fittings (1) counterclockwise until all four clamps (2) clear two rails (3).
2. With aid of helper, lift adapter (T84) (4) from trailer (5).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-480

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Hoist, Minimum 300 Pounds Capacity
 Lifting Shackle
 Test Harness (T112)
 Wire Rope Ring (APP E18)
 Workstand
 Handling Adapter (T84)

Materials:

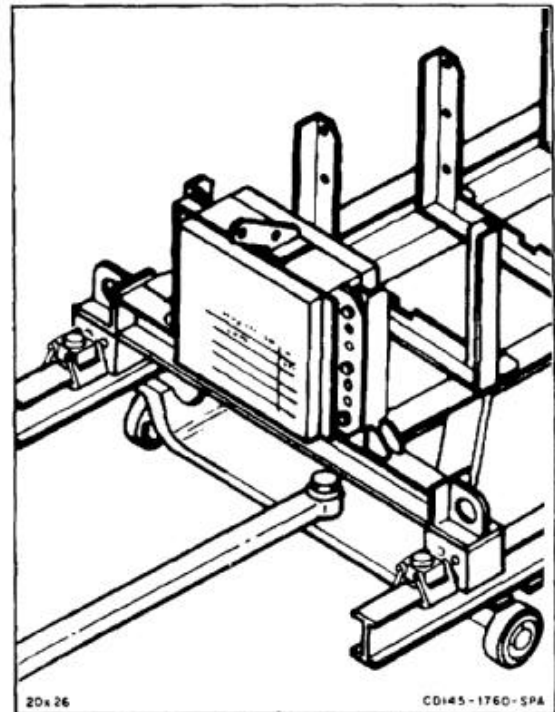
None

Personnel Required:

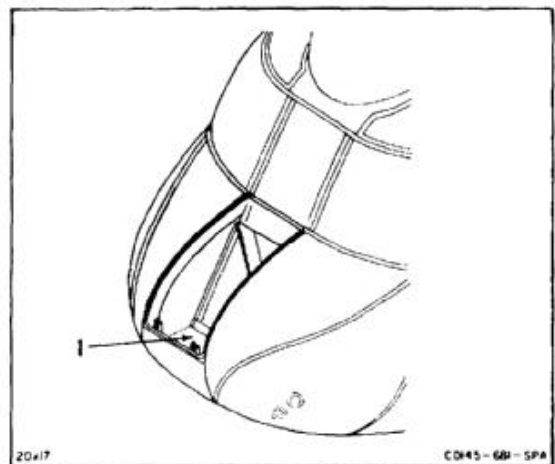
Medium Helicopter Repairer (2)
 Inspector

References:

TM 55-1520-240-23P
 TM 55-1520-240-T
 TM 1-1520-253-23



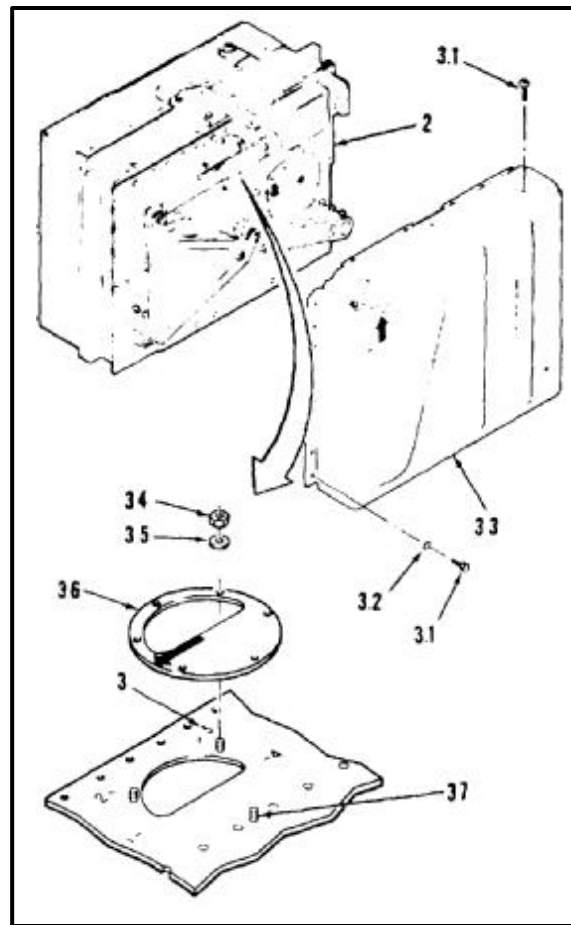
1. Check dynamic absorber support structure (1). There shall be no cracks, dents, broken or popped rivets. If a crack is suspected, refer to TM 1-1520-253-23.



NOTE

Internal damping adjustment position of absorber is marked on absorber cover.

2. Select an absorber with internal damping adjustment set to position No. 3 (3). If an absorber with correct internal damping adjustment is unavailable, proceed as follows:
 - a. Remove screws (3.1) and washers (3.2) from dust cover (3.3). Remove dust cover from absorber (2). Retain screws.
 - b. Remove three nuts (3.4) and washers (3.5) from air damper cover plate (3.6). Reposition cover plate on studs (3.7) from position No. 1 to position No. 3 and secure it with nuts and washers.
 - c. Position dust cover (3.3) on frame of absorber (2) and install washers (3.2) and screws (3.1).
 - d. Restencil dust cover (3.3) for internal damping position No. 3.

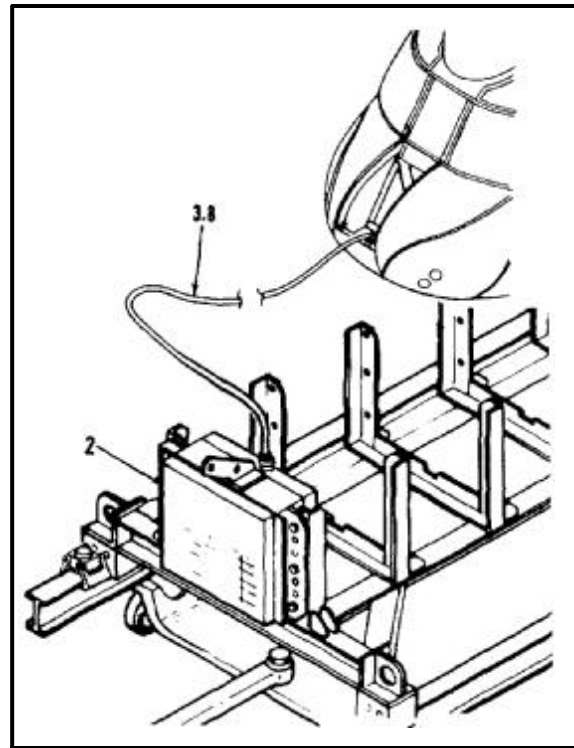


3. Test dynamic absorber (2) (TM 55-1520-240-T).
- 3.1. Connect test harness (T112) (3.8) to absorber (2) and helicopter.



Do not apply power to absorber until test harness is connected. Damage to cards within absorber can occur.

- 3.2. Perform operational check of dynamic absorber (TM 55-1520-240-T). If absorber (2) is good, go to step 4. If absorber is not good, perform the following:
 - a. Shut down electrical power.
 - b. Disconnect test harness (T112) (3.8).
 - c. Turn in absorber (2); get another one. Go to step 2.
- 3.3. Disconnect test harness (T112) (3.8).

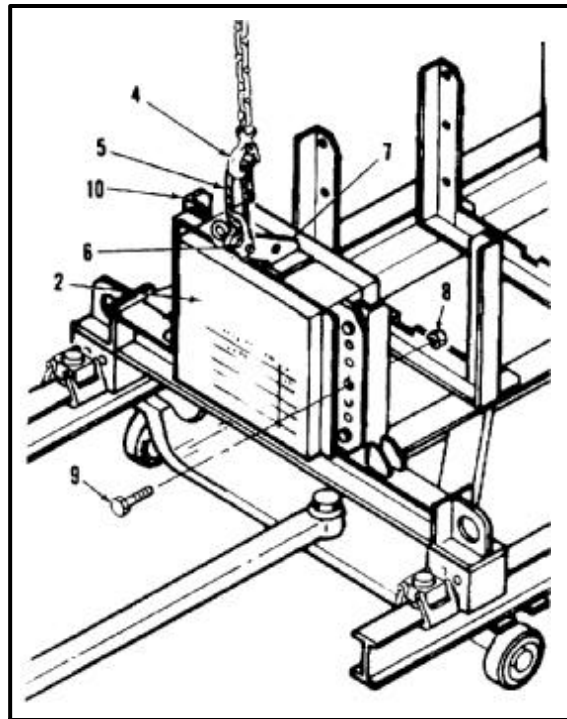


4. Connect hoist (4), wire rope ring (APP E18) (5), and shackle (6) to forward hole in bracket (7).

WARNING

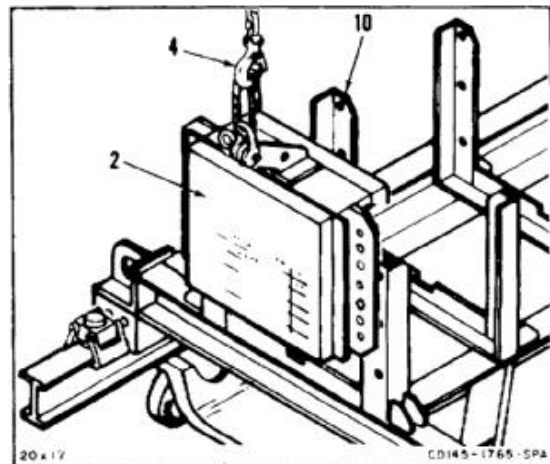
Take up slack from hoist.

5. Remove six nuts (8) and bolts (9) and lift absorber (2) from handling adapter (T84) (10).

**WARNING**

Absorber is heavy and can injure personnel if it drops. Absorber must be supported by hoist and moved carefully to prevent injury to personnel.

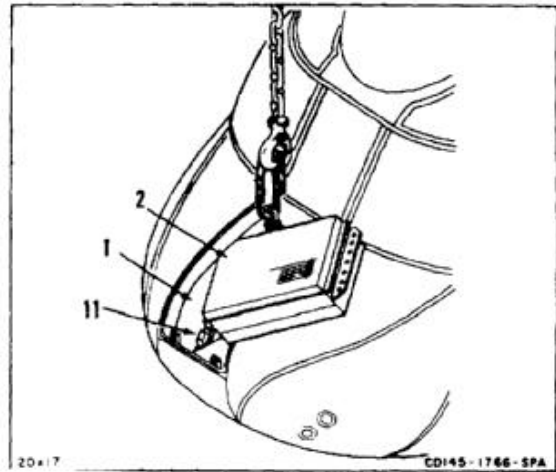
6. Lift absorber (2) from handling adapter (T84) (10), using hoist (4). With aid of helper, guide absorber.



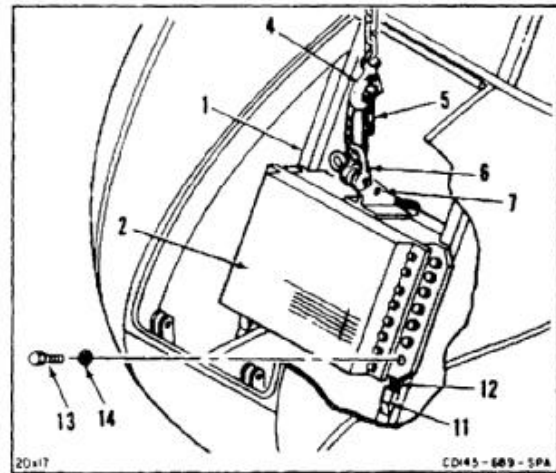
CAUTION

Nose compartment and absorber can be damaged. Move absorber slowly and carefully to prevent it from hitting sides of compartment.

7. Guide upper left side of absorber (2) into support structure (1) first.
8. Lower absorber (2) into support structure (1). With aid of helper, guide absorber onto two stops (11).



9. Secure absorber (2) as follows:
 - a. Adjust two bolts (12) to align bolt holes through absorber (2) and structure (1).
 - b. Install 14 bolts (13) and washers (14).
10. Tighten two bolts (12) all the way against stops (11).
11. Remove hoist (4), wire rope ring (APP E18) (5), and shackle (6) from bracket (7).

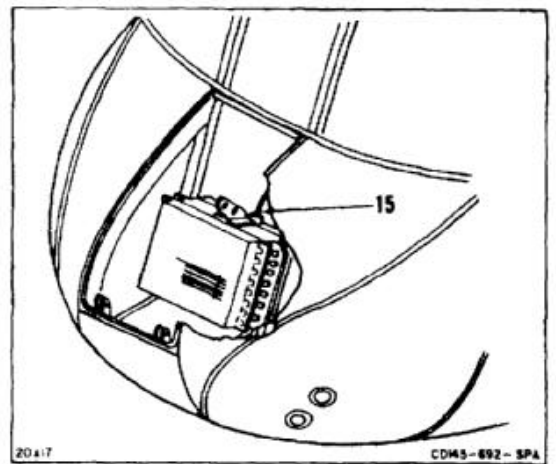


12. Connect electrical connector (15).

INSPECT

FOLLOW-ON MAINTENANCE:

Install nose access door (Task 2-144).
 Remove handling adapter from transportation trailer (Task 2-142).



END OF TASK

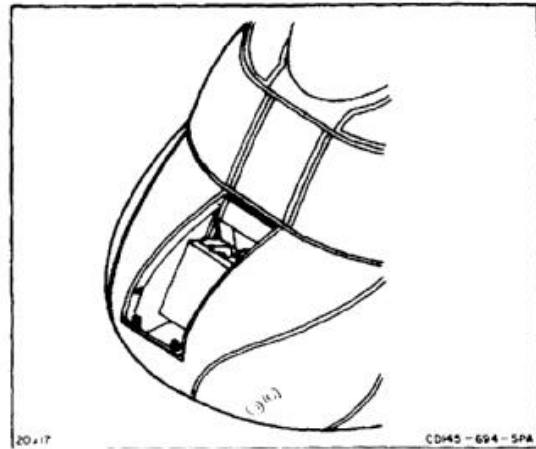
INITIAL SETUP

Applicable Configurations:

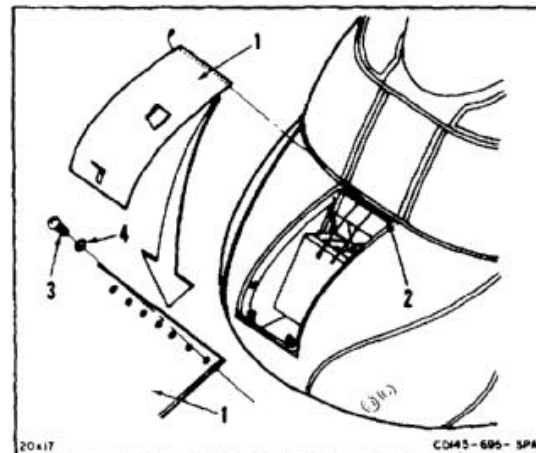
All

Tools:Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand**Materials:**

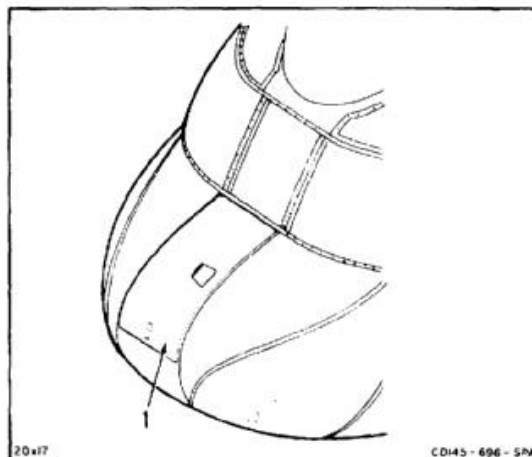
None

Personnel Required:Medium Helicopter Repairer
Inspector**References:**TM 55-1520-240-23P
Task 2-2

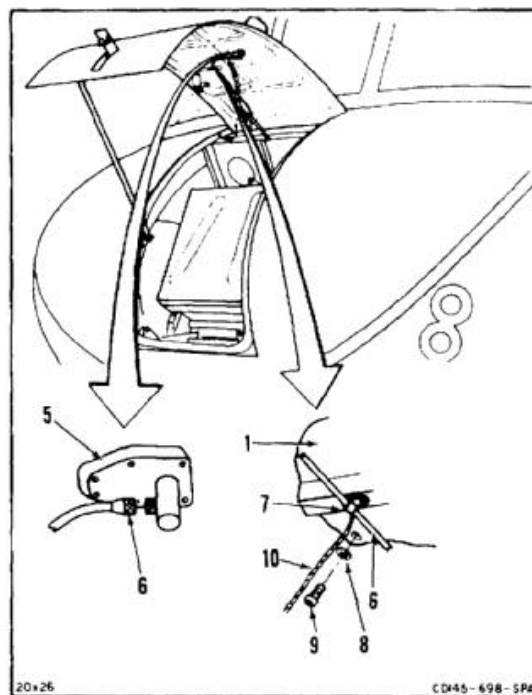
1. Position door (1) over opening. Align holes in hinge (2) and door.
2. Install 15 screws (3) and washers (4) in door (1) and hinge (2).



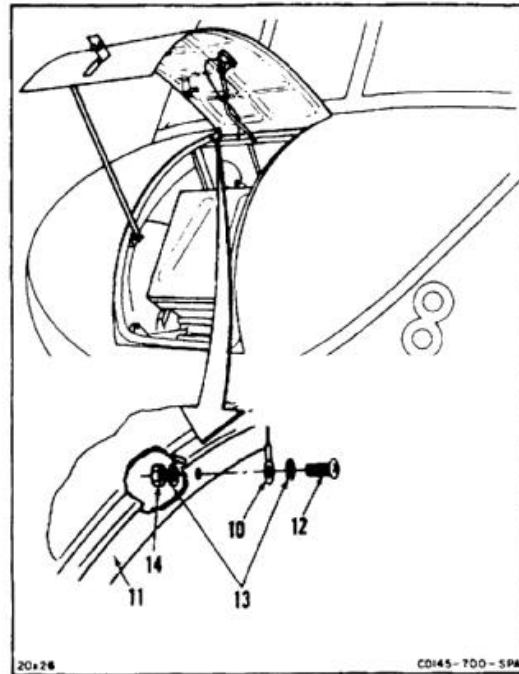
3. Open door (1) (Task 2-2).



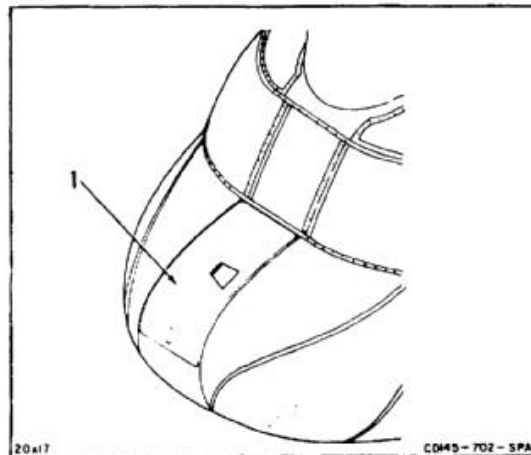
4. Connect antenna (5) as follows:
 - a. Plug cable (6) in antenna (5).
 - b. Install three clamps (7), washers (8), and screws (9), to hold cable (6) and strap (10) to door (1).



5. Connect electrical lead (10) as follows:
 - a. Align screw holes through electrical lead (10) and structure (11).
 - b. Install screw (12) and two washers (13).
 - c. Install nut (14) on screw (12).

**INSPECT**

6. Close door (1) (Task 2-2).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-488

2-145 REMOVE COCKPIT DYNAMIC ABSORBER**2-145****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Hoist, Minimum 300 Pound Capacity
 Handling Adapter (T84)
 Lifting Shackle
 Transportation Trailer
 Wire Rope Ring (APP E18)

Materials:

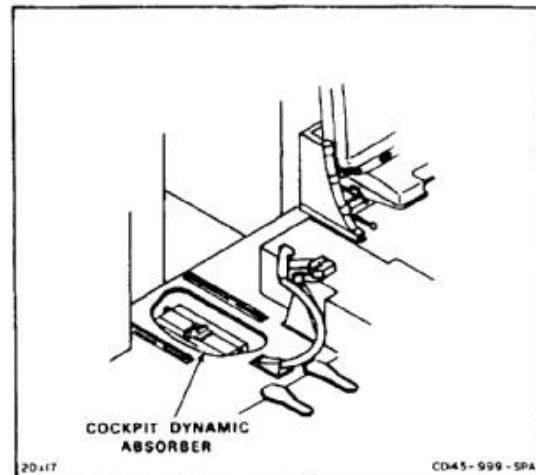
None

Personnel Required:

Medium Helicopter Repairer (2)

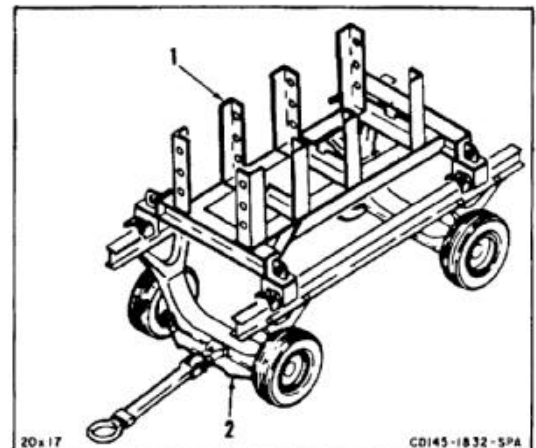
Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Jettisonable Door Removed (Task 2-86)
 Seat Removed (Task 2-111)
 Cockpit Floor Access Cover Removed (Task 2-79)

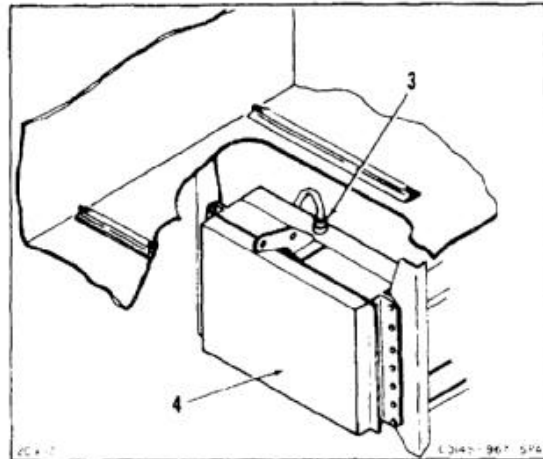
**NOTE**

Procedure is the same for either cockpit dynamic absorber. Pilot side dynamic absorber is shown here.

1. Install handling adapter (T84) (1) on transportation trailer (2).



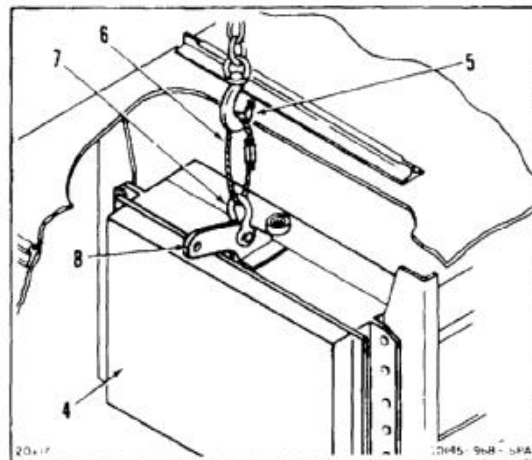
2. Unplug electrical connector (3) from absorber (4).



3. Attach hoist hook (5), wire rope ring (APP E18) (6), and shackle (7) to rear hole in bracket (8).

WARNING

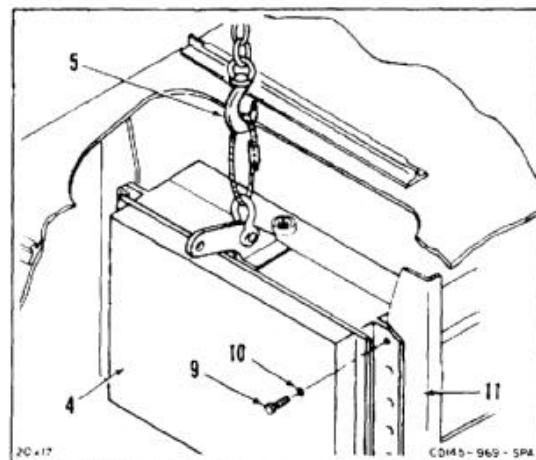
Take up slack from hoist. Otherwise, absorber may drop and injure personnel when attaching hardware is removed.



WARNING

Absorber is heavy and can injure personnel if it drops. Absorber must be supported by hoist before hardware is removed.

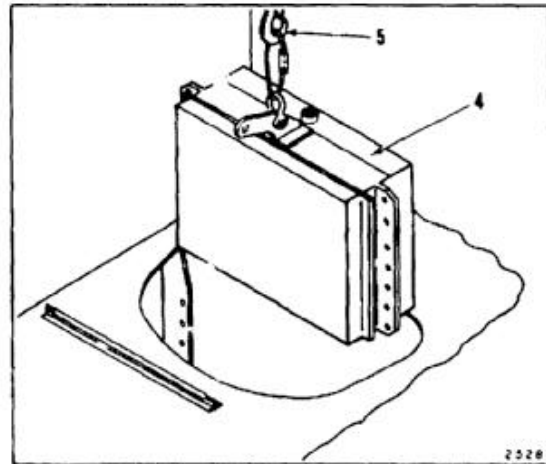
4. Make sure weight of absorber (4) is supported by hoist hook (5).
5. Remove 14 bolts (9) and washers (10) from absorber (4) and structure (11).



CAUTION

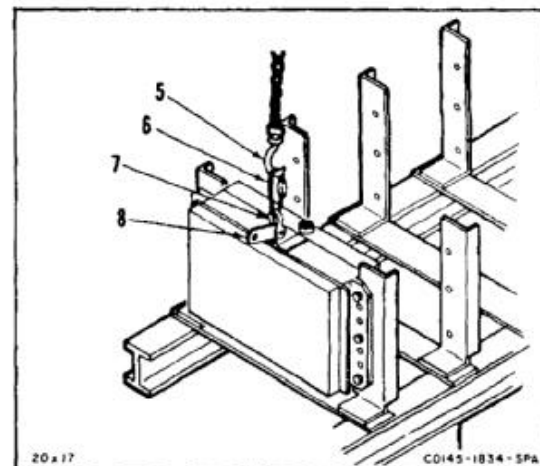
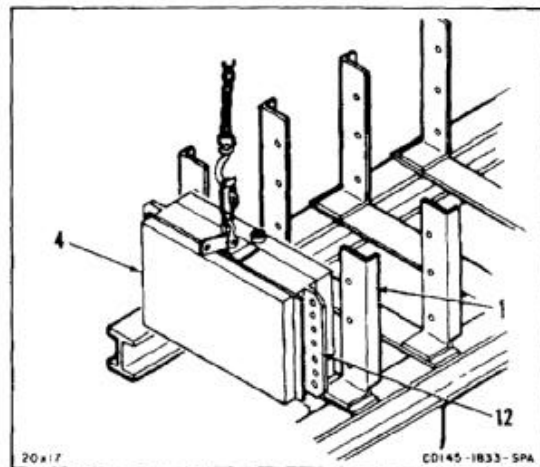
Structural, electrical, and hydraulic parts can be damaged if hit by absorber. Absorber must be guided carefully out of absorber compartment and cockpit.

6. With aid of helper, lift out absorber (4) from compartment, using hoist (5). Have helper guide absorber.
7. Move absorber (4) out of cockpit, using hoist (5). With aid of helper, guide absorber from outside helicopter.

**CAUTION**

Absorber cover cannot support weight of absorber. Absorber must be set down so weight is supported by mounting flanges.

8. Lower absorber (4) on handling adapter (T84) (1). With aid of helper, guide absorber. Position absorber with mounting flanges (12) resting on adapter.
 9. Secure absorber (4) to handling adapter (T84) (1).
10. Remove hoist hook (5), wire rope ring (APP E18) (6), and shackle (7) from bracket (8).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Hoist, Minimum 300 Pound Capacity
 Handling Adapter
 Lifting Shackle
 Test Harness (T112)
 Transportation Trailer
 Wire Rope Ring (APP E18)

Materials:

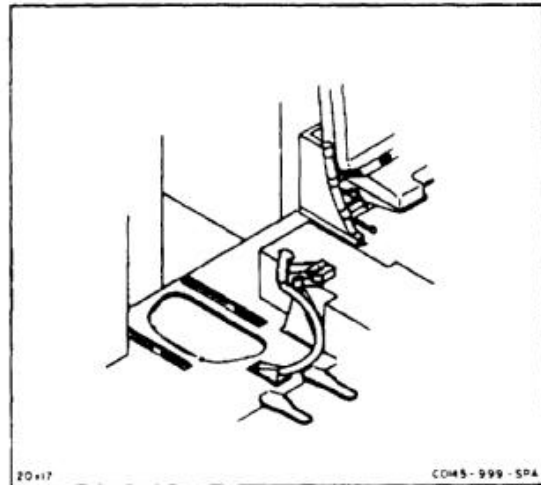
None

Personnel Required:

Medium Helicopter Repairer (2)
 Inspector

References:

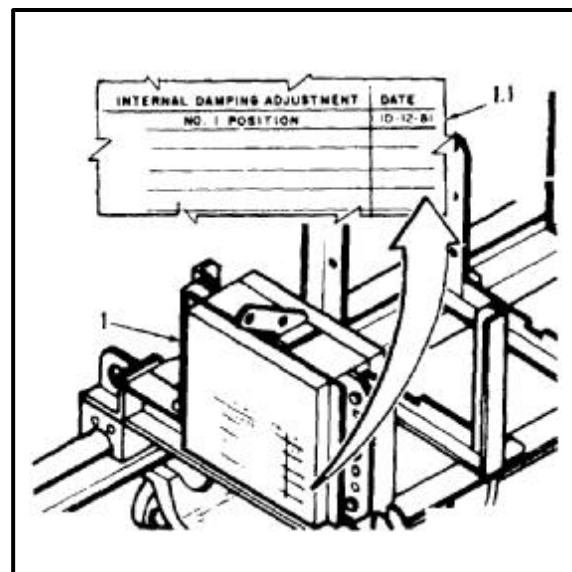
TM 55-1520-240-23P
 TM 55-1520-240-T
 TM 1-1520-253-23

**NOTE**

Procedure is the same for either cockpit dynamic absorber. Pilot's side dynamic absorber is shown here.

Internal damping adjustment position of absorber is stenciled on absorber cover.

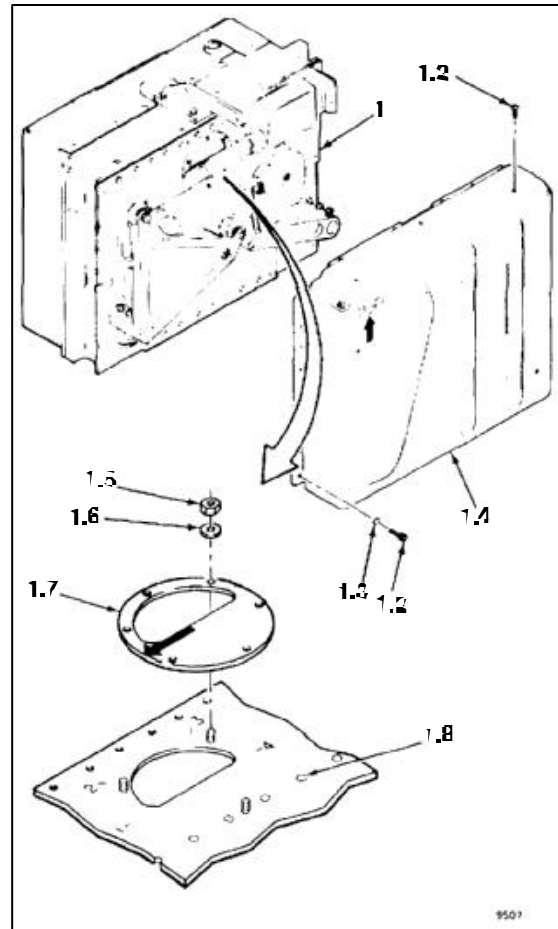
1. Select an absorber (1) with internal damping adjustment set to No. 1 position, as indicated by stencil (1.1). If an absorber with correct adjustment is not available, proceed as follows:



NOTE

The three screws at top of dust cover have no washers.

- a. Remove screws (1.2) and washers (1.3) from dust cover (1.4). Remove dust cover from absorber (1). Retain screws.
- b. Remove three nuts (1.5) and washers (1.6) from air damper cover plate (1.7). Change cover plate on studs (1.8) from position No. 3 to position No. 1. Secure plate with nuts and washers.
- c. Position dust cover (1.4) on frame of absorber (1). Install washers (1.3) and screws (1.2).
- d. Stencil dust cover (1.4) for internal damping position No. 1.



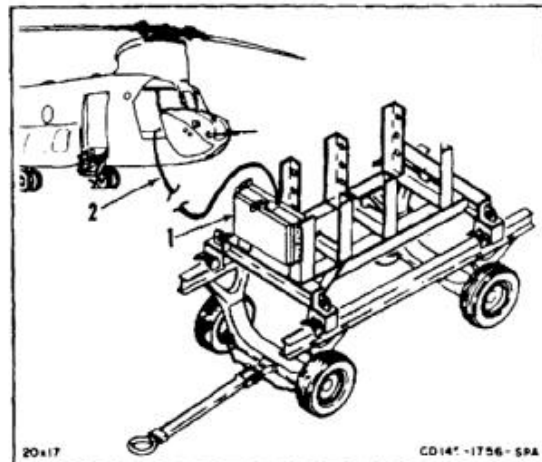
9507

2. Connect test harness (T112) (2) to absorber (1) and helicopter.

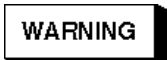


Do not apply power to absorber until test harness is connected. Cards within absorber can be damaged.

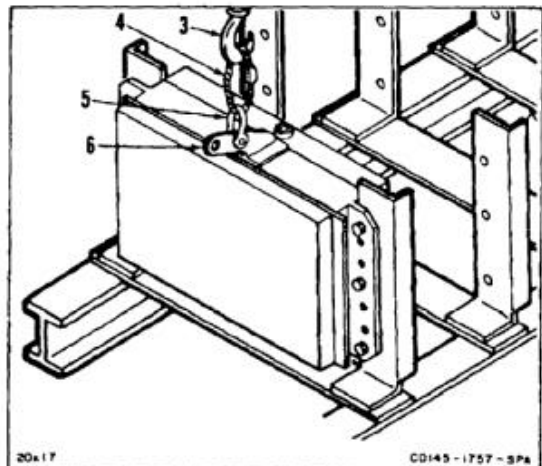
3. Perform operational check of dynamic absorber (TM 55-1520-240-T). If absorber (1) is good, go to step 4. If absorber is no good, perform the following:
 - a. Shut down electrical power.
 - b. Disconnect test harness (T112) (2).
 - c. Turn in absorber (1) and get another one. Go to step 2.



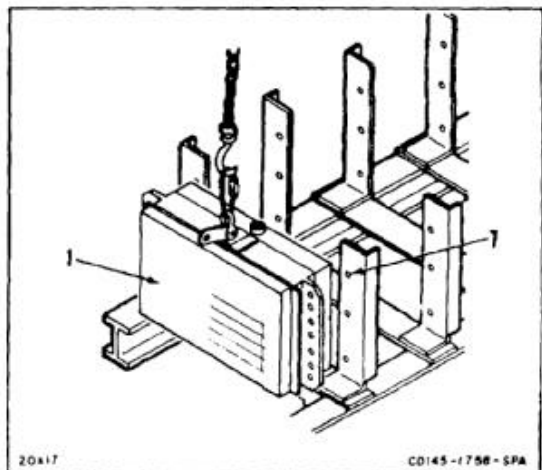
4. Disconnect test harness (T112) (2).
5. Attach hoist hook (3), wire rope ring (APP E18) (4), and shackle (5) to rear hole in bracket (6).



Absorber is heavy and can injure personnel if it drops. Absorber must be moved slowly and carefully. It must be supported by hoist until all hardware is installed to prevent injury to personnel.



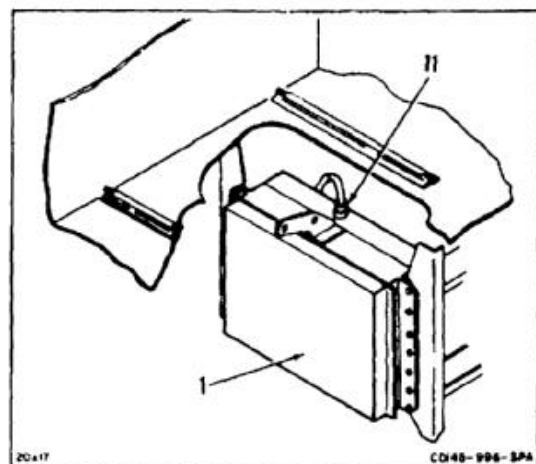
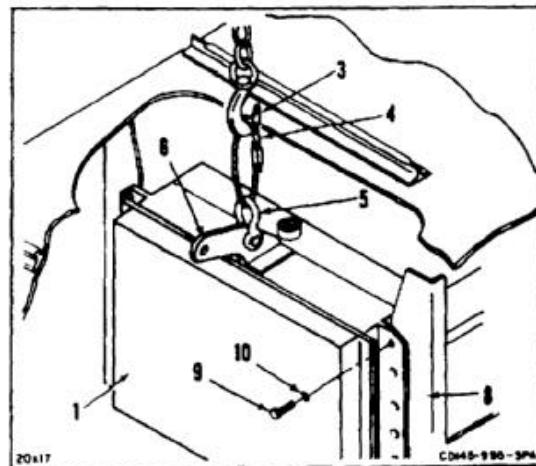
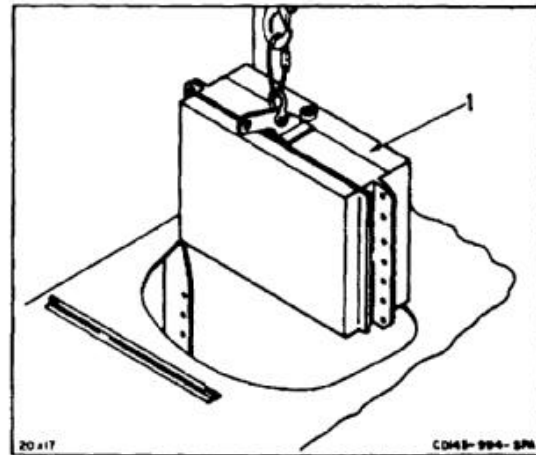
6. Release absorber (1) from handling adapter (T84) (7).
7. Lift absorber (1) from handling adapter (T84) (7) using hoist. With aid of helper, guide absorber.



CAUTION

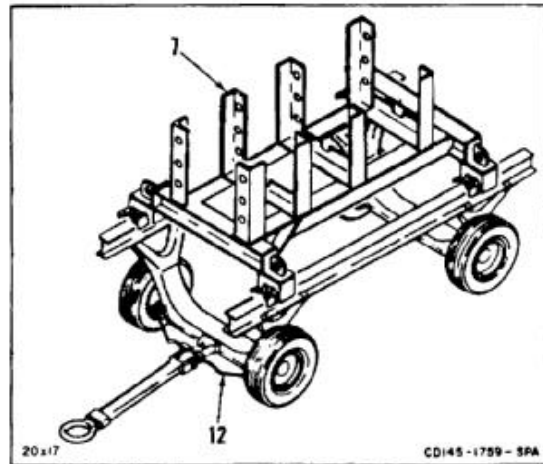
Structural, electrical, and hydraulic parts can be damaged if hit by absorber. Absorber must be guided carefully into cockpit and absorber compartment.

8. Inspect installation area of absorber (1). No cracks allowed. If a crack is suspected, refer to TM 1-1520-253-23. Move absorber (1) into cockpit, using hoist. With aid of helper, guide absorber.
9. Lower absorber (1) into compartment, using hoist. With aid of helper, guide absorber.
10. Align bolt holes in absorber (1) and structure (8).
11. Install 14 bolts (9) and washers (10) through absorber (1) and structure (8).
12. Remove hoist hook (3), wire rope ring (APP E18) (4), and shackle (5) from bracket (6).
13. Plug in electrical connector (11) to absorber (1).



14. Remove handling adapter (T84) (7) from transportation trailer (12).

INSPECT



FOLLOW-ON MAINTENANCE:

- Install cockpit floor access cover (Task 2-80).
- Install seat (Task 2-114).
- Install jettisonable door (Task 2-89).

END OF TASK

2-147 REMOVE DYNAMIC ABSORBER TEST BOX

2-147

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

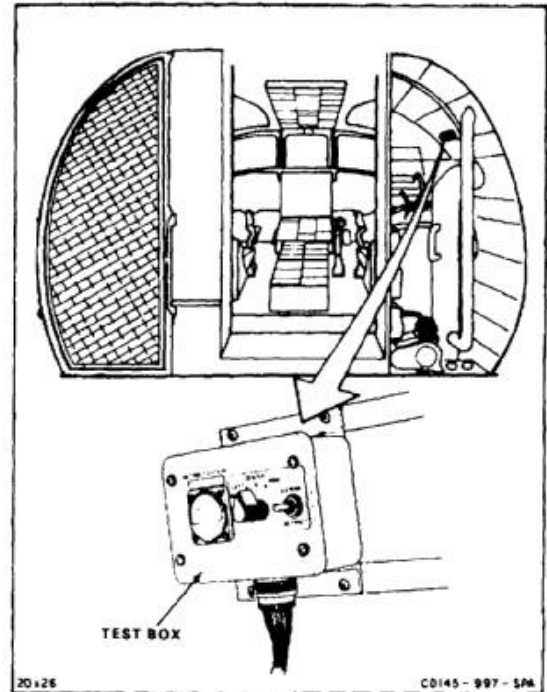
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

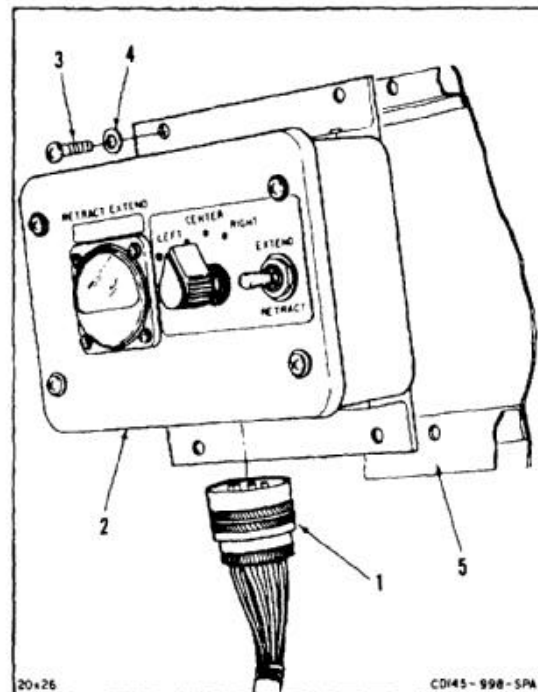
Electrical Power Off
 Battery Disconnected (Task 1-39)
 Hydraulic Power Off
 Heater Compartment Acoustic Blanket Removed
 (Task 2-208)



1. Turn electrical connector (1) **1/4 turn** counterclockwise.
2. Unplug electrical connector (1) from bottom of test box (2).
3. Hold test box (2) in place.
4. Remove four screws (3) and washers (4) from test box (2).
5. Remove test box (2) from structure (5).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-497

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

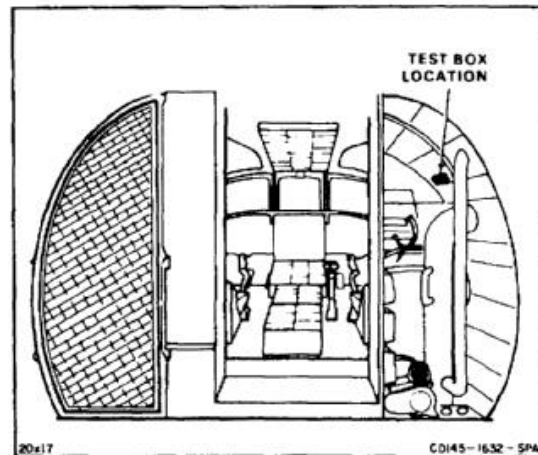
None

Personnel Required:

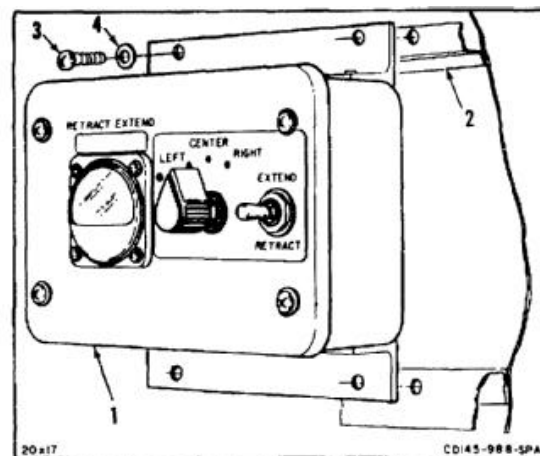
Medium Helicopter Repairer
Inspector

References:

TM 55-1520-240-23P



1. Position test box (1) on structure (2).
2. Align holes in test box (1) and structure (2).
3. Install four screws (3) and washers (4) through test box (1) flange and structure (2).

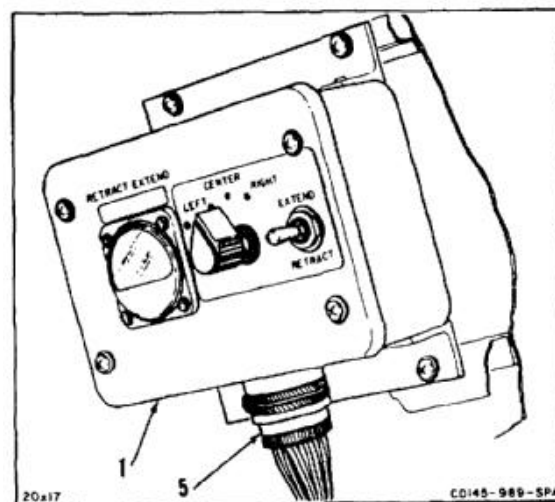


4. Connect electrical connector (5) in bottom of test box (1).

INSPECT

FOLLOW-ON MAINTENANCE:

Test dynamic absorbers (Task TM 55-1520-240-T).
Install cabin acoustic blankets (Task 2-210).



END OF TASK

2-149 REMOVE LOWER CABIN DOOR

2-149

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

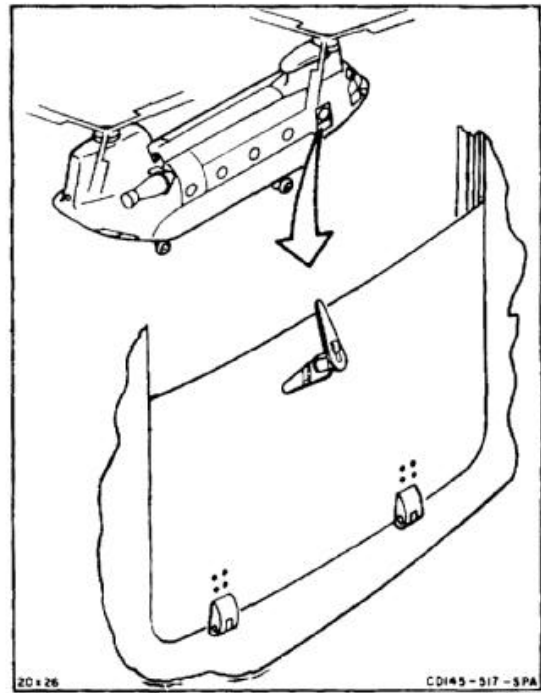
None

Personnel Required:

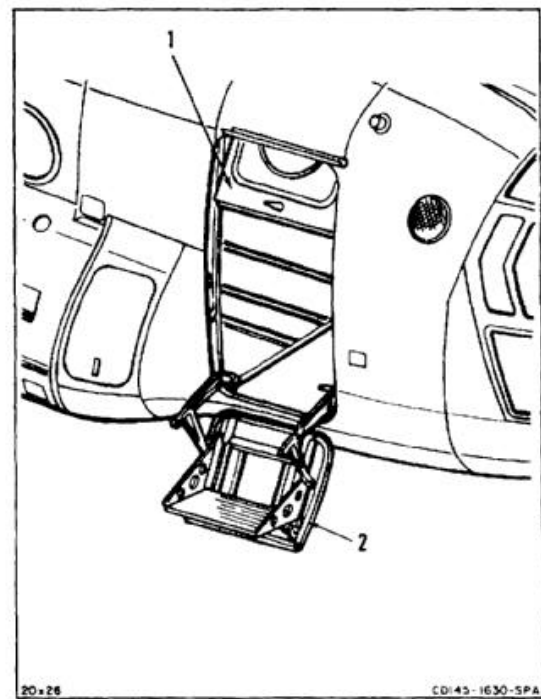
Medium Helicopter Repairer (2)

Equipment Condition:

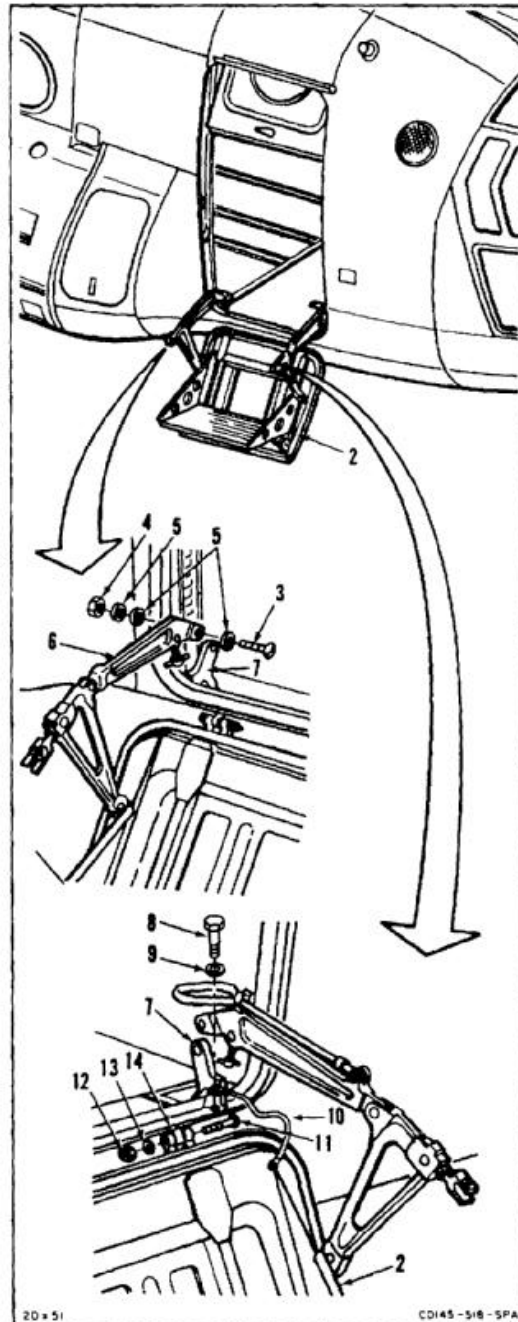
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off



1. Open and latch upper cabin door (1).
2. Open lower cabin door (2).
3. Have helper support door (2) in open position.



4. Remove bolt (3), nut (4), and three washers (5) from both door hinge fittings (6) and fuselage fittings (7).
5. Remove bolt (8), washer (9), and bonding wire (10).
6. Remove bolt (11), nut (12), and two washers (13) from both hinges (14). Remove lower door (2).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-500

2-150 REMOVE UPPER CABIN DOOR

2-150

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

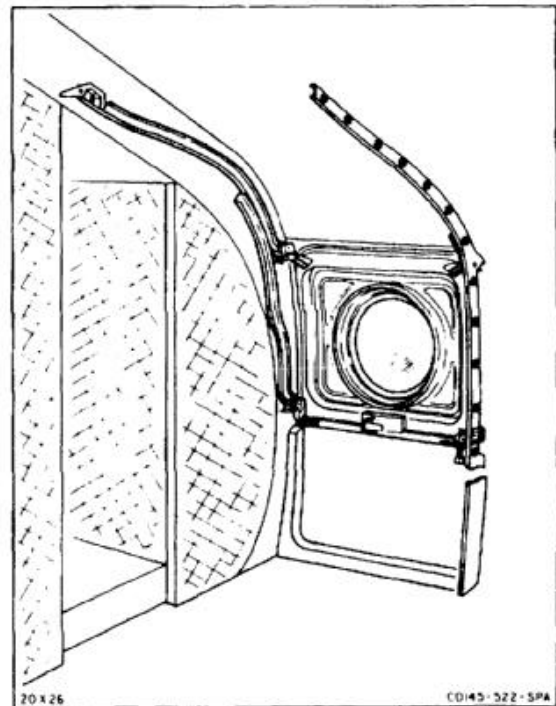
None

Personnel Required:

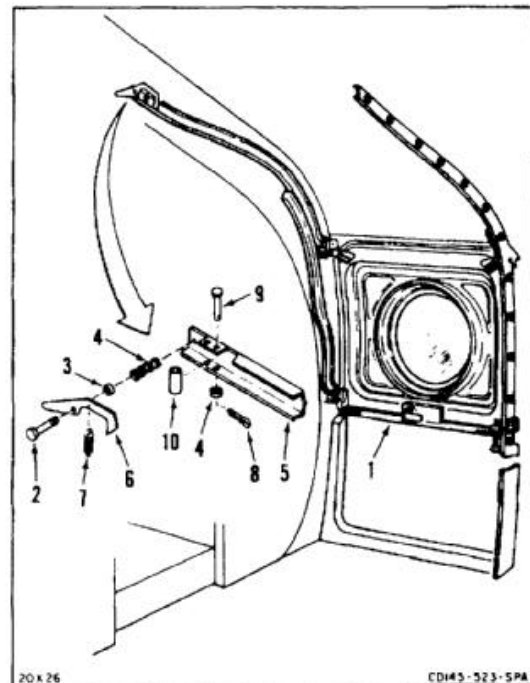
Medium Helicopter Repairer (2)

Equipment Condition:

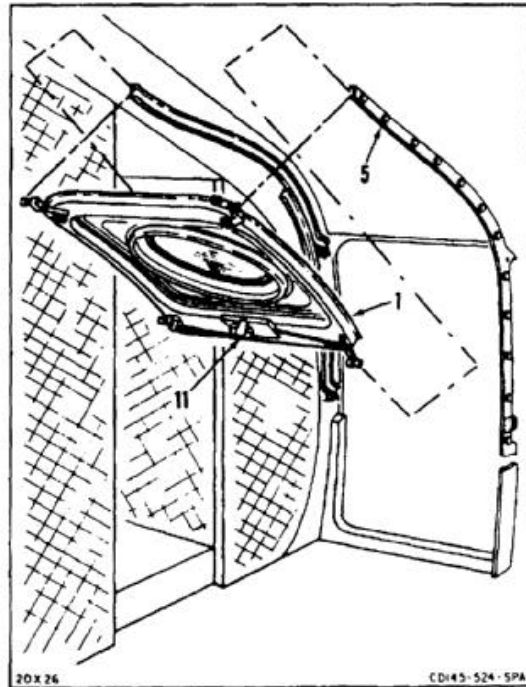
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off



1. Make sure upper door (1) is closed.
2. Remove bolt (2), bushing (3), and four washers (4) on upper forward track (5).
3. Remove latch (6) and spring (7).
4. Remove cotter pin (8) from flathead pin (9), washer (4), and rubber spacer (10) from track (5).



5. Unlatch lower handle (11). With aid of helper, slide door (1) up and off track (5).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

2-502

2-151 MINOR REPAIR CABIN DOOR

2-151**INITIAL SETUP****Applicable Configurations:**

All

Tools:Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114**Materials:**

As Required

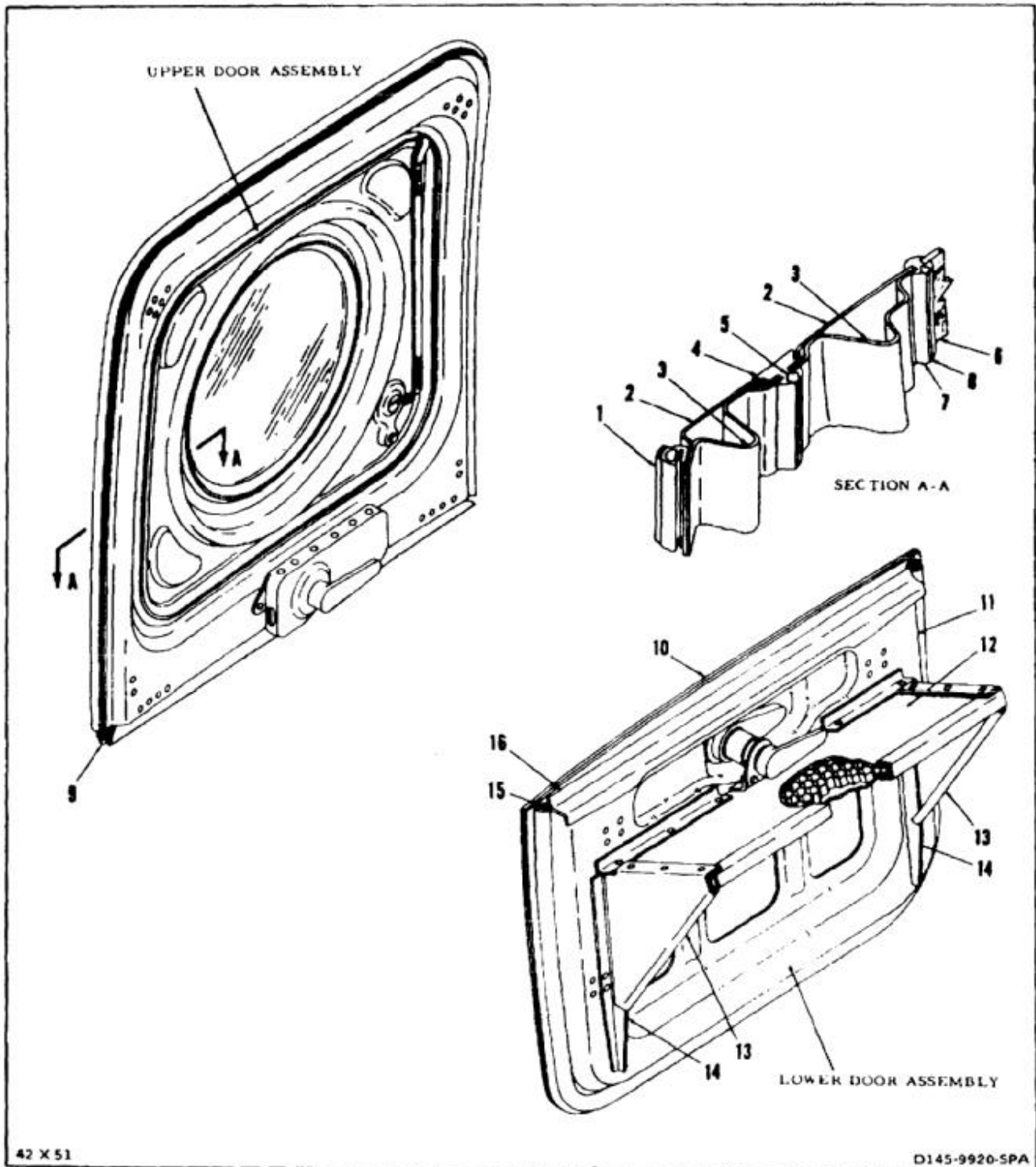
Personnel Required:Aircraft Structure Repairer
Inspector**References:**TM 1-1500-204-23
Task 2-10**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Burnish nicks, scratches, and dents if the burnished area does not interfere with door operation.
2. Temporarily patch holes and stop-drilled cracks. Do not exceed limits in Task 2-10.
3. Refer to TM 1-1500-204-23 for repair of window.
4. Repair damage more than minor by patching if door edges are not affected.



UPPER DOOR

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	SEAL	NOTE B.	—
2	OUTER SKIN	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
3	INNER PAN	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
4	SEAL	NOTE C.	—
5	SEAL FILLER	NOTE D.	—
6	PANE	NOTE E.	—
7	SEAL	NOTE F.	—
8	SEAL FILLER	NOTE G.	—
9	SEAL	NOTE H.	—

LOWER DOOR

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
10	OUTERSKIN	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD
11	INNER SKIN	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
12	STEP	NOTE I.	—
13	GUSSET	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD
14	ANGLE	ALCOA 22509 7075-T6	—
15	SEAL	NOTE J.	—
16	ZEE	0.050 2024-T4 CLAD	0.063 2024-T3 CLAD

- NOTES:
- A. All dimensions are in inches.
 - B. Replace with new seal 114S1621-9.
 - C. Replace with new seal 11451621-5.
 - D. Replace with new seal filler 114S1621-7.
 - E. The window pane is made of 0.080 thick acrylic sheet, MIL-P-25690.
 - F. Replace with new seal 114S2901-16.
 - G. Replace with new seal filler 114S2901-15.
 - H. Replace with new seal 11451621-11.
 - I. The step assembly is a sandwich honeycomb structure. The top skin is 0.032 2024-T4 CLAD aluminum alloy. The core is 0.540. 4.3-1/4-20NP-3003 aluminum honeycomb. The bottom skin is 0.016 7075-T6 CLAD aluminum alloy. Refer to TM 1-1500-204-23 for information on repair of sandwich honeycomb structures.
 - J. Replace with new seal 114S1620-43.

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

Marine Quality Plywood, 5/8 Inch Thick
 Enamel (E165)
 Walkway Material (E440)
 Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

TM 1-1500-204-23
 Task 2-151
 Task 2-350
 Task 2-356

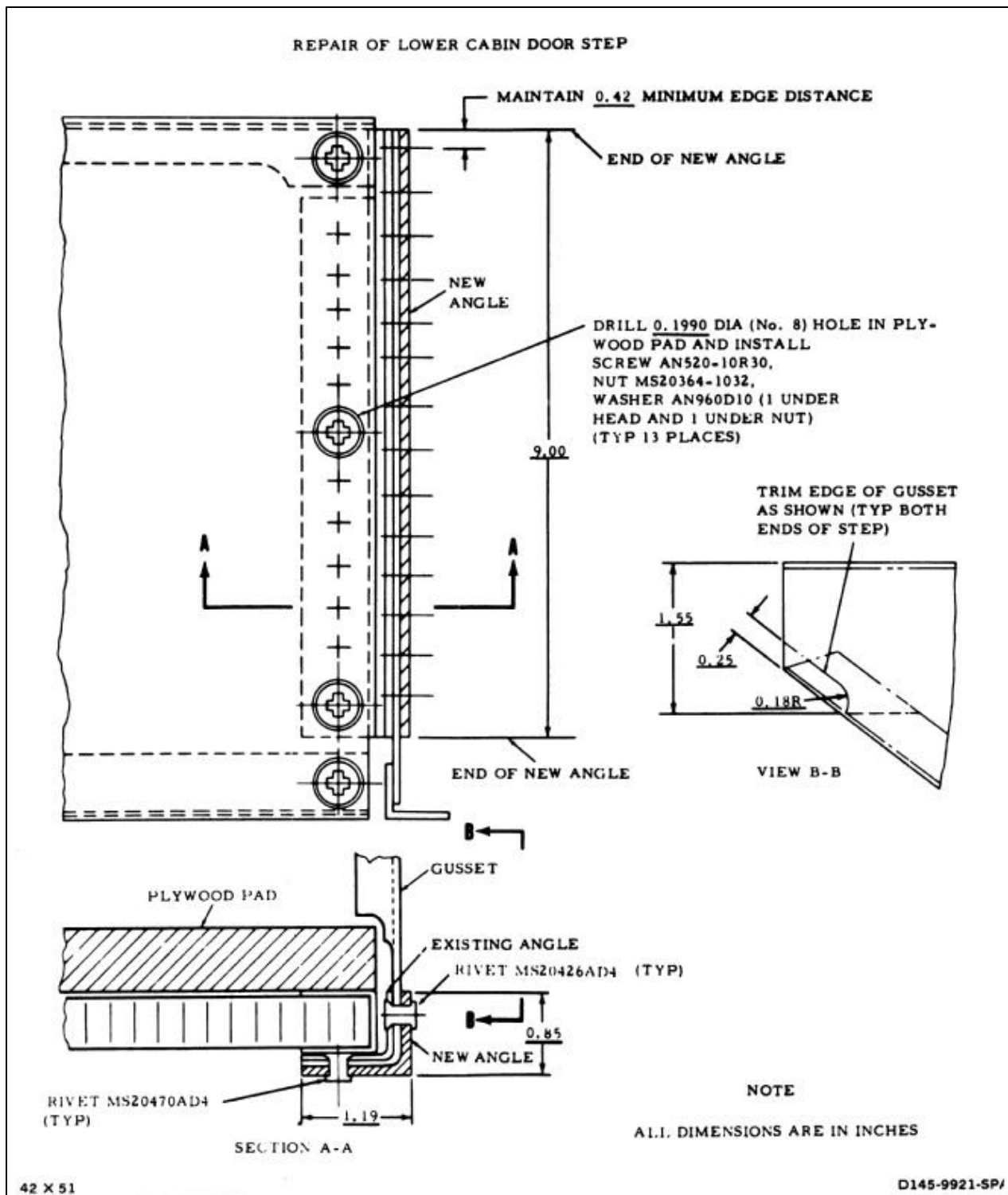
Equipment Condition:

As Required

General Safety Instructions:

As Required

1. For examples of typical repairs to sandwich honeycomb step, inner and outer skins, and spot welding, refer to TM 1-1500-204-23 (Task 2-151).
2. Apply walkway material (E440) to upper portion of step if repairs occur in that area (Task 2-356).
3. Repair cracks in gussets or angles at the forward and aft ends of lower cabin door step as follows:
 - a. Fabricate two angles from AND10134-1204, 2024T3 aluminum extrusion.
 - b. Remove screws, washers, nuts, and step assembly.
 - c. Remove rivets from side and bottom of gussets and angles.
 - d. Position new angles as shown. Use existing rivet holes as pattern and drill the new angles.
 - e. Remove new angles, deburr rivet holes, and finish angles (Task 2-350).
 - f. Reinstall angles and rivet them in place. Use rivets MS20426AD4 on bottom and rivets MS20470AD4 on sides.
 - g. Fabricate a step pad from **5/8 inch** thick marine quality plywood. Finish both sides with enamel (E165). Wear gloves (E186).
 - h. After enamel has dried, cover top of step with type II walkway material (E440) (Task 2-356).
 - i. Trim edge of gussets as shown.
 - j. Reinstall step assembly and plywood step pad. Use 13 screws, washers, and nuts.



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

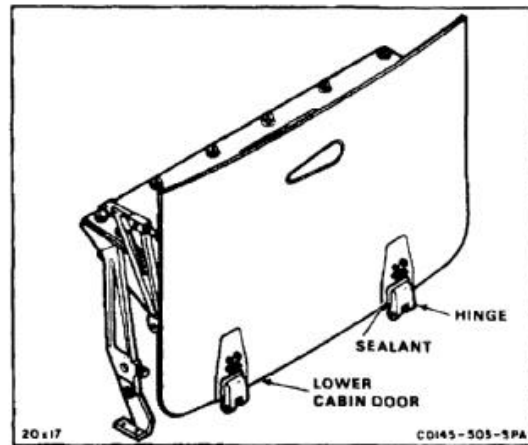
None

Personnel Required:

Aircraft Structural Repairer

Equipment Condition:

Lower Cabin Door Removed (Task 2-149)
Off Helicopter Task

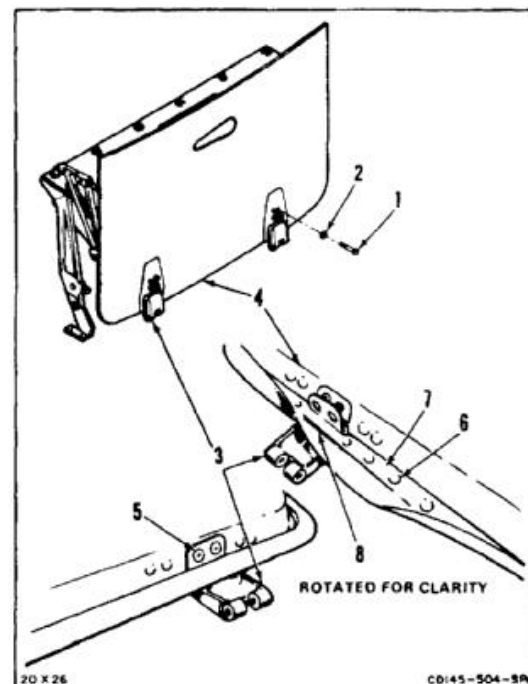
**NOTE**

Both hinges are removed same way.

1. Remove four screws (1) and washers (2) from hinge (3) and door (4).
2. Remove two screws (5) from hinge (3) and door (4).
3. Remove sealant around hinge (3).
4. Remove seven rivets (6) from retainer strip (7), seal (8), and door (4).
5. Remove hinges (3).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-508

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairman's Tool Kit, NSN
5180-00-323-4876

Materials:

Sealant (E332 or E470)
Gloves (E186)
Goggles (E473)

Parts:

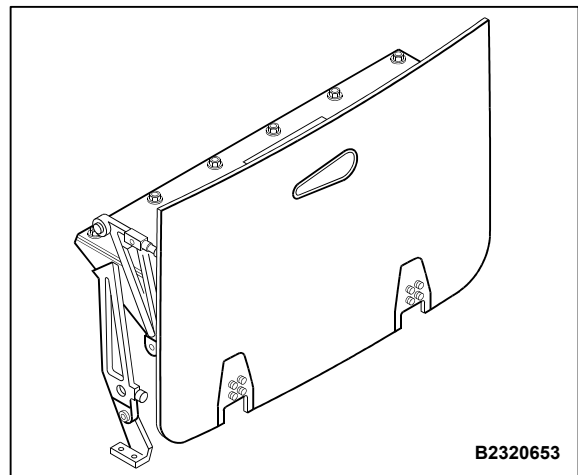
Rivets

Personnel Required:

Aircraft Structural Repairer
Inspector

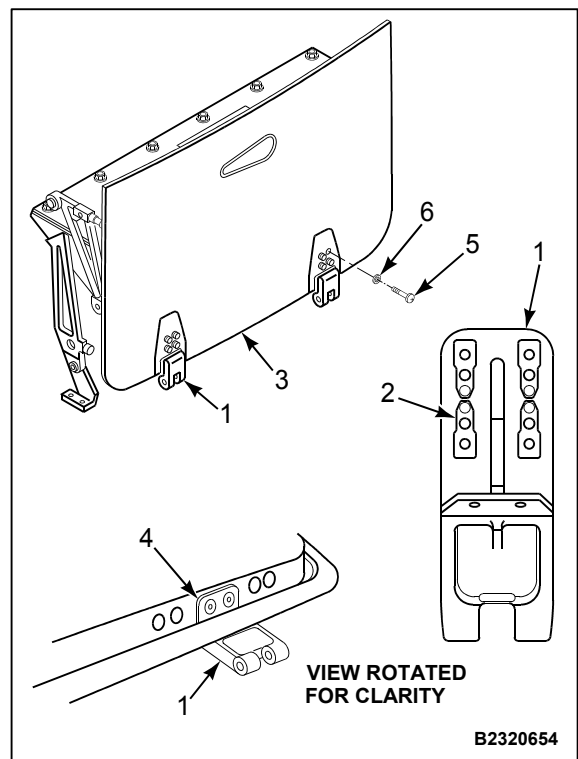
References:

TM 55-1520-240-23P

**NOTE**

Both hinges are installed same way.

1. Use removed hinge for template and mark six holes in hinge (1). Drill holes.
2. Install nut plate (2) on hinge (1) with eight rivets.
3. Position hinge (1) in lower cabin door (3).
4. Install two screws (4) loosely in hinge (1).
5. Install four screws (5) and washers (6) loosely in hinges (1) and door (3). Tighten screws (4 and 5).

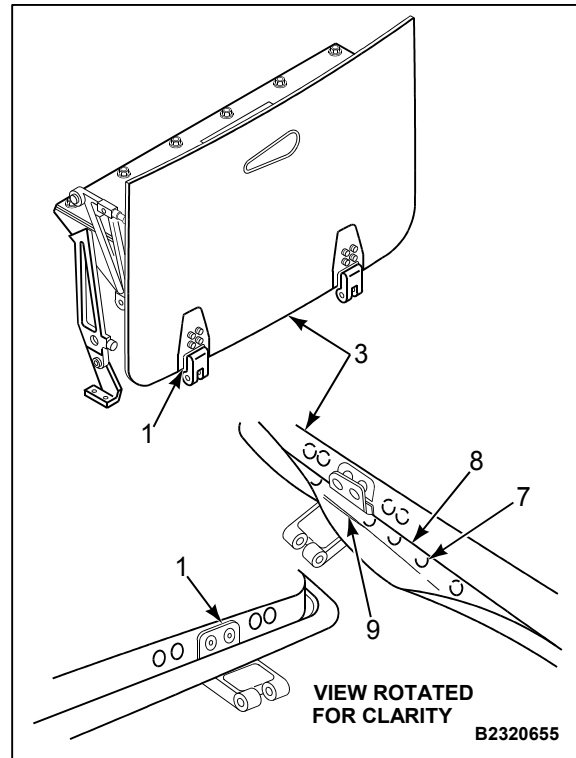


6. Install seven rivets (7) in retainer strip (8), seal (9), and door (3).

WARNING

Sealant (E332 or E470) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

7. Seal opening around edge of hinge (1) with sealant (E332 or E470). Wear gloves (E186).



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-155 REMOVE UPPER CABIN DOOR TRACK

2-155

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

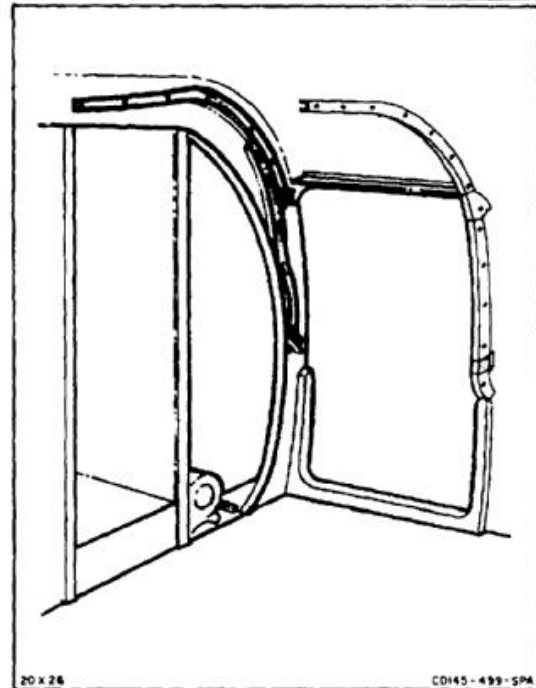
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

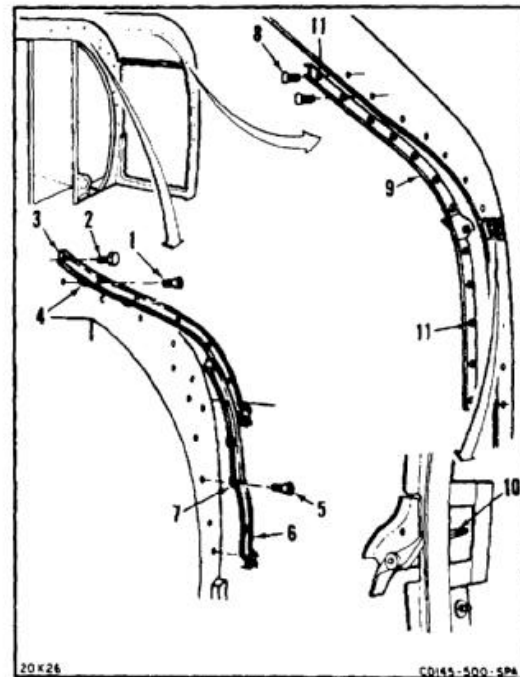
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Upper Cabin Door Removed (Task 2-150)



1. Remove six screws (1) and bolt (2) from inside upper forward track (3).
2. Remove forward upper track (3) with seven spacers (4).
3. Remove six screws (5) from lower forward track (6).
4. Remove forward lower track (6) with three spacers (7).
5. Remove 11 screws (8) from aft track (9).
6. Push lever (10) up to clear tracks.
7. Remove aft track (9) with two spacers (11).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-511

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

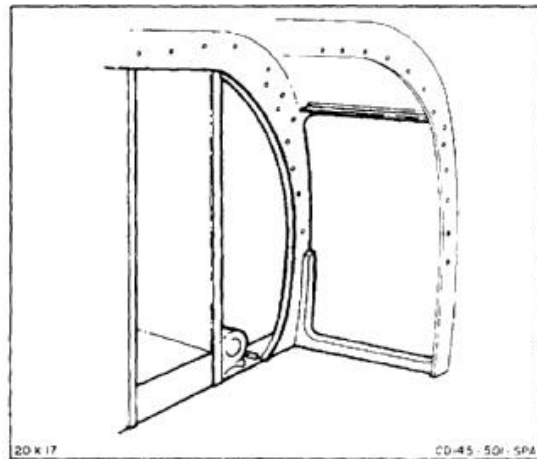
None

Personnel Required:

Medium Helicopter Repairer (2)

References:

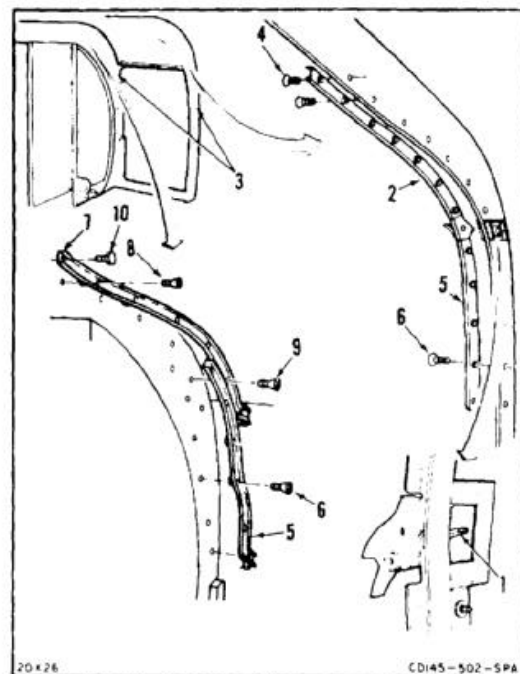
TM 55-1520-240-23P



1. Push up and hold lever (1). Position upper track (2). Release lever.
2. Align screw holes in aft track (2) and door frame (3). Install 11 screws (4).
3. Align six screw holes in forward lower track (5) and door frame (3). Install six screws (6).
4. Align six holes in forward upper track (7) and door frame (3). Install four screws (8), two screws (9), and bolt (10).

INSPECT**FOLLOW-ON MAINTENANCE:**

Install upper cabin door (Task 2-158).



END OF TASK

2-512

2-157 INSTALL LOWER CABIN DOOR**2-157****INITIAL SETUP****Applicable Configurations:**

All

Tools:

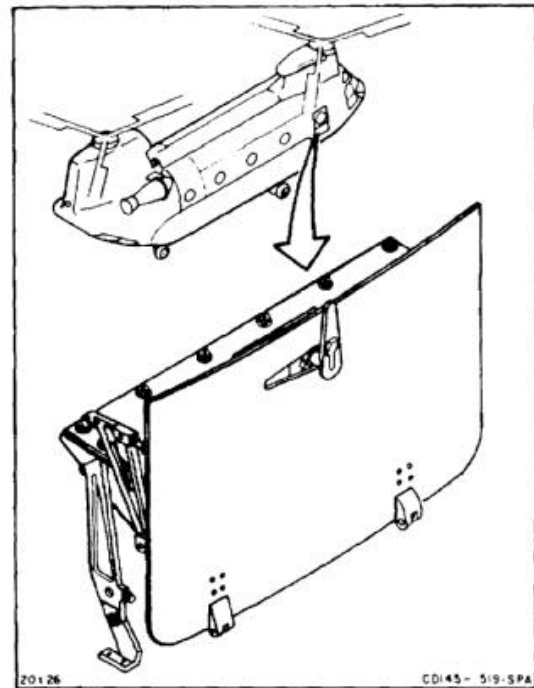
Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

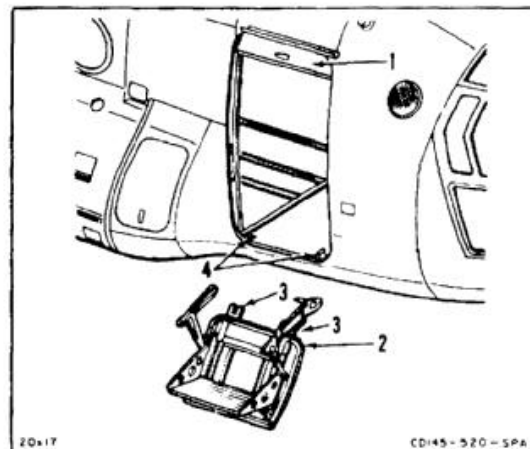
None

Personnel Required:Medium Helicopter Repairer (2)
Inspector**References:**

TM 55-1520-240-23P



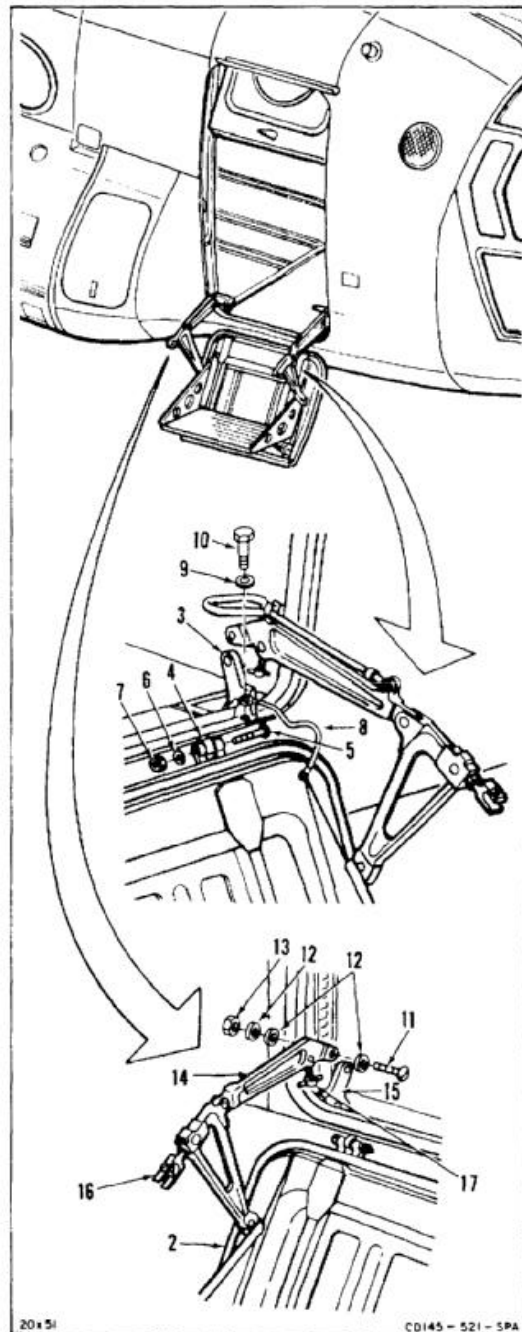
1. Make sure upper door (1) is opened and latched.
2. Position lower door (2) with aid of helper. Align two door hinges (3) with fuselage fittings (4).



3. Install bolt (5), washer (6), and nut (7) in both hinges (3) and fittings (4).
4. Put bonding wire (6) and washer (9) on bolt (10). Install bolt.
5. Install bolt (11), three washers (12), and nut (13) in both door hinge fittings (14) and fittings (15).
6. Check that door (2) closes tightly.
7. Adjust door lock fitting (16) if needed.
8. Check that both stops (17) contact fittings (15) when door (2) is lowered.
9. Adjust stops (17) if needed.

INSPECT**FOLLOW-ON MAINTENANCE:**

None



END OF TASK

2-514

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

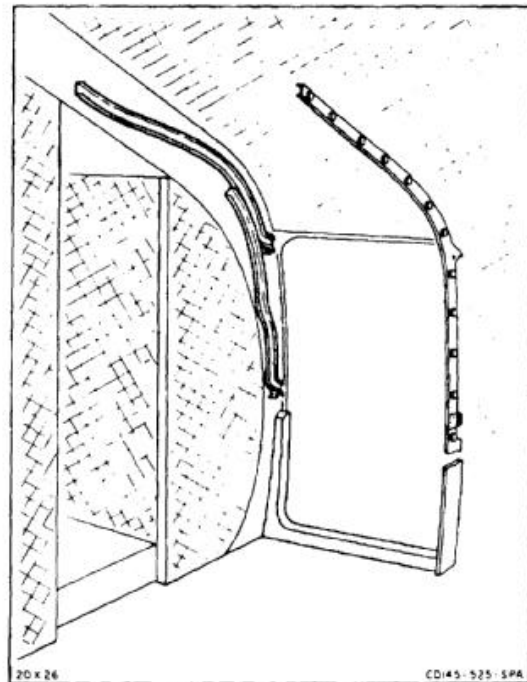
Parts:

Cotter Pin

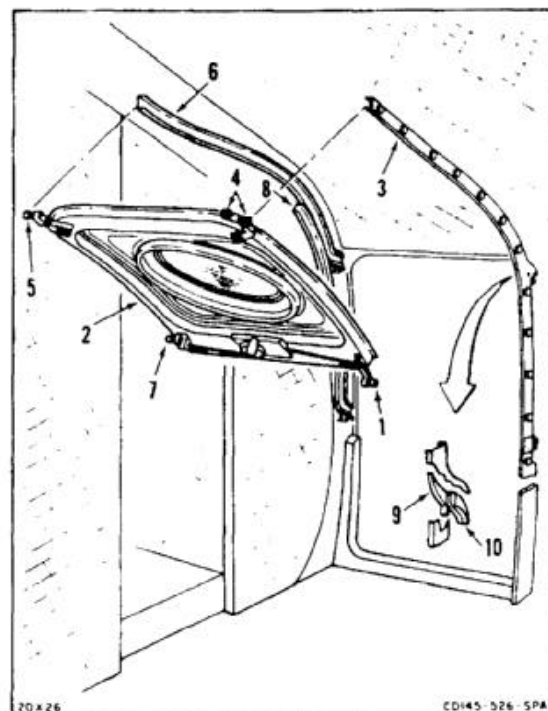
Personnel Required:Medium Helicopter Repairer (2)
Inspector**References:**

TM 55-1520-240-23P

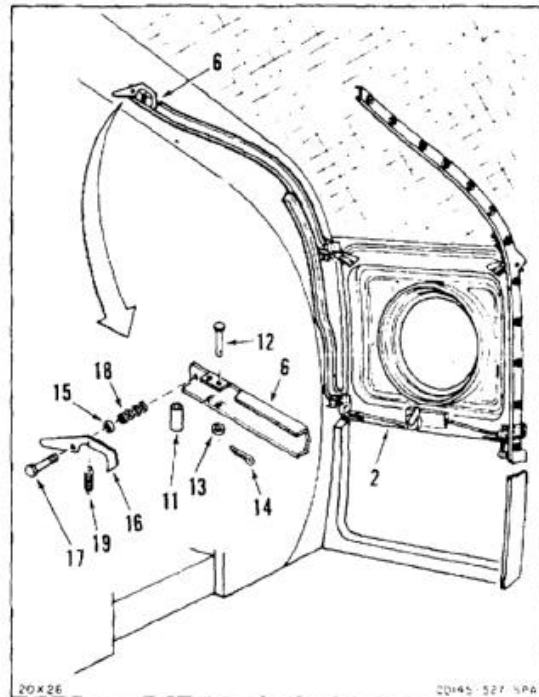
TM 55-1520-240-T



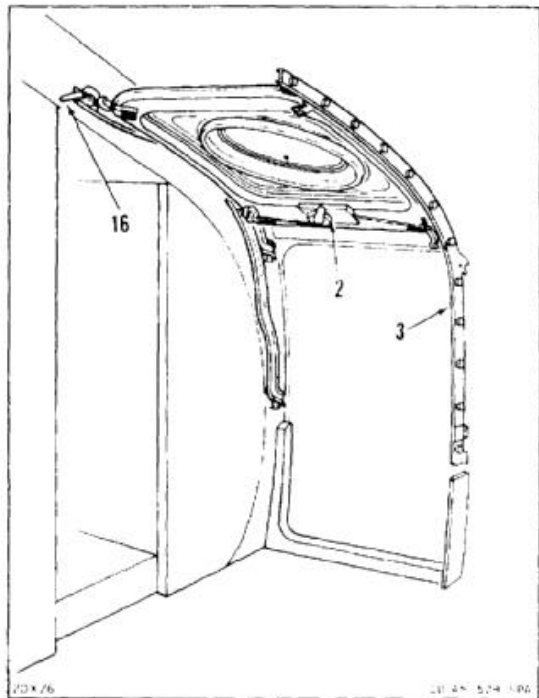
1. Position aft roller (1) of door (2) in upper end of track (3).
2. Position upper rollers (4) in track (3), and roller (5) in track (6). Have helper hold door in place.
3. Slide door (2) down, letting roller (7) go into track (8).
4. Push up and hold spring operated lever (9). Guide roller (1) past lever.
5. Release lever (9). Make sure guide (10) moves down against track (3) and holds door (2).



6. Close upper cabin door (2). Position rubber spacer (11) in track (6). Install flathead pin (12), washer (13), and new cotter pin (14).
7. Place bushing (15) in latch (16). Install bolt (17) in bushing. Place four washers (18) on bolt.
8. Hook spring (19) on latch (16) and track (3). Position latch and install bolt (17) in track.



9. Make sure door (2) seals tight when closed and latched. If door does not close and latch, adjust.
10. Make sure door (2) moves freely on door tracks (3) without binding. If door binds, troubleshoot (TM 55-1520-240-T).
11. Open upper door (2). Make sure door is held by latch (16) in open position.



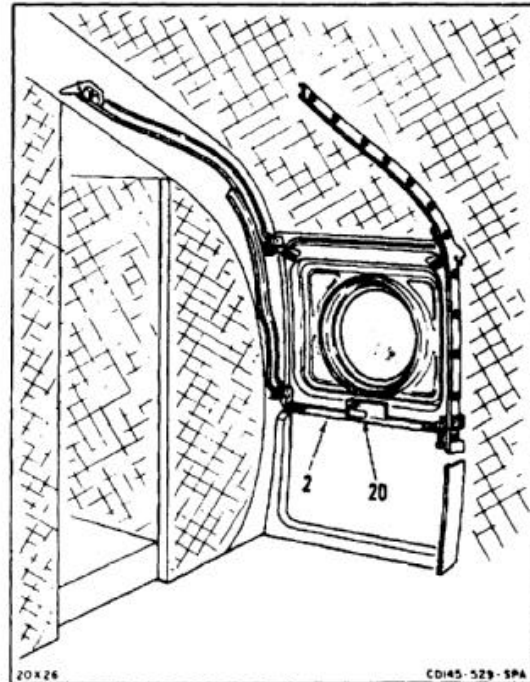
CAUTION

Do not leave upper door handle extended. If left extended, damage can occur to door and coaming.

12. Close door (2). Turn and push in handle (20) to lock position.

INSPECT**FOLLOW-ON MAINTENANCE:**

Adjust upper cabin door (Task 2-159).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Shim Stock, Laminated 114S1621-33

Shim Stock, Laminated 114S1621-35

Shim Stock, Laminated 114S1621-37

Shim Stock, Laminated 114S1621-39

Personnel Required:

Medium Helicopter Repairer (2)

Inspector

References:

TM 55-1520-240-23P

Task 2-150

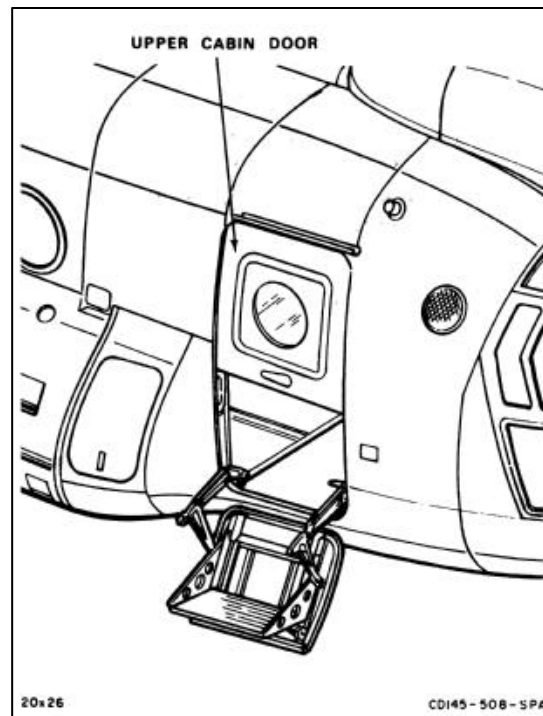
Task 2-158

Equipment Condition:

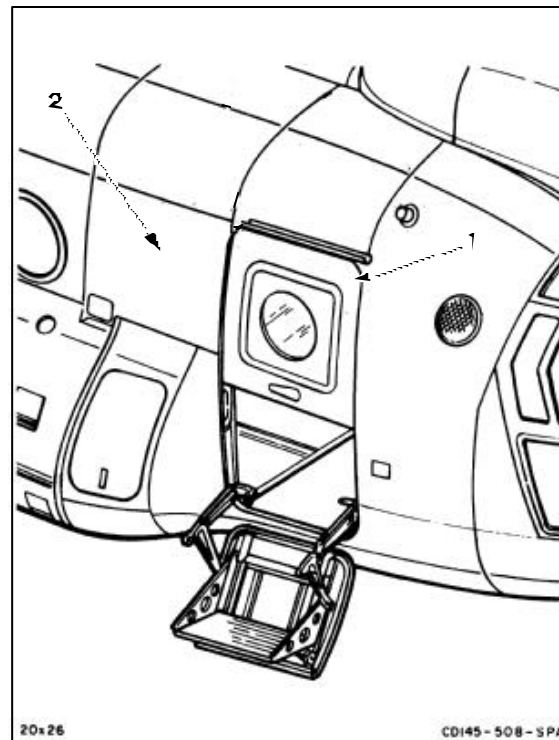
Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off



1. Close upper cabin door (1).
2. Check that door (1) fits flush with outside skin of fuselage (2). If it does not, perform steps 3 thru 7 for each corner that is not flush.

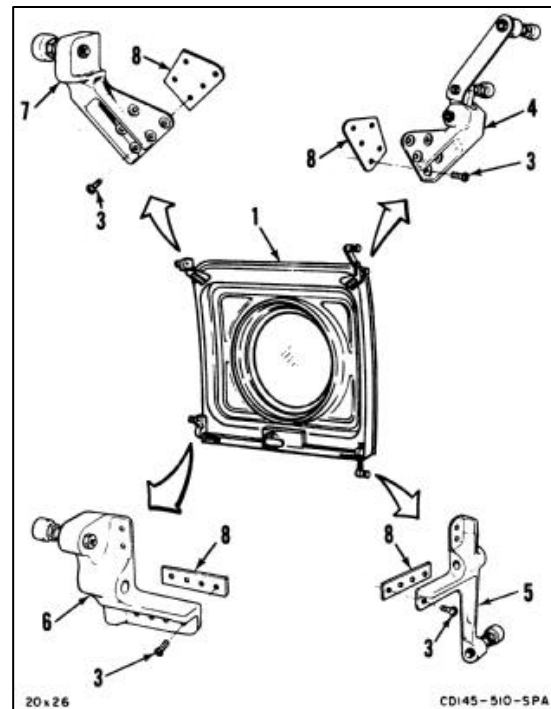


3. Remove door (1) (Task 2-150).

NOTE

Keep same shim with each support throughout the task.

4. Remove screws (3) from supports (4, 5, 6, or 7) that must be shimmed.
5. Place support (4, 5, 6, or 7) on laminated shim (8). Trace outline and holes of support onto shim with scribe.
6. Trim shim (8) on outline mark. Drill **1/4 inch** holes as marked on shim. Peel shims (8) to required thickness to make door flush.
7. Hold shims (8) and support (4, 5, 6, and 7) in place on door (1). Install screws (3). Install upper cabin door (1) (Task 2-158).



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:Without **70****Tools:**

Workstand

Materials:

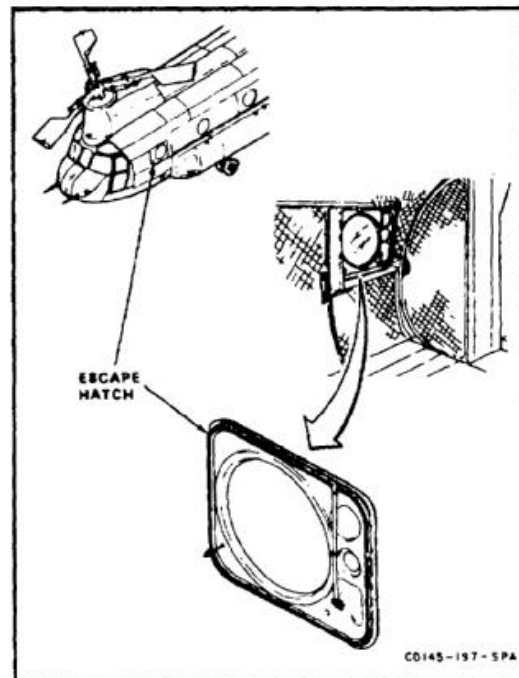
None

Personnel Required:

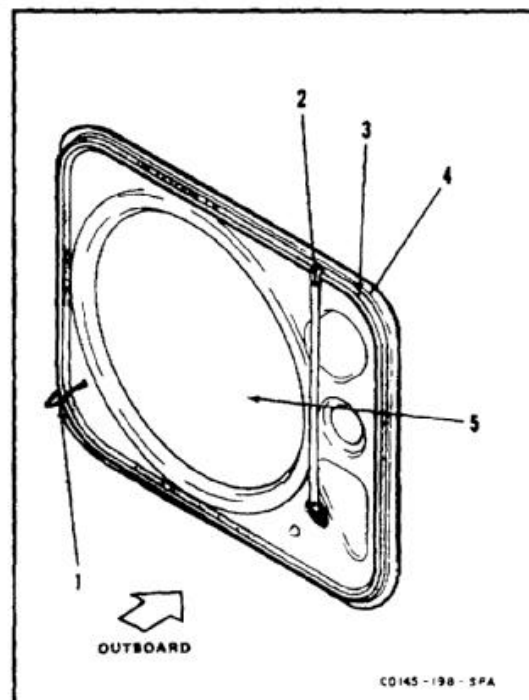
Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off



1. Disconnect bonding wire (1).
2. Pull release strap (2) hard enough to remove seal filler (3) from rubber seal and hatch retainer (4). Have helper support hatch (5) outside of helicopter.
3. Push hatch (5) through opening.
4. Have helper lower hatch (5).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-520

2-160.1 REMOVE FORWARD, LEFT SIDE CABIN ESCAPE HATCH

2-160.1

INITIAL SETUP**Applicable Configurations:**With **70****Tools:**

None

Materials:

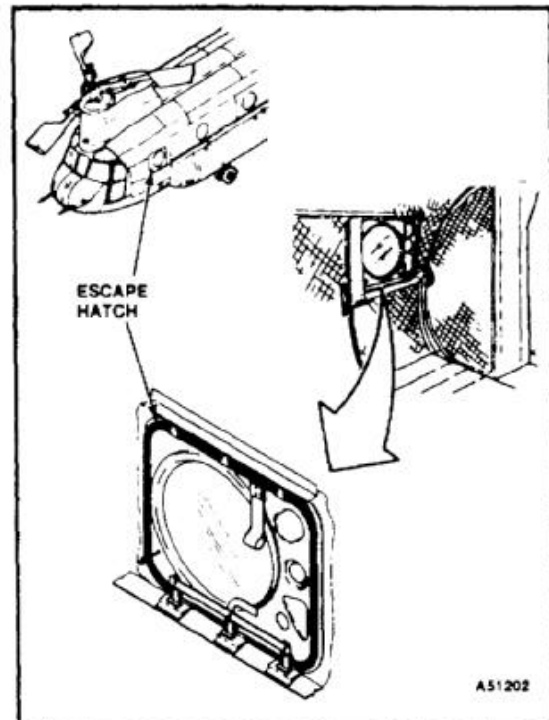
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

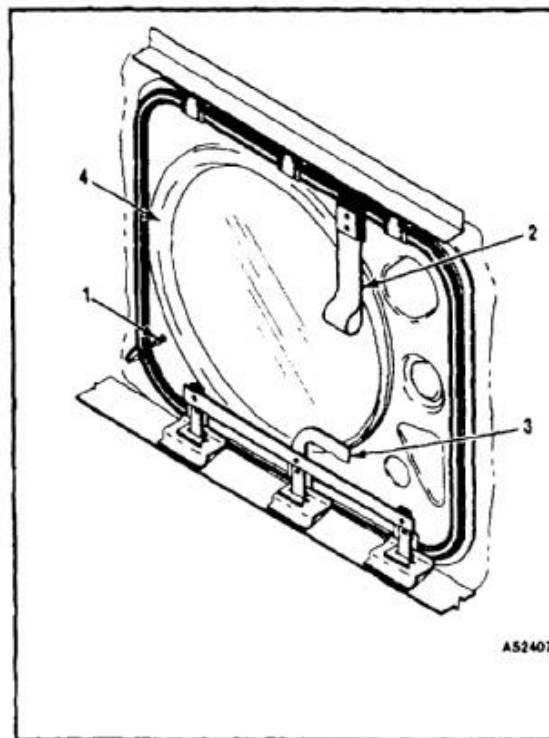
Battery Disconnected (Task 1-39)
Electrical Power Off



1. Disconnect bonding wire (1).
2. Hold the escape hatch nylon strap (2).
3. Rotate the locking handle (3) counterclockwise.
4. Remove the escape hatch (4) from the opening.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

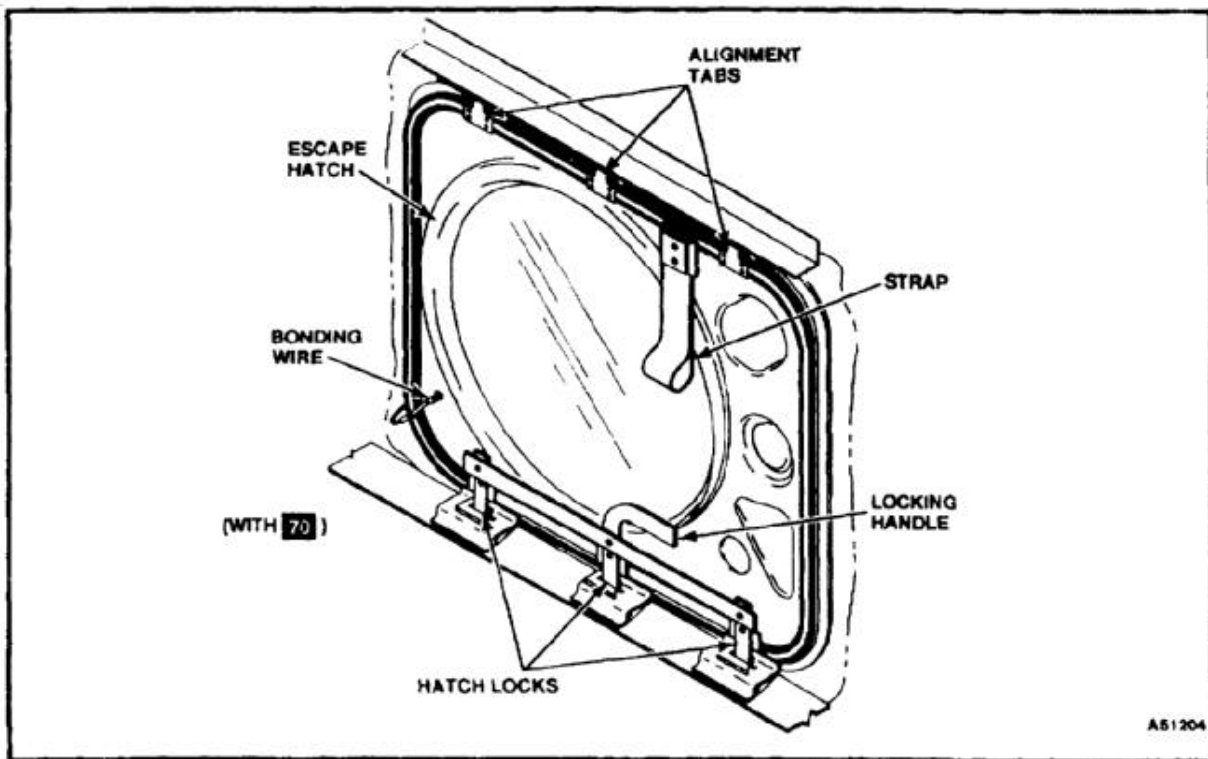
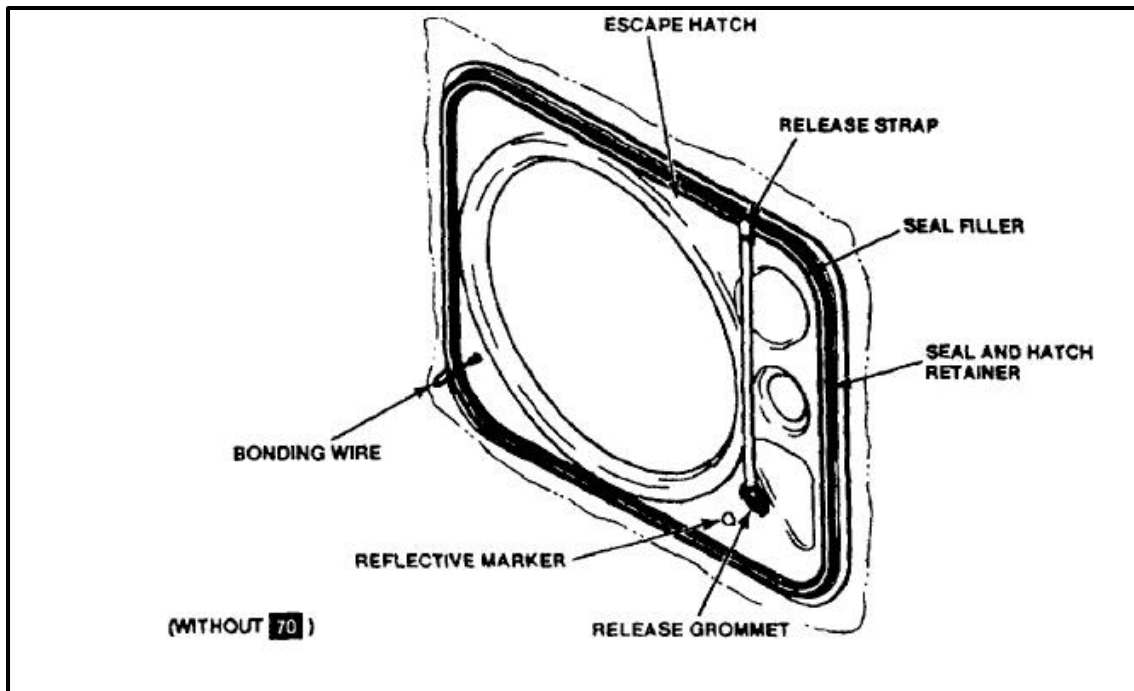
Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-162
Task 2-163**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Two escape hatches are in the forward cabin section. One escape hatch is in the right side upper cabin door. The other is on the left side of cabin opposite the cabin door.
2. The escape hatches without **70** consist of a spotwelded assembly, window pane, window seal, and window seal filler. The aluminum alloy assembly includes an outer skin spotwelded to inner panel and doubler. The window pane is stretched acrylic plastic, retained in the escape hatch by a rubber seal and seal filler. The escape hatch is secured to the fuselage by a similar seal and seal filler.
3. The left side escape hatch with **70** consists of a spotwelded assembly, window pane, window seal, and window seal filler. The aluminum alloy assembly includes an outer skin spotwelded to an inner panel and doubler. The window pane is stretched acrylic plastic, retained in the escape hatch by a rubber seal and seal filler. The left side escape hatch is secured in the hatch opening with a manually operated hatch locking system.
4. Damage to either escape hatch is classified as: Minor Damage (Task 2-162) or Major Damage (Task 2-163).



A51204

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

1. Repair nicks, scratches, and small dents by burnishing.

NOTE

Dents may not interfere with installation of window as escape hatch.

2. Temporarily patch holes and stop-drilled cracks that do not exceed limits (Tasks 2-12 and 2-15).

References:

Task 2-12
Task 2-15
TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

3. For information on repair of window pane, refer to TM 1-1500-204-23.

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-524

2-163 REPAIR FORWARD CABIN ESCAPE HATCH — MAJOR DAMAGE (AVIM)**2-163****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-13
Task 2-160
Task 2-161
Task 2-165
Task 2-352**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Patch minor repairs if edges of escape hatch are not damaged (Tasks 2-13 and 2-161).

NOTE

Repairs must not interfere with window pane or escape hatch installation.

2. Refinish repaired area (Task 2-352).

3. Replace forward cabin escape hatch when edges of hatch are damaged and installation is affected (Tasks 2-160 and 2-165).

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

Task 2-164 deleted.

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Window Tool 756460
- Window Tool 756475
- Workstand

Materials:

- Soap (E353)
- Tape (E388)

Parts:

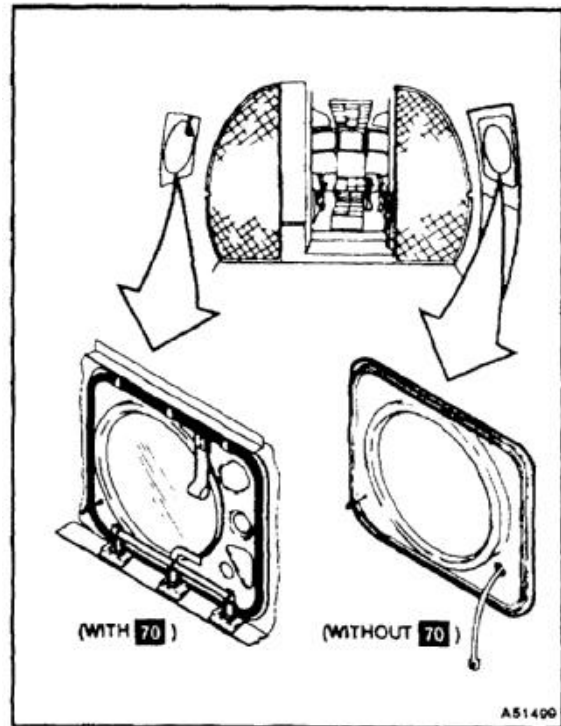
Seals

Personnel Required:

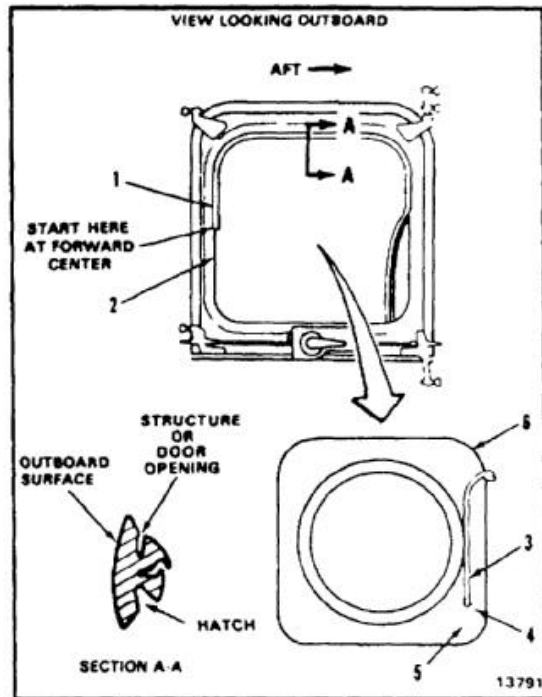
- Medium Helicopter Repairer (2)
- Inspector

References:

TM 55-1520-240-23P



1. Without **70**, install closed channel of seal (1) around hatch opening (2). Begin at forward center of opening.
2. Cut seal (1) **1 inch** oversize. Hold seal in place around hatch opening with tape (E388) applied at each corner of opening (2). Make final cut and butt splice at start point.
3. Insert bottom end of strap (3) through grommet (4) and fasten to snap fastener (5) on outside of hatch (6).



4. Wet seal opening to receive hatch (6) with a solution of soap (E353) and water. Have helper fit and hold hatch on opening.
5. From inside helicopter, fit open (inner) channel of seal (7) around edge of hatch (6). Use installation tool (8) as shown. Remove tape.
6. Make sure seal (7) is tight on hatch opening (9).

WARNING

Seal filler must be installed in one piece. If not, filler will not come out when strap is pulled and would not release hatch. Personnel could be trapped.

7. Pass filler seal (10) through loop of release strap (3) and through installation tool (11) as shown.
8. Put filler seal (10) in seal (7). Start at lower aft corner of hatch (6). Use soap (E353) and water solution to lubricate.
9. Make sure strap (3) is held in filler seal (10) at top of hatch (6).
10. Connect bonding wire (12).

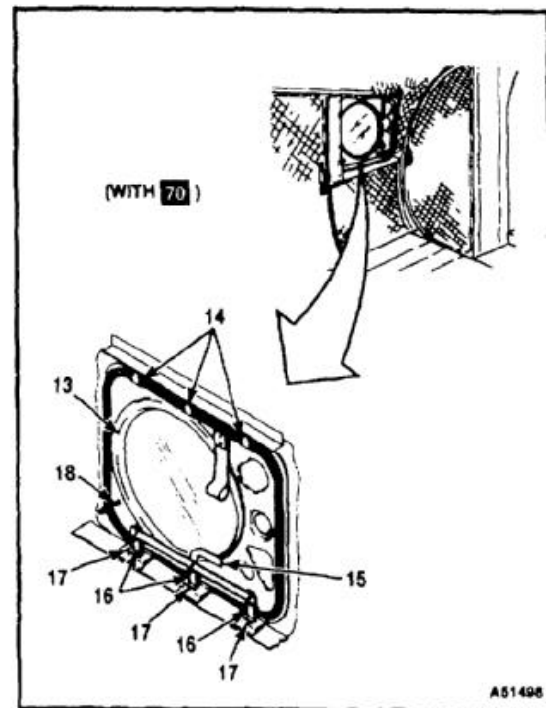
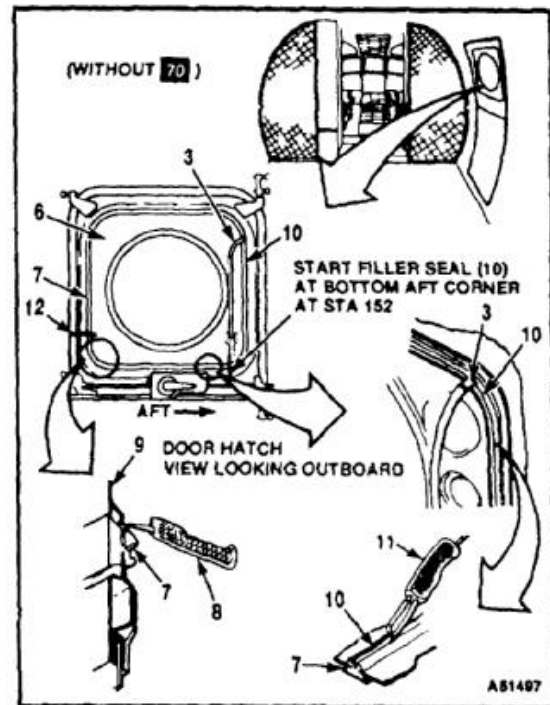
INSPECT

11. With **70**, place the escape hatch (13) in the hatch opening, inserting the three alignment tabs (14) into the three slots in the structure above the hatch opening.
12. With the escape hatch (13) positioned in the hatch opening, rotate the locking handle (15) clockwise.
13. Ensure the three hatch locks (16) fully engage the locking slots (17) in the aircraft structure.
14. Connect bonding wire (18).

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Workstand

Materials:

None

Personnel Required:

Medium Helicopter Repairer (2)

References:

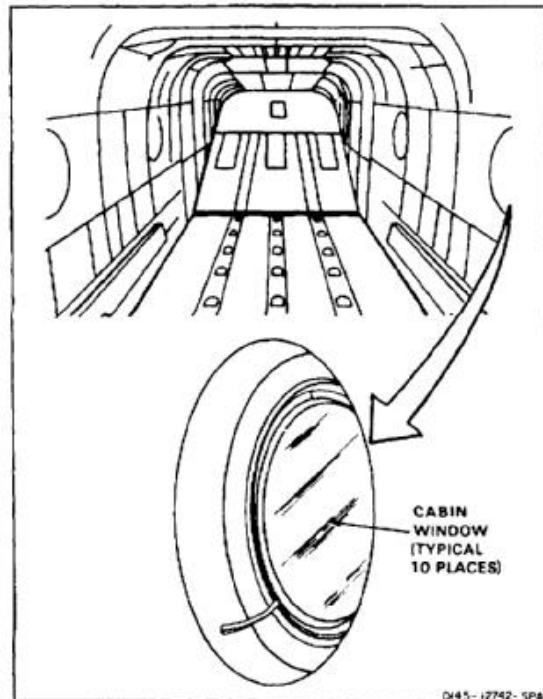
Task 2-42

TM 1-1500-204-23

Equipment Condition:

Battery Disconnected (Task 1-39)

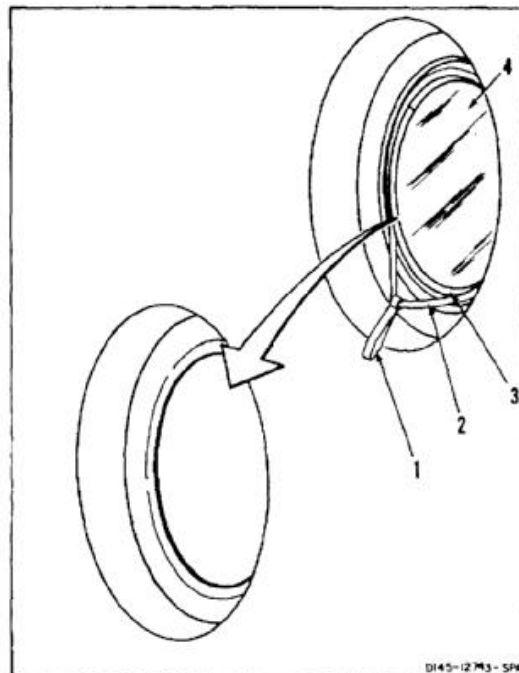
Electrical Power Off



1. Pull release strap (1) hard enough to remove seal filler (2) from seal and window retainer (3). Have helper support window (4) outside of helicopter.
2. Push window (4) through opening to helper.
3. Have helper lower window (4).
4. Inspect window (4) for nicks, scratches, cracks, and crazing. Replace window if cracked or crazed.
5. Repair nicks and scratches on window (4) by polishing per Task 2-42 and/or TM 1-1500-204-23.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-528

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Cloths (E120)
 Gloves (E186)
 Dry Cleaning Solvent (E162)
 Primer (E299)
 Adhesive (E58)

Parts:

Seal 114S2901-16

Personnel Required:

Medium Helicopter Repairer
 Inspector

References:

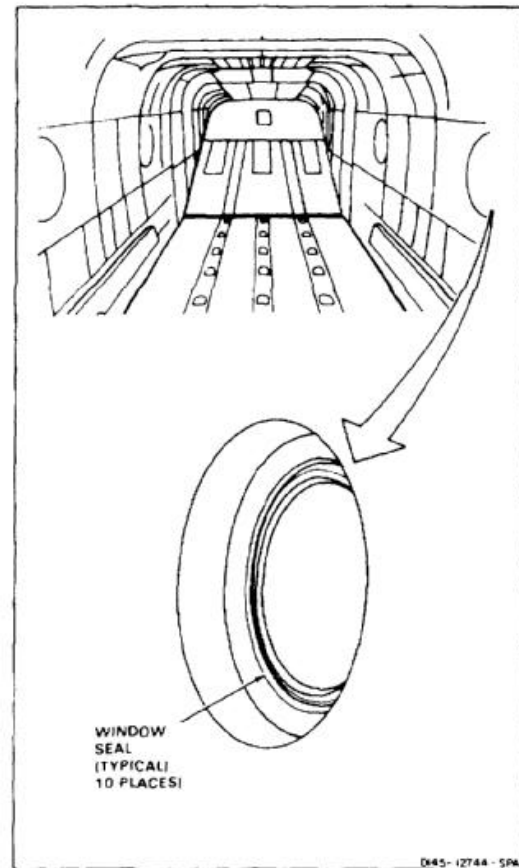
TM 55-1520-240-23P
 Final Finish — Interior and Exterior Metal Structure
 (Task 2-352)

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Cabin Window Removed (Task 2-165.1)

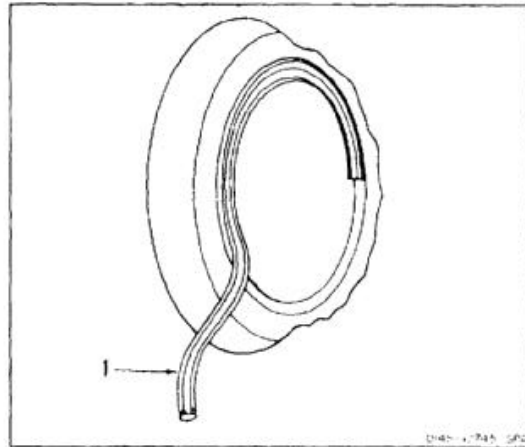
General Safety Instructions:**WARNING**

Dry cleaning solvent (E161) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.



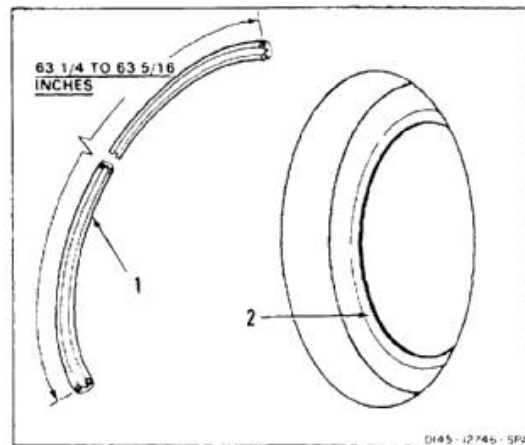
REMOVE SEAL

1. Remove seal (1) from around window opening.
2. Clean adhesive from around window opening. Use cloths (E120) damp with dry cleaning solvent (E162). Wear gloves (E186) and goggles.
3. Touch up bare skin areas (Task 2-352).

**INSTALL SEAL****WARNING**

Seal 114S2901-16 must be used with window 114S2721-5. If any other seal is used, window could be lost in flight or not release in an emergency. Injury to personnel could result.

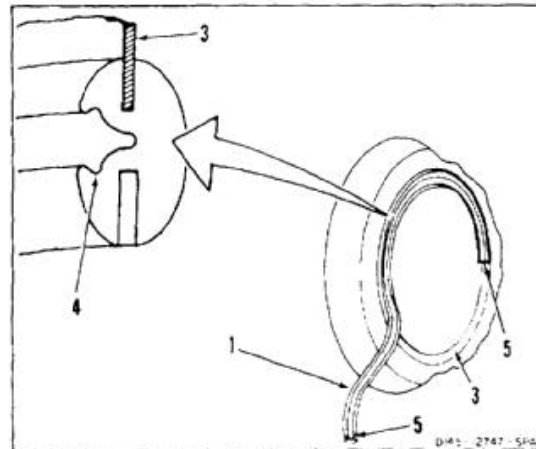
4. Cut new seal (1) **63-1/4 to 63-5/16 inches** long. Make cut at right angle to length of seal. Cut shall be straight and smooth.
5. Apply light coat of primer (E299) to seal mating surface (2) of window opening.
6. Apply light coat of adhesive (E58) to mating surface (2).

**NOTE**

Install seal quickly after applying adhesive to ensure a good bond.

2-165.2 REPLACE SEAL FOR CABIN WINDOW 114S2721-5 (Continued)**2-165.2**

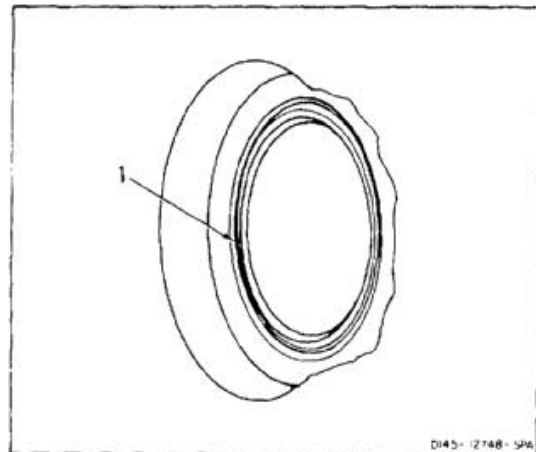
7. Install channel of seal (1) over edge of window opening (3) Start at forward center of opening with filler channel (4) facing inboard. Continue around entire edge.
8. Apply a light coat of adhesive (E58) to free end (5) of seal (1). Butt ends of seal together to finish installation. Apply pressure as needed to make a good bond.



9. Remove adhesive squeezeout from seal (1) and structure. Use cloths (E120) damp with solvent (E162).

FOLLOW-ON MAINTENANCE:

Install cabin window (Task 2-165.4).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Cloths (E120)
 Gloves (E186)
 Dry Cleaning Solvent (E162)
 Alcohol (E64)
 Sealant (E332.1)

Parts:

Seal 173S2904-4

Personnel Required:

Medium Helicopter Repairer
 Inspector

References:

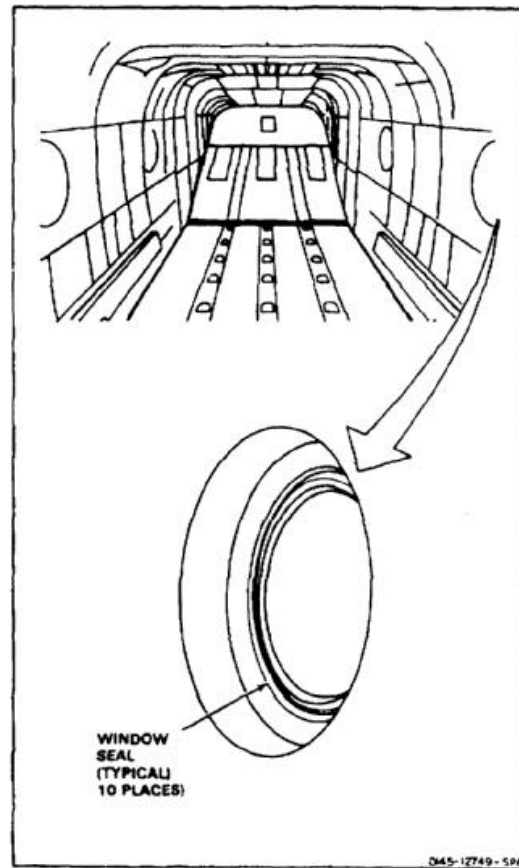
TM 55-1520-240-23P
 Task 2-352

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Cabin Window Removed (Task 2-165.1)

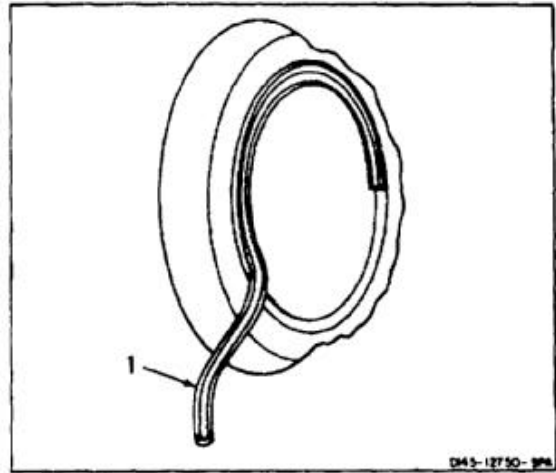
General Safety Instructions:**WARNING**

Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minute**. Get medical attention for eyes.



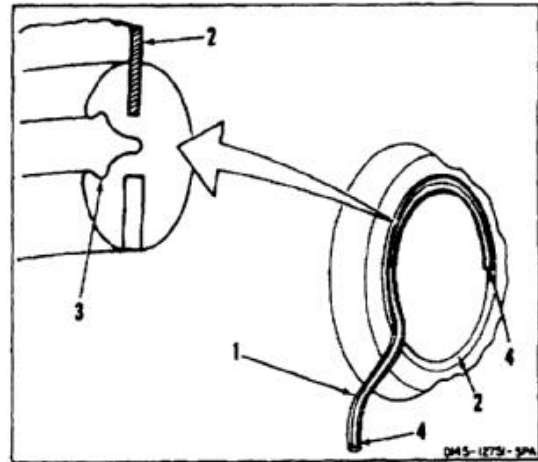
2-165.3 REPLACE SEAL FOR CABIN WINDOW 173S2904-3 AND 1560-CH47-944 (Continued)**2-165.3****REMOVE SEAL**

1. Remove seal (1) from around window opening.
2. Clean adhesive from around window opening. Use cloths (E120) damp with dry cleaning solvent (E162). Wear gloves (E186) and goggles.
3. Touch up bare skin areas (Task 2-352).

**INSTALL SEAL****WARNING**

Seal 173S2904-4 must be used with windows 173S2604-3 and 1560-CH47-944. If any other seal is used, window could be lost in flight or not release in an emergency. Injury to personnel could result.

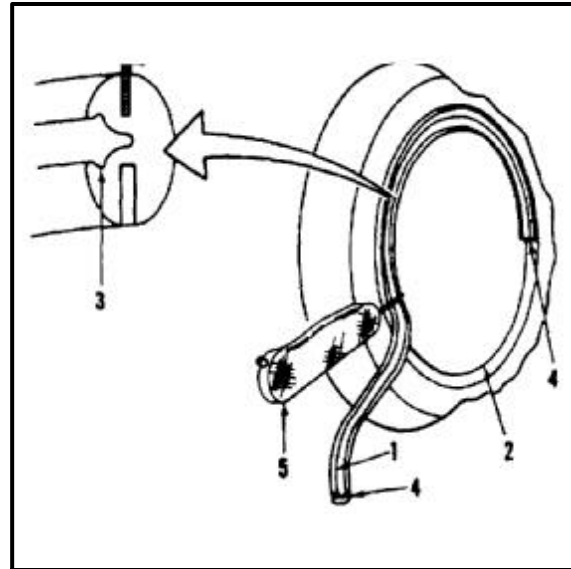
4. Fit seal (1) to window opening by installing channel of seal (1) over edge of window opening (2). Filler channel (3) shall face in board.
5. Mark end of seal (1) where ends (4) overlap about **1/8 inch**. Remove seal.
6. Cut seal (1) to marked length. Make cut at right angles to seal length. Cut shall be straight and smooth.
7. Clean both ends (4) of seal (1). Use clean cloths (E120) damp with alcohol (E64).



WARNING

If seal is secured to fuselage with adhesive, too much force will be needed to release window in an emergency. Injury to personnel could result.

8. Install channel of seal (1) over edge of window opening (2). Start at forward center of opening with filler channel (3) facing inboard. Continue around entire edge. Use seal installation tool (5) to get a snug fit.
9. Apply a light coat of sealant (E332.1) to both ends (4) of seal (1). Press both ends of seal together to finish installation.
10. Remove sealant squeezeout. Use cloths (E120) damp with solvent (E162).

**INSPECT****FOLLOW-ON MAINTENANCE:**

Install cabin window (Task 2-165.4).

END OF TASK

2-165.4 INSTALL CABIN WINDOW

2-165.4

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Window Tool (T167)
Workstand

Materials:

Soap (E353)

Parts:

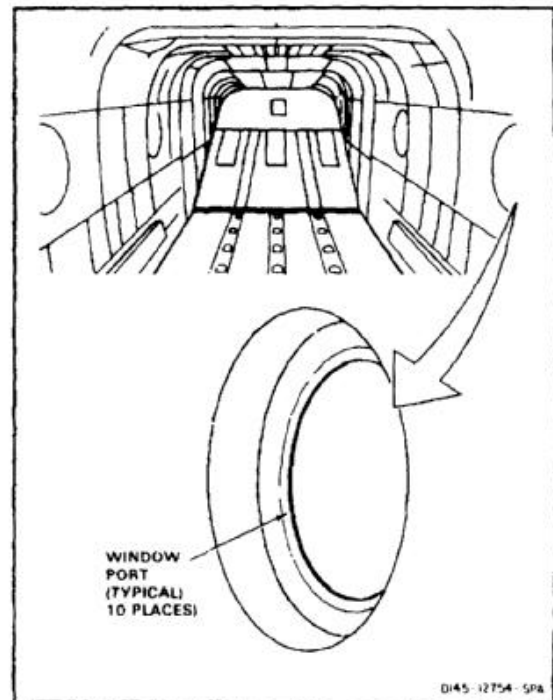
Seals

Personnel Required:

Medium Helicopter Repairer (2)
Inspector

References:

Task 2-165.2
Task 2-165.3
TM 55-1520-240-23P

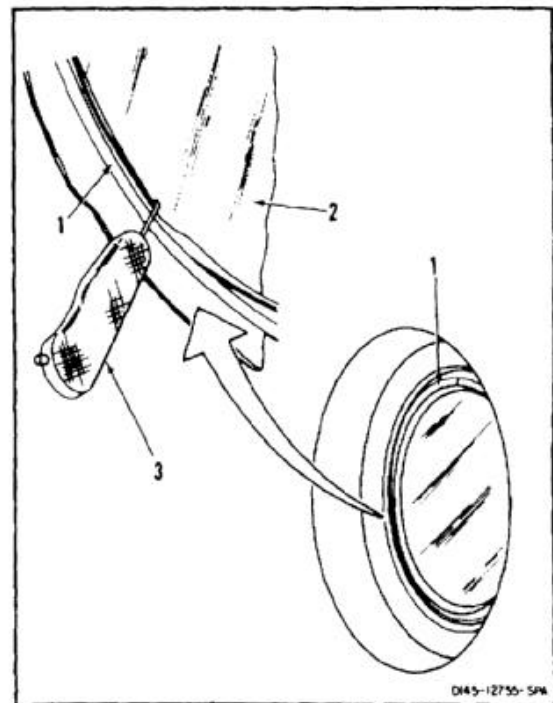
**WARNING**

If seal is not changed, be sure to install same part number window as was removed. If it is not, window could be lost in flight or not release in an emergency. Injury to personnel could result.

NOTE

Procedure is same to install window at any of 10 locations except as noted.

1. Inspect seal (1). If seal is damaged, replace it (Task 2-165.2 or 2-165.3).
2. Working from inside helicopter, position window (2) with part number at **12 o'clock**. Insert window with flat side of window edge towards the outside into channel of seal (1) at **6 o'clock** position as far as it will go.
3. Lift lip of seal (1) with tool (3) and slip window (2) into seal channel. Install window in seal, working in both directions from **6 o'clock** starting point.



4. Wet seal filler channel (4) with soap (E353) and water.

WARNING

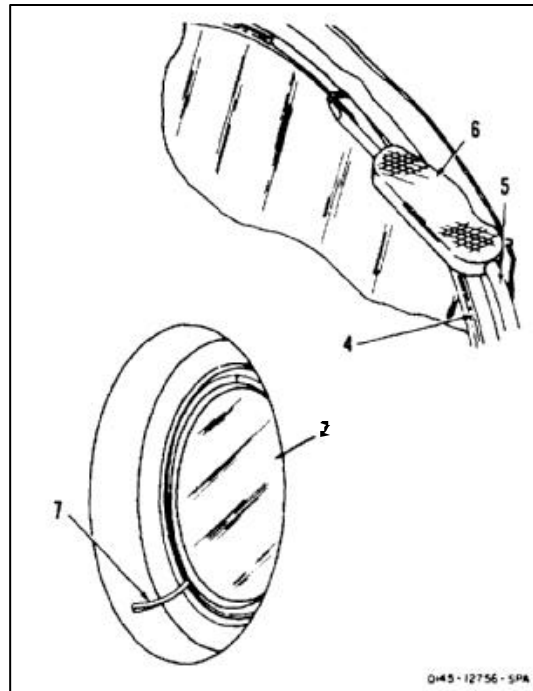
Seal filler must be installed in one piece. If it is not, all filler will not come out when strap is pulled. Hatch may not release, trapping personnel.

5. Insert seal filler (5) in handle of seal filler installation tool (6) (T167).

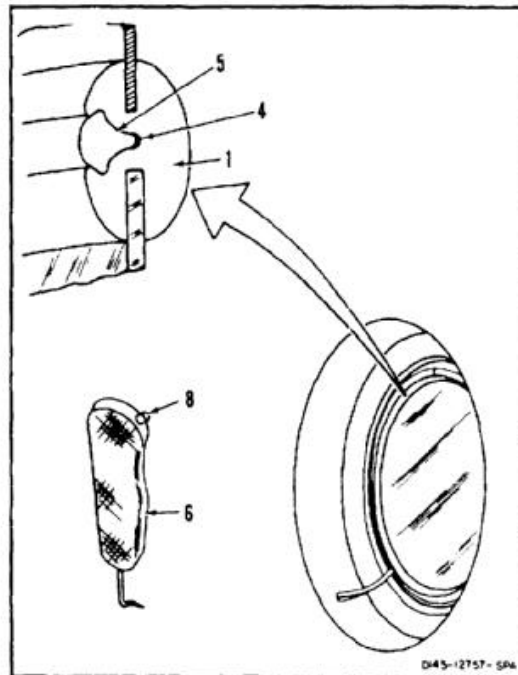
NOTE

The two forward windows do not utilize release strap (7).

6. Install seal filler (5) into filler channel (4). Start at **12 o'clock** position, When starting, hold end of seal filler in position with thumb. Continue until installed seal reaches release strap (7).
7. At bottom of window (2), remove tool (6) (T167) from seal filler (5). Pass seal filler through release strap (7).



8. Install tool (6) (T167) on seal filler (5). Continue installing filler in channel (4). If installing a new filler, overlap the starting end about **3/16 inch** and cut.
9. Butt ends of seal filler (5) together. Press filler into channel (4) of seal (1). Use spur (8) on handle of installation tool (6) (T167).



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Locating and Drill Fixtures, Brackets, Sync Shaft (T113 and T114)
Tool Kit, Combining Transmission Support Fitting Replacement (T182)

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-168
TM 1-1500-204-23
TM 1-1520-253-23

Equipment Condition:

As Required

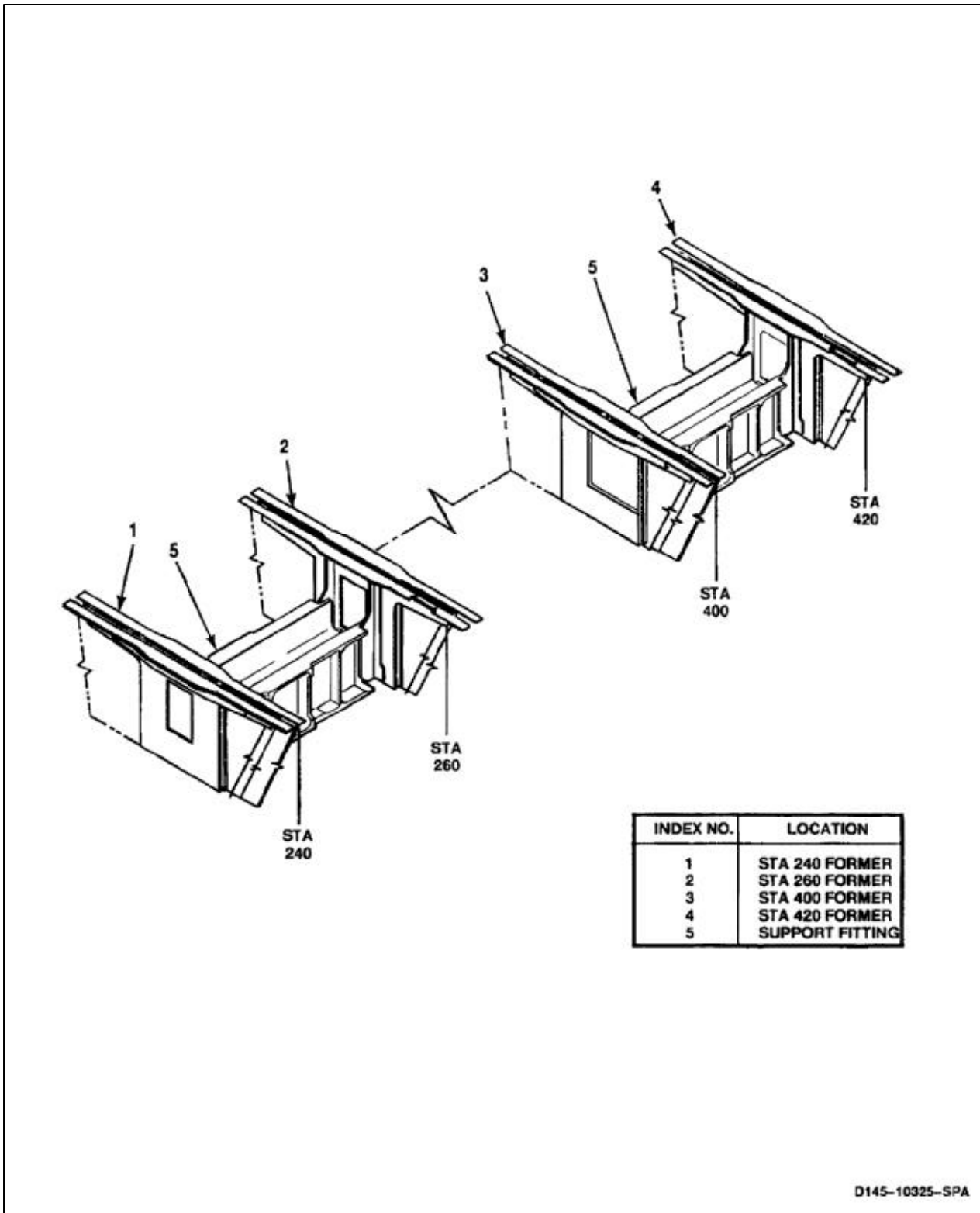
General Safety Instructions:

As Required

1. Equipment support structures consist of components manufactured from aluminum alloy, stainless steel, bonded fiberglass/honeycomb, or any combination of structural materials.
2. Cabin equipment support structures include supports for drive shafts, cargo hook, radar altimeter mount, and fuel relay box.
3. Fuselage equipment support structures include supports for antennas, control panels, avionics racks, drive shafts, cargo hook, external hoist, hinge supports, rotor brake, and mini-gun mountings. There are also intercostals serving as litter strap supports and brackets for cabin dome lights. The aft fuselage contains combining transmission longitudinal support beams and ramp actuator supports.
4. Support structures are located as follows:
 - a. Six drive shaft supports are on cabin crown panel at sta. 162.12 through 180.12, 200.12 through 220.12, 260.12 through 380.12, 300.12 through 320.12, 360.12 through 380.12, and 400.12 through 420.12.
 - b. Forward cargo hook support is between sta. 240 and 260. Support is aluminum alloy forging with bonded reinforcing members.
 - c. Center cargo hook support is between sta. 320 and 360. Support is made of aluminum reinforcing members.
 - d. Aft cargo hook support is between sta. 400 and 420. Support is aluminum alloy forging with bonded reinforcing members.
 - e. Litter strap intercostals are flanged webs between sta. 160 and 180.01, 240 and 260 and 280, 340 and 360, and 360 and 380 on each side of cabin fuselage crown panel.
 - f. Cabin dome light brackets are at sta. 175.50, 248.50, 345.75, and 432.50.
 - g. Combining transmission longitudinal support beams are located on the cabin crown panel between sta. 440 and 482. Supports are box sections of aluminum and corrosion-resistant steel.
 - h. Ramp actuator support between sta. 482 and 502.43 at WL +5.8 on each side of fuselage. Support is aluminum alloy web with extruded cap.
5. Check all support structures for holes, cracks, elongated holes, or damage to formed parts or extrusions. No cracks are allowed. If a crack is suspected, refer to TM 1-1520-253-23.
6. Damage to cabin equipment support structures is classified as minor damage, major damage or damage requiring replacement (Task 2-168).

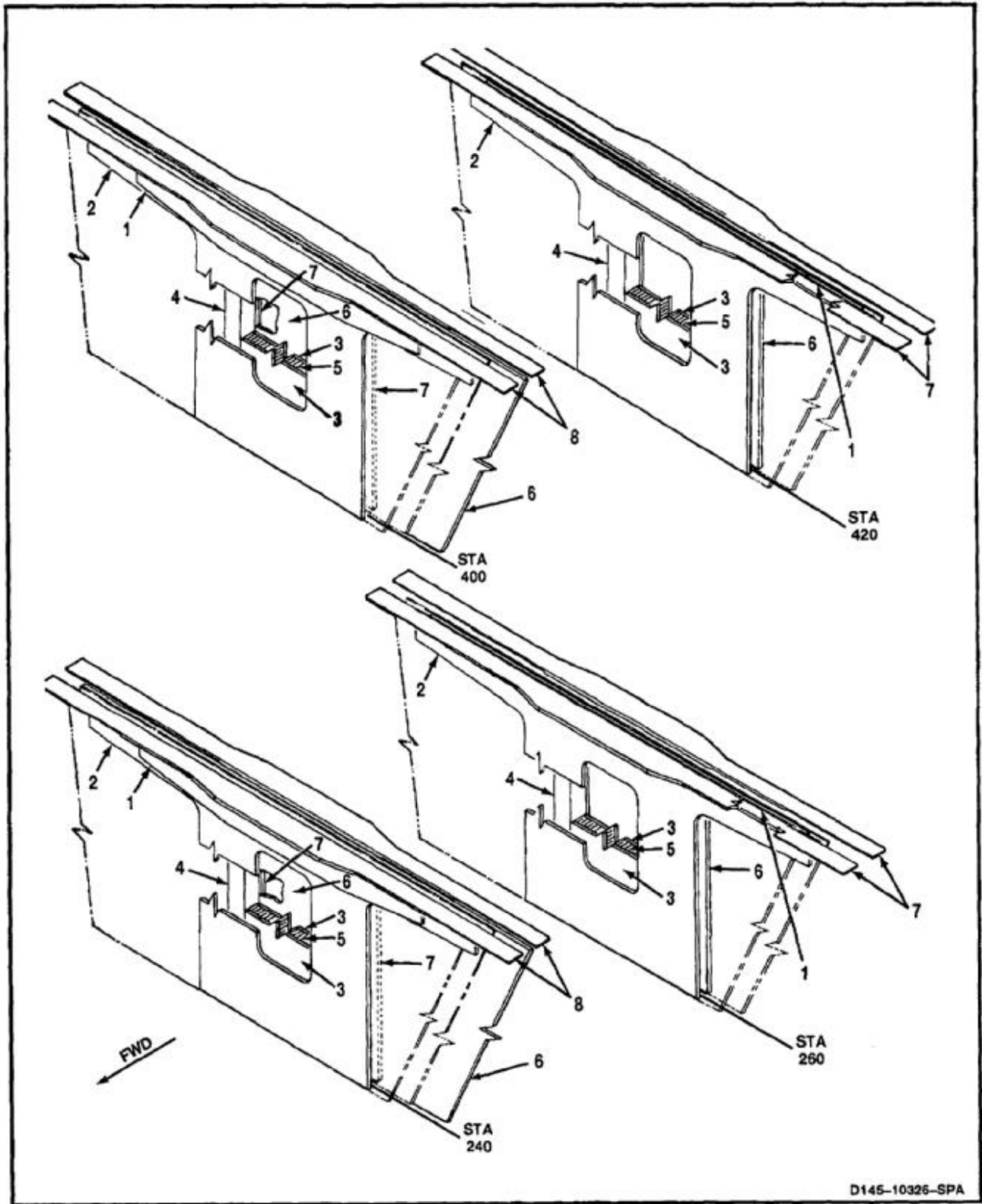


Damage to drive shaft supports can affect drive shaft alignment. Drive shaft misalignment may not exceed $1/4^\circ$. Damage affecting size or location of mounting holes requires special tools (T113 and T114).



D145-10325-SPA

Equipment Support Structure Repairs – Fuselage Structure (Sheet 1 of 14)



Equipment Support Structure Repairs Fuselage Structure (Sheet 2 of 14)

BOTTOM FORMERS STA. 240

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	REINFORCEMENT STRAP	0.050	7075-T6 BARE	NOTE F.	NOTE C.	NOTE D.
2	DOUBLER, FORWARD	0.020	7075-T6 BARE	NOTE F.	NOTE C.	NOTE D.
3	FACE SHEET	0.020	7075-T6 BARE	0.025 7075-T6 CLAD	NOTE B.	NOTE D.
4	INSERT	0.500	7075-T6 BARE	NOTE F.	NOTE B. & C.	NOTE D.
5	CORE	0.405	3.0-3/8-20N-3003	NOTE B.	NOTE C.	NOTE D.
6	DOUBLER, AFT	0.016	7075-T6 BARE	NOTE F.	NOTE B. & C.	NOTE D.
7	DOUBLER, AFT	0.050	7075-T6 BARE	NOTE F.	NOTE B. & C.	NOTE D.
8	REINFORCEMENT STRAP	0.190	7075-T6 BARE	NOTE F.	NOTE C.	NOTE D.

STA. 260

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	REINFORCEMENT STRAP	0.125	7075-T6 BARE	NOTE F.	NOTE C.	NOTE D.
2	DOUBLER, FORWARD	0.050	7075-T6 BARE	NOTE F.	NOTE C.	NOTE D.
3	FACE SHEET	0.020	7075-T6 BARE	0.025 7075-T6 CLAD	NOTE B.	NOTE D.
4	INSERT	0.375	7075-T6 BARE	NOTE F.	NOTE B. & C.	NOTE D.
5	CORE	0.255	3.0-3/8-20N-3003	NOTE B.	NOTE C.	NOTE D.
6	DOUBLER, AFT	0.020	7075-T6 BARE	NOTE F.	NOTE B & C.	NOTE D.
7	REINFORCEMENT STRAP	0.190	7075-T6 BARE	NOTE F.	NOTE C.	NOTE D.

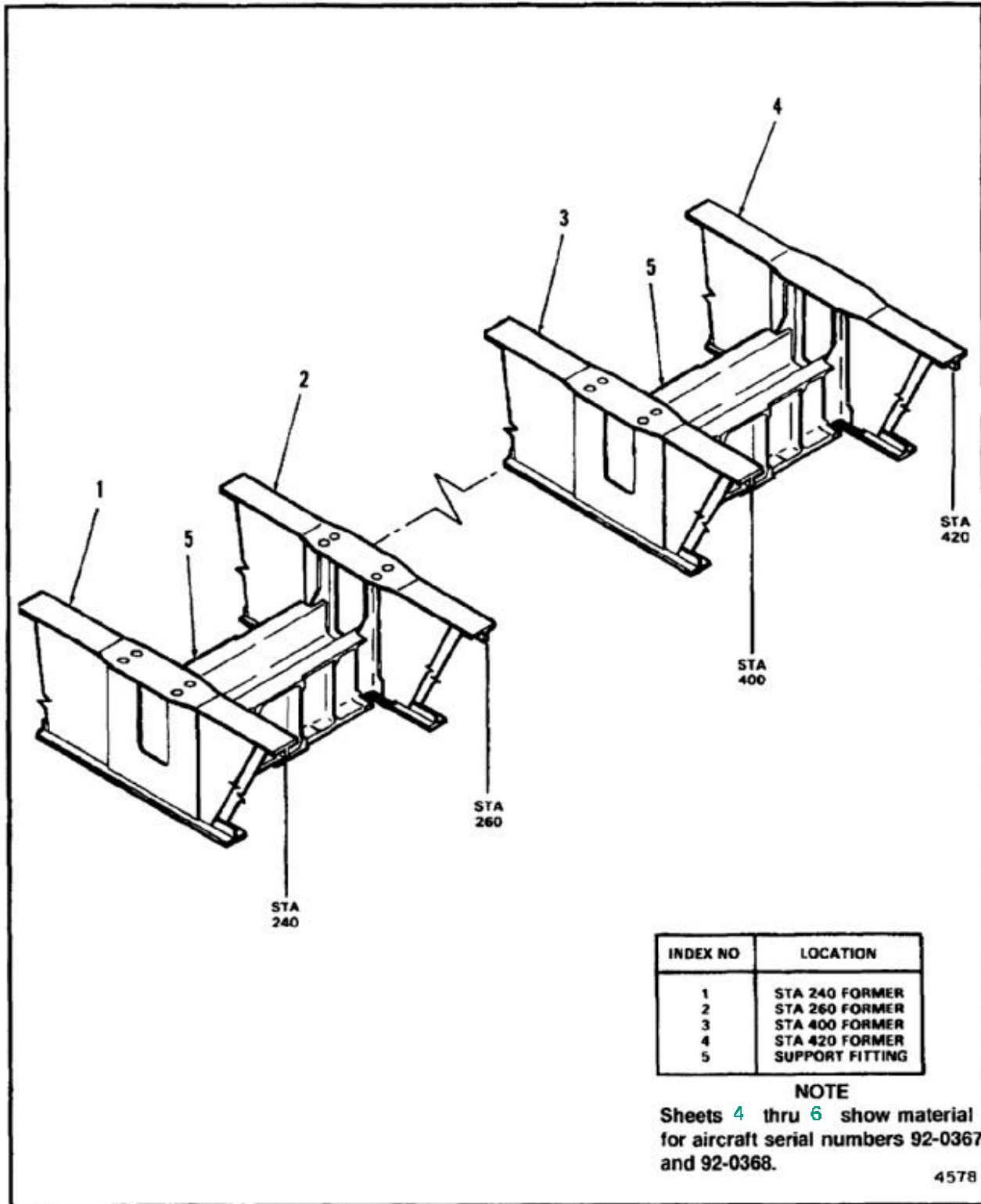
STA. 400

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	REINFORCEMENT STRAP	0.125	7075-T6 BARE	NOTE F.	NOTE C.	NOTE D.
2	DOUBLER, FORWARD	0.020	7075-T6 BARE	NOTE F.	NOTE C.	NOTE D.
3	FACE SHEET	0.020	7075-T6 BARE	0.025 7075-T6 CLAD	NOTE B.	NOTE D.
4	INSERT	0.375	7075-T6 BARE	NOTE F.	NOTE B. & C.	NOTE D.
5	CORE	0.255	3.0-3/8-20N-3003	NOTE B.	NOTE C.	NOTE D.
6	DOUBLER, AFT	0.016	7075-T6 BARE	NOTE F.	NOTE B. & C.	NOTE D.
7	DOUBLER, AFT	0.050	7075-T6 BARE	NOTE F.	NOTE B. & C.	NOTE D.
8	REINFORCEMENT STRAP	0.375	7075-T6 BARE	NOTE F.	NOTE C.	NOTE D.

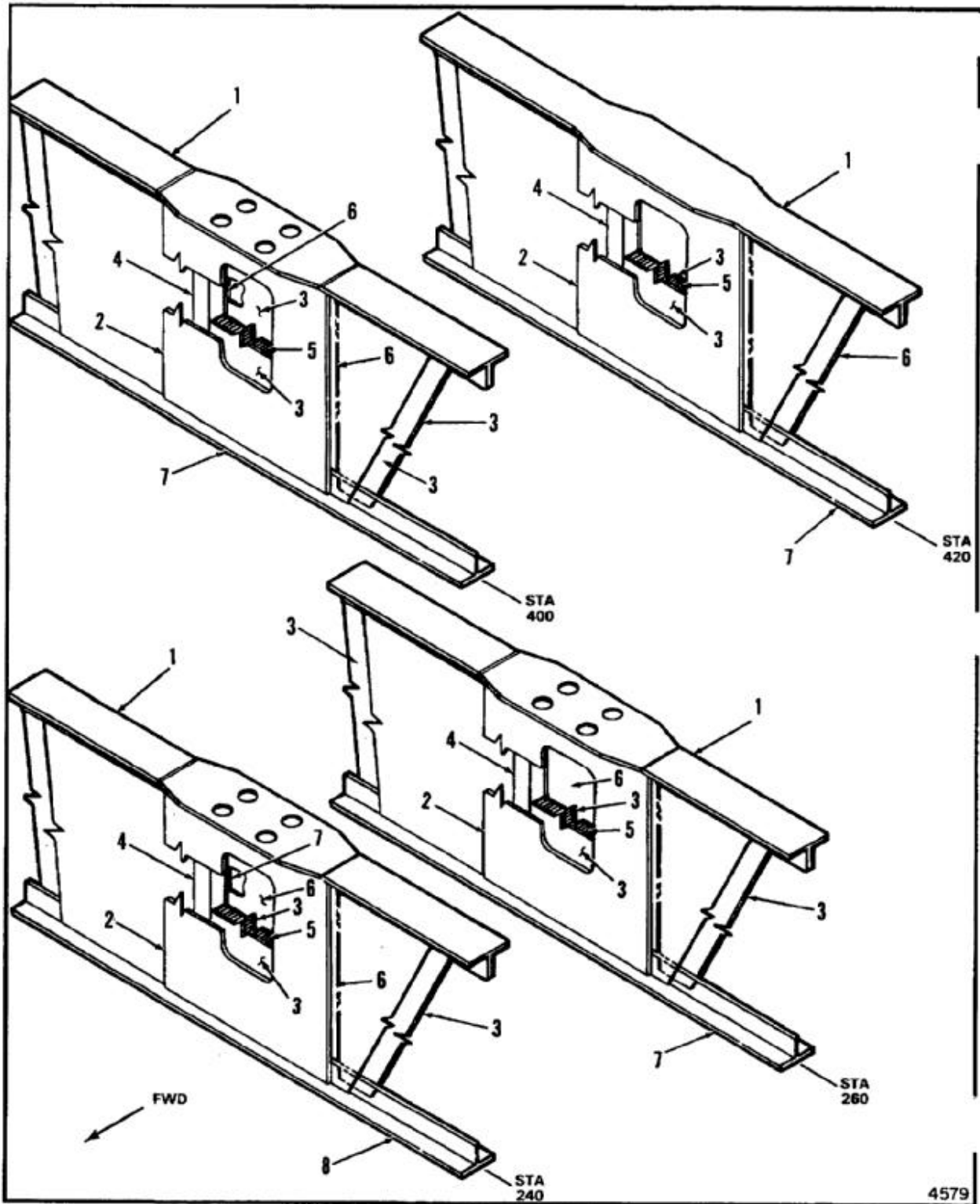
STA. 420

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	REINFORCEMENT STRAP	0.125	7075-T6 BARE	NOTE F.	NOTE C.	NOTE D.
2	DOUBLER, FORWARD	0.050	7075-T6 BARE	NOTE F.	NOTE B. & C.	NOTE D.
3	FACE SHEET	0.020	7075-T6 BARE	0.025 7075-T6 CLAD	NOTE B.	NOTE D.
4	INSERT	0.375	7075-T6 BARE	NOTE F.	NOTE B. & C.	NOTE D.
5	CORE	0.255	3.0-3/8-20N-3003	NOTE B.	NOTE C.	NOTE D.
6	DOUBLER, AFT	0.020	7075-T6 BARE	NOTE F.	NOTE B. & C.	NOTE D.

- NOTES:
- A. All dimensions are in inches.
 - B. Component of bonded assembly. Refer to Task 2-358.
 - C. Replace with same material as original.
 - D. TM 1-1500-204-23.
 - E. Repair material for aircraft serial numbers 92-0367 and 92-0368 see sheets 4 thru 6.
 - F. Replace with CLAD material.



Equipment Support Structure Repairs - Fuselage Structure (Sheet 4 of 14)



Equipment Support Structure Repairs — Fuselage Structure (Sheet 15 of 14)

2-166 REPAIR FUSELAGE EQUIPMENT SUPPORT STRUCTURE (Continued)

2-166

BOTTOM FORMERS STA.240

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	REPAIR TASK
1	CAP	BACP1505-10132	7075-T6	0.040 4130 NOTE C.	NOTE D.
2	DOUBLER, FORWARD	0.025	7075-T6 BARE	0.032 7075-T6 BARE NOTE C.	NOTE D.
3	FACE SHEET	0.032	7075-T6 BARE	0.040 7075-T6 BARE NOTE B.	NOTE D.
4	INSERT	0.600	7075-T6 BARE	0.500 7075-T6 BARE NOTE B.	NOTE D.
5	CORE	STOCK 0.405 PORM 6M54-4, 6-20N FORM B 0.005 AL HONEYCOMB CORE		NOTE B.	NOTE D.
6	DOUBLER, AFT	0.025	7075-T6 BARE	0.032 7075-T6 BARE NOTE B.	NOTE D.
7	DOUBLER, AFT	0.025	7075-T6 BARE	0.032 7075-T6 BARE NOTE B.	NOTE D.
8	CAP	VS90308	7075-T6	0.040 4130 NOTE C.	NOTE D.

STA. 260

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	REPAIR TASK
1	CAP	BAC 1505-100119	7075-T6511	0.040 41320 NOTE C.	NOTE D.
2	DOUBLER, FORWARD	0.025	7075-T6 BARE	0.032 7075-T6 BARE NOTE C.	NOTE D.
3	FACE SHEET	0.032	7075-T6 BARE	0.040 7075-T6 BARE NOTE B.	NOTE D.
4	INSERT	0.250	7075-T6 BARE	0.25 7075-T6 BARE NOTE B.	NOTE D.
5	CORE	STOCK 0.255 PORM 0.005 AL HONEYCOMB BMS4-4, TYPE 6-20, CLASS N		NOTE B.	NOTE D.
6	DOUBLER, AFT	0.040	7075-T6 BARE	0.050 7075-T6 BARE NOTE B.	NOTE D.
7	CAP	VS90303	7075-T6	0.040 4130 NOTE C.	NOTE D.

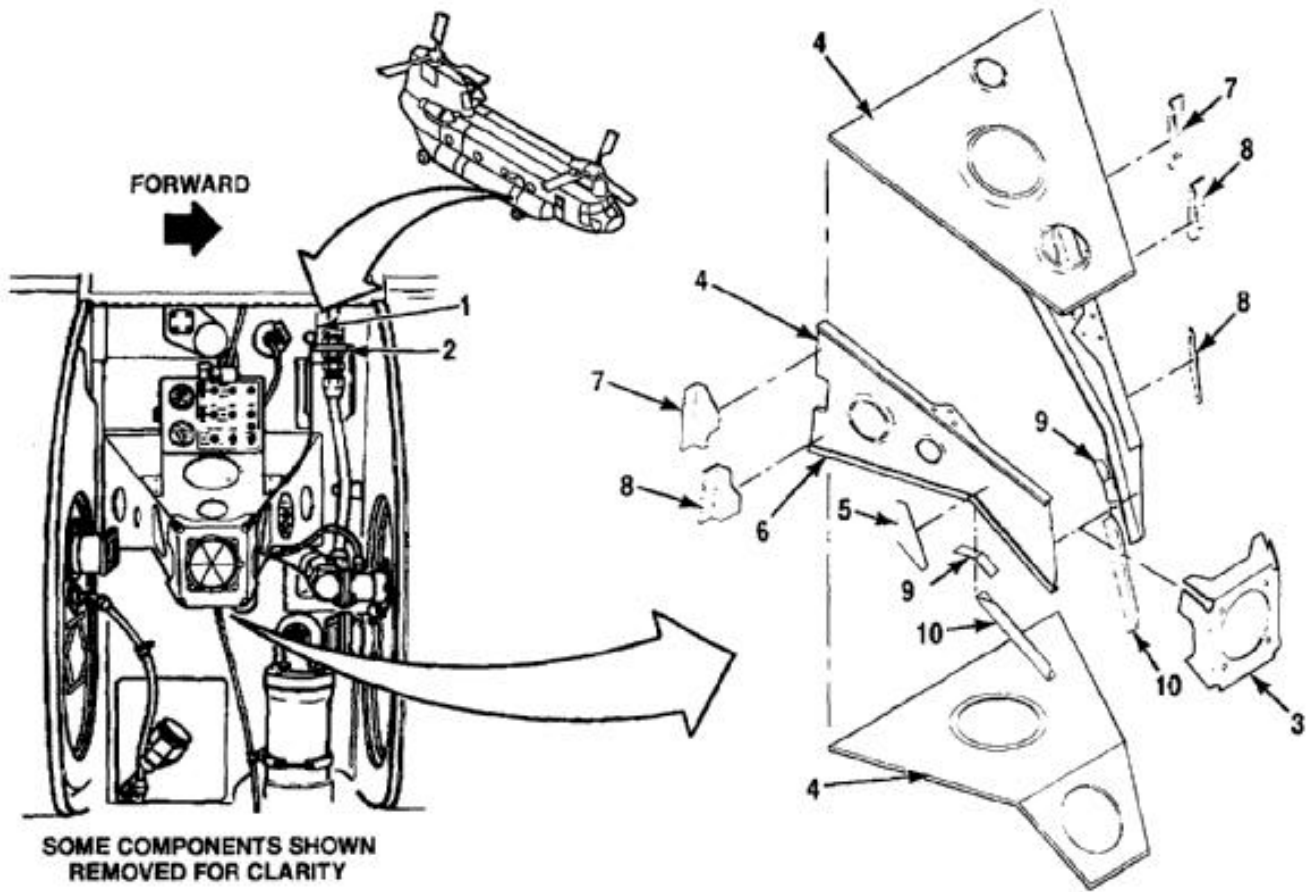
STA. 400

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	REPAIR TASK
1	CAP	BAC1505-100119 EXTR	7075-T6511	0.40 4130 NOTE C.	NOTE D.
2	DOUBLER, FORWARD	0.032	7075-T6 BARE	0.040 7075-T6 BARE NOTE C.	NOTE D.
3	FACE SHEET	0.032	7075-T6 BARE	0.040 7075-T6 BARE NOTE B.	NOTE D.
4	INSERT	0.25	7075-T6 BARE	0.25 7075-T6 BARE NOTE B.	NOTE D.
5	CORE	STOCK 0.255 AL HONEYCOMB CORE BMS4-4, 6-20N, FORM B		NOTE B.	NOTE D.
6	DOUBLER, AFT	0.025	7075-T6 BARE	0.032 7075-T6 BARE NOTE B.	NOTE D.
7	CAP	VS90303	7075-T6 BARE	0.040 4130 NOTE C.	NOTE D.

BOTTOM FORMERS STA. 420

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	REPAIR TASK
1	CAP	BAC1505-100119	7075-T6511	0.040 4130 NOTE C.	NOTE D.
2	DOUBLER, FORWARD	0.025	7075-T6 BARE	0.032 7075-T6 BARE NOTE C.	NOTE D.
3	FACE SHEET	0.032	7075-T6 BARE	0.020 7075-T6 BARE NOTE B.	NOTE D.
4	INSERT	0.25	7075-T6 BARE	0.25 7075-T6 BARE NOTE B.	NOTE D.
5	CORE	STOCK 0.255 PORM 0.005 AL HONEYCOMB CORE BMS4-4 TYPE 6-20 CLASS N FORM B		NOTE B.	NOTE D.
6	DOUBLER, AFT	0.016	7075-T6 BARE	0.020 7075-T6 BARE NOTE B.	NOTE D.
7	CAP	VS90306	7075-T6 BARE	0.040 4130 NOTE C.	NOTE D.

- NOTES:
- A. All dimensions are in inches.
 - B. Component of bonded assembly. Refer to Task 2-358.
 - C. Replace with same material as original.
 - D. TM 1-1500-204-23.

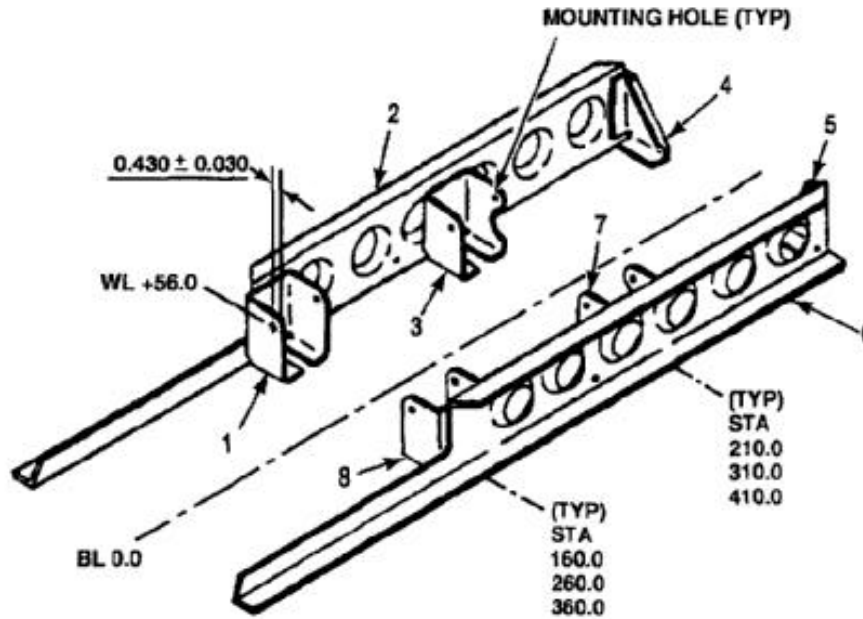


RELIEF VALVE SUPPORT

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	BRACKET	BAC1503-11780	EXTR.	NOTE B.
2	BRACKET	0.063 2024-T3	CLAD	NOTE B.
3	FACE PLATE	0.125 7075-T6	CLAD	NOTE B.
4	WEB	0.040 2024-T3	CLAD	NOTE B.
5	GUSSET	0.050 2024-T3	CLAD	NOTE B.
6	FRAME	0.063 2024-T3	CLAD	NOTE B.
7	CLIP	0.090 2024-T3	CLAD	NOTE B.
8	CLIP	0.080 2024-T3	CLAD	NOTE B.
9	CLIP	0.050 2024-T3	CLAD	NOTE B.
10	ANGLE	0.063 2024-T3	CLAD	NOTE B.
				NOTE C.
				NOTE C.
				NOTE C.
				NOTE C.
				NOTE C.
				NOTE C.
				NOTE C.
				NOTE C.

- NOTES:
- A. All dimensions are in inches.
 - B. Repair/replace with original material.
 - C. TM 1-1500-204-23.

DRIVE SHAFT SUPPORTS—STATIONS 160.0, 210.0, 310.0, 360.0, AND 410.0



STATION 160.0, 260.0, AND 360.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	BRACKET	0.080 2024-T4 CLAD	NOTE B.
2	SUPPORT	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
4	BRACKET	0.032 2024-T4 CLAD	NOTE C.
5	BRACKET	0.032 2024-T4 CLAD	NOTE C.
6	SUPPORT	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
8	BRACKET	0.080 2024-T4 CLAD	NOTE B.

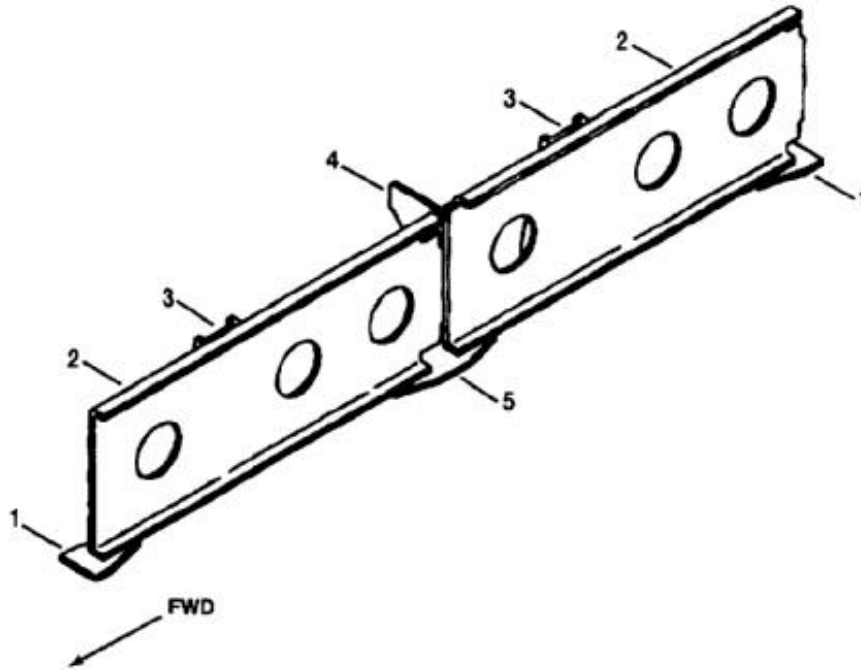
STATIONS 210.0, 310.0, AND 410.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
2	SUPPORT	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
3	BRACKET	0.080 2024-T4 CLAD	NOTE D.
4	BRACKET (2 REQD)	0.032 2024-T4 CLAD	NOTE C.
5	BRACKET (2 REQD)	0.032 2024-T4 CLAD	NOTE C.
6	SUPPORT	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
7	BRACKET	0.080 2024-T4 CLAD	NOTE D.

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. REPLACE WITH NEW BRACKET 114S2352-38 RH AND -37 LH FOR STATION 160.0 ONLY, 114S2352-40 RH AND -39 LH FOR STATION 260.0 ONLY, AND 114S2352-42 RH AND -41 FOR STATION 360.0
- C. REPLACE WITH NEW BRACKET 114S2745-1
- D. REPLACE WITH NEW BRACKET 114S2352-36 RH AND -35 LH

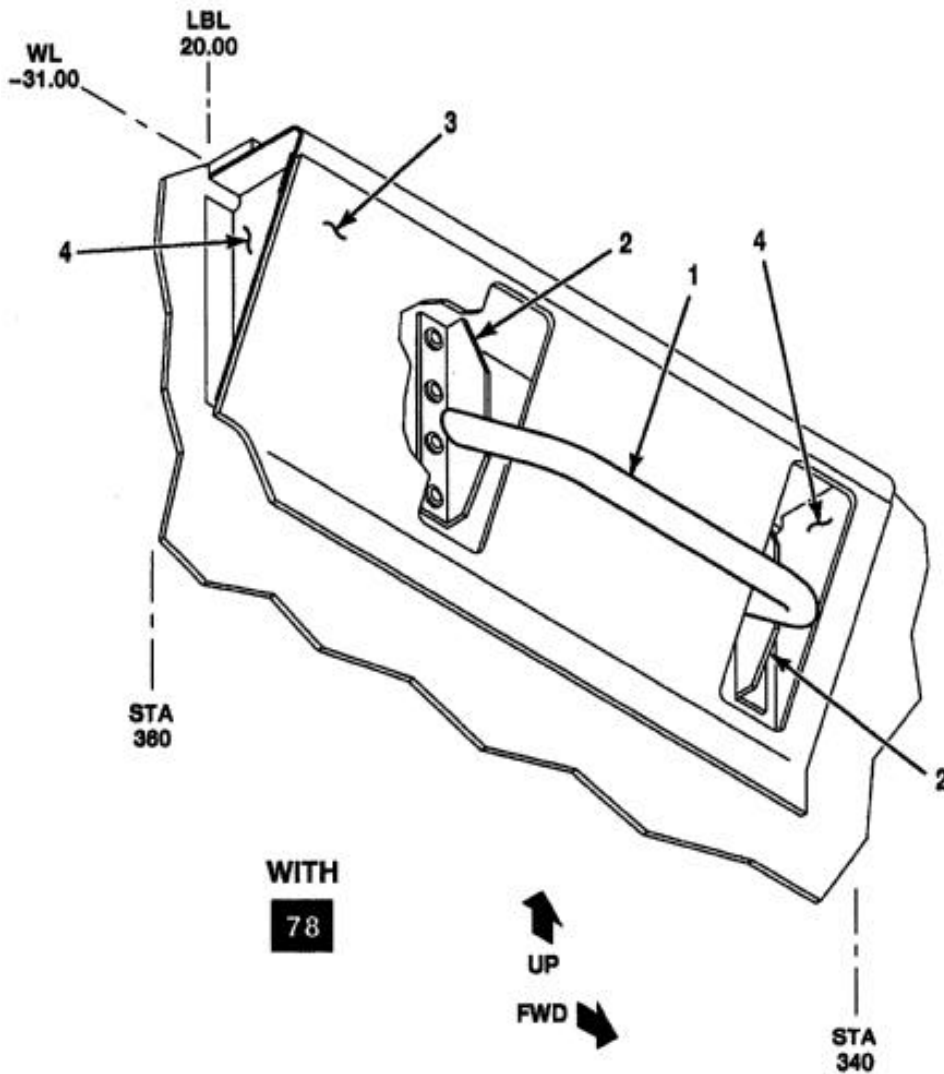
LITTER STRAP SUPPORT — STATIONS 160.0, TO 180.0, 240.0 TO 260.0,
260.0 TO 280.0, 340.0 TO 360.0, AND 360.0 TO 380.0



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	GUSSET	0.032 2024-T4 CLAD	NOTE C.
2	WEB	0.025 7075-T6 CLAD	0.032 7075-T6 CLAD
3	BRACKET	0.063 2024-T4 CLAD	0.062 2024-T3 CLAD
4	ANGLE	0.032 7075-T6 CLAD	NOTE E.
5	GUSSET	0.032 2024-T4 CLAD	NOTE D.

NOTES

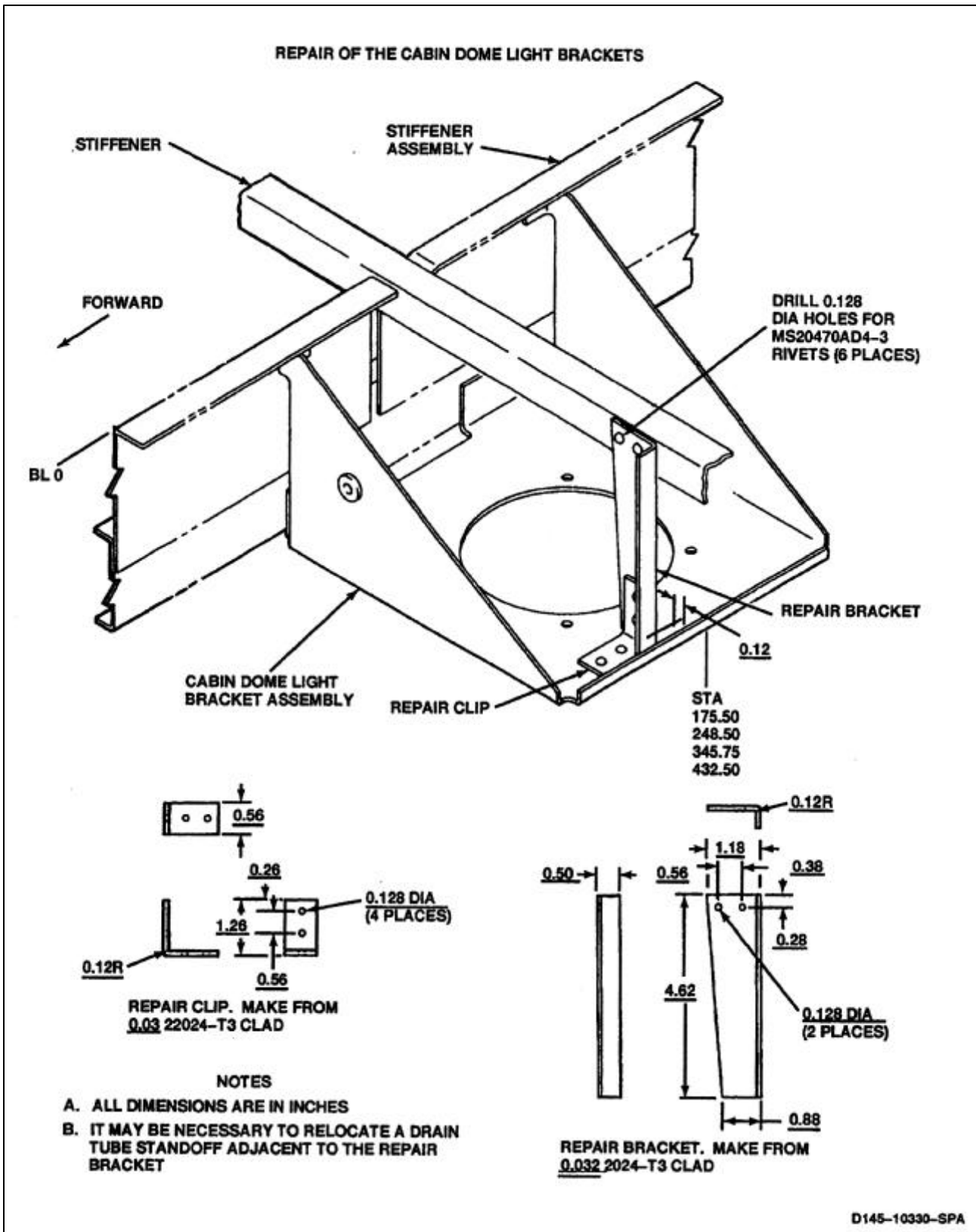
- A. ALL DIMENSIONS ARE IN INCHES
- B. THE RH BEAM IS SHOWN. THE LH BEAM IS SIMILAR IN CONSTRUCTION. REPAIR DATA LISTED IS APPLICABLE TO BOTH CONFIGURATIONS
- C. REPLACE WITH NEW GUSSET 114S2351-23 RH AND LH
- D. REPLACE WITH NEW GUSSET, 114S2351-21 RH AND LH
- E. REPLACE WITH NEW ANGLE, 114S2351-31 RH AND -29 LH



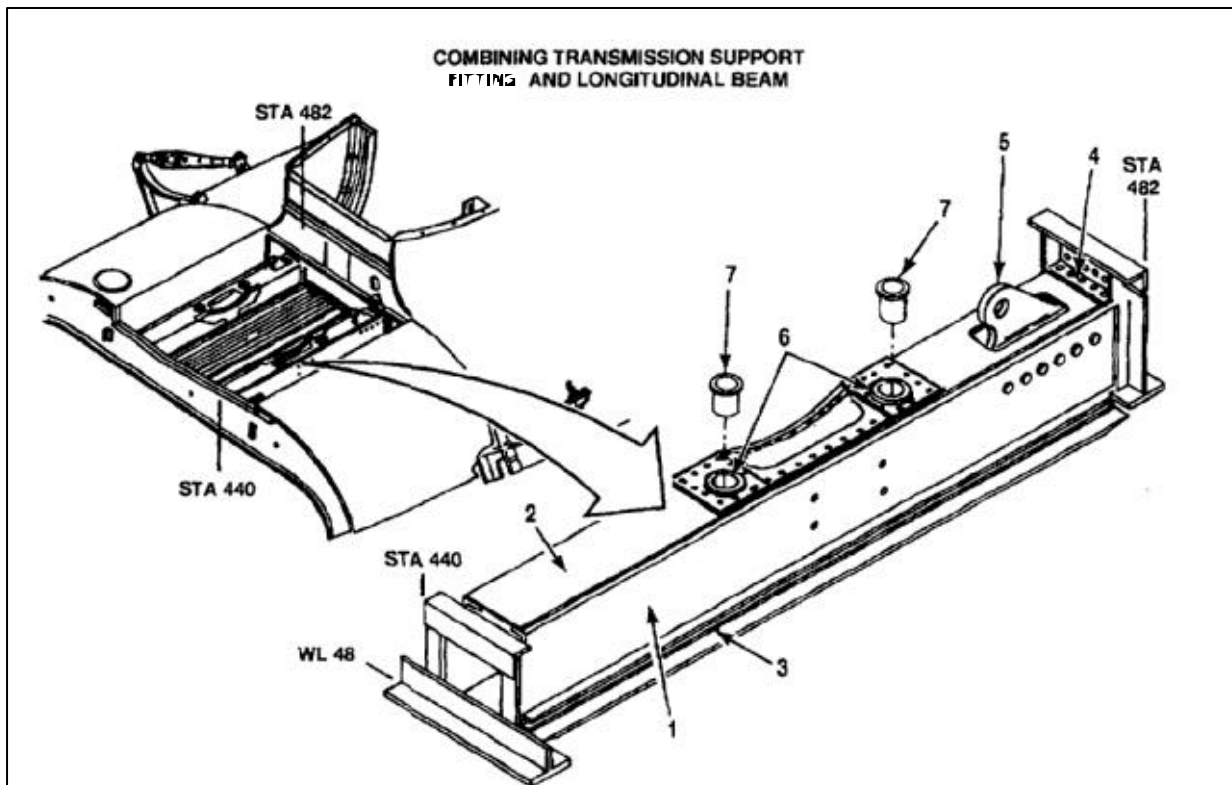
CARGO HATCH HAND HOLD

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	HANDLE	321 CRES	0.100	NOTE B.	NOTE D.	NOTE C.
2	ANGLE	321 CRES	0.100	NOTE B.	NOTE D.	NOTE C.
3	COAMING	0.020	2024-T4 CLAD	NOTE B.	—	NOTE C.
4	GUSSET	0.040	2024-T4 CLAD	NOTE B.	—	NOTE C.

- NOTES:
- A. All dimensions are in inches.
 - B. Repair/replace with original material.
 - C. TM 1-1500-204-23.
 - D. Use filler metal ER347 when welding tube (1) to angles (2).



Equipment Support Structure Repairs - Fuselage Structure (Sheet 11 of 14)

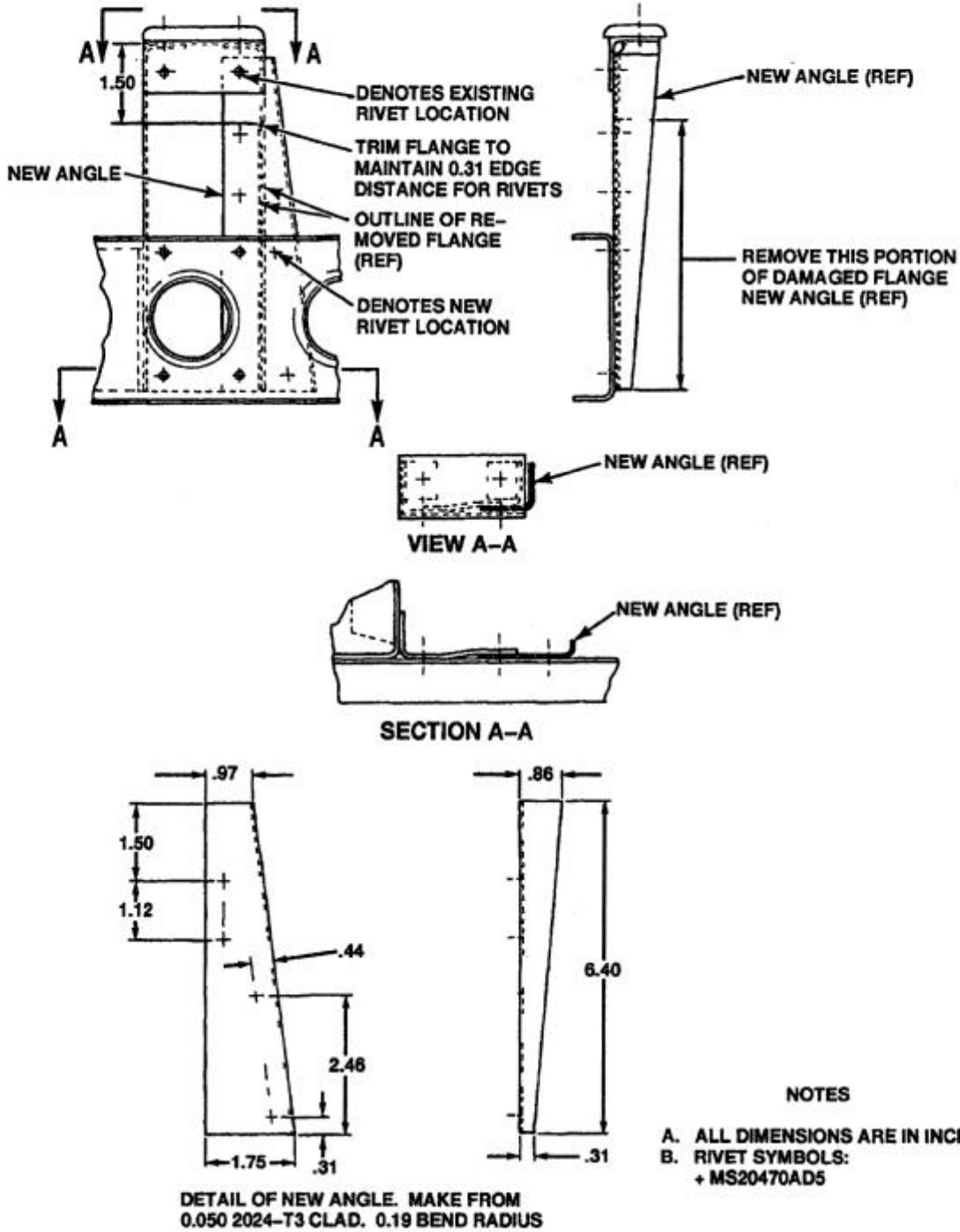


INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	ZEE	VS90603 7075-T6		NOTE B
2	WEB	0.080 CRES 17-7PH HT TR150-170KSI		
3	CHANNEL	0.252 024-T4		
4	ANGLE	ALCOA 22526 7075-T6		
5	HOIST ATTACHMENT	VS90520 7075-T6	NOTE C	
6	SUPPORT	EXTRUSION 2D14-T6	NOTE D	
7	BUSHING	4130 STL RD BAR	NOTE E	

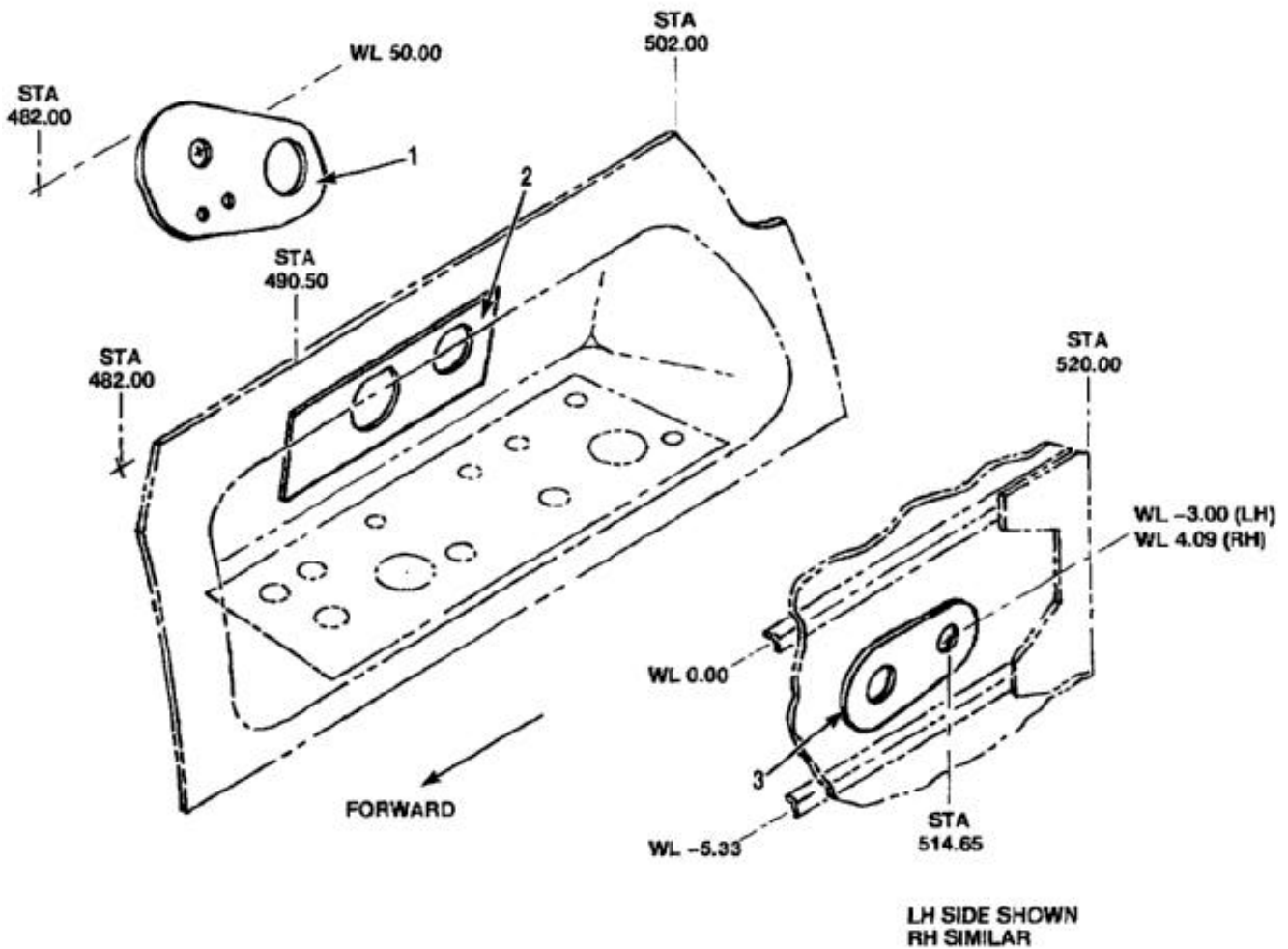
NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. REFER TO TM 1 1500 204 23.
- C. REPLACE WITH NEW HOIST ATTACHMENT 114S3814-1 LH AND -2 RH.
- D. REPLACE WITH NEW SUPPORT FITTING 234S3821-1 LH AND -2 RH. USE TOOL (T-182). AT LEAST ONE FITTING MUST BE IN PLACE FOR REFERENCE POINT. OTHERWISE, THIS REPAIR MUST BE ACCOMPLISHED AT A HIGHER MAINTENANCE LEVEL.
- E. REPLACE WITH NEW BUSHING 114S3703-28.
- F. THIS REPAIR CONFORMS TO 27.

A9508



A54828



WITH 74

RELIEF VALVE SUPPORT

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	DOUBLER	0.025	301 ANL CRES	NOTE B.	—	NOTE C.
2	DOUBLER	0.032	301 ANL CRES	NOTE B.	—	NOTE C.
3	DOUBLER	0.040	2024-T3 CLAD	NOTE B.	—	NOTE C.

- NOTES: A. All dimensions are in inches.
 B. Repair/replace with original material.
 C. TM 1-1500-204-23.

Equipment Support Structure Repairs — Fuselage Structure (Sheet 14 of 14)

Task 2-167 deleted.

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector

1. Repair damage to internal webs and formed parts as follows: (Refer to TM 1-1500-204-23 and Task 2-166.)
 - a. Repair damage affecting less than **1/2** of cross section by patching.
 - b. Repair damage affecting more than **1/2** of cross section by insertion.
2. Repair damage to formed parts or extrusions as follows: (Refer to TM 1-1500-204-23 and Task 2-166.)
 - a. Repair damage not affecting radius or heel by patching.
 - b. Repair damage affecting radius or heel by insertion.
3. Damage to flange of tunnel cover support bracket, caused by flex coupling of No. 6 synchronizing shaft, can be repaired as follows (Refer to TM 1-1500-204-23 and Task 2-166.)

References:Task 2-166
TM 1-1500-204-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

a. Trim bracket flange.

b. Install angle.

4. Repair cabin dome light brackets. Use standard methods. Add bracket and clip.

5. Replace cabin equipment support structural parts having extensive damage or several damaged areas. Refer to Task 2-166 and TM 1-1500-204-23.

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-552

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

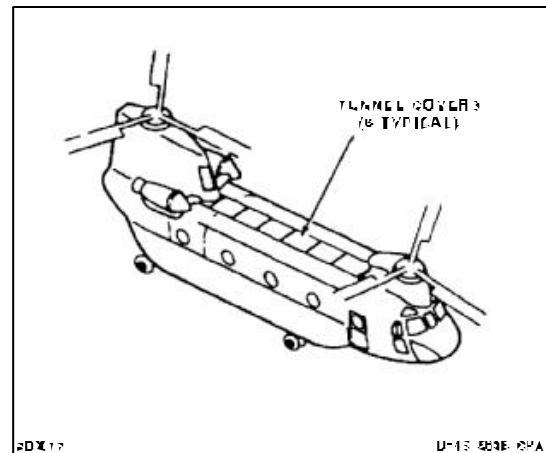
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off



NOTE

To remove No. 1, No. 3, and No. 5 access doors (tunnel covers), go to step 1. To remove No. 2, No. 4, and No. 6, go to step 9.

REMOVE NO. 1, NO. 3, AND NO. 5 ACCESS DOORS

NOTE

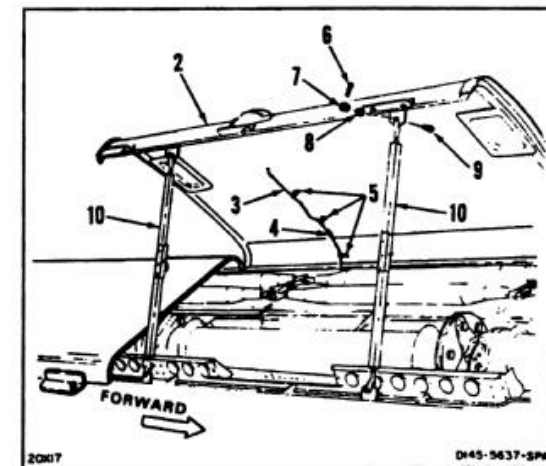
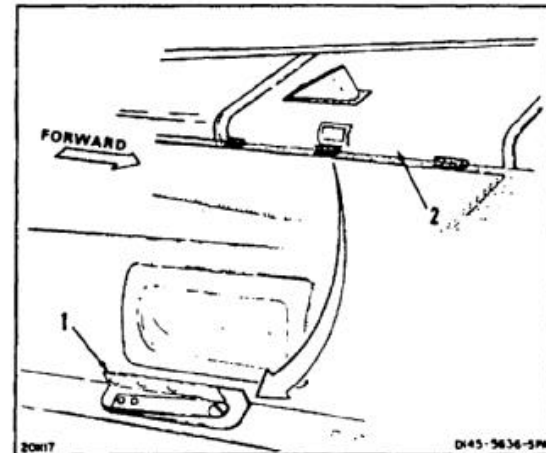
Procedure is similar to remove No. 1, No. 3, and No. 5 access doors, except where noted in text. No. 1 access door is shown here.

1. Loosen three fasteners (1) on No. 1 access door (2) and open door.
2. On No. 1 door (2) only, disconnect formation light cable (3) as follows:
 - a. Disconnect formation light cable (3) at connector (4).
 - b. Remove three cable support screws (5).
3. Remove cotter pin (6), nut (7), washer (8), and bolt (9) from two supports (10) and door (2).

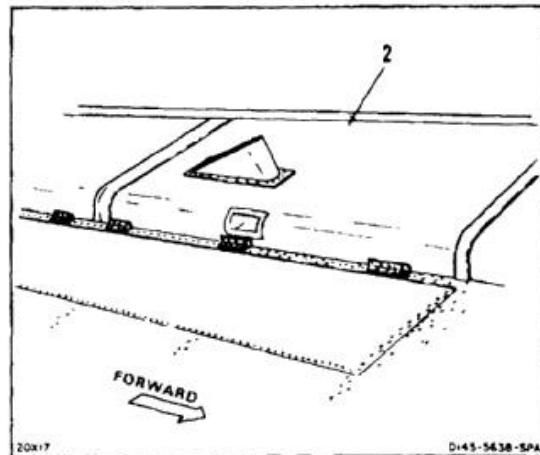
NOTE

Install the struts with the rings up. That allows the ring to rest on top of the strut, away from the hydraulic lines.

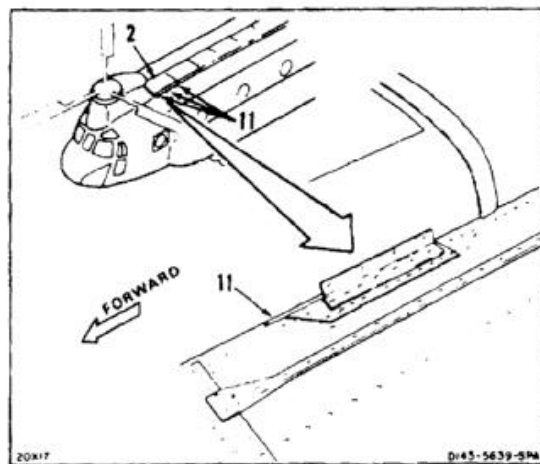
4. Remove tops of supports (10) from door (2) and stow supports in tunnel area.



5. Close door (2).



6. Remove lockwire from three hinge pins (11) on door (2).
7. Remove three hinge pins (11).
8. Remove door (2).

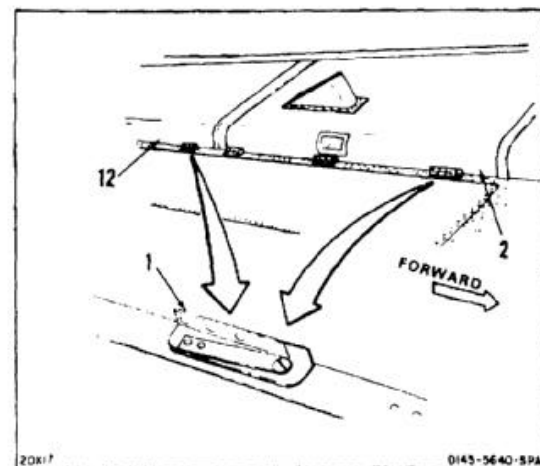


REMOVE NO. 2, NO. 4 AND NO. 6 ACCESS DOORS

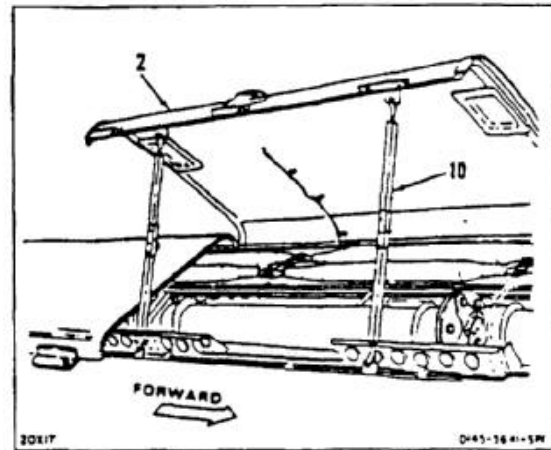
NOTE

Procedure is same to remove No. 2, No. 4, and No. 6 access doors. No. 2 access door is shown here.

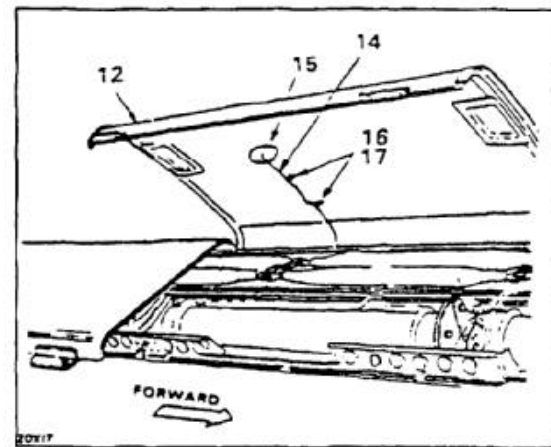
9. Loosen three fasteners (1) on No. 1 access door (2).
10. Loosen two fasteners (1) on No. 2 access door (12).



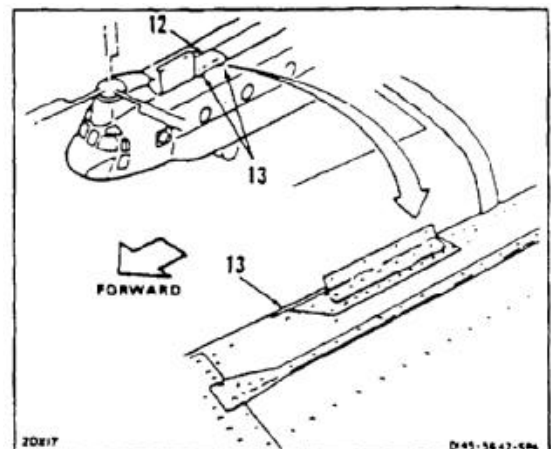
11. Open No. 1 access door (2) and position two supports (10) under door.



12. With GPS antenna mod 71 mounted on No. 2 door (12), disconnect antenna cable (14) as follows:
- Disconnect GPS antenna cable (14) from GPS antenna (15).
 - Remove two cable support screws (16) and washers (17).
 - Close No. 2 access door (12).



13. Remove lockwire from two hinge pins (13) on No. 2 access door (12).
14. Remove two hinge pins (13) from door (12).
15. Remove door (12).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer
Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Cabin Crown Access Doors Open (Task 2-2)

NOTE

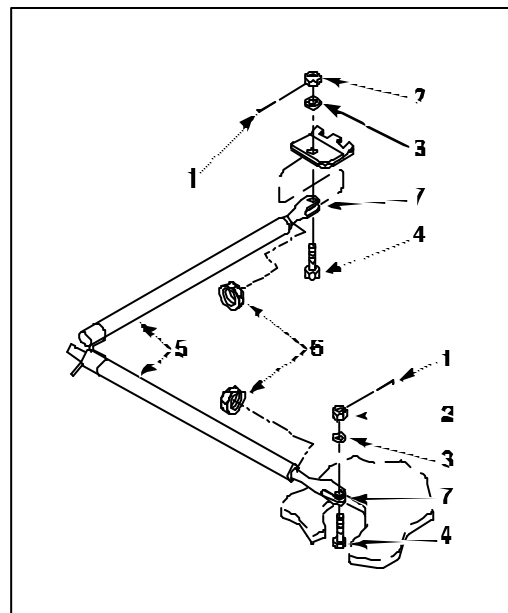
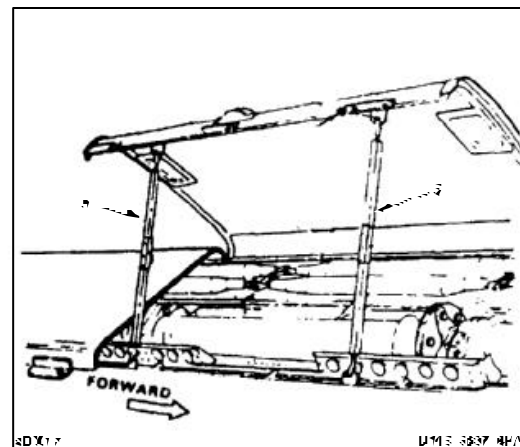
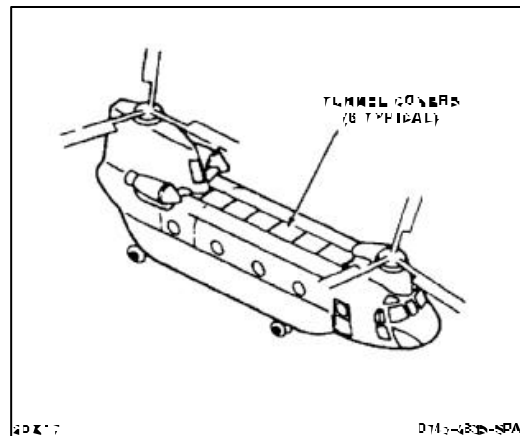
Procedure is the same for both forward and aft strut removal from tunnel cover. Forward strut removal shown here.

1. Remove cotter pin (1), nut (2), washer (3), and bolt (4) from upper strut mount.
2. Remove cotter pin (1), nut (2), washer (3), and bolt (4), from lower strut mount.
3. Remove strut (5).
4. Loosen jamnut (6).
5. Rotate clevis (7) counterclockwise to remove from strut (5).

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-169.2 ADJUST TUNNEL COVER STRUT

2-169.2

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer
Inspector

Equipment Condition:

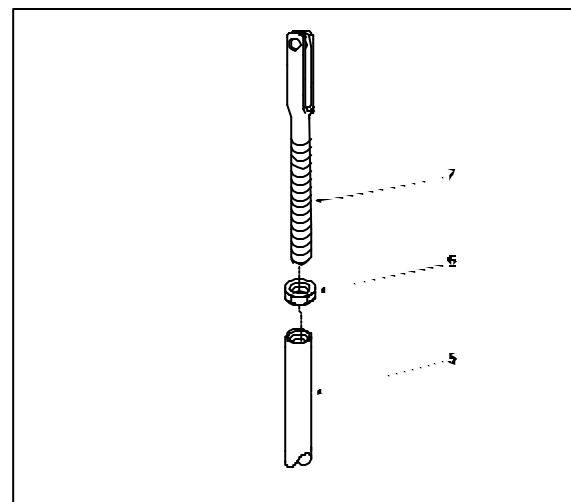
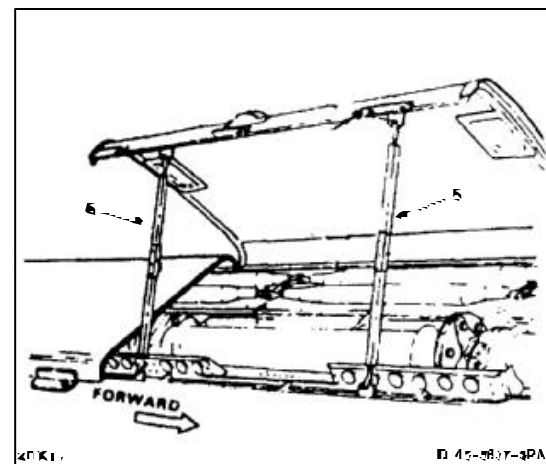
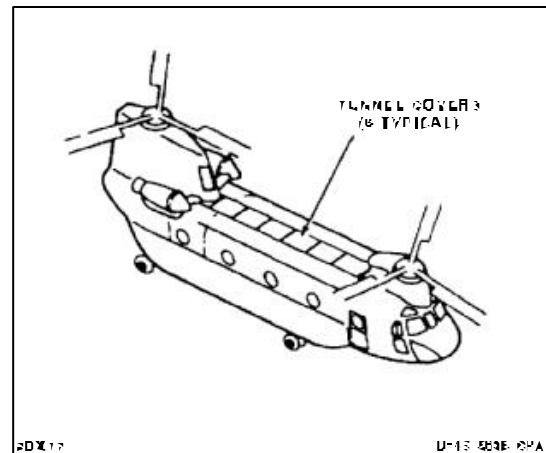
Battery Disconnected (Task 1-39)
Electrical Power Off
Cabin Crown Access Doors Open (Task 2-2)
Tunnel Cover Strut Removed (Task 2-169.1)

1. Loosen jamnut (6) on clevis (7).
2. Turn clevis (7) counterclockwise to extend the length of strut. Turn clockwise to shorten the length of strut (5).
3. Torque jamnut.

INSPECT

FOLLOW-ON MAINTENANCE:

Install tunnel cover strut (Task 2-169.3).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:Medium Helicopter Repairer
Inspector**References:**

Task 2-169.2

Equipment Condition:Battery Disconnected (Task 1-39)
Electrical Power Off
Cabin Crown Access Doors Open (Task 2-2)
Tunnel Cover Strut Removed (Task 2-169.1)**NOTE**

Install the struts with the rings up. That allows the ring to rest on top of the strut, away from the hydraulic lines.

NOTE

Procedure is the same for both forward and aft strut removal from cabin access door. Forward strut removal shown here.

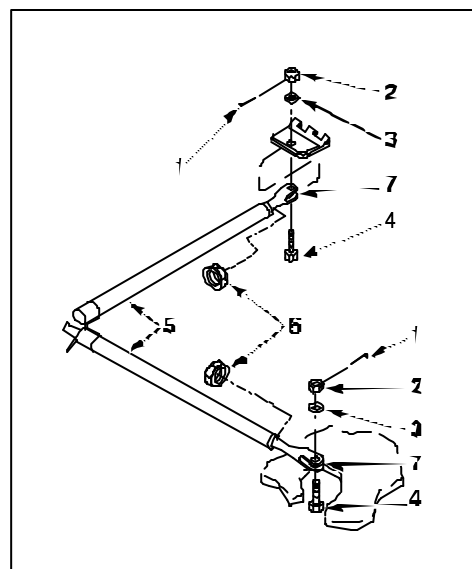
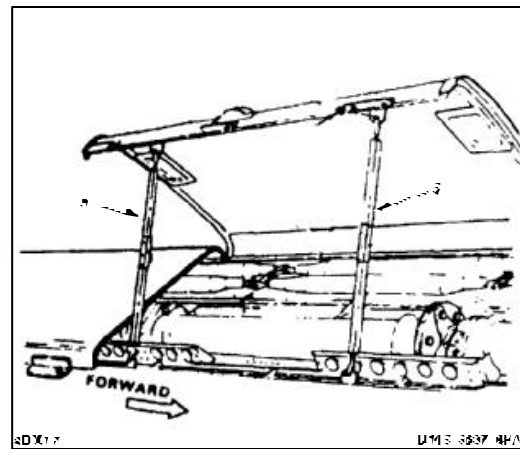
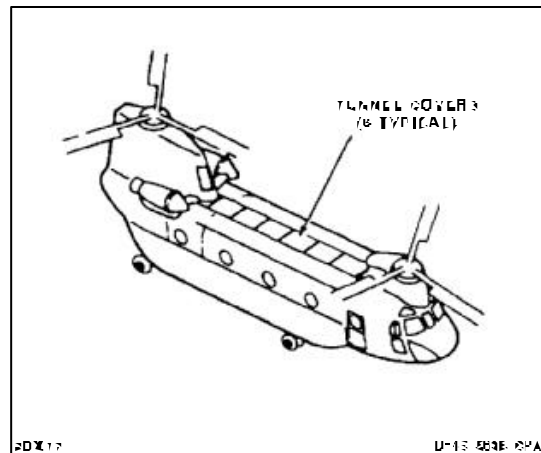
1. Place clevis (7) in strut (5) and turn slowly clockwise to seat clevis (7).
2. Adjust the strut assembly (5) to specified length (Task 2-169.2).
3. Torque jam nut.
4. Install bolt (4), washer (3), and nut (2).
5. Torque nut (2) and install cotter pin (1) in upper strut mount.
6. Install bolt (4), washer (3), and nut (2).
7. Torque nut (2) and cotter pin (1) in lower strut mount.

INSPECT**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-558



2-170 INSTALL CABIN CROWN ACCESS DOORS (TUNNEL COVERS)**2-170****INITIAL SETUP****Applicable Configurations:**

All

Tools:

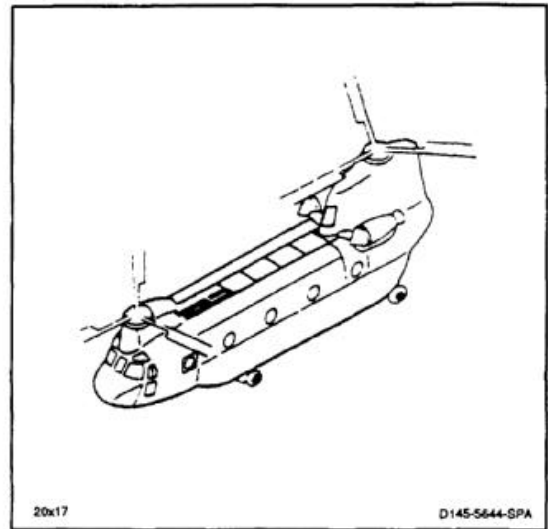
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4691

Materials:

Lockwire (E229)

Parts:

Cotter Pins

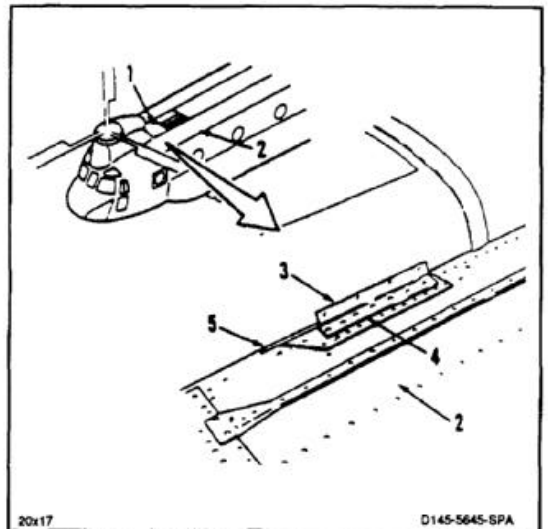
Personnel Required:Medium Helicopter Repairer
Inspector**References:**TM 55-1520-240-23P
Task 2-170.2**NOTE**

To install No. 1, No. 3, and No. 5 access doors (tunnel cover), go to step 1. To install No. 2, No. 4, and No. 6 access doors (tunnel covers), go to step 9.

INSTALL NO. 1, NO. 3, AND NO. 5 ACCESS DOORS**NOTE**

Procedure is similar to install No. 1, No. 3, and No. 5 access doors, except where noted in text. No. 1 access door is shown here.

1. Position No. 1 door (1) on fuselage (2). Align three hinge leaves (3) on door (1) and three hinge leaves (4) on fuselage (2).
2. Install three hinge pins (5) in hinge leaves (3 and 4).
3. Lockwire pins (5). Use lockwire (E229).

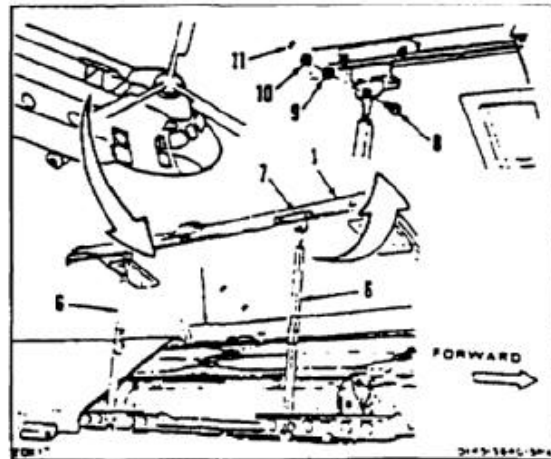


4. Open door (1).

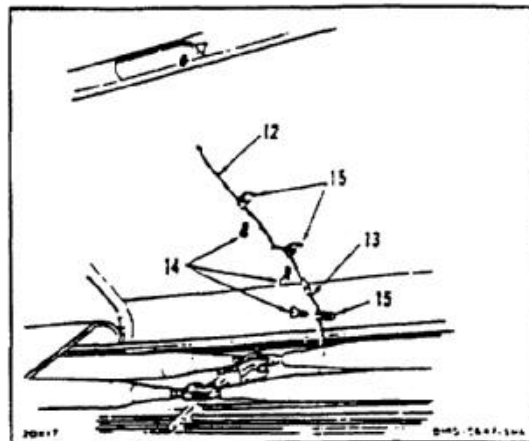
NOTE

Install support struts with locking pin ring up toward tunnel cover.

5. Unstow supports (6) and position supports on brackets (7).
6. Install bolt (8), washer (9), nut (10), and cotter pin (11).



7. On No. 1 door (1) only, connect formation light cable (12) as follows:
 - a. Connect formation light cable (12) to connector (13).
 - b. Install three screws (14) to secure cable (12) to supports (15).



8. Close door (1). Tighten three fasteners (16).

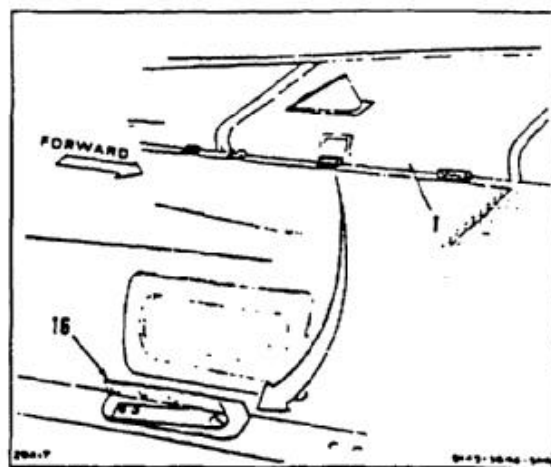
INSTALL NO. 2, NO. 4, AND NO. 6 ACCESS DOORS

NOTE

Procedure is same to install No. 2, No. 4, and No. 6 access doors. No. 2 access door is shown here.

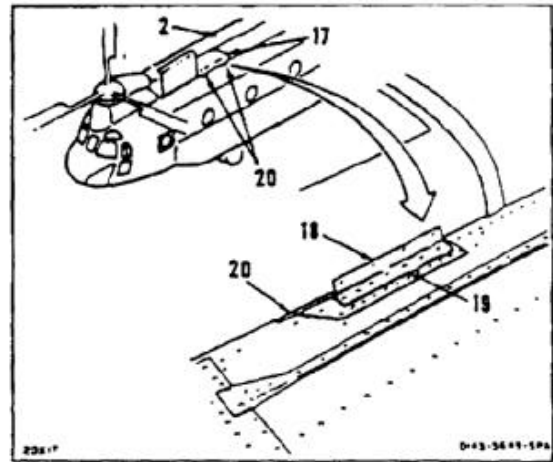
With **71**, No. 2 access door only, see Task 2-170.2 for installation of GPS antenna and no antenna mount provision is on door.

9. Loosen three fasteners (16) on No. 1 door (1). Open No. 1 door.

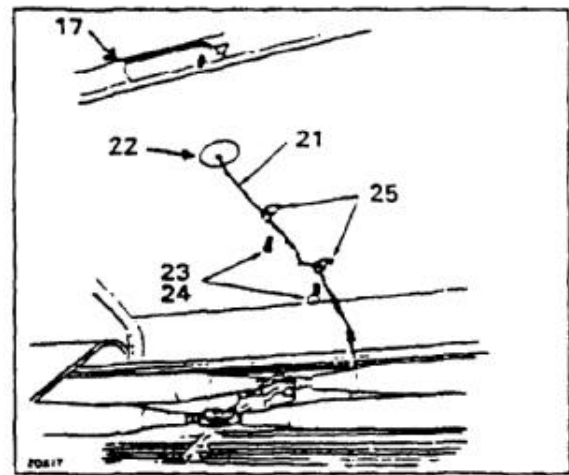


2-170 INSTALL CABIN CROWN ACCESS DOORS (TUNNEL COVERS) (Continued)

10. Position No. 2 door (17) on fuselage (2). Align two hinge leaves (18) on door (17) and two hinge leaves (19) on fuselage (2).
11. Install two hinge pins (20) in hinge leaves (18 and 19).
12. Lockwire pins (20). Use lockwire (E229).



13. With **71** on No. 2 door only, open No. 2 door (17) and install GPS antenna cable (21) as follows:
 - a. Connect GPS antenna cable (21) to GPS antenna (22).
 - b. Install two screws (23) and washers (24) to secure cable (21) to supports (25).
14. Close No. 2 door (17).

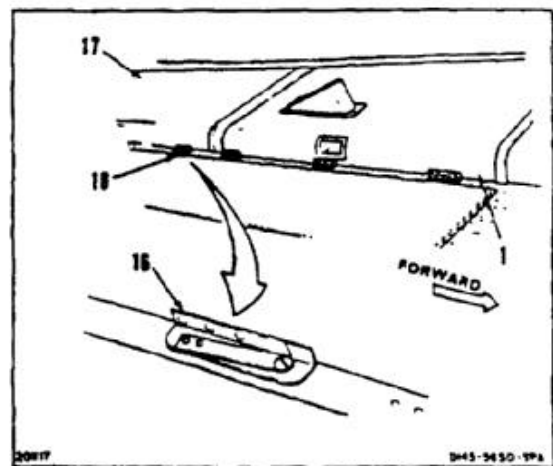


15. Close No. 1 door (1).
16. Tighten five fasteners (16) on doors (1 and 17).

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configuration

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer
Inspector

References:

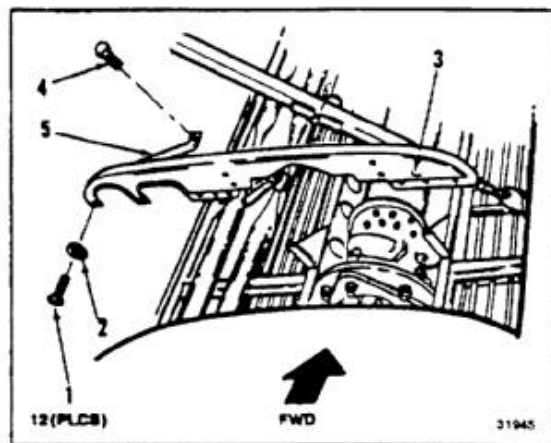
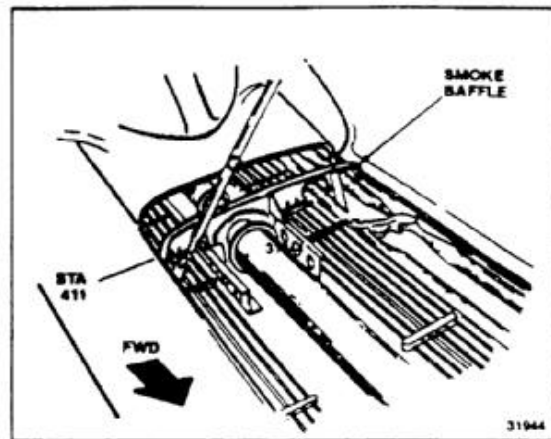
TM 55-1520-240-23P

Equipment Condition:

Forward Drive Shaft No. 6 Tunnel Cover Open (Task 2-2)

REMOVE CABIN TUNNEL SMOKE BAFFLE

1. Remove 12 screws (1) and washers (2) from smoke baffle upper flange assembly (3).
2. Remove bolt (4) from bracket (5).
3. Remove smoke baffle upper flange assembly (3) from helicopter by lifting baffle straight up.



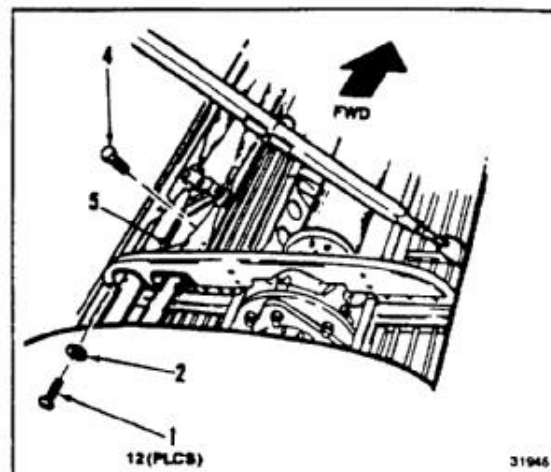
INSTALL CABIN TUNNEL SMOKE BAFFLE

4. Install smoke baffle upper flange assembly (3) with 12 screws (1) and washers (2).
5. Install bolt (4) on bracket (5).

INSPECT

FOLLOW-ON MAINTENANCE:

Forward Drive Shaft No. 6 Tunnel Cover Closed (Task 2-2).



END OF TASK

2-562

2-170.2 INSTALL GPS ANTENNA MOUNT PROVISION ON NO. 2 CABIN CROWN ACCESS DOOR (TUNNEL COVERS) WITH 71

INITIAL SETUP**WARNING****Applicable Configurations:**

Aircraft with 71

Adhesive (E41.1) is toxic. In case of contact, flush skin or eyes with water. Wash skin with soap and water, rubbing alcohol, or hand cleaner. Do not use solvents. Remove soiled clothing.

Tools:

Aircraft Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

Adhesive (E41.1)
 Paint Remover (E261.1)
 Paint, Aircraft Green (E261.2)
 Sealing Compound (E342.2)
 Epoxy Primer (E292 or E293)
 Gloves (E186)

WARNING

Paint (E261.2) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation. In case of contact, flush skin and eyes for at least **15 minutes**. Use low water pressure for eyes. Wash skin with soap and water.

Parts:

Antenna Fairing Assy, 4290336-501, Qty 1
 Screw, MS270391-17, Qty 12
 Washer, NAS1149P0332P, Qty 24
 Nut, MS21044N3, Qty 12
 Insert, NAS1835C30, Qty 2

WARNING

Sealing compound (E342.2) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes for at least **15 minutes**. Get medical attention for eyes.

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

MIL-STD-130
 MWO 1-1520-240-50-68
 TM 55-1520-240-23P
 Task 2-346
 Task 2-352

General Safety Instructions:**WARNING**

Primers (E292 and E293) are flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Paint remover (E261.1) is toxic. Avoid inhaling. Use only with adequate ventilation or approved NIOSH respirator. In case of contact, flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

2-170.2 INSTALL GPS ANTENNA MOUNT PROVISION ON NO. 2 CABIN CROWN ACCESS DOOR (TUNNEL COVERS) WITH 71 (Continued)

NOTE

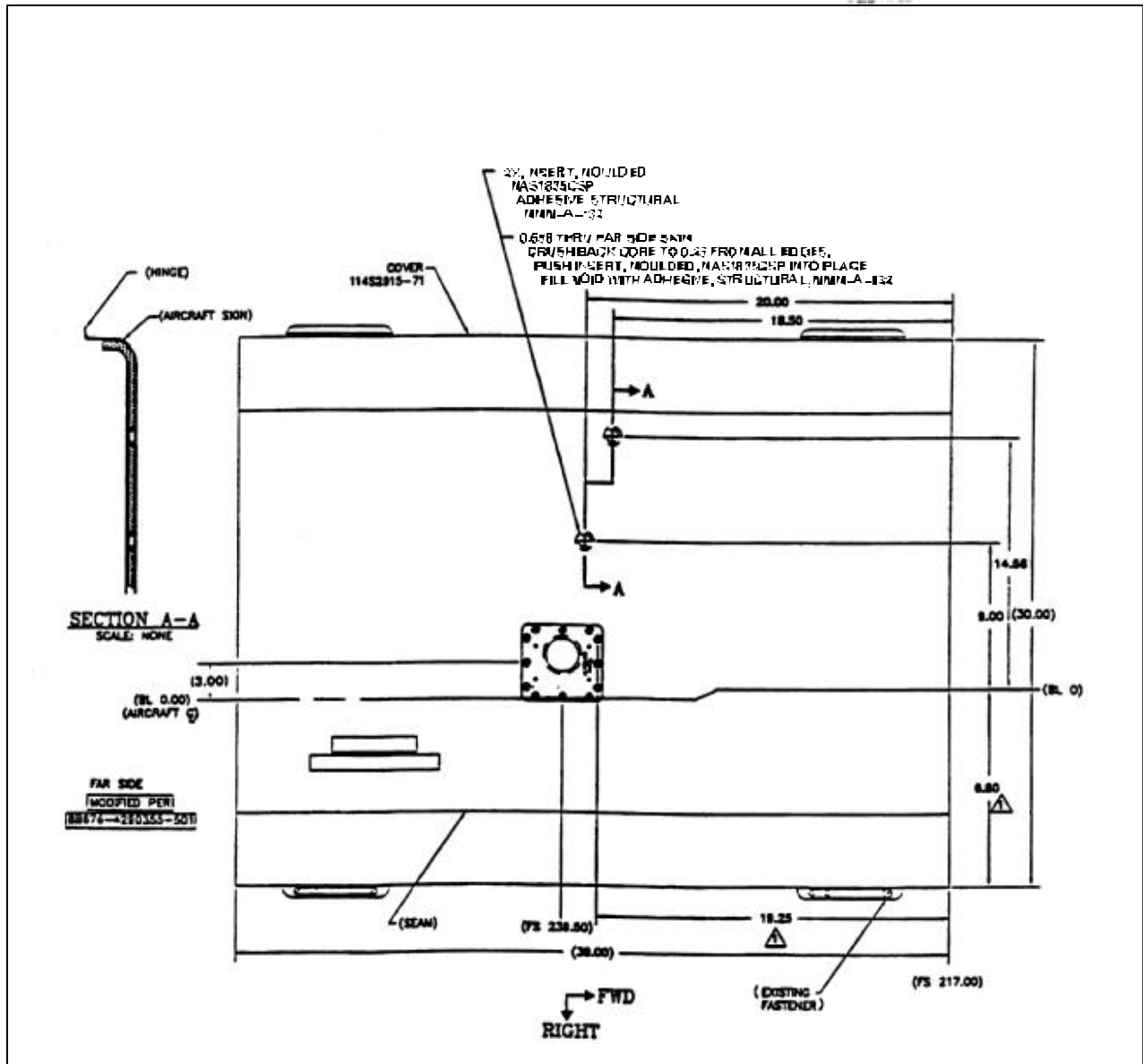
Ensure to orient template correctly on top of No. 2 access door (1). FS 239.3 and BL 3.02L should pass thru the center line of the **3.00** diameter hole.

1. Position template on top of No. 2 access door (1) and perform the following:
 - a. Transfer **3.00** diameter hole (3) through skin, crush back core **0.25** from all edges and fill with adhesive (E41.1).
 - b. Transfer twelve **0.098** diameter holes marked 'A' (5) through skin, open holes to **0.375** diameter through on upper skin only, crush back core **0.25** from all edges and fill with adhesive (E41.1).
 - c. Trace outline of template, remove template, and remove all primer and paint from area to **0.75 inches** inside the template area (all around) plus **0.13 inches** beyond template area (all around), using paint remover (E261.1).
 - d. Surface treat bare metal (Task 2-346).
 - e. Reinstall template.
 - f. Open the twelve 'A' holes to **0.201** diameter.
2. Locate the position of two holes (Section A-A) on the bottom side of No. 2 access door (1). Drill **0.688** diameter thru underside skin of cover only, crush back core **0.25** from all edges, push molded insert NAS1835C3P (2) into place (2 places), and fill void with adhesive (E41.1).
3. On the bottom side of No. 2 access door (1), obliterate all existing part numbers(s) and re-identify per MIL-STD-130 as follows:
 MODIFIED PER 88676-4790251
4. Install fairing 4290374-501 with screws MS270 39-1-17 washers NAS1149F0332P, and nuts MS21044N3, twelve places.
5. Install Antenna 2243340, if available, or Cover Plate 3290373-501 with screws MS27039-0816 and washers NAS1149FN822P four places.
6. Seal around antenna or cover plate, and fairing using sealing compound (E342.2).
7. Apply primer (E292 or E293) to the No. 2 access door (2) and restore to original finish (Task 2-352) using paint (E261.2).

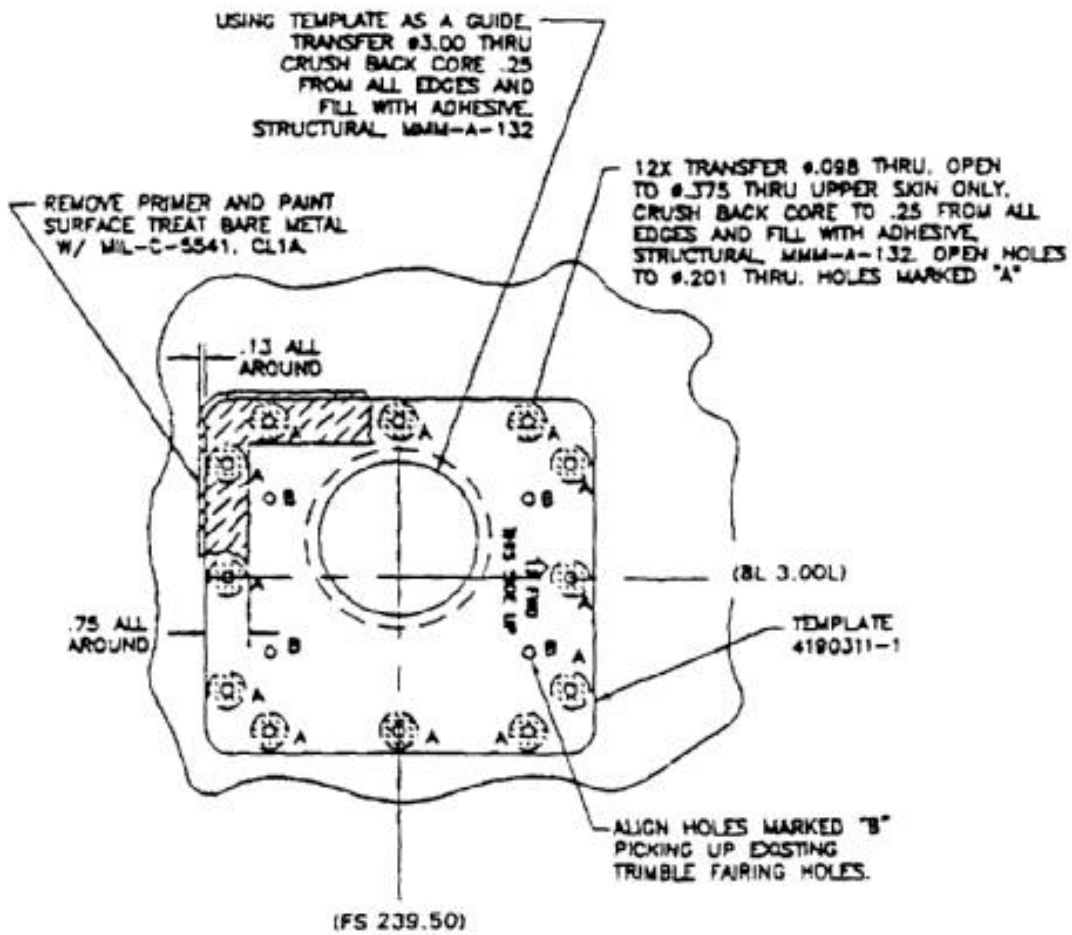


Locate the two holes (Section A-A) exactly as shown, with NO deviations.

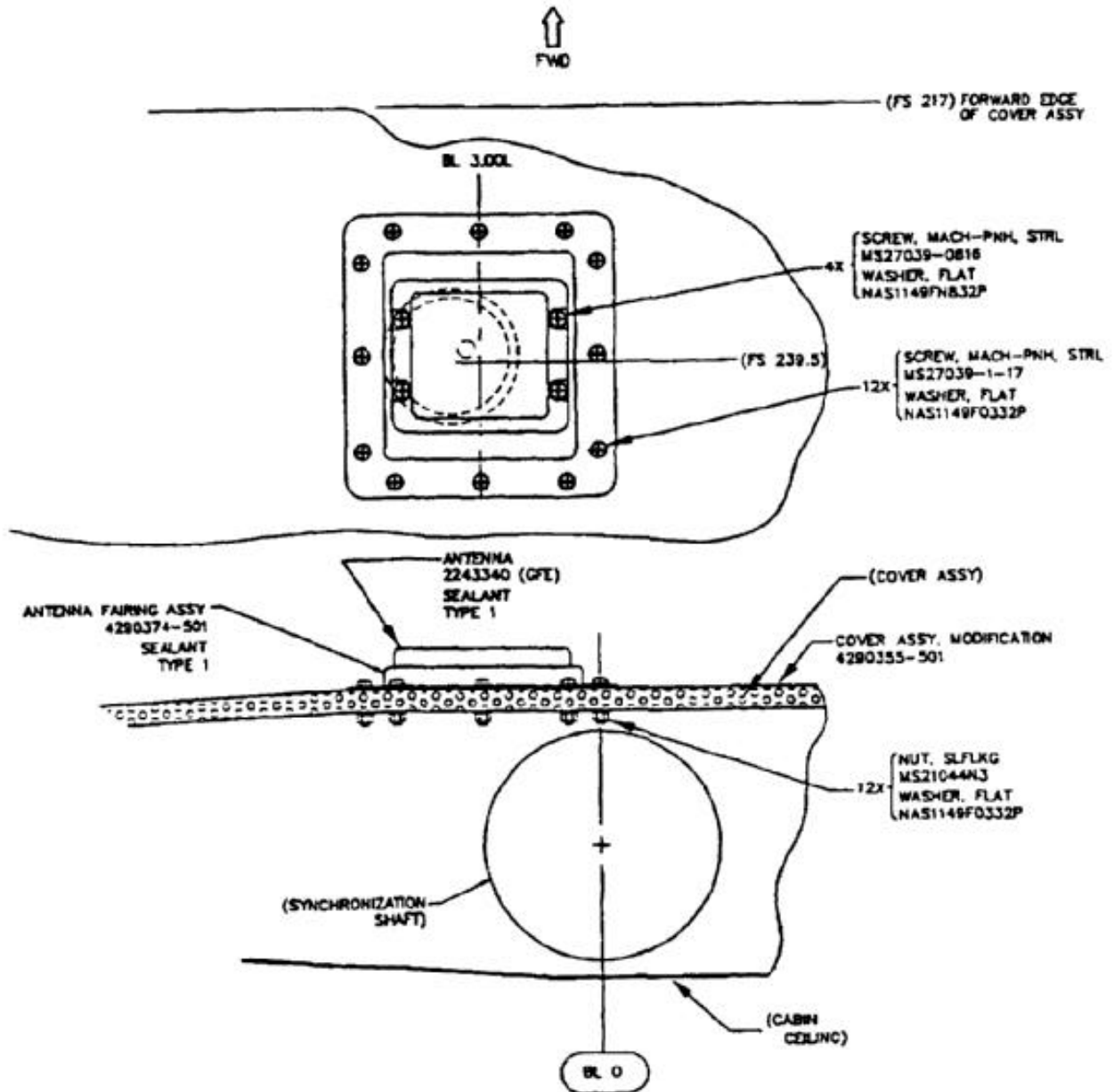
2-170.2 INSTALL GPS ANTENNA MOUNT PROVISION ON NO. 2 CABIN CROWN ACCESS DOOR (TUNNEL COVERS) WITH 71 (Continued)



2-170.2 INSTALL GPS ANTENNA MOUNT PROVISION ON NO. 2 CABIN CROWN ACCESS DOOR (TUNNEL COVERS) WITH 71 (Continued) 2-170.2



2-170.2 INSTALL GPS ANTENNA MOUNT PROVISION ON NO. 2 CABIN CROWN ACCESS DOOR (TUNNEL COVERS) WITH 71 (Continued)



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-170.3 FABRICATION OF FAIRING TEMPLATE FOR GPS ANTENNA INSTALLATION ON NO. 2 CABIN CROWN ACCESS DOOR (TUNNEL COVERS) WITH 71

2-170.3**INITIAL SETUP****Applicable Configurations:**Aircraft with **71****Tools:**

As Required

Materials:

Aluminum Alloy Sheet, 7075-T6, .063 Thick

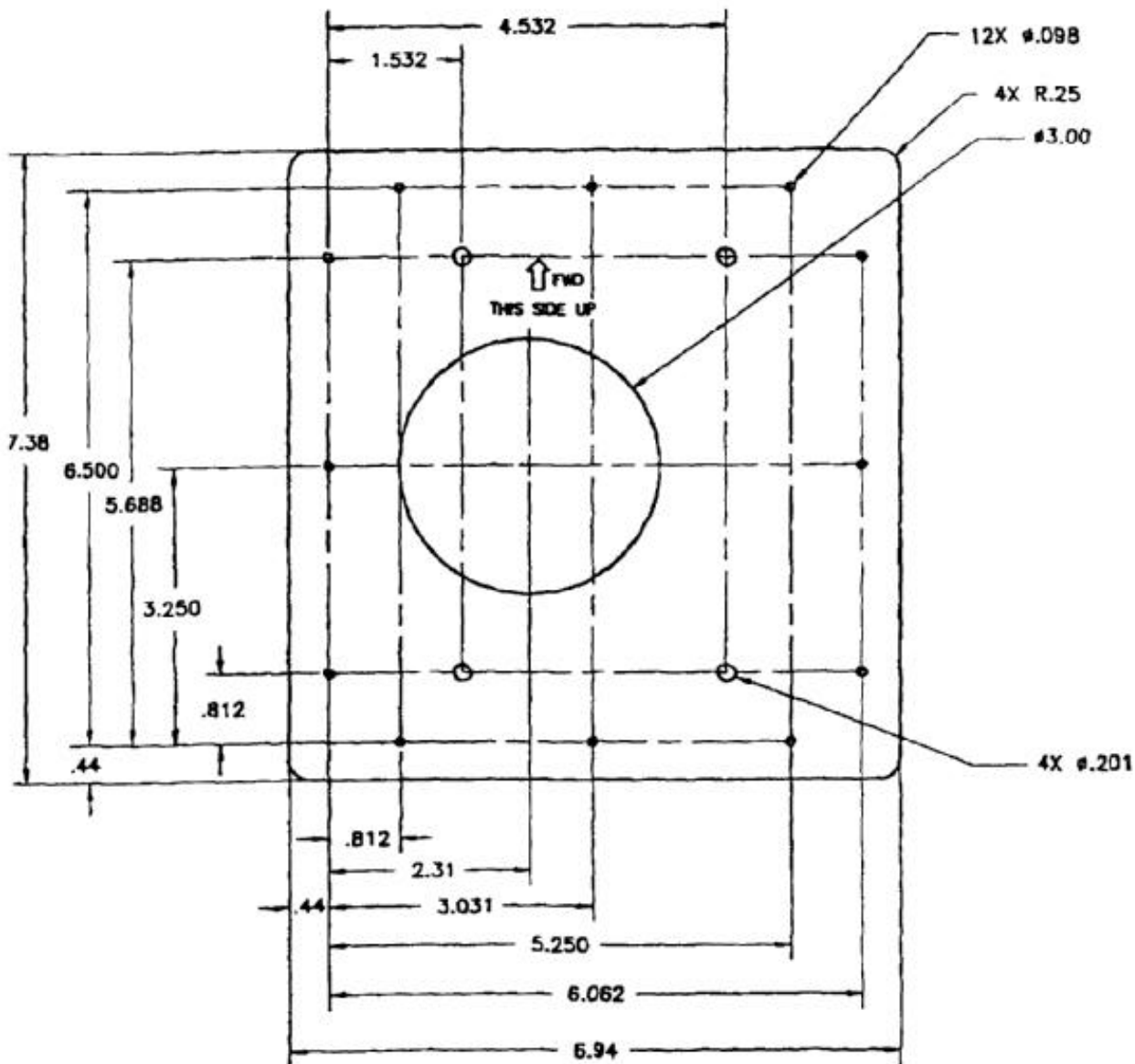
Personnel Required:Aircraft Structural Repairer
Inspector**References:**MWO 1-1520-240-50-73
Task 2-346**General Safety Instructions:**

As Required

1. Fabricate fairing template (1) as shown, by doing the following:
 - a. Put **0.25** diameter radius on all four corners.
 - b. Drill twelve **0.098** diameter holes.
 - c. Drill one **3.00** diameter hole.
 - d. Drill four **0.201** diameter holes.
2. Surface treat the aluminum sheet (Task 2-346).
3. Dispose of template (1) locally when GPS antenna is installed.

2-170.3 FABRICATION OF FAIRING TEMPLATE FOR GPS ANTENNA INSTALLATION ON NO. 2 CABIN CROWN ACCESS DOOR (TUNNEL COVERS) WITH 71 (Continued)

2-170.3



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

Black Walkway Material (E440)

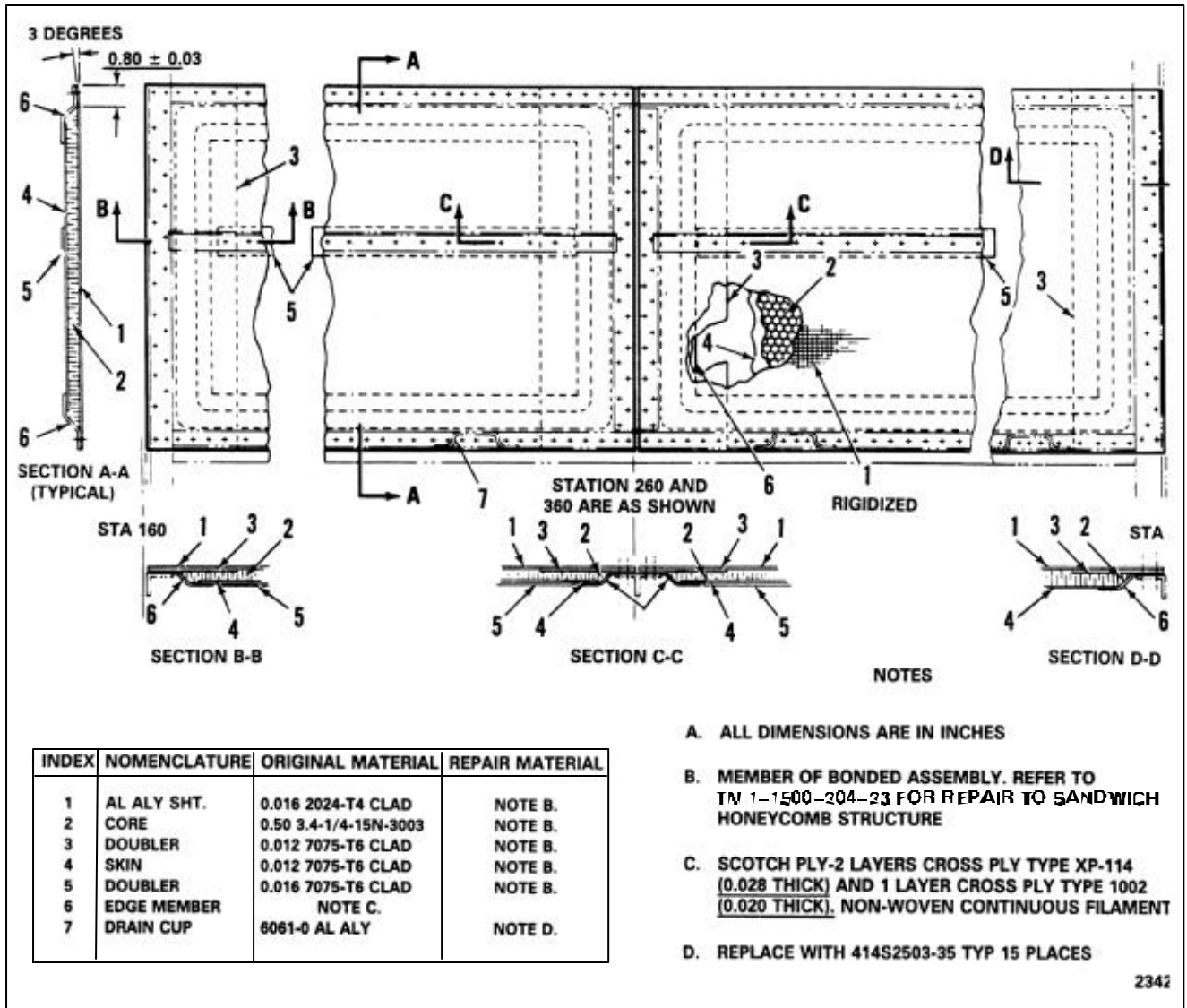
Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-172
Task 2-173
TM 1-1500-204-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Walkway panels consist of rigidized aluminum panels bonded to sandwich honeycomb structure. They are fully-coated with black walkway material (E440). Panels are installed on right side of cabin crown from about BL 10 to BL 26. They run from sta. 160 thru sta. 440.
2. Damage classifications are Minor Damage (Task 2-172), and Damage Requiring Replacement (AVIM) (Task 2-173).



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

As Required

Parts:

Rivets

Personnel Required:Aircraft Structural Repairer
Inspector

1. Check that small holes and stop-drilled cracks are within limits (Tasks 2-12 and 2-171).
2. Check that nicks and scratches do not exceed **10 percent** of material thickness (Task 2-171).
3. Apply temporary patch, or fill stop-drilled cracks and small holes. Use type A rivet for holes **3/16 inch** or less in diameter. Seal all patches and rivets weathertight (Task 2-171).
4. Refinish as required (Task 2-356).

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

References:Task 2-12
Task 2-171
Task 2-356**Equipment Condition:**

As Required

General Safety Instructions:

As Required

END OF TASK

2-572

2-173 REPAIR CABIN CROWN WALKWAY — DAMAGE REQUIRING REPLACEMENT (AVIM)

2-173

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector

1. Replace walkway panels with extensive damage. This includes loss of major portion of panel, or many damaged areas (Tasks 2-14 and 2-171).
2. Seal as required (Task 2-324).
3. Finish replaced panel (Task 2-356).

FOLLOW-ON MAINTENANCE:

As Required

References:Task 2-14
Task 2-171
Task 2-324
Task 2-356**Equipment Condition:**

As Required

General Safety Instructions:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

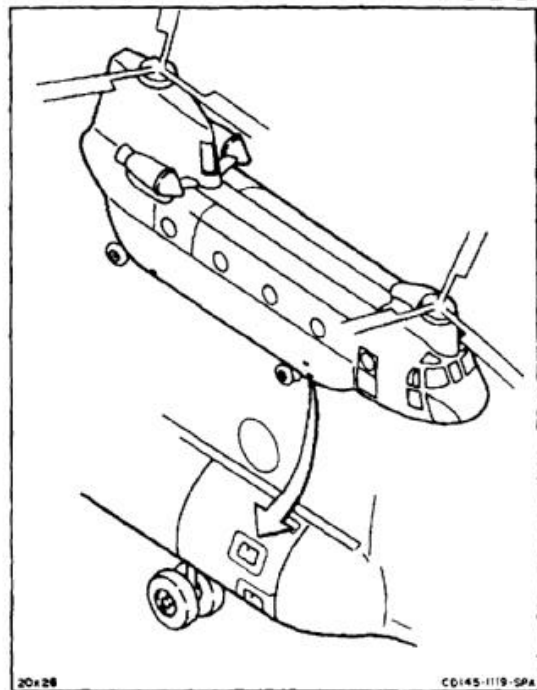
None

Personnel Required:

Medium Helicopter Repairer

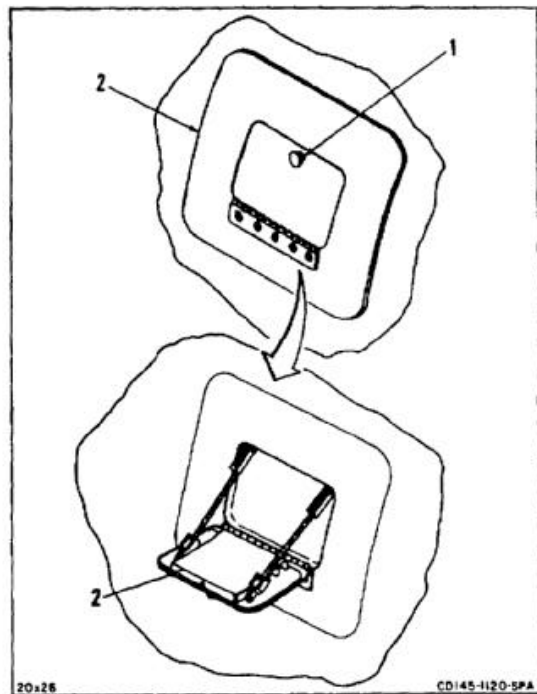
Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off

**NOTE**

Procedures are same for removing
 all foldout steps.

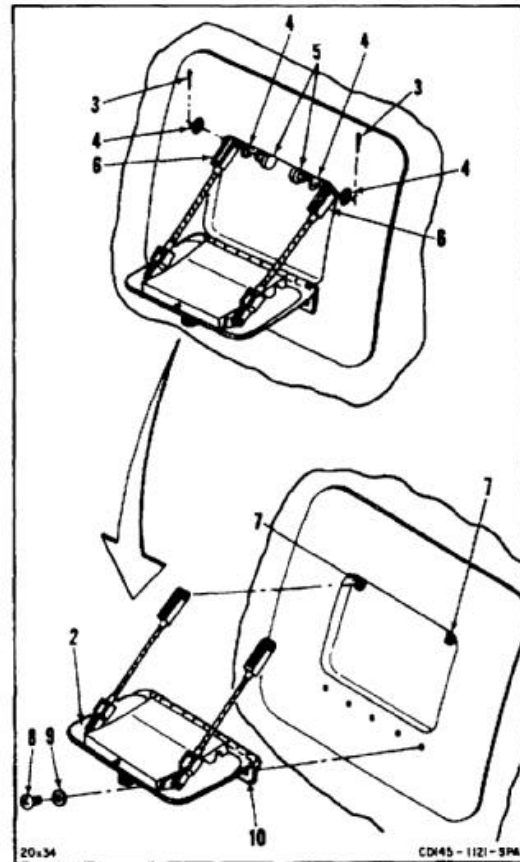
1. Pull thumbscrew (1) down and outward to unlock foldout step (2).
2. Place stop (2) in open position.



3. Remove two cotter pins (3), four washers (4), and two pins (5) from fittings (6 and 7).
4. Remove five screws (8) and washer (9) from step hinge (10).
5. Remove foldout step (2).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Parts:

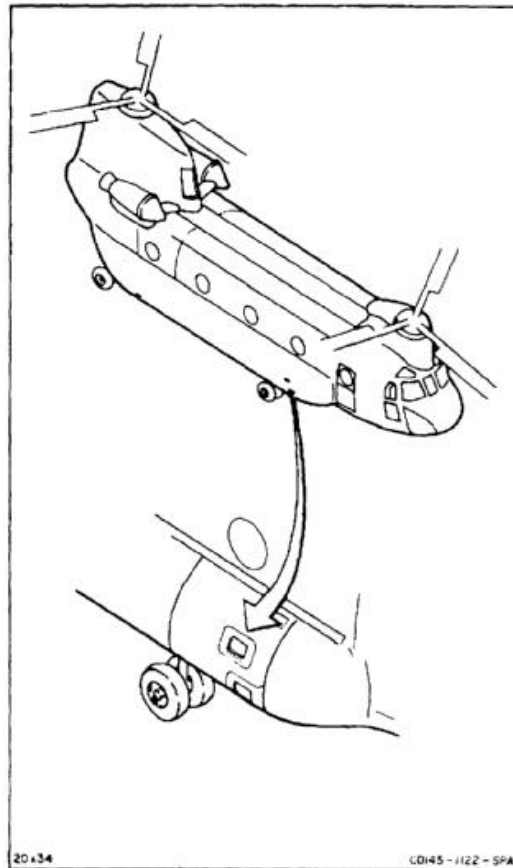
Cotter Pins

Personnel Required:

Medium Helicopter Repairer

References:

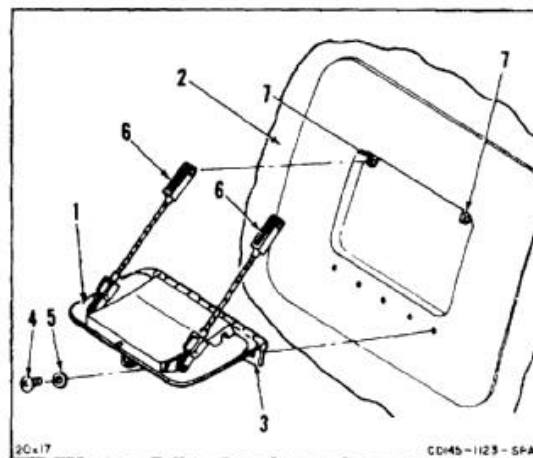
TM 55-1520-240-23P



NOTE

Procedures are same for installing all foldout steps.

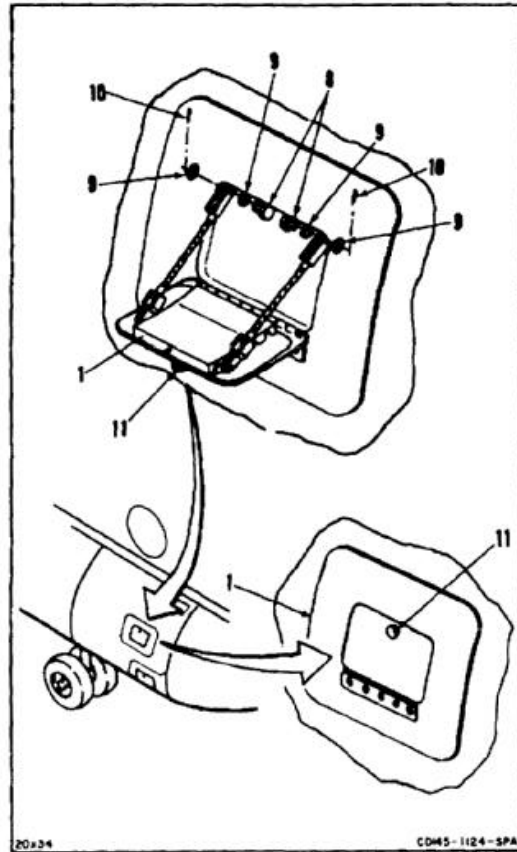
1. Position foldout step (1) on fuselage (2).
2. Align holes in hinge (3) with holes in fuselage (2). Install five screws (4) and washers (5).
3. Align holes in two fittings (6) with attach fittings (7).



2-175 INSTALL FOLDOUT STEP (Continued)

2-175

4. Install two pins (8), four washers (9), and new cotter pins (10).
5. Close and lock step (1) with latch thumbscrew (11).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

2-577

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

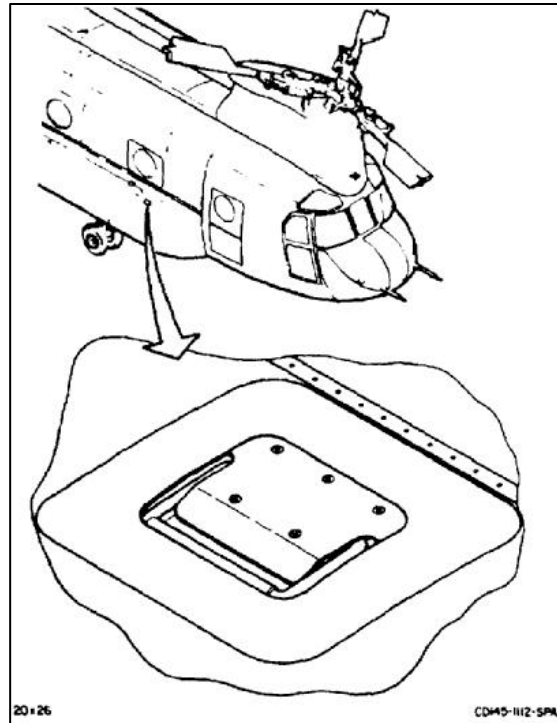
Medium Helicopter Repairer

Equipment Condition:

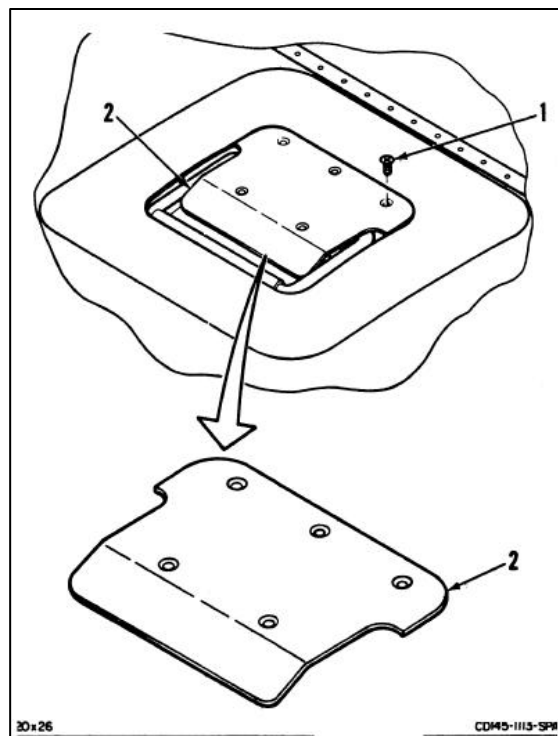
Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off



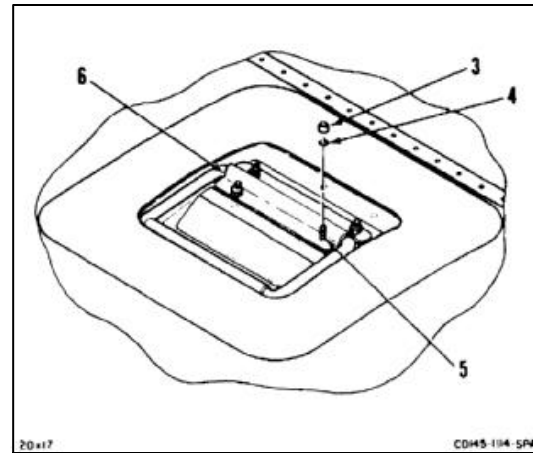
1. Remove five screws (1) from cover plate (2).
2. Remove cover plate (2).



2-176 REMOVE HANDGRIP (Continued)

2-176

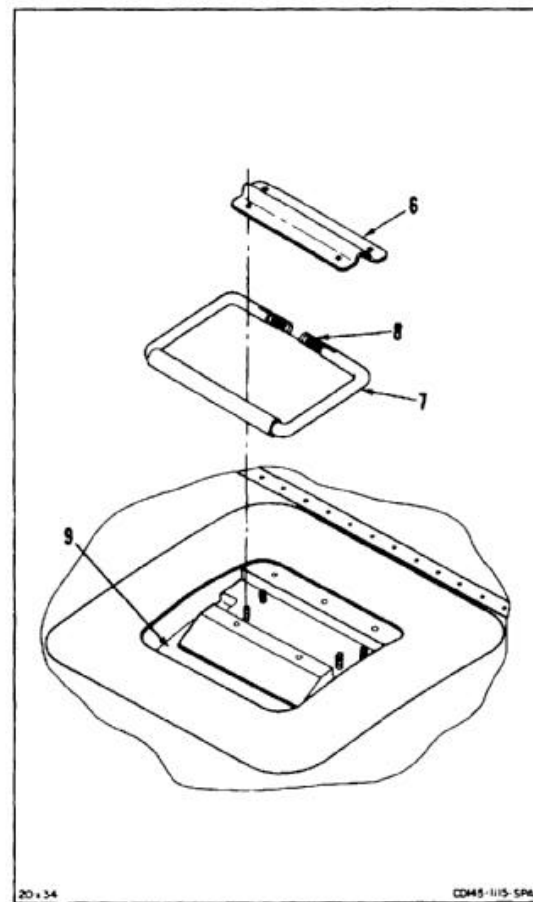
3. Remove four nuts (3) and washers (4) from screws (5) on retaining plate (6).



4. Remove retaining plate (6) and handle (7), with spring (8), from pod (9).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-579

INITIAL SETUP

Applicable Configurations:

All

Tools:

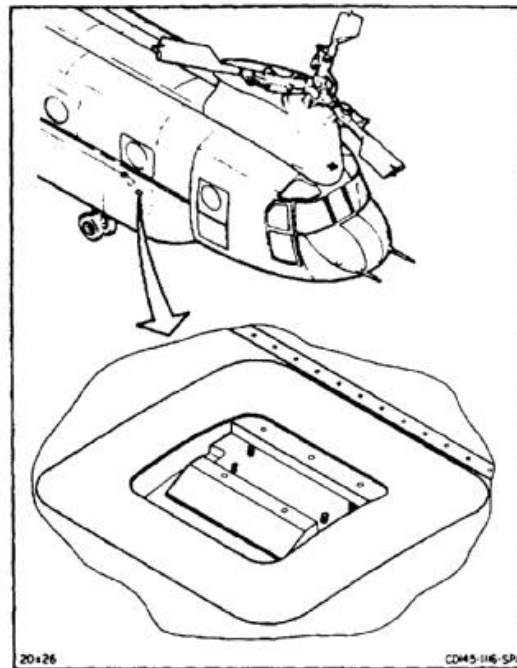
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

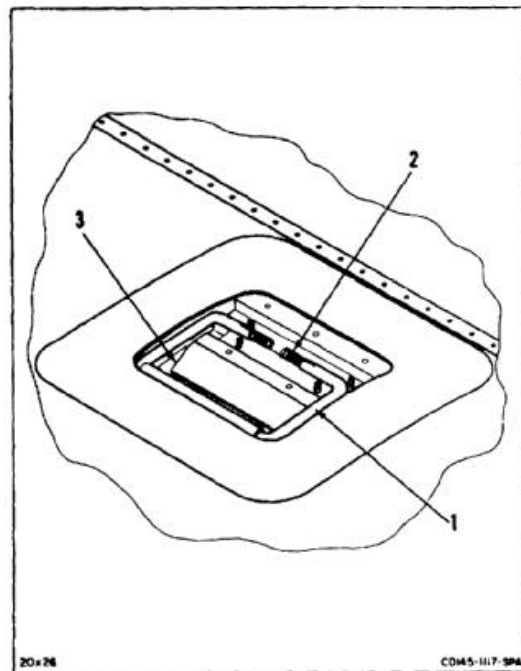
None

Personnel Required:

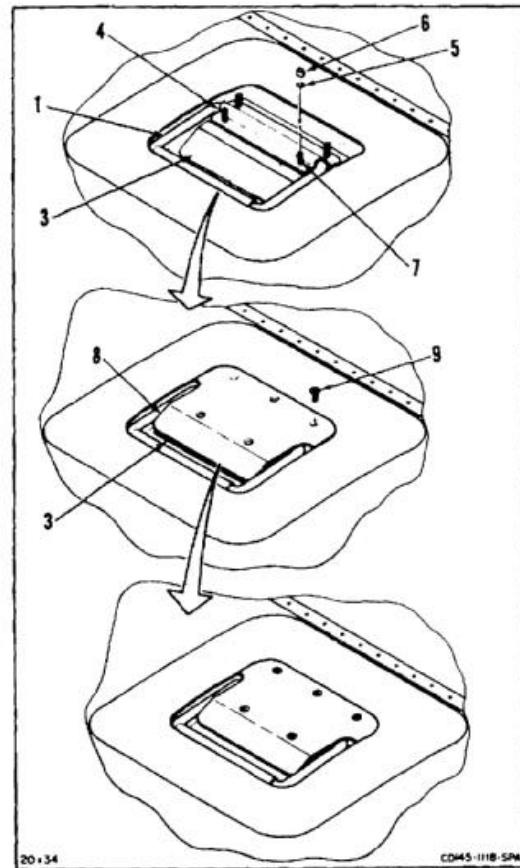
Medium Helicopter Repairer



1. Position handle (1), with spring (2), on pod (3).



2. Position retaining plate (4) over handle (1).
3. Install four washers (5) and nuts (6) on screws (7).
4. Position cover plate (8) on pod (3).
5. Install five screws (9).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

Without **82**

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Tape (E388)

Personnel Required:

Medium Helicopter Repairer (2)

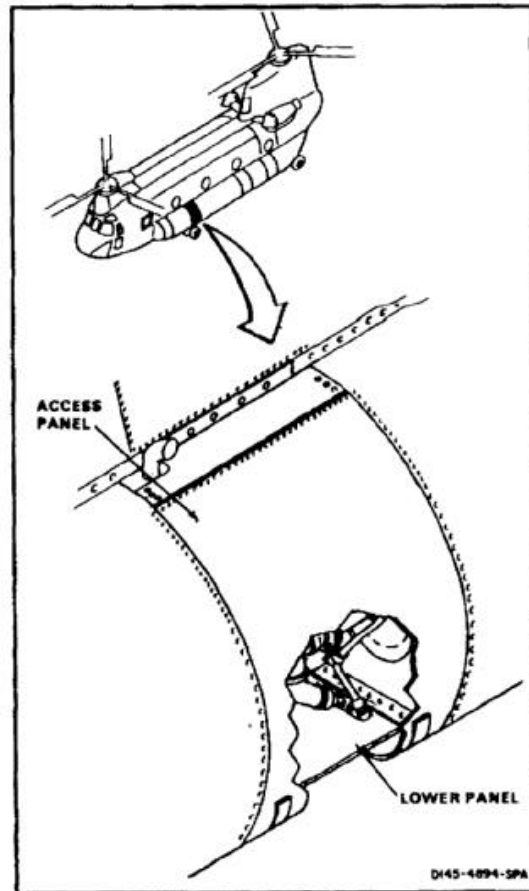
Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

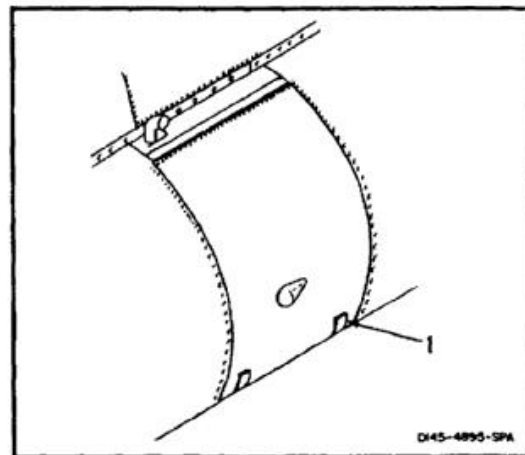
Left Forward Auxiliary Fuel Tank Vent Fairing

Removed (Task 10-63)



OPEN ACCESS PANEL

1. Press two latches (1) to release panel locks.



2-178 REMOVE LEFT SIDE FORWARD LANDING GEAR ACCESS PANELS (Continued)

2-178

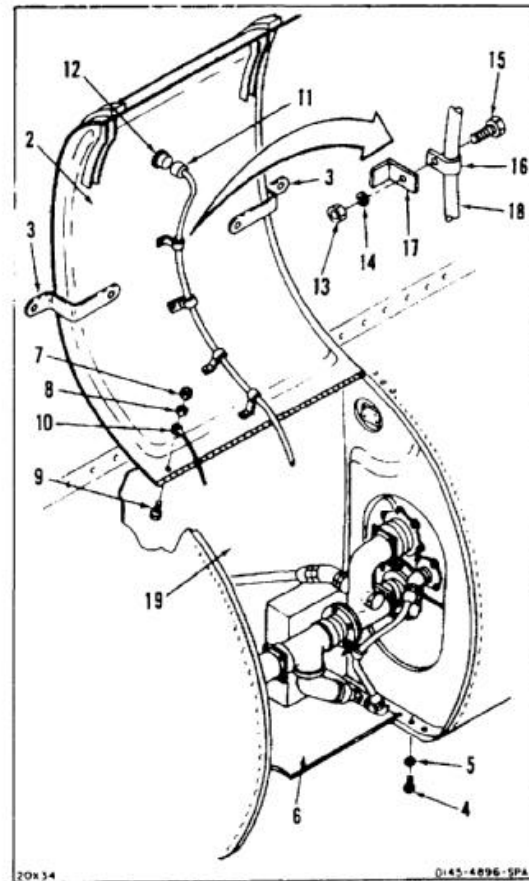
2. Open access panel (2). Secure in open position with two retainer straps (3).

REMOVE LOWER PANEL

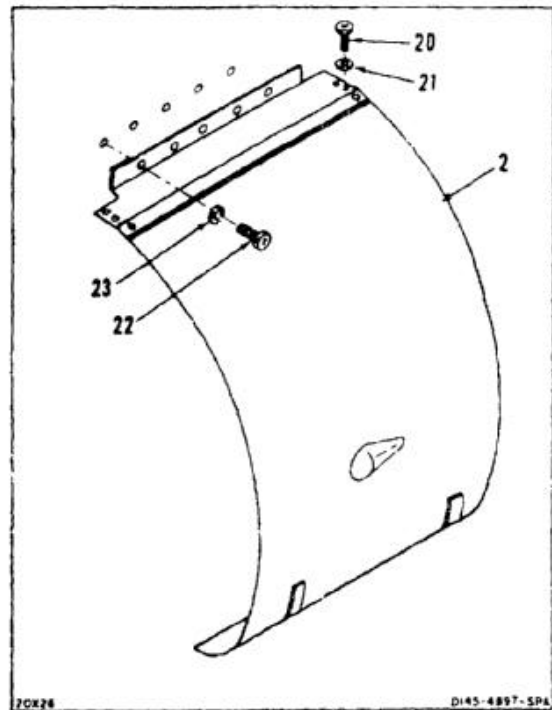
3. Remove ten screws (4) and washers (5).
4. Remove lower panel (6).

REMOVE ACCESS PANEL

5. Release two straps (3). Have helper support panel (2) in half-lowered position.
6. Remove nut (7), washer (8), and screw (9). Disconnect bonding wire (10).
7. Disconnect connector (11) from position light (12).
8. Remove four nuts (13), washers (14), screws (15), and clamps (16) from brackets (17). Tape wire (18) and clamps to fuselage (19) for temporary stowage. Use tape (E388)
9. Lower access panel (2).



10. Remove six screws (20) and washers (21).
11. Support panel (2). Remove five screws (22) and washers (23).
12. Remove access panel (2).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

2-584

2-178.1 REMOVE LEFT SIDE FORWARD LANDING GEAR ACCESS PANELS

2-178.1

INITIAL SETUP**Applicable Configurations:**With **82****Tools:**

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Tape (E388)

Personnel Required:

Medium Helicopter Repairer (2)

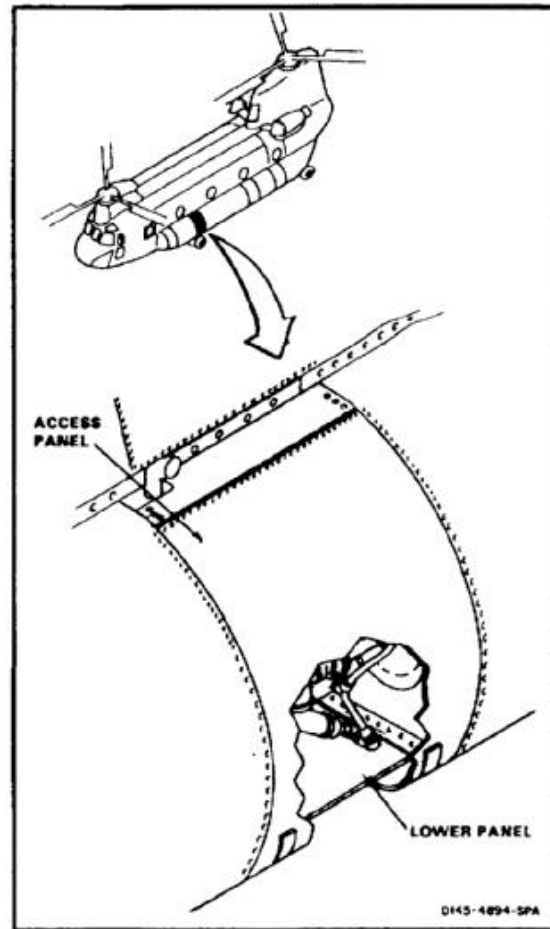
Equipment Condition:

Battery Disconnected (Task 1-39)

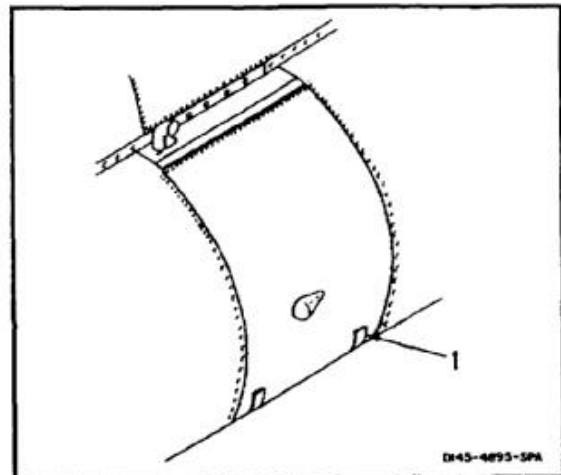
Electrical Power Off

Left Forward Auxiliary Fuel Tank Vent Fairing

Removed (Task 10-83)

**OPEN ACCESS PANEL**

1. Press two latches (1) to release panel locks.



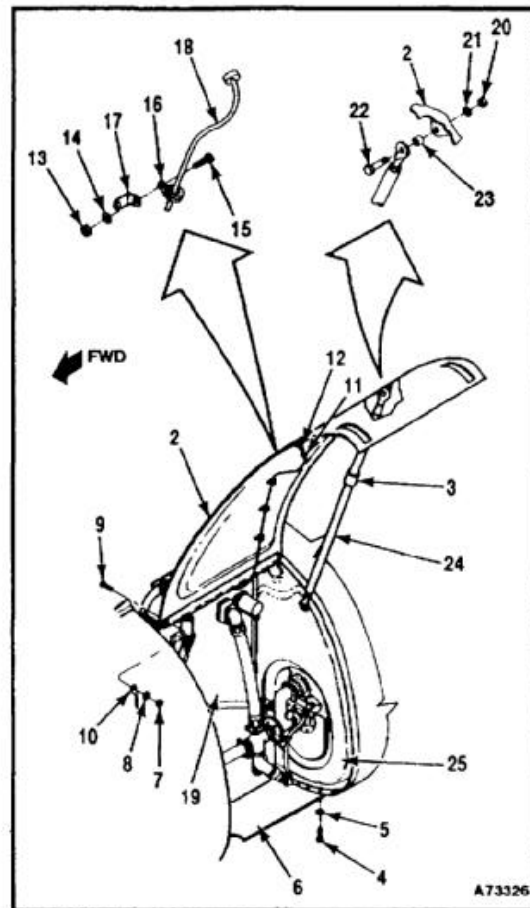
2. Open access panel (2) and support in half open position. Tighten locking collar (3).

REMOVE LOWER PANEL

3. Remove ten screws (4) and washers (5).
4. Remove lower panel (6).

REMOVE ACCESS PANEL

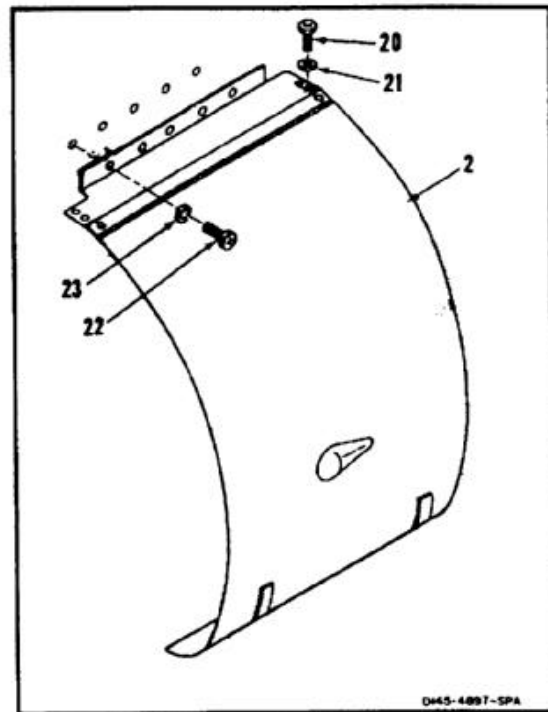
5. Remove nut (7), washer (8), and screw (9). Disconnect bonding wire (10).
6. Disconnect connector (11) from position light (12).
7. Remove four nuts (13), washers (14), screws (15), and clamps (16) from brackets (17). Tape wire (18) and clamps to fuselage (19) for temporary stowage. Use tape (E388).
8. Have helper support panel (2). Remove nut (20), washer (21), bolt (22), and spacer (23) from panel (2).
9. Loosen collar (3). Retract strut (24) and tighten collar. Tape strut to tank (25) for temporary storage. Use tape (E388).
10. Lower access panel (2).



2-178.1 REMOVE LEFT SIDE FORWARD LANDING GEAR ACCESS PANELS (Continued)

2-178.1

11. Remove six screws (20) and washers (21).
12. Support panel (2). Remove five screws (22) and washers (23).
13. Remove access panel (2).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-3234692
 Drill, Size 3
 Drill, Size F
 Sander, Portable

Materials:

Dry Cleaning Solvent (E161) or
 Aliphatic Naphtha (E245)
 Gloves (E184.1)
 Epoxy Primer (E292.1)
 Tape (E383.1)
 Cloth (E120)

Personnel Required:

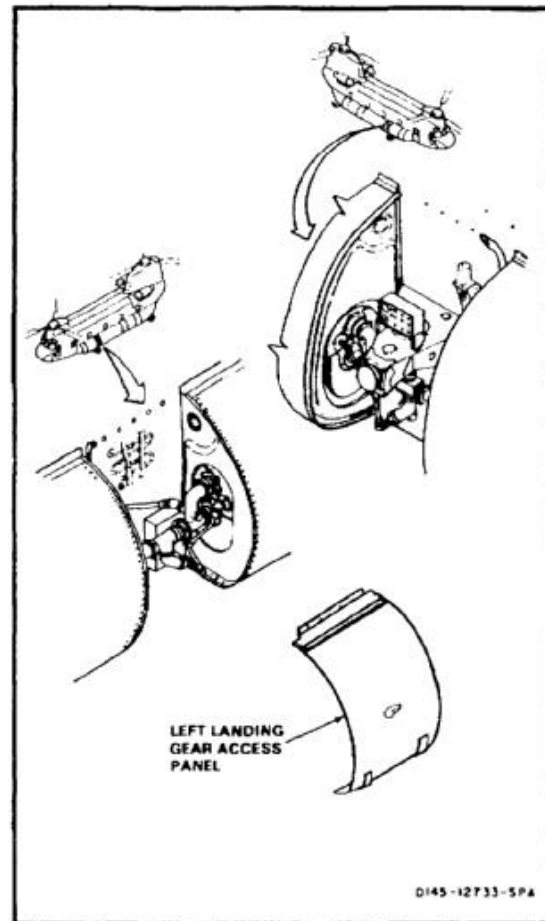
Aircraft Structural Repairer (2)
 Inspector

References:

TM 55-1520-240-23P
 Task 2-179
 Task 2-181

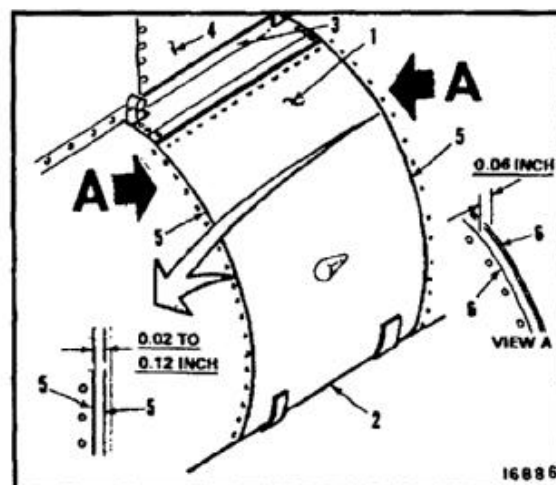
Equipment Condition:

Left Forward Landing Gear Access Panel Removed
 (Task 2-178 or 2-178.1)
 Right Forward Landing Gear Access Panel Removed
 (Task 2-180)

**NOTE**

Procedure is same to prepare left or right forward landing gear access panel. Left panel is shown here.

1. Position panel (1) in center of panel opening (2), with support angle (3) against fuselage (4).
2. Mark and trim panel (1) to fit opening (2). Gap between mating edges (5) must be **0.02 to 0.12 inch**. Use portable sander to trim panel.
3. After trimming panel (1) check gap between mating surfaces (6). Gap must not be more than **0.06 inch**.

INSPECT

**2-178.2 PREPARE FORWARD LANDING GEAR ACCESS PANELS FOR
INSTALLATION (Continued)**

2-178.2

DRILL PANEL

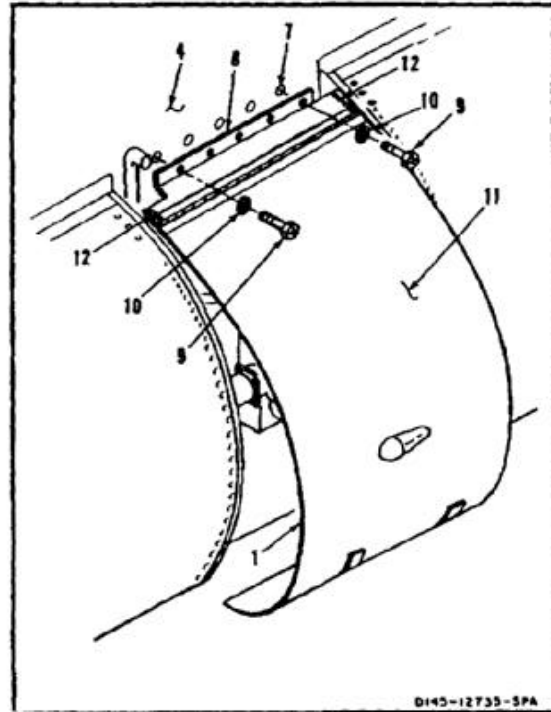
4. Have helper hold panel (1) in mounting position. Working from inside aircraft, mark five bolt holes (7) on support angle (8). Use holes in fuselage (4) as guide.
5. Remove panel (1). Drill five holes (7) in angle (8). Deburr holes. Use drill size F.
6. Position panel (1) for mounting. Install two bolts (9) and washers (10) in end holes of angle (8).
7. Raise lower half (11) of panel (1). Mark six holes (12).
8. Remove two bolts (9), washers (10), and panel (1). Drill six holes (12). Deburr holes. Use drill size 3.

INSPECT

WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

9. Apply primer (E292.1) to drilled holes (7 and 12). Wear gloves (E184.1).



TAPE PANEL

10. Clean edges (5) of panel (1), inside and outside, for **1 inch** inboard of edge. Use solvent (E161) or aliphatic naphtha (E245) and clean cloths (E120). Wipe dry with a dry cloth.

NOTE

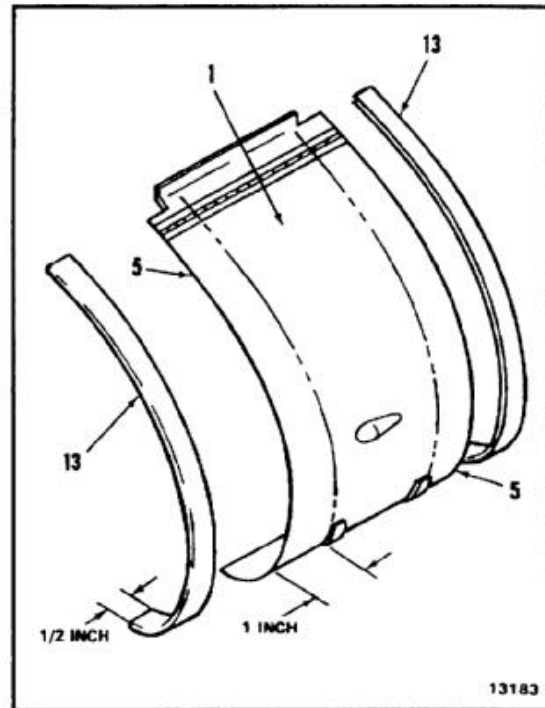
Apply tape only when air and surface temperature are above **60°F (28°C)**. Tape will not stick below that temperature.

11. Remove liner material from tape (E383.1) (13). Apply tape to edge (5) of panel (1). Use finger pressure. Do not stretch tape.

NOTE

A short period of exposure may be needed before maximum tape adhesion is obtained.

12. Cut or trim tape as required.

***FOLLOW-ON MAINTENANCE:***

Install access panel (Task 2-179, 2-179.1, or 2-181).

END OF TASK

2-590

INITIAL SETUP

Applicable Configurations:Without **82****Tools:**

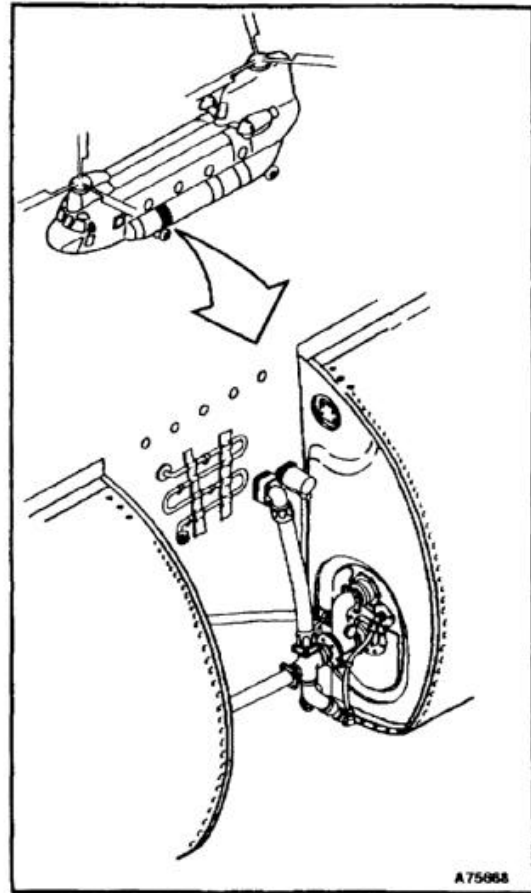
Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

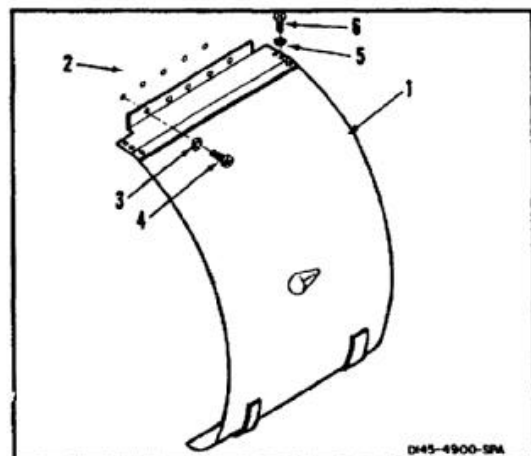
None

Personnel Required:Medium Helicopter Repairer
Inspector**References:**

TM 55-1520-240-23P

**INSTALL ACCESS PANEL**

1. Position access panel (1) against fuselage (2).
2. Install five washers (3) and screws (4).
3. Install six washers (5) and screws (6).



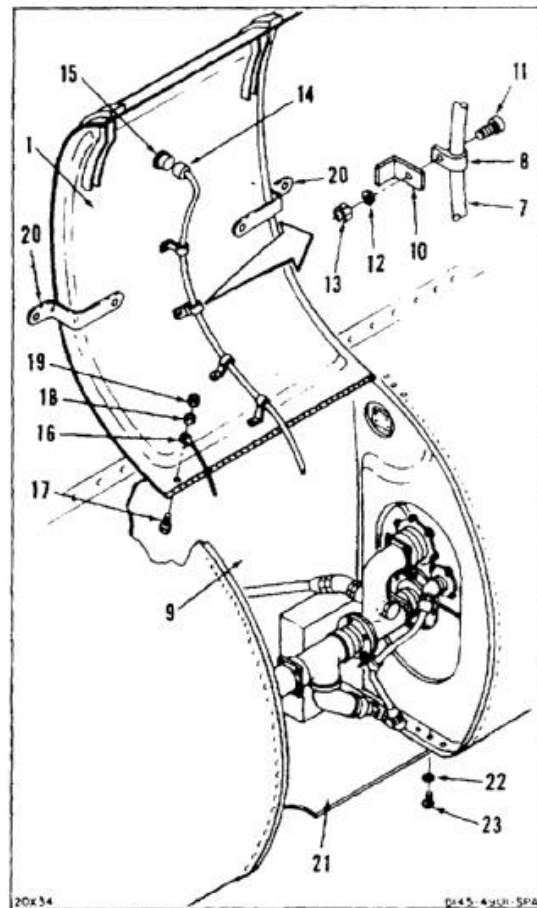
4. Raise access panel (1) to half open position. Have helper support panel.
5. Remove masking tape from wire (7), clamps (8), and fuselage (9). Position four clamps on brackets (10). Install four screws (11), washers (12), and nuts (13).
6. Connect connector (14) to position light (15).
7. Position bonding wire (16). Install screw (17), washer (18), and nut (19).
8. Raise access panel (1). Latch panel in open position with two straps (20).

INSTALL LOWER PANEL

9. Position lower panel (21).
10. Install ten washers (22) and screws (23).

INSPECT

11. Release retainer straps (20). Lower and latch panel (1) to secure.

**FOLLOW-ON MAINTENANCE:**

Install fuel tank fairing (Task 10-64).

END OF TASK

2-592

2-179.1 INSTALL LEFT SIDE FORWARD LANDING GEAR ACCESS PANELS

2-179.1

INITIAL SETUP**Applicable Configurations:**With **82****Tools:**

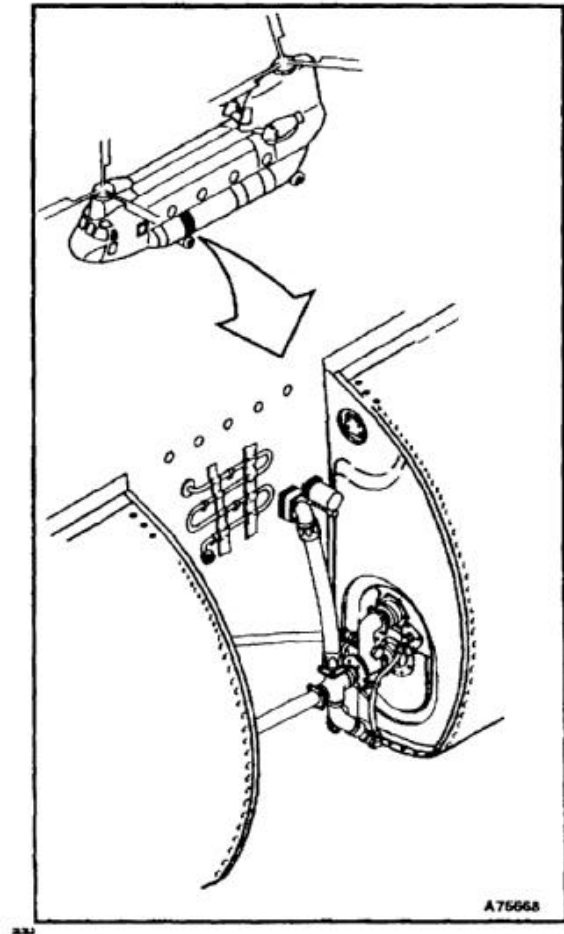
Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

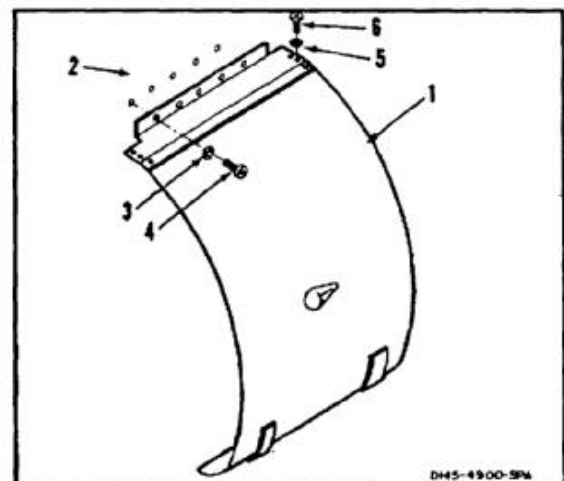
None

Personnel Required:Medium Helicopter Repairer
Inspector**References:**

TM 55-1520-240-23P

**INSTALL ACCESS PANEL**

1. Position access panel (1) against fuselage (2).
2. Install five washers (3) and screws (4).
3. Install six washers (5) and screws (6).



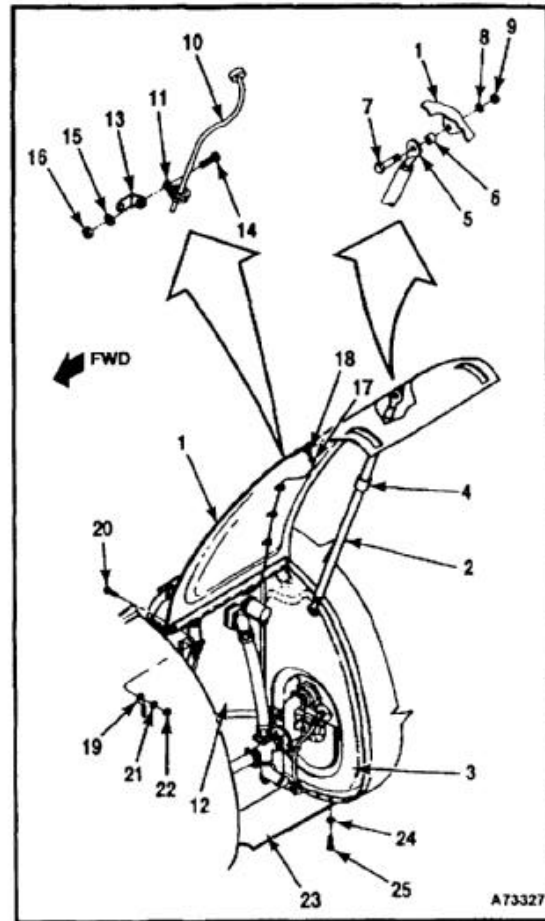
4. Raise access panel (1).
5. Remove masking tape from strut assembly (2) and tank (3). Loosen collar (4). Extend strut about **7 inches**. Tighten collar.
6. Support panel (1). Position rod end (5) and spacer (6). Install bolt (7), washer (8), and nut (9) on panel (1).
7. Remove masking tape from wire (10), clamps (11), and fuselage (12). Position four clamps on brackets (13). Install four screws (14), washers (15), and nuts (16).
8. Connect connector (17) to position light (18).
9. Position electrical lead (19). Install screw (20), washer (21), and nut (22).

INSTALL LOWER PANEL

10. Position lower panel (23).
11. Install ten washers (24) and screws (25).

INSPECT

12. Loosen collar (4). Lower and latch panel (1).

**FOLLOW-ON MAINTENANCE:**

Install fuel tank fairing (Task 10-64).

END OF TASK

2-594

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

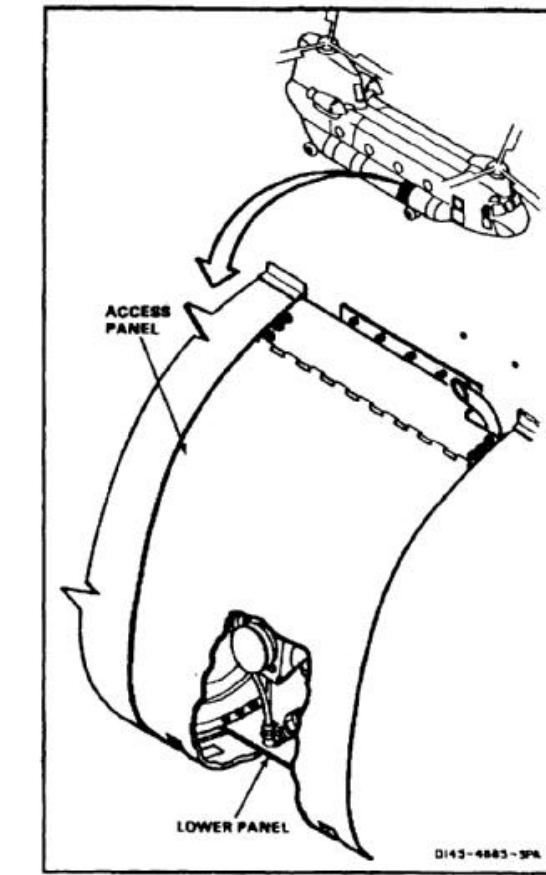
Tape (E388)

Personnel Required:

Medium Helicopter Repairer (2)

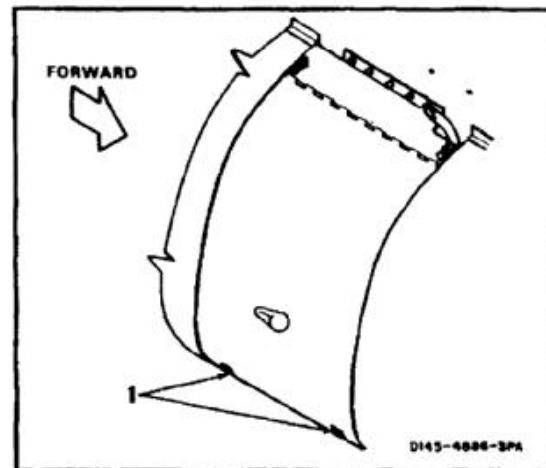
Equipment Condition:

- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Right Forward Auxiliary Fuel Tank Vent Fairing Removed (Task 10-63)



OPEN ACCESS PANEL

1. Press two latches (1) to release panel locks.



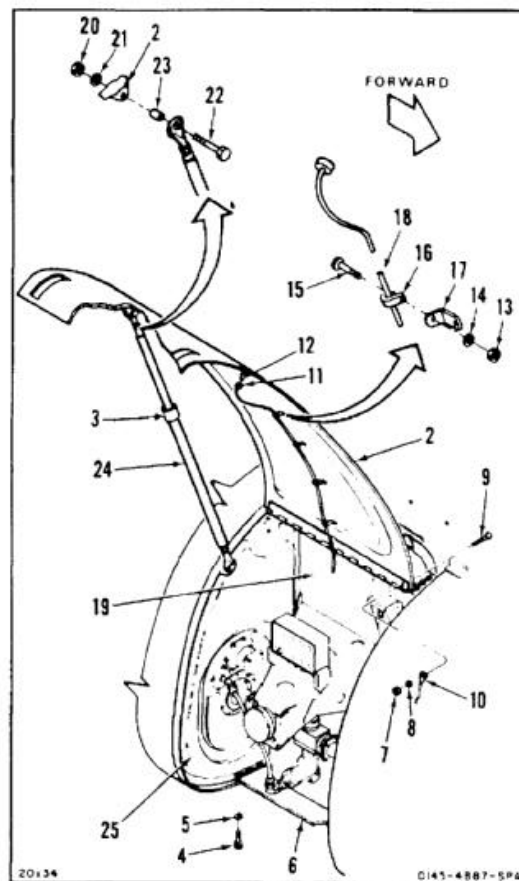
- Open access panel (2) and support in half open position. Tighten locking collar (3).

REMOVE LOWER PANEL

- Remove ten screws (4) and washers (5).
- Remove lower panel (6).

REMOVE ACCESS PANEL

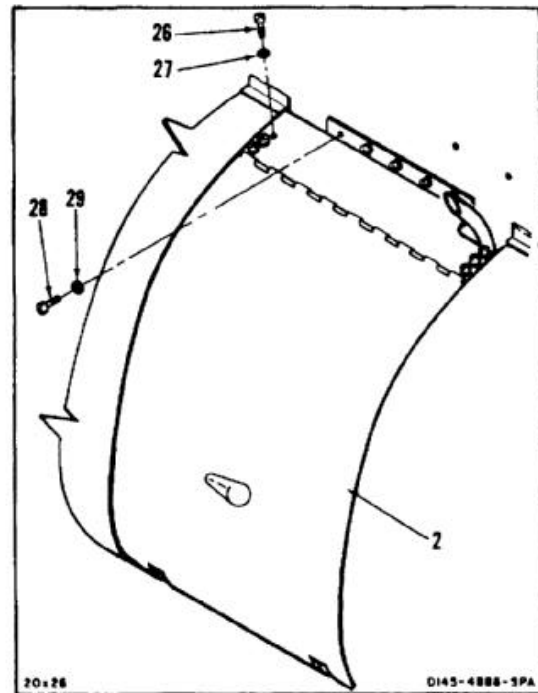
- Remove nut (7), washer (8), and screw (9). Disconnect bonding wire (10).
- Disconnect connector (11) from position light (12).
- Remove four nuts (13), washers (14), screws (15), and cable clamps (16) from brackets (17). Tape wire (18) and clamps (16) to fuselage (19) for temporary stowage. Use tape (E388).
- Have helper support panel (2). Remove nut (20), washer (21), bolt (22), and spacer (23) from panel (2).
- Loosen collar (3). Retract strut (24), tighten collar. Tape strut to tank (25) for temporary stowage. Use tape (E388).
- Lower panel (2).



2-180 REMOVE RIGHT SIDE FORWARD LANDING GEAR ACCESS PANELS (Continued)

2-180

11. Remove six screws (26) and washers (27).
12. Support panel (2). Remove five screws (28) and washers (29).
13. Remove access panel (2).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

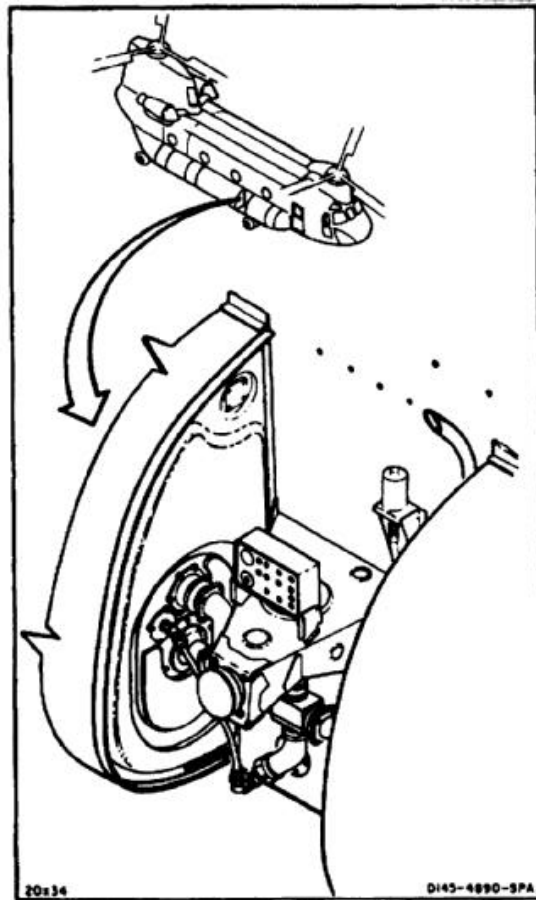
None

Personnel Required:

Medium Helicopter Repairer
Inspector

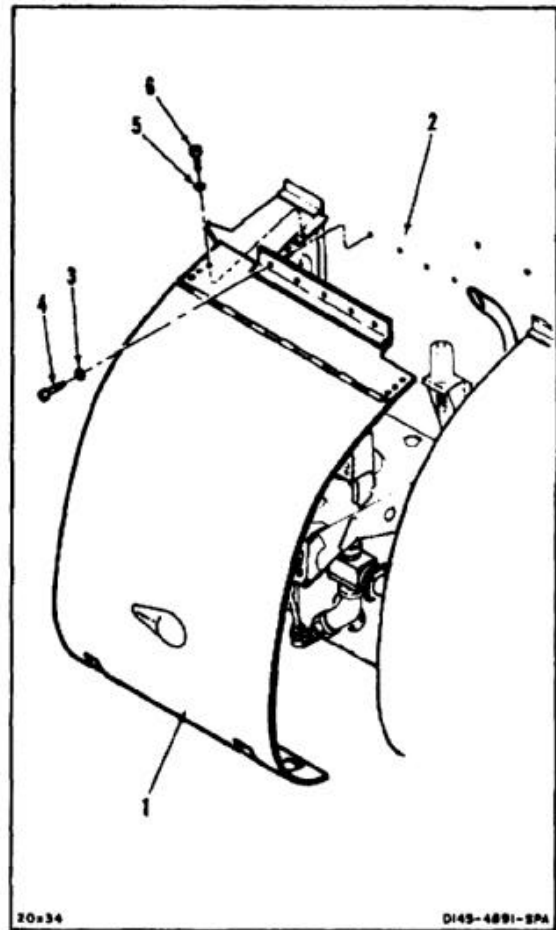
References:

TM 55-1520-240-23P



INSTALL ACCESS PANEL

1. Position access panel (1) against fuselage (2).
2. Install five washers (3) and screws (4).
3. Install six washers (5) and screws (6).



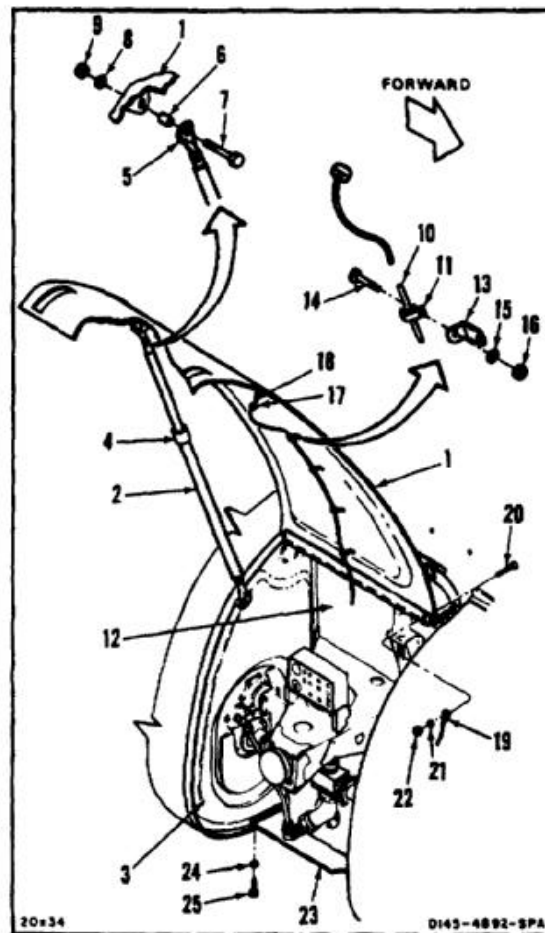
4. Raise access panel (1).
5. Remove masking tape from strut assembly (2) and tank (3). Loosen collar (4). Extend strut about **7 inches**. Tighten collar.
6. Support panel (1). Position rod end (5) and spacer (6). Install bolt (7), washer (8), and nut (9) on panel (1).
7. Remove masking tape from wire (10), clamps (11), and fuselage (12). Position four clamps on brackets (13). Install four screws (14), washers (15), and nuts (16).
8. Connect connector (17) to position light (18).
9. Position electrical lead (19). Install screw (20), washer (21), and nut (22).

INSTALL LOWER PANEL

10. Position lower panel (23).
11. Install ten washers (24) and screws (28).

INSPECT

12. Loosen collar (4). Lower and latch panel (1).



FOLLOW-ON MAINTENANCE:

Install fuel tank fairing (Task 10-64).

END OF TASK

2-600

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:

None

Personnel Required:

Inspector

References:

Task 2-184

Task 10-7

Task 10-23

Task 10-28

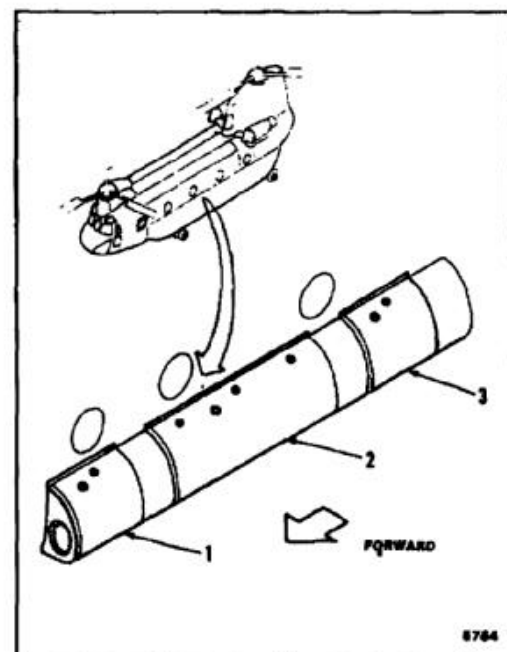
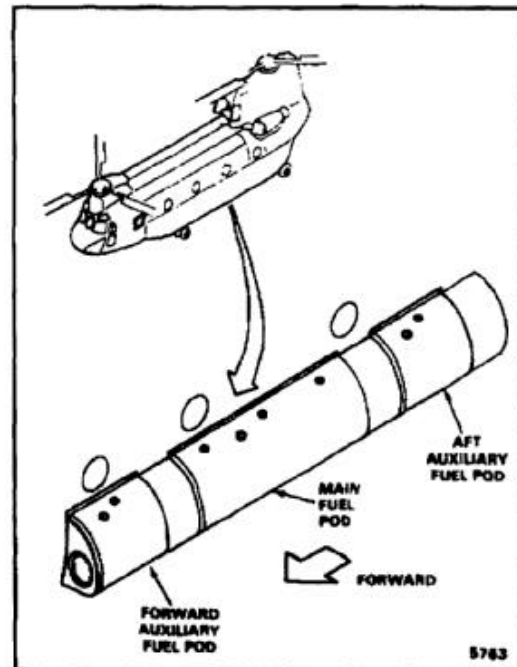
Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Helicopter Grounded (Task 1-29)

1. Inspect forward auxiliary tank (1), main tank (2), and aft auxiliary tank (3) on each side for dents and other damages as follows:
 - a. A dent must not be more than **10 square-inches**.
 - b. The dents in any one panel must not be more than **100 square-inches**.
 - c. Dents shall be at least **20 inches** apart.
 - d. Dents must not contain fractures or punctures.
2. Inspect forward auxiliary fuel tank (1), main tank (2), and aft auxiliary tank (3) on each side for corrosion and electrical bonding as follows:
 - a. On pods that are constructed with fiberglass upper skin perform the following:
 - b. Measure the electrical resistance in the riveted joint between the strap and the attachment T-Cap, the resistance should not exceed **0.0025 ohms**. If the resistance exceeds **0.0025 ohms**, perform repair procedure (Task 2-184).



- c. Visually inspect for corrosion on the fuel pods T-Caps. If corrosion is found remove pod (Task 10-7) main, (Task 10-23) forward, or (Task 10-28) aft. If corrosion is present on the T-Caps, perform repair procedure (Task 2-184).

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

Helicopters with Composite Fuel Pods

Tools:

Technical Inspection Tool Kit, NSN 5180-00-323-5114
 Bond Test Unit
 X-Ray Unit

Materials:

None

Personnel Required:

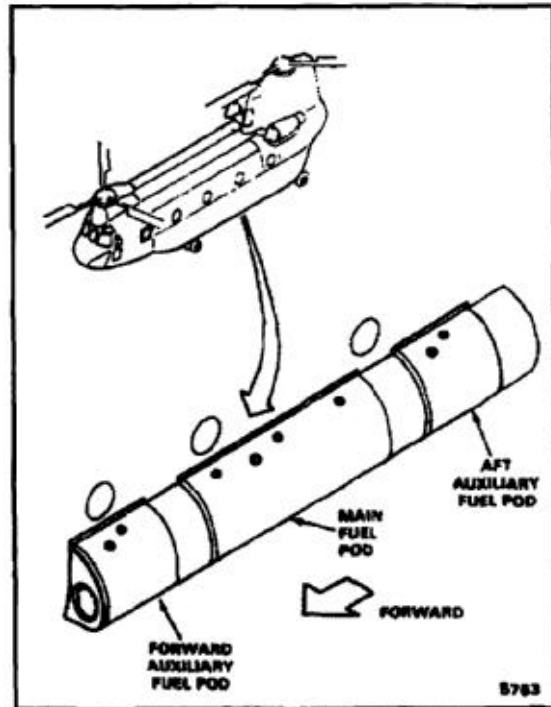
Inspector

References:

TM 1-1520-253-23
 Task 2-184
 Task 10-7
 Task 10-23
 Task 10-28

Equipment Condition:

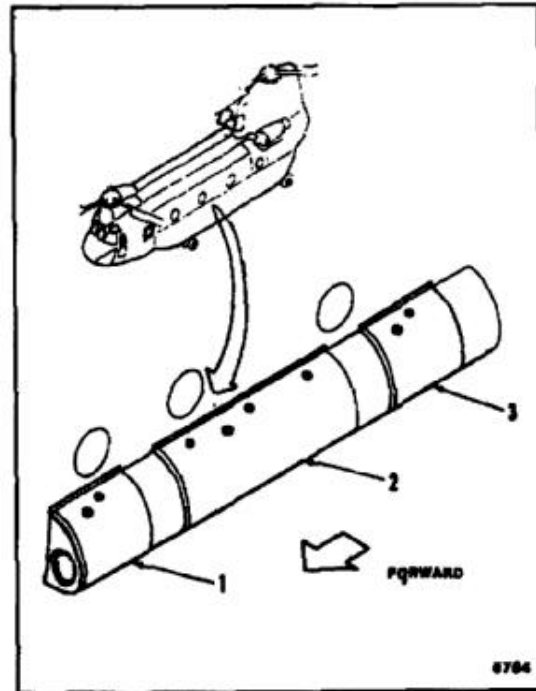
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Helicopter Grounded (Task 1-29)



2-182.1 INSPECT COMPOSITE FUEL PODS (Continued)

2-182.1

1. Inspect forward auxiliary pod (1), main pod (2), and aft auxiliary pod (3) on each side of helicopter for damage that penetrates the skin.
 - a. Auxiliary pods (1 and 3): Damage that covers **500 square-inches** or less is repairable. More than **500 square-inches** is cause for replacement.
 - b. Check for surface damage such as abrasions, cracks, or dents. All surface damage is repairable.
2. Inspect forward auxiliary fuel tank (1), main tank (2), and aft auxiliary tank (3) on each side for corrosion and electrical bonding as follows:
 - a. On pods that are constructed with fiberglass upper skin perform the following:
 - b. Measure the electrical resistance in the riveted joint between the strap and the attachment T-Cap. The resistance should not exceed **0.0025 ohms**. If the resistance exceeds **0.0025 ohms**, perform repair procedure task.
 - c. Visually inspect for corrosion on the fuel pods T-Caps. If corrosion is found remove the pod, (Task 10-7) main, (Task 10-23) forward, or (Task 10-28) aft. If corrosion is present on the T-Caps, perform repair procedure (Task 2-184). No voids allowed in honeycomb. If a void is suspected, refer to TM 1-1520-253-23.
 - d. No fluids allowed in honeycomb. If a fluid is suspected, refer to TM 1-1520-253-23.

**FOLLOW-ON MAINTENANCE:**

Repair composite pod as required (Tasks 2-187.1 thru 2-187.7).

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-184
Tasks 2-186 thru 2-187.7**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. There are three pods along the lower part of each side of the fuselage. On each side, there is one large center pod, one small forward pod, and one small aft pod. The large pods contain the main fuel tanks. The smaller pods contain the forward and aft auxiliary fuel tanks.
2. Some helicopters have pods made of an aluminum honeycomb core sandwiched between skins of aluminum or fiberglass. Repairs to these pods are classified as minor repairs (Task 2-184), major repairs (Task 2-186), and repairs requiring replacement (Task 2-187).
3. Some helicopters have composite pods made of Nomex honeycomb core sandwiched between fiberglass skins. Refer to Tasks 2-187.1 thru 2-187.7 for repairs.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-604

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 1-186
Task 2-12
Task 2-182
Task 2-182.1
Task 10-21
Task 10-26
Task 10-30**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Minor repairs are limited to damage to skin or end ribs that does not exceed **10 percent** of skin thickness.
2. Repair damage by burnishing (Task 2-12).
3. If the electrical resistance does not meet the inspection criteria in Task 2-182.1, repair the bonding strap as follows:
 - a. Remove corrosion from the attaching bolts and the strap inside diameter.
 - b. Add another grounding strap from supply, or fabricate one similar to the existing strap from an aluminum sheet.
 - c. Attach the new strap to a bolt on the filler cap in the same manner as the existing strap. Attach the other to the nearest pod T-Cap fuselage mounting bolt. Re-test the electrical resistance (Task 2-182 or 2-182.1).
4. If corrosion is found, remove the upper T-Cap P/N 114S5521-44/-45/-46/-47 auxiliary pods or P/N 114S5520-31 main pods.
 - a. Using 60 grit or finer aluminum oxide paper or cloth, or with A-A-58054, Type 1, Grade A or finer abrasive material. Remove corrosion from the T-Cap. The maximum allowable amount of material that can be removed from the T-Cap is **0.003** (minimum allowable thickness of the T-Cap is **0.054**).
 - b. If T-Cap cannot be salvaged, replace with a new section of T-Cap (Task 1-186).
 - c. Re-install the pod, (Task 10-21) main, (Task 10-26) forward, or (Task 10-30) aft.

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

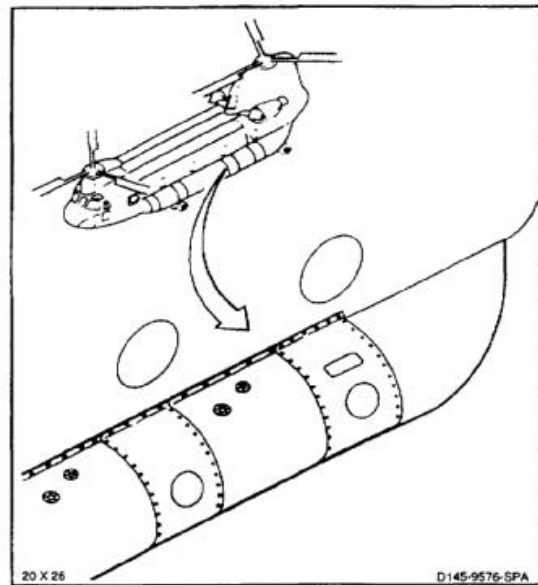
Penetrating Lubricant (E236)

Personnel Required:

Medium Helicopter Repairer (2)

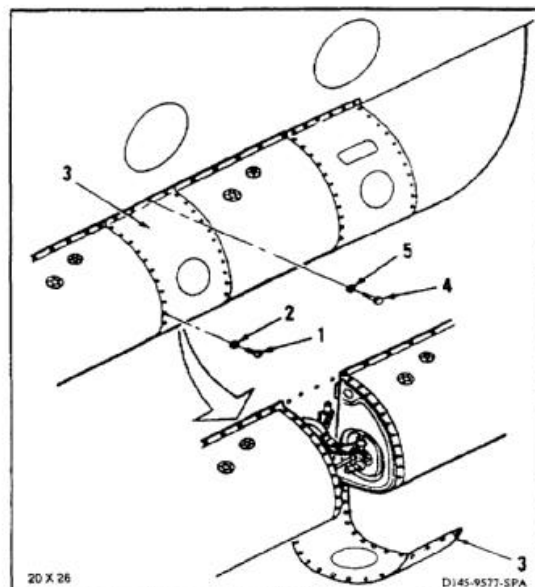
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off

**NOTE**

Procedure is same to remove left or right fuel pod panels. Left fuel pod panels shown here.

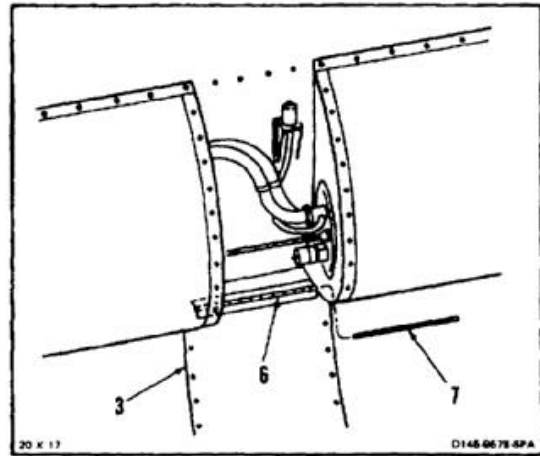
1. Remove 35 screws (1) and washers (2) from fuel pod panel (3).
2. Have helper support panel (3).
3. Remove four bolts (4) and washers (5). Lower panel (3).



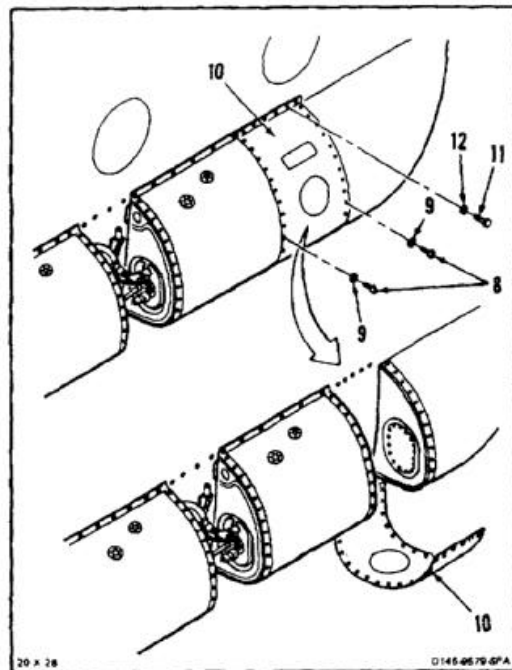
2-185 REMOVE FUEL POD PANELS (Continued)

2-185

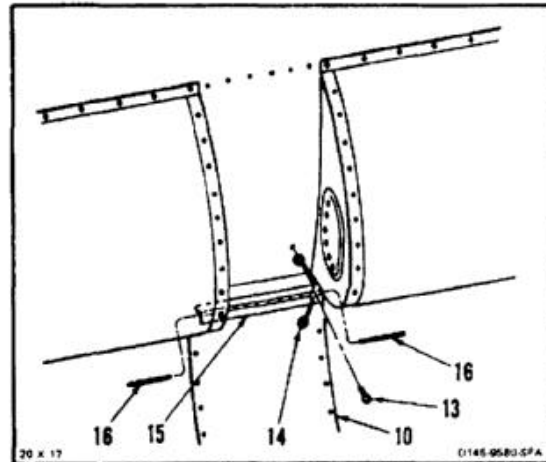
4. Spray hinge (6) on panel (3). Use penetrating lubricant (E236).
5. Remove lockwire. Remove hinge pin (7).
6. Remove panel (3).



7. Remove 35 screws (8) and washers (9) from fuel pod panel (10).
8. Have helper support panel (10).
9. Remove six bolts (11) and washers (12). Lower panel (10).



10. Remove screw (13) and bonding jumper (14).
11. Spray hinge (15) on panel (10). Use penetrating lubricant (E236).
12. Remove lockwire. Remove two hinge pins (16).
13. Remove panel (10).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

2-608

2-185.1 PREPARE LEFT OR RIGHT FUEL POD PANELS FOR INSTALLATION

2-185.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Drill Size F
- Drill Size 3
- Sander, Portable

Materials:

- Epoxy Primer (E292.1)
- Gloves (E184.1)

Personnel Required:

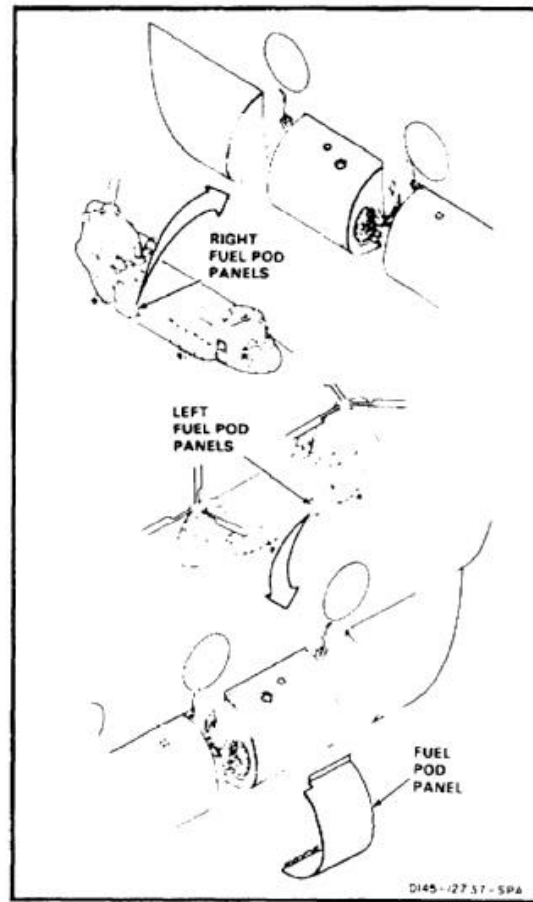
- Medium Helicopter Repairer
- Inspector

References:

- TM 55-1520-240-23P
- Task 2-188

Equipment Condition:

Left or Right Fuel Pod Panel Remove (Task 2-185)



NOTE

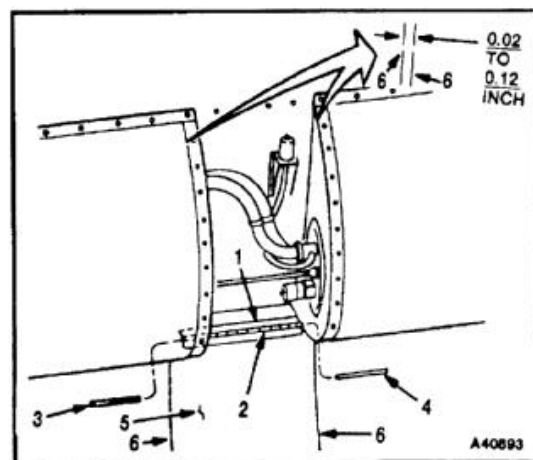
Procedure is same to prepare left or right fuel pod panels. Left forward fuel pod panel is shown here.

1. Align fuselage hinge half (1) with panel hinge half (2). Install two hinge pins (3 and 4).



Do not force panel to fully closed position. Damage to panel can occur.

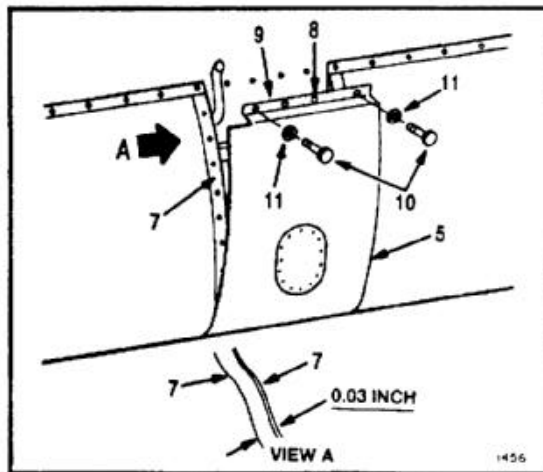
2. Partly close panel (5). Mark and trim panel to fit flush with mating edges (6). Gap between mating edges must be **0.02 to 0.12 inch**. Use portable sander to trim panel.



3. After trimming panel (5), check gap between mating surfaces (7). Gap must not be more than **0.03 inch**.

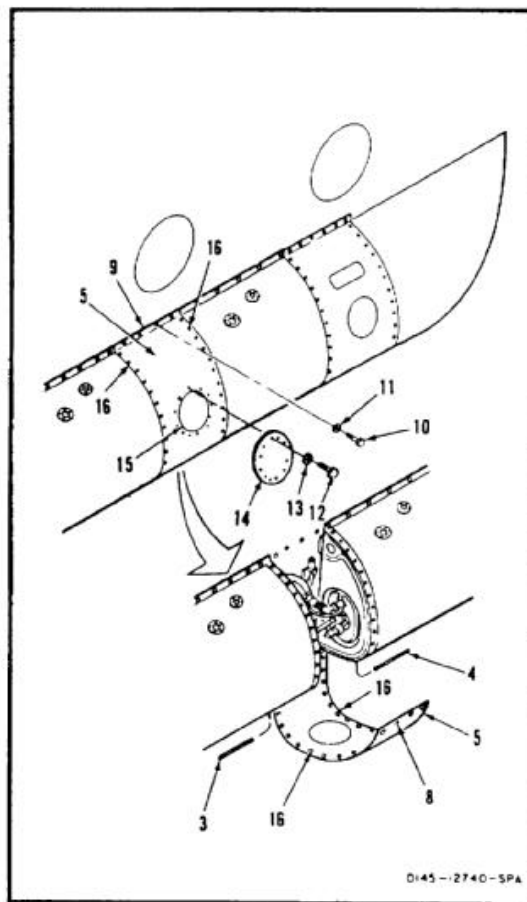
INSPECT

4. Have helper hold panel (5) fully closed. Working from inside aircraft, mark four bolt holes (8) on support angle (9). Use holes in fuselage as guide.
5. Drill four holes (8) in angle (9). Deburr holes. Use drill size F. Use wood block to support angle.
6. Close panel (5) and install two bolts (10) and washers (11) in end holes of angle (9).



7. Remove 13 screws (12) and washers (13) from door (14). Remove door.
8. Working through access (15), mark 70 screw holes (16) on panel (5).
9. Remove two bolts (10) and washers (11) from angle (9).
10. Remove two hinge pins (3 and 4). Remove panel (5).
11. Drill 70 holes (16) in panel (5). Deburr holes. Use drill size 3.

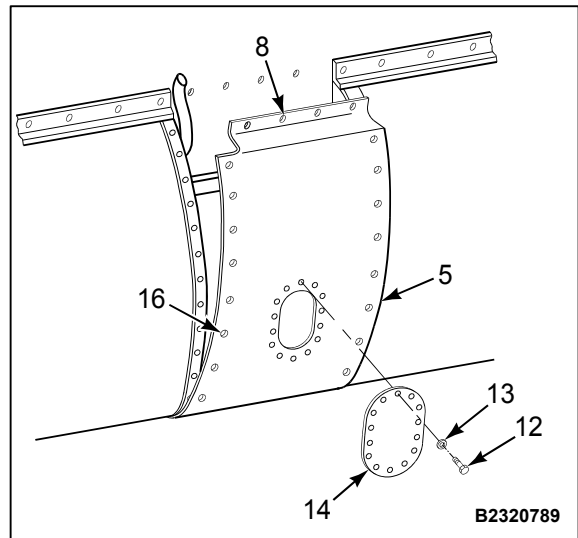
INSPECT



WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

12. Apply epoxy primer (E292.1) to drilled holes (8 and 16). Wear gloves (E184.1).
13. Position door (14) on panel (15). Install 13 screws (12) and washers (13).

**INSPECT****FOLLOW-ON MAINTENANCE:**

Install fuel pod panels (Task 2-188).

END OF TASK

INITIAL SETUP

Applicable Configurations:Without **4****Tools:**

Airframe Repairman's Tool Kit, NSN
5180-00-323-4876
Craig Counterbore 850-20
SLT 600T9 Mask Support
SLT 600G9 Guide Tool
Router
Vacuum Source
Spatula

Materials:

Abrasive Paper (E8, E9, and E13)
Acetone (E20)
Cloth, Cleaning (E120)
Core (E149)
Adhesive (E27 or E41)
Sealant Tape (E396)
Teflon-Impregnated Fabric (E170)
Glass Cloth (E132)
Polyvinyl Sheet (E284)
Masking Tape (E388)
Sealant (E336 or E470)
Epoxy Primer (E292.1)
Gloves (E184.1)
Goggles (E473)

Parts:

Aluminum Alloy Sheet-
0.012 Inch
0.016 Inch
0.032 Inch
4130 Steel Sheet-
0.032 Inch
0.060 Inch
Plywood Sheet, 1/8 Inch
Sheetmetal Screws
Rivets
Aluminum Tube
1/2 Inch Diameter
10 Inches Long
Shur-Loc Inserts

Personnel Required:

Aircraft Structural Repairer (2)
Inspector

References:

TM 1-1500-204-23
Task 2-13
Task 2-337
Task 2-339
Task 2-351
Task 2-358

Equipment Condition:

Off Helicopter Task

General Safety Instructions:**WARNING**

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Sealant (E336 or E470) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

PATCH SKIN PANELS**NOTE**

Pod sections having repair areas greater than **20 inches** must be replaced.

1. Patch skin panels having damage that does not exceed **25 percent** of skin area between boundary members. Repairs must be clear of boundary members (Task 2-13) (TM 1-1500-204-23).
2. Skin panels having damage that exceeds **25 percent** of skin area or which interferes with structural boundary members must be replaced (Task 2-13) (TM 1-1500-204-23).

REPAIR CORE VOIDS OR DELAMINATIONS

3. Repair voids or delamination in honeycomb structures that are greater than **4.0 square-inches**.
4. Prepare damage-area surface as follows:
 - a. Sand surface. Use abrasive paper (E13).
 - b. Wipe surface clean. Use cloth (E120) damp with acetone (E20). Wear gloves (E184.1).
 - c. Wipe surface dry. Use cloth (E120). Wipe until cloth does not pick up color.
5. Remove damaged material as follows:
 - a. Draw outline around damage area. Keep corners to minimum radius of **2 inches**.
 - b. Set router bit to leave at least **0.05 inch** of core on lower skin.
 - c. Make template to match damage outline. Use **1/8 inch** plywood. Secure template to skin over damage. Use sheetmetal screws.
 - d. Cut outline around damage area.

- e. Remove cutout skin. Use pliers.
- f. Remove remaining core. Use pocket knife.
- g. Sand remaining skin. Use abrasive paper (E9).
- h. Remove debris from repair area. Use vacuum source.
6. Prepare repair materials as follows:
 - a. Cut piece of core material (E149) to fit cutout.
 - b. Cut insert, from same material as skin removed, to fit cutout.
 - c. Cut patch, from same material as skin removed, **1 inch** larger than cutout.



Do not soak abraded areas. Repair can be contaminated.

- d. Abrade both sides of insert and inside of patch. Abrade area **1 inch** wide around cutout. Use abrasive paper (E8).
- e. Clean insert, patch, and abraded area around cutout. Use cloth (E120) damp with acetone (E20). Wear gloves (E184.1).
7. Mix adhesive (E27 or E41). Follow manufacturer's instructions.
8. Apply adhesive (E27 or E41) to skin in cutout and core mating surfaces. Wear gloves (E184.1).
9. Position core in cutout.
10. Coat skin insert on one side. Use adhesive (E27 or E41).
11. Position insert with adhesive against core.
12. Apply adhesive (E27 or E41) to insert and cleaned area around insert.

13. Position skin patch on repair area.
14. Vacuum-bag repair area as follows:
 - a. Apply border of sealant tape (E396), **2 inches** outside of repair area.
 - b. Cover patch. Use Teflon-impregnated fabric (E170).
 - c. Cover Teflon-impregnated fabric. Use glass cloth (E132).
 - d. Wrap end of **0.5 inch** aluminum tube. Use 2 layers of glass cloth (E132) and masking tape (E388).
 - e. Wrap band of sealant tape (E396) around tube **2 inches** from end of tube.
 - f. Press sealant tape band on tube into sealant tape border.
 - g. Press polyvinyl sheet (E284) into sealant tape border.
 - h. Connect tube from vacuum source to aluminum tube.
 - i. Apply vacuum of **24 inches of Hg** to repair less than **1 square-foot**. Apply vacuum of **29 inches of Hg** to repair larger than **1 square-foot**.
15. Cure repair, with vacuum applied for **12 hours at 70°F (21°C)**.
16. Remove vacuum source.
17. Remove polyvinyl sheet, Teflon-impregnated fabric, tube, and sealant tape.
18. Check repair for voids. Use coin-tap method.
19. Fill voids in overlap areas, or voids over **2 square-inches** as follows:
 - a. Drill **0.040 inch** holes in void area.
 - b. Inject adhesive (E41) into holes.

INSPECT

20. Replace pod sections when skin damage in honeycomb section area exceeds **100 square-inches** after trimming.

21. Replace pod sections that have cracks over **6 inches** long or voids over **1200 square-inches**.

REPAIR SKIN AND CORE DAMAGE**NOTE**

Pod sections with repair areas closer together than **20 inches** must be replaced.

22. Repair damage to one or both skins and core as follows:
 - a. Prepare surface. Refer to step 4.
 - b. Remove damaged skin and core. Refer to step 5.
 - c. Prepare repair materials as in step 6. Use aluminum alloy in an all-aluminum area. In a composite area, use composite skin for insert, **0.016 inch** aluminum alloy for an external patch and **0.012 inch** aluminum for internal patch. Match skin inserts in areas of aluminum alloy and composite skin areas using material replaced in each section. Patch with aluminum alloy.
 - d. Mix adhesive (E27 or E41). Wear gloves (E184.1). Refer to step 7.
 - e. Apply adhesive to mating surfaces of skin and core.
 - f. Position core, inserts, and skin patches as shown.

NOTE

Rivets can be used to position parts for bonding in composite areas. Rivets must not interfere with contact. There shall be no voids nor moisture. Rivets are required for bonding aluminum alloy skin to provide electrical conductivity.

- g. Install rivets to position patches.

- h. Apply vacuum bag to repair area. Refer to step 14.
- i. Cure repair, with vacuum applied, for **12 hours at 70°F (21°C)**.
- j. Remove vacuum source.
- k. Remove vacuum bag materials. Refer to step 16.

INSPECT

- l. Install one row of rivets, at **1 inch** pitch, to aluminum patches only.

REPAIR HONEYCOMB STRUCTURES AND SCOTCHPLY EDGE MEMBERS

NOTE

Pod sections with repair areas closer together than **20 inches** must be replaced.

- 23. Repair honeycomb structures and Scotchply edge members. Refer to TM 1-1500-204-23 and Tasks 2-339 and 2-358.
- 24. Repair pod-end ribs if minimum bond width is **1.0 inch** and skin patch can be riveted.

REPAIR DENTS

NOTE

Pod sections with repair areas closer together than **20 inches** must be replaced.

- 25. Repair dents not larger than **10 square-inches**, nor deeper than **15 percent** of panel thickness or **0.15 inch**, whichever is less. Repair as follows:

NOTE

Total dent area on a pod shall not exceed **100 square-inches**.

- a. Sand dent lightly. Use abrasive paper (E13).
- b. Wipe dent clean. Use cloth (E120) damp with acetone (E20). Wear gloves (E184.1). Wipe until cloth is clean.
- c. Flush dent. Use water. If water film breaks, repeat steps a and b.

- d. Mix adhesive (E41). Follow manufacturer instructions.
- e. Apply adhesive (E41). Use spatula.

NOTE

Working life of adhesive is **2 hours**.

- f. Cure adhesive **8 hours at 70°F (21°C)**.
- g. Blend repair. Use abrasive paper (E13).

INSPECT

- 26. Replace pod sections that have dents larger than **10 square-inches** or deeper than **0.15 inch or 15 percent** of material thickness. Total dent area in a pod section shall not exceed **100 square-inches**. Dents shall be at least **20 inches** apart.

REPAIR DOUBLER AROUND FILLER OR TANK UNIT

- 27. Remove damaged material. Refer to step 5. Be sure to remove any corrosion.
- 28. Remove rivets.
- 29. Repair as follows:
 - a. Cut patch of **0.016 inch** aluminum alloy to match cutout skin.
 - b. Cut doubler of **0.032 inch** aluminum alloy to match doubler around filler neck and extend **2 inches** beyond patch to step a.
 - c. Cut doubler to match original doubler around filler neck.
 - d. Bond doublers on repair area. Follow steps 7 thru 17.

WARNING

Sealant (E336 or E470) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

- e. Install filler neck. Use sealant (E336 or E470). Install rivets to secure filler neck.

- f. Install rivets around doubler at **1 inch** pitch. Seal rivets. Use sealant (E336 or E470).

INSPECT**REPLACE SHUR-LOC INSERTS**

30. Replace Shur-Loc inserts removed with damaged material as follows:
- Find position of insert by alignment with other inserts, or from another helicopter.
 - Mark position and drill **3/16 inch** diameter hole through honeycomb. Counterbore each skin. Run counterbore through honeycomb. Use Craig 850-20 counterbore.
 - Install Shur-Loc insert from inside. Use SLT 600T9 mask support and guide tool SLT 600G9.
 - Pot insert. Use adhesive (E41). Pot until adhesive flows from both holes.
 - Cure adhesive for **12 hours at 70°F (21°C)**.

INSPECT**REPAIR T-CAP EXTRUSION**

31. Repair T-cap extrusion as follows:
- Remove section of damaged T-cap back to point in line with nearest primary fuselage former.
 - Clamp new section of extrusion in place.
 - Drill **0.161 inch** diameter holes in extrusion. Use existing pod rivet locations.
 - Fasten extrusion in place temporarily.
 - Remove five rivets that secure existing extrusion to pod.
 - Make splice angle **6-3/4 inches** long, **2 inches** wide, and **77°** angle. Use **0.060 inch** 4130 steel.

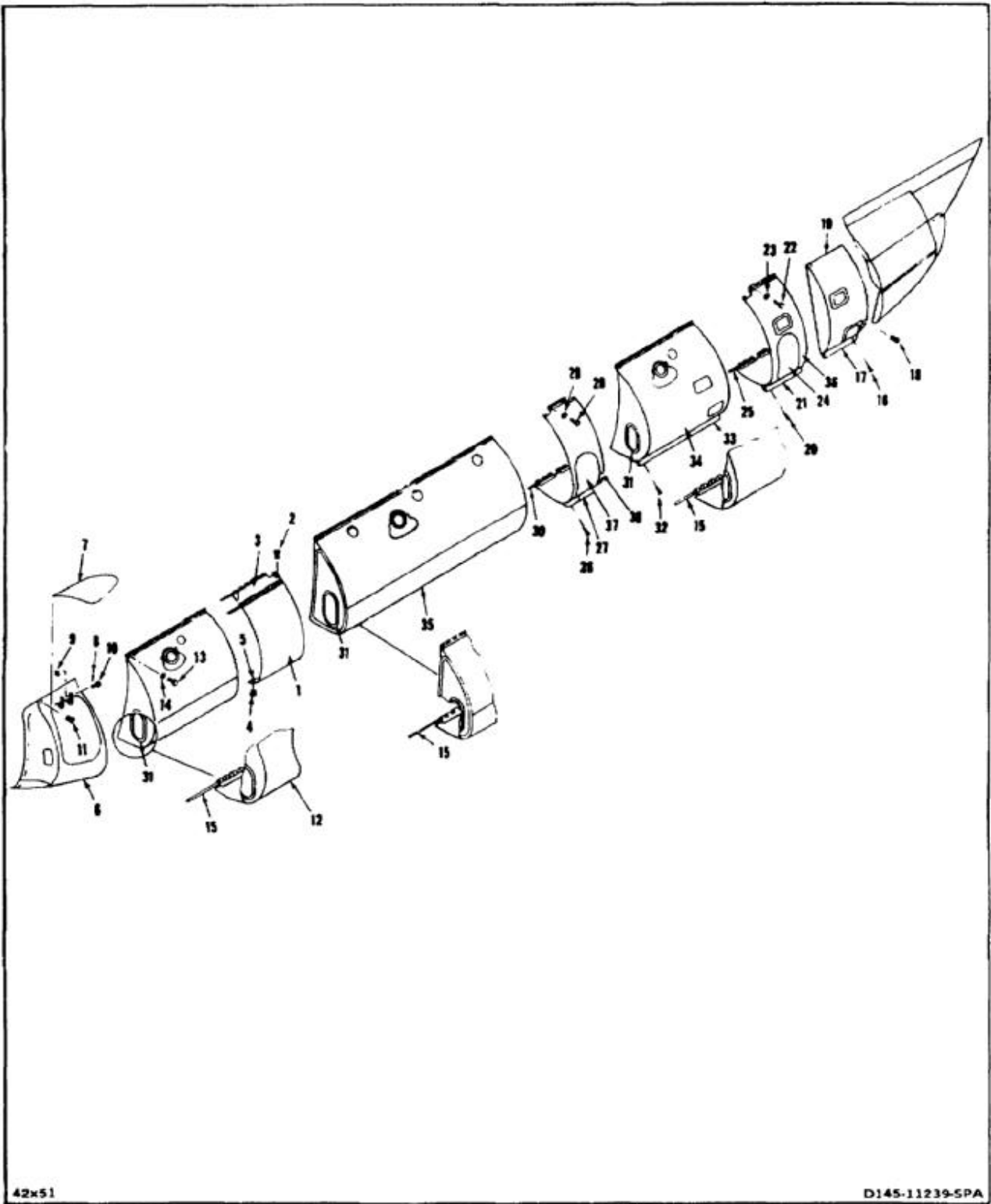
- Position splice angle as shown. Check that angle matches extrusion angle. Clamp angle in place.
- Drill 10 matching holes in angle.
- Remove clamps, temporary fasteners, and parts.
- Deburr holes.

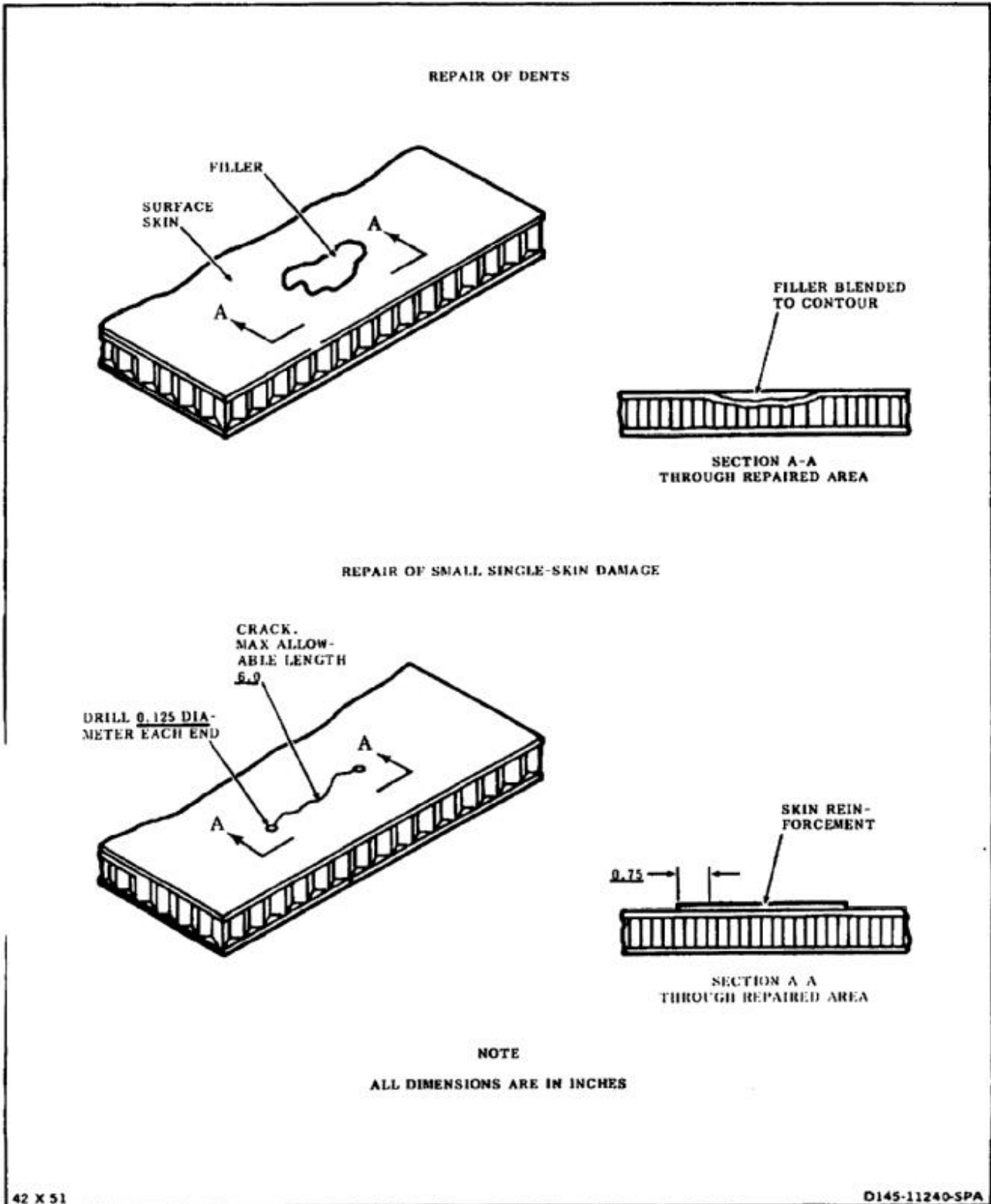
INSPECT

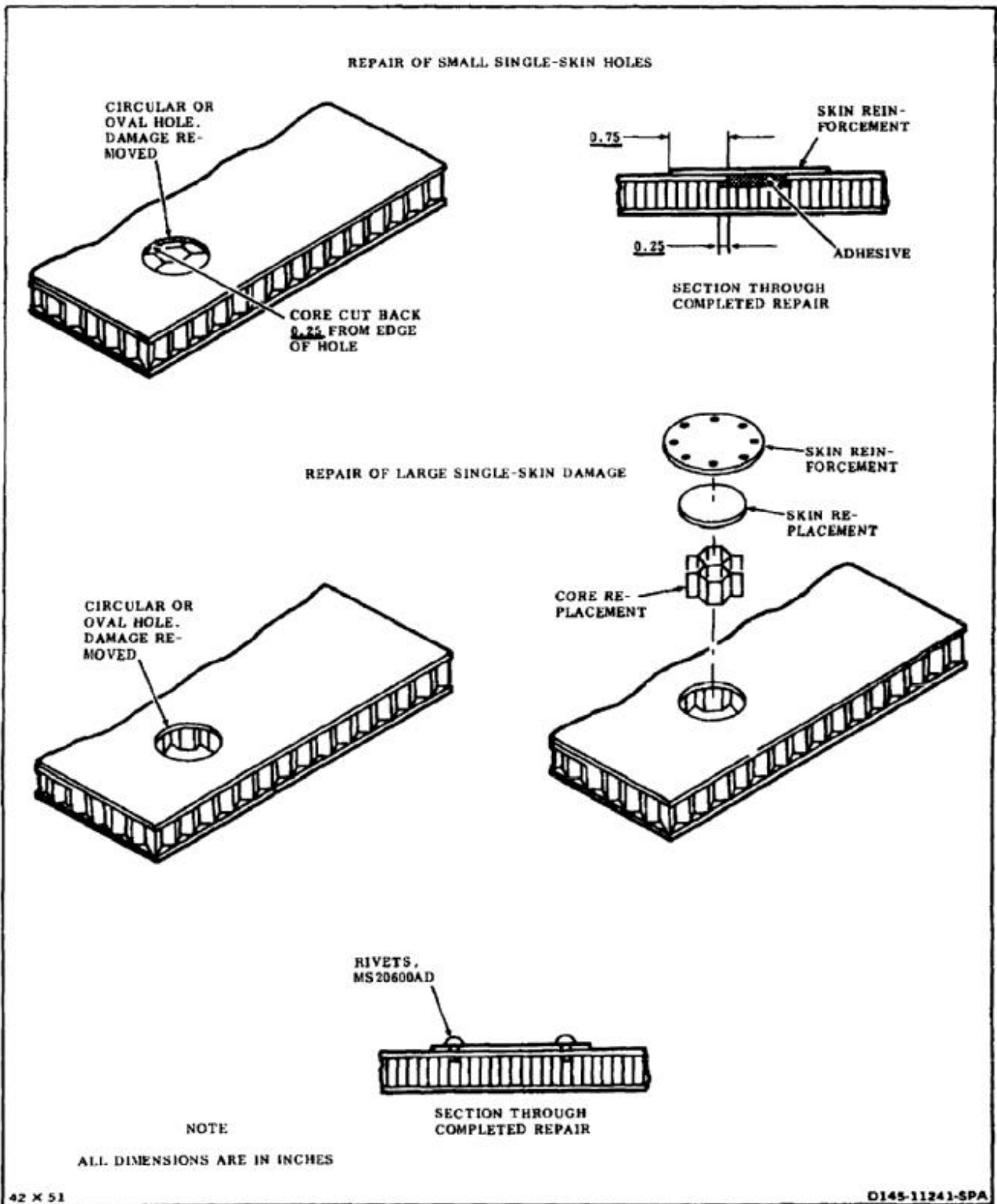
- Apply **two coats** of epoxy primer (E292.1) to all exposed and faying surfaces of repair. Wear gloves (E184.1).
- Install replacement extrusion and splice angle. Use rivets. Position heads as shown.
- Have helper position pod on helicopter. Locate pod installation holes in repair parts. Use hole finder.
- Remove pod. Drill **1/4 inch** holes in T-cap.
- Locate and drill eight **0.161 inch** diameter holes, four on each side of splice plate. Position holes at **3/4 inch** pitch. Avoid pod installation holes.
- Countersink and deburr holes.
- Make splice plate **7-1/2 inches** long and **3/4 inch** wide. Use **0.032 inch** 4130 steel.
- Position splice plate over holes drilled in step o.
- Drill **0.061 inch** matching holes through splice plate and lower leg of T-cap.
- Remove splice plate. Deburr holes.

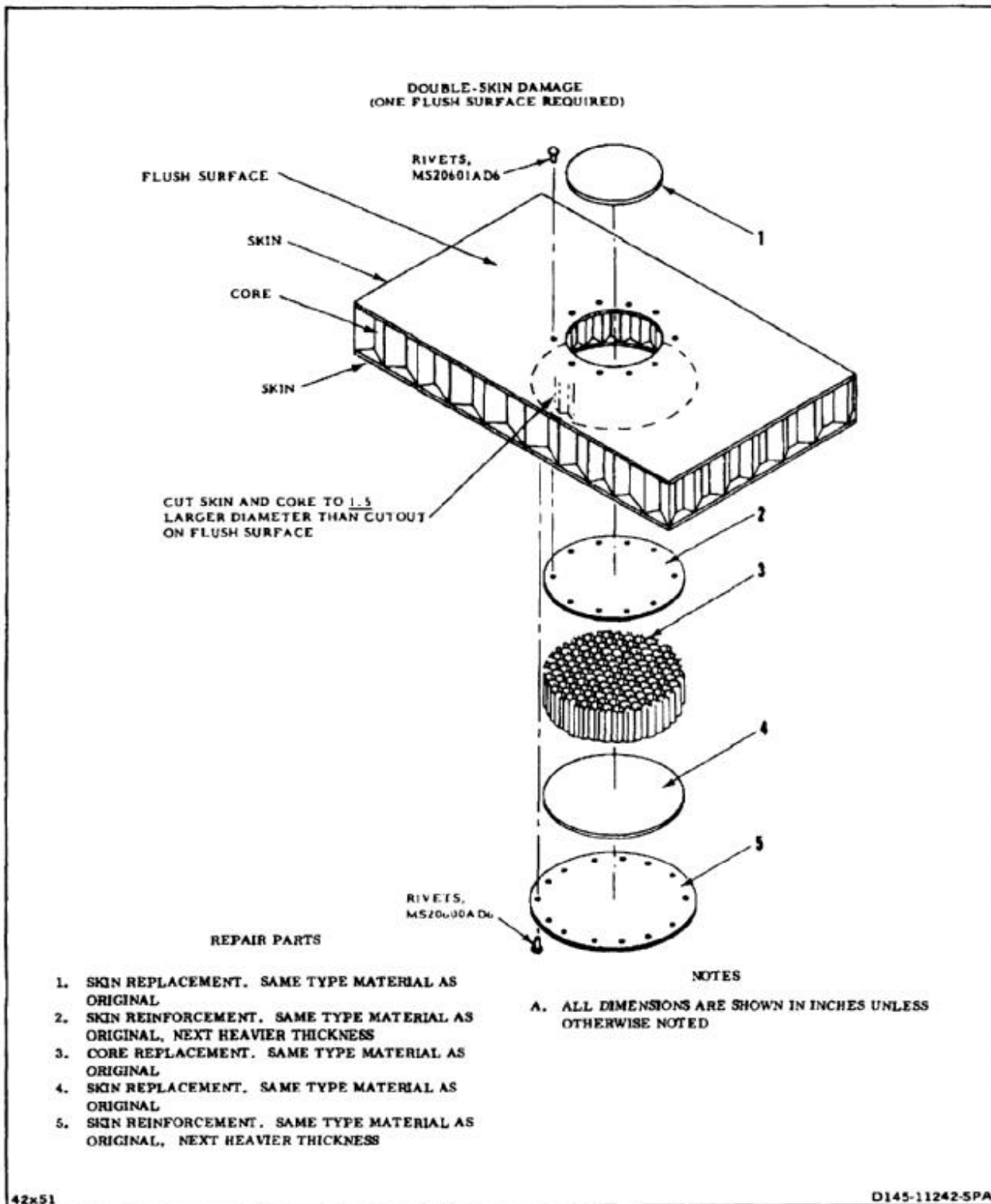
INSPECT

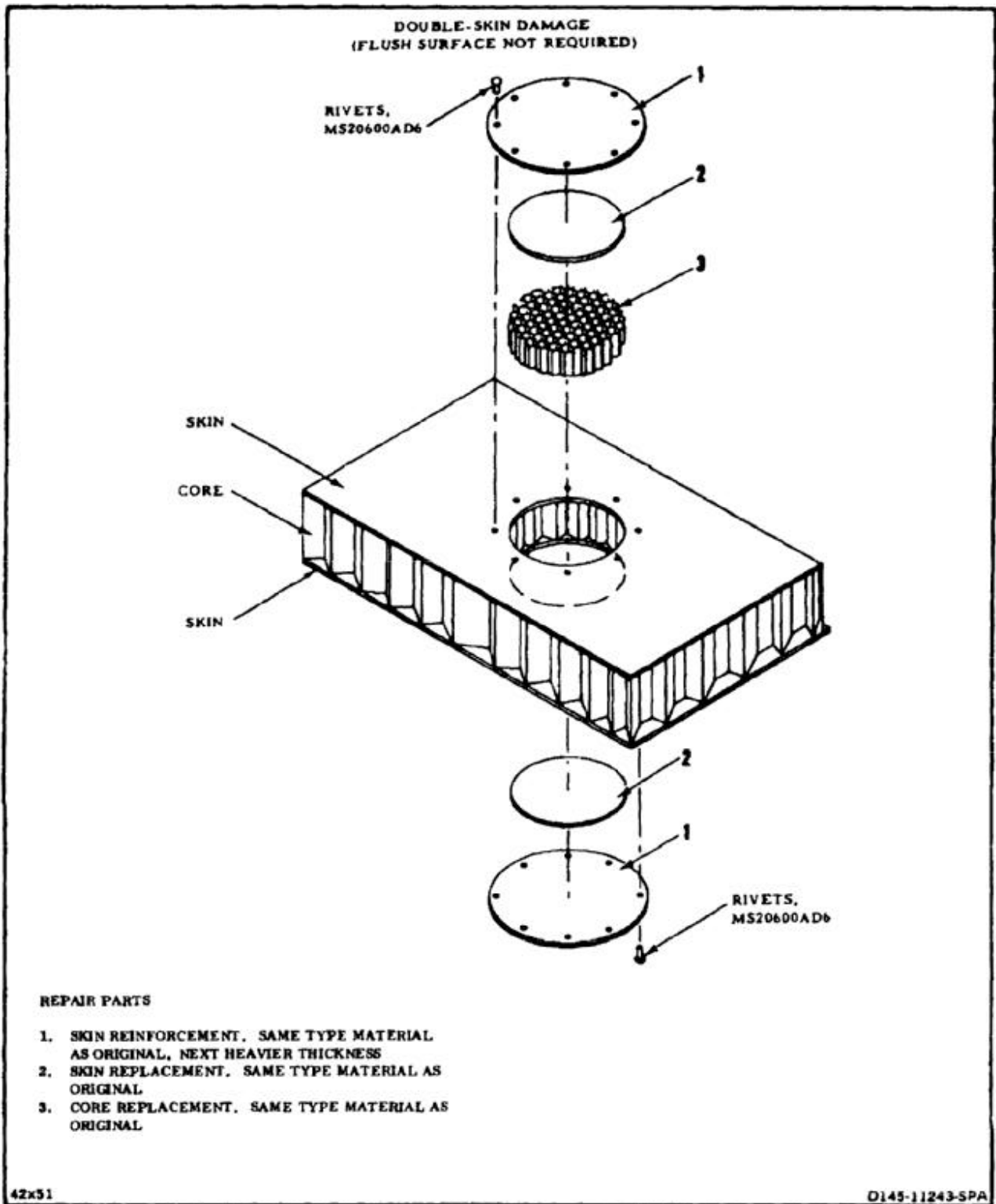
- Apply **two coats** of epoxy primer (E292.1) to all exposed metal and mating surfaces of splice plate. Wear gloves (E184.1).
- Install splice plate. Position rivet heads as shown.

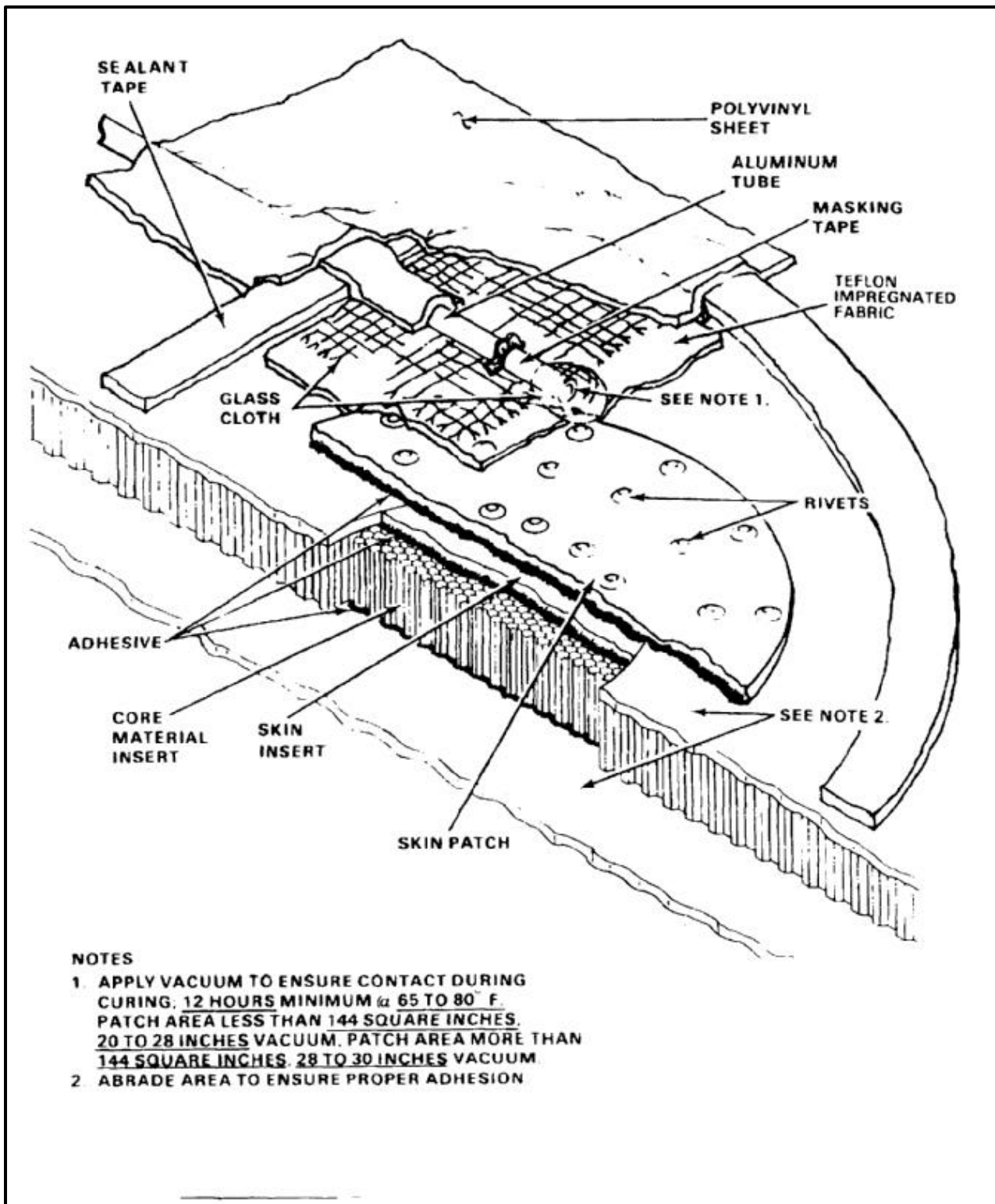


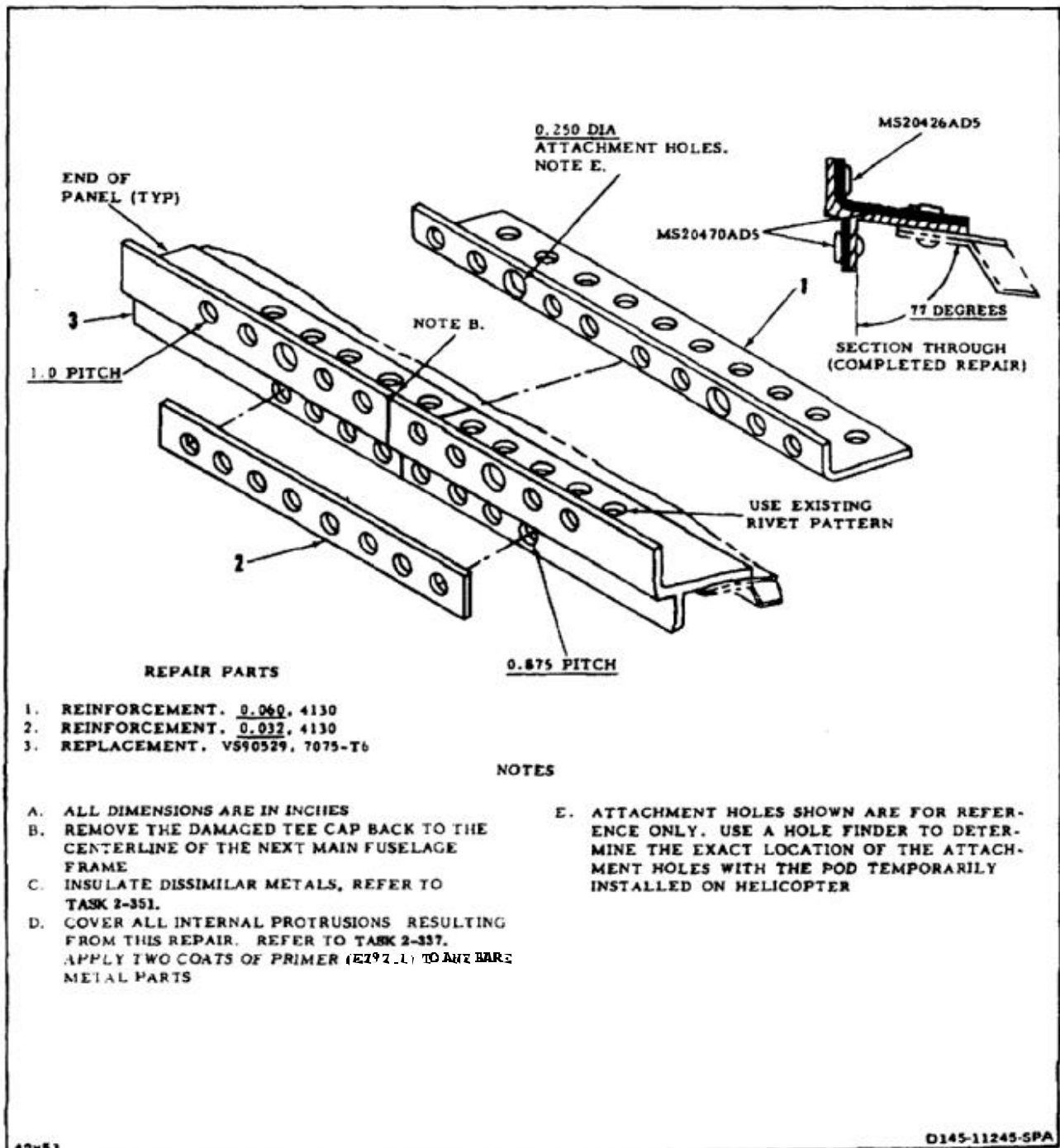












FOLLOW-ON MAINTENANCE:

- Apply anti-chafing tape (Task 2-337).
- Refinish (Tasks 2-346 and 2-348).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-13
Task 2-186**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Replace pod sections that have cracks over **6 inches** long, or voids over **1200 square-inches**. Replace pod sections that have dents larger than **10 square-inches**, or deeper than **0.15 inch or 15 percent** of material thickness. Total dent area in a pod section shall not exceed **100 square-inches**. Dents shall be at least **20 inches** apart (Task 2-13).
2. Replace pod sections if skin damage exceeds **25 percent** of skin area, or which interferes with structural boundary members (Task 2-13).
3. Replace pod sections when skin damage in honeycomb section areas exceeds **100 square-inches** after trimming (Task 2-186).
4. Replace pod sections with repair areas closer together than **20 inches**.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-624

2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR

2-187.1

INITIAL SETUP**Applicable Configurations:**With **4****Tools:**

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Vacuum Cleaner
 Vacuum Pump
 Explosion-Proof Heat Lamp, 250 Watt
 Sanding Block
 Bond Test Unit
 X-Ray Unit

Materials:

Abrasive Paper (E9)
 Acetone (E20)
 Gloves (E186)
 Screen (E324)
 Glass Cloth (E132)
 Masking Tape (E388)
 Sealing Tape (E396)
 Polyvinyl Sheet (E284)
 Temperature Indicating Strips (E413)
 Cloths (E120)

References:

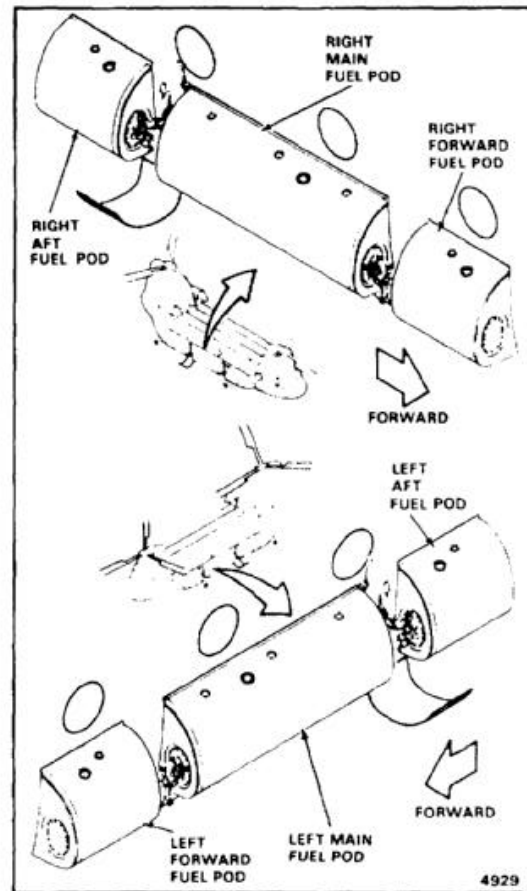
TM 1-1520-253-23

Personnel Required:

Aircraft Structural Repairer
 Inspector

Equipment Condition:

As Required



DETERMINE DAMAGE**WARNING**

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

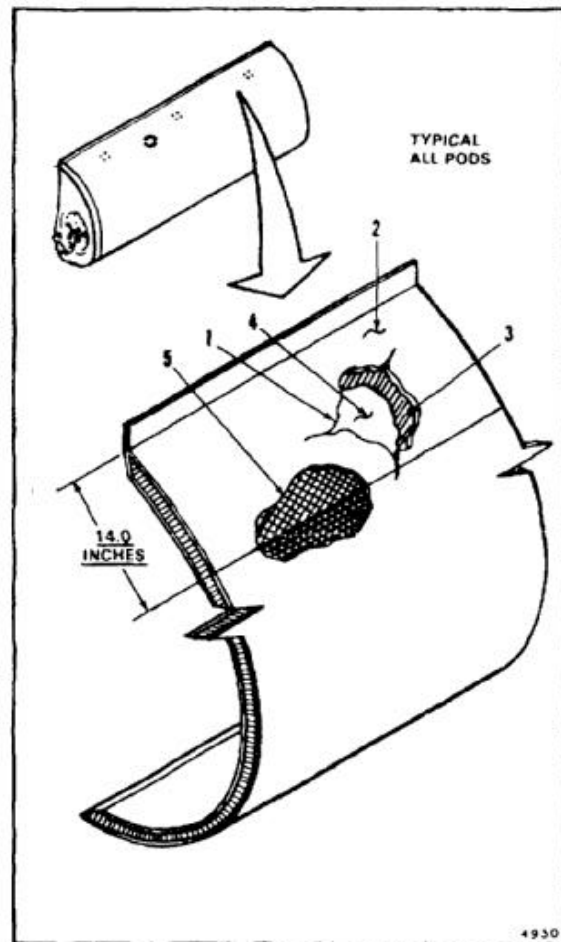
CAUTION

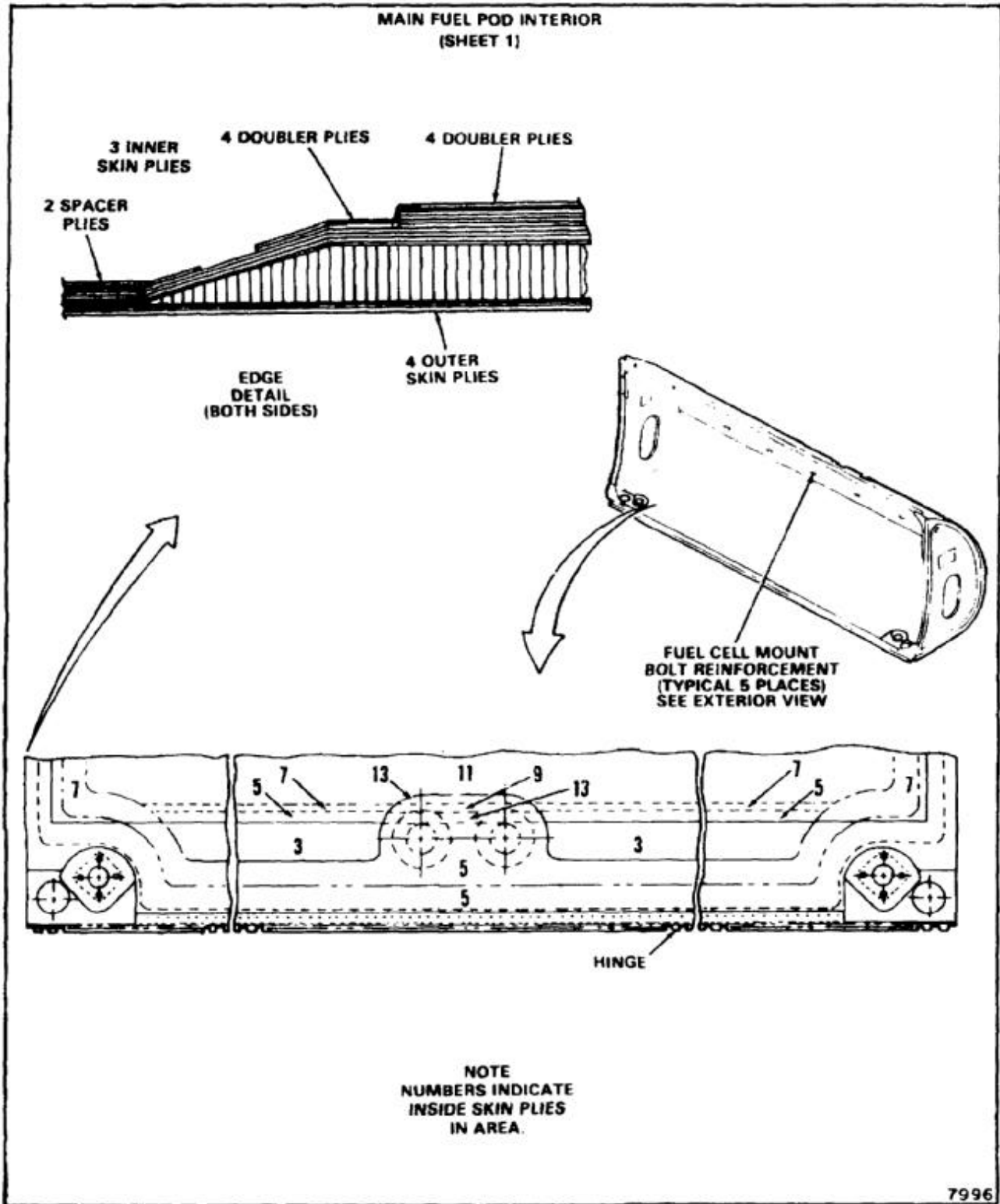
Chemical paint strippers will damage pod.

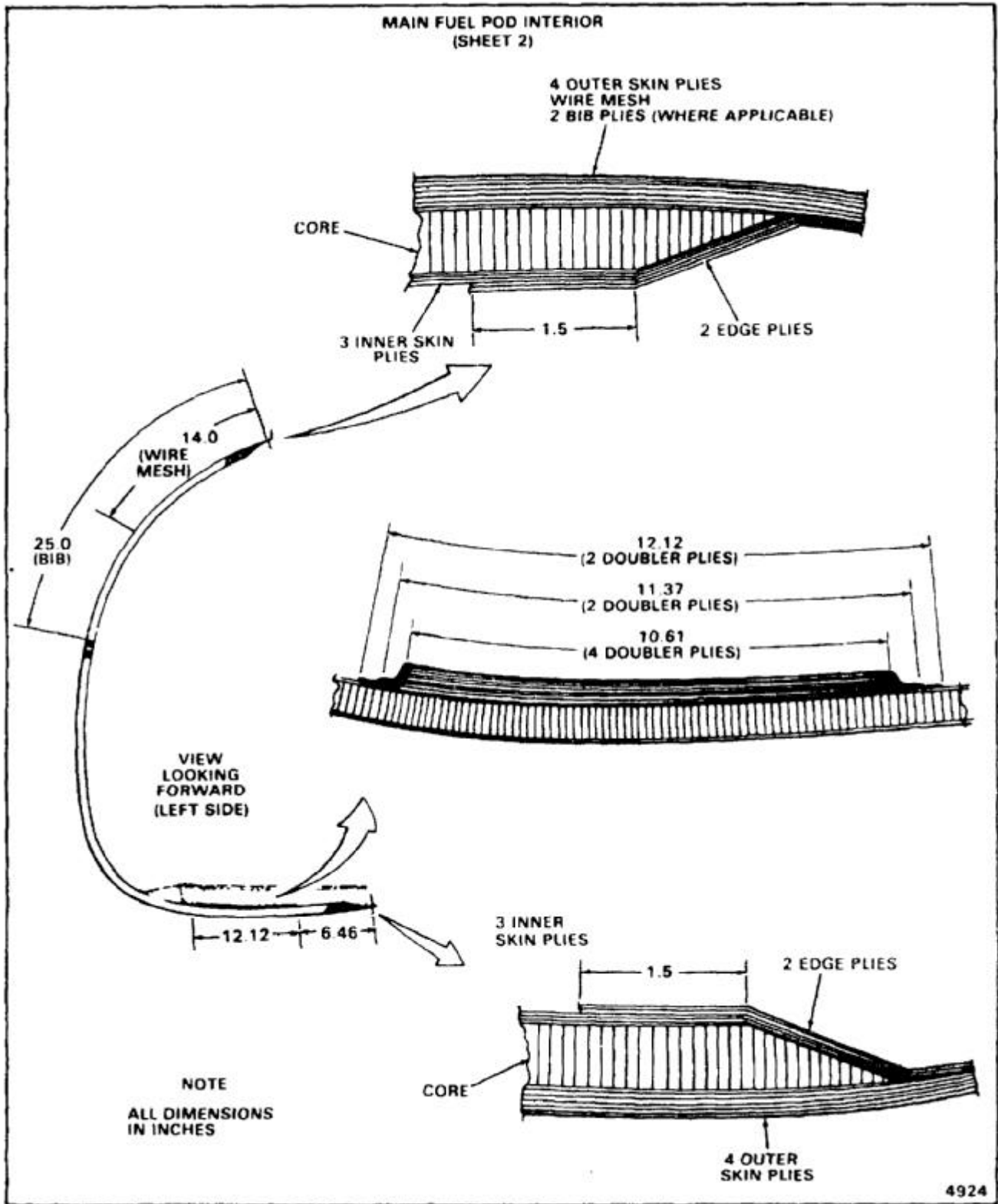
CAUTION

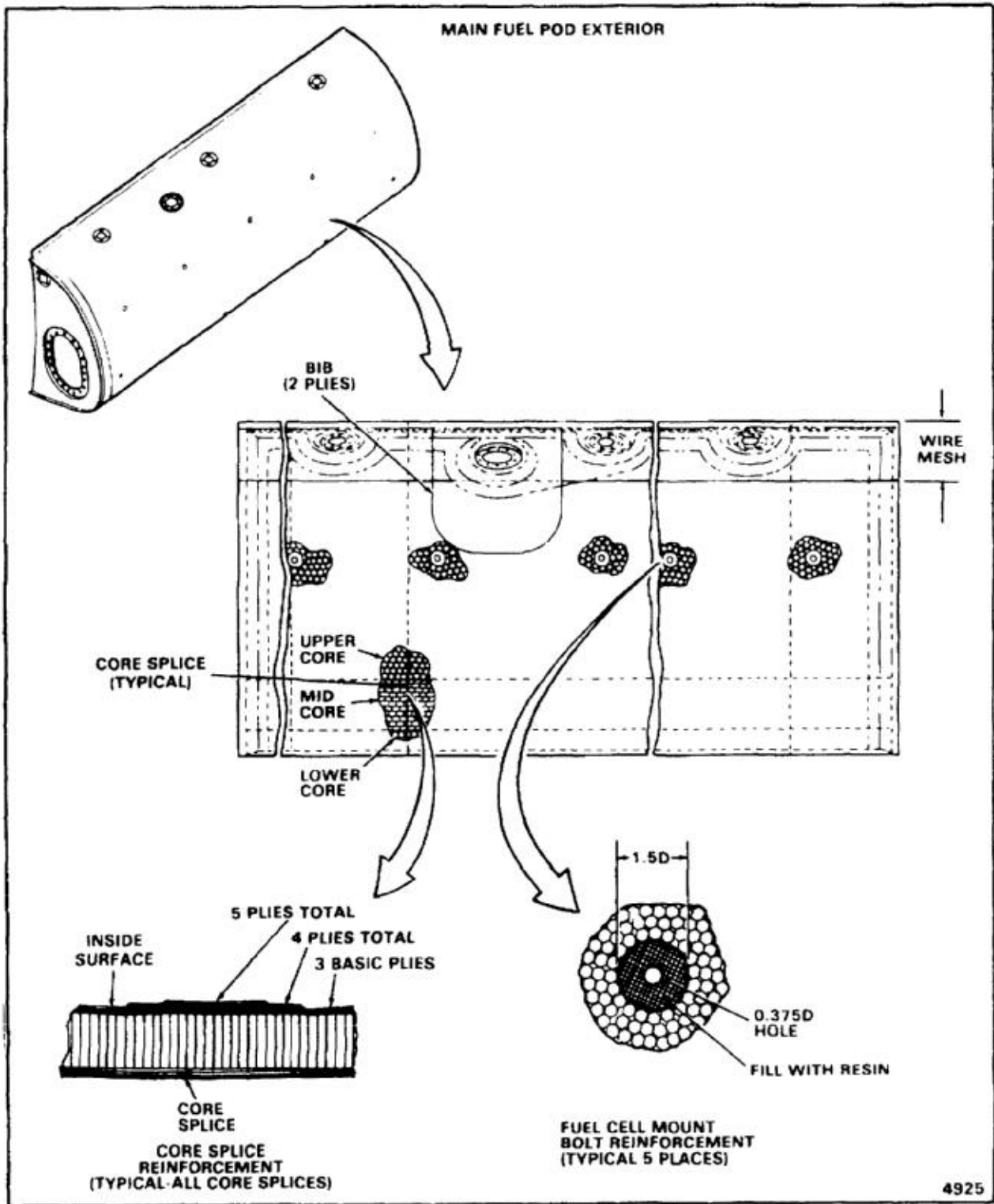
Do not soak tank with acetone. It will damage pod.

1. Clean damaged area (1). Use clean cloths (E120) damp with acetone (E20). Wear gloves (E186). Wipe dry with clean dry cloths.
2. Examine pod for type and location of damage. Note if damage is limited to surface skin (2) only or extends into core (3) or bottom skin (4). Note if damage goes through wire mesh (5).
3. Check area around damage for skin delamination. Tap area with a small metallic object such as a coin. A dull sound indicates delamination. No voids allowed. If a void is suspected, refer to TM 1-1520-253-23.
4. If damage penetrates surface skin (2), check core (3) for water, oil, fuel, dirt, or other foreign matter. No water, oil, fuel, dirt, or other foreign matter is allowed. If any of these are suspected, refer to TM 1-1520-253-23.

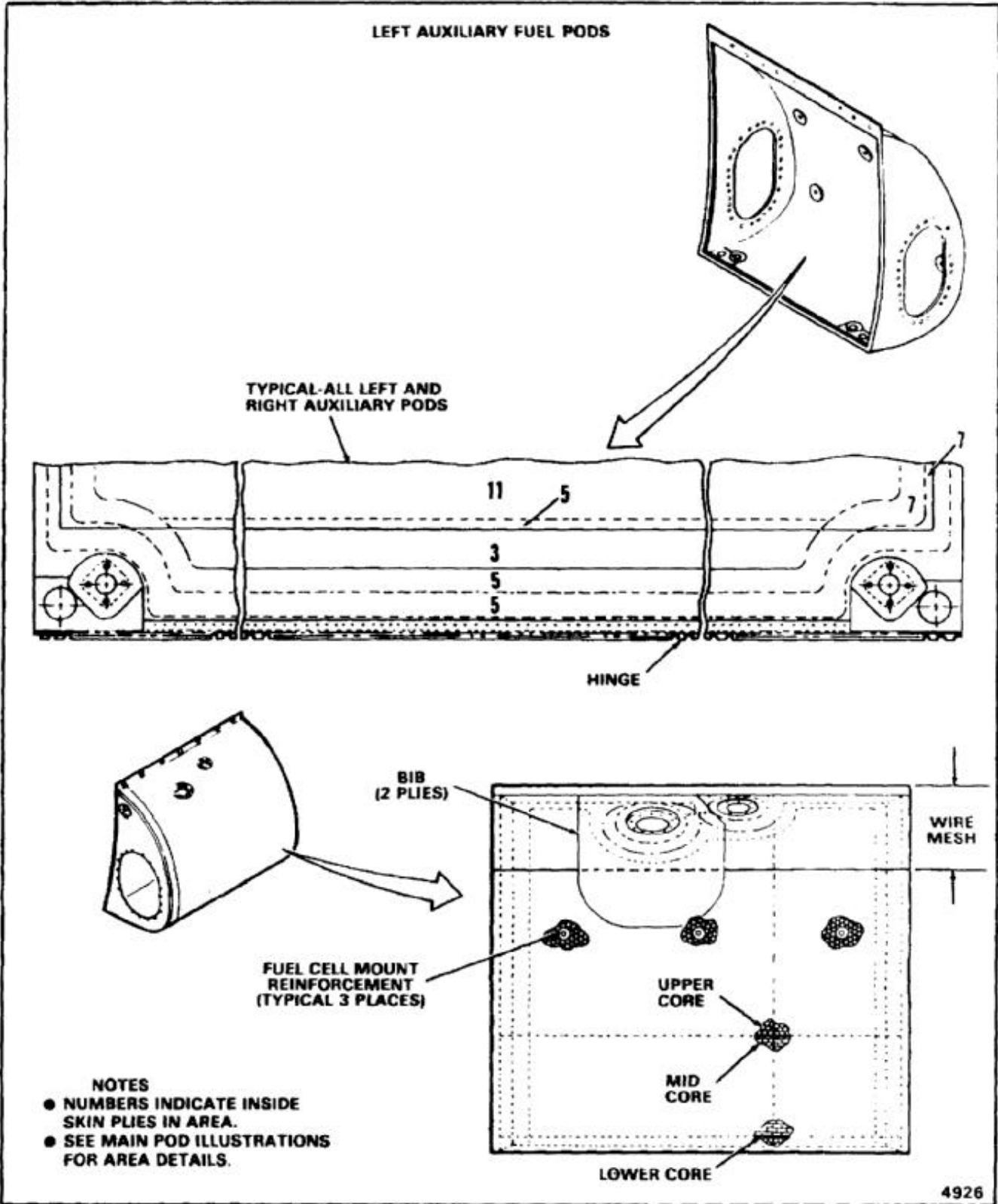


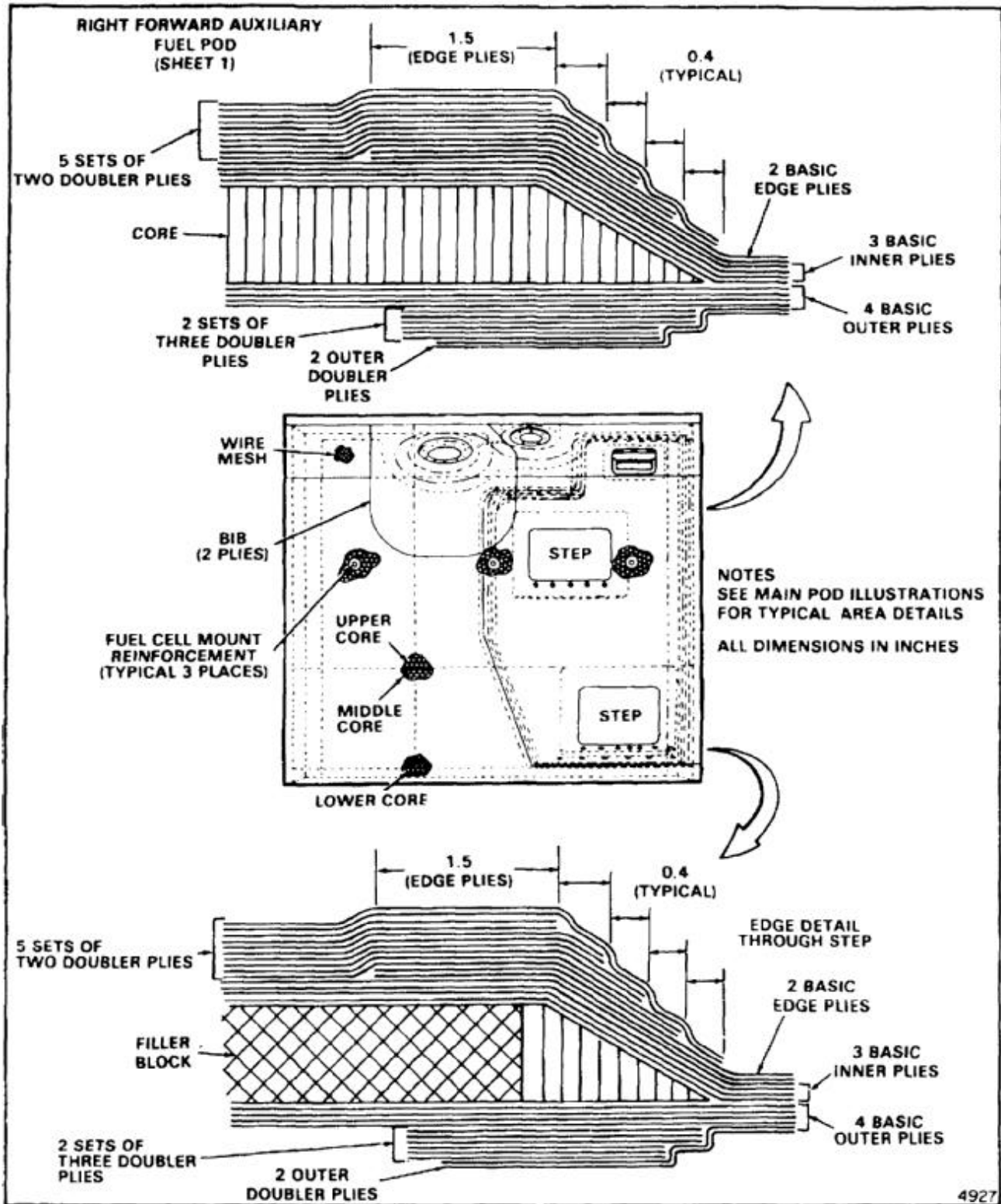


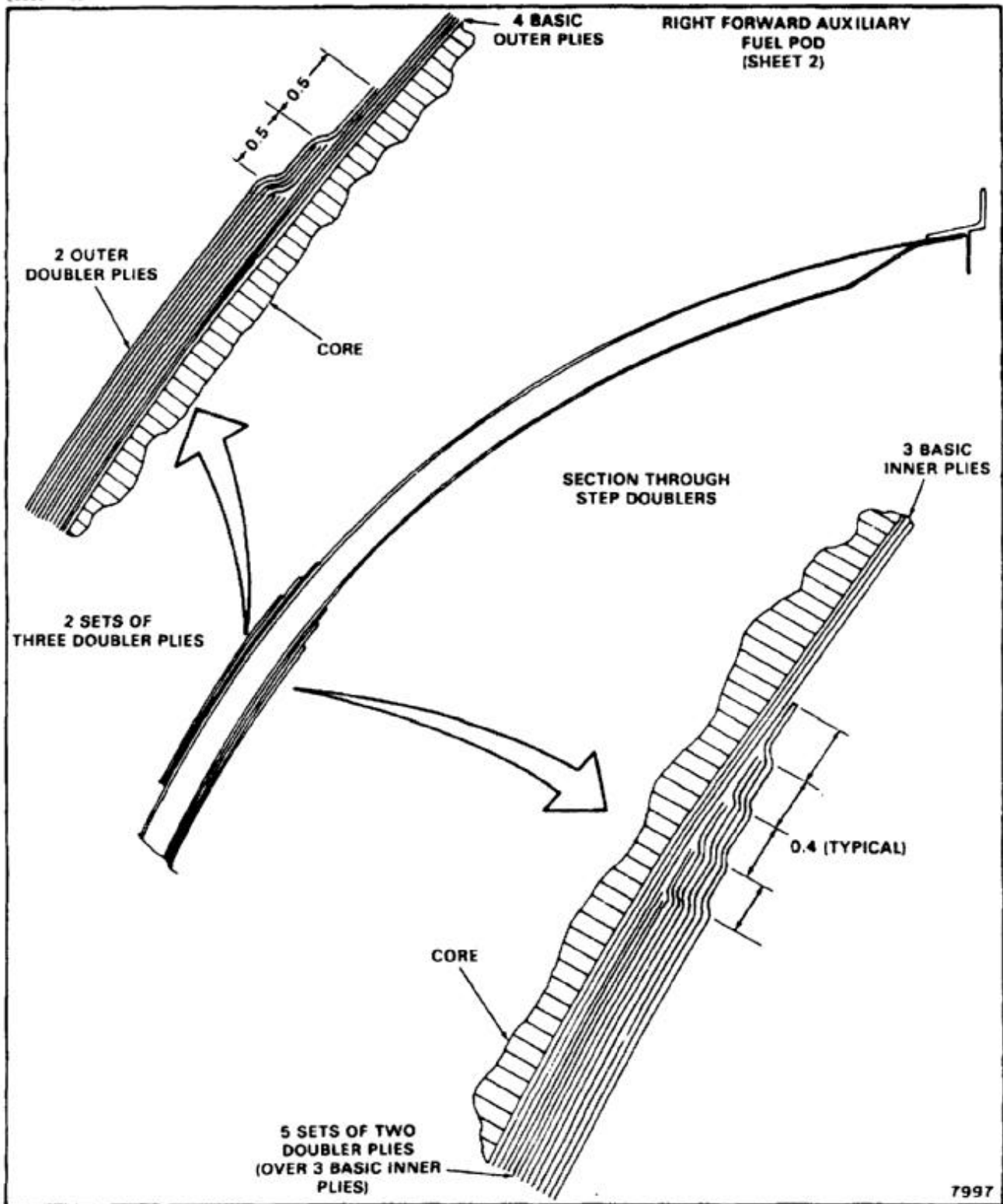


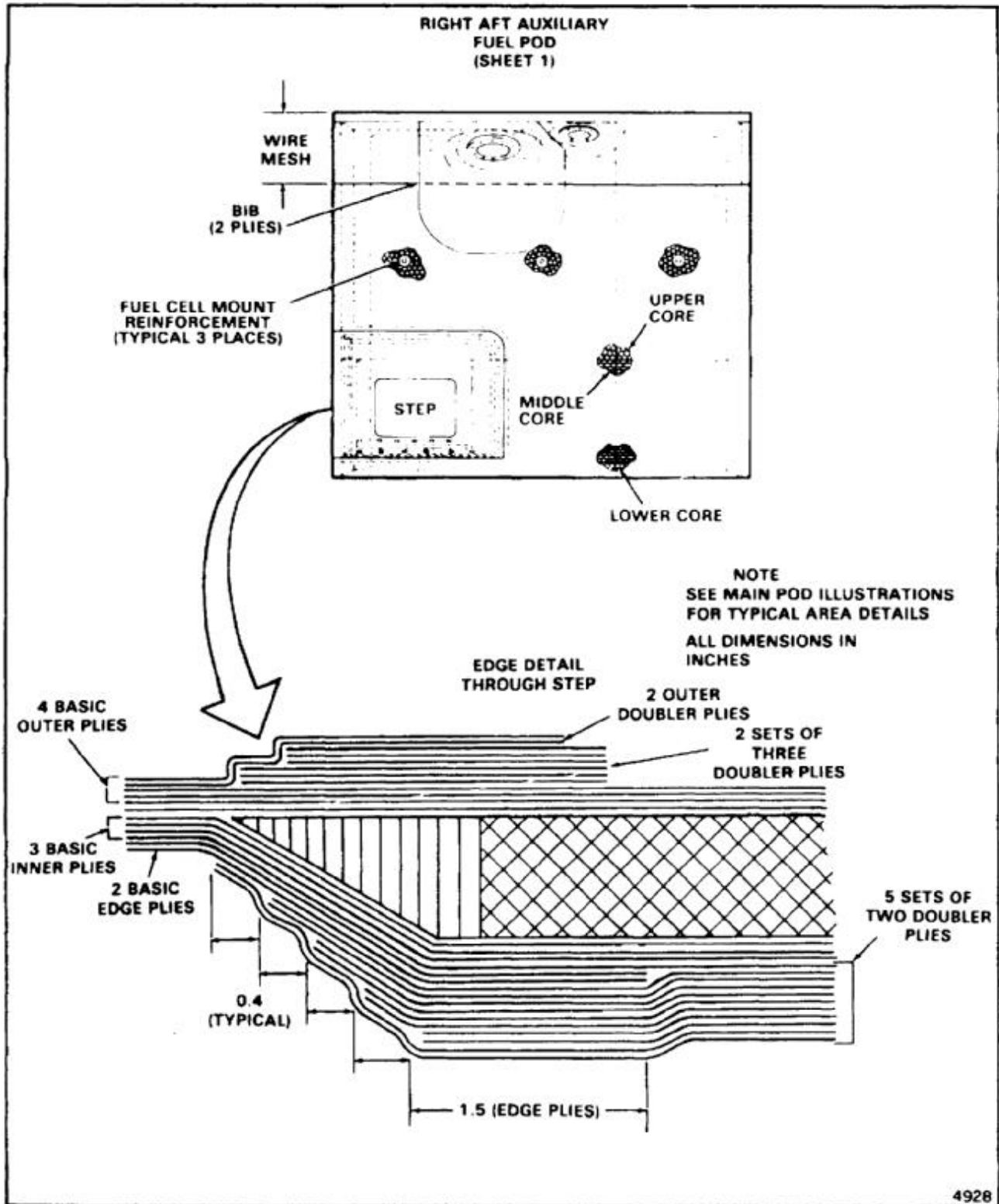


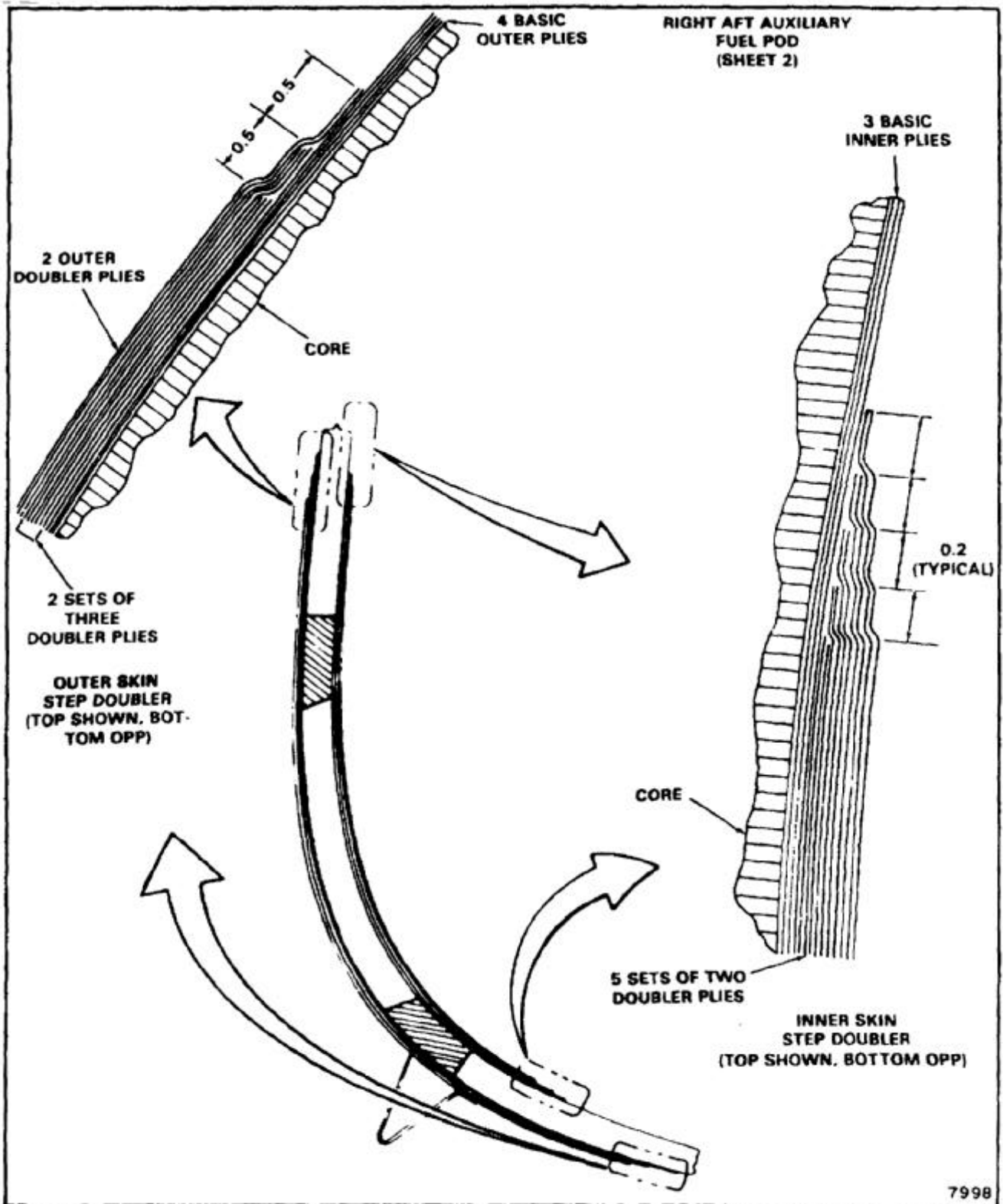
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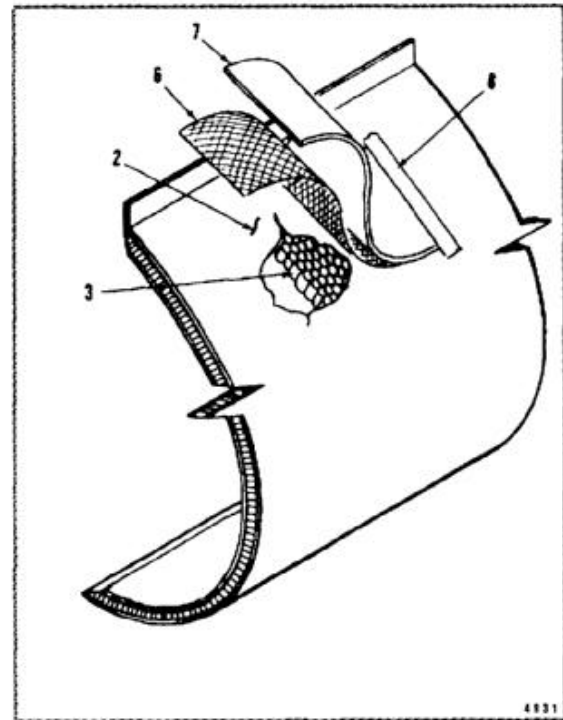
REMOVE WATER

5. If water or other fluid has entered core (3), remove it as follows:
 - a. Cut away damaged skin (2) to expose core (3) in the damaged area.
 - b. Remove standing fluid from core (3). Use a vacuum cleaner.

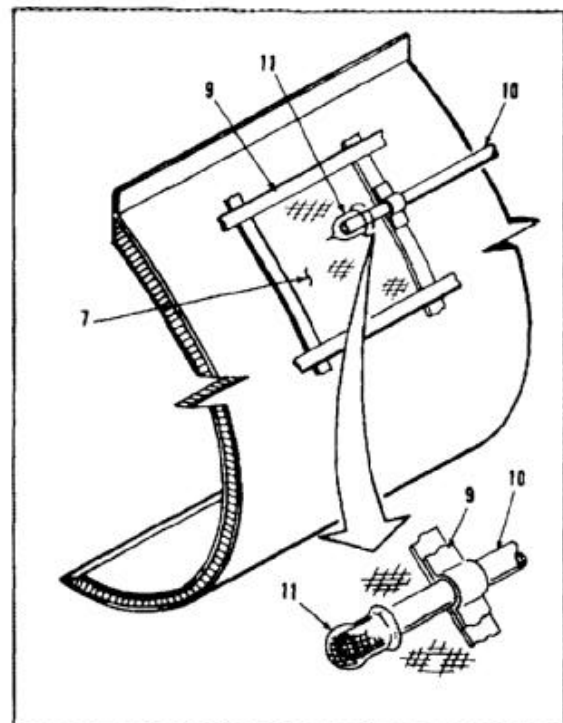
NOTE

Removal of all adhesive clinging to core is not required.

- c. Remove adhesive from top surface of core (3). Use abrasive paper (E9). Remove adhesive particles from core with vacuum cleaner.
- d. Cut a piece of screen (E324) (6) to fit over exposed core (3). Cover screen with glass cloth (E132) (7). Secure cloth with masking tape (E388) (8).



- e. Apply sealing tape (E396) (9) around the damaged area.
- f. Attach tube (10) to vacuum pump hose. Wrap end of tube (10) with two layers of fiberglass cloth (E132) (11). Secure cloth to tube with masking tape (E388).
- g. Place tube (10) on cloth (E132) (7) over damaged area. Wrap tube with sealing tape (E396) (9) where it crosses the border of tape already applied. Press to make an airtight seal between tube and the border of sealing tape.



- h. Press polyvinyl sheet (E284) (12) smoothly onto tape (E396) (9) to make an airtight seal.
- i. Start vacuum pump. Set pump for vacuum of **3 inches Hg** and check for leaks. Reposition polyvinyl sheet (E284) (12) or add tape (E396) (9) as needed.
- j. Increase vacuum to **22 inches Hg**.

WARNING

Use an explosion-proof heat lamp.
Otherwise, personal injury can occur.

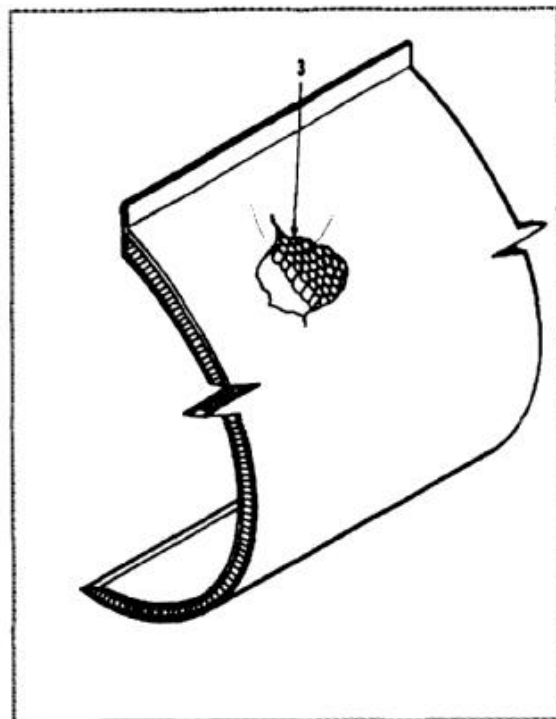
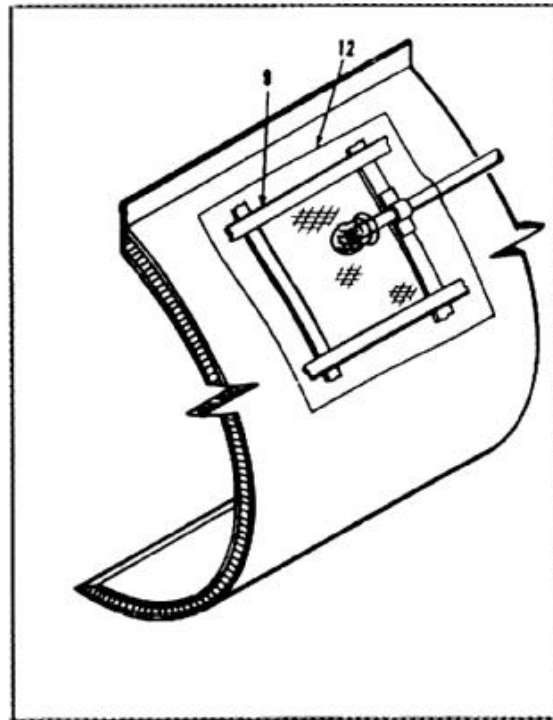
CAUTION

Do not exceed **160°F (71°C)** at pod surface. Damage to pod can occur.

- k. Heat the repair area to **150° to 160°F (66° to 71°C) for 1 hour**. Use heat lamp set at **11 to 12 inches** from repair area. Monitor temperature with temperature indicating strips (E413). Make sure rate of heat rise does not exceed **5°F (3°C)** per minute.
- l. Turn off vacuum pump. Remove material from pod surface. Check that exposed core (3) is dry.

INSPECT**FOLLOW-ON MAINTENANCE:**

Repair pod as required (Tasks 2-187.2 thru 2-187.7).



END OF TASK

INITIAL SETUP

Applicable Configurations:With **4****Tools:**

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Straightedge
 Pencil Compass
 Craftsman's Knife
 Vacuum Cleaner
 Vacuum Pump
 Roller
 Scissors
 Explosion-Proof Heat Lamp, 250 Watt
 Bond Test Unit
 X-Ray Unit

Materials:

Abrasive Paper (E6)
 Template Paper (E263)
 Masking Tape (E388)
 Abrasive Paper (E8)
 Cloths (E120)
 Acetone (E20)
 Gloves (E186)
 Glass Cloth 181-150 (E132.1) or
 Glass Cloth 181-77 (E132.2)
 Cellophane (E98)
 Resin (E47)
 Hardener (E192)
 Wood Spatula (E424)
 Polyethylene Cup (E157)
 Wire Mesh (E453.1)
 Peel Ply (E270)
 Teflon-Impregnated Fabric (E170)
 Fiberglass Cloth (E132)
 Polyvinyl Sheet (E284)
 Sealing Tape (E396)
 Temperature Indicating Strips (E413)

References:

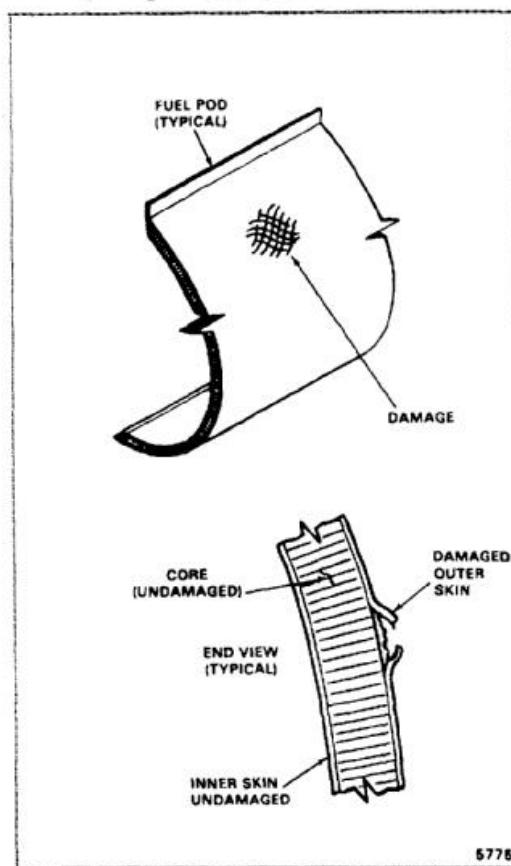
Task 2-187.1
 TM 1-1520-253-23

Personnel Required:

Aircraft Structural Repairer
 Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Fuel Tank Prepared for Repair (Task 2-187.1)

**General Safety Instructions:****WARNING**

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

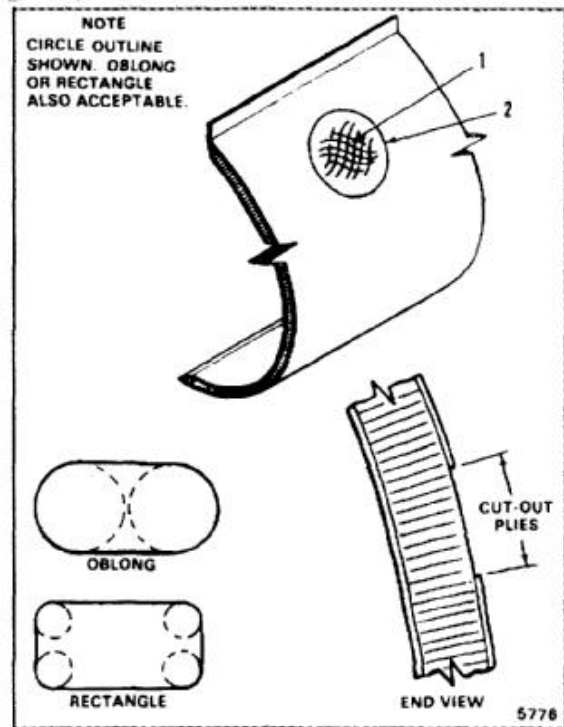
REMOVE FINISH

1. Outline area of damage (1). Shape of outline (2) shall have no corners. A circle or oblong is preferred. Use pencil compass and straightedge.

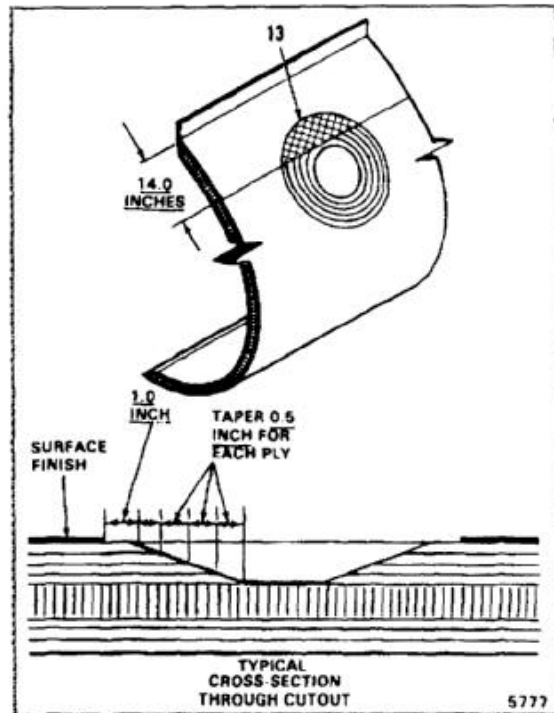
NOTE

Do not cut into undamaged plies.

2. Cut into damaged plies along outline (2). Use craftsman's knife.
3. Remove damaged plies by peeling away or by sanding. Use abrasive paper (E6).



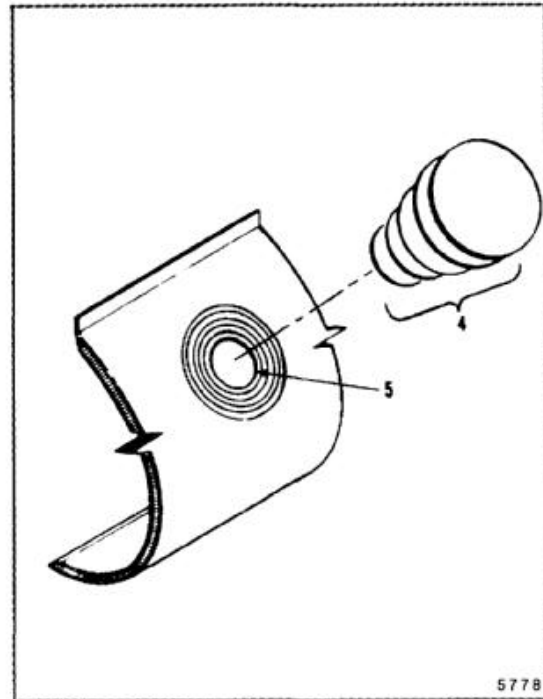
4. Determine number of plies cut through on skin. Mask off area around removed plies equal to at least **0.5 inch** for each ply in all directions, plus an additional **1.0 inch**. Use template paper (E263) and masking tape (E388).
5. Remove finish from masked area. Use sanding block and abrasive paper (E6). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
6. Complete finish removal with abrasive paper (E8). In areas of wire mesh (13), do not sand through mesh. If mesh was removed, expose mesh for **1.0 inch** around removed area.
7. Taper edge of cut out plies **0.5 inch** for each ply removed. Leave at least **1.0 inch** between outside edge of taper and border of finish removal area.
8. Remove sanding dust from repair area. Use a vacuum cleaner. Clean masked area with clean cloths (E120) damp with acetone (E20). Wipe area dry with clean, dry cloth.



PREPARE REPAIR MATERIALS

Wear gloves (E186) for remaining steps. Bare hands will contaminate materials, causing poor bond.

9. Determine number and size of pieces of glass cloth (E132.1 or E132.2) needed for repair:
 - a. Number of pieces (4) shall be equal to one more than the number of plies removed.
 - b. Smallest piece (4) shall be large enough to overlap bottom of cutout (5) **0.5 inch**.
 - c. Each additional piece shall be large enough to overlap previous piece **0.5 inch** in all directions.
 - d. All pieces shall be oriented so that weave of cloth will run horizontally and vertically on pod.
10. Check that finish on pod is removed for at least **0.5 inch** more than size determined for largest piece (4).



11. Cut one piece of cloth (6) large enough for cutting the number of pieces (4) as needed.
12. Cut two pieces of cellophane (E98) (7 and 8) at least **1 inch** larger all around than piece of cloth (6) cut in step 11. Fasten one piece to a smooth surface. Use masking tape (E388).
13. Prepare adhesive mixture as follows:

NOTE

Weigh and mix resin and hardener accurately to produce acceptable bond.

- a. Weigh **101 parts** of resin (E47) and **14 parts** of hardener (E192).

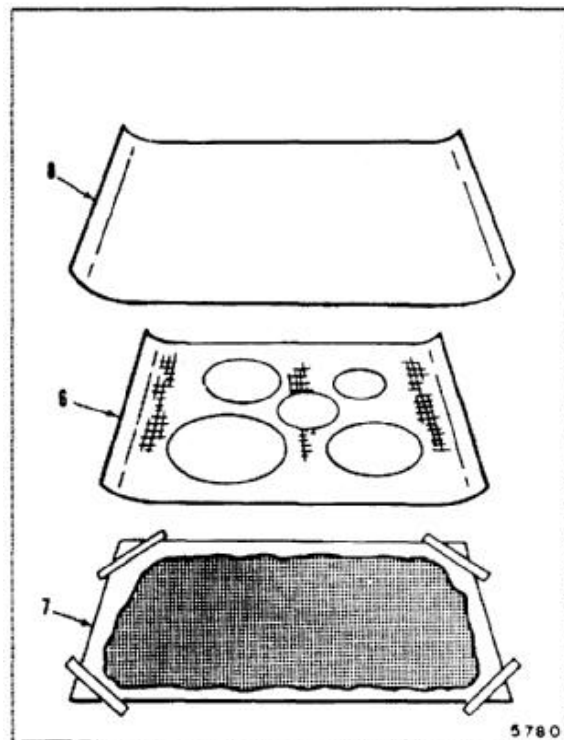
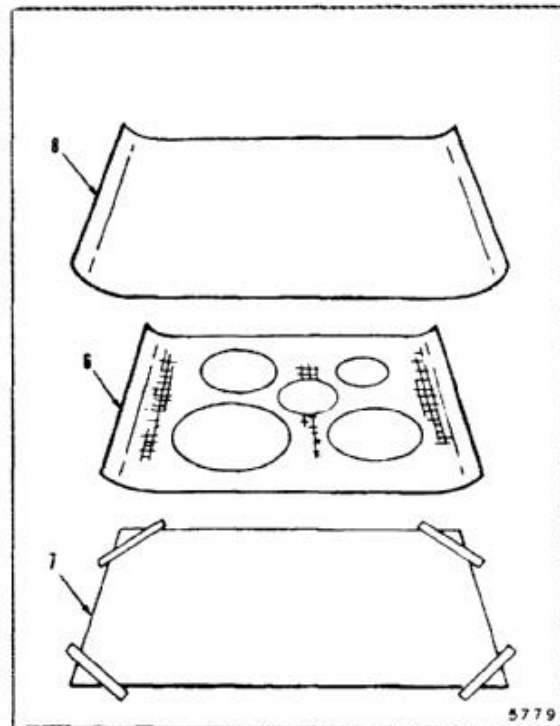
NOTE

Working life of mixed adhesive is **30 minutes**.

- b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).

PREPARE GLASS CLOTH

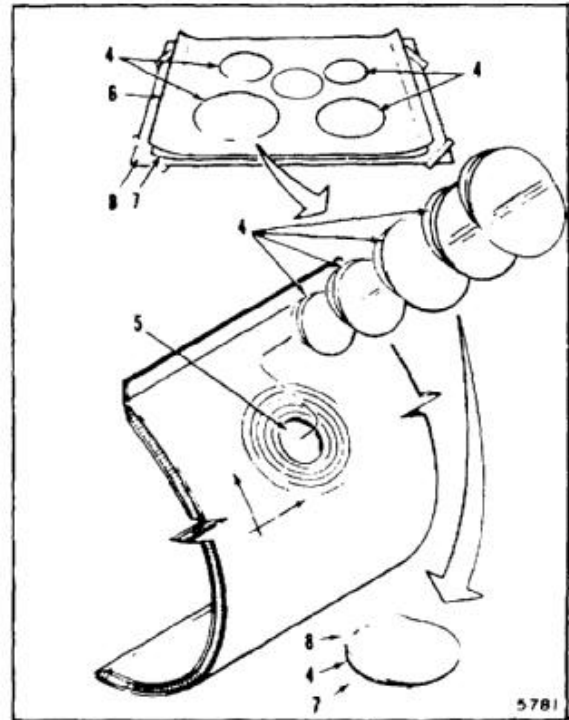
14. Spread adhesive mixture prepared in step 13 on cellophane (E98) (7) taped down in step 12. Place piece of glass cloth (E132.1 or E132.2) (6) cut in step 11 in adhesive.
15. Cover glass cloth (6) with second piece of cellophane (8).
16. Press on top layer of cellophane (8). Use a roller. Continue until glass cloth (6) is saturated with adhesive mixture and all entrapped air is squeezed out.



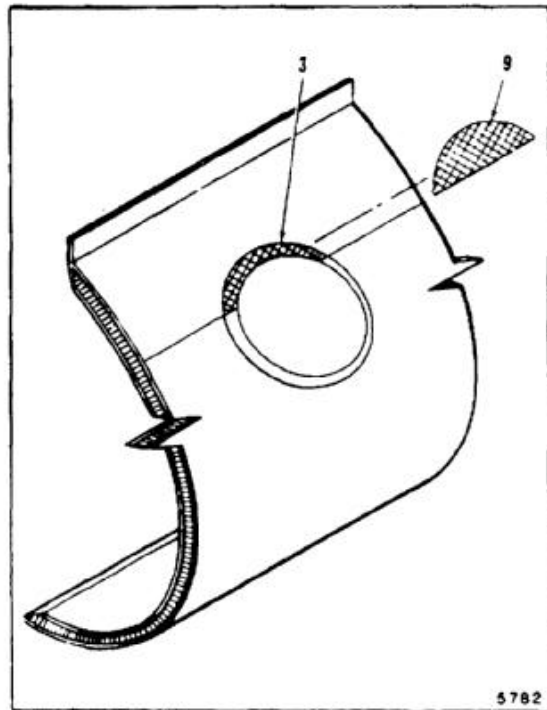
NOTE

Cellophane stops fraying of glass cloth edges while cutting.

17. Cut glass cloth (6) into pieces (4) as determined in step 9. Cut pieces so that the weave of the cloth will run horizontally and vertically on the pod. Do not remove cellophane (7 or 8). Cut through it.
18. Coat cleaned area around cutout (5) with adhesive mixture prepared in step 13.
19. Remove cellophane (7) from one side of smallest cloth piece (4). Place exposed face of piece in bottom of cutout (5). Position piece so that weave of cloth runs horizontally and vertically on pod. Keep equal overlap on all sides.
20. Apply light pressure over surface of installed piece (4) to remove wrinkles and entrapped air. Remove cellophane (7) from top of piece.
21. Remove cellophane (7) from bottom of next larger piece (4). Apply piece over installed piece with equal overlap on all sides.
22. Repeat steps 19 and 20 for remaining pieces (4). Remove cellophane (8) from top of last piece.

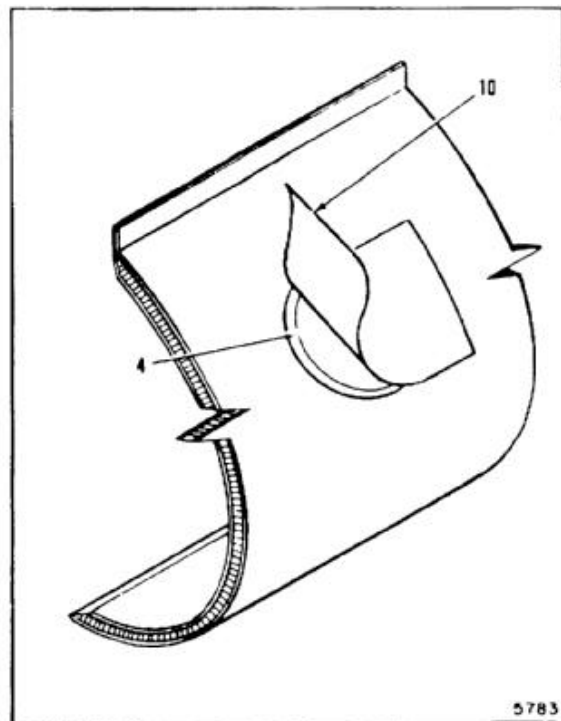


23. If more than **1 square-inch** of wire mesh (3) was removed, replace it as follows:
- Cut a piece of wire mesh (E453.1) (9) large enough to overlap existing mesh (3) **1 inch** in all directions.
 - Brush a coat of adhesive mixture prepared in step 13 over repair area and existing mesh (3).
 - Seat replacement mesh (9) over repair area and existing mesh (3). Make sure mesh is in firm contact over entire **1 inch** overlap.
 - Brush smooth coat of adhesive mixture over replacement mesh (9). Fair adhesive to pod skin.



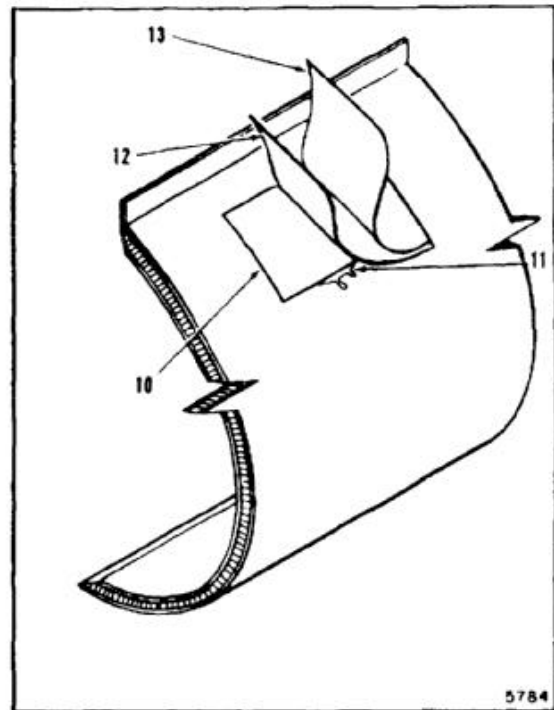
BOND REPAIR

- Cover repair area with peel ply (E270) (10) to overlap area by at least **1 inch**.
- Fair edges of patch to contour of pod. Wipe from center of patch outward with rubber spatula. Make sure all loose threads of glass cloth (4) are imbedded in adhesive.

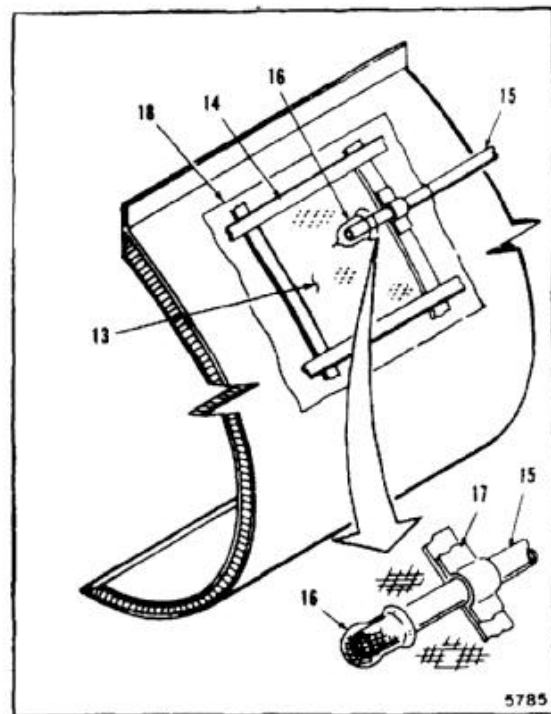


2-187.2 REPAIR COMPOSITE POD — SKIN DAMAGE OR DELAMINATION (Continued)**2-187.2**

26. Wipe off any adhesive squeezeout (11) from around peel ply (10).
27. Cover peel ply (10) with a sheet of Teflon-impregnated fabric (E170) (12). Sheet shall be large enough to overlap peel ply (10) by **1 inch** in all directions.
28. Cover Teflon-impregnated fabric (12) with fiberglass cloth (E132) (13).



29. Surround repair area with sealing tape (E396) (14). Leave at least **1 inch** between cloth (13) and tape on all sides.
30. Wrap end of tube (15) with two layers of fiberglass cloth (E132) (16). Secure cloth to tube with masking tape (E388).
31. Lay covered end of tube (15) on glass cloth (13). Keep end of tube outside of repair area. Wrap tube with sealing tape (E396) (17) where it crosses surrounding tape. Form an airtight seal.
32. Press polyvinyl sheet (E284) (18) smoothly onto tape (E396) (14) to make airtight seal around repair area.
33. Connect end of tube (15) to a vacuum pump. Use rubber hose.
34. Start vacuum pump. Set pump for vacuum of **3 inches Hg**. Check for leaks. Reposition polyvinyl sheet (18) or add tape (E396) (14 or 17) as needed.
35. Increase vacuum to **20 inches Hg**. Maintain vacuum throughout adhesive cure.



Do not exceed **160°F (71°C)** at pod surface. Damage to pod can occur.

36. Cure adhesive at **150° to 160°F (66° to 71°C) for 2.5 hours**. Use explosion-proof heat lamp set at **11 to 12 inches** from repair area. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at **70° to 80°F (21° to 27°C) in 24 hours**. Vacuum may be removed after **8 hours**

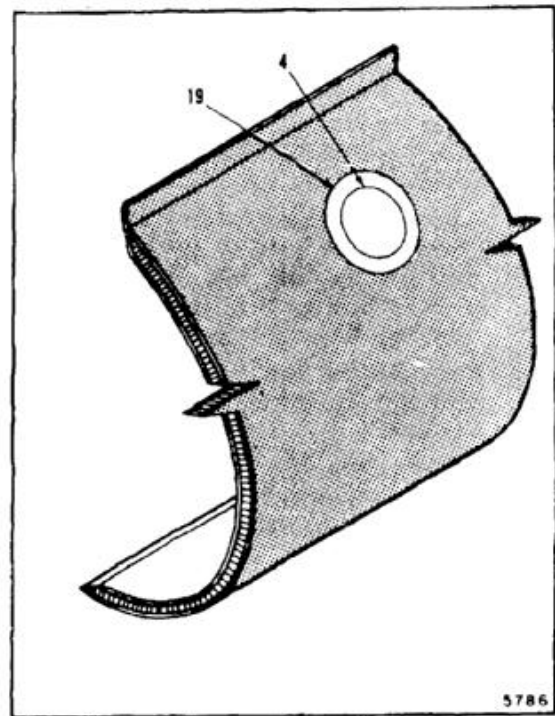
37. Turn off vacuum pump.

2-187.2 REPAIR COMPOSITE POD — SKIN DAMAGE OR DELAMINATION (Continued)**2-187.2**

38. Remove vacuum bagging materials from repair area.
39. Check that patch (4) is free of pits, blisters, voids, and excess resin deposits. No voids allowed. If a void is suspected, refer to TM 1-1520-253-23. If squeezeout fairing (19) is not satisfactory, fair patch with adhesive. Follow step 12 to mix adhesive.

INSPECT**FOLLOW-ON MAINTENANCE:**

Refinish fuel pod (Task 2-187.7).



END OF TASK

INITIAL SETUP

Applicable Configurations:

Helicopters With Composite Fuel Pods

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Vacuum Cleaner
 Explosion-Proof Heat Lamp
 Hypodermic Injector
 Counterbore Set, NSN 5133-00-378-3813

Materials:

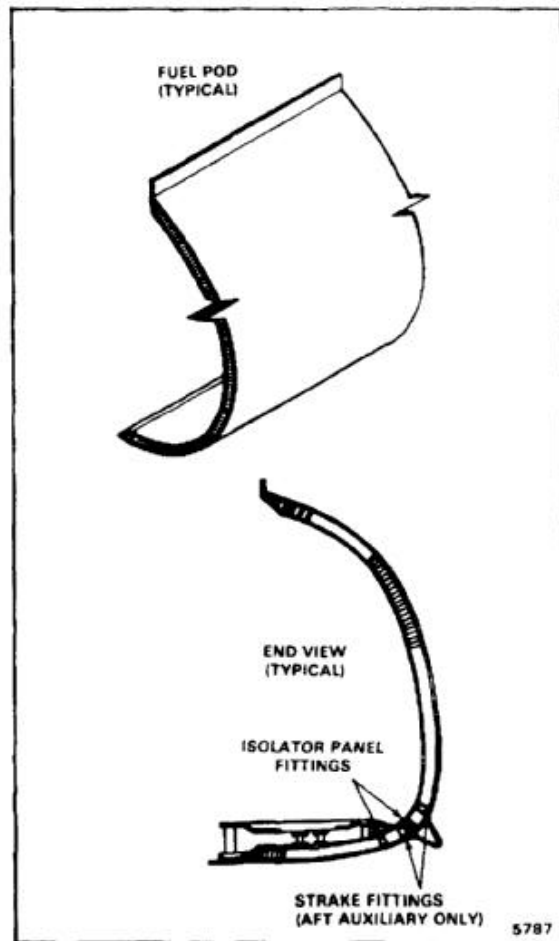
Adhesive (E47.1)
 Gloves (E186)
 Polyethylene Cup (E157)
 Wood Spatula (E424)
 Shurtab SLT600T3 (P/O SL601-3-4C)
 Shur-Loc Guide Tool SLT600G3
 Shur-Loc Insert SL601-3-4C
 Temperature Indicating Strips (E413)
 Cloths (E120)

Personnel Required:

Aircraft Structural Repairer
 Inspector

Equipment Condition:

As Required



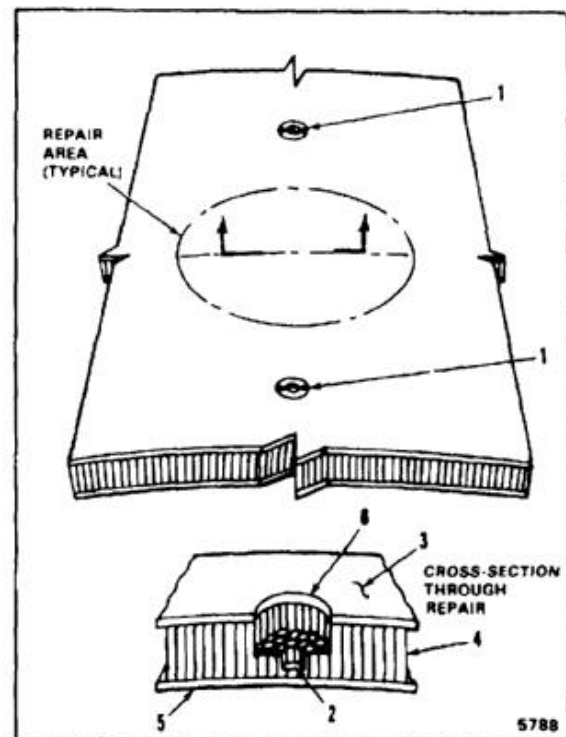
PREPARE POD

1. Determine proper location for insert. Note location of other inserts (1) or refer to another pod.

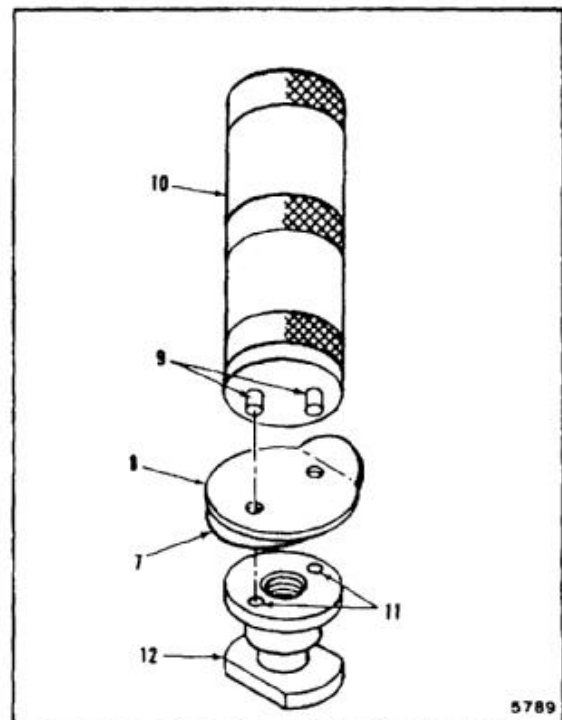


Drilling into opposite skin will require repair of the skin.

2. Carefully drill pilot hole (2) through skin (3) and into core (4) at proper location. Use **1/8 inch** drill. Do not drill into opposite skin (5).
3. Counterbore to depth of pilot hole (2). Use **9/16 inch** drill. Do not drill into opposite skin (5).
4. Remove core material (4) from hole (6) to depth of opposite skin (5). Use **9/16 inch** drill, turned by hand.
5. Remove drilling residue from hole (6). Use a vacuum cleaner.

**PREPARE INSERT**

6. Remove paper backing (7) from tab (8). Place tab on pins (9) of guide tool (10) with adhesive face away from tool.
7. Align holes (11) in insert (12) with pins (9) on tool (10). Press insert firmly against adhesive side of tab (8).
8. Remove tool (10).



MIX ADHESIVE

9. Prepare adhesive (E47.1). Weigh **100 parts** of resin part A and **25 parts** of hardener part B. Use trip balance.
10. Mix adhesive parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424).

NOTE

Working life of adhesive is about **30 minutes**.

INSTALL INSERT

11. Fill hole (6) about half full of mixed adhesive (E47.1).
12. Install insert (12) in center of hole (6). Press tab (8) against skin (3) to imbed insert in adhesive (13).

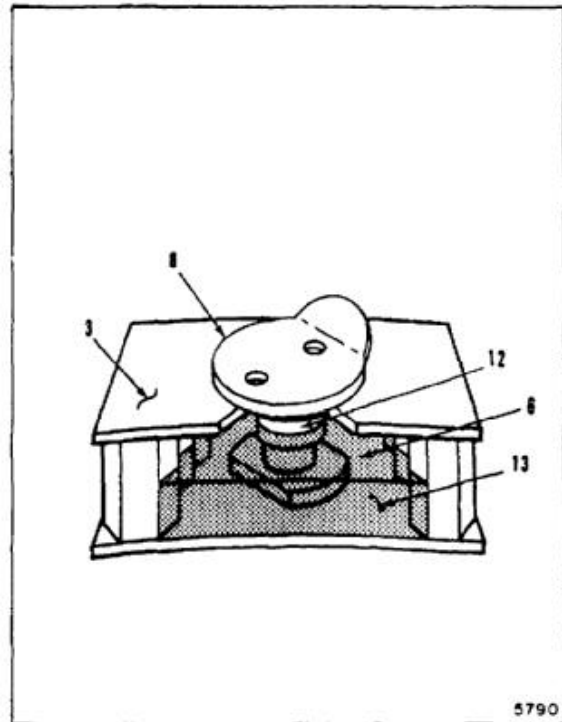


Do not exceed **160°F (71°C)** at pod surface. Damage to pod can occur.

13. Cure adhesive (13) at **150° to 160°F (66° to 71°C) for 2 hours**. Use explosion-proof heat lamp set at **11 to 12 inches** from insert (12). Monitor temperature with temperature indicating strips (E413).

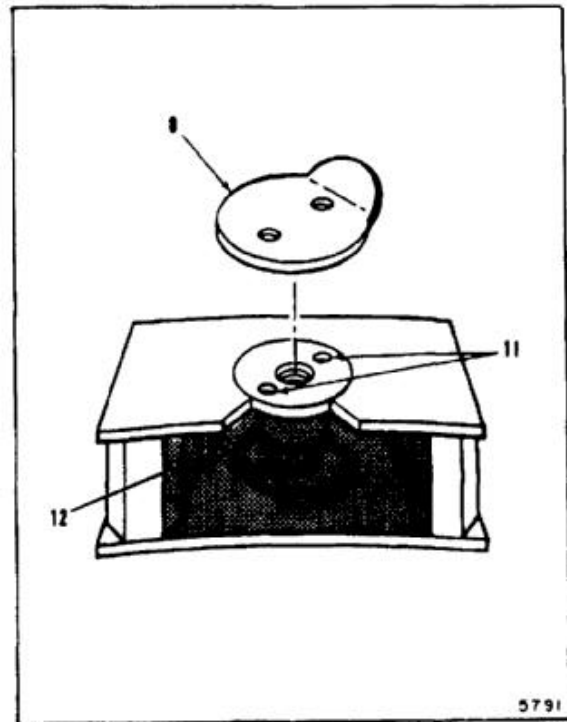
NOTE

Serviceable cure can be achieved without heat at **70° to 80°F (21° to 27°C) in 24 hours**.



2-187.3 REPAIR COMPOSITE POD — INSTALL SHUR-LOC INSERT (Continued)**2-187.3**

14. Remove tab (8).
15. Inject adhesive mixture through either hole (11) at top of insert (12). Use hypodermic injector. Continue to inject mixture until it flows from other hole (11).
16. Wipe off excess adhesive from top of insert (12). Use cloths (E120).
17. Cure adhesive mixture as in step 13.

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

Helicopters With Composite Fuel Pods

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Scissors
 Explosion-Proof Heat Lamp, 250 Watt
 Roller
 Vacuum Cleaner
 Vacuum Pump
 Bond Test Unit
 X-Ray Unit

Materials:

Abrasive Paper (E6, E8, or E9)
 Acetone (E20)
 Gloves (E186)
 Cloths (E120)
 Template Paper (E263)
 Masking Tape (E388)
 Glass Cloth (E130)
 Phenolic Microballoons (E274.1)
 Resin (E47)
 Hardener (E192)
 Cellophane (E98)
 Glass Cloth (E132.1) or
 Glass Cloth (E132.2)
 Polyethylene Cup (E157)
 Wood Spatula (E424)
 Peel Ply (E270)
 Teflon-Impregnated Fabric (E170)
 Polyvinyl Sheet (E284)
 Sealing Tape (E396)
 Temperature Indicating Strips (E413)

Personnel Required:

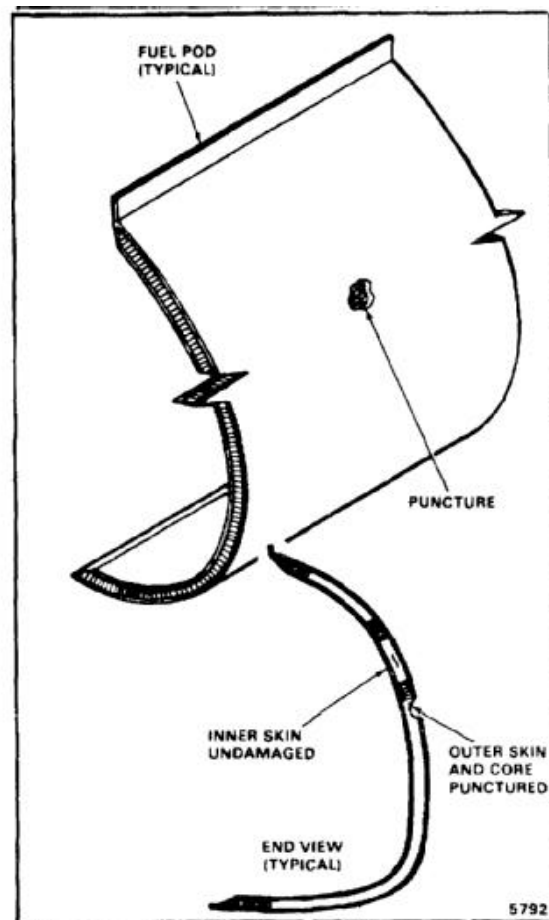
Aircraft Structural Repairer
 Inspector

References:

Task 2-187.1
 TM 1-1520-253-23

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Fuel Tank Prepared for Repair (Task 2-187.1)

**General Safety Instructions:****WARNING**

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

REMOVE DAMAGE**NOTE**

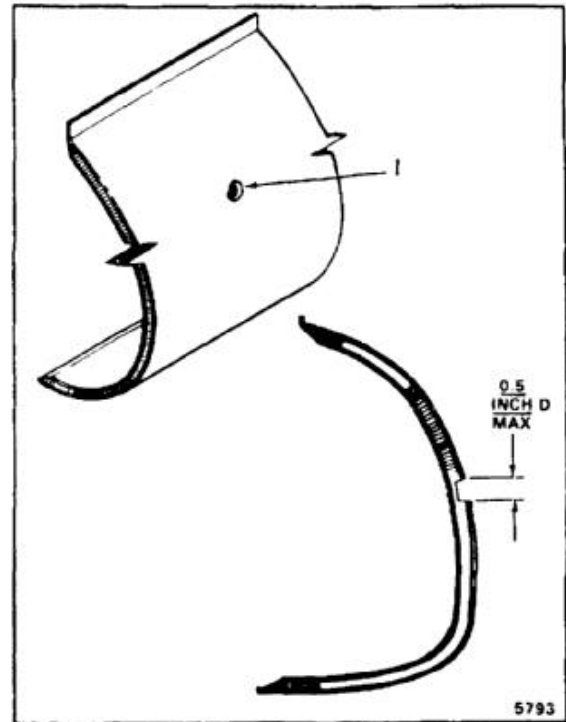
This repair limited to punctures **0.5 inch** diameter or less through top skin and core.

1. Remove loose fragments and debris from damaged area.

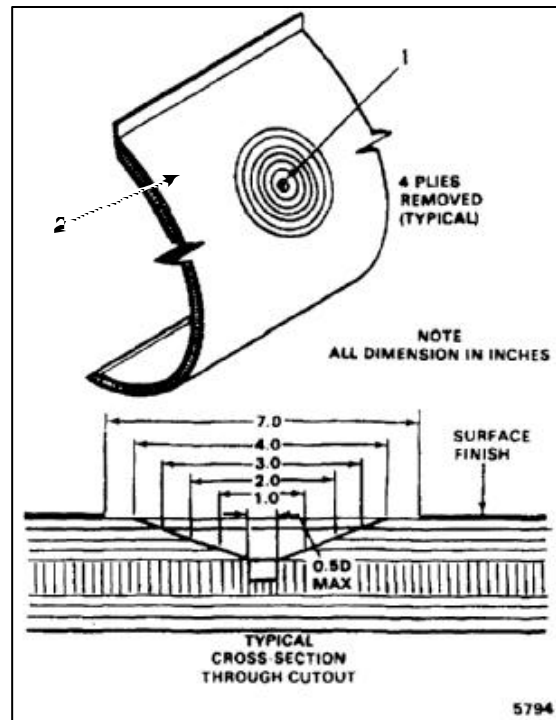


Be careful not to drill through pod.

2. Clean out hole (1) to depth of core damage. Use a drill. Do not exceed **0.5 inch** diameter.



3. Determine number of plies cut through on skin (2). (Refer to Task 2-187.1.) Mask off area around hole (1) equal in diameter to at least **1.0 inch** for each ply removed plus an additional **2.0 inches**. Use template paper (E263) and masking tape (E388).
4. Remove finish from masked area. Use sanding block and abrasive paper (E6). Use acetone (E20) if needed to soften finish. Wear gloves (E186).
5. Complete finish removal with abrasive paper (E8). In area of wire mesh, do not sand through mesh. (Refer to Task 2-187.1 for mesh location.)
6. Taper cleaned area down to hole (1) **0.5 inch** for each skin ply removed. Leave at least **1.0 inch** between outer edge of taper and border of cleaned area.
7. Remove sanding dust from repair area. Use a vacuum cleaner. Clean masked area with clean cloths (E120) damp with acetone (E20). Wipe area dry with clean dry cloths. Do not touch cleaned area with bare hands.



FILL PUNCTURE

8. Prepare resin mixture as follows:
 - a. Weigh **101 parts** of resin (E47), **14 parts** of hardener (E192) and **30 parts** phenolic microballoons (E274.1).

NOTE

Working life of mixed resin is **30 minutes**.

- b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).

9. Pour resin mixture into hole (1). Work out air bubbles with wood spatula (E424).



Do not exceed **160°F (71°C)** at pod surface. Damage to pod can occur.

10. Cure resin at **150° to 160°F (66° to 71°C)** for **2.5 hours**. Use explosion-proof heat lamp set at **11 to 12 inches** from repair area. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at **70° to 80°F (21° to 27°C)** in **24 hours**. Vacuum may be removed after **8 hours**.

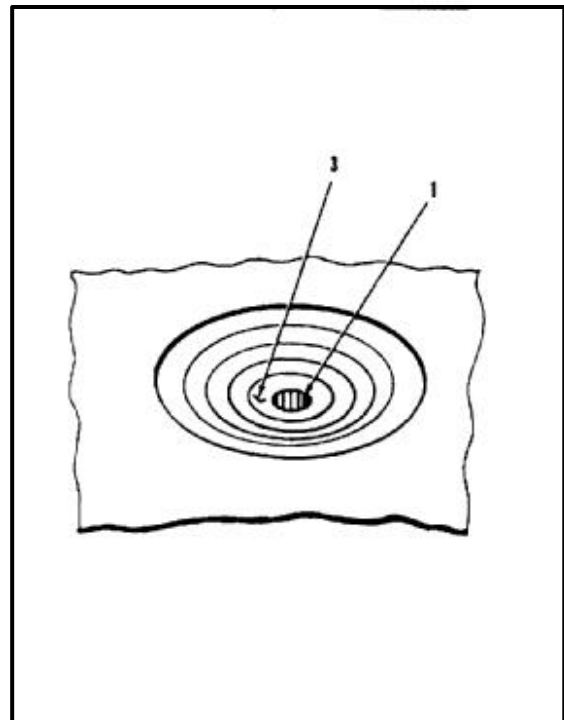
11. Fair cured resin to bottom of tapered surface (3) within **0.10 inch**. Use abrasive paper (E8).

PREPARE GLASS CLOTH

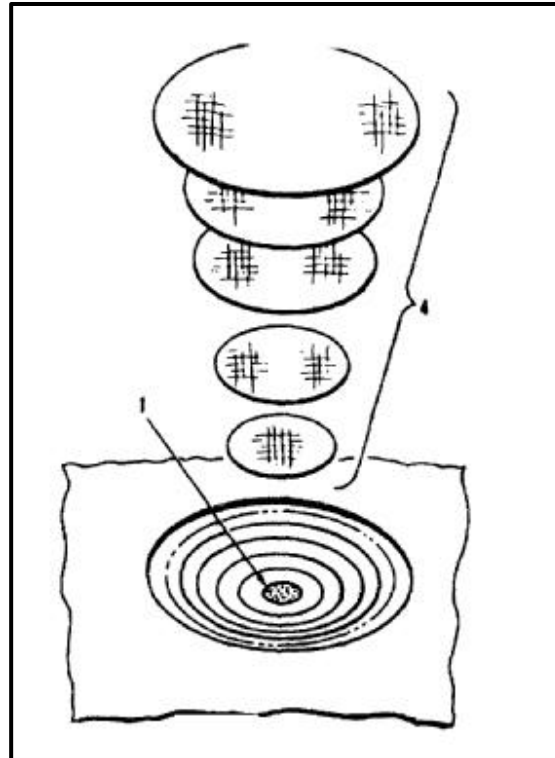


Wear gloves (E186) for the remaining steps. Bare hands will contaminate materials, causing poor bond.

12. Sand cleaned surface surrounding resin repair. Use abrasive paper (E9).
13. Remove sanding dust from repair area. Use a vacuum cleaner. Clean masked area with acetone (E20) and clean cloths (E120). Wipe area dry with clean, dry cloths.



14. Determine number and size of pieces of glass cloth (E132.1 or E132.2) (4) needed for repair as follows:
 - a. Number of pieces (4) is equal to one more than the number of plies removed. (Refer to Task 2-187.1.)
 - b. Smallest piece shall be large enough to overlap resin-filled hole (1) **0.5 inch**.
 - c. Each additional piece shall be large enough to overlap the previous piece by **0.5 inch**.
 - d. All pieces shall be oriented so that weave of cloth will run horizontally and vertically on pod.
15. Check that finish on pod is removed for at least **0.5 inch** more all around than size determined for largest piece of cloth.



2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued)

2-187.4

16. Cut a piece of glass cloth (E130) (5) large enough for cutting the number of pieces (4) as needed.
17. Cut two pieces of cellophane (E98) (6 and 7) at least **1 inch** larger all around the piece of cloth (5) cut in step 16. Fasten one piece to a smooth flat surface. Use masking tape (E388).
18. Prepare adhesive mixture as follows:

NOTE

Weigh and mix resin and hardener accurately to produce acceptable bond.

- a. Weigh **101 parts** of resin (E47) and **14 parts** of hardener (E192).

NOTE

Working life of mixed adhesive is **30 minutes**.

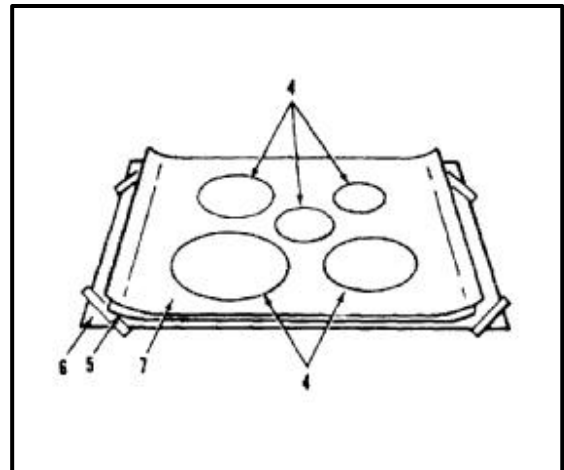
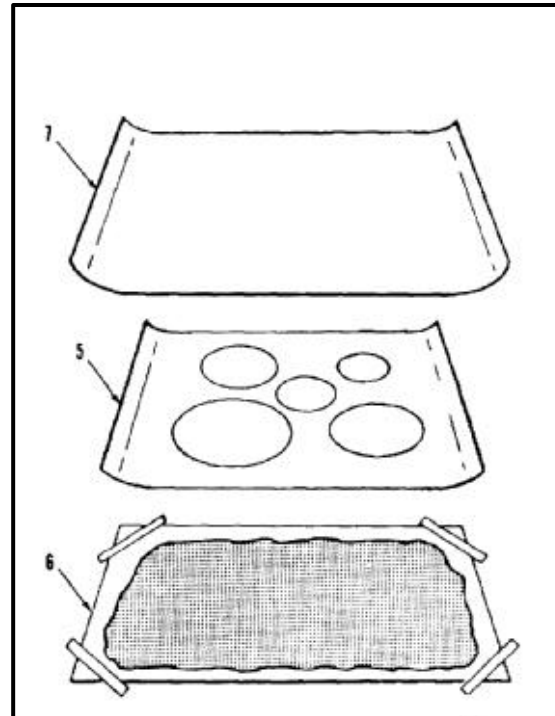
- b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).

19. Spread adhesive mixture over taped piece of cellophane (E98) (6). Place piece of glass cloth (E132.1 or E132.2) cut in step 16 in adhesive.
20. Cover glass cloth (5) with second piece of cellophane (E98) (7).
21. Press on top layer of cellophane (7). Use a roller. Continue until glass cloth (5) is saturated with adhesive mixture and all excess resin is squeezed out.

NOTE

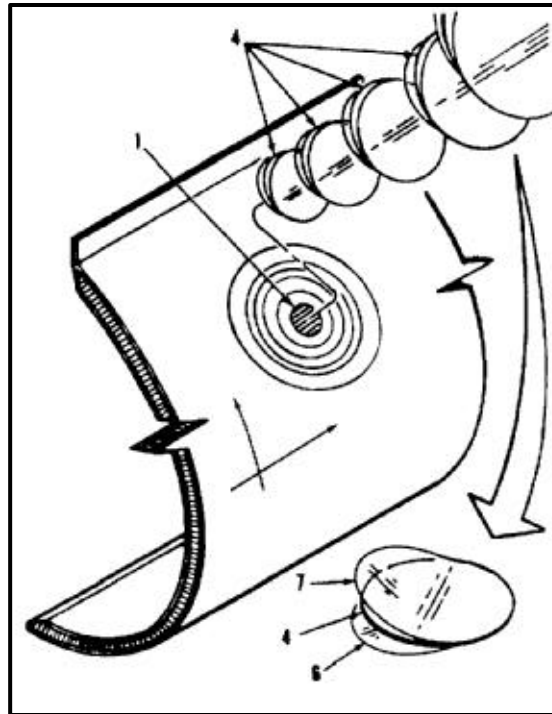
Cellophane eliminates fraying of glass cloth edges while cutting.

22. Cut glass cloth (5) into pieces (4) as determined in step 14. Cut pieces so that the weave of the cloth will run horizontally and vertically on the pod. Do not remove cellophane (6 and 7). Cut through it.

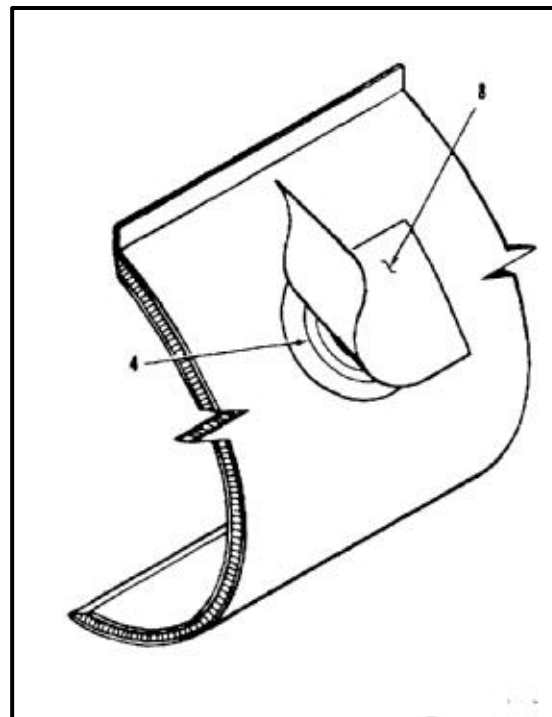


INSTALL GLASS CLOTH

23. Coat cleaned area around filled hole (1) with adhesive mixture prepared in step 18.
24. Remove cellophane (6) from one side of smallest cloth piece (4). Position piece so that weave of cloth runs horizontally and vertically on pod. Place exposed face of piece against filled hole (1). Keep equal overlap all around.
25. Apply light pressure over surface of installed piece (4) to remove wrinkles and entrapped air.
26. Remove cellophane (7) from installed piece (4) and one surface of next larger piece. Apply larger piece, position as in step 24, over installed piece with equal overlap all around.
27. Repeat steps 25 and 26 for all remaining pieces (4).

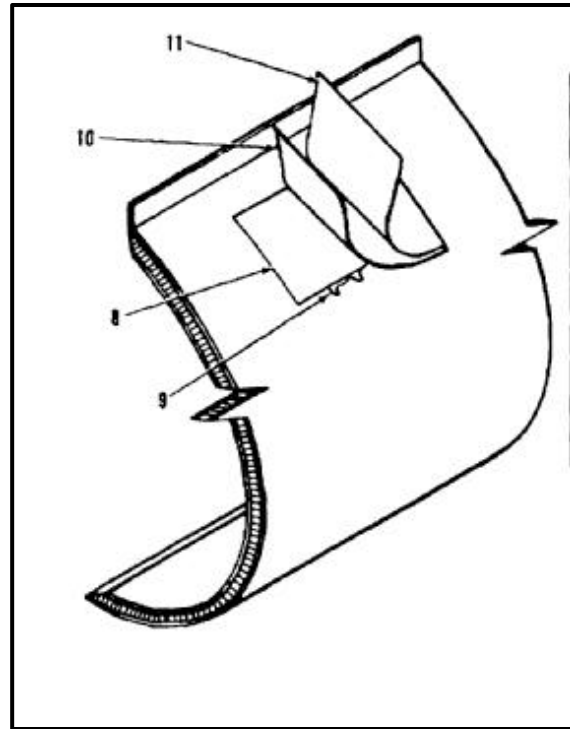
**BOND REPAIR**

28. Cover repair area with peel ply (E270) (8) to overlap area by at least **1 inch**.
29. Fair edges of patch to contour of pod. Wipe from center of patch outward with rubber spatula. Make sure all loose threads of glass cloth (4) are imbedded in adhesive.



2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued)**2-187.4**

30. Wipe off adhesive squeezeout (9) from around peel ply (8).
31. Cover peel ply (8) with a sheet of Teflon-impregnated fabric (E170) (10). Make sheet large enough to overlap peel ply by **1 inch**.
32. Cover Teflon-impregnated fabric (10) with fiberglass cloth (E130) (11).



33. Surround repair area with sealing tape (E396) (12). Leave at least **1 inch** between cloth (11) and tape on all sides.
34. Wrap end of tube (13) with two layers of fiberglass cloth (E130) (14). Secure cloth to tube with masking tape (E388).
35. Lay covered end of tube (13) on glass cloth (11). Keep end of tube outside of repair area. Wrap tube with sealing tape (E396) (15) where it crosses surrounding tape. Form an airtight seal.
36. Press polyvinyl sheet (E284) (16) smoothly onto tape (12) to make airtight seal around repair area.
37. Connect end of tube (13) to a vacuum pump. Use rubber hose.
38. Start vacuum pump. Set pump for vacuum of **3 inches Hg**. Check for leaks. Reposition polyvinyl sheet (16) or add tape (12 or 15) as needed.
39. Increase vacuum to **20 inches Hg**. Maintain vacuum throughout adhesive cure.



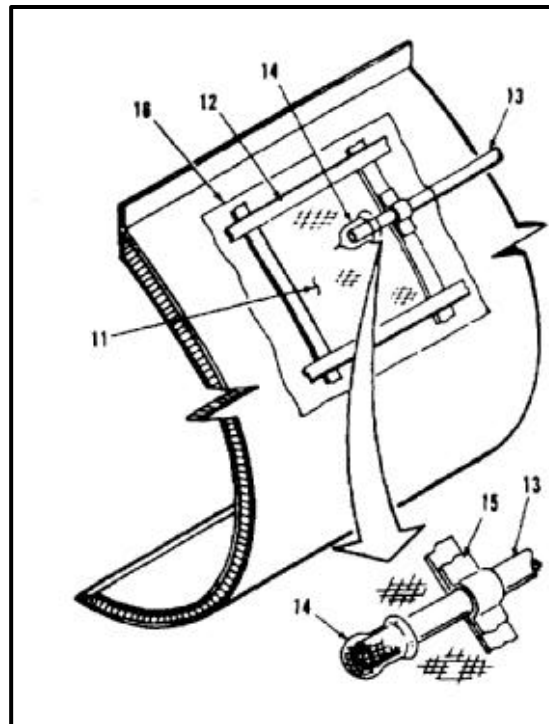
Do not exceed **160°F (71°C)** at pod surface. Damage to pod can occur.

40. Cure adhesive at **150° to 160°F (66° to 71°C) for 2.5 hours**. Use explosion-proof heat lamp set at **11 to 12 inches** from repair area. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at **70°F to 80°F (21°C to 27°C) in 24 hours**, Vacuum may be removed after **8 hours**.

41. Turn off vacuum pump.

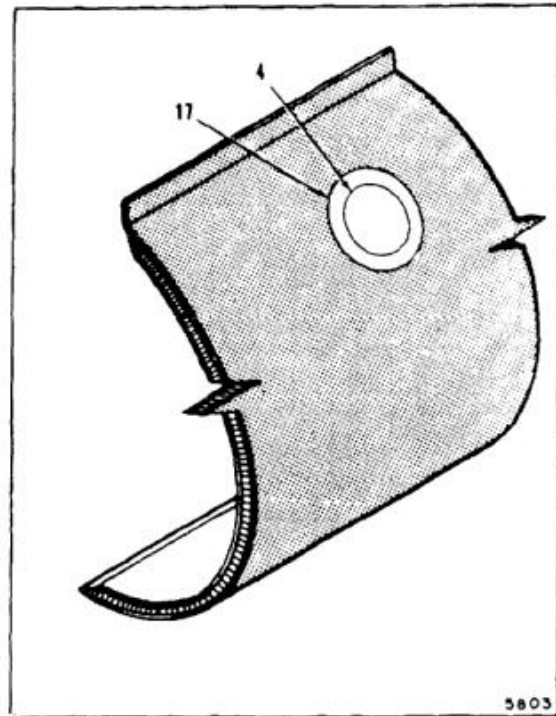


2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued)**2-187.4**

42. Remove vacuum bagging materials from repair area.
43. Check that patch (4) is free of pits, blisters, voids, and excess resin deposits. No voids allowed. If a void is suspected, refer to TM 1-1520-253-23. If squeezeout fairing (17) is not satisfactory, fair patch with adhesive. Follow step 18 to mix adhesive.

INSPECT**FOLLOW-ON MAINTENANCE:**

Refinish fuel pod (Task 2-187.7).



END OF TASK

INITIAL SETUP**Applicable Configurations:**

Helicopters With Composite Fuel Pods

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Straightedge
 Pencil Compass
 Router or
 Hole Saw
 Protective Clothing
 Respirator
 Vacuum Cleaner
 Vacuum Pump
 Roller
 Scissors
 Explosion-Proof Heat Lamp, 250 Watt
 Bond Test Unit

Materials:

Abrasive Paper (E6, E7, or E8)
 Masking Tape (E388)
 Template Paper (E263)
 Acetone (E20)
 Cloths (E120)
 Core Material, HRH-10-3/16-4.0 (E150.1)
 Core Material, HRH-10/OX-3/16-4.0 (E150.2)
 Adhesive, EA9309.3 NA (E41)
 Resin (E47)
 Hardener (E192)
 Peel Ply (E270)
 Teflon-Impregnated Fabric (E170)
 Glass Cloth (E132)
 Sealing Tape (E396)
 Polyvinyl Sheet (E284)
 Gloves (E186)
 Glass Cloth 181-150 (E132.1) or
 Glass Cloth 181-77 (E132.2)
 Polyethylene Cup (E157)
 Wood Spatula (E424)
 Wire Mesh (E453.1)
 Cellophane (E98)
 Temperature Indicating Strips (E413)

Personnel Required:

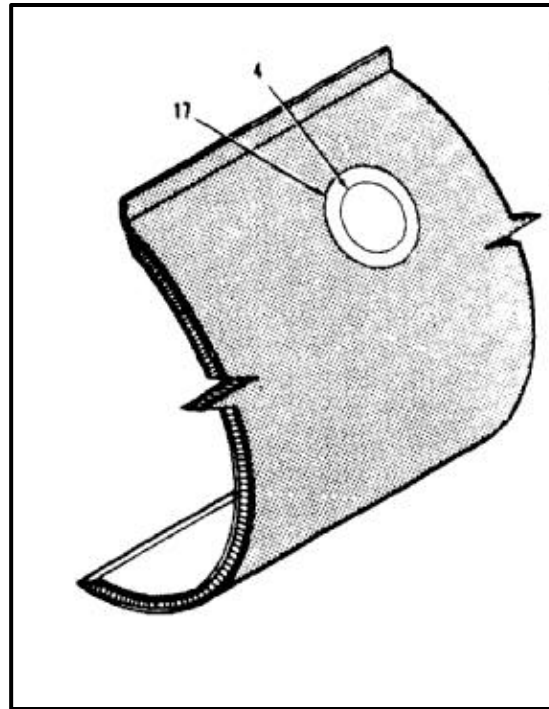
Aircraft Structural Repairer
 Inspector

References:

Task 2-187.1
 TM 1-1520-253-23

Equipment Condition:

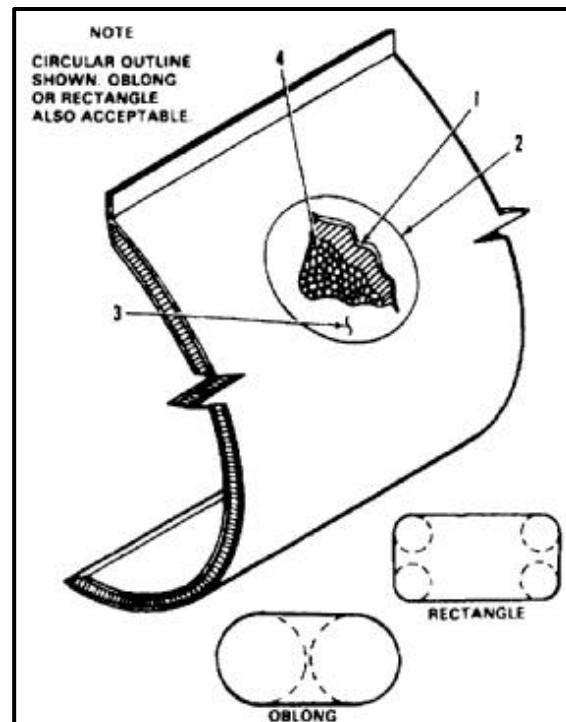
Off Helicopter Task
 Fuel Pod Prepared for Repair (Task 2-187.1)

**General Safety Instructions:****WARNING**

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

REMOVE DAMAGE

1. Outline area of damage (1). Shape of outline (2) shall have no corners. A circle or oblong is preferred. Use pencil compass and straightedge.
2. Remove damaged skin (3) and core (4) within outline (2) with hole saw or router. If hole saw is used, go to step 4. If router is used, go to step 3.

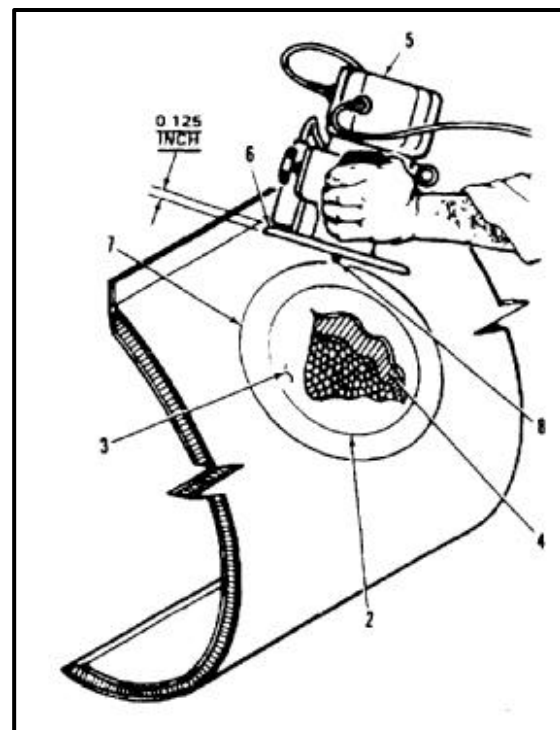


3. Cut through damaged skin (3) with router (5) as follows:
 - a. Measure radius of router base (6). Draw guide line (7) around repair area outline (2) at a distance equal to radius.
 - b. Install router bit (8). Set depth equal to **0.125 inch**.

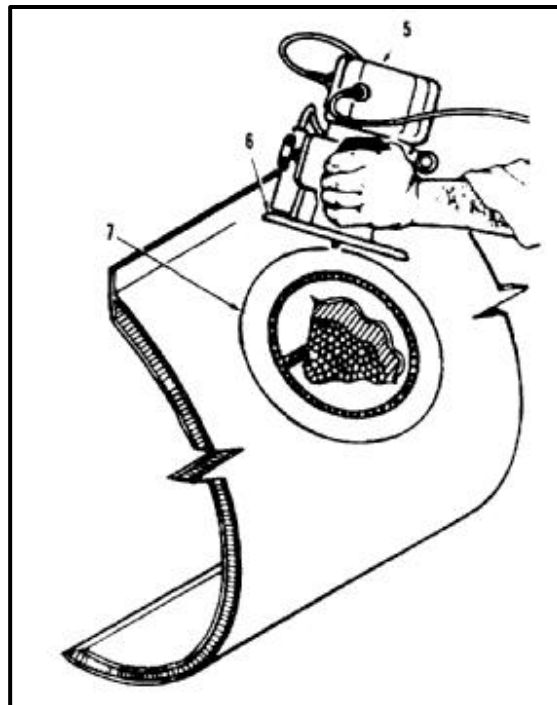
WARNING

Wear goggles, respirator, and protective clothing when using router. Fiberglass particles will irritate eyes, lungs, and skin.

- c. Start router (5). Keep router under complete control. Grasp handles with both hands.
- d. Rest edge of router base (6) on pod so that bit (8) is centered on damaged area. Slowly lower router so that bit penetrates pod skin (3).



- e. Slowly move router (5) outward until router base (6) just touches guideline (7). Follow guideline around in a counterclockwise direction. Keep edge of base just touching guideline.
- f. When cut is complete, move router (5) into center of repair area. Turn off router and remove it. Go to step 5.

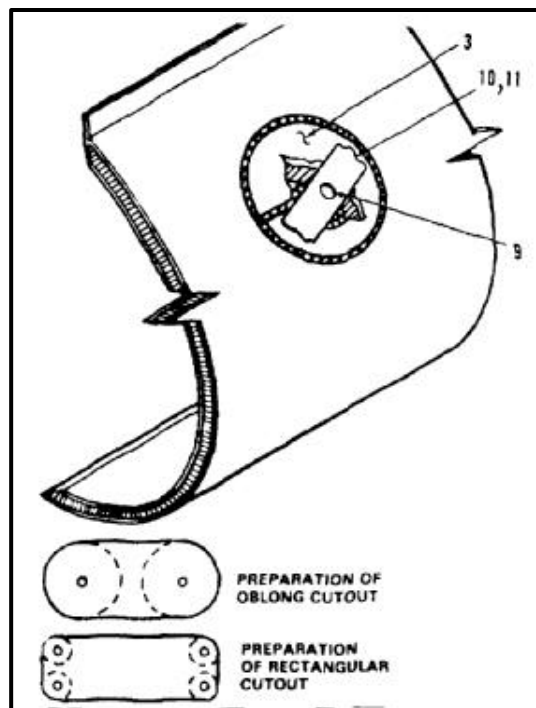


- 4. Cut through damaged skin (3) with hole saw as follows:
 - a. Drill pilot hole (9) at center of damaged area (1). Make hole the same size as center drill of hole saw. If damage does not allow drilling, cover area with several layers of template paper (E263) (10) and masking tape (E388) (11). Secure paper with tape.

NOTE

Hole saw shall be same diameter as curve of damage area outline.

- b. Insert center drill of hole saw in pilot hole (9). Hold saw lightly against skin (3) and slowly turn it clockwise. Use wrench.
- c. Turn saw until it goes through skin (3).

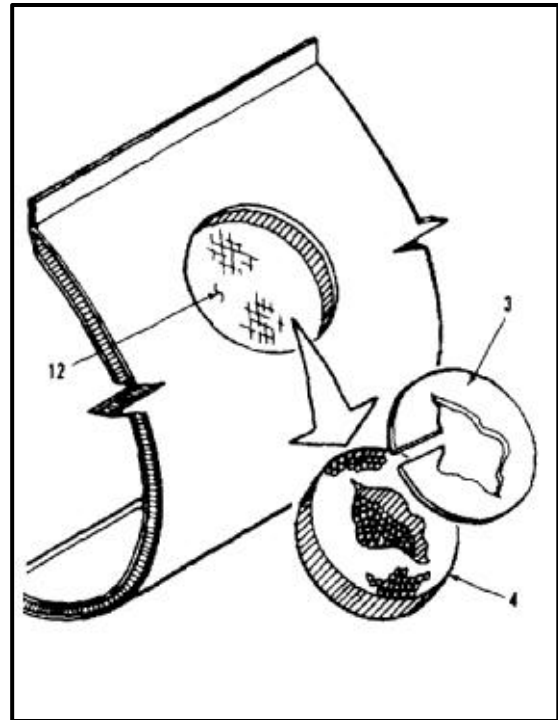


5. Remove damaged skin (3) and core (4) from tank as follows:
 - a. Peel off cut-out section of skin (3). Use pliers and chisel.

WARNING

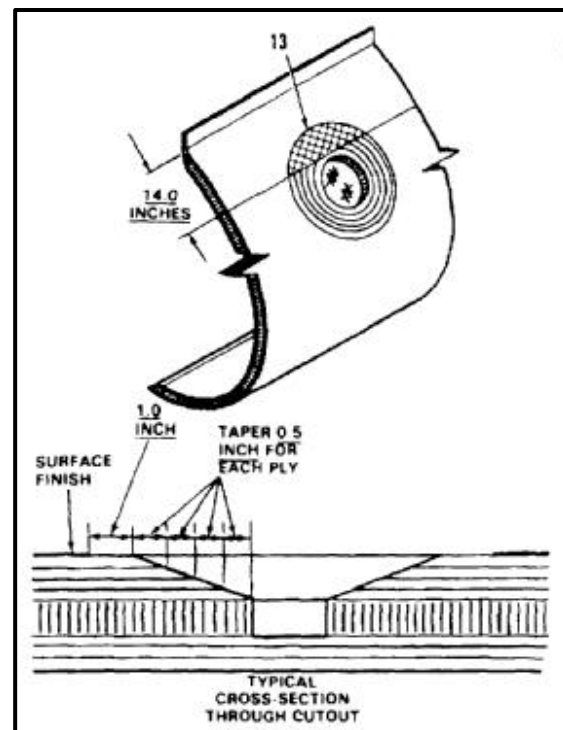
Do not cut or score opposite skin when removing damaged core.

- b. Cut through core (4) to opposite skin (12). Use pen knife with blunt point. Cut only deep enough to separate damaged core (4).
- c. Remove damaged core (4). Use pliers and chisel. Do not damage opposite skin (12).
- d. Sand skin (12) where core was removed. Use abrasive paper (E7).



PREPARE SURFACE

6. Determine number of plies cut through on skin of pod. (Refer to Task 2-187.1.) Mask off area around cutout equal to at least **0.5 inch** in all directions for each ply removed plus an additional **1.0 inch**. Use template paper (E263) and masking tape (E388).
7. Remove finish from masked area. Use sanding block and abrasive paper (E6). Use clean cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
8. Complete finish removal with abrasive paper (E8). In areas of wire mesh (13), do not sand through mesh. If mesh was removed, expose mesh for **1.0 inch** around removed area.
9. Taper edge of cutout **0.5 inch** for each skin ply removed. Leave at least **1.0 inch** between outboard edge of taper and border of finish removal area.
10. Remove sanding dust from repair area. Use a vacuum cleaner. Clean masked area with acetone (E20) and clean cloths (E120). Wipe area dry with clean dry cloths.



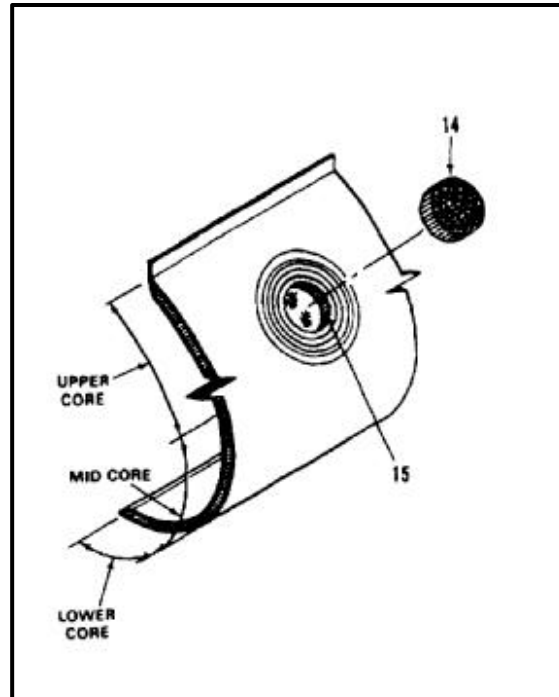
PREPARE REPAIR MATERIALS

Wear gloves (E186) for remaining steps. Bare hands will contaminate materials, causing poor bond.

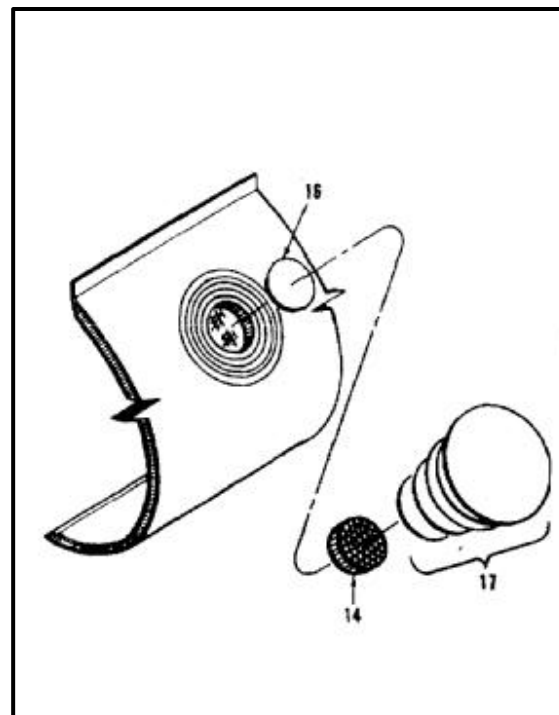
NOTE

Core material must be clean and dry for adhesive to hold.

11. Make core plug (14) in shape of cutout, but **0.125 inch** larger all around. Orient ribbon in same direction as existing core (15). Use core material (E150.1) in upper and lower core areas. Use core material (E150.2) in middle core area. (Refer to Task 2-187.1.)



12. Determine number and size of pieces of glass cloth (E132.1 or E132.2) needed for repair.
 - a. One piece (16) shall be same size as cutout.
 - b. Number of pieces (17) shall be equal to one more than number of plies removed. (Refer to Task 2-187.1.) Smallest piece shall be large enough to overlap core plug (14) **0.5 inch**. Each additional piece shall be large enough to overlap previous piece by **0.5 inch** in all directions.
13. Check that finish on pod is removed for at least **0.5 inch** more in all directions than size determined for largest piece of cloth (17).



14. Cut one piece of glass cloth (E132.1 or E132.2) (18) large enough for cutting the number of pieces (16 and 17) needed.
15. Cut two pieces of cellophane (E98) (19 and 20) at least **1 inch** larger all around than piece of glass cloth cut in step 14. Fasten one piece to a smooth surface. Use masking tape (E388).

MIX GLASS CLOTH ADHESIVE

16. Prepare adhesive mixture as follows:

NOTE

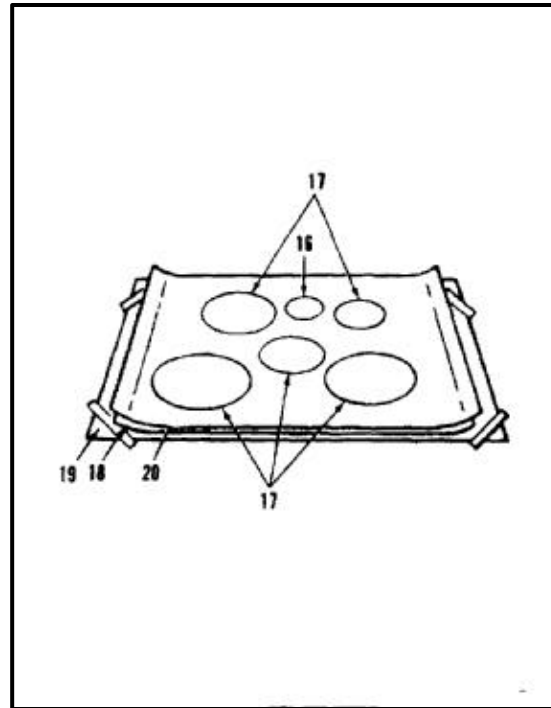
Weigh and mix resin and hardener accurately to produce good bond.

- a. Weigh **101 parts** of resin (E47) and **14 parts** of hardener (E192).

NOTE

Working life of mixed adhesive is **30 minutes**.

- b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).

**MIX CORE ADHESIVE****NOTE**

Working life of mixed adhesive is **30 minutes**.

17. Mix tube of adhesive (E41).



Weigh and mix resin and hardener accurately to produce good bond.

18. Prepare adhesive (E41) as follows:
 - a. Weigh **100 parts** of resin and **23 parts** of hardener.
 - b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).

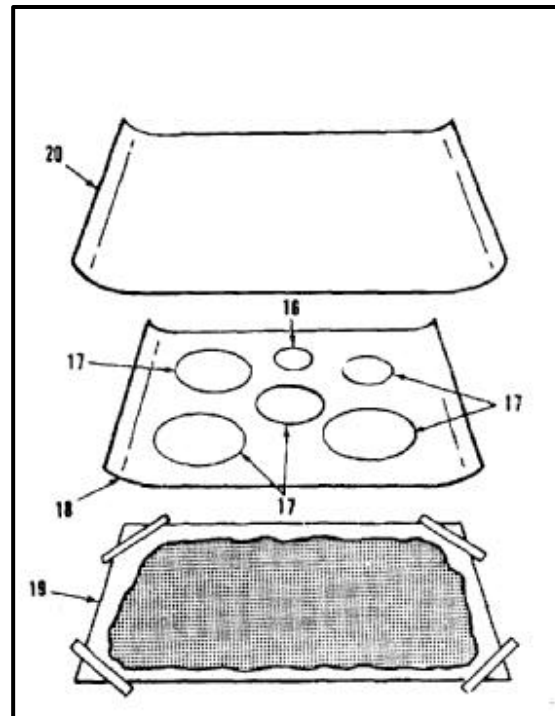
PREPARE GLASS CLOTH

19. Spread adhesive mixture prepared in step 16 on cellophane (E98) (19) taped down in step 15. Place piece of glass cloth (E132.1 or E132.2) (18) cut in step 14 in adhesive.
20. Cover glass cloth (18) with second piece of cellophane (20).
21. Press on top layer of cellophane (20). Use a roller. Continue until glass cloth (18) is saturated with adhesive mixture and all entrapped air is squeezed out.

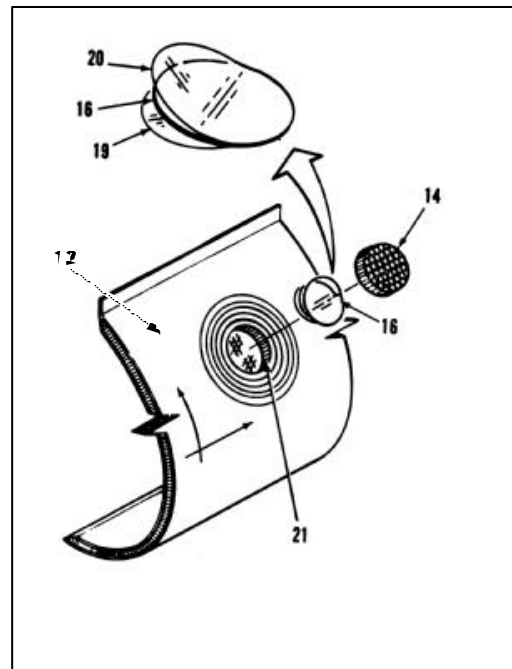
NOTE

Cellophane decreases fraying of glass cloth edges while cutting.

22. Cut piece (16) from glass cloth (18). Cut it so that the weave of the cloth will run horizontally and vertically on the pod. Do not remove cellophane (19 and 20). Cut through it.

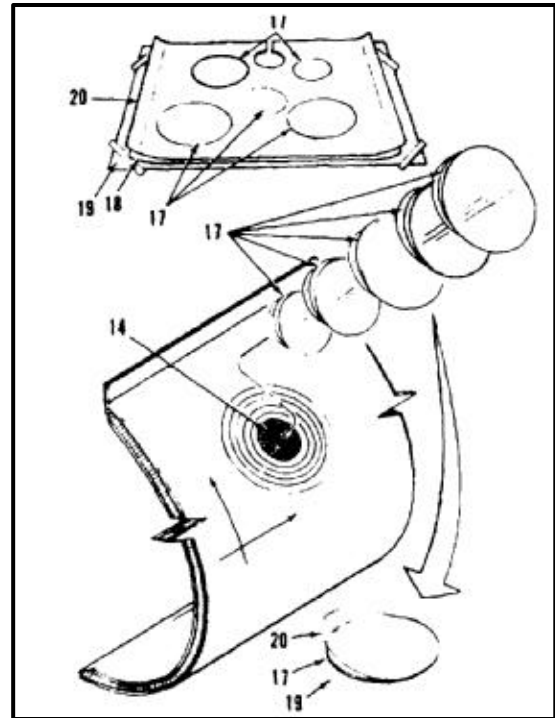
**INSTALL CORE PATCH**

23. Remove cellophane (19) from one side of smallest cloth piece (16). Position piece so that weave of cloth runs horizontally and vertically on pod. Place exposed surface of piece against opposite skin (12).
24. Apply light pressure over surface of cloth piece (16) to remove wrinkles and entrapped air. Remove cellophane (20).
25. Apply adhesive mixture prepared in step 17 or 18 around edges of core plug (14) and undamaged core (21).
26. Install core plug (14) in cutout against cloth piece (16). Orient ribbon on plug in same direction as on undamaged core (21). Press plug firmly against cloth piece.

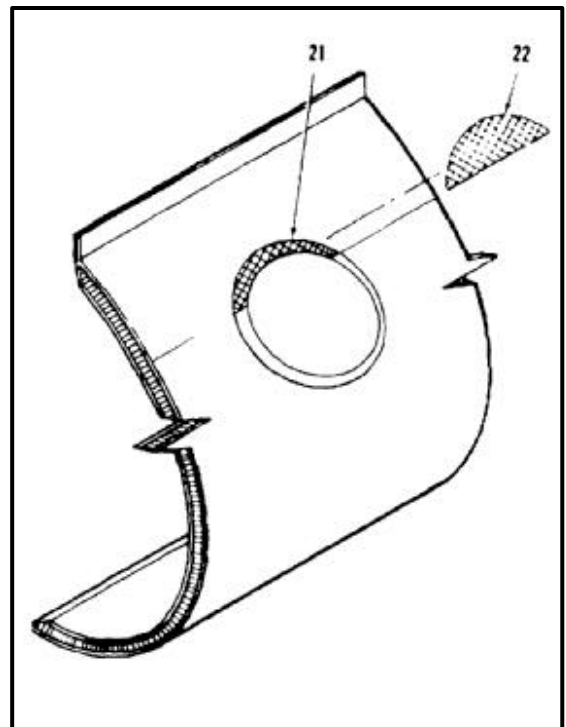


INSTALL GLASS CLOTH

27. Cut glass cloth (18) into pieces (17) as determined in step 12.b. Cut pieces so that the weave of the cloth will run horizontally and vertically on the pod. Do not remove cellophane (19 or 20). Cut through it.
28. Coat area around cutout with adhesive mixture prepared in step 16.
29. Remove cellophane (19) from one side of smallest cloth piece (17). Position piece so that weave of cloth runs horizontally and vertically on pod. Place exposed face of piece against core plug (14). Keep equal overlap on all sides.
30. Apply light pressure over surface of piece (16) to remove wrinkles and entrapped air. Be careful not to move core plug (14).
31. Remove cellophane (20) from installed piece (16). Remove cellophane (19) from bottom of next larger piece. Apply larger piece position as in step 29, over installed piece with equal overlap on both sides.
32. Repeat steps 30 and 31 for all remaining pieces (17). Remove cellophane (20) from last piece.

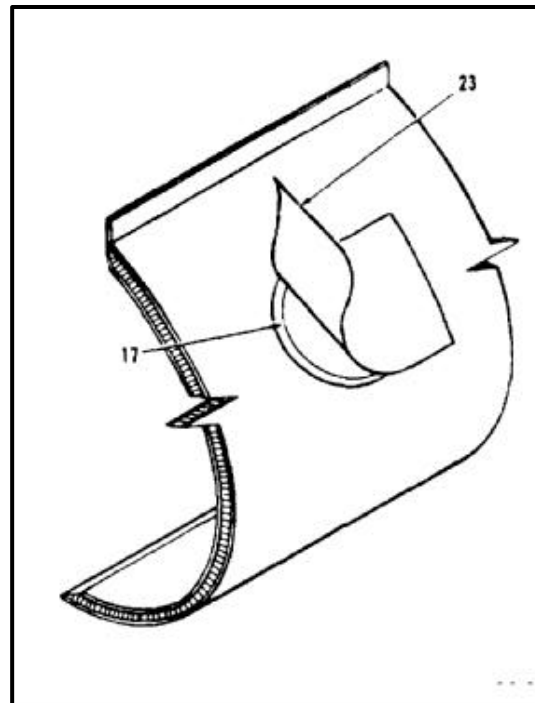


33. If more than **1 square-inch** of wire mesh (21) was removed, replace it as follows:
 - a. Cut a piece of wire mesh (E453.1) (22) large enough to overlap existing mesh (21) **1 inch**.
 - b. Brush a coat of adhesive mixture prepared in step 16 over repair area and existing mesh (21).
 - c. Seat replacement mesh (22) over repair area and existing mesh (21). Make sure mesh is in firm contact over entire **1 inch** overlap.
 - d. Brush smooth coat of adhesive (E41) over replacement mesh (22). Fair adhesive to tank skin.

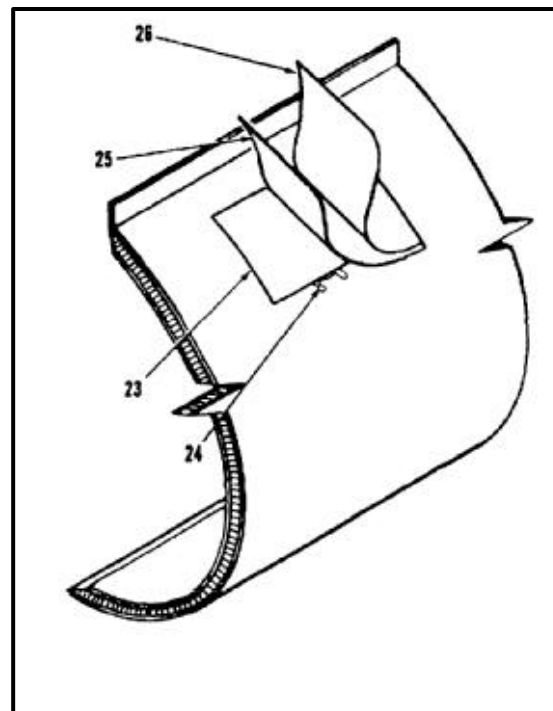


BOND REPAIR

34. Cover repair area with peel ply (E270) (23) to overlap area by at least **1 inch**.
35. Fair edges of patch to contour of pod. Wipe from center of patch outward with rubber spatula. Make sure all loose threads of glass cloth (17) are imbedded in adhesive.



36. Wipe off adhesive squeezeout (24) from around peel ply (23).
37. Cover peel ply (23) with a sheet of Teflon-impregnated fabric (E170) (25). Make sheet large enough to overlap peel ply by **1 inch**.
38. Cover Teflon-impregnated fabric (25) with fiberglass cloth (E132) (26).



39. Surround repair area with sealing tape (E396) (27). Leave at least **1 inch** between cloth (26) and tape on all sides.
40. Wrap end of tube (28) with two layers of fiberglass cloth (E132) (29). Secure cloth to tube with masking tape (E388).
41. Lay covered end of tube (28) on glass cloth (26). Keep end of tube outside of repair area. Wrap tube with sealing tape (E396) (30) where it crosses surrounding tape. Form an airtight seal.
42. Press polyvinyl sheet (E284) (31) smoothly onto tape (27) to make airtight seal around repair area.
43. Connect end of tube (28) to a vacuum pump. Use rubber hose.
44. Start vacuum pump. Set pump for vacuum of **3 inches Hg**. Check for leaks. Reposition polyvinyl sheet (31) or add tape (27 or 30) as needed.
45. Increase vacuum to **20 inches Hg**. Maintain vacuum throughout adhesive cure.



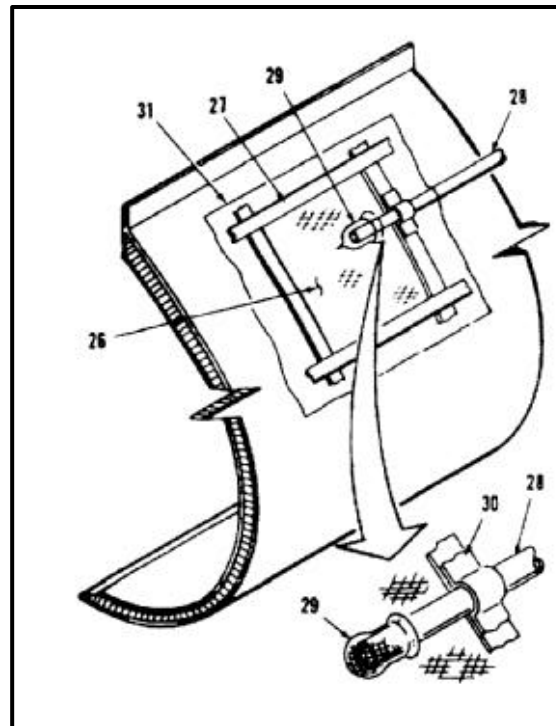
Do not exceed **160°F (71°C)** at pod surface. Damage to pod can occur.

46. Cure adhesive at **150° to 160°F (66° to 71°C) for 2.5 hours**. Use explosion-proof heat lamp set at **11 to 12 inches** from repair area. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at **70° to 80°F (21° to 27°C) in 24 hours**. Vacuum may be removed after **8 hours**.

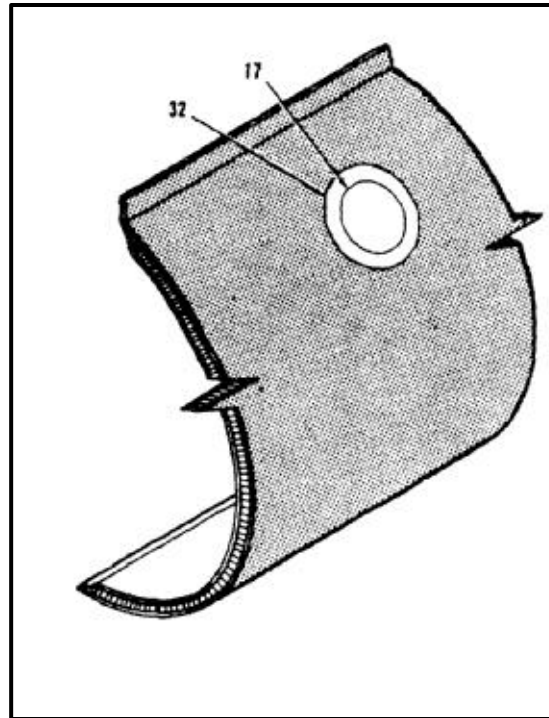
47. Turn off vacuum pump.



48. Remove vacuum bagging materials from repair area.
49. Check that patch (17) is free of pits, blisters, voids, and excess resin deposits. No voids allowed. If a void is suspected, refer to TM 1-1520-253-23. If squeezeout fairing (32) is not satisfactory, fair patch with adhesive. Follow step 16 to mix adhesive.

INSPECT**FOLLOW-ON MAINTENANCE:**

Refinish fuel pod (Task 2-187.7).



END OF TASK

2-670

INITIAL SETUP**Applicable Configurations:**

Helicopters With Composite Fuel Pods

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Straightedge
 Pencil Compass
 Router or
 Hole Saw
 Protective Clothing
 Respirator
 Vacuum Cleaner
 Vacuum Pump
 Roller
 Scissors
 Explosion-Proof Heat Lamp, 250 Watt
 Bond Test Unit

Materials:

Abrasive Paper (E6 or E8)
 Template Paper (E263)
 Masking Tape (E388)
 Acetone (E20)
 Cloths (E120)
 Core Material, HRH-10-3/16-4.0 (E150.1)
 Core Material, HRH-10/OX-3/ 16-4.0 (E150.2)
 Adhesive, EA9309.3 NA (E41)
 Resin (E47)
 Hardener (E192)
 Peel Ply (E270)
 Teflon-Impregnated Fabric (E170)
 Glass Cloth (E132)
 Sealing Tape (E396)
 Polyvinyl Sheet (E284)
 Gloves (E186)
 Glass Cloth 181-150 (E132.1) or
 Glass Cloth 181-77 (E132.2)
 Polyethylene Cup (E157)
 Wood Spatula (E424)
 Wire Mesh (E453.1)
 Cellophane (E98)
 Temperature Indicating Strips (E413)

Personnel Required:

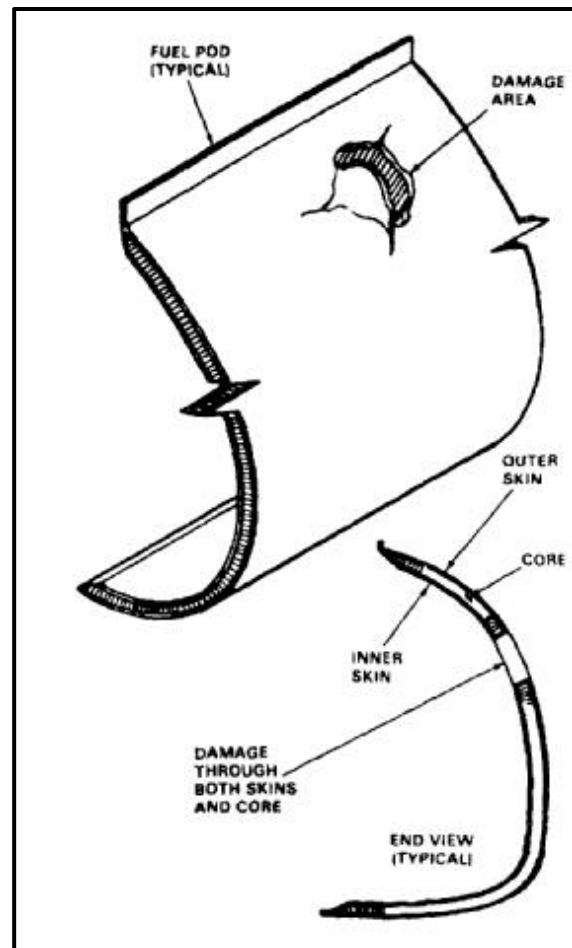
Aircraft Structural Repairer
 Inspector

References:

Task 2-187.1
 TM 1-1520-253-23

Equipment Condition:

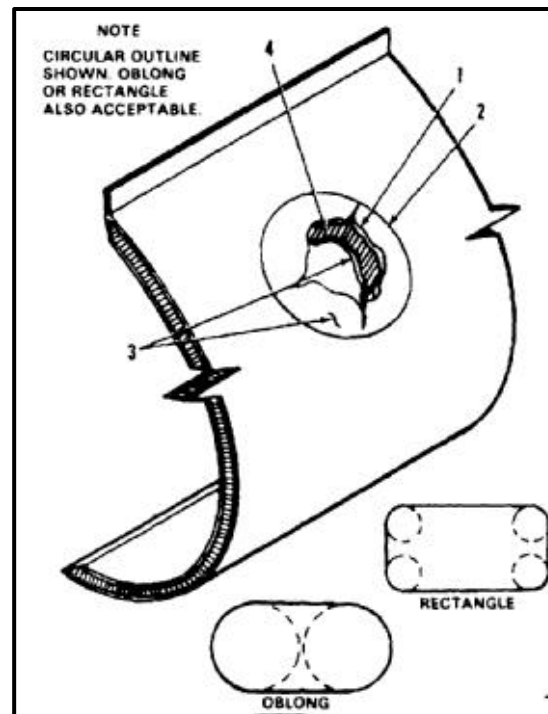
Off Helicopter Task
 Fuel Pod Prepared for Repair (Task 2-187.1)

**General Safety Instructions:****WARNING**

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

REMOVE DAMAGE

1. Outline area of damage (1). Shape of outline (2) shall have no corners, A circle or oblong is preferred. A rectangle with rounded corners is acceptable. Use pencil compass and straightedge.
2. Remove damaged skin (3) and core (4) within outline (2) with hole saw or router. If hole saw is used, go to step 4. If router is used, go to step 3.

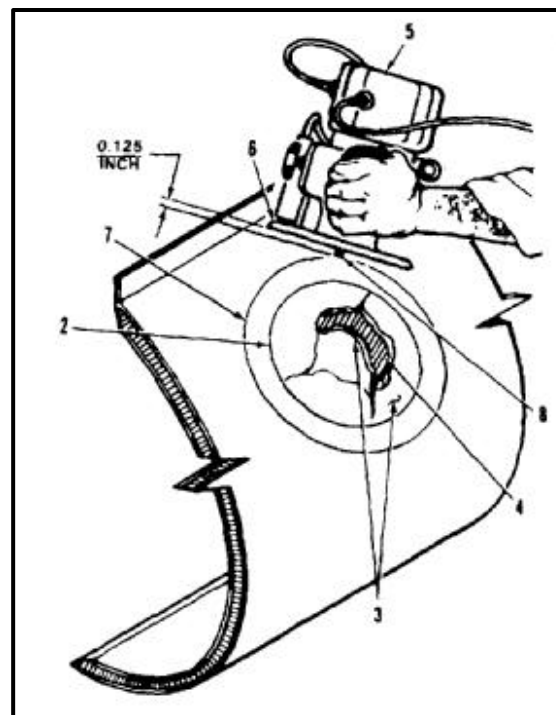


3. Remove damaged skin (3) and core (4) with router (5) as follows:
 - a. Measure radius of router base (6). Draw guide line (7) around repair area outline (2) at a distance equal to radius.
 - b. Install router bit (8). Set for depth of cut equal to **0.125 inch**.

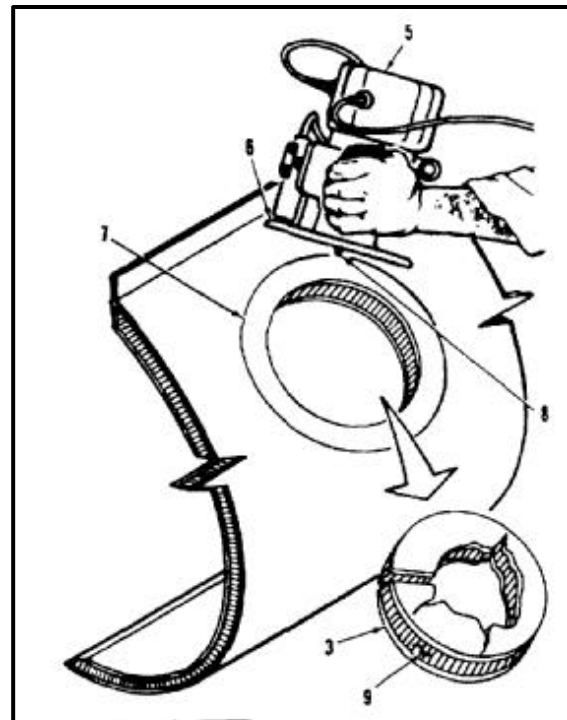
WARNING

Wear goggles, respirator, and protective clothing when using router. Fiberglass particles will irritate eyes, lungs, and skin.

- c. Start router (5). Keep router under complete control. Grasp handles with both hands.
- d. Rest edge of router base (6) on pod so that bit (8) is centered on damaged area. Slowly lower router so that bit penetrates pod skin (3).



- e. Slowly move router (5) outward until router base (6) just touches guideline (7). Follow guideline around in a counterclockwise direction. Keep edge of base just touching guideline.
- f. When cut is complete, move router (5) into center of repair area. Turn off router and remove it.
- g. Set router bit (8) deep enough to cut through opposite skin (3). Repeat steps 2.d thru 2.f to remove plug (9) of core and skin.
- h. Go to step 5.

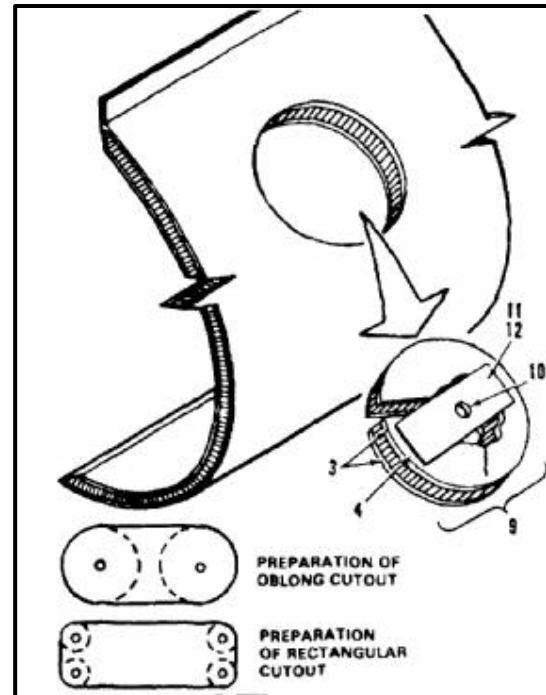


- 4. Remove damaged skin (3) and core (4) with hole saw as follows:
 - a. Drill pilot hole (10) at center of damaged area (1). Make hole the same size as center drill of hole saw. If damage does not allow drilling, cover area with several layers of template paper (E263) (11) and masking tape (E388) (12). Secure paper with tape.

NOTE

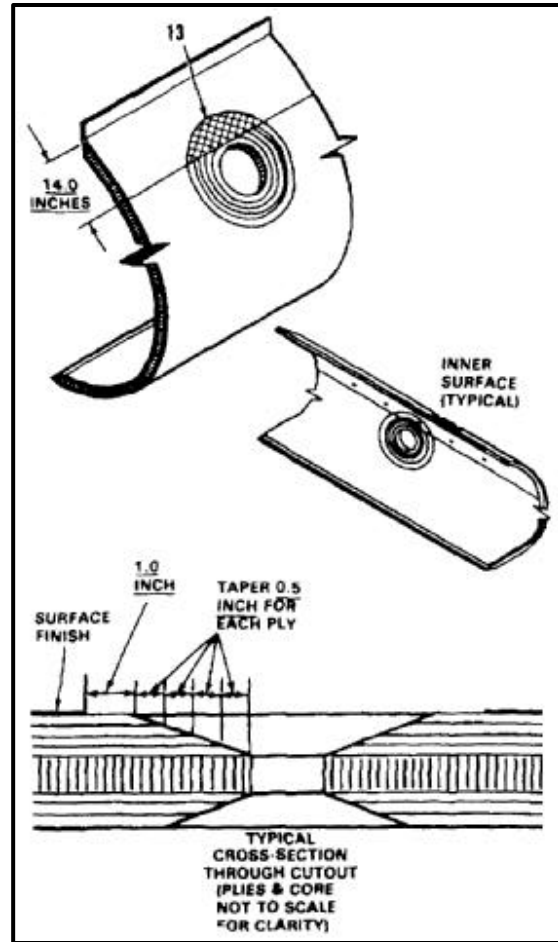
Hole saw shall be same diameter as curve of damage area outline.

- b. Insert center drill of hole saw in pilot hole (10). Hold saw lightly against skin (3) and slowly turn it clockwise. Use wrench.
- c. Turn saw until it goes through opposite skin (3). Remove plug (9) of skin and core.



PREPARE SURFACE

5. Determine number of plies cut through on inner and outer surfaces of pod. (Refer to Task 2-187.1.) Mask off area around cutout equal to at least **0.5 inch** in all directions for each ply removed plus an additional **1.0 inch**. Use template paper (E263) and masking tape (E388).
6. Remove finish from masked area. Use sanding block and abrasive paper (E6). Use clean cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
7. Complete finish removal with abrasive paper (E8). In areas of wire mesh (13), do not sand through mesh. If mesh was removed, expose mesh for **1.0 inch** around removed area.
8. Taper edge of cutout **0.5 inch** for each ply removed. Leave at least **1.0 inch** between outboard edge of taper and border of finish removal area.
9. Remove sanding dust from repair area. Use a vacuum cleaner. Clean masked area with clean cloths (E120) damp with acetone (E20). Wipe area dry with clean dry cloths. Do not touch cleaned area with bare hands.



PREPARE REPAIR MATERIALS

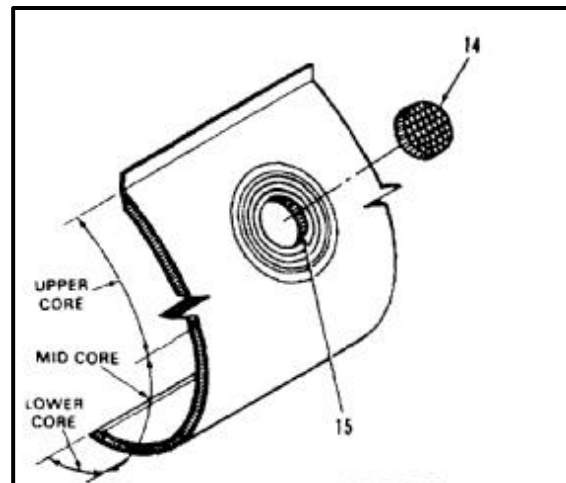


Wear gloves (E186) for remaining steps. Bare hands will contaminate materials, causing poor bond.

NOTE

Core material must be clean and dry for adhesive to hold.

10. Make core plug (14) in shape of cutout, but **0.125 inch** larger all around. Orient ribbon in same direction as existing core (15). Use core material (E150.1) in upper and lower core areas. Use core material (E150.2) in middle core area. Refer to Task 2-187.1.



11. Determine number and size of pieces of glass cloth (E132) (16) needed for repair. For each side of pod, number of plies is equal to one more than number of plies removed. (Refer to Task 2-187.1.) Size of smallest piece on each side shall be large enough to overlap core plug (14) **0.5 inch**. Each additional piece shall be large enough to overlap previous piece by **0.5 inch** in all directions.
12. Check that finish on each side of pod is removed for at least **0.5 inch** more in all directions than size determined for largest piece of cloth (16).
13. Cut one piece of glass cloth (E132.1 or E132.2) enough for cutting the number of pieces (16) needed.
14. Cut two pieces of cellophane (E98) about **1 inch** larger all around than piece of glass cloth (E132). Fasten one piece to a smooth surface. Use masking tape (E388).

INSTALL CORE PATCH

15. Mix tube of adhesive (E41) for core plug (14).

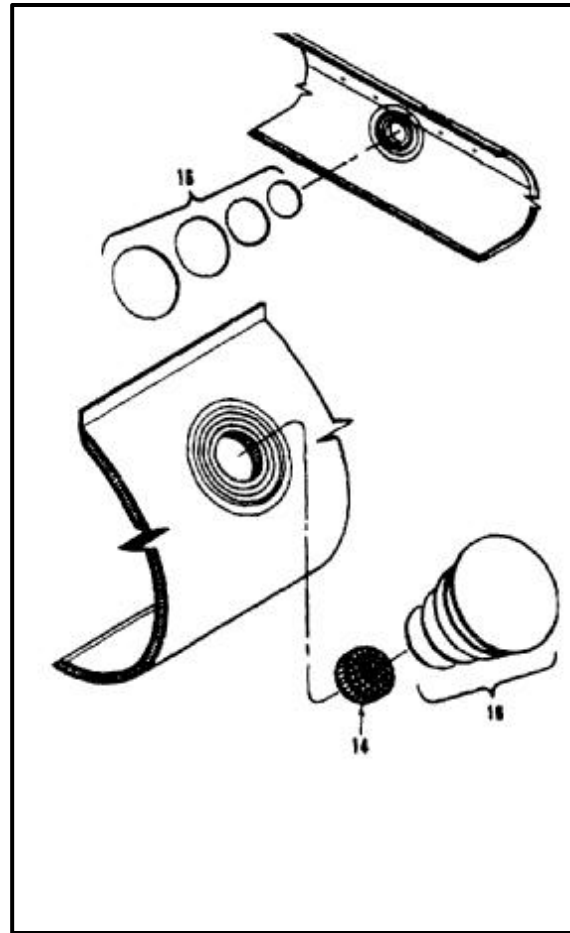


Weigh and mix resin and hardener accurately to produce acceptable bond.

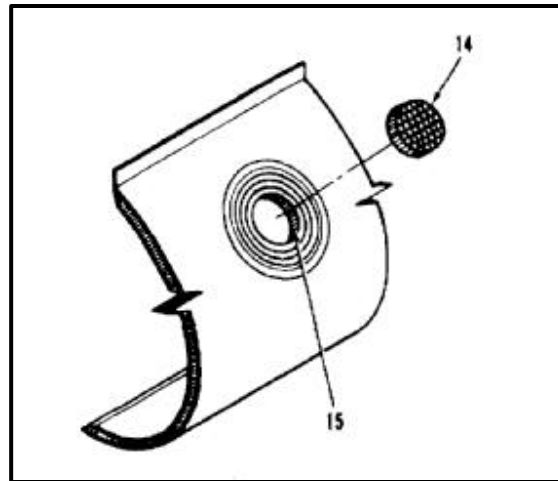
16. Prepare adhesive (E41) as follows:
 - a. Weigh **100 parts** of resin (E47) and **23 parts** of hardener (E192).

NOTE

Working life of mixed adhesive is **30 minutes**.



- b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).
- 17. Apply mixed adhesive (E41) around edge of core plug (14) and undamaged core (15).
- 18. Install core plug (14) in cutout. Orient ribbon on plug in same direction as undamaged core (15). Set plug flush with surface of undamaged core.



INSTALL GLASS CLOTH

- 19. Prepare adhesive as follows:

NOTE

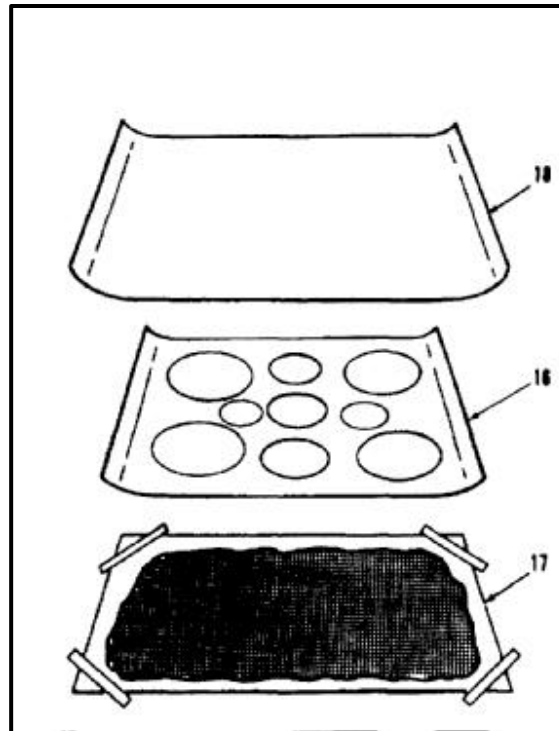
Weigh and mix resin and hardener accurately to produce acceptable bond.

- a. Weigh **101 parts** of resin (E47) and **14 parts** of hardener (E192).

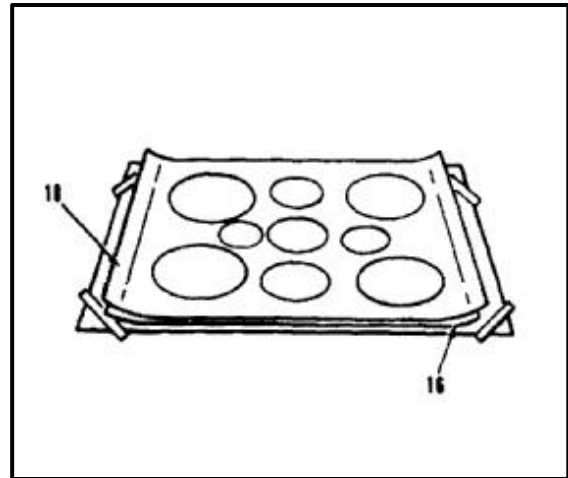
NOTE

Working life of mixed adhesive is **30 minutes**.

- b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).
- 20. Spread adhesive mixture over taped piece of cellophane (E98) (17). Place piece of glass cloth (E132.1 or E132.2) (16) cut in step 13 in adhesive.
- 21. Cover glass cloth (16) with second piece of cellophane (E98) (18).



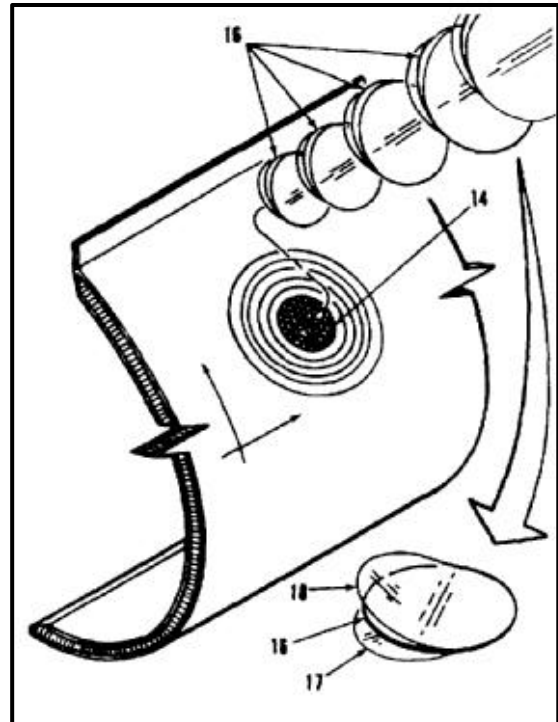
22. Press on top layer of cellophane (18). Use a roller. Continue until glass cloth (16) is saturated with adhesive mixture and all excess resin is squeezed out.



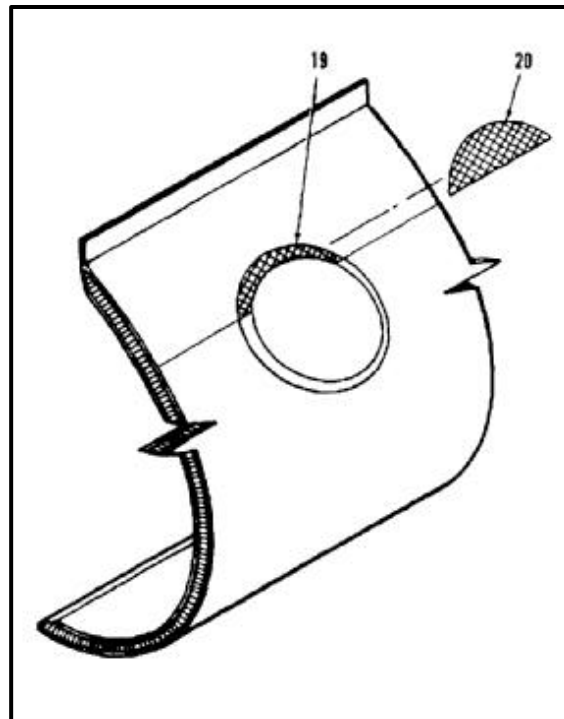
NOTE

Cellophane eliminates fraying of glass cloth edges while cutting.

23. Cut glass cloth into pieces (16) as determined in step 10. Cut pieces so that the weave of the cloth will run horizontally and vertically on the pod. Do not remove cellophane (17 or 18). Cut through it.
24. Coat area around cutout on one side of tank with adhesive mixture prepared in step 19.
25. Remove cellophane (17 or 18) from one side of smallest cloth piece (16) cut for that side. Position piece so that weave of cloth runs horizontally and vertically on pod. Place exposed face of patch against core plug (14). Keep equal overlap on all sides.
26. Apply light pressure over surface of patch (16) to remove wrinkles and entrapped air. Be careful not to move core plug (14).
27. Remove cellophane from installed piece (16) and one surface of next larger piece. Apply larger piece over installed piece with equal overlap on all sides.
28. Repeat steps 26 and 27 for all remaining pieces (16) for that side of pod.

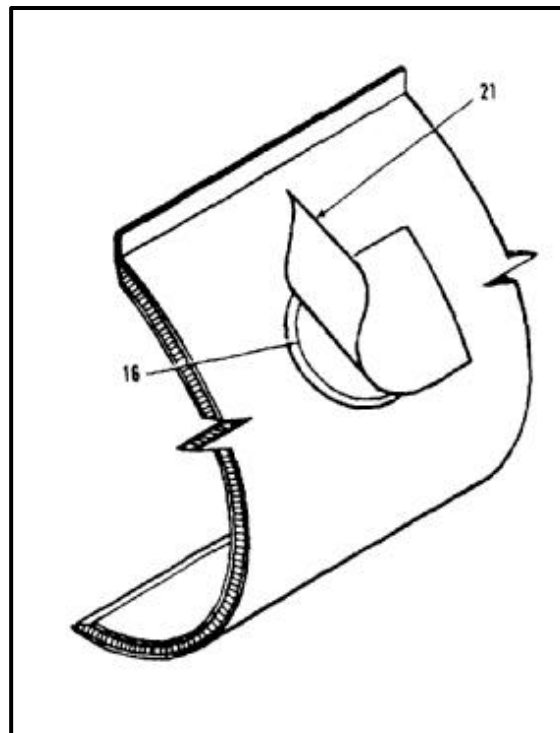


29. If more than **1 square-inch** of wire mesh (E453.1) (19) was removed, replace it as follows:
 - a. Cut a piece of wire mesh (E453.1) (20) large enough to overlap existing mesh (19) **1 inch** in all directions.
 - b. Brush a coat of adhesive mixture prepared in step 19 over repair area and existing mesh (19).
 - c. Seat replacement mesh (20) over repair area and existing mesh (19). Make sure mesh is in firm contact over entire **1 inch** overlap.
 - d. Brush smooth coat of adhesive mixture (E41) over replacement mesh (E453.1) (20). Fair adhesive to tank skin.
30. Cover opposite side of repair area with glass cloth patches. (Refer to steps 24 thru 29.)



BOND REPAIR

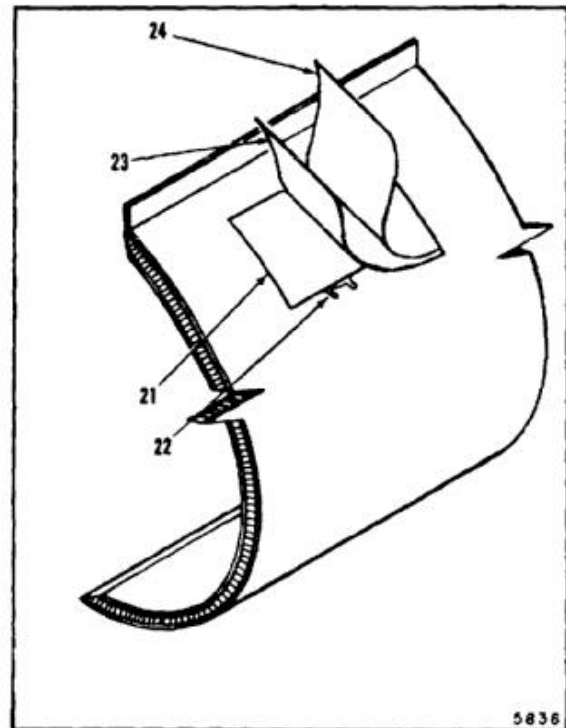
31. Cover repair area on one side of pod with peel ply (E270) (21) to overlap area by at least **1 inch**.
32. Fair edges of glass cloth (16) to contour of pod. Wipe from center of patch outward with rubber spatula. Make sure all loose threads of glass cloth are imbedded in adhesive.
33. Repair steps 30 thru 32 for opposite side of repair.



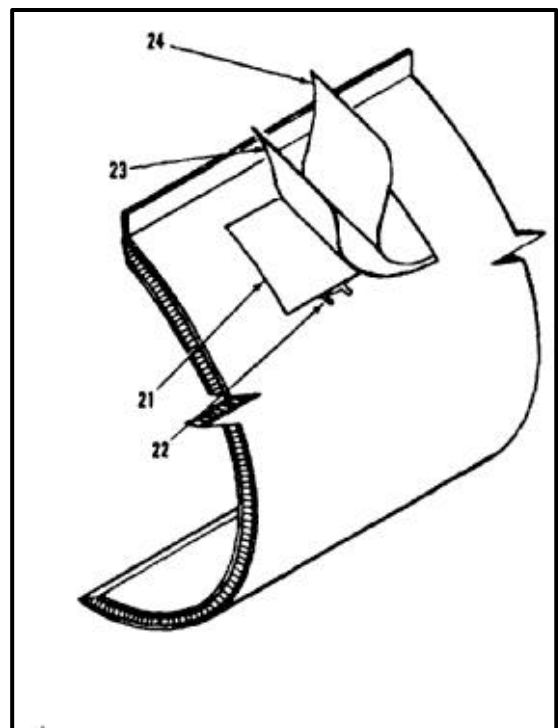
2-187.6 REPAIR COMPOSITE POD — DOUBLE SKIN (AVIM) (Continued)

2-187.6

34. Wipe off adhesive squeezeout (22) from around peel ply (21).
35. Cover peel ply (21) on one side of pod with a sheet of Teflon-impregnated fabric (E170) (23). Make sheet large enough to overlap peel ply by **1 inch**.
36. Cover Teflon-impregnated fabric (22) with fiberglass cloth (E132) (24).



37. Surround repair area with sealing tape (E396) (25). Leave at least **1 inch** between cloth (24) and tape on all sides.
38. Wrap end of tube (26) with two layers of fiberglass cloth (E132) (27). Secure cloth to tube with masking tape (E388).
39. Lay covered end of tube (26) on glass cloth (24). Keep end of tube outside of repair area. Wrap tube with sealing tape (E396) (28) where it crosses surrounding tape. Form an airtight seal.
40. Press polyvinyl sheet (E284) (29) smoothly onto tape (25) to make airtight seal around repair area.



41. Repeat steps 35 thru 40 for repair area on opposite side of pod.
42. Connect ends of tubes (26) to a vacuum pump. Use rubber hoses (30) and tee connection (31).
43. Start vacuum pump. Set pump for vacuum of **3 inches Hg**. Check for leaks. Reposition polyvinyl sheet (29) or add tape (25) as needed to stop leaks.
44. Increase vacuum to **20 inches Hg** vacuum throughout adhesive cure.



Do not exceed **160°F (71°C)** at pod surface. Damage to pod can occur.

45. Cure adhesive at **150° to 160°F (66° to 71°C) for 2.5 hours**. Use explosion-proof heat lamp set at **11 to 12 inches** from repair area. Monitor temperature with temperature indicating strips (E413).

NOTE

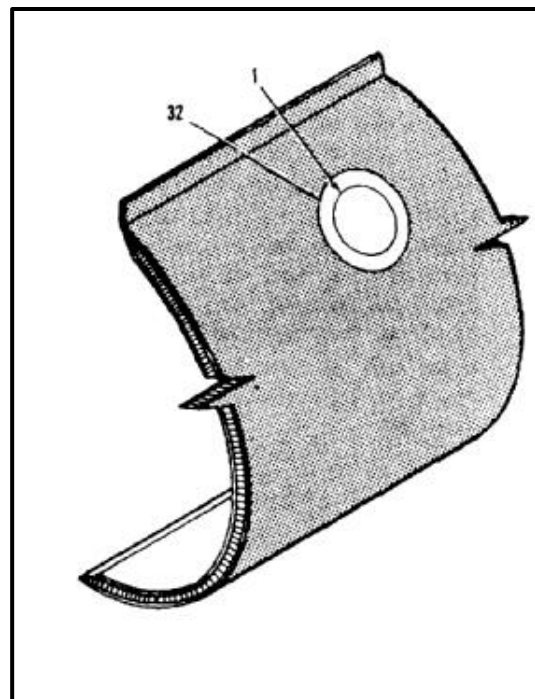
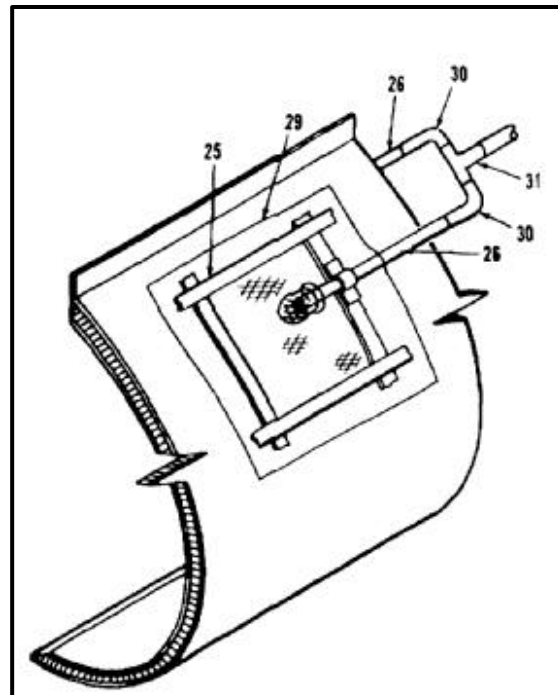
Serviceable cure can be achieved without heat at **70° to 80°F (21° to 27°C) in 24 hours**. Vacuum may be removed after **8 hours**.

46. Turn off vacuum pump.
47. Remove vacuum bagging materials from repair area.
48. Check that patch (1), on each side of pod, is free of pits, blisters, voids, and excess resin deposits. No voids allowed. If a void is suspected, refer to TM 1-1520-253-23. If squeezeout fairing (32) is not satisfactory, fair patch with adhesive. Follow step 19 to mix adhesive.

INSPECT

FOLLOW-ON MAINTENANCE:

Refinish fuel pod (Task 2-187.7).



END OF TASK

2-187.7 REFINISH COMPOSITE PODS**2-187.7****INITIAL SETUP****Applicable Configurations:**

Helicopters With Composite Fuel Pods

Tools:Sanding Block
Spray Gun**Materials:**Abrasive Paper (E9)
Acetone (E20)
Cloths (E120)
Antistatic Coating (E135.1)
Gloves (E184.1)
Epoxy Primer (E292.1)**Personnel Required:**Aircraft Structural Repairer
Inspector**References:**

Task 2-324

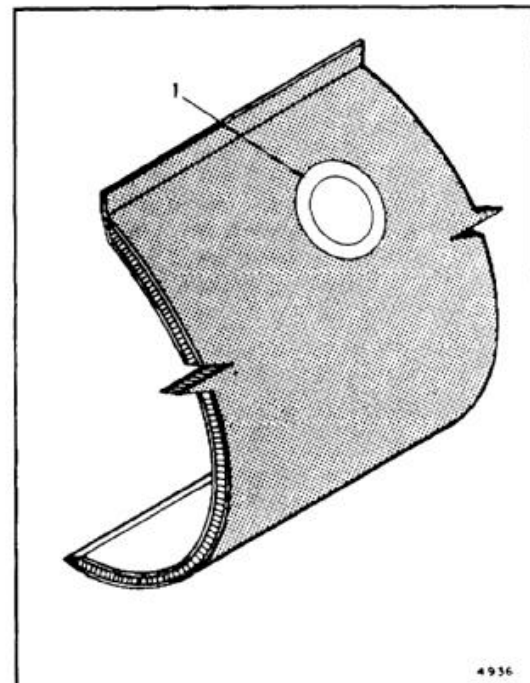
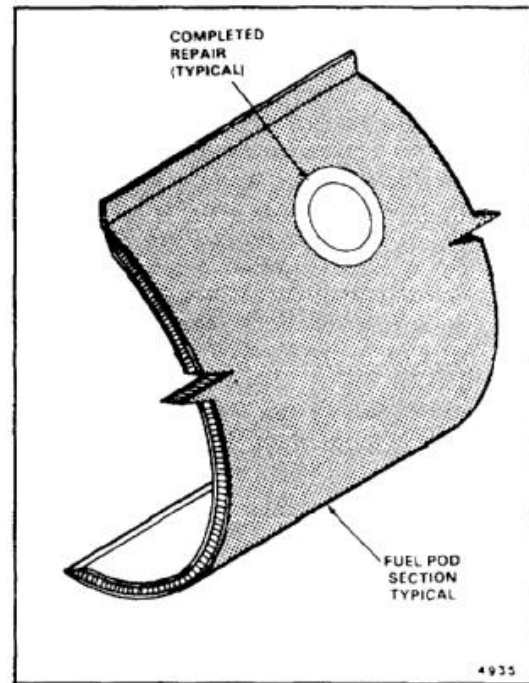
Equipment Condition:Battery Disconnected (Task 1-39)
Electrical Power Off

1. Lightly sand repair area (1) to fair edges and smooth finish. Use abrasive paper (E9).

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

2. Clean area of pod to be refinished. Use clean cloths (E120) damp with acetone (E20). Wear gloves (E184.1). Continue wiping until cloths remain clean.



3. Seal edges and fasteners as needed (Task 2-324).

WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

4. Apply **2 coats** of epoxy primer (E292.1) to repair area. Let air dry **1 hour** between coats. Wear gloves (E184.1).

NOTE

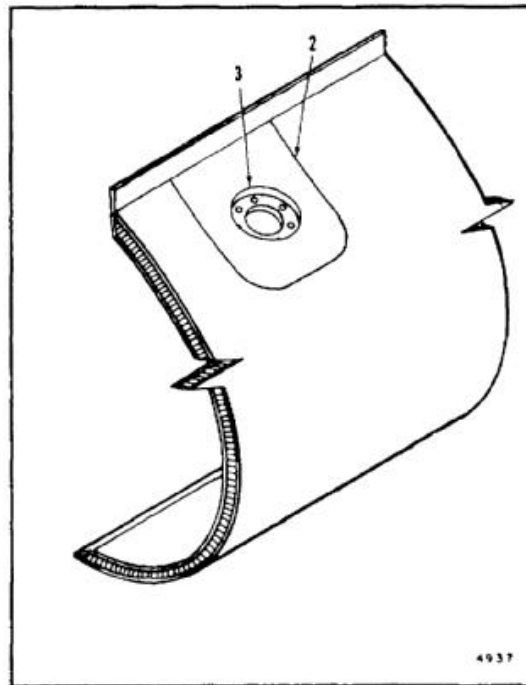
Epoxy primer is only finish required for pod interior.

5. If repair area extends into bib (2) around fill port (3), apply antistatic coating (E135.1) to exposed surface of bib as follows:

WARNING

Antistatic coating (E135.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- Mix antistatic coating (E135.1). Follow instructions on container.
- Let mixture stand at room temperature for **30 minutes**.
- Clean surface. Use a clean cloth (E120) damp with acetone (E20). Wipe dry with a clean, dry cloth.

**NOTE**

Apply coating within **4.5 hours** of mixing.

- Apply mixture in several thin spray coats to a final thickness of **0.0006 to 0.001 inch**. Allow **30 minutes** between coats. Allow final coat to dry for at least **3 hours at 70° to 80°F (21° to 27°C)**.

INSPECT**FOLLOW-ON MAINTENANCE:**

Apply topcoat to repair area (Task 2-353).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

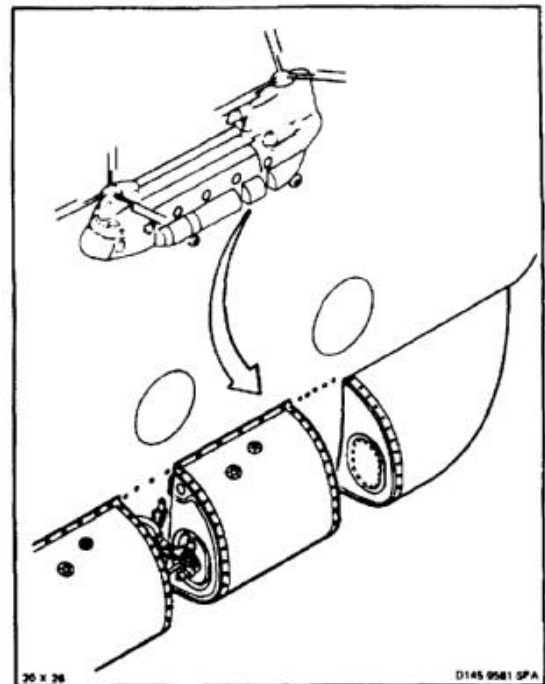
Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Lockwire (E231)

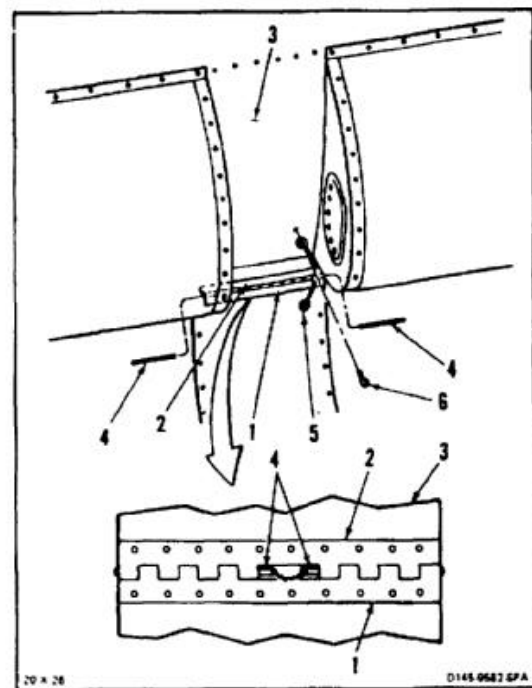
Personnel Required:Medium Helicopter Repairer (2)
Inspector**References:**

TM 55-1520-240-23P

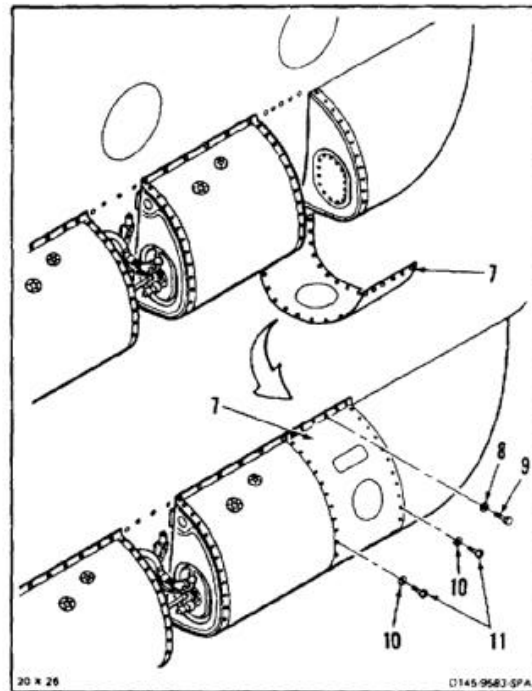
**NOTE**

Procedure is same to install left or right fuel pod panels. Left fuel pod panels shown here.

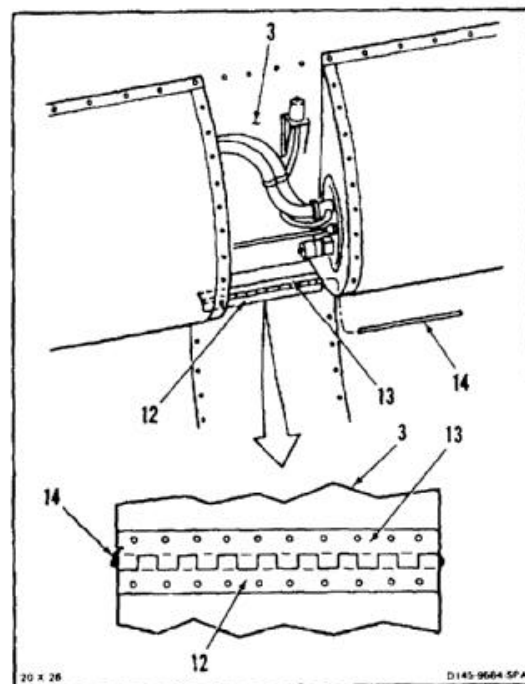
1. Have helper align fuel pod hinge (1) with hinge (2) on fuselage (3). Install two hinge pins (4).
2. Lockwire hinge pins (4). Use lockwire (E231).
3. Install bonding jumper (5) and screw (6).



4. Have helper raise fuel pod panel (7) and align holes across top of panel and fuselage (3).
5. Install six washers (8) and bolts (9).
6. Install 35 washers (10) and screws (11) in panel (7).



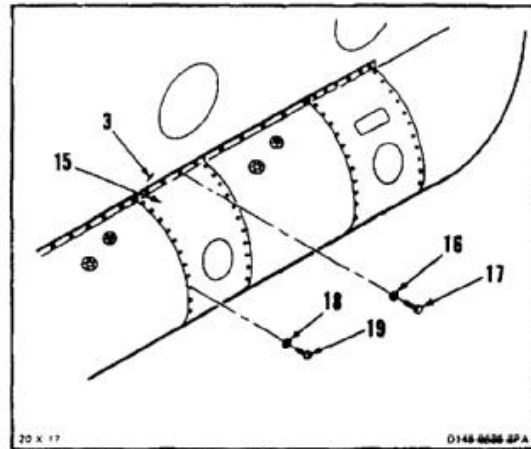
7. Have helper align fuel pod panel hinge (12) with hinge (13) on fuselage (3). Install hinge pin (14).
8. Lockwire hinge pin (14). Use lockwire (E231).



2-188 INSTALL FUEL POD PANELS (Continued)

2-188

9. Have helper raise fuel pod panel (15) and align holes across top of panel and fuselage (3).
10. Install four washers (16) and bolts (17).
11. Install 35 washers (18) and screws (19) in panel (15).

INSPECT**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

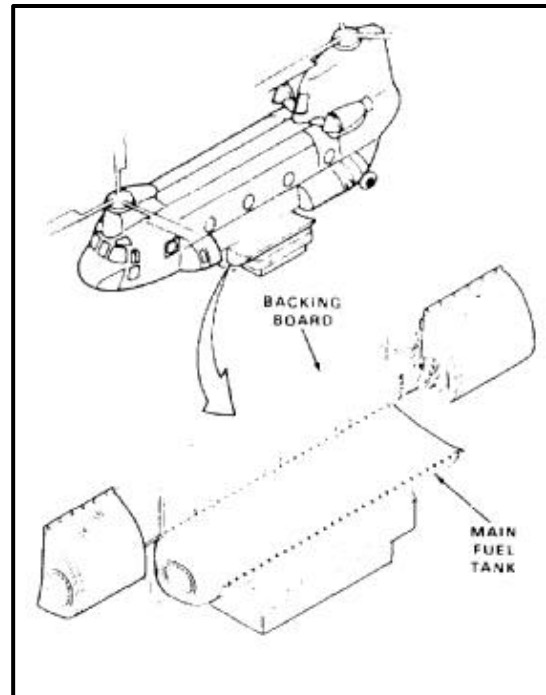
None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Aircraft Defueled (Task 10-34)
 Forward, Aft, or Main Fuel Tank Lowered (Tasks
 10-23, 10-28, 10-6)

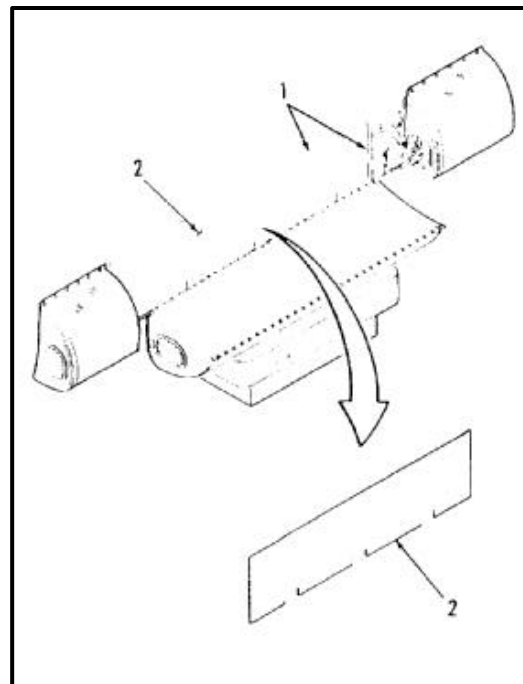
**NOTE**

Procedure is same to remove forward auxiliary, aft auxiliary, or main fuel tank inboard backing boards. Main fuel tank backing board shown here.

1. Remove anti-chafing tape (1) from edges of backing board (2).
2. Remove backing board (2).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-686

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Pressure Sensitive Spec Tape (E394)

Dry Cleaning Solvent (E161)

Cloths (E120)

Gloves (E186)

Personnel Required:

Medium Helicopter Repairer (3)

Inspector

References:

TM 55-1520-240-23P

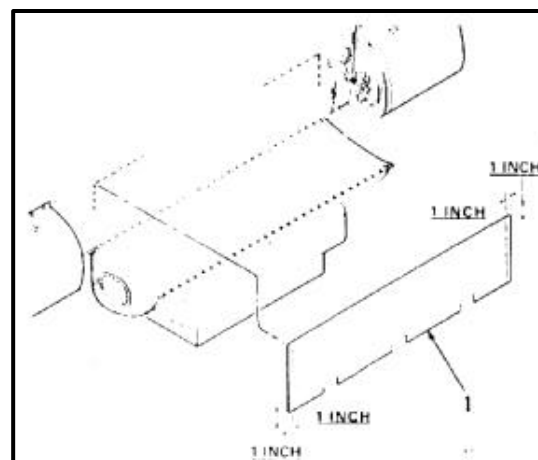
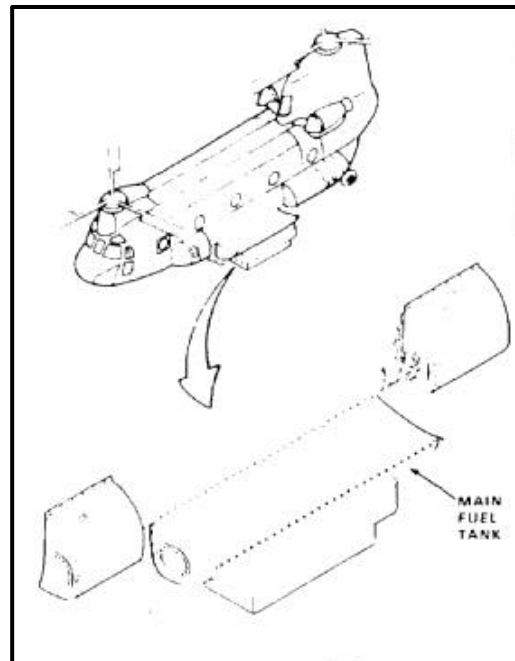
General Safety Instructions:**WARNING**

Dry cleaning solvent (E161) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

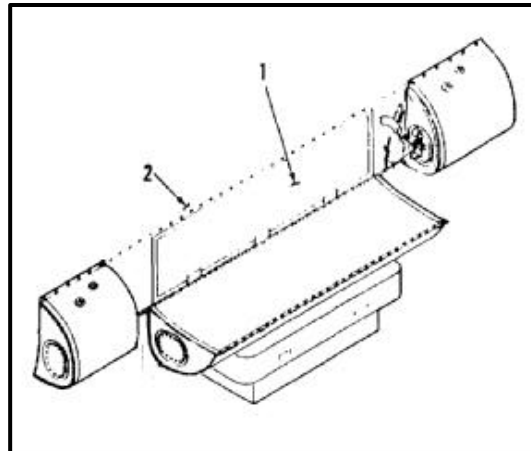
NOTE

Procedure is same to install forward auxiliary, aft auxiliary, or main fuel tank inboard backing boards. Main fuel tank backing board shown here.

1. Clean outboard surface of backing board (1) **1 inch** in from each edge. Use cloths (E120) and dry cleaning solvent (E161). Wear gloves (E186).



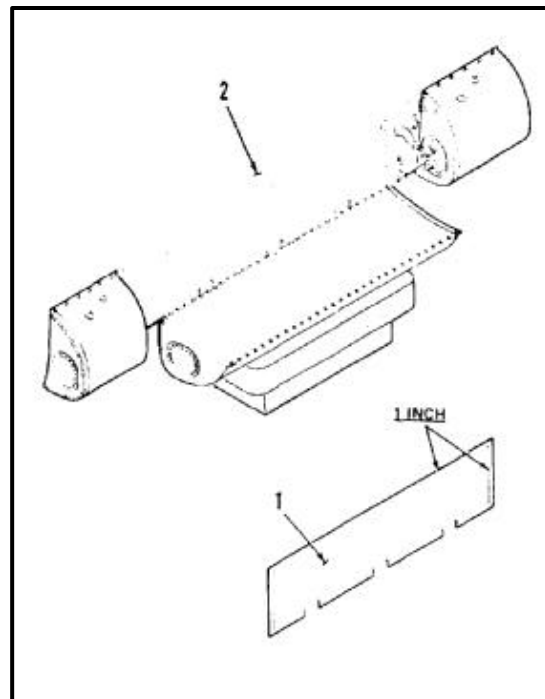
2. Have helpers position backing board (1) against fuselage (2).
3. Mark fuselage (2) **1 inch** from each edge of backing board (1). Remove backing board.



4. Clean surface of fuselage (2), **1 inch** from each edge of backing board (1). Use cloths (E120) and dry cleaning solvent (E161). Wear gloves (E186).
5. Apply pressure sensitive spec tape (E394) to backing board (1) and fuselage (2).

INSPECT**FOLLOW-ON MAINTENANCE:**

- Install forward auxiliary fuel tank (Task 10-26).
- Install aft auxiliary fuel tank (Task 10-31).
- Install main auxiliary fuel tank (Task 10-21).



END OF TASK

2-688

2-190.1 REMOVE OUTBOARD AND END BACKING BOARDS

2-190.1

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)

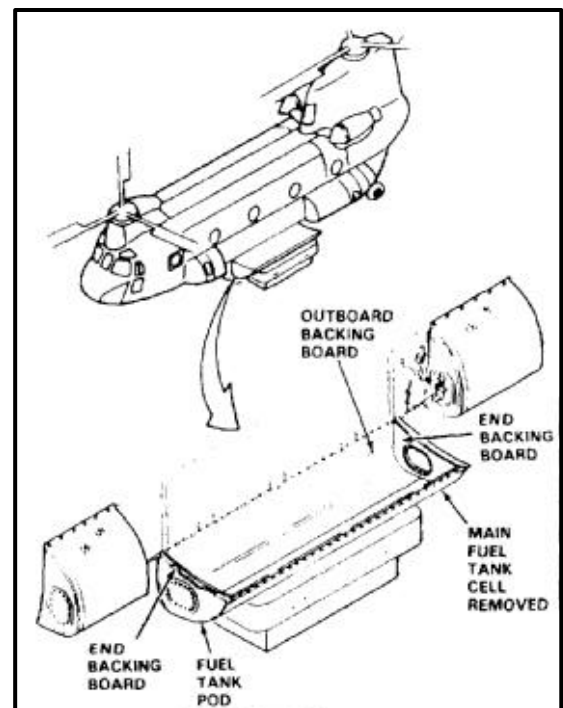
Electrical Power Off

Hydraulic Power Off

Main Fuel Tank Removed (Task 10-7)

Forward Auxiliary Fuel Tank Removed (Task 10-29)

Aft Auxiliary Fuel Tank Removed (Task 10-29)

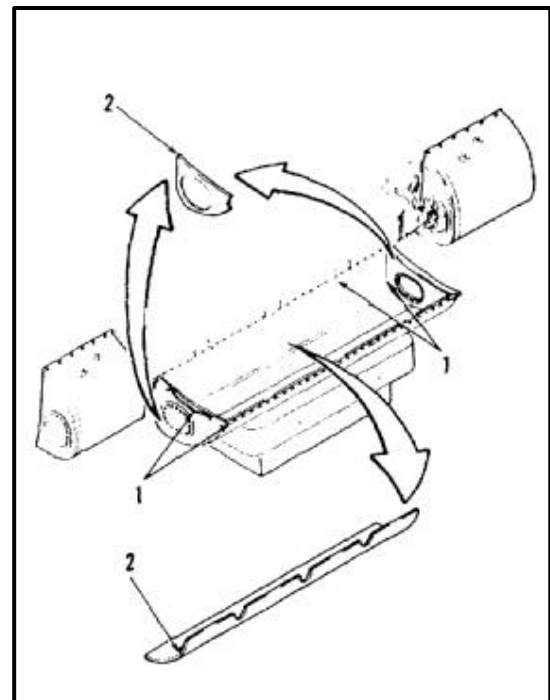
**NOTE**

Procedure is same to remove forward auxiliary, aft auxiliary, or main fuel tank outboard and end backing boards. Main fuel tank backing boards shown here.

1. Remove anti-chafing tape (1) from edges of backing board (2).
2. Remove backing board (2).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Pressure Sensitive Spec Tape (E394)

Dry Cleaning Solvent (E162)

Cloths (E120)

Gloves (E186)

Personnel Required:

Medium Helicopter Repairer (3)

Inspector

References:

TM 55-1520-240-23P

General Safety Instructions:

Off

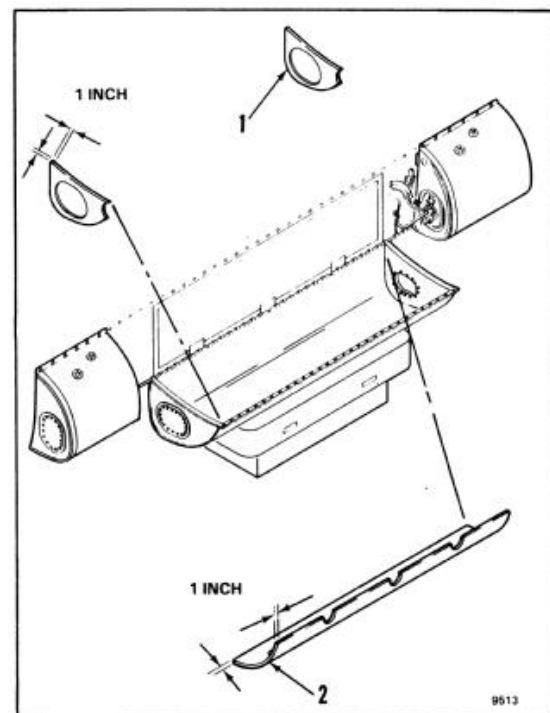
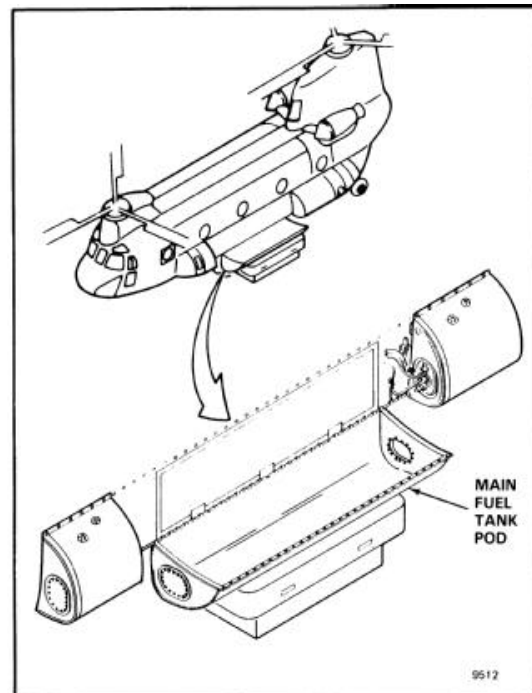
WARNING

Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention eyes.

NOTE

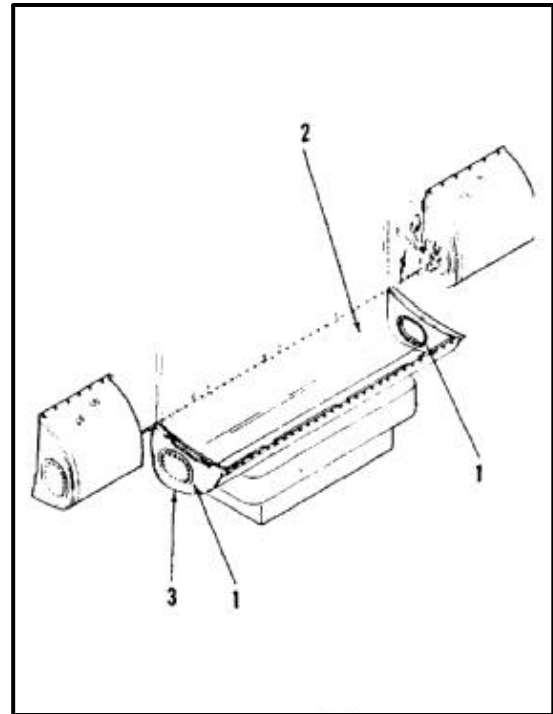
Procedure is same to install forward auxiliary, aft auxiliary, or main fuel tank outboard and end backing boards. Main fuel tank backing boards shown here.

1. Clean outboard surface of backing boards (1) and (2) **1 inch** from each edge. Use cloths (E120) and dry cleaning solvent (E162). Wear gloves (E186).



2-190.2 INSTALL OUTBOARD AND END BACKING BOARDS (Continued)**2-190.2**

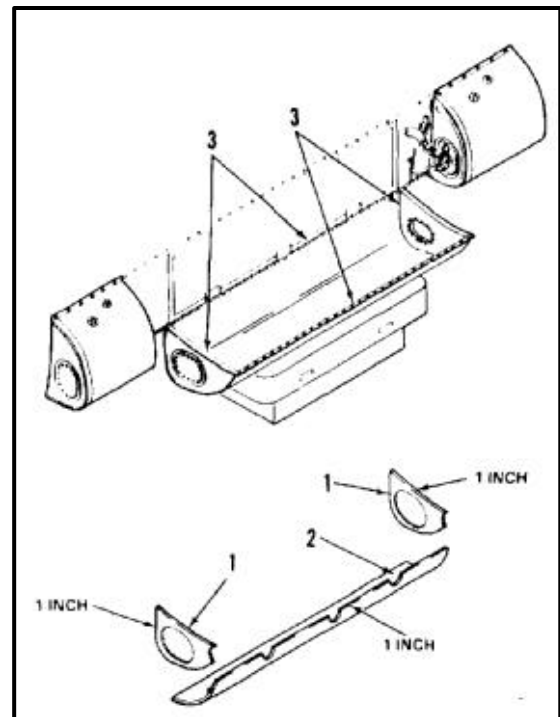
2. Have helper position end backing boards on end of fuel cell pod (3).
3. Mark pod (3) **1 inch** from each edge of backing boards (1) remove backing board.
4. Have helper position outboard backing board (2) in pod (3).
5. Mark pod (3) **1 inch** from each edge of outboard backing board (2). Remove outboard backing board.



6. Clean surface of pod (3) **1 inch** from each edge of end and outboard backing boards (1 and 2). Use cloths (E120) and dry cleaning solvent (E161). Wear gloves (E186).
7. Position backing boards for installation. Apply pressure sensitive tape (E394) to backing boards (1 and 2) and pod (3).

INSPECT**FOLLOW-ON MAINTENANCE:**

- Install forward auxiliary fuel tank (Task 10-26).
- Install aft auxiliary fuel tank (Task 10-31).
- Install main fuel tank (Task 10-21).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-363-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1 -39)

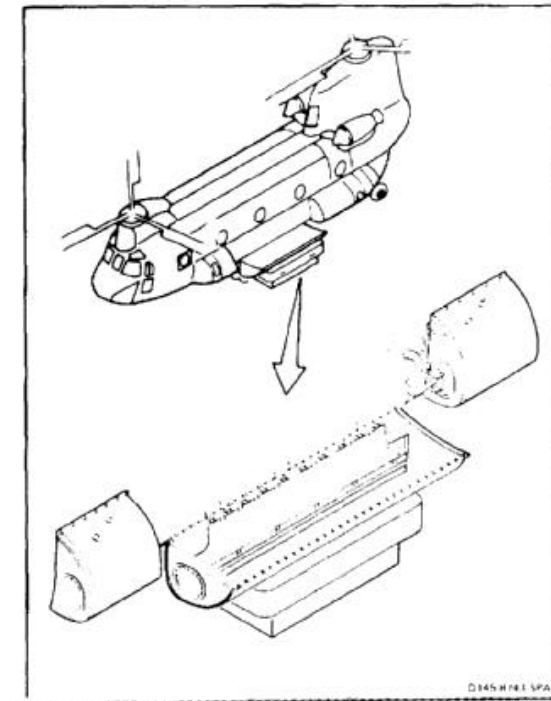
Electrical Power Off

Hydraulic Power Off

Aircraft Defueled (Task 10-34)

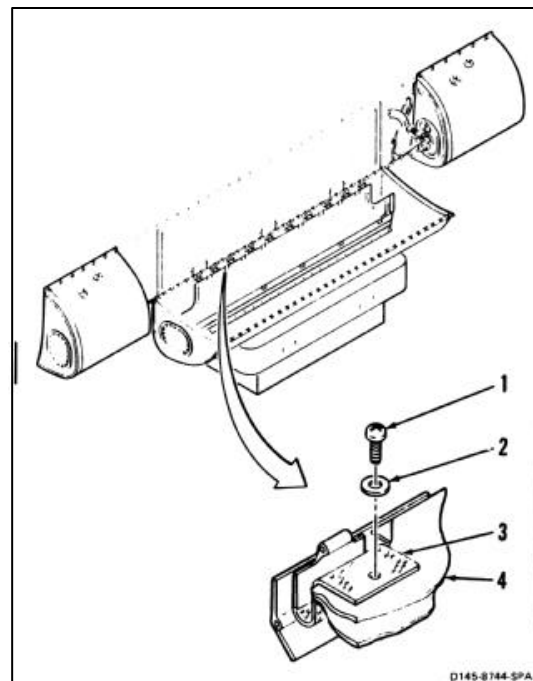
Forward, Aft, or Main Fuel Tank Lowered (Tasks
10-23, 10-28, 10-6)Forward, Aft, or Main Fuel Cell Removed (Tasks
10-24, 10-29, 10-7)

Isolation Panel Backing Board Removed (Task 2-189)

**NOTE**

Procedure to remove forward, aft, or main fuel tank isolation panels is same. Main fuel tank isolation panel shown here.

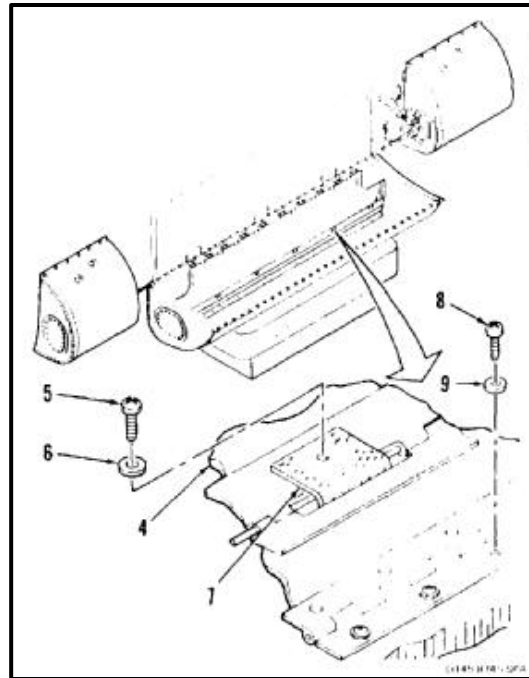
1. Remove eight screws (1), washers (2), and straps (3) from isolation panel (4).



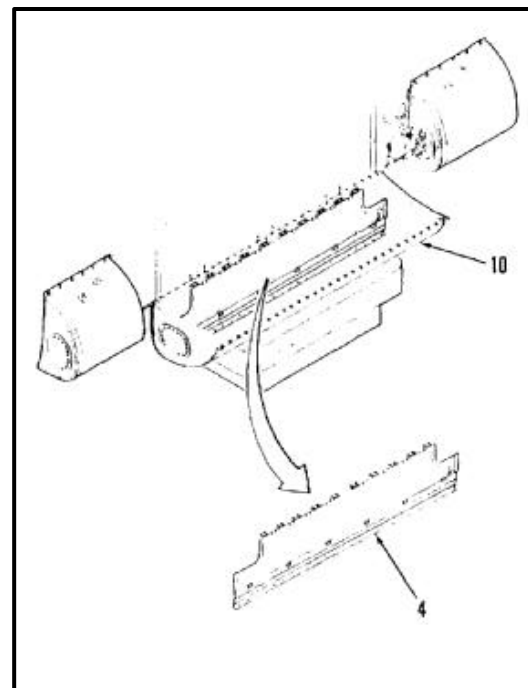
2-191 REMOVE FUEL TANK ISOLATION PANEL (Continued)

2-191

2. Remove six screws (5), washers (6), and straps (7) from panel (4).
3. Remove 28 screws (8) and washers (9) from panel (4).



4. Remove isolation panel (4) from fuel tank (10).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

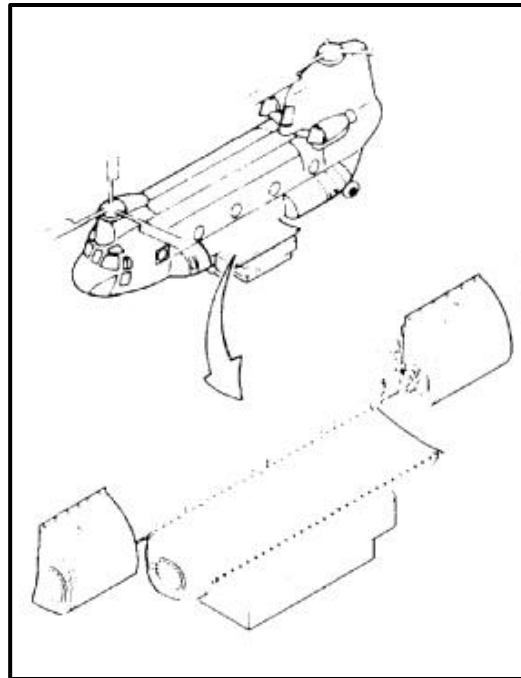
None

Personnel Required:

Medium Helicopter Repair (2)
Inspector

References:

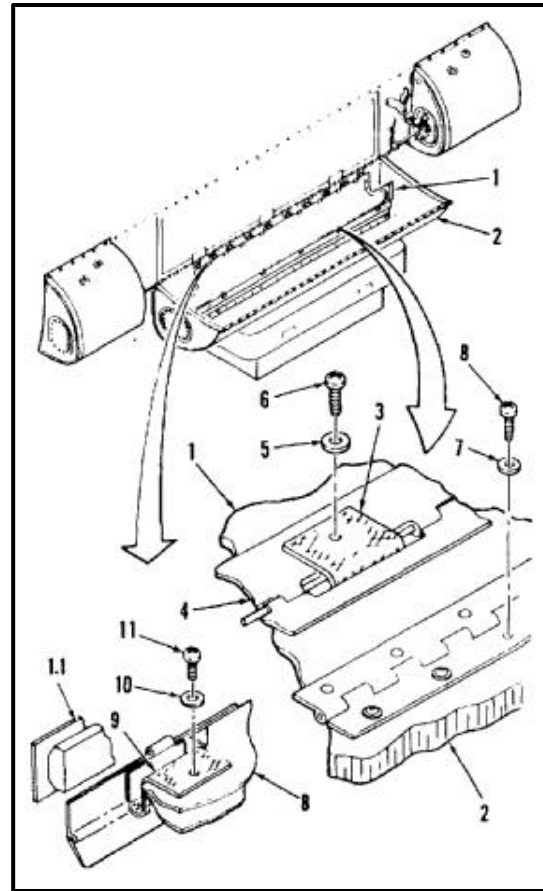
TM 55-1520-240-23P



NOTE

Procedure to install forward, aft, or main fuel tank isolation panels is same. Main fuel tank isolation panel shown here.

1. Position isolation panel (1) in fuel tank (2). Make sure shim (1.1) is in place.
2. Route six straps (3) through gaps in hinge (4). Install six straps (3), washers (5), and screws (6) in panel (1).
3. Align 28 holes in panel (1) and fuel tank (2). Install washers (7) and screws (8).
4. Install eight straps (9), washers (10), and screws (11) in panel (1).

INSPECT**FOLLOW-ON MAINTENANCE:**

- Install isolation panel backing board (Task 2-190).
- Install forward, aft, or main fuel call (Task 10-25, 10-30, or 10-20).
- Install forward, aft, or main fuel tank (Task 10-26, 10-31, or 10-21).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

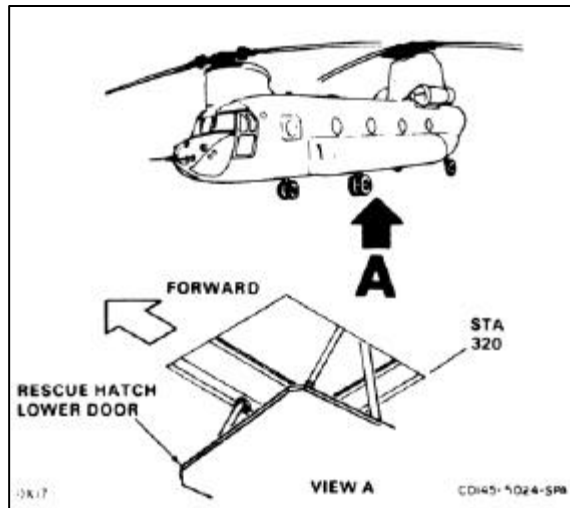
None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Hydraulic Power Off
- Open Rescue Hatch Upper Door



1. Make sure cargo hook (1) is stowed and supported by strap (2).

NOTE

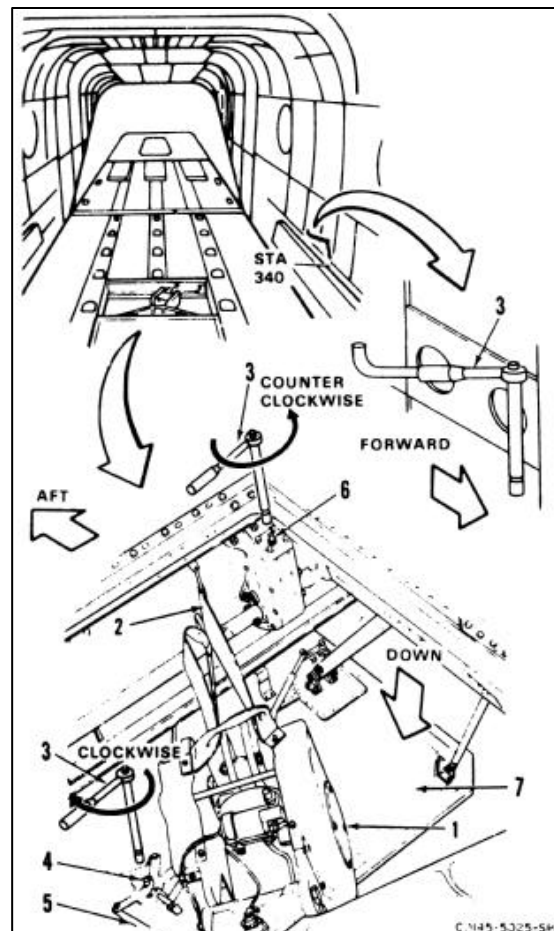
Crank handle is stowed at sta. 340 left side.

2. Unstow crank handle (3). Attach handle to actuator shaft (4). Turn handle clockwise until latches (5) release. Remove handle.



Make sure latches are released before turning actuator gearbox shaft. Otherwise, damage to door can result.

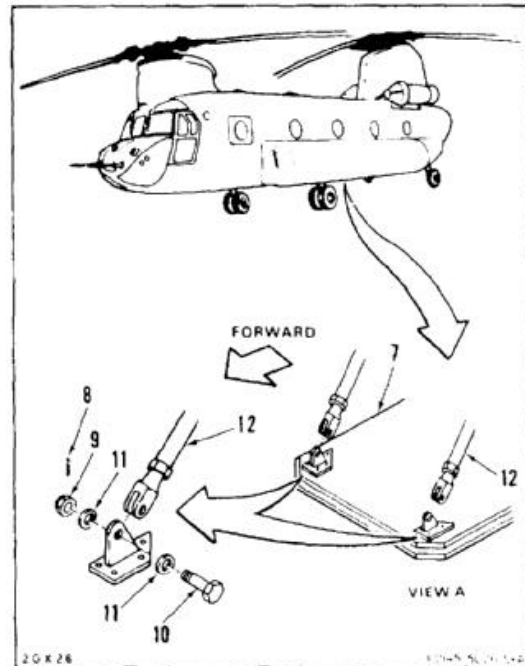
3. Attach handle (3) to gearbox shaft (6). Turn handle counterclockwise until lower door (7) is at lowest position. Stow handle.



4. From outside helicopter, have helper support door (7).
5. Remove four cotter pins (8), nuts (9), eight washers (11), and four bolts from connecting links (12).
6. Have helper remove door (7).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

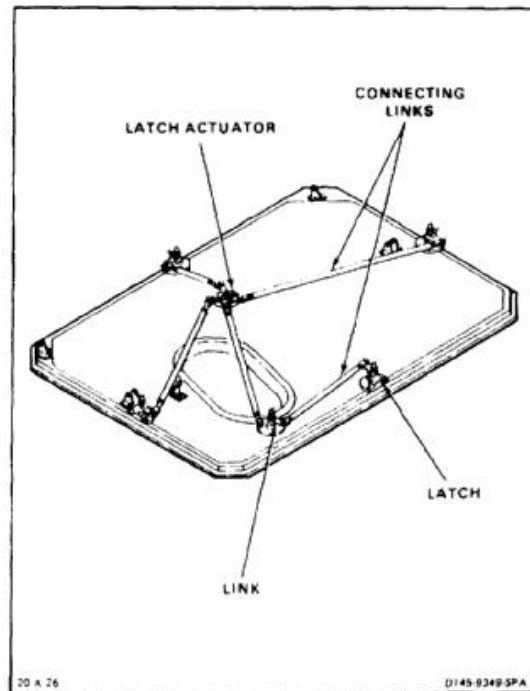
None

Personnel Required:

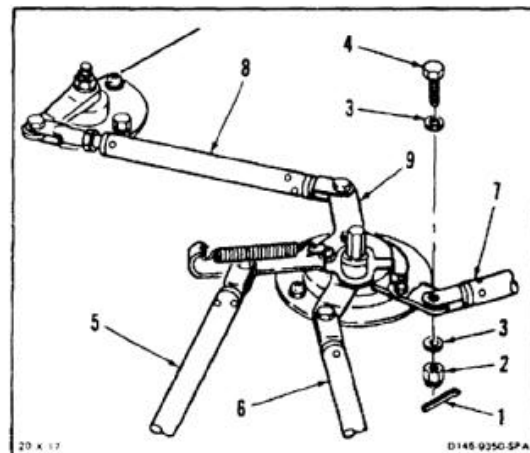
Medium Helicopter Repairer

Equipment Condition:

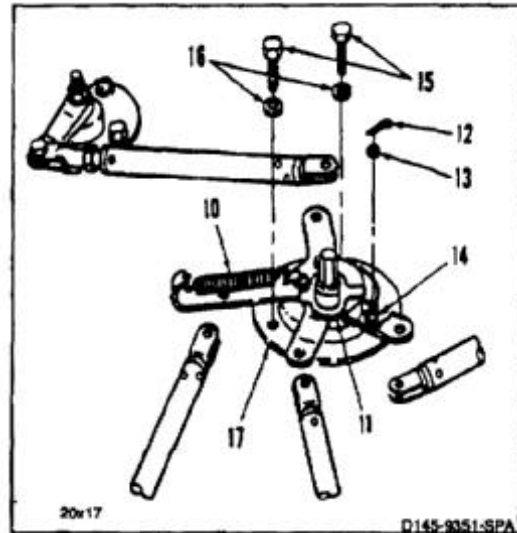
Off Helicopter Task



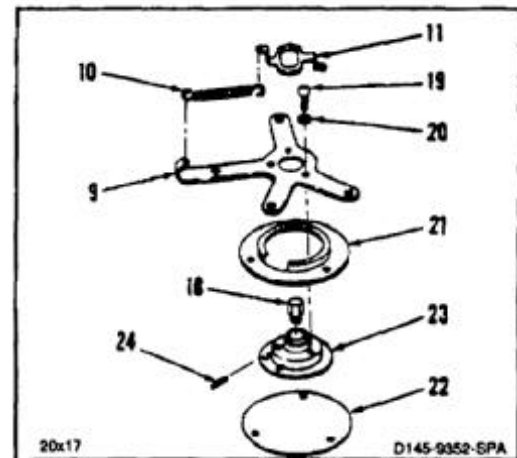
1. Remove four cotter pins (1), nuts (2), eight washers (3), and four bolts (4) securing four connecting links (5, 6, 7, and 8) to lever (9). Disconnect links.



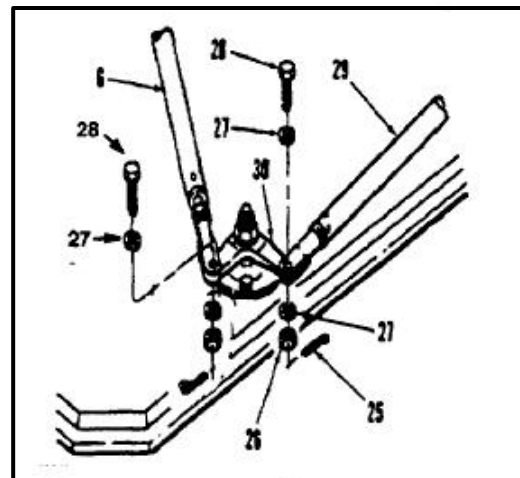
2. Remove spring (10) from cam (11).
3. Remove cotter pin (12), washer (13), and cam (11) from spring retaining pin (14).
4. Remove pin (14), two bolts (15), and washers (16). Remove latch actuator (17).



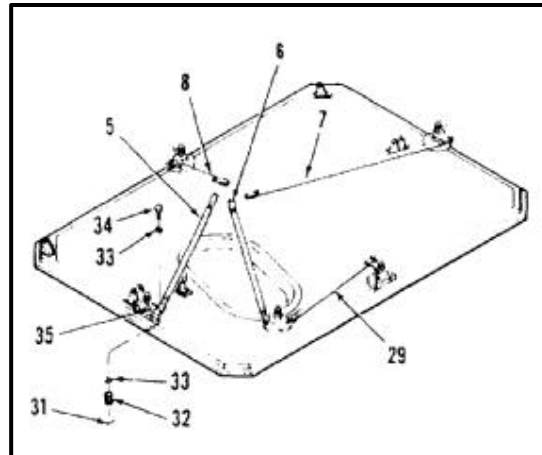
5. Disassemble latch actuator (17) as follows:
 - a. Remove spring (10) from lever (9).
 - b. Remove cam (11) from shaft (18).
 - c. Remove three screws (19), washers (20), and lever (9).
 - d. Remove base ring (21) and shim (22) from actuator (23).
 - e. Remove spring pin (24) and shaft (18).



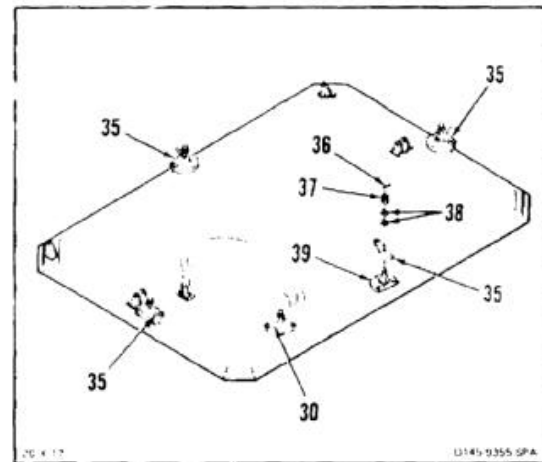
6. Remove two cotter pins (25), nuts (26), four washers (27), and two bolts (28) securing connecting links (6 and 29) to link (30). Disconnect connecting link (6).
7. Measure and record length of connecting link (6).



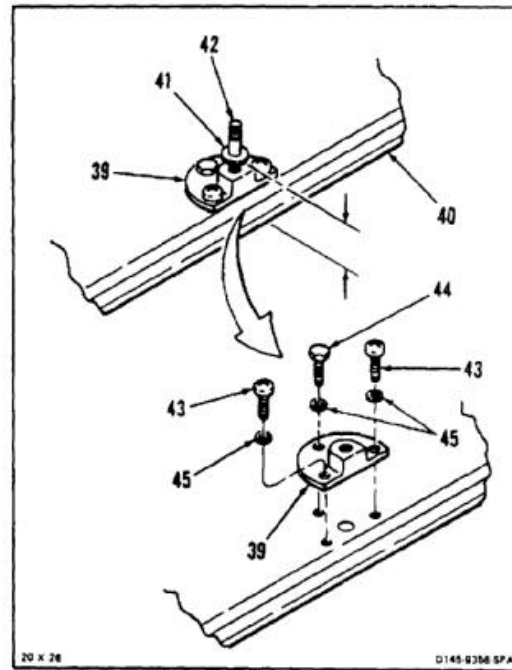
8. Remove four cotter pins (31), nuts (32), eight washers (33), and four bolts (34) securing connecting links (5, 6, 7, 8, and 29) to four latches (35). Disconnect links.
9. Measure and record length of links (5, 6, 7, 8, and 29).



10. Remove 5 cotter pins (36), nuts (37), and 10 washers (38). Tag and remove 4 latches (35) and link (30) from 5 supports (39). Use paper tags (E264).



11. Measure and record distance from edge of rescue hatch door (40) to shoulder (41) of shouldered stud (42).
12. Turn shouldered stud (42) counterclockwise and remove from support (39).
13. Remove 10 screws (43), 5 bolts (44), and 15 washers (45) from 5 supports (39). Remove supports.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

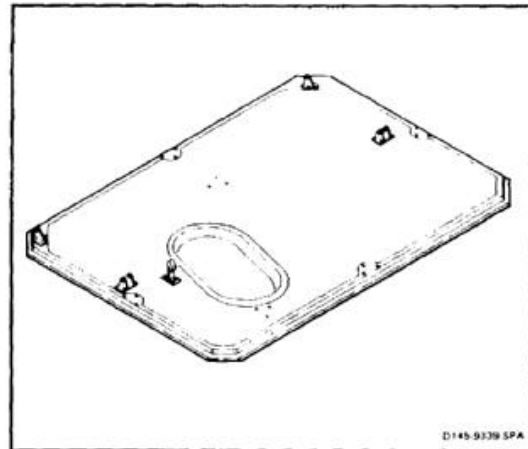
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

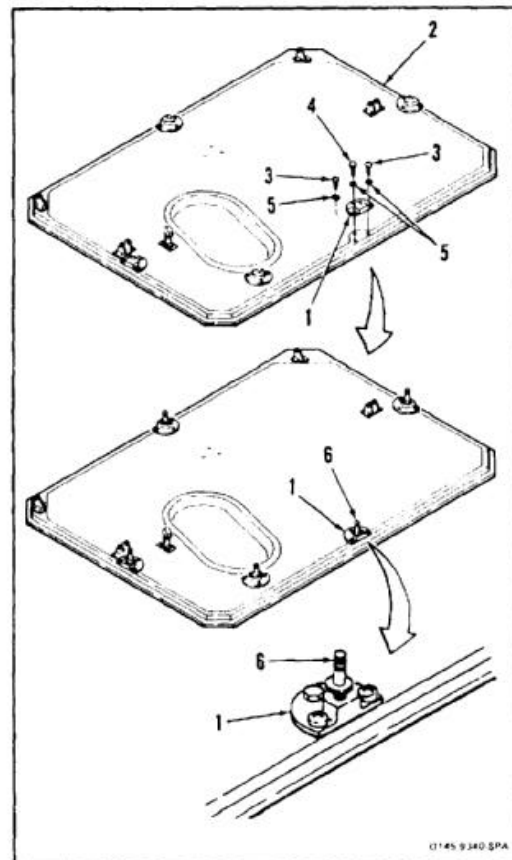
None

Parts:

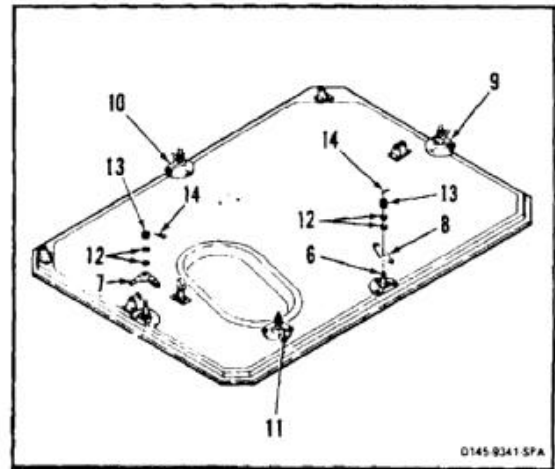
Cotter Pins

Personnel Required:Medium Helicopter Repairer
Inspector**References:**TM 55-1520-240-23P
Task 2-194

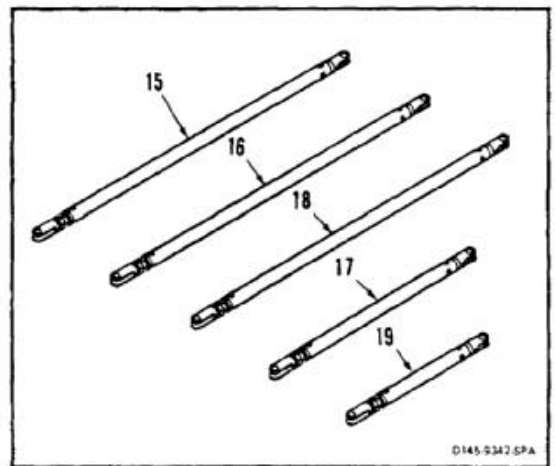
1. Position five supports (1) on rescue hatch lower door (2). Install two screws (3), one bolt (4), and three washers (5) on each support.
2. Turn shouldered stud (6) clockwise and install in each support (1).
3. Adjust stud (6) in each support (1) to distance recorded in Task 2-194. If not previously recorded, start at **1.75 inches** and adjust stud (6) accordingly to obtain proper latch alignment.



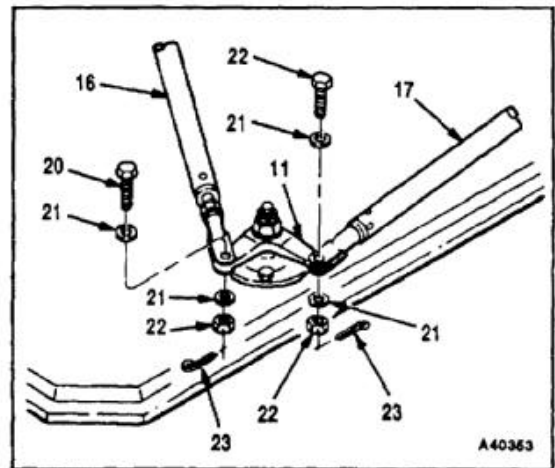
4. Position four latches (7, 8, 9, and 10) and link (11) on five shouldered studs (6). Install two washers (12), nut (13), and cotter pin (14) on each stud (6). Tighten nuts (13) enough to allow latches and link to rotate freely.



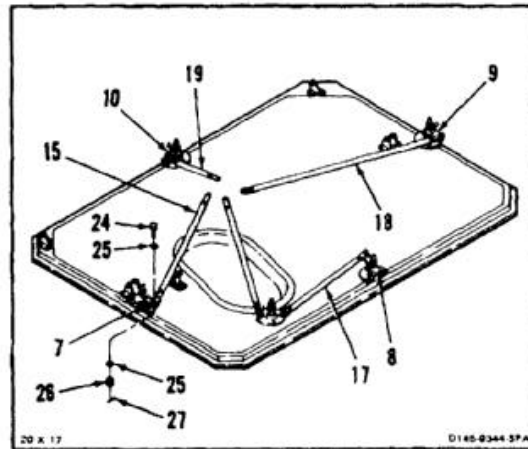
5. If connecting link (15, 16, 17, 18, or 19) is a replacement, adjust length as recorded in Task 2-194. If the length was not previously recorded, for links (15, 16, and 18) start at **26.45 inches**, for link (17) start at **24.55 inches**, and for link (19) start at **7.32 inches** and adjust accordingly to obtain correct latch engagement.



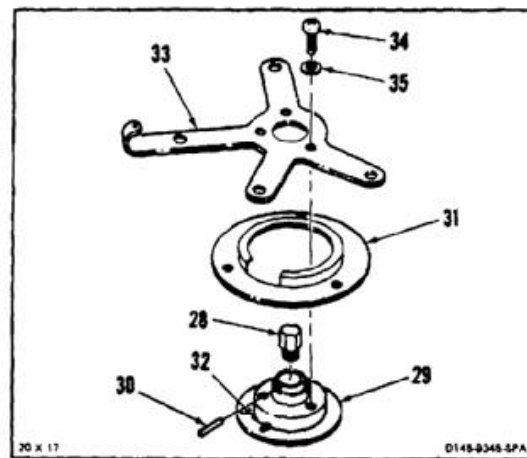
6. Position ends of two connecting links (16 and 17) on link (11). Install bolt (20), two washers (21), nut (22), and cotter pin (23) on each connecting link.



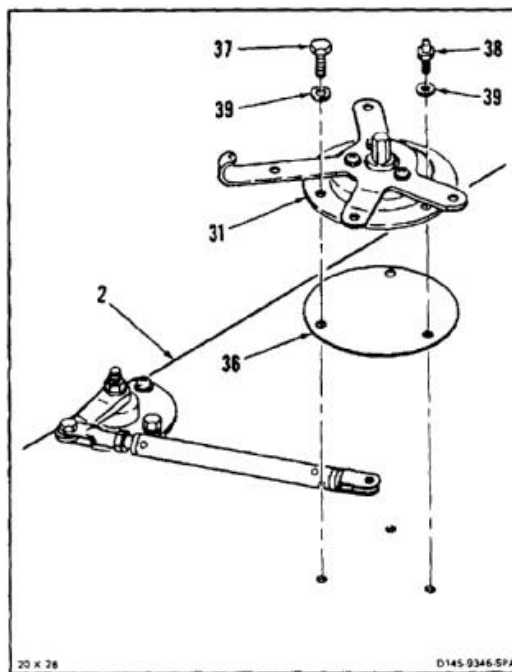
7. Position ends of four connecting links (15, 17, 18, and 19) on latches (7, 8, 9, and 10). Install bolt (24), two washers (25), nut (26), and cotter pin (27) in each connecting link.



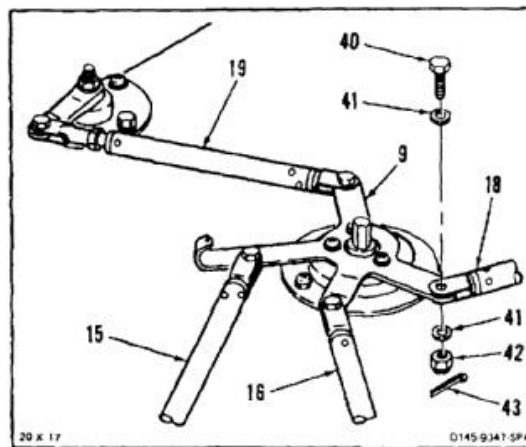
8. Assemble latch actuator (29) as follows:
 - a. Position shaft (28) in actuator (29). Install spring pin (30).
 - b. Position base ring (31) on actuator (29) so that key (32) on actuator fits in cutout in base ring.
 - c. Align three holes in lever (33) and actuator (29). Install three screws (34) and washers (35).



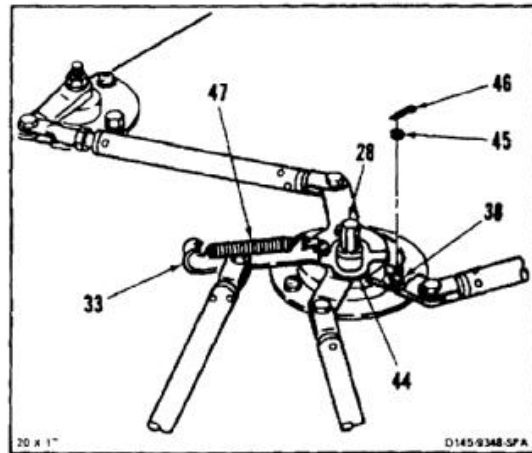
9. Align three holes in base ring (31), shims (36), and door (2). Install two bolts (37), pin (38), and three washers (39).



10. Position ends of four connecting rods (15, 16, 18, and 19) on lever (9). Install bolt (40), two washers (41), nut (42), and cotter pin (43) in each connecting rod.



11. Position cam (44) on shaft (28) and pin (38).
Install washer (45) and cotter pin (46) on pin.
12. Install spring (47) on cam (44) and arm of lever (33).

INSPECT**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-706

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

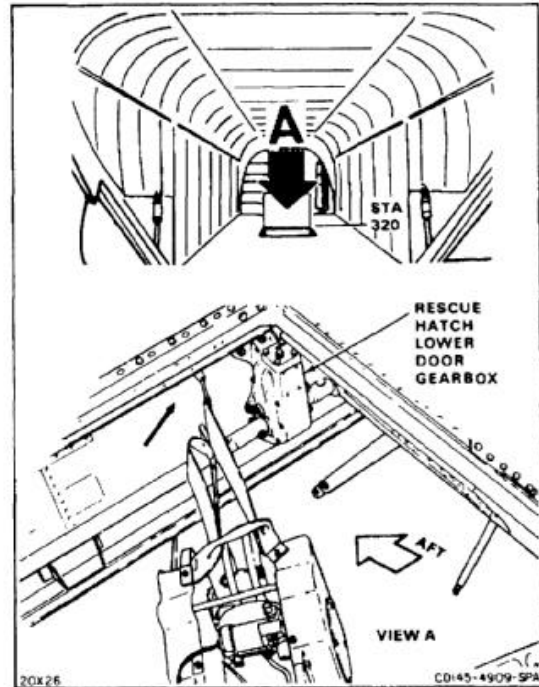
None

Personnel Required:

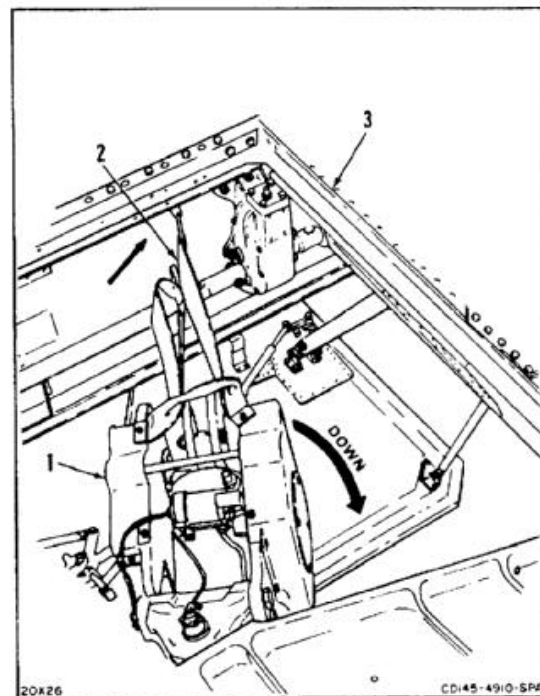
Medium Helicopter Repair

Equipment Condition:

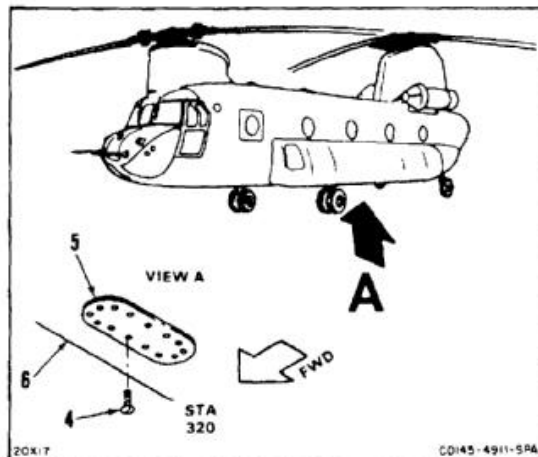
- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Hydraulic Power Off
- Rescue Hatch Lower Door Removed (Task 2-193)
- Rescue Hatch Upper Door Opened



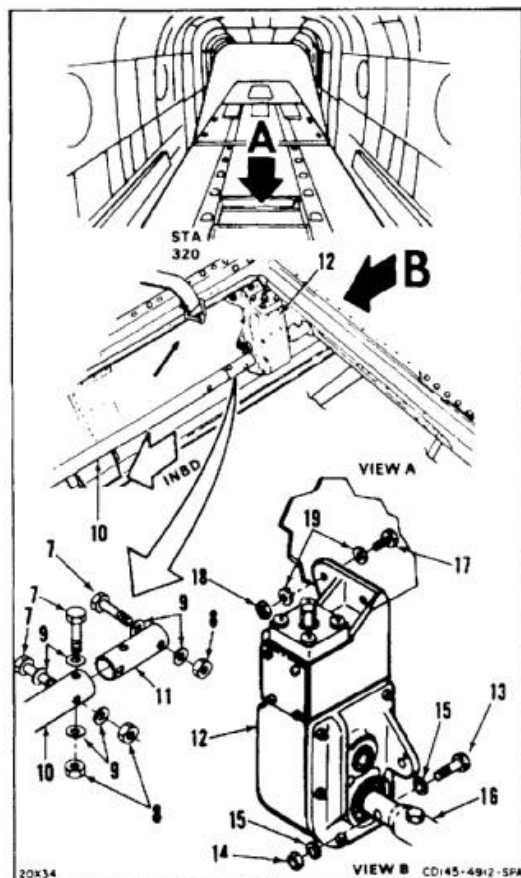
1. Unstow cargo hook (1) by releasing strap (2) and lowering hook. Raise strap up out of way on structure (3).



2. Remove 14 screws (4) and access cover (5) aft of lower hatch door (6).



3. Remove three bolts (7), nuts (8), and six washers (9) from inboard drive shaft (10) and coupling (11).
4. Push coupling (11) inboard in drive shaft (10) until it clears gearbox (12).
5. Remove bolt (13), nut (14), and two washers (15) from outboard drive shaft (16).
6. Remove four bolts (17), nuts (18), eight washers (19), and gearbox (12).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Sheet Metal Shop Set, NSN 4920-00-166-5505
- Aluminum Rod, 1/2 Inch X 6 Inches
- Arbor Press, Bench Mounted
- Retaining Ring Pliers
- Soft Jawed Vise

Materials:

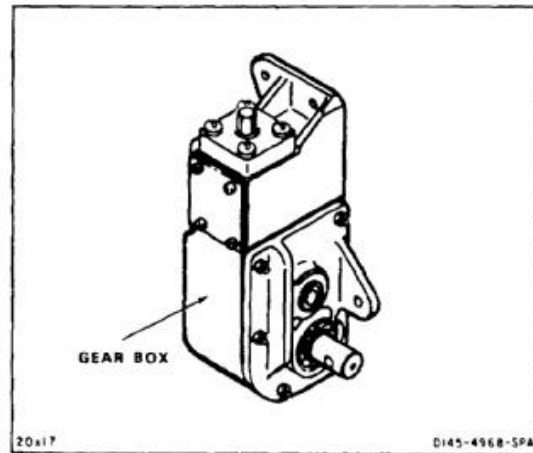
Cloths (E135)

Personnel Required:

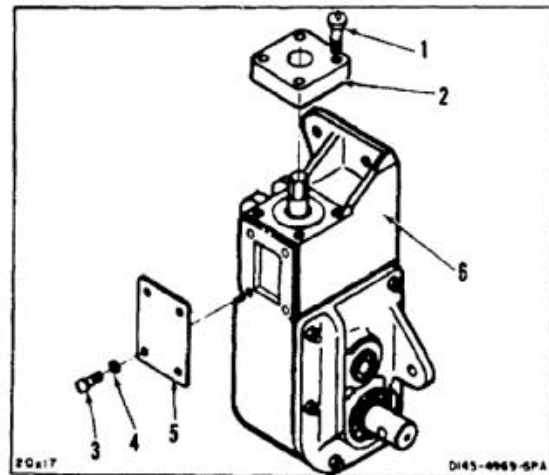
Medium Helicopter Repairer

Equipment Condition:

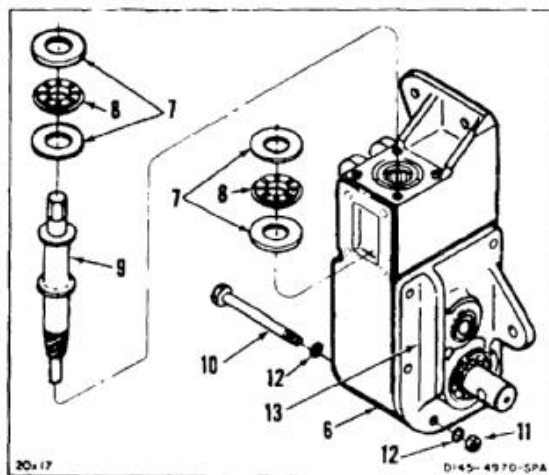
Off Helicopter Task



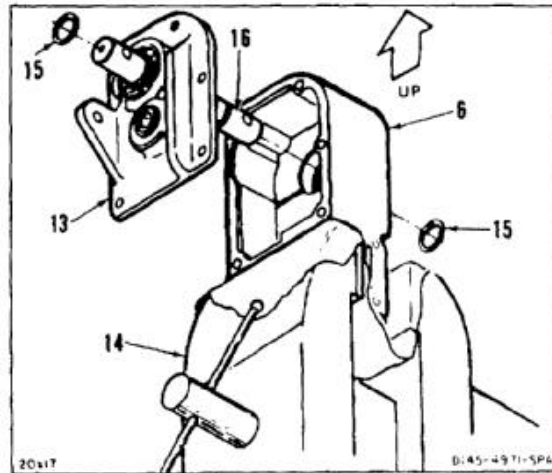
1. Remove four screws (1) and thrust cap (2).
2. Remove four screws (3), washers (4), and nameplate (5) from housing (6).



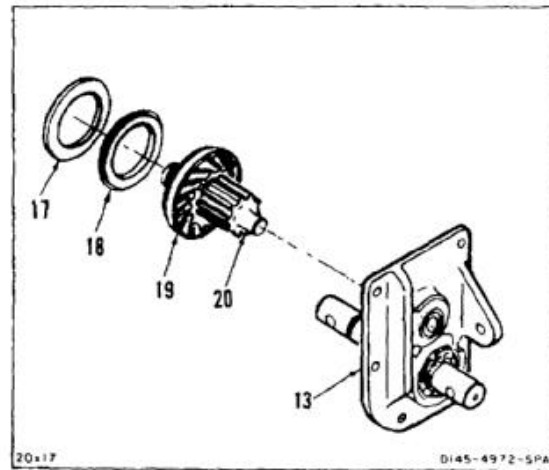
3. Remove four seats (7), two retainers, rollers (8), and pinion (9).
4. Remove five bolts (10), nuts (11), and 10 washers (12) from cover (13) and housing (6).



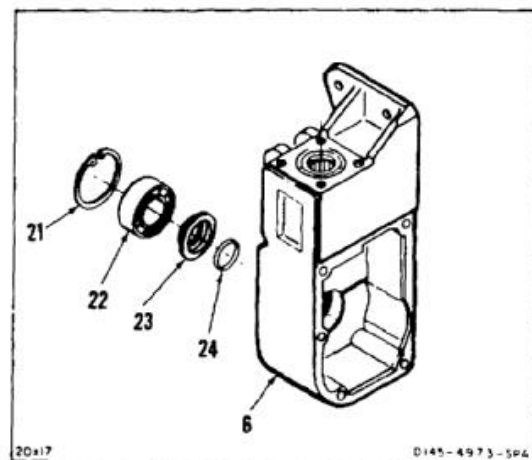
5. Wrap housing (6) in cloths (E135). Position housing in vise (14), with cover (13) up.
6. Remove two retaining rings (15) from gearshaft (16). Use retaining ring pliers.
7. Tap end of gearshaft (16) until cover (13) is free of housing (6). Remove cover with gearshaft attached. Use hammer and aluminum rod.
8. Remove housing (6) and cloths (E135) from vise (14).



9. Remove bearing (17) and retainer and roller (18) from spiroid gear (19).
10. Remove gearshaft (20), with gear (19) attached, from cover (13).



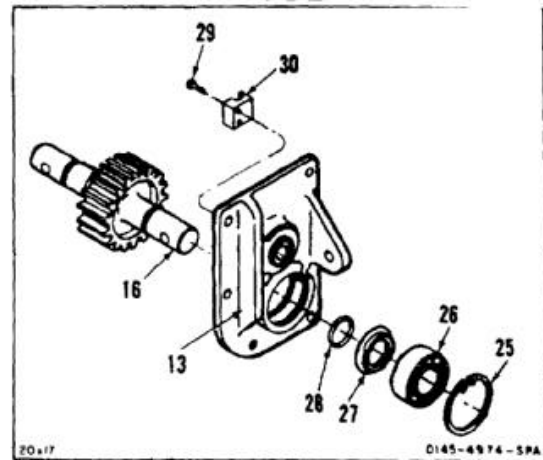
11. Remove retaining ring (21) from housing (6). Use retaining ring pliers.
12. Remove bearing (22) from housing (6). Use arbor press.
13. Remove seal (23) and packing (24) from housing (6).



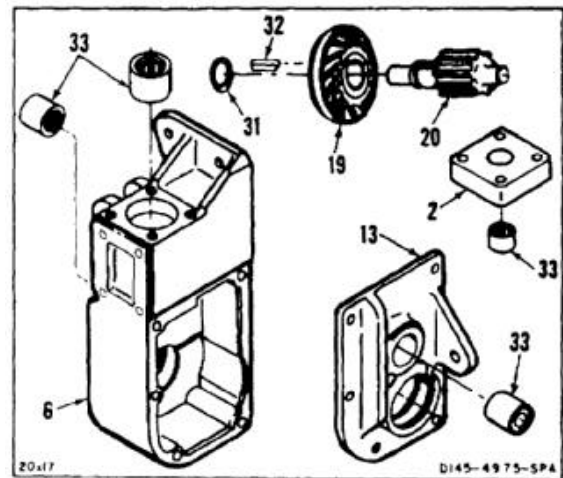
2-197 DISASSEMBLE RESCUE HATCH LOWER DOOR GEARBOX (AVIM) (Continued)

2-197

14. Remove gearshaft (16) from cover (13). Use hammer.
15. Remove retaining ring (25) from cover (13). Use retaining ring pliers.
16. Remove ball bearing (26) from cover (13). Use arbor press.
17. Remove seal (27) and packing (28) from cover (13).
18. Cut lockwire and remove two screws (29) and bearing support (30) from cover (13).



19. Remove retaining ring (31) and key (32) from spiroid gear (19) and gearshaft (20). Use retaining ring pliers.
20. Remove four roller bearings (33) from thrust cap (2), cover (13), and housing (6). Use arbor press.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-711

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspection Tool Kit, NSN 5180-00-323-5114
 Telescoping End Gage
 Hole Gage, 0.200 to 0.300 Inch
 Bond Test Unit

Materials:

None

Personnel Required:

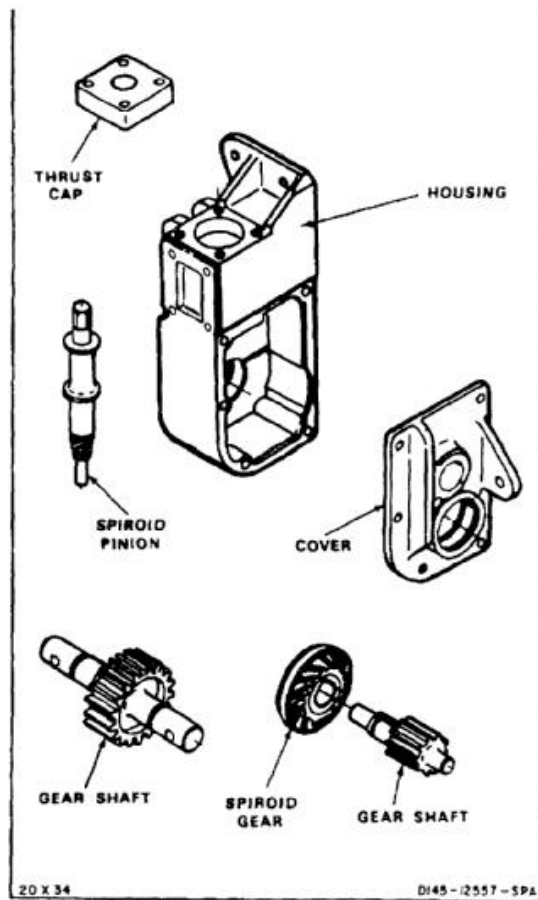
Inspector

References:

TM 55-1520-240-23P
 TM 55-1500-322-24
 TM 1-1520-253-23

Equipment Condition:

Rescue Hatch Lower Door Gearbox Disassembled
 (Task 2-197)

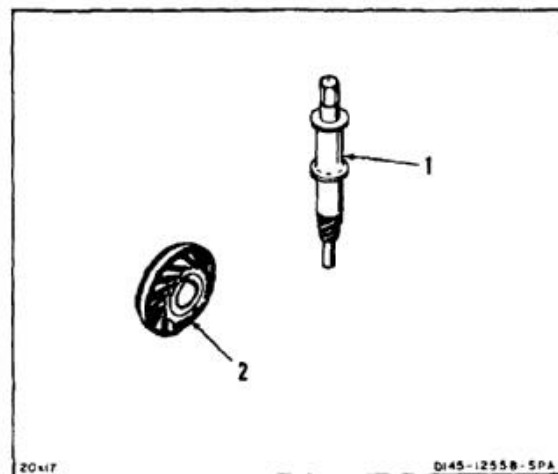


NOTE

Inspection steps in this task cover only those parts of the gearbox that are most subject to wear. All parts shall also be inspected for obvious damage such as cracks, corrosion, and damaged threads. If a crack in the rescue hatch lower door gearbox assembly, housing, or cover is suspected, refer to TM 1-1520-253-23.

NOTE

Spiroid pinion and spiroid gear are a matched set. If one is damaged, both must be replaced.

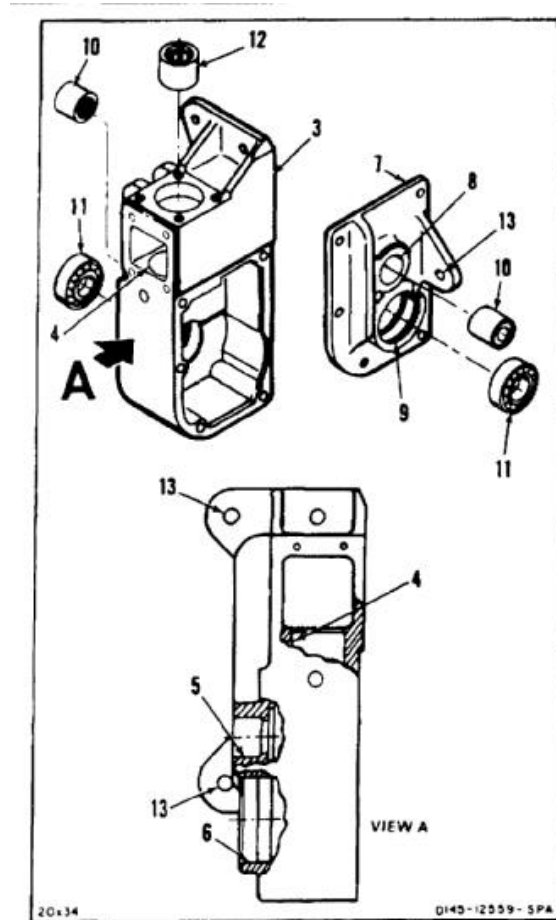


1. Inspect spiroid pinion (1) and spiroid gear (2). There shall be no chipped or broken teeth. There shall be no spalling of bearing surfaces on spiroid pinion.

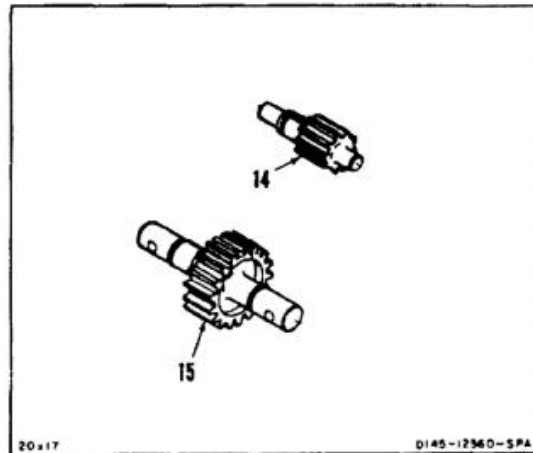
NOTE

Housing and cover are a matched set. If one is damaged, both must be replaced.

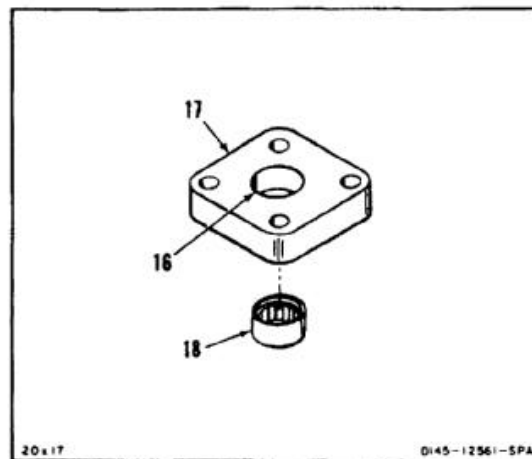
2. Inspect housing (3) as follows:
 - a. Measure diameter of spiroid pinion bearing bore (4). Diameter shall not be more than **0.995 inch**.
 - b. Measure diameter of upper gearshaft bearing bore (5). Diameter shall not be more than **0.746 inch**.
 - c. Measure diameter of lower gearshaft bearing bore (6). Diameter shall not be more than **1.626 inches**.
3. Inspect cover (7) as follows:
 - a. Measure diameter of upper gearshaft bearing bore (8). Diameter shall not be more than **0.746 inch**.
 - b. Measure diameter of lower gearshaft bearing bore (9). Diameter shall not be more than **1.626 inches**.
4. Inspect all bearing bores. Bores shall not be scored.
5. Inspect bearings (10, 11, and 12) (TM 55-1500-322-24).
6. Inspect housing (3) and cover (4) in area of four mounting holes (13). There shall be no cracks. Measure diameter of holes. Diameter shall not be more than **0.257 inch**. If a crack in the rescue hatch lower door gearbox assembly, housing, or cover is suspected, refer to TM 1-1520-253-23.



7. Inspect gearshafts (14 and 15). There shall be no chipped or cracked teeth. There shall be no spalling of bearing contact surfaces.



8. Inspect bearing bore (16) in thrust cap (17). Bore shall not be scored. Measure diameter of bore. Diameter shall not be more than **0.620 inch**.
9. Inspect bearing (18) (TM 55-1500-322-24).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-714

INITIAL SETUP

Applicable Configurations:

All

Tools:

Sheet Metal Shop Set, NSN 4920-00-166-5505
 Aluminum Rod, 1/2 Inch Diameter X 6 Inches
 Arbor Press, Bench Mounted
 Retaining Ring Pliers
 Soft Jawed Vise
 Torque Wrench, 5-50 Inch-Pounds
 Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Adhesive (E43)
 Gloves (E186)
 Grease (E190)
 Lockwire (E231)
 Cloths (E135)
 Sealant (E336 or E470)
 Tongue Depressors (E424)
 Goggles (E473)

Personnel Required:

CH-47 Helicopter Repairer

Parts:

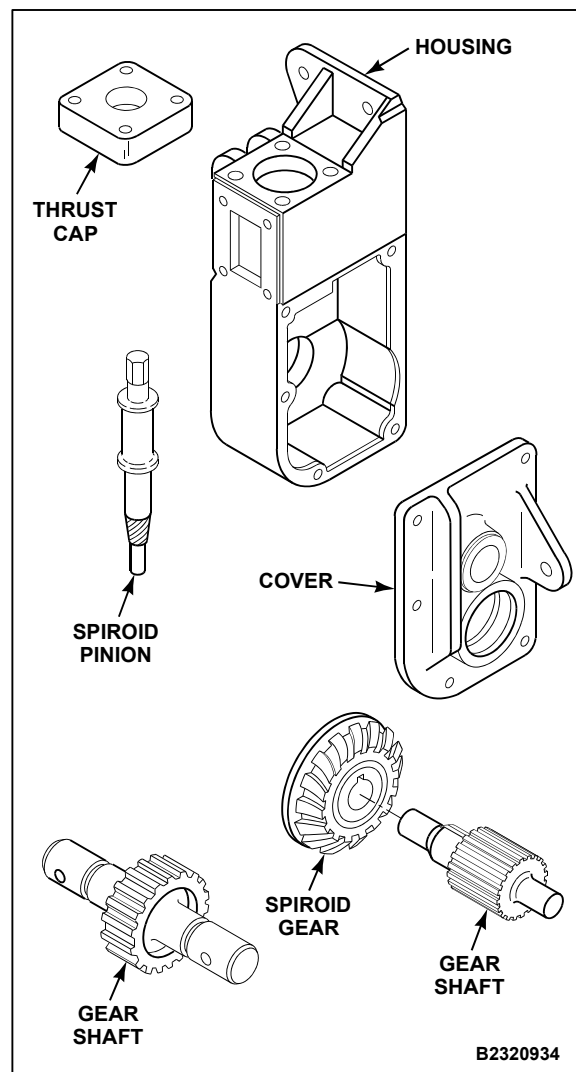
Packings
 Seals

References:

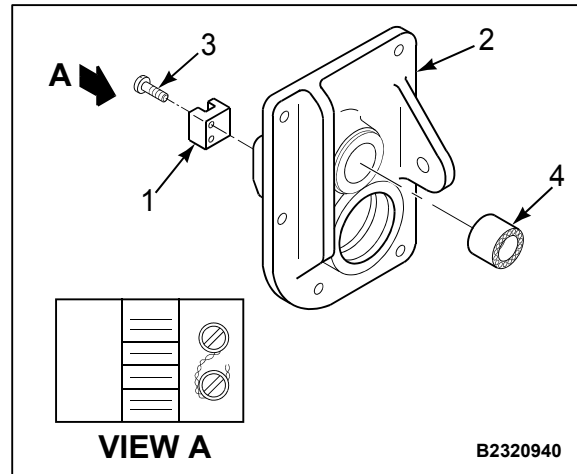
TM 55-1520-240-23P

General Safety Instructions:**WARNING**

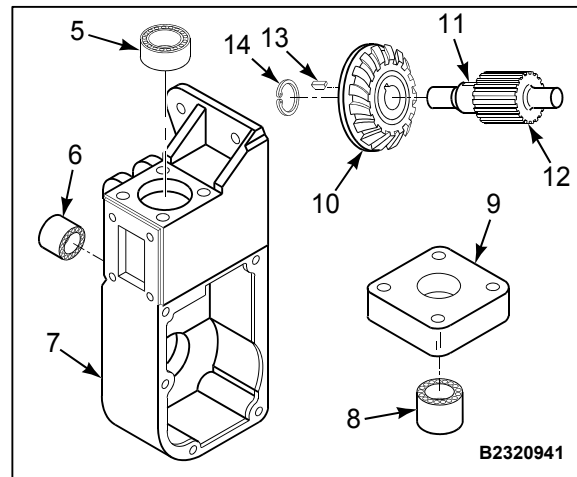
Adhesive (E43) and sealant (E336 or E470) are flammable and give off toxic fumes. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.



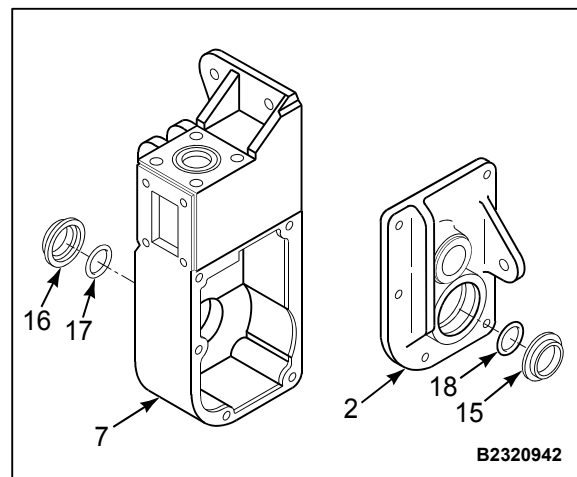
1. Position support (1) on cover (2) and install two screws (3). Lockwire screws using lockwire (E231).
2. Install roller bearing (4) in cover (2). Use arbor press.



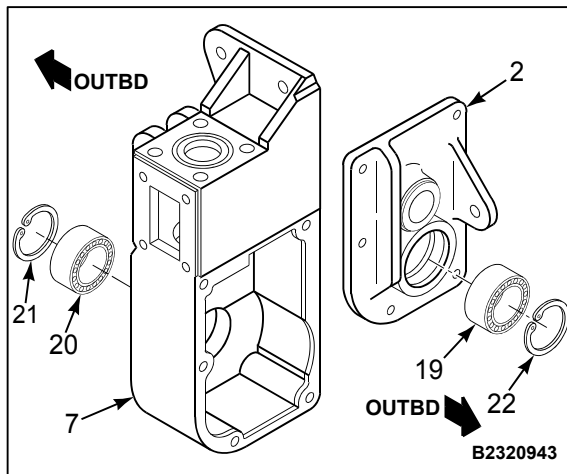
3. Install roller bearing (5) and roller bearing (6) in housing (7). Use arbor press.
4. Install roller bearing (8) in thrust cap (9). Use arbor press.
5. Position spiroid gear (10) in groove (11) on gearshaft (12). Install key (13) and retaining ring (14). Use retaining ring pliers.



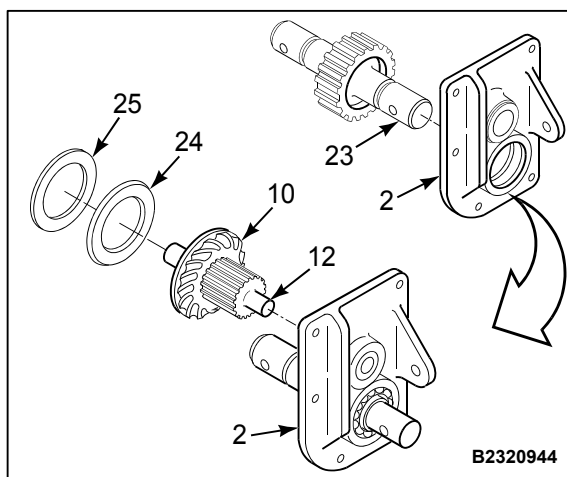
6. Apply adhesive (E43) to mating surface of seal (15) and cover (2). Wear gloves (E186).
7. Apply adhesive (E43) to mating surface of seal (16) and housing (7).
8. Install packing (17) in seal (16), and install seal in housing (7).
9. Install packing (18) in seal (15) and install seal in cover (2).



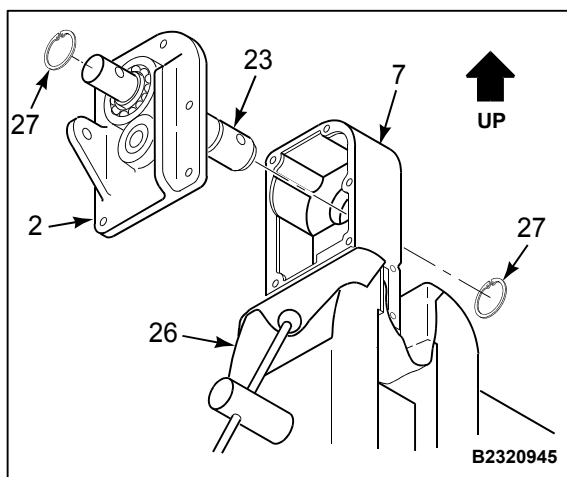
- 10. Install bearing (19), dust shield outboard in cover (2). Use arbor press.
- 11. Install bearing (20), dust shield outboard in housing (7). Use arbor press.
- 12. Install retaining ring (21). Use retaining ring pliers.
- 13. Install retaining ring (22). Use retaining ring pliers.



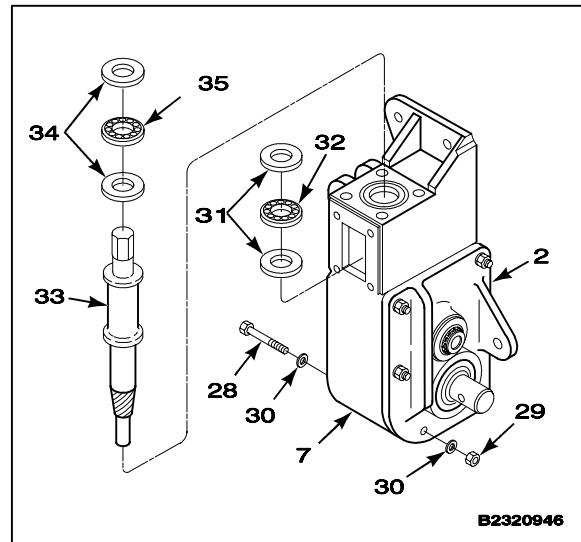
- 14. Install gearshaft (23) in cover (2). Use hammer.
- 15. Install gearshaft (12) with spiroid gear (10) attached in cover (2).
- 16. Install retainer and roller (24) and bearing (25) on end of spiroid gear (10).



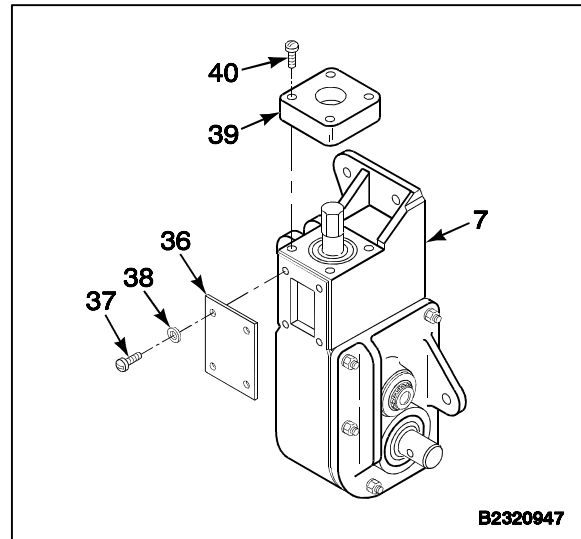
- 17. Wrap housing (7) in cloths (E135). Position housing in vise (26) with lower part of housing up.
- 18. Apply sealant (E336 or E470) to mating surfaces of cover (2) and housing (7). Use tongue depressor (E424). Wear gloves (E186).
- 19. Pack lower part of housing (7) with grease (E190). Use tongue depressor (E424).
- 20. Position cover (2) with gearshaft (23) on top in housing (7). Use hammer and aluminum rod to seat cover.
- 21. Install two retaining rings (27) on gearshaft (23). Use retaining ring pliers.
- 22. Remove housing (7) and cloths (E135) from vise (26).



- 23. Install five bolts (28), nuts (29), and 10 washers (36) in housing (7) and cover (2). Torque nuts to **30 inch-pounds**.
- 24. Install two seats (31) and retainer and roller (32) in housing (7).
- 25. Position pinion (33) in housing (7). Install two seats (34) and retainer and roller (35).



- 26. Pack upper part of housing (7) with grease (E190). Use tongue depressor (E424).
- 27. Position nameplate (36) on housing (7). Install four screws (37) and washers (38).
- 28. Position thrust cap (39) on housing (7). Install four screws (40).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-718

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

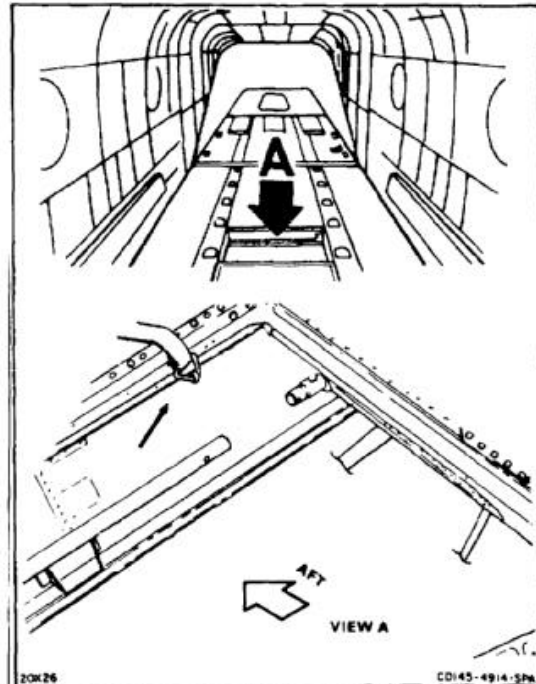
None

Personnel Required:

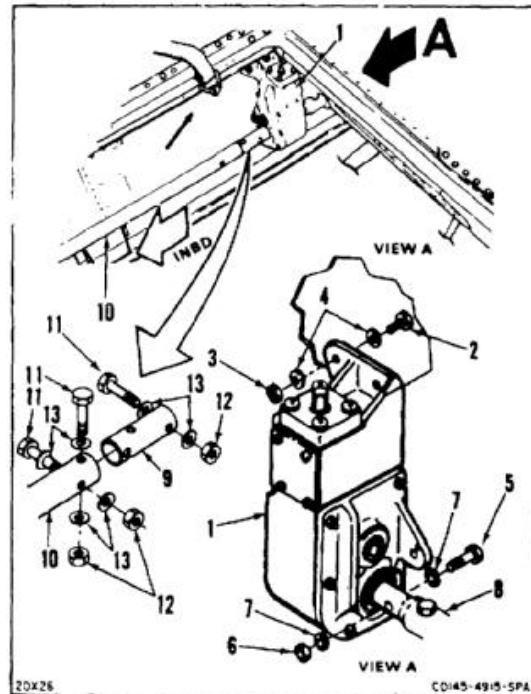
Medium Helicopter Repairer
Inspector

References:

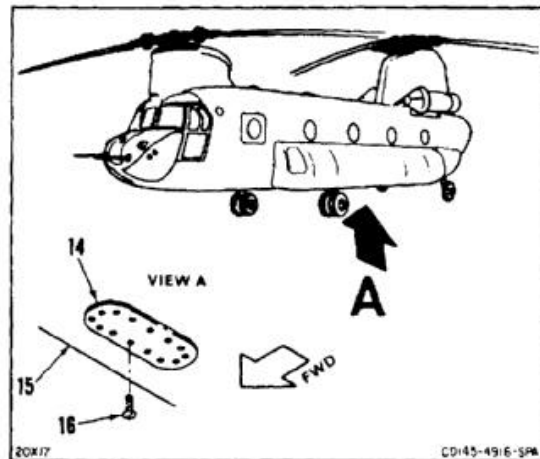
TM 55-1520-240-23P



1. Position gearbox (1). Install four bolts (2), nuts (3), and eight washers (4).
2. Install bolt (5), nuts (6), and two washers (7) on outboard drive shaft (8).
3. Position coupling (9) and inboard drive shaft (10) on gearbox (1).
4. Install three bolts (11), nuts (12), and six washers (13) on inboard drive shaft (10).

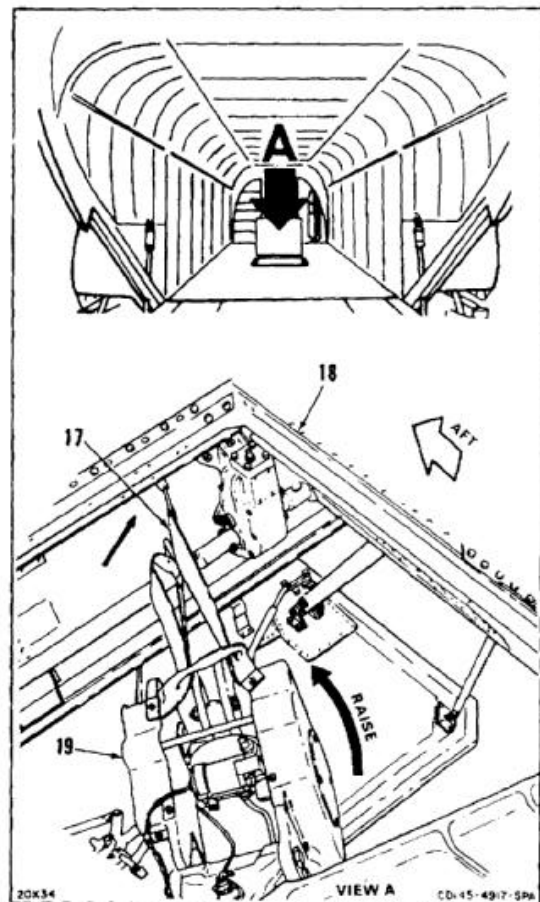


5. Position access cover (14) aft of hatch (15).
Install 14 screws (16).



6. Lower strap (17) off structure (18). Raise cargo hook (19) and attach strap (17) to stow cargo hook.

INSPECT



FOLLOW-ON MAINTENANCE:

- Close rescue hatch upper door.
- Install rescue hatch lower door (Task 2-203).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

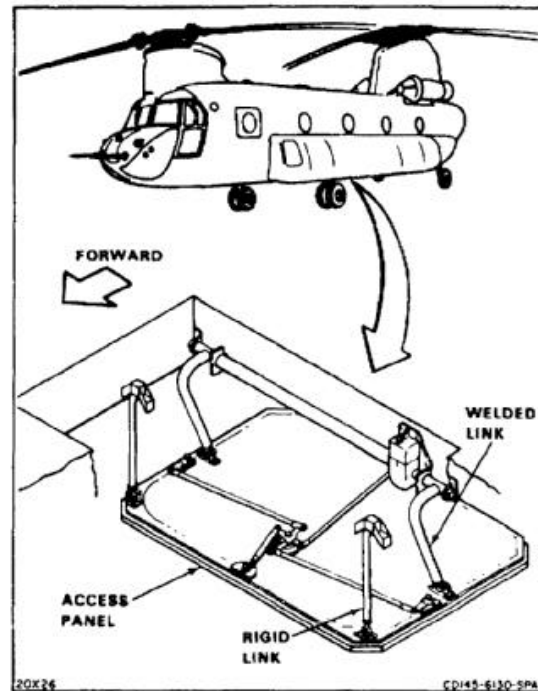
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Rescue Hatch Lower Door at Lowest Position (Task 2-193)
- Rescue Hatch Lower Door Actuating Gearbox Removed (Task 2-196)

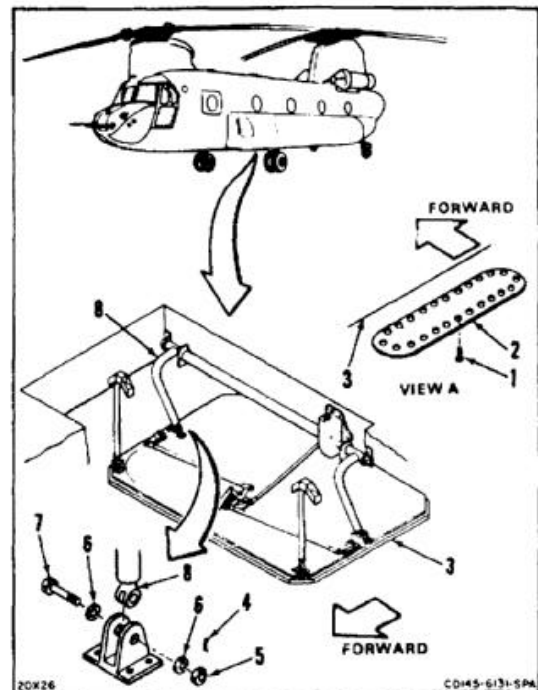


REMOVE WELDED LINK

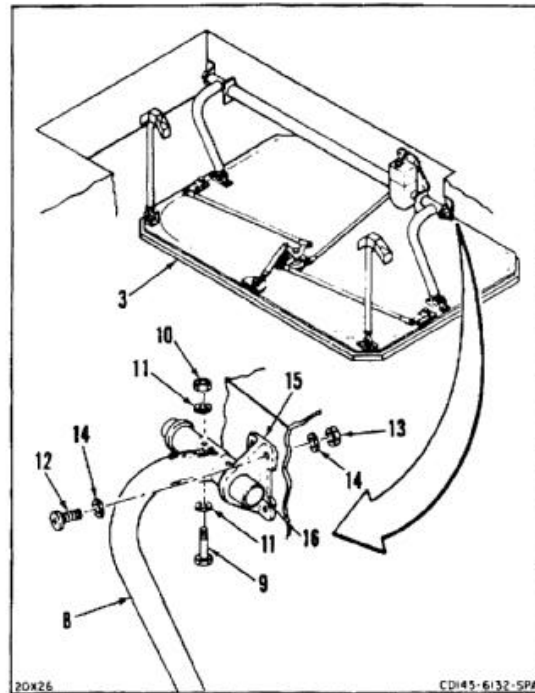
NOTE

Procedure is same to remove both welded links. Removal of welded link on left side is shown here.

1. Remove 14 screws (1) and access panel (2) aft of rescue hatch lower door (3).
2. Remove cotter pin (4), nut (5), two washers (6), and bolt (7). Disconnect link (8).



3. Remove two bolts (9), nuts (10), and four washers (11).
4. Remove four screws (12), nut (13), and eight washers (14).
5. Support door (3) and remove link (8) with bracket (15).
6. Remove bracket (15) and shaft (16) from link (8).



REMOVE RIGID LINK

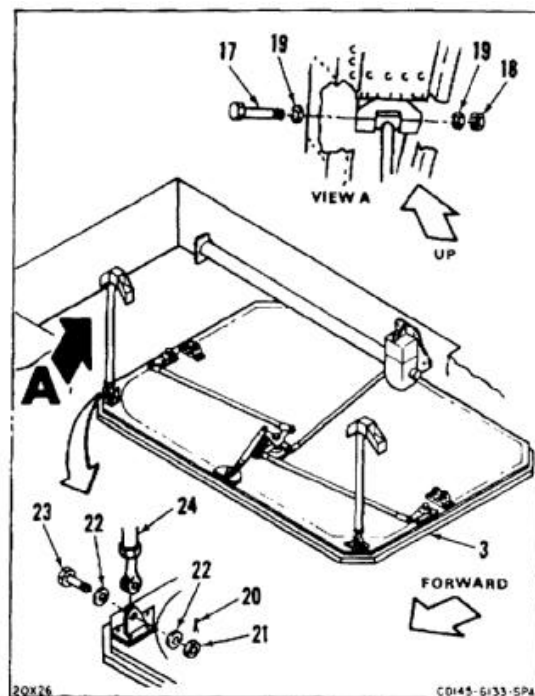
NOTE

Procedure is same to remove both rigid links. Rigid link on left side is shown here.

7. Remove bolt (17), nut (18), and two washers (19).
8. Remove cotter pin (20), nut (21), two washers (22), and bolt (23).
9. Support door (3) and remove link (24).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5080-00-323-4692

Materials:

None

Parts:

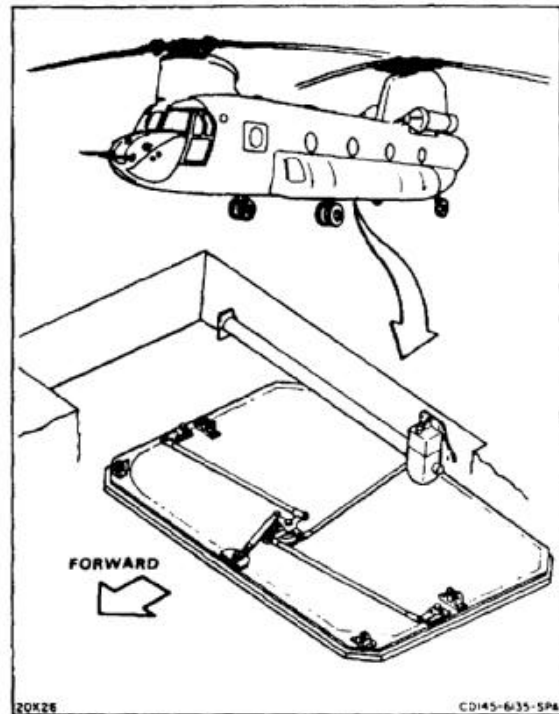
Cotter Pins

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P

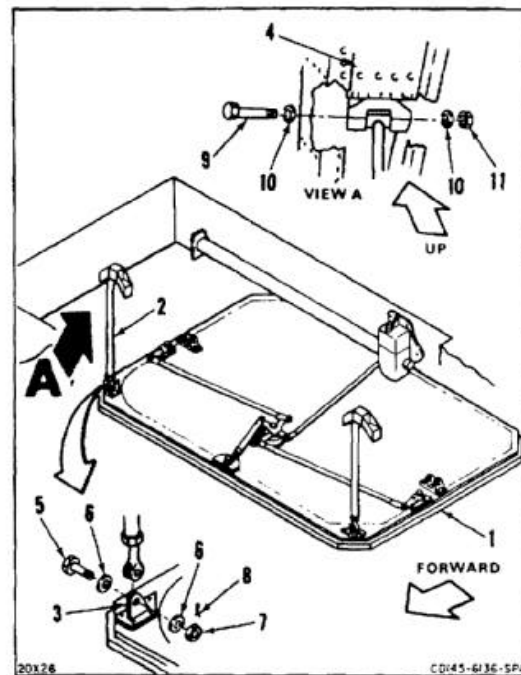


INSTALL RIGID LINK

NOTE

Procedure is same to install both rigid links. Installation of rigid link on left side is shown here.

1. Support door (1) and position link (2) on bracket (3) and structure (4).
2. Install bolt (5), two washers (6), nut (7), and cotter pin (8).
3. Install bolt (9), two washers (10), and nut (11).

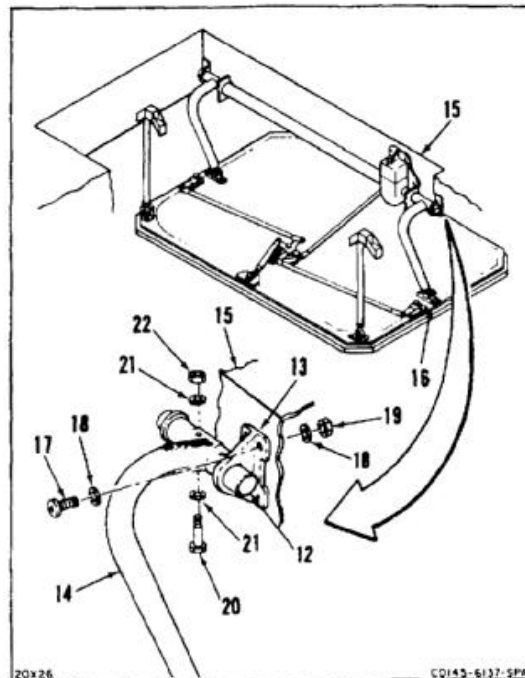


INSTALL WELDED LINK

NOTE

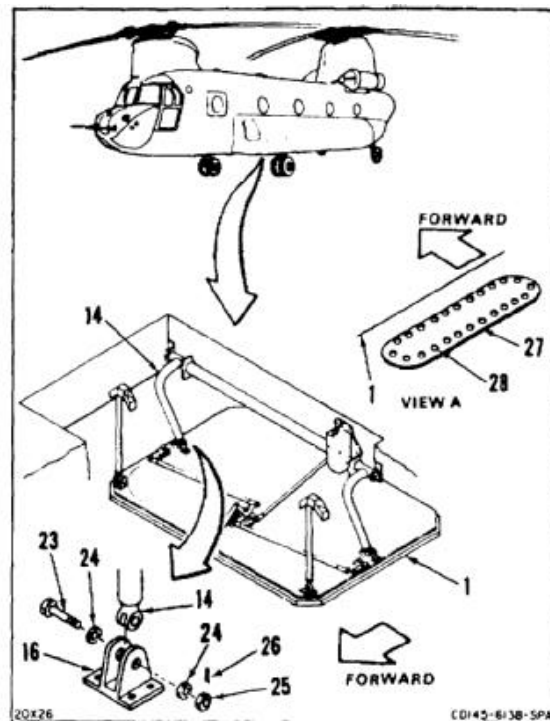
Procedure is same to install both welded links. Installation of welded link on left side is shown here.

4. Position shaft (12) and bracket (13) on welded link (14).
5. Position link (14) with bracket (13) on structure (15) and door bracket (16).
6. Install four screws (17), eight washers (18), and four nuts (19) on bracket (13).
7. Install two bolts (20), four washers (21), and two nuts (22) on link (14).
8. Install bolt (23), two washers (24), nut (25), and cotter pin (26) on link (14) and bracket (16).
9. Position access panel (27) aft of door (1), and install 14 screws (28).



FOLLOW-ON MAINTENANCE:

- Install rescue hatch lower door actuating gearbox (Task 2-200).
- Raise rescue hatch lower door (Task 2-203).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Parts:

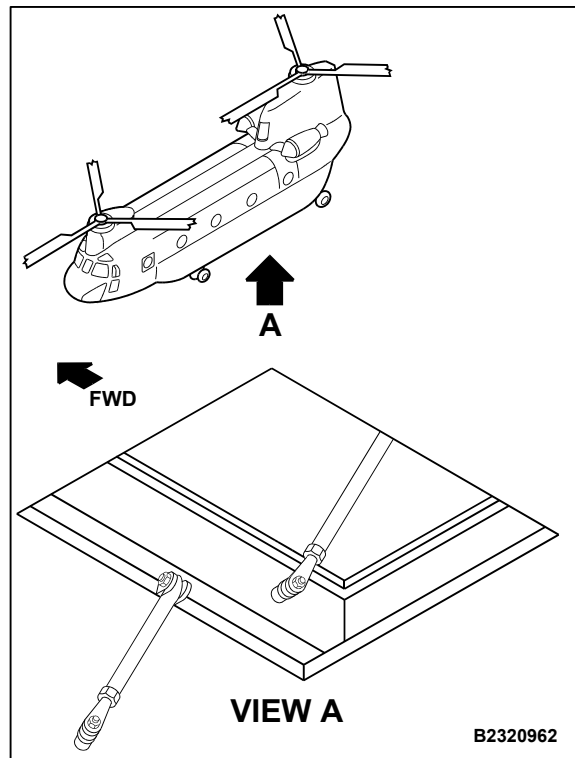
Cotter Pins

Personnel Required:

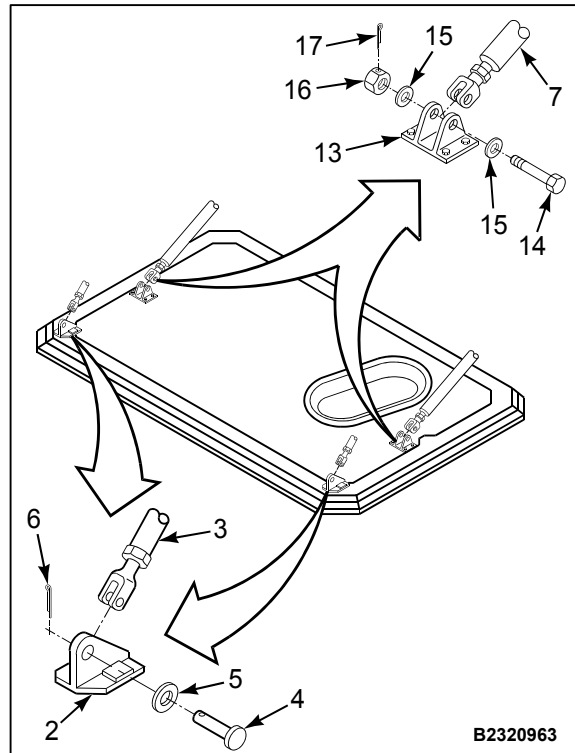
CH-47 Helicopter Repairer (2)

References:

TM 55-1520-240-23P



1. From outside helicopter, have helper position and support door (1) with brackets (2) forward.
2. Position links (3) on brackets (2).
3. Install two pins (4) with heads outboard, two washers (5), and two cotter pins (6).
- 3.1. Position links (7) on brackets (13).
- 3.2. Install two bolts (14), four washers (15), two nuts (16), and two cotter pins (17).



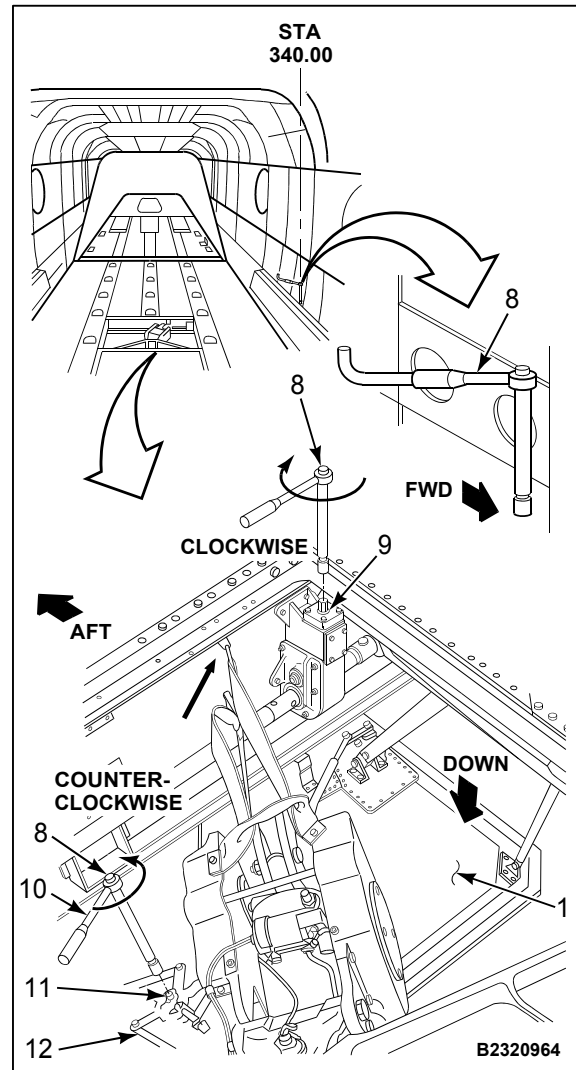


Make sure latches clear structure when raising door; otherwise, damage to door may result.



Do not use excessive force to raise door; otherwise, damage to gearbox can result.

4. From inside helicopter, attach handle (8) to gearbox shaft (9). Turn handle clockwise until door (1) is full up and flush with structure (10). Remove handle.
5. Attach handle (8) to actuator shaft (11). Turn handle counterclockwise until latches (12) lock. Remove handle.
6. Stow crank handle (8) at STA 340.00, left side.



FOLLOW-ON MAINTENANCE:

Close rescue hatch upper door (Task 2-2).

END OF TASK

2-203.1 REMOVE BUSHINGS FROM FORWARD OR AFT CARGO HOOK MOUNT STRUCTURE**2-203.1****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Bushing Removal Tool (APP E-40)

Materials:

None

Personnel Required:

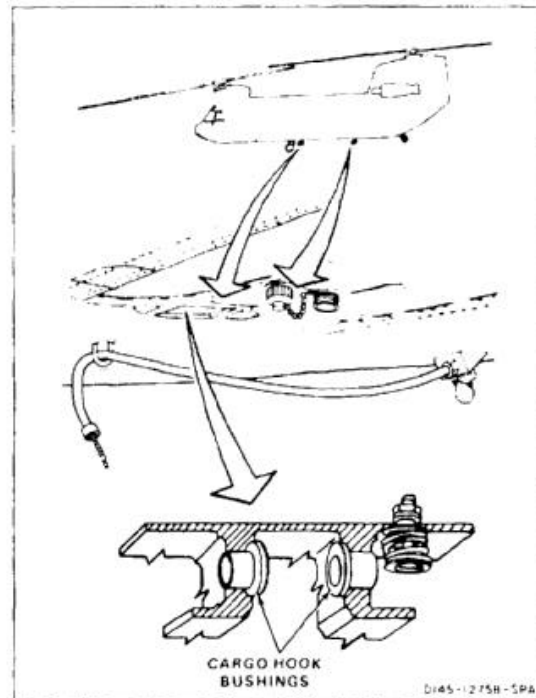
Medium Helicopter Repairer

References:

Appendix E

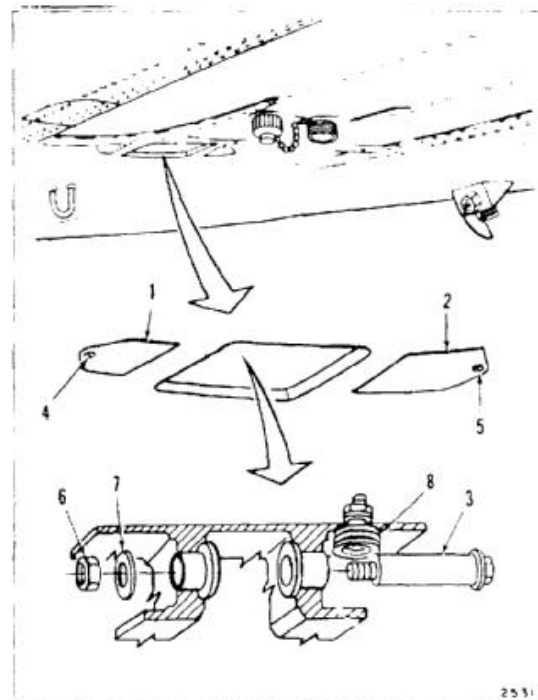
Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Cargo Hook Removed (Task 16-23)

**NOTE**

Remove forward or aft bushing in same manner. Aft bushing removal shown here.

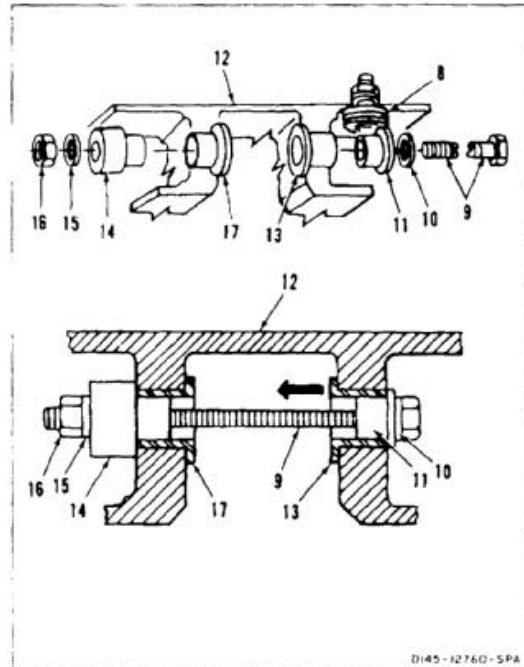
1. If installed, remove access plates (1 and 2) and bolt (3) as follows:
 - a. Remove screws (4 and 5). Remove access plates (1 and 2).
 - b. Remove nut (6) and washer (7). Press safety stop (8) and remove bolt (3).



**2-203.1 REMOVE BUSHINGS FROM FORWARD OR AFT CARGO HOOK MOUNT
STRUCTURE (Continued)**

2-203.1

2. Install removal tool bolt (9), with washer (10) and sleeve plate (11) through beam (12) from side with bushing (13) to be removed push up on safety stop (8) for clearance.
3. Install spacer (14), washer (15), and nut (16) on bolt (9).
4. Hold bolt (9) from turning. Turn nut (16) to press bushing (13) out of beam (12).
5. Install replacement bushing (13) before removing second bushing (17).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-728

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Bushing Removal Tool (E-40)
 Torque Wrench, 30 to 150 Inch-Pounds
 Container, 2 Quart

Materials:

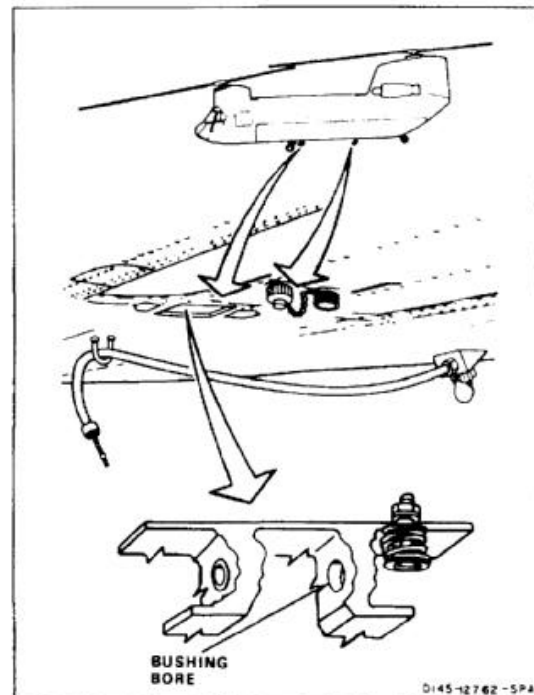
Dry Cleaning Solvent (E162)
 Carbon Dioxide (Dry Ice) (E92)
 Zinc Chromate Primer (E291)
 Methanol (E243)
 Cloths (E120)
 Gloves (E186)
 Kevlar Gloves (E187)

Personnel Required:

Medium Helicopter Repairer
 Inspector

References:

TM 55-1520-240-23P

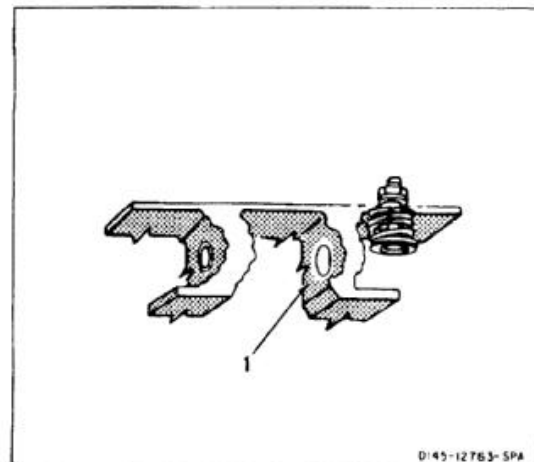
**NOTE**

Install forward or aft bushing in same manner. Aft bushing shown here.

PREPARE BEAM AND BUSHING**WARNING**

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Clean bushing mating surfaces of beam (1). Use solvent (E162) and cloths (E120). Wear gloves (E186).



WARNING

Carbon dioxide (dry ice) (E92) causes severe burns (frost bite) and gives off toxic fumes. Use only in well-ventilated area. Do not get in eyes, on skin, or clothing. In case of contact, immediately flush with water. Get medical attention for eyes.

WARNING

Methanol (E243) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

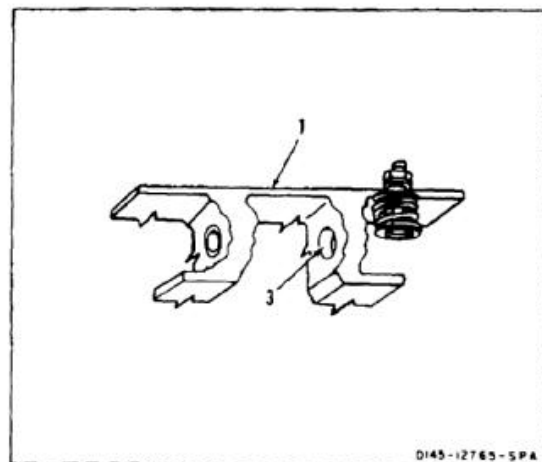
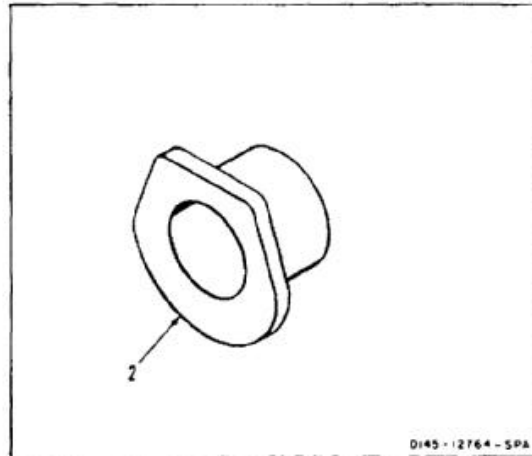
Dry ice (E92) in methanol (E243) has a temperature of **-120°F (-84°C)**. Observe all safety measures when working with dry ice (E92) and methanol (E243), and when handling chilled parts. Avoid breathing carbon dioxide vapor.

- Place bushing (2) in carbon dioxide (dry ice) (E92) and methanol (E243). Wear gloves (E187). Wear goggles to protect eyes. Allow bushing to cool.

WARNING

Zinc chromate primer (E291) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- Coat bushing bore (3) of beam (1) with zinc chromate primer (E291). Wear gloves (E186).



**2-203.2 INSTALL BUSHINGS IN FORWARD OR AFT CARGO HOOK MOUNT
STRUCTURE (Continued)**

2-203.2

INSTALL BUSHING**WARNING**

Wear gloves (E187) when handling chilled bushing.

NOTE

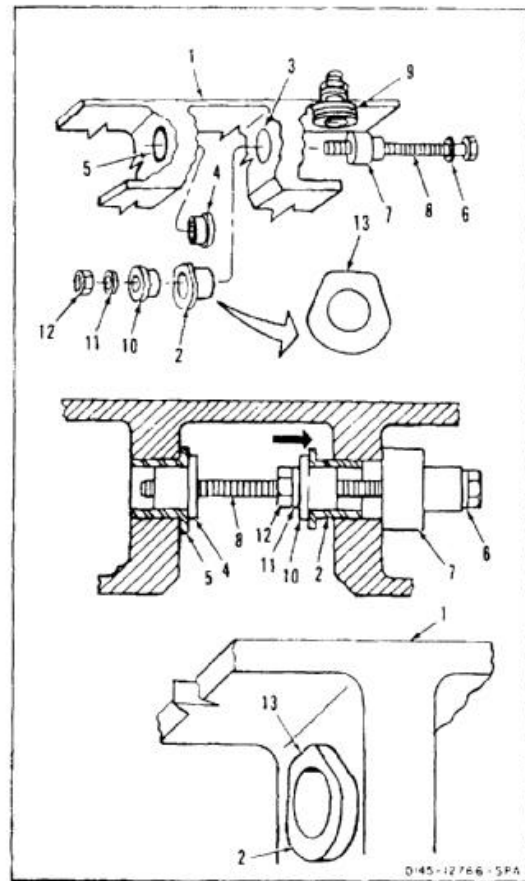
Work quickly with chilled bushing. Bushing must be installed before it warms.

4. Remove bushing (2) from dry ice. Wear goggles to protect eyes.
5. While primer is wet, press bushing (2) into beam (1) as follows:
 - a. Install one sleeve plate (4) in installed bushing (5). Install washer (6) and spacer (7) on bolt (8), small end of spacer toward bolt head.
 - b. Press safety stop (9) and install bolt (8) through bore (3). Install new bushing (2) and second sleeve plate (10) over bolt. Install washer (11) and nut (12) on bolt.
 - c. Insert end of bolt (8) in sleeve plate (4).
 - d. Align bushing (2) so that center flat (13) faces up. Flat shall be parallel to top of beam (1).
 - e. Hold bolt (8) from turning. Turn nut (12) to press bushing (2) into beam (1) until shoulder touches beam (1).

NOTE

Make sure center flat of bushing remains parallel to top of beam.

6. Remove nut (12), washer (11), sleeve plates (10 and 4), and bolt (8).



**2-203.2 INSTALL BUSHINGS IN FORWARD OR AFT CARGO HOOK MOUNT
STRUCTURE (Continued)**

2-203.2

7. If required, install bolt (13) and access plates (14 and 15) as follows:

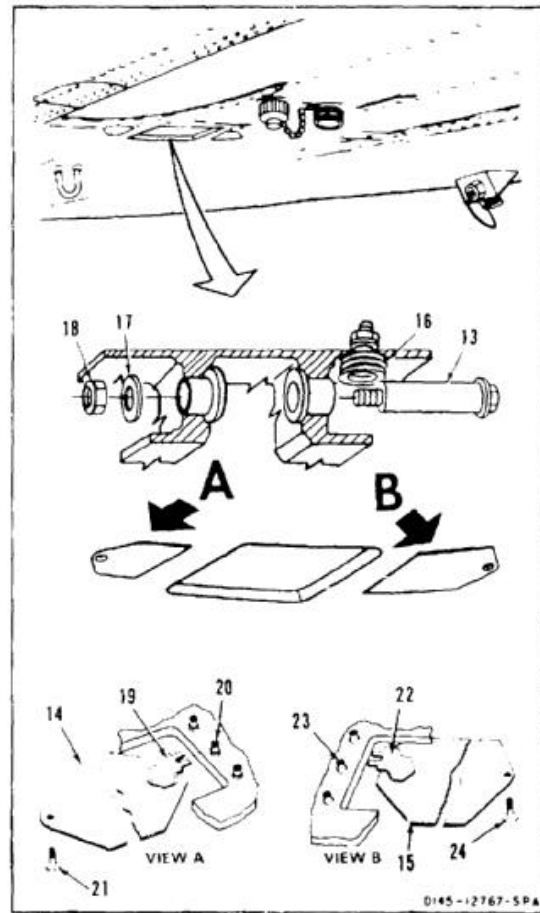
NOTE

Install bolt so that head is under safety stop.

- a. Press safety stop (16) and install bolt (13), washer (17), and nut (18). Torque nut to **120 inch-pounds**.
- b. Position forward access plate (14) over forward hole in fuselage with clip slot (19) around rivet tail (20). Install screw (21).
- c. Position aft access plate (15) over aft hole in fuselage with clip slot (22) around rivet tail (23). Install screw (24).

FOLLOW-ON MAINTENANCE:

Install cargo hook (Task 16-31).



END OF TASK

2-204 REMOVE CABIN FLOOR PANEL

2-204

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off

NOTE

Procedure is similar for all 12 floor panels except for removal of cable guard and splice plates, and release of upstops.

Cable guard is at sta. 120 above two inboard floor panels.

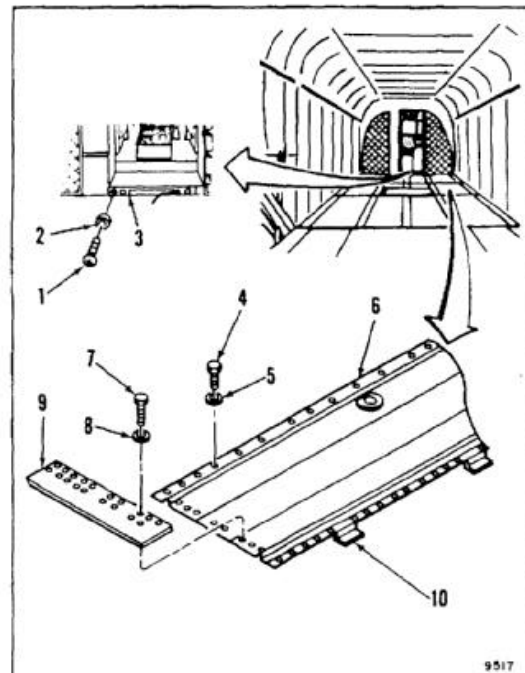
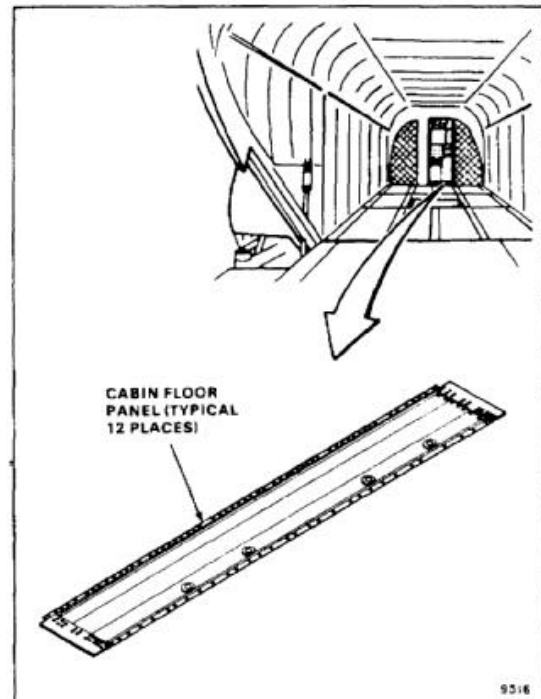
Splice plates are at sta. 240 and, at outboard panels only, at sta. 360.

Up-stops are at outer edges of outer beams.

1. Where applicable, remove three screws (1) and washers (2) from cable guard (3). Remove cable guard.
2. Remove 70 bolts (4) and washers (5) from panel (6).
3. Where applicable, remove 24 bolts (7) and washers (8) from splice plate (9). Remove splice plate.
4. Where applicable, lift inboard edge of panel (6) up to release up-stops (10) from underside of outboard floor beams.
5. Remove panel (6).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-733

2-204.1 REPAIR ALUMINUM CABIN FLOOR PANELS

2-204.1**INITIAL SETUP****Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

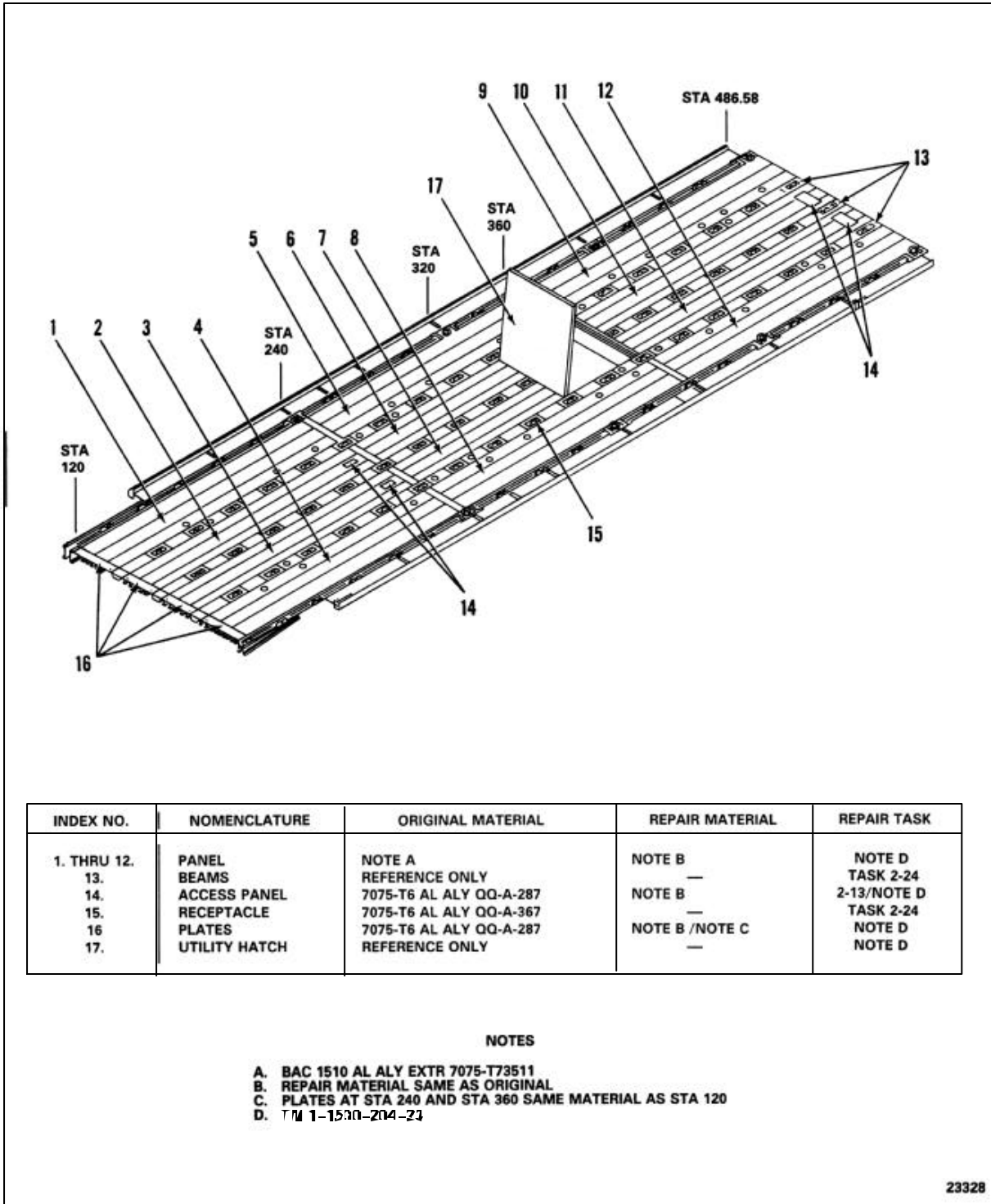
Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-8
Task 2-10
Task 2-24
Task 2-336
Task 2-336.1
Task 2-356
TM 1-1500-204-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Classify damage as partial (Task 2-8) or complete (Task 2-10).
2. For extruded repairs, refer to Task 2-336 or 2-336.1.
3. For beam repair refer to Task 2-24.
4. Where required apply non-skid paint to repaired area Task 2-356.



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Air Compressor MC-1A

Materials:

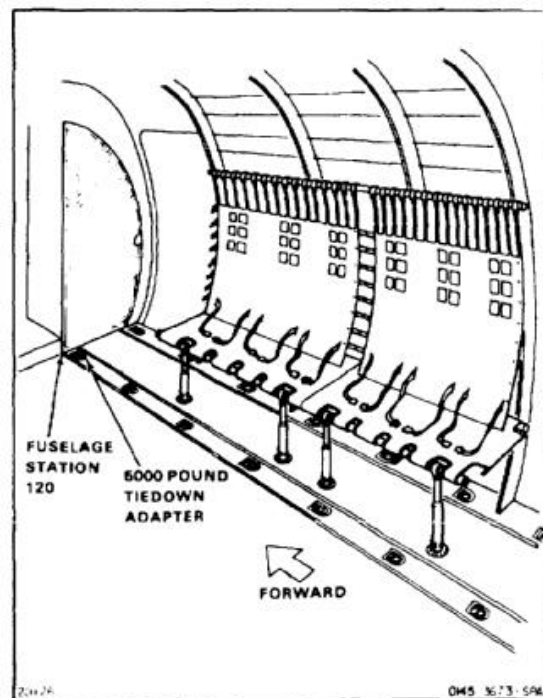
None

Personnel Required:

Aircraft Structural Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Applicable Floor Panel Removed (Task 2-204)

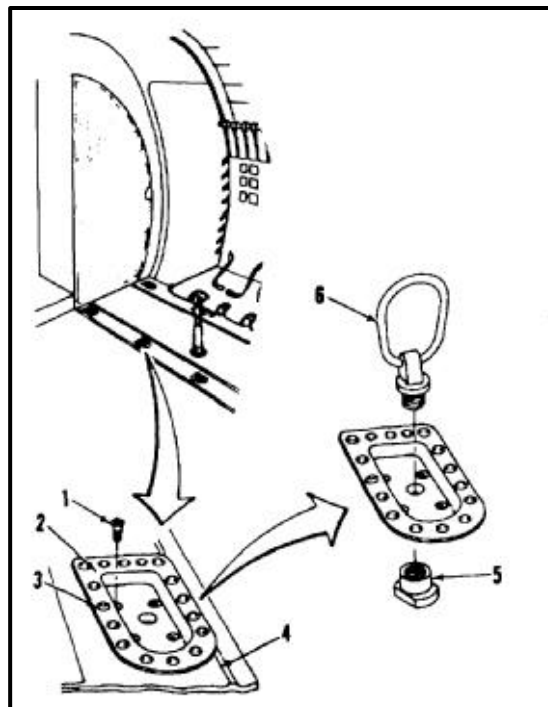
**NOTE**

Procedure is same for all **5000 pound** tiedown adapters. Adapter at station 120 is shown here.

1. Remove four screws (1) from receptacle (2).
2. Remove sealant from edges of receptacle (2).
3. Drill out 16 rivets (3) and remove receptacle (2) from beam (4). Use goggles to protect eyes.
4. Remove bushing (5) from adapter (6).
5. Remove adapter (6).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-736

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

None

Personnel Required:

Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)

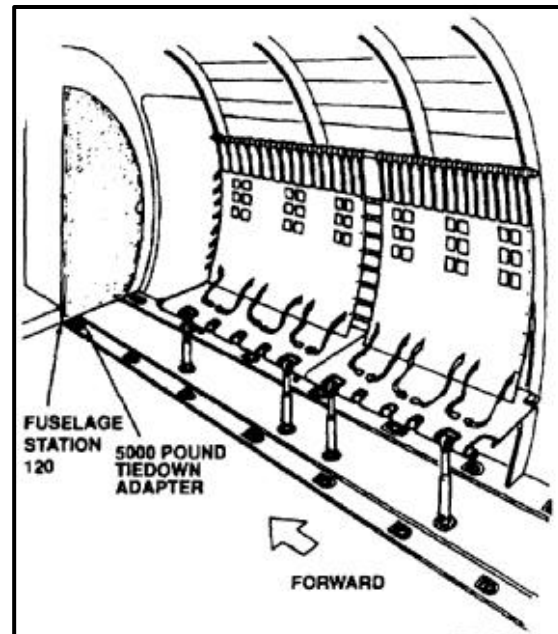
Electrical Power Off

Cargo Ramp Lowered (TM 55-1520-240-T)

References:

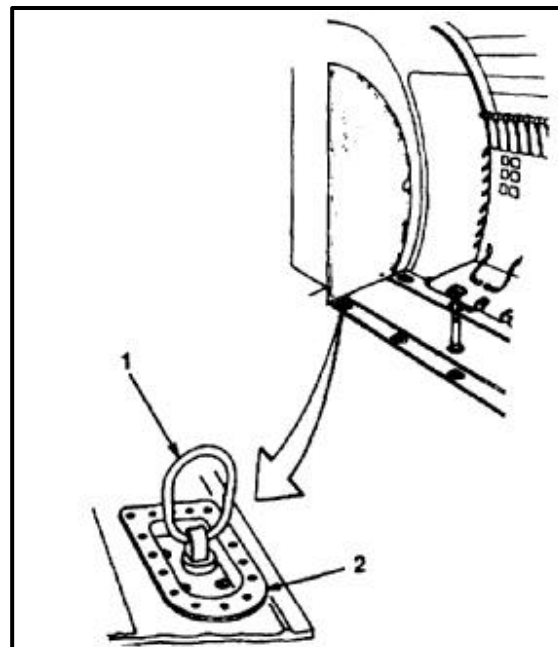
TB 1-1520-240-20-71

TM 55-1520-240-23P

**NOTE**

Serviceability inspection is same for all **5000 pound** tiedown adapters. Adapter at station 120 is shown here.

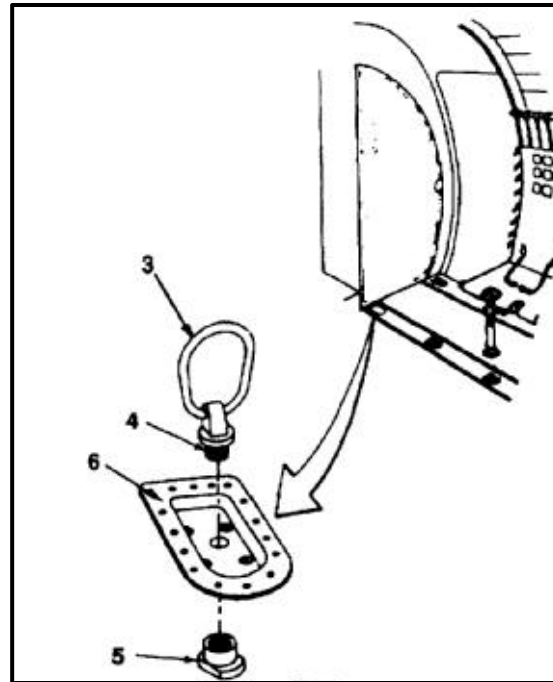
1. Grasp tiedown adapter ring assembly (1) from receptacle (2) and bring to a vertical position.
2. Attempt to rotate the adapter ring assembly (1) by hand, with light to moderate force, in both directions.
3. If tiedown ring cannot be rotated by hand, the assembly is suspect and must be repaired or replaced. Proceed to step 5.
4. Each tiedown ring adapter when inspected and is found serviceable, inspection is complete.



CAUTION

If replacement of a **5000 pound** tiedown adapter assembly is determined, units will perform inspection on depot stock item prior to installation in aircraft.

5. Attach a spring scale to a suspect tiedown ring assembly (3) and apply **5 pounds** of force in an upward direction.
6. While maintaining this upward tension on the scale, rotate the tiedown adapter **10 turns** counterclockwise, using a suitable tool.
7. Determine if the tiedown adapter (4) starts to unscrew, or screws out of the retaining bushing (5). Refer to Follow-On Maintenance for repair/replacement of assembly (6).

**FOLLOW-ON MAINTENANCE:**

- Remove 5000 pound tiedown adapter (Task 2-205).
- Correct defective tiedown receptacles (TB 1-1520-240-20-71).
- Install 5000 pound tiedown adapter (Task 2-206).
- Install cabin floor panel (Task 2-207).
- Close cargo ramp (TM 55-1520-240-T).

END OF TASK

2-738

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Air Compressor (MC-1A)

Materials:

Brush (E85)
Gloves (E184.1)
Epoxy Primer (E292)
Sealant (E327)

Personnel Required:

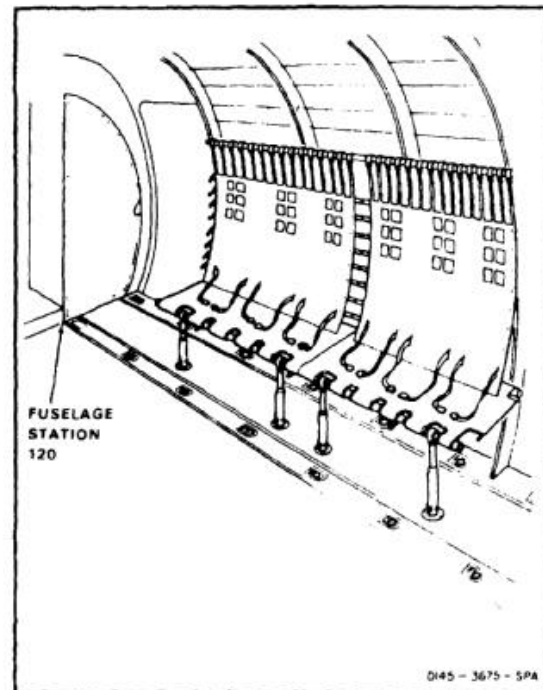
Aircraft Structural Repairer

References:

TM 55-1520-240-23P

General Safety Instructions:**WARNING**

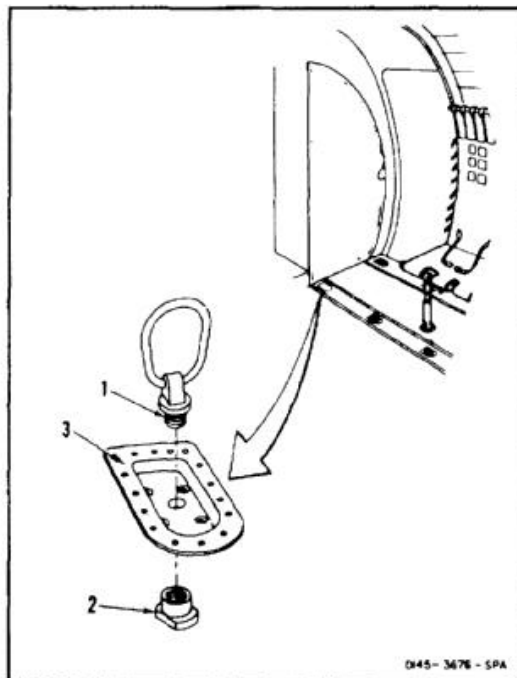
Sealant (E327) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.



NOTE

Procedure is same for all **5000 pound** tiedown adapters. Adapter at station 120 is shown here.

1. Coat thread of adapter (1) and bushing (2) with sealant (E327) using brush (E85). Wear gloves (E184.1).
2. Position bushing (2) under receptacle (3) and install adapter (1) in bushing. Make sure adapter pivots fore and aft, and swivels freely.

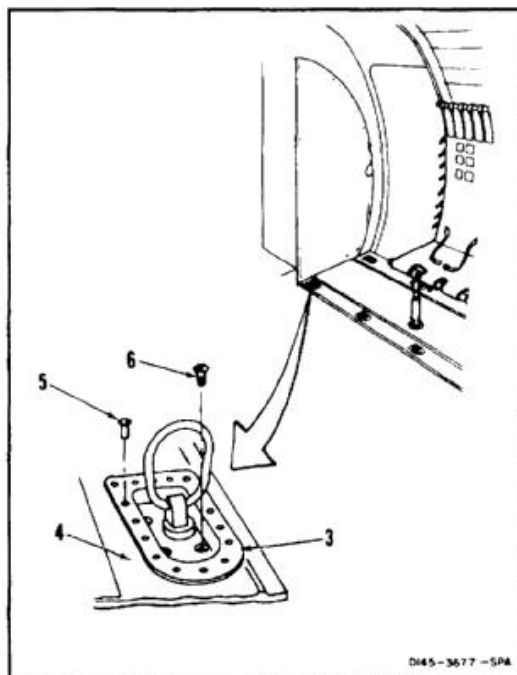


3. Position receptacle (3) on beam (4). Install 16 rivets (5) in receptacle and beam.
4. Apply sealant (E327) around edges of receptacle (3).

WARNING

Primer (E292) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

5. Coat four screws (6) with primer (E292). Install four screws in receptacle (3) and beam (4). Wear gloves (E184.1).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-740

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Gloves (E186)
 Epoxy Primer (E292)
 Sealant (E331)
 Tape, Mylar (E389)

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P

General Safety Instructions:**WARNING**

Primer (E292) and sealant (E331) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

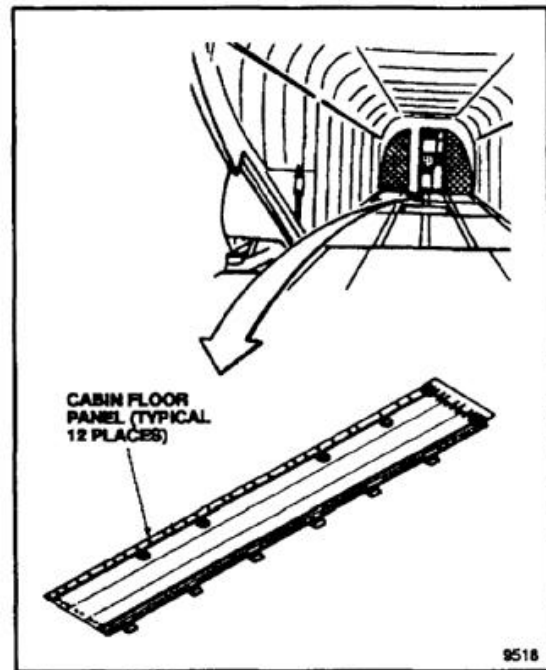
NOTE

Installation is similar for all 12 floor panels except for installation of cable guard and splice plates and engagement at up-stops.

Cable guard is at sta. 120 above two inboard floor panels.

Splice plates are at sta. 240 and, at outboard panels only, at sta. 360.

Up-stops are at outer edges of outer beams.



1. Check tape faying surface (1) on floor structure (2). If cut, cracked, or missing, replace tape (E389).

NOTE

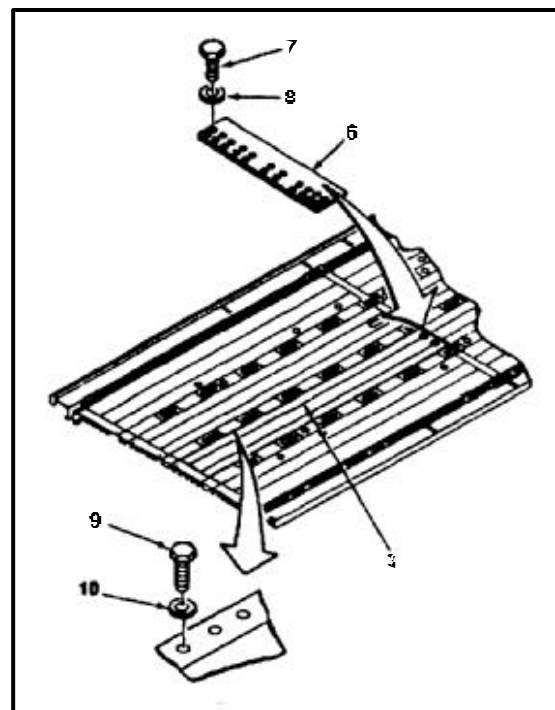
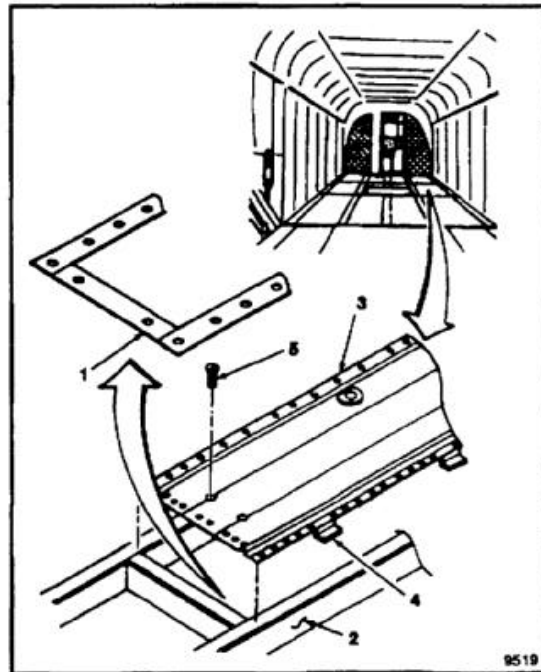
Aircraft may be operated with up to **10 percent** of the fasteners not installed in the floor panels with the following restrictions:

- (1) All openings must be sealed.
 - (2) Aircraft is restricted from internal loads until all hardware has been properly installed.
2. Where applicable, lift inboard edge of panel (3) up and slide it outboard to engage up-stops (4) in underside of outboard floor beams.

NOTE

In lieu of epoxy primer (E292), a thin coat of sealant (E331) may be applied to underside of screw and bolt heads prior to installation. Avoid getting sealant on threads. A thin coat of sealant (E331) should also be applied to washers to aid in sealing.

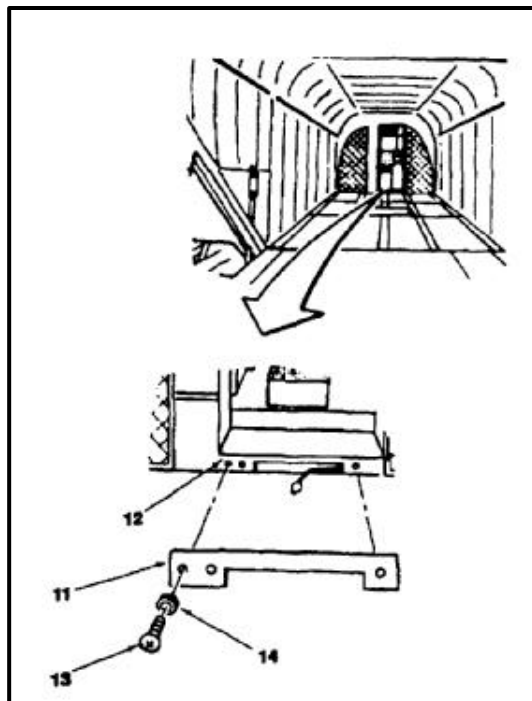
3. Spray two screws (5) with primer (E292). Install wet in panel (3). Wear gloves (E186).
4. Position splice plate (6) on aft end of panel (3).
5. Spray 24 bolts (7) with primer (E292). Install 24 bolts, wet with primer and washers (8) in splice plate (6). Wear gloves (E186).
6. Spray 70 bolts (9) with primer (E292). Install 70 bolts, wet with primer, and washers in panel (3). Wear gloves (E186).
7. Seal edges of panel (3). Use sealant (E331).



2-207 INSTALL CABIN FLOOR PANEL (Continued)

2-207

8. Position cable guard (11) on structure (12).
9. Install three screws (13) and washers (14) on cable guard (11).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

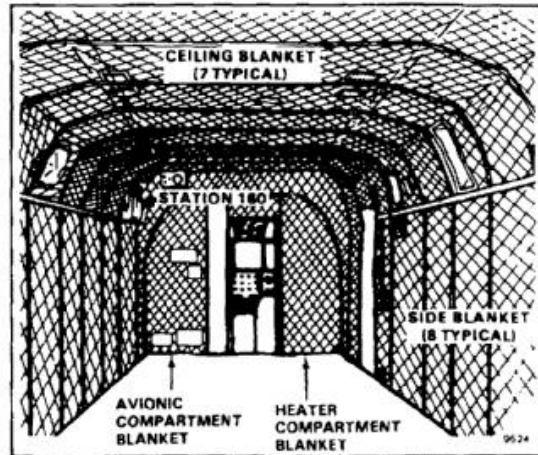
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Troop Seat Removed (Task 2-230)
- Night Vision Goggles (NVG) Blackout Curtain Removed (Task 2-108.1)

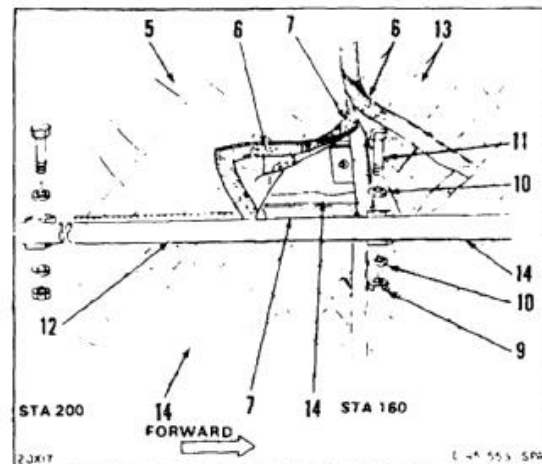
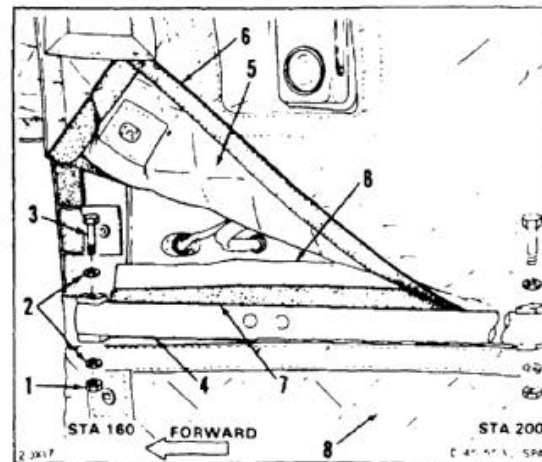


REMOVE CEILING BLANKETS

NOTE

Procedure is same to remove all cabin ceiling blankets. Removal of blanket between stations 160 and 200 is shown here.

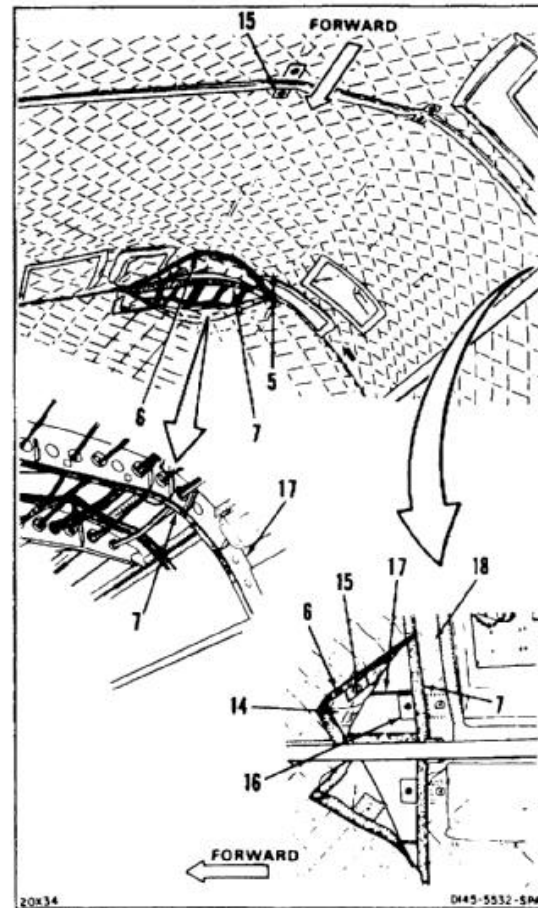
1. Remove two nuts (1), four washers (2), and two bolts (3) from upper troop seat rail (4) on right side.
2. Pull rail (4) slightly away from ceiling blanket (5). At same time, pull back edges of blanket. Separate hook tape (6) on blanket from pile tape (7) on right side blanket (8).
3. Remove two nuts (9), four washers (10), and two bolts (11) from upper troop seat rail (12) on left side.
4. Pull rail (12) slightly away from ceiling blanket (5). At same time, pull back aft edge of blanket (13). Separate hook tape (6) on blanket (13) from pile tape (7) on blanket (5). Separate entire aft edge of blanket (13).
5. Pull rail (12) slightly away from blanket (5). At same time, pull back edge of blanket. Separate hook tape (6) on blanket (5) from pile tape (7) on left side blanket (14).



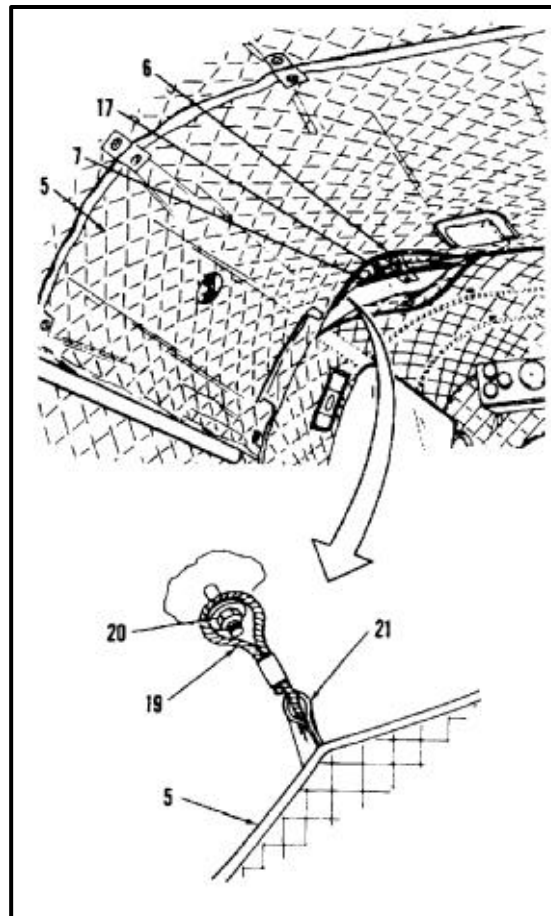
NOTE

Number of socket fasteners varies for each blanket.

6. Pull all socket fasteners (15) on blanket (5) from studs (16) on structure (17).
7. Pull back edge of blanket (5) at aft end. Separate hook tape (6) on blanket from pile tape (7) on blanket (18).
8. Pull back edge of blanket (5) at forward right end. Separate hook tape (6) on blanket from pile tape (7) on structure (17).



9. Pull back edge of blanket (5) at forward left end. Separate hook tape (6) on blanket from pile tape (7) on structure (17).
10. Repeat steps 8 and 9 at aft edge of blanket (5).
11. Remove rope (19) from structure (20) at four places.
12. Remove blanket (5). Remove rope (19) from blanket loops (21).

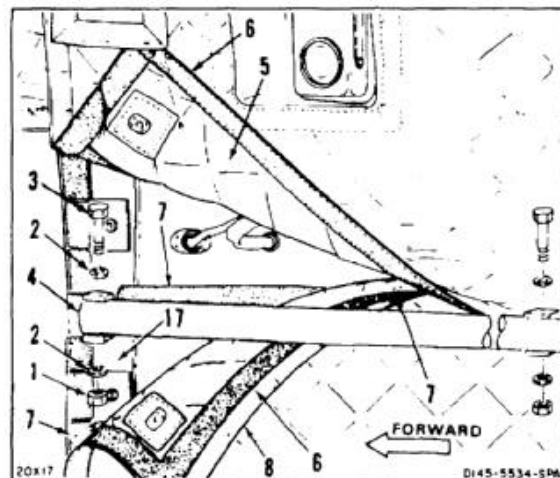


REMOVE SIDE BLANKETS

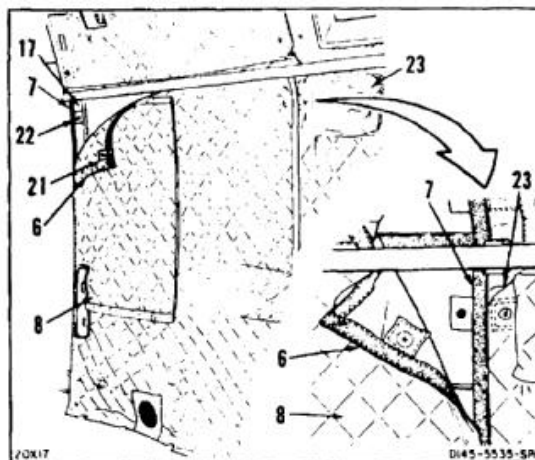
NOTE

Procedure is same to remove all cabin side blankets. Removal of blanket between stations 160 and 200 on right side is shown here.

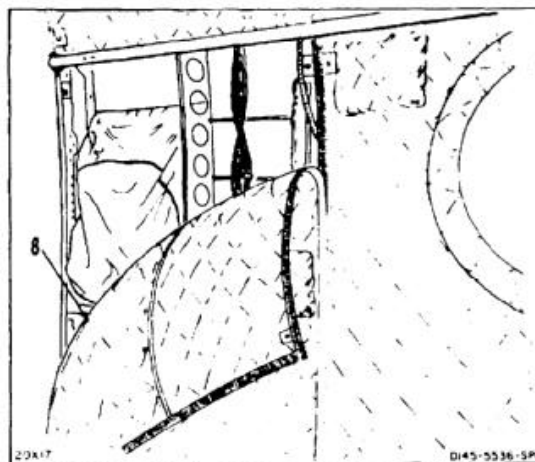
13. Remove two nuts (1), four washers (2), and two bolts (3) from upper troop seat rail (4) on right side.
14. Pull rail (4) slightly away from blanket (5). At same time, pull back edge of blanket. Separate hook tape (6) on blanket from pile tape (7) on right side blanket (8).
15. Pull rail (4) slightly away from blanket (8). At same time, pull back edge of blanket. Separate hook tape (6) on blanket (8) from pile tape (7) on structure (17).



16. Pull four socket fasteners (21) on blanket (8) from studs (22) on structure (17).
17. Pull back edges of blanket (8). Separate hook tape (6) on blanket from pile tape (7) on structure (17).
18. Pull back on blanket (8). Separate hook tape (6) on blanket from pile tape (7) on blanket (23).



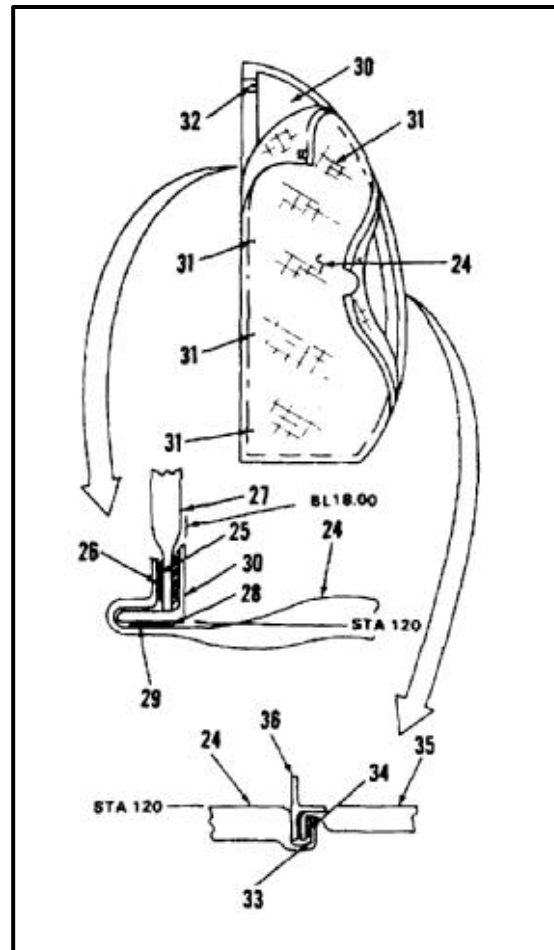
19. Remove blanket (8).



REMOVE HEATER AND AVIONIC COMPARTMENT BLANKETS

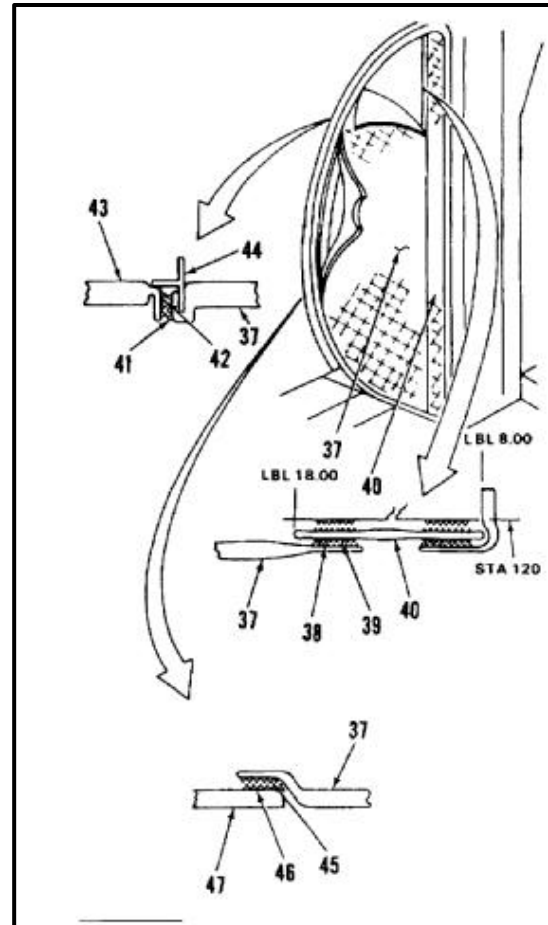
Heater Blanket

20. Pull back left edge of blanket (24). Separate hook tape (25) on blanket from pile tape (26) on passageway blanket (27). Continue removing blanket and separate hook tape (28) from pile tape (29) on structure (30).
21. Pull four socket fasteners (31) on blanket (24) from studs (32) on structure (30).
22. Pull back right edge of blanket (24). Separate hook tape (33) on blanket from pile tape (34) on blanket (35).



Avionic Blanket

23. Pull back right edge of blanket (37). Separate hook tape (38) on blanket from pile tape (39) on blanket (40).
24. Pull back upper left edge of blanket (37). Separate hook tape (41) on blanket from pile tape (42) on blanket (43).
25. Pull back lower left edge of blanket (37). Separate hook tape (45) on blanket from pile tape (46) on blanket (47).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Fabric Repair Specialist

References:

Task 2-338

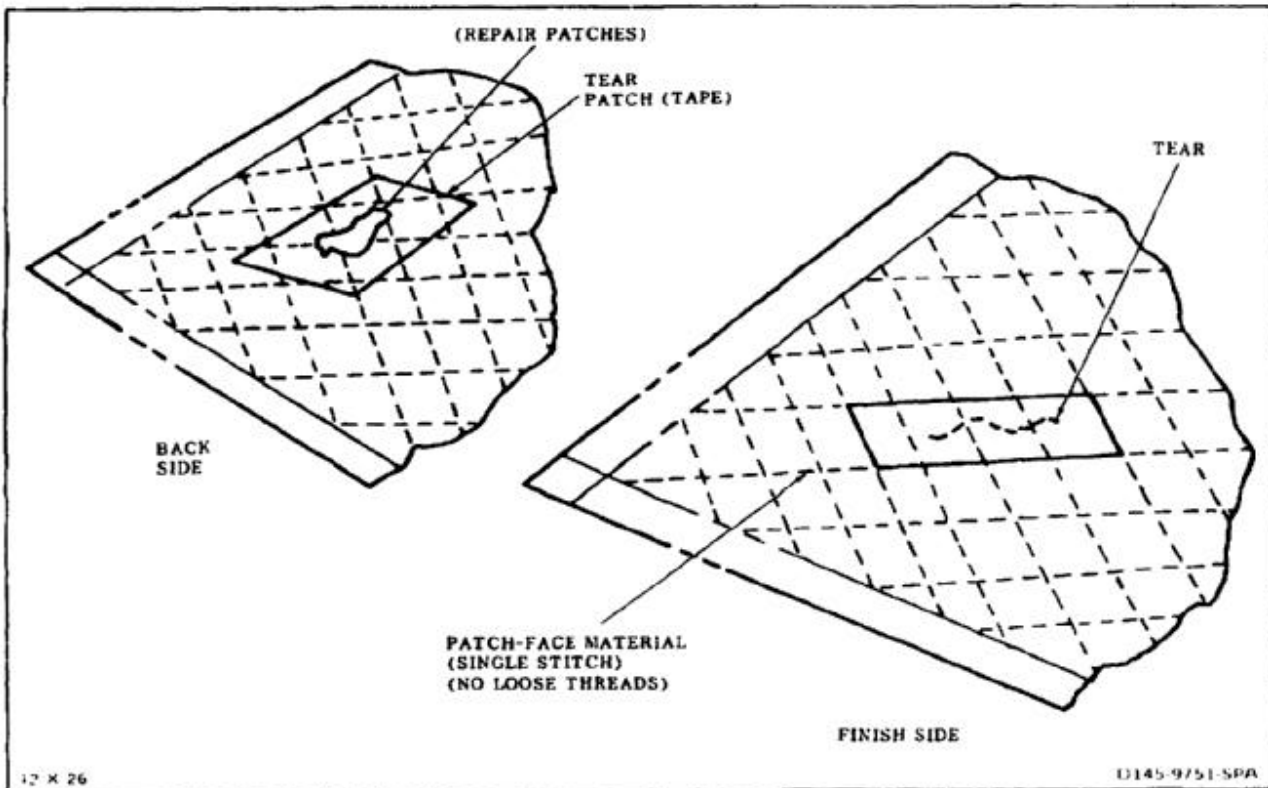
Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Repair of acoustic blanket is limited to holes or tears that can be mended or patched without impairing the acoustic quality.
2. A repair to the visible side of the blanket shall blend in with the finished product decor. A patch of single thickness of like material shall be sewn to cover the repair area.
3. Repair to the non-visible side or back side of a blanket may be done with tape. The tape must be completely sealed down to the backing in a neat fashion.
4. If required, repair the hook and pile tape installation (Task 2-338).



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-750

2-210 INSTALL CABIN ACOUSTIC BLANKETS

2-210

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

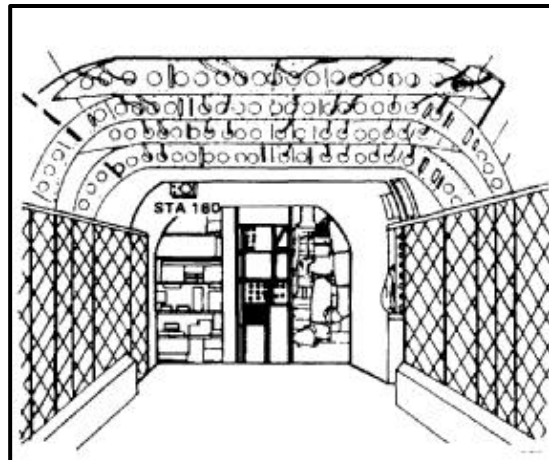
None

Personnel Required:

Medium Helicopter Repairer (2)

References:

TM 55-1520-240-23P

**NOTE**

Start at station 482 and work forward if installing all blankets in cabin.

INSTALL CEILING BLANKETS**NOTE**

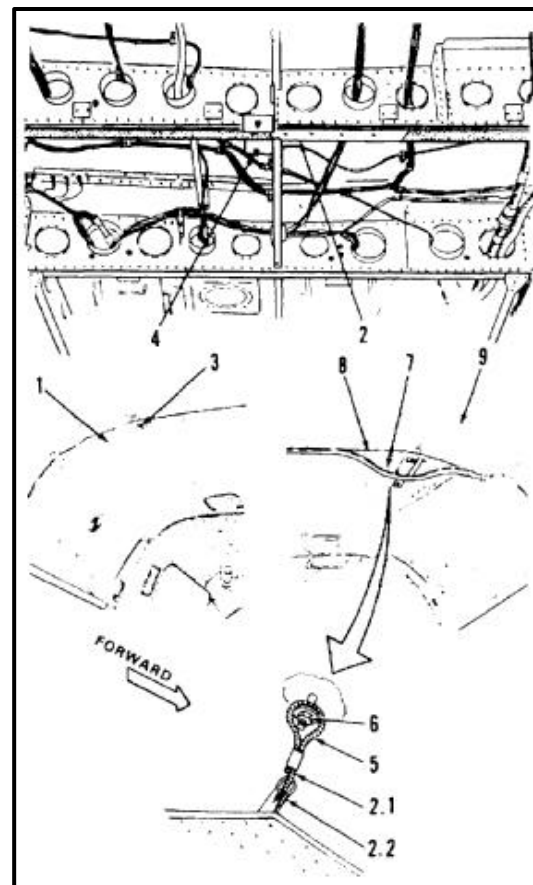
Procedure is same to install all cabin ceiling blankets. Installation of blanket between stations 160 and 200 is shown here. Number of socket fasteners varies for each blanket.

1. Position blanket (1) on structure (2) after installation rope (2.1) in blanket loops (2.2) and align socket fasteners (3) with studs (4) at helicopter centerline.
2. At centerline, press 2 fasteners (3) on studs (4).
3. Have helper support blanket (1) and pass loop (5) of rope (2.1) over standoff (6) at four places.
4. Deleted.

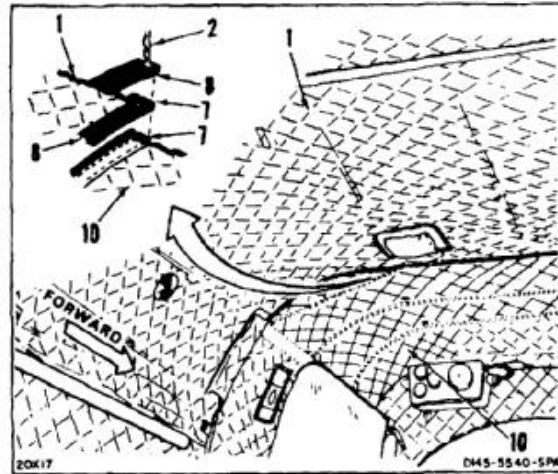
NOTE

To make blanket tight, hold blanket at edge and pull away from stud.

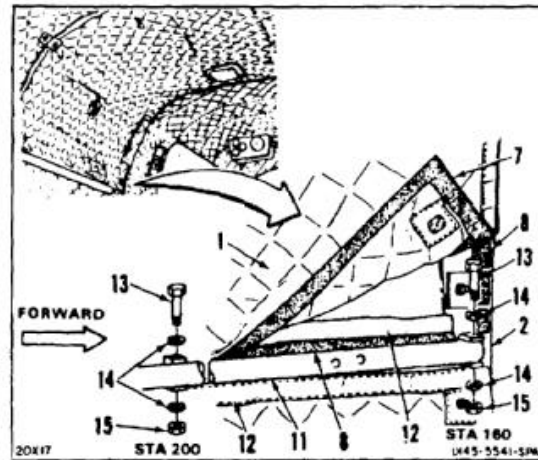
5. Press hook tape (7) on blanket (1) at aft end to pile tape (8) on blanket (9). Press blanket (1) tight against blanket (9). Make sure there are no gaps between blankets.



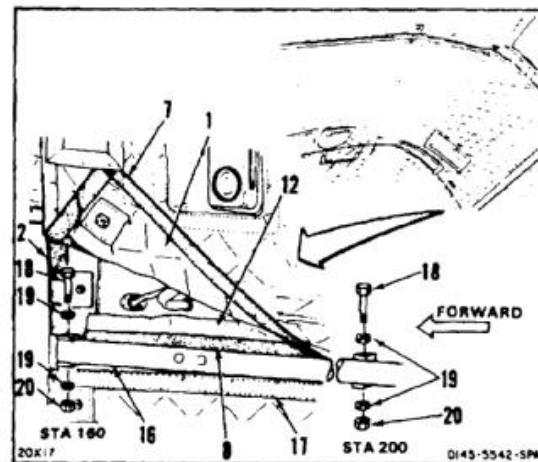
6. Press hook tape (7) on blanket (1) at left forward end to pile tape (8) on structure (2). Press blanket (1) tight against structure (2). Make sure there are no gaps.
7. Press hook tape (7) on blanket (10) to pile tape (8) on blanket (1). Press blanket (10) tight against blanket (1). Make sure there are no gaps between blankets.



8. Pull upper troop seat rail (11) on left side, slightly away from blanket (1). At same time, press hook tape (7) on blanket to pile tape (8) on structure (2). Press hook tape on blanket to pile tape (8) on side blanket (12).
9. Press blanket (1) tight against structure (2) and blanket (12). Make sure there are no gaps between blanket and structure.
10. Install two bolts (13), four washers (14), and two nuts (15) on upper troop seat rail (11).



11. Pull upper troop seat rail (16) on right side slightly away from blanket (1). At same time, press hook tape (7) on blanket to pile tape (8) on structure (2). Press hook tape on blanket to pile tape (8) on side blanket (17).
12. Press blanket (1) tight against structure (2) and blanket (17). Make sure there are no gaps between blanket and structure.
13. Install two bolts (18), four washers (19), and two nuts (20) on upper troop seat rail (16).



INSTALL SIDE BLANKETS

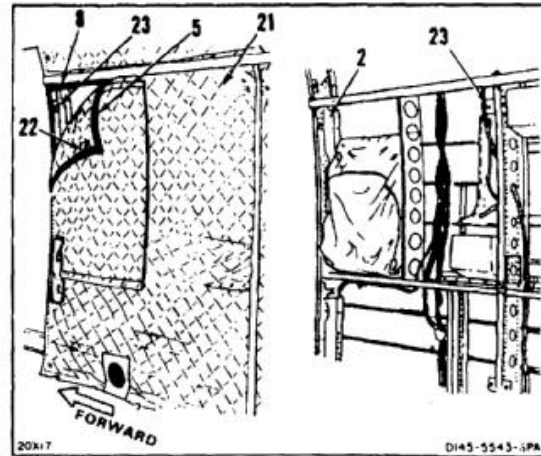
NOTE

Procedure is same to install all cabin side blankets. Installation on blanket on right side between stations 160 to 200 is shown here.

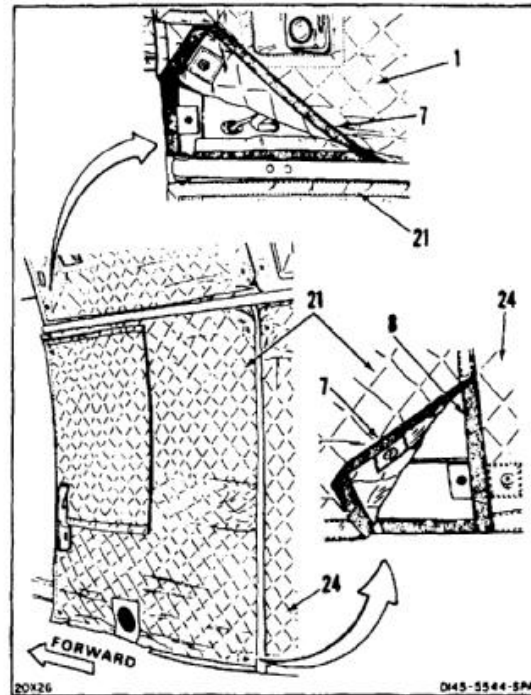
14. Position blanket (21) on structure (2) and align socket fasteners (22) with studs (23).
15. Press four fasteners (22) on studs (23).

NOTE

To make blanket tight, hold blanket at edge and pull away from stud.



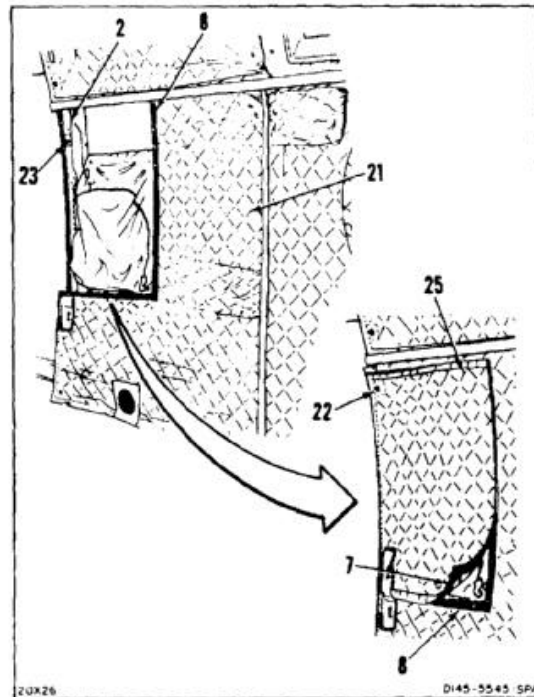
16. Press hook tape (7) on blanket (21) to pile tape (8) on structure (2). Press blanket tight against structure. Make sure there are no gaps between blanket and structure.
17. Press hook tape (7) on blanket (21) to pile tape (8) on blanket (24).
18. Press hook tape (7) on blanket (1) to pile tape (8) on blanket (21).
19. Press blanket (1) tight against blanket (21). Make sure there are no gaps between blankets.



INSTALL ACCESS PANELS**NOTE**

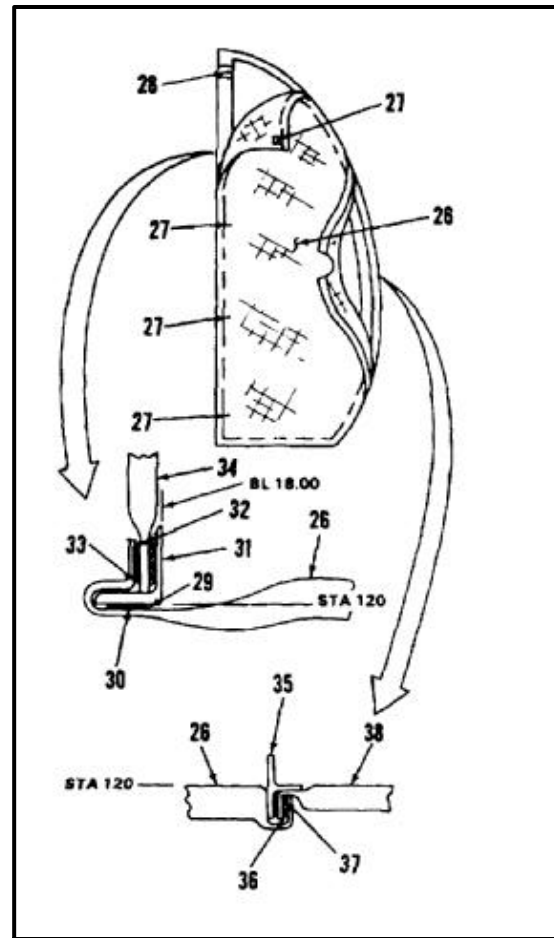
Procedure is same to install all acoustic blanket access panels. Installation of panel in right side blanket between stations 160 and 200 is shown here.

20. Position panel (25) on blanket (21) and align socket fastener (22) with stud (23).
21. Press fastener (22) on stud (23).
22. Press hook tape (7) on panel (25) to pile tape (8) on blanket (21) and structure (2).
23. Press panel (25) tight against blanket (21) and structure (2). Make sure there are no gaps between blanket and structure.



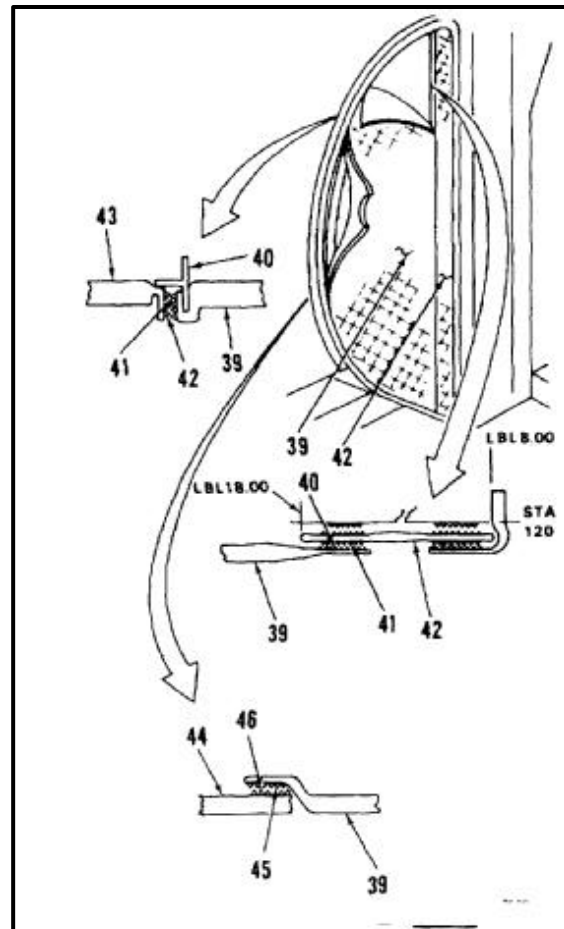
INSTALL HEATER AND AVIONIC COMPARTMENT BLANKETS**Heater Blanket**

24. Position blanket (26) and align socket fastener (27) with stud (28).
25. Press four fasteners (27) on four studs (28).
26. Press hook (29) on blanket (26) on pile tape (30) attached to structure (31). Pull edge of blanket (26) around structure (31) and press hook tape (32) on blanket (26) to pile tape (33) on blanket (34).
27. Pull right hand edge of blanket (26) around structure (35). Press hook tape (36) on blanket (26) on pile tape (37) on blanket (38). Make sure there are no gaps between blanket and structure.



Avionic Blanket

28. Position upper right hand side of blanket (39) and press hook tape (40) against pile tape (41) on blanket (42).
29. Pull upper left hand edge of blanket (39) around structure and press hook tape (41) against pile tape (42) on blanket (43).
30. Pull lower left hand edge of blanket (39) over blanket (44). Press hook tape (45) on blanket (39) on pile tape (46) on blanket (44).

**FOLLOW-ON MAINTENANCE:**

- Install troop seat (Task 2-229).
- Install NVG blackout curtain (Task 2-108.1).

END OF TASK

2-756

2-210.1 REPLACE FERRY FUEL SYSTEM GROUNDING RECEPTACLES**2-210.1****INITIAL SETUP****Applicable Configurations:**With **19****Tools:**

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

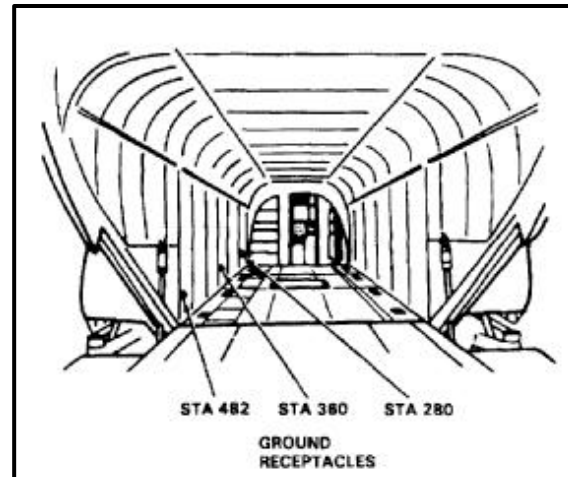
Dry Cleaning Solvent (E162)
Cloths (E135)
Gloves (E186)

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



NOTE

Grounding receptacles are at stations 280, 360 and 482. Procedure to remove any of the three is identical. Receptacle at station 482 shown.

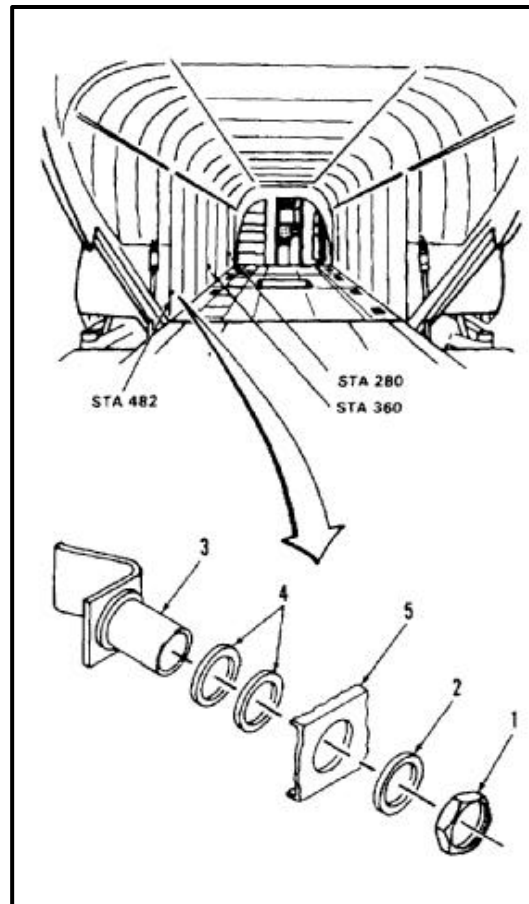
REMOVE

1. Remove nut (1) and washer (2).
2. Remove receptacle (3) and washers (4) from back of structure (5).

INSTALL**WARNING**

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

3. Clean structure (5). Use cloths (E135) dampened with dry cleaning solvent (E162). Wear gloves (E186).
4. Install two washers (4) on receptacle (3).
5. Insert receptacle (3) in back of structure (5).
6. Install washer (2) and nut (1) on receptacle (3).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-758

INITIAL SETUP

Applicable Configurations:With **19****Tools:**

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Torque Wrench, 150-750 Inch-Pounds

Materials:

Dry Cleaning Solvent (E162)
Cloths (E135)
Gloves (E186)
Sealant (E336 or E470)
Goggles (E473)

Personnel Required:

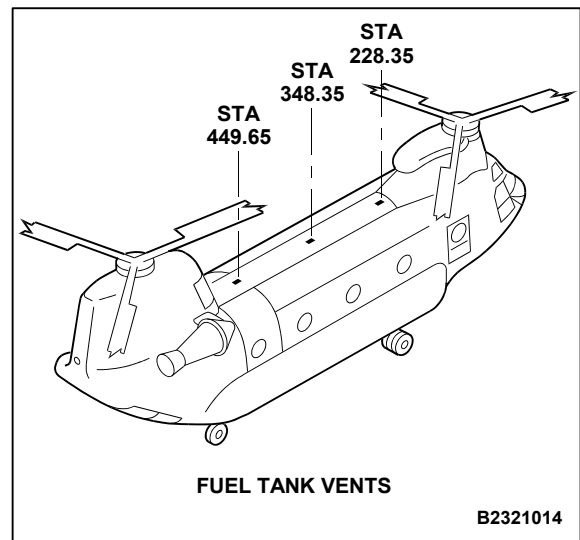
CH-47 Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

General Safety Instructions:**WARNING**

Observe all cautions and warnings on the containers when using consumables. When applicable, wear necessary protective gear during handling and use. If a consumable is flammable or explosive, make certain consumable and its vapors are kept away from heat, sparks, and flame. Make certain the helicopter is properly grounded and fire fighting equipment is readily available. For additional information on toxicity, flashpoint, and flammability of chemicals, contact your safety officer or the manufacturer of the consumable.



NOTE

Fuel tank vents are at STA 228.35, 348.35, and 449.65. Procedure to remove any of the three is identical. Fuel tank vent at STA 348.35 is shown.

REMOVE

1. Remove nut (1), cap (2), and washer (3).
2. Remove elbow (4) and washer (5) from structure (6).

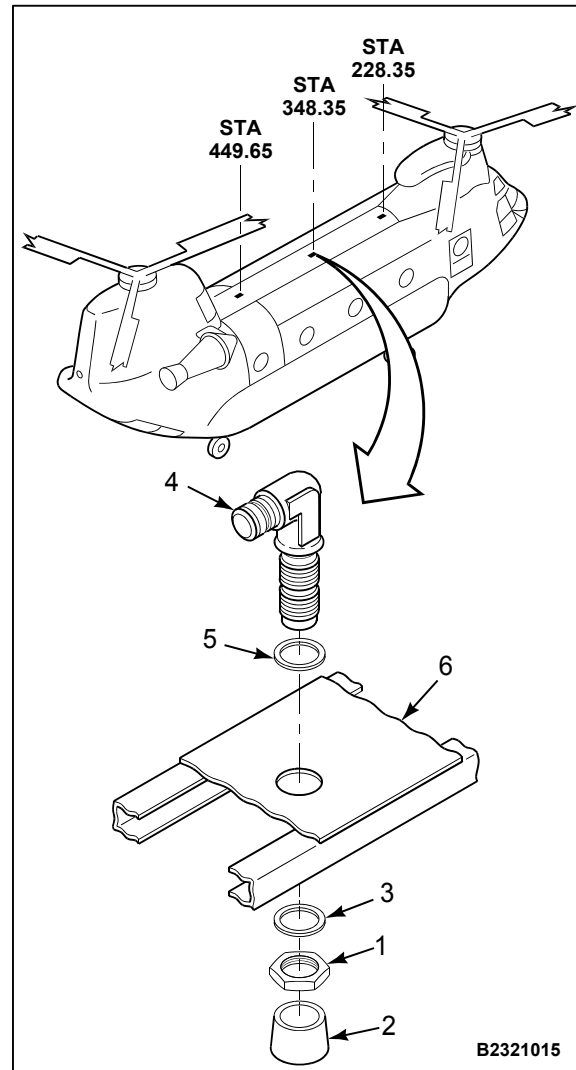
INSTALL**WARNING**

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

3. Clean structure (6). Use cloths (E135) dampened with dry cleaning solvent (E162). Wear gloves (E186).
4. Install one washer (5) on elbow (4) and install in structure (6). Position elbow facing aft.
5. Install second washer (3) on elbow (4) and secure with nut (1) and cap (2).
6. Torque nut (1) to **278 inch-pounds**.
7. Apply a bead of sealant (E336 or E470) around elbow (4) and washer (5) at top of structure (6).

INSPECT**FOLLOW-ON MAINTENANCE:**

None



B2321015

END OF TASK

2-211 REMOVE SUPPRESSIVE FIRE SYSTEM SUPPORT BRACKETS

2-211

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

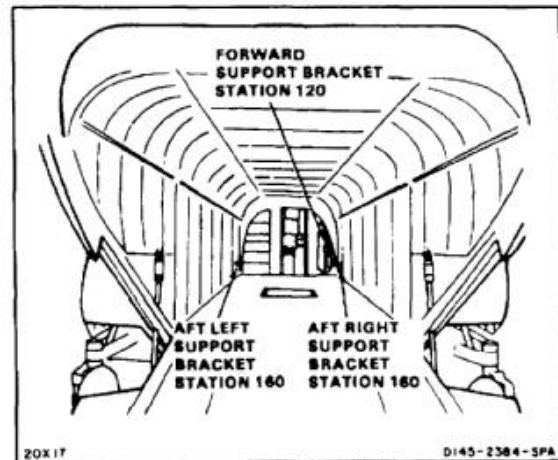
Medium Helicopter Repairer

References:

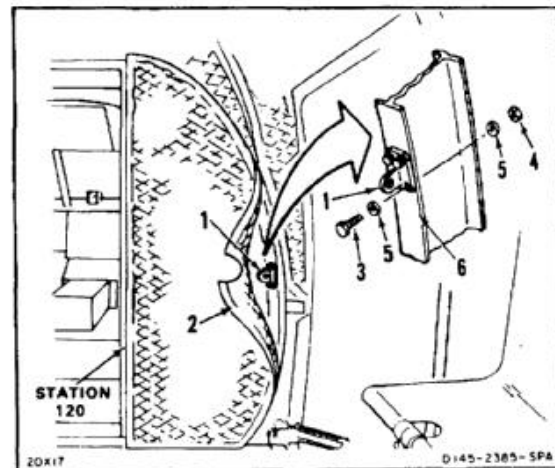
Task 2-222

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Remove Upper Cabin Door (Task 2-150)
 Remove Upper Cabin Door Track (Task 2-155)



1. Remove forward support bracket (1) as follows:
 - a. Pull edge of blanket (2) away from bracket (1).
 - b. Remove lockwire from four bolts (3).
 - c. Remove four nuts (4), light washers (5), and four bolts (3).
 - d. Remove bracket (1) from structure (6).

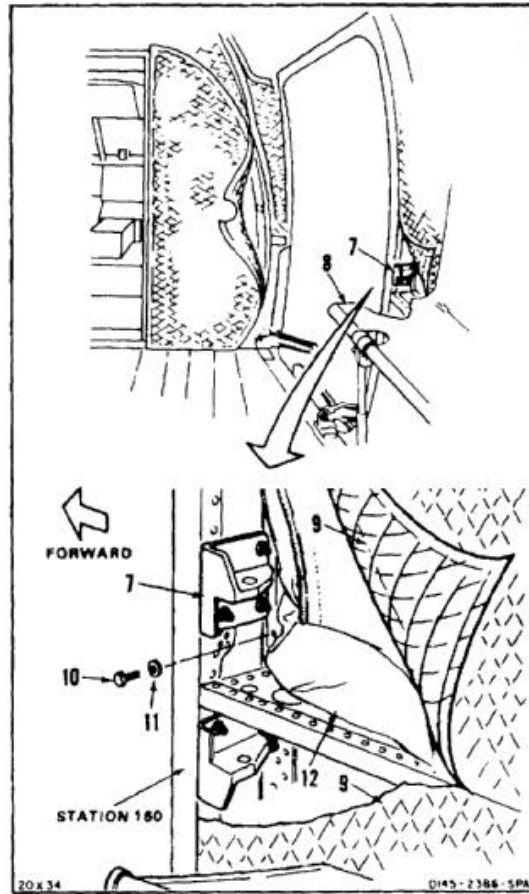


2. Remove aft right support bracket (7) as follows:

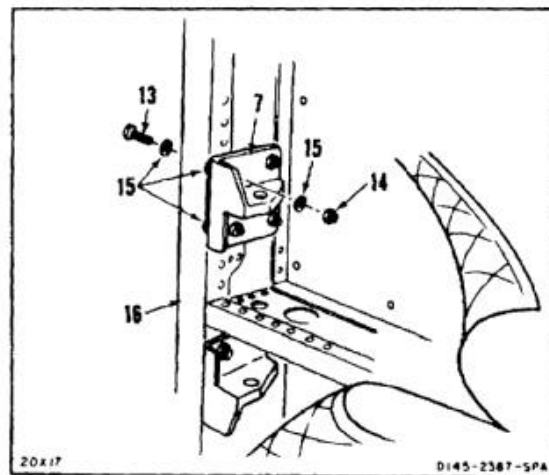
NOTE

Procedure is same for upper and lower aft support brackets. Upper bracket is shown here.

- a. Make sure troop seat (8) next to bracket (7) is unstowed (Task 2-222).
- b. Pull back edges of acoustic blanket (9) next to bracket (7).
- c. Remove four screws (10) and washers (11) from stowage container (12). Remove stowage container.



- d. Remove lockwire from four bolts (13).
- e. Remove four nuts (14), 12 washers (15), and bolts (13).
- f. Remove bracket (7) from structure (16).

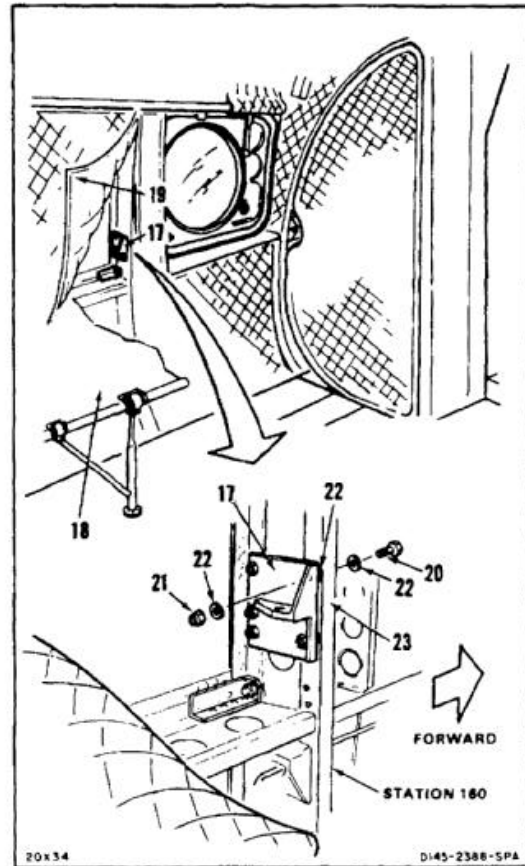


3. Remove aft left support bracket (17) as follows:

NOTE

Procedure is same for upper and lower aft support brackets. Upper bracket is shown here.

- a. Make sure troop seat (18) next to bracket (17) is unstowed (Task 2-222).
- b. Pull back edges of acoustic blanket (19) next to bracket (17).
- c. Remove lockwire from five bolts (20).
- d. Remove five nuts (21), fifteen washers (22), and five bolts (20).
- e. Remove bracket (17) from support (23).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Torque Wrench, 30 to 150 Inch-Pounds
 Steel Rod, 1/2 Inch Diameter X 8 Inches Long

Materials:

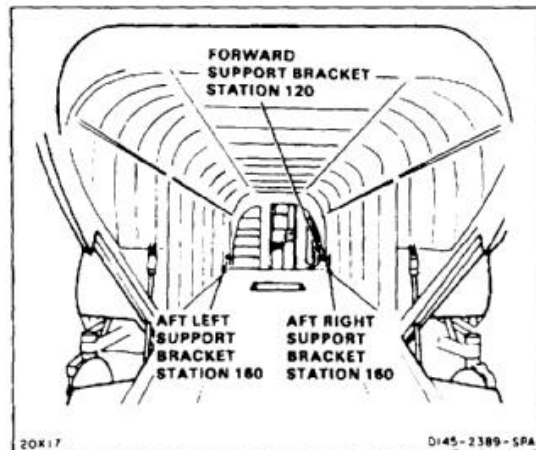
Lockwire (E231)

Personnel Required:

Medium Helicopter Repairer
 Inspector

References:

TM 55-1520-240-23P
 Task 2-156
 Task 2-158
 Task 2-159
 Task 2-227

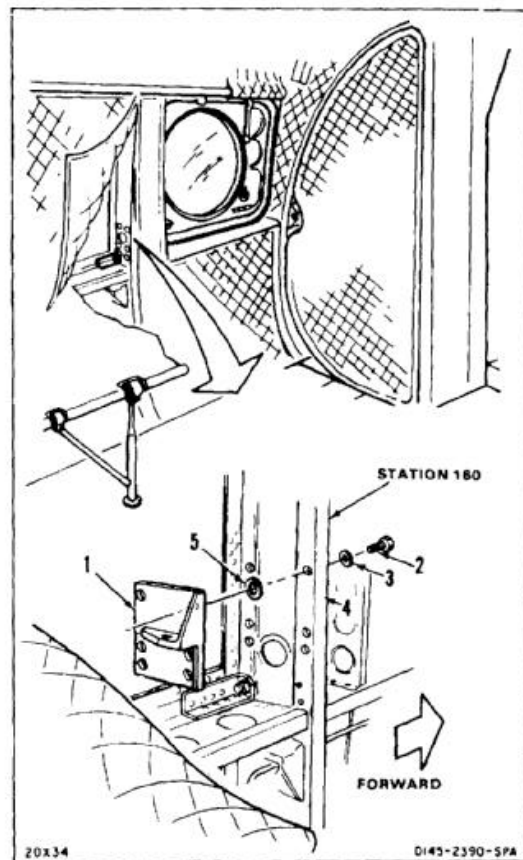


1. Install aft left support bracket (1) as follows:

NOTE

Procedure is same for upper and lower aft support brackets. Upper bracket is shown here.

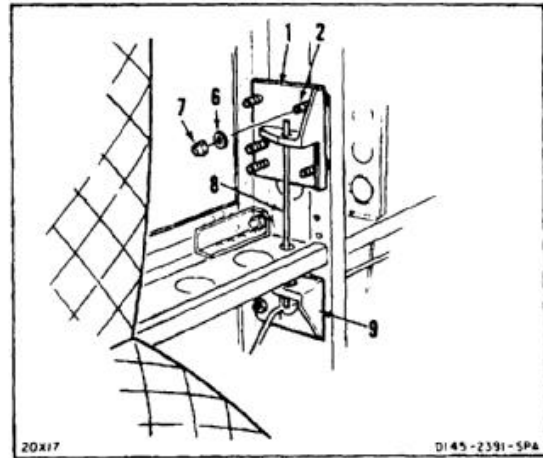
- a. Install five bolts (2) with washers (3) through structure (4).
- b. Install five washers (5) on threads of bolts (2) on aft side of structure (4).
- c. Position bracket (1) on bolts (2).



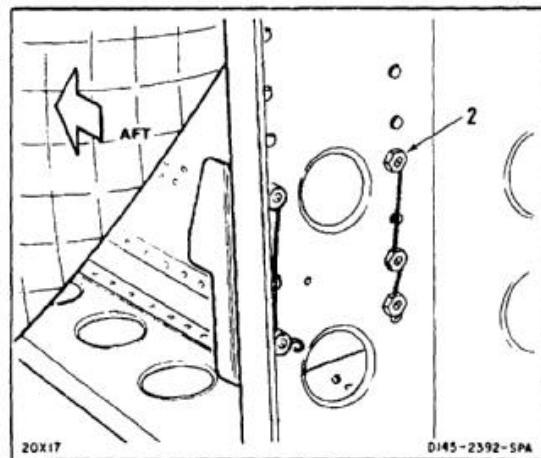
2-212 INSTALL SUPPRESSIVE FIRE SYSTEM SUPPORT BRACKETS (Continued)

2-212

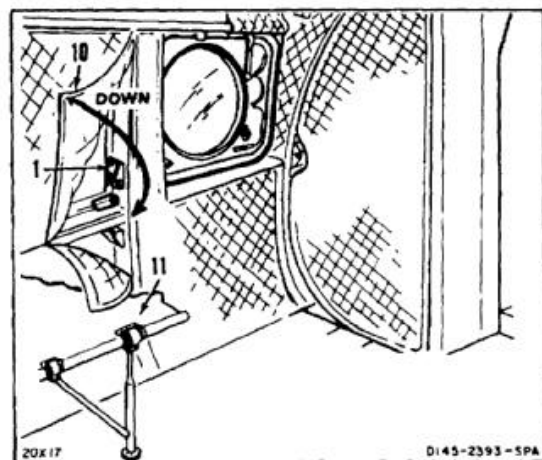
- d. Install five washers (6) and nuts (7) loosely on bolts (2). Do not tighten nuts (7).
- e. Place rod (8) through upper bracket (1) and lower bracket (9).
- f. Torque nuts (7) to **55 inch-pounds**.
- g. Remove rod (8) from brackets (1 and 9).



- h. Install lockwire (E231) on five bolts (2).

INSPECT

- i. Press down edge of acoustic blanket (10) next to bracket (1).
- j. Stow troop seat (11) next to bracket (1) (Task 2-227).

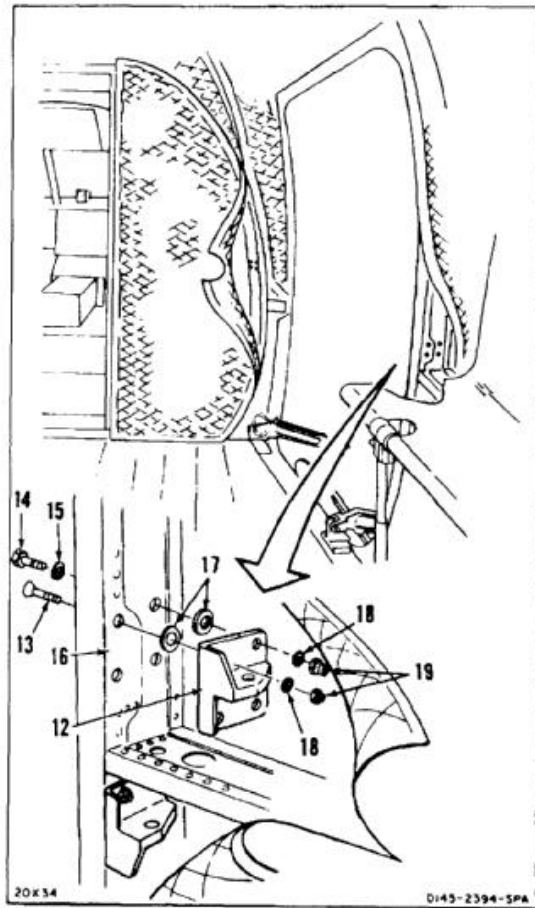


2. Install aft right support bracket (12) as follows:

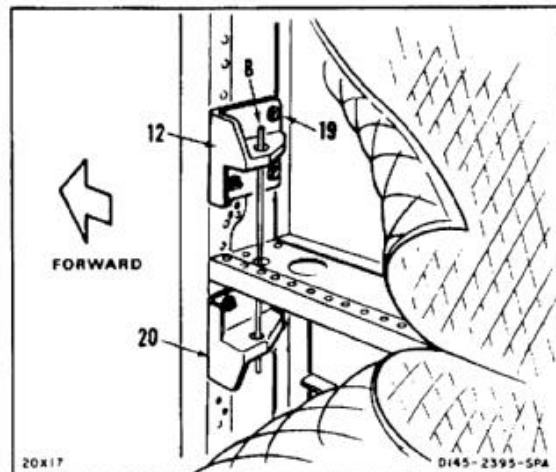
NOTE

Procedure is same for upper and lower aft support brackets. Upper bracket is shown here.

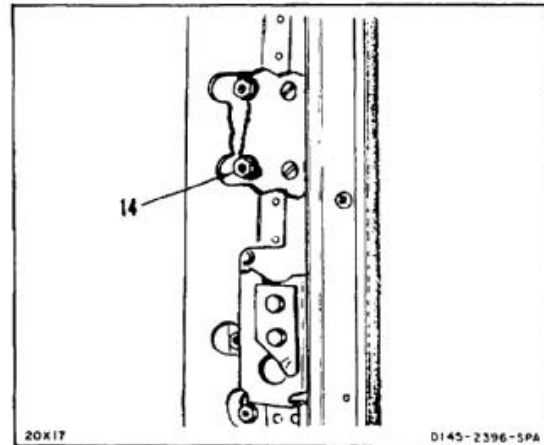
- a. Install two countersunk head screws (13).
- b. Install two bolts (14) with washers (15) through structure (16).
- c. Install four washers (17) on bolts (14).
- d. Position bracket (12) on bolts (14) and screws (13).
- e. Install four washers (18) and nuts (19) loosely on bolts (14) and screws (13). Do not tighten nuts.



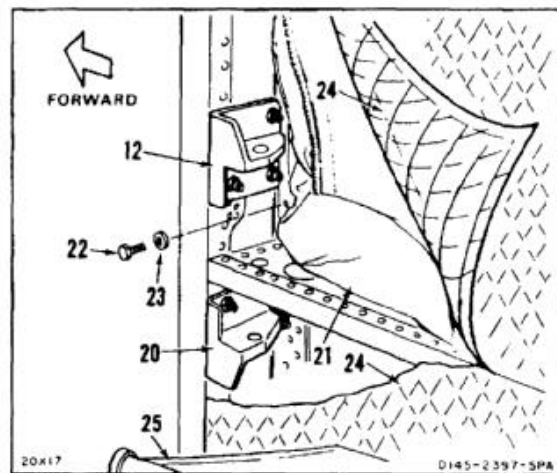
- f. Place rod (8) through upper bracket (12) and lower bracket (20).
- g. Torque nuts (19) to **55 inch-pounds**.
- h. Remove rod (8) from brackets (12 and 20).



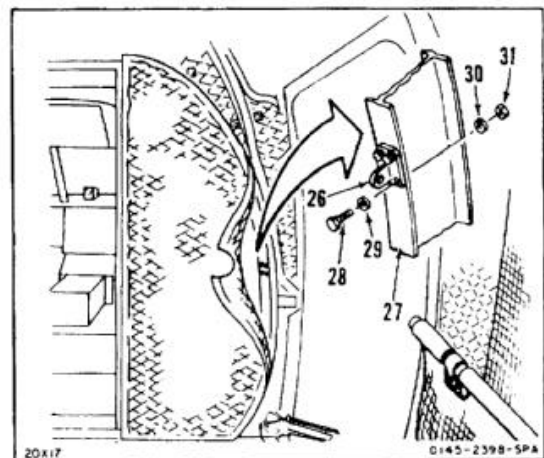
- i. Install lockwire (E231) on two bolts (14).

INSPECT

- j. Position stowage container (21) and install four screws (22) and washers (23).
- k. Press down edges of acoustic blanket (24) next to bracket (12 and 20).
- l. Stow troop seat (25) next to bracket (12) (Task 2-227).
- m. Install upper cabin door track (Task 2-156).
- n. Install upper cabin door (Task 2-158).
- o. Adjust upper cabin door (Task 2-159).



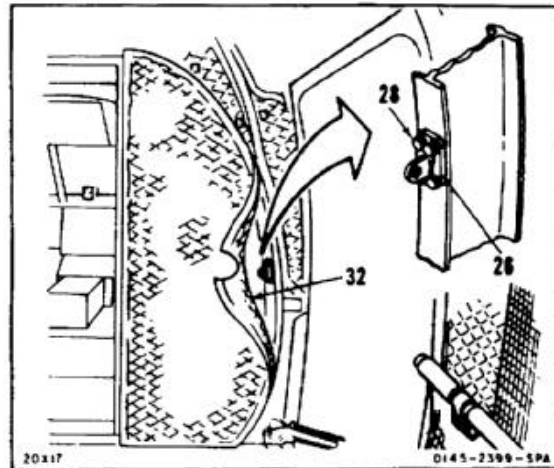
3. Install forward support bracket (26) as follows:
- Position bracket (26) on structure (27).
 - Install four bolts (28) and washers (29) through bracket (26) and structure (27).
 - Install four washers (30) and nuts (31) on bolts (28).
 - Torque nuts (30) to **55 inch-pounds**.



- e. Install lockwire (E231) on bolts (28).

INSPECT

- f. Press down edges of acoustic blanket (32) next to bracket (26).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-768

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Acetone (E20)
 Cloths (E120)
 Cement (E101 or E103)
 Gloves (E186)
 Tubing (E430)
 Jacket (E206)

Personnel Required:

Medium Helicopter Repairer
 Inspector

References:

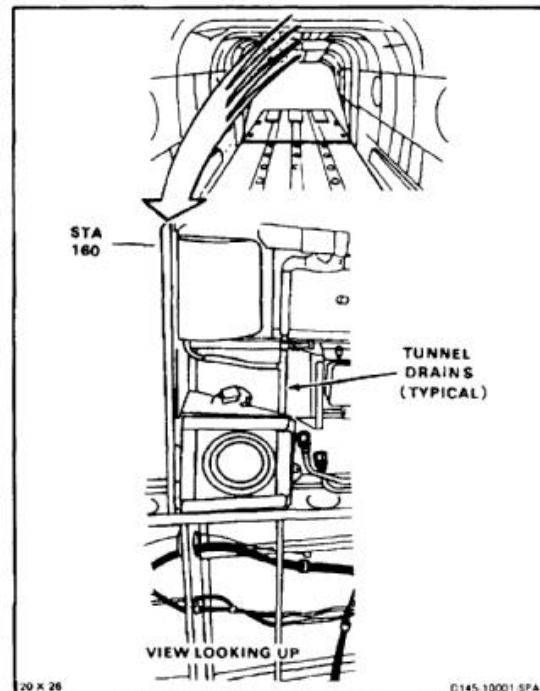
TM 1520-240-23P

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Cabin Acoustic Blankets Removed as Required (Task 2-208)

General Safety Instructions:**WARNING**

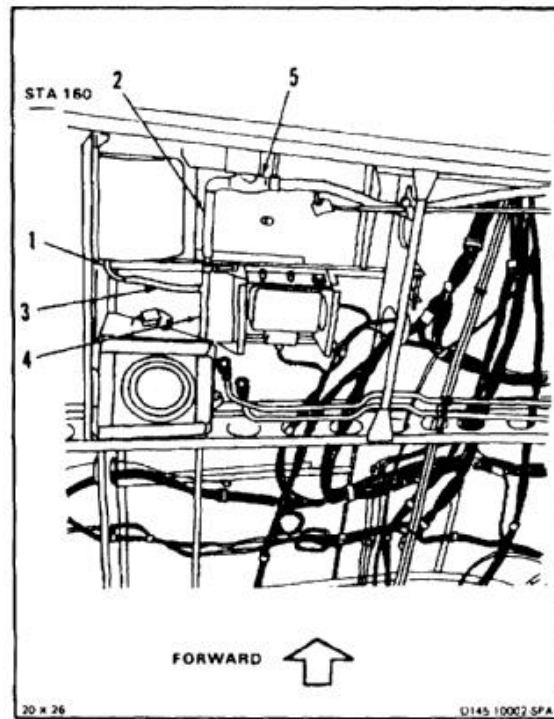
Acetone (E20) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.



NOTE

Procedure to replace all sections of rigid tubing and splice tubing is same. Replacement of rigid and splice tubing between stations 160 and 240 is shown here.

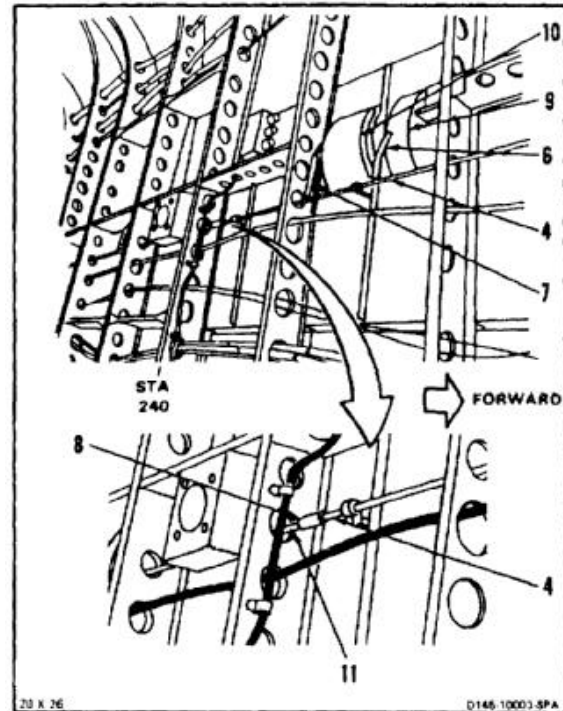
1. Measure and record lengths of splice tubes (1 and 2).
2. Cut splice tube (1) from tunnel drain well (3) and rigid tubing (4).
3. Cut splice tube (2) from rigid tubing (4) and flexible hose fitting (5).
4. Clean old cement from well (3), rigid tubing (4), and filling (5). Use cloths (E120) and acetone (E20). Wear gloves (E186).



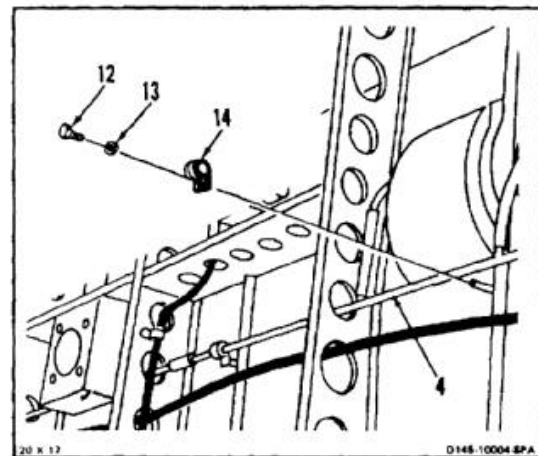
2-213 REPLACE TUNNEL DRAINS (Continued)

2-213

5. Measure and record lengths of splice tubes (6, 7, and 8).
6. Cut splice tubes (6 and 7) from rigid tubing (4) and drain wells (9 and 10).
7. Cut tube (8) from rigid tubings (4 and 11).
8. Clean old cement from rigid tubing (4 and 11) and wells (9 and 10). Use cloths (E120) and acetone (E20). Wear gloves (E186).



9. Remove four screws (12), washers (13), and clamps (14).
10. Remove rigid tubing (4).
11. Position rigid tubing (4) and install four screws (12), washers (13), and clamps (14).



12. Cut piece of jacket (E206) equal in length to tube (8).
13. Cut pieces of tube (E430) equal lengths of tubes (7, 6, and 1).

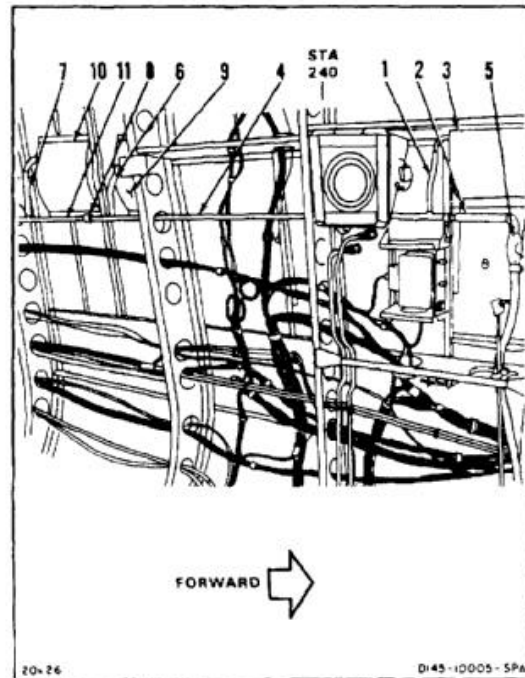
WARNING

Cement (E101 or E103) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

14. Apply light coat of cement (E101 or E103) to outer surfaces of rigid tubings (4 and 11). Do not smear cement on inside of rigid tubings.
15. Slide splice tube (8) over ends of rigid tubings (11 and 4). Slide tube (8) **1/2 to 5/8 inch** from ends.
16. Slide splice tubes (7, 6, and 1) over ends of rigid tubing (4) and wells (10, 9, and 3). Slide tubes (6, 7, and 1) **1/2 to 5/8 inch** from ends.
17. Install splice tube (2) over end of rigid tubing (4), and into flexible hose fitting (5).

INSPECT**FOLLOW-ON MAINTENANCE:**

Install cabin acoustic blankets (Task 2-210).



END OF TASK

2-772

2-214 REMOVE FUSELAGE DRAIN PLUG

2-214

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Personnel Required:

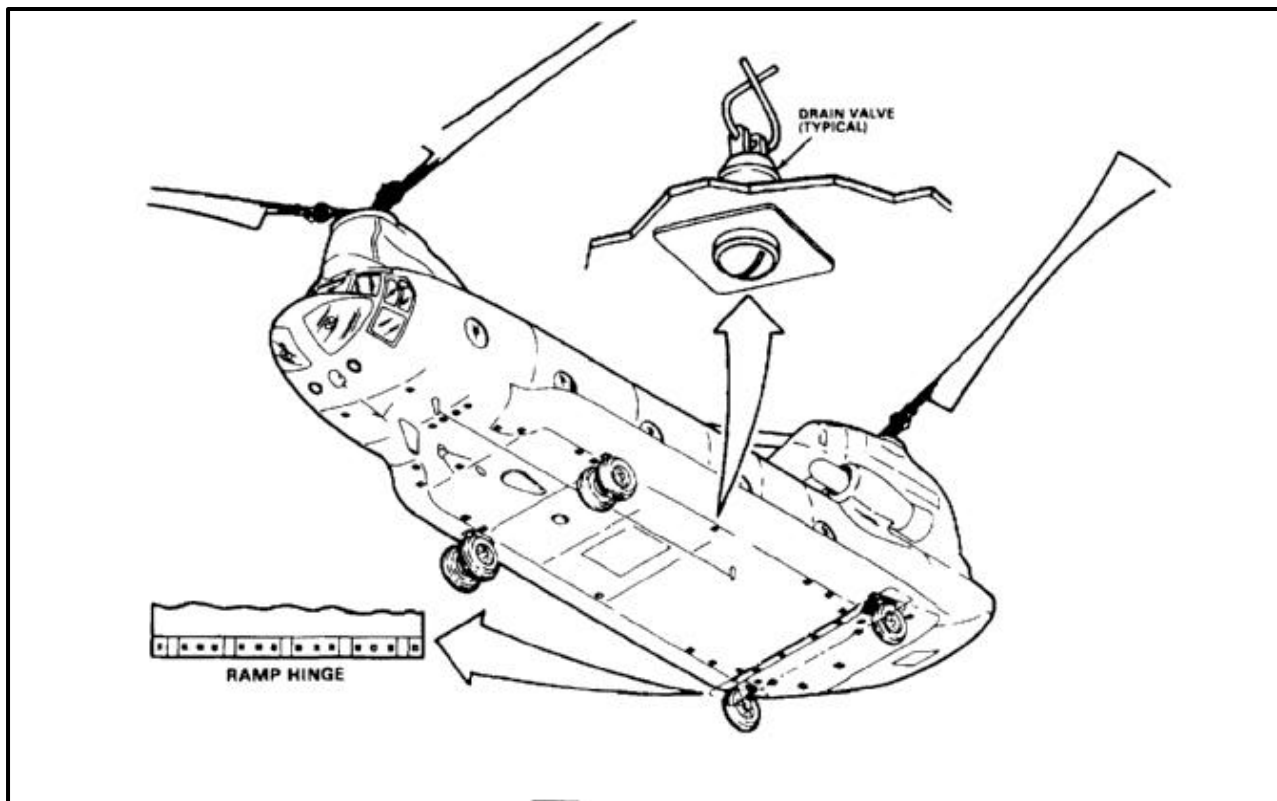
Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off



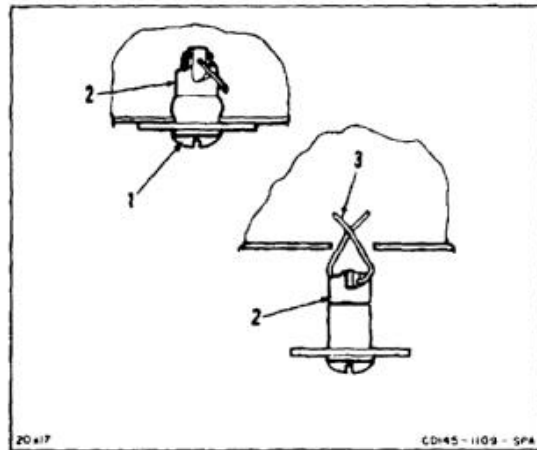
NOTE

Procedures are same for removing any drain plug.

1. Turn screw (1) counterclockwise. Drain plug (2) will drop and hang by retainer (3).
2. Pull plug (2) from fuselage.

NOTE

Drain plugs should be removed and stored in aircraft unless water landings are planned.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-774

2-215 INSTALL FUSELAGE DRAIN PLUG

2-215

INITIAL SETUP**Applicable Configurations:**

All

Tools:

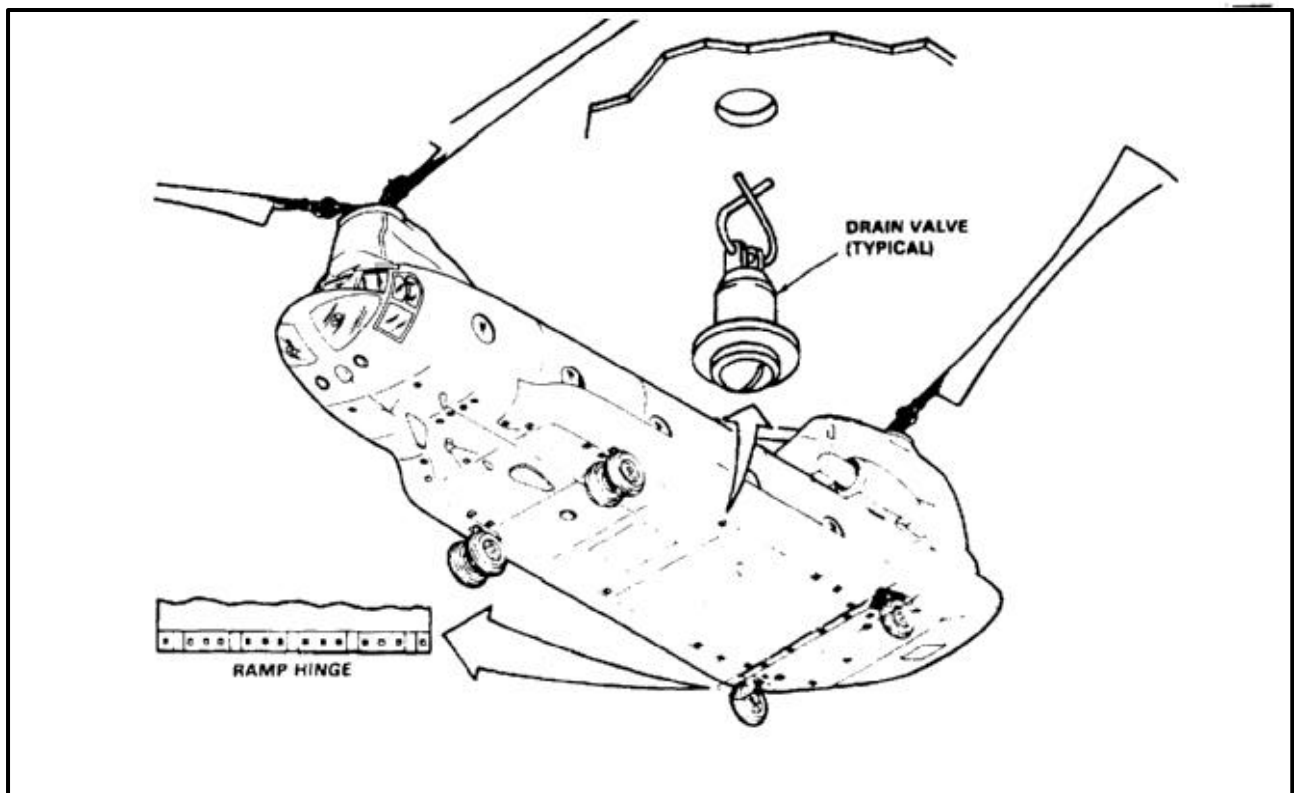
Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Personnel Required:Medium Helicopter Repairer
Inspector**References:**

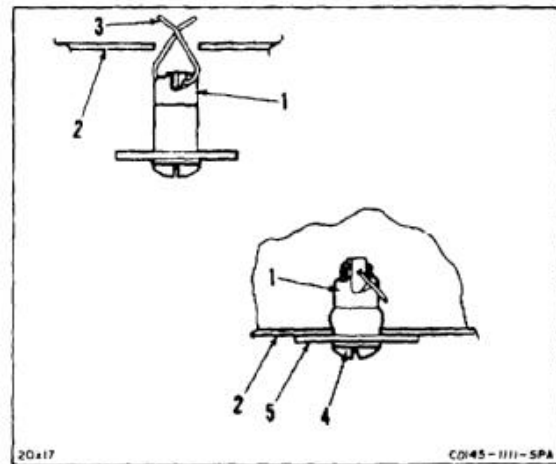
TM 55-1520-240-23P



NOTE

Procedures are same for installing any drain plug.

1. Position drain plug (1) under drain hole in skin (2).
2. Spread wire retainer (3). Place retainer through drain hole in skin (2).
3. Install drain plug (1) in drain hole in skin (2).
4. Turn screw (4) clockwise to lock drain plug (1).

INSPECT**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-776

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

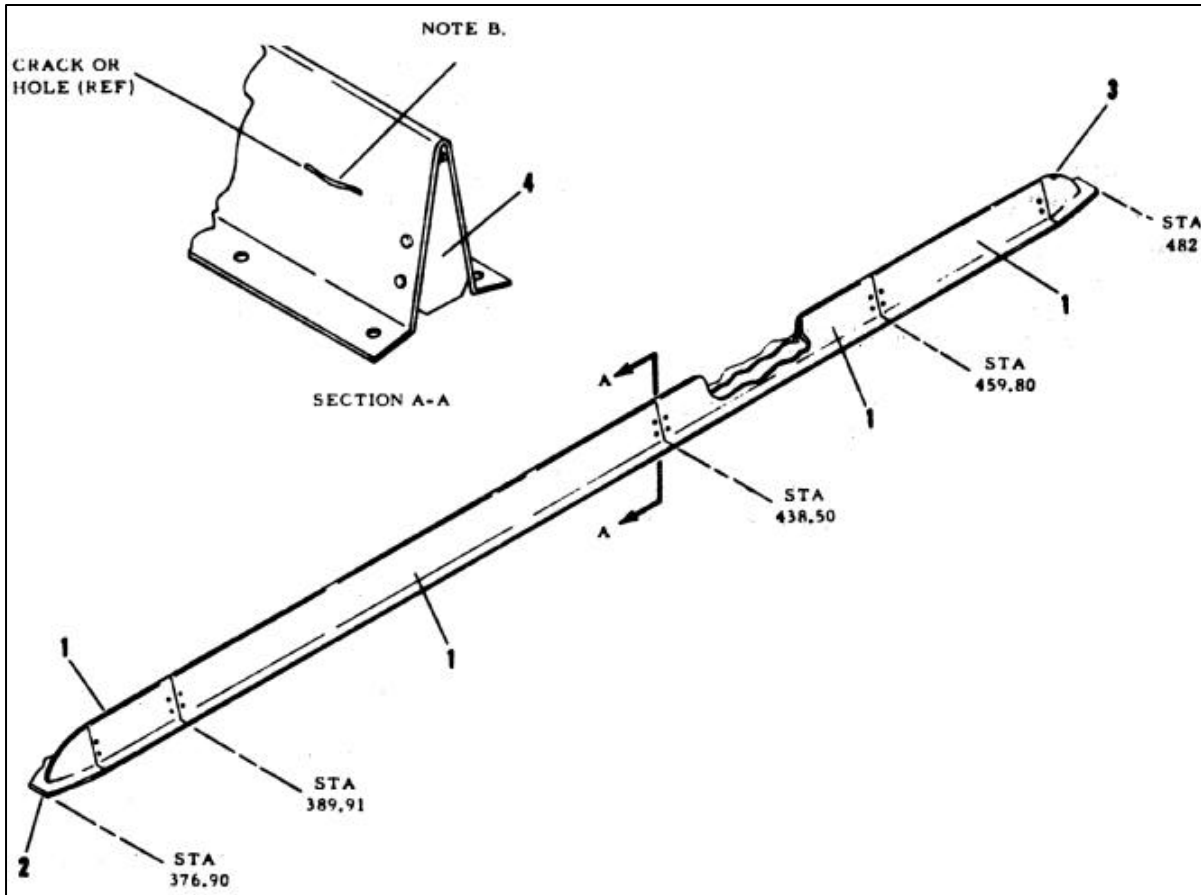
Equipment Condition:

As Required

General Safety Instructions:

As Required

1. A typical strake installation consists of four formed sections of aluminum alloy and two fiberglass sections.
2. Repair nicks and scratches in aluminum alloy sections. Stop drill small cracks.
3. Minor repair to damaged fiberglass sections is limited to stop drilling small cracks.



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	STRAKE	0.050 2024-T4 CLAD	0.050 2024-T3 CLAD
2	STRAKE NOSE PIECE	6-PLY NO. 181-75 GLASS CLOTH	NOTE C.
3	STRAKE TAIL PIECE	6-PLY NO. 181-75 GLASS CLOTH	NOTE C.
4	CAP	0.025 2024-T4 CLAD	0.025 2024-T3 CLAD

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. EXTERNAL PATCHES NOT PERMITTED. USE INSERTION TYPE PATCHES ONLY
- C. REFER TO TM 1-1500-204-23 FOR CLASSIFICATION OF DAMAGE AND REPAIR OF IMPREGNATED GLASS CLOTH PARTS

42 X 51

D145-9750-SPA

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-778

2-217 REMOVE BUFFER BOARDS

2-217

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer (2)

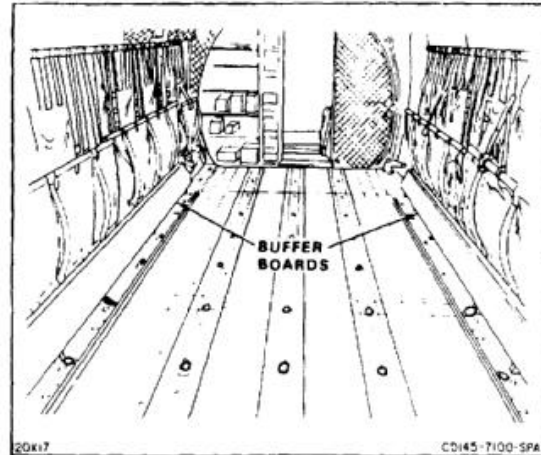
Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

One Man Troop Seats Stowed (Task 2-227)

Three Man Troop Seats Stowed (Task 2-233)

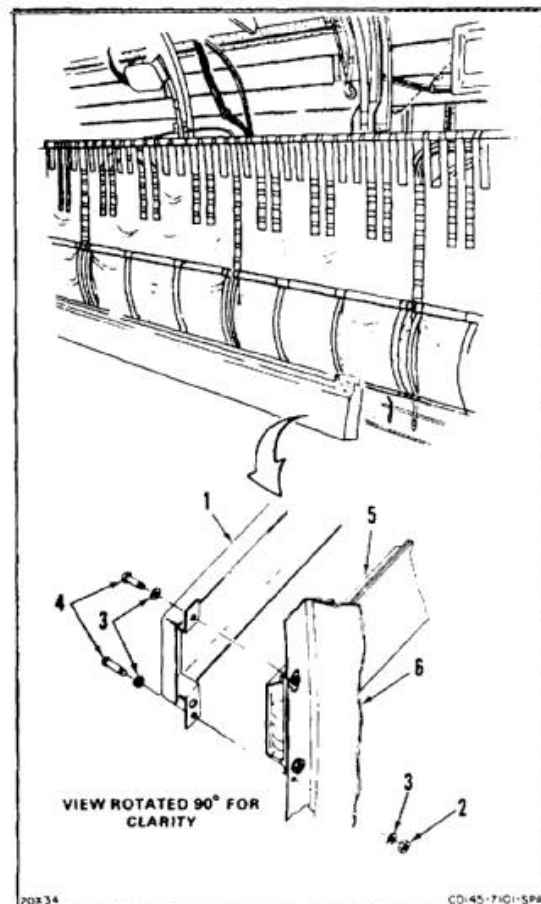
**NOTE**

Procedure is same to remove buffer boards on both sides of cabin. Removal of board section on right side is shown here.

1. Have helper support buffer board (1).
2. Remove 8 nuts (2), 16 washers (3), and 8 bolts (4) along bottom of buffer board (1).
3. Remove eight bolts (4) and washers (3) along top of buffer board (1).
4. Remove buffer board (1).
5. Install eight top bolts (4) and washers (3) in duct (5) and structure (6).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-779

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

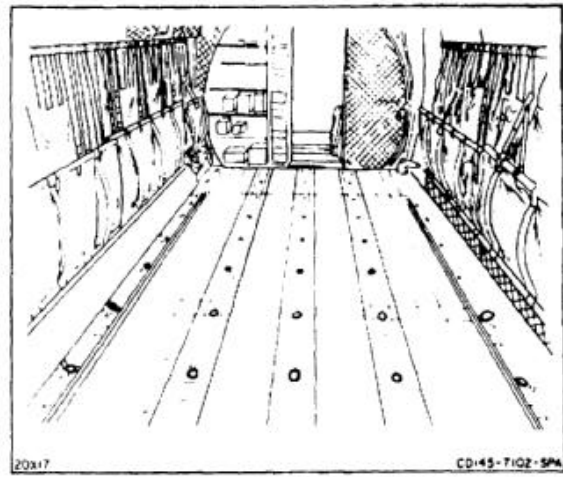
None

Personnel Required:

Medium Helicopter Repairer (2)

References:

TM 55-1520-240-23P

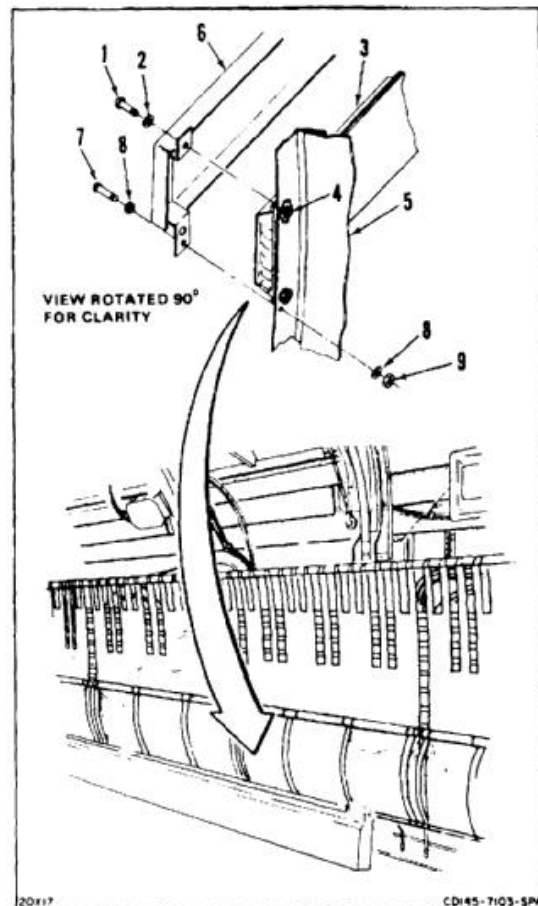
**NOTE**

Procedure is same to install buffer boards on right and left sides of cabin. Installation of buffer board section on right side is shown here.

1. Remove six bolts (1) and washers (2) from heat duct (4) and structure (5).
2. Align holes in buffer board (6), heat duct (4), and structure (5).
3. Have helper support buffer board (6).
4. Install bolt (1) at each end of buffer board (6).
5. Install six bolts (1) along top of buffer board (6).
6. Install eight bolts (7), washers (8), and nuts (9) along bottom of buffer board (6).

FOLLOW-ON MAINTENANCE:

Unstow one-man troop seats (Task 2-222).
Unstow three-man troop seats (Task 2-228).



END OF TASK

2-780

2-219 REMOVE ENGINE WORK PLATFORM

2-219

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

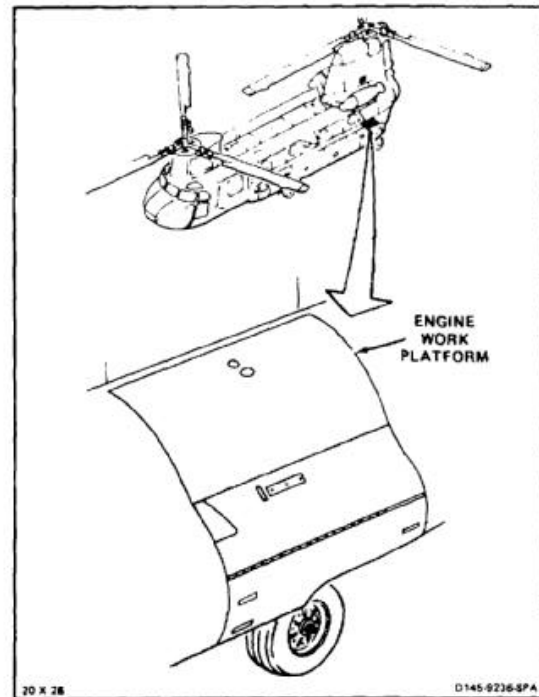
None

Personnel Required:

Medium Helicopter Repair (2)

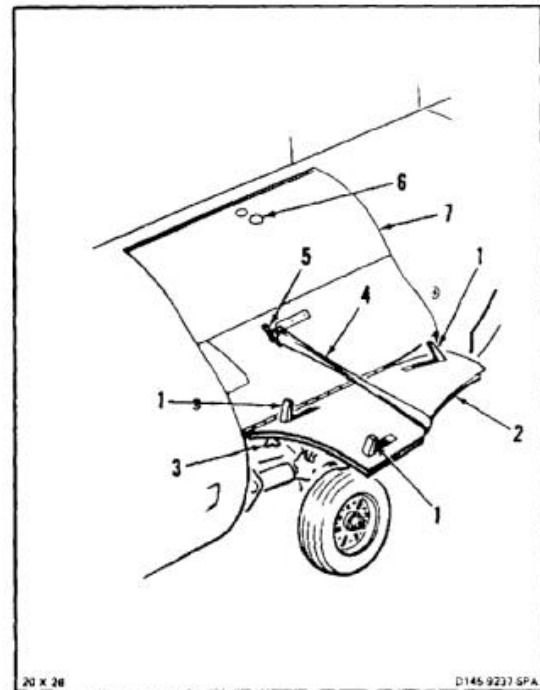
Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off

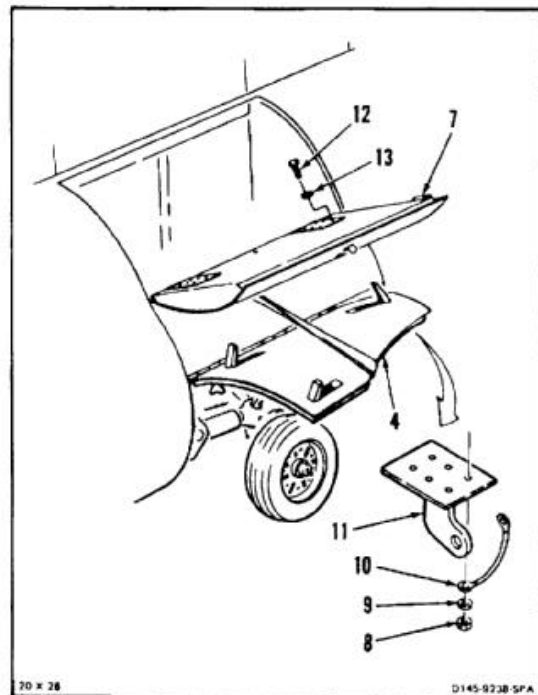
**NOTE**

Procedure is same to remove right or left powerplant work platform. Left work platform shown here.

1. Push in and open three latches (1) on landing gear access panel (2).
2. Lift panel (2). Turn fastener (3) and release strap (4).
3. Install strap (4) in slot (5).
4. Press into release latch (6) on engine work platform (7). Open platform.



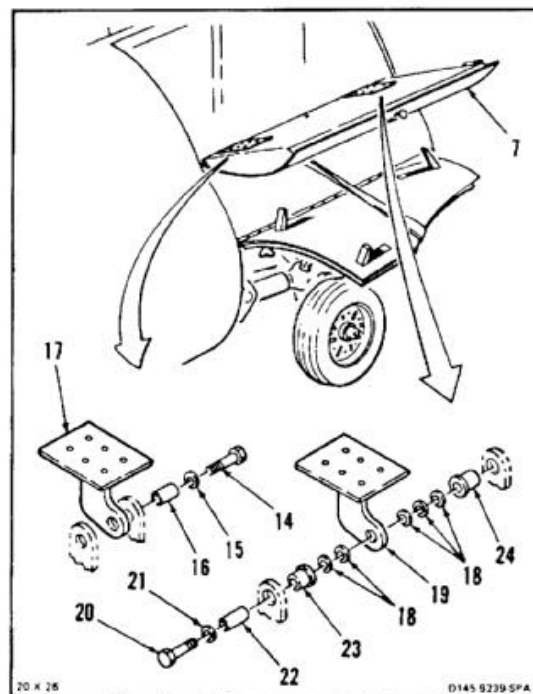
5. Have helper support platform (7).
6. Working through access panel (4), remove nut (8), washer (9), and bonding jumper (10) from aft hinge (11).
7. Have helper remove screw (12) and washer (13).



8. Remove bolt (14), washer (15), and bushing (16) from forward hinge (17).
9. Record number of washers (18) in front of and behind aft hinge (19).
10. Remove bolt (20) and washer (21) from aft hinge (19).
11. Remove three bushings (22, 23, and 24) and five washers (18).
12. Remove work platform (7).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-782

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

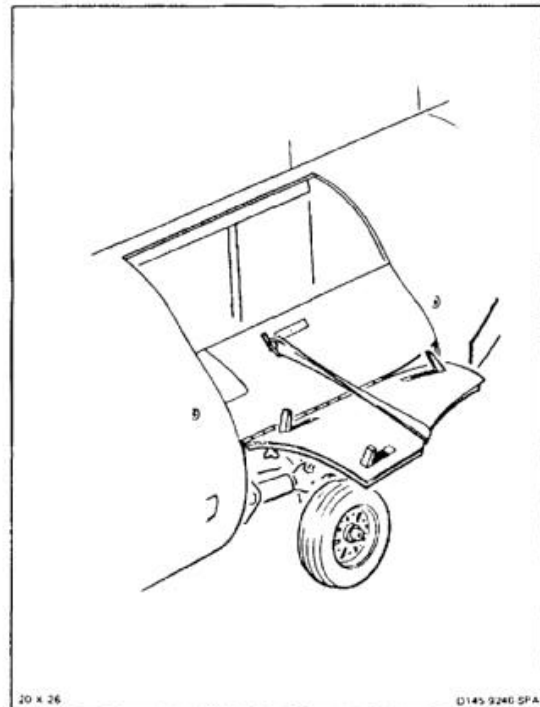
Cloths (E120)
 Dry Cleaning Solvent (E162)
 Gloves (E186)

Personnel Required:

Medium Helicopter Repairer (2)
 Inspector

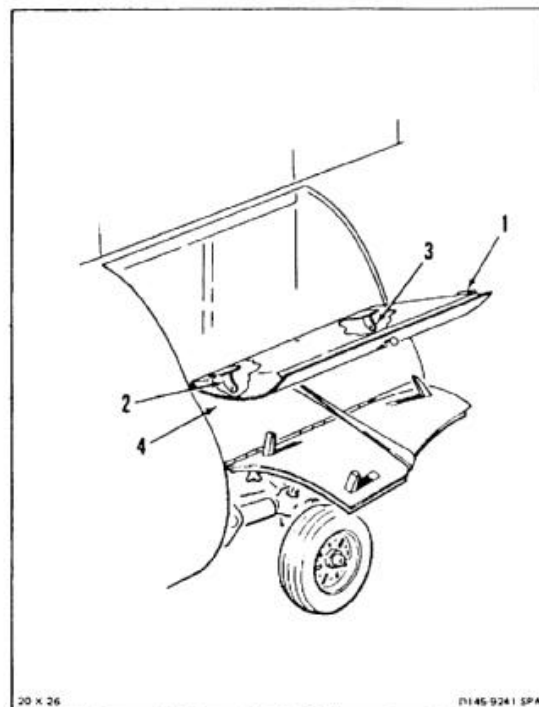
References:

TM 55-1520-240-23P
 Task 2-219

**NOTE**

Procedure is same to install right or left powerplant work platform. Left work platform shown here.

1. Position engine work platform (1) so that forward hinge (2) and aft hinge (3) align with holes in pod (4).
2. Have helper support work platform (1).

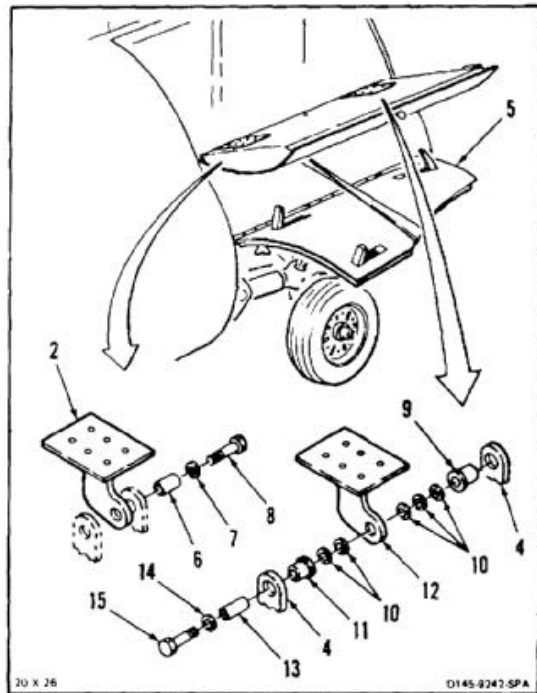


3. Working through access panel (5), install bushing (6), washer (7), and bolt (8) in forward hinge (2).

NOTE

Five washers must be positioned on aft hinge as recorded in Task 2-219.

4. Position bushing (9), five washers (10), and bushing (11) between aft hinge (12) and pod (4). Install bushing (13).
5. Install washer (14) and bolt (15) in aft hinge (12).

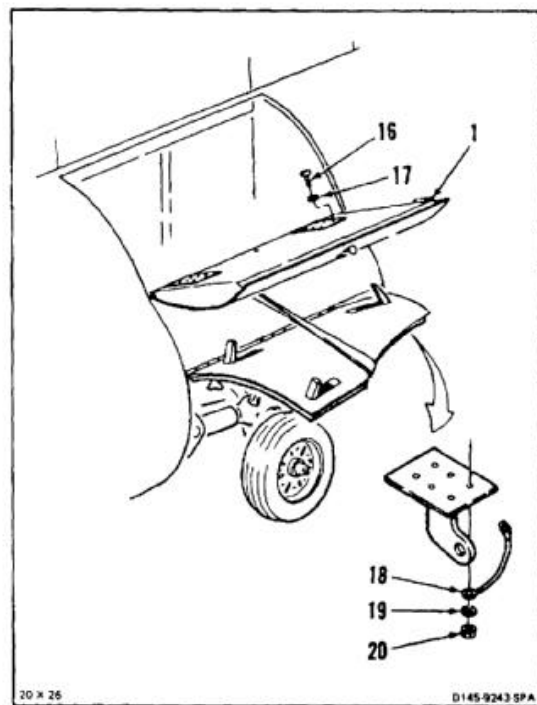


WARNING

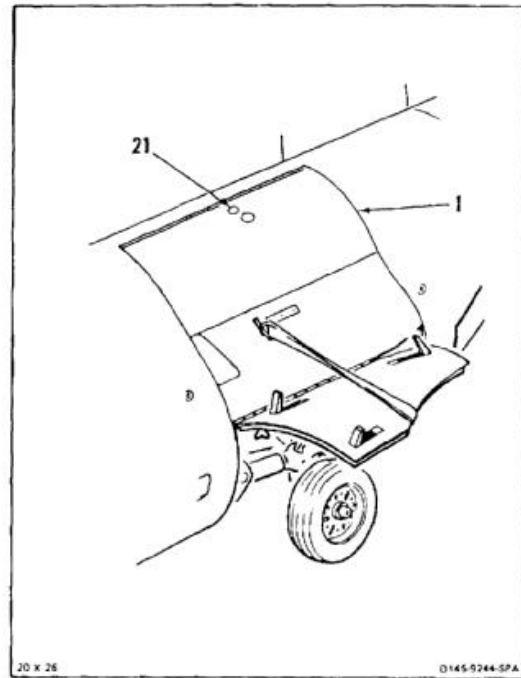
Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

6. Wearing gloves (E186), clean bonding area on work platform (1). Use cloths (E120) and dry cleaning solvent (E162).
7. Install screw (16), washer (17), bonding jumper (18), washer (19), and nut (20).

INSPECT



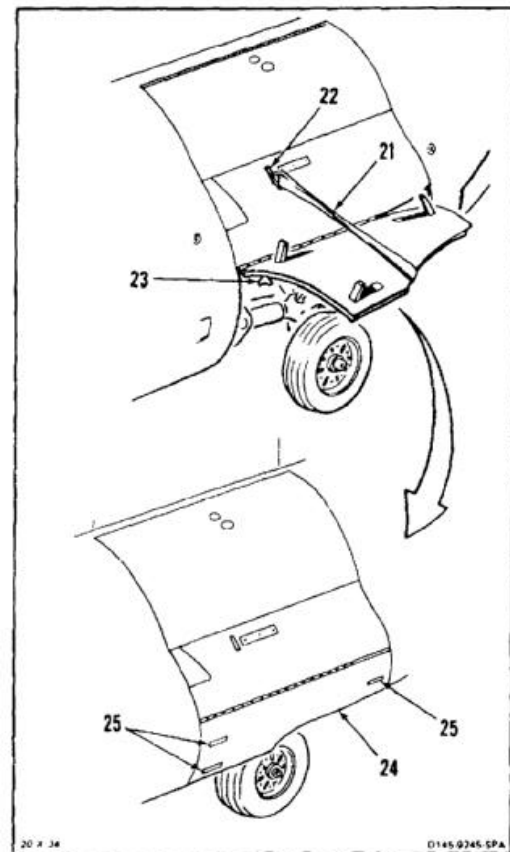
8. Close work platform (1). Press latch (21) to lock.



9. Remove securing strap (21) from slot (22).
10. Install strap (21) on landing gear access panel. Turn fastener (23).
11. Close access panel (24). Press three latches (25) to lock.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Container, 2 Quart

Materials:

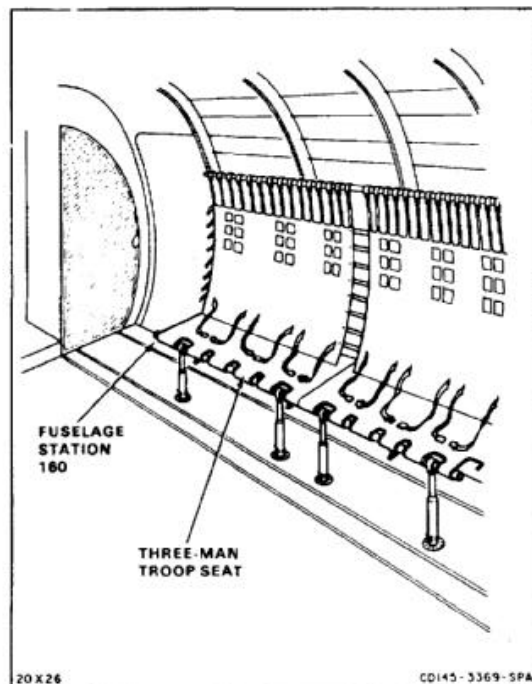
Brush (E85)
 Cloths (E120)
 Gloves (E186)
 Dry Cleaning Solvent (E162)
 Goggles

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off

**WARNING**

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

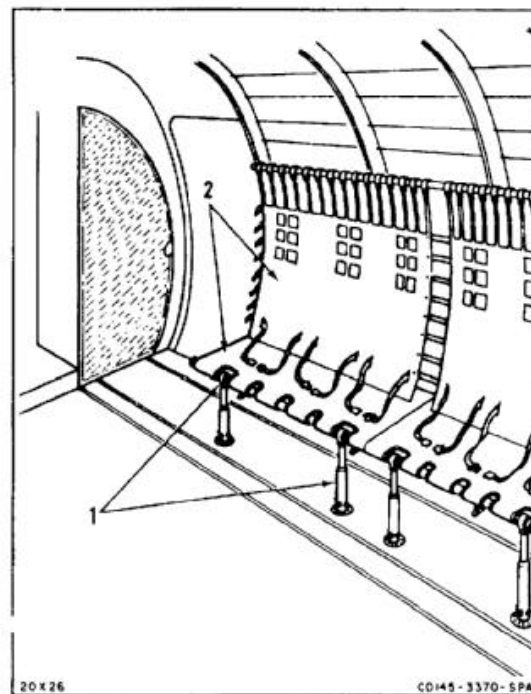
NOTE

Procedure is same for all troop seats. Three-man troop seat at station 160 is shown here.

1. Clean metal parts (1) using brush (E85) and dry cleaning solvent (E162). Wipe metal parts dry with cloths (E120). Wear goggles and gloves (E186).
2. Clean nylon fabric (2) using cleaning cloths (E120) damp with water. Wipe nylon fabric dry with cloths (E120).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-786

INITIAL SETUP

Applicable Configurations:

All

Tools:

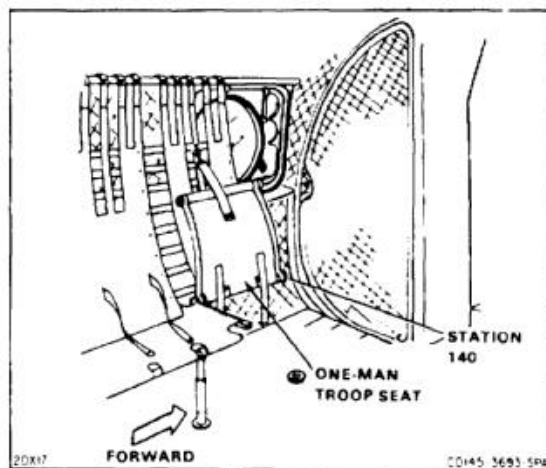
None

Materials:

None

Personnel Required:

Medium Helicopter Repairer

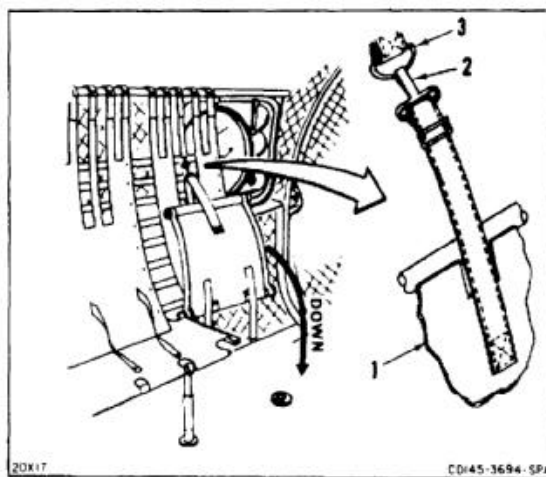


NOTE

Troop seat at station 140 is shown here.

If troop seat was stowed as an assembly, do not perform steps 2 and 3.

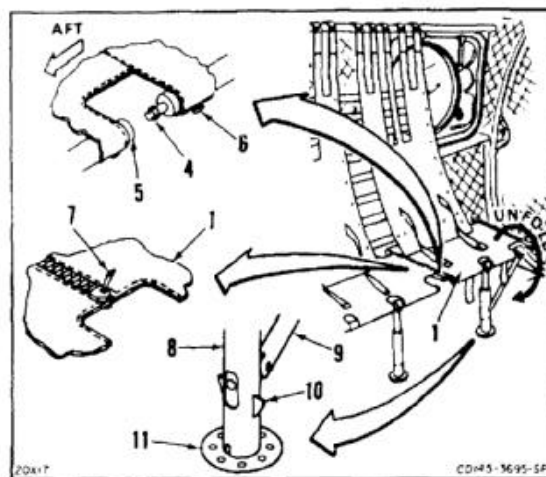
1. Hold seat (1) and remove hook (2) from D-ring (3). Swing seat down.



2. Install housing (4) in latch (5) and slide lock (6) aft.
3. Close slide fastener (zipper) (7) on seat (1).
4. Unfold leg (8) and brace (9) from seat (1). Push in two locks (10) and connect leg to adapter (11).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

None

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P

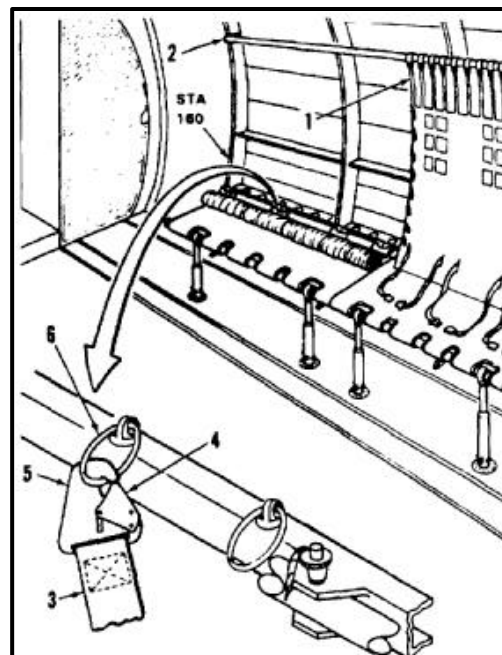
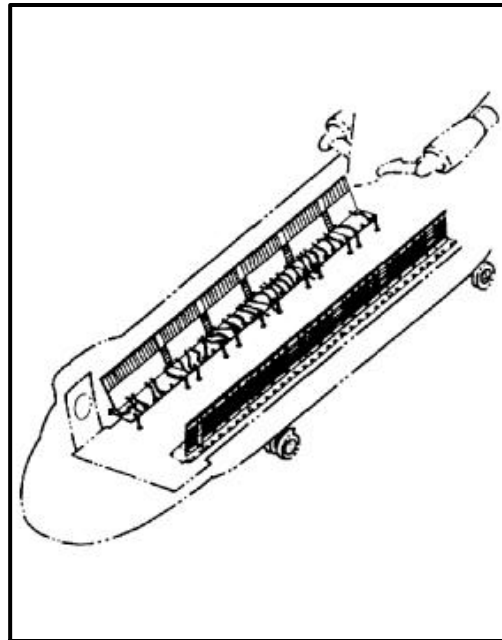
NOTE

Procedure is same for all troop seat belts. Three-man troop seat at sta. 160 shown.

1. Disconnect upper straps (1) from upper support rail (2). Lay back of seat over bottom of seat.
2. To remove seat belt (3), depress spring loaded clasp (4) and disconnect hook (5) from retaining ring (6). Pull seat belt through back of seat.
3. To install seat belt (3), feed belt through back of seat. Clip hook (5) to retaining ring (6).
4. Hook straps (1) of the seat to upper rail (2).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-788

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

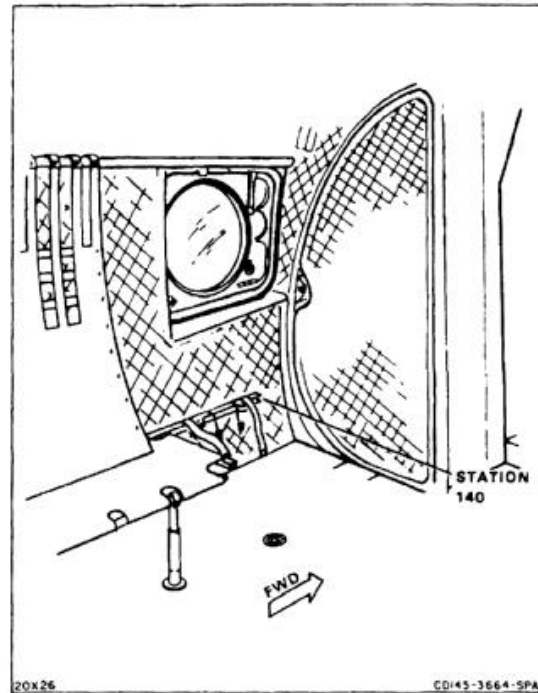
None

Personnel Required:

Medium Helicopter Repairer

References:

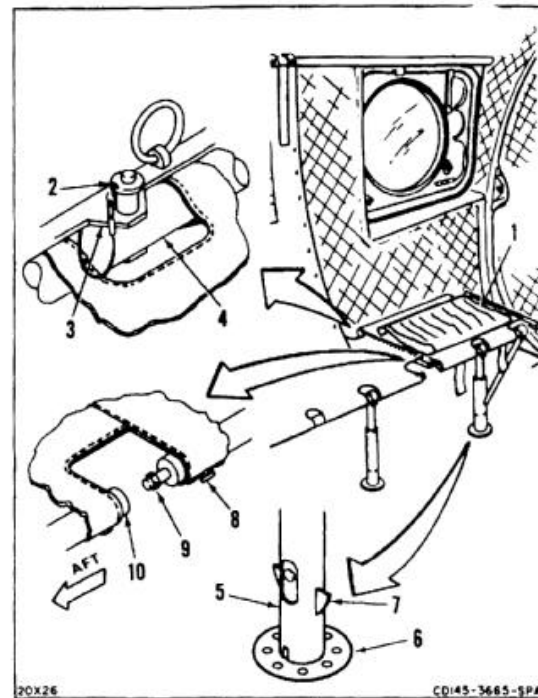
TM 55-1520-240-23P



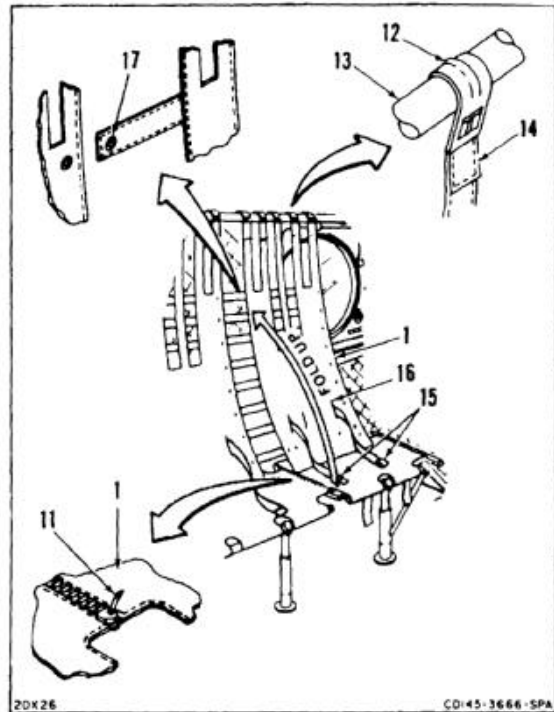
NOTE

Troop seat at station 140 is shown here.

1. Position troop seat (1) at station 140
2. Hold seat (1) and install two pins (2) through bracket (3) and tube (4).
3. Position leg (5) in adapter (6). Push in two locks (7) and install leg.
4. Slide lock (8) aft and install housing (9) in latch (10).



5. Close slide fastener (zipper) (11) on seat (1).
6. Unfold back of seat (1) and install five hooks (12) on tube (13). Pull down on straps (14) to put tension on seat.
7. Route seat belt (15) through slits (16) in seat (1).
8. Connect eight fasteners (17).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-790

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

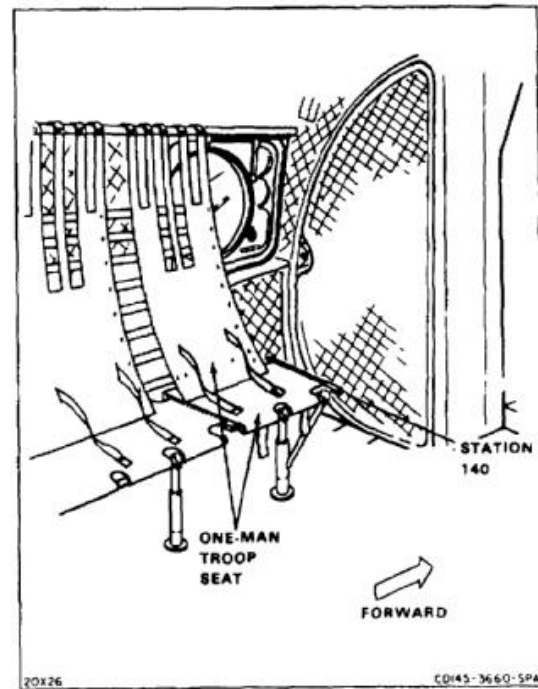
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

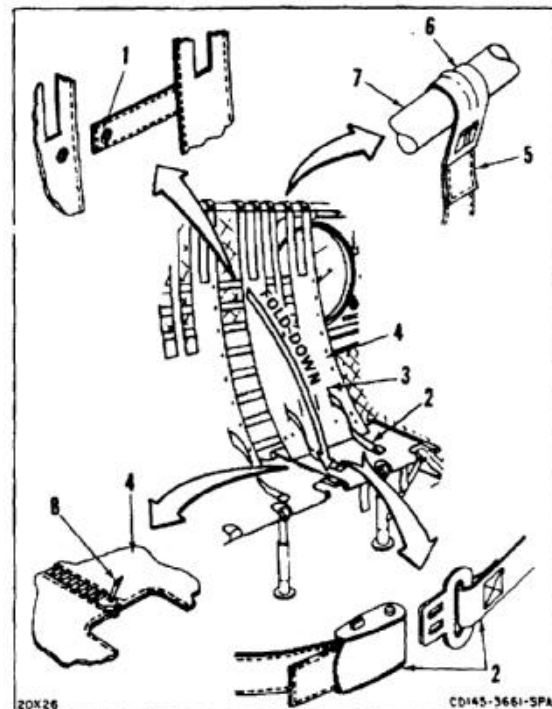
Battery Disconnected (Task 1-39)
Electrical Power Off



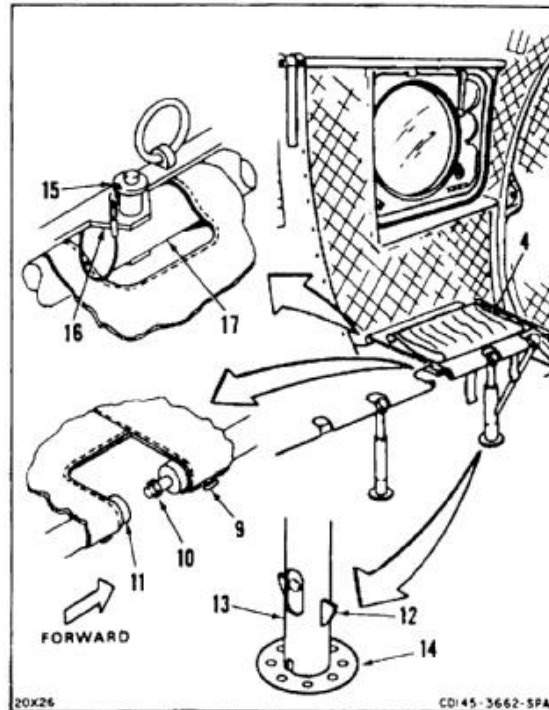
NOTE

Troop seat at station 140 is shown here.

1. Disconnect eight fasteners (1).
2. Remove seat belt (2) through slits (3) in seat (4).
3. Loosen straps (5) and remove five hooks (6) from tube (7). Fold down back of seat (4).
4. Open slide fastener (zipper) (8) on seat (4).



5. Slide lock (9) forward and remove housing (10) from latch (11).
6. Push in two locks (12) and remove leg (13) from adapter (14).
7. Hold seat (4) and remove two pins (15) from brackets (16) and tube (17).
8. Remove seat (4).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-792

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

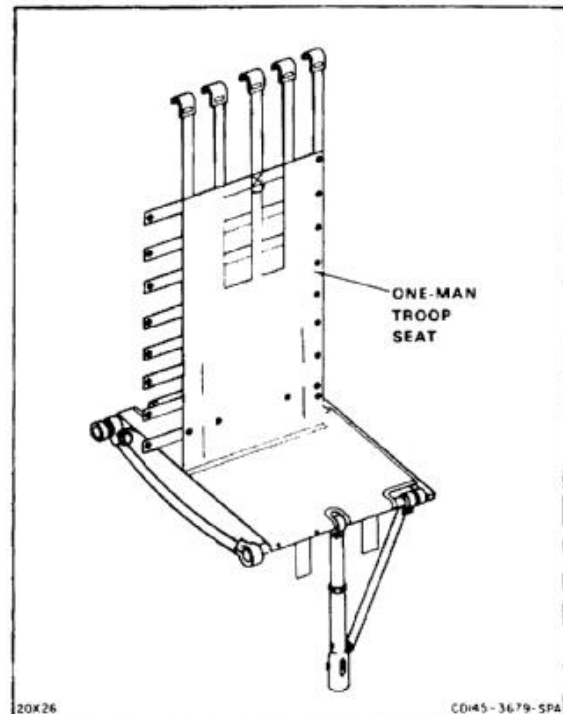
None

Personnel Required:

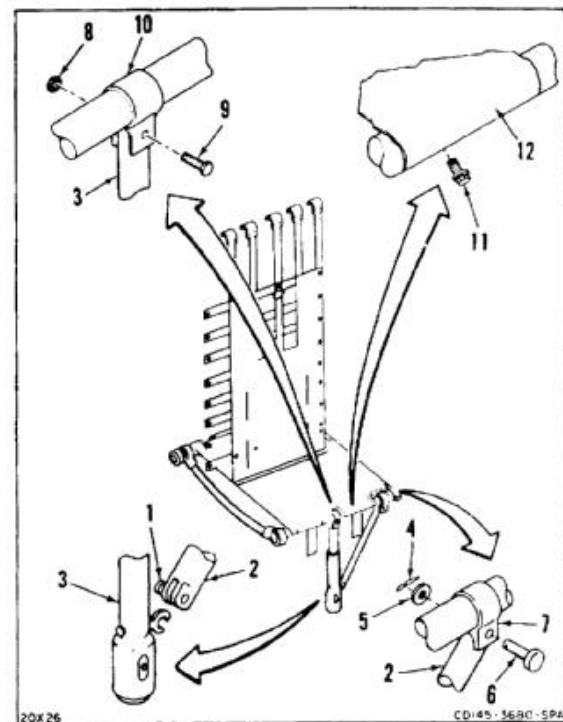
Medium Helicopter Repairer

Equipment Condition:

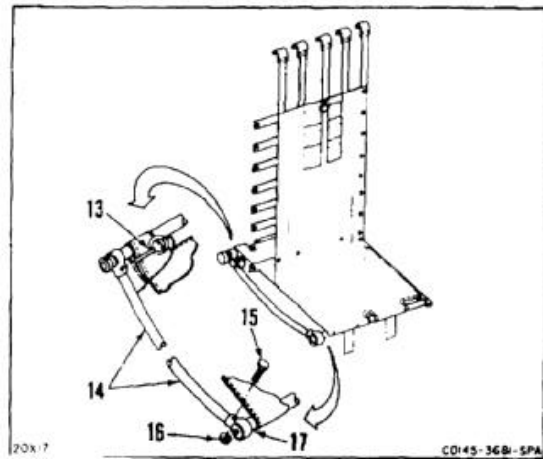
Off Helicopter Task



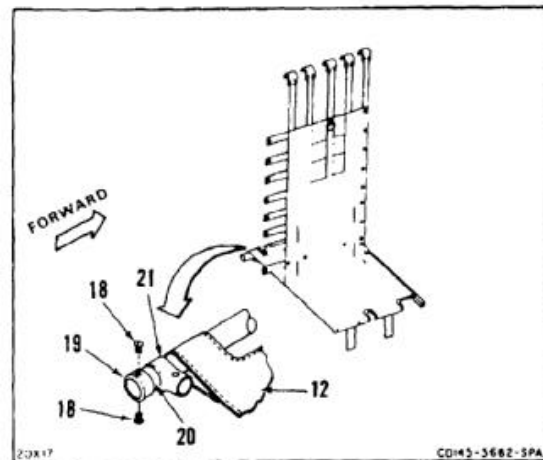
1. Push lock (1) and disconnect brace (2) from leg (3).
2. Remove cotter pin (4), washer (5), and pin (6) from brace fitting (7). Remove brace (2).
3. Remove nut (8) and bolt (9) from leg fitting (10). Remove leg (3).
4. Remove nine screws (11) from front of seat (12).



5. Remove two pins (13) from spreaders (14).
6. Remove two bolts (15) and nuts (16) from spreaders (14). Remove spreaders and front tube (17).



7. Remove two screws (18) from collar (19). Remove collar.
8. Slide rear tube (20) forward and remove two fittings (21) and tube from seat (12).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-794

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Parts:

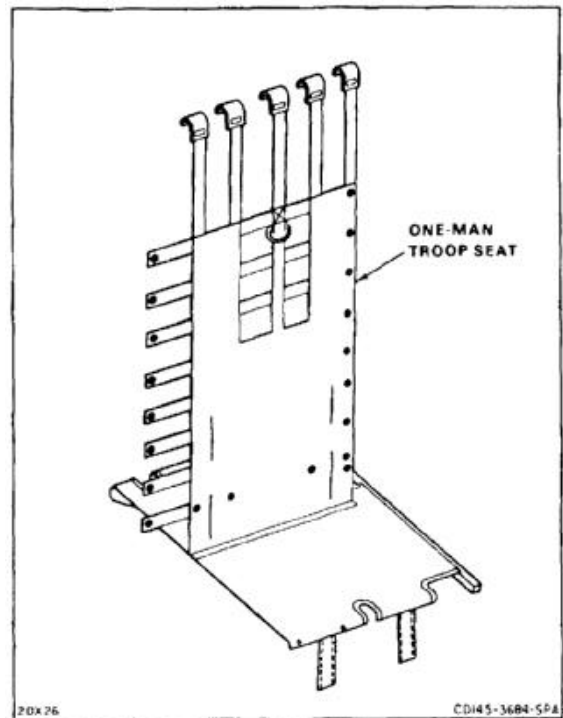
Cotter Pin

Personnel Required:

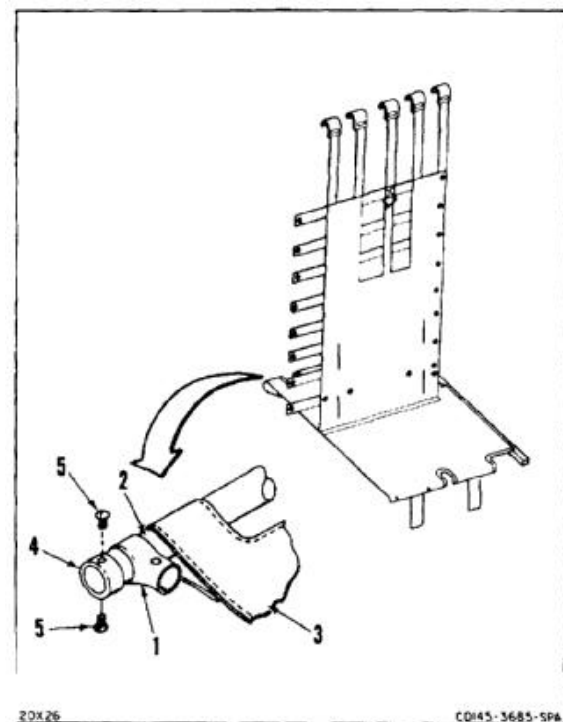
Medium Helicopter Repairer

References:

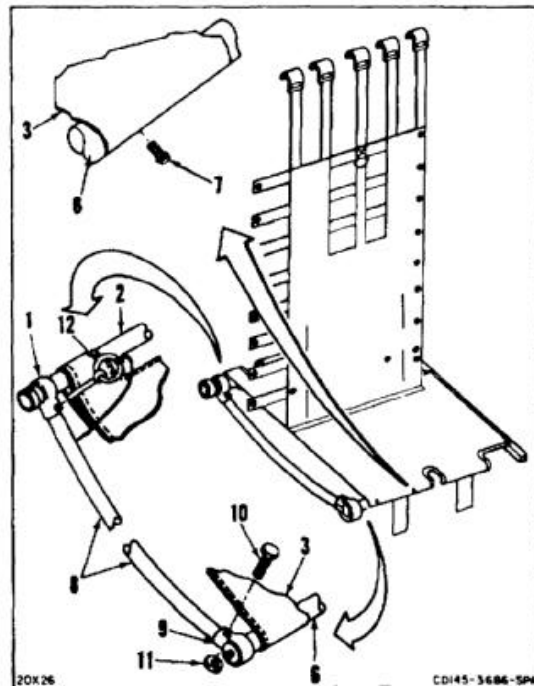
TM 55-1520-240-23P



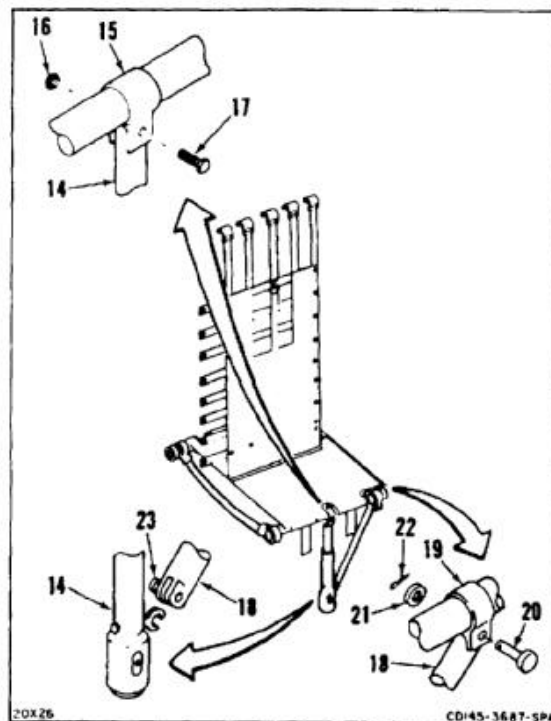
1. Position two fittings (1) and rear tube (2) in seat (3).
2. Position collar (4) on rear tube (2) and install two screws (5).



3. Position front tube (6) on seat (3).
4. Install nine screws (7) in seat (3) and front tube (6).
5. Position two spreaders (8) in fittings (9) on both ends of front tube (6).
6. Install two bolts (10) and nuts (11) through spreaders (8) and fittings (9).
7. Position two spreaders (8) in fittings (1) on both ends of rear tube (2).
8. Install two pins (12) through fittings (1) and spreaders (8).



9. Position leg (14) in fitting (15). Install nut (16) and bolt (17) through leg and fitting.
10. Position brace (18) in fitting (19). Install pin (20), washer (21), and cotter pin (22) through fitting and brace.
11. Push lock (23) and connect brace (18) to leg (14).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

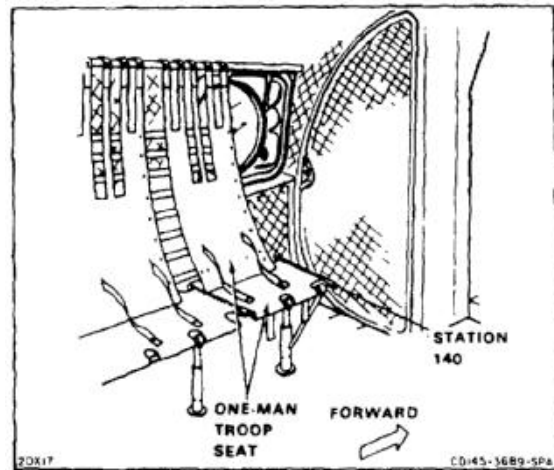
None

Materials:

None

Personnel Required:

Medium Helicopter Repairer

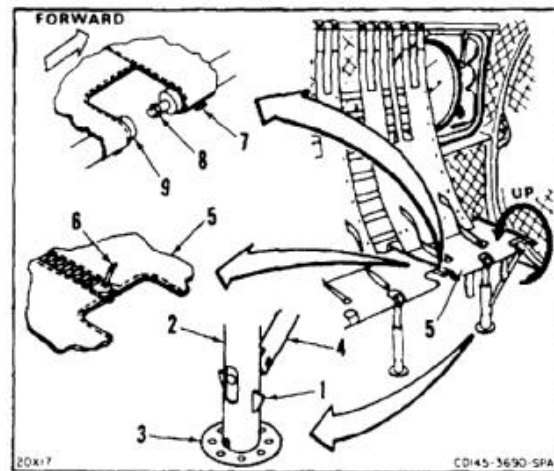


NOTE

Troop seat at station 140 is shown here.

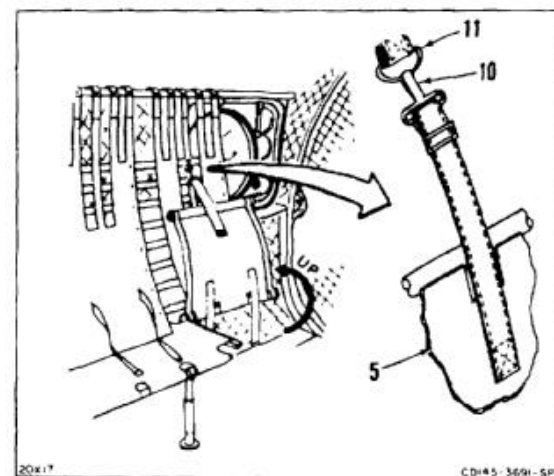
If troop seat is to be stowed as an assembly, do not perform steps 2 and 3.

1. Push in two locks (1) and remove leg (2) from adapter (3). Swing leg and brace (4) up on seat (5).
2. Open slide fastener (zipper) (6) on seat (5).
3. Slide lock (7) forward and remove housing (8) from latch (9).
4. Raise seat (5) and install hook (10) on D-ring (11).



FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

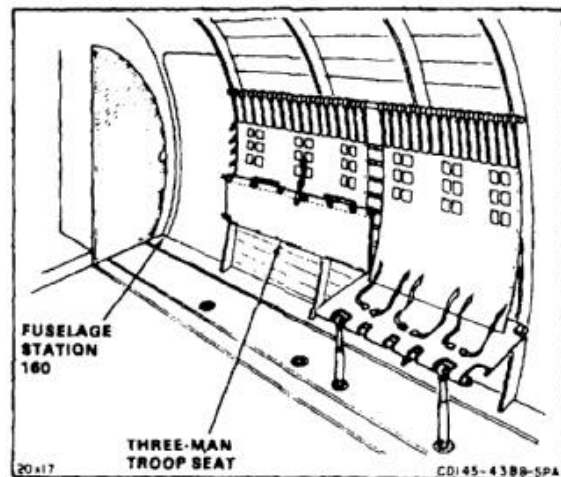
None

Personnel Required:

Medium Helicopter Repairer

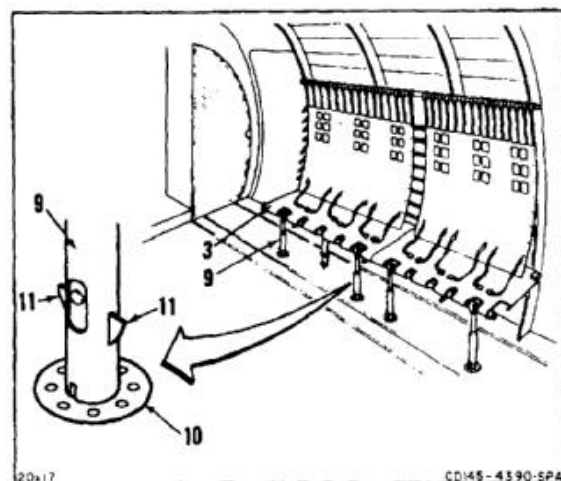
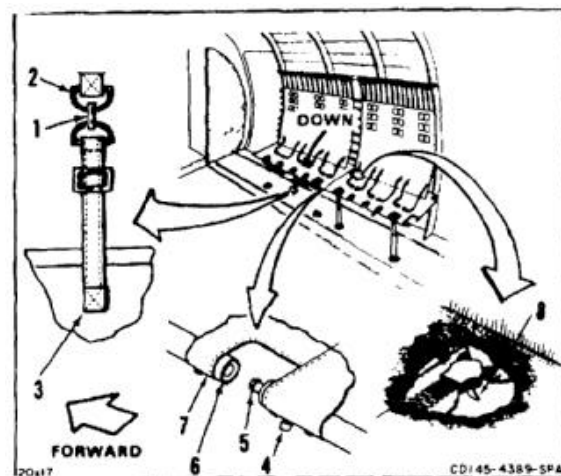
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off

**NOTE**

Procedure is same to unstow all 10 three-man troop seats.

1. Unhook strap hook (1) from D-ring (2) and swing seat (3) down.
2. Slide lock button (4) forward and install housing (5) into latch (6) of tube (7).
3. Close slide fastener (zipper) (8) connecting seat (3) to adjoining seat.
4. Swing two legs (9) down from seats (3).
5. Position two legs (9) on adapters (10). Push in four locks (11) and install two legs.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-798

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

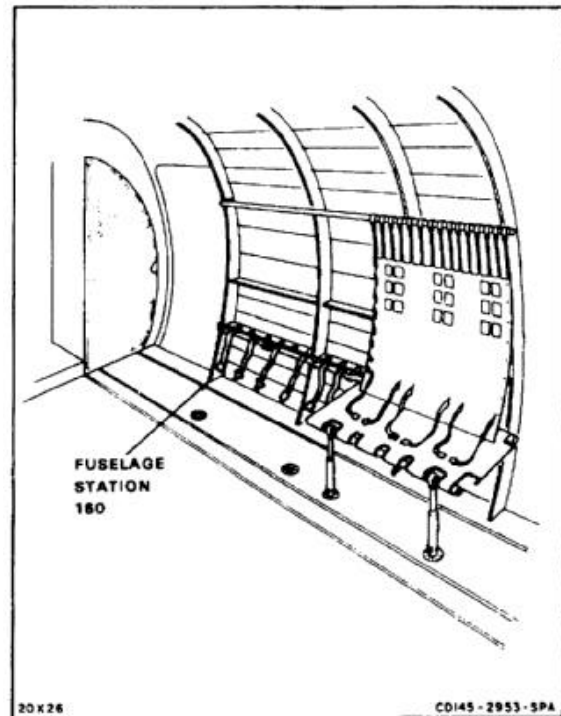
None

Personnel Required:

Medium Helicopter Repairer

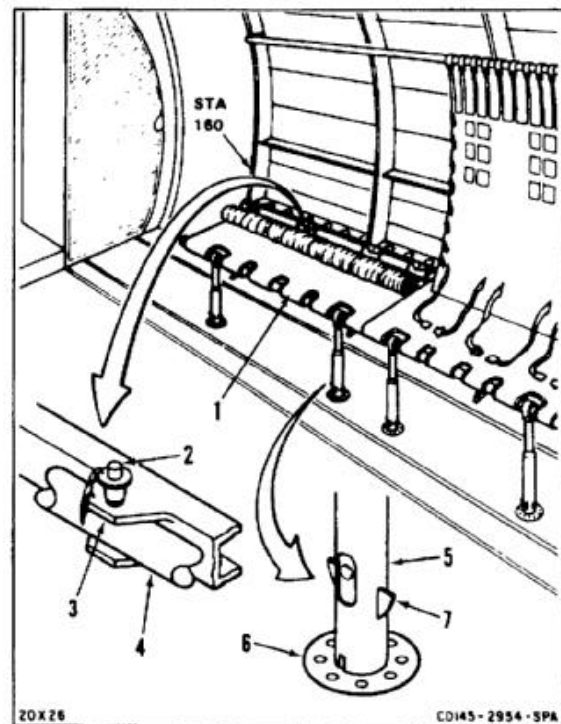
References:

TM 55-1520-240-23P

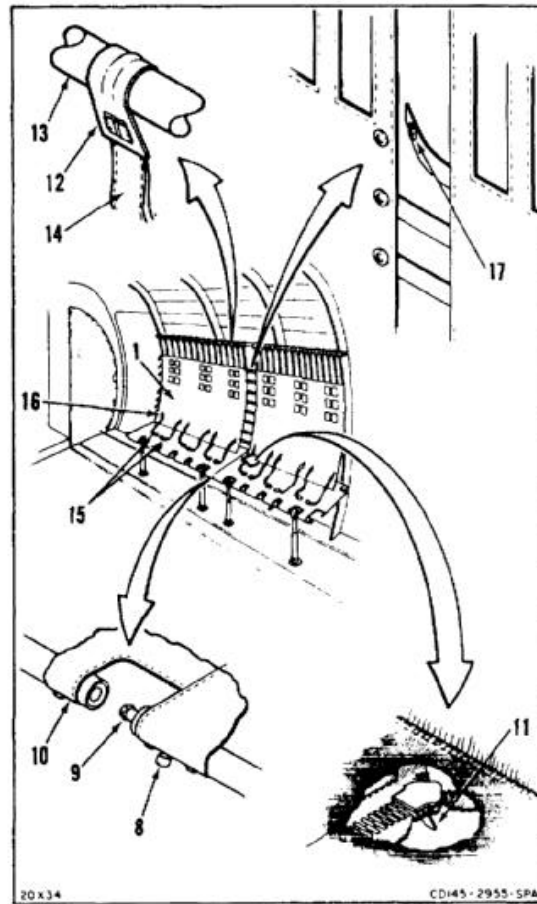
**NOTE**

Troop seat at station 160 is shown here.

1. Position troop seat (1) at station 160.
2. Hold seat (1) and install four pins (2) through bracket (3) and lower back tube (4).
3. Position two legs (5) on adapters (6). Push in four locks (7) and install two legs.



4. Slide button (8) forward and install housing (9) in latch (10).
5. Unroll back of seat (1) and install 15 hooks (12) on tube (13). Pull down on strap (14) to put tension on seat.
6. Close slide fastener (zipper) (11) at aft end of seat (1).
7. Route three seat belts (15) through slits (16) in seat (1).
8. Connect eight fasteners (17).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-800

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

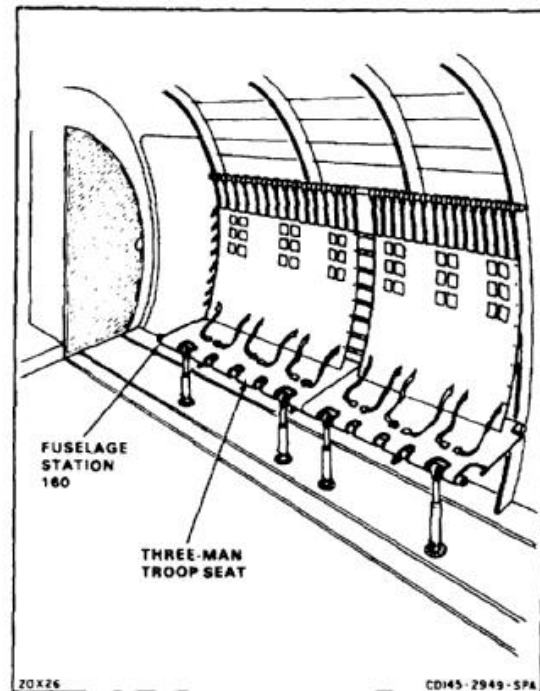
None

Personnel Required:

Medium Helicopter Repairer

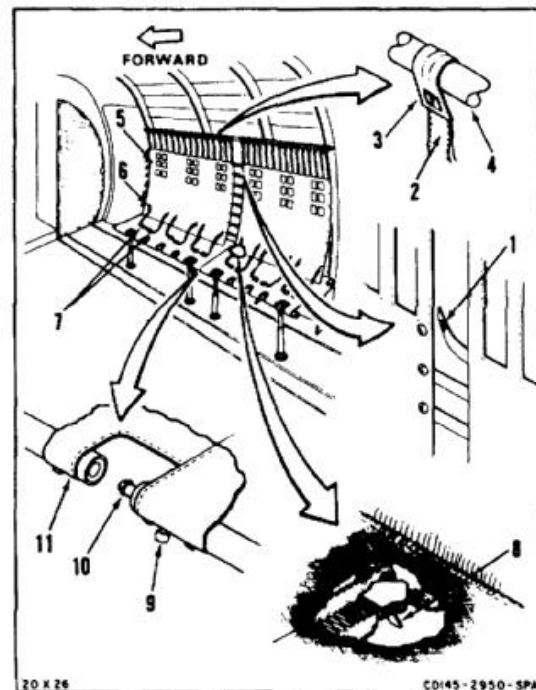
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off

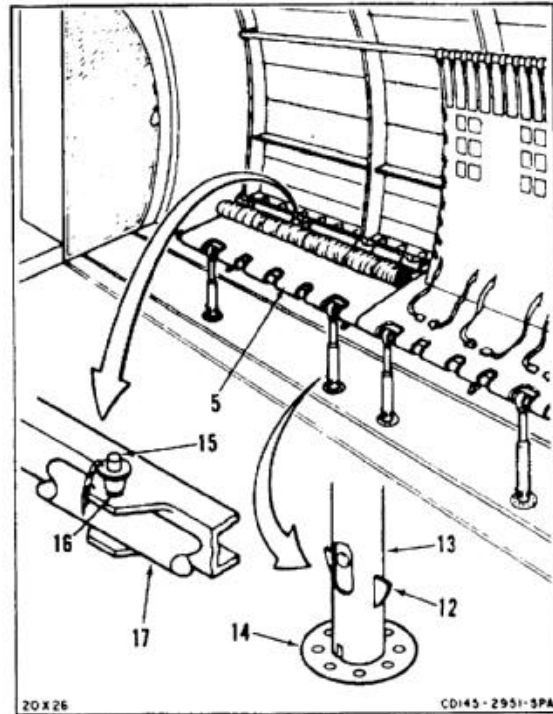
**NOTE**

Troop seat at station 160 is shown here.

1. Disconnect eight fasteners (1).
2. Loosen straps (2) and remove 15 hooks (3) from tube (4). Roll down back of seat (5).
3. Remove three seat belts (6) through slits (7) in seats (5).
4. Open slide fastener (zipper) (8) at aft end of seat (5).
5. Slide button (9) aft and remove housing (10) from latch (11).



6. Push in four locks (12) and remove two legs (13) from adapters (14).
7. Hold seat (5) and remove four pins (15) from bracket (16) and lower back tube (17).
8. Remove seat (5).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

2-802

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

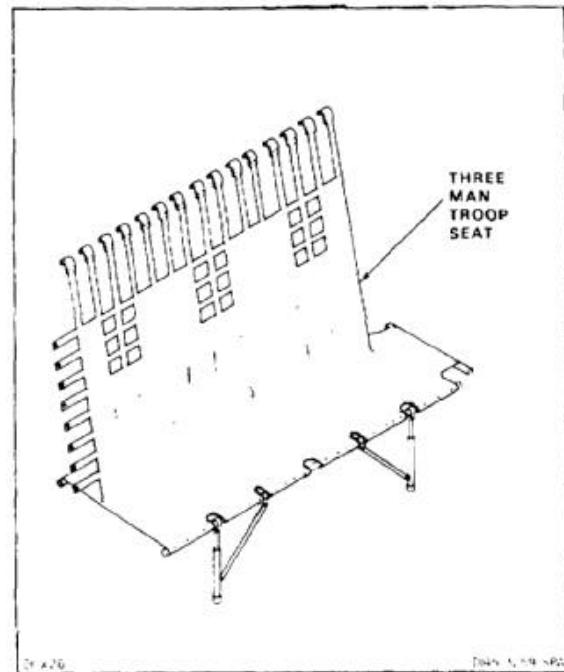
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Off Helicopter Task

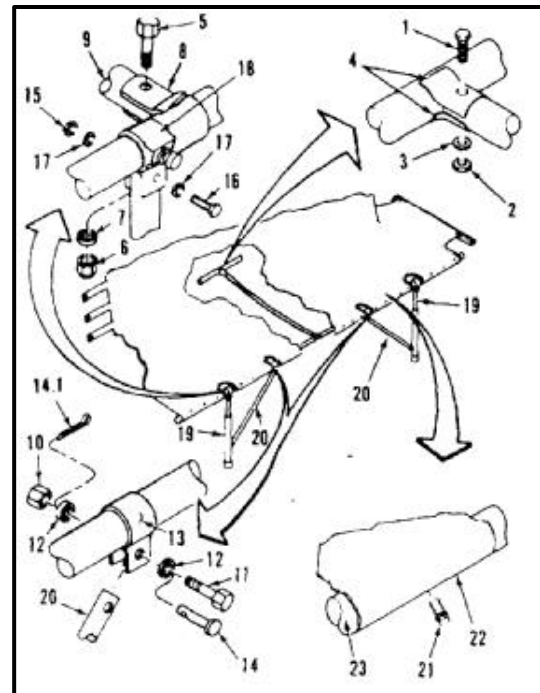


1. Remove three bolts (1), nuts (2), and washers (3) from three rear brace fittings (4). Remove fittings.
2. Remove three bolts (5), nuts (6), and washers (7) from three front brace fittings (8). Disconnect three spreaders (9).

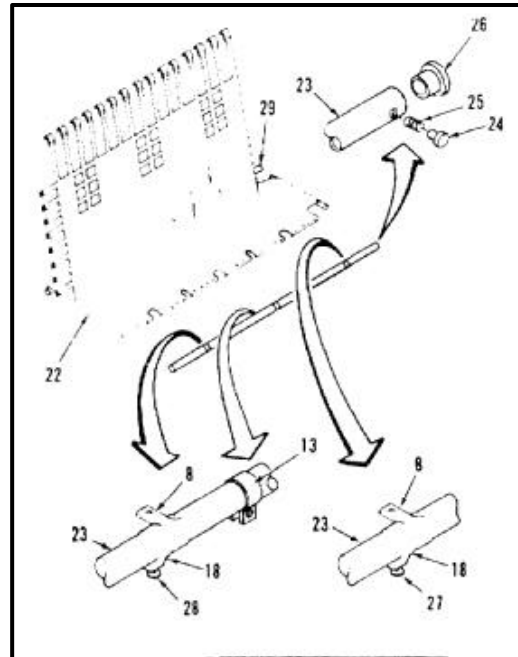
NOTE

On some troop seats, bolts and nuts have been replaced with pins and cotter pins.

3. If installed, remove nuts (10), bolts (11), and washers (12) from two leg brace fittings (13).
4. If installed, remove pins (14), cotter pins (14.1), and washers (12) from two leg brace fittings (13).
5. Remove two nuts (15), bolts (16), and four washers (17) from two leg fittings (18). Remove legs (19) and braces (20).
6. Remove 26 screws (21) from seat (22). Remove front tube (23).



7. Remove plunger (24), spring (25), and latch (26) from aft end of front tube (23).
8. Pull out aft leg fitting button (27) and slide aft leg fitting (18) off tube (23).
9. Slide three front brace fittings (8) and two leg brace fittings (13) off tube (23).
10. Pull out leg fitting button (28) and slide leg fitting (18) aft off tube (23).
11. Slide rear tube (29) off seat (22).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-804

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

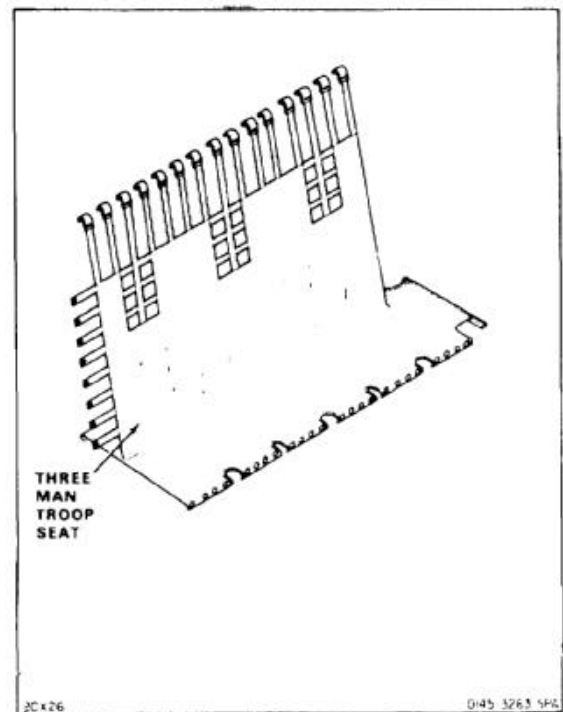
None

Personnel Required:

Medium Helicopter Repairer

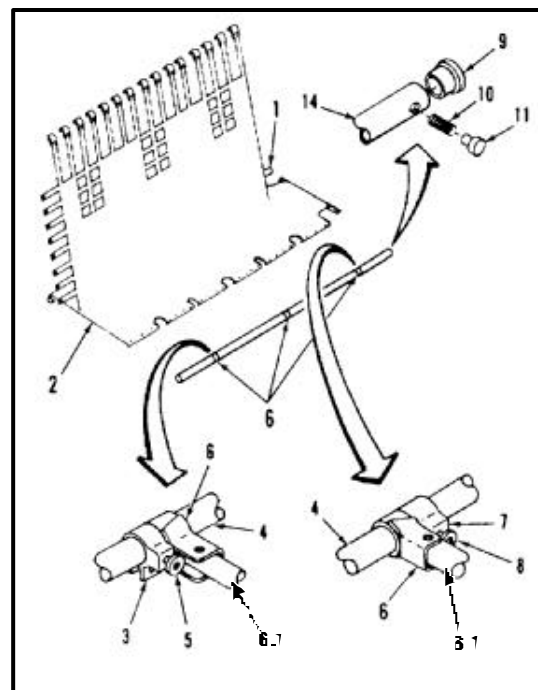
References:

TM 55-1520-240-23P

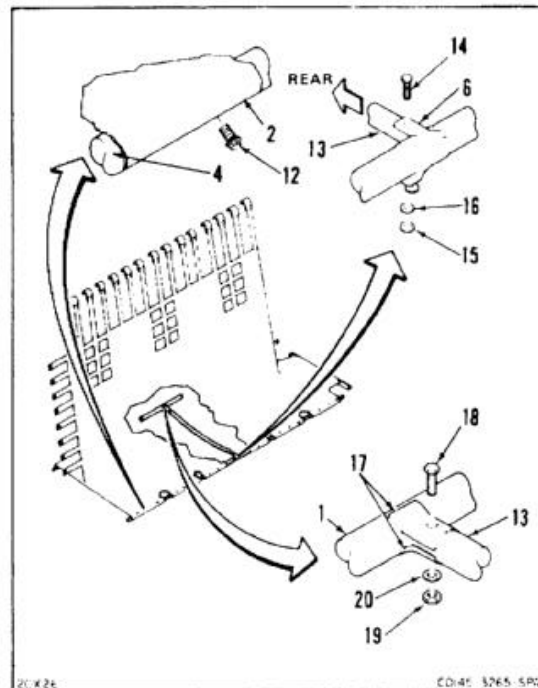


Do not overtighten nuts. Damage to tubes can result.

1. Slide rear tube (1) into seat (2).
2. Position forward leg fitting (3) on aft end of front tube (4). Pull leg fitting button (5) and slide fitting on tube to second hole. Release button.
3. Position three front brace fittings (6) and two leg brace fittings (6.1) on aft end front of tube (4). Slide fittings forward on tube. Open end of fittings should face away from tube (1).
4. Position aft leg fitting (7) on aft end of front tube (4). Pull leg fitting button (8) and slide fitting on tube to first hole. Release button.
5. Install spring (10) in latch (9).
6. Depress spring (10) and position latch (9) so that slot in front tube (4) aligns with plunger (11).
7. Slide latch (9) into front tube (4).



8. Position tube (4) on front of seat (2). Install 26 screws (12).
9. Position three spreader tubes (13) in front brace fittings (6). Install three bolts (14), nuts (15), and washers (16).
10. Position six rear brace fittings (17) on ends of spreader tubes (13) and rear tube (1). Install three bolts (18), nuts (19), and washers (20) through fittings and tube.



11. Position leg (21) in aft leg fitting (7). Install bolt (22), nut (23), and two washers (24) in fitting.

NOTE

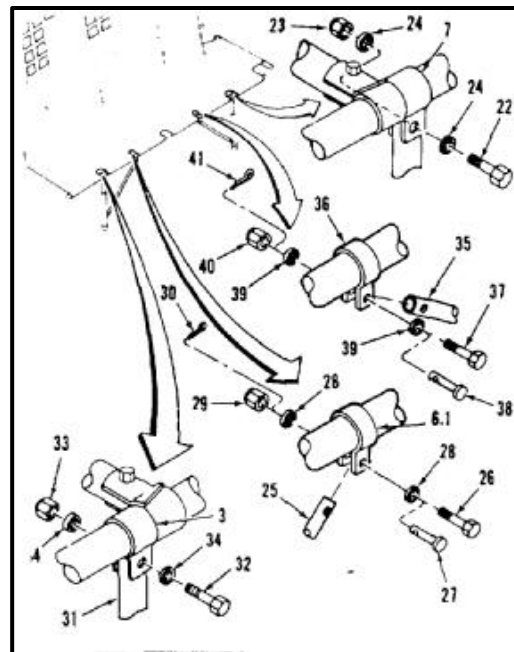
On some troop seats, bolt and nut have been replaced with pin and cotter pin.

12. Position leg brace (25) in fitting (6.1). Install bolt (26) or pin (27), two washers (28), and nut (29) or cotter pin (30) in fitting.
13. Position leg (31) in forward leg fitting (3). Install bolt (32), nut (33), and two washers (34) in fitting.

NOTE

On some troop seats, bolt and nut have been replaced with pin and cotter pin.

14. Position leg brace (35) in fitting (36). Install bolt (37) or pin (38), two washers (39), and nut (40) or cotter pin (41) in fitting.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-806

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

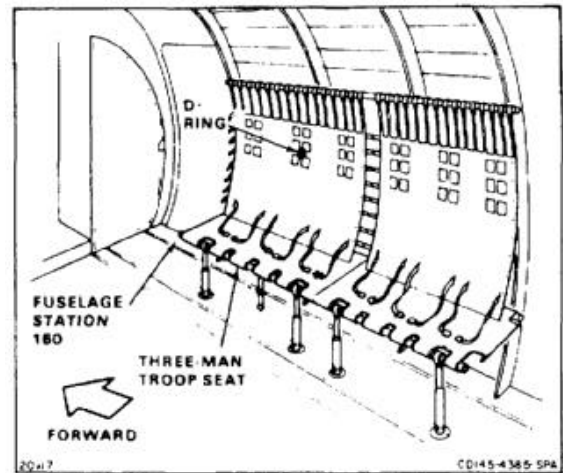
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

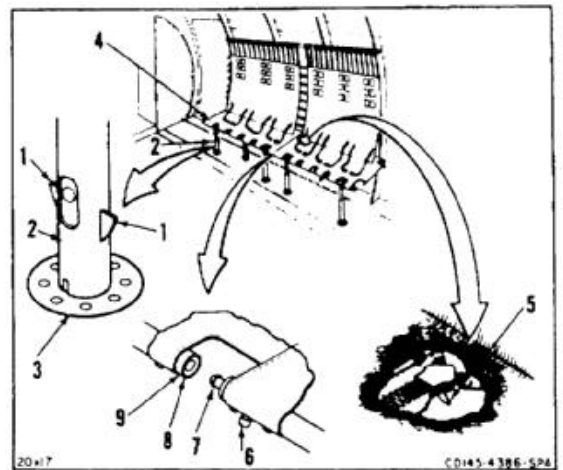
Battery Disconnected (Task 1-39)
Electrical Power Off



NOTE

Seat at station 160 is shown here.

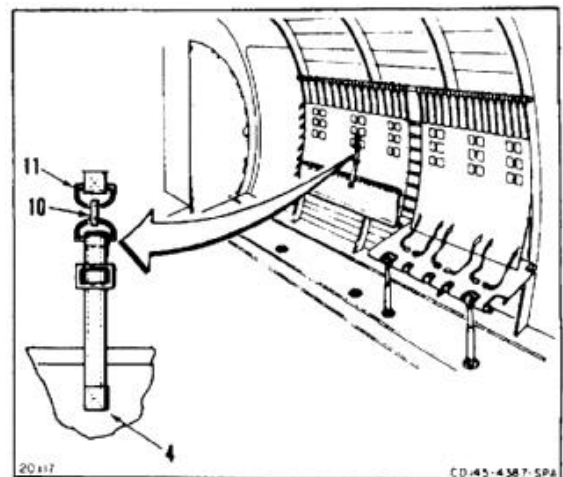
1. Push in four locks (1) and disconnect two legs (2) from floor adapters (3).
2. Swing legs (2) up onto seats (4).
3. Open slide fastener (zipper) (5) connecting seat (4) to adjoining seat.
4. Slide lock button (6) aft and remove housing (7) from latch (8) in tube (9).



5. Raise seat (4) and hook strap hook (10) to D-ring (11).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

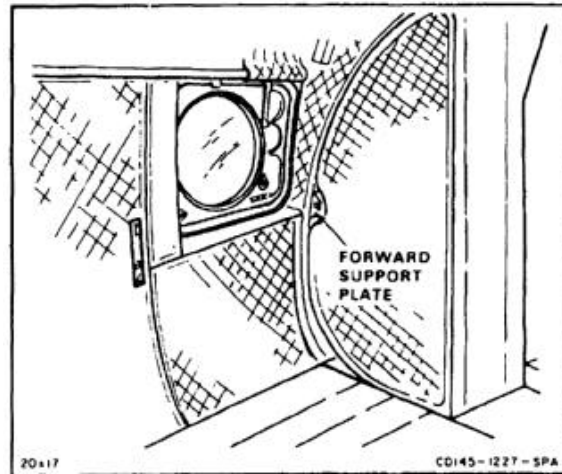
None

Personnel Required:

Medium Helicopter Repair

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off

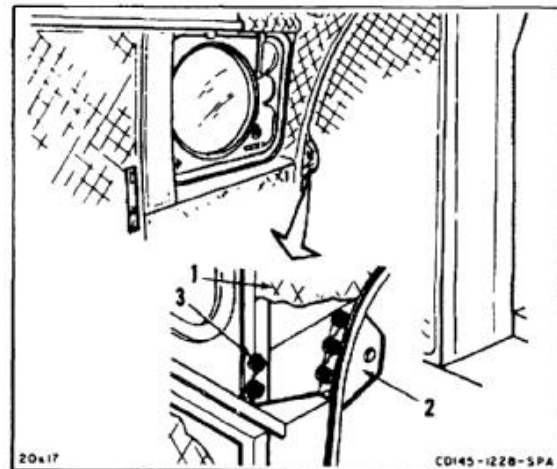


1. Pull back edges of acoustic blankets (1) around plate (2).

NOTE

Plates may be riveted on some installations. If plate is riveted, rivets and plate are removed, and steps 2 thru 5 deleted.

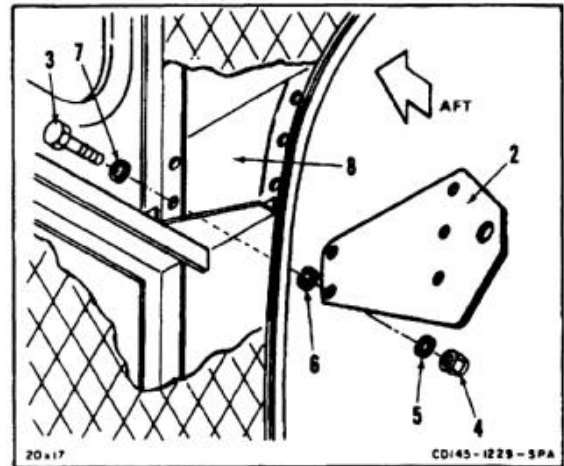
2. Remove lockwire from bolts (3).



2-234 REMOVE SUPPRESSIVE FIRE SYSTEM FORWARD SUPPORT PLATE (Continued)

2-234

3. Remove five nuts (4) and washers (5).
4. Remove plate (2) and five washers (6) from bolts (3).
5. Remove five bolts (3) and washers (7) from structure (8).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Torque Wrench, 30 to 150 Inch-Pounds

Materials:

Gloves (E184.1)
Lockwire (E231)
Epoxy Primer (E292.1)

Personnel Required:

Medium Helicopter Repairer
Inspector

References:

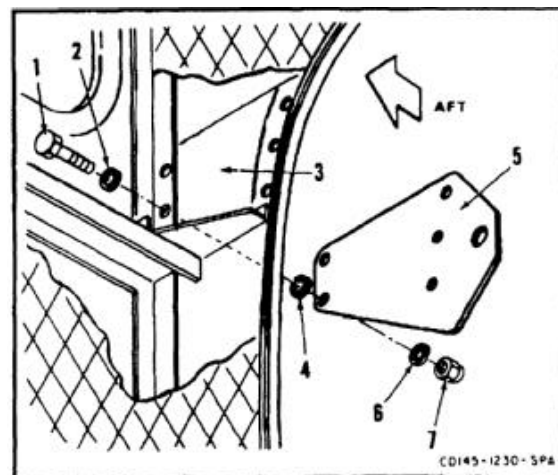
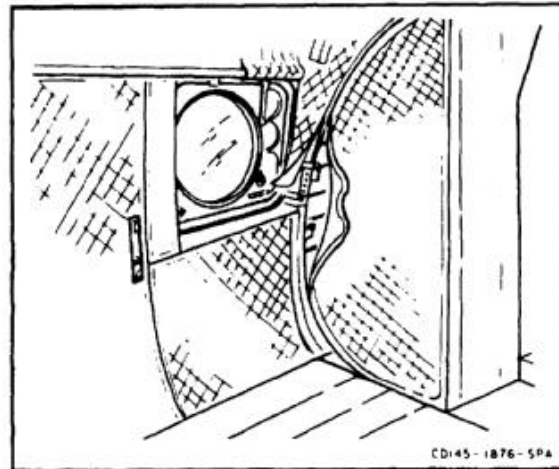
TM 55-1520-240-23P

1. Install five bolts (1) and washers (2) through structure (3).
2. Install five washers (4) on bolts (1).

WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

3. Coat mounting side of plate (5) with primer (E292.1). Wear gloves (E184.1).
4. Install plate (5) on bolts (1).
5. Install five washers (6) and nuts (7) on bolts (1).
6. Torque nuts (7) to **55 inch-pounds**.



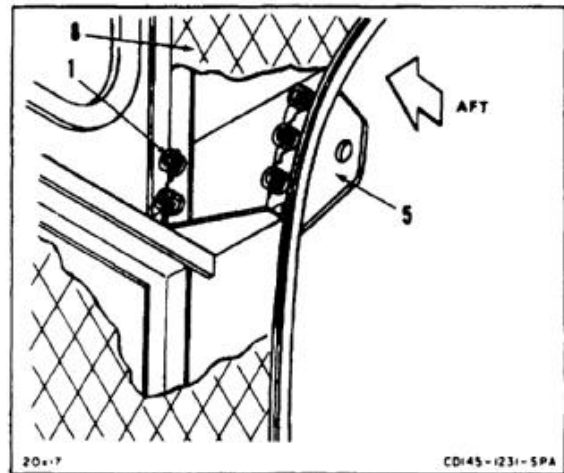
2-235 INSTALL SUPPRESSIVE FIRE SYSTEM FORWARD SUPPORT PLATE (Continued)

2-235

7. Install lockwire (E231) on bolts (1).

INSPECT

8. Press down edges of acoustic blankets (8) on both sides of plate (5).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:Without **19****Tools:**

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

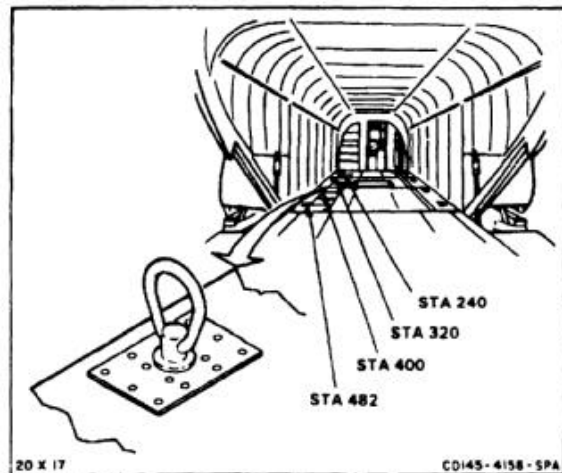
Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Cargo Ramp Lowered (TM 55-1520-240-T)

Cabin Floor Panel Removed (Task 2-204)

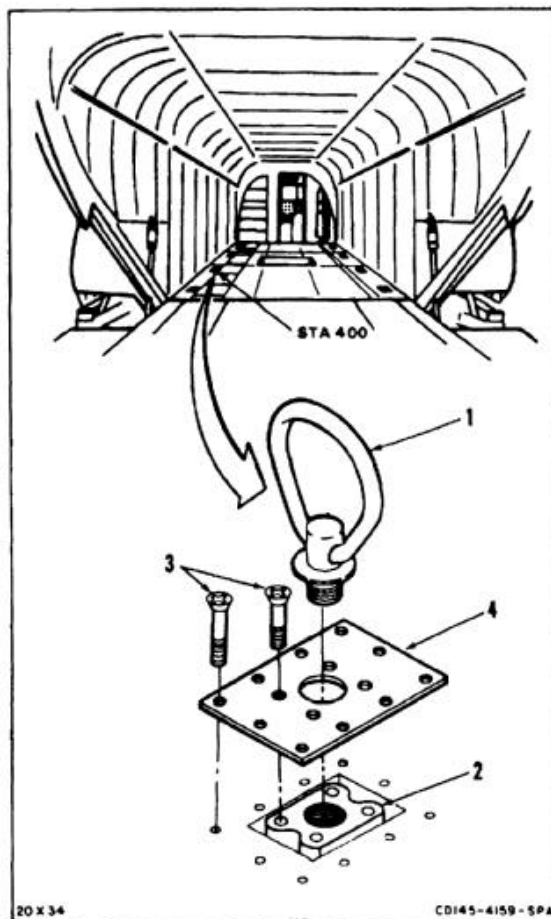
**NOTE**

Procedure is same to remove any of eight **10,000 pound** tiedown adapters. Adapter at sta. 400 is shown here.

1. Remove tiedown ring (1) from adapter (2)
2. Remove 14 screws (3) from plate (4).
3. Remove plate (4).
4. Remove adapter (2).
5. Remove tape and sealant from adapter (2) and plate (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-812

2-237 INSTALL CABIN FLOOR 10,000 POUND RING TIEDOWN ASSEMBLY**2-237****INITIAL SETUP****Applicable Configurations:**Without **19****Tools:**

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

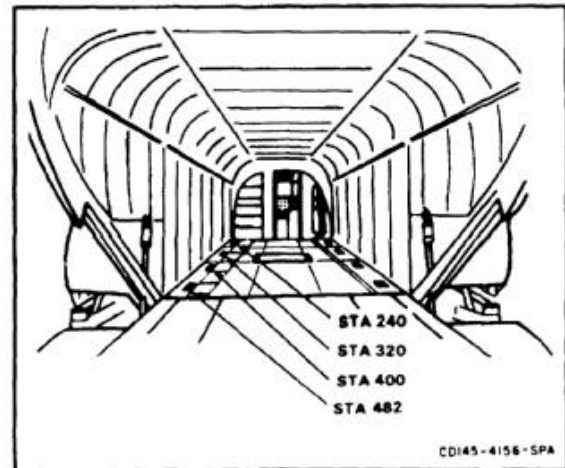
Gloves (E184.1)
Epoxy Primer (E292)
Sealant (E327)
Mylar Tape (E389)

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P



NOTE

Procedure is same to install any of eight **10,000 pound** tiedown adapters. Installation of adapter at sta. 400 is shown here.

1. Apply mylar tape (E389) to mating faces of adapter (1) and plate (2). Cut tape from holes.

WARNING

Sealant (E327) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

2. Install adapter (1) into floor (3). Apply sealant (E327) around edges of adapter and around bottom edges of plate (2). Install plate over adapter and align bolt holes.

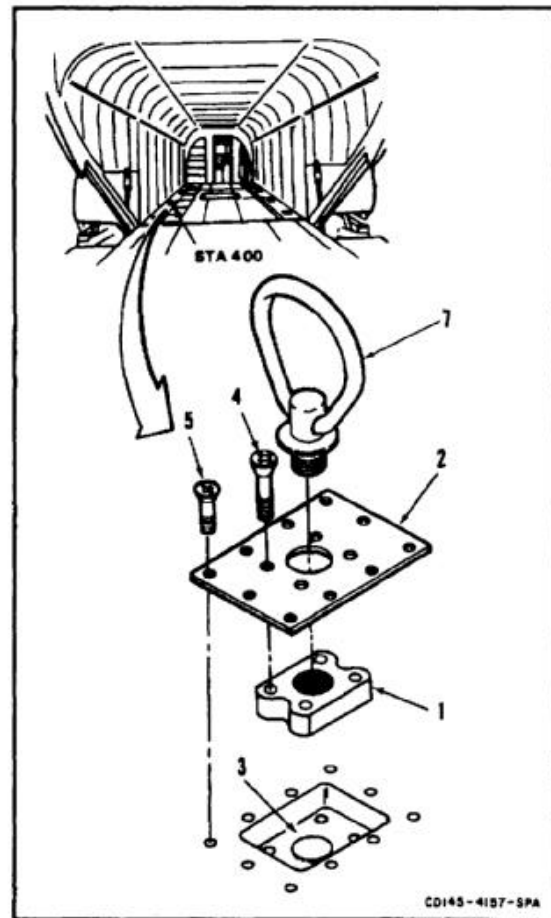
WARNING

Epoxy primer (E292) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

3. Apply epoxy primer (E292) to screws (4 and 5). Wear gloves (E184.1).
4. Install four screws (4) wet with primer in plate (2) and adapter (1). Install 10 screws (5) wet with primer in plate.
5. Install ring (7) in adapter (1).

FOLLOW-ON MAINTENANCE:

Close cargo ramp (TM 55-1520-240-T).
Install cabin floor panels (Task 2-207).



END OF TASK

2-814

2-237.1 REMOVE CABIN FLOOR 10,000 POUND TIEDOWN FITTING

2-237.1

INITIAL SETUP**Applicable Configurations:**With **19****Tools:**

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

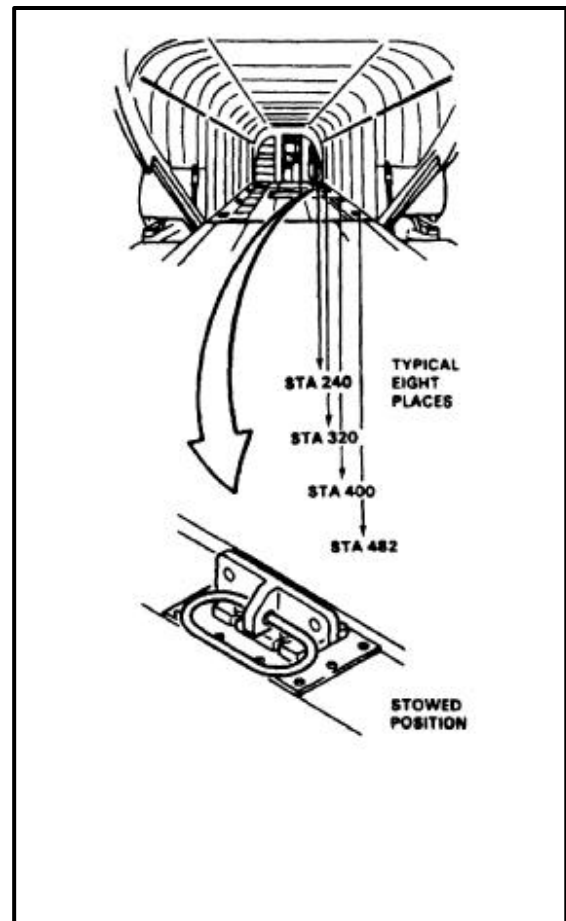
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

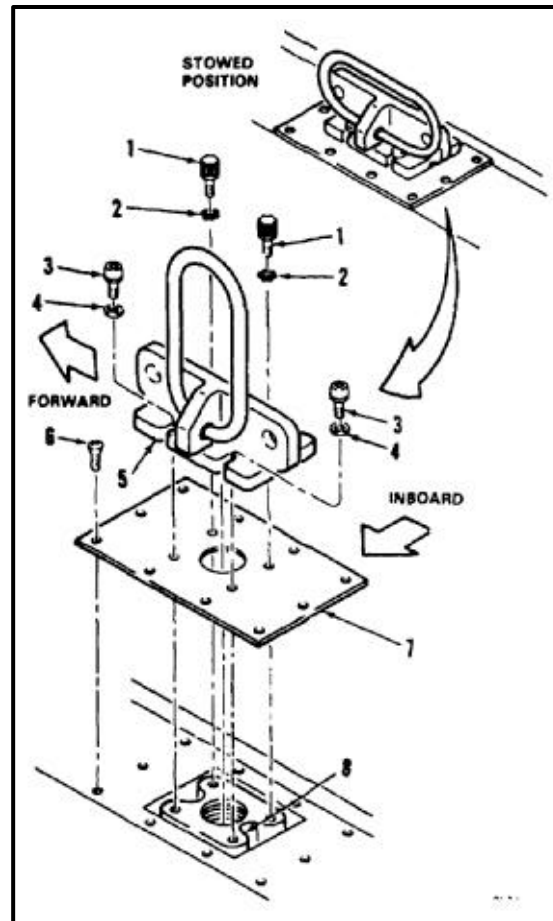
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Cargo Ramp Lowered (TM 55-1520-240-T)
 Hydraulic Power Off
 One-Man Troop Seat Stowed (Task 2-227)
 Three-Man Troop Seat Stowed (Task 2-233)



NOTE

Procedure is same to remove any of eight **10,000 pound** tiedown adapters. Adapter at sta. 400 is shown here.

1. Remove bolts (1) and washers (2).
2. Remove bolts (3) and washers (4).
3. Remove tiedown fitting (5).
4. Remove 10 screws (6) from plate (7).
5. Remove plate (7).
6. Remove adapter (8).
7. Remove tape and sealant from adapter (8) and plate (7).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-237.2 INSTALL CABIN FLOOR 10,000 POUND TIE DOWN FITTING

2-237.2

INITIAL SETUP**Applicable Configurations:**With **19****Tools:**

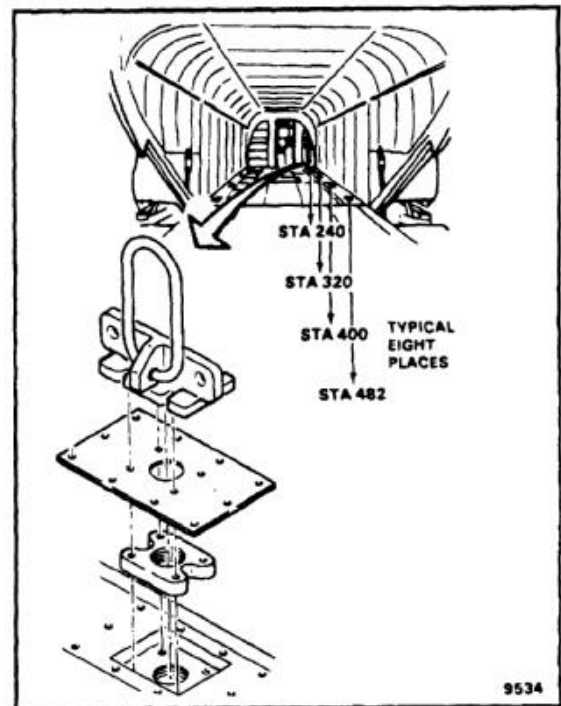
Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Mylar Tape (E389)
 Sealant (E327)
 Epoxy Primer (E292)
 Gloves (E184.1)

Personnel Required:

Medium Helicopter Repairer

**NOTE**

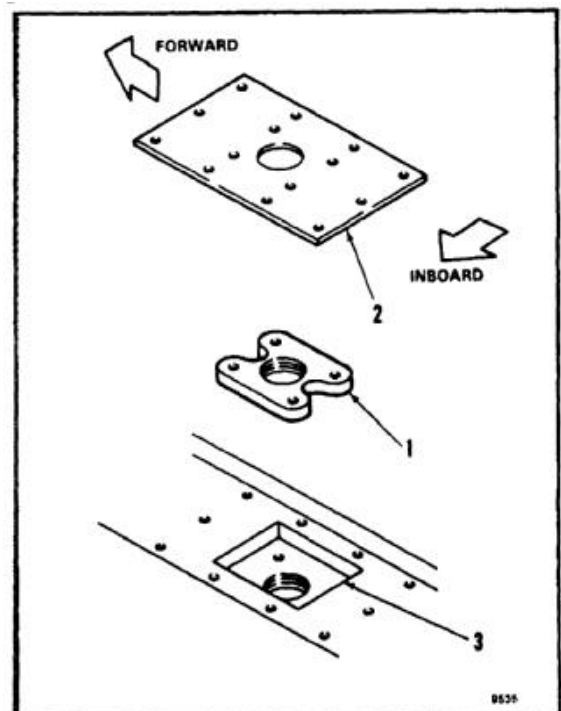
Procedure is same to install any of eight tiedown fittings. Fitting at sta. 400 is shown here.

1. Apply mylar tape (E389) to mating faces of adapter (1) and plate (2). Cut tape from holes.

WARNING

Sealant (E327) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

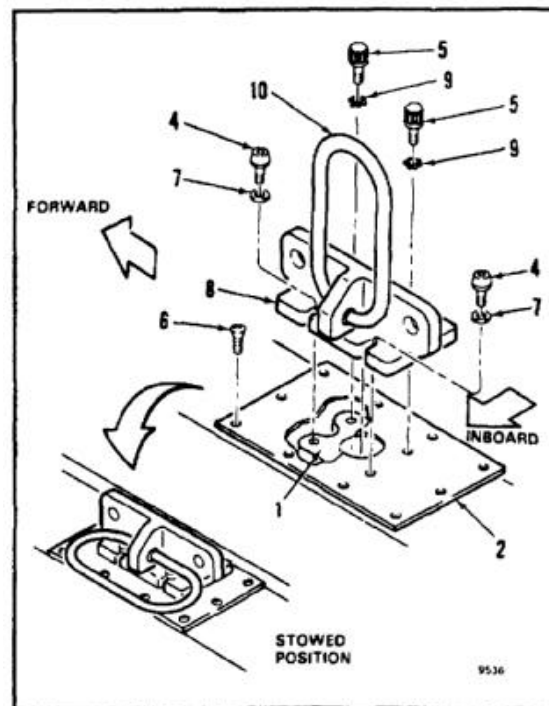
2. Install adapter (1) into floor (3). Apply sealant (E327) around edges of adapter and around bottom edges of plate (2). Install plate over adapter and align bolt holes.



WARNING

Epoxy primer (E292) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

3. Apply epoxy primer (E292) to bolts (4 and 5) and screws (6). Wear gloves (E184.1).
4. Install bolts (4) wet with primer and washers (7) in plate (2) and adapter (1). Adjust bolt and washer height slightly higher than thickness of **10,000 pound** fitting (8). Install 10 screws (6) wet with primer in plate (2).
5. Slide fitting (8) in place on plate (2) with slotted holes inboard and under bolts (4) and washers (7).
6. Install two washers (9) and bolts (5). Tighten two bolts (4) and two bolts (5).
7. Place all eight **10,000 pound** fitting rings (10) in stowed position flat on cabin floor.

**FOLLOW-ON MAINTENANCE:**

- Unstow one-man troop seat (Task 2-222).
- Unstow three-man troop seat (Task 2-228).
- Close cargo ramp (TM 55-1520-240-T).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

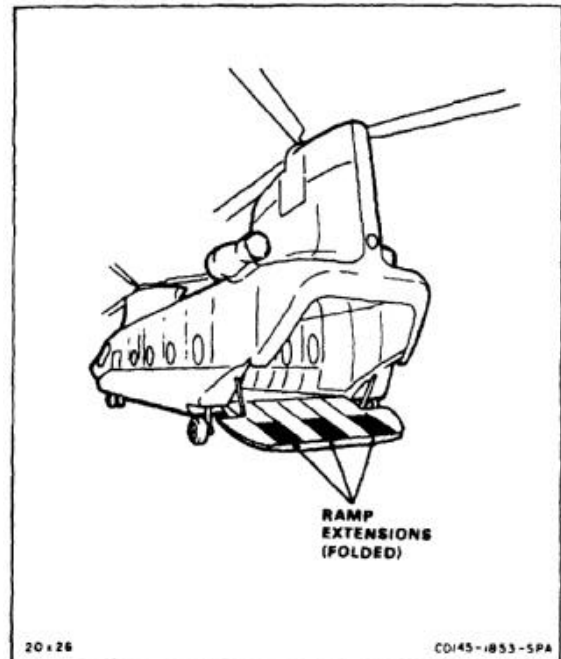
Brush (E85)
Dry Cleaning Solvent (E162)

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Cargo Ramp Lowered (TM 55-1520-240-T)

**NOTE**

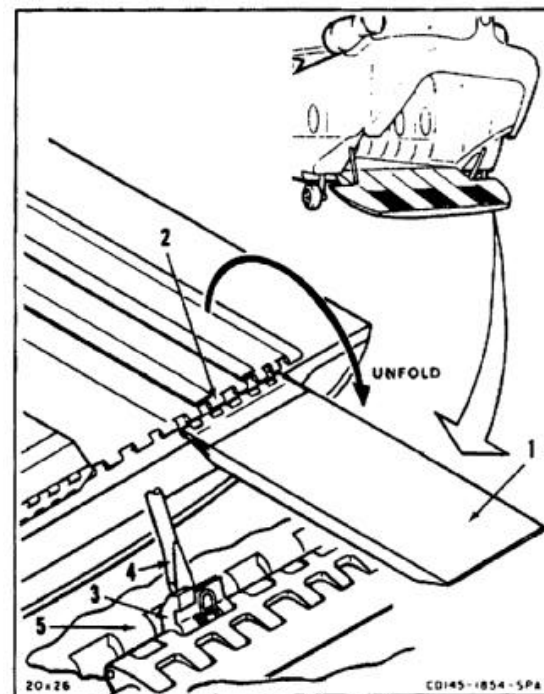
Procedure can be used for all three ramp extensions. Right extension is shown here.

1. Unfold ramp extension (1).

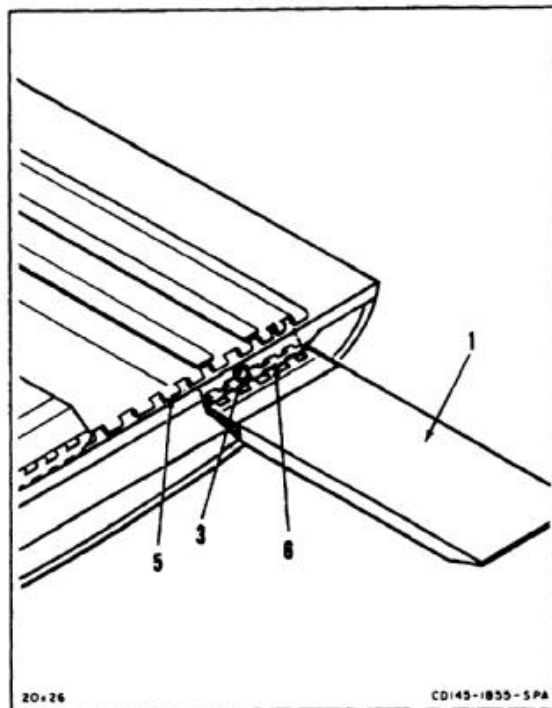
WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

2. Clean hinge (2). Use dry cleaning solvent (E162) and brush (E85). Wear goggles.
3. Have helper lift and hold extension (1).
4. Raise spring lock (3) using screwdriver (4) between cargo ramp hinge (5) and back of spring lock.



5. Slide extension (1) to left until clear of ramp hinges (5 and 6).
6. Release spring lock (3).
7. Remove extension (1).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

2-820

2-239 REMOVE CARGO RAMP EXTENSION HINGE

2-239

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

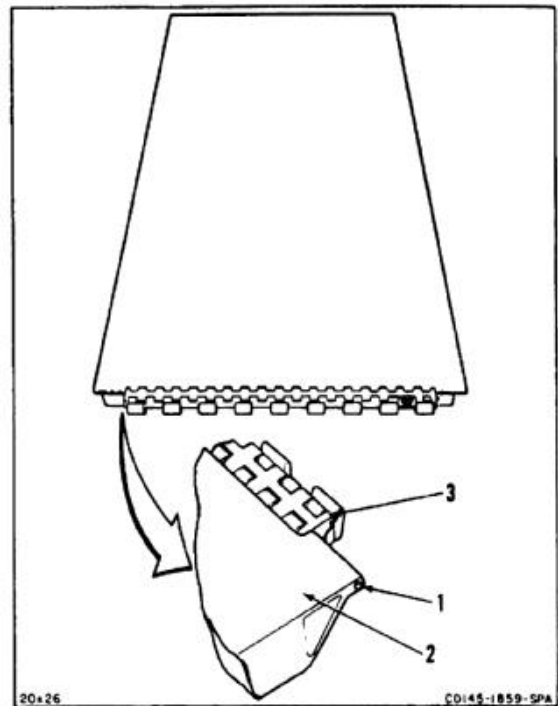
Equipment Condition:

Off Helicopter Task

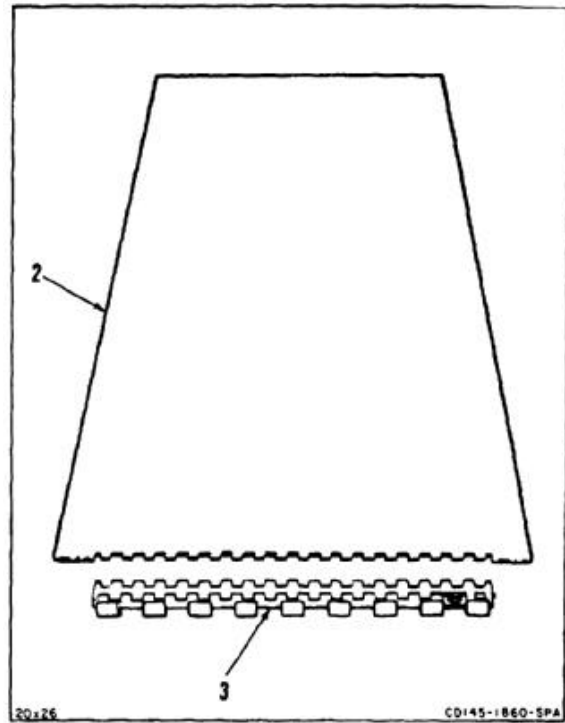
NOTE

Procedure is the same for all ramp extensions.

1. Remove hinge pin (1) from ramp extension (2) and hinge (3).



- Remove hinge (3) from ramp extension (2).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-822

2-239.1 CARGO RAMP EXTENSION HINGE REPLACEMENT**2-239.1****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P

Equipment Condition:

Off Helicopter Task

NOTE

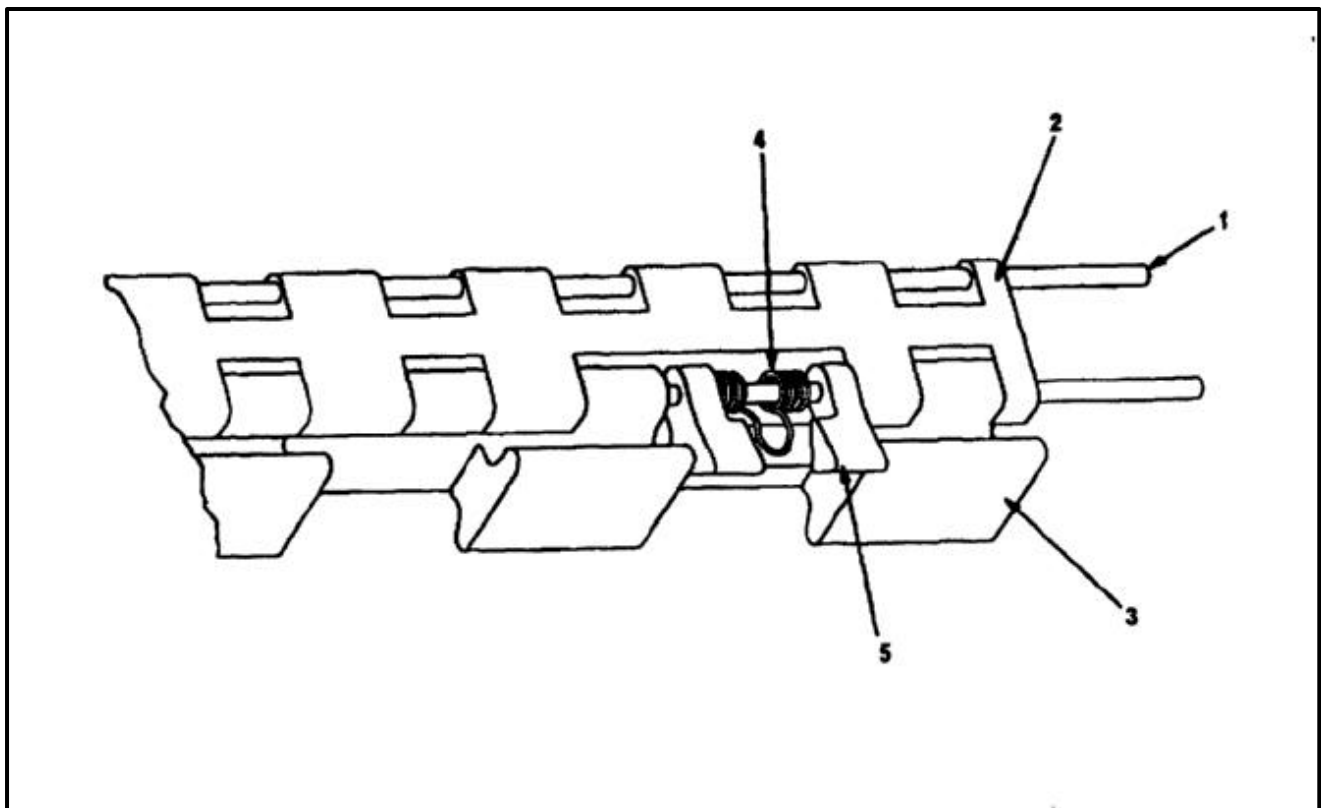
Procedure is the same for all ramp extension hinges.

REMOVAL

1. Remove hinge pin (1) and separate hinge halves (2 and 3). Remove spring (4) and stop (5).

INSTALLATION

2. Assemble stop (5), spring (4) and hinge halves (3 and 2).
3. Install pin (1) and point stake both ends of pin (1).

**INSPECT****FOLLOW-ON MAINTENANCE:**

Cargo Ramp Extension Hinge Installation (Task 2-240).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

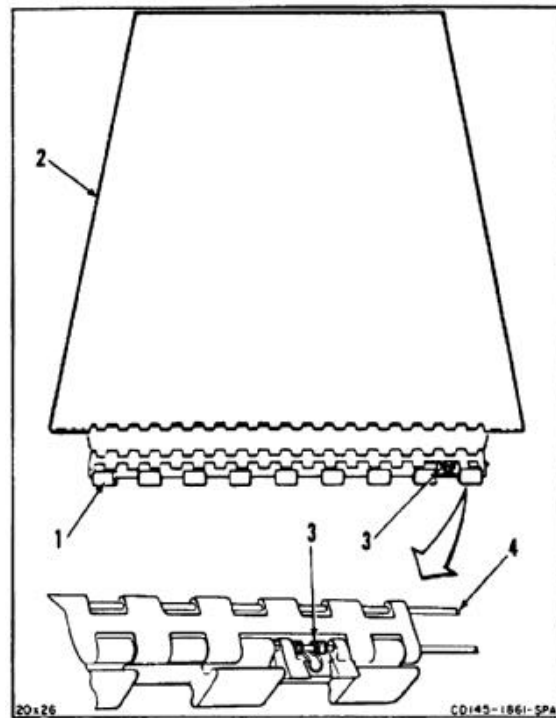
References:

TM 55-1520-240-23P

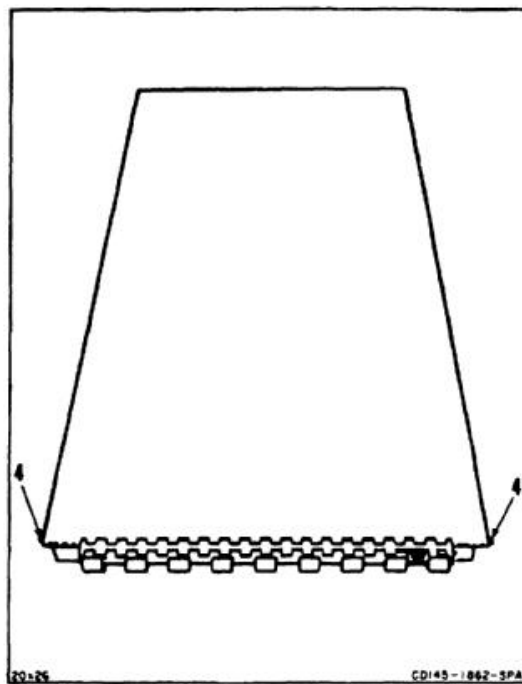
NOTE

Procedure is same for all ramp extensions.

1. Position hinge (1) on ramp extension (2). Check that spring lock (3) is down.
2. Install pin (4) through hinge (1) and ramp extension (2).



3. Point stake both ends of pin (4).

**FOLLOW-ON-MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Paper Tags (E264)

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

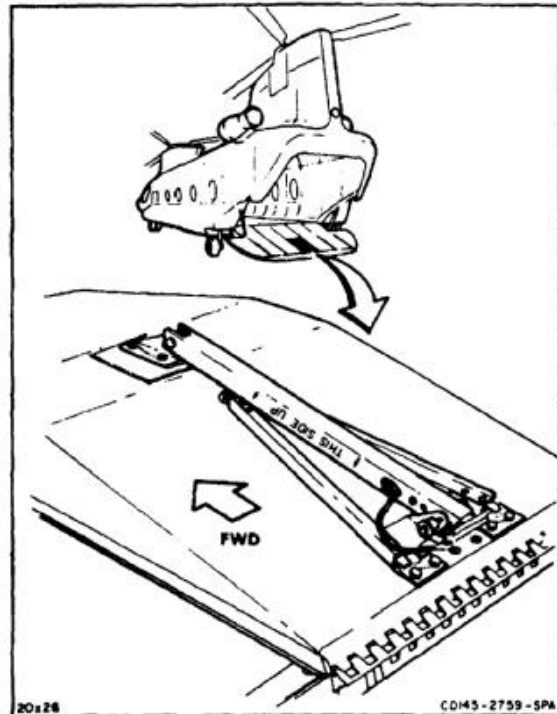
Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off

Cargo Ramp Lowered (TM 55-1520-240-T)

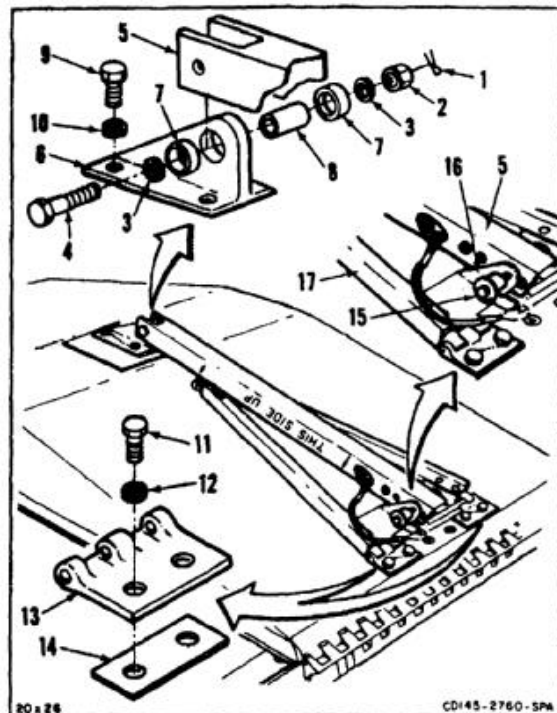
Ramp Extension Folded (Task 2-254)



1. Remove cotter pin (1), nut (2), two washers (3), and bolt (4) from brace (5). Separate brace from fitting (6).
2. Remove two spacers (7) and bushing (8) from fitting (6).
3. Remove lockwire, four bolts (9), and washers (10) from fitting (8).
4. Remove lockwire, four bolts (11), and washers (12) from two leaves (13). Tag and remove shims (14) under leaves, if installed. Use paper tags (E264).
5. Remove pin (15) from hinge (16).
6. Remove link (17) and brace (5).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-826

2-242 REPAIR CARGO RAMP EXTENSION

2-242

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

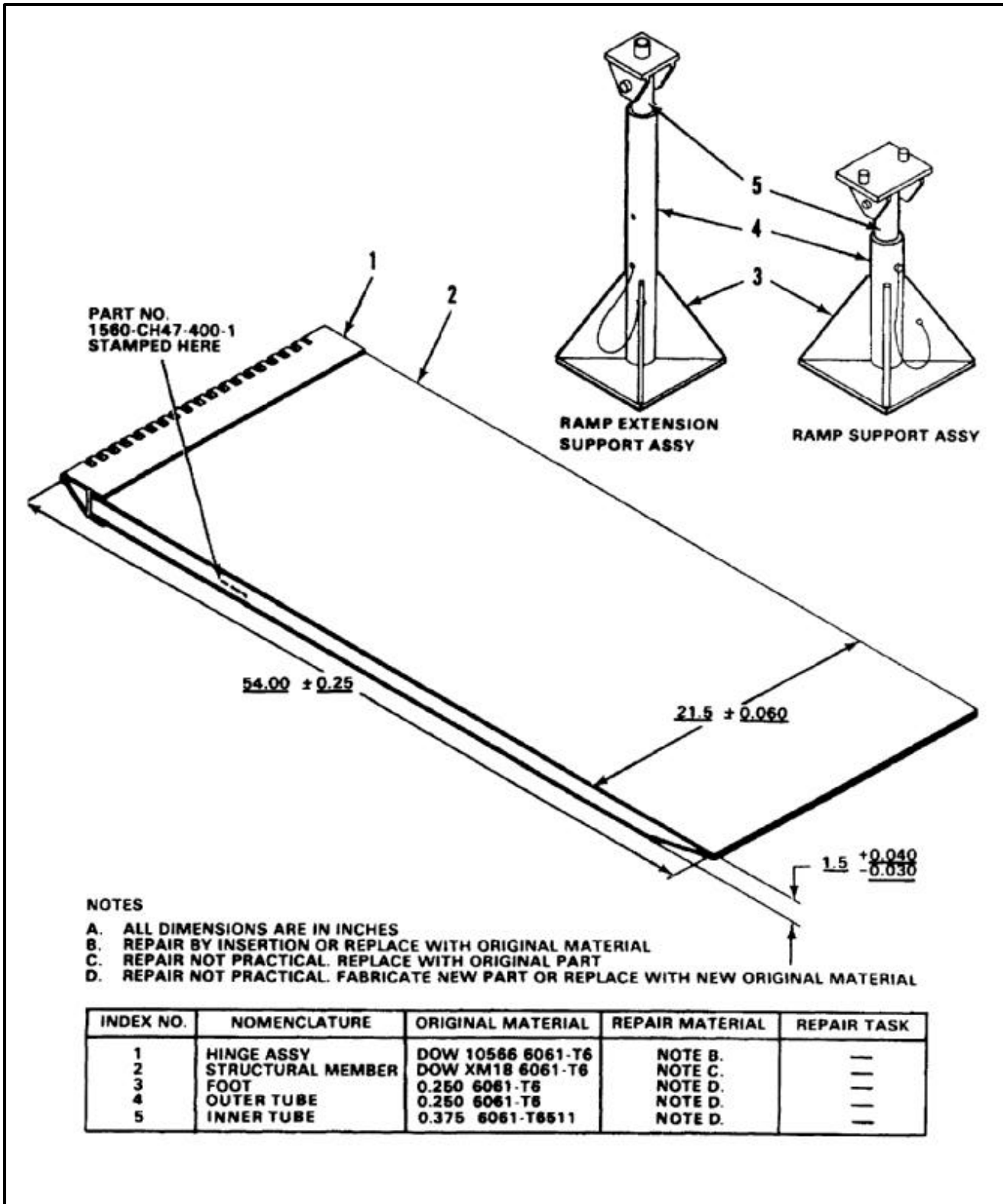
Personnel Required:Aircraft Structural Repairer
Inspector**References:**TM 1-1500-204-23
Task 2-356**Equipment Condition:**

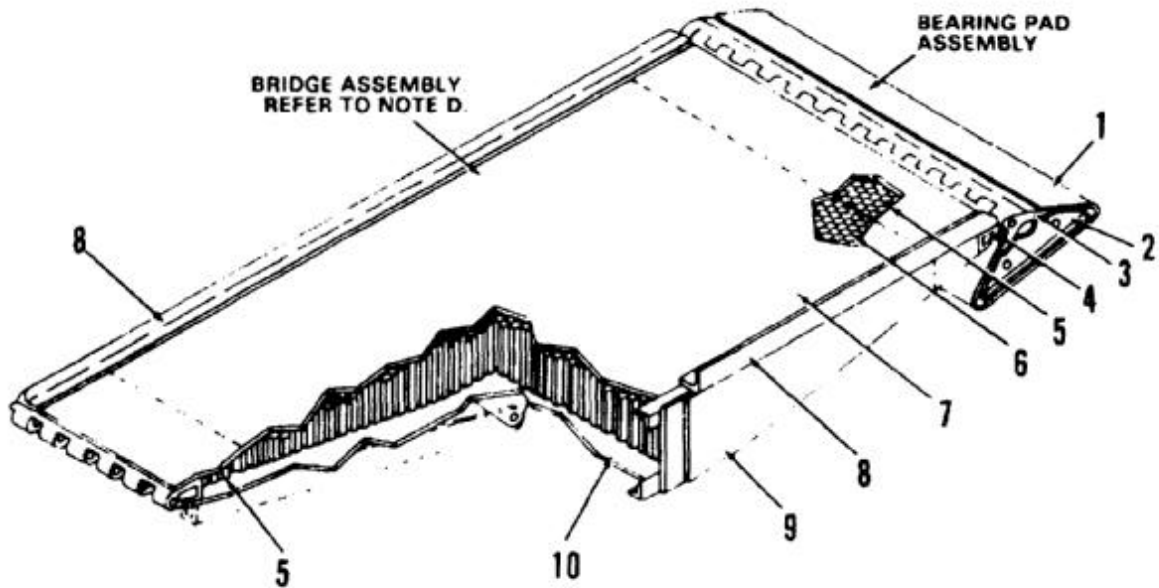
As Required

General Safety Instructions:

As Required

1. If minor damage limits are exceeded, damage can be repaired as shown.
2. If extruded parts are damaged, refer to TM 1-1500-204-23 for damage classification.
3. For typical repairs to sandwich honeycomb structures, refer to TM 1-1500-204-23.
4. Apply walkway material, if required (Task 2-356).

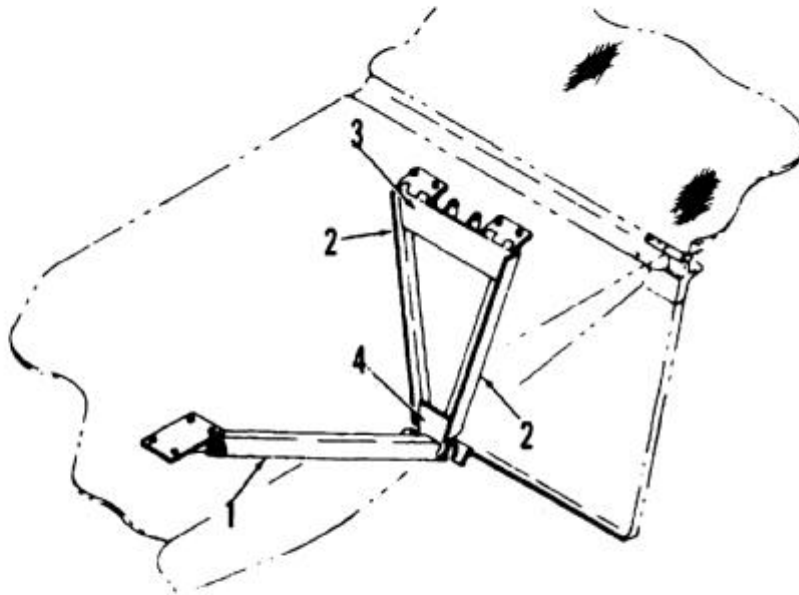




INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	SKIN	0.016 301-1/2H CRES	0.020 301-1/2H CRES	2-13
2	FORMER	0.063 2024-T3 CLAD	0.071 2024-T3 CLAD	NOTE E.
3	HINGE	VS90565 2014-T6	NOTE B.	—
4	BUMPER	—	NOTE C.	—
5	CORE	1.50.6.5-3/8-50N-3003	NOTE D.	NOTE E.
6	CORE	4.00.3.0-3/8-20N-3003	NOTE D.	NOTE E.
7	SKIN	0.025 7075-T6 CLAD	NOTE D.	2-13
8	RAIL	VS90545 7075-T6	0.063 4130 COND N	NOTE E.
9	SKIN	0.018 2024-T4 CLAD	NOTE D.	2-13
10	SKIN	0.016 7075-T6 CLAD	NOTE D.	2-13

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. MAKE FROM ORIGINAL MATERIAL OR USE 114S6604-21
- C. BUMPER IS MADE FROM CELLULAR RUBBER (E281). REPLACE WITH ORIGINAL MATERIAL
- D. BRIDGE ASSEMBLY IS A BONDED ASSEMBLY WITH A RIGIDIZED TOP SKIN. REPAIR USING SAME TYPE MATERIAL AS ORIGINAL REFER TO TASK 2-10
- E. TM 1-500-204-23



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	TUBE	BAC1501-100039 7075-T6	0.063 7075-T6 CLAD	NOTE B.
2	TEE	BAC1505-100241 7075-T6	0.063 7075-T6 CLAD	NOTE B.
3	HINGE	MS20001Y12	MS20001Y12	—
4	HINGE	MS20001X14	MS20001X14	—

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. TM 1-1500-204-23

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Lockwire (E230)

Parts:

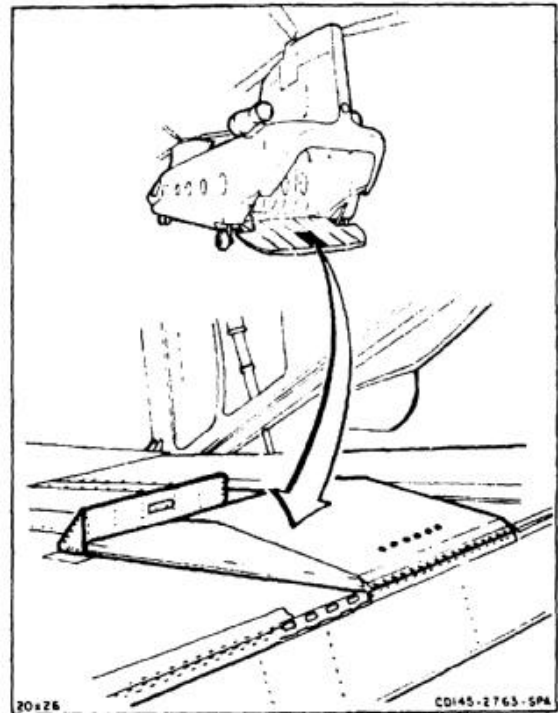
Cotter Pin

Personnel Required:

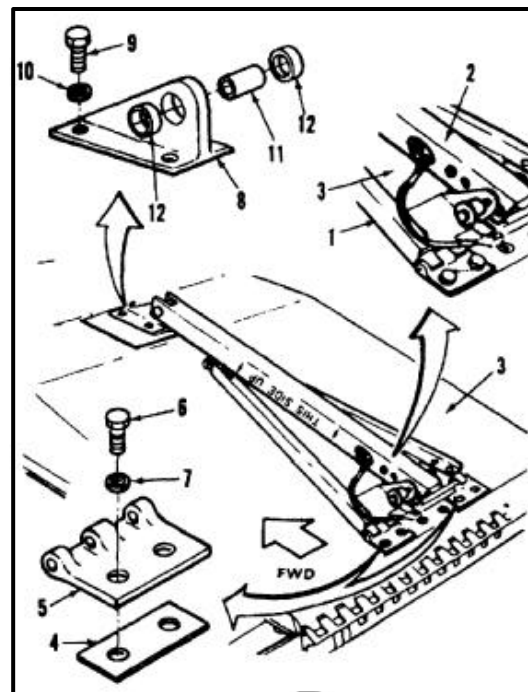
Medium Helicopter Repairer

References:

TM 55-1520-240-23P



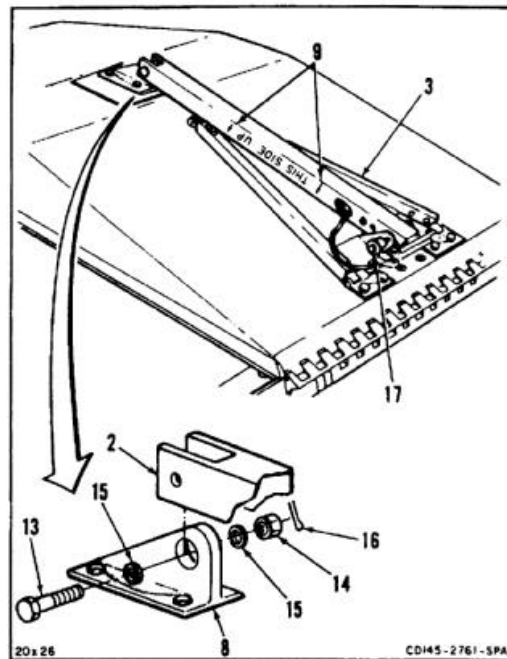
1. Position link (1) and brace (2) on extension (3).
2. Remove tags and position shims (4) under two leaves (5), if removed.
3. Position shims (5) and leaves (5) on extension (3). Install four bolts (6) and washers (8). Lockwire bolts using lockwire (E230).
4. Move brace (2) to position fitting (8).
5. Position fitting (8) on extension (3). Install four bolts (9) and washers (10). Lockwire bolts using lockwire (E230).
6. Position bushing (11) and two spacers (12) on fitting (8).



WARNING

Brace must be installed with stenciled arrows pointing toward center of extension. Otherwise extension can collapse when used as work platform.

7. Position brace (2) on fitting (8) with arrows (9) pointing toward center of extension (3).
8. Install bolt (13), nut (14), and two washers (15). Install cotter pin (16).
9. Install pin (17).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-832

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

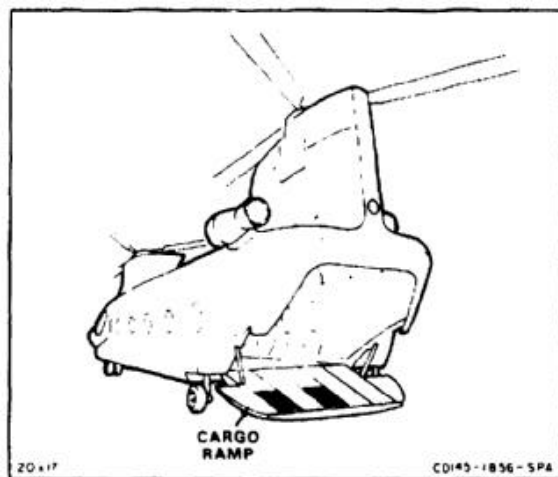
Brush (E85)
 Dry Cleaning Solvent (E162)

Personnel Required:

Medium Helicopter Repairer (2)

References:

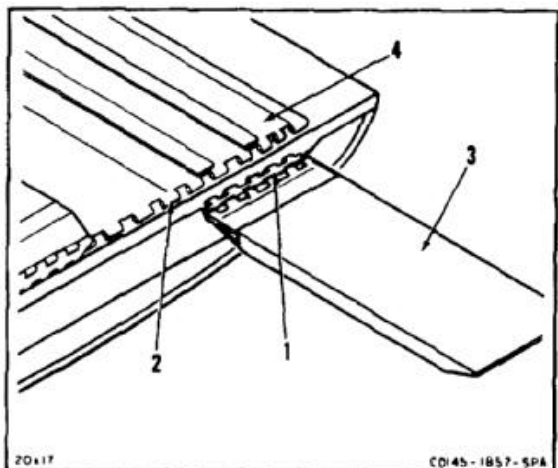
TM 55-1520-240-23P

**WARNING**

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention immediately.

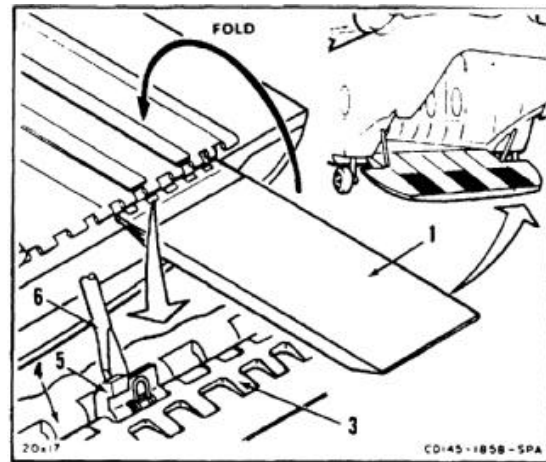
NOTE

Procedure can be used for all three ramp extensions. Right extension is shown here.



1. Clean extension ramp hinge (1) and cargo ramp hinge (2). Use dry cleaning solvent (E162) and brush (E85). Wear goggles.
2. Have helper position extension (3) at ramp (4).
3. Insert extension ramp hinge (1) in cargo ramp hinge (2).

4. Raise spring lock (5) using screwdriver (6) between cargo ramp hinge (4) and back of spring lock.
5. Slide extension (1) until hinge (4) locks in extension ramp hinge (3).
6. Release spring lock (5).
7. Fold extension (1).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

2-834

2-244.1 RAMP EXTENSION SUPPORT ASSEMBLY STOWAGE PROVISIONS

2-244.1

INITIAL SETUP**Applicable Configurations:**With **19****Materials:**

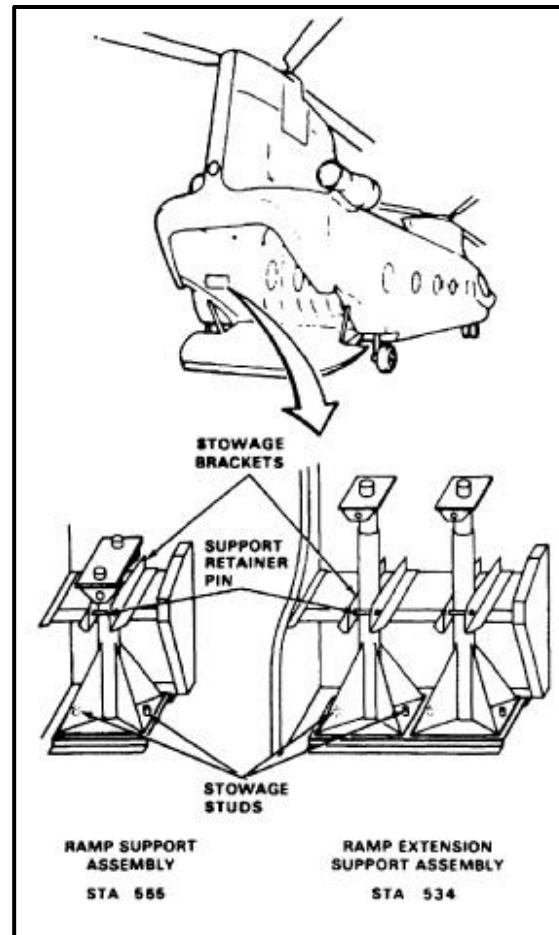
None

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P



1. Stow ramp support assembly at sta. 555 WL 0.0 left hand side.
2. Stow two ramp extension support assemblies at sta. 534 WL 0.0 left hand side.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

None

Personnel Required:

Aircraft Structural Repairer

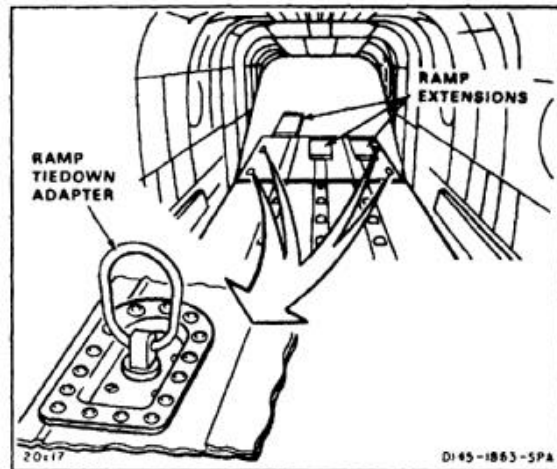
Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

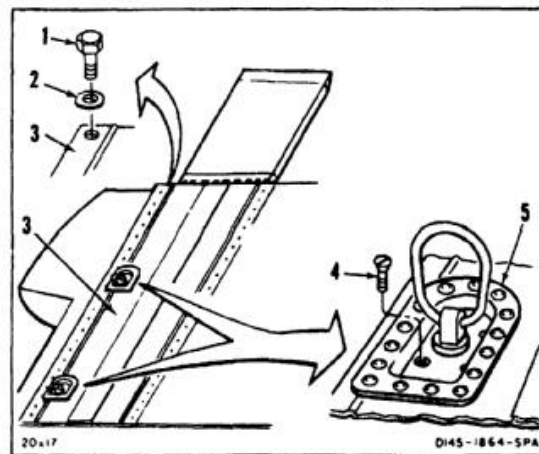
Cargo Ramp Lowered (TM 55-1520-240-T)

Cargo Ramp Extension Unfolded

**NOTE**

Procedure is same for all tiedown adapters. Aft right adapter is shown here.

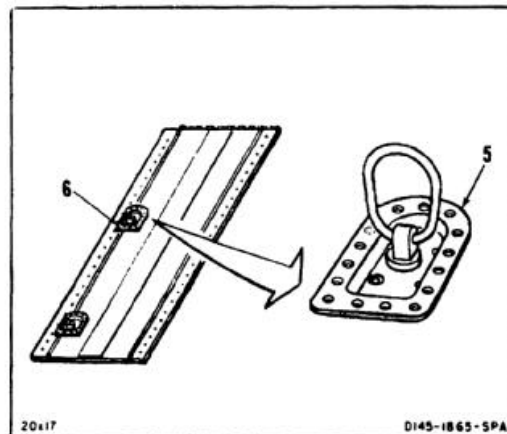
1. Remove 62 bolts (1) and washers (2) from panel (3).
2. Remove four screws (4) from forward and aft adapters (5).
3. Pull panel (3) forward and remove panel.



4. Remove 15 rivets (6). Remove adapter (5).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-836

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:Primer (E291)
Gloves (E186)**Parts:**

Rivets

Personnel Required:

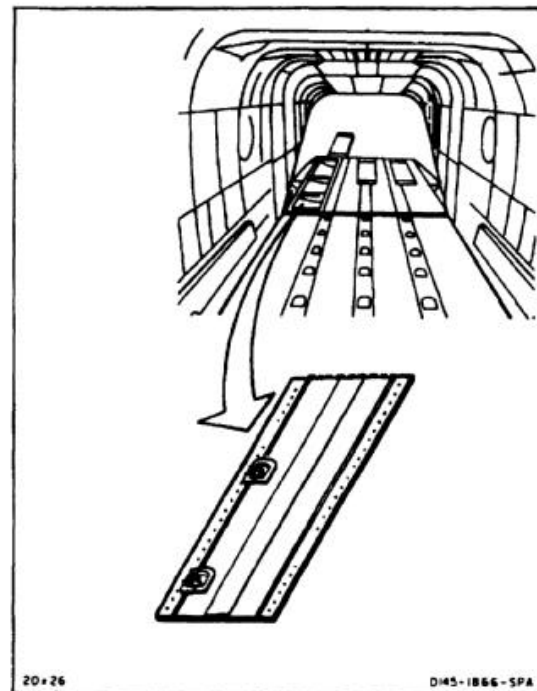
Aircraft Structural Repairer

References:

TM 55-1520-240-23P

General Safety Instructions:**WARNING**

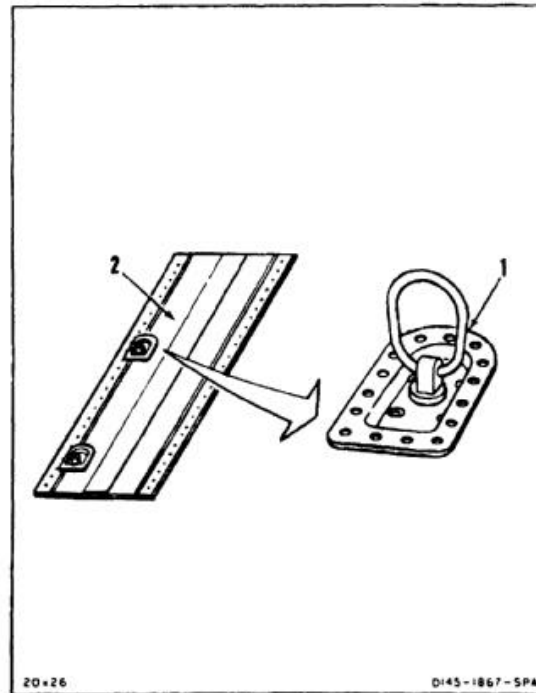
Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.



NOTE

Procedure is same for all tiedown adapters. Aft right adapter is shown here.

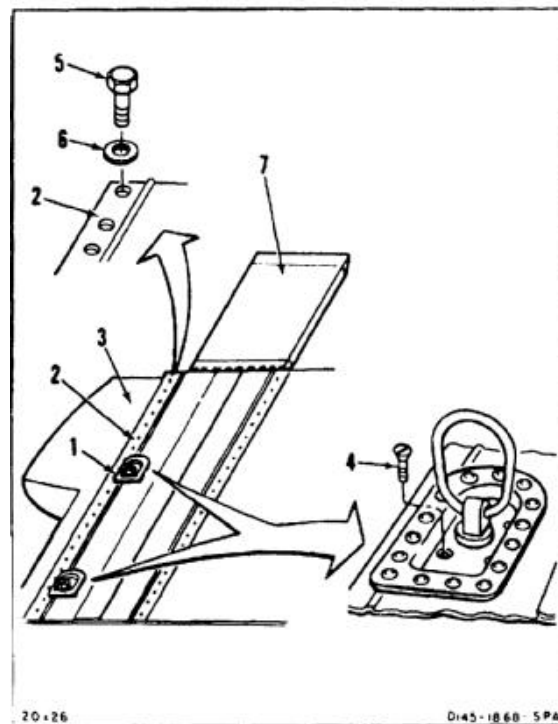
1. Apply zinc chromate primer (E291) to underside of adapter (1). Wear gloves (E186).
2. Install adapter (1) on panel (2) while primer (E291) is wet. Use 15 rivets.



3. Position panel (2) on ramp (3).
4. Coat four screws (4) with primer (E291). Install four screws, wet with primer, on adapter (1). Wear gloves (E186).
5. Install 62 bolts (5) and washers (6) in panel (2).
6. Fold up extension (7).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-838

2-246.1 REPLACE HELICOPTER INTERNAL CARGO HANDLING SYSTEM (HICHS) CENTER RAMP FLOOR ADAPTERS

2-246.1

INITIAL SETUP

General Safety Instructions:

Applicable Configurations:

With **56**

Tools:

Airframe Repairman's Tool Kit, NSN
5180-00-323-4876

Materials:

Acetone (E20)
Cloth, Cleaning (E120)
Protective Gloves (E186)
Sealant (E336 or E470)
Goggles (E473)

Parts:

Adapters
Lockbolts
Collars

Personnel Required:

Aircraft Structural Repairer

Equipment Condition:

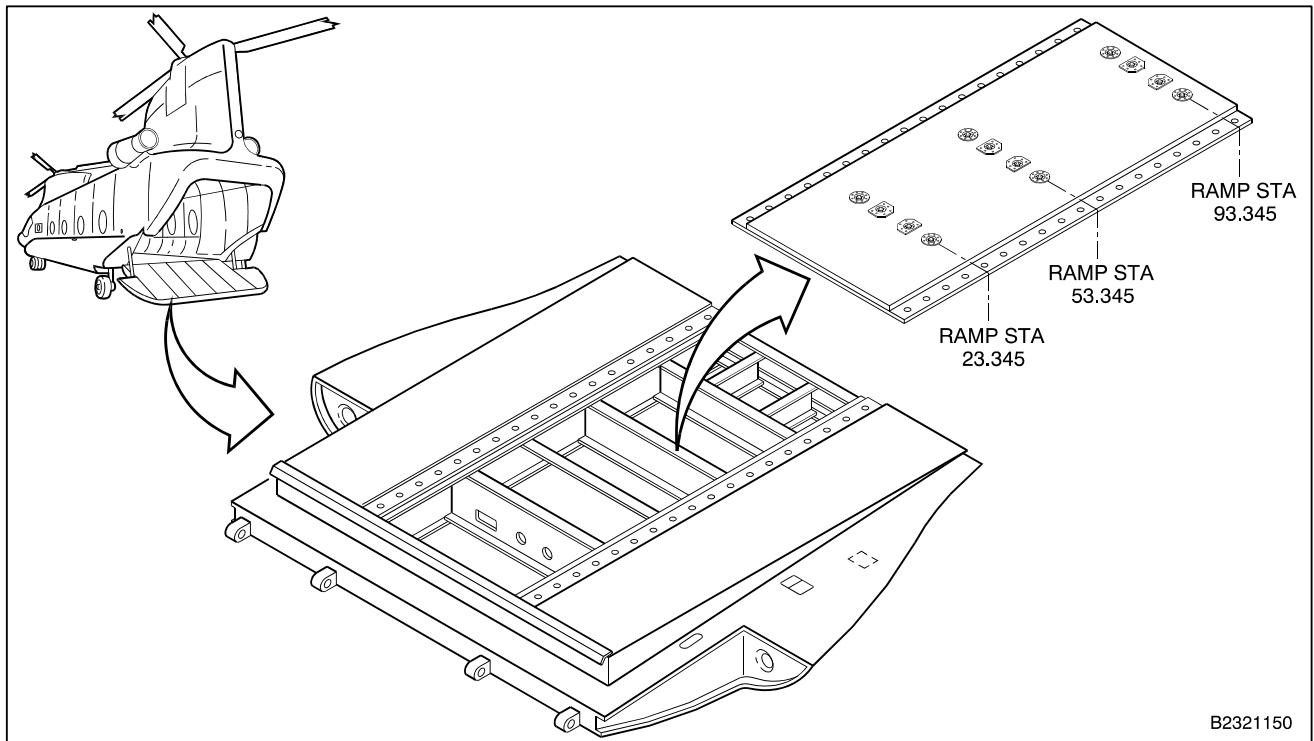
Battery Disconnected (Task 1-39)
Electrical Power Off
Cargo Ramp Lowered (TM 55-1520-240-T)
Cargo Ramp Center Floor Panel Removed (Task
2-247)

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, spark, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Sealant (E336 or E470) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.



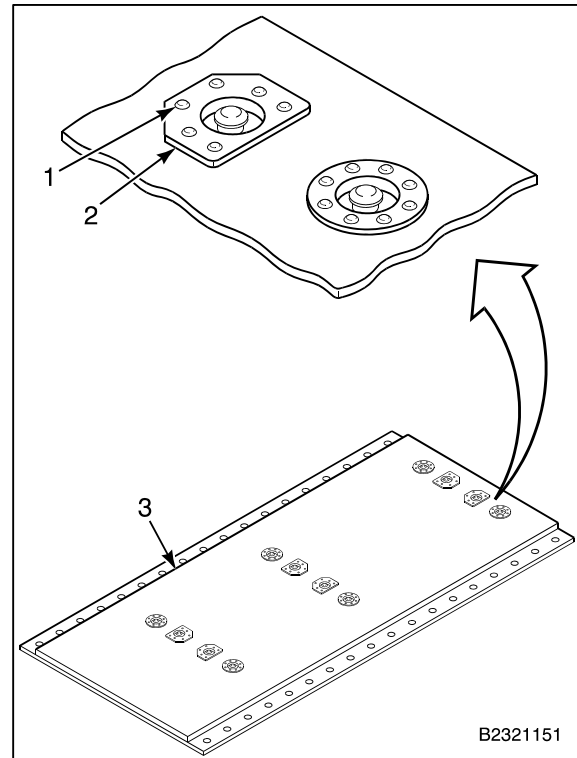
B2321150

NOTE

The procedures to remove and install the center ramp floor adapters are the same for both adapters. Adapter 145SK262-3 is described. Text in (*italics*) denotes differences in lockbolt quantities for adapter FDC-4145.

REMOVE CENTER RAMP FLOOR ADAPTER 145SK262-3 AND FDC-4145

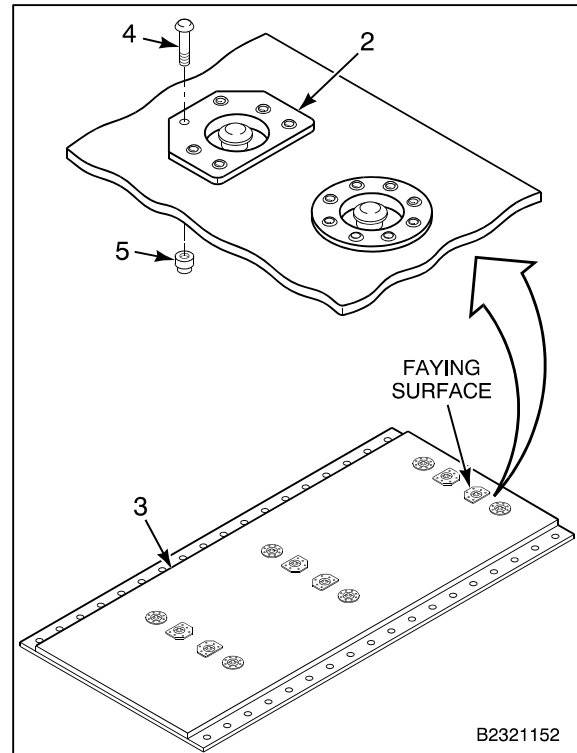
1. Cut collar off of lockbolt (1) in six (*four*) places on adapter (2).
2. Punch out lockbolt (1) from adapter (2).
3. Remove adapter (2) from floor panel (3).



B2321151

INSTALL CENTER RAMP FLOOR ADAPTER 145SK262-3 AND FDC-4145

4. Clean faying surface of floor panel (3) with acetone (E20) and clean dry cloth (E120). Use gloves (E186).
5. Apply sealant (E336 or E470) to faying surface of adapter (2).
6. Install adapter (2) in floor panel (3) with six (*four*) lockbolts (4) and collars (5) wet with sealant (E336 or E470).
7. Use cloth (E120) to wipe away any excess sealant.



B2321152

FOLLOW-ON MAINTENANCE:

Cargo ramp center floor panel installed (Task 2-249).

END OF TASK

2-247 REMOVE RAMP FLOOR PANELS

2-247

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

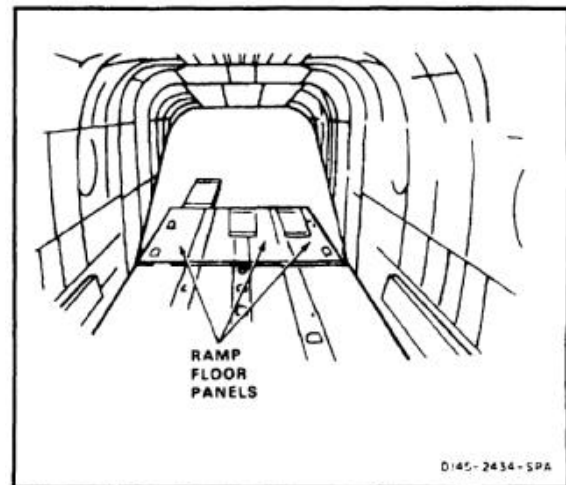
None

Personnel Required:

Medium Helicopter Repairer

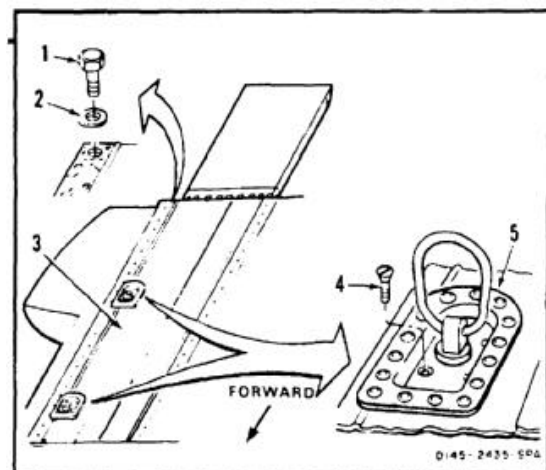
Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Cargo Ramp Lowered and Right Cargo Ramp
 Extension Unfolded (TM 55-1520-240-T)

**NOTE**

Procedure is same for all ramp floor panels. Right floor panel is shown here.

1. Remove 62 bolts (1) and washers (2) from panel (3).
2. Remove eight screws (4) from two tiedown adapters (5).
3. Pull panel (3) forward and remove panel.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

Task 2-254

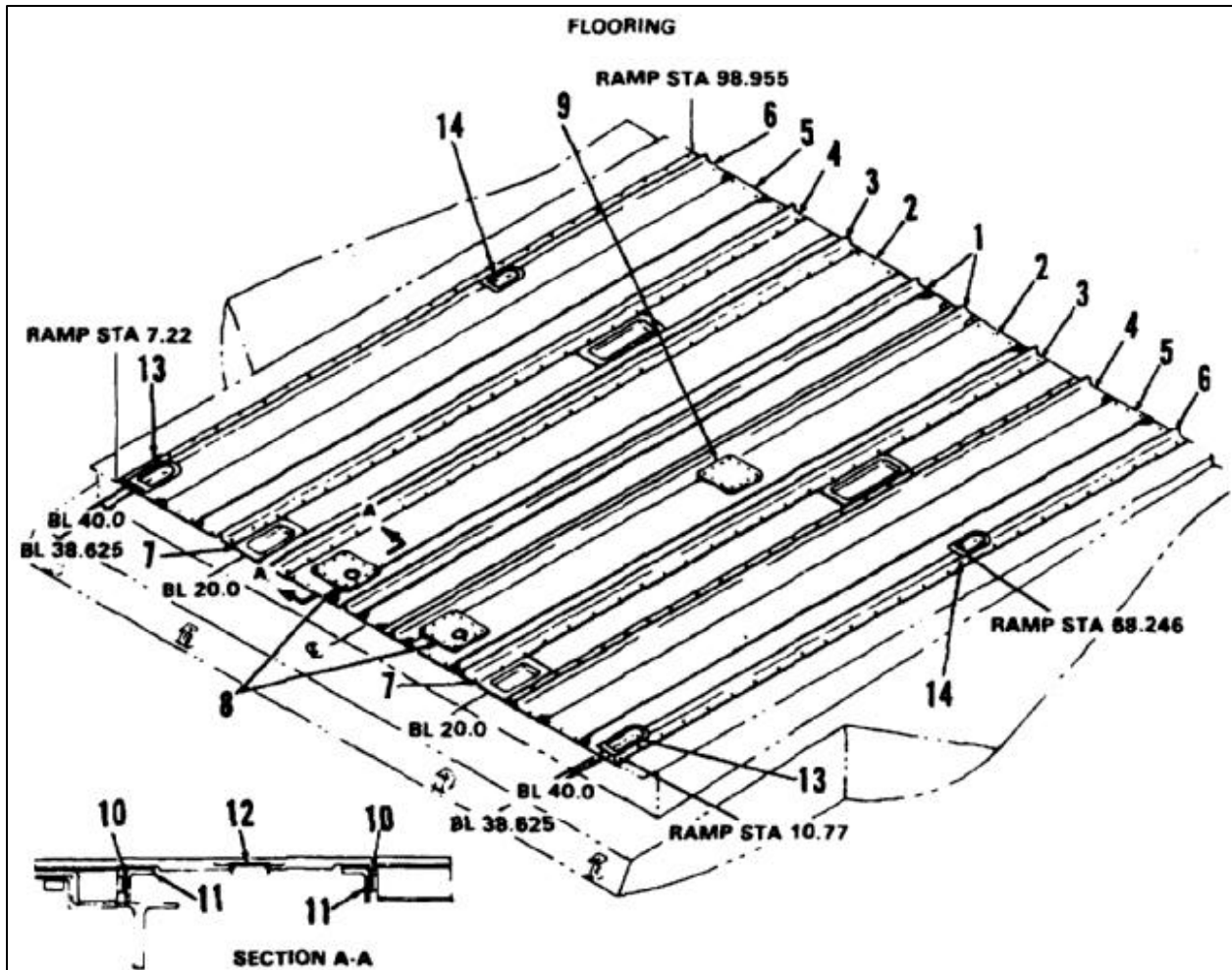
Equipment Condition:

As Required

General Safety Instructions:

As Required

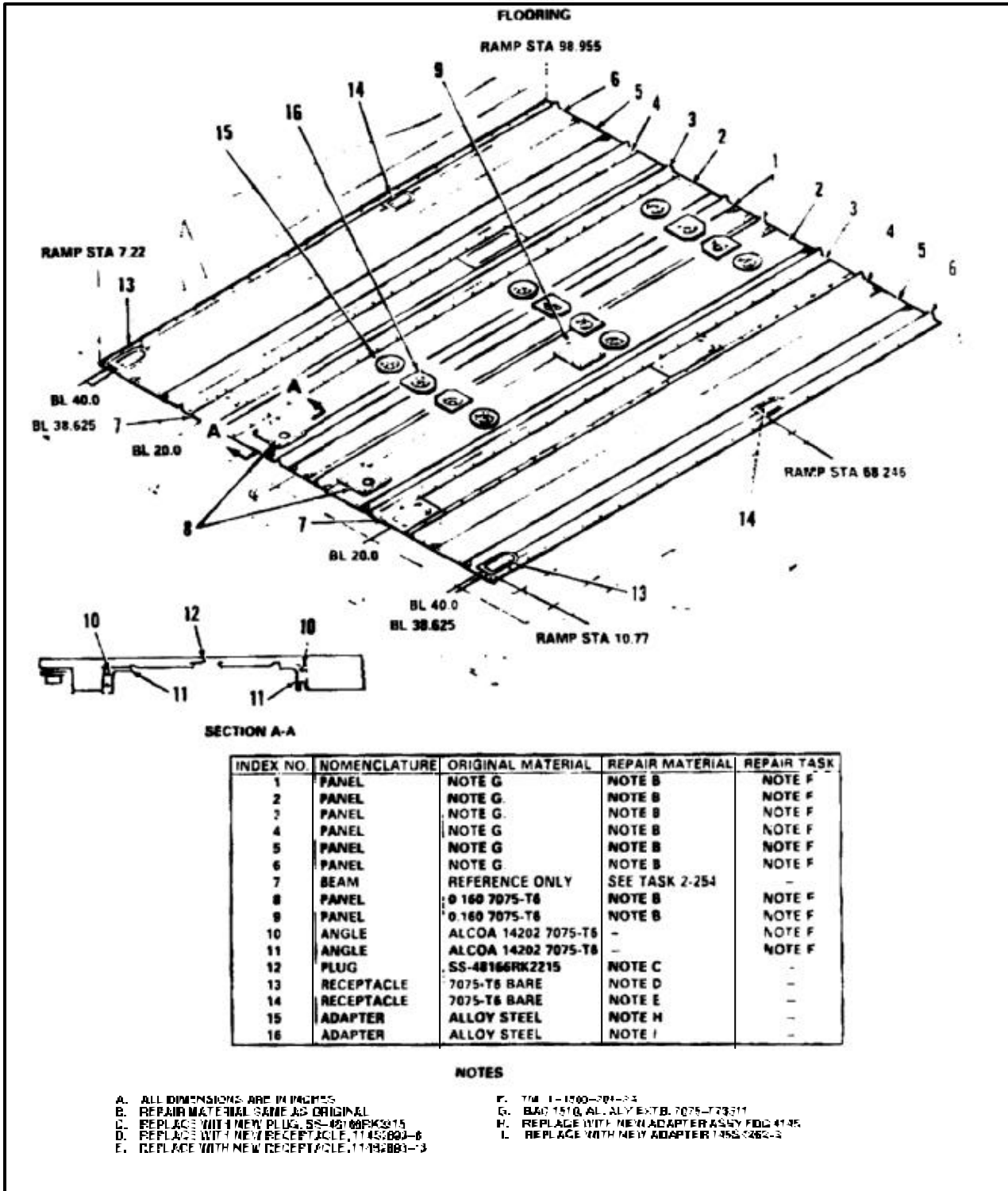
1. Burnish nicks, dents, and scratches (Task 2-254).
2. Plug holes not larger than **1/4 inch** diameter with type B rivets.
3. Make sure repairs clear each bolt, rivet, and radius by **3/4 inch**, and do not interfere with ramp operation.



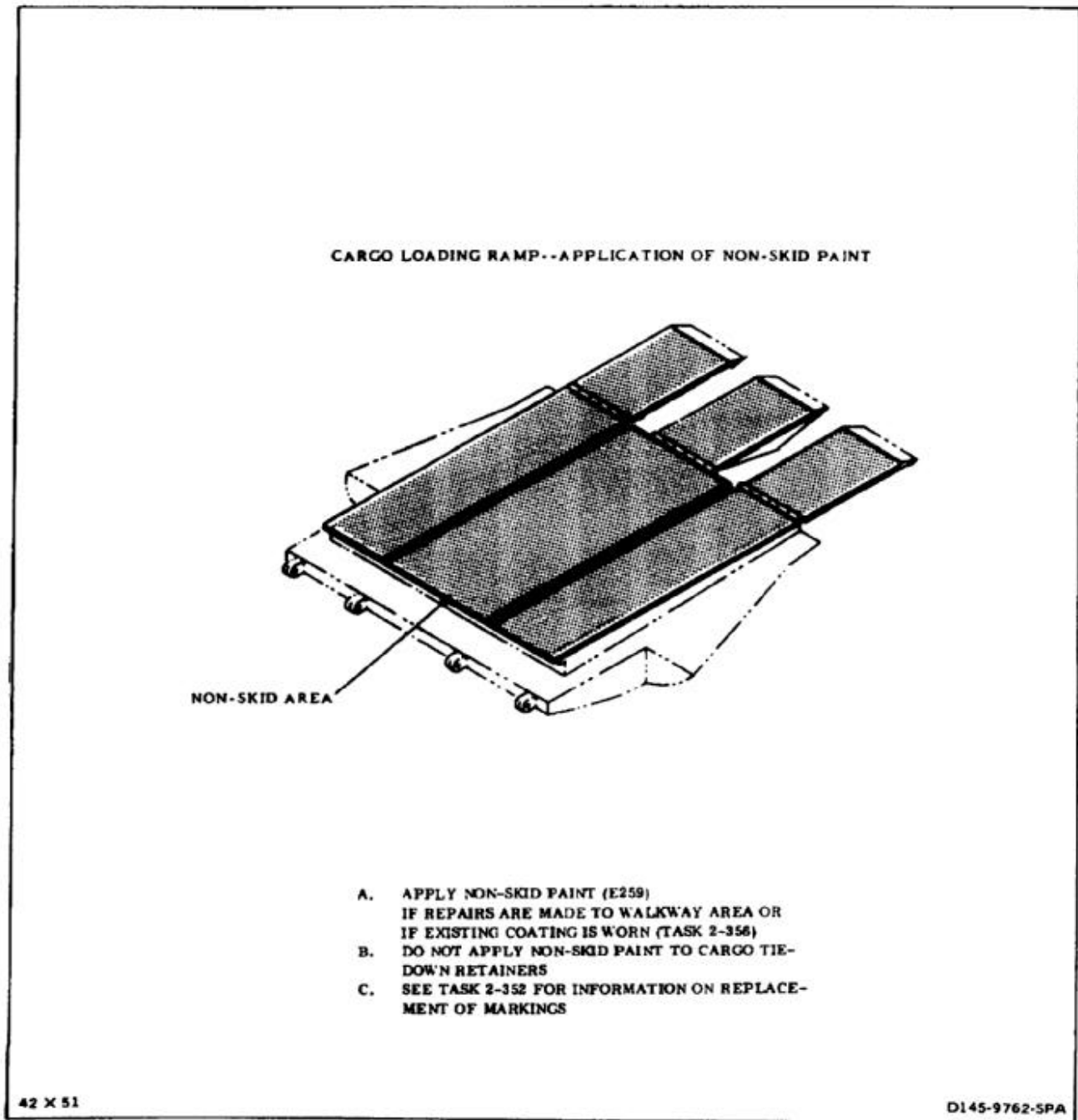
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	PANEL	VS90578 MAG ZK 60A-T5	NOTE B.	NOTE F.
2	PANEL	VS90579 MAG ZK 60A-T5	NOTE B.	NOTE F.
3	PANEL	VS90578 MAG ZK 60A-T5	NOTE B.	NOTE F.
4	PANEL	VS90558 MAG ZK 60A-T5	NOTE B.	NOTE F.
5	PANEL	VS90557 MAG ZK 60A-T5	NOTE B.	NOTE F.
6	PANEL	VS90558 MAG ZK 60A-T5	NOTE B.	NOTE F.
7	BEAM	REFERENCE ONLY	SEE TASK 2-254	—
8	PANEL	0.180 7075-T6	NOTE B.	NOTE F.
9	PANEL	0.180 7075-T6	NOTE B.	NOTE F.
10	ANGLE	ALCOA 14202 7075-T6	—	NOTE F.
11	ANGLE	ALCOA 14202 7075-T6	—	NOTE F.
12	PLUG	SS-48166RK2215	NOTE C.	—
13	RECEPTACLE	7075-T6 BARE	NOTE D.	—
14	RECEPTACLE	7075-T6 BARE	NOTE E.	—

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. REPAIR MATERIAL SAME AS ORIGINAL
- C. REPLACE WITH NEW PLUG, SS-48166RK2215
- D. REPLACE WITH NEW RECEPTACLE, 114S2893-6
- E. REPLACE WITH NEW RECEPTACLE, 114S2893-13
- F. 7075-T6 BARE



Cargo Loading Ramp Assembly Flooring Repairs (Aluminum) (Sheet 2 of 3)



Cargo Loading Ramp Assembly Flooring Repairs (Magnesium) (Sheet 3 of 3)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Gloves (E186)

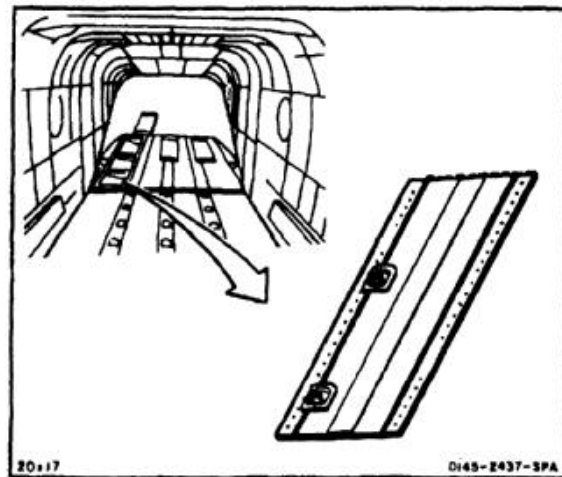
Primer (E291)

Personnel Required:

Medium Helicopter Repairer

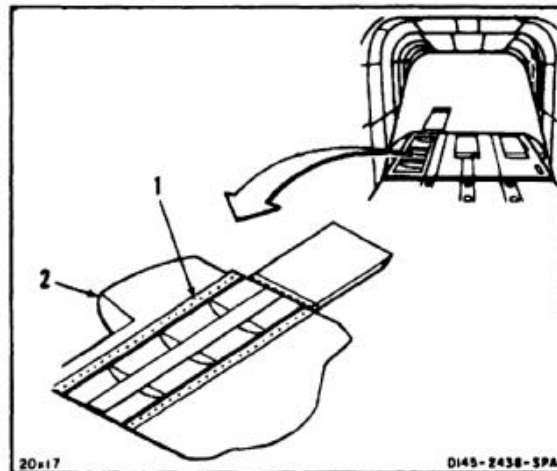
References:

TM 55-1520-240-23P

**NOTE**

Procedure is same for all ramp floor panels. Right floor panel is shown here.

1. Make sure faying surface seal (1) on ramp (2) is not cut or cracked. If bad, replace seal.

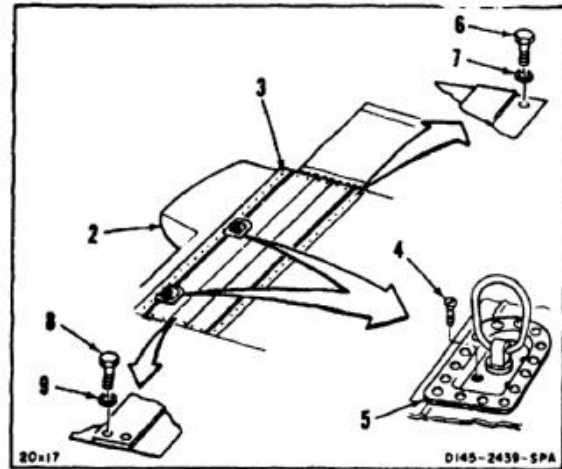


2. Position panel (3) on ramp (2).

WARNING

Primer (E291) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flames. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

3. Spray eight screws (4) with primer (E291). Install screws wet with primer in adapter (5). Wear gloves (E186).
4. Install 53 bolts (6) and washers (7) in panel (3).
5. Install nine bolts (8) and washers (9).



FOLLOW-ON MAINTENANCE:

Right cargo ramp extension folded (Task 2-255).
Cargo ramp raised (TM 55-1520-240-T).

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer

1. Burnish nicks and scratches. Do not exceed **10 percent** of material thickness after burnishing (Tasks 2-12 and 2-254).
2. Stop drill cracks and patch holes. Use criteria in Task 2-12 and do not exceed limits.
3. Damage shall clear bolts, rivets, and radii **3/4 inch** minimum.

FOLLOW-ON MAINTENANCE:

As Required

References:Task 2-12
Task 2-254**Equipment Condition:**

As Required

General Safety Instructions:

As Required

END OF TASK

2-848

2-251 RAMP REPAIRABLE DAMAGE

2-251**INITIAL SETUP****Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-13
Task 2-254
Task 2-324**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Repair damage more than minor, but not affecting more than **25 percent** of skin area, between boundary members after repair steps (Tasks 2-13 and 2-254).
2. Seal external repairs watertight (Task 2-324).
3. If damage exceeds minor limits, but not more than **one-half** the cross section of a web, repair by patching (Task 2-13).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

With **22**

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Pencil Compass
 Straightedge
 Heat Lamp
 Scissors
 Trip Balance, NSN 6670-00-401-7195
 Electric Drill
 Drill Bits
 Shot Bags
 Vacuum Cleaner
 Craftsman's Knife
 Chisel
 Vacuum Pump
 Bond Test Unit

Materials:

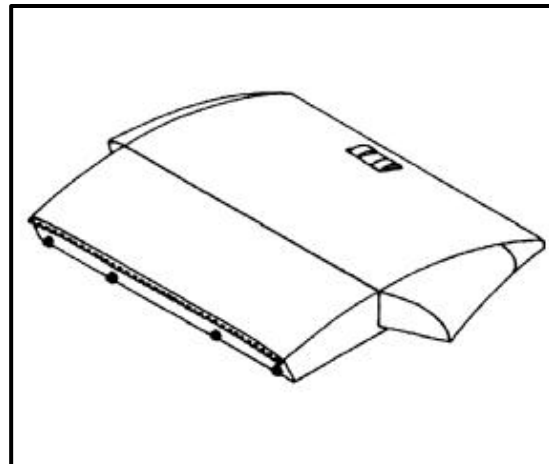
Abrasive Paper (E6 thru E9)
 Acetone (E20)
 Cloth (E120)
 Peel Ply (E270)
 Gloves (E186)
 Glass Cloth (E130 and E132)
 Teflon-Impregnated Fabric (E170)
 Nomex Honeycomb Core (E150.3 or E150.1)
 Fiberglass Laminate (E168.1)
 Rubber Pad (E318)
 Masking Tape (E388)
 Sealing Tape (E396)
 Nylon Tape (E390.1)
 Adhesive (E27, E41, or E47.1)
 Hardener (E194.1)
 Wood Spatula (E424)
 Temperature Indicating Strips (E413)
 Polyethylene Cup (E157)
 Polyvinyl Sheet (E284)
 Hypodermic Syringe (E380)
 Plastic Squeeze Bottle (E366)

Personnel Required:

Aircraft Structure Repairer
 Inspector

References:

TM 55-1520-240-23P
 TM 1-1520-253-23

**Equipment Condition:**

Off Helicopter Task
 Cargo Door Removed (Task 2-260)

General Safety Instructions:**WARNING**

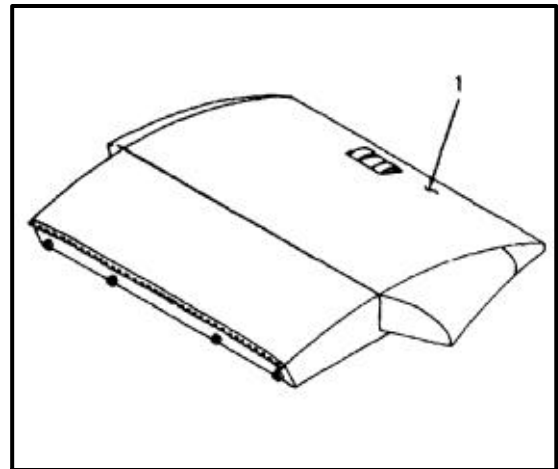
Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Adhesives (E27, E41, and E47.1) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Repair of composite cargo ramp skin (1) includes the following procedures:

Damage	Steps
Surface Abrasion	2-9
Bond Void (to 2 square-inches)	10-20
Bond Void (Over 2 square-inches)	21-44
Puncture Through One Skin and Core (to 1 square-inch)	45-56
Puncture Through One Skin and Core (Over 1 square-inch)	57-61
Puncture Through Both Skins and Core (to 1 square-inch)	62-73
Puncture Through Both Skins and Core (Over 1 square-inch)	74-87



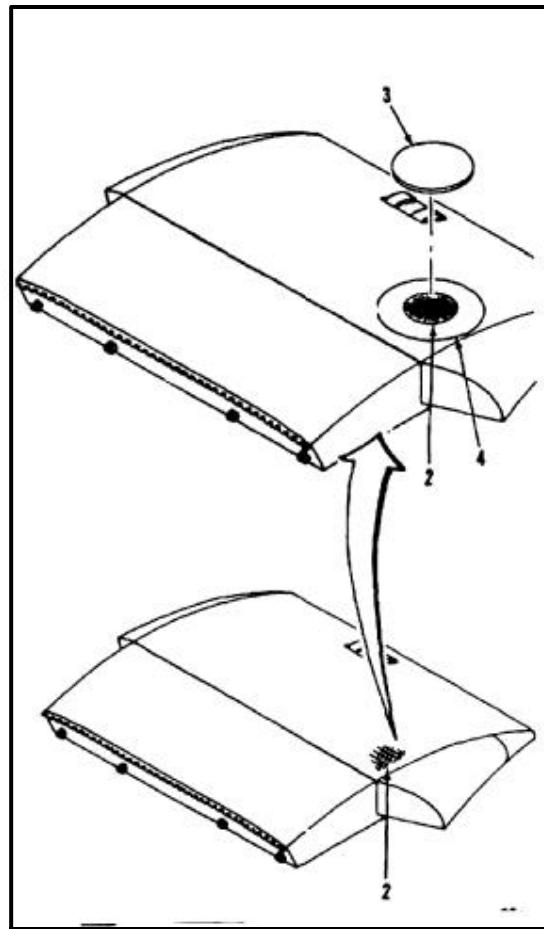
SURFACE ABRASION

2. Outline area of damage (2) with circle or oblong. Use pencil compass and straightedge.
3. Cut a piece of fiberglass laminate (E168.1) (3) large enough to overlap outline of damaged area (2) by **1.0 inch** in all directions.

NOTE

Do not sand into glass fibers.
Complete removal of primer is not necessary.

4. Remove finish down to primer from an area around damage (2) **1.5 inches** larger in all directions than damage. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
5. Clean area of finish removal (4). Use clean cloth (E120) damp with acetone (E20). Wipe area dry with a clean cloth. Repeat until there is no residue on dry cloth.
6. Prepare adhesive mixture. (Refer to steps 88 thru 91.) Apply coat of adhesive to area of finish removal (4).
7. Remove protective film from both sides of laminate piece (3). Carefully pull at right angle to direction of fibers.
8. Apply coat of adhesive to underside of laminate piece (3). Center piece over damage (2) and press down.
9. Bond and cure repair. (Refer to steps 92 thru 104.)



BOND VOID (TO 2 SQUARE-INCHES)

10. Determine extent of void (5) by tapping area with coin. Outline area of void with circle or oblong. Use pencil compass and straightedge. If a void in the cargo ramp is suspected, refer to TM 1-1520-253-23.

NOTE

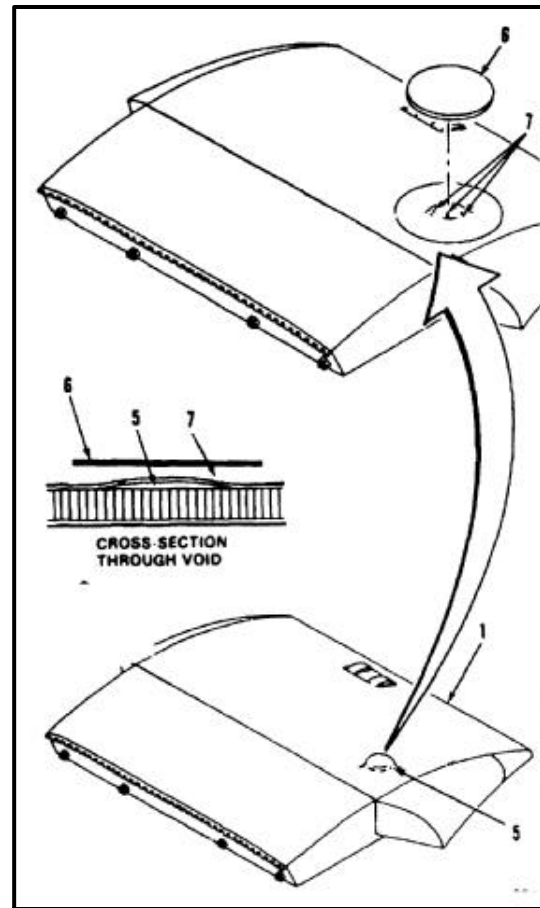
If area of void is greater than **2 square-inches**, go to step 40.

11. Cut a piece of fiberglass laminate (E168.1) (6) large enough to overlap outline of void (5) by **1.0 inch** in all directions.

NOTE

Do not sand into glass fibers.
Complete removal of primer is not necessary.

12. Remove finish down to primer from an area **1.5 inches** larger in all directions than outline of void (5). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
13. Drill several small holes (7) through void (5) near edge. Use a number 30 or 40 drill.
14. Clean area with a clean cloth (E120) damp with acetone (E20). Wipe area dry with clean dry cloth.
15. Prepare mixture of adhesive. (Refer to steps 88 thru 91.) Inject adhesive into void (5) through holes (7) until void is full. Use hypodermic syringe (E380).
16. Cover holes (7) with tape (E390.1). Turn cargo ramp (1) over to prevent adhesive from running into core.
17. Press down firmly on void (5). Let excess adhesive squeeze out through holes (7).
18. Remove protective film from both sides of laminate piece (6). Carefully pull at right angle to direction of fibers.
19. Apply coat of adhesive to underside of laminate piece (6). Center piece over void (5) and press down.
20. Bond and cure repair. (Refer to steps 92 thru 104.)



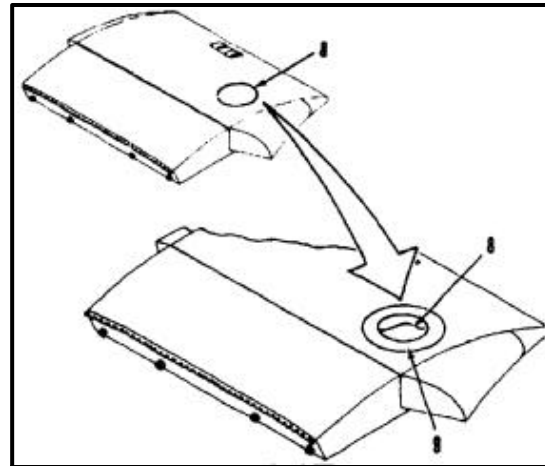
BOND VOID (OVER 2 SQUARE-INCHES)

21. Determine extent of void (8) by tapping area with coin. Outline area of void with a circle or oblong. Use pencil compass or straightedge. If a void in the cargo ramp is suspected, refer to TM 1-1520-253-23.

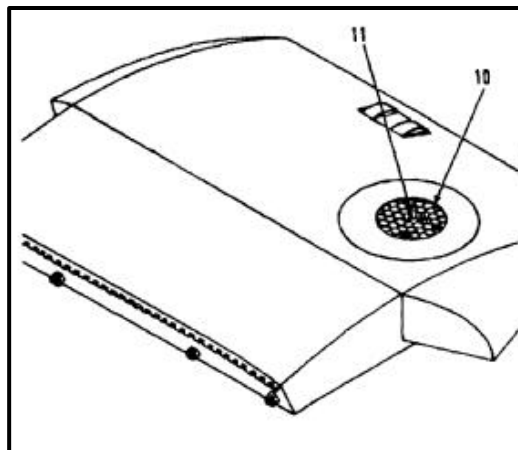
NOTE

Do not sand into glass fibers.
Complete removal of primer is not necessary.

22. Remove finish to primer from an area **1.5 inches** larger in all directions than outline (9). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).

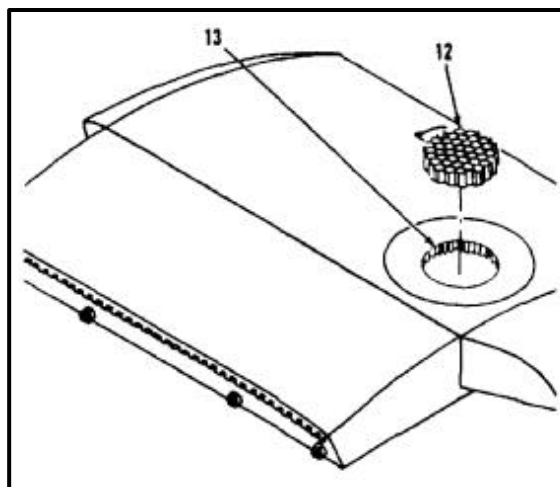


23. Cut away unbonded skin. Use craftsman's knife.
24. Examine exposed core material (10). If core is not damaged, clean the core and surrounding area with clean cloths (E120) damp with acetone (E20). Wipe dry with clean dry cloth. Go to step 33.
25. If core (10) is damaged, cut out core to layer of adhesive on opposite skin (11). Use craftsman's knife and chisel. Be careful not to damage skin.
26. Roughen surface of adhesive on opposite skin (11) to remove gloss.

**NOTE**

Core material must be clean and dry
for adhesive to hold.

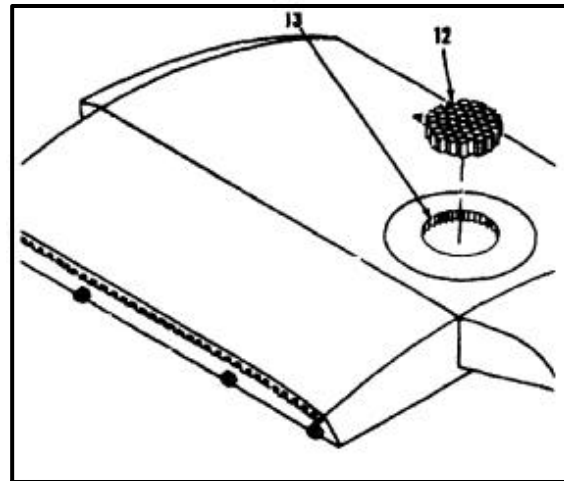
27. Cut core plug (12) in shape of cavity (13) but **0.125 inch** larger all around. Use core material (E150.3 or E150.1).
28. Fit core plug (12) into cavity (13) to check fit.



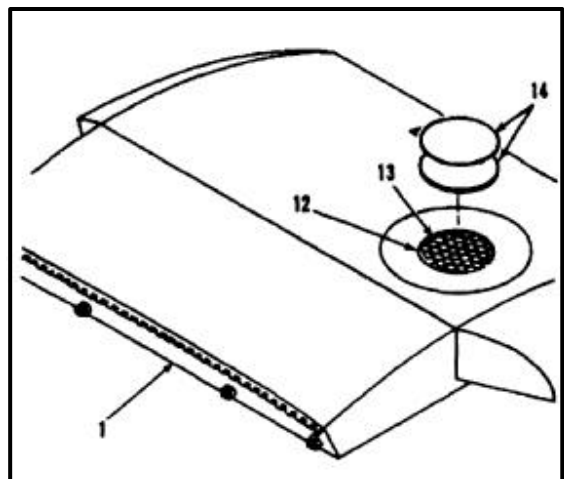
2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued)

2-251.1

29. Remove plug (12).
30. Clean cavity (13), surrounding area, and core plug (12). Use a vacuum cleaner and a clean cloth (E120) damp with acetone (E20). Wipe dry with a clean dry cloth. Repeat until there is no residue on dry cloth.
31. Prepare mixture of adhesive. (Refer to steps 88 thru 91.) Apply coat of adhesive to sides and bottom of cavity (13).
32. Apply coat of adhesive to sides and bottom of core plug (12). Set plug in cavity (13).



33. Cut two pieces of fiberglass laminate (E168.1) (14) to fit in cavity (13) over core (12).
34. Check that pieces (14) fit flush with ramp (1). Remove pieces.
35. Remove protective film from both sides of two laminate pieces (14). Carefully pull at right angle to direction of fibers.
36. Prepare mixture of adhesive. (Refer to steps 88 thru 91.)
37. Coat underside of one piece (14) with adhesive. Press piece against plug (12) in cavity (13).
38. Apply coat of adhesive to top of installed piece (14) and underside of second piece. Install second piece in cavity over first piece. Press against piece to seat it flush with ramp (1).

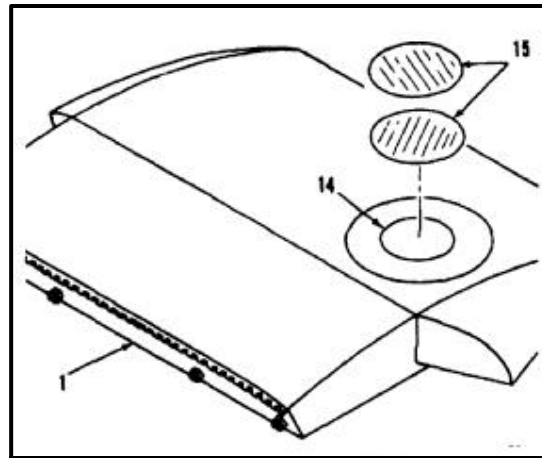


39. Cut two pieces of fiberglass laminate (E168.1) (15) large enough to overlap laminate piece (14) **1.0 inch** in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be **45°** when they are installed.
40. Apply coat of adhesive to top of laminate piece (14) and to surrounding area of ramp (1) within **0.5 inch** of finish removal line.
41. Remove protective film from each side of two fiberglass laminate pieces (15). Carefully pull at right angle to direction of fibers.

NOTE

Laminate pieces must be installed so that fiber orientation between the two pieces will be **45°** when they are installed.

42. Coat underside of one laminate piece (15) with adhesive. Center piece over repair area and press in place.
43. Apply adhesive to top of installed piece (15) and underside of second piece. Position second piece on first and press in place.
44. Bond and cure repair. (Refer to steps 92 thru 104.)



PUNCTURE THROUGH ONE SKIN AND CORE (TO 1 SQUARE-INCH)

45. Outline area of puncture (16) with circle or oblong. Use pencil compass and straightedge.
46. Remove finish down to primer from an area **1.5 inches** larger in all directions than outline around puncture (16). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
47. Prepare mixture of adhesive. (Refer to steps 88 thru 91.) Fill puncture (16) with adhesive mixture to surface of cargo ramp (1).



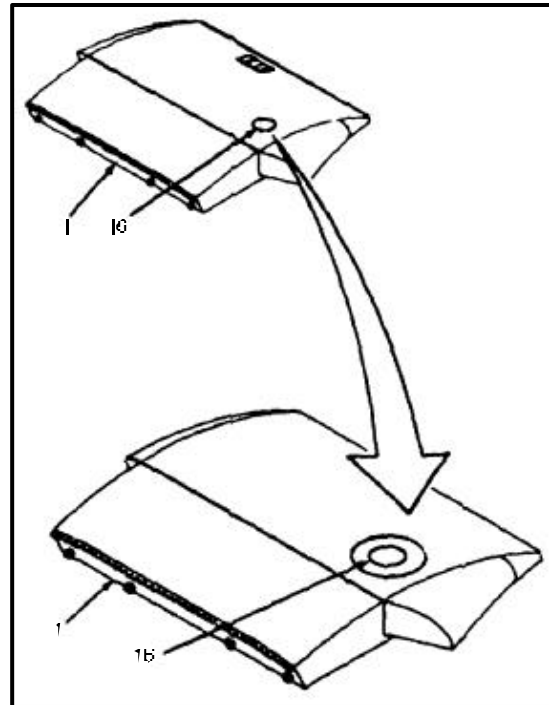
Do not heat ramp surface over **160°F (71°C)**. Higher temperatures can damage cover.

48. Cure adhesive at **140° to 160°F (60° to 71°C) for 2 hours**. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at **70° to 80°F (21° to 27°C) in 24 hours**.

49. Fair cured adhesive to surface of ramp (1). Use abrasive paper (E9).
50. Clean area of finish removal. Use clean cloth (E120) damp with acetone (E20). Wipe area dry with clean dry cloth. Repeat until there is no residue on dry cloth.

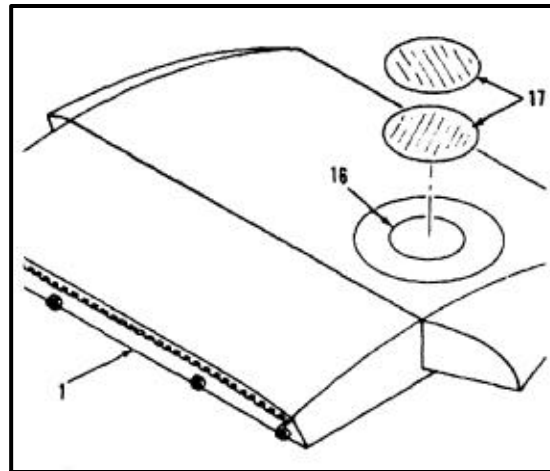


51. Cut two pieces of fiberglass laminate (E168.1) (17) large enough to overlap puncture (16) **1.0 inch** in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be **45°** when they are installed.
52. Apply coat of adhesive to top of filled puncture (16) and to surrounding area of cargo ramp (1) to within **0.5 inch** of finish removal line.
53. Remove protective film from each side of two fiberglass laminate pieces (17). Carefully pull at right angle to direction of fibers.

NOTE

Laminate pieces must be installed so that fiber orientation between the two pieces will be **45°** when they are installed.

54. Coat underside of one laminate piece (17) with adhesive. Center piece over repair area and press in place.
55. Apply adhesive to top of installed piece (17) and underside of second piece. Position second piece on first and press in place.
56. Bond and cure repair. (Refer to steps 92 thru 104.)



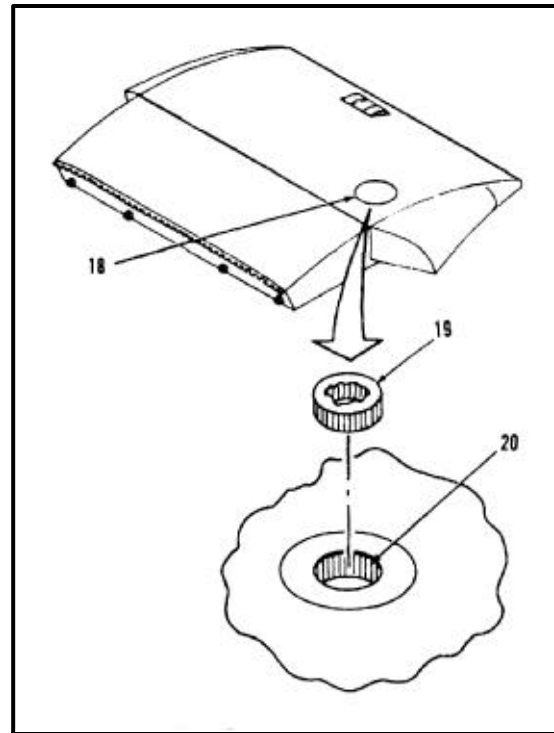
PUNCTURE THROUGH ONE SKIN AND CORE (OVER 2 SQUARE-INCHES)

57. Outline area of puncture (18) with a circle or oblong. Use pencil compass and straightedge.

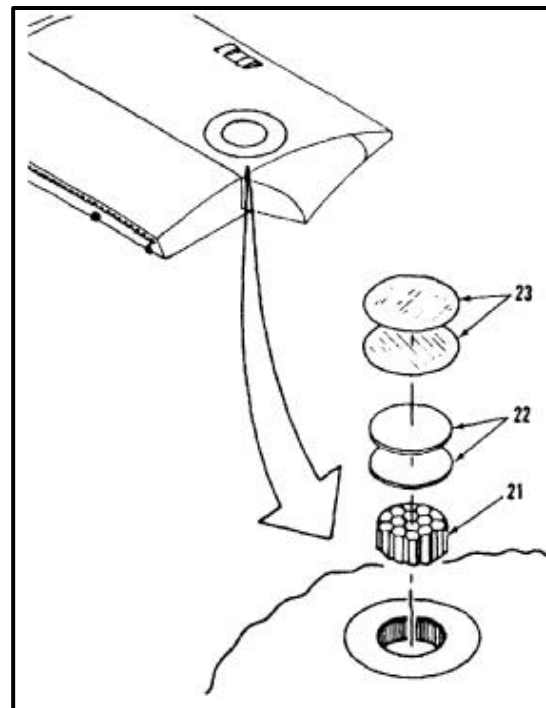
NOTE

Do not sand into glass fibers.
Complete removal of primer is not necessary.

58. Remove finish to primer from an area **1.5 inches** larger in all directions than outline. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
59. Cut out punctured skin and core plug (19) to layer of adhesive on opposite skin (20). Use craftsman's knife and chisel. Be careful not to damage skin.
60. Roughen surface of adhesive on opposite skin (20) to remove gloss.



61. Complete repair with core plug (21) and fiberglass laminate (22 and 23). (Refer to steps 27 thru 44.)



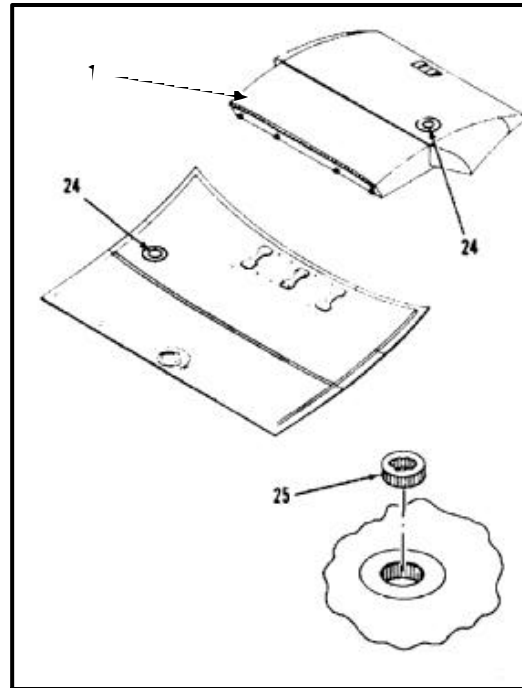
PUNCTURE THROUGH BOTH SKINS AND CORE (UP TO 2 SQUARE-INCHES)

- 62. Outline area of puncture (24) on both sides of ramp (1) with a circle or oblong. Use pencil compass and straightedge.

NOTE

Do not sand into glass fibers.
Complete removal of primer is not necessary.

- 63. Remove finish down to primer from an area on both sides of ramp (1) **1.5 inches** larger in all directions than outline. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
- 64. Cut out punctured skin and core plug (25). Work from both sides of ramp (1) as needed. Use craftsman's knife.



- 65. Cover cutout (26) on top of ramp (1). Use nylon tape (E390.1) (27).
- 66. Prepare mixture of adhesive. (Refer to steps 88 thru 90.) Fill cutout (26) from bottom of ramp to bottom surface (28) with adhesive (29).



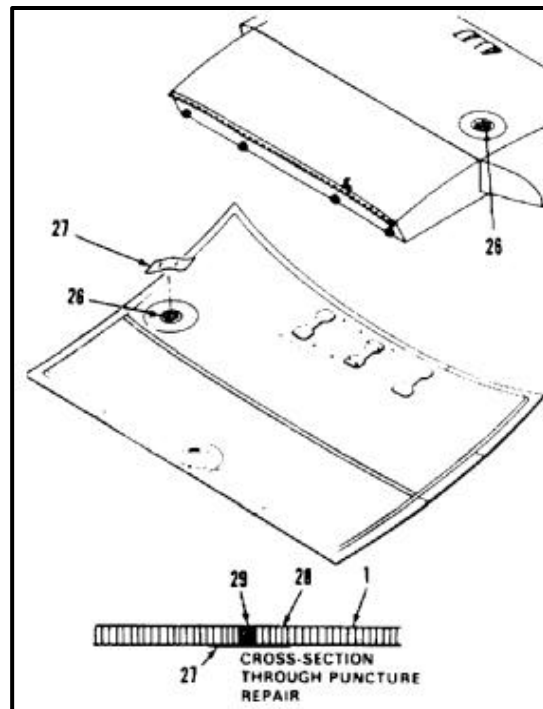
Do not heat ramp surface over **160°F (71°C)**. Higher temperatures can damage ramp.

- 67. Cure adhesive at **140° to 160°F (60° to 71°C) for 2 hours**. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at **70° to 80°F (21° to 27°C) in 24 hours**.

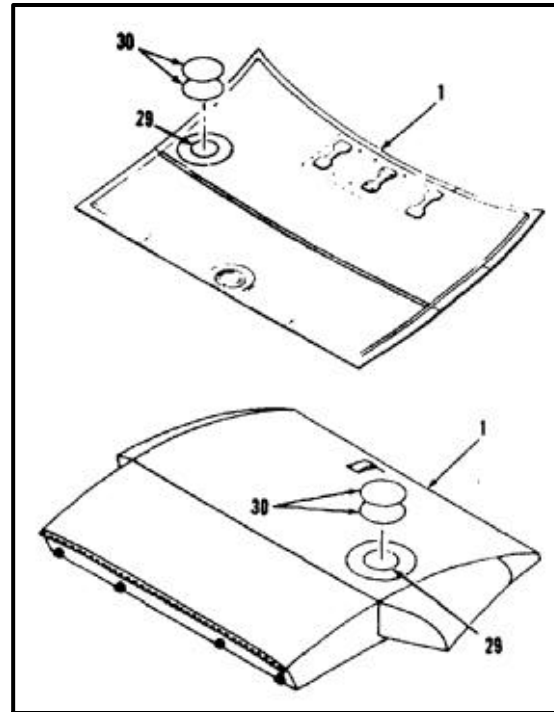
- 68. Remove tape (27). Fair cured adhesive to surface of ramp (1) on top and bottom. Use abrasive paper (E9).



2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued)

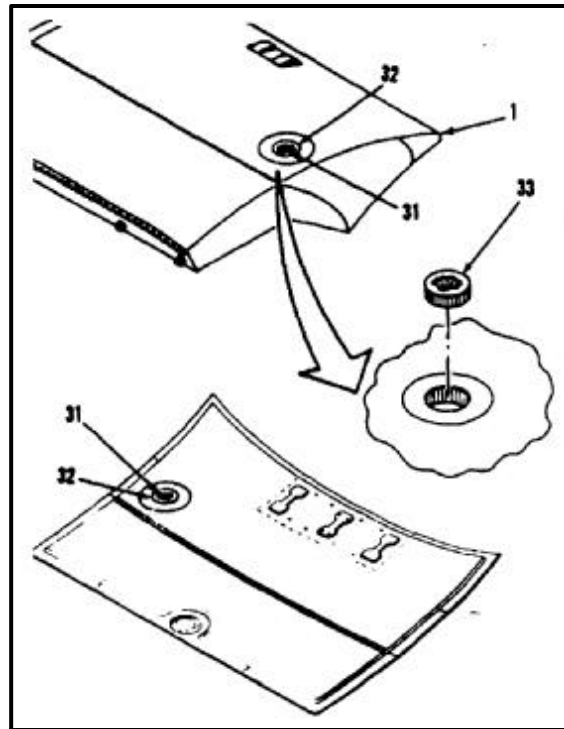
2-251.1

69. Clean area of finish removal on both sides of ramp (1). Use clean cloths (E120) damp with acetone (E20). Wipe area dry with clean dry cloth. Repeat until there is no residue on dry cloth.
70. Cut two pieces of fiberglass laminate (E168.1) (30) for each side of repair large enough to overlap adhesive (29) **1.0 inch** in all directions.
71. Prepare new mixture of adhesive. (Refer to steps 88 thru 91.)
72. Cover each side of puncture repair as follows:
 - a. Apply a coat of adhesive to cured adhesive (29) and area of finish removal.
 - b. Remove protective film from each side of two fiberglass laminate pieces (30). Carefully pull at right angle to direction of fibers.
 - c. Center one piece (30) over repair. Press down against ramp (1).
 - d. Apply adhesive over installed piece (30). Position second piece on installed piece so that fiber orientation between pieces is **45°**. Press down against installed piece.
73. Bond and cure repair. (Refer to steps 92 thru 104.)

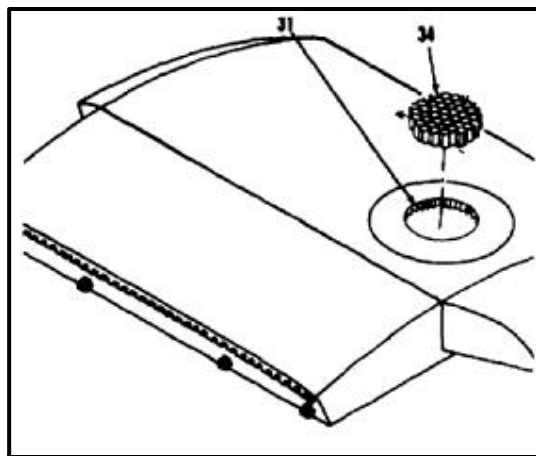


**PUNCTURE THROUGH BOTH SKIMS AND CORE
(OVER 1 SQUARE-INCH)**

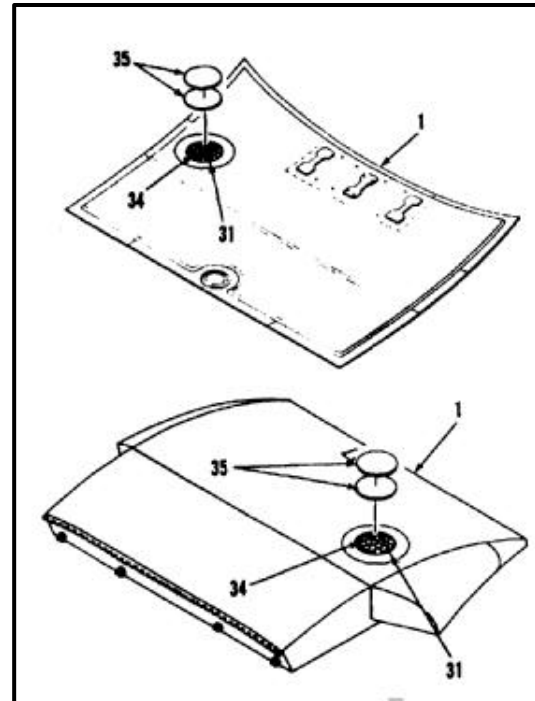
74. Outline area of puncture (31) on both sides of ramp (1) with a circle or oblong. Use pencil compass and straightedge.
75. Remove finish from an area on both sides of ramp (1) **1.5 inches** larger in all directions than puncture outline (32). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
76. Cut out punctured skin and core plug (33). Work from both sides of ramp (1) as needed. Use craftsman's knife.



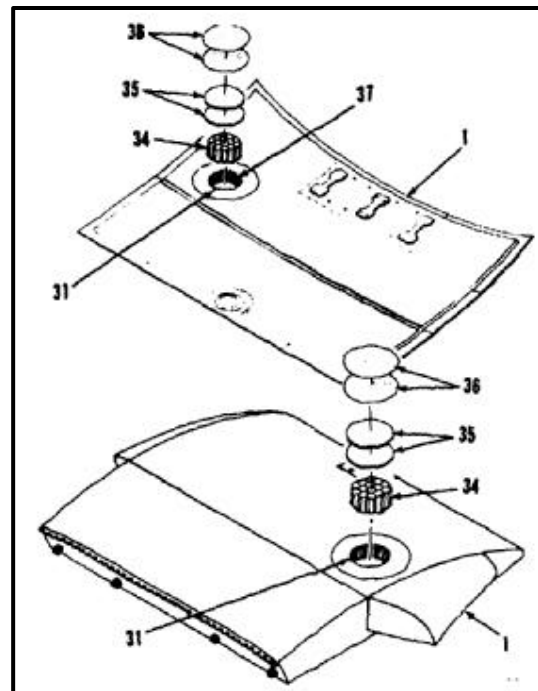
77. Cut new core plug (34) in shape of cutout (31) but **0.125 inch** larger all around. Use core material (E150.3).
78. Fit core plug (34) into cutout (31).



79. Cut two pieces of fiberglass laminate (E168.1) (35) to fit cutout (31) at top and bottom of ramp (1).
80. Check that pieces of laminate (E168.1) (35) fit against installed core plug (34) flush with ramp (1) on both sides. Remove laminate and plug.



81. Cut two pieces of fiberglass laminate (E168.1) (36) for each side of ramp (1) large enough to overlap cutout (31) **1.0 inch** in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be **45°** when they are in position.
82. Clean cutout (31) and surrounding area, core plug (34), and laminate (35). Use clean cloths (E120) damp with acetone (E20). Wipe dry with a clean dry cloth. Repeat until there is no residue on dry cloth.
83. Prepare mixture of adhesive. (Refer to steps 88 thru 91.)
84. Apply coat of adhesive to sides of core plug (34). Set plug in cutout (31) flush with surrounding core (37). Align matchmarks, if applicable.
85. Install laminate pieces (35) over core (34) on each side of ramp (1) as follows:
 - a. Remove protective film from each side of two fiberglass laminate pieces (35). Carefully pull at right angle to direction of fibers.
 - b. Apply a coat of adhesive to underside of one installed piece (35). Press piece against plug (34).
 - c. Apply coat of adhesive to top of installed piece (35) and underside of second piece. Press against second piece to firmly seat flush with surrounding skin of ramp (1).

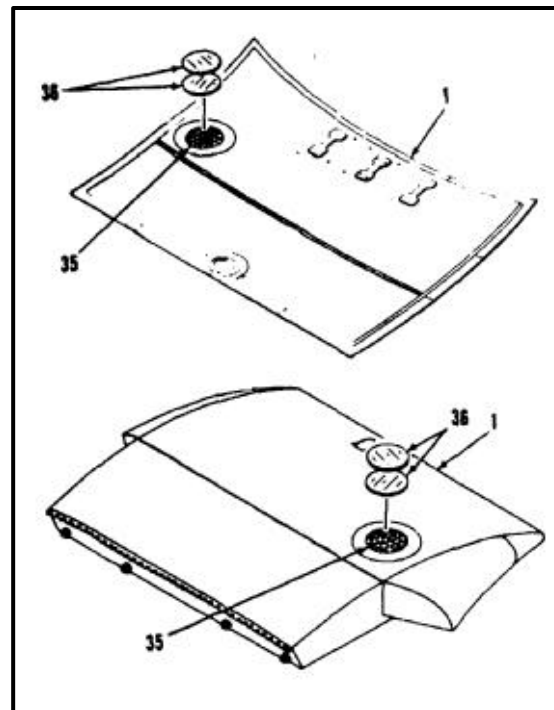


86. Cover each side of repair as follows:
- Apply coat of adhesive to top of laminate piece (35) and to surrounding area of ramp (1) within **0.5 inch** of finish removal line.
 - Remove protective film from each side of two fiberglass laminate pieces (36). Carefully pull at right angle to direction of fibers.

NOTE

Laminate pieces must be installed so that fiber orientation between the two pieces will be at **45°** when the pieces are installed.

- Coat underside of one laminate piece (36) with adhesive. Center piece over repair area and press in place.
 - Apply coat of adhesive to top of installed piece (36) and underside of second piece. Position second piece on first piece and press it in place.
87. Bond and cure repair. (Refer to steps 92 thru 104.)



ADHESIVE PREPARATION

88. Use any of three adhesive mixtures for repair of ramp.

NOTE

All three adhesives cure in **2 hours at 150° to 160°F (66° to 71°C)**. A serviceable cure can be achieved at **70° to 80°F (21° to 27°C) in 24 hours**. Pressure may be removed after **2 hours**.

89. Mix adhesive (E41) as follows:
- Weigh **100 parts** of resin (pink paste) and **23 parts** of hardener (blue liquid). Use trip balance.
 - Mix parts in polyethylene cup (E157) until color is uniform dark pink. Use wood spatula (E424).

NOTE

Working life of adhesive (E41) is **30 minutes**.

90. Mix adhesive EC-2216 (E27) as follows:
- Weigh **7 parts** of Part A hardener (grey paste) and **5 parts** of Part B base (cream paste). Use trip balance.

NOTE

Working life of adhesive (E43) is **1 to 2 hours**.

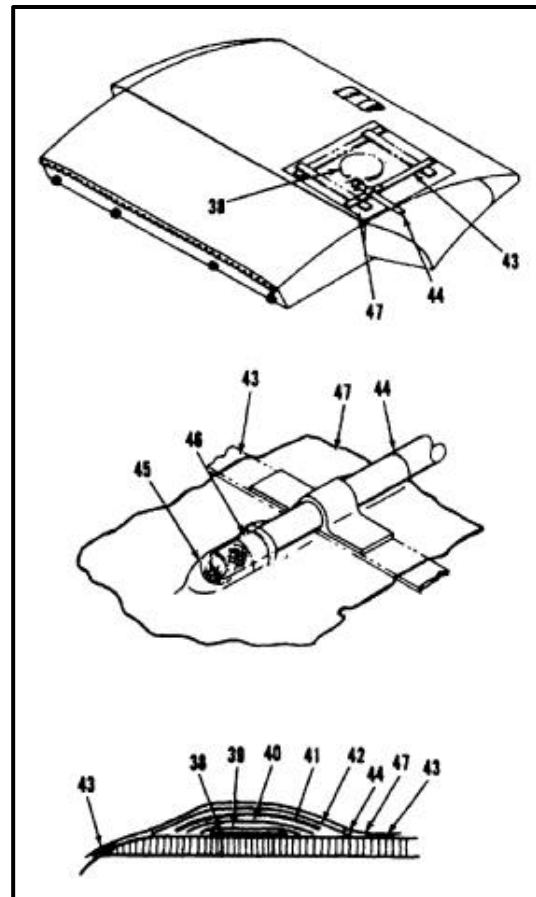
- Mix parts in polyethylene cup (E157) until color is uniform medium grey. Use wood spatula.
91. Mix adhesive EPON 828 (E47.1) and hardener Versamid 125 (E194.1) as follows:
- Weigh equal parts of adhesive (light amber resin) and hardener (dark amber resin). Use trip balance.
 - Mix parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424).

NOTE

Working life of adhesive is **1 hour**.

BOND AND CURE REPAIR

92. Cover repair (38) with sheet of peel ply (E270) (39) and sheet of Teflon-impregnated fabric (E170) (40). Each sheet shall be large enough to overlap repair **1 inch** in all directions.
93. Cover Teflon-impregnated fabric (E170) (40) with rubber pad (E318) (41). Cover rubber pad with glass cloth (E132) (42).
94. Surround cloth (E132) (42) with border (43) of sealing tape (E396). Keep tape clear of cloth.
95. Attach tube (44) to vacuum pump hose. Wrap end of tube with two layers of glass cloth (E132) (45). Secure cloth to tube with masking tape (E388) (46).
96. Place tube (44) on glass cloth (E132) (42). Wrap tube with sealing tape (E396) where tube crosses border (43) of sealing tape (E396).
97. Press tube (44) against tape (43) to make an airtight seal. Check that glass cloth (45) on end of tube (44) is in direct contact with layer of glass cloth (42).
98. Cover area with polyvinyl sheet (E284) (47). Press sheet smoothly against tape (43) to make an airtight seal.
99. Start vacuum pump. Set pump for vacuum of about **30 inches Hg**.
100. Shut off pump. Vacuum shall not drop more than **5 inches Hg in 5 minutes**. Reposition polyvinyl sheet (47) or add tape (E396) (43) as needed.
101. Start pump again. Maintain vacuum of at least **20 inches Hg** throughout adhesive cure.





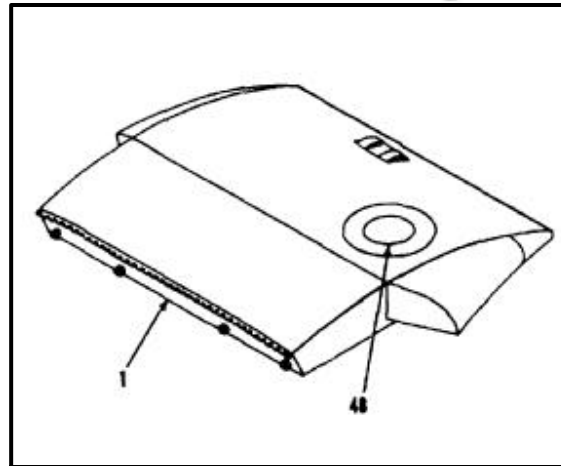
Do not exceed **160°F (71°C)** at surface of ramp. Damage to ramp can occur.

102. Cure adhesive at **140° to 160°F (60° to 71°C)** for **2 hours**. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at **70° to 80°F (21° to 27°C)** in **24 hours**. Vacuum may be removed after **2 hours**.

103. Turn off vacuum pump. Remove vacuum bagging materials.
104. Chamfer circumference of fiberglass laminate patch (48). Fair adhesive squeezeout to ramp (1) if needed. Use abrasive paper (E7).



INSPECT

FOLLOW-ON MAINTENANCE:

Refinish repaired area (Tasks 2-353 and 2-356).

END OF TASK

2-868

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Tiedown Cargo Strap (SP-4435-2)
Container, 2 Quart

Materials:

Cloths (E135)

Personnel Required:

Medium Helicopter Repairer (6)

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Ramp Extensions Removed (Task 2-251)
Cargo Ramp Down (TM 55-1520-240-T)
Landing Gear Shock Strut Covers Raised
Padded Support (Tires, Mattress or Similar) Under
Cargo Ramp

**WARNING**

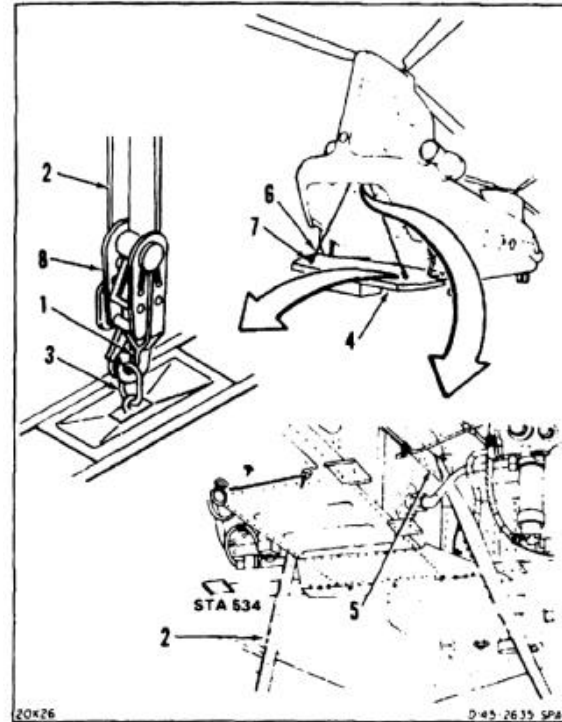
Padded support must be in place before strap is installed. Strap must not support full weight of ramp.

1. Attach ratchet-hook (1) of tiedown strap (2) to tiedown ring (3) on ramp (4).
2. Loop tiedown strap (2) up over sync shaft tunnel (5) at station 534.
3. Attach hook (6) of tiedown strap (2) to tiedown ring (7) on ramp (4).

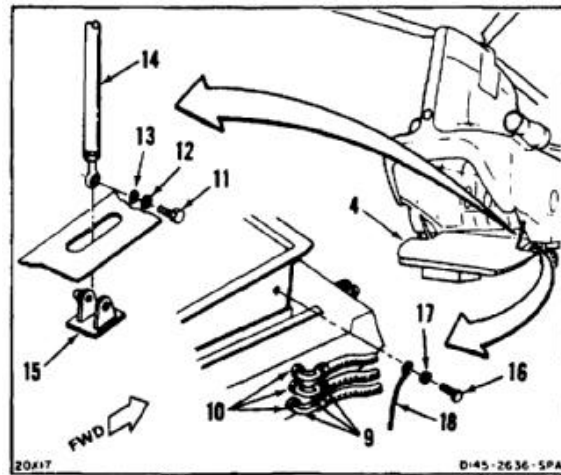
CAUTION

Do not allow strap to rub against tubing or lines. Damage to tubing or lines could occur.

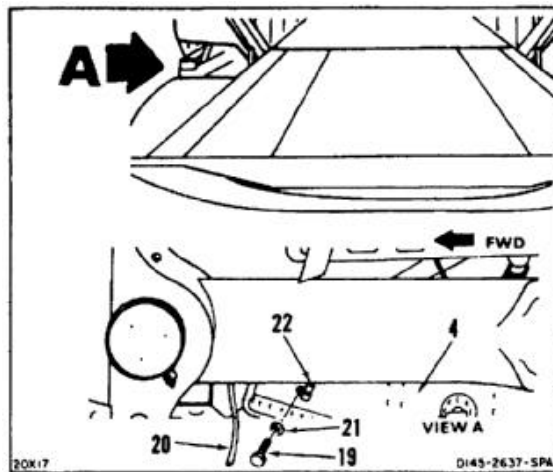
4. Take up slack in strap (2) only with ratchet (8).



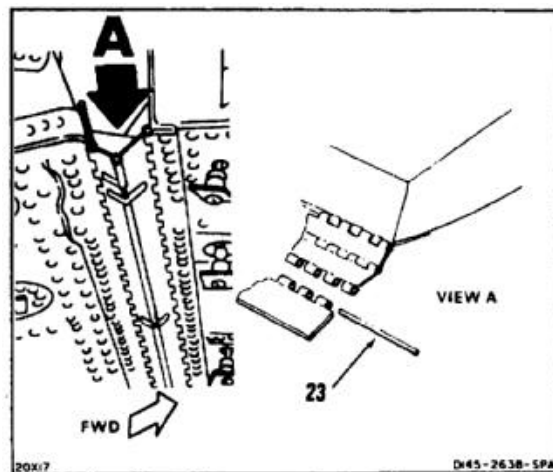
5. Disconnect three hydraulic hoses (9) from fittings (10) on ramp (4). Use container to catch fluid. Wipe up spilled fluid with cloths (E135).
6. Remove bolts (11), washers (12), and packing (13) from left and right actuator cylinders (14) and lower attach fittings (15).
7. Compress cylinders (14) to clear ramp (4).
8. Remove two screws (16) and washers (17) from left and right electrical leads (18). Disconnect electrical leads.



9. Remove screw (19), antenna (20), washer (21) and bracket (22) from ramp (4).



10. Remove lockwire and left and right aft hinge pins (23).



11. Remove left and right outboard hinge bolts (24), washers (25), and nuts (26).

WARNING

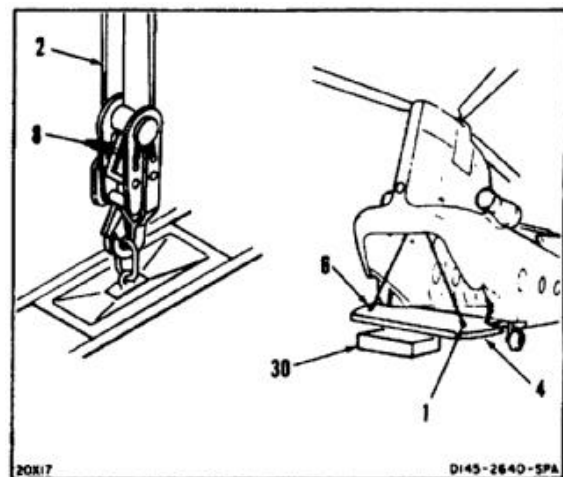
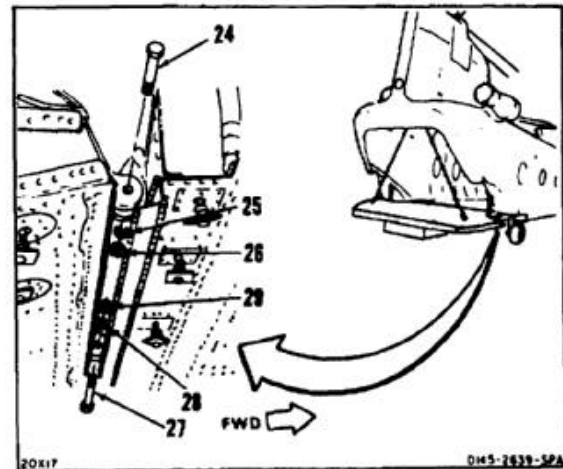
Ramp may shift forward when bolts are removed. Injury to personnel or damage to equipment can occur.

12. Remove left and right inboard hinge bolts (27), washers (28), and nuts (29).

WARNING

Clear personnel and equipment from area before releasing tension on straps. Injury to personnel or damage to equipment can occur.

13. Ease tension off strap (2) with ratchet (8) until ramp (4) is rested on padded support (30).
14. Remove hooks (1 and 6).

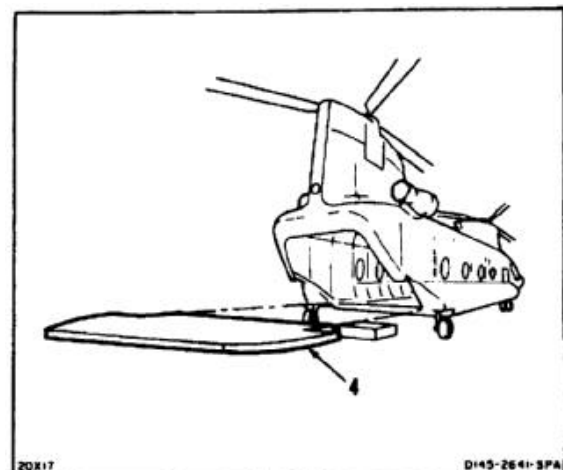
**WARNING**

Cargo ramp weight is **404 pounds**.

15. With aid of helpers, remove ramp (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Bond Test Unit

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-13
Task 2-254
TM 1-1520-253-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

NOTE

If a void in the cargo ramp is suspected, refer to TM 1-1520-253-23.

1. If damage is more than **25 percent** of area of skin between boundary members, but does not affect entire skin panel, repair by insertion (Tasks 2-13 and 2-254).
2. If damage affects more than one-half the cross section of a web, repair by insertion (Task 2-13).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-872

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Aircraft Inspector

References:

Task 2-10
Task 2-13
Task 2-250
Task 2-251
Task 2-253
TM 1-1500-204-23

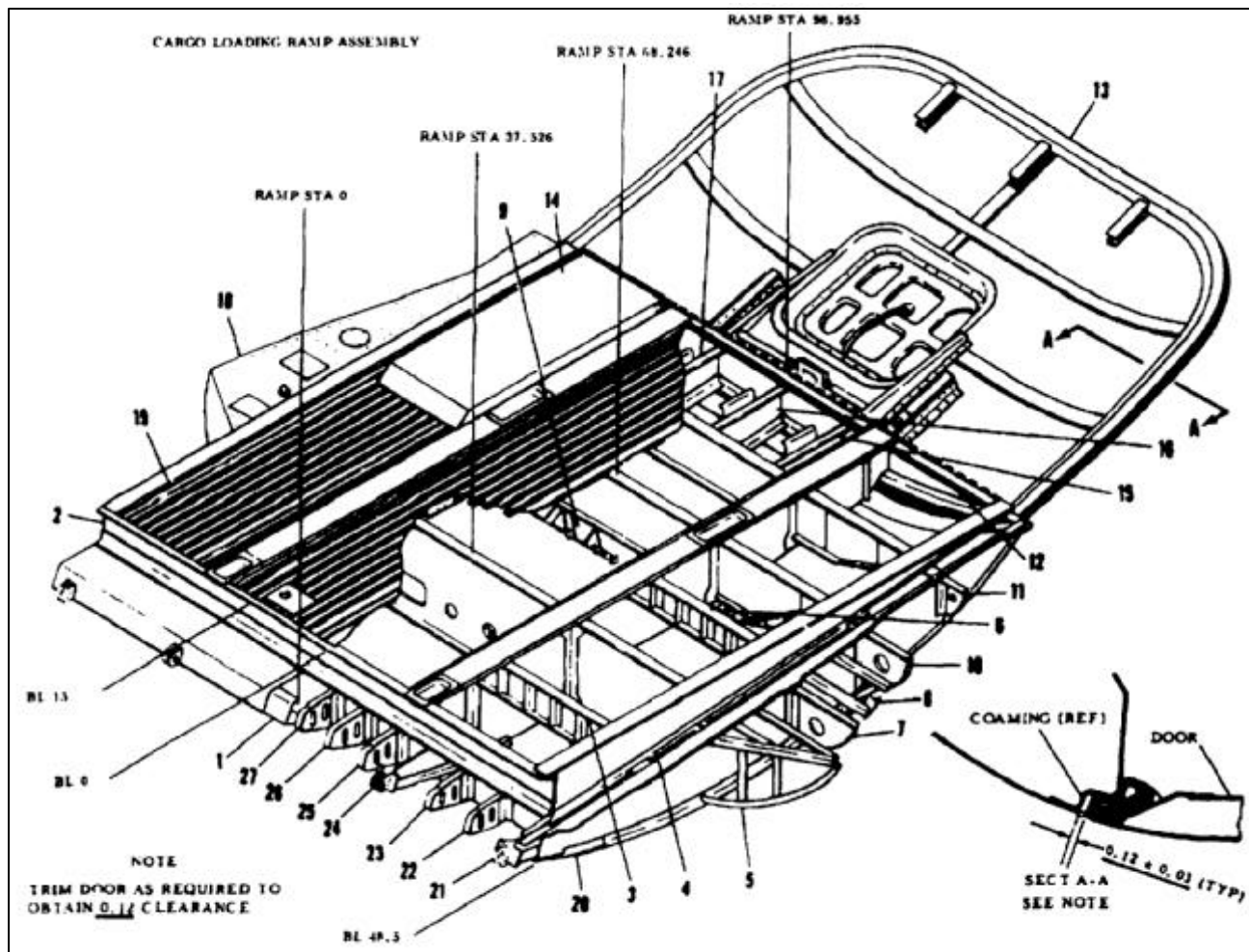
Equipment Condition:

As Required

General Safety Instructions:

As Required

1. The cargo loading ramp assembly consists of aluminum alloy skin, formers, beams, and flooring.
2. Repair classifications are minor (Task 2-250), repairable (Task 2-251), and repairable (AVIM) (Task 2-253).



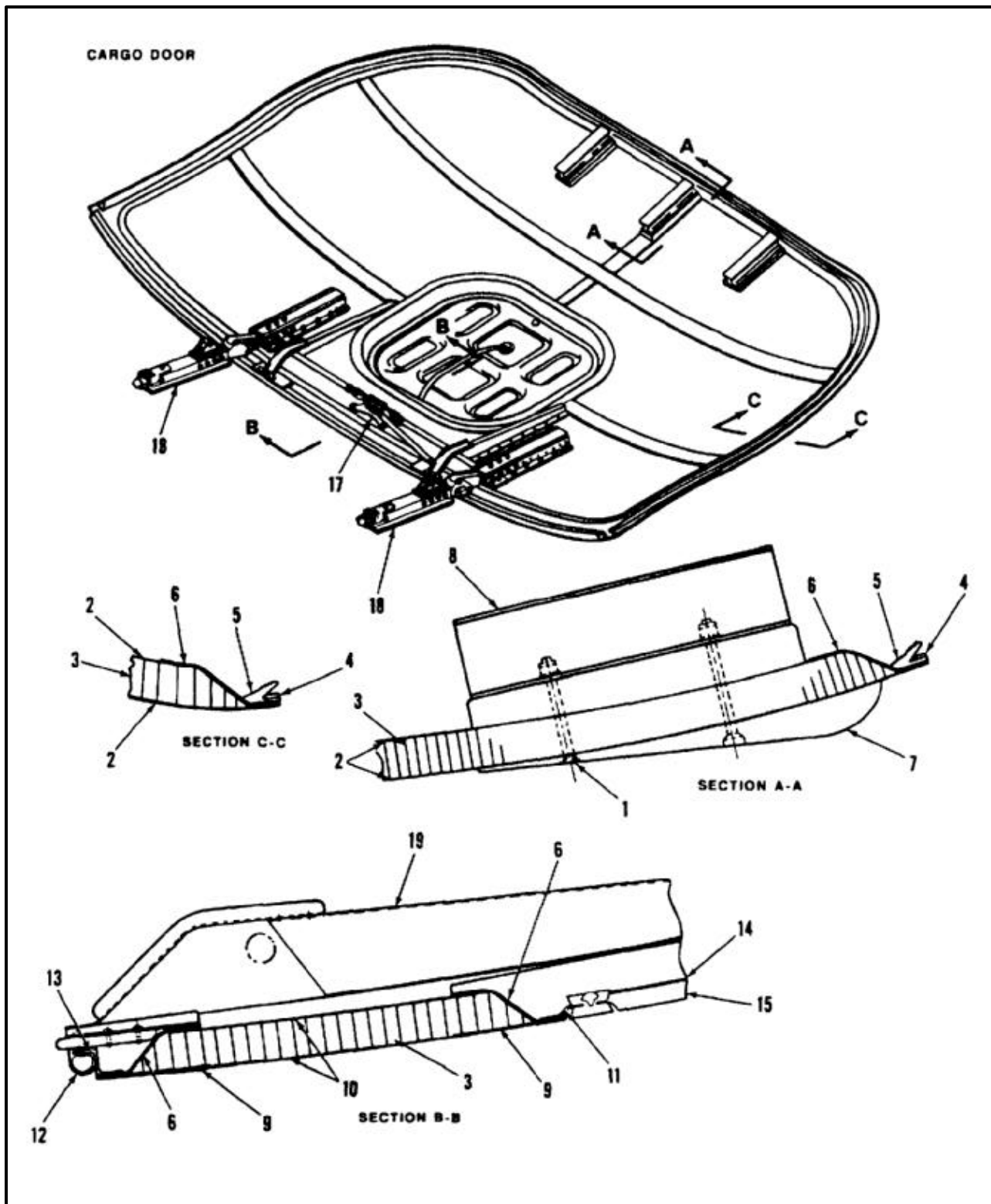
Cargo Loading Ramp Assembly Repairs (Sheet 1 of 19)

CARGO LOADING RAMP ASSEMBLY

INDEX NO	NOMENCLATURE	BUTT LINE	WATERLINE	STATION	SHEET REF.
1	FORMER	48.50 RH TO 48.50 LH	RAMP 1.50	FUSELAGE 488.33	8 AND 9
2	FORMER	48.50 RH TO 48.50 LH	RAMP 9.50	RAMP 10.077	8 AND 9
3	BEAM	20.0 TO 44.0 RH AND LH	RAMP 9.50	RAMP 23.846	13 AND 14
4	FORMER	44.0 TO 48.5 RH AND LH	RAMP 3.50	RAMP 26.30	8 AND 9
5	FORMER	48.50 TO 66.0 RH AND LH	RAMP 4.75	RAMP 37.526	8 AND 9
6	BEAM	20.0 TO 44.0 RH AND LH	RAMP 9.5	RAMP 52.926	13 AND 14
7	FORMER	48.5 TO 64.0 RH AND LH	RAMP 5.25	RAMP 53.04	10 AND 12
8	FORMER	48.5 TO 61.75 RH AND LH	RAMP 6.50	RAMP 60.63	10 AND 12
9	GATE	44.0 RH TO 44.0 LH	RAMP 0.25	RAMP 58.246	17 AND 18
10	FORMER	59.23 RH TO 59.23 LH	RAMP 9.50	RAMP 68.246	10, 11, AND 12
11	FORMER	53.5 RH TO 53.5 LH	RAMP 9.50	RAMP 83.60	10, 11, AND 12
12	FORMER	50.25 RH TO 50.25 LH	RAMP 10.50	RAMP 98.955	10, 11, AND 12
13	CARGO DOOR	—	—	—	
14	AUXILIARY RAMP	—	—	RAMP 98.955	
15	BEAM	15.00 LH	RAMP 10.40	RAMP 83.60 TO 98.955	15 AND 16
16	BEAM	0.00	RAMP 10.40	RAMP 83.60 TO 98.955	15 AND 16
17	BEAM	15.00 RH	RAMP 10.40	RAMP 83.60 TO 98.955	15 AND 16
18	SKIN	—	—	—	6
19	FLOORING	—	—	—	
20	BEAM	48.50 RH AND LH	RAMP 0.50	RAMP 0.00 TO 98.955	13 AND 14
21	BEAM	44.00 RH AND LH	RAMP 10.50	RAMP 0.00 TO 98.955	15 AND 16
22	BEAM	36.20 RH AND LH	RAMP 1.76	RAMP 0.75 TO 10.00	13 AND 14
23	BEAM	28.60 RH AND LH	RAMP 1.75	RAMP 0.75 TO 10.00	13 AND 14
24	BEAM	20.00 RH AND LH	RAMP 10.50	RAMP 0.00 TO 98.955	15 AND 16
25	BEAM	14.892 RH AND LH	RAMP 1.75	RAMP 0.75 TO 10.00	13 AND 14
26	BEAM	10.642 RH AND LH	RAMP 1.75	RAMP 0.75 TO 10.00	13 AND 14
27	BEAM	3.50 RH AND LH	RAMP 1.75	RAMP 0.75 TO 10.00	13 AND 14

NOTES: All dimensions are in inches.

Cargo Loading Ramp Assembly Repairs (Sheet 2 of 19)



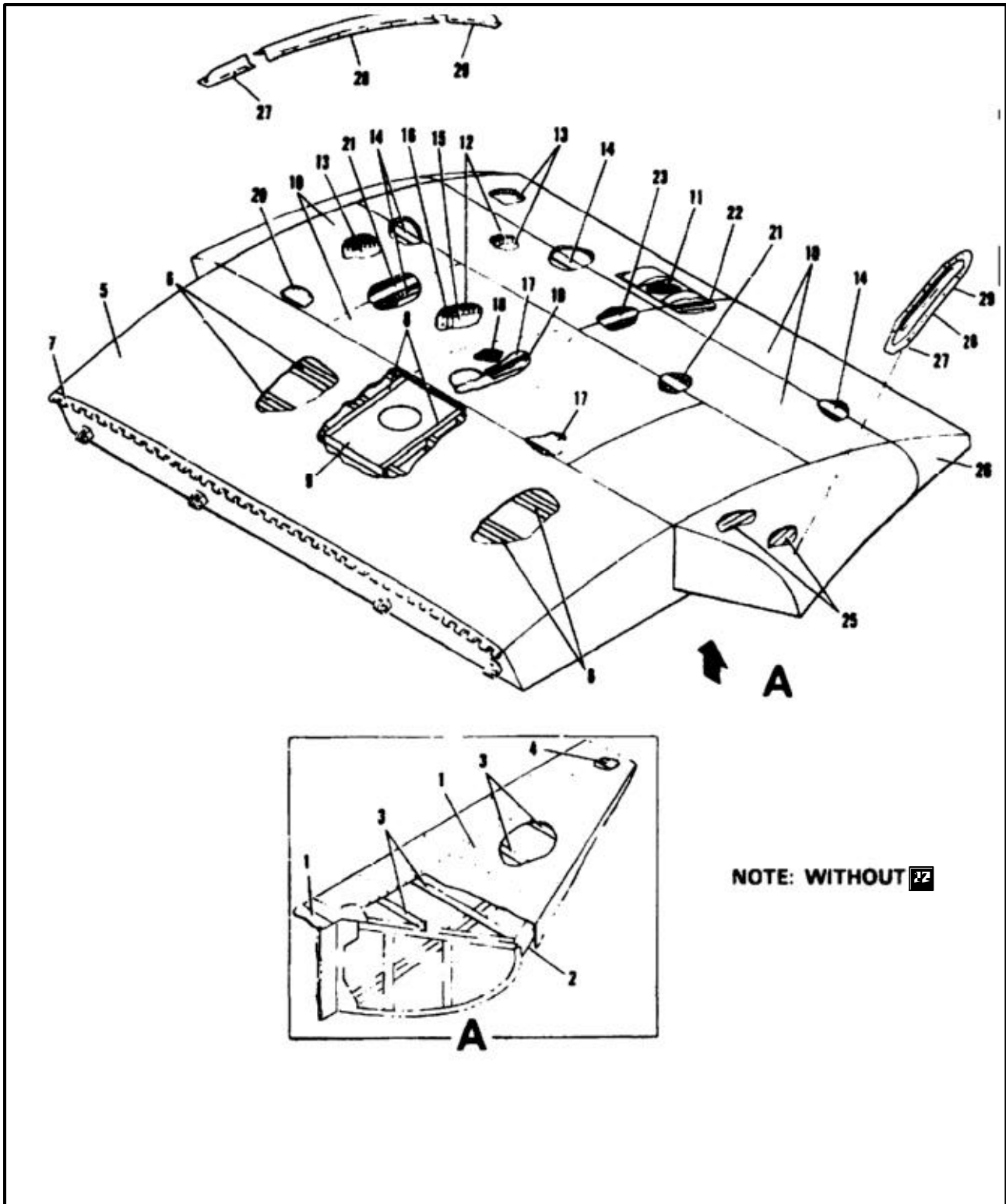
Cargo Loading Ramp Assembly Repairs (Sheet 3 of 19)

CARGO DOOR

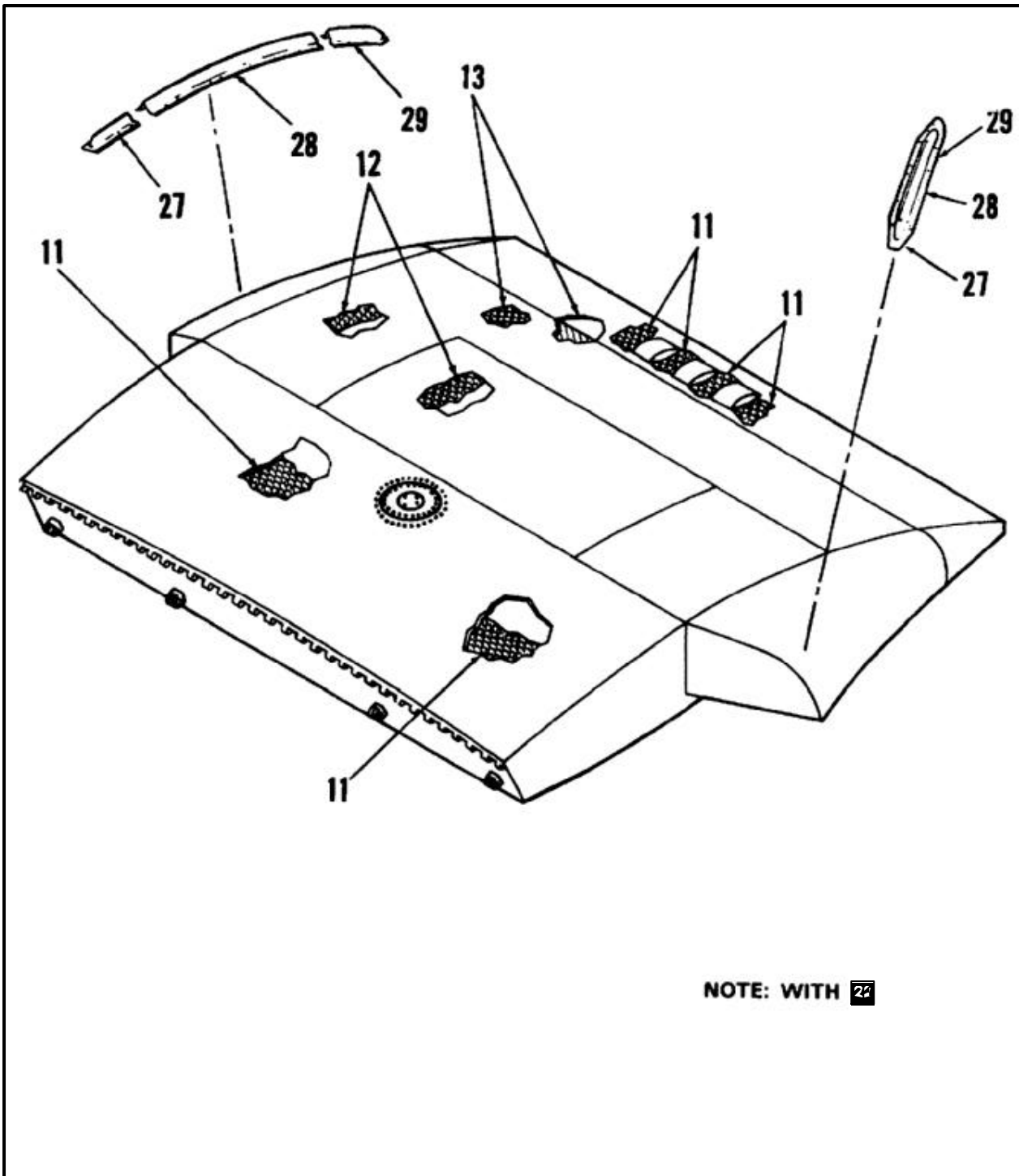
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CORE	0.968 2 3-1/4-10N-3003	NOTE B. AND NOTE C.	NOTE B.
2	SKIN	0.020 2024-T4 CLAD	NOTE B.	2-13
3	CORE	0.968 6.0-1/4-30N-3003	NOTE B.	—
4	SEAL STRIP	0.025 7075-T6 CLAD	0.032 7075-T6 CLAD	NOTE H.
5	SEAL	BAC 1530-43 SILICONE RUBBER	NOTE F.	—
6	EDGE MEMBER	SCOTCH-PLY	NOTE B.	—
7	PAD ASSEMBLY	WITH 39	NOTE E.	—
8	SPACER	VS90585 6061-T6	NOTE F.	—
9	DOUBLER	0.012 7075-T6 CLAD	NOTE B.	—
10	SKIN	0.016 7075-T6 BARE	NOTE B.	2-13
11	COAMING	0.040 2024-4 CLAD	0.050 2024-T4 CLAD	NOTE H.
12	SEAL	SILICONE RUBBER . 7030	NOTE D.	—
13	FORMER	AND10139-0505 7075-T6	0.071 4130	—
14	FRAME, PANEL	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD	NOTE H.
15	PANEL	0.020 6061-T6 BARE	0.025 6061-T6 CLAD	NOTE H.
16	SEAL SPLICE	SILICONE RUBBER	NOTE G.	NOTE H.
17	EMER RELEASE	—	NOTE E.	—
18	SUPPORT ASSEMBLY	—	NOTE E.	—
19	ZEE	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD	NOTE H.

- NOTES:**
- A. All dimensions are in inches.
 - B. Component of a bonded assembly, repair using same material as original Refer to TM 1-1500-204-23.
 - C. Used in pad assembly area only.
 - D. Seal (12) is hollow, extruded rubber and may be repaired by splicing with sponge rubber, and/or replacing damaged sections. The seal may also be replaced using a piece of the VS80549 seal splice material. When seals are extensively damaged, replace the entire seal.
 - E. Replace with new part D18049D195 Brooks & Perkins code ident 81868.
 - F. Replace with original material.
 - G. Replace with new seal splice VS80549.
 - H. TM 1-1500-204-23.

Cargo Loading Ramp Assembly Repairs (Sheet 4 of 19)



Cargo Loading Ramp Assembly Repairs (Sheet 5 of 19)



Cargo Loading Ramp Assembly Repairs (Sheet 6 of 19)

RAMP SHELF, RAMP BOTTOM SKINS, AND DIRECTIONAL STABILITY STRAKES RAMP SHELF

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.025	7075-T6 CLAD	0.032	7075-T6 CLAD	2-13
2	CAP	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD	NOTE D.
3	STIFFENER	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD	2-29
4	STIFFENER	0.032	7075-T6 CLAD	0.040	7075-T6 CLAD	2-29

RAMP BOTTOM SKINS — RAMP STATION 0.00 TO 37.526, BUTT LINE 48.50 TO 48.50

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
5	SKIN	0.032	7075-T6 CLAD	0.040	7075-T6 CLAD	2-13
6	STIFFENER	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-29
7	HINGE	VS20106-1		NOTE C.		—
8	CHANNEL	0.032	7075-T6 CLAD	0.032	7075-T6 CLAD	NOTE D.
9	DOUBLER	0.032	7075-T6 CLAD	0.032	7075-T6 CLAD	NOTE D.

RAMP BOTTOM SKINS — RAMP STATION 37.526 TO 98.995. BUTT LINE 48.50 INBOARD

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
10	OUTER SKIN	0.020	7075-T6 CLAD	0.032	7075-T6 CLAD	—
11	CORE	0.97 6.0-1/4-30N-3003		NOTE B.		—
12	CORE	0.97 3.3-1/4-15N-3003		NOTE B.		—
13	INNER SKIN	0.016	7075-T6 CLAD	0.020	7075-T6 CLAD	—
14	SPLICE PLATE	0.016	7075-T6 CLAD	0.020	7075-T6 CLAD	NOTE D.
15	INNER SKIN	0.012	7075-T6 CLAD	0.016	7075-T6 CLAD	—
16	CORE	0.97 5.1-1/4-25N-3003		NOTE B.		—
17	DOUBLER	0.016	7075-T6 CLAD	0.020	7075-T6 CLAD	NOTE D.
18	CORE	0.97 6.0-1/4-30N-30C3		NOTE B.		—
19	DOUBLER	0.012	7075-T6 CLAD	NOTE B.		—
20	EDGE MEMBER	SCOTCH PLY		NOTE B.		—
21	SPLICE PLATE	0.020	7075-T6 CLAD	NOTE B.		—
22	SPLICE PLATE	0.016	7075-T6 CLAD	NOTE B.		—
23	SPLICE PLATE	0.020	7075-T6 CLAD	NOTE B.		—

NOMEX. RAMP BOTTOM SKINS — RAMP STATION 37.526 TO 98.995, BUTT LINE 48.50 INBOARD

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
10	OUTER SKIN	-S-GLASS PREPREG TAPE, TYPE I-1, CLASS A		—	—	2-251.1
11	CORE	0.97 X 30.7 3/16 R X 101.0		—	—	2-251.1
12	CORE	0.97 X 33.3 3/16 R X 101.0		—	—	2-251.1
13	INNER SKIN	-E-GLASS PREPREG FABRIC CLASS II, GRADE 1, TYPE 1581 OR 7781		—	—	2-251.1

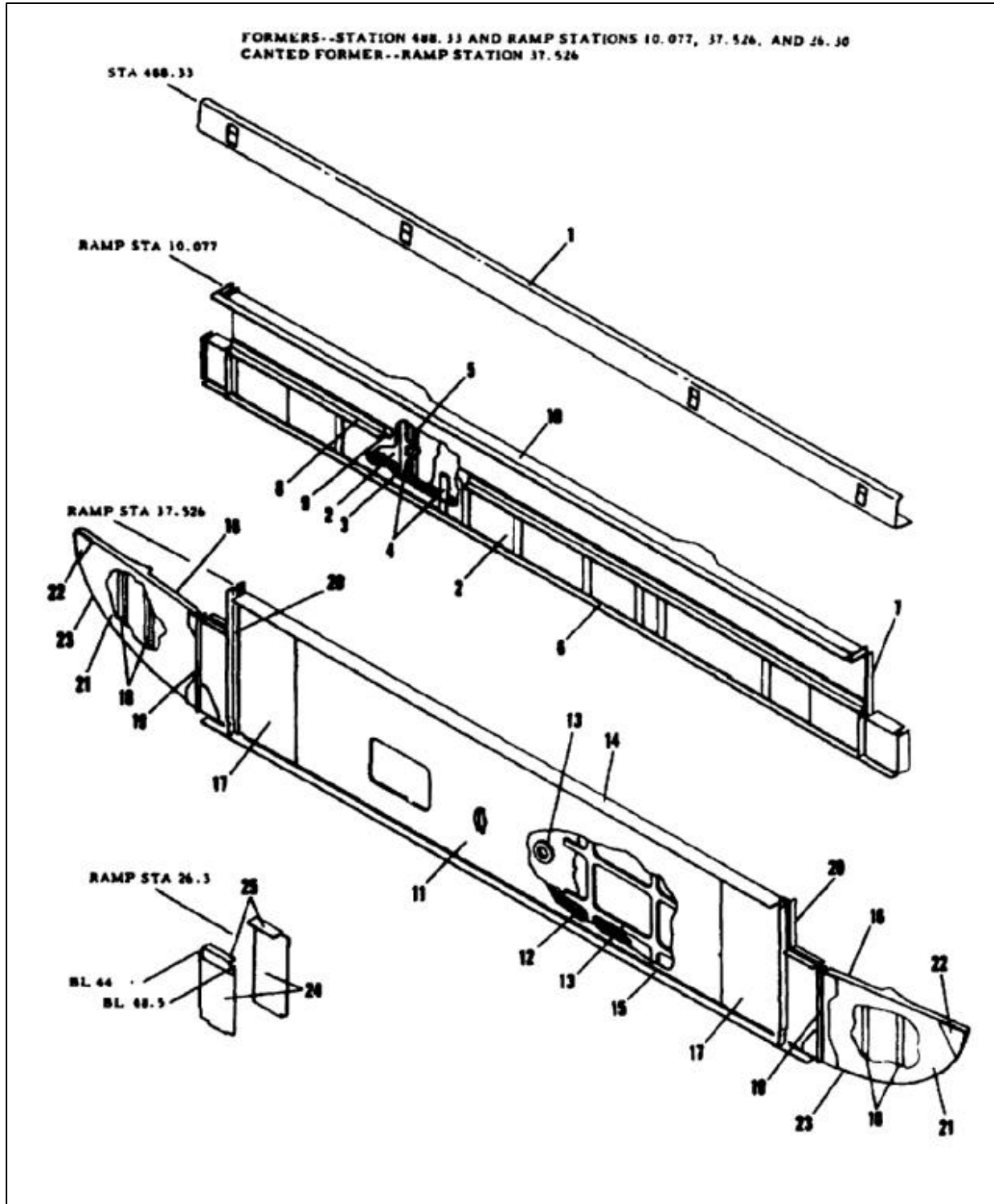
RAMP BOTTOM SKINS — RAMP STATION 37.526 TO 98.995, BUTT LINE 48.50 OUTBOARD

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
24	SKIN	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13
25	STRINGER	0.032	7075-T6 CLAD	0.040	7075-T6 CLAD	2-29
26	SKIN	0.025	2024-T4 CLAD	0.032	2024-T3 CLAD	2-13

DIRECTIONAL STABILITY STRAKES

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
27	CENTER STRAKE	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	NOTE D.
28	NOSE STRAKE	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	NOTE D.
29	TAIL STRAKE	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	NOTE D.

- NOTES:**
- All dimensions are in inches.
 - Component part of a bonded assembly. Repair using same type material as original. Refer to TM 1-1500-204-23.
 - Replace with same material as original.
 - TM 1-1500-204-23.



Cargo Loading Ramp Assembly Repairs (Sheet B of 19)

2-254 REPAIR RAMP (Continued)

2-254

FORMERS — STATION 498.33 AND RAMP STATIONS 10.077, 37.526, AND 26.30
CANTED FORMER — RAMP STATION 37.526
FORMER — STATION 488.33

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	FORMER	0.050 7075-T6 CLAD	0.050 7075-T6 CLAD	NOTE C.

FORMER — RAMP STATION 10.077

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
2	SKIN	0.012 7075-T6 CLAD	NOTE B.	—
3	CORE	0.255 2.30-1/4-10N-3003	NOTE B.	—
4	FILLER	0.250 7075-T6 CLAD	NOTE B.	—
5	STIFFENER	REYNOLDS 5761 7075-T6	0.071 4130	2-29
6	CAP	VS90542 7075-T6	NOTE B.	—
7	STIFFENER	AND10133-0701 7075-T6	0.071 4130	2-29
8	STIFFENER	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-29
9	STIFFENER	0.012 7075-T6 CLAD	NOTE B.	2-29
10	CAP	VS90543 7075-T6	NOTE B.	NOTE C.

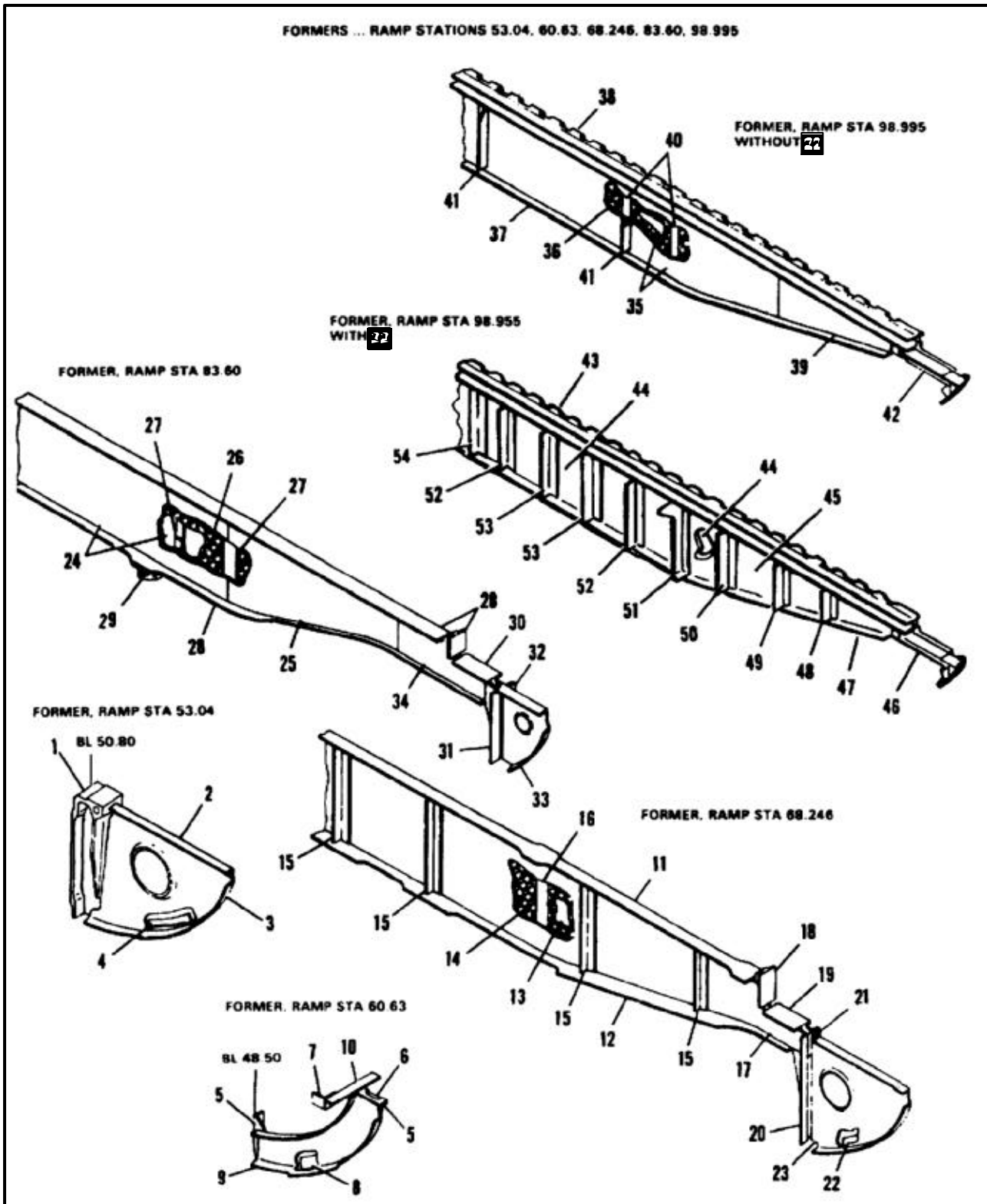
FORMER — RAMP STATION 37.526

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
11	SKIN	0.012 7075-T6 CLAD	NOTE B.	—
12	CORE	0.255 2.3-1/4-10N-3003	NOTE B.	—
13	FILLER	0.250 7075-T6 BARE	NOTE B.	—
14	CAP	VS90303 7075-T6	NOTE B.	—
15	CAP	VS90317 7075-T6	NOTE B.	—
16	CAP	BAC1503-100037 7075-T6	0.063 4130	NOTE C.
17	DOUBLER	0.016 7075-T6 BARE	NOTE B.	—
18	STIFFENER	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	2-29
19	ATTACHMENT	BAC1505-100515 7075-T6	NOTE B.	—
20	STIFFENER	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	2-29
21	WEB	0.020 7075-T6 CLAD	0.025 7075-T6 CLAD	2-13
22	GUSSET	0.025 7075-T6 CLAD	0.032 7075-T6 CLAD	NOTE C.
23	CAP	0.063 7075-T6 CLAD	0.063 7075-T6 CLAD	—

FORMER — RAMP ACTUATOR SUPPORT, RAMP STATION 26.30

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
24	FORMER	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE C.
25	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE C.

- NOTES:**
- A. All dimensions are in inches.
 - B. Component of sandwich honeycomb structure. Repair using same type material as original. Refer to TM 1-1500-204-23.
 - C. TM 1-1500-204-23.



Cargo Loading Ramp Assembly Repairs (Sheet 10 of 19)

FORMERS — RAMP STATIONS 53.04, 60.63, 68.246, 93.60 AND 98.955
FORMER — RAMP STATION 53.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	SUPPORT		2014-T6	NOTE B.		—
2	ANGLE	0.050	7075-T6 CLAD	0.063	7075-T6 CLAD	NOTE F.
3	WEB	0.032	7075-T6 CLAD	0.040	7075-T6 CLAD	2-13
4	ANGLE	0.050	7075-T6 CLAD	0.063	7075-T6 CLAD	NOTE F.

FORMER — RAMP STATION 60.83

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
5	CLIP	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	NOTE F.
6	FILLER	0.040	2024-T3 CLAD	NOTE C.		—
7	CLIP	0.040	2024-T3 CLAD	0.050	7075-T6 CLAD	NOTE F.
8	ANGLE	0.050	2024-0 T42	0.050	2024-T3 CLAD	NOTE F.
9	FORMER	0.040	2024-0 T42	0.050	2024-T3 CLAD	NOTE F.
10	ANGLE	ALCOA 28546	7075-T6	0.050	4130	NOTE F.

FORMER — RAMP STATION 69.246

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
11	CAP	VS90302	7075-T6	NOTE D.		NOTE F.
12	CAP	BAC1505-100511	7075-T6	NOTE D.		NOTE F.
13	WEB	0.012	7075-T6 CLAD	NOTE D.		—
14	CORE	0.255 2.3-1/4-10N-3003		NOTE D.		NOTE F.
15	STIFFENER	BAC1503-1402	7075-T6	NOTE D.		2-28
16	FILLER	0.250	7075-T6 BARE	NOTE D.		NOTE F.
17	DOUBLER	0.032	7075-T6 BARE	NOTE D.		NOTE F.
18	CAP	VS90302	7075-T6	NOTE D.		NOTE F.
19	CAP	VS90317	7075-T6	NOTE D.		NOTE F.
20	CLIP	ALCOA 61971	7075-T6	0.063	4130	NOTE F.
21	CAP	ALCOA 22477	7075-T6	0.050	4130	NOTE F.
22	ANGLE	0.050	2024-T4 CLAD	0.050	2024-T3 CLAD	NOTE F.
23	WEB	0.020	2024-T4 CLAD	0.032	2024-T3 CLAD	—

FORMER — RAMP STATION 83.60

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
24	WEB	0.012	7075-T6 CLAD	NOTE D.		2-13
25	WEB	0.016	7075-T6 CLAD	NOTE D.		2-13
26	CORE	0.255 3.0-3/8-20N-3003			NOTE D.	NOTE F.
27	FILLER	0.250	2024-T4	NOTE D.		NOTE F.
28	CAP	VS90302	7075-T6	NOTE D.		—
29	SUPPORT			NOTE E.		NOTE F.
30	CAP	VS90317	7075-T6	NOTE D.		NOTE F.
31	CLIP	ALCOA 61971	7075-T6	0.063	4130	NOTE F.
32	CAP	ALCOA 22509	7075-T6	0.050	4130	NOTE F.
33	WEB	0.025	2024-T4 CLAD	0.032	2024-T3 CLAD	2-13
34	DOUBLER	0.032	7075-T6 CLAD	NOTE D.		NOTE F.

- NOTES:**
- A. All dimensions are in inches.
 - B. Damage for other than minor, replace with new support 114S6804-1 LH or -2 RH.
 - C. Replace with material same as original.
 - D. Component part of a bonded assembly. Repair using same type material as original.
 - E. Damage for other than minor, replace with new support 114S6821-1.
 - F. TM 1-1500-204-23.

FORMERS — RAMP STATIONS 53.04, 60.63, 68.246, 83.60 AND 98.955
 FORMER — RAMP STATION 98.955 WITHOUT 22

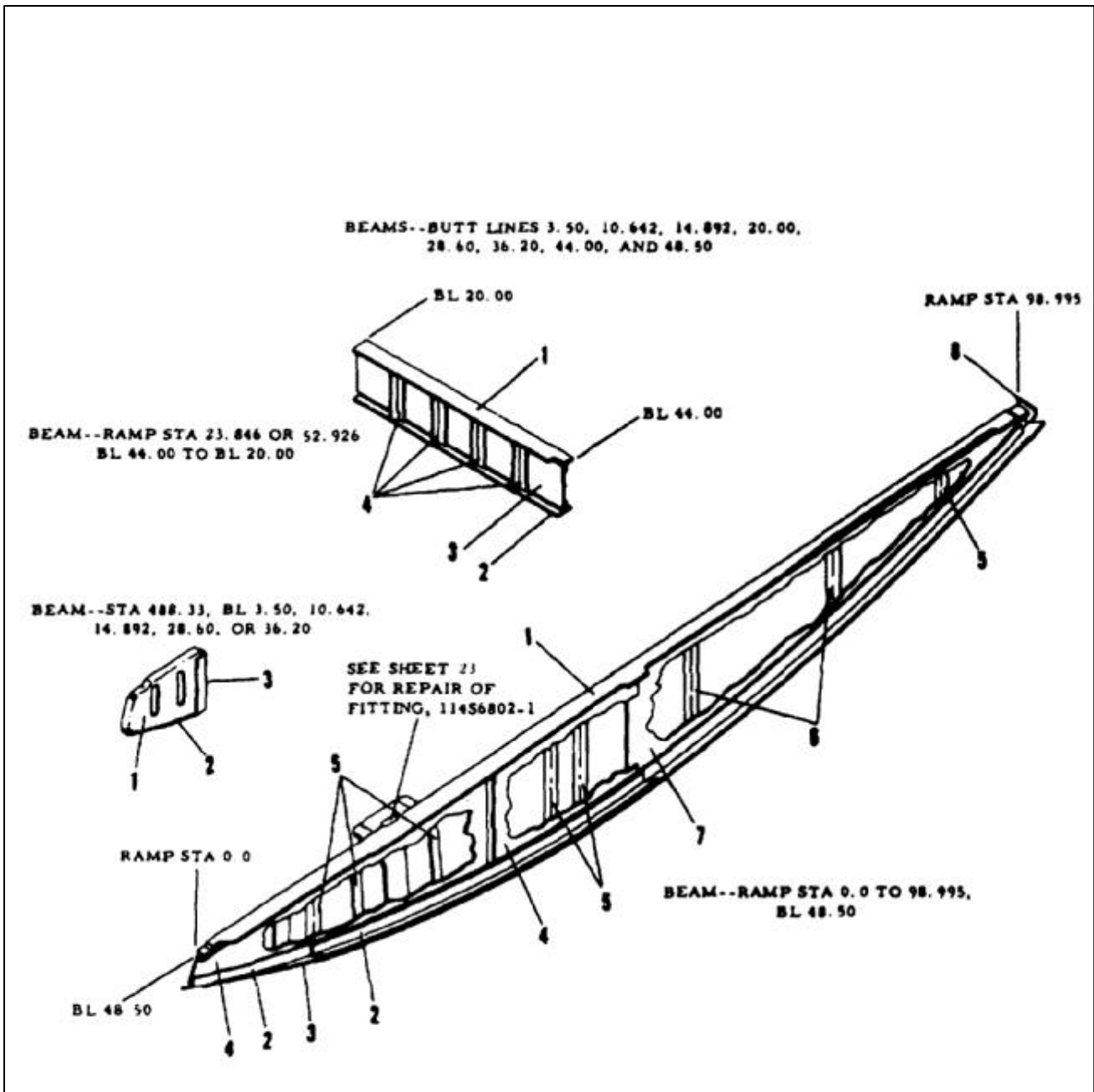
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
35	WEB	0.012	7075-T6 CLAD	NOTE B.		—
36	CORE	0.255	3.0-3/8-20N-3003	NOTE B.		NOTE C.
37	CAP	VS90302	7075-T6	NOTE B.		NOTE C.
38	HINGE	VS90560	7075-T6	NOTE B.		—
39	DOUBLER	0.016	7075-T6 CLAD	NOTE B.		NOTE C.
40	FILLER	0.250	2024-T4 BARE	NOTE B.		NOTE C.
41	CLIP	HARVEY 15078	7075-T6	0.063	4130	NOTE C.
42	CLIP	0.050	2024-T4 CLAD	0.063	2024-T3 CLAD	NOTE C.

- NOTES:**
- A. All dimensions are in inches.
 - B. Component part of a bonded assembly. Repair using same type material as original.
 - C. TM 1-1500-204-23.

FORMER — RAMP STA. 98.955 WITH 22

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
43	HINGE	VS90560 X 100	7075-T73			NOTE B.
44	WEB	0.050	7075-T6 CLAD	0.063	7075-T6 CLAD	NOTE B.
45	DOUBLER	0.063	7075-T6 CLAD	0.072	7075-T6 CLAD	NOTE B.
46	FILLER	0.040	7075-T6 CLAD	0.040	7075-T6 CLAD	NOTE B.
47	CAP	AND10136-1504 X 87.0	7075-T73	0.0120 301 CRS 1/4H		NOTE B.
46	TEE	AND10136-2001 X 3.4	7075-T73	0.080 301 CRS		NOTE C.
49	TEE	AND10136-2001 X 4.3	7075-T73	0.080 301 CRS		NOTE C.
50	TEE	AND10136-2001 X 5.5	7075-T73	0.000 301 CRS		NOTE C.
51	TEE	AND10136-2007 X 6.5	7075-T73	0.100 301 CRS		NOTE C.
52	TEE	AND10136-2007 X 6.2	7075-T73	0.080 301 CRS		NOTE C.
53	TEE	AND10136-2001 X 6.4	7075-T73	0.080 301 CRS		NOTE C.
54	TEE	AND10136-2001 X 6.4	7075-T73	0.080 301 CRS		NOTE C.

- NOTES:**
- A. All dimensions are in inches.
 - B. TM 1-1500-204-23.
 - C. Repair using same material as original.



Cargo Loading Ramp Assembly Repairs (Sheet 13 of 19)

BEAMS — BUTT LINES 3.50, 10.642, 14.892, 20.00, 28.60, 36.20, 44.00, AND 48.50
BEAMS — RAMP STATION 23.846 OR 52.926, BUTT LINE 44.00 TO 20.00

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	STIFFENER	ALCOA 22008	7075-T6	0.040	4130	2-29
2	ANGLE	ALCOA 12883	7075-T6	0.063	4130	NOTE B.
3	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
4	STIFFENER	ALCOA 12883	7075-T6	0.063	4130	2-29

BEAMS — STATION 488.33, BUTT LINES 3.50, 10.642, 14.892, 28.60 AND 36.20

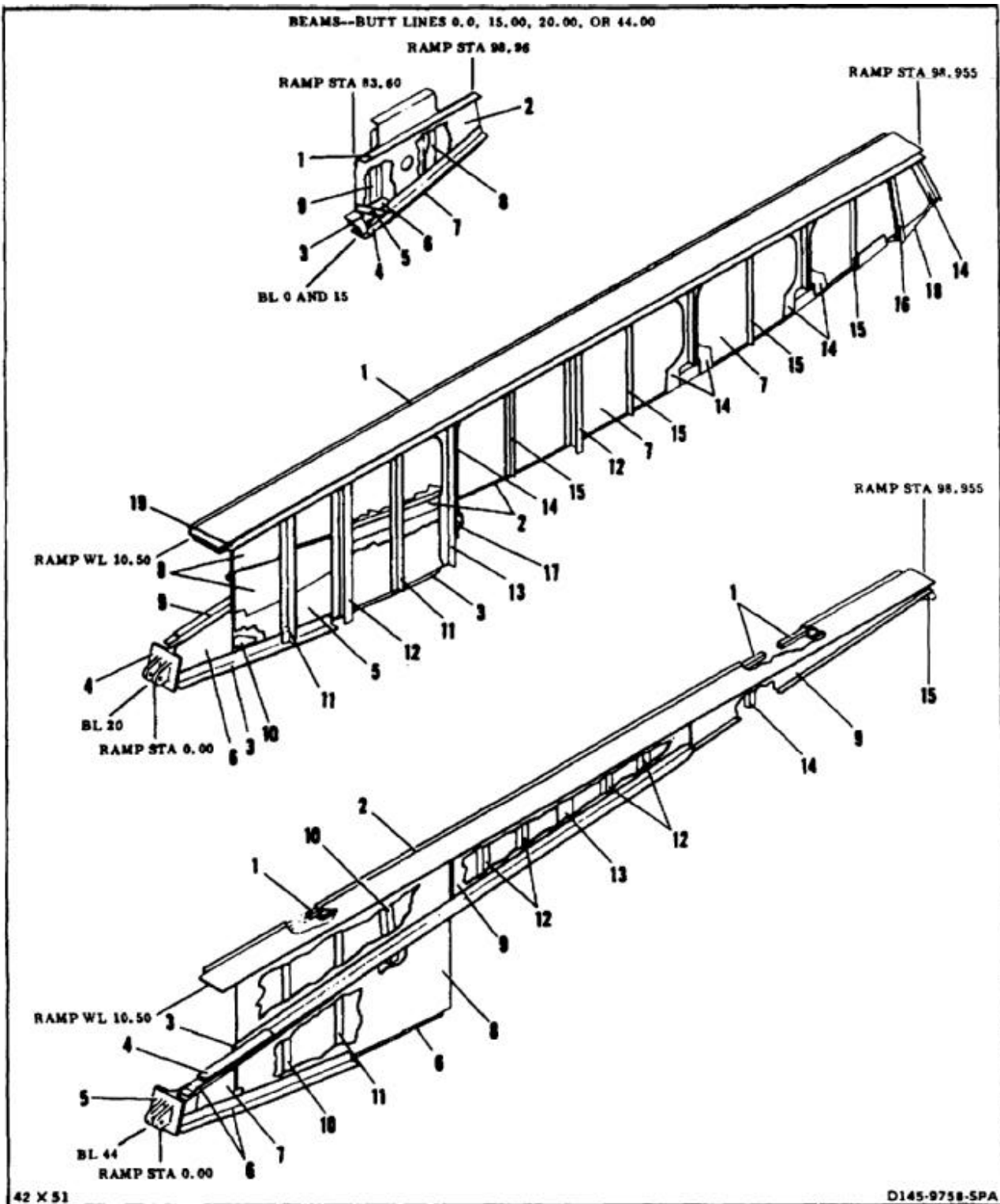
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.020	7075-T6 BARE	0.025	7075-T6 CLAD	2-13
2	CAP	0.032	7075-T6 CLAD	0.040	7075-T6 CLAD	NOTE B.
3	CLIP	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	NOTE B.

BEAM — RAMP STATION 0.0 TO 98.995, BUTT LINE 48.50

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	ALCOA 55794	7075-T6	0.100	4130	NOTE B.
2	ANGLE	0.070	7075-T6 CLAD	0.080	7075-T6 CLAD	NOTE B.
3	CAP	0.063	7075-T6 CLAD	0.071	7075-T6 CLAD	NOTE B.
4	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
5	STIFFENER	ALCOA 67580	7075-T6	0.063	4130	2-29
6	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
7	WEB	0.025	7075-T6 BARE	0.030	7075-T6 CLAD	2-13
8	CAP	ALCOA 55794	7075-T6	0.100	4130	NOTE B.

- NOTES:** A. All dimensions are in inches.
 B. TM 1-1500-204-23.

Cargo Loading Ramp Assembly Repairs (Sheet 14 of 19)



Cargo Loading Ramp Assembly Repairs
(Sheet 15 of 19)

**BEAMS — BUTT LINES 0.00, 15.00, 44.00
BEAMS — BUTT LINES 0.00 AND 15.00**

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP	ALCOA 12883	7075-T6	0.063	4130
2	WEB	0.050	7075-T6	0.063	7075-T6 CLAD
3	SUPPORT	VS90328	7075-T6	NOTE B.	
4	CAP	REYNOLDS 8665	7075-T6	0.090	4130
5	CAP	0.063	7075-T6 CLAD	0.071	7075-T6 CLAD
6	PAD	0.188 NYLON SHEET		NOTE B.	
7	DOUBLER	0.040	7075-T6	0.050	7075-T6 CLAD
8	STIFFENER	AND10136-1401	7075-T6	0.071	4130
9	STIFFENER	ALCOA 12883	7075-T6	0.071	4130

BEAMS — BUTT LINES 20.00

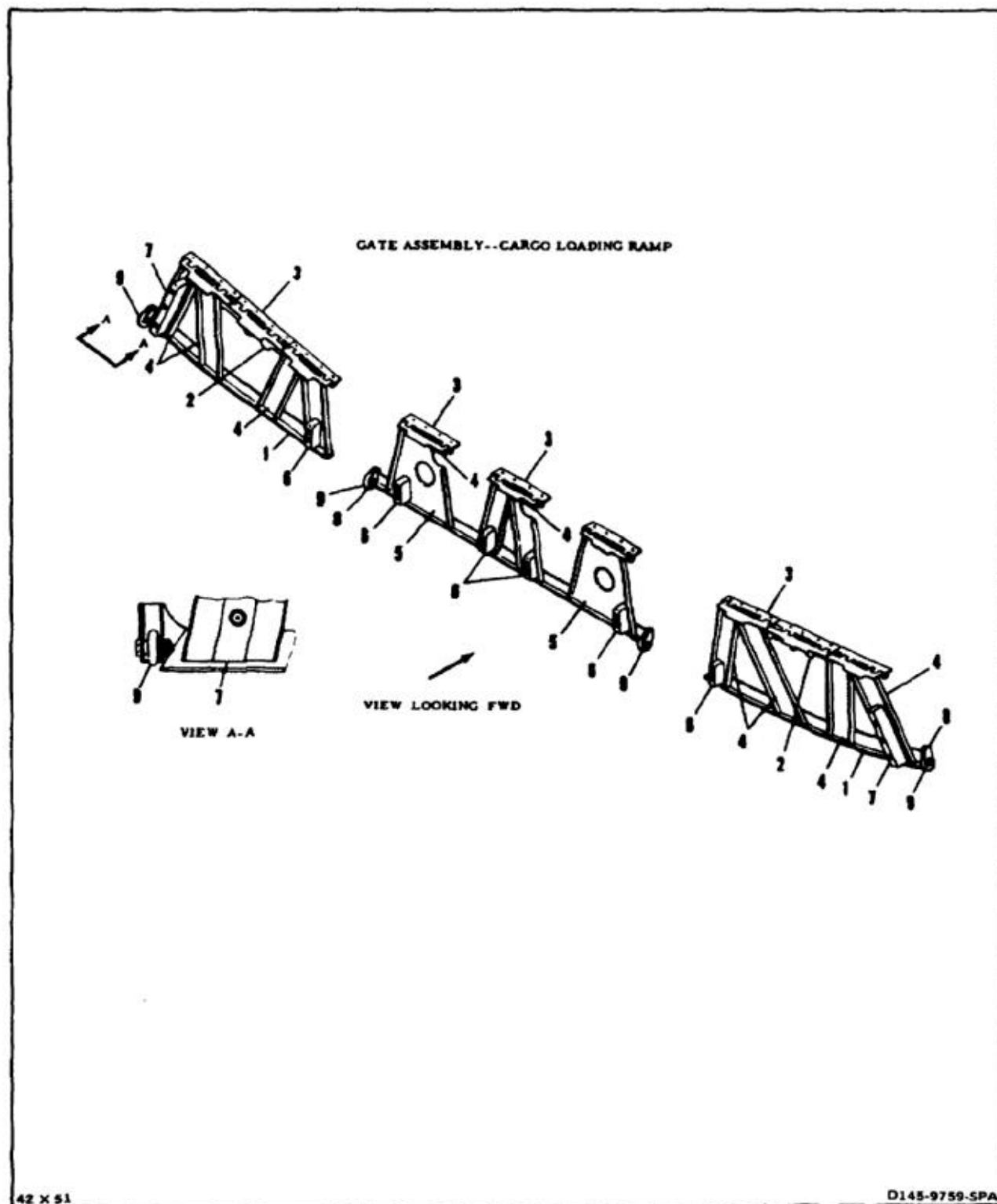
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP		—	NOTE E.	
2	CAP	VS90413	7075-T6	NOTE B.	
3	CAP	AND10134-1202	7075-T6	0.100	4130
4	HINGE	114S6806-1 AND -2		NOTE B.	
5	WEB	0.032	7075-T6	0.040	7075-T6 CLAD
B	WEB	0.063	7075-T6	0.071	7075-T6 CLAD
7	WEB	0.020	7075-T6	0.025	7075-T6 CLAD
8	DOUBLER	0.020	7075-T6	0.025	7075-T6 CLAD
9	CAP	AND10133-1203	7075-T6	0.125	4130
10	GUSSET	0.032	7075-T6	0.040	4130
11	STIFFENER	ALCOA 15820	7075-T6	0.080	4130
12	STIFFENER	ALCOA 59256	7075-T6	0.083	4130
13	STIFFENER	ALCOA 30934	7075-T6	0.071	4130
14	STIFFENER	0.032	7075-T6	0.038	7075-T6 CLAD
15	STIFFENER	ALCOA 28548	7075-T6	0.050	4130
16	STIFFENER	AND10138-1004	7075-T6	0.071	4130
17	BUMPER		—	NOTE C.	
18	TRACK		—	NOTE D.	
19	ANGLE	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD

BEAMS — BUTT LINES 44.00

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	GANG CHANNEL	RM52LHTG51-02-J32		NOTE B.	
2	CAP	VS90531 MAG ZK60-AT5		NOTE B.	
3	CAP	ALCOA 59409	7075-T6	0.063	4130
4	STRAP	0.063	7075-T6 CLAD	0.071	7075-T6 CLAD
5	HINGE	6806-12		NOTE B.	
6	CAP	HARVEY 16119	7075-T6	0.150	4130
7	WEB	0.063	7075-T6 BARE	0.071	7075-T6 CLAD
8	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD
9	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD
10	STIFFENER	ALCOA 67580	7075-T6	0.063	4130
11	STIFFENER	ALCOA 51406	7075-T6	0.100	4130
12	STIFFENER	VS70504-4	7075-T6	0.040	4130
13	STIFFENER	AND10136-1501	7075-T6	0.071	4130
14	STIFFENER	ALCOA 22477	7075-T6	0.050	4130
15	BRACKET	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD

- NOTES:**
- A. All dimensions are in inches.
 - B. Replace damaged section with material same as original.
 - C. Replace with new bumper 114SS661-1.
 - D. Replace with new track 114S6811-3 LH or 114S6811-1 RH.
 - E. Replace with new 114S6151-113 LH or -114 RH.

Cargo Loading Ramp Assembly Repairs (Sheet 16 of 19)



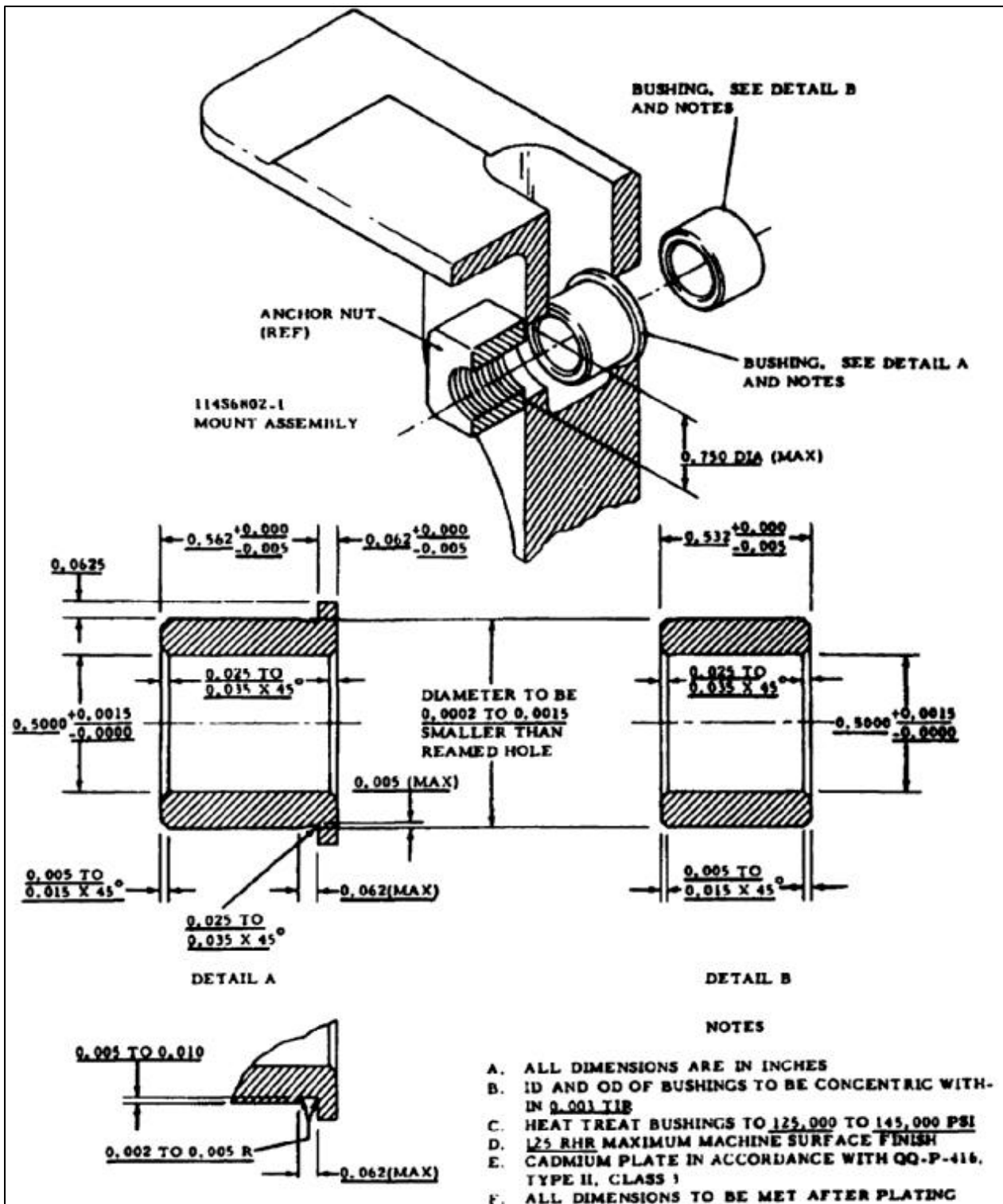
*Cargo Loading Ramp Assembly Repairs
(Sheet 17 of 19)*

GATE ASSEMBLY — CARGO LOADING RAMP

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP	BAC1514-1644	7075-T6	NOTE B.	
2	HINGE	BAC1514-1643	7075-T6	NOTE B.	
3	HINGE	BAC1513-367	7075-T6	NOTE B.	
4	CHANNEL	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD
5	CHANNEL	0.063	7075-T6 CLAD	0.071	7075-T6 CLAD
6	BUMPER	SILICONE RUBBER LAMINAR		NOTE C.	
7	BUMPER	SILICONE RUBBER LAMINAR		NOTE D.	
8	BRACKET	ALCOA 56914	7075-T6	0.063	4130
9	ROLLER	NYLON. 1.0 INCH DIA		NOTE E.	

- NOTES:**
- A. All dimensions are in inches.
 - B. Repair impractical. Replace part with material same as original.
 - C. Replace with new bumper 114S6709-1.
 - D. Replace with new bumper 114S6709-2.
 - E. Replace with new roller 114S6706-1.

Cargo Loading Ramp Assembly Repairs (Sheet 18 of 19)



Cargo Loading Ramp Assembly Repairs (Sheet 19 of 19)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

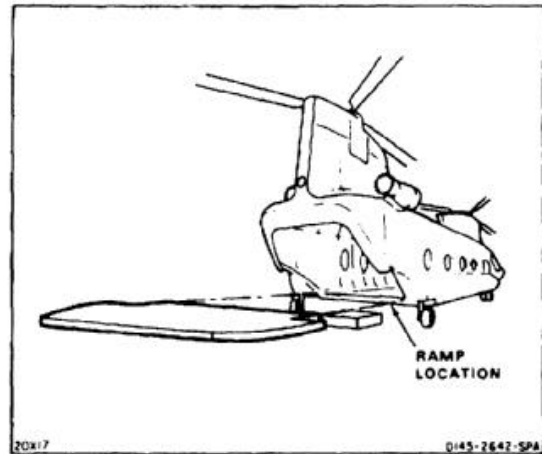
Lockwire (E229)
Packings

Personnel Required:

Medium Helicopter Repairer (6)
Inspector

References:

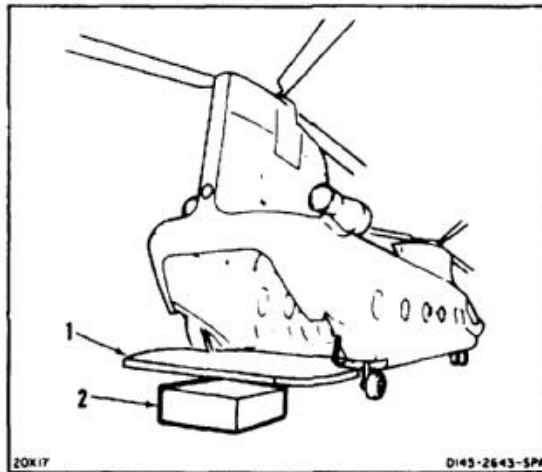
TM 55-1520-240-23P



WARNING

Padded support must be in place before strap is attached to ramp. Strap must not support full weight of ramp. Cargo ramp weight is **404 pounds**.

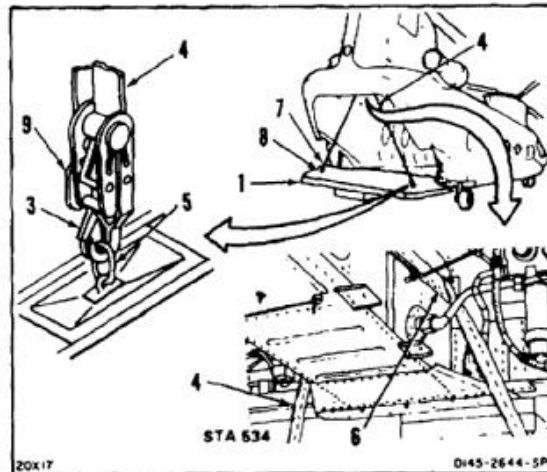
1. With aid of helpers, position ramp (1) on padded support (2) at ramp location.
2. Attach ratchet-hook (3) of tiedown strap (4) to tiedown ring (5) on ramp (1).
3. Loop tiedown strap (4) over sync shaft tunnel (6) at sta. 534.
4. Attach hook (7) of tiedown strap (4) to tiedown ring (8) on ramp (1).



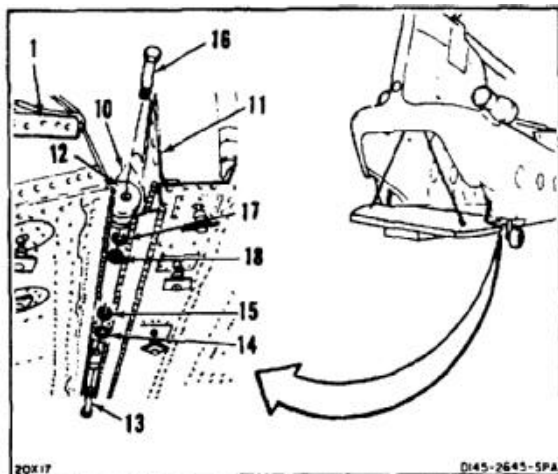
CAUTION

Do not allow strap to rub against tubing or lines. Damage to tubing or lines could occur.

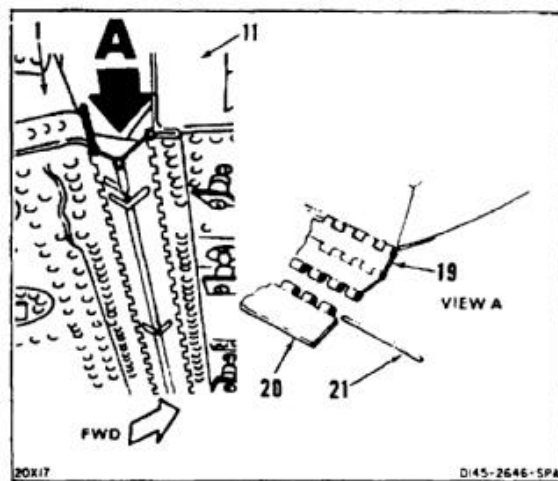
5. Take up slack in strap (4) only with ratchet (9).



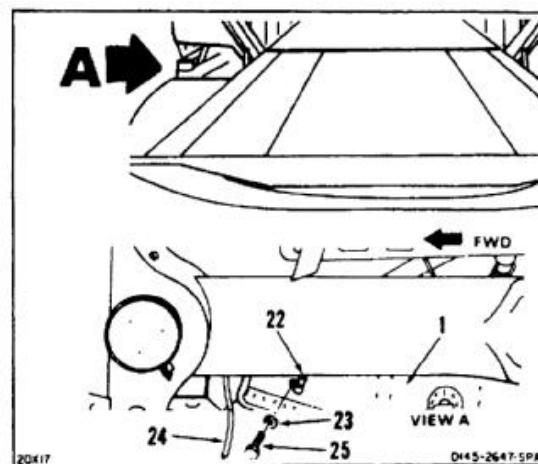
6. Align fittings (10) on fuselage (11) with fittings (12) on ramp (1).
7. Install left and right inboard hinge bolts (13), washers (14), and nuts (15).
8. Install left and right outboard hinge bolts (16), washer (17), and nuts (18).



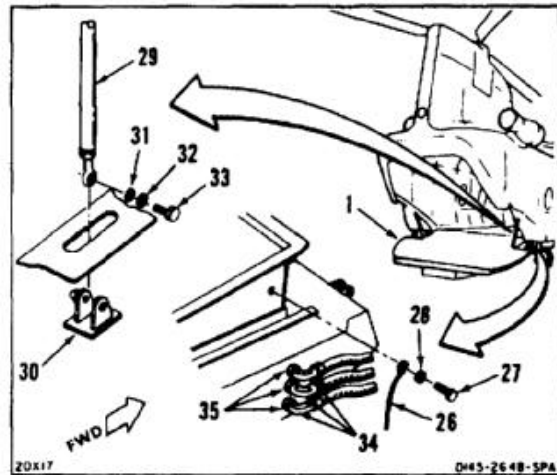
9. Align hinge half (19) of fuselage (11) with hinge half (20) of ramp (1).
10. Install two hinge pins (21). Lockwire pins with lockwire (E229).



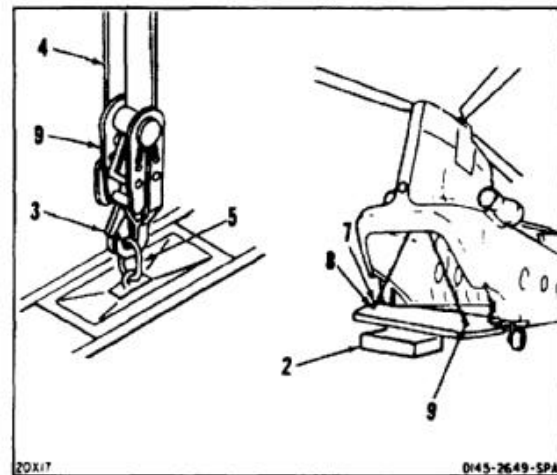
11. Install antenna bracket (22), washers (23), antenna (24), and scrow (25) on ramp (1).



12. Connect two electrical leads (26) on right and left sides of ramp (1). Install two bolts (27) and washers (28).
13. Position two actuator cylinders (29) on lower fittings (30).
14. Install two packings (31), washers (32), and bolts (33).
15. Connect three hydraulic hoses (34) on fittings (35).



16. Ease tension off tiedown strap (4) with ratchet (9).
17. Remove ratchet hook (3) and hook (7) from tiedown rings (5 and 8).
18. Remove strap (4) from helicopter.
19. Remove padded support (2).

**INSPECT****FOLLOW-ON MAINTENANCE:**

- Bleed utility hydraulic system (Task 7-339).
- Perform operational check of cargo ramp (TM 55-1520-240-T).

END OF TASK

2-255.1 REPLACE CARGO RAMP SEALS ON FUSELAGE

2-255.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

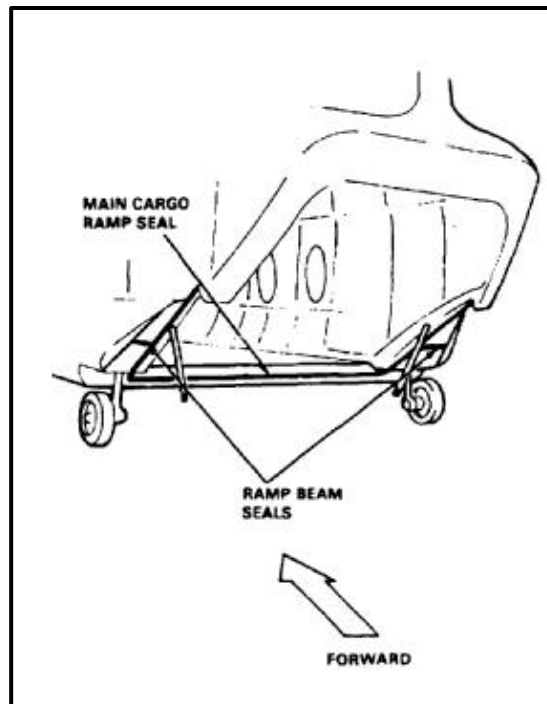
Aircraft Structural Repairer
Inspector

Equipment Condition:

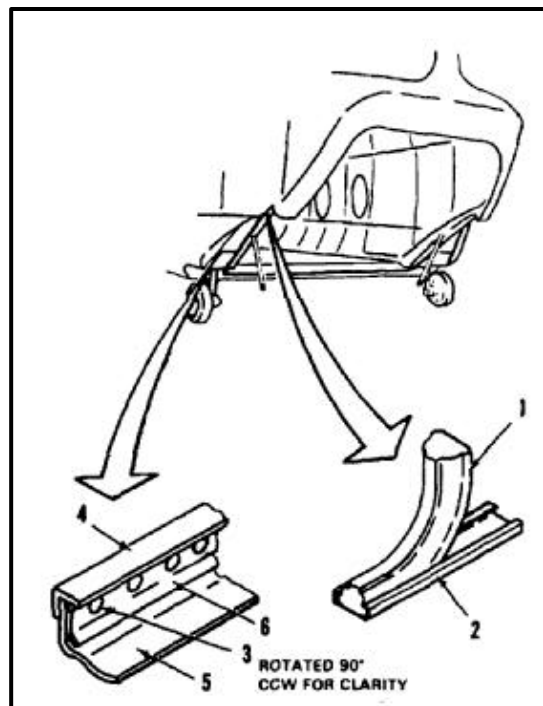
Off Helicopter Task
Cargo Ramp Removed (Task 2-252)

References:

Task 2-311
Task 2-318



1. Remove main cargo ramp fuselage seal as follows:
 - a. Peel main cargo ramp fuselage seal (1) out of seal retainer (2).
 - b. Remove seal (1).
2. Remove cargo ramp beam fuselage seal as follows:
 - a. Drill out ten rivets (3).
 - b. Separate seal (5) from seal and angle (4).



3. Install main cargo ramp fuselage seal as follows:

- a. Clean mating surface of retainer (2) and replacement seal (1) (Task 2-318).
- b. Select adhesive (Task 2-311).
- c. Apply adhesive to outer surface of plug (3) and inner surface of one end of seal (1).
- d. Install plug (3) in one end of seal (1).
- e. Apply adhesive to faying surface of seal retainer (2) and seal (1) (Task 2-318).
- f. Install seal (1) into seal retainer (2) starting with plugged end, continue until seal reaches end of seal retainer. Mark end of seal to be cut off.
- g. Peel end of seal (1) out of seal retainer (2) and cut off seal where marked.
- h. Reinstall seal (1) end into seal retainer (2).

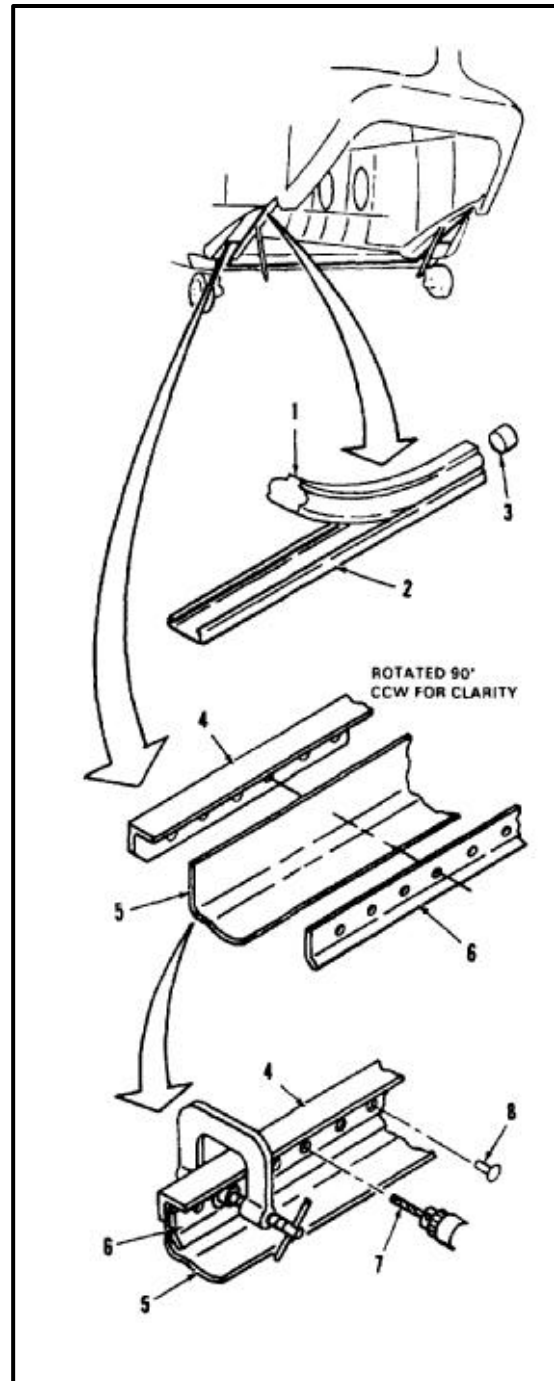
INSPECT

4. Install ramp beam fuselage seal as follows:

- a. Select adhesive (Task 2-311).
- b. Apply adhesive to faying surface of replacement seal (5), angle (4), and seal retainer (6) (Task 2-318).
- c. Place seal (5) and seal retainer (6) in position against angle (4) and clamp.
- d. Pilot drill (7) seal (5) through angle (4) and seal retainer (6).
- e. Install rivets (8) ten places.

INSPECT**FOLLOW-ON MAINTENANCE:**

Install cargo ramp (Task 2-255).



END OF TASK

2-256 REMOVE CARGO DOOR RAMP PANEL (ESCAPE HATCH)

2-256

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

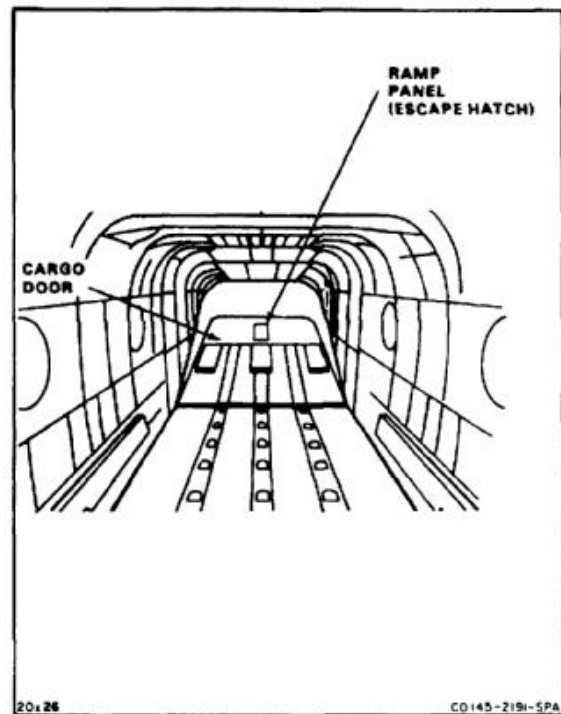
Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)

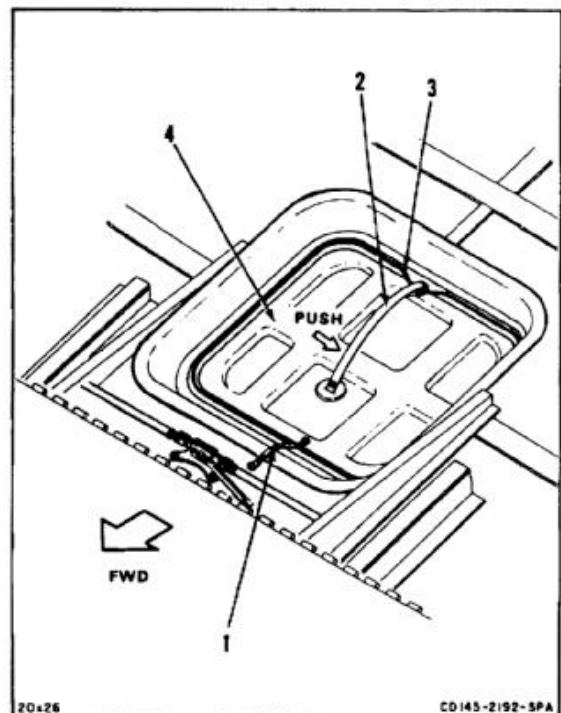
Electrical Power Off

Cargo Ramp Lowered and Cargo Door Fully
Extended (TM 55-1520-240-T)

1. Disconnect electrical lead (1).
2. Pull release (2) to unseat filler strip (3).
3. Remove filler strip (3) from panel (4).
4. Position helper outside helicopter to catch panel (4).
5. Push out and remove panel (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Container, 2 Quart
 Window Tool 756460
 Window Tool 756475

Materials:

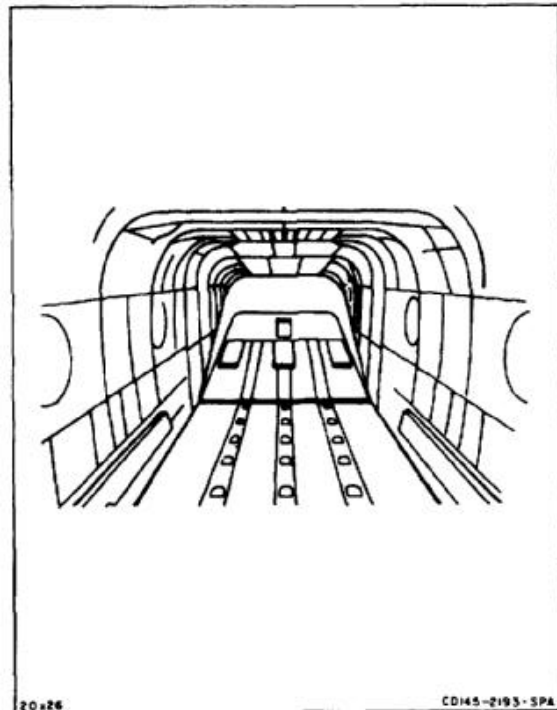
Brush (E86)
 Soap (E352)
 Water

Personnel Required:

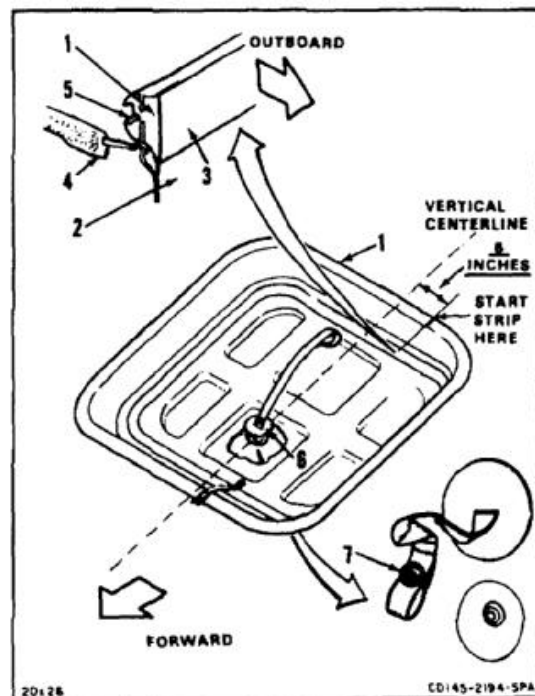
Medium Helicopter Repairer (2)
 Inspector

References:

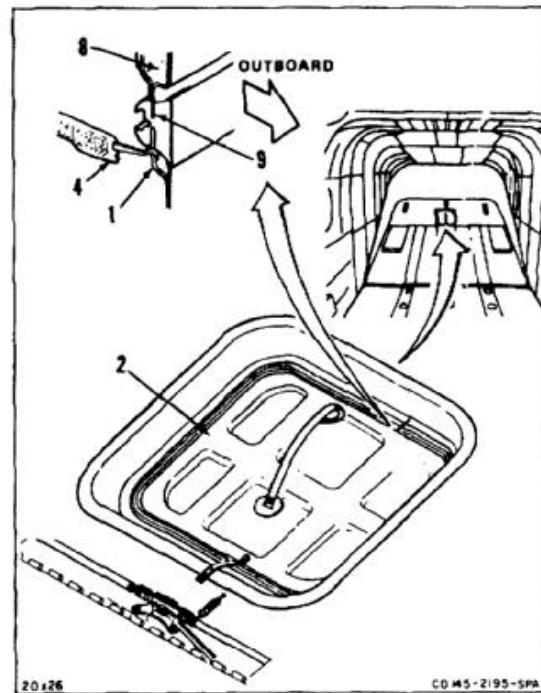
TM 55-1520-240-23P



1. Position rubber strip (1) on ramp panel (2) (escape hatch). Make sure flat side (3) of strip is outboard.
2. With aid of helper, install strip (1) starting at upper right side of panel (2), **6 inches** from centerline. Use window tool (756475) (4), soap (E352), water, and brush (E86). Inner channel (5) of strip shall be over edge of panel.
3. Check grommet (6) and fastener (7). Release grommet shall be secured on panel (2). Fastener shall be secured outside of panel (2).



4. Have helper position and hold panel (2) from outside helicopter.
5. Install strip (1) around structure (8). Outer channel (9) of strip shall be over structure. Use window tool (756475) (4), soap (E352), water, and brush (E86).



WARNING

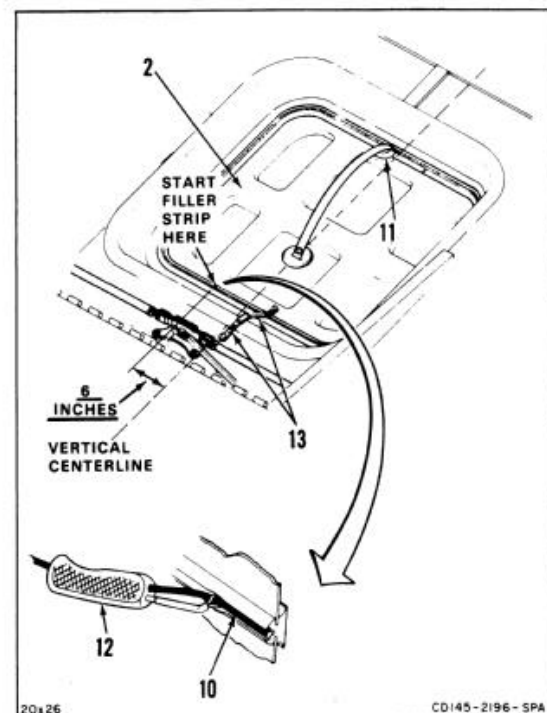
Install filler strip in one piece. Otherwise, when release strap is pulled, filler strip will not be completely removed and panel will still be held firmly in place. This could result in personnel being trapped during an emergency.

6. Install filler strip (10), starting at lower left side of panel (2), about **6 inches** from centerline. Use window tool (756460) (12), soap (E352), water, and brush (E86).
7. Remove tool (756460) (12) and pass filler strip (10) through loop of release strap (11). Reinstall tool (756460) on filler strip (10).
8. Loop of release strap (11) shall be secured to filler strip (10) at top of panel (2).
9. Connect electrical lead (13) to panel (2).

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-323-4692

Materials:

None

Personnel Required:

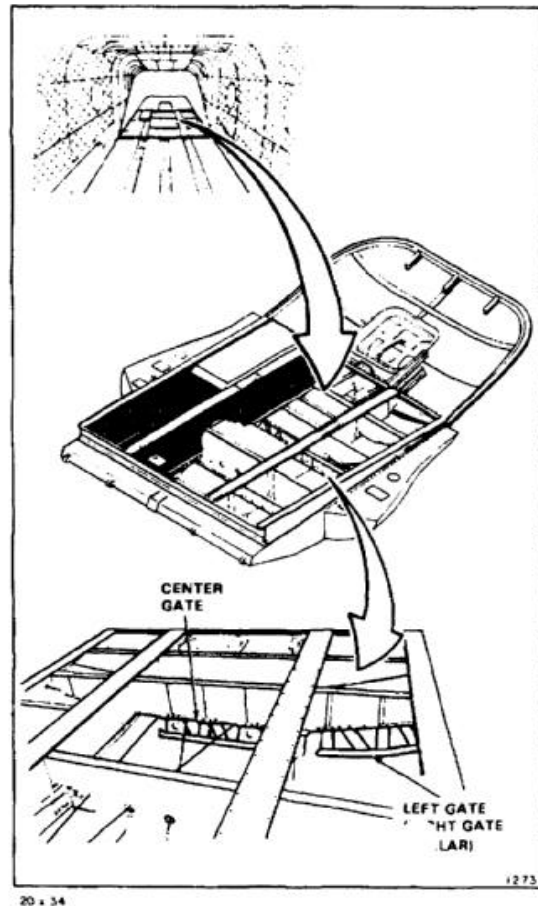
Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off

Cargo Ramp Lowered and Cargo Door Fully
Extended (TM 55-1520-240-T)Cargo Ramp Floor Panels Removed as Required
(Task 2-247)

20 x 34

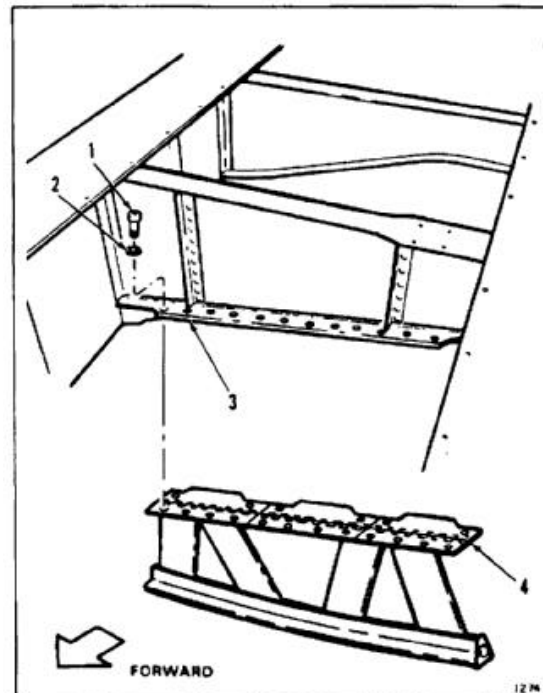
NOTE

Procedure is same to remove center, left, or right gate. Left gate shown here.

1. Remove 12 screws (1) and washers (2) from bottom flange of former (3).
2. Remove gate (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

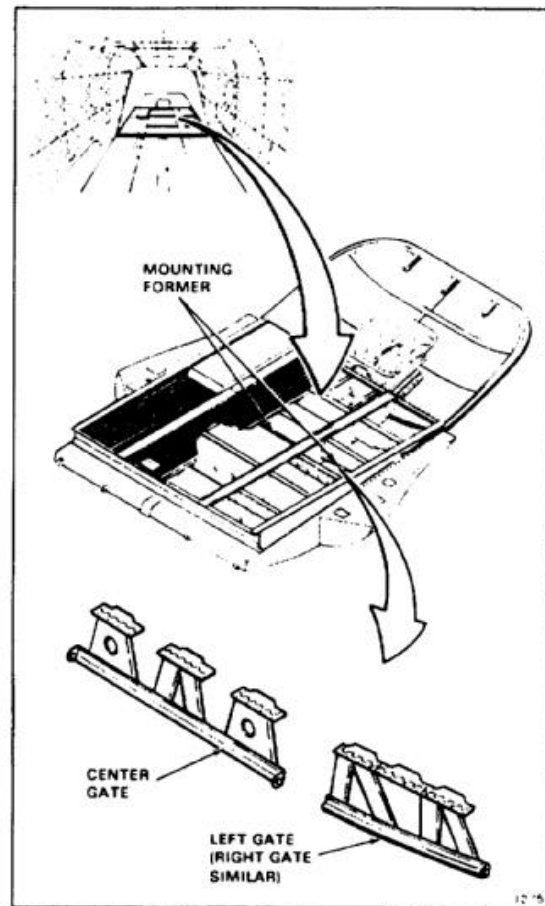
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:Medium Helicopter Repairer
Inspector**References:**

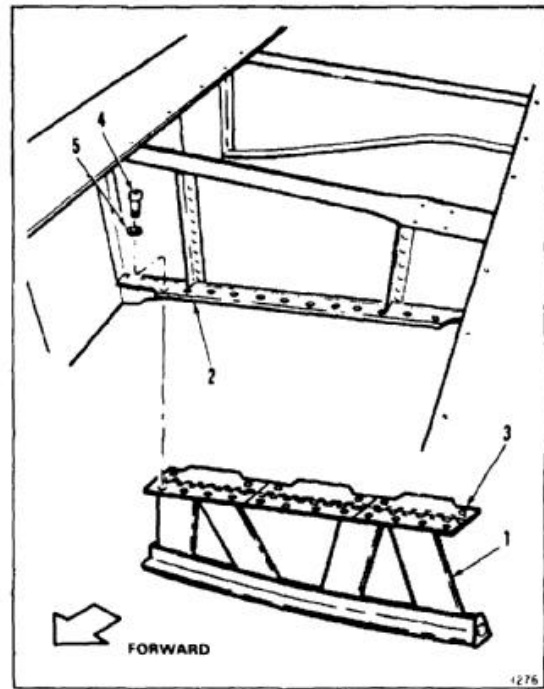
TM 55-1520-240-23P



NOTE

Procedure is same to install center, left, or right gate. Left gate shown here.

1. Position gate (1) under bottom flange of former (2). Align holes in gate hinge (3) and former.
2. Install 12 screws (4) and washers (5).
3. Check that gate (1) swings forward on hinge easily.

**FOLLOW-ON MAINTENANCE:**

- Install cargo ramp floor panels (Task 2-249).
- Raise cargo ramp (TM 55-1520-240-T).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

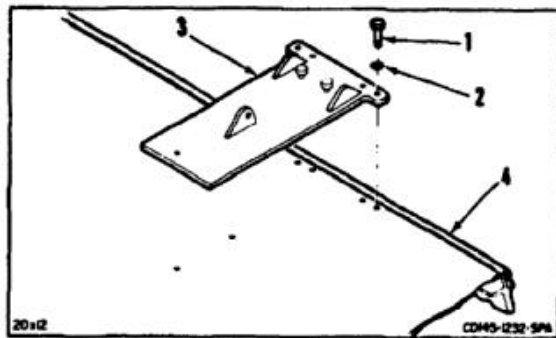
Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Cargo Ramp Lowered



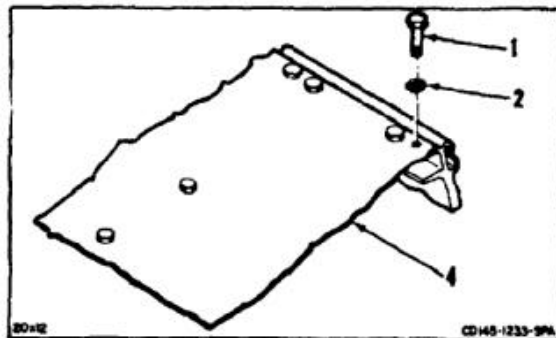
1. Remove six bolts (1) and washers (2) from plate (3).
2. Remove plate (3) from ramp floor (4).



3. Install six bolts (1) and washers (2) in holes in ramp floor (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-904

INITIAL SETUP

Applicable Configurations:

All

Tools:

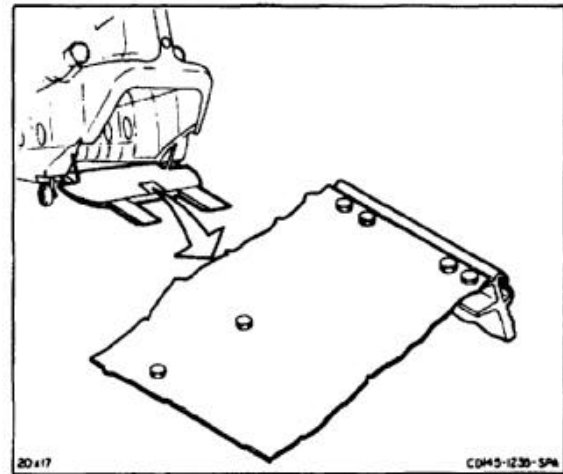
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

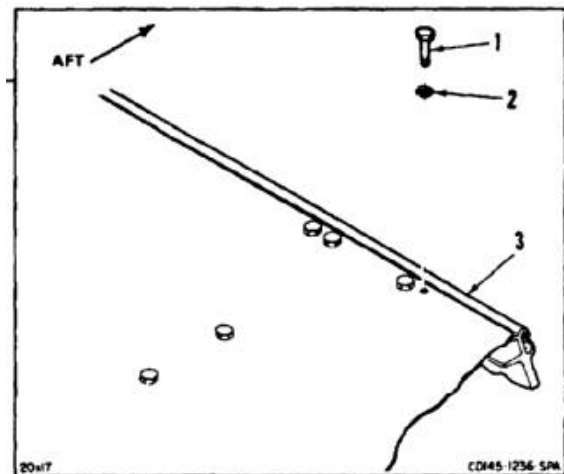
None

Personnel Required:Medium Helicopter Repairer
Inspector**References:**

TM 55-1520-240-23P



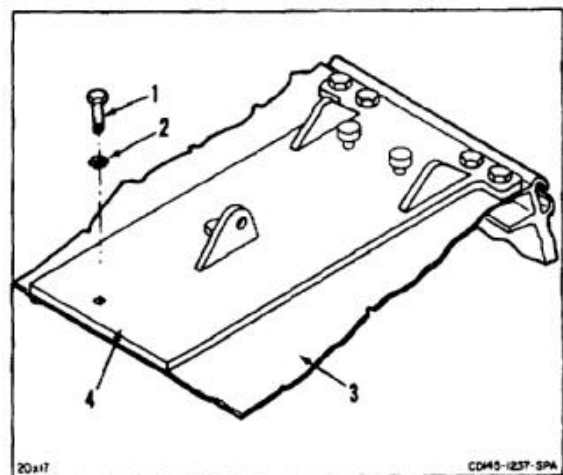
1. Remove six bolts (1) and washers (2) from aft center of ramp floor (3).



2. Install plate (4) on ramp floor (3).
3. Line up holes through plate (4) and ramp floor (3).
4. Install six bolts (1) and washers (2) in plate (4).

INSPECT**FOLLOW-ON MAINTENANCE:**

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

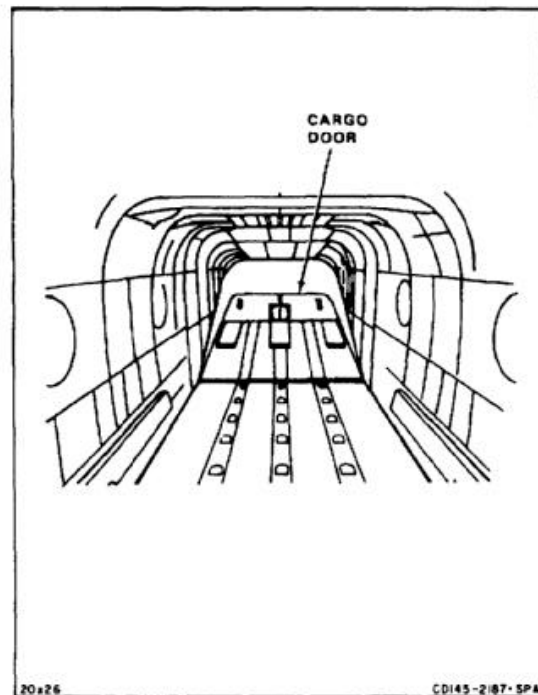
None

Personnel Required:

Medium Helicopter Repairer (3)

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Cargo Ramp Extensions Folded and Cargo Ramp
 Level (TM 55-1520-240-T)
 Cargo Door Fully Extended (TM 55-1520-240-T)

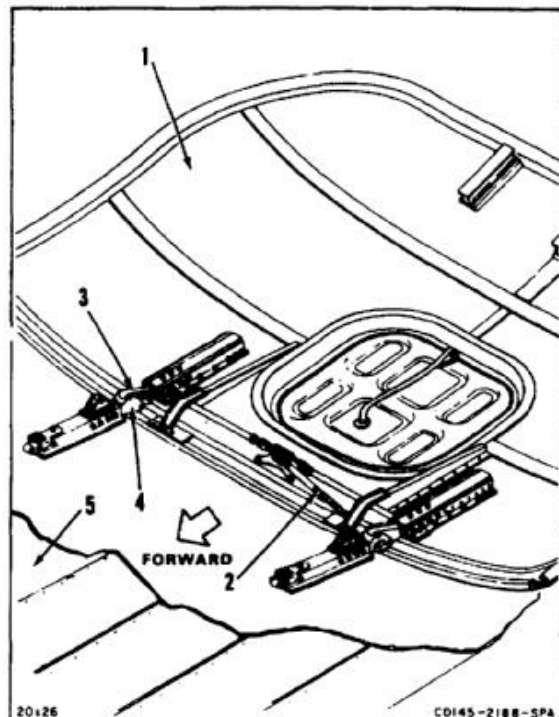


1. Have helpers support cargo door (1).



Do not pull release handle more than 135° or damage to release mechanism can occur.

2. Raise handle (2) and unlock bodies (3) from receivers (4).
3. Remove door (1) from ramp (5).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-906

2-261 REMOVE CARGO DOOR TRACK SUPPORT

2-261

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Personnel Required:

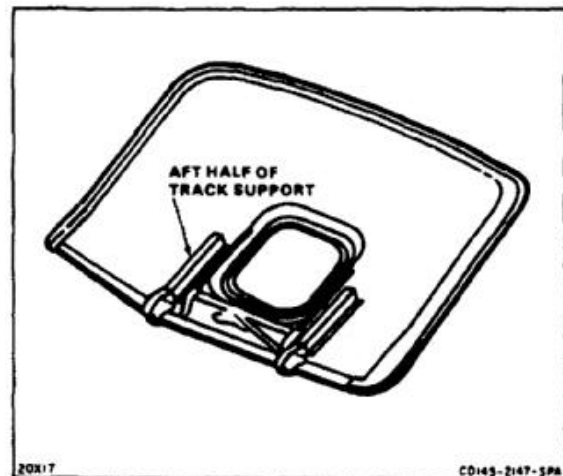
Medium Helicopter Repairer (2)

Equipment Condition:

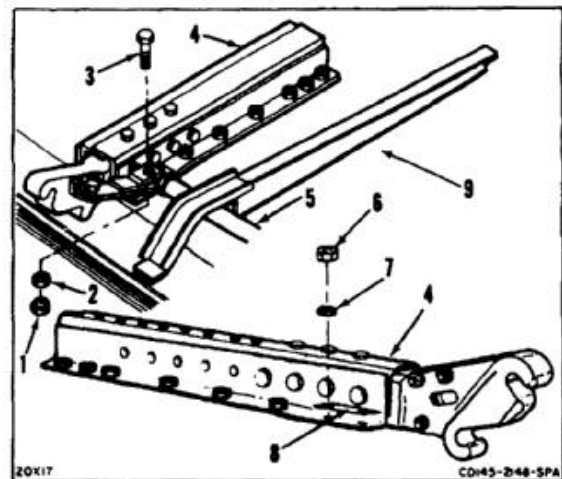
Battery Disconnected (Task 1-39)
 Electrical Power Off
 Cargo Door Removed (Task 2-260)

**NOTE**

Procedure is same for right and left supports. Right support is shown here.

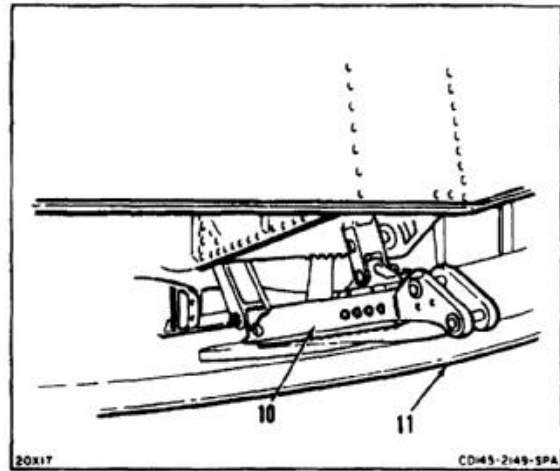
**REMOVE AFT HALF OF SUPPORT**

1. Remove nut (1), washer (2), and bolt (3) from aft half of track support (4) and connecting link (5).
2. Disconnect connecting link (5) from support (4).
3. Remove 16 nuts (6), washers (7), and plate (8) from support (4).
4. Remove support (4) from cargo door (9).

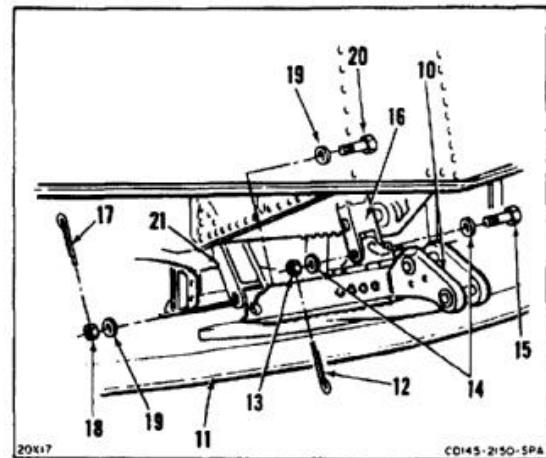


REMOVE FORWARD HALF OF SUPPORT

5. Make sure support (10) is in extended position in ramp (11) as shown.



6. Remove cotter pin (12), nut (13), two washers (14), and bolt (15) from actuator link (16).
7. Disconnect actuator link (16) from track support (10).
8. Remove cotter pin (17), nut (18), two washers (19), and bolt (20).
9. Disconnect actuator link (21) from track support (10).
10. Remove forward half of support (10) from ramp (11).

**FOLLOW-ON MAINTENANCE:**

Remove receiver from track support (Task 2-263).

END OF TASK

2-908

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Lubricant (E235)

Parts:

Cotter Pins

Personnel Required:Medium Helicopter Repairer (2)
Inspector**References:**

TM 55-1520-240-23P

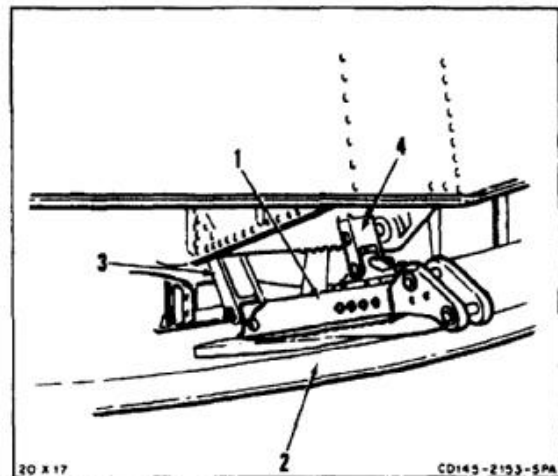
Equipment Condition:

Install Cargo Door Body and Receiver (Task 2-264)

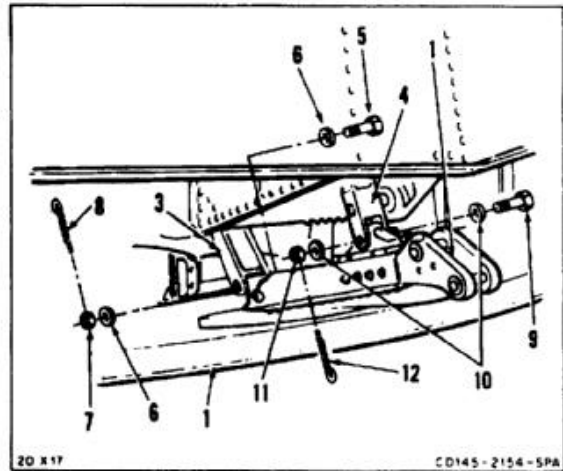
**INSTALL FORWARD HALF****NOTE**

Procedure is same to install right or left support. Installation of right support is shown.

1. Position forward half of support (1) on ramp (2) under links (3 and 4).

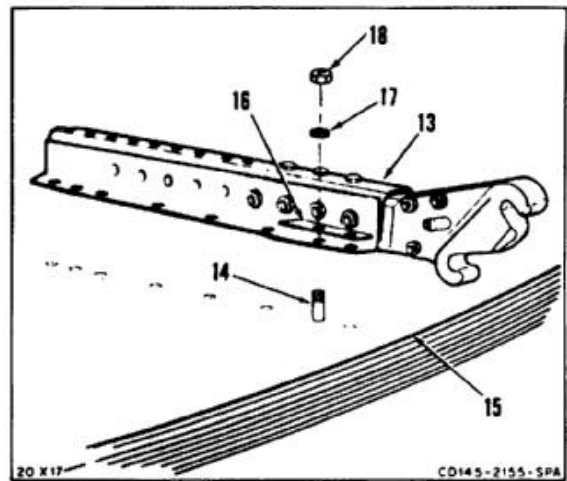


2. Coat bolt (5) with lubricant (E235). Install bolt, two washers (6), nut (7), and cotter pin (8) through support (1) and link (3).
3. Coat bolt (9) with lubricant (E235). Install bolt, two washers (10), nut (11), and cotter pin (12) through support and link (4).



INSTALL AFT HALF

4. Position aft half support (13) on 16 bolts (14) on door (15). Position plates (16) on bolts (14).
5. Install 16 washers (17) and nuts (18).

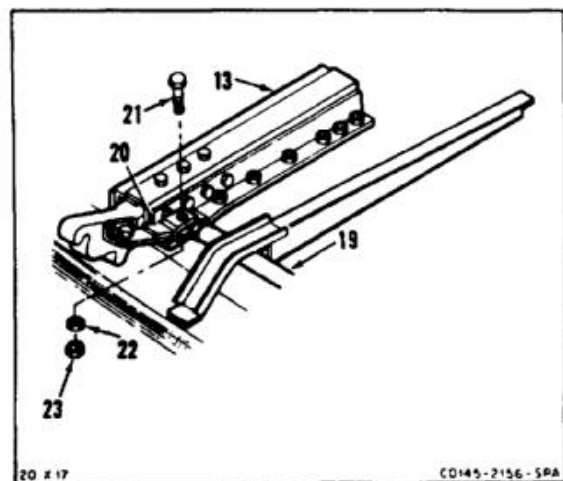


6. Position connecting link (19) on bracket (20). Install bolt (21), washer (22), and nut (23).

INSPECT

FOLLOW-ON MAINTENANCE:

Install cargo door on cargo ramp (Task 2-271).



END OF TASK

2-262.1 REMOVE FORWARD AND AFT TROLLEY LINK ASSEMBLIES**2-262.1****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

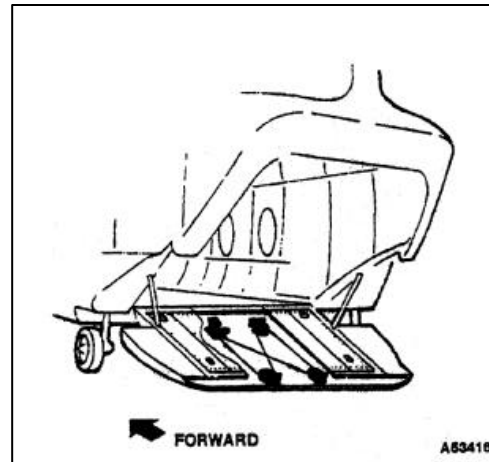
None

Personnel Required:

Medium Helicopter Repairer (2)

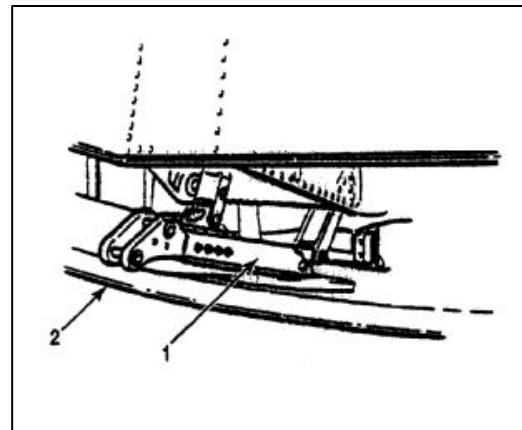
Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Cargo Door Removed (Task 2-260)
 Cargo Ramp Extensions Removed (Task 2-238)
 Cargo Ramp Center Floor Panel Removed (Task 2-256)

**NOTE**

Procedure is same for right and left supports. Right support is shown here.

1. Make sure track support (1) is in extended position in ramp (2) as shown.



REMOVE LOWER FORWARD AND AFT TROLLEY LINK ASSEMBLIES

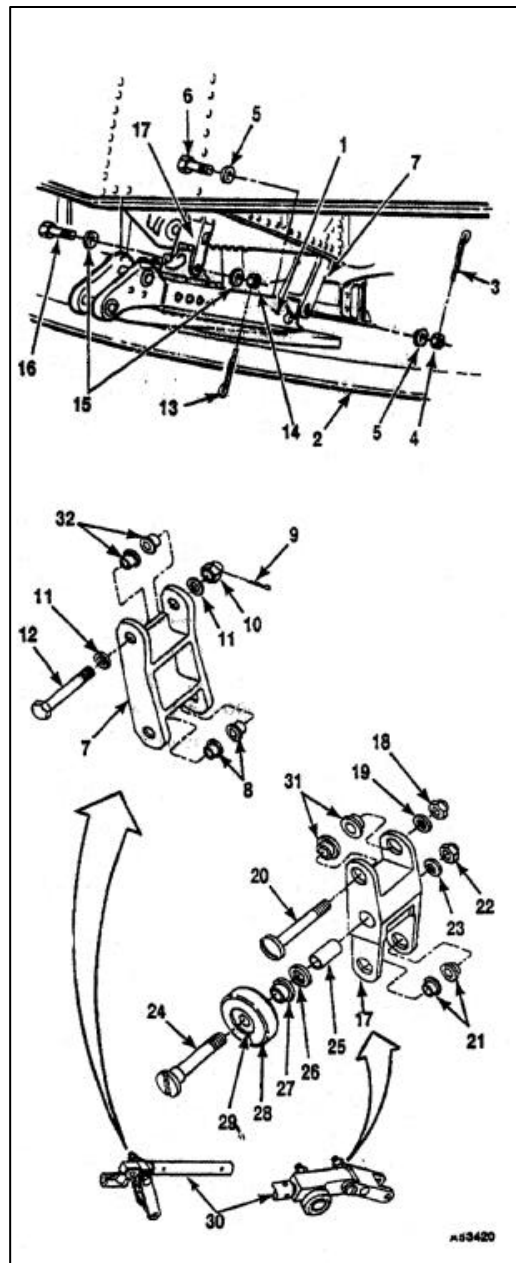
2. Remove cotter pin (3), nut (4), two washers (5), and bolt (6) from forward trolley link assembly (7).
3. Disconnect forward trolley link assembly (7) from track support (1).
4. Remove two flanged bushings (8) from forward trolley link assembly (7).
5. Remove cotter pin (13), nut (14), two washers (15), and bolt (16) from aft trolley link assembly (17).
6. Disconnect aft trolley link assembly (17) from track support (1).
7. Remove two flanged bushings (21) from aft trolley link assembly (17).

REMOVE UPPER FORWARD AND AFT TROLLEY LINK ASSEMBLIES

8. Remove cotter pin (9), nut (10), two washers (11), and bolt (12) from upper section of forward trolley link assembly (7).
9. Disconnect forward trolley link assembly (7) from trolley link assembly (20).
10. Remove two flanged bushings (32) from forward trolley link assembly.
11. Remove nut (18), washer (19), and clevis bolt (20) from upper section of aft trolley link assembly (17).
12. Disconnect aft trolley link assembly (17) from trolley link assembly (30).
13. Remove two flanged bushings (31) from aft trolley link assembly (17).
14. Remove nut (22) and washer (23) from trolley wheel axle (24).
15. Remove bushing (25), oversized washer (26), and sleeve bushing (27) from trolley wheel axle (24).
16. Remove trolley wheel axle (24), roller race (28), and roller ball (29) from aft trolley link assembly (17).

FOLLOW-ON MAINTENANCE:

Remove cargo door body and receiver set (Task 2-263, as required).



END OF TASK

2-262.2 INSTALL FORWARD AND AFT TROLLEY LINK ASSEMBLIES

2-262.2

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692
Arbor Press

Materials:

Lubricant (E235)
Gloves (E184.1)

Parts:

Cotter Pins
Sleeve Bushings

Personnel Required:

Medium Helicopter Repairer (2)
Inspector

References:

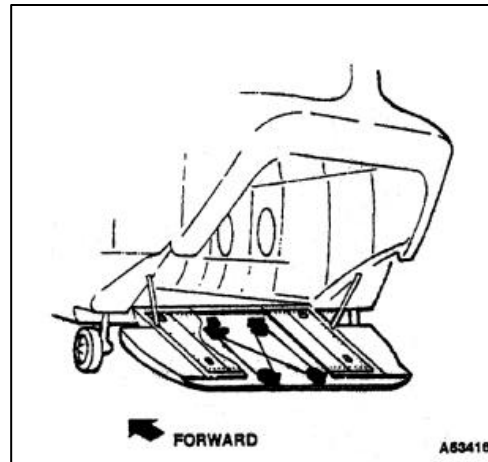
TM 1-1520-252-23P

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Cargo Ramp Extensions Removed (Task 2-238)
Cargo Ramp Center Floor Panel Removed (Task
2-256)

General Safety Instructions:**WARNING**

Lubricant (E235) is toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

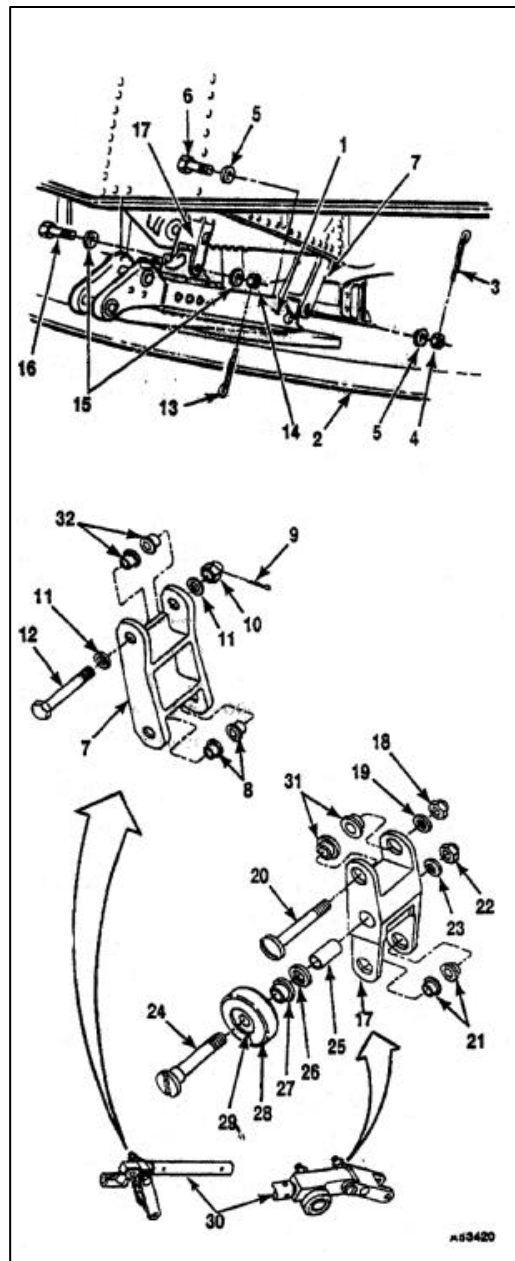


INSTALL LOWER FORWARD AND AFT TROLLEY LINK ASSEMBLIES**NOTE**

Procedure is same for right and left supports. Right support is shown here.

To prevent binding of link assemblies, do not overtighten.

1. Install two flanged bushings (8) in the lower forward trolley link assembly (7). Use arbor press.
2. Align forward trolley link assembly (7) with track support (1).
3. Coat bolt (6) with lubricant (E235). Wear gloves (E184.1).
4. Install bolt (6), two washers (5), and nut (4) in lower forward trolley link assembly (7) and track support (1). Install cotter pin (3).
5. Install two flanged bushings (21) in the lower aft trolley link assembly (17). Use arbor press.
6. Align aft trolley link assembly (17) with track support (1).
7. Coat bolt (16) with lubricant (E235). Wear gloves (E184.1).
8. Install bolt (16), two washers (15), and nut (14) in the lower aft trolley link assembly (17). Install cotter pin (13).



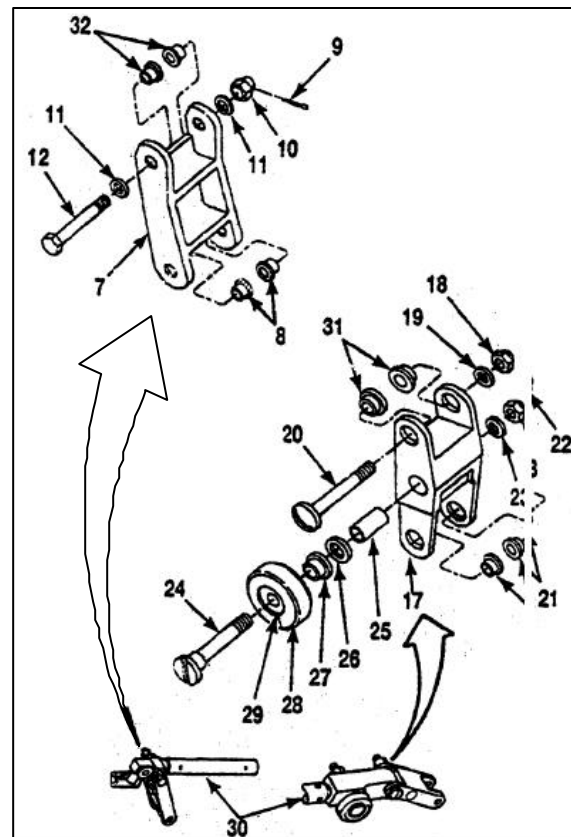
INSTALL UPPER FORWARD AND AFT TROLLEY LINK ASSEMBLIES

9. Install two flanged bushings (32) into the upper forward trolley link assembly (7).
10. Coat bolt (12) with lubricant (E235).
11. Install bolt (12), two washers (11), and nut (10) through the upper forward trolley link assembly (7). Install cotter pin (9), and tighten nut (10).
12. Install the upper forward trolley link assembly (7) into trolley link assembly (30).
13. Install sleeve bushing (27) into upper aft trolley link assembly (17). Use arbor press.

NOTE

Trolley link assemblies must move freely. For trolley link adjustments, install shim, as required, between the roller race and the oversized washer.

14. Install roller ball (29), roller race (28), oversized washer (26), and plain bushing (25) onto trolley wheel axle (24).
15. Install trolley wheel axle (24) into upper aft trolley link assembly (17).
16. Install washer (23) and nut (22) onto trolley wheel axle (24). Tighten nut (22).
17. Install two flanged bushings (31) into the upper aft trolley link assembly (17). Use arbor press.
18. Install upper aft trolley link assembly (17) into trolley link assembly (30).
19. Coat clevis bolt (20) with lubricant (E235).
20. Install clevis bolt (20), washer (19), and nut (18) through upper aft trolley link assembly (17) and trolley link assembly (30). Tighten nut (18).

**FOLLOW-ON MAINTENANCE:**

- Install cargo door body and receiver set (Task 2-264).
- Install cargo ramp center floor panel (Task 2-257).
- Install cargo ramp extensions (Task 2-244).
- Install cargo door (Task 2-271).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

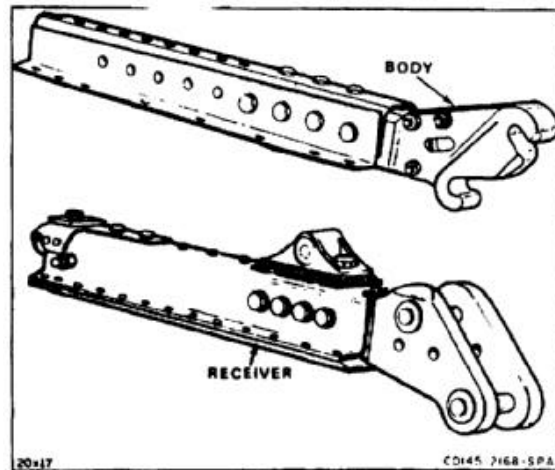
None

Personnel Required:

Medium Helicopter Repairer

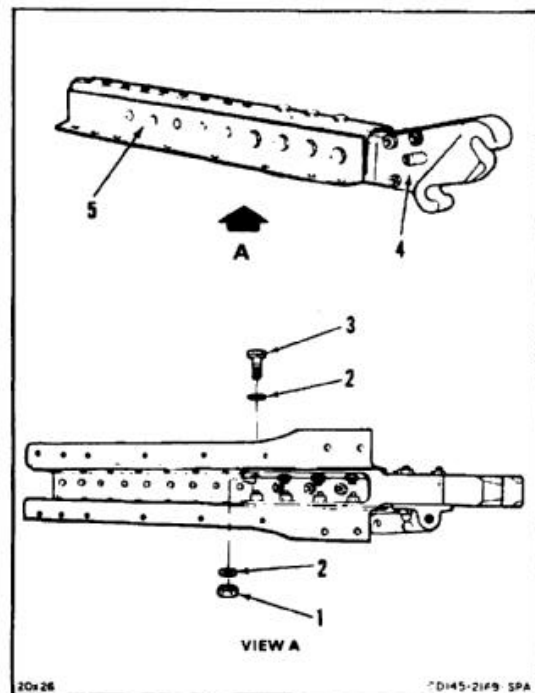
Equipment Condition:

Off Helicopter Task



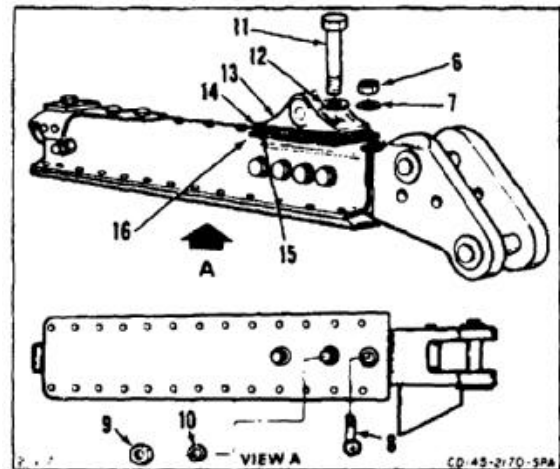
REMOVE BODY

1. Remove 11 nuts (1), 22 washers (2), and 11 bolts (3).
2. Remove body (4) from track support (5).

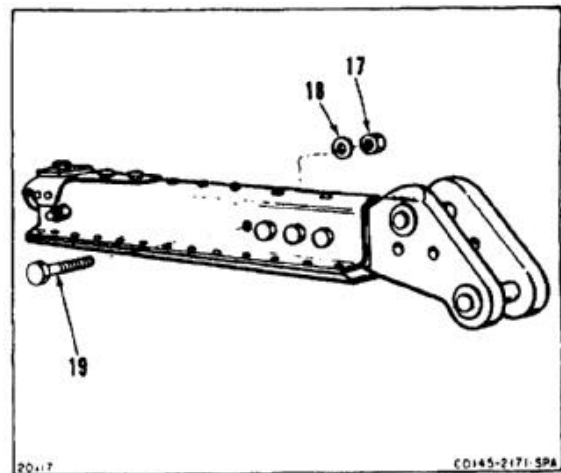


REMOVE RECEIVER

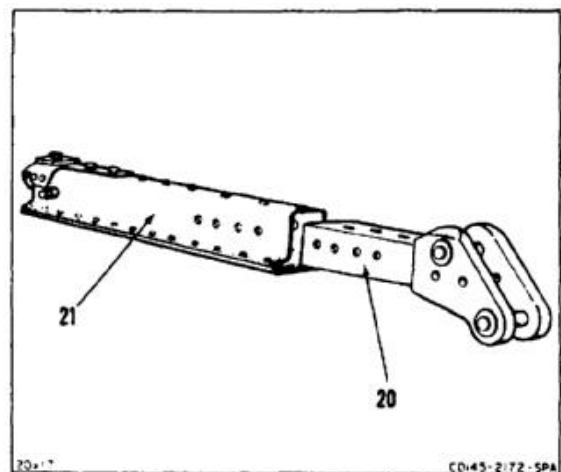
3. Remove nut (6) and washer (7).
4. Remove screw (8).
5. Remove two nuts (9) and washers (10).
6. Remove two bolts (11) and washers (12).
7. Remove fitting (13), fitting base (14), and spacer (15). Remove shim (16) if installed.



8. Remove four nuts (17), washers (18), and bolts (19).



9. Remove receiver (20) from support (21).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Lubricant (E235)

Parts:

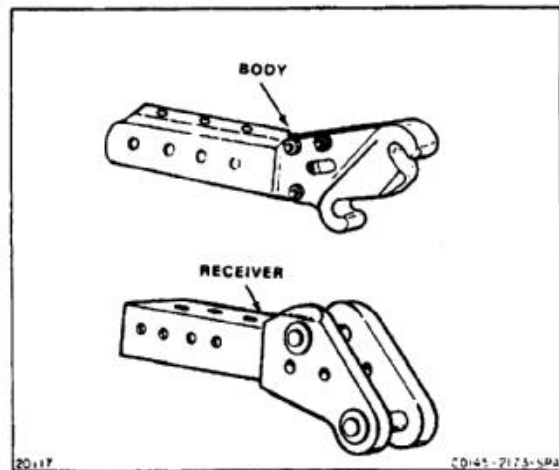
Shims

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P

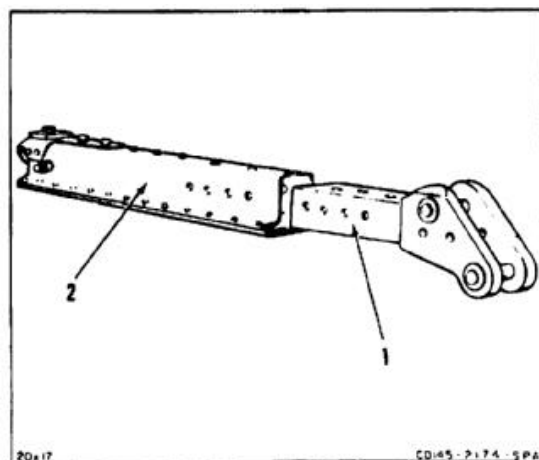


NOTE

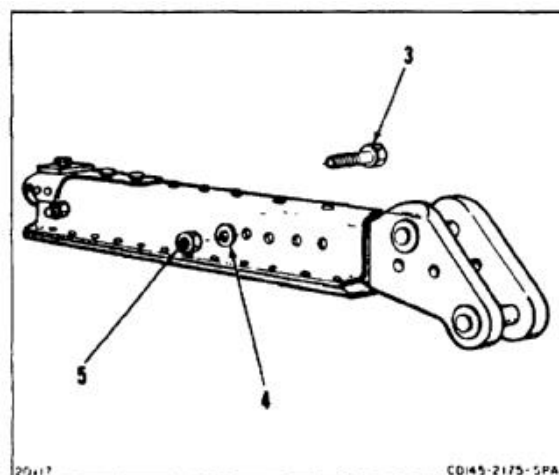
Body and receiver must be replaced as a matched set.

INSTALL RECEIVER

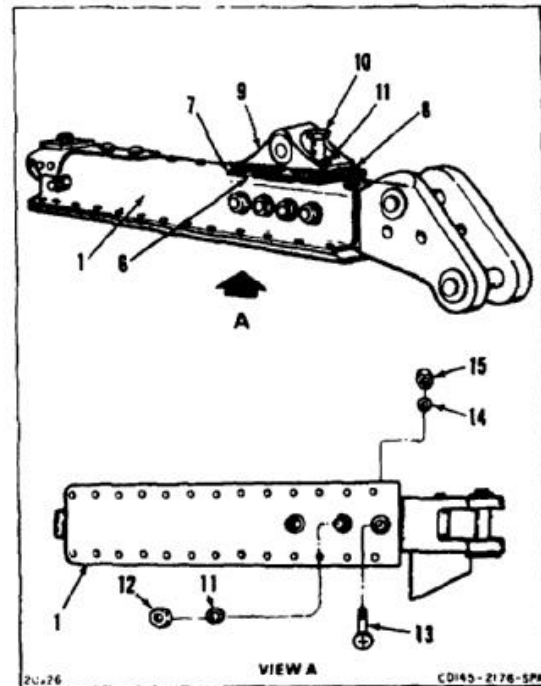
1. Install receiver (1) in forward support (2). Align holes in receiver and support.



2. Install four bolts (3), washers (4), and nuts (5).



3. Position spacer (6), shims (7), if used, fitting base (8), and fitting (9) on receiver (1) as shown. Install two bolts (10).
4. Install two washers (11) and nuts (12) on bolts (10).
5. Install screw (13) with screw head on bottom of receiver (1). Install washer (14) and nut (15) on screw.

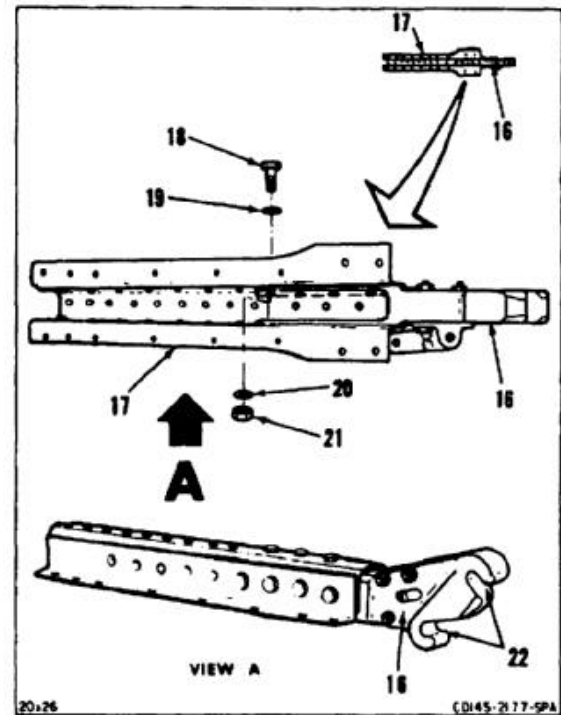


INSTALL BODY

6. Install body (16) in aft support (17).
7. Install 11 bolts (18), 22 washers (19 and 20), and nuts (2).
8. Lubricate mouth (22) of body (16) with lubricant (E235).

FOLLOW-ON MAINTENANCE:

Install track support (Task 2-262).
Adjust cargo door (Task 2-272).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Drift, 1/8 Inch Diameter

Materials:

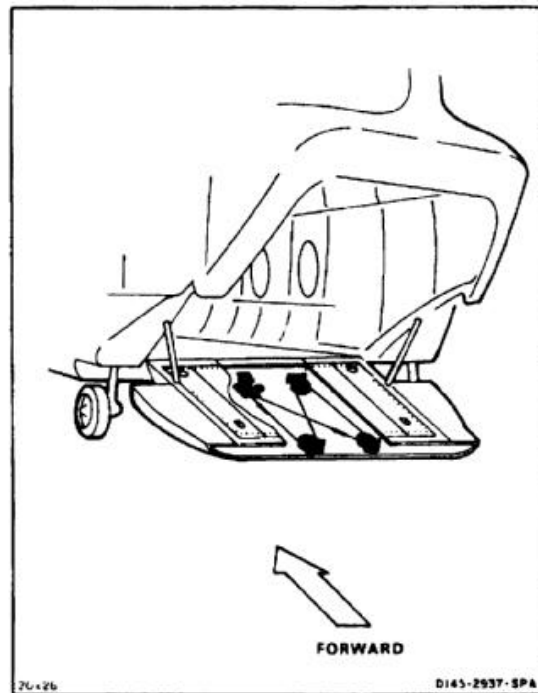
None

Personnel Required:

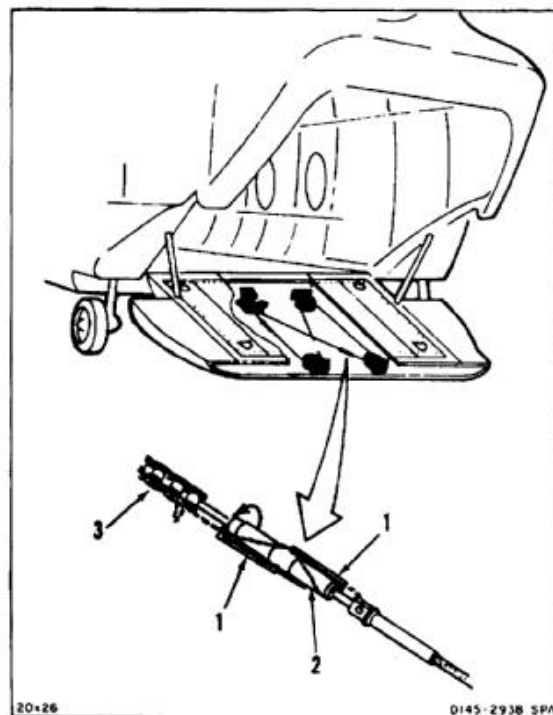
Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 Cargo Ramp Lowered and Ramp Door Retracted
 (TM 55-1520-240-T)
 Cargo Ramp Extensions Removed (Task 2-238)
 Cargo Ramp Center Floor Panel Removed (Task
 2-256)

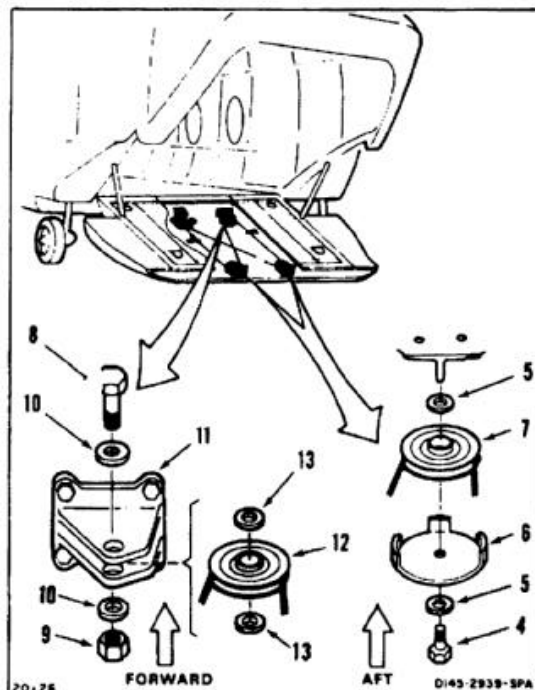


1. Cut lockwire and remove two clips (1) from turnbuckle (2).
2. Remove turnbuckle (2) from chain and wire rope (3). Turn counterclockwise. Use drift through hole.

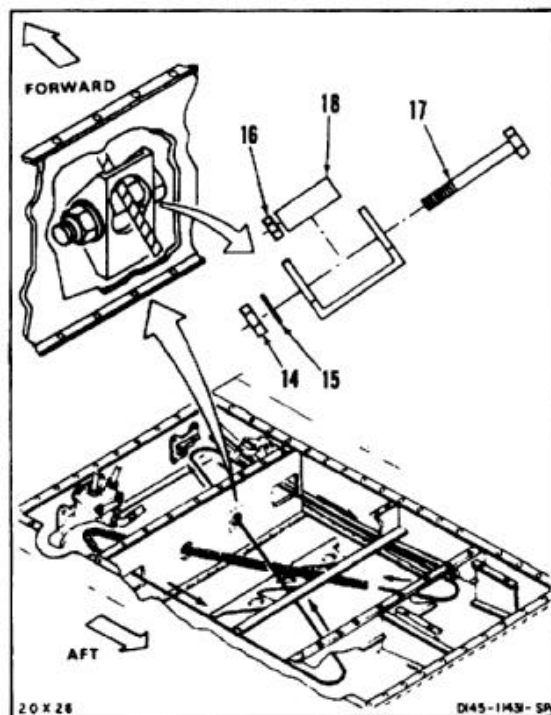


2-265 REMOVE CARGO DOOR CHAIN AND WIRE ROPE (Continued)

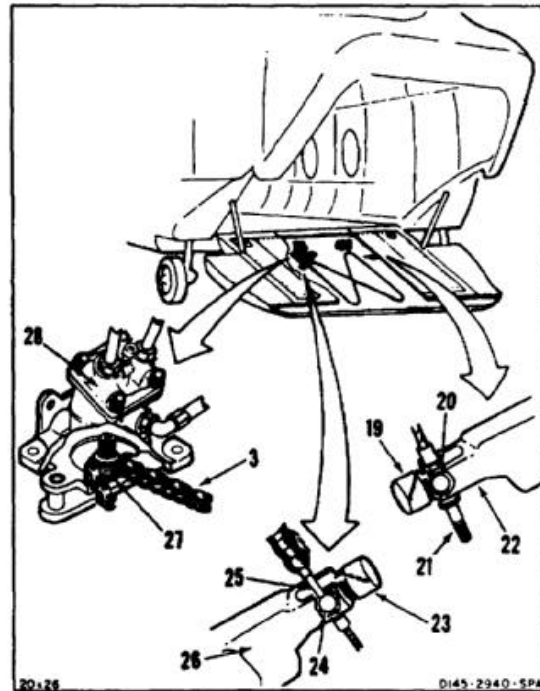
3. Remove two bolts (4) and four washers (5) from two aft cable guides (6). Remove aft cable guides and pulleys (7).
4. Remove bolt (8), nut (9), and two washers (10) from bracket (11).
5. Slide pulley (12) from bracket (11) and remove two washers (13). Remove pulley.



6. Remove nut (14), washer (15), nut (16), bolt (17), and spacer (18).



7. Cut lockwire and remove cap (19).
8. Remove ball (20) of terminal (21) from link (22).
9. Cut lockwire and remove cap (23).
10. Remove ball (24) of terminal (25) from link (26).
11. Remove chain of wire rope (3) from around sprocket (27) at bottom of actuator (28).
12. With aid of helper, remove chain and wire rope (3).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-922

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

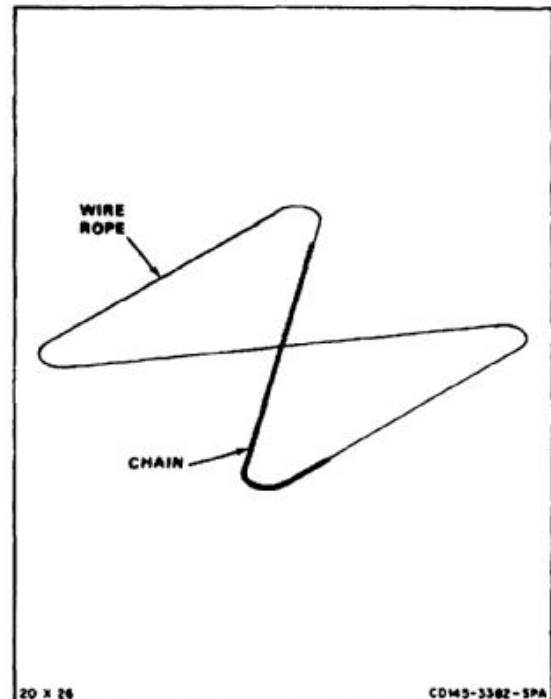
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

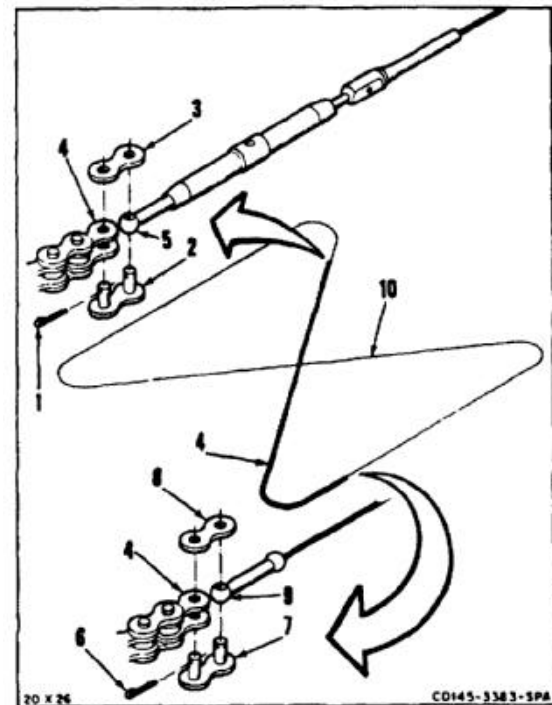
Off Helicopter Task



1. Remove two cotter pins (1) from ends of connecting link (2). Remove master link (3).
2. Remove connecting link (2) from chain (4) and terminal (5).
3. Remove two cotter pins (6) from ends of connecting link (7). Remove master link (8).
4. Remove connecting link (7) from chain (4) and terminal (9).
5. Separate chain (4) and wire rope (10).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Parts:

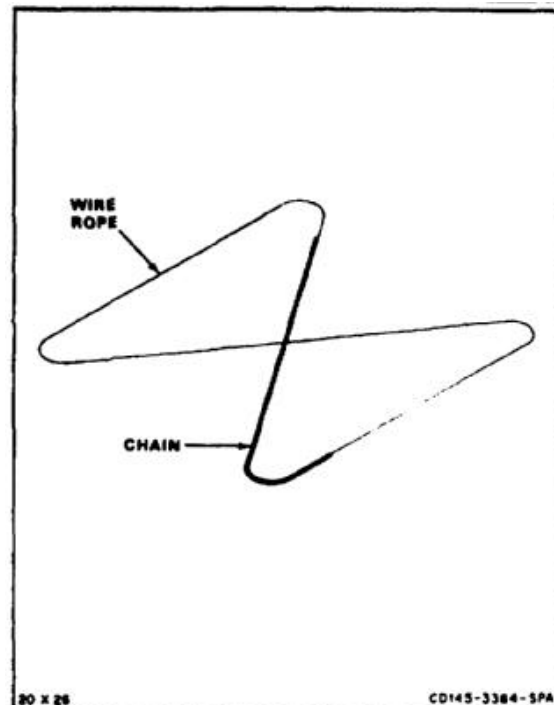
Cotter Pins

Personnel Required:

Medium Helicopter Repairer

References:

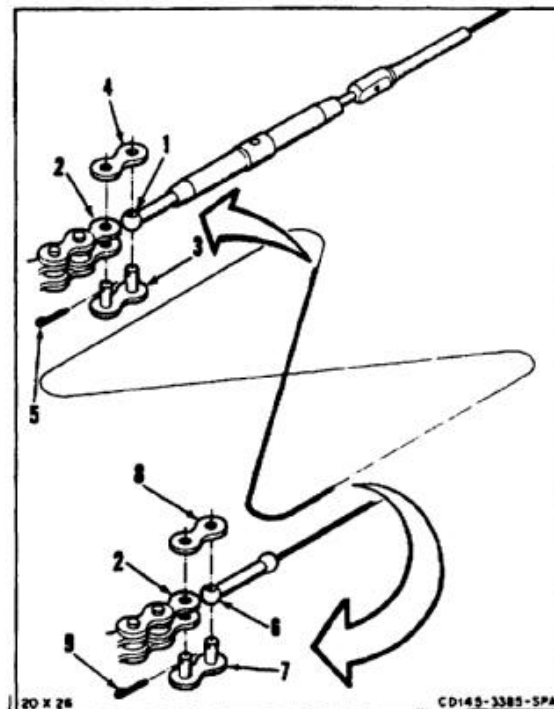
TM 55-1520-240-23P



1. Position terminal (1) on chain (2).
2. Install connecting link (3) through chain (2) and terminal (1).
3. Position master link (4) over connecting link (3). Install two cotter pins (5) in ends of connecting link.
4. Position terminal (6) on chain (2).
5. Install connecting link (7) through chain (2) and terminal (6).
6. Position master link (8) over connecting link (7). Install two cotter pins (9) in ends of connecting link.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-924

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Tension Meter, 10 to 200 Pounds
 Drift, 1/8 Inch Diameter

Materials:

Lockwire (E229)
 Lockwire (E231)

Parts:

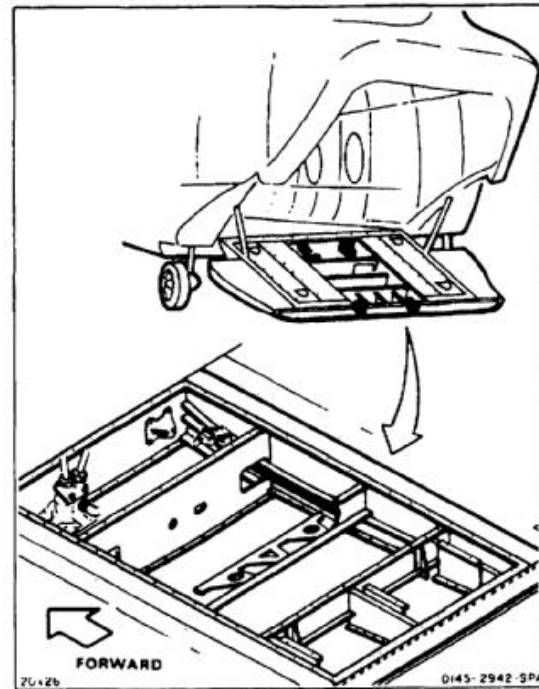
Retaining Clips (2)

Personnel Required:

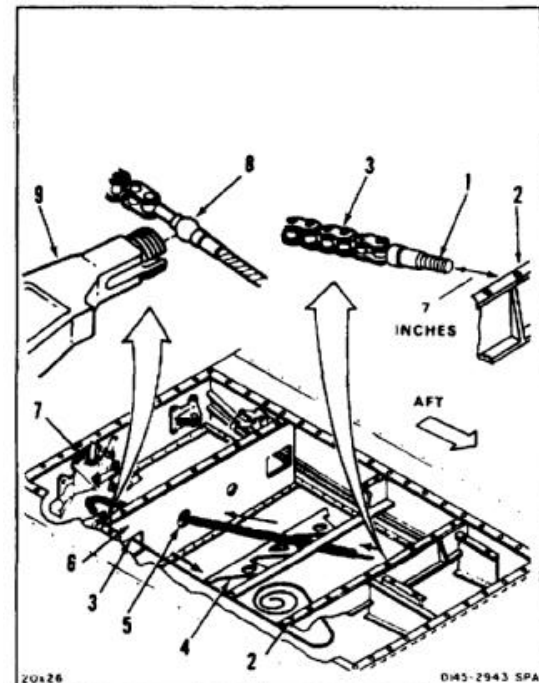
Medium Helicopter Repairer (2)
 Inspector

References:

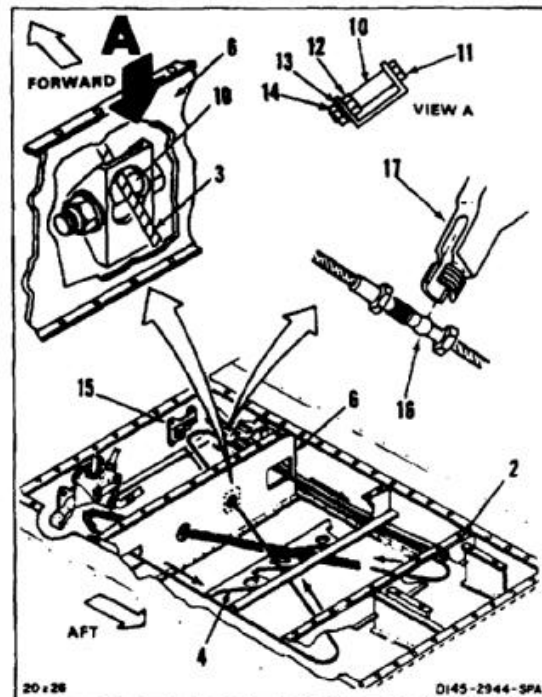
TM 55-1520-240-23P



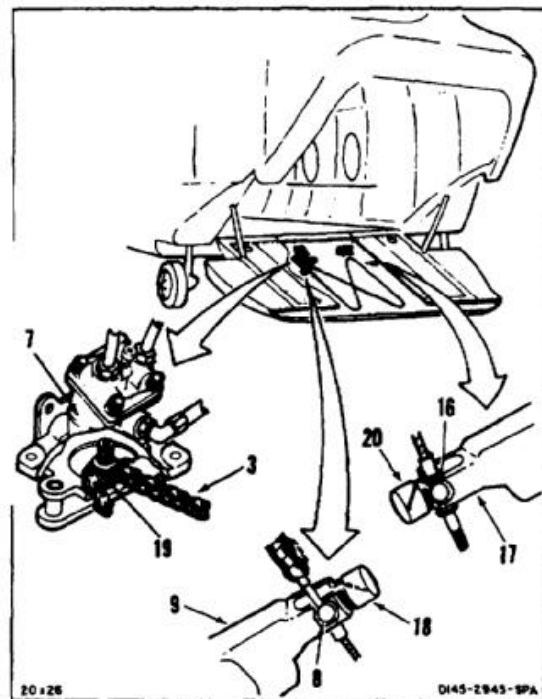
1. Position end of chain terminal (1) **7 inches** from centerline of aft bulkhead (2).
2. Route chain of wire rope (3) diagonally through gate (4) and hole (5) in forward bulkhead (6).
3. Route chain of wire rope (3) under actuator (7). Terminal ball (8) shall be aligned with link (9).
4. Route wire rope (3) aft through forward bulkhead (6).
5. Route wire rope (3) under aft bulkhead (2).



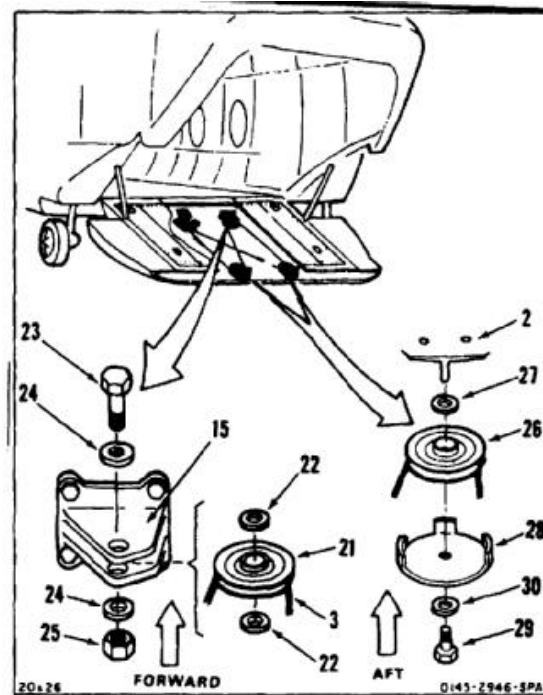
6. Route wire rope (3) diagonally through gate (4) and over chain of wire rope.
7. Route wire rope (3) through hole in forward bulkhead (6). Install spacer (10). Use bolt (11), nut (12), washer (13), and nut (14).
8. Route wire rope (3) under forward pulley bracket (15). Terminal ball (16) shall be aligned with link (17).
9. Route wire rope (3) aft through forward bulkhead (6).
10. Route wire rope (3) under aft bulkhead (2).



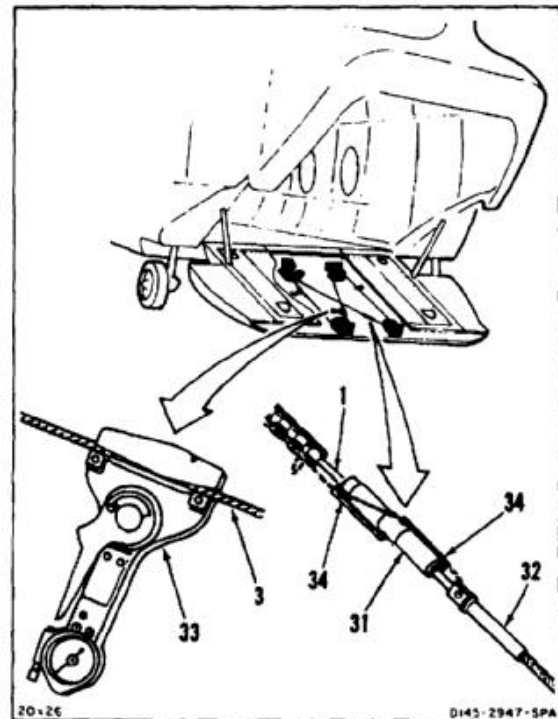
11. Install terminal ball (8) in link (9).
12. Install cap (18) on link (9) hand-tight. Lockwire cap using lockwire (E229).
13. Install chain of wire rope (3) around sprocket (19) on bottom of actuator (7).
14. Install terminal ball (16) in link (17).
15. Install cap (20) on link (17) hand-tight. Lockwire cap using lockwire (E229).



16. Route wire rope (3) around forward pulley (21).
17. Place washers (22) on top and bottom of pulley (21) and position pulley in bracket (15).
18. Install bolt (23), two washers (24), and nut (25) through bracket (15) and pulley (21).
19. Route wire rope (3) around two aft pulleys (26).
20. Position two washers (27), pulleys (26), and guides (28) on aft bulkhead (2).
21. Install two bolts (29) and washers (30) through guides (28) and pulleys (26).



22. Install turnbuckle (31) on chain terminal (1) and wire rope terminal (32).
23. Install tension meter (33) on wire rope (3).
24. With aid of helper, adjust turnbuckle (31) for **50 pounds** of tension on wire rope (3). Use drift.
25. Install two retaining clips (34) on turnbuckle (31). Lockwire turnbuckle using lockwire (E231).
26. Check tension of wire rope (3). If tension is not **50 pounds**, repeat steps 24 and 25. Remove tension meter (33).



INSPECT

FOLLOW-ON MAINTENANCE:

- Perform operational check of cargo door (TM 55-1520-240-T).
- Install cargo ramp center floor panel (Task 2-257).
- Install cargo ramp extensions (Task 2-244).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

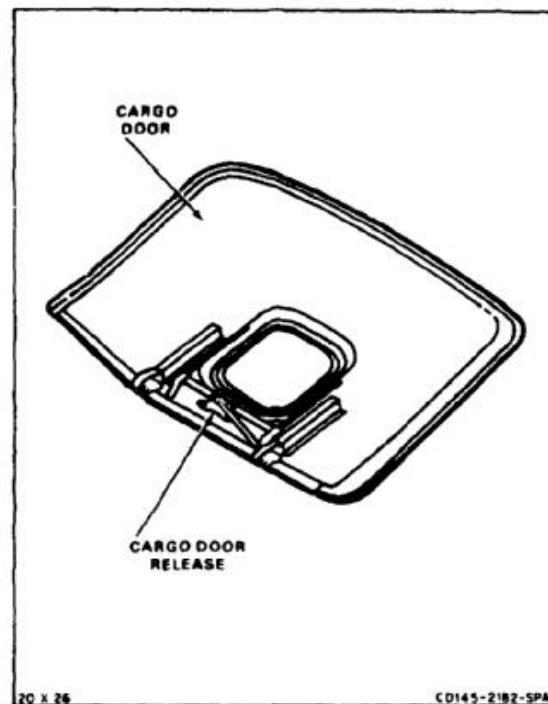
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

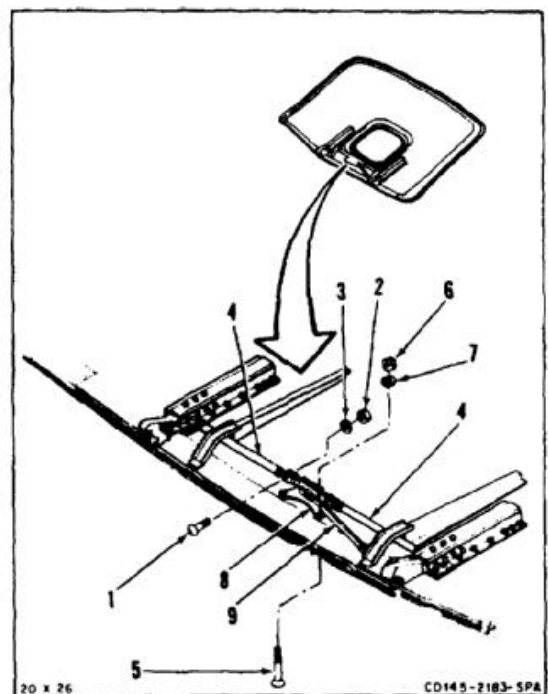
Off Helicopter Task



1. Remove two bolts (1), nuts (2), and washers (3) from connecting links (4).
2. Remove four screws (5), nuts (6), and washers (7) from release (8).
3. Pull handle (9) upward. Remove release (8).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-928

2-270 INSTALL CARGO DOOR RELEASE

2-270

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

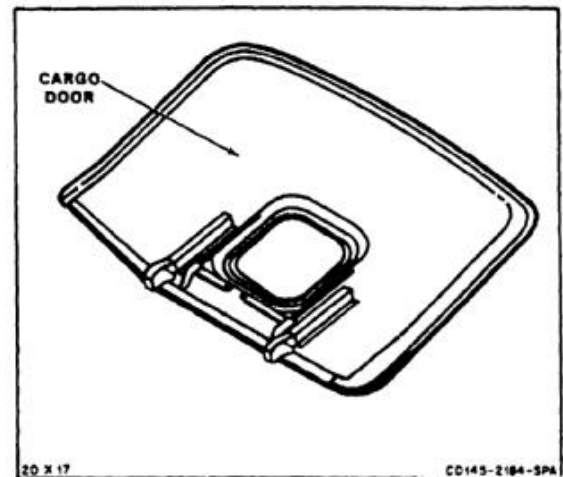
Lubricant (E236)

Personnel Required:

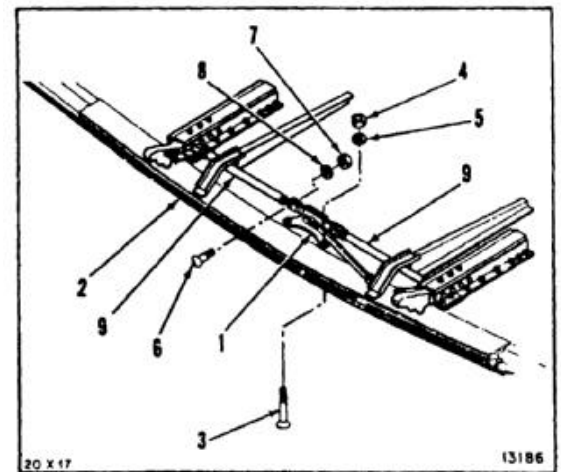
Medium Helicopter Repairer (2)

References:

TM 55-1520-240-23P



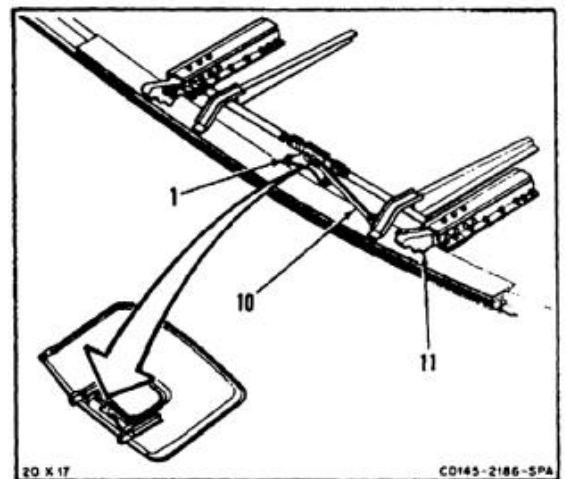
1. Position release (1) on cargo door (2).
2. Install four screws (3), nuts (4), and washers (5) on release (1).
3. Install two bolts (6), nuts (7), and washers (8) on links (9).



4. Lubricate release (1) with lubricant (E236).
5. Raise handle (10) up and make sure bodies (11) rotate freely.

FOLLOW-ON MAINTENANCE:

Install cargo door (Task 2-271).
 Adjust cargo door release (Task 2-273).
 Perform functional test of release (Task 2-274).



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

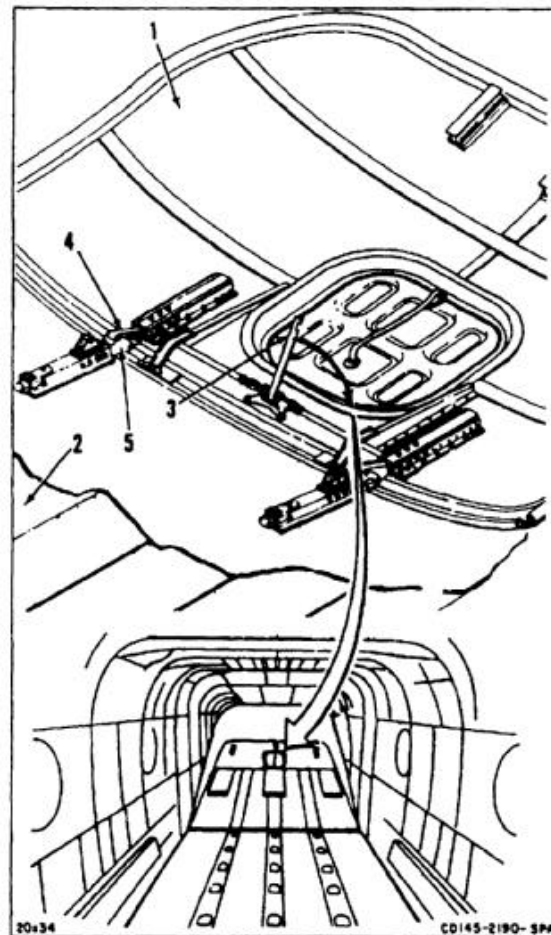
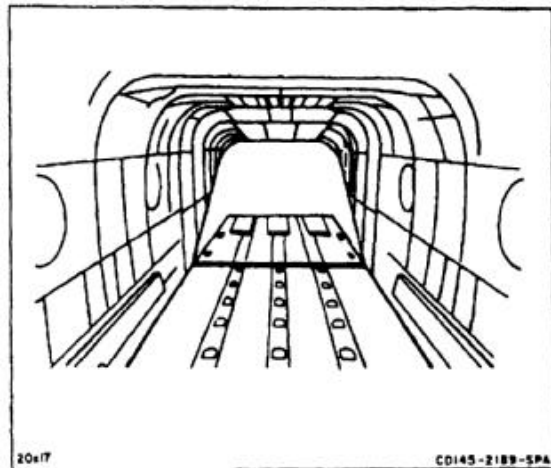
Materials:

Lockwire (E228)

Personnel Required:Medium Helicopter Repairer (3)
Inspector**References:**

TM 55-1520-240-23P

1. Position cargo door (1) on end of ramp (2) with aid of helpers.
2. Lower handle (3) until bodies lock (4) on receivers (5).
3. Set handle (3) to locked position. Secure with lockwire (E228).

INSPECT**FOLLOW-ON MAINTENANCE:**Cargo door release functional test (Task 2-274).
Adjust cargo door (Task 2-272).

END OF TASK

2-930

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

Shims

Personnel Required:

Medium Helicopter Repairer (2)

References:

TM 55-1520-240-23P

TM 55-1520-240-T

Task 2-260

Task 2-271

Equipment Condition:

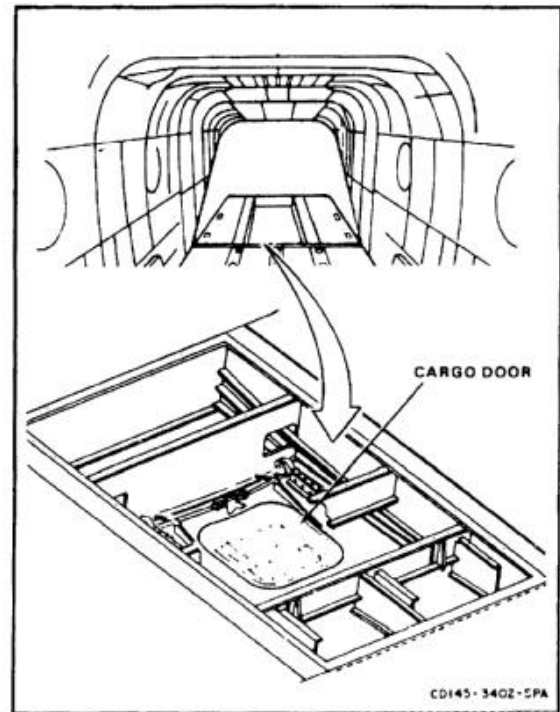
Battery Disconnected (Task 1-39)

Electrical Power Off

Utility Hydraulic Power On

Ramp Floor Center Panel Removed (Task 2-247)

Ramp Extensions Removed (Task 2-238)

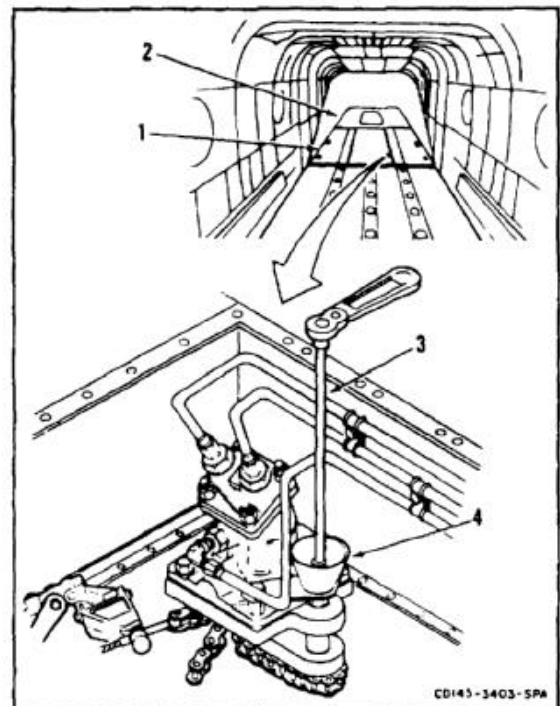
**STOP BOLT ADJUSTMENT**

1. Position ramp (1) so that cargo door (2) can be extended without touching ground (TM-55-1520-240-T).

NOTE

Crank is stowed at station 320 on left side.

2. Insert crank (3) into cargo door actuator shaft (4).
3. Turn crank (3) counterclockwise. Extend door (2) as far as it will go.

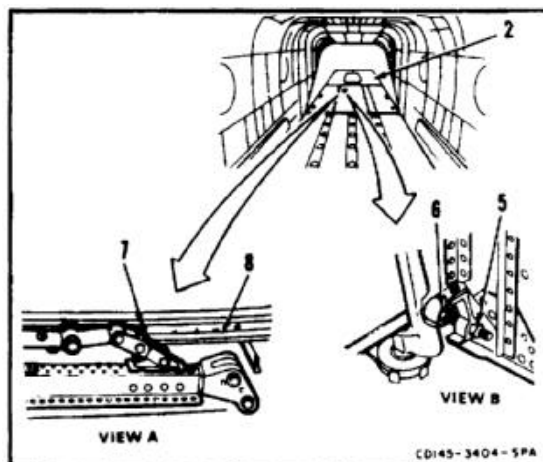


NOTE

Procedure is same to adjust right or left stop bolt. Right stop bolt is shown here.

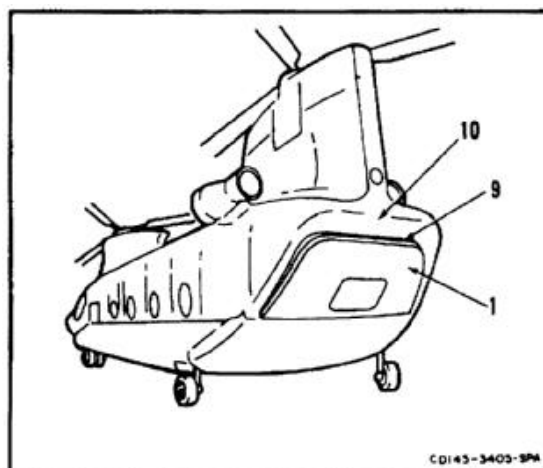
4. Loosen nut (5). Turn stop bolt (6) in or out, as needed, until roller bearing (7) sets on bottom of track (8). Tighten nut (5).

INSPECT



CARGO DOOR SEAL ADJUSTMENT

5. Raise ramp (1) until door seal (9) makes light contact with fuselage (10) (TM 55-1520-240-T). Mark places seal (9) does not make contact. Mark places contact is not uniform.

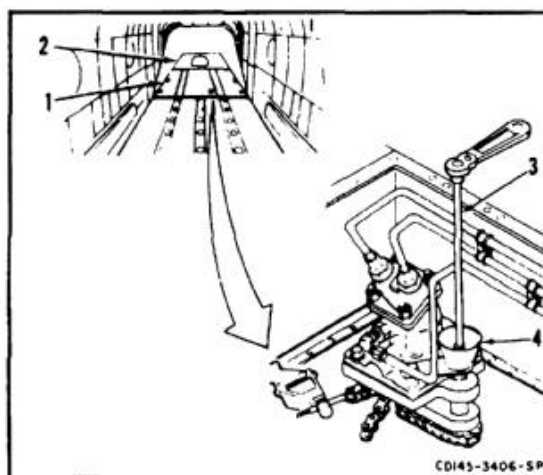


6. Lower ramp (1) to position where door (2) can be extended (TM 55-1520-240-T).

NOTE

Crank is stowed at station 320 on left side.

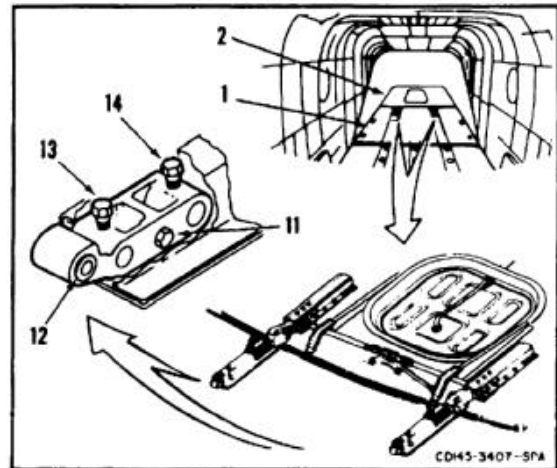
7. Insert crank (3) into cargo door actuator shaft (4).
8. Turn crank (3) counterclockwise. Extend door (2) **two-thirds** out.



NOTE

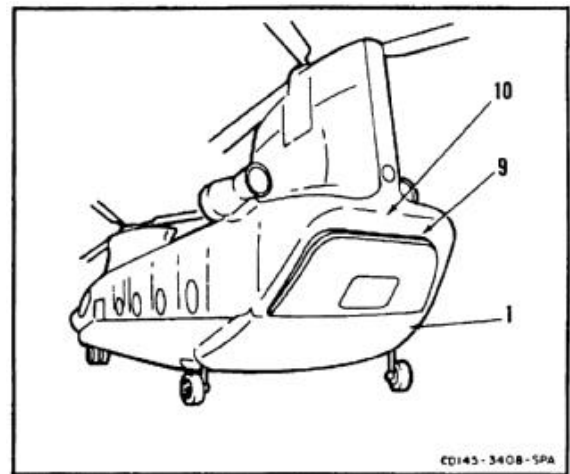
Procedure is same to adjust receivers on both sides. Right side adjustment is shown here.

9. Loosen bolt (11) on idler link fitting (12). To raise door (2), tighten bolt (13) and loosen bolt (14) an equal number of turns.
10. To lower door (2), tighten bolt (14) and loosen bolt (13) an equal number of turns.
11. Tighten bolt (11).



12. Raise ramp (1) until door seal (9) makes light contact with fuselage (10) (TM 55-1520-240-T).

INSPECT



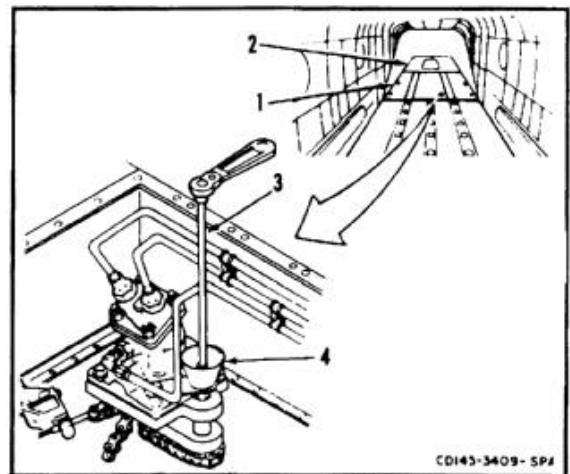
CARGO DOOR FLUSH WITH RAMP ADJUSTMENT

13. Lower ramp (1) to position where door (2) can be extended (TM 55-1520-240-T).

NOTE

Crank is stowed at station 320 on left side.

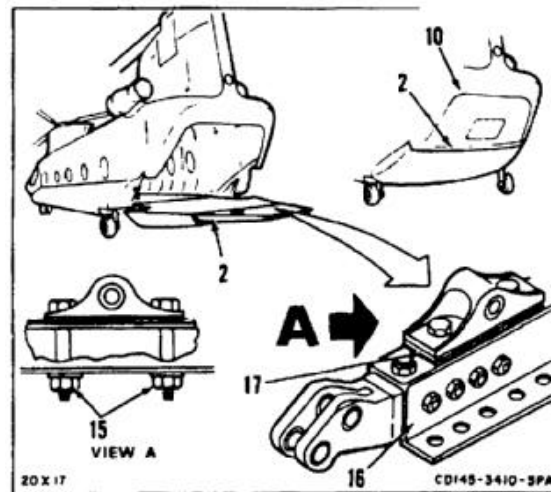
14. Insert crank (3) into cargo door actuator shaft (4).
15. Turn crank (3) counterclockwise and extend door (2) as far as it will go.
16. Remove door (2) (Task 2-260).



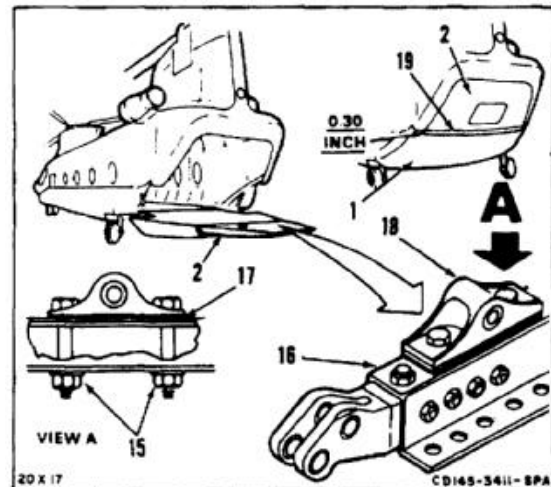
NOTE

Procedure is same for both receivers.
Left receiver is shown here.

17. Loosen two nuts (15) on bottom of receiver (16).
18. Add shims (17) to pull door (2) closer to fuselage (10). Remove shims (17) to force door (2) from fuselage (10).
19. Tighten two nuts (15).
20. Install cargo door (2) on ramp (1) (Task 2-271).

INSPECT**GAP ADJUSTMENT BETWEEN RAMP AND CARGO DOOR**

21. Loosen two nuts (15).
22. Move fitting (18) aft if gap (19) between cargo ramp (1) and door (2) is smaller than **0.30 inch**.
23. Move fitting (18) forward if gap (19) between ramp (1) and door (2) is larger than **0.30 inch**.
24. Tighten two nuts (15).
25. Install cargo door (2) on ramp (1) (Task 2-271).
26. Raise ramp (1) (TM 55-1520-240-T).

**INSPECT****FOLLOW-ON MAINTENANCE:**

Install ramp floor panel (Task 2-249).
Install ramp extension (Task 2-244).
Remove hydraulic power.

END OF TASK

2-272.1 REPLACE CARGO DOOR RAMP SEALS

2-272.1

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Airframe Repairman's Tool Kit, NSN
5180-00-323-4876

Materials:

Sealant (E336 or E470)
Adhesive, Epon VIII (E46)
Goggles (E473)

Personnel Required:

Aircraft Structural Repairer
Inspector

Equipment Condition:

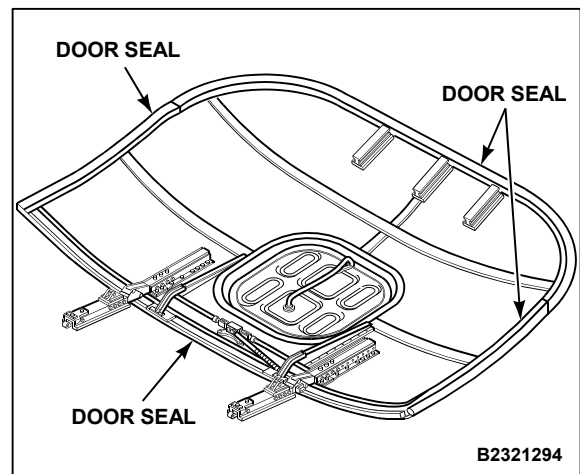
Off Helicopter Task
Cargo Ramp Door Removed (Task 2-260)

References:

Task 2-311
Task 2-318

General Safety Instructions:**WARNING**

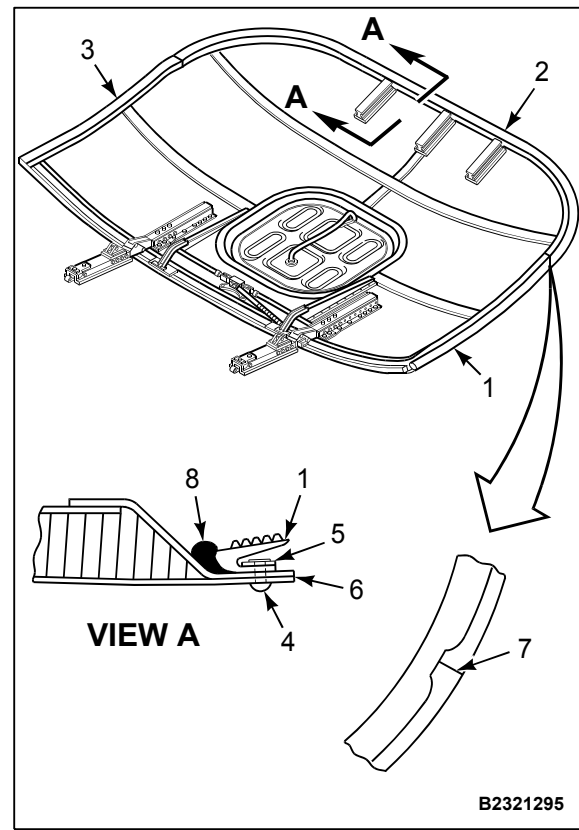
Observe all cautions and warnings on the containers when using consumables. When applicable, wear necessary protective gear during handling and use. If a consumable is flammable or explosive, make certain consumable and its vapors are kept away from heat, sparks, and flame. Make certain the helicopter is properly grounded and fire fighting equipment is readily available. For additional information on toxicity, flashpoint, and flammability of chemicals, contact your safety officer or the manufacturer of the consumable.



NOTE

Procedure is identical to remove or install seals (1, 2, or 3). Seal (1) is shown here.

1. Remove cargo door ramp seal (1) as follows:
 - a. Drill out rivets (4) securing seal (1) to seal strip (5) and bonded assembly (6).
 - b. Remove seal strip (5) and peel off seal (1).
2. Install cargo door ramp seal (1) as follows:
 - a. Position seal (1) and seal strip (5) on bonded assembly (6).
 - b. Select adhesive (Task 2-311).
 - c. Apply adhesive to edges (7) of seals (1 and 2) (Task 2-318).
 - d. Pilot drill seal (1) through existing rivet holes in bonded assembly (6) and seal strip (5).
 - e. Install rivets (4).
 - f. Apply a bead of sealant (8) (E336 or E470) along edge of seal (1) and bonded assembly (6). Maintain height of seal as shown.



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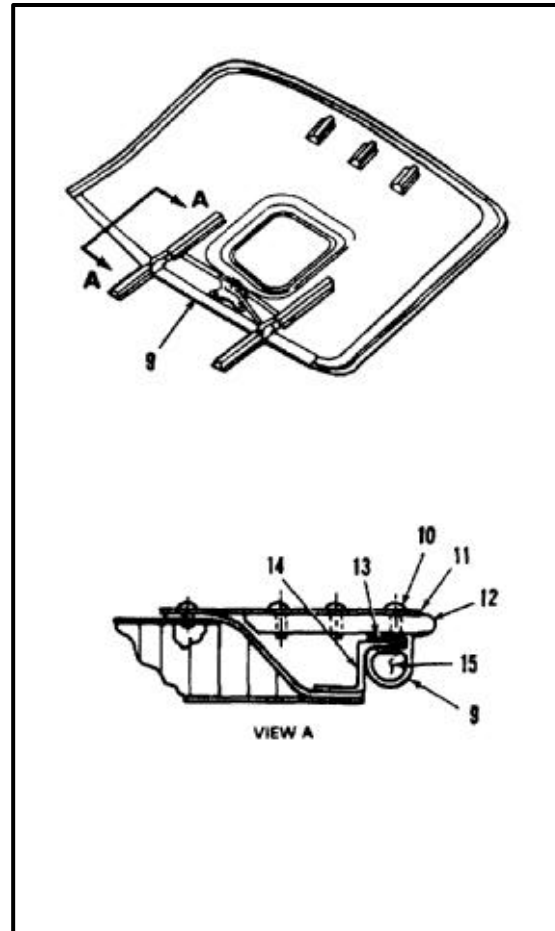
INSPECT

2-272.1 REPLACE CARGO DOOR RAMP SEALS (Continued)**2-272.1**

3. Removal cargo door ramp seal (9) as follows:
 - a. Drill out rivets (10) securing seal (9) to bumper plate (11), bumper (12), seal strip (13), and former (14).
 - b. Remove seal (9) and seal strip (13).
4. Install cargo ramp door seal (9) as follows:
 - a. Position seal strip (13) in seal (9) and on former (14).
 - b. Pilot drill flap of seal (9) through existing rivet holes in bumper plate (11), bumper (12), sealing strip (13), and former (14).
 - c. Install rivets (10).
 - d. Apply adhesive (E46) to outer faying surface of plug (15) and inner surface of seal (9).
 - e. Install plug (15) in each end of seal (9).

INSPECT**FOLLOW-ON MAINTENANCE:**

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

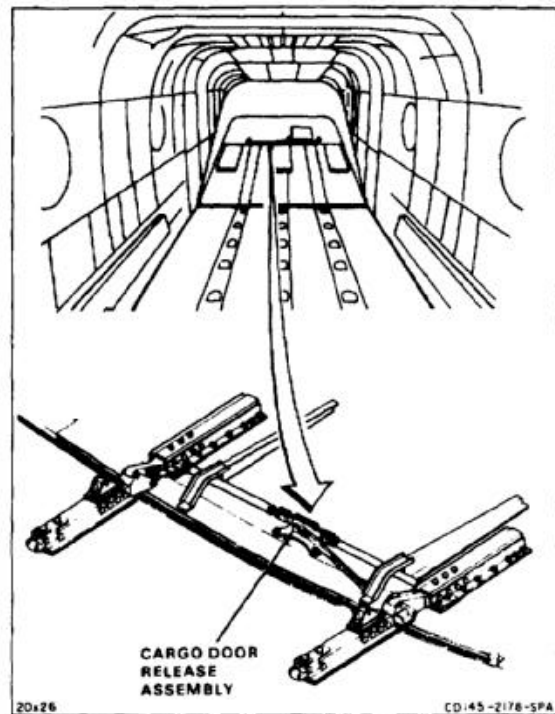
Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off

Cargo Ramp Extensions Folded and Cargo Ramp Level (TM 55-1520-240-T)

Cargo Door Fully Extended (TM 55-1520-240-T)

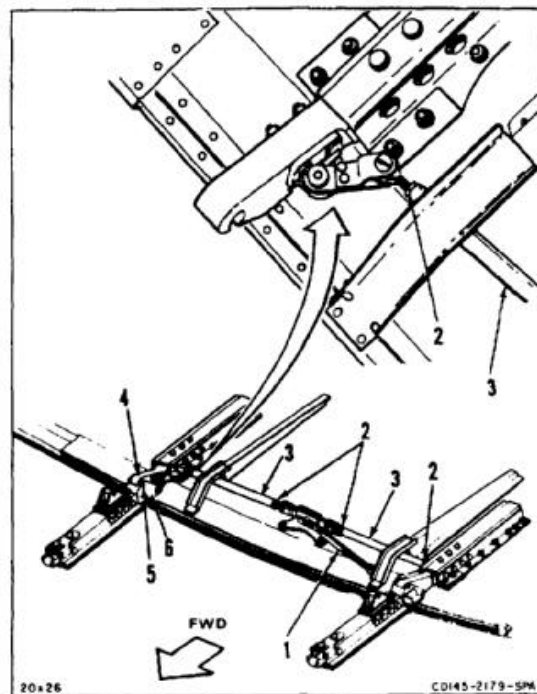


1. Make sure handle (1) is in locked position.
2. Loosen four nuts (2) on connecting links (3).
3. Turn connecting links (3) as needed to tighten bodies (4) against pins (5) in receivers (6).
4. Tighten nuts (2).

FOLLOW-ON MAINTENANCE:

Perform functional test of release assembly (Task 2-274).

Adjust cargo door (Task 2-272).



END OF TASK

2-938

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Dial Indicating Scale, 0 to 75 Pounds

Materials:

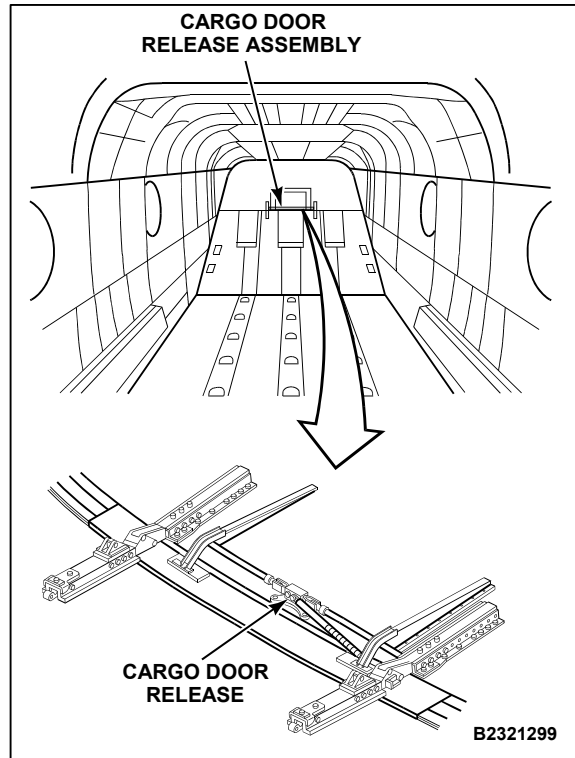
Cloths (E135)

Personnel Required:

CH-47 Helicopter Repairer (3)

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Cargo Ramp Extensions Folded and Cargo Ramp Level (TM 55-1520-240-T)
Cargo Door Fully Extended (TM 55-1520-240-T)

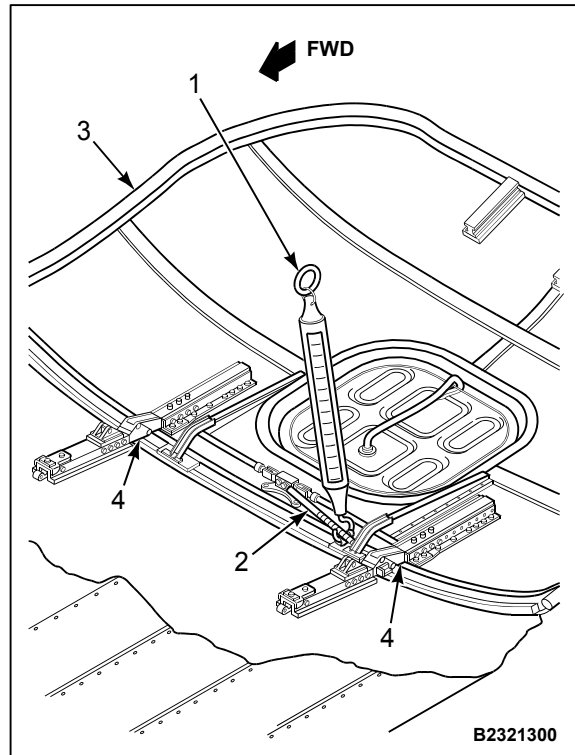


1. Cover hook end of scale (1) with cloths (E135).
2. Position hook end of scale (1) on end of handle (2).
3. Have helpers support door (3). Make sure only weight of door is on bodies (4).



Do not pull release handle more than **135°**, or damage to release mechanism can occur.

4. Pull scale (1) slowly and evenly. Handle (2) should unlock bodies (4) and release door (3). Maximum force shall not exceed **50 pounds**.
5. Remove scale (1).



FOLLOW-ON MAINTENANCE:

Install cargo door (Task 2-271).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Airframe Repairman's Tool Kit, NSN 5180-00-323-4876
- Fluorescent Penetrant Method

Materials:

- Aliphatic Naphtha (E245)
- Cloth, Cleaning (E120)
- Sealant (E336 or E470)
- Gloves (E186)
- Goggles (E473)

Personnel Required:

- Aircraft Structural Repairer
- Inspector

References:

- TM 1-1520-253-23
- TM 43-0103
- TM 55-1520-240-23P

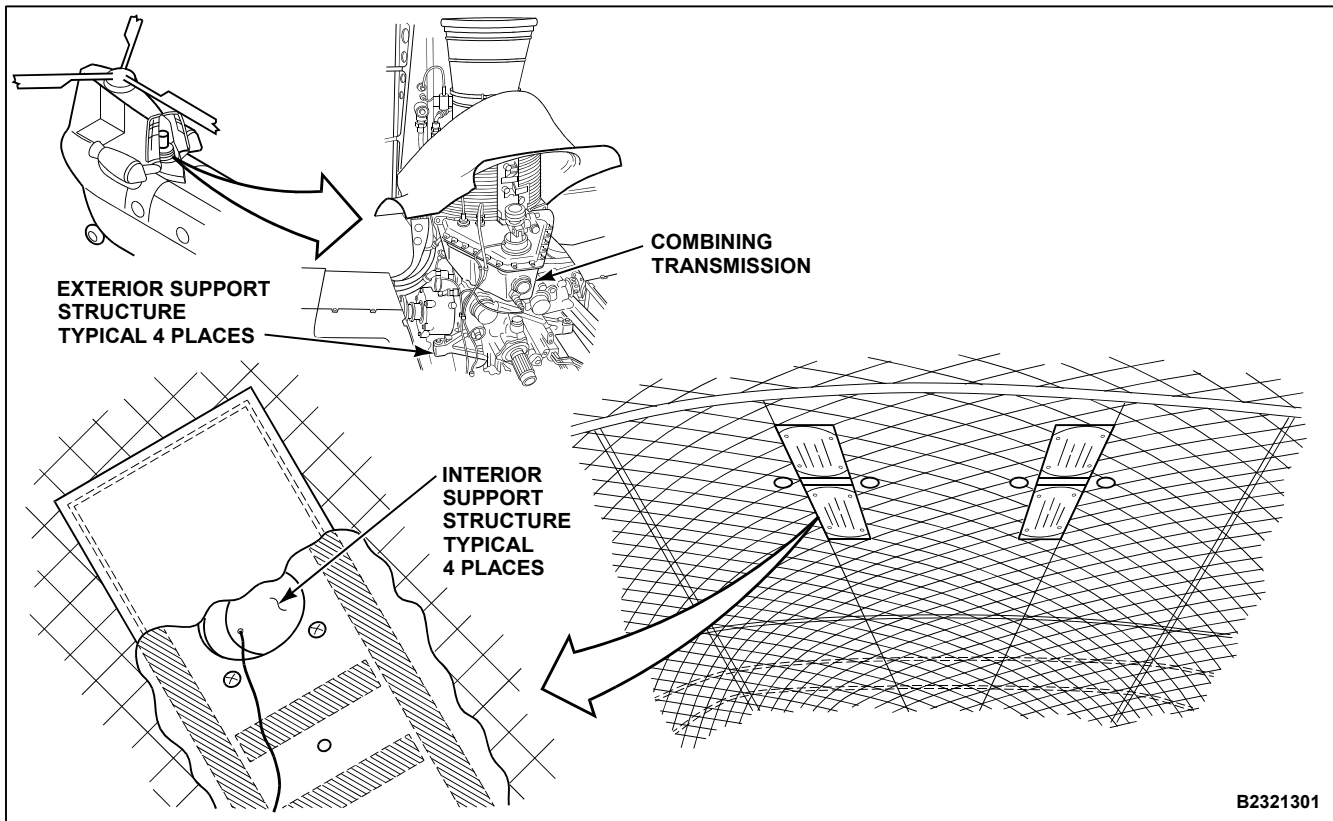
Equipment Condition:

- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Hydraulic Power Off
- Aft Pylon Door Open (Task 2-2)
- Aft Pylon Lower Fairing Open (Task 2-2)

General Safety Instructions:

WARNING

Aliphatic naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.



INTERIOR INSPECTION

1. If installed, pull down acoustic blanket flaps (1) at four ACCESS MIX BOX MOUNTING BOLTS locations on cabin ceiling.
2. Remove screws (2) and four access panels (3).
3. If surface of longitudinal beams (4) is obscured by dirt, clean them. Use aliphatic naphtha (E245) and clean cloths (E120).

NOTE

Black fretting material is evidence of a crack.

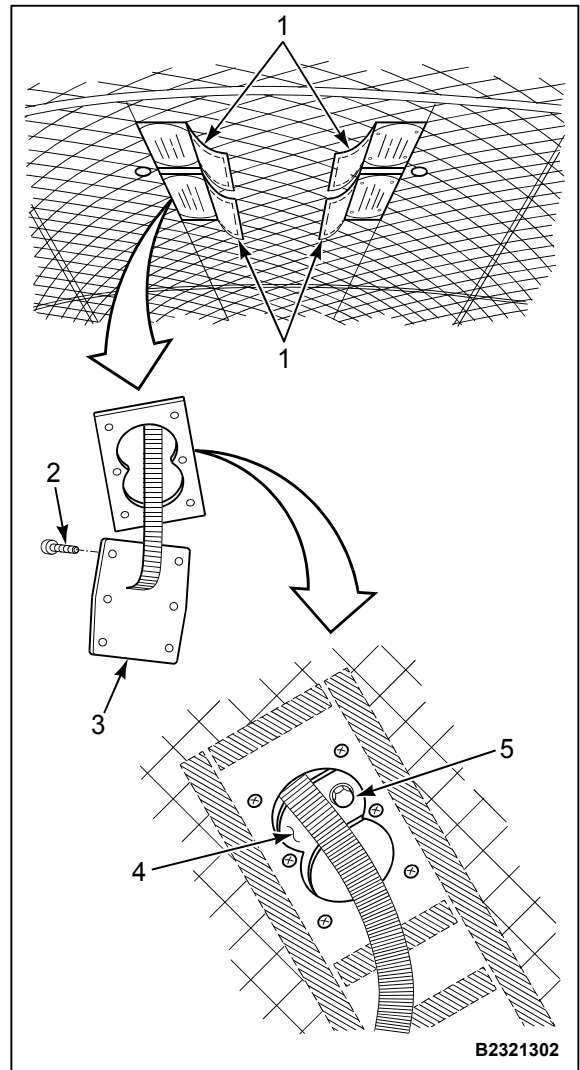
4. Visually inspect all visible surfaces of support fittings (5) and longitudinal beams (4) for cracks. Use a flashlight and mirror. Cracked beams or fittings shall be replaced before next flight. Confirm cracks by fluorescent penetrant inspection (TM 43-0103). If a crack in the combining transmission support fittings or longitudinal beams is suspected, refer to TM 1-1520-253-23.

INSPECT

WARNING

Sealant (E336 or E470) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

5. Install four access panels (3) with screws (2). Seal panels with sealant (E336 or E470). Wear gloves (E186).
6. Fasten acoustic blanket flaps (1) over four access panels (3).



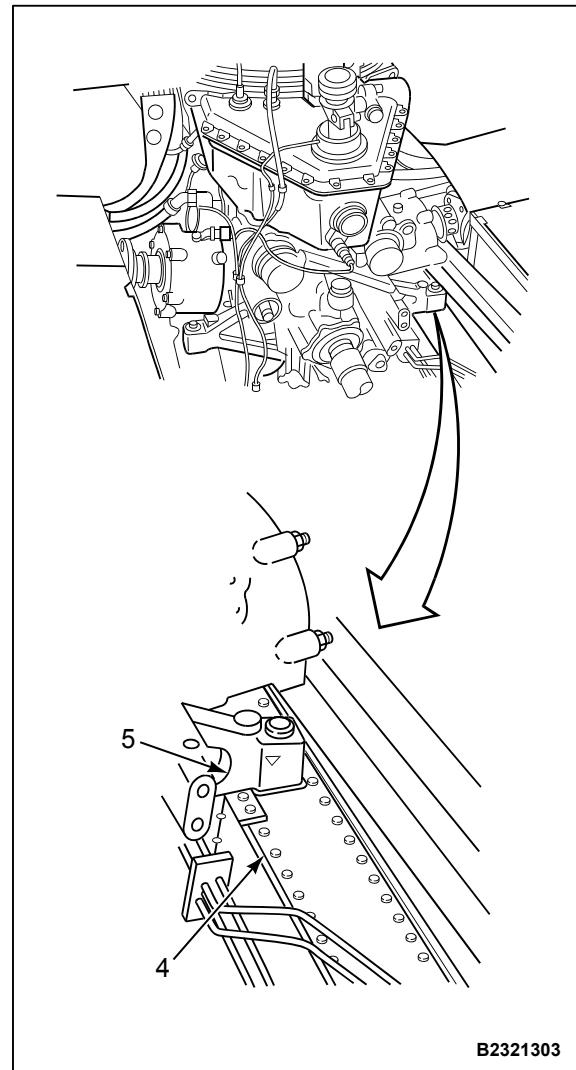
EXTERIOR INSPECTION

7. If surface of longitudinal beams (4) is obscured by dirt, clean them. Use aliphatic naphtha (E245) and clean cloths (E120).

NOTE

Black fretting material is evidence of a crack. Confirm cracks by dye-penetrant inspection (TM 43-0103).

8. Visually inspect all visible surfaces of support fittings (5) and longitudinal beams (4) for cracks. Use a flashlight and mirror. Cracked fittings or beams shall be replaced before next flight. If a crack in the combining transmission support fittings or longitudinal beams is suspected, refer to TM 1-1520-253-23.

INSPECT

B2321303

FOLLOW-ON MAINTENANCE:

- Close aft pylon lower fairing (Task 2-2).
- Close aft pylon doors (Task 2-2).

END OF TASK

2-942

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

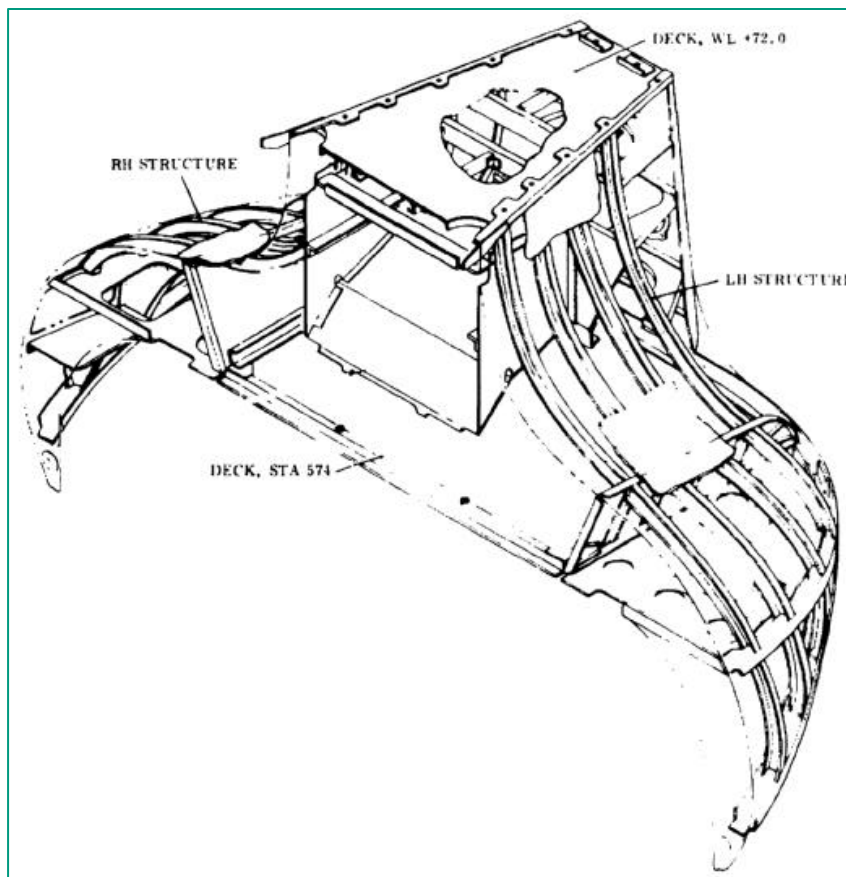
Personnel Required:Aircraft Structural Repairer
Inspector**References:**TM 1-1500-204-23
Task 2-361
Task 2-362
Task 2-364**Equipment Condition:**

As Required

General Safety Instructions:

As Required

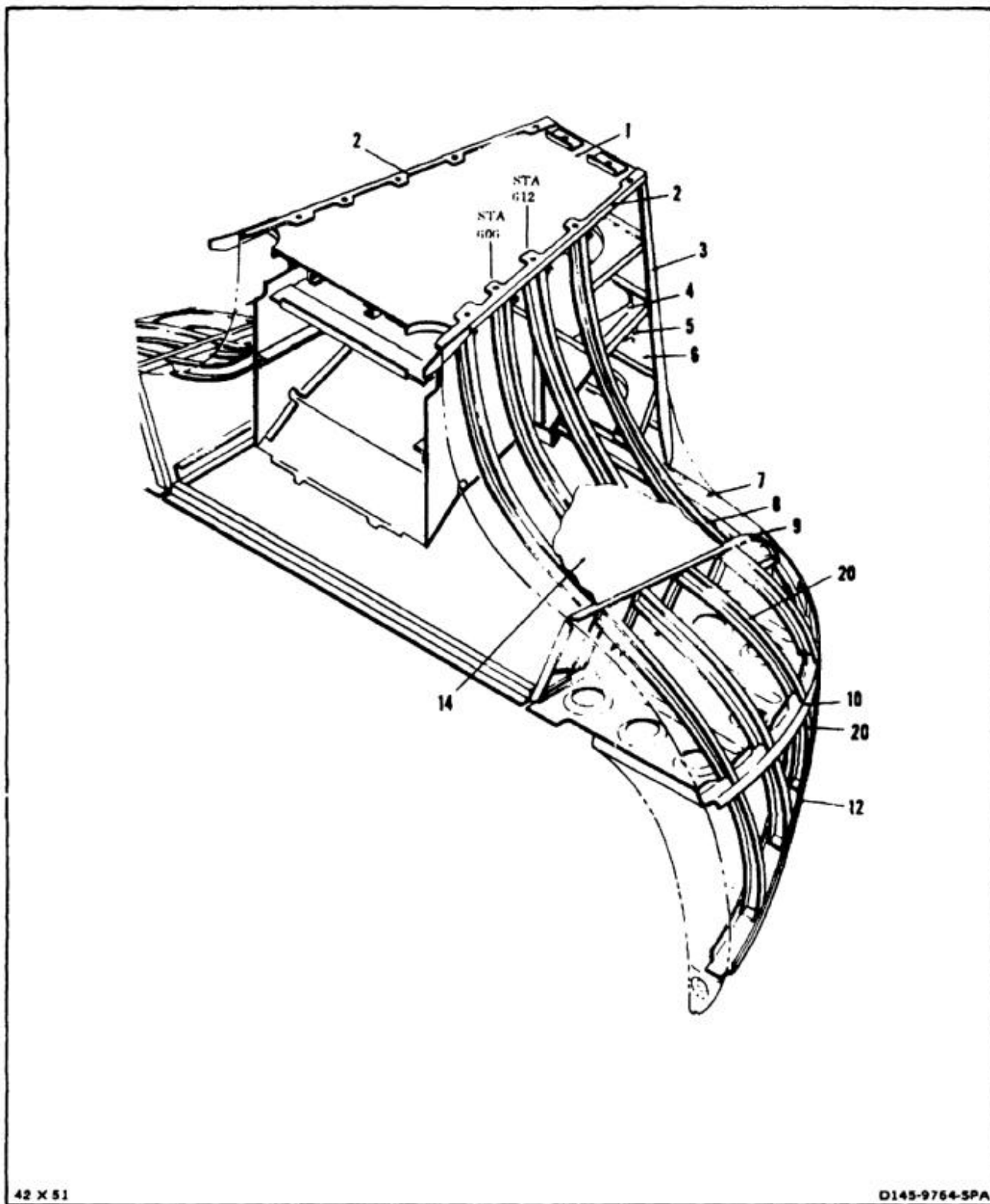
1. Repair tailcone as follows:
 - a. If damage to skin is less than **25 percent** of panel area, repair by patching.
 - b. If damage to formed parts are not on radius, repair by patching.
2. Repair classifications are as follows:
 - a. Temporary Repair (Task 2-364).
 - b. Minor Skin Damage (Task 2-362).
 - c. Minor Web Damage (Task 2-361).



TAILCONE

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	WEB	0.020	7075-T6 BARE	0.025	7075-T6 CLAD
2	CAP	0.050	7075-T6 CLAD	0.050	7075-T6 CLAD
3	ANGLE	0.050	2024-T6 CLAD	0.050	7075-T6 CLAD
4	FORMER	0.025	2024-T3 CLAD	0.032	2024-T3 CLAD
5	EJECTOR ASSEMBLY	114P0134-1		NOTE B.	
6	DOUBLER	0.025	2024-T3 CLAD	0.032	2024-T3 CLAD
7	CHANNEL	0.032	7075-T6 BARE	0.040	7075-T6 CLAD
8	FORMER	0.032	7075-T6 BARE	0.040	7075-T6 CLAD
9	CAP	0.040	7075-T6 BARE	0.050	7075-T6 CLAD
10	ZEE	0.032	7075-T6 BARE	0.040	7075-T6 CLAD
11	CHANNEL	0.025	2024-T3 CLAD	0.032	2024-T3 CLAD
12	LONGERON	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD
13	ANGLE	0.040	7075-T6 BARE	0.050	7075-T6 CLAD
14	SKIN	0.025	2024-T4 CLAD	0.032	2024-T3 CLAD
15	GUSSET	0.063	7075-T6 BARE	0.071	7075-T6 BARE
16	WEB	0.025	2024-T3 CLAD	0.032	2024-T3 CLAD
17	SCREEN	0.040	2024-T3 CLAD	NOTE C.	
18	LINER	3 PLY NO. 181 GLASS CLOTH		NOTE D.	
19	LINER	0.032	7075-T6 DARE	0.040	7075-T6 CLAD
20	CHANNEL	0.025	2024-T4 CLAD	0.032	2024-T3 CLAD
21	ANGLE	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD
22	CHANNEL	0.025	7075-T6 BARE	0.032	7075-T6 CLAD
23	CHANNEL	0.050	7075-T6 BARE	0.050	7075-T6 CLAD
24	SUPPORT	0.032	301 CRES MIL-S-5059	NOTE E.	
25	PLATE	0.090	301 CRES MIL-S-5059	NOTE E.	
26	STIFFENER	VS70504-27075-T6		0.032	7075-T6 CLAD
27	ANGLE	0.032	7075-T6 BARE	0.040	7075-T6 CLAD
28	WEB	0.020	2024-T4 CLAD	0.025	2024-T4 CLAD
29	WEB	0.012	2024-T3 CLAD	0.016	2024-T3 CLAD
30	WEB	0.016	2024-T3 CLAD	0.020	2024-T3 CLAD
31	STIFFENER	BAC1490-25			7075-T6 CLAD
32	SHIELD	0.012	2024-T3 CLAD	0.016	2024-T3 CLAD
33	CLIP	0.016	2024-T3 CLAD	NOTE E.	

- NOTES:**
- A. All dimensions are in inches.
 - B. For damage other than minor replace with a new part.
 - C. Repair impracticable. Replace with new screen 145S3504-2.
 - D. Refer to TM 1-1500-204-23 for repairs to glass cloth.
 - E. Fabricate new part from same material as original.



42 X 51

0145-9764-5PA

Figure 1 of 5

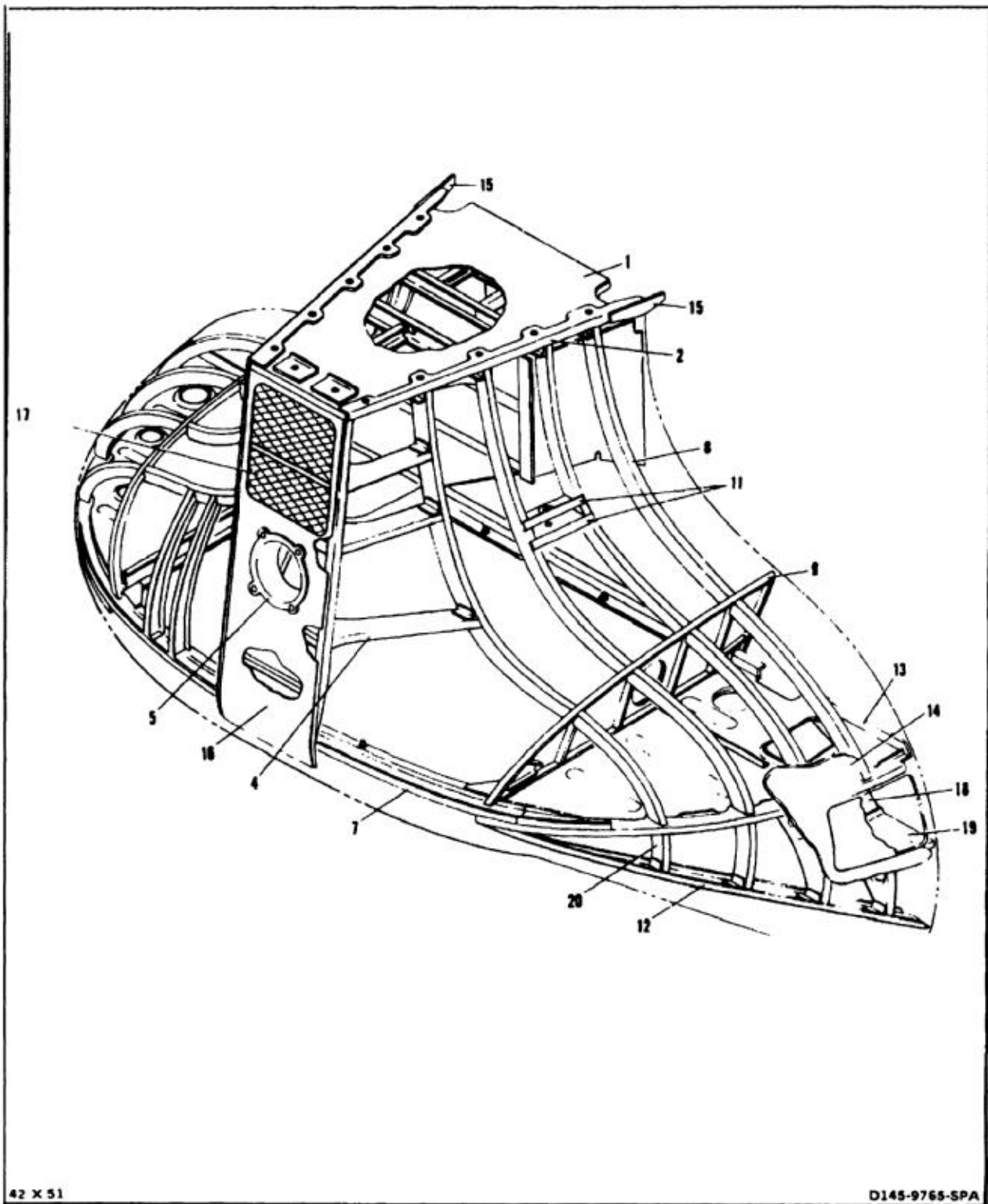


Figure 2 of 5

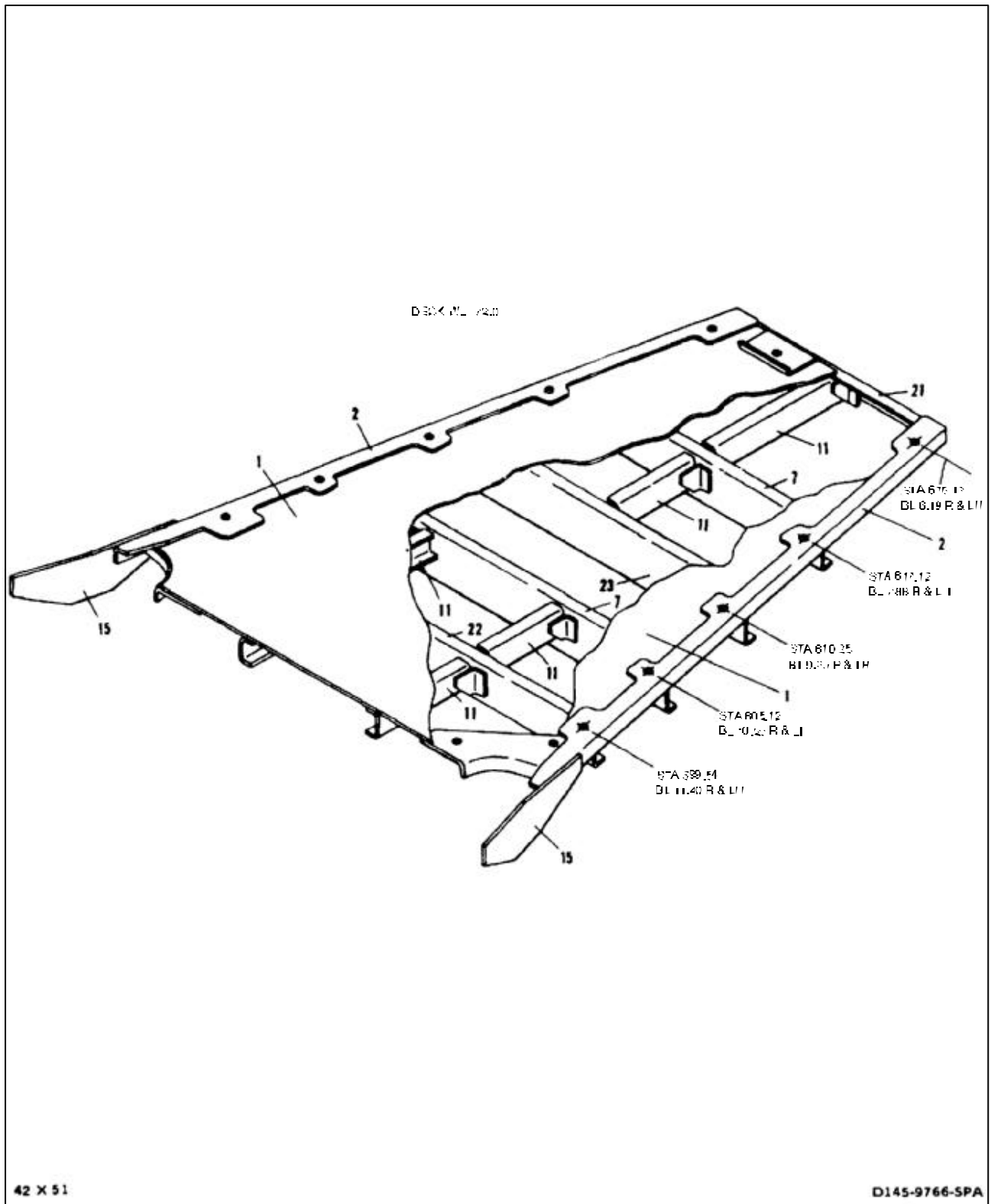


Figure 3 of 5

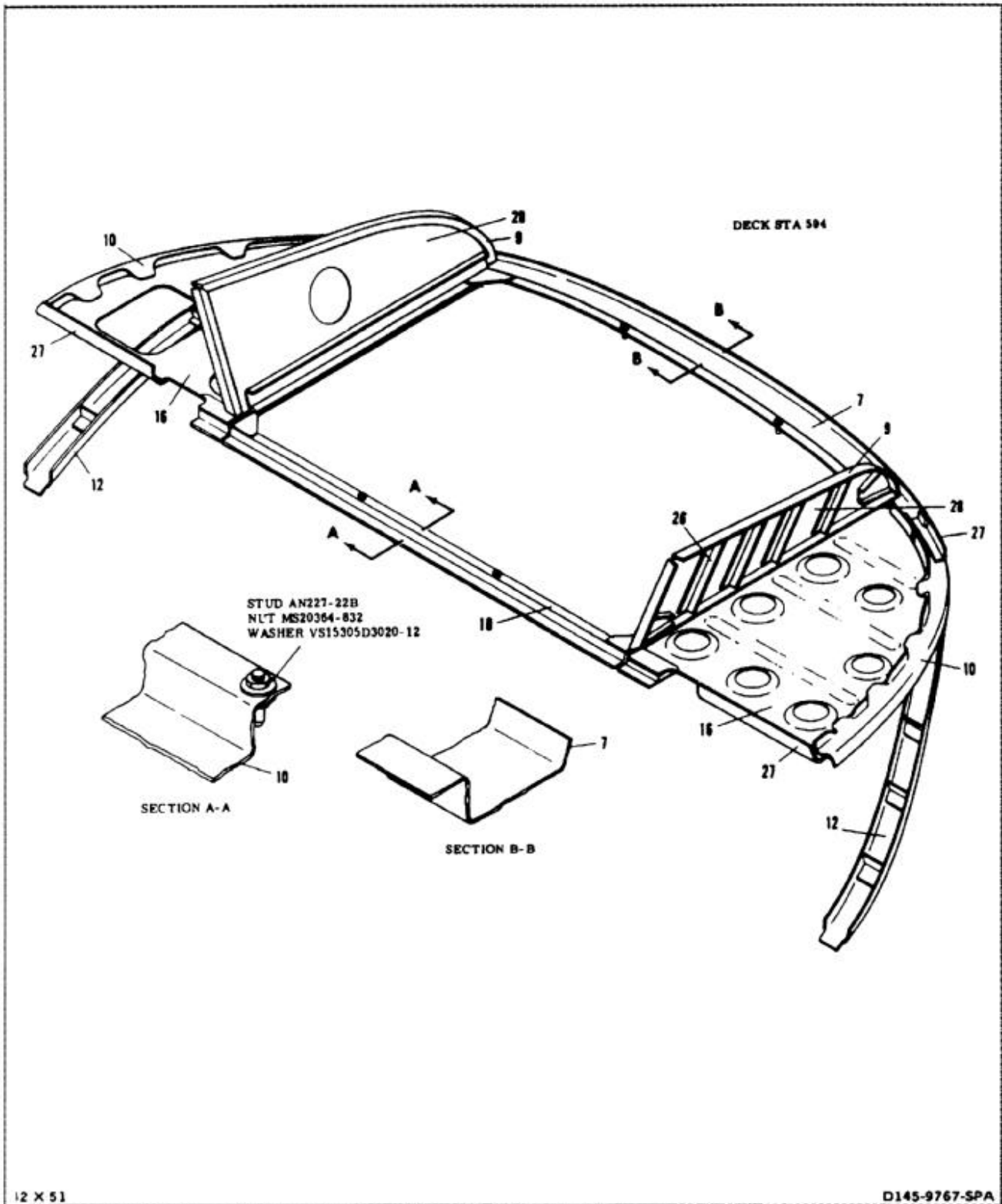


Figure 4 015

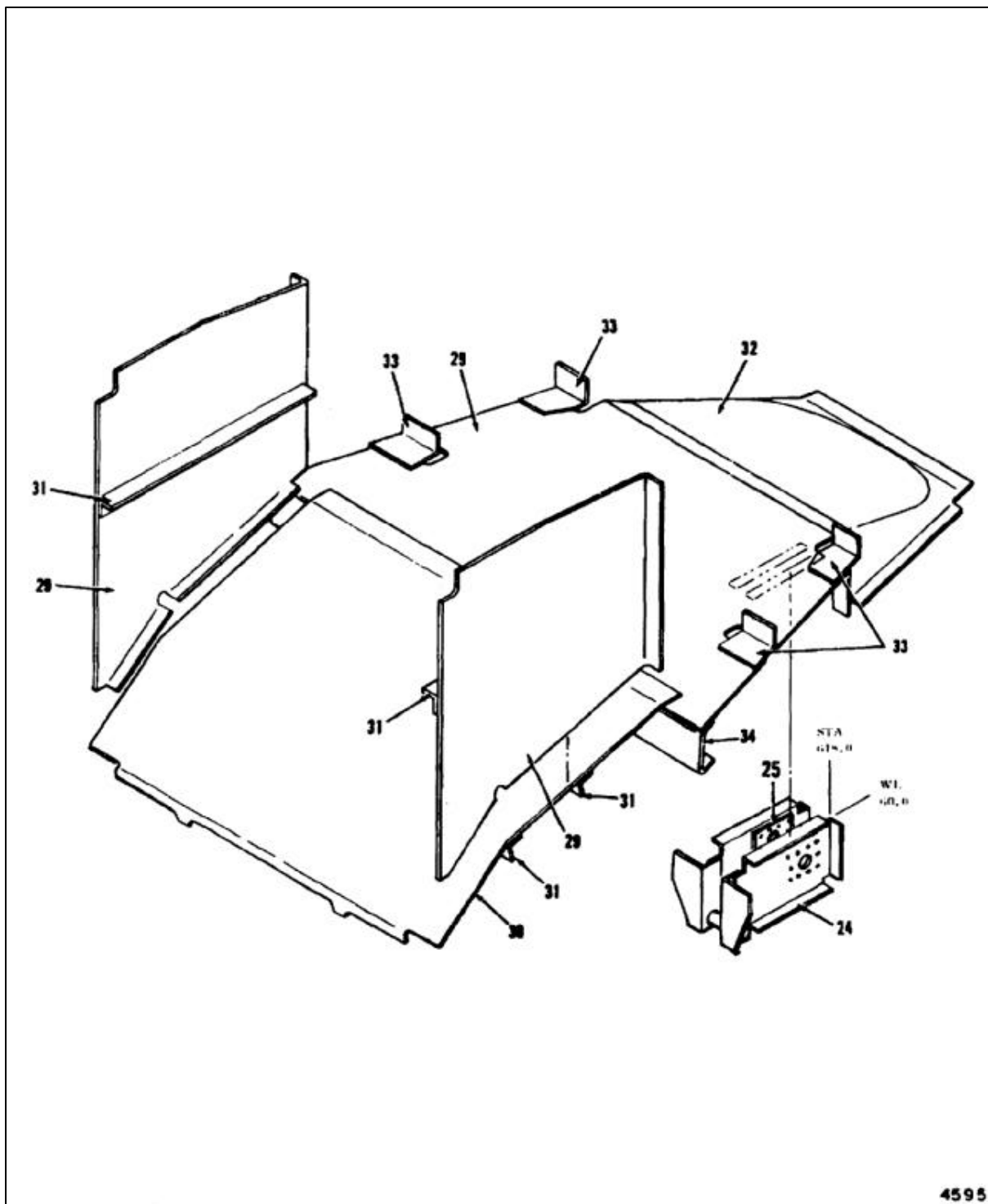


Figure 5 of 5

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector

1. If damage is more than **25 percent** of panel area or structural members are damaged, repair by insertion. Refer to Task 2-275 for structural details.
2. If damage to formed part is on radius, repair by insertion. Refer to Task 2-275 for structural details.

FOLLOW-ON MAINTENANCE:

None

References:TM 1-1500-204-23
Task 2-275**Equipment Condition:**

As Required

General Safety Instructions:

As Required

END OF TASK

2-950

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

None

Parts:Bushings
Rivets
Plates**Personnel Required:**Aircraft Structural Repairer
Inspector**References:**TM 1-1500-204-23
TM 55-1520-240-23P**Equipment Condition:**

APU Removed (Task 15-3)

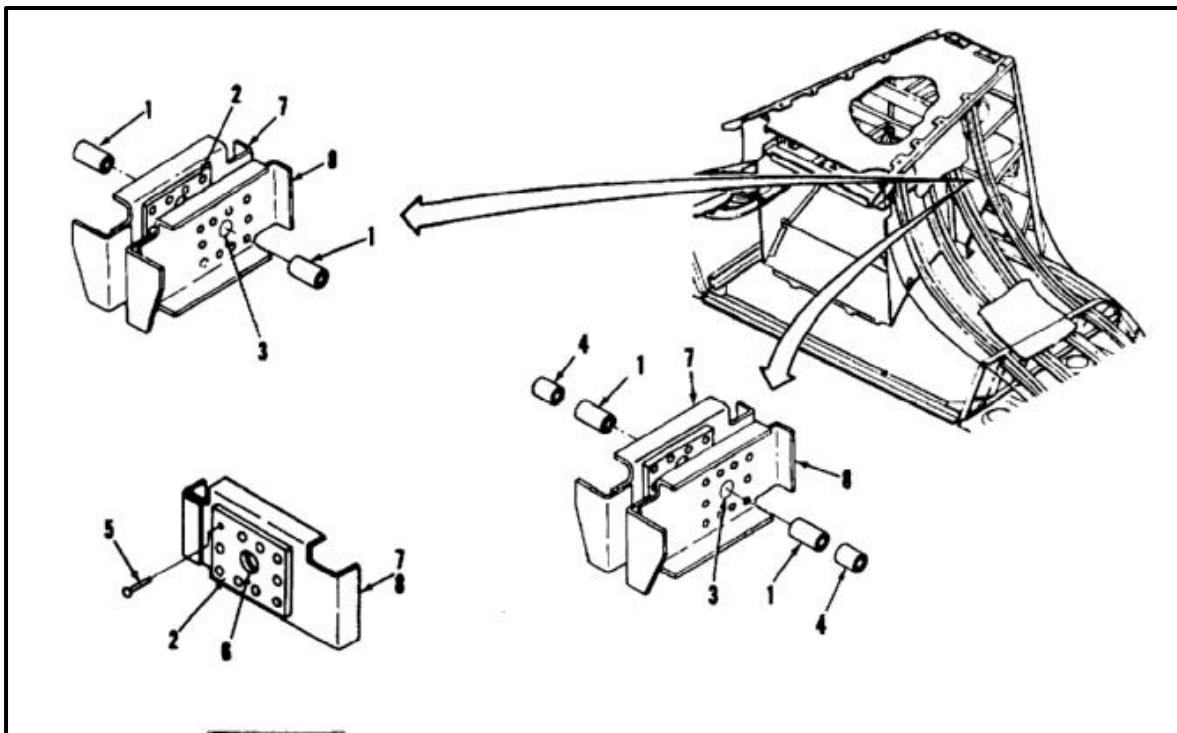
REPAIR USING OVERSIZE BUSHINGS

1. Remove two bushings (1) from two plates (2).
2. Line ream holes (3) through plates (2) to **0.3783 to 0.3798 inch**.
3. Install oversize bushings (4).

REPLACE MOUNT PLATES

4. Drill and punch out ten rivets (5) from each of two plates (2). Remove plates.

5. Drill rivet holes in replacement plates (2). Use drill No. 30.
6. Drill a **1/4 inch** hole (6) in center of each plate (2).
7. Position plates (2) on inner side of supports (7 and 8). Install ten rivets (5) in each plate.
8. Line ream hole (6) in two plates (2) **0.439 to 0.440 inch**.
9. Install two bushings (1) in plates (2).

**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Alclad Sheet, 2024-T3 or -T4

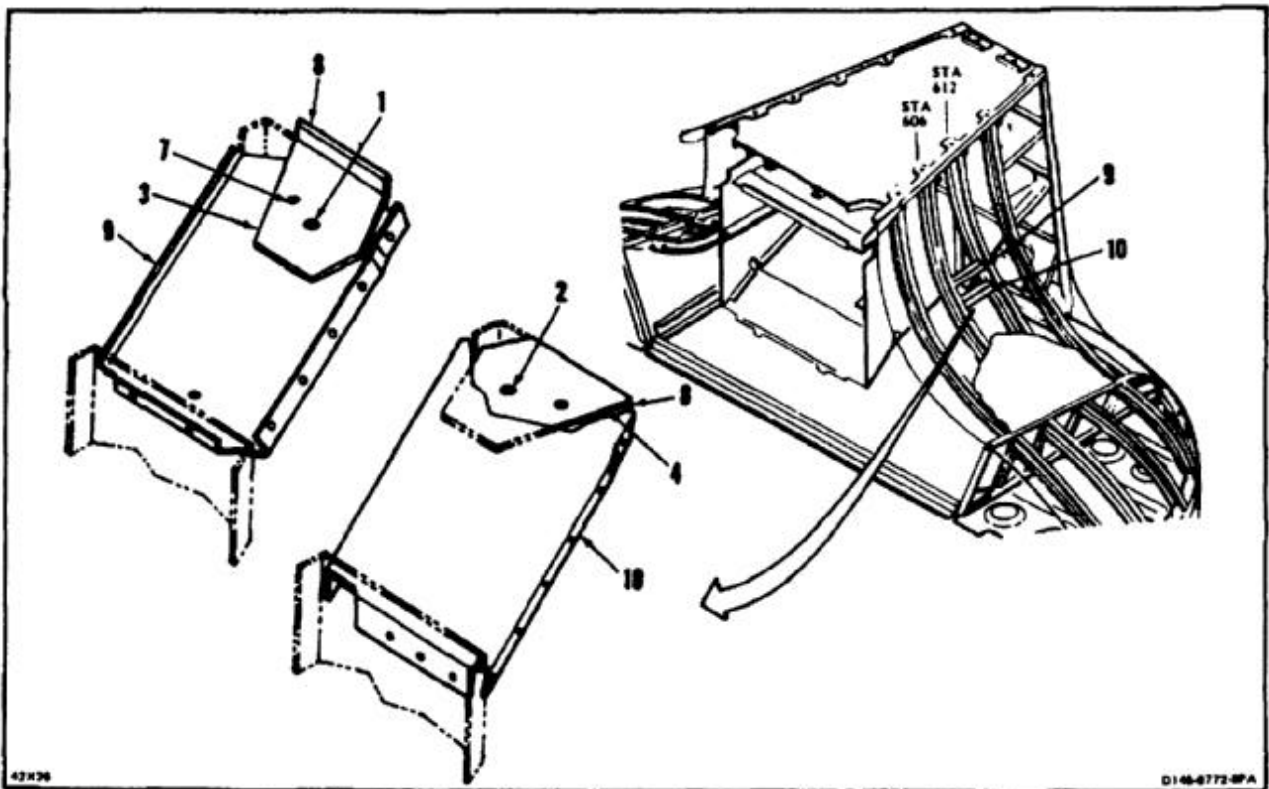
Parts:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**TM 55-1520-240-23P
TM 1-1500-204-23**Equipment Condition:**

APU Removed (Task 15-3)

1. If two holes (1 and 2) in clips (3 and 4) are more than **0.264 inch** diameter, replace clips as follows
 - a. Drill out 12 rivets (7) from clips. Remove clips.
 - b. Make new clips from **0.063 inch** thick alclad sheet 2024-T3 or -T4. Bend radius is **0.19 inch**.
 - c. Drill rivet holes in clips, using pattern from removed clips. Use No. 30 drill around hole surface and No. 21 drill in flanges (8).
 - d. Drill **0.250 inch** diameter holes in clips.
 - e. Position clips on bottom and upper surface of supports (9 and 10). Align clips.
 - f. Install 12 rivets (7) in clips (3 and 4) and supports (9 and 10).

**INSPECT****FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-952

SECTION IV
PYLON

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

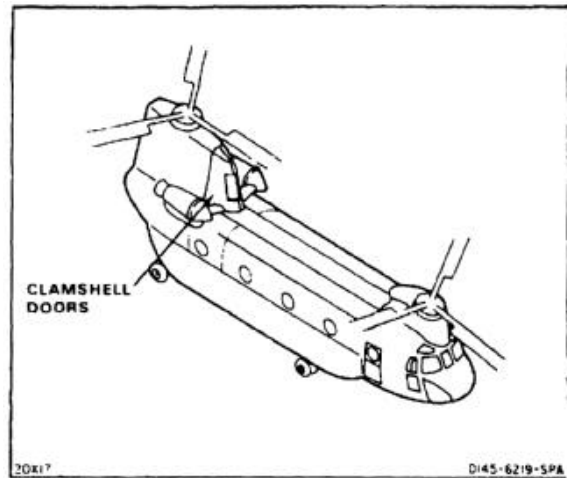
None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off

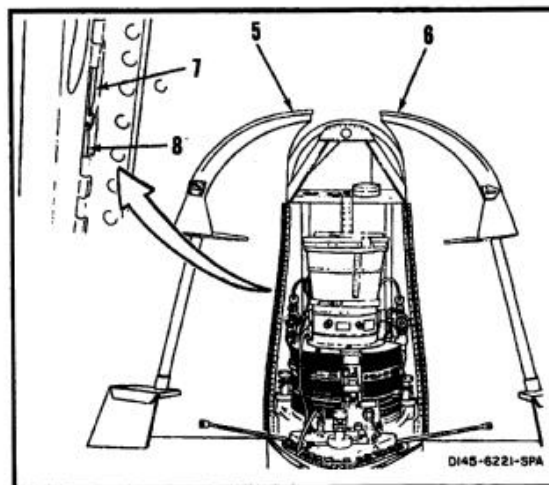
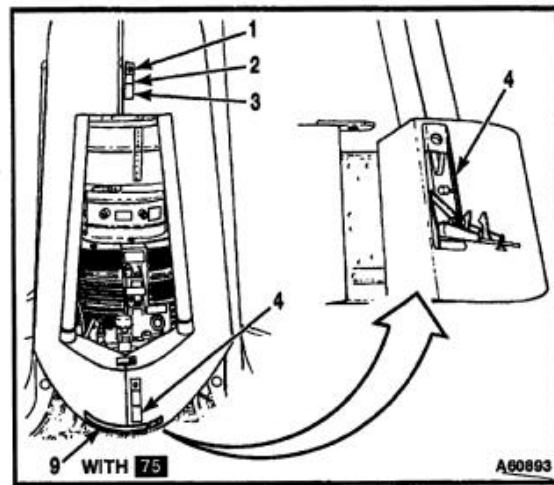


NOTE

Procedure is same to remove right or left clamshell door. Removal of right door is shown here.

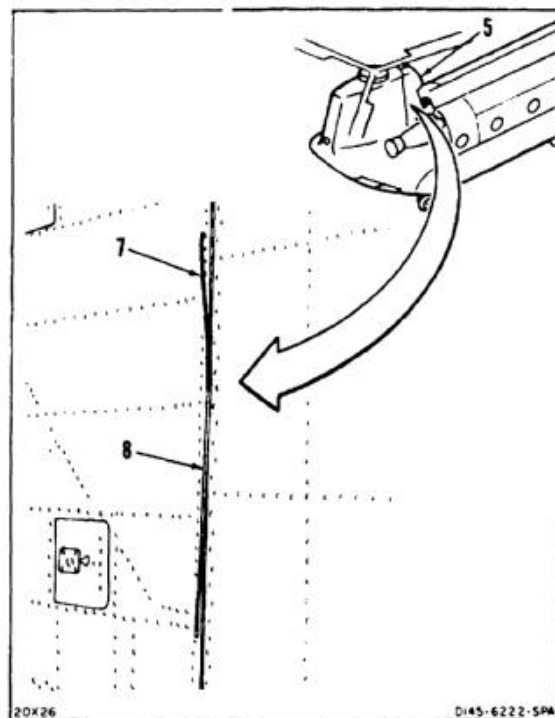
On helicopters with **75**, perform all of the steps. On helicopters without **75**, do not perform step 1.

1. Release retaining strap latch (9).
2. Loosen captive screws (1) on two latch handles (2).
3. Press latch handles (2) and release latches (3 and 4).
4. Pull latch handles (2) and open latches (3 and 4).
5. Open clamshell doors (5 and 6).
6. Remove lockwire from two hinge rods (7 and 8).



2-279 REMOVE PYLON LEADING EDGE HINGED FAIRING (Continued)**2-279**

7. Have helper close and support door (5).
8. Remove bottom hinge rod (8).
9. Remove top hinge rod (7).
10. Remove door (5).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

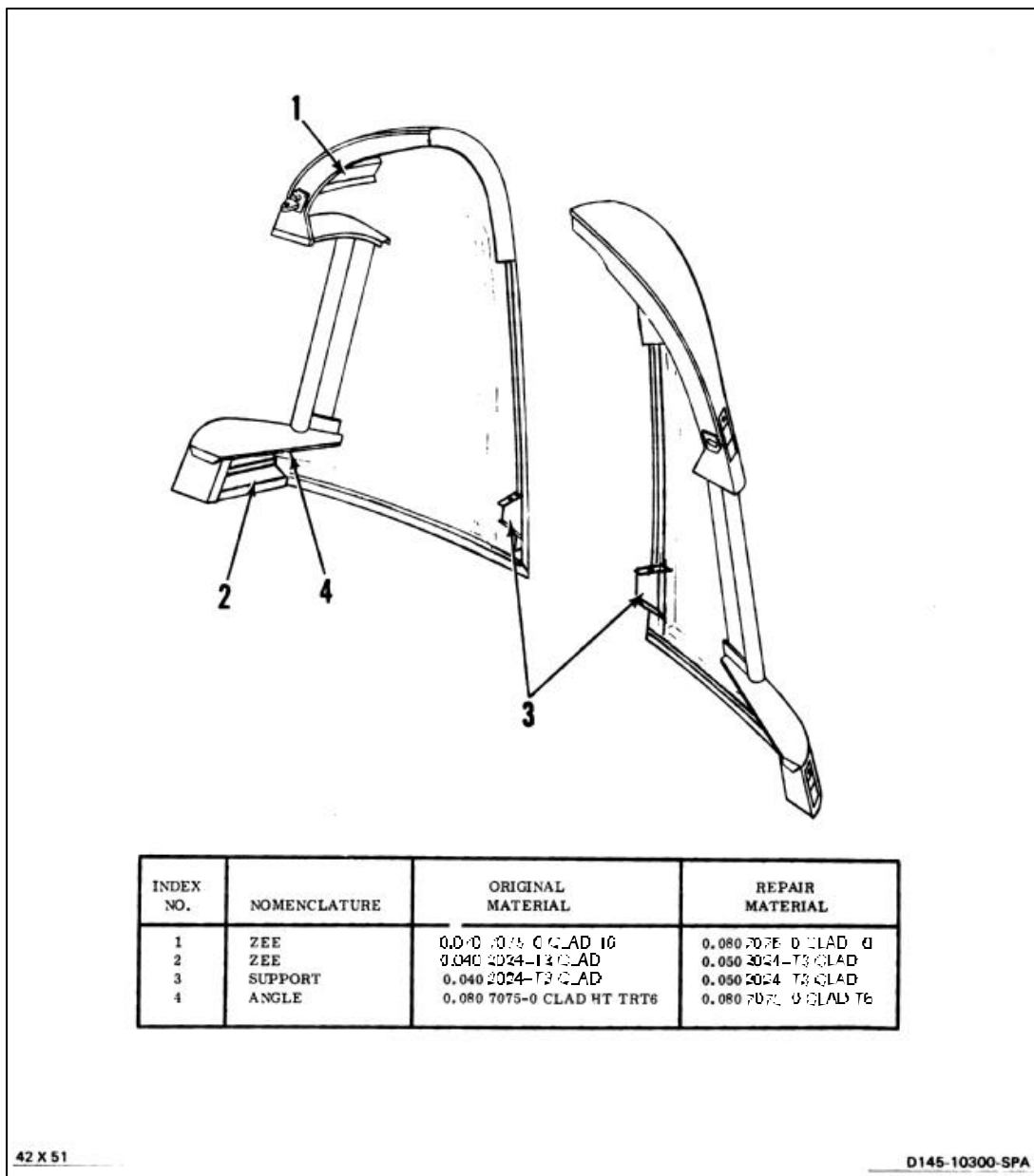
Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**TM 1-1500-204-23
Task 2-13**Equipment Condition:**

As Required

1. If damage to skin is less than **25 percent** of cross section skin panel, repair by patching (Task 2-13).
2. If damage to formed parts does not affect radius, repair by patching (Task 2-13).



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

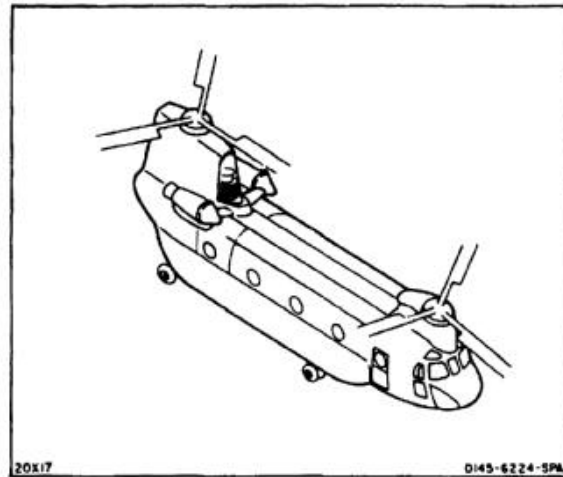
Lockwire (E229)

Personnel Required:

Medium Helicopter Repairer (2)
Inspector

References:

TM 55-1520-240-23P



NOTE

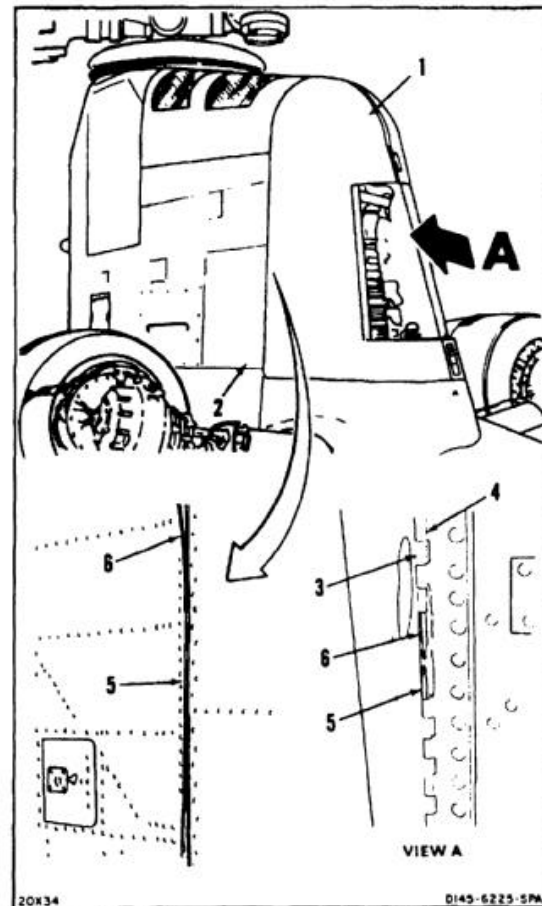
Procedure is same to install right or left clamshell door. Installation of right door is shown here.

1. Position door (1) on pylon structure (2).
2. Align hinge leaf (3) on door (1) and hinge leaf (4) on structure (2).
3. Have helper support door (1).

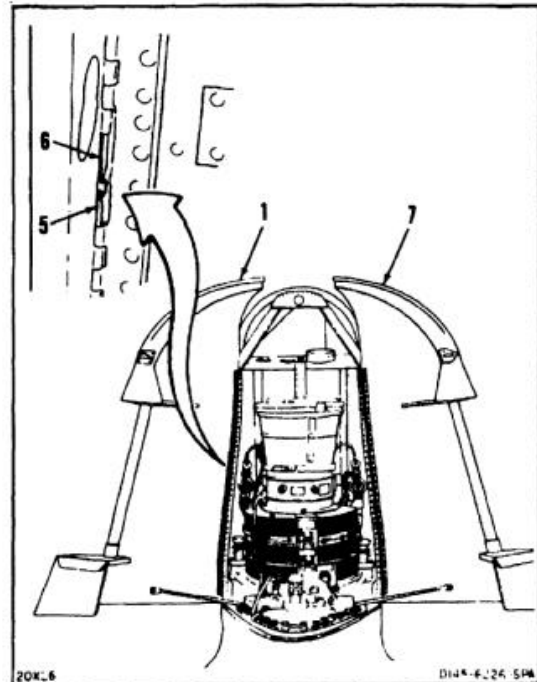
NOTE

Top hinge rod is longer than bottom hinge rod.

4. Install bottom hinge rod (5).
5. Install top hinge rod (6).



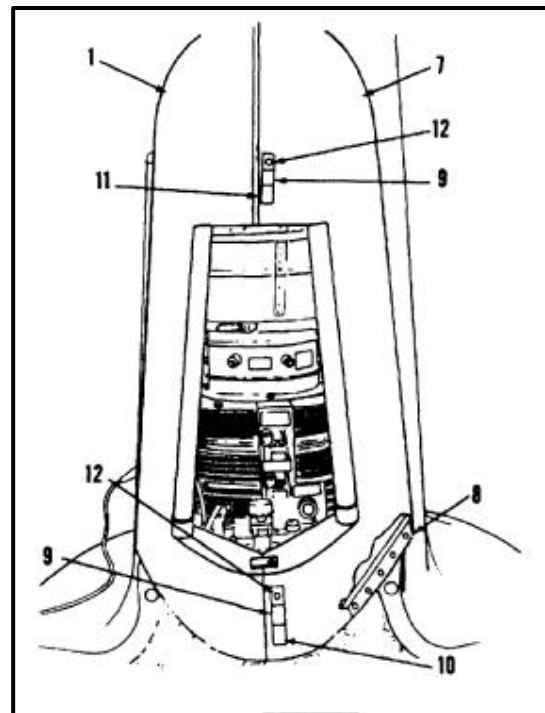
6. Open doors (1 and 7).
7. Install lockwire (E229) in rods (5 and 6).



8. Close doors (1 and 7). Check closed doors for fit.
9. If needed, trim the 24 bumpers (8) to obtain a good fit of doors (1 and 7). Minimum thickness of bumpers after trimming shall be **0.06 inch**.
10. Push two latch handles (9) in and lock latches (10 and 11).
11. Tighten two captive screws (12) on latches (10 and 11).
12. On helicopters with **75**, fasten retainer strap latch (13).

INSPECT**FOLLOW-ON MAINTENANCE:**

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

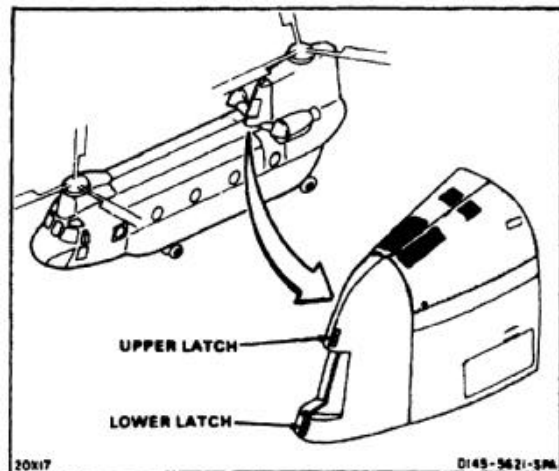
None

Personnel Required:

Medium Helicopter Repairer

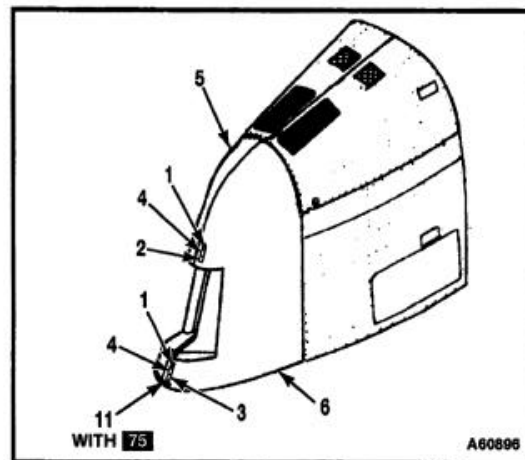
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off

**NOTE**

On helicopters with **75**, perform all of the steps. On helicopters without **75**, do not perform step 1.

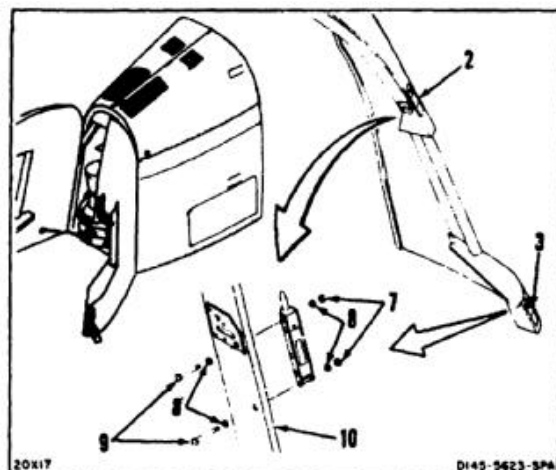
1. Release retaining strap latch (11).
2. Loosen two captive screws (1) on upper latch (2), and lower latch (3).
3. Press two latch handles (4), and release latches (2 and 3).
4. Open pylon fairing (clamshell) doors (5 and 6).



5. Close latches (2 and 3).
6. Remove two nuts (7), four washers (8), and two screws (9) from structure (10) and lower latch (3). Remove lower latch.
7. Remove two nuts (7), four washers (8), and two screws (9) from structure (10) and upper latch (2). Remove upper latch.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-960

2-282.1 DISASSEMBLE PYLON FAIRING LATCH

2-282.1

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P

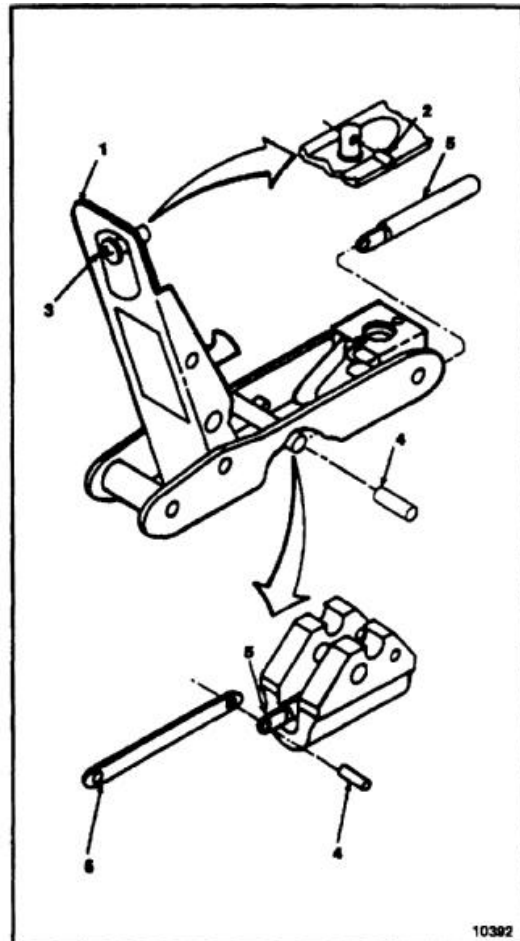
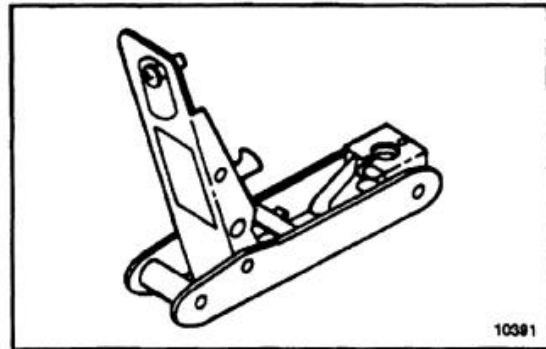
Equipment Condition:

Off Helicopter Task

NOTE

Pylon fairing latches with **52** have bullet nose latch pins and the roll pin has been replaced by a solid pin.

1. Pull latch handle (1) to OPEN position.
2. Remove cross pin (2) from stud (3).
3. Remove stud (3) from latch handle (1).
4. Remove roll pin (4) from latch pin (5) and link (6).
5. Remove latch pin (5).
6. Inspect pin (5) for wear. If the remaining diameter of a latch pin is **0.208 inch** or less, replace the pin.

**FOLLOW-ON MAINTENANCE:**

Assemble pylon fairing latch (Task 2-282.2).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4691

Materials:

None

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23P

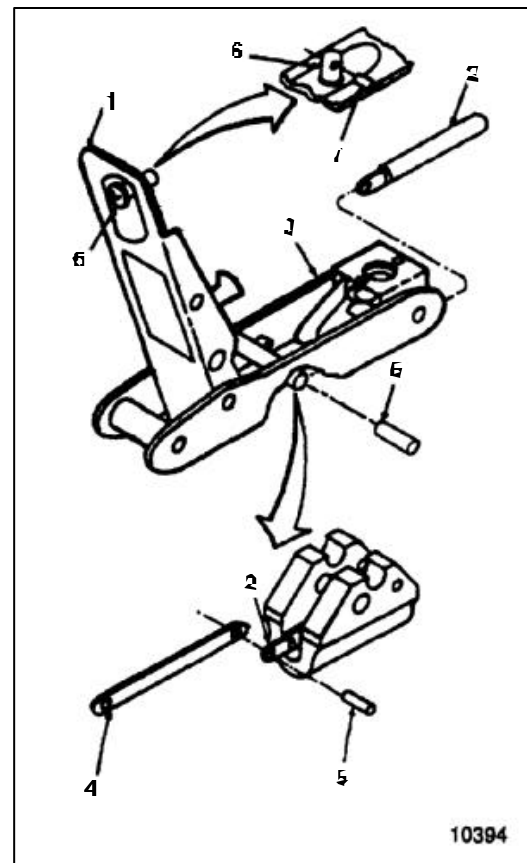
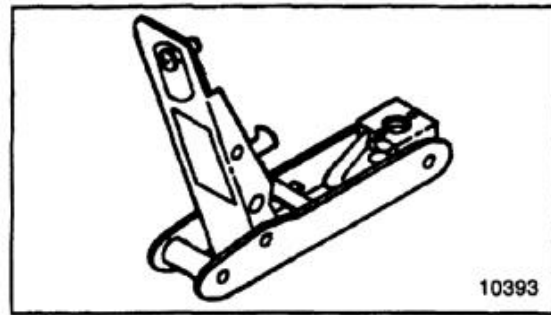
Equipment Condition:

Off Helicopter Task

NOTE

Pylon fairing latches with **52** have bullet nose latch pins and the roll pin has been replaced by a solid pin.

1. Set handle (1) to OPEN position.
2. Position latch pin (2) in latch (3).
3. Align holes in latch pin (2) and link (4).
4. Install roll pin (5) in link (4) and latch pin (2).
5. Stake roll pin (5) in accordance with common shop practice.
6. Install stud (6) in handle (1).
7. Install cross pin (7) in stud (6).

**FOLLOW-ON MAINTENANCE:**

Install pylon fairing latch (Task 2-283).

END OF TASK

2-962

INITIAL SETUP

Applicable Configurations:

All

Tools:

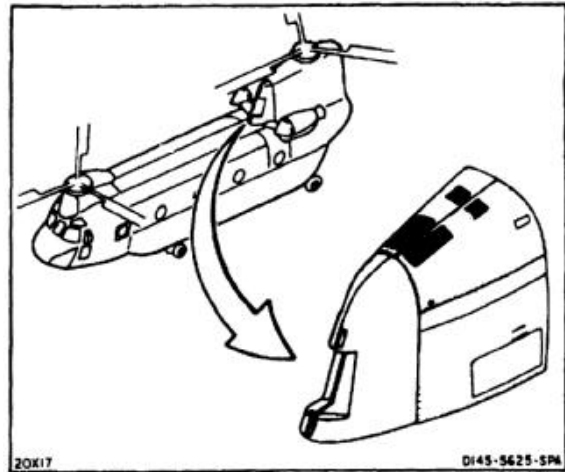
Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

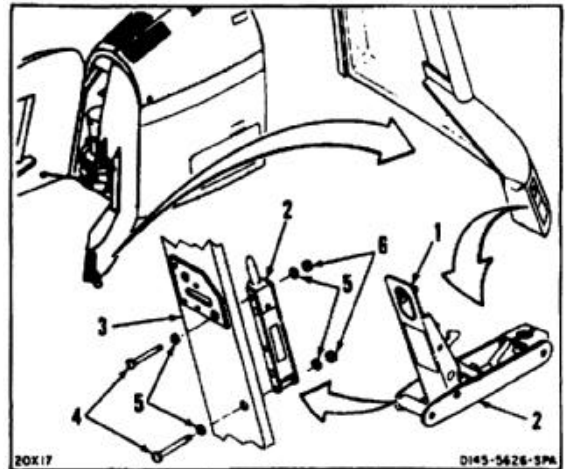
None

Personnel Required:Medium Helicopter Repairer
Inspector**References:**

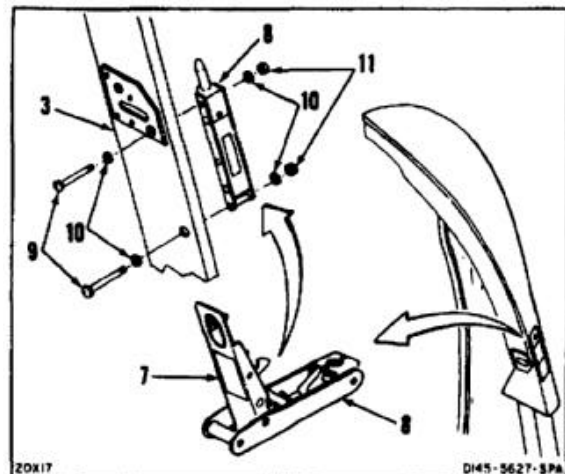
TM 55-1520-240-23P



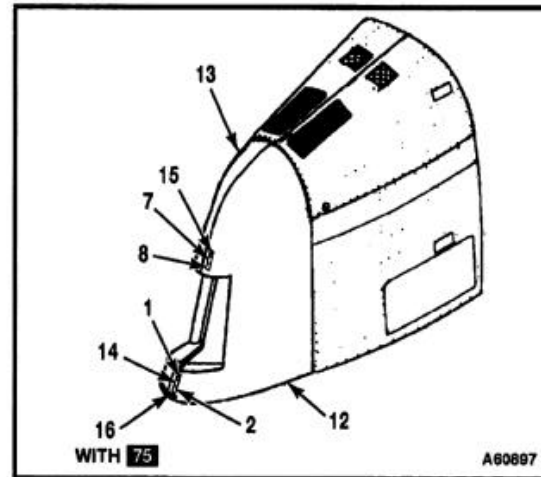
1. Close handle (1) and position lower latch (2) on structure (3).
2. Install two screws (4) and washers (5) through holes in structure (3) and latch (2).
3. Install two washers (5) and two nuts (6). Tighten screws (4).



4. Close handle (7) and position upper latch (8) on structure (3).
5. Install two screws (9) and washers (10) in structure (3) and latch (8). Install two washers (10) and nuts (11) on latch (8).



6. Press latch handles (1 and 7) and open latches (2 and 8).
7. Close pylon fairing (clamshell) doors (12 and 13).
8. Close handles (1 and 7) on latches (2 and 8).
9. Tighten two captive screws (14 and 15).
10. On helicopters with **75**, fasten retainer strap latch (16).

INSPECT**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-964

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

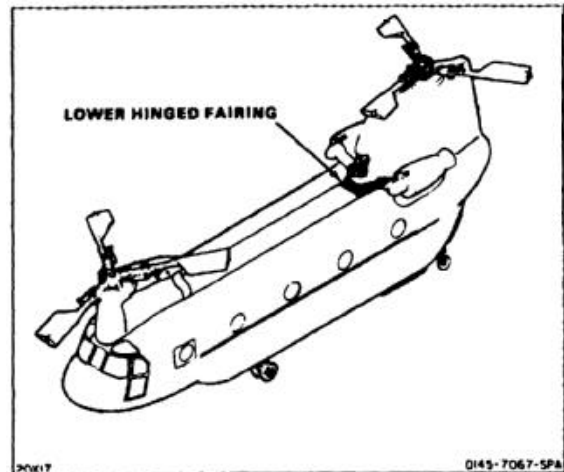
None

Personnel Required:

Medium Helicopter Repairer

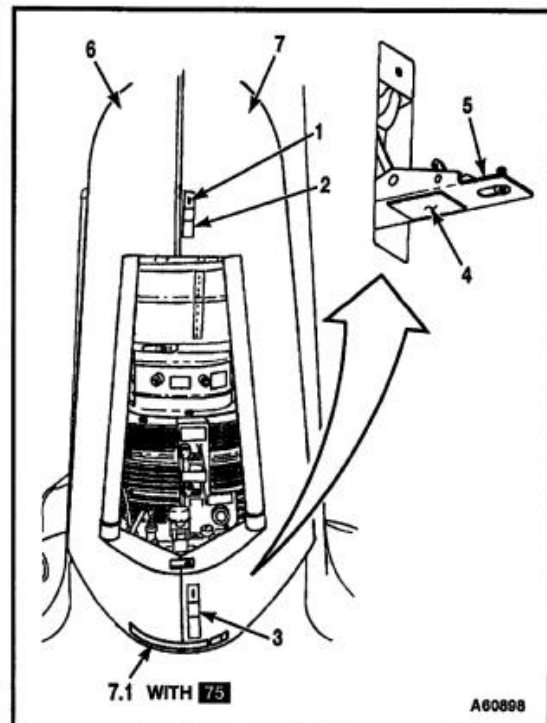
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off

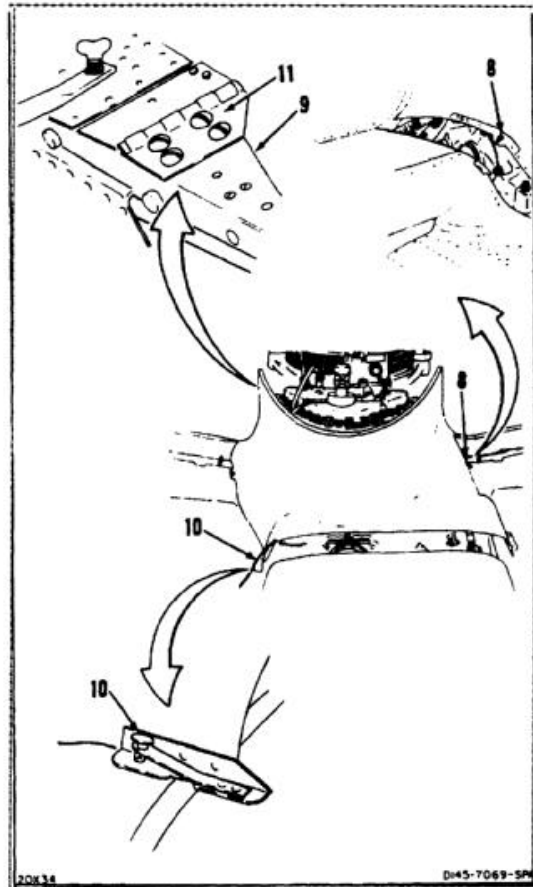
**NOTE**

On helicopters with **75**, perform all of the steps. On helicopters without **75**, do not perform step 1.

1. Release retaining strap latch (7.1).
2. Loosen captive screws (1) on two latches (2 and 3).
3. Press release springs (4) on latches (2 and 3).
4. Pull handles (5) on latches (2 and 3).
5. Open fairings (6 and 7).



6. Loosen two screws (8), one on right side and one on left side of fairing (9).
7. Loosen two fasteners (10), one on right side and one on left side of fairing (9).
8. Loosen four captive screws (11).
9. Remove fairing (9).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-966

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692
 Drill Size K File, Rotary

Materials:

Gloves (E184.1)
 Epoxy Primer (E292)

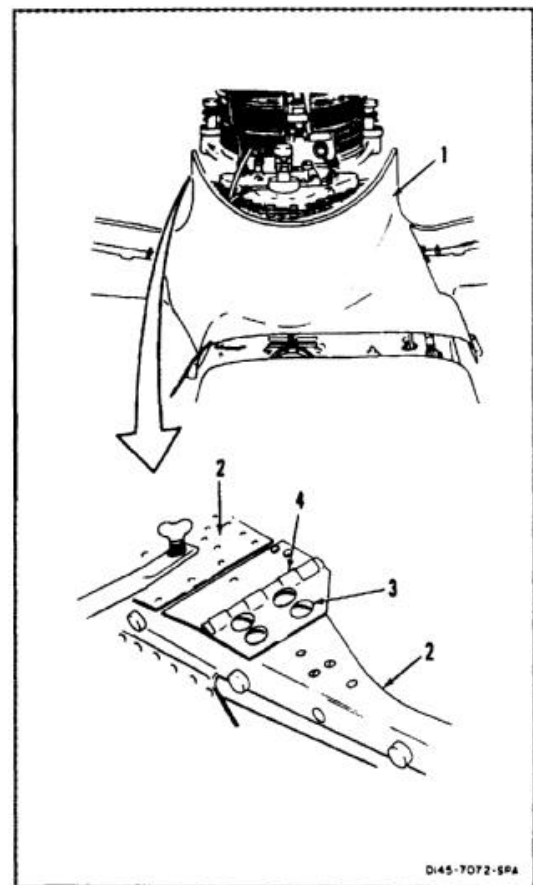
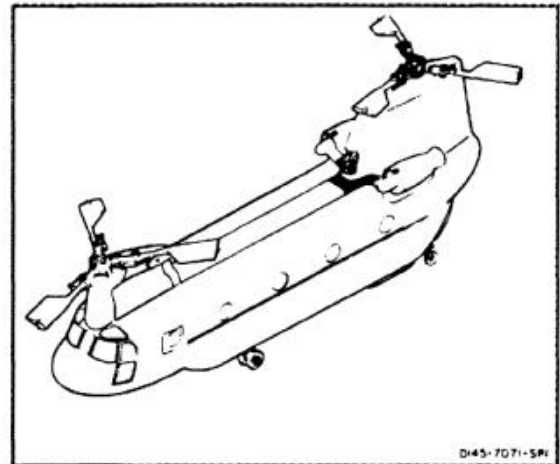
Personnel Required:

Medium Helicopter Repairer
 Inspector

References:

TM 55-1520-240-23P

1. Position lower hinged fairing (1) on pylon structure (2).
2. Align captive screws (3) on structure (2) with receptacles (4) on fairing (1).
3. Tighten screws (3).



4. Tighten two fasteners (5) on right and left sides of fairing (1).
5. Tighten two fasteners (6) on right and left sides of fairing (1).
6. If a new lower hinged fairing (1) is being installed, have helper position fairing.
7. Mark stud hole (7) and fastener hole (10) on both sides of fairing (1).
8. With rotary file enlarge stud hole (7) to fit stud (8). Deburr hole.
9. Drill hole for fastener (10) deburr hole. Use drill size K.

INSPECT

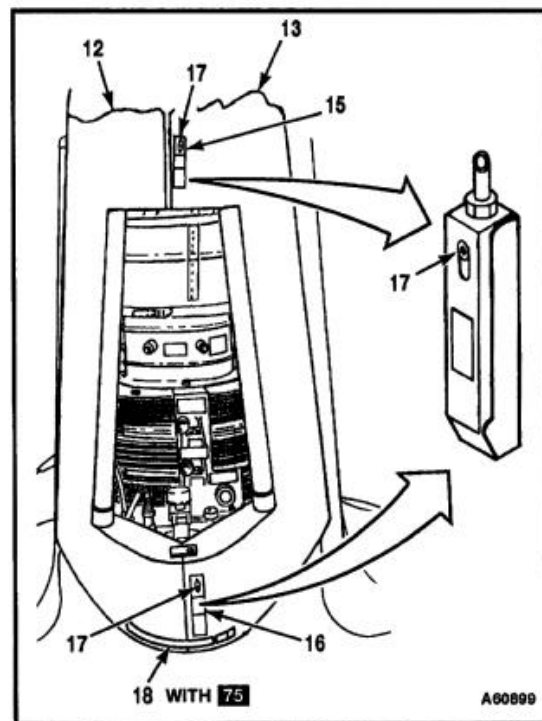
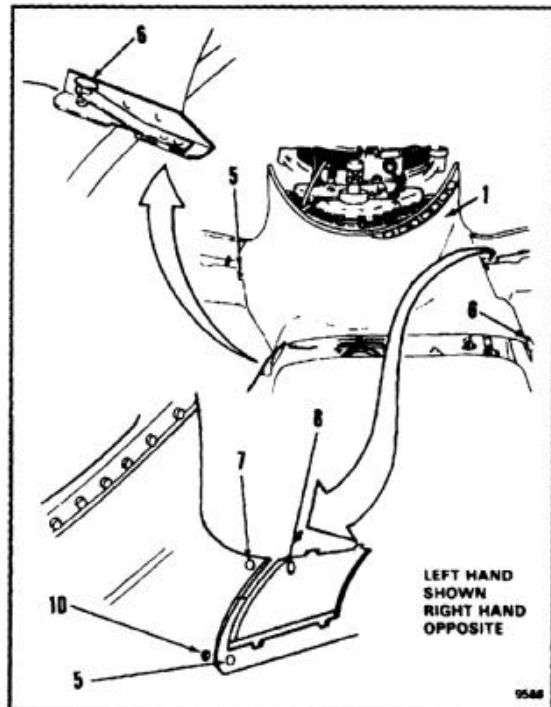


Epoxy primer (E292) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

10. Apply primer (E292) to drilled hole (10). Wear gloves (E184.1).
11. Install fastener in drilled hole (10).
12. Close two clamshell doors (12 and 13).
13. Push in and lock latches (15 and 16).
14. Tighten captive screw (17) on latches (15 and 16).
15. On helicopters with **75**, fasten retainer strap (18).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Hoist Minimum Capacity 100 Pounds
 Workstand
 Rope
 Guideline

Materials:

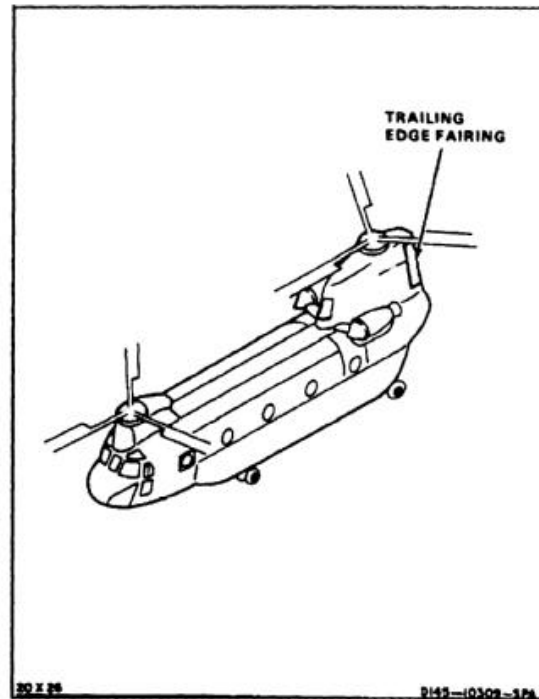
None

Personnel Required:

Medium Helicopter Repairer (2)
 Aircraft Structural Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Tail Position Light Removed (Task 9-63)



1. Remove rivets (1) from aft crown fairing (2). Remove fairing and straps (3) from trailing edge fairing (4).
2. Remove rivets (5) from trailing edge fairing (4) of aft pylon (9).

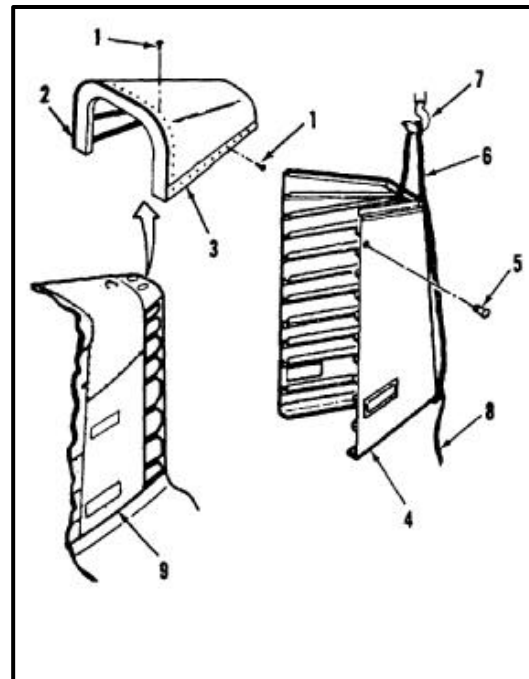
WARNING

Fairing must be supported by hoist and controlled by guideline. Otherwise injury to personnel or damage to equipment can occur.

3. Slide fairing (4) aft about **3 inches**. Tie rope (6) around aft end of fairing (4). Attach rope to hoist hook (7). Attach guidelines (8) to rope.
4. Move fairing (4) aft, away from pylon (9). Lower fairing to floor. Remove guideline (8) and rope (6) from fairing.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

TM 1-1500-204-23
Task 2-13

Equipment Condition:

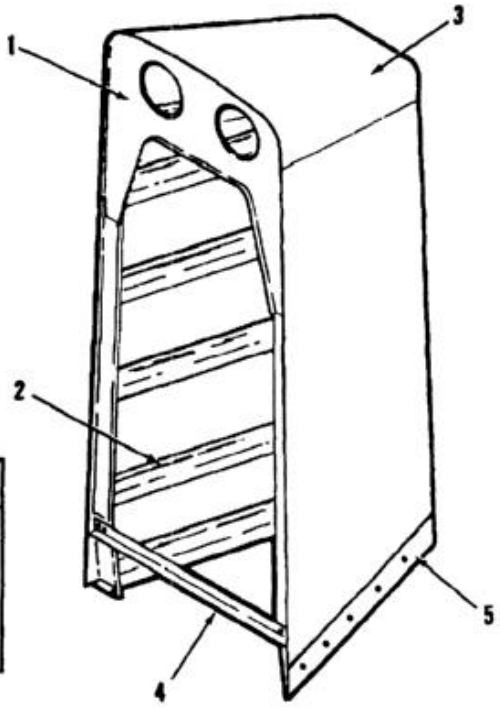
As Required

1. If damage to formed part does not affect radius repair by patching (Task 2-13).
2. Repair damage to impregnated glass cloth laminated skin that requires simple procedures. Repair must not place restrictions on flight.

NOTES

A. ALL DIMENSIONS ARE IN INCHES
 B. REFER TO TM 1-1500-204-23 FOR CLASSIFICATION OF DAMAGE AND REPAIR OF IMPREGNATED GLASS CLOTH PARTS
 C. REPLACE WITH ORIGINAL MATERIAL

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD
2	FORMER	4-PLY, NO. 181/75 GLASS CLOTH	REFER TO NOTE B.
3	SKIN	3-PLY, NO. 181/75 GLASS CLOTH	REFER TO NOTE B.
4	STIFFENER STRAP	ALCOA 22526 2024-T4	0.050 4130
5		0.020 2024-T3 CLAD	NOTE C.



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-288 INSTALL TRAILING EDGE FAIRING

2-288

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Hoist Minimum Capacity 100 Pounds
 Workstand
 Rope
 Guideline

Materials:

Sealant, Pro Seal (E336)

Parts:

As Required

Personnel Required:

Medium Helicopter Repairer (2)
 Inspector
 Aircraft Structure Repairer

References:

TM 55-1520-240-23P
 TM 1-1500-204-23

WARNING

Fairing must be supported by hoist and controlled by guideline. Otherwise injury to personnel or damage to equipment can occur.

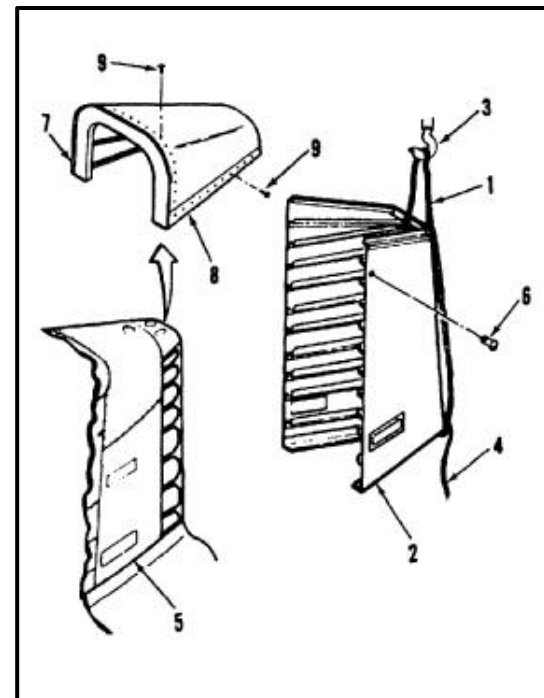
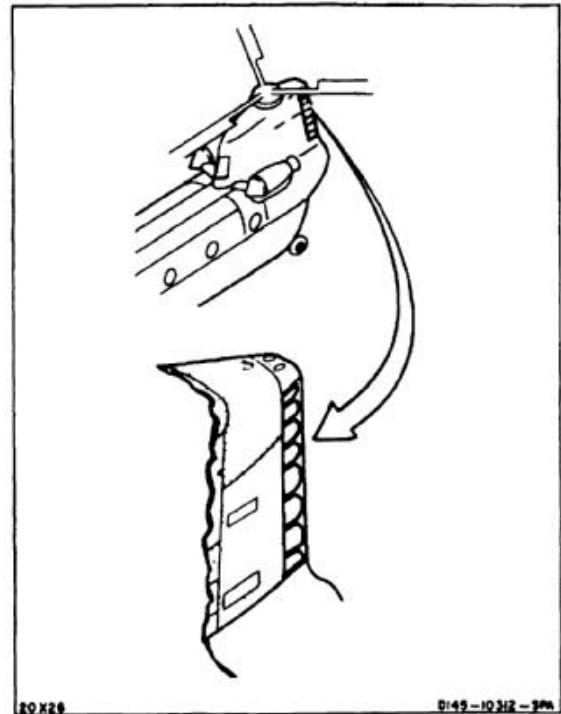
1. Tie rope (1) around aft end of trailing edge fairing (2). Attach rope to hook (3). Attach guideline (4) to rope.
2. Position fairing (2) small end up on aft pylon (5). Remove rope (1) from fairing. Slide fairing fully on pylon.
3. Install rivets (6) in fairing (2).
4. Position crown (7) on trailing edge fairing (2).
5. Position straps (8) on crown (7). Install rivets (9).

WARNING

Sealant (E336) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

6. Apply sealant (E336) to mating surfaces of fairing (2) and pylon (5) (TM 1-1500-204-23).

END OF TASK

**FOLLOW-ON MAINTENANCE:**

Install tail position light (Task 9-64).

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:

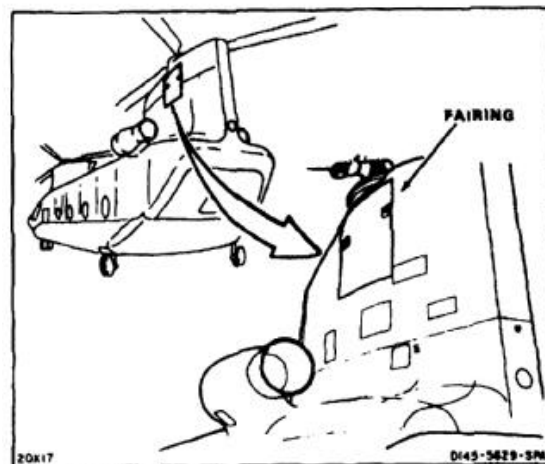
None

Personnel Required:

Medium Helicopter Repairer (2)

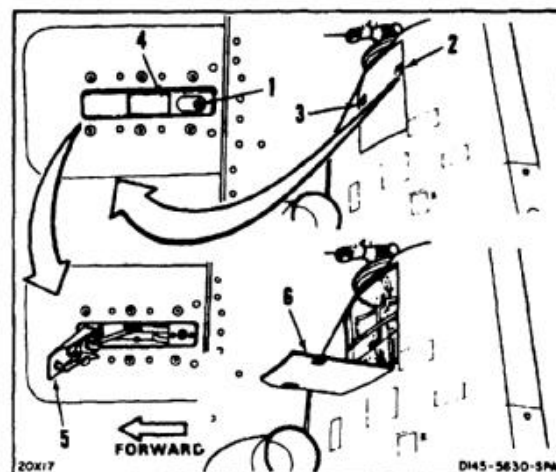
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off

**NOTE**

Procedure is same to remove left and right pylon hinged fairing (work platform). Removal of left platform is shown here.

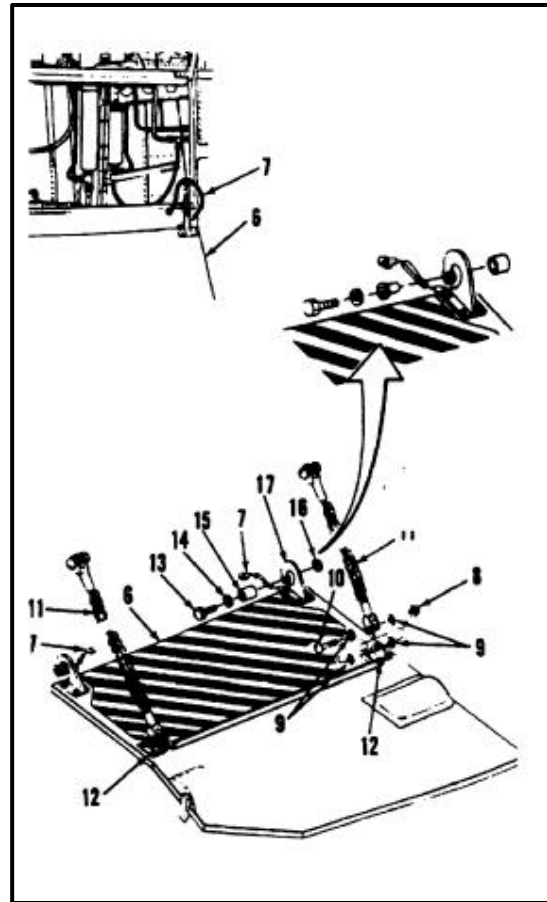
1. Loosen captive screw (1) on two latches (2 and 3).
2. Push in release spring (4) to release latches (2 and 3).
3. Pull latch handle (5) and lower work platform (6) to open position.



2-289 REMOVE PYLON HINGED FAIRING (WORK PLATFORM) (Continued)

2-289

4. Have helper support platform (6).
5. Disconnect electrical lead (7).
6. Remove nut (8), four washers (9), and bolt (10) from two cables (11) and platform brackets (12).
7. Remove lockwire from bolt (13).
8. Remove bolt (13), washer (14), bushing (15), and washer (16) from hinge fitting (17).
9. Remove work platform (6).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:

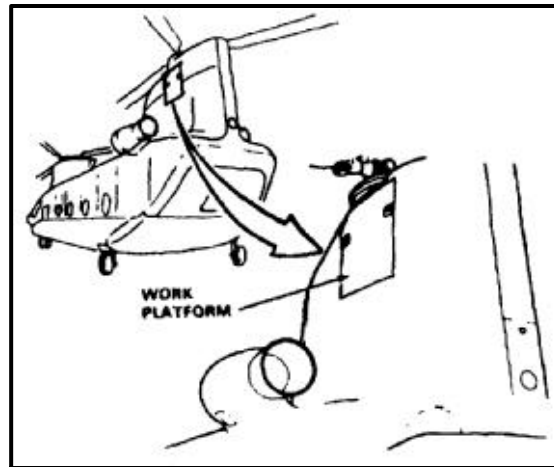
None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

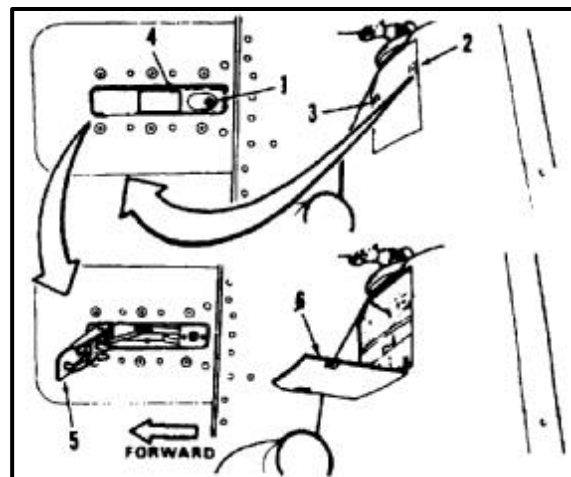
Battery Disconnected (Task 1-39)
Electrical Power Off



NOTE

Procedure is same to remove left and right work platform. Removal of left platform is shown here.

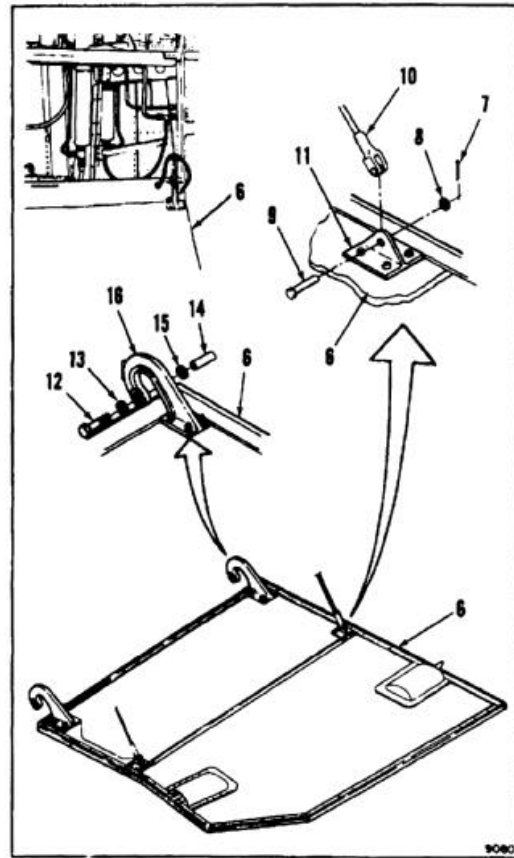
1. Loosen captive screw (1) on two latches (2 and 3).
2. Push in release spring (4) to release latches (2 and 3).
3. Pull latch handle (5) and lower work platform (6) to open position.



2-289.1 REMOVE COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued)

2-289.1

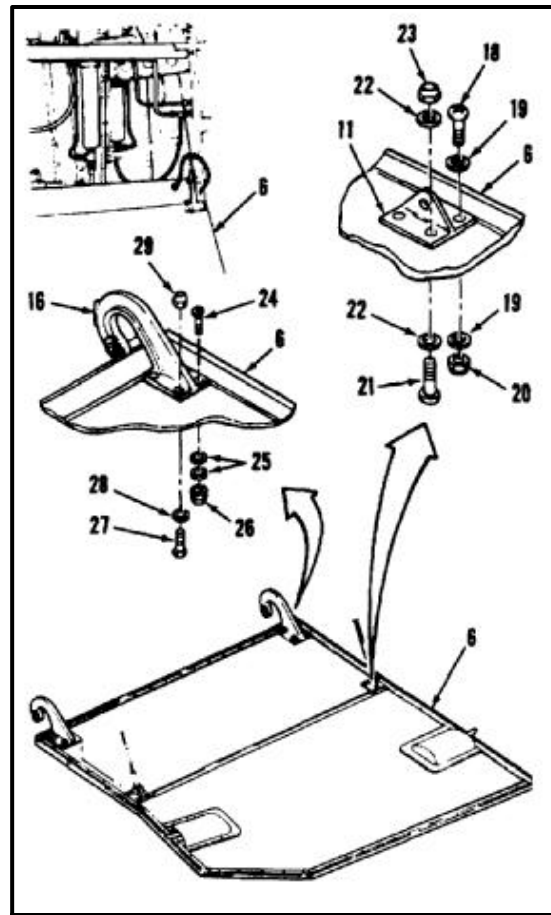
4. Have helper support platform (6).
5. Remove cotter pin (7), washer (8), and pin (9) from each of two cables (10) and platform brackets (11).
6. Remove lockwire from bolt (12).
7. Remove bolt (12), washer (13), bushing (14), and washer (15) from each of two hinge fittings (16).
8. Remove work platform (6).



NOTE

Procedure is same to remove platform brackets and hinge fittings on left and right work platforms. Left platform is shown here.

9. If necessary, remove platform brackets (11) and hinge fittings (16).
10. Remove bolts (18), washers (19), and nuts (20) from platform brackets (11) on inside of work platform (6).
11. Remove bolts (21), washers (22), and nuts (23) from platform brackets (11) through outside surface of work platform (6).
12. Remove bolts (24), washers (25), and nuts (26) from hinge fittings (16) on inside of work platform (6).
13. Remove bolts (27), washers (28), and nuts (29) from hinge fittings (16) through outside surface of work platform (6).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-976

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692
Workstand

Materials:

None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

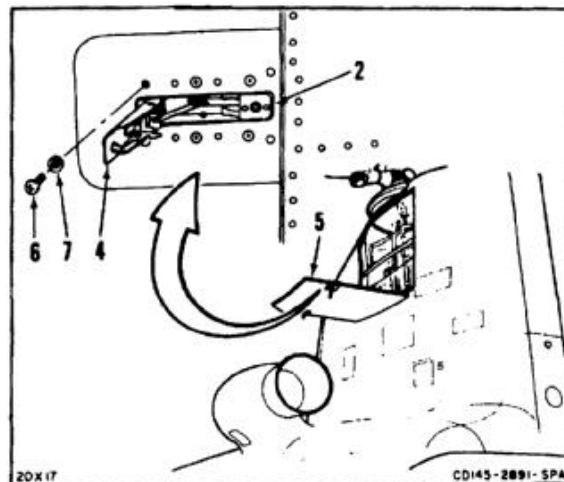
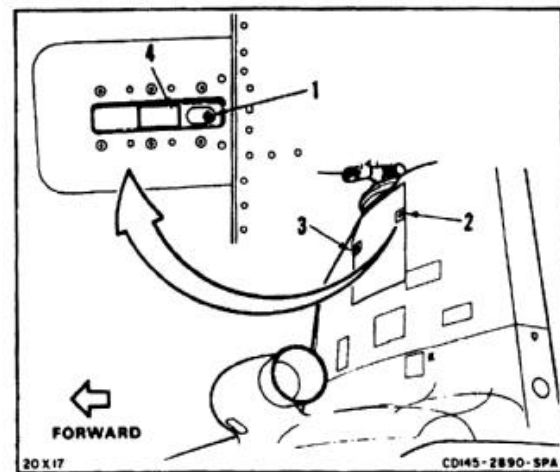
Battery Disconnected (Task 1-39)
Electrical Power Off



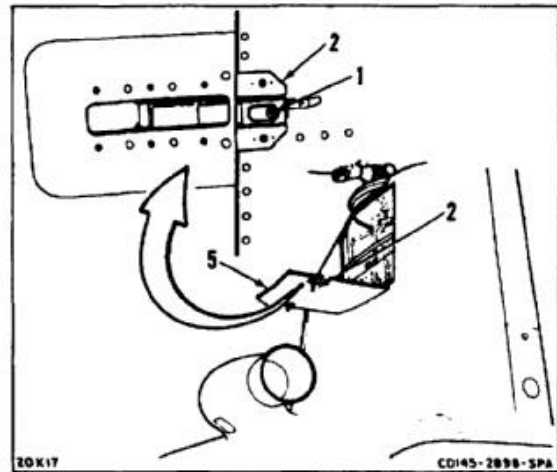
NOTE

Procedure is same to remove forward and aft latches on left and right platforms. Aft latch on left platform is shown here.

1. Loosen two captive screws (1) on latches (2 and 3).
2. Push in release spring (4) to release latches (2 and 3).
3. Pull latch handles (4) and open work platform (5).
4. Remove six screws (6) and washers (7) from latch (2).



5. Close latch (2). Tighten captive screw (1).
6. Slide latch (2) aft and remove latch from platform (5).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

2-978

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

References:

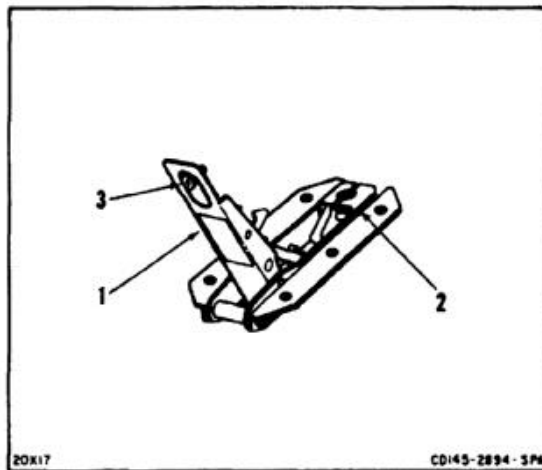
TM 55-1520-240-23P



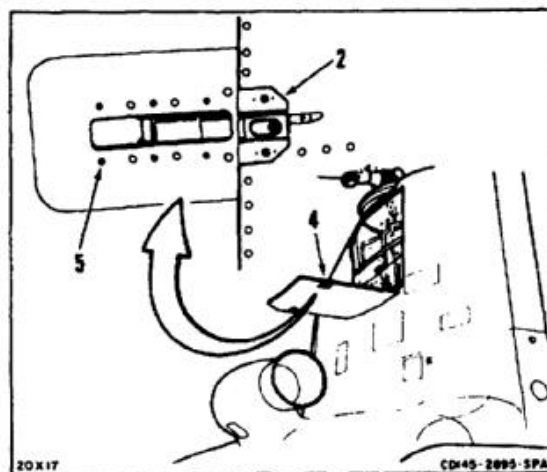
NOTE

Procedure is same to install forward or aft latches on left or right platforms. Aft latch on left platform is shown here.

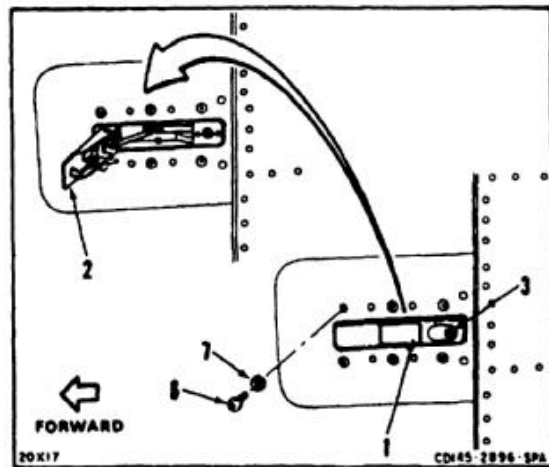
1. Close latch handle (1) on latch (2) if needed.
2. Tighten captive screw (3) if needed.



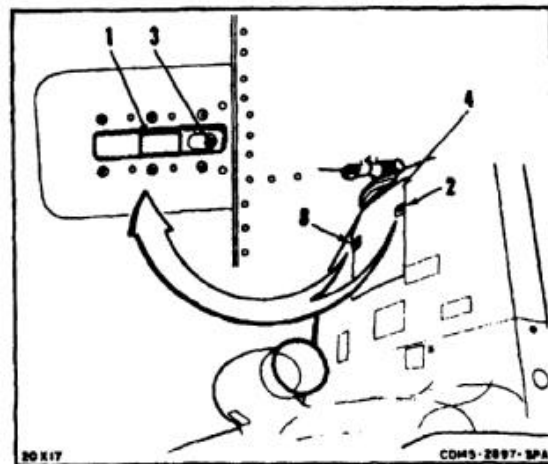
3. Position latch (2) on work platform (4). Slide latch forward and align with mounting holes (5).



4. Install six screws (6) and washers (7).
5. Loosen captive screw (3).
6. Push in forward end of handle (1) to release latch (2).



7. Close platform (4).
8. Close handle (1) on latches (2 and 8).
9. Tighten captive screw (3) on latches (2 and 8).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP**Applicable Configurations:**With **20****Tools:**

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Pencil Compass
 Straightedge
 Heat Lamp
 Scissors
 Trip Balance, NSN 6670-00-401-7195
 Electric Drill
 Drill Bits
 Shot Bags
 Vacuum Cleaner
 Craftsman's Knife
 Vacuum Pump
 Bond Test Unit

Materials:

Abrasive Paper (E7 thru E9)
 Acetone (E20)
 Cloth (E120)
 Peel Ply (E270)
 Gloves (E186)
 Glass Cloth (E130)
 Teflon-Impregnated Fabric (E170)
 Nomex Honeycomb Core (E150.1)
 Fiberglass Laminate (E168.1)
 Rubber Pad (E318)
 Masking Tape (E388)
 Sealing Tape (E396)
 Nylon Tape (E390.1)
 Aluminum Plate (E71)
 Adhesive (E41)
 Wood Spatula (E424)
 Temperature Indicating Strips (E413)
 Polyethylene Cup (E157)
 Nylon Sheet (E248.1)
 Hypodermic Syringe (E380)
 Plastic Squeeze Bottle (E366)

Personnel Required:

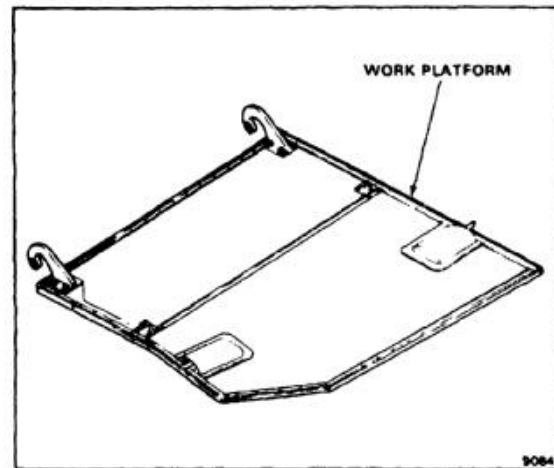
Aircraft Structure Repairer
 Inspector

References:

TM 55-1520-240-23P
 TM 1-1520-253-23

Equipment Condition:

Off Helicopter Task

**General Safety Instructions:****WARNING**

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

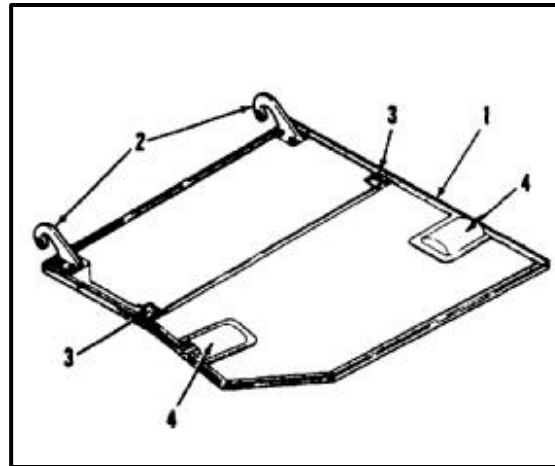
WARNING

Adhesive (E41) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Repair of composite work platform (1) includes the following procedures:

NOTE

Repairs within **2 inches** of hinge fittings (2), platform brackets (3), or latch covers (4) are not permitted.



Damage

Steps

Surface Abrasion	2-9
Bond Void (To 2 Square-Inches)	10-20
Bond Void (Over 2 Square-Inches)	21-44
Puncture Through One Skin and Core (To 1 Square-Inch)	45-56
Puncture Through One Skin and Core (Over 1 Square-Inch)	57-61
Puncture Through Both Skins and Core (To 1 Square-Inch)	62-73
Puncture Through Both Skins and Core (Over 1 Square-Inch)	74-87

NOTE

Procedure is same to repair left or right work platform.

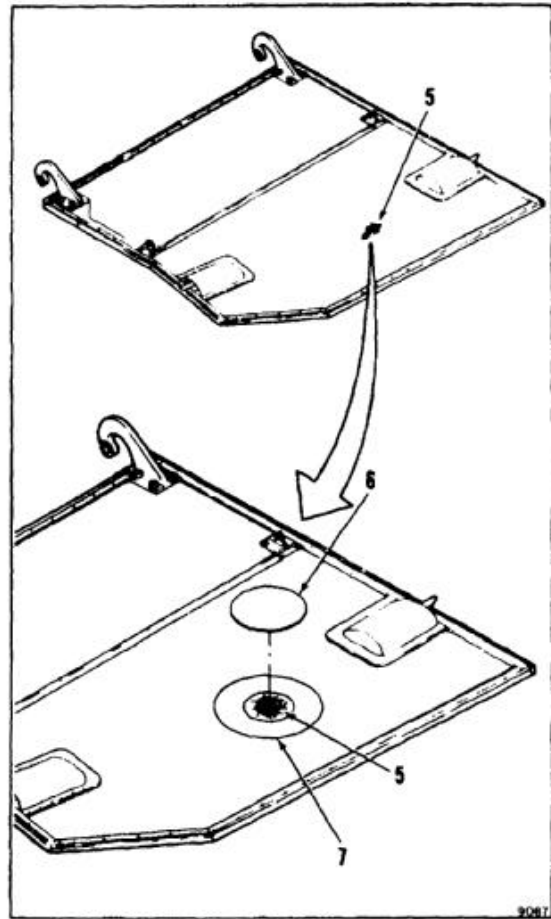
SURFACE ABRASION

2. Outline area of damage (5) with circle or oblong. Use pencil compass and straightedge.
3. Cut a piece of fiberglass laminate (E168.1) (6) large enough to overlap outline of damaged area (2) by **1.0 inch** in all directions.

NOTE

Do not sand into glass fibers.
Complete removal of primer is not necessary.

4. Remove finish down to primer from an area around damage (5) **1.5 inches** larger in all directions than damage. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
5. Clean area of finish removal (7). Use clean cloth (E120) damp with acetone (E20). Wipe area dry with a clean cloth. Repeat until there is no residue on dry cloth.
6. Prepare adhesive mixture. (Refer to step 88.) Apply coat of adhesive to area of finish removal (7).
7. Remove protective film from both sides of laminate piece (6). Carefully pull at right angle to direction of fibers.
8. Apply coat of adhesive to underside of laminate piece (6). Center piece over damage (5) and press down.
9. Bond and cure repair. (Refer to steps 89 thru 101.)



BOND VOID (TO 2 SQUARE-INCHES)

10. Determine extent of void (8) by tapping area with coin. Outline area of void with circle or oblong. Use pencil compass and straightedge. If a void in the composite pylon hinged fairing (work platform) is suspected, refer to TM 1-1520-253-23.

NOTE

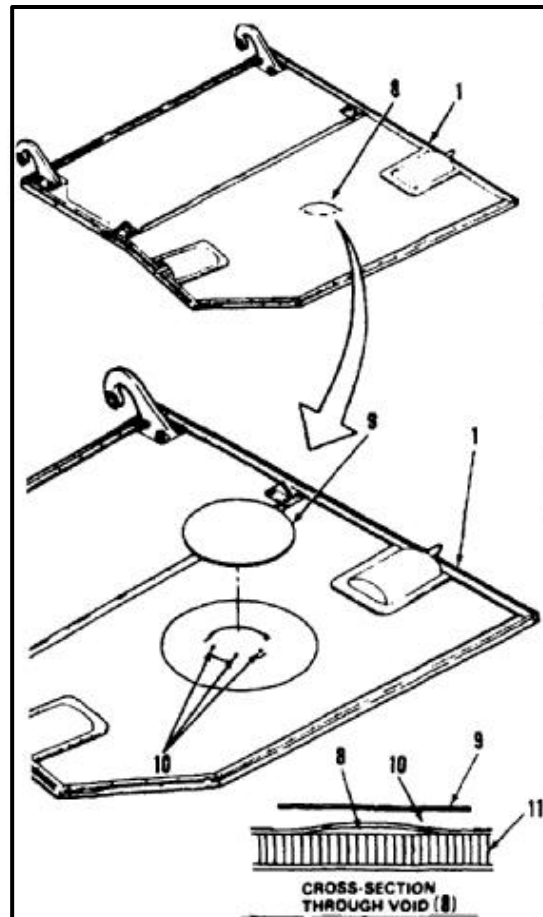
If area of void is greater than **2 square-inches**, go to step 40.

11. Cut a piece of fiberglass laminate (E168.1) (9) large enough to overlap outline of void (8) by **1.0 inch** in all directions.

NOTE

Do not sand into glass fibers.
Complete removal of primer is not necessary.

12. Remove finish down to primer from an area **1.5 inches** larger in all directions than outline to void (8). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
13. Drill several small holes (10) through void (8) near edge. Use a number 30 or 40 drill.
14. Clean area with a clean cloth (E120) damp with acetone (E20). Wipe area dry with clean dry cloth.
15. Prepare mixture of adhesive. (Refer to step 88.) Inject adhesive into void (8) through holes (10) until void and core (11) under void are full. Use hypodermic syringe (E380).
16. Cover holes (10) with tape (E390.1). Turn work platform (1) over to prevent adhesive from running into core.
17. Press down firmly on void (8). Let excess adhesive squeeze out through holes (10).
18. Remove protective film from both sides of laminate piece (9). Carefully pull at right angle to direction of fibers.
19. Apply coat of adhesive to underside of laminate piece (9) and to repair area of platform (1) within **1/2 inch** of finish removal line. Center piece void (8) and press down.
20. Bond and cure repair. (Refer to steps 89 thru 101.)



BOND VOID (OVER 2 SQUARE-INCHES)

21. Determine extent of void (12) by tapping area with coin. Outline area of void with a circle or oblong. Use pencil compass or straightedge. If a void in the composite pylon hinged fairing (work platform) is suspected, refer to TM 1-1520-253-23.

NOTE

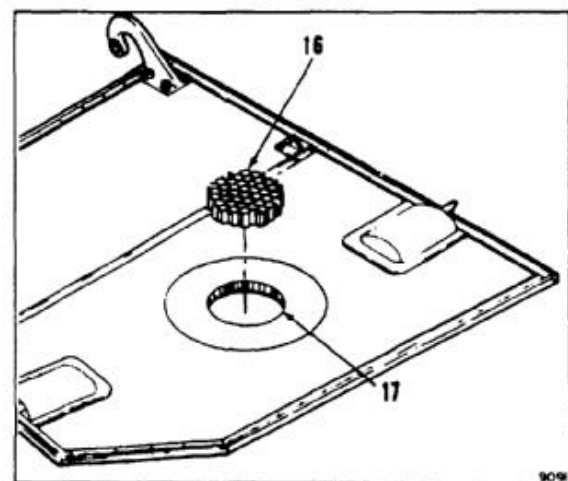
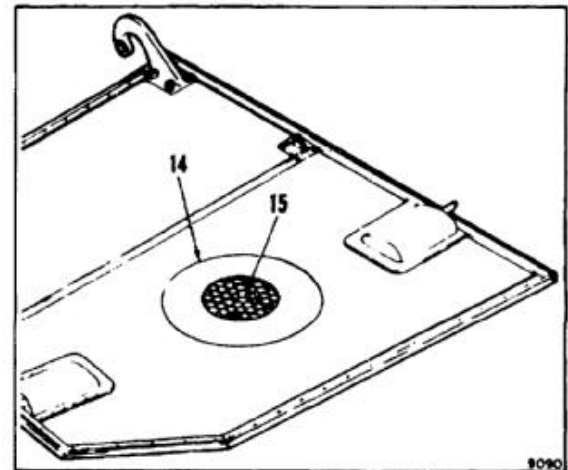
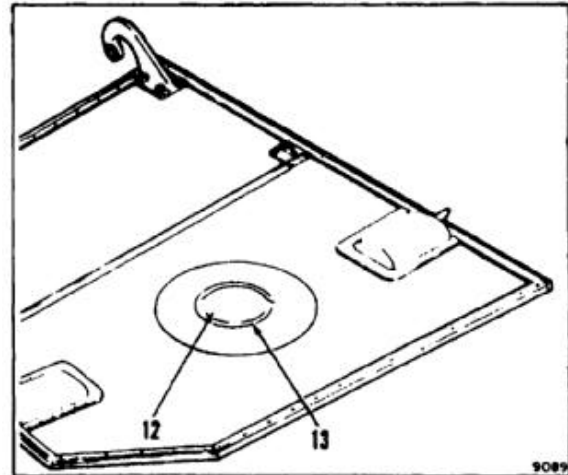
Do not sand into glass fibers.
Complete removal of primer is not necessary.

22. Remove finish down to primer from an area **1.5 inches** larger in all directions than outline abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
23. Cut away unbended skin. Use craftsman's knife.
24. Examine exposed core material (14). If core is not damaged, clean the core and surrounding area with clean cloths (E120) damp with acetone (E20). Wipe dry with clean dry cloth. Go to step 33.
25. If core (14) is damaged, cut out core to layer of adhesive on opposite skin (15). Be careful not to damage skin. Use a chisel.
26. Roughen surface of adhesive on opposite skin (15) to remove gloss.

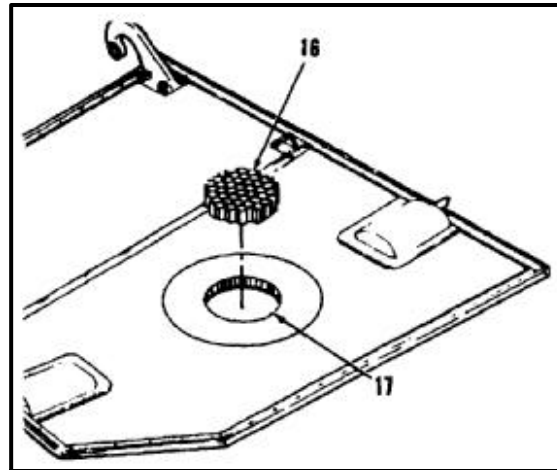
NOTE

Core material must be clean and dry for adhesive to hold.

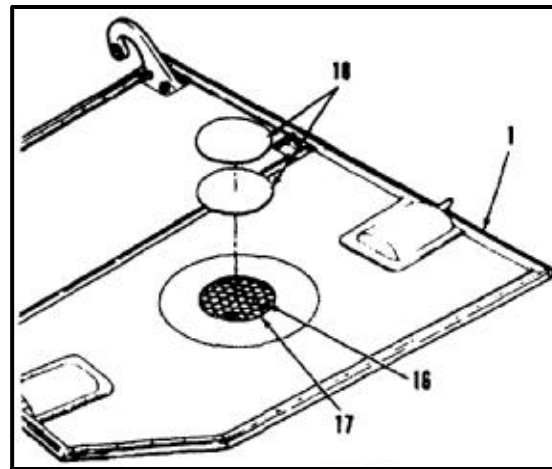
27. Cut core plug (16) in shape of cavity (13) but **1/8 inch** larger all around. Orient ribbon direction as existing core. Use core material (E150.1).
28. Fit core plug (16) into cavity (17) to check fit.



29. Remove plug (16).
30. Clean cavity (13), surrounding area, and core plug (16). Use a vacuum cleaner and a clean cloth (E120) damp with acetone (E20). Wipe dry with a clean dry cloth. Repeat until there is no residue on dry cloth.
31. Prepare mixture of adhesive. (Refer to step 88.) Apply coat of adhesive to sides and bottom of cavity (17).
32. Apply coat of adhesive to sides and bottom of core plug (16). Set plug in cavity (17). Align matchmarks if applicable.



33. Cut two pieces of fiberglass laminate (E168.1) (18) to fit in cavity (17) over core plug (16).
34. Check that pieces (18) fit flush with platform (1). Remove pieces.
35. Remove protective film from both sides of two laminate pieces (18). Carefully pull at right angle to direction of fibers.
36. Prepare mixture of adhesive. (Refer to step 88.)
37. Coat underside of one piece (18) with adhesive. Press piece against core plug (16) in cavity (17).
38. Apply coat of adhesive to top of installed piece (18) and underside of second piece. Install second piece in cavity over first piece. Press against piece to seat it flush with platform (1).

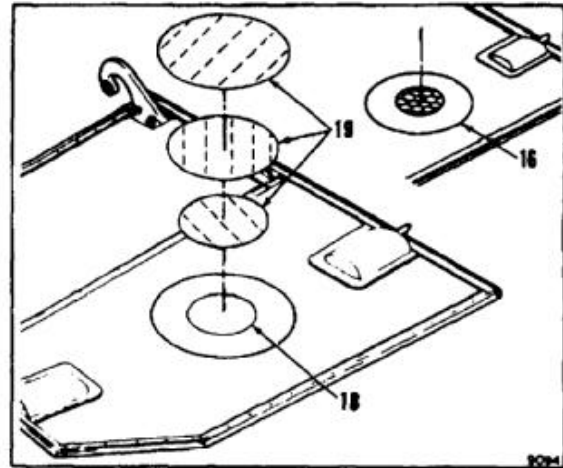


39. Cut three pieces of fiberglass laminate (E168.1) (19). Make the smallest piece large enough to overlap core (16) or laminate piece (18) **1.0 inch** in all directions. Make each additional piece large enough to overlap the previous piece **1 inch** in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be **45°** when they are installed.
40. Check that finish on platform (1) is removed for at least **1/2 inch** more in all directions than size of largest piece of laminate (19).
41. Remove protective film from each side of three fiberglass laminate pieces (19). Carefully pull at right angle to direction of fibers.

NOTE

Laminate pieces must be installed so that fiber orientation between each of the three pieces will be **45°**.

42. Apply adhesive to underside of laminate piece (19), top of installed piece (18), and to the surrounding area of platform (1) to within **1/2 inch** of finish removal line. Center smallest piece over repair area and press in place.
43. Apply adhesive to top of installed piece (19) and underside of next largest piece. Position larger piece on installed piece and press in place. Repeat procedure for third (largest) piece.
44. Bond and cure repair. (Refer to steps 89 thru 101.)



PUNCTURE THROUGH ONE SKIN AND CORE (TO 1 SQUARE-INCH)

45. Outline area of puncture (20) with circle or oblong. Use pencil compass and straightedge.
46. Remove loose fragments and debris from area of puncture (20). Remove finish down to primer from an area **2.5 inches** larger in all directions than outline around puncture (20). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
47. Prepare mixture of adhesive. (Refer to step 88.) Fill puncture (20) with adhesive mixture to surface of platform (1).



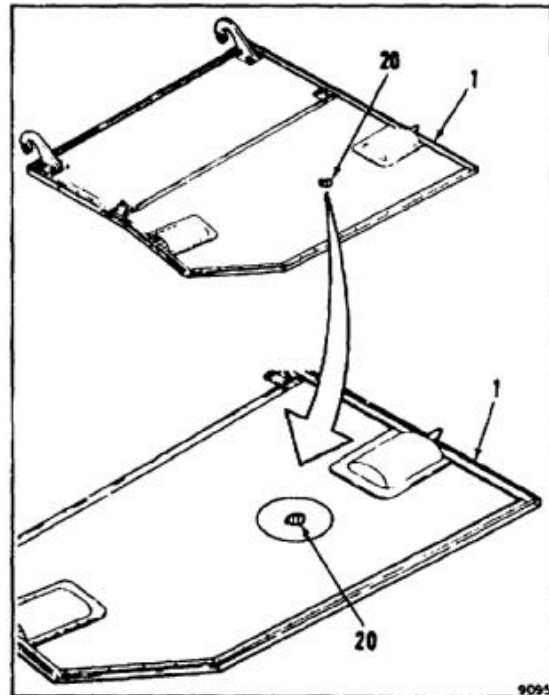
Do not heat platform surface over **160°F (71°C)**. Higher temperatures can damage cover.

48. Cure adhesive at **140° to 160°F (60° to 71°C) for 2 hours**. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

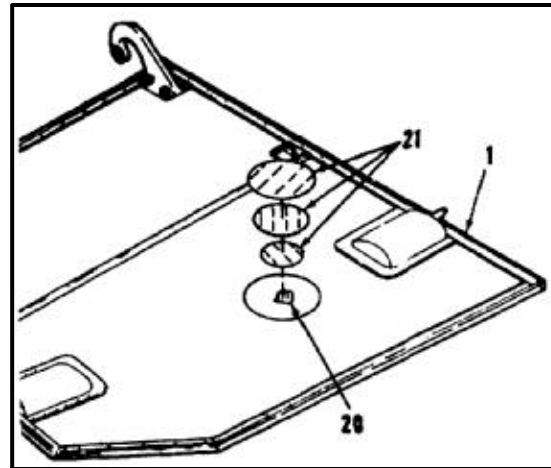
NOTE

Serviceable cure can be achieved without heat at **70° to 80°F (21° to 27°C) in 24 hours**.

49. Fair cured adhesive to surface of platform (1). Use abrasive paper (E9).
50. Clean area of finish removal. Use clean cloth (E120) damp with acetone (E20). Wipe area dry with clean dry cloth. Repeat until there is no residue on dry cloth.



51. Cut three pieces of fiberglass laminate (E168.1) (21). Make the smallest piece large enough to overlap filled puncture (20) **1.0 inch** in all directions. Make each additional piece large enough to overlap the previous piece **1 inch** in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be **45°** when they are installed.
52. Check that finish on platform (1) is removed for at least **1/2 inch** more in all directions than size of largest piece of laminate (21).
53. Remove protective film from each side of three fiberglass laminate pieces (21). Carefully pull at right angle to direction of fibers.



NOTE

Laminate pieces must be installed so that fiber orientation between the two pieces will be **45°** when they are installed.

54. Apply adhesive to underside of smallest laminate piece (21), top of filled puncture (20), and to the surrounding area of platform (1) to within **1/2 inch** of finish removal line. Center smallest piece over repair area and press in place.
55. Apply adhesive to top of installed piece (21) and underside of next largest piece. Position second piece on installed piece and press in place. Repeat procedure for third (largest) piece.
56. Bond and cure repair. (Refer to steps 89 thru 101.)

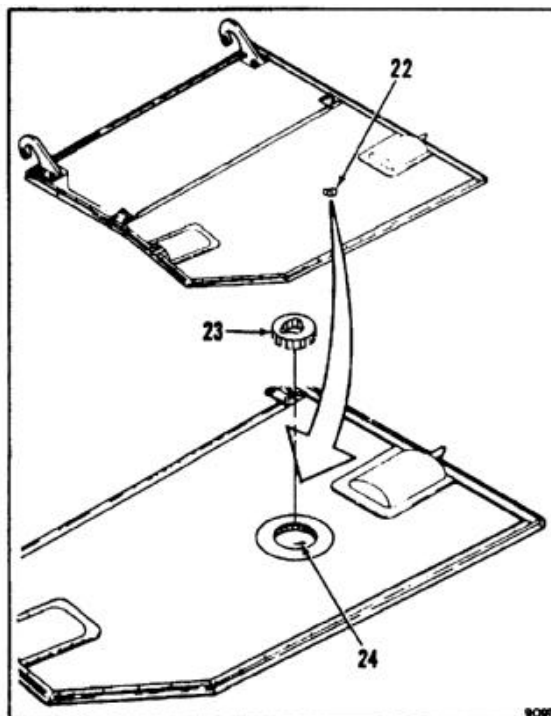
PUNCTURE THROUGH ONE SKIN AND CORE (OVER 1 SQUARE-INCH)

57. Outline area of puncture (22) with a circle or oblong. Use pencil compass and straightedge.

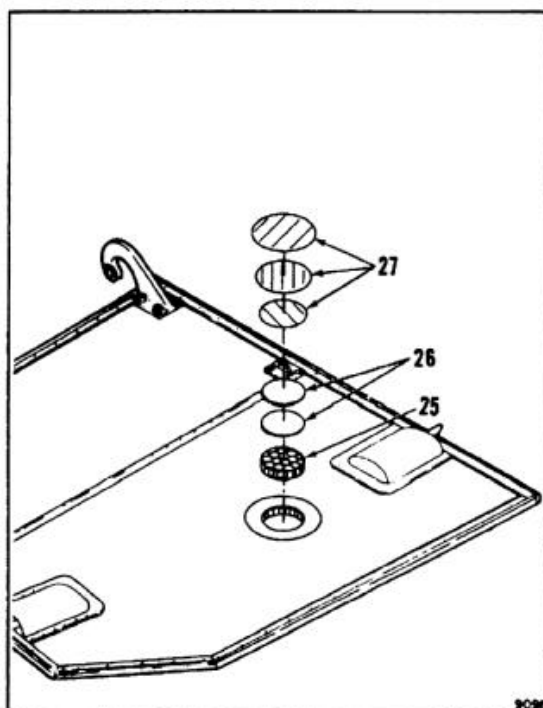
NOTE

Do not sand into glass fibers.
Complete removal of primer is not necessary.

58. Remove finish to primer from an area **3.5 inches** larger in all directions than outline. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
59. Cut out punctured skin and core plug (23) to layer of adhesive on opposite skin (24). Use craftsman's knife and chisel. Be careful not to damage skin.
60. Roughen surface of adhesive on opposite skin (24) to remove gloss.



61. Complete repair with core plug (25) and fiberglass laminate (26 and 27). (Refer to steps 27 thru 44.)



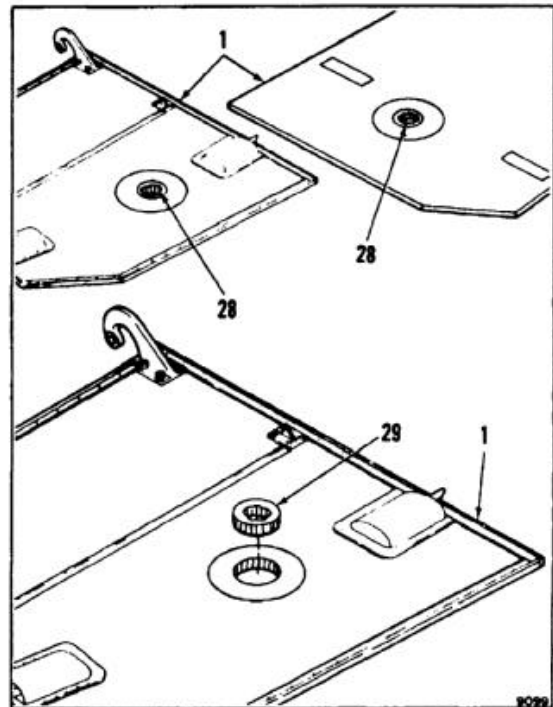
PUNCTURE THROUGH BOTH SKINS AND CORE (UP TO 1 SQUARE-INCH)

62. Outline area of puncture (28) on both sides of platform (1) with a circle or oblong. Use pencil compass and straightedge.

NOTE

Do not sand into glass fibers.
Complete removal of primer is not necessary.

63. Remove finish down to primer from an area on both sides of platform (1) **1.5 inches** larger in all directions than outline. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
64. Cut out punctured skin and core plug (29). Work from both sides of platform (1) as needed. Use craftsman's knife.



65. Cover cutout (30) on top of platform (1). Use nylon tape (E390.1) (31).
66. Prepare mixture of adhesive. (Refer to step 88.) Fill cutout (30) from bottom of platform (1) to bottom surface (32) with adhesive (33).



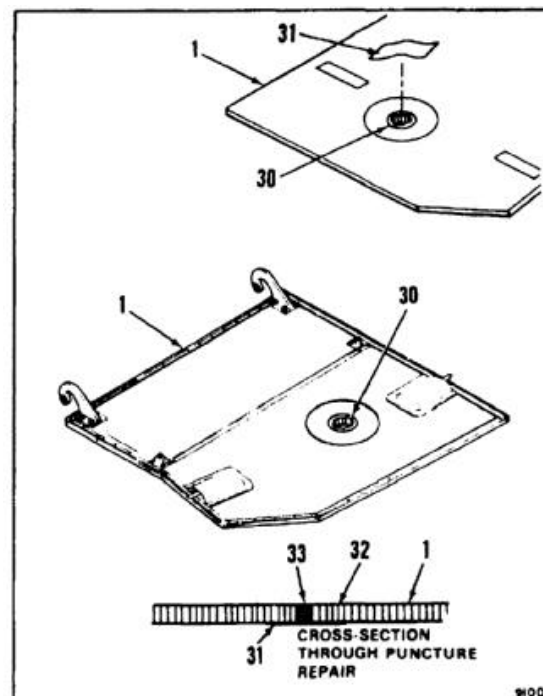
Do not heat platform surface over **160°F (71°C)**. Higher temperatures can damage platform.

67. Cure adhesive at **140° to 160°F (60° to 71°C) for 2 hours**. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

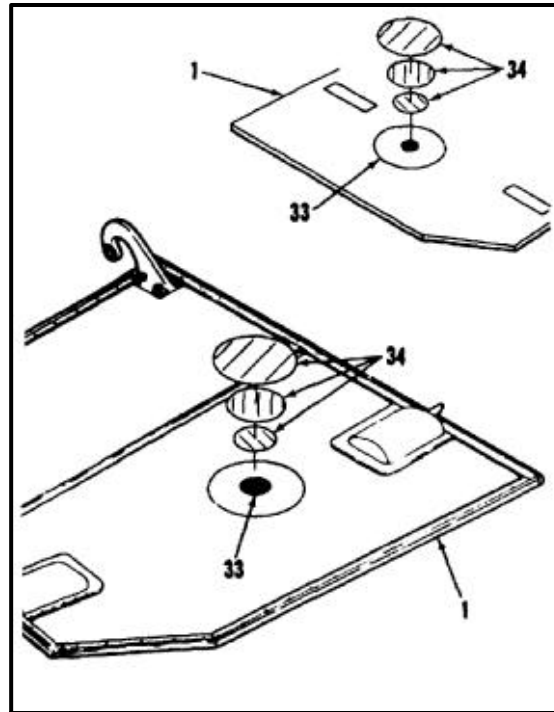
NOTE

Serviceable cure can be achieved without heat at **70° to 80°F (21° to 27°C) in 24 hours**.

68. Remove tape (31). Fair cured adhesive to surface of platform (1) on top and bottom. Use abrasive paper (E9).

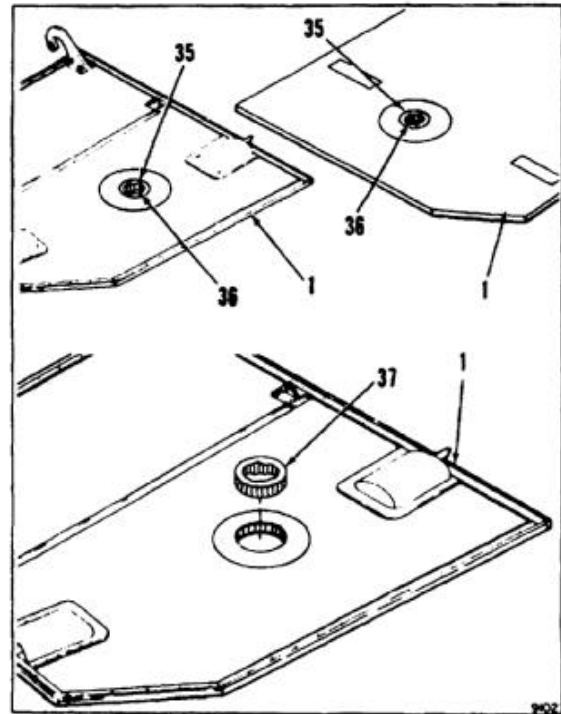


69. Clean area of finish removal on both sides of platform (1). Use clean cloths (E120) damp with acetone (E20). Wipe area dry with clean dry cloth. Repeat until there is no residue on dry cloth.
70. Cut three pieces of fiberglass laminate (E168.1) (34) for each side of platform (1). Make smallest piece large enough to overlap cured adhesive (33) **1 inch** in all directions. Make each additional piece large enough to overlap previous piece **1 inch** in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be **45°** when they are installed.
71. Prepare new mixture of adhesive. (Refer to step 88.)
72. Cover each side of puncture repair as follows:
- Apply a coat of adhesive to cured adhesive (33) and area of finish removal.
 - Remove protective film from each side of two fiberglass laminate pieces (34). Carefully pull at right angle to direction of fibers.
 - Coat underside of smallest laminate piece (34) with adhesive. Center piece over repair. Press down against platform (1).
 - Apply adhesive over smallest installed piece (34) and underside of next largest piece. Position next largest piece on installed piece so that fiber orientation between pieces is **45°**. Press down against installed piece. Repeat procedure for third (largest) piece.
73. Bond and cure repair. (Refer to steps 89 thru 101.)

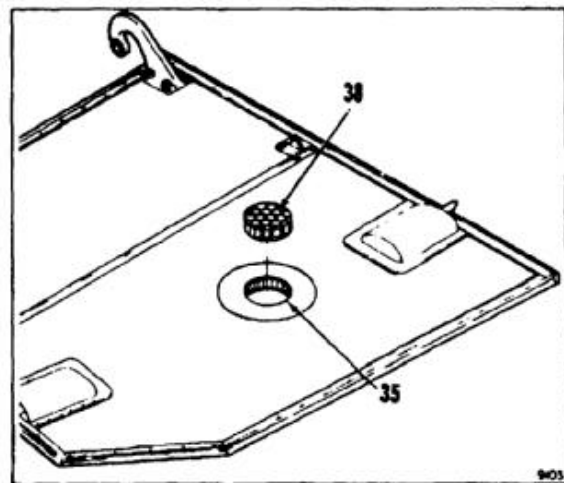


**PUNCTURE THROUGH BOTH SKINS AND CORE
(OVER 1 SQUARE-INCH)**

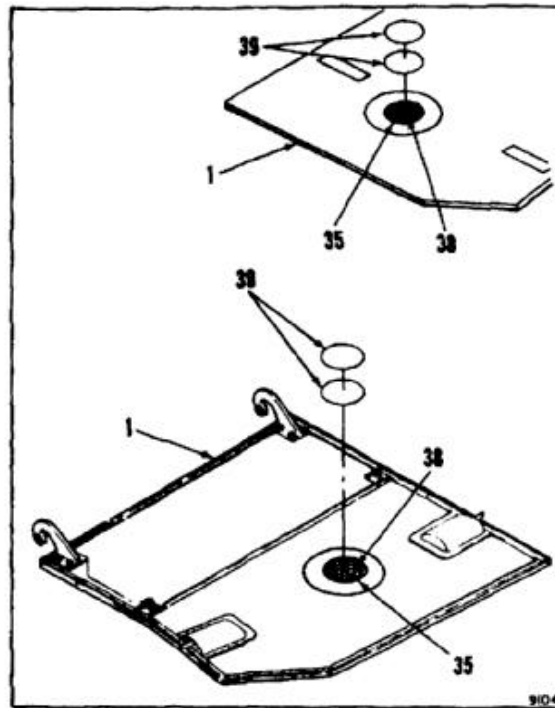
74. Outline area of puncture (35) on both sides of platform (1) with a circle or oblong. Use pencil compass and straightedge.
75. Remove finish from an area on both sides of platform (1) **3.5 inches** larger in all directions than puncture outline (36). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
76. Cut out punctured skin and core plug (37). Work from both sides of platform (1) as needed. Use craftsman's knife.



77. Cut new core plug (38) in shape of cutout (35) but **1/8 inch** larger all around. Orient ribbon in same direction as existing core. Use core material (E150.1).
78. Fit core plug (38) into cutout (35).

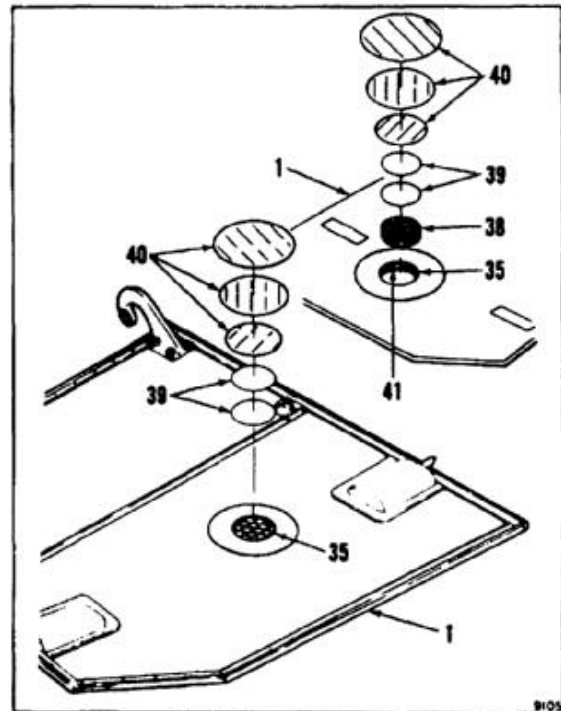


79. Cut two pieces of fiberglass laminate (E168.1) (39) to fit cutout (35) on both sides of platform (1).
80. Check that pieces of laminate (E168.1) (39) fit against installed core plug (38) flush with platform (1) on both sides. Remove laminate and plug.



2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued)**2-291.1**

81. Cut three pieces of fiberglass laminate (E168.1) (40) for each side of platform (1). (Refer to step 70.)
82. Clean cutout (35) and surrounding area, core plug (38), and laminate (39). Use clean cloths (E120) damp with acetone (E20). Wipe dry with a clean dry cloth. Repeat until there is no residue on dry cloth.
83. Prepare mixture of adhesive. (Refer to step 88.)
84. Apply coat of adhesive to sides of core plug (38). Set plug in cutout (35) flush with surrounding core (41). Align match marks, if applicable.
85. Install laminate pieces (39) over core (38) on each side of platform (1) as follows:
 - a. Remove protective film from each side of two fiberglass laminate pieces (39). Carefully pull at right angle to direction of fibers.
 - b. Apply a coat of adhesive to underside of one piece (39). Press piece against plug (38).
 - c. Apply coat of adhesive to top of installed piece (39) and underside of second piece. Press against second piece to firmly seat flush with surrounding skin of platform (1).

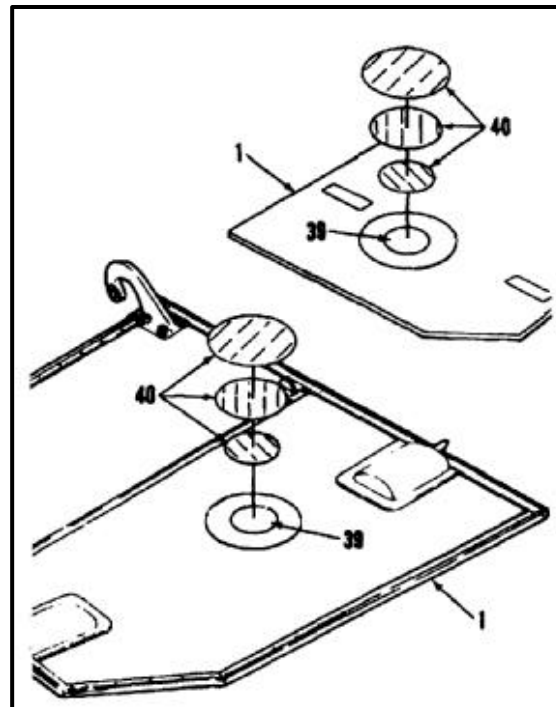


86. Cover each side of repair as follows:
- Apply coat of adhesive to top of laminate piece (39) and to surrounding area of platform (1) within **0.5 inch** of finish removal line.
 - Remove protective film from each side of three fiberglass laminate pieces (40). Carefully pull at right angle to direction of fibers.

NOTE

Laminate pieces must be installed so that fiber orientation between each of the three pieces will be at **45°**.

- Coat underside of smallest laminate piece (40) with adhesive. Center piece over repair area and press in place.
 - Apply coat of adhesive to top of installed piece (40) and underside of next largest piece. Position larger piece on installed piece so that fiber orientation between pieces is **45°**. Press down against installed piece. Repeat procedure for third (largest) piece.
87. Bond and cure repair. (Refer to steps 89 thru 101.)

**ADHESIVE PREPARATION****NOTE**

Adhesive will cure in **2 hours at 150° to 160°F (66° to 71°C)**. A serviceable cure can be achieved at **70° to 80°F (21° to 27°C) in 24 hours**. Pressure may be removed after **2 hours**.

88. Mix adhesive (E41) as follows:

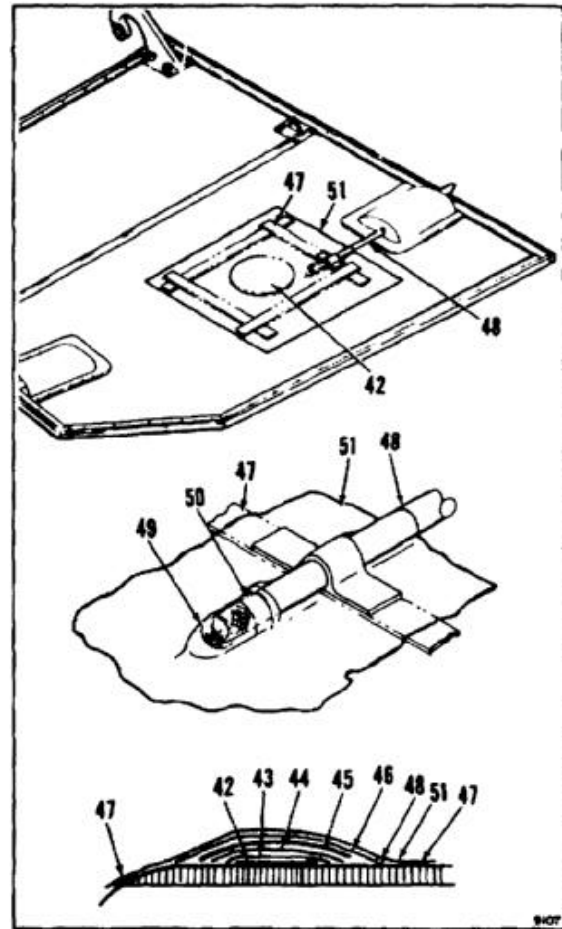
NOTE

Working life of adhesive (E41) is **30 minutes**.

- Weigh **100 parts** of resin (pink paste) and **23 parts** of hardener (blue liquid). Use trip balance.
- Mix parts in polyethylene cup (E157) until color is uniform dark pink. Use wood spatula (E424).

BOND AND CURE REPAIR

89. Cover repair (42) with sheet of peel ply (E270) (43) and sheet of Teflon-impregnated fabric (E170) (44). Each sheet shall be large enough to overlap repair **1 inch** in all directions.
90. Cover Teflon-impregnated fabric (E170) (44) with rubber pad (E318) (45). Cover rubber pad with glass cloth (E130) (46).
91. Surround cloth (E130) (46) with border of sealing tape (E396) (47). Keep tape at least **1 inch** outboard of cloth on all sides
92. Attach tube (48) to vacuum pump hose. Wrap end of tube with two layers of glass cloth (E132) (49). Secure cloth to tube with masking tape (E388) (50).
93. Place tube (48) on glass cloth (E130) (46). Wrap tube with sealing tape (E396) where tube crosses border (47) of sealing tape (E396).
94. Press tube (48) against tape (47) to make an airtight seal. Check that glass cloth (49) on end of tube (48) is in direct contact with layer of glass cloth (46).
95. Cover area with nylon sheet (E248.1) (51). Press sheet smoothly against tape (47) to make an airtight seal.
96. Start vacuum pump. Set pump for vacuum of about **30 inches Hg**.
97. Shut off pump. Vacuum shall not drop more than **5 inches Hg in 5 minutes**. Maintain vacuum of at least **20 inches Hg** throughout adhesive cure.
98. If need to maintain vacuum, shut down vacuum pump and reposition nylon sheet (51) or tape (47). Start pump.



CAUTION

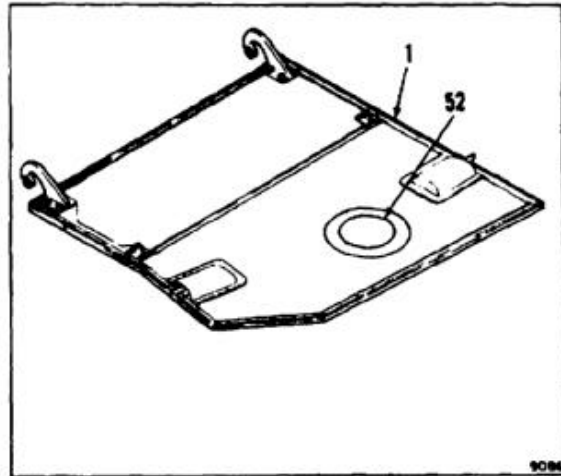
Do not exceed **160°F (71°C)** at surface of platform. Damage to platform can occur.

99. Cure adhesive at **140° to 160°F (60° to 71°C)** for **2 hours**. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at **70° to 80°F (21° to 27°C)** in **24 hours**. Vacuum may be removed after **2 hours**.

100. Turn off vacuum pump. Remove vacuum bagging materials.
101. Chamfer circumference of fiberglass laminate patch (52). Fair adhesive squeezeout to platform (1) if needed. Use abrasive paper (E7).

**INSPECT****FOLLOW-ON MAINTENANCE:**

Refinish repaired area (Tasks 2-353 and 2-356).

END OF TASK

2-998

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:

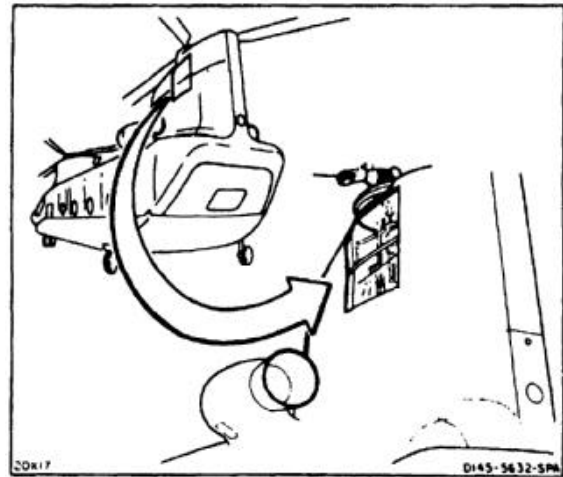
Lockwire (E231)

Personnel Required:

Medium Helicopter Repairer (2)
Inspector

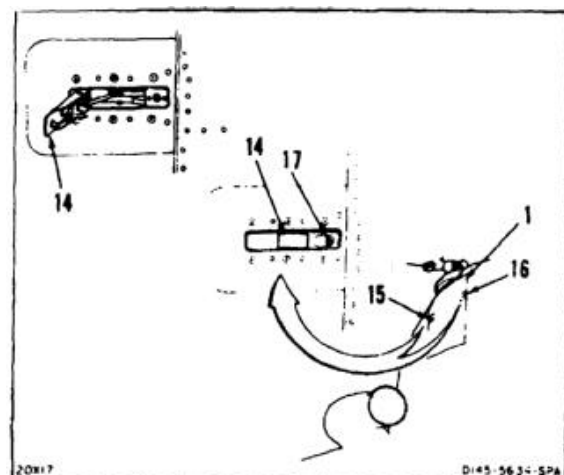
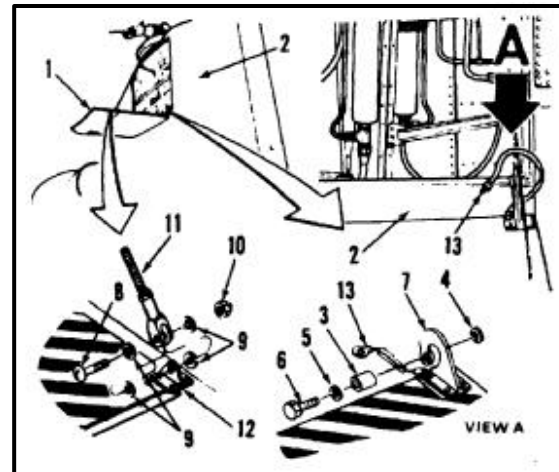
References:

TM 55-1520-240-23P

**NOTE**

Procedure is same to install left and right pylon hinged fairing (work platform). Installation of left platform is shown here.

1. Position work platform (1) on pylon (2). Have helper support platform.
2. Install two bushings (3 and 4), washer (5), and bolt (6) through hinge fittings (7) and pylon (2) on each side of platform (1).
3. Lockwire bolt (6). Use lockwire (E231).
4. Install bolt (8), four washers (9), nut (10), and support cable (11) in bracket (12) on each side of platform (1).
5. Connect electrical lead (13).
6. Pull latch handle (14) open on latches (15 and 16).
7. Close platform (1).
8. Push in handle (14) to lock latches (15 and 16).
9. Tighten captive screw (17) on two latches (15 and 16).

**INSPECT****FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand**Materials:**

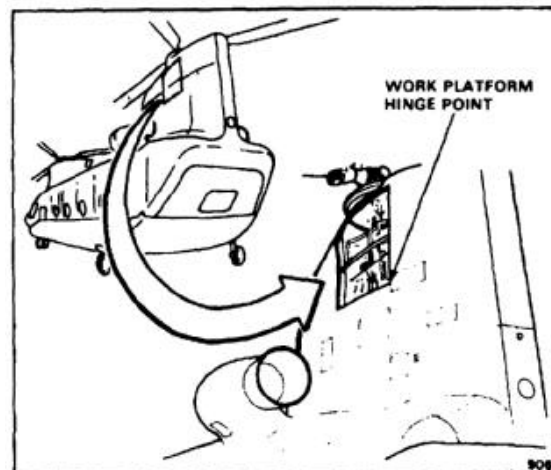
Lockwire (E231)

Parts:

Cotter Pin

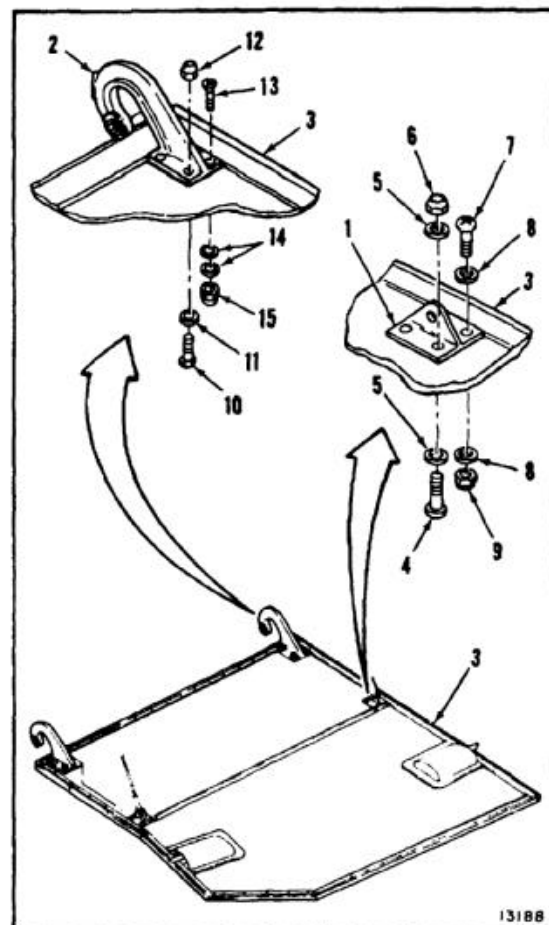
Personnel Required:Medium Helicopter Repairer (2)
Inspector**References:**

TM 55-1520-240-23P

**NOTE**

Procedure is same to install platform brackets and hinge fittings on left and right platforms. Left platform is shown here.

1. If removed, install platform brackets (1) and hinge fittings (2) on work platform (3).
2. Position platform brackets (1) on inside surface of work platform (3) and install bolts (4) with one washer (5) from outside surface of work platform through platform brackets (1). Install second washer (5) and secure with nut (6).
3. Install bolts (7) with one washer (8) from inside surface of work platform (3) through platform bracket (1). Install second washer (8) and secure with nut (9).
4. Position hinge fitting (2) on inside surface of work platform (3) and install bolts (10) and washer (11) from outside surface of work platform (3) through hinge fitting (2) and secure with nut (12).
5. Install bolts (13) from inside surface of work platform (3) through hinge fitting (2). Install washers (14) and secure with nut (15).



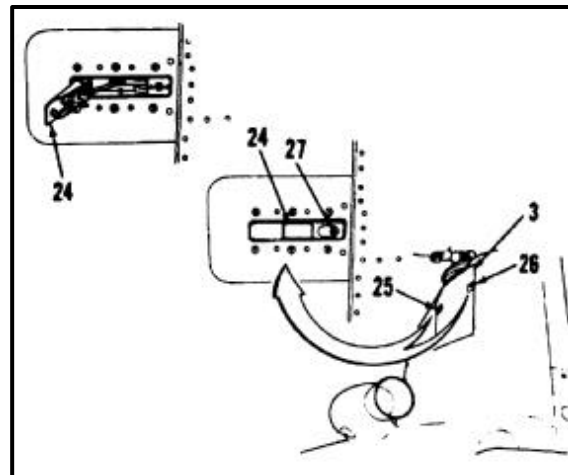
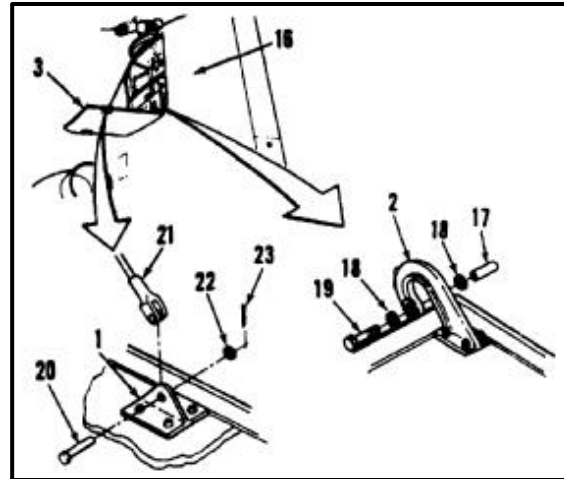
2-292.1 INSTALL COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued)**2-292.1****NOTE**

Procedure is same to install left and right work platform. Installation of left platform is shown here.

6. Position work platform (3) on pylon (16). Have helper support platform.
7. Install bushing (17), washers (18), and bolt (19) through hinge fitting (2) and pylon (16) on each side of platform (3).
8. Lockwire bolt (19). Use lockwire (E231).
9. Install pin (20) through bracket (1) and support cable (21) on each side of platform (3). Install washer (22) and cotter pin (23).
10. Pull latch handle (24) open on latches (25 and 26).
11. Close platform (3).
12. Push in handle (24) to lock latches (25 and 26).
13. Tighten captive screw (27) on each latch (25 and 26).

INSPECT**FOLLOW-ON MAINTENANCE:**

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

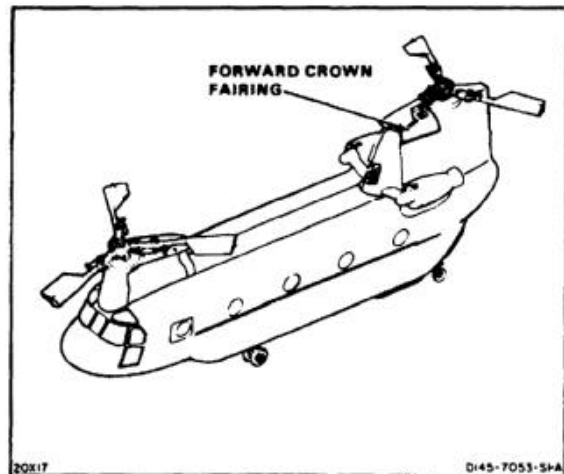
None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

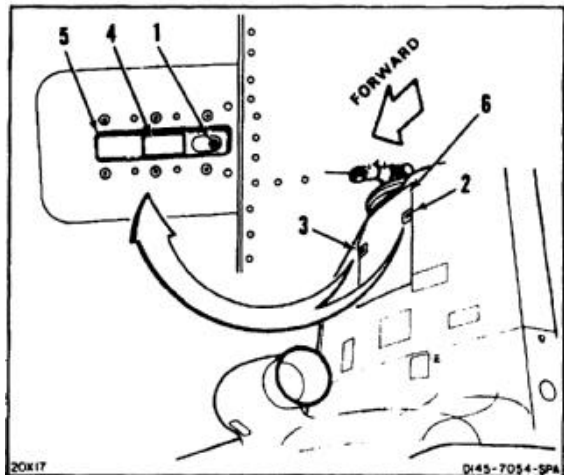
Battery Disconnected (Task 1-39)
Electrical Power Off



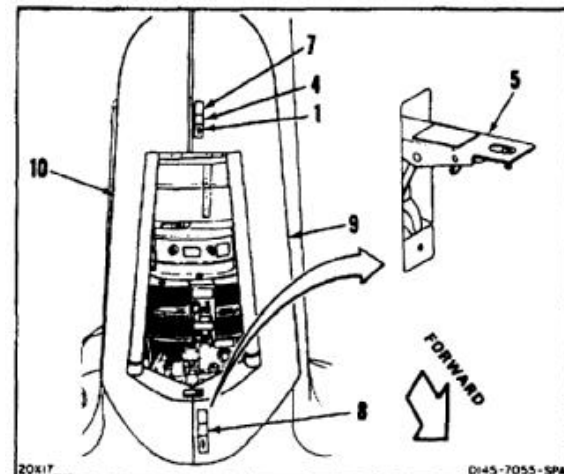
NOTE

Left and right pylon hinged fairings (work platform) must be open. Procedure is same for opening both. Opening of left hinged fairing is shown here.

1. Loosen captive screws (1) on latches (2 and 3).
2. Push in center (4) of latch handles (5) to release latches (2 and 3).
3. Pull handles (5) and open left and right fairings (6).



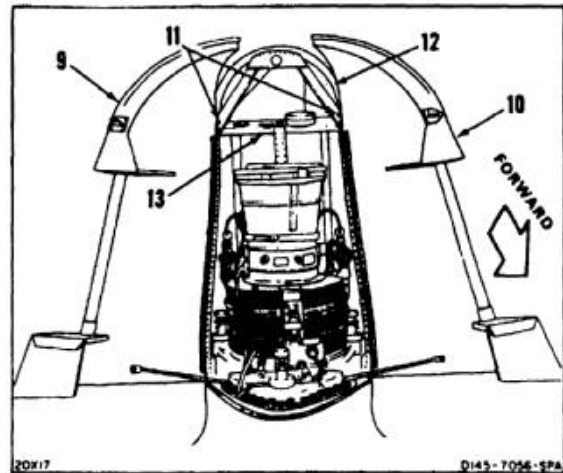
4. Loosen captive screws (1) on latches (7 and 8).
5. Push in center (4) of latch handles (5) to release latches (7 and 8).
6. Open leading edge fairings (clamshell doors) (9 and 10).



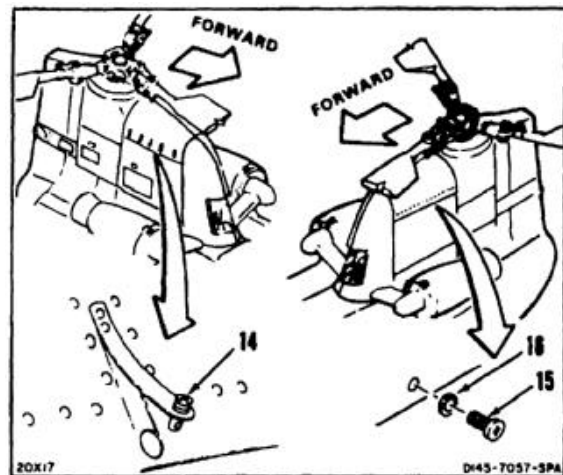
2-293 REMOVE PYLON FORWARD CROWN FAIRING (Continued)

2-293

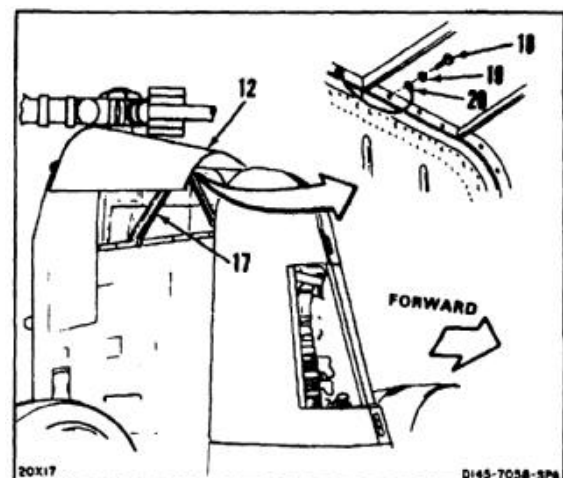
7. Remove four screws (11) from forward crown fairing (12) and pylon structure (13).
8. Close fairings (9 and 10), but do not lock.



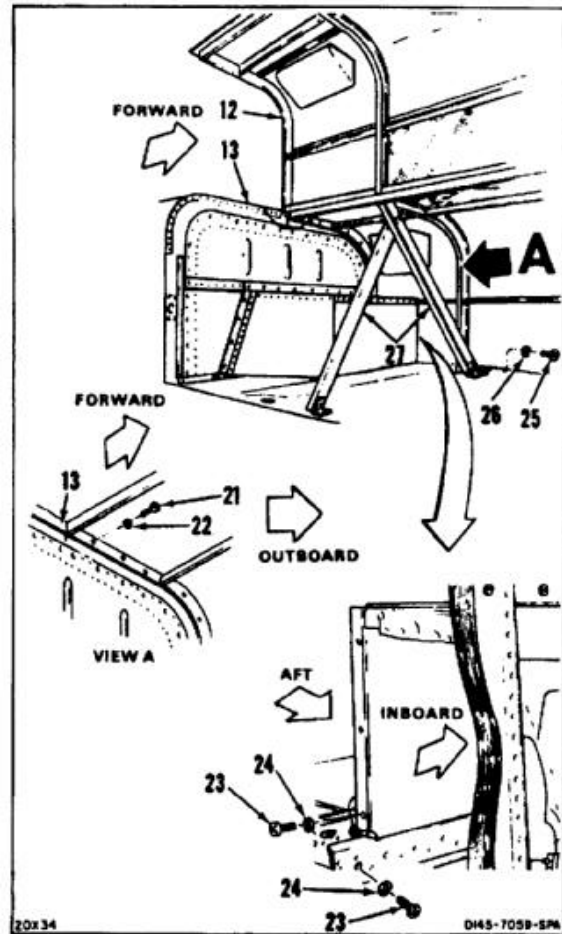
9. Loosen five fasteners (14).
10. Remove 16 screws (15) and washers (16).



11. Open hinged half of crown fairing (12) and position support (17) on fairing.
12. Remove screw (18) and washer (19) to disconnect electrical lead (20).



13. Remove six screws (21) and washers (22) from aft end of crown fairing (12) and pylon (13).
14. Remove five screws (23) and washers (24) from fairing (12) and pylon (13).
15. Remove four screws (25) and washers (26) from crown fairing supports (27) and pylon (13).
16. With helper, remove fairing (12).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-1004

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

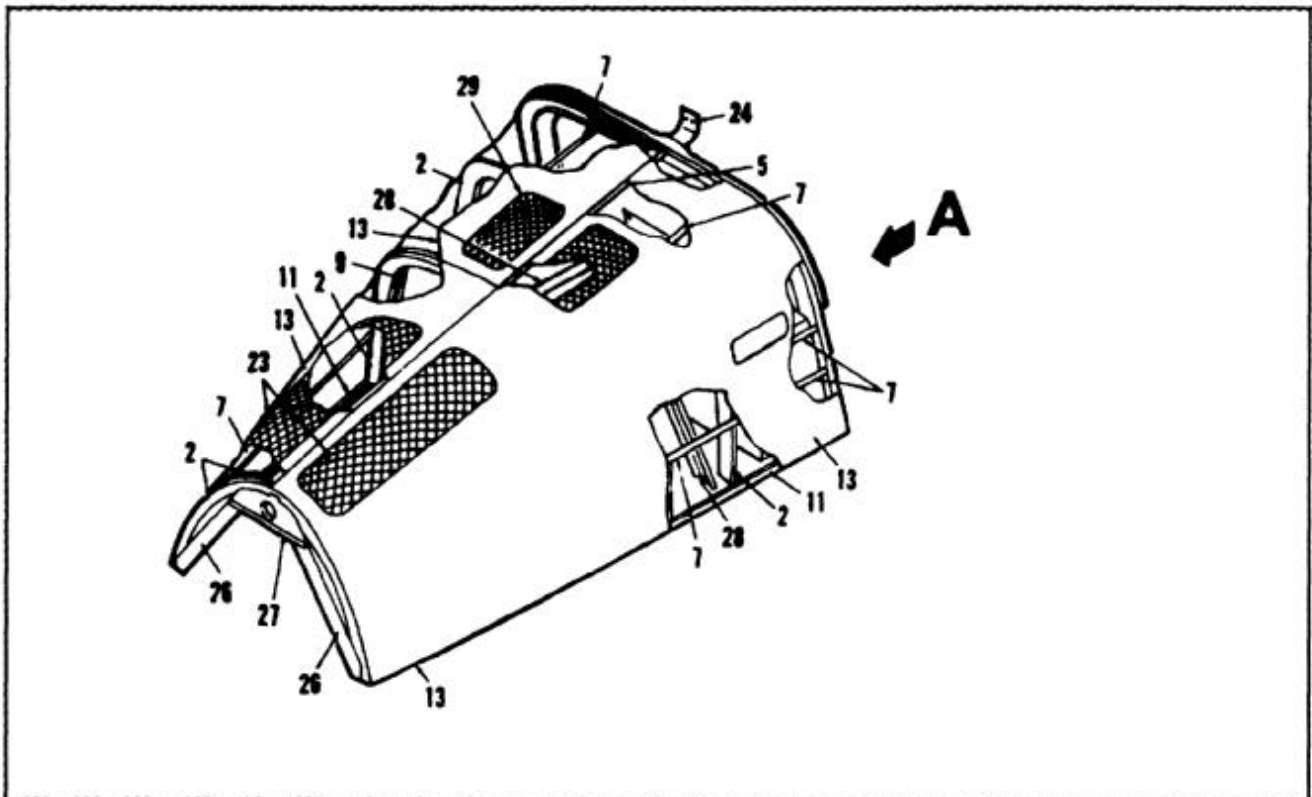
References:

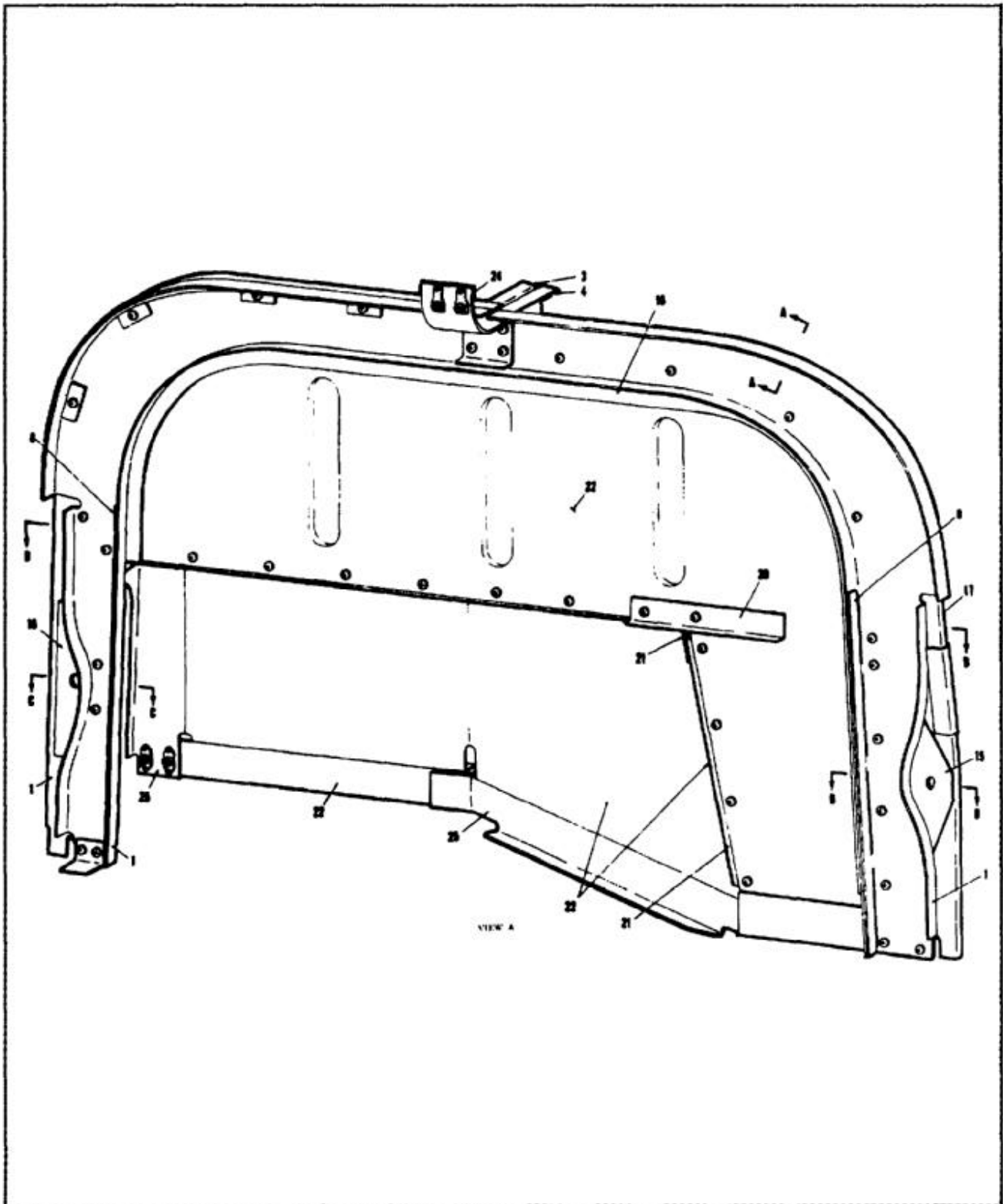
TM 1-1500-204-23
Task 2-13
Task 2-366

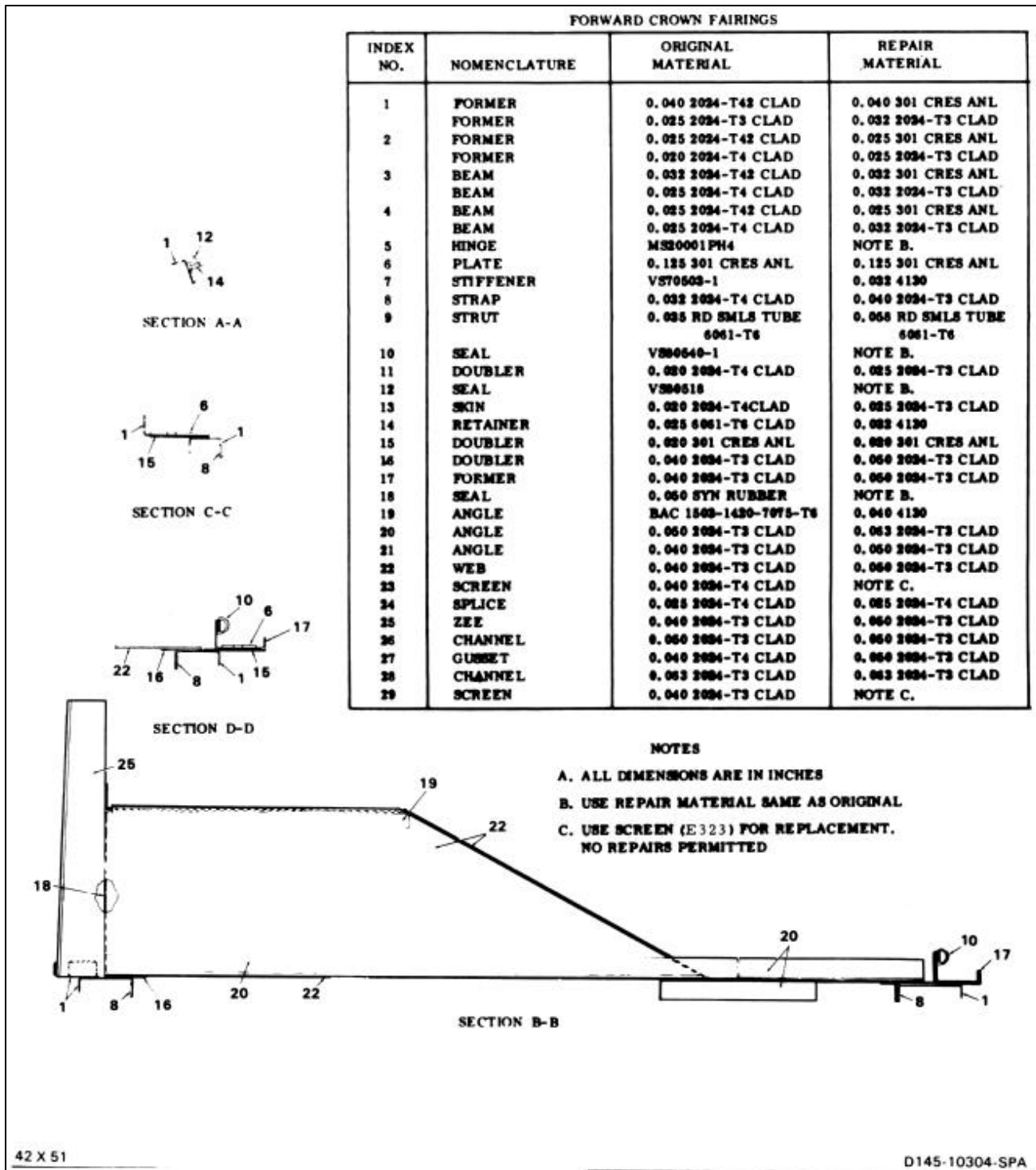
Equipment Condition:

As Required

1. If damage to skin is less than **25 percent** of cross section skin panel, repair by patching (Task 2-13).
2. If damage to formed part does not affect radius, repair by patching (Task 2-13).
3. Repair damage to tube sections (Task 2-366).







FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

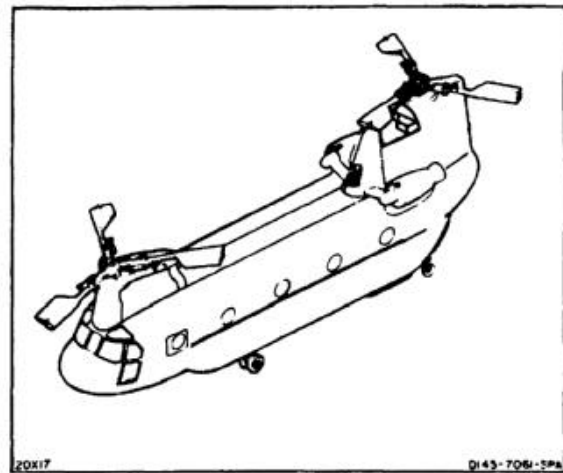
None

Personnel Required:

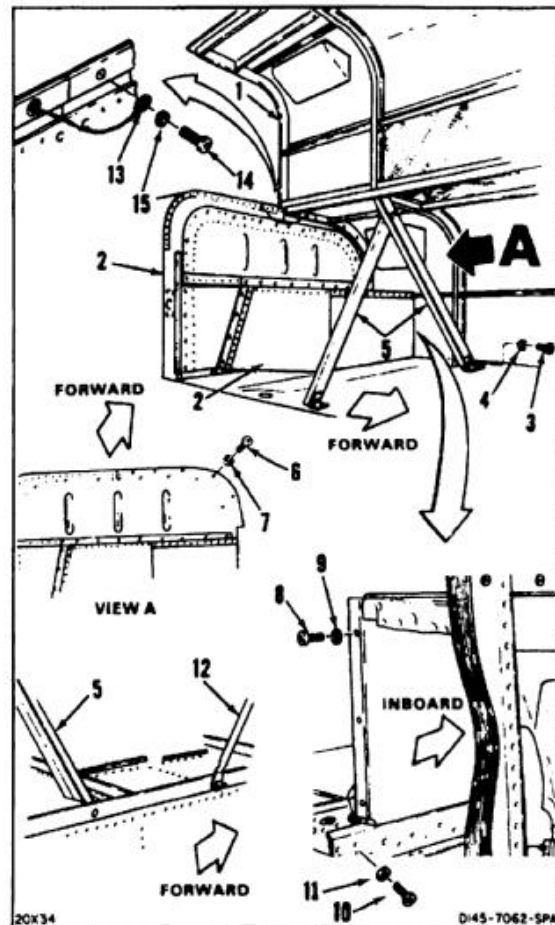
Medium Helicopter Repairer (2)
Inspector

References:

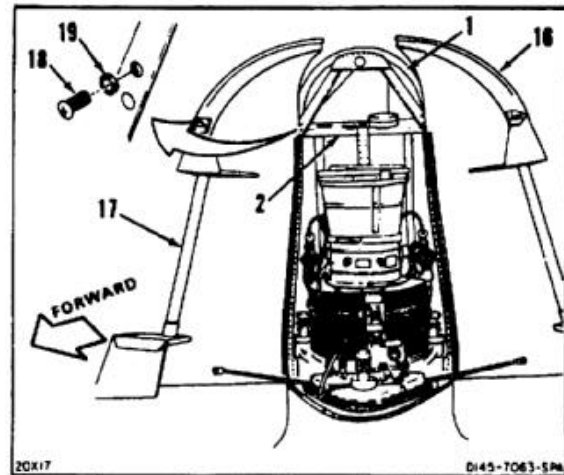
TM 55-1520-240-23P



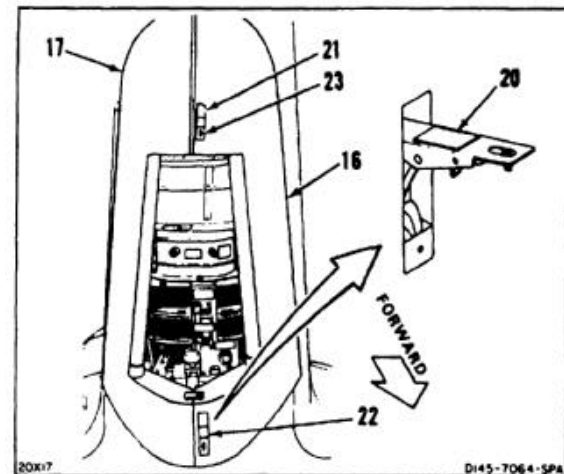
1. Position forward crown fairing (1) on pylon structure (2). Have helper support hinged (right) side of fairing (1) in raised position.
2. Install four screws (3) and washers (4) in fairing supports (5) and pylon (2).
3. Install six screws (6) and washers (7) in aft end of fairing (1) and pylon (2).
4. Install three screws (8) and washers (9) in fairing (1) and pylon structure (2). Install two screws (10) and washers (11) in fairing (1) and pylon (2).
5. Position support (12) on hinged side of fairing (1) to fairing structure.
6. Connect electrical lead (13) to fairing (1) by installing screw (14) and washer (15).



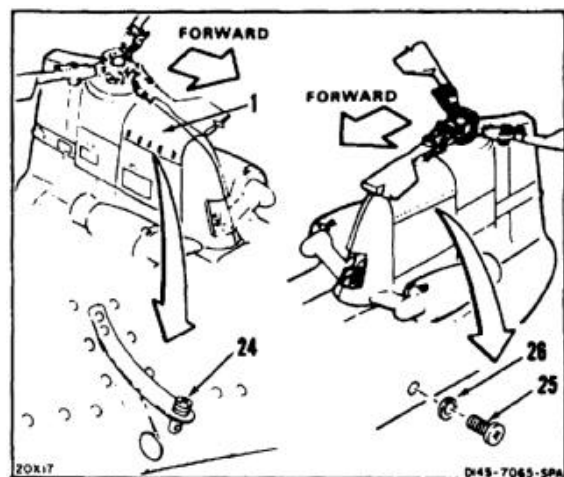
7. Open leading edge fairings (clamshell doors) (16 and 17).
8. Install four screws (18) and washers (19) in forward end of fairing (1) and pylon (2).



9. Close fairings (16 and 17).
10. Close two handles (20) on latches (21 and 22) to lock latches.
11. Tighten captive screws (23) on latches (21 and 22).



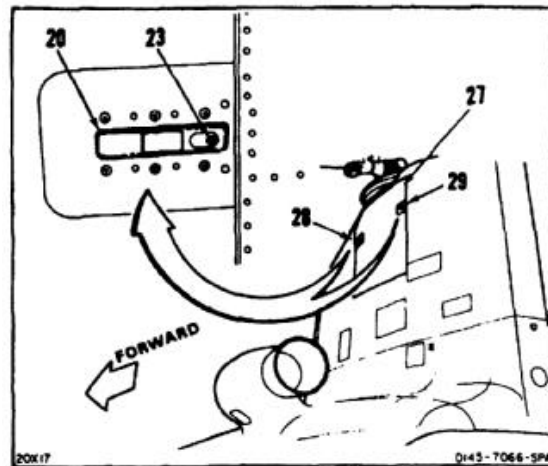
12. Lower hinged (right) side of fairing (1) to closed position.
13. Tighten five fasteners (24).
14. Install 16 screws (25) and washers (26) on left side of fairing (1).



NOTE

Procedure is same for closing pylon left and right hinged fairings (work platforms). Closing of left hinged fairing is shown here.

15. Close left and right fairings (27).
16. Close handles (20) on latches (28 and 29) to close latches.
17. Tighten captive screw (23) or latches (28 and 29).

INSPECT**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-1010

2-296 REMOVE AFT PYLON MID-CROWN FAIRING

2-296

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 51 80-00-323-4692

Materials:

None

Personnel Required:

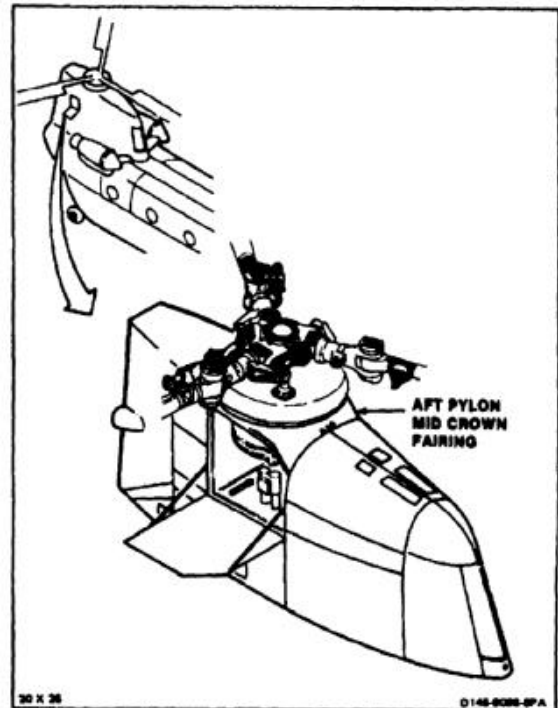
Medium Helicopter Repairer (2)

Equipment Condition:

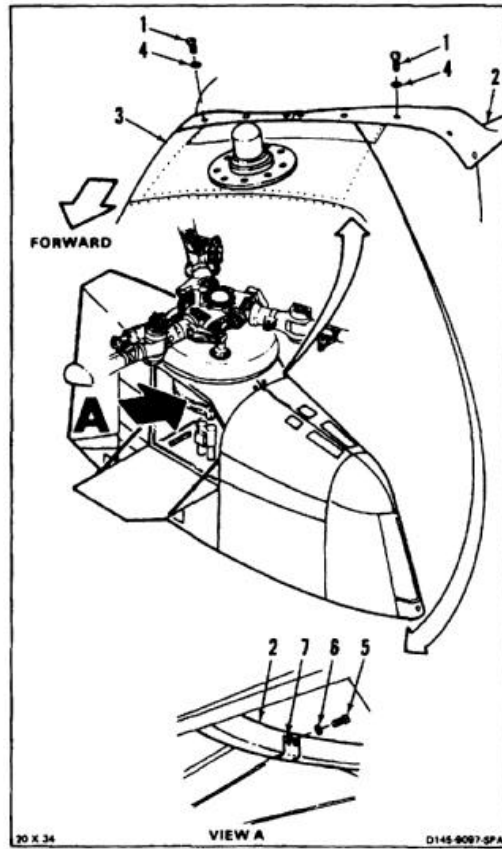
Battery Disconnected (Task 1-39)

Electrical Power Off

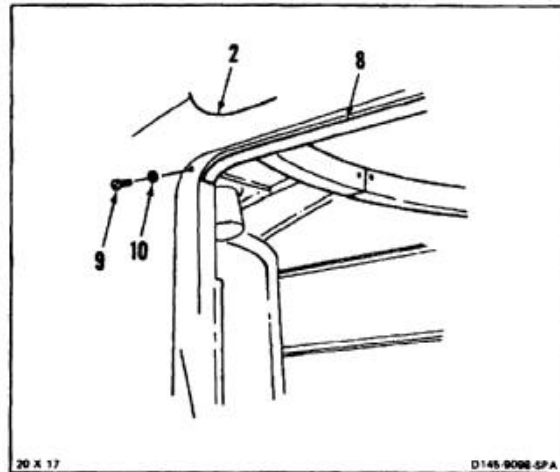
Hydraulic Power Off

Left and Right Aft Pylon Fairings (Work Platforms)
Opened (Task 2-2)

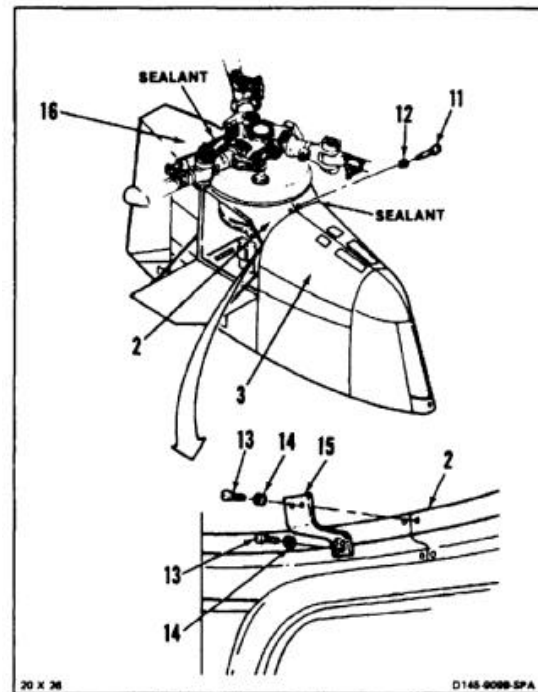
1. With aid of helper, remove sealant from 18 screws (1) securing mid-crown fairing (2) to aft crown fairing (3). Remove 18 screws (1) and washers (4).
2. Remove two screws (5), washers (6), and plate (7) from fairing (2).



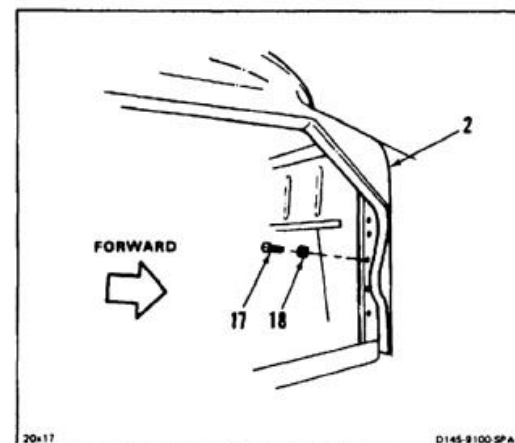
3. Roll up seal (8) and remove screw (9) and washer (10) from each half of fairing (2).



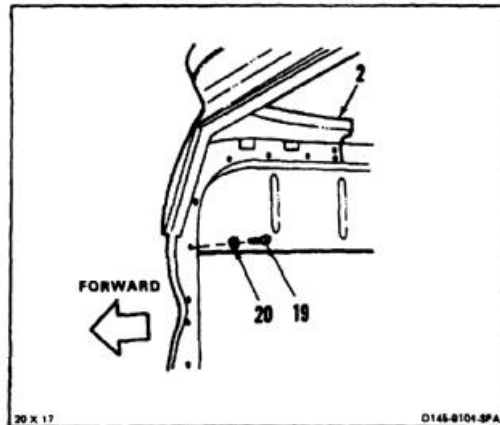
4. Remove sealant from two screws (11). Remove two screws and washers (12).
5. Remove six screws (13), washers (14), and plate (15) from fairing (2).
6. Remove sealant between mid-crown fairing (2) and forward and aft crown fairings (3 and 16).



7. Have helper remove 11 screws (17), washers (18), and right half of fairing (2).



8. Remove 14 screws (19), washers (20), and left half of fairing (2).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-1014

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

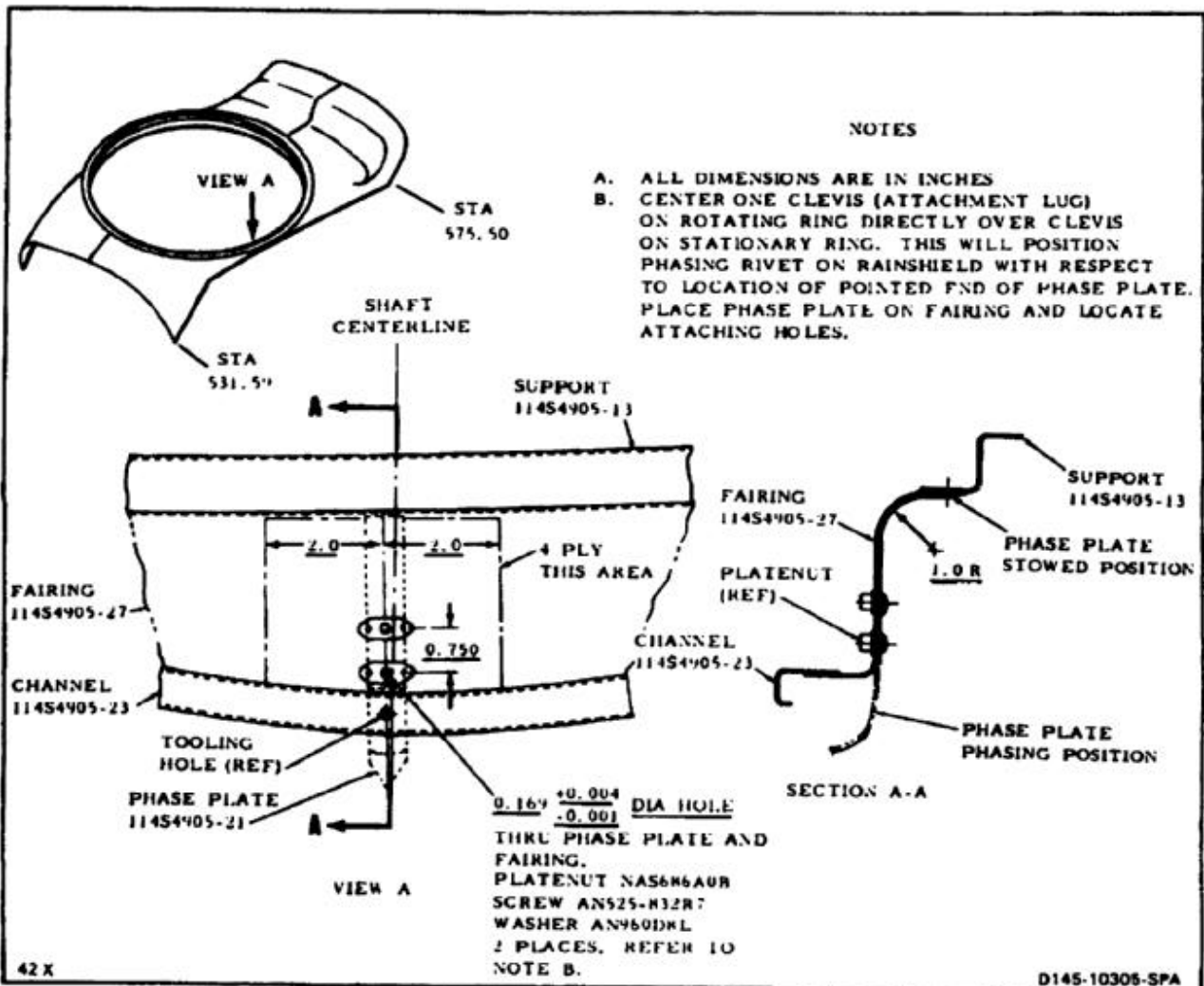
References:

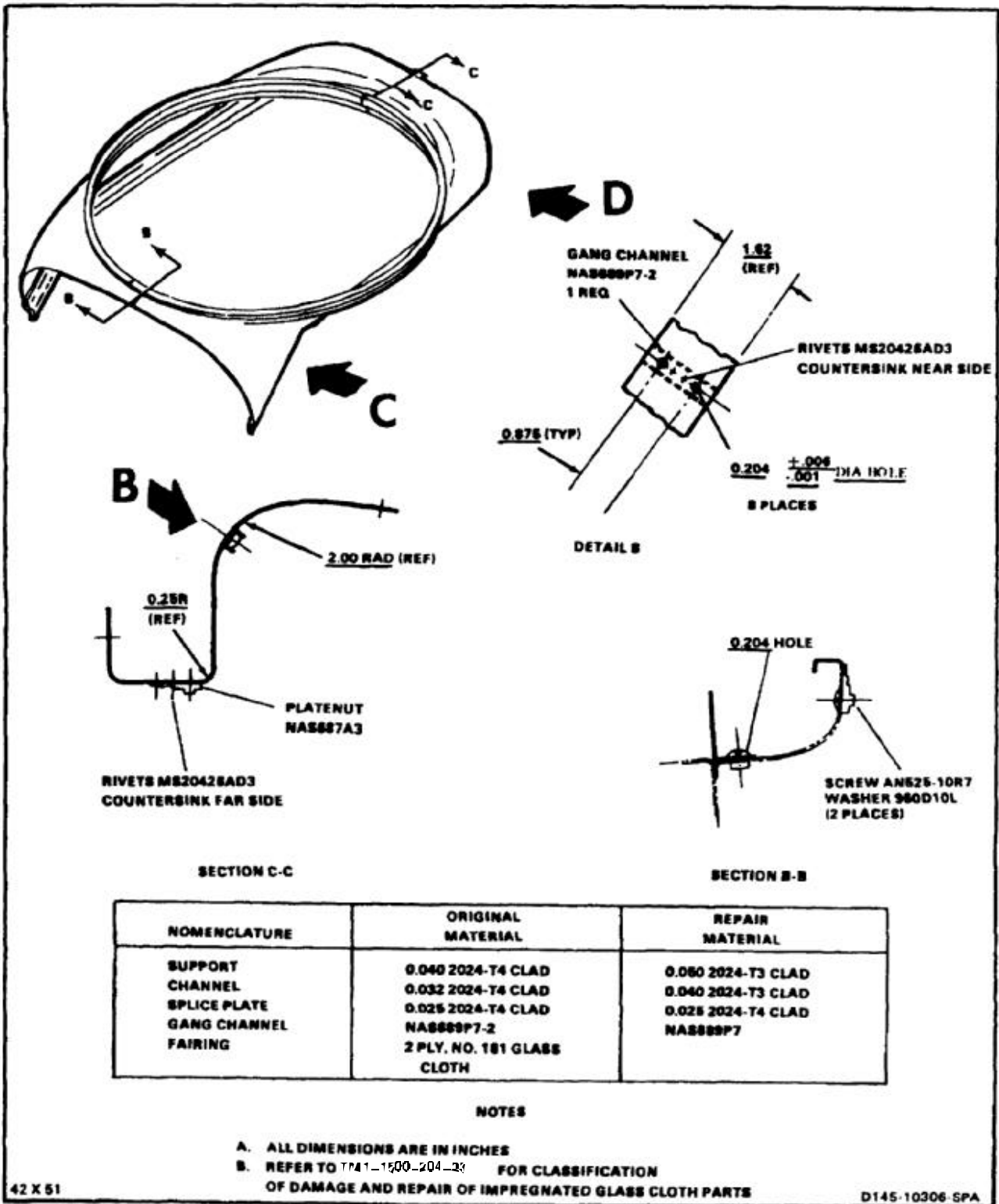
TM 1-1500-204-23
Task 2-13

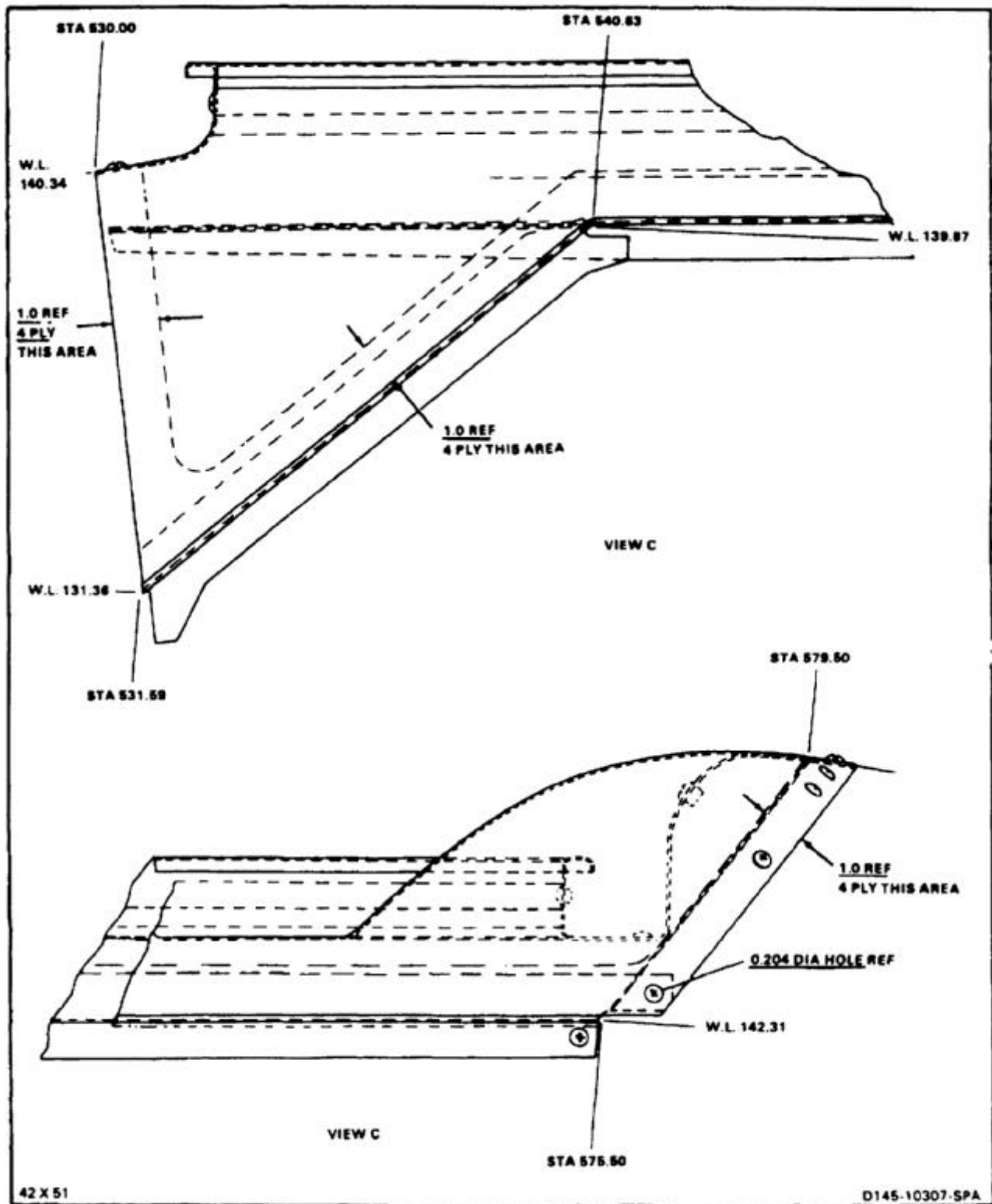
Equipment Condition:

As Required

1. If damage to formed part does not affect radius, repair by patching (Task 2-13).
2. Repair damage to impregnated glass cloth laminated skin that require simple procedures. Repair must not place restrictions on flight.







FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

- Gloves (E186)
- Sealant (E339)
- Cloths (E120)
- Dry Cleaning Solvent (E162)

Personnel Required:

- Medium Helicopter Repairer (2)
- Inspector

References:

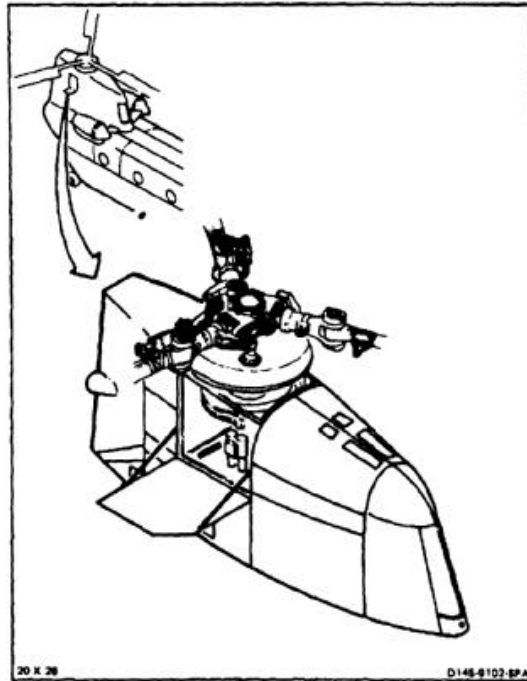
TM 55-1520-240-23P

General Safety Instructions:

WARNING

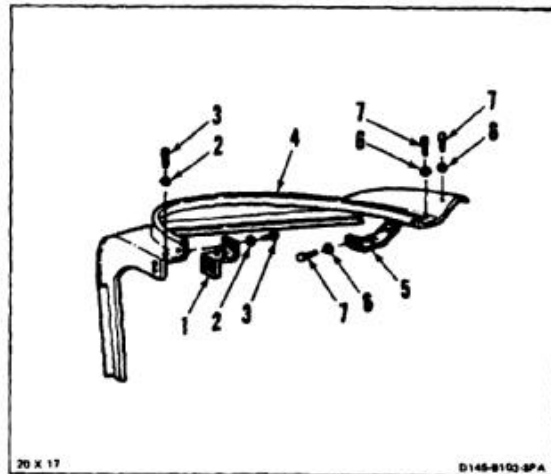
Sealant (E339) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Install forward plate (1), washers (2), and two screws (3) on right half of aft midcrown-fairing (4).
2. Install aft plate (5), washers (6), and three screws (7) on right half of fairing (4).



20 X 26

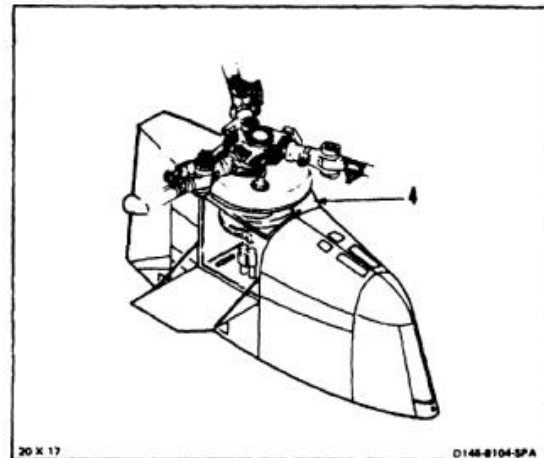
D146-8102-SPA



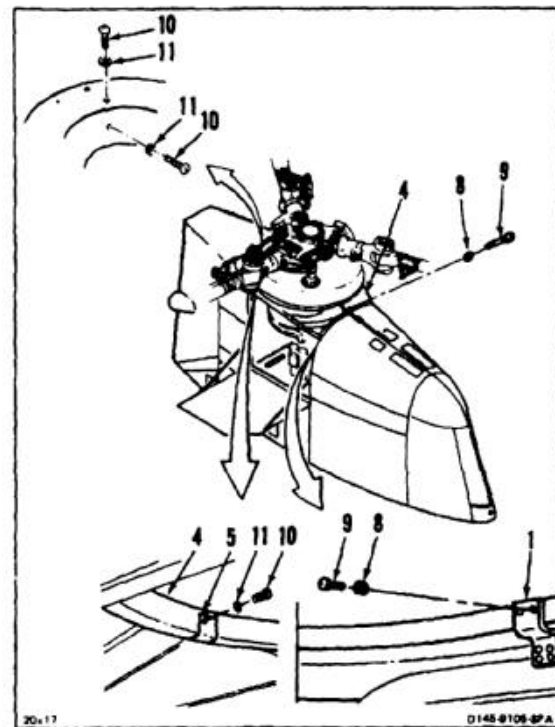
20 X 17

D146-8102-SPA

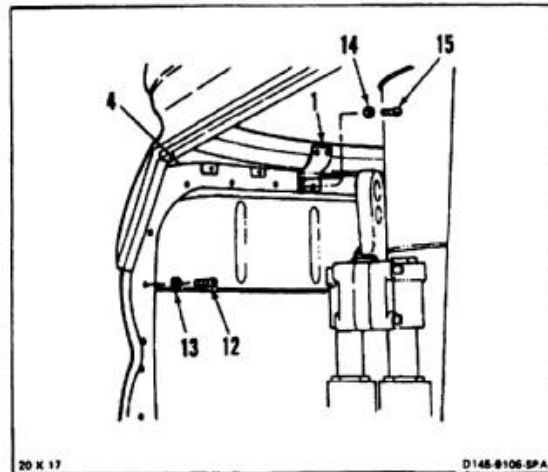
3. Position right half of fairing (4) on aft pylon.
4. Have helper position left half of fairing (4) on aft pylon.



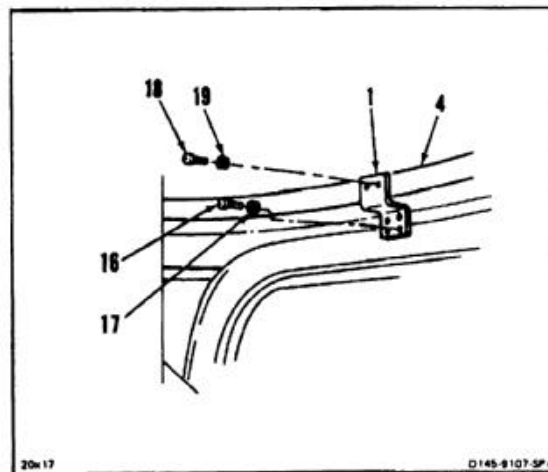
5. Install washers (8) and two screws (9) in forward plate (1) and left half of fairing (4).
6. Install three screws (10) and washers (11) in aft plate (5) and left half of fairing (4).



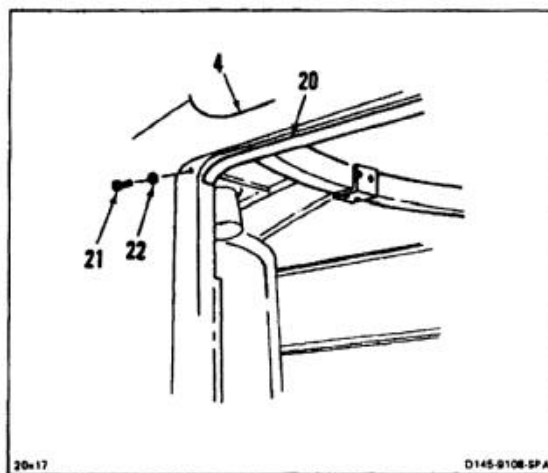
7. Have helper install 18 screws (12) and washers (13) in left half of fairing (4).
8. Install two screws (14) and washers (15) in plate (1).



9. Install 14 screws (16) and washers (17) in right half of fairing (4).
10. Install two screws (18) and washers (19) in plate (1).



11. Roll up seal (20) and install screw (21) and washer (22) in each half of fairing (4).

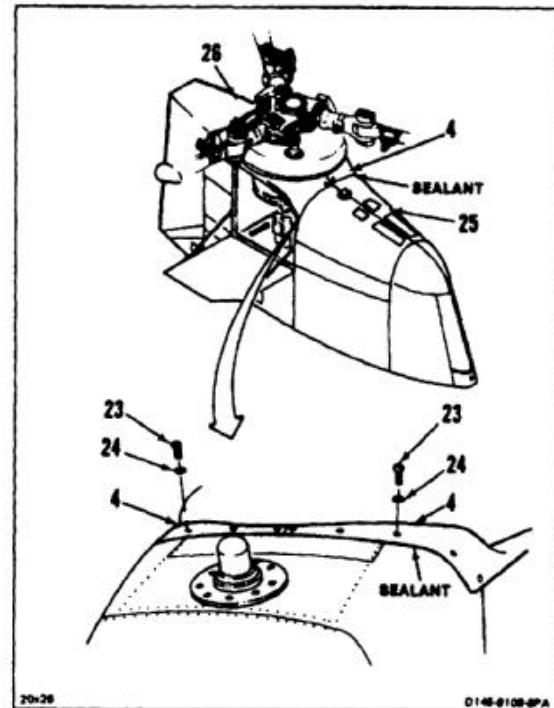


12. Install five screws (23) and washers (24) in each half of fairing (4).

WARNING

Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

13. Wearing gloves (E186), clean all external screw heads on fairing (4). Clean joints between mid-crown fairing (4) and forward and aft fairings (25 and 26). Use cloths (E120) and dry cleaning solvent (E162).
14. Wearing gloves (E186), apply sealant (E339) to all external screw heads.
15. Wearing gloves (E186), apply sealant (E339) to joints between mid-crown fairing (4) and forward crown fairing (25) and aft crown fairing (26).



FOLLOW-ON MAINTENANCE:

Close left and right aft pylon fairings (work platforms) (Task 2-2).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

TM 1-1500-204-23
Task 2-13

Equipment Condition:

As Required

1. If damage to skin is less than **25 percent** of cross section of skin panel, repair by patching (Task 2-13).
2. If damage to formed bolt does not affect radius, repair by patching (Task 2-13).

INDEX	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	FORMER	0.40 2024-T4 CLAD	0.050 2024-T3 CLAD
2	NOTE C FORMER	0.50 2024-T42 CLAD 0.25 2024-T4 CLAD	0.063 2024-T3 CLAD 0.032 2024-T3 CLAD
3	NOTE C SKIN	0.50 2024-T42 CLAD 0.920 2024-T4 CLAD	0.063 2024-T3 CLAD 0.025 2024-T3 CLAD
4	STIFFENER	ALCOA 10854 2024-T4	0.050 4130
5	NOTE C FORMER	0.40 2024-T4 CLAD	0.050 2024-T3 CLAD
6	NOTE C STIFFENER	0.50 2024-T42 CLAD	0.040 2024-T3 CLAD 0.063 2024-T3 CLAD
7	PLATE	BAC1517-1522 7075-T6 0.250 301 1/4 H CRES	0.050 2024-T3 CLAD SAME AS ORIGINAL

NOTES

A. ALL DIMENSIONS ARE IN INCHES.

B. REFER TO TM 1-1500-204-23 FOR CLASSIFICATION OF DAMAGE AND REPAIR OF IMPREGNATED GLASS CLOTH PARTS.

C. THIS PART IS USED ON AIRCRAFT SN 92-0367 AND 92-0368.

23411

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1022

2-300 AFT PYLON EQUIPMENT SUPPORT — MINOR REPAIR

2-300

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-301
Task 2-360**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Minor damage is damage to fittings limited to nicks and scratches not more than **10 percent** of material thickness after burnishing.
2. Damage shall clear bolts, rivets, and radii, a minimum of **3/4 inch** (Task 2-301).
3. Repair damage to webs by patching if damage does not exceed **25 percent** of cross section between attaching members, and clears members enough to allow proper rivet spacing.
4. If minor limits are exceeded, refer to Task 2-360 for information on oil canning repair.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-300
Task 2-302

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. The aft pylon equipment support structures consist of the aft trunnion actuator forward and aft supports, aft swiveling actuator support, and aft bellcrank left and right supports.
2. Classification of damage is minor (Task 2-300), and repairable (AVIM) (Task 2-302).

NOTE

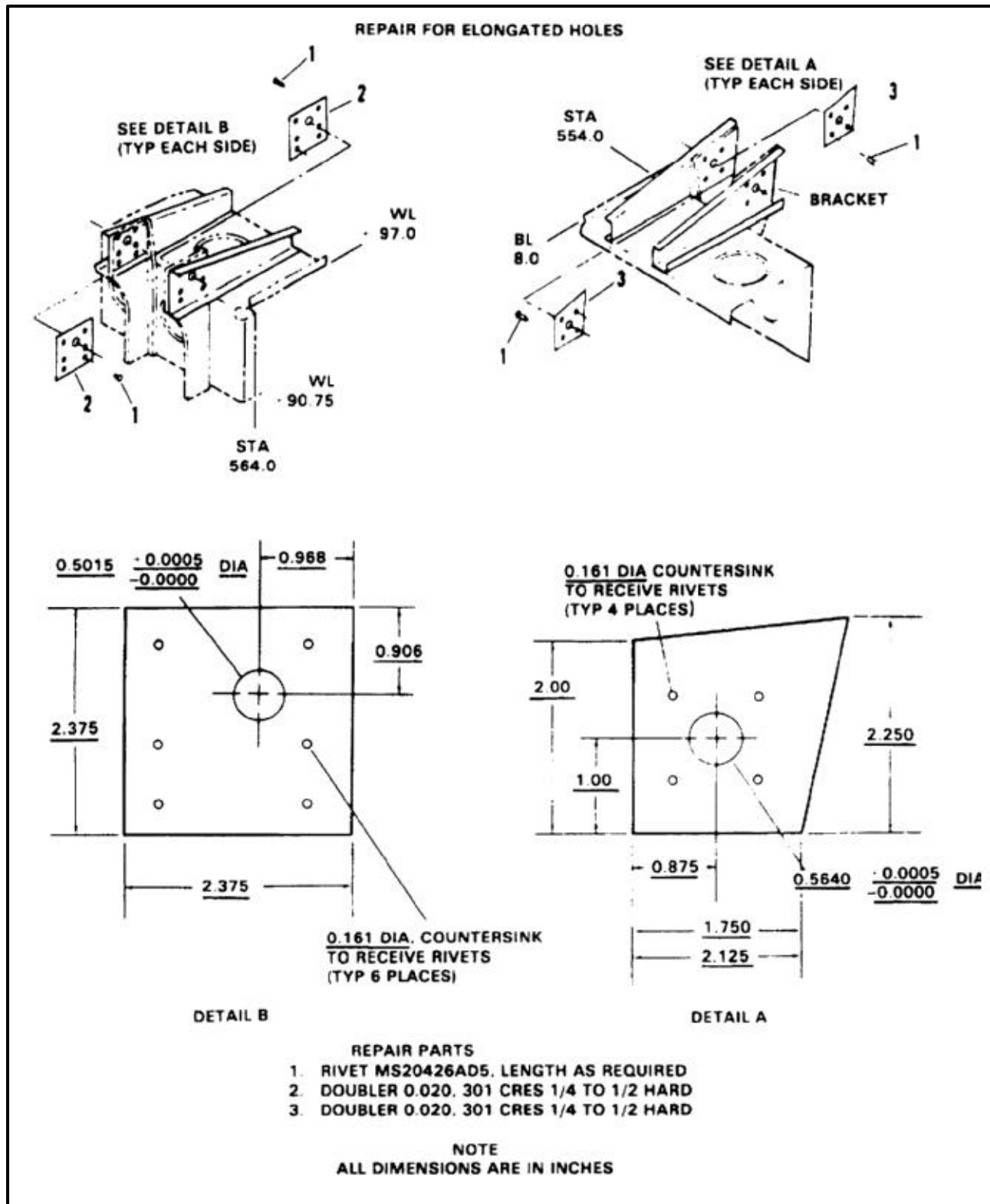
All dimension are in inches.

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	ANGLE	0.040 7075-T6 BARE	0.050 7075-T6 CLAD
2	CHANNEL	0.050 7075-T6 BARE	0.050 7075-T6 CLAD
3	SUPPORT	0.040 7075-T6 BARE	0.050 7075-T6 CLAD
4	CHANNEL	0.040 7075-T6 BARE	0.050 7075-T6 CLAD
5	ANGLE	ALCOA 22509 7075-T6	0.050 4130
6	ANGLE	REYNOLDS 26807 7075-T6	0.125 4130
	NOTE B.	BAC1503-1420 7075-T6	0.050 4130
7	CHANNEL	0.032 301 CRES 1/2H	0.040 301 CRES 1/2H

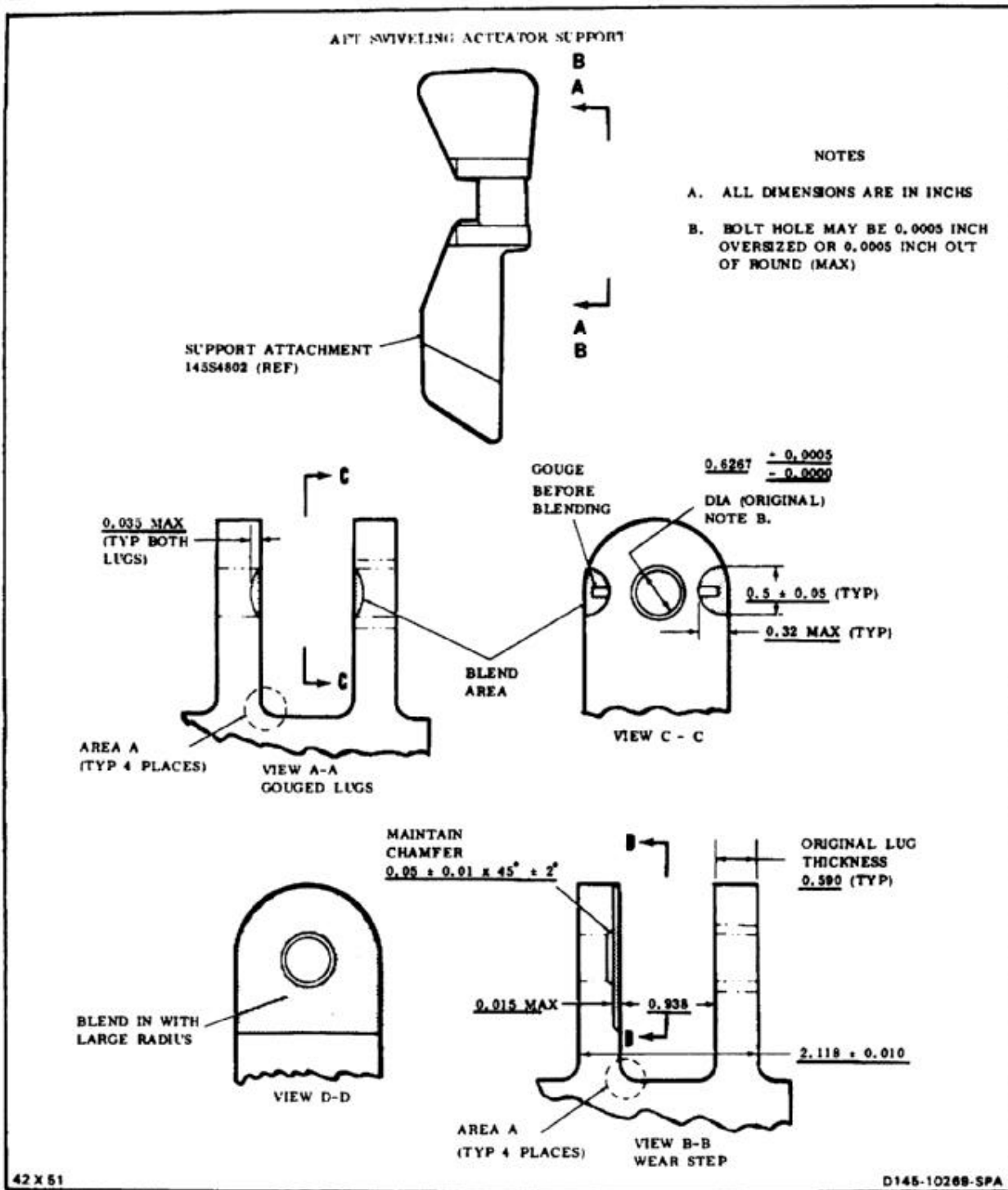
NOTES

A. ALL DIMENSIONS ARE IN INCHES.
B. THIS PART IS USED ON AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.

Aft Pylon Equipment Support Structure Repairs (Sheet 1 of 3)



Aft Pylon Equipment Support Structure Repairs (Sheet 2 of 3)



Aft Pylon Equipment Support Structure Repairs (Sheet 3 of 3)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1026

2-302 REPAIR AFT PYLON EQUIPMENT SUPPORT STRUCTURE (AVIM)

2-302

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Fluorescent Penetrant Method

Materials:

Crocus Cloth (E122)

Personnel Required:Aircraft Structural Repairer
Inspector**References:**Task 2-10
Task 2-301
MIL-I-6866
TM 1-1520-253-23**Equipment Condition:**

As Required

General Safety Conditions:

As Required

1. Damage not extensive, but exceeds the limits for patching, shall be repaired by insertion (Task 2-10).
2. Repair gouges and wear steps on aft swiveling support mounts.
 - a. Blend gouges within limits (Task 2-301). Use crocus cloth (E122). Remove least amount of material possible to remove and blend damage.
 - b. Fluorescent penetrant inspect reworked lugs for cracks in accordance with MIL-I-6866. Pay special attention to radii at base of lugs (Task 2-301) AREA A and also to the lug bore surfaces and surrounding areas. If a crack in the combining transmission support fittings or longitudinal beams is suspected, refer to TM 1-1520-253-23.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector

1. Minor damage to decks consists of nicks and scratches which can be removed by burnishing. See Task 2-7 for example of extruded part damage. See Task 2-13 for repair information to internal webs and formed parts.
2. For general information of pylon, refer to Task 2-304.
3. Repair damage affecting less than **25 percent** of a web cross section and clearing boundary members (caps) by patching.
4. Repair damage affecting only a single leg of a formed part and not extending into the radius or heel by patching.

FOLLOW-ON MAINTENANCE:

As Required

References:Task 2-7
Task 2-13
Task 2-304**Equipment Condition:**

As Required

General Safety Instructions:

As Required

END OF TASK

2-1028

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

- Task 2-11
- Task 2-13
- Task 2-301
- Task 2-303
- Task 2-305
- Task 2-325
- Task 2-351

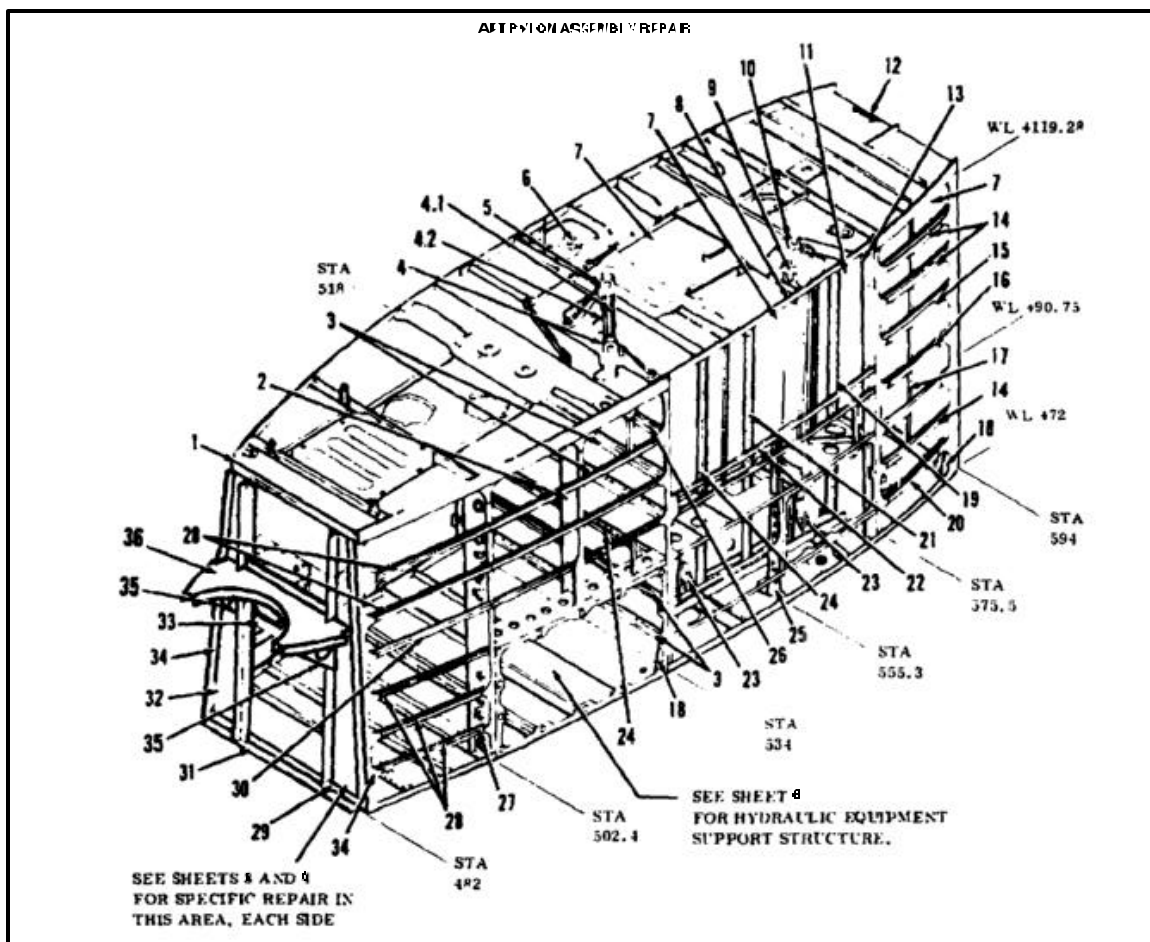
Equipment Condition:

As Required

General Safety Instructions:

As Required

1. The pylon is spliced to the aft fuselage at WL +72 with forged aluminum attachment fittings. Three decks are in the pylon.
2. Damage to pylon shall be classified as minor damage Task 2-303, repairable damage (AVIM) and damage necessitating replacement Task 2-305.

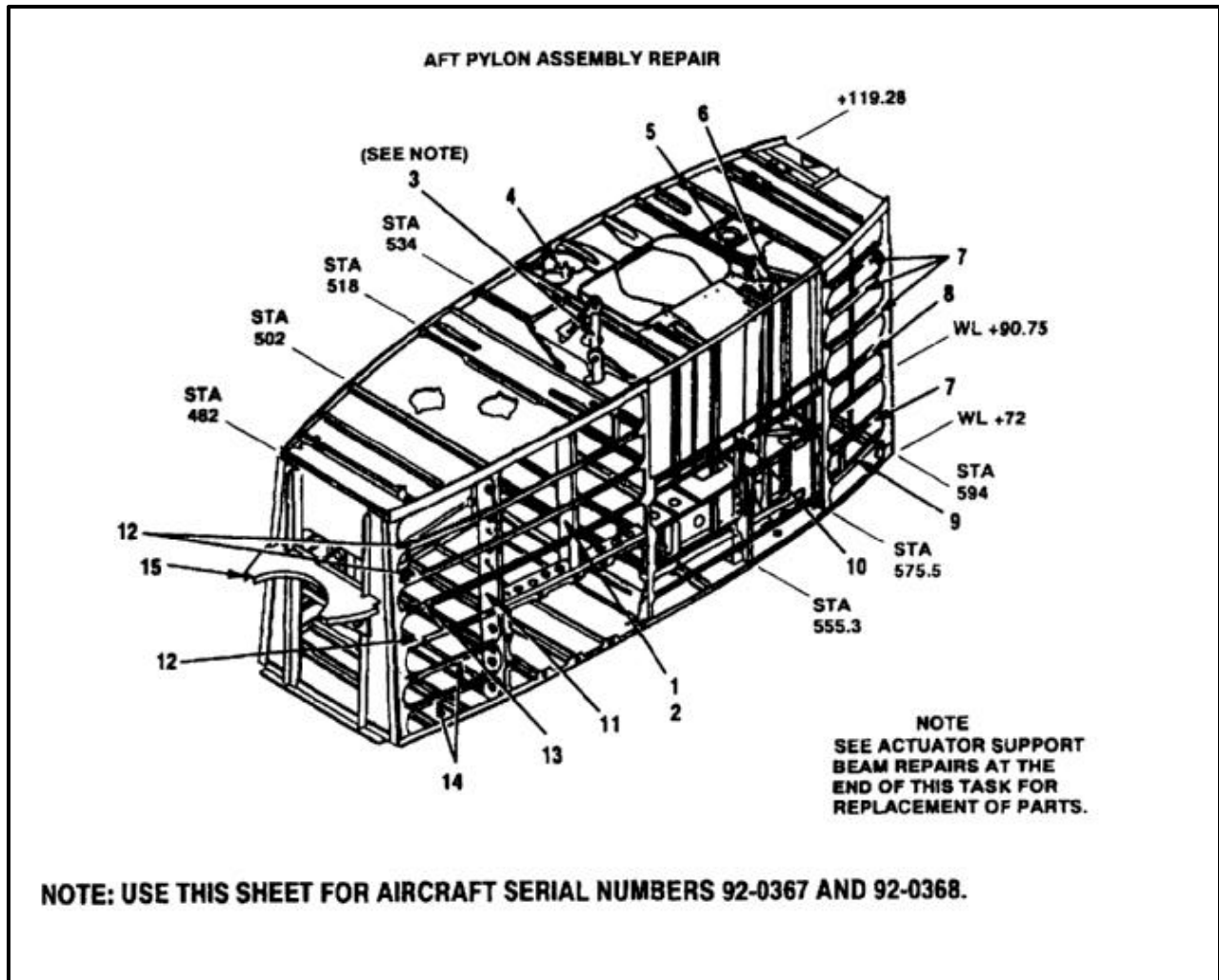


Aft Pylon Structure Repair (Sheet 1 of 14)

AFT PYLON ASSEMBLY REPAIRS

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CHANNEL	0063	2024-T3 CLAD	0.083	2024-T3 CLAD	2-13
2	WEB	0.020	7075-T6 BARE	0.025	7075-T6 CLAD	2-13
3	STIFFENER	ALCOA 59675	7075-T6	0.050	4130	2-29
4	BEAM	BAC 1505-100524	2024-T4	NOTE B.		NOTE J.
4.1	CHANNEL	.071	2024-T4 CLAD	NOTE K.		—
4.2	CHANNEL	.071	2024-T4 CLAD	NOTE L.		—
5	BEAM	BAC 1505-100524	2024-T4	NOTE C.		NOTE J.
6	ATTACHMENT	—		NOTE D.		2-301
7	WEB	0063	7075-T6 BARE	0.071	7075-T6 CLAD	2-13
8	WEB	VS90525	7075-T6	—		2-13
9	ATTACHMENT	—		NOTE E.		—
10	ATTACHMENT	—		NOTE F.		—
11	WEB	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD	2-13
12	CAP	BAC 1514-539	7075-T6	—		NOTE J.
13	ANGLE	0.050	7075-T6 CLAD	0.063	7075-T6 CLAD	NOTE J.
14	STRINGER	ALCOA 83264	7075-T6	—		2-15
15	TEE	HARVEY 15152	7075-T6	—		NOTE J.
16	STRINGER	0.083	7075-T6 BARE	0.071	7075-T6 CLAD	2-15
17	ANGLE	0.090	7075-T6 BARE	0.100	7075-T6 CLAD	NOTE J.
18	ATTACHMENT	—		NOTE G.		NOTE J.
19	TEE	REYNOLDS 26598	7075-T6	—		NOTE J.
20	STRINGER	0.063	7075-T6 BARE	0.071	7075-T6 CLAD	2-15
21	CHANNEL	0.063 301 1/2H CRES		0.063 301 1/2H CRES		2-6
22	STRINGER	HARVEY 1507B	7075-T6	0.063	4130	2-15
23	ATTACHMENT	—		NOTE H.		—
24	CHANNEL	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
25	FORMER	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	NOTE J.
26	ANGLE	AND10133	2024-T4			NOTE J.
27	FORMER	0.050	2024-T3 BARE	0.063	2024-T3 CLAD	NOTE J.
28	STRINGER	VS70503-1	7075-T6	0.032	4130	2-15
29	ANGLE	AND10134-1201	7075-T6	0.063	4130	NOTE J.
30	STRINGER	VS70503-3	7075-T6	0.050	4130	2-15
31	ANGLE	ALCOA 61971	7075-T6	0.063	4130	NOTE J.
32	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
33	TEE	ALCOA 49225	7075-T6	0.063	4130	NOTE J.
34	HINGE HALF	MS20001H6		NOTE I.		2-325
35	SUPPORT	0.040 AL ALY SHT	2024-0 CLAD	0.040 AL ALY SHT	2024-0 CLAD	NOTE J.
36	PARTITION	0.032 AL ALY SHT	2024-0 CLAD	0.032 AL ALY SHT	2024-0 CLAD	NOTE J.

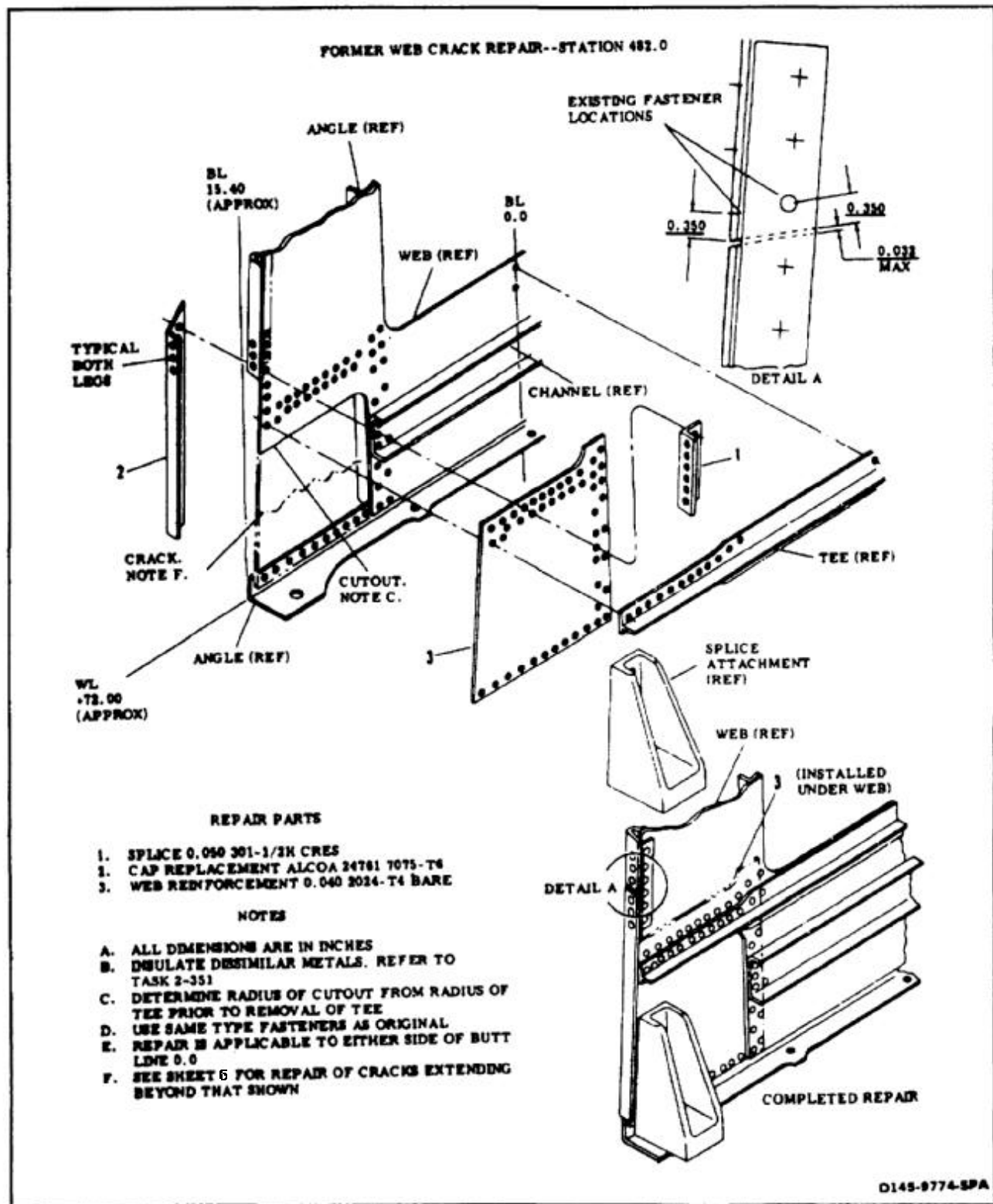
- NOTES:**
- A. All dimensions are in inches.
 - B. Replace with new beam 114S4119-56 if damage is more than negligible.
 - C. Replace with new beam 114S4119-5 if damage is more than negligible.
 - D. Replace with new attachment 145S4802-1 if damage is not repairable.
 - E. Replace with new attachment 114S4835-1 if damage is more than negligible.
 - F. Replace with new attachment 114S4811-5 if damage is more than negligible.
 - G. Replace with new attachment 114S4801-1 if damage is more than negligible.
 - H. Replace with new attachment 114S4805-4 if damage is more than negligible. Use locating fixture 114G1247-1. Replace attachments separately to prevent mislocation.
 - I. Refer to Task 2-325 for hinge repair.
 - J. TM 1-1500-204-23.
 - K. Replace with new channel 114S4119-45 if damage is more than negligible.
 - L. Replace with new channel 114S4119-46 if damage is more than negligible.



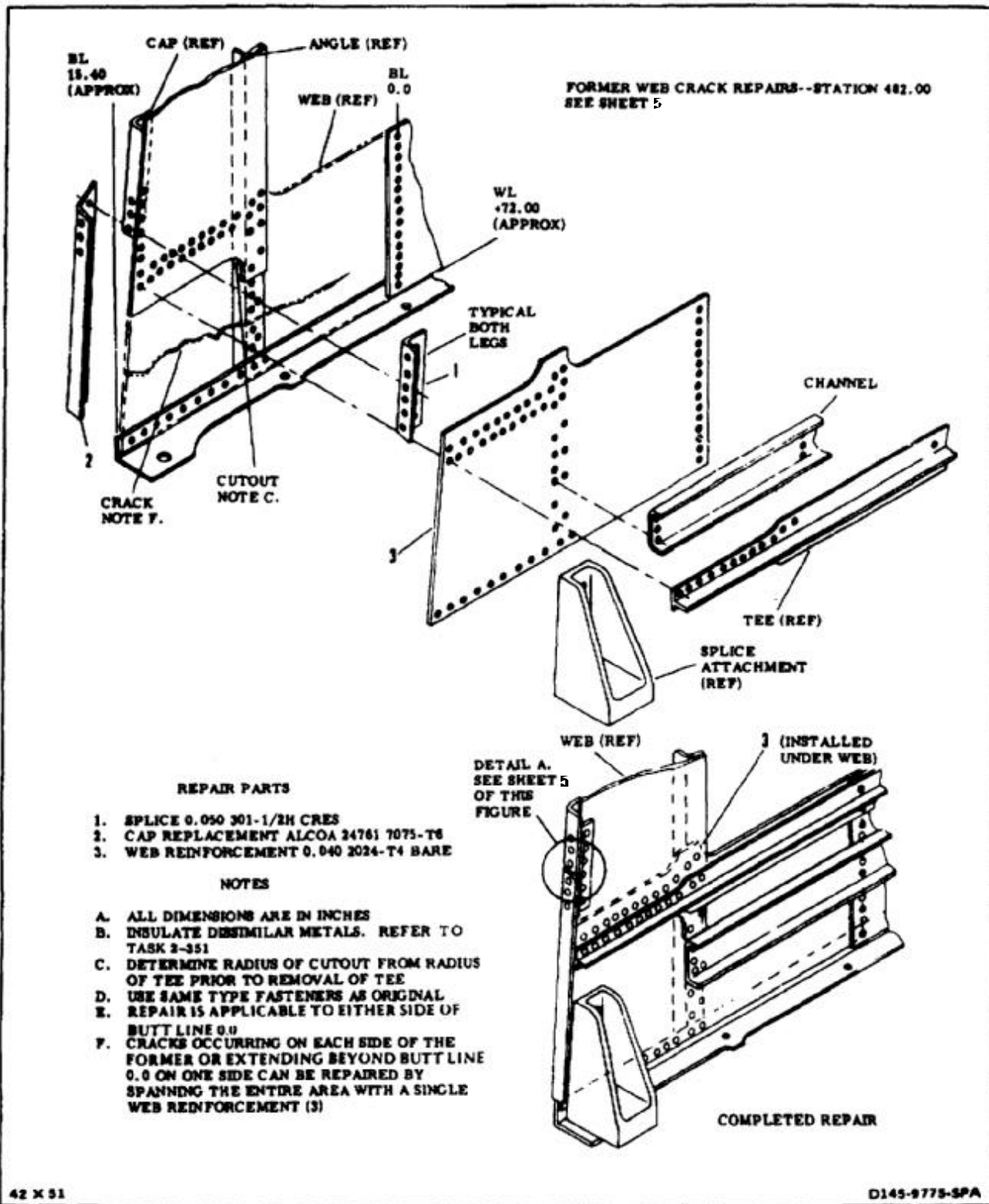
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	WEB	0.020 7075-T6 BARE	0025 7075-T6 CLAD	2-13
2	STIFFENER	ALCOA 83264 7075-T6		2-15
3	BEAM	BAC1505-100524-2024-T4	NOTE B.	NOTE F.
4	SUPPORT		NOTE C.	
5	SUPPORT		NOTE D.	
6	SUPPORT		NOTE E.	
7	STRINGER	ALCOA 83264 7075-T6		2-15
8	STRINGER	0.063 7075-T6 BARE	0.075 7075-T6 CLAD	2-15
9	STRINGER	BAC1517-1523 7075-T6 BARE		2-15
10	STRINGER	HARVEY 15078 7075-T6	0.0634130	2-15
11	FORMER	0.050 2024-T3 BARE	0.063 2024-T3 CLAD	NOTE F.
12	STRINGER	VS70503-1 7075-T6	0.0324130	2-15
13	STRINGER	VS70503-3 7075-T6	0.0504130	2-15
14	STRINGER	BAC1517-1521 7075-T6		2-15
15	PARTITION	0.032. 2024-T42 CLAD	0.040 2024-T42	2-13

NOTES:

- A. ALL DIMENSIONS ARE IN INCHES.
- B. REPLACE WITH NEW BEAM 114S4119-66 IF DAMAGE IS MORE THAN NEGLIGIBLE.
- C. REPLACE WITH NEW SUPPORT 114S4106-1 IF DAMAGE IS NOT REPAIRABLE.
- D. REPLACE WITH NEW SUPPORT 114S4109-29 IF DAMAGE IS NOT REPAIRABLE.
- E. REPLACE WITH NEW SUPPORT 114S4111-13 IF DAMAGE IS NOT REPAIRABLE.
- F. TM 1-1500-204-23.



Aft Pylon Structure Repairs (Sheet 5 of 14)

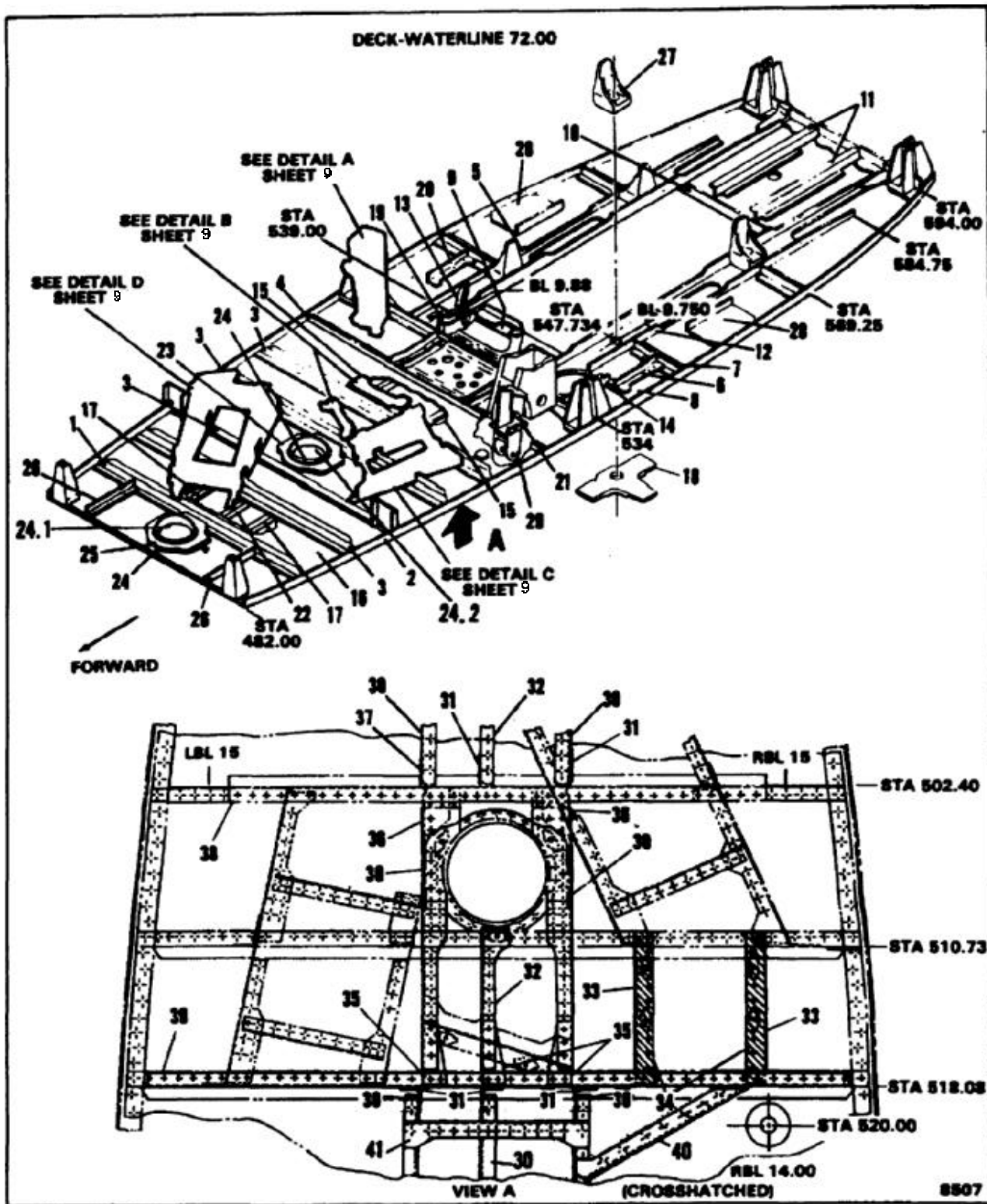


All Pylon Structure Repairs (Sheet 6 of 14)

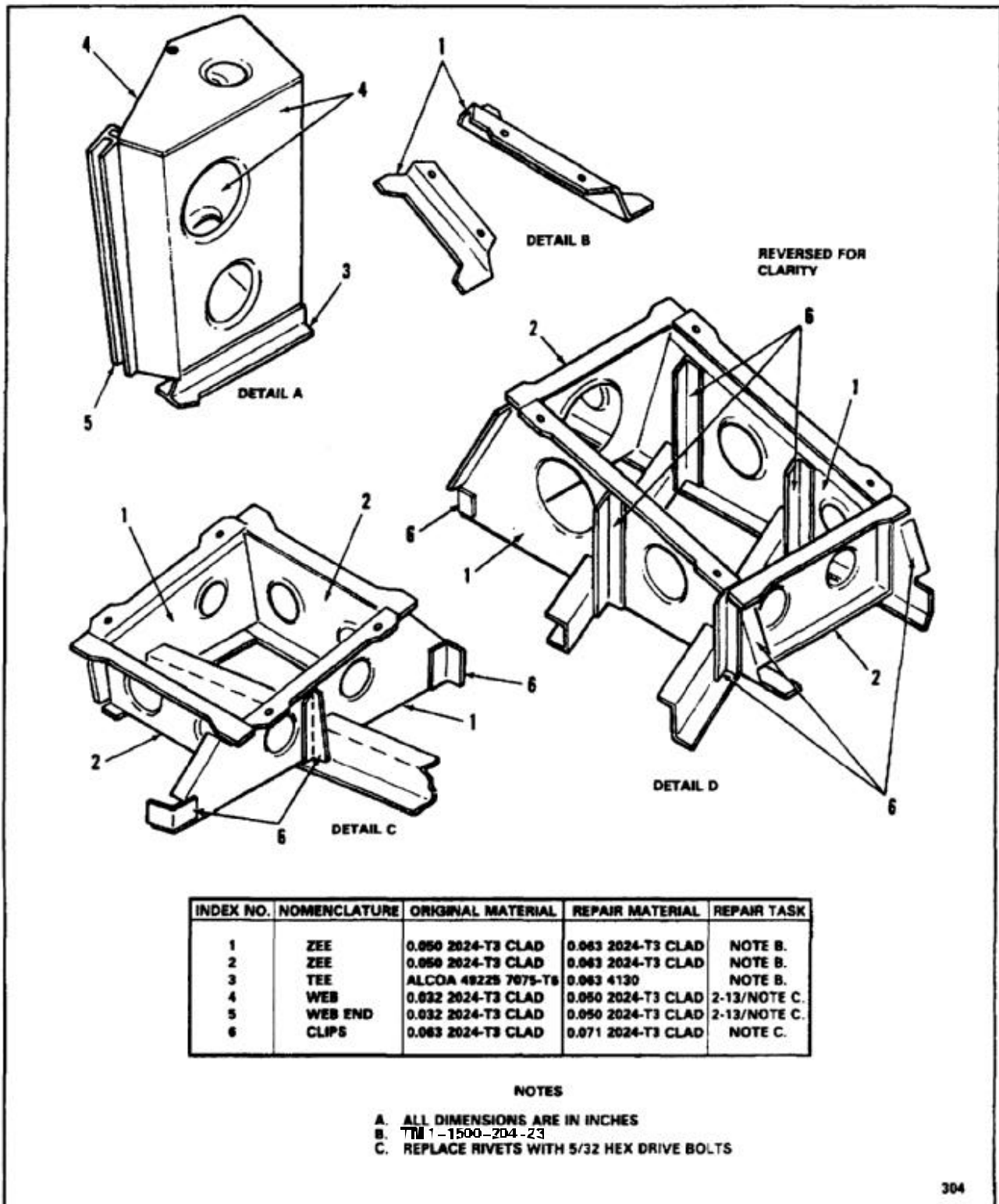
DECK REPAIRS WATERLINE 72.00

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	ZEE	0.060	2024-T4 CLAD	0.063	2024-T3 CLAD	NOTE G.
2	CAP	ALCOA 13816	7075-T6	0.125	4130	NOTE G.
3	ZEE	0.050	7075-T6 BARE	0.063	7075-T6 CLAD	NOTE G.
4	ANGLE	ALCOA 5401	7075-T6	0.050	4130	NOTE G.
5	CHANNEL	NAS345-134	7075-T6	0.160	4130	2-13
6	TEE	ALCOA 62409	7075-T6	0.100	4130	NOTE G.
7	TEE	AND10136-2002	7075-T6	0.100	4130	NOTE G.
8	WEB	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	2-13
9	STIFFENER	AND10134-1205	7075-T6	0.125	4130	2-29
10	STIFFENER	AND10133-1002	7075-T6	0.125	4130	2-29
11	ZEE	AND10136-1004	7075-T6	0.071	4130	NOTE G.
12	CHANNEL	NAS345-134	7075-T6	0.180	4130	2-13
13	ANGLE	ALCOA 62564	7075-T6	0.080	4130	NOTE G.
14	ANGLE	ALCOA 27778	7075-T6	0.100	4130	NOTE G.
15	ANGLE	0.050	7075-T6 BARE	0.063	7075-T6 CLAD	NOTE G.
16	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
17	ANGLE	0.050	7075-T6 BARE	0.063	7075-T6 CLAD	NOTE G.
18	PLATE	0.375 4340 STEEL		NOTE B.		NOTE G.
19	SUPPORT ASSEMBLY	114S4823		NOTE F.		NOTE G.
20	ANGLE	ALCOA 16869	7075-T6	NOTE B.		NOTE G.
21	DOUBLER	0.040	7075-T6 BARE	NOTE B.		NOTE G.
22	ANGLE	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	NOTE G.
23	RETAINER	0.025	2024-T4 CLAD	NOTE D.		NOTE G.
24.1	DOMED COVER	NONE		0.040	6061	NOTE G.
24.2	DOMED COVER	NONE		0.040	6061	NOTE G.
24	SEAL	0.032 SILICON RUBBER SHEET		NOTE B.		NOTE G.
25	RETAINER	0.025	2024-T4 CLAD	NOTE D.		NOTE G.
26	ANGLE	VS70504-3	7075-T6 BARE	0.025	7075-T6 CLAD	NOTE G.
27	SUPPORT	AZ80 AF MAG AL FORG		NOTE B.		NOTE G.
28	DOUBLER	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	NOTE G.
29	SUPPORT ASSEMBLY	114S4824		NOTE F.		NOTE G. & H.
30	ANGLE	0.050	7075-T6	0.063	7075-T6	NOTE G. & H.
31	CLIP	AND10133-1401	7075-T6511	NOTE B.		NOTE G. & H.
32	ANGLE	0.050	7075-T6	0.063	7075-T6	NOTE G. & H.
33	ANGLE	0.050	2024-T3 CLAD	0.063	2024-T3	NOTE G. & H.
34	FILLER	0.050	2024-T3 CLAD	NOTE B.		NOTE G. & H.
35	ANGLE	0.050	2024-T3 CLAD	NOTE B.		NOTE G. & H.
36	CLIP	0.050	7075-T6	NOTE B.		NOTE G. & H.
37	CLIP	AND10133-1401	7075-T6511	NOTE B.		NOTE G. & H.
38	ZEE	0.050	2024-T3 CLAD	0.063	2024-T3	NOTE G. & H.
39	CHANNEL	0.050	2024-T3 CLAD	0.063	2024-T3	NOTE G. & H.
40	ANGLE	0.050	2024-0	NOTE B.		NOTE G. & H.
41	ZEE	0.050	2024-T3 CLAD	0.063	2024-T3	NOTE G. & H.

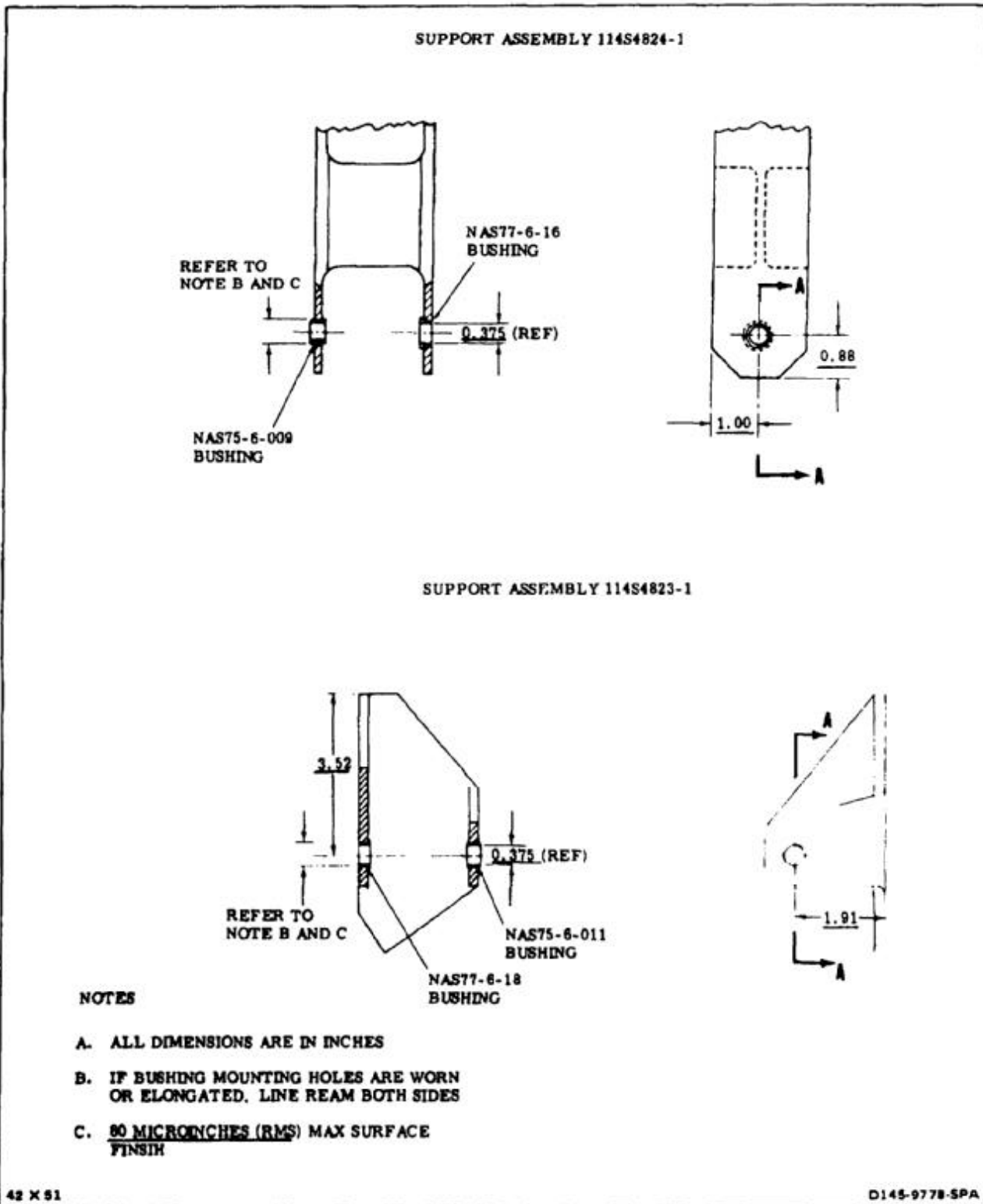
- NOTES:**
- A. All dimensions are in inches.
 - B. Replace with new material as original.
 - C. Replace with new retainer 114S4113-129.
 - D. Replace with new retainer 114S4113-127.
 - E. Repair as shown on sheet 9 or replace with new support assembly 114S4823-1.
 - F. Repair as shown on sheet 9 or replace with new support assembly 114S4824-1.
 - G. TM 1-1500-204-23.
 - H. Effective only for M3004-M3091
 - (81-23381 thru 81-23389)
 - (82-23762 thru 82-23780)
 - (83-24102 thru 83-24125)
 - (84-24152 thru 84-24157)



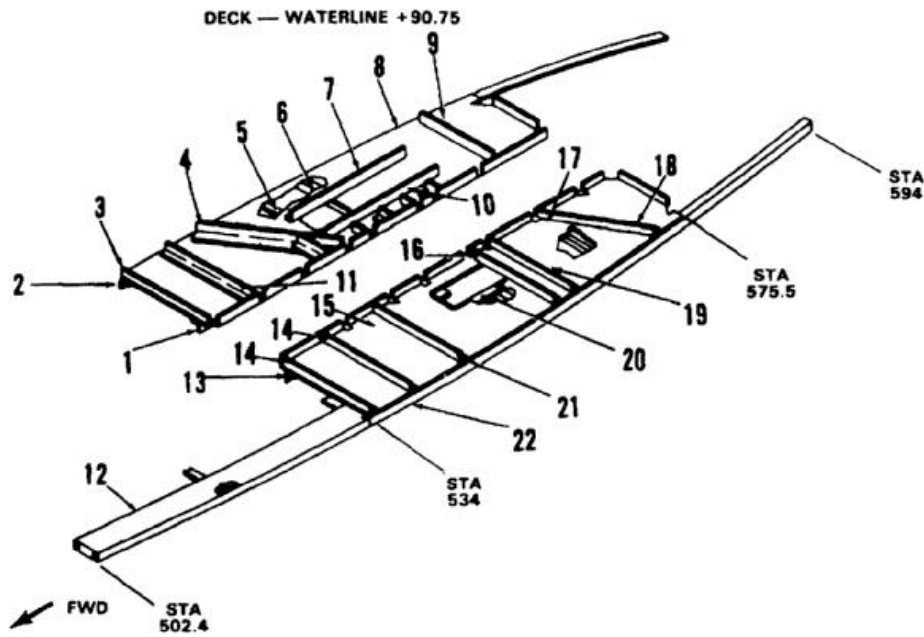
At Pylon Structure Repairs (Sheet 3 of 14)



Aft Pylon Structure Repairs (Sheet 9 of 14)



Air Pylon Structure Repairs (Sheet 10 of 14)

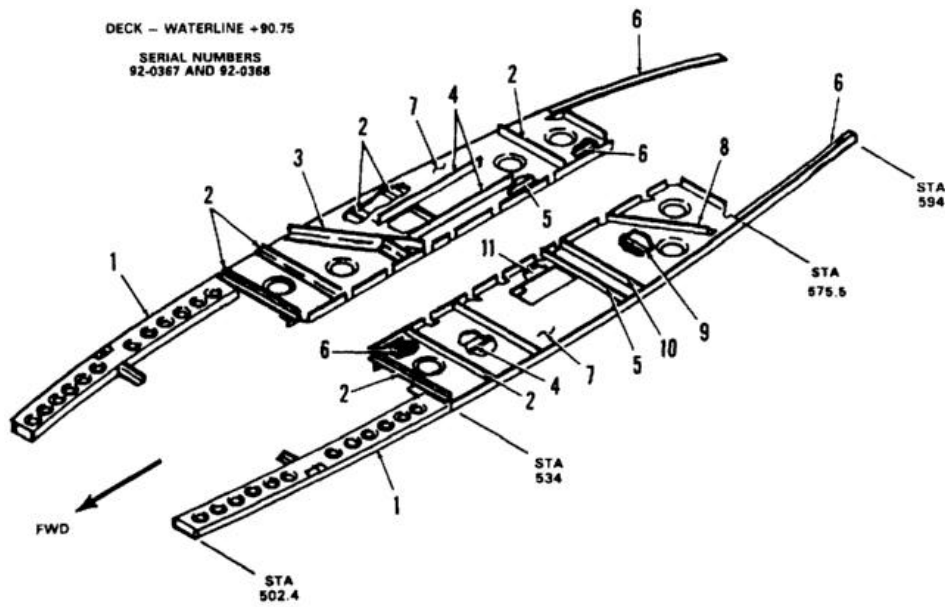


INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
2	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
3	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
4	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
5	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
6	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
7	ANGLE	HARVEY 15078 7075-T6	0.063 4130	NOTE B.
8	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
9	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
10	ANGLE	HARVEY 15078 7075-T6	0.063 4130	NOTE B.
11	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
12	CHANNEL	0.040 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
13	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
14	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
15	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
16	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
17	CHANNEL	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	2-13
18	ANGLE	AND10133-0701 7075-T6	0.040 7075-T6 CLAD	NOTE B.
19	ANGLE	REYNOLDS 5761 7075-T6	0.070 4130	NOTE B.
20	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
21	ANGLE	HARVEY 15078 7075-T6	0.063 7075-T6 CLAD	NOTE B.
22	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.

NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. TM 1-1500-204-23.

Aft Pylon Structure Repair (Sheet 11 of 14)

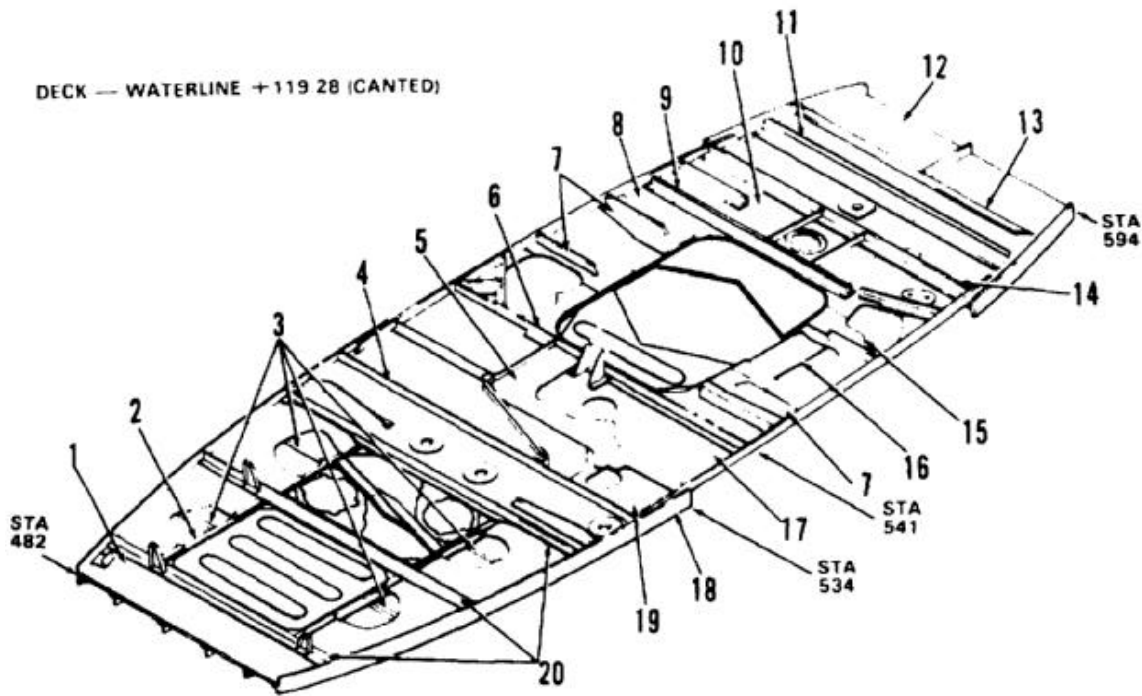


INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CHANNEL	0.040 7075-T6 BARE	0.040 7075-T6 CLAD	2-13
2	ANGLE	VS70504-4	NOTE C.	NOTE B.
3	ANGLE	0.032 301 CRES 1/2 HD	0.040 301 CRES 1/2 HD	NOTE B.
4	ANGLE	HARVEY 15078 7075-T6	0.063 7075-T6 CLAD	NOTE B.
5	ANGLE	ALCOA 22477 7075-T6	0.050 7075-T6 CLAD	NOTE B.
6	ANGLE	7075-T6511 BAC1530-1420	0.050 7075-T6 CLAD	NOTE B.
7	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
8	ANGLE	AND10133-0701 7075-T6	0.040 7075-T6 CLAD	NOTE B.
9	CHANNEL	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	2-13
10	ANGLE	REYNOLDS 5761 7075-T6	0.070 4130	NOTE B.
11	ANGLE	BAC1503-1420 7075-T6 EX	NOTE C.	NOTE B.

NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. TM 1-1500-204-23.
- C. REPLACE WITH SAME MATERIAL AS ORIGINAL.
- D. THIS MATERIAL IS USED ON AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.

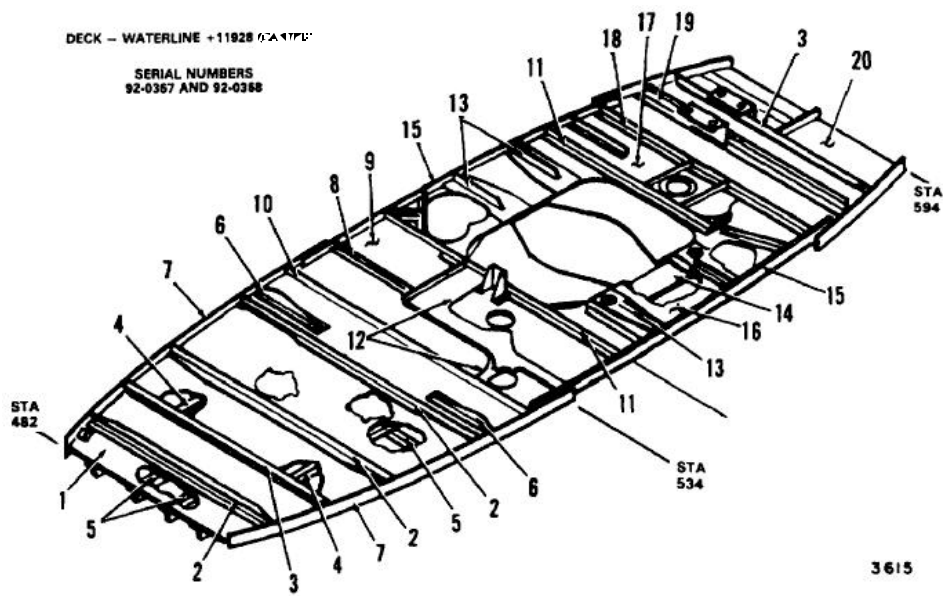
Aft Pylon Structure Repair (Sheet 12 of 14)



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
2	ANGLE	ALCOA 45827 7075-T6	0.080 4130	NOTE C.
3	ANGLE	VS70504-3	0.032 4130	NOTE C.
4	TEE	ALCOA 52057 7075-T6	0.063 4130	NOTE C.
5	DOUBLER	0.063 2024-T4 BARE	0.071 2024-T3 CLAD	NOTE C.
6	TEE	AND10136-2006 7075-T6	—	NOTE C.
7	TEE	ALCOA 33185 7075-T6	—	NOTE C.
8	WEB	0.050 301 CRES 1/4 HD	0.063 301 CRES 1/4 HD	2-13
9	TEE	AND10136-1406 7075-T6	0.100 4130	NOTE C.
10	WEB	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	2-13
11	ZEE	0.063 7075-T6 BARE	0.071 7075-T6 CLAD	NOTE C.
12	WEB	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD	2-13
13	ZEE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE C.
14	ANGLE	ALCOA 12883 7075-T6	0.063 4130	NOTE C.
15	ANGLE	REYNOLDS 8159 7075-T6	0.125 4130	NOTE C.
16	ANGLE	0.125 301 CRES 1/4 HD	0.125 301 CRES 1/4 HD	NOTE C.
17	WEB	0.032 301 CRES 1/2 HD	0.040 301 CRES 1/2 HD	2-13
18	CAP	VS90525 7075-TB	0.125 4130	NOTE C.
19	DOUBLER	0.063 2024-T4 CLAD	0.071 2024-T3 CLAD	NOTE C.
20	TEE	REYNOLDS 19810	—	NOTE C.

NOTES

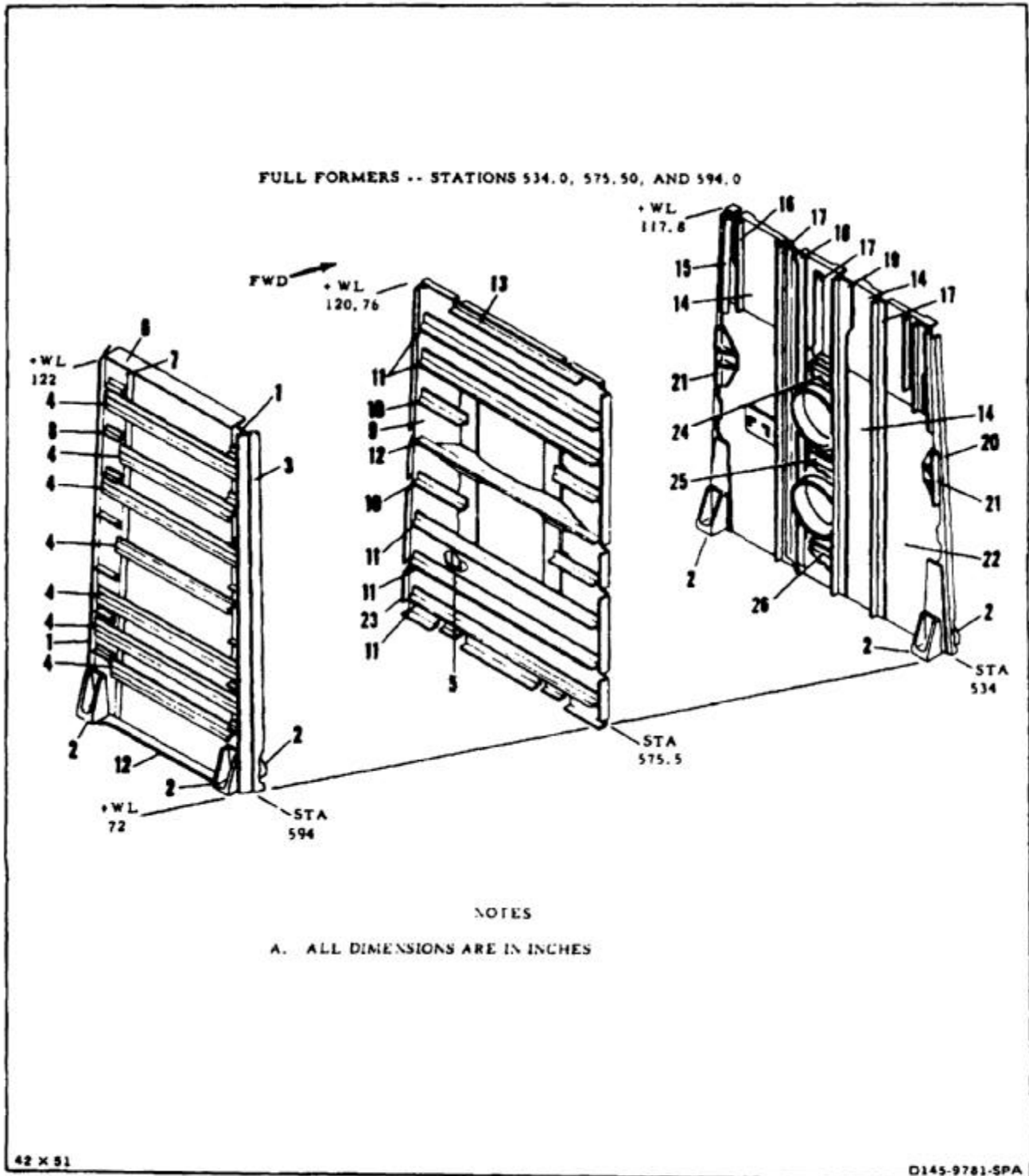
- A. ALL DIMENSIONS ARE IN INCHES.
- B. STATIONS SHOWN REPRESENT THE CENTERLINE OF OVERLAP OF THE WEBS.
- C. TM 1-1500-204-23.



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
2	TEE	REYNOLDS 19810 7075-T6	—	NOTE B.
3	ZEE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
4	ANGLE	ALCOA 45827 7075-T6	—	NOTE B.
5	ANGLE	VS70504-3 7075-T6	0.032 4130	NOTE B.
6	TEE	ALCOA 33495 2024-T4	—	NOTE B.
7	CAP	VS90525 7075-T6	0.125 4130	NOTE B.
5	TEE	ALCOA 52057 7075-T6	0.063 4130	NOTE B.
9	WEB	0.032 301 CRES 1/2 HD	0.040 301 CRES 1/2 HD	2-13
10	ANGLE	AND10134-1402 7075-T6	-	NOTE B.
11	TEE	AND10136-1406 7075-T6	0.100 4130	NOTE B.
12	DOUBLER	0.063 2024-T4	0.071 2024-T3 CLAD	NOTE B.
13	TEE	ALCOA 33185 7075-T6	—	NOTE B.
14	ANGLE	0.125 301 CRES 1/2 HD	0.125 301 CRES 1/2 HD	NOTE B.
15	CAP	ALCOA 66428 7075-T6	—	NOTE B.
16	WEB	0.050 301 CRES 1/2 HD	0.063 301 CRES 1/2 HD	2-13
17	WEB	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD	2-13
18	ANGLE	ALCOA 12883 7075-T6	0.063 4130	NOTE B.
19	ZEE	0.063 7075-T6 BARE	0.071 7075-T6 CLAD	NOTE B.
20	WEB	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD	2-13

NOTES

- A. ALL DIMENSIONS ARE IN INCHES.
- B. TM 1-1500-204-23.
- C. THIS MATERIAL IS USED ON AIRCRAFT SERIAL NUMBERS 92-0367 AND 92-0368.



**Full Former Repairs—Aft Pylon
Structure Assembly (Sheet 1 of 2)**

FULL FORMERS — STATIONS 534, 575.50, AND 594

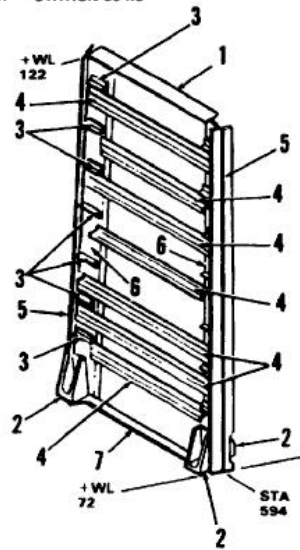
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	HARVEY 17413	7075-T6	0.080	4130	NOTE E.
2	ATTACHMENT		2014-T6 FORGING	NOTE B.		NOTE E.
3	PLATE	0.125	7075-T6 BARE	0.125	7075-T6 CLAD	NOTE E.
4	ZEE	AND10138-1004	7075-T6	0.063	4130	NOTE E.
5	TEE	REYNOLDS 26598	7075-T6	0.125	7075-T6 CLAD	NOTE E.
6	CAP	BAC1514-539	7075-T6	0.100	4130	NOTE E.
7	WEB	0.032	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
8	ANGLE	0.090	7075-T6 BARE	0.090	7075-T6 CLAD	NOTE E.
9	WEB	0.040	7075-T6 CLAD	0.050	2024-T3 CLAD	2-13
10	ANGLE	ALCOA 67580	7075-T6	0.063	4130	NOTE E.
11	ANGLE	ALCOA 27076	7075-T6	0.063	4130	NOTE E.
12	TEE	ALCOA 66517	7075-T6	0.063	4130	NOTE E.
13	CHANNEL	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
14	WEB	0.050	2024-T4 CLAD	0.050	2024-T3 CLAD	2-13
15	ANGLE	VS70504-2	7075-T6	0.040	7075-T6 CLAD	NOTE E.
16	ANGLE	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	NOTE E.
17	CAP	ALOA 15820	7075-T6	0.080	4130	NOTE E.
18	EXTRUSION	BAC1520-1320		NOTE C.		NOTE E.
19	ANGLE	0.040	7075-T6 BARE	0.050	7075-T3 CLAD	NOTE E.
20	CAP	HARVEY 17413	7075-T6	0.090	4130	NOTE E.
21	SUPPORT	ZK60-T5 FORGING		NOTE D.		NOTE E.
22	WEB	0.071	2024-T4 CLAD	0.071	2024-T3 CLAD	2-13
23	ANGLE	0.063	7075-T6 CLAD	0.071	7075-T6 CLAD	NOTE E.
24	STRAP	0.100	2024-T3	0.100	2024-T3	NOTE E.
25	STIFFENER	AND10136	2024-T4	AND10136	2024-T4	2-29
26	STIFFENER	AND10134	2024-T4	AND10134	2024-T4	2-29

NOTES

- A. All dimensions are in inches.
- B. Replace with new attachment 114A4801-1 if damage is other than minor.
- C. Repair is impractical. Replace with a new length of original material.
- D. Replace with new supports 114S4802-5 LH and -7 RH if damage is other than minor.
- E. TM 1-1500-204-23.

Full Former Repairs — Aft Pylon Structure Assembly (Sheet 2 of 2)

FULL FORMER — STATION 594.0

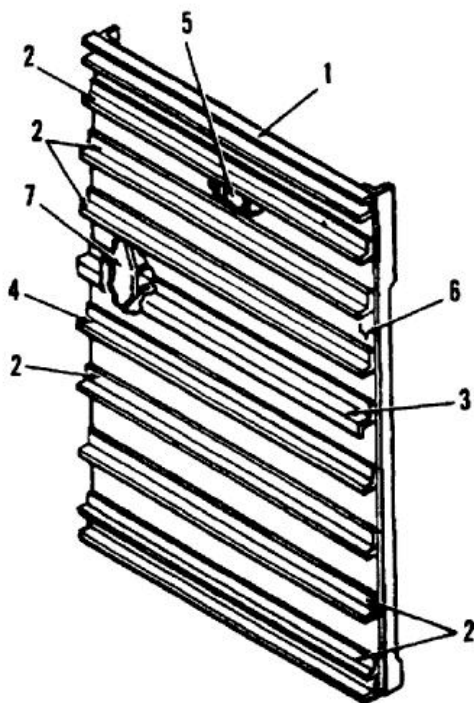


3616

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	BAC1514-539 7075-T6	0.125 7075-T6 CLAD	NOTE E.
2	ATTACHMENT	2014-T6 FORGING	NOTE B.	NOTE E.
3	CLIP	0.40 2024-T3 CLAD	0.040 2024-T3 CLAD	NOTE E.
4	ZEE	AND 10138-1004 7075-T6	0.063 4130	NOTE E.
5	CAP	BAC1506-1985 1075-T6	0.125 7075-T6 CLAD	NOTE E.
6	ANGLE	0.090 7075-T6 BARE	1.00 7075-T6 CLAD	2-13
7	TEE	ALCOA 66517 7075-T6	0.071 7075-T6 CLAD	NOTE E.

Full Former Repairs — Aft Pylon Structure Assembly (Sheet of 1 of 4)

FULL FORMER—STATION 575.DU



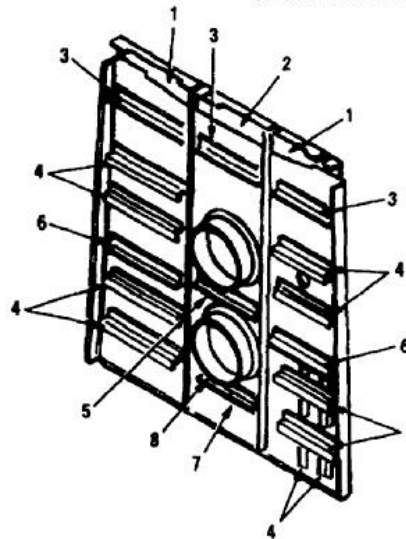
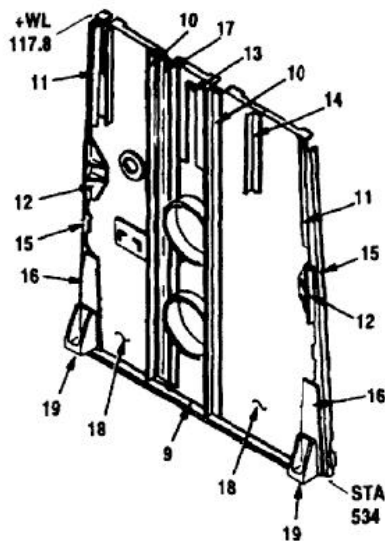
3617

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CHANNEL	0.040 7075-T6 CLAD	0.050 7075-T6 CLAD	2-13
2	ANGLE	BAC1503-1420 7075-T6	0.050 7075-T6 CLAD	—
3	ZEE	ALCOA 59675 7075-T6	0.050 7075-T6 CLAD	—
4	ANGLE	ALCOA 28546 7075-T6	0.050 7075-T6 CLAD	—
5	TEE	ALCOA 55794 7075-T6	0.090 7075-T6 CLAD	—
6	WEB	0.032 2024-T3 CLAD	0.040 7075-T6 CLAD	2-13
7	SUPPORT	ZK60-T5 FORGING	NOTE D.	—

Full Former Repairs — Aft Pylon Structure Assembly (Sheet of 2 of 4)

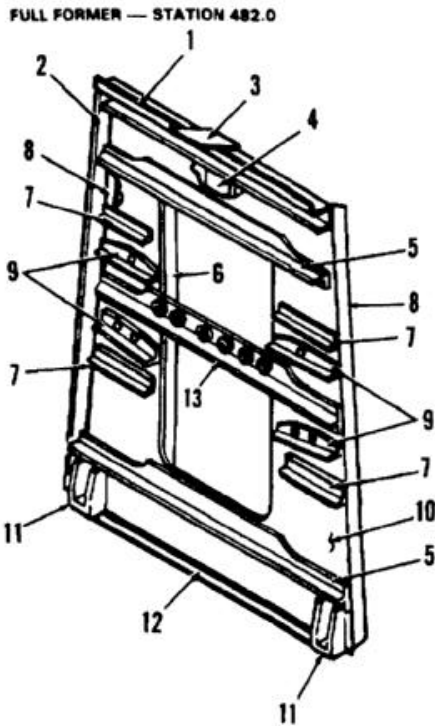
FULL FORMER _ STATION 534.00

SERIAL NUMBERS
92-0367 AND 92-0368



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	ANGLE	0.040 2024-T3 CLAD	0.040 2024-T3 CLAD	NOTE E.
2	ANGLE	0.040 2024-T3 CLAD	0.040 2024-T3 CLAD	NOTE E.
3	ANGLE	AND10133-1203 2024-T4	0.125 7075-T6 CLAD	NOTE E.
4	ZEE	ALCOA 59675 7075-T6	0.050 7075-T6 CLAD	NOTE E.
5	STIFFENER	AND10136-2003 2024-T4	AND10136 2024-T4	NOTE E.
6	CHANNEL	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	2-13
7	ANGLE	AND10134-1004 2024-T4	AND10134 2024-T4	NOTE E.
8	RING FITTING	—	NOTE H.	NOTE E.
9	CAP	ALCOA 66517 7075-T6	0.071 7075-T3 CLAD	NOTE E.
10	CAP	ALCOA 15820 7075-T6	0.050 4130	NOTE E.
11	ANGLE	VS705042 7075-T6	0.040 7075-T6 CLAD	NOTE E.
12	SUPPORT	ZK60-T5 FORGING	NOTE D.	NOTE E.
13	STIFFENER	ALCOA 22477 7075-T6	0.050 7075-T6 CLAD	NOTE E.
14	ANGLE	ALCOA 71369 7075-T6	0.080 7075-T6 CLAD	NOTE E.
15	CAP	HARVEY 17413 7075-T6	0.090 7075-T6 CLAD	NOTE E.
16	DOUBLER	0.063 7075-T6 BARE	0.071 7075-T6 CLAD	NOTE E.
17	EXTRUSION	BAC1520-1320	2024-T4 EXTR NOTE C.	NOTE E.
18	WEB	0.10 7075-T6 BARE	0.10 7075-T6 CLAD	2-13
19	ATTACHMENT	2014-T6 FORGING	NOTE B.	NOTE E.

Full Former Repairs — Aft Pylon Structure Assembly (Sheet of 3 of 4)



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CHANNEL	0.063 2024-T3 CLAD	0.071 2024-T3 CLAD	2-13
2	HINGE HALF	MS20001H6	NOTE F.	2-325
3	PLATE (HOIST POINT)	—	NOTE G.	—
4	CHANNEL	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	—
5	TEE	ALCOA 49225 7075-T6	0.063 7075-T6 BARE	NOTE E.
6	STIFFENER	AND10134-1201 7075-T6511	0.071 7075-T6 BARE	—
7	ANGLE	VS70504-4	0.040 7075-T6 CLAD	—
8	CAP	ALCOA 24761 7075-T6511	0.050 4130	NOTE E.
9	SUPPORT	0.040 2024-T3 CLAD	0.050 2024-T6 CLAD	NOTE E.
10	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
11	ATTACHMENT	AL ALY 2014-T6 FORGING	NOTE B.	NOTE E.
12	ANGLE	ALCOA 61971 7075-T6	0.063 7075-T6 CLAD	—
13	TEE	ALCOA 49225 2024-T4	0.071 7075-T6 CLAD	—

- NOTES:**
- A. All dimensions are in inches.
 - B. Replace with new attachment 114S4801-1 if damage is other than minor.
 - C. Repair is impractical, replace with new length of original material.
 - D. Replace with new supports 114S4802-1 LH and -2 RH if damage is other than minor.
 - E. TM 1-1500-204-23.
 - F. Refer to Task 2-325 for hinge repair.
 - G. Replace with new hoist point 114S4101-31 if damage is other than minor.
 - H. Replace with new ring fitting 145S4811 if damage is other than minor.

Full Former Repairs — Aft Pylon Structure Assembly (Sheet of 4 of 4)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-304.1 REPLACE PYLON DECK DRAIN LINES

2-304.1

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Heat Gun

Materials:

As Required

Personnel Required:

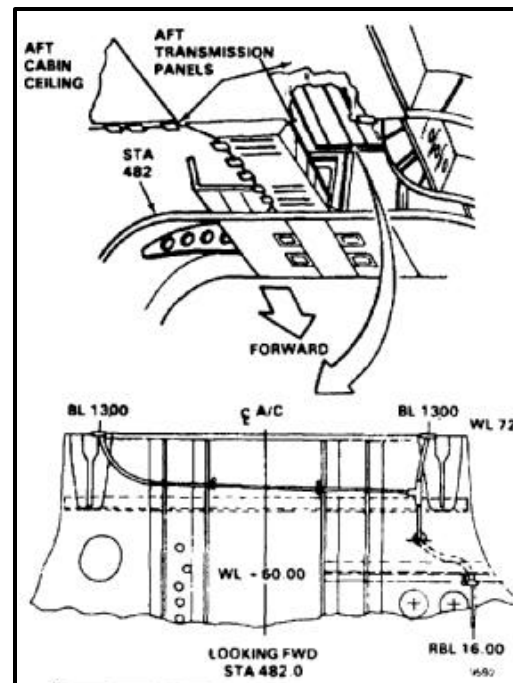
Medium Helicopter Repairer
Inspector

References:

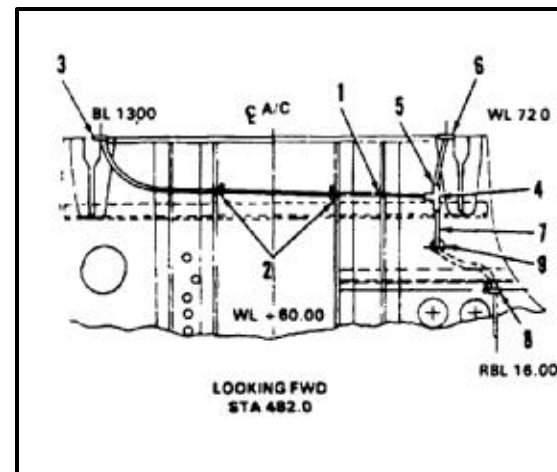
TM 55-1520-240-23P

Equipment Condition:

Battery Disconnected (Task 1-39)
Electric Power Off
Hydraulic Power Off

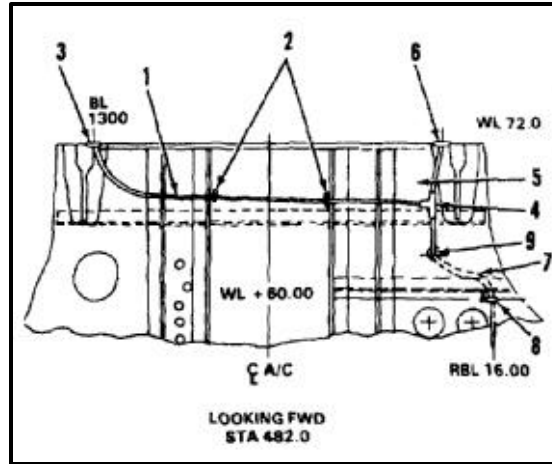
**REMOVE**

1. Measure and record length of tubing (1).
2. Loosen two clamps (2).
3. Cut tube (1) from drain fitting (3) and tee (4).
4. Remove tube (1) from clamps (2).
5. Measure and record length of tubing (5).
6. Cut tube (5) from drain fitting (6) and tee (4) and remove tube.
7. Measure and record length of tube (7).
8. Loosen clamp (8).
9. Cut tube (7) from tee (4) and remove through grommet (9).



INSTALL

10. Cut tube (1) to correct length.
11. Feed through clamps (2).
12. Slide ends of tube (1) over drain fitting (3) and tee (4). Heat shrink tube ends with heat gun.
13. Tighten clamps (2).
14. Cut tube (5) to correct length.
15. Slide ends of tube (5) over drain fitting (6) and tee (4). Heat shrink tube ends with heat gun.
16. Cut tube (7) to correct length.
17. Feed tube (7) through clamp (8) and grommet (9).
18. Slide end of tube (7) over tee (4). Heat shrink tube end with heat gun.
19. Tighten clamp (8).



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-1050

2-305 REPAIR AFT PYLON (AVIM)

2-305

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

Task 2-304

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Repair damage to a web which affects more than **25 percent** of a web cross section between boundary members (caps) or which extends into the cap area by insertion (Task 2-304).
2. The insertion shall extend from cap to cap and pick up all existing stiffeners in the area.
3. Repair damage to a formed part or an extruded part.
4. Extensive damage, as loss of a major portion of length of deck member, requires replacement in whole in part (Task 2-304).
5. When replacing members, pick up existing rivet locations and use next larger diameter rivets.
6. Replace bushings if loose, damaged, or have elongated bores (Task 2-304).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Extension, 1/2 Inch Drive
 Aft Pylon Skid (T55)
 Aft Pylon Skid Outrigger (2) (T55.1)
 Hoisting Eye (T32)
 Hoist, Minimum Capacity 4000 Pounds
 Container, 2 Quart
 Crowfoot Socket Wrench, 7/8 Inch
 Crowfoot Socket Wrench, 1-1/4 Inch
 Crowfoot Socket Wrench, 1-1/2 Inch
 Open End Wrench, 1-1/8 Inch
 Open End Wrench, 1-1/4 Inch
 Open End Wrench, 1-1/2 Inch
 Ratchet, 1/2 Inch Drive
 Rope Guide Lines (4)
 Socket, 9/16 Inch, 1/2 Inch Drive
 Template, Bolt Location, Cardboard
 Universal Joint, 1/2 Inch Drive
 Workstands (Side Bridge, Engine and Aft Pylon)
 Workstand, Three Step
 Securing Device, Aft Vertical Shaft (T50)
 Sling (T54)

Materials:

Cloths (E135)
 Gloves (E186)
 Paper Tags (E264)
 Pencil (E271)

Parts:

Nuts BACN10B For Aft Pylon Skid (T55)
 Washers (VS15306-8) (As Required) For Aft Pylon
 Skid (T55)

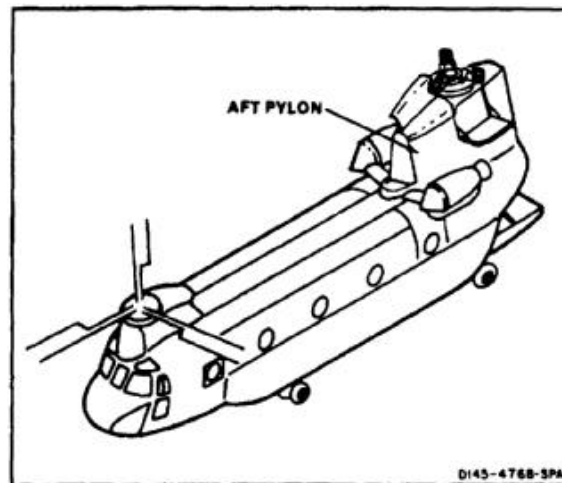
Personnel Required:

Medium Helicopter Repairer (5)
 Inspector

Equipment Condition:

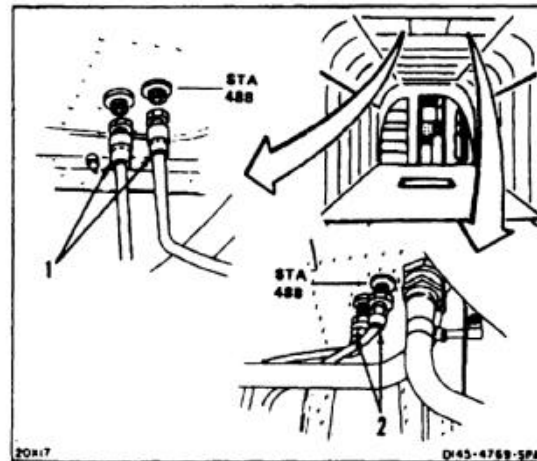
Battery Disconnected (Task 1-39)

Electrical Power Off
 Hydraulic Power Off
 No. 1 and No. 2 Flight Control Hydraulic Systems
 Depressurized (TM 55-1520-240-T)
 Utility Hydraulic System Depressurized (TM
 55-1520-240-T)
 Leading Edge Hinged Fairing Removed (Task 2-279)
 Right Forward Crown Fairing Opened (Task 2-2)
 Rotary Wing Blades Removed (Task 5-64)
 Servocylinder Safety Blocks Installed (Task 11-28)
 No. 9 Drive Shaft Removed (Task 6-21)
 Aft Transmission Removed (Task 6-92)
 Pylon Lower Right Bellcrank Removed (Task 11-258)
 Pylon Left Upper Connecting Link Removed (Task
 11-252)
 Pylon Left Aft Fuselage Connecting Link
 Disconnected (Task 11-244)
 Fire Extinguishers (Bottles) Removed (Task 12-24)
 Left and Right Pylon Access Panels Removed (Task
 2-2)
 Left and Right Aft Transmission Access Covers
 Removed (Task 2-2)
 Left and Right Access Covers Removed (Task 2-2)
 Left and Right Hydraulic Module Inspection Access
 Covers Removed (Task 2-2)
 Left and Right Work Platforms Opened (Task 2-2)
 Left Engine Transmission Oil Cooler Removed (Task
 6-214)
 Aft Vertical Shaft Securing Device Installed (Task
 6-92)

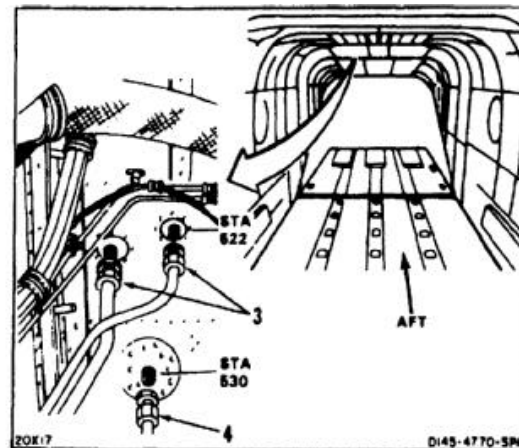


DISCONNECT HYDRAULIC TUBES AND DRAIN HOSES INSIDE AFT PYLON

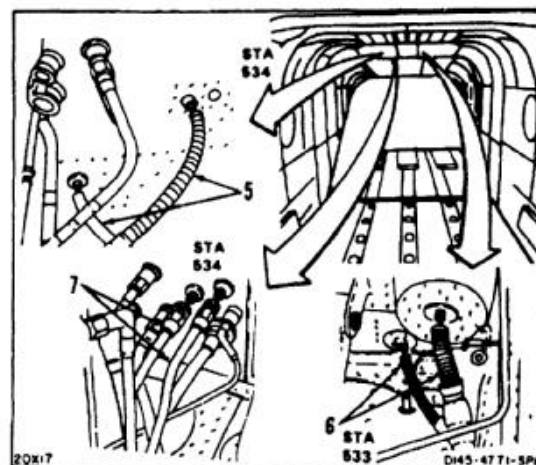
1. Tag and disconnect two hydraulic tubes (1) at sta. 488, left side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.
2. Tag and disconnect two hydraulic tubes (2) at sta. 488, right side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.



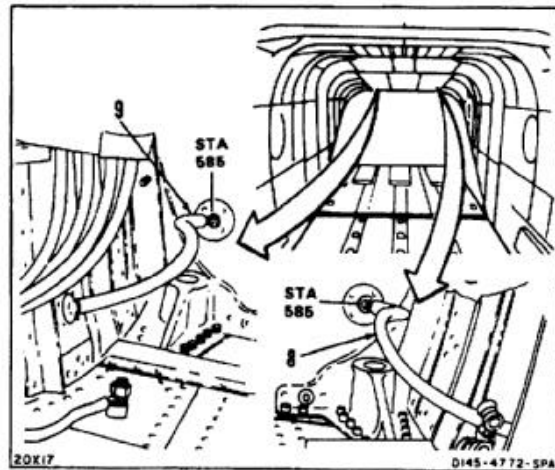
3. Tag and disconnect two hydraulic tubes (3) at sta. 522, right side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.
4. Tag and disconnect hydraulic tube (4) at sta. 530, right side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.



5. Tag and disconnect two drain hoses (5) at sta. 534, right side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.
6. Tag and disconnect two drain hoses (6) at sta. 533, left side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.
7. Tag and disconnect eight hydraulic tubes (7) at sta. 534. Use paper tags (E264). Use clothes (E135) and container for spilled fluid.

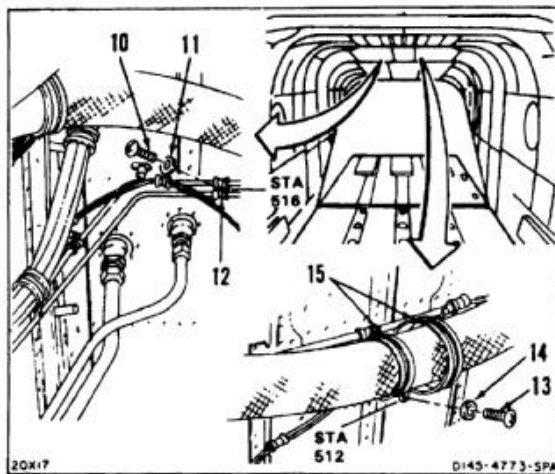


8. Tag and disconnect drain hose (8) at sta. 585, right side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.
9. Tag and disconnect drain hose (9) at sta. 585, left side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.

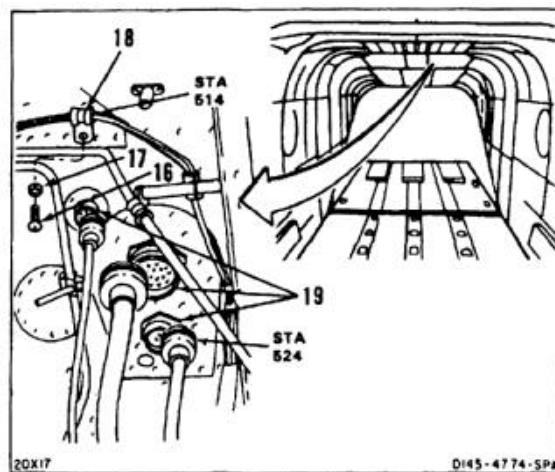


REMOVE CLAMPS AND DISCONNECT ELECTRICAL CONNECTORS INSIDE AFT PYLON

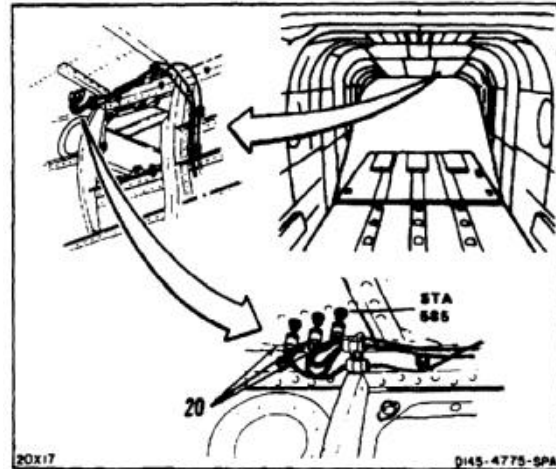
10. Remove four screws (10), washers (11), and clamps (12) at sta. 516.
11. Remove two screws (13), washers (14), and clamps (15) at sta. 512.



12. Remove screw (16), washer (17), and clamp (18) at sta. 514, left side.
13. Tag and disconnect three electrical connectors (19) at sta. 524, left side. Use paper tags (E264).

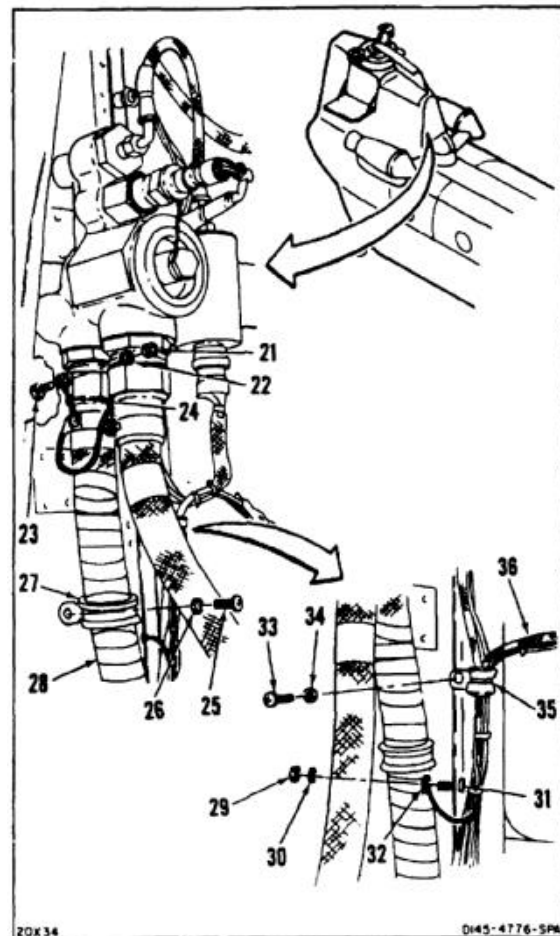


14. Tag and disconnect three electrical connectors (20) at sta. 585, left side. Use paper tags (E264).

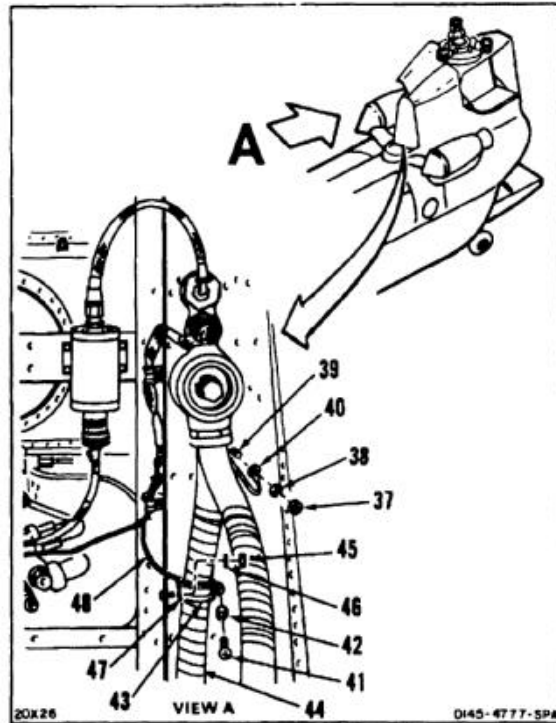


REMOVE CLAMPS AND DISCONNECT ELECTRICAL WIRES FORWARD OF AFT PYLON

15. Remove nut (21) and washer (22) from ground terminal (23). Tag and disconnect electrical wire (24) from terminal. Use paper tags (E264).
16. Remove screw (25), washer (26), and clamp (27) from engine oil hose (28).
17. Remove nut (29) and washer (30) from ground terminal (31). Tag and disconnect electrical wire (32) from terminal. Use paper tags (E264).
18. Remove six screws (33), washers (34), and clamps (35) from wire harness (36).

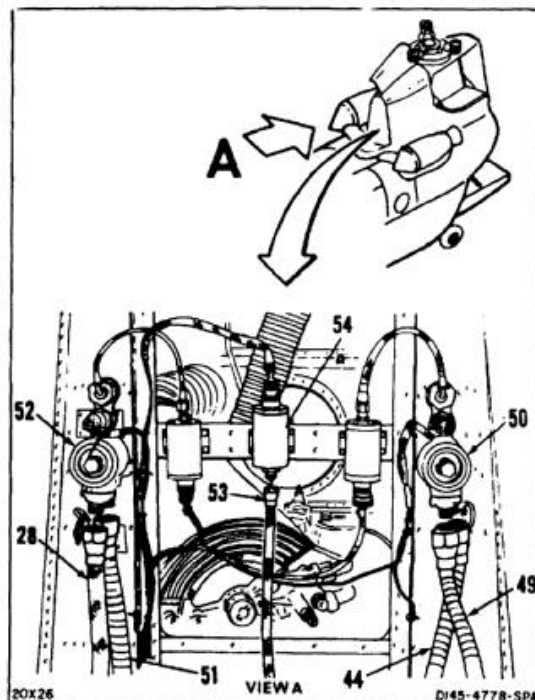


19. Remove nut (37) and washer (38) from ground terminal (39). Tag and disconnect electrical wire (40) from terminal. Use paper tags (E264).
20. Remove screw (41), washer (42), and clamp (43) from engine oil hose (44).
21. Remove nut (45) and washer (46) from ground terminal (47). Tag and disconnect electrical wire (48) from terminal. Use paper tags (E264).



DISCONNECT OIL HOSES, ELECTRICAL CONNECTORS AND REMOVE WIRE HARNESS FORWARD OF AFT PYLON

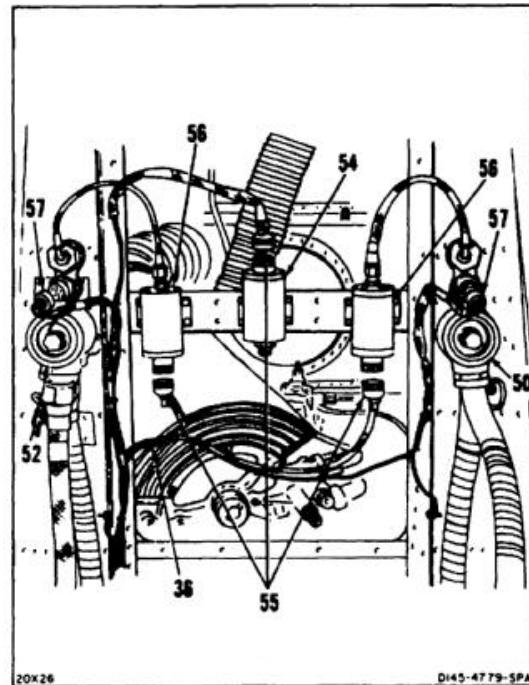
22. Tag and disconnect combining transmission oil hose (49) and engine oil hose (44) from left strainer (50). Use paper tags (E264). Use cloths (E135) and container for spilled oil.
23. Tag and disconnect combining transmission oil hose (51) and engine oil hose (28) from right strainer (52). Use paper tags (E264). Use cloths (E135) and container for spilled oil.
24. Tag and disconnect combining transmission oil hose (53) from center transducer (54). Use paper tags (E264). Use cloths (E135) and container for spilled oil.



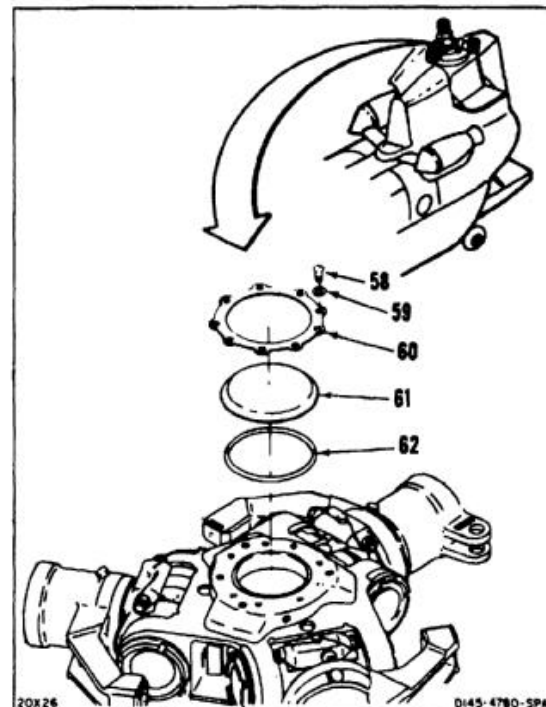
2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued)

2-306

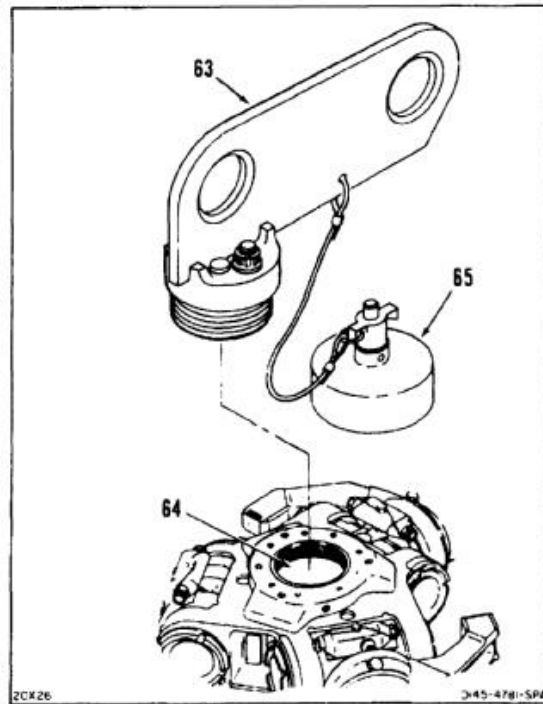
25. Tag and disconnect three electrical connectors (55) from transducers (54 and 56). Use paper tags (E264).
26. Tag and disconnect two electrical connectors (57) from left and right strainers (50 and 52). Use paper tags (E264).
27. Tag and remove wire harness (36). Use paper tags (E264).

**INSTALL HOISTING EYE (T32) ON AFT ROTOR SHAFT**

28. Remove nine screws (58) and washers (59) from retainer (60).
29. Remove retainer (60), cover (61), and packing (62).



- 30. Deleted.
- 31. Remove cover (65) from hoisting eye (T32) (63).
- 32. Install hoisting eye (T32) (63) in aft rotor shaft (64).

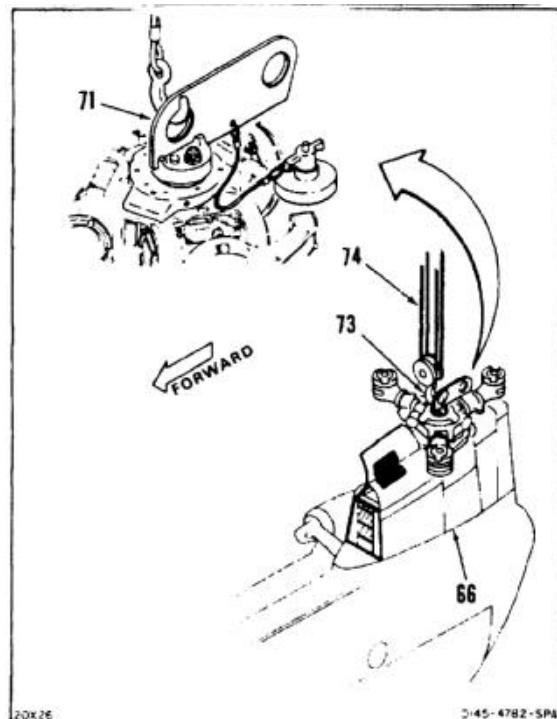


- 33. Cut fillet seal (66) from between pylon and attaching structure.

CAUTION

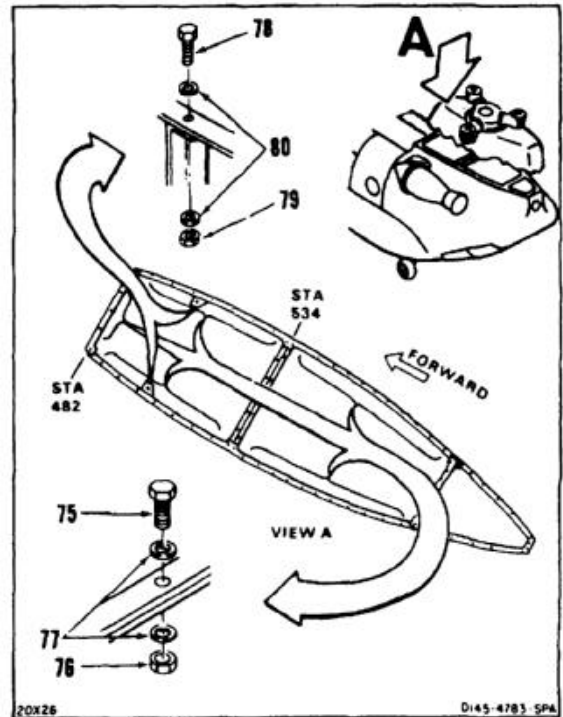
Do not put tension on pylon when removing slack from cable.

- 34. Install hoist hook (73) through lifting eye (71). Slowly remove slack from cable (74).

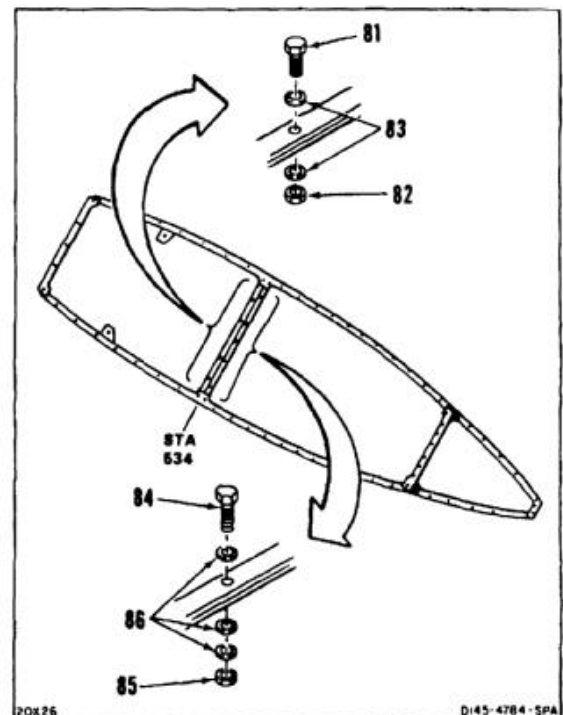


REMOVE MOUNTING BOLTS INSIDE AFT PYLON

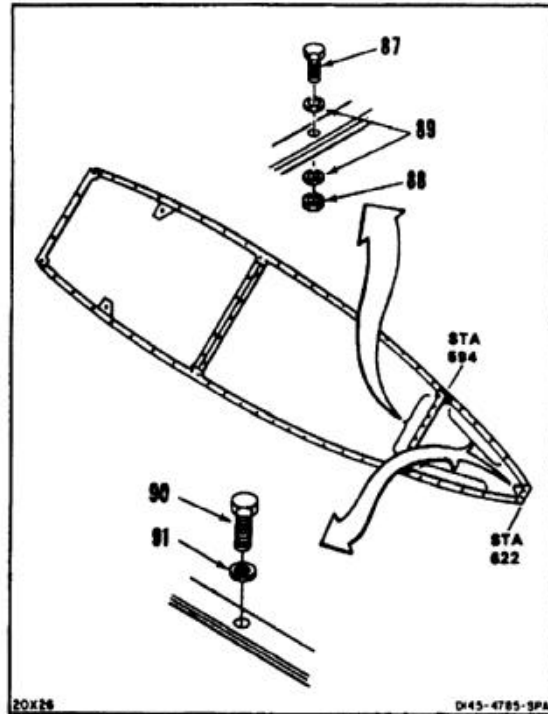
- 35. Mark location and remove 39 bolts (75), nuts (76), and 78 washers (77). Use pencil (E271).
- 36. Mark location and remove 12 bolts (78), nuts (79), and 24 washers (80) (if installed). Use pencil (E271).



- 37. Mark location and remove four bolts (81), nuts (82), and eight washers (83). Use pencil (E271).
- 38. Mark location and remove five bolts (84), nuts (85), and 15 washers (86). Use pencil (E271).

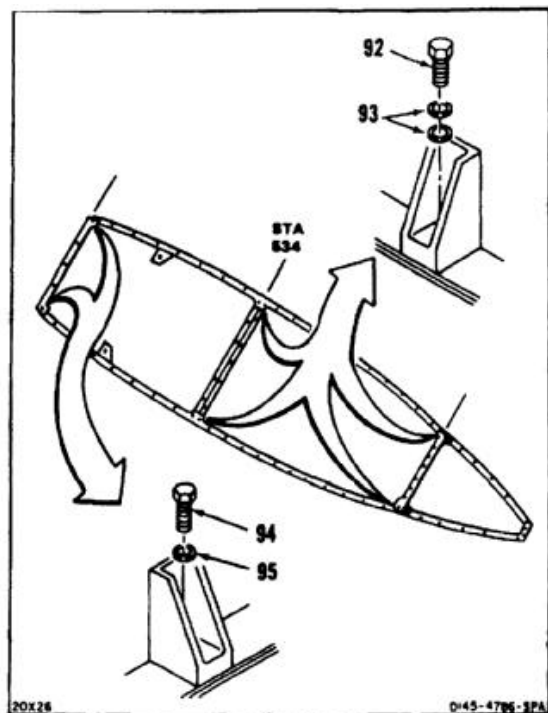


- 39. Mark location and remove six bolts (87), nuts (88), and 12 washers (89). Use pencil (E271).
- 40. Mark location and remove 12 bolts (90) heads up and washers (91). Use pencil (E271).



- 41. Mark location and remove eight bolts (92) and 16 washers (93). Use pencil (E271).
- 42. Mark location and remove two bolts (94) and washers (95). Use pencil (E271).

INSPECT



REMOVE AFT PYLON

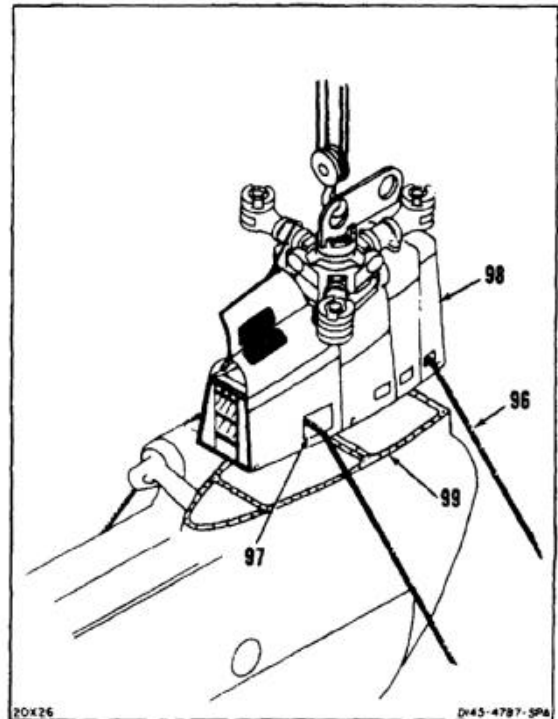
43. With aid of helpers, attach four guide lines (96) through access cover holes (97) in pylon (98). Use gloves (E186).
44. Cut fillet seal (99).

WARNING

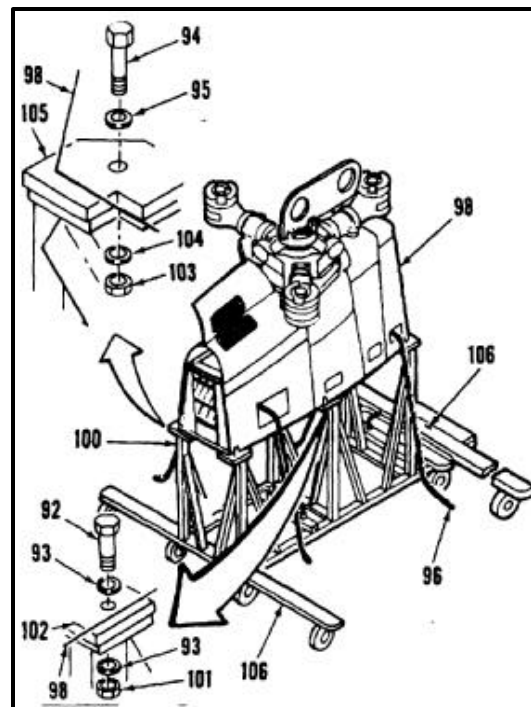
Pylon is heavy and can injure personnel if it swings or drops. Pylon must be supported by hoist, controlled by guide lines, and moved carefully to prevent injury to personnel or damage to equipment.

Install outrigger assemblies (T55.1) (106) to base of skid (T55) (100) for stability. Injury to personnel, or damage to pylon may result from skid toppling with pylon installed.

45. With aid of helpers, hold guide lines (96) to control pylon (98). Slowly raise pylon just enough to break seal (99). Use gloves (E186).
46. Position pylon (98) over skid (T55) (100). Make sure components on bottom of pylon will clear skid (T55).

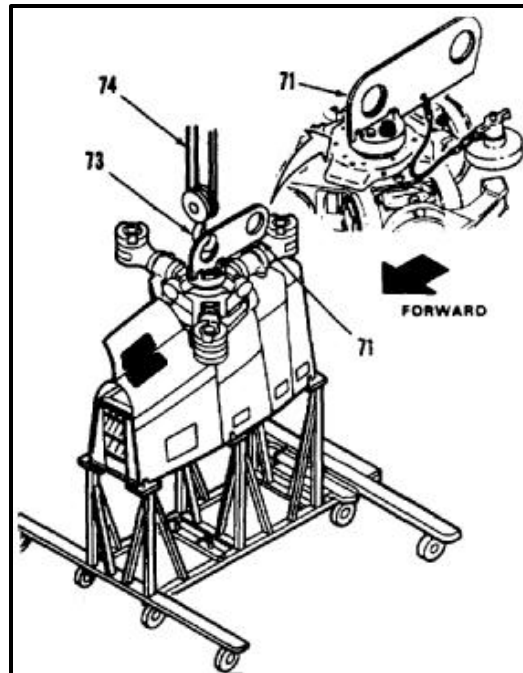
**INSPECT**

47. Position pylon (98) on skid (T55) (100).
48. Install eight bolts (92), nuts (101), and 16 washers (93) through pylon (98) and skid mounting bracket (102).
49. Install two bolts (94), nuts (103), washers (95) and washers (VS15306-8) (104), through pylon (98) and skid mounting brackets (105).
50. With aid of helpers, remove guide lines (96). Use gloves (E186).

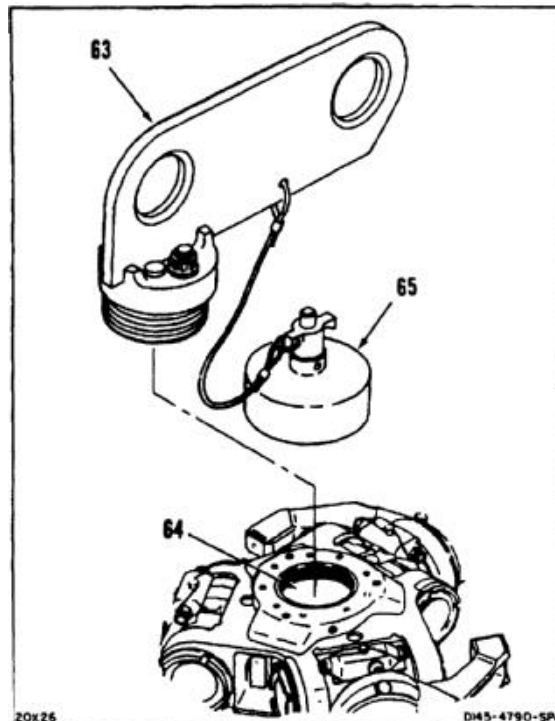


REMOVE SLING (T54) FROM AFT PYLON

51. Loosen cable (74) and remove hoist hook (73) from lifting eye (71).



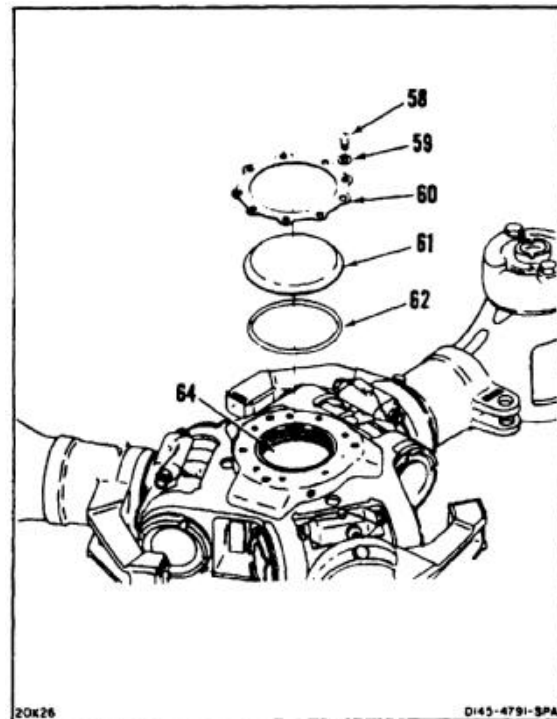
52. Remove hoisting eye (T32) (63) from aft rotor shaft (64).
53. Install cover (65) on hoisting eye (63).



2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued)

2-306

54. Position packing (62), cover (61), and retainer (60) in aft rotor shaft (64).
55. Install nine screws (58) and washers (59) in retainer (60).

***FOLLOW-ON MAINTENANCE:***

None

END OF TASK

2-1063

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Extension, 1/2 Inch Drive
 Aft Pylon Skid (T55)
 Aft Pylon Skid Outrigger (2) (T55.1)
 Aft Pylon Sling (T54)
 Hoist, Minimum Capacity 3,000 Pounds
 Container, 2 Quart
 Crowfoot Socket Wrench, 7/8 Inch
 Crowfoot Socket Wrench, 1-1/4 Inch
 Crowfoot Socket Wrench, 1-1/2 Inch
 Open End Wrench, 1-1/8 Inch
 Open End Wrench, 1-1/4 Inch
 Open End Wrench, 1-1/2 Inch
 Ratchet, 1/2 Inch Drive
 Rope Guide Lines (4)
 Socket, 9/16 Inch, 1/2 Inch Drive
 Universal Joint, 1/2 Inch Drive
 Workstands (Side Bridge, Engine And Aft Pylon)
 Workstand, Three Step

Materials:

Cloths (E135)
 Gloves (E186)
 Paper Tags (E264)
 Pencil (E271)

Parts:

Nuts BACN10B For Aft Pylon Skid (T55)
 Washers (VS15306-8) (As Required) for Aft Pylon
 Skid (T55)

Personnel Required:

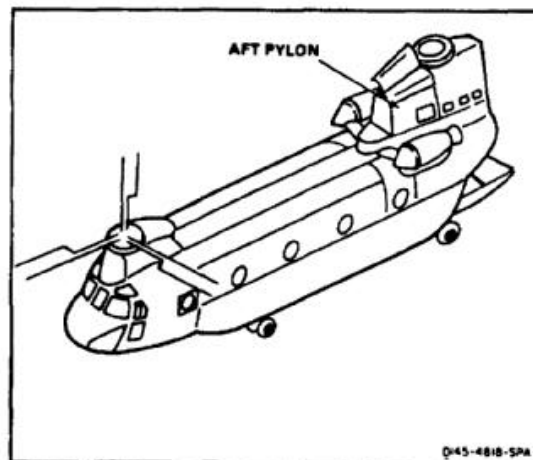
Medium Helicopter Repairer (5)
 Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off
 No. 1 and No. 2 Flight Control Hydraulic System
 Depressurized (TM 55-1520-240-T)

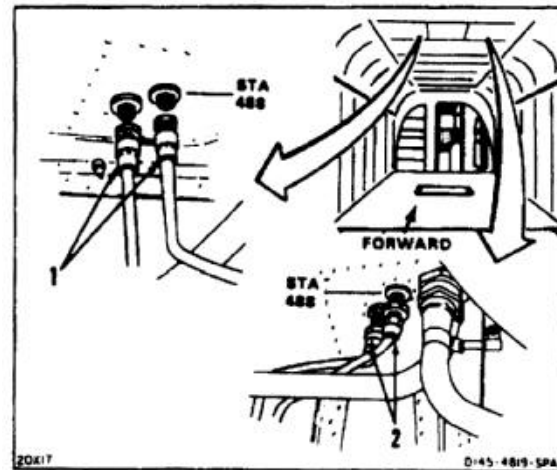
Utility Hydraulic System Depressurized (TM
 55-2520-240-T)

Leading Edge Hinged Fairing Removed (Task 2-279)
 Right Forward Crown Fairing Opened (Task 2-2)
 Rotary Wing Blades Removed (Task 5-64)
 Servocylinder Safety Blocks Installed (Task 11-28)
 Aft Rotary Wing Head Removed (Task 5-8)
 Aft Weather Protective Cover Removed (Task 5-136)
 Aft Swashplate Removed (Task 5-116)
 Drive Collar Removed (Task 5-100)
 Aft Shaft Removed (Task 6-57)
 No. 9 Drive Shaft Removed (Task 6-21)
 Aft Transmission Removed (Task 6-92)
 Pylon Lower Right Bellcrank Removed (Task 11-258)
 Pylon Left Upper Connecting Link Removed (Task
 11-252)
 Pylon Left Aft Fuselage Connecting Link
 Disconnected (Task 11-244)
 Fire Extinguishers (Bottles) Removed (Task 12-23
 or 12-24)
 Left and Right Pylon Access Panels Removed (Task
 2-2)
 Left and Right Aft Transmission Access Covers
 Removed (Task 2-2)
 Left and Right Access Covers Removed (Task 2-2)
 Left and Right Hydraulic Module Inspector Access
 Covers Removed (Task 2-2)
 Left and Right Work Platforms Opened (Task 2-2)
 Left Engine Transmission Oil Cooler Removed (Task
 6-214)

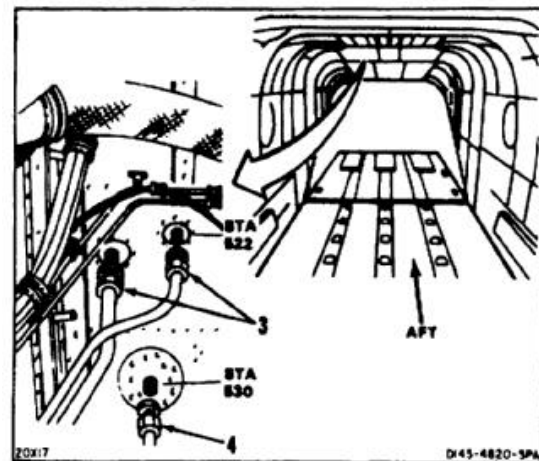


DISCONNECT HYDRAULIC TUBES AND DRAIN HOSE INSIDE AFT PYLON

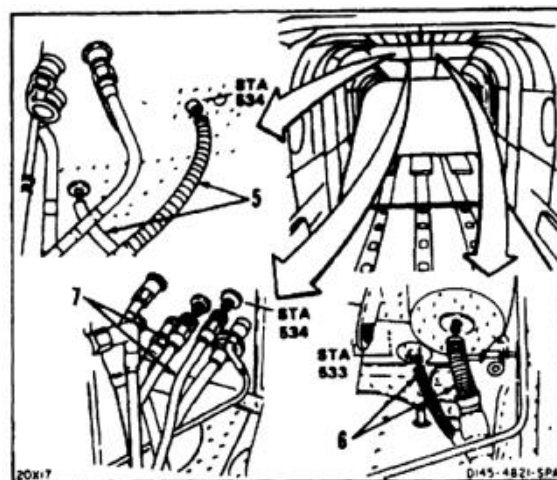
1. Tag and disconnect two hydraulic tubes (1) at sta. 488, left side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.
2. Tag and disconnect two hydraulic tubes (2) at sta. 488, right side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.



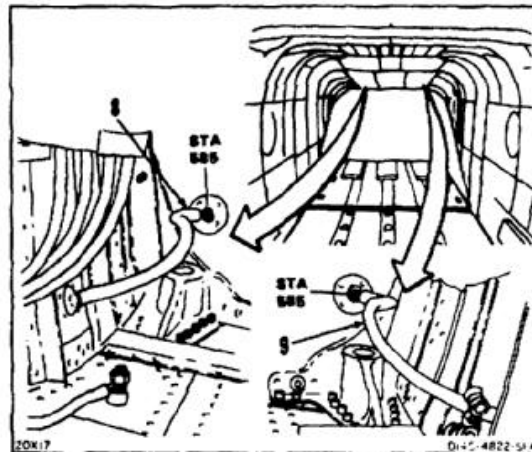
3. Tag and disconnect two hydraulic tubes (3) at sta. 522, right side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.
4. Tag and disconnect hydraulic tube (4) at sta. 530, right side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.



5. Tag and disconnect two drain hoses (5) at sta. 522, right side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.
6. Tag and disconnect two drain hoses (6) at sta. 533, left side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.
7. Tag and disconnect eight hydraulic tubes (7) at sta. 534. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.

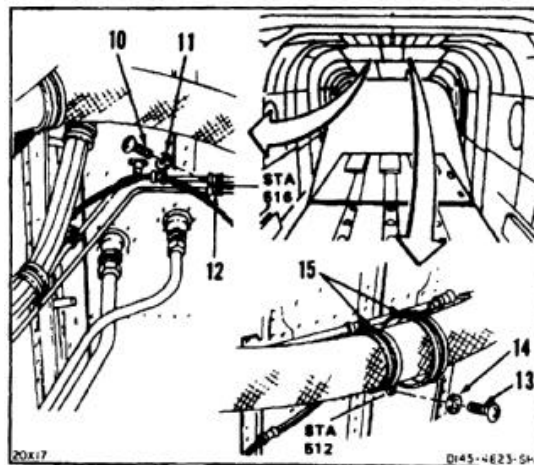


8. Tag and disconnect drain hose (8) at sta. 585, right side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.
9. Tag and disconnect drain hose (9) at sta. 585, left side. Use paper tags (E264). Use cloths (E135) and container for spilled fluid.

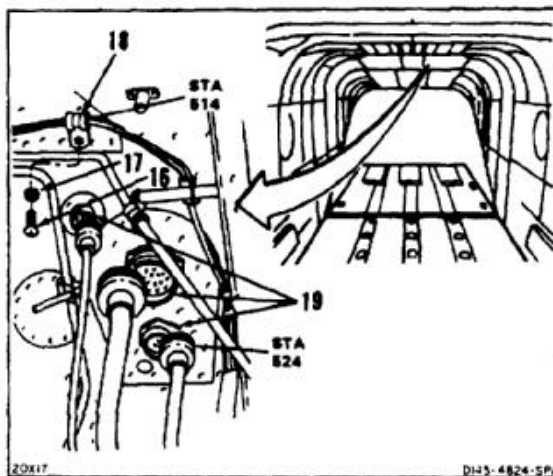


REMOVE CLAMPS AND DISCONNECT ELECTRICAL CONNECTORS INSIDE AFT PYLON

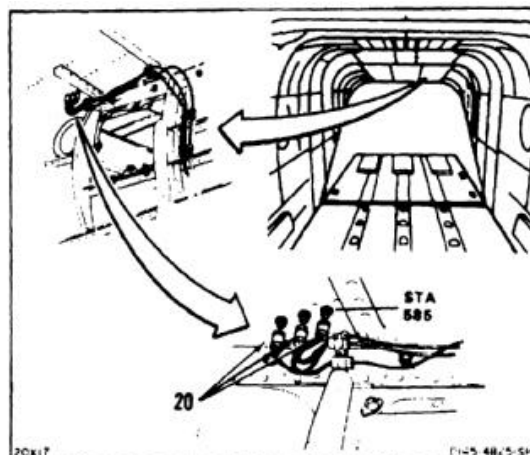
10. Remove four screws (10), washers (11), and clamps (12) at station 516.
11. Remove two screws (13), washers (14), and clamps (15) at sta. 512.



12. Remove screw (16), washer (17), and clamp (18) at sta. 514, left side.
13. Tag and disconnect three electrical connectors (19) at sta. 524, left side. Use paper tags (E264).

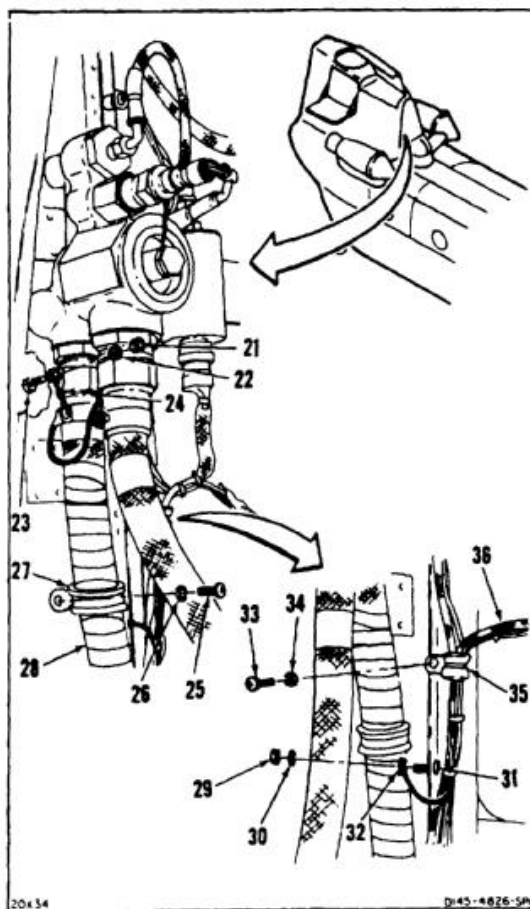


14. Tag and disconnect three electrical connectors (20) at sta. 585, left side. Use paper tags (E264).

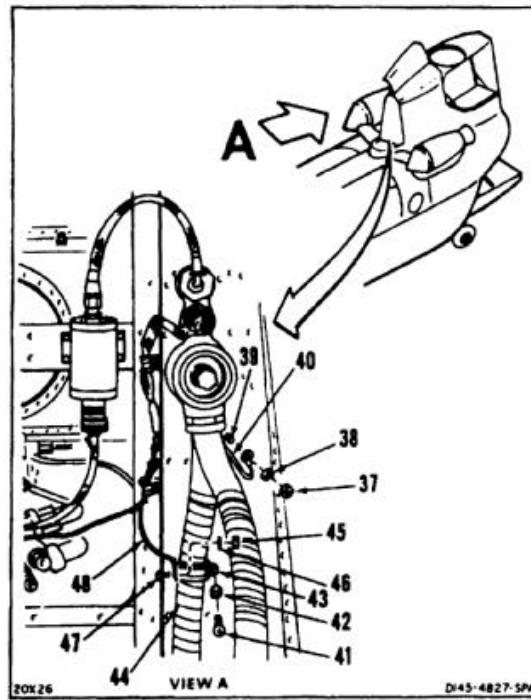


REMOVE CLAMPS AND DISCONNECT ELECTRICAL WIRES FORWARD OF AFT PYLON

15. Remove nut (21) and washer (22) from ground terminal (23). Tag and disconnect electrical wire (24) from terminal. Use paper tags (E264).
16. Remove screw (25), washer (26), and clamp (27) from engine oil hose (28).
17. Remove nut (29) and washer (30) from ground terminal (31). Tag and disconnect electrical wire (32) from terminal. Use paper tags (E264).
18. Remove six screws (33), washers (34), and clamps (35) from wire harness (36).

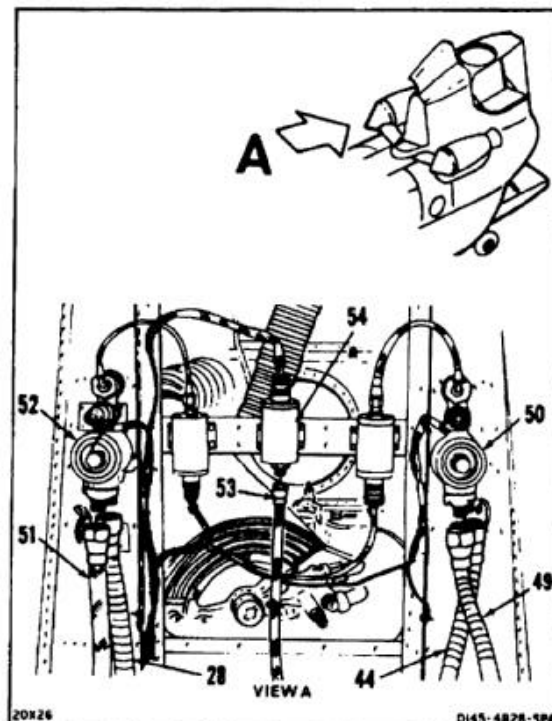


19. Remove nut (37) and washer (38) from ground terminal (39). Tag and disconnect electrical wire (40) from terminal. Use paper tags (E264).
20. Remove screw (41), washer (42), and clamp (43) from engine oil hose (44).
21. Remove nut (45) and washer (46) from ground terminal (47). Tag and disconnect electrical wire (48) from terminal. Use paper tags (E264).

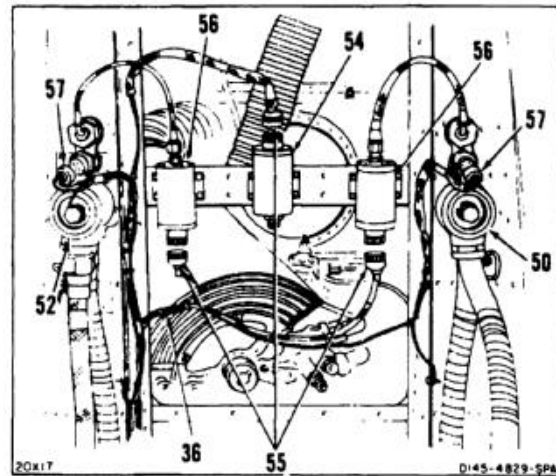


DISCONNECT OIL HOSES, ELECTRICAL CONNECTORS AND REMOVE WIRE HARNESS FORWARD OF AFT PYLON

22. Tag and disconnect combining transmission oil hose (49) and engine oil hose (44) from left strainer (50). Use paper tags (E264). Use cloths (E135) and container.
23. Tag and disconnect combining transmission oil hose (51) and engine oil hose (28) from right strainer (52). Use paper tags (E264). Use cloths (E135) and container.
24. Tag and disconnect combining transmission oil hose (53) from center transducer (54). Use paper tags (E264). Use cloths (E135) and container.



25. Tag and disconnect three electrical connectors (55) from transducers (54 and 56). Use paper tags (E264).
26. Tag and disconnect two electrical connectors (57) from left and right strainers (50 and 52). Use paper tags (E264).
27. Tag and remove wire harness (36). Use paper tags (E264).



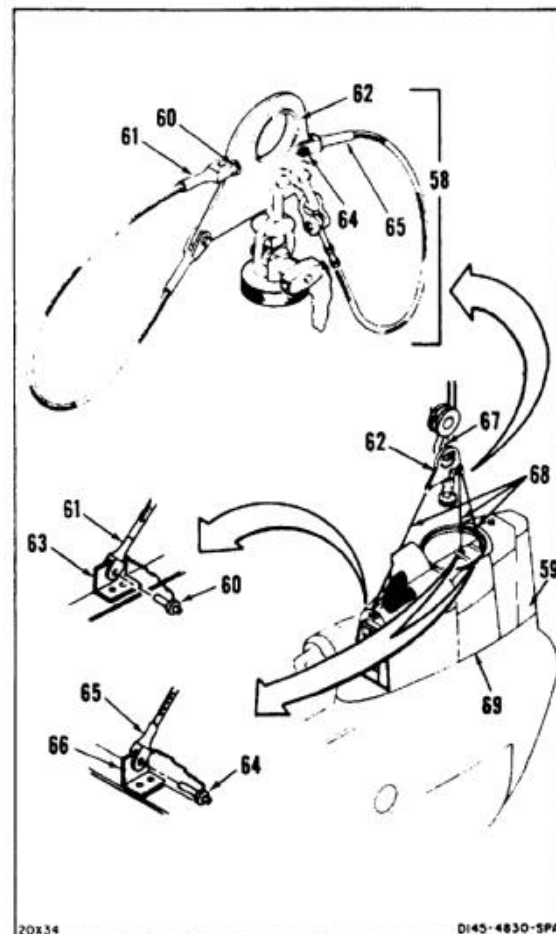
INSTALL SLING (T54) ON AFT PYLON

28. Position sling (T54) (58) over aft pylon (59).
29. Remove pin (60) from forward cable terminal (61) and lifting eye (62)
30. Position terminal (61) on forward pylon bracket (63) and install pin (60).
31. Remove pin (64) from two aft cable terminals (65) and lifting eye (62)
32. Position two terminals (65) on aft pylon brackets (66) and install pin (64).

CAUTION

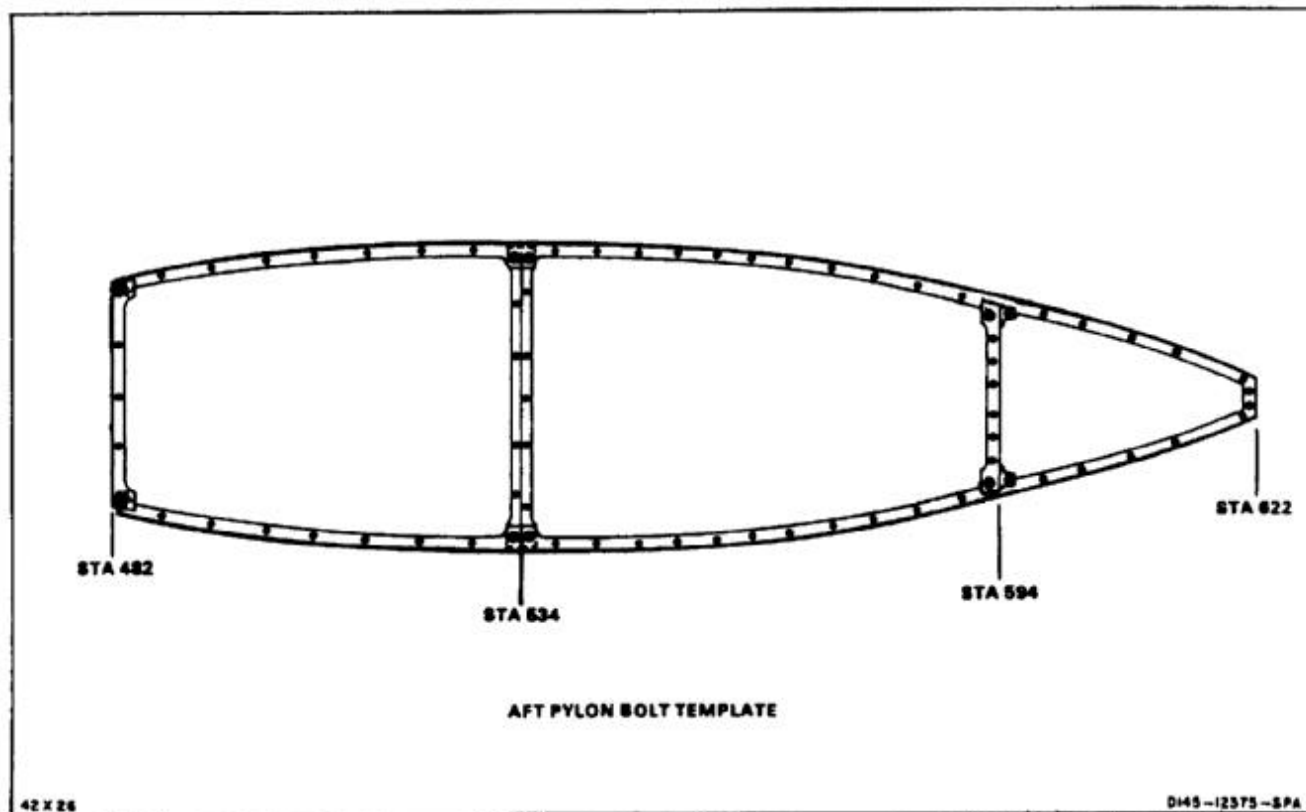
Do not put tension on pylon when removing slack from cables.

33. Install hoist hook (67) through lifting eye (62). Slowly remove slack from cables (68).
34. Cut fillet seal (69) from between pylon and attaching structure.



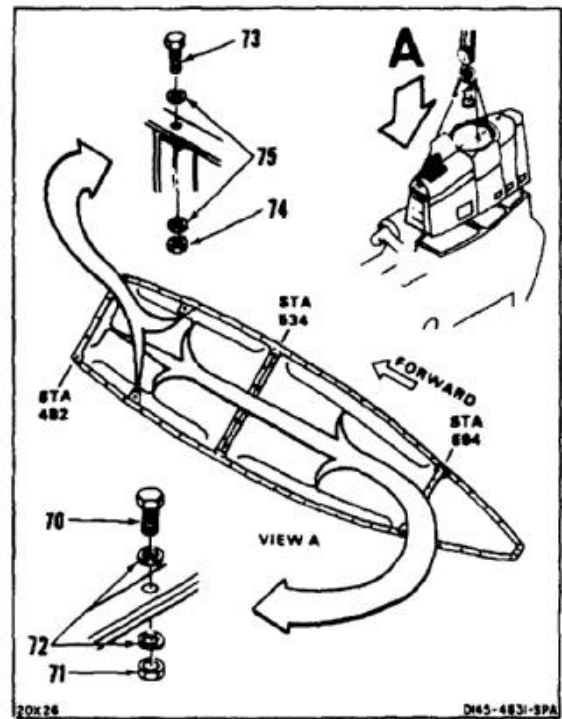
NOTE

Bolts attaching aft pylon differ in length at different locations. A cardboard template can be helpful for replacing bolts in correct locations. Pattern for aft pylon bolt template is shown below.

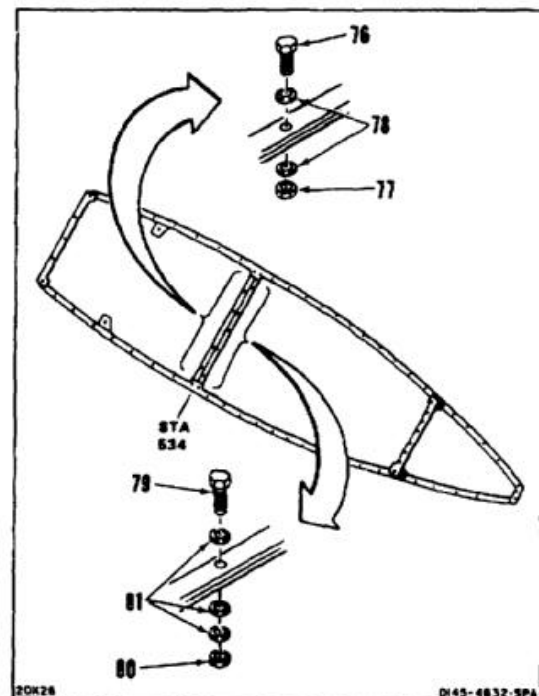


REMOVE MOUNTING BOLTS INSIDE AFT PYLON

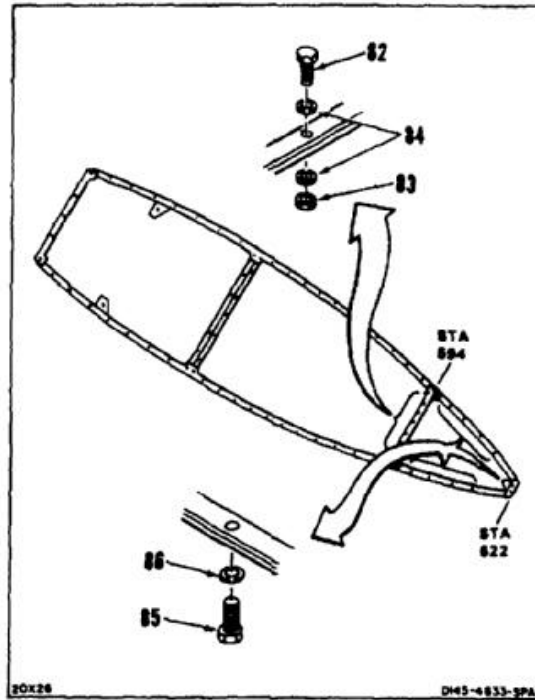
35. Mark location and remove 39 bolts (70), nuts (71) and 78 washers (72). Use pencil (E271).
36. Mark location and remove 12 bolts (73), nuts (74), and 24 washers (75) (if installed). Use pencil (E271).



37. Mark location and remove four bolts (76), nuts (77), and eight washers (78). Use pencil (E271).
38. Mark location and remove 5 bolts (79), nuts (80), and 15 washers (81). Use pencil (E271).

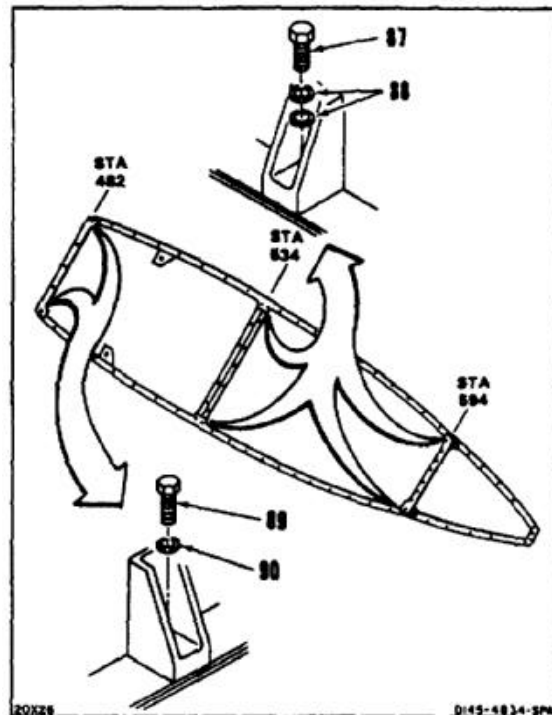


- 39. Mark location and remove 6 bolts (82), nuts (83), and 12 washers (84). Use pencil (E271).
- 40. Mark location and remove 12 bolts (85), heads down, and washers (86). Use pencil (E271).



- 41. Mark location and remove 8 bolts (87) and 16 washers (88). Use pencil (E271).
- 42. Mark location and remove two bolts (89) and washers (90). Use pencil (E271).

INSPECT



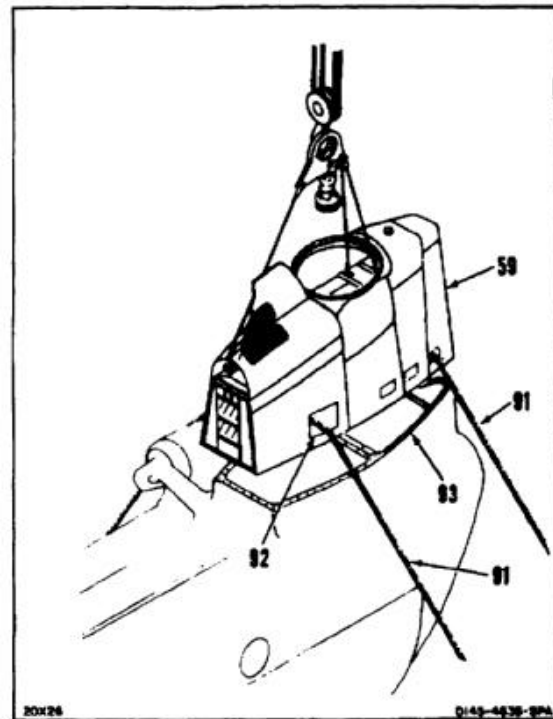
REMOVE AFT PYLON

43. With aid of helpers, attach four guide lines (91) through access cover holes (92) in pylon (59). Use gloves (E186).

WARNING

Pylon is heavy and can injure personnel if it swings or drops. Pylon must be supported by hoist, controlled by guidelines, and moved carefully to prevent injury to personnel or damage to equipment.

44. With aid of helpers, hold guide lines (91) to control pylon (59). Slowly raise pylon just enough to break seal (93). Use gloves (E186).

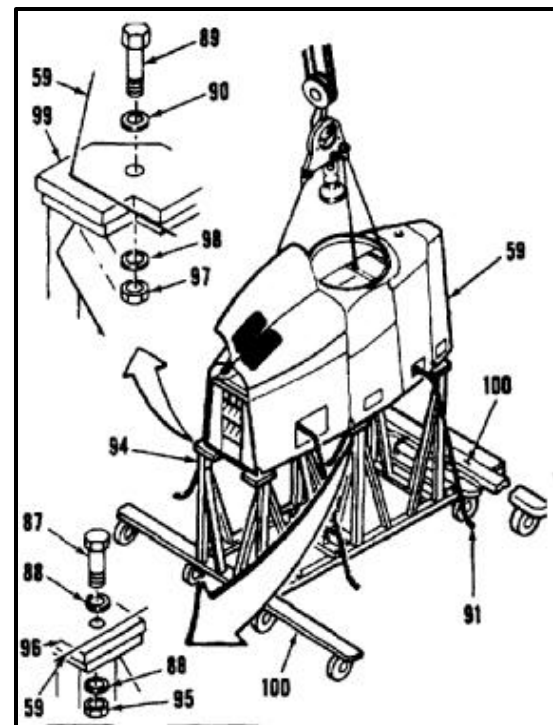
INSPECT**WARNING**

Install outrigger assemblies (T55.1) (100) to base of skid (T55) (94) for stability. Injury to personnel or damage to pylon may result from skid toppling with pylon installed.

45. Position pylon (59) over skid (T55) (94). Make sure components on bottom of pylon will clear skid.

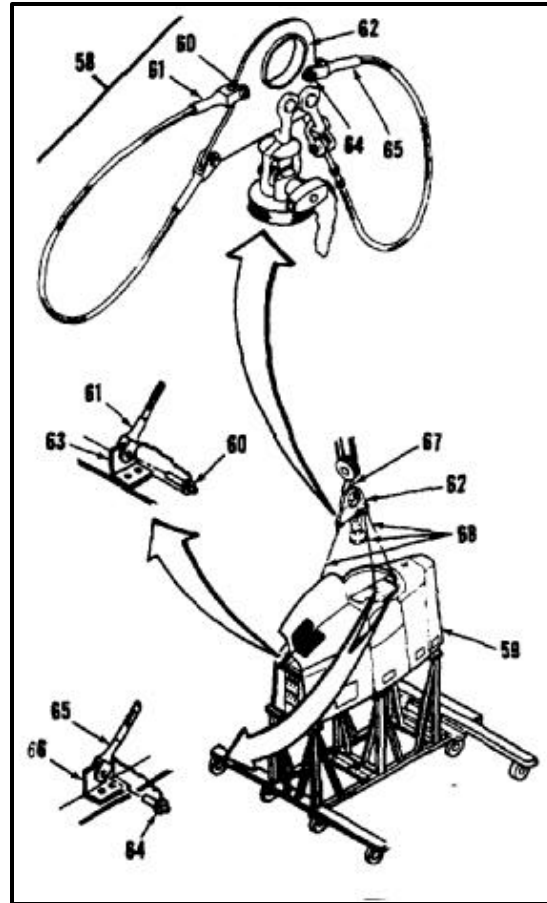
INSPECT

46. Position pylon (59) on skid (T55) (94).
47. Install 8 bolts (87), nuts (95), and 16 washers (88) through pylon (59) and skid mounting brackets (96).
48. Install two bolts (89), nuts (97), washers (90) and washers (VS15306-8) (98) through pylon (59) and skid mounting brackets (99).
49. With aid of helpers, remove guide lines (91). Use gloves (E186).



REMOVE SLING (T54) FROM AFT PYLON

50. Loosen cables (68) and remove hoist hook (67) from lifting eye (62).
51. Remove two pins (64) from aft cable terminals (65) and aft pylon brackets (66).
52. Position two terminals (65) on lifting eye (62) and install pin (64).
53. Remove pin (60) from forward cable terminal (61) and forward pylon bracket (63).
54. Position terminal (61) on lifting eye (62) and install pin (60).
55. Remove sling (T54) (58).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-1074

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
 Extension, 1/2 Inch Drive
 Hoisting Eye (T32)
 Hoist, Minimum Capacity 4000 Pounds
 Container, 2 Quart
 Crowfoot Socket Wrench, 7/8 Inch
 Crowfoot Socket Wrench, 1-1/4 Inch
 Crowfoot Socket Wrench, 1-1/2 Inch
 Open-End Wrench, 1-1/8 Inch
 Open-End Wrench, 1-1/4 Inch
 Open-End Wrench, 1-1/2 Inch
 Torque Wrench
 Sling (T54)
 Ratchet, 1/2 Inch Drive
 Rope Guide Lines (4)
 Socket, 9/16 Inch, 1/2 Inch Drive
 Universal Joint, 1/2 Inch Drive

Workstands (Side Bridge, Engine, and Aft Pylon)
 Workstand, Three Step
 Skid, Aft Pylon (T55)

Materials:

Cloths (E135)
 Gloves (E186)
 Parting Agent (E307)
 Sealant (E336 or E470)
 Goggles (E473)

Parts:

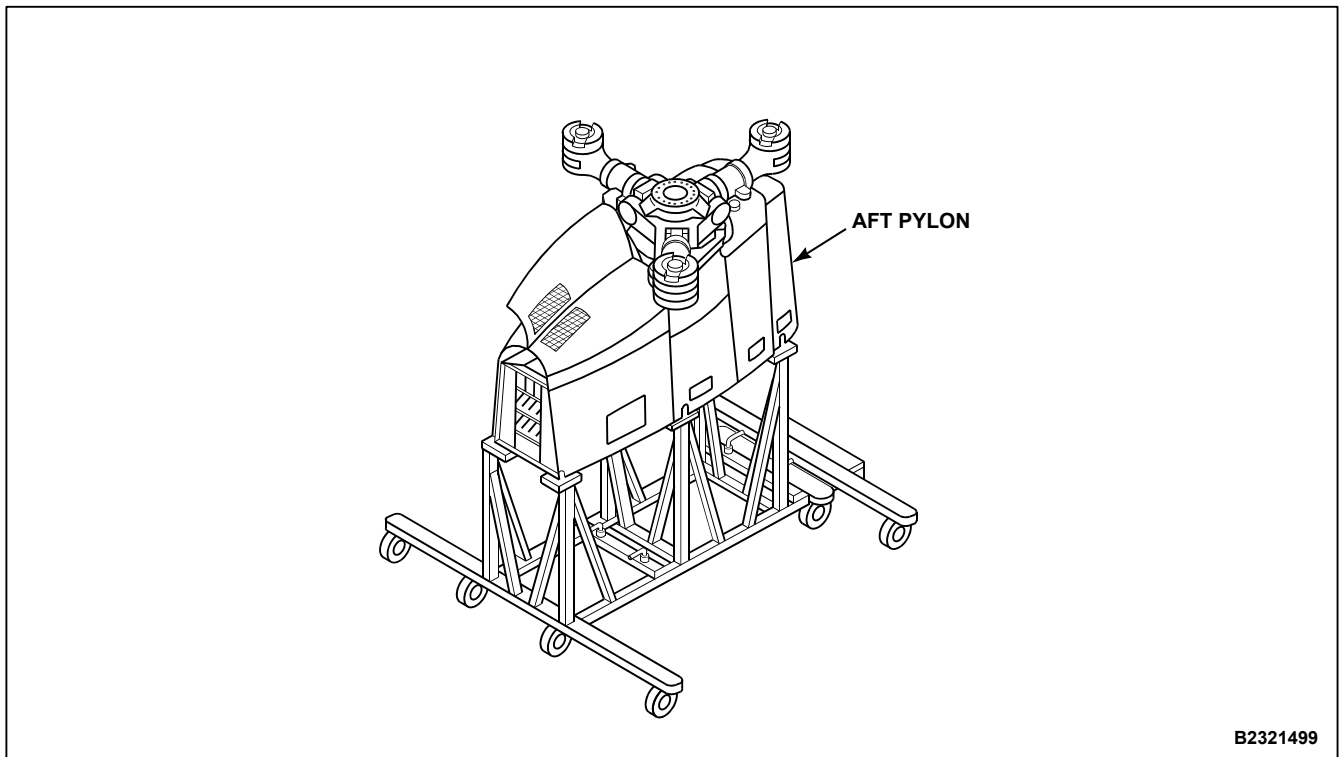
Washers (VS15306-8) (As Required)

Personnel Required:

CH-47 Helicopter Repairer (5)
 Inspector

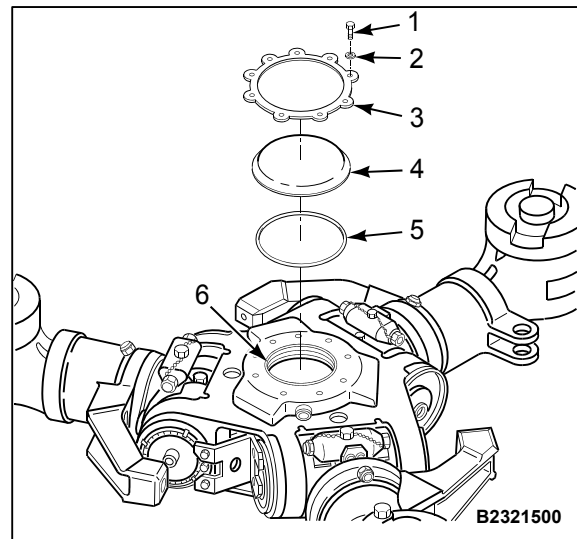
References:

TM 55-1520-240-23P
 Task 2-324

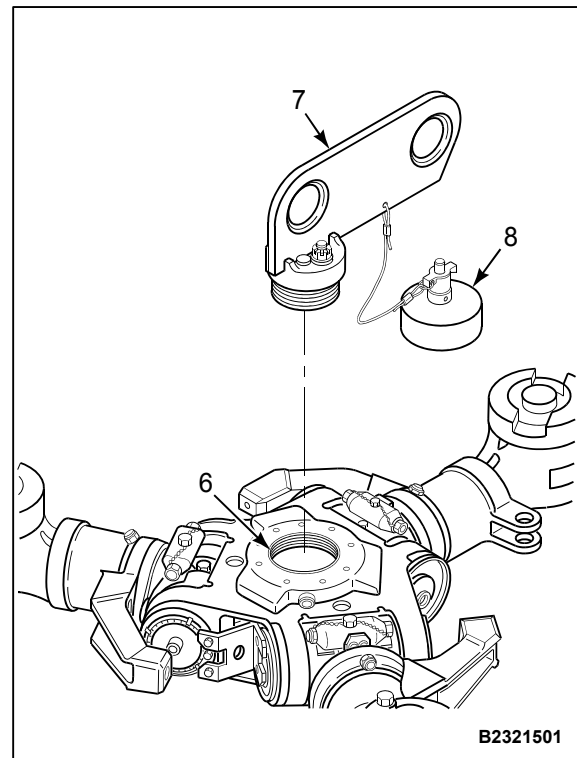


INSTALL SLING (T54) ON AFT PYLON

1. Remove nine screws (1) and washers (2) from retainer (3).
2. Remove retainer (3), cover (4), and packing (5) from aft rotor shaft (6).



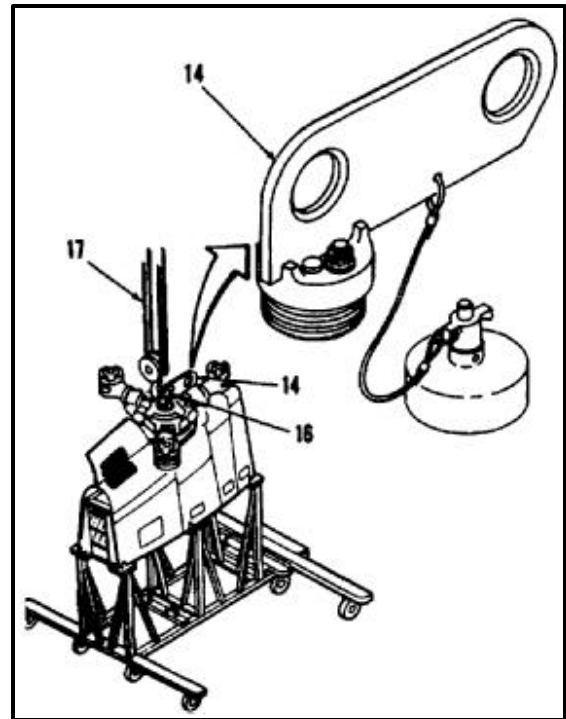
3. Position hoisting eye (T32) (7) over aft shaft (6).
4. Remove cover (8) from hoisting eye (7).
5. Install hoisting eye (7) in aft rotor shaft (6).



CAUTION

Do not put tension on pylon when removing slack from cable.

6. Install hoist hook (16) through lifting eye (14). Slowly remove slack from cable (17).



INSTALL AFT PYLON ON HELICOPTER

7. Remove two bolts (18), nuts (19), and four washers (20) from pylon (21) and skid mounting brackets (22).
8. Remove eight bolts (23), nuts (24), and 16 washers (25) from pylon (21) and skid mounting brackets (26).
9. With aid of helpers, attach four guide lines (27) through access holes (28) in pylon (21). Hold lines to control pylon. Use gloves (E186).

WARNING

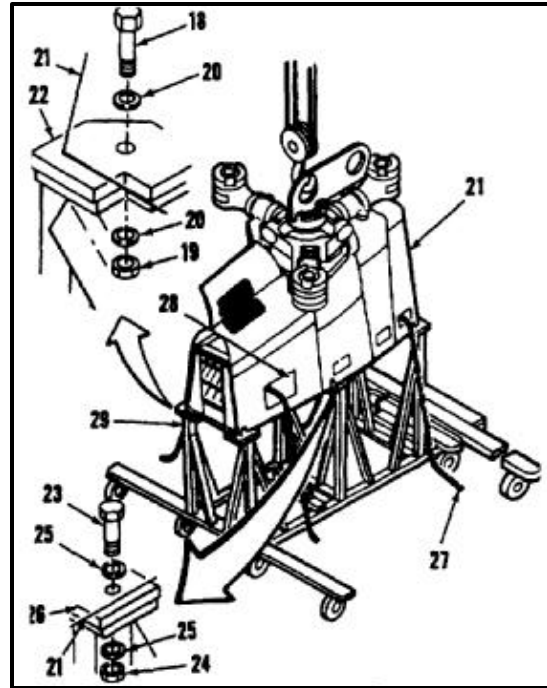
Pylon is heavy and can injure personnel if it swings or drops. Pylon must be supported by hoist, controlled by guide lines, and moved carefully to prevent injury to personnel or damage to equipment.

10. Make sure components on bottom of pylon (21) clear skid (T55) (29). Slowly raise pylon.

INSPECT**NOTE**

Pylon must be installed while the sealant is uncured and workable.

11. Mask outer surface of pylon where fillet seal will be applied before applying parting agent. Apply parting agent (E307) to perimeter of mating surface of pylon assembly (21).



WARNING

Sealant (E336 or E470) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- 12. Apply a thin film of sealant (E336 or E470) to perimeter mating surface of aft fuselage. Omit sealant in area of main attach fittings and for **1/2 inch** beyond fitting in each direction. Sealant can be extruded lengthwise in a **1/4 inch** diameter bead and spread over the surface with a large tongue depressor or similar nonmetallic tool. Pylon must be installed while the sealant is uncured and extrudable.
- 13. Make sure nut threads are serviceable and free of sealant.

INSPECT

- 14. With aid of helpers, hold guide lines (27) to control pylon (21). Position pylon on helicopter (23).

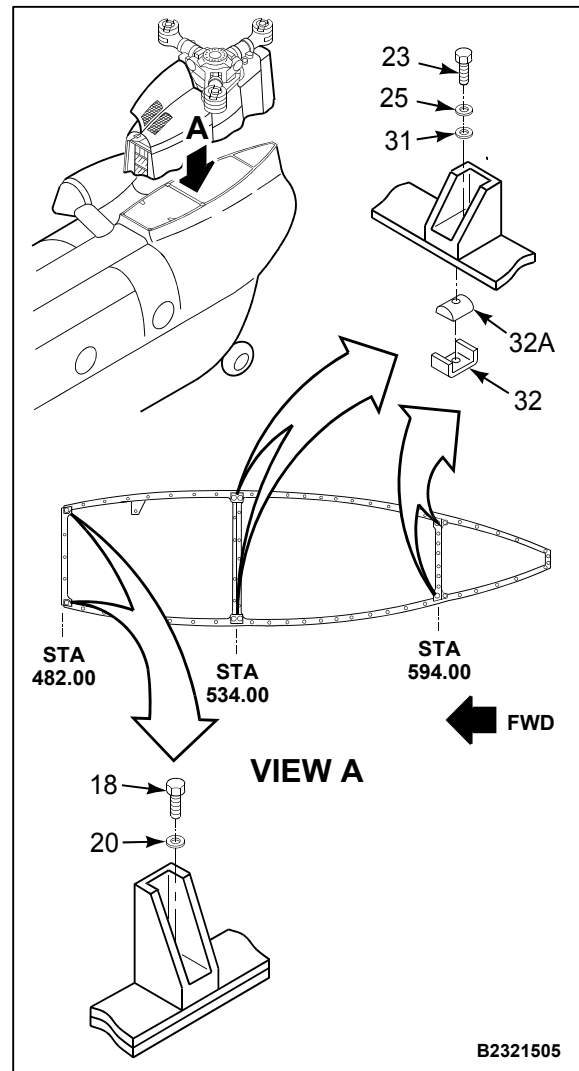
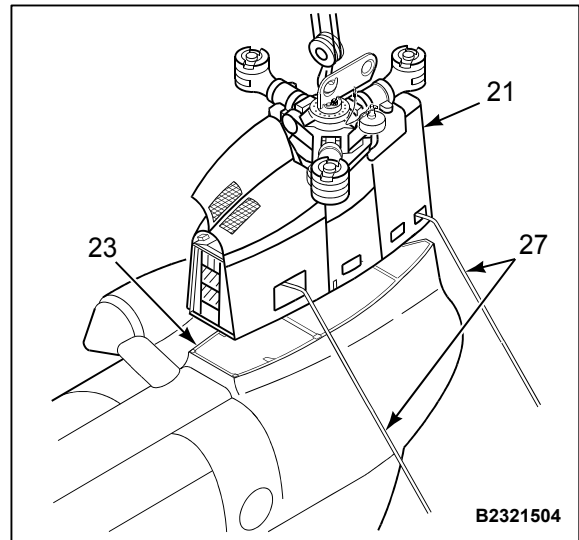
INSTALL MOUNTING BOLTS AND SEAL PYLON

- 15. Install two bolts (18) and washers (20). Torque bolts to **1070 pound-inches**.

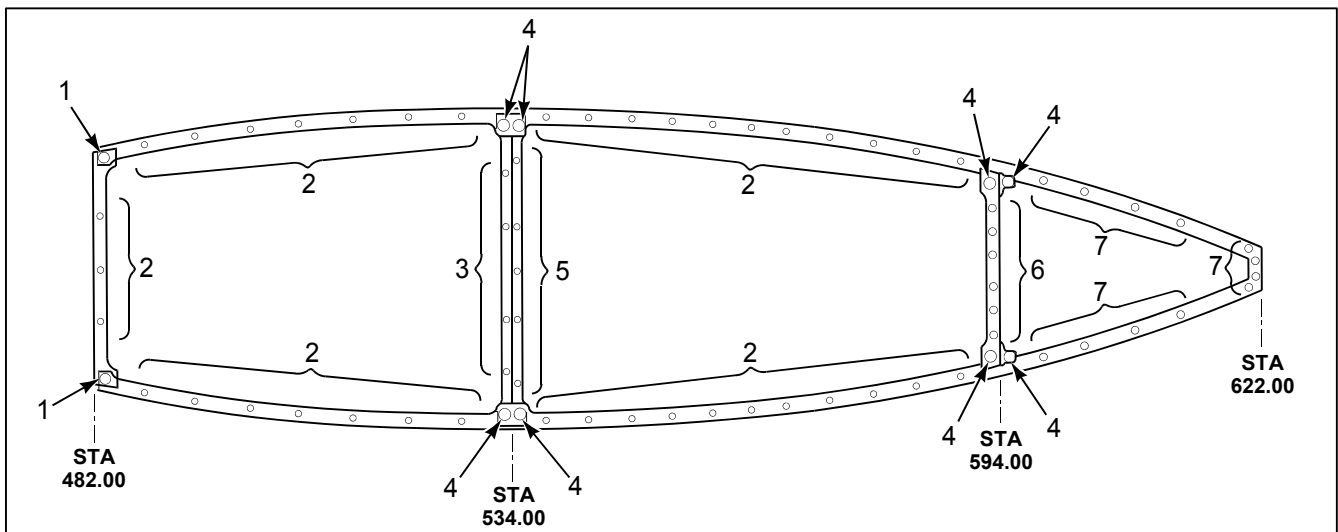
NOTE

Up to two washers (VS15306-8) may be used under washer (MS20002C8) at STA 534.00 and 594.00 to prevent bolt from hitting barrel nut retainer.

- 16. Install eight bolts (23), washers (MS200002C8) (25), and washers (VS15306-8) (31) through pylon and secure to barrel nut (32A). If you have barrel nut retainers (32) that do not have an opening at the bottom make sure bolts (23) are not hitting barrel nut retainer (32). If bolts (23) are hitting barrel nut retainer (32), add washers (VS15306-8) (31) as required. If barrel nut retainers (32) have an opening at the bottom protrusion of bolt (23) is allowed. Torque bolts to **1070 inch-pounds**.



INDEX	ITEM AND QUANTITY	PART NUMBER	REMARKS
1	Bolt (2 ea) Washer (2 ea) Nut (2 ea) Retainer (2 ea)	NAS628-26 MS20002C8 2752-080 294055 Ret	
2	Bolt (39 ea) Washer (39 ea) Washer (39 ea) Nut (39 ea)	AN4-6A AN960D416L AN960D416 MS21045-4	1 under head 1 under nut
3	Bolt (4 ea) Washer (8 ea) Nut (4 ea)	AN4-6A AN960D416 MS21044N4	1 under head and 1 under nut
4	Bolt (8 ea) Washer Nut (8 ea) Retainer (8 ea)	NAS628-28 MS20002C8 2752-080 294055	At STA 534.00 and STA 594.00 add washer VS15306-8 (2 max) under washer MS20002C8, as required to prevent bolt interfering with barrel nut retainer
5	Bolt (8 ea) Washer (15 ea) Nut (5 ea)	AN4-6A AN980D416 MS21045-4	1 under head and 2 under nut
6	Bolt (6 ea) Washer (6 ea) Washer (6 ea) Nut (6 ea)	AN4-5A AN960D416L AN960D416 MS21045-4	1 under head 1 under nut
7	Bolt (12 ea) Washer (12 ea)	AN4-5A AN960D416	Bolts are installed with heads pointing down into nutplates MS21059L4



AFT PYLON ATTACHING HARDWARE

NOTES:

1. BOLT GRIP LENGTH (LONGER OR SHORTER) MAY BE ADJUSTED BY ONE SIZE TO MEET REQUIREMENTS.
2. A TOTAL OF THREE WASHERS MAY BE USED FOR EACH BOLT-NUT COMBINATION. TWO FOR GRIP AND ONE FOR SURFACE PROTECTION.

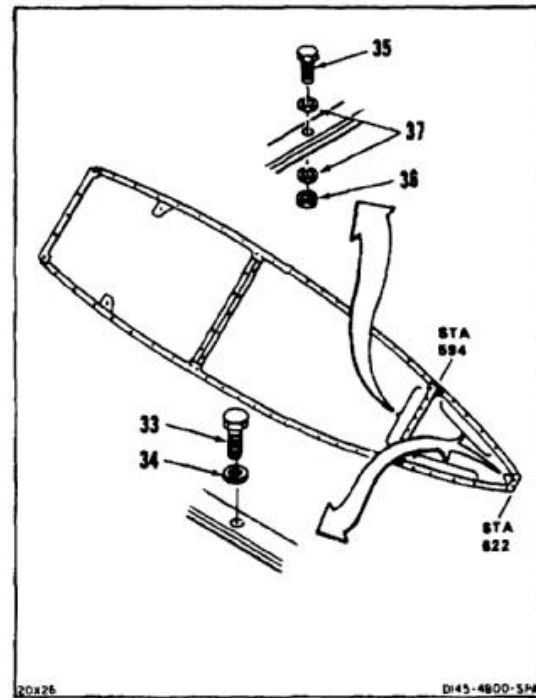
B2321506

17. Install 12 bolts (33), heads up, and washers (34).

NOTE

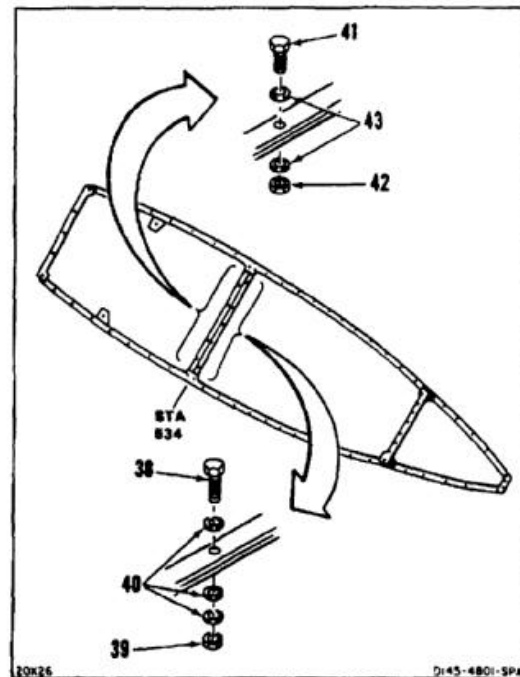
Up to three washers may be used for each bolt and nut combination, one washer under head and two under nut.

18. Install six bolts (35), nuts (36), and 12 washers (37).

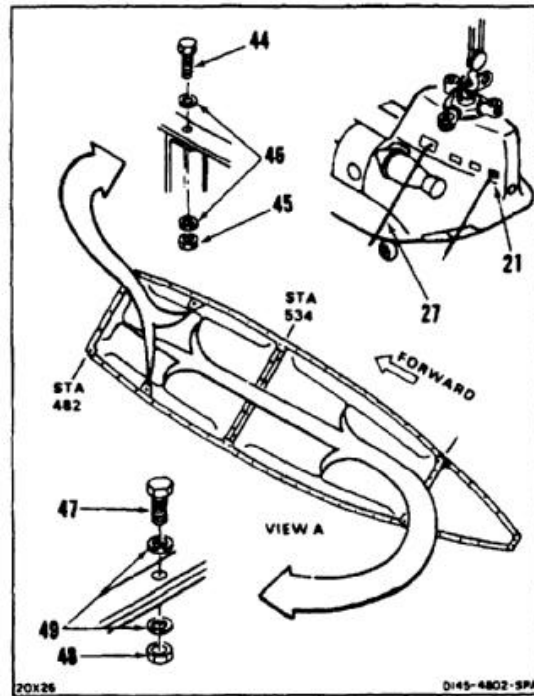


19. Install five bolts (38), nuts (39), and 15 washers (40).

20. Install four bolts (41), nuts (42), and eight washers (43).

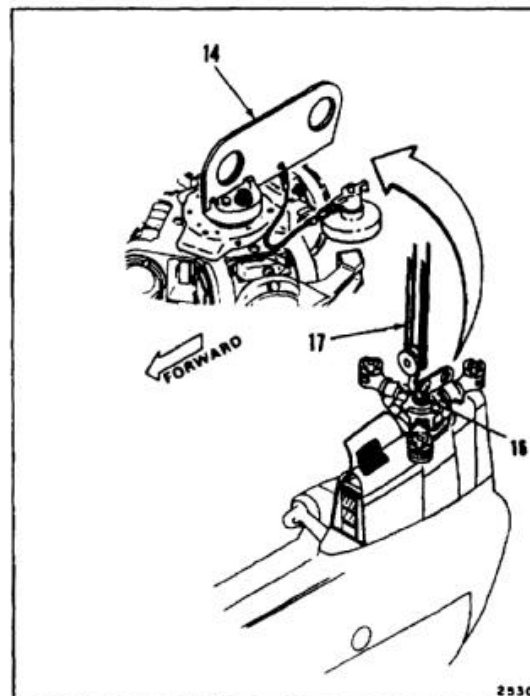


21. Install 12 bolts (44), nuts (45), and 24 washers (46) (if removed).
22. Install 39 bolts (47), nuts (48), and 78 washers (49).
23. With aid of helpers, remove four guide lines (27) from pylon (21).
- 23.1. Retorque all fasteners after sealant cures.
24. Seal around base of pylon (21) (Task 2-324).

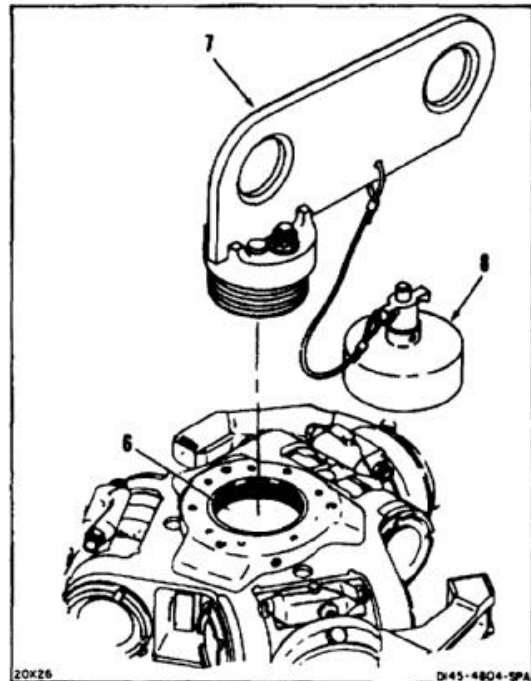


REMOVE SLING FROM AFT PYLON

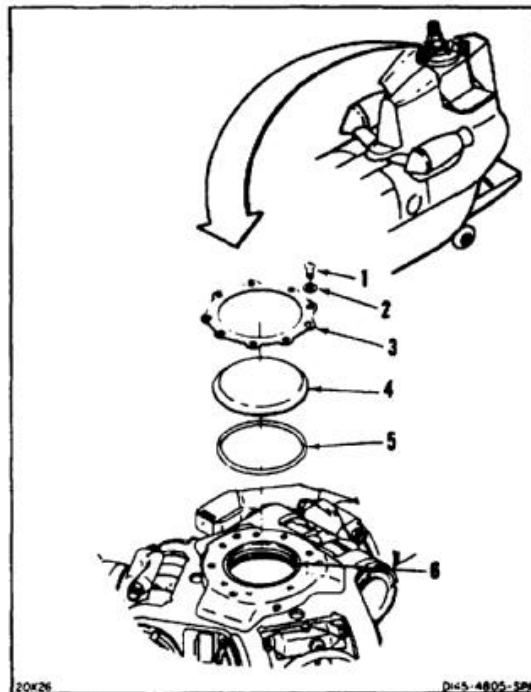
25. Loosen cable (17) and remove hoist hook (16) from hoisting eye (14).



- 26. Remove hoisting eye (7) from aft rotor shaft (6).
- 27. Install cover (8) on hoisting eye (7).

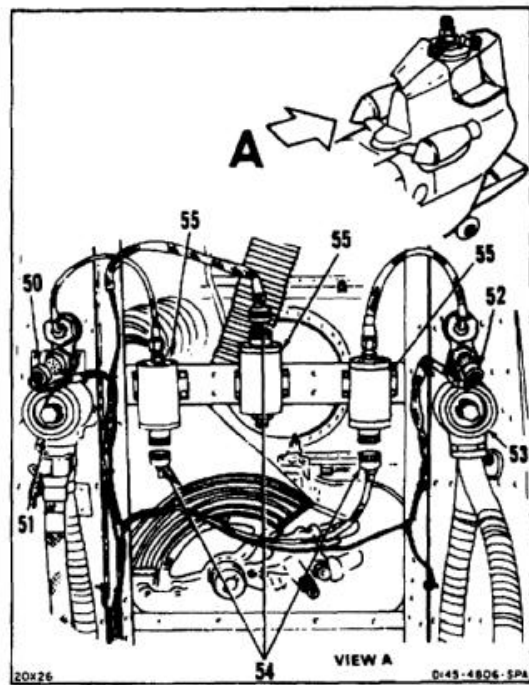


- 28. Position packing (5), cover (4), and retainer (3) on aft rotor shaft (6).
- 29. Install nine screws (1) and washers (2) in retainer (3).

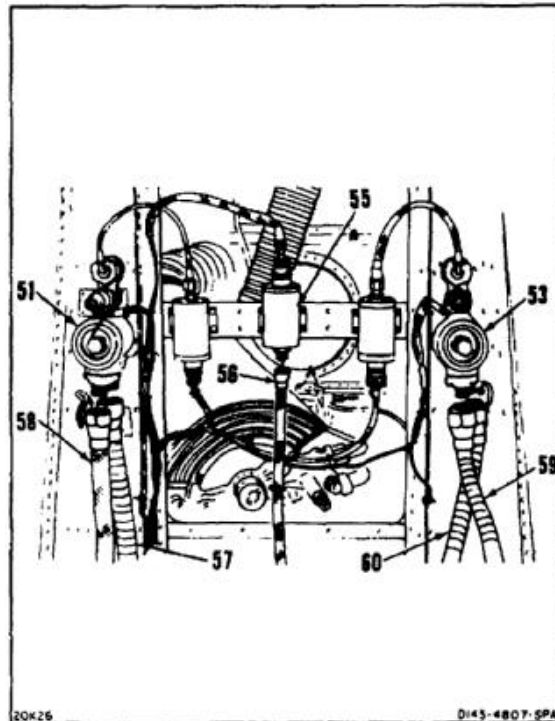


INSTALL WIRE HARNESS AND CONNECT ELECTRICAL CONNECTORS AND OIL HOSES FORWARD OF AFT PYLON

30. Remove tag and connect electrical connector (50) to right strainer (51).
31. Remove tag and connect electrical connector (52) to left strainer (53).
32. Remove tags and connect three electrical connectors (54) to transducers (55).

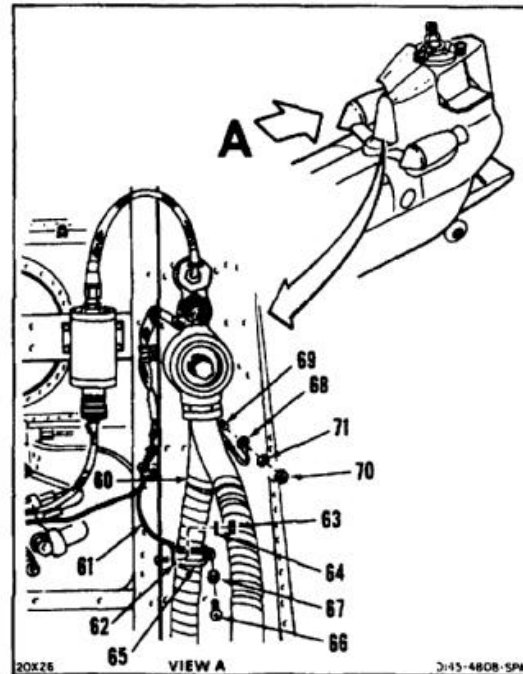


33. Remove tag and connect combining transmission oil hose (56) to center transducer (55). Use cloths (E135) and container for spilled oil.
34. Remove tags and connect combining transmission oil hose (57) and engine oil hose (58) to right strainer (51). Use cloths (E135) and container for spilled oil.
35. Remove tags and connect combining transmission oil hose (59) and engine oil hose (60) to left strainer (53). Use cloths (E135) and container for spilled oil.

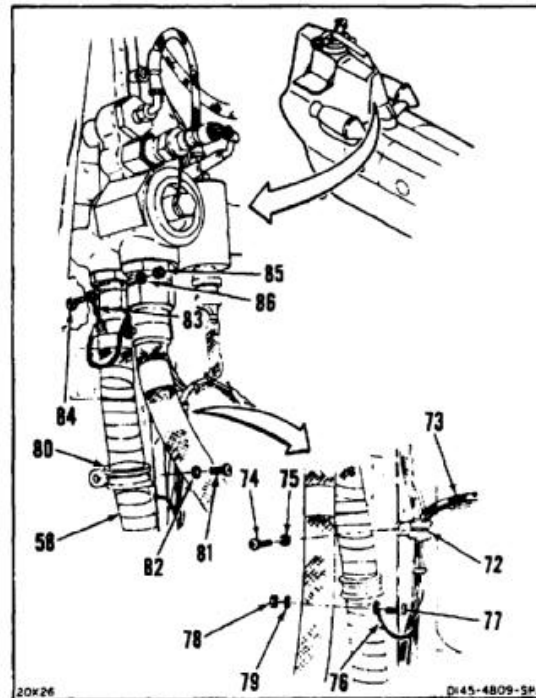


CONNECT ELECTRICAL WIRES AND INSTALL CLAMPS FORWARD OF PYLON

36. Remove tag and position electrical wire (61) on terminal (62). Install nut (63) and washer (64) on terminal.
37. Position clamp (65) on engine oil hose (60). Install screw (66) and washer (67).
38. Remove tag and position electrical wire (68) on terminal (69). Install nut (70) and washer (71) on terminal.

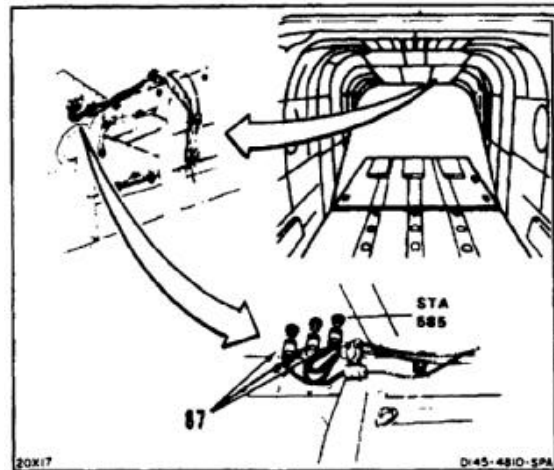


39. Position six clamps (72) on wire harness (73). Remove tag and position wire harness. Install six screws (74) and washers (75).
40. Remove tag and position electrical wire (76) on terminal (77). Install nut (78) and washer (79) on terminal.
41. Position clamp (80) on engine oil hose (58). Install screw (81) and washer (82).
42. Remove tag and position electrical wire (83) on terminal (84). Install nut (85) and washer (86) on terminal.

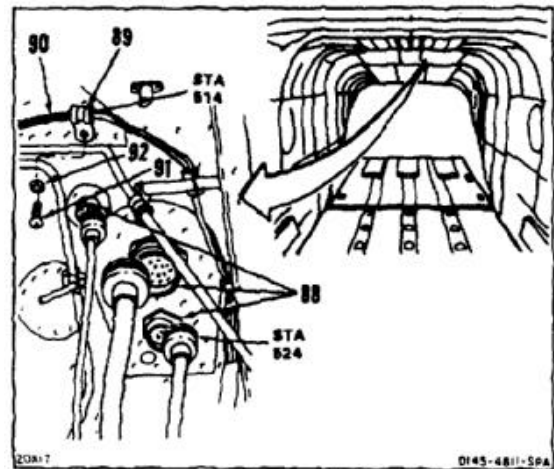


**CONNECT ELECTRICAL CONNECTORS AND
INSTALL CLAMPS INSIDE AFT PYLON**

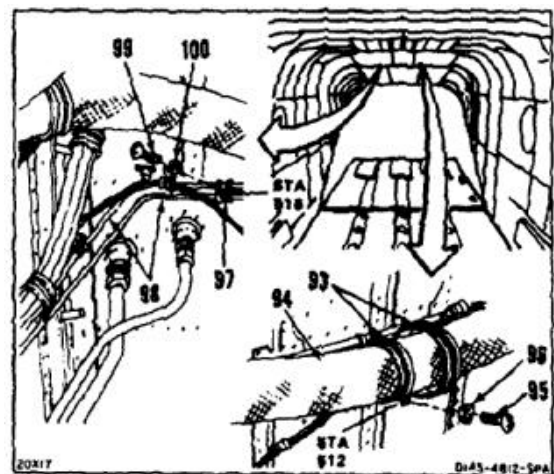
43. Remove tags and connect three electrical connectors (87) at sta. 585, left side.



44. Remove tags and connect three electrical connectors (88) at sta. 524, left side.
45. Position clamp (89) on wire harness (90) at sta. 514, left side. Install screw (91) and washer (92).

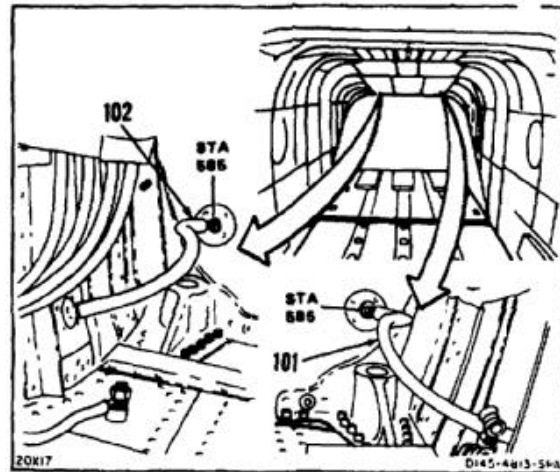


46. Position two clamps (93) on fuel line (94) at sta. 512, left side. Install two screws (95) and washers (96).
47. Position four clamps (97) on two No. 2 boost pressure tubes (98) at sta. 516, right side. Install four screws (99) and washers (100).

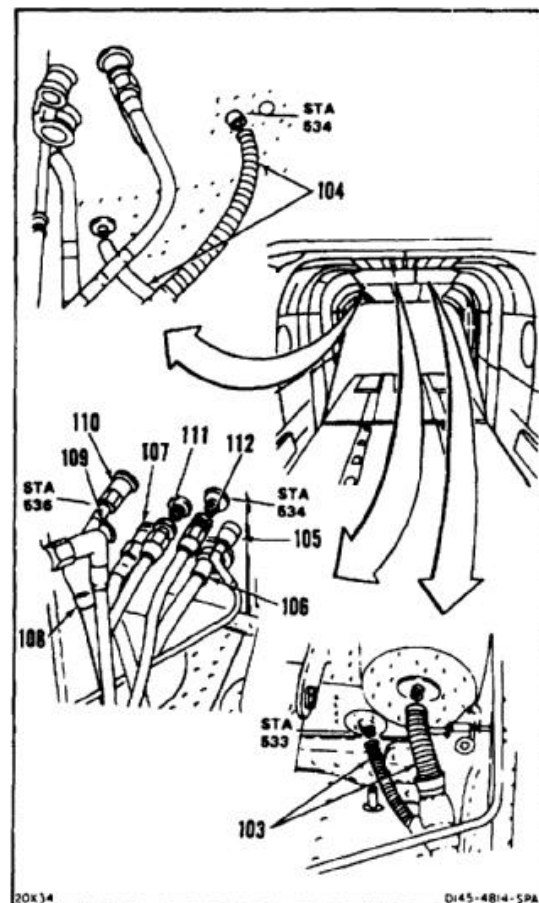


**CONNECT DRAIN HOSES AND HYDRAULIC TUBES
INSIDE AFT PYLON**

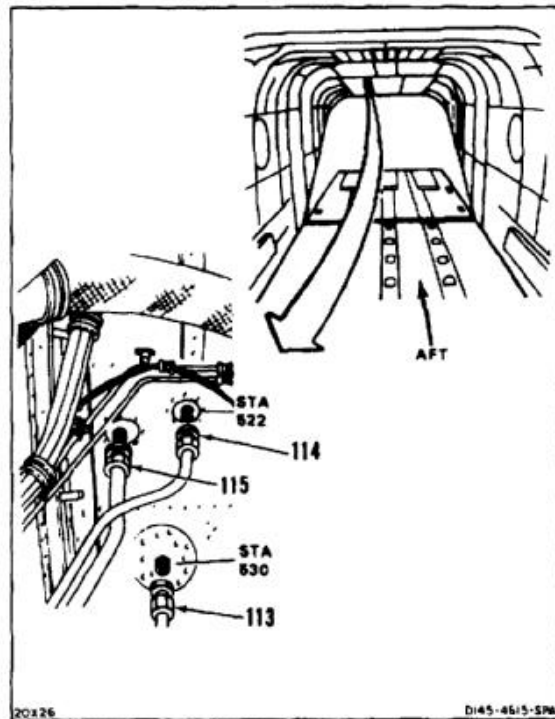
48. Remove tag and connect drain hose (101) at sta. 585, left side. Use cloths (E135) for spilled fluid.
49. Remove tag and connect drain hose (102) at sta. 585, right side. Use cloths (E135) for spilled fluid.



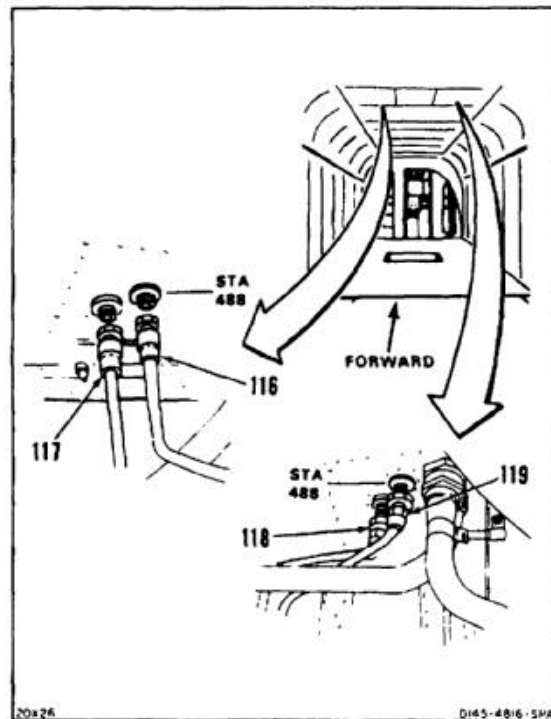
50. Remove tags and connect two drain hoses (103) at sta. 533, left side. Use cloths (E135) for spilled fluid.
51. Remove tags and connect two drain hoses (104) at sta. 534, right side. Use cloths (E135) for spilled fluid.
52. Remove tags and connect No. 2 suction tube (105) and utility pressure tube (106) at sta. 534. Use cloths (E135) and container for spilled fluid.
53. Remove tags and connect No. 2 boost pressure tube (107) and utility suction tube (108) at sta. 536. Use cloths (E135) and container for spilled fluid.
54. Remove tags and connect utility return tube (109) and PTU return tube (110) at sta. 534. Use cloths (E135) and container for spilled fluid.
55. Remove tags and connect No. 2 pump case drain (111) and utility pressure tube (112) at sta. 534. Use cloths (E135) and container for spilled fluid.



- 56. Remove tag and connect No. 2 boost pressure tube (113) at sta. 530, right side. Use cloth (E135) and container for spilled fluid.
- 57. Remove tags and connect No. 2 boost pressure tube (114) and No. 2 boost return tube (115) at sta. 522, right side. Use cloth (E135) and container for spilled fluid.



- 58. Remove tags and connect No. 2 boost pressure tube (116) and No. 2 boost return tube (117) at sta. 488, right side. Use cloths (E135) and container for spilled fluid.
- 59. Remove tags and connect No. 1 boost pressure tube (118) and No. 1 boost return tube (119) at sta. 488, left side. Use cloth (E135) and container for spilled fluid.



FOLLOW-ON MAINTENANCE:

Install fire extinguishers (bottles) (Task 12-33).
Connect pylon left aft fuselage connecting link (Task 11-253).
Install pylon left upper connecting link (Task 11-261).
Install pylon, lower right bellcrank (Task 11-259).
Install aft transmission (Task 6-97).
Install rotary-wing blades (Task 5-84).
Remove servocylinder safety blocks (Task 11-29).
Service utility hydraulic system (Task 1-62).
Service No. 1 and No. 2 flight control hydraulic systems (Tasks 1-61 and 1-62).
Perform rotary-wing system phasing (Task 6-28).
Install No. 9 drive shaft (Task 6-29).

Perform functional test of flight controls (TM 55-1520-240-T).
Close left and right side work platforms (Task 2-2).
Install left and right side hydraulic module inspection access covers (Task 2-2).
Install left and right side access covers (Task 2-2).
Install left and right side aft transmission access covers (Task 2-2).
Install left and right pylon removal access panels (Task 2-2).
Close right forward crown fairing (Task 2-2).
Install leading edge hinged fairing (Task 2-281).
Install left engine transmission oil cooler (Task 6-215).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Extension, 1/2 Inch Drive
Aft Pylon Sling (T54)
Aft Pylon Skid (T55)
Hoist, Minimum Capacity 3,000 Pounds
Container, 2 Quart
Crowfoot Socket Wrench, 1-1/4 Inch
Crowfoot Socket Wrench, 1-1/2 Inch
Open-End Wrench, 1-1/8 Inch
Open-End Wrench, 1-1/4 Inch
Open-End Wrench, 1-1/2 Inch
Torque Wrench
Ratchet, 1/2 Inch Drive
Rope Guide Lines (4)
Socket, 9/16 Inch, 1/2 Inch Drive
Universal Joint, 1/2 Inch Drive
Workstands (Side Bridge, Engine, and Aft Pylon)
Workstand, Three Step

Materials:

Cloths (E135)
Gloves (E186)
Sealant (E336 or E470)
Goggles (E473)

Parts:

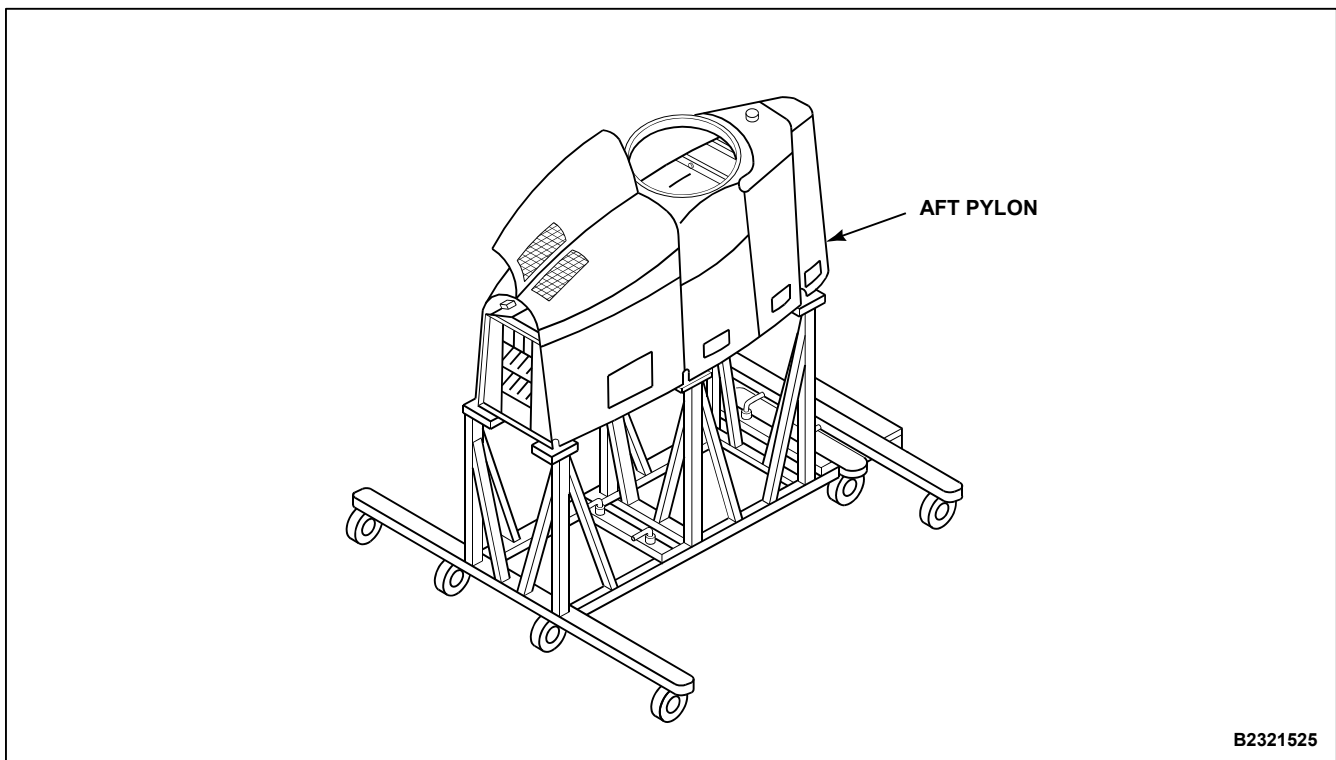
Washers (VS15306-8) (As Required)

Personnel Required:

CH-47 Helicopter Repairer (5)
Inspector

References:

TM 55-1520-240-23P
Task 2-324



B2321525

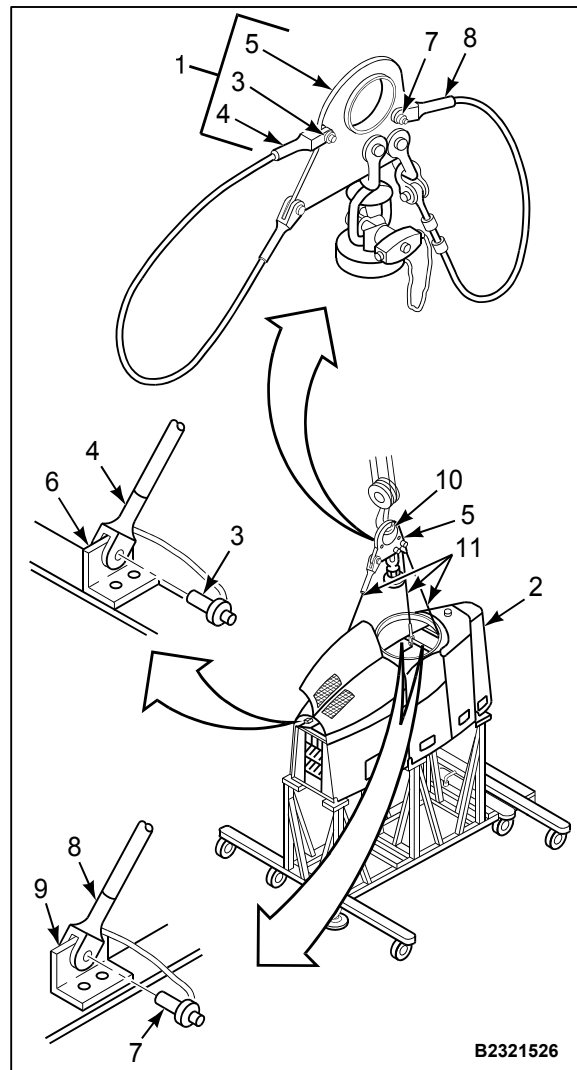
INSTALL SLING (T54) ON AFT PYLON

1. Position sling (T54) (1) on top of aft pylon (2).
2. Remove pin (3) from terminal (4) and lifting eye (5).
3. Position forward cable terminal (4) on forward pylon bracket (6) and install pin (3).
4. Remove pin (7) from two aft cable terminals (8) on lifting eye (5).
5. Position two aft cable terminals (8) on aft pylon brackets (9) and install pins (7).



Do not put tension on pylon when removing slack from cable.

6. Install hoist hook (10) through lifting eye (5). Slowly remove slack from cables (11).



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INSTALL AFT PYLON ON HELICOPTER

7. Remove two bolts (12), nuts (13), and four washers (14) from pylon (2) and skid mounting brackets (15).
8. Remove 8 bolts (16), nuts (17), and 16 washers (18) from pylon (2) and skid mounting brackets (19).
9. With aid of helpers, attach four guide lines (20) through access holes (21) in pylon (2). Hold lines to control pylon. Use gloves (E186).

WARNING

Pylon is heavy and can injure personnel if it swings or drops. Pylon must be supported by hoist, controlled by guide lines and moved carefully to prevent injury to personnel or damage to equipment.

10. Make sure components on bottom of pylon (2) clear skid (T55) (22). Slowly raise pylon.

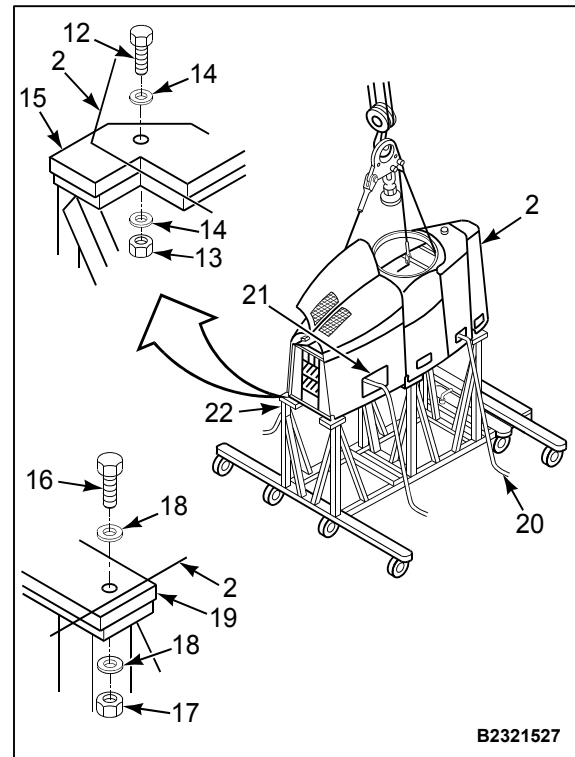
INSPECT**WARNING**

Sealant (E336 or E470) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least **15 minutes**. Get medical attention for eyes.

NOTE

Pylon must be installed while the sealant is uncured and workable.

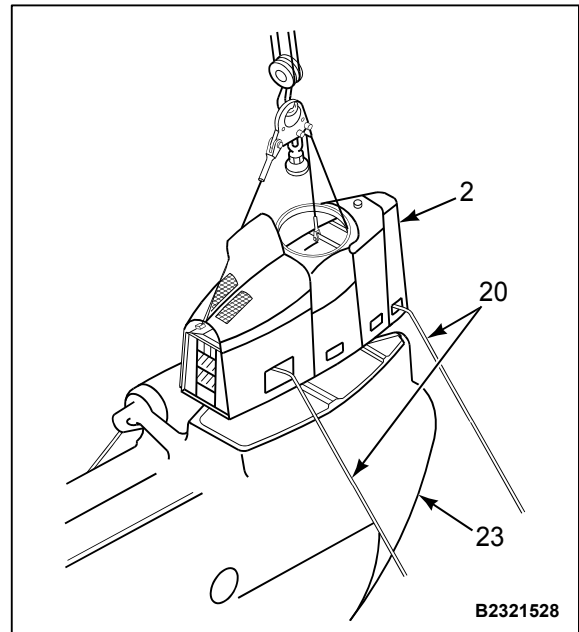
11. Apply sealant (E336 or E470) to mating surfaces of pylon (2) (Task 2-324).



- 12. Apply sealant (E336 or E470) to mating surfaces of helicopter (23) (Task 2-324).
- 13. Make sure nut threads are serviceable and free of sealant.

INSPECT

- 14. With aid of helpers, hold guide lines (20) to control pylon (2). Position pylon on helicopter (23).



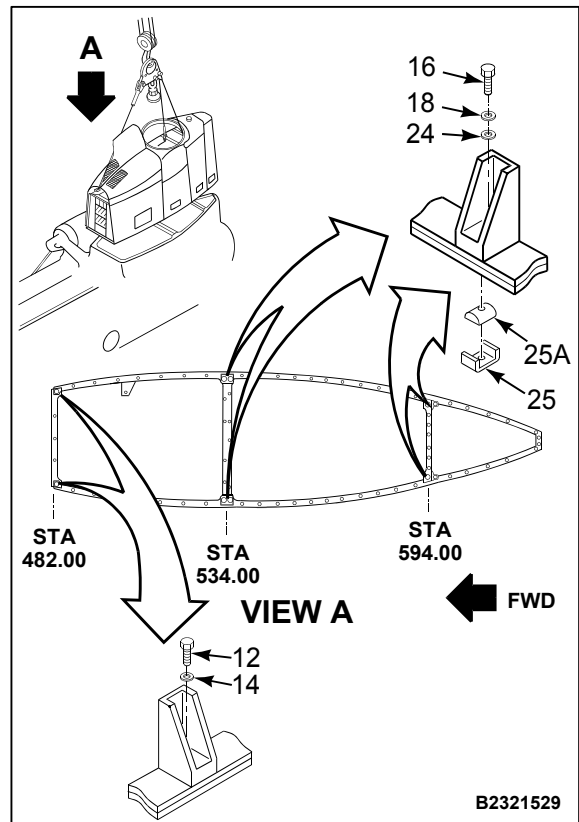
INSTALL MOUNTING BOLTS AND SEAL PYLON

- 15. Install two bolts (12) and washers (14). Torque bolts to **1070 inch-pounds**.

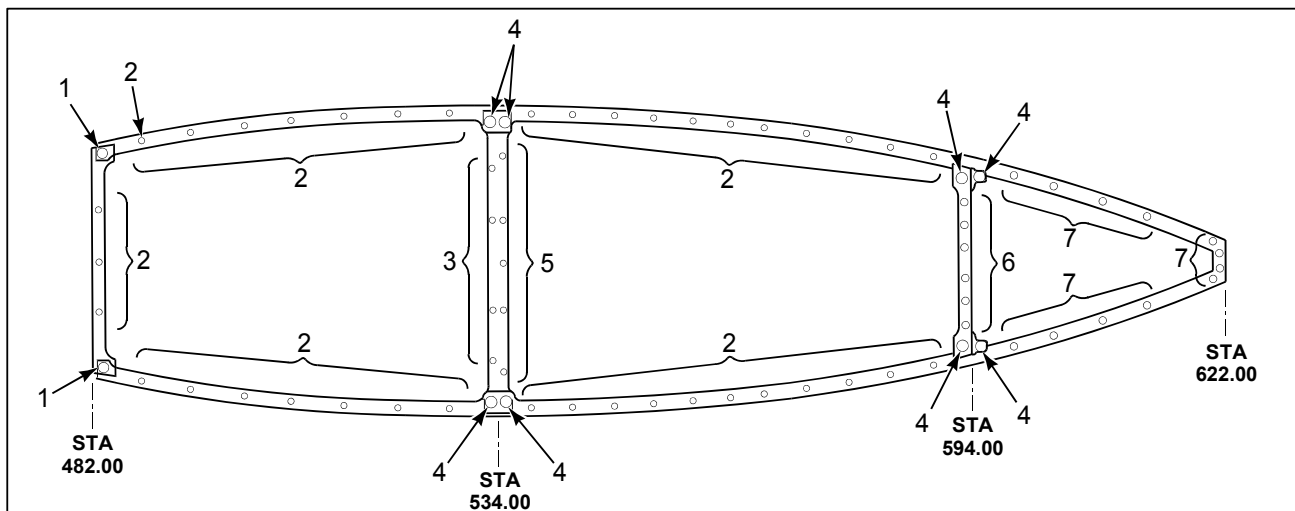
NOTE

Up to two washers (VS15306-8) may be used under washer (MS20002C8) at STA 534.00 and 594.00 to prevent bolt from hitting barrel nut retainer.

- 16. Install eight bolts (16), washers (MS200002C8) (18), and washers (VS15306-8) (24) through pylon and secure to barrel nut (25A). If you have barrel nut retainers (25) that do not have an opening at the bottom, make sure bolts (16) are not hitting barrel nut retainer (25). If bolts (16) are hitting barrel nut retainer (25), add washers (VS15306-8) (24) as required. If barrel nut retainers (25) have an opening at the bottom, protrusion of bolt (16) is allowed. Torque bolts to **1070 inch-pounds**.



INDEX	ITEM AND QUANTITY	PART NUMBER	REMARKS
1	Bolt (2 ea) Washer (2 ea) Nut (2 ea) Retainer (2 ea)	NAS628-26 MS20002C8 2752-080 294055 Ret	
2	Bolt (39 ea) Washer (39 ea) Washer (39 ea) Nut (39 ea)	AN4-6A AN960D416L AN960D416 MS21045-4	1 under head 1 under nut
3	Bolt (4 ea) Washer (8 ea) Nut (4 ea)	AN4-6A AN960D416 MS21044N4	1 under head and 1 under nut
4	Bolt (8 ea) Washer Nut (8 ea) Retainer (8 ea)	NAS628-28 MS20002C8 2752-080 294055	At STA 534.00 and STA 594.00 add washer VS15306-8 (2 max.) under washer MS20002C8, as required to prevent bolt interfering with barrel nut retainer
5	Bolt (5 ea) Washer (15 ea) Nut (5 ea)	AN4-6A AN960D416 MS21045-4	1 under head and 2 under nut
6	Bolt (6 ea) Washer (6 ea) Washer (6 ea) Nut (6 ea)	AN4-6A AN960D416L AN960D416 MS21045-4	1 under head 1 under nut
7	Bolt (12 ea) Washer (12 ea)	AN4-5A AN960D416	Bolts are installed with heads pointing down into nutplates MS21059L4



AFT PYLON ATTACHING HARDWARE

NOTES:

1. BOLT GRIP LENGTH (LONGER OR SHORTER) MAY BE ADJUSTED BY ONE SIZE TO MEET REQUIREMENTS.
2. A TOTAL OF THREE WASHERS MAY BE USED FOR EACH BOLT-NUT COMBINATION. TWO FOR GRIP AND ONE FOR SURFACE PROTECTION.

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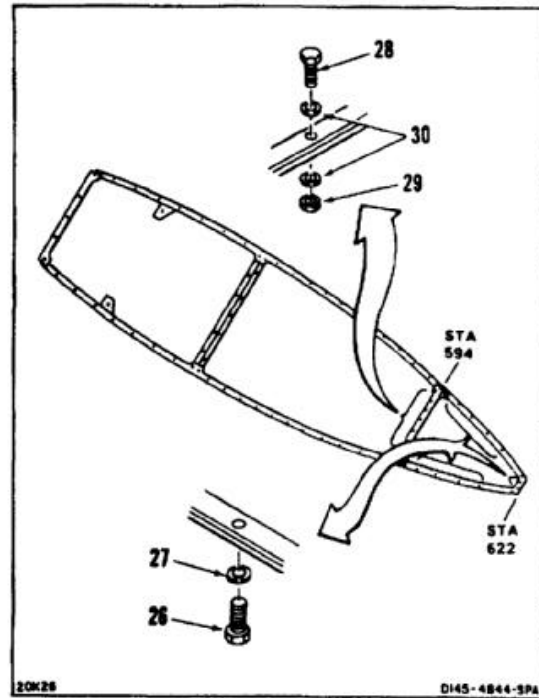
2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued)

17. Install 12 bolts (26) heads down and washers (27).

NOTE

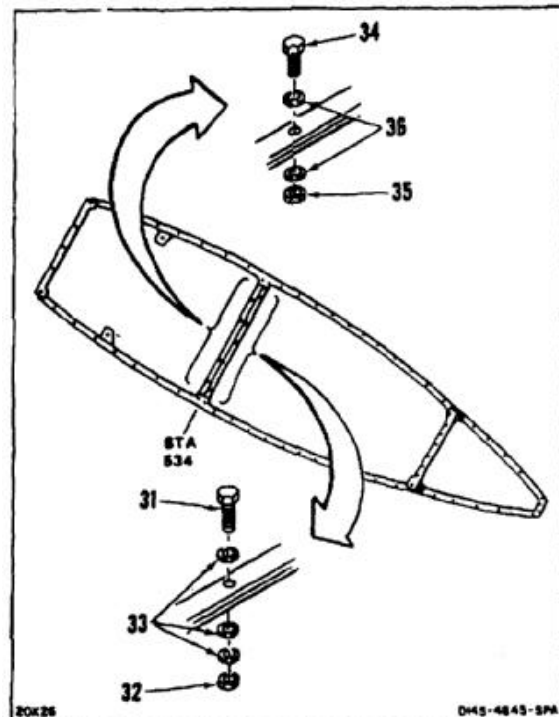
Up to three washers may be used for each bolt and nut combination; one washer under head and two under nut.

18. Install 6 bolts (28), nuts (29), and 12 washers (30).

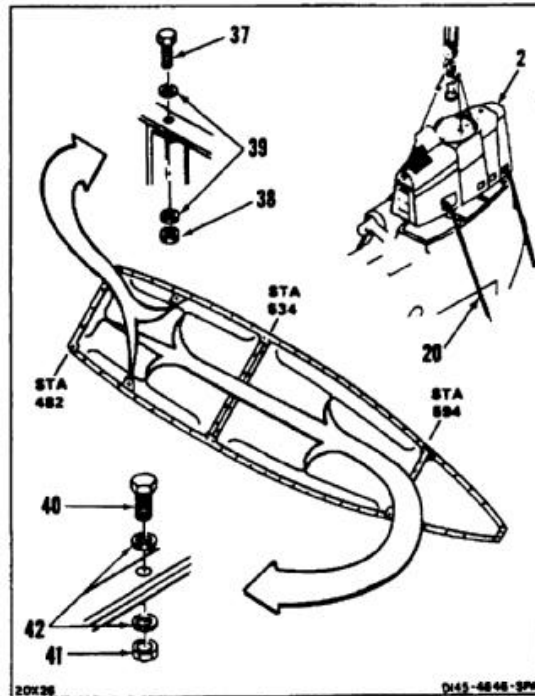


19. Install 5 bolts (31), nuts (32), and 15 washers (33).

20. Install four bolts (34), nuts (35), and eight washers (36).

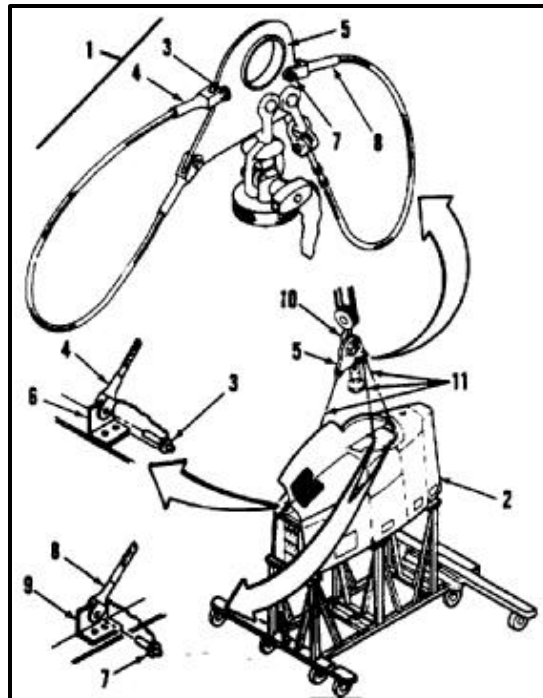


21. Install 12 bolts (37), nuts (38), and 24 washers (39) (if removed).
22. Install 39 bolts (40), nuts (41), and 78 washers (42).
23. With aid of helpers, remove four guides lines (20) from pylon (2).
- 23.1. Retorque all fasteners after sealant cures.
24. Seal around base of pylon (2) (Task 2-324).



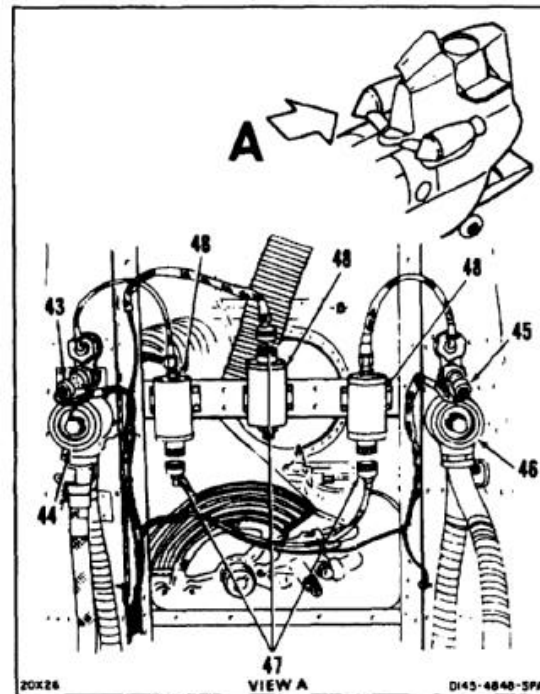
REMOVE SLING (T54) FROM AFT PYLON

25. Loosen cable (11) and remove hoist hook (10) from lifting eye (5).
26. Remove pin (7) from two aft cable terminals (8) on aft pylon brackets (9).
27. Position two aft cable terminals (8) on lifting eye (5) and install pin (7).
28. Remove pin (3) from forward cable terminal (4) on forward pylon bracket (6).
29. Position forward cable terminal (4) on lifting eye (5) and install pin (3).
30. Remove sling (T54) (1) from pylon (2).

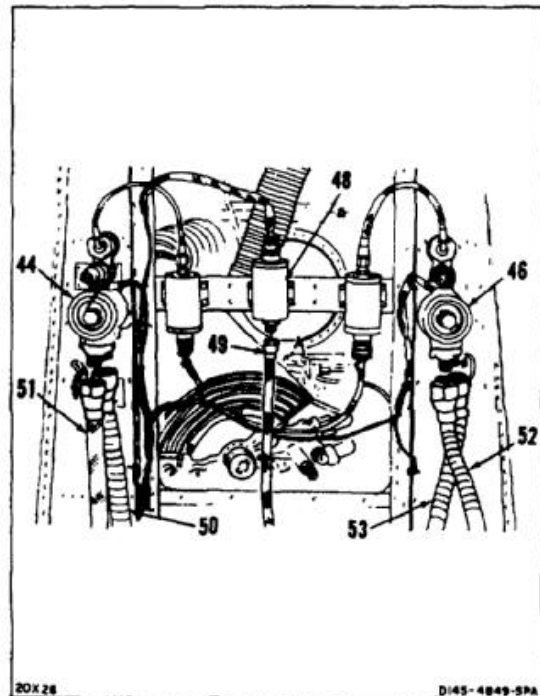


INSTALL WIRE HARNESS AND CONNECT ELECTRICAL CONNECTORS AND OIL HOSES FORWARD OF PYLON

31. Remove tag and connect electrical connector (43) to right strainer (44).
32. Remove tag and connect electrical connector (45) to left strainer (46).
33. Remove tags and connect three electrical connectors (47) to transducers (48).

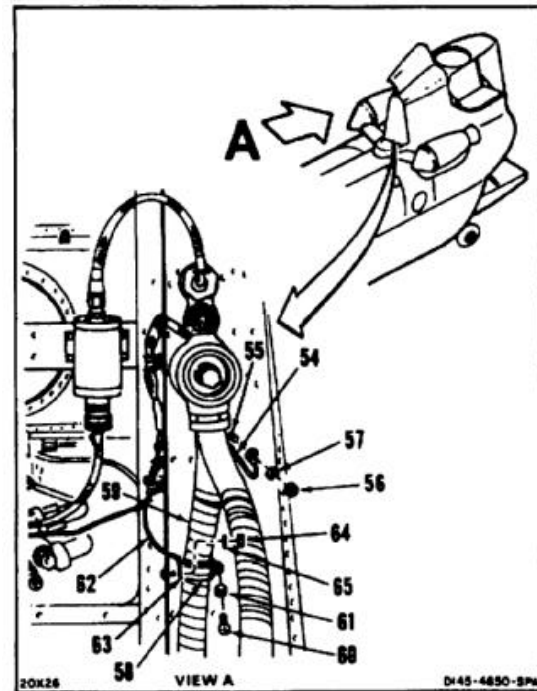


34. Remove tag and connect combining transmission oil hose (49) to center transducer (48). Use cloths (E135) and container for spilled fluid.
35. Remove tags and connect combining transmission oil hose (50) and engine oil hose (51) to right strainer (44). Use cloths (E135) and container for spilled fluid.
36. Remove tags and connect combining transmission oil hose (52) and engine oil hose (53) to left strainer (46). Use cloth (E135) and container for spilled fluid.

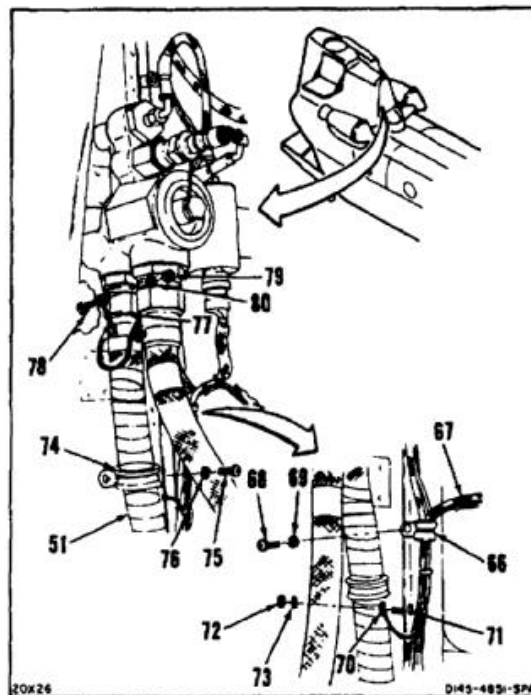


CONNECT ELECTRICAL WIRES AND INSTALL CLAMPS FORWARD OF AFT PYLON

- 37. Remove tag and position electrical wire (54) on terminal (55). Install nut (56) and washer (57) on terminal.
- 38. Position clamp (58) on engine oil hose (59). Install screw (60) and washer (61).
- 39. Remove tag and position electrical wire (62) on terminal (63). Install nut (64) and washer (65) on terminal.

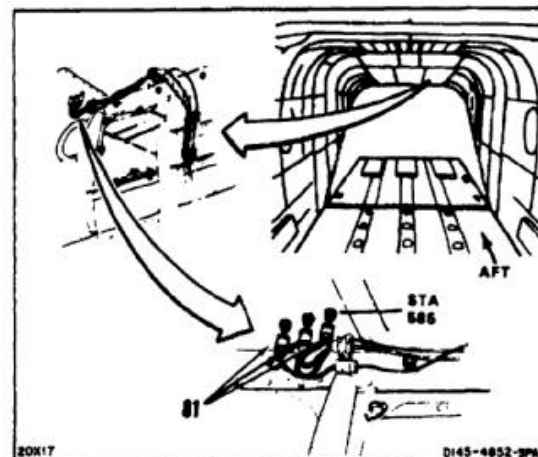


- 40. Position six clamps (66) on wire harness (67). Remove tag and position wire harness. Install six screws (68) and washers (69).
- 41. Remove tag and position electrical wire (70) on terminal (71). Install nut (72) and washer (73) on terminal.
- 42. Position clamp (74) on engine oil hose (51). Install screw (75) and washer (76).
- 43. Remove tag and position electrical wire (77) on terminal (78). Install nut (79) and washer (80) on terminal.

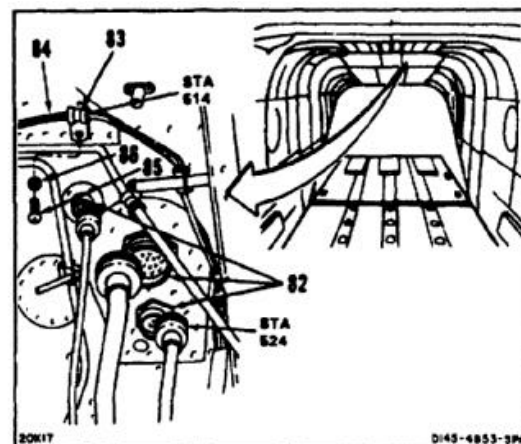


**CONNECT ELECTRICAL CONNECTORS AND
INSTALL CLAMPS INSIDE AFT PYLON**

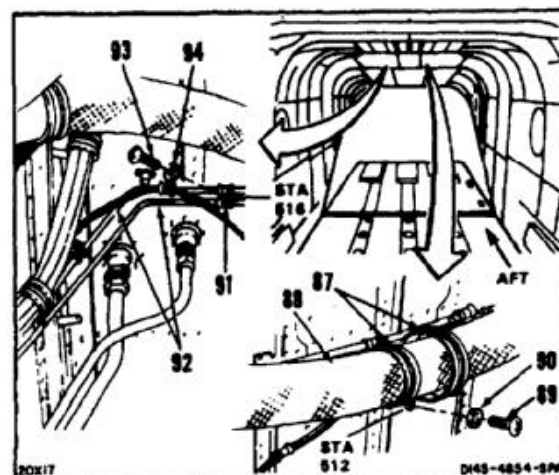
44. Remove tags and connect three electrical connectors (81) at sta. 585, left side.



45. Remove tags and connect three electrical connectors (82) at sta. 524, left side.
46. Position clamp (83) on wire harness (84) at sta. 514, left side. Install screw (85) and washer (86).

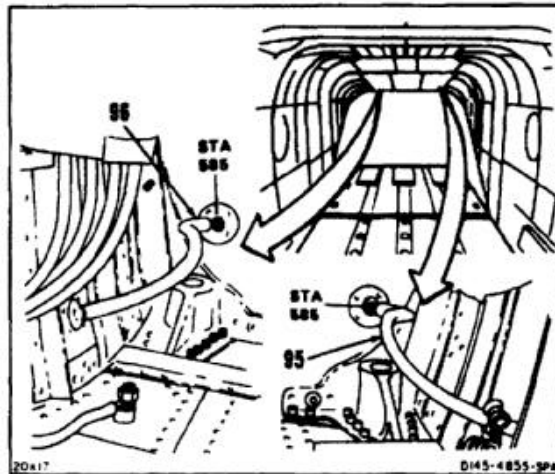


47. Position two clamps (87) on fuel line (88) at sta. 512, left side. Install two screws (89) and washers (90).
48. Position four clamps (91) on two No. 2 boost pressure tubes (92) at sta. 516, right side. Install four screws (93) and washers (94).

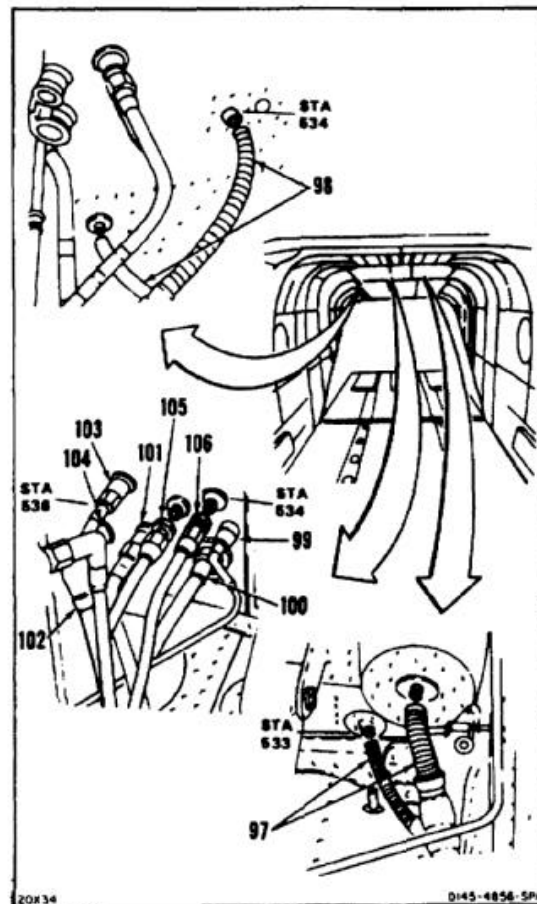


CONNECT DRAIN HOSES AND HYDRAULIC TUBES INSIDE AFT PYLON

- 49. Remove tag and connect drain hose (95) at sta. 585, left side. Use cloths (E135) for spilled fluid.
- 50. Remove tag and connect drain hose (96) at sta. 585, right side. Use cloths (E135) for spilled fluid.

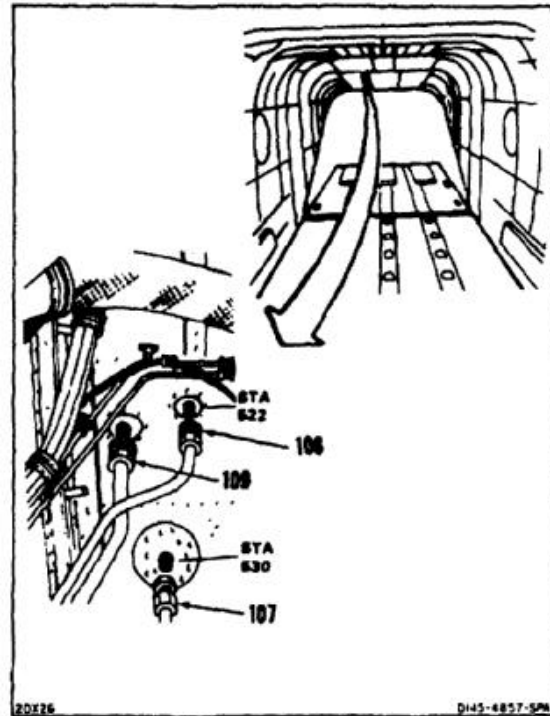


- 51. Remove tags and connect two drain hoses (97) at sta. 533, left side. Use cloths (E135) for spilled fluid.
- 52. Remove tags and connect two drain hoses (98) at sta. 534, right side. Use cloths (E135) for spilled fluid.
- 53. Remove tags and connect No. 2 suction tube (99) and utility pressure tube (100) at sta. 534. Use cloths (E135) and container for spilled fluid.
- 54. Remove tags and connect No. 2 boost pressure tube (101) and utility suction tube (102) at sta. 536. Use cloths (E135) and container for spilled fluid.
- 55. Remove tags and connect utility return tube (103) and PTU return tube (104) at sta. 534. Use cloths (E135) and container for spilled fluid.
- 56. Remove tags and connect No. 2 pump case drain (105) and utility pressure tube (106) at sta. 534. Use cloths (E135) and container for spilled fluid.

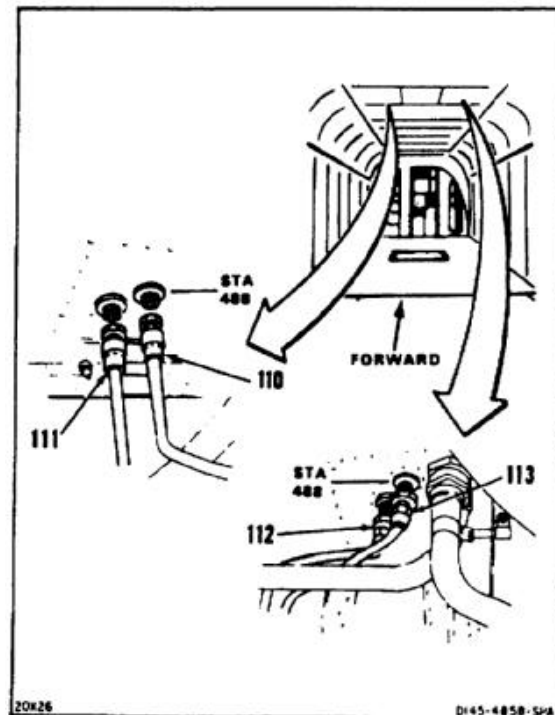


2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued)**2-309**

57. Remove tag and connect No. 2 boost pressure tube (107) at sta. 530, right side. Use cloths (E135) and container for spilled fluid.
58. Remove tags and connect No. 2 boost pressure tube (108) and No. 2 boost return tube (109) at sta. 522, right side. Use cloths (E135) and container for spilled fluid.



59. Remove tags and connect No. 2 boost pressure tube (110) and No. 2 boost return tube (111) at sta. 488, right side. Use cloths (E135) and container for spilled fluid.
60. Remove tags and connect No. 1 boost pressure tube (112) and No. 1 boost return tube (113) at sta. 488, left side. Use cloths (E135) and container for spilled fluid.



FOLLOW-ON MAINTENANCE:

Install fire extinguishers (bottles) (Task 12-32 or 12-33).
Connect pylon, left aft fuselage connecting link (Task 11-253).
Install pylon, left upper connecting link (Task 11-261).
Install pylon, lower right bellcrank (Task 11-259).
Install aft transmission (Task 6-97).
Install aft rotor shaft (Task 6-62).
Install drive collar (Task 5-111).
Install aft swashplate (Task 5-133).
Install aft weather protective cover (Task 5-138).
Install aft rotary head (Task 5-9).
Install rotary wing blades (Task 5-84).
Remove servocylinder safety blocks (Task 11-29).
Service utility hydraulic system (Task 1-62).
Service No. 1 and No. 2 flight control hydraulic system (Tasks 1-61 and 1-62).

Perform rotary-wing system phasing (Task 6-28).
Install No. 9 drive shaft (Task 6-29).
Perform functional test of flight controls (TM 55-1520-240-T).
Close left and right side work platforms (Task 2-2).
Close left and right side hydraulic module inspection access covers (Task 2-2).
Install left and right side access covers (Task 2-2).
Install left and right side aft transmission access covers (Task 2-2).
Install left and right side pylon removal access panels (Task 2-2).
Close right forward crown fairing (Task 2-2).
Install leading edge hinged fairing (Task 2-2).
Install engine transmission oil cooler (Task 6-215).

END OF TASK

2-1102

SECTION V
GENERAL REPAIR INFORMATION USING ADHESIVES

INITIAL SETUP**Applicable Configurations:**

All

Tools:

None

Materials:

None

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. This task contains repair procedures and general information on adhesive bonding, filler application, cleaning and removal of finishes, treatment and prevention of corrosion, plating and finish coatings, repair of fiberglass parts, extrusions, plastic parts, fuselage sealing, hardware, sandwich honeycomb repairs, and typical repairs.
2. Reference is made throughout manual to paragraphs or tables in this task, when required.

Repair Procedures and General Information Reference

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Adhesive system No. 3, application of	Deleted Use system No. 14
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Adhesive system No. 8, application of	Deleted. Use system No. 6
Adhesive system No. 9, application of (option 1)	Deleted. Use system No. 5
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FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1108

2-311 ADHESIVE BONDING

2-311

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. This task contains procedures for mixing and application of bonding agents. Use procedures for critical applications only when referenced in manual. For non-critical applications, procedures may be used without specific reference.
2. Select adhesive for greatest benefit from information and tables as follows:
 - a. Find type of material to be bonded. Refer to Trade Name Reference table.
 - b. Find adhesive systems. Match materials. Refer to Adhesive System Selection table.
 - c. Find most suitable system. Refer to Adhesive System Criteria table.
 - d. Select adhesive and bonding method. Refer to Acceptable Adhesives table.

Trade Name Reference

TRADE NAME	TYPE OF MATERIAL
Cellophane	Cellulose Film
Conolite	Polyester Resins and Laminates
Cymel	Melamine Molding
Dacron	Polyester Fiber
Dylene	Polystyrene
Estane	Urethane Elastomer
Kralastic	Acrylonitrile-Butadiene Styrene (ABS)
Kydex	Acrylic-Polyvinyl Chloride Alloy
Lexan	Polycarbonate
Lucite	Acrylic Sheet
Lusterlite	Pearlescent Acrylic Sheet
Marbond	Styrene
Mylar	Polyester Film
Nylasint	Sintered Nylon
Orlon	Acrylic Fiber
Plexiglas	Acrylic Sheet
Seilon S-3	A-B-S Polymer Blend
Silastic	Silicone Rubber
Teflon	Fluorocarbon
Videne	Polyester Film
Zytel	Nylon Resin

Adhesive System Criteria

ADHESIVE SYSTEM NO.	NO. OF COMPONENTS	PHYSICAL PROPERTIES	POT LIFE AT 70°F (21.1°C)	FLASH POINT	SHELF LIFE	STORAGE TEMPERATURE
1	1	A tough, flexible contact adhesive with good peel strength. Good resistance to fuel, oil, and water	N/A	30°F (-1°C)	9 months	Below 80°F (27° C)
2		A flexible water resistant contact cement. Poor resistance to fuel and oil	N/A	54°F (12°C)	9 months	40° to 80°F 4° to 27°C)
3		Deleted — Use System 14				
4	2	Cures to a tough flexible rubber; resistant to fuel and oil	24 hours	50°F (10°C) for primer 90 days for primer	12 months for adhesive	Below 80°F (27°C)
5	4	A rigid epoxy adhesive, high in tensile and shear strength. Resistant to fuel and oil; fair resistance to water.	2 hours	Part AB: 395°F (202°C) Part CD: 468°F (242°C)	2 years	Below 80°F (27°C)
6	1	Cures to a flexible rubber; resistant to fuel and oil.	30 minutes	50° F (10°C) for primer	8 months for adhesive 12 months for primer	Below 70° F (21° C)
7		Deleted — Use System 6.				
8		Deleted — Use System 6.				

Adhesive System Criteria - (Continued)

ADHESIVE SYSTEM NO.	NO. OF COMPONENTS	PHYSICAL PROPERTIES	POT LIFE AT 70°F (21.1°C)	FLASH POINT	SHELF LIFE	STORAGE TEMPERATURE
9		Deleted — Use System 5.				
10	2	A tough flexible adhesive, resistant to water, fuel, and oil. Poor resistance to salt spray.	30 minutes	150°F (66°C)	6 months	Below 80°F (27°C)
11 SEE NOTE	2	Cures to a tough, flexible rubber with good peel strength. Resistant to fuel, water, and salt spray.	1/2 hr for B-1/2, 1 hr for B-1 2 hr for B-2 4 hr for B-4 8 hr for B-8	80°F (27°C)	6 months	40° to 80°F (4° to 27°C)
12	2	A rigid adhesive high in shear and tensile strength.	20 to 30 minutes	395°F (202°C)	2 years	Below 80°F (27°C)
13	3	A rigid adhesive which will not craze acrylics.	10 minutes		1 year	Below 75°F (24°C)
14	2	A two component room temperature curing urethane adhesive	30 to 70 minutes		6 months	Below 100°F (37.8°C) (unopened containers only)

NOTE

The acceptable adhesives under this system are available in a choice of pot lives. For example, B-1/2 indicates a pot life of **30 minutes**, B-1 a pot life of **1 hour**, etc. The letters and numbers B-1/2, B-1, etc. will be found as part of the manufacturer's designation for these adhesives in table 1-5.

Acceptable Adhesives

ADHESIVE SYSTEM NO.	ITEM NO.	MANUFACTURER'S DESIGNATION	APPLICATION AND CURE TASK NO.
1	E103	Pro-Seal 590M	2-314
	E101	M6249	
2	E99	EC1870	2-315
	E59	Tereco No. 68	
3	Deleted. Use system 14		
4	E53	PR1710	2-316
	E264	PR1711 Primer	
5	E43	Component A: EC-2216 Part A	2-317
		Component B: EC-2216 Part B	
6	E58	RTV 102	2-318
	E300	SS4004 Primer	
7	Deleted. Use system 6		
8	Deleted. Use system 6		
9	Deleted. Use system 5		
10	E52	Pro-Seal 501	2-319
11	E51	Pro-Seal 719	2-320
	E54	PR9021	
12	E47	Epocast 50-A	2-321
	E192	Hardener, Epocast 9816	
13	E104	Component A: PS30 Part A	2-322
	E97	Component B: PS30 Part B	
14	E30	EC-3549 B/A	2-323

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Trip Balance, NSN 6670-00-401-7195

Materials:

None

Personnel Required:Aircraft Structural Repairer
Inspector**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Follow this information completely when applying adhesive systems:

- a. If adhesive, or components, have been refrigerated, they must warm to **70°F (21°C)** before blending or use.

NOTE

High temperatures and humidity shorten adhesive pot life. Low temperatures lengthen adhesive pot life.

Urethanes crystallize below **40°F (4°C)**. Crystals must be warmed to **150°F (66°C)** before mixing with other components.

- b. Do not omit or add ingredients. Do not vary mixing or blending procedures.
- c. Do not thin adhesives unless allowed by procedures.
- d. When working with **2 part** adhesives, blend adhesives by weight within **2.5 percent**. Use trip balance.
- e. Blend adhesives only in clean metal, glass, polyethylene, or Teflon containers.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1114

2-313 PREPARATION OF BONDING SURFACES**2-313****INITIAL SETUP****Applicable Configurations:**

All

Tools:

None

Materials:

Abrasive Paper (E5 thru E15)
 Cloths (E120)
 Emery Cloths (E123 thru E127)
 Acetone (E20)
 Aliphatic Naphtha (E245)
 Gloves (E186)

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

As Required

WARNING

Acetone (E20) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flames. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Clean all bonding surfaces except thermoplastic, phenolic, and melamine. Use cloths (E120) damp with acetone (E20). Use gloves (E186).

WARNING

Aliphatic naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

2. Sand thermoplastic, phenolic, and melamine surfaces as required to remove gloss. Clean surfaces with aliphatic naphtha (E245).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Heat Lamp

Materials:

- Acetone (E20)
- Tongue Depressor (E424)
- Gloves (E186)
- Temperature Indicating Strips (E413)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

- Task 2-311
- Task 2-313

Equipment Condition:

As Required

General Safety Instructions:

As Required

WARNING

Acetone (E20) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

NOTE

Acceptable adhesives under System No. 1 replace cements EC-711, EC-847, and EC-826. Use existing stocks of these cements until depleted. For acceptable adhesives, refer to Adhesive System Criteria table.

1. Clean mating surfaces. Use acetone (E20) (Task 2-313). Follow Acceptable Adhesive table (Task 2-311). Wear gloves (E186).
2. Stir adhesive thoroughly in its container. Use tongue depressor (E424).
3. If adhesive is to be sprayed, thin with acetone (E20). Use only enough thinner to permit spraying.

4. Brush or spray **one coat** of adhesive on each mating surface.
5. Apply **two coats** of adhesive to porous surfaces such as cloth or wood. Allow first coat to dry completely before applying **second coat**.
6. Allow adhesive to dry completely. Join surfaces. Apply pressure to assure contact.

NOTE

Assembled parts may be handled immediately. Adhesive must cure **7 days at 70°F (21°C) or 6 hours at 200°F (93° C)** to reach maximum strength.

INSPECT

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

Tongue Depressor (E424)
 Cheesecloth (E112)
 Gloves (E186)
 Naptha (E245)

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

Task 2-311
 Task 2-313

Equipment Condition:

As Required

General Safety Instructions:**WARNING**

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

1. Clean mating surfaces. Use naphtha (E245) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).
2. Stir adhesive thoroughly in its container. Use tongue depressor (E424).

NOTE

Adhesive settles during use.

3. Stir adhesive several times during use.
4. Deleted.

5. Apply uniform coat of adhesive to mating surfaces.
6. Allow adhesive to dry until tacky. Touch lightly with knuckle. If adhesive does not stick to skin, parts may be joined.
7. When bonding large area, let adhesive dry until no longer tacky. Activate adhesive. Wipe one surface. Use cheesecloth (E112) damp with naphtha (E245). Wear gloves (E186).
8. Press parts together. Apply enough pressure to assure complete contact without trapped air.

NOTE

Assembled parts may be handled immediately.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Trip Balance, NSN 6670-00-401-7195
Heat Lamp

Materials:

Acetone (E20)
Primer (E298)
Polyethylene Cup (E157)
Tongue Depressor (E424)
Gloves (E186)
Temperature Indicating Strips (E413)

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

WARNING

Acetone (E20) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Clean mating surfaces. Use acetone (E20) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).
2. Brush uniform coat of primer (E298) on all mating surfaces except rubber. Allow **60 minutes** for primer to dry.
3. Weigh **20 parts** of adhesive and **1 part** of accelerator. Use trip balance. Blend in polyethylene cup (E157). Use tongue depressor (E424).

NOTE

Pot life of blended adhesive is **24 hours**.

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-311
Task 2-313

Equipment Condition:

As Required

General Safety Instructions:

As Required

4. Bond rubber to surfaces other than rubber as follows:
 - a. Brush uniform coat of blended adhesive on rubber. Allow to dry **60 minutes**.

NOTE

Best results are obtained when coat is **0.002 to 0.003 inches** thick.

- b. Brush coat of adhesive on primed surface other than rubber. Allow to dry until tacky.
- c. Join coated surfaces. Apply enough pressure to assure complete contact.
- d. Cure adhesive under pressure **16 hours at 70°F (21°C)** before handling.

NOTE

Complete cure is achieved after **7 days at 70°F (21°C), or in 16 hours at 200°F (93°C)**.

5. Bond rubber to rubber as follows:
 - a. Brush uniform coat of blended adhesive on both mating surfaces. Allow **60 minutes** to dry.
 - b. Brush **second coat** on one surface. Allow to dry until tacky.

- c. Join coated surfaces. Use sufficient pressure to assure complete contact.

NOTE

Complete cure is achieved in **7 days at 70°F (21°C), or 16 hours at 70°F (21°C) followed 1 hour at 200°F (93°C).**

- d. Cure adhesive under pressure **16 hours at 70°F (21°C)** before handling.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Trip Balance
Heat Lamp

Materials:

Acetone (E20)
Polyethylene Cup (E157)
Tongue Depressor (E424)
Gloves (E186)
Temperature Indicating Strips (E413)

Personnel Required:

Aircraft Structural Repairer
Inspector

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

1. Clean mating surfaces. Use acetone (E20) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).
2. Blend adhesive as follows:
 - a. Mix, by weight, **100 parts** of part B with **140 parts** of part A. Use trip balance.
 - b. Stir mixture in polyethylene cup (E157). Use tongue depressor (E424).
3. Apply thin, uniform coat of blended adhesive to mating surfaces.

References:

Task 2-311
Task 2-313

Equipment Condition:

As Required

General Safety Instructions:**WARNING**

Acetone (E20) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

4. Join parts. Apply enough pressure to assure complete contact.
5. Remove excess adhesive. Use acetone (E20).

NOTE

Heat lamp and temperature indicating strips (E413) are required for steps a thru d.

6. Cure adhesive. Use one of these cycles:
 - a. **60 minutes at 200°F (93°C).**
 - b. **2 hours at 170°F (77°C).**
 - c. **8 hours at 120°F (49°C).**
 - d. **11 hours at 104°F (40°C).**
 - e. **24 hours at 70°F (21°C).**

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1120

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

Acetone (E20)
Primer (E300)
Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-311
Task 2-313

Equipment Condition:

As Required

General Safety Instructions:

As Required

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

WARNING

Acetone (E20) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Clean mating surfaces. Use acetone (E20) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).

WARNING

Primer (E300) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

2. Brush **two coats** of primer (E300) on all surfaces except rubber. Allow **45 minutes** for drying after each coat.

CAUTION

Do not expose adhesive to air more than a few minutes. Poor bond will result.

3. Brush uniform coat of adhesive on both mating surfaces. Join coated surfaces immediately.
4. Apply enough pressure to assure complete contact. Do not cause excessive squeezeout.

NOTE

A bond line **0.015 inch** thick will give best results.

5. Cure adhesive **24 hours at 75° F (24° C)**.

NOTE

Complete bond strength is achieved in **3 days**.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Trip Balance

Materials:

Acetone (E20)
 Polyethylene Cup (E157)
 Tongue Depressor (E424)
 Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

Task 2-311
 Task 2-313

Equipment Condition:

As Required

General Safety Instructions:**WARNING**

Acetone (E20) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Adhesives under this system are toxic. They can cause injury to personnel. Work only in well-ventilated areas.

1. Clean mating surfaces. Use acetone (E20) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).
2. Mix each component thoroughly in its own container.
3. Weigh **30 parts** of accelerator and **100 parts** of base. Use trip balance. Blend in polyethylene cup (E157). Use tongue depressor (E424).

4. Apply uniform coat of blended adhesive to both surfaces.
5. Join parts. Apply enough pressure to assure complete contact.
6. Remove squeeze out. Use acetone (E20).
7. Cure adhesive **12 hours at 70°F (21°C)**.

NOTE

Full cure is attained after **48 hours**.

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-1122

INITIAL SETUP**Applicable Configurations:**

All

Tools:

None

Materials:

Acetone (E20)

Gloves (E186)

Personnel Required:

Aircraft Structural Repairer

Inspector

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

WARNING

Acetone (E20) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Clean mating surfaces. Use acetone (E20) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).

References:

Task 2-311

Task 2-313

Equipment Condition:

As Required

General Safety Instructions:

As Required

2. Blend base with activator. Follow instructions on container.
3. Apply thin uniform coat of adhesive to both mating surfaces.
4. Assemble parts immediately. Apply enough pressure to assure complete contact.
5. Cure adhesive at **70°F (21°C)** as follows:
 - a. Class B 1/2 — **16 hours**.
 - b. Class B1 — **36 hours**.
 - c. Class B2 — **48 hours**.
 - d. Class B4 — **60 hours**.

NOTE

Cure times are for handling only. Full cure is achieved in **7 days** or more.

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Heat Lamps
 Wood Blocks
 C-Clamps
 Trip Balance, NSN 6670-00-401-7195
 Roller

Materials:

Naphtha (E245)
 Polyethylene Cup (E157)
 Tongue Depressor (E424)
 Teflon Sheet (E412)
 Gloves (E186)
 Temperature Indicating Strips (E413)

WARNING

Adhesives under this system are toxic. They can cause injury to personnel. Work only in well-ventilated areas.

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Clean mating surface. Use naphtha (E245) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).
2. Weigh **9 parts** of curing agent and **100 parts** of adhesive. Use trip balance. Mix well in polyethylene cup (E157). Use tongue depressor (E424). Wear gloves (E186) through step 5.

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

Task 2-311
 Task 2-313

Equipment Condition:

As Required

General Safety Instructions:

As Required

3. Brush coat of adhesive on each ply of repair part.
4. Assemble plies on Teflon sheet (E412).
5. Brush final coat of adhesive on assembled plies.
6. Position plies on repair area with Teflon sheet (E412) facing outward.
7. Remove air bubbles from repair. Use rollers.
8. Apply slight pressure to repaired areas. Use wooden blocks and C-clamps.

NOTE

Heat lamp and temperature indicating strips (E413) are required for step 9. If the **1 hour at 160°F (71°C)** is used.

9. Cure repaired area **4 hours at 70°F (21°C), or 1 hour at 160°F (71°C)**.
10. Remove blocks, clamps, and Teflon sheet (E412).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1124

INITIAL SETUP

Applicable Configurations:

All

Tools:

Earthenware Container
Clamps
Heat Lamps

Materials:

Abrasive Paper (E7)
Naphtha (E245)
Masking Tape (E388)
Tongue Depressor (E424)
Polyethylene Cup (E157)
Isopropyl Alcohol (E64)
Soap (E353)
Gloves (E186)
Temperature Indicating Strips (E413)
Promoter (E304)
Cement Resin (E105)
Catalyst (E96)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-311
Task 2-313

Equipment Condition:

As Required

General Safety Instructions:

As Required

WARNING

Adhesives under this system are toxic and can irritate skin. Work only in well-ventilated areas. Avoid bodily contact with adhesives.

1. Follow Acceptable Adhesives table (Task 2-311) for adhesive selection.
2. Roughen mating surfaces. Use abrasive paper (E7).

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

3. Clean mating surfaces. Use naphtha (E245) (Task 2-313). Allow to dry completely. Wear gloves (E186).
4. Mask areas around repair area. Use masking tape (E388).
5. Pour **4 ounces** of cement resin (E105) in clean earthenware container.

6. Add one **2.4 gram** capsule of catalyst (E96) to resin. Stir until capsule is dissolved. Use tongue depressor (E424).

NOTE

Mixture can be kept usable for **24 hours** by refrigerating at **40°F (4°C)** or lower.

7. Pour **5 cc** of promoter (E304) to clean polyethylene cup (E157).

WARNING

Mixing promoter directly with catalyst will cause violent reaction. Chemicals in cement can irritate skin. If cement contacts skin, wash immediately. Use isopropyl alcohol (E64). Flush with soap (E353) and water. Vapors are toxic. Work in well-ventilated room.

8. Add promoter to cement resin/catalyst mixture. Stir well.

NOTE

Pot life of adhesive mix with promoter added is **10 minutes**.

9. Brush thin uniform coat of cement on both mating surfaces.
10. Join coated surfaces immediately. Hold together gently **20 seconds** before applying pressure.
11. Apply pressure equally. Use clamps.
12. Scrape excess cement onto masked area.
13. After **12 hours**, remove clamps.
14. Cure **2 hours at 70°F (21°C)**.
15. Allow assembly to set **4 hours at 168°F (64°C)**. Use heat lamp and temperature indicating strips (E413).

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-1126

INITIAL SETUP

Applicable Configurations:

All

Tools:

Trip Balance, NSN 6670-00-401-7195

Materials:

Cloth (E120)
 Acetone (E20)
 Paint Remover (E261)
 Polyethylene Cup (E157)
 Tongue Depressor (E424)
 Gloves (E186)
 Adhesive (E30)

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

Acceptable Adhesive Table

Equipment Condition:

As Required

General Safety Instructions:**WARNING**

Acetone (E20) is flammable and toxic. It can irritate skin and cause burns, use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Paint remover (E261) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Adhesive (E30) contains isocyanates. Avoid skin contact and inhalation of vapors. Work only in areas having adequate local exhaust ventilation system. Wear rubber gloves and goggles. Launder contaminated clothing before reuse.

1. Clean primed mating surfaces. Use cloth (E120) damp with acetone (E20). Wear gloves (E186).
2. If surface primer is flaking or deteriorated, remove as required. Use paint remover (E261). Remove primer only from bonding area. Wear gloves (E186).
3. Clean surface where primer was removed. Use cloth (E120) damp with acetone (E20). Wear gloves (E186).

NOTE

Fabric from new roll requires no cleaning.

4. Clean soiled fabric, use acetone (E20). Wait until ketone odor is gone before bonding fabric. Wear gloves (E186).

NOTE

Complete mixing is required to obtain maximum adhesive performance:

5. Mix adhesive (E30) as follows. Refer to Acceptable Adhesives table:
 - a. Weigh **100 parts** of base and **109 parts** of accelerator. Use trip balance.
 - b. Mix completely in polyethylene cup (E157). Use tongue depressor (E424).

6. Apply uniform coat of adhesive to both mating surfaces.
7. Join parts. Apply enough pressure to assure complete contact.
8. Remove squeeze out. Use cloth (E120) damp with acetone (E20).
9. Cure adhesive **48 hours at 70°F (21°C)**.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1128

2-324 FUSELAGE SEALING**2-324****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Trip Balance, NSN 6670-00-401-7195
3M Spray Gun (T170)

Materials:

Cloth (E128)
Cleaner (E118)
Cleaning Compound (E117)
Acetone (E20)
Cloth (E120)
Dry Cleaning Solvent (E162)
Gloves (E186)
Abrasive Paper (E11, or finer)
Alodine (E65)

1. Seal all fuselage external joints, seams, holes, skin laps, and fasteners. Refer to Fuselage Sealing figure and Acceptable Sealants — Properties and Working Criteria table.
2. Perform all operations, such as fitting, drilling, countersinking, deburring, or other rework before sealing. Mating surfaces are especially important. Cleaned area shall be larger than area to be sealed.

SURFACE PREPARATION

3. Prepare surface as follows:
 - a. Clean acrylic plastic surfaces such as windshields and panes. Use flannel cloth (E128) and cleaner (E118) or cleaning compound (E117) (Task 2-41).

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

Naphtha, Aliphatic (E245)
Brush (E85)
Sealant (E334.1, E336, or E339)
Epoxy Primer (E292)
Epoxy Topcoat (E166)
Wood Spatula (E424)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-41

Equipment Condition:

As Required

General Safety Instructions:

As Required

- b. Clean plastic-impregnated glass cloth parts. Use cloths (E120) soaked with acetone (E20). Dry parts. Use clean cloth. Wear gloves (E186).

WARNING

Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- c. Clean all metal surfaces to be sealed. Use cloths (E120) soaked with solvent (E162).

NOTE

Do not remove aluminized paint from wheel assemblies.

- d. Dry area before solvent evaporates. Use cloth (E120).
- e. Repeat steps c and d until cloths (E120) stay clean.

NOTE

Three solvent applications should be enough.

WARNING

Aliphatic naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- f. Clean metal surfaces with aliphatic naphtha (E245) when using sealant.

- g. Scuff-sand zinc chromate primed areas with abrasive paper (E11) or a finer abrasive paper.

WARNING

Alodine (E65) is an oxidizer. Discard cloths which contain this material in a separate container. If discarded with cloths contaminated with acetone, or other organic solvents, combustion can result. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- h. Apply a coat of alodine (E65) to prepared area. Use brush (E85).

Acceptable Sealants — Properties and Working Criteria

SEALING COMPOUND	WORKING LIFE (HOURS)	CURE TIME (HOURS)	USE AND METHOD OF APPLICATION
PR9021A (E342)	1	36	
PR9021A-2 (E342)	2	44	
PROSEAL 719A-2 (E337)	2	44	NOTE 3.
PR9021A-4 (E342)	4	72	
PROSEAL 890 B-1/2 (E336)	0.5	6	
PROSEAL 890 B-2 (E336)	2	48	
PROSEAL 890C-24 (E336)	24	168	NOTE 4.
PROSEAL 890C (E336)	48	336	
PROSEAL 890C-80 (E336)	80	504 at 100°F (38°C)	
PROSEAL 896 (E338)	2	48	NOTE 5.
PROSEAL 700 (E339)	24	168	NOTE 6.
SEALANT (E334.1)	0	1 for Spray	NOTE 7.
SEALANT (E334.1)	0	2 for Brush	NOTE 7.
EPOXY PRIMER (E292)	0	1 to 2	NOTE 7.
EPOXY TOPCOAT (E196)	0	1	NOTE 7.

NOTE

1. Cure temperature is **77°F (25°C)** unless otherwise noted.
2. Mix sealing compound in accordance with instructions on container.
3. Apply with brush for fastener sealing.
4. Apply with pressure gun or wood spatula for fillets and mating surfaces.
5. Apply with pressure gun or wood spatula for hole filling.
6. Apply with pressure gun or wood spatula for firewall sealing only.
7. Apply with pressure gun or brush for coating/sealing.

TWO-PART SEALANT PREPARATION

4. Prepare **two-part** sealant as follows:
 - a. Weigh components of sealants listed in Acceptable Sealants — Properties and Working Criteria table.
 - b. Mix components completely until color is uniform and free of streaks.

NOTE

Avoid whipping which entraps air. Avoid overheating when using mixing machine. Overheating shortens storage and working life.

PREPARED SEALANT STORAGE

5. Refrigerate mixed sealing compounds which cannot be used within working life. Refer to Acceptable Sealants — Properties and Working Criteria table. Refrigerate for **2 weeks** maximum at **40°F (4.4°C)**.
6. Allow sealants to warm to minimum of **60°F (16°C)** before using. Working life of thawed sealants is same as freshly-mixed sealants.

WARNING

Epoxy primer (E292) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

Sealant (E334.1) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

NOTE

Thawing usually requires **20 to 30 minutes**. For quicker thawing place sealant in water at **120°F (49°C)** for **10 minutes**.

7. Apply epoxy primer (E292) and sealant (E334.1) as follows:

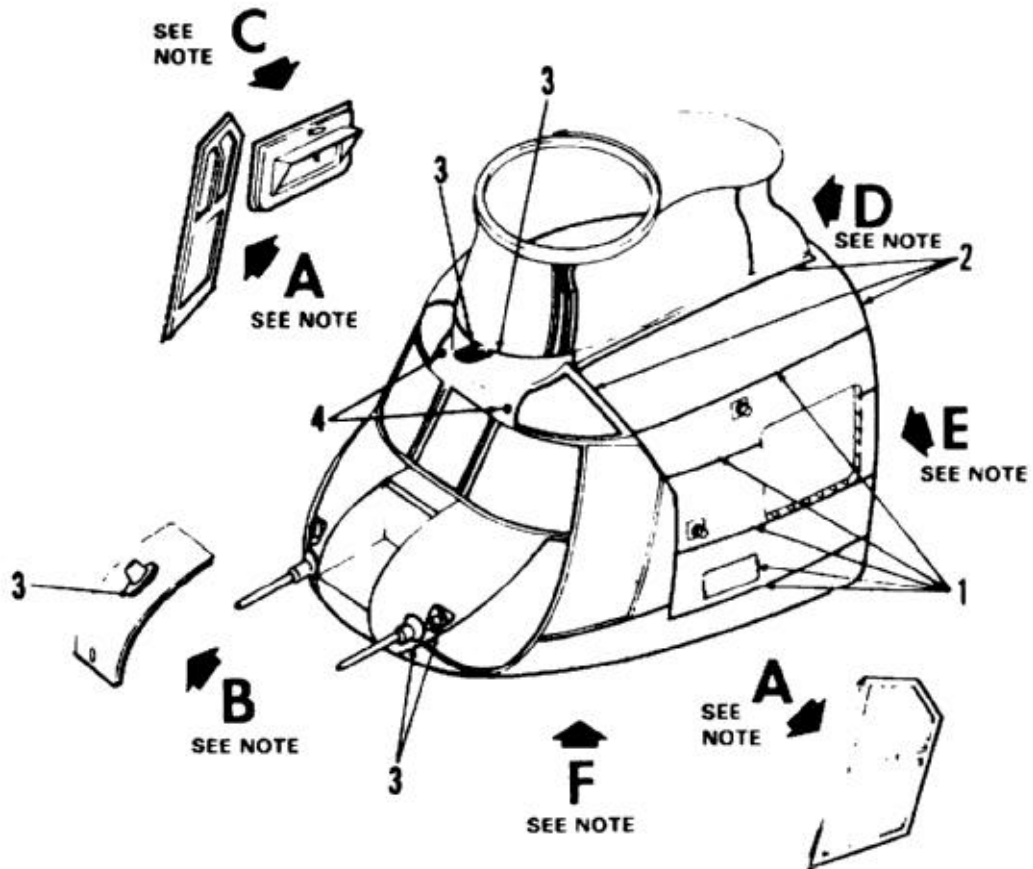
- a. Apply coat of epoxy primer (E292) and allow to dry.
- b. Stir sealant (E334.1)

NOTE

Do not use sealant (E334.1) if lumps, gel, grit, or foreign materials are present, or if shrinking occurs.

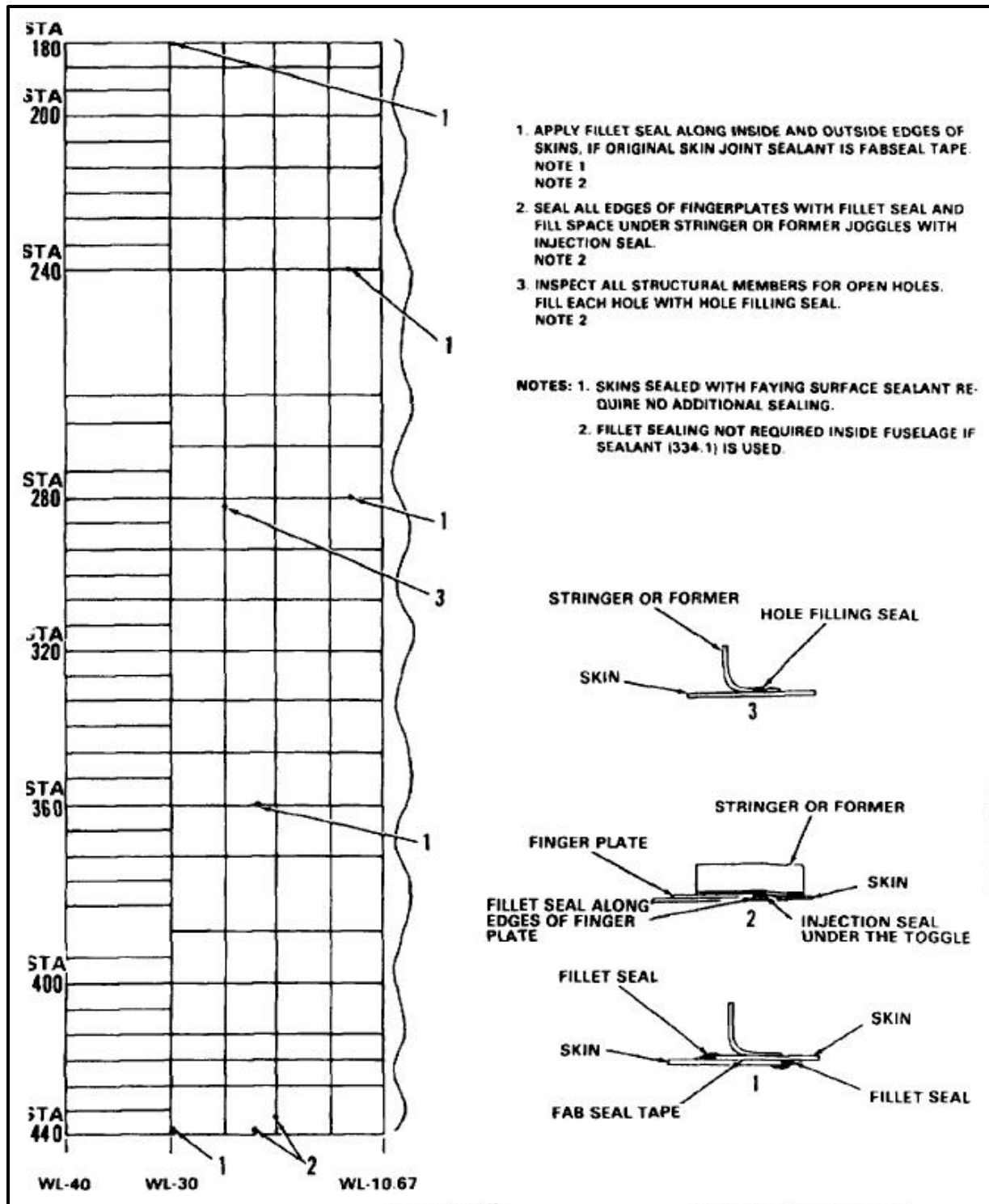
- c. Apply at least **3 coats** of sealant (E334.1). Allow to dry (**six minutes** when sprayed; **12 minutes** when brushed).
- d. Apply a light coat of epoxy primer (E292). Allow epoxy to dry.
- e. Apply **two coats** of epoxy topcoat (E166). Allow epoxy topcoat to dry between coats.

NOTE
SEE FOLLOWING SHEETS
FOR DETAIL VIEWS

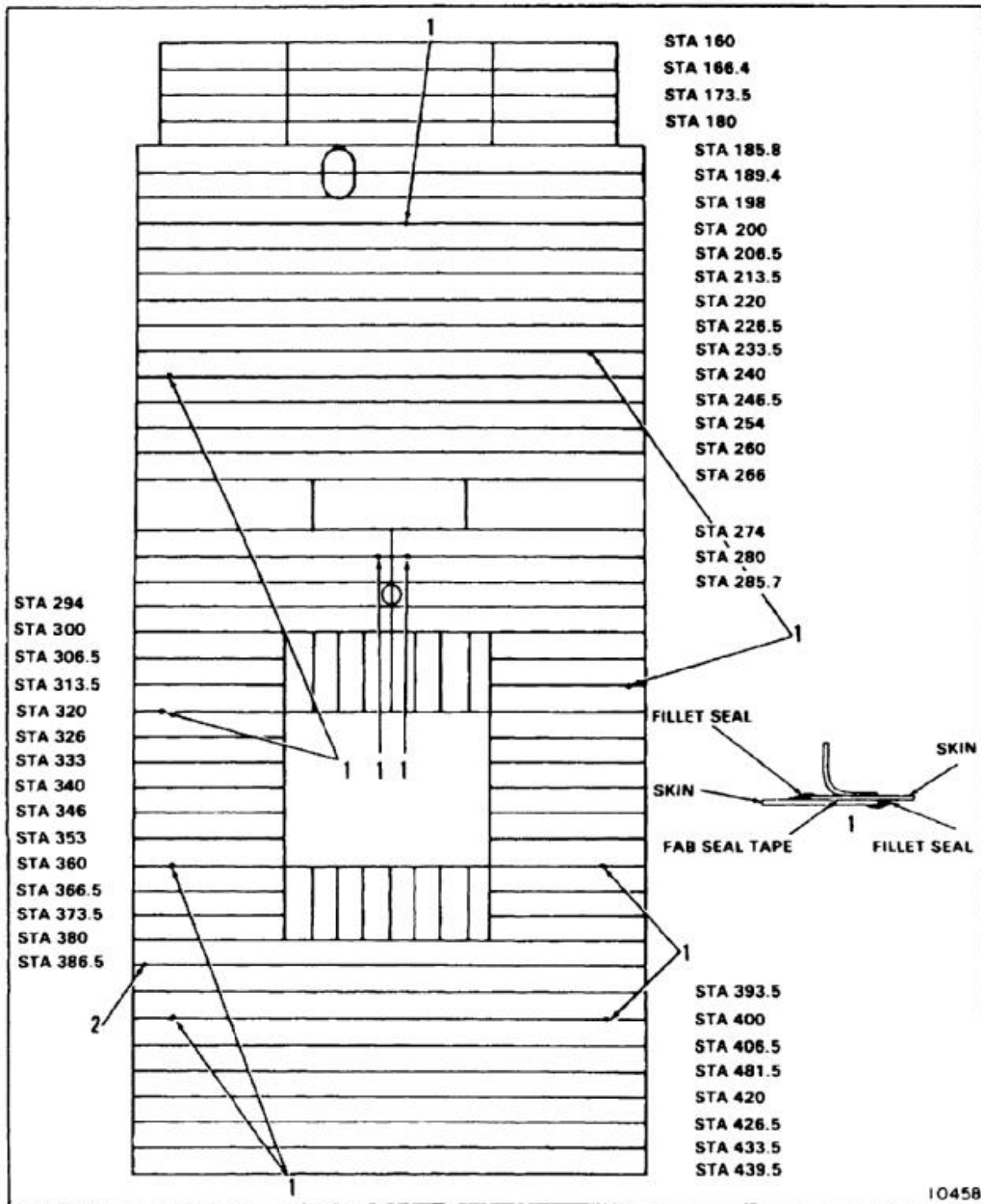


- 1 MATING SURFACE SEALANT BETWEEN SKIN LAP
- 2 MATING SURFACE SEALANT BETWEEN SKIN AND PART
- 3 FILLET SEAL ALONG EDGE
- 4 FILLET SEAL AROUND WINDSHIELD WIPER POST

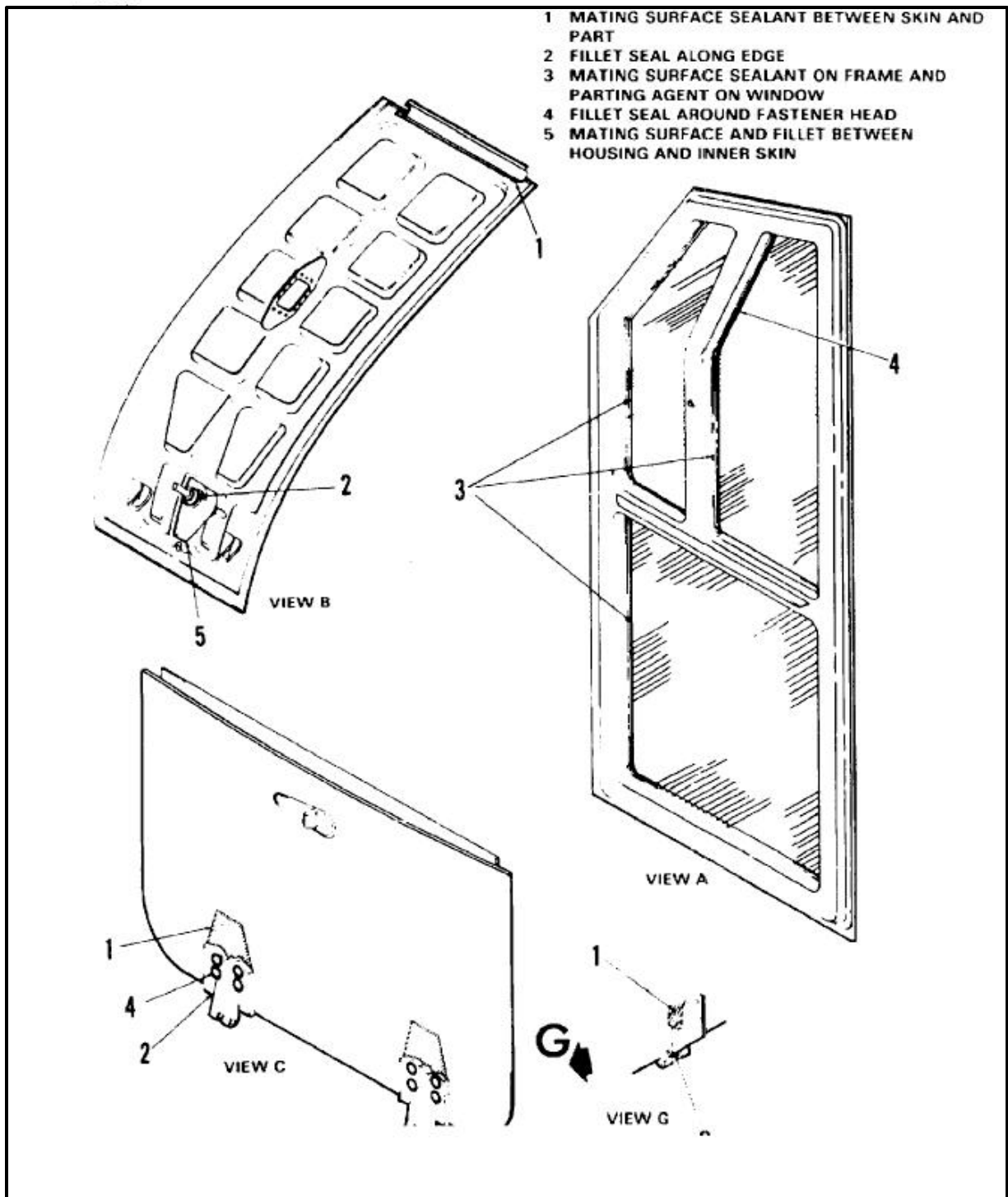
Fuselage Sealing (Sheet 1 of 12)



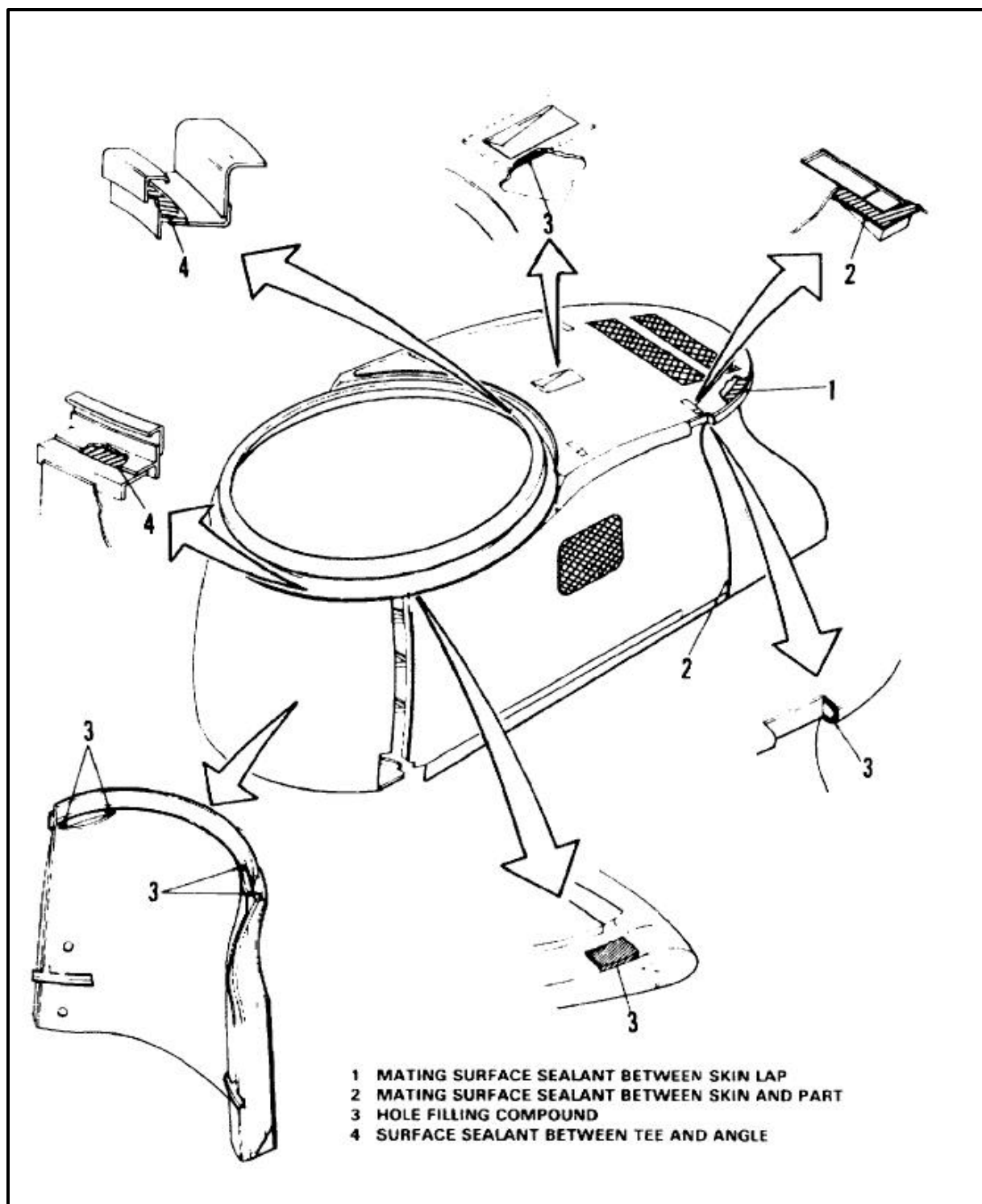
Fuselage Sealing (Sheet 2 of 12)



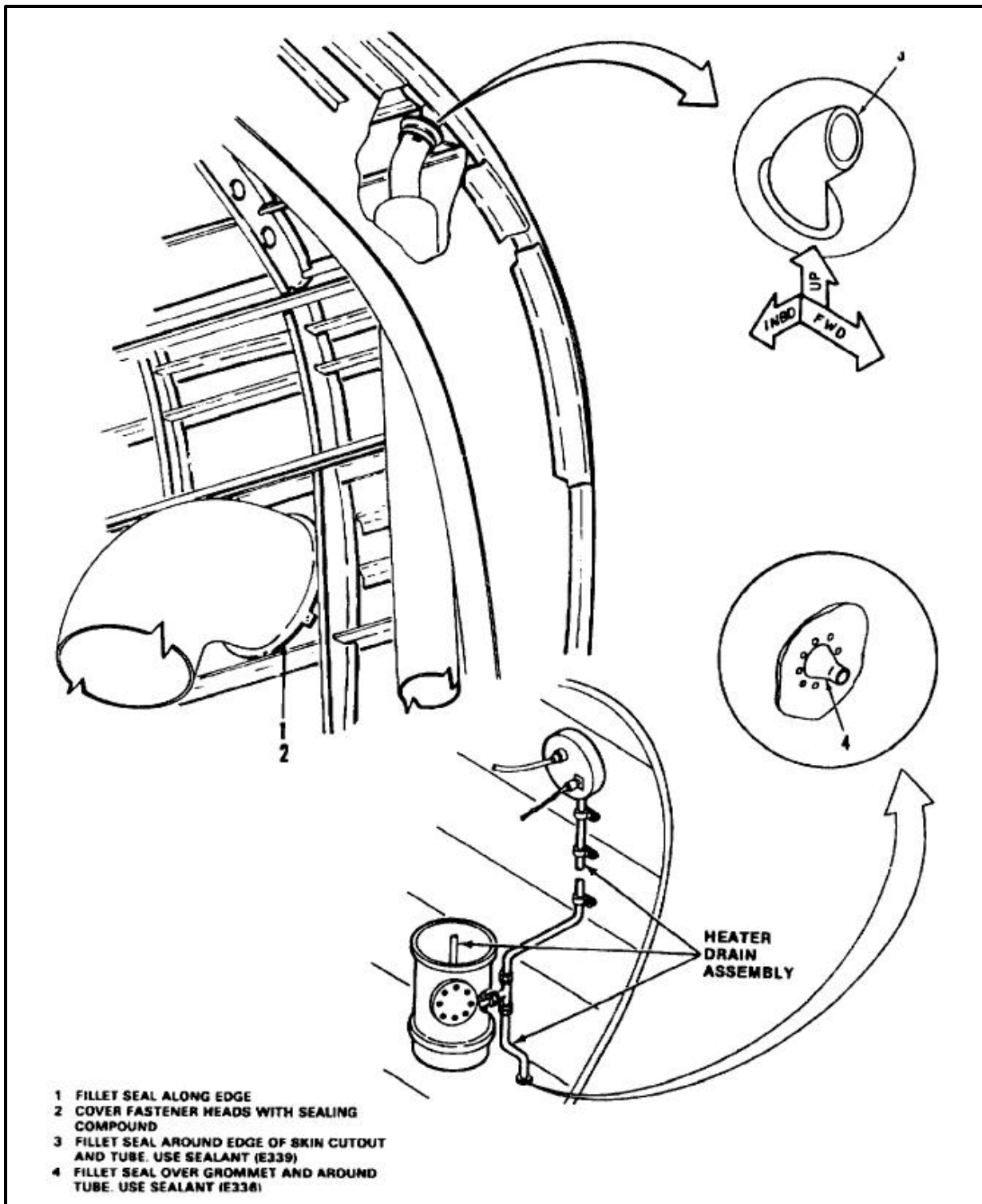
Fuselage Sealing (Sheet 3 of 12)



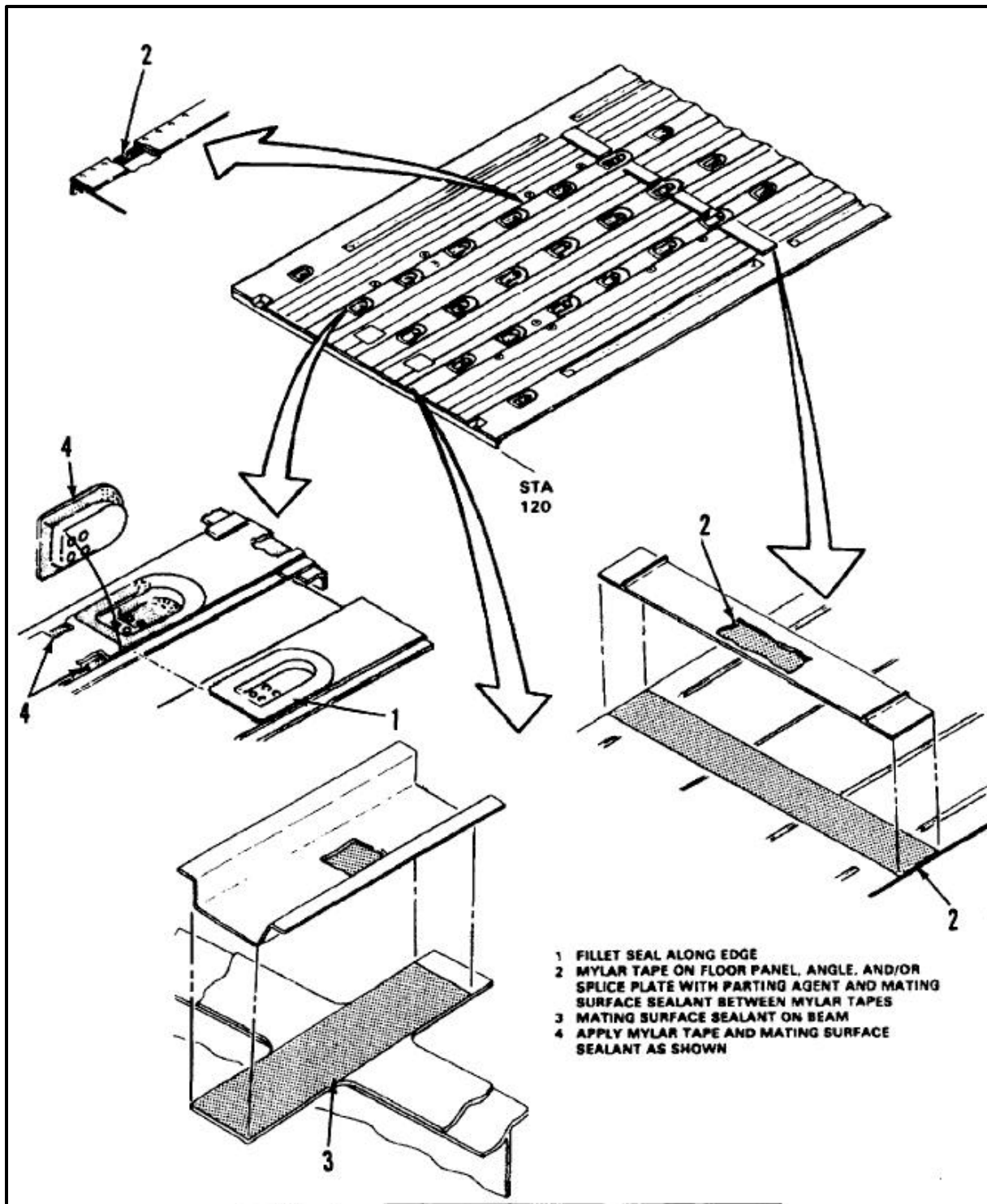
Fuselage Sealing (Sheet 4 of 12)



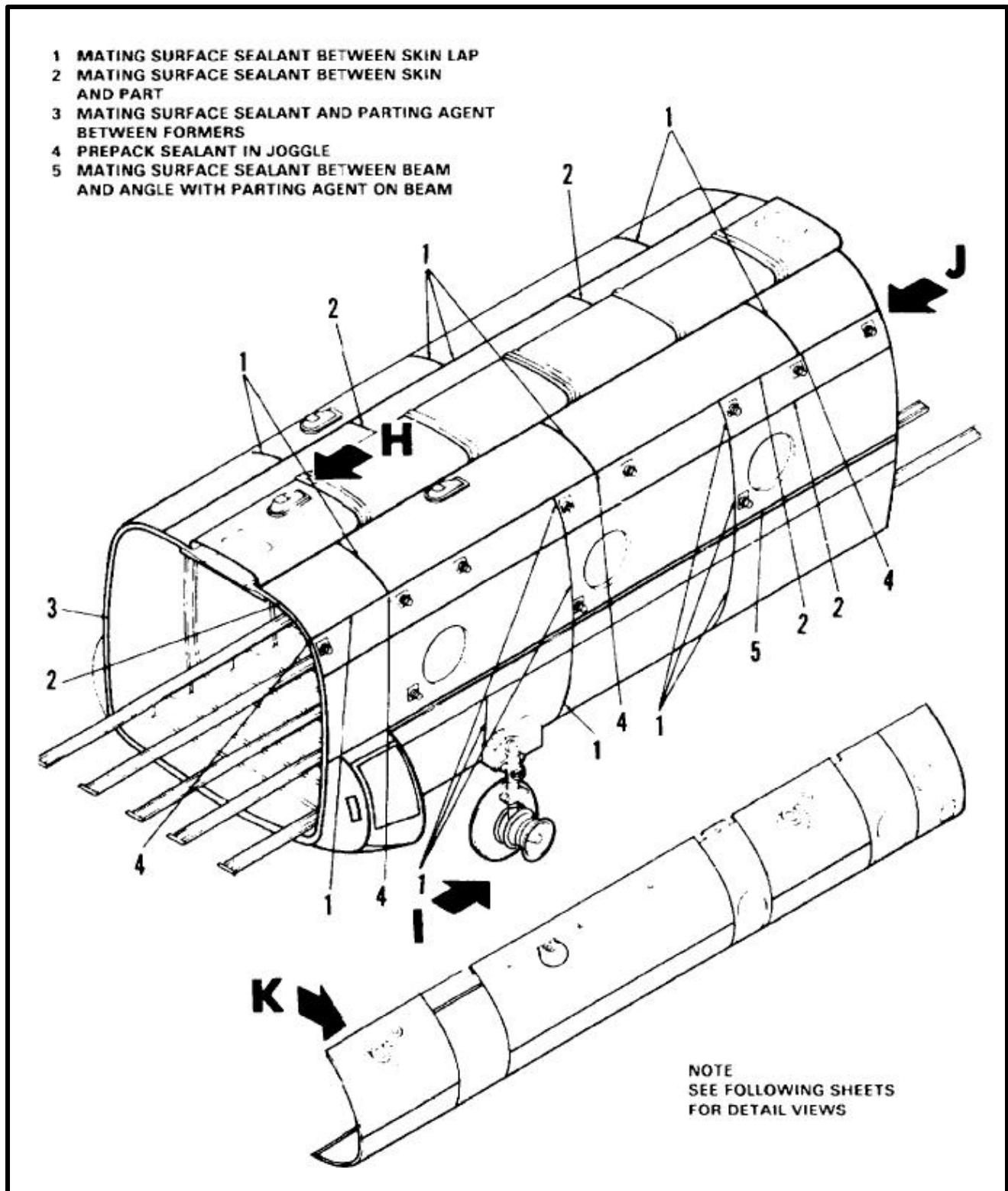
Fuselage Sealing (Sheet 5 of 12)



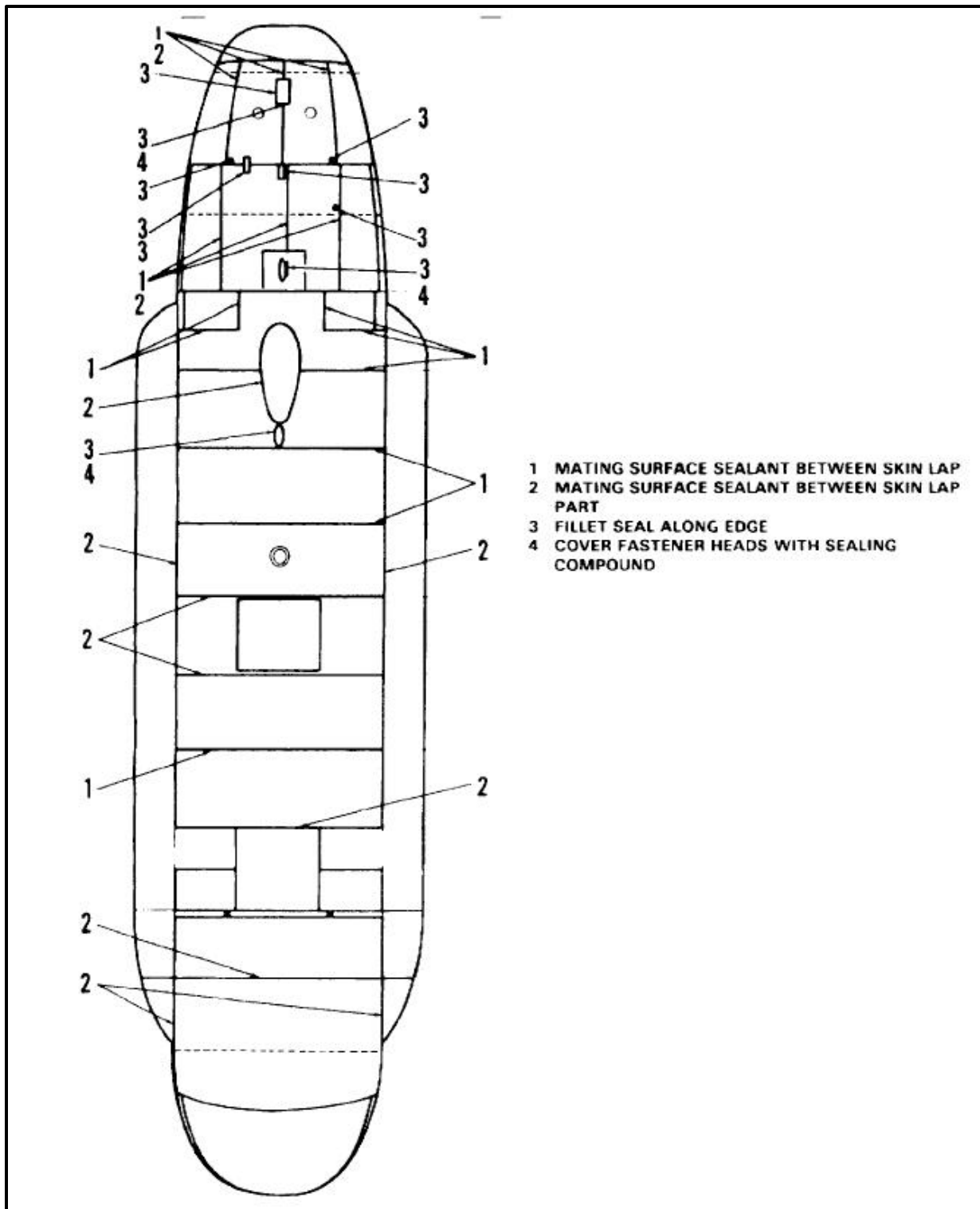
Fuselage Sealing (Sheet 6 of 12)



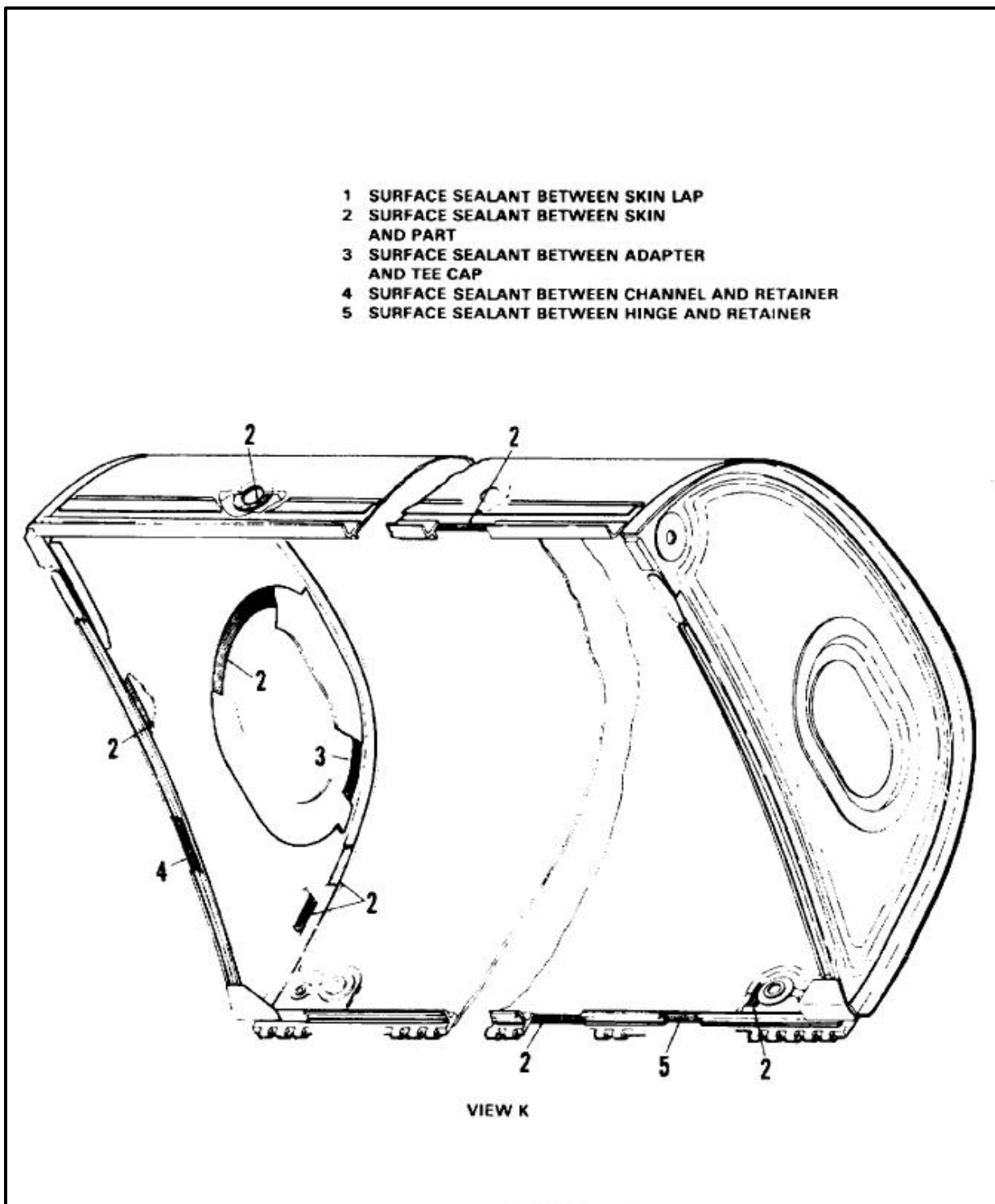
Fuselage Sealing (Sheet 7 of 12)



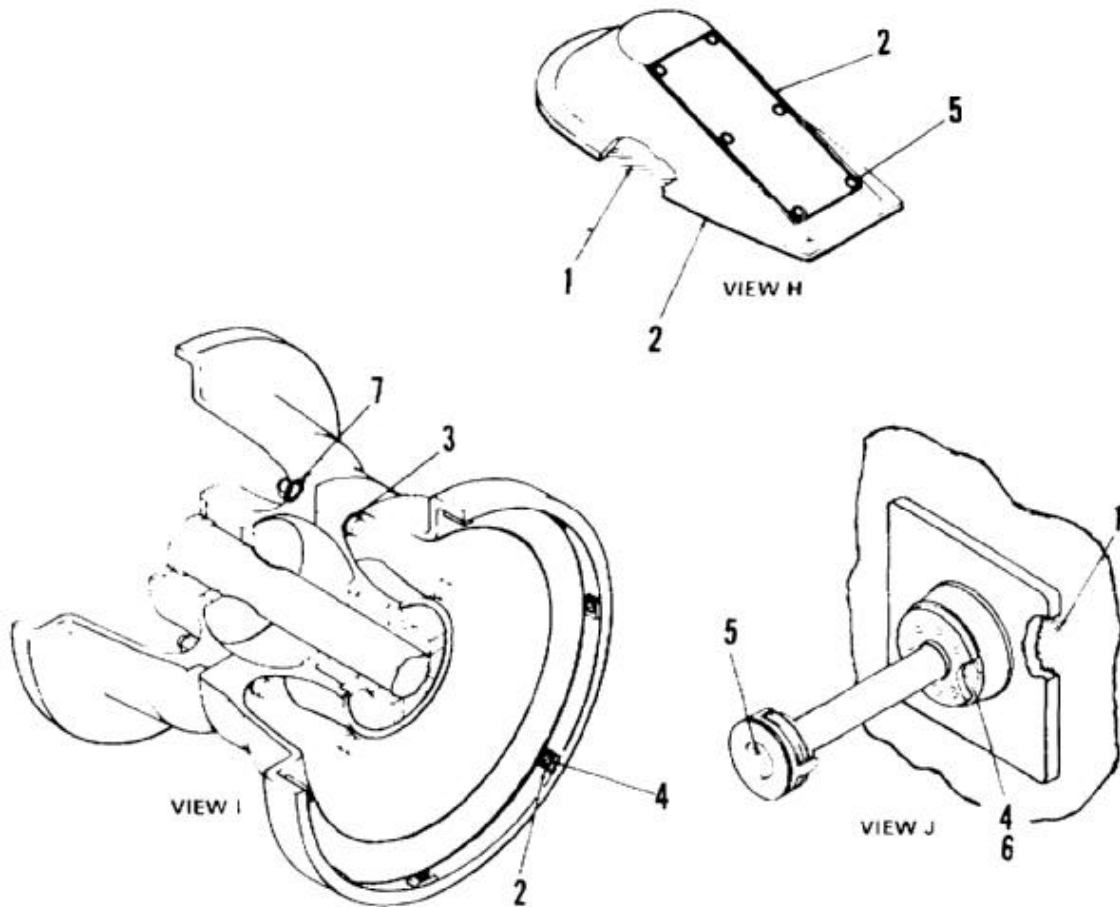
Fuselage Sealing (Sheet 8 of 12)



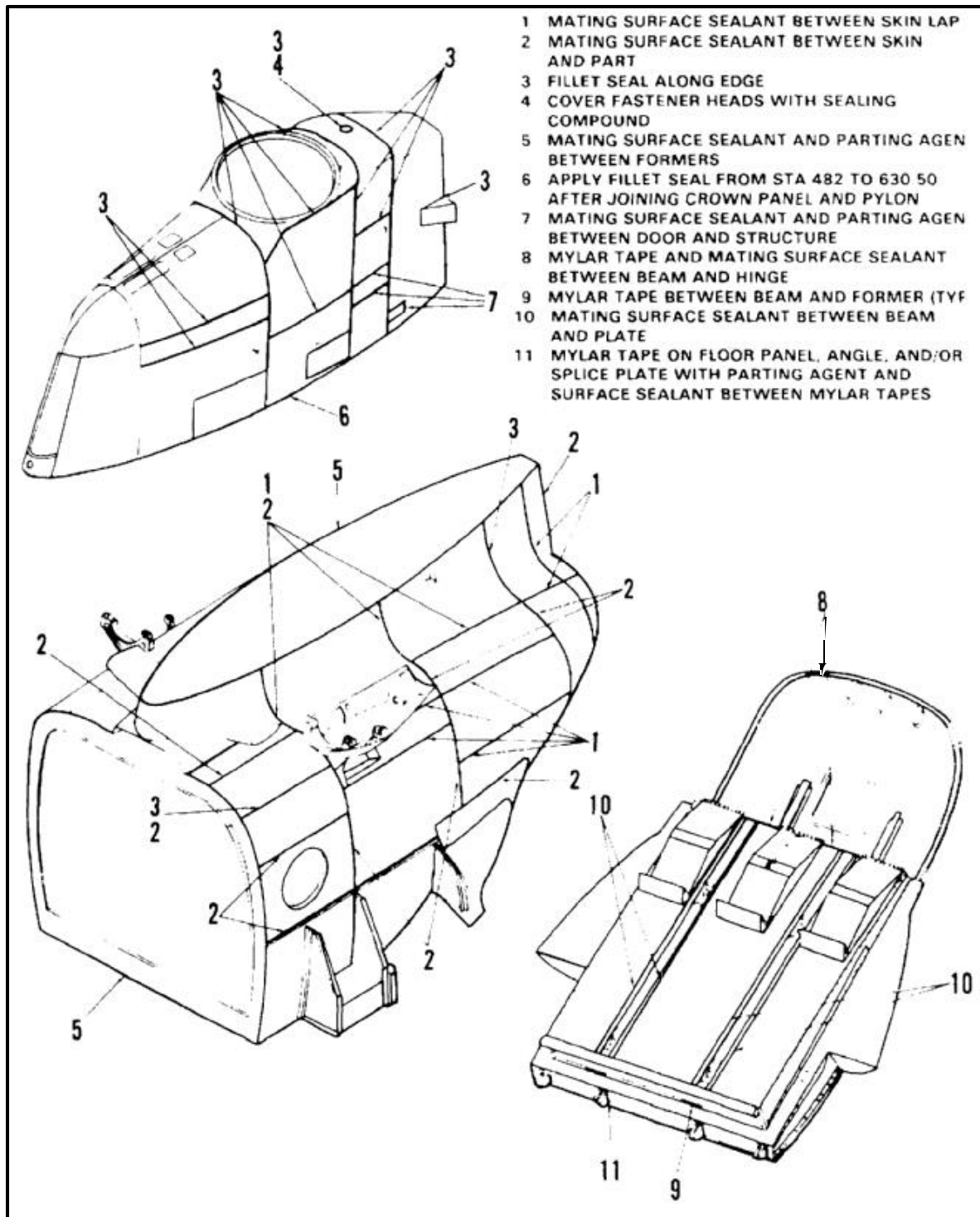
Fuselage Sealing (Sheet 9 of 12)

*Fuselage Sealing (Sheet 10 of 12)*

- 1 MATING SURFACE SEALANT BETWEEN SKIN AND PART
- 2 FILLET SEAL ALONG EDGE
- 3 FILLET SEAL AROUND FASTENER HEAD
- 4 COVER FASTENER HEADS WITH SEALING COMPOUND
- 5 APPLY SEALANT TO FASTENER BEFORE INSTALLATION
- 6 MATING SURFACE SEALANT ON STANDOFF ATTACHING SURFACE
- 7 APPLY PARTING AGENT TO EXPOSED SURFACES OF BOLT, NUT, AND WASHER. APPLY SEALANT OVER PARTING AGENT
- 8 APPLY FILLET SEAL FROM STA 482 TO 630.50 AFTER JOINING CROWN PANEL AND PYLON



Fuselage Sealing (Sheet 11 of 12)



Fuselage Sealing (Sheet 12 of 12)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

SECTION VI
GENERAL INFORMATION FOR MISCELLANEOUS DATA

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

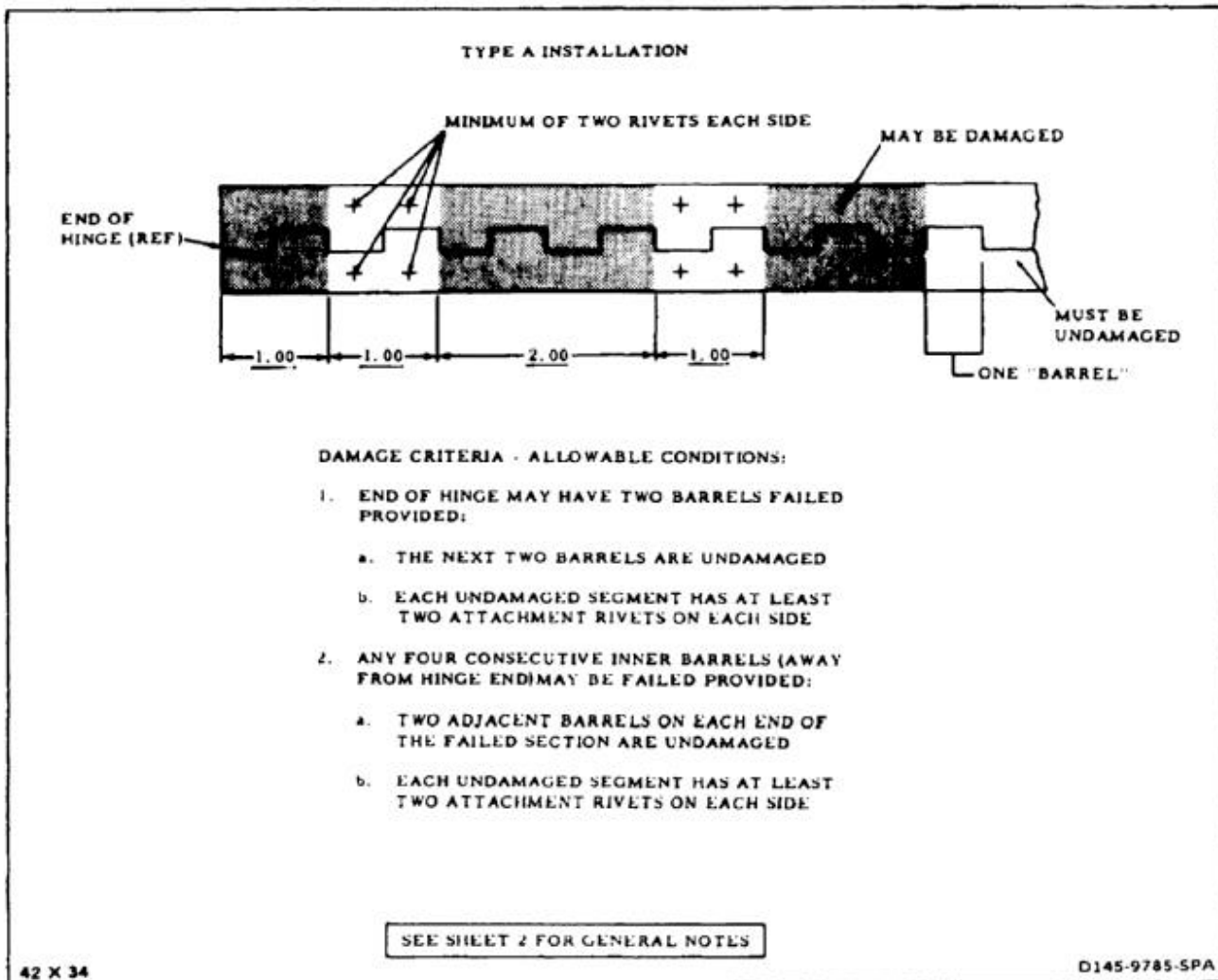
Equipment Condition:

As Required

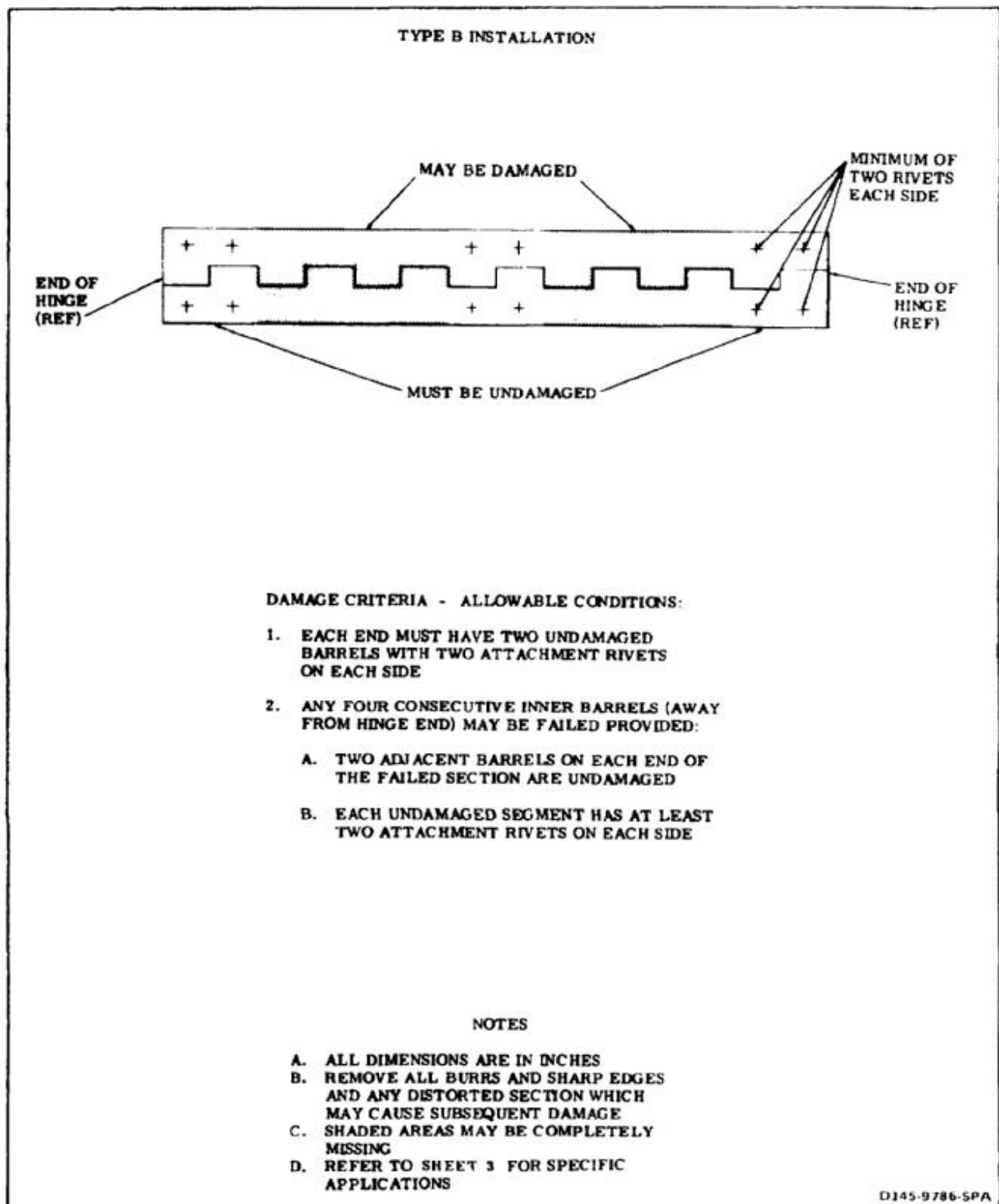
General Safety Instructions:

As Required

1. Repair hinges by removing segments or barrels. Determine maximum allowable damage prior to beginning repair. See table.
2. Replace entire hinge assembly if damage exceeds maximum allowable.



Hinge Repairs (Sheet 1 of 4)



Hinge Repairs (Sheet 2 of 4)

HINGE PART NO.	NOMENCLATURE	MATERIAL	INSTALLATION AND REPAIR (SEE NOTES)
114S3607-79	Leaf-butt hinge-drip tray-aft xmsn	MS20001	A
114S2609-11	Hinge, assy-step-cabin-side	MS20001	F
114S1632-21	Leaf, butt hinge-door access-nose	MS20001PH4	A
114S1901-81	Hinge, fairing-fwd pylon	MS20001PH6	B
114S5901-71	Leaf, butt hinge-fwd pod sta. 245	MS20001PH6	A
114S6107-43	Hinge, ramp sta. 98.955	MS20001PH9	A
145S6102-5	Hinge, ramp sta. 98.955 with 22	VS90560	A
114S5910-35	Hinge, half-fairing assy-aft	MS20001PH10	C
114S6701-31	Leaf, butt hinge-aft pod	MS20001PX12	C
114S6701-32	Leaf, butt hinge-former-ramp sta. 98.955	MS20001PX12	C
114S6701-33	Leaf, butt hinge-former-ramp sta. 98.955	MS20001PX14	C
114S2905-313	Hinge-tunnel cover	MS20257-4-6.50	C
114S3904-19	Hinge, door access	VS20101-1-2	C
114S3903-15	Leaf, butt hinge-access door-xmsn	VS20101-1-2	C
114S3903-17	Leaf, butt hinge-access door-xmsn	VS20101-1-2	C
114S5907-65	Leaf, butt hinge-aft pod-sta. 482	VS20101-1-2	C
114S5907-63	Hinge, half-aft pod-sta. 482	VS20101-1-2	C
114S3904-17	Hinge, door-access-sta. 482-534	VS20101-1-2	C
114S3905-35	Hinge, half-access door-hyd. test	VS20101-1-4	G
114S1853-15	Hinge, assy-upper-cabin door	VS60904	D
114S1853-17	Hinge, assy-upper-cabin door	VS60904	C
114S2850-1	Hinge, assy-elect. pod compartment	VS60904	D
114S2506-69	Hinge, structural-bottom cabin-sta. 180-440	VS90522	H
114S6604-21	Hinge, pad-cargo loading ramp-aux	VS90565-2014T6	E
114P8012-1	Hinge, half-cowl-eng	AL ALY 356T6	D
114P8013-2	Hinge, half-cowl-eng	AL ALY 356T6	D
114P8011-5	Leaf, assy-access cover-eng	AL ALY 2024-T4	D
114P8011-6	Leaf, assy-access cover-eng	AL ALY 2024-T4	D
114P8013-10	Leaf, assy-access cover	MIL-T-9046 Class II casting	D
114P8014-10	Hinge, half-cowl	Invest casting	D
114P8014-9	Hinge, half-cowl	SST Casting 17-4PH	D
114S2610-35	Hinge, half-cowl	MS20001PY4-400	C
114S3615-9	Hinge, panel assy-apu	MS20001PY4	C
114S5612-12	Hinge, step-foldout-pod	MS00001H8-940	A
114S5612-19	Hinge, step-foldout-pod	MS00001H8-940	A
114S5901-65	Hinge, access panel instl -fwd sta. 245	MS20001PH6	A
114S5901-66	Hinge, access panel instl -fwd sta. 245	MS20001PH6	A
114S5901-72	Hinge, access panel instl -fwd sta. 245	MS20001PH6	A
114S5901-115	Hinge, access panel instl -fwd sta. 245	MS20001PH6	A
114S5901-121	Hinge, access panel instl -fwd sta. 245	MS20001PH6	A
114S5901-128	Hinge, access panel instl -fwd sta. 245	MS20001PH6	A
114S5901-129	Hinge, access panel instl -fwd sta. 245	MS20001PH6	A
114S5901-130	Hinge, access panel instl -fwd sta. 245	MS20001PH6	A
114S5901-131	Hinge, access panel instl -fwd sta. 245	MS20001PH6	A
114S5902-19	Hinge, pnl, instr. ext pwr recep-sta. 160-180	VS20101-2-2	C
114S5902-21	Hinge, pnl, instr. ext power recep	VS20101-2-2	C
114S5931-43	Hinge, access pnl, instl pod-sta. 438.51-460	VS90528X18-7-7075T6	A
114S5931-44	Hinge, access pnl, instl pod	VS90528X18-7-7075T6	A

Hinge Repairs (Sheet 3 of 4)

2-325 REPAIR HINGES (Continued)**2-325**

HINGE PART NO.	NOMENCLATURE	MATERIAL	INSTALLATION AND REPAIR (SEE NOTES)
114S6710-2	Hinge, cargo loading ramp aux	VS20102-1	B
114S6710-3	Hinge, cargo loading ramp aux	VS20103-3	B
114S1632-33	Hinge, door assy-nose compartment	VS90527	B
114S4901-39	Hinge, leading edge fairing assembly	MS20001PH6	B
114S4901-40	Hinge, leading edge fairing assembly	MS20001PH6	B
114S4101-37	Hinge, aft pylon former sta. 482.00	MS20001PH6	B
114S4101-38	Hinge, aft pylon former sta. 482.00	MS20001PH6	B

NOTES**DAMAGE CRITERIA — ALLOWABLE CONDITIONS**

- A. Type A installation.
1. End of hinge may have two barrels failed provided:
 - a. The next two barrels are undamaged.
 - b. Each undamaged segment has at least two attachment rivets on each side of the hinge.
 2. Any four consecutive inner barrels (away from hinge end) may be failed provided:
 - a. Two adjacent barrels on each end of the failed section are undamaged.
 - b. Each undamaged segment has at least two attachment rivets on each side.
- B. Type B installation. (Sheet 2)
1. Each end must have two undamaged barrels with two attachment rivets on each side.
 2. Any four consecutive inner barrels (away from hinge end) may be failed provided:
 - a. Two adjacent barrels on each end of the failed section are undamaged.
 - b. Each undamaged segment has at least two attachment rivets on each side.
- C. Type C installation. Non-continuous hinge. Replace hinge if either end has one full failed barrel.
- D. Type D installation. Single connection hinge. Replace if failed.
- E. Type E installation. Stress critical. Replace if any barrel has failed.
- F. Type F installation — Spring type. Replace if more than two end barrels or one barrel adjacent to spring has failed.
- G. Type G installation — Multiple section continuous hinge. Replace if more than one whole section of barrels has failed.
- H. The following lug removal criteria apply:
1. Between sta. 180 and 374, a maximum of three successive lugs can be removed if a minimum of four undamaged lugs remain on each side of damaged lugs.
 2. Between sta. 375.5 and 400.9, a maximum of four successive lugs can be removed if a minimum of seven undamaged lugs remain on each side of damaged lugs.
 3. Between sta. 400.9 and 441.5, a maximum of three successive lugs can be removed if lugs adjacent to pod formers at 518 400.9, 413.5, 425.7, 438.5, and 441 remain undamaged.

Hinge Repairs (Sheet 4 of 4)**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

Refer to TM 1-1500-204-23 for riveting procedures and identification. Additional information on rivets, including alloy selection, row distance, and pitch, as may be necessary to accomplish repairs is shown.

1. Acceptable Rivet Inspection Criteria.
 - a. The head of a flush rivet should be flush with the surface with no significant deviation above or below this level. The rivet should be centered in the countersink to provide continuous contact around the head of the rivet.
 - b. The head of a protruding head rivet should provide continuous contact with the surface; that is, there should be no significant head tilt relative to the surface.
 - c. The tails of both of the above rivets should provide continuous circumferential contact between the tail and the local surface.
 - d. There should be no damage to the rivet or local surface such as that resulting from bucking bar slippage.
 - e. A truly loose rivet will be moveable by hand and should be replaced.

RIVET SELECTION AND SPACING WHEN REPAIRING ALUMINUM ALLOY PARTS

GAGE OF THICKEST PIECE	TYPE OF REPAIR RIVET		PITCH		ROW DISTANCE
	STANDARD	BLIND	MINIMUM	MAXIMUM	
0.020	* 3	** 4	0.375	0.500	0.437
0.025	* 4	** 5	0.500	0.625	0.500
0.032	* 4	** 5	0.562	0.687	0.500
0.040	* 5	** 6	0.687	0.812	0.625
0.051	* 5	** 6	0.687	0.750	0.562
0.064	*** 6	** 6	0.812	1.062	0.625
0.072	*** 6	** 6	0.750	1.062	0.687
0.081	*** 6	** 6	0.625	0.937	0.687
0.091	*** 6	** 6	0.625	0.750	0.687
0.102	10	** 6	1.562	1.812	0.875
0.250	10	** 6	1.187	1.375	0.875

* MS20470AD or MS20426AD.

** MS20600AD or MS20601AD.

*** MS20470DD or MS20426DD AN hex head bolt or steel lockbolts (HUCK MFG. CO).

RIVET SELECTION AND SPACING WHEN REPAIRING CORROSION-RESISTANT STEEL PARTS

GAGE OF THICKEST PIECE	TYPE OF REPAIR RIVET		PITCH		ROW DISTANCE
	STANDARD	BLIND	MINIMUM	MAXIMUM	
0.025	* 4	** 5	0.562	0.687	0.500
0.030	* 4	** 5	0.437	0.562	0.600
0.036	* 5	** 6	0.750	0.875	0.625
0.042	* 5	** 6	0.687	0.812	0.625
0.042	* 6	** 6	0.875	1.00	0.687
0.060	* 6	** 6	0.812	1.062	0.687

* MS20615M or MS20427M.

** MS20600M or MS20601M.

RIVET SELECTION AND SPACING WHEN REPAIRING MAGNESIUM ALLOY PARTS

GAGE OF THICKEST PIECE	TYPE OF REPAIR RIVET		PITCH		ROW DISTANCE
	STANDARD	BLIND	MINIMUM	MAXIMUM	
0.020	* 3	* 4	0.375	0.500	0.437
0.025	* 4	** 5	0.500	0.625	0.500
0.032	* 4	** 5	0.562	0.687	0.500

* MS20470B or MS20426B.

** MS20600B or MS20601B.

- NOTES:**
- All dimensions are shown in inches unless otherwise noted.
 - When installing flush-type rivets, material must be dimple countersunk if **0.063** or thinner, and machine countersunk if thicker than **0.063**.
 - Maintain 2D edge distance when installing all rivets. See sheet 2 of this figure for minimum acceptable edge distance.

Rivet Spacing, Selection, and Acceptability Limits (Sheet 1 of 6)

MINIMUM ACCEPTABLE RIVET EDGE DISTANCES FOR ALUMINUM ALLOY RIVETS



MINIMUM RIVET EDGE DISTANCES

RIVET DIA IN SHEET THICKNESS 32NDS	NONFLUSH-TYPE RIVETS				FLUSH - TYPE RIVETS			
	3	4	5	6	3	4	5	6
0.020	0.156	0.218	0.265	--	0.187	0.281	0.328	--
0.025	0.156	0.218	0.265	0.328	0.187	0.281	0.328	0.390
0.032	0.140	0.218	0.265	0.328	0.171	0.281	0.328	0.390
0.040	0.125	0.187	0.234	0.328	0.156	0.250	0.328	0.390
0.051	0.109	0.156	0.203	0.312	0.140	0.218	0.296	0.375
0.064	--	0.140	0.187	0.265	--	0.203	0.265	0.328
0.072	--	0.140	0.171	0.250	--	0.203	0.250	0.312
0.081	--	0.125	--	0.234	--	--	0.234	0.296
0.102	--	--	--	0.203	--	--	--	0.265

* USE MS20470DD OR MS20426DD RIVETS

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. MINIMUM EDGE DISTANCES SHOWN ARE APPLICABLE ONLY TO ROWS OF RIVETS CONTAINING THREE OR MORE RIVETS, AND FURTHER LIMITED TO A MAXIMUM OF 30 PERCENT OF TOTAL RIVETS IN A ROW

ACCEPTABILITY LIMITS										
RIVET DIA IN UNDS	DIMENSIONS OF SHOP HEAD					CRACKED HEADS	COCKED (BEVELED) HEADS			
	NOMINAL		MINIMUM	MAXIMUM	MAXIMUM		MINIMUM	MINIMUM	MAXIMUM	
	DIAMETER $1.5D$	HEIGHT $0.5D$	DIAMETER $1.333D$	HEIGHT $0.666D$	DIAMETER $1.666D$		HEIGHT $0.333D$	**	***	
	COND 1		COND 2		COND 3		COND 4		COND 5	
3	0.141	0.047	0.122	0.042	0.157	0.031	0.023	0.070		
4	0.188	0.063	0.163	0.053	0.208	0.042	0.031	0.094		
5	0.234	0.078	0.201	0.064	0.260	0.052	0.039	0.117		
6	0.281	0.094	0.245	0.075	0.312	0.063	0.047	0.141		
8	0.375	0.125	0.325	0.100	0.416	0.083	0.063	0.188		
10	0.469	0.156	0.408	0.128	0.520	0.104	0.078	0.235		
12	0.562	0.188	0.487	0.150	0.625	0.125	0.094	0.281		
LIMITING DEFECT						ACCEPTABLE	NOT ACCEPTABLE			
REMARKS		RIVETS NOT CONFORMING TO THE ABOVE LIMITATIONS CAN BE RESTRUCTURED ON SHOP HEAD IF HEAD THICKNESS PERMITS. REFER TO NOTE B.				REFER TO NOTE D.		MEAN HEIGHT CANNOT BE LESS THAN $0.333D$		

MEAN HEIGHT OF SHOP HEAD * HEIGHT OF SHOP HEAD AT THINNEST PART ** HEIGHT OF SHOP HEAD AT THICKEST PART

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. DO NOT RESTRIKE TYPE OR RIVETS AFTER INITIAL DRIVING

C. THE LIMITS SHOWN ARE THE MINIMUM ALLOWABLE AND SHALL

D. NOT BE APPLIED TO DYNAMICALLY BALANCED COMPONENTS

E. SEE SHEET 5 OF THIS FIGURE FOR CLARIFICATION OF CRACKED HEADS AND APPLICABLE ACCEPTABLE LIMITS

42 X 51 0145-9788-SPA

Rivet Spacing, Selection, and Acceptability Limits (Sheet 3 of 6)

ACCEPTABILITY LIMITS

COND.	COND. 6	COND. 7	COND. 8	COND. 9	COND. 10	COND. 11	COND. 12	COND. 13	
	COND. 6	COND. 7	COND. 8	COND. 9	COND. 10	COND. 11	COND. 12	COND. 13	COND. 13
COND.									
REMARKS	CAN BE USED FOR SHOP HEAD AND RIVET DIA. $\geq .125$ AND GREATER.	THE USE OF A FLAT SET IS PERMITTED ON THE MANUFACTURED HEAD.	THE HEAD CAN BE TANGENT TO THE SHANK. NOT ACCEPTABLE IF THE HOLE SHOWS OR FOR USE IN SECTIONS OF INTEGRAL TANKS.	NOT ACCEPTABLE. PROBABLY CAUSED BY THE USE OF A SMALL RIVET SET.	MAX. DEPTH IS 1/4 HEAD HEIGHT.	STEPPED PART OF HEAD TO BE NOT LESS THAN ALLOWABLE MINIMUM HEAD THICKNESS. NOT NECESSARY TO CHIP OR FILE THE HIGH PART.	NOT ACCEPTABLE IF RIVET IS LOOSE OR IF A 0.002 FEELER GAGE CAN BE INSERTED TO SHANK. RIVET CAN BE RE-STROCK TO REDUCE CLEARANCE NOT ACCEPTABLE FOR USE IN SECTIONS OF INTEGRAL TANKS. REFER TO NOTE B.		
REMARKS	<p>REMARKS</p> <p>COND. 13 MANUFACTURED HEAD</p> <p style="text-align: center;">NOTES</p> <p>A. ALL DIMENSIONS ARE IN INCHES</p> <p>B. DO NOT RESTRIKE TYPE DD RIVETS</p>								

42 X 51

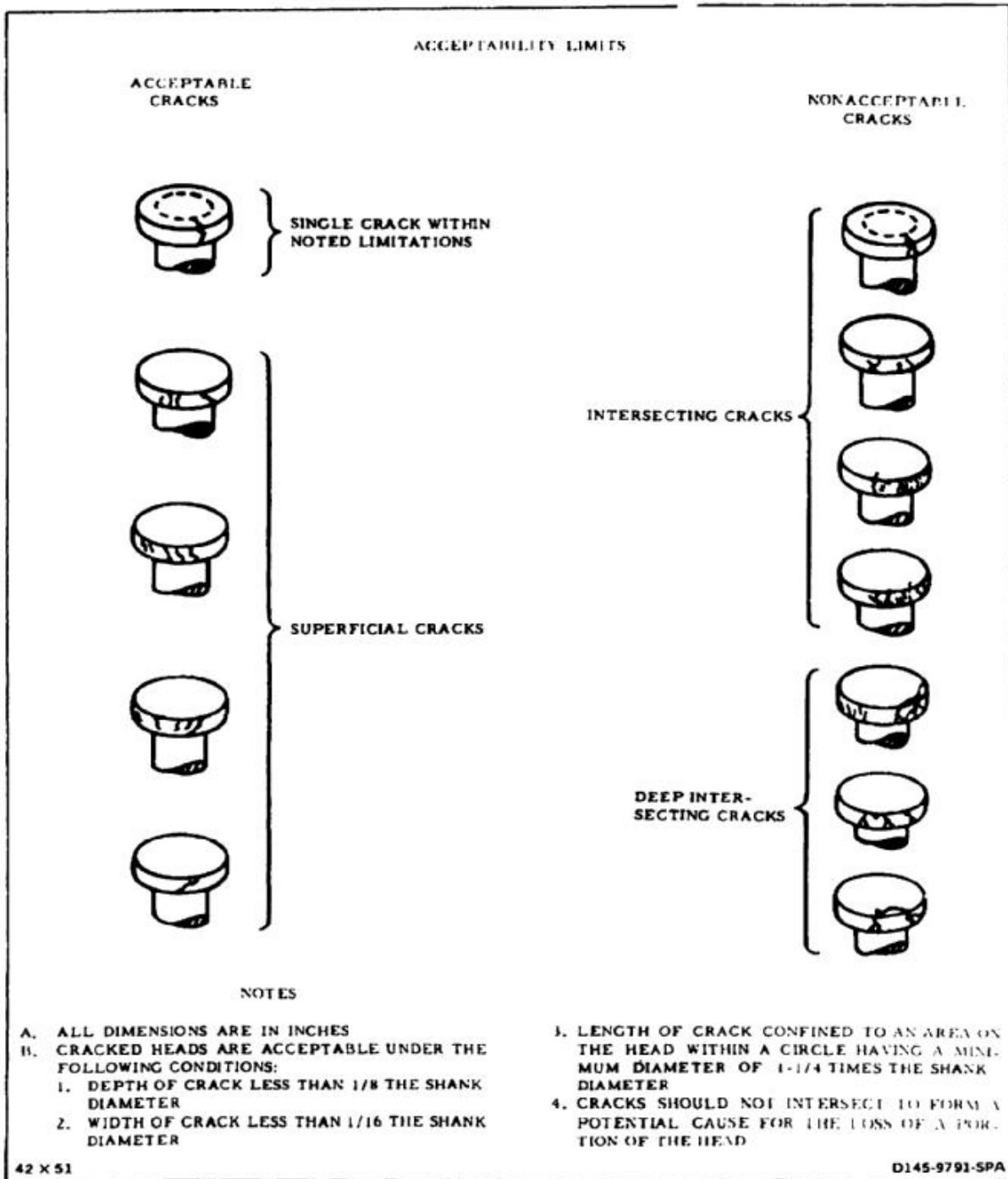
D145-9789-5PA

ACCEPTABILITY LIMITS						
C O N D I T I O N	SWELLED RIVET (SHEET BUCKLED AT RIVET)		OPEN	PARTIALLY OPEN	PROJECTING HEAD	DEPRESSED HEAD
	INTERNAL GAP	OPEN GAP	COUNTERSUNK RIVET	COUNTERSUNK RIVET	COUNTERSUNK RIVET	COUNTERSUNK OR DIMPLED RIVET
	COND 14	COND 15	COND 16	COND 17	COND 18	COND 19
L I M I T I N G D E F E C T						
R E M A R K S	ACCEPTABLE IF CASE IS ISOLATED. LIMITED TO NOT MORE THAN THREE NON-CONSECUTIVE RIVETS IN A ROW OF TEN RIVETS	RESTRIKE IF A 0.001 FEELER GAGE CAN BE INSERTED TO SHANK. IF THIS DOES NOT CORRECT, REMOVE RIVET AND CLEAN OUT CHIPS. MAX EDGE GAP 0.015. OPEN GAP NOT ACCEPTABLE IN INTEGRAL TANK SECTIONS. REFER TO NOTE B.	NOT ACCEPTABLE. IF SKIN THICKNESS PERMITS, REMOVE RIVET AND RE-COUNTER-SINK FOR NEXT LARGER DIAMETER. IF APPROVED EQUIPMENT IS AVAILABLE, THE SHOP HEAD CAN BE FORMED IN THE COUNTERSINK AND ANY PROJECTION SHAVED FLUSH	TYPICAL MAXIMUM TOLERANCE IS 0.004. SPECIFIC TOLERANCES ARE DEPENDENT UPON LOCATIONS	REPLACE RIVET IF HEAD IS MORE THAN 0.004 BELOW SURFACE. IF MACHINE COUNTER-SUNK AND SKIN THICKNESS PERMITS, REPLACE WITH NEXT LARGER DIAMETER RIVET. FORM SHOP HEAD OF REPLACEMENT RIVETS IN THE COUNTERSINK	
<p>NOTES</p> <p>A. ALL DIMENSIONS ARE IN INCHES</p> <p>B. DO NOT RESTRIKE TYPE DD RIVETS</p>						

42 x 51

D145-9790-5PA

Rivet Spacing, Selection, and Acceptability Limits (Sheet 5 of 6)



Rivet Spacing, Selection and Acceptability Limits (Sheet 6 of 6)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1156

2-327 SUBSTITUTE AN BOLTS FOR AN RIVETS**2-327****INITIAL SETUP****Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Substitute AN bolts for AN rivets as follows:
 - a. When rivets left out on assembly cannot be installed.
 - b. Where edge distance is less than **1-1/2 times** diameter of rivet.

NOTE

Minimum edge distance of **two times** diameter of rivet is preferred.

2. Replacement sizes are as follows:

RIVET ALLOY AND DIA	BOLT SIZE
AD4, 5, 6	AN3 or AN23
AD8	AN4DD or AN24
AD10	AN5DD or AN25
AD12	AN6DD or AN26

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Drill rivet hole to size as follows:

RIVET ALLOY AND DIA	BOLT SIZE	HOLE DIA (INCHES)
AD4, 5, 6	AN3 or AN23	0.191 to 0.197
D8	AN4DD or AN24	0.250 to 0.257
AD10	AN5DD or AN25	0.3125 to 0.3195
AD12	AN6DD or AN26	0.375 to 0.382

2. Install washers AN960 and nuts MS20364 as required.
3. Nuts MS20365 can replace nuts MS20364.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1158

2-329 SUBSTITUTE HUCK, HI-LOK, OR NAS BOLTS**2-329****INITIAL SETUP****Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Required Personnel:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

Equipment Conditions:

As Required

General Safety Instructions:

As Required

1. Substitute HUCK, HI-LOK or NAS bolts as follows:

HUCK PART NO.	HI-LOK PART NO.	NAS PART NO.	HOLE DIA (INCHES)
R3001-5	HL18-5	NAS1465	0.161 to 0.164
R3001-6	HL18-6	NAS1466	0.185 to 0.188
R3001-8	HL18-81	NAS1468	0.242 to 0.246
R3001-10	HL18-10	NAS1470	0.307 to 0.310
R3002-5	HL21-5	—	0.161 to 0.164
R3002-6	HL21-6	NAS1956	0.185 to 0.188
R3002-8	HL21-8	NAS1458	0.242 to 0.246
R3002-10	HL21-10	NAS1460	0.307 to 0.310

NOTE

Dash numbers for all bolts are the same.

Hole sizes apply to high-shear requirements.

Hole sizes do not apply to fasteners of splices installed at sta. 160.219 and 439.71.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

JO-BOLT PART NO.	V-BOLT PART NO.	HOLE DIA (INCHES)
WP 164	BA5A* H	0.164 to 0.168
WP 200	BA6A* H	0.199 to 0.203
WP 260	BA8A* H	0.261 to 0.265
WP312	BA10A* H	0.313 to 0.317
WF 164	BA5A* F	0.164 to 0.168
WF 200	BA6A* F	0.199 to 0.203
WF 260	BA8A *F	0.261 to 0.265
WF 312	BA10A *F	0.313 to 0.317

NOTE

JO-BOLTS numbers refer to its diameter.

The asterisk (*) is the position for the length dash number.

These fasteners are used mainly in blind installations.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-1160

2-331 SUBSTITUTE STANDARD BOLTS FOR HUCK BOLTS**2-331****INITIAL SETUP****Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Bolts or screws can be substituted for HUCK bolts as follows:
 - a. Use standard bolts or screw only when HUCK bolts or similar fasteners are not available.
 - b. Hole diameter must allow thread through without force, but bolt shank must be push fit.
2. When bolts replace HUCK bolts under shear forces, use NAS1103, NAS1303, NAS464, NAS624 or Hi-lok HL-18 bolts.
3. When bolts replace HUCK bolts under tension forces, use NAS624 bolts.
4. When replacing **3/16 inch** diameter (under tension forces) HUCK bolts, use NAS1303 bolts.
5. For emergencies, any steel bolt or screw of tensile strength **125,000 psi** and nominal hole diameter may be used. This fastener must be replaced within **25 flight hours**.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector

1. AN standard hex head or clevis bolts can replace or substitute screws AN525.
2. No AN standard hex head or clevis bolts can be replaced or substituted by screws.
3. Aluminum alloy bolts must not replace or substitute steel screws.

FOLLOW-ON MAINTENANCE:

None

References:

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

END OF TASK

2-1162

2-333 BOLT HOLE STANDARDS

2-333

INITIAL SETUP**Applicable Configurations:**

All

Tools:

None

Materials:

None

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Before replacing fitting installed with bolts, check holes in fitting and structure for oversize or oval.
2. Bolts **0.0625 inches** larger in diameter than original bolts can be used. Only one oversize bolt is allowed for each fitting.
3. Edge distance and hole sizes must be as follows:

Information on Bolts and Screws

DESCRIP- TION	STAN- DARD PART NUMBER	SIZE AND DIAMETER		HOLE SIZE FIT I LOOSE DRILL		HOLE SIZE FIT II CLOSE DRILL		HOLE SIZE FIT III REAM		HOLES SIZE FIT IV REAM (SPECIAL)		MINI- MUM SPAC- ING	MINI- MUM EDGE DIS- TANCE*
Washer	AN525-10	10-32	0.190	0.201	-0.000	0.191	-0.000	0.190	-0.0005	—	—	11/16	3/8
Head Screws	AN525-416	1/4-28	0.250	0.261	+0.006 -0.000	0.250	+0.006 -0.000	0.250	+0.0005 -0.0005	—	—	3/4	1/2
Counter- Sunk Head Screws	NAS-213	10-32	0.189	0.2031	+0.007 -0.002	0.191	+0.007 -0.002	—	+0.0005	—	—	11/16	3/8
	NAS-214	1/4-28	0.249	0.2656	+0.004 -0.002	0.250	+0.006 -0.000	—	—	—	—	3/4	1/2
	NAS-215	5/16-24	0.3115	0.3281	+0.005 -0.002	0.3175	+0.007 -0.000	—	—	—	—	—	—
	NAS-216	3/8-24	0.3740	0.3906	+0.005 -0.002	0.375	+0.007 -0.000	—	—	—	—	—	—
Hex Head Bolts	AN3	10-32	0.189	0.201	+0.005 -0.000	0.191	+0.007 -0.000	0.190	+0.0005 -0.0005	—	—	11/16	3/8
	AN4	1/4-28	0.249	0.261	+0.006 -0.000	0.250	+0.006 -0.000	0.250	+0.0005 -0.0005	—	—	3/4	1/2
	AN5	5/16-24	0.312	0.323	+0.007 -0.000	0.3125	+0.007 -0.000	0.3125	+0.0005 -0.0005	—	—	—	—
	AN6	3/8-24	0.374	0.386	+0.007 -0.000	0.375	+0.007 -0.000	0.375	+0.0005 -0.0005	—	—	—	—
	AN7	7/18-20	0.437	0.4531	+0.007 -0.000	0.4375	+0.007 -0.000	0.4375	+0.0005 -0.0005	—	—	—	—
	AN8	1/2-20	0.449	0.5156	+0.000 -0.000	0.500	+0.007 -0.000	0.500	+0.0005 -0.005	—	—	—	—
	AN9	9/18-18	0.562	0.5781	+0.008 -0.000	0.5625	+0.008 -0.000	0.5625	+0.0005 -0.0005	—	—	—	—
	AN10	5/8-18	0.624	0.6406	+0.008 -0.000	0.625	+0.008 -0.000	0.625	+0.0005 -0.0005	—	—	—	—
	AN12	3/4-18	0.749	0.7656	+0.008 -0.000	0.750	+0.008 -0.000	0.750	+0.0005 -0.0005	—	—	—	—
	Clevis Head Bolts	AN23	10-32	0.186	0.199	+0.010 -0.000	0.189	+0.010 -0.000	0.1875	+0.0005 -0.0010	0.1865	-0.0000	11/16
AN24		1/4-28	0.248	0.257	+0.006 -0.000	0.250	+0.006 -0.000	0.250	+0.0005 -0.0015	0.2485	+0.0005 -0.0000	3/4	1/2
AN25		5/16-24	0.311	0.323	+0.007 -0.000	0.3125	+0.007 -0.000	0.3125	+0.0005 -0.0010	0.3115	+0.0005 -0.0000	—	—
AN26		3/8	0.373	0.386	+0.007 -0.000	0.375	+0.007 -0.000	0.375	+0.0005 -0.0015	0.0375	+0.0005 -0.0000	—	—

*Minimum edge distance applies only to sheet construction.

FIT I Used to attach brackets and accessories, or where several bolts attach sheet or plate material.

FIT II Used in primary structure where several bolts are used in a rigid joint.

FIT III Used where one or two bolts are subject to reversible loads, vibration, or both.

FIT IV Used where minimum clearance is to be maintained and units subjected to shear loads.

FOLLOW-ON MAINTENANCE:

None

2-334 USE OF NUTS, WASHERS, OR COTTER PINS**2-334****INITIAL SETUP****Applicable Configurations:**

All

Tools:

None

Materials:

None

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Use nut and bolt as follows:
 - a. Both nut and bolt are same material.
 - b. When damaged, replace with same size, material, and hardness as original nut or bolt.
2. Use aluminum alloy washers under aluminum alloy nuts and bolts.
3. Use aluminum alloy washers under steel nut on bolt heads, attaching aluminum parts when not under tension forces, or a controlled torque is not required.
4. Use cadmium plated steel washers under steel nuts or bolt heads attaching steel parts.
5. Use cadmium plated steel washers under steel nuts or bolt heads, attaching aluminum alloy parts when bolt is under tension forces, or a controlled torque is required.
6. Steel spring washers may be used a second time if replacements are not available.
7. Cotter pin must not be used a second time.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

None

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Damaged or worn bushings must be replaced as follows:
 - a. Replace with same type, material, and hardness as original bushing.
 - b. Use correct length as original bushing.

NOTE

Bushing internal and external sizes are important for proper fit.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-1166

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Epoxy Primer (E292.1)
Gloves (E184.1)

Personnel Required:

Aircraft Structural Repairer
Inspector

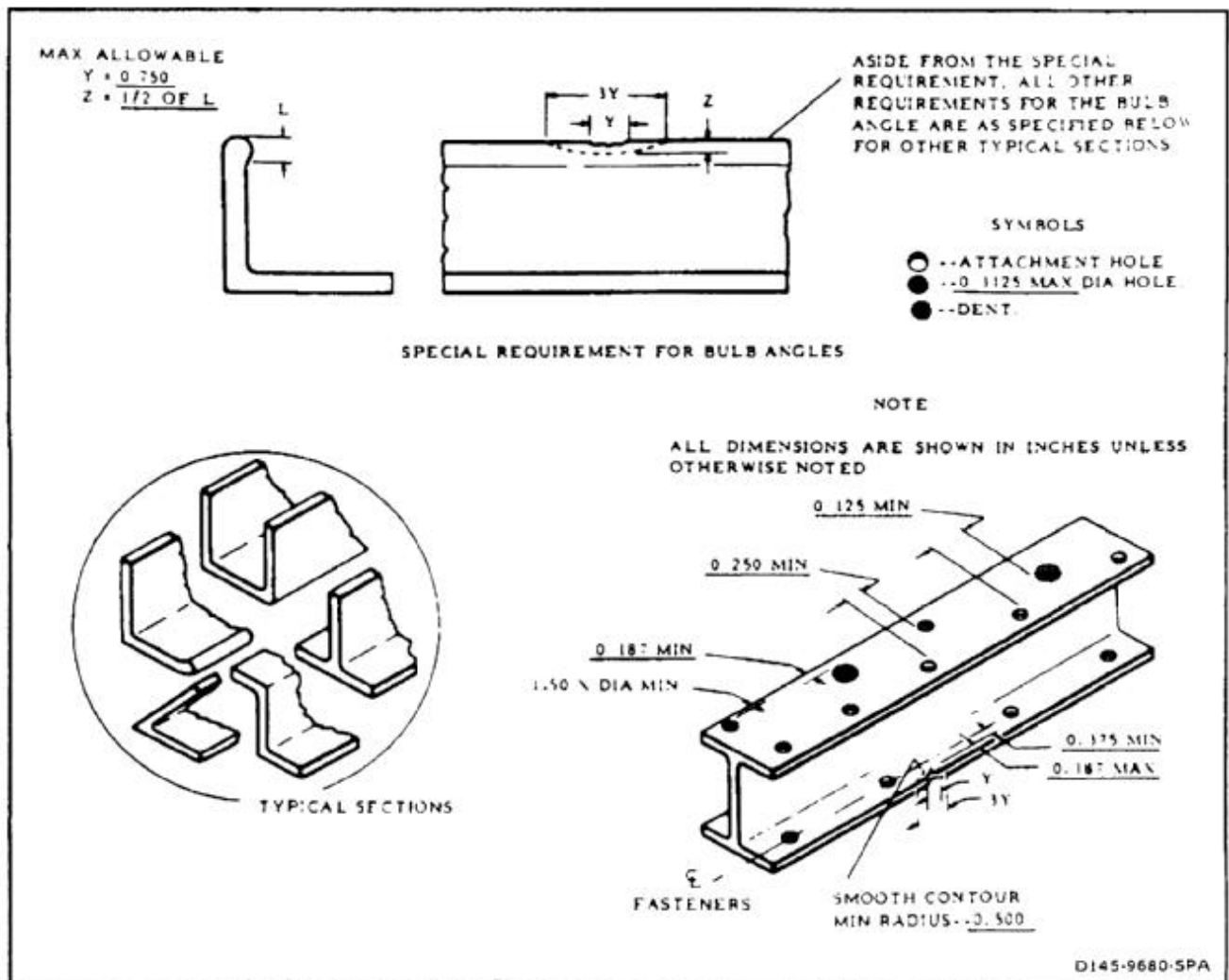
Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Remove nicks, scratches and small damaged areas by burnishing, stop drilling cracks, and plugging small holes. Size of damage that may be removed is as follows:



2. Depth after burnishing must not be more than **10 percent** of thickness of thinnest leg of section.



Do not remove dent using heat.
Damage to material may occur.

3. Punctures, rough dents, cracks, nicks, and scratches must only be worked as minor damage if step 2 is not exceeded.
4. Plug all minor damage hole **3/16 inch** diameter or less with a tight-fitting rivet or bolt.
5. Plugged or open holes, or burnished areas must clear all radii, and all fasteners a minimum distance of **3/4 inch**.
6. Smooth dents not more than maximum burnished depth and a maximum of **1/2 inch** diameter are minor damage.

7. Two minor dents that are close must have a **4 inch** length of undamaged original section between them.

A rectangular icon with a solid black background and white text containing the word "WARNING" in bold, uppercase letters.

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

8. Apply **two coats** of epoxy primer (E292.1) to burnished area and edges of holes. Use gloves (E184.1).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1168

2-336.1 EXTRUDED PARTS REPAIR**2-336.1****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
 Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

References:

Task 2-8
 Task 2-10
 Task 2-336
 TM 1-1500-204-23

Personnel Required:

Aircraft Structural Repairer
 Inspector

Equipment Condition:

As Required

General Safety Instructions:

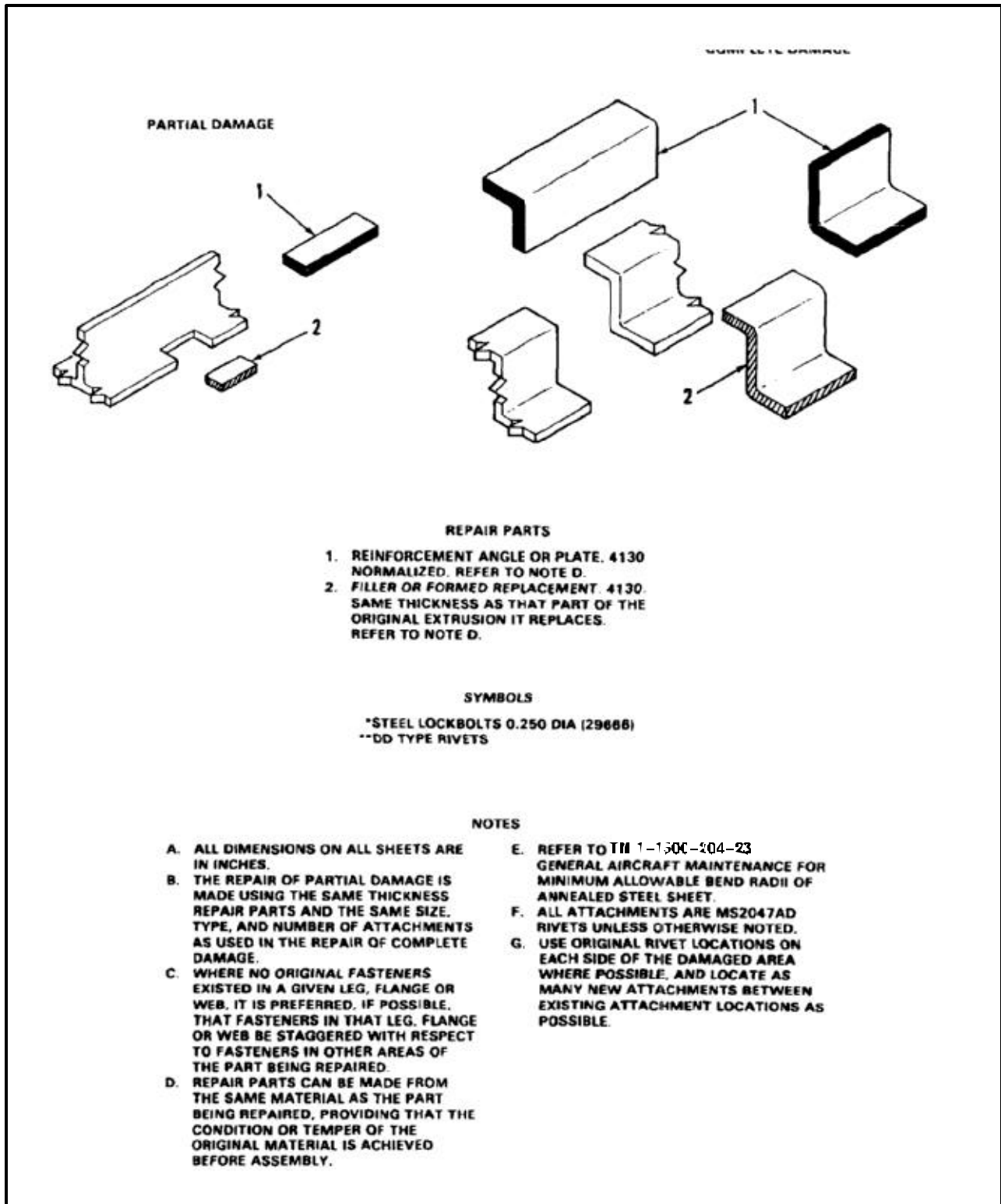
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1. Identify the type of material extrusion is made of. Select repair material.
2. Classify damage as partial (Task 2-8) or complete (Task 2-10).
3. Refer to Task 2-336 for removal of minor damage to extrusion.

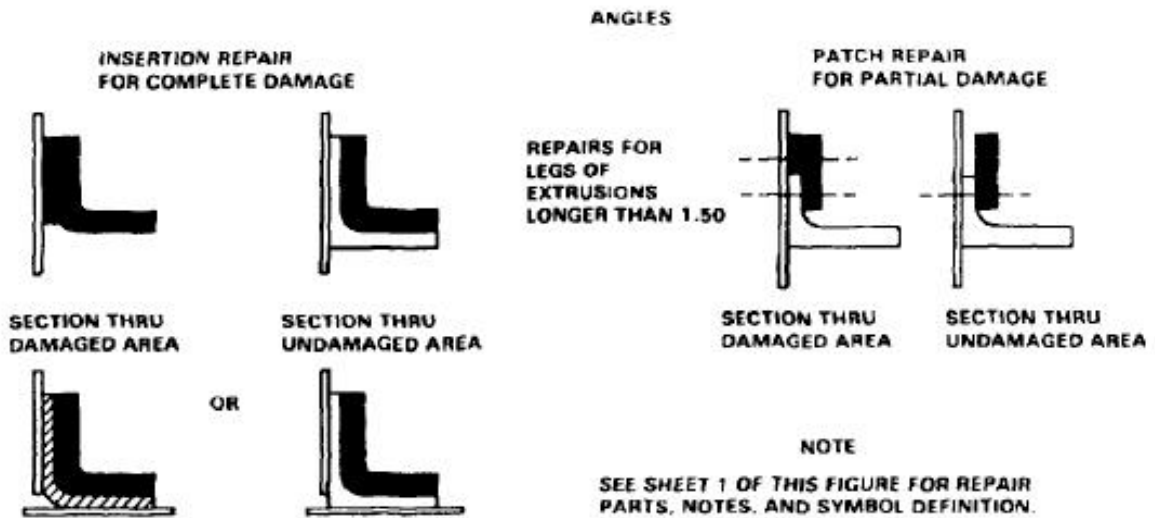


The use of heat to remove a dent is not permitted as the properties of the original part may be altered.

Precautions should be taken to prevent damage to surrounding materials and members. The majority of extrusion applications in the structure are in highly stressed areas and serve as important load carrying members. These include, longerons, stringers, stiffeners, and caps. When using pneumatic riveting equipment, it is important that a frequent check be made of dimensions and of adjacent rivets to determine if any deformation or loss of rivet heads has occurred.



Extruded Parts Repair (Sheet 1 of 14)



EXTRUSION DIE NO.	RIVETING INFORMATION					
	SHORT LEG			LONG LEG		
	NO. ROWS EACH SIDE OF DAMAGE	MIN NO. PER ROW	DIA 32nds	NO. ROWS EACH SIDE OF DAMAGE	MIN NO. PER ROW	DIA 32nds
AND10133-0601	1	5	5	1	5	5
-0602	1	4	6*	1	4	6*
-0603	1	3	8*	1	3	8*
-0701	1	4	6*	1	4	6*
-1001	1	4	6*	1	4	6*
-1002	1	5	6*	1	5	6*
-1201	1	5	6*	1	5	6*
-1202	1	3	8*	1	3	8*
-1203	1	3	8*	1	3	8*
-1404	1	5	8*	1	5	8*
-2003	2	3	8*	2	3	8*
-3002	2	5	8*	2	5	8*
AND10134-0501	1	3	5	1	3	5
-0601	1	4	5	1	4	5
-0701	1	3	6*	1	3	6*
-0702	1	3	6*	1	3	6*
-1003	1	3	6*	1	3	6*
-1005	1	4	6*	1	4	6*
-1006	1	5	6*	1	5	6*
-1201	1	4	6*	1	4	6*
-1202	1	5	6*	1	5	6*
-1204	1	4	6*	1	4	6*
-1205	1	3	8*	1	3	8*
-1401	1	5	6*	2	4	6*
-1402	1	5	6*	2	5	6*
-1403	1	5	6*	2	4	6*
-1405	1	5	8*	1	5	8*
-1406	1	5	8*	1	5	8*
-1407	1	5	8*	1	5	8*
-1408	1	5	8*	1	5	8*
-1601	1	3	8*	1	3	8*
-1602	1	5	8*	1	5	8*
-1604	1	5	8*	1	5	8*
-2001	1	4	8*	1	4	8*
-2008	1	5	8*	2	3	8*
-2401	1	3	8*	2	3	8*
-2403	1	5	8*	2	4	8*

EXTRUSION DIE NO.	RIVETING INFORMATION					
	SHORT LEG			LONG LEG		
	NO. ROWS EACH SIDE OF DAMAGE	MIN NO. PER ROW	DIA 32nds	NO. ROWS EACH SIDE OF DAMAGE	MIN NO. PER ROW	DIA 32nds
AND10134-2405	1	3	8*	2	3	8*
-2408	1	4	8*	2	4	8*
ALCOA 78J	1	4	6**	1	4	6**
734Q	3	5	8*	5	5	8*
5401	1	5	5	1	5	5
ALCOA 9484	1	5	6**	1	5	6**
9802	1	4	5	1	4	5
10854	1	4	5	1	4	5
11638	2	4	6**	2	4	6**
11820	1	4	6**	2	4	6**
12883	1	4	5	1	4	5
13637	1	4	5	1	4	5
13816	2	6	6**	3	6	6**
14202	2	5	6**	2	5	6**
15820	1	5	6**	1	5	6**
16869	1	5	6**	1	5	6**
16871	2	5	6**	2	4	6**
22477	1	5	4	1	5	4
22509	1	4	5	1	4	5
22526	1	5	5	1	5	5
22653	1	4	6**	1	4	6**
22878	1	3	6**	1	3	6**
22885	1	3	6**	1	3	6**
22892	1	5	6**	1	5	6**
22991	1	5	6**	1	5	6**
24761	1	3	8*	1	3	8*
27076	1	4	6**	1	4	6**
27778	1	5	6**	2	5	6**
28144	1	5	6**	2	5	6**
28546	1	4	5	1	4	5
29222	1	4	8*	1	4	8*
30022	1	3	6**	1	3	6**
30145	2	5	8*	3	4	8*
30201	1	4	8*	1	4	8*
30796	1	3	8*	1	3	8*
30934	1	3	6**	2	3	6**
31177	1	4	8*	1	4	8*
31683	1	3	8*	1	3	8*
31823	1	5	8*	2	5	8*
32155	1	4	8*	1	4	8*
32975	1	5	6**	1	5	6**
33811	1	5	8*	1	5	8*
43821	1	5	8*	1	5	8*
44076	1	4	5	1	4	5
45827	1	5	6**	1	5	6**
51406	1	5	6**	1	5	6**
51919	1	5	6**	1	5	6**
52735	1	3	6**	1	3	6**
56066	1	4	6**	1	4	6**
59148	1	5	8*	2	5	8*
59195	1	5	6**	2	3	6**
59409	1	3	6**	1	3	6**
59574	1	5	8*	1	5	8*

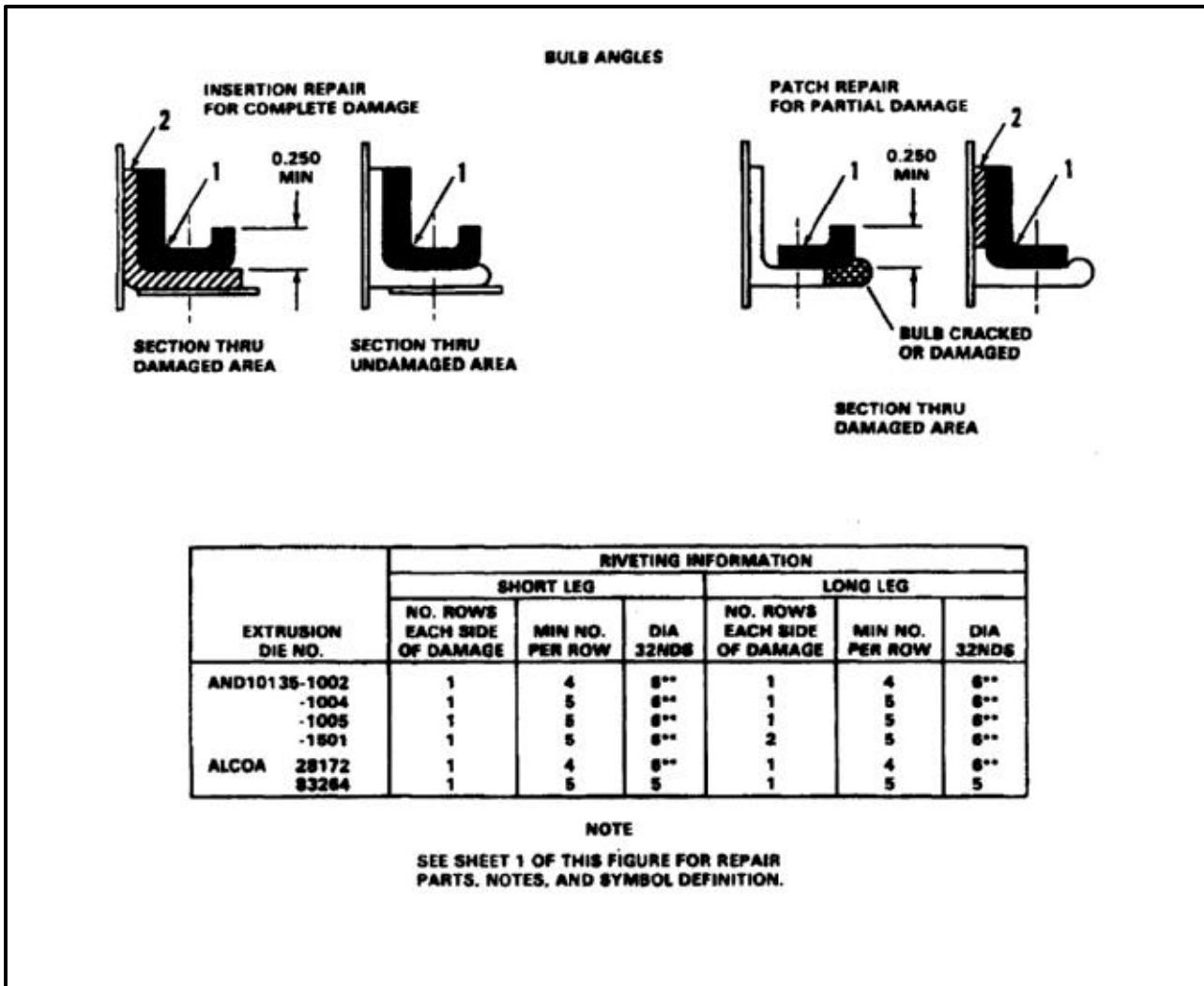
NOTE: See sheet 1 of this figure for repair parts, notes, and symbol definitions.

2-336.1 EXTRUDED PARTS REPAIR (Continued)

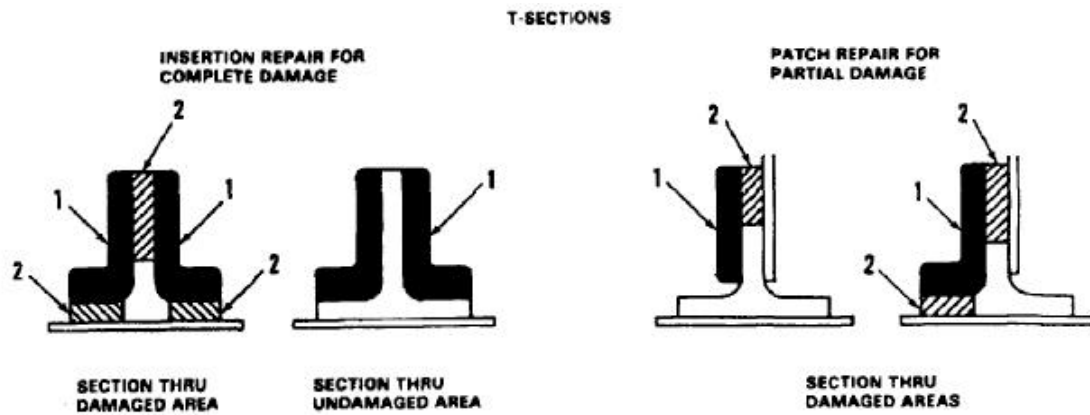
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EXTRUSION DIE NO.	RIVETING INFORMATION					
	SHORT LEG			LONG LEG		
	NO. ROWS EACH SIDE OF DAMAGE	MIN NO. PER ROW	DIA 32nds	NO. ROWS EACH SIDE OF DAMAGE	MIN NO. PER ROW	DIA 32nds
ALCOA 59810	1	5	8*	2	3	8*
60242	1	5	6**	2	4	6**
60278	1	4	8*	1	4	8*
60654	1	5	8*	1	5	8*
60806	1	5	6**	1	5	6**
60830	1	3	8*	1	3	8*
61971	1	4	6**	1	4	6**
62564	1	5	6**	1	5	6**
66428	1	5	6**	1	5	6**
67576	1	5	8*	1	5	8*
67580	1	3	5	1	5	8**
67987	1	3	8*	1	3	8*
71369	1	4	6**	1	4	6**
76983	1	5	8*	4	5	8*
80759	1	3	8*	1	3	8*
80788	2	4	8*	2	4	8*
HARVEY ALUM 11301-3	1	6	6**	1	6	6**
15078	1	5	5	1	5	5
16119	1	6	6**	1	6	6**
16264	1	4	8*	3	4	8*
17335	1	3	8*	1	3	8*
17413	1	4	8*	2	4	8*
17716	1	5	6**	1	5	6**
21741	1	4	8*	1	4	8*
REYNOLDS ALUM 372	1	3	5	1	3	5
4165	2	5	8*	2	5	8*
5761	1	5	6**	2	3	6**
6033	1	5	8*	1	5	8*
7825	1	5	8*	1	5	8*
8158	2	3	8*	3	3	8*
8993	1	5	8*	1	5	8*
19273	1	5	6**	1	6	6**
19292	1	5	5	1	5	5
26807	1	4	8*	1	4	8*
TEXAS ALUM T-2070	1	5	6**	1	6	6**
VERTOL STD 90109	1	5	6**	2	5	6**
90110	1	5	6**	2	5	6**
90112	1	5	8*	1	5	8*
90114	1	5	8*	1	5	8*
90115	1	5	8*	1	5	8*
90116	1	5	8*	1	5	8*
90117	1	4	8*	1	4	8*
90118	1	4	8*	1	4	8*
90119	1	3	8*	1	3	8*
BAC1503-1420	1	5	4	1	5	4
-2731	1	4	6**	1	4	6**
-100019	1	5	8*	1	5	8*
-100037	1	5	6**	2	3	6**
-100043	1	5	6**	2	4	6**
BAC1514-157	1	3	8*	2	4	8**
-539	1	3	8*	2	4	6**

NOTE: See sheet 1 of this figure for repair parts, notes, and symbol definitions.



Extruded Parts Repair (Sheet 5 of 14)

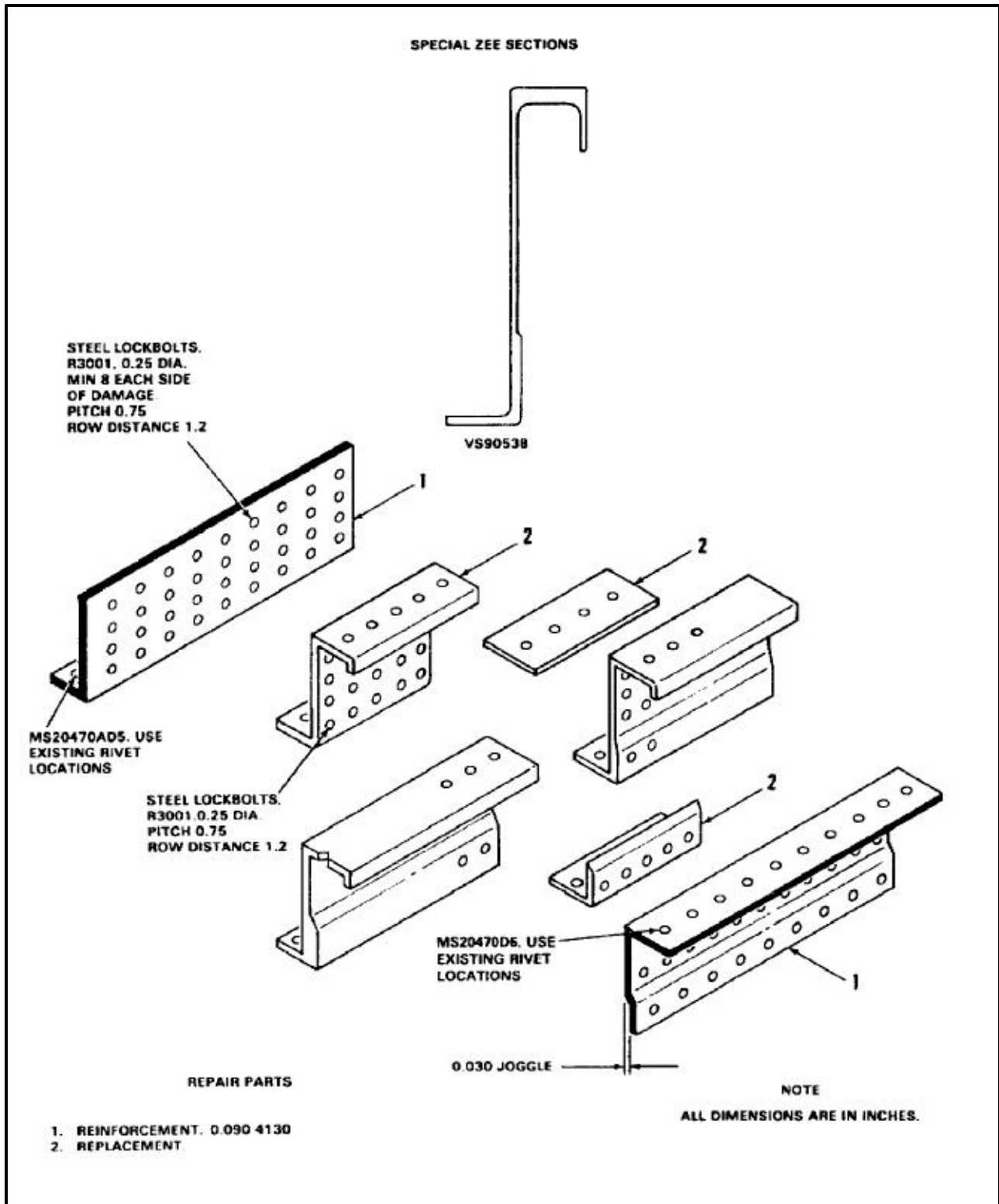


EXTRUSION DIE NO.	RIVETING INFORMATION					
	SHORT LEG			LONG LEG		
	NO. ROWS EACH SIDE OF DAMAGE	MIN NO. PER ROW	DIA 32nds	NO. ROWS EACH SIDE OF DAMAGE	MIN NO. PER ROW	DIA 32nds
AND10137-1301	1	4	5	1	4	5
-1304	1	4	6*	1	4	6*
-1401	1	4	6*	1	5	6*
-1405	1	4	6*	1	4	6*
-1405	1	5	6*	1	5	6*
-1501	1	3	8	1	3	8*
-1601	1	5	6*	1	5	6*
-1603	1	5	6*	1	5	6*
-1605	1	3	8	1	3	8*
-2001	1	5	8*	1	5	8*
-2002	1	5	8*	1	5	8*
-2004	1	5	8*	1	5	8*
-2006	1	5	8*	1	5	8*
-2008	1	3	8*	1	3	8*
-2403	1	3	8*	1	3	8*
-2405	2	3	8*	1	5	8*
-2406	2	3	8*	1	5	8*
-2407	2	3	8*	1	5	8*
-3001	1	5	8*	2	3	8*
-3005	2	3	8*	2	3	8*
ALCOA 1275B	1	5	8*	1	5	8*
13892	1	3	8*	1	3	8*
22008	1	5	6*	1	5	6*
22981	1	4	5	1	5	5
23160	1	5	6*	1	5	6*
27622	1	5	8*	1	5	8*

NOTE: See sheet 1 of this figure for repair parts, notes, and symbol definitions.

EXTRUSION DIE NO.	RIVETING INFORMATION					
	SHORT LEG			LONG LEG		
	NO. ROWS EACH SIDE OF DAMAGE	MIN NO. PER ROW	DIA 32nds	NO. ROWS EACH SIDE OF DAMAGE	MIN NO. PER ROW	DIA 32nds
ALCOA 27695	1	3	6**	1	3	6**
29075	1	4	8*	1	3	8*
30670	1	5	6**	1	5	6**
30674	1	5	5	1	5	5
31543	1	3	8*	1	3	8*
31901	2	5	6**	1	5	6**
32220	1	3	6**	1	3	6**
33185	1	3	8*	1	3	8*
33495	2	4	6**	1	5	6**
37289	2	3	8*	1	5	8*
43774	1	3	8*	1	3	8*
44132	1	5	8*	2	3	8*
49225	1	5	6**	1	5	6*
51670	3	5	8*	1	5	8*
51994	2	5	8*	1	5	8*
52057	1	5	8*	1	4	6**
52233	2	5	8*	1	5	8*
52361	2	3	8*	1	5	8*
52515	2	4	8*	1	4	8*
52966	3	4	6**	1	5	6**
52985	2	5	8*	1	5	8*
52986	1	5	8*	1	4	8*
55794	2	4	6**	1	5	6**
59331	2	4	8*	1	4	8*
62409	1	4	8*	1	3	8*
56017	1	4	8*	1	3	8*
66211	2	4	8*	1	5	8*
66517	1	5	6**	2	5	6**
69464	1	3	8*	1	3	8*
76062	3	5	8*	1	5	8*
76959	1	4	8*	1	4	8*
HARVEY ALUM 15152	1	5	6**	1	5	6**
REYNOLDS ALUM 11416	1	4	6**	1	4	6*
11730	2	4	6**	1	5	8*
16908	2	4	6**	1	5	8*
18637	2	5	8*	1	5	8*
22769	2	4	8*	1	4	8*
6447	2	5	8*	1	5	8*
9097	2	3	8*	1	5	8*
VERTOL STDS 90302	1	5	8*	1	5	8*
90303	2	3	8*	1	5	8*
90304	1	4	8*	1	4	8*
90305	1	5	6**	1	6	6**
90306	1	4	8*	1	4	8*
90307	2	3	8*	1	5	8*
90308	1	5	8*	1	5	8*
90309	1	5	8*	1	5	8*
90310	1	5	8*	1	5	8*
90311	2	3	8*	1	5	8*
90312	1	4	8*	1	4	8*
90313	1	5	8*	1	5	8*
90314	2	3	8*	2	3	8*
90315	1	5	6**	1	5	6**
90316	1	5	8*	1	5	8*
90317	1	3	8*	1	3	8*
90318	3	5	8*	1	5	8*
90321	1	4	5	1	4	5

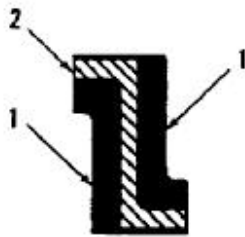
NOTE: See sheet 1 of this figure for repair parts, notes, and symbol definitions.



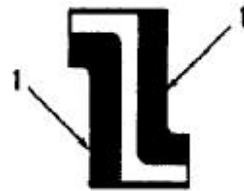
Extruded Parts Repair (Sheet 8 of 14)

Z-SECTIONS

INSERTION REPAIR
FOR COMPLETE DAMAGE



SECTION THRU
DAMAGED AREA



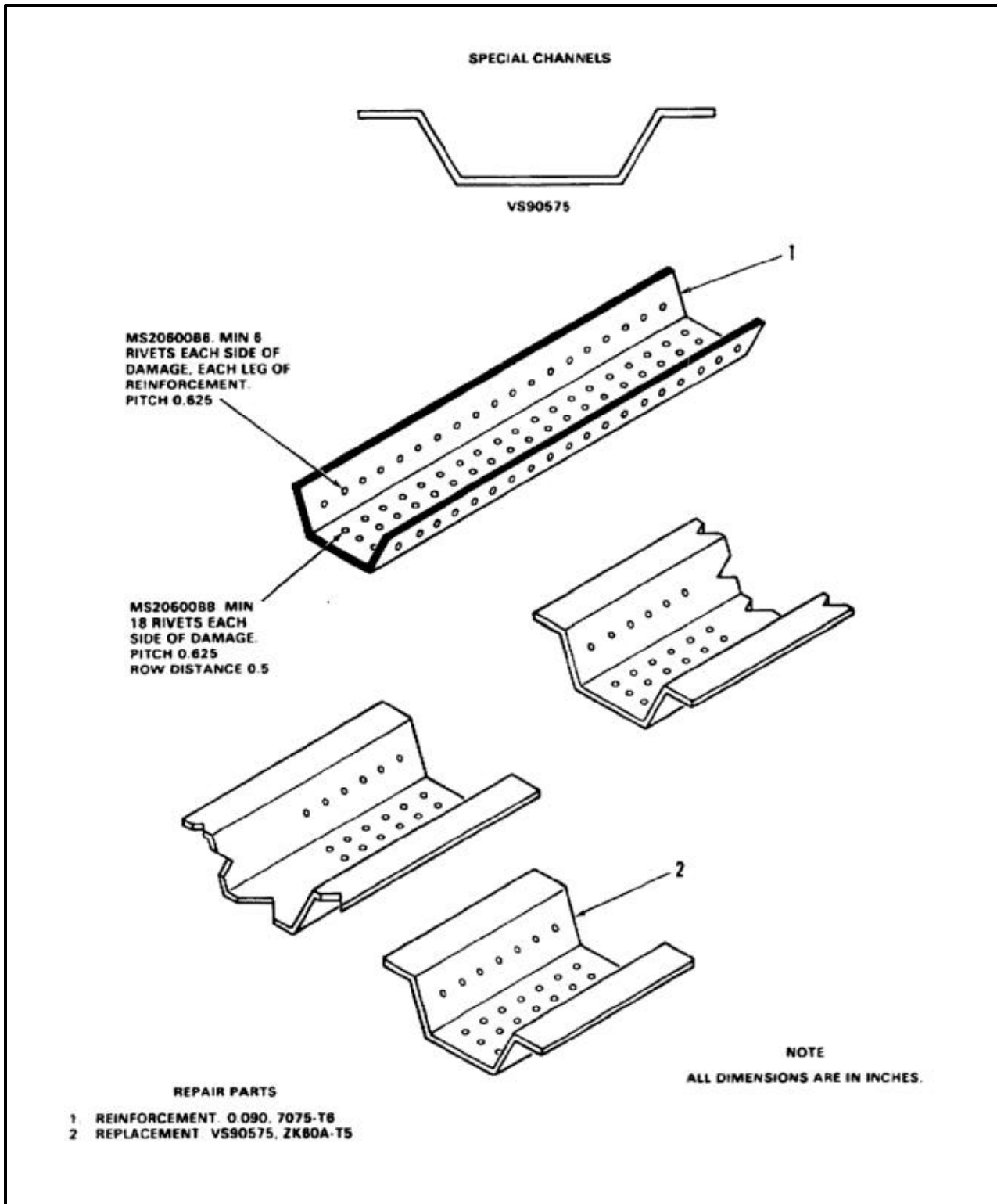
SECTION THRU
UNDAMAGED AREA

EXTRUSION DIE NO.	RIVETING INFORMATION					
	NO. ROWS EACH SIDE OF DAMAGE	WEB		EACH LEG		
		MIN NO. PER ROW	DIA 32NDS	NO. ROWS EACH SIDE OF DAMAGE	MIN NO. PER ROW	DIA 32NDS
AND10138-0403	1	4	5	1	4	5
-1004	1	4	8**	1	4	8**
-1005	1	4	8**	1	4	8**
-1009	1	4	8**	1	4	8**
AND10139-0505	1	4	8**	1	4	8**
-0707	1	4	8**	1	4	8**
-1108	1	4	8**	1	4	8**
ALCOA 59675	1	4	5	1	4	5
85491	2	4	8*	1	5	8*
REYNOLDS ALUMINUM 10270	1	3	8*	1	3	8*
VERTOL STANDARDS 90801	2	4	8**	1	4	8**
90802	1	4	8**	1	4	8**
90803	2	4	8*	1	4	8*
90804	2	4	8**	1	4	8**

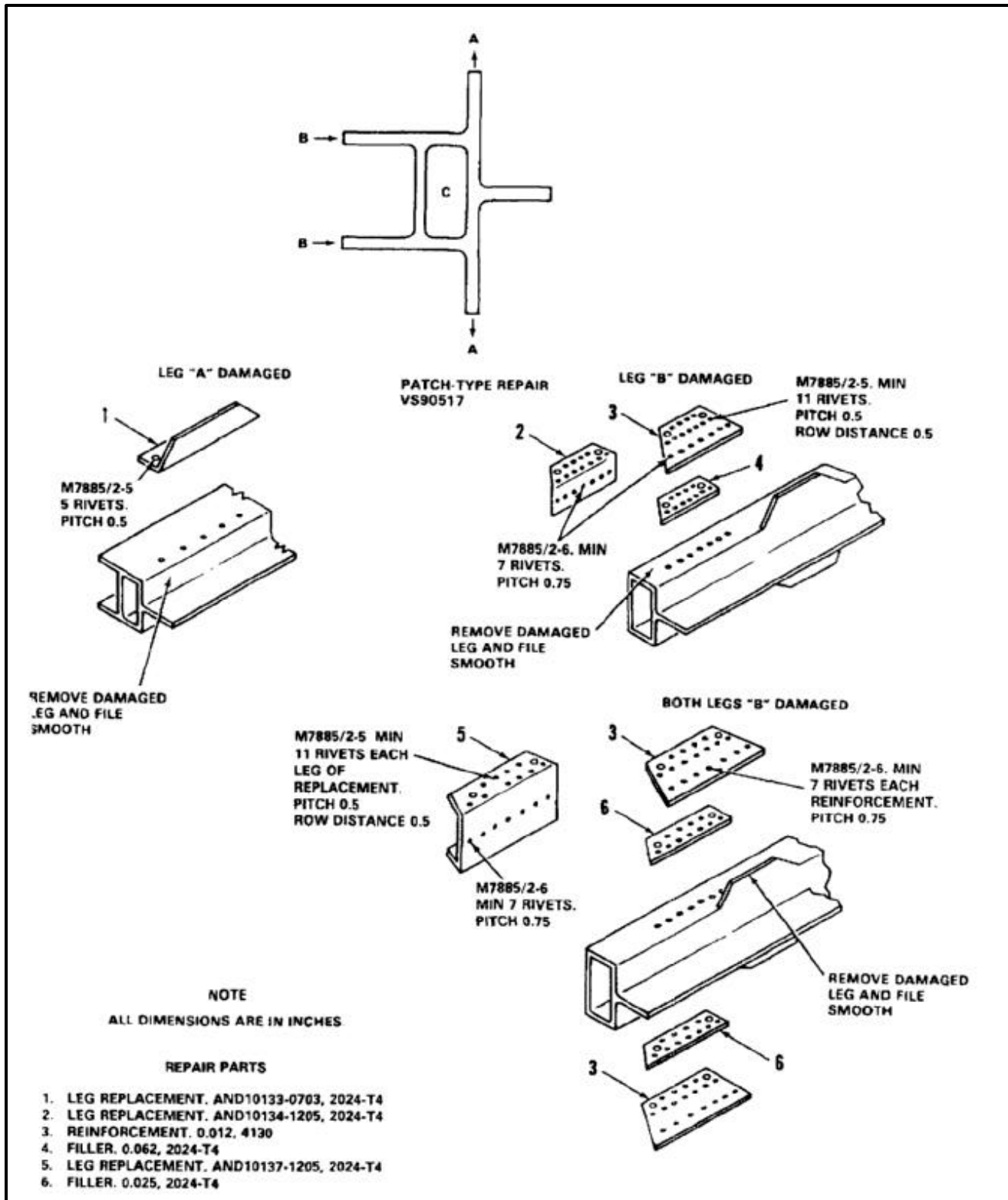
NOTE

SEE SHEET 1 OF THIS FIGURE FOR REPAIR
PARTS, NOTES, AND SYMBOL DEFINITION.

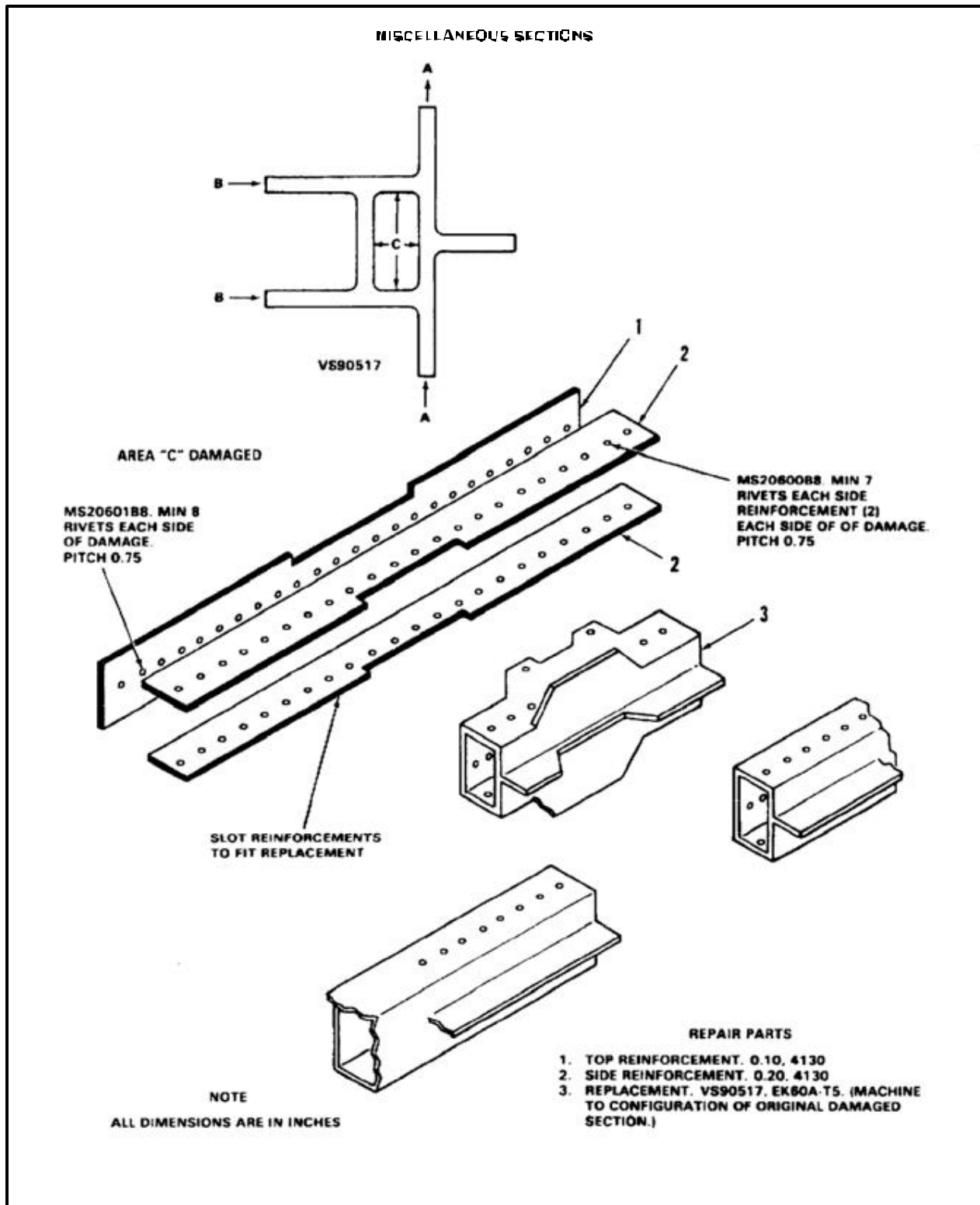
23183



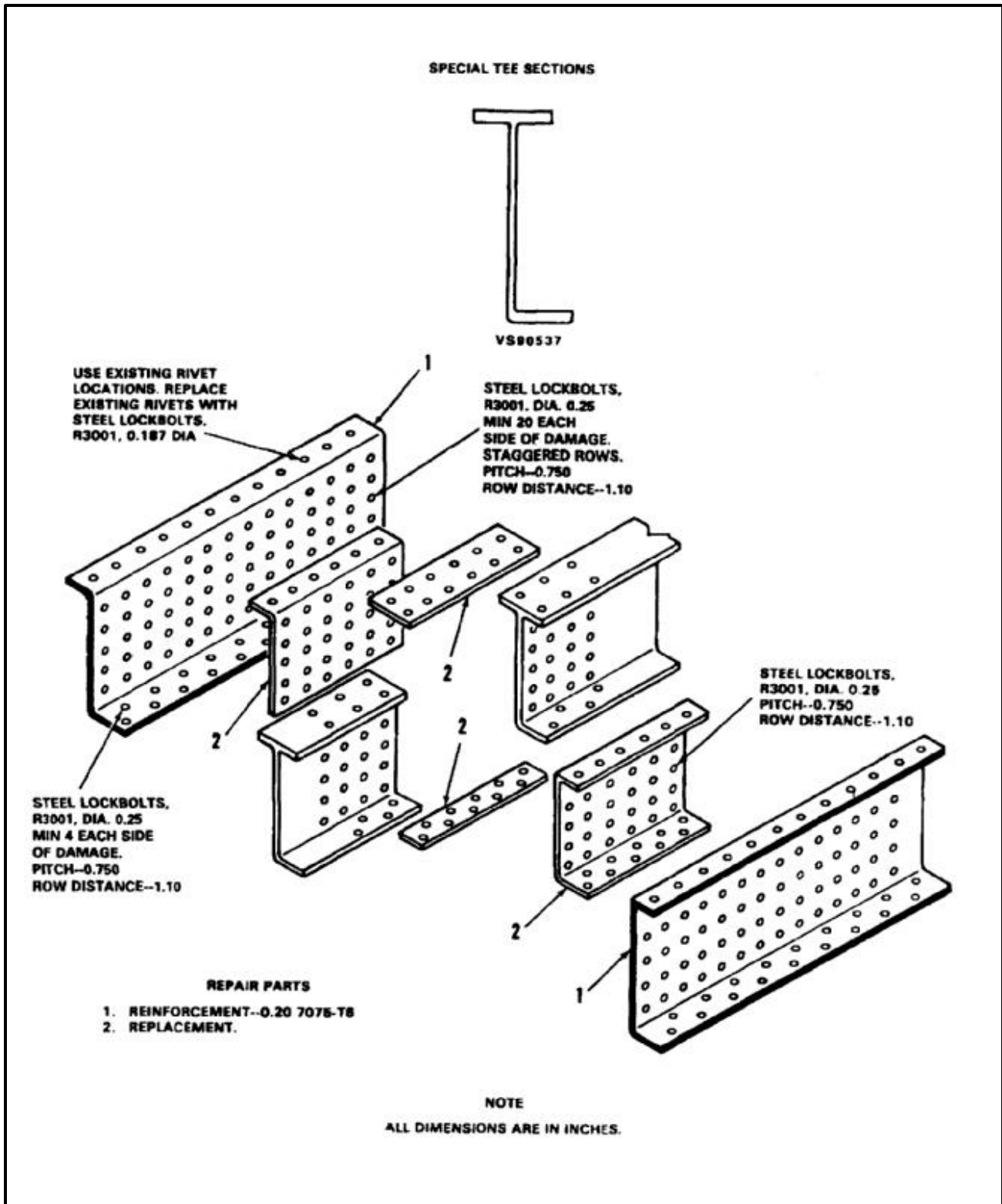
Extruded Parts Repair (Sheet 10 of 14)



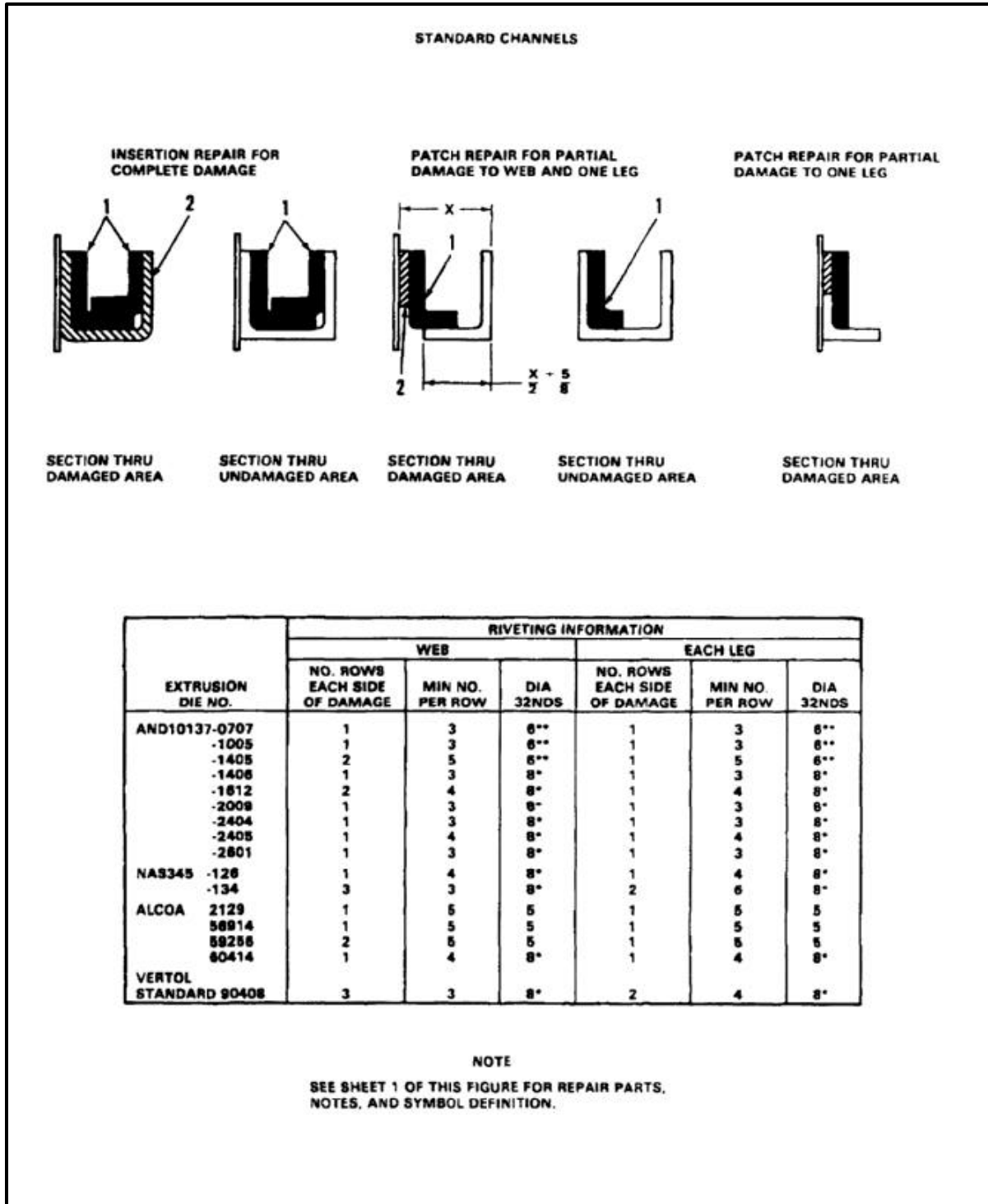
Extruded Parts Repair (Sheet 11 of 14)



Extruded Parts Repair (Sheet 12 of 14)



Extruded Parts Repair (Sheet 13 of 14)



Extruded Parts Repairs (Sheet 14 of 14)

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4876
 Source of Low Pressure Compressed Air
 Container, 2 Quart
 Brush
 Wood Applicator
 Wood Scraper

Materials:

Abrasive Paper (E4 thru E15)

Cloths (E120)
 Emery Cloths (E123 thru E127)
 Aliphatic Naphtha (E245)
 Anti-Chafing Tape (E382)
 Tongue Depressors (E424)
 Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
 Inspector

Equipment Condition:

As Required

NOTE

Anti-chafing tape provides smooth surface over rivet heads and seams.

1. Remove burrs, sharp edges, roughness, and loose primer as required on surface to be taped.

WARNING

Do not use more than **30 psi** compressed air for cleaning purposes. Debris propelled under pressure can cause injury to eyes. Use source of compressed air under **30 psi** and eye protection to prevent injury to personnel.

2. Remove debris from surface to be taped. Use compressed air and brush or cloth (E120).

WARNING

Aliphatic naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

3. Clean surface to be taped. Use cloth (E120) and aliphatic naphtha (E245). Wear gloves (E186).
4. Cut length of tape (E382) enough to cover surface and extend beyond edges of any raised areas.
5. Apply tape (E382) to surface. Smooth tape working from center to edge to eliminate wrinkles and air pockets. Small voids around rivet or fastener heads are allowed.

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-1184

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Shears, Bent Trimmers
Needles

Materials:

Adhesive (E30)
Cloths (E120)
Naphtha (E245)
Masking Tape (E388)
Hook Tape (E392)

Velcro Tape (E402)
Thread (E421)
Tongue Depressor (E424)
Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
Fabric Repair Specialist
Inspector

References:

Task 2-323

Equipment Condition:

As Required

NOTE

This tape is used to attach acoustic blankets.

1. To apply tape (E402) to structure or other surfaces, except blankets, perform the following:

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- a. Clean surface. Use naphtha (E245) and cloths (E120). Wipe surface dry. Wear gloves (E186).
- b. Apply masking tape (E388) around surface.
- c. Cut tape (E402) to desired size.

WARNING

Adhesive (E30) is extremely toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- d. Apply adhesive (E30) to surface and back of tape (E402) (Task 2-323). Wait at least **1 minute** but not more than **5 minutes** before doing next step.
- e. Press tape (E402) into place. Trim tape if necessary. When installing tape (E392 or E402) over rivet heads, apply adhesive level with heads. Use tongue depressor (E424). Keep tape level when positioning over rivets. Do not press tape down between heads. Use clean tongue depressor.

INSPECT

2. To apply tape (E392) to blankets or fabrics, perform the following:
 - a. Cut tape (E392) to desired size.
 - b. Sew tape (E392) to blanket. Use thread (E421). Trim tape if necessary.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Trip Balance
Heat Lamp
Goggles
Stiff Brush

Materials:

Soap (E353)
Curing Agent (E158)
Filler (E172)
Naphtha (E245)
Masking Tape (E388)
Abrasive Paper (E9)

Polyethylene Cup (E157)
Tongue Depressor (E424)
Temperature Indicating Strips (E413)
Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-353

Equipment Condition:

As Required

General Safety Instructions:

As Required

WARNING

Vapors of mixture are toxic. Work in well-ventilated room. Avoid skin contact. If skin contact is made, wash immediately with soap (E353) and water.

1. Weigh **7 parts** of curing agent (E158) and **100 parts** of filler (E172). Use trip balance. Mix thoroughly in polyethylene cup (E157). Use tongue depressor (E424). Wear gloves (E186).

NOTE

Working life of mix is **30 minutes to 2 hours**. Handling material in flat shallow tray can extend life to **2 hours**.

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flames. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

2. Remove loose filler or dirt. Clean area. Apply naphtha (E245). Use brush. Wear goggles.

3. Wait until naphtha dries completely.
4. Mask all areas around damage. Use masking tape (E388).
5. Pour filler material into damage area to a height slightly higher than core or edge.
6. Allow material to harden **6 hours at 70°F (21°C)**, or use heat lamps to cure material at **120°F (54°C) for 1 hour**. Use temperature indicating strip (E413) to monitor temperature.
7. Blend repairs. Use abrasive paper (E9).
8. Remove sanding dust and chips.
9. Refinish repaired area (Task 2-353).

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-1186

2-340 APPLICATION OF PALMER 611 COMPOUND (AVIM)

2-340

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Trip Balance
Rubber Spatula
Heat Lamp

Materials:

Accelerator (E18)
Polyethylene Cup (E157)
Tongue Depressor (E424)
Cloth (E120)
Dry Cleaning Solvent (E162)
Abrasive Paper (E9)
Gloves (E186)
Temperature Indicating Strips (E413)
Palmer 611 Compound (E311)

1. Apply Palmer 611 compound (E311) at edge on insert fairings as follows:
 - a. Weigh **95 parts** of compound (E311) and **5 parts** of accelerator (E18). Use trip balance. Wear gloves (E186).
 - b. Stir components in polyethylene cup (E157) and tongue depressor (E424).

NOTE

Compound may be thinned with resin. Accelerator must be added to resin in same proportion as in step a. Working life of compound is **2-1/2 to 3-1/2 hours at 75°F (24°C)**.

- c. Clean parts. Use cloth (E120) soaked with solvent (E162).
- d. Roughen cleaned surface lightly. Use abrasive paper (E9). Repeat step c.

Personnel Required:

Aircraft Structural Repairer
Inspector

Equipment Condition:

As Required

General Safety Instructions:**WARNING**

Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flames. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- e. Apply compound and work in with rubber spatula.
 - f. Remove excess compound. Use rubber spatula.
2. Cure compound. Use any of following cycles. Use heat lamp and temperature indicating strips (E413).
 - a. **16 hours at 120°F (49°C)**.
 - b. **1 hour at 150°F (66°C)**, then **16 hours at 70°F (21°C)**.
 - c. **1 hour at 200°F (93°C)**.
 - d. **1-1/2 hours at 300°F (149°C)**.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

Cloths (E120)

Descaling Compound (E159)

Personnel Required:Aircraft Structural Repairer
Inspector**Equipment Condition:**

Prepare Rust Stripper Solution (AVIM) (Task 2-342)

1. Strip finish as follows:
 - a. Immerse part in ruststripper solution for **15 minutes**.
 - b. Remove part from solution. Rinse using running water.
 - c. Wipe dry. Use cloth (E120).
 - d. If any finish remains on part, dip part in compound (E159). Scrub to loosen finish.
 - e. Remove part from compound (E159). Rinse using running water.
 - f. Wipe dry. Use cloth (E120).

NOTE

Discoloration may appear on cadmium-plated steel parts when part is in solution more than **15 minutes**.
Discoloration is on surface and not harmful to part.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1188

2-342 PREPARE RUSTSTRIPPER SOLUTION (AVIM)

2-342

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Electric Heat Gun
Steel Tank
Wood Paddle
Pyrometer

Materials:

Rust Stripper (E363)
Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
Inspector

Equipment Condition:

As Required

General Safety Instructions:

As Required

WARNING

Rust stripper (E363) is extremely toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Add **16 ounces** of rust stripper (E363) to **1 gallon** of water in steel tanks. Wear gloves (E186).
2. Stir solution. Use wood paddle.
3. Heat solution to **200°F (93°C)**.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

None

Materials:

None

Personnel Required:Aircraft Structural Repairer
Inspector**References:**TM 1-1500-204-23
TM 43-0105
TM 55-1500-345-23**Equipment Condition:**

As Required

General Safety Instructions:

As Required

NOTE

When inspecting the helicopter or components, pay particular attention to areas prone to corrosion. When corrosion is found, a prime consideration is to evaluate what corrective action will be required to remove it. Because corrosion repair and treatment can be time consuming, early evaluation is essential for good aircraft maintenance planning. This evaluation will assist in determining if sheet metal or aircraft mechanics will be necessary to make the needed repair. When corrosion exceeds acceptable criteria, material replacement will be necessary. (Refer to TM 1-1500-204-23, General Aircraft Maintenance Manual.) For corrosion treatment, refer to TM 43-0105, Corrosion Control for Army Aircraft. For painting, refer to TM 55-1500-345-23, Painting and Marking of Army Aircraft. If corrosion is not covered by the applicable TM, submit a DA Form 2028, Recommended Changes to Equipment Technical Publications, or, where a design change is necessary, an Equipment Improvement Recommendation (EIR).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1190

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Alodine 1200 Powder (E65)
 Aluminum Wool (E72)
 Corrosion-Preventive Compound (E152 and E153)
 Gloves (E184.1)
 Grease (E190)
 Corrosion Removing Compound (E242)
 Naphtha (E245)
 Lubricating Oil (E252)
 Potassium Dichromate (E286)
 Epoxy Primer (E292.1)
 Wash Primer (E302)
 Steel Wool (E373)

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

Task 2-350.1

Equipment Condition:

As Required

General Safety Instructions:**WARNING**

Corrosion preventive compound (E153), epoxy primer (E292.1), and wash primer (E302) are flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Alodine powder (E65) and potassium dichromate (E286) are oxidizers. Discard cloths which contain this material in a separate container. If discarded with cloths contaminated with acetone or other organic solvents, combustion can result. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING


Corrosion preventive compound (E152) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin for eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Naphtha (E245) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Corrosion removing compound (E242) is toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Clean and treat salt-corroded parts as soon as possible after immersion. Refer to table, cleaning and treating corroded parts.
 2. Only if materials or equipment in table are not available, use limited measures in steps 3 or 4.
 3. Apply limited measures for helicopter as follows:
 - a. Wash helicopter. Use fresh water. Allow helicopter to dry.
 - b. Prepare mixture of **75 percent** lubricating oil (E252) and **25 percent** corrosion preventive compound (E152). Wear gloves (E184.1).
 4. Apply limited measures for specific parts of helicopter as follows:
 - a. Remove products of corrosion. Refer to table, cleaning and treating corroded parts.
 - b. Dry surface. Apply **two coats** of epoxy primer (E292.1). Allow each coat to dry. On magnesium parts, apply **three coats** of epoxy primer (E292.1). Wear gloves (E184.1).
 - c. Refinish primed areas. Use polyurethane topcoating and color of finish same as original. Refer to Task 2-350.1 for application of polyurethane topcoatings.
 - d. if unable to topcoat, apply liberal coat of corrosion-preventive compound (E153) to refinished area.
 - e. Liberal coat of grease (E190) may be applied over bare washed area as alternate to step d.
-  **CAUTION**
- Do not allow oil mixture to contact lubricated or nonlubricated bearings. Bearings can be damaged.
- c. Coat bare metal and moving parts by spraying or rubbing. Use mixture in step b.

Cleaning and Treating Corroded Parts

METAL	FORM	CLEANING	TREATMENT
Aluminum unfinished surfaces only	Mild surface pitting, straining, and superficial etching	Apply Type III cleaning compound (E242). Use stiff fiber bristle brush. Rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Heavy surface pitting	Hand rub with aluminum wool (E72) and naphtha (E245). Apply Type III cleaning compound (E242) and rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum Alclad unfinished surfaces	Mild or heavy surface pitting, straining, and superficial etching	Apply cleaning compound (E242) and rinse with fresh water. Do not use abrasives.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Intergranular corrosion	Remove corroded areas with routing tools. Burnish parts to remove all sharp edges.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Stress corrosion (Cracking)	Repair or replace parts in accordance with applicable repair figure.	Not applicable.
Magnesium	Surface pitting	Large, nonremovable parts remove corrosion products with a stiff bristle brush.	Apply a Type I chrome-pickle solution or Type VI chromic acid solution in accordance with MIL-M-3171, Type III for 1 to 3 minutes and wash with fresh water.
Magnesium	Stress corrosion (Cracking)	Repair or replace parts in accordance with applicable repair figure.	Not applicable.
Steel	Severely rusted	Replace parts.	Not applicable.
Steel	Lightly rusted parts (No deep pitting)	Use steel wool (E373) to remove rust and clean as necessary.	Apply one coat of epoxy primer (E292.1) on previously cadmium-plated parts. Apply two coats of polyurethane topcoatings to match. Refer to Task 2-350.1 for application of polyurethane topcoatings. Cadmium-plate removable parts in accordance with QQ-P-416. Brush cadmium plate local bare areas. Refer to MIL-STD-865. If post-chromate treatment is not applied to cadmium plate, apply one coat of wash primer (E302). Before applying primer (E292.1), refer to MIL-P-85582.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Containers, 1 Gallon and 1 Quart

Materials:

Glass Polishing Kit (E281)

Personnel Required:Aircraft Structural Repairer
Inspector**Equipment Condition:**

As Required

General Safety Instructions:

As Required

GENERAL INFORMATION

1. Restore transparent finishes. Use glass polish kit RS-69 (E281).
2. **Cleanliness.** Make sure abrasives do not become contaminated. Keep abrasives away from dirt, dust, or other gritty material which could cause scratches. Wipe plastic clean during and after each abrasion operation.
3. **Preservation.** Abrasives can be used often if washed with liquid detergent and water. Wash, dry, and sprinkle with talcum powder. Sprinkle talcum powder on abrasive during use to add life to abrasive.
4. **Heat.** Work slowly to avoid heat buildup and resulting surface distortion. Use abrasives wet or dry. Reduce surface temperatures in hot, humid areas by using abrasives with water or detergent-water mixture, if necessary, to cool work surface.
5. **Application.** Hand application of abrasives is recommended for best results. An orbital vibrator, with speeds in the **12,000 rpm** range, may be used, however, with a **4 1/4 inch** square abrasive pad.
6. **Area.** When changing from coarse to fine abrasive, obtain smooth blend by using finer abrasive, and extending coarse-blended area considerably.

PREPARATION AND RESTORATION PROCEDURE

7. Pour **1 pint** of liquid detergent and **7 pints** of water into gallon container.
8. Fill **1 quart** container. Use liquid in step 7.
9. Clean damaged area. Use wiper soaked with liquid in step 8.
10. Rinse **1 quart** container. Use water. Fill container liquid in step 8.
11. Wrap No. 400 abrasive paper around foam block. Insert cardboard block between sandpaper and foam block to serve as cushion and hold moisture.
12. Roughen damage area. Use liquid in **1 quart** container and No. 400 sandpaper.
13. Rinse roughened area. Use liquid in **1 gallon** container.
14. Rinse **1 quart** container. Use cold water.
15. Repeat steps 11 through 14. Use No. 600 abrasive paper. Roughen **3 minutes** for each **1 square-foot**.
16. Wrap No. 2400A abrasive paper around foam block. Do not insert cardboard block. Roughen **2 minutes** for each **1 square-foot**. Alternate vertical and horizontal strokes every **20 seconds**.
17. Repeat step 16. Use each succeeding finer abrasive paper in order, No. 3200A, 3600A, 4000A, 6000A, and 8000A. Use slight pressure on No. 8000A and shorter roughing time.

2-345 RESTORE TRANSPARENT PLASTIC FINISH (Continued)

2-345

18. Apply thin coat of antistatic cream. Use fingertips in circular motion. Buff area until dry. Use wiper cloth.
19. Check restored area for distortion. Sight object, such as crossed bars of window, about **30 feet** away. If object does not appear distorted, go to Follow-On Maintenance.
20. If object appears distorted, repeat steps as required until object does not appear distorted.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Chemical Film (E113)
 Corrosion Preventive Compound (E153)
 Gloves (E186)
 Type III Clean Compound (E242)
 Aluminum Wool (E72)
 Naphtha (E245)
 Alodine 1200 (E65)

1. Treat aluminum alloy surfaces of repair or replacement parts prior to assembly. Cutting, forming, or drilling must be done before treatment. For treatment of aluminum alloy surfaces or parts, refer to cleaning and treatment of aluminum parts table.
2. Apply one of following treatments to exterior parts made of, or clad with, 1100, 3003, 5052, 6053, 6061, or 7072 aluminum alloys:
 - a. Alodizing MIL-C-5541.
 - b. Sulfuric acid anodizing MIL-A-8625, type II.
 - c. Chromic acid anodizing MIL-A-8625, type II.
3. Chromidize interior parts made of, or clad with, 1100, 3003, 5052, 6053, 6061, or 7072 aluminum alloys to receive organic finish (MIL-S-5002).
4. If immersion equipment is not available, or if touch-up only is required, treat parts with either of following coatings:

WARNING

Chemical film (E113) is extremely toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

MIL-C-5541
 MIL-A-8625
 MIL-S-5002

Equipment Condition:

As Required

General Safety Instructions:

As Required

- a. Apply chemical film (E113).

WARNING

Corrosion preventive compound (E153) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- b. Apply corrosion preventive compound (E153).
 Wear gloves (E186).

Cleaning and Treating Aluminum Parts

METAL	FORM	CLEANING	TREATMENT
Aluminum unfinished	Mild surface pitting, straining, and superficial etching	Apply Type III cleaning compound (E242). Use stiff fiber bristle brush. Rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Heavy surface pitting	Hand rub with aluminum wool (E72) and naphtha (E245). Apply Type III cleaning compound (E242) and rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum Alclad unfinished surfaces	Mild or heavy surface pitting, straining, and superficial etching	Apply cleaning compound (E242) and rinse with fresh water. Do not use abrasives.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Intergranular corrosion	Remove corroded areas with routing tools. Burnish parts to remove all sharp edges.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Stress corrosion (Cracking)	Repair or replace parts in accordance with applicable repair figure.	Not applicable.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Chromic Acid (E114)

Personnel Required:

Aircraft Structural Repairer
Inspector

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Magnesium alloys corrode faster than any other metal on helicopter when in contact with moisture. Treat all repairs or replacement parts before assembly. Do all cutting, forming, or drilling before treatment.
2. Clean and treat magnesium alloy parts. Refer to Cleaning and Treating Corroded Parts table.

WARNING

Chromic acid (E114) is extremely toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

Cleaning and Treating Corroded Magnesium Parts

METAL	FORM	CLEANING	TREATMENT
Magnesium	Surface pitting	Large, nonremovable parts — remove corrosion products with a stiff bristle brush.	Apply chromic acid (E114) in accordance with MIL-M-3171, Type III for 1 to 3 minutes and wash with fresh water.
Magnesium	Stress corrosion (Cracking)	Repair or replace parts in accordance with applicable repair figure.	Not applicable.

Cleaning and Treating Corroded Parts

METAL	FORM	CLEANING	TREATMENT
Aluminum unfinished surfaces only	Mild surface pitting, straining, and superficial etching	Apply Type III cleaning compound (E242). Use stiff fiber bristle brush. Rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Heavy surface pitting	Hand rub with aluminum wool (E72) and naphtha (E245). Apply Type III cleaning compound (E242) and rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum Alclad unfinished surfaces	Mild or heavy surface pitting, straining, and superficial etching	Apply cleaning compound (E242) and rinse with fresh water. Do not use abrasives.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Intergranular corrosion	Remove corroded areas with routing tools. Burnish parts to remove all sharp edges.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Stress corrosion (Cracking)	Repair or replace parts in accordance with applicable repair figure.	Not applicable.
Magnesium	Surface pitting	Large, nonremovable parts — remove corrosion products with a stiff bristle brush.	Apply chromic acid (E114) in accordance with MIL-M-3171, Type III for 1 to 3 minutes and wash with fresh water.
Magnesium	Stress corrosion (Cracking).	Repair or replace parts in accordance with applicable repair figure.	Not applicable.
Steel	Severely rusted	Replace parts.	Not applicable.
Steel	Lightly rusted parts (No deep pitting)	Use steel wool (E373) to remove rust and clean as necessary.	Apply one coat of primer (E291) on previously cadmium-plated parts. Apply two coats of aluminum pigmented lacquer or finish to match. Cadmium-plate removable parts in accordance with QQ-P-416. Brush cadmium plate local bare areas. Refer to MIL-STD-865. If post-chromate treatment is not applied to cadmium plate, apply one coat of wash primer. Before applying primer (E291), refer to MIL-C-8507.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Gloves (E184.1)
Epoxy Primer (E292.1)
Wash Primer (E302)
Steel Wool (E373)

Personnel Required:

Aircraft Structural Repairer
Inspector

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Discard severely rusted steel parts.
2. Clean and treat lightly rusted steel parts with no deep pitting. Refer to Cleaning and Treating Corroded Steel Parts table. Wear gloves (E184.1).

WARNING

Wash primer (E302) is toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

Cleaning and Treating Corroded Steel Parts

METAL	FORM	CLEANING	TREATMENT
Steel	Severely rusted	Replace parts.	Not applicable.
Steel	Lightly rusted parts (No deep pitting)	Use steel wool (E373) to remove rust and clean as necessary.	Apply one coat of epoxy primer (E292.1) on previously cadmium-plated parts. Apply two coats of polyurethane topcoatings to match. Refer to Task 2-350.1 for application of polyurethane topcoatings. Cadmium-plate removable parts in accordance with QQ-P-416. Brush cadmium plate local bare areas. Refer to MIL-STD-865. If post-chromate treatment is not applied to cadmium plate, apply one coat of wash primer (E302). Before applying epoxy primer (E292.1), refer to TM 55-1500-345-23.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

Prepaint Phosphate Treatment TT-C-490 Metal
Conditioner, Type II (E242)

Personnel Required:

Aircraft Structural Repairer
Inspector

1. Treat unplated carbon and low-alloy steel repair or replacement parts surfaces. Apply prepaint phosphate treatment TT-C-490, type 1. Do all cutting, forming, and drilling before treatment.
2. If immersion equipment is not available, use brush phosphate coating (E242). Refer to MIL-M-10578. Do all cutting, forming, and drilling before treatment.

FOLLOW-ON MAINTENANCE:

As Required

References:

MIL-M-10578

Equipment Condition:

As Required

General Safety Instructions:

As Required

END OF TASK

2-1202

2-349 FINISH CORROSION AND HEAT-RESISTANT STEELS — INORGANIC SURFACE TREATMENT

2-349

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

MIL-S-5002

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. These metals do not require surface treatment except as follows:
 - a. Descale parts that are fusion welded or scaled. Use mechanical or chemical passivation inorganic contamination removal technique (MIL-S-5002).
 - b. Apply hot or cold passification to parts that are machined, formed on non-ferrous dies, barrel-deburred, cleaned by vapor or-grit-blasting or polished (MIL-S-5002).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Gloves (E184.1)
 Vinyl Primer (E290)
 Epoxy Primer (E292.1)
 Wash Primer (E301)

Personnel Required:

Aircraft Structural Repairer
 Inspector

Equipment Condition:

As Required

1. Apply primer before installation of interior repair or replacement parts not contacting dissimilar metal surfaces. Wear gloves (E184.1).
2. Apply **one coat** of epoxy primer (E292.1) to aluminum alloy parts.
3. Apply **two additional coats** of epoxy primer (E292.1) to following areas:
 - a. Entire cockpit fuselage section under cockpit floor, from forward canted bulkhead to sta. 160. Include bottom of floors.
 - b. Entire cabin fuselage section under floor from sta. 160 to 440. Exclude bottom of floor.
 - c. Entire aft fuselage section under floor, from sta. 440 to 482, except where final finish is required. Exclude bottom of floor and all internal areas from WL 0 downward, between sta. 502.4 and 554.
 - d. Entire cargo loading ramp under floor, except bottom of floor.
 - e. Entire pod installation, from WL 0 downward, including wheel wells, except areas to be finished same as external areas.
4. Apply **three coats** of epoxy primer (E292.1) to magnesium alloy parts, except extruded ZK60 parts, unless final finish coating will be applied. Apply coat of wash primer (E301) to magnesium alloy forgings before applying primer (E292.1).

General Safety Instructions:**WARNING**

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Wash primer (E301) is toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

2-350 FINISH INTERIOR STRUCTURES DETAIL OR REPAIR PARTS — NONMATING SURFACES 2-350
AND SIMILAR METAL CONTACT (Continued)

WARNING

Vinyl primer (E290) is toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

5. Apply **one coat** of wash primer (E301), and heavy coat of vinyl primer (E290), to extruded ZK60 magnesium alloy parts. Wear gloves (E184.1).
6. Apply **one coat** of wash primer (E301), and **one coat** of epoxy primer (E292.1), to cadmium-plated and unplated carbon and low alloy steel parts. Wear gloves (E184.1).

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

General Safety Instructions:

Applicable Configurations:

All

Tools:

As Required

Materials:

- Abrasive Paper (E5 thru E11)
- Acetone (E20)
- Cloths (E120)
- Anti-Static Coating (E135.2)
- Finish Coating (E137.1)
- Solvent (E162)
- Epoxy Topcoat (E166)
- Gloves (E184.1)
- Metal Conditioner (E242)
- Paint Remover (E261.1)
- Black Polyurethane (E285.1)
- Green Polyurethane (E285.2)
- Gray Polyurethane (E285.4)
- White Polyurethane (E285.5)
- Yellow Epoxy Primer (E292.1)
- Masking Tape (E388)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

- TM 55-1500-345-23
- Task 2-344
- Task 2-347.1
- Task 2-350

Equipment Condition:

As Required

WARNING

Epoxy topcoat (E166) and polyurethane topcoatings (E285.1, E285.2, E285.4, and E285.5), epoxy primer (E292.1), and wash primer (E302) are flammable and toxic. They can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation away from open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

2-350.1 APPLICATION/REPAIR OF POLYURETHANE TOPCOATINGS (Continued)**2-350.1****NOTE**

Any parts that are exposed to sunlight are to receive polyurethane topcoating.

1. Application of polyurethane topcoats are to be applied over yellow epoxy primer (E292.1). Wear gloves (E184.1).
2. The interior fuselage below the floor line gets **two coats** of epoxy primer (E292.1).
3. The cabin interior ramp and floor get **one coat** of epoxy primer (E292.1) and **two coats** of epoxy topcoat gray (E166).
4. The insides of doors, panels, tunnel covers and workplatforms get **one coat** of epoxy primer (E292.1).
5. The cockpit interior forward of station 95.0 canted bulkhead including the walkway areas forward of station 120.0 rbl 18.0, WL -26.0 to WL +40.0, lbl 8.0, WL -26.0 to WL +40.0 and the aft side of station 95.0 between lbl 8.0 and rbl 18.0, WL -26.0 to WL -17.0 get **one coat** of black polyurethane (E285.1).
6. Stencils using white polyurethane (E285.5) will replace decals in the cockpit. Apply after topcoat cure of **6 to 48 hours** at room temperature **70°F (21°C)**.
7. Magnesium parts get **three coats** of epoxy primer (E292.1) and **one full cross coat** of finish coating (E137.1).
8. Antennas are to be painted with **two coats** of polyurethane topcoating the same color as the mounting area on aircraft. Allow to air dry for **one hour** between coats.
9. The landing gear is to get **one coat** primer (E292.1) and **one coat** of polyurethane green (E285.2). The forward and aft washplate assemblies, rotor blades, rotor hub, rotor controls, above rainshield including pitch links are to get **one coat** of primer (E292.1) and **one coat** of polyurethane black (E285.1).
10. Rework due to sags, runs, or drips:
 - a. Mask off discrepant area allowing for feathering of edges of the repair area. Clean area with solvent (E162). Use cloths (E120). Wear gloves (E184.1).
 - b. Lightly scuff sand area using abrasive paper (E5 thru E11).
 - c. Clean area with solvent (E162). Use cloths (E120). Wear gloves (E184.1).
 - d. Reapply polyurethane topcoating same color as original.
11. Repair or touch up of damaged parts:
 - a. Mask off discrepant area allowing for feathering of edges of the repair area. Clean area with solvent (E162). Use cloths (E120). Wear gloves (E184.1).
 - b. Lightly scuff sand area using abrasive paper (E5 thru E11).
 - c. Clean area with solvent (E162). Use cloths (E120). Wear gloves (E184.1).
 - d. If the substrate is exposed see cleaning and treating parts (refer to Task 2-344); for surface preparation of dissimilar metals (refer to Task 2-347.1), and similar metals (refer to Task 2-350).

WARNING

Paint remover (E261.1) is toxic. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- e. Apply paint remover (E261.1) onto repair area, confine remover to repair area.
- f. Allow sufficient time for finish to soften and wrinkle. Remove loosened material. Flush area with warm water and wipe dry with cloths (E120).
- g. Apply epoxy primer (E292.1). Allow to dry at room temperature **70°F (21°C) for 2 hours** minimum to **36 hours** maximum. If more than **one coat** of primer (E292.1) is required allow **20 minutes to 24 hours** at room temperature between coats.
- h. If the cure time goes beyond the maximum prior to topcoating, it must be reactivated as follows:
 - (1) Repeat steps 10a, b, c.
 - (2) Mist coat area with epoxy primer (E292.1). Cure at room temperature for **2 hours** minimum to **36 hours** maximum.

- i. Apply polyurethane topcoating within **4 hours** of primer cure. If applying more than **one coat**, allow to air dry for **one hour** between coats.
- NOTE**
- Parts touched up may differ in appearance slightly which is acceptable.
12. Refinish of blade repair areas:
- a. Sand area using abrasive paper (E7).
 - b. If finish requires softening use acetone (E20). Wear gloves (E184.1).
 - c. Complete finish removal using abrasive paper (E9).
 - d. Clean area with aliphatic naphtha (E245). Use cloth (E120) and wear gloves (E184.1). Continue wiping until cloths remain clean. Wipe the naphtha dry before it evaporates.
 - e. Apply a heavy coating of antistatic coating (E135.2) to repair area. Wear gloves (E184.1).
 - f. Apply **two coats** of polyurethane black (E285.1). Allow to air dry for **one hour** between coats. Wear gloves (E184.1).
13. Repair of blade titanium nose cap cracks:
- a. Mask off discrepant area allowing for feathering of edges of the repair area. Use tape (E388).
 - b. Scuff sand area using abrasive paper (E5 thru E9).
- c. Clean area with acetone (E20). Use cloth (E120) and wear gloves (E184.1). Wipe dry with cloth (E120).
 - d. Apply a mist coat of epoxy primer (E292.1) and allow to dry at room temperature **70°F (21°C) for 2 hours** minimum to **36 hours** maximum.
 - e. Apply **two coats** of polyurethane black (E285.1). Allow to air dry for **one hour** between coats.
14. Replace nickel erosion cap:
- a. Using metal conditioner (E242) mixed with **three parts** of water, clean the erosion cap. Use cloth (E120) and wear gloves (E184.1).
 - b. Remove conditioner with cloth (E120) wet with water.
 - c. Dry cap use cloth (E120).
 - d. Apply a mist coat of epoxy primer (E292.1). Wear gloves (E184.1). Allow to dry at room temperature **70°F (21°C) for 2 hours** minimum to **36 hours** maximum.
 - e. Apply **two coats** of polyurethane black (E285.1), allow to air dry **one hour** between coats. Wear gloves (E184.1).
15. Apply exterior finish and (chemical agent resistant coating) CARC symbol per TM 55-1500-345-23.
- FOLLOW-ON MAINTENANCE:**
- As Required

END OF TASK

2-1208

2-351 INTERIOR STRUCTURES DETAIL AND REPAIR PARTS — MATING SURFACES
DISSIMILAR METAL CONTACT

2-351

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

Gloves (E184.1)
 Epoxy Primer (E292 and E292.1)
 Primer (E293)
 Vinyl Tape (E385)

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

Task 2-347

1. Check that all corrosion has been removed, and parts are properly insulated from each other.
2. If corrosion exists, remove corrosive products and finishes at external lap joints (Task 2-347).
3. When one mating surface is magnesium alloy, finish as follows:
 - a. Apply **two coats** of primer (E293) to each mating surface. Wear gloves (E184.1).
 - b. Apply vinyl tape (E385) between mating surfaces. Tape must extend at least **1/4 inch** past edge.
 - c. If tape cannot be used, assemble parts with wet primer (E293) and apply primer fillet at joint boundary.
4. If one mating surface is steel alloy, apply **two coats** of primer (E292.1) to each surface. Wear gloves (E184.1).
5. Apply **one extra coat** of primer (E293) on exterior edges of magnesium mating surfaces. Apply **one extra coat** of primer (E292.1) on exterior edges of steel alloy mating surfaces. Wear gloves (E184.1).
6. Install all rivets, nuts, bolts, and washers wet with primer (E292).
7. Apply **one extra coat** of primer (E292) to heads of aluminum alloy rivets driven through steel. Wear gloves (E184.1).

Equipment Condition:

As Required

General Safety Instructions:

WARNING

Primers (E292, E292.1, and E293) are flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

Lacquer (E215)

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

TM 55-1500-345-23

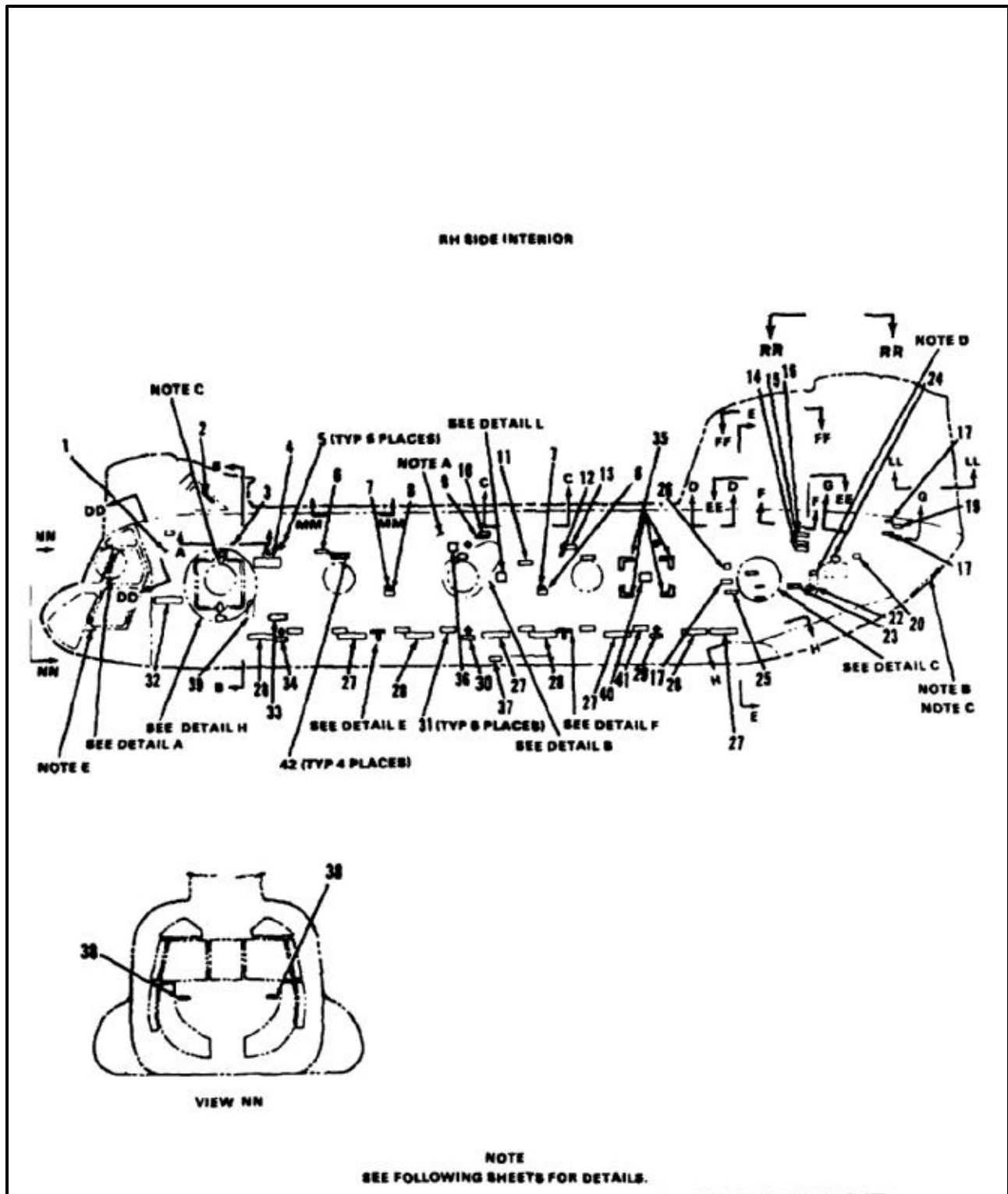
Equipment Condition:

As Required




















General Safety Instructions:

As Required








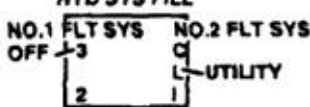

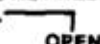















1. Apply final finish to primed repair or replacement interior parts. Apply finish to match adjacent parts as follows:
 - a. Finish all parts of cockpit fuselage section that will reflect in windshields, including switch panels. Use low reflective black lacquer (E215).
 - b. Finish all other parts which will be exposed after assembly, including floors, walls, seats, console, pedestal, foot controls, and instrument panels. Refer to Internal Markings figures.
 - c. Apply internal markings. Refer to Internal Markings figure.
2. Apply final finishes and markings to exterior parts (TM 55-1500-345-23).












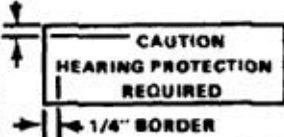
Final Finish - Interior and Exterior Metal Structure (Sheet 1 of 25)

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1		3.0 DIA	11136, 17875	 STA 106.5, WL 32.5
2	NO. 1 FLT SYS RBVR	0.5	17875	 STA 150, WL 61.38 BOTH SIDES OF SUPPORT
3	LEVELING BRACKET	0.5	17875	 STA 145.2, WL 39.0
4	MAX CONCENTRATED FLOOR LOADING FWD OF STA 160.0 NOT TO EXCEED <u>1000 LB</u>	1.0	17875	 STA 163.5, WL 27.8
5		3.0 DIA	17038 13538	 STA 181.0, 303.0 425.0, WL 35.0 BOTH SIDES
6	M1 CONT ENG 2	0.5	17875	 STA 206, WL 40
7	UT RECP	1.0	17875	 STA 249.0, WL 8.0 STA 348.0, WL 8.0
8	28 VDC AMPS: 1 = 15A 2 = 7.5A 3 = 5A	0.5	17875	 STA 249.0, WL 8.0 STA 348.0, WL 8.0
9	115V, 1PH, 15AMP	0.5	17875	 STA 317, WL 40.1
10	115V, 3 HP, 15 AMP 400 CYCLE AC UTILITY RECEPTACLE	0.5	17875	 STA 317, WL 41.9
11	HOIST OPER STATION	1.0	17875	 STA 335.0, WL 23.9
12		0.8 x 3.5	17875 BACKGROUND	 STA 363.3, WL 39.6
13	HOIST OPER ATTACH	1.0	17875	 STA 363.3, WL 37.1
14	CAUTION DO NOT HAND PUMP SYSTEM ABOVE BOTTOMING PRESSURES	0.5 0.25 0.25	17875	 STA 638, WL 34.5
15	AT TEMPS BELOW MINUS 25° F PRECHARGE ACCUMULATOR TO <u>2000 PSI</u> WITH AIR OR NITROGEN ACCUMULATOR WILL BOTTOM AT <u>3350 PSI</u>	0.25	17875	 STA 638, WL 38
16	↑ AT TEMPS ABOVE MINUS 25° F PRECHARGE ACCUMULATOR TO <u>1800 PSI</u> WITH AIR OR NITROGEN ACCUMULATOR WILL BOTTOM AT <u>3000 PSI</u>	0.25	17875	 STA 638, WL 41.5

Final Finish - Interior and Exterior Metal Structure (Sheet 2 of 25)

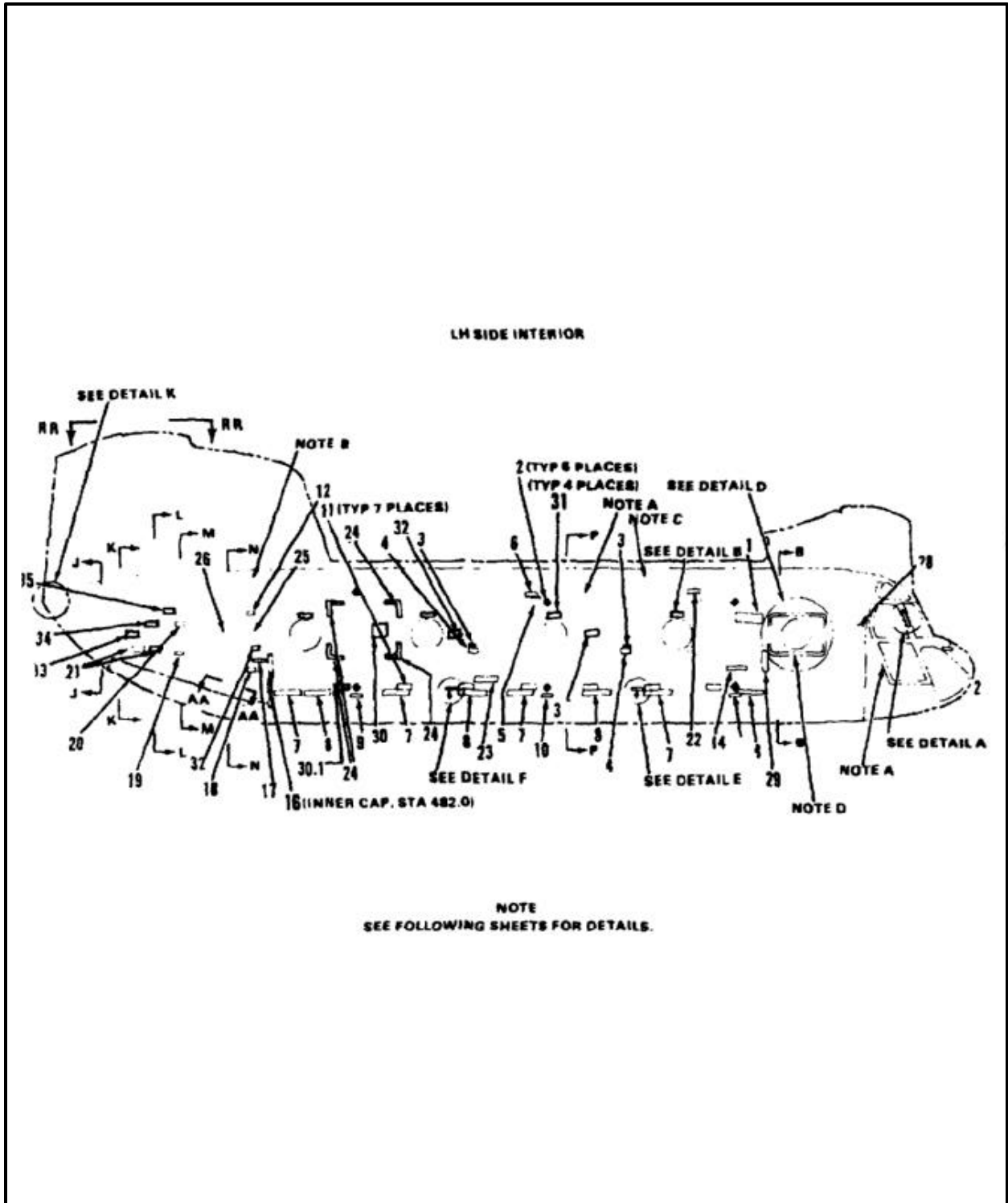
INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STA 596)	LOCATION
17	ACC CHARGE 1400 PSI-AIR OR NITROGEN	0.44	17875	 STA 582.5, WL 44.0  STA 581.0, WL 49.5  STA 483.5, WL 13.0
18	(DELETED)			
19	APU START MDL	0.5	17875	 STA 585, WL 44.0
20	NORMAL  OPEN	0.5	17875	 STA 560, WL 30.5
21	(DELETED)			
22	HYD SYS FILL MIL-H-83282 SELECTOR 1 = FC SYS NO.1 2 = FC SYS NO.2 3 = UTILITY SYS	0.5 0.5 0.5 0.25 0.25 0.25	17875	 STA 523, WL 7.5
23	HYD SYS FILL NO.1 FLT SYS NO.2 FLT SYS OFF 3 C UTILITY 	0.375	17875	 STA 517, WL 7.5
24	EMERG UTIL PRESS NORMAL  OPEN	0.5	17875	 STA 515.5, WL 14.5
25	RAMP CONTROL	0.5	17038	 STA 491.0, WL 0.0
25.1	UP STOP DN	0.5	17038	 STA 491.0 ON 114S3609-5
26	POWER STEERING MODULE	0.5	17875	 STA 486.5, WL 25
27	10000 LB TIE DOWN HERE ONLY 	1.0	17875	 STA 222.0, WL -21.5  STA 311.0, WL -22.5  STA 391.0, WL -22.5  STA 460.2, WL -21.5
28	ALL TIE DOWN RINGS 5000 LBS UNLESS NOTED	1.0	17875	 STA 441.3, WL 21.5  STA 360.0, WL -22.5  STA 280.0, WL -22.5  STA 160.0, WL -22.5
29	CARGO E STA 425 CAP 22875 LBS	1.0 0.5 0.5	17875	 STA 428.8, WL -24.5
30	CARGO D STA 303 CAP 22875 LBS	1.0 0.5 0.5	17875	 STA 306.8, WL -24.5

Final Finish - Interior and Exterior Metal Structure (Sheet 3 of 25)






















INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 596)	LOCATION
31	HEAT AND VENT LOOSEN SCRE W TO ADJUST SLIDE OPEN ← → CLOSED	1.0 0.5 0.5 0.5	17878	 STA 184.0, WL -18.5 STA 218.0, WL -18.5 STA 266.0, WL -18.5 STA 286.0, WL -18.5 STA 286.0, WL -18.5 STA 336.0, WL -18.5 STA 410.0, WL -18.5
32	TO STOW SEAT FOLD BACK FWD & SECURE WITH STRAP. FOLD SEAT DOWN	1.0	17878	 ON RH BEAM BL 18.0
33	DO NOT COVER AIR INLET	1.0	17878	 STA 184.7, WL -8.3
34	CARGO C STA 181 CAP 22875 LBS	1.0 0.5 0.5	17878	 STA 184.8, WL -24.8
35		3.0x3.0	13638	 STA 404.1, WL -9.5
36	ANTENNA-VOR AN ARR-82	0.5	17878	STA 337.1, WL -16.8
37	(DELETED)			
38	AE-2892(1/APR-39 ANT	0.5	37878	 WL 1.5, LBL 28.0  WL 1.5 RBL 28.0
39	XM24 GUN MTG (ON R AND L SIDES)	0.5	17878 ON 38231	STA 180.0 WL 0
40	CUT HERE FOR EMERGENCY EXIT	1.0	33538 37-38	APPLY ON TOP OF "EMERGENCY RESCUE" AT STA 420.0
41	EXTENDED RANGE FUEL TANK DISCONNECT	0.38	17878	 STA 380.75 WL -14.00
42	 ↑ ↑ ← 1/4" BORDER	1.0 0.5 0.5	17038 ON 13638	OVER EACH WINDOW AT STA 220, 300, 380, 420, ON WL 32.0

NOTES












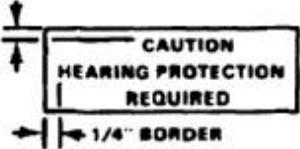
- A. MARKINGS COVERED BY BLANKET INSTALLATIONS ARE TO BE REPEATED ON THE BLANKET OUTER SURFACE.
- B. EMERGENCY EXIT MARKINGS ARE TO BE ORANGE-YELLOW, COLOR NO. 13638 OR 33538, AS REQUIRED, ON A BLACK BACKGROUND, COLOR NO. 37038 OR 17038, AS REQUIRED.
- C. ESCAPE PANELS REQUIRE THE COMPLETE PERIPHERY TO BE MARKED BY A 1.0 TO 2.0 WIDE BAND, HALF ON STRUCTURE AND HALF ON PANEL.
- D. FINISH HALF OR FILLER CAP, LIGHT YELLOW COLOR NO. 13655 THE OTHER HALF, LIGHT BLUE, COLOR NO. 16102.
- E. COCKPIT AREA-GLARE SHIELD, SWITCH PANELS, FLOOR, WALLS, SEATS, FOOT PEDALS, METAL PORTION OF CONTROL STICK, THRUST LEVER, AND WINDOW FRAMES TO BE PRIMED WITH EPOXY PRIMER MIL-P-23377 PER MIL-P-22751 AND COATED WITH LOW REFLECTIVE BLACK LACQUER MIL-L-48159A (MR) MODIFIED.



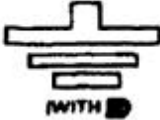










Final Finish - Interior and Exterior Metal Structure (Sheet 5 Of 25)

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR IFED STD 595)	LOCATION
1	MAX CONCENTRATED FLOOR LOADING FWD OF STA 180 0 NOT TO EXCEED <u>1000 LB</u>	1 0	17875	 STA 181.0, WL 21.0
2		3 0 DIA	17038 13538	 STA 425.0, WL 42.5 STA 303.0, WL 36.0 STA 181.0, WL 36.0 STA 425.0, WL -21.5 STA 303.0, WL -21.5 STA 181.0, WL -21.5
3	UT RECP	1 0	17875	 STA 348.0, WL 8.0 STA 249.0, WL 8.0
4	28 VDC AMPS 1= 15A 2= 7.5A 3= 5A	0.5	17875	 STA 348.0, WL 6.0 STA 249.0, WL 6.0
5	115V, 1PH, 15 AMP	0.5	17875	 STA 317, WL 40.1
6	115V, 3 HP, 15 AMP	0.5	17875	 STA 317, WL 41.9
7	400 CYCLE AC UTILITY RECEPTACLE	0.5	17875	 STA 480.2, WL 21.5 STA 381.0, WL 22.5 STA 221.0, WL 22.5
8	10000 LB TIE DOWN HERE ONLY 	0.5	17875	 STA 329.0, WL 22.5
9	ALL TIE DOWN RINGS <u>5000 LBS</u> UNLESS NOTED	1.0	17875	 STA 480.2, WL 21.5 STA 380.0, WL 22.5 STA 280.0, WL 22.5
10	CARGO E STA 425 CAP <u>22875 LBS</u>	1.0 0.5 0.5	17875	 STA 181.3, WL 21.5
11	CARGO D STA 303 CAP <u>22875 LBS</u>	1.0 0.5 0.5	17875	 STA 428.8, WL 24.5
12	HEAT AND VENT LOOSEN SCREW TO ADJUST SLIDE OPEN ← → CLOSED	1.0 0.5 0.5 0.5	17875	 STA 200.0, WL 18.5 STA 380.0, WL 18.5 STA 240.0, WL 18.5 STA 400.0, WL 18.5 STA 280.0, WL 18.5 STA 440.0, WL 18.5 STA 320.0, WL 18.5
13	APU CONTROL BOX	0.38	17875	 STA 522.5, WL 35.5
14	(DELETED)			
15	DO NOT COVER AIR INLET	1 0	17875	 STA 184.7, WL 6.3
16	CARGO C STA 181 CAP <u>22875 LBS</u>	1.0 0.5 0.5	17875	 STA 184.8, WL 24.5
17		2 0x13 0	11138 17875	 STA 482.0, WL 9.0 ON INNER CAP OF FRAME
18	STA 486 0	1 0	17875	 STA 484.0, WL 2.0
19	FIRE EXT	1 0	17875	 STA 482.0, WL 6.5

Final Finish - Interior and Exterior Metal Structure (Sheet 6 Of 25)

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
19	COMPASS FLUX VALVE	0.5	17876	 STA 537.0, WL 3.5
20	EMERGENCY APU FLUID SHUTOFF VALVE CLOSE → OPEN	0.5 0.5 0.25	17876	 STA 537.0, WL 22.2
21	INTERPHONE WALKING CORD STORAGE →	0.5	17876	 STA 553.5, WL 8.0 STA 542.9 WL 6.0
22	N1 CONT ENG 1	0.5	17876	 STA 206, WL 40
23	CRANK STOWAGE-RESCUE HATCH & RAMP MECH	1.0	17876	 STA 334.0, WL 12
24		3.0 x 3.0	13538	 STA 438.1, WL 8.0
25	FUEL VALVE NO. 1 ENGINE ← CLOSE OPEN →	0.5 0.25	17876	STA 492.0, WL 19.50
26	FUEL VALVE CROSSFEED ← CLOSE OPEN →	0.5 0.25	17876	STA 606.0, WL 18.0
27	(DELETED)			
28	WARNING INSTALL BACK-UP PANEL BEFORE FLIGHT	0.5	17876 ON 31138	 STA 95.0 WL 21.2
29	XM24 GUN MTG (ON R AND L SIDES)	0.5	17876 ON 36231	 STA 1600, WL 0
30	CUT HERE FOR EMERGENCY EXIT	1.0	33538 ON 37038	APPLY ON TOP OF "EMERGENCY RESCUE" AT STA 420.0
30.1	EXTEND RANGE FUEL TANK DISCONNECT (WITH )	0.38	17876	 STA 380.75 WL 12.00
31		1.0 0.5 0.5	17038 ON 13538	OVER EACH WINDOW AT STA 220, 300, 380, 420, ON WL 32.0

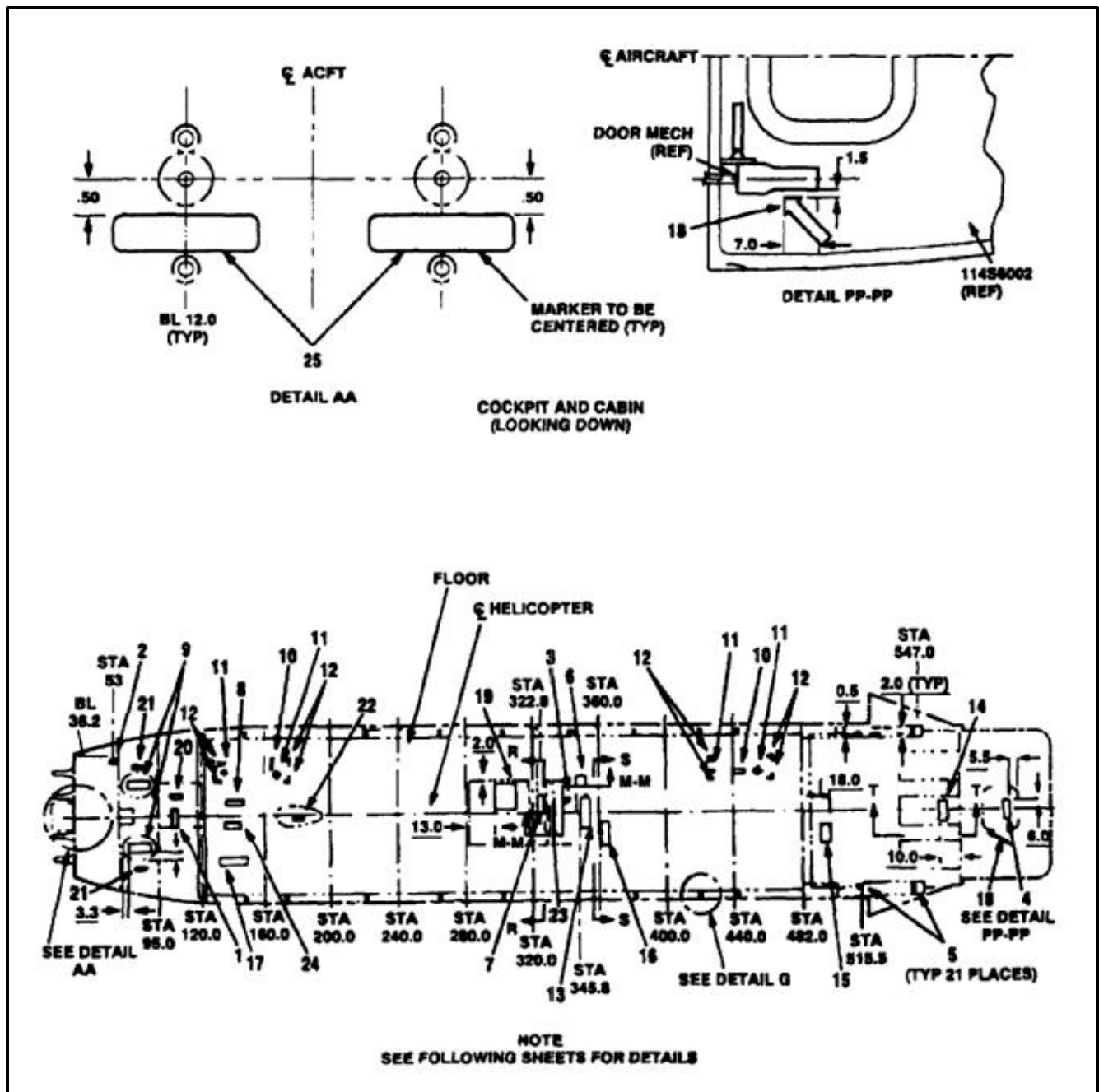
Final Finish - Interior and Exterior Metal Structure (Sheet 7 Of 25)

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
32	 (WITH )		17875	 STA 278.0 WL 13.5  STA 358.0 WL 13.5  STA 482.0 WL 10.0
33	STOWAGE RAMP SUPT STRUT (WITH )	0.50	17875	 STA 553.5 WL 15.0
34	STOWAGE FLIPPER SUPT STRUT 2 PLCS (WITH )	0.50	17875	 STA 521.5 WL 21.5
35	STOWAGE FOR FLARE DISPENSER COVER WITH 	0.50	17875	 STA 553 WL 35.0



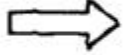




















NOTES

A. CABIN AREA - DARK GULL GRAY, FED. STD 595 NO. 36231, EXCEPT SURFACES ABOVE WATERLINE +29.0 TO BE APPLICABLE PRIMER COLOR ONLY. SURFACES REQUIRING APPLICATION OF VELCRO TAPE SHOULD BE PROPERLY MASKED PRIOR TO APPLICATION OF FINAL FINISHES.

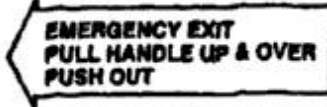






B. RESTORE OBLITERATED LINE MARKINGS IN ACCORDANCE WITH AND10375 AS REQUIRED
 C. MARKINGS COVERED BY BLANKET INSTALLATIONS ARE TO BE REPEATED ON THE BLANKET OUTER SURFACE.
 D. ESCAPE PANELS REQUIRE THE COMPLETE PERIPHERY TO BE MARKED BY A 1 0 TO 2 0 WIDE BAND. HALF ON STRUCTURE AND HALF ON PANEL



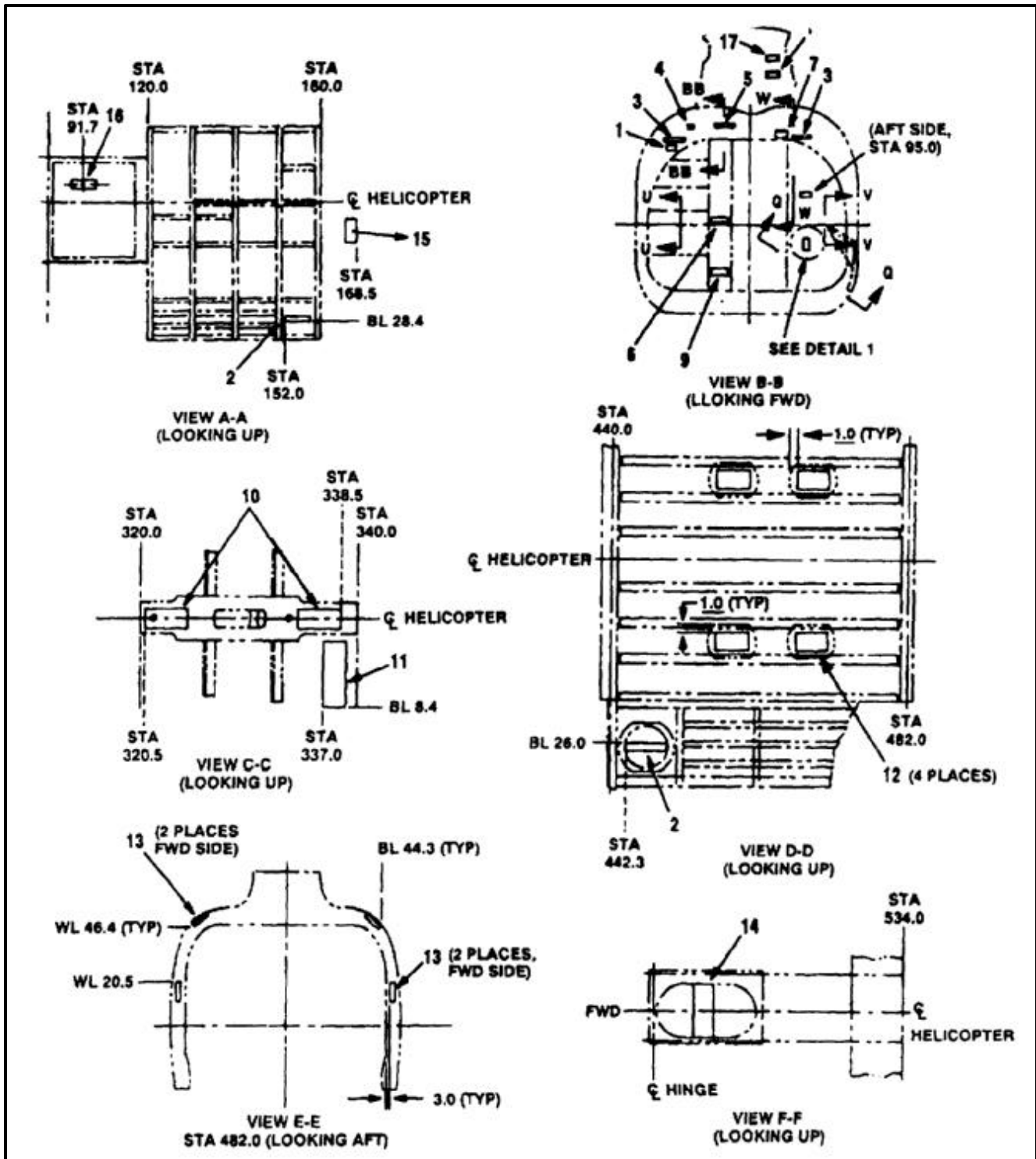
Final Finish - Interior and Exterior Metal Structure (Sheet 9 of 25)

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1	ANTENNA FOR AN/ARN-82	0.5	17875	 STA 330.5, WL 18.6
2	FIRE EXT	1.0	17875	 STA 85.3, RBL 38.2
3		0.8x3.5	17038 BACKGROUND	 STA 340.0, RBL 6.0
4	EMERGENCY EXIT PULL STRAP OUT PUSH PANEL	1.0 0.5	33538	 5 INCH FROM AFT EDGE OF DOOR ON RBL 6.0
5	WLO	1.0	17875	(SEE DETAIL G)
6	TURN LATCH TO UNLOCK & LOCK OUTER HATCH. CAUTION UNLOCK BEFORE TURNING CRANK TO OPEN HATCH	1.0	13538	 ON LOWER DOOR STA 345.0, BL 0.0
7	UNLOCK 	1.0	17875	 ON LOWER DOOR STA 322.8, BL 0.0
8	NO 1 SYS PTU	0.5	17875	 STA 138, RBL 20
9	ACCESS PANELS-HYDRAULIC LINES, TRANSFORMERS	1.0	17875	
10	LOCATION FOR MAINT CRANE BASE PLATE	0.5	13538	 STA 165.0, RBL 35.00  STA 440.0, BL 26.0
11		1.0 DIA	13538	 STA 138.5, RBL 26.0 STA 427.0, RBL 26.0 STA 455.0, RBL 26.0 STA 168.5, RBL 26.0
12		3.0 x 3.0	13538	 STA 133.88, RBL 19.9 STA 424.3, RBL 19.9
13	ALTERNATE GROUND EMERGENCY ESCAPE LIFT	1.0	13538	 UPPER DOOR STA 348.0, BL 0.0
14	MAX WEIGHT <u>200 LBS</u> ON WORK PLATFORM	1.0	17875	 BLOO 10.0 INCH FROM EDGE
15	LIFT PLUG FOR MANUAL CARGO DOOR CRANKING	0.5	17875	 STA 500.0, LBL 5.0
16	 OPEN CRANK HERE TO OPEN AND CLOSE OUTER HATCH	1.0	13538	 STA 361.5, LBL 5.0
17	RESCUE PULLEY ATTACH 	1.0	17875	 STA 132.5, LBL 24.5




















Final Finish - Interior and Exterior Metal Structure (Sheet 10 of 25)

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION	
18		1.0	17038	(SEE DETAIL PP-PP)	
19	LOADING CONFIGURATION	0.38	17875	SEE "COCKPIT" AND CABIN (LOOKING DOWN)" DIAGRAM	
	MAX PAYLOAD				
	FWD HOOK ONLY CENTER HOOK ONLY				17000 LB <u>26000 LB</u>
	AFT HOOK ONLY TANDEM POINT LOAD				17000 LB <u>25000 LB</u> TOTAL
ALL LOADING TO BE WITHIN GROSS WT CG ENVELOPE SEE OPERATORS INSTRUCTIONS					
FWD AND AFT HOOK MANUAL RELEASE OPERATION: ● POSITION LEVER VERTICALLY FOR OPERATING MODE ● PULL LEVER AFT TO RELEASE ● PUSH LEVER FWD TO STOW					
20	AS-2890()/APR-39 ANT	0.5	37038	 STA 103.5, RBL 10	
21	AS-2895 APN-194 (V) ANT	0.5	17875	 STA 47.87, RBL 18.5	
				 STA 47.87, LBL 18.5	
22	AS-2108A/ARN-89 ANT	0.5	37875	 STA 186.78, LBL 4.0	
23	EMERGENCY RELEASE CENTER HOOK ↓	0.38	17875	 BL 0.0	
24	ACCUMULATOR CHARGE 700 PSI-AIR OR NITROGEN	0.5	17875	 STA 141.0, LBL 15.0	
25	INPH AND RADIO XMIT KEY	.25	17875	SEE "COCKPIT" AND CABIN (LOOKING DOWN)" DIAGRAM	

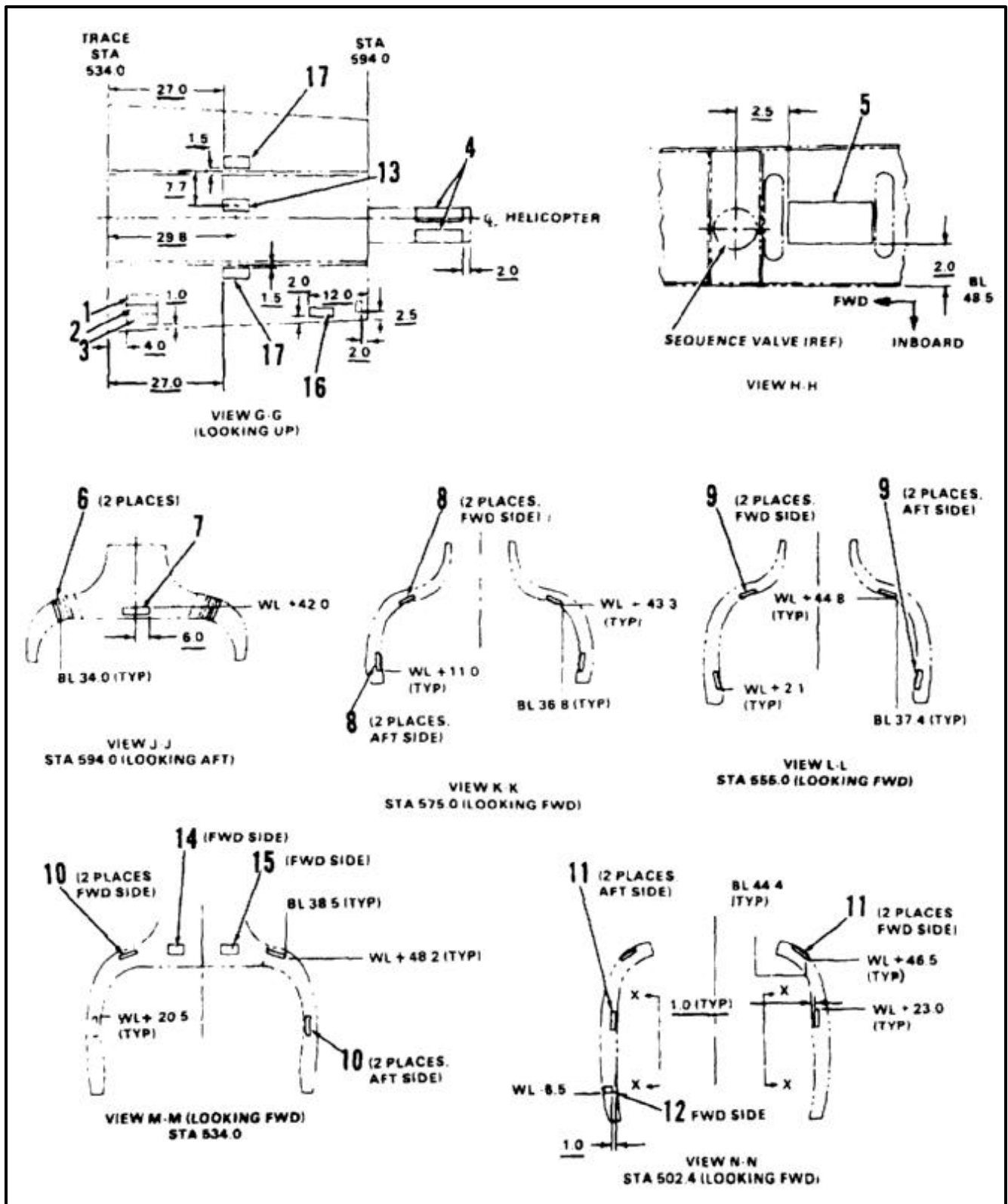
Final Finish - Interior and Exterior Metal Structure (Sheet 11 of 25)






Final Finish - Interior and Exterior Metal Structure (Sheet 12 of 25)

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 596)	LOCATION
1	FIRE EXT.	1.0	17875	 LBL 37.0, WL 38.7 STA 152.0, LBL 28.4
2	CRANE ACCESS	0.5	17875	 STA 442.3, LBL 26.0
3	STA 120.0	1.0	17875	 LBL 38.0, WL 40.5 BL 28.5, WL 43
4	TROOP WARNING SYSTEM	0.25	17875	 LBL 25.3, WL 48 MOUNT ON COVER
5	RESCUE PULLEY ATTACH	0.5	17875	 LBL 15.5, WL 48
6	LITTER POLE STOWAGE	1.0	17875	 LBL 17.2, WL 3.9
7	ANCHOR LINE ATTACH	0.5	17875	 RBL 12.0, WL 45
8	CABIN LIGHT RELAYS RED WHITE	0.25	17875	 RBL 29.0, WL 15.5
9	WINCH CABLE STOWAGE	1.0	17875	 LBL 17.2, WL 20
10	RESCUE CABLE CUTTER- PULLEY ATTACH	0.25	17875	 STA 338.5, BL 0.0 STA 320.5, BL 0.0
11	CABLE CUTTER PLUG	0.5	17875	 STA 337.0, LBL 8.4
12	ACCESS MIX BOX MOUNTING BOLTS	0.5	17875	CENTERED ON 114S3508
13	STA 482	1.0	17875	 FORWARD SIDE WL 20.5, 3 INCH OUT'BD OF CAP (BOTH SIDES)  WL 46.4, RBL 44.3  WL 46.4, LBL 44.3
14	ACCESS-SYNCH SHAFT THOMAS CPLG.	0.5	17875	 CENTER OF DOOR (SEE VIEW F-F)
15	GUNNER INPH BOX	0.5	17875	 STA 168.5, RBL 3.5
16	DEBRIS SCAN CHIP DET	0.5	17875	 STA 91.7, LBL 3.9
17	NO.1 FLT SYS MDL	0.5	17875	 WL 79, RBL 8.5
18	ACC CHARGE 1400 PSI-AIR OR NITROGEN	0.44	17875	 RBL 8.0, WL 69.0 AFT SIDE OF 14SS1625

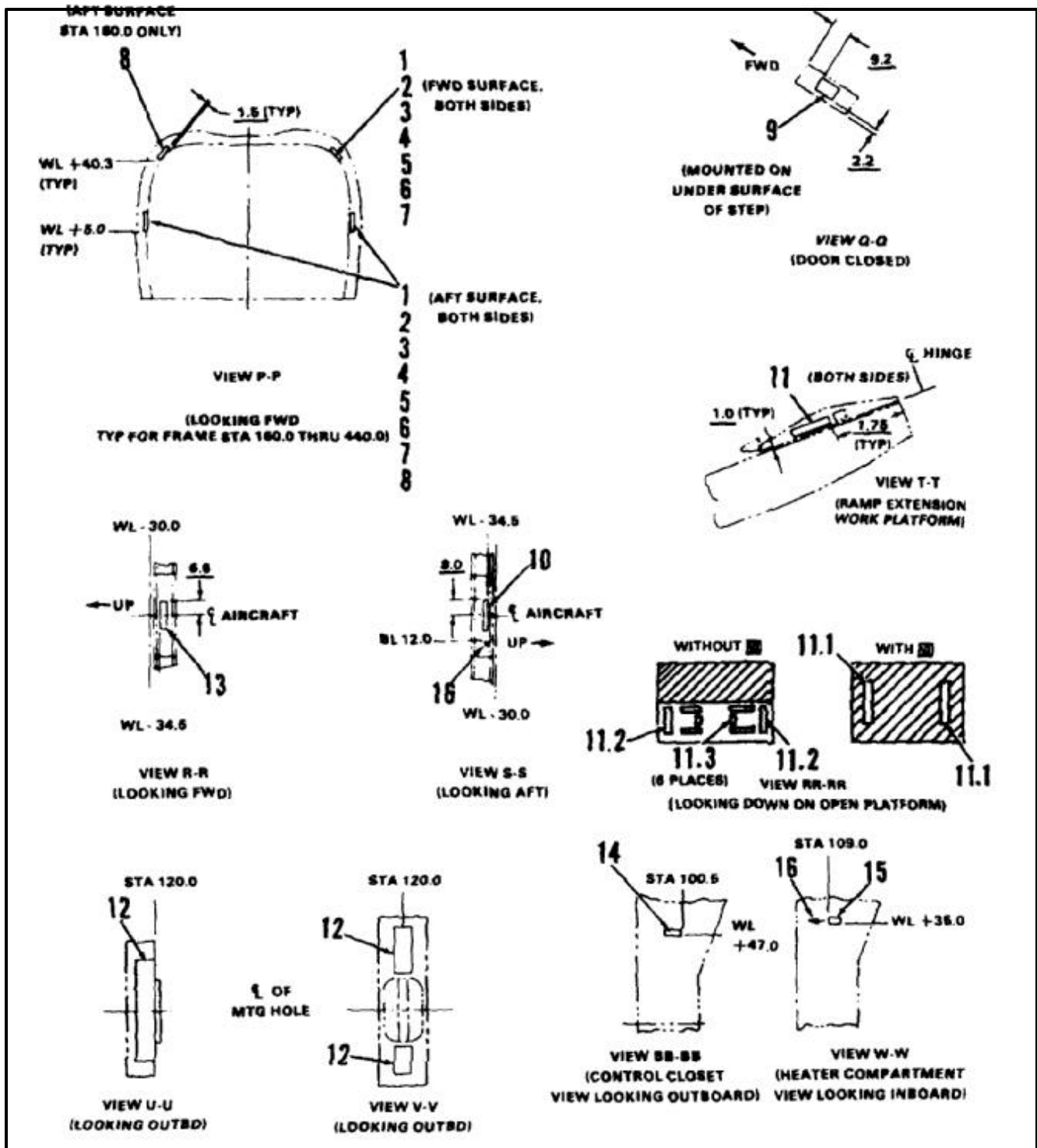
Final Finish - Interior and Exterior Metal Structure (Sheet 13 of 25)






Final Finish - Interior and Exterior Metal Structure (Sheet 14 of 25)

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 596)	LOCATION
1	CAUTION DO NOT HAND PUMP SYSTEM ABOVE BOTTOMING PRESSURES	0.5 0.25 0.25	17875	SEE VIEW G-G
2	AT TEMPS BELOW MINUS 25° F PRECHARGE ACCUMULATOR TO <u>2050 PSI</u> WITH AIR OR NITROGEN ACCUMULATOR WILL BOTTOM AT <u>3350 PSI</u>	0.25	17875	SEE VIEW G-G
3	↑ AT TEMPS ABOVE MINUS 25° F PRECHARGE ACCUM- ULATOR TO <u>1800 PSI</u> WITH AIR OR NITROGEN ACCUMULATOR WILL BOTTOM AT <u>3000 PSI</u>	0.25	17875	SEE VIEW G-G
4	NO HANDHOLD	1.0	17875	SEE VIEW G-G
5	SEQUENCE VALVE	0.5	17038	SEE VIEW H-H
6	STA 594.0	1.0	17875	SEE VIEW J-J
7	↑ DANGER HIGH VOLTAGE ↑	1.0	13538	 WL 42.0. LBL 6.0
8	STA 575.0	1.0	17875	SEE VIEW K-K
9	STA 555.0	1.0	17875	SEE VIEW L-L
10	STA 534.0	1.0	17875	SEE VIEW M-M
11	STA 502.4	1.0	17875	SEE VIEW N-N
12	HOIST CONTROL ↓	0.25	17875	SEE VIEW N-N
13	DEBRIS SCAN CHIP DET	0.5	17875	SEE VIEW G-G
14	UTIL SYS PRESS MDL	0.5	17875	 WL -48. LBL 11.8 (FWD SIDE)
15	UTIL SYS RTN MDL	0.5	17875	 WL -45. RBL 17 (FWD SIDE)
16	UTILITY SYSTEM DEPRESSURIZATION VALVE PUSH TO DEPRESSURIZE ↑	0.5	17875	SEE VIEW G-G
17	ACCESS XMSN UNLATCH DROP PANEL KEEP CLOSED IN FLIGHT	0.5	17875	SEE VIEW G-G


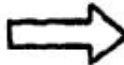

Final Finish - Interior and Exterior Metal Structure (Sheet 15 of 25)

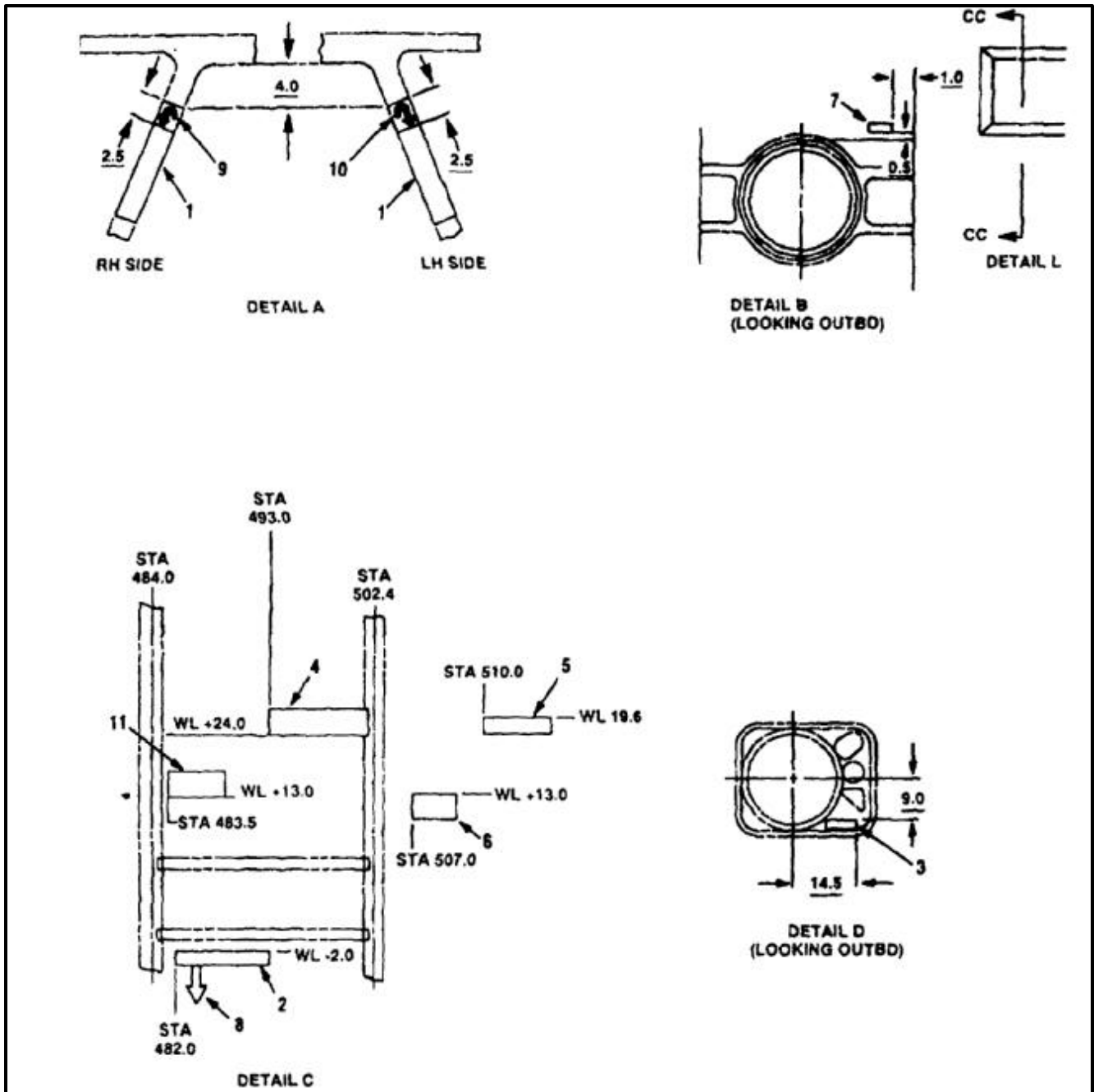


Final Finish - Interior and Exterior Metal Structure (Sheet 16 of 25)











INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1	STA 200	1.0	17875	SEE VIEW P-P
2	STA 240	1.0	17875	SEE VIEW P-P
3	STA 280	1.0	17875	SEE VIEW P-P
4	STA 320	1.0	17875	SEE VIEW P-P
5	STA 360	1.0	17875	SEE VIEW P-P
6	STA 400	1.0	17875	SEE VIEW P-P
7	STA 440	1.0	17875	SEE VIEW P-P
8	STA 180	1.0	17875	SEE VIEW P-P
9	PUSH TRIGGER TURN HANDLE UP PUSH DOOR OUT	1.0	17875	SEE VIEW Q-Q
10	HOOK STOWAGE STRAP	1.0	37038	 WL 34.5. BL 0.0
11	MAX WEIGHT <u>200 LBS</u> ON WORK PLATFORM	0.5	17875	SEE VIEW T-T
11.1	MAX WEIGHT 400 LBS	1.0	17875	SEE VIEW RR-RR
11.2	MAX WEIGHT	1.0	37038	SEE VIEW RR-RR
11.3	NO STEP	1.0	37038	SEE VIEW RR-RR
12	XM24 GUN MTG	0.5	17875	SEE VIEW U-U AND V-V
13	CENTER HOOK CAP <u>28000 LB</u>	1.0	17038	 WL-34.5. BL 0.0
14	NO 1 LWR FLT MDL	0.5	17875	 STA 100.5. WL 47

Final Finish – Interior and Exterior Metal Structure (Sheet 17 of 25)

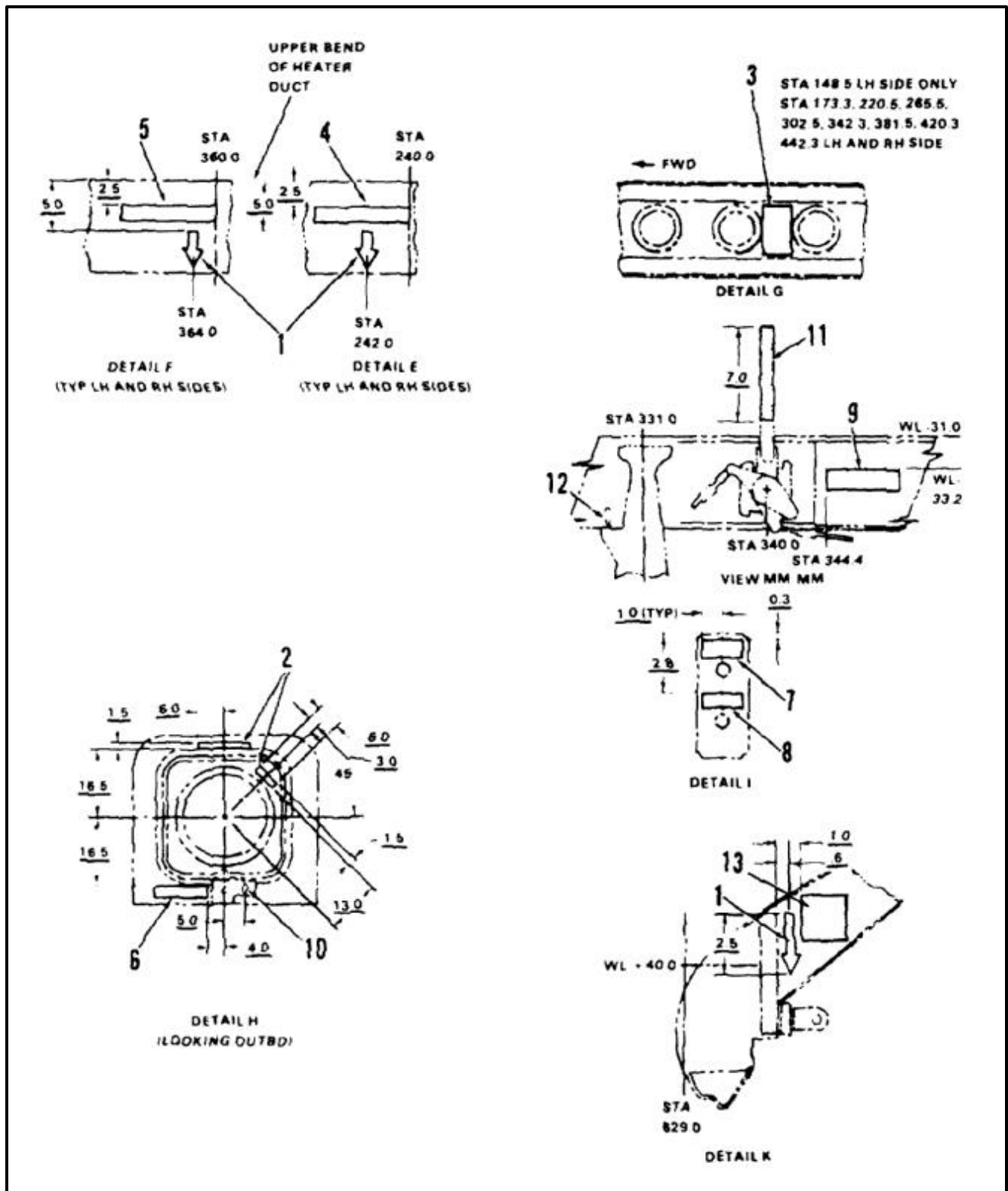
INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (PED STD 598)	LOCATION
18	<p>FOR EMERGENCY OPERATION</p> <ol style="list-style-type: none"> 1. TWO MEN REQUIRED-ONE TO OPERATE CONTROLS ONE TO DIRECT AND STABILIZE LOAD. 2. REMOVE ELECTRICAL CONNECTORS FROM SHUTOFF AND CONTROL VALVE. 3. SELECT DESIRED POSITION ON CONTROL VALVE "REEL OUT"- ROTATE KNOB CLOCKWISE. "REEL IN"-ROTATE KNOB COUNTER-CLOCKWISE. 4. MANUALLY OPERATE SHUT-OFF VALVE: "ON" PUSH KNOB IN AND ROTATE 90° "OFF" ROTATE KNOB TO RELEASE WARNING TO PREVENT LOSS OF LOAD DO NOT: ● REEL OUT CABLE WITH LESS THAN THREE (3) CABLE TURNS LEFT ON DRUM. ● REEL IN IF CABLE FITTING IS WITHIN SIX (6) INCHES OF PULLEY. 	<p>0.25</p> <p>0.19</p>	<p>17875</p>	<p> STA 108, WL -35</p>
18	<p></p>	<p>0.8x2.5</p>	<p>17038 BACKGROUND</p>	<p> LBL 12.0, WL 34.5</p>





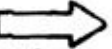
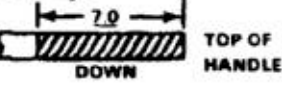

Final Finish - Interior and Exterior Metal Structure (Sheet 19 of 25)

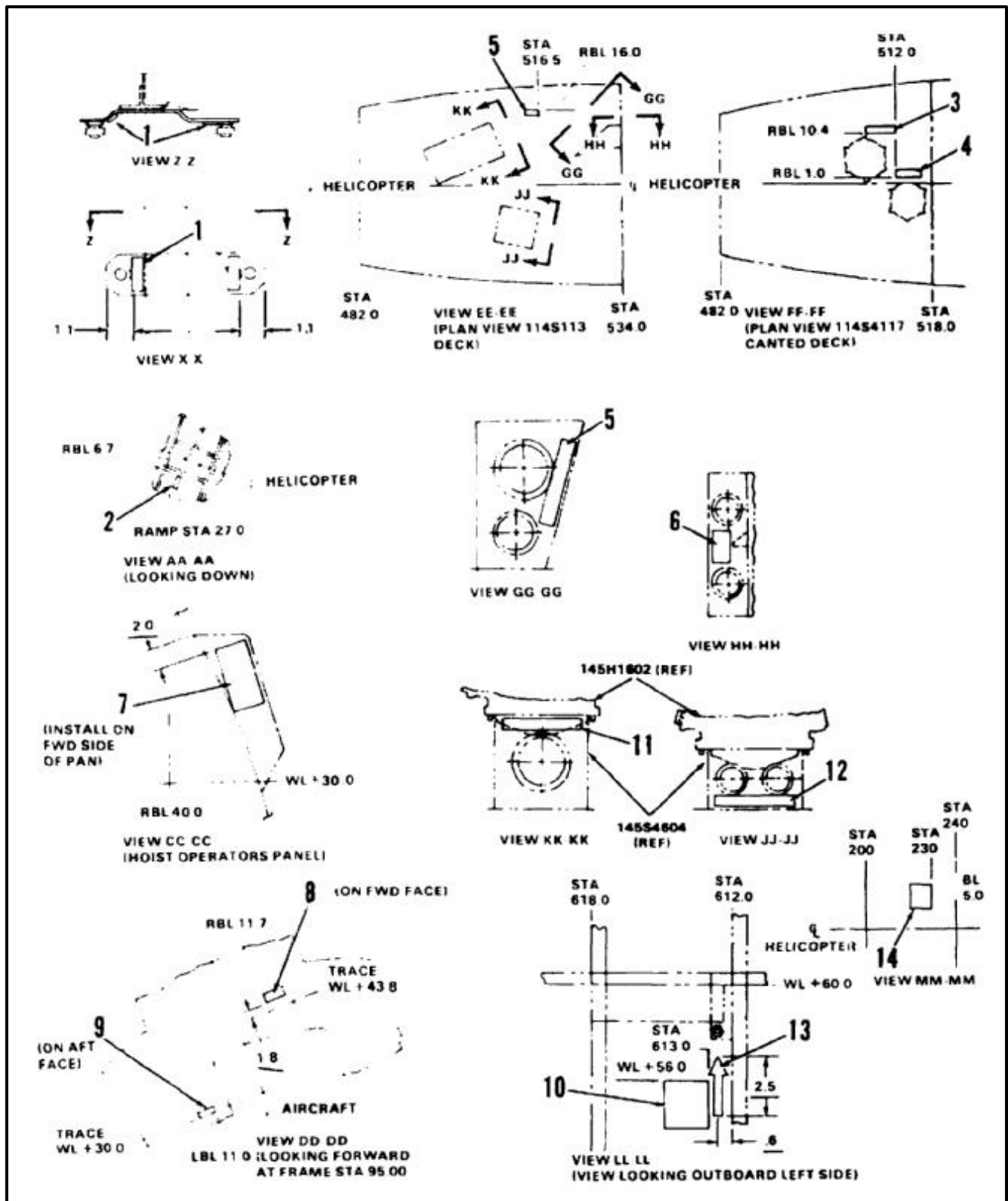
INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 596)	LOCATION
1	EMERGENCY EXIT TURN HANDLE	1.0 0.5	33538	SEE DETAIL A
2	STA 486	1.0	17038	 STA 484.0, WL -2.0
3	EMERGENCY EXIT PULL STRAP OUT PUSH PANEL	0.5	33538	SEE DETAIL D
4	FUEL VALVE NO.2 ENGINE ← CLOSE OPEN →	0.5 0.25	17875	 STA 493.0, WL 20.0
5	DEFUEL VALVE CLOSE OPEN	0.5 0.25	17875	 STA 510.0, WL 19.6
6	FUEL VALVE CROSSFEED ← CLOSE OPEN →	0.5 0.25	17875	 STA 507.0, WL 13.0
7	 EMERGENCY EXIT PULL STRAP OUT PUSH WINDOW OUT	1.0 0.5	13538	SEE DETAIL B
8		0.8 x 3.5	17038 BACKGROUND	 STA 486.0, WL -21.5
9		1.0 x 2.0	33538	SEE DETAIL A
10		1.0 x 2.0	33538	SEE DETAIL A
11	ACC CHARGE 1400 PSI-AIR OR NITROGEN	0.44	17875	 STA 483.5, WL 13.0

Final Finish – Interior and Exterior Metal Structure (Sheet 20 of 25)









Final Finish - Interior and Exterior Metal Structure (Sheet 21 of 25)

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1		0.8 x 3.5	17875	SEE DETAIL E AND F
2	EMERGENCY EXIT PULL STRAP OUT-PUSH PANEL	1.0 0.5	33538	SEE DETAIL H
3	WL 0	1.0	17875	SEE DETAIL G
4	STA 242	1.0	17875	SEE DETAIL E
5	STA 364	1.0	17875	SEE DETAIL F
6	TURN HANDLE UP-LIFT DOOR	1.0	17875	SEE DETAIL H
7	CABLE CUTTER	0.25	17875	SEE DETAIL I
8	HOIST CONTROL	0.25	17875	SEE DETAIL I
9	EMERGENCY RELEASE FWD AND AFT HOOKS	0.38	17875	 STA 344.4, WL -33.2
10		0.8x3.5	13538	SEE DETAIL H
11		7.0 LONG AROUND HANDLE	11136 17875	STA 340.0 ON TANDEM HOOK RELEASE
12		2.7 LONG AROUND TOP	11136 17875	STA 328.0 ON TOP OF CENTER CARGO HOOK RELEASE PULL RING
13	APU HOIST PT	0.5	17875	SEE DETAIL K





Final Finish - Interior and Exterior Metal Structure (Sheet 23 of 25)

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 596)	LOCATION	
1	FUEL VALVE WARNING LIGHT	0.12-0.19	37038	SEE VIEW X-X	
2	AT-740 A ANT	0.5	37875	 RAMP STA 27, RBL 6.7	
3	UTIL SYS FAN	0.5	17875	 STA 512.0, RBL 10.4	
4	NO 2 FLT SYS FAN	0.5	17875	 STA 512.0, RBL 1.0	
5	ACCUMULATOR CHARGE 1400 PSI-AIR OR NITROGEN	0.25	17875	 STA 516.5 RBL 16 SEE VIEW GG-GG FOR SECOND POSITION	
6	NO 2 FLT SYS MDL	0.5	17875	SEE VIEW HH-HH	
7	LOADING CONFIGURATION	0.13	17875	SEE VIEW CC-CC	
	MAX PAYLOAD				
	FWD HOOK ONLY CTR HOOK ONLY AFT HOOK ONLY				<u>17000 LB</u> <u>28000 LB</u> <u>17000 LB</u>
	TANDEM POINT LOAD				<u>23000 LB</u> TOTAL
ALL LOADING TO BE WITHIN GROSS WT CG ENVELOPE SEE OPERATORS INSTRUCTIONS					
FWD AND AFT HOOK MANUAL RELEASE OPERATION: ● POSITION LEVER VERTICALLY FOR OPERATING MODE ● PULL LEVER AFT TO RELEASE ● PUSH LEVER FWD TO STOW					
8	XMSN OIL LVL SIGHT GAUGE	0.5	17875	 WL 46.6, RBL 11.7	
9	NO 2 LWR FLT MDL	0.5	17875	 WL 30, LBL 11.0	

1502

Final Finish - Interior and Exterior Metal Structure (Sheet 24 of 25)

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
10	APU HOIST PT	0.5	17875	SEE VIEW LL-LL
11	UTIL SYS RSVR	0.5	17875	SEE VIEW KK-KK
12	NO 2 FLT SYS RSVR	0.5	17875	SEE VIEW JJ-JJ
13		0.8 x 3.5	17875 BACKGROUND	
14	ACCUMULATOR CHARGE 700 PSI - AIR OR NITROGEN	0.5	17875	 STA 141.0, LBL 15.0

1503

Final Finish – Interior and Exterior Metal Structure (Sheet 25 of 25)

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Cloths (E120)
 Naphtha (E245)
 Abrasive Paper (E9)
 Primer (E292.1 and E293)
 Lacquer (As Required)
 Gloves (E186)

1. Refinish impregnated glass cloth parts, except rotary-wing blades, as follows:

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- a. Wash part three times. Use cloth (E120) soaked in naphtha (E245). Wear gloves (E186).
- b. Rub part lightly. Use abrasive paper (E9).
- c. Repeat step a.

WARNING

Primer (E292.1 and E293) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- d. Apply primer (E292.1) to inside surfaces. Apply primer (E293) to outside surfaces. Wear gloves (E186).
- e. Apply **two coats** of lacquer as required to match adjacent structure. Wear gloves (E186).

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-1236

2-354 SPECIAL FINISH SURFACES EXPOSED TO ALKALINE

2-354

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

Epoxy Primer (E293)

Personnel Required:Aircraft Structural Repairer
Inspector**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Apply **one coat** of epoxy primer (E293) to surfaces within **12 inches** of NiCad storage batteries for alkaline protection. Battery location is in forward end of left pod at sta. 180.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

83-24105 and Subsequent

Tools:

As Required

Materials:

Abrasive Paper (E9)
 Alodine 1200 Powder (E65)
 Cloths (E120)
 Dry Cleaning Solvent (E162)
 Gray Epoxy Topcoat (E166)
 Orange-Yellow Epoxy Topcoat (E166.1)
 White Epoxy Topcoat (E166.2)
 Gloves (E184.1)
 Low Reflective Black Lacquer (E214.1)
 Black Polyurethane (E285.1)
 Green Polyurethane (E285.2)
 Epoxy Primer (E292.1)

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

MIL-C-5541

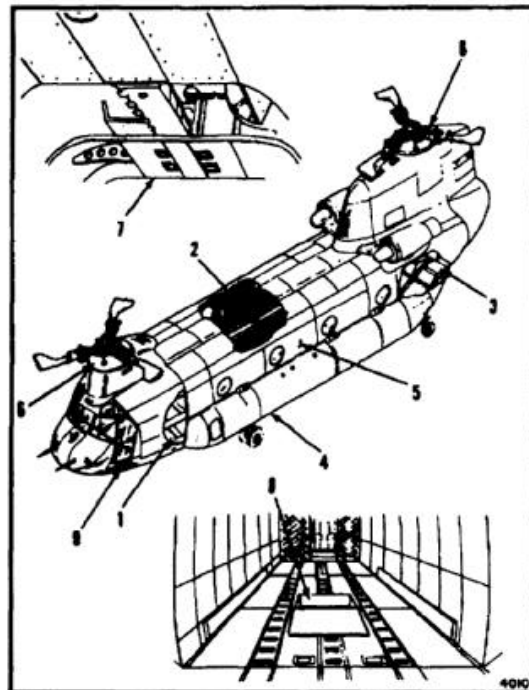
Equipment Condition:

As Required

General Safety Instructions:**WARNING**

Primer and topcoats used in this task are flammable and toxic. They can irritate skin and cause burns. Use only with adequate ventilation, away from heat and open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

1. Helicopters 83-24105 and subsequent require special paint treatment in the following areas:
 - a. Entire structure under cabin floor (1).
 - b. Entire internal structure from WL 0.0 down between stations 95.0 and 554.0 (2).
 - c. Entire structure under ramp floor (3).
 - d. Entire internal structure of pods (4) from WL 0.0 down, including landing gear wells.
 - e. Entire exterior surface (5) below weather-protective covers (6).
 - f. Ceiling structure (7).
 - g. Inside of hatch area (8).
 - h. Entire structure under cockpit floor (9).



PREPARATION

- Inspect existing finish in area to be refinished for softening, flaking, or other signs of poor adherence. Remove loose finish by sanding.

WARNING

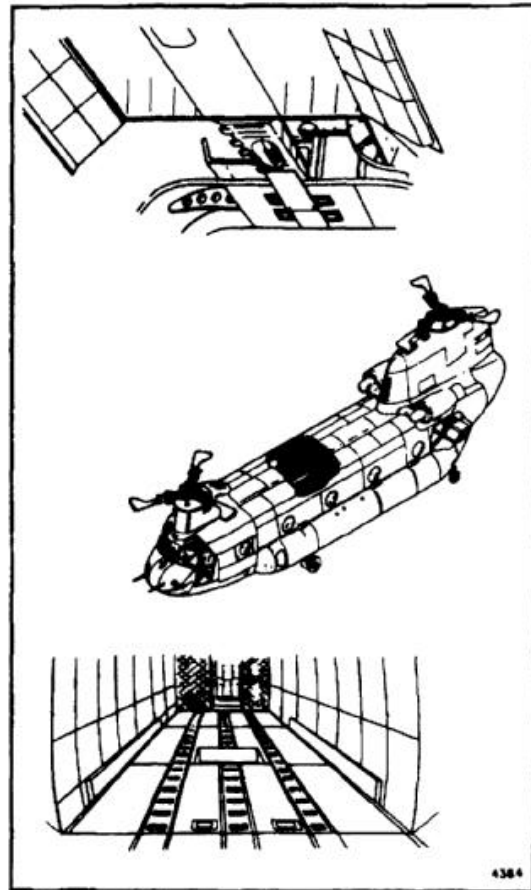
Alodine powder (E65) is an oxidizer. Discard cloths which contain this material in a separate container. If discarded with cloths contaminated with acetone, or other organic solvents, combustion can result. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- Apply solution of alodine 1200 (E65) in water to bare aluminum areas. (Refer to MIL-C-5541.) Wear gloves (E184.1).

WARNING

Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- Clean treated area with dry cleaning solvent (E162) and cloths (E120).
- Lightly sand cleaned area. Use abrasive paper (E9). Repeat step 4.



WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

6. Apply a coat of epoxy primer (E292.1). Let dry for **2 hours**.
7. Apply a **second full coat** of primer (E292.1). Let dry for **1 hour**.

PAINTING

8. Apply **two coats** of topcoat to interior and exterior surfaces as follows:

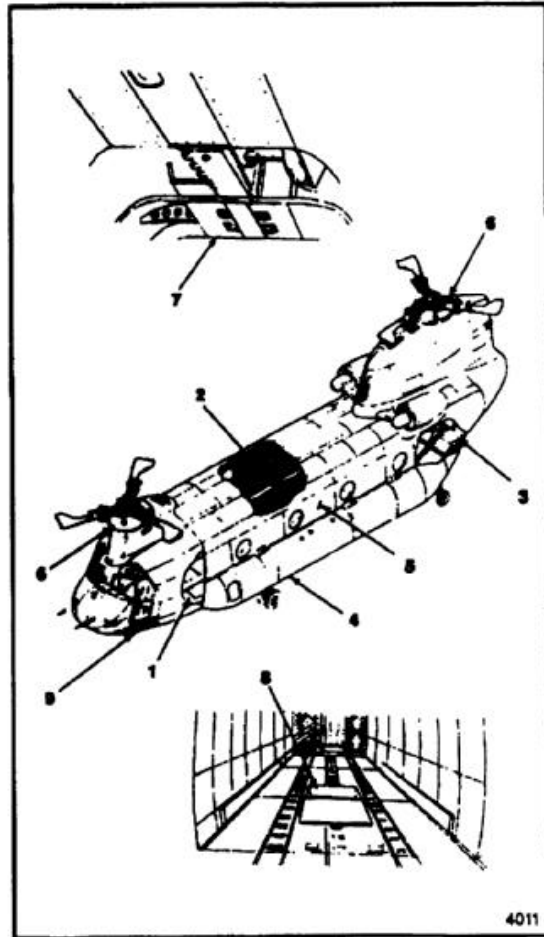
NOTE

Allow **1 hour** drying time between coats.

- a. Cabin underfloor area (1) — Use white epoxy (E166.2).
 - b. Ramp underfloor area (3) and cabin and ramp area walk (2) and ceiling (7) — Use grey epoxy (E166).
 - c. Hatch area (8) — Use orange-yellow epoxy (E166.1).
 - d. Exterior surfaces (5) — Use black polyurethane (E285.1).
 - e. Exterior markings below rainshield (6) — Use green polyurethane (E285.2).
 - f. Cockpit under floor area (9) — Use low reflective black lacquer (E214.1).
9. All other paint and markings are unchanged.

FOLLOW-ON MAINTENANCE:

None



4011

END OF TASK

2-1240

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Cloths (E120)
Epoxy, Clear (E166.3)
Gloves (E184.1)
Naphtha (E245)

1. Overcoat decals aft of sta. 440, on helicopter interior, (in areas of possible oil or grease spillage), as follows:

WARNING

Naphtha (E245) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes** Get medical attention for eyes.

- a. Remove oil or other contamination from decal. Use cloth (E120) soaked with naphtha (E245). Wear gloves (E184.1).
- b. If decal cannot be cleaned satisfactorily, replace, or use stenciled markings.

NOTE

Stenciled markings must be used when rework is required for STEP legends.

Personnel Required:

Aircraft Structural Repairer
Inspector

Equipment Condition:

As Required

General Safety Instructions:

As Required

WARNING

Epoxy, clear (E166.3) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

CAUTION

Do not apply clear epoxy wet or heavy. Decal can lift at edge.

- c. Apply **0.003 inch** dry film thickness of clear epoxy (E166.3), and **0.12 ±0.25 inch** beyond edge of decal.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:Power Mixer
Heat Lamp**Materials:**Walkway Material (E440)
Cloth (E120)
Naphtha (E245)
Masking Tape (E388)Kraft Paper (E263)
Epoxy Primer (E293)
Gloves (E186)
Temperature indicating Strips (E413)**Personnel Required:**Aircraft Structural Repairer
Inspector**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Prepare surface for walkway material application as follows:

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- a. Remove wax, grease, oil, dirt, or other materials. Use cloth (E120) soaked in naphtha (E245). Wear gloves (E186).
 - b. Mask areas around walkway. Use kraft paper (E263) and masking tape (E388).
2. Finish surface as follows:

WARNING

Primer (E293) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

- a. Apply **two coats** of epoxy primer (E293) to walkway surface. Wear gloves (E186). Allow **3 hours** for drying.

NOTE

If walkway coating (E440) has been stored, containers must be turned over **24 hours** before mixing.

- b. If stored, turn containers upside-down **24 hours** before mixing.
- c. Mix black epoxy walkway coating (E440) for **15 minutes**. Use power mixer.

NOTE

Working life of material is **8 hours at 70°F (21°C), 5 hours at 100°F (38°C), or 3 hours at 110°F (43°C)**.

- d. Apply one liberal coat of walkway coating (E440) to surface. Allow to dry **4 hours at 70°F (21°C)**.

NOTE

Coating is firm for foot traffic in **24 hours at 70°F (21°C)**.

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-1242

2-357 IMPREGNATED GLASS PARTS REPAIR

2-357

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**TM 1-1500-204-23
TB 746-93-2**Equipment Condition:**

As Required

General Safety Instructions:

As Required

1. Repair impregnated glass parts. Refer to TM 1-1500-204-23 and TB 746-93-2.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector

1. Sandwich honeycomb structures on helicopter are made with aluminum alloy honeycomb core sandwiched between aluminum alloy skins. Some edge members of panels are made of Scotchply, a non-woven impregnated glass fabric. Others, such as work platforms, have free edges filled with Corfil 615. Effectiveness of repairs depends upon correct classification of damage, and proper repairs.
2. Classify damage as follows:
 - a. Dents to surface skin may not exceed **50 square-inches** per dent. Dents next to each other are the same as one dent.

References:

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

- b. Total dent damage to one pod shall not exceed **200 square-inches**.
 - c. Dents shall not be deeper than **10 percent** of panel thickness, or **0.10 inch**, whichever is less.
 - d. Dent must be free of cracks or holes and must not exceed two per **40 inch** length of panel.
3. Refer to TM 1-1500-204-23 for honeycomb sandwich parts damage classifications.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1244

INITIAL SETUP**Applicable Configurations:**

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

Task 2-360

Equipment Condition:

As Required

General Safety Instructions:

As Required

OILCAN SKIN

1. Press inward on skin panels. If skin stays in and skin of next panel comes out, go to step 2. If not, perform Task 2-360, then go to step 2.
2. Press inward on bulge in a panel. If skin pops when pressed, then released, go to step 3. If not, perform Task 2-360, then go to step 3.

NORMAL SKIN

3. Press inward on skin which looks normal. If skin returns and looks normal, go to step 4. If not, perform Task 2-360, then go to step 4.

SOFT OR LOOSE SKIN

4. Press inward on skin which has a ripple surface. If skin does not pop when pressed, then released, go to step 5. If skin pops, perform Task 2-360, then go to step 5.

TRAPPED SKIN

5. Skin panels buckled outward or inward with sharp creases or dents must be repaired (Task 2-360).

SINGLE PANEL OILCAN SKIN

6. Press inward on bulge in skin. If skin stays in but bulge comes up in other area of panel, repair panel (Task 2-360).

7. Repeat step 6. If skin pops when pressed, then released, go to step 8. If not, perform Task 2-360, then go to step 8.
8. Press skin inward then outward. If skin does not pop and skin moves in other panels, go to step 9. If not, perform Task 2-360, then go to step 9.

MULTI-PANEL OILCAN SKIN

9. Press inward on skin of one panel. If next panel pops out, press this panel inward. If panel first pressed in pops out, perform Task 2-360, then go to step 10. If not, go to step 10.
10. Press inward on skin of one panel. If skin buckles outward in more than one other panel, perform Task 2-360, then go to step 11. If not, go to step 11.

BUCKLED SKIN

11. Press inward and hold skin of one panel. Apply pressure to bulge in next panel. Slowly release pressure on first panel. If panel tends to bulge outward, then panel is buckled. If panel does not bulge outward, panel is not buckled.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:Aircraft Structural Repairer
Inspector**References:**

Tasks 2-361 thru 2-364

Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Repair oilcan skin as follows:
 - a. For skin and web repairs, perform Task 2-361.
 - b. For skin repair, using a coin patch, perform Task 2-362.
 - c. For web repair using backing plate, perform Task 2-363.
 - d. For skin repair, using temporary patch, perform Task 2-364.
2. Apply watertight seal to repairs below waterline 0.
3. Repair loose skins and oilcan using stiffeners as follows:
 - a. Do not use stiffeners in bottom section of cabin between lower longerons and sta. 160 and 482.
 - b. Do not use on outside of aircraft.
 - c. Do not use stiffeners if they will be in the way of parts or moving components.
 - d. Use minimum number of stiffeners to correct oilcan.
 - e. Stiffeners must be attached at each end to main structure.
 - f. Stiffeners must be next larger thickness than skin and made from 2024-T3 clad aluminum alloy.
 - g. Stiffeners longer than **30 inches** must be made from Alcoa 33372 or equivalent.
 - h. Stiffener attaching clips are made from 2024-T3 clad aluminum alloy and be same thickness as stiffener.
 - i. Install rivets MS20470AD4 at about **3/4 inch** pitch for attaching stiffeners not thicker than **0.040 inch**.

FOLLOW-ON MAINTENANCE:

Not Required

END OF TASK

2-1246

2-361 REPAIR SKIN AND WEBS**2-361****INITIAL SETUP****Applicable Configurations:**

All

Tools:

Airframe Repairman's Tool Kit, NSN
5180-00-323-4876

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-275
Task 2-326
Task 2-351
Tasks 2-362 thru 2-364

Equipment Condition:

As Required

General Safety Instructions:

As Required

COIN PATCH REPAIR

1. Perform Task 2-362. Refer to Task 2-326 for rivet sizes.

WEB REPAIR USING BACKING PLATE

2. Perform Task 2-363. Refer to Task 2-326 for rivet sizes.

SKIN REPAIR USING TEMPORARY PATCH

3. Perform Task 2-364. Refer to Task 2-326 for rivet sizes.

4. Maintain a minimum distance of **5/8 inch** between cutouts and edge of patch.
5. Insulate dissimilar metals. Refer to Task 2-351.
6. Repair tailcone as classified in Task 2-275.

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairman's Tool Kit, NSN
5180-00-323-4876

Materials:

Epoxy Primer (E292.1)
Sealant (E336 or E470)
Gloves (E184.1)
Goggles (E473)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

TM 1-1500-204-23
Task 2-275
Task 2-324
Task 2-326

Equipment Condition:

As Required

NOTE

No more than two patches for each skin panel **15 X 50 inches** or less.

Panels not less than **15 X 50 inches** between longer longerons and STA 160.00 and 482.00 may have four patch maximum.

All patches must clear next structural member by **1/8 inch** and be sealed. Refer to Task 2-324 for sealing.

1. Repair dents, punctures, tears, and small cracks that can be cut out from **1/2 to 1-1/2 inch** diameters.

COIN PATCH AND BACKPLATE

2. Cut out damage.
3. Cut out coin patch of same material and thickness as skin. Diameter of patch must be **5/16 inch** less than cutout.
4. Cut out round backplate three times diameter of coin patch, from same material, but next thicker size.
5. Smooth edges of cutout, coin patch, and backing plate. Use a file.
6. Center coin patch on backing plate. Drill rivet holes through coin patch and backing plate. Refer to Task 2-326 hole and rivet sizes.

7. Install rivets.

WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes for at least **15 minutes**. Get medical attention for eyes.

8. Apply coat of primer (E292.1) on all surfaces of coin patch. Allow to dry. Wear gloves (E184.1).
9. Insert coin patch in cutout from inside. Drill rivet holes through backing plate and skin. Rivet pitch should be about **3/4 inch**.

WARNING

Sealant (E336 or E470) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

10. Remove coin patch. Apply sealant (E336 or E470) to coin patch and cutout. Wear gloves (E184.1).
11. Position coin patch and backing plate in cutout. Install rivet.

COIN PATCH

12. If damage is less than **1/2 inch** and larger than **3/16 inch** and is located over undamaged frame or stiffener, do not use a backplate. Rivet coin patch to frame or stiffener.

TAILCONE REPAIR

13. Repair classifications are given in Task 2-275.

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:Epoxy Primer (E292.1)
Gloves (E184.1)**Personnel Required:**Aircraft Structural Repairer
Inspector**References:**TM 1-1500-204-23
Task 2-326**Equipment Condition:**

As Required

NOTE

No more than two repairs in each web.

1. Holes, tears, or sharp dents not more than **1-1/2 inches** diameter that can be cut out.
2. Repair must be clear of next structure by **1/8 inch**.
3. Cut or drill out damage. Damage must not be less than **3/16 inch**. If damage can be removed by drilling **3/16 inch** hole, perform step 2. If not, perform steps 3 thru 7.
4. Drill **3/16 inch** diameter hole. Install rivet and washer. Set rivet.
5. Cut round backing plate of same material as web, and next thickness. Cut plate to cover cutout and overlap cutout a minimum of four times diameter of rivet. If backing plate cannot be round, corner radius must not be less than **1/4 inch**.
6. Smooth edges of plate. Use a file.

7. Center plate over cutout. Drill rivet holes. Pitch must be **1/2 to 3/4 inches**. Refer to Task 2-326 for rivet and hole sizes.

WARNING

Epoxy primer (E292.1) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes for at least **15 minutes**. Get medical attention for eyes.

8. Apply coat of primer (E292.1) to surfaces of plate and cut out. Allow to dry. Wear gloves (E184.1).
9. Position plate over cutout. Install rivets.

INSPECT**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

2-1250

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Acetone (E20)
 Thinner (E414)
 Dope (E463)
 Tape (E391)
 Cloth (E121)
 Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
 Inspector

References:

Task 2-75

Equipment Condition:

As Required

General Safety Instructions:**WARNING**

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Thinner (E414) or dope (E463) are flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

NOTE

Repair of minor holes or cracks.

Damage allowable for one-time flights.

1. Repair holes and cracks with fabric patches as follows:
 - a. Stop-drill cracks or trim hole.
 - b. Remove paint from around damage. Use acetone (E20) or thinner (E414). Wear gloves (E186).
 - c. Cut a pinked-edge patch from cloth (E121). Patch should overlap hole.
 - d. Apply coat of dope (E463) around damage. Wear gloves (E186).
 - e. Apply patch while dope (E463) is wet. Smooth patch to remove wrinkle.
2. Repair holes and cracks with tape as follows:
 - a. Repeat steps 1a and b.
 - b. Cut an oval or round patch from tape (E391).
 - c. Apply patch to damaged area. Apply pressure to patch. Use a rubber roller.
3. Repair must be painted for easy detection for permanent repair.
4. Repair classifications are given in Task 2-75.

TAILCONE REPAIR**FOLLOW-ON MAINTENANCE:**

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Thread (E420)

Personnel Required:Aircraft Structural Repairer
Fabric Repair Specialist
Inspector**References:**

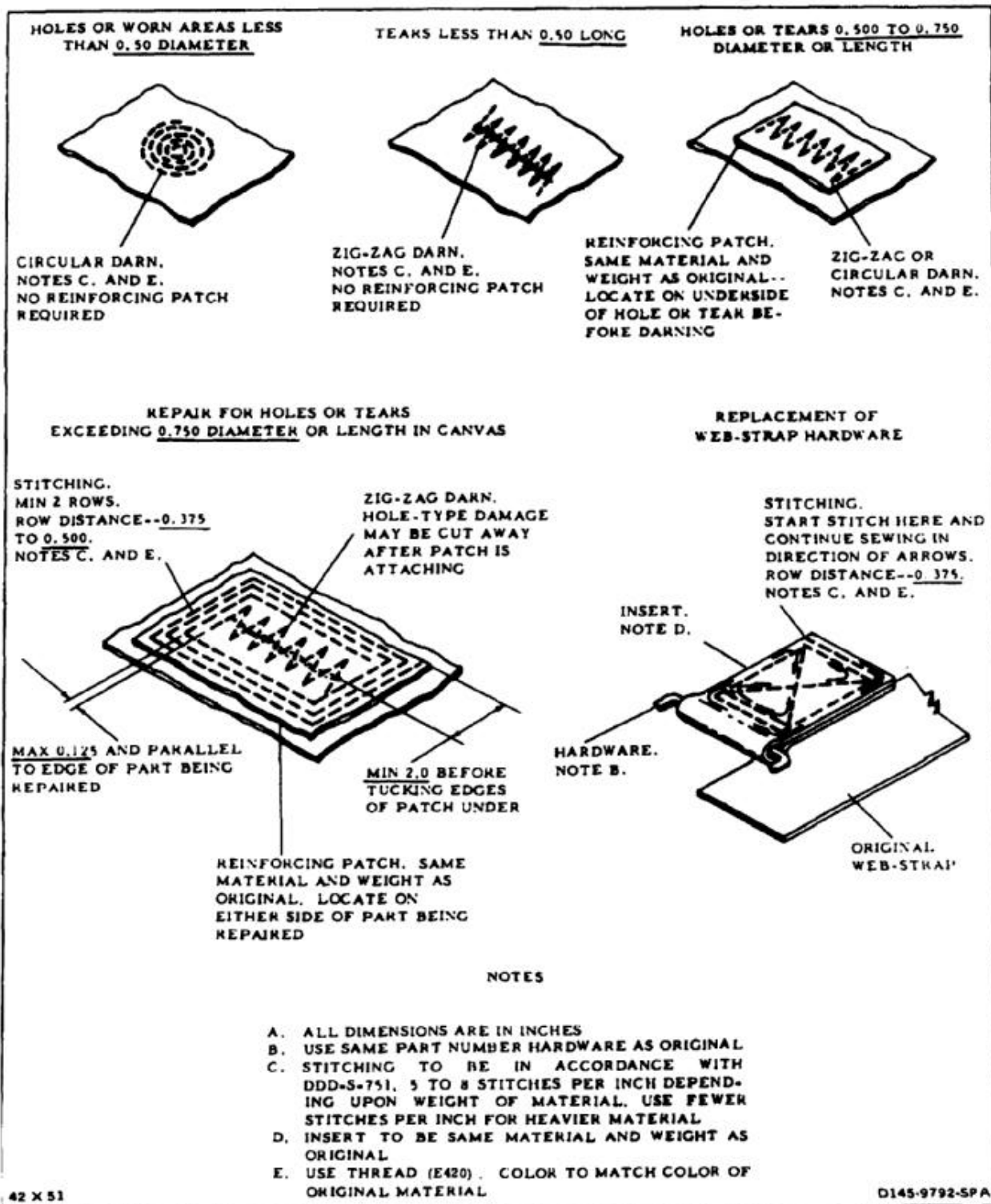
TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

TM 1-1500-204-23

Equipment Condition:

As Required

General Safety Instructions:

As Required

REPAIR PARTS

1. ORIGINAL TUBE
2. REPLACEMENT TUBE
3. SLEEVE

TUBES (1) AND (2)		SLEEVE (3)			RIVETS REQD
DIA	WALL	DIA	WALL	LENGTH	
0.50	0.035	0.625	0.058	9.375	MS20470AD5
0.75	0.065	0.875	0.058	9.375	MS20470AD5
0.875	0.065	1.0	0.058	9.375	MS20470AD5
1.0	0.065	1.125	0.058	11.25	MS20470AD6
1.25	0.065	1.25	0.058	11.25	MS20470AD6
1.25	0.058	1.375	0.058	11.25	MS20470AD6
1.375	0.058	1.5	0.058	11.25	MS20470AD6
1.5	0.058	1.625	0.058	15.0	MS20470ADR
1.625	0.058	1.75	0.058	15.0	MS20470AD8
1.75	0.058	1.875	0.058	15.0	MS20470AD8
1.875	0.058	2.0	0.058	15.0	MS20470AD8

NOTES

- A. ALL DIMENSIONS ARE IN INCHES
- B. ALL RIVETS 3D PITCH
- C. TOTAL NUMBER OF RIVETS REQUIRED: 18, 9 EACH SIDE OF SLEEVE CENTERLINE
- D. FORM SHOP HEADS BY HAMMERING LIGHTLY. SHOP HEADS TO BE APPROXIMATE HEIGHT OF MANUFACTURED HEAD
- E. USE SAME TYPE MATERIAL AS ORIGINAL FOR REPLACEMENT TUBE AND SLEEVE
- F. REPAIR IS APPLICABLE TO STRUCTURAL TUBING ONLY. REFER TM 1-1500-204-23 FOR INFORMATION ON REPAIR OF FLUID TUBING.

42 X 51 D145-9793-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

Aircraft Structural Repair
Inspector

References:

TM 1-1500-204-23
Task 2-311

Equipment Condition:

As Required

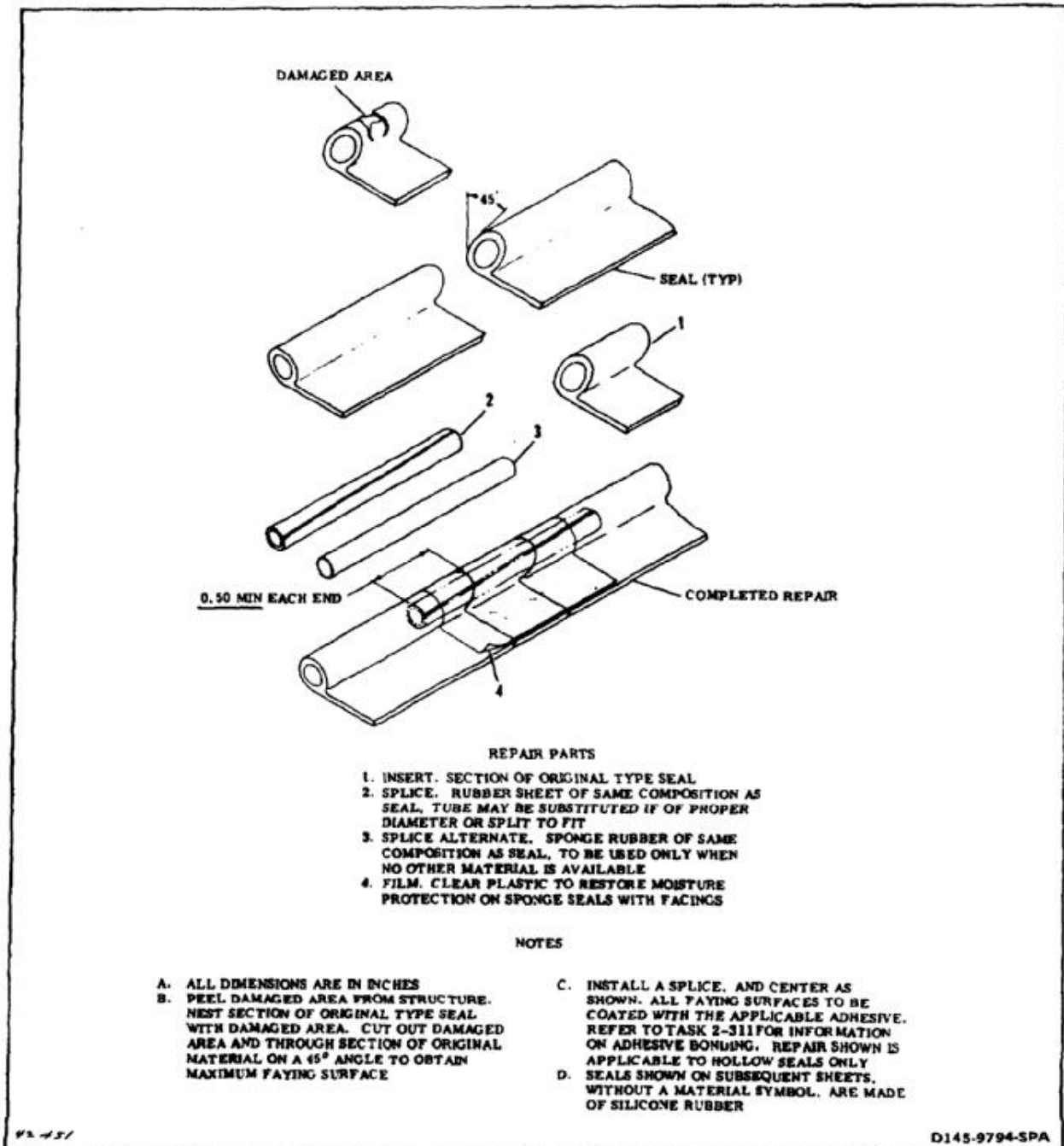
General Safety Instructions:

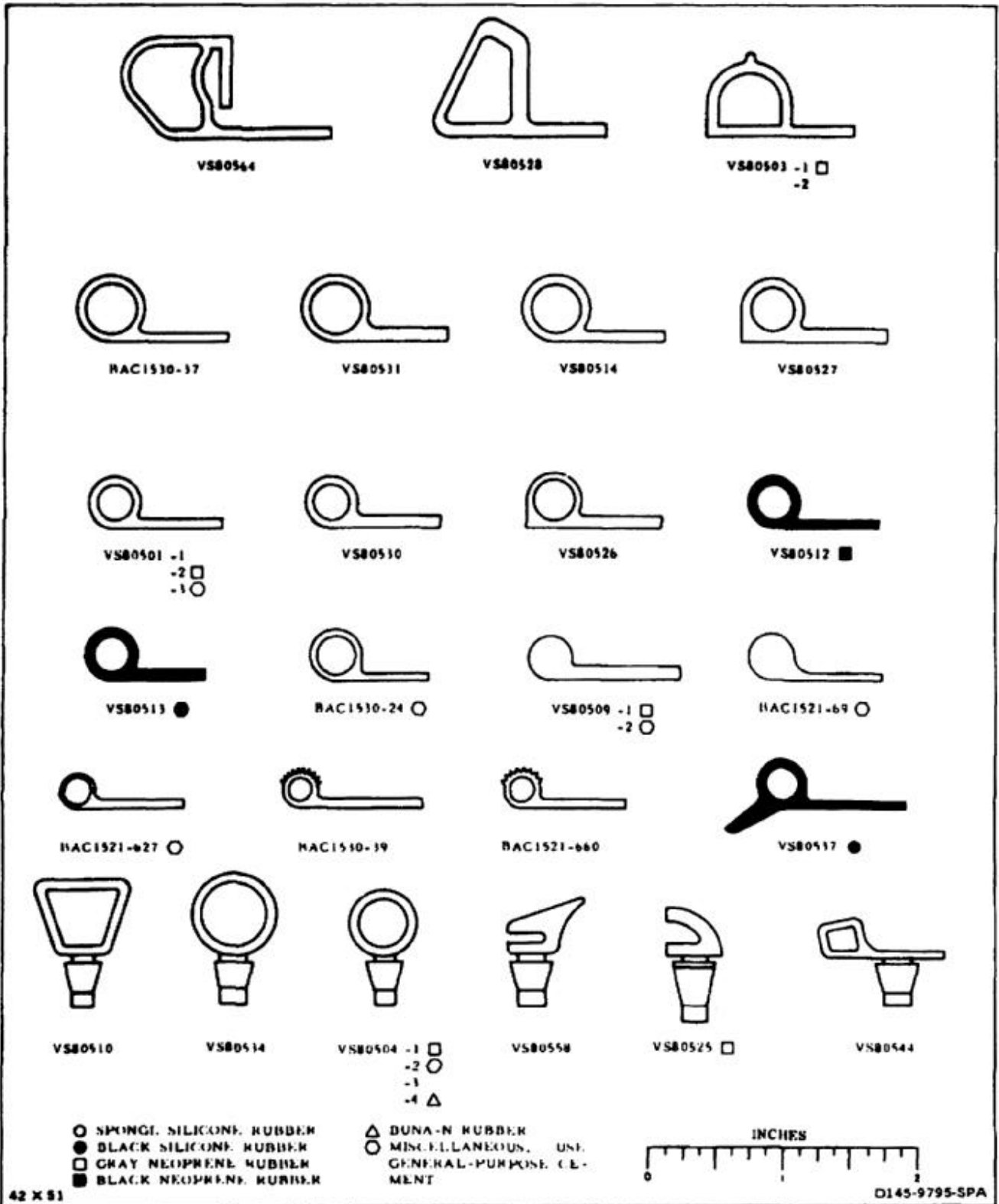
As Required

NOTE

Damage to seals made up of more than one material are usually not repairable.

Repair seals as follows:





VS80541 ○

VS80536 ●

VS80549 ●

VS80540

VS80572-1

BAC1530-9 ○

VS80554

BAC1530-13 ○

VS80518 □

VS80565

VS80553 -1
-2 ■

VS80554 -1
-2 ■
-3 ■

BAC1530-16

VS80551

VS80566

BAC1530-35

BAC1530-86

BAC1530-43

VS80569

VS80570-2 ○

VS80570-1

VS80547 -5 ○
-7 ○
-9 ○

INCHES

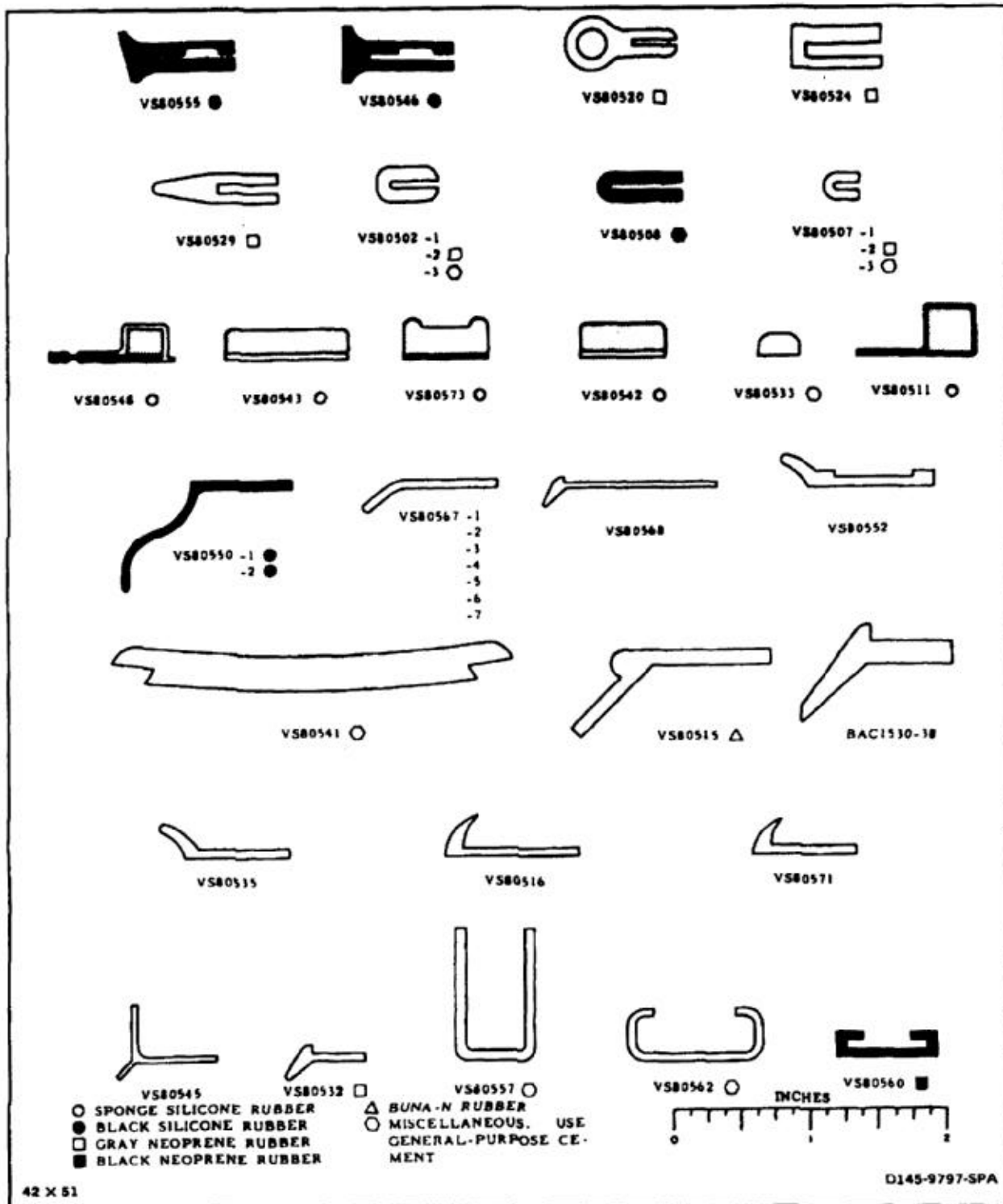
0 1 2

○ SPONGE SILICONE RUBBER
● BLACK SILICONE RUBBER
□ GRAY NEOPRENE RUBBER
■ BLACK NEOPRENE RUBBER

△ BUNA-N RUBBER
○ MISCELLANEOUS. USE
GENERAL-PURPOSE CE-
MENT

42 X 51

O145-9796-SPA



FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-1260

**SECTION VII
CORROSION PREVENTION
AND
CONTROL DESCRIPTION AND OPERATION**

INTRODUCTION

Both AR 750-59, Army Corrosion Prevention and Control Program and TM 1-1500-328-23, Aeronautical Equipment Maintenance Management Policies and Procedures require the establishment of formal corrosion control procedures for each aircraft program.

PURPOSE AND SCOPE

This section provides corrosion prevention and control procedures. Included in this section are: general information, cleaning, inspection, corrosion removal, surface treatment and painting, avionics corrosion control, and corrosion preventive maintenance. Corrosion is a persistent helicopter maintenance problem despite factory applied protection. Prompt treatment of existing corrosion and upfront corrosion prevention will limit the probability of serious corrosion related damage.

SAFETY

Personnel doing maintenance shall observe all precautions as specified within the instructions contained in this section.

NATURE AND DANGERS OF CORROSIVE ATTACK

Corrosion is the electrochemical reaction of a metal with its surrounding environment, resulting in deterioration of the metal. Corrosion will reduce or destroy the ability of a part or system to do what it was designed to do.

Corrosion is thought of as a slow process, taking place over long periods of time. Typical time-dependent types of corrosion include direct surface attack, exfoliation, and pitting.

Other types of corrosion can occur quickly and with catastrophic results. These types of corrosion, such as stress corrosion cracking, corrosion fatigue, and hydrogen embrittlement, depend on both the chemical and mechanical aspects of the environment.

Knowledge of corrosion fundamentals is helpful when performing corrective and preventive measures. Detailed information about corrosion theory is found in TM 55-1500-344-23. Corrosion inducing processes are explained in the Common Causes of Corrosion Table. There are two phases to corrosion control:

1. **Corrosion Inspection and Repair.** Regularly scheduled and conducted corrosion inspections result in early detection and treatment of corrosion. If corrosion is detected between inspections, it should be treated as soon as possible to prevent more serious damage rather than wait until the next scheduled inspection.
2. **Corrosion Preventive Maintenance.** Preventive treatments apply corrosion control products and maintenance to potential corrosion areas before the onset of corrosion. Corrosion preventive materials and techniques are discussed in Task 2-374.

TYPES OF CORROSION

Corrosion occurs in many forms. Following are the types most likely to be encountered in helicopter maintenance. Refer to TM 55-1500-344-23 for more detailed descriptions.

Direct Surface Attack

The most common form of surface corrosion results from the direct reaction of a metal surface with atmospheric gases and moisture. Rusting iron and steel, and tarnishing silver are common examples. Surface corrosion attack occurs when aircraft surfaces are exposed to solid particles, salt spray, and gases from industrial pollution, engine exhausts, or rocket blasts. On a polished surface, this type of corrosion is first seen as a general dulling or etching of the surface and if allowed to continue, the surface becomes rough and frosted in appearance.

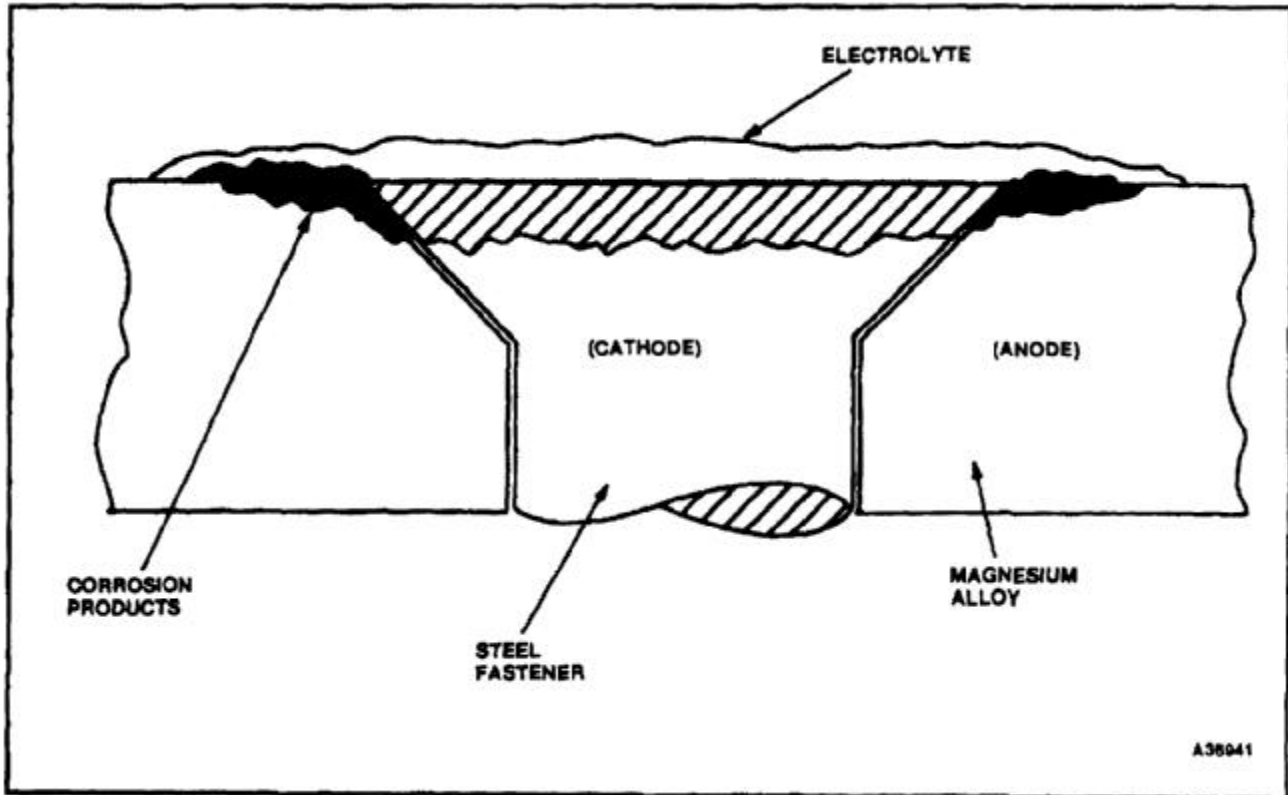
Common Cause of Corrosion Table

	DESCRIPTION	CAUSE
Abrasion	Roughened area. Can vary from light to heavy.	Presence of fine foreign material between moving surfaces
Blistering	Raised areas indicating separation of the surface from the base. Normally found on plated or finished surfaces. Usually precedes flaking or peeling.	Imperfect adhesion with base aggravated by the presence of moisture, gas, heat, or pressure
Brinelling	Indentations. Normally found on surfaces of ball or roller bearing parts.	Improper assembly or disassembly technique, such as removing or installing a roller or ball bearing with force on the free race
Chafing	A rubbing action between two parts having limited relative motion.	Improper clearance between parts or lack of lubrication
Erosion	Carrying away of material by the flow of hot gases, grit, or chemicals.	Presence of grit, hot gases, or chemicals
Flaking	Breaking away of pieces of a plated or finished surface.	Incomplete adhesion. Excessive load. (See also "blistering")
Fretting	Discoloration. May occur on surfaces which are pressed or bolted together under high pressure. On steel parts the corrosion residue is generally reddish brown. Aluminum and magnesium parts leave a black oxide.	Rubbing of fine particles of metal by slight movement between parts and oxidation of these particles
Galling	A transfer of metal from one surface to another.	Severe chafing or fretting action caused by a slight relative movement of two surfaces under high contact pressure.
Scuffing	Surface injury resulting from the initial seizure of moving parts.	Insufficient clearance or lack of lubrication
Spalling	Sharply roughened area characteristic of the progressive chipping or peeling of surface material.	Surface crack, inclusion, or similar surface injury causing a progressive breaking away of the surface under load

Galvanic or Dissimilar Metal Corrosion. Galvanic corrosion is caused by electrical contact with a dissimilar metal in water or salt spray. When this condition develops, the more active or easily oxidized surface becomes the anode and corrodes.

severe the attack. In the case of plated metal, defects in the coating allow moisture penetration into the basic metal, which produces galvanic corrosion. Galvanic corrosion also occurs between metals and graphite-filled composite components.

The degree of attack depends on relative activity of two surfaces: the greater the difference in activity, the more



Intergranular Corrosion. Intergranular corrosion occurs along grain boundaries of some alloys under specific conditions. Galvanic cells are formed and when an electrolyte is present, corrosion will result in the more anodic area.

Intergranular corrosion can also develop from localized overheating, such as from welding and fire damage. Certain stainless steels are susceptible to intergranular corrosion when subjected to temperatures of **700° to 1500°F (371° to 816°C)**. Intergranular corrosion can exist with little visible evidence.



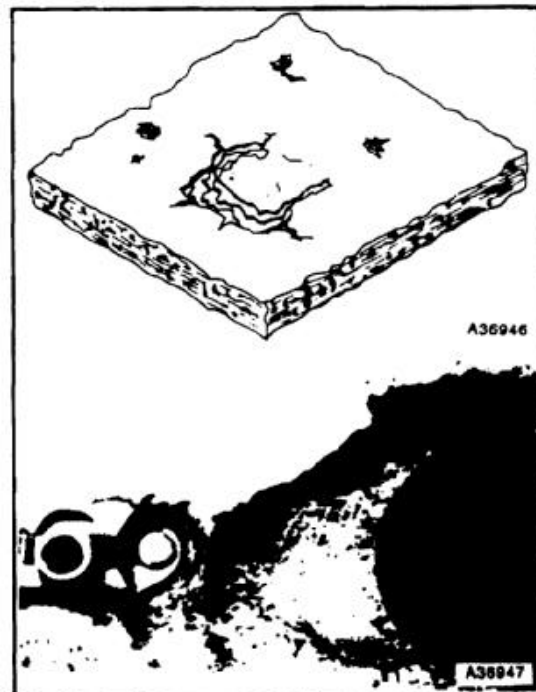
Exfoliation. Exfoliation is intergranular corrosion that is detectable by a bulging condition followed by falling away or peeling off in flakes, layers, or scales. Exfoliation occurs in layers parallel to the surface.

This layered structure is typical of most aluminum alloy skins, hinges, and certain areas of extrusions used for beams or longerons.

NOTE

Recognition by corrosion control personnel of exfoliation corrosion is vital.

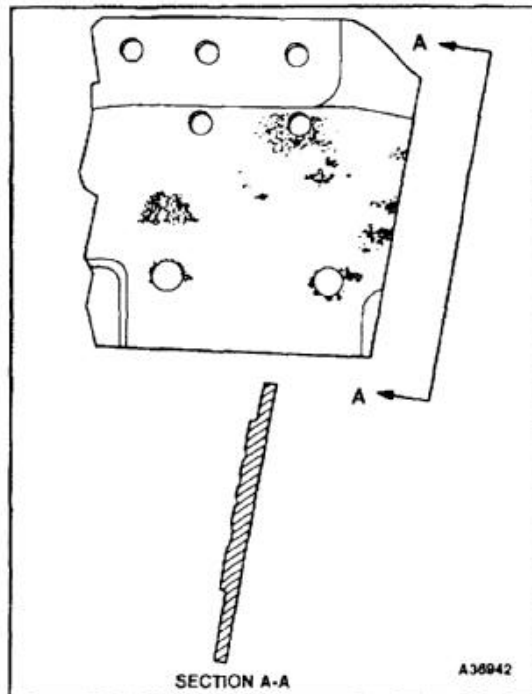
Serious structural damage can occur before significant amounts of corrosion will be visible on the surface.



Stress-Corrosion Cracking. Stress-corrosion cracking is a process requiring simultaneous action of a corrosive environment and sustained tensile stress. Stress-corrosion cracking can occur in most metal systems. It is most common in high strength aluminum alloys, high-strength steels and certain other steels, and magnesium alloys. Cracks follow grain boundaries (intergranular cracking) or go across grains (transgranular cracking). Aluminum-alloy bellcranks employing press-in taper pins, landing-gear shock struts with pipe-thread-type grease fittings, clevis joints, shrink fits, and exposed or overstressed tubing B-nuts, are examples of parts susceptible to stress-corrosion cracking.

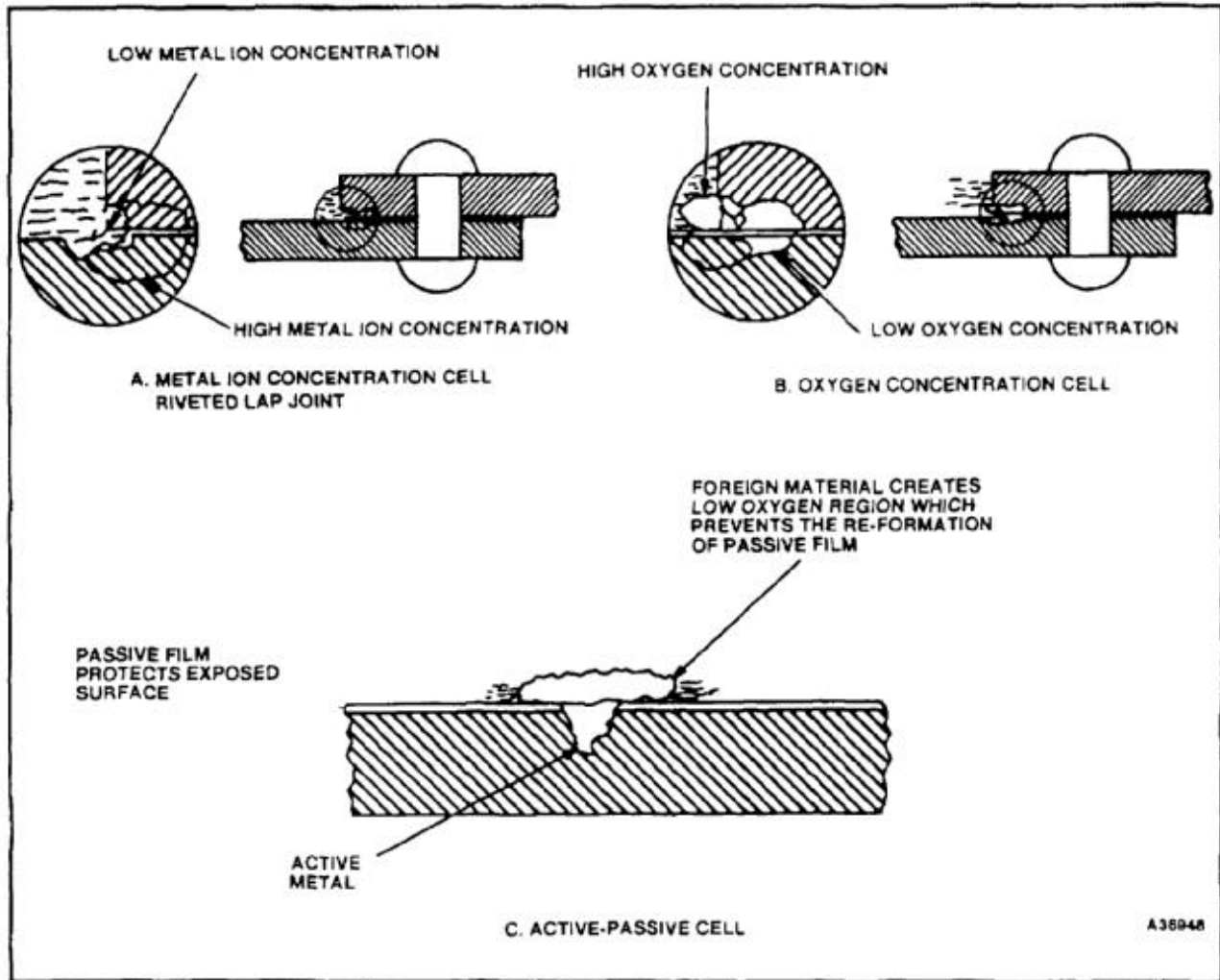


Pitting. Pitting is localized corrosion which takes the form of cavities on the surface. These vary from deep pits of small diameter to shallow depressions. Pitting occurs in any metal system, particularly magnesium, aluminum alloys, low alloy steels and stainless steel. It is caused by local differences between areas on the metal surface. The differences between areas on the metal surface can be in the metal itself or come from the environment.



Crevice Attack or Concentration Cell Corrosion. Concentration cell is a form of pitting corrosion which depends on differences in concentration of metal ions or the electrolyte at the anode and cathode. The differences are in the amounts of dissolved oxygen or the number of charged metal particles present

in an entrapped solution. If there are concentration differences at two different points in an entrapped pool of water or cleaning solution, anodic and cathodic areas can result. The anodic area will be corroded. This type of corrosion is evident in crevices, scale surface deposits, and stagnant water traps.



Corrosion Fatigue. Corrosion fatigue is a result of cyclic stresses on metal in corrosive surroundings. Corrosion can result in formation of shallow pits in the stressed area. If corrosion continues, sharp deep pits can form which become cracks. This type of corrosion is possible for any part under regular cyclic stressing. Once corrosion begins, continuous flexing prevents the repair of protective surface coatings, and additional corrosion occurs in the area of stress. Corrosion fatigue is difficult to detect until cracking develops.

Fretting Corrosion. Fretting corrosion develops when two heavily loaded surfaces in contact move against one another. The moving or rubbing destroys the protective film on the metal surface and removes small metal particles from the surface. These particles oxidize to form an abrasive material. The continuing motion of two surfaces prevents formation of any protective oxide films and exposes fresh active metal to the atmosphere. This type of corrosion destroys bearing surfaces and dimensions, and can become severe enough to initiate cracks, metal fatigue, and rupture.

Filiform Corrosion. Metals coated with organic substances, such as paint films, can undergo a type of corrosion resulting in spreading threadlike filaments of corrosion. Filiform corrosion occurs independent of light, metallurgical factors in steel, or bacteria, but takes place in relatively high humidity (**65 to 95 percent**). Although threads are visible only under clear lacquers or varnishes, they also occur under opaque paint films. They have been observed on various metals including steel, zinc, aluminum and magnesium.

Microbiological Corrosion. Microbial attack includes actions of bacteria, fungi, or molds and occurs nearly everywhere. Micro-organisms contained in sea water can be introduced into fuel systems by contaminated fuel. These micro-organisms grow and corrode the sealing materials used on fuel tanks. Under certain conditions, they cause corrosion of aluminum by aiding in the formation of concentration cells. Residues resulting from biological growth clog fuel filters and coat fuel capacity probes, causing erroneous fuel quantity readings.

Hydrogen Embrittlement. Atomic hydrogen diffuses quickly into many common alloys. Accumulation of hydrogen in certain alloys embrittles metal so that sudden, catastrophic fracture occurs in the presence of tensile stresses much lower than the tensile strength of the material. High strength steels, some stainless steels, and high strength aluminum alloys are most susceptible. Hydrogen embrittlement has been observed in alloys stressed to only **15 percent** of their (non-embrittled) tensile strength. The tensile stresses result from external applied loads, or residual internal stresses remaining from manufacturing operations. Hydrogen formation occurs when metal is exposed to acid paint removers, plating or pickling processes, some alkaline materials, and even during corrosion reactions.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-1268

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Cloths (E120)

Personnel Required:

Medium Helicopter Repairer

References:

Tasks 1-76 thru 1-80

- Task 1-87
- Task 1-88
- Task 1-92
- Task 2-373
- Task 11-3
- FM 3-5
- TM 1-1500-204-23
- TM 55-1500-344-23

Equipment Conditions:

- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Hydraulic Power Off

General Safety Instructions:

As Required

PREPARE HELICOPTER

1. Prepare helicopter for cleaning by doing the following:
 - a. Cover parts that must be kept dry (Task 1-76).
 - b. Protect avionics system from cleaning solutions (Task 2-373).
 - c. Mask or plug openings difficult to dry to prevent solution entrapment.

CLEANING HELICOPTER

NOTE

Use only cleaners in TM 55-1500-344-23 or TM 1-1500-204-23. Unauthorized cleaning agents may cause hydrogen embrittlement of high strength steels and have adverse effects on other alloys and finishes.

2. Clean helicopter to prevent and control corrosion as stipulated in Tasks 1-76, 1-77, 1-78, 1-79, 1-80, 1-92 and TM 55-1500-344-23. A thorough cleaning should perform the following:
 - a. Remove salt deposits, corrosive soils, and electrolytes.
 - b. Allow a thorough inspection for corrosion related damage.
- c. After washing or rinsing helicopter, wipe dry with cloths (E120) or vacuum crevices, seals and fasteners to remove trapped moisture.
4. Clean the aircraft every **30 days** unless emergency conditions or inspection requires immediate cleaning (TM 55-1500-344-23).

5. Clean helicopter immediately when one of the following occurs:
 - a. Spilled electrolyte and corrosive deposits are found around battery terminals and battery area.
 - b. Corrosive fire extinguishing materials are used on helicopter.
 - c. Aircraft contacts salt water after a water landing or after operations in mud or swampy terrain.
 - d. Fungus growth is found.

NOTE

Cleaning procedures for Chemical, Biological or Radiological (CBR) decontamination of aircraft exposed to CBR materials are contained in FM 3-5.

- e. CBR contaminants are found.
6. Observe the following precautions:
 - a. Avoid damage to thin skin areas, electrical connections, loose paint, and sealant from high pressure jets from cleaning equipment.
 - b. Brush all screws, rivet heads and around joints to ensure removal of chemicals that cause corrosion.
 - c. Use the mildest cleaning procedure to obtain the desired result.

RINSING HELICOPTER**NOTE**

Rinsing does not satisfy aircraft washing requirements. Rinsing only removes soluble matter from exterior surfaces.

7. Fresh water rinse helicopter exterior for the following conditions:
 - a. Daily, when operating over salt water. Rinse after last flight of the day.
 - b. Every **15 days** for aircraft stationed within **two miles** of salt water. (Aircraft cleaning may be substituted for the **15 day** fresh water rinse requirement.)

COMPONENT CLEANING

8. Prior to corrosion removal, thoroughly clean the rework area of all contaminants.

FOLLOW-ON MAINTENANCE:

Corrosion removal (Task 2-371).
Surface treatment and painting (Task 2-372).
Lubrication (Tasks 1-87, 1-88, and 11-3).

END OF TASK

2-1270

2-370 CORROSION INSPECTION**2-370****INITIAL SETUP**

Tasks 2-79 thru 2-83

Applicable Configurations:

All

Task 2-107

Task 2-138

Task 2-165.3

Task 2-166

Task 2-169

Task 2-171

Task 2-178

Task 2-180

Task 2-182

Task 2-192

Task 2-195

Task 2-196

Task 2-204

Task 2-218

Task 2-219

Task 2-238

Task 2-239

Task 2-247

Task 2-252

Task 2-326

Task 2-334

Task 2-335

Task 2-343

Tasks 2-365 thru 2-367

Task 2-369

Task 2-370

Task 2-371

Task 2-372

Task 2-374

Task 3-1

Task 4-1

Task 4-71

Task 5-1

Task 6-1

Task 10-1

Task 13-1

Tools:

10X Magnifying Glass (CG-M-95)

Blunt-Tipped Probe (Machinists Scribe)

Borescope

Depth Gage or Optical Depth Micrometer

Flashlight

Inspection Mirror

Plastic Scraper

Materials:

Brush, Nonmetallic (E85)

Tape (E394)

CPC Corrosion Preventive Compound (E155, E155.1, E155.2, or E155.3)

Personnel Required:

Medium Helicopter Repairer

References:

DA PAM 738-751

TM 55-1500-344-23

TM 55-1523-240-PM

TM 55-1520-240-PMD

Task 1-39

Task 1-50

Task 1-92

Tasks 2-1 thru 2-4

Tasks 2-11 thru 2-13

Task 2-15

Task 2-18

Task 2-21

Task 2-24

Task 2-28

Task 2-71

Task 2-73.1

Task 2-74

Task 2-78

General Safety Instructions:

Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off

NOTE

Corrosion/debonding under the floors on the beams is becoming a serious problem and high cost/ maintenance driver for the CH-47. The under floor inspection will reduce down time and unit costs to repair if strictly adhered to. The cockpit, cabin and ramp under floor corrosion inspections are contained in this Task 2-370.

NOTE

This note applies to under the floor inspection areas only. All other portions of the environmental inspection are due per this Task 2-370. It should be noted that if aircraft are later deployed to a different environment such as from a moderate to a severe area, it is then mandatory that the interval for inspecting the under floor be reduced accordingly. If you are in a severe area and you are not finding corrosion at the abbreviated or in-depth inspection intervals and after completing three in-depth inspections without finding corrosion under the floor, then the interval may be extended by one environmental interval only, i.e., severe to moderate or moderate to mild. You cannot extend by more than one environmental interval in any case for under the floor inspections. However, if you find corrosion at the next inspection interval, the inspection must be reduced back down to the more moderate of severe level intervals. Accordingly, if you find corrosion at either interval the inspection must be reduced to prevent additional damage. In no event will the inspection interval for under the floors extended beyond **180 days**. It is recommended that two inspections due be annotated on the forms and records. The environmental inspection interval per Task 2-370 (mild, moderate, or severe) and this under floor inspection based upon the findings of the past abbreviated and past three in-depth inspections. If the floors are removed for other maintenance, i.e., ace inspection or phase inspection, then it is recommended that the remaining portions of Task 2-370 be accomplished and the next inspection due dates be calculated from the completed date. Corrosion inspections are to be taken seriously and if you are in doubt concerning this task, then ask AMCOM LAR for assistance/clarification.

NOTE

It is highly recommended that corrosion preventative compound CPC (E155, E155.1, E155.2, or E155.3) be applied/brushed on after the inspection and after any repair/painting is accomplished to the floor beams/below floor area. Clean the areas to be covered then brush/cover all exposed areas beneath the floors. Reapply as needed during follow on corrosion inspections. When applying CPC follow manufacturer's instructions and warnings. Ventilate area and avoid skin contact per manufacturer's instructions.

GENERAL

1. **Introduction.** Periodic Inspection is essential for identifying corrosion. The procedures specified herein detail techniques of calendar based inspection and disposition of corroded components.
2. **Types of Inspection.** There are four types of corrosion inspections required:
 - a. Daily Inspections are performed as often as each day and include visual checks for corrosion in the inspection sequence. Daily Inspections are covered in TM 5-1520-240-PMD.

- b. Phased Maintenance Inspections are based on aircraft operating time and are covered in TM 55-1520-240-PM.
- c. Conditional Inspections are required immediately after the following incidents or conditions and are covered in Task 1-92:
 - (1) Fresh water landing.
 - (2) Salt water landing.

- (3) Operating in muddy or swampy terrain.
- (4) Washing or after heavy rain.
- d. Calendar Inspections are based on elapsed calendar time. Two levels of Calendar Inspections are required:
 - (1) Abbreviated Inspection — Examination of corrosion prone areas and exterior surfaces.
 - (2) In-Depth Inspection — Examination of the entire aircraft. An In-Depth Inspection satisfies the requirements of an Abbreviated Inspection.

CALENDAR INSPECTION FREQUENCY

- 3. Calendar inspection frequency is determined by the environment in which the aircraft operates. Refer to Global Severity Map Sheets 1 thru 6, and Calendar Inspection Frequency Table. For example, when the Global Severity Map indicates an aircraft operating in a 'Mild' environment, the Calendar Inspection Frequency Table reveals that an Abbreviated Inspection is required every **90 days** and an In-depth Inspection is required every **180 days**.

Calendar Inspection Frequency Table

Aircraft Environment*	Abbreviated**	In Depth**
Mild	90 days	180 days
Moderate	45 days	90 days
Severe	15 days	30 days

*See Global Severity Maps

**An In-Depth Inspection satisfies the requirements of an Abbreviated Inspection.

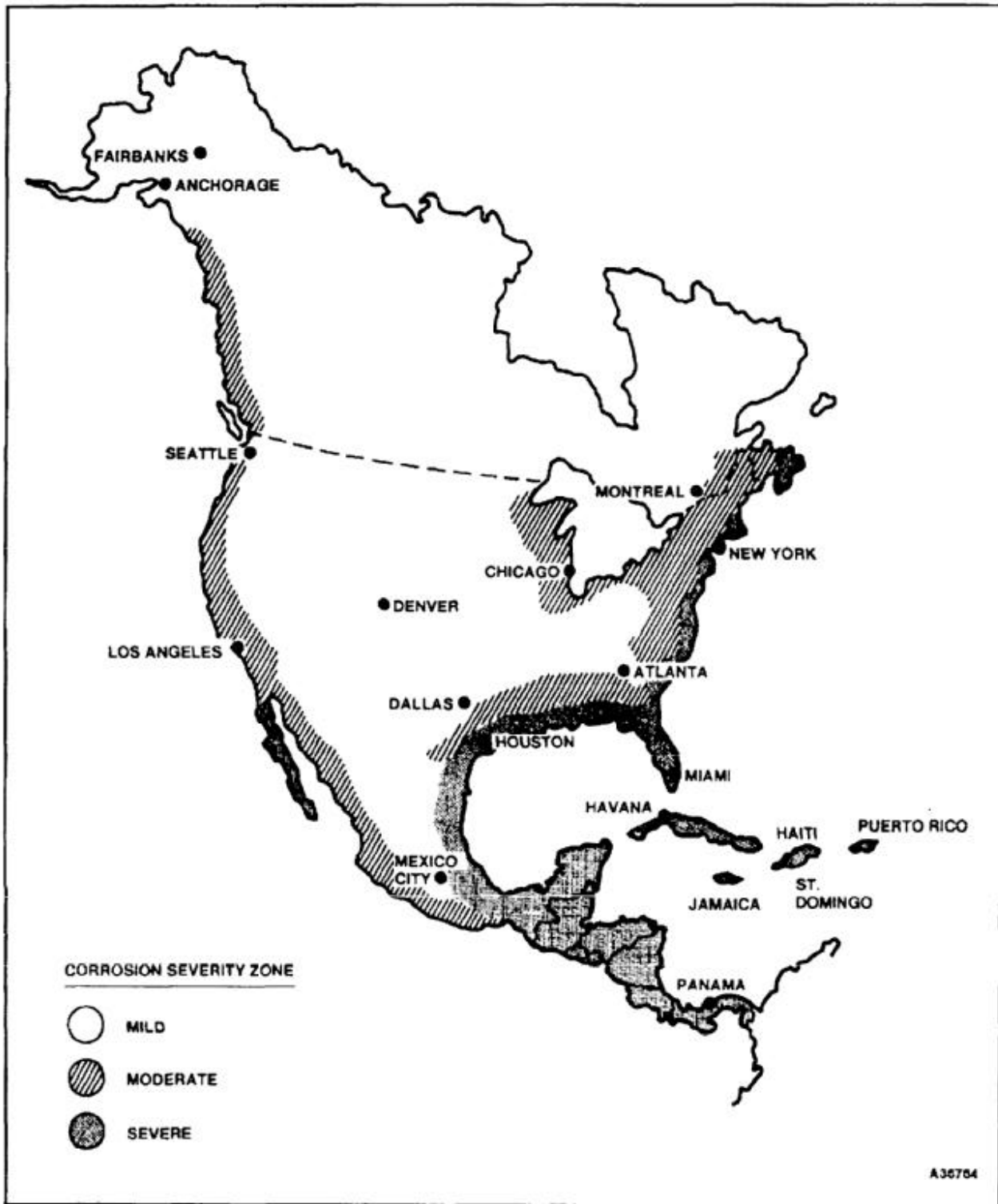
IDENTIFICATION OF CORROSION

- 4. **Appearance of Corrosion.** The appearance of corrosion on metals and metal alloys is visually evident in different colors, depending on the type of metal.
 - a. Aluminum corrosion is white, gray, or black. Corrosion may appear as paste when wet, as hard adherent film or easily crumbled deposits when dry.
 - b. Magnesium corrosion is white. Corrosion forms in large amounts with significant losses to the base metal.
 - c. Steel corrosion appears as red or brown rust deposits.
 - d. Copper corrosion is blue or blue-green.
 - e. Titanium and stainless steels do not produce significant amounts of corrosion. Titanium and stainless steels can exhibit stress corrosion cracking.
 - f. Bare 440C stainless steel corrosion is a light red or brown rust film
 - g. Cadmium plating corrosion is initially white, but may darken as the corrosion becomes more extensive or if exposed to aircraft fluids.
 - h. Composite materials (fiberglass, Kevlar, graphite, and plastics) do not corrode.

- 5. **Corrosion Prone Areas.** The following areas are especially prone to corrosion. Refer to Corrosion Prone Areas (Sheets 1 thru 12) and Task 2-343.
 - a. Troop seat support rails.
 - b. Floor panels and cargo beams.
 - c. Bilge/underfloor area, including floor formers.
 - d. Water line (WL) –30 beams.
 - e. Ramp, especially the end former, bottom skin and hinge area.
 - f. Cargo hook assemblies.
 - g. Landing gear and wheel wells.
 - h. Flight controls.
 - i. Rotor head and pitch link assemblies.
 - j. Engine mount assemblies.
 - k. Pod panel boxes, sta. 460 to 482 forward of aft landing gear area.

PREPARATION FOR INSPECTION

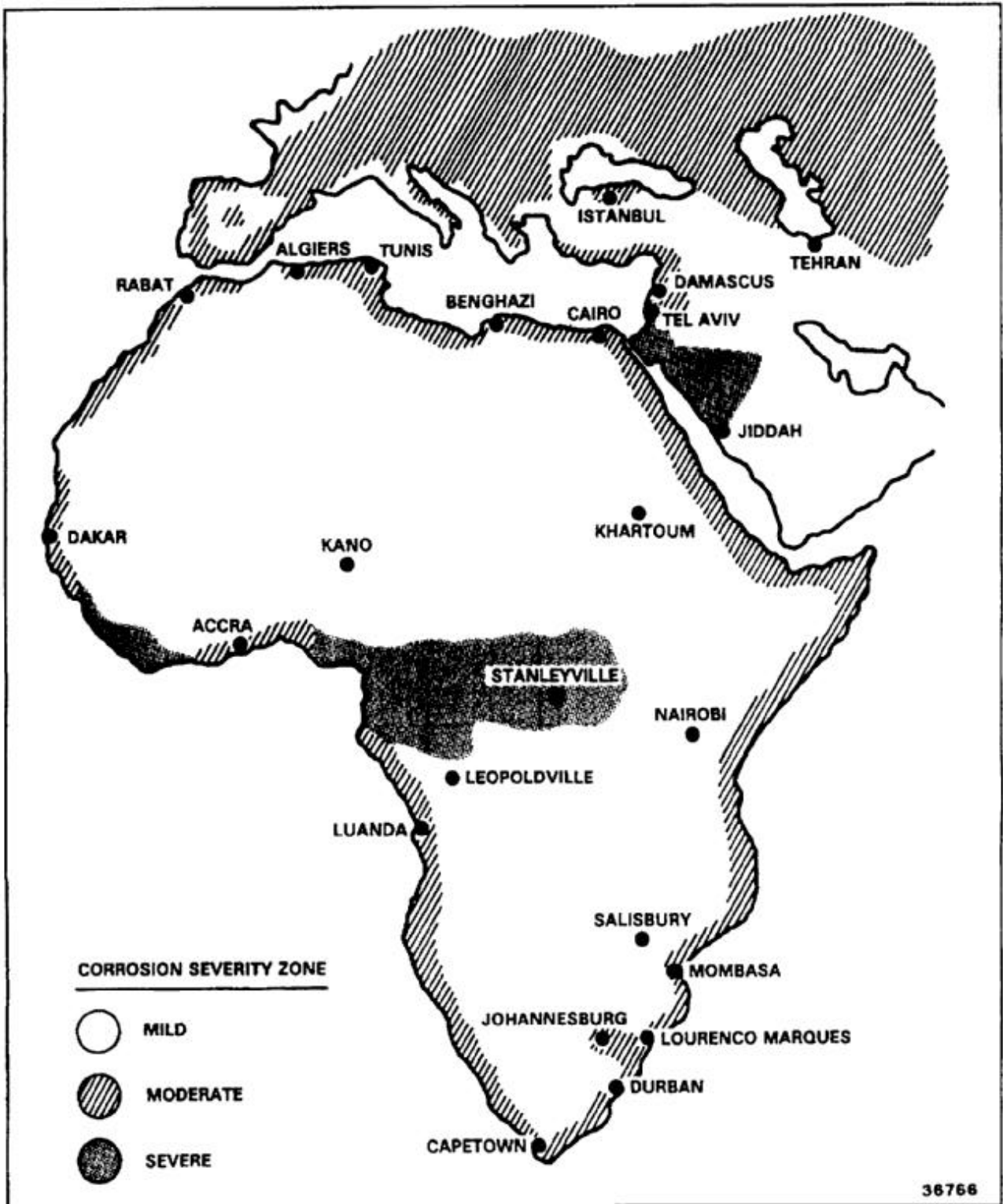
- 6. Clean per Task 2-369.
- 7. Abbreviated Inspection.
 - a. Open/remove doors, access panels, insulation, etc. as necessary to allow visual examination of corrosion prone areas.



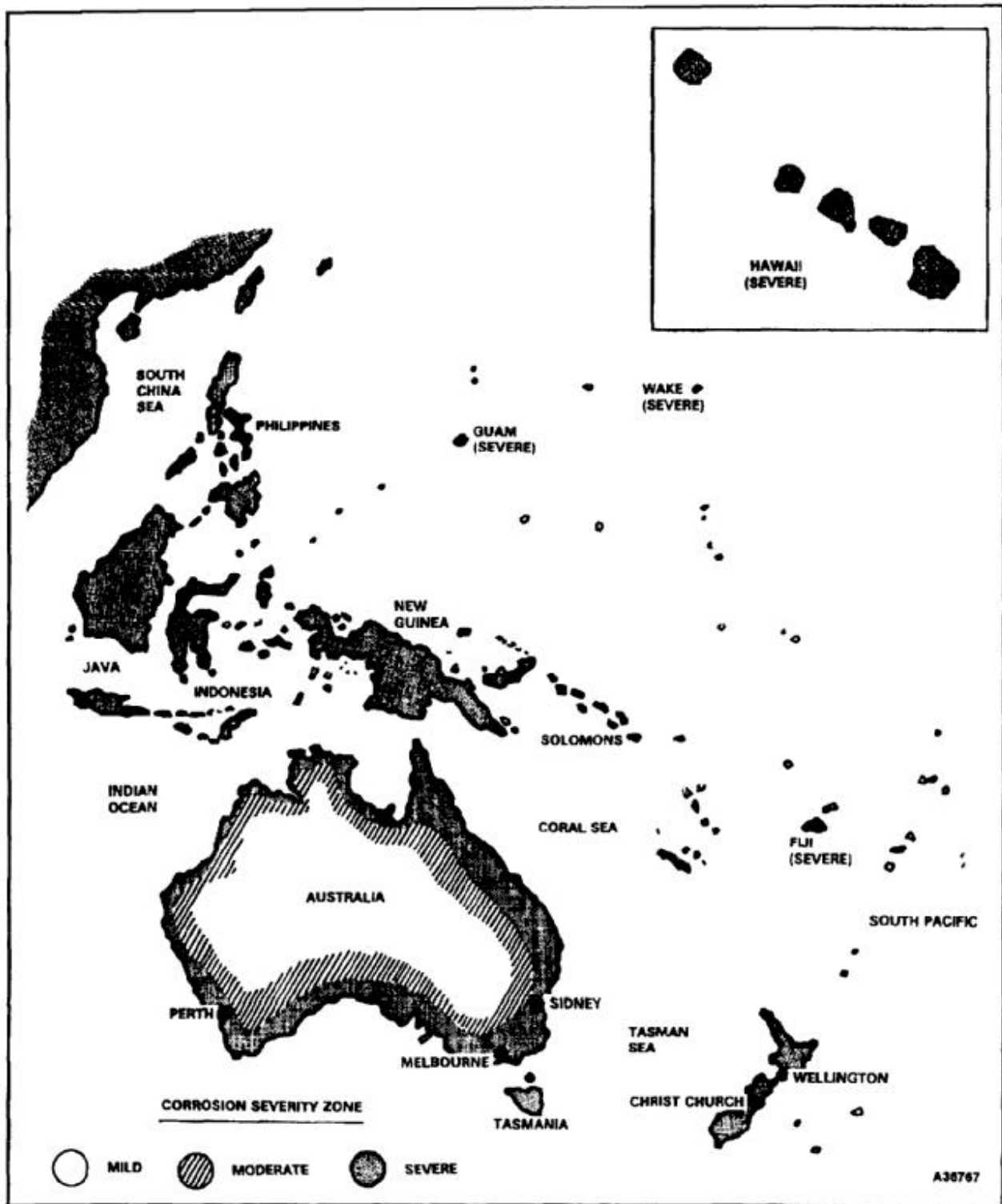
North and Central America Corrosion Severity Map (Sheet 1 of 6)



South America Corrosion Severity Map (Sheet 2 of 6)



Africa Corrosion Severity Map (Sheet 3 of 6)



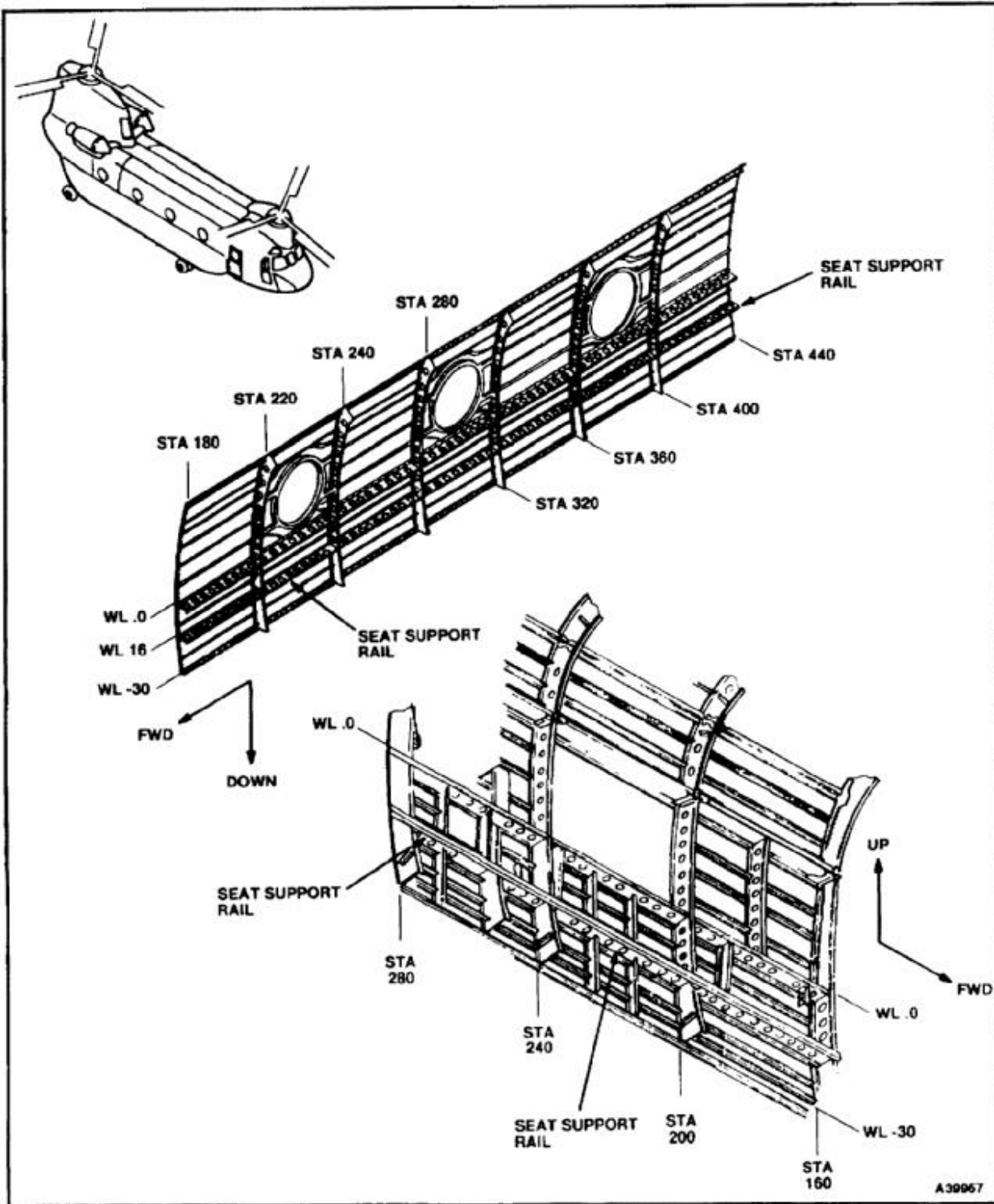
South Pacific Corrosion Severity Map (Sheet 4 of 6)



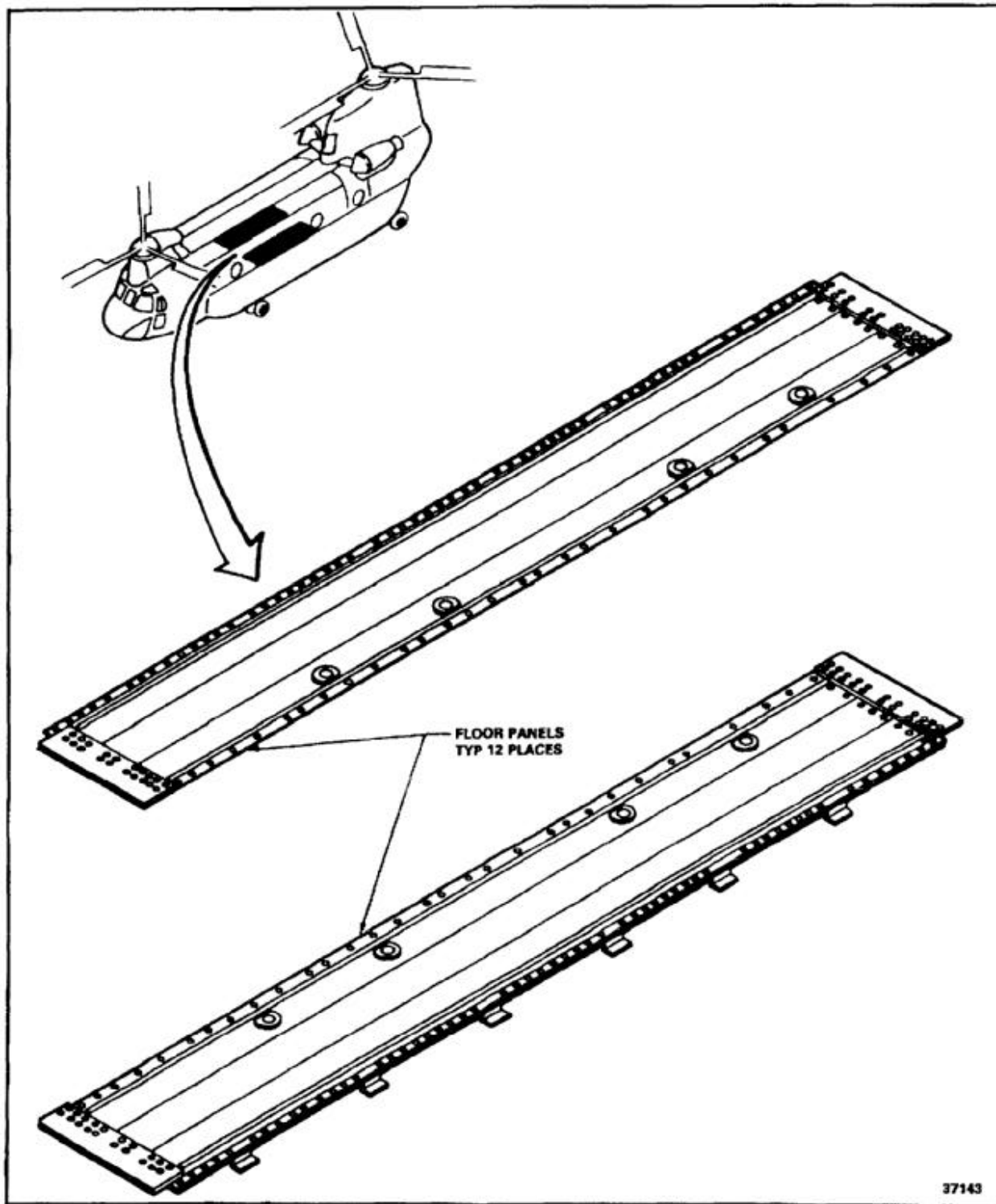
Asia Corrosion Severity Map (Sheet 5 of 6)



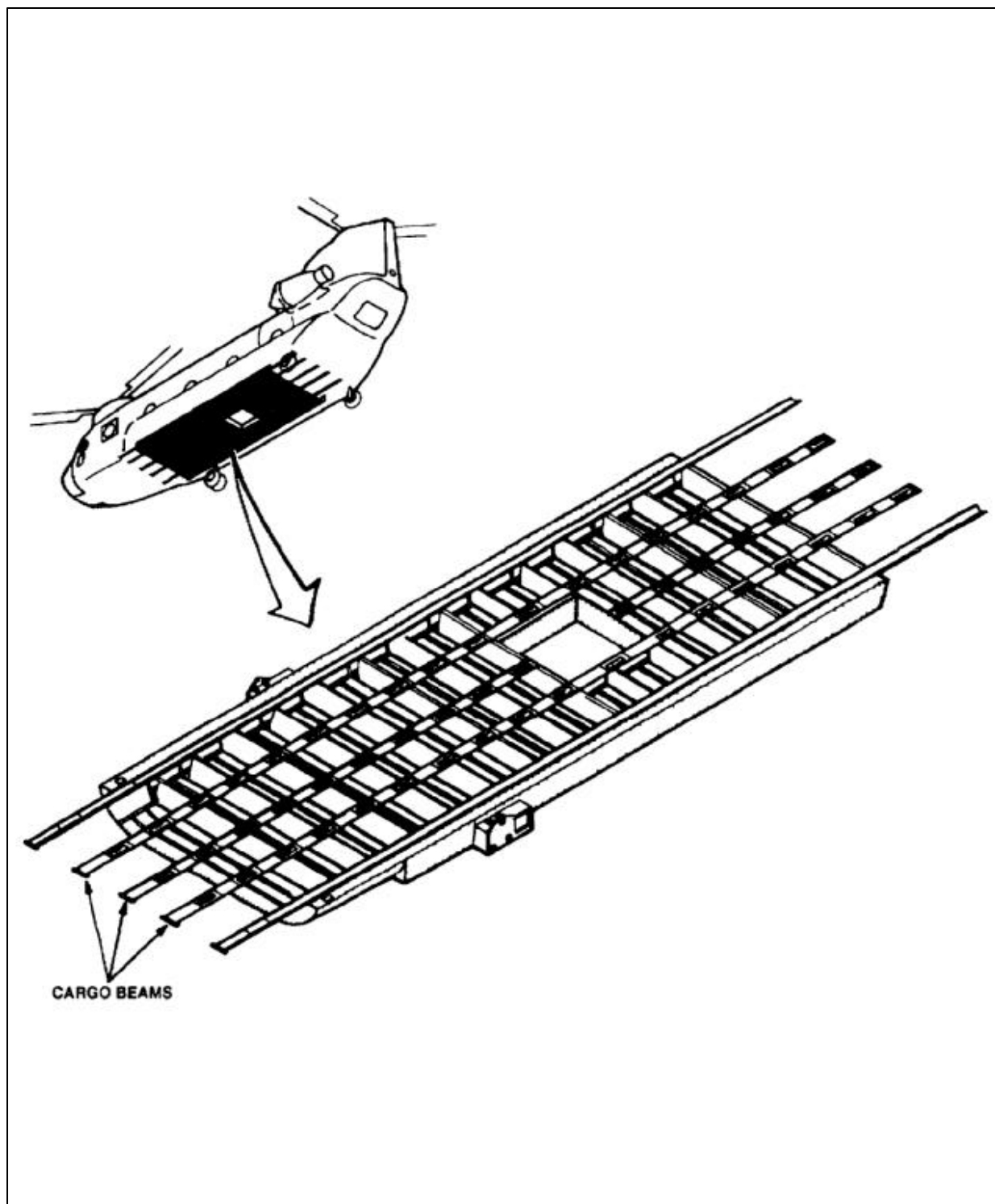
Europe and Asia Corrosion Severity Map (Sheet 6 of 6)



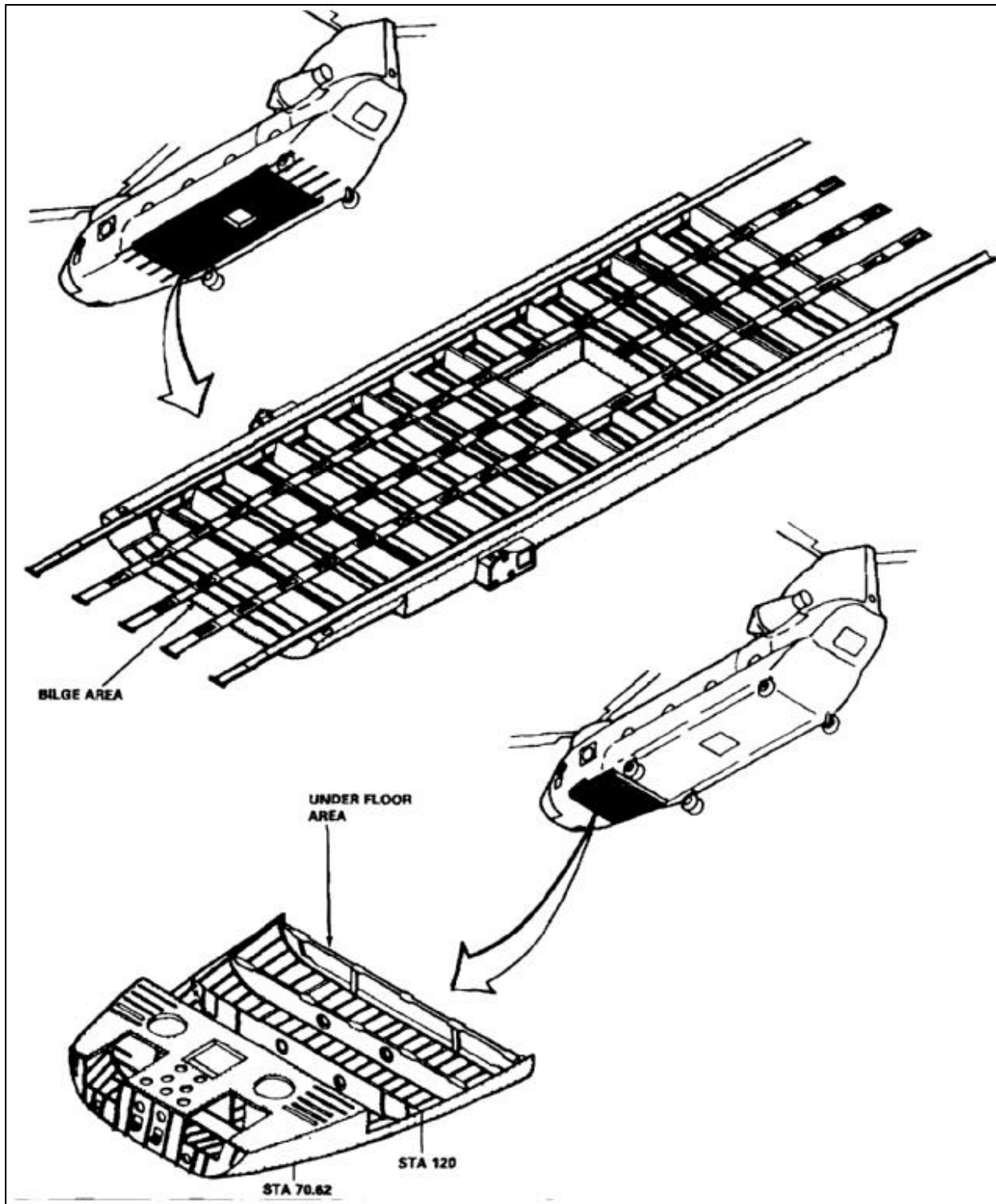
Corrosion Prone Areas – Troop Seat Support Rails (Sheet 1 of 13)



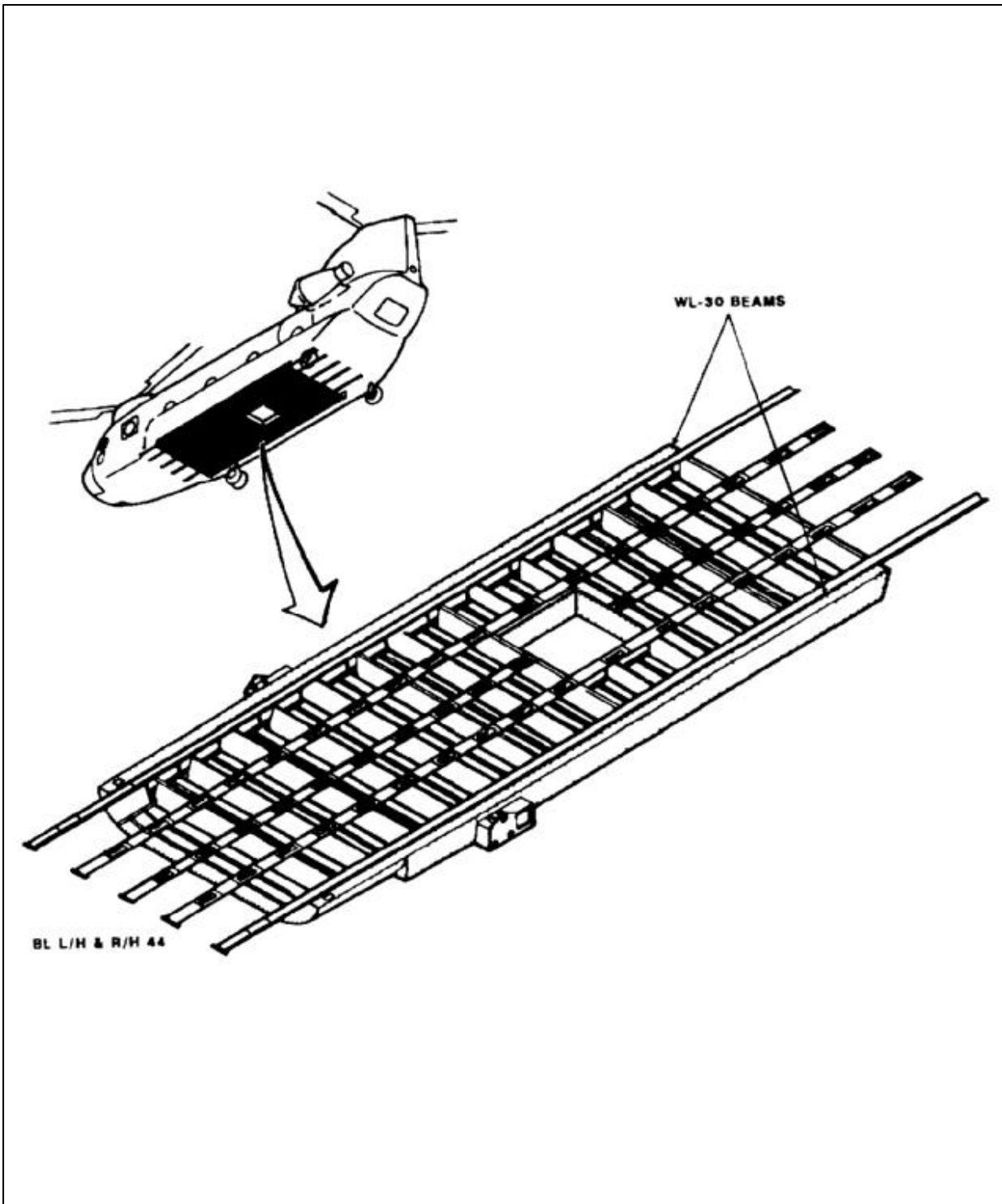
Corrosion Prone Areas - Troop Seal Support Rails (Sheet 2 of 13)



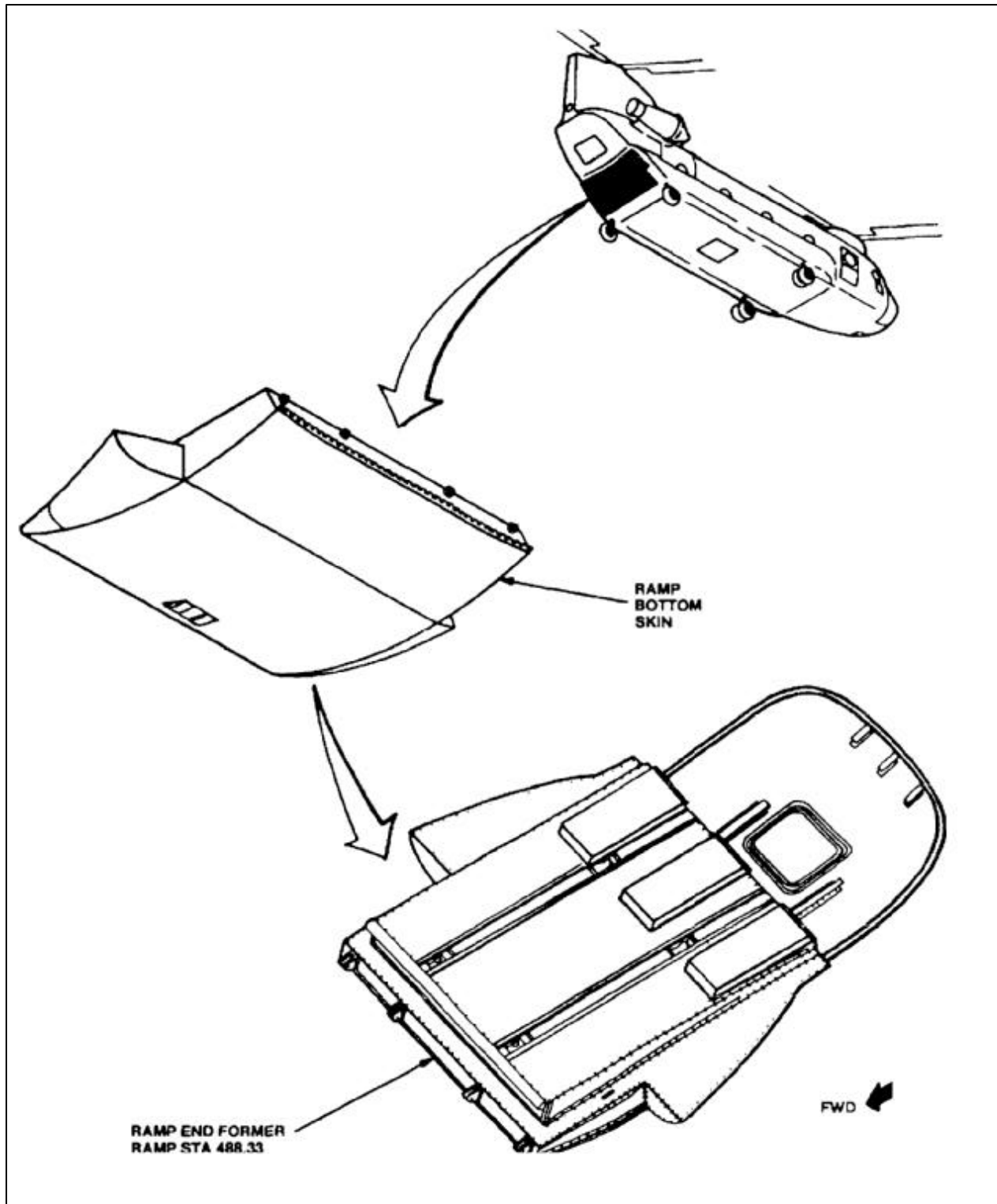
Corrosion Prone Areas – Cargo Beams (Sheet 3 of 13)



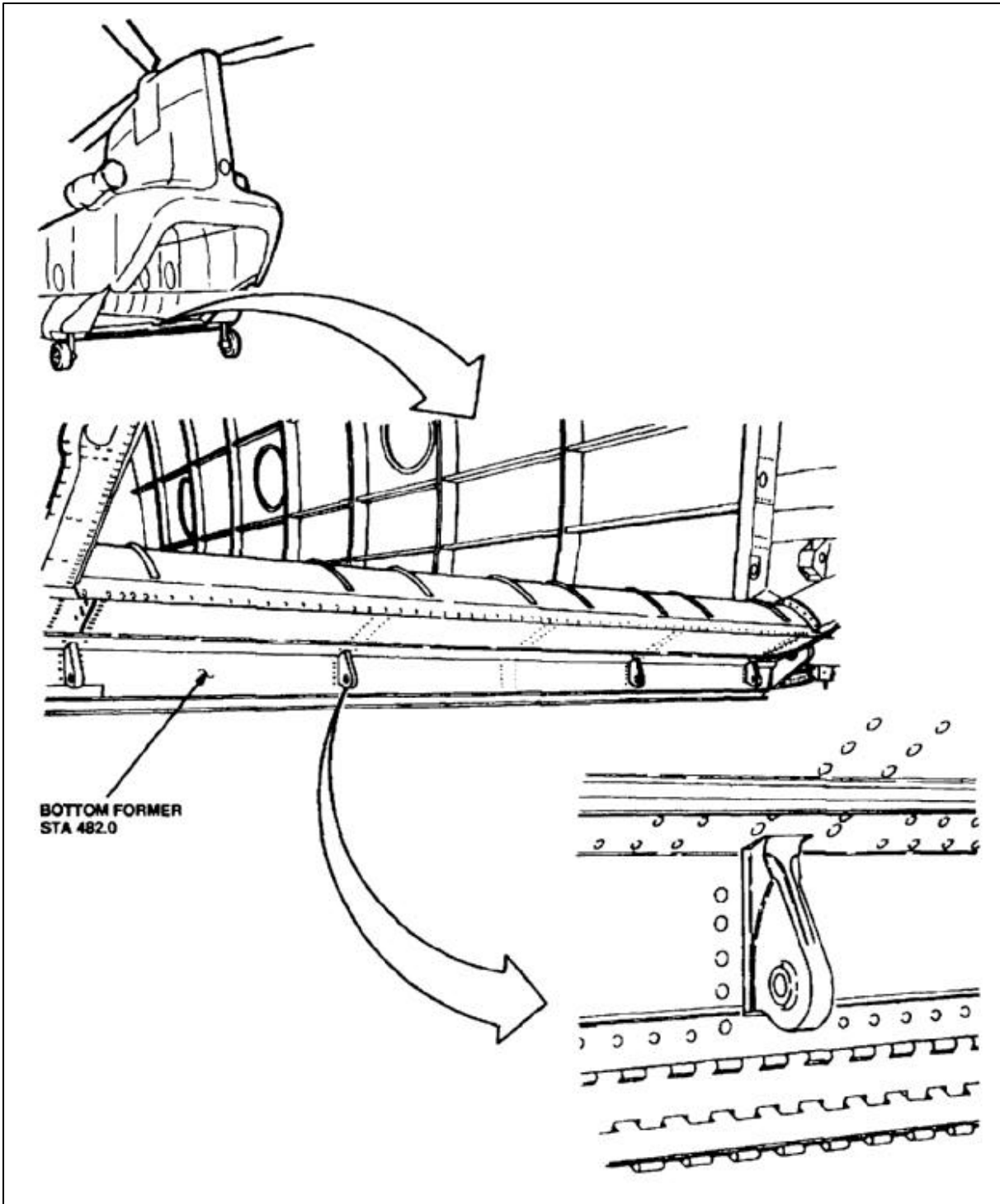
Corrosion Prone Areas - Bilge/Underfloor Area (Sheet 4 of 1?)



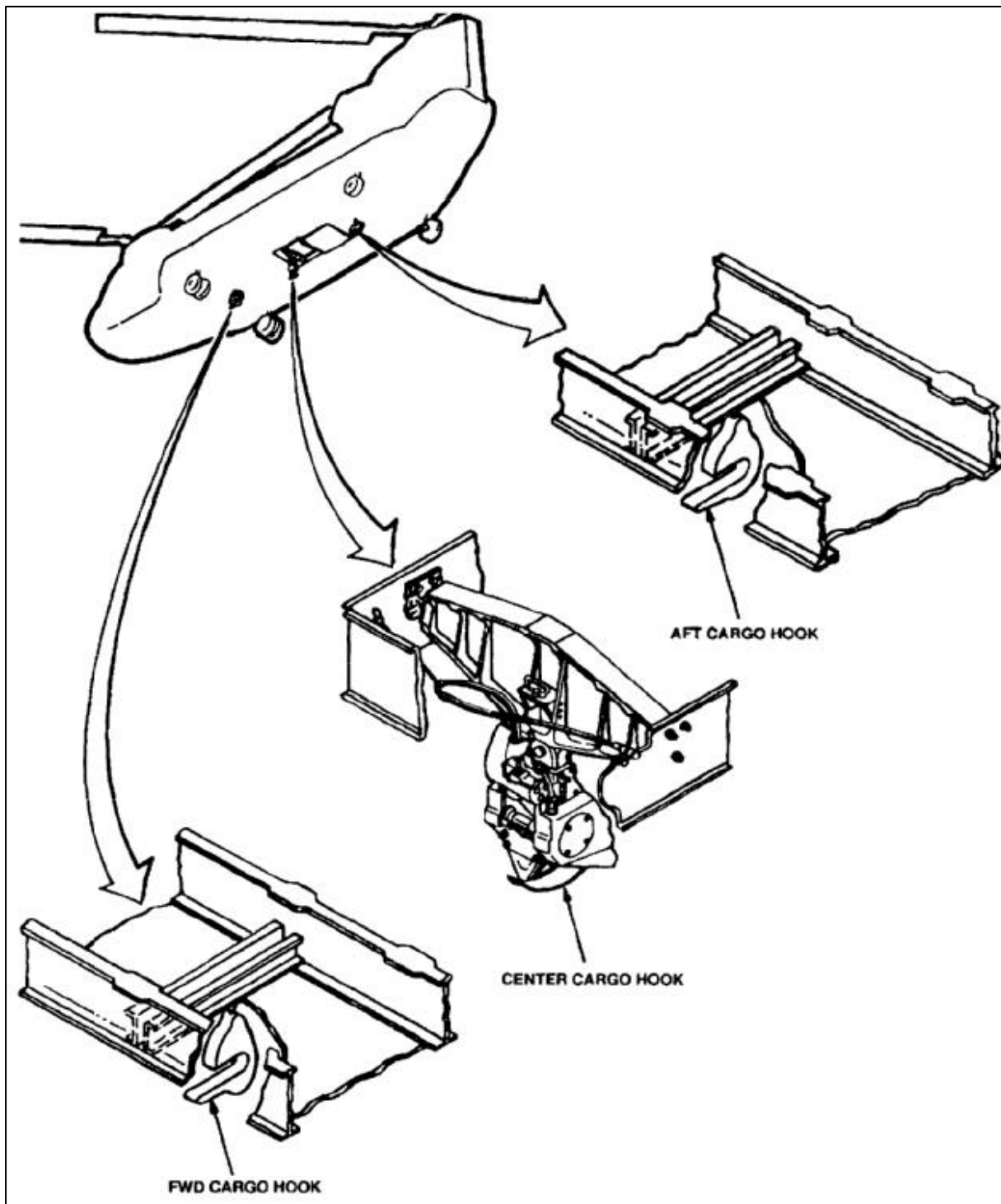
Corrosion Prone Areas – Waterline – 30 Beams (Sheet 5 of 13)



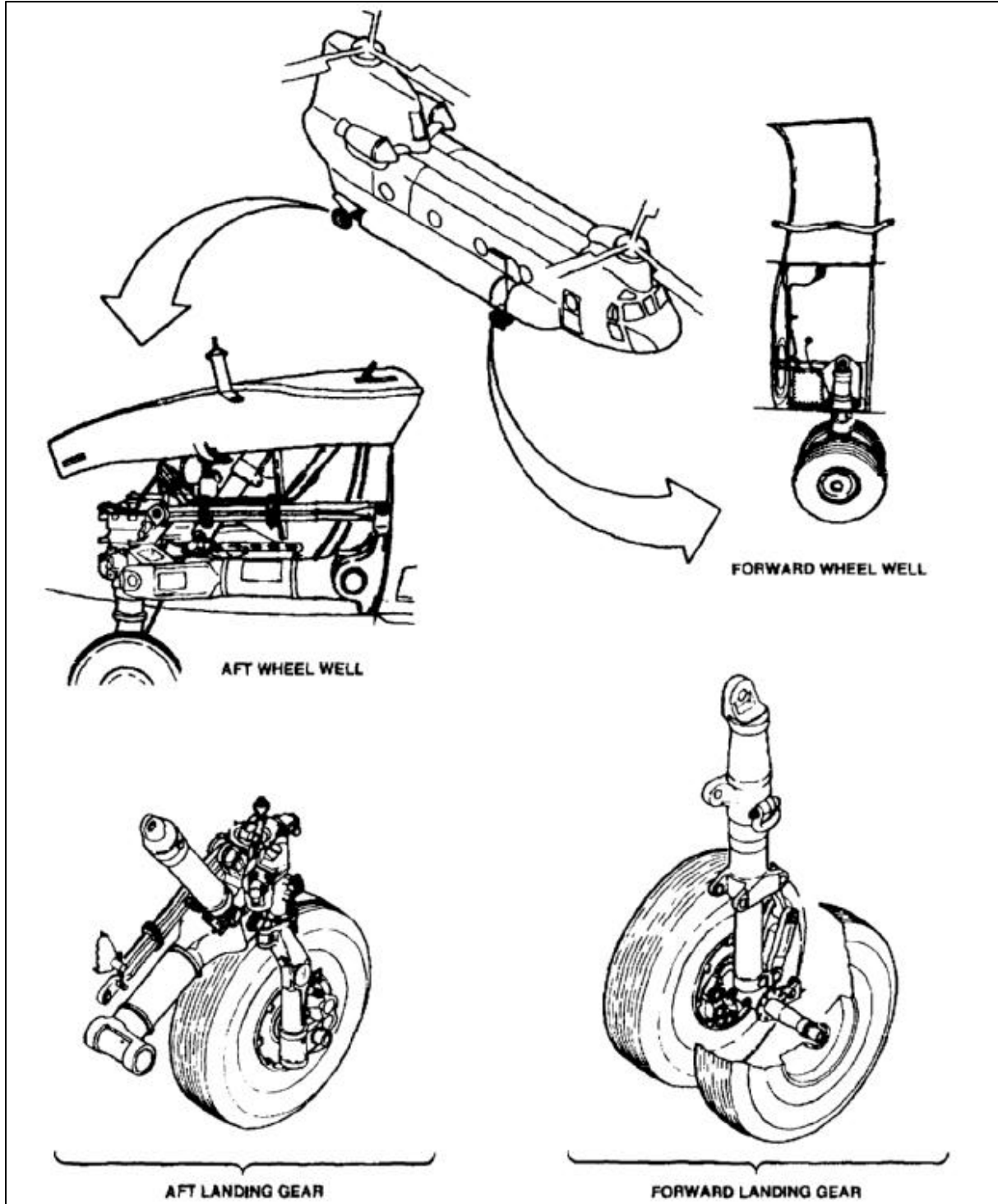
Corrosion Prone Areas - Ramp Bottom Skin and Ramp End Former (Sheet 6 of 13)



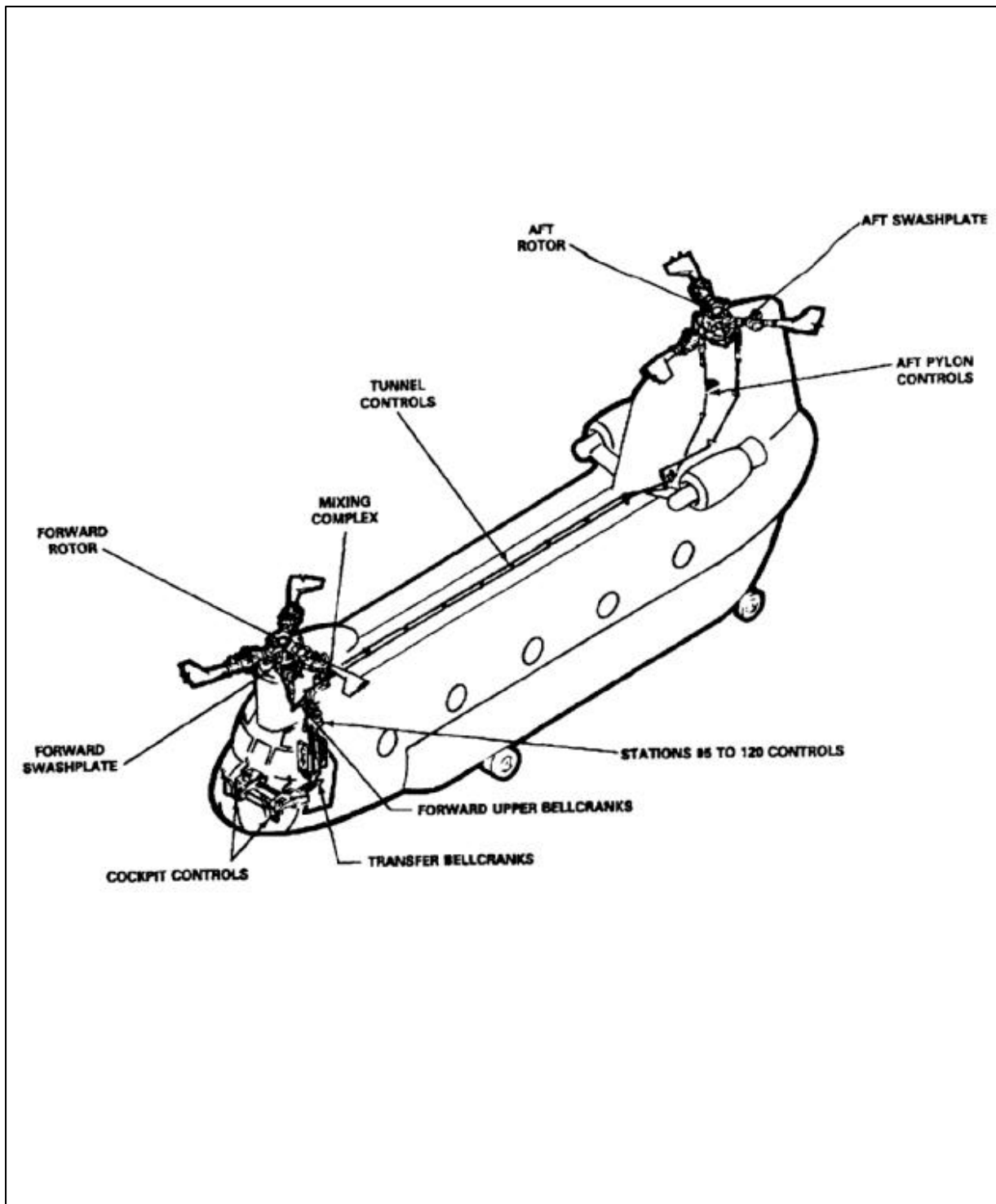
Corrosion Prone Areas - Ramp Hinge (Sheet 7 of 13)



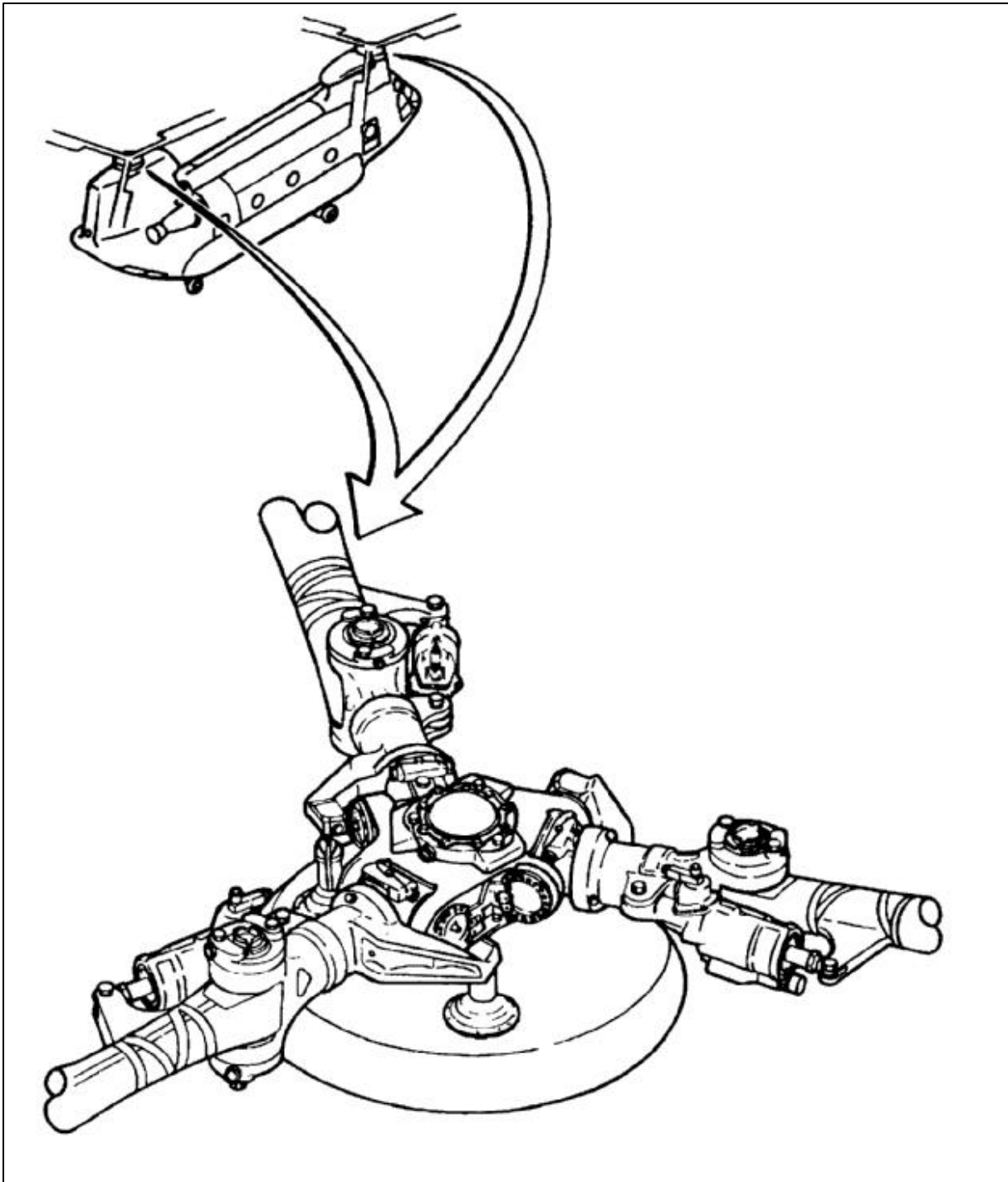
Corrosion Prone Areas – Cargo Hook Assemblies (Sheet 8 of 13)



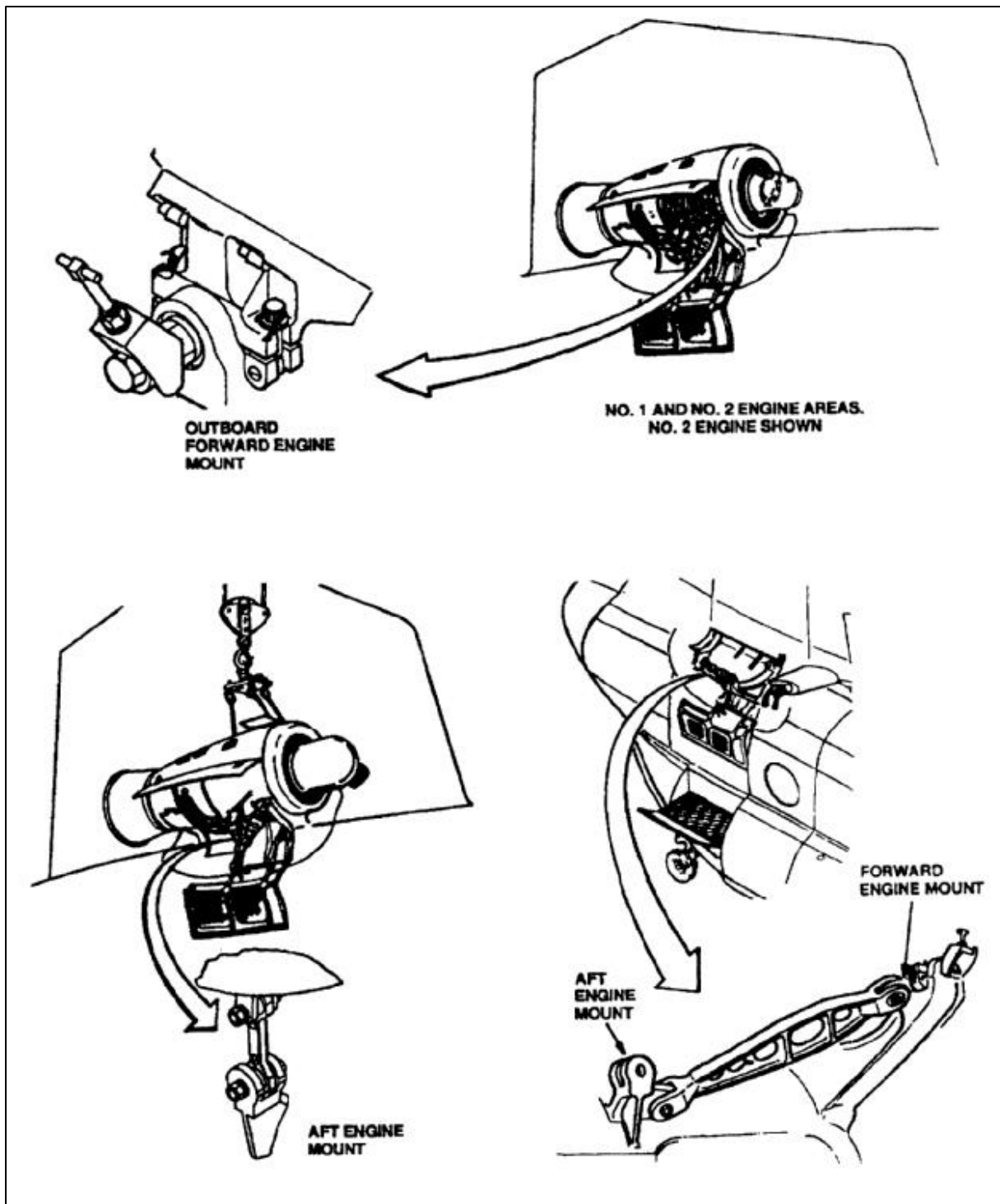
Corrosion Prone Areas - Landing Gear (Sheet 9 of 13)



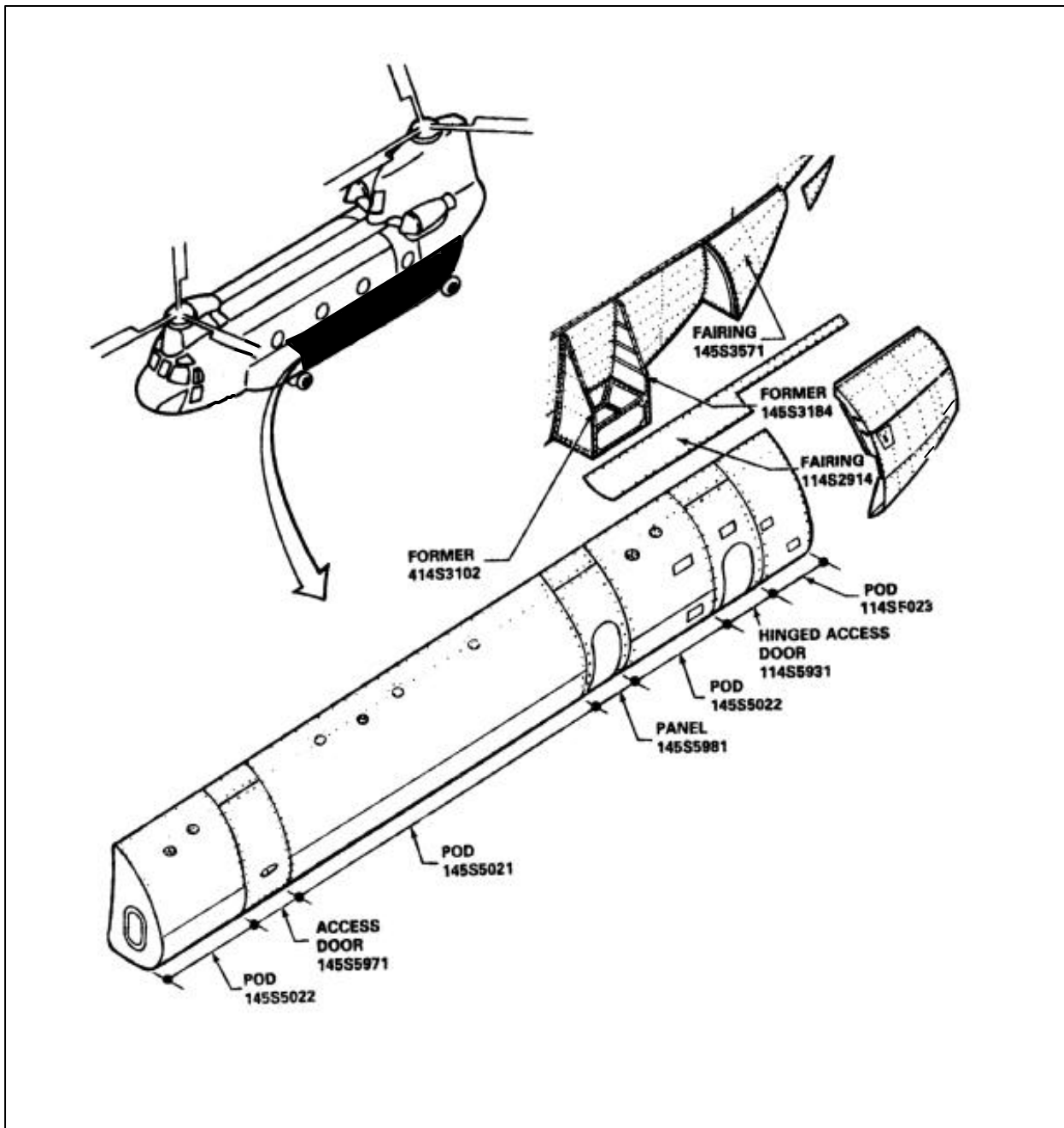
Corrosion Prone Areas – Flight Controls (Sheet 10 of 13)



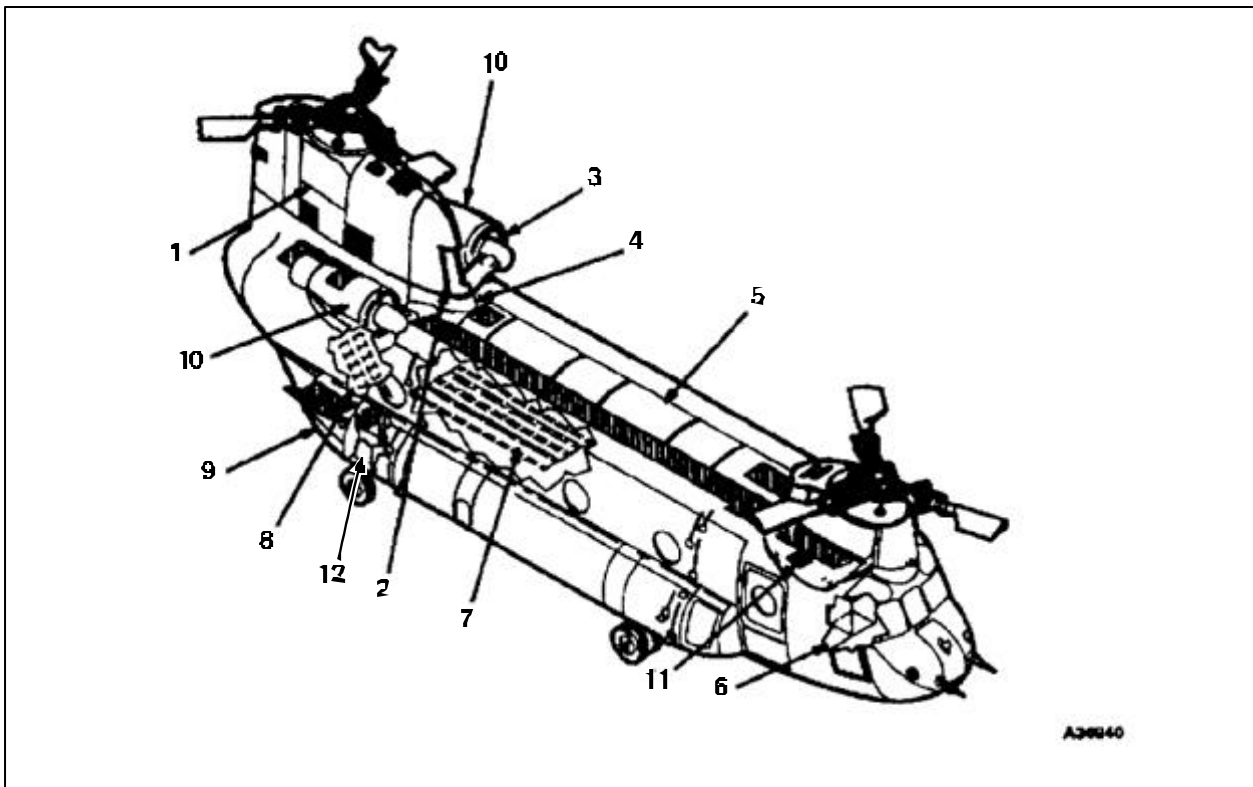
Corrosion Prone Areas - Rotor Head and Pitch Link Assemblies (Sheet 11 of 13)



Corrosion Prone Areas - Engine Mount Assemblies (Sheet 12 of 13)



Corrosion Prone Areas - Pod Panel Boxes, Sta. 460 to 482 (Sheet 13 of 13)



Preparation of Aircraft for In-Depth Inspection Diagram

No. Description

1. Remove aft transmission mount access panel, LH and RH (Task 6-1).
 2. Remove oil cooler compartment access panel, LH and RH (Task 6-1).
 3. Remove FOD screens and engine gearbox fairings, LH and RH (Task 6-1).
 4. Remove combiner transmission attach point inspection plates (4) (Task 6-1).
 5. Open tunnel covers.
 6. Remove companionway floor panel (Task 2-204).
 7. Remove center floor panels throughout cabin area and remove left and right panel on each side of the center cargo hook. This will ensure access for a good visual inspection.
 8. Remove the ramp hinge inspection plate.
 9. Open ramp.
 10. Open engine cowlings, LH and RH.
 11. Remove forward transmission soundproofing and drip pan (Tasks 2-3 and 6-1).
 12. Remove pod panel; RH and LH, station 460 to 482, and access panel (Task 1-92).
- b. Randomly choose one floor panel and remove. Inspection of floor panels and bilge/underfloor areas requires the removal of one floor panel only.
8. In-depth Inspection.
- a. Open/remove items shown in illustration Preparation of Aircraft for an In-Depth Inspection Diagram.
 - b. In addition, open/remove doors, access panels, insulation, etc. as necessary to allow visual examination of corrosion prone areas.

INSPECTION



Graphite can cause severe metal corrosion. Do not use leaded pencils on aircraft structures.

NOTE

Except for disassembly required in step 7, paras 7 and 8, do not disassemble components for corrosion inspection unless physical signs of corrosion are found.

Corrosion is more likely to occur on unprotected areas than on painted, clad, or plated surfaces. Be aware, however, corrosive attack of properly coated parts is still possible. Moisture can pass through paint films and breaks in plating.

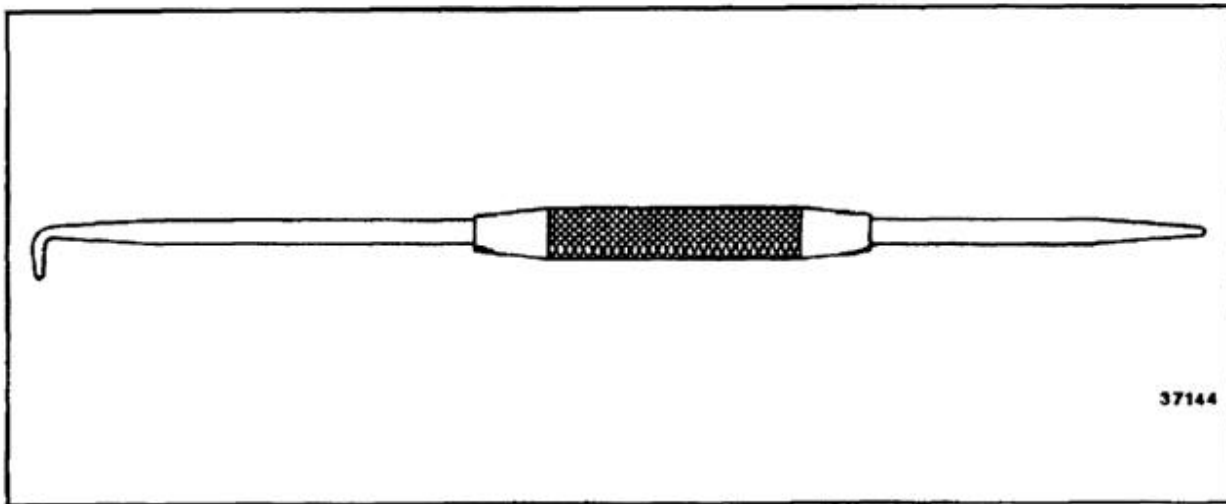
9. Perform an Abbreviated Inspection or In-Depth Inspection as required. Inspect the following areas:
 - a. Abbreviated Inspection — Examine corrosion prone areas (refer to step 7, para 5) and exterior surfaces.

- b. In-Depth Inspection — Examine corrosion prone areas (refer to step 7, para 5) and those areas specified in Specific Areas of In-Depth Inspection Table.
10. Perform inspection in the following manner:
 - a. Visually inspect with flashlight, inspection mirror, and a 10X magnifying glass.
 - b. For areas not directly observable, use fingers to feel for hidden corrosion products or flaking paint.
 - c. Inspect edges of skin panels, rivetheads, structure, edges of joints, and any other specified areas. If corrosion in the form of dust or dirt is present, sweep enough away to determine the condition of the underlying metal. Use nonmetallic brush (E85).



When using the blunt-tipped machinists scribe, be careful not to damage the structure or the surrounding platings or coatings. Scratching will increase the probability of corrosion.

- d. Remove enough contaminants or corrosion to determine the condition of the underlying metal. Use blunt-tipped machinists scribe.



Machinists Scribe

NOTE

Epoxy primer coatings (E292.1) crack true, if brittle enough, at the exact location as the base metal cracks. Not all approved vendor products under MIL-P-85582 crack true, and require paint removal to inspect for cracks in the base metal.

If paint is not easily dislodged and corrosion is not suspected, blistering, bubbling, or distortion is probably confined to the paint film itself and no further action should be taken.

- e. Inspect for cracking, blistering, bubbling, or distorted painted surface.
- f. Attempt to dislodge the paint if there are blisters, bubbles, or distortions. Use a plastic scraper.
- g. When corrosion is suspected but no irregularities are present, apply a strip of tape (E394) over a clean dry area and remove the tape with an abrupt lifting motion.
- h. Inspect where paint is removed and determine the extent of corrosion. If no corrosion is found, touch up as specified in Task 2-372.

EVALUATION AND DISPOSITION OF CORROSION DAMAGE

- 11. Repair the corroded part as required in Corrosion Repair Table.
- 12. For parts not addressed in the Corrosion Repair Table, proceed as follows:
 - a. Measure depth of corrosion attack/pits. Use a depth gage or optical micrometer. (Refer to TM 55-1500-344-23.)
 - b. Use the following definitions to categorize corrosion damage:
 - (1) Light corrosion. The protective coating is scarred or etched and the condition of the metal is discolored and pitted to a depth of **0.001 inch** maximum.

- (2) Moderate corrosion. This looks like light corrosion with blisters, scaling, and/or flaking of the protective coating and pitted to a depth of **0.010 inch** maximum.
- (3) Severe corrosion. Severe intergranular corrosion, blistering, exfoliation, scaling, or flaking. The pitting depth is greater than **0.010 inch**.

- c. Determine allowable disposition methods from Inspection Disposition Table. Select and accomplish the appropriate disposition method. Disposition methods are defined as follows:



For a replace (critical) disposition, do not operate the aircraft until the discrepant part has been replaced.

- (1) Replace (Critical). Immediately replace the corroded part. No aircraft operations shall be performed while the corroded part is on the aircraft. No corrosion repairs of dynamic parts (i.e., Drive, Rotor, or Flight Controls) shall be performed at the Organizational or Intermediate Levels, except as allowed by TM 55-1520-240-23 or by AMCOM direction.
- (2) Repair. Remove corrosion in accordance with Task 2-371. Restore finish in accordance with Task 2-372.
- (3) Replace. Replace the corroded part within **90 days or 100 flight hours**, whichever comes first. Protect the corroded part using CPC as specified in Task 2-374 until a replacement is available.
- (4) CPC. Protect the part using CPC as specified in Task 2-374.

INSPECTION RECORDS. Complete logbook form(s) as required in DA PAM 738-751 TAMMS-A and Logbook Forms Table.

Specific Area of In-Depth Inspection Table

No. Area	Description
1. Nose Compartment (Tasks 2-1, 2-2, 2-138).	Examine structure, especially where chafing is likely. Check wiring, electrical hardware, and fasteners. Check crevices.
2. Cockpit Skin, LH and RH (Tasks 2-4 and 2-11).	Examine skin externally. Check near fasteners and at skin joints for crevice defects.
3. Pilot's and Copilot's Floor Area (Tasks 2-74, 2-78, 2-73.1, 2-80, 2-81, 2-82, 2-83)	Check all surfaces and fasteners. Pay special attention to crevices.
4. Battery Compartment (Tasks 2-2, 1-39).	Examine structure; especially in areas that trap corrosives. Check mechanical and electrical hardware.
5. LH and RH Cabin Fuselage (Tasks 2-4, 2-11).	Examine fasteners and skin joints for crevice defects. Check carefully around hardware, such as lights, tiedowns, and fairings for dissimilar metal and crevice defects.
6. Lower Rescue Hatch Area (Tasks 2-192, 2-165.3).	Inspect the hatch, hatch frame, fasteners, and other supports for defects due to water entry.
7. Landing Gear (Tasks 2-2, 3-1, 2-178, 2-195).	Inspect landing gear attach points, all castings and forgings, especially at faying surfaces and surrounding area on the fuselage for defects due to water entry or in areas that trap moisture. Look for dissimilar metal defects.
8. Fuel Pods, LH and RH (Tasks 2-182, 10-1).	Examine honeycomb panels for the soft delamination characteristic of core corrosion. (Areas near the fuel filler deck are commonly affected.) Also check the structural hinge at the bottom of the fuel pods for dissimilar metal defects.
8.1 Pod panel boxes, LH and RH, sta. 460 to 482 (Tasks 1-92, 2-11, 2-12, and 2-13).	Inspect all structures, especially where moisture and foreign matter accumulate. Check all surfaces for pitting and crevice devices.
9. Engine Work Platforms, LH and RH (Task 2-219).	Inspect the platforms for a spongy softness to the touch. Also check attaching hardware.
10. Engine, Engine Mounts and Engine Gearbox, LH and RH (Task 4-1) and Engine Transmission Fairing (Task 4-71).	Examine all cases, fittings, housings, castings, and forgings for pitting and for dissimilar metal defects. Also check fasteners, tubing, and accessory hardware. Check fairings for evidence of corrosion and pooling of fluids.
11. Lower Fuselage Structure, Companionway Access and Cargo Floor Access Panels and Beams, FWD and AFT (Tasks 2-107, 2-204).	Inspect all structures, especially where moisture and foreign matter accumulate. Use a nonmetallic brush to clean debris away from areas likely to corrode. Check all surfaces for pitting and crevice defects. Look closely at the floor panels that are removed. (The edges and bottom of these panels, as well as the edges of the support beams, are likely corrosion areas, because of trapped moisture.) Check for corrosion/voids on floor beams. Some beams will sound voided that have mechanical repairs (for example; doubler with fasteners).
12. Avionics Compartments (Task 2-2).	Examine structure as well as wiring and electronic hardware for dissimilar metal defects.
13. Heater Compartment (Tasks 2-2, 13-1).	Inspect all structure surfaces and fasteners for crevice defects. Look into the bilges to the extent possible.

Specific Area of In-Depth Inspection Table (Continued)

No. Area	Description
14. Formers and Their Surroundings (Task 2-218).	Examine all surfaces and fasteners, especially at crevices. Also check attachment to surrounding structure. Pay special attention to areas that trap moisture.
15. Combiner Transmission Attach Points (Task 2-166).	Inspect fasteners and surrounding area. Look for dissimilar metal defects.
16. AFT Sync Drive Shaft Support Beams and Rotor Shaft Mounts (Tasks 1-50, 1-92, 2-166, 6-1).	Examine surfaces and fasteners, especially at crevices. Look carefully at attachment to surrounding structure and the attachment of shaft hanger brackets. Look at the fasteners and structure into which they are threaded for evidence of dissimilar metal defects.
17. AFT Transmission and Mounts, LH and RH (Tasks 1-50, 1-92, 6-1).	Inspect fasteners and fittings, especially at crevices. Look for pitting and dissimilar metal defects. Check visible surfaces of housing and attached hardware. (Most surfaces can be viewed from the aircraft interior.) Look for evidence of pitting and dissimilar metal defects.
18. Cargo Ramp and Casting (Tasks 2-239, 2-247, 2-252).	Inspect, with flashlight and mirror, the ramp hinge parts. Look for dissimilar metal defects and pitting. Examine ramp surfaces and lower areas of the ramp that would trap moisture. Check fasteners.
19. Canted Deck Area (Approx WL + 120) (Tasks 1-50, 1-92).	Inspect structure and fasteners, especially those that adjoin surrounding structure. Look carefully at attached fittings and hardware for evidence of dissimilar metal defects.
20. Hub FWD and AFT (Tasks 1-92, 5-1).	Inspect all forgings and castings, especially at faying surfaces and around bushings. Look for evidence of pitting and dissimilar metal defects.
21. FWD and AFT Rotor Shaft (Tasks 1-92, 6-1).	Inspect the surface available for view.
22. Swashplate, Support, Scissors and Sleeve, FWD and AFT (Tasks 1-50, 1-92, 5-1).	Examine all surfaces. Pay special attention to areas around bushings and faying surfaces.
23. Torque Deck (WL +72) (Field Splice) (Task 1-92).	Inspect all structural surfaces and fasteners, especially at crevices. Pay special attention to pylon attachment fittings.
24. Flight Control Linkages (Tasks 2-1, 2-2, 2-238).	Examine all surfaces of forgings, castings and hydraulic hardware for pitting and dissimilar metal defects. Use flashlight and mirror to check linkages housed within the transmission support beam and aft bulkhead. Look carefully around bushings.
25. Upper Fuselage Walkway (Task 2-171).	Examine honeycomb panels for the soft delamination characteristic of core corrosion.
26. Overhead Tunnel (Tasks 2-2, 2-24, 2-169).	Inspect tunnel floor and all tubes, shafting, hangers, and wiring in the tunnel.

Specific Area of In-Depth Inspection Table (Continued)

No. Area	Description
27. FWD Transmission and Support Beams, LH and RH (Tasks 2-2, 2-71, 2-73.1).	Inspect surfaces and fasteners, especially at crevices. Look at attachment to surrounding structure. Check visible surfaces of housing cases and attached hardware. Look for evidence of pitting and dissimilar metal defects.

Corrosion Repair Table

Part	Repair Task
Formed and Extruded Parts	Task 2-7
Skins	Task 2-12
Stringers	Task 2-15
Formers	Task 2-18
Longerons	Task 2-21
Beams	Task 2-24
Stiffeners	Task 2-28
Rivets	Task 2-326
Use of Nuts, Washers, or Cotter Pins	Task 2-334
Bushings and Hinges	Task 2-335
Canvas and Webbing	Task 2-365
Aluminum Tubing	Task 2-366
Rubber Seals	Task 2-367

Inspection Disposition Table

Corroded Part	Light	Moderate Degree of Corrosion	Severe
Dynamic (Drive, Rotor, or Flight Control System)	Replace (Critical)	Replace (Critical)	Replace (Critical)
Nondynamic Structural (bulkheads, panels, frames, webs, ramp, etc.)	Repair	Repair or Replace	Replace
Nondynamic Nonstructural (clips, fasteners, brackets, etc.)*	Repair or Replace or CPC	Repair or Replace or CPC	Repair or Replace

*Replace common attaching hardware (fasteners, washers, spacers, nuts)

Logbook Forms Table

Form No.	Title	Use	Disposition
DA Form 2408	Equipment Log Assembly (Records)	A reference to symbols used in logbook.	Remains in front of logbook.
DA Form 2408-4	Weapon Record Data	Provides a continuous record of firings and component replacements on armament system and sub-system(s). Maintain in the aircraft logbook on which the armament is mounted. Form attached to weapon when evaluated or stored. Form destroyed and new one initiated upon overhaul or rebuild of weapon. Form filed data transferred to new form. Filled form retained 90 days or until new form is filled, whichever occurs first, then destroyed.	
DA Form 2408-5	Equipment Modification Record	Record modification data on assemblies or components.	In logbook for equipment on which assembly is installed. Accompanies assembly when it is removed and placed on another end item.
DA Form 2408-9	Equipment Control Record	Provides initial basic equipment acceptance and identification information. Provides means for updating information on ownership, location, usage, transfers, gains, losses, overhaul and rebuild, and disposition.	Disposition varies with form use. Instructions contained in DA PAM 738-751.
DA Form 2408-12	Army Aviator's Flight Record	Records aircraft time and mission. Records duty and type of flight performed by the aviator and crew.	Sent to the operations office at the end of each day. Destroyed after 3 months .

Logbook Forms Table (Continued)

Form No.	Title	Use	Disposition
DA Form 2408-13	Aircraft Inspection and Maintenance Record	Records aircraft faults and action taken to correct them; to show flying hours, maintenance performed, and when inspections become due.	Sent at the end of each day to the aircraft maintenance office of the activity maintaining the aircraft. Destroy after 6 months .
DA Form 2408-14	Uncorrected Fault Record	Lists uncorrected faults on aircraft, including overdue replacement of components.	Destroy 6 months after date of last entry.
DA Form 2408-15	Historical Record for Aircraft	Records aircraft historical data.	Permanent record in logbook; accompanies aircraft on transfer.
DA Form 2408-16	Aircraft Component Historical Record	Records aircraft component historical data.	Permanent record in aircraft logbook; accompanies component on transfer.
DA Form 2408-17	Aircraft Inventory Record	Lists all property assigned to an aircraft; used to record periodic inventories of property.	A permanent part of the aircraft logbook.
DA Form 2408-18	Equipment Inspection List	Records most inspections on aircraft and components; provides record of component replacement.	Permanent record in logbook; accompanies aircraft on transfer.
DA Form 2408-19	Aircraft Engine Turbine Wheel Historical Record	Determines whether the turbine wheel can be overhauled and which of its parts should be DA.	Retained with the turbine wheel throughout its service life.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-1300

2-371 CORROSION REMOVAL**2-371****INITIAL SETUP****Applicable Configurations:**

All

Tools:

As Required

Materials:

Corrosion-Preventive Compounds (E153 thru E155.3)
Gloves (E184.1)
Masking Tape (E388)

Personnel Required:

Medium Helicopter Repairer

References:

Task 1-87

Task 1-88
Task 2-341
Task 2-342
Task 2-344
Task 2-369
Task 2-372
Task 2-374
TM 1-1500-204-23
TM 55-1500-344-23
TM 55-1500-345-23

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

General Safety Instructions:

As Required

PAINT REMOVAL**NOTE**

When paint removal is necessary, strip paint before removing corrosion.

1. Remove paint as required in Task 2-341, TM 1-1500-204-23, TM 55-1500-344-23 and TM 55-1500-345-23 for the following conditions:
 - a. Corrosion on parts is widespread.
 - b. Painted surfaces have deteriorated beyond the point of touch up.
 - c. Numerous repainting or touch ups have deposited excessive paint.

CLEANING

2. Clean the corroded component as required in Task 2-369.

CORROSION REMOVAL**NOTE**

Protect surrounding areas from corrosion residue and damage that could be caused by the removal operation.

After removing corrosion, immediately touch-up the affected parts (Task 2-372). If this is not possible, preserve the parts temporarily (Task 2-374) until the final finish can be restored.

3. Remove corrosion as required in Tasks 2-342, 2-344, and TM 55-1500-344-23. Select a method for corrosion removal from the following categories:

- a. Mechanical removal is the preferred method and shall be used wherever chemicals might become entrapped.
 - (1) Powered mechanical corrosion removal includes drills, sanders, flap brushes, abrasive wheels, or abrasive blasting.
 - (2) Non-powered equipment is preferred where close control of metal removal is needed, such as clad parts. Remove corrosion with abrasive mats, cloths, paper, wire brushes, scrapers, or metallic wools.
- b. Chemical methods of neutralizing corrosion are used mainly on aluminum and magnesium alloys. Chemical removal is discouraged. Improper use of chemicals could result in local metallurgical damage.

BLENDING

4. Blend all depressions resulting from corrosion removal smoothly and evenly with surrounding surfaces.
5. For shaping or blending instructions, refer to TM 55-1500-344-23.

FOLLOW-ON MAINTENANCE:

Lubricate (Tasks 1-87 and 1-88).
Surface Treatment and Painting (Task 2-372).

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Abrasive Paper (E11, E12, and E13)
 Cloths (E120)
 Anti-Static Coating (E135.6 and 135.7)
 Dry Cleaning Solvent (E162)
 Epoxy Topcoat (E166 thru E166.4)
 Gloves (E184.1)
 Lacquer, Black (E214, E214.1, and E219.1)
 Lacquer (E220 thru E222, E224, and E225.1)
 Acetone (E20)
 Aliphatic Naptha (E245)
 Polyurethane (E285.1 thru E285.6)
 Primer, Epoxy (E292 thru E294)
 Primer Wash (E302)
 Rust Inhibitor and Preservative (E322)
 Walkway Material (E440)

Personnel Required:

Medium Helicopter Repairer

References:

Appendix E
 Task 2-356
 Task 2-371
 TM 55-1500-344-23
 TM 55-1500-345-23

Equipment Condition:

Battery Disconnected (Task 1-39)
 Electrical Power Off
 Hydraulic Power Off

General Safety Instructions:**WARNING**

Dry cleaning solvent (E162) is combustible and toxic. Avoid contact with skin, eyes, or clothing. Avoid inhaling. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Epoxy coating (E166.4), aliphatic naphtha (E245), and epoxy primer (E293) are flammable and toxic. They can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Acetone (E20) and polyurethane (E285.1) are flammable and toxic. They can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Lacquer (E219.1) is extremely flammable. It can be toxic. Keep away from heat, sparks, or open flames. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

WARNING

Wash primer (E302) is toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

GENERAL PROCEDURES

1. After corrosion has been removed (Task 2-371) and/or paint has been stripped, proceed in the following sequence:
 - a. Identify metal and finish for part or surface that is stripped.
 - b. Remove temporary preservation finish if required.
 - c. DA metal.
 - d. Paint.

METAL IDENTIFICATION

2. Identify surface material and select a treatment. Listed below are options to determine the part material:
 - a. Check the latest Boeing Helicopters drawing that corresponds to the detail part.
 - b. Check the material listings in the CH-47D Maintenance Manual. Refer to TM 55-1520-240-23 Chapter 2 and Appendix E.



Chemical testing shall not be performed on critical components, which include flight control parts, drive system parts, or rotor parts.

- c. Identify the surface material by a combination of part density, visual comparison, magnetic properties, and chemical spot test. Refer to the Material Considerations Table.
 - (1) Density — Determine density by dividing the part weight (lb) by the volume of the part material (cubic inches).

- (2) Visual — Visually compare parts of known composition with the unknown material for color and luster or use the metal identification kit (refer to TM 55-1500-344-23).
- (3) Magnetism — Place a magnet against the part. Magnetic attraction identifies the part as alloy steel or stainless steel.

NOTE

Chemical spot testing should only be attempted if the part material cannot be determined by any other means. This method is only allowed for testing noncritical components.

- (4) Chemical spot test — Refer to TM 55-1500-344-23 for chemical spot analysis.

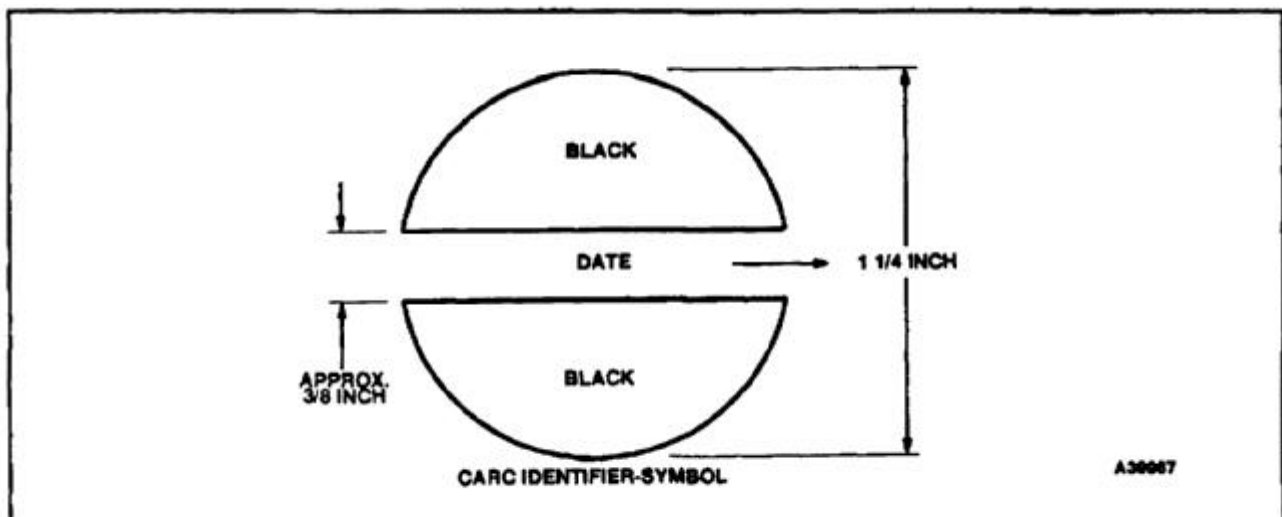
FINISH IDENTIFICATION

NOTE

Early CH-47D were factory-finished with a lacquer paint system.

Late CH-47D models and those repainted at U.S. Army depots have a chemical agent resistant coating (CARC) paint system.

3. Identify the existing finish before choosing the correct touch-up paint. Use identification of CH-47D Coatings table and the following:



Material Considerations Table

MATERIAL	APPROXIMATE DENSITY (LB/IN ³)	MAGNETIC	SOME TYPICAL COMPONENTS*
Magnesium	0.066	No	Transmission housings, troop seat support rails, floor panels**, WL -30 beam**, rotor head oil tanks**
Aluminum	0.10	No	Fuselage (including ramp) and pylon structure, drive shafts, cargo hooks (low capacity), rotor pitch housing, most flight control hardware, some drive shaft adapters
Alloy Steel	0.28	Yes	Rotor hub and pitch shaft, landing gear, cargo hooks (high capacity), some drive shaft adapters
Stainless Steel	0.28	***	Engine components, rotor tie bars, pitch links, some flight control hardware
Titanium	0.16	No	Rotor blade leading edge cap
Composite	0.068****	No	Avionics pods, nose radome, rotor blade fairing, fuel pods, rain shields, pylon fairings, transmission oil sumps and drip trays

*Not an exhaustive list. Does not include exceptions.

**Being replaced with aluminum by attrition.

***Some stainless steels used on the CH-47D are magnetic (15-5PH) and some are not magnetic (301).

****Composite honeycomb structures will be less dense, due to the very low density of the honeycomb.

a. Aircraft Finish Stencil — The primary finish used on the CH-47D is stenciled on the helicopter exterior, left side, at station (STA) 107 or 118, water line (WL) -28. Presence of the CARC symbol in the same location indicates that the CARC paint has been applied to the aircraft (see CARC Identifier Symbol on previous page). Some parts on the aircraft may be finished with the lacquer system.

b. MEK Volubility — Lacquer paints are soluble in organic solvents. CARC coatings are not soluble in organic solvents. To test, rub a Q-tip (or small clean cloth (E120)) wet with acetone (E20) on a small area of the part. Lacquer paint will be removed but CARC paint will not be removed.

4.

The choice of solvent depends on the corrosion preventive compound (CPC), type, class, and grade, and the paint system adjacent to the rework area.

Remove temporary preservation with clean cloths (E120) moistened with organic solvent. Use gloves (E184.1). If no information specific to the CPC is available, use the following guidance:

Dry cleaning solvent (E162) — for adjacent lacquer or CARC paint
or

Aliphatic naphtha (E245) — for adjacent lacquer or CARC paint
or

Acetone (E20) — for adjacent CARC, but will dissolve lacquer coatings.

REMOVAL OF TEMPORARY PRESERVATION

NOTE

Temporary preservation must be completely removed from the rework area so refinishing materials will properly adhere.

Identification of CH-47D Coatings Table

AIRCRAFT FINISH STENCIL	IS IT MEK SOLUBLE?	PROBABILITY OF OCCURRENCE	COATINGS EMPLOYED (TYPICAL ITEMS COATED)	
1. Lacquer Paint	Yes	High ¹	Primers*:	MIL-P-7962 fast drying primer (used as primer for MIL-L-19538), TT-P1757 zinc chromate (other applications, including parts not topcoated)
			Topcoats:	MIL-L-46159 acrylic lacquer (fuselage exterior, landing gear, cockpit) MIL-L-19538 acrylic nitrocellulose (rotor blades, rotor head assemblies (including rain shields)) TT-L-20 cellulose nitrate lacquer (cabin walls)
2. Lacquer Paint	No	Low ²	Primer:	MIL-P-23377 epoxy (drive shafts, not topcoated)
			Topcoat:	MIL-C-22750 epoxy (bilge, transmissions)
3. CARC Paint	Yes	Low ³	Primers:	MIL-P-23377 or MIL-P-85582 epoxy
			Topcoats:	MIL-L-46159 lacquer (landing gear, some cockpit parts, combinertransmission cooler) MIL-L-19538 lacquer (rotor blades)
4. CARC Paint	No	High ⁴	Primers:	MIL-P-23377 or MIL-P-85582 epoxy (parts not topcoated)
			Topcoats:	MIL-C-46168 polyurethane (exterior surfaces, cockpit) MIL-C-22750 epoxy (cabin walls, bilge, transmissions)

*MIL-P-23377 was frequently used as the primer for MIL-L-46159 topcoat

¹Early CH-47D models were factory finished with a lacquer paint

²Some selected parts on early models

³Some selected parts during factory transition to the chemical agent resistant coating (CARC)

⁴Late models and those repainted at U.S. Army depots have a CARC paint finish

PRETREATMENT AND COATINGS SELECTION

5. Determine required metal pretreatment and coatings from the Metal Pretreatment and Coating Requirements table.

METAL PRETREATMENT

6. Pretreat bare magnesium and aluminum before painting. Refer to TM 55-1500-344-23 and TM 55-1500-345-23 for pretreatment.

PAINT APPLICATION

NOTE

The Parts Refinishing Table provides the paint selection criteria. Refer to it to determine under what conditions lacquer and CARC paints are to be used.

7. Wash Primer —

- a. Apply wash primer (E302) as specified in MIL-C-8507 when required by the Metal Pretreatment and Coating Requirements Table. Wash primer application is also required for the following situations:
- (1) On stainless steel receiving subsequent coatings.
 - (2) On damaged cadmium plate (including missing conversion coating).

Metal Pretreatment and Coating Requirements Table

MATERIAL	METAL PRETREATMENT	WASH PRIMER ¹	PRIMER	ANTISTATIC COATING*	TOPCOAT ³
Magnesium	X		X		X
Aluminum	X		X		X
Alloy Steel		X	X		X
Stainless Steel		X	X		X
Titanium			X		X
Composite			X	X	X

¹Use prior to all applications of zinc chromate primer (TT-P-1757) or fast drying primer (E294).

²Use on exterior surfaces only.

³Omit topcoat if adjacent surfaces are not topcoated.

- (3) Prior to zinc chromate primer (TT-P1757) or fast drying primer (E294) application.

8. Primers —

NOTE

A coating "cracks true" when it cracks in the exact location that the base metal cracks. CH-47D requires all primers to 'crack true'. Contact Boeing Helicopters for MIL-P-85582 products that 'crack true'.

- a. Apply **three coats** of primer (E292, E292.1, or E292.2) to magnesium parts.
- b. Apply **one coat** of primer (E292, E292.1, or E292.2) to other metals and to nonmetals as specified below.
- c. Lacquer Primers —
 - (1) For spot touch-up, use the same primer painted on the remainder of the part.
 - (a) Apply lacquer primers as specified in MIL-F-18264.
 - (b) Substitute epoxy primer (E292, E292.1 or E292.2) if the same primers are unavailable or cannot be used due to environmental regulations.
 - (2) When repainting an entire part, select the primer based on the Parts Refinishing Table. Use epoxy primer if the Parts Refinishing Table indicates that the CARC paint system is appropriate. Refer to paragraph 8d.

d. CARC Primers —

- (1) Apply epoxy primer (E292, E292.1 or E292.2) on parts painted with CARC paint.
- (2) Apply CARC primer as required in TM 55-1500-345-23 and MIL-C-53072.

9. Anti-static Coating —

- a. Apply anti-static coating (E135.6 or E135.7) on composite surfaces on the aircraft exterior in order to bleed-off static charges caused by in-flight airflow.
- b. Apply anti-static coating (E135.6 or E135.7) after the primer and before the topcoat, **0.0006 - 0.0010 inch** dry film thickness.
- c. Apply anti-static coating (E135.6 or E135.7) as directed by the manufacturer's instructions.
- d. Apply topcoat (paragraph 10) after air drying the anti-static coating **2 hours** minimum to **24 hours** maximum.

10. Topcoats — If a topcoat is required, select as follows:

- a. Lacquer topcoats —
 - (1) For spot touch-up, use the same topcoat painted on the remainder of the part.

- (a) Apply lacquer topcoats (E214.1 or E225.1) as required in TM 55-1500-345-23.
 - (b) Apply lacquer topcoats (E218 or E219.1) as specified in MIL-F-18264.
 - (c) If a lacquer topcoat is unavailable or environmental regulations restrict its application, an appropriate CARC topcoat may be substituted if applied over epoxy primer.
- (2) Select the topcoat based on the Parts Refinishing Table when repainting an entire part. Use polyurethane or epoxy topcoat if the Parts Refinishing Table indicates that the CARC paint system is appropriate. Refer to paragraph 10b.

b. CARC Topcoats —

NOTE

Epoxy topcoats are not used in locations exposed to direct sunlight. Chalking occurs in the presence of sunlight.

- (1) Apply polyurethane (E285.1, E285.2, E285.3, E285.4, E285.5, or E285.6) or epoxy topcoats (E166, E166.1, E166.2, E166.3, or E166.4) as specified in TM 55-1500-345-23 and MIL-C-53072. Refer to the Identification of CH-47D Coatings Table to determine topcoat usage for various locations.

11. Apply paint as specified for the following:

a. Rotor Blades —

NOTE

Do NOT completely repaint rotor blades at organizational or intermediate level maintenance. Touch-up only.

- (1) Test small spot near blade tip to determine whether the blade topcoat is lacquer or CARC as required in paragraph 3b.

- (2) Clean rework area with clean cloths (E120) moistened with Aliphatic Naphtha (E245). Use gloves (E184.1).

NOTE

Powered sanders or rougher grit paper shall not be used.

- (a) Lightly hand sand the rework area using sandpaper (E11, E12, or E13).
 - (b) Reclean rework area with clean cloths (E120) moistened with Aliphatic Naphtha (E245). Use gloves (E184.1).
- (3) Touch-up lacquer topcoated blades as follows:
- (a) Maintain touch-up coatings to the thin side of the allowable thickness range.
 - (b) Blend touch-up coatings into existing finish.
 - (c) Apply primer (E292, E292.1, or E292.2) as required in paragraph 8d and lacquer (E219.1) on the leading edge cap. (The leading edge cap is the metal structure extending back **11 inches** from the blade leading edge.) Apply lacquer topcoat (E219.1) **0.00080 - 0.0010 inch** dry film thickness as specified in MIL-F-18264.
 - (d) Apply primer (E292, E292.1, or E292.2) as required in paragraph 8d, anti-static coating (E135.6 or E135.7) as required in paragraph 9, and lacquer topcoat (E219.1) on the fairings. (The fairing is located aft of the leading edge cap.) Apply lacquer **0.0008 - 0.0010 inch** dry film thickness as specified in MIL-F-18264.

Parts Refinishing Table

AIRCRAFT PAINT SYSTEM*	PART PAINT BEFORE STRIPPING	PAINT TO BE USED FOR REPAINTING
Lacquer	Lacquer	Lacquer
Lacquer	CARC	CARC
CARC	Lacquer	CARC
CARC	CARC	CARC

*From aircraft finish stencil (refer to paragraph 3a).

- (4) Touch-up CARC topcoated blades as follows:
- (a) Maintain touch-up coatings to the thin side of the allowable thickness range.
 - (b) Blend touch-up coatings into existing finish.
 - (c) Apply primer (E292, E292.1, or E292.2) as required in paragraph 8d and polyurethane topcoat (E285.1) as required in paragraph 10b on the leading edge cap **0.0018 - 0.0023 inch** dry film thickness.
 - (d) Apply anti-static coating (E135.6 or E135.7) as required in paragraph 9 and polyurethane topcoat (E285.1) as required in paragraph 10b on the fairing **0.0018 - 0.0023 inch** dry film thickness.
- b. Walkways —
- (1) Apply epoxy primer (E292, E292.1, or E292.2) and non-slip coating (E440) to damaged walkway. Refer to Task 2-356.
 - (2) If non-slip coating is not available, repair as required in TM 55-1500-345-23.
- c. High Temperature Area — Finish as required in TM 55-1500-345-23.
- d. Rubber — Do not paint rubber parts or surfaces.
- e. Antennas and Radomes — Paint as required in TM 55-1500-345-23.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-1308

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

CH-47 Helicopter Repairer

References:

TM 55-1500-343-23

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off

GENERAL

1. The references listed are necessary to fulfill the corrosion control requirements of the CH-47D avionics system.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Corrosion-Preventive Compounds (E153 thru E155.8)

Gloves (E184.1)

Sealants (E349.1 or E470)

Masking Tape (E388)

Goggles (E473)

Personnel Required:

CH-47 Helicopter Repairer

References:

TM 55-1500-344-23

Tasks 1-93 thru 1-95

Task 1-97

Tasks 2-368 thru 2-372

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off

GENERAL

1. This task is an overview of references and material essential to corrosion-preventive maintenance. It specifies procedures for cleaning the helicopter, drainage, surface treatment, sealing, emergency procedures, and use of corrosion-preventive compounds (CPCs).

CLEANING

2. Clean per Task 2-369.
3. Fresh Water Rinse per Task 2-369.

DRAINAGE

4. Maintain drain holes and drain passageways open and functional. Sealants, debris, CPCs, etc., shall not block drain paths.

SURFACE TREATMENT AND PAINTING

5. Pretreating Metal per Task 2-372.
6. Touch-up and Paint per Task 2-372.

SEALANT**WARNING**

Sealants (E349.1 and E470) can irritate skin and cause burns. Avoid contact with skin, eyes or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

NOTE

Sealants are used for wet installing bushings, bearings, permanent fasteners and attaching parts, to fill potential gaps and provide insulation between dissimilar metals.

NOTE

Corrosion inhibitive sealant (E349.1) contains a corrosion inhibitor and is preferred for sealing whenever aluminum or cadmium plated parts are involved.

Do not seal drain holes, dynamic joints, or dynamically balanced assemblies unless otherwise specified.

Do not use sealant as a masking material for painting. Sealant is difficult to remove.

7. Sealants (E349.1 and E470) are used for general CH-47D corrosion-preventive maintenance. Refer to the Sealants table for sealant information.
8. Apply sealant as required in TM 55-1500-344-23.
9. Apply sealants for the following conditions:
 - a. To restore damaged or missing sealant.
 - b. To fill nonfunctional gaps and holes in the fuselage.
 - c. To seal leaking aircraft windows.
 - d. To seal exterior repairs.
 - e. To seal dissimilar metal repairs.
 - f. For wet installations (fasteners, bushings, bearings, etc.), when magnesium is involved. Use as an alternate to MIL-P-23377 primer for wet installations not involving magnesium.

Sealants Table

SPECIFICATION AND NOMENCLATURE	USE	PROPERTIES	EXPENDABLE
AM-S-8802, Sealing Compound, Temperature-Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High Adhesion	Structural sealing of gaps, faying surfaces, fillet sealing, etc., and wet installations (fasteners, bushings, bearings, etc.) * Use in areas exposed to fuel. Do not overcoat or expose to fuel until tack free.	Two-component Room temp cure Service temp: -65 to 250°F Peel strength: 20 lb/in (min) No corrosion inhibitors Resists fuel, oil, hydraulic fluid	E470
MIL-S-81733, Sealing and Coating Compound, Corrosion Inhibitive	Structural sealing of gaps, faying surfaces, fillet sealing, etc., and wet installations (fasteners, bushings, bearings, etc.) * Do not use in fuel-exposed areas.	Two-component Room temp cure Service temp: -65 to 250°F Peel strength: 15 lb/in (min) Corrosion inhibiting Resists fuel, oil, hydraulic fluid	E349.1

*Note: MIL-P-23377 primer may also be used for wet installations, except when magnesium is involved. For magnesium joints, sealant must be used.

10. Reapply sealant if the existing sealant is damaged or broken by component disassembly or service. Remove old sealant and reapply as required in TM 55-1500-344-23.

EMERGENCY PROCEDURES

11. Incidents or Accidents in Saltwater — treat per TM 55-1500-344-23.
12. Incidents or Accidents involving Fire Extinguishing Agents — treat per TM 55-1500-344-23.

CORROSION-PREVENTIVE COMPOUNDS

13. Corrosion-preventive compound (CPCs), or preservatives, are used to protect metal aircraft parts and components. They function by preventing corrosive materials from contacting and corroding metal surfaces. Many of these compounds are capable of displacing water and other contaminants from the surface to be protected. Some provide lubrication, as well as corrosion protection. The thicker CPCs provide the best corrosion protection, are longer lasting, and are more difficult to remove. The thinner materials provide some lubrication and do not crack, chip, or peel but must be replaced regularly to provide continuing protection. Refer to the Corrosion-Preventive Compounds Table for additional information.

14. CPCs can be categorized into two major groups, water displacing and non-water displacing. Water displacing compounds have the advantage of not only providing corrosion-preventive barriers, but displacing existing water.

15. Areas of Application. Use CPCs as an option for touching-up lightly or moderately corroded nondynamic, nonstructural parts. (Refer to Task 2-370.)

16. Frequency of Application.

WARNING**NOTE**

Mask lubricated joints prior to application of any CPC. Use masking tape (E388). Solvents in CPCs can wash out lubricants.

Prolonged use of CPCs (especially MIL-C-85054) may result in excessive buildup. Remove excess material (Refer to Task 2-372) and reapply CPC to clean surface.

- a. Exterior Helicopter Surfaces
 - (1) Apply CPC (E155, E155.1, E155.2 or E155.3) to parts exposed to weather or moisture. Use gloves (E184.1).
 - (2) Reapply CPC every **30 days** if required.
 - b. Interior Helicopter Surfaces
 - (1) Apply CPC (E153, E154, E155, E155.1, E155.2, or E155.3) to parts not exposed to weather or moisture. Use gloves (E184.1).
 - (2) Reapply CPC as required to interior surfaces during Daily Inspections, Abbreviated, and In-Depth Corrosion Inspections. Under the floors, CPC shall be reapplied whenever the floors are removed and/or when corrosion is detected during the Abbreviated or In-Depth Inspection.
17. Method of Application. Refer to Method of CPC Application Table.

TEMPORARY PRESERVATION**WARNING**

Corrosion-preventive compound (CPC) (E153) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

Corrosion-preventive compound (CPC) (E154) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least **15 minutes**. Get medical attention for eyes.

18. If operational or environmental conditions do not permit complete repair or finish restoration, apply CPCs to rework area as follows:
- a. Exterior Helicopter Surfaces
 - (1) Apply CPC (E155, E155.1, E155.2, or E155.3) to parts exposed to weather or moisture. Use gloves (E184.1).
 - (2) Restore final finish within **7 days**.
 - b. Interior Helicopter Surfaces
 - (1) Apply CPC (E153, E154, E155, E155.1, E155.2 or E155.3) to parts not exposed to weather or moisture. Use gloves (E184.1).
 - (2) Restore final finish within **30 days**.
 - c. Immediate cleaning, corrosion removal, and finish restoration is required, if corrosion continues after CPC application.
19. Storage Considerations.
- a. For parts to be stored, but with incomplete finish, apply CPC (E153, E154, E155, E155.1, E155.2, or E155.3). Use gloves (E184.1). Check parts monthly and reapply CPC as necessary.
 - b. Store helicopter parts in dry (preferably climate controlled) location until the final finish can be restored (Tasks 1-93, 1-94, 1-95, and 1-97).
 - c. Restore helicopter parts to final finish as soon as conditions permit.

Corrosion Preventive Compounds Table

Specification and Nomenclature	Use	Type of Coating	Expendable
MIL-C-85054 Corrosion Preventive Compound, Water Displacing, Clear (AMLGUARD)	Corrosion protection and water displacement for nonmoving, non-electrical parts, such as skin seams, installed fastener heads where paint has cracked, access panel edges, and areas with damaged paint.	Dry, thin (1 mil), clear, colorless	E155 E155.1
MIL-C-16173, Grade 4 Corrosion Preventive Compound, Solvent Cutback, Cold Application	Corrosion protection but non-water displacing. Use an alternate to MIL-C-85054 if MIL-C-85054 is unavailable.	Soft, tack free, thick (2 mils), light brown color	E155.6 E155.7 E155.8
MIL-C-81309 Corrosion Preventive Displacing, Ultra thin Film, Class 1 Type II	Displacement of water; short term corrosion protection of metal surfaces during shipment, storage, and in-service use; corrosion protection of moving parts where some lubrication is required, such as hinge areas, bomb racks, and sliding parts.	Soft, very thin (0.5 mil), translucent, light amber color	E155.2 E155.3 E155.4
Type III	Displacement of water; corrosion protection of avionics equipment, electrical connector plugs and contact points	Soft, extremely thin (0.2 mil), translucent, light amber color	E155.5

Method of CPC Application Table

CPC	Application Method
MIL-C-81309 Type II	Wipe off dirt and excess moisture. Apply a thin, uniform coating of corrosion prevention compound MIL-C-81309 Type II. Refer to TM 55-1500-344-23.
MIL-C-81309 Type III	Wipe off dust and excess moisture from connectors. Apply a light coat of corrosion preventive compound MIL-C-81309 Type III to the inside of the electrical connector. Refer to TM 55-1500-343-23.
MIL-C-85054 or MIL-C-16173*, Grade 4	Wipe off dust and excess moisture. Apply a thin coating MIL-C-85054 AMLGUARD or corrosion preventive compound of MIL-C-16173, Grade 4* Refer to TM 55-1500-344-23

*Use MIL-C-16173, Grade 4, as an alternate to MIL-C-85054, if MIL-C-85054 is not available.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-1314

By Order of the Secretary of the Army:

DISTRIBUTION:

To be distributed in accordance with Initial Distribution Number (IDN) 311199, requirements for TM 55-1520-240-23-2.

These are the instructions for sending an electronic 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: "Whomever" <whomever@wherever.army.mil>

To: 2028@redstone.army.mil

Subject: DA Form 2028

1. **From:** Joe Smith
2. **Unit:** home
3. **Address:** 4300 Park
4. **City:** Hometown
5. **St:** MO
6. **Zip:** 77777
7. **Date Sent:** 19-OCT-93
8. **Pub no:** 55-2840-229-23
9. **Pub Title:** TM
10. **Publication Date:** 04-JUL-85
11. **Change Number:** 7
12. **Submitter Rank:** MSG
13. **Submitter FName:** Joe
14. **Submitter MName:** T
15. **Submitter LName:** Smith
16. **Submitter Phone:** 123-123-1234
17. **Problem:** 1
18. **Page:** 2
19. **Paragraph:** 3
20. **Line:** 4
21. **NSN:** 5
22. **Reference:** 6
23. **Figure:** 7
24. **Table:** 8
25. **Item:** 9
26. **Total:** 123
27. **Text:**
This is the text for the problem below line 27.



THEN ... JOT DOWN THE DOPE ABOUT IT ON THIS FORM, CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
PFC John DOE
CO A 3rd Engineer Bn
Ft. Leonardwood, MO 63108

DATE SENT
22 August 1992

PUBLICATION NUMBER
 TM 1-1520-250-10

PUBLICATION DATE
 15 June 1992

PUBLICATION TITLE
 Operator's manual MH60K Helicopter

BE EXACT PIN-POINT WHERE IT IS

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
6	2-1 a		
B1		4-3	

In line 6 of paragraph 2-1a the manual states the engine has 6 cylinders. The engine on my set only has 4 cylinders. Change the manual to show 4 cylinders.

Callout 16 on figure 4-3 is pointed at a bolt. In key to figure 4-3, item 16 is called a shim. Please correct one or the other

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
 JOHN DOE, PFC (268) 317-7111

SIGN HERE
 JOHN DOE *John Doe*

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PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	

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TEAR ALONG PERFORATED LINE



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TEAR ALONG PERFORATED LINE

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 dekagram = 10 grams = .35 ounce
 1 hectogram = 10 dekagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 feet

Approximate Conversion Factors

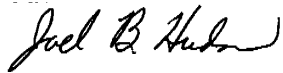
<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit	5/9 (after	Celsius	°C
	temperature	subtracting 32)	temperature	

By Order of the Secretary of the Army:

Official:



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0220706

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

DISTRIBUTION:

To be distributed in accordance with Initial Distribution Number (IDN) 311199, requirements for TM 55-1520-240-23-2.

These are the instructions for sending an electronic 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: "Whomever" <whomever@wherever.army.mil>

To: 2028@redstone.army.mil

Subject: DA Form 2028

1. **From:** Joe Smith
2. **Unit:** home
3. **Address:** 4300 Park
4. **City:** Hometown
5. **St:** MO
6. **Zip:** 77777
7. **Date Sent:** 19-OCT-93
8. **Pub no:** 55-2840-229-23
9. **Pub Title:** TM
10. **Publication Date:** 04-JUL-85
11. **Change Number:** 7
12. **Submitter Rank:** MSG
13. **Submitter FName:** Joe
14. **Submitter MName:** T
15. **Submitter LName:** Smith
16. **Submitter Phone:** 123-123-1234
17. **Problem:** 1
18. **Page:** 2
19. **Paragraph:** 3
20. **Line:** 4
21. **NSN:** 5
22. **Reference:** 6
23. **Figure:** 7
24. **Table:** 8
25. **Item:** 9
26. **Total:** 123
27. **Text:**

This is the text for the problem below line 27.

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS <small>For use of this form, see AR 25-30; the proponent agency is ODISC4.</small>	Use Part II (<i>reverse</i>) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM)	DATE <h1 style="text-align: center;">8/30/02</h1>
--	---	--

TO: (<i>Forward to proponent of publication or form</i>)(<i>Include ZIP Code</i>) Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM-MMC-MA-NP Redstone Arsenal, 35898	FROM: (<i>Activity and location</i>)(<i>Include ZIP Code</i>) MSG, Jane Q. Doe 1234 Any Street Nowhere Town, AL 34565
--	--

PART 1 - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER <h2 style="text-align: center;">TM 9-1005-433-24</h2>	DATE <h2 style="text-align: center;">16 Sep 2002</h2>	TITLE Organizational, Direct Support, And General Support Maintenance Manual for Machine Gun, .50 Caliber M3P and M3P Machine Gun Electrical Test Set Used On Avenger Air Defense Weapon System
--	--	---

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON
1	WP0005 PG 3		2			Test or Corrective Action column should identify a different WP number.
<div style="border: 2px solid black; padding: 20px;"> <h1 style="margin: 0;">SAMPLE</h1> </div>						

* Reference to line numbers within the paragraph or subparagraph.

TYPED NAME, GRADE OR TITLE <h2 style="text-align: center;">MSG, Jane Q. Doe, SFC</h2>	TELEPHONE EXCHANGE/ AUTOVON, PLUS EXTENSION <h2 style="text-align: center;">788-1234</h2>	SIGNATURE
--	---	-----------

TO: (Forward direct to addressee listed in publication) Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM-MMC-MA-NP Redstone Arsenal, 35898	FROM: (Activity and location) (Include ZIP Code) MSG, Jane Q. Doe 1234 Any Street Nowhere Town, AL 34565	DATE 8/30/02
---	--	------------------------

PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER			DATE	TITLE				
PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
SAMPLE								

PART III - REMARKS (Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)

TYPED NAME, GRADE OR TITLE MSG, Jane Q. Doe, SFC	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION 788-1234	SIGNATURE
--	---	-----------

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS <small>For use of this form, see AR 25-30; the proponent agency is ODISC4.</small>	Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM)	DATE
--	--	------

TO: (Forward to proponent of publication or form)(Include ZIP Code)	FROM: (Activity and location)(Include ZIP Code)
---	---

PART 1 - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER TM 9-1005-433-24	DATE 16 Sep 2002	TITLE Organizational, Direct Support, And General Support Maintenance Manual for Machine Gun, .50 Caliber M3P and M3P Machine Gun Electrical Test Set Used On Avenger Air Defense Weapon System
--	----------------------------	---

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON

** Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/ AUTOVON, PLUS EXTENSION	SIGNATURE
----------------------------	--	-----------

TO: (Forward direct to addressee listed in publication)	FROM: (Activity and location) (Include ZIP Code)	DATE
--	---	-------------

PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE
---------------------------	-------------	--------------

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III - REMARKS (Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
----------------------------	--	-----------

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 decagram = 10 grams = .35 ounce
 1 hectogram = 10 decagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	To	Multiply by	To change	To	Multiply by
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	C
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