

**TECHNICAL MANUAL**

**AVIATION UNIT AND AVIATION  
INTERMEDIATE MAINTENANCE MANUAL**

**CH-47D HELICOPTER**

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



## 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 those 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 ( $\text{CF}_3\text{Br}$ ) is highly volatile but is not easily detected by smell. It is not toxic, but reduces oxygen available for proper breathing.

If liquid  $\text{CF}_3\text{Br}$  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 501).

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.

When positioning or stowing the cargo hook, do not grasp the hook assembly by the synchronizing assembly shaft. Serious injury can result. The strap handle is to be used when positioning or stowing the hook.

**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 the 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 appropriate maintenance platforms/workstands illustrated in TM 55-405-10, 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

Page No.	*Change No.	Page No.	*Change No.
Title .....	0	E-1 – E-401 .....	0
a through g .....	0	E-402 blank .....	0
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A .....	0	F-2 blank .....	0
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17-4 blank .....	0	J-2 blank .....	0
17-5 – 17-28 .....	0	K-1 .....	0
A-1 – A-4 .....	0	K-2 blank .....	0
B-1 – B-94 .....	0	Glossary-1 – Glossary-7 .	0
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C-2 blank .....	0	Index-1 – Index-153 .....	0
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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, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 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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# **CHAPTER 17**

# **EMERGENCY EQUIPMENT**

## **SECTION I**

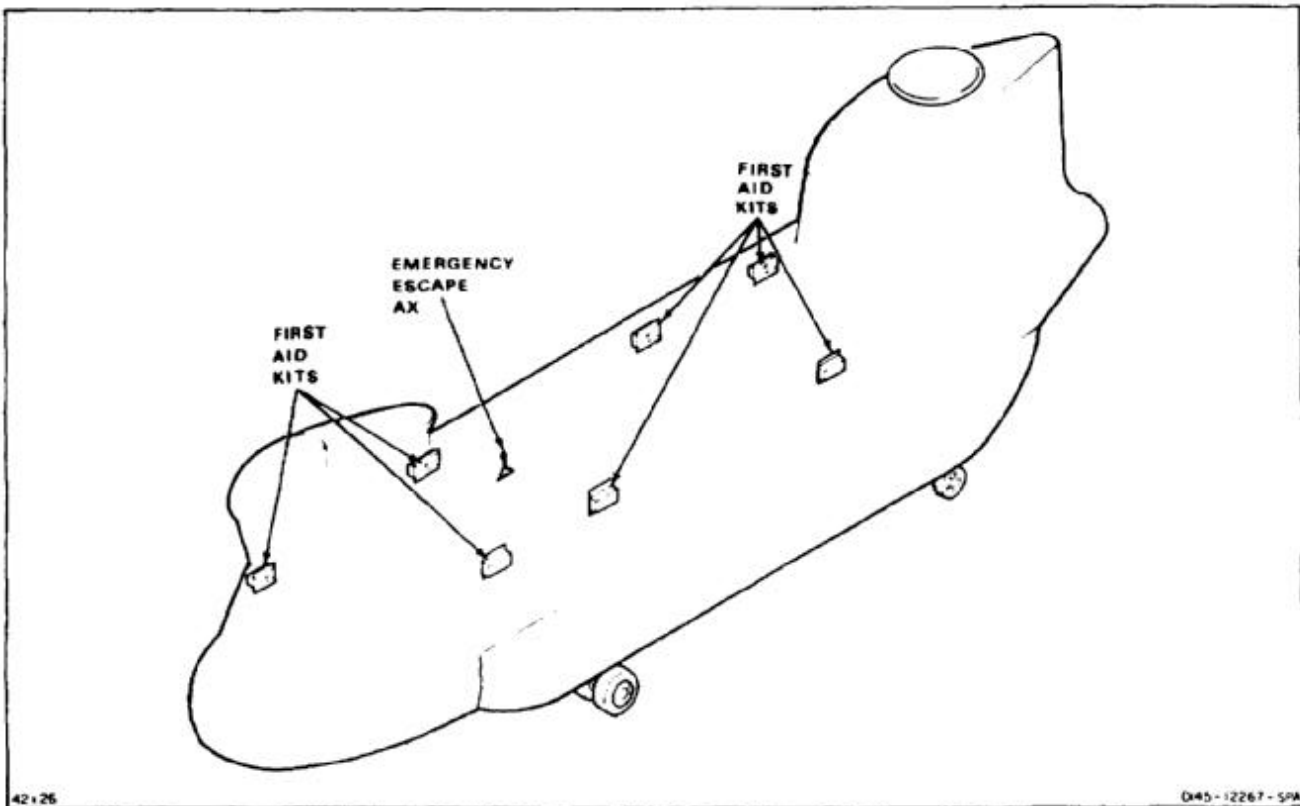
## **EMERGENCY EQUIPMENT DESCRIPTION AND OPERATION**

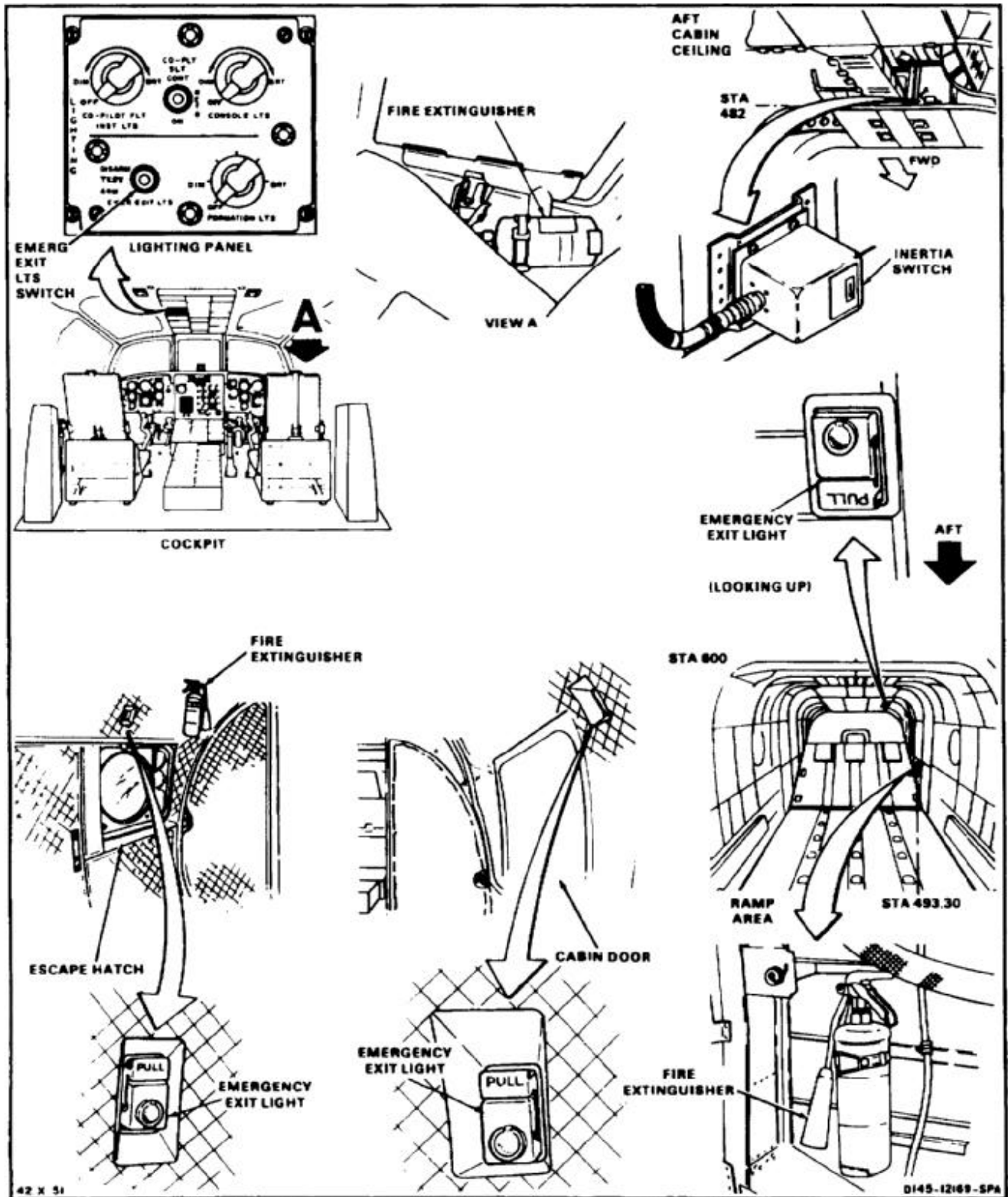
Emergency equipment consists of first aid kits, an ax, portable fire extinguishers, and an emergency exit lighting system.

There are seven first aid kits; one in the passageway and six in the cabin, three on each side. The ax is for emergency escapes. It is located near the cabin door about sta. 200.

There are three portable fire extinguishers; one is mounted on the cockpit floor to the right of pilot's seat, one at the forward end of cabin, and one in the ramp area. For description and operation, refer to TB 5-4200-200-10.

The emergency exit lighting system consists of three lights, an inertia switch, and a control switch on overhead panel. There is an exit light above the ramp, one by the cabin door, and one over cabin escape hatch. These lights can be turned on, off, or charged by operating the switch in the cockpit. The inertia switch will also cause the lights to come on if a hard landing in excess of **3g** occurs. The lights have rechargeable internal batteries so they are portable. The lights can be removed by grasping handle and pulling. When the handle is down, the light is on; when the handle is up the light is off.





END OF TASK





## **SECTION II EMERGENCY EQUIPMENT**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

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

**Materials:**

None

**Personnel Required:**

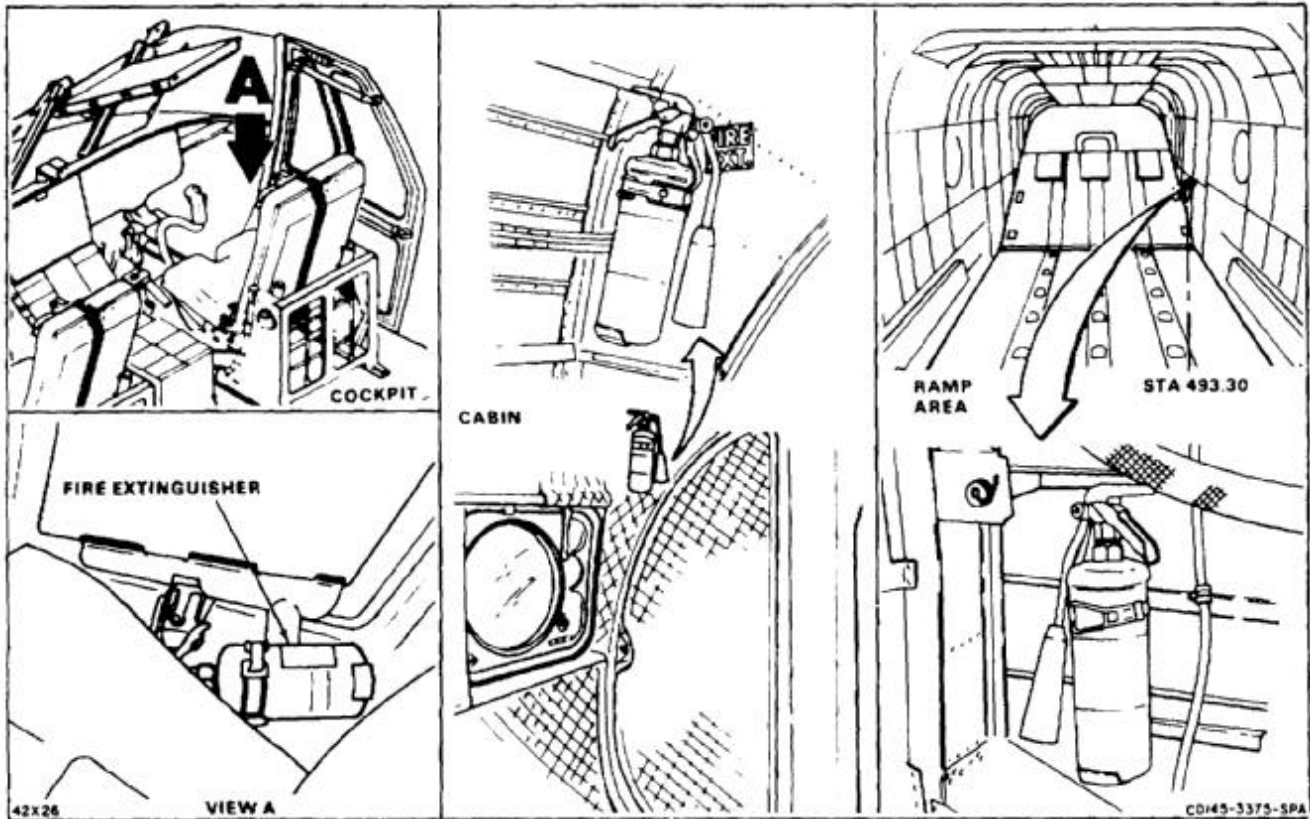
Medium Helicopter Repairer

**Equipment Condition:**

Battery Disconnected (Task 1-39)

Electrical Power Off

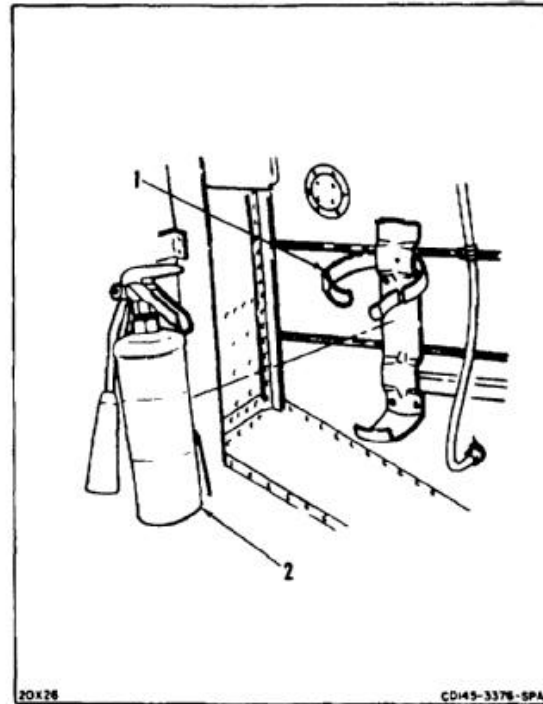
Hydraulic Power Off



**NOTE**

There are three portable extinguishers; one is mounted on cockpit floor to right of pilot's seat, one at left forward end of cabin, and one at left side of ramp area. Procedure is same to remove any extinguisher and bracket. Extinguisher in ramp area is shown here.

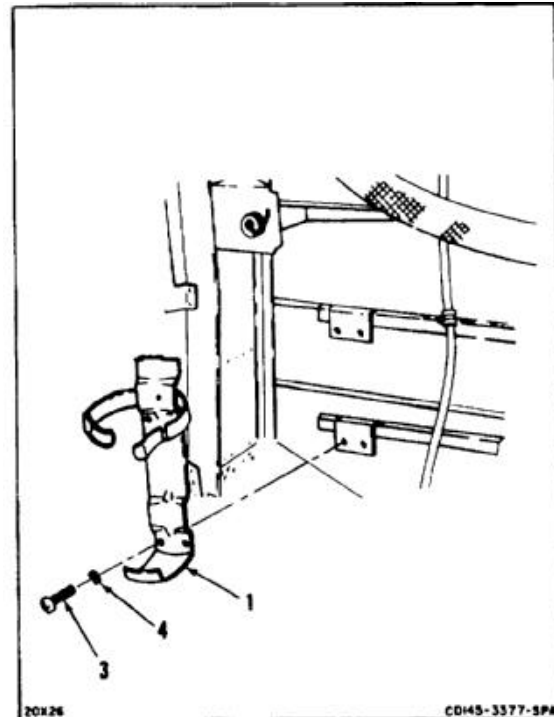
1. Unlock bracket (1) and remove extinguisher (2).



2. Remove four screws (3), washers (4), and bracket (1).

**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:**

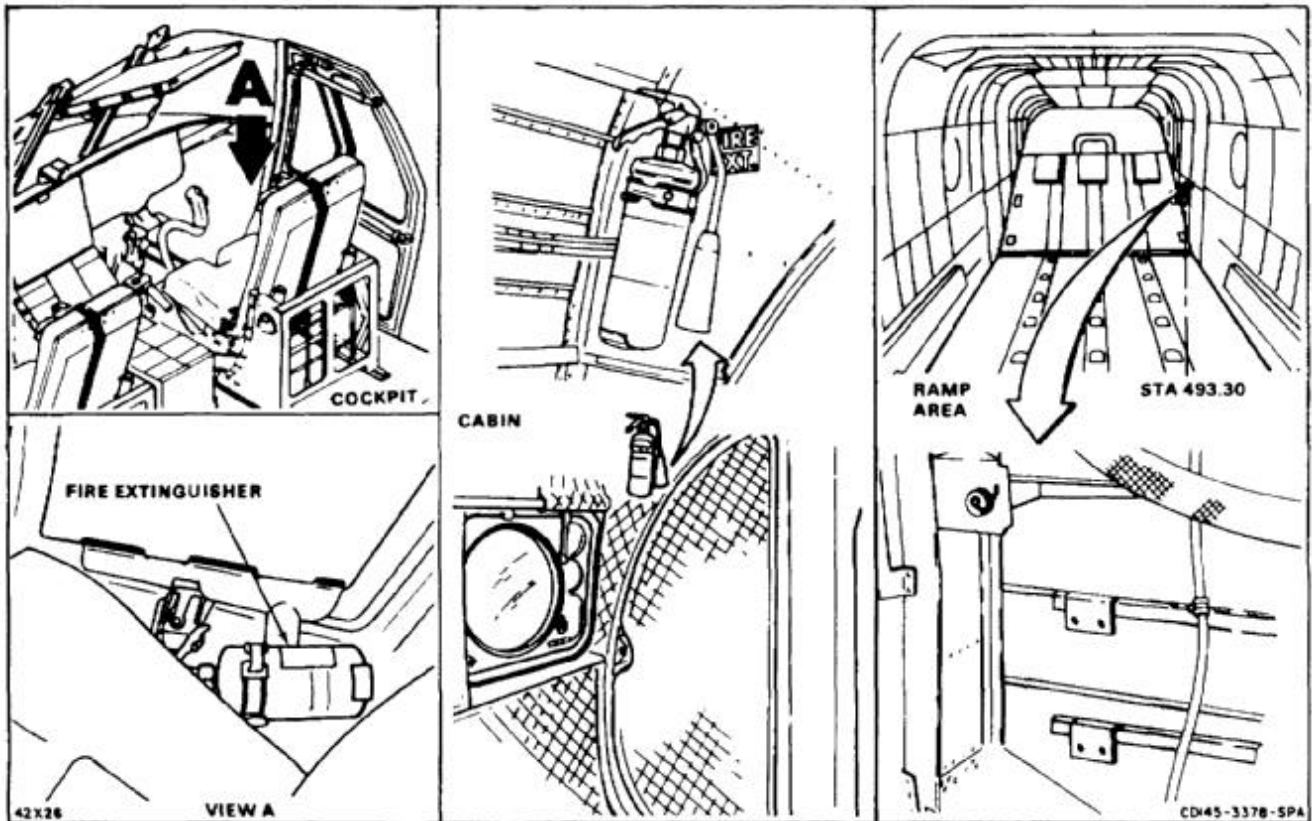
Medium Helicopter Repairer  
Inspector

**References:**

TM 55-1520-240-23P

**Equipment Condition:**

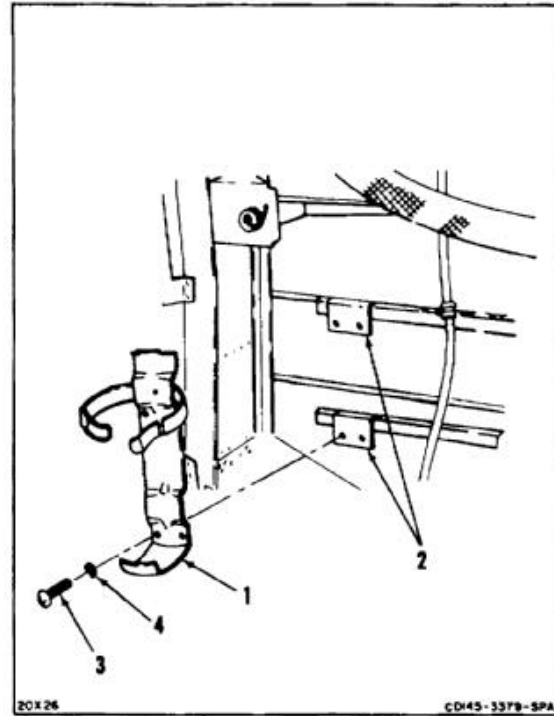
Fire Extinguisher Inspected (TM 1-1500-204-23)



**NOTE**

There are three portable extinguishers; one is mounted on cockpit floor to right of pilot's seat, one at left forward end of cabin, and one at left side of ramp area. Procedure is same to install any extinguisher and bracket. Extinguisher in ramp area is shown here.

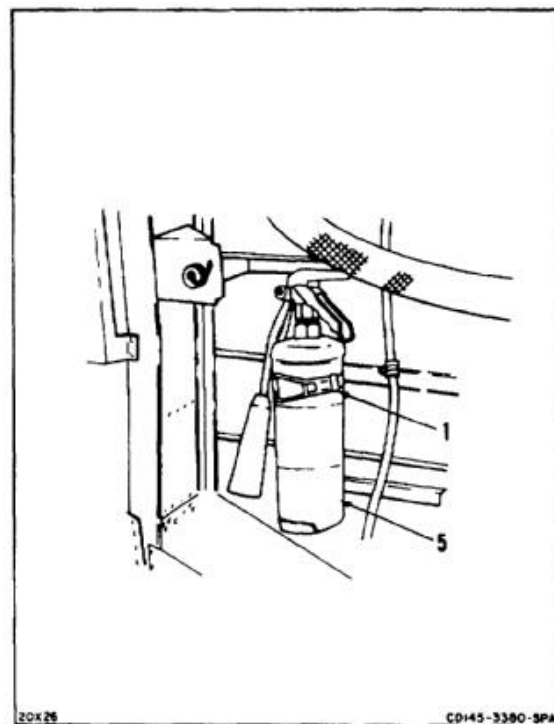
1. Position bracket (1) on structure (2). Align holes and install four screws (3) and washers (4).



2. Position extinguisher (5) in bracket (1) and lock bracket.

**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:**

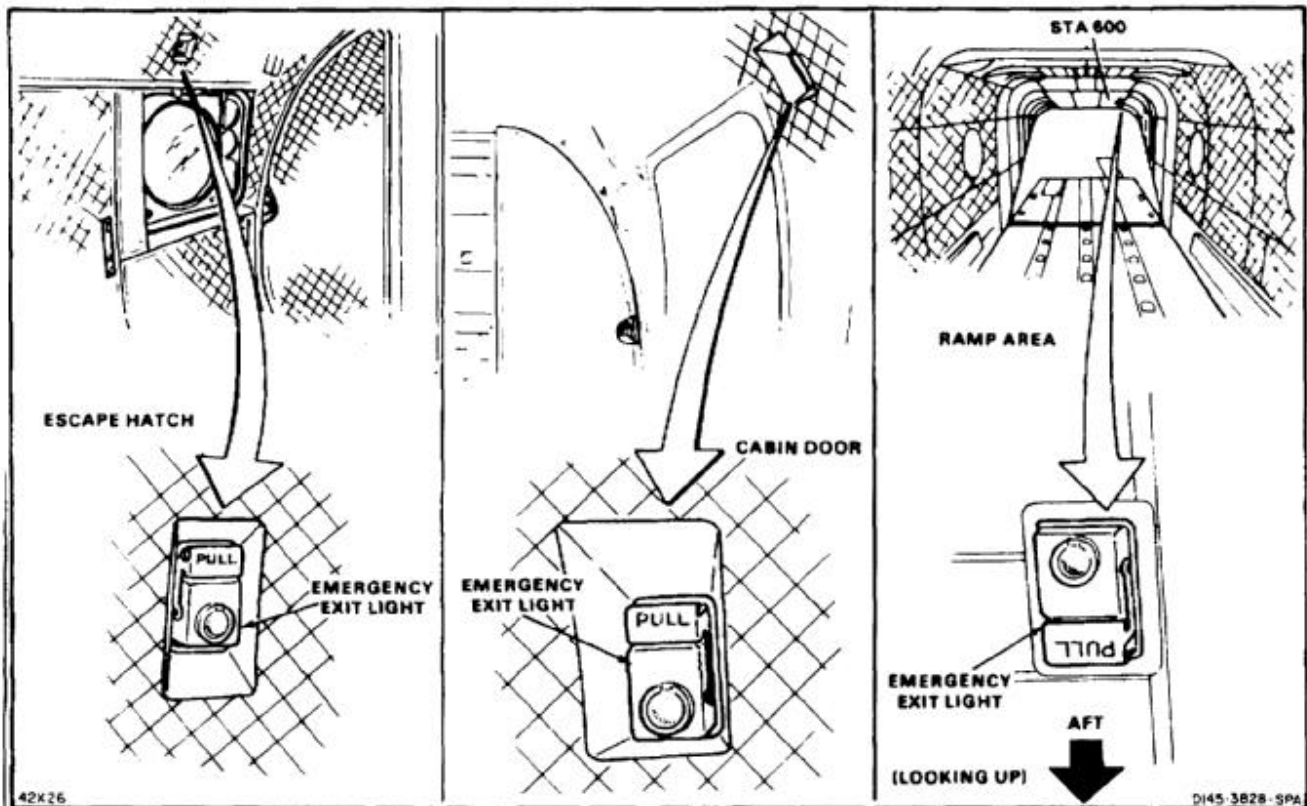
None

**Personnel Required:**

Medium Helicopter Repairer

**Equipment Condition:**

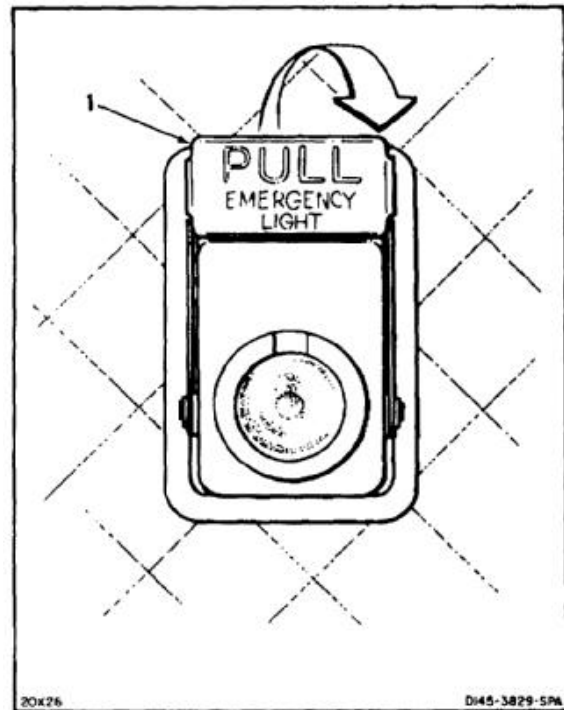
- Battery Disconnected (Task 1-39)
- Electrical Power Off
- EMER EXIT LTS Switch at Disarm
- Cargo Ramp Open and Level (TM 55-1520-240-T) (For Ramp Light)
- Left Ramp Extension Removed (Task 2-238) (For Ramp Light)
- Work Platform Installed in Maximum Left Position (Task 2-244) (For Ramp Light)



**NOTE**

Procedure is same to remove any exit light. Light above escape hatch is shown here.

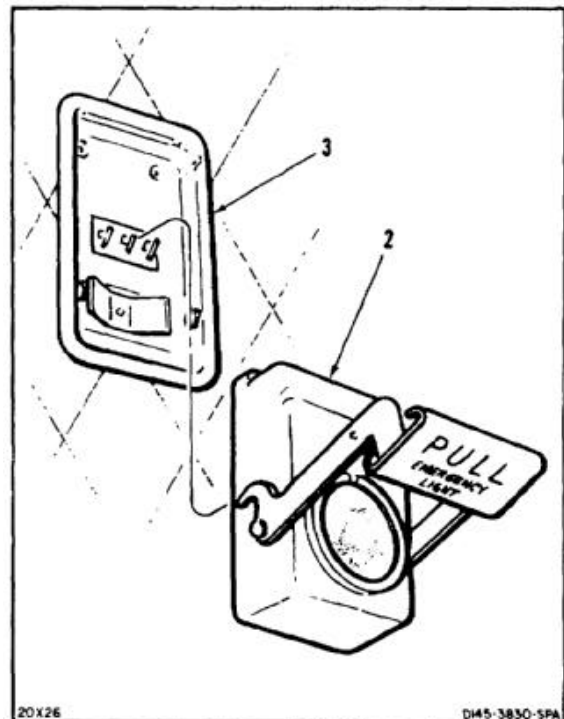
1. Remove lockwire from bar (1) (handle). Pull bar down.



2. Remove light (2) from panel (3).

**FOLLOW-ON MAINTENANCE:**

None



END OF TASK



INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit, NSN 5180-00-323-4915  
Soldering Iron

**Materials:**

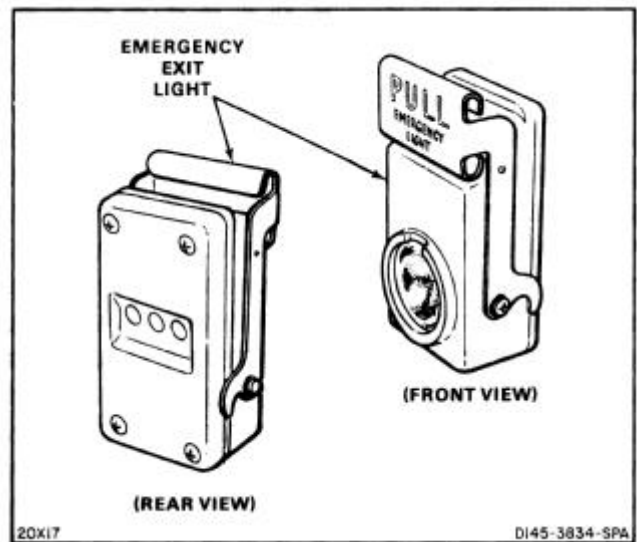
None

**Personnel Required:**

Aircraft Electrician

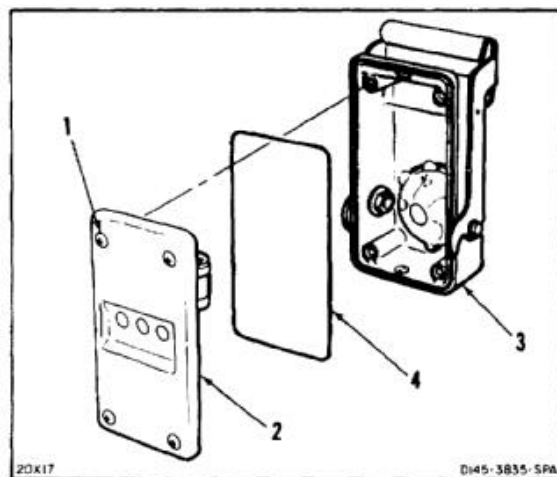
**Equipment Condition:**

Off Helicopter Task



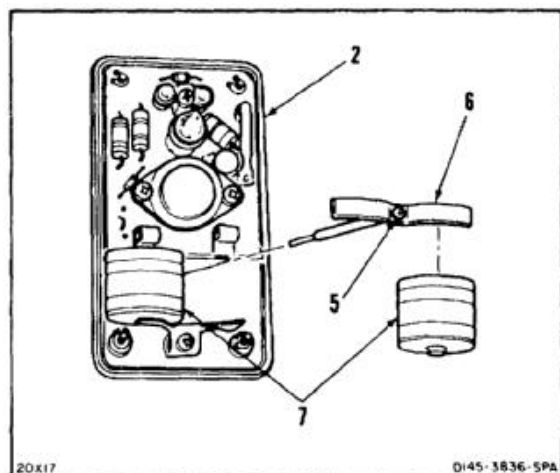
**REMOVE HOUSING**

1. Loosen four screws (1) in back of base (2). Separate base from housing (3).
2. Remove packing (4) from housing (3).



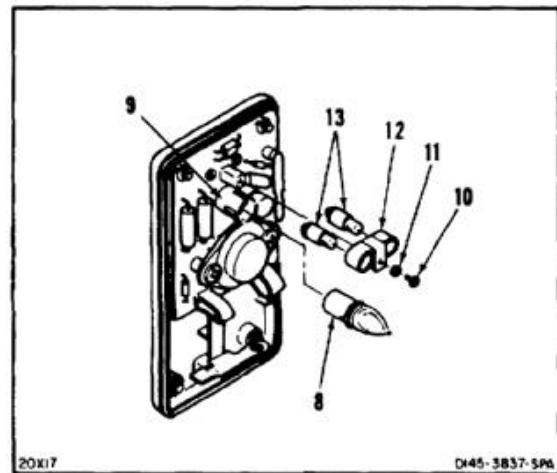
**REMOVE BATTERIES**

3. Remove screw (5) and clamp (6).
4. Remove two batteries (7) from base (2).

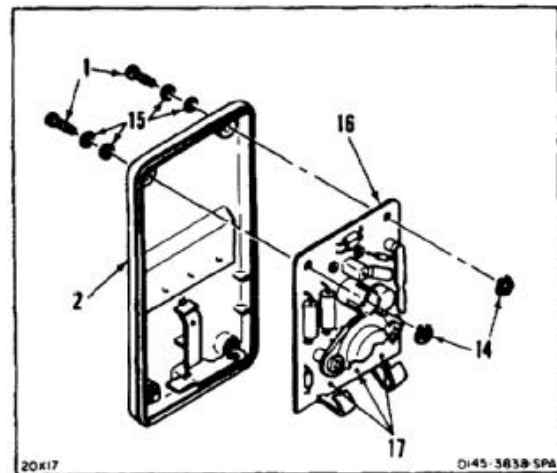


**REMOVE LAMPS**

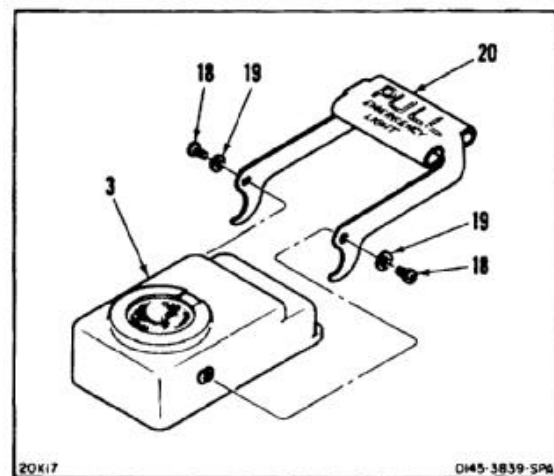
5. Pull main lamp (8) from holder (9).
6. Remove screw (10), washer (11), and holder (12).
7. Push two lamps (13) from holder (12).

**REMOVE CIRCUIT BOARD**

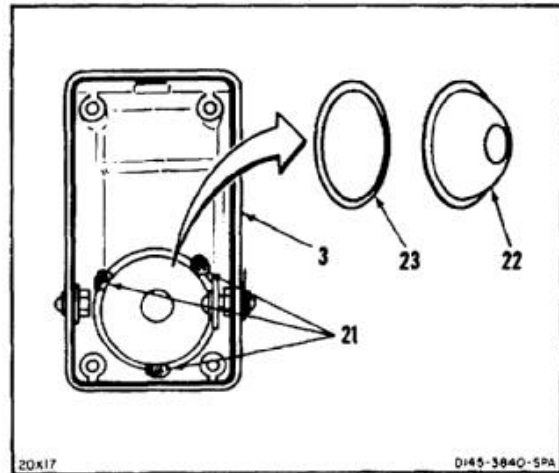
8. Remove two retaining rings (14), screws (1), and four washers (15) from end of circuit board (16) in base (2).
9. Unsolder three contacts (17) and remove circuit board (16) from base (2).

**DISASSEMBLE HOUSING**

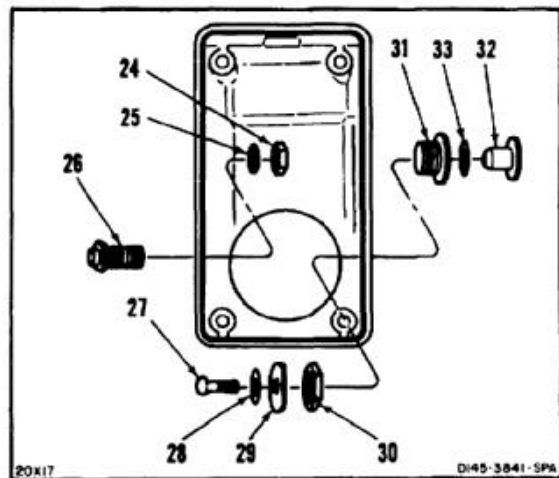
10. Remove two screws (18) and washers (19).
11. Remove bar (handle) (20) from housing (3).



12. Heat three tabs (21) and remove reflector (22).
13. Push lens (23) from housing (3).



14. Remove nut (24), washer (25), and bushing (26).
15. Remove screw (27), washer (28), adapter (29), nut (30), and bushing (31).
16. Remove shaft (32) and packing (33) from bushing (31).



**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit, NSN 5180-00-323-4915  
Soldering Iron

**Materials:**

Adhesive (E33)  
Sealant (E328)  
Solder (E360)

**Personnel Required:**

Aircraft Electrician  
Inspector

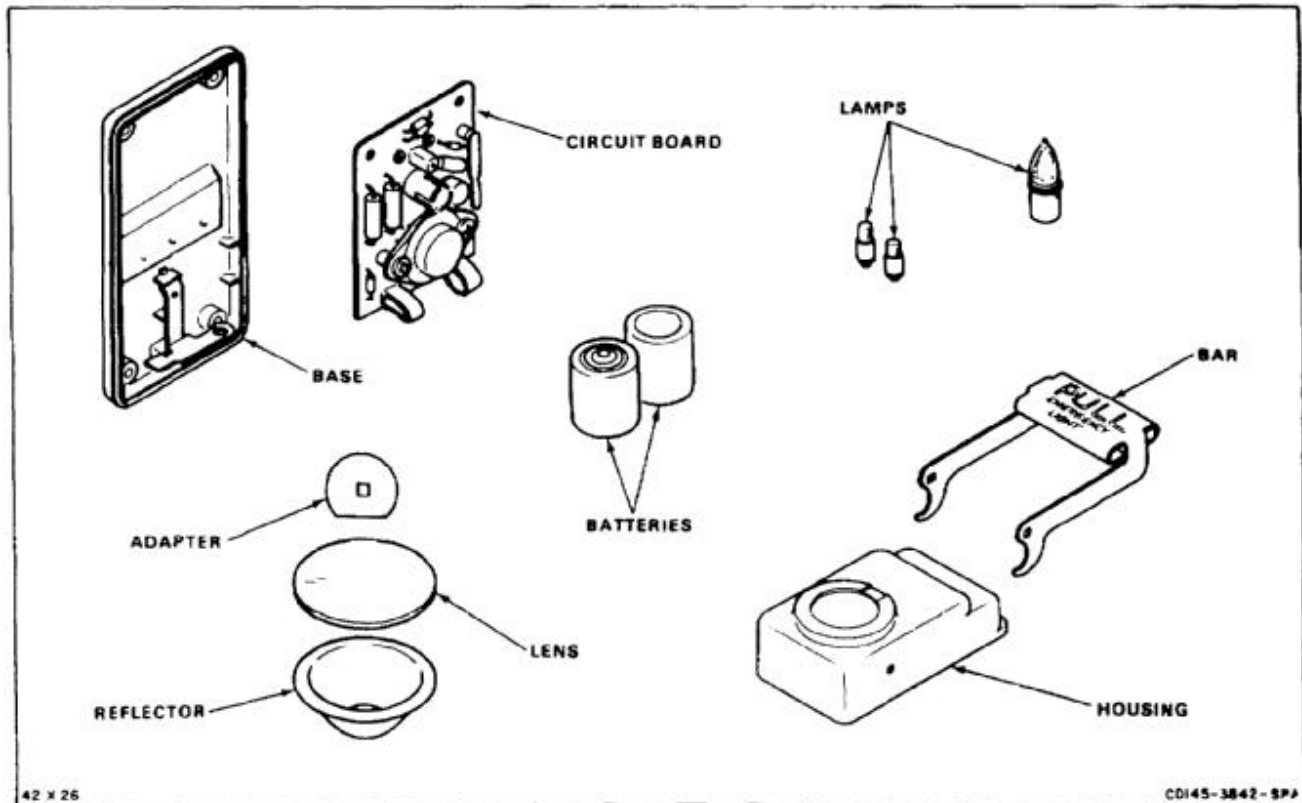
**References:**

TM 55-1520-240-23P

**General Safety Instructions:**

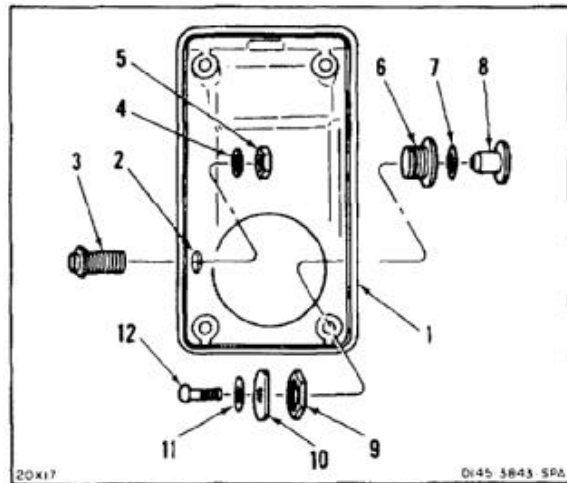
**WARNING**

Adhesive (E33) 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.

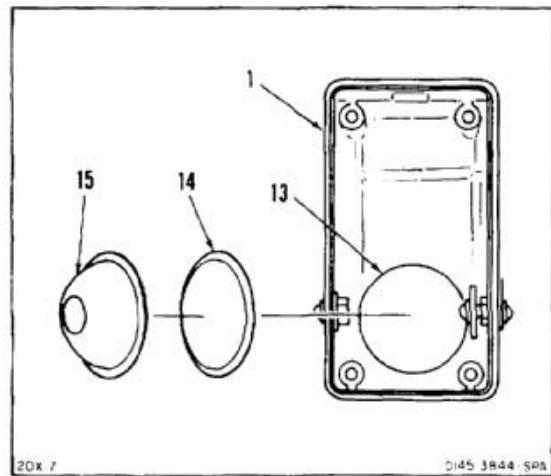


**ASSEMBLE HOUSING**

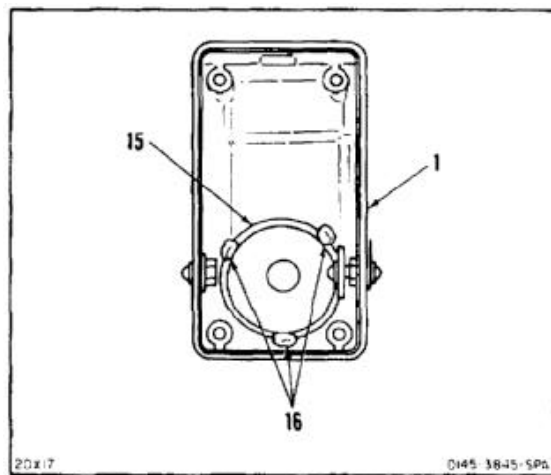
1. Apply small amount of sealant (E328) inside housing (1) around edge of hole (2).
2. Install bushing (3), washer (4), and nut (5).
3. Apply small amount of sealant (E328) under lip of bushing (6).
4. Install packing (7) in bushing (6). Install bushing in housing (1).
5. Slide shaft (8) through bushing (6) and install nut (9), adapter (10), washer (11), and screw (12).



6. Apply adhesive (E33) around edge of lens mounting (13) inside housing (1).
7. Install lens (14), smooth side out.
8. Apply adhesive (E33) around edge of lens (14).
9. Install reflector (15) over lens (14).



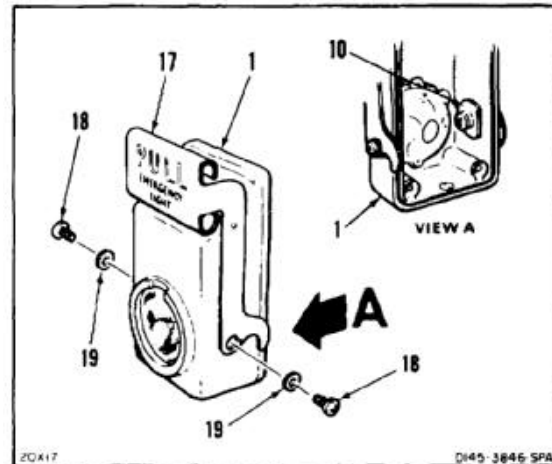
10. Heat three tabs (16) to hold reflector (15) to housing (1).



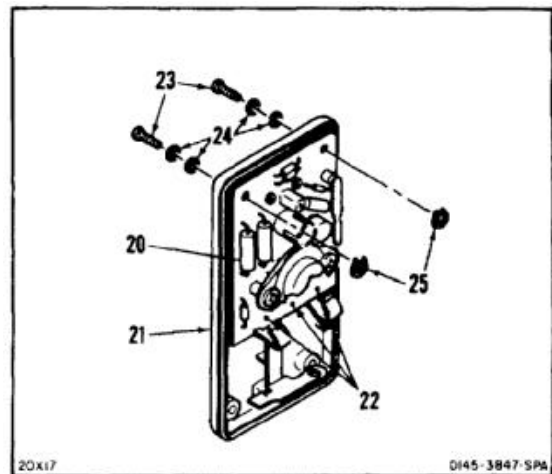
**17-6 ASSEMBLE EMERGENCY EXIT LIGHT (Continued)**

17-6

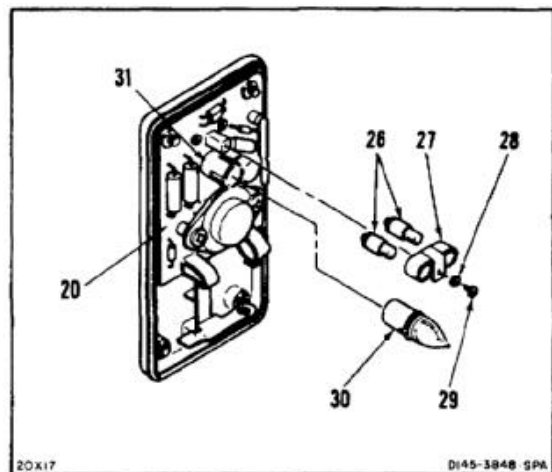
11. Position bar (handle) (17) on housing (1). With bar in closed position, flat side of adapter (10) shall be parallel to edge of housing (1).
12. Install two screws (18) and washers (19).

**INSTALL CIRCUIT BOARD**

13. Position circuit board (20) on base (21). Solder three contacts (22). Use solder (E360).
14. Install two screws (23), four washers (24), and two retaining rings (25).

**INSTALL LAMPS**

15. Install two lamps (26) in holder (27).
16. Install holder (27), washer (28), and screw (29) in circuit board (20).
17. Install main lamp (30) in holder (31).



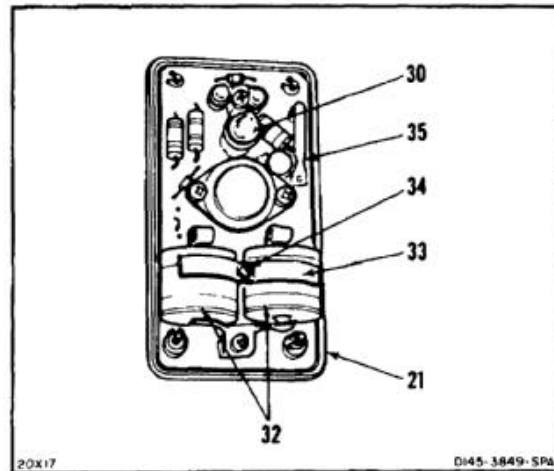
**INSTALL BATTERIES**

**NOTE**

Battery polarity is marked on base.

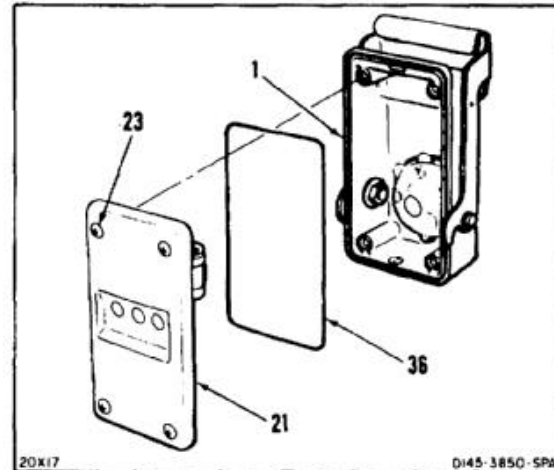
18. Install two batteries (32) in base (21).
19. Position clamp (33) over batteries (32) and tighten screw (34).
20. Push switch (35) to make contact with base (21). Check that main lamp (30) comes on. Release switch.

**INSPECT**



**INSTALL HOUSING**

21. Install packing (36) in housing (1).
22. Position housing (1) on base (21) and tighten four screws (23).



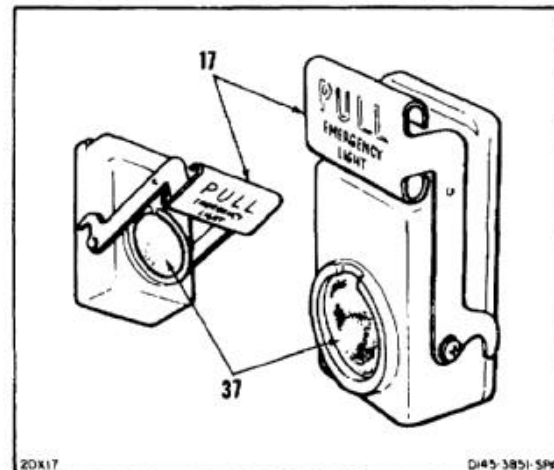
**CHECK LIGHT**

23. Pull bar (17) down. Check light (37). Light shall come on.
24. Close bar (17). Check light (37). Light shall go out.

**INSPECT**

**FOLLOW-ON MAINTENANCE:**

None



END OF TASK

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Power Supply, 28 VDC
- Toggle Switch, MS24523-21
- Exit Light Panel

**Materials:**

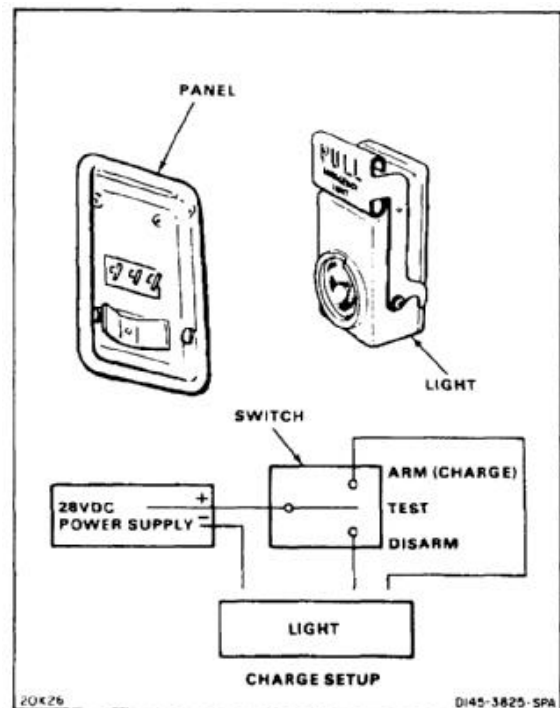
None

**Personnel Required:**

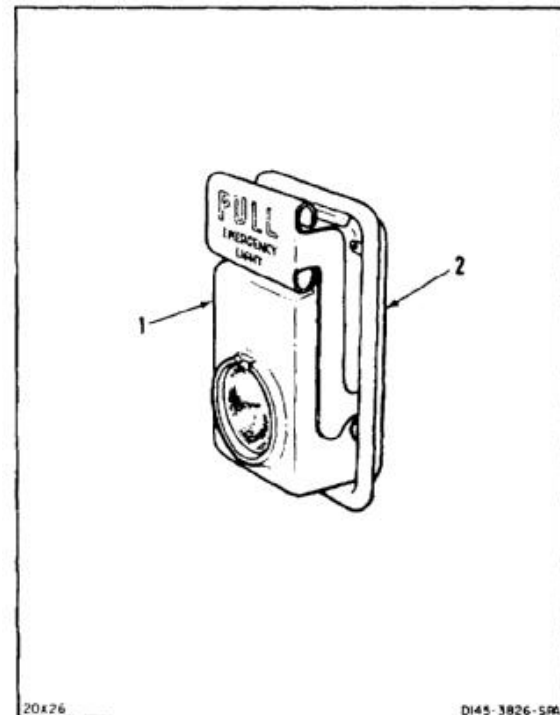
- Aircraft Electrician
- Inspector

**Equipment Condition:**

- Off Helicopter Task
- Charge Setup



1. Install light (1) in panel (2).



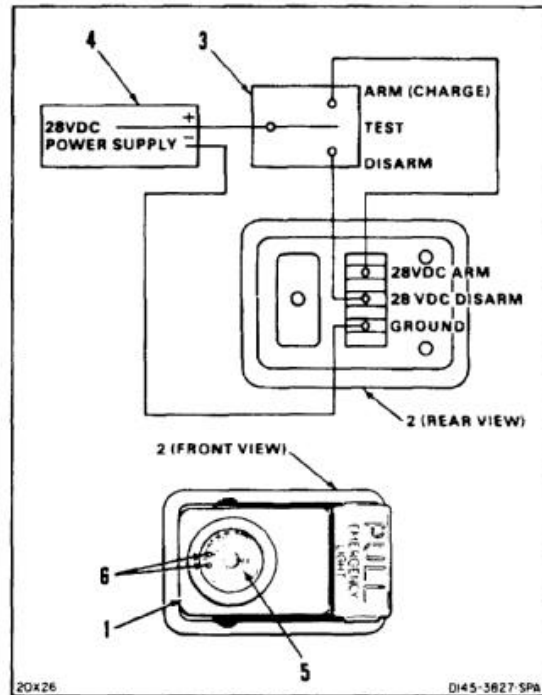


2. Connect panel (2) to switch (3) and power supply (4).

**NOTE**

Two small lamps inside light come on during battery charging. Glow of lamps can be seen through two pinholes in reflector.

3. Set switch (3) to TEST. Turn on power supply (4) and adjust output to **28 vdc**.
4. Check light (1). Main lamp (5) shall be out and pinholes (6) shall not be lit.
5. Set switch (3) to ARM (CHARGE). Pinholes (6) shall be lit. Let light (1) charge for **16 hours**.
6. Set switch (3) to TEST.
7. Check light (1). Main lamp (5) shall come on and pinholes (6) shall go out.
8. Set switch (3) to DISARM.
9. Check light (1). Main lamp (5) shall go out, pinholes (6) shall be lit.
10. Shut down power supply (4). Disconnect panel (2) from switch (3) and power supply.



**INSPECT**

**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:**

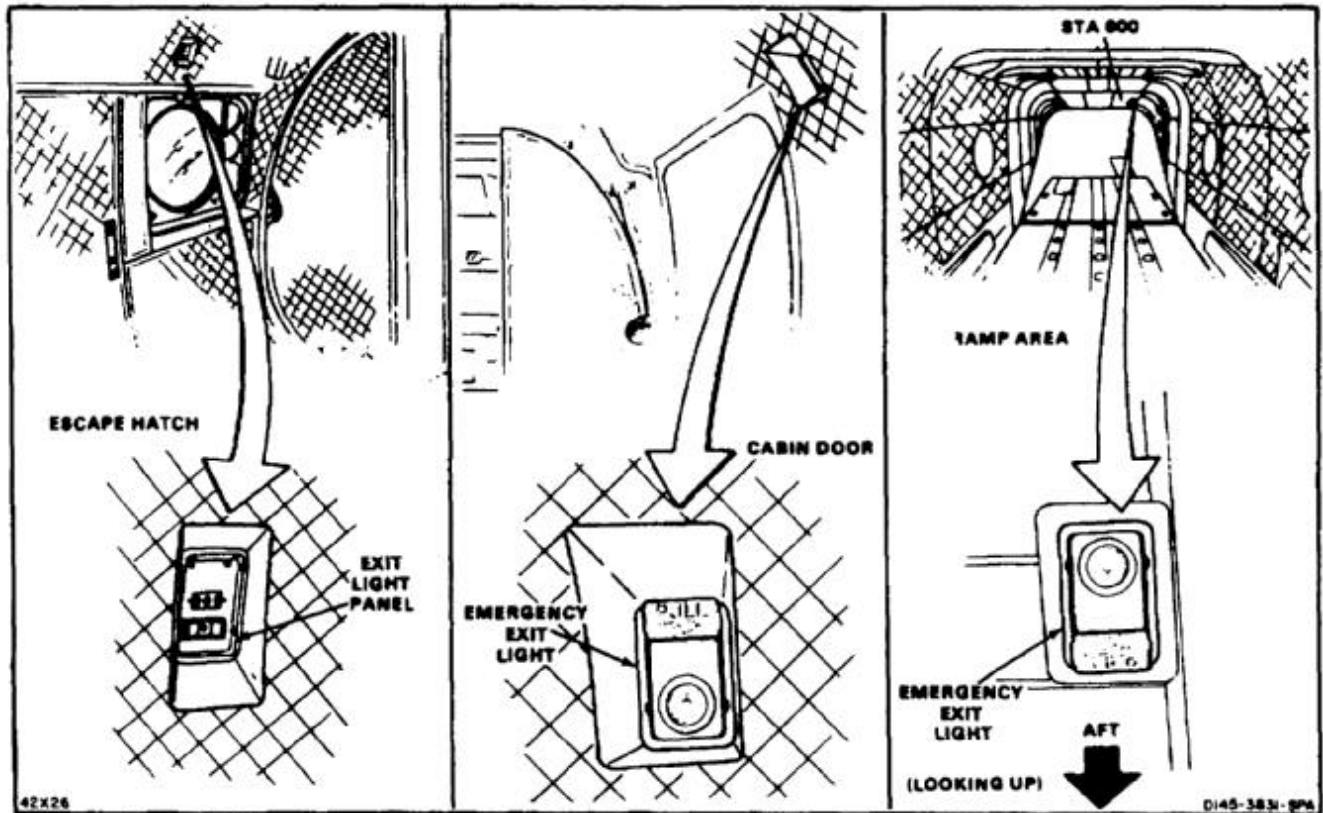
Lockwire (E228)

**Personnel Required:**

Medium Helicopter Repairer  
Inspector

**References:**

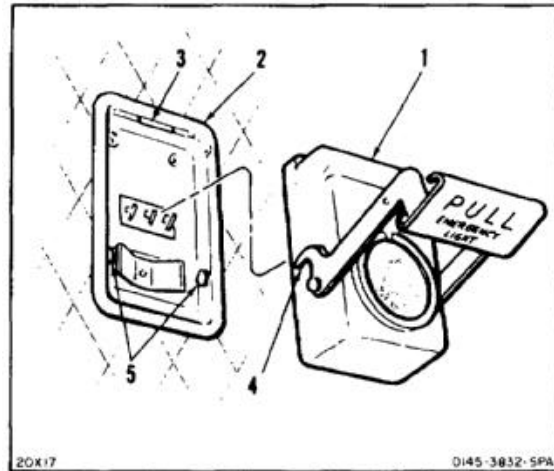
TM 55-1520-240-23P



**NOTE**

Procedure is same to install any exit light. Light above escape hatch is shown here.

1. Position light (1) on panel (2) with light under lip (3) and both latches (4) engaged in pins (5).

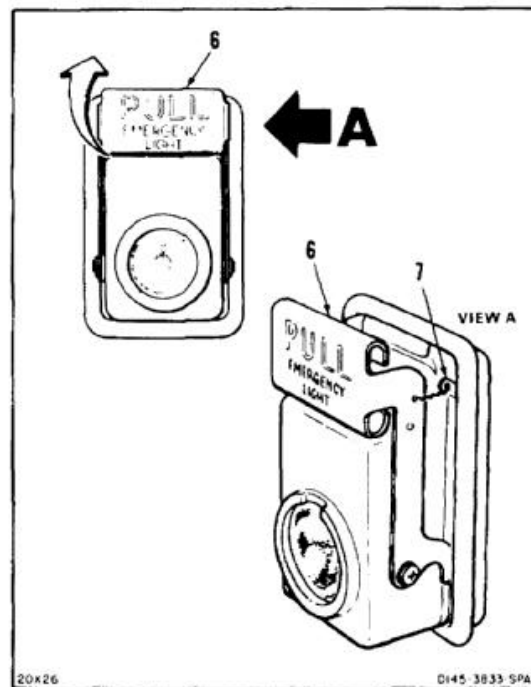


2. Push bar (6) (handle) up.
3. Lockwire bar (6) to tab (7). Use lockwire (E228).

**INSPECT**

**FOLLOW-ON MAINTENANCE:**

- Perform operational check (TM 55-1520-240-T).
- Stow work platform (Task 2-244) (for ramp light).
- Install left ramp extension (Task 2-244) (for ramp light).
- Close cargo ramp (Task 2-2) (for ramp light).



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:**

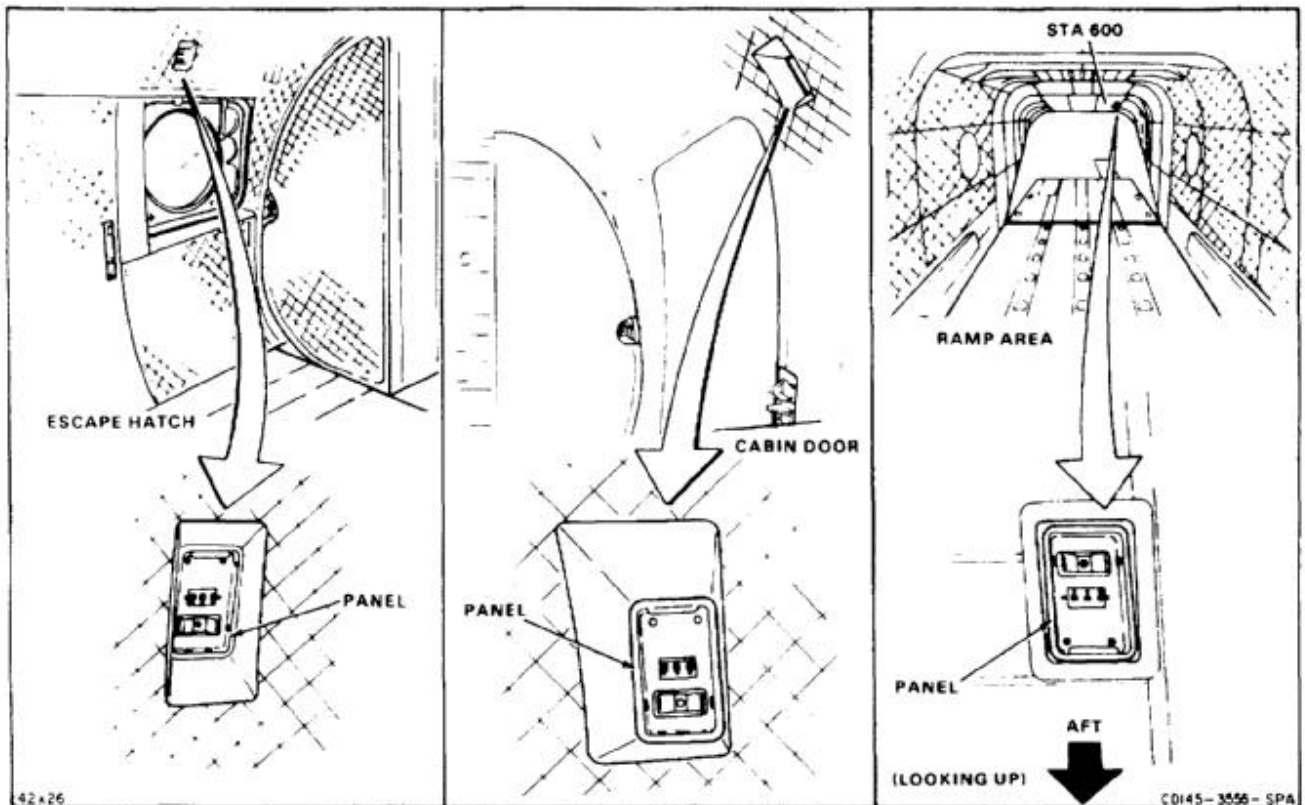
Medium Helicopter Repairer

**References:**

Task 2-208

**Equipment Condition:**

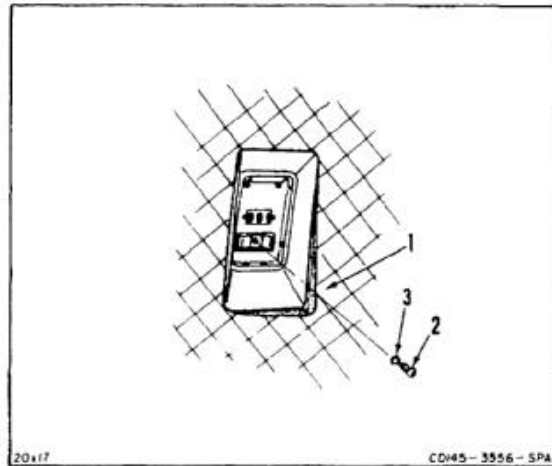
- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Emergency Exit Light Removed (17-4)
- Ramp Open and Level (Task 2-2) (For Ramp Panel)
- Left Ramp Extension Removed (Task 2-238) (For Ramp Panel)
- Work Platform Installed in Maximum Left Position (Task 2-244) (For Ramp Panel)



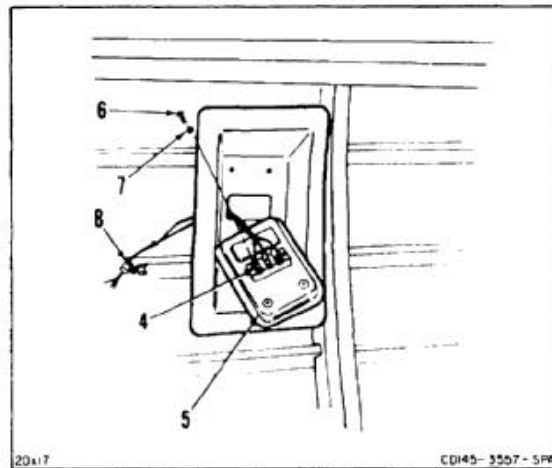
**NOTE**

Procedure is same to remove any exit light panel and pan. Panel and pan above escape hatch are shown here.

1. Remove blankets (1), if needed (Task 2-208).
2. Remove three screws (2) and washers (3).



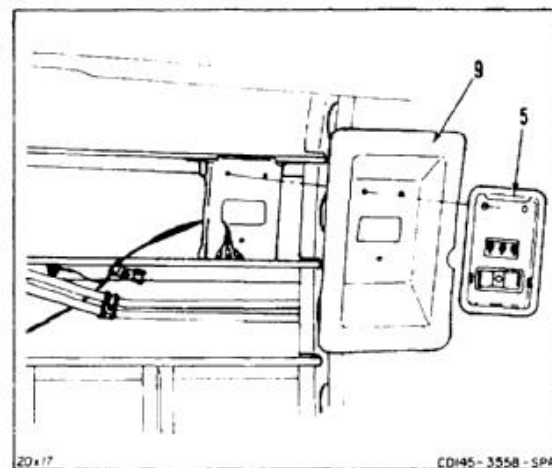
3. Tag (E264) and disconnect three wires (4) from back of panel (5) by removing screws (6) and washers (7). Loosen clamp (8), if needed.



4. Remove panel (5) and pan (9).

**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:**

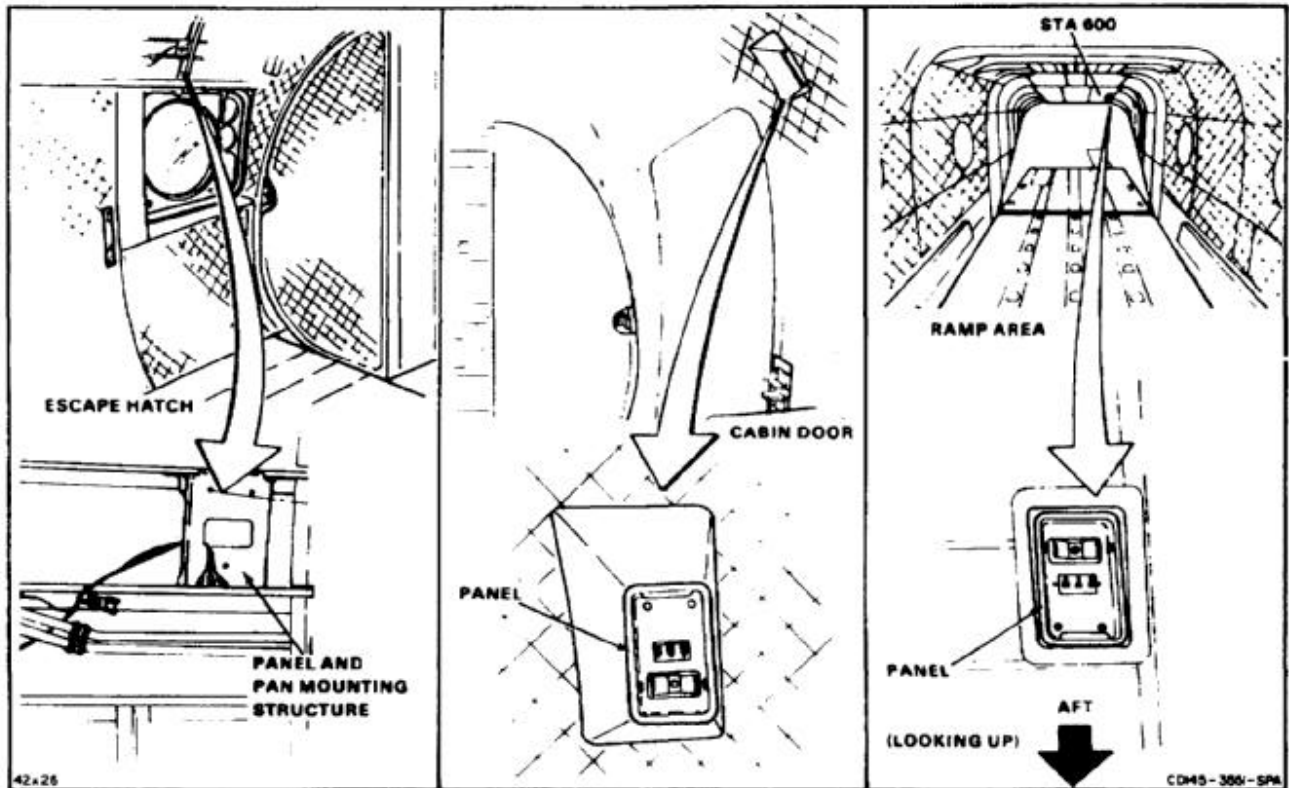
None

**Personnel Required:**

Medium Helicopter Repairer

**References:**

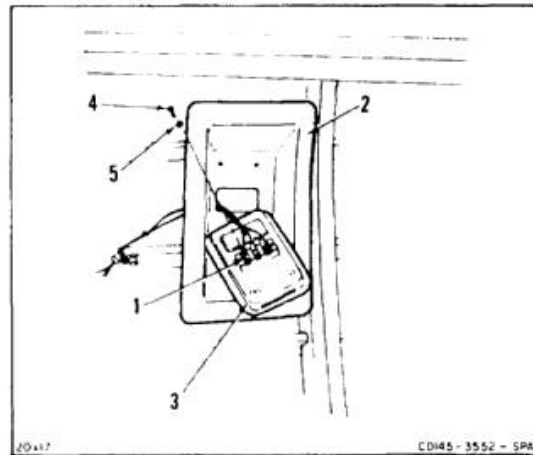
TM 55-1520-240-23P  
Task 2-210



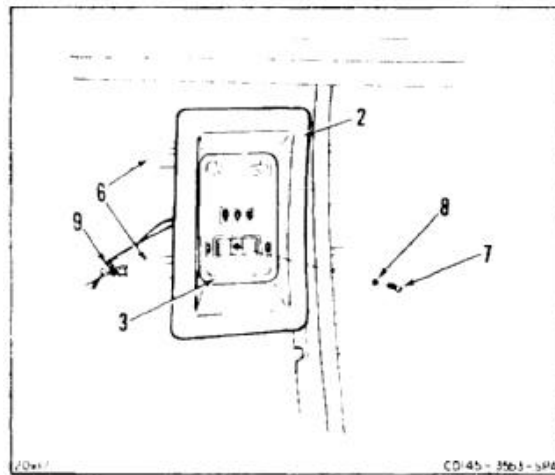
**NOTE**

Procedure is same to install any exit light panel and pan. Panel and pan above escape hatch are shown here.

1. Route wires (1) through pan (2). Connect three wires to back of panel (3) with screws (4) and washers (5). Remove tags.



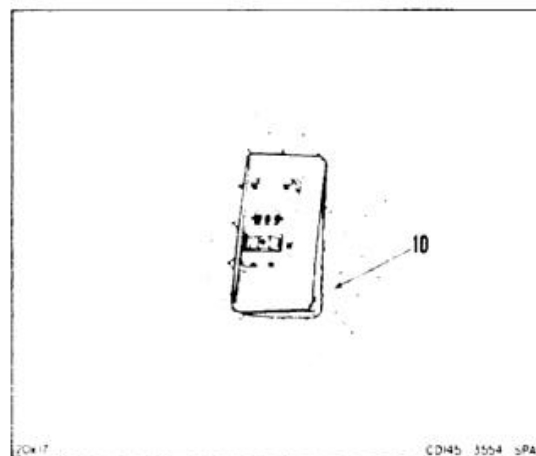
2. Position pan (2) and panel (3) on structure (6). Install three screws (7) and washers (8).
3. Tighten clamp (9), if loosened.



4. Install blankets (10) if removed (Task 2-210).

**FOLLOW-ON MAINTENANCE:**

Install emergency exit light (Task 17-8).  
 Stow work platform (Task 2-244) (for ramp panel).  
 Install left ramp extension (Task 2-244) (for ramp panel).  
 Close ramp (Task 2-2) (for ramp panel).



END OF TASK

**17-11 REMOVE INERTIA SWITCH**

17-11

**INITIAL SETUP****Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit, NSN 5180-00-323-4915

**Materials:**

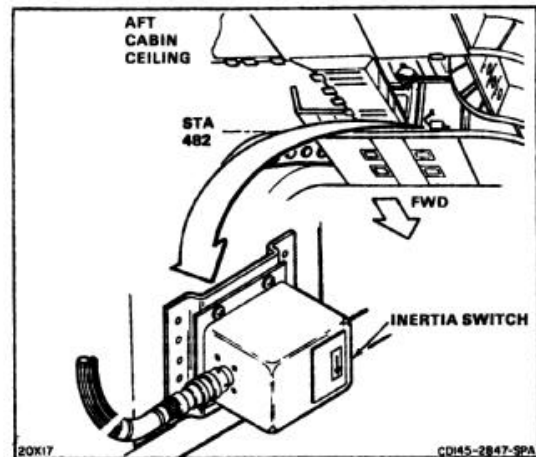
None

**Personnel Required:**

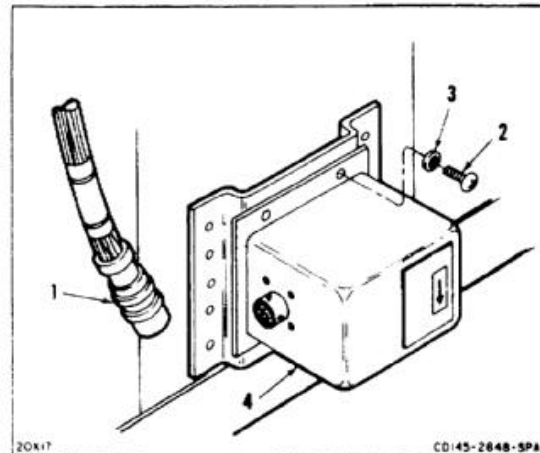
Aircraft Electrician

**Equipment Condition:**

Battery Disconnected (Task 1-39)  
 Electrical Power Off



1. Disconnect connector (1).
2. Remove four screws (2) and washers (3).
3. Remove inertia switch (4).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

17-27



## INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer Tool Kit, NSN 5180-00-323-4915

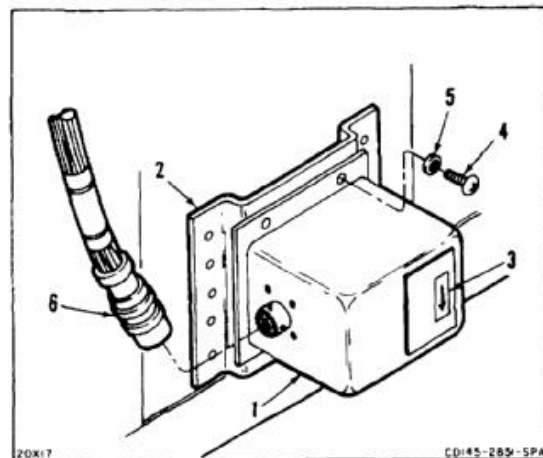
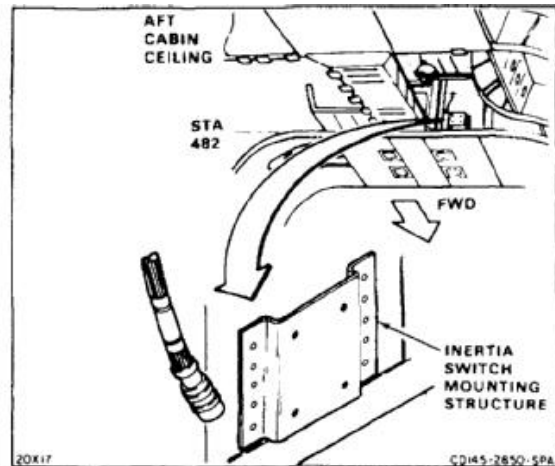
**Materials:**

None

**Personnel Required:**Aircraft Electrician  
Inspector**References:**

TM 55-1520-240-23P

1. Position inertia switch (1) on structure (2) with arrow (3) pointing down.
2. Install four screws (4) and washers (5).
3. Connect connector (6).

**INSPECT****FOLLOW-ON MAINTENANCE:**

Perform operational check (TM 55-1520-240-T).

END OF TASK





## APPENDIX A REFERENCES

AMS 5680	Steel Welding Wire, Corrosion and Heat Resistant
AMSTM-E1417	Liquid Penetrant Examination, Standard Practice For
AR 40-66	Medical Record Administration and Health Care Documentation
DA Form 2408-15	Historical Record for Aircraft
DA Form 2408-17	Aircraft Inventory Record
DA PAM 738-751	Functional Users Manual for the Army Maintenance Management System Aviation (TAMMS-A)
FM 1-202	Environmental Flight
FM 3-5	NBC Decontamination
FM 10-67-1	Concepts and Equipment of Petroleum Operations
FM 21-11	First Aid for Soldiers
FM 1-409	Fundamentals of Aircraft Pneudraulics
FM 10-450-3,-450-4,-450-5	Multiservice Helicopter Sling Load
MIL-A-8625	Anodic Coatings for Aluminum and Aluminum Alloys
MIL-C-53072B	Chemical Agent Resistent Coating (CARC) system application procedures and quality control inspection
MIL-C-5541	Chemical Conversion Coatings on Aluminum and Aluminum Alloys
SAE-AMS-M-3171	Magnesium Alloy, Processes for Pretreatment and Prevention of Corrosion on
ASTM-D-1732	Painting for Magnesium Alloy Surface, Preperation of
MIL-STD-130K	Identification marking of US Military Property
MIL-STD-865	Selective (Brush Plating) Electrodeposition
SAE-AMS-STD-2219	Fusion Welding for Aerspce Applications
SAE-AMS-M-SAE-AMS-QQ-P-416	Plating, Cadmium (Electrodeposited)
PAM 40-501	Program Hearing Conservation
TB 1-1520-240-20-75	Stratopower pumps, CH-47D
TB 43-0106	Army Oil Analysis Program (AOAP)
TB 55-8100-200-24	Maintenance of Specialized Reuseable Containers for Aircraft Equipment
TM 1-6625-724-13P	Test Set, AVA Maintenance manual with RPSTL
TM 1-1500-344-23	Aircraft weapons systems cleaning and corrosion control
TM 1-1520-250-23-1	Aviation Unit and Intermediate Maintenance Manual for General Tiedown and Mooring, All Series Army Models AH-64, UH-60, CH-47, UH-1, AH-1, and CH-58 Helicopters.
TM 1-1520-252-23P	Repair parts and special tools list
TM 1-1520-254-23	Nondestructive Inspection procedures for OH-58 Acft
TM 11-1520-240-23	Aviation Unit and Intermediate Maintenance Manual for Electronic Equipment Configurations of Army Model CH-47D Helicopter
TM 11-5855-300-23&P	Aviation Intermediate Maintenance Manual (Including Repair Parts and Special Tools List): Head Up Display AN/AVS-7, NSN 5855-01-350-0349
TM 11-6140-203-23	Aviation Unit and Intermediate Maintenance Manual for Aircraft Nickel-Cadmium Batteries
TM 11-6625-273-12	Operation and Organizational Maintenance Insulation Breakdown
TM 11-6625-273-35	Field and Depot Maintenance Manual: Test Sets, Insulation Breakdown AN/GSM-6 and AN/GSM-6AS

TM 11-6625-277-14	Operator's, Organizational, Direct Support, and General Support Maintenance Manual: Meter Test Sets TS-682/GSM-1 and TS62AIGSM-1
TM 11-6625-396-12	Operator's and Organizational Maintenance Manual: Stroboscopes
TM 11-6625-2843-14	Operator's, Organizational, Direct Support, and General Support Maintenance Manual for Test Set, Synchro TTU-23/E
TM 11-6625-396-12	Operator's and Organizational Maintenance Manual: Stroboscopes TS-8058/U, TS-805C/U, and TS-805D/U
TM 43-0104	General Use of Rosan Fasteners
TM 43-0139	Painting Instructions for Field Use
TM 1-1500-204-23	General Aircraft Maintenance Manual
TM 1-1500-344-23	Aircraft Weapons Systems Cleaning and Corrosion Control
TM 55-1520-240-10	Operator's Manual for Army CH-47D Helicopter
TM 55-1520-240-23	This is a series of 10 volumes, Aviation Unit and Aviation Intermediate Maintenance Manual for CH-47D Helicopters
TM 55-1500-322-24	Maintenance of Aeronautical Antifriction Bearings for Organizational, Intermediate, and Depot Maintenance Level
TM 55-1500-323-24	Installation practices for Aircraft Electric and Electronic Wiring
TM 1-1500-328-23	Aeronautical Equipment Maintenance Management Policies and Procedures
TM 1-1500-335-23	Nondestructive Inspection Methods
TM 1-1500-343-23	Cleaning and Corrosion Prevention and Control, Avionics
TM 55-1500-344-23	Aircraft Weapons Systems Cleaning and Corrosion Control
TM 55-1500-345-23	Painting and Marking of Army Aircraft
TM 55-1520-240-MTF	Maintenance Test Flight Manual for Army Model CH-47D Helicopter
TM 55-1520-240-PM	CH-47D Helicopter Phased Maintenance Checklist
TM 55-1520-240-PMD	CH-47D Helicopter Preventive Maintenance Daily Inspection Checklist
TM 55-1520-240-T	Aviation Unit and Aviation Intermediate Troubleshooting Manual: CH-47D Helicopter
TM 55-1520-240-23P	Aviation Unit and Intermediate Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools) Helicopter, Cargo Transport CH-47D
TM 55-1520-241-S	Preparation for Shipment of CH-47 Helicopter
TM 55-1730-229-12	Power Unit, Aviation (AGPU)
TM 55-1730-229-34	Power Unit, Aviation, Multi-Output
TM 55-2835-205-23	Aviation Unit and Intermediate Maintenance for Gas Turbine Engine (Auxiliary Power Unit-APU) Model T-62T-2B, Part No. 16050-100
TM 55-2840-254-23	Aviation Unit and Aviation Intermediate Maintenance Manual for Engine, Gas Turbine, Model T55-L-712
TM 55-2840-254-23P	Aviation Unit and Intermediate Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools) for Engine, Gas Turbine, T55-L-712
TM 55-1500-342-23	Army Aviation Maintenance Engineering Manual for Weight and Balance
TM 55-4920-231-14	Tester, Pitot and Static Systems
TM 55-4920-243-15	Operator, Organizational. Direct Support, General Support, and Depot Maintenance Manual: Vibration Monitoring Kit, Part No. 171170-0104
TM 55-4920-335-14	Operator's, Organizational, Direct Support, and General Support Maintenance Manual (Including Illustrated Parts Breakdown): Hydraulic Test Stand Type D5-B, Part No. 674016

## TM 55-1520-240-23-11

- TM 55-4920-373-14 & P Operating Instructions: Organizational, Direct, and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Gasoline Engine Driven Hydraulic Systems Test Stand, Type D5-B
- TM 55-4920-378-14 & P Operator's, Organizational, Direct Support, and General Support Maintenance Manual (Including Repair Parts and Special Tools List), Tester, Pitot and Static System (Mfr. Part No. TPS-2550-1) (Mfr. Part No. TPS 2550-2) (NSN 4920-00-718-6480)
- TM 55-4920-401-13 & P Operator's, Aviation Unit, and Aviation Intermediate Maintenance Manual (Including Repair Parts and Special Tools List): Tester, Exhaust Gas Temperature, BH112BJ-53
- TM 55-4920-402-13 & P Operator's, Aviation Unit, and Aviation Intermediate Maintenance Manual (including Repair Parts and Special Tools List) for Vibrex Balancing Kit, Part No. B4591
- TM 55-4920-428-13 Operator's, Aviation Intermediate Maintenance and Illustrated Parts Breakdown Test Set, Bench, Integrated Lower Control Actuator (ILCA) 145GS278-1 NSN 4920-01-121-0604
- TM 1 2840-265-23 Aviation Unit and Aviation Intermediate Maintenance Manual Engine. Gas Turbine Model T55-GA-714A
- TM 1-2840-265-23P Aviation Unit and Aviation Intermediate Maintenance Repair Parts and Special Tool List (Including Depot Maintenance Repair Parts and Special Tools) Engine, Gas Turbine Model T55-GA-714A
- TM 55-4920-429-13 Operator's, Aviation Unit, and Aviation Intermediate Maintenance and Illustrated Parts Breakdown: Test Set, Line, Advanced Flight Control System 145G0009-1
- TM 55-4920-430-13 Operator's, Aviation Intermediate Maintenance, and Illustrated Parts Breakdown: Test Set, Bench, Advanced Flight Control System (AFCS) 145G0008-1
- TM 740-90-1 Administrative Storage of Equipment
- TM 750-244-1-5 Procedures for the Destruction of Aircraft and Associated Equipment to Prevent Enemy Use

**APPENDIX B**  
**MAINTENANCE ALLOCATION CHART**



## SECTION I

### **B-1. MAINTENANCE ALLOCATION CHART.**

- a. This Maintenance Allocation Chart (MAC) assigns maintenance functions in accordance with the Three Levels of Maintenance concept for Army aviation. These maintenance levels (categories) — Aviation Unit Maintenance (AVUM), Aviation Intermediate Maintenance (AVIM), and Depot Maintenance — are depicted on the MAC as:

AVUM, which corresponds to an O Code in the Repair Parts and Special Tools List (RPSTL)

AVIM, which corresponds to an F Code in the Repair Parts and Special Tools List (RPSTL)

DEPOT, which corresponds to a D Code in the Repair Parts and Special Tools List (RPSTL)

- b. The maintenance to be performed below depot and in the field is described as follows:
- (1) Aviation Unit Maintenance (AVUM). Activities will be staffed and equipped to perform high frequency on-aircraft maintenance tasks required to retain or return aircraft systems to a serviceable condition. The maintenance capability of AVUM will be governed by the Maintenance Allocation Chart (MAC) and limited by the amount and complexity of ground support equipment (GSE), facilities required, authorized manning strength, and critical skills available. The range and quantity of authorized spare modules/components will be consistent with the mobility requirements dictated by the air mobility concept. (Assignments of maintenance tasks to divisional company size aviation units will consider the overall maintenance capability of the division, the requirement to conserve personnel and equipment resources, and air mobility requirements.)
    - (a) Company Size Aviation Units. Perform those tasks which consist primarily of preventive maintenance and maintenance repair and replacement functions associated with sustaining a high level of aircraft operational readiness. Perform maintenance inspections and servicing to include preflight, daily, intermediate, periodic (or phased), and special inspections as authorized by the MAC or higher headquarters. Identify the cause of equipment/system malfunctions using applicable technical manual troubleshooting instructions, built-in-test equipment (BITE), installed aircraft instruments, or test, measurement, and diagnostic equipment (TMDE). Replace worn or damaged modules/components that do not require complex adjustments or system alignment and which can be removed/installed with available skills, tools, and ground support equipment. Perform operational and continuity checks and make minor repairs to the electrical system. Inspect, service and make operational, check capacity and pressure of hydraulic systems. Perform servicing, functional adjustments, and minor repair/replacement to the flight control, propulsion, power train, and fuel systems. Accomplish airframe repair that does not require extensive disassembly, jiggling, or alignment. The manufacture of airframe parts will be limited to those items which can be fabricated with tools and equipment found in current air mobile tool and ship sets. Evacuate unserviceable modules/components and end items beyond the repair capability of AVUM to the supporting AVIM.
    - (b) Less than Company Size Aviation Units. Aviation elements organic to brigade, group, battalion headquarters, and detachment size units are normally small and have less than ten aircraft assigned. Maintenance tasks performed by these units will be those which can be accomplished by the aircraft crew chief or assigned aircraft repairman and will normally be limited to preventive maintenance, inspections, servicing, spot painting, stop drilling, application of nonstress patches, minor adjustments, module/component fault diagnosis, and replacement of selected modules/components. Repair functions will normally be accomplished by the supporting AVIM unit.

- (2) Aviation Intermediate Maintenance (AVIM) provides mobile, responsive One-Stop maintenance support. (Maintenance functions which are not conducive to sustaining air mobility will be assigned to depot maintenance). AVIM may perform all maintenance functions authorized to be done at AVUM. Repair of equipment for return to user will emphasize support or operational readiness requirements. Authorized maintenance includes replacement and repair of modules/components and end items which can be accomplished efficiently with available skills, tools, and equipment. AVIM establishes the Direct Exchange (DX) program for AVUM units by repairing selected items for return to stock when such repairs cannot be accomplished at the AVUM level. The AVIM level inspects, troubleshoots, performs diagnostic tests, repairs, adjusts, calibrates, and aligns aircraft system modules/components. AVIM units will have capability to determine the serviceability of specified modules/components removed prior to the expiration of the Time Between Overhaul (TBO) or finite life. Module/component disassembly and repair will support the DX program and will normally be limited to tasks requiring cleaning and the replacement of seals, fittings, and items of common hardware. Airframe repair and fabrication of parts will be limited to those maintenance tasks which can be performed with available tools and test equipment. Unserviceable repairable modules/components and end items which are beyond the capability of AVIM to repair will be evacuated to Depot Maintenance. AVIM will perform aircraft weight and balance inspections and other special inspections which exceed AVUM capability. AVIM provides quick response maintenance support, including aircraft recovery and air evacuation, on-the-job training, and technical assistance through the use of mobile maintenance contact teams. Maintains authorized operational readiness float aircraft. Provides collection and classification services for serviceable/unserviceable material. Operates a cannibalization activity in accordance with AR 750-1. (The aircraft maintenance company within the maintenance battalion of a division will perform AVIM functions consistent with air mobility requirements and conservation of personnel and equipment resources. Additional intermediate maintenance support will be provided by the supporting nondivisional AVIM unit.)

## SECTION II

### **B-2. USE OF THE MAINTENANCE ALLOCATION CHART.**

#### NOTE

Nomenclatures used throughout the MAC are approved item names. Those terms/nomenclatures expressed in parentheses are generic in nature and are not to be considered as official terminology.

- a. The Maintenance Allocation Chart assigns maintenance functions to the lowest category of maintenance based on past experience and the following considerations:
  - (1) Skills available.
  - (2) Work time required.
  - (3) Tools and test equipment required and/or available.
- b. Only the lowest category of maintenance authorized to perform a maintenance function is indicated. If the lowest maintenance category cannot perform all tasks of any single maintenance function (e.g., test, repair), then the higher maintenance level(s) that can accomplish additional tasks will also be indicated.
- c. A maintenance function assigned to a maintenance category will automatically be authorized to be performed at any higher maintenance category.
- d. A maintenance function that cannot be performed at the assigned category of maintenance for any reason may be evacuated to the next higher maintenance category. Higher maintenance categories will perform the maintenance functions of lower maintenance categories when required or directed by the commander that has the authority to direct such tasking.
- e. The assignment of a maintenance function will not be construed as authorization to carry the related repair parts or spares in stock. Information to requisition or otherwise secure the necessary repair parts will be as specified in the associated Repair Parts and Special Tools List (RPSTL).
- f. Normally there will be no deviation from the assigned level of maintenance. In cases of operational necessity, maintenance functions assigned to a maintenance level may, on a one-time basis and at the request of the lower maintenance level, be specifically authorized by the maintenance officer of the level of maintenance to which the function is assigned. The special tools, equipment, etc., required by the lower level of maintenance to perform this function will be furnished by the maintenance level to which the function is assigned. This transfer of a maintenance function to a lower maintenance level does not relieve the higher maintenance level of the responsibility for the function. The higher level of maintenance has the authority to determine:
  - (1) If the lower level is capable of performing the work.
  - (2) If the lower level will require assistance or technical supervision and on-site inspection.
  - (3) If the authorization will be granted.
- g. Changes to the Maintenance Allocation Chart will be based on continuing evaluation and analysis by responsible technical personnel and on reports received from field activities.

### **B-3. MAINTENANCE FUNCTIONS.**

Maintenance functions will be limited to and defined as follows:

- a. *Inspect.* To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.
- b. *Test.* To verify serviceability by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.
- c. *Service.* Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.
- d. *Adjust.* To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.
- e. *Align.* To adjust specified variable elements of an item to bring about optimum or desired performance.

- f. *Calibrate.* To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
- g. *Install.* The act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.
- h. *Replace.* The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.
- i. *Repair.* the application of maintenance services or other maintenance actions to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.
- j. *Overhaul.* That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
- k. *Rebuild.* Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles. etc.) considered in classifying Army equipments/components.

**B-4. STANDARD GROUPS (COLUMNS 1 AND 2).**

The standard groupings shown in the sample below are used, as applicable, throughout this MAC. Maintenance manuals and RPSTL will reflect these standard groupings as individual chapters, with sections in each chapter relative to the individual complete systems, subsystems, modules, components, assemblies, or specific parts noted.

GROUP NUMBER	DESCRIPTION
01	Aircraft General
02	Airframe System
03	Alighting Gear
04	Powerplant Installation
05	Blades/Rotor Systems
06	Train Systems
07	Hydraulic Systems
08	Instrument Systems
09	Electrical System
10	Fuel System
11	Flight Controls System
12	Utility System
13	Environmental Control System
14	Hoists and Winches
15	Auxiliary Powerplant System
16	Mission Equipment
17	Emergency Equipment

- 1. Service - respect test, service adjust, align calibrate, or replace
- 2. Actions - welding, grinding, riveting, straightening, facing, remachining, or resurfacing

**B-5. MAINTENANCE FUNCTION (COLUMN 3).**

Column 3 lists the functions to be performed on the items listed in column 2.

**B-6. MAINTENANCE CATEGORIES AND WORK TIMES (COLUMN 4).**

The maintenance categories (levels) AVUM, AVIM, and DEPOT are listed on the Maintenance Allocation Chart with individual columns that include the work times for maintenance functions at each maintenance level. Work time presentations such as "0.1" indicate the average time it requires a maintenance level to perform a specified maintenance function. If a work time has not been established, the columnar presentation shall indicate "-.-" Maintenance levels higher than the level of maintenance indicated are authorized to perform the indicated function.

**B-7. TOOLS AND TEST EQUIPMENT (COLUMN 5 AND SECTION III).**

Common tool sets (not individual tools), special tools, test, and support equipment required to perform maintenance functions are listed alphabetically in Section III with a reference number to permit cross-referencing to column 5 in the MAC. In addition, the maintenance category authorized to use the device is listed along with the item National Stock Number (NSN) and, if applicable, the tool number to aid in identifying the tool/device.

**B-8. REMARKS (COLUMN 6 AND SECTION IV).**

Remarks (identified by an alphabetic code in column 6) and other notes (identified by a number in parentheses in the applicable column) are listed in Section IV to provide a ready reference to the definition of the remark/note.

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
00	AIRCRAFT SYSTEM						
01	AIRCRAFT GENERAL						
0101	Aircraft Hoisting			--		T4, T71, 278	
0102	Spot Painting		--				
0103	Cleaning, Fuselage Exterior		--			203, 204, 205, 278	
0104	Servicing, General		--			250, 278	
0105	Parking		--				
0106	Moor		--			T40, 220	
0107	Tow		--			T75, T82, 278	
0108	Jacking		--			278, 279	
0109	Preservation		--			T21, T58, T59, T60, T61, T66, T67, T68, T76, T80, T81, T103, T107, T131, T132, 228, 278	
0110	Weight and Balance			--			
0111	Complete Painting				--		
0112	Subassembly Painting			--		226	
0113	Rosan Fittings and Studs	Replace	--			222, 282,	
				--		222, 237, 242	
02	AIRFRAME						
0201	Cockpit Section	Inspect	--			274	
		Replace		--			
		Repair	--			275, 278	1, 25
				--		275, 278	15, 25, 26
					--		

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
020101	Nose Enclosure	Inspect	--			274	
		Replace			--		
		Repair	--			275, 278	1, 25
020102	Bulkhead Sta. 95	Inspect	--			274	
		Replace			--		
		Repair	--	--		275, 278	15, 25, 26
020103	Frame Sta. 120	Inspect	--			274	
		Replace			--		
		Repair	--			275, 278	1, 25
020104	Frame Sta. 140	Inspect	--			274	
		Replace			--		
		Repair	--	--		275, 278	15, 25, 26
020105	Frame Sta. 160	Inspect	--			274	
		Replace			--		
		Repair	--	--		275, 278	1, 25
020106	Side Panel	Inspect	--			274	
		Replace			--		
		Repair	--			275, 278	1, 25
020107	Crown Panel	Inspect	--			274	
		Replace			--		
		Repair	--	--		275, 278	15, 25, 26

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
020108	Former Sta. 51.75	Inspect	--			274	
		Replace			--		
		Repair	--			275, 278	1, 25
020109	Former Sta. 70.62	Inspect	--			274	
		Replace			--		
		Repair	--	--		275, 278	1, 25
020110	Former Sta. 95	Inspect	--			274	
		Replace			--		
		Repair	--	--		275, 278	15, 25, 26
020111	Former Sta. 120	Inspect	--			274	
		Replace			--		
		Repair	--	--		275, 278	1, 25
020112	Former Sta. 160	Inspect	--			274	
		Replace			--		
		Repair	--	--		275, 278	15, 25, 26
020113	Bottom Panel	Inspect	--			274	
		Replace			--		
		Repair	--	--		275, 278	1, 25
020114	Flooring	Inspect	--			274	
		Replace	--			278	
		Repair	--			275	



MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
020115	Access Doors, Covers, Panels, Jettison Doors and Work Platforms	Inspect	--			274	
		Replace	--			275, 278	1, 25
		Repair	--			275, 278	1, 25
020116	Windshield and Windows	Inspect	--			275, 278	
		Replace	--			274	
		Repair	--			T167, T168, 232, 278	
020117	Formers, Stringer Longerons, Brackets, Angles, Webs	Inspect	--			231, 242, 275, 292, 293	
		Replace	--	--		274	
		Repair	--		--	275, 278	15, 25, 26
020118	Skin, Cockpit	Inspect		--		275, 278	15, 25, 26
		Replace		--		275, 278	15, 25, 26
					--		
020119	Pilot & Copilot Seat & Cushions	Inspect	--				
		Test	--				
		Adjust	--			278	
		Replace	--			278	
		Repair	--				3
020120	Inertia Reel, Harness & Belt	Inspect	--			278	
		Adjust	--			278	
		Replace	--				
020121	Acoustical Insulation	Inspect	--				
		Replace	--			278	
		Repair	--				
020122	Map/Data Case	Inspect	--			278	
		Replace	--				

MAINTENANCE ALLOCATION CHART										
Section II										
NOMENCLATURE OF END ITEMS										
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks			
			AVUM	AVIM	DEPOT					
020123	Self-Tuning Absorber	Inspect	--							
		Test	--			T112				
		Adjust	--			T112, T84				
		Replace	--			259, 278				
020124	Absorber System Test Box (ACFT)	Inspect	--							
		Replace	--			278				
		Repair			--					
0202	Fwd Transmission Fixed Fairing	Inspect	--							
		Replace			--					
		Repair	--			274				
020201	Transmission Support Beams	Inspect	--							
		Replace		--		275, 278	1, 25			
		Repair	--			274				
020202	Transmission Mount Bushing	Inspect	--							
		Replace	--			275, 278				
		Repair		--						
020203	Fwd Transmission Fwd & Aft Fairing	Inspect	--							
		Remove	--			274				
		Repair	--			275, 278				
020204	Work Platforms & Panels	Inspect	--							
		Remove	--			274				
		Repair	--			275, 278				
020205	Bulkheads, Beams & Fittings	Inspect	--							
		Remove			--					
		Repair	--			274				
						275, 278	1, 25			
						--			275, 278	15, 25, 26
								--		

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0203	Cabin Section	Inspect	--				
		Replace			--		
		Repair	--			275, 278	1, 25
020301	Side Panels	Inspect	--				
		Replace			--		
		Repair	--			275, 278	1, 25
020302	Crown Panel	Inspect	--				
		Replace			--		
		Repair	--			275, 278	15, 25, 26
020303	Crown Formers Sta. 180, 220, 260, 300, 380, 420	Inspect	--				
		Replace			--		
		Repair	--			275, 278	1, 25
020304	Skin, Fuselage	Inspect	--				
		Replace			--		
		Repair	--			275, 278	15, 25, 26
020305	Formers Sta. 200, 240, 280, 320, 360, 400	Inspect	--			274	
		Replace			--		
		Repair	--			275, 278	1, 25
					--		
						275, 278	15, 25, 26

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
020306	Walkway	Inspect	--				
		Replace		--		275, 278	15, 25, 26
		Repair	--		--	275, 278	1, 25
				--		275, 278	15, 25, 26
020307	Formers, Stringers, Longerons, Ribs, Brackets, Angles, Webs	Inspect	--			274	
		Replace		--		275, 278	1, 25
		Repair	--		--	275, 278	1, 25
			--	275, 278	15, 25, 26		
020308	Fairings, Panels and Honeycomb Panels	Inspect	--			274	
		Replace	--				
		Repair	--		--	275, 278	1, 25
020309	Fuel Pods	Inspect	--			275, 278	1, 25
		Replace	--			274	
				--		275, 278	1, 25
		Repair	--		--	206, 247	1, 25
020310	Fuel Pods, Composite	Repair	--		--	206, 247	25, 26
					--	275, 303	
020311	Backing Boards and Isolation	Inspect	--			274	
		Replace	--			275	
020312	Cabin Access, Escape, Rescue Door and Actuating Mech	Inspect	--			274	
		Adjust	--			278	
		Replace	--			275, 278	1, 25
		Repair	--			262, 263, 274	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
020313	Cabin Flooring	Inspect	--			274	
		Replace	--			275, 278	1, 25
		Repair	--			275, 278	1, 25
020314	Cargo Tiedown Fittings, 5000-Pound	Inspect	--			274	
		Replace	--			275, 278	
020315	Cargo Tiedown Fittings, 10,000-Pound	Inspect	--			278	
		Replace	--			278	
020316	Water Drain System	Inspect	--			274	
		Replace	--			278	
020317	Windows	Inspect	--			274	
		Replace	--			262, 263	
020318	Seals/Retainers	Inspect	--				
		Replace	--			278,262, 263	
020319	Troop, Troop Commander Seats & Webbing	Inspect	--			274	
		Replace	--			278	
		Repair	--			278	3
020320	Acoustical Insulation and Curtain, Axe Holder, Stowage Bag & Container	Inspect	--			274	
		Replace	--			278	
		Repair	--			278	3
020321	Rescue Door Actuator	Inspect	--				
		Replace	--			278	
0204	Aft Fuselage	Inspect	--			274	
		Replace			--		
		Repair	--			275, 278	1, 25
020401	Support Assy, Combining Transmission (Beam & Support Fittings)	Inspect	--	--		275, 278	15, 25, 26
		Replace			--	274	
		Repair			--		3

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
020402	Beam & Support Bushings	Inspect	--			274	
		Replace		--		275, 278	
020403	Former Sta. 440, 482, 502, 437, 520, 534, 555, 575, 594	Inspect	--			274	
		Replace			--		
		Repair	--			275, 278	1, 25
020404	Aft Fuselage Crown Panel			--		275, 278	15, 25, 26
		Inspect	--			274	
		Replace			--		
020405	Aft Fuselage Side Panels	Repair	--			275, 278	1, 25
				--		275, 278	15, 25, 26
		Inspect	--			274	
020406	Aft Fuselage Bottom Panel	Replace			--		
		Repair	--			275, 278	1, 25
				--		275, 278	15, 25, 26
020407	Formers, Ribs, Longerons Stringers/Beams	Inspect	--			274	
		Replace			--		
		Repair	--			275, 278	1, 25
020408	Access Doors, Panels, Work Platforms			--		275, 278	15, 25, 26
		Inspect	--			274	
		Replace	--			275, 278	1, 25
		Repair	--			275, 278	1, 25
				--		275, 278	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
020409	Cargo Loading Ramp & Ramp Extension	Inspect	--			274	
		Replace	--			275, 278	
		Repair	--			275, 278	1, 25
				--		--	275, 278
020410	Ramp Flooring	Inspect	--			274	
		Replace	--			275, 278	1, 25
		Repair	--			275, 278	1, 25
020411	Cargo Loading Ramp, Composite	Inspect	--				
		Replace			--		
		Repair		--		275, 278	25, 26
020412	Ramp Hinge Fittings	Inspect	--				
		Replace		--		275, 278	
020413	Ramp Door Actuator Mechanism	Inspect	--				
		Service	--				
		Test	--			231, 278	
		Adjust	--			231, 278	
		Replace	--				
		Repair	--			278	
020414	Cargo Door Ramp Seals	Inspect	--				
		Replace	--			275	
020415	Ramp Door Assembly Track and Actuator Mechanism	Inspect	--			274	
		Adjust	--			278	
		Replace	--			278	
		Repair	--			275, 278	1, 25
020416	M-24 Sub System			--		275, 278	
		Inspect	--			274	
		Replace	--			278	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0205	Aft Pylon	Inspect	--			274	
		Replace	--			T17, T16, T32, T54, T55, T55.1 278, 282	
		Repair	--			275	1, 25
020501	Pylon Drain Lines	Inspect	--			275	
		Replace	--			278	
020502	Aft Pylon Fairings, Work Platforms, Panels	Inspect	--			274	
		Replace	--			278	
		Repair	--			275, 278	1, 2
020503	Pylon Fairing Latches	Inspect	--			275, 278	
		Repair	--			278	
020504	Aft Transmission Support Structure	Inspect	--			274	
		Replace	--		--		
		Repair	--			275	1, 25
020505	Aft Rotary Wing Drive Shaft Support Structure	Inspect	--			275	15, 25, 26
		Replace	--		--	274	
		Repair	--			275	1, 25
020506	Formers, Stringers, Longerons, Beams	Inspect	--			275	15, 25, 26
		Replace	--			274	
		Repair	--			275	15, 25, 26
020507	Skin Pylon	Inspect	--			275	
		Replace	--			274	
			--			275	
		Repair	--			274, 275	
			--			274, 275	



MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
020508	Fwd Actuator Support	Inspect	--			274	
		Replace			--		
		Repair	--			278	1, 25
020509	Aft Actuator Support	Inspect	--			278	15, 25, 26
		Replace			--	274	
		Repair	--			278	1, 25
020510	Support Aft Swiveling Actuator	Inspect	--			278	15, 25, 26
		Replace			--	274	
		Repair	--			278	1, 25
020511	Canted Deck	Inspect	--			278	15, 25, 26
		Replace			--	274	
		Repair	--			278	1, 25
0206	Drip Pans (Fiberglass)	Inspect	--			278	
		Replace	--			274	
		Repair	--			278	1, 2
020601	Drip Pans (Aluminum)	Inspect	--			274, 275	
		Replace	--			274, 275	
		Repair	--			274	
0207	Grounding Receptacle (Ferry Fuel)	Inspect	--			278	
		Replace	--				
0208	General						
020801	Hinges	Inspect	--			274	
		Repair			--	275	
020802	Extruded Parts	Inspect	--			274	
		Repair			--	275	
020803	Honeycomb	Inspect	--			274	
		Repair			--	275	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
020804	Skins and Webbing	Inspect	--			274	
		Repair		--		275	
020805	Canvas and Webbing	Inspect	--			274	
		Repair		--		275	
020806	Aluminum Tubing	Inspect	--			274	
		Repair		--		275	
020807	Rubber Seals	Inspect	--	--		274	
		Repair				275	
020809	Minor Damage	Inspect	--			274	
		Repair		--		275	
020810	Partial Damage	Inspect	--			274	
		Repair		--		275	
020811	Complete Damage	Inspect	--			274	
		Repair		--		275	
03	ALIGHTING GEAR						
0301	Shock Struts	Inspect	--			274	
		Service	--			278	
		Replace	--			243, 244, 278, 282	
		Repair		--		243, 244, 278, 282, T108, 221, 237, 242	
		Overhaul			--		
0302	Strut Air Valves	Inspect	--				
		Replace	--			278, 282	
0303	Strut Grease Fittings and Tow Lug	Inspect	--				
		Replace	--			278, 282	
0304	Torque Arm Assembly	Inspect	--				
		Replace	--			278, 282	

**MAINTENANCE ALLOCATION CHART**

**Section II**

**NOMENCLATURE OF END ITEMS**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0305	Wheel and Tire Assemblies	Inspect	--			274	
		Service	--			278	
		Replace	--			230, 278, 282, 309	
		Repair	--			278, 282	
0306	Wheel Bearing	Inspect	--			274	
		Service	--			278	
		Replace	--			278, 282	
030601	Wheel Cups and Keys	Inspect	--				
		Replace	--			278	
0307	Forward and Aft Wheel Brake Disks and Wheel Brake Linings	Inspect	--			274	
		Replace	--			278	
0308	Wheel Brake Units	Inspect	--			274	
		Adjust	--			278	
		Replace	--			278, 282	
		Repair	--			278, 282	
0309	Drag Links	Inspect	--			274	
		Replace	--			245, 278, 282, 295	
		Repair		--		229, 237	
0310	Static Lock Mechanism	Inspect	--				
		Replace	--			278, 282	
0311	Power Steering Lever	Inspect	--				
		Replace	--			278	
0312	Forward and Aft Landing Gear Axle	Inspect	--				
		Replace	--			278, 282	
0313	Spindle and Swivel Housing Assembly	Inspect	--			278	
		Test	--				
		Replace	--			245, 278, 282	
		Repair	--		--	278, 282 T94, T97, 237, 242, 245, 278	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0314	Swivel Lacks and Springs	Inspect	--				
		Replace	--			278	
0315	Static Ground Wire	Inspect	--				
		Replace	--			278	
0316	Proximity Switch	Inspect	--			278	
		Adjust	--			278	
		Replace	--			278, 282	
031601	Proximity Switch Bracket	Inspect	--				
		Repair	--				
		Replace		--		T89	
		Replace		--		278, 282	
04	POWERPLANT INSTALLATION						
0401	Demountable Powerplant	Inspect	--			278	
		Assembly	--			272, 278	7
		Test	--			272, 282	5
		Adjust	--			272	
		Replace	--			T16, T134, 258, 278, 282	
				Repair	--		
040101	Fuel Boost Pump	Depreserve	--			317	
		Inspect	--				
		Replace	--			272, 282	
040102	Fuel Flow Divider	Inspect	--				
		Replace	--			272	
040103	Engine Accessory Gearbox Chip Detector	Inspect	--				
		Replace	--			272	
040104	Starter Drive Shaft Seal	Inspect	--				
		Replace	--			272	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
040105	Starter Drive Housing	Inspect	--				
		Replace	--			272	
040106	Oil Pump	Inspect	--				
		Replace	--			272, 282	
040107	Oil Cooler	Inspect	--				
		Replace	--			272	
040108	Oil Filler Strainer Element	Inspect	--				
		Replace	--			272	
040109	Oil Filler	Inspect	--				
		Replace	--			272	
040110	Ignition Switch	Inspect	--				
		Replace	--			277, 282	
040111	Inline Fuel Filter	Inspect	--				
		Replace	--			272	
040112	Interstage Air Bleed Band	Inspect	--				
		Replace	--			272	
040113	Air Bleed Band Actuator	Inspect	--				
		Replace	--			272	
0402	Engine Access Cover	Inspect	--				
		Adjust	--			278	
		Replace	--			278	
		Repair	--			278	1, 2
040201	Cover Support Strut	Inspect	--			275	
		Replace	--			278	
0403	Engine Lower Access Door	Inspect	--				
		Replace	--			278	
		Repair	--			278	
				--		275	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0404	Engine Mount Drag Strut, Support Cap and Adapter	Inspect	--			274, 282	
		Replace	--			T134, 272, 278, 282, T109, 237	
		Repair	--			278, 282	
0405	Air Inlet and Bypass Screens	Adjust	--			275	
		Clean	--				
		Inspect	--				
		Replace	--			278	
		Repair	--				
					--		
040501	Screen Latch Assemblies, Cushions, Fasteners	Inspect	--				
		Replace	--			275	
0406	Air Inlet Fairing/Engine Cowling	Inspect	--				
		Adjust	--			275, 282	
		Repair	--				
0407	Tailpipe				--		
		Replace	--			278, 282	
		Inspect	--				
		Replace	--			278, 282	
0408	Fireshield Former Assembly	Repair	--			241	
					--	275, 291.1	
		Inspect	--				
		Adjust	--			278, 282	
0409	Control Linkages and Rods (N1 and N2)	Replace	--			272	
		Repair	--			275	
		Inspect	--				27
		Adjust	--			272, 282	
		Replace	--			T122, 272, 282	
		Repair	--			272, 282	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0410	Gas Producer Control Actuator (N1 or N2)	Inspect	--			272	27
		Replace	--			272, 282 T115	
		Overhaul			--		
0411	Turbine Control Actuator (N2 or N1)	Inspect	--				27
		Replace	--			T115, 272, 282	
		Overhaul			--		
0412	Engine Condition Control Assembly	Inspect	--			282	
		Replace	--			277	
		Overhaul			--		
041201	Condition Control Panel	Inspect	--				
		Replace	--			277	
041202	Actuator Control Bracket	Inspect	--				
		Replace	--			272, 282	27
0413	Engine Condition Control Resistor (N2)	Inspect	--				
		Adjust	--			272, 282,	27
		Replace	--			277, 282	
0414	Remote Positioning Control Box (N2)	Inspect	--				
		Replace	--			277	27
		Overhaul			--		
0415	Control Box (N1)	Inspect	--				27
		Replace	--			T115, 277	
		Overhaul			--		
0416	Engine Condition Relay and Emergency Trim Relay	Inspect	--				
		Replace	--			277	27
0417	Electrical Harness	Inspect	--				
		Replace	--			272	27, 28
		Repair	--			249 277	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
041701	PTIT Wire Harness	Replace	--			272	27, 28
041702	Engine Harness	Inspect	--			311, 312	27, 28
		Repair	--				
0418	Deleted						
0419	Deleted						
0420	Droop Eliminator Variable Resistors	Inspect	--				27
		Adjust	--			T122, T133, 277, 282, T122, 277,	
		Replace	--			282	
		Repair	--			277, 282	
0421	Fuel/Oil Lines	Inspect	--				
		Replace	--			278, 282	
0422	Engine Water Wash System	Inspect	--				
		Replace	--			272	28
		Remove	--			272	
		Install	--			T185	
		Service	--			278	
0423	Water Wash Manifold	Remove	--				
		Install	--			278	28
0424	No. 1 and No. 2 Electronic Control Unit	Inspect	--			186, 268	28
		Replace	--			314	
		Test	--				
0425	Thrust Control Position Transducer Assembly	Inspect	--				
		Remove	--				28
		Install	--			268	
		Adjust	--			T187	
0426	FADEC Control Panel	Inspect	--				
		Remove	--				



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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
<b>NOTE</b> Refer to TM 1-2840-265-23 for other maintenance functions for T55-GA-714A engines.							
<b>NOTE</b> Refer to TM 55-2840-254-23 for other maintenance functions for T55-L-712 engines.							
05	BLADES/ROTOR SYSTEMS						
0501	Blade	Inspect	--				
		Adjust	--			T65	
		Clean	--			T19, T35	
		Replace	--			T47, T48, T70, T77, T79, T85, T86, 264, 278, 282	
		Repair	--	--		264, 304	
050101	Blade Trailing Edge	Inspect	--				
		Repair	--			T116, 242, 275	
050102	Blade Tip Cap	Inspect	--				
		Replace	--			278, 282	
		Repair	--				
050103	Blade Leading Edge Erosion Strip	Inspect	--				
		Replace		--		T69, 242, 275	
		Repair	--			T69	
050104	Blade Leading Edge Nose Cap	Inspect	--				
		Replace			--		
		Repair	--			275	
		Repair		--		T19, 275	
050105	Blade Fairing	Inspect	--				
		Repair	--			275, 304	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
050106	Trim Tab	Inspect	--				
		Adjust			--		
		Replace			--		
050107	Lag Damper Bracket	Repair	--			275	
		Inspect	--				
		Replace			--		
050107	Lag Damper Bracket Bushings	Repair	--			275	
		Inspect	--			T98	
		Replace	--			278	
050108	Rib Closure Inboard and Outboard	Inspect	--				
		Repair	--	--		275	
				--		242, 275	
050109	Lightning Protection Jumper Wire	Inspect	--				
		Replace	--			275, 282	
05010901	Lightning Protection Jumper Strip	Inspect	--				
		Replace	--			275	
050110	Tiedown Receiver	Inspect	--				
		Replace	--			T25, 275, 282	
050111	Root End Sleeve	Inspect	--				
		Replace			--		
050112	Root End Slot Seal	Inspect	--				
		Repair	--			275	
050113	Blade Spar	Inspect	--				
		Repair	--			275	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0502	Blade Shock Absorber (Damper)	Inspect	--				
		Service	--				
		Test			--		
		Adjust	--			T106, 242, 278	
		Replace	--			278, 282, T98, T35, T72	
		Repair	--			T108, 242, 278	
0503	Rotary Wing Head	Overhaul		--	--		
		Inspect	--			273, 274, 282, 278, T2, T28, T29, T161	
		Service	--				
		Replace	--			T2, T7, T13, T24, T26, T28, T29, T73, 278	
		Repair	--		--	242, 273	
050301	Rotary-Wing Head Tie Bar	Overhaul			--	274, 278	
		Inspect	--				
050302	Fixed Droop Stops	Replace	--			273	
		Inspect	--			274	
050303	Centrifugal Droop Stop Assembly	Replace	--			278, 282	
		Inspect	--			278, 282	
		Adjust	--			278	
		Replace	--			272, 278	
		Repair	--				

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
050304	Centrifugal Droop Stop Springs and Limiters	Inspect	--			278, 282	
		Replace	--				
050305	Centrifugal Droop Stop Shrouds	Inspect	--			275	
		Replace	--				
		Repair	--				
050306	Centrifugal Droop Stop Shroud Shields and Base	Inspect	--			278	
		Replace	--				
050307	Droop Stop Shroud	Replace	--			278	
<b>NOTE</b>							
AVUM level replacement is limited to removal and reinstallation of the same pitch varying housing.							
0504	Pitch Varying Housing	Inspect	--				23
		Replace	--	--	--		
050401	Pitch Varying Housing Bearings	Replace			--		
050402	Pitch Varying Housing Bearing Oil Tank	Inspect	--			274	
		Service	--				
		Replace	--				273, 282
		Repair		--		274	
050403	Pitch Varying Housing Wear Sleeve	Inspect	--			227, 273	
		Replace	--				
050404	Pitch Varying Housing Oil Seals	Inspect	--			T8, T11, 273	
		Replace	--				
0505	Vertical Hinge Pin	Inspect	--			T79, 275, 282	
		Replace	--				
050501	Vertical Hinge Pin Bearings	Inspect	--			273, 274	
		Replace	--			T10, T102, 242, 273	
050502	Vertical Hinge Pin Bearing Oil Tanks	Inspect	--			273	
		Service	--				
		Replace	--				T33, 273, 282

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
050503	Vertical Hinge Pin Oil Seal	Inspect	--			273, 274	
		Replace	--			T10, T12, 273, 274	
050504	Vertical Hinge Pin Oil Manifold Tube	Inspect	--				
		Replace	--			242, 273	
0506	Horizontal Hinge Pin	Inspect	--			274	
		Replace	--			T5, T6, T87, 273, 282	
		Repair			--		
050601	Horizontal Hinge Pin Bearings	Inspect	--			274	
		Replace	--			T5, T6, T9, T87, 273, 282	
050602	Horizontal Hinge Pin Seals	Inspect	--				
		Replace	--			T6, 273	
0507	Pitch Varying Shaft	Inspect	--			274	
		Replace	--				
0508	Hub Oil Tank	Inspect	--			274	
		Service	--				
		Replace	--			278, 282	
		Repair		--		274	
0509	Liquid Sight Indicators and Plugs	Insert	--				
		Replace	--			278, 282	
0510	Swashplate Assembly	Inspect	--			274	
		Service	--				
		Replace	--			T14, 278, 282	
		Repair		--		274, 273	
		Overhaul			--		
0511	Swashplate Bearing	Inspect	--			278, 282	
		Replace		--		238, 273	
0512	Ball (Upper and Lower) Spherical Bearings and Sliding Sleeve Bearings	Inspect	--			274, 278, 282	
		Replace	--			T10, 242, 273	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0513	Spherical Ball	Inspect	--			274	
		Replace	--			242, 273	
		Repair	--	--			
0513	Drive Arms and Drive Collar	Inspect	--				
		Replace	--	--		274, 282	
		Repair	--	--		T30, 274, 238, 241	
0514	Pitch Link	Inspect	--	--		274	
		Adjust	--				
		Replace	--			278, 282	
0515	Weather Protective Cover	Repair	--			T22, T31, T78, 278, 282	
		Inspect	--				
		Replace	--			278, 282	
0516	Weather Protective Cover Boots	Inspect	--	--		201, 242, 275, 304	
		Replace	--			278	
		Repair	--				
06	DRIVE TRAIN SYSTEMS						
0601	Forward Transmission Assembly	Inspect	--				
		Service	--				
		Replace	--			T2, T4, T15, T23, T32, T74, T92, T93, T94, T159, 225, 242, 259, 278	
		Repair	--	--		282	
		Overhaul			--	272, 278	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
060101	Forward Transmission Accessory Mounting Seals, Input/Output Shaft Seals	Inspect	--				
		Replace	--			278, 282	
060102	Forward Transmission Oil Level Sight Gage	Inspect	--				
		Replace	--			278, 282	
060103	Forward Transmission Sump	Inspect	--				
		Replace	--			278, 282	
		Repair		--		242, 275	
060104	Forward Transmission Main Lube Pump and Relief Valve	Inspect	--				
		Adjust	--			278	
		Replace	--			278, 282	
		Overhaul			--		
060105	Forward Transmission Auxiliary Lube Pump	Inspect	--				
		Replace	--			278, 282	
		Overhaul			--		
060106	Forward Transmission Filter Elements Main and Aux	Inspect	--				
		Replace	--			278, 282	
060106-01	Forward Transmission Oil Filler Assembly/Screen	Clean	--				
		Inspect	--				
		Replace	--			278	
602	Aft Transmission Assembly	Inspect	--				
		Service	--				
		Replace	--			T17, T23, T37, T43, T49, T50, T85, T160, 225, 259, 278	
		Repair	--			282	
		Overhaul		--		242	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
060201	Aft Transmission Accessory Mounting Seals, Input/Output Shaft Seal	Inspect	--				
		Replace	--			273, 282	
060202	Aft Transmission Oil Level Sight Gage	Inspect	--				
		Replace	--			278, 282	
060203	Aft Transmission Sump	Inspect	--				
		Replace	--			278, 282	
		Repair		--		278, 242	
060203-01	Aft Transmission Generator Oil Outlet Screen	Inspect	--				
		Replace	--			278	
60204	Aft Transmission Main Lube Pump and Relief Valve	Inspect	--				
		Adjust	--			278	
		Replace	--			278, 282	
		Overhaul			--		
060205	Aft Transmission Auxiliary Oil Pump	Inspect	--				
		Replace	--			273, 282	
		Overhaul			--		
060205-01	Aft Transmission Oil Filter Assembly/Screen	Clean	--				
		Inspect	--				
		Replace	--			278	
060206	Aft Transmission Filter Elements Main and Aux	Inspect	--				
		Replace	--			278, 282	
060206-01	Aft Transmission Main Oil Filter Pressure Differential Indicator	Inspect	--				
		Replace	--			278	



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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0603	Combining Transmission Assembly	Inspect	--				
		Service	--				
		Replace	--			T20, T34, T36, 278, 282	
		Repair	--			278, 282	
		Overhaul		--	--	278, 282	
060301	Combining Transmission Accessory Mounting Seals Input and Output Shaft Seals	Inspect	--				
		Replace	--			273, 282, 278	
060302	Engine/Combining Transmission Oil Level Sight Gage	Inspect	--				
		Replace	--			278, 282	
060303	Engine/Combining Transmission Oil Pump	Inspect			--		
		Replace			--		
		Repair			--		
060303-01	Engine/Combining Transmission Main Oil Filter Pressure Differential Indicator	Inspect	--				
		Replace	--			278	
060304	Engine/Combining Transmission Oil Filter and Relief Valve Assembly	Inspect	--				
		Adjust	--			278	
		Replace	--				
060304-01	Engine/Combining Transmission Oil Filler Assembly/Screen	Clean	--				
		Inspect	--				
		Replace	--			278	
060305	Engine/Combining Transmission Oil Filter Element	Inspect	--				
		Replace	--			278, 282	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
060306	Combining Transmission Auxiliary Bypass Valve	Inspect	--				
		Replace	--			278	
060307	Combining Transmission Sump	Inspect	--				
		Replace	--			278, 282	
		Repair		--		242, 278	
0604	Engine Transmission Assembly	Inspect	--				
		Service	--				
		Replace	--				
		Repair	--				
		Overhaul		--		242	
060401	Engine Transmission Output Shaft Seal	Inspect	--				
		Replace	--			273, 282	
060401-01	Engine Transmission Main Oil Filter Pressure Differential Indicator	Inspect				278	
		Replace	--				
0605	Forward and Aft Slider Shaft Assemblies and Seals	Inspect	--				
		Replace	--			278, 282	
		Repair	--			282	
0606	Transmission Oil Cooler	Inspect	--				
		Test			--		
		Replace	--			278, 282	
		Repair	--			282	
		Overhaul			--		
060601	Oil Cooler Bypass Valve	Inspect	--				
		Test	--				
		Replace	--			278, 282	
0607	Transmission Oil Cooler Fans	Inspect	--			272	
		Replace	--			278, 282	
		Repair			--		24
		Overhaul			--		

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
060701	Combining Transmission Oil Cooler Fan Shaft Bearings	Inspect	--				
		Service	--				
		Replace		--		242, 278	
060702	Aft Transmission Oil Cooler Fan Shaft Bearings	Inspect	--				
		Replace		--		242, 278	
0608	Transmission Oil Cooler Fan Ducts	Inspect	--				
		Replace	--			278, 282	
		Repair	--				
0609	Drain Valves-Transmission Sump, Tank and Filter	Inspect	--				
		Replace	--			278, 282	
0610	Transmission Indicating Screen/Chip Detector/Temperature Transmitter	Inspect	--				
		Replace	--			278, 282	
		Test	--				
0611	Fittings and Hoses	Inspect	--				
		Replace	--			278, 282	
0612	Transmission Breather	Inspect	--				
		Replace	--			278, 282	
0613	Transmission Oil Screens	Inspect	--				
		Replace	--			278, 282	
0614	Aft Rotor Drive Shaft	Inspect	--				
		Replace	--			T1, T18, T32, 278, 282	
		Repair	--			278, 282	
		Overhaul		--		242, 278	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0615	Drive Shaft Assemblies	Inspect	--			274	
		Service	--				
		Replace	--			278, 282	
		Repair	--			T113, T114, 273, 278, 282	
		Overhaul			--		
0616	Drive Shaft Bearings	Adjust	--			278	
		Inspect	--				
		Service	--				
		Replace	--			273, 282	
		Repair					
0617	Drive Shaft Adapter & Plate Assemblies	Inspect	--			278	
		Replace	--			278, 282	
		Repair	--				
0618	Drive Shaft Mounts and Bushings	Inspect	--				
		Replace	--			278, 282	
0619	Engine Drive Shaft Assembly	Inspect	--				
		Replace	--			278	
		Repair			--		
07	HYDRAULIC SYSTEMS						
0701	System Contamination	Inspect	--				
0702	Flushing Pressure Lines	Service	--			270	
0703	Flushing Return Lines	Service	--			270	
0704	Filling and Bleeding (With External Power)	Service	--			270	
070401	Filling and Bleeding (Without External Power)	Service	--			270	
070402	Tube Bending	Fabricate		--		270, T181	
0705	Tubing	Inspect	--			270, 274	
		Replace	--			270, T181	
		Repair	--			270	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
070501	Bulkhead Fittings	Inspect	--				
		Replace	--			270	
0706	Hoses	Inspect	--			270, 274	
		Replace	--			270	
0707	Adapters Rosan	Inspect	--			270.1	
		Replace	--			278, T141.1, T143.1, T143.2, T145.1, T145.2, T145.3, T145.4	
0708	Flight Control No. 1 and No. 2 Power Control Module	Inspect	--				
		Replace	--			278	
070801	Pilot Solenoid Valve	Inspect	--				
		Replace	--			278	
		Repair			--		
070802	High Pressure Relief Valve	Inspect	--				
		Replace	--			278, 282	
070803	Filter Element	Replace	--			278, 301	
070804	Filter Change Switch	Replace	--			278	
070805	Pressure Transmitter	Replace	--			278	
070806	Accumulator	Replace	--			278, 299, 300	
070807	High Pressure Check Valve	Replace	--			278	
070808	Miscellaneous Check Valves	Replace	--			270, 270.1, T150.1, T150.2, T150.3, T152, T152.1, T152.2, T152.3, T152.4, T152.5, T152.6, T152.7, T152.8	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0709	Pivoting and Swiveling Servocylinders	Inspect	--			278	
		Repair		--		270	
		Replace	--			278	
070901	Pivoting and Swiveling Servocylinder Bearings	Inspect	--			233, 242	
				--		270	
		Repair		--		239, 270	
070902	Pressure Indicator	Test	--			278	
070903	Control Valves	Inspect	--			270	
070904	Servocylinder Control Valve Boots	Inspect	--			278, 282	
		Replace	--				
0710	Lower Controls Module No. 1 and No. 2	Inspect	--				
		Replace	--			278	
07001	Solenoid Valve	Inspect	--				
		Replace	--			278, 282	
		Repair			--		
07002	Pressure Reducer Valve	Inspect	--				
		Replace	--			278, 282	
0711	Lower Controls Actuating Cylinder Structural Manifold	Inspect	--				
		Replace	--				
		Repair	--			278, 282	
0712	Integrated Lower Controls Actuator Assembly (ILCA)	Inspect	--			278, 282	
		Test		--		T53, 235, 242, 270	
		Replace	--			278, 282	
		Repair		--			
		Overhaul			--		

**MAINTENANCE ALLOCATION CHART**

**Section II**

**NOMENCLATURE OF END ITEMS**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
071201	Extensible Link	Inspect	--				
		Test	--				
		Replace	--		--	T53, 235, 242, 278	
		Repair		--		278, 282	
		Overhaul			--		
071201-02	Extensible Link Servo Valve	Inspect	--				
		Replace		--		266, 270	
071201-03	Extensible Link Pressure Port Filter	Inspect	--				
		Replace	--			278	
071202	Cross Feedback Transducer	Inspect	--				
		Test	--			T51, 278, 282	
		Adjust	--		--	T51, T53	
071203	Self Feedback Transducer	Replace		--		T51, 278, T53, 242, 270	
		Inspect	--			242, 278	
		Test	--			T51	
		Adjust		--		T53, 235, 270, 278, T53, 235, 265, 266, 270	
		Replace			--	236, 265, 266, 270, T53	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
071204	Jam Sensor	Inspect	--				
		Test	--				
071205	Relief Valve	Replace	--	--		T53, 235, 242, 270	
		Inspect	--			278	
		Test		--		T53, 235, 242, 278	
		Replace		--		278	
071206	Check Valve	Inspect	--				
		Test		--		T53, 235, 242, 270	
		Replace		--		278	
071207	Servo Valve	Inspect	--				
		Test	--				
				--		T53, 235, 242, 278	
		Replace		--		266, 278	
		Repair			--		
0713	No. 1 or No. 2 Flight Control Reservoir/Cooler	Inspect	--				
				--		274	
		Service	--				
		Test		--		235, 236, 242, 270, 284	
		Replace	--			278, 282	
		Repair		--		235, 242, 270, 274	
					--		
071301	Temperature Switch	Inspect	--				
		Replace	--			278	
071302	Relief Valve	Inspect	--				
		Replace	--			278	
071303	Bleed and Relief Valve	Inspect	--				
		Replace	--			278	



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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
071304	Temperature Bulb	Inspect	--				
		Replace	--			278	
0714	No. 1 or No. 2 Flight Control Reservoir/Cooler Fan	Inspect	--				
		Test			--	235, 236, 238, 242, 249, 252, 277	
		Replace	--			278	
		Repair			--	236, 242, 274, 277	
		Overhaul			--		
0715	No. 1 or No. 2 Flight Control Pump	Inspect	--				
		Service		--		242, 270	
		Test		--		235, 270	
		Replace	--			278, 282	
		Repair			--	235, 242, 270	
0716	APU Start Module	Inspect	--				
		Replace	--			278, 282	
071601	Accumulator	Inspect	--				
		Service		--		270, 274	
		Test		--		T159, 211, 215, 235, 270	
		Replace	--			278, 282	
		Repair			--	235, 242, 270, 274	
071602	Start Valve	Inspect	--				
		Replace	--			278	
		Repair			--		
071603	Check and Depressurization Valve	Inspect	--				
		Replace	--			278	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
071604	Solenoid Start Pilot Valve	Inspect	--			278, 282	
		Replace	--				
		Repair			--		
0717	APU Start Accumulator	Inspect	--			278, 282	
		Service	--				
		Test			--		
		Replace	--				
071701	APU Start Accumulator Air Charging Valve and Pressure Gage	Inspect	--			278	
		Replace	--				
071702	APU Start Accumulator Transfer Tubes	Inspect	--			278	
		Replace	--				
071703	APU Start Accumulator Mounting Plate	Inspect	--			270	
		Replace	--				
0718	Pressure Control Module	Inspect	--			278, 282	
		Replace	--				
071801	Filter	Inspect	--			278	
		Replace	--				
071802	Filter Indicator	Inspect	--			278, 282	
		Replace	--				
071803	High Pressure Relief Valve	Inspect	--			278	
		Replace	--				
071804	Pressure Transmitter	Inspect	--			278	
		Replace	--				
071805	Three-way Solenoid Valve	Inspect	--			278	
		Replace	--				
		Repair			--		
071806	Check Valve	Inspect	--			278	
		Replace	--				

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**Section II**

**NOMENCLATURE OF END ITEMS**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
071807	Utility System Pressure Switch	Replace	--			278	
071808	Pilot Valve	Inspect	--				
		Replace	--			278, 282	
		Repair			--		
071809	PTU Valve	Inspect	--				
		Replace	--			278	
		Repair			--		
0719	Engine Start Valve	Inspect	--				
		Replace	--			278, 282	
		Repair			--		
0720	Return Control Module	Inspect	--				
		Replace	--			278, 282	
072001	Transfer Cylinder	Inspect	--				
				--		270, 274	
		Test		--		T56, 235, 270	
		Replace	--			278, 282	
		Repair		--		235, 242, 270, 274	
072002	Filter Indicator	Inspect	--				
		Replace	--			278, 282	
072003	Filter By-Pass Valve	Inspect	--				
		Replace	--			278	
072004	Transfer Cylinder Check Valve	Inspect	--				
		Replace	--			278	
072005	Filter check Valve	Inspect	--				
		Replace	--			278	
072006	Filter	Inspect	--				
		Replace	--			278, 282	
072007	APU or Utility Pump Fail Indicator	Inspect	--				
		Replace	--			278	
0721	No 1 or No 2 Power Transfer Unit Module	Inspect	--				
		Replace	--			278, 282	

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NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
072101	Hydraulic Motor and Pump	Inspect	--				
		Test		--		T118, 235, 270	
		Replace	--			278	
		Repair		--		270	
		Overhaul			--		
072101-01	Motor or Pump Shaft Seal	Inspect	--				
		Replace	--			235, 270, 274, 282	
072102	Three-Way Valve	Inspect	--				
		Replace	--			278	
072103	Check Valve	Inspect	--				
		Replace	--			278	
072104	Pilot Solenoid Valve	Inspect	--				
		Replace	--			278	
		Repair			--		
072105	Flow Limiter	Inspect	--				
		Replace	--			278	
0722	Hand Pump	Inspect	--				
		Replace	--			242, 270, 278	
0723	Hydraulic Fill Module	Inspect	--			274, 282	
		Test		--		212, 216, 235, 242, 270	
		Replace	--			278, 282	
		Repair	--			278	
				--		242, 270, 274, 278, 282	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0724	Engine Starter Motor	Inspect	--	--			
		Test		--			
		Replace	--			278	
		Repair		--			
		Overhaul			--		
0725	APU Motor, Pump	Inspect	--	--			
		Test		--		235, 270	
		Replace	--			278	
		Repair		--		242, 270	
0726	Utility Pump	Inspect	--				
		Test		--			
		Replace	--			278, 282	
		Repair		--		270	
		Inspect	--		--		
0727	Utility Reservoir/Cooler	Inspect	--	--		274	
		Service	--				
		Test		--		235, 236, 242, 270, 284	
		Replace	--			278, 282	
		Repair		--		235, 242, 270, 274	
		Inspect	--		--		
072701	Relief Valve	Inspect	--				
		Replace	--			278	
072702	Temperature Bulb	Inspect	--				
		Replace	--			278	
072703	Temperature Switch	Inspect	--				
		Replace	--			278	

MAINTENANCE ALLOCATION CHART								
Section II								
NOMENCLATURE OF END ITEMS								
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks	
			AVUM	AVIM	DEPOT			
072704	Bleed/Relief Valve	Inspect	--					
		Replace	--			278		
0728	Utility Reservoir/Cooler Fan	Inspect	--					
		Test			--	235, 236, 238, 242, 249, 252, 277		
		Replace	--				278	
		Repair			--		236, 242, 274, 277	
		Overhaul			--			
0729	Winch Motor	Inspect	--					
		Replace	--				278	
0730	Hoist Control Valve	Inspect	--					
		Replace	--				278	
		Overhaul			--			
0731	Hoist Pressure Reducing Valve	Inspect	--				270, 274	
		Test		--			210, 211, 214, 235, 242, 270	
		Replace	--				270	
		Repair		--			242, 270	
0732	Hoist Control Relief Valve	Inspect	--					
		Replace	--				278	
0733	Hoist Control Shutoff Check Valve	Inspect	--					
		Replace	--				278	
0734	Brake Master Cylinder	Inspect	--					
				--			274	
		Test		--			214, 235, 270, 287, 288, 289, 290	
		Replace	--				278, 282	
		Repair		--		235, 242, 270, 274, 296		

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0735	Parking Brake Valve	Inspect	--				
		Replace	--			278	
0736	Parking Brake	Inspect	--				
		Adjust	--			278, 282	
0737	Brake Pressure Reducing Valve	Inspect	--				
		Test		--		210, 211, 214, 235, 242, 270	
		Replace	--			270	
		Repair		--		242, 270	
0738	Brake Transfer Valves	Inspect	--				270, 274, 282
		Test		--		214, 235, 270	
		Replace	--			278	
		Repair		--		235, 242, 270	
0739	Emergency Brake Accumulator	Inspect	--				270, 274, 282
		Service	--			242, 270, 274, 302	
		Test		--		278	
		Replace	--			212, 235	
		Repair	--			270	
0740	Power Steering and Swivel Lock Module	Inspect	--				278, 235, 242, 270, 274
		Replace	--			278, 282	
074001	Solenoid Control Valve	Inspect	--				
		Replace	--			278, 282	
		Repair			--		
074002	Check Valve	Inspect	--				
		Replace	--			278	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
074003	Accumulator	Inspect	--	--		270, 274	
		Service	--				
		Test		--		T159, 211, 215, 235, 270	
		Replace	--			278, 282	
		Repair		--		235, 242, 270, 274	
0741	Power Steering Assembly	Inspect	--				
		Test	--				
		Replace	--			278, 282	
		Repair		--			
		Overhaul			--		
074101	Servo Valve	Inspect	--				
		Replace	--			278	
074102	Out-of-Phase Switch	Inspect	--				
		Adjust	--			278	
		Replace	--			278	
074103	Pressure Tube	Inspect		--		274	
		Replace		--		274, 278	
0742	Cargo Hook Release Valve	Inspect	--				
0743	Ramp Actuating Cylinder			--		242, 274	
		Test		--		214, 235, 236, 270	
		Replace	--			278	
		Repair		--		242, 270	
		Inspect	--				
		Adjust	--			278, 282	
		Replace	--			278, 282	
Repair		--		221, 242, 270			
		Overhaul			--		



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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0744	Ramp Control Valve						
074401	Ramp Control Valve Without <b>65</b>	Inspect	--	--		274	
		Test		--		214, 235, 242, 270	
		Replace	--			278	
		Repair		--		235, 242, 270, 274	
074402	Ramp Control Valve With <b>65</b>	Inspect	--	--		274	
		Test		--		T178, T179, 214, 235, 242, 270	
		Replace	--			278	
		Repair		--		T173, T174, T175, T176, T177, 235, 242, 270, 274	
0745	Cargo Door Sequence Valve	Inspect	--	--		242, 274	
		Test		--		208, 209, 235, 270	
		Adjust	--			278	
		Replace	--			278	
		Repair		--		235, 270	
0746	Cargo Door Pressure Actuated Valve	Inspect	--			274	
		Replace	--			278	
		Repair	--			270	
		Test	--			270	
0747	Motor, Cargo Door	Inspect	--				
		Test		--		235, 270	
		Replace	--			278, 282	
		Repair		--		235, 242, 270	
		Overhaul		--			

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0748	Swivel Lock Actuator	Inspect	--	--		242, 274	
		Test		--		235, 270	
		Replace	--			278	
		Repair		--		235, 242, 270	
08	INSTRUMENT SYSTEMS						
0801	Engine Oil, Transmission Oil, Hydraulic Pressure Transmitters and Switches	Inspect	--				
		Replace	--			277, 278, 281, 282, 272	
080101	Engine Oil Pressure Transmitter Vibration Clamps and Mounts	Replace	--			272, 278	
0802	Transmission Oil Temperature Transmitters	Inspect	--				
		Replace	--			278, 281, 282	
0803	Engine Transmission Chip Detector/Temp Switch	Inspect	--			278	
		Test	--			T101, T111, 282	
		Replace	--			278	
0804	Cruise Guide Indicator	Inspect	--				
		Test	--				
		Replace	--			277	
080401	Signal Processor/Conditioner	Inspect	--				
		Test	--				
		Replace	--			277	
		Repair			--		
080402	Strain Gage	Inspect	--				
		Test		--	--		
		Replace	--				13
		Repair			--		

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0805	Rotor Tachometer Indicator	Inspect	--				
		Replace	--			278	
		Overhaul			--		
0805.1	Rotor Tachometer Capacitor	Replace		--		277	
0806	Transmission Oil Pressure Indicator and Switch	Inspect	--				
		Test		--		235, 236, 242, 277	
		Replace	--			278	
		Overhaul			--		
0807	Transmission Oil Temperature Indicator and Switch	Inspect	--				
		Test		--		235, 236, 242, 277	
		Replace	--			278	
		Overhaul			--		
0808	Hydraulic Temperature Indicator	Inspect	--				
		Test		--		236, 257, 277	
		Replace	--				
0809	Hydraulic Temperature Probe	Inspect	--				
		Replace	--			278	
0810	Hydraulic Pressure Indicator	Inspect	--				
		Test	--			236, 277, 285	
		Replace	--				
		Overhaul			--		
0811	Hydraulic Fluid Level Indicator/Signal Conditioner	Inspect	--				
		Test	--			255, 277	
		Replace	--			278	
		Overhaul			--		
0812	Hydraulic Fluid Level Transmitter (LDVT)	Inspect	--				
		Replace	--			277	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0813	Vertical Velocity Indicator	Inspect	--				
		Replace	--			277	
		Overhaul			--		
0814	Fuel Quantity Indicator	Inspect	--				
		Test	--			T158, 277, 183, 184	
		Adjust	--			T158, 277	
		Replace	--			277	
		Overhaul			--		
0815	Fuel Quantity Selector Switch	Inspect	--				
		Replace	--			278	
081501	Fuel Quantity Switch Box	Inspect	--				
		Install	--			277	
		Remove	--			277	
0816	Fuel Quantity Tank Unit	Inspect	--				
		Test	--			T158, 277, 183, 184	
		Adjust	--			T158, 277	
		Adjust	--			277, 281	
		Replace	--			282	
0817	Mounts, Cables, Quick-Disconnects	Inspect	--				
		Replace	--			277, 282	
		Repair	--				
0818	Fuel Flow Transmitter	Inspect					
		Test		--		T158	
		Replace	--			278	
0819	Low Fuel Sensor	Inspect	--				
		Test	--	--			
		Replace		--		278	
0820	High Fuel Sensor	Inspect	--				
		Test	--	--			
		Replace		--		278	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0821	Fuel Thermistor Control Unit	Inspect	--				
		Adjust	--				
		Replace	--			277	
0822	Deleted						
0822.1	Clock Aircraft Digital	Inspect	--				
		Replace	--			278	
0823	Compass, Magnetic	Inspect	--				
		Test	--				
		Adjust	--				
		Replace	--			271, 281	
082301	Compass Bracket	Replace	--			271	
0824	Attitude Indicator	Inspect	--				9
		Test	--			268	9
		Replace	--			268	9
		Overhaul			--		
0825	Turn and Slip Indicator	Inspect	--				
		Replace	--			277	
		Overhaul			--		
0826	Airspeed Indicator and Restrictor	Inspect	--				
		Test	--			T27, 236, 271	
		Adjust	--			T27, 236, 271, 298	
		Replace	--			277	
0827	Barometric Altimeter	Inspect	--				
		Test	--			277	
		Replace	--			277	
		Overhaul			--		
0828	AIMS Altimeter	Inspect	--				9
		Test	--			278	9
		Replace	--			278	9
		Overhaul			--		

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0829	Free Air Thermometer	Inspect	--				
		Test	--			257, 277	
		Replace	--			278	
0830	Gas Producer Tachometer Indicator	Inspect	--				
		Test	--			254, 277	27, 28
		Replace	--			278	
083001	No. 1 or No. 2 Power Turbine and Gas Producer Magnetic Pickup	Inspect	--				
		Replace	--			272	28
0831	Tachometer Generator	Inspect	--				27
		Test	--			254, 277	
		Replace	--			272	
0832	PTIT Indicator	Inspect	--				
		Test	--			T101, T104, 277, 282, 277	27, 28
		Adjust	--				
		Replace	--				
		Overhaul			--		
0833	Engine Oil Temperature Indicator	Inspect	--				27, 28
		Test	--			257, 277	
		Replace	--			278	
0834	Engine Oil Temperature Transmitter (Bulb)	Inspect	--				
		Replace	--			272	27
083401	Engine Oil Temperature Transmitter Probe	Inspect	--				
		Replace	--			272	28
0835	Engine Oil Pressure Indicator	Inspect	--				
		Test	--			253, 277	27, 28
		Replace	--				

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0836	Engine Torque Indicator	Inspect	--				
		Test		--		236, 255, 277	27
		Adjust	--				
		Replace	--			278	
		Overhaul			--		
083601	Engine Torque Indicator	Inspect	--				
		Test		--		236, 277, T188	28
		Adjust	--				
		Replace	--			278	
		Overhaul			--		
083602	No. 1 or No. 2 Torque Signal Processor/Power Supply	Inspect/Set Codes	--			277	28
		Remove	--			277	
		Install	--			277	
083603	Torque Sensor	Inspect	--				
		Remove	--			277	28
		Install	--			277	
083604	Junction Box (J-Box)	Inspect	--			277	
		Replace	--			277	28
		Test	--			277, T188	
0837	Power Supply, Engine Torquemeter	Inspect	--				
		Test		--		207, 236, 277, 283	27
		Replace	--			278	
		Overhaul			--		
0838	Pitot-Static and Sideslip Sensing System	Inspect	--			277	
		Test	--			277	
		Replace	--			234, 275, 277, 278	
083801	Pitot Static/Sideslip Tubing	Replace	--				
		Repair	--			277	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0839	Cyclic Trim Indicator	Inspect	--				
		Test	--			244, 277	
		Replace	--			278	
0840	Maintenance Panel	Inspect	--				
		Replace	--			256, 266, 277	
		Repair	--			256, 266, 277	
0841	Indicator, Magnetic	Inspect	--				
		Replace	--			256, 277	
0842	Indicator, Light	Inspect	--				
		Replace	--			277	
0843	Instrument Panels	Inspect	--				
		Replace	--			266, 277	
		Repair	--			278	
084301	Instrument Panel Lights	Replace	--			277	
0844	Light, Emergency Power	Inspect	--				27
		Test	--				
		Replace	--			277	
0845	Switches, Emergency Power	Inspect	--				27
		Test	--				
		Replace	--			277	
09	ELECTRICAL SYSTEMS						
0901	Main Generator	Inspect	--				
		Replace	--			277	
		Overhaul			--		
0902	Main Generator Control Panel	Inspect	--				
		Replace	--			278	
		Overhaul			--		
0903	Emergency Power Panel	Inspect	--				27
		Test		--		242, 277	
		Replace	--			278	
		Repair		--		242, 277	



MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0904	APU Generator	Inspect	--			277	14
		Replace	--				
		Repair	--				
		Overhaul			--		
0905	APU Generator Control Panel	Inspect	--			277	
		Replace	--				
		Overhaul			--		
090501	APU Generator Relay	Inspect	--			277	
		Replace	--				
0906	APU Control Box (ESU)	Inspect	--			277	
		Replace	--				
		Repair			--		
		Overhaul			--		
0907	DC Power Supplies	Inspect	--			277	
		Replace	--				
		Repair		--			
		Overhaul			--		
0908	Contactor, Main Line	Inspect	--			277	
		Replace	--				
0909	Battery	Inspect	--			277	
		Service		--			
		Replace	--				
		Repair		--			
090901	Battery Cables	Inspect	--			276, 277	
		Test		--			
		Replace		--			
		Repair		--			
		Service		--			
0910	Battery Sump Jar	Inspect	--			277	
		Service	--				
		Replace	--				

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0911	Battery Charger	Inspect	--				
		Replace	--			277	
		Repair			--		
091101	Battery Relay	Inspect	--				
		Replace	--			277	
0912	Power Monitor	Inspect	--				
		Replace	--			277	
0913	Relays, Transformers	Inspect	--				
		Replace	--			277	
0914	Switches, Circuit Breakers, and Fuses	Inspect	--				
		Replace	--			277	
0915	Terminal Board Module	Inspect	--				
		Replace	--			266, 277	
0916	Ground Device Module	Inspect	--				
		Replace	--			266, 277	
0917	Control Stick and Thrust Control Grip Assemblies	Inspect	--				
		Test	--			236	
		Replace	--			265, 266, 277	
		Repair	--			277, 282	
0918	Landing Searchlights			--		236, 277	
		Inspect	--				
		Test	--				
		Test NVG		--		236, 277	
		Adjust		--		277	
		Replace	--			278	
		Repair	--			277	
0919	Floodlight			--		277	
		Inspect	--				
		Replace	--			277, 282	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0920	Anticollision Lights	Inspect	--			277	
		Test	--				
		Replace	--	--		235, 236	
		Repair		--		277 236, 242, 277	
0921	Interior Lights, Navigation Lights, Switches, and Formation Lights	Inspect	--				
		Test	--				
		Replace	--			277, 282	
		Repair	--			277	
0922	Troop Warning Box	Inspect	--				
		Replace	--			277, 278	
		Repair	--			277, 278	
0923	Master Caution Panel	Inspect	--				
		Test		--		277	
		Replace	--			277	
		Repair	--			277 277	
092301	Caution Panel NVG Filter	Inspect	--				27
		Repair	--			277	
		Replace	--			277	
0924	Console Components	Inspect	--				
		Replace	--			277, 282	
0925	Power Steering Control Box	Inspect	--				
		Test	--			277	
				--		236	
		Adjust	--			277	
				--		236	
		Replace	--			277	
				--	236, 242, 265, 277		

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0926	Overhead Panel	Inspect	--				
		Replace	--			266, 277	
		Repair	--			277	
092601	Overhead Panel Transformers and Relay	Inspect	--				
		Replace	--			277	
092602	Overhead Panel Transformer Fuses	Inspect	--				
		Replace	--			277	
0927	Cables and Connectors	Inspect	--				
		Replace	--			277, 282	
		Repair	--			249, 265, 266, 277, 282	
0928	Variable Resistors or Control Transformers	Inspect	--				
		Replace	--			277, 282	
0929	Lamps and Lenses	Inspect	--				
		Replace	--			277, 282	
0930	Grip, Winch Control	Inspect	--				
		Test	--			277, 236	
		Replace	--	--		277	
		Repair	--	--		236, 277	
0931	External Power Control Relay	Inspect	--				
		Replace	--			277	
0933	Dual Hook Relay Box	Inspect	--			277	
		Test	--			277, 282	
		Replace	--	--		236, 277, 282	
		Repair	--	--		277, 236, 266, 277	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
0934	Emergency Hook Release Relay Box	Inspect	--				
		Test	--			277, 282	
		Replace	--			235, 282, 277	
		Repair	--			277	
0935	Alarm Bell and Troop Warning	Inspect	--			218, 236, 266, 277	
		Replace	--			277, 282	
		Repair	--			277, 282	
0936	Avionics Cooling Fan	Inspect	--			274	
		Test	--			236, 249, 252	
		Replace	--			265, 277	
		Repair	--			236, 242, 277, 278	
0937	Power Distribution Panel	Inspect	--				
		Replace	--			277	
0938	Control Unit Level Sensing	Inspect	--				
		Replace	--				
		Repair	--		--		
10	FUEL SYSTEM						
1001	Fuel System	Test	--			278, 282	
		Bleed	--			278, 282	
100101	Flushing	Service	--			278	
1002	Fuel Tanks	Inspect	--				
		Purge	--			200, 219, 282, 278	
		Service	--				
		Test	--			223, 235, 278, 282	
		Replace	--			278, 282, 297	
		Repair	--				

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NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
100201	Vent Fairing	Inspect	--				
		Replace	--			278	
1003	Fuel Cell	Inspect	--				
		Test	--			217, 223, 278	
		Replace	--			278, 282	
		Repair	--			278	
		Inspect	--				
1004	Fuel Tank Vent Components	Inspect	--				
		Test	--			T158, 278, 282	
		Replace	--			278	
1005	Filler Caps	Inspect	--				
		Replace	--			278	
1006	Fuel Booster Pumps	Inspect	--				
		Replace	--			278, 282, 297	
		Overhaul			--		
1007	Fuel System Pressure Switches	Inspect	--				
		Replace	--			278	
1008	Fuel Check Valves	Inspect	--				
		Replace	--			278, 282, 297	
1009	Defueling Valve	Inspect	--				
		Replace	--			278, 282	
1010	Tank Unit Wire Harness	Inspect	--				
		Replace	--			278, 282	
1011	Booster Pump Relays	Inspect	--				
		Replace	--			278	
1012	APU Fuel Boost Pump	Inspect	--				
		Replace	--			278	
1013	APU Fuel Shutoff Valve, Manual	Inspect	--				
		Replace	--			278	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1014	Drain Valves	Inspect	--				
		Replace	--			278, 282	
		Repair		--		278	
1015	Fuel Gate Valves	Inspect	--				
		Test	--				
		Replace	--			278, 282	
		Overhaul			--		
1016	Lines and Fittings	Inspect	--				
		Replace	--			278, 282	
1017	Filters, Strainers, and Screens	Inspect	--				
		Replace	--			278, 282	
1018	Fuel Level Shutoff Valve	Inspect	--				
		Replace	--			278, 282	
		Repair			--		
1019	Fuel Crossfeed Valve	Inspect	--				
		Test	--				
		Replace	--			278, 282	
		Overhaul			--		
1020	Fuel Level Control Valve	Inspect	--				
		Replace	--			278	
		Repair			--		
1021	APU Fuel Solenoid Valve	Inspect	--			278	
		Replace	--			278	
1022	Jet Pump	Inspect	--				
		Replace	--			278	
1023	Fuel Precheck Panel	Inspect	--				
		Replace	--			278	
		Repair		--		277	
1024	Pressure Refueling Adapter	Inspect	--				
		Replace	--			278	
		Repair	--			278	

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Section II								
NOMENCLATURE OF END ITEMS								
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks	
			AVUM	AVIM	DEPOT			
1025	Fuel Quantity Inverter	Inspect	--					
		Replace	--			278		
1026	Suction Feed Check Valve	Inspect	--					
		Replace	--			278		
1027	Engine Fuel Shutoff Valve	Inspect	--					
		Replace	--			278, 282		
11	FLIGHT CONTROL SYSTEMS							
1101	Dash Actuator Assembly	Inspect	--					
		Test	--			T51		
				--			T51	
		Adjust	--			T41, T42, T130, 278, 282		
		Replace	--			T42, T130, 278, 282		
		Repair		--				
1102	Longitudinal Cyclic Trim (LCT) Actuator	Overhaul			--			
		Inspect	--					
		Test	--					
				--			242, 278	
		Adjust	--					
				--			242, 278	
110201	LCT Variable Resistor	Replace	--			278, 282		
		Repair		--		221, 242, 278		
		Overhaul			--			
		Inspect	--	--				
110202	LCT Actuator Motor	Replace	--			277		
			--			277, 282		



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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1103	AFCS Computer	Inspect	--				
		Test	--			T51, 277, 278	
		Replace	--	--		T27, T52, 236, 277	
		Repair	--	--		278	
110301	AFCS Roll Erection Cutout Relay	Install	--			278	
		Remove	--			278	
110302	Sideslip/Airspeed/Barometric Pressure Transducers	Test		--		T27, 278	
		Adjust	--			T27, 278	
1104	AFCS Computer Circuit Boards	Inspect	--			T27, T52, 278	
		Replace		--		269	
110401	Closet Control Pallets	Inspect	--			275	
		Repair	--				
		Replace	--				
1105	Balance Springs	Inspect	--				
		Adjust	--			278, 282	
		Replace	--			278, 282	
1106	Cockpit Control Assemblies and Interconnecting Links	Inspect	--			274	
		Adjust	--			T89, T72, T122, T125, T127, 278, 282	
		Replace	--			T81, T89, T72, T119, T120, T121, T122, T123, T124, T125, T126, T127,	
		Repair	--			278, 282, 239, 242, 278	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1107	Flight Control Connecting Links	Inspect	--			274	
		Adjust	--			T44, 278	
		Replace	--			T44, 278, 282	
		Repair	--			278	
1108	Link, Idler	Inspect	--	--		242	
		Adjust	--				
		Replace	--			278, 282	
		Repair	--			278	
1109	Control Pallets	Inspect	--				
		Adjust	--			T128, T133, 278, 282	
		Replace	--			T128, T133, 278, 282	
110901	Control Pallet Idler Bellcranks	Inspect	--				
		Adjust	--			T128, T133 278, 282	
		Replace	--			T128, T133	
		Repair	--	--			
1110	Thrust Detent Capsule	Inspect	--				
		Adjust	--			278	
		Replace	--			278, 282	
1111	Pitch, Roll, Yaw, and Thrust Viscous Dampers	Inspect	--				
		Test		--		T64, T100, 270	
		Adjust		--		T64, T100, 270	
		Replace	--			278, 282	
1112	Damper Arms and Connecting Links	Repair		--		T64, 242, 270, 274	
		Inspect	--				
		Replace	--			278, 282	
		Repair		--		278	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1113	Magnetic Brakes	Inspect	--				
		Test		--		242, 278	
		Adjust		--		278	
		Replace	--			278, 282	
		Repair		--		278	
		Overhaul			--		
1114	CCDA, Thrust and Pitch	Inspect	--				
		Test		--		242, 277	
		Adjust		--		T51	
		Replace	--			235, 236, 242, 268	
		Repair		--		278	
		Overhaul			--	278, 282	
		Overhaul			--	242, 268, 269	
1115	Spring Assemblies, Pitch, Roll and Yaw (Artificial Feel)	Inspect	--				
		Test		--		208, 278	
		Adjust		--		278	
		Replace	--			278, 282	
		Repair		--		221, 242, 278	
1116	Yaw, Pitch, and Roll Position Transducer	Inspect	--				
		Test	--			T128	
		Adjust	--			T128, T133, 277, 278	
		Replace	--			T128, T133, 278, 282	
		Repair		--		242, 278	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1117	Bellcranks, Intermediate	Inspect	--				
		Replace	--			245, 278, 282	
		Repair	--			278, 282	
1118	Connecting Links Between Intermediate and First Stage Mixing	Inspect	--			274	
		Adjust	--				
		Replace	--			278, 282	
		Repair	--			278, 282	
1119	Bellcranks, First Stage			--		T169, 237	
		Inspect	--				
1120	Bellcranks, Second Stage	Adjust	--			T44, T135, 278, 282	
		Replace	--			T44, T45, T46, T135, 278, 282	
		Repair	--			T44, 278	
1121	Bellcranks, Between Second Stage and Forward Servocylinders	Inspect	--				
		Adjust	--			278, T44, T135, 282	
		Replace	--			T44, T45, T46, T135, 278, 282	
		Repair	--			278, 282	
1121	Bellcranks, Between Second Stage and Forward Servocylinders	Inspect	--				
		Adjust	--			T44, T135, 278, 282	
		Replace	--			T44, T135, 278, 282	
		Repair	--			278	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1122	Connecting Links, Between Second Stage and Forward Servocylinders	Inspect	--			274	
		Adjust	--			278	
		Replace	--			278, 282	
		Repair	--			282	
1123	Connecting Links Between First and Second Stage Mixing	Inspect	--			274	
		Adjust	--			278	
		Replace	--			278, 282	
		Repair	--			282	
1124	Bellcrank, Transfer Pitch, Thrust, Roll, and Yaw	Inspect	--				
		Replace	--			T128, 278, 282	
		Repair	--			278	
112401	Bellcrank Support	Replace	--			278, 282	
1125	Yoke Assemblies, Longitudinal Cyclic Trim	Inspect	--			274, 278	
		Replace	--			231, 278, 282	
		Repair	--	--		221, 236, 242, 274, 278	
1126	Tunnel Control Arms and Idlers	Inspect	--				
		Replace	--			T44, T135, 278, 282	
		Repair	--			278	
1127	Connecting Links Between Second Stage and Aft Servocylinders	Inspect	--			274	
		Adjust	--			T44, T135, 278, 282	
		Replace	--			T44, T135, 278, 282	
		Repair	--			278, 282	

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Section II								
NOMENCLATURE OF END ITEMS								
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks	
			AVUM	AVIM	DEPOT			
1128	Bellcranks, Aft Fuselage and Pylon	Inspect	--					
		Adjust	--			T44, T135, 278, 282		
		Replace	--			T44, T135, 278, 282		
		Repair	--			278, 282		
1129	Stick Position Indicator	Inspect	--					
		Adjust	--			278		
		Replace	--			282, 278		
		Repair	--			278		
1130	Longitudinal Cyclic Trim Link	Inspect	--					
		Adjust	--			278		
		Replace	--			278, 282		
		Repair	--	--		221, 242, 278		
1131	Thrust Control	Inspect	--					
		Adjust	--			278		
		Replace	--			278, 282		
		Repair	--	--		221, 242, 266, 277, 278		
1132	Pitch and Roll Control Stick	Inspect	--					
		Replace	--			278, 282		
1133	AFCS Panel	Inspect	--					
		Test	--			T51		
				--			T52, 236, 268	
		Replace	--			269, 278		
		Repair	--	--		266, 269		
12	UTILITY SYSTEMS							
1201	Windshield Wiper Blades	Inspect	--					
		Replace	--			278		

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1202	Windshield Wiper Arms	Inspect	--				
		Adjust	--			282, 294	
		Replace	--			278	
1203	Windshield Wiper Motor	Inspect	--				
		Test		--		236, 242, 277	
		Replace	--			278	
		Repair		--		277	
1204	Windshield Wiper Flexible Shaft	Inspect	--				
		Replace	--			278	
1205	Windshield Wiper Resistor and Switch	Inspect	--				
		Replace	--			277	
1206	Windshield Wiper Converter	Inspect	--				
		Adjust	--				
		Replace	--			278	
1207	Windshield Anti-Icing Element	Inspect	--				
		Test	--			277	
1208	Windshield Anti-Icing Relays	Inspect	--				
		Replace	--			277	
1209	Windshield Anti-Icing Controller	Inspect	--				
		Replace	--			277	
1210	Fire Extinguisher Container and Valve	Inspect	--			274, 282	
		Replace	--			278, 295	
		Overhaul			--		
1211	Fire Extinguisher Lines, and Check Valves	Inspect	--				
		Replace	--			278, 282	
1212	Fire Extinguisher Explosive Cartridge (Squib)	Inspect	--				
		Test	--				
		Replace	--			278, 282	

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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1213	Fire Detection Control Unit	Inspect	--				
		Replace	--			277	
1214	Fire Detection Relay Panels, Sensing Elements, Wiring and Terminals	Inspect	--			274	
		Test	--			277, 282	
		Replace	--			272, 277, 282	
1215	Emergency Fire Control Handle	Inspect	--				
		Replace	--			277	
		Repair	--				
121501	Emergency Fire Handle Covers	Inspect	--				
		Replace	--			278	
1216	Fire Extinguisher System Switch and Actuator Adapter	Test	--				
		Replace	--			277	
1217	Fire Extinguisher Agent Switch	Inspect	--				
		Replace	--			277	
1218	Fire Extinguisher System Discharge Nozzle	Inspect	--				
		Replace	--			278	
13	ENVIRONMENTAL CONTROL						
1301	Heater Unit	Inspect	--			274, 282	
		Test		--		T62, T63, 242, 278	
		Replace	--			278, 282	
		Repair		--		275, 278	
		Overhaul			--		
1302	Heater Fan	Inspect	--			274	
		Test		--		242, 277	
		Replace	--			282	
		Repair		--		242, 277, 278	



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Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1303	Heater Ducts	Inspect	--				
		Replace	--			278	
		Repair	--			275	
130301	Nose Enclosure Air Diffuser	Inspect	--				
		Replace	--			278	
130302	Defroster Nozzle	Inspect	--				
		Replace	--			278	
130303	Defrost Control	Inspect	--				
		Replace	--			278	
130304	Cockpit Air Controls	Inspect	--				
		Replace	--			278	
130305	Cabin Air Control	Inspect	--				
		Replace	--			278	
1304	Defrost Valve	Inspect					
		Replace				278	
1305	Cabin Temperature Selector Switch	Inspect	--				
		Replace	--			277	
1306	Heater Air Pressure Switch	Inspect	--				
		Replace	--			278	
1307	Cabin Temperature Controller	Inspect	--				
		Replace	--			278	
1308	Cabin Thermostat	Inspect	--				
		Replace	--			278	
1309	Heater Fuel Control	Inspect	--				
		Replace	--			278	
		Overhaul			--		
1310	Heater Fuel Solenoid Valve	Inspect	--				
		Replace	--			278	
1311	Heater Ignition Unit	Inspect	--				
		Replace	--			278	
		Overhaul			--		

MAINTENANCE ALLOCATION CHART								
Section II								
NOMENCLATURE OF END ITEMS								
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks	
			AVUM	AVIM	DEPOT			
131101	Ignition Unit Vibrator	Inspect	--					
		Replace	--			278		
1312	Shielded Lead Assembly	Inspect	--					
		Replace	--			278		
1313	Heater Thermostat Switches	Inspect	--					
		Replace	--			278		
1314	Heater Control Box Relays	Inspect	--					
		Replace	--			277, 282		
1315	Heater Wiring, Hoses, Lines and Fittings	Inspect	--					
		Replace	--			278		
		Repair	--			278		
14	HOISTS AND WINCHES							
1401	Winch, Rescue and Cargo Handling	Inspect	--					
		Test	--					
		Adjust	--					
					--		278	
		Replace	--				278	
		Repair	--					
140101	Clutch Chains and Roller Chains			--		278		
		Inspect	--					
		Replace	--			278		
1402	Hook and Cable Assembly	Inspect	--			274		
		Replace	--			278		
1403	Cable Cutter Assembly			--		242, 278		
		Inspect	--					
		Service	--			278		
1404	Winch Cable	Replace	--			278		
		Inspect	--					
		Replace	--			278		

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1405	Tackle Block/Cable Block	Inspect	--				
		Replace	--			278	
1406	Stowage Container	Inspect	--				
		Replace	--			278	
1407	Hoist Operators Harness	Inspect	--				
15	AUXILIARY POWERPLANT (T-62T-2B)						
1501	APU Assembly	Inspect	--				
		Service	--				
		Test	--			14	
		Replace	--			T57, 251, 260, 278, 282	
<b>NOTE</b>							
Refer to the Maintenance Allocation Chart in TM 55-2835-205-23 for other maintenance functions for the gas turbine auxiliary power unit (APU).							
1502	APU Exhaust Duct	Inspect	--				
		Replace	--			T57, 251, 278, 282	
1503	APU Aft Mounts and Link	Inspect	--			274	
		Replace	--			T57, 278	
		Repair	--			251, 275	
16	MISSION EQUIPMENT						
1601	Center Cargo Hook Assembly	Inspect	--			274	
		Service	--				
		Test	--			278, 282	
					--	231, 235, 238, 270, 286	
		Adjust	--			270	
					--	270	
		Replace	--			278	
		Repair	--			278	
				--	278		
	Install	--			278		

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
160101	Emergency Cable, Manual	Inspect	--				
		Adjust	--			270	
		Replace	--			278	
160102	Spring Emergency Manual Release	Inspect	--				
		Replace	--			278	
160103	Handle, Emergency Manual Release	Inspect	--				
		Replace	--			278	
16010301	Manual Release Mechanism	Inspect	--			278	
16010302	Manual Release Cable	Replace	--				
16010303	Manual Release Cable, Center Hook	Remove	--			278	
		Install	--			278, 305	
		Adjust	--			278	
160104	Cylinder Assembly	Service	--				
		Inspect	--				
		Replace		--			
		Overhaul			--		
1602	Center Cargo Hook Support Beam and Bearings	Inspect	--				
		Replace	--			278, 282	
		Repair	--			278	
160201	Center Cargo Hook Support Beam Bushings and Bearings	Inspect	--			306, 307	
		Replace	--			278, 308	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1603	Forward and Aft Cargo Hook Assembly	Inspect	--	--		274, 278	
		Service	--				
		Test	--	--		202, 235, 242, 277, 286, 291	
		Adjust		--		236, 242, 277, 286, 291	
		Replace	--			267, 278	
		Repair	--	--		236, 239, 242, 266, 278	
160301	Solenoid Cover and Wire Harness	Inspect	--			266	
		Replace	--			267, 277	
160302	Load Beam and Trunion Bumpers	Inspect	--				
		Replace	--			278	
160303	Inspection Windows	Inspect	--				
		Replace	--			278	
160304	Hook Keeper	Inspect	--				
		Replace	--			278	
160305	Threaded Inserts	Inspect		--			
		Replace		--		237	
160306	Manual Release Cable	Inspect	--				
		Replace	--			278, 282	
		Adjust	--			278, 282	
160307	Manual Release Lever	Inspect	--				
		Replace	--			278	
160308	Manual Release Bellcrank	Inspect	--				
		Replace	--			278	
160309	Manual Release Mount	Inspect	--				
		Replace	--			278	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
1604	Paratroop Anchor Lines Assembly	Inspect	--				
		Replace	--			278, 282	
		Repair	--			278	
1605	Flare Dispenser System	Inspect	--				
		Replace	--			277	
		Repair		--		277	16
		Test	--				16
				--		248, 277	16
160501	Status Panel	Inspect	--				
		Replace	--			277	
160502	Timer	Inspect	--				
		Replace	--			277	
160503	Relay	Inspect	--				
		Replace	--			277	
1606	Litters, Poles, and Straps	Inspect	--				
		Replace	--				
		Adjust	--				
160601	Litter Support Bracket	Inspect	--				
		Replace	--			278	
160602	Pilot and Copilot Seat Armor	Inspect	--				
		Replace	--			278	
17	EMERGENCY EQUIPMENT						
1701	First Aid Kit	Inspect	--				
		Replace	--			278	
1702	Emergency Escape Axe	Inspect	--				
		Replace	--			278	
1703	Emergency Exit Lighting	Inspect	--				
		Test	--				
		Replace	--			278	
		Repair	--			277, 278	
170301	Batteries	Service	--			277	

MAINTENANCE ALLOCATION CHART							
Section II							
NOMENCLATURE OF END ITEMS							
(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category			(5) Tools and Equipment	(6) Remarks
			AVUM	AVIM	DEPOT		
170302	Panel and Pan	Inspect	--				
		Replace	--			278	
1704	Inertia Switch	Inspect	--				
		Replace	--			277	
1705	Portable Fire Extinguishers and Brackets	Inspect	--				
		Replace	--			278	

## SECTION III



TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T1	AVUM	Container, Aft Vertical Shaft	8145-01-128-1843	145G0031-1
T2	AVUM	Torque Applicator	5961-00-111-4795	145GS279-1
T3	AVUM	Sling Assembly, Engine Transmissions	1730-00-756-9186	114E5903-1
T4	AVUM	Hoisting Unit	1730-00-760-3367	114E5128-3
T5	AVUM	Socket, Horizontal Hinge Pin Locknut (End Cap)		145G0035-1
T6	AVUM	Pusher, Rotor Head	5120-00-979-7582	114E5803-1
T7		Deleted		
T8	AVIM	Puller, Outboard Seal	5120-00-864-0510	114E5809-1
T9	AVUM	Puller, Bearing, Rotor Head	5120-00-944-2525	114E5813-6
T10	AVUM	Puller, Bearing, and Seal, Rotor Hub	5120-00-917-1020	114E5814-7
T11	AVIM	Drift, Outboard Seal Installation		234G0096-1
T12	AVUM	Guide Set, Roller Bearing Seals, Rotor Hub	5120-00-867-5501	114E5824-4
T13	AVUM	Adapter, Rotor Head Assembly	1730-00-863-5785	114E5840-1
T14	AVIM	Sling, Rotor Head Controls	1730-00-179-1326	114E5852-16
T15	AVUM	Adapter, Forward Transmission	1560-00-863-5886	145E5871-1
T16	AVUM	Adapter, Powerplant	4920-00-917-1880	114E5872-35
T17	AVUM	Adapter, Aft Transmission	4920-01-128-6320	145E5874-1
T18	AVUM	Adapter, Vertical Shaft Assembly	4920-01-130-9688	114E5878-60
T19	AVUM	Adapter, Rotary-Wing Set	4920-01-115-6999	114G0020-1
T20	AVUM	Adapter, Combining Transmission	1730-00-863-5789	114E5888-1
T21	AVUM	Heater Exhaust Cover	1730-00-785-2055	114G1025-1
T22	AVUM	Pin Set, Blade Folding Pitch Lock	1730-00-867-1253	114E5897-11
T23	AVUM	Torque Pack	4920-01-059-2853	PD1220
T24	AVUM	Ring Assembly, Forward Transmission and Aft Vertical Shaft	1730-00-010-7462	114E5909-8
T25	AVUM	Tool Set (Easy-Out), Replacement, Tiedown Receiver	4920-01-123-2576	114G0039-1
T26		Deleted		
T27		Deleted		
T28	AVUM	Reaction Adapter	5120-01-130-1462	145G0037-1
T29	AVUM	Socket, Hub Nut		145G0141-1

TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T30	AVUM	Lifting Device, Rotor Head Assembly	1730-00-945-8251	114E5899-19
T31	AWM	Safety Blocks	1730-00-034-3874	114E5900-17
T32	AVUM	Hoisting Eye, Forward Transmission and Aft Shaft		145E5902-1
T33	AVUM	Guide, Lip Seal, Vertical Hinge Pin	5120-01-130-1464	145G1471-1
T34	AVUM	Sling Assembly, Combining Transmission		145E5903-1
T35	AVUM	Sling, Handling, Rotary Wing Assembly	4920-01-115-7001	145E5911-101
T36	AVUM	Container, Combining Transmission	8145-01-128-4725	145G0024-1
T37	AVUM	Container, Aft Transmission	8145-01-128-1857	145G0023-1
T38	AVUM	Container, Engine Transmission	8115-00-420-7824	114E5918-8
T39	AVUM	Rigging Set, Controls		145E5941-11
T40	AVUM	Line, Tiedown	1730-00-075-1055	114E5060-1
T41	AVUM	Rate Table, Aircraft Displacement (AN/ASM-120 Equiv)	4920-00-923-2391	114E5988-1
T42	AVUM	Dummy Link Assembly (Dash Actuator), P/O 145E5941-11 (T39)		145G5002-1
T43		Deleted		
T44	AVUM	Rigging Pin A, First Stage Mixing Linkage, P/O 145E5941-11 (T39)	1730-01-142-2851	145G5004-1
T45	AVUM	Rigging Pin B, First Stage Mixing Linkage, P/O 145E5941-11 (T39)		145G5004-2
T46	AVUM	Rigging Pin C, First Stage Mixing Linkage, P/O 145E5941-11 (T39)		145G5004-3
T47	AVUM	Reaction Adapter Set, Vertical Hinge Pin	5120-00-625-3885	PD1434
T48	AVUM	Torque Wrench	5120-00-169-2986	PD1201
T49	AVUM	Sling, Aft Transmission, P/O 114E5124-1 (T85)	1730-00-073-3294	114E5119-2
T50	AVUM	Securing Device, Aft Vertical Shaft		145E5996-1
T51	AVUM	AFCS Line Test Set	4920-01-121-0603	145G0009-1
T52	AVIM	AFCS Bench Test Set	4920-01-121-0602	145G0008-1
T53	AVIM	ILCA Bench Test Set	4920-01-121-0604	145GS278-1
T54	AVIM	Sling, Aft Pylon	1730-00-844-2055	114E5855-2
T55	AVIM	Skid, Aft Pylon	1740-00-883-1658	114E5856-22
T55.1	AVIM	Skid Outrigger, Aft		
T56	AVIM	Test Manifold	4920-01-128-6317	145G0054-1
T57		Deleted		
T58	AVUM	Rotary-Wing Head Covers, Forward and Aft	1730-00-839-7063	114G1023-25

TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T59	AVUM	Heater Inlet Cover	1730-00-907-7676	114G1024-1
T60	AVUM	Hydraulic Cooler Exhaust Cover	1730-01-142-2851	145G0004-1
T61	AVUM	APU Exhaust Cover	1730-01-139-4776	145G0005-1
T62		Deleted		
T63		Deleted		
T64	AVIM	Spanner Wrench, Viscous Damper	5120-00-097-8425	114GS225-1
T65	AVUM	Accessory Kit, Track and Balance (VIBREX)	4920-01-115-7002	114G0019-1
T66	AVUM	Oil Cooler Inlet Cover	1730-01-145-1182	145G0001-1
T67	AVUM	Oil Cooler Exhaust Cover	1730-01-136-9764	145G0002-5
T68	AVUM	Oil Cooler Exhaust Cover	1730-01-140-2842	145G0002-6
T69	AVUM	Replacement Fixture, Nickel Erosion Cap	4920-01-115-7000	114G0021-1
T70	AVUM	Protective Cap, Vertical Pin	1560-01-123-2575	114G0017-1
T71	AVIM	Sling Assembly, Aircraft Hoisting	1730-00-071-1690	114G1013-1
T72	AVIM	Rigging Tool, Lead-Lag Damper	5180-00-168-2294	114G1014-17
T73	AVUM	Shipping Container, Rotary-Wing Head	8145-01-128-1739	114G1017-70
T74	AVUM	Shipping Container, Forward Transmission	8145-01-128-1856	145G0022-1
T75	AVUM	Steering Bar, Aft Landing Gear	1730-01-299-8688	CHSE001-2
T76	AVUM	Air Inlet Cover	1730-01-139-4775	145G0003-1
T77	AVUM	Attachment Fittings, Transport Tiedown	1730-00-168-6153	114G1049-14
T78	AVUM	Assembly Fixture, Pitch Link	4920-00-879-3045	114G1102-11
T79	AVUM	Puller, Vertical Pin, Rotor Head	5180-00-103-0001	114G1137-10
T80	AVUM	Engine Outlet Cover	1730-00-191-9373	114G1323-1
T81	AVUM	Pitot Tube Cover	1730-00-435-7802	114E5040-33
T82		Deleted		
T83		Deleted		
T84	AVUM	Adapter, Handling	1740-00-462-8761	114G1354-1
T85	AVUM	Hoist, Aft Transmission	1730-00-960-4004	114E5124-1
T86	AVUM	Container, Shipping and Storage, Rotor Blade	8145-01-102-3048	114G0015-65
T87	AVUM	Pusher, Horizontal Hinge Pin	4920-00-842-5899	114G1185-1
T88	AVIM	Heater Probe	4920-01-152-7450	BH22231
T89	AVUM	Bracket Locating Fixture, Proximity Switch	4920-01-147-6321	145G0059-1
T90	AVUM	Test Set, Hydraulic System	4920-00-174-7823	114G1038-86
T91		Deleted		
T92		Deleted		

TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T93	AVUM	Adapter, Socket, Forward Transmission Mounting Bolts		145G0140-1
T94	AVUM	Drift, Bearing, Aft Landing Gear	5120-00-891-1369	114G1200-1
T95		Deleted		
T96		Deleted		
T97	AVUM	Drift, Bearing, Aft Landing Gear	5120-00-993-5117	114G1203-1
T98	AVUM	Puller/Pusher, Damper Bracket Bushing	5120-01-123-2682	114G0018-6
T99		Deleted		
T100	AVIM	Test Set, Viscous Damper	4920-00-484-3958	114G1208-1
T101	AVUM	Jetcal Analyzer, Temperature Tester	4920-00-372-4593	BH112JB-53
T102	AVUM	Puller Assembly, Bearing, Pitch Housing	5120-00-879-3710	114G1236-1
T103	AVUM	Protective Cover, Cockpit	1730-01-136-5619	145G0006-1
T104	AVUM	Test Harness, Engine PTIT Indicator System and Emergency Power Panel	4920-01-152-7452	BH22101
T105	AVUM	Swaging Tool, Pitch Link	5120-00-247-0216	114G1263-1
T106	AVIM	Setting Fixture, Blade Lag Shock Absorber	4920-00-369-9545	114G1306-1
T107	AVUM	Container, Blade Lag Shock Absorber	8115-00-400-7730	114G1322-1
T108	AVIM	Staking Die, Shock Absorber Assembly	5120-00-400-7708	114G1334-1
T109	AVIM	Staking Tool, Aft Engine Mount	5180-00-176-3726	114G1359-1
T110	AVIM	Fixture, Locating, Sliding Beating, Rotor Head Controls	4920-00-522-3784	114G1373-1
T111	AVUM	Tempcal Probe, Temperature Transmitter Chip Detector	4920-01-151-9218	BH22223
T112	AVUM	Test Harness, Self-Tuning Dynamic Absorber	4920-00-134-4534	114G1408-1
T113	AVIM	Locating and Drill Fixture, Sync Shaft Brackets	4920-00-176-4260	114G1410-1
T114	AVIM	Locating and Drill Fixture, Sync Shaft Brackets	4920-00-157-1427	114G1411-1
T115	AVUM	Test Harness Set, N1 Actuator System	4920-00-150-5955	145G1414-1
T116	AVUM	Repair Fixture, Rotor Blade Trailing Edge	4920-01-115-6998	145G1004-1
T117	AVIM	Test Block, Flight Control Power Control Module Accumulator	4920-01-128-6315	145G0055-1
T118	AVIM	Test Block, PTU Motor Shaft Seal	4920-01-128-6316	145G0056-1
T119	AVUM	Yaw Travel Quadrant, p/o 145E5941-11 (T39)		145G5310-1
T120	AVUM	Roll Travel Quadrant, p/o 145E5941-11 (T39)		145G5310-5
T121	AVUM	Pitch Travel Quadrant, p/o 145E5941-11 (T39)		145G5310-8

TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T122	AVUM	Thrust Rig Pin, p/o 145E5941-11 (T39)		114E5941-4
T123	AVUM	Cockpit Rig Fixture, p/o 145E5941-11 (T39)		114E5941-21
T124	AVUM	Pointer Assembly, p/o 145E5941-11 (T39)		114E5941-26
T125	AVUM	Control Stick Yoke, p/o 145E5941-11 (T39)		114E5941-57
T126	AVUM	Pedal Pointer, p/o 145E5941-11 (T39)		114E5941-73
T127	AVUM	Pedal Rig Pin, p/o 145E5941-11 (T39)		114E5941-74
T128	AVUM	Transfer Bellcrank Rig Pin, p/o 145E5941-11 (T39)		114E5941-108
T129		Deleted		
T130	AVUM	Dash Actuator Rigging Tool, p/o 145E5941-11 (T39)		145G5306-1
T131	AVUM	Engine Inlet Cover (Helicopter with Screens)	5961-00-847-5244	219G1001-1
T132	AVUM	Engine Inlet Cover (Helicopter without Screens)	1730-00-990-9838	114G1206-1
T133	AVUM	Pallet Rig Pin, p/o 114E5941-11 (T39)		114E5941-4
T134	AVUM	Sling, Engine	1730-01-007-6990	LTCT14700
T135	AVUM	Second Stage Rig Pin, p/o 114E5941-11 (T39)	1730-00-760-3375	114E5985-9
T136	AVIM	Repair Kit, Hydraulic Tube, p/o D12102C-15-H10 (T181)	5180-01-115-7008	D12102C01-01
T137	AVIM	Repair Kit, Hydraulic Tube, p/o D12102C-15-H10 (T181)	5180-01-026-0255	D12102C06-06
T138	AVIM	Repair Kit, Hydraulic Tube, p/o D12102C-15-H10 (T181)	5180-01-026-0254	D12102C09-04
T139	AVIM	Power Supply, Hydraulic Tube Repair, p/o D12102C-15H10 (T172)	4320-01-098-6713	D12025-001
T140	AVUM	Tool Kit, Rosan Adapter	5180-00-283-6993	KM13
T141	AVUM	Tool Kit, Rosan Adapter	5180-00-283-6992	KM14
T141.1	AVUM	Tool Kit, Rosan Adapter		KM15
T142	AVUM	Tool Kit, Rosan Adapter	5180-00-283-6999	KM18
T143	AVUM	Tool Kit, Rosan Adapter	5180-00-283-6989	KM19
T143.1	AVUM	Tool Kit, Rosan Adapter		KM28
T143.2	AVUM	Tool Kit, Rosan Adapter		KM29
T144	AVUM	Tool Kit, Rosan Adapter	5180-00-075-0766	KM30
T145	AVUM	Tool Kit, Rosan Adapter	5180-00-077-1578	KM31
T145.1	AVUM	Tool Kit, Rosan Adapter		KM32
T145.2	AVUM	Tool Kit, Rosan Adapter		KM33

TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T145.3	AVUM	Tool Kit, Rosan Adapter		KM35
T145.4	AVUM	Tool Kit, Rosan Adapter		KM36
T146	AVIM	Bender Set, Hydraulic Tube		130-8500800
T147	AVUM	Drive Tool, Clinch Nut, Aft Trans	5120-00-455-2734	REA048D
T148	AVUM	Drive Tool, Clinch Nut, Aft Trans	5120-01-130-1458	REA064D
T149	AVUM	Removal Tool, Rosan Adapter		RF12LPDE
T150	AVUM	Removal Tool, Rosan Adapters	5120-01-047-9302	RF16LPDE
T150.1	AVUM	Drive Tool and Combination Wrench, Rosan Adapters		RF9806DW
T150.2	AVUM	Drive Tool and Combination Wrench, Rosan Adapters		RF9808DW
T150.3	AVUM	Drive Tool and Combination Wrench, Rosan Adapters		RF9810DW
T151	AVUM	Drive Tool and Combination Wrench, Rosan Adapters	5120-01-130-1459	RF9812DW
T152	AVUM	Drive Tool and Combination Wrench, Rosan Adapters	5120-01-130-1460	RF9816DW
T152.1	AVUM	Lockring Removal Tool, Rosan Adapters		RF9806LPD
T152.2	AVUM	Lockring Removal Tool, Rosan Adapters		RF9808LPD
T152.3	AVUM	Lockring Removal Tool, Rosan Adapters		RF9810LPD
T152.4	AVUM	Lockring Removal Tool, Rosan Adapters		RF9816LPW
T152.5	AVUM	Packing Tool, Rosan Adapters		ORT437
T152.6	AVUM	Packing Tool, Rosan Adapters		ORT562
T152.7	AVUM	Packing Tool, Rosan Adapters		ORT687
T152.8	AVUM	Packing Tool, Rosan Adapters		ORT1125
T153	AVIM	Insertion Tool, Cargo Hook	5120-00-964-3494	TD428L
T154	AVIM	Insertion Tool, Cargo Hook	5120-00-134-7498	TD1032L
T155	AVIM	Insertion Tool, Cargo Hook		TKNC06
T156		Deleted		
T157	AVIM	Spanner Wrench-Spring Return Assembly Cargo Hook		34-151
T158	AVUM	Test Set, Fuel Vent Check		2TE414P0200-8
T159	AVUM	Torque Reactor, Fwd Transmission Mounting Bolts	5120-01-130-1463	145G0051-1
T160	AVUM	Torque Plate, Aft Transmission	1730-01-130-9689	145G0034-1
T161	AVUM	Tee Handle, P/O PD1220 (T23)	5120-01-140-3480	PD1612
T162	AVIM	Test Fixture, Accumulator, APU Start Module	4920-01-128-6318	1323TF100-1

TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T163	AVUM	Sling, Handling, Aft Transmission (Alternate Use With T3)	1730-00-226-3069	114E5924-1
T164		Deleted		
T165		Tackle Block		114E6058-23
T166		Bomb Hoist	1730-01-161-8623	1353 A5100-1
T167	AVUM	Seal and Window Retainer Installation Tool P/O Kit CS1154	5120-00-366-5065	756460/756461
T168	AVUM	Seal Filler Installation Tool, P/O Kit CS1154	5120-00-075-8307	756470/756476
T169		Roller Staking Kit		114G1425-1
T170	AVUM	Spray Gun		MMM8897
T171		Trim Tab Fixture		145G1019-29
T172		Tool Set, Hydraulic Tube		D12102C-15-H10
T173	AVIM	Seal Installation Tool, Ramp Control Valve (Cage 26437)		T-1FA13043-007
T174	AVIM	Seal Sizing Tool, Ramp Control Valve (Cage 26437)		T-1FA13043-007A
T175	AVIM	Seal Installation Tool, Ramp Control Valve (Cage 26437)		T-1FA1305592
T176	AVIM	Seal Sizing Tool, Ramp Control Valve (Cage 26437)		T-1FA1305593
T177	AVIM	Seal Sizing Tool, Ramp Control Valve (Cage 26437)		T-1FA1305594
T178	AVIM	Thermal Relief Valve Test Fixture, Ramp Control Valve (Cage 26437)		TF-1FA1304375
T179	AVIM	Plug, Thermal Relief Valve Test, Ramp Control Valve (Cage 26437)		TP-1FA1304375
T180		Deleted		
T181		Tube Bending Set, Acro		130-850080
T182		Tool Kit, Combining Transmission Support Fitting Replacement		234SK033-3
T183	AVUM	Fuel Quantity Test Set	6625-01-297-5305	PSD60-1AF
T184	AVUM	Fuel Quantity System Test Cable	5995-01-384-3961	PSDAF-106
T185	AVUM	Engine Water Wash System		LTCT 23980-01
T185.1	AVUM	Juniper Engine Wash System		JMP/SHWR/D/0376/0800/BH
T186.1	AVUM	Ohmmeter, Low Resistance (Biddle)		Model 247000
T187	AVUM	Digital Multimeter		AN/PSM-45A
T188	AVUM	Elec Torquemeter, Flight Line Test Set		LTCT 29089-01/-03
T200	AVUM	Air Remover, Lamb		

TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T200.1	AVUM	Assembly Fixture		ST71188
T201	AVUM	Bag, Shot		
T202	AVUM	Coupling Stowage	5935-00-982-1906	MS3180-16C
T203	AVUM	Container, Lead Lined		2S
T204	AVUM	Container, Rubber Lined		
T205	AVUM	Container, Engine		
T206	AVUM	Counterbore, Craig		850-20
T207	AVIM	Counter, Electronic		AM/USM26
T208	AVIM	Dial, Spring Reversing -25 to +25 Pounds		
T208.1	AVIM	Driver, Seal	5120-00-942-1605	ST70273
T208.2	AVIM	Driver, Seal	2835-00-620-9876	ST90889-01
T209	AVIM	Flowmeter, 0-2 gpm		
T210	AVIM	Flowmeter, 0-5 gpm		
T210.1	AVIM	Gage Set, Wire		ST60880
T211	AVIM	Graduate, 5cc		
T212	AVIM	Graduate, 10cc		
T213	AVIM	Graduate, 20cc		
T214	AVIM	Graduate, 50cc		
T215	AVIM	Graduate, 100cc		
T216	AVIM	Graduate, 500cc		
T217	AVUM	Graduate, 2000cc		
T218	AVIM	Heat Sink	3439-00-973-2249	
T219	AVUM	Indicator, Combustible Gas		
T220	AVUM	Kit, Mooring	1730-00-338-6374	AN8015-2
T221	AVUM/ AVIM	Kit, Roller Staking	5120-00-311-5446	
T222	AVIM	Kit, Rosan	5180-00-778-3789	
T222.1	AVUM	Lifting Fixture	4920-01-135-5987	ST93929
T223	AVUM	Manometer		
T224	AVIM	Meter, Test Set	6625-00-669-0747	TS-682A/GSM-1
T225	AVUM	Multiplier	5120-00-506-9092	SWE-101
T226	AVUM	Mixer, Power		
T227	AVIM	Pilot, Seal		
T227.1		Deleted		



TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T228	AVUM	Pump, Siphon		
T229	AVIM	Reamer 1.876 to 1.877 Inch		
T229.1		Deleted		
T230	AVUM	Repair Tool, Pneumatic		
T231	AVUM/ AVIM	Scale, 0 to 100 Pounds		
T232	AVUM	Screwdriver, Torque 0-30 Inch-Pounds		
T233	AVIM	Scale, Dial Indicating 0 to 0.5 Inch		
T234	AVUM	Screwdriver, Torque 0 to 50 Inch-Pounds		
T235	AVIM	Shop Set, Hydraulic	4920-00-165-1454	SC492099CLA9LHYA
T236	AVIM	Shop Set, Electrical and Instrument	4920-00-165-1453	SC492099CLA91ELA
T237	AVIM	Shop Set, Machine	4920-00-405-9279	SC492099CLA91MAA
T238	AVIM	Shop Set, Power Train	4920-00-001-4132	SC492099CLAMTAM
T239	AVIM	Shop Set, Sheet Metal	4920-00-166-5505	SC492099CLA91SMA
T240	AVIM	Shop Set, Turbine Engine	4920-00-224-3684	SC492099CLA91ENT
T241	AVIM	Shop Set, Welding	4920-00-163-5093	SC492099CLA91WEA
T242	AVIM	Shop Set, Tool Crib	4920-00-472-4183	AC492099CLA91TCA
T243	AVUM	Socket, 1-3/16 Inch		
T244	AVUM	Socket, 1-1/2 Inch		
T245	AVUM/ AVIM	Socket, 2-1/8 Inch		
T245.1	AVUM	Support Fixture	4920-00-939-1521	ST91717
T246	AVUM	Strap, Tiedown	1670-00-622-3632	SP-4435-2
T247	AVUM	Support, Guide		SLT600T9
T248	AVIM	Test Set	4940-01-048-9677	
T249	AVIM	Test Set, Resistance	6625-00-5422-1331	AN/GSM-6
T250	AVUM	Tester Squib	4925-00-973-3759	MOD115
T251	AVUM	Deleted		
T252	AVIM	Test Set Dielectric		HYP0T1404
T253	AVUM	Test Set, Synchro	4920-00-556-8108	TTU-33/E
T254	AVUM	Test Set, Tach	4920-00-621-2427	TTU-27/E
T255		Deleted		
T256	AVUM	Tool, Module Extraction	5120-01-097-5219	CTJ-R06

TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T257	AVUM	Thermometer Tester, Elect		
T258	AVUM	Trailer, Powerplant		
T259	AVUM	Trailer Trans, 2000 Pounds		
T260	AVUM	Trailer, APU	1740-00-516-7929	100334
T260.1	AVUM	Tool Set, AVUM, Set No. 2	4920-00-569-0476	SC492099CLA92
T261	AVUM	Tool, Guide		SLT600G9
T262	AVUM	Tool, Window		756460
T263	AVUM	Tool, Window		756475
T264	AVUM	Tool, Installation		TMD-428L
T265	AVIM	Tool, Contact Removal/Insertion	5120-00-915-4588	M81969/14-03
T266	AVUM/ AVIM	Tool, Contact Removal/Insertion		M83723-31-20
T267	AVUM/ AVIM	Tool Hand, Self Clinching	5120-00-781-7891	
T268	AVUM/ AVIM	Tool Kit, Electronic Repairer	5180-00-064-5178	SC518091CLR13
T269	AVUM/ AVIM	Tool Kit, Electronic Equipment	5180-00-610-8177	SC518091CLR07
T269.1		Deleted		
T270	AVUM/ AVIM	Tool Kit, Hydraulic Repairer	518Q-00-323-4891	SC518097CLA05HR
T270.1	AVUM/ AVIM	Tool Kit, Aircraft Inspector	5180-00-323-5114	SC518097CLA09
T271	AVUM	Tool Kit, Instrument Repairer	4920-00-323-4913	SC518099CLA05
T272	AVUM/ AVIM	Tool Kit, Powerplant Repairer	5180-00-323-4944	SC518099CLA07
T273	AVUM/ AVIM	Tool Kit, Powertrain Repairer	5180-00-003-5267	SC518099CLA13
T274	AVUM/ AVIM	Tool Kit, Technical Repairer	5180-00-323-5114	SC518099CLA09
T275	AVUM/ AVIM	Tool Kit, Airframe Repairer	5180-00-323-4876	SC518099CLA02
T276	AVUM	Tool Kit, Battery Service	5180-00-542-5812	SC518091CLR03

TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T277	AVUM/ AVIM	Tool Kit, Electrical Repairer	5180-00-323-4915	SC518099CLA06
T278	AVUM/ AVIM	Tool Kit, Aircraft Mechanic	5180-00-323-4692	SC518099CLA01HR
T279	AVUM	Tool Set, No. 1 Reciprocating Engine	4920-00-159-8728	SC492099CLA90REC
T280	AVUM	Tool Set, No. 1 Fixed Base	4920-00-504-9258	SC492099CLA90W0S
T281	AVUM	Tool Set, No. 1 Airmobile	4920-00-159-8727	SC492099CLA90
T282	AVUM	Tool Set, No. 2 Airmobile	4920-00-567-0476	SC492099CLA92
T283	AVIM	Voltmeter, Differential		Fluke 803B
T284	AVIM	Voltmeter, Digital		
T285	AVUM	Voltmeter		
T286	AVIM	Weight, 20 Pounds		
T287	AVIM	Weight, 25 Pounds		
T288	AVIM	Weight, 50 Pounds		
T289	AVIM	Weight, 94 Pounds		
T290	AVIM	Weight, 160 Pounds		
T291	AVIM	Weight, 250 Pounds		
T291.1	AVIM	Welding Set, Inert Gas	3431-00-079-0498	
T292	AVUM	Wheel, Buffing, Unstitched		
T293	AVUM	Wheel, Buffing Stitched		
T294	AVUM	Wrench	5120-00-076-4380	XW20509
T295	AVUM	Wrench, Box, 1-1/2 Inch		
T296	AVUM	Wrench, Open-End, 1-3/4 Inch		
T297	AVUM	Wrench, Open-End, 1-7/8 Inch		
T298	AVUM	Wrench, Spline	5120-00-288-9085	
T299	AVUM	Wrench, Open-End, 1 Inch		
T300	AVUM	Wrench, Open-End, 2-1/2 Inch		
T301	AVUM	Crowfoot Attachment, 11/16 Inch		
T302	AVIM	Wrench, Open-End, 1-1/8 Inch		
T303	AVUM	Vacuum Pump		
T304	AVUM	Trip Balance	6670-00-401-7195	

TOOL AND TEST EQUIPMENT REQUIREMENTS				
NOMENCLATURE OF END ITEMS CH-47D HELICOPTER				
TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINT. CAT.	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
T305		Wrench, 1/4 Inch Drive Torque	5120-00-542-4489	
T306	AVUM	Telescoping Gage	5120-00-221-2086	
T307	AVUM	Outside Micrometer Caliper Set		GGG-C-105
T308	AVUM	Blind Hole Puller Set	5120-01-008-7974	
T309	AVUM	Remote Tire Inflator		AS1675
T310	AVIM	Test Adapter		145GS278-20
T311	AVUM	Engine Harness Connector Retention Tool		SK32193-1
T312	AVUM	Engine Harness Connector Retention Tool		SK32193-5
T313	AVUM	Spanner Wrench		145G1150-1
T314	AVUM	On Wing Diagnostic Computer Set		LTCT 29330-02

## SECTION IV

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REFERENCE CODE
REMARKS/NOTES

The notes 1 thru 28 indicate a notation or remark on that particular maintenance function (Section II) as follows:

1. Limited to airframe repairman's tool kit and portable handtools
  2. Epoxy
  3. Patching by hand methods only
  4. Tire recap
  5. Vibration check
  6. Refer to TM 55-2840-254-23
  7. Includes filter replacement
  8. Test equipment 13819-2A
  9. Refer to TM 11-1520-240-23
  10. Cable adjustment
  11. Using teststand
  12. Buildup
  13. Replace cyclic trim link
  14. Refer to TM 55-2835-205-23
  15. Not requiring jigs or fixtures
  16. Refer to TM 9-1095-206-13 & P
  17. Water/solvent wash-engine in airframe
  18. Weld repair
  19. Replace inserts, helicoils, and studs
  20. Replace support brackets, plugs, and packings
  21. Inspect for chafing, security of installation, dents, kinks, and cracks
  22. Replace nut plates
  23. Limited to reinstallation of same housing
  24. Replacement of impellers limited to Depot level only
  25. As indicated by instructions in this manual
  26. Limited to the capability (skills, tool, test/support equipment, and facilities) available
  27. Without **74**
  28. With **74**
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## **APPENDIX C AIRCRAFT INVENTORY**

(See Chapter 1, Task 1-109.)



## **APPENDIX D EXPENDABLE SUPPLIES AND MATERIALS**

(See Chapter 1, Task 1-18)





**APPENDIX E**  
**ILLUSTRATED FIELD MANUFACTURED ITEMS LIST**

## SECTION I

### INTRODUCTION

This appendix includes complete instructions for making items authorized to be manufactured or fabricated at aviation unit maintenance.

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the figure which covers fabrication criteria.

All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

E-1	Engine Vibration Test Adapter
E-2	Pitch Housing Seal Removal Tool
E-3	Ramp Control Valve Spanner
E-4	Rotary-Wing Head Pressure Test Fittings and Hose
E-5	Rotor Blade Phasing Block Tool
E-6	LCT Shaft Rotation Lever
E-7	Drive Arm Bushing Installation Adapter
E-8	Sleeve Bearing Removal Adapter
E-9	Sleeve Bearing Installation Adapter
E-10	Drive Arm Removal/Installation Adapter
E-11	Accumulator Leak Test Reservoir
E-12	Hand Pump Test Hydraulic Fluid Reservoir
E-13	Forward LCT Yoke Bushing Removal Tool
E-14	Aft LCT Yoke Bearing Removal Tool
E-15	Cockpit Control Bearing Installation Tool
E-16	Fuel Cell Support Rig
E-17	Refueling System Test Closure Plates
E-18	Forward and Aft Cargo Hook Wire Rope
E-19	Brake Master Cylinder Test Stand
E-20	Heater Fan Support Plate
E-21	Flight Control Cooling Fan Support Plate
E-22	Hydraulic Cooling Fan Support Plate
E-23	(Deleted)
E-24	Lower Drive Arm Bolt Removal Tool
E-25	Upper Drive Arm Bolt Removal Tool
E-26	Strap 145S4908-2 And -16
E-27	(Deleted)
E-28	(Deleted)
E-29	Aluminum Scraper

- E-30 PTU Spanner Wrench
- E-31 Fill Module Support Plate
- E-32 Servocylinder Inspection Fixture
- E-33 Avionics Cooling Fan Support Plate
- E-34 Extensible Link Test Cable 145GS278-20
- E-35 Landing Gear Disk Brake Spanner
- E-36 AFCS Computer Test Hose 1
- E-37 AFCS Computer Test Hose 2
- E-38 Cockpit Transfer Bellcrank Shaft Puller
- E-39 Fuel Hose Assemblies (Various Part Numbers)
- E-40 Forward and Aft Cargo Hook Mount Bushing Tool
- E-41 Shock Absorber Rod End Bearing Pusher Assembly
- E-42 Torquemeter Zero-Adjust Test Cable
- E-43 Fuel Quantity Indicator Test Cable
- E-44 Rotor Blade Balance Weight Spacer 114R1737-2
- E-45 Forward Transmission Mounting Structure Bushing Puller
- E-46 Engine Screen Latch Eyelet 234P5052-7
- E-47 Engine Screen Latch Clip 234P 5052-4
- E-48 Engine Screen Latch Clip 234P5052-3, -8, and -9
- E-49 Engine Screen Latch Retainer 114P8080-18
- E-50 Tube Assemblies (Various Part Numbers)
- E-51 Three-Prong Seal Insertion Tool
- E-52 Seal Forming Tool
- E-53 Aft Landing Gear Drag Link/Shock Strut Liners 145L2330-2 and -/SK31250
- E-54 Teflon Washer 234R2205-1
- E-55 Fuel Tank Test Plug
- E-56 Inboard Seal Installation Drift
- E-57 Modified Socket
- E-58 Exhaust Duct and Partition Seal 145S4106-4
- E-59 De-Ice Protection Hinge Half 145R2215-8
- E-60 De-Ice Protection Hinge Pin 145R2215-9
- E-61 Thrust and Yaw Controls Strap 145C1460-10
- E-62 Heater Drain Tube 114E4042-31
- E-63 Heat Airflow Control Tube 114E4072-13
- E-64 Troop Commander Jump Seat Strap 114E4004-7
- E-65 Tackle Block Cable 114E6058-19
- E-66 Acoustic Ceiling Blankets Rope 145E4019-28
- E-67 Acoustic Ceiling Blankets Tube 145E4019-29
- E-68 Acoustic Ceiling Blankets Rope 145E4019-40
- E-69 External Cargo Hook Release Cable 145E5507-2

**TM 55-1520-240-23-11**

- E-70 Emergency Release Cable 114E5090-13
- E-71 Hose Assembly MS27371E0460
- E-72 Troop Seat Upper Tube 114E4116-23
- E-73 Troop Seat Support Tube 114E4079-35
- E-74 Cabin First Aid Kit Blanket 114E4014-11
- E-75 Hoist Operator Panel Bracket 114E4153-3 and -4
- E-76 Hoist Operator Panel Blanket 114E4153-5
- E-77 Loading Pole Stowage Angle 114E5105-13
- E-78 Loading Pole Stowage Pad 114E5105-15
- E-79 Loading Pole Stowage Angle 114E5105-19
- E-80 Loading Pole Stowage Angle 114E5105-21
- E-81 Hoist Operator Panel Support Clip 114E4108-27
- E-82 Hoist Operator Panel Support Clip 114E4108-29
- E-83 Hoist Operator Panel Support Strap 114E4108-31
- E-84 Support Assembly Cable 114E4108-35
- E-85 Forward Transmission Drain Hose TS000-012-0280
- E-86 Combining Transmission Drain Hose TS000-012-0300
- E-87 Drive Shaft and Gearbox Spacer 114P5003-141
- E-88 Engine Bypass Screen Fairing Cushion 114P8073-9
- E-89 Engine Bypass Screen Nose Cushion 114P8073-13
- E-90 Electrical Lead MS25083-2AA4
- E-91 Engine Access Cover Hinge 114P8030-89, -91, -63
- E-92 Engine Access Cover Hinge 114P8030-77, -93, -95
- E-93 Access Cover Bracket 114P8043-1
- E-94 Engine Access Cover Cable 114P8031-61
- E-95 External Cargo Hook Manual Release Cover 145E5511-2
- E-96 Fwd Pylon Cooling Air Inlet Frame 145S1903-3
- E-97 Fwd Pylon Cooling Air Inlet Retainer Strip 145S1903-5
- E-98 Deleted
- E-99 Fwd Pylon Cooling Air Inlet Strap 145S1903-19
- E-100 Fwd Pylon Cooling Air Inlet Retainer Strip 145S1903-21
- E-101 Fwd Pylon Cooling Air Inlet Door Hinge 145S1903-16
- E-102 Engine Demountable Bracket 114P5018-1
- E-103 Engine Demountable Bracket 114P5018-2
- E-104 Fwd Pylon Fixed Fairing Hinge 114S1902-117
- E-105 Fwd Pylon Fixed Fairing Rubber Seal 114S1902-215
- E-106 Cabin Escape Hatch Rubber Seal 114S1619-21
- E-107 Cabin Lower Door Retainer 114S1620-21
- E-108 Cabin Lower Rubber Seal 114S1620-43
- E-109 Electrical Lead MS25083-2AB7

E-110 Packing Material MS28932C09  
E-111 Bonding Jumper MS25083-2AC8  
E-112 Access Tunnel Cover Seal 114S2915-38  
E-113 Leading Edge Fairing Seal 145S4906-31  
E-114 Angle 414E3302-23  
E-115 Electronics Compartment Hat Section 414E3301-6  
E-116 Cabin Floor Plate 114S2554-19  
E-117 Gang Channel 114S2554-53  
E-118 Gang Channel 114S2554-47  
E-119 Access Door Strap 114S4603-19  
E-120 Lower Engine Access Panel Cable 114P8052-3  
E-121 Lower Engine Access Panel Stud 114P8052-2  
E-122 Aft Pylon Hydraulic Bay Door Bracket 145S4607-9  
E-123 Engine Drag Strut Slotted Bushing Installation Bar  
E-124 Angle 414E3325-6  
E-125 Radio Compartment Rack Bracket 145S1621-12  
E-126 Corner Angle 145E3102-17  
E-127 Seal 114S4901-105  
E-128 Chafing Strip 114S4901-213  
E-129 Fuel Pod Access Panel Strap 114S5913-8  
E-130 Cargo Door Seal Strip 114S6002-161, -162  
E-131 Cargo Door Seal Plug 114S6002-105  
E-132 Ramp Forward Edge Bearing Pad 145S6554-19  
E-133 Ramp Forward Edge Bearing Pad 114S6554-17  
E-134 Ramp Forward Edge Bearing Pad 114S6554-15  
E-135 Aft Transmission Drip Tray Bumper 234S3607-19  
E-136 Auxiliary Fuel Pod Bottom Isolation Strap 114S5824-62  
E-137 Aft Transmission Drip Tray Chip Detector Cover Strap 145S3620-11  
E-138 Aft Landing Gear Door Chafing Strip (Upper) 114S5905-111  
E-139 Aft Transmission Cooler Exhaust Screen 145S3504-2  
E-140 Cabin Crown Tunnel Drain Hose 145S1652-19  
E-141 Cabin Crown Tunnel Drain Hose 145S1652-18  
E-142 Cargo Door Coaling Seal Clamp 114S3908-25, -26  
E-143 Fuselage Step Door 114S5602-19  
E-144 Cabin Crown Support Angle 114S2710-45  
E-145 APU Closure Deck Installation Bracket 114S3157-96  
E-146 Aft Transmission Exhaust Duct Seal 145S3701-4  
E-147 Aft Transmission Drip Pan Seal Retainer 114S3607-198  
E-148 Aft Transmission Drip Pan Seal Retainer 114S3607  
E-149 Electric Compartment Access Panel Seal 114S59816-43

- E-150 Nose Door Assembly Hinge Pin 114S1632-23
- E-151 Lower Cockpit Enclosure Door Seal 114S1604-247
- E-152 Forward Transmission Drip Pan Angle 145S1112-10
- E-153 Aft Transmission Drip Tray Chip Detector Cover Seal 145S3620-12
- E-154 Angle Rail (Radar Warning Mount) 145E3002-10
- E-155 Angle Rail (Radar Warning Mount) 145E3002-30
- E-156 Left Hand Electrical Pod Bracket 145E2118-3
- E-157 Left Hand Electrical Pod Bracket 145E2118-6
- E-158 Overhead Panel Channel 414E2029-2
- E-159 Overhead Panel Tee 414E2029-10
- E-160 Overhead Panel Channel 414E2029-14
- E-161 Overhead Panel Channel 414E2029-34
- E-162 Relay Bracket Power Distribution Panel 414E2009-15
- E-163 Auxiliary Pod Plate Isolation Installation 414S5824-13
- E-164 Forward Pylon Work Platform Seal 114S1903-739
- E-165 Forward Pylon Fairing Seal 114S1902-387
- E-166 Forward Pylon Fairing Seal 114S1902-386
- E-167 Upper Cabin Door Shim 114S1621-35
- E-168 Upper Cabin Door Shim 114S1621-33
- E-169 Upper Cabin Door Shim 114S1621-39
- E-170 Upper Cabin Door Shim 114S1621-37
- E-171 Left Hand Electrical Compartment Battery Angle 114E2156-32
- E-172 Left Hand Electrical Compartment Battery Angle 114E2156-31
- E-173 Fuselage Cabin Section Seal 114S2903-31, -33
- E-174 Terminal Board Cover MS18029-2S9, -1S12, -2S16
- E-175 Spacer Beam Cover Panel 114S1655-14
- E-176 Beam Cover Hinge Halves 114S1655-15, -16
- E-177 PDP Housing Assembly Support 145E2158-21
- E-178 PDP Housing Assembly Wire Support 145E2158-33
- E-179 Drive Shaft and Gearbox Fairing Spacer 114P5003-142
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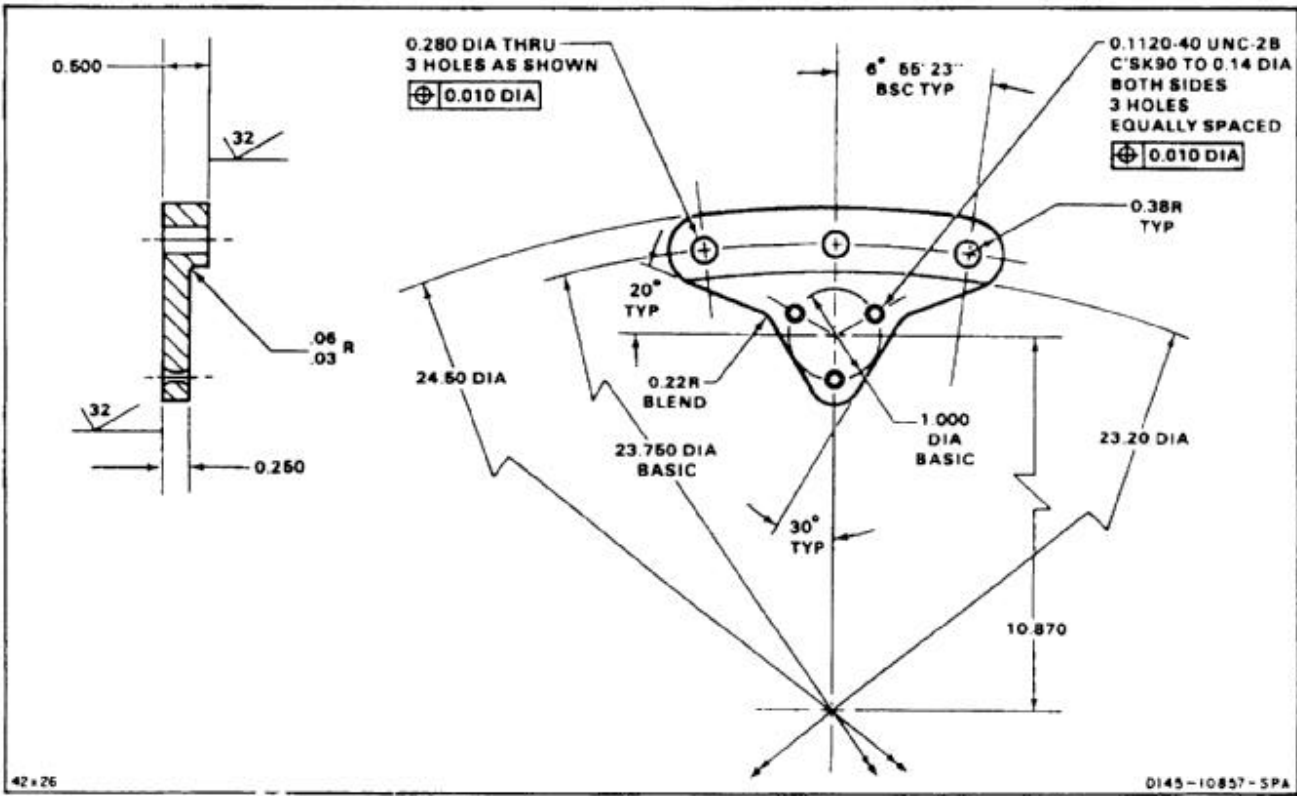


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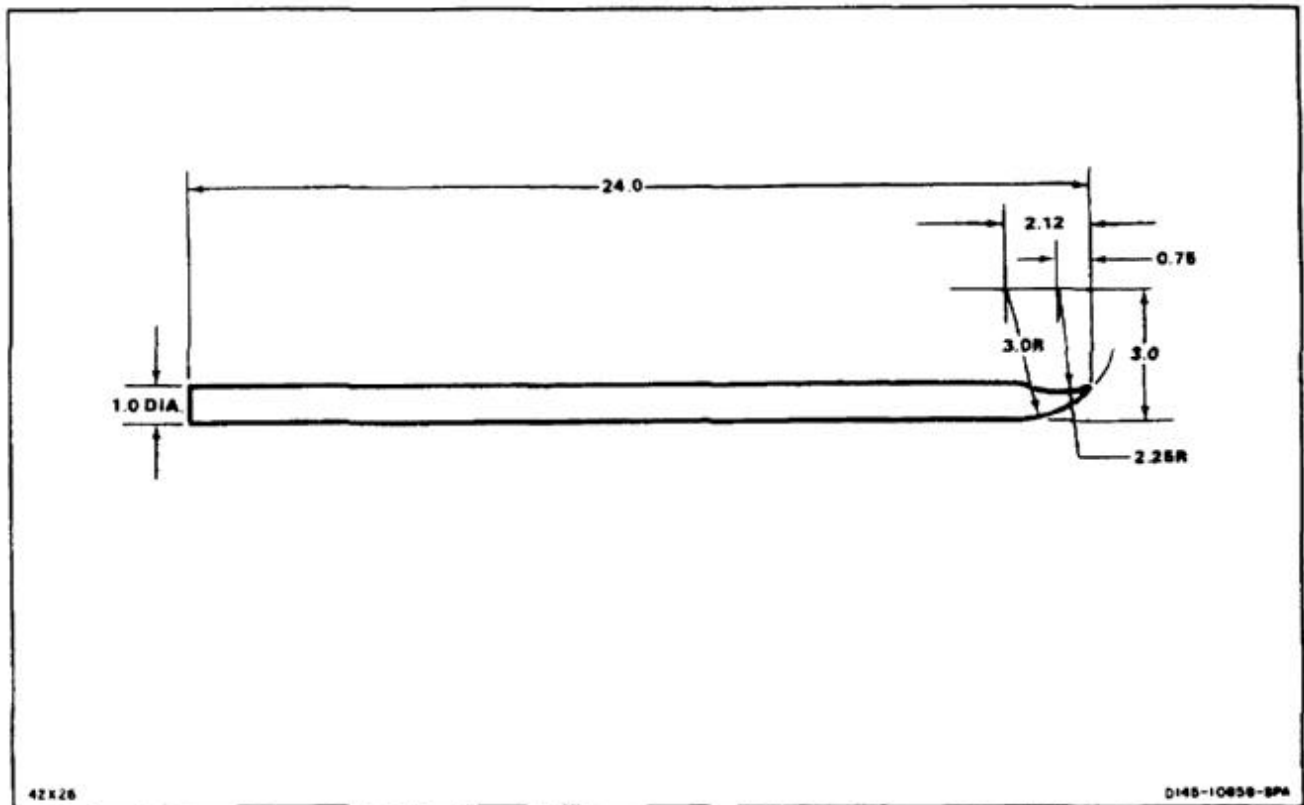
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2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES:  
 .X =  $\pm .03$   
 .XX =  $\pm .03$   
 .XXX = .010  
 ANGLES  $\pm 2^\circ$
4. BREAK SHARP EDGES.
5. SURFACE TREATMENT PER MIL-C-13924CL1.



END OF TASK

**E-2 PITCH HOUSING SEAL REMOVAL TOOL****E-2****NOTES:**

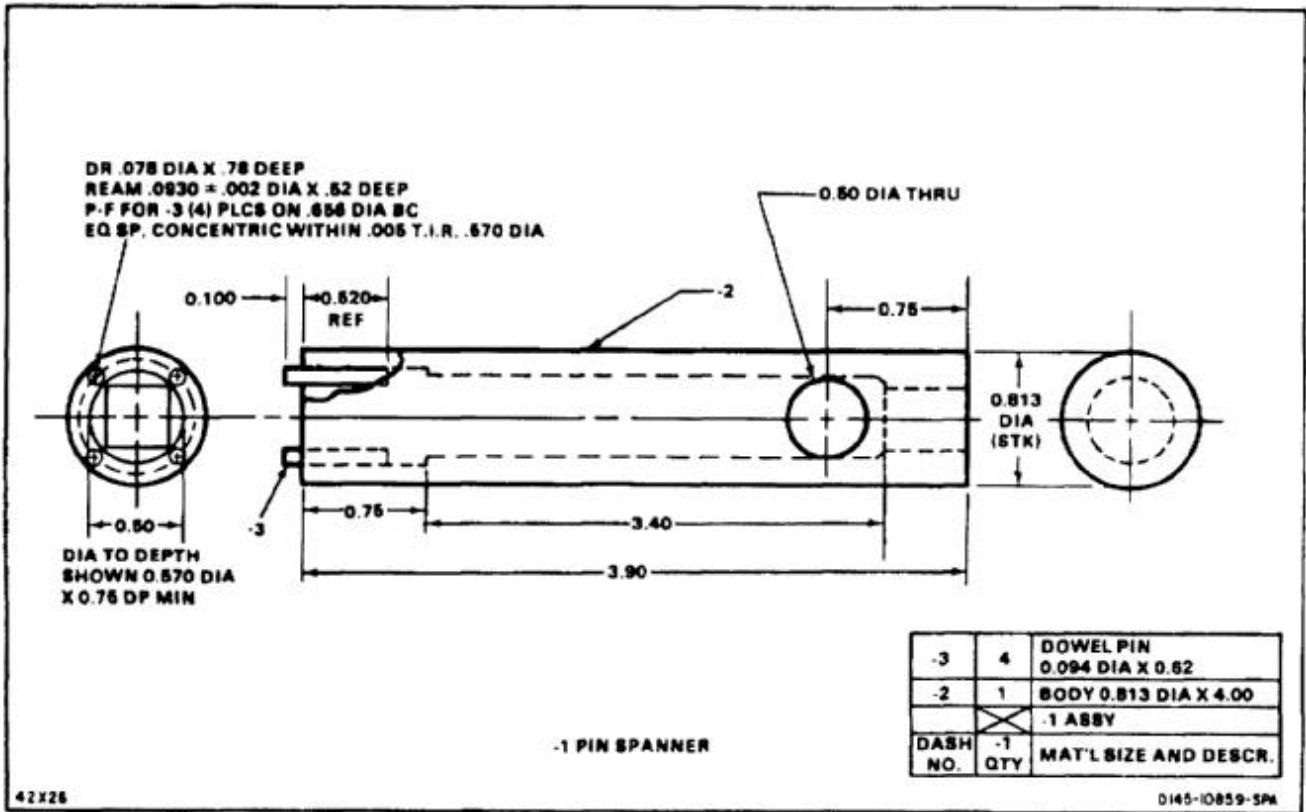
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NSN 9530-00-236-1378.
2. ALL DIMENSIONS IN INCHES.



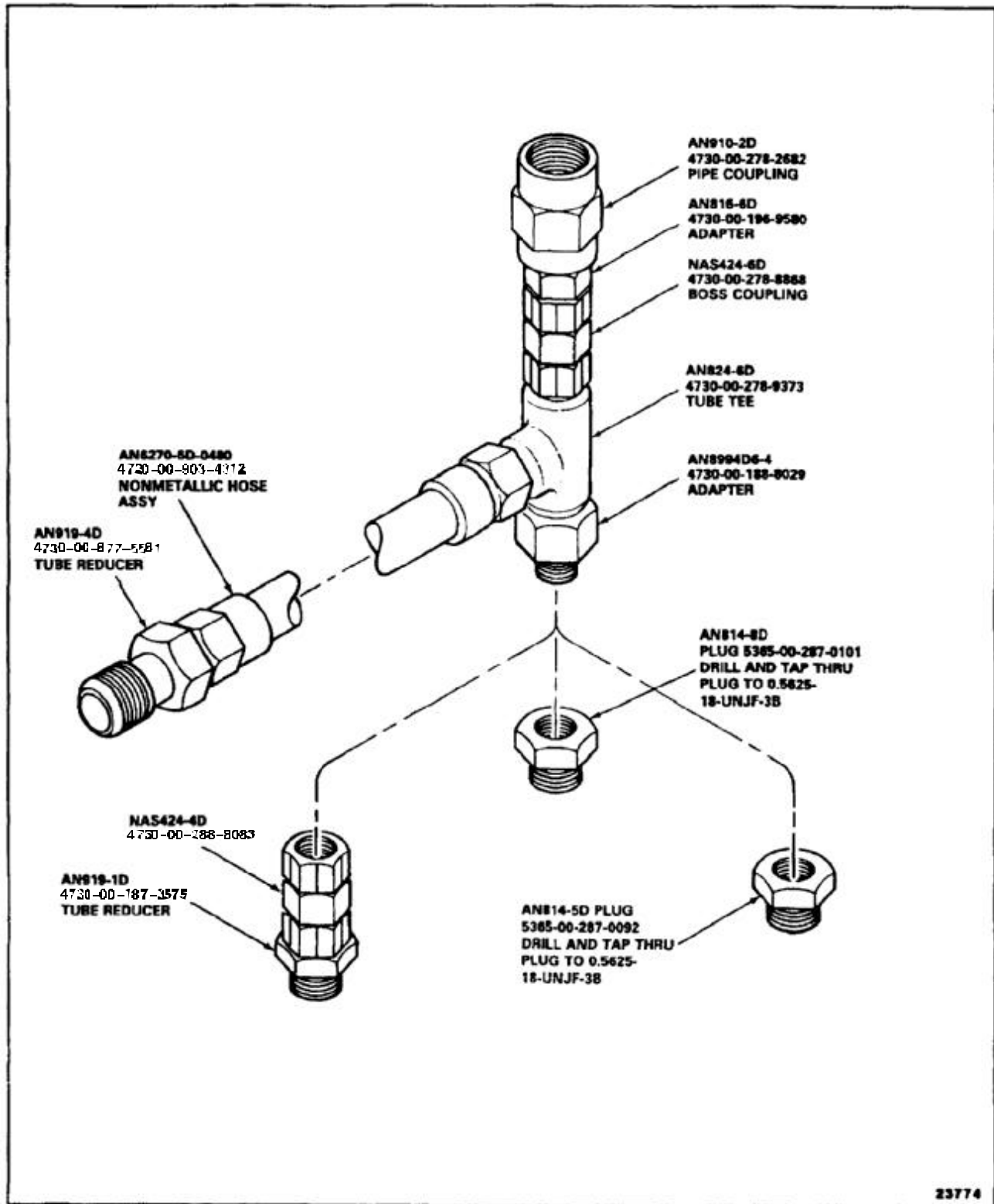
END OF TASK

**NOTES:**

1. FABRICATE FROM METAL BAR QQ-S-763, NSN 9510-00-975-2640.
2. ALL DIMENSIONS IN INCHES
3. FOR REMOVAL/INSTALLATION OF END PLUGS ON RAMP CONTROL VALVE 114HS111-1.



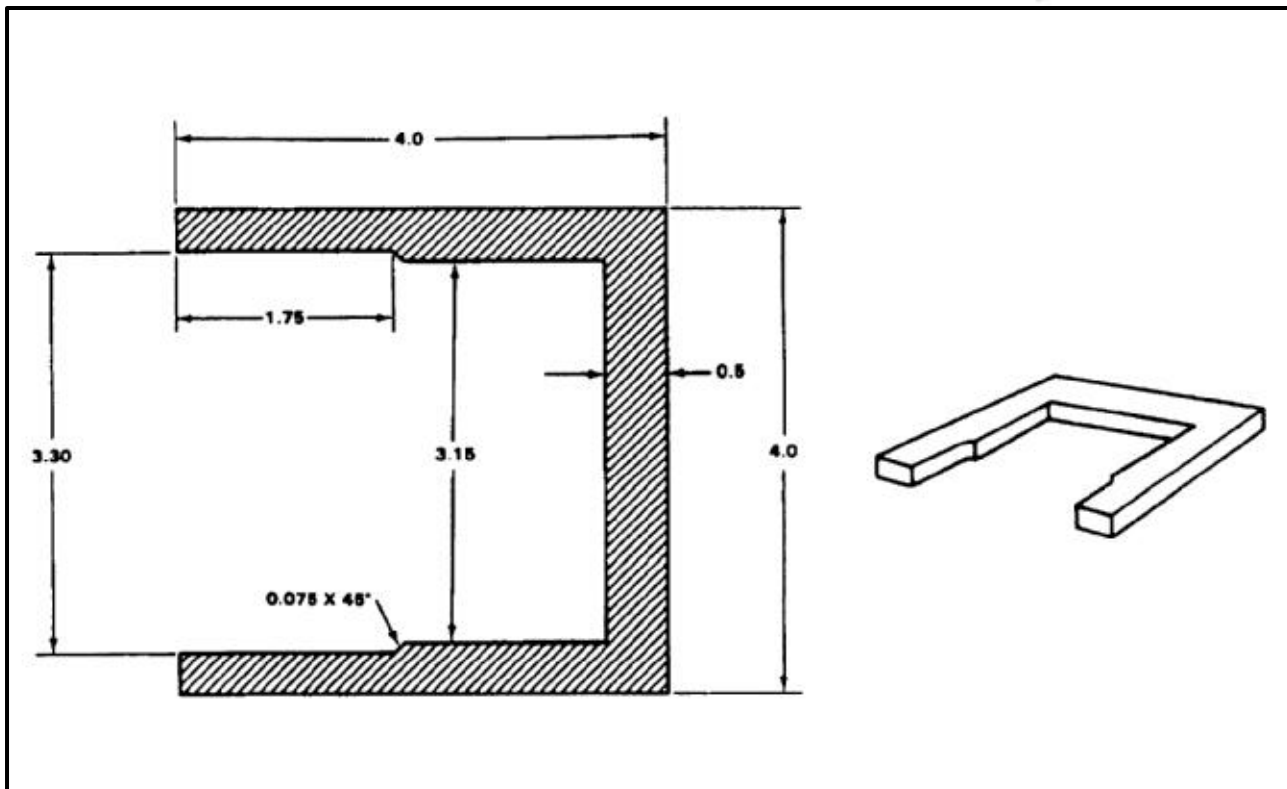
END OF TASK



END OF TASK

**NOTES:**

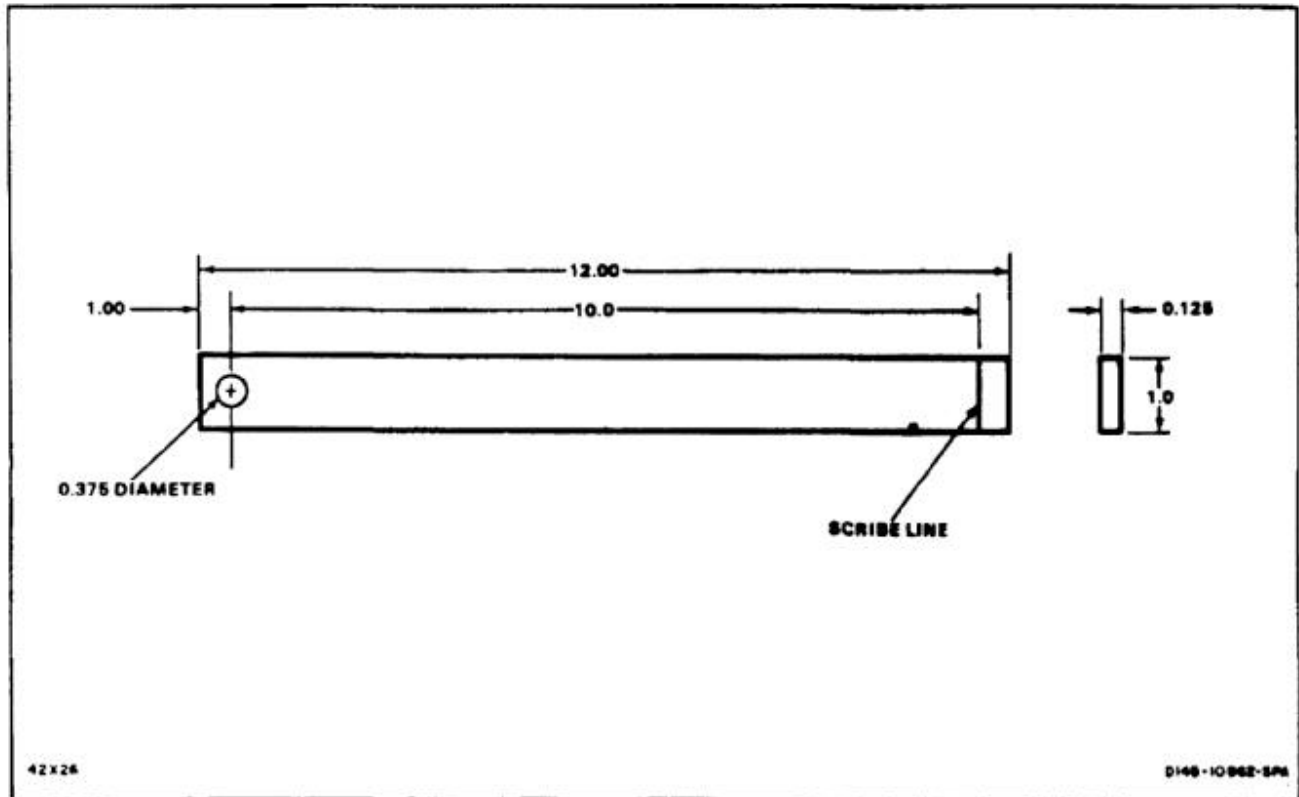
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QQ-A-250/4, NSN 9535-00-232-6948
2. ALL DIMENSIONS IN INCHES.



END OF TASK

**E-6 LCT SHAFT ROTATION LEVER****E-6****NOTES:**

1. FABRICATE FROM METAL SHEET QQ-A-250/5,  
NSN 9535-00-232-0532.
2. ALL DIMENSIONS IN INCHES.

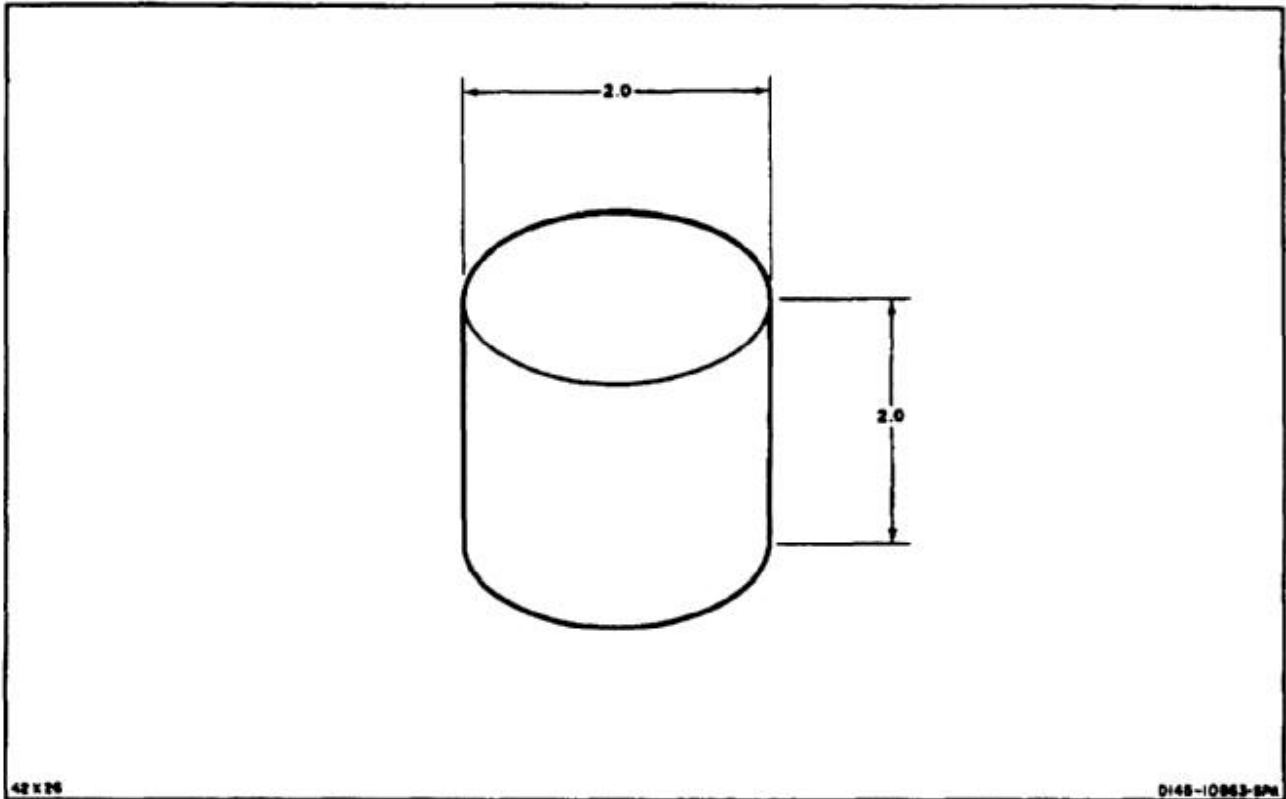


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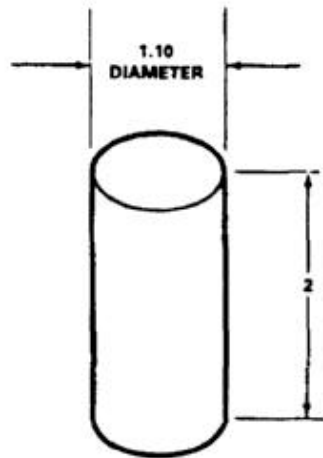
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2. ALL DIMENSIONS IN INCHES.



END OF TASK

**E-8 SLEEVE BEARING REMOVAL ADAPTER****E-8****NOTES:**

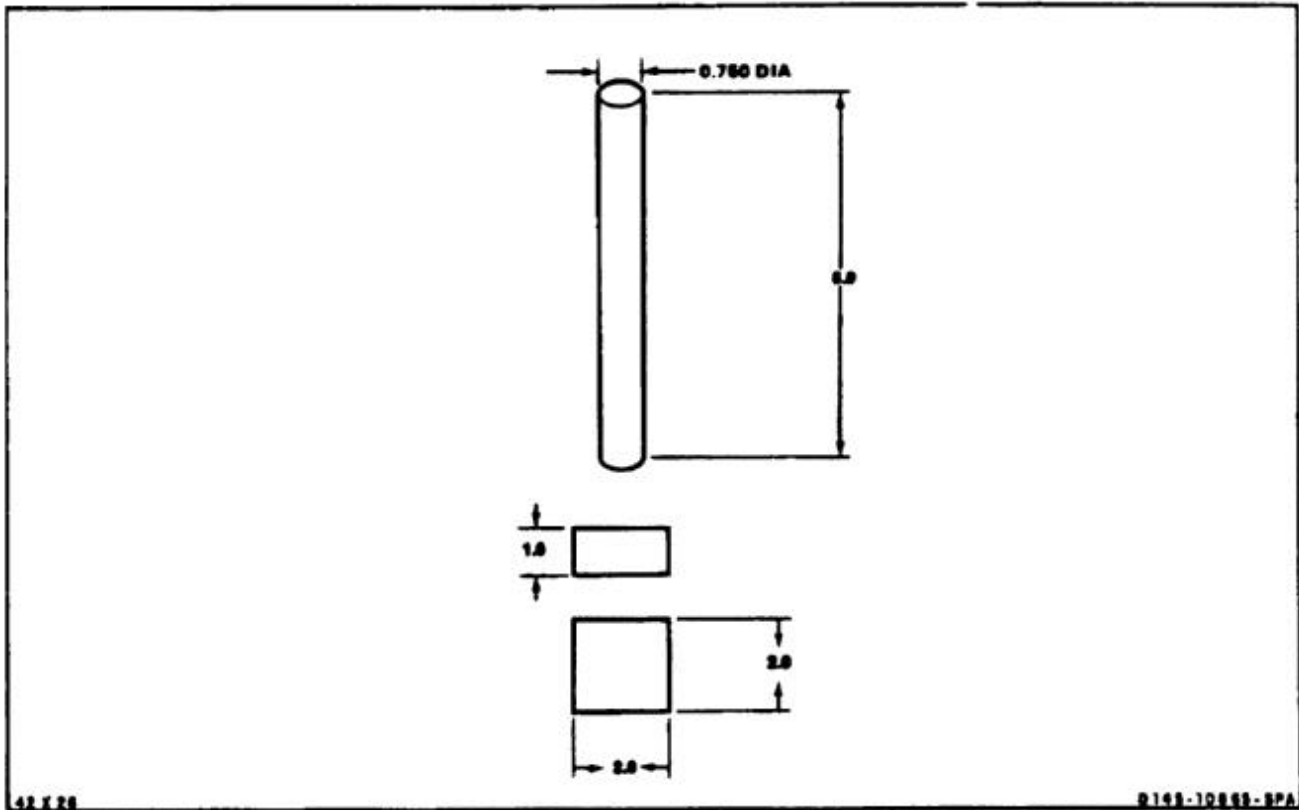
1. FABRICATE FROM METAL BAR QQ-A-200/3,  
NSN 9530-00-236-1378.
2. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

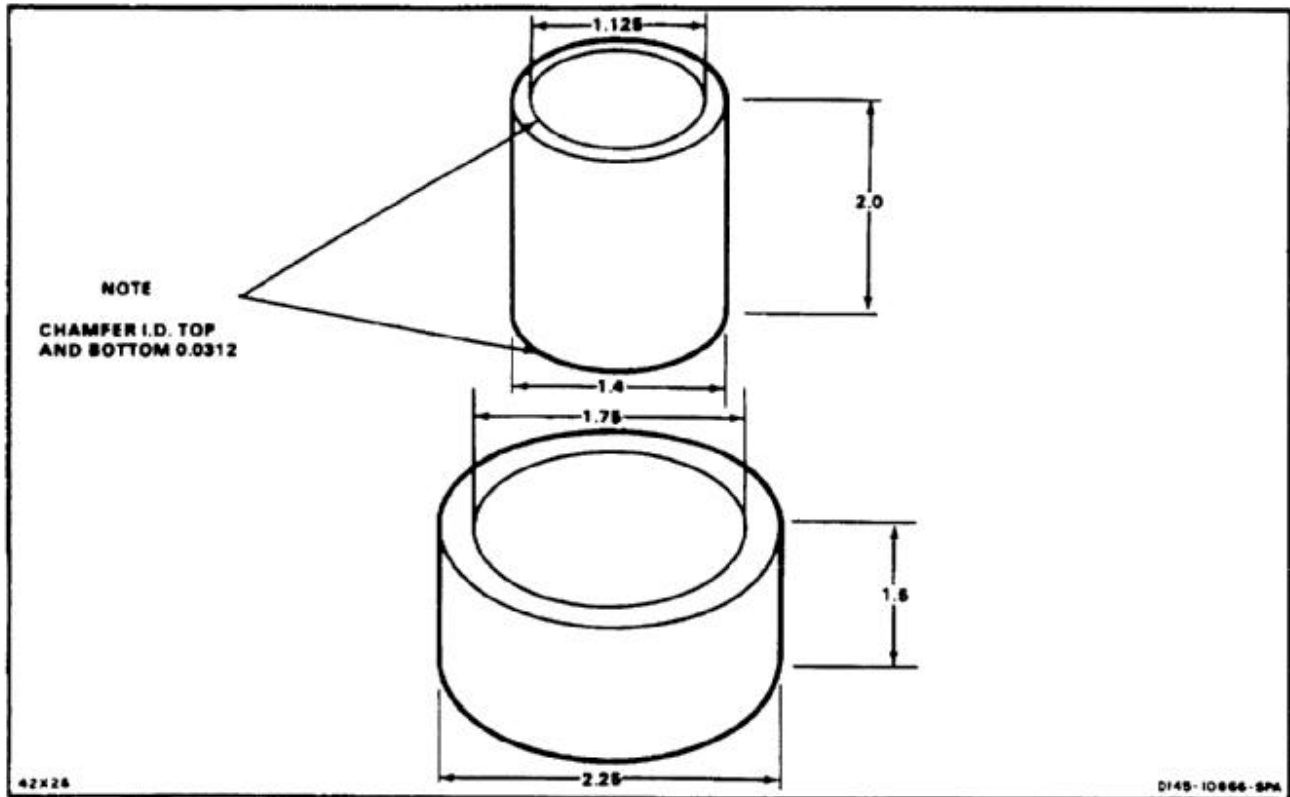
1. FABRICATE FROM METAL BAR QQ-A-225/6,  
NSN 9530-00-228-9313
2. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

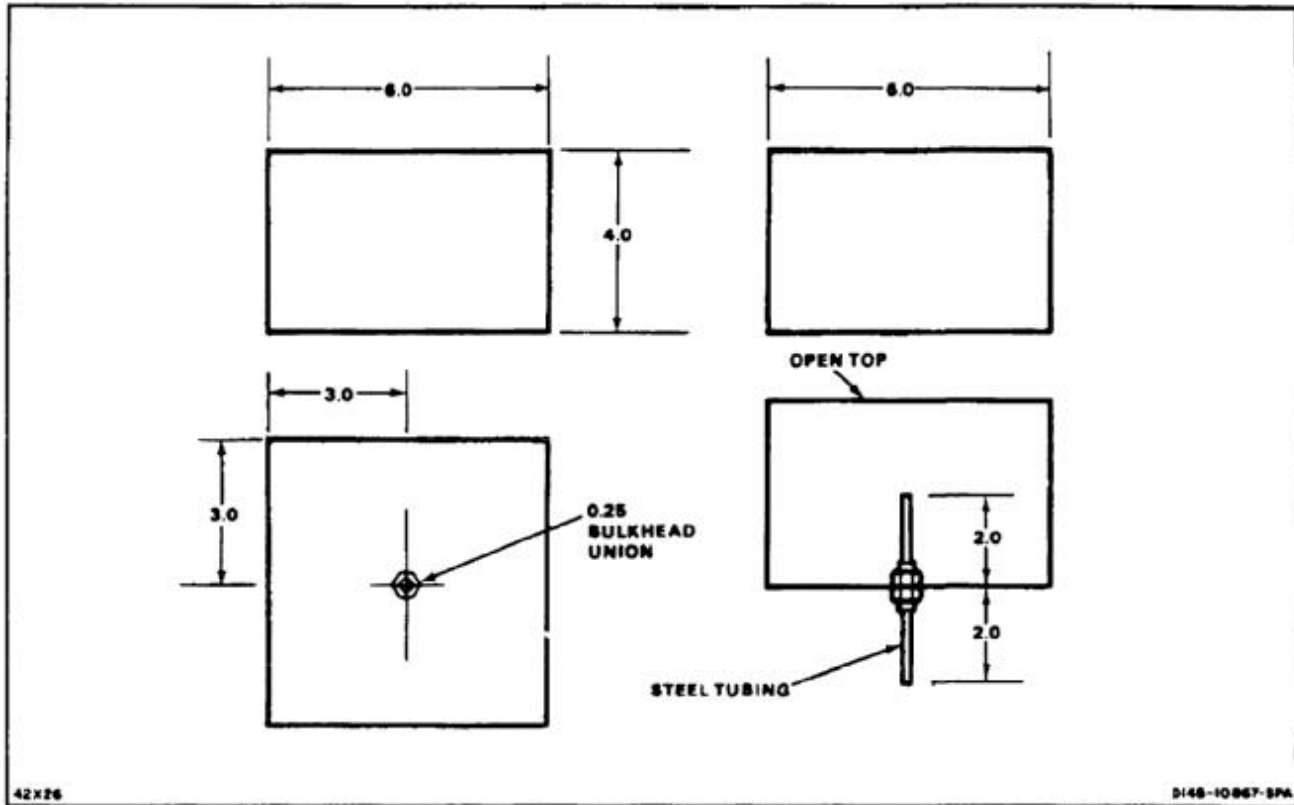
1. FABRICATE FROM METAL BAR QQ-A-225/9,  
NSN 9530-00-244-6931
2. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

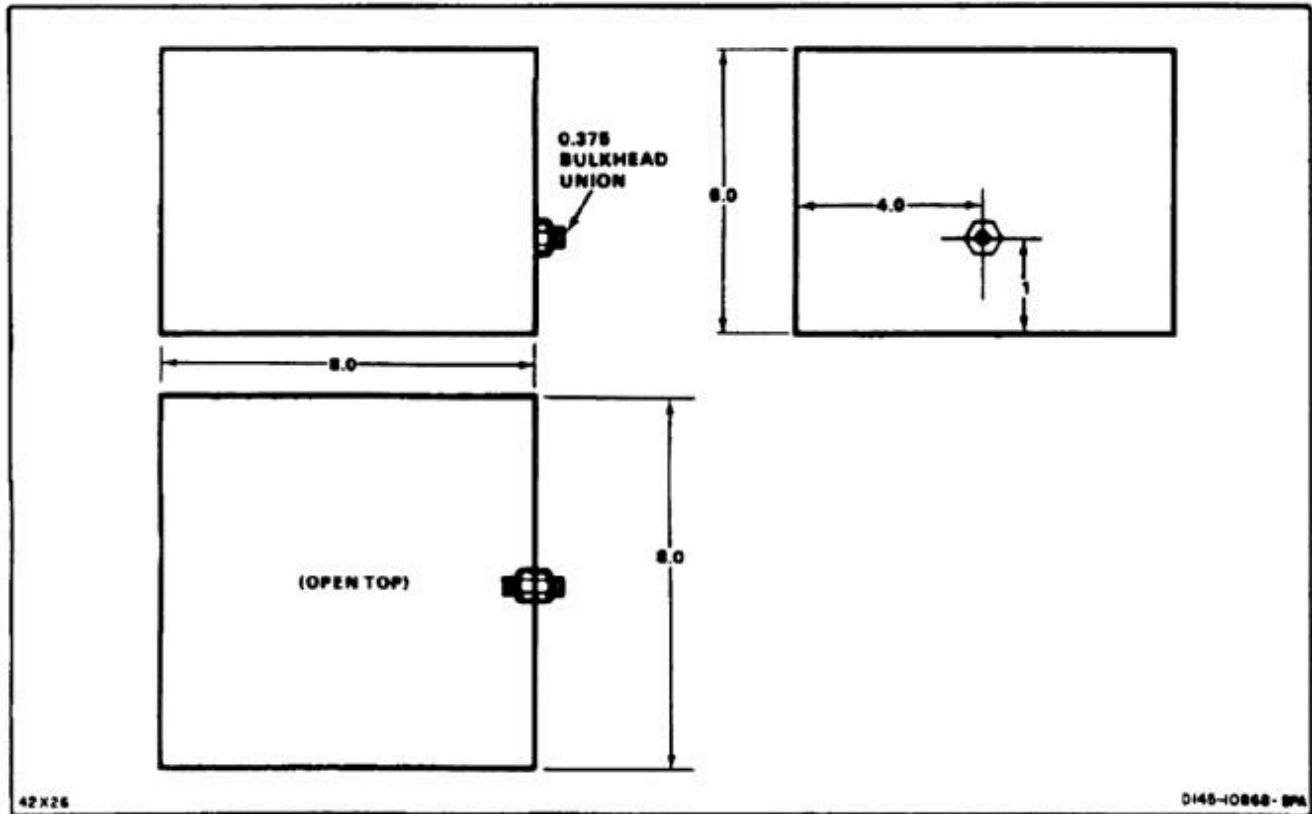
1. FABRICATE FROM METAL SHEET  
MIL-S-18729, NSN 9515-00-269-5824.
2. ALL DIMENSIONS IN INCHES.
3. WELD PER MIL-W-8611A.



END OF TASK

**NOTES:**

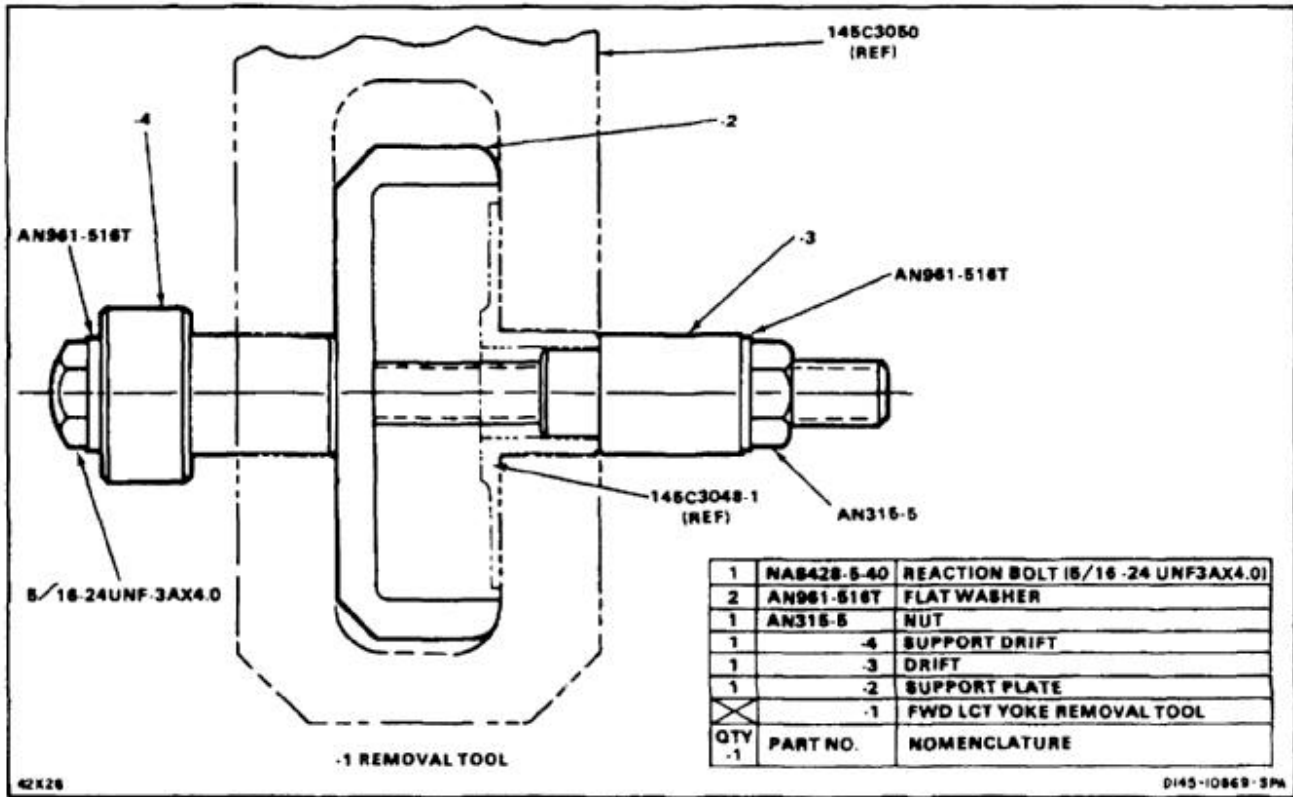
1. FABRICATE FROM METAL SHEET  
MIL-S-18729, NSN 9515-00-269-5824.
2. ALL DIMENSIONS IN INCHES.
3. WELD PER MIL-W-8611A.

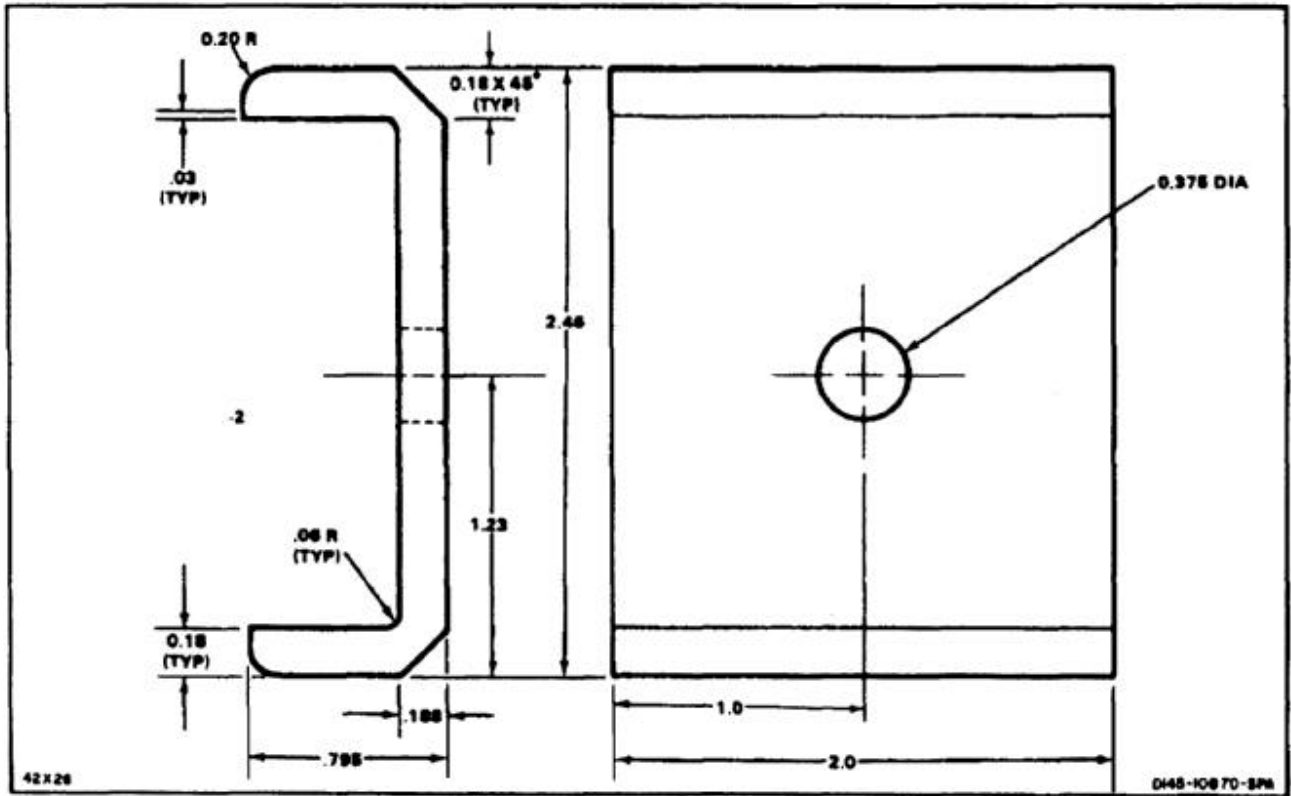


END OF TASK

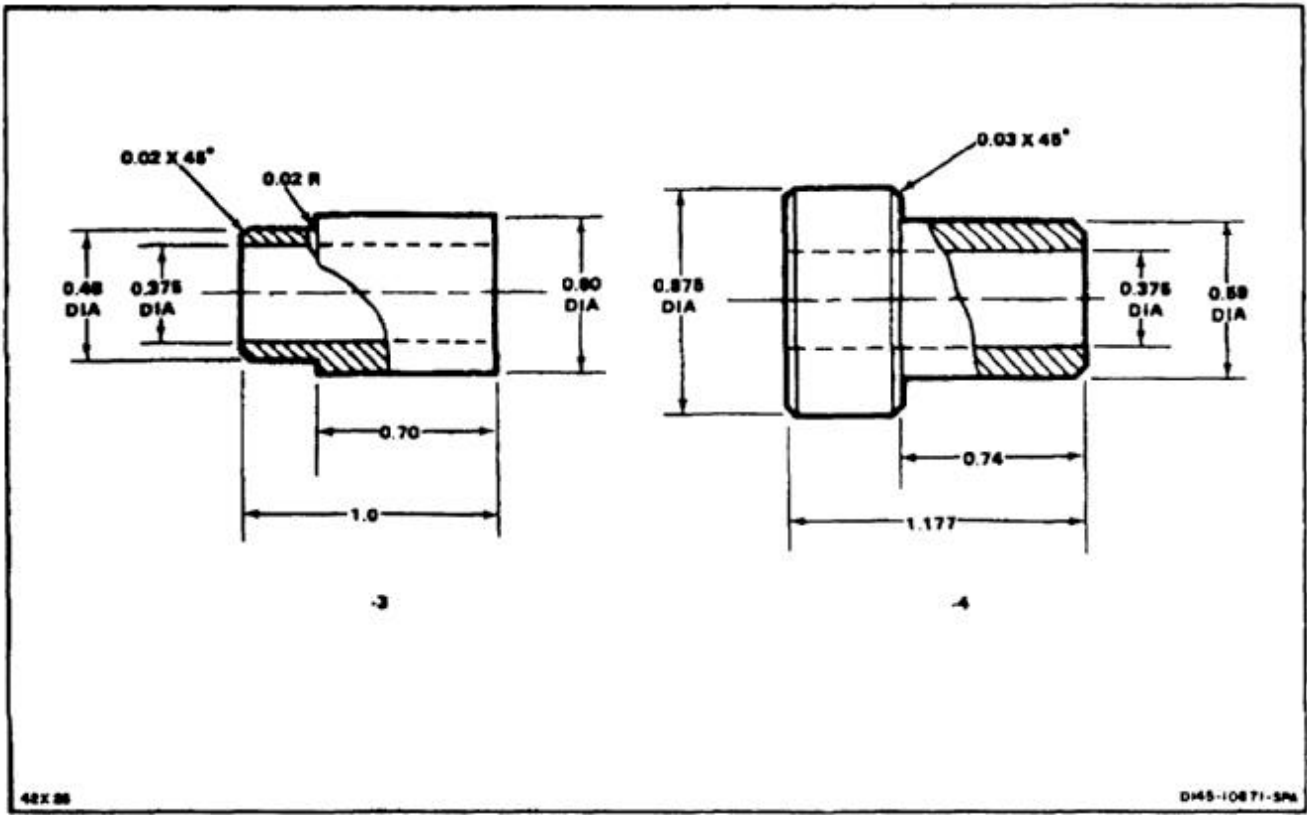
**NOTES:**

1. FABRICATE FROM:  
 -2 METAL PLATE QQ-S-766,  
 NSN 9591-00-051-1840  
 -3 AND -4 METAL BAR QQ-S-763,  
 NSN 9515-00-975-2640
2. ALL DIMENSIONS IN INCHES.







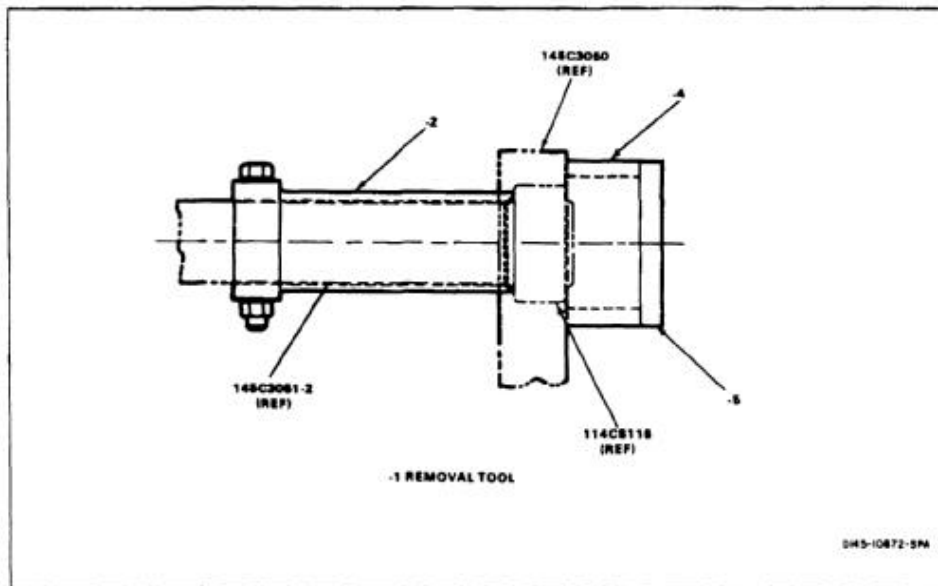


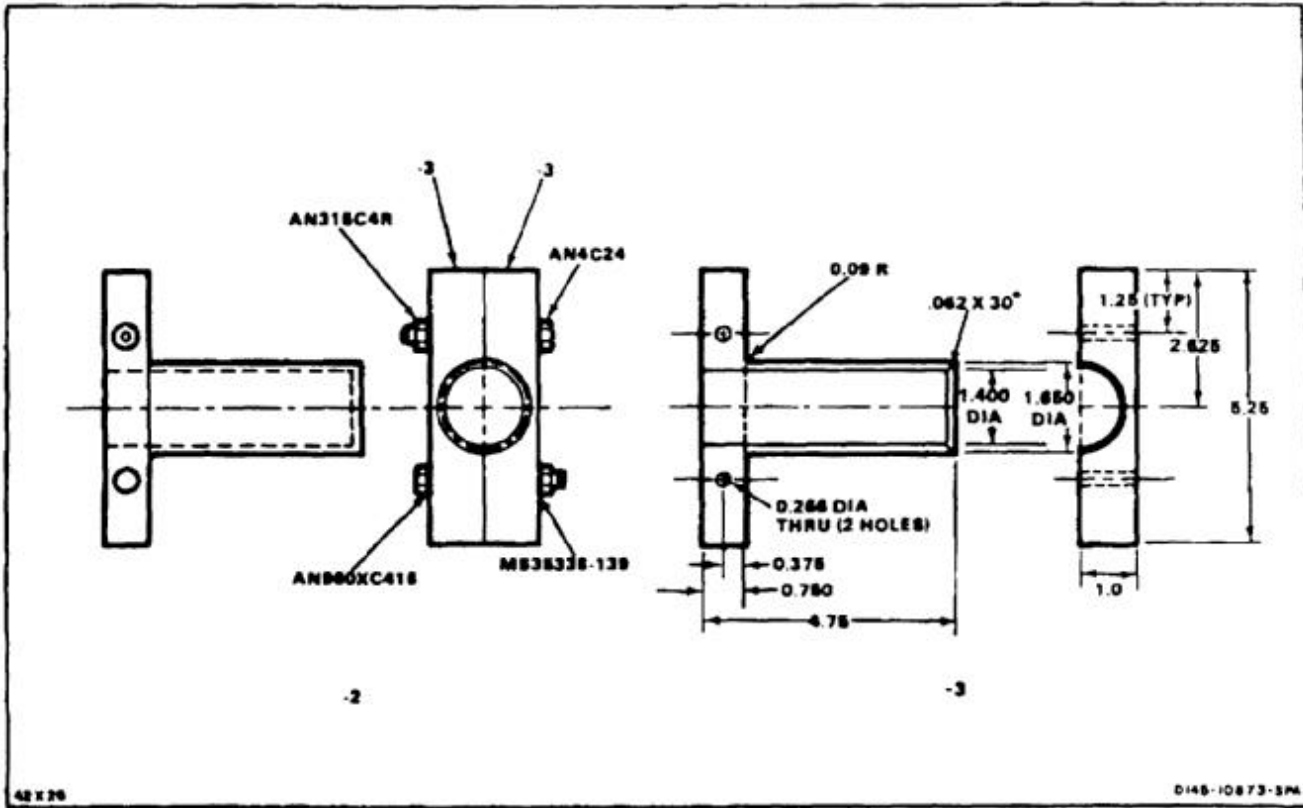
END OF TASK

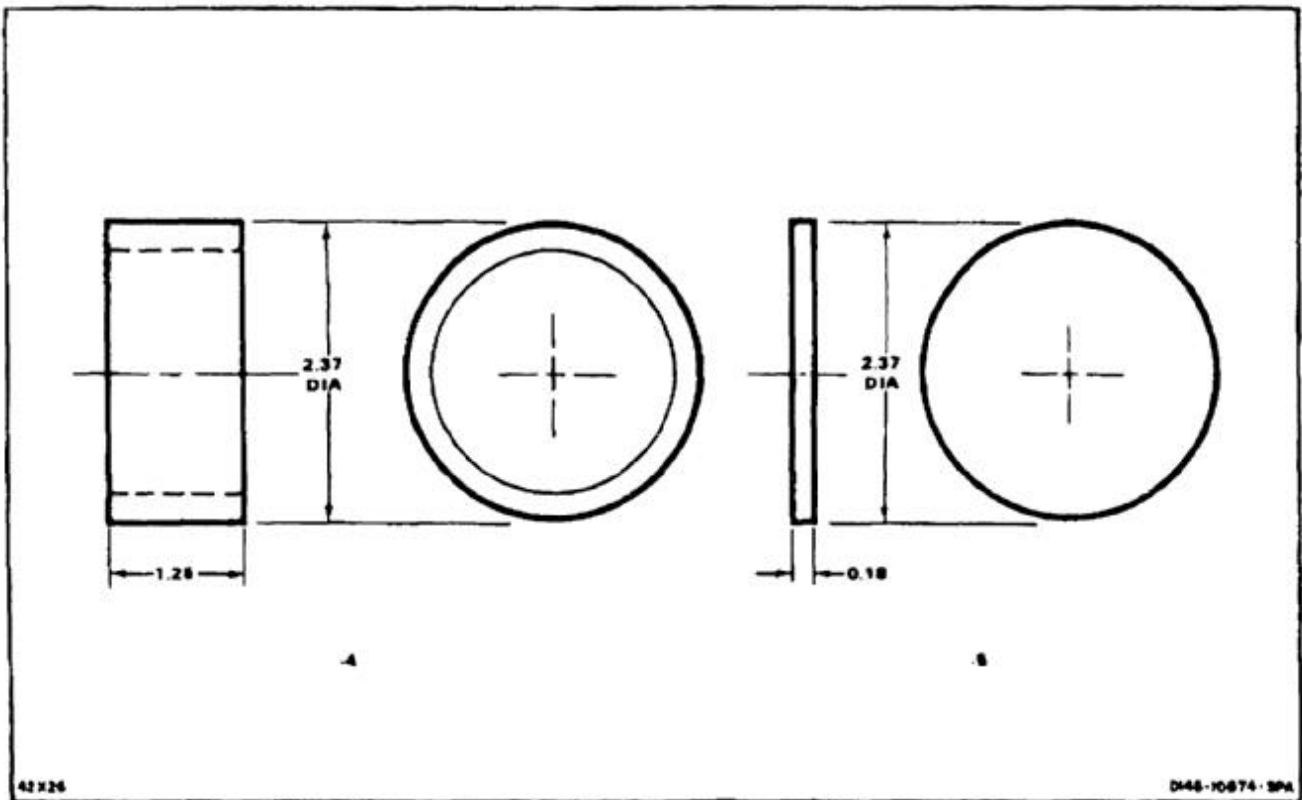
QTY REQ'D	QTY REQ'D	PART NO.	TITLE	MATERIAL	NSN
-2	-1				
2		MS35338-139	WASHER, LOCK		5310-01-249-9376
2		AN960XC416	WASHER, FLAT		5310-00-419-6566
2		AN4C24	BOLT	1/4-28UNF-3A X 2.5L	5306-00-151-2446
2		AN315C4R	NUT	1/4-28UNF-3B	5310-00-268-6023
	1	-5	REACTION PLATE	304 CRES 2.37 DIA. X .18	9515-00-204-4571
	1	-4	REACTION TUBE	304 CRES 2.37 O.D. X .18W X 1.3L	9510-01-274-0429
2		-3	PUSHER	304 CRES 2.1 X 4.9 X 5.4	9510-01-010-2546
	1	-2	PUSHER ASSY		
		-1	REMOVAL TOOL		

NOTE

ALL DIMENSIONS IN INCHES.





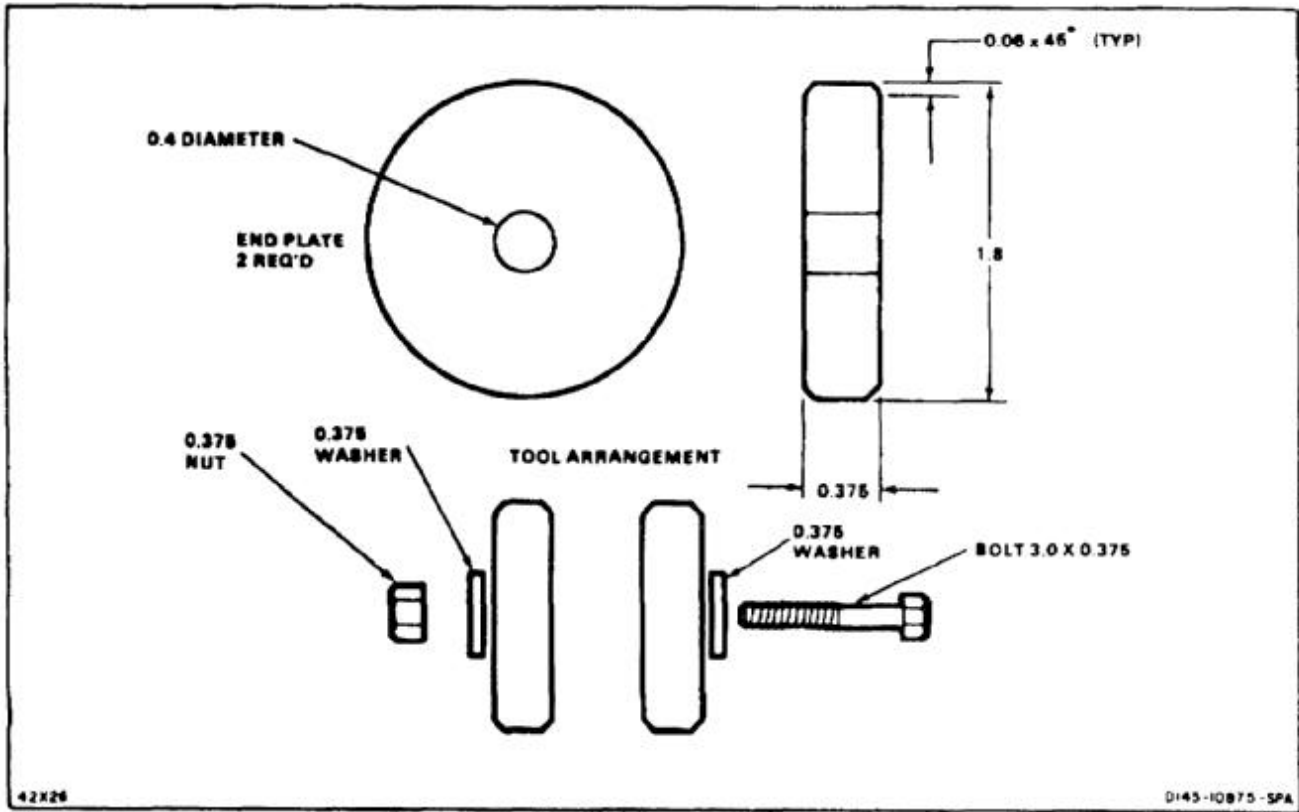


Sheet 3 of 3

END OF TASK

**NOTES:**

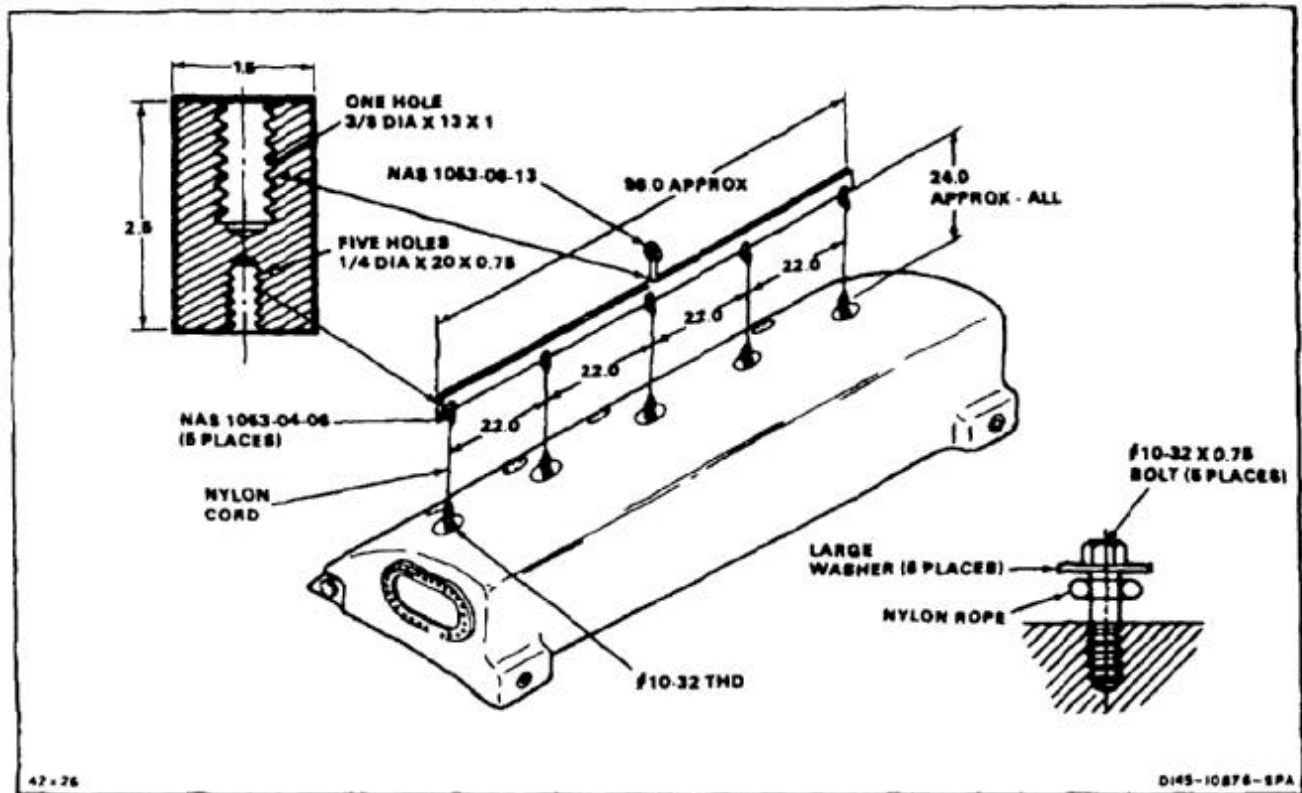
1. FABRICATE FROM STEEL, CRES, TYPE 304.
2. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

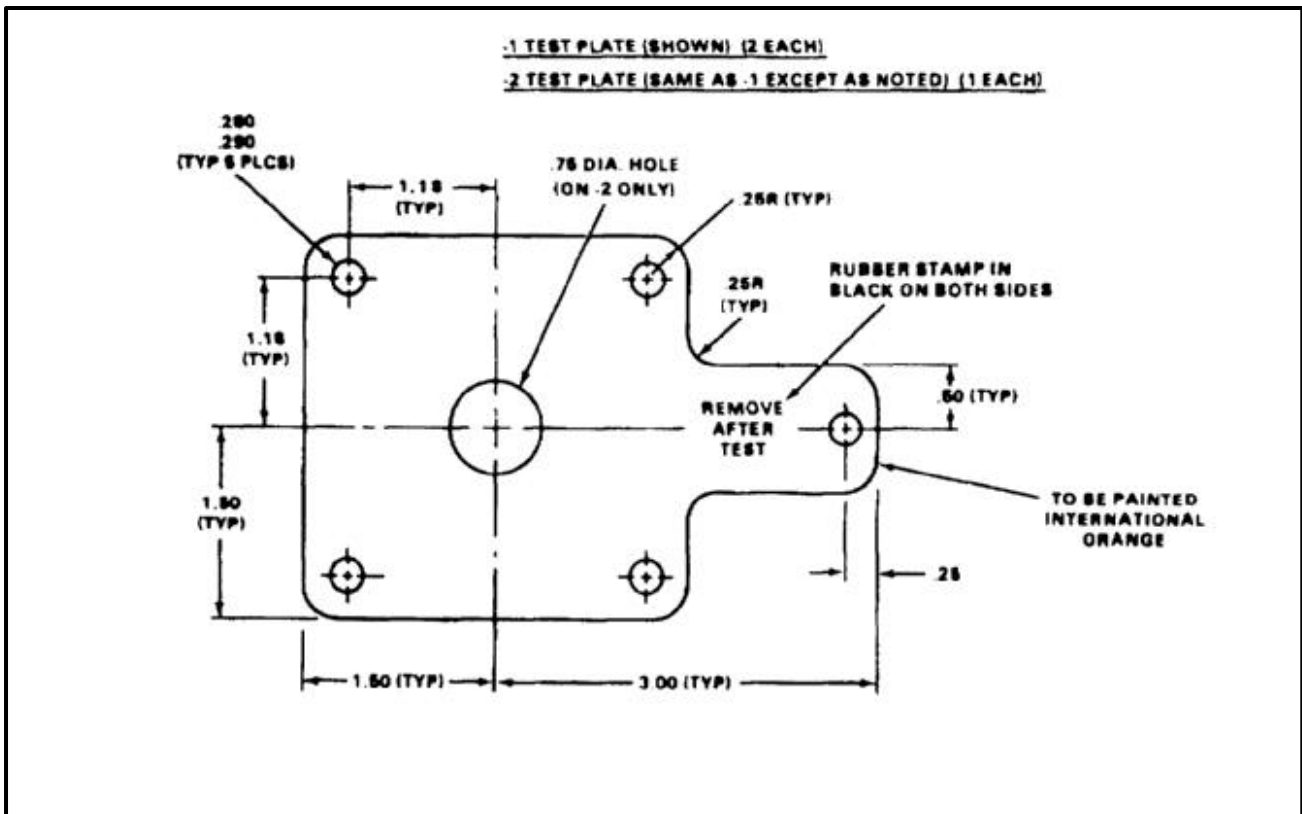
1. FABRICATE FROM NSN 9530-00-017-6412.
2. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

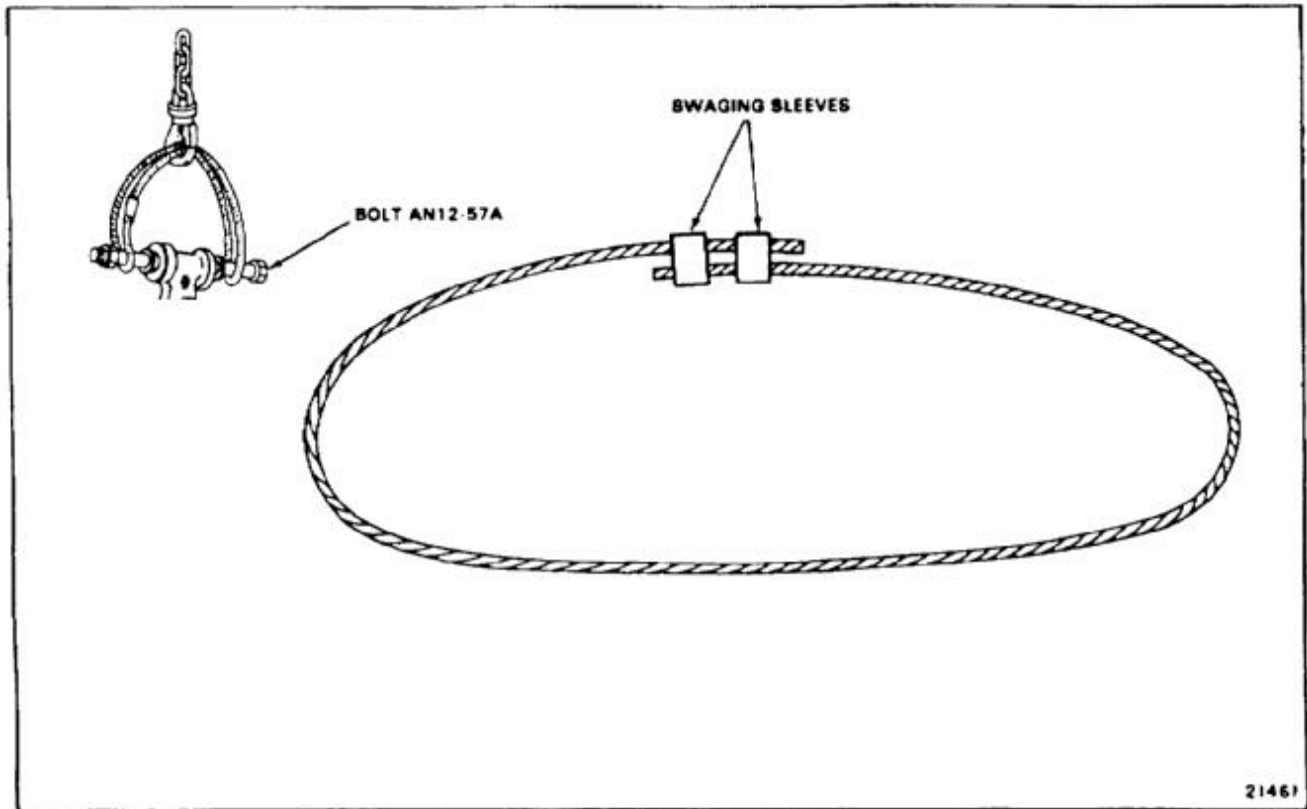
1. FABRICATE FROM QQ-A-250-5,  
NSN 9535-00-084-4551.
2. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

1. FABRICATE FROM WIRE ROPE 0.375 DIAMETER X 24.0, NSN 4010-00-270-5494.
2. USE WIRE ROPE SWAGING SLEEVES MS51844-70.



END OF TASK

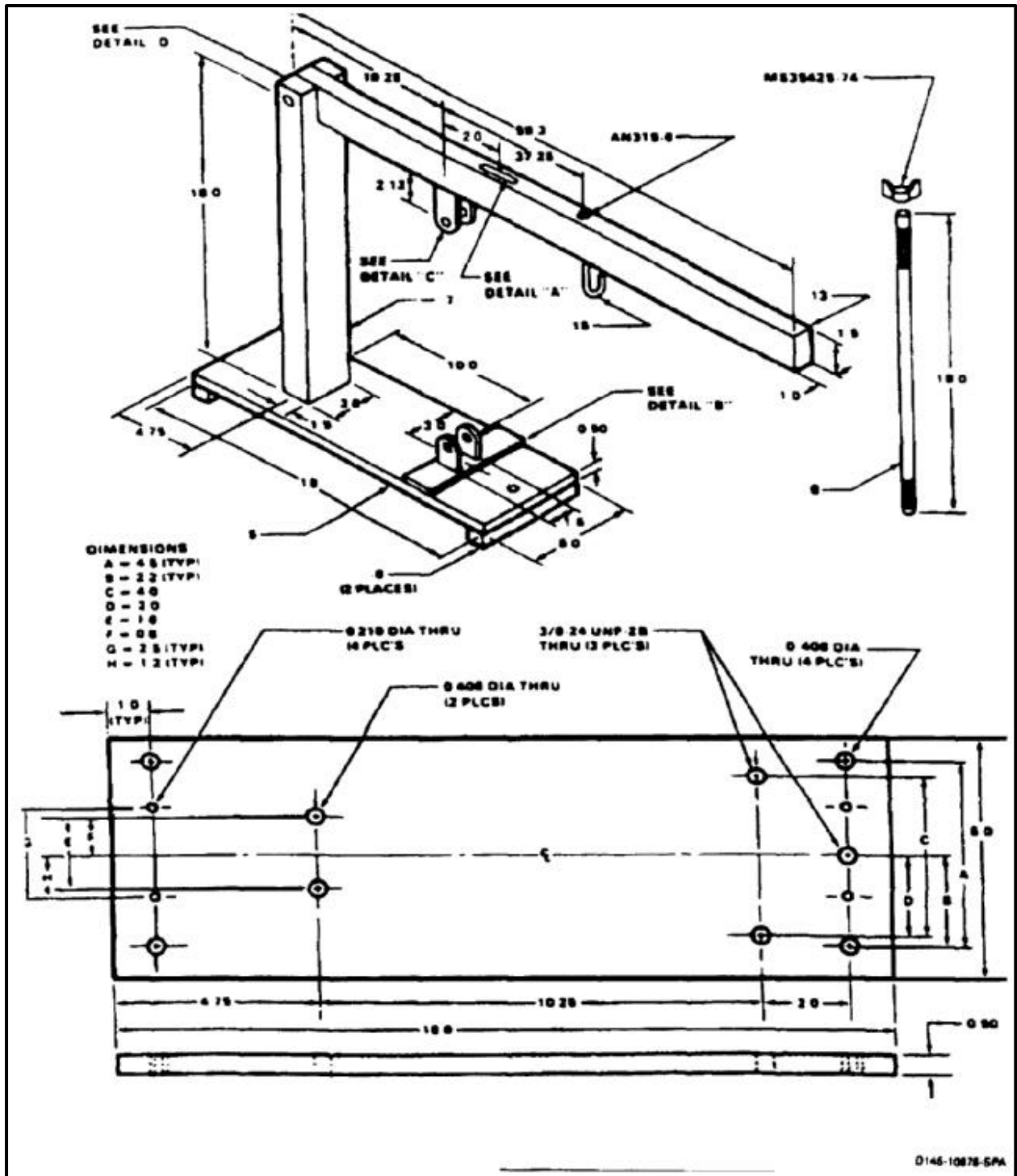


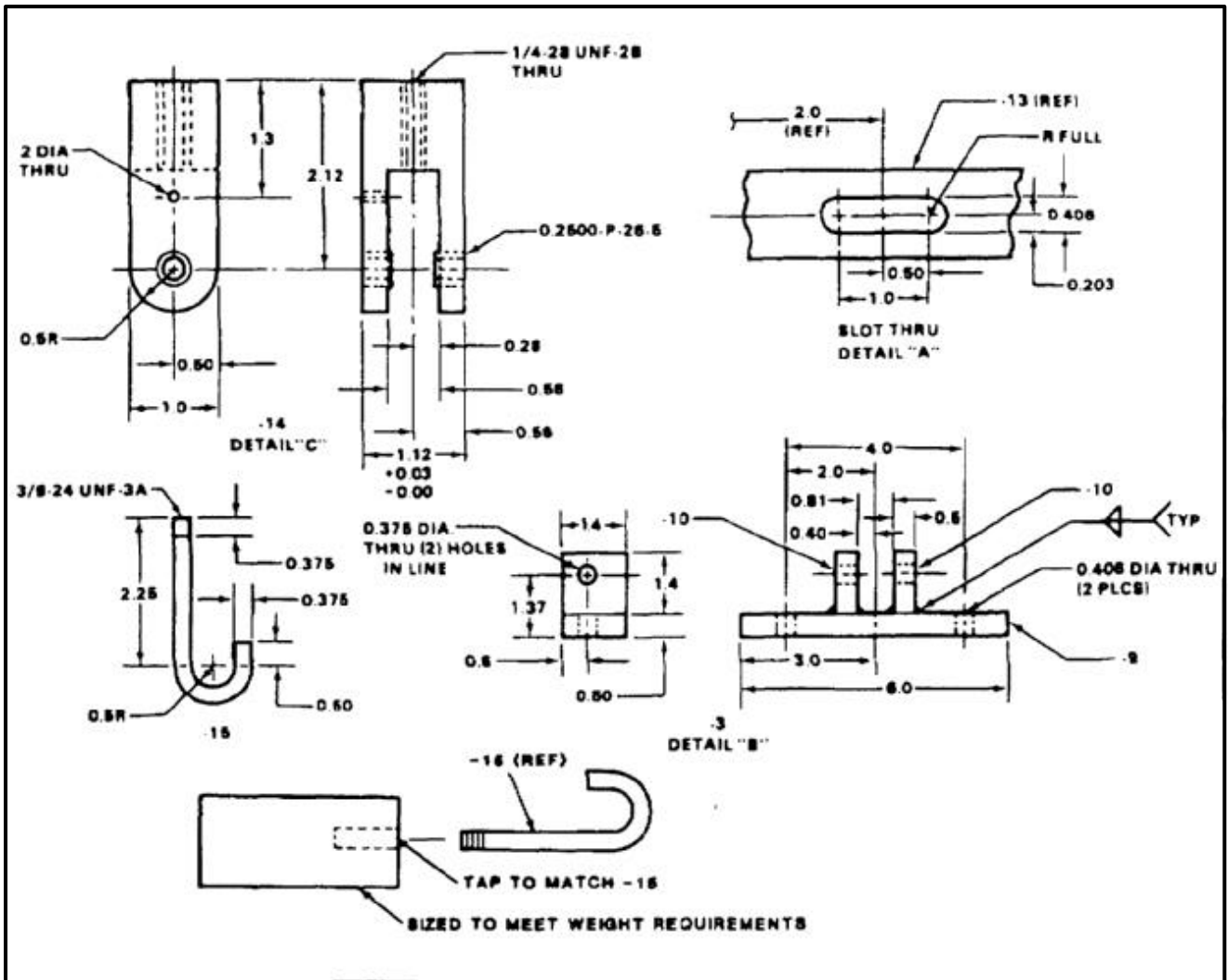
**E-19 BRAKE MASTER CYLINDER TEST STAND****E-19**

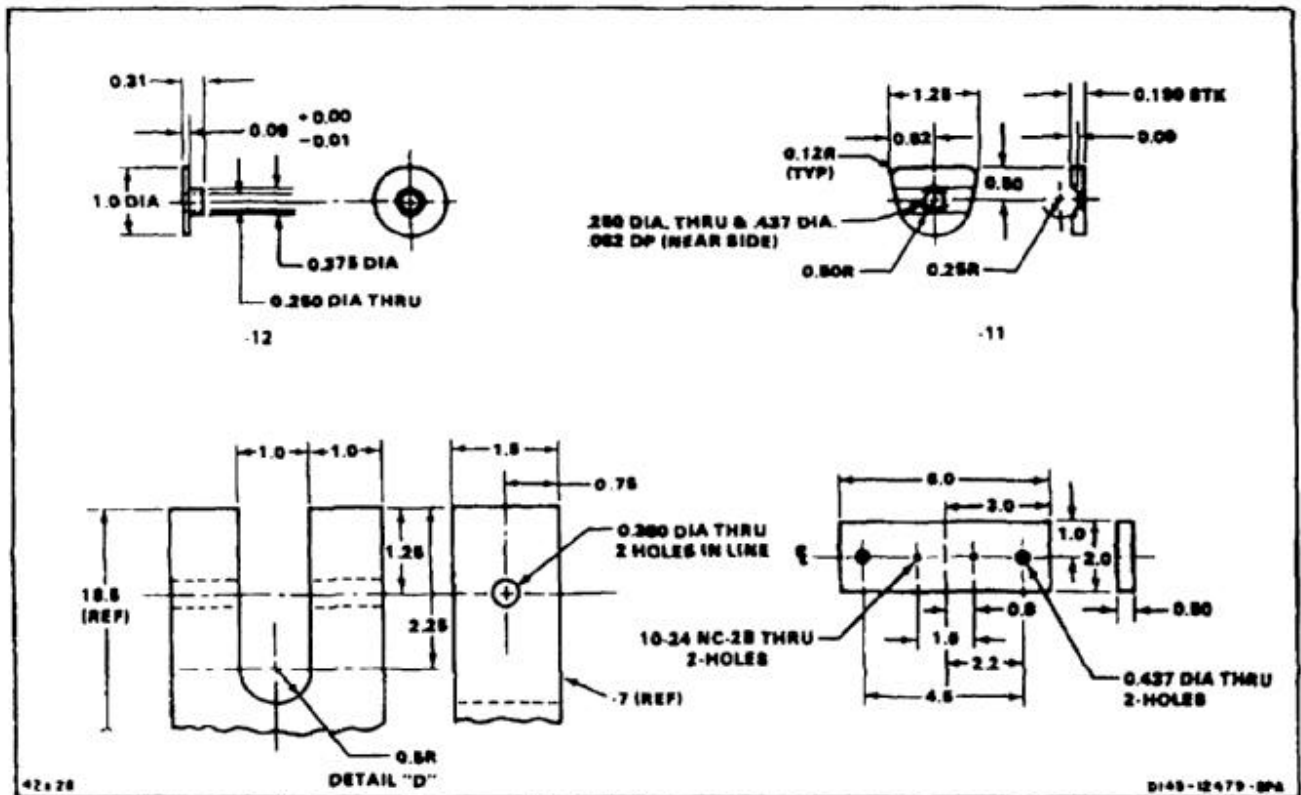
<b>4</b>	<b>-3</b>	<b>-2</b>	<b>-1</b>	<b>DASH NO.</b>	<b>NOMENCLATURE</b>	<b>MATERIAL</b>	<b>NSN</b>
				1	WEIGHT, 25 POUNDS	CRS, CYLINDRICAL	
				1	WEIGHT, 50 POUNDS	CRS, CYLINDRICAL	
				1	WEIGHT, 94 POUNDS	CRS, CYLINDRICAL	
				1	WEIGHT, 160 POUNDS	CRS, CYLINDRICAL	
			1		CARR LANE CL-9-LP	L PIN	5315-00-547-3809
1	1				CARR LANE CL-5-LP	L PIN	5315-00-075-7845
			3		CARR LANE CL-2-C-9.0	NYLON CABLE	4018-00-069-5180
			6		CARR LANE CL-2-F	FERRULE	4030-01-219-8678
2					ACE OR EQUIV. 2500-P-26-5	HEADLESS P.F. BUSHING	3120-00-598-8720
			1		MS35425-74	WING NUT	5310-01-088-2490
		4			MS27039-4-12	PAN HD. SCREW	5305-00-891-1784
1					AN315-6	SELF-LOCKING NUT	5310-00-843-4824
		4			AN960-616	FLAT WASHER	5310-01-016-4871
1					AN960-416	FLAT WASHER	5310-00-141-1795
		4			AN6-10A	HEX HD. BOLT	5306-00-208-3636
			1		AN526-1032R7	TRUSS HD. MACH. SCREW	5305-00-272-4951
1					AN4-17A	HEX HD. BOLT	5306-00-151-1417
1		-15			HOOK	CRS 3/8 DIA. X 8.1	9510-00-607-1491
1		-14			BRACKET	CRS 1 X 1-1/4 X 2.8	9510-00-481-0671
1		-13			ARM	2024-T351 1 X 1-1/2 X 59.3	
	2	-12			BUSHING	CRS 1.0 DIA. X.5	9510-00-975-2640
	2	-11			SPACER	2024-T3.190 X 1.2 X 1.5	
	2	-10			LUG	6061-T651 1/2 X 1.4 X 1.4	
	1	-9			BASE	6061-T651 1/2 X 1.4 X 6.0	
	1	-8			RETAINER	CRS 3/8-16 UNC X 18.0	9510-00-607-1491
	1	-7			COLUMN	CRS 1-1/2 X 3 X 18-1/2	
	2	6			PAD	2024-T351 ALUM BAR 1/2 X 2 X 6	
	1	-5			BASE	CRS 1/2 x 6 x 18.0	9510-00-001-3315
	1	-4			ARM ASSY		
	1	-3			LOWER BRACKET ASSY		
	1	-2			BASE ASSY		
		-1			TEST STAND ASSY		

## NOTE

ALL DIMENSIONS IN INCHES

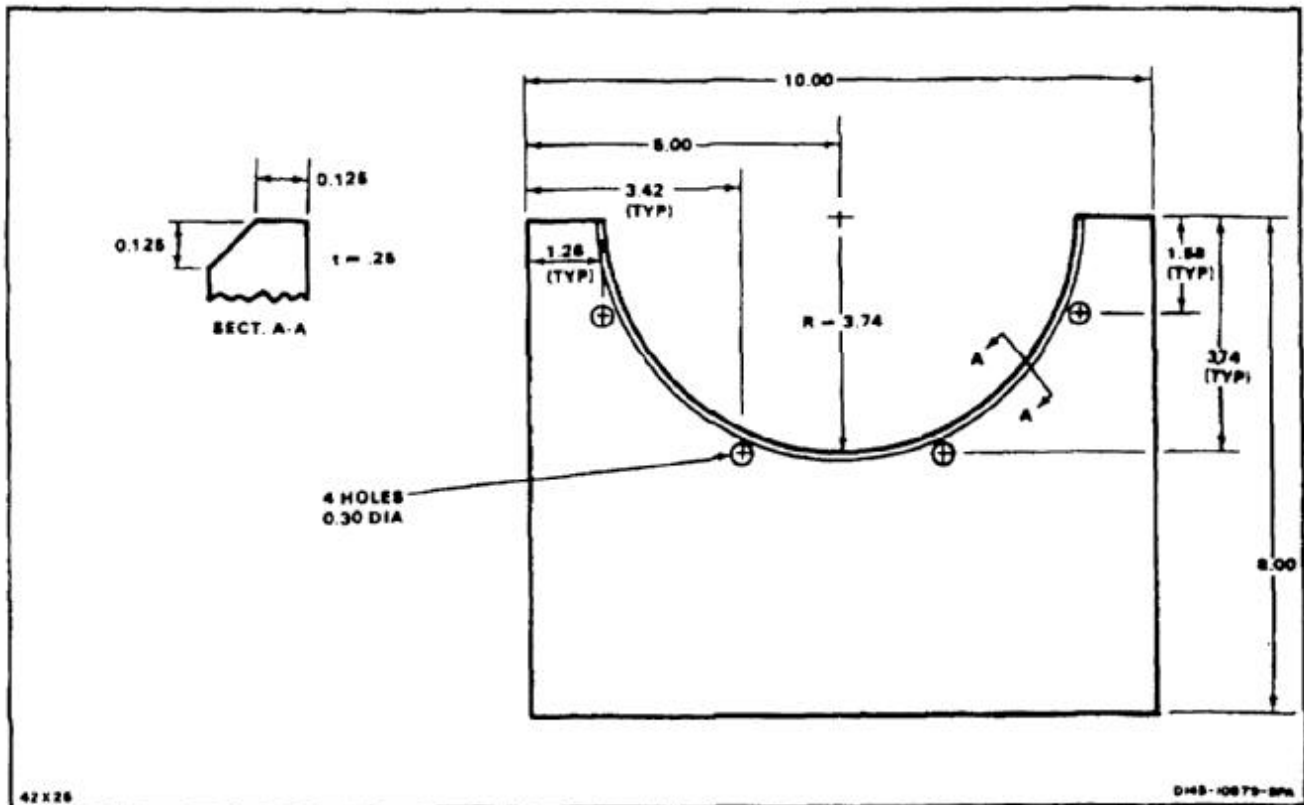






**NOTES:**

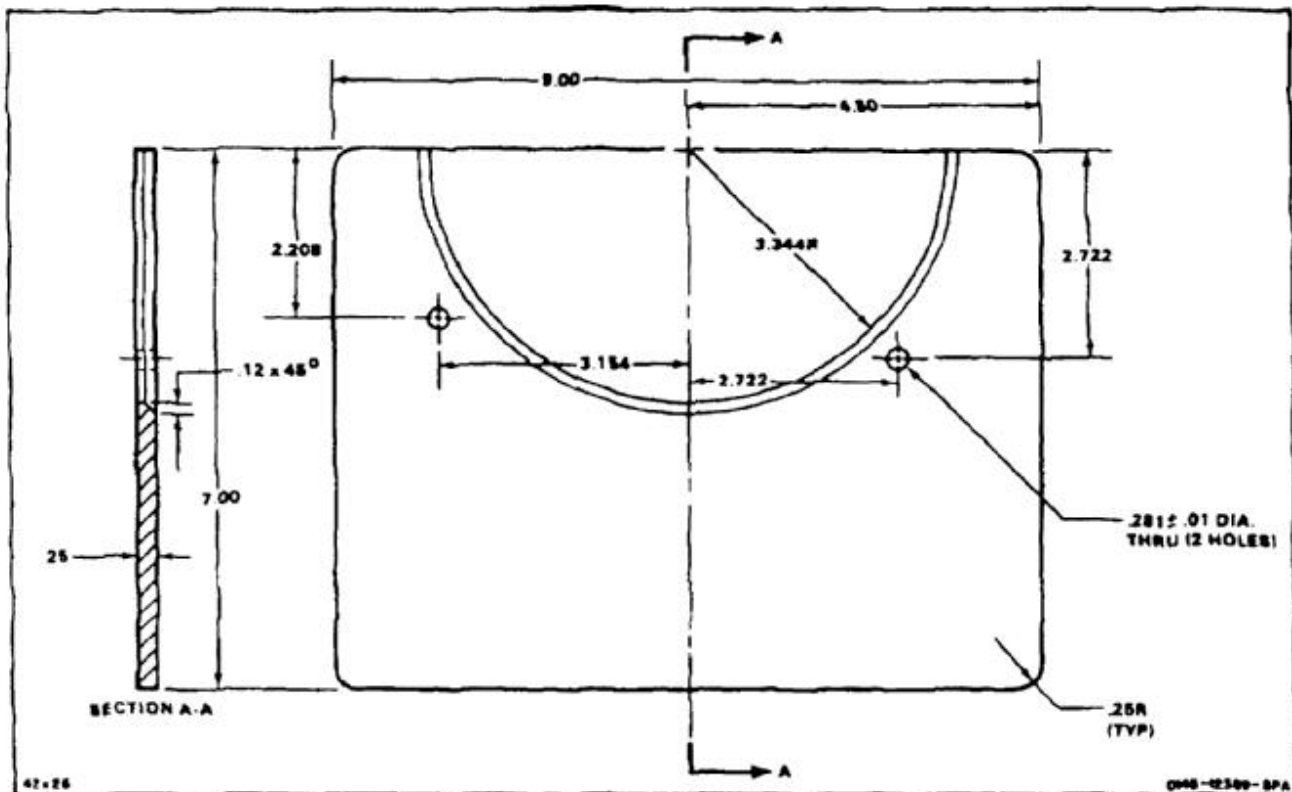
1. FABRICATE FROM METAL PLATE  
NSN 9515-00-234-7944.
2. ALL DIMENSIONS IN INCHES  $\pm 0.02$ .
3. CUT STOCK TO SIZE 10.00 X 8.00 X 0.25.
4. BREAK SHARP EDGES.



END OF TASK

**NOTES:**

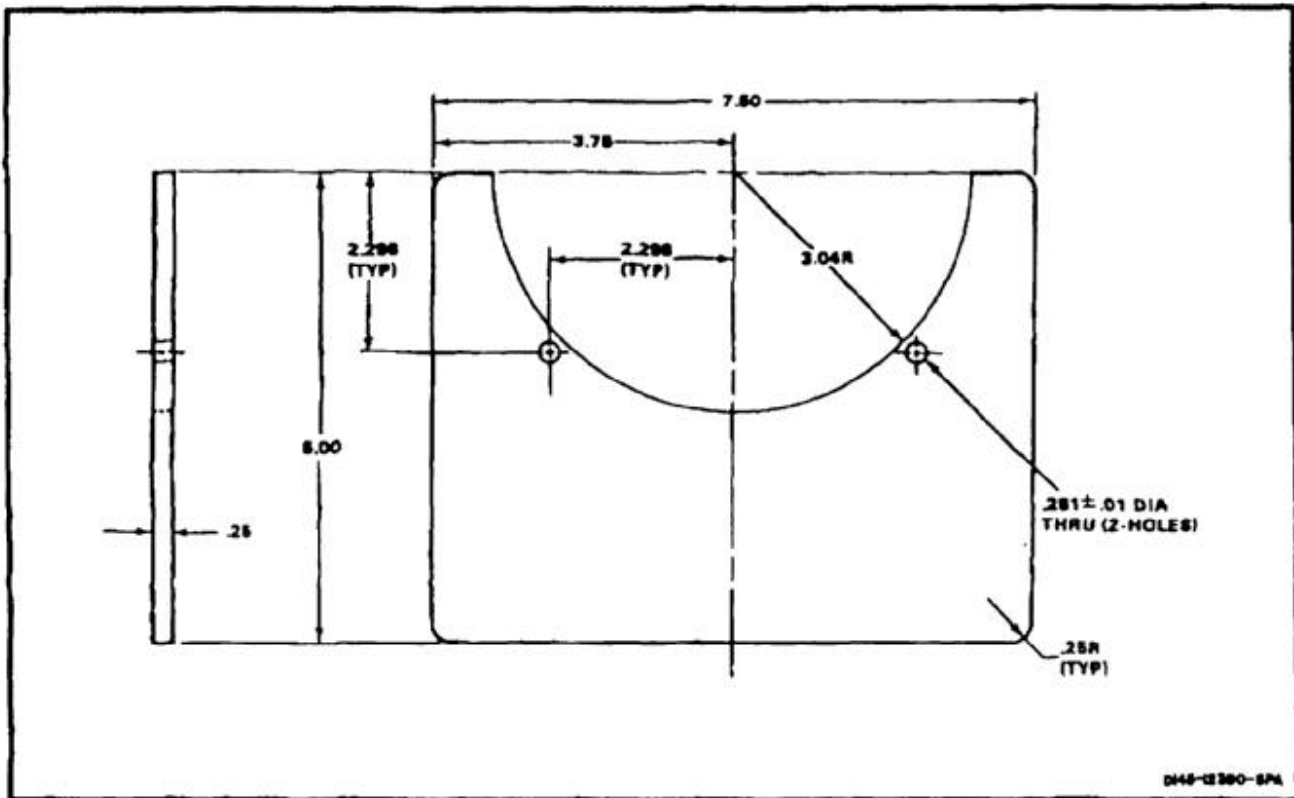
1. FABRICATE FROM METAL PLATE, 4340 STEEL, NSN 9515-00-901-4241.
2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES:  
 .X =  $\pm .1$   
 .XX =  $\pm .03$   
 .XXX =  $.010$
4. BREAK SHARP EDGES.



END OF TASK

**NOTES:**

1. FABRICATE FROM METAL PLATE, 4340 STEEL, NSN 9515-00-901-4241.
2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES:  
 .X =  $\pm .1$   
 .XX =  $\pm .03$   
 .XXX =  $\pm .010$
4. BREAK SHARP EDGES.

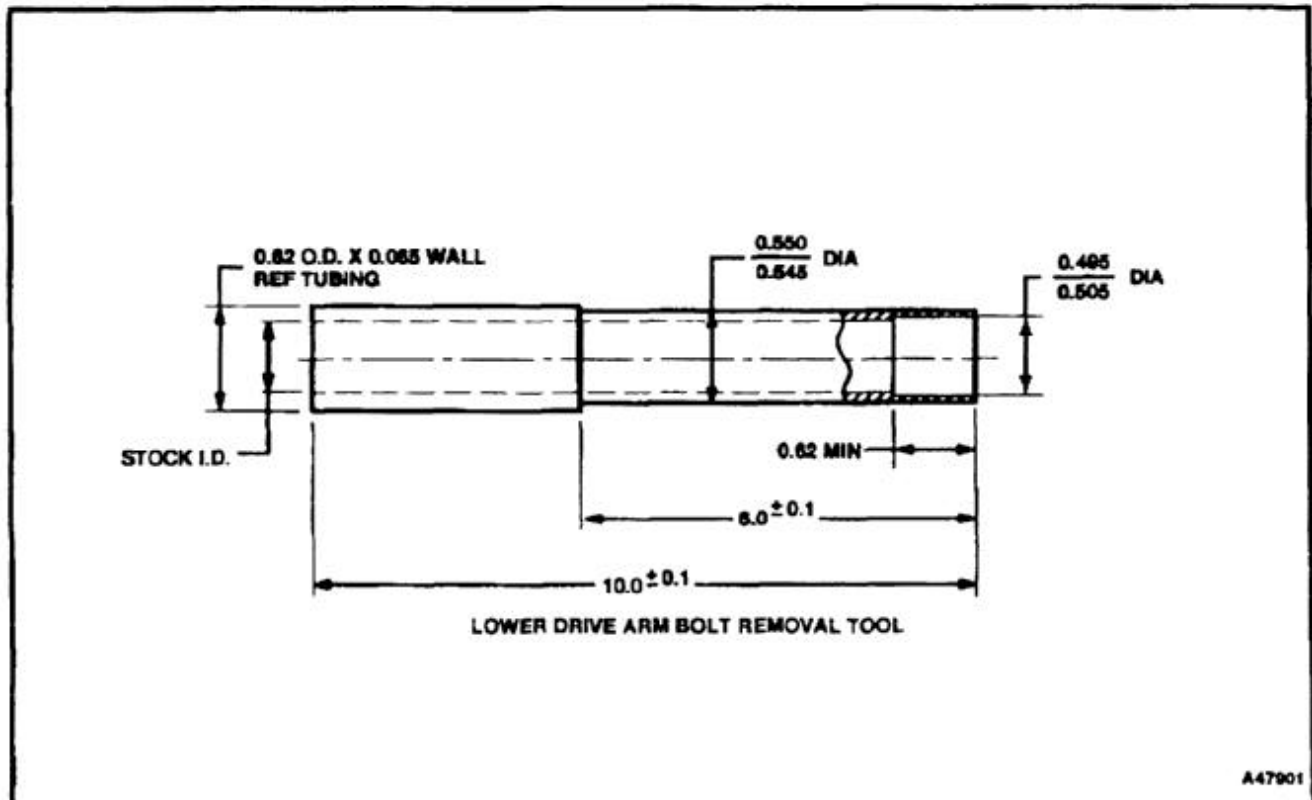


Task E-23 Deleted.

END OF TASK

**NOTES:**

1. FABRICATE FROM STEEL TUBING ONLY.
2. ALL DIMENSIONS IN INCHES.
3. BREAK SHARP EDGES AND REMOVE BURRS.
4. TUBE STOCK I.D. TO BE MEASURED.  
MACHINING NOT REQUIRED IF WITHIN  
SPECIFIED TOLERANCE.

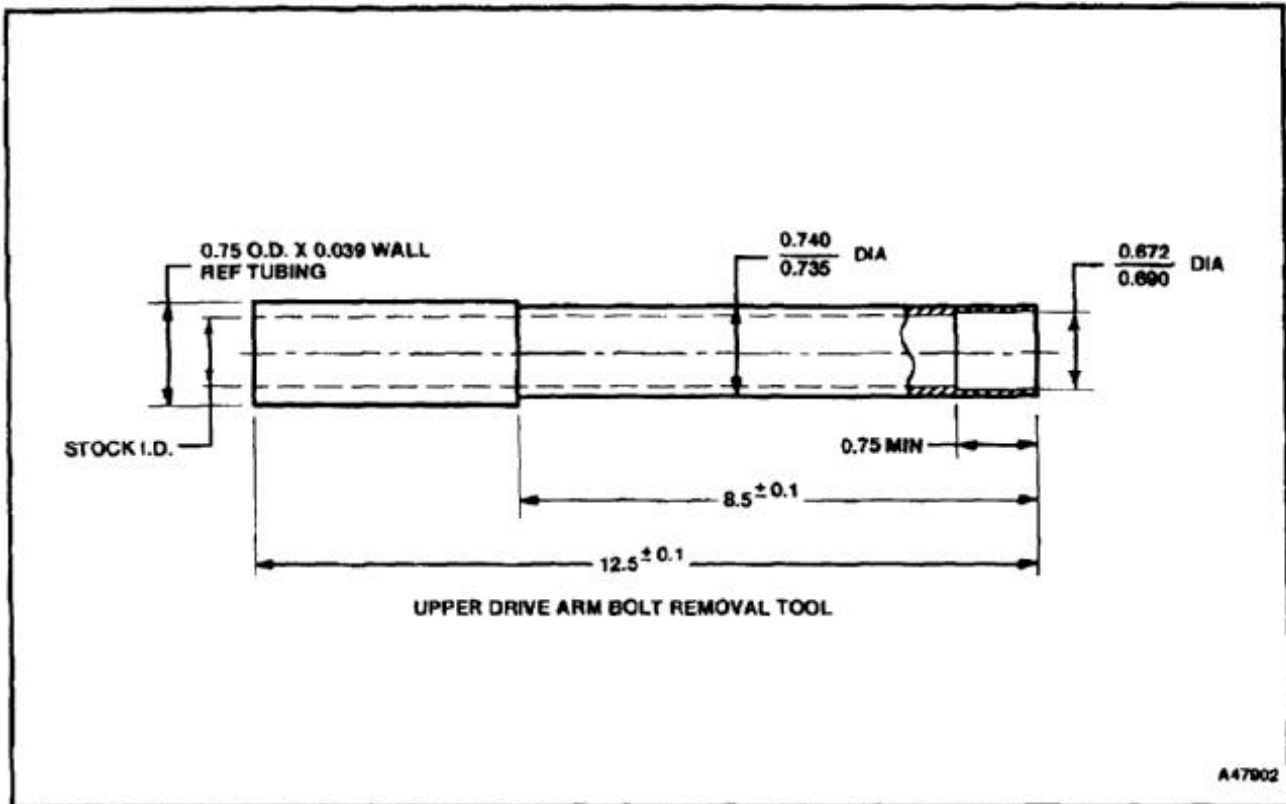


END OF TASK



**NOTES:**

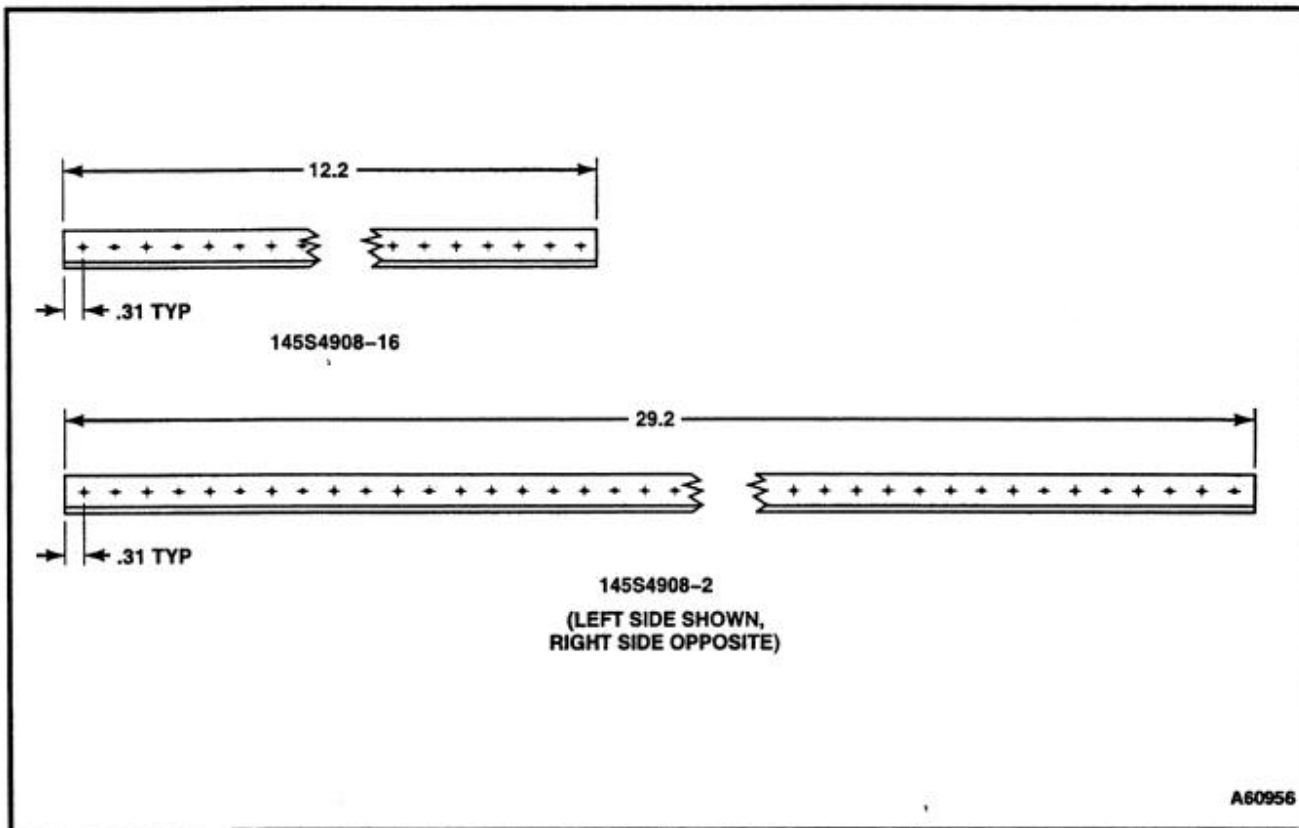
1. FABRICATE FROM STEEL TUBING ONLY.
2. ALL DIMENSIONS IN INCHES.
3. BREAK SHARP EDGES AND REMOVE BURRS.
4. TUBE STOCK I.D. TO BE MEASURED.  
MACHINING NOT REQUIRED IF WITHIN  
SPECIFIED TOLERANCE.



END OF TASK

**NOTES:**

1. ALL DIMENSIONS IN INCHES.
2. FABRICATE FROM 2024-T3 ALUMINUM ALLOY CLAD SHT PER QQ-A-250/5.
3. STOCK SIZE -2: 0.020 X 0.70 X 29.2  
STOCK SIZE -16: 0.020 X 0.70 X 12.2.
4. FINISH AS REQUIRED.

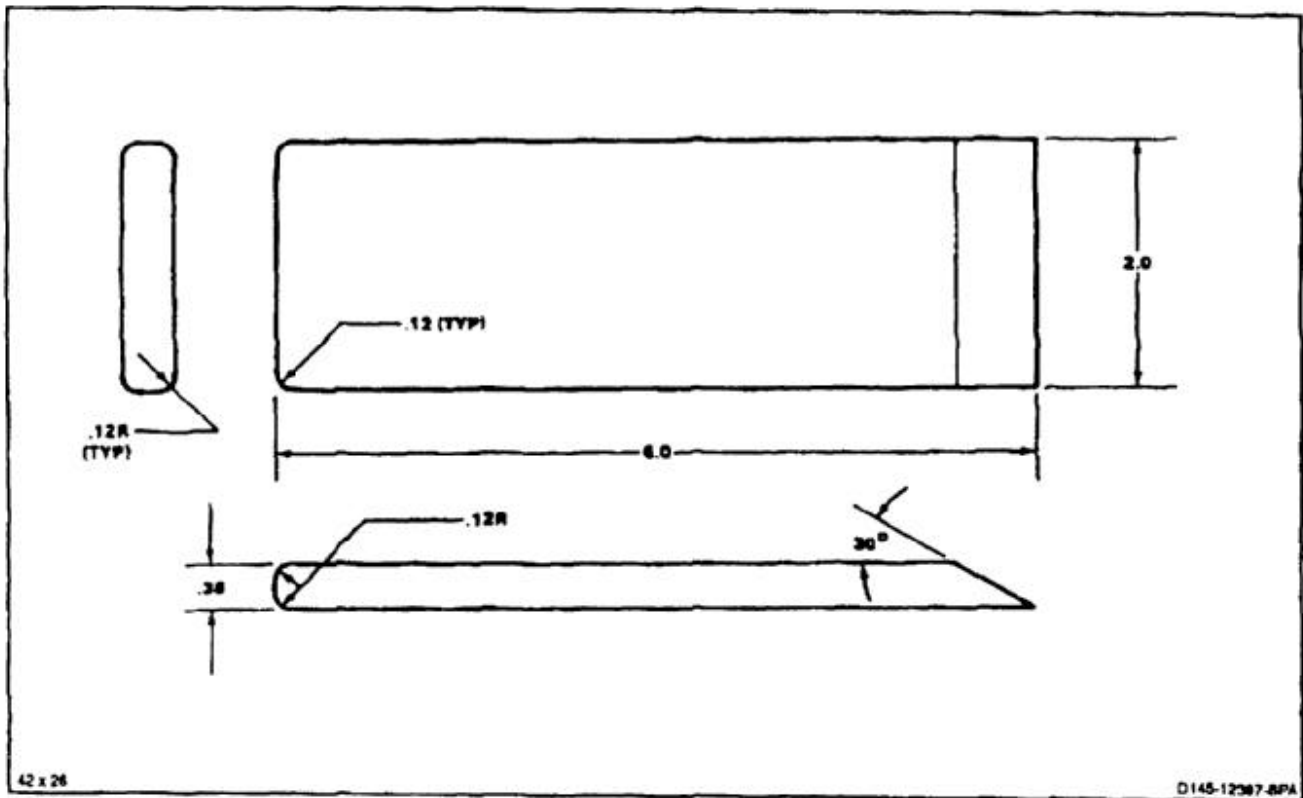


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END OF TASK

**NOTES:**

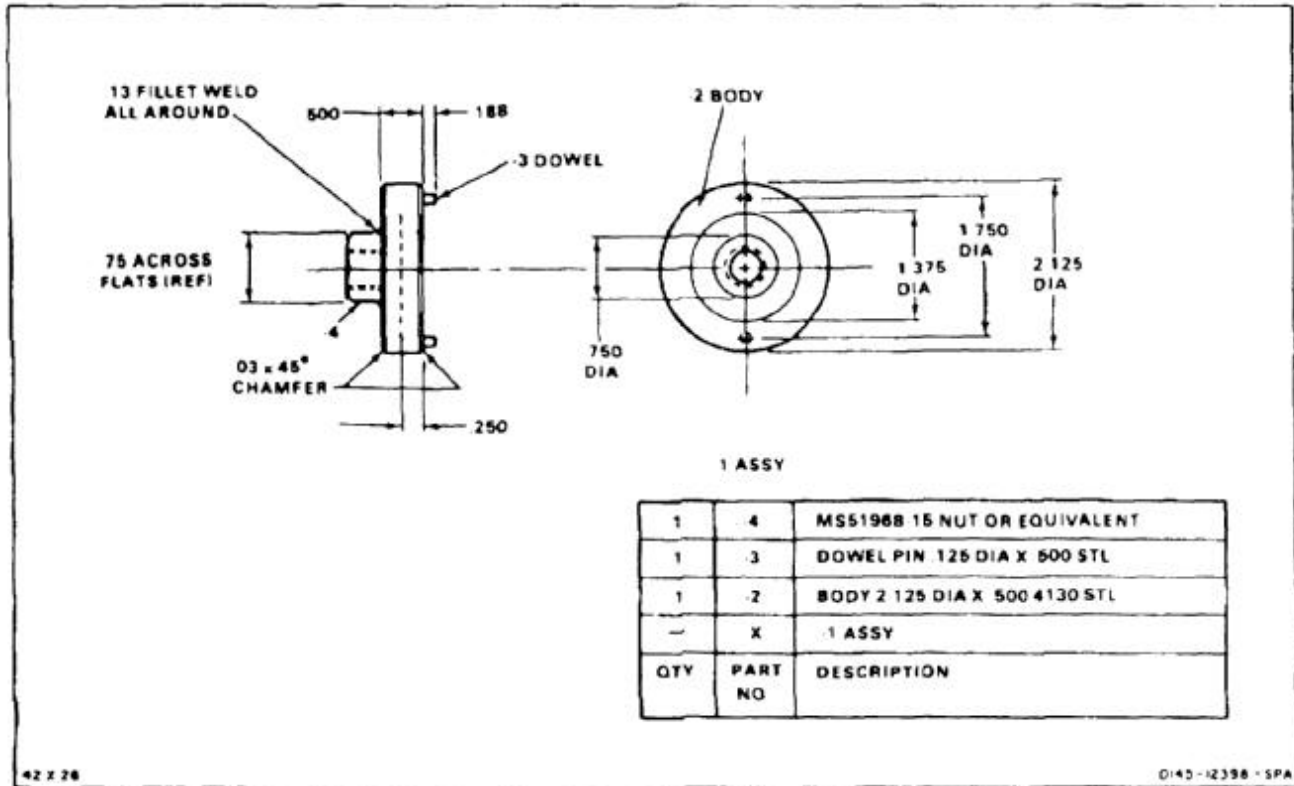
1. FABRICATE FROM METAL PLATE, AL ALLOY 6061, MINIMUM THICKNESS .040 INCH, NSN 9535-00-314-6903
2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES:  
.X =  $\pm .1$   
.XX =  $\pm .03$   
.XXX =  $.010$
4. BREAK SHARP EDGES EXCEPT SCRAPING EDGE.



END OF TASK

**NOTES:**

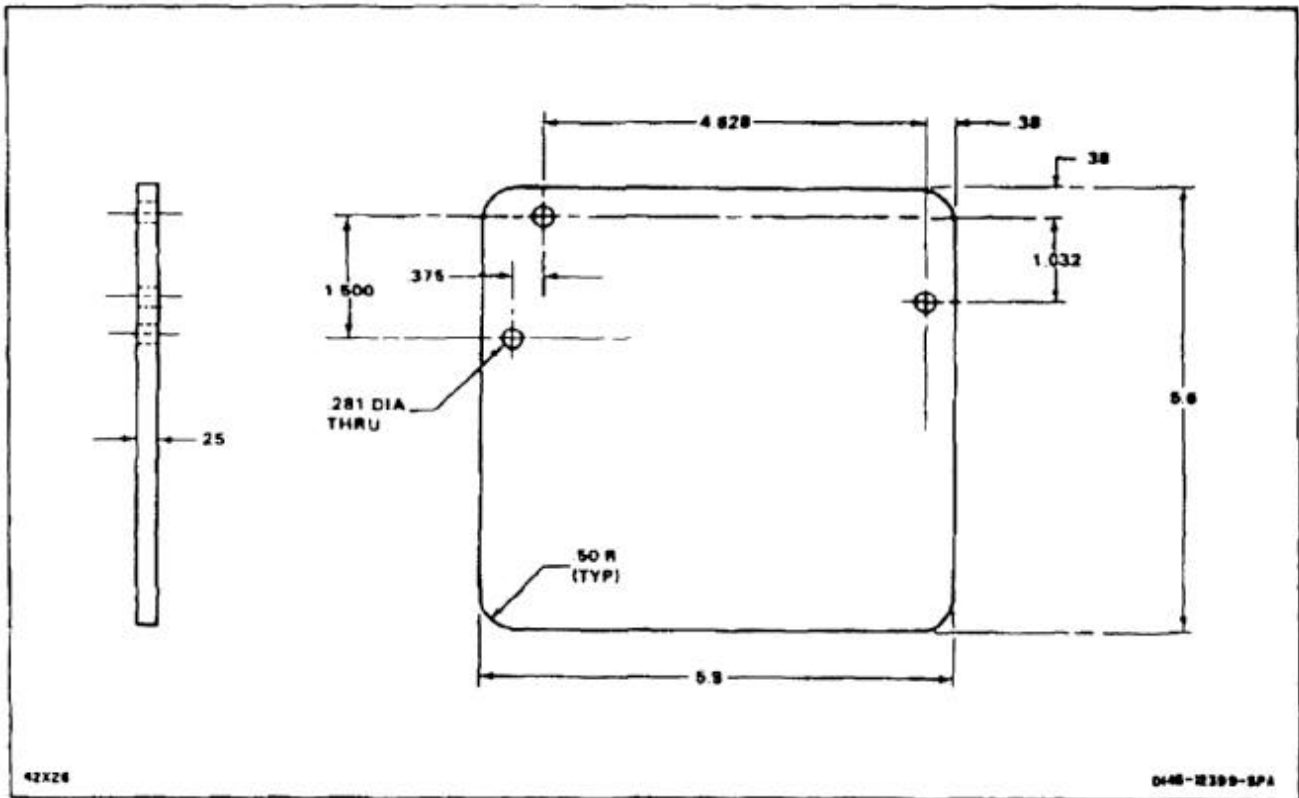
1. ALL DIMENSIONS IN INCHES.
2. TOLERANCES:  
 .X = ±.1  
 .XX = ±.02  
 .XXX = ±.010



END OF TASK

**NOTES:**

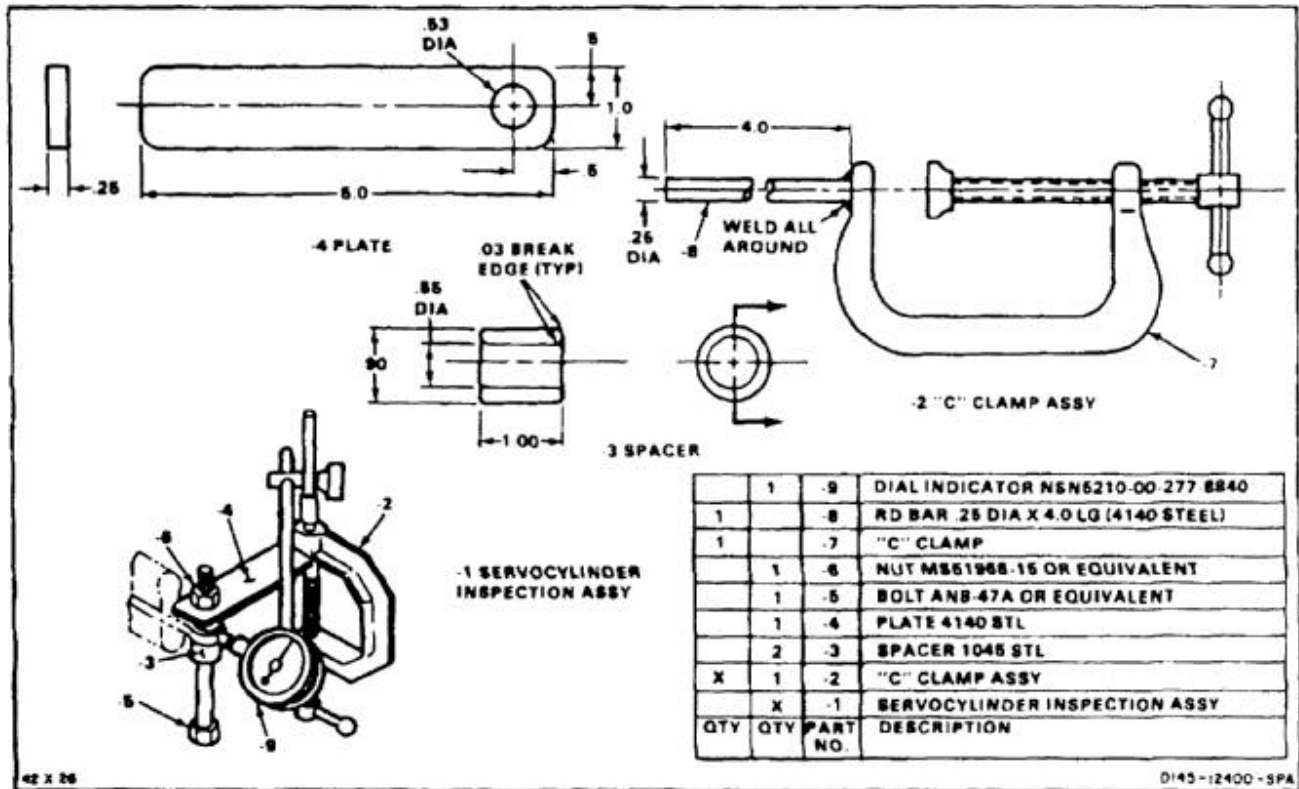
1. FABRICATE FROM 4140 STEEL.
2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES:  
 .X =  $\pm .1$   
 .XX =  $\pm .03$   
 .XXX =  $\pm .010$
4. BREAK SHARP EDGES.



END OF TASK

**NOTES:**

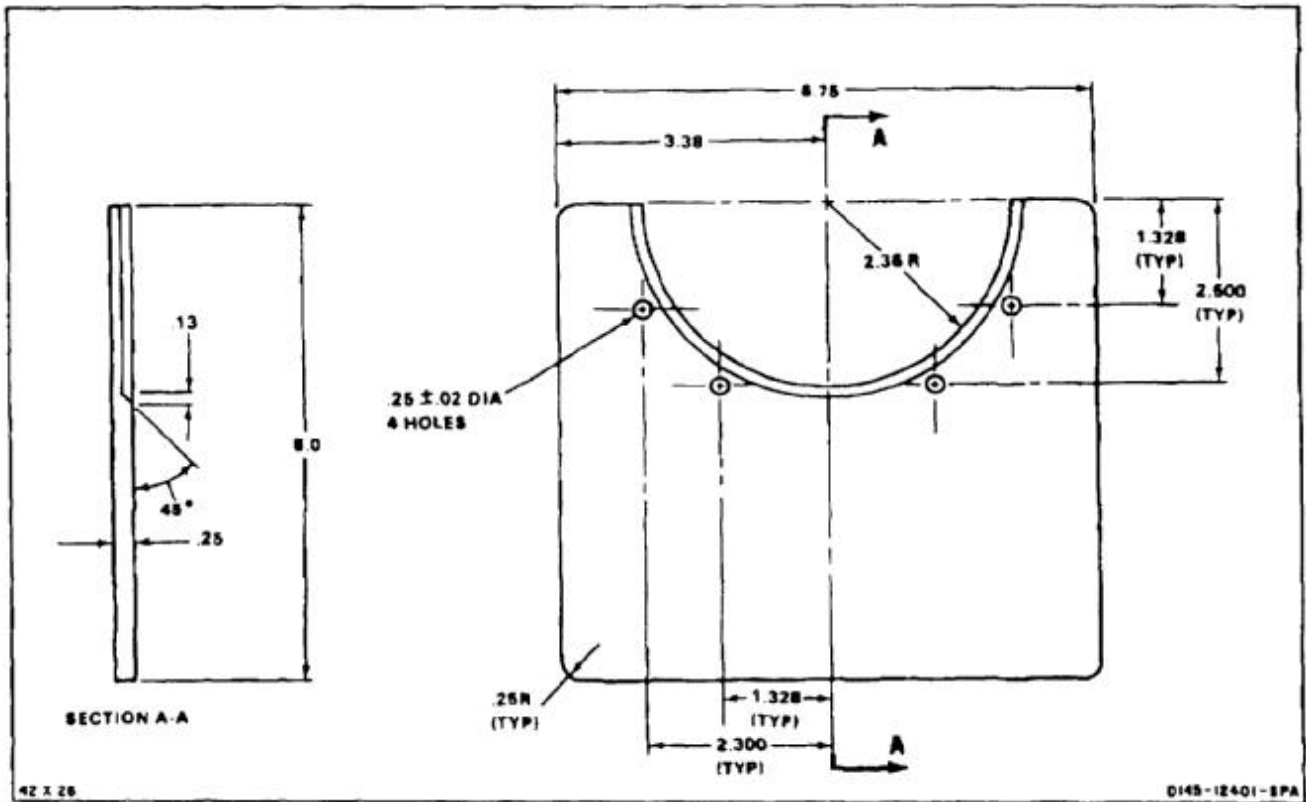
1. ALL DIMENSIONS IN INCHES.
2. TOLERANCES:  
 .X = ±.1  
 .XX = ±.03  
 .XXX = ±.010
3. BREAK SHARP EDGES.



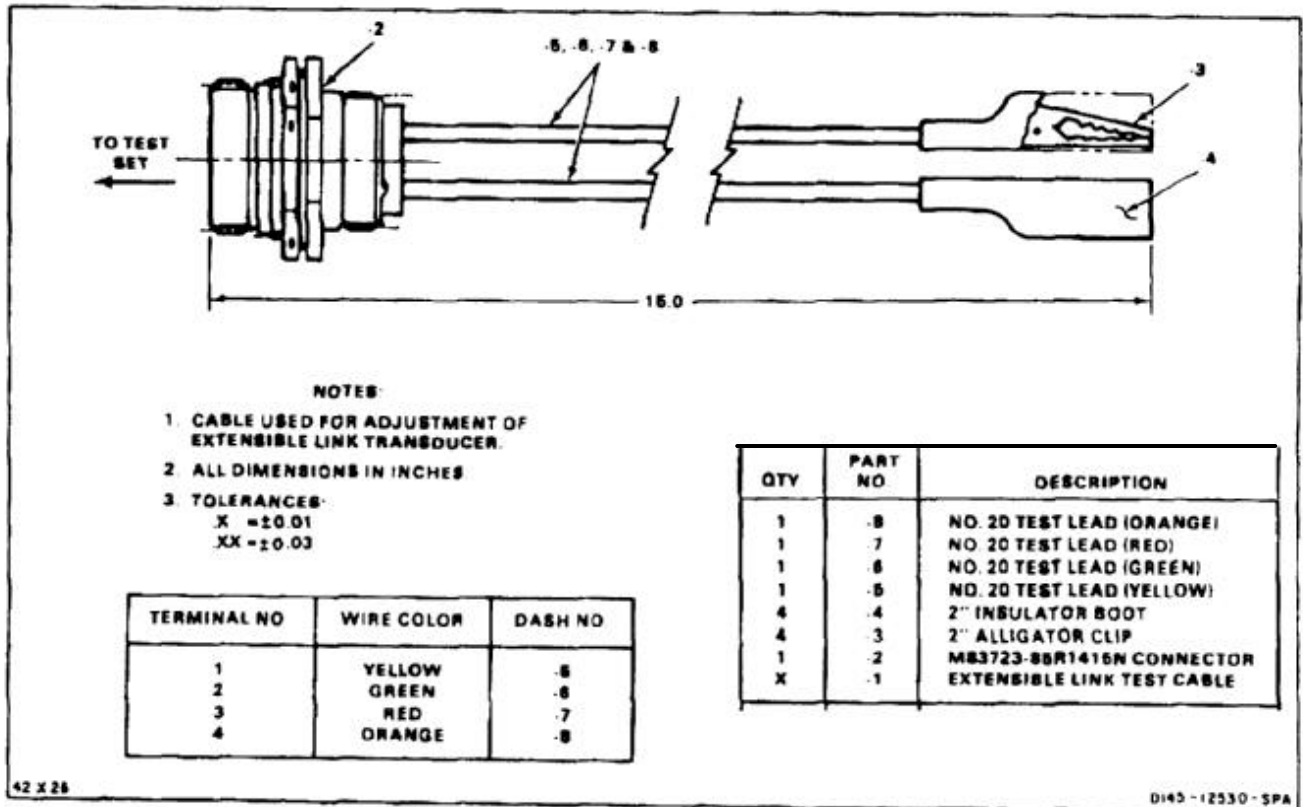
END OF TASK

**NOTES:**

1. FABRICATE FROM 4140 STEEL.
2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES:  
 .X =  $\pm .1$   
 .XX =  $\pm .03$   
 .XXX =  $\pm .010$
4. BREAK SHARP EDGES.



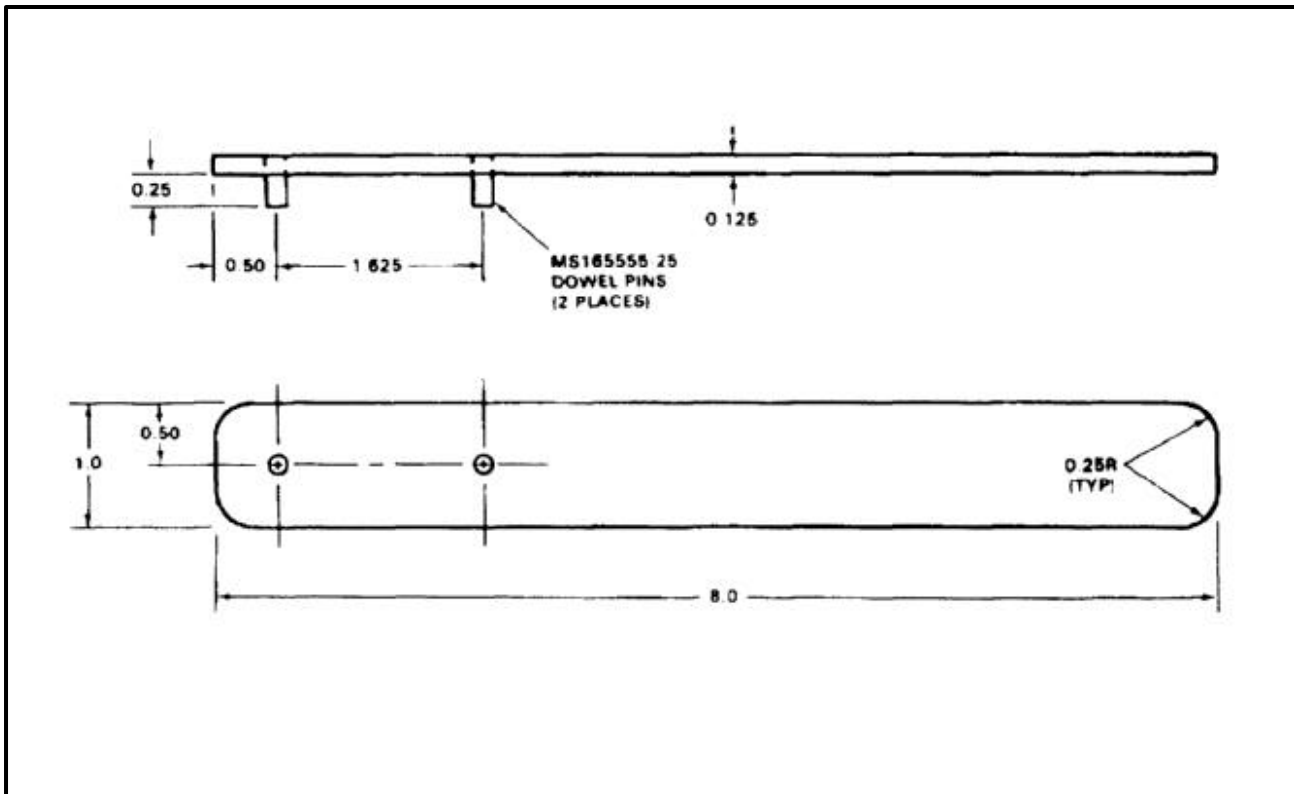
END OF TASK





**NOTES:**

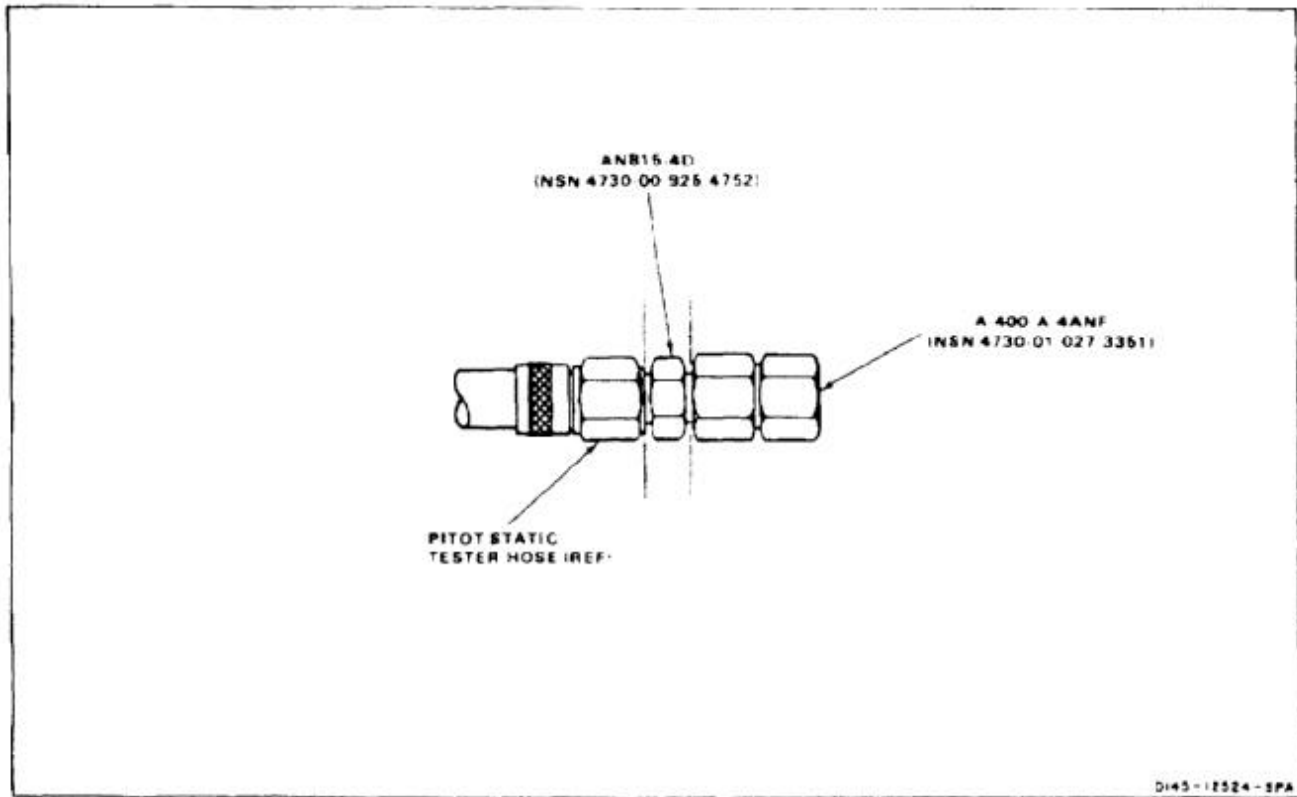
1. FABRICATE FROM 4140 STEEL SHT.
2. STOCK SIZE 0.125 X 1.0 X 8.0.
3. ALL DIMENSIONS IN INCHES.
4. TOLERANCES:  
.X =  $\pm .1$   
.XX =  $\pm .03$   
.XXX =  $\pm .010$
5. BREAK SHARP EDGES.



END OF TASK

**NOTES:**

PITOT STATIC TESTER HOSE CONNECTOR USED FOR AFCS BENCH TEST OF COMPUTER.

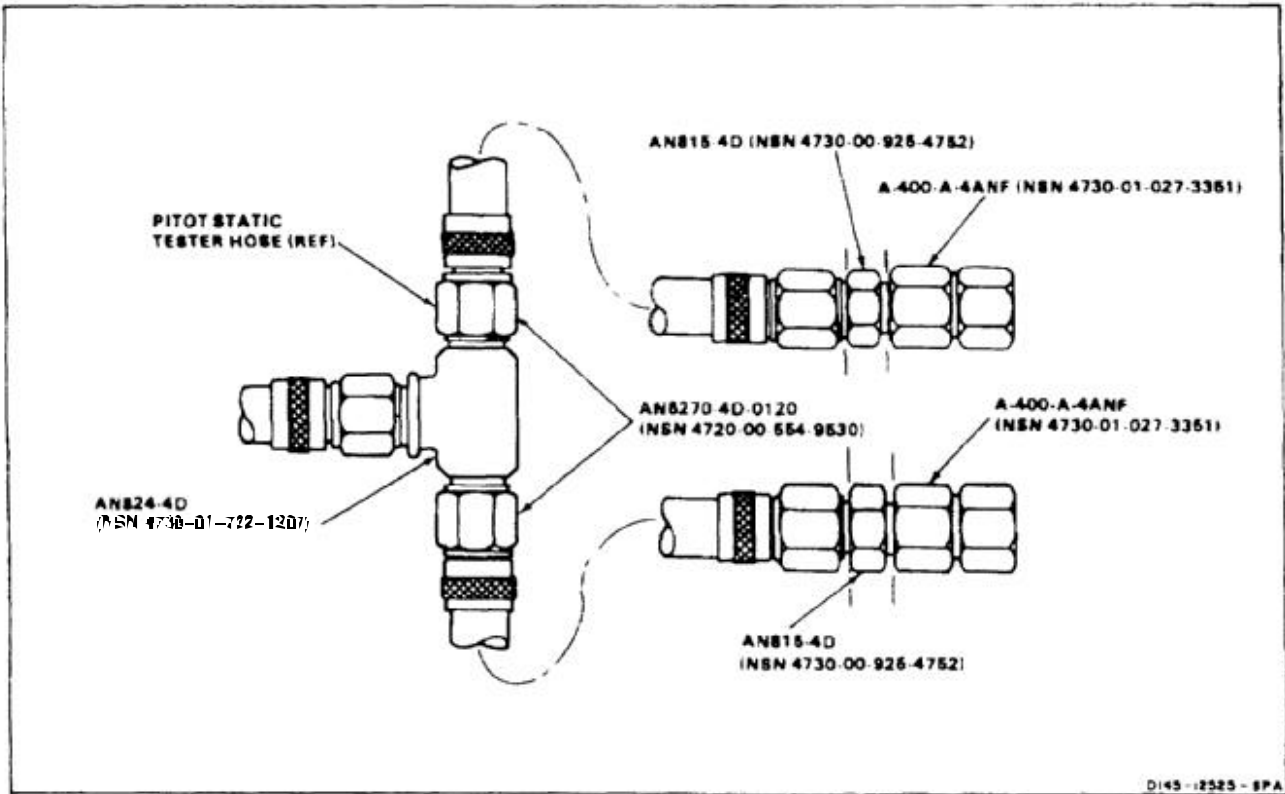


D145-12524-SPA

END OF TASK

**NOTES:**

PITOT STATIC TESTER HOSE CONNECTOR USED FOR AFCS BENCH TEST OF COMPUTER.



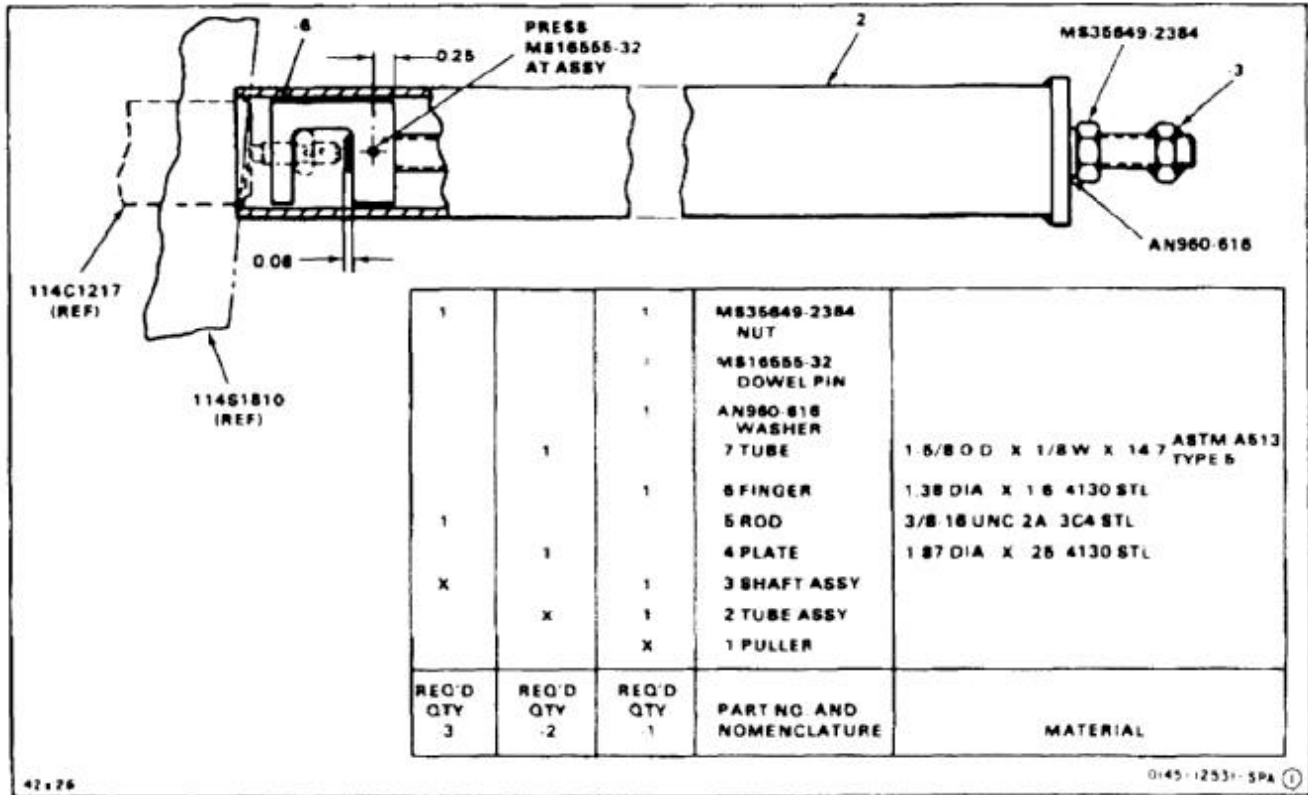
D145-12525-8PA

E-38 COCKPIT TRANSFER BELLCRANK SHAFT PULLER

E-38

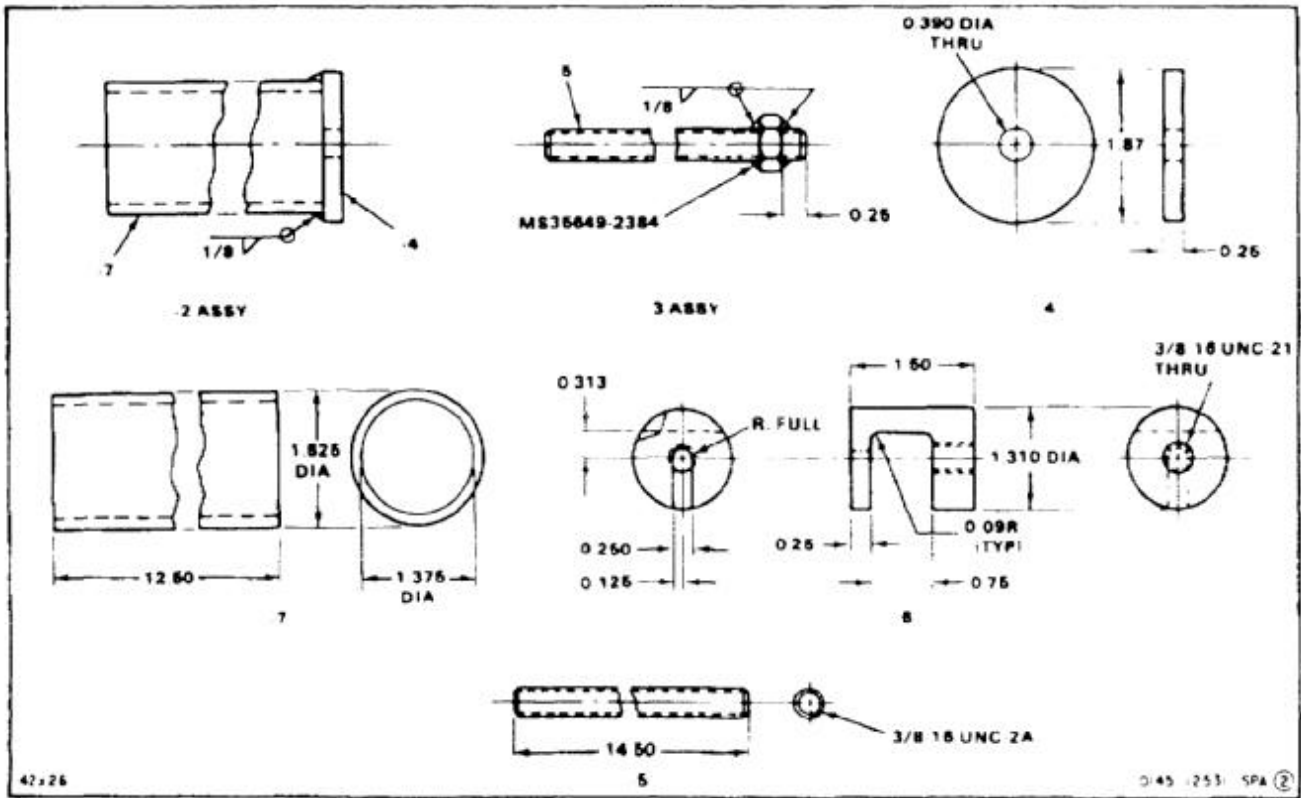
NOTES:

1. ALL DIMENSIONS IN INCHES.
2. TOLERANCES:  
 .X = ±.1  
 .XX = ±.03  
 .XXX = ±.010

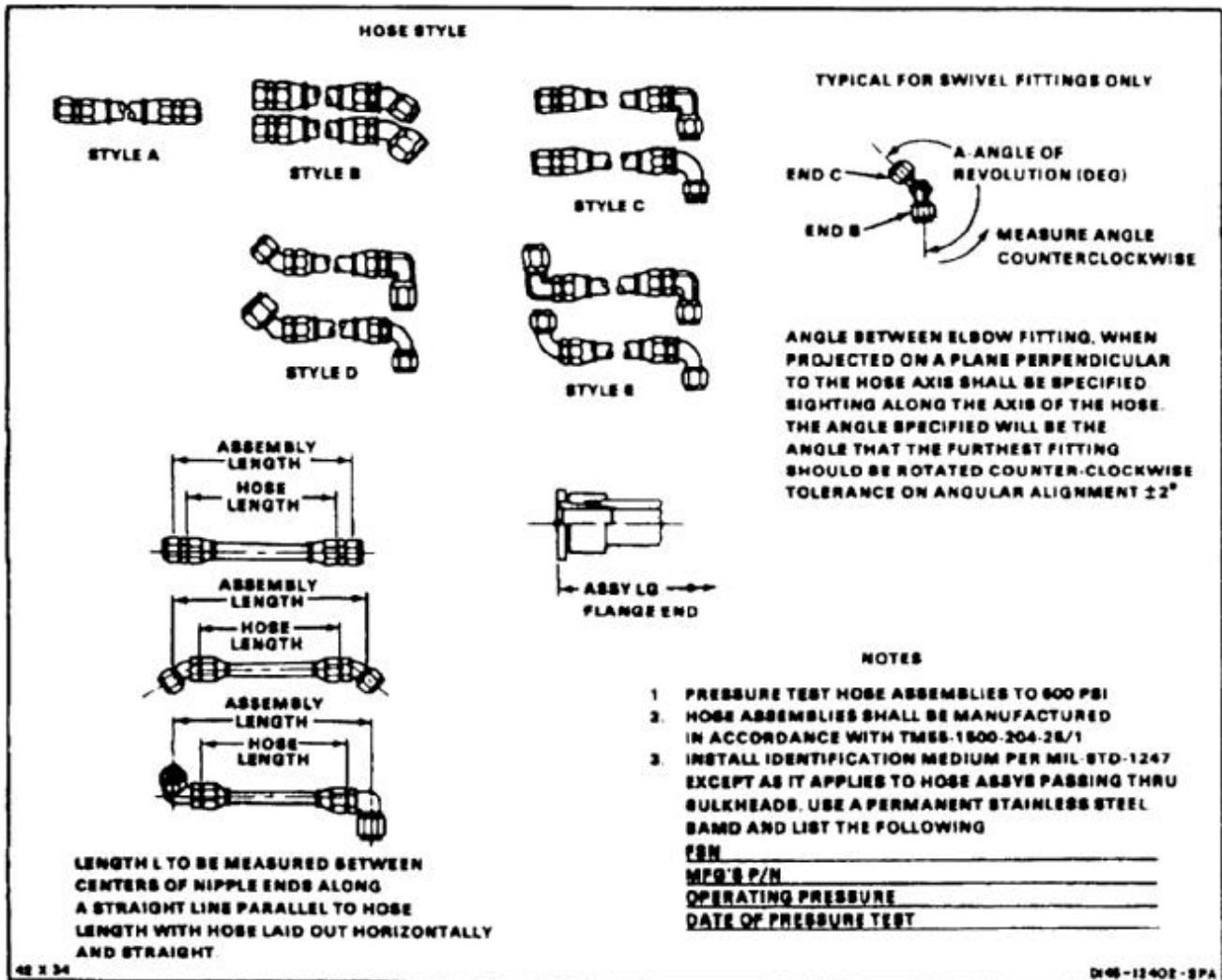


42-26

0145-12531-5PA ①



END OF TASK



## E-39 FUEL HOSE ASSEMBLIES (Continued)

E-39

HOSE ASSEMBLY PART NUMBER	HOSE PART NUMBER	END B	END C	ASSEMBLED HOSE LENGTH (INS.)	A-DEGREE OF ANGLE
114PS100-1	AE701-4	816-4	8846-4	16.75	
114PS100-4	AE701-4	816-4	816-4	29.75	
114PS100-7	AE701-4	8816-4	8891-4	24.75	330°
114PS100-10	AE701-10	8891-10D	—	51.50	
114PS100-15	AE701-4	8891-4	8846-4	10.00	270°
114PS100-19	AE701-4	816-4	8891-4	22.25	
114PS100-22	AE701-4	816-4	816-4	7.875	
114PS100-47	AE701-4	816-4	816-4	15.00	
114PS100-53	AE701-16	8891-16D	816-16D	31.00	
114PS100-95	AE701-4	8891-4	8891-4	5.25	180°
114PS100-97	AE701-10	816-10D	AE13716	60.00	
114PS100-98	AE701-8	816-8D	816-8D	16.00	
114PS100-100	AE701-4	816-4	816-4	11.00	
114PS100-101	AE701-4	816-4	8891-16D	8.50	
114PS403-1	AE701-16	8891-16D	8891-16D	35.75	45°
114PS403-2	AE701-16	8891-16D	8891-16D	35.75	315°
114PS404-1	AE701-4	816-6D	8891-6D	11.25	
114PS405-1	AE701-16	8846-16D	8891-16D	23.25	260°
114PS405-2	AE701-16	8846-16D	8891-16D	23.25	100°
114PS406-1	AE705796-1	8891-6D	816-6D	24.50	
114PS417-1	AE701-6	816-6D	8846-6D	7.25	
114PS418-1	AE701-6	8891-6D	8891-6D	8.12	90°
114PS421-1	AE701-16	816-16D	8846-16D	29.00	
114PS479-1	AE701-4	816-4	816-4	48.00	
114PS480-1*	AE601-32	AE23797R	8844-32D	34.31	
114PS480-2*	AE601-32	AE23786R	8844-32D	34.31	
114PS481-1	AE701-16	816-16D	8891-16D	25.00	
114PS482-1	AE701-16	816-16D	816-16D	25.50	
114PS483-1	AE701-4	816-4	816-4	72.00	
114PS484-1	AE701-16	816-16D	816-16D	28.25	
114PS485-1	AE701-6	8891-6D	816-6D	21.75	
114PS486-1	AE701-6	816-6D	8891-6D	18.50	
114PS492-1	AE705800-1	816-16D	816-16D	24.75	

\* This hose requires a socket 516-32D to complete the assembly.

**E-39 FUEL HOSE ASSEMBLIES (Continued)****E-39**

<b>HOSE ASSEMBLY PART NUMBER</b>	<b>HOSE PART NUMBER</b>	<b>END B</b>	<b>END C</b>	<b>ASSEMBLED HOSE LENGTH (INS.)</b>	<b>A-DEGREE OF ANGLE</b>
114PS487-1	AE701-16	816-16D	816-16D	29.50	
114PS487-2	AE701-16	816-16D	816-16D	20.00	
114PS495-1	AE701-16	816-16D	8891-16D	18.50	
114PS498-1	AE601-32	AE23797R*	AE23797R*	110.12	
114PS499-1	AE701-8	8891-8D	8846-8D	19.00	90°
114PS499-2	AE701-8	8891-8D	8891-8D	19.00	270°
114PS502-1	AE701-16	816-16D	8891-16D	50.75	
114PS502-2	AE701-16	816-16D	8891-16D	49.75	
114PS503-1	AE701-16	816-16D	8891-16D	60.50	
114PS505-1	AE701-16	816-16D	8846-16D	28.75	
114PS507-1	AE701-16	816-16D	8891-16D	70.75	
114PS511-1	AE701-6	816-6D	816-6D	18.12	
114PS516-1	AE701-16	816-16D	8891-16D	28.38	
114PS517-2	AE701-16	816-16D	8891-16D	45.75	
114PS519-1	AE701-6	816-6D	8846-6D	15.5	
114PS520-1	AE701-6	816-6D	816-6D	24.5	
114PS100-5	AE701-4	8846-4	8891-4	30.62	330°
145PS100-6	AE701-6	816-6D	8891-6D	29.00	
145PS452-1	AE701-16	816-6D	8891-16D	26.50	

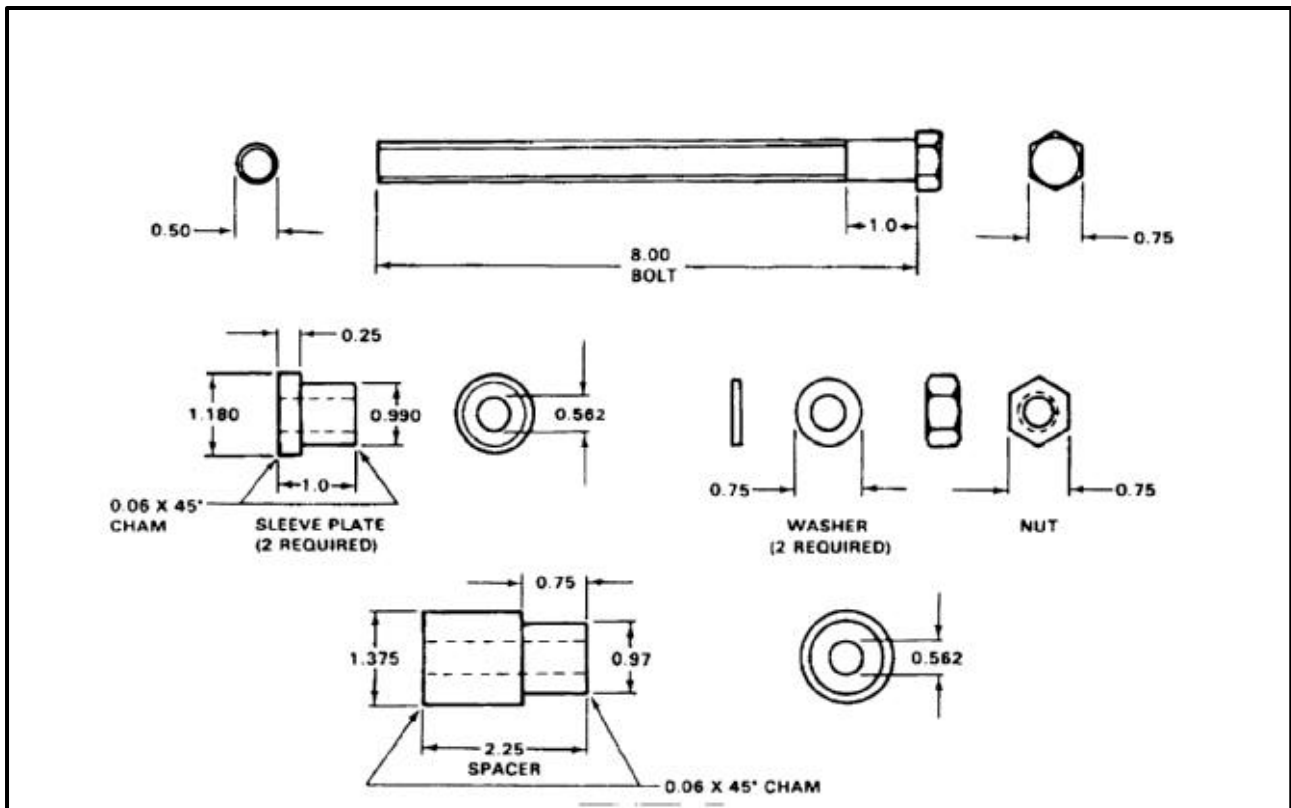
\* This hose requires a socket 516-32D to complete the assembly.

END OF TASK



**NOTE**

ALL DIMENSIONS IN INCHES.

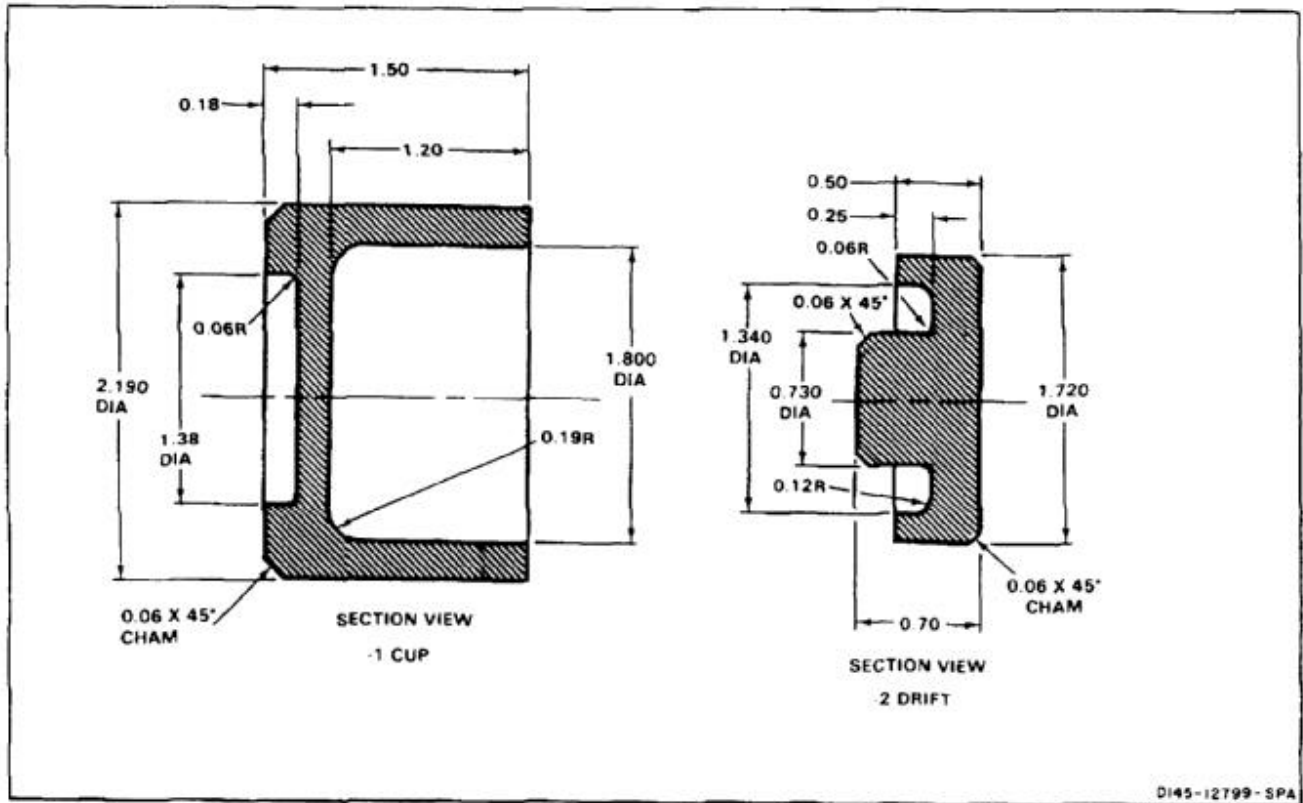


END OF TASK

E-41 SHOCK ABSORBER ROD END BEARING PUSHER ASSEMBLY

NOTES:

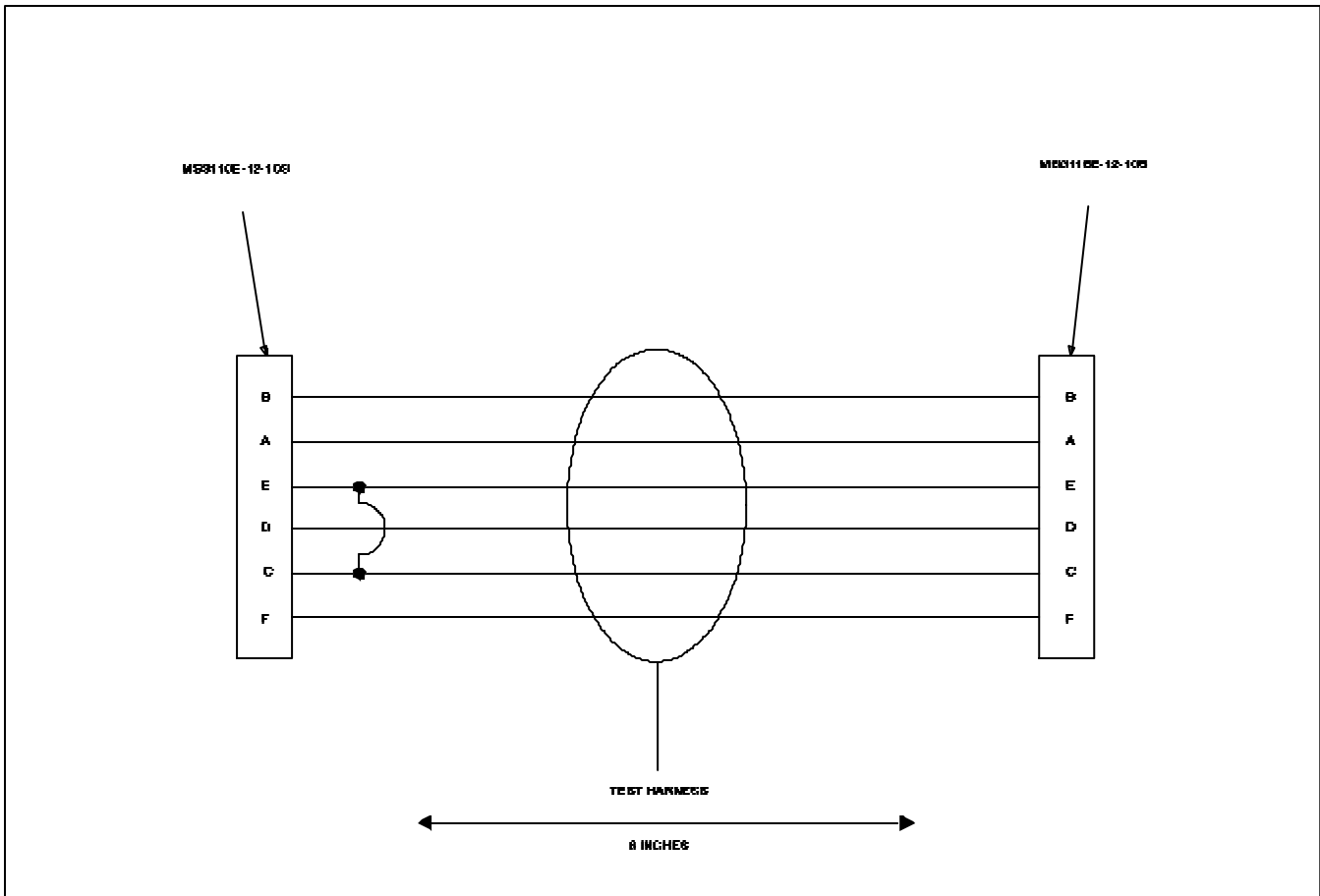
1. FABRICATE FROM 4140 STEEL.
2. ALL DIMENSIONS IN INCHES.



END OF TASK

FABRICATE FROM

CONNECTOR, ELECTRICAL, MS3110E-12-10P  
 CONNECTOR, ELECTRICAL, MS3116E-12-10S  
 HOOKUP WIRE, USE NO 20 GAGE WIRE AS  
 REQUIRED.



END OF TASK

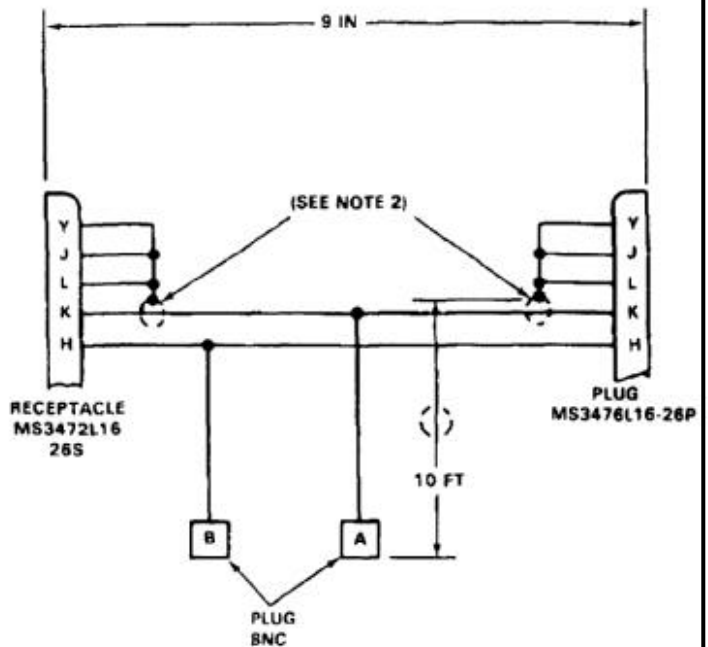
NOTE

FABRICATE FROM:

	STANDARD PART NUMBER	NATIONAL STOCK NUMBER
RECEPTACLE	MS3472L16-26S	5935-00-568-3706
PLUG	MS3476L16-26P	5935-00-165-3342
PLUG	BNC	5935-00-080-4183
WIRE	BMS13-48/8-1-22 M22759/16-22-9	
COAXIAL CABLE	RG-188A/U	6145-00-918-9494

NOTES:

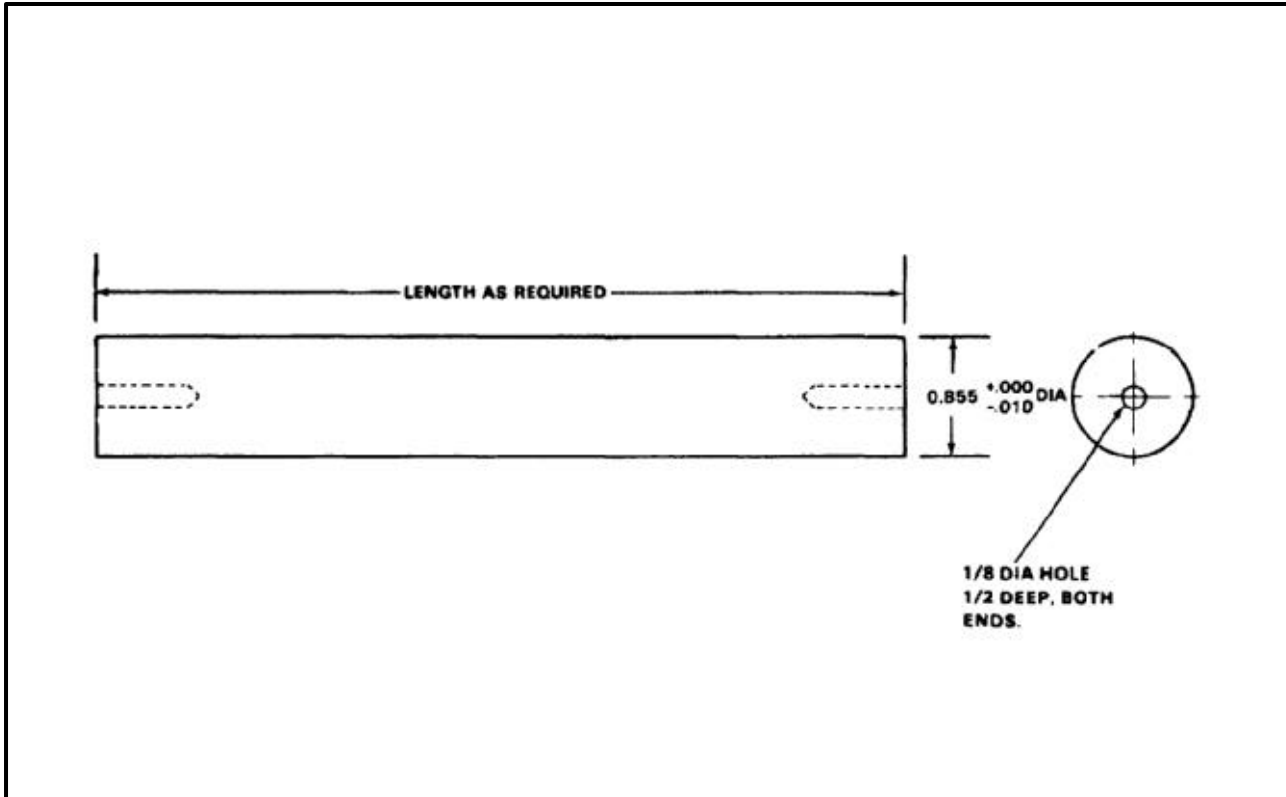
1. WIRE IS NO. 22 INSULATED BMS 13-48/8-1-22 M22759/16-22-9 UNLESS OTHERWISE NOTED.
2. TERMINATE SHIELD OF COAXIAL CABLE WITH WIRE JUMPERS CLOSE AS POSSIBLE TO BACK OF CONNECTOR. USING MS21981-080 INNER SLEEVE MS21980-156 OUTER SLEEVE. INSULATE SLEEVE TERMINATION WITH HEAT SHRINK TUBING.
3. TWO CABLE ASSEMBLIES REQUIRED FOR TEST SET UP.



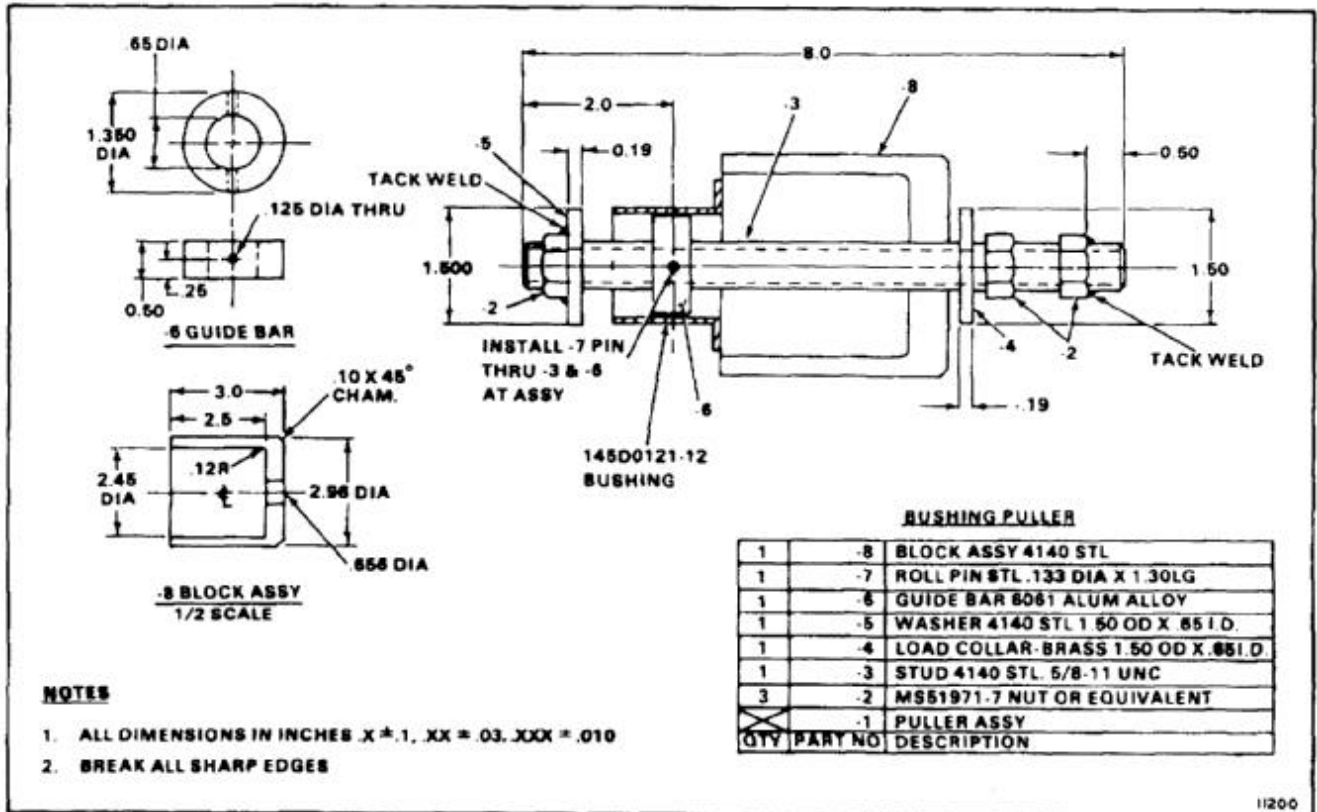
END OF TASK

**NOTES:**

1. FABRICATE FROM HARD WOOD DOWEL,  
(E-160.1) 0.855-INCH DIAMETER.
2. ALL DIMENSIONS IN INCHES.

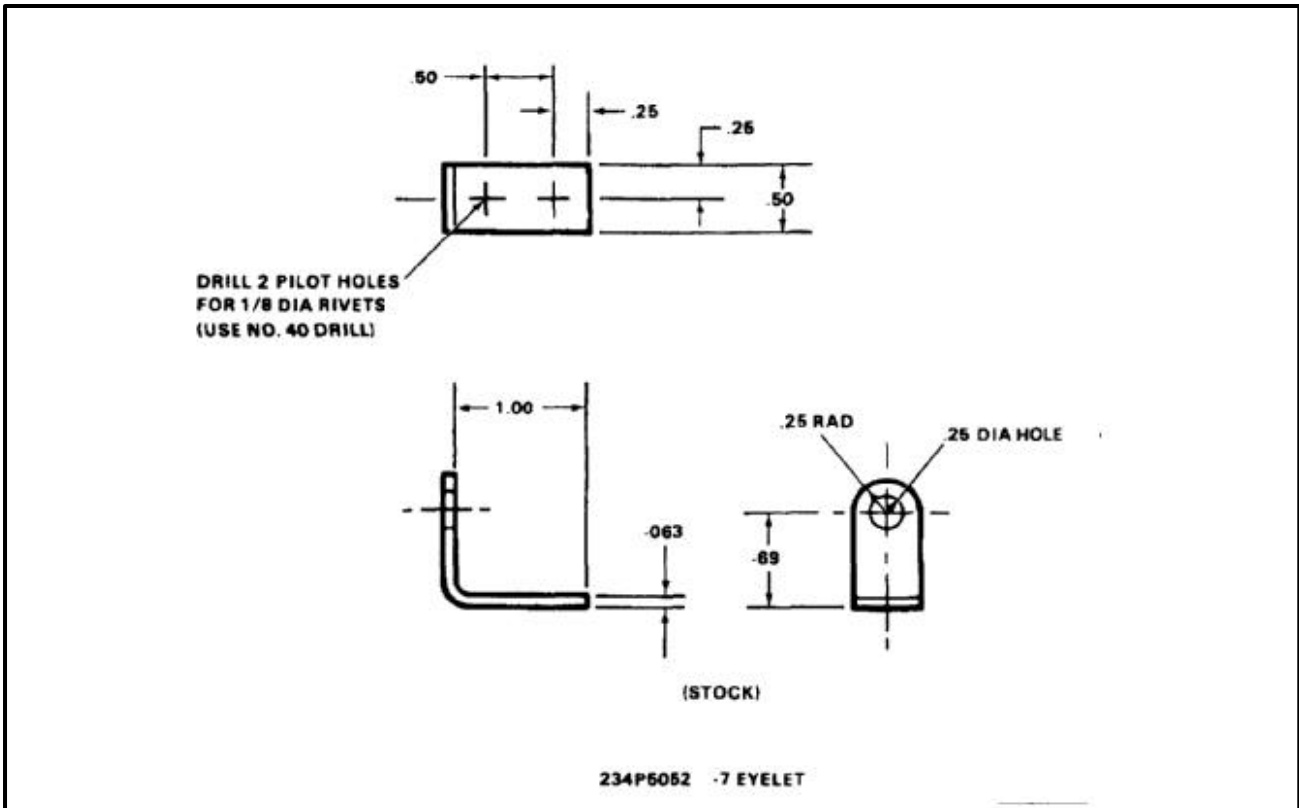


END OF TASK



**NOTES:**

1. MAKE FROM 0.063 CRES 301 OR 304, 1/4 HARD OR ANNEALED.
2. ALL DIMENSIONS IN INCHES.

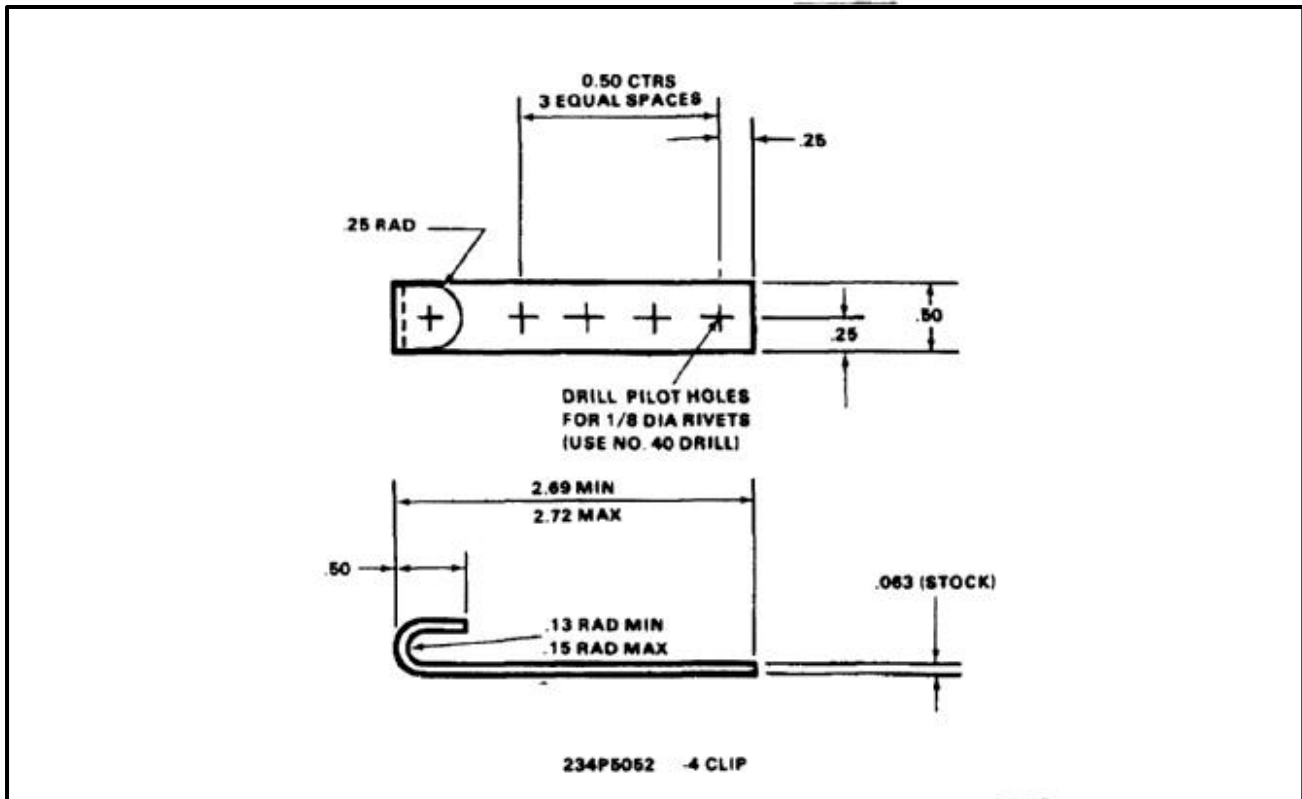


END OF TASK

E-70

**NOTES:**

1. MAKE FROM 0.063 CRES 301 OR 304, 1/4 HARD OR ANNEALED.
2. ALL DIMENSIONS IN INCHES.

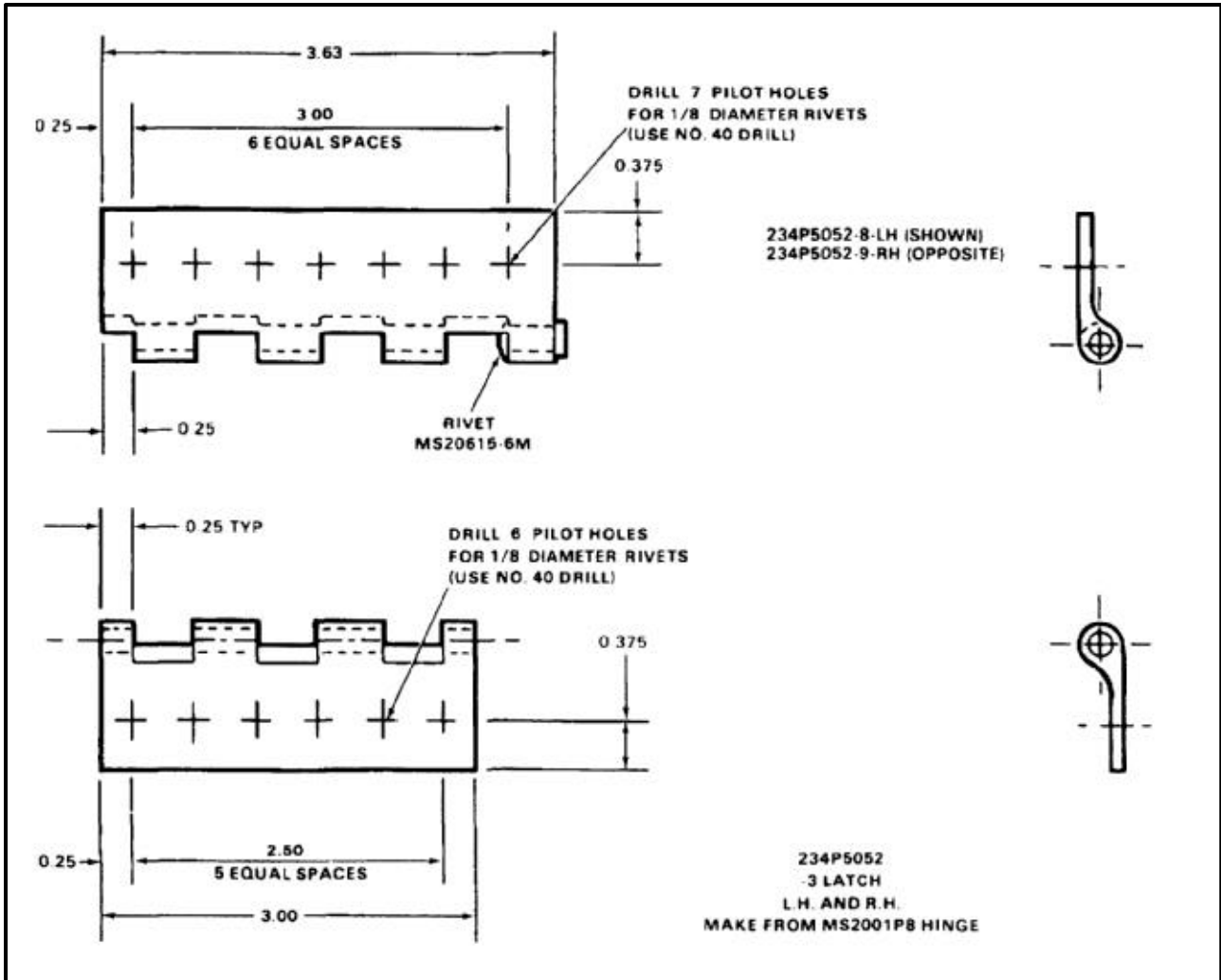


END OF TASK



**NOTES:**

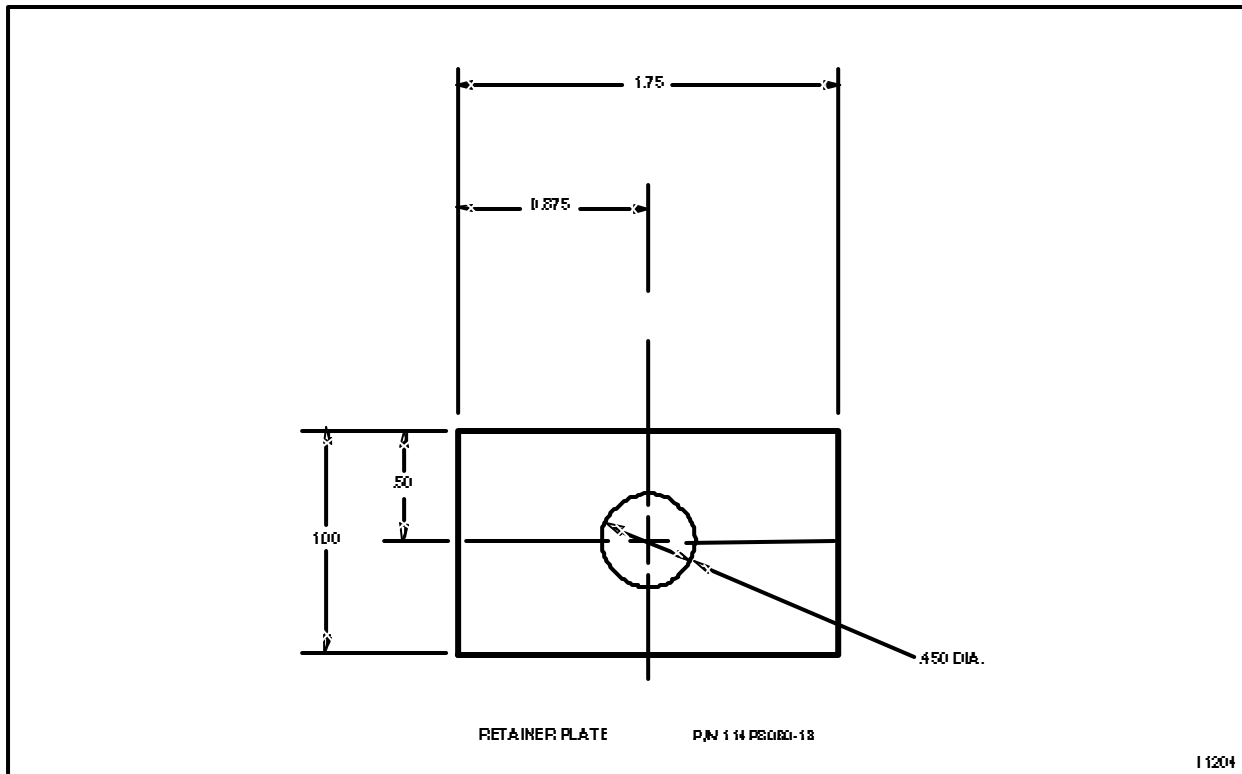
1. MAKE FROM MS2001P8 HINGE (E196.1).
2. ALL DIMENSIONS IN INCHES.
3. FINISH WITH ZINC CHROMATE PRIMER (E291).



END OF TASK

**NOTES:**

1. FABRICATE FROM NSN 9535-00-167-2173 (E66.1).
2. ALL DIMENSIONS IN INCHES.



END OF TASK

## A. Tube Fabrication Data SHEET 1 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE	114E1042-418	PITOT-STATIC	18	1/4 O.D. ALUMINUM	3
TUBE ASSY	114E4048-125	HEATER	12-5/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	114E4048-151	HEATER	9	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-1	BRAKE	19-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-3	BRAKE	19-1/4	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1301-6	BRAKE	10-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-7	BRAKE	13-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-9	BRAKE	27-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-11	BRAKE	30-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-13	BRAKE	4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-15	BRAKE	7-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-17	BRAKE	23	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-21	BRAKE PRESS	9-1/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-23	BOOST PRESS #1	17	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-25	BRAKE PRESS	5-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-27	BRAKE	8-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1301-30	BRAKE PRESS	17-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-31	BRAKE	8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-33	BRAKE PRESS	9-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-35	BOOST PRESS #1	29-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1301-38	BRAKE PRESS	10-5/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-39	HOIST PRESS	11-7/16	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1301-42	BRAKE PRESS	6-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-45	BRAKE	30	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-47	BRAKE	31-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-52	BRAKE PRESS	51-7/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-53	BRAKE	78	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-55	BRAKE	75-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-59	BRAKE PRESS	80	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-61	BOOST PRESS #1	57-1/2	3/8 O.D. CRES STEEL	1, 2
TUBE	145H1301-64	BOOST PRESS #1	33-1/2	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-65	BOOST PRESS #1	3-5/16	3/8 O.D. CRES STEEL	1, 2
TUBE	145H1301-68	BOOST PRESS #1	51-3/8	3/8 O.D. CRES STEEL	1, 2
TUBE	145H1301-74	BOOST PRESS #2	75	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-75	BOOST PRESS #2	9-1/2	3/8 O.D. CRES STEEL	1, 2

## A. Tube Fabrication Data SHEET 2 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE	145H1301-78	BOOST PRESS #2	9	3/8 O.D. CRES STEEL	1, 2
TUBE	145H1301-80	BOOST PRESS #1	5-3/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-81	BOOST PRESS #2	21-5/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-83	BOOST PRESS #2	20-3/16	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1301-86	BOOST PRESS #2	37-3/8	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1301-88	BOOST PRESS #2	34-13/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-89	BOOST PRESS #1	22-3/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-91	BRAKE PRESS	41	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-93	HOIST PRESS	5-1/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-95	BRAKE	34-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-97	BRAKE PRESS	23-3/4	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-99	BRAKE	90	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-101	BRAKE	49	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-103	BRAKE	33-3/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-105	UTILITY PRESS	19-7/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-115	BOOST PRESS #1	11-11/16	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-117	BOOST PRESS #1	22-5/16	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-119	BOOST PRESS #1	54-15/16	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-121	BOOST PRESS #2	39-1/16	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-123	UTILITY PRESS	13-3/16	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-125	UTILITY PRESS	55-1/4	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-127	PRESS	52-5/8	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-129	BOOST PRESS #1	21-1/4	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-131	BOOST PRESS #1	45	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-133	BOOST PRESS #1	36	1/2 O.D. CRES STEEL	1, 2
TUBE	145H1301-136	PRESS	46-3/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-137	PRESS	24-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-139	BOOST PRESS #1	19-1/4	5/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-141	BRAKE PRESS	43-1/4	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-143	BRAKE	36-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1301-146	BRAKE	33-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-151	BRAKE PRESS	28-9/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-155	UTILITY PRESS	9-3/4	3/8 O.D. CRES STEEL	1, 2
TUBE	145H1301-158	HOIST PRESS	7	3/8 O.D. CRES STEEL	1, 2

## A. Tube Fabrication Data SHEET 3 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE	145H1301-160	HOIST "UP"	12-3/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-161	HOIST "DOWN"	20-1/2	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-163	HOIST "UP"	27-7/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-165	HOIST "DOWN"	20-9/16	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1301-169	HOIST BRAKE	52-3/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1302-1	BOOST RETURN #1	19-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1302-3	BOOST RETURN #2	19	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1302-5	BOOST RETURN #1	19-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1302-7	BOOST RETURN #2	18-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1302-9	BOOST RETURN #1	5-1/2	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-11	BOOST RETURN #1	52-1/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-13	BOOST RETURN #2	7-1/2	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-18	BOOST RETURN #2	52-1/2	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-20	BOOST RETURN #2	16-3/16	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	146H1302-21	BOOST RETURN #2	54-1/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-23	BRAKE RETURN	24-1/2	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-25	RETURN	19-7/8	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-27	CASE RETURN	23-3/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-29	BOOST SUCTION	19-3/8	3/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-31	UTILITY RETURN	13-1/8	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-34	UTILITY RETURN	42-1/2	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-35	UTILITY RETURN	24-1/8	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-37	UTILITY RETURN	30-3/16	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-39	UTILITY RETURN	41-5/8	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-41	BOOST RETURN #2	45-3/8	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-44	RETURN	23-3/8	3/4 O.D. ALUM ALLOY	3
TUBE	145H1302-46	BOOST SUCTION	20-3/4	1 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-47	BOOST SUCTION	12-5/8	3/4 O.D. ALUM ALLOY	3
TUBE	145H1302-50	BOOST SUCTION	5-7/8	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-51	RETURN	34-7/16	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-53	BOOST RETURN #1	21-1/4	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-55	BOOST RETURN #1	46-3/4	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-57	BOOST RETURN #1	38-1/4	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-59	CASE DRAIN	16-1/8	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-61	CASE DRAIN	11-7/16	1/2 O.D. ALUM ALLOY	3

## A. Tube Fabrication Data SHEET 4 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE ASSY	145H1302-63	CASE DRAIN	32-1/4	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-66	OVERBOARD DRAIN	9-3/4	1/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-67	OVERBOARD DRAIN	22-11/16	1/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-69	OVERBOARD DRAIN	34-1/4	1/4 O.D. ALUM ALLOY	3
TUBE	145H1302-72	OVERBOARD DRAIN	7-1/2	1/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-73	OVERBOARD DRAIN	30-7/16	1/4 O.D. ALUM ALLOY	3
TUBE	145H1302-76	OVERBOARD DRAIN	54	1/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-77	UTILITY RETURN	8	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-79	HOIST RETURN	8-7/8	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-82	HOIST RETURN	23-7/16	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-83	HOIST RETURN	12-3/8	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-86	HOIST RETURN	11-15/16	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-88	HOIST RETURN	7-1/2	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-89	HOIST RETURN	8-15/16	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-93	BRAKE RETURN	44	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-95	BOOST RETURN #1	15-1/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-97	BOOST RETURN #1	13-3/8	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-100	BOOST RETURN #1	59-1/16	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-103	BRAKE RETURN	9-1/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-105	BRAKE RETURN	5-7/8	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-108	BRAKE RETURN	20	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-109	BRAKE RETURN	9-1/2	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-112	BRAKE RETURN	10-5/16	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-114	BRAKE RETURN	6	3/8 O.D. ALUM ALLOY	3
TUBE	145H1302-116	BRAKE RETURN	37-3/16	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-117	BRAKE RETURN	82-5/8	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-119	BRAKE RETURN	38-5/8	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-123	CASE DRAIN	4-11/16	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-125	HOIST RETURN	18-13/16	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1302-127	BOOST RETURN #1	15-1/4	5/8 O.D. ALUM ALLOY	3
TUBE	145H1401-2	UTILITY PRESS	26-3/4	3/8 O.D. CRES STEEL	1, 2

## A. Tube Fabrication Data SHEET 5 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE	145H1401-4	CARGO RELEASE	7	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-5	UTILITY PRESS	96	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-7	BRAKE PRESS	144	3/8 O.D. CRES STEEL	1, 2
TUBE	145H1401-10	BRAKE	144	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-11	BOOST PRESS #1	144	3/8 O.D. CRES STEEL	1, 2
TUBE	145H1401-14	UTILITY PRESS	30	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-15	BRAKE PRESS	114-1/4	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-17	BOOST PRESS #1	129-1/2	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-19	UTILITY PRESS	144	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-21	BRAKE	129-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-23	BOOST PRESS #2	136-3/4	3/8 O.D. CRES STEEL	1, 2
TUBE	145H1401-26	BRAKE	78-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-27	BOOST PRESS #2	144	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-29	BRAKE	50	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-31	BRAKE	144	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-33	BRAKE	12-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-35	BRAKE	27-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-37	BRAKE	50-3/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-41	BRAKE PRESS	56-1/2	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-43	BRAKE	44	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-45	BRAKE	49-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-48	BRAKE	29-11/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-49	BRAKE	56-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-51	BRAKE	42-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-53	BRAKE	16-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-57	CARGO RELEASE	58	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-59	CARGO RELEASE	47	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-61	BRAKE	16-3/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-63	CARGO RELEASE	42-13/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-65	BRAKE	13-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1401-68	UTILITY PRESS	53	3/8 O.D. CRES STEEL	1, 2
TUBE	145H1401-70	BRAKE	47-3/4	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-71	UTILITY PRESS	58-5/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-73	BRAKE PRESS	51	3/8 O.D. CRES STEEL	1, 2

## A. Tube Fabrication Data SHEET 6 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE ASSY	145H1401-75	BRAKE	3-1/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-77	BRAKE	6-3/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-79	BRAKE PRESS	31	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1401-81	CARGO HOOK	32	3/8 O.D. CRES STEEL	1, 2
TUBE	145H1402-2	UTILITY RETURN	7-3/8	1/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-3	UTILITY RETURN	103	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-5	BRAKE RETURN	138	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-7	BOOST RETURN #1	138	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-9	BRAKE RETURN	120-3/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-11	BOOST RETURN #2	133-5/8	3/8 O.D. ALUM ALLOY	3
TUBE	145H1402-14	UTILITY RETURN	32	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-15	BOOST RETURN #1	135	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-17	UTILITY RETURN	138	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-19	BOOST RETURN #2	143	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-21	BRAKE RETURN	57-3/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-23	BRAKE RETURN	3	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-25	BRAKE RETURN	21-3/4	3/8 O.D. ALUM ALLOY	3
TUBE	145H1402-28	UTILITY RETURN	66-5/8	1/2 O.D. ALUM ALLOY	3
TUBE	145H1402-30	BRAKE RETURN	65-3/8	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-31	BOOST RETURN #1	55	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1402-33	BOOST RETURN #2	50-1/2	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1801-1	BOOST PRESS #1	13-5/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-3	BOOST PRESS #2	18-5/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-5	UTILITY PRESS	32-1/4	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-7	BRAKE PRESS	22-5/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-9	BRAKE	22	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-13	BRAKE	61-11/16	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-15	BRAKE	26-3/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-17	BRAKE	26-9/16	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-19	BRAKE	36-3/4	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-21	BRAKE	35-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-23	UTILITY PRESS	18-3/4	3/8 O.D. CRES STEEL	1, 2
TUBE	145H1801-25	UTILITY PRESS	27	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-27	UTILITY PRESS	48-3/4	1/4 O.D. CRES STEEL	1, 2



## A. Tube Fabrication Data SHEET 7 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE	145H1801-29	UTILITY PRESS	34-15/16	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-31	UTILITY PRESS	63-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-33	UTILITY PRESS	44	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-35	UTILITY PRESS	30	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-37	UTILITY PRESS	9-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-40	RAMP UP	34-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-41	RAMP UP	13-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-44	RAMP UP	35-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-45	SWIVEL LOCK	105-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-47	SWIVEL UNLOCK	105-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-49	RAMP UP	13	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-52	RAMP UP	35-11/16	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-54	SWIVEL UNLOCK	19-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-55	SWIVEL UNLOCK	10-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-57	SWIVEL UNLOCK	33-13/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-59	SWIVEL UNLOCK	17-5/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-61	SWIVEL UNLOCK	17-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-63	SWIVEL UNLOCK	5-5/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-65	SWIVEL LOCK	15-9/16	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-67	SWIVEL LOCK	11-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-70	SWIVEL LOCK	34-15/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-71	SWIVEL LOCK	14-3/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-73	SWIVEL LOCK	15-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-75	SWIVEL LOCK	8-1/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-77	POWER STEERING	20-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-79	UTILITY PRESS	37-5/8	3/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-81	START PRESS	20	3/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-83	PRESS	14-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-85	RAMP UNLOCK	13	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-88	RAMP UNLOCK	31-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-89	RAMP UNLOCK	20-3/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-91	RAMP UP	9-1/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-93	PRESS	26-1/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-95	ACCUMULATOR	10-7/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-97	POWER STEERING	28	1/4 O.D. CRES STEEL	1, 2

## A. Tube Fabrication Data SHEET 8 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE ASSY	145H1801-99	ENG START PRESS	17	5/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-101	BRAKE	39-9/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-103	BRAKE	8-3/16	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-106	BRAKE	58-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-107	UTILITY PRESS	35-5/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-111	RAMP DOOR CLOSE	8-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-113	RAMP DOOR OPEN	9-3/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-131	BOOST PRESS #2	37	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-135	PRESS	25-5/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-141	UTILITY PRESS	45-1/2	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-143	UTILITY PRESS	46-1/4	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-145	PRESS	33	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-150	PRESS	29-15/16	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-152	ACCUMULATOR PRESS	21	3/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-153	UTILITY PRESS	56-1/4	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-156	UTILITY PRESS	27-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-157	UTILITY PRESS	23	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-160	ENG START PRESS	12-1/2	5/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-161	ENG START PRESS	41-3/4	5/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-163	ENG START PRESS	50-1/2	5/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-165	ENG START PRESS	17-1/4	5/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-167	RAMP DOWN	17-1/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-169	RAMP DOWN	34-3/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-171	BOOST PRESS #2	26	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-173	BOOST PRESS #2	47-1/16	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-175	UTILITY PRESS	13-3/4	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-177	ENG START PRESS	44-1/4	5/8 O.D. CRES STEEL	1, 2
TUBE	145H1801-180	ENG START PRESS	10-5/8	5/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-181	RAMP UP	105-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-183	UTILITY PRESS	18-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-187	RAMP UNLOCK	105-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-191	RAMP UNLOCK	20-1/16	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-196	RAMP UNLOCK	34-5/16	1/4 O.D. CRES STEEL	1, 2

## A. Tube Fabrication Data SHEET 9 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE ASSY	145H1801-197	UTILITY PRESS	51	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-199	UTILITY PRESS	71-3/4	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-201	UTILITY PRESS	11-3/4	1/2 O.D. CRES STEEL	1, 2
TUBE	145H1801-206	RAMP DOOR CLOSE	36	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-208	RAMP DOOR OPEN	38	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-211	RAMP DOOR CLOSE	32-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-213	RAMP DOOR OPEN	31-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-215	SWIVEL UNLOCK	15-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-217	SWIVEL LOCK	15-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-219	BRAKE	15-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-221	SWIVEL LOCK	10-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-223	BRAKE	21-3/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-225	BRAKE	17-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-227	SWIVEL LOCK	19-1/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-229	SWIVEL UNLOCK	19-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-231	BRAKE	14-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-233	SWIVEL LOCK	10-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-235	UTILITY PRESS	19-3/8	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-237	UTILITY PRESS	14-1/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-239	UTILITY PRESS	21-3/16	3/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-241	UTILITY PRESS	28-1/4	3/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-243	UTILITY PRESS	39-7/8	3/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-245	BOOST PRESS #2	32	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-247	RAMP DOWN	14-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-250	RAMP DOWN	30-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-251	RAMP DOWN	17-7/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-253	RAMP DOWN	105-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1801-256	BOOST PRESS #1	18-7/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-257	BOOST PRESS #1	65	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-261	BOOST PRESS #1	28-1/16	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-263	BOOST PRESS #1	39-1/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-267	BOOST PRESS #2	8-11/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-269	BOOST PRESS #2	10-15/16	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1801-271	BOOST PRESS #2	49-1/2	3/8 O.D. ORES STEEL	1, 2

## A. Tube Fabrication Data SHEET 10 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE ASSY	145H1802-1	BOOST RETURN #1	17	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-3	BOOST RETURN #2	17-5/8	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-5	RETURN	33-7/8	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-7	UTILITY RETURN	16	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-9	UTILITY RETURN	17-3/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	146H1802-11	UTILITY RETURN	36-15/16	3/8 O.D. ALUM ALLOY	3
TUBE	145H1802-14	RESERVOIR FILL	18-5/8	1/4 O.D. CRES STEEL	1 , 2
TUBE ASSY	145H1802-15	UTILITY RETURN	34-1/4	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-17	UTILITY RETURN	15-1/4	3/8 O.D. ALUM ALLOY	3
TUBE	145H1802-20	OVERBOARD DRAIN	36-1/16	3/8 O.D. ALUM ALLOY	3
TUBE	145H1802-22	OVERBOARD DRAIN	43-3/16	3/8 O.D. ALUM ALLOY	3
TUBE	145H1802-24	OVERBOARD DRAIN	35	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-25	OVERBOARD DRAIN	25-1/2	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-27	PWR STRG RETURN	9	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-29	UTILITY RETURN	34	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-33	RAMP RETURN	21	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-35	UTILITY RETURN	15-5/8	5/8 O.D. ALUM ALLOY	3
TUBE	145H1802-38	UTILITY RETURN	23	5/8 O.D. ALUM ALLOY	3
TUBE	145H1802-40	PUMP SUCTION	27-5/8	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-41	ENG START RETURN	28-3/4	3/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-43	ENG START RETURN	37-1/2	3/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-45	ENG START RETURN	25-5/8	3/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-47	ENG START RETURN	55-3/8	3/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-49	ENG START RETURN	29-1/2	3/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-51	OVERBOARD DRAIN	15-1/4	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-53	BOOST RETURN #2	36	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-55	BOOST RETURN #2	31-1/2	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-57	BOOST RETURN #2	43-1/8	5/8 O.D. ALUM ALLOY	3

## A. Tube Fabrication Data SHEET 11 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE	145H1802-60	OVERBOARD DRAIN	52	1/2 O.D. ALUM ALLOY	3
TUBE	145H1802-62	OVERBOARD DRAIN	8-5/8	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-67	SUCTION	50-3/8	3/8 O.D. ALUM ALLOY	3
TUBE	145H1802-70	OVERBOARD DRAIN	46-7/8	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-71	UTILITY RETURN	18-1/4	3/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-73	UTILITY RETURN	36-3/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-75	CASE DRAIN	14-3/16	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-77	CASE DRAIN	9-5/16	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-79	UTILITY RETURN	14-3/8	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-81	UTILITY RETURN	24-1/2	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1602-83	UTILITY RETURN	23	1 O.D. ALUM ALLOY	3
TUBE	145H1802-86	PUMP SUCTION	34-1/4	1 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-87	CASE DRAIN	20-7/16	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-89	CASE DRAIN	49	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-91	PUMP SUCTION	30-3/8	3/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-93	OVERBOARD DRAIN	4-1/2	1/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-97	BOOST RETURN #1	15-9/16	3/6 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-99	BOOST RETURN #1	61	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-103	BOOST RETURN #1	28-1/8	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-105	BOOST RETURN #1	29-3/16	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-107	BOOST RETURN #2	50-9/16	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-109	BOOST RETURN #2	11	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-111	PWR STRG RETURN	22-1/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-117	RETURN	7-1/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-119	RETURN	13	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1802-122	RAMP RETURN	3-3/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-123	RETURN	65-11/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-125	RETURN	42-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-127	RETURN	22-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-129	RETURN	30-3/16	1/4 O.D. CRES STEEL	1, 2

## A. Tube Fabrication Data SHEET 12 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE ASSY	145H1802-133	RESERVOIR FILL #1	22-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1802-136	RESERVOIR FILL #1	42	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-137	RESERVOIR FILL #1	35-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-139	RESERVOIR FILL #1	34	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-141	RESERVOIR FILL #2	62-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-143	RESERVOIR FILL #2	31	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-147	RESERVOIR FILL	23-7/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-149	OVERBOARD DRAIN	27-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-151	OVERBOARD DRAIN	18-1/8	1/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-153	OVERBOARD DRAIN	38-9/16	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1802-164	RETURN	38-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-165	RETURN	31-1/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-167	BOOST RETURN #1	19-1/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-169	BOOST RETURN #2	18-15/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-171	BOOST RETURN #1	19-1/16	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-173	BOOST RETURN #2	18-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-175	RETURN	19-1/2	1 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-177	SUCTION	29-1/2	1 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-179	SUCTION	16-1/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-181	RETURN	10-1/8	1 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-183	CASE DRAIN	28-7/8	3/8 O.D. ALUM ALLOY	3
TUBE	145H1802-186	CASE DRAIN	47-7/8	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-189	UTILITY RETURN	25-3/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-191	UTILITY RETURN	22-7/8	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1802-193	POWER STEERING RETURN	22	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1802-197	ENG START RETURN	7-1/8	3/4 O.D. ALUM ALLOY	3
TUBE	145H1802-200	RETURN	36-3/4	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1803-1	PRESSURE	14	1/2 O.D. CRES STEEL	1, 2

## A. Tube Fabrication Data SHEET 13 OF 13

NOMENCLATURE	PART NUMBER	FUNCTION	FINISHED LENGTH ALONG TUBE C/L	MATERIAL	NOTES
TUBE	145H1803-6	UTILITY PRESS	20-5/8	1/4 O.D. CRES STEEL	1, 2
TUBE	145H1803-8	UTILITY PRESS	21-3/8	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1803-11	PRESS	45-3/4	1/2 O.D. CRES STEEL	1, 2
TUBE	145H1803-14	PRESS	18	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1803-15	PRESS	68-1/2	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1803-17	BOOST PRESS #2	30-7/16	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1803-23	PRESS	13-1/8	1/2 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1803-25	BOOST PRESS #1	71-1/8	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1803-27	BOOST PRESS #2	70	3/8 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1804-1	RETURN	10-1/4	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1804-3	UTILITY RETURN	25-3/4	3/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1804-5	BOOST RETURN #2	41-1/8	1/2 O.D. ALUM ALLOY	3
TUBE ASSY	145H1804-7	BOOST RETURN #2	28-15/16	1/2 O.D. ALUM ALLOY	3
TUBE	145H1804-10	RETURN	61-1/8	3/4 O.D. ALUM ALLOY	3
TUBE	145H1804-12	UTILITY RETURN	11-1/2	3/4 O.D. ALUM ALLOY	3
TUBE ASSY	145H1804-21	BOOST SUCTION	49-5/8	1 O.D. ALUM ALLOY	3
TUBE	145H1804-24	RETURN	29-1/4	5/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1804-25	DRAIN	3-1/4	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1804-27	BOOST RETURN #1	68-1/2	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1804-29	BOOST RETURN #2	67-1/2	3/8 O.D. ALUM ALLOY	3
TUBE ASSY	145H1804-31	FILL	17-3/4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1804-33	CASE DRAIN	4	1/4 O.D. CRES STEEL	1, 2
TUBE ASSY	145H1804-35	CASE DRAIN	15-5/8	3/8 O.D. ALUM ALLOY	3

**A: TUBE FABRICATION DATA (CONTINUED)****NOTES:**

1. 21-6-9 Corrosion resistant steel tube. This is original material but is difficult to bend without distortion. It is best used in bending tubes up to **1/2 inch** diameter or in straight run tubing with no bends.

Wall Thickness      1/4 inch O.D. X 0.020 inch wall  
                              3/8 inch O.D. X 0.020 inch wall  
                              1/2 inch O.D. X 0.026 inch wall  
                              5/8 inch O.D. X 0.033 inch wall  
                              3/4 inch O.D. X 0.039 inch wall

2. MIL-T-6845 corrosion resistant steel tube. This tubing is recommended for all field fabricated tubes and repair sections. This is an acceptable alternate to original tube material. (See note 1.)

Wall Thickness    1/4 inch O.D. X 0.028 inch wall (E429.1)  
                              3/8 inch O.D. X 0.028 inch wall (E429.2)  
                              1/2 inch O.D. X 0.042 inch wall (E429.3)  
                              5/8 inch O.D. X 0.049 inch wall (E429.4)  
                              3/4 inch O.D. X 0.049 inch wall (E429.5)

3. 6061-T6 aluminum alloy tubing (MIL-T-7081, temp. T-6)

Wall Thickness    1/4 inch O.D. X 0.035 inch wall (E427.1)  
                              3/8 inch O.D. X 0.035 inch wall (E427.2)  
                              1/2 inch O.D. X 0.035 inch wall (E427.3)  
                              5/8 inch O.D. X 0.035 inch wall (E427.4)  
                              3/4 inch O.D. X 0.035 inch wall (E427.5)  
                              1 inch O.D. X 0.049 inch wall (E427.6)

4. All dimensions are in inches.



B. Tube Bend Data SHEET 1 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
114E1042-418		STRAIGHT															
114E4048-125	FROM	9-7/8	1-1/4	80	0												
114E4048-151	—	3-3/8	1-1/4	85	85	4-15/16	1-1/4	30	240	6-15/16	1-1/4	55	0				
114P4302	TO	3-3/8	1	45	150	9-1/4	1	45	330	19-5/8	1	23	266	23-3/8	1	88	0
145H1301-1	—	18-3/4	1	90	0	12-1/2	1	90	200	2-3/16	1	48	292				
145H1301-3	—	18-1/2	1	90	0	13-3/8	1	90	200	2	1	48	292				
145H1301-6	—	8-3/4	1	28	0												
145H1301-7	—	13	1	90	0	2-1/4	1	49	0								
145H1301-9	—	25-13/16	1	90	0	20-5/8	1	15	180	17-1/2	1	95	270	3	1	30	345
145H1301-11	—	29-1/2	1	35	0	18-11/16	1	90	0	7	1	45	180	2-3/8	1	45	180
145H1301-13	—	3-1/4	1	134	0												
145H1301-15	—	3	1	90	0												
145H1301-17	—	22	1	61	0	13-1/2	1	79	176	9	1	92	79				
145H1301-21	FROM	7-5/8	1	30	0	5-3/4	1	30	180								
145H1301-23	TO	14-1/4	1-1/2	16	0	10-1/8	1-1/2	52	90								
145H1301-25	TO	4-1/2	1	36	0	2-3/4	1	36	180								
145H1301-27	-	7-7/8	1	25	0	3-1/8	1	90	180								
145H1301-30	FROM	16-1/4	1	90	0	3-1/8	1	90	0								
145H1301-31	-	5-15/16	1	90	0	2-1/2	1	11	84								
145H1301-33	TO	STRAIGHT															
145H1301-35	FROM	27-7/8	1-3/4	90	0	17-3/16	1-3/4	90	0	4-5/8	1-3/4	25	2				
145H1301-38	TO	9-1/16	1	39	0	4-9/16	1	75	180								
145H1301-39	FROM	9-11/16	1-1/2	163	0	4-1/16	1-1/2	17	0								
145H1301-42	FROM	5-5/8	1	58	0	2-5/16	1	58	130								
145H1301-45	—	30-5/8	1	90	0	22-3/8	1	104	180								
145H1301-47	—	29	1	23	0	24-1/4	1	108	90	20-1/8	1	28	180	4-3/4	1	12	180
145H1301-52	TO	49-3/16	1-1/2	90	0	43-7/8	1-1/2	90	180	31-3/8	1-1/2	90	344	32-7/8	1-1/2	92	257
145H1301-53	—	76-1/8	1	90	0	72-1/2	1	85	0	58-1/2	1	96	230	52-3/4	1	5	322
145H1301-55	—	74	1	45	0	71	1	45	180	55-3/4	1	94	90	45-3/4	1	90	0
145H1301-59	FROM	78-3/4	1-1/2	73	0	76	1-1/2	73	180	58-1/2	1-1/2	94	90	47	1-1/2	90	0
145H1301-61	TO	56-3/8	1-1/2	98	0	42-1/2	1-1/2	75	90	21-7/8	1-1/2	75	134	11-7/8	1-1/2	90	58
145H1301-64	FROM	32-1/2	1-1/2	34	0	30-1/2	1-1/2	34	180	24-1/2	1-1/2	90	180	15-7/16	1-1/2	12	90
145H1301-65	TO	STRAIGHT															
145H1301-68	FROM	45-7/8	1-1/2	6	0	21-3/4	1-1/2	93	180								

B. Tube Bend Data SHEET 1 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1301-47	—	3-1/8	1	12	0												
145H1301-52	TO	13-7/16	1-1/2	90	311												
145H1301-53	—	43-11/16	1	90	140	14-5/8	1	76	235	7-1/4	1	92	322				
145H1301-55	—	21	1	90	0	11-1/2	1	45	270	7-5/8	1	45	270	4	1	90	180
145H1301-59	FROM	21-1/2	1-1/2	90	0	10	1-1/2	98	270	5-5/8	1-1/2	88	186				
145H1301-61	TO	3-3/4	1-1/2	90	235												
145H1301-64	FROM	6	1-1/2	7	90												

B. Tube Bend Data SHEET 2 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1301-74	TO	68-1/2	1-1/2	70	0	44-15/16	1-1/2	11	265	34-7/8	1-1/2	87	265	14-1/2	1-1/2	90	193
145H1301-75	FROM	STRAIGHT															
145H1301-78	TO	7-5/8	1-1/2	26	0					2-9/16	1-1/2	26	180				
145H1301-80	TO	4-1/8	1-1/2	45	0												
145H1301-81	TO	20-9/16	1	31	0	19-1/16	1	33	180	17-3/4	1	98	270	13-11/16	1	29	55
145H1301-83	TO	19-1/4	1	60	0	17-1/8	1	62	180	12-5/16	1	90	305	9	1	50	125
145H1301-86	FROM	36-5/8	1	62	0	35	1	90	270	19-3/16	1	90	90	11-5/8	1	31	0
145H1301-88	FROM	34-1/16	1	26	0	33	1	26	180	31-3/4	1	90	270	28	1	90	180
145H1301-89	FROM	20-13/16	1-3/4	90	0	12-7/8	1-3/4	90	262	7-9/16	1-3/4	75	172				
145H1301-91	TO	37-3/4	1-1/2	20	0	35-3/4	1-1/2	27	180	20-1/8	1-1/2	22	180	18-5/8	1-1/2	90	270
145H1301-93	TO	3-1/2	1-1/4	90	0												
145H1301-95	—	33-1/4	1	40	0	31	1	40	195	13-3/8	1	9	170	7-1/4	1	90	267
145H1301-97	FROM	22-3/4	1-1/2	55	0	19	1-1/2	58	180								
145H1301-99	—	83-3/4	1	95	0	70-1/2	1	60	0	61-3/4	1	90	101	39-1/4	1	90	306
145H1301-101	—	42-5/8	1	85	0	34-1/4	1	2	90	23-1/2	1	16	90	4-1/2	1	16	90
145H1301-103	—	31-1/2	1	23	0	29-5/8	1	23	180	4-1/8	1	23	160	1-1/2	1	23	340
145H1301-105	FROM	19	1-1/2	19	0	17-1/8	1-1/2	90	90	3-7/16	1-1/2	92	342				
145H1301-115	FROM	10-3/8	1-1/2	55	0	6-7/8	1-1/2	51	180								
145H1301-117	TO	16-15/16	2	15	0	8-7/8	2	28	280								
145H1301-119	FROM	46-7/16	1-1/2	90	0	40-5/8	1-1/2	90	270	34-3/8	1-1/2	90	90	26-3/8	1-1/2	60	90
145H1301-121	TO	36-7/16	1-1/2	38	0	33-5/8	1-1/2	38	180	19-1/2	1-1/2	50	315	15-11/16	1-1/2	10	50
145H1301-123	TO	10-3/4	1-1/2	15	0	4-3/16	1-1/2	19	260								
145H1301-125	TO	45-1/4	1-1/2	30	0	41-5/8	1-1/2	90	270	35-3/8	1-1/2	90	90	28	1-1/2	43	90
145H1301-127	FROM	50-5/8	2	90	0	42-5/8	2	43	48	32-13/16	2	29	320	21-7/8	2	46	63
145H1301-129	TO	15-1/4	2	90	0												
145H1301-131	TO	40-5/8	2	12	0	30-1/2	2	18	0	20-1/8	2	44	0	5-3/4	2	88	90
145H1301-133	FROM	31-1/4	1-3/4	10	0	6	1-3/4	22	0	3-1/4	1-3/4	22	180				
145H1301-136	TO	44-5/8	1-1/2	180	0	37-3/4	1-1/2	90	95	30-11/16	1-1/2	45	250	22-1/4	1-1/2	60	48
145H1301-137	FROM	23-13/16	1	18	0	19-1/2	1	43	340	15	1	45	125	9-3/4	1	40	235
145H1301-139	TO	13-3/4	2	66	0	9-9/16	2	12	90								
145H1301-141	FROM	40-1/4	1-1/2	80	0	34-1/2	1-1/2	80	180	5-3/4	1-1/2	90	0				
145H1301-143	—	35-1/4	1	24	0	29-1/2	1	34	180	24-1/2	1	90	90				
145H1301-146	—	24	1	41	0	20-5/8	1	41	180	17-1/4	1	65	7	10-1/4	1	65	192
145H1301-151	FROM	24-5/8	1	30	0	21	1	30	180	11-3/16	1	23	172	5-3/8	1	27	262

B. Tube Bend Data SHEET 2 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1301-74	TO	8-1/2	1-1/2	90	13												
145H1301-81	TO	4-5/8	1	90	355												
145H1301-83	TO	3-5/8	1	40	135												
145H1301-86	FROM	7-9/16	1	59	0	2-5/8	1	90	208								
145H1301-88	FROM	13-5/16	1	90	180	5-15/16	1	50	266	3-3/16	1	65	104				
145H1301-91	TO	6	1-1/2	90	151												
145H1301-119	FROM	19-3/1	1-1/2	90	180												
145H1301-121	TO	9-13/16	1-1/2	50	142												
145H1301-125	TO	19	1-1/2	90	181	7-5/8	1-1/2	63	205	4-1/2	1-1/2	79	15				
145H1301-127	FROM	6-7/8	2	54	302												
145H1301-136	TO	16-7/8	1-1/2	80	325	3-13/16	1-1/2	90	20								
145H1301-137	FROM	5-7/16	1	38	55	2-5/8	1	90	147								

B. Tube Bend Data SHEET 3 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1301-155	FROM	8-3/4	1-1/4	60	0	3-15/16	1-1/4	110	253								
145H1301-158	FROM	5-1/2	1-1/4	20	0	2-15/16	1-1/4	86	30								
145H1301-160	TO	9-1/16	1-1/4	20	0	3-15/16	1-1/4	20	180								
145H1301-161	FROM	19-5/8	1-1/2	90	0	12-5/16	1-1/2	20	74	9-1/2	1-1/2	93	180	3-1/2	1-1/2	90	171
145H1301-163	TO	25-13/16	1-1/4	20	0	21	1-1/4	20	180	17-1/8	1-1/4	90	19				
145H1301-165	TO	19-3/8	1-1/4	16	0	14-5/8	1-1/4	16	180								
145H1301-169	FROM	39-3/4	1	30	0	37-1/4	1	30	180	16-3/4	1	45	180	11-1/2	1	45	180
145H1302-1	TO	18-3/4	1	45	0	15-1/4	1	48	180								
145H1302-3	TO	17	1	45	0	12-7/8	1	30	225								
145H1302-5	TO	17-7/8	1	58	0	14-11/16	1	58	180								
145H1302-7	TO	18	1	48	0	15-7/8	1	48	180								
145H1302-9	TO	4-5/16	1-1/2	20	0												
145H1302 11	FROM	51-1/16	1-1/2	15	0	49-13/16	1-1/2	36	180	47-5/16	1-1/2	99	90	28-5/16	1-1/2	90	18
145H1302-13	TO	6-3/8	1-1/4	44	0	3-15/16	1-1/4	139	180								
145H1302-18	FROM	51-3/8	1-1/2	30	0	49-9/16	1-1/2	52	270	22-1/4	1-1/2	25	220	18-3/16	1-1/2	90	310
145H1302-20	FROM	14-11/16	1-1/2	88	0	6-9/16	1-1/2	90	169								
145H1302-21	TO	53-3/8	1-1/2	90	0	50-3/16	1-1/2	12	90	46-1/4	1-1/2	90	180	42-9/16	1-1/2	90	90
145H1302-23	TO	22-1/2	1-1/2	55	0	18-3/4	1-1/2	58	180								
145H1302-25	FROM	17-15/16	1-1/2	92	0	5-3/16	1-1/2	90	270								
145H1302-27	FROM	20-3/4	1-1/2	104	0	12-3/16	1-1/2	90	251	7	1-1/2	20	341				
145H1302-29	TO	14-11/16	2-1/2	87	0	5-3/16	2-1/2	55	271								
145H1302-31	FROM	8-3/16	1-1/2	20	0												
145H1302-34	TO	38-3/8	2	67	0	30-3/4	2	34	180	25-7/8	2	90	90	14-5/8	2	90	208
145H1302-35	TO	22-13/16	1-1/2	38	0	19-1/2	1-1/2	38	180								
145H1302-37	FROM	26-1/4	1-3/4	34	0	17-5/16	1-3/4	53	198	12	1-3/4	70	22	7-3/16	1-3/4	68	120
145H1302-39	TO	34-1/2	1-1/2	90	0	30-1/4	1-1/2	90	270	24	1-1/2	90	90	14-1/2	1-1/2	55	93
145H1302-41	TO	21-5/8	2	93	0	12-1/4	2	48	90								
145H1302-44	TO	21-5/8	2	93	0	12-1/4	2	48	90								
145H1302-46	FROM	15-1/4	2	40	0	9-1/4	3	40	90								
145H1302-47	FROM	10-15/16	2	40	0	3-7/16	2	40	180								
145H1302-50	FROM	4-1/2	1-1/4	75	0												
145H1302-51	TO	6-7/8	2	53	275	18-3/16	2	46	35	30-7/16	2	54	0				
145H1302-53	FROM	17-1/2	2	90	0												

B. Tube Bend Data SHEET 3 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1302-11	FROM	20-7/16	1-1/2	90	123	7-1/16	1-1/2	11	303	5-7/16	1-1/2	55	123				
145H1302-21	TO	38-1/2	1-1/2	90	90	20 -1/4	1-1/2	90	270	13-1/8	1-1/2	80	157	4-5/16	1-1/2	85	8
145H1302-34	TO	5-1/8	2	68	8												
145H1302-39	TO	7	1-1/2	90	183												

B. Tube Bend Data SHEET 4 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1302-55	FROM	42-3/8	2	12	0	32-1/4	2	18	0	21-7/8	2	44	0	10-3/8	2	90	98
145H1302-57	TO	33-1/2	1-3/4	10	0	8-1/4	1-3/4	25	0	5-1/2	1-3/4	25	180				
145H1302-59	FROM	13-3/4	1-1/2	65	0	9-9/16	1-1/2	65	0								
145H1302-61	FROM	7-1/16	1-3/4	90	0												
145H1302-63	TO	30-1/2	1-1/2	23	0	24-3/8	1-1/2	19	90	15-1/8	1-1/2	62	5	10-1/8	1-1/2	27	5
145H1302-66	FROM	6-13/16	1	90	0												
145H1302-67	TO	21-7/16	1	90	0	14-1/4	1	88	270								
145H1302-69	FROM	28-1/2	1	25	0	13-7/16	1	87	180	6-1/2	1	35	90	2-11/16	1	87	350
145H1302-72	TO	6-3/16	1	45	0												
145H1302-73	TO	19-5/8	1	25	0												
145H1302-76	FROM	52-1/4	1	45	0	46-3/16	1	82	171	38	1	8	320				
145H1302-77	FROM	6	1-1/2	129	0												
145H1302-79	FROM	8	1-1/4	70	0	4-9/16	1-1/4	20	90	3-1/8	1-1/4	20	270				
145H1302-82	TO	19-3/8	1-1/4	90	0												
145H1302-83	TO	STRAIGHT															
145H1302-86	—	STRAIGHT															
145H1302-88	FROM	4-3/8	1-1/4	20	0												
145H1302-89	TO	STRAIGHT															
145H1302-93	TO	42-1/2	1-1/2	78	0	37-1/4	1-1/2	80	180	8-1/2	1-1/2	90	0				
145H1302-95	FROM	14-7/16	1-1/2	92	0	10-1/16	1-1/2	20	90								
145H1302-97	FROM	12-5/16	1-1/2	26	0	10-7/8	1-1/2	21	180	9-1/8	1-1/2	90	270	3-1/2	1-1/2	90	180
145H1302-100	TO	51-5/8	1-1/2	5	0	45-5/8	1-1/2	107	0	41-1/4	1-1/2	18	142	37-3/4	1-1/2	90	181
145H1302-103	TO	7-5/8	1	30	0	5-3/4	1	30	180								
145H1302-105	FROM	4-1/2	1	36	0	2-3/4	1	30	180								
145H1302-108	TO	17-7/16	1	90	0	4-5/16	1	90	0								
145H1302-109	FROM	STRAIGHT															
145H1302-112	FROM	9-1/16	1	39	0	4-9/16	1	75	180								
145H1302-114	TO	4-1/2	1	59	0	2-5/8	1	29	180								
145H1302-116	TO	36-3/16	1-1/2	20	0	32-5/16	1-1/2	115	180	10-5/8	1-1/2	104	185	2-11/16	1-1/2	35	90
145H1302-117	TO	81-3/8	1-1/2	30	0	79-5/8	1-1/2	30	180	62-3/8	1-1/2	91	90	51-3/8	1-1/2	90	0
145H1302-119	FROM	35-3/4	1-1/2	20	0	33-3/4	1-1/2	27	180	18-5/8	1-1/2	31	180	16-5/8	1-1/2	90	270
145H1302-123	TO	3-1/2	1	54	0												
145H1302-125	FROM	16-3/8	1	30	0	13-1/8	1	30	180								
145H1302-127	FROM	12-1/8	1	11	0	8	1-3/4	60	90								

B. Tube Bend Data SHEET 4 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1302-63	TO	8-3/8	1-1/2	27	185												
145H1302-100	TO	30	1-1/2	40	55	27-3/16	1-1/2	62	100	20-5/8	1-1/2	10	160	19-7/16	1-1/2	8	340
145H1302-117	TO	23-3/8	1-1/2	90	0	10-3/4	1-1/2	90	270	6-3/8	1-1/2	90	182				
145H1302-119	FROM	3-1/4	1-1/2	90	140												



B. Tube Bend Data SHEET 5 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1401-2	TO	25-7/8	1-1/2	110	0	18-7/8	1-1/2	90	270	13-1/8	1-1/2	90	290	6-3/4	1-1/2	21	305
145H1401-4	TO	6-1/2	1-1/2	21	0												
145H1401-5	FROM	STRAIGHT															
145H1401-7	UNION	STRAIGHT															
145H1401-10	FROM	STRAIGHT															
145H1401-10	—	52	1	30	0	49-1/4	1	30	180	39-5/8	1	30	180	37	1	30	0
145H1401-11	TO	STRAIGHT															
145H1401-14	—	STRAIGHT															
145H1401-15	FROM	113-3/8	1-1/2	18	0	112-1/4	1-1/2	18	180								
145H1401-17	TO	STRAIGHT															
145H1401-19	FROM	STRAIGHT															
145H1401-21	FROM	STRAIGHT															
145H1401-23	FROM	STRAIGHT															
145H1401-26	—	77-1/8	1	18	0	75-5/8	1	18	180								
145H1401-27	FROM	STRAIGHT															
145H1401-29	—	48-1/2	1	18	0	47	1	18	180								
145H1401-31	—	STRAIGHT															
145H1401-33	—	11-3/8	1	90	0	3-3/16	1	90	270								
145H1401-35	—	26-3/4	1	90	0	7-3/8	1	20	0	3-5/16	1	90	270				
145H1401-37	—	48-7/8	1	18	0	45-3/4	1	18	180	36-1/8	1	33	270	27-1/8	1	35	270
145H1401-41	TO	54-3/4	1-1/2	90	0	45-1/8	1-1/2	40	5	42-13/16	1-1/2	40	185	40-9/16	1-1/2	40	185
145H1401-43	—	42	1	40	0	39-1/8	1	45	168	18	1	90	224	9-5/8	1	20	135
145H1401-45	—	46	1	10	0	42-1/4	1	10	180								
145H1401-48	—	27-3/8	1	30	0	22-15/16	1	28	180	9-3/8	1	90	25	2-7/16	1	21	42
145H1401-49	—	49-3/8	1	13	0	44-5/8	1	19	0	35-13/16	1	17	0	26-15/16	1	33	0
145H1401-51	—	39-1/4	1	21	0	35-1/4	1	27	185	17-1/8		46	195	14-7/16	1	44	45
145H1401-53	—	11-7/16	1	31	0	6-1/2	1	54	42								
145H1401-57	FROM	54-5/8	1-1/2	43	0	51-5/16	1-1/2	43	0	11-3/16	1-1/2	9	180				
145H1401-59	FROM	43	1-1/2	8	0	37-1/4	1-1/2	38	240	29-1/16	1-1/2	23	250	21	1-1/2	9	250
145H1401-61	—	15-1/4	1	85	0	3-1/16	1	105	90								
145H1401-63	FROM	41-13/16	1	90	0	35-1/8	1	90	0	29-3/8	1	90	204	10-5/16	1	80	244
145H1401-65	—	11	1	34	0	8-1/8	1	34	180								
145H1401-68	TO	50-7/8	1-1/2	30	0	47-1/8	1-1/2	90	270	12-1/2	1-1/2	47	270	7-5/8	1-1/2	47	90
145H1401-70	TO	96	1-1/2	10	0	43-5/8	1-1/2	90	90	8-7/8	1-1/2	43	80	3-5/8	1-1/2	43	260

B. Tube Bend Data SHEET 5 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1401-21	—	8-7/8	1	50	90	5-5/8	34	3	3-11/16	1	34	178					
145H1401-37	—	2-3/4	1	83	97												
145H1401-41	TO	23-5/8	1-1/2	30	180	16-1/8	1-1/2	38	180	5-1/8	1-1/2	12	180				
145H1401-43	—	7-1/4	1	20	315	5-5/8		88	45								
145H1401-49	—	17-1/4	1	35	56	13-1/8	1	35	235								
145H1401-59	FROM	15	1-1/2	12	250	8-1/2	1-1/2	18	163	3-7/8	1-1/2	90	70				
145H1401-63	FROM	2-15/16	1	39	165												
145H1401-68	TO	5-1/4	1-1/2	15	178	3-3/4	1-1/2	15	352								

B. Tube Bend Data SHEET 6 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1401-71	FROM	57-3/4	1-1/2	90	0	46-3/4	1-1/2	90	180	14-1/16	1-1/2	50	174	9-1/4	1-1/2	61	23
145H1401-73	TO	50-1/4	1-1/2	90	0	43-1/2	1-1/2	90	180	9-1/4	1-1/2	60	152	5-3/4	1-1/2	60	332
145H1401-75	—	2-5/8	1	51	0												
145H1401-77	—	5-5/16	1	51	0	2-1/2	1	90	270								
145H1401-79	TO	25	1-1/2	12	0	21	1-1/2	21	180								
145H1402-2	TO	5-5/8	1	32	0												
145H1402-3	TO	STRAIGHT															
145H1402-5	TO	STRAIGHT															
145H1402-7	FROM	STRAIGHT															
145H1402-9	TO	STRAIGHT															
145H1402-11	TO	STRAIGHT															
145H1402-14	—	STRAIGHT															
145H1402-15	FROM UNION	STRAIGHT															
145H1402-17	TO	STRAIGHT															
145H1402-19	TO	STRAIGHT															
145H1402-23	—	STRAIGHT															
145H1402-25	FROM	15-1/4	1-1/2	30	0	12	1-1/2	30	165								
145H1402-28	FROM	64	1-1/2	17	0	61-3/4	1-1/2	90	90	24-7/8	1-1/2	90	0	14-1/2	1-1/2	45	90
145H1402-30	FROM	63-1/4	1-1/2	17	0	61-1/8	1-1/2	90	90	25-1/8	1-1/2	90	0	14-1/2	1-1/2	45	90
145H1402-31	TO	54-1/8	1-1/2	90	0	46-1/2	1-1/2	39	175	14-1/8	1-1/2	39	175	9	1-1/2	54	32
145H1402-33	FROM	49-3/4	1-1/2	90	0	41-3/4	1-1/2	90	180	7-7/8	1-1/2	66	160	4-7/8	1-1/2	66	340
145H1801-1	TO	3-3/4	1-1/2	49	270												
145H1801-3	TO	17-3/4	1-1/2	90	0	13-1/4	1-1/2	90	180	4-5/8	1-1/2	90	82				
145H1801-5	FROM	29-3/8	1-1/2	45	0	25-1/8	1-1/2	45	180	7-3/8	1-1/2	45	10	4	1-1/2	45	190
145H1801-7	FROM	21-1/2	1-1/2	90	0	15	1-1/2	90	180	2-1/8	1-1/2	18	180				
145H1601-9	—	20-1/4	1	90	0	17-1/4	1	53	95	4-7/8	1	31	275				
145H1801-15	—	24-3/8	1	108	0	20-3/4	1	25	180	7-5/16	1	41	215	3-7/8	1	40	33
145H1801-17	—	24-1/2	1	90	0	21	1	90	270	6-7/8	1	37	90				
145H1801-19	TO	34	1	42	0	28-7/8	1	62	180	24-3/16	1	66	0	3-7/8	1	7	0
145H1801-21	—	34-11/16	1	98	0	27-5/8	1	28	170	23-1/8	1	18	350	13-7/16	1	52	267
145H1801-23	TO	14-3/4	1-1/2	90	0	5-1/8	1-1/2	90	180								
145H1801-25	TO	25-3/4	1	40	0	19-3/8	1	40	180	8-3/4	1	48	4	3-1/2	1	48	4
145H1801-27	FROM	46-3/8	1	90	0	4-3/16	1	30	95								

B. Tube Bend Data SHEET 6 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1401-71	FROM	3	1-1/2	28	257												
45H1402-28	FROM	9-1/2	1-1/2	90	180												
45H1402-30	FROM	9-3/8	1-1/2	90	180												
45H1402-31	TO	4	1-1/2	29	262												

B. Tube Bend Data SHEET 7 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1801-29	TO	32-3/16	1	35	0	29-3/16	1	39	90	25-3/8	1	41	275	14-11/16	1	90	270
145H1801-31	FROM	58-1/2	1	60	0	41	1	72	180	7-5/16	1	77	180				
145H1801-33	FROM	42-15/16	1	70	0	39-5/8	1	67	181	34-3/8	1	12	104	28-1/8	1	30	101
145H1801-35	FROM	28	1	45	0	21-1/2	1	55	34								
145H1801-37	TO	7-3/4	1	66	0	5-3/8	1	47	185		1	58	180				
145H1801-40	TO	33-1/4	1	60	0	27-1/2	1	90	90	23-1/4	1	90	210	20-7/8	1	44	117
145H1801-41	TO	8	1	90	0												
145H1801-44	TO	28-1/8	1	90	0	20-1/2	1	90	180	16-3/16	1	90	0	6-15/16	1	90	340
145H1801-45	TO	104	1	45	0	97-3/16	1	45	0	8-3/16	1	45	0	1-15/16	1	45	0
145H1801-47	TO	104	1	45	0	97-3/16	1	45	0	8-3/16	1	45	0	1-15/16	1	45	0
145H1801-49	FROM	8	1	90	0												
145H1801-52	TO	30-5/16	1	90	0	21-7/16	1	24	5	12-7/16	1	17	280	9-13/16	1	68	25
145H1801-54	FROM	16-1/8	1	90	0	13-1/8	1	73	270	7-15/16	1	41	270	5-1/8	1	90	180
145H1801-55	FROM	8-13/16	1	108	0	4-3/8	1	49	253								
145H1801-57	FROM	31-3/16	1	53	0	27-5/8	1	20	0	25-15/16	1	20	180	14-5/16	1	47	290
145H1801-59	FROM	15-11/16	1	30	0	12-5/16	1	31	180	10-1/4	1	90	270				
145H1801-61	TO	16-1/4	1	30	0	13-1/16	1	31	180	11-1/8	1	90	90				
145H1801-63	TO	5-3/16	1	70	0	2-3/4	1	90	90								
145H1801-65	TO	14-1/2	1	90	0	9-3/16	1-1/2	68	270	6-3/8	1-1/2	90	180				
145H1801-67	FROM	9-1/2	1	90	0	3-5/16	1	29	270								
145H1801-70	FROM	32-13/16	1	52	0	18-11/16	1	62	307	13-5/8	1	65	128	8-3/16	1	30	160
145H1801-71	FROM	12-13/16	1	8	0	7-7/8	1	90	270								
145H1801-73	TO	13-5/8	1	8	0	8-7/8	1	90	90								
145H1801-75	TO	6-1/2	1	90	0	3-3/16	1	70	90								
145H1801-77	FROM	19-7/8	1	90	0	10-3/4	1	41	50	8-7/16	1	40	228	2	1	59	265
145H1801-79	FROM	32	1	90	0												
145H1801-81	FROM	17-1/4	2-1/4	90	0	4-5/8	2-1/4	12	280								
145H1801-83	—	12-1/2	1	90	0												
145H1801-85	FROM	11-3/8	1	18	0	8-5/8	1	59	105	2-3/4	1	40	65				
145H1801-88	TO	30	1	25	0	23-11/16	1	90	90	6-5/16	1	45	0	4-13/16	1	90	270
145H1801-89	FROM	18-1/2	1	30	0	15-1/8	1	31	180	11-11/16	1	90	270				
145H1801-91	FROM	7-1/2	1	28	0	3-3/8	1	49	155								
145H1801-93	TO	25-3/16	1	20	0	22-13/16	1	19	170	7-1/2	1	22	155	5-3/16	1	56	66
145H1801-95	—	9	1	31	0	2-3/8	1	46	355								

B. Tube Bend Data SHEET 7 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1801-29	TO	6-13/16	1	90	86	3-5/8	1	16	357								
145H1801-33	FROM	7-11/16	1	62	186	8-1/4	1	71	35								
145H1801-40	TO	19	1	35	297	15-1/4	1	30	297	12-3/8	1	21	117	5-1/8	1	90	205
145H1801-57	FROM	11-3/16	1	47	110												
145H1801-70	FROM	6-7/8	1	27	340												
145H1801-93	TO	3-1/8	1	130	245												

B. Tube Bend Data SHEET 8 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1801-97	FROM	26-1/16	1	120	0	22-9/16	1	32	180	16-1/4	1	62	90	11-5/16	1	63	270
145H1801-99	TO	15-5/8	2	92	0												
145H1801-101	—	35-1/8	1	15	0	29-7/8	1	15	180								
145H1801-103	TO	7-7/16	1	180	0	2	1	15	115								
145H1801-106	—	44-5/16	1	90	0	40-1/2	1	90	180	23-13/16	1	80	188	20-3/8	1	81	3
145H1801-107	FROM	32-1/8	1-1/2	50	0	26-5/8	1-1/2	50	180	24-1/8	1-1/2	36	90	18-3/4	1-1/2	90	180
145H1801-111	FROM	7-1/8	1	46	0	3-3/4	1	55	5								
145H1801-113	FROM	7-3/16	1	75	0	3-1/2	1	74	84								
145H1801-131	FROM	35	1-1/2	30	0	23-1/4	1-1/2	93	270	9-3/4	1-1/2	90	65	4-3/8	1-1/2	17	155
145H1801-135	FROM	24-1/2	1-1/2	90	0	17-5/8	1-1/2	90	0	8-3/4	1-1/2	90	246	3-5/16	1-1/2	86	79
145H1801-141	FROM	41-3/8	1-1/4	90	0	20-3/16	1-1/4	47	240	3-1/4	1-1/4	90	180				
145H1801-143	TO	37	1-1/2	50	0	32-7/16	1-1/2	50	180	20-5/16	1-1/2	40	177	13-7/16	1-1/2	38	10
145H1801-145	FROM	32-5/16	1	112	0	28-11/16	1	19	180	23-13/16	1	90	180	14-1/2	1	80	270
145H1801-150	TO	29-3/16	1	104	0	24-15/16	1	27	247	14-1/8	1	20	270	9-1/4	1	80	270
145H1801-152	FROM	15-1/2	2-1/4	97	0												
145H1801-153	FROM	55-1/4	1	10	0	53-7/8	1	90	90	24-11/16	1	90	255	17-7/8	1	25	165
145H1801-156	TO	23-11/16	1	94	0	14-1/2	1	15	287	8-1/2	1	20	244				
145H1801-157	FROM	22-1/8	1	90	0	13-1/8	1	47	38	9-7/8	1	90	262	4	1	88	83
145H1801-160	TO	9-5/8	1-3/4	46	0	4-5/16	1-3/4	45	23								
145H1801-161	TO	32-7/8	2	50	0	27-1/8	2	50	180	13-3/4	2	40	152	10-1/8	2	40	333
145H1801-163	FROM	48-7/8	2	92	0	44-7/8	2	45	94	32-3/16	2	20	96	27-1/16	2	90	178
145H1801-165	TO	15-13/16	1	144	0	5	2	66	228								
145H1801-167	TO	15-1/4	1	5	0	9-1/16	1	90	90								
145H1801-169	TO	33-5/8	1	90	0	29-15/16	1	40	270	19	1	90	180	2-7/8	1	96	227
145H1801-171	TO	19-1/2	1-1/2	90	0												
145H1801-173	FROM	42-13/16	1-3/4	72	0	37-9/16	1-3/4	47	200	25-7/16	1-3/4	30	335	17-5/16	1-3/4	13	349
145H1801-175	TO	12-3/4	1-1/2	109	0	3-5/8	1-1/2	40	165								
145H1801-177	FROM	41-1/16	2	45	0	35-15/16	2	45	180	24-1/8	2	89	292	8-5/8	2	48	207
145H1801-180	FROM	9-3/16	1-3/4	45	0	5	1-3/4	45	0								
145H1801-181	TO	104	1	45	0	97-3/16	1	45	0	8-13/16	1	45	0	1-15/16	1	45	0
145H1801-182	TO	17-3/8	1	68	0	10	1	75	270	3	1	90	174				
145H1801-187	TO	104	1	45	0	97-3/16	1	45	0	8-13/16	1	45	0	1-15/16	1	45	0
145H1801-191	TO	18-3/16	1	30	0	14-7/8	1	31	180	11-1/2	1	90	90				
145H1801-196	FROM	32-7/16	1	44	0	15-7/16	1	90	40	2-5/8	1	8	310				

B. Tube Bend Data SHEET 8 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1801-97	FROM	2-3/8	1	90	100												
145H1801-106	—	15-3/16	1	19	107	8-9/16	1	15	277								
145H1801-143	TO	7-1/4	1-1/2	22	128	5-5/16	1-1/2	90	30								
145H1801-145	FROM	11-5/16	1	90	0	5-5/16	1	90	193								
145K1801-153	FROM	9-3/16	1	20	165	3-5/8	1	90	255								
145H1801-163	FROM	4-3/4	2	90	38												
145H1801-173	FROM	8-1/2	1-3/4	90	68												



B. Tube Bend Data SHEET 9 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1801-197	FROM	44-3/8	1-1/2	28	0	31-3/8	1-1/2	23	5	23-5/8	1-1/2	91	96	10-5/8	1-1/2	88	300
145H1801-199	TO	66-3/4	1-1/2	89	0	53-5/8	1-1/2	6	255	32-1/8	1-1/2	87	160	14-1/8	1-1/2	20	70
145H1801-201	TO	8-1/8	1-1/2	108	0	3	1-1/2	24	90								
145H1801-206	FROM	34-1/4	1	14	0	33-1/8	1	90	270	5	1	67	270	2-1/4	1	66	270
145H1801-208	FROM	36-3/4	1	45	0	35	1	90	270	5-3/16	1	66	199	2-7/16	1	66	122
145H1801-211	TO	24-3/8	1	65	0	17-3/4	1	65	180	5-7/8	1	75	305	2-9/16	1	75	125
145H1801-213	TO	30-1/8	1	45	0	28-7/8	1	45	180	22-9/16	1	75	305	5-3/16	1	75	298
145H1801-215	TO	14-1/8	1	50	0	2-3/4	1	65	10								
145H1801-217	TO	14-1/8	1	50	0	2-3/4	1	65	10								
145H1801-219	TO	14-1/8	1	50	0	2-3/4	1	65	10								
145H1801-221	TO	2-7/16	1	130	0												
145H1801-223	—	17-13/16	1	90	0	12-7/16	1	90	270	3-1/8	1	53	90				
145H1801-225	—	6-3/8	1	35	0	2-1/8	1	80	10								
145H1801-227	TO	18-1/2	1	75	0	1-5/8	1	45	295								
145H1801-229	FROM	18-3/4	1	60	0	2-5/8	1	80	305								
145H1801-231	—	13-1/4	1	45	0	10-1/16	1	40	0	3-5/16	1	68	270				
145H1801-233	TO	9-7/8	1	130	0	2-7/16	1	78	109								
145H1801-235	TO	17-1/2	1-1/2	90	0	6-5/8	1-1/2	90	180								
145H1801-237	FROM	13-1/4	1-1/2	90	0	9-7/8	1-1/2	132	270	4-3/8	1-1/2	90	180				
145H1801-239	TO	15-9/16	2-1/2	88	0	6-5/16	2-1/2	29	90								
145H1801-241	FROM	26-3/8	2-1/2	115	0	13-3/8	2-1/2	90	242	2-3/4	2-1/2	9	332				
145H1801-243	FROM	38-1/4	2-1/4	115	0	31-7/8	2-1/4	90	90	7-5/8	2-1/4	92	155				
145H1801-245	TO	30-3/4	1-3/4	8	0	26-11/16	1-3/4	90	90	15-3/4	1-3/4	40	0	9-1/2	1-3/4	48	266
145H1801-247	FROM	14	1	45	0	12	1	43	180	9-3/4	1	50	62	2-3/8	1	38	52
145H1801-250	TO	28-5/8	1	90	0	25-7/8	1	59	270	9-3/8	1	90	180	3	1	19	270
145H1801-251	TO	15-13/16	1	5	0	9-5/16	1	90	270								
145H1801-253	TO	104	1	45	0	97-3/16	1	45	0	8-13/16	1	45	0	1-15/16	1	45	0
145H1801-256	TO	17-5/8	1-1/2	90	0	9-1/8	1-1/2	90	180								
145H1801-257	FROM	62-1/2	1-1/2	90	0	54-15/16	1-1/2	90	292	41-7/8	1-1/2	16	106	21-1/8	1-1/2	90	19
145H1801-261	FROM	27-3/16	1-1/2	90	0	3-3/8	1-1/2	90	0								
145H1801-263	FROM	35-7/8	1-1/2	15	0	28-3/8	1-1/2	92	115	15-1/2	1-1/2	45	198	10-5/8	1-1/2	45	114
145H1801-267	FROM	7-1/2	1	41	0	2-5/16	1	35	160								
145H1801-269	TO	10	1-1/4	102	0	5	1-1/4	108	85								

**B. Tube Bend Data SHEET 9 OF 13**

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1801-199	TO	6	1-1/2	15	160	3-1/2	1-1/2	12	340								
145H1801-213	TO	2-7/8	1	74	118												
145H1801-245	TO	3-1/4	1-3/4	62	20												
145H1801-257	FROM	2-3/8	1-1/2	40	109												
145H1801-263	FROM	5	1-1/2	35	193	2-13/16	1-1/2	65	10								

B. Tube Bend Data SHEET 10 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1801-271	FROM	47-15/16	1-1/2	90	0	36-1/4	1-1/2	90	270								
145H1802-1	FROM	14-7/8	1-1/2	90	0	6-1/4	1-1/2	45	270								
145H1802-3	FROM	15-5/8	1-1/2	90	0	10-1/4	1-1/2	90	180	3-1/2	1-1/2	90	60				
145H1802-5	TO	29-3/4	1-1/2	90	0	25	1-1/2	90	180								
145H1802-7	TO	14-1/2	1-1/2	90	0	9-5/8	1-1/2	90	180								
145H1802-9	TO	STRAIGHT															
145H1802-11	TO	36	1-1/2	60	0	32-7/8	1-1/2	82	255	3-15/16	1-1/2	31	145				
145H1802-14	TO	17-3/8	1	20	0	15-1/2	1	38	211	11-7/8	1	90	150	6-3/4	1	40	55
145H1802-15	FROM	32-5/8	2	28	0	24-5/16	2	25	180	14-1/8	2	25	180	2-11/16	2	23	0
145H1802-17	TO	14	1-1/2	32	0	11-5/8	1-1/2	90	270								
145H1802-20	TO	23	1-1/2	24	0	17-11/16	1-1/2	24	0	8-3/16	1-1/2	24	0	1-13/16	1-1/2	31	90
145H1802-22	FROM	41-9/16	1-1/2	20	0	20-15/16	1-1/2	74	310								
145H1802-24	TO	33-1/8	1-1/2	35	0	29-13/16	1-1/2	35	180	14-5/8	1-1/2	10	130	2-3/4	1-1/2	15	154
145H1802-25	TO	14-15/16	1-1/4	80	0	9-7/8	1-1/4	75	114	2-1/2	1-1/4	30	39				
145H1802-27	FROM	7-3/4	1-1/2	90	0	3-1/2	1-1/2	17	90								
145H1802-29	TO	32-3/16	1-1/2	24	0	28-9/16	1-1/2	90	250	22-9/16	1-1/2	90	75	12-7/8	1-1/2	40	80
145H1802-33	FROM	19-7/8	1-1/2	50	0	11-3/16	1-1/2	10	9	6-3/4	1-1/2	61	190				
145H1802-35	TO	13-5/8	2	82	0	6-5/8	2	71	322								
145H1802-38	FROM	21-1/4	1-3/4	35	0	17-1/2	1-3/4	90	90								
145H1802-40	FROM	26-3/8	1	170	0	19-1/8	1	110	115	14-5/16	1	90	209	3	1	90	115
145H1802-41	TO	27-5/16	2	175	0	17	2	54	85	9-3/4	2	28	176	5-1/8	2	92	194
145H1802-43	TO	34-1/4	2	90	0	27-7/8	2	90	180	7	2	90	355				
145H1802-45	FROM	23-5/8	2	42	0	19-1/8	2	40	178	15-1/8	2	30	153	11-3/8	2	30	330
145H1802-47	TO	52-1/8	2	90	0	45-5/8	2	90	181	24-7/8	2	90	8				
145H1802-49	TO	27-9/16	2	177	0	17-1/4	2	54	275	10	2	25	184	5-3/8	2	92	164
145H1802-51	FROM	14-1/8	1-1/2	90	0	11	1-1/2	135	180	5	1-1/2	45	0				
145H1802-53	FROM	33	1-3/4	30	0	27-1/4	1-3/4	45	180	18-1/2	1-3/4	25	180	6-3/4	1-3/4	90	9
145H1802-55	TO	STRAIGHT															
145H1802-57	TO	41-1/2	2	45	0	36-9/16	2	45	223	23-7/8	2	31	296	7-1/4	2	90	28
145H1802-60	TO	50-3/16	1-1/2	27	0	46-9/16	1-1/2	50	45	32-7/8	1-1/2	20	43	16-5/8	1-1/2	45	116
145H1802-62	TO	STRAIGHT															
145H1802-67	FROM	41-7/8	1-1/2	33	0	33-11/16	1-1/2	17	0	25-11/16	1-1/2	17	0	2-13/16	1-1/2	70	177
145H1802-70	TO	36-3/8	1-1/2	92	0	22-1/8	1-1/2	89	150	11-3/16	1-1/2	68	236	2-7/8	1-1/2	45	272
145H1802-71	TO	16-7/8	2	38	0	12-1/4	2	47	356	7-7/8	2	31	72	4	2	23	266

B. Tube Bend Data SHEET 10 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1802-14	TO	3-5/16	1	40	236												
145H1802-29	TO	8-1/16	1-1/2	40	263	4-3/8	1-1/2	30	0								
145H1802-60	TO	13-1/8	1-1/2	45	291	10-3/4	1-1/2	72	289	3-3/4	1-1/2	20	282				

B. Tube Bend Data SHEET 11 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1802-73	TO	33-1/16	1-1/2	42	0	27-7/8	1-1/2	42	180	25-1/2	1-1/2	43	270	19	1-1/2	90	180
145H1802-75	FROM	12-13/16	1-1/2	90	0	8-3/16	1-1/2	90	0								
145H1802-77	FROM	6-9/16	1-1/2	90	0												
145H1802-79	TO	11-5/8	2	90	0	5-3/8	2	90	273								
145H1802-81	FROM	22-5/16	2	90	0	11-15/16	2	90	273								
145H1802-83	TO	18	3-1/4	90	0	7-3/4	3-1/4	60	255								
145H1802-86	TO	31-1/4	3-1/4	95	0	24-1/8	3-1/4	88	67	12-7/8	3-1/4	37	7	8-3/4	3-1/4	120	155
145H1802-87	FROM	18-11/16	1-1/2	42	0	16-9/16	1-1/2	42	180	5-11/16	1-1/2	45	127	3-3/16	1-1/2	45	310
145H1802-89	FROM	45	1-1/2	90	0	39-3/4	1-1/2	90	140	32	1-1/2	50	50	18-1/2	1-1/2	90	320
145H1802-91	TO	28-7/8	2-1/4	130	0	18	2-1/4	32	277	10	2-1/4	90	199				
145H1802-93	TO	3-5/8	1	35	0												
145H1802-97	FROM	7-3/4	1-1/2	22	0	6-1/4	1-1/2	22	180								
141H1802-99	TO	60	1-1/2	90	0	54	1-1/2	90	193	41-1/16		17	101	18-15/16	1-1/2	90	2
145H1802-103	TO	27-3/16	1-1/2	90	0	3-3/8	1-1/2	90	0								
145H1802-105	TO	28-15/16	1-1/2	86	0	18-7/8	1-1/2	55	267	5	1-1/2	90	210				
145H1802-107	TO	48-15/16	1-1/2	45	0	45-7/8	1-1/2	45	180	36-1/4	1-1/2	90	152				
145H1802-109	FROM	9-3/4	1-1/4	90	0	4-7/16	1-1/4	109	87								
145H1802-111	FROM	21-1/4	1	43	0	18-13/16	1	44	180	2-15/16	1	61	265				
145H1802-117	FROM	5-9/16	1	29	0	3-3/16	1	67	170								
145H1802-119	FROM	12-1/4	1	35	0	3-7/8	1	90	270								
145H1802-122	TO	2-1/4	1	48	0												
145H1802-123	FROM	62	1	50	0	55-15/16	1	20	330	40-1/16	1	20	355	34-1/8	1	20	175
145H1802-127	TO	21-5/8	1	103	0	17-7/8	1	90	170	13-1/2	1	90	30	3-1/4	1	90	210
145H1802-129	TO	28-3/16	1	128	0	22-15/16	1	41	180	13-7/8	1	90	273	8-3/8	1	90	180
145H1802-133	TO	21-7/8	1	70	0	17-1/8	1	90	90	11-3/16	1	90	195				
145H1802-137	TO	34-1/16	1	90	0	31-3/8	1	90	180	21-5/16	1	90	165	17-1/4	1	30	310
145H1802-139	FROM	33-1/8	1	90	0	23-5/16	1	92	93	10-13/16	1	45	246	8-15/16	1	43	68
145H1802-141	TO	61-1/8	1	15	0	54-7/8	1	90	270	41-1/4	1	90	113	34-1/8	1	22	200
145H1802-143	FROM	29-3/8	1	63	0	19-1/2	1	28	46	10-1/2	1	24	224	6-3/8	1	67	32
145H1802-147	FROM	29-3/8	1	90	0	18-1/16	1	90	180	6-1/8	1	90	40				
145H1802-149	TO	26-3/8	1	25	0	20-15/16	1	90	90	16-3/16	1	90	180	12-3/4	1	90	115
145H1802-151	FROM	15-3/8	1	90	0	11-1/2	1	90	180								
145H1802-153	TO	37-3/4	1	90	0	34-1/8	1	13	260	29-13/16	1	67	126	24-3/16	1	63	305
145H1802-164	FROM	36-13/16	1	61	0	33-15/16	1	66	180	10-3/8	1	90	145	4	1	90	324

B. Tube Bend Data SHEET 11 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1802-89	FROM	2-5/8	1-1/2	50	30												
145H1802-123	FROM	32-9/16	1	20	355	26-1/2	1	90	80	11-3/8	1	50	265	7-5/16	1	50	85
145H1802-129	TO	5-7/8	1	90	90												
145H1802-137	TO	15	1	25	195												
145H1502-141	TO	32-1/4	1	26	20	27-1/2	1	22	211	6-1/2	1	56	205				
145H1808-153	TO	6-1/8	1	56	218	2-11/16	1	60	35								

B. Tube Bend Data SHEET 12 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1802-165	FROM	30-1/4	1	40	0	29-1/8	1	40	180	23-3/4	1	60	180	17-13/16	1	60	0
145H1802-167	TO	18-1/8	1	45	0	16-1/8	1	45	180								
145H1802-169	TO	17-15/16	1	45	0	15-15/16	1	45	180								
145H1802-171	TO	18	1	45	0	16	1	45	180								
145H1802-173	TO	17-3/4	1	45	0	15-3/4	1	45	180								
145H1802-175	TO	17-3/4	3-1/4	90	270	11-3/4	3-1/4	90	270								
145H1802-177	TO	26-1/2	3-1/4	50	0	17-1/2	3-1/4	50	180								
145H1802-179	FROM	14-1/2	1-1/2	97	0	6-5/8	1-1/2	22	230								
145H1802-181	FROM	8-1/4	3-1/4	32	0												
145H1802-183	TO	26-3/8	1-1/2	38	0	12-1/2	1-1/2	90	5	3-1/2	1-1/2	90	185				
145H1802-186	FROM	46-7/8	1-1/2	58	0	32-7/8	1-1/2	50	334	29-5/8	1-1/2	50	143	11-5/8	1-1/2	90	275
145H1802-189	FROM	23-1/2	1-1/2	82	0	14	1-1/2	90	90								
145H1802-191	TO	17-1/2	2	90	0	6-5/16	2	90	180								
145H1802-193	TO	20-3/16	1	125	0	15-15/16	1	30	180	11-1/8	1	62	90	2-15/16	1	10	90
145H1802-197	FROM	5-1/4	2	90	0												
145H1802-200	TO	35-1/8	1-3/4	25	0	33-3/8	1-3/4	25	180	29	1-3/4	95	0	14-1/8	1-3/4	88	110
145H1803-1	TO	12-7/16	1-3/4	112	0	7-13/16	1-3/4	155	293								
145H1803-6	FROM	19-11/16	1	85	0	17-1/16	1	85	0	8-9/16	1	55	140	4-11/16	1	58	233
145H1803-8	TO	19-15/16	1	30	0	6-5/8	1	80	200								
145H1803-11	FROM	43-3/4	1-3/4	40	0	37	1-3/4	80	332	32-5/16	1-3/4	80	38	17-7/16	1-3/4	90	52
145H1803-14	FROM	16-5/8	1-1/2	85	0	3-9/16	1-1/2	92	90								
145H1803-17	FROM	28-15/16	1-3/4	73	0	17-13/16	1-3/4	73	216	11-11/16	1-3/4	76	45	4-7/8	1-3/4	90	320
145H1803-23	FROM	11-3/8	1-3/4	45	0	5-11/16	1-3/4	40	90	3-1/8	1-3/4	40	270				
145H1803-25	TO	68-3/8	1-1/2	21	0	60-3/4	1-1/2	23	180	50-15/16	1-1/2	74	81	13-11/16	1-1/2	35	240
145H1803-27	FROM	66-5/8	1-1/2	25	0	60-3/4	1-1/2	29	180	49-3/4	1-1/2	73	270	12-3/8	1-1/2	36	114
145H1804-1	FROM	8-1/8	1-3/4	90	0	3-3/4	1-3/4	38	270								
145H1804-3	TO	16-5/8	2-1/2	88	0												
145H1804-5	TO	21-3/8	1-3/4	90	0	16-13/16	1-3/4	47	90	8	1-3/4	57	90	4-1/8	1-3/4	90	0
145H1804-7	TO	27-3/8	1-3/4	75	0	23	1-3/4	25	270	11-15/16	1-3/4	90	76	5-1/16	1-3/4	90	256
145H1804-10	TO	59-11/16	2-1/2	45	0	50-7/16	2-1/2	90	33	38	2-1/2	48	269	31-7/16	2-1/2	11	7
145H1804-12	TO	9-1/8	2-1/2	55	0	5	2-1/2	55	182								
145H1804-19	TO	16-3/4	2-1/2	49	0		10-7/8	2-1/2	46	172	5	2-1/2	49	299			
145H1804-21	TO	42-11/16	3	15	0	35-3/4	3	41	264	14-3/4	3	90	323				
145H1804-24	TO	27-13/16	2	52	0	21-15/16	2	93	268	11	2	92	1				

B. Tube Bend Data SHEET 12 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1802-165	FROM	5-7/8	1	65	118	2-7/16	1	63	298								
145H1802-200	TO	9-1/8	1-3/4	15	20												
145H1803-6	FROM	2-3/4	1	58	51												
145H1803-25	TO	6-7/8	1-1/2	52	65												
145H1803-27	FROM	5-13/16	1-1/2	51	281												
145H1804-10	TO	23-7/8	2-1/2	40	50	14-1/2	2-1/2	38	102	5-1/6	2-1/2	38	59				



B. Tube Bend Data SHEET 13 OF 13

Bend Data																	
PART NUMBER	FLOW REL TO X END	BEND 1				BEND 2				BEND 3				BEND 4			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1804-25	TO	2-3/8	1-1/2	45	0												
145H1804-27	TO	58-7/8	1-1/2	20	180	49-9/16	1-1/2	75	83	13-3/16	1-1/2	35	235	6-7/16	1-1/2	51	283
145H1804-29	TO	63-7/8	1-1/2	18	0												
145H1804-31	TO	16-3/4	1	42	0	13-3/4	1	42	190	5-3/4	1	85	247	3	1	38	145
145H1804-33	TO	STRAIGHT															
145H1804-35	TO	5-1/2	1-1/4	90	270	13-1/8	1-1/4	100	0	8-3/4	1-1/4	88	85				
145H1402-21	FROM	51-3/8	1-1/2	20	90	45	1-1/2	40	0	42-3/4	1-1/2	40	180	40-1/8	1-1/2	40	180
-21 BEND 9	FROM	2-7/8	1-1/2	45	323												
145H1801-13	FROM	60-5/8	1	90	0	56-1/2	1	90	180	39-15/16	1	12	190	38-1/4	1	8	10
-13 BEND 9	FROM	3-3/16	1	34	188												
145H1802-125	FROM	41-7/8	1	90	0	37-7/16	1	90	270	32-1/4	1	90	0	21-3/8	1	44	270
-125 BEND 9	FROM	6-1/16	1	90	0												
145H1802-136	FROM	39-1/2	1	70	0	33-13/16	1	20	90	31-3/8	1	26	220	25-1/4	1	17	140
-136 BEND 9	FROM	4-1/16	1	12	130												
145H1803-15	TO	67-5/8	1	71	0	63-5/8	1	96	90	55-1/4	1	86	154	43-5/8	1	44	58
15 BEND 9	TO	3-1/8	1	6	251												
145P0171-1	TO	7-3/4	2	90	90	9-9/16	2	10	0								
145P0171-2	TO	7-3/4	2	90	270	9-9/16	2	10	0								

B. Tube Bend Data SHEET 13 OF 13

BEND DATA																	
PART NUMBER	FLOW REL TO X END	BEND 5				BEND 6				BEND 7				BEND 8			
		DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET	DIST FROM X END	RAD	DIAL H DEG BEND	DIAL C SET
145H1402-21	FROM	37-3/4	1-1/2	35	0	23-5/16	1-1/2	30	180	15-7/8	1-1/2	38	180	4-5/8	1-1/2	12	180
145H1801-13	FROM	34-7/8	1	90	110	22-5/16	1	90	276	11	1	41	262	6-15/16	1	41	88
145H1802-125	FROM	19-9/16	1	35	90	16-1/16	1	30	90	13-5/16	1	21	270	8-1/16	1	33	270
145H1802-136	FROM	17-3/16	1	24	45	15-1/4	1	24	280	12-5/8	1	90	70	7-1/4	1	90	220
145H1803-15	TO	32-1/8	1	42	60	24-1/4	1	88	169	19-15/16	1	90	354	10-1/2	1	90	161

C. TUBE ASSEMBLY DATA (SHEET 1 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
114E4048-125	MS21922-R6	MD21921-6	MS21922-R6	MS21921-6			
114E4028151			BACS13AP8	MS21921-8	—	TUBE ASSY	4
114PA302-1	—	NAS593-4	—	—	TO	TUBE ASSY	2
145H1301-1	D10007-04	D10006-04			—	TUBE ASSY	2
145H1301-3	D10007-04	D10006-04			—	TUBE ASSY	2
145H1301-7			D10007-04	D10006-04	—	TUBE ASSY	2
145H1301-9			D10007-04	D10006-04	—	TUBE ASSY	2
145H1301-11	D10007-04	D10007-04			—	TUBE ASSY	2
145H1301-13			D10007-04	D10006-04	—	TUBE ASSY	2
145H1301-15	D10007-04	D10006-04			—	TUBE ASSY	2
145H1301-17			D10019-04	—	—	TUBE ASSY	2
145H1301-21	D10019-04	—			FROM	TUBE ASSY	2
145H1301-23	D10036-08	—			TO	TUBE ASSY	2
145H1301-25			D10019-04	—	TO	TUBE ASSY	2
145H1301-27	D10019-04	—			—	TUBE ASSY	2
145H1301-30					FROM	TUBE	3
145H1301-31			D10019-04	—	—	TUBE ASSY	2
145H1301-33	D10021A-04	—			TO	TUBE ASSY	2
145H1301-35	D10007-08	D10006-08			FROM	TUBE ASSY	2
145H1301-38					FROM	TUBE	3
145H1301-39	D10007-08	D10006-08			—	TUBE ASSY	2
145H1341-42					—	TUBE	3
145H1301-45	D10019-04	—			—	TUBE ASSY	2
145H1301-47	D10019-04	—			TO	TUBE ASSY	2
145H1301-52					TO	TUBE ASSY	2
145H1301-53	D10019-04	—			—	TUBE ASSY	2
145H1301-55			D10019-04	—	—	TUBE ASSY	2
145H1301-59			D10019-04	—	FROM	TUBE ASSY	2
145H1301-61			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1301-64					FROM	TUBE	3
145H1301-65	D10019-06	—			TO	TUBE ASSY	2
145H1301-68					FROM	TUBE	3
145H1301-74					TO	TUBE	3

## C. TUBE ASSEMBLY DATA (SHEET 2 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1301-75			D10041-0604	—	FROM	TUBE ASSY	2
145H1301-78					TO	TUBE	3
145H1301-80					TO	TUBE	3
145H1301-81			D10007-04	D10006-04	TO	TUBE ASSY	2
145H1301-83			D10007-04	D10006-04	TO	TUBE ASSY	2
145H1301-86					FROM	TUBE	3
145H1301-88					FROM	TUBE	3
145H1301-89	D10019-10	—			FROM	TUBE ASSY	2
145H1301-91	D10019-06	—			TO	TUBE ASSY	2
145H1301-93	D10019-06	D10006-06			TO	TUBE ASSY	2
145H1301-95			D10019-04	—	—	TUBE ASSY	2
145H1301-97			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1301-99	D10036-04	—			—	TUBE ASSY	2
145H1301-101			D10036-04	—	—	TUBE ASSY	2
145H1301-103			D10007-04	D10006-04	—	TUBE ASSY	2
145H1301-105			D10007-06	D10006-05	FROM	TUBE ASSY	2
145H1301-115			D100019-06	—	FROM	TUBE ASSY	2
145H1301-117	D10007-08	D10006-08			TO	TUBE ASSY	2
145H1301-119			D10036-06	—	FROM	TUBE ASSY	2
145H1301-121			D10036-06	—	TO	TUBE ASSY	2
145H1301-123	D10019-06	—			TO	TUBE ASSY	2
145H1301-125	D10007-06	D10006-06			TO	TUBE ASSY	2
145H1301-127	D10007-08	D10006-08			FROM	TUBE ASSY	2
145H1301-129			D10036-08	—	TO	TUBE ASSY	2
145H1301-131			D10019-08	—	TO	TUBE ASSY	2
145H1301-133			D10007-08	D10006-08	FROM	TUBE ASSY	2
145H1301-136					TO	TUBE	3
145H1301-137	D10007-04	D10006-04			FROM	TUBE ASSY	2
145H1301-139			D10019-10	—	TO	TUBE ASSY	2
145H1301-141			D10036-06	—	FROM	TUBE ASSY	2
145H1301-143	D10036-04	—			—	TUBE ASSY	2
145H1301-146					—	TUBE	3
145H1301-151	D10007-04	D10006-04			FROM	TUBE ASSY	2

C. TUBE ASSEMBLY DATA (SHEET 3 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1301-155	D10019-06	—			FROM	TUBE ASSY	2
145H1301-158					FROM	TUBE	3
145H1301-160					TO	TUBE	3
145H1301-161			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1301-163	D10019-06	—			TO	TUBE ASSY	2
145H1301-165			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1301-169	D10007-04	D10006-04			FROM	TUBE ASSY	2
145H1302-1	D10021A-04	D10021A-04			TO	TUBE ASSY	2
145H1302-3	D10021A-04	D10021A-04			TO	TUBE ASSY	2
145H1302-5	D10021A-04	D10021A-04			TO	TUBE ASSY	2
145H1302-7	D10021A-04	D10021A-04			TO	TUBE ASSY	2
145H1302-9	D10007-06	D10006-06	D10007-06	D10006-06	TO	TUBE ASSY	2
145H1302-11					FROM	TUBE ASSY	2
145H1302-13					TO	TUBE ASSY	2
145H1302-18					FROM	TUBE	3
145H1302-20					FROM	TUBE	3
145H1302-21	D10007-06	D10006-06	D10007-06	D10006-06	TO	TUBE ASSY	2
145H1302-23			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1302-25	D10007-06	D10006-06			FROM	TUBE ASSY	2
145H1302-27	D10019-06	—			FROM	TUBE ASSY	2
145H1302-29	D10019D12	—			TO	TUBE ASSY	2
145H1302-31	D10019-06	—			FROM	TUBE ASSY	2
145H1302-34					TO	TUBE	3
145H1302-35			D10019-06	—	TO	TUBE ASSY	2
145H1302-37	D10007-08	D10006-08			FROM	TUBE ASSY	2
145H1302-39			D10036-06	—	TO	TUBE ASSY	2
145H1302-41			D10019-06	—	TO	TUBE ASSY	2
145H1302-44					TO	TUBE	3
145H1302-46					FROM	TUBE	3
145H1302-47					FROM	TUBE ASSY	2
145H1302-50			D10019D12	—	FROM	TUBE	3
145H1302-51	D10007D10	D10006D10			TO	TUBE ASSY	2
145H1302-53			D10036D10		FROM	TUBE ASSY	2

## C. TUBE ASSEMBLY DATA (SHEET 4 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1302-55			D10019D10	—	FROM	TUBE ASSY	2
145H1302-57			D10007D10	D10006D10	TO	TUBE ASSY	2
145H1302-59			D10045-0604	—	FROM	TUBE ASSY	2
145H1302-61	D10007-08	D10006-06			FROM	TUBE ASSY	2
145H1302-63			D10019-06	—	TO	TUBE ASSY	2
145H1302-66					FROM	TUBE	3
145H1302-67			D10007-04	D10006-04	TO	TUBE ASSY	2
145H1302-69	D10036-04	—			FROM	TUBE ASSY	2
145H1302-72					TO	TUBE	3
145H1302-73	D10036-04	—			TO	TUBE ASSY	2
145H1302-76					FROM	TUBE	3
145H1302-77			D10041-0806	—	FROM	TUBE ASSY	2
145H1302-79			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1302-82					TO	TUBE	3
145H1302-83			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1302-86					—	TUBE	3
145H1302-88					FROM	TUBE	3
145H1302-89			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1302-93			D10036-06	—	TO	TUBE ASSY	2
145H1302-95			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1302-97	D10041-0608	—			FROM	TUBE ASSY	2
145H1302-100					TO	TUBE	3
145H1302-103	D10019-04	—			TO	TUBE ASSY	2
145H1302-105			D10019-04	—	FROM	TUBE ASSY	2
145H1302-108					TO	TUBE	3
145H1302-109	D10021-04	—			FROM	TUBE ASSY	2
145H1302-112					FROM	TUBE	3
145H1302-114					TO	TUBE	3
145H1302-116					TO	TUBE	3
145H1302-117			D10019-06	—	TO	TUBE ASSY	2
145H1302-119	D10009-06	—			FROM	TUBE ASSY	2
145H1302-123			D10007-04	D10006-04	TO	TUBE ASSY	2
145H1302-125	D10019-04	—			FROM	TUBE ASSY	2

C. TUBE ASSEMBLY DATA (SHEET 5 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1302-127	D10036D10	—			FROM	TUBE ASSY	2
145H1401-2					TO	TUBE	3
145H1401-4					TO	TUBE	3
145H1401-5	D10036-06	—			FROM UNION	TUBE ASSY	2
145H1401-7	D10036-06	—			FROM	TUBE ASSY	2
145H1401-10					—	TUBE	3
145H1401-11	D10036-06	—			TO	TUBE ASSY	2
145H1401-14					—	TUBE	3
145H1401-15	D10036-06	—	D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1401-17	D10036-06	—			TO	TUBE ASSY	2
145H1401-19	D10036-06	—			FROM	TUBE ASSY	2
145H1401-21	D10036-04	—			FROM	TUBE ASSY	2
145H1401-23	D10036-06	—			FROM	TUBE ASSY	2
145H1401-26					—	TUBE ASSY	2
145H1401-27	D10036-06	—			FROM	TUBE ASSY	2
145H1401-29	D10036-04	—			—	TUBE ASSY	2
145H1401-31	D10054-04	—			—	TUBE ASSY	2
145H1401-33			D10007-04	D10006-04	—	TUBE ASSY	2
145H1401-35	D10019-04	—			—	TUBE ASSY	2
145H1401-37			D10019-04	—	—	TUBE ASSY	2
145H1401-41			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1401-43			D10007-04	D10006-04		TUBE ASSY	2
145H1401-45	D10007-04	D10006-04				TUBE ASSY	2
145H1401-46						TUBE ASSY	2
145H1401-49			D10019-04	—	—	TUBE ASSY	2
145H1401-51			D10007-04	D10006-04		TUBE ASSY	2
145H1401-53	D10036-04	—				TUBE ASSY	2
145H1401-57			D10041-0604	—	FROM	TUBE ASSY	2
145H1401-59			D10019-06	—	FROM	TUBE ASSY	2
145H1401-61	D10007-04	D10006-04			—	TUBE ASSY	2
145H1401-63	D10007-04	D10006-04	D10007-04	D10006-04	FROM	TUBE ASSY	2
145H1401-65			D10007-04	D10006-04	—	TUBE ASSY	2

## C. TUBE ASSEMBLY DATA (SHEET 6 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1401-68					TO	TUBE	3
145H1401-70					TO	TUBE	3
145H1401-71			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1401-73			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1401-75	D10007-04	D10006-04	D10007-04	D10006-04	—	TUBE ASSY	2
145H1401-77	D10007-04	D10006-04	D10007-04	D10006-04	—	TUBE ASSY	2
145H1401-79			D10019-06	—	TO	TUBE ASSY	2
145H1401-81					TO	TUBE ASSY	2
145H1402-2					TO	TUBE	3
145H1402-3	D10036-08	—			TO	TUBE ASSY	2
145H1402-5	D10036-06	—			TO	TUBE ASSY	2
145H1402-7	D10036-06	—			FROM	TUBE ASSY	2
145H1402-9	D10036-06	—			TO	TUBE ASSY	2
145H1402-11	D10036-06	—			TO	TUBE ASSY	2
145H1402-14					—	TUBE	3
145H1402-15	D10036-06				FROM UNION	TUBE ASSY	2
145H1402-17	D10036-08	—			TO	TUBE ASSY	2
145H1402-19	D10036-06	—			TO	TUBE ASSY	2
145H1402-21			D10007-06	D10006-08	FROM	TUBE ASSY	2
145H1402-23	D10045-0806	—	D10007-08	D10006-08	—	TUBE ASSY	2
145H1402-25			D10019-06	—	FROM	TUBE ASSY	2
145H1402-28					FROM	TUBE	3
145H1402-30					FROM	TUBE	3
145H1402-31			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1402-33			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1801-1			D10019-06	—	TO	TUBE ASSY	2
145H1801-3	D10019-06	—			TO	TUBE ASSY	2
145H1801-5			D10019-06	—	FROM	TUBE ASSY	2
145H1801-7			D10019-06		FROM	TUBE ASSY	2
145H1801-9	D10036-04	—			—	TUBE ASSY	2
145H1801-13			D10019-04	—	—	TUBE ASSY	2
145H1801-15			D10019-04	—	—	TUBE ASSY	2



C. TUBE ASSEMBLY DATA (SHEET 7 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1801-17			D10153-04	—	—	TUBE ASSY	2
145H1801-19			D10036-04	—	TO	TUBE ASSY	2
145H1801-21			D10019-04	—	—	TUBE ASSY	2
145H1801-23	D10007-06	D10006-06			—	TUBE ASSY	2
145H1801-25			D10007-04	D10006-04	TO	TUBE	3
145H1801-27			D10036-04	—	FROM	TUBE	3
145H1801-29			D10036-04	—	TO	TUBE	3
145H1801-31	D10008-04	—	D10036-04	—	FROM	TUBE	3
145H1801-33			D10036-04	—	FROM	TUBE	3
145H1801-35			D10007-04	D10006-04	FROM	TUBE	3
145H1801-37	D10007-04	D10006-04	D10019-04	—	TO	TUBE	3
145H1801-40					TO	TUBE	3
145H1801-41			D10007-04	D10006-04	—	TUBE ASSY	2
145H1801-44					TO	TUBE	3
145H1801-45	D10019-04	—	D10019-04	—	TO	TUBE ASSY	2
145H1801-47	D10019-04	—	D10019-04	—	TO	TUBE ASSY	2
145H180-49	D10007-04	D10006-04	D10007-04	D10006-04	FROM	TUBE ASSY	2
145H1801-52					TO	TUBE	3
145H1801-54					FROM	TUBE	3
145H1801-55			D10019-04	—	FROM	TUBE ASSY	2
145H1801-57	D10036-04	—			FROM	TUB ASSY	2
145H1801-59	D10007-04	D10006-04			FROM	TUBE ASSY	2
145H1801-61	D10019-04	—			TO	TUBE ASSY	2
145H1801-63	D10019-04	—			TO	TUBE ASSY	2
145H1801-65	D10045-0604	—			TO	TUBE ASSY	2
145H1801-67			D10019-04	—	FROM	TUBE ASSY	2
145H1801-70					FROM	TUBE	3
145H1801-71	D10007-04	D10006-04			FROM	TUBE ASSY	2
145H1801-73	D10019-04	—			TO	TUBE ASSY	2
145H1801-75	D10019-04	—			TO	TUBE ASSY	2
145H1801-77			D10036-04	—	FROM	TUBE ASSY	2
145H1801-79	D10007-12	D10006-12			FROM	TUBE ASSY	2
145H1801-81			D10007-12	D10006-12	FROM	TUBE ASSY	2

## C. TUBE ASSEMBLY DATA (SHEET 8 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1801-83			D10019-04	—	—	TUBE ASSY	2
145H1801-85			D10007-04	D10006-04	FROM	TUBE ASSY	2
145H1801-88					TO	TUBE	3
145H1801-89	D10007-04	D10006-04			FROM	TUBE ASSY	2
145H1801-91			D10019-04	—	FROM	TUBE ASSY	2
145H1801-93			D10007-04	D10006-04	TO	TUBE ASSY	2
145H1801-95	D10007-04	D10006-04			—	TUBE ASSY	2
145H1801-97			D10019-04	—	FROM	TUBE ASSY	2
145H1801-99			D10007-10	D10006-10	TO	TUBE ASSY	2
145H1801-101	D10007-04	D10006-04			—	TUBE ASSY	2
145H1801-103			D10007-04	D10006-04	TO	TUBE ASSY	2
145H1801-106	D10007-04	D10006-04			—	TUBE	3
145H1801-107			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1901-111			D10019-04	—	FROM	TUBE ASSY	2
145H1801-113	D10019-04	—			FROM	TUBE ASSY	2
145H1801-131			D10036-08	—	FROM	TUBE ASSY	2
145H1801-135			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1801-141			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1801-143			D10019-06	—	TO	TUBE ASSY	2
145H1801-145	D10007-04	D10006-04			FROM	TUBE ASSY	2
145H1801-150					TO	TUBE	3
145H1801-152					FROM	TUBE	3
145H1801-153	D10007-04	D10006-04	D10007-04	D10006-04	FROM	TUBE ASSY	2
145H1801-156					TO	TUBE	3
145H1801-157	D10036-04	—			FROM	TUBE ASSY	2
145H1801-160					TO	TUBE	3
145H1801-161			D10019-10	—	TO	TUBE ASSY	2
145H1801-163			D10007-10	D10006-10	FROM	TUBE ASSY	2
145H1801-165			D10007-10	D10006-10	TO	TUBE ASSY	2
145H1801-167	D10007-04	D10006-04			TO	TUBE ASSY	2
145H1801-169			D10019-04	—	TO	TUBE ASSY	2
145H1801-171	D10019-08	—			TO	TUBE ASSY	2
145H1801-173			D10007-08	D10006-08	FROM	TUBE ASSY	2

C. TUBE ASSEMBLY DATA (SHEET 9 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1801-175			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1801-177			D10007-10	D10006-10	FROM	TUBE ASSY	2
145H1801-180					FROM	TUBE	3
145H1801-181	D10019-04	—	D10019-04	—	TO	TUBE ASSY	2
145H1801-183	D10007-04	D10006-04			TO	TUBE ASSY	2
145H1801-187	D10019-04	—	D10019-04	—	TO	TUBE ASSY	2
145H1801-191	D10007-04	D10006-04			TO	TUBE ASSY	2
145H1801-196					FROM	TUBE	3
145H1801-197			D10007-08	D10006-08	FROM	TUBE ASSY	2
145H1801-199			D10019-008	—	TO	TUBE ASSY	2
145H1801-201			D10007-08	—	TO	TUBE ASSY	2
145H1801-206					FROM	TUBE	3
145H1801-208					FROM	TUBE	3
145H1801-211			D10019-04	—	TO	TUBE ASSY	2
145H1801-213			D10019-04	—	TO	TUBE ASSY	2
145H1801-215	D10008-04	—	D10008-04	—	TO	TUBE ASSY	2
145H1801-217	D10008-04	—	D10008-04	—	TO	TUBE ASSY	2
145H1801-219	D10008-04	—	D10008-04	—	TO	TUBE ASSY	2
145H1801-221	D10007-04	D10006-04	D10007-04	D10006-04	TO	TUBE ASSY	2
145H1801-223	D10007-04	—	D10006-04	—	—	TUBE ASSY	2
145H1801-225	D10008-04	—	D10008-04	—	—	TUBE ASSY	2
145H1801-227	D10008-04	—	D10008-04	—	TO	TUBE ASSY	2
145H1801-229	D10008-04	—	D10008-04	—	FROM	TUBE ASSY	2
145H1801-231	D10007-04	D10006-04			—	TUBE ASSY	2
145H1801-233	D10007-04	D10006-04	D10007-04	D10006-04	TO	TUBE ASSY	2
145H1801-235	D10007-08	D16006-08			TO	TUBE ASSY	2
145H1801-237	D10007-06	D10006-06			FROM	TUBE ASSY	2
145H1801-239			D10007-12	D10006-12	TO	TUBE ASSY	2
145H1801-241	D10007-12	D10006-12			FROM	TUBE ASSY	2
145H1801-243			D10019-12	—	FROM	TUBE ASSY	2
145H1801-245	D10007-08	D10006-08	D10007-08		TO	TUBE ASSY	2
145H1801-247			D10007-04	D10006-04	FROM	TUBE ASSY	2
145H1801-250					TO	TUBE	3

## C. TUBE ASSEMBLY DATA (SHEET 10 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1801-251	D10007-04	D10006-04			TO	TUBE ASSY	2
145H1801-253	D10019-04	—	D10019-04	—	TO	TUBE ASSY	2
145H1801-256					TO	TUBE	3
145H1801-257			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1801-261	D10019-06	—	D10019-06	—	FROM	TUBE ASSY	2
145H1801-263			D10019-06	—	FROM	TUBE ASSY	2
145H1801-267					FROM	TUBE ASSY	2
145H1801-269	D10007-06	D10006-06			TO	TUBE ASSY	2
145H1802-271			D10041-0604	—	FROM	TUBE ASSY	2
145H1802-1	D10007-06	D10006-06			FROM	TUBE ASSY	2
145H1802-3	D10019-06	—			FROM	TUBE ASSY	2
145H1802-5			D10019-08	—	TO	TUBE ASSY	2
145H1802-7			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1802-9	D10019-06	—			TO	TUBE ASSY	2
145H1802-11			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1802-14					TO	TUBE	3
145H1802-15			D10007D10	D10006D10	FROM	TUBE ASSY	2
145H1802-17	D10007-06	D10006-06			TO	TUBE ASSY	2
145H1802-20					TO	TUBE	3
145H1802-22					FROM	TUBE	3
145H1802-24					TO	TUBE	3
145H1802-25			D10036-06	—	TO	TUBE ASSY	2
145H1802-27	D10045-0604	—			FROM	TUBE ASSY	2
145H1802-29	D10036-06	—			TO	TUBE ASSY	2
145H1802-33			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1802-35			D10007D10	D10006D10	TO	TUBE ASSY	2
145H1802-38					FROM	TUBE	3
145H1802-40					FROM	TUBE	3
145H1802-41	D10019D12	—			TO	TUBE ASSY	2
145H1802-43			D10007D12	D10006D12	TO	TUBE ASSY	2
145H1802-45	D10019D12	—			FROM	TUBE ASSY	2
145H1802-47	D10007D12	D10006D12			TO	TUBE ASSY	2
145H1802-49	D10019D12		D10007D12	BACN10ZA12D	TO	TUBE ASSY	2

C. TUBE ASSEMBLY DATA (SHEET 11 OF 13)

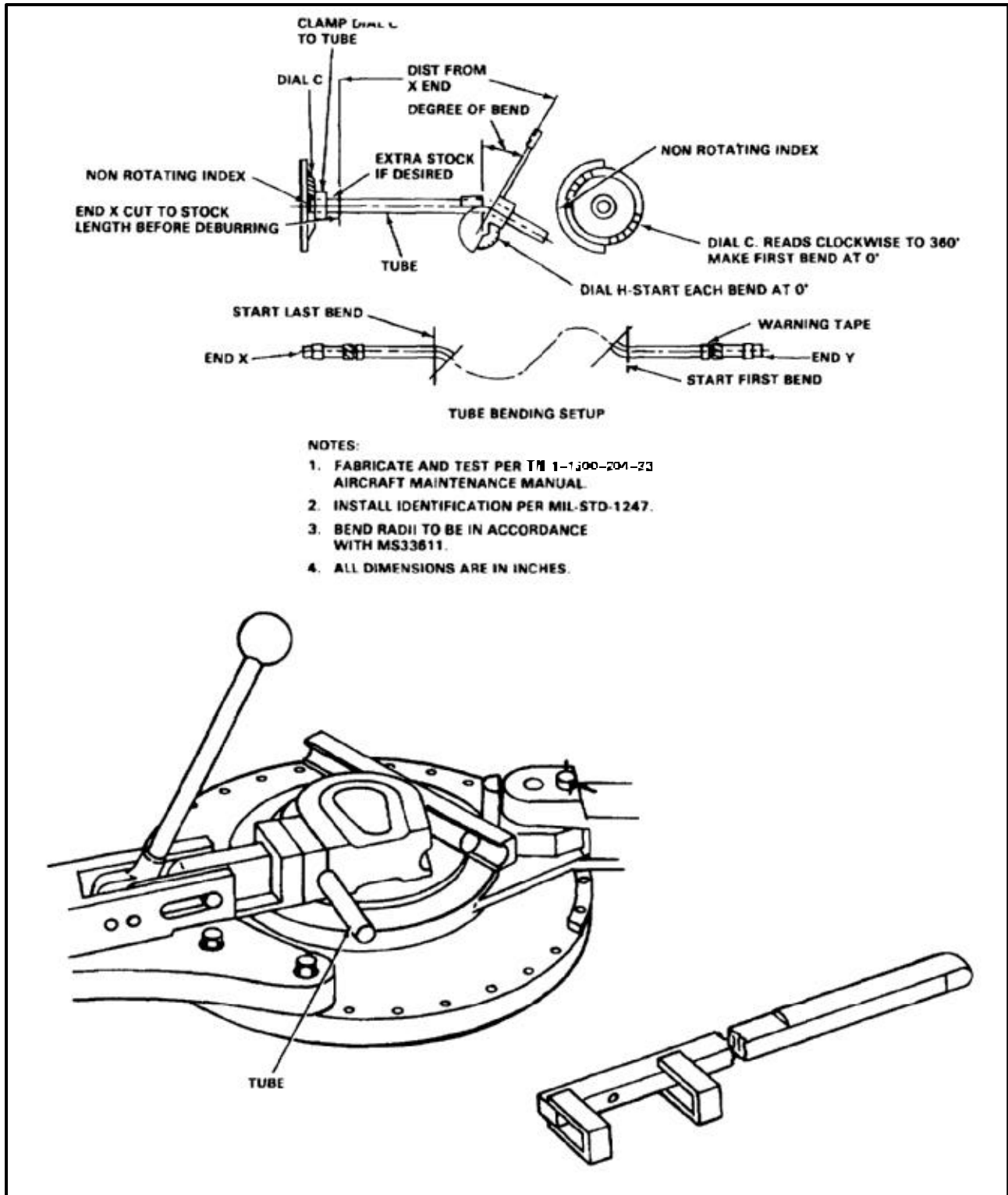
PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1802-51			D10007-08	D10006-08	FROM	TUBE	3
145H1802-53	D10036D10	—			FROM	TUBE ASSY	2
145H1802-55			D10019D10	—	TO	TUBE ASSY	2
145H1802-57			D10007D10	D10006D10	STRAIGHT TO	TUBE ASSY	2
145H1802-60					TO	TUBE	3
145H1802-62					TO	TUBE	3
145H1802-67	D10036-06	—			FROM	TUBE ASSY	2
145H1802-70					TO	TUBE	3
145H1802-71	D10007D12	D10006D12			TO	TUBE ASSY	2
145H1802-73			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1802-75	D10007-08	D10006-08			FROM	TUBE ASSY	2
145H1802-77	D10007-08	D10006-08			FROM	TUBE ASSY	2
145H1802-79			D10007D10	D10006D10	TO	TUBE ASSY	2
145H1802-81	D10019D10	—	D10007D10	D10006D10	FROM	TUBE ASSY	2
145H1802-83	D10007D16	D10006D16			TO	TUBE ASSY	2
145H1802-86					TO	TUBE	2
145H1802-87	D10007-06	D10006-06			FROM	TUBE ASSY	3
145H1802-89			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1802-91	D10019D12	—			TO	TUBE ASSY	2
145H1802-93			D10007-04	D10006-04	TO	TUBE ASSY	2
145H1802-97	D10041-0608	—			FROM	TUBE ASSY	2
145H1802-99			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1802-103	D10019-06		D10019-06		TO	TUBE ASSY	2
145H1802-105			D10041-0608	—	TO	TUBE ASSY	2
145H1802-107			D10019-06		TO	TUBE ASSY	2
145H1802-109			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1802-111	D10036-04	—			FROM	TUBE ASSY	2
145H1802-117	D10007-04	D10006-04	D10019-04	—	FROM	TUBE ASSY	2
145H1802-119	D10007-04	D10006-04			FROM	TUBE ASSY	2
145H1802-122					TO	TUBE	3
145H1802-123			D10045-0406	—	FROM	TUBE ASSY	2
145H1802-125	D10007-04	D10006-04			FROM	TUBE ASSY	2

## C. TUBE ASSEMBLY DATA (SHEET 12 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1802-127	D10019-04	—			TO	TUBE ASSY	2
145H1802-129	D10007-04	D10006-04	D10019-04	—	TO	TUBE ASSY	2
145H1802-133	D10036-04	—			TO	TUBE ASSY	2
145H1802-136					FROM	TUBE	3
145H1802-137			D10007-04	D10006-04	TO	TUBE ASSY	2
145H1802-139	D10038-04				FROM	TUBE ASSY	2
145H1802-141	D10036-04	—			TO	TUBE ASSY	2
145H1802-143			D10007-04	D10006-04	FROM	TUBE ASSY	2
145H1802-147			D10019-04	—	FROM	TUBE ASSY	2
145H1802-149			D10007-04	D10006-04	TO	TUBE ASSY	2
145H1802-151			D10007-04	D10006-04	FROM	TUBE ASSY	2
145H1802-153			D10007-04	D10006-04	TO	TUBE ASSY	2
145H1802-164					FROM	TUBE	3
145H1802-165			D10019-04	—	FROM	TUBE ASSY	2
145H1802-167					TO	TUBE ASSY	2
145H1802-169					TO	TUBE ASSY	2
145H1802-171					TO	TUBE ASSY	2
145H1802-173					TO	TUBE ASSY	2
145H1802-175			D10059D16	—	TO	TUBE ASSY	2
145H1802-177			D10059D16	—	TO	TUBE ASSY	2
145H1802-179			D10007-06	D10006-06	FROM	TUBE ASSY	2
145H1802-181	D10059D16	—			FROM	TUBE ASSY	2
145H1802-183	D10041-0608	—			TO	TUBE ASSY	2
145H1802-188					FROM	TUBE	3
145H1802-189	D10007-06	D10006-06			FROM	TUBE ASSY	2
145H1802-191	D10007D10	D10006D10			TO	TUBE ASSY	2
145H1802-193			D10019-04	—	TO	TUBE ASSY	2
145H1802-197	D10007D12	D10006D12			FROM	TUBE ASSY	2
145H1802-200					TO	TUBE	3
145H1803-1			D10007-08	D10006-08	TO	TUBE ASSY	2
145H1803-6					FROM	TUBE	3
145H1803-11	D10007-08	D10006-08			FROM	TUBE	3
145H1803-14					FROM	TUBE ASSY	2

C. TUBE ASSEMBLY DATA (SHEET 13 OF 13)

PART NUMBER	END X FITTING		END Y FITTING		FLOW REL TO X END	NOMEN-CLATURE	NOTES
	SLEEVE	NUT	SLEEVE	NUT			
145H1803-15			D10007-04	D10006-04	TO	TUBE	3
145H1803-17			D10007-08	D10006-08	FROM	TUBE ASSY	2
145H1803-23	D10007-08	D10006-08			FROM	TUBE ASSY	2
145H1803-25	D10019-06	—	D10019-06	—	TO	TUBE ASSY	2
145H1803-27	D10007-06	D10006-06	D10019-06	—	FROM	TUBE ASSY	2
145H1804-1			D10007-08	D10006-08	FROM	TUBE ASSY	2
145H1804-3			D10019D12	—	TO	TUBE ASSY	2
145H1804-5	D10007-08	D10006-08	D10007-08	D10006-08	TO	TUBE ASSY	2
145H1804-7			D10007-08	D10006-08	TO	TUBE ASSY	2
145H1804-10					TO	TUBE	3
145H1804-12					TO	TUBE	3
145H1804-19	BACE21BW12D				TO	TUBE ASSY	3
145H1804-21	D10019D16	—			TO	TUBE ASSY	2
145H1804-24					TO	TUBE	3
145H1804-25			D10007-06	D10006-06	TO	TUBE ASSY	2
145H1804-27	D10019-06	—	D10019-06	—	TO	TUBE ASSY	2
145H1804-29	D10007-06	D10006-06	D10019-06	—	TO	TUBE ASSY	2
145H1804-31			D10007-04	D10006-04	TO	TUBE ASSY	2
145H1804-33	D10021A-04	—			TO	TUBE ASSY	2
145H1804-35	D10007-06	D10006-06	D10045-0604	—	TO	TUBE ASSY	2
145P0171-1	—	—	—	NAS593-16	TO	TUBE ASSY	—
145P0171-2	—	—	—	NAS593-16	TO	TUBE ASSY	—



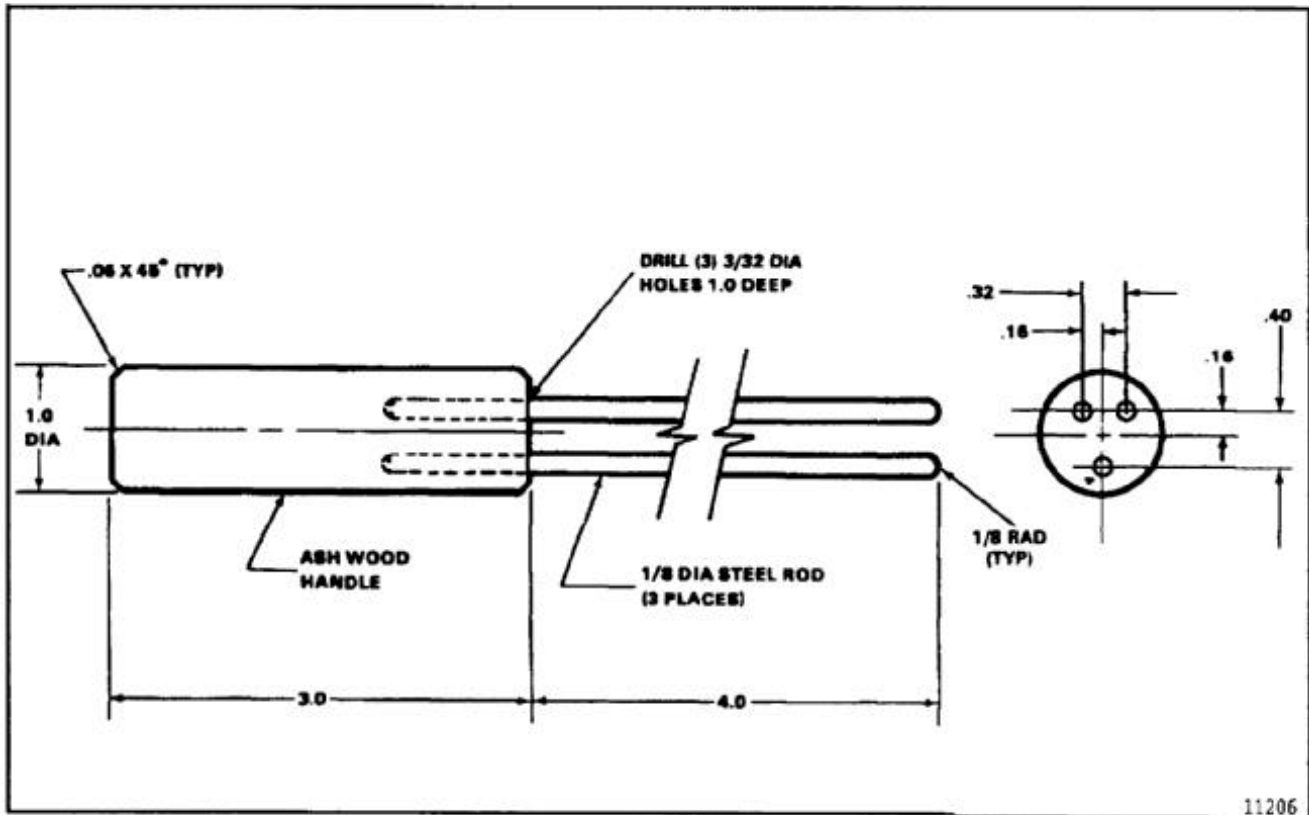
END OF TASK



**NOTES:**

1. FABRICATE FROM 4130 STEEL (E369.1) AND WHITE ASH WOOD (E160.2).
2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES:

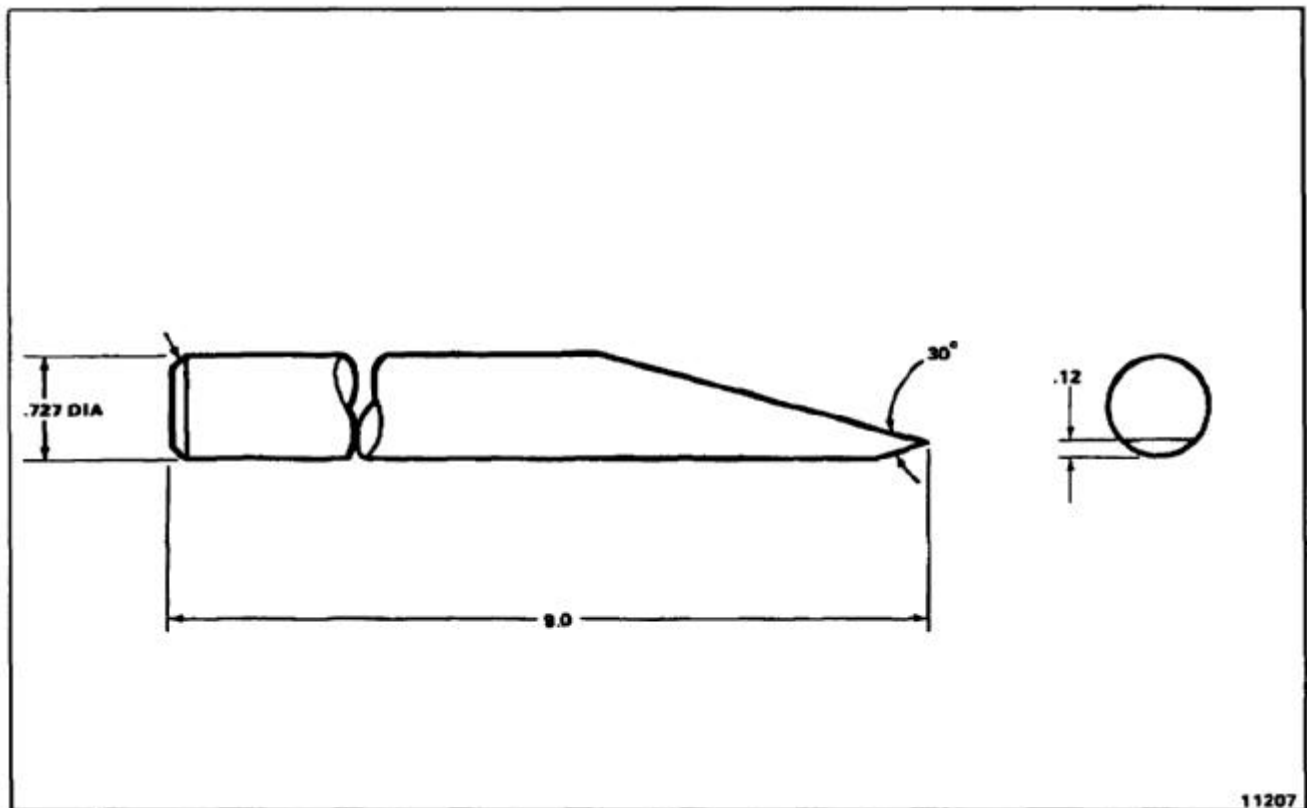
.X = ± .1  
 ±.XX = .02



END OF TASK

**NOTES:**

1. FABRICATE FROM NYLON OR DELRIN PLASTIC (E160.3).
2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES:  
    .X =  $\pm .1$   
     $\pm .XX = .03$   
     $\pm .XXX = .010$   
  
    ANGLES:  $\pm 2^\circ$
4. BREAK ALL EDGES TO .04 MIN.



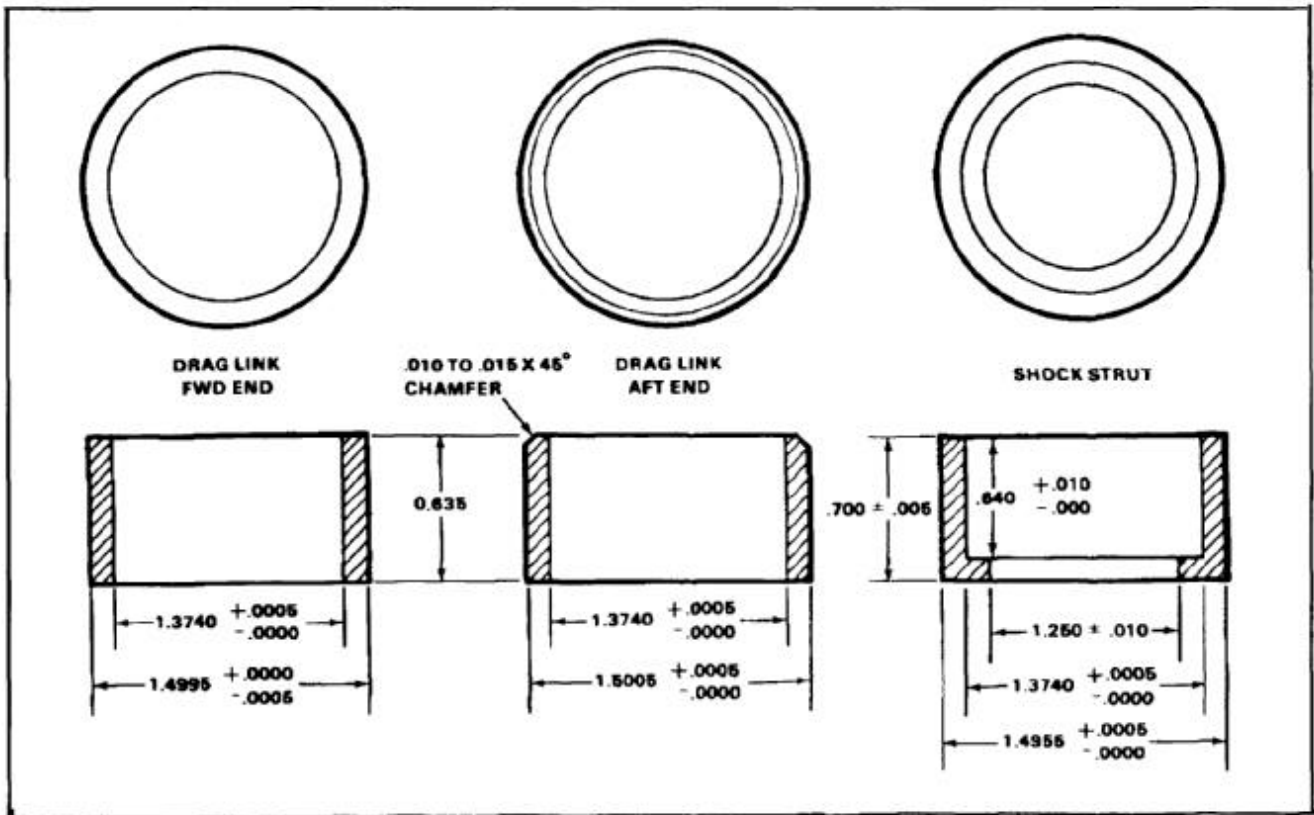
END OF TASK

**PREFERRED**

1. ALL DIAMETERS CONCENTRIC WITHIN 0.005 (TIR) TOTAL INDICATOR READING.
2. MACHINE FINISH 32 AA.
3. CADMIUM PLATE PER QQ-P-416.
4. HEAT TREAT 145L2330-2, -3 TO 150-170 KSI UTS. HEAT TREAT SK31250 TO 180-200 KSI UTS.
5. MATERIAL: 4340 STEEL BAR PER AMS 6415 OR MIL-S-5000 (E366.1).
6. BREAK SHARP EDGES 0.005 MAX.

**ALTERNATE**

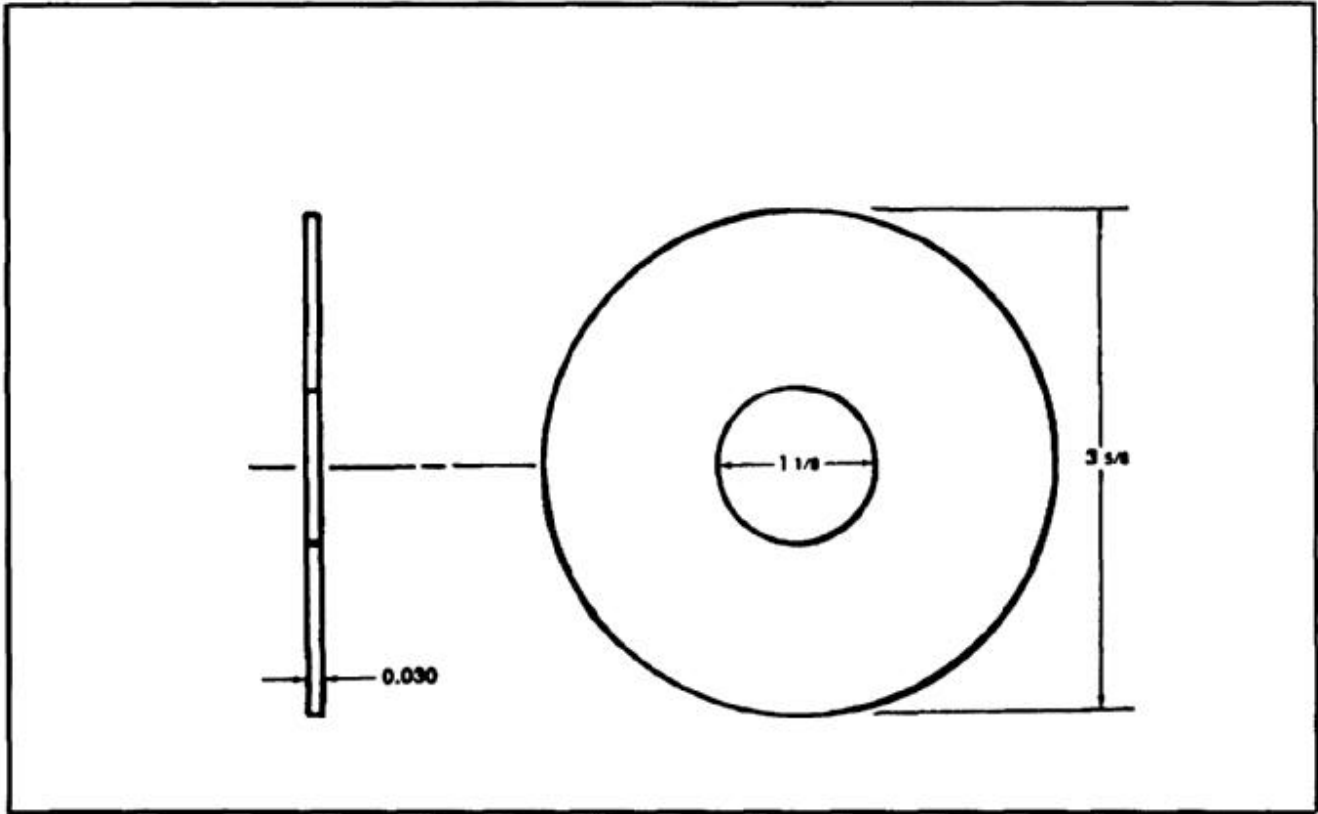
1. MATERIAL: 4340 CONDITION N.
2. ALL DIAMETERS CONCENTRIC WITHIN 0.005 TIR.
3. BREAK SHARP EDGES 0.005 MAX.



END OF TASK

**NOTES:**

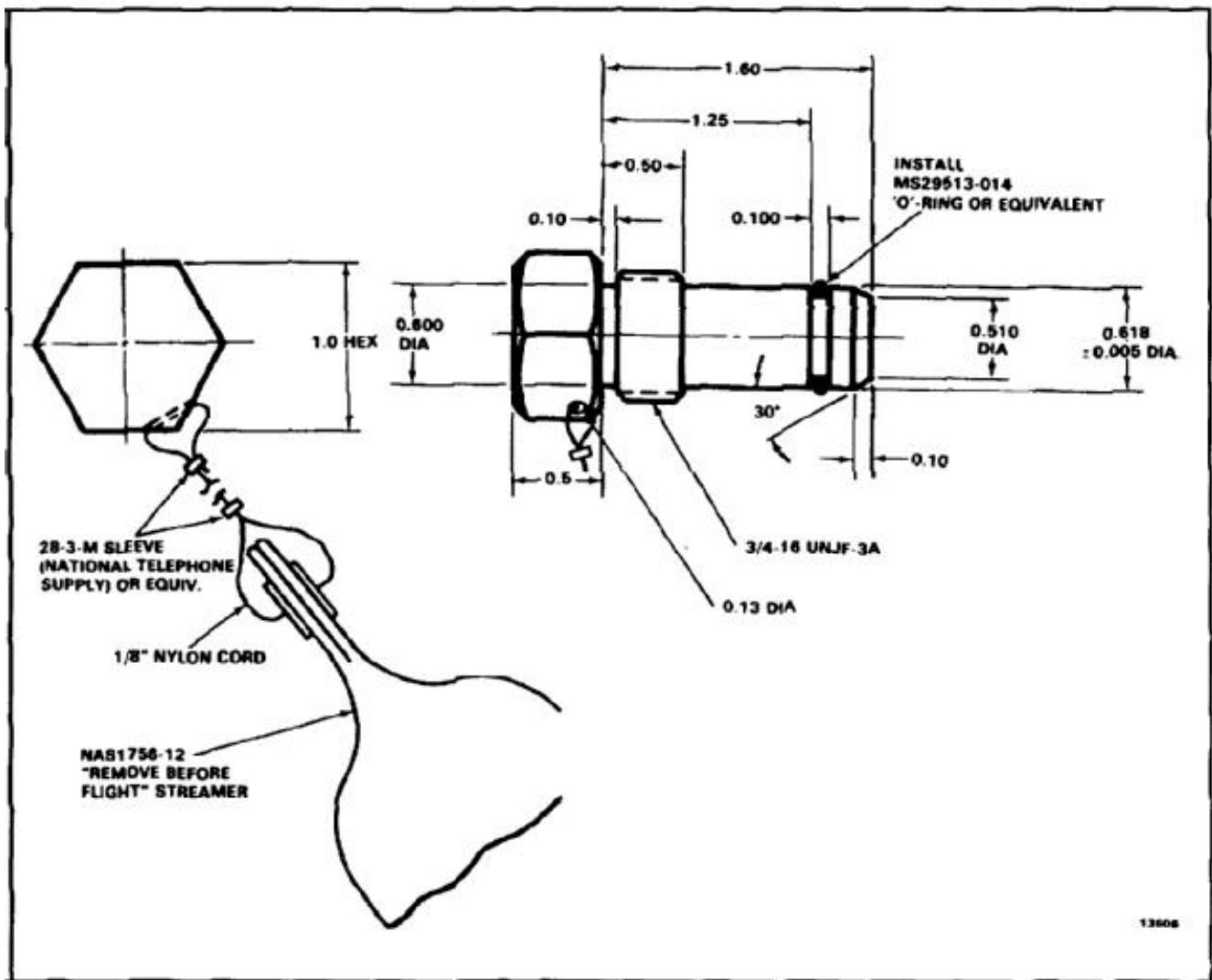
1. FABRICATE FROM 9330-00-421-4218.
2. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

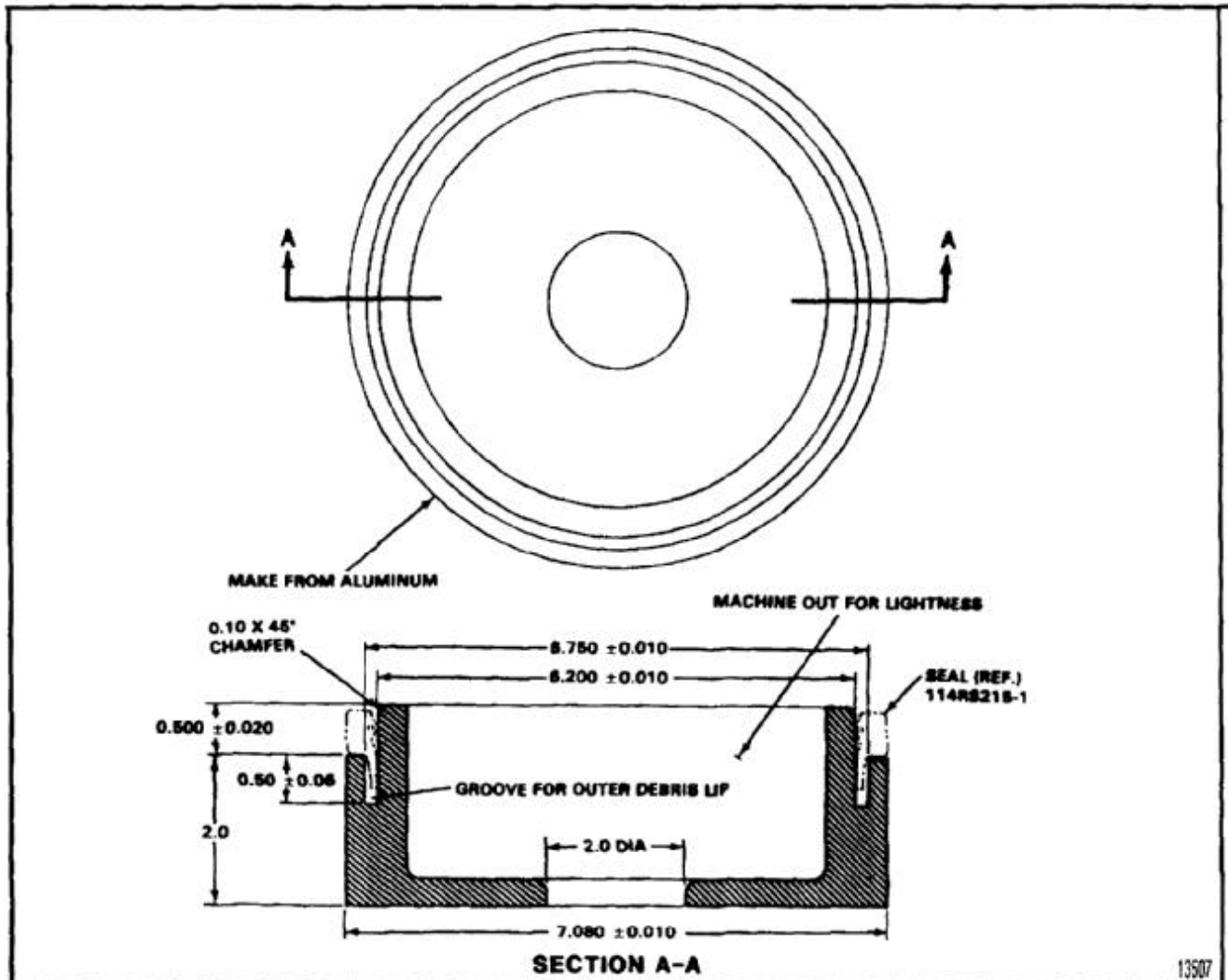
1. THIS SKETCH IS FOR LOCAL MANUFACTURE OF A PLUG TO BE USED IN PLACE OF 114P5S09-1 DRAIN VALVE.
2. BREAK ALL SHARP EDGES.
3. TOLERANCES:  
 $\pm.X$  0.1  
 $\pm.XX$  0.03  
 $\pm.XXX$  0.010  
 EXCEPT AS NOTED.
4. PLUG MATERIAL: 2024-T3 AL ALY OR EQUIVALENT.
5. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

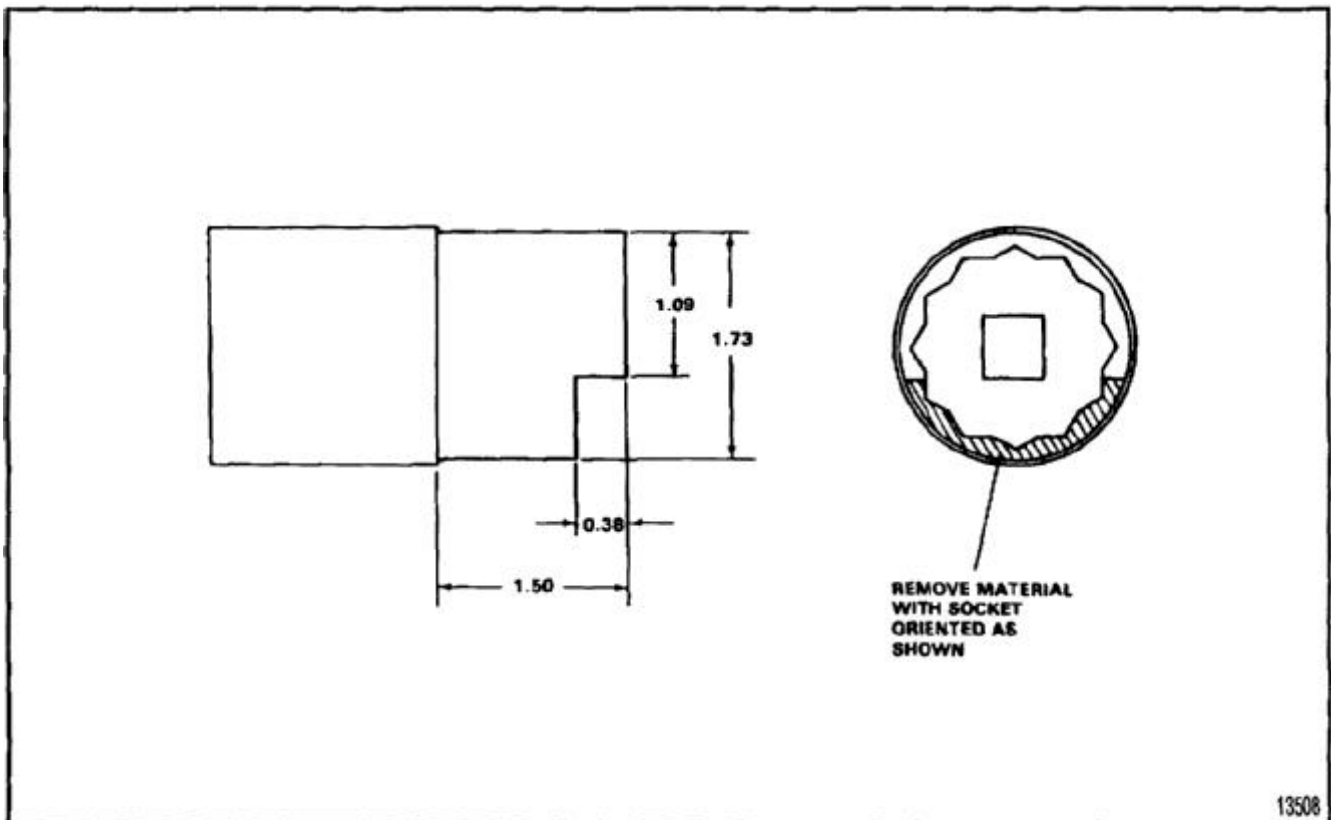
1. FABRICATE FROM ALUMINUM.
2. ALL DIMENSIONS IN INCHES.
3. BREAK ALL SHARP EDGES 0.030 TO 0.060.



END OF TASK

**NOTES:**

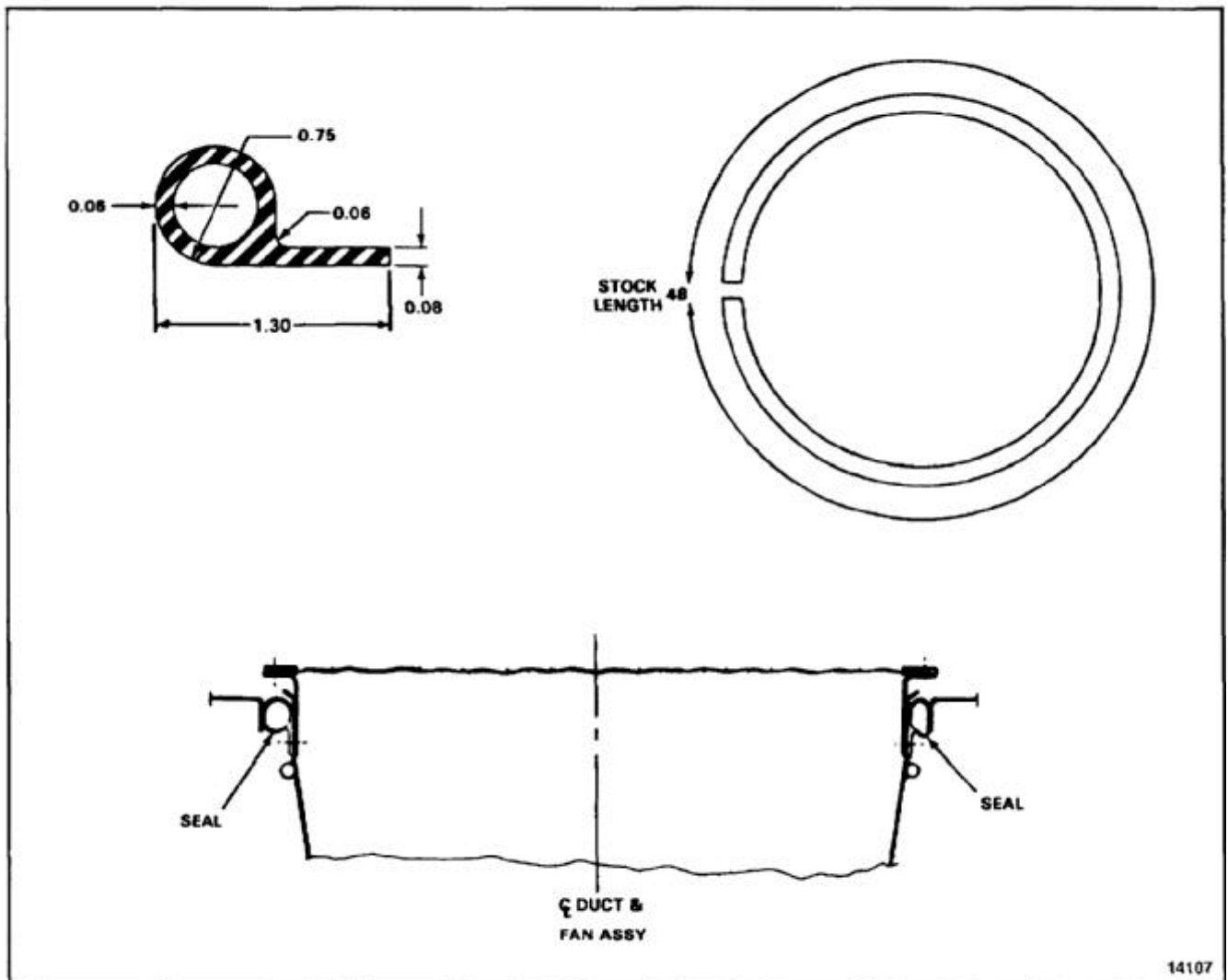
1. FABRICATE FROM A DEEP, 12 POINT, 1-3/8 INCH SOCKET WITH 1/2 INCH DRIVE.
2. ALL DIMENSIONS IN INCHES.
3.  $\pm$ MACHINE DIMENSIONS TO 0.03 INCH.
4. REMOVE ALL SHARP EDGES.



END OF TASK

**NOTES:**

1. BAC1521-350 SILICONE RUBBER.  
FABRICATED FROM ZZ-R-769/19 AND  
ZZ-R-765/GEN.
2. ALL DIMENSIONS IN INCHES.
3. CUT REPLACEMENT SEAL TO SAME LENGTH  
AS ORIGINAL.

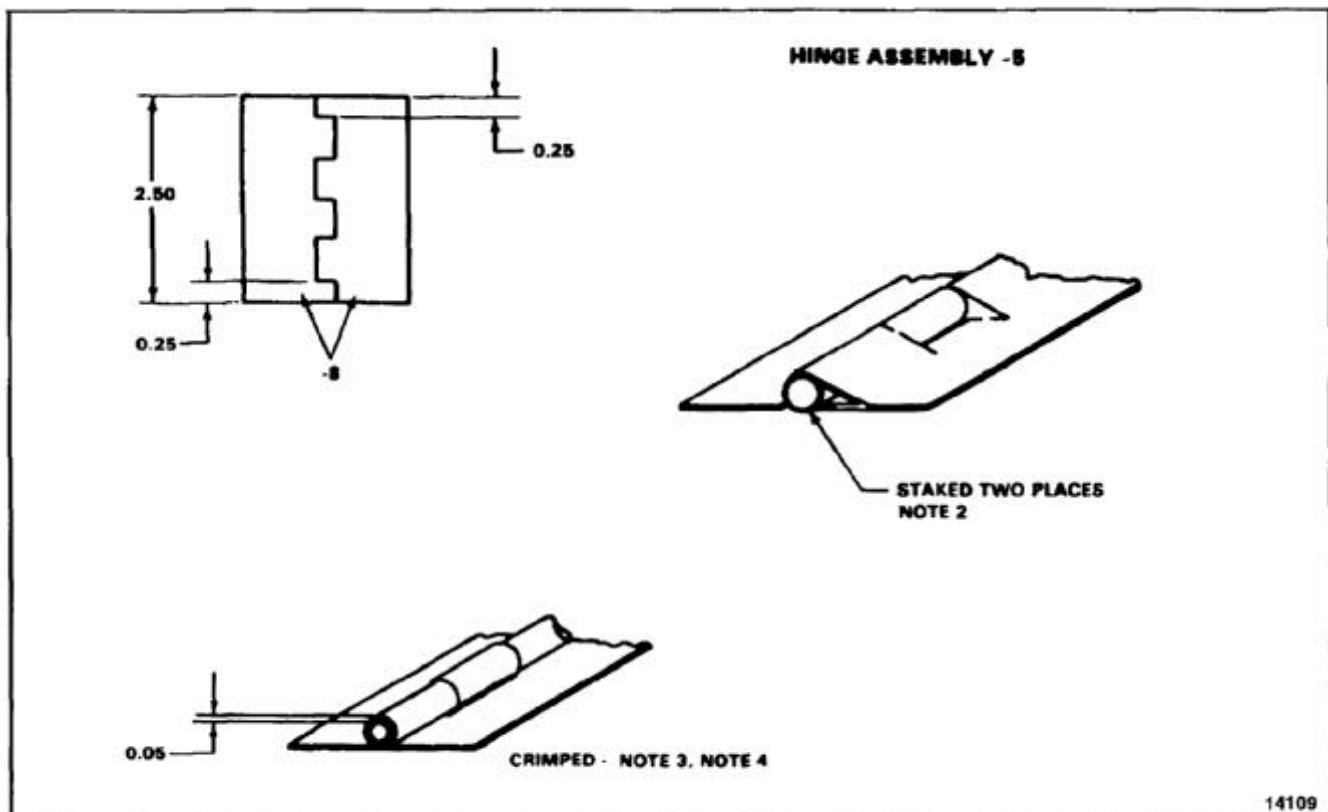


END OF TASK



**NOTES:**

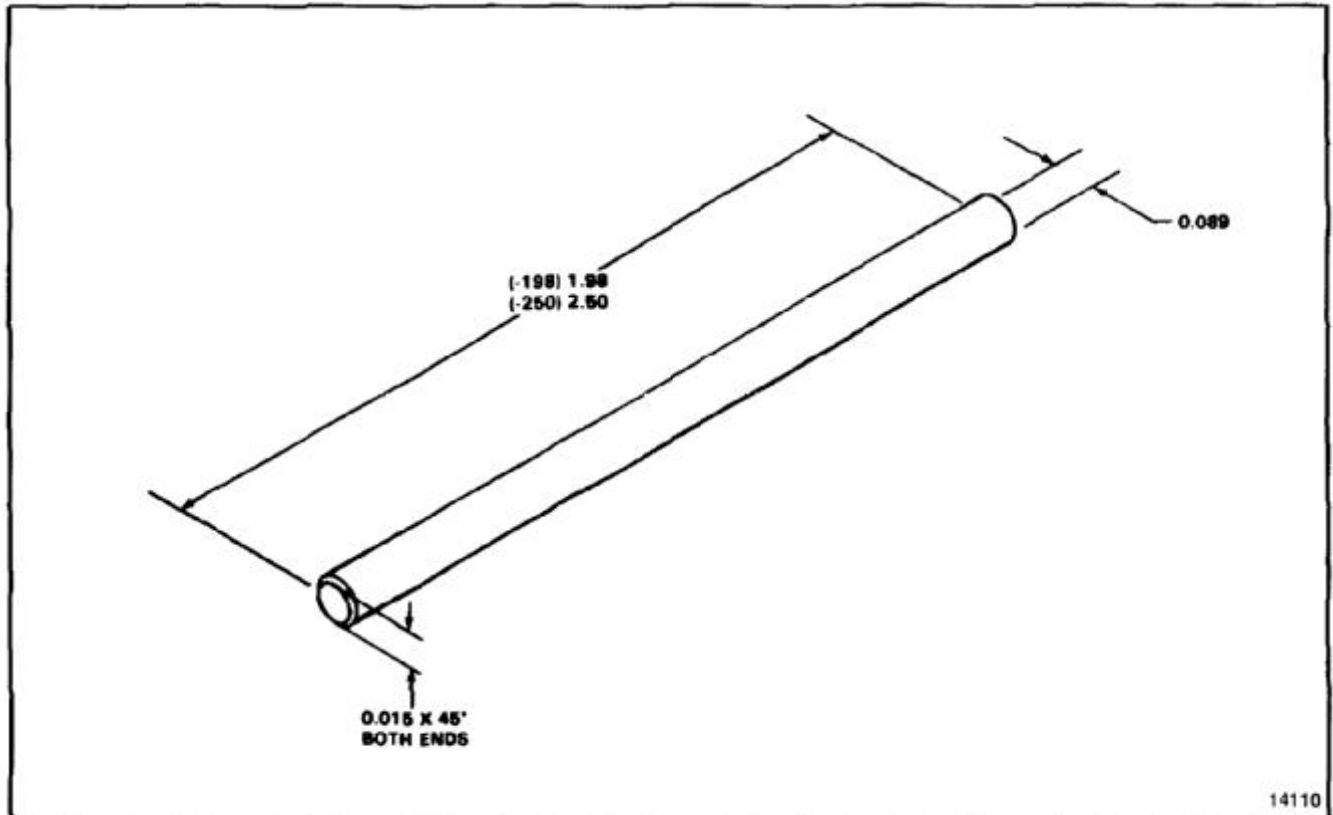
1. FABRICATE FROM MS20001CH6-250.
2. STAKE BOTH ENDS OF HINGE -9 TO SPECIFICATIONS OF MS33540 IF HINGE PIN IS MADE FROM MS20253P2-250.
3. CRIMP END OF EACH HINGE HALF 0.25 INCH TO AN OPENING OF 0.05 IF PIN IS MADE FROM MS20253P2-198.
4. LEAVE AN OPENING IN CRIMPED HOLE SO THAT IT CAN SPREAD IF NECESSARY TO REMOVE PIN.
5. REFER TO E-60.
6. ALL DIMENSIONS IN INCHES.
7. FINISH ENDS OF PIN WITH ZINC CHROMATE PRIMER (E-290).
8. FINISH HINGE TO MIL-L-19538 AND MIL-F-1824.



END OF TASK

**NOTES:**

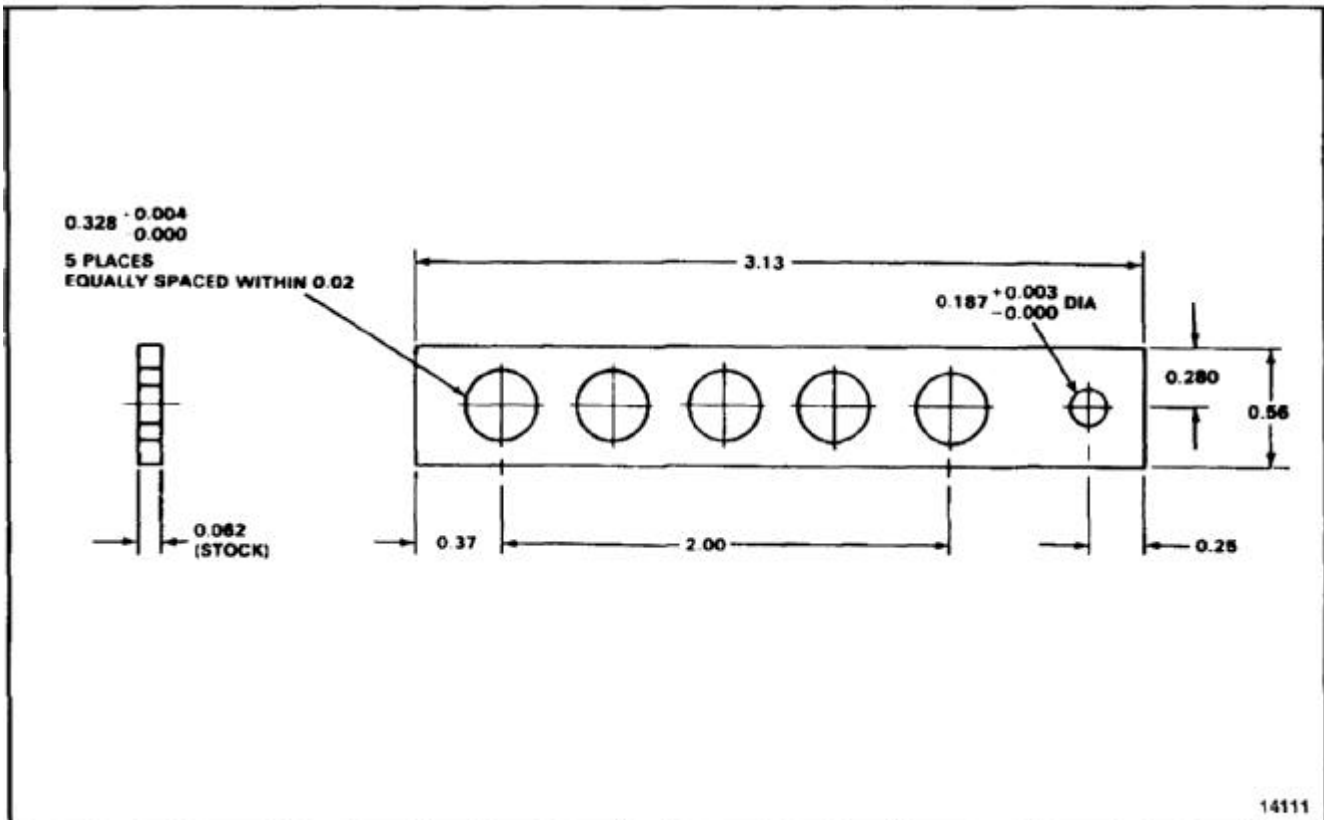
1. FABRICATE FROM MS20253P2-198 (PREFERRED) OR MS20253P2-250.
2. REFER TO E-59.
3. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

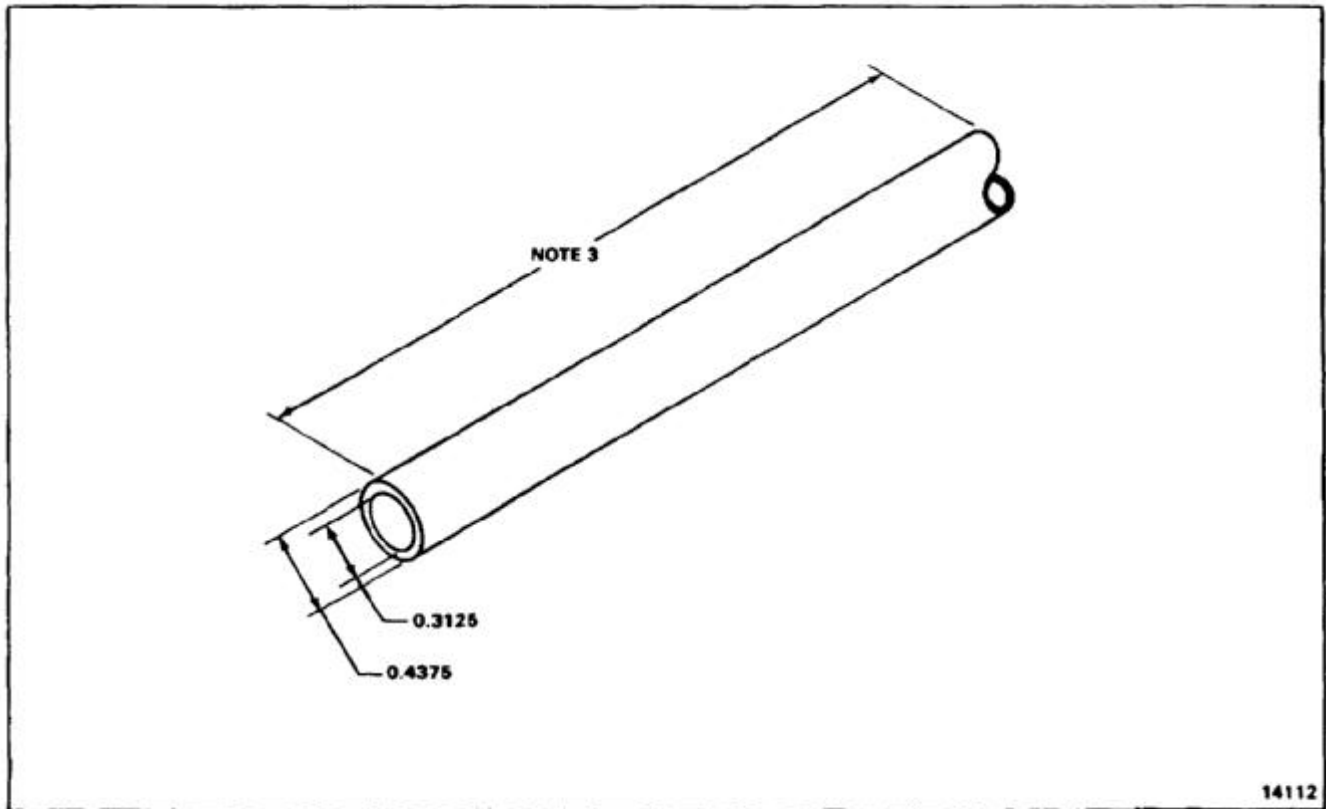
1. FABRICATE FROM STOCK MATERIAL 301 CRES SHEET MIL-S-5059.
2. ALL DIMENSIONS IN INCHES.
3. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM RUBBER TUBING MIL-R-6855, CLASS II GR40.
2. ALL DIMENSIONS IN INCHES.
3. LENGTH OF REPLACEMENT IS SAME AS ORIGINAL PART.
4. STOCK SIZE 0.437 OD X 0.312 ID X 15.

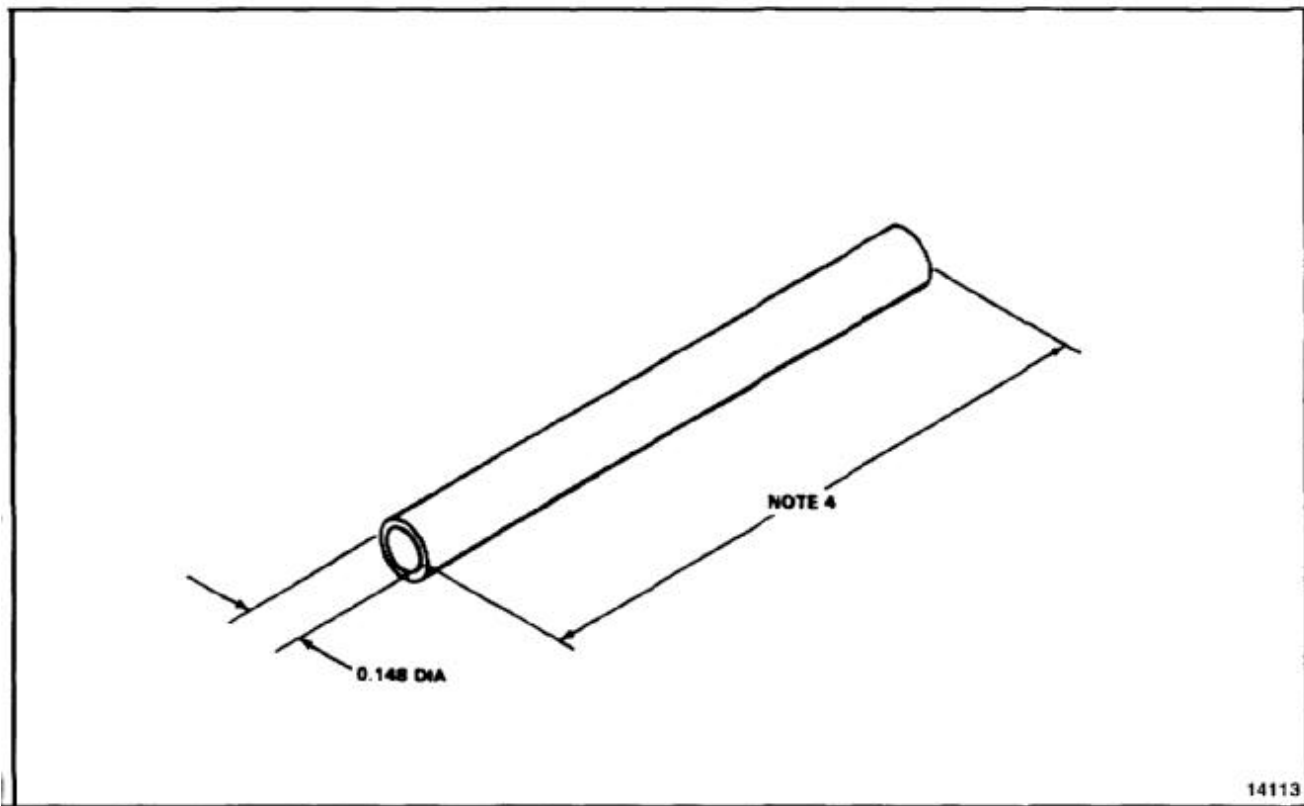


14112

END OF TASK

**NOTES:**

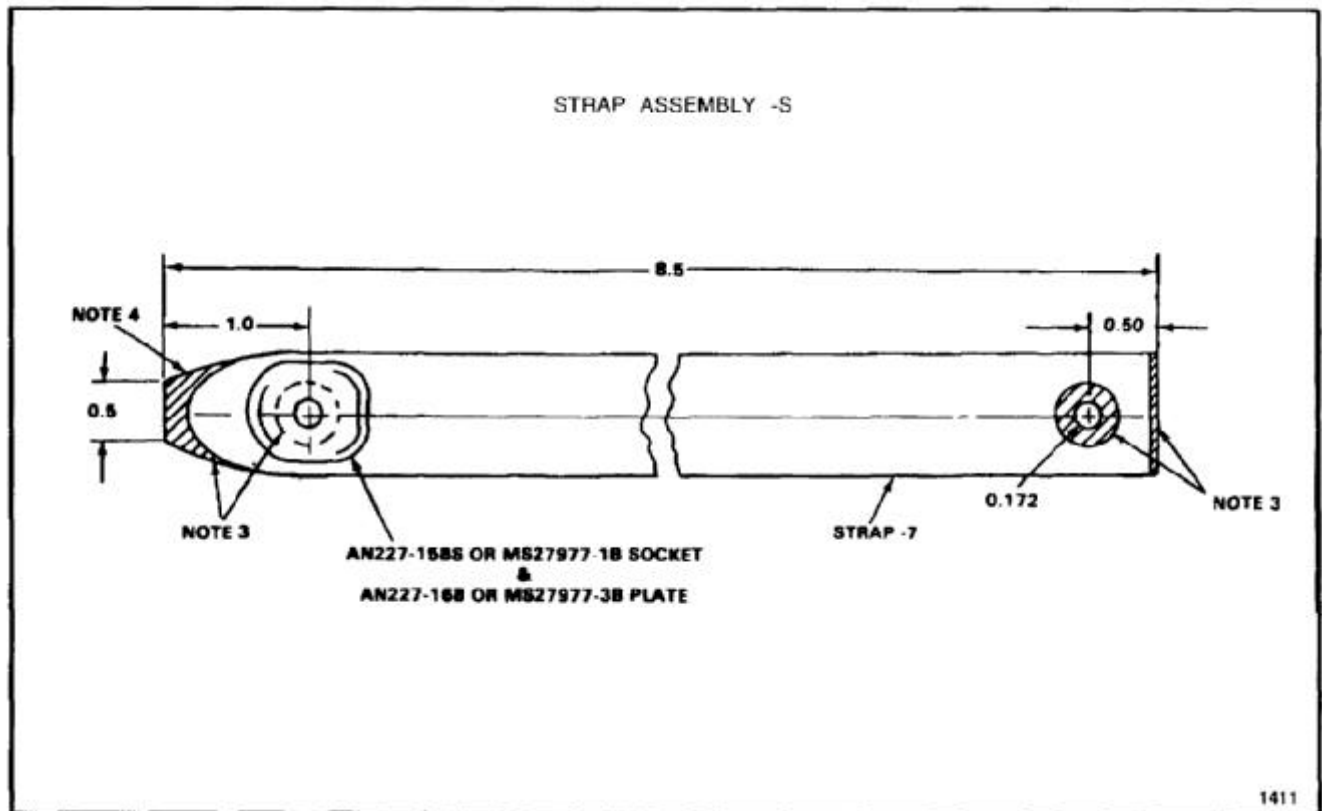
1. FABRICATE FROM 321 CRES ROUND SEAMLESS TUBING MIL-T-8606 TYPE I COND. A.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.148 DIA X 0.015 WALL THICKNESS X 104 LENGTH.
4. LENGTH OF REPLACEMENT IS SAME AS ORIGINAL PART.



END OF TASK

**NOTES:**

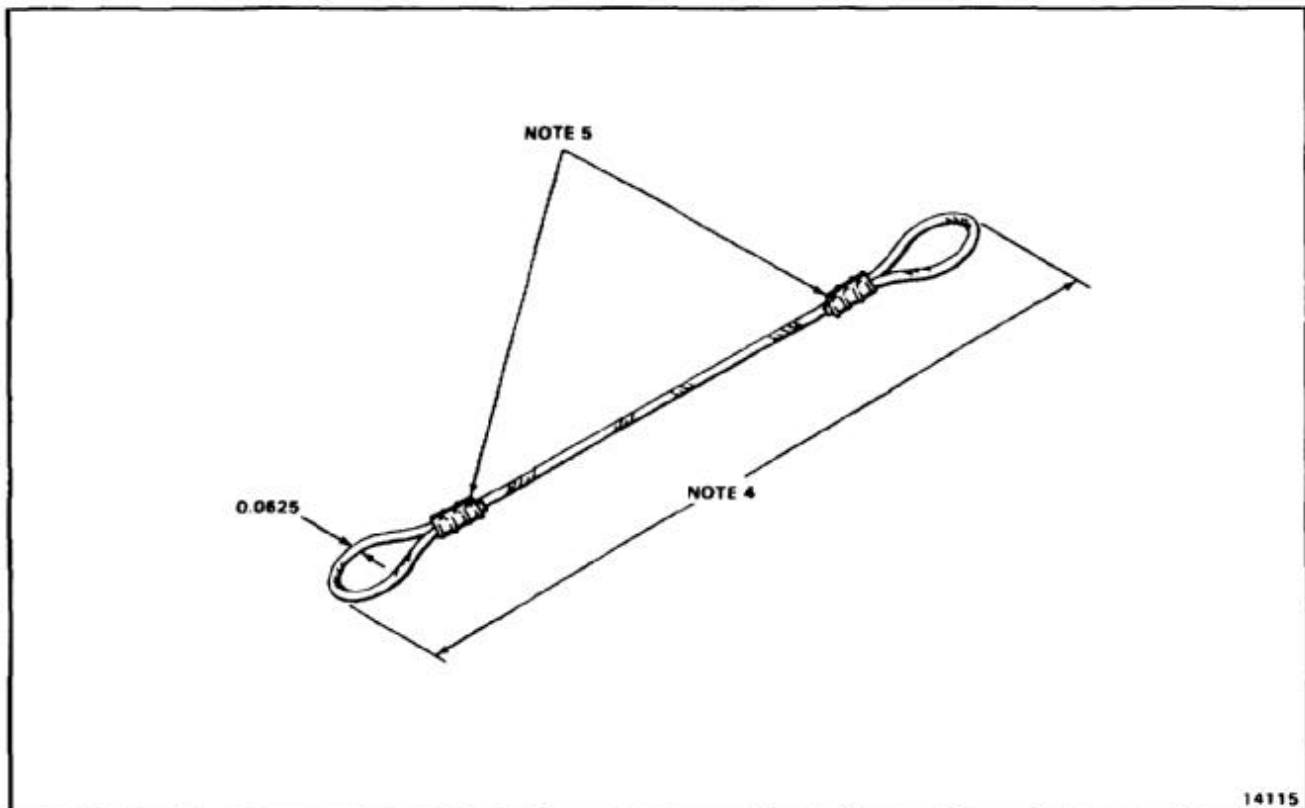
1. FABRICATE FROM NYLON WEB 0.030 X 1.0 X 8.6, MIL-W-4088 TYPE II.
2. ALL DIMENSIONS IN INCHES.
3. SEAR END TO PREVENT FRAYING.
4. THIS RADIUS IS OPTIONAL.



END OF TASK

**NOTES:**

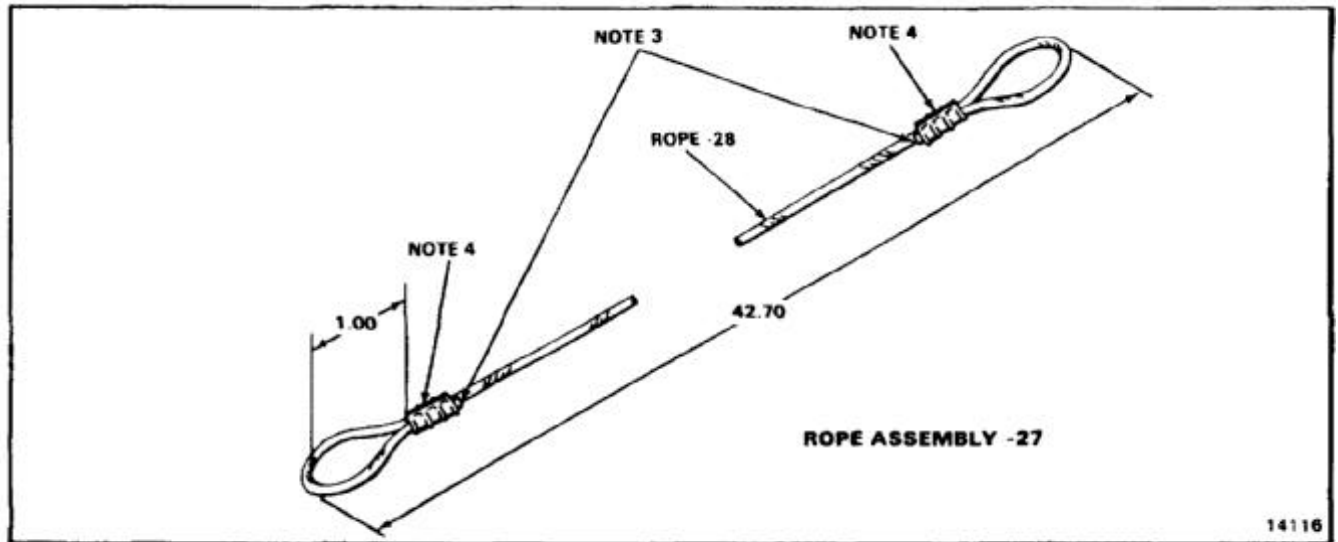
1. FABRICATE FROM 1 X 19 CRES STEEL CABLE MIL-C-5424.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.0625 X 8.
4. LENGTH OF REPLACEMENT IS SAME AS ORIGINAL.
5. SWAGE SLEEVE 18-1-C IN ACCORDANCE WITH SPEC MIL-T-6117.



END OF TASK

**NOTES:**

1. FABRICATE FROM NYLON ROPE MIL-R-17343  
0.1875 DIAMETER X 50 LENGTH.
2. ALL DIMENSIONS IN INCHES.
3. SEAR END OF ROPE.
4. CRIMP TUBE 145E4019-29 ON ROPE.
5. REFER TO E-67.

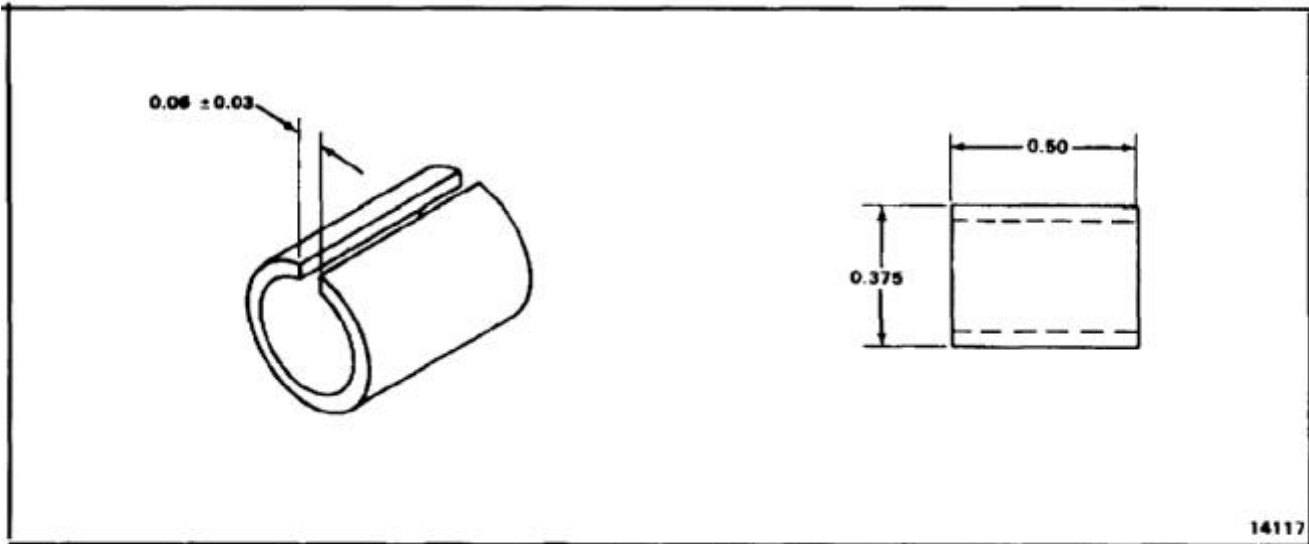


END OF TASK



**NOTES:**

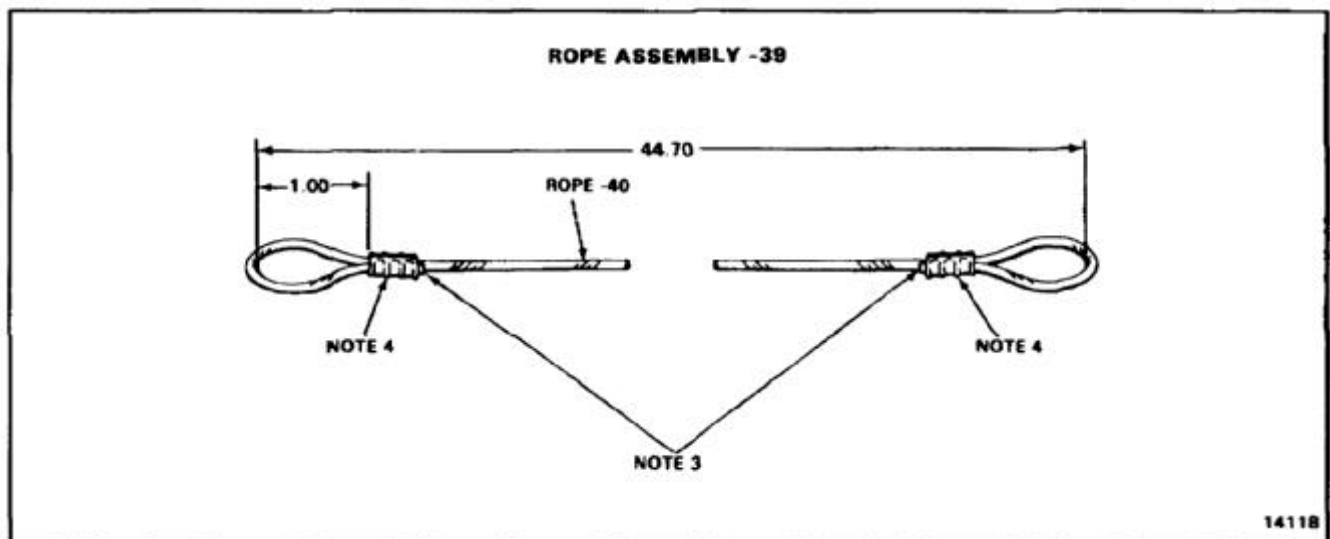
1. FABRICATE FROM ALUMINUM ALLOY TUBE  
6061-0 MIL-T-7081.
2. STOCK SIZE 0.035 WALL THICKNESS X 0.375  
DIA X 0.50 LENGTH.
3. ALL DIMENSIONS IN INCHES.
4. REFER TO E-66.
5. REFER TO E-68.



END OF TASK

**NOTES:**

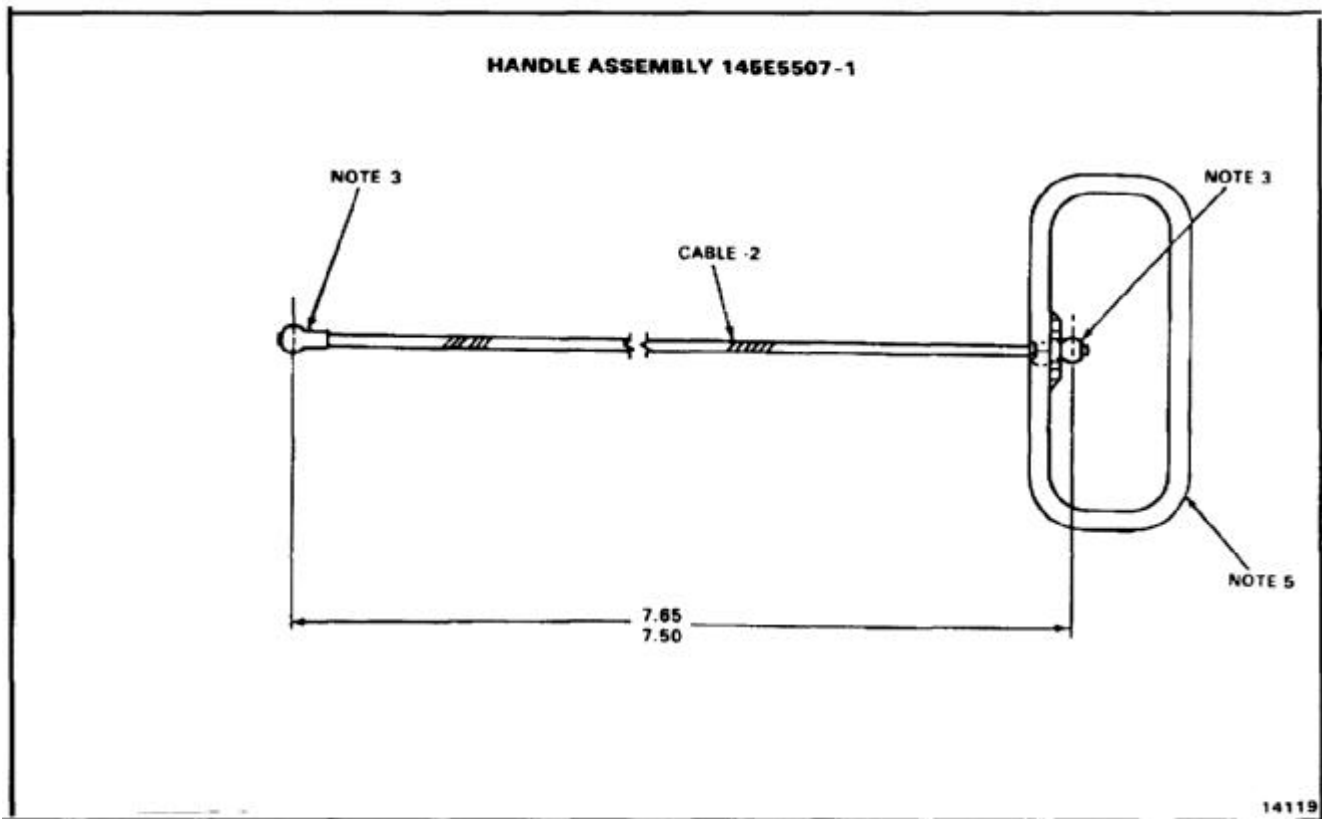
1. FABRICATE FROM NYLON ROPE MIL-R-17343  
0.1875 DIAMETER X 52 LENGTH.
2. ALL DIMENSIONS IN INCHES.
3. SEAR ENDS OF ROPE.
4. CRIMP TUBE 145E4019-29 ON ROPE. APPLY  
REQUIRED PRESSURE TO RETAIN LOOP  
UNDER LIGHT LOAD.
5. REFER TO E-67.



END OF TASK

**NOTES:**

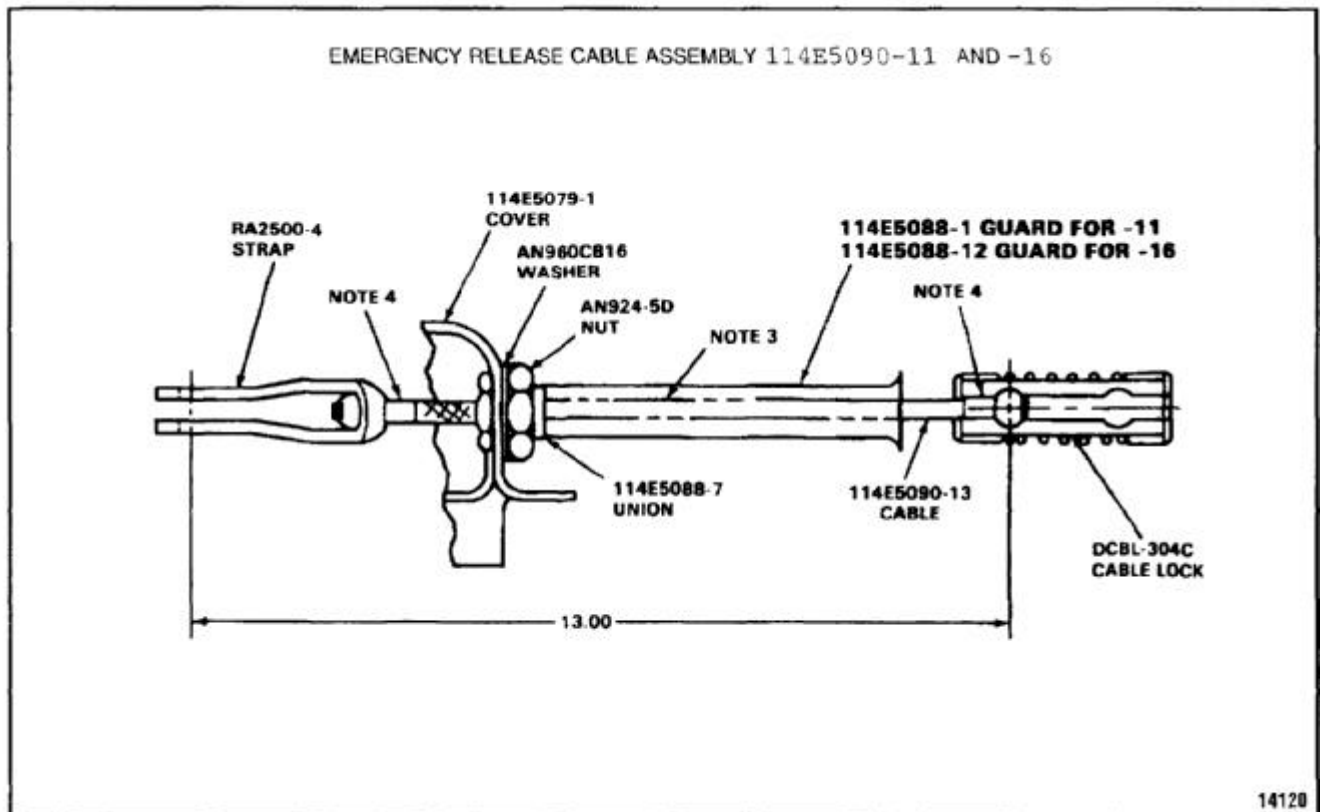
1. FABRICATE CRES STEEL FLEX PREF WIRE ROPE MIL-W-83420.
2. STOCK SIZE 0.125 X 7 X 19 X 8.
3. SWAGE M520664C4 BALL END IN ACCORDANCE WITH SPEC MIL-T-6117.
4. ALL DIMENSIONS IN INCHES.
5. 145E5507-3 WELD HANDLE ASSEMBLY.



END OF TASK

**E-70 EMERGENCY RELEASE CABLE 114E5090-13****E-70****NOTES:**

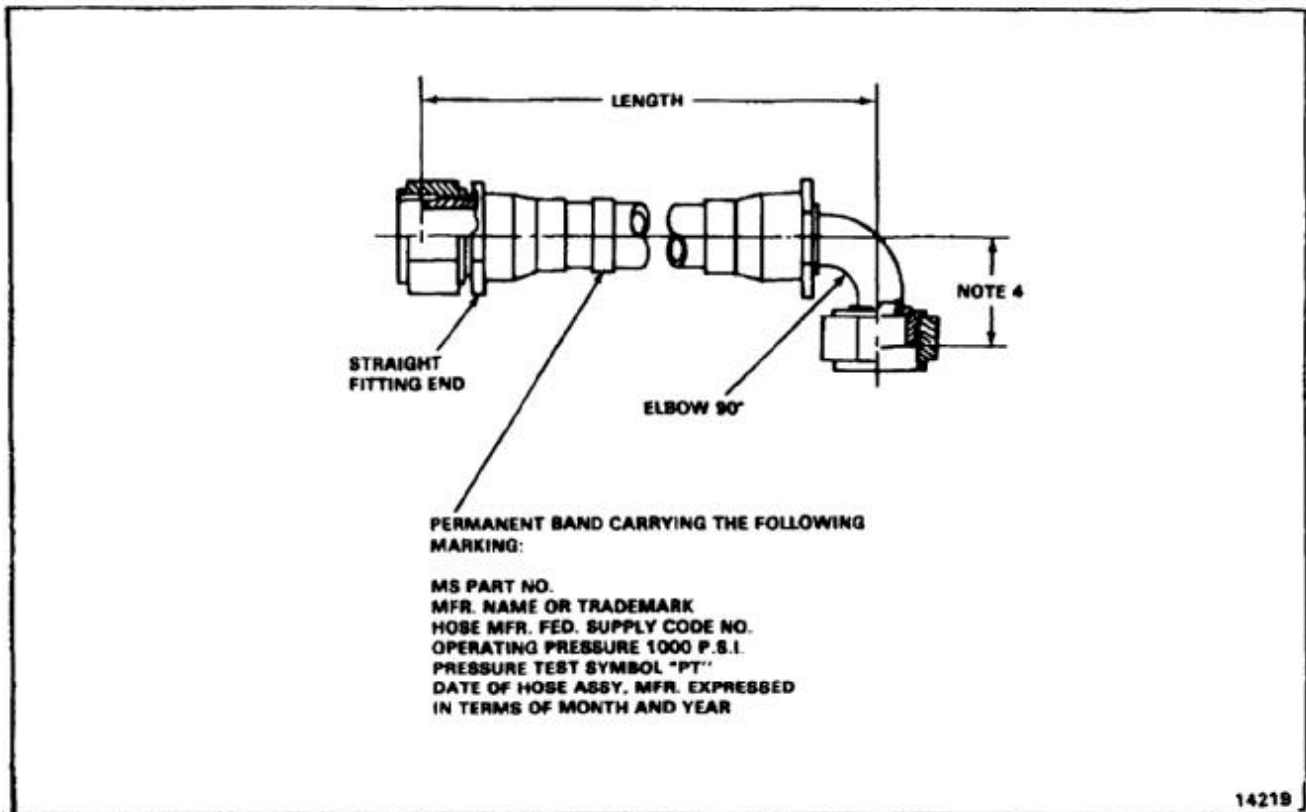
1. FABRICATE FROM CRES STEEL FLEX PREF MIL-C-5424.
2. STOCK SIZE 0.125 DIAMETER X 7 X 19 X 13 LENGTH.
3. LENGTH OF REPLACEMENT CABLE IS SAME AS ORIGINAL.
4. SWAGE AN664C-4 BALL END IN ACCORDANCE WITH SPEC MIL-T-6117.
5. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

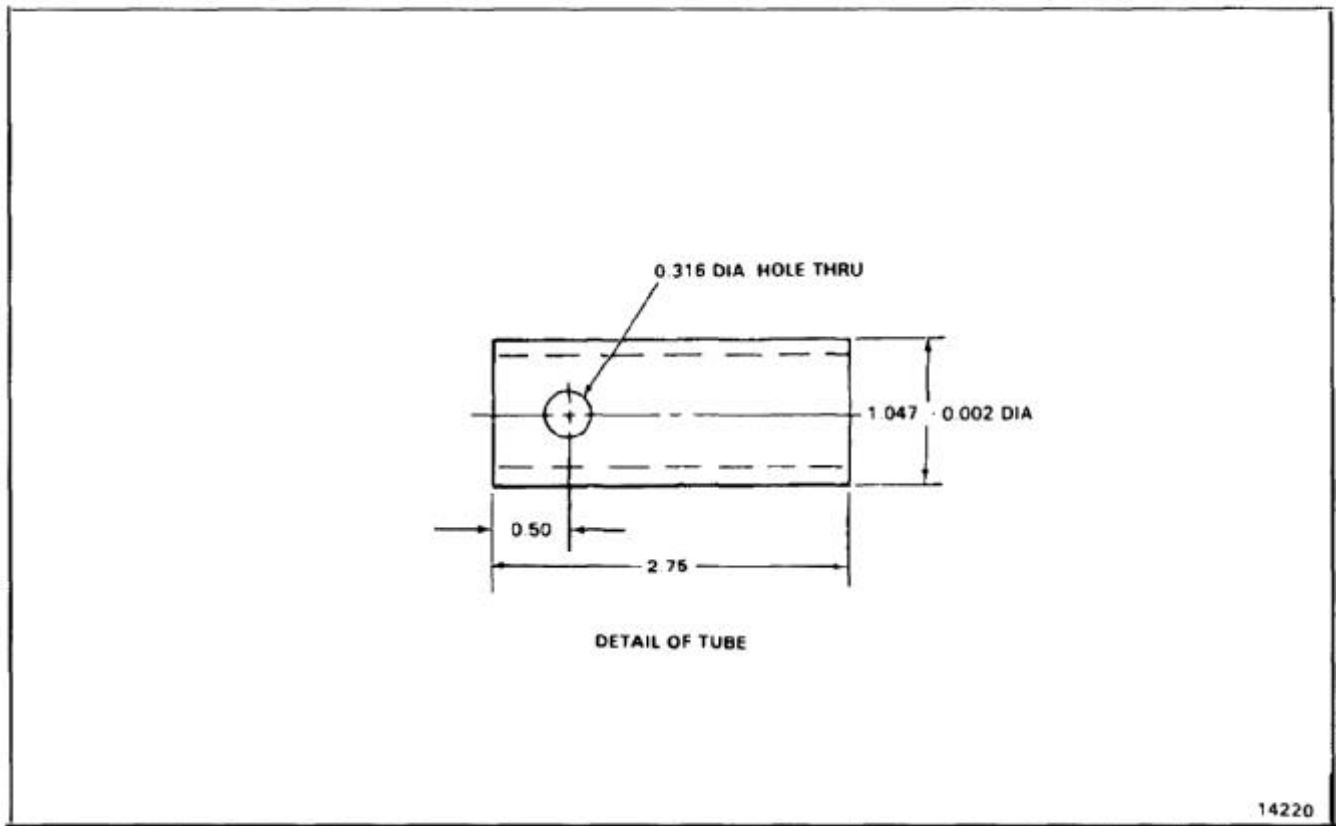
1. FABRICATE FROM NSN 4720-00-923-0399.
2. ALL DIMENSIONS IN INCHES.
3. SIZE 0.25 OD X 0.21875 ID X 46 LENGTH  
STRAIGHT FITTING END  
°(NSN 4730-00-948-9314) TO ELBOW 90°  
FLARELESS (NSN 4730-00-949-1656).
4. 0.660 MINIMUM 0.956 MAXIMUM REACH.



END OF TASK

**NOTES:**

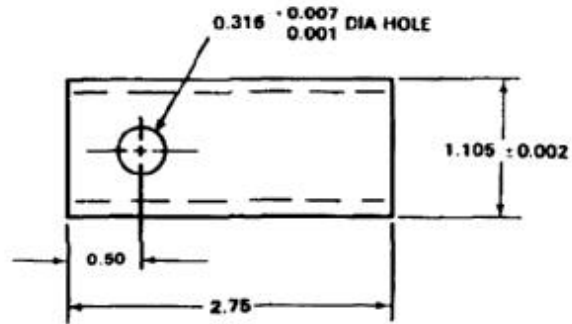
1. FABRICATE FROM 7075-T6 SEAMLESS ALUMINUM ALLOY TUBE.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 1.125 OD X 0.125 WALL THICKNESS X 3.0 LENGTH.



END OF TASK

**NOTES:**

1. FABRICATE FROM 7075-T6 SEAMLESS ALUMINUM ALLOY TUBE.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 1.125 OD X 0.095 WALL THICKNESS X 3.0 LENGTH.
4. FINISH AS REQUIRED.



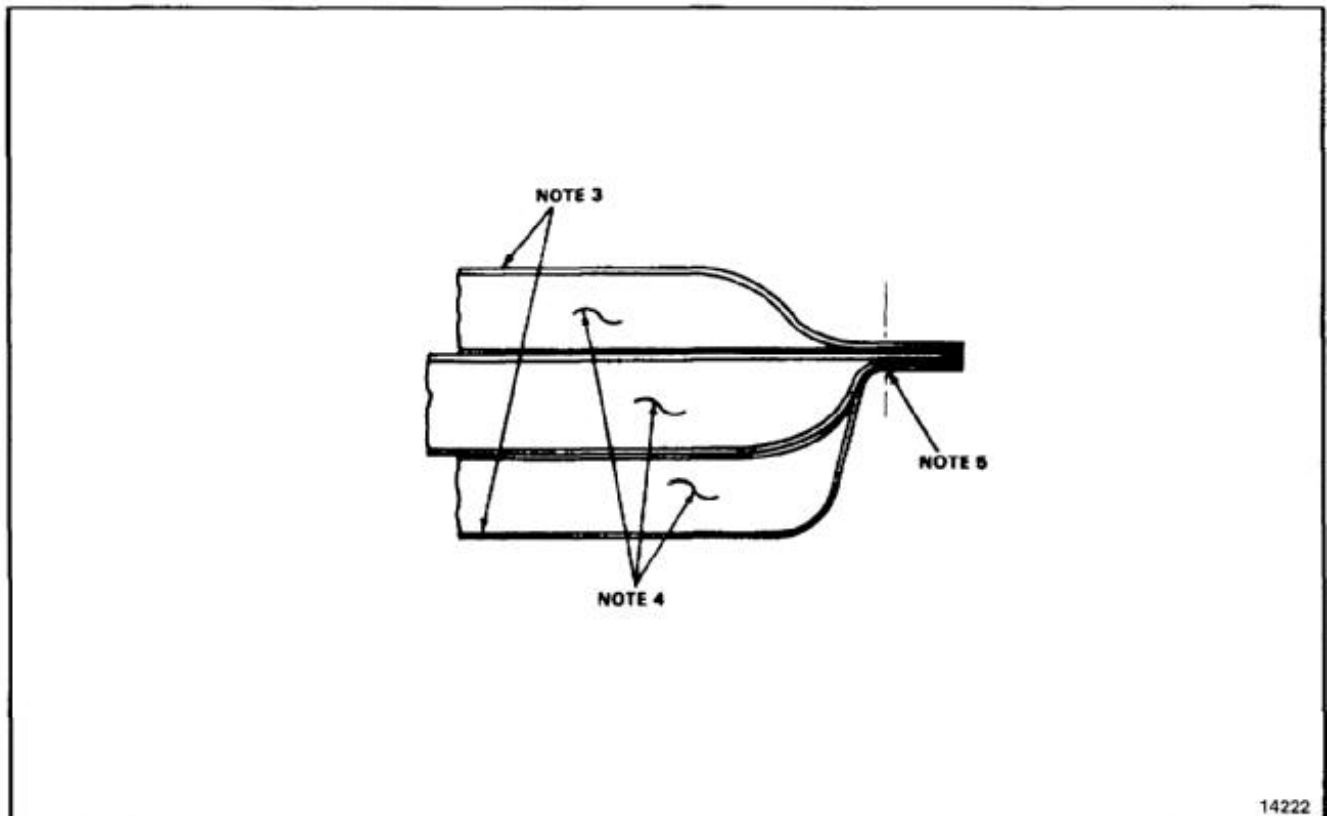
14221

END OF TASK

E-150

**NOTES:**

1. BLANKET STOCK SIZE IS 20.0 X 20.0.
2. ALL DIMENSIONS IN INCHES.
3. TRIM CLOTH IS IMPERVIOUS FILM OF VINYL COPOLYMER 0.0015 THICK. REFER TO MIL-P-6264.
4. BLANKET INTERIOR IS THREE LAYERS 0.5 THICK GLASS WOOL BATTS TYPE 1. REFER TO MIL-B-5924.
5. THREAD TO SPECIFICATIONS OF MIL-T-7807. THREAD IS NYLON TYPE 1, CLASS 2, SIZE B.
6. USE OLD BLANKET FOR TEMPLATE.

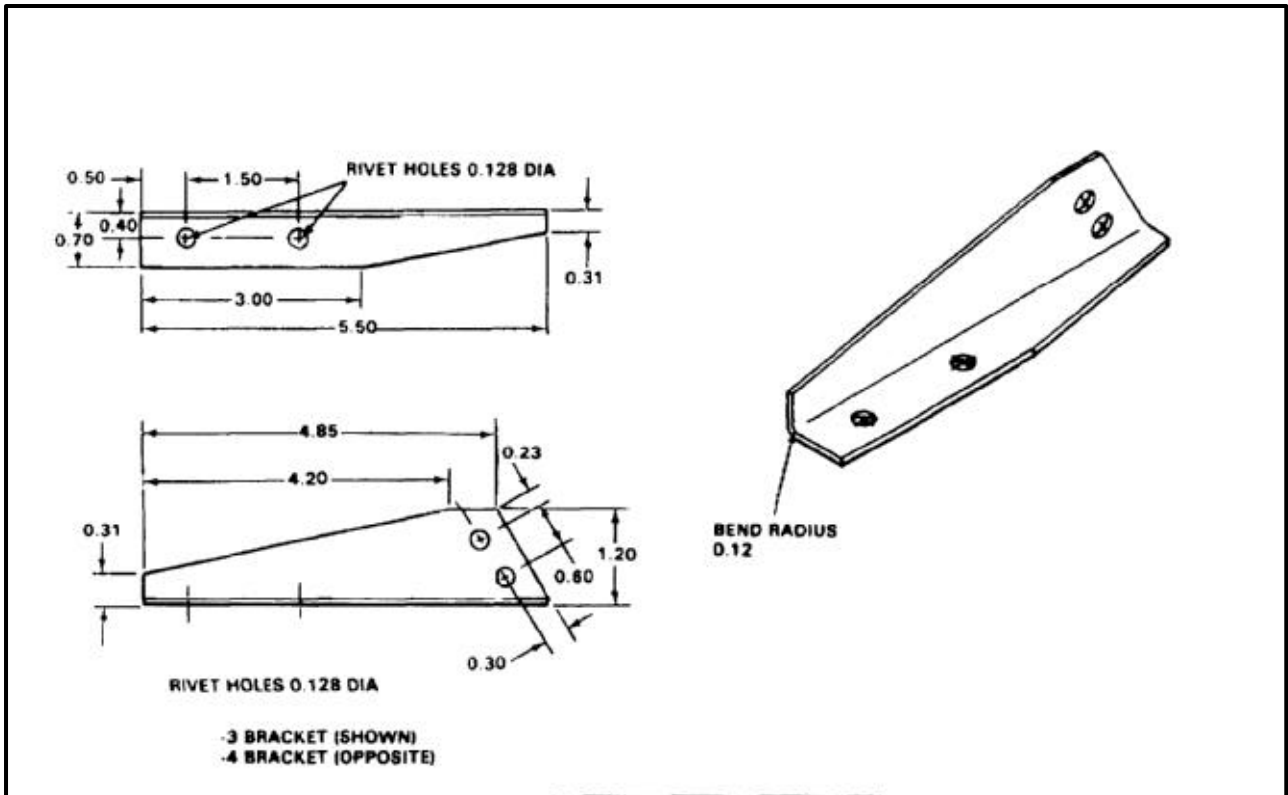


END OF TASK



**NOTES:**

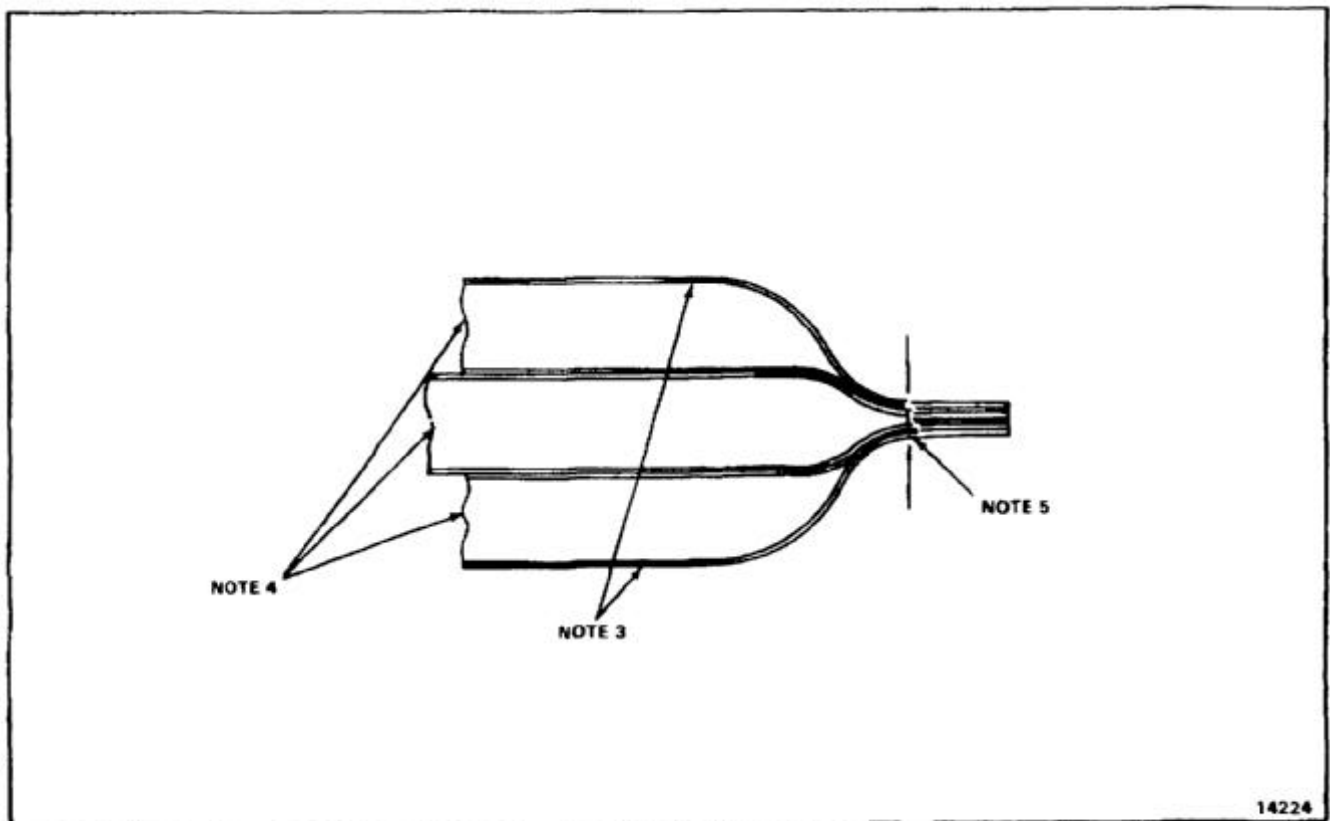
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. BRACKET STOCK SIZE 0.040 X 2.1 X 5.7.
4. FINISH AS REQUIRED.
5. 114E4153-4 IS OPPOSITE TO -3.



END OF TASK

**NOTES:**

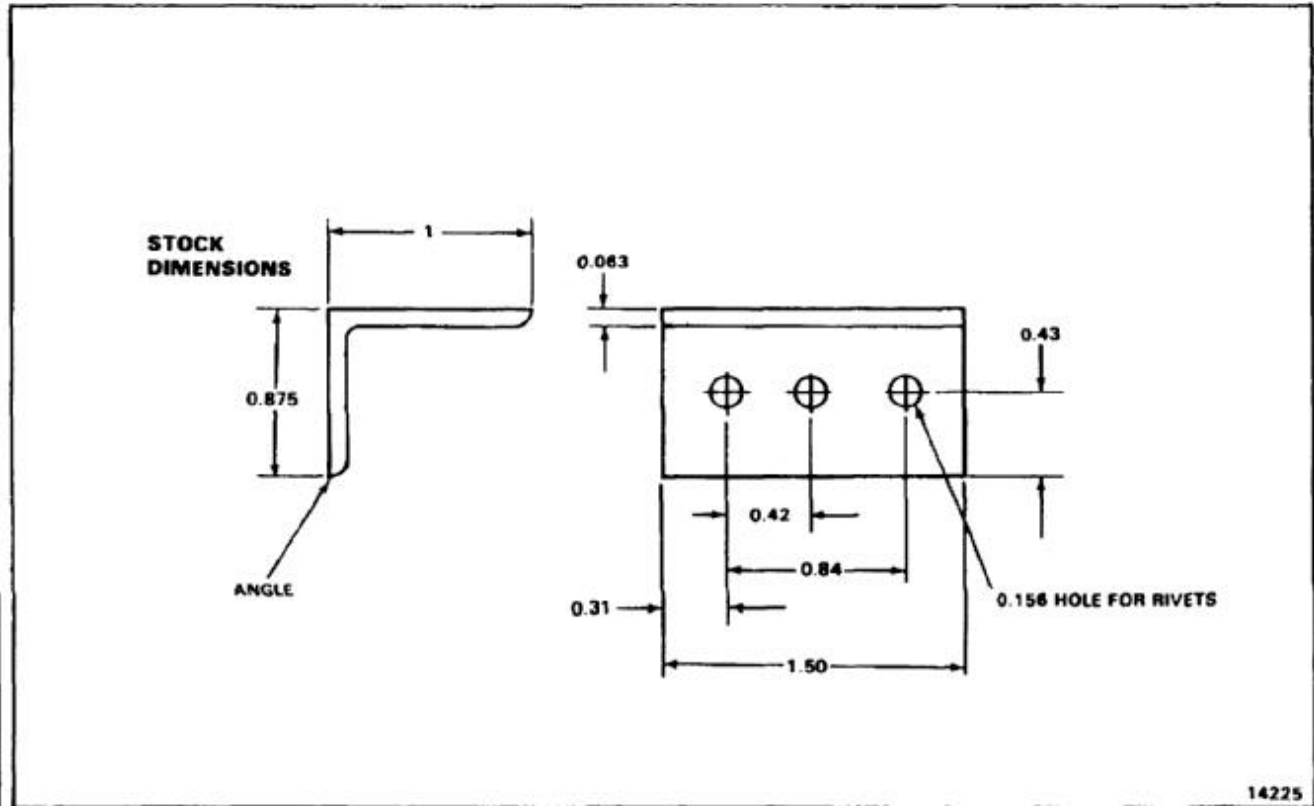
1. BLANKET STOCK SIZE IS 23.0 X 28.5.
2. ALL DIMENSIONS IN INCHES.
3. TRIM CLOTH IS IMPERVIOUS FILM OF VINYL COPOLYMER 0.0015 THICK, TYPE 1. REFER TO MIL-P-6264. BMC 6-8-7A.
4. BLANKET INTERIOR IS THREE LAYERS 0.5 THICK GLASS WOOL BATTS TYPE 1. REFER TO MIL-L-5924.
5. THREAD TO SPECIFICATIONS OF MIL-T-7807. THREAD IS NYLON TYPE 1, CLASS 2, SIZE B.



END OF TASK

**NOTES:**

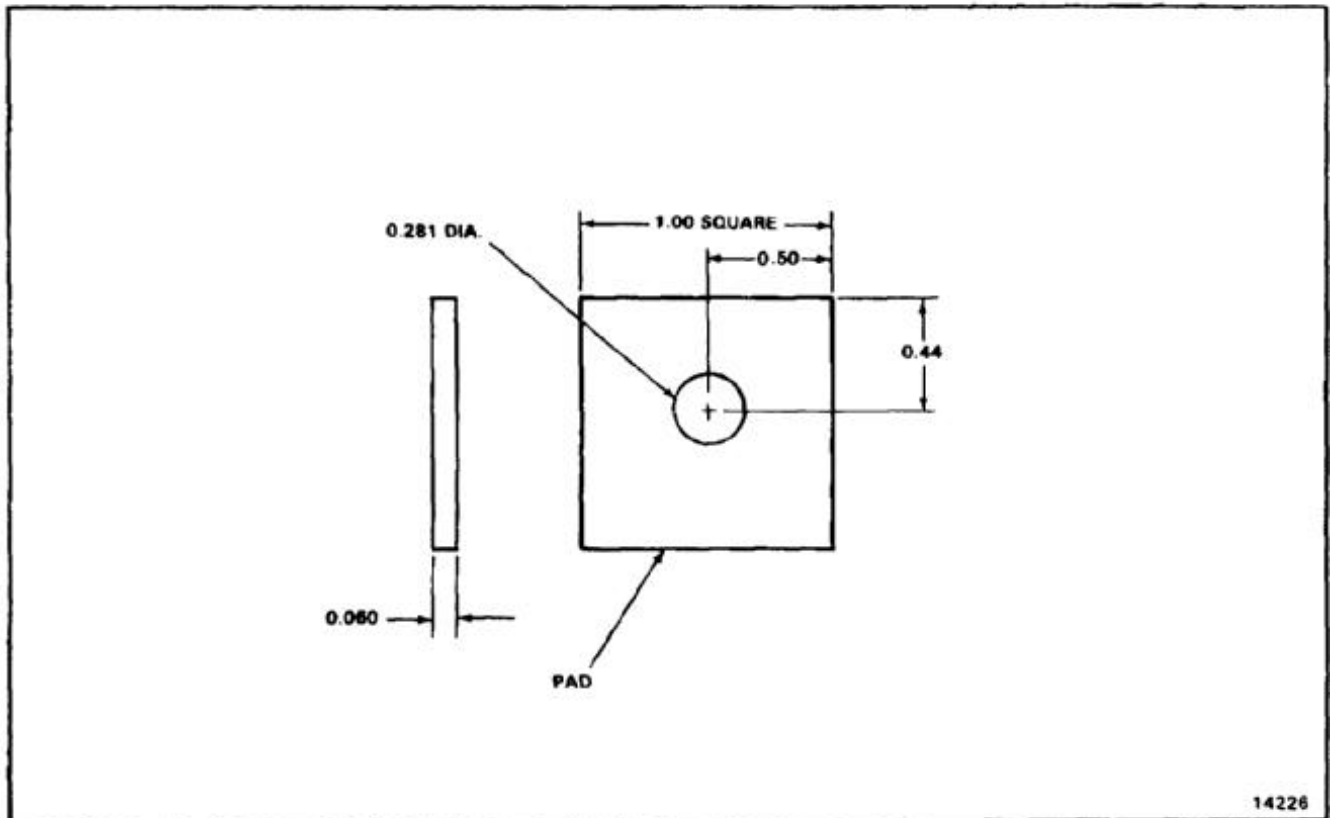
1. FABRICATE FROM ALUMINUM ALLOY 7075-T6511 EXTRUSION.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE AND 10134-1005 X 1.6.
4. FINISH WITH YELLOW ZINC CHROMATE PRIMER (E-290).



END OF TASK

**NOTES:**

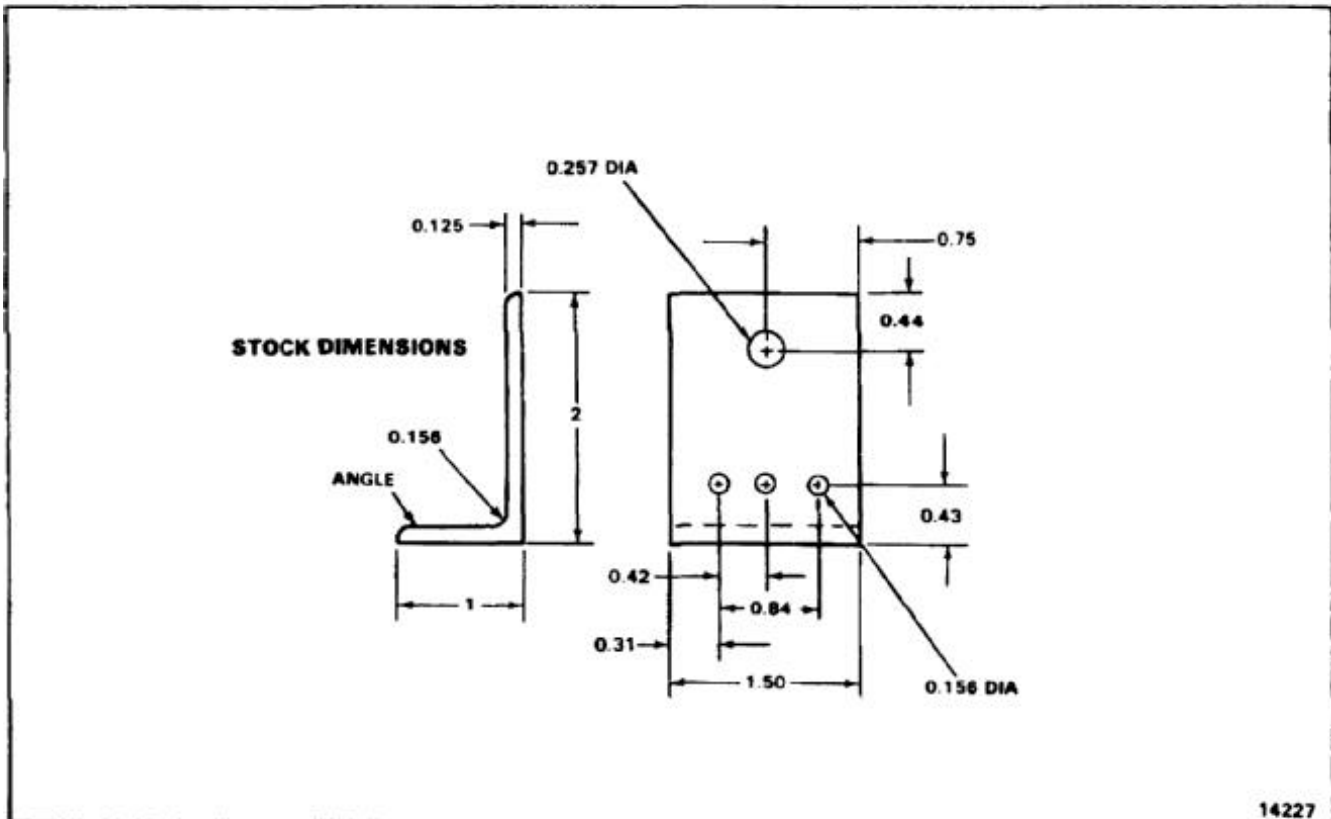
1. FABRICATE FROM SYNTHETIC RUBBER SHEET MIL-R-6855 CL II GR40.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.060 X 1.0 X 1.0.



END OF TASK

**NOTES:**

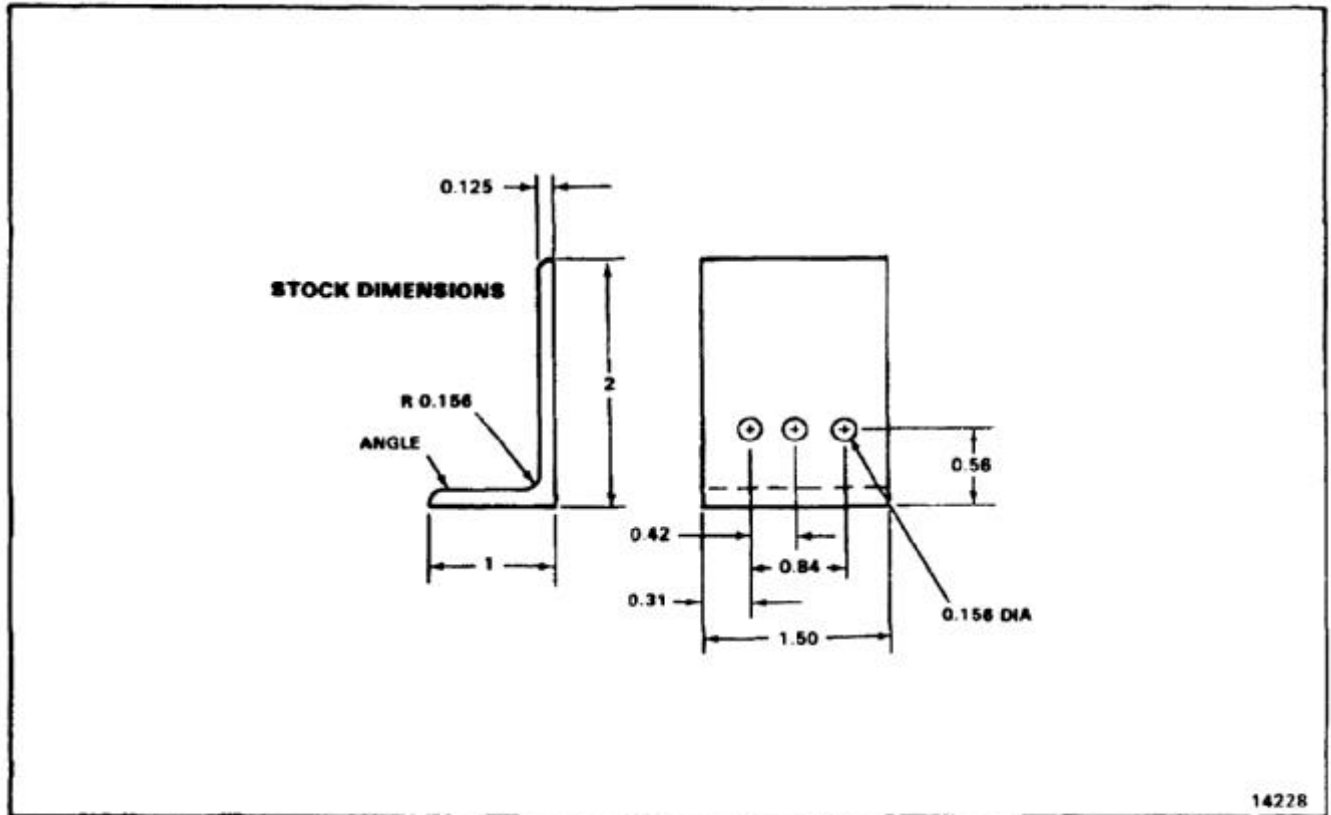
1. FABRICATE FROM ALUMINUM ALLOY 7075-T6511 EXTRUSION.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE AND 10134-2001 X 1.6.
4. FINISH WITH YELLOW ZINC CHROMATE PRIMER (E-290).



END OF TASK

**NOTES:**

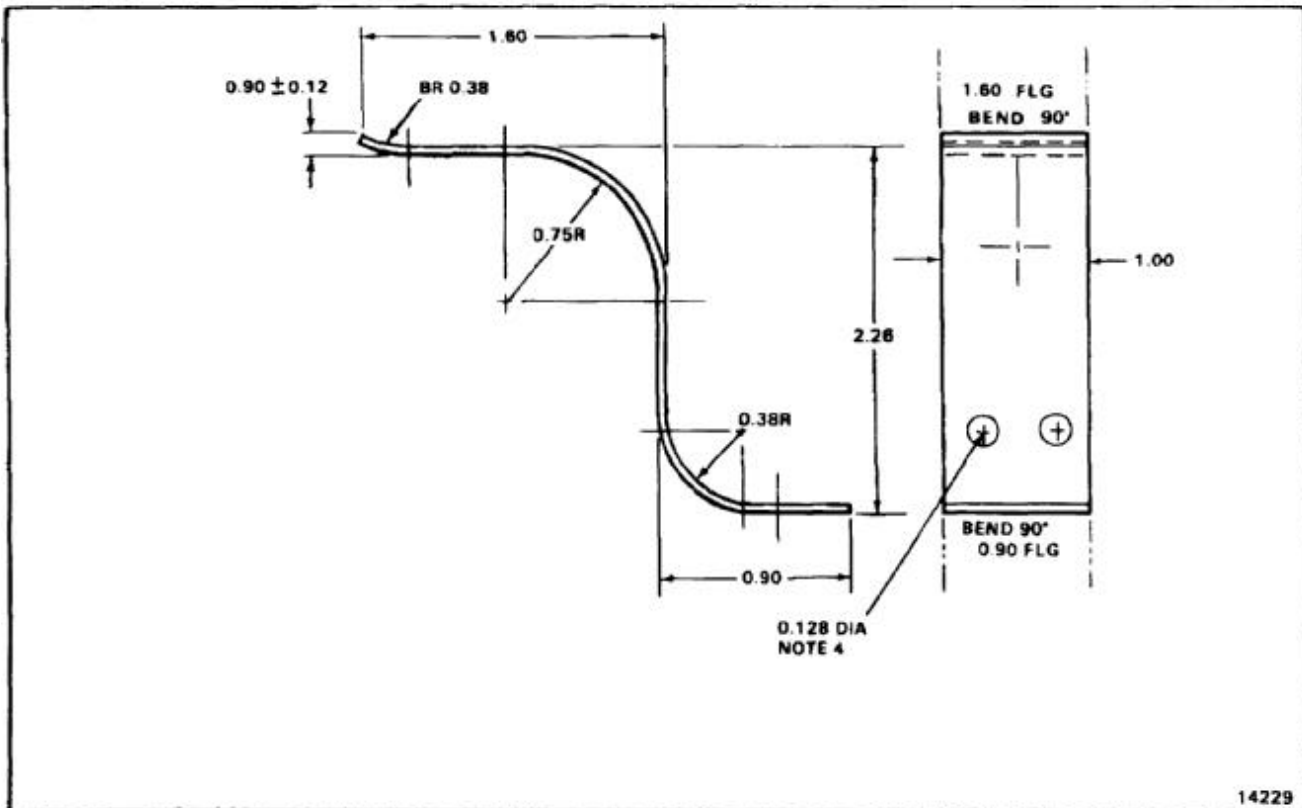
1. FABRICATE FROM ALUMINUM ALLOY 7075-T6511 EXTRUSION.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE AND 10134-2001 X 1.6.
4. FINISH WITH YELLOW ZINC CHROMATE PRIMER (E-290).



END OF TASK

**NOTES:**

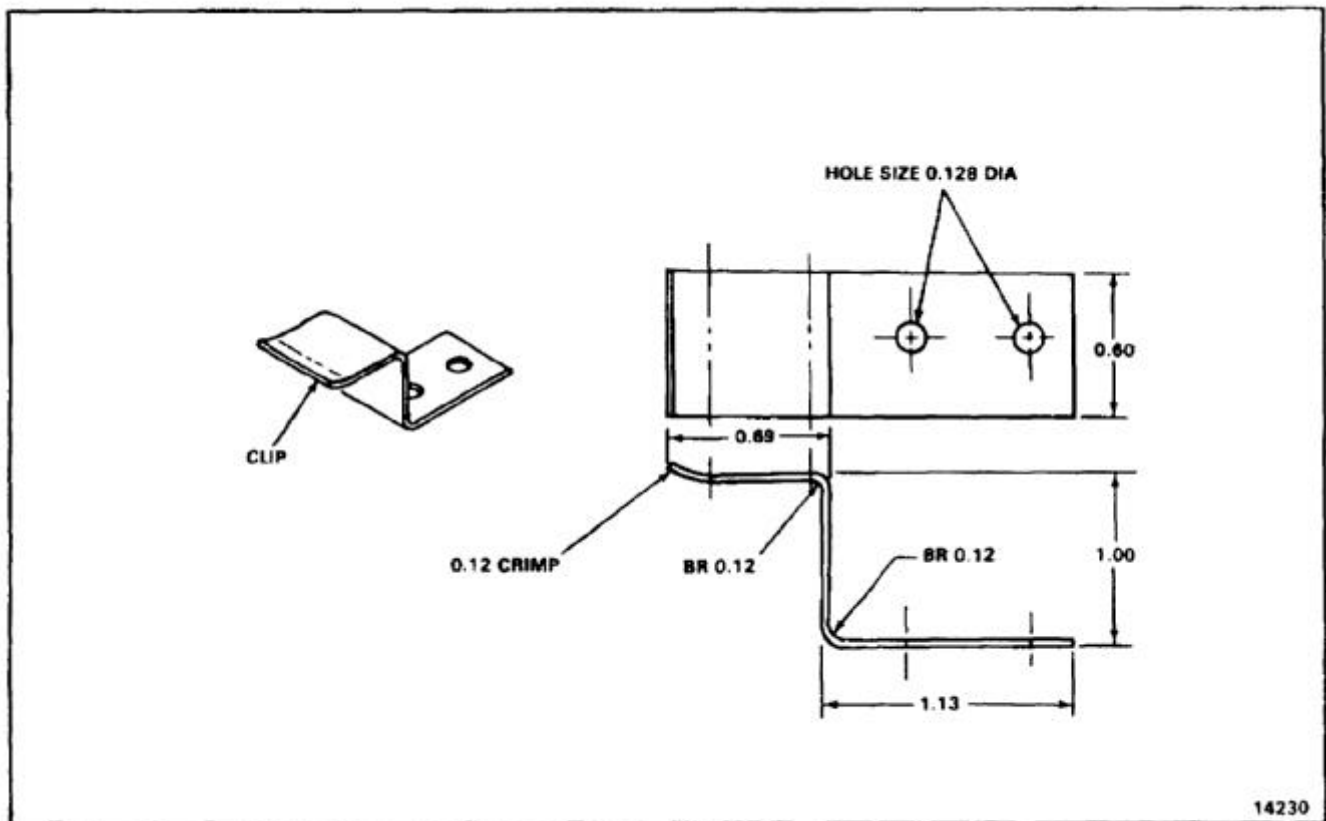
1. FABRICATE FROM ALUMINUM ALLOY SHEET CLAD 7075-T6.
2. STOCK SIZE 0.063 X 1.2 X 7.0.
3. ALL DIMENSIONS IN INCHES.
4. USE OLD CLIP FOR TEMPLATE TO LOCATE RIVET HOLES IN REPLACEMENT.
5. FINISH WITH YELLOW ZINC CHROMATE PRIMER (E-290).



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY SHEET CLAD 2024-T3.
2. STOCK SIZE 0.040 X 0.8 X 4.7.
3. ALL DIMENSIONS IN INCHES.
4. USE OLD CLIP FOR TEMPLATE TO LOCATE RIVET HOLES IN REPLACEMENT.
5. LENGTH OF REPLACEMENT IS SAME AS ORIGINAL.
6. FINISH WITH YELLOW ZINC CHROMATE PRIMER (E-290).

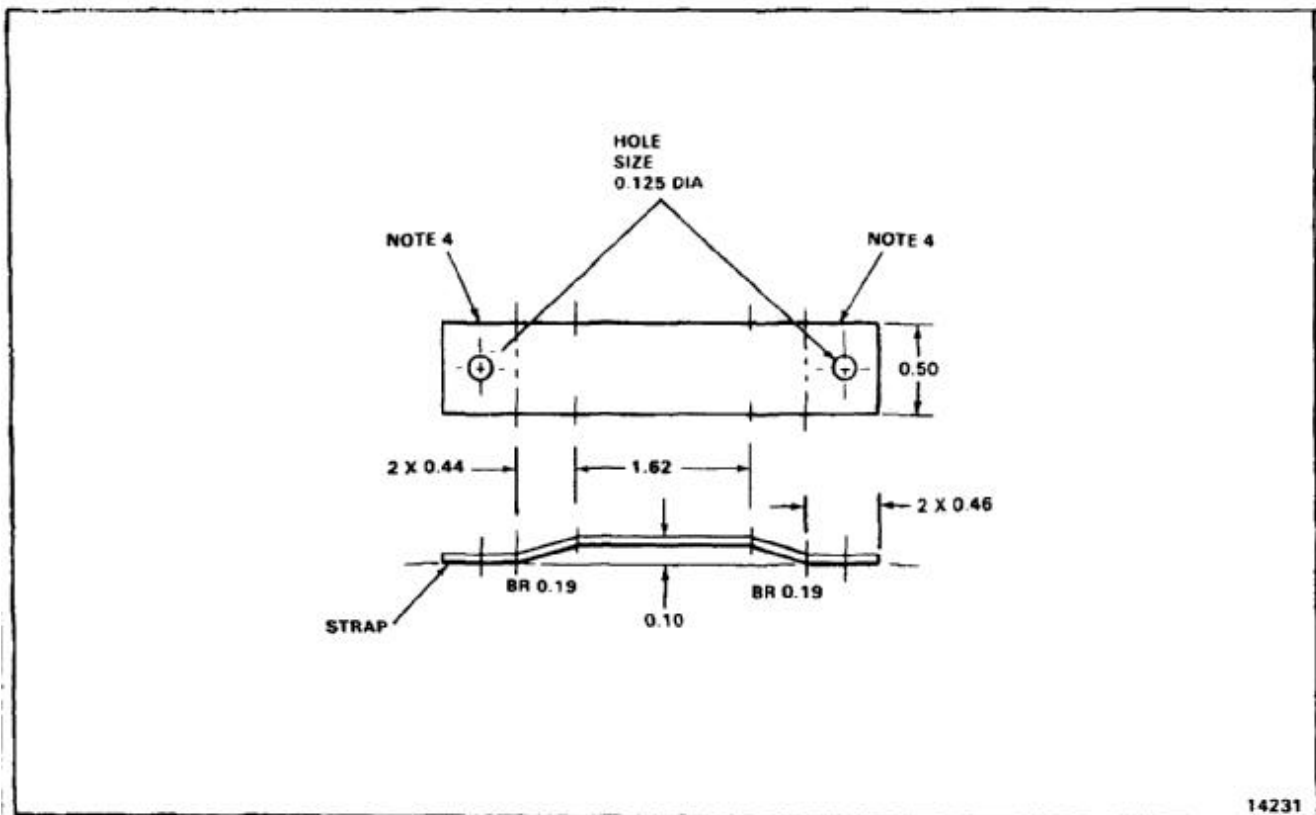


END OF TASK



**NOTES:**

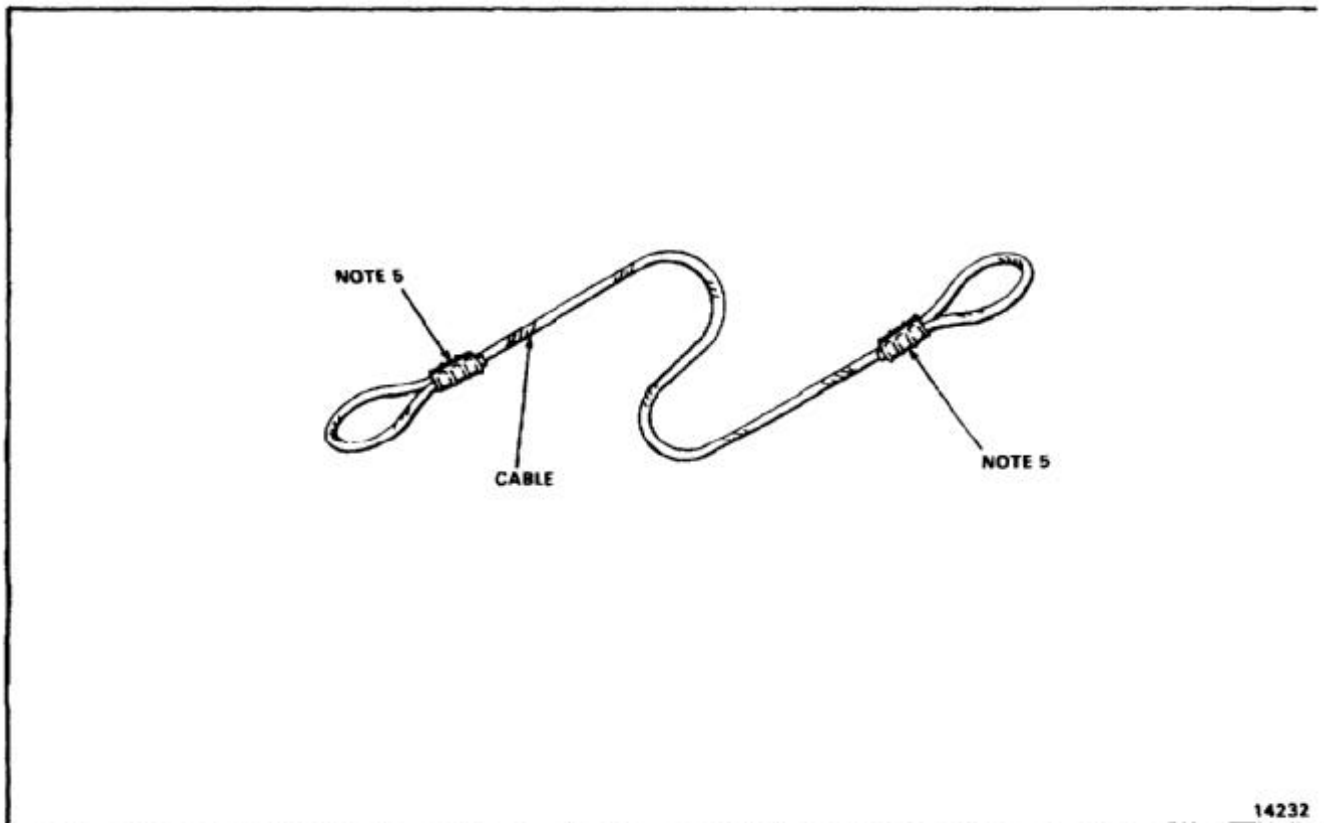
1. FABRICATE FROM ALUMINUM ALLOY SHEET CLAD 2024-T3.
2. STOCK SIZE 0.063 X 0.6 X 3.2.
3. ALL DIMENSIONS IN INCHES.
4. USE OLD STRAP FOR TEMPLATE TO LOCATE RIVET HOLES IN REPLACEMENT.
5. MAKE REPLACEMENT STRAP SAME LENGTH AS ORIGINAL.
6. FINISH WITH YELLOW ZINC CHROMATE PRIMER (E-290).



END OF TASK

**NOTES:**

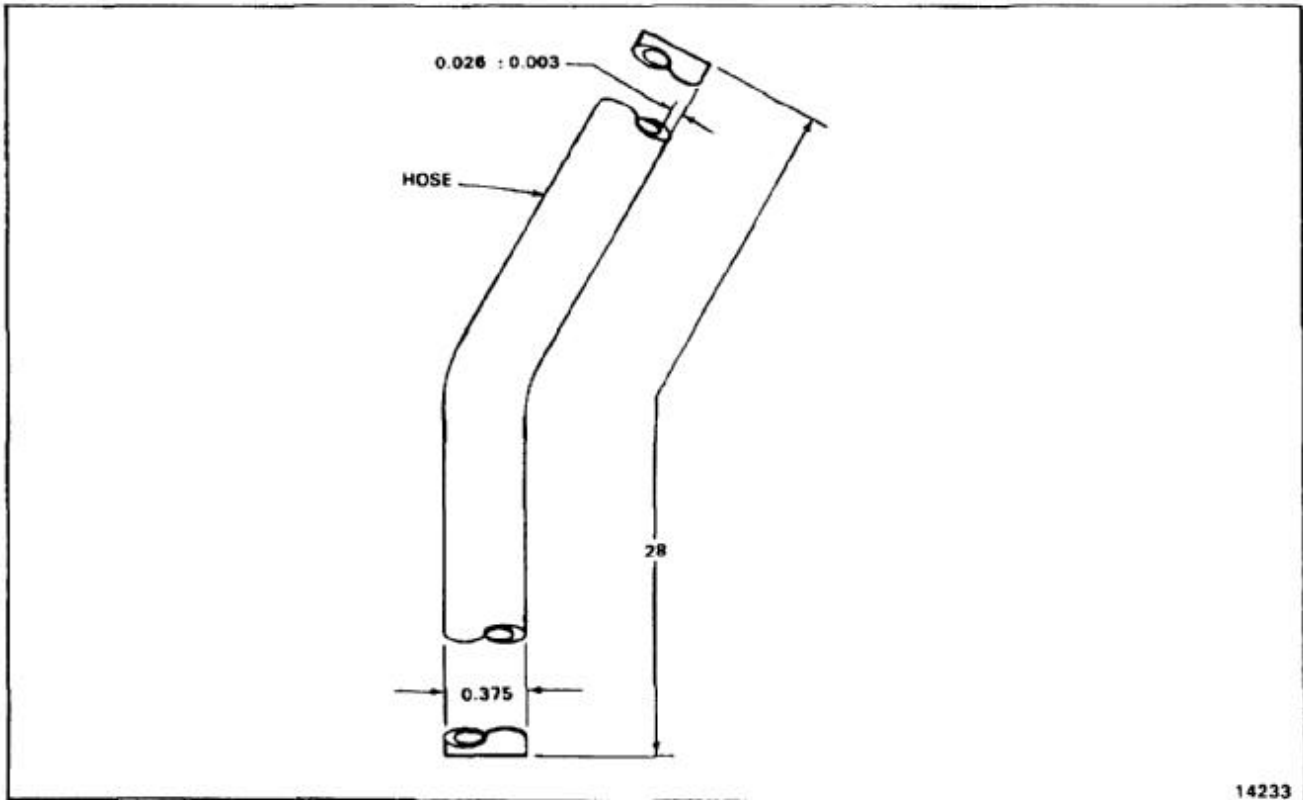
1. FABRICATE FROM CRES CABLE MIL-C-5424.
2. STOCK SIZE 0.0625 DIA X 6.0.
3. ALL DIMENSIONS IN INCHES.
4. REPLACEMENT CABLE IS SAME LENGTH AS ORIGINAL.
5. SWAGE SLEEVE 18-1-C IN ACCORDANCE WITH SPEC MIL-T-6117.



END OF TASK

**NOTES:**

1. FABRICATE FROM CONVOLUTED NONMETALLIC TEFLON NSN 4720-01-130-8532.
2. ALL DIMENSIONS IN INCHES.
3. SHAPE HOSE TO THE CONFIGURATION OF ORIGINAL.

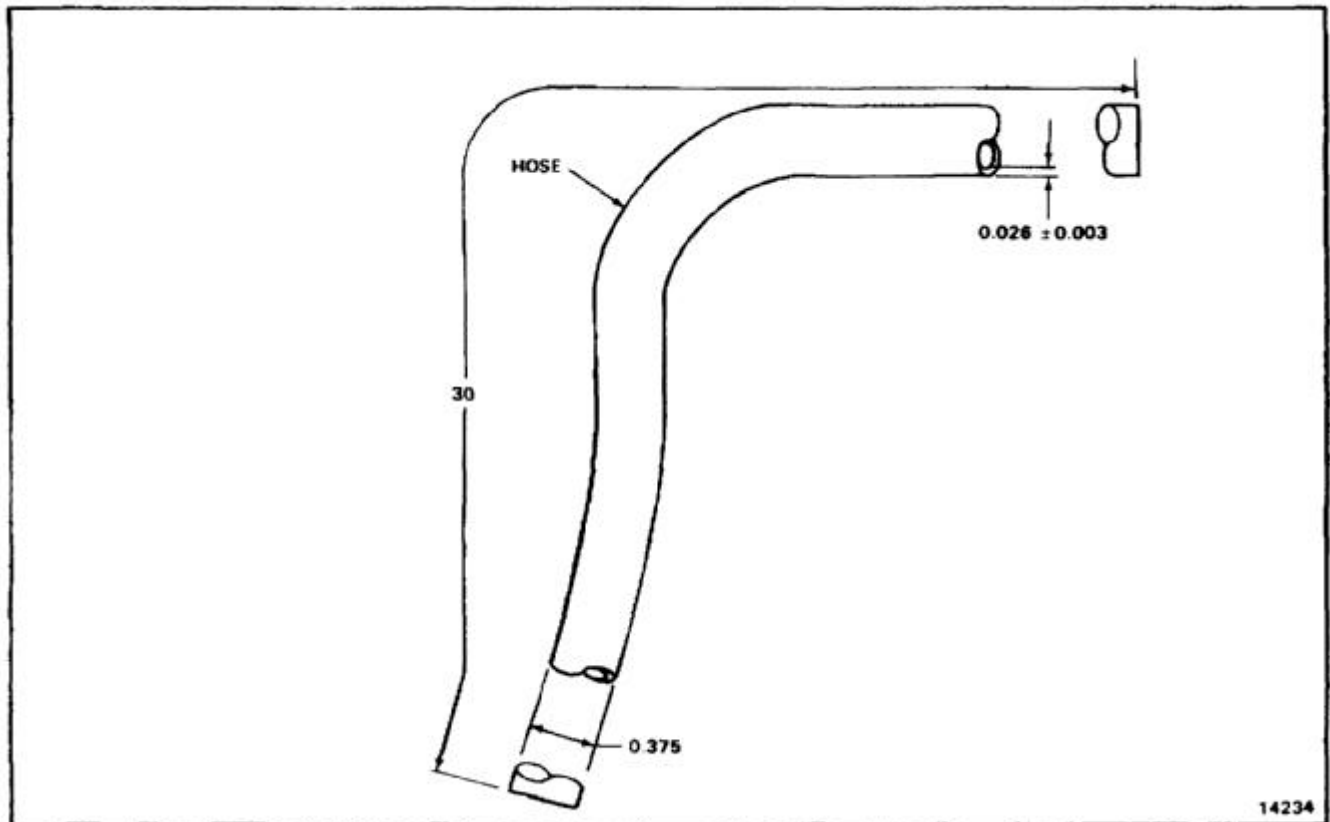


END OF TASK

E-162

**NOTES:**

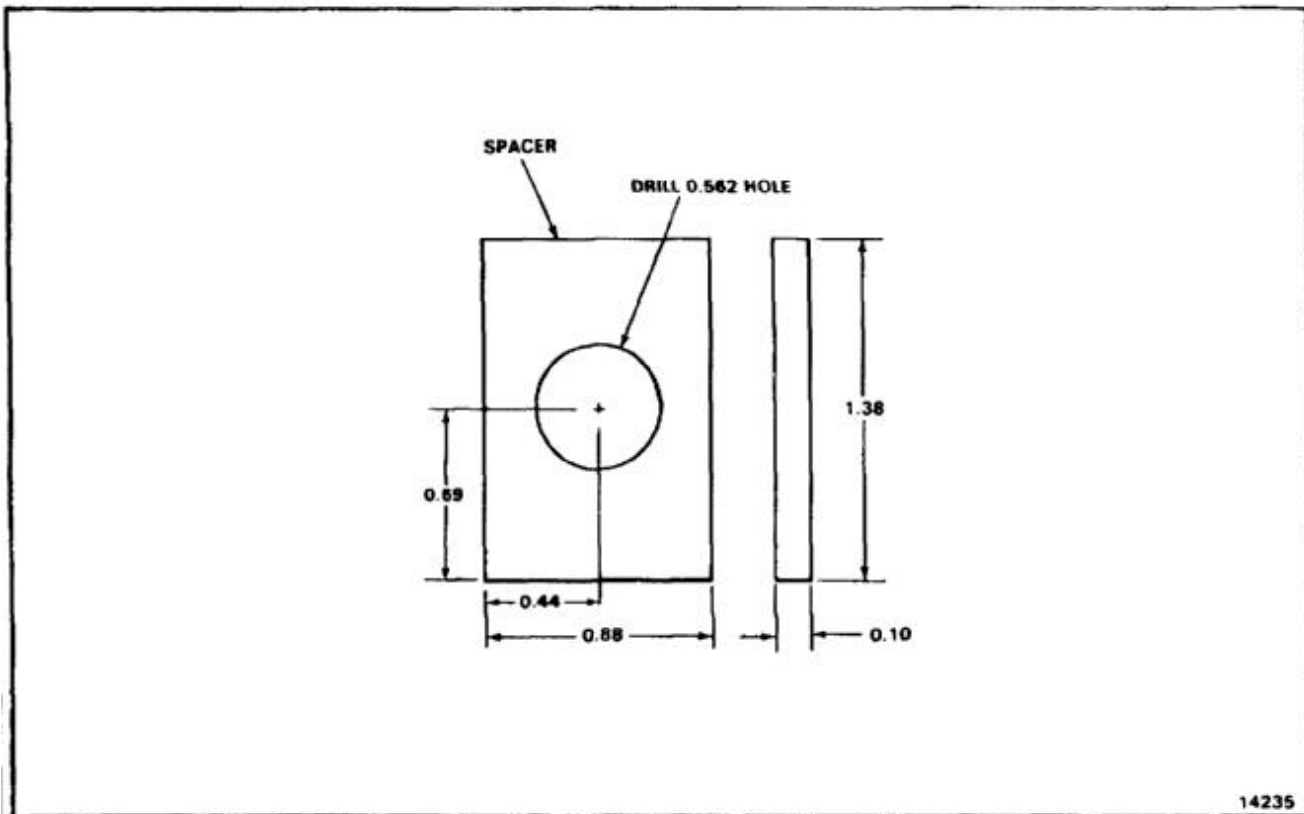
1. FABRICATE FROM CONVOLUTED NONMETALLIC TEFLON NSN 4720-01-130-8532.
2. ALL DIMENSIONS IN INCHES.
3. SHAPE HOSE TO THE CONFIGURATION OF ORIGINAL.



END OF TASK

**NOTES:**

1. FABRICATE FROM 6061-T6 SHEET ALUMINUM ALLOY QQ-A-250/11 TEMP T6.
2. ALL DIMENSIONS IN INCHES.
3. USE OLD SPACER AS TEMPLATE FOR MAKING HOLES.

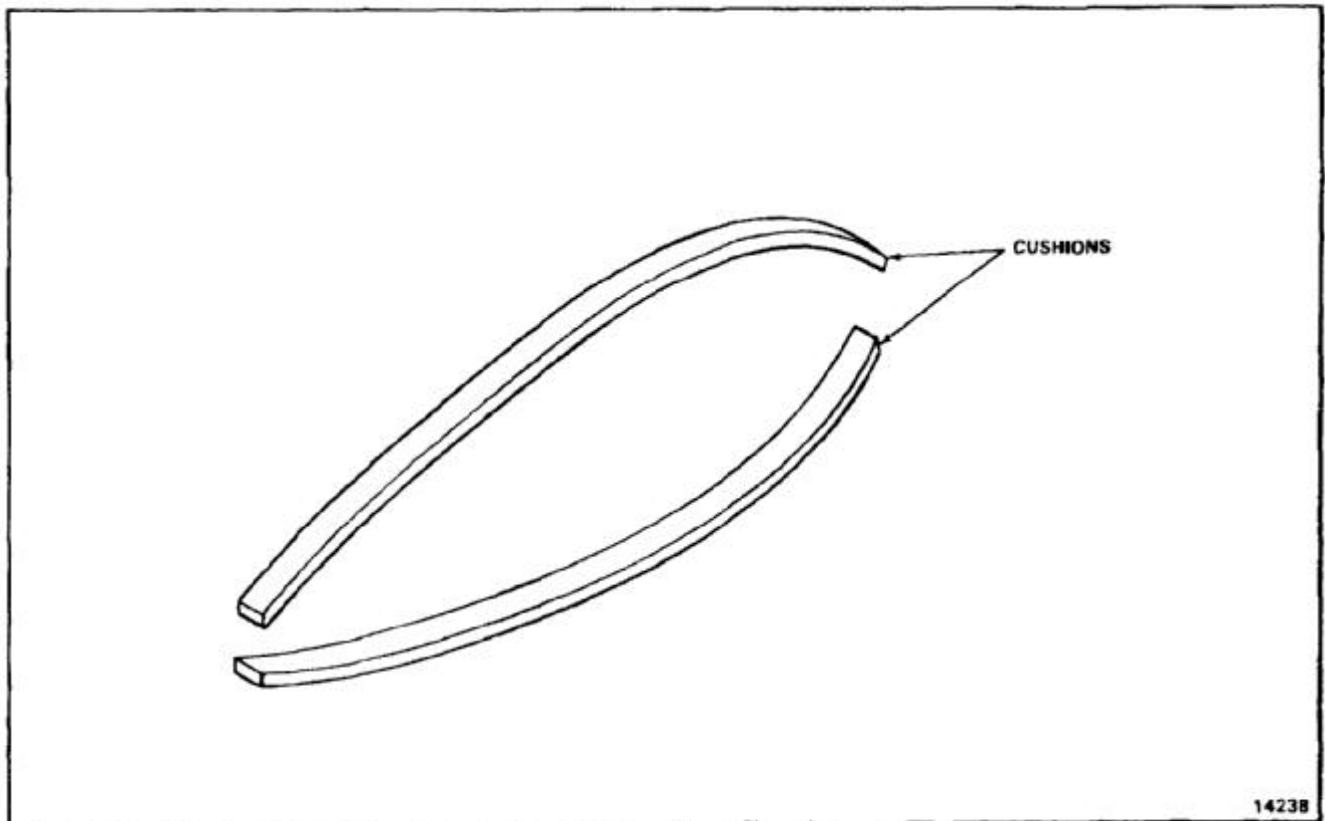


END OF TASK

E-164

**NOTES:**

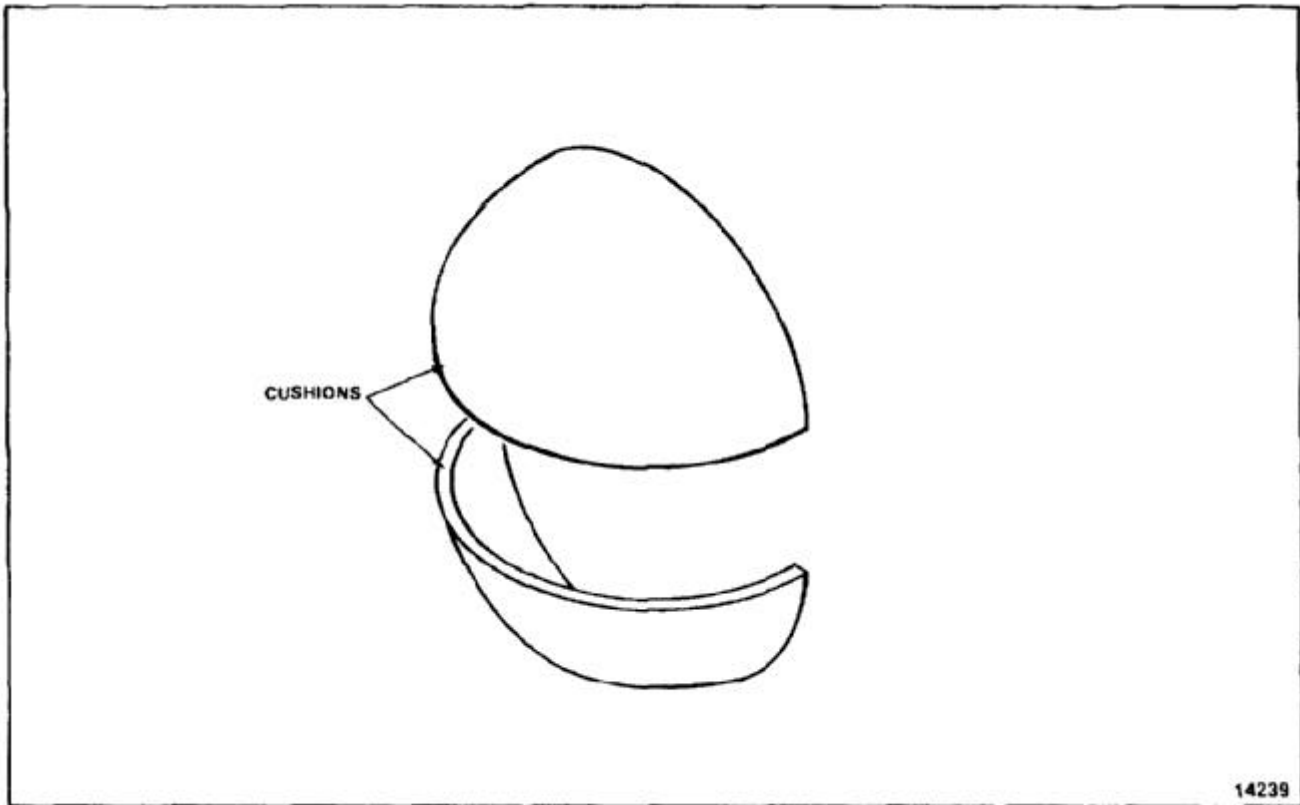
1. FABRICATE FROM SILICONE RUBBER BMS 1-23, NSN 9320-01-064-6502 TO SPEC ASTM D 1056-85.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.25 X 1.0 X 24.0.
4. CUT AND TRIM CUSHION TO FIT.
5. -9 CUSHION HAS BEEN CHANGED TO -27.



END OF TASK

**NOTES:**

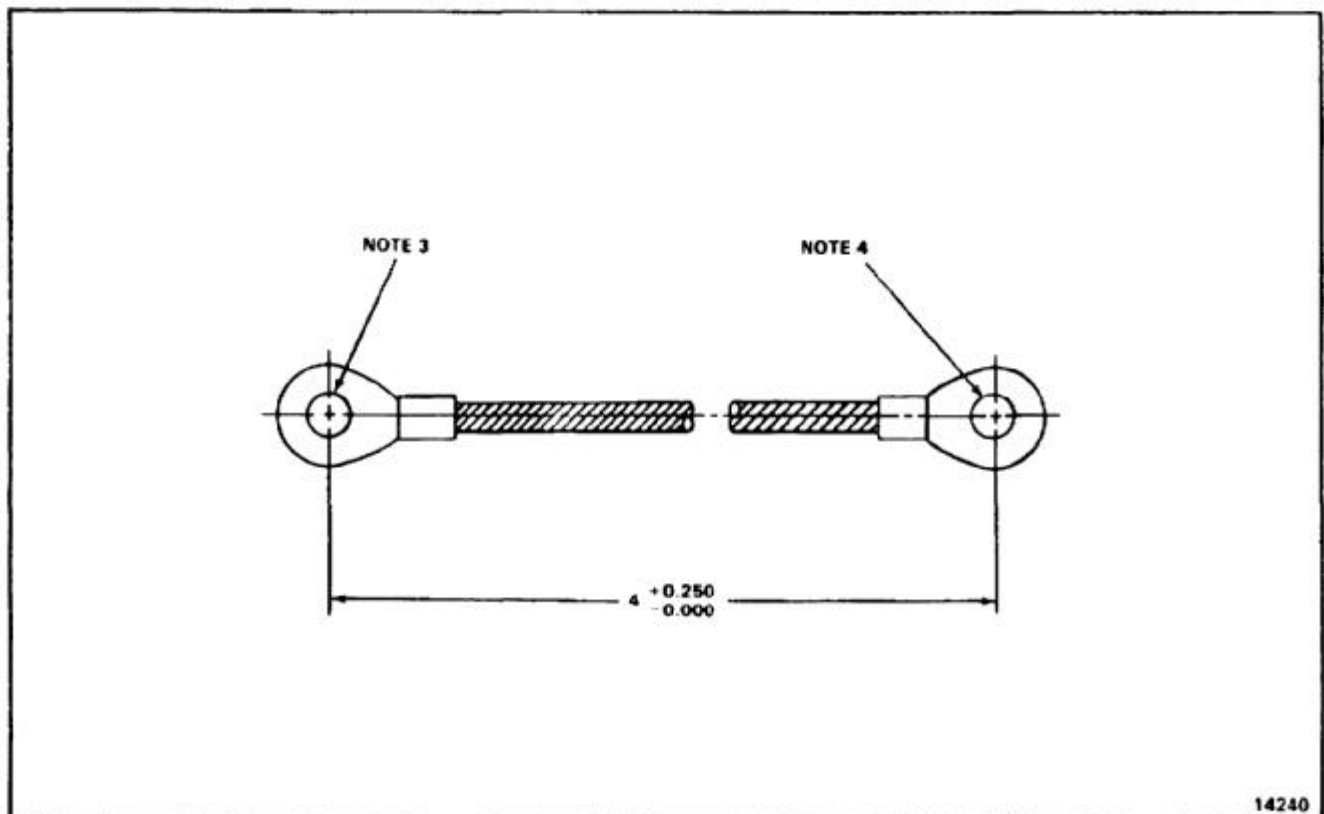
1. FABRICATE CUSHION FROM SILICONE RUBBER BMS 1-23, NSN 9320-01-6502 TO SPEC ASTM D 1056-85.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.25 X 9 X 18.
4. CUT AND TRIM CUSHION TO FIT.



END OF TASK

**NOTES:**

1. FABRICATE FROM PURE TINNED STRANDED SOFT COPPER WIRE SIZE AWG 12 NSN 6145-819-0058.
2. ATTACH TERMINALS (MS25036-111, 112, 113, OR 114) TO WIRE WITH CRIMPING TOOL (MS25441).
3. TERMINAL NSN 5940-204-8890 ACCOMMODATES NUMBER 4 OR 6 SIZE STUD HOLE DIA 0.142 TO 0.152.
4. TERMINAL NSN 5940-204-8890 ACCOMMODATES NUMBER 4 OR 6 SIZE STUD HOLE DIA 0.142 TO 0.152.
5. ALL DIMENSIONS IN INCHES.



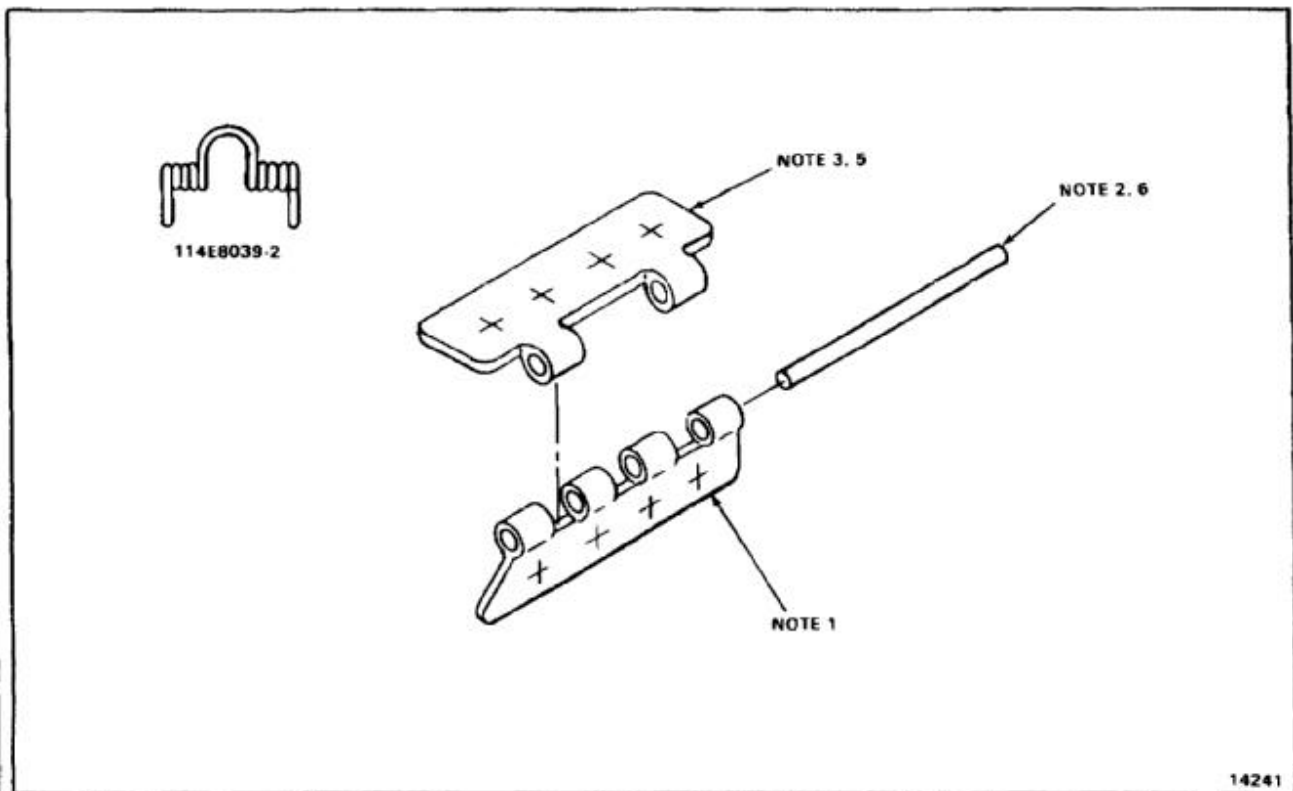
14240

END OF TASK



**NOTES:**

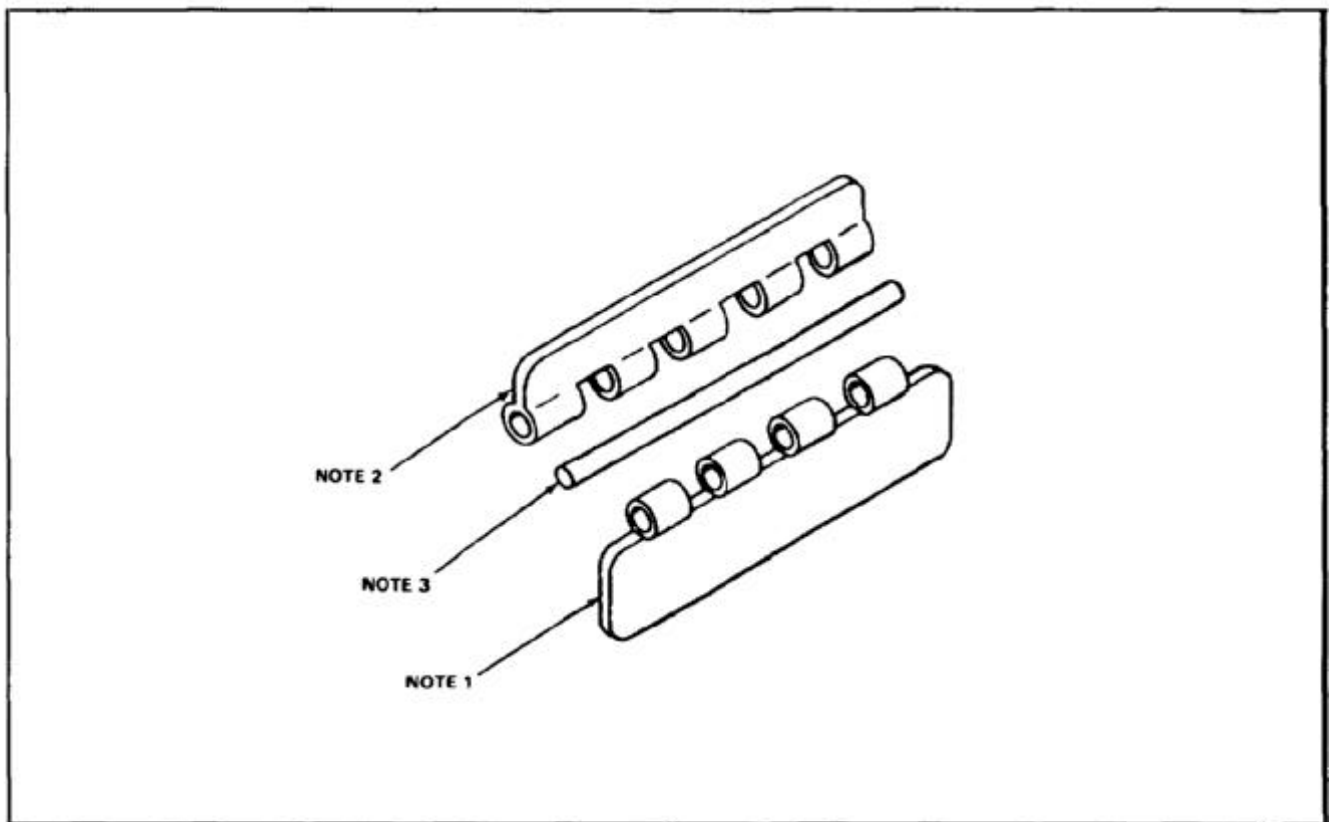
1. MAKE -89 HALF HINGE FROM MS20257H P4-7200.
2. MAKE -91 HINGE PIN FROM MS20253-2-7200.
3. MAKE -63 HALF HINGE FROM MS20257H P4-7200.
4. USE OLD HINGE HALVES FOR TEMPLATES AND FOR MAKING HOLES IN NEW HINGES.
5. REMOVE CENTER LOBE. INSTALL SPRING 114P8039-2.
6. CRIMP ENDS OF PIN (E-60).
7. MAKE NEW HINGE SAME LENGTH AS ORIGINAL.
8. FINISH WITH YELLOW ZINC CHROMATE PRIMER (E-290).



END OF TASK

**NOTES:**

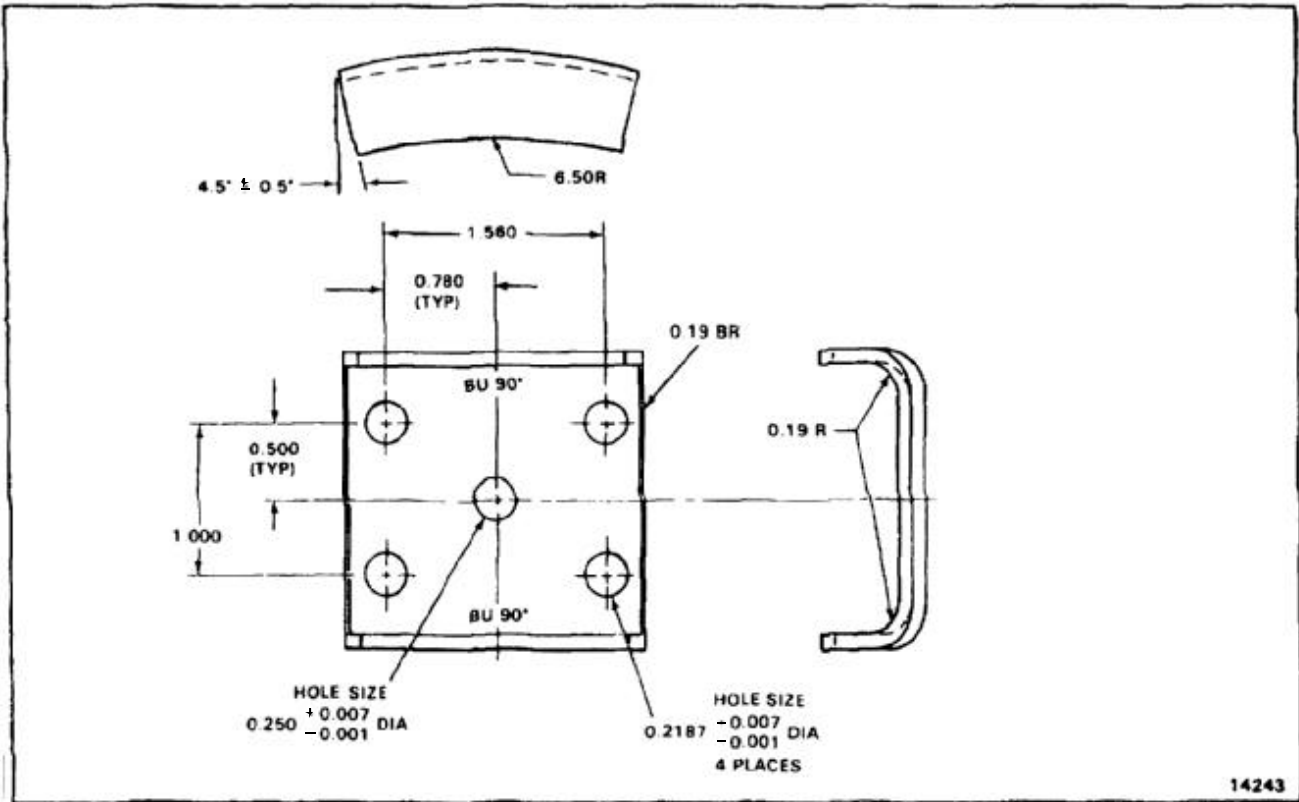
1. MAKE -77 HALF HINGE FROM MS20257HP4-7200.
2. MAKE -93 HALF HINGE FROM MS20257HP4-7200.
3. MAKE -95 HINGE PIN FROM MS20253-2-7200.
4. USE OLD HINGE HALVES FOR TEMPLATES AND FOR MAKING HOLES IN NEW HINGES.
5. CRIMP ENDS OF PIN (E-60).
6. HINGE STOCK SIZE 1.50 WIDTH X 72 LENGTH.
7. PIN STOCK SIZE 0.089 DIA X 72 LENGTH.
8. MAKE NEW HINGE SAME LENGTH AS ORIGINAL.
9. FINISH WITH YELLOW ZINC CHROMATE PRIMER (E-290).



END OF TASK

**NOTES:**

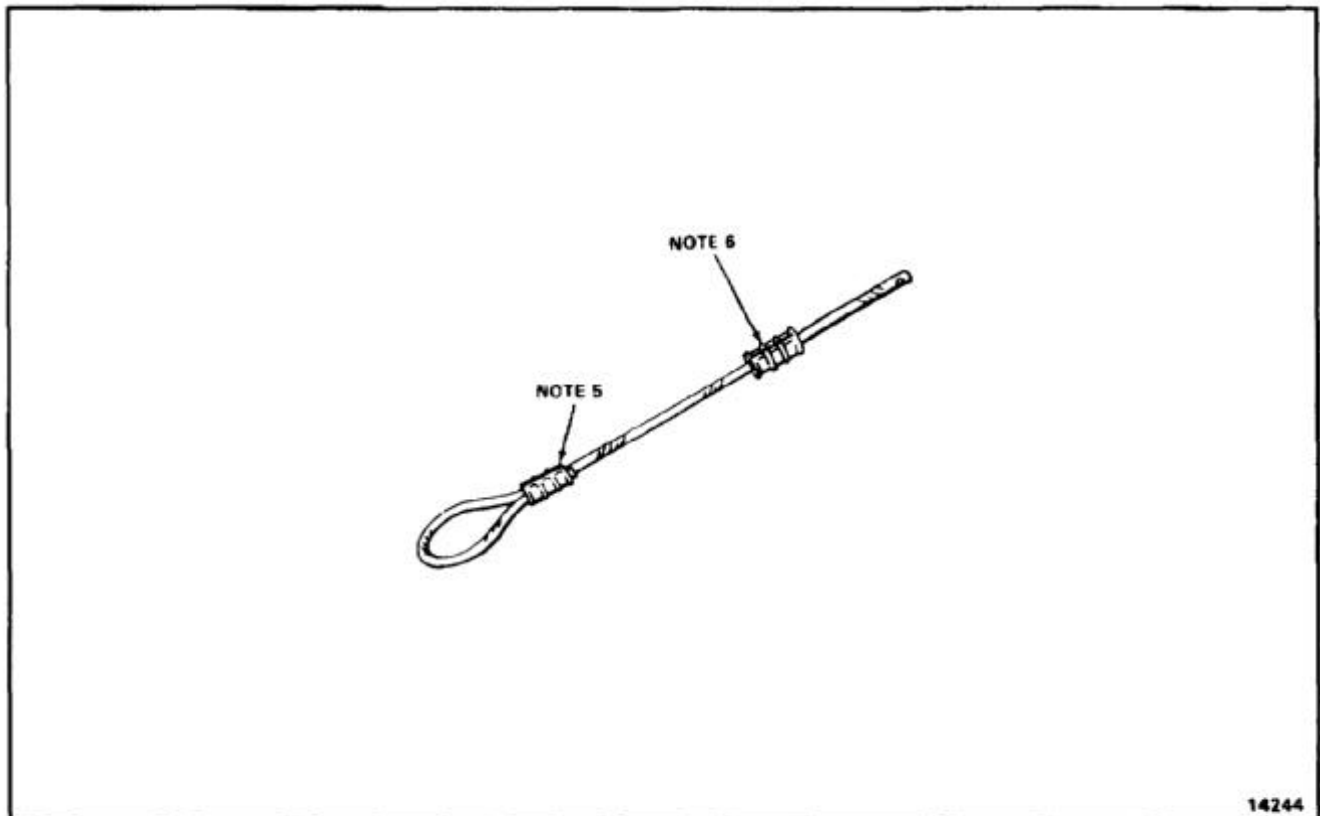
1. FABRICATE FROM ALUMINUM ALLOY 2024-T4 CLAD SHEET.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.063 X 2.2 X 3.1.
4. USE ORIGINAL FOR TEMPLATE WHEN MAKING REPLACEMENT.



END OF TASK

**NOTES:**

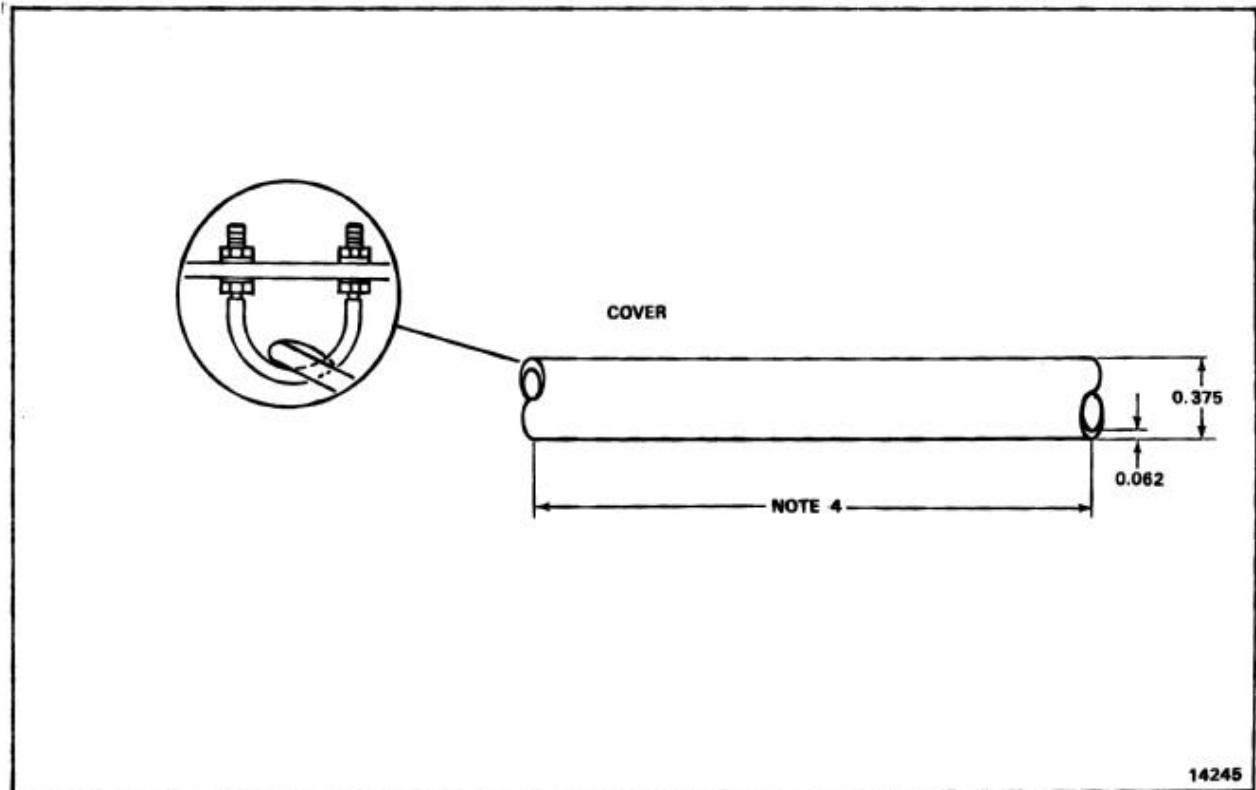
1. FABRICATE FROM CRES STEEL CABLE TO SPEC MIL-C-5424.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.0625 X 7 X 7 X 8.
4. MAKE REPLACEMENT CABLE AND LOOPS SAME LENGTH AS ORIGINAL.
5. SWAGE SLEEVES 28-1-C IN ACCORDANCE WITH SPEC MIL-T-6117.
6. INSTALL AND SWAGE AT INSTALLATION.



END OF TASK

**NOTES:**

1. FABRICATE FROM FLEXIBLE POLYVINYL CHLORIDE TUBING CLEAR COLOR.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.375 OD X 0.062 WALL X 3.9 LENGTH.
4. CUT TO FIT.

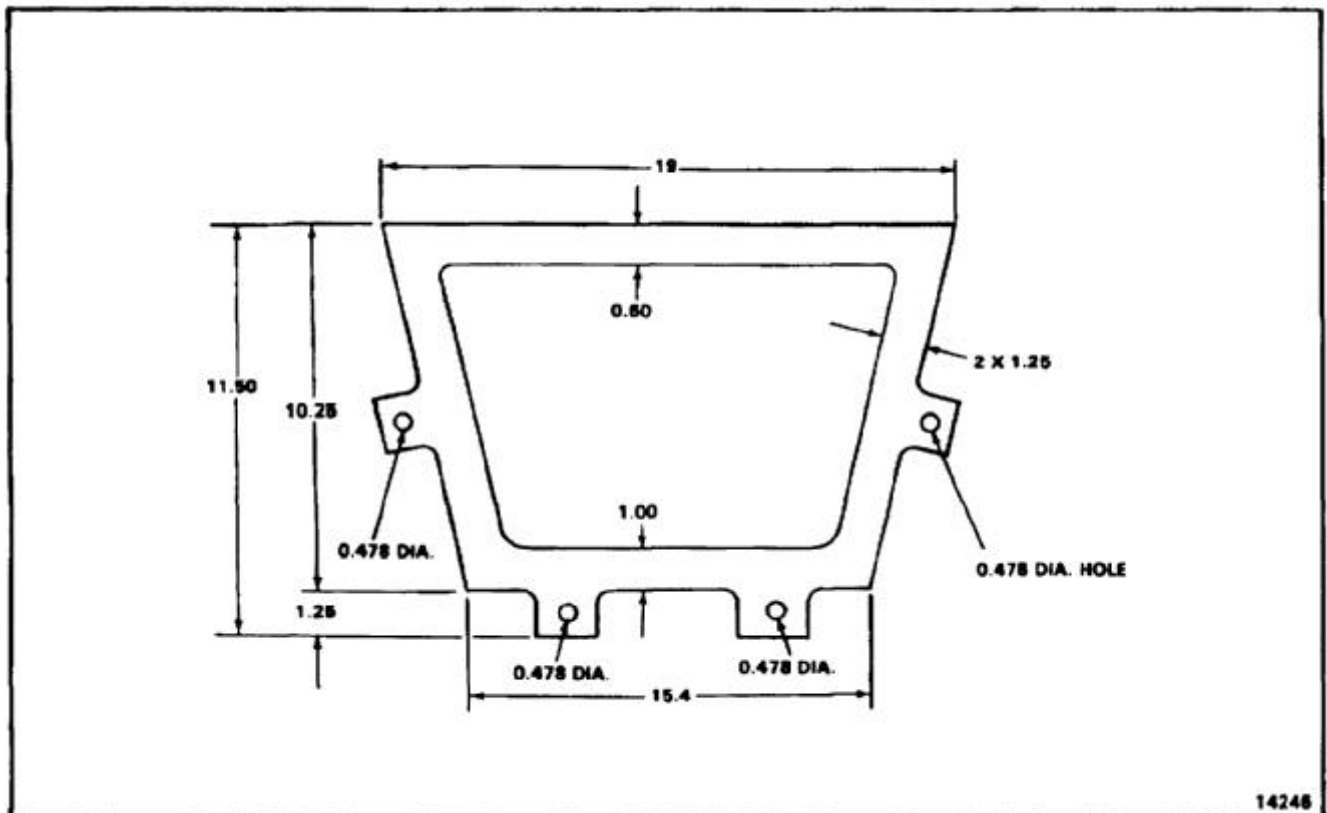


END OF TASK

E-172

**NOTES:**

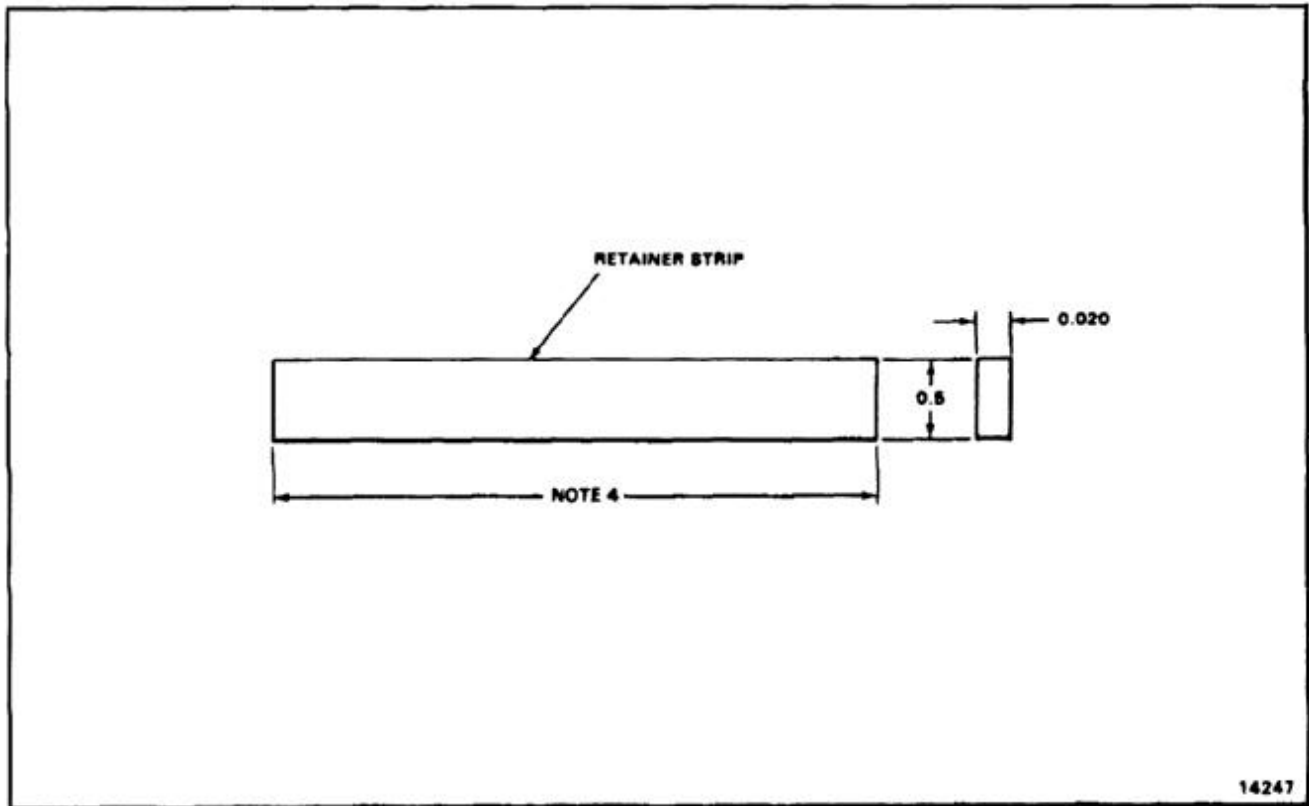
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.032 X 11.6 X 19.2.
4. USE OLD FRAME FOR TEMPLATE WHEN MAKING REPLACEMENT FRAME.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.020 X 0.5 X 8.1.
4. CUT TO FIT.
5. FINISH AS REQUIRED.



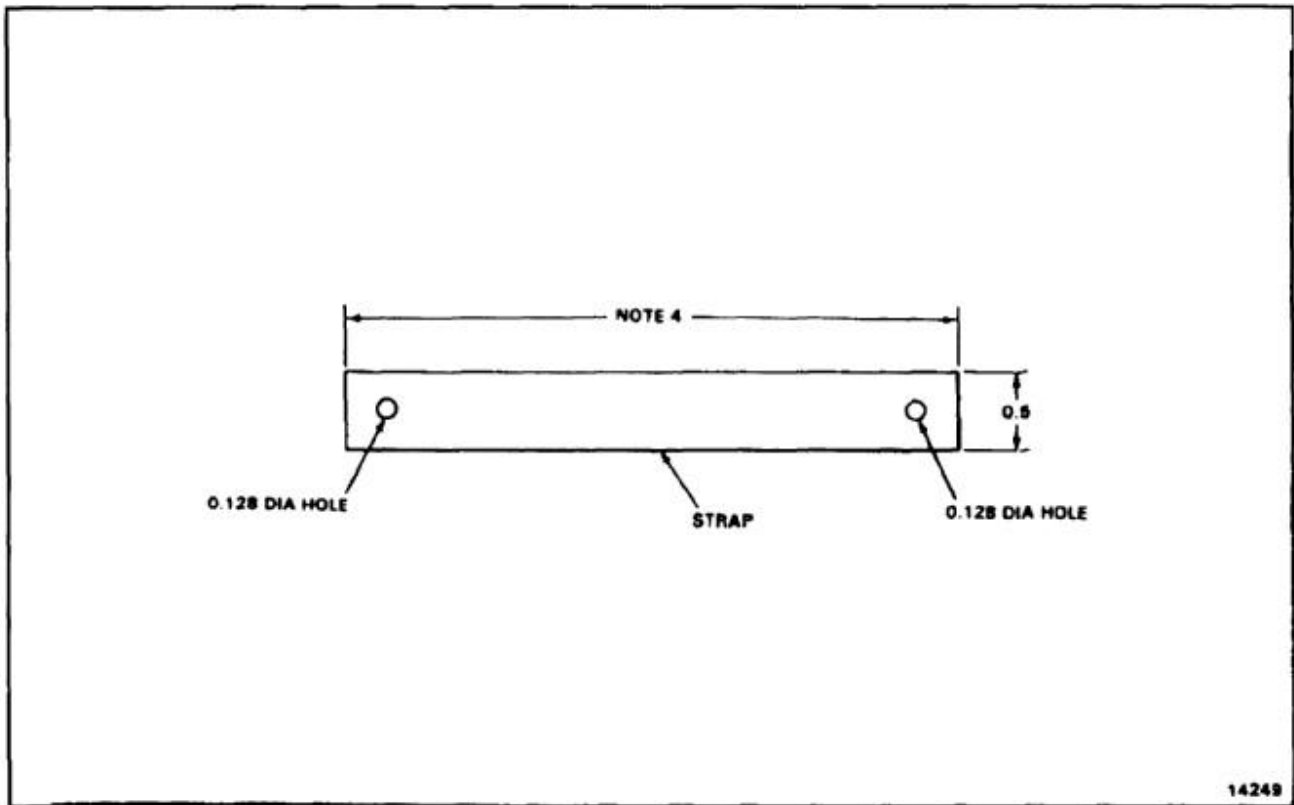
Task E-98 Deleted

END OF TASK

E-174

**NOTES:**

1. FABRICATE FROM TUBULAR WEBBING  
0.070-10 MIL-W-5625-1000-BS.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.5 X 4.5.
4. MAKE REPLACEMENT SAME LENGTH AS  
ORIGINAL.

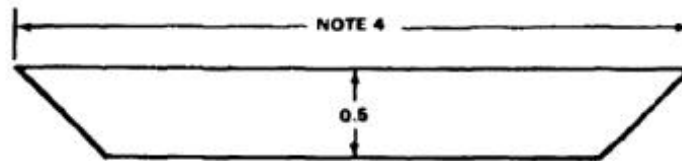


END OF TASK



**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.020 X 0.5 X 14.3.
4. MAKE REPLACEMENT SAME LENGTH AS ORIGINAL.
5. FINISH AS REQUIRED.



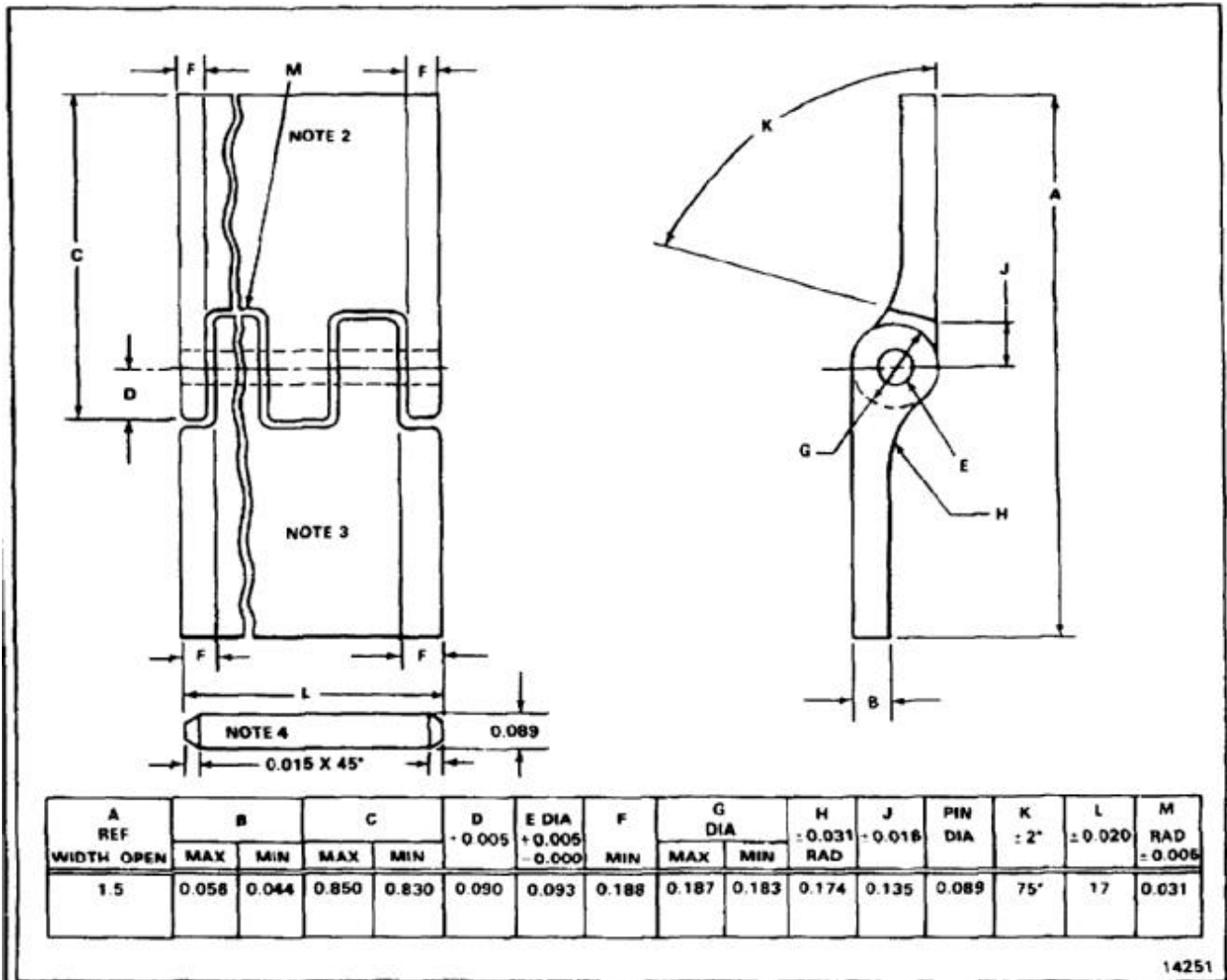
14250

END OF TASK

E-176

**NOTES:**

1. FABRICATE HINGE HALVES FROM ALUMINUM ALLOY 2024-T73511.
2. Y HALF HINGE MS20001 PY4-1700.
3. X HALF HINGE MS20001 PX4-1700.
4. HINGE PIN MS20253 P2-1680 MADE FROM CAD PLATED CRES STEEL.
5. ALL DIMENSIONS IN INCHES.
6. STAKE PIN TO SPEC MS33540.
7. FINISH WITH YELLOW ZINC CHROMATE PRIMER (E-290).

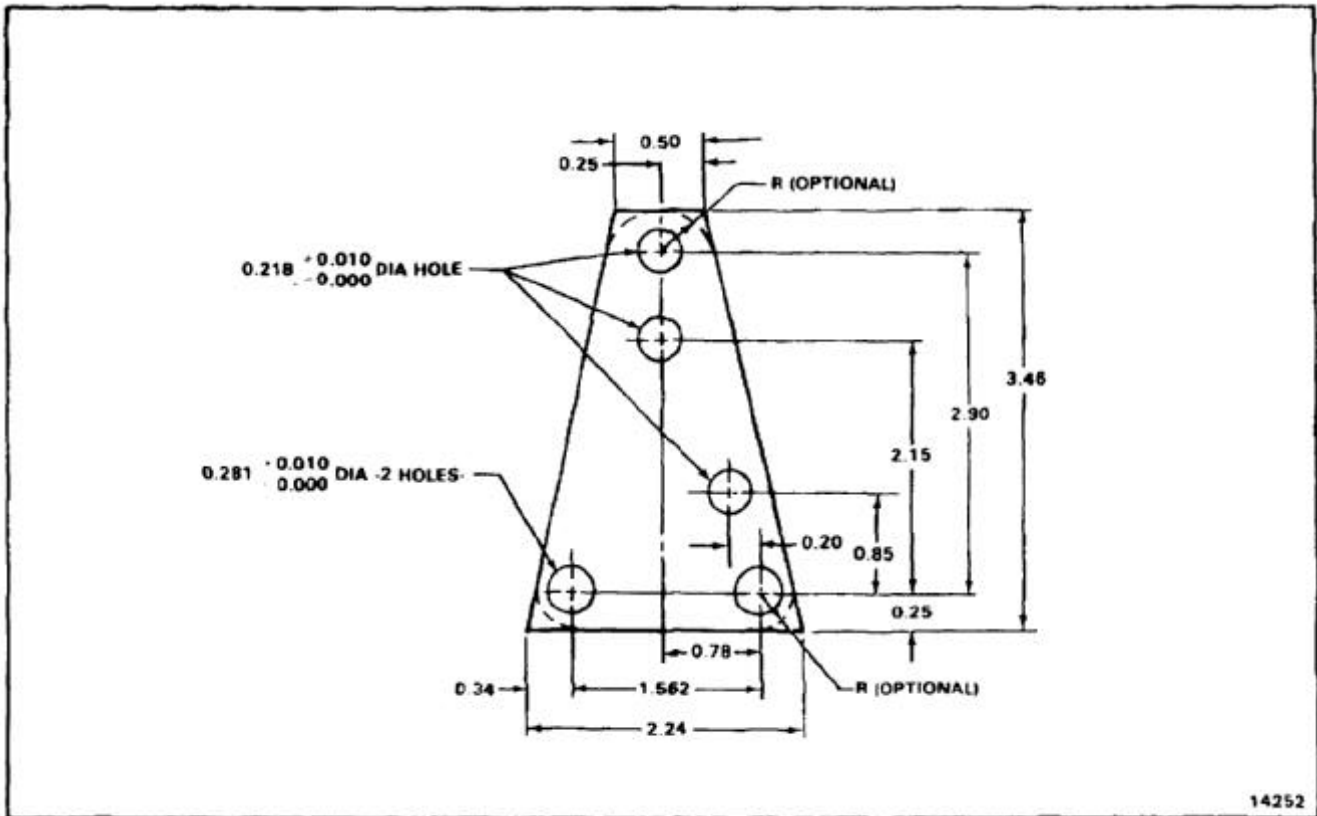


14251

END OF TASK

**NOTES:**

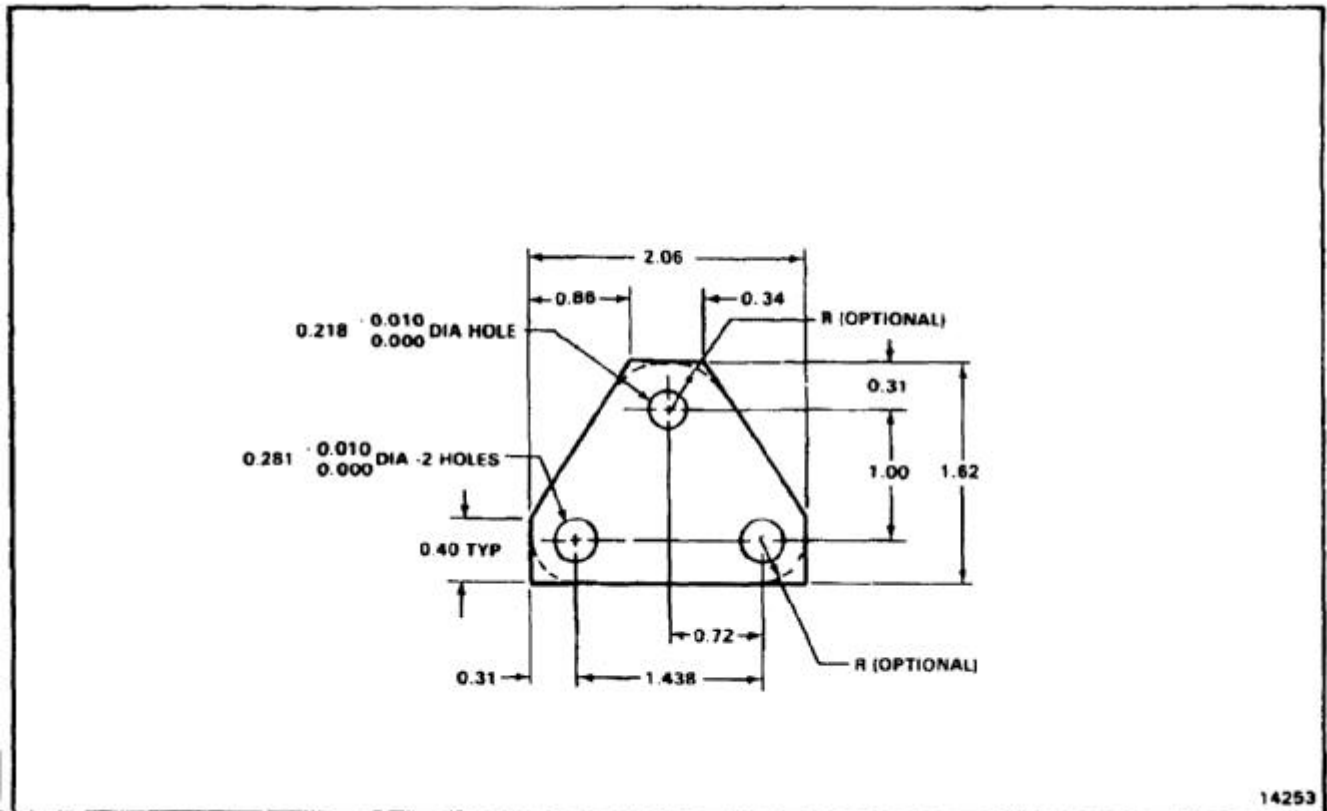
1. FABRICATE FROM AISI-301 CORROSION RESISTANT SHEET TO SPEC MIL-S-5059 COMP 301, 1/2 HARD.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.050 X 2.25 X 3.60.



END OF TASK

**NOTES:**

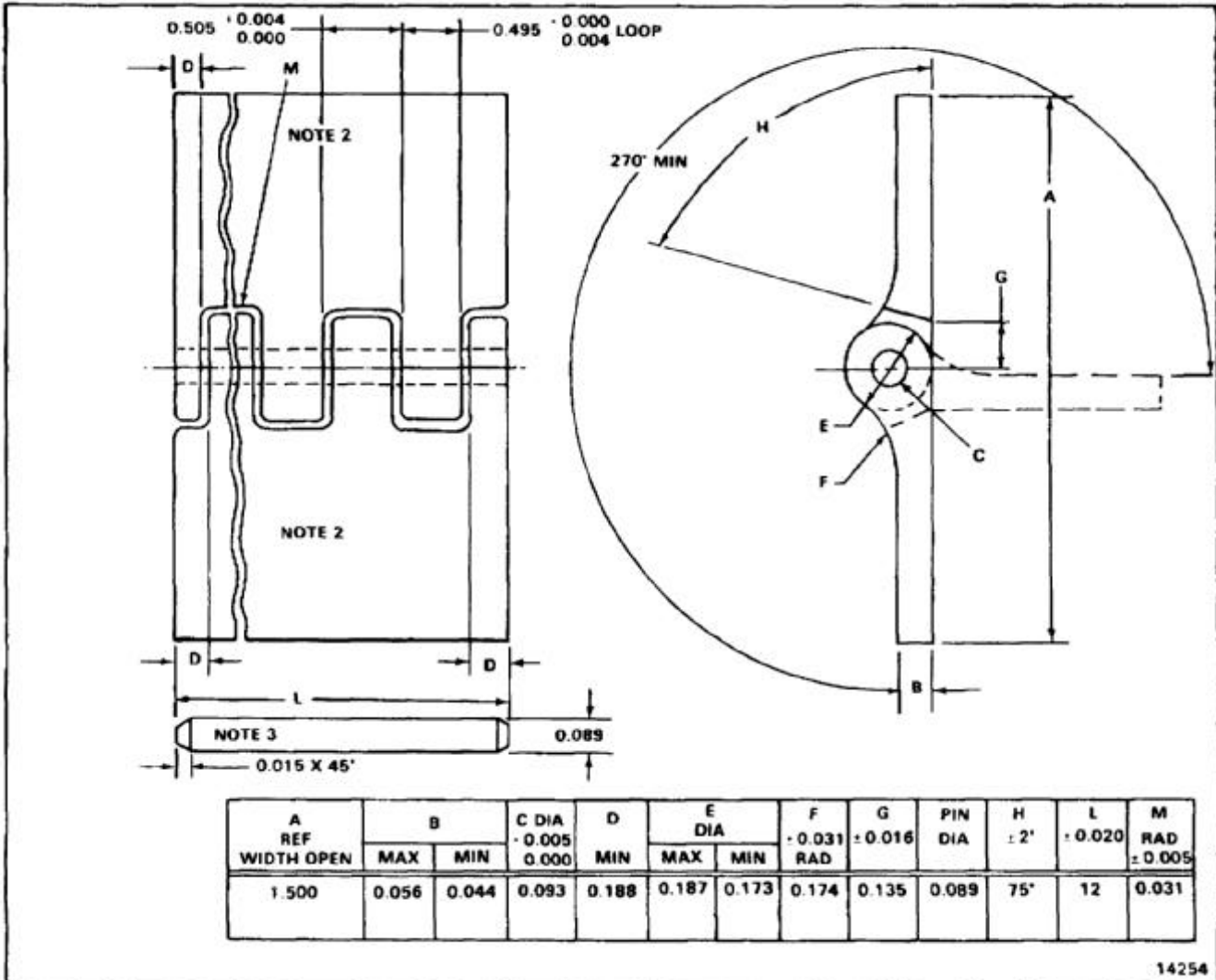
1. FABRICATE FROM AISI-301 CORROSION RESISTANT SHEET TO SPEC MIL-S-5059 COMP 301, 1/2 HARD.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.050 x 1.70 x 2.10.



END OF TASK

**NOTES:**

1. MADE FROM ALUMINUM ALLOY 2024-T3511.
2. H TYPE HALF HINGE M52001-PH4.
3. HINGE PIN MS20253 P2-1680 MADE FROM CAD PLATED CRES STEEL.
4. ALL DIMENSIONS IN INCHES.
5. FINISH WITH YELLOW ZINC CHROMATE PRIMER (E-290).



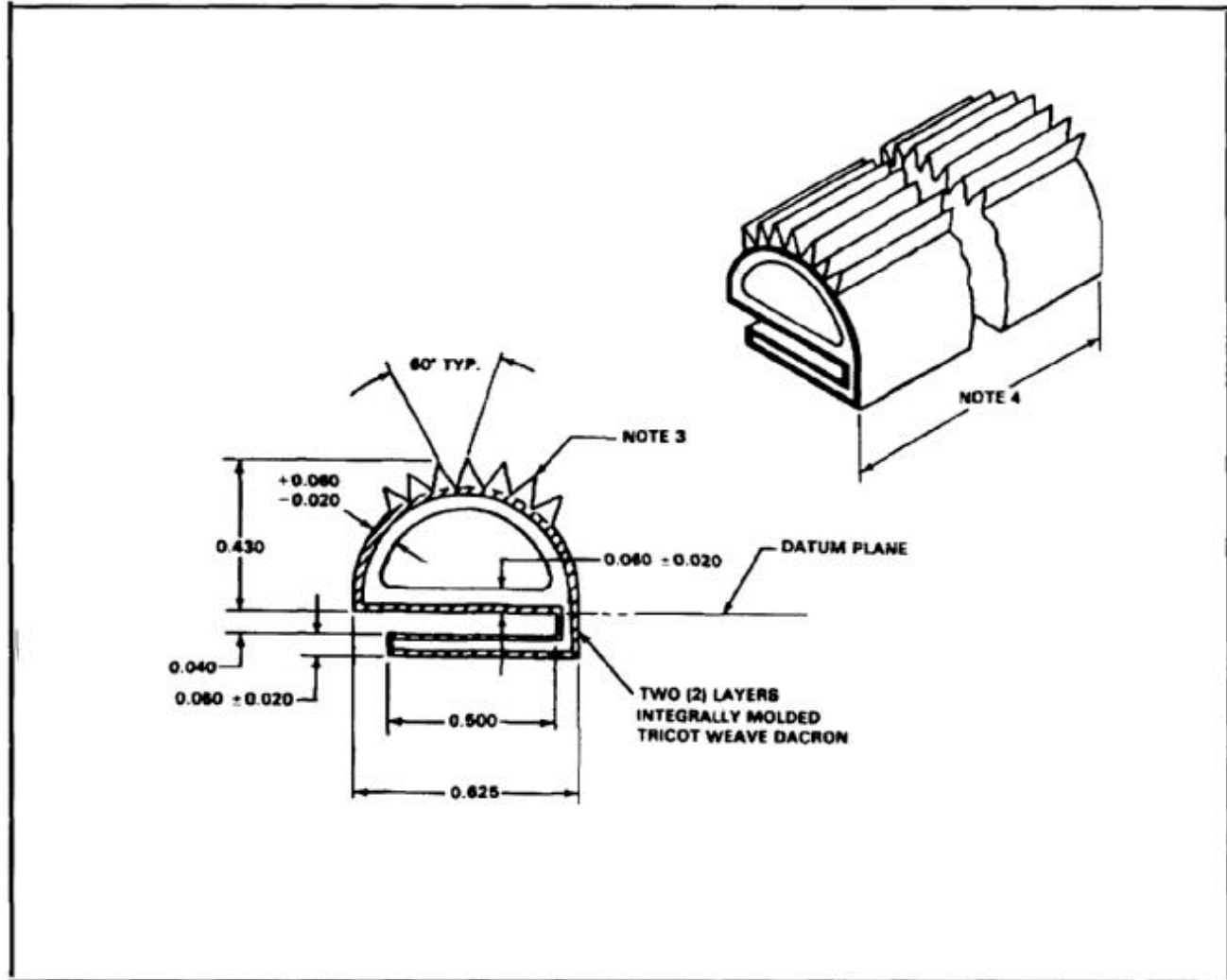
14254

END OF TASK

E-180

**NOTES:**

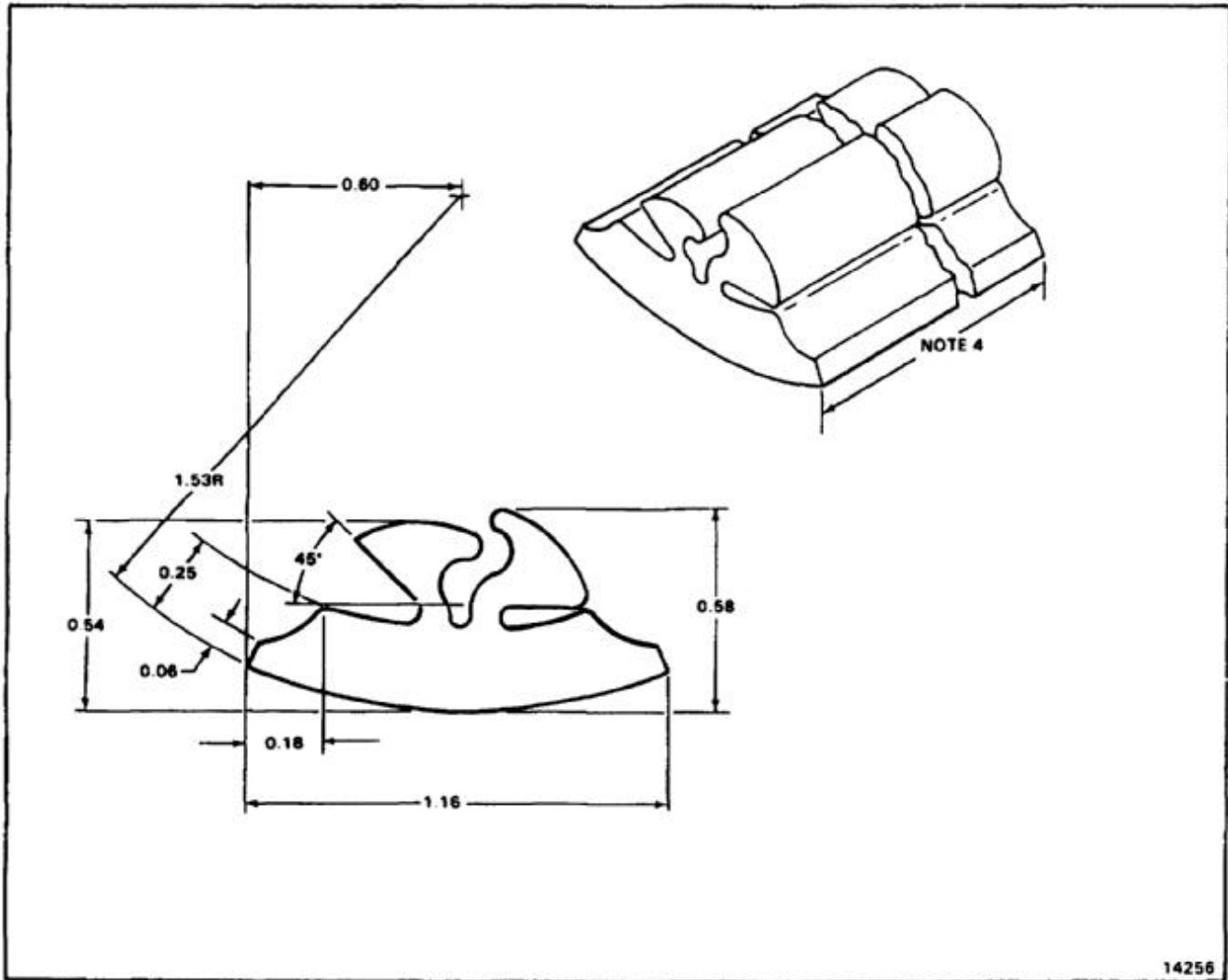
1. MADE OF SILICONE RUBBER ZZ-R-765 CLASS 1b, GRADE 40.
2. ALL DIMENSIONS IN INCHES.
3. STANDARD SHAPE VS80572 LENGTH 31, COLOR GRAY.
4. CUT SEAL TO FIT.



END OF TASK

**NOTES:**

1. MADE OF SILICONE RUBBER ZZ-R-765  
CLASS III, GRADE 80.
2. ALL DIMENSIONS IN INCHES.
3. STANDARD SHAPE VS80570-2 LENGTH 120,  
COLOR BLACK.
4. CUT SEAL TO FIT.

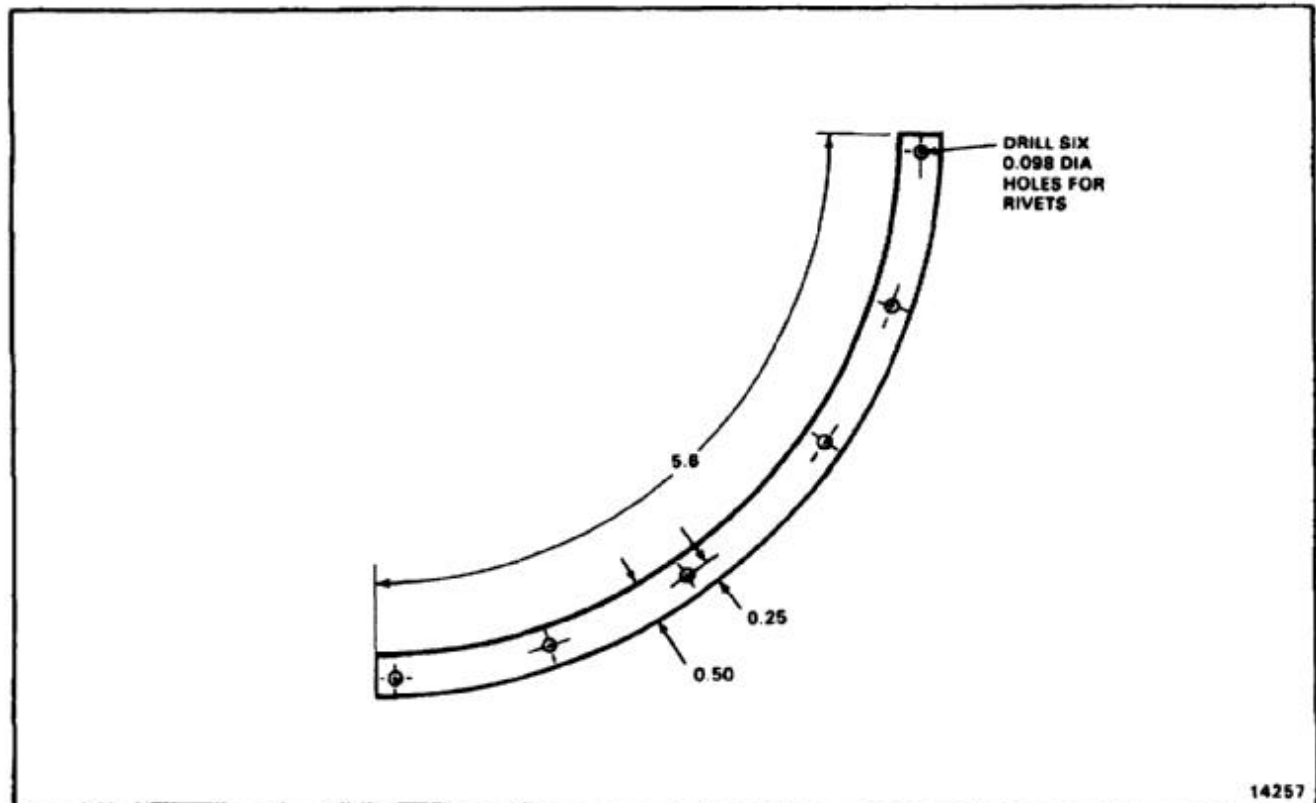


END OF TASK

E-182

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.025 X 2.5 X 8.0.
4. USE ORIGINAL RETAINER FOR TEMPLATE IN LOCATING RIVET HOLES IN REPLACEMENT.

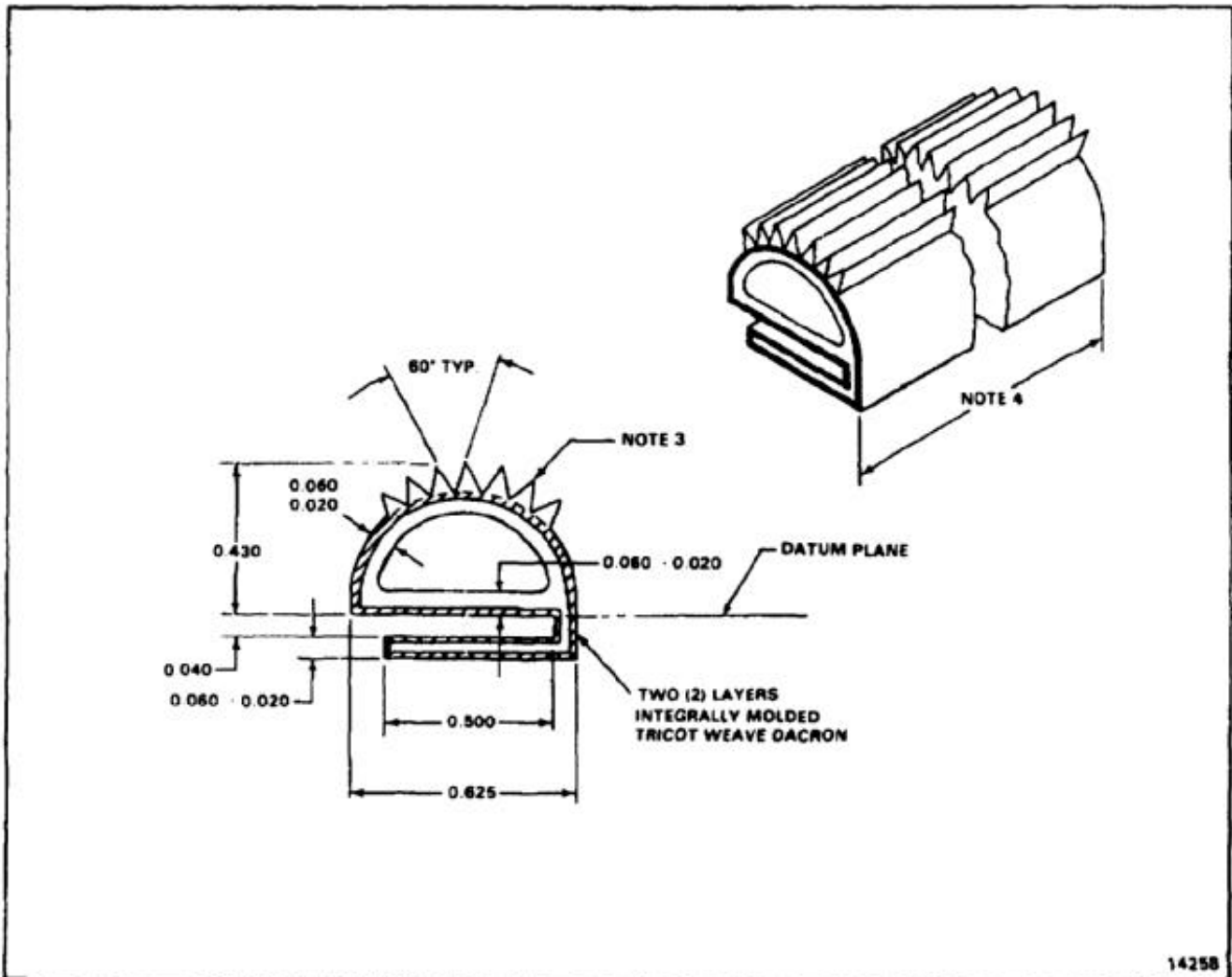


END OF TASK



**NOTES:**

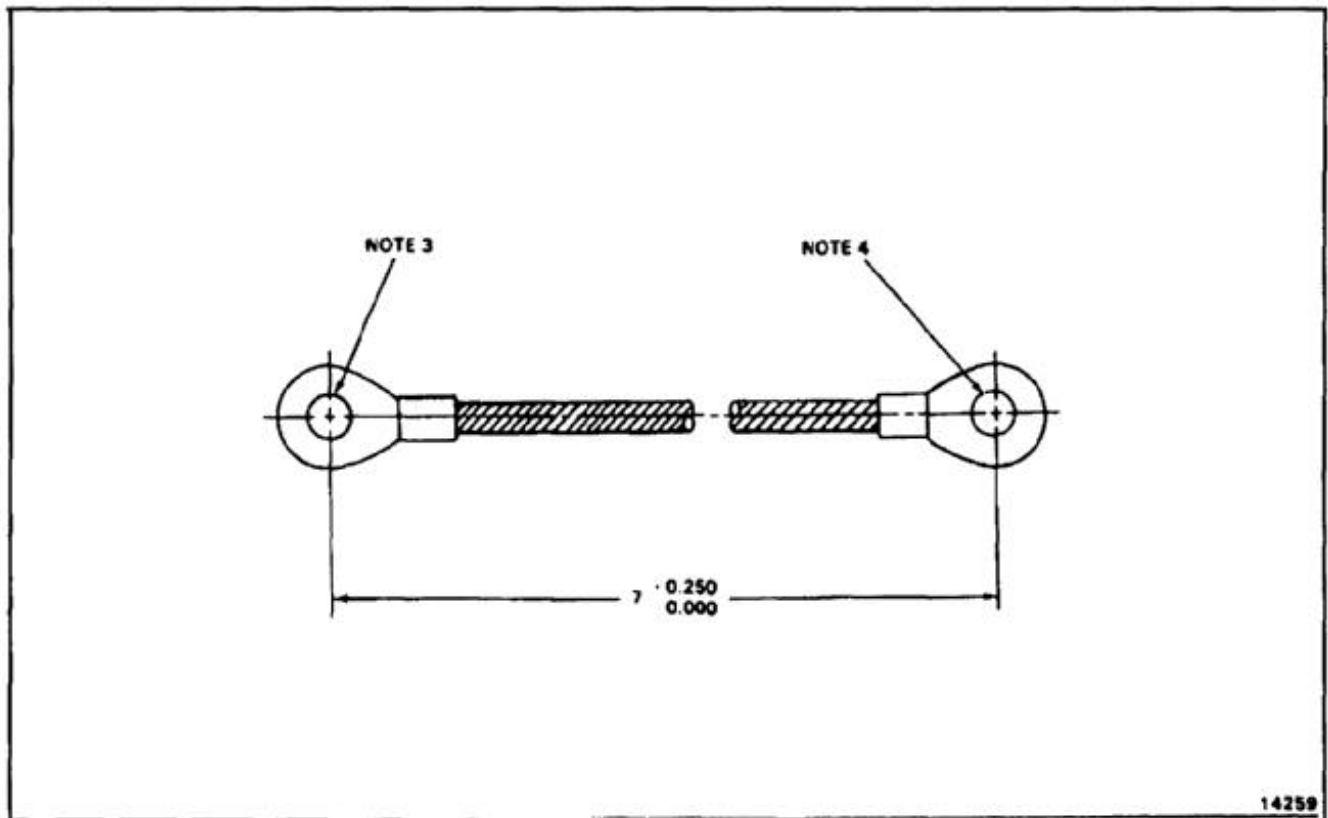
1. MADE OF SILICONE RUBBER ZZ-R-765 CLASS 1b, GRADE 40.
2. ALL DIMENSIONS IN INCHES.
3. STANDARD SHAPE VS80572-1, LENGTH 85, COLOR GRAY.
4. CUT SEAL TO FIT.



END OF TASK

**NOTES:**

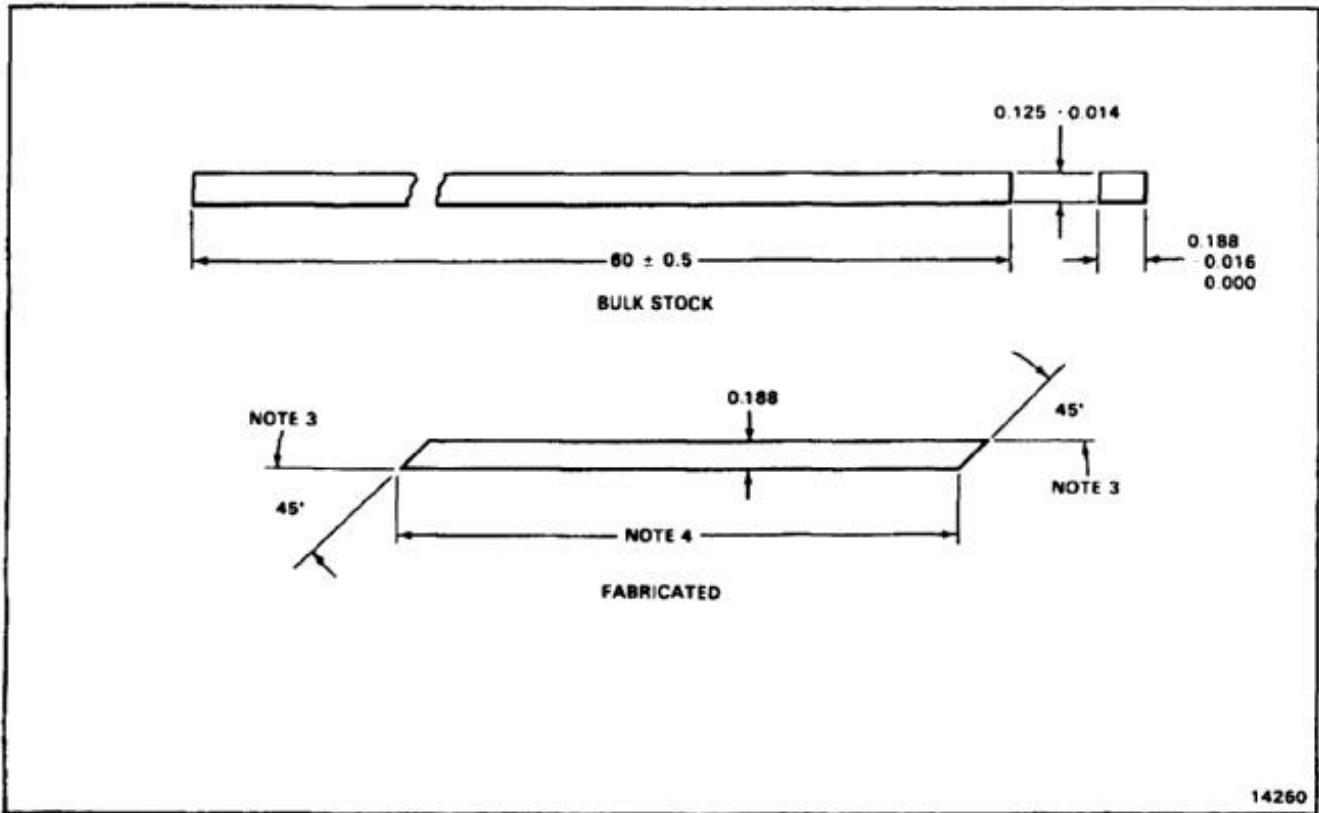
1. FABRICATE FROM PURE TINNED STRANDED SOFT COPPER WIRE SIZE AWG12, NSN 6145-819-0058.
2. ATTACH TERMINALS (M525036-111, 112, 113, 114, 156, OR 157) TO WIRE WITH CRIMPING TOOL (MS25441).
3. TERMINAL NSN 5940-00-204-8990 ACCOMMODATES NUMBER 4 OR 6 SIZE STUD. HOLE DIA 0.142 TO 0.152.
4. TERMINAL NSN 5940-00-143-4795 ACCOMMODATES NUMBER 8 SIZE STUD. HOLE DIA 0.193 TO 0.203.
5. TERMINAL NSN 5940-00-143-4794 ACCOMMODATES NUMBER 10 SIZE STUDS.
6. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

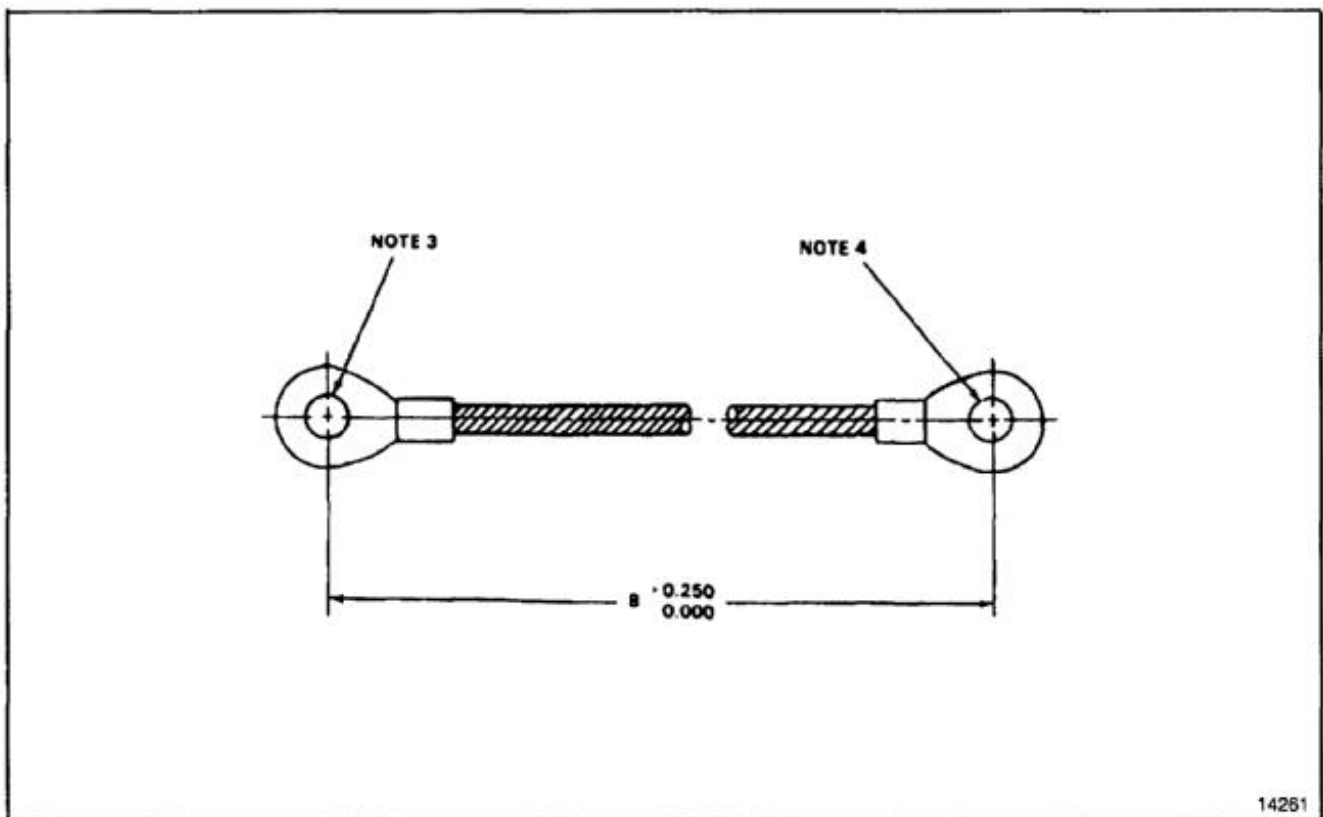
1. FABRICATE FROM FELT STRIP TYPE 1, CLASS 12R1, NSN 5330-00-530-4341.
2. ALL DIMENSIONS IN INCHES.
3. °CUT ENDS TO OVERLAP AT  $45 \pm 0$  ANGLES 5 AS INDICATED.
4. CUT STRIP TO MATCH PERIPHERY OF ROD.



END OF TASK

**NOTES:**

1. FABRICATE FROM PURE TINNED STRANDED SOFT COPPER WIRE SIZE AWG12, NSN 6145-00-819-0058.
2. ATTACH TERMINALS (MS25036-111, 112, 113, 114, 156, OR 157) TO WIRE WITH CRIMPING TOOL (MS25441).
3. TERMINAL HOLE ACCOMMODATES NUMBER 4 OR 6 SIZE STUD NSN 5940-00-204-8990.
4. STUD HOLE (ID) REQUIRED IN TERMINAL NSN 5940-00-143-4777 IS 0.250.
5. ALL DIMENSIONS IN INCHES.

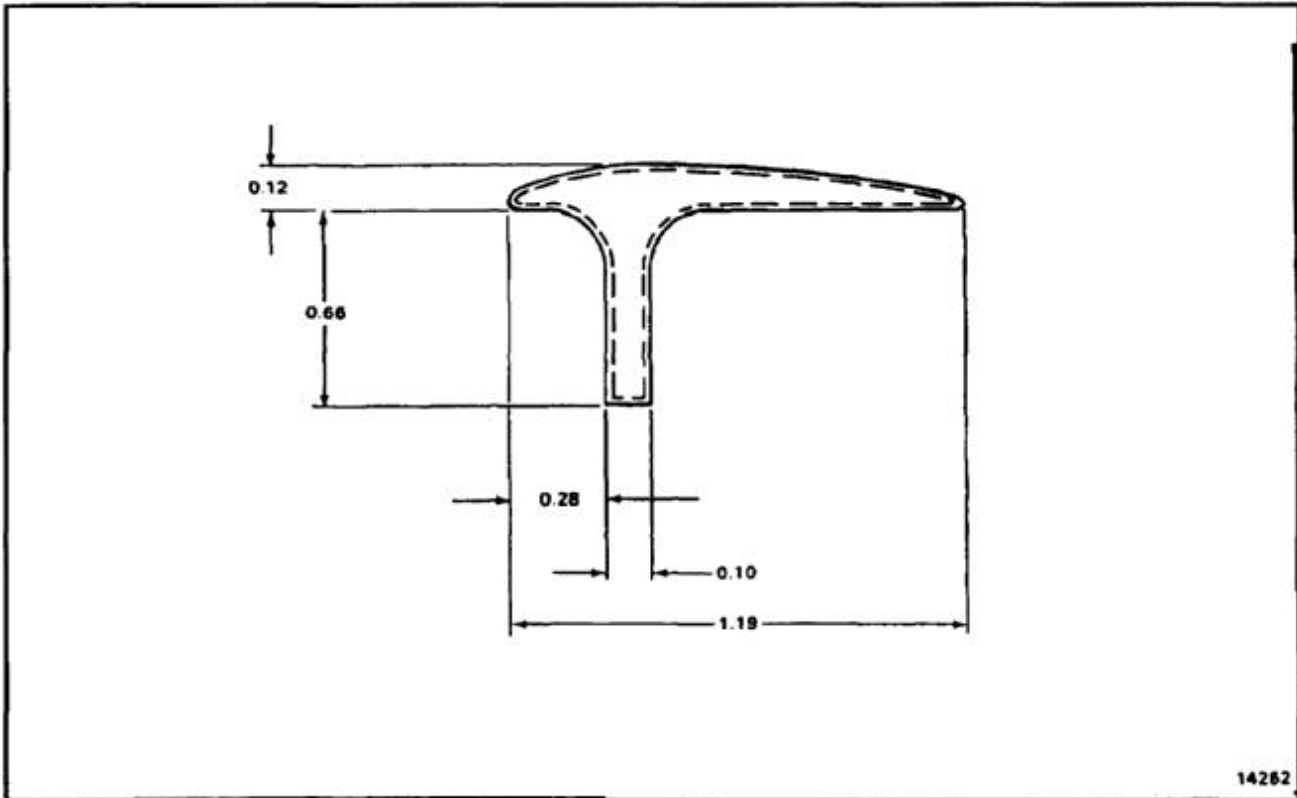


14261

END OF TASK

**NOTES:**

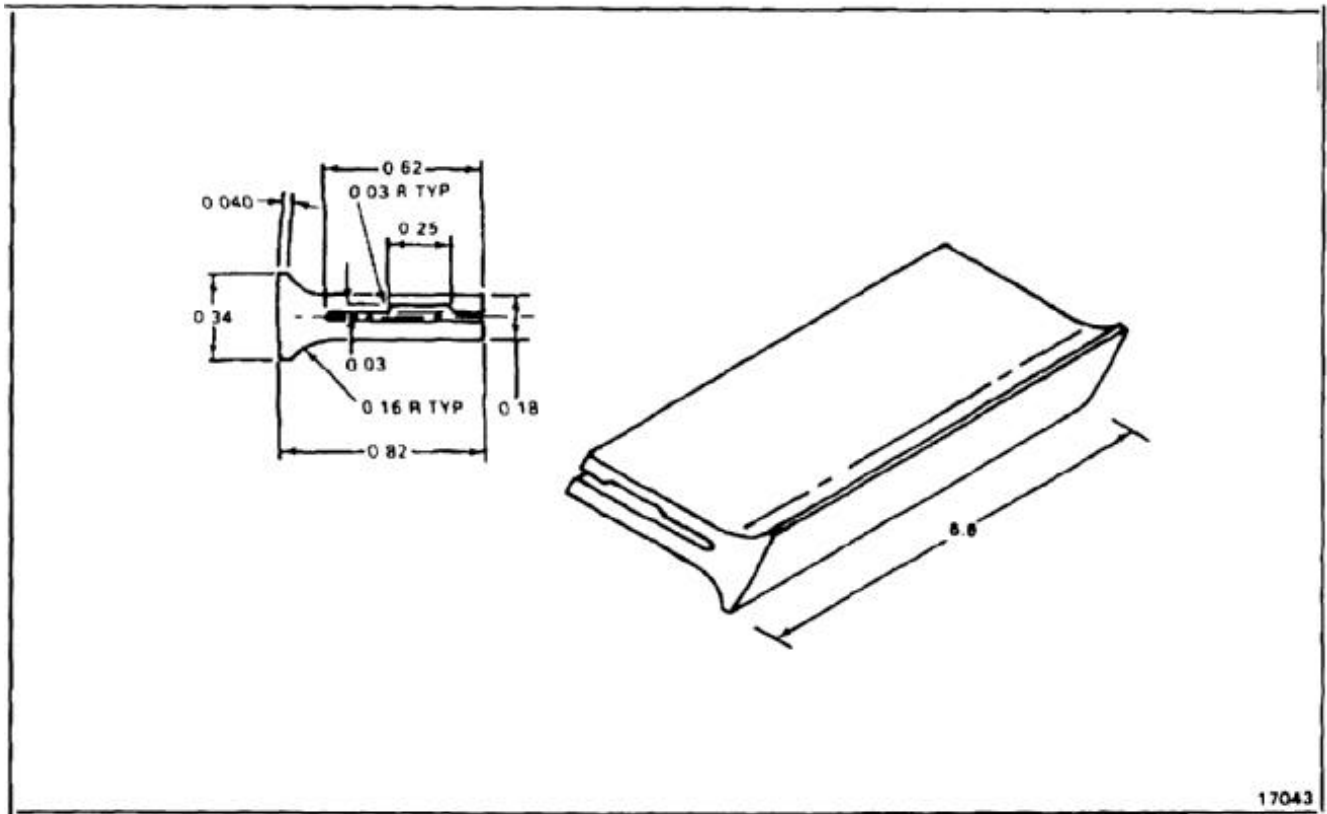
1. FABRICATE FROM SILICONE RUBBER  
TRICOT KNOT DACRON FABRIC OR  
EQUIVALENT.
2. COLOR BLACK STANDARD SHAPE  
BAC1530-86.
3. ALL DIMENSIONS IN INCHES.
4. STOCK LENGTH 35.9. CUT SEAL TO FIT.



END OF TASK

**NOTES:**

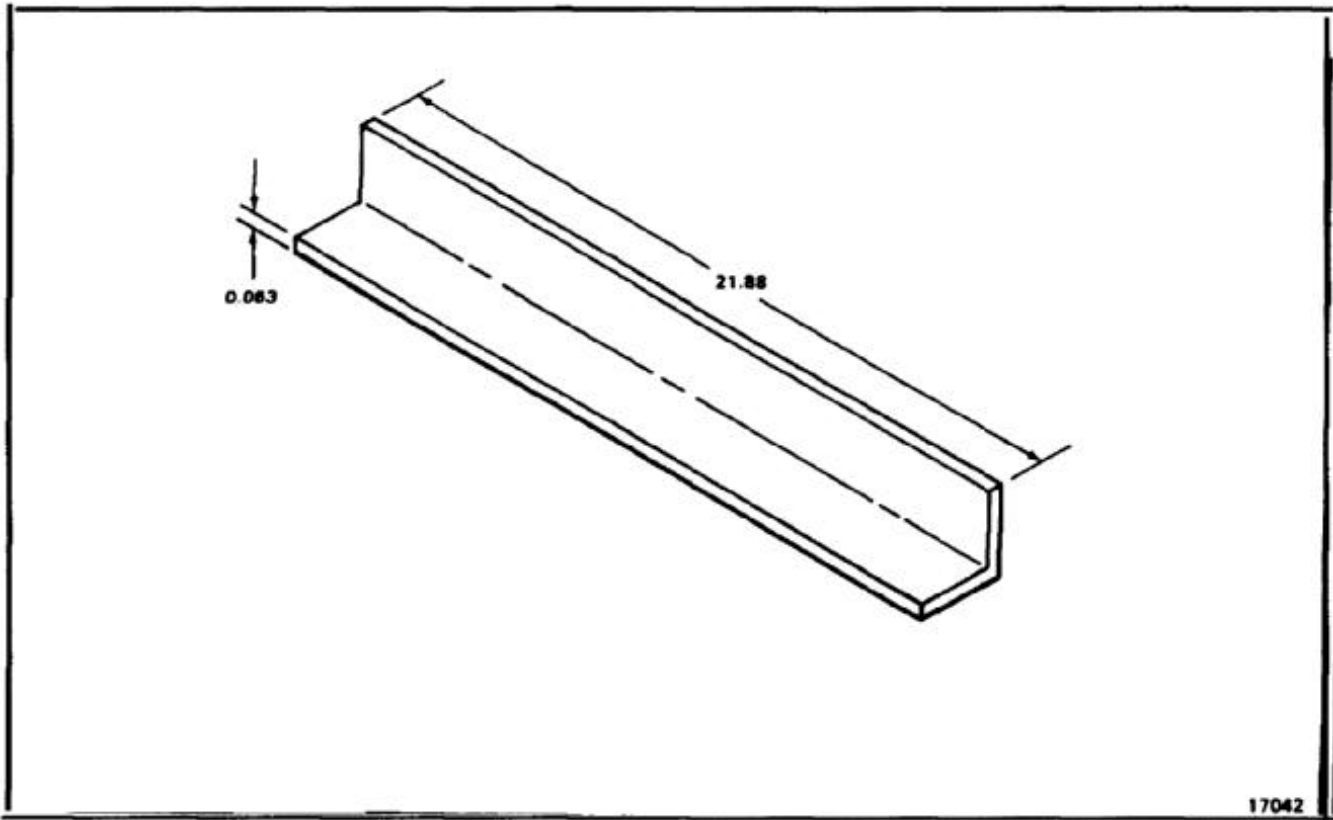
1. MADE OF SILICON RUBBER MIL-R-5847, CLASS III, GRADE 50.
2. ALL DIMENSIONS IN INCHES.
3. STANDARD SHAPE VS80546-1 LENGTH 6.6, COLOR BLACK.
4. CUT SEAL TO FIT.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM EXTRUSION  
0.063 THICK 2024-T 3511 PER QQ-A-200/3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK AND 10134-0602 X 22.00 (0.063)  
THICK.
4. FINISH AS REQUIRED.

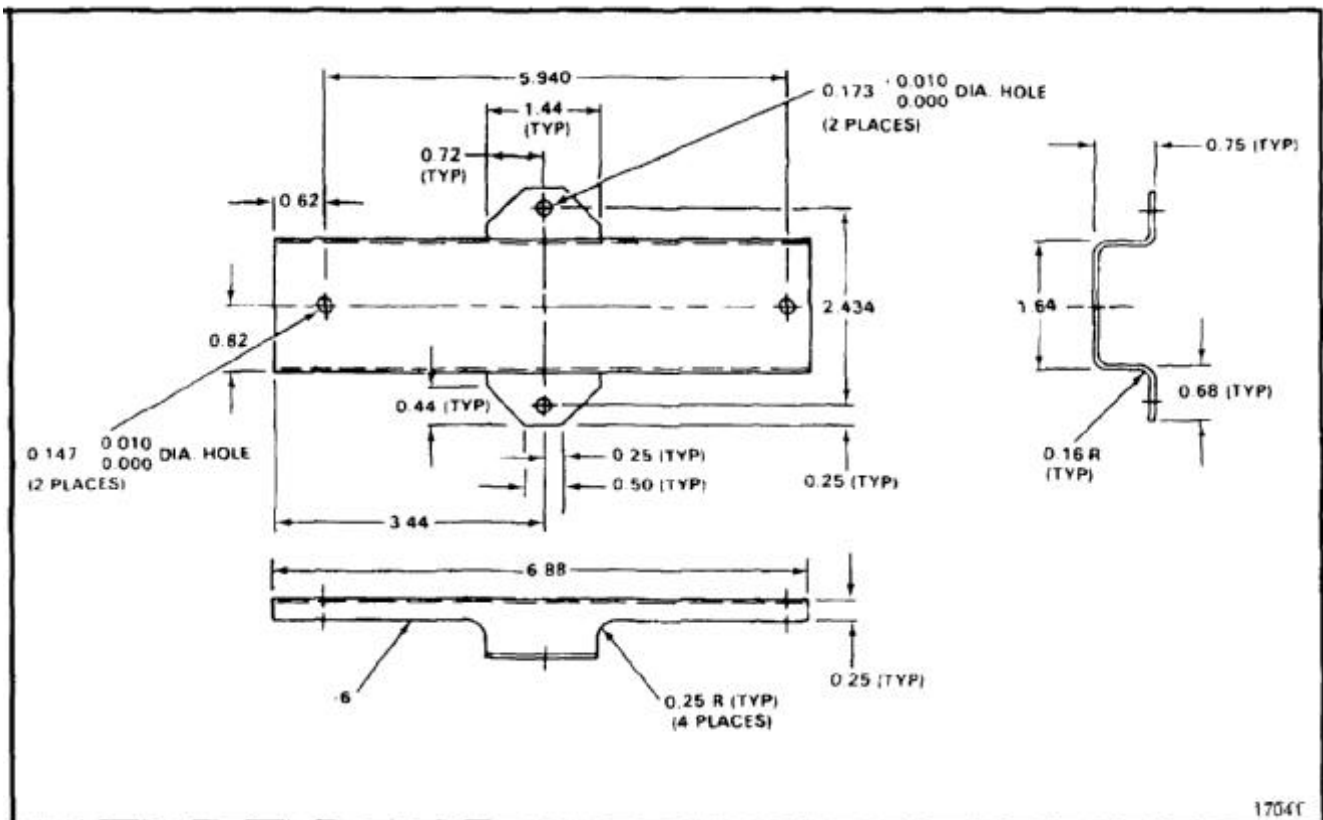


END OF TASK

E-190

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.040 X 5.0 X 7.0.
4. FINISH AS REQUIRED.

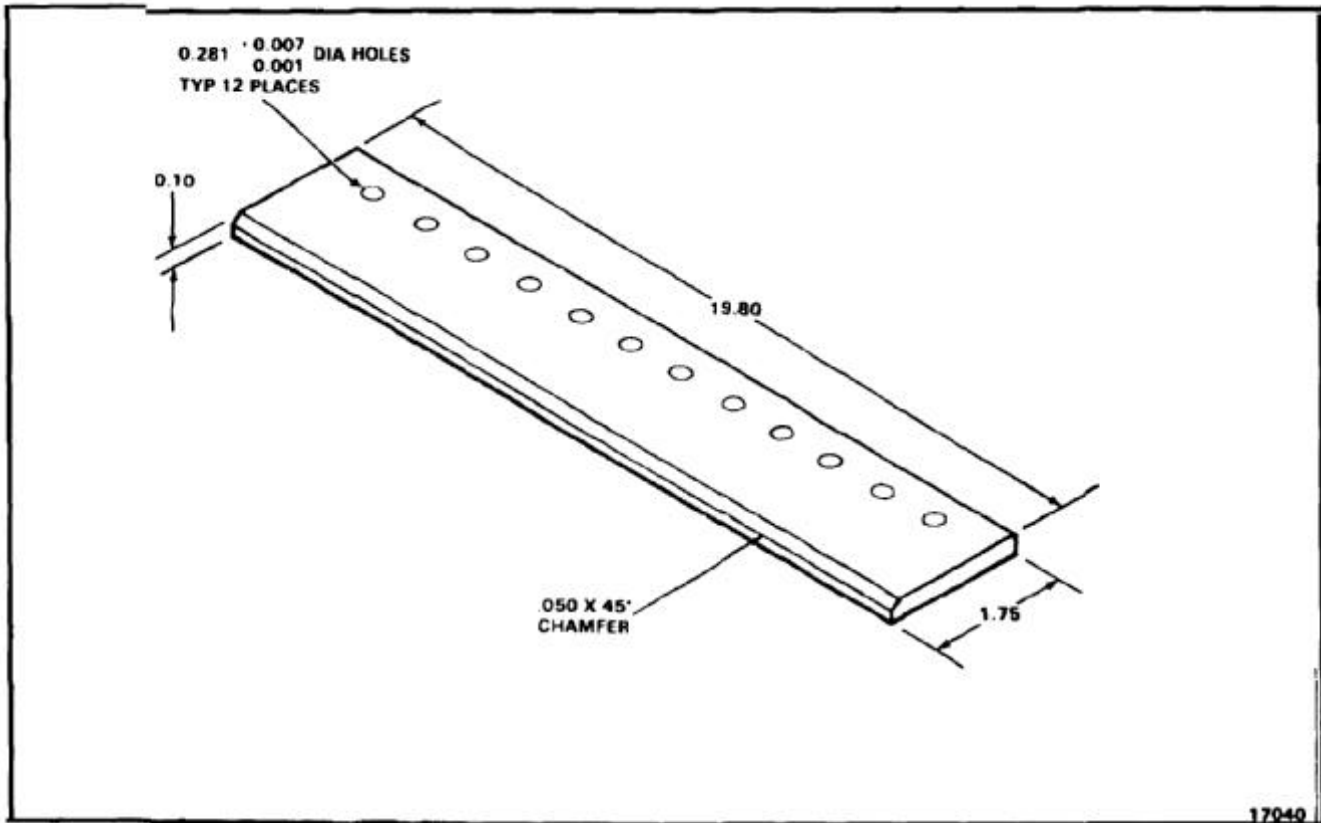


END OF TASK



**NOTES:**

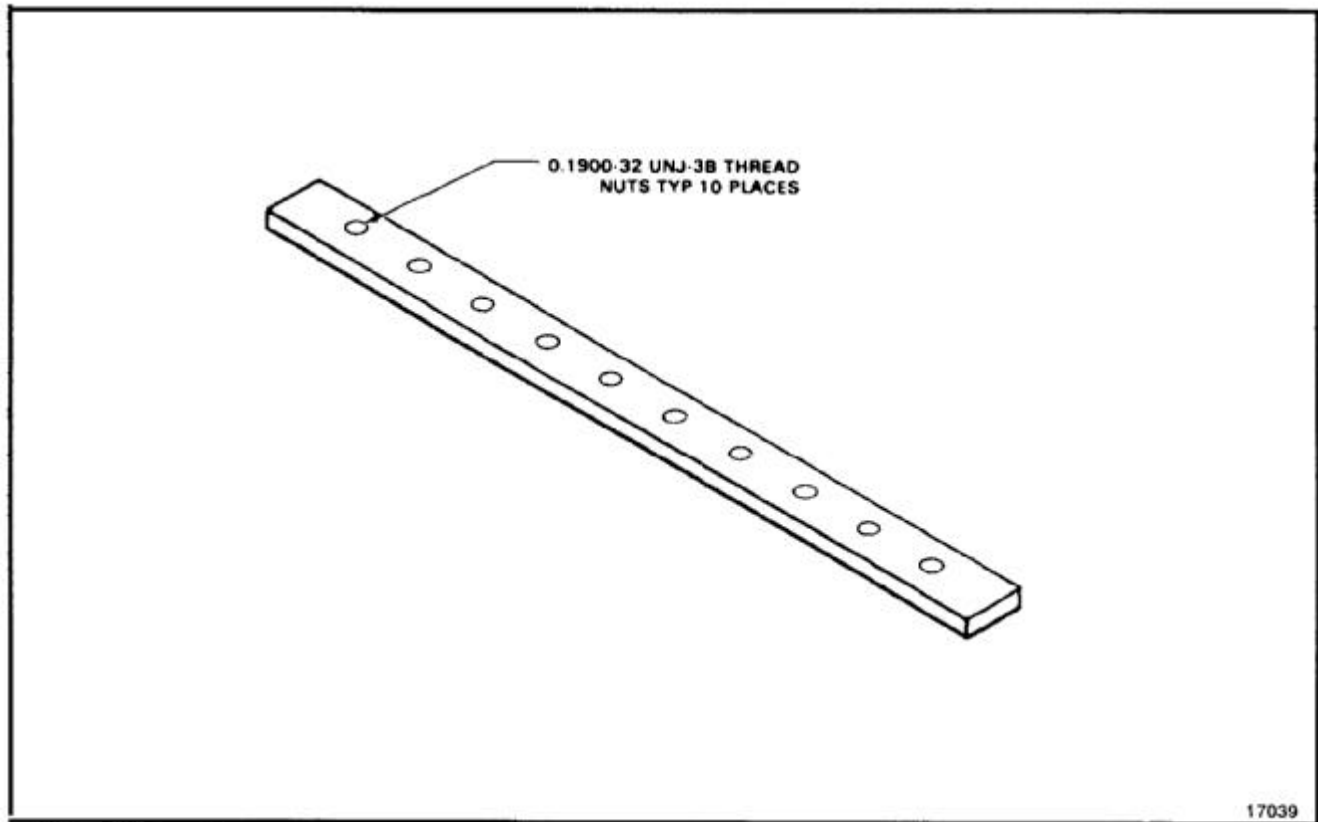
1. FABRICATE FROM CLAD ALUMINUM ALLOY 7075-T6 PER QQ-A-25015.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.100 X 1.800 X 19.8.
4. USE ORIGINAL FOR TEMPLATE WHEN MAKING REPLACEMENT.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

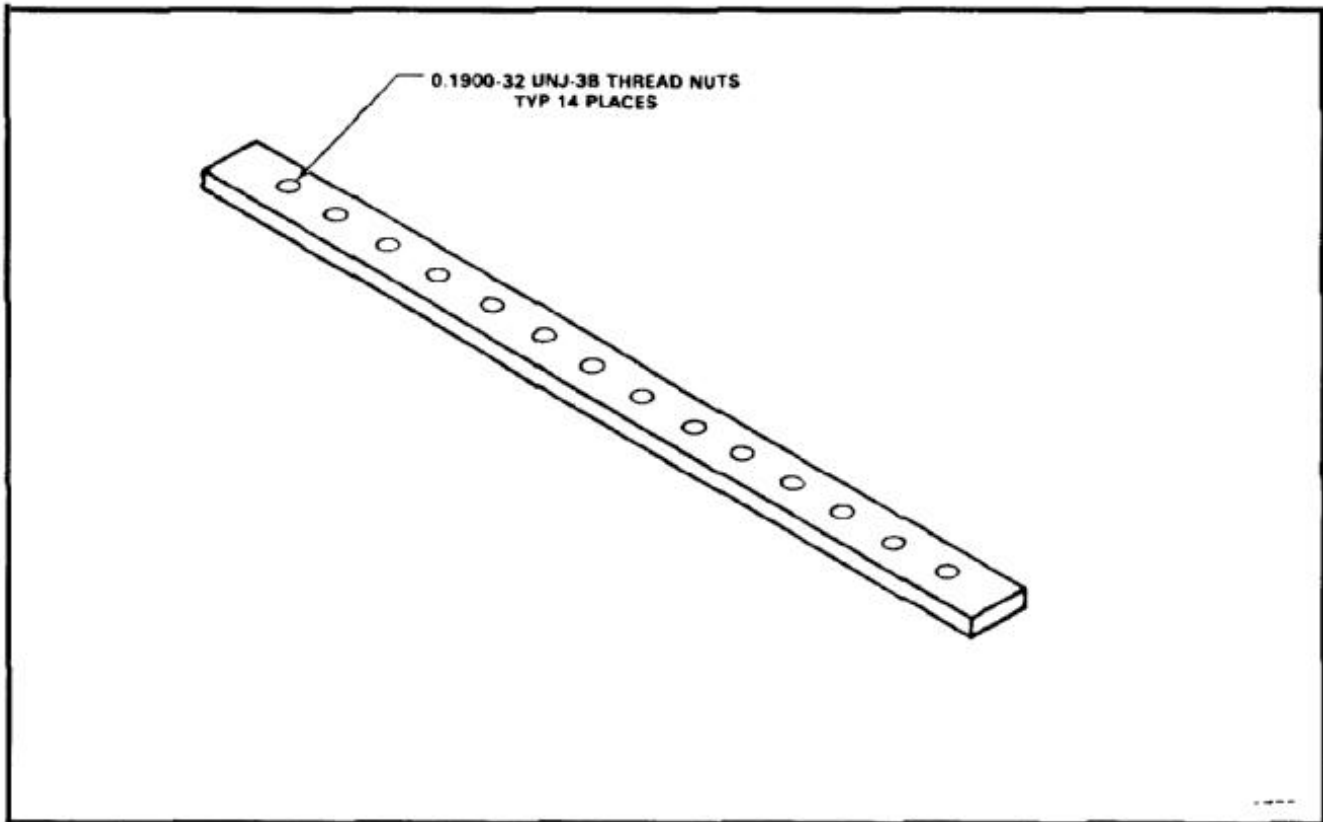
1. FABRICATE FROM NSN 5310-00-915-7985 GANG CHANNEL.
2. ALL DIMENSIONS IN INCHES.
3. NUTS ARE 0.1900-32 UNJ-3B THREAD IN ALUMINUM CHANNEL.
4. CUT LENGTH SAME AS REPLACEMENT PART.



END OF TASK

**NOTES:**

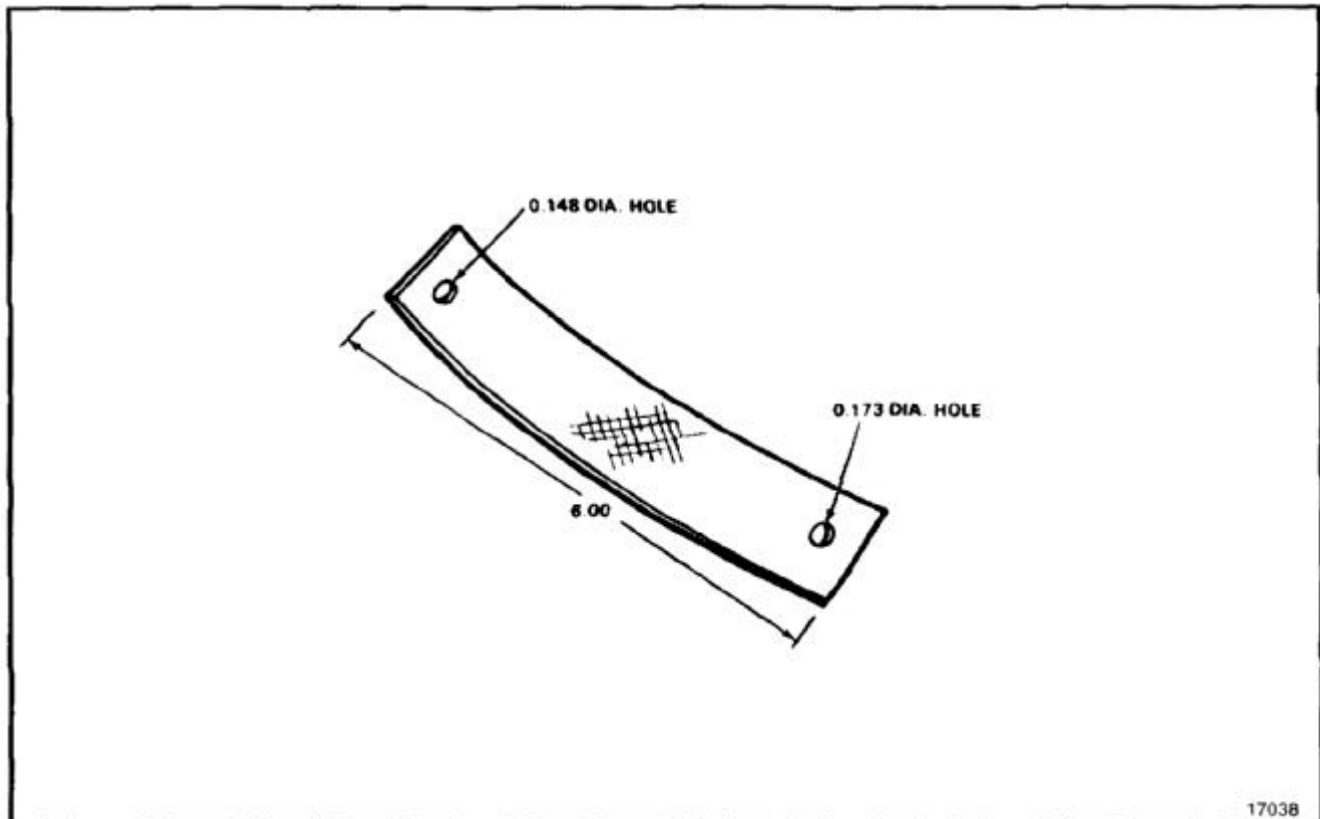
1. FABRICATE FROM NSN 5310-00-915-7985 GANG CHANNEL.
2. ALL DIMENSIONS IN INCHES.
3. NUTS ARE 0.1900-32 UNJ-3B THREAD IN ALUMINUM CHANNEL.
4. CUT LENGTH SAME AS REPLACEMENT PART.



END OF TASK

**NOTES:**

1. FABRICATE FROM TUBULAR WEBBING PER MIL-W-5625 COLOR MED. GRAY.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.070-0.10 X 0.50 LENGTH 6 INCHES.
4. SEAR FASTENER HOLES AND STRAP ENDS TO PREVENT FRAYING.



17038

END OF TASK

**NOTES:**

1. FABRICATE FROM CRESCENT CABLE PER MIL-W-83420 TYPE I, COMPOSITION B.
2. ALL DIMENSIONS IN INCHES.
3. CABLE STOCK 1/16 X 7 X 7 LENGTH 6.5.



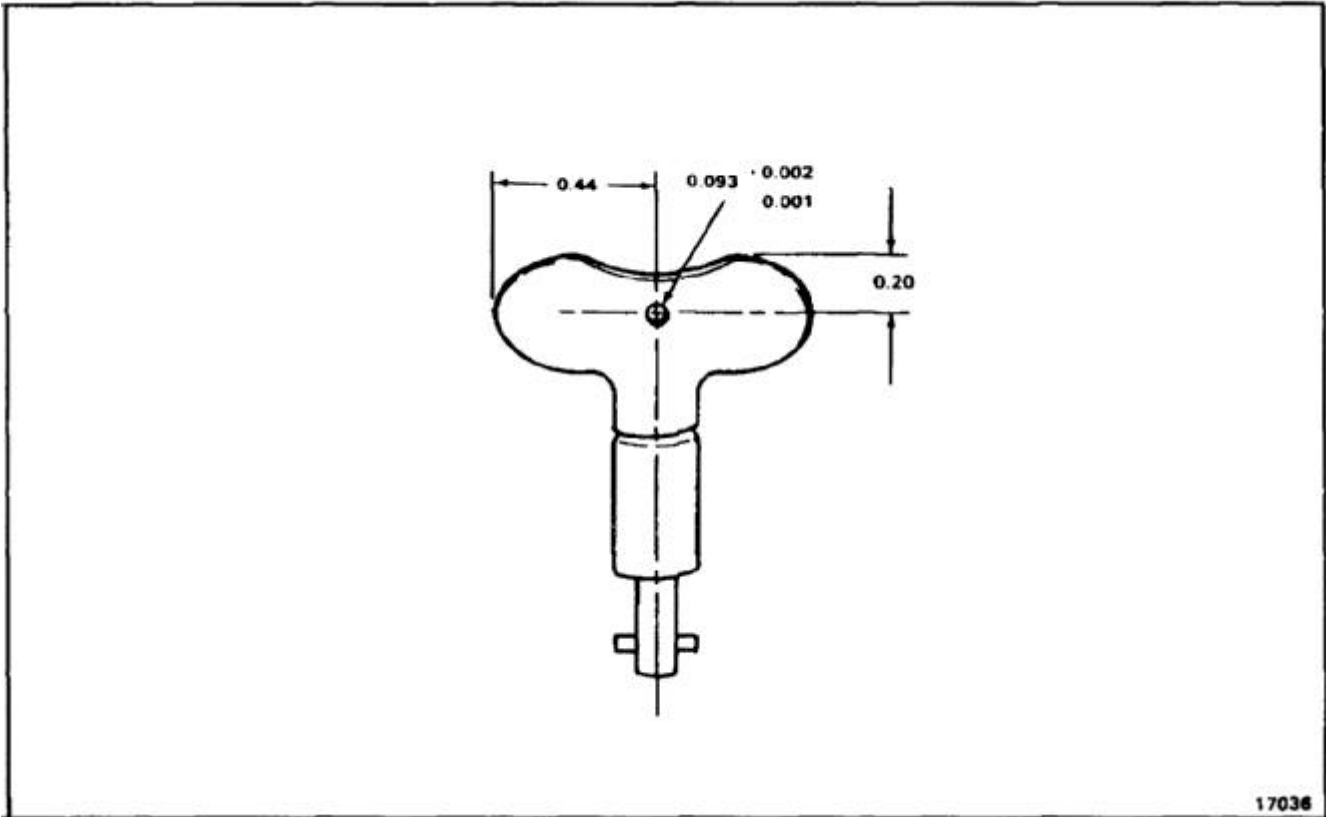
17037

END OF TASK

E-196

**NOTES:**

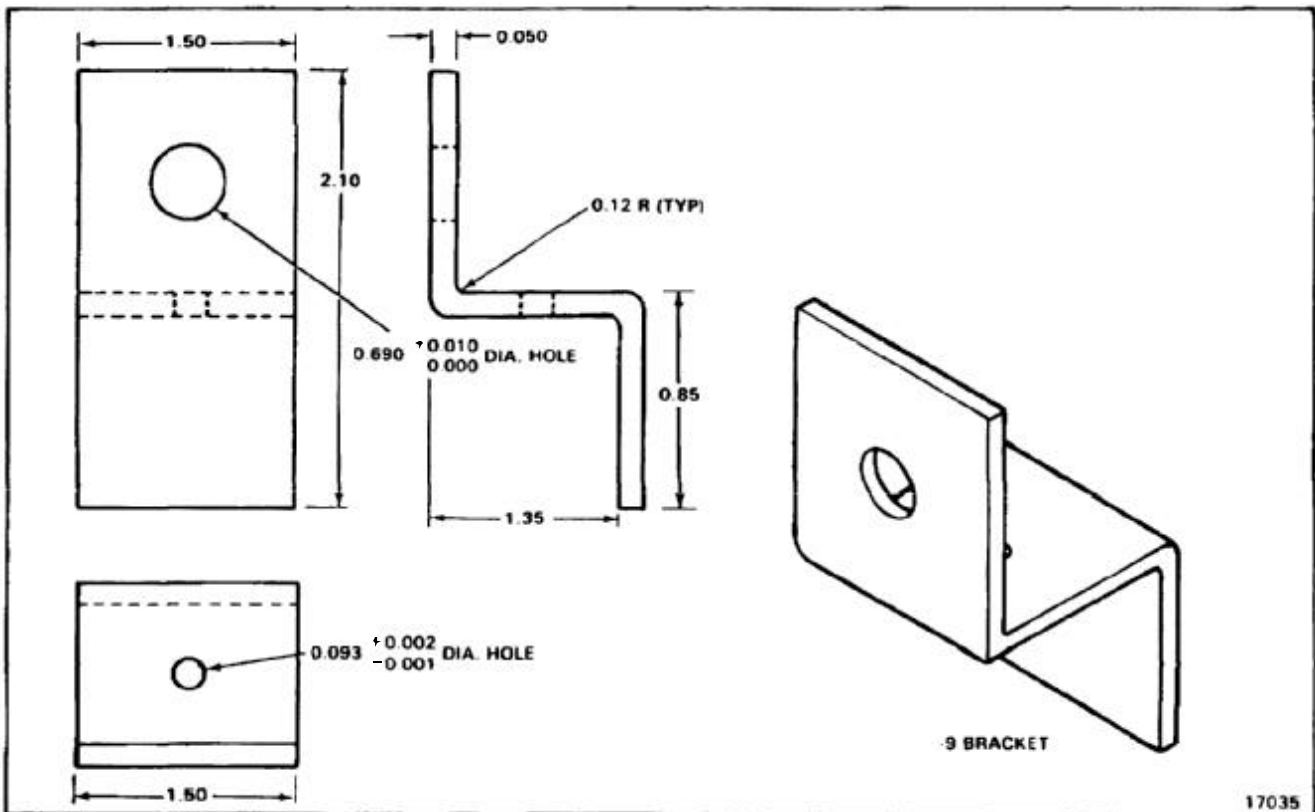
1. FABRICATE FROM 4002-10W CAMLOCK FASTENER.
2. ALL DIMENSIONS IN INCHES.
3. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

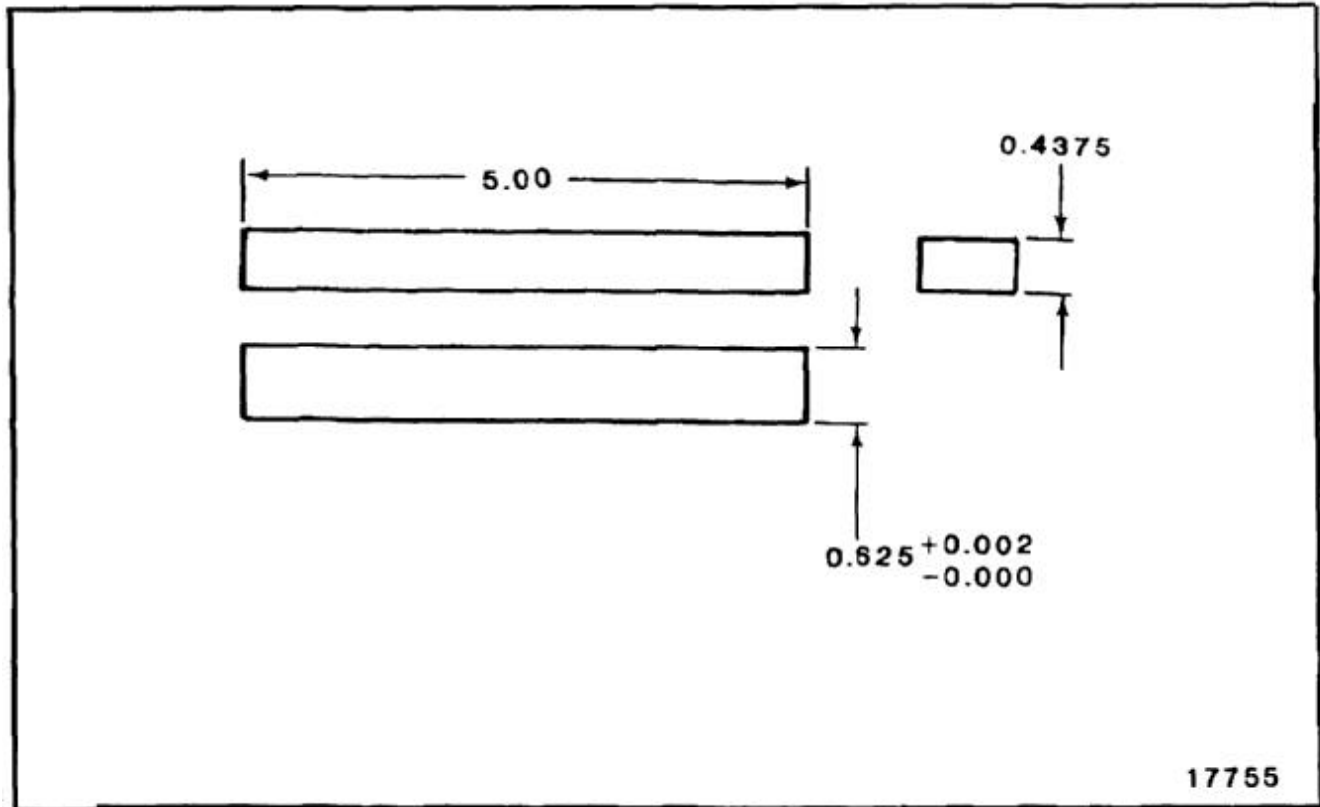
1. FABRICATE FROM ALUMINUM ALLOY BARE SHT 7075 PER QQ-A-250/12.
2. ALL DIMENSIONS IN INCHES.
3. BRACKET STOCK SIZE .050 X 3.6 X 1.6.
4. USE ORIGINAL FOR TEMPLATE WHEN MAKING REPLACEMENT.
5. HEAT TREAT TO -T6 CONDITION PER BAC 5602.
6. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM 4130 STEEL.
2. ALL DIMENSIONS IN INCHES.
3. BREAK SHARP EDGES.

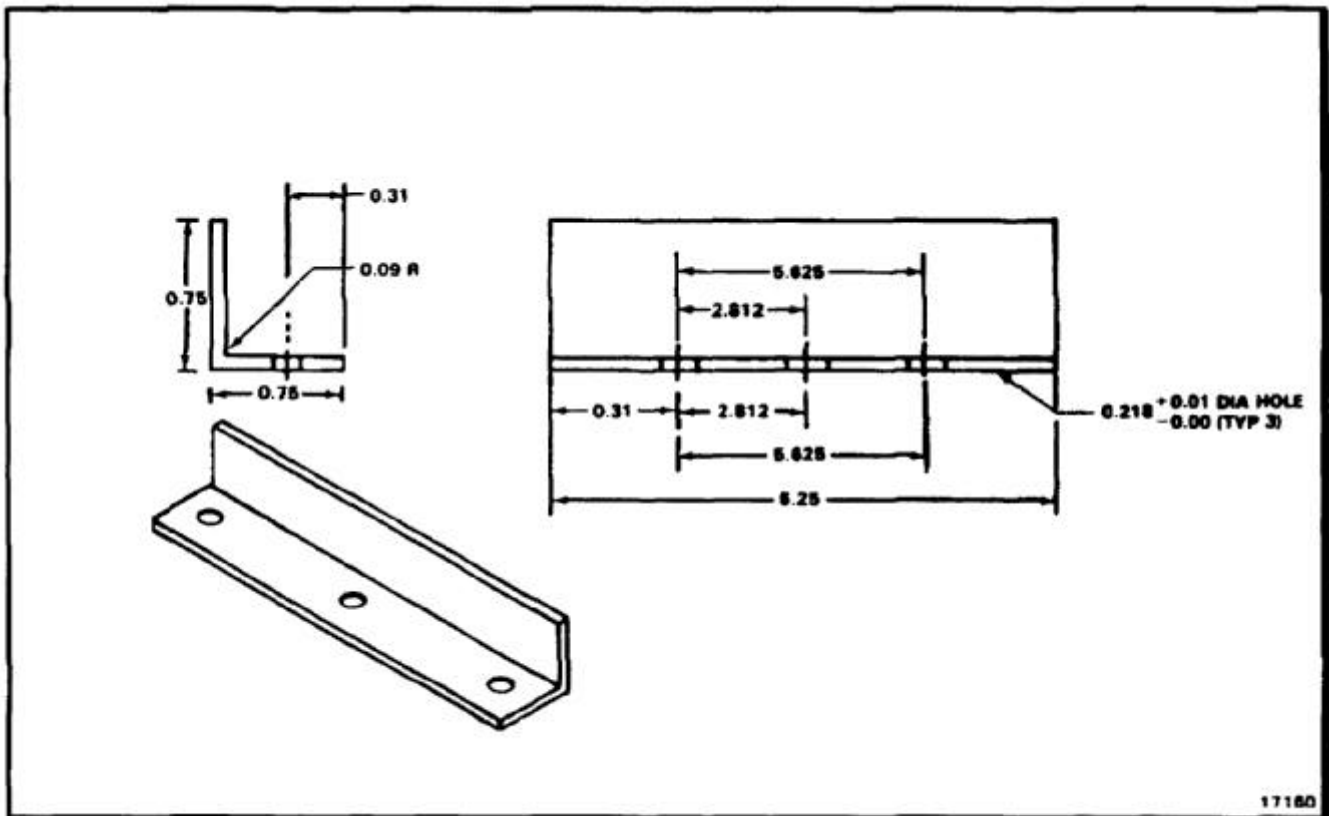


END OF TASK



**NOTES:**

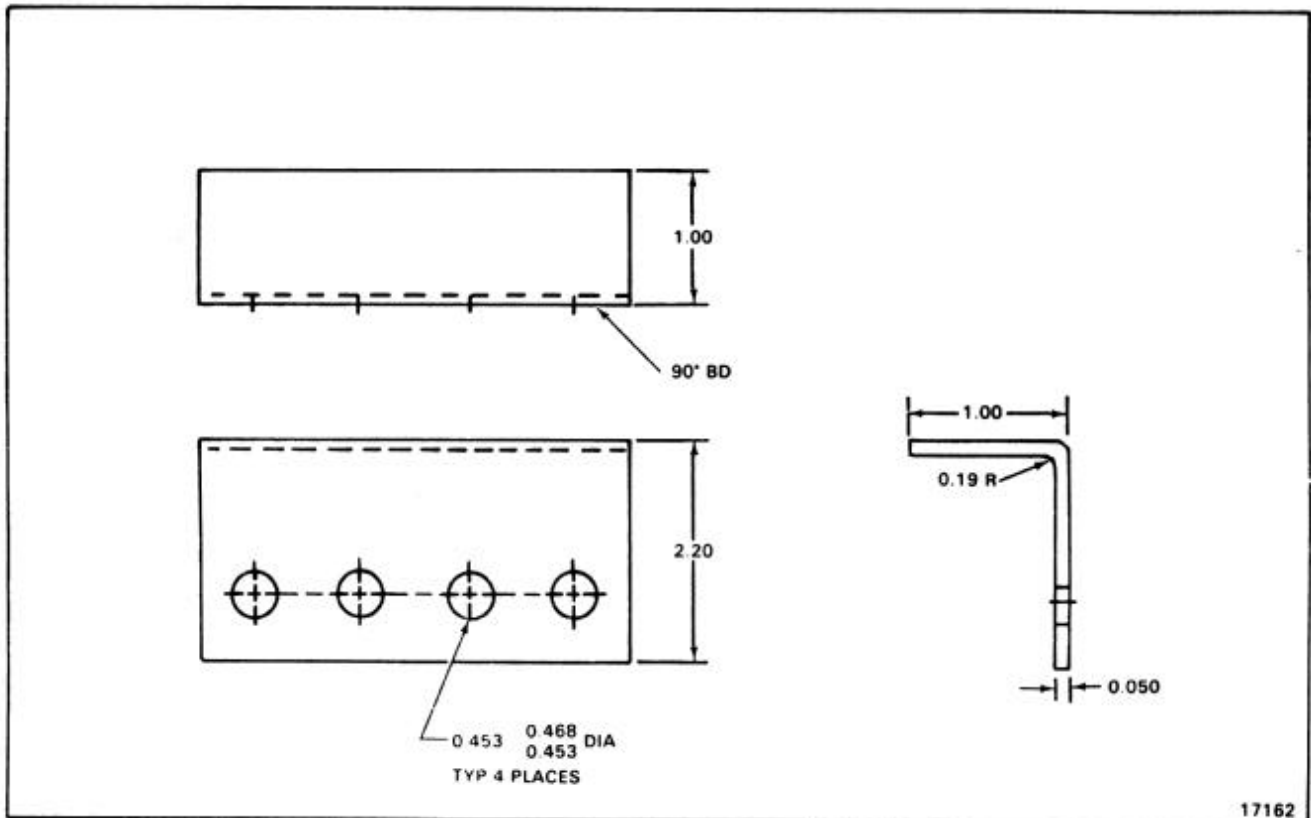
1. FABRICATE FROM ALUMINUM EXTRUSION 0.063 THICK 2024-T3511 PER QQ-A-200/3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK AND 10133-0601 EXTRUSION 0.063 THICK.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

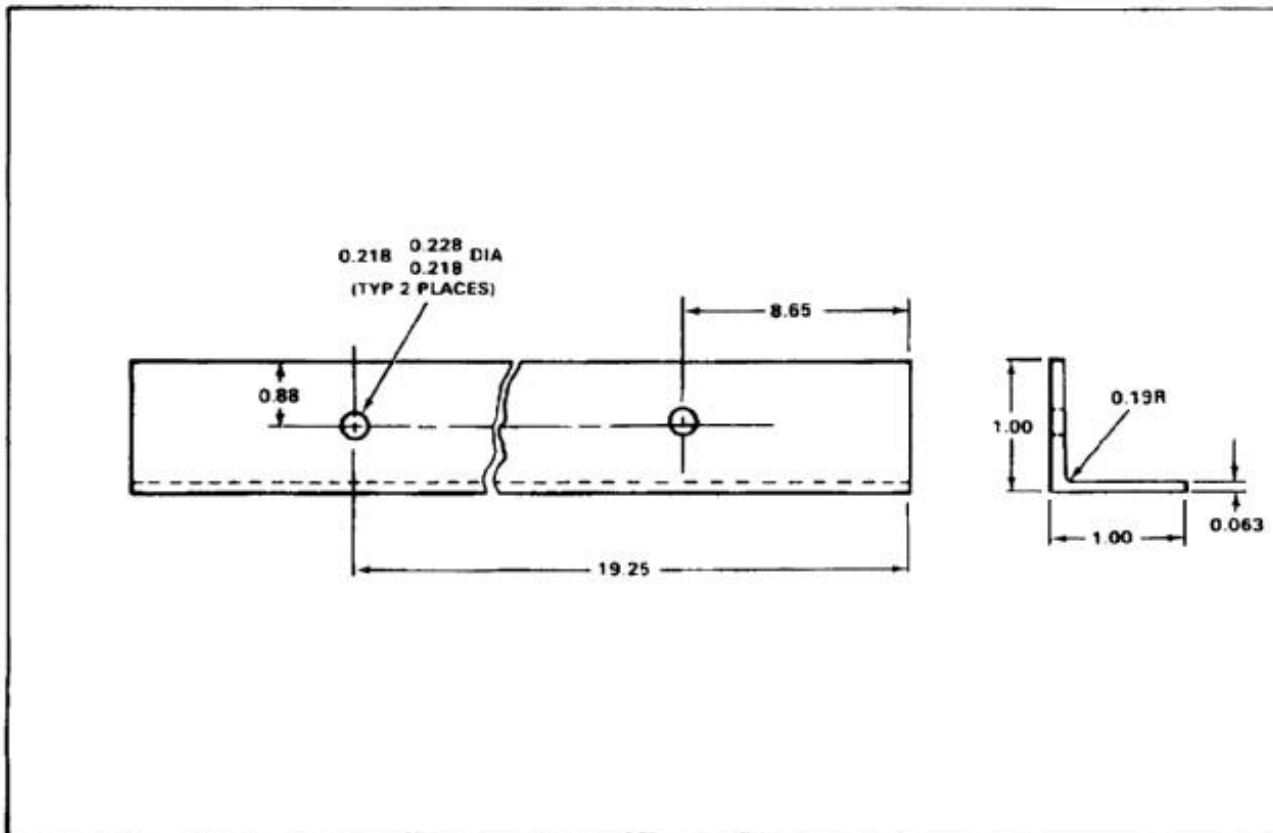
1. FABRICATE FROM ALUMINUM CLAD ALLOY 2024-T3 PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.050 X 3.2 X 5.3.
4. USE ORIGINAL PART TO LOCATE HOLES.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM EXTRUSION  
2024-T3511 PER QQ-A-200/3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE AND 10133-1001 X 23.8.
4. USE OLD PART AS TEMPLATE WHEN MAKING  
REPLACEMENT.
5. FINISH AS REQUIRED.

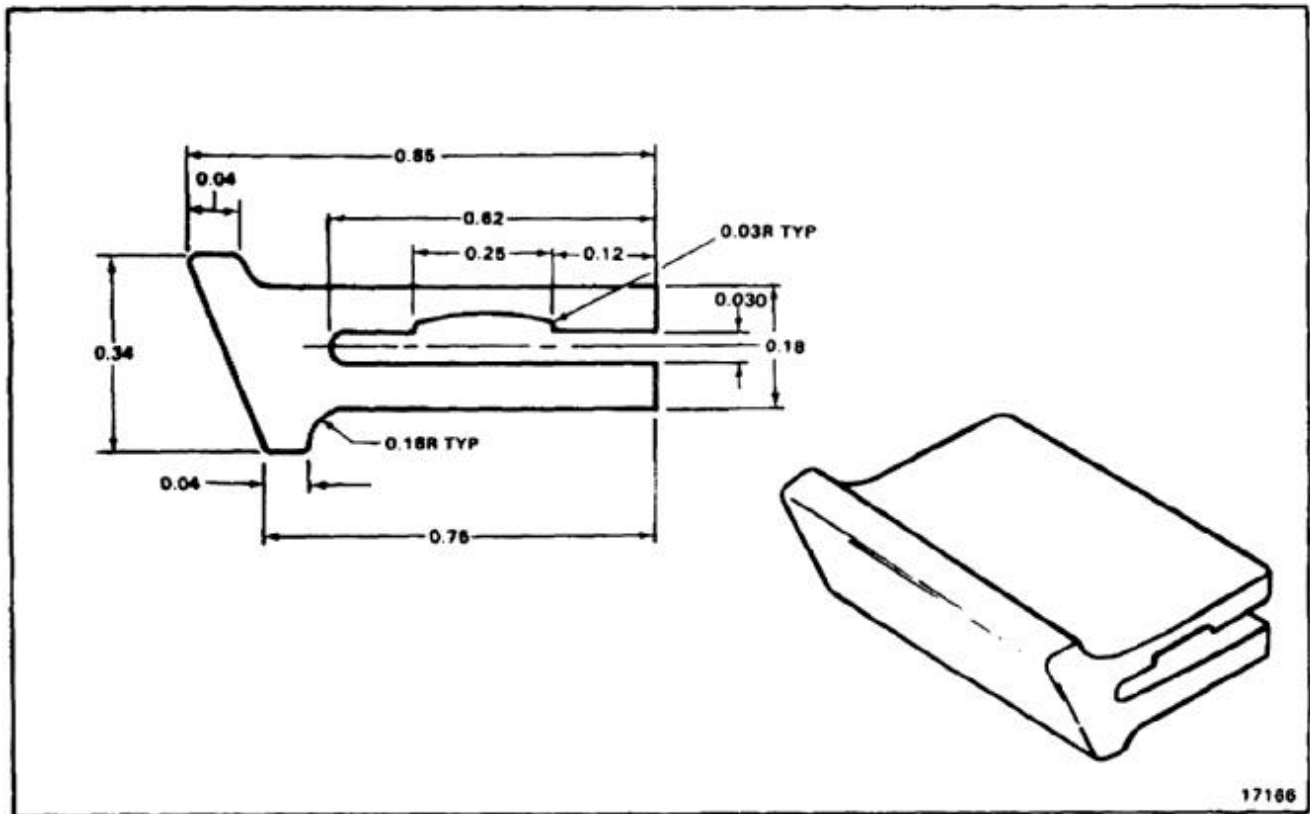


END OF TASK

E-202

**NOTES:**

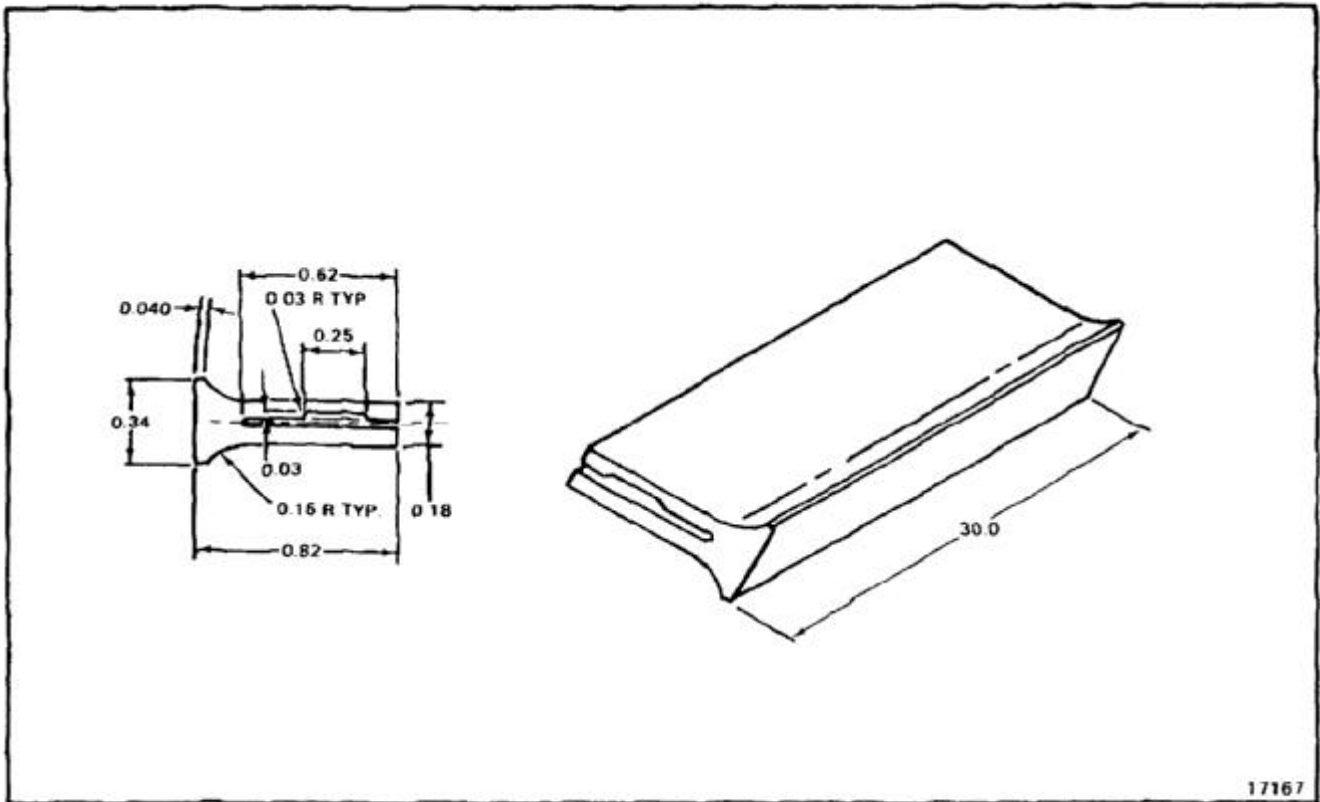
1. MAKE FROM SILICON RUBBER MIL-R-5847 CLASS III, GRADE 50, COLOR BLACK.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SHAPE NUMBER VS80555-1 X 22.8.
4. CUT LENGTH TO FIT.



END OF TASK

**NOTES:**

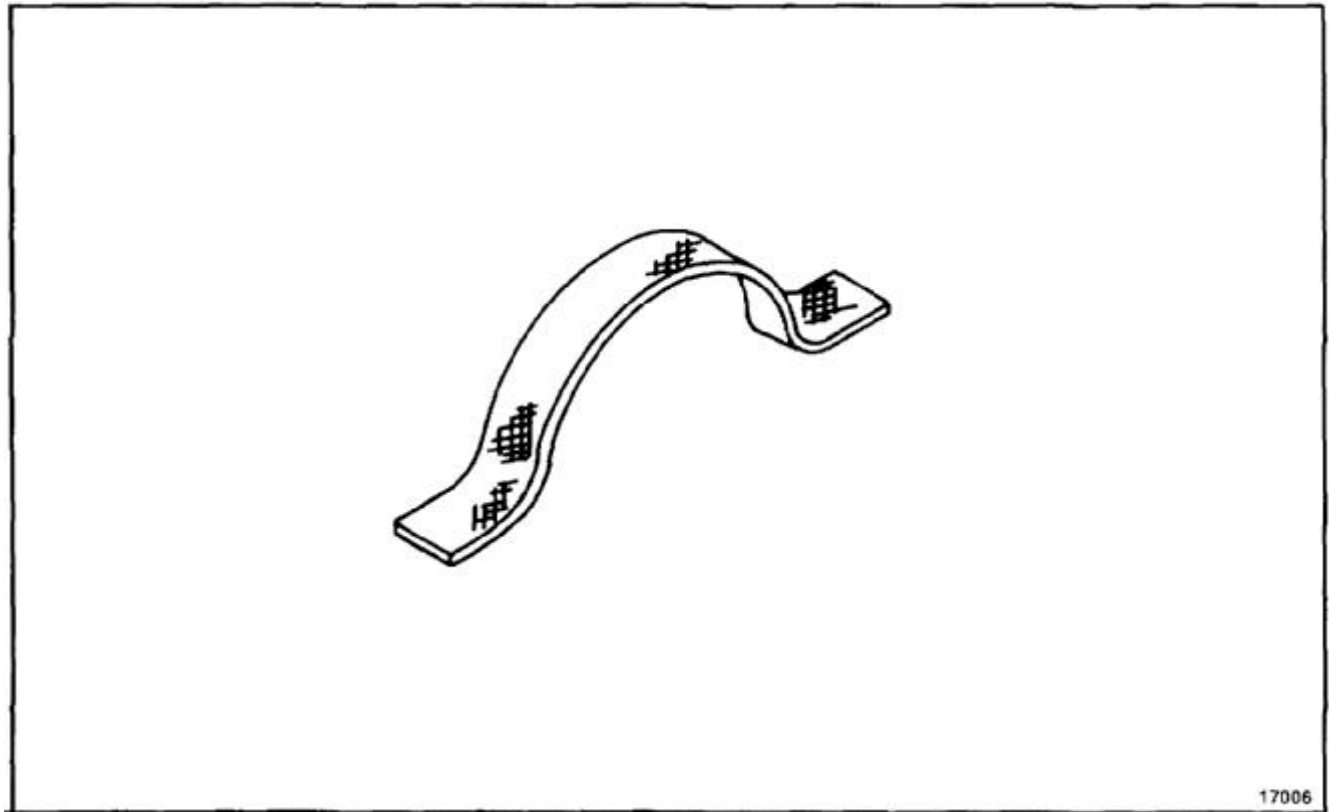
1. MAKE FROM SILICON RUBBER MIL-R-5847 CLASS III, GRADE 50, COLOR BLACK.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SHAPE NUMBER VS80546-1 X 30.0.
4. CUT LENGTH TO FIT.



END OF TASK

**NOTES:**

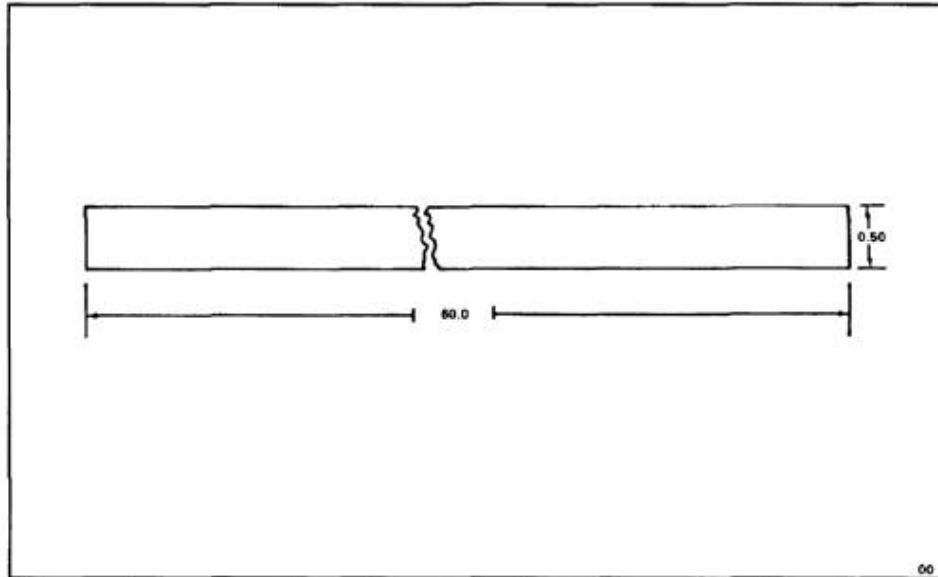
1. MAKE FROM WOVEN NYLON WEBBING MIL-W-4088, TYPE I, COLOR CINDER GRAY.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE: 10.0 LONG X 5/8 WIDE.



END OF TASK

**NOTES:**

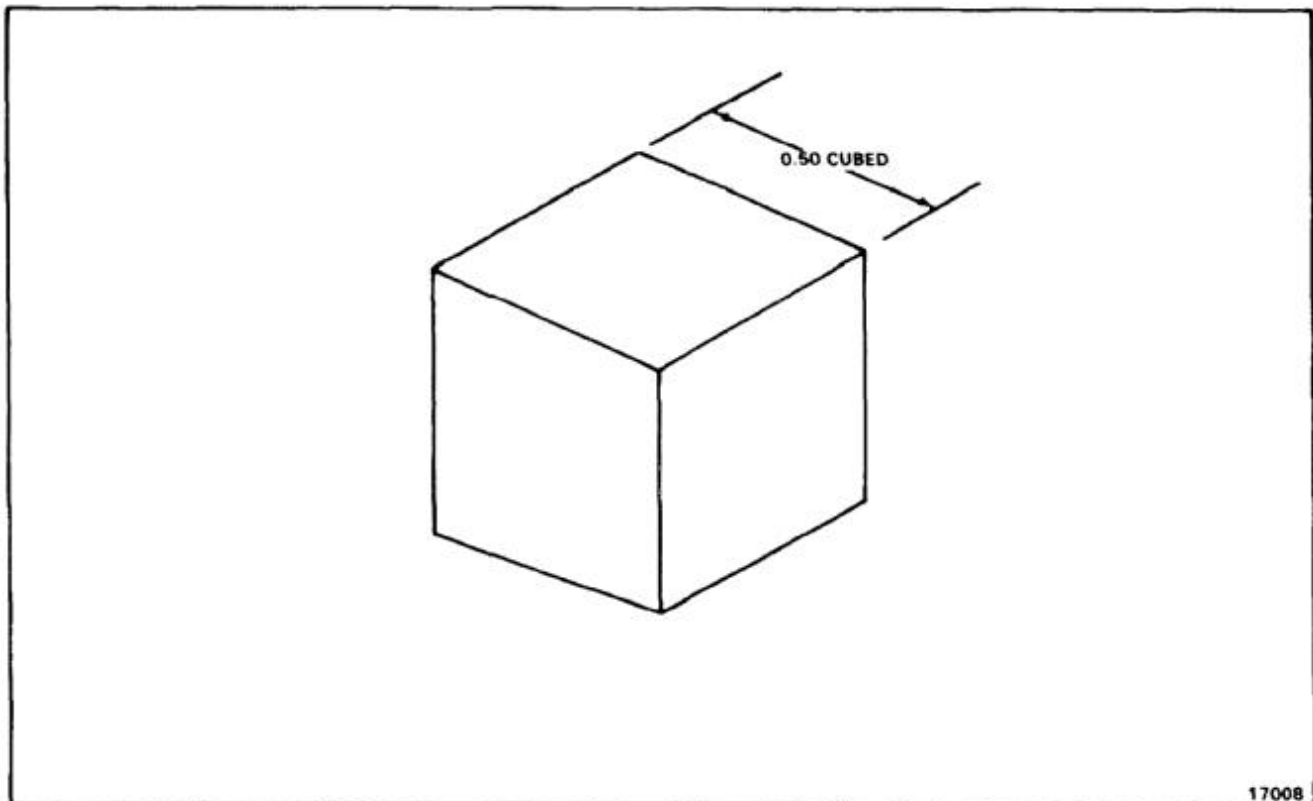
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 7075-T6 PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.025 X 0.50 X 60.0.
4. PICK UP RIVET LOCATIONS FROM EXISTING HOLES IN DOOR.



END OF TASK

**NOTES:**

1. FABRICATE FROM SILICON RUBBER SHEET  
AMS 3195.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.50 X 0.50 X 0.50.
4. TRIM TO FIT.

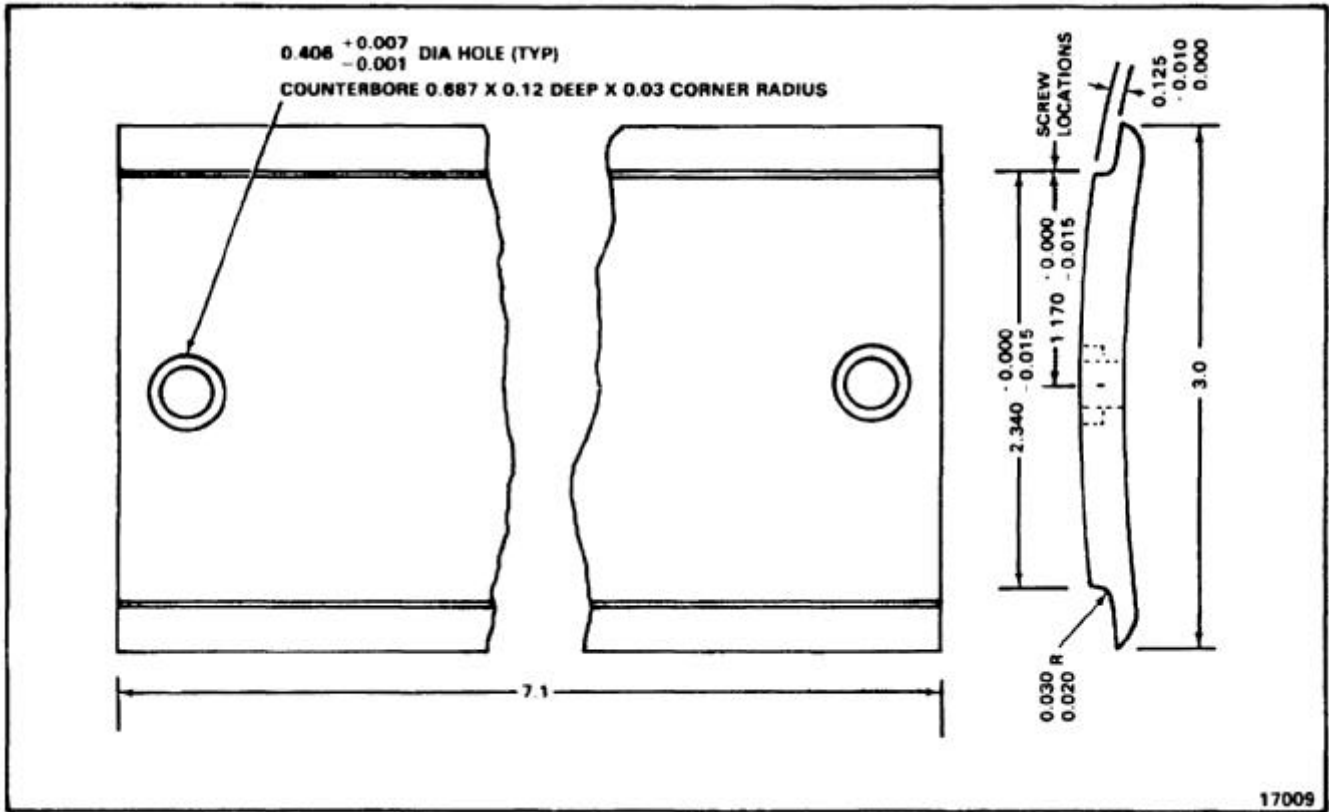


END OF TASK



**NOTES:**

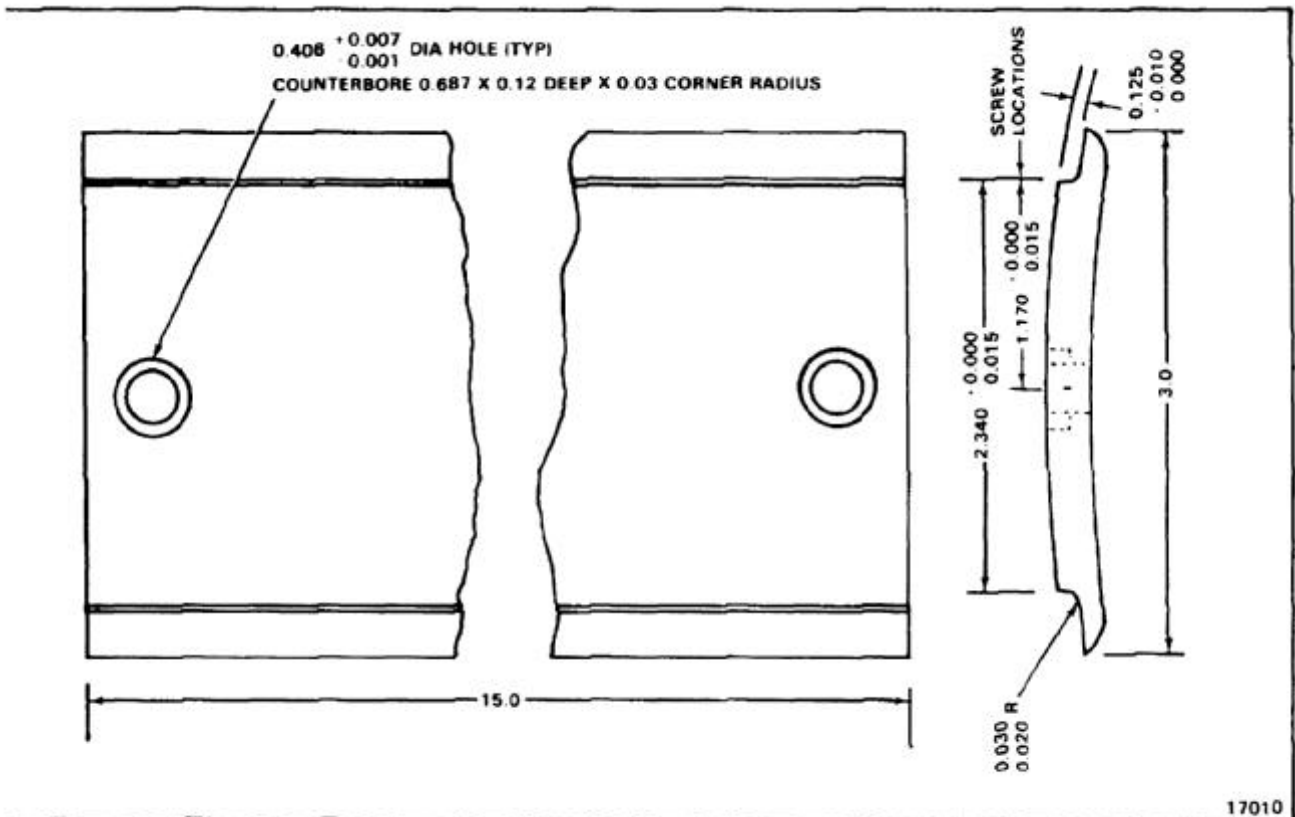
1. FABRICATE FROM VS80574 NYLATRON GS. THE POLYMER CORP. OF PA., READING, PA 19603 (IDENT. NO. 83616) OR NYLON PER MIL-P-46060 COLOR LIGHT TO DARK GREY.
2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES:  
 .XX 0.02  
 .XXX 0.010  
 UNLESS OTHERWISE SPECIFIED.
4. LATERAL HOLE LOCATION USE OLD BEARING PAD OR TRANSFER DRILL FROM AIRFRAME TO NEW PAD.
5. STOCK SIZE VS80574 X 7.1.
6. TRIM AS NECESSARY TO FIT.



END OF TASK

**NOTES:**

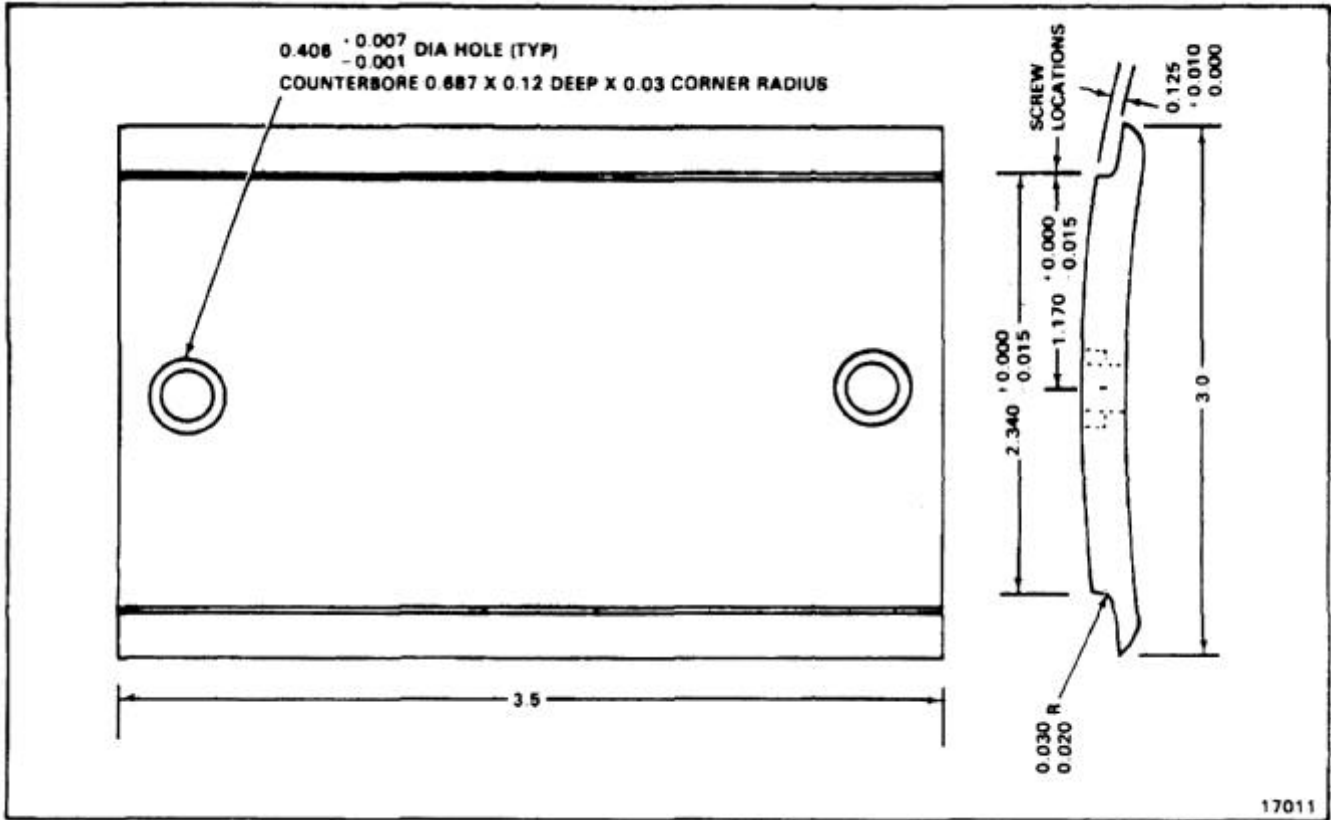
1. FABRICATE FROM VS80574 NYLATRON GS. THE POLYMER CORP. OF PA., READING, PA 19603 (IDENT NO. 83616) OR NYLON PER MIL-P-46060 COLOR LIGHT TO DARK GREY.
2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES:  
 .XX± 0.02  
 ±.XXX 0.010  
 UNLESS OTHERWISE SPECIFIED.
4. FOR LATERAL HOLE LOCATION USE OLD BEARING PAD OR TRANSFER DRILL FROM AIRFRAME TO NEW PAD.
5. STOCK SIZE VS80574 X 15.0
6. TRIM AS NECESSARY TO FIT.



END OF TASK

**NOTES:**

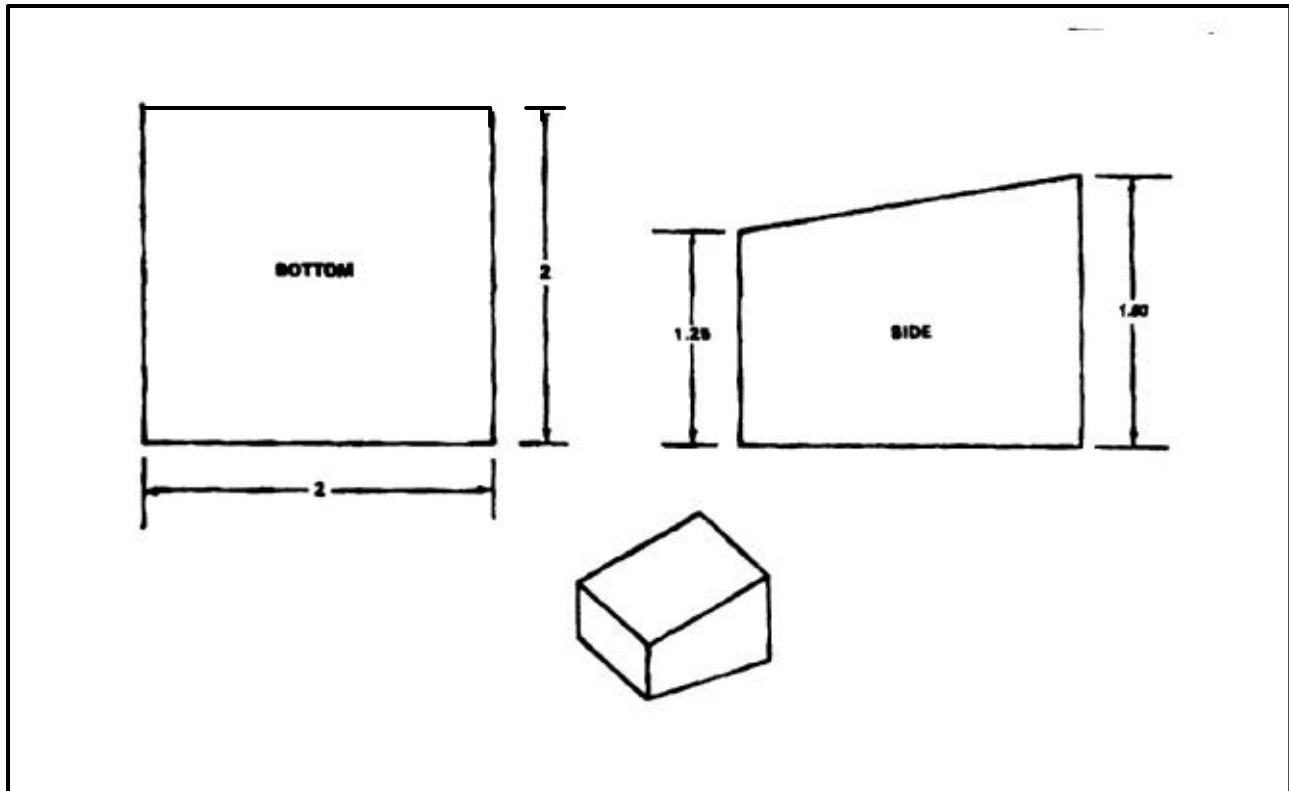
1. FABRICATE FROM VS80574 NYLATRON GS. THE POLYMER CORP. OF PA., READING, PA 19603 (IDENT NO. 83616) OR NYLON PER MIL-P-46060 COLOR LIGHT TO DARK GREY.
2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES:  
 .XX± 0.02  
 ±.XXX 0.010  
 UNLESS OTHERWISE SPECIFIED.
4. FOR LATERAL HOLE LOCATION USE OLD BEARING PAD OR TRANSFER DRILL FROM AIRFRAME TO NEW PAD.
5. STOCK SIZE VS80574 X 15.0
6. TRIM AS NECESSARY TO FIT.



END OF TASK

**NOTES:**

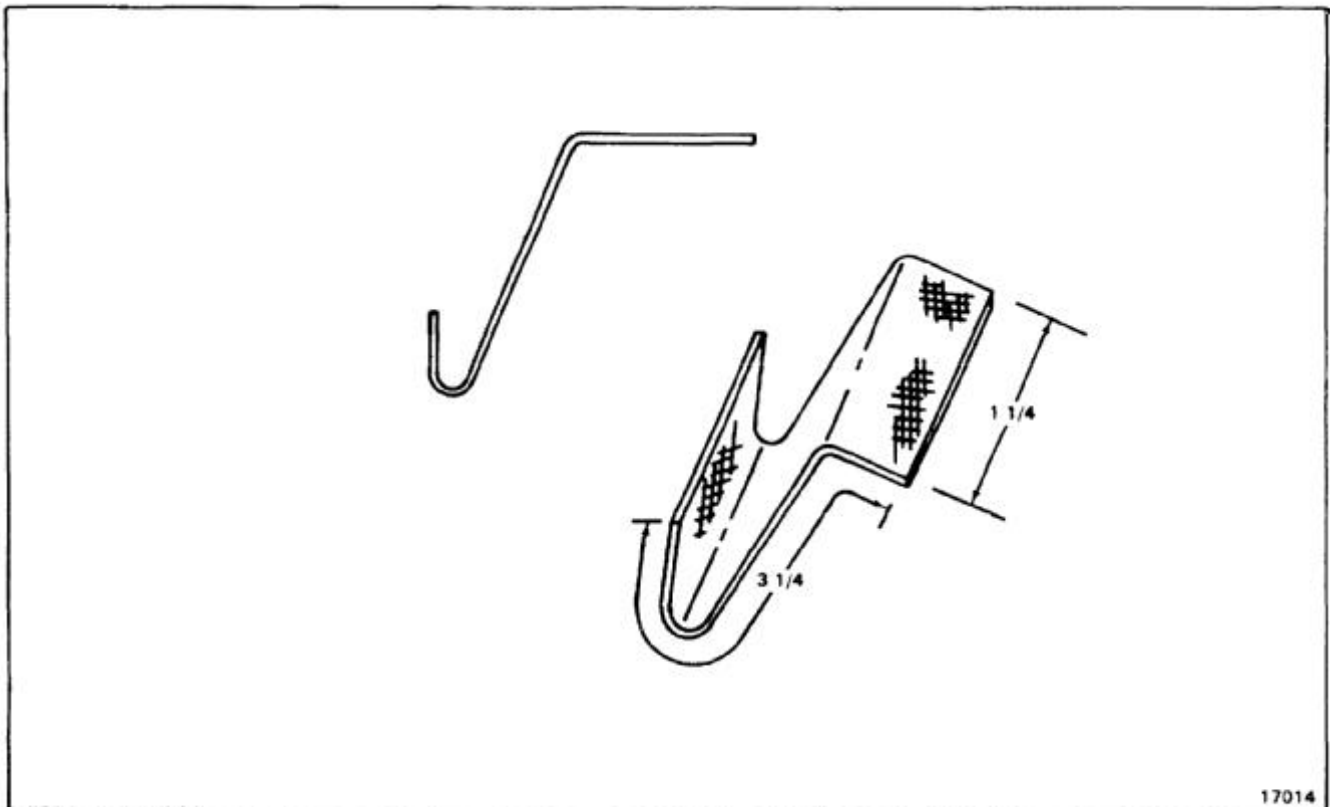
1. FABRICATE FROM BUNA-N-RUBBER,  
NSN 9320-01-317-4700.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 1.5 THICK X 2.0 X 2.0.



END OF TASK

**NOTES:**

1. FABRICATE FROM NYLON WEBBING MIL-W-4088, TYPE XXI.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZED 0.065 X 1.25 X 3.25.
4. SHEAR ALL EDGES AND HOLES TO PREVENT FRAYING.

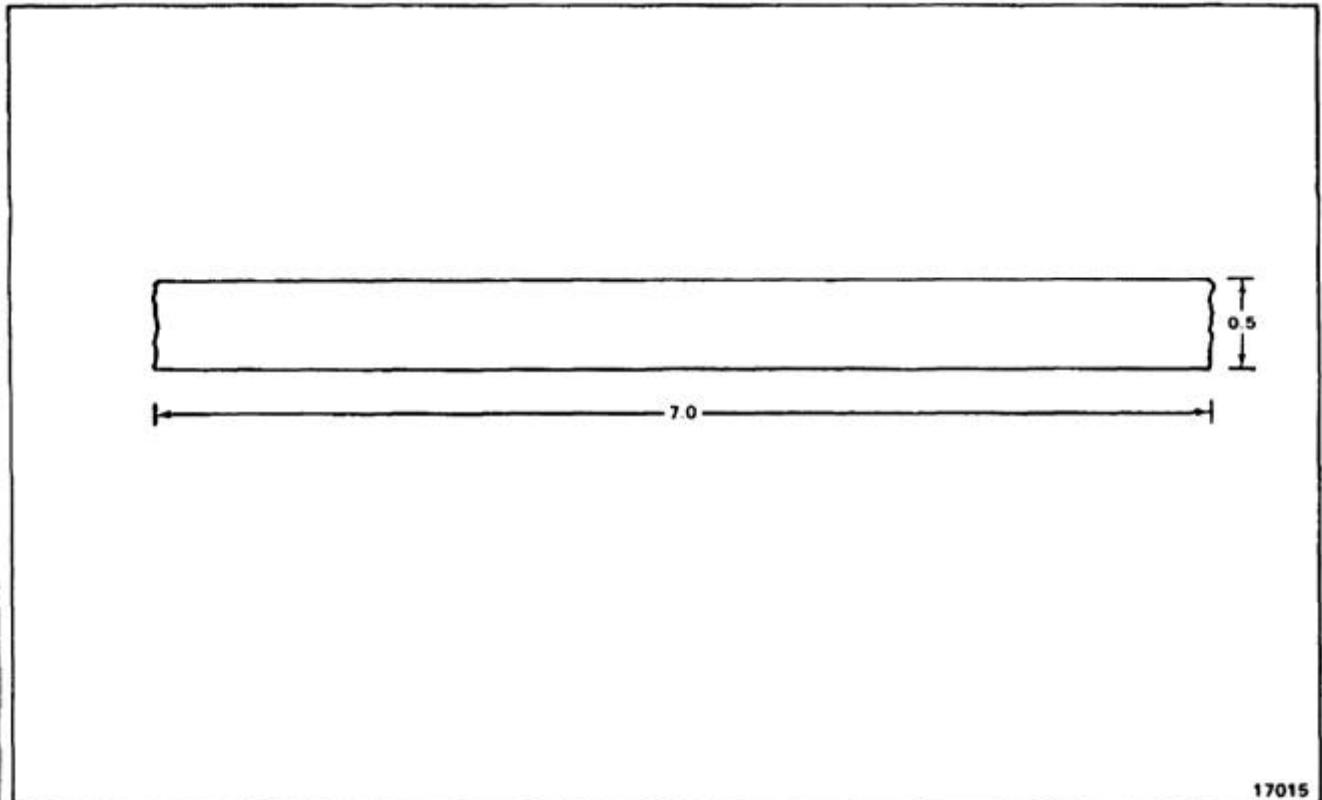


END OF TASK

E-212

**NOTES:**

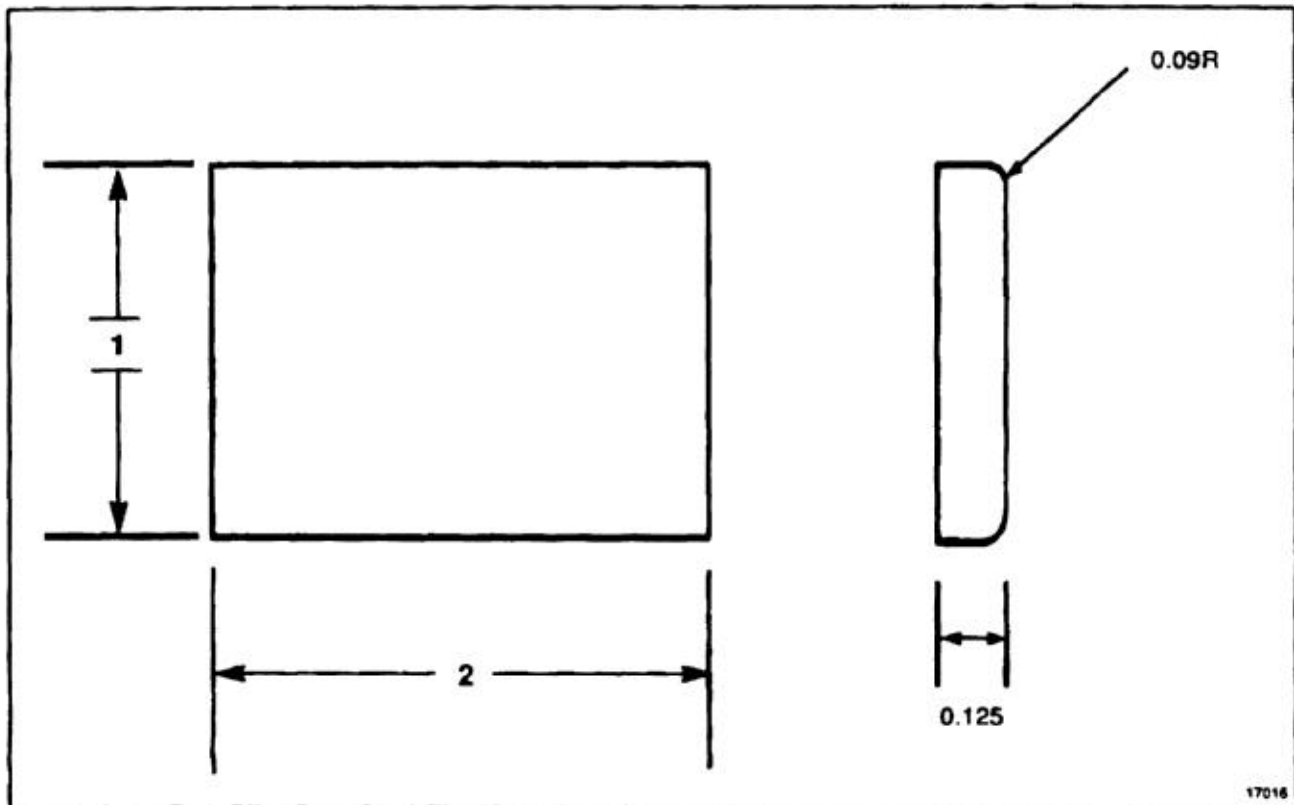
1. FABRICATE FROM WOVEN NYLON WEBBING MIL-W-4088, TYPE XIV, COLOR CINDER GRAY TCA CABLE NO. 16522.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 7.0 X 0.5.
4. SHEAR ALL CUT EDGES AND HOLES TO PREVENT FRAYING.



END OF TASK

**NOTES:**

1. FABRICATE FROM COTTON BASE LAMINATED PHENOLIC PER ML-P-18035 TYPE FBM.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.125 X 1.0 X 2.0.
4. FINISH AS REQUIRED.

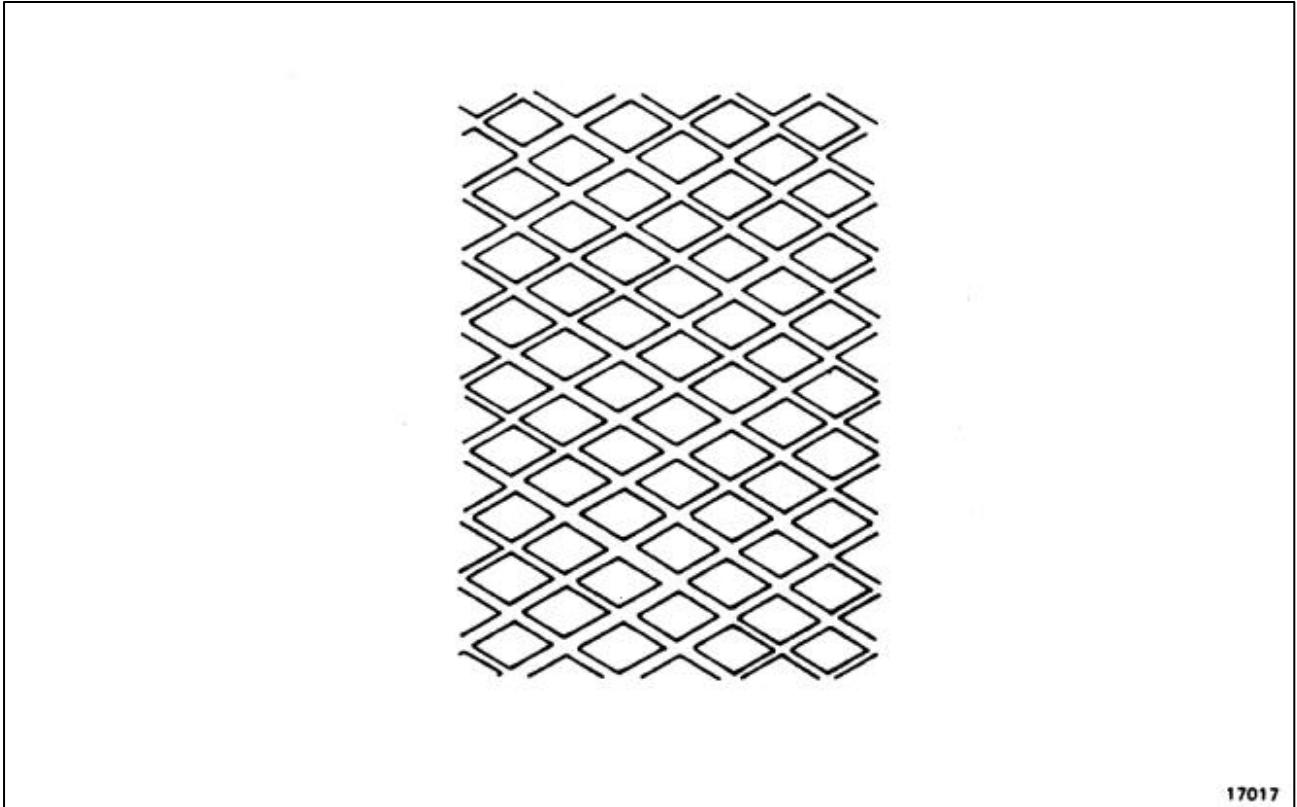


END OF TASK

E-214

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD  
2024-T3 PER QQ-A-250/5,  
NSN 9539-00-288-3662.
2. STOCK SIZE 0.040 X 12.9 X 15.3.
3. USE OLD SCREEN AS TEMPLATE.
4. FINISH AS REQUIRED.

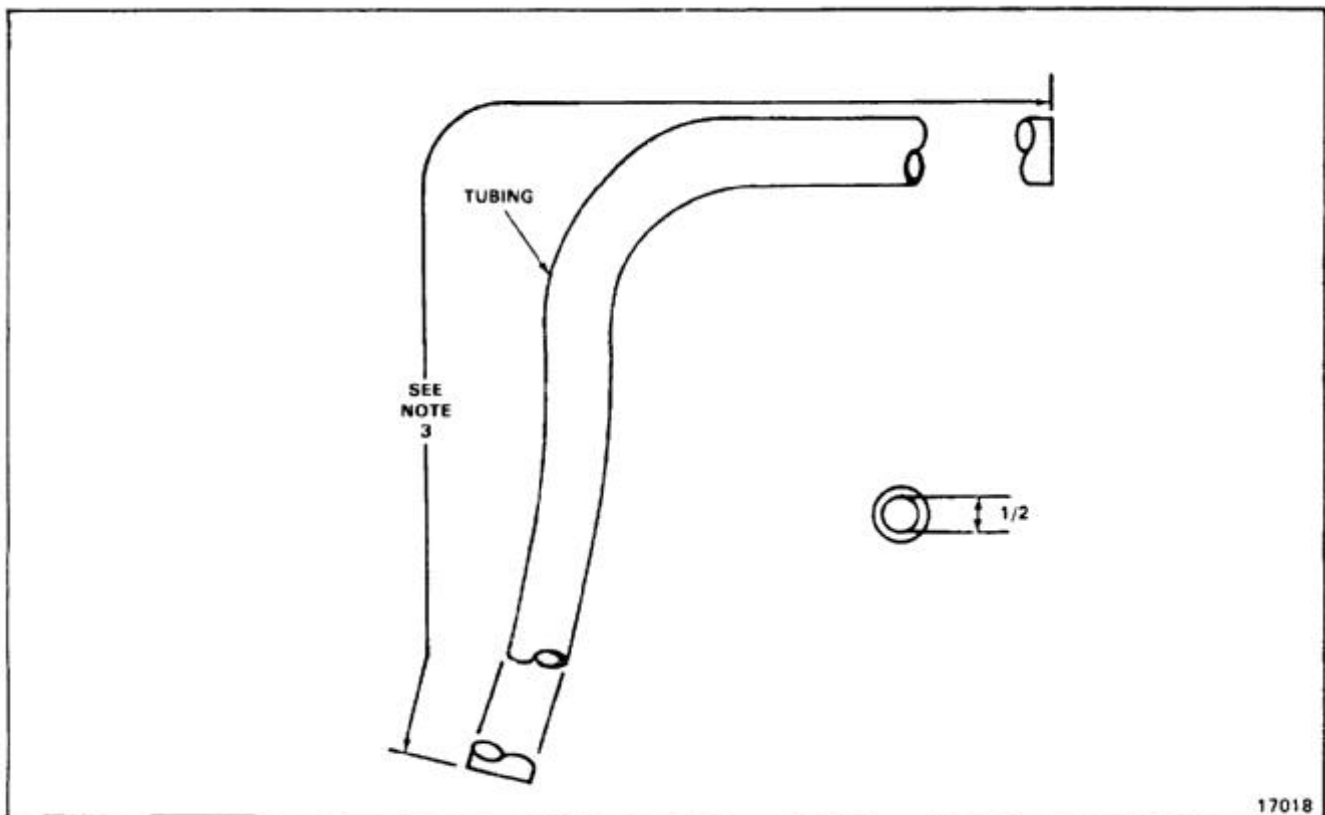


END OF TASK



**NOTES:**

1. FABRICATE FROM RT-1150 OR RT-1162  
CONVOLEX TUBING - (POLYVINYLIDENE  
FLUORIDE) RAYCHEM CORP, 300  
CONSTITUTION DR., MENLO PARK, CA 94025.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 1/2 INCH DIA  
145S1652-19 = 11 INCH LG.  
145S1652-21 = 30 INCH LG.  
145S1652-20 = 142 INCH LG.

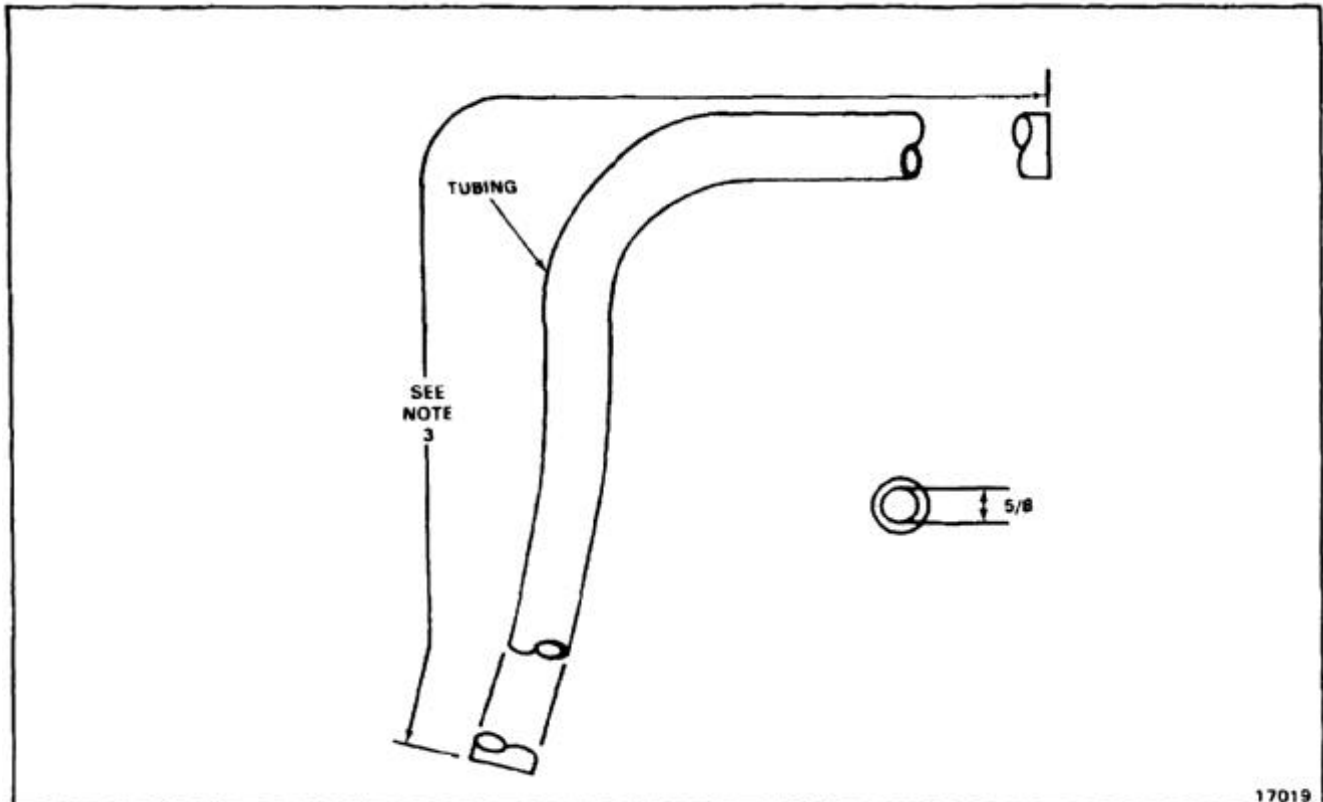


END OF TASK

E-216

**NOTES:**

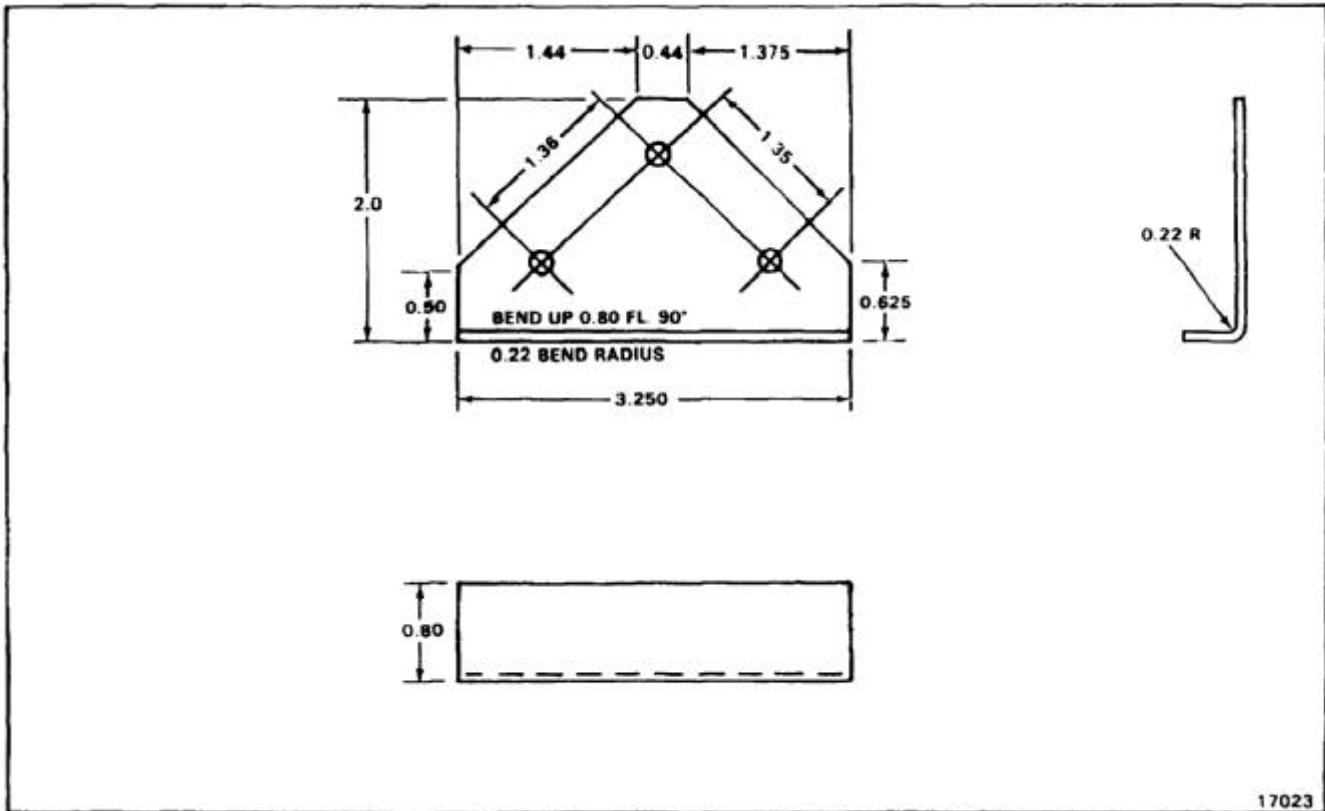
1. FABRICATE FROM RT-1150 OR RT-1162 CONVOLEX TUBING - (POLYVINYLIDENE FLUORIDE) RAYCHEM CORP, 300 CONSTITUTION DR., MENLO PARK, CA 94025.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 5/8 DIA  
145S1652-18 = 146.0 INCH LG.  
145S1652-22 = 20.0 INCH LG.



END OF TASK

**NOTES:**

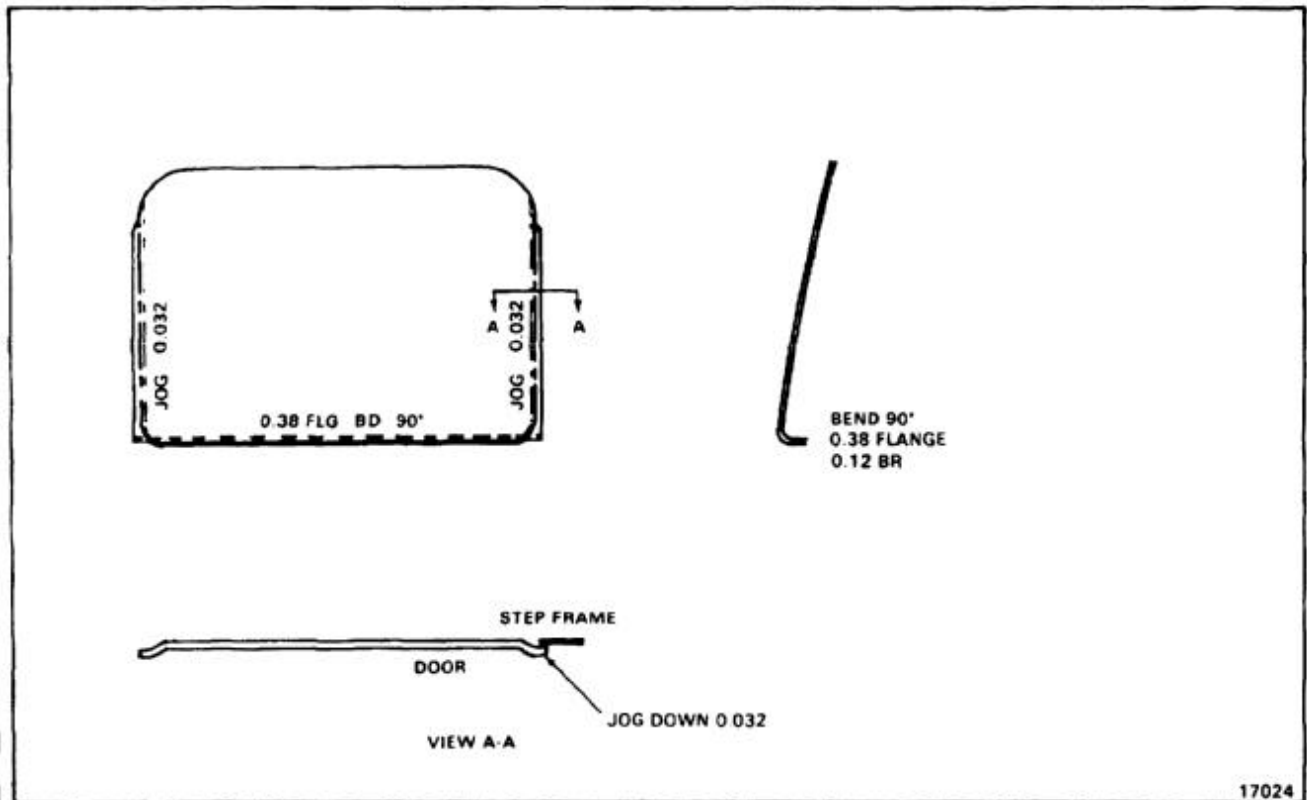
1. FABRICATE FROM ALUMINUM ALLOY CLAD 2024-T3 PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.022 X 3.0 X 3.5.
4. USE OLD CLAMP AS TEMPLATE TO LOCATE HOLES.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.032 X 5.5 X 7.7.
4. USE ORIGINAL OR SIMILAR DOOR AS TEMPLATE.
5. COORDINATE RIVET HOLES WITH HINGE.
6. FINISH AS REQUIRED.

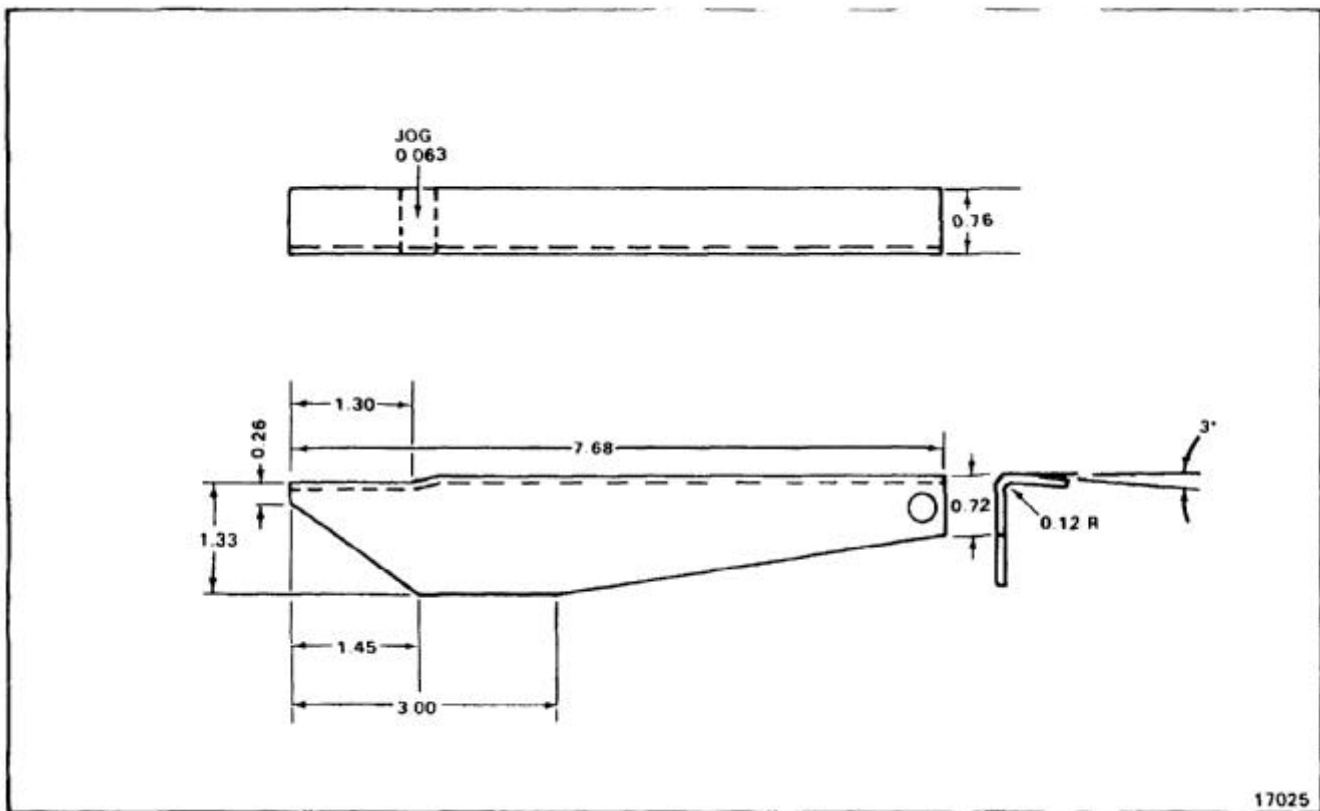


17024

END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 7075-TO.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.063 X 2.3 X 7.8.
4. USE OLD SUPPORT FOR TEMPLATE WHEN MAKING NEW SUPPORT.
5. HEAT TREAT TO -T6 CONDITION PER BAC 5602.
6. COORDINATE RIVET HOLES WITH ATTACHING ASSEMBLY.
7. FINISH AS REQUIRED.

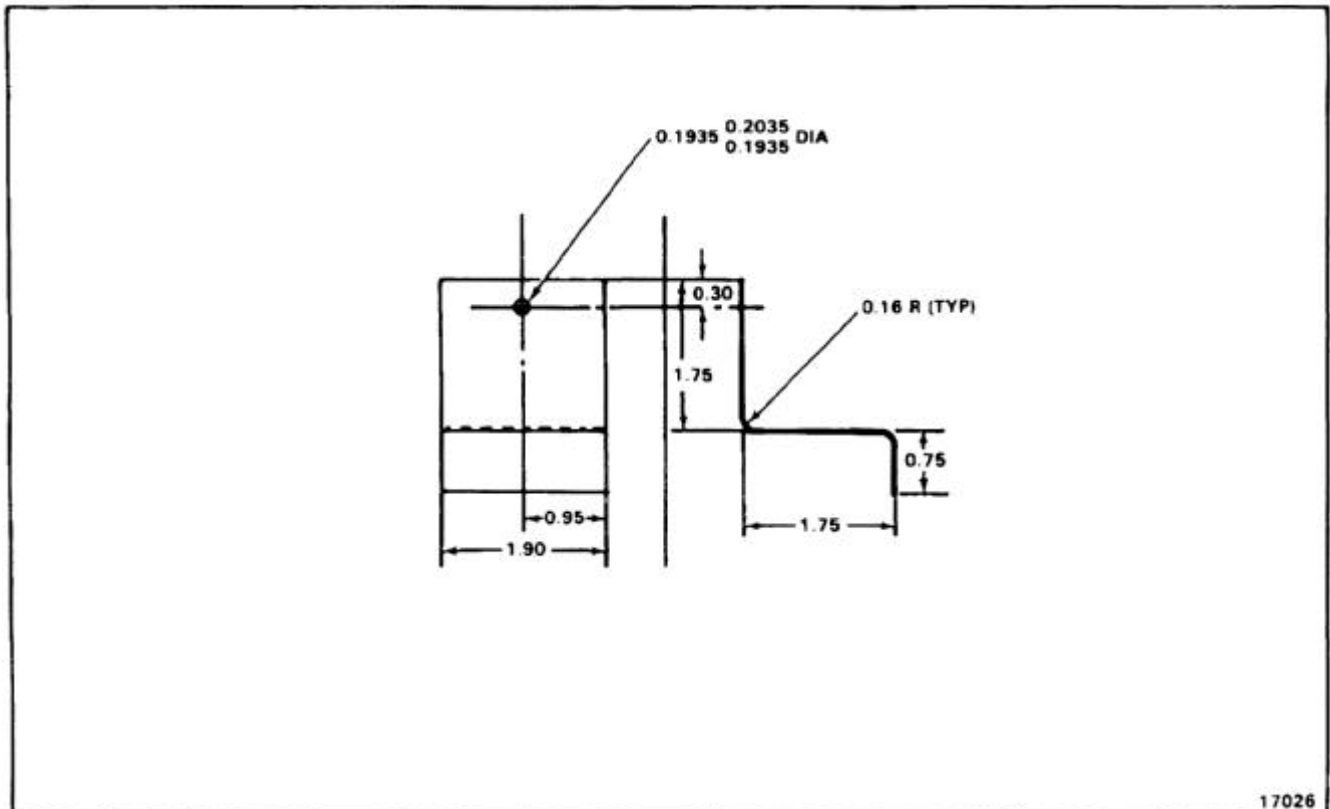


END OF TASK

E-220

**NOTES:**

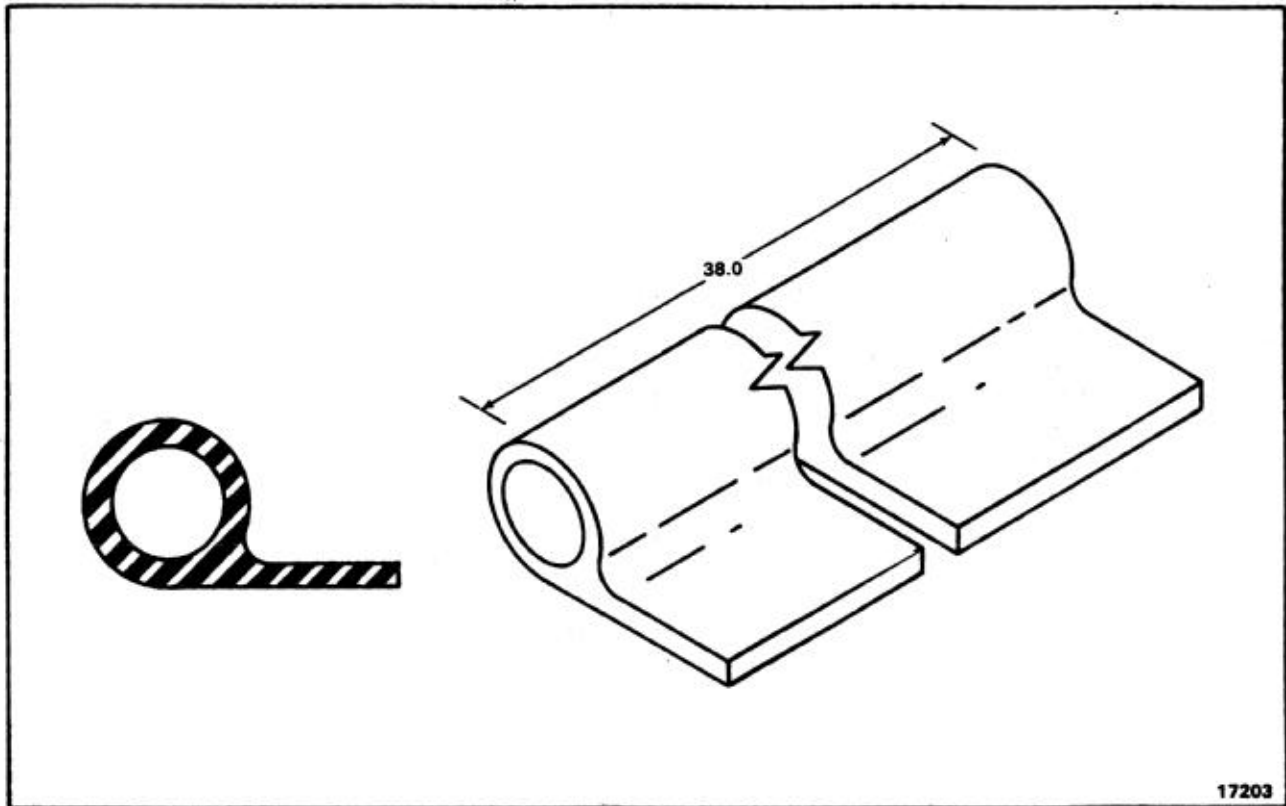
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.040 X 2.0 X 4.5.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. MAKE FROM RUBBER EXTRUDED BAC1521-204 PER MIL-S-6855, TYPE II, GRADE 40.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 38.0 LG.
4. CUT TO FIT.

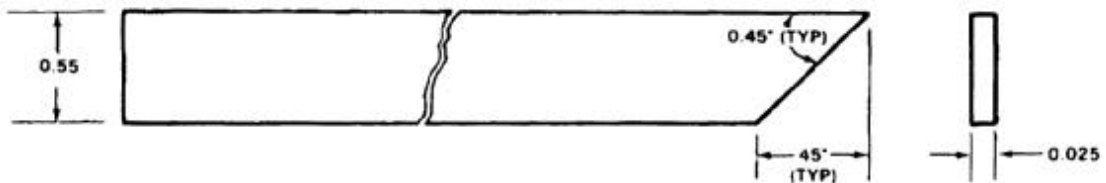


END OF TASK

E-222

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.025 X 0.55.
4. 114S3607-198 = 4.0 IN. LG.  
114S3607-196 = 58.5 IN. LG.  
114S3607-194 = 17.1 IN. LG.  
114S3607-193 = 60.5 IN. LG.  
114S3607-192 = 12.5 IN. LG.
5. TRIM TO FIT.



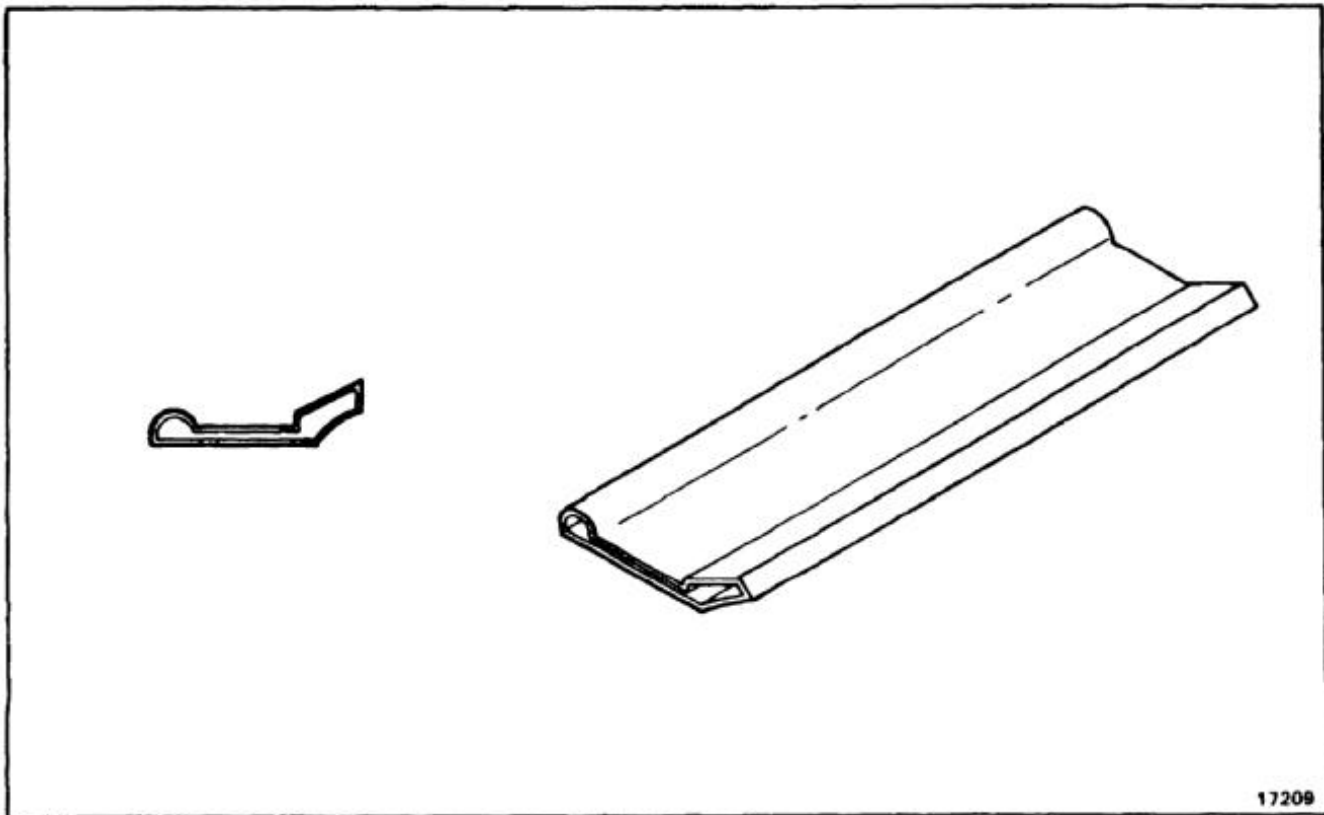
17204

END OF TASK



**NOTES:**

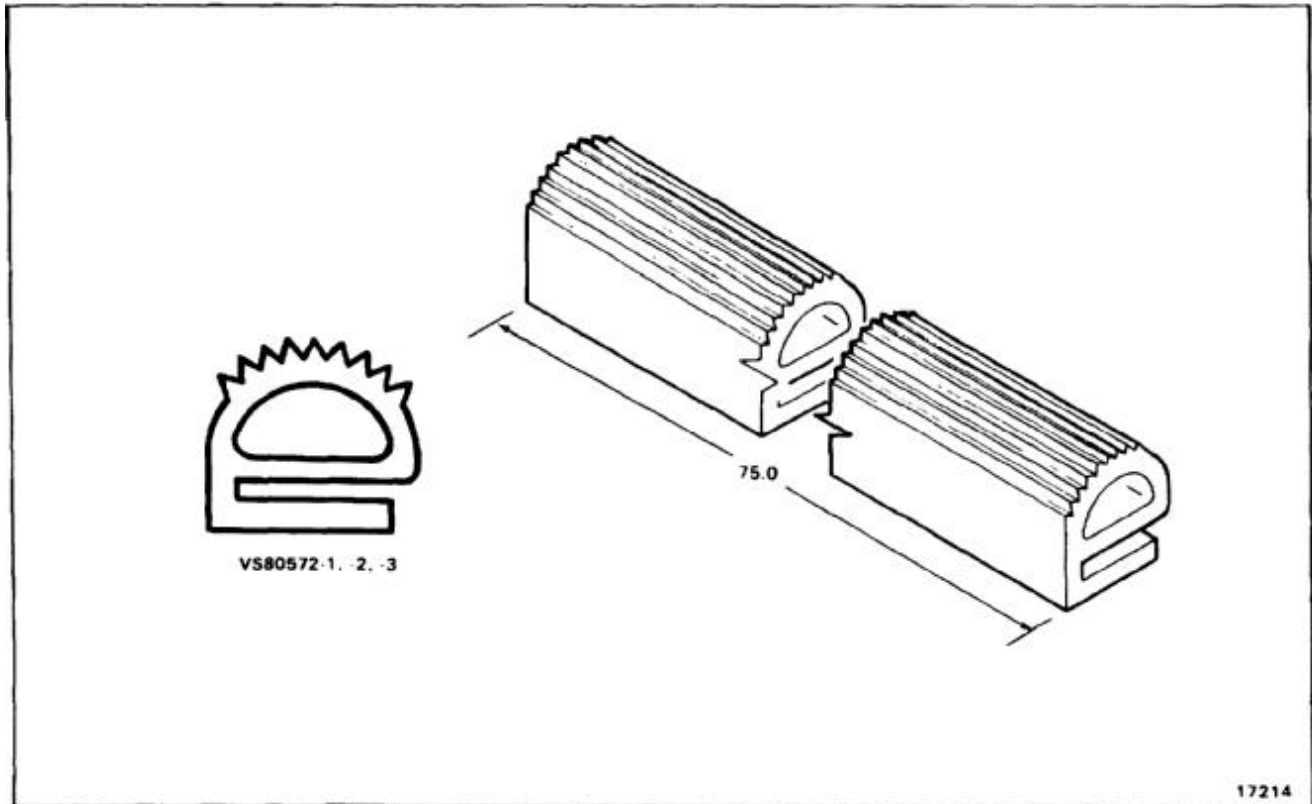
1. MAKE FROM NONMETALLIC SPECIAL BAC1530-48.
2. ALL DIMENSIONS IN INCHES.
3. 114S3607-182 STOCK SIZE 12.5 LG.  
114S3607-183/184 STOCK SIZE 60.5 LG.  
114S3607-185/186 STOCK SIZE 17.1 LG.  
114S3607-188 STOCK SIZE 58.5 LG.  
114S3607-189 STOCK SIZE 4.0 LG.
4. TRIM TO FIT.



END OF TASK

**NOTES:**

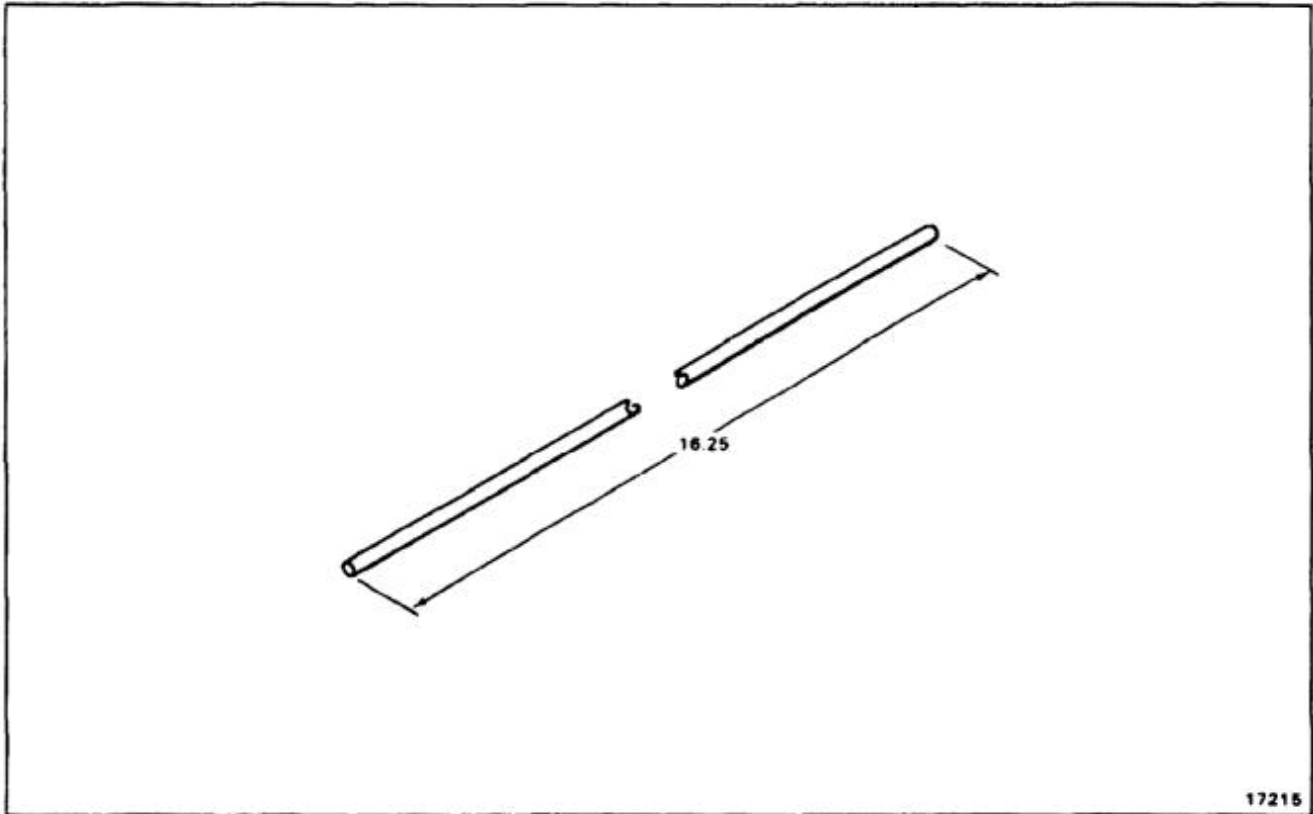
1. MAKE FROM NONMETALLIC SPECIAL VS80572-3 STRIP.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 75.0 LG.
4. TRIM TO FIT.
5. -3 PREFERRED, USE -1, -2 TILL DEPLETION.



END OF TASK

**NOTES:**

1. FABRICATE FROM HINGE PN MS2053-2.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 16.25 INCHES.



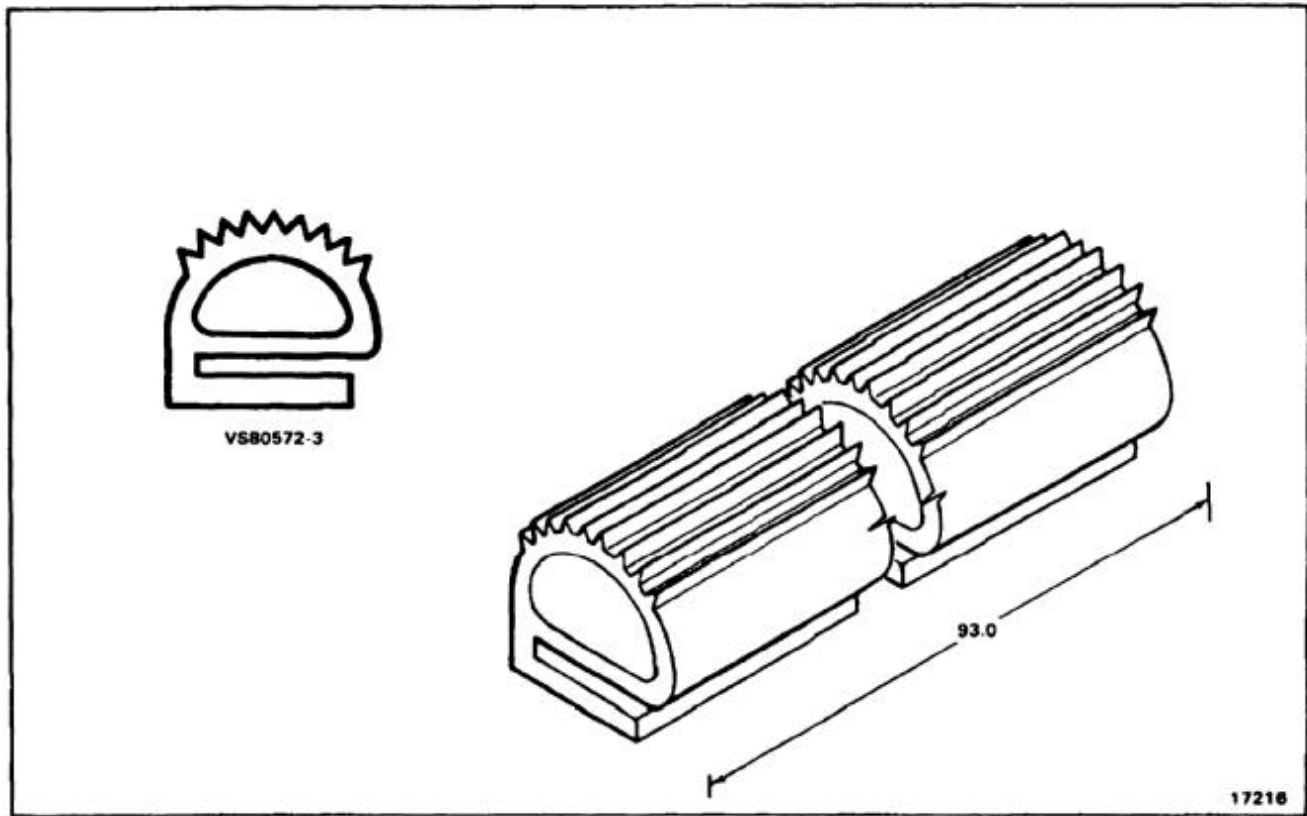
17215

END OF TASK

E-226

**NOTES:**

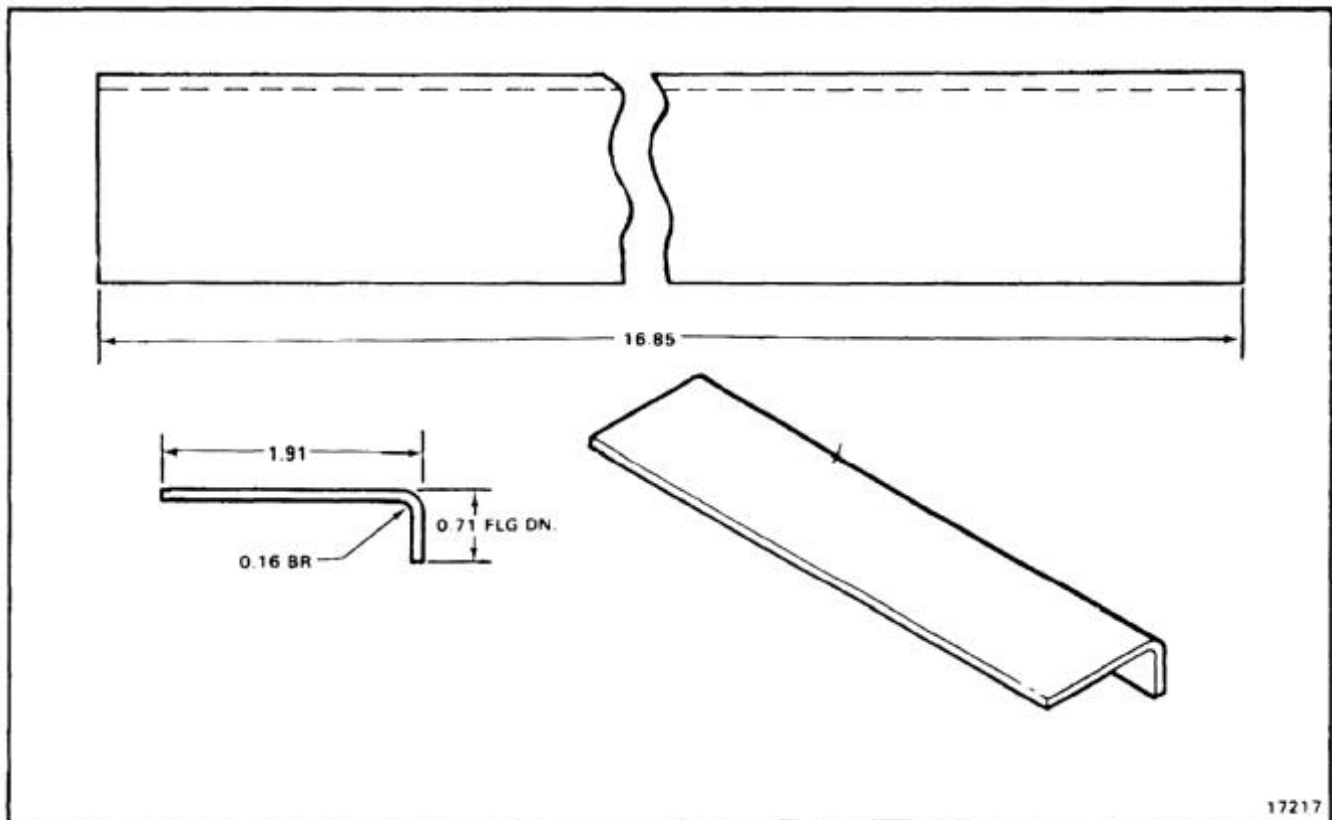
1. MAKE FROM SHAPE, NONMETALLIC SILICONE RUBBER CL IB, GR 40, PER ZZ-R-765 VS80572-3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 93.0 INCHES LG.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY BARE 2024-T3 PER QQ-AZ-250/4.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.040 X 2.4 X 16.85.
4. FINISH AS REQUIRED.

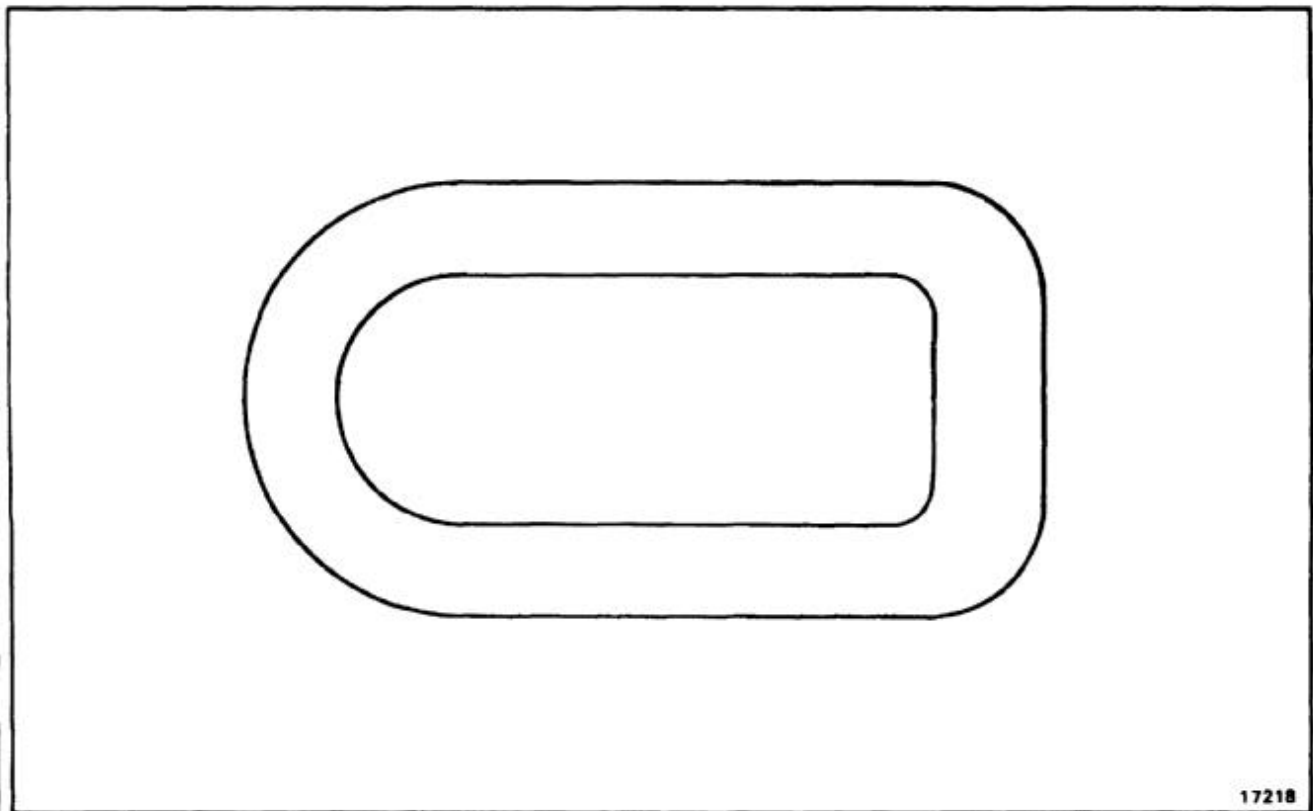


END OF TASK

E-228

**NOTES:**

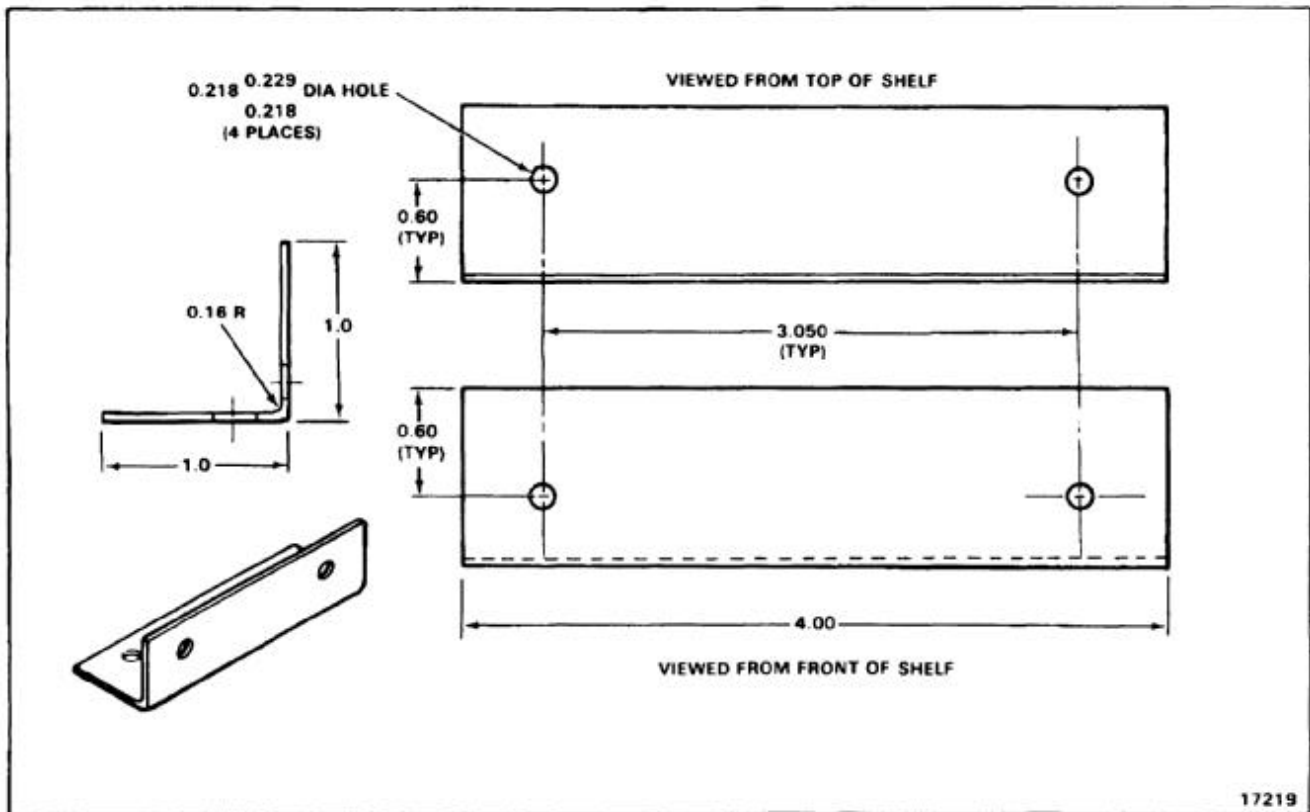
1. FABRICATE FROM SYNTHETIC RUBBER SHEET MIL-R-6855, CLASS II, GRADE 40.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.063 X 10.0 X 7.7.
4. USE OUTSIDE OF 145S3620-9 COVER AS TEMPLATE TO DETERMINE OUTSIDE: SHAPE 2ND DIMENSIONS AND INSIDE OF 145S3620-10 RETAINER AS TEMPLATE FOR INSIDE CUTOUT.



END OF TASK

**NOTES:**

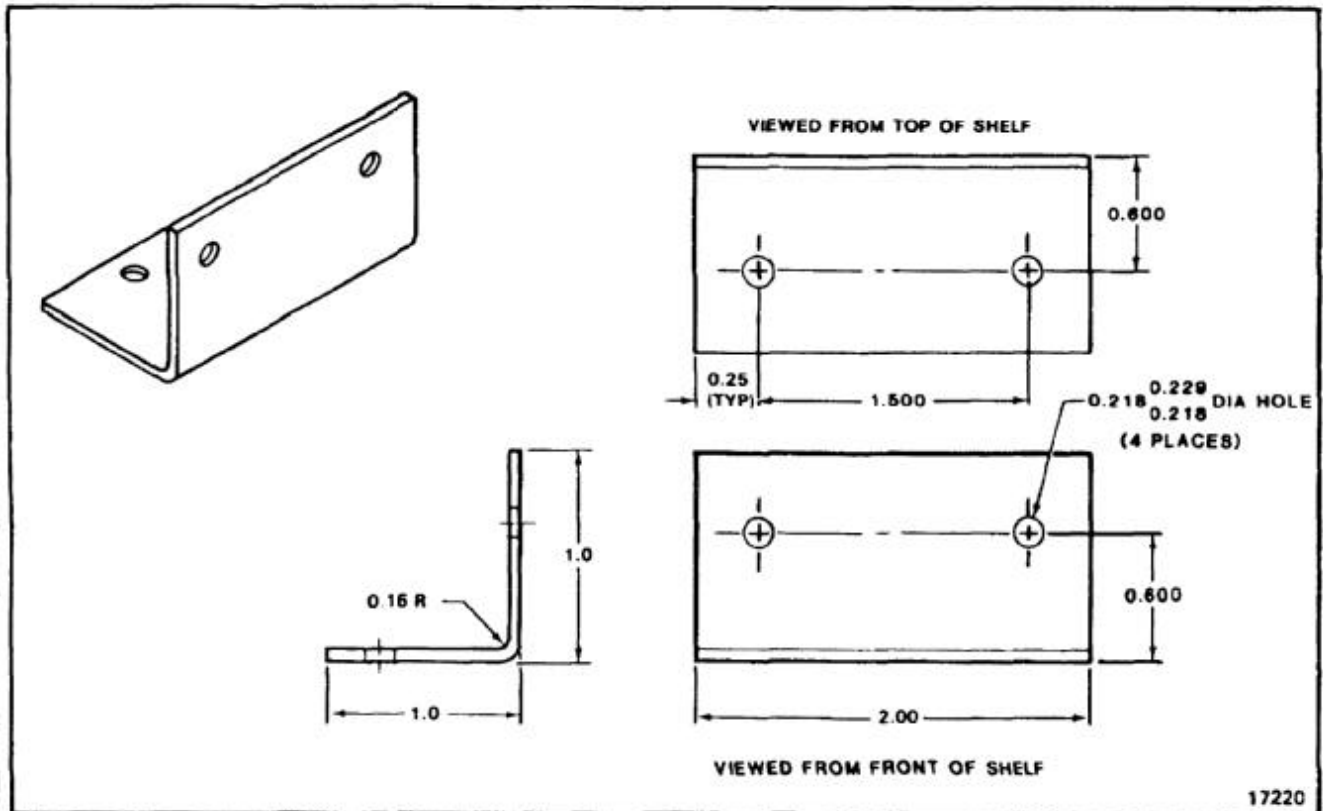
1. FABRICATE FROM ALUMINUM ALLOY 2024-T4  
PER QQ-A-25015.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.040 X 1.0 X 1.0 X 4.0 LG.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.040 X 1.0 X 1.0 X 2.0 LG.
4. FINISH AS REQUIRED.

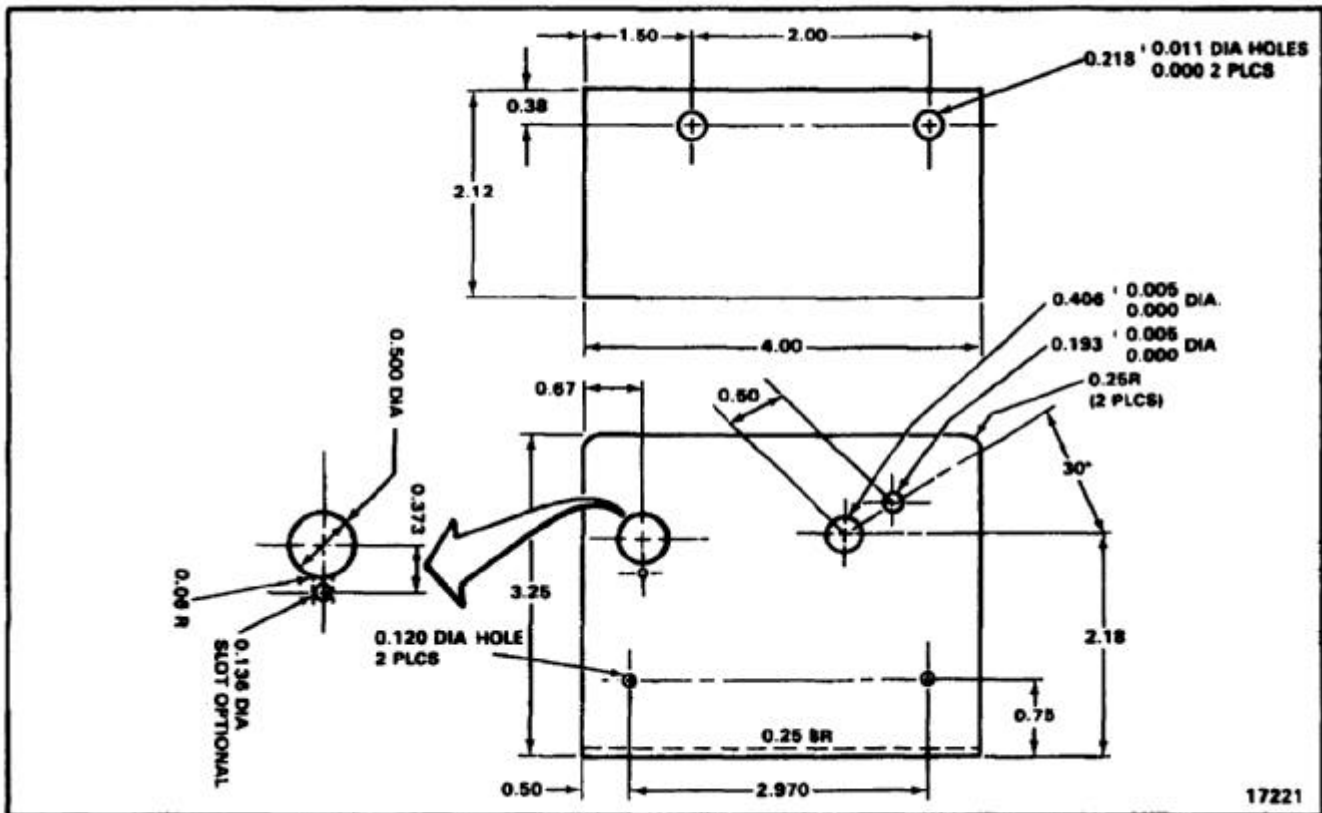


END OF TASK



**NOTES:**

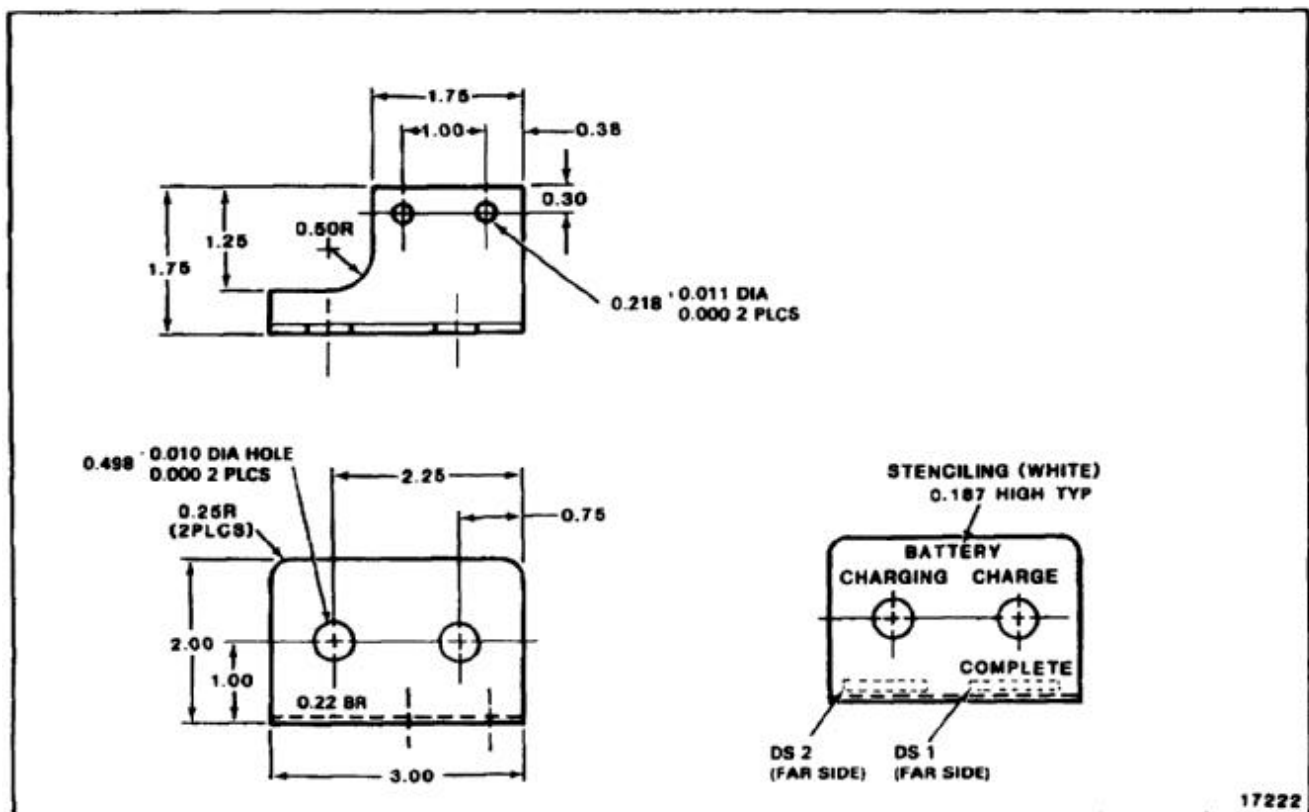
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/4.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.040 X 5.5 X 5.1.
4. FINISH WITH ONE COAT OF RED EPOXY PRIMER (E293) MIL-P-52192 (MR) COMPOSITION G, 2 PART SYSTEM APPLIED PER MFR INST. APPLY OVER TWO COATS OF YELLOW PRIMER MIL-P-23377 (E292) APPLIED PER MIL-C-22751.
5. APPLY IDENTIFICATION MARKER TO FACE OF BRACKET.



END OF TASK

**NOTES:**

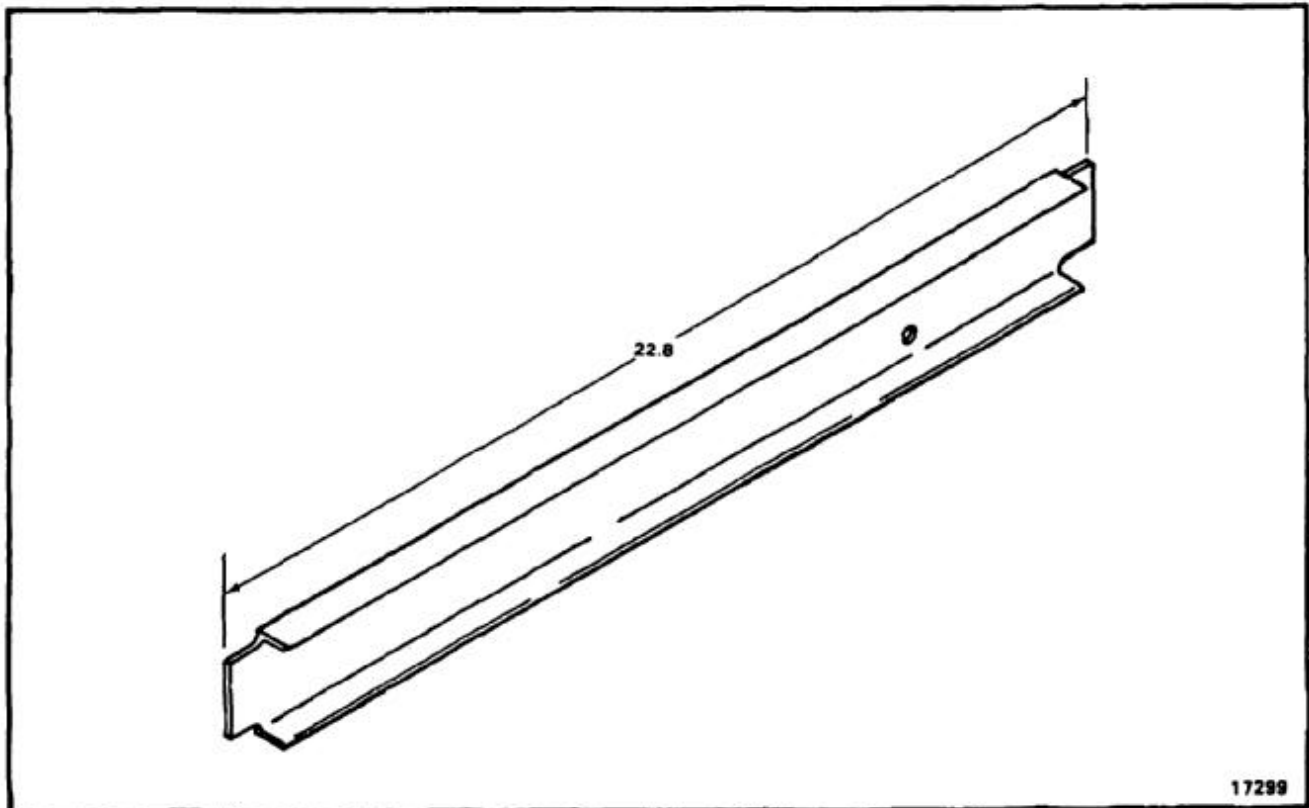
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/4.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.063 X 3.0 X 3.8.
4. FINISH WITH ONE COAT OF RED EPOXY PRIMER (E293) MIL-P-52192 (MR) COMPOSITION G, 2 PART SYSTEM APPLIED PER MANUFACTURER'S INSTRUCTIONS ON CONTAINER. APPLY TWO COATS OF YELLOW EPOXY PRIMER MIL-P-23377 (E292) APPLIED PER MIL-C-22751.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM EXTRUSION 2024-T3511 PER QQ-A-200/3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK AND 10137-1601 X 23.0.
4. USE EXISTING PART AS TEMPLATE.
5. FINISH AS REQUIRED.

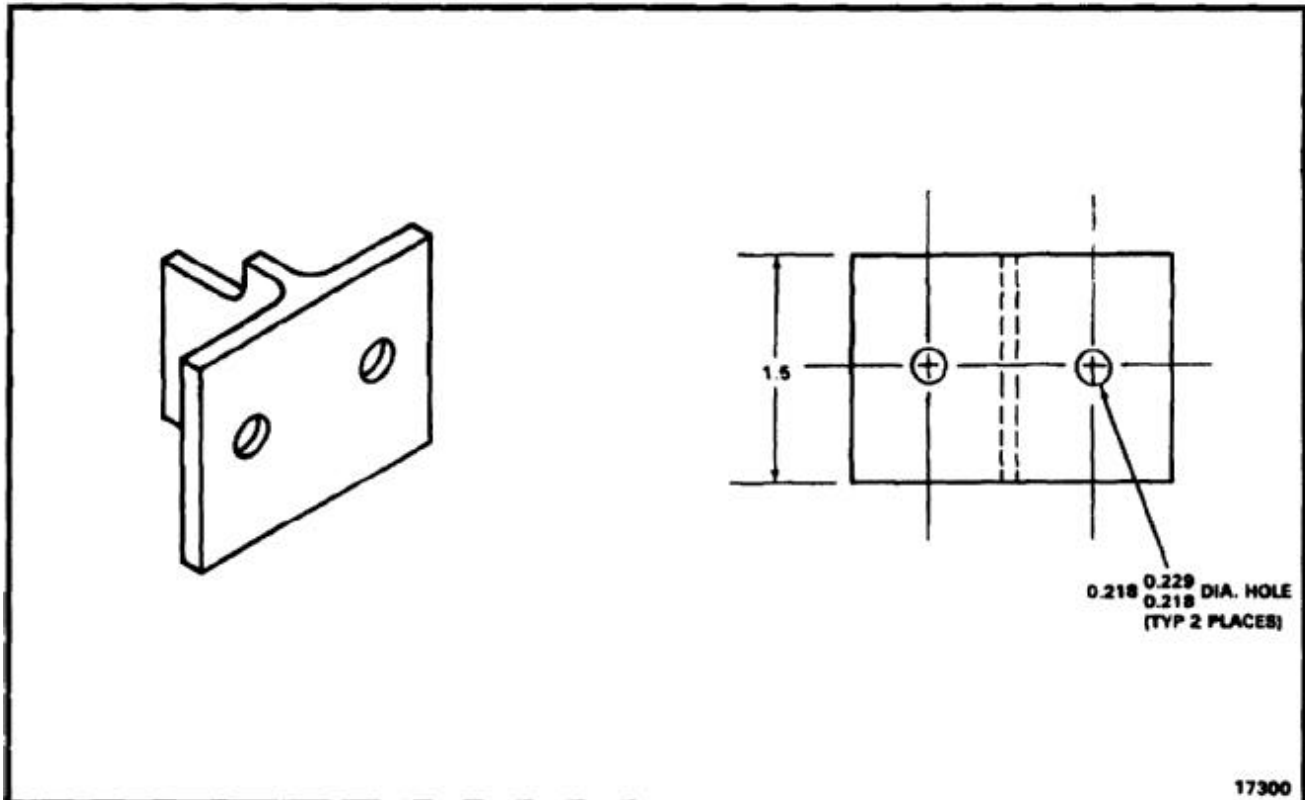


END OF TASK

E-234

**NOTES:**

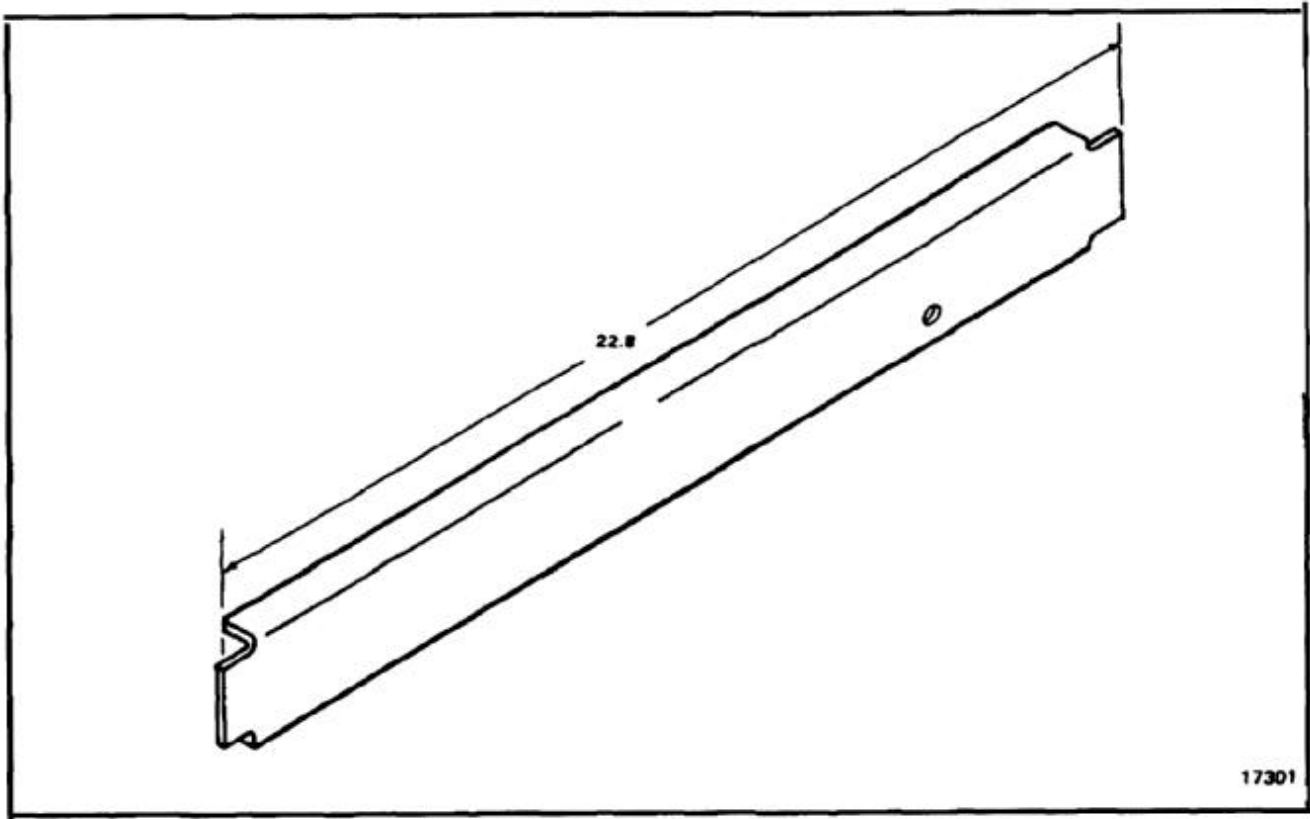
1. FABRICATE FROM ALUMINUM EXTRUSION 2024-T3511 PER QQ-A-200/3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK AND 10136-2404 X 1.5.
4. USE EXISTING PART AS TEMPLATE.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

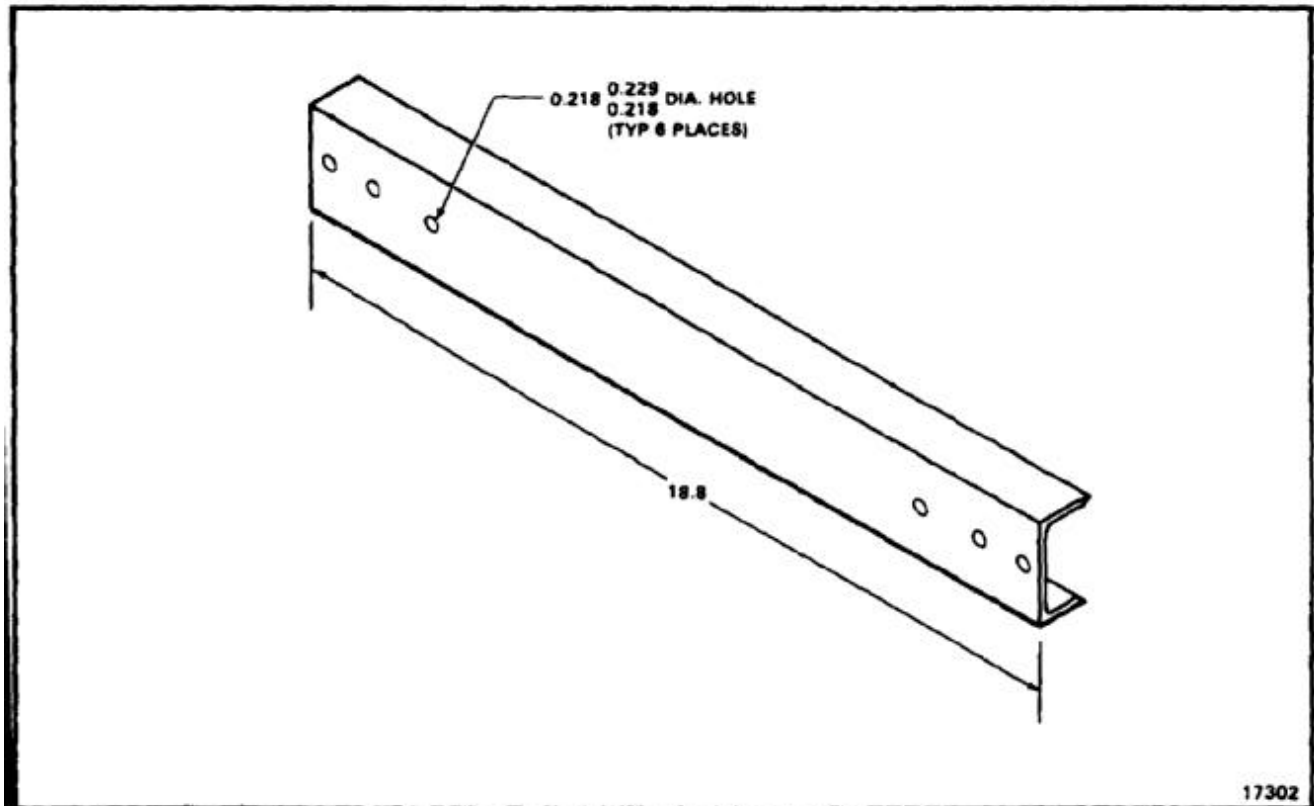
1. FABRICATE FROM ALUMINUM EXTRUSION 2024-T3511 PER QQ-A-200/3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK AND 10137-1601 X 23.0.
4. USE EXISTING PART AS TEMPLATE.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

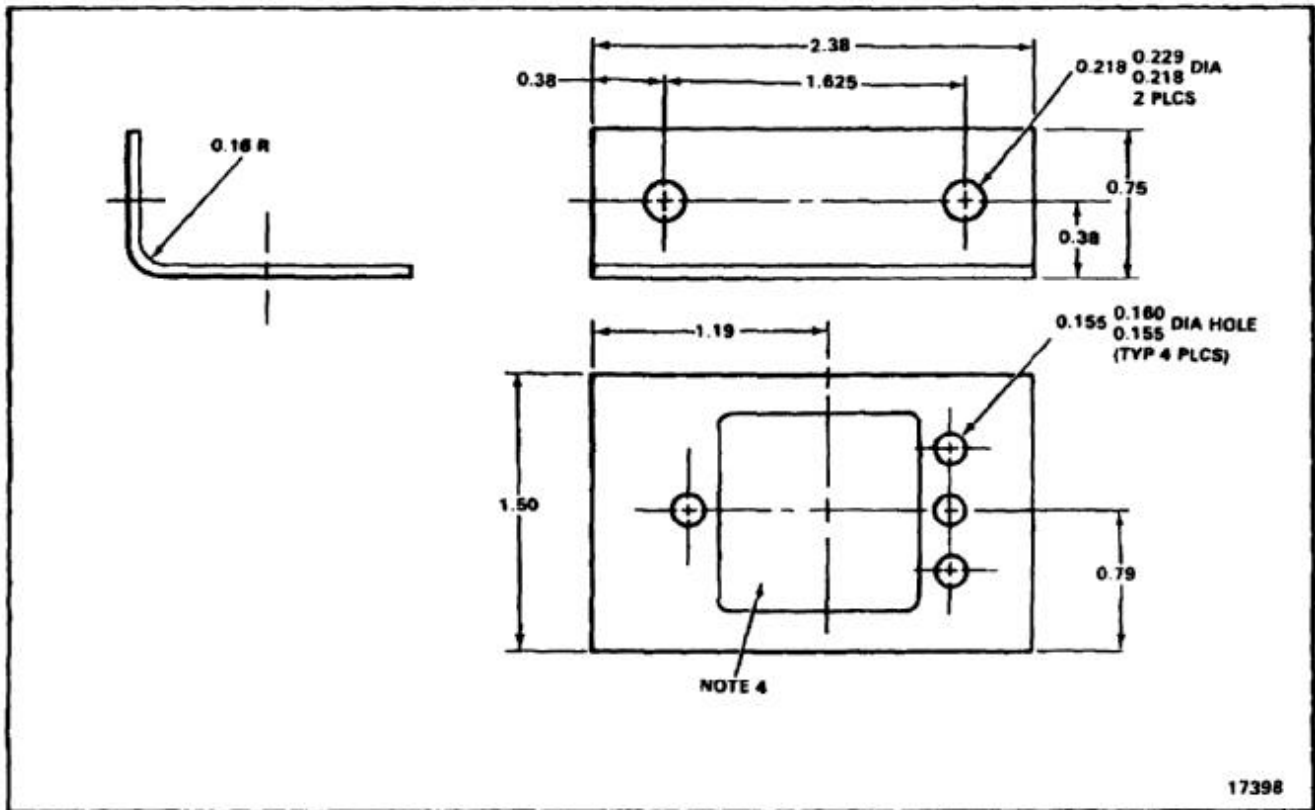
1. FABRICATE FROM ALUMINUM EXTRUSION 2024-T3511 PER QQ-A-200/3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK AND 10137-1601 X 19.0.
4. USE EXISTING PART AS TEMPLATE.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

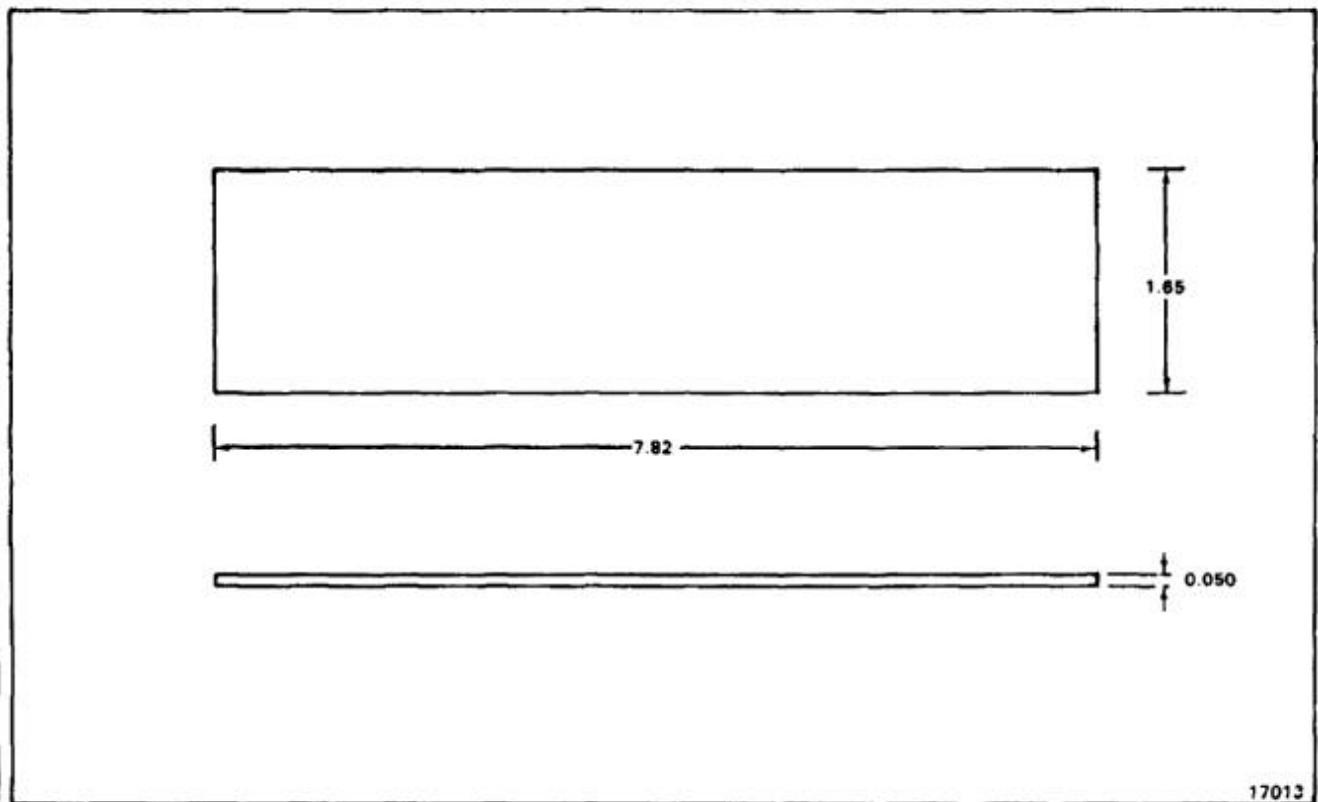
1. MAKE FROM ALUMINUM ALLOY 2024-T3 CLAD SHEET PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.040 X 2.25 X 2.38.
4. USE OLD BRACKET FOR TEMPLATE TO MATCH RELAY AND MOUNT HOLES.
5. PAINT WITH WHITE CLYPTOL 1201 (E164) AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY SHEET CLAD 2024-T3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.050 X 1.7 X 7.9.
4. USE OLD PLATE FOR TEMPLATE TO LOCATE RIVET HOLES AND CENTER HOLE IN REPLACEMENT.
5. LENGTH OF REPLACEMENT IS SAME AS ORIGINAL.
6. FINISH AS REQUIRED.

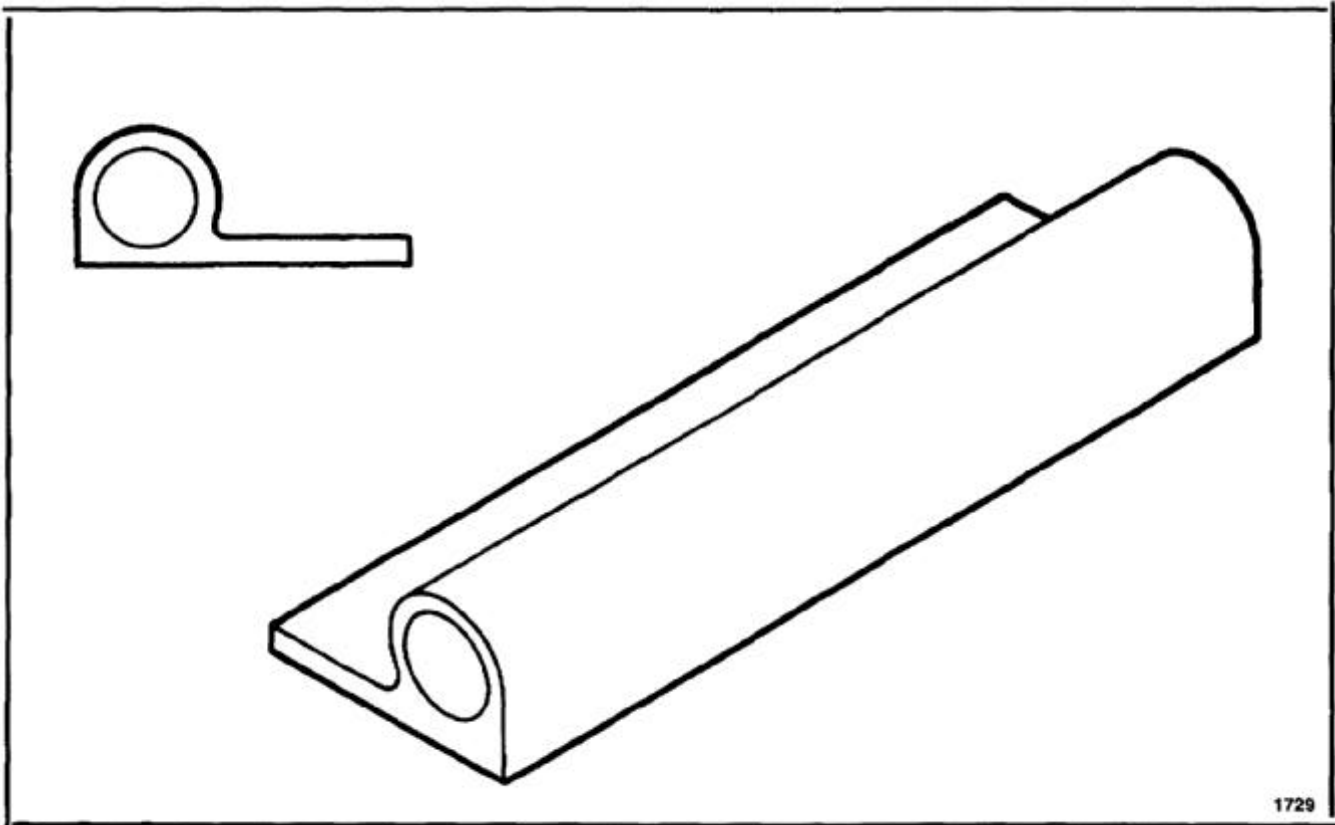


END OF TASK



**NOTES:**

1. MAKE FROM NONMETALLIC SPECIAL RUBBER SEAL VS80526, NSN 9390-00-289-8702.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 64.4 LG.
4. TRIM TO FIT.

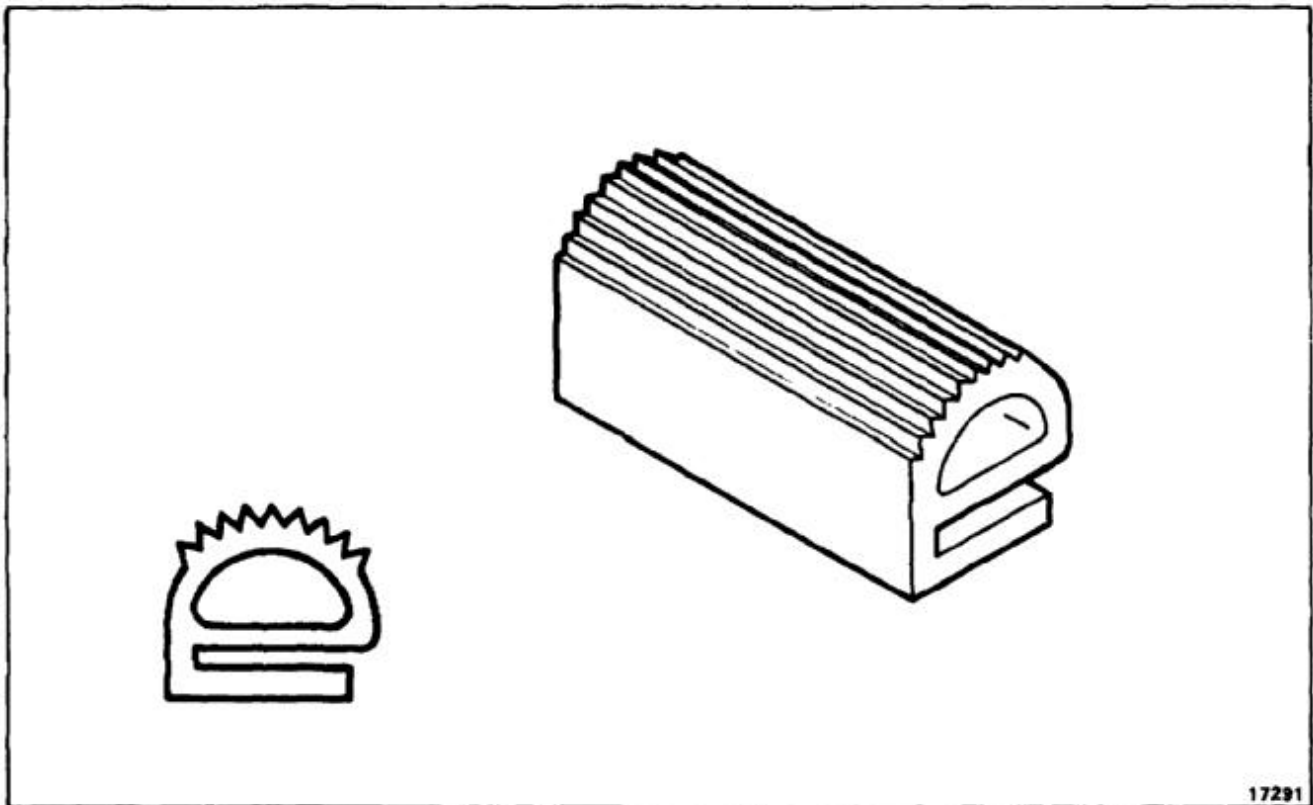


END OF TASK

E-240

**NOTES:**

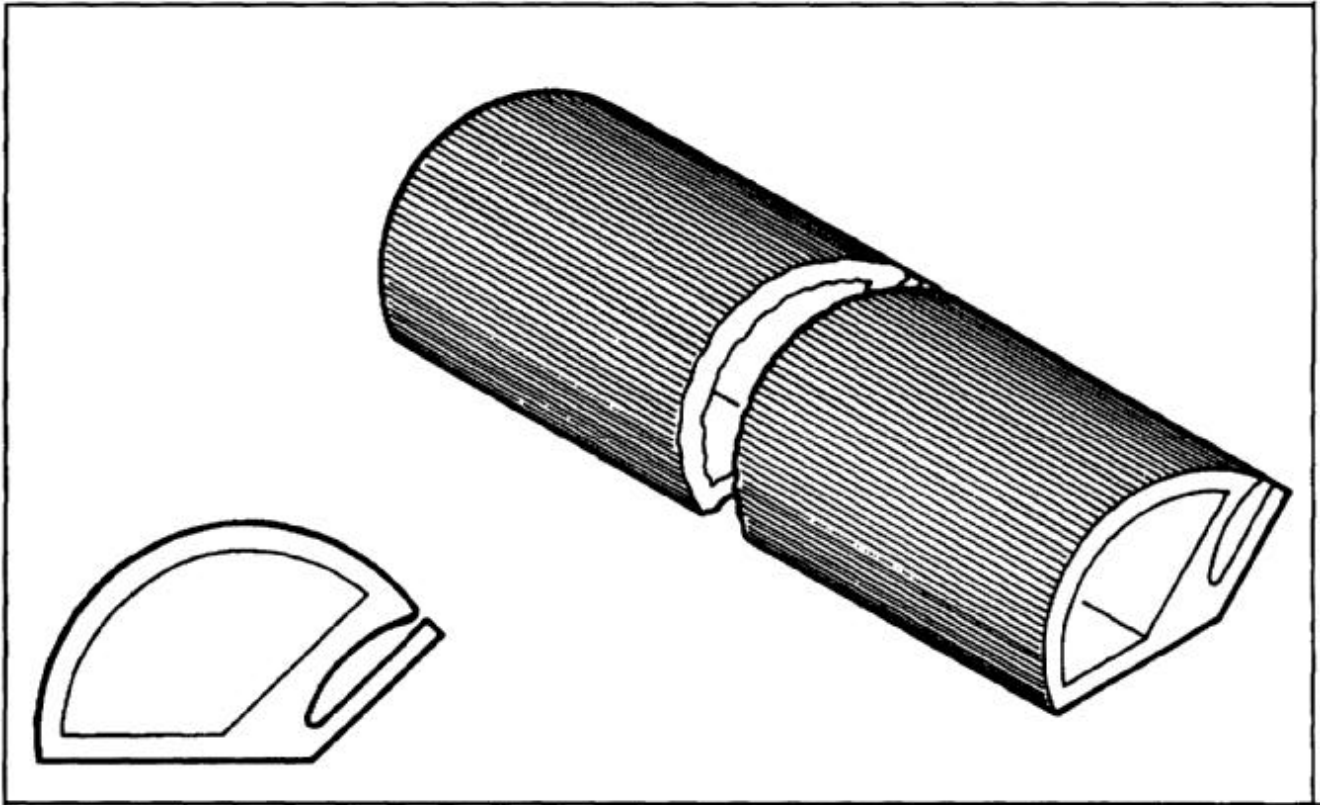
1. MAKE FROM RUBBER SPECIAL NONMETALLIC VS80572-1, -2, OR -3.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 20.0 LG.
4. TRIM TO FIT.
5. USE -1 AND -2 TILL DEPLETION.



END OF TASK

**NOTES:**

1. MAKE FROM RUBBER SHAPE NONMETALLIC VS80536-1.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 32.0 LG.
4. TRIM TO FIT.

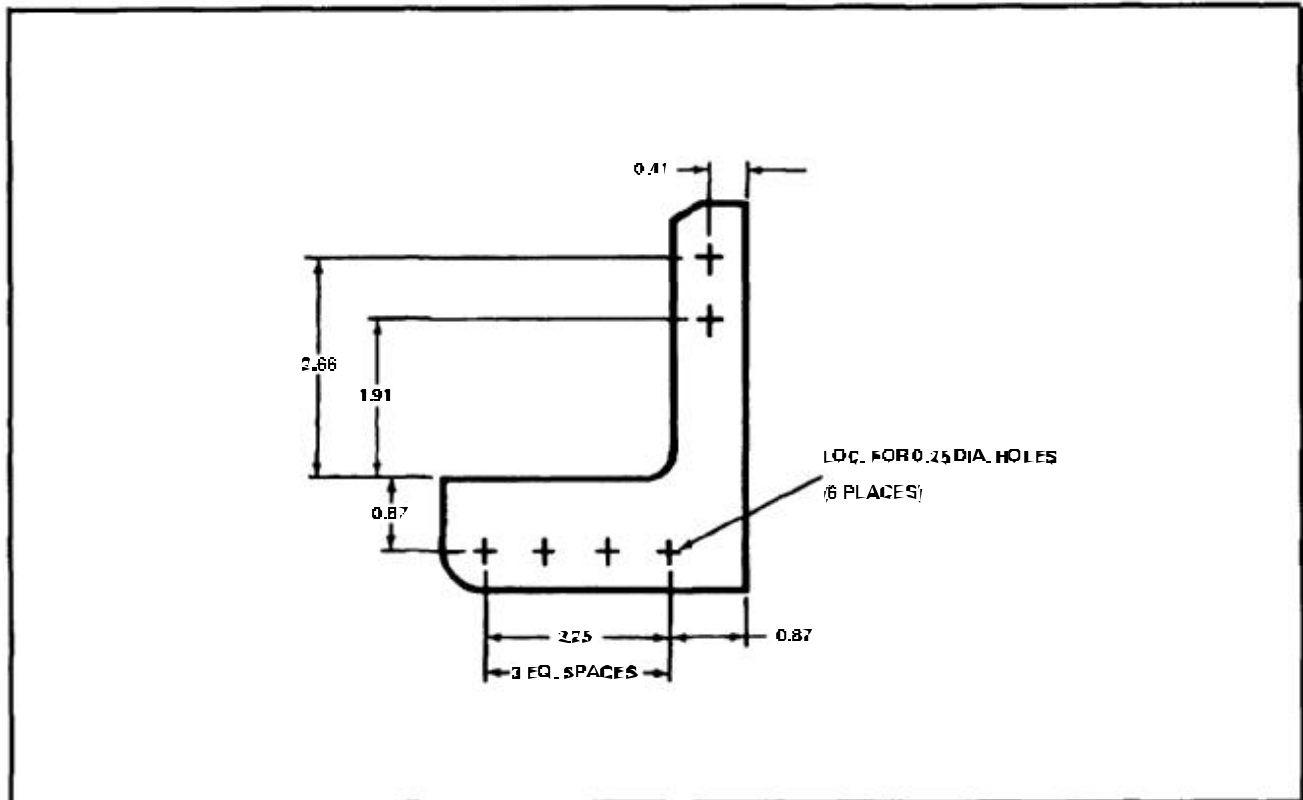


END OF TASK

E-242

**NOTES:**

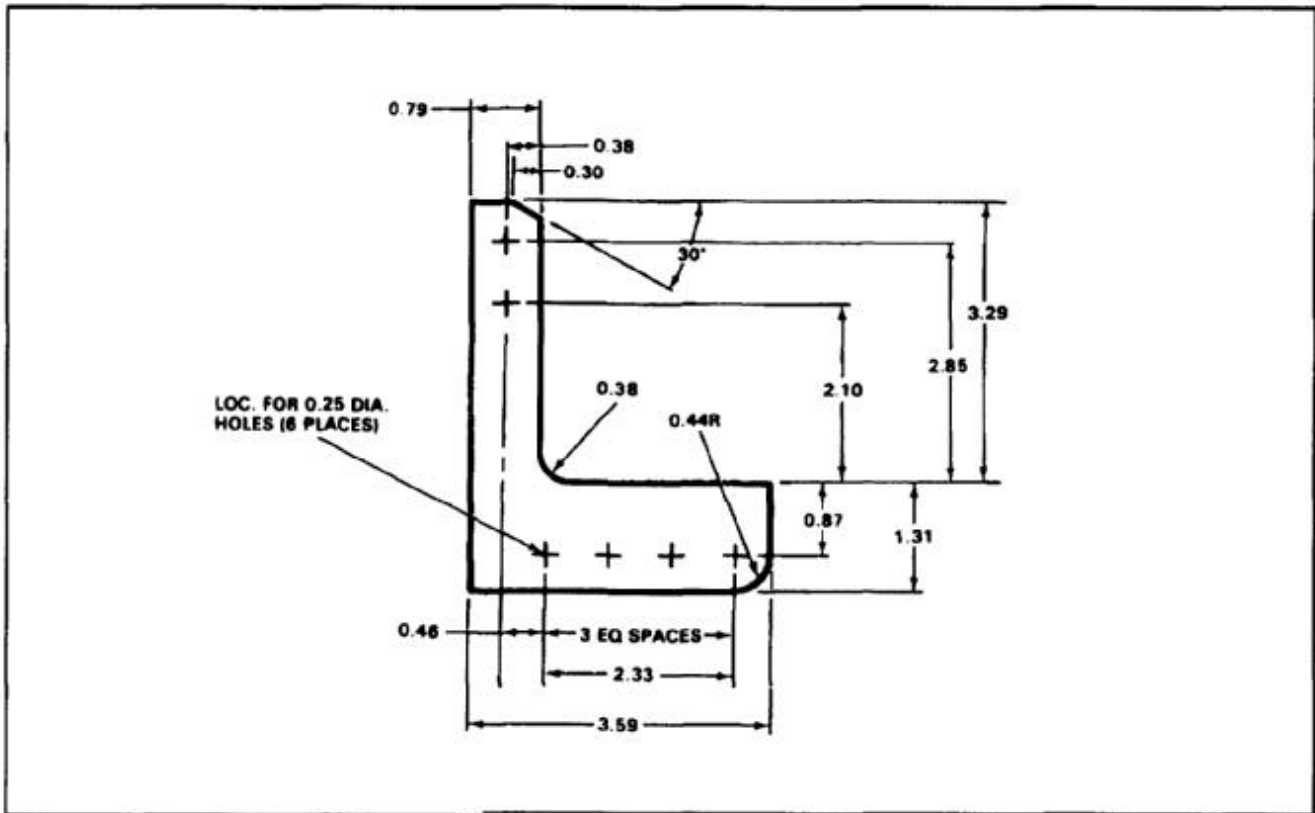
1. FABRICATE FROM ALUMINUM LAMINATED SHIM PER MIL-S-22499 COMPOSITION I, TYPE I.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.032 X 3.6 X 4.7.
4. REFER TO -33 FOR SHIM DIMENSIONS.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

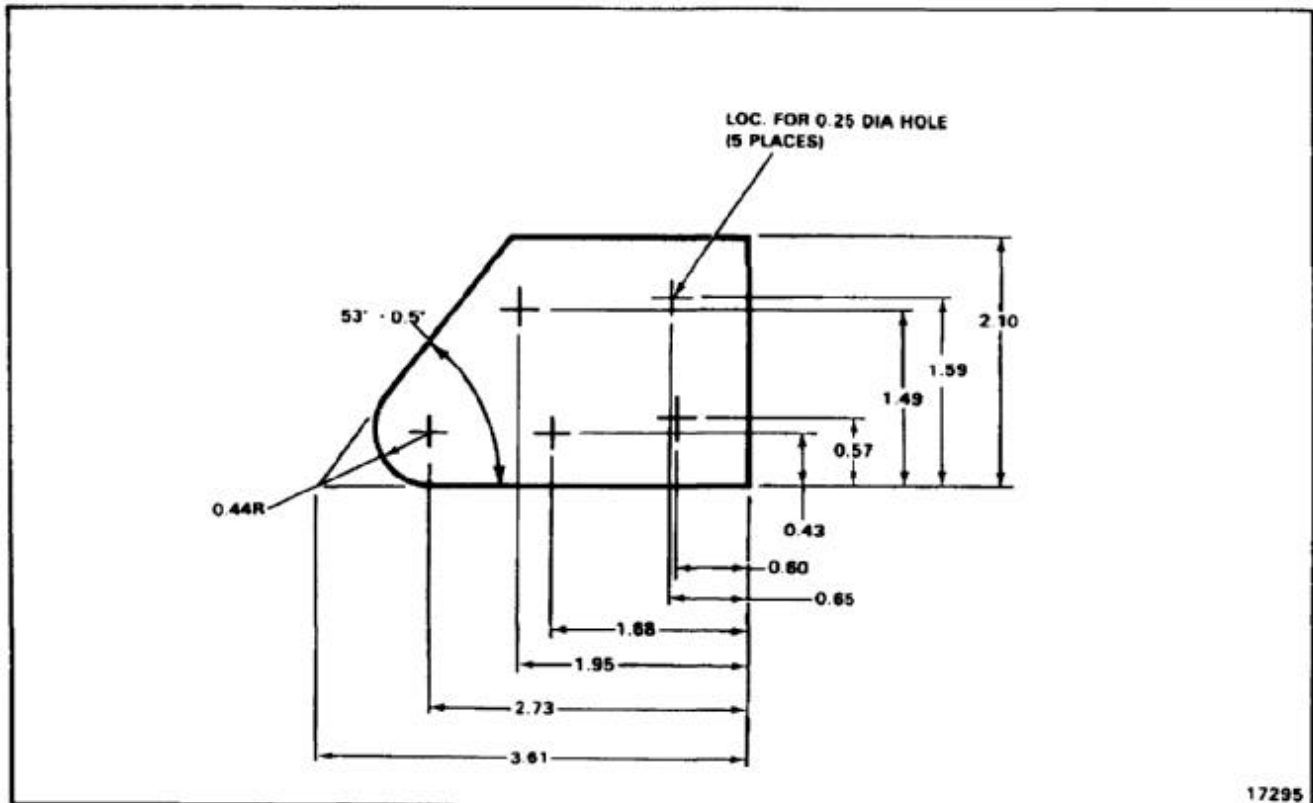
1. FABRICATE FROM ALUMINUM LAMINATED SHIM PER MIL-S-22499 COMPOSITION I, TYPE I.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.032 X 3.6 X 4.7.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

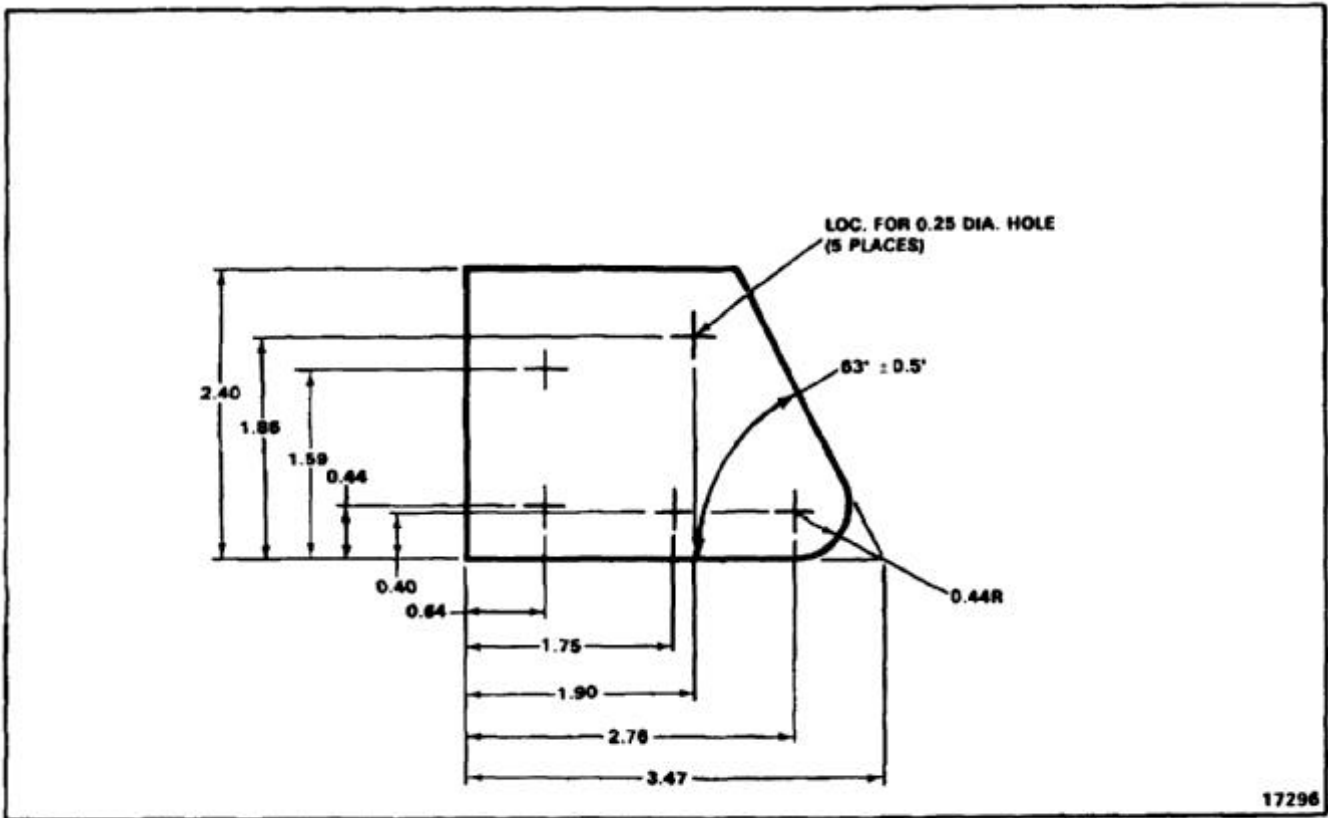
1. FABRICATE FROM ALUMINUM LAMINATED SHIM PER MIL-S-22499 COMPOSITION I, TYPE I.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.032 X 2.2 X 3.7.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

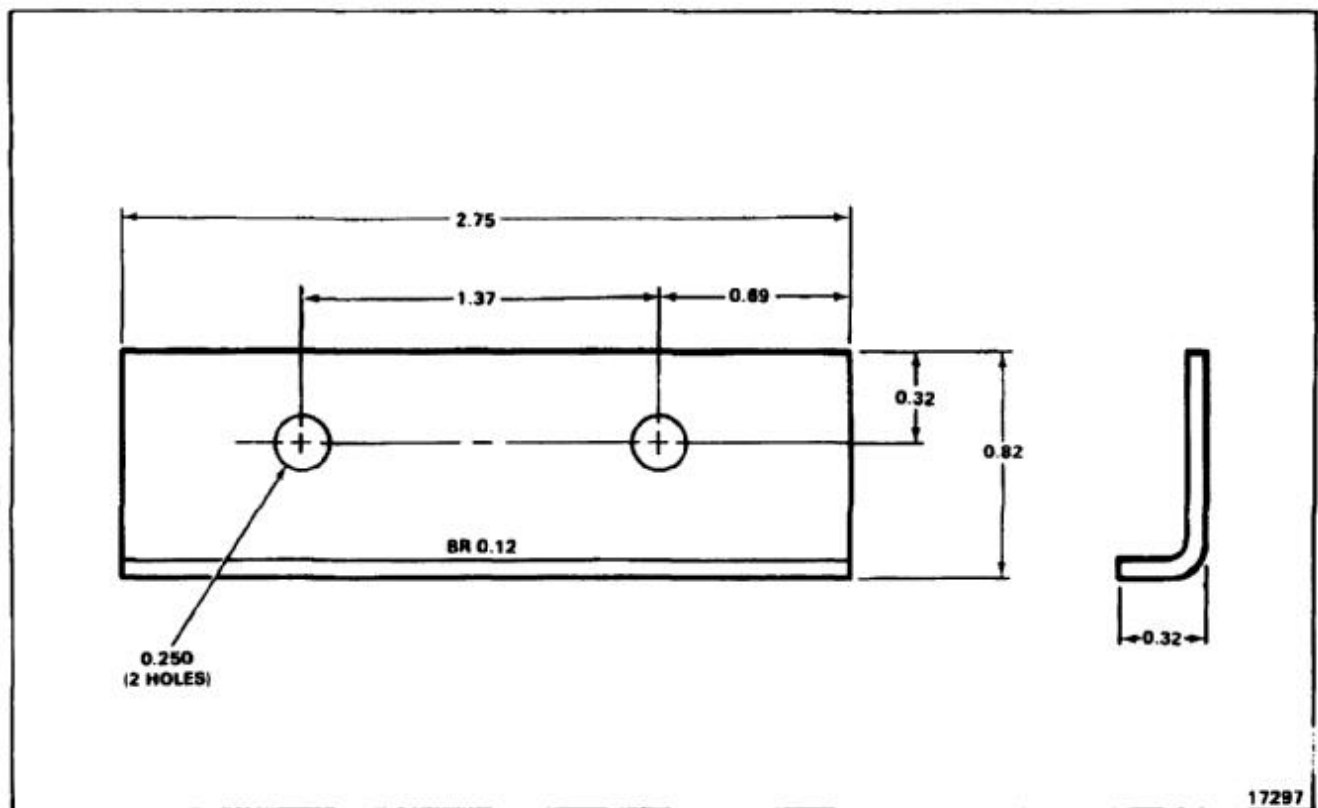
1. FABRICATE FROM ALUMINUM LAMINATED SHIM PER MIL-S-22499 COMPOSITION I, TYPE I.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.032 X 2.5 X 3.5.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY 2024-T3 CLAD SHEET PER QQ-A-200/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.032 X 1.2 X 2.8.
4. FINISH WITH ONE COAT OF RED EPOXY PRIMER (E293) MIL-P-52192 (MR) COMPOSITIONING, 2 PART SYSTEM APPLIED PER MANUFACTURER'S INSTRUCTIONS ON CONTAINER. APPLY OVER TWO COATS OF YELLOW EPOXY PRIMER (E292) MIL-P-23377 APPLIED PER MIL-C-22751.

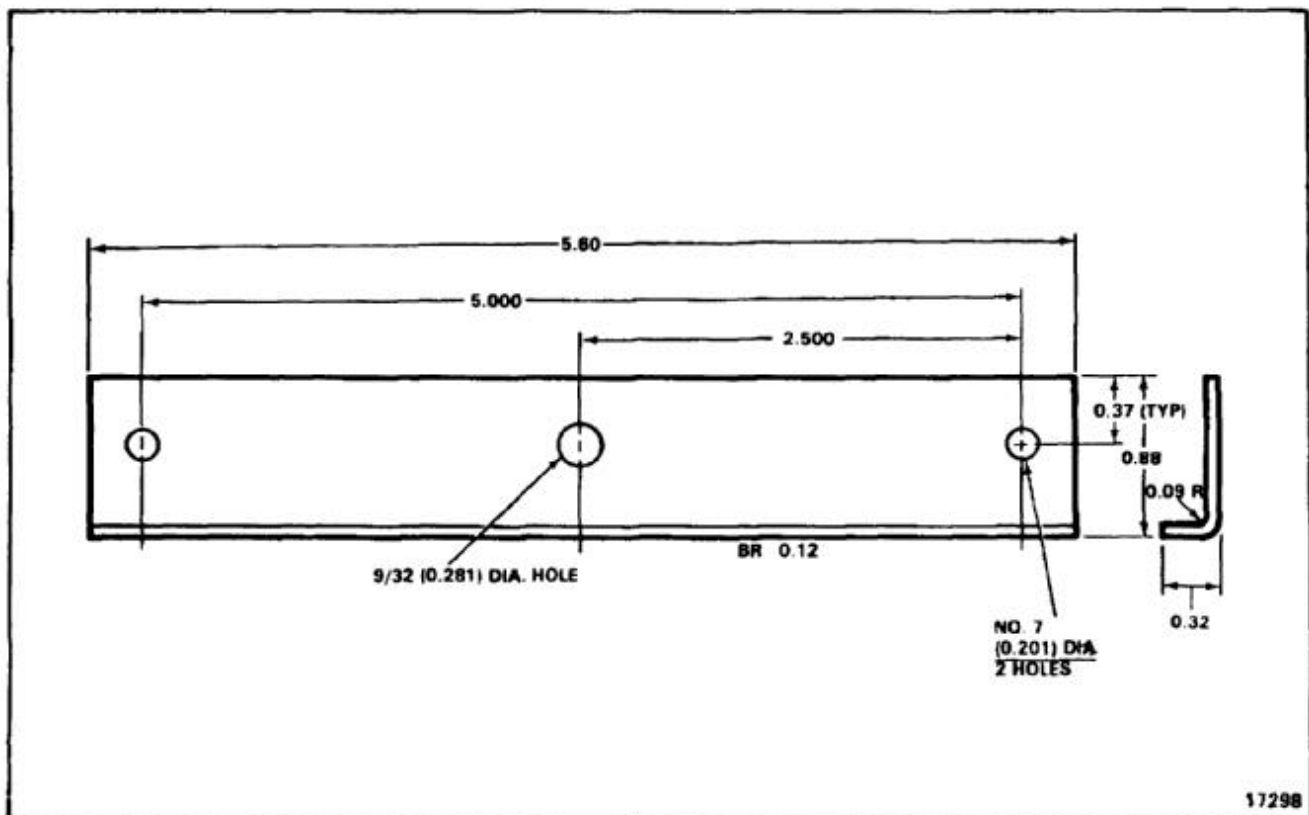


END OF TASK



**NOTES:**

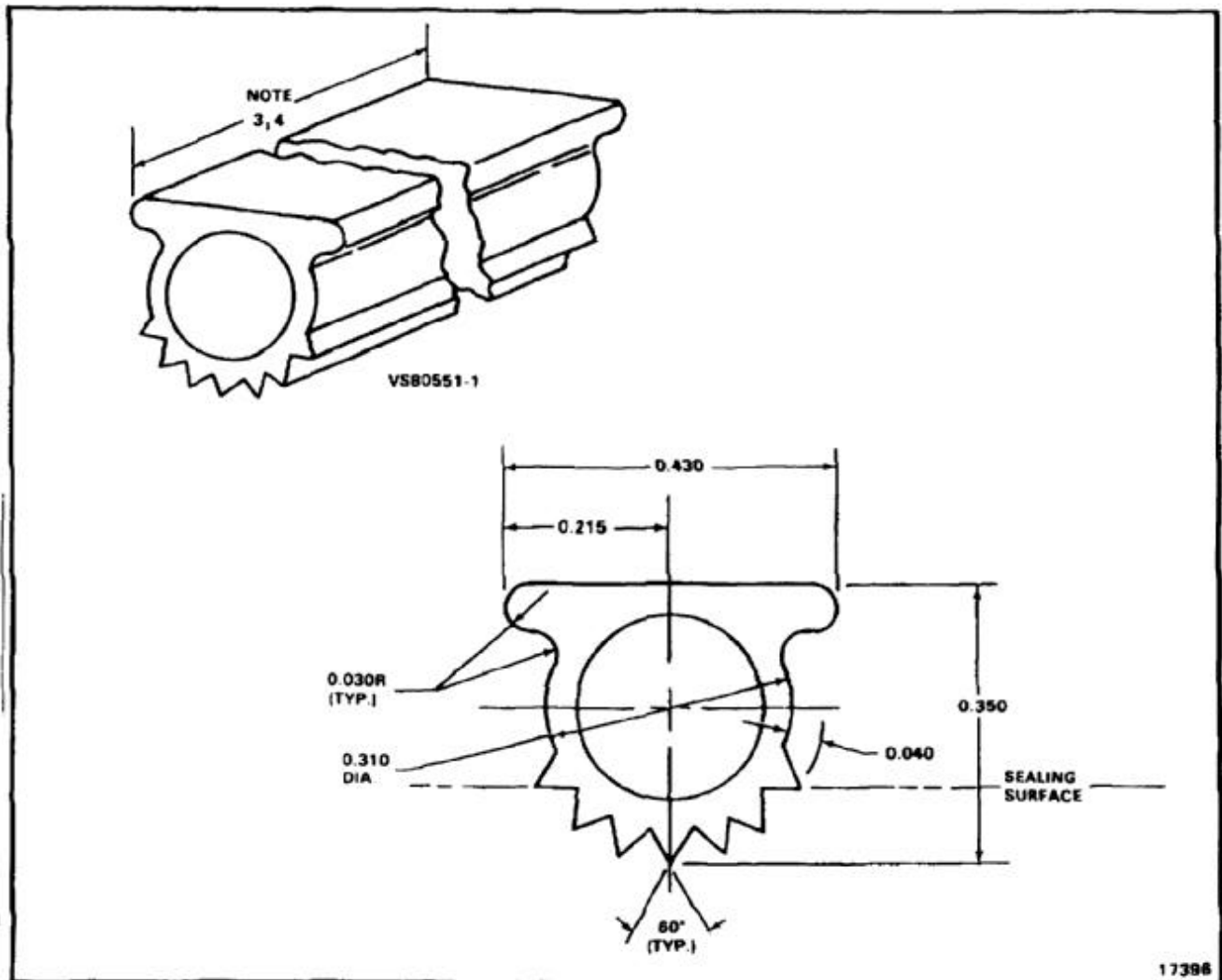
1. FABRICATE FROM ALUMINUM ALLOY 2024-T3 CLAD SHEET PER QQ-A-200/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.032 X 1.2 X 5.7.
4. FINISH WITH ONE COAT OF RED EPOXY PRIMER (E293) MIL-P-52192 (MR) COMPOSITIONING, 2 PART SYSTEM APPLIED PER MANUFACTURER'S INSTRUCTIONS ON CONTAINER. APPLY OVER TWO COATS OF YELLOW EPOXY PRIMER (E292) MIL-P-23377 APPLIED PER MIL-C-22751.



END OF TASK

**NOTES:**

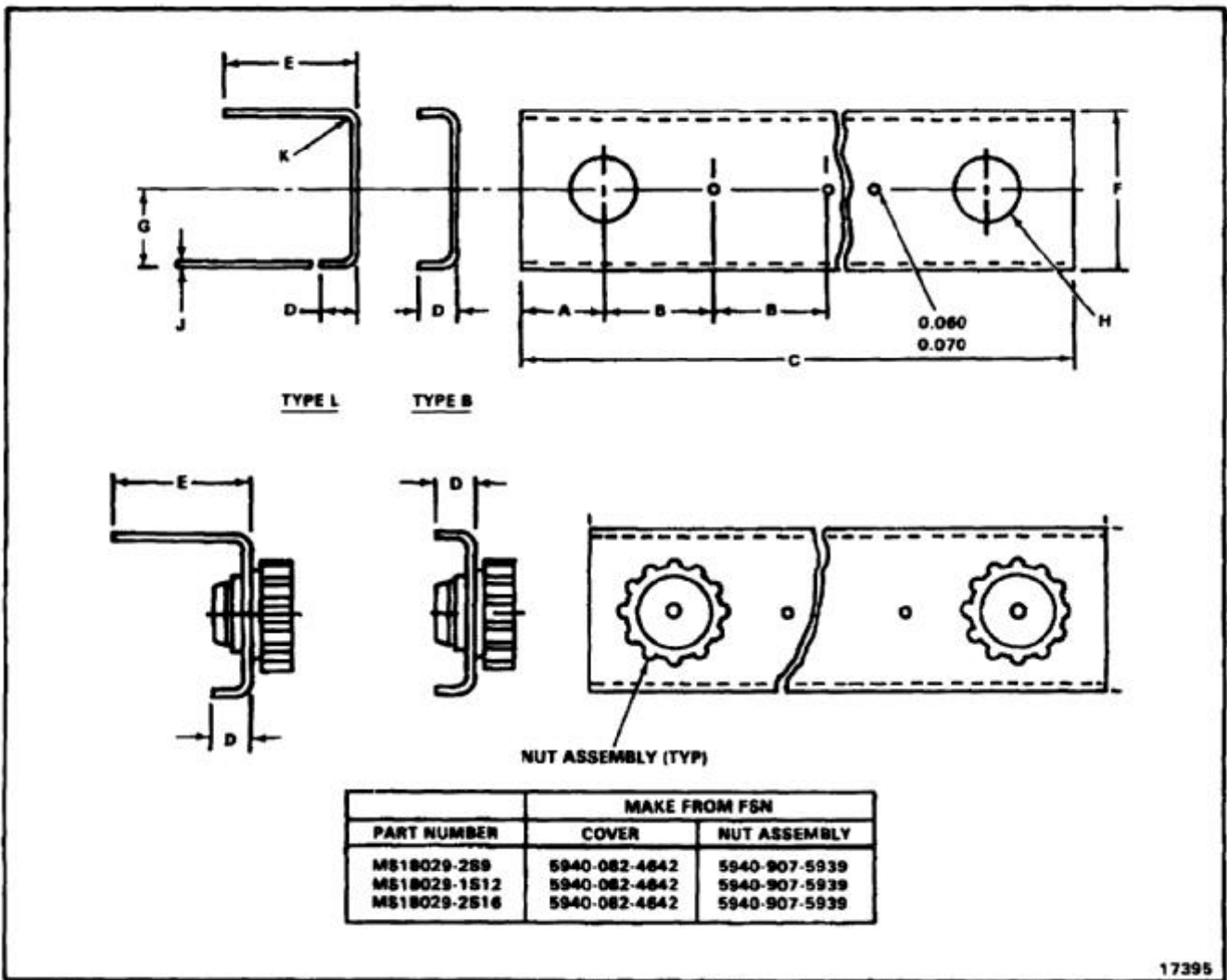
1. MAKE FROM VS8055-1 SILICONE RUBBER.
2. ALL DIMENSIONS IN INCHES.
3. STOCK LENGTH FOR -31 IS 39.20.
4. STOCK LENGTH FOR -33 IS 34.90.
5. TRIM TO FIT.



END OF TASK

**NOTES:**

1. MAKE FROM PLASTIC LAMINATE AS REQUIRED BY MIL-P-25518, TYPE L.
2. ALL DIMENSIONS IN INCHES.
3. USE OLD COVER FOR TEMPLATE TO DETERMINE A, B, C, D, E, F, G, AND J DIMENSIONS.
4. USE OLD COVER FOR TEMPLATE TO DETERMINE HOLE SIZE E.
5. USE OLD COVER FOR TEMPLATE TO DETERMINE BEND RADIUS K.
6. FINISH AS REQUIRED.

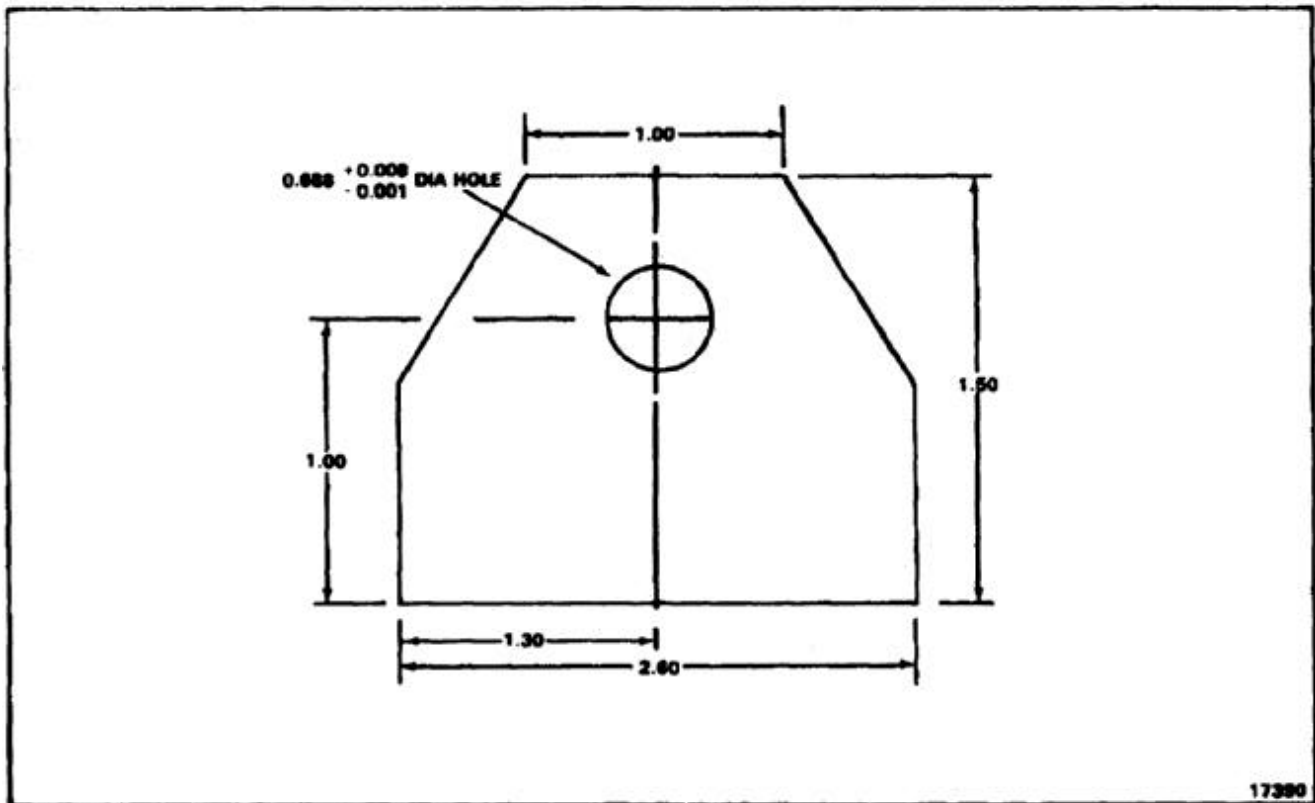


17395

END OF TASK

**NOTES:**

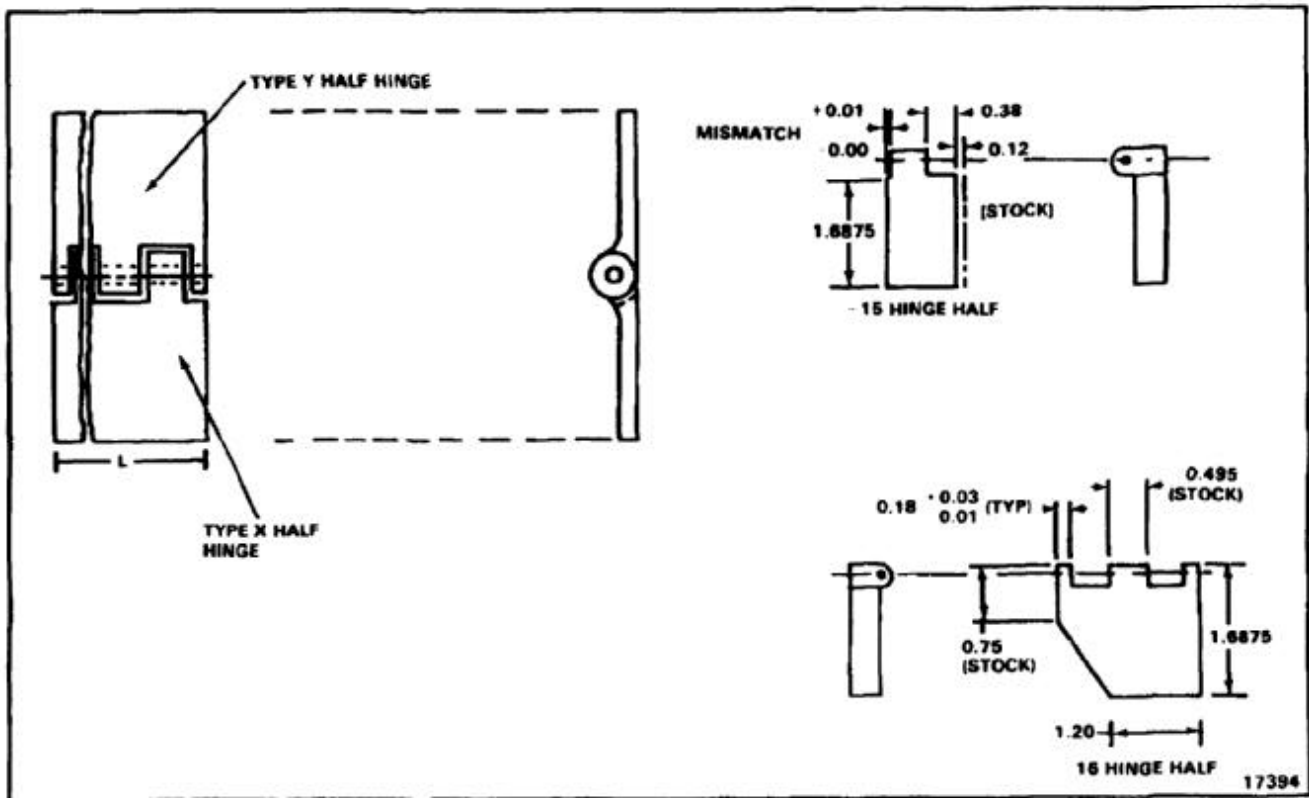
1. FABRICATE FROM ALUMINUM ALLOY SHEET  
CLAD 2024-T3 PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.063 X 1.8 X 2.8.
4. USE OLD SPACER FOR TEMPLATE TO  
DETERMINE EXACT DIMENSIONS.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

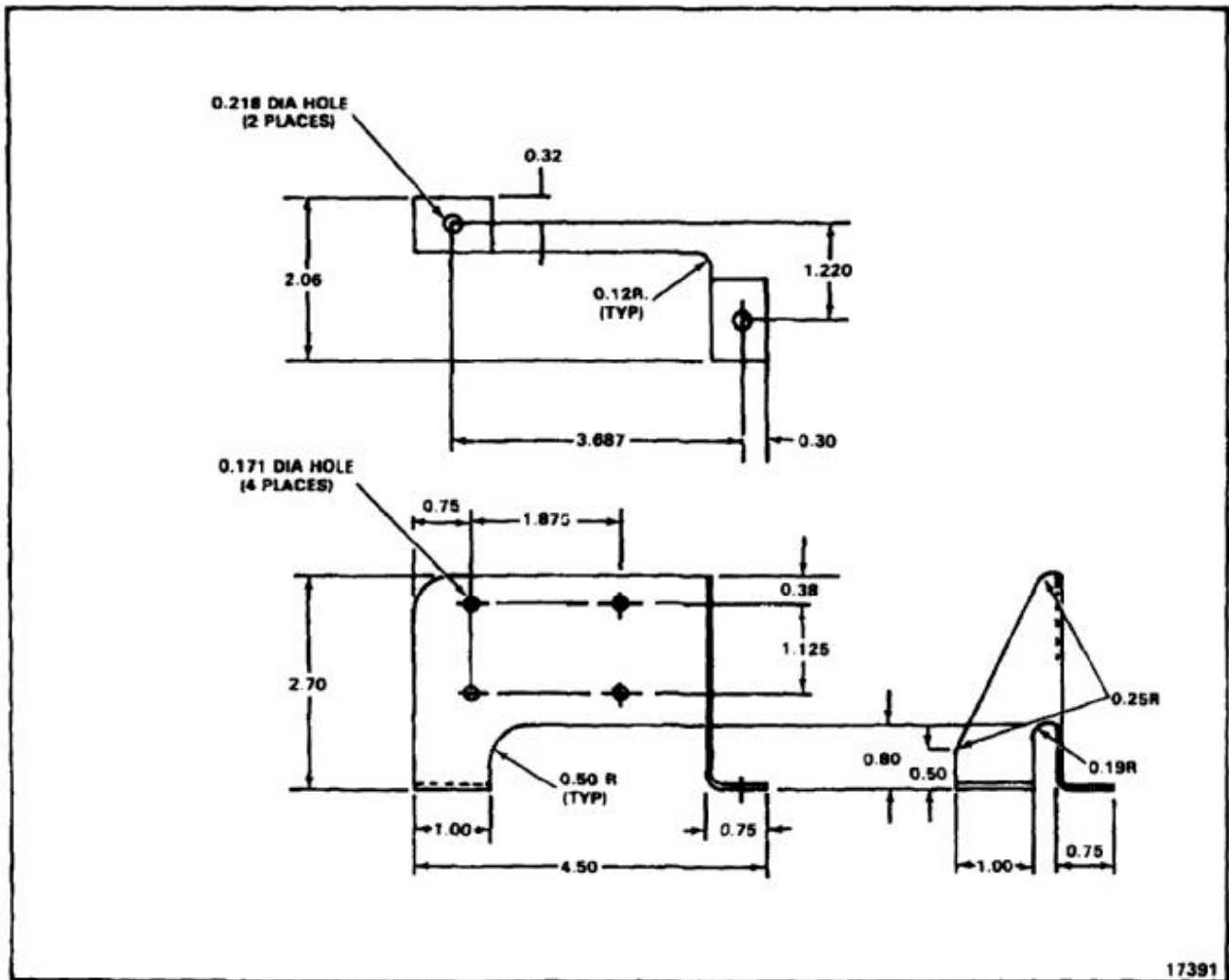
1. -15 TYPE HALF HINGE IS MADE FROM MS2000 1PX12-100.
2. -16 TYPE HALF HINGE IS MADE FROM MS2000 1PX12-190.
3. TYPE X HALF HINGE MATES WITH TYPE Y HALF HINGE.
4. ALL DIMENSIONS IN INCHES.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

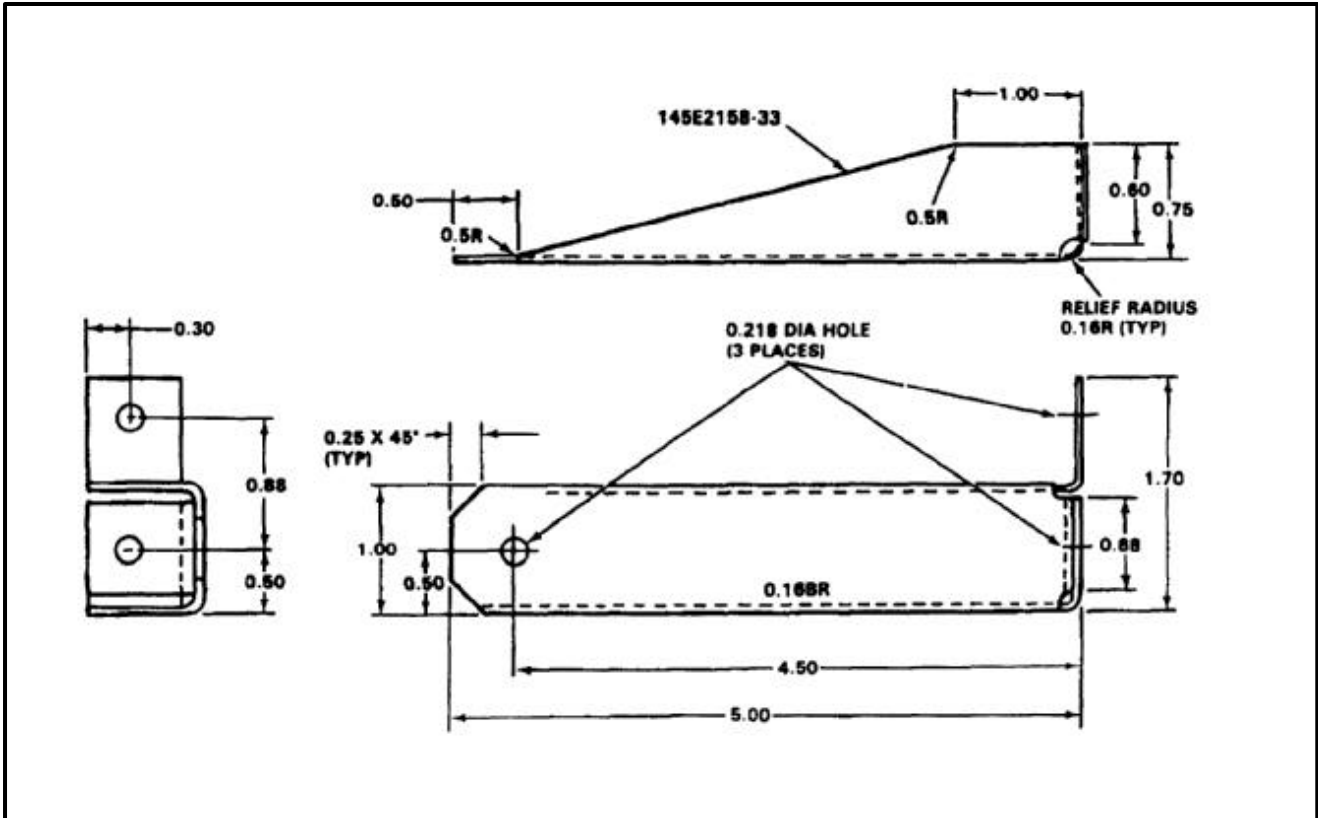
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK 0.040 X 4.00 X 7.00.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

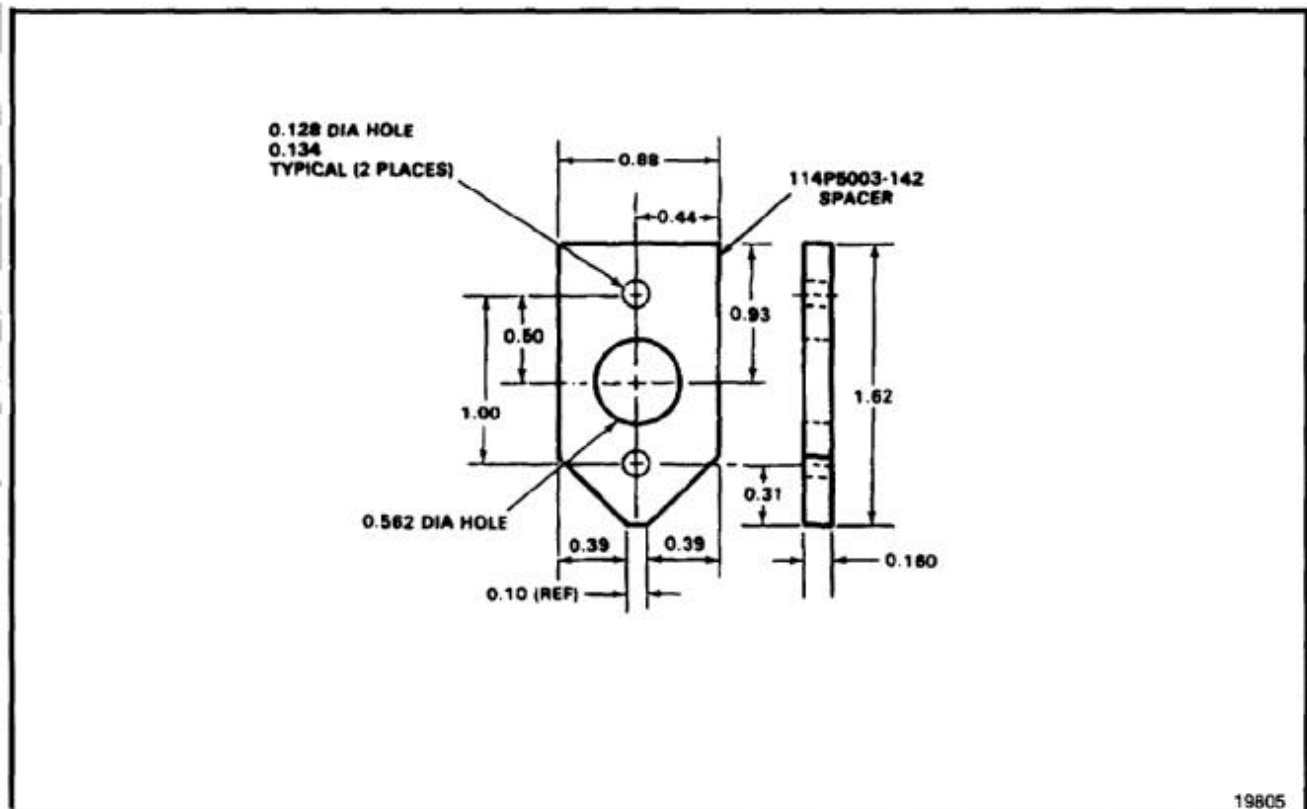
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK 0.032 X 2.75 X 6.00.
4. FINISH PS362.



END OF TASK

**NOTES:**

1. FABRICATE FROM SHEET ALUMINUM ALLOY 6061-T6 PER QQ-A-250/11 TEMP T6.
2. ALL DIMENSIONS IN INCHES.
3. FINISH WITH ZINC CHROMATE PRIMER (E291).

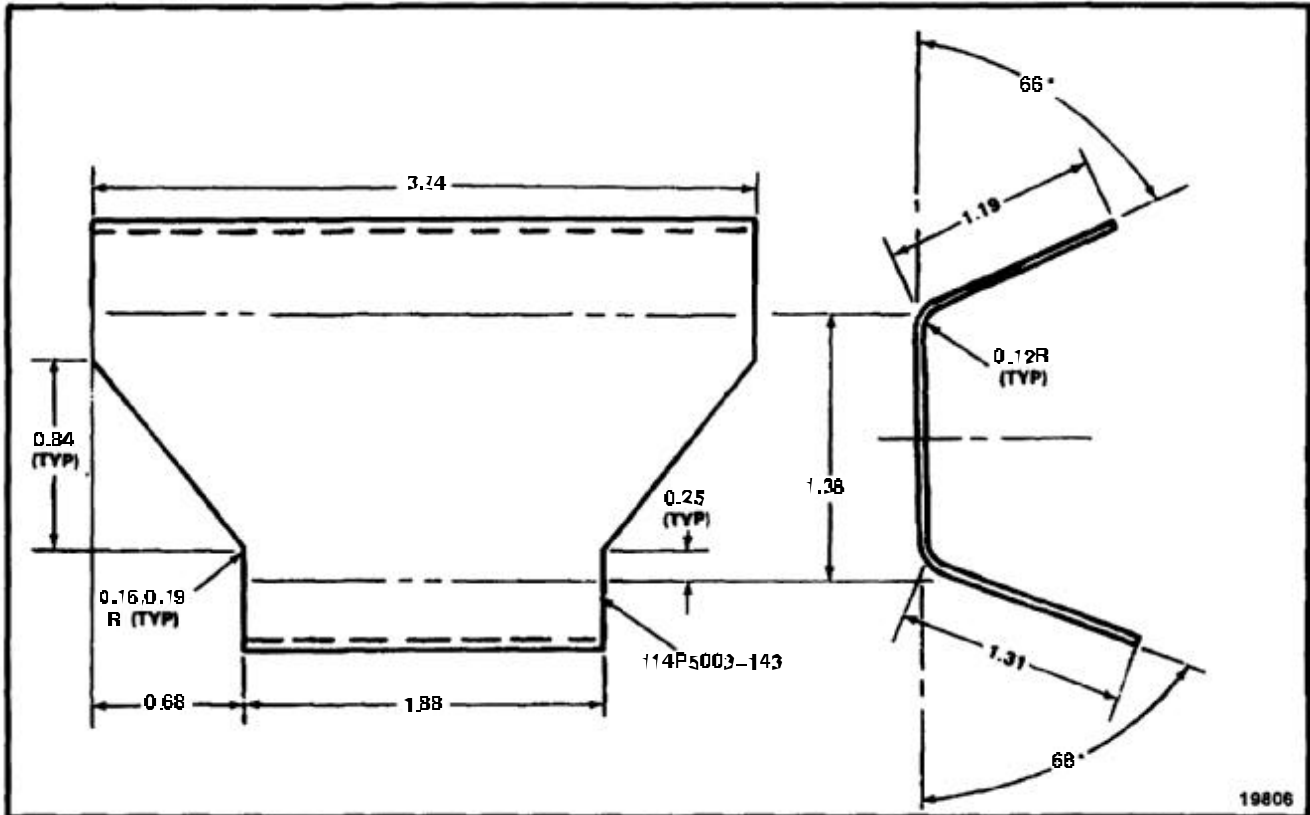


END OF TASK



**NOTES:**

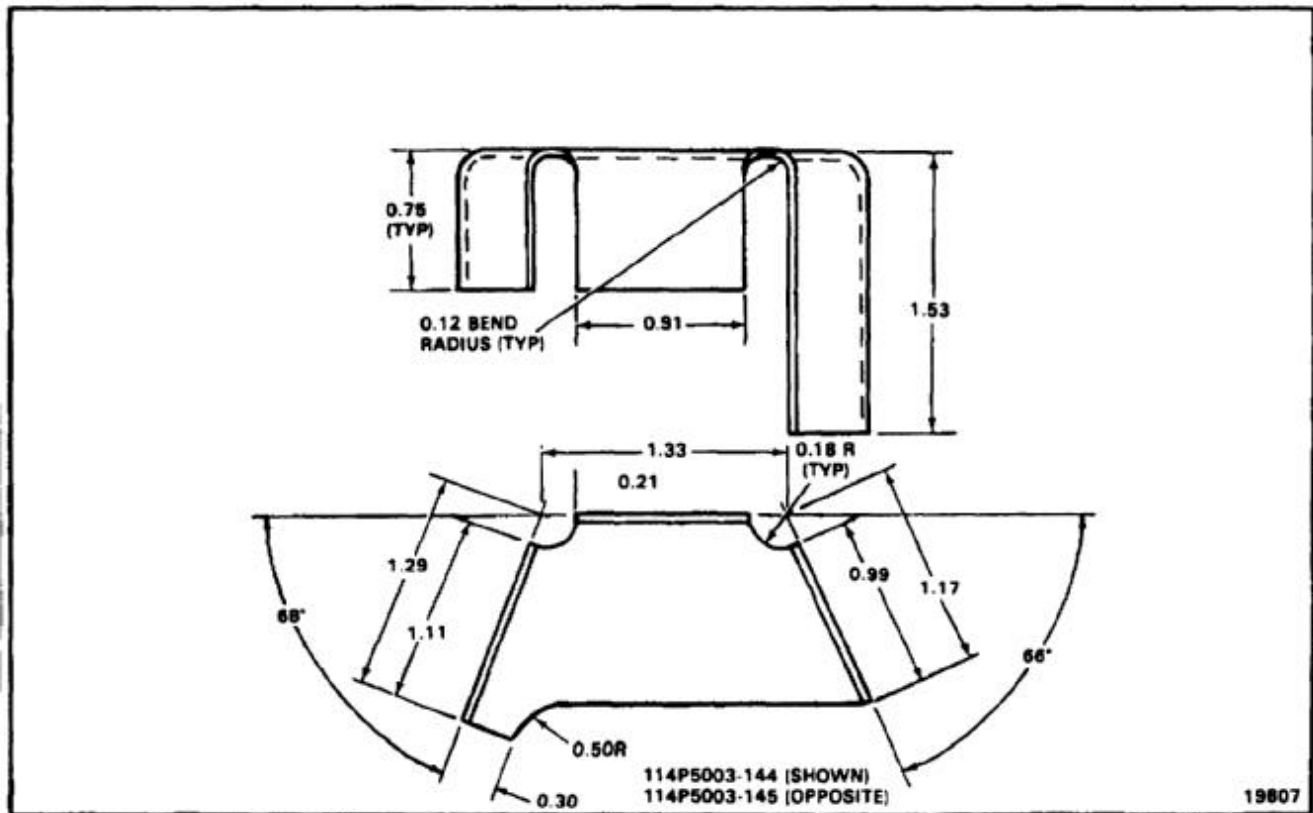
1. FABRICATE FROM 2024-T4 CLAD ALUMINUM ALLOY SHEET QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.032 X 3.3 X 4.5.
4. FINISH WITH ZINC CHROMATE PRIMER (E291).



END OF TASK

**NOTES:**

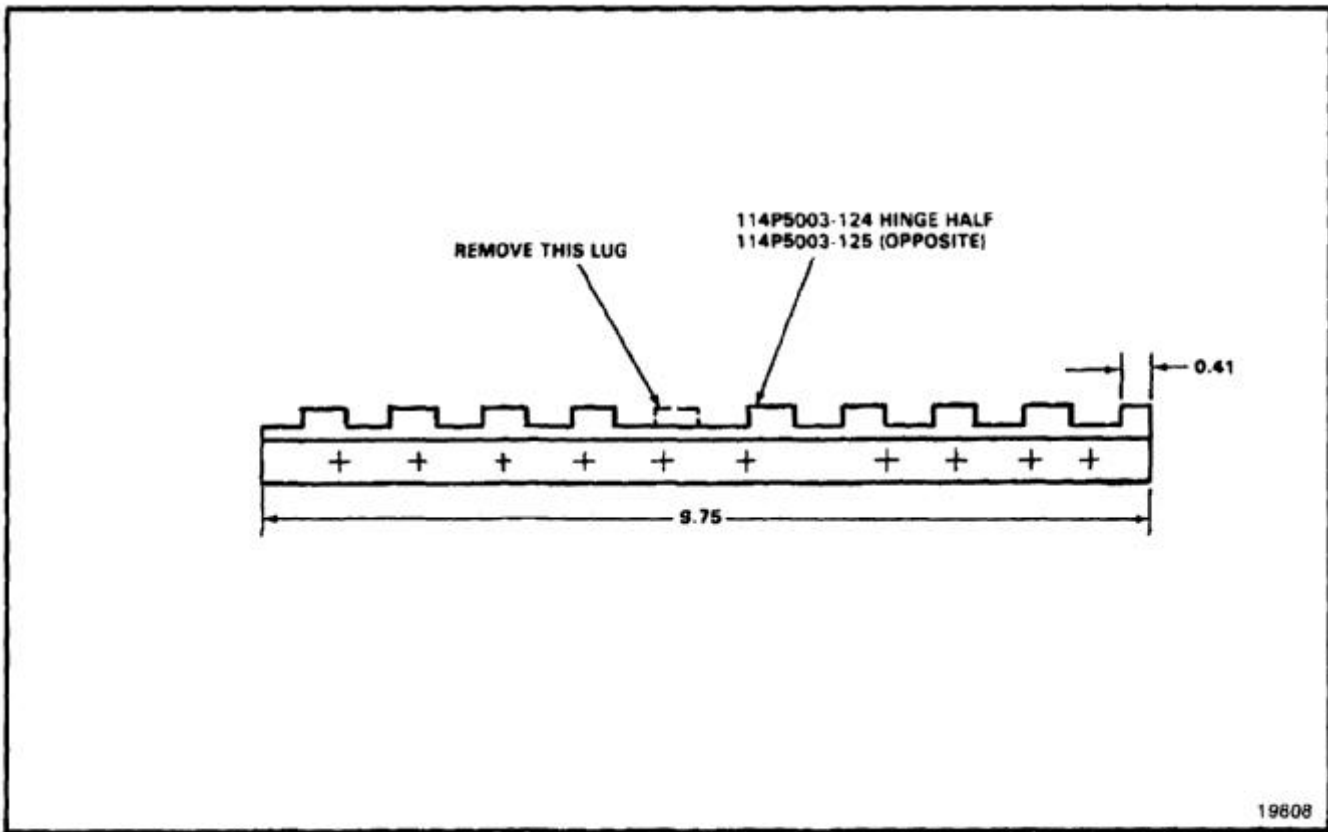
1. FABRICATE FROM 2024-T4 CLAD ALUMINUM ALLOY SHEET QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.032 X 2.6 X 4.6.
4. FINISH WITH ZINC CHROMATE PRIMER (E291).



END OF TASK

**NOTES:**

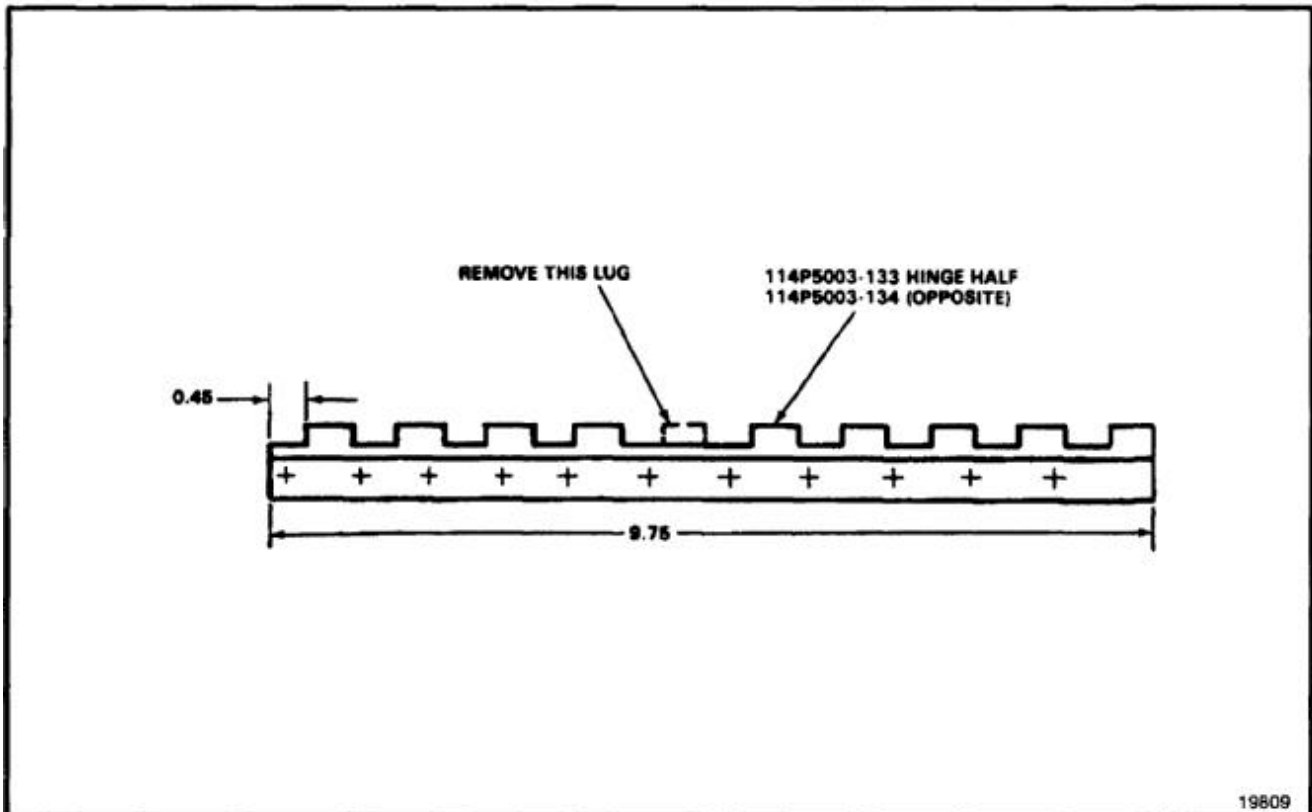
1. FABRICATE FROM MS20001PX4-10.09.
2. USE FAIRING ASSEMBLY TO LOCATE RIVET HOLES.
3. FINISH ALL CUT EDGES WITH ZINC CHROMATE PRIMER (E291).



END OF TASK

**NOTES:**

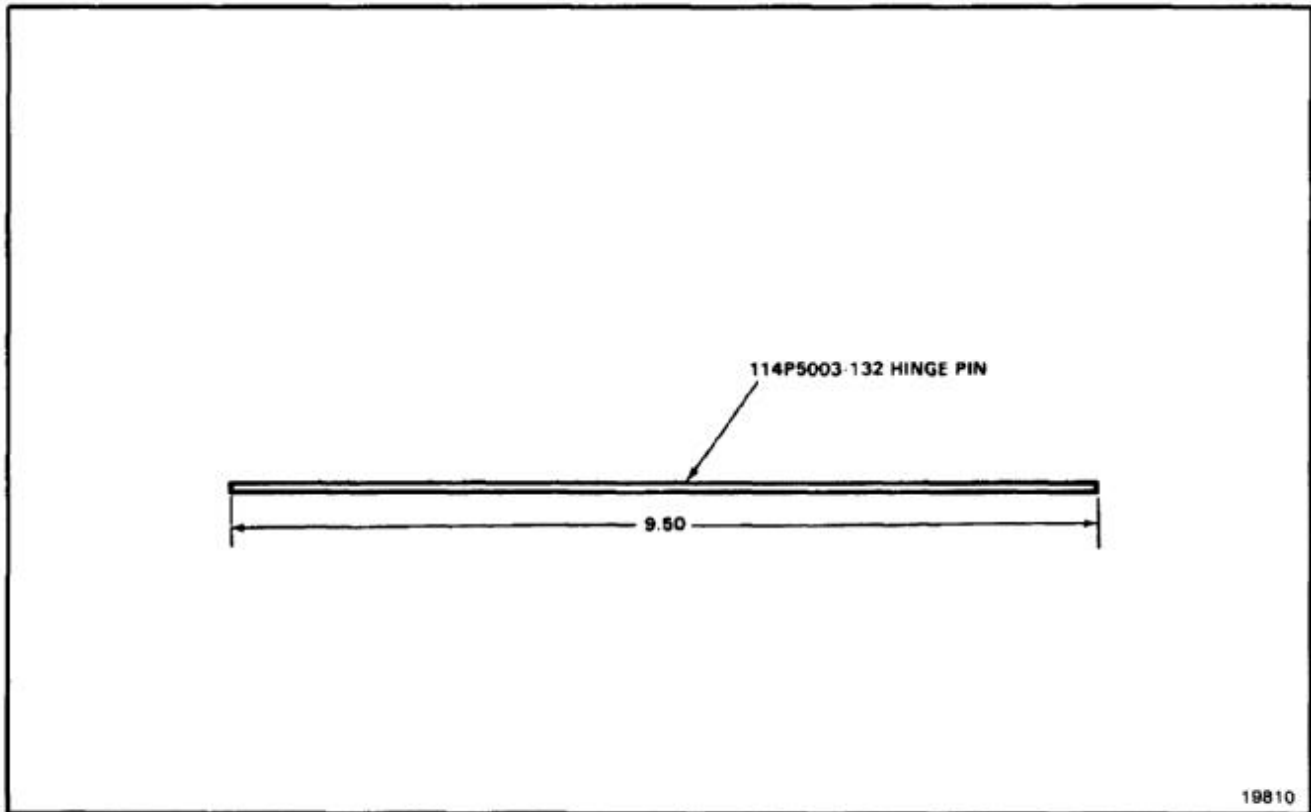
1. FABRICATE FROM MS20001PX4-10.09.
2. USE FAIRING ASSEMBLY TO LOCATE RIVET HOLES.
3. FINISH ALL CUT EDGES WITH ZINC CHROMATE (E291).



END OF TASK

**NOTES:**

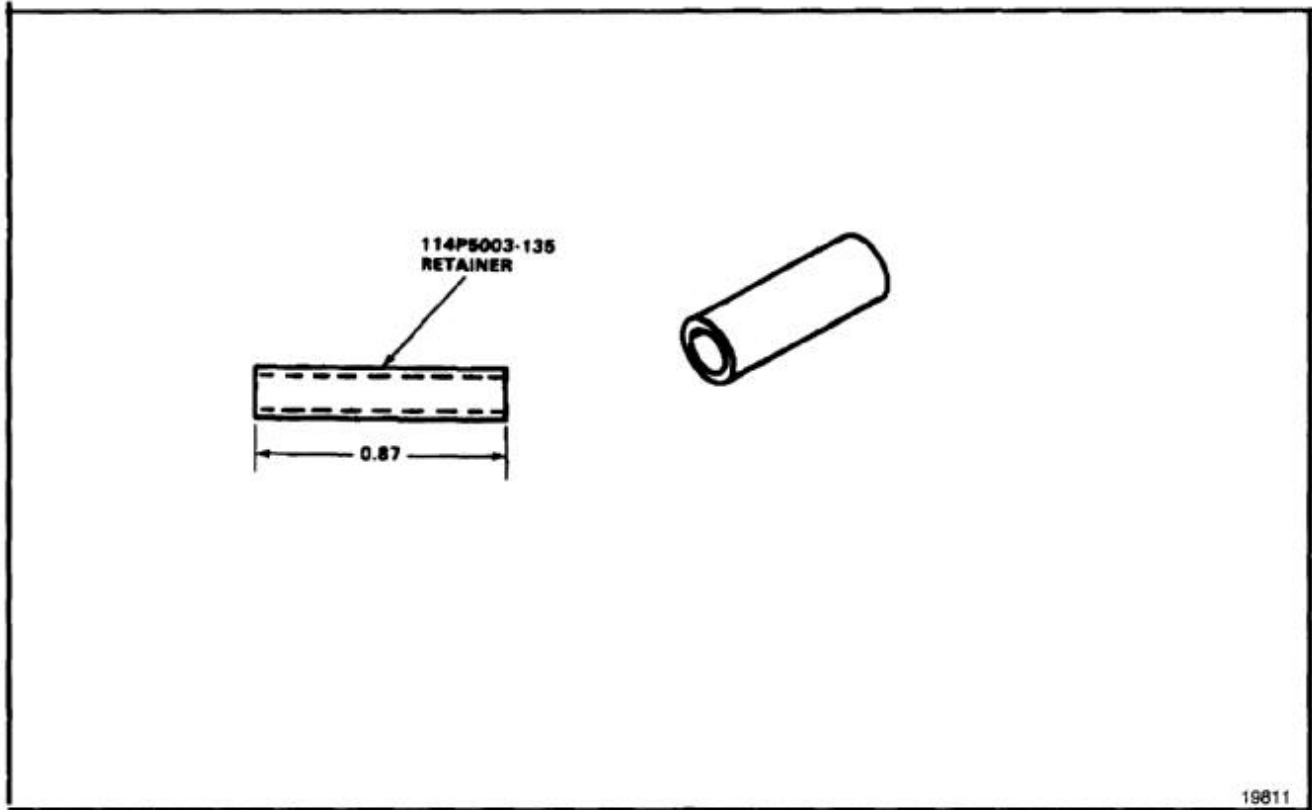
1. FABRICATE FROM MS20253P2-943.
2. ALL DIMENSION IN INCHES.



END OF TASK

**NOTES:**

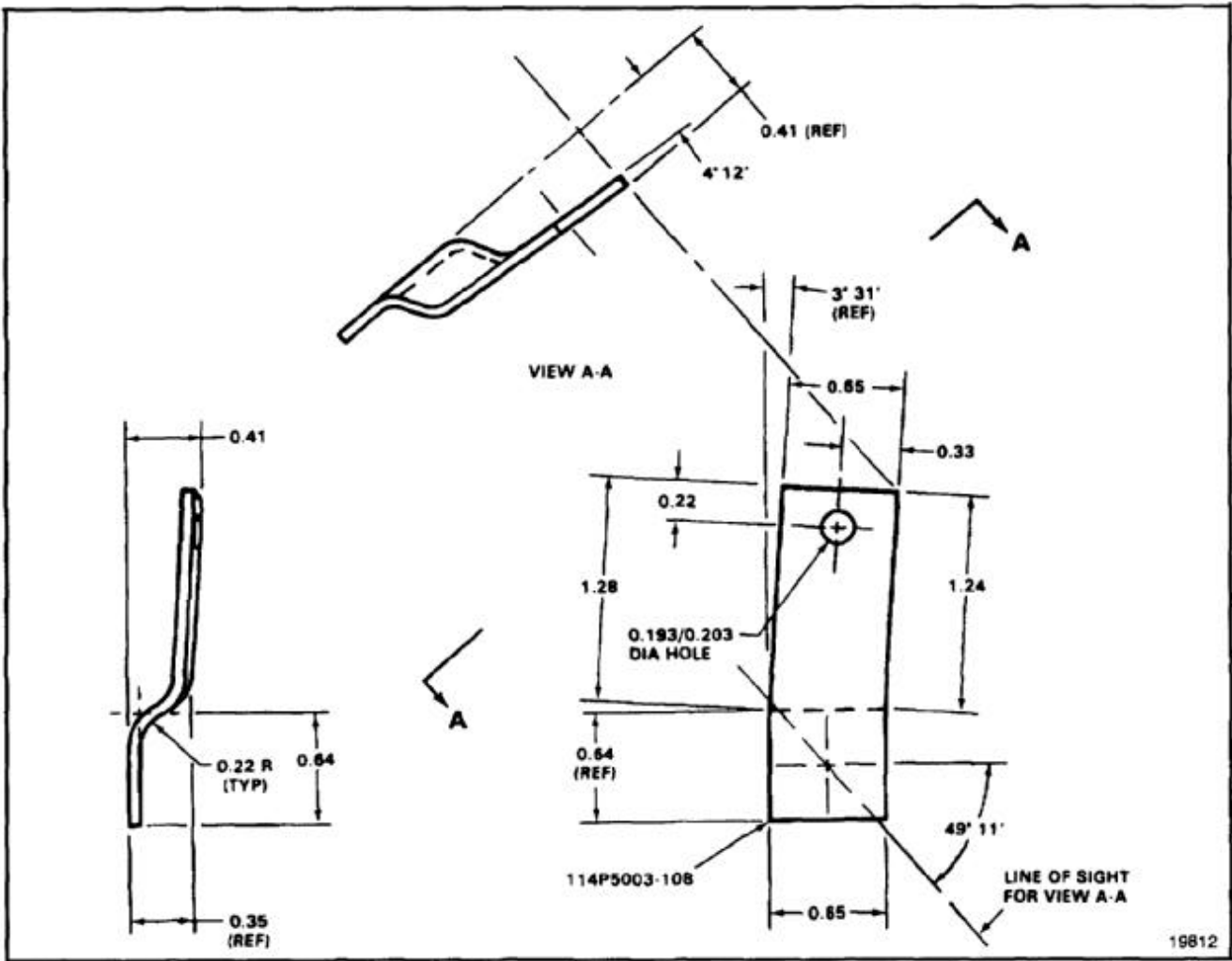
1. FABRICATE FROM PD70 TUBING. (RAYCHEM CO., MENLO PARK, CA 94025.)
2. STOCK SIZE 0.018 ID X 0.87 LONG.
3. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

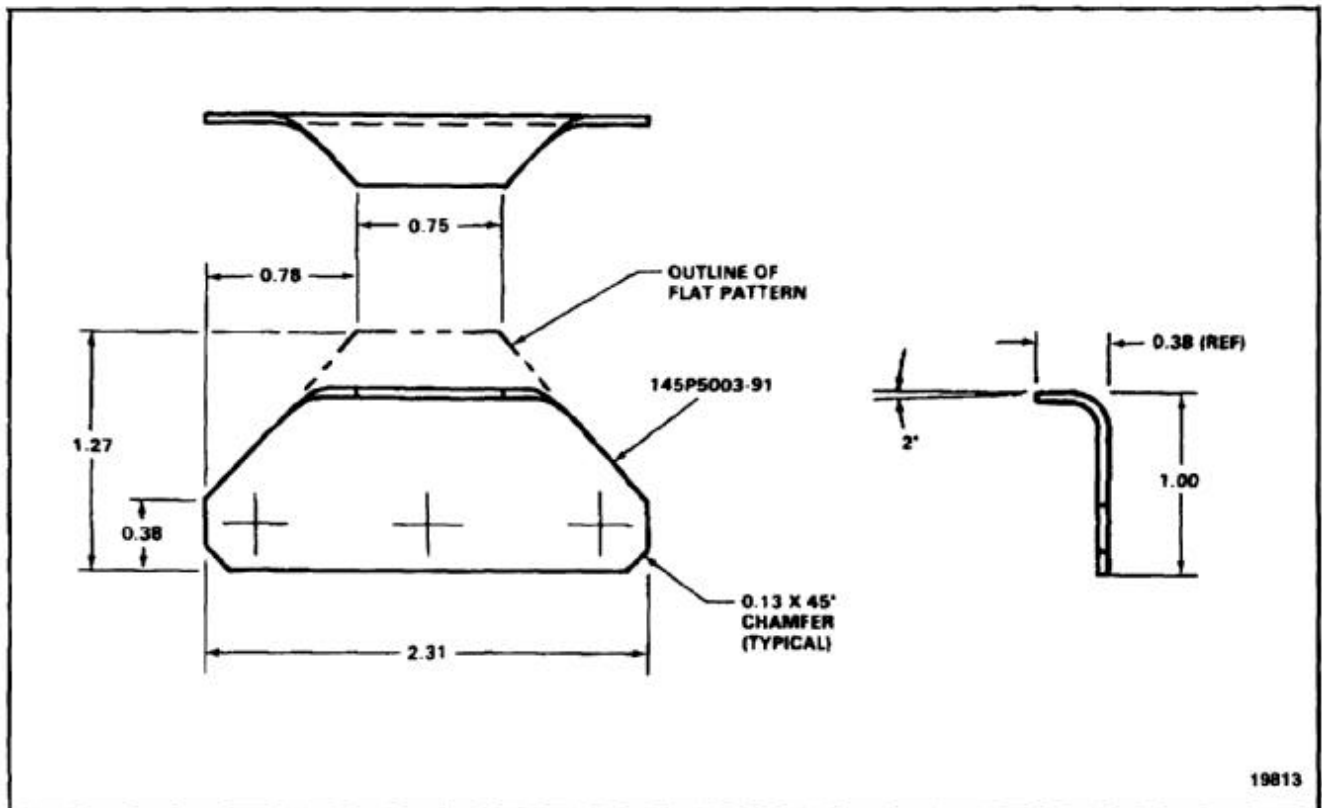
1. FABRICATE FROM 2024-T4 ALUMINUM ALLOY CLAD SHEET QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.063 X 0.8 X 2.3.
4. FINISH WITH ZINC CHROMATE PRIMER (E291).



END OF TASK

**NOTES:**

1. FABRICATE FROM 2024-T4 ALUMINUM ALLOY CLAD SHEET QQ-A-250/5.
2. STOCK SIZE 0.040 X 1.3 X 2.4.
3. ALL DIMENSIONS IN INCHES.
4. USE FAIRING ASSEMBLY TO LOCATE RIVET HOLES.
5. FINISH WITH ZINC CHROMATE PRIMER (E291).

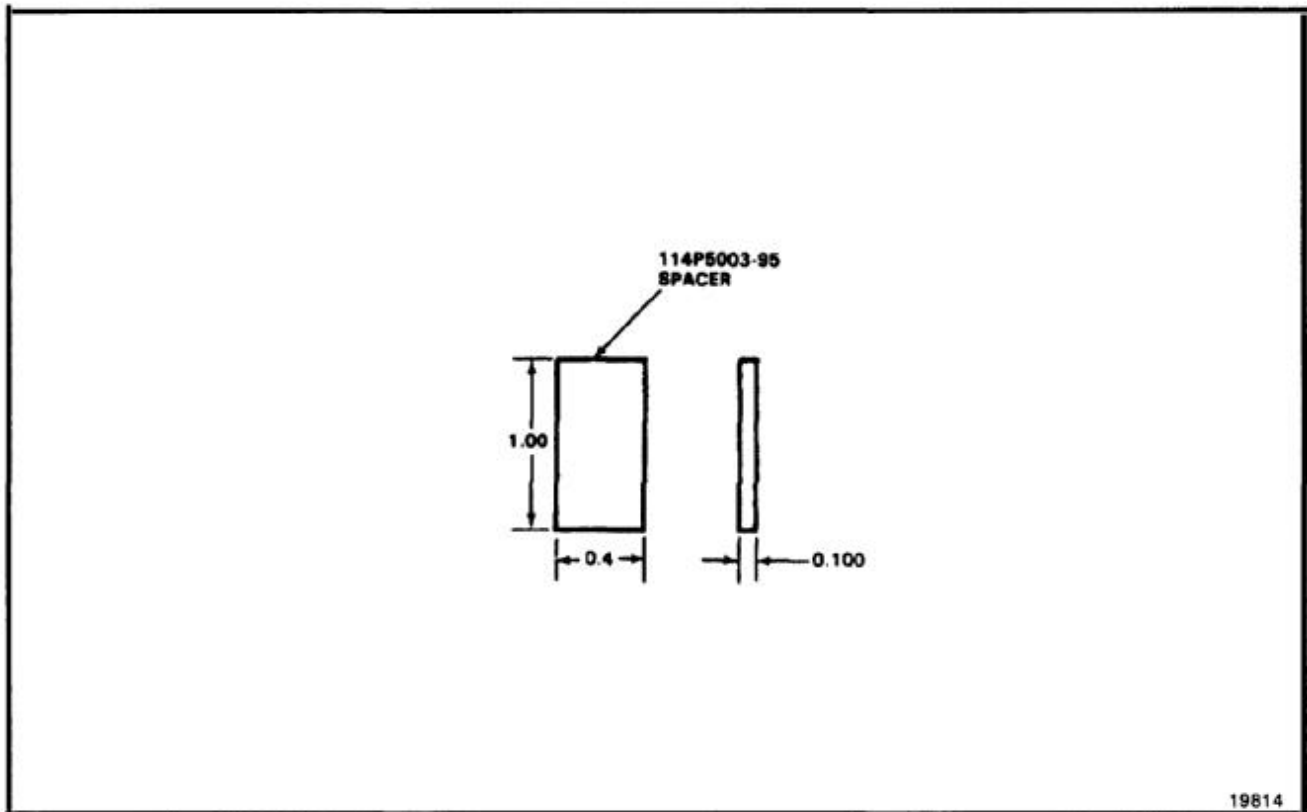


END OF TASK



**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY SHEET 6061-T6 PER QQ-A-250/11.
2. STOCK SIZE 0.100 X 0.4 X 0.8.
3. USE FAIRING ASSEMBLY TO LOCATE RIVET HOLES.
4. FINISH WITH ZINC CHROMATE PRIMER (E291).
5. ALL DIMENSIONS IN INCHES.

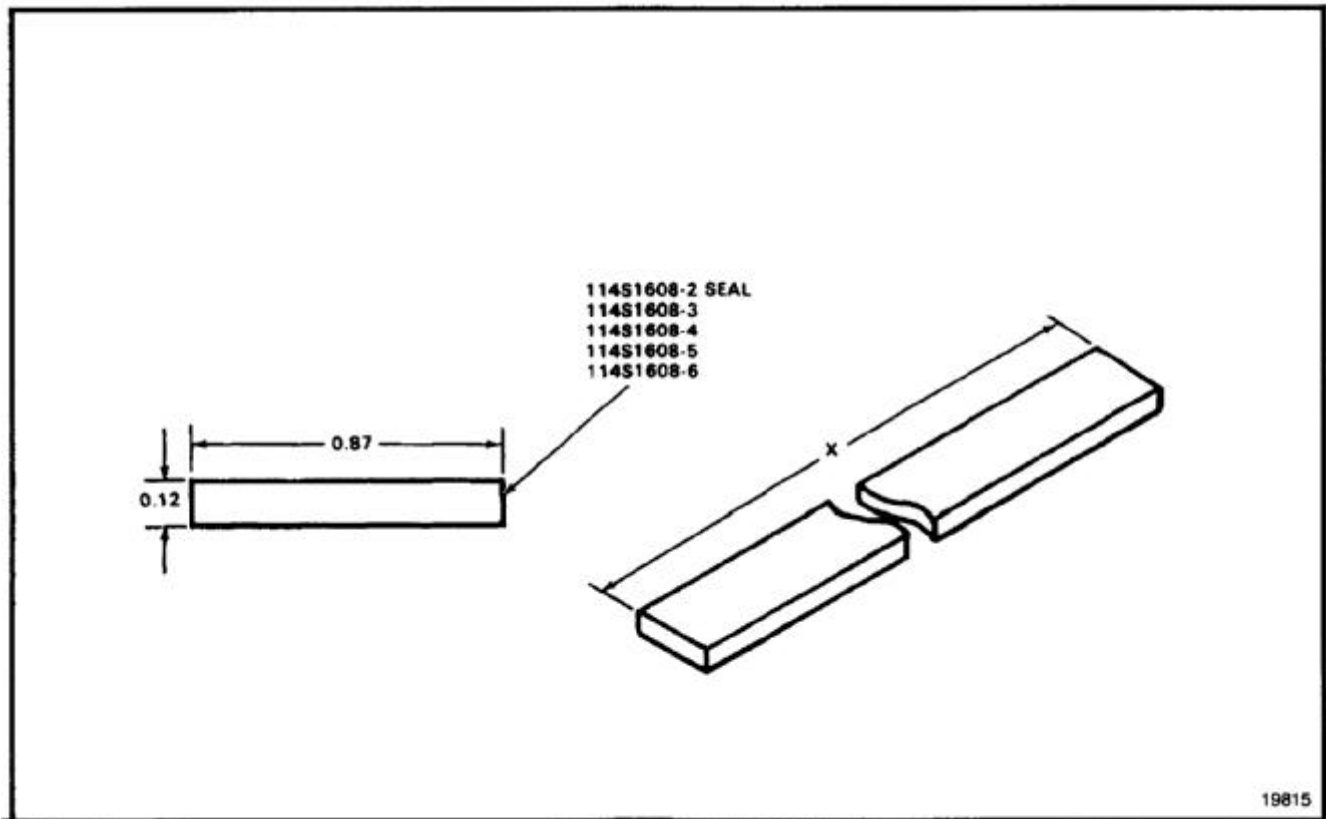


END OF TASK

E-264

**NOTES:**

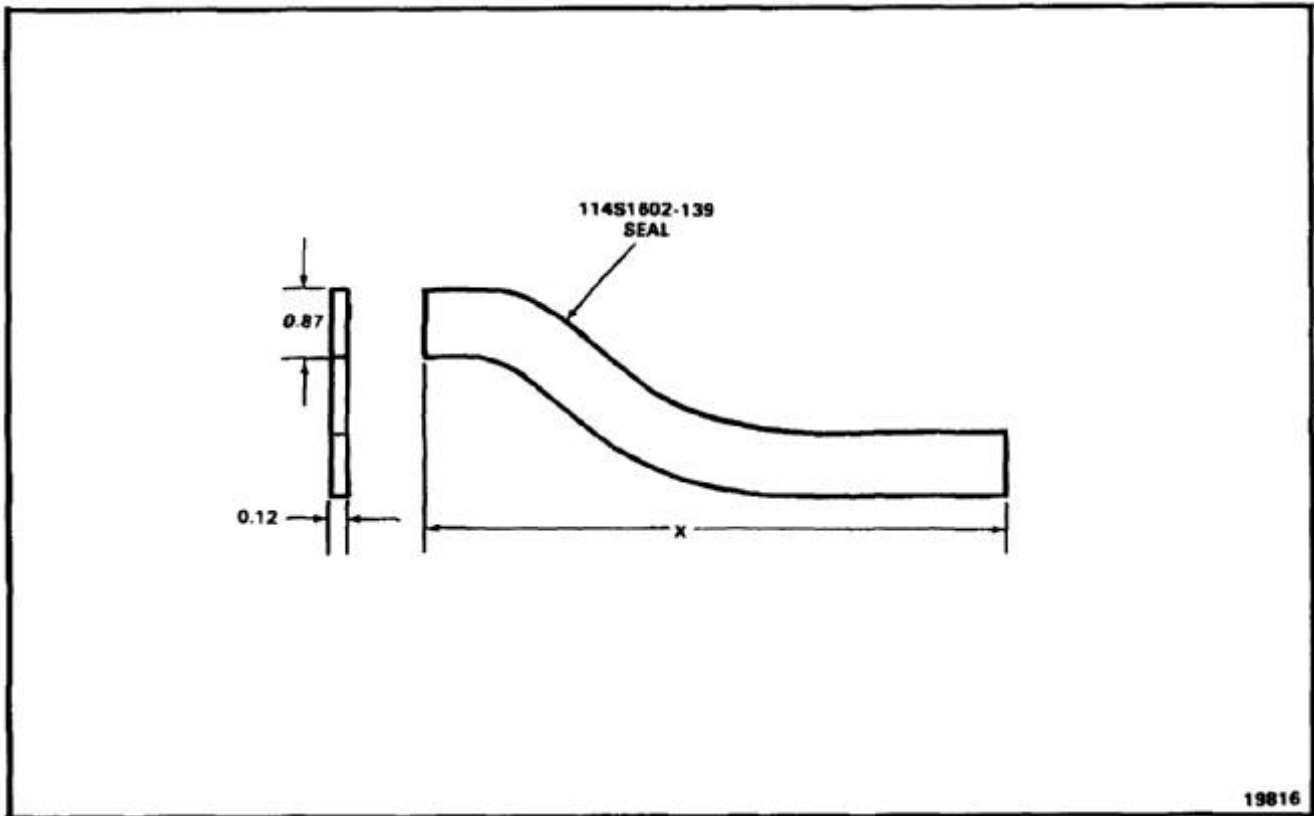
1. FABRICATE FROM AMS3195 SILICONE RUBBER SPONGE SHEET.
2. STOCK SIZE 0.12 X 0.87 WIDE.
3. ALL DIMENSIONS IN INCHES.
4. TWO REQUIRED FOR EACH INSTALLATION BETWEEN WINDSHIELD AND STRUCTURE. USE ORIGINAL SEAL TO DETERMINE X DIMENSION.



END OF TASK

**NOTES:**

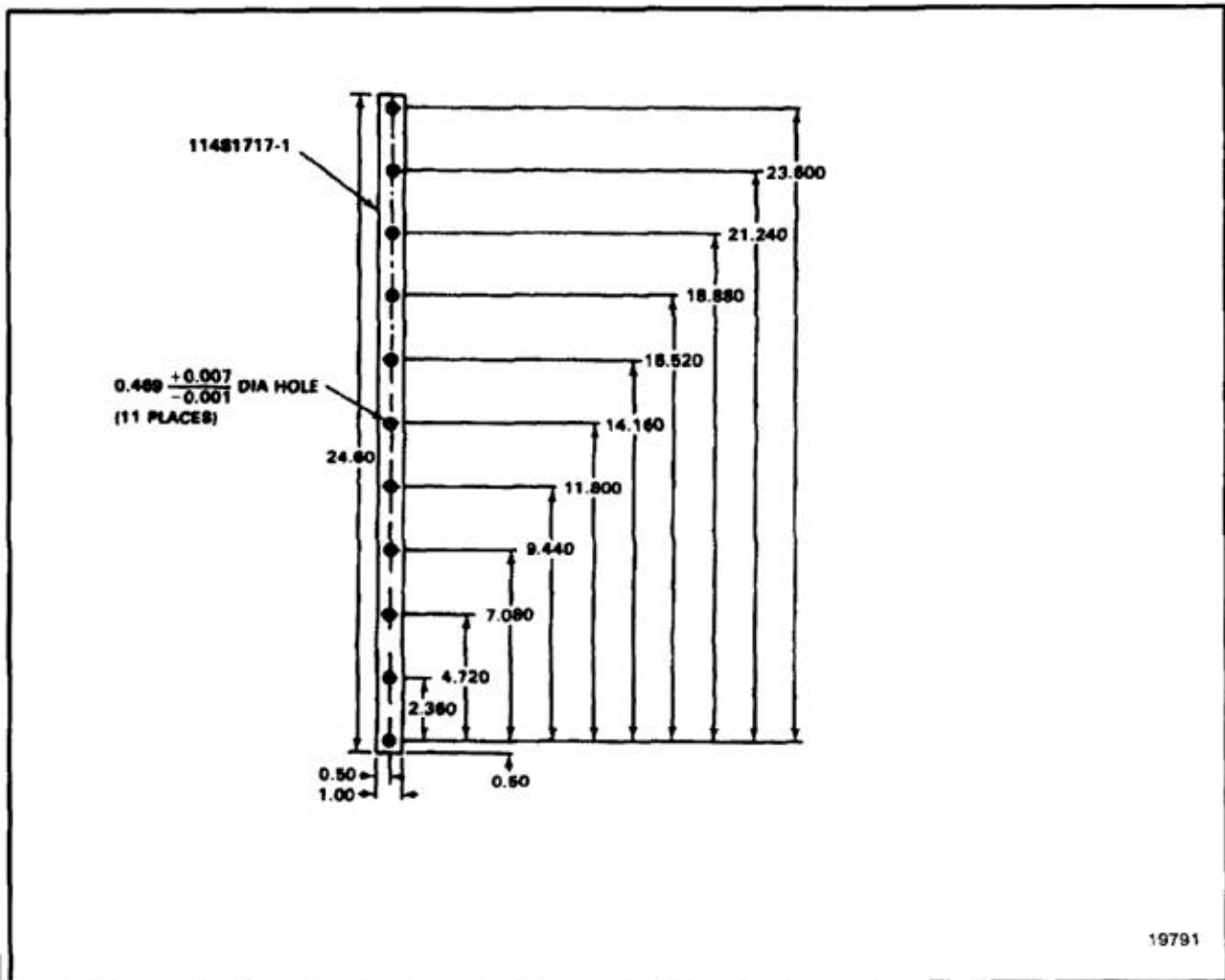
1. FABRICATE FROM AMS3195 SILICONE RUBBER SPONGE SHEET.
2. STOCK SIZE 0.12 X 0.87 WIDE X 8.5 LONG.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL SEAL TO DETERMINE DIMENSION X AND EXACT SHAPE.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T4 PER QQ-A-250/11.
2. STOCK SIZE 0.040 X 1.1 X 24.7.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.

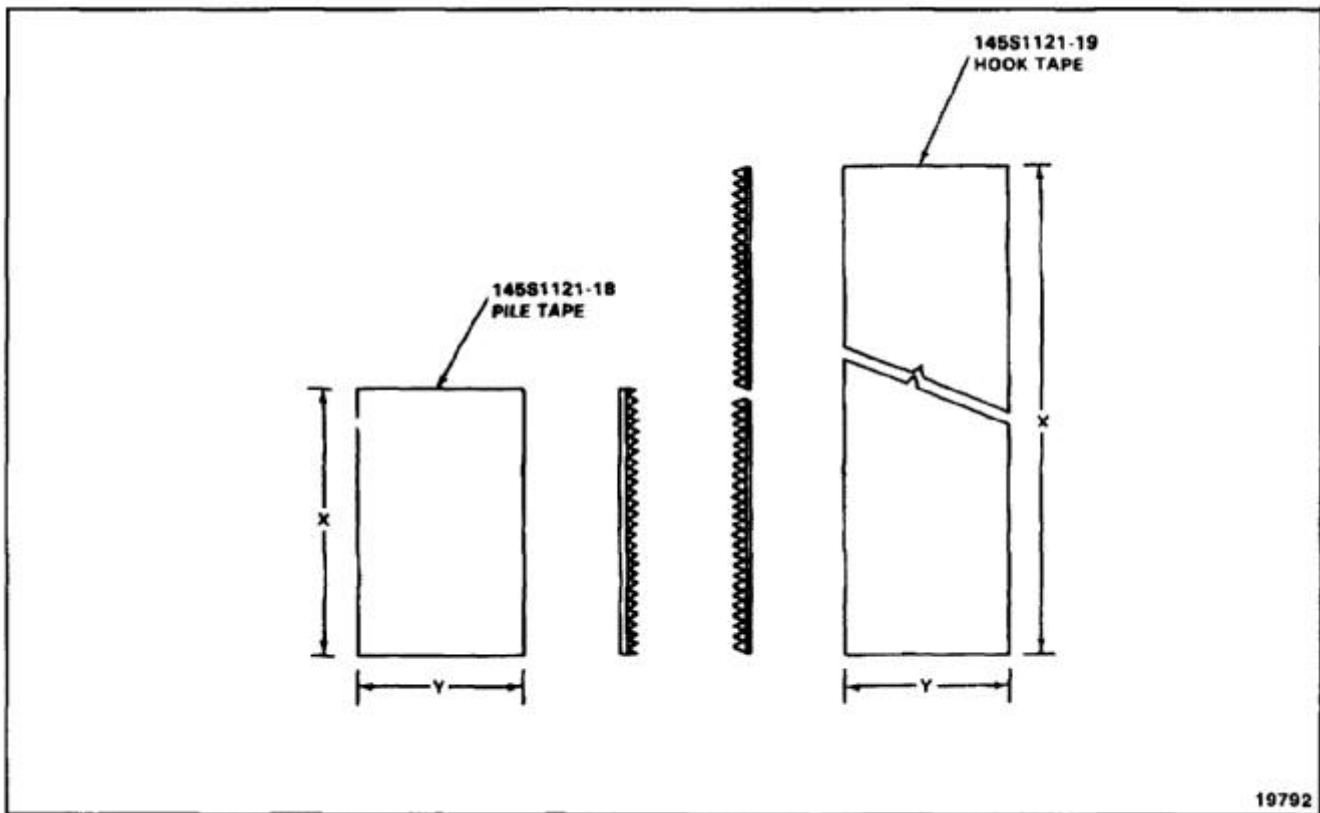


19791

END OF TASK

**NOTES:**

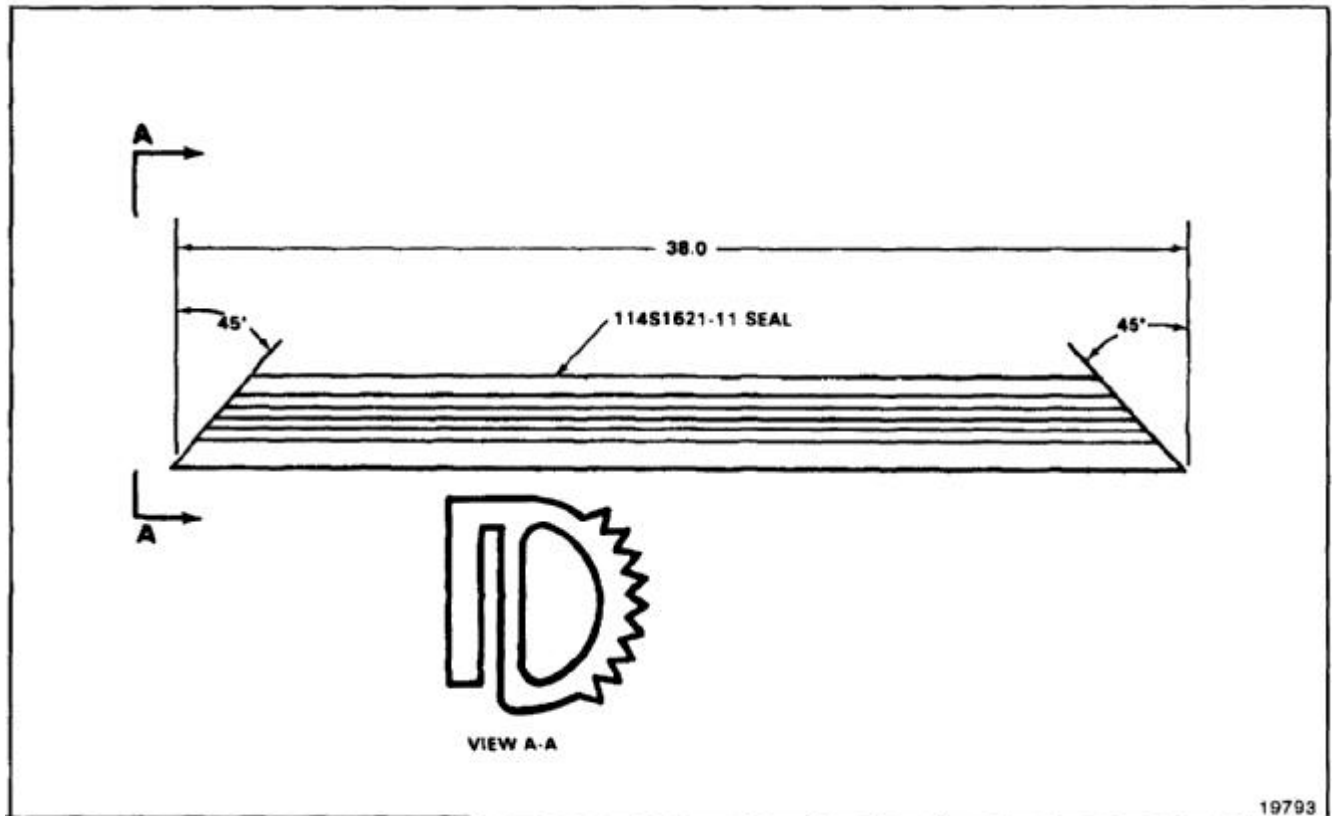
1. FABRICATE -18 FROM VELCRO PILE TAPE V-320-2(80)-100.
2. FABRICATE -19 FROM VELCRO HOOK TAPE V-320-1(80)- 100.
3. STOCK SIZES: -18: 1.6 LONG, -19: 5.2 LONG.
4. ALL DIMENSIONS IN INCHES.
5. USE ORIGINAL TAPES TO DETERMINE X AND Y DIMENSIONS.



END OF TASK

**NOTES:**

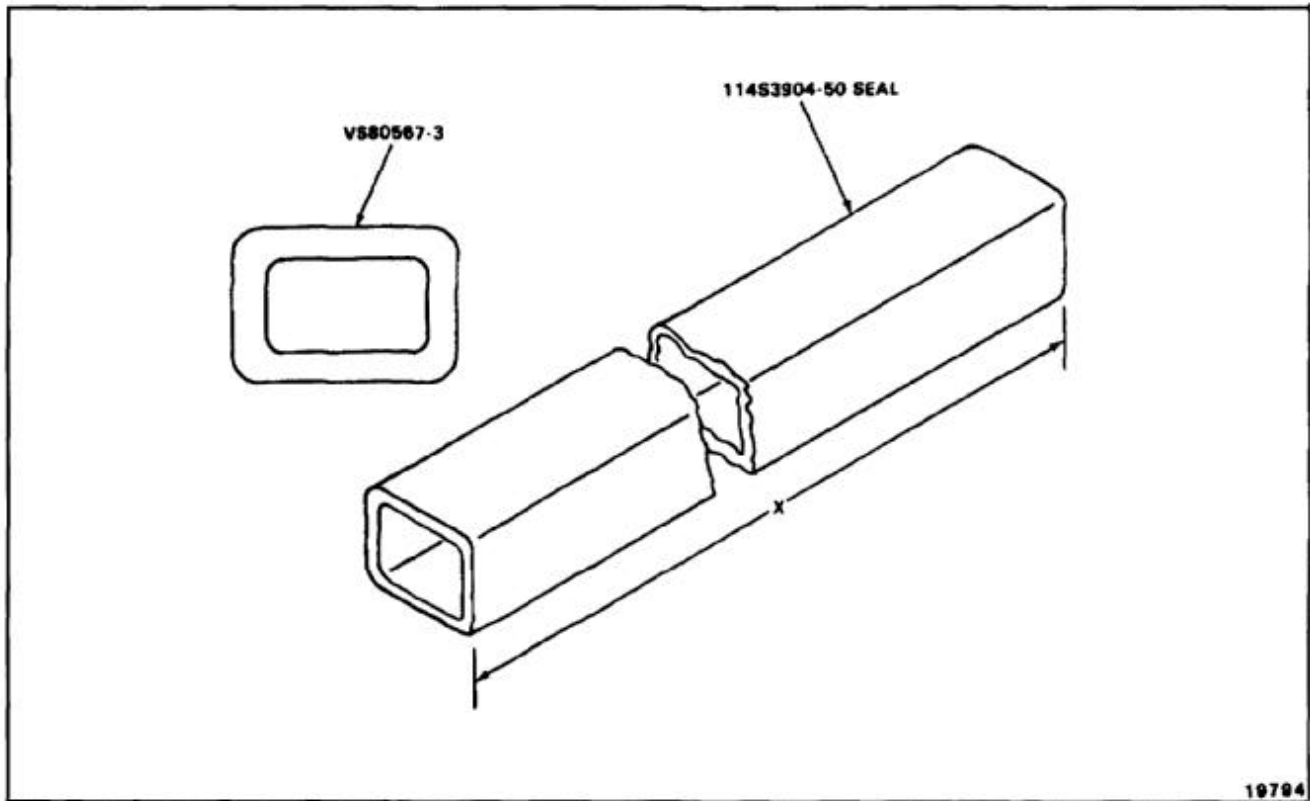
1. FABRICATE FROM VS80540-1.
2. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

1. FABRICATE FROM VS80567-3 (TYPE II SILICONE RUBBER SEAL MIL-R-25988).
2. USE ORIGINAL SEAL TO DETERMINE X DIMENSION.

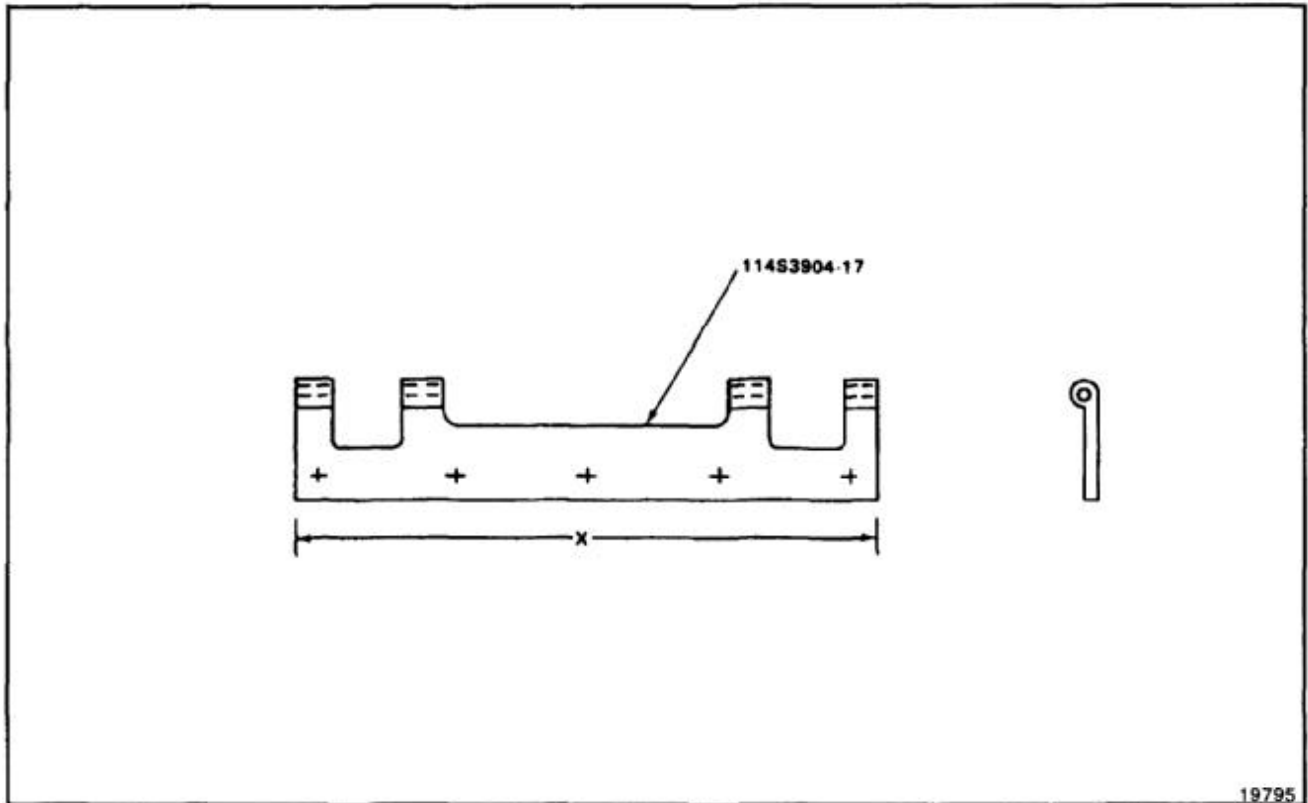


END OF TASK

E-270

**NOTES:**

1. FABRICATE FROM VS20101-2-2 HINGE (2024-T4 AL PER QQ-A-267, ALCOA 10573).
2. USE ORIGINAL HINGE HALF TO DETERMINE X DIMENSION AND LOCATE PILOT HOLES.

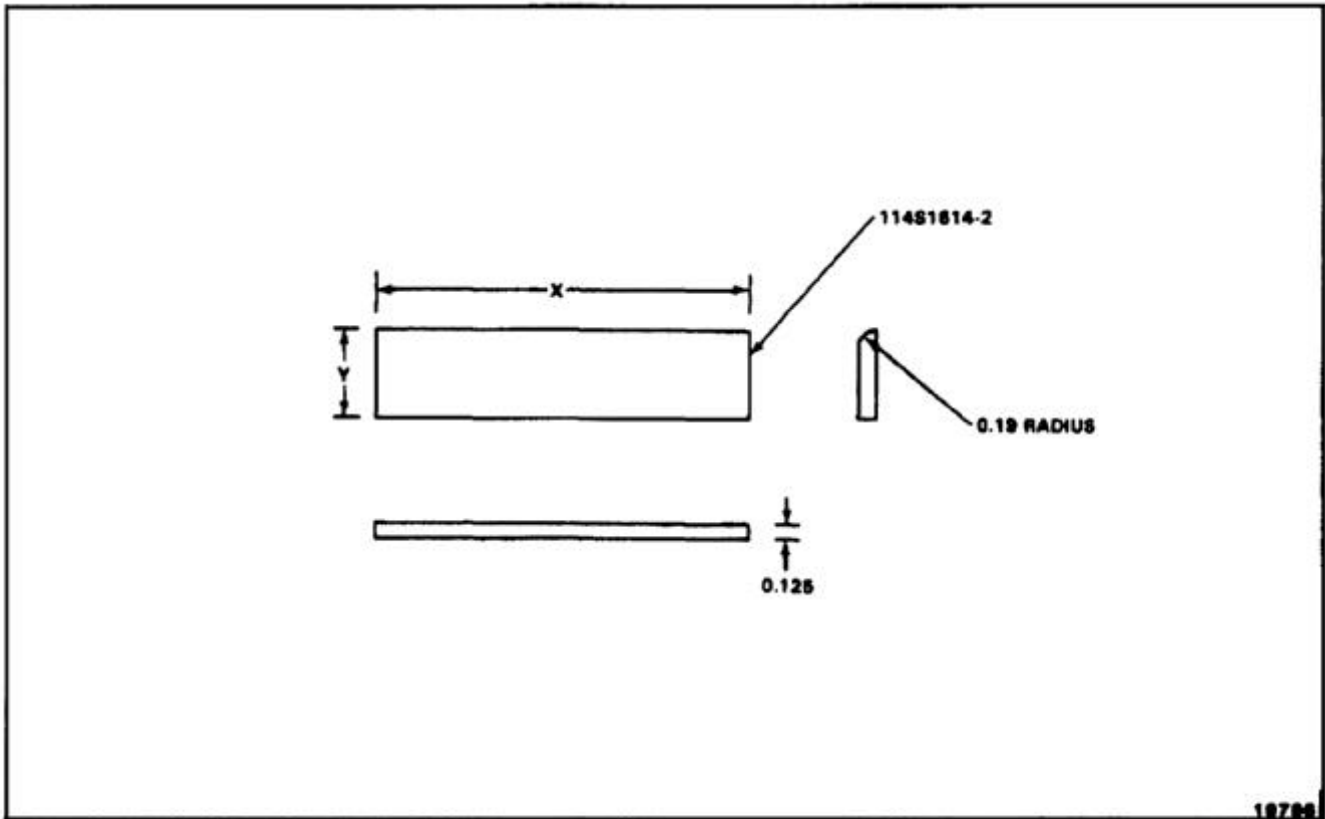


END OF TASK



**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY BARE SHEET 7075-T6 PER QQ-A-250/12.
2. STOCK SIZE 0.125 X 0.9 X 3.3.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL RADIUS BLOCK TO DETERMINE X AND Y DIMENSIONS.

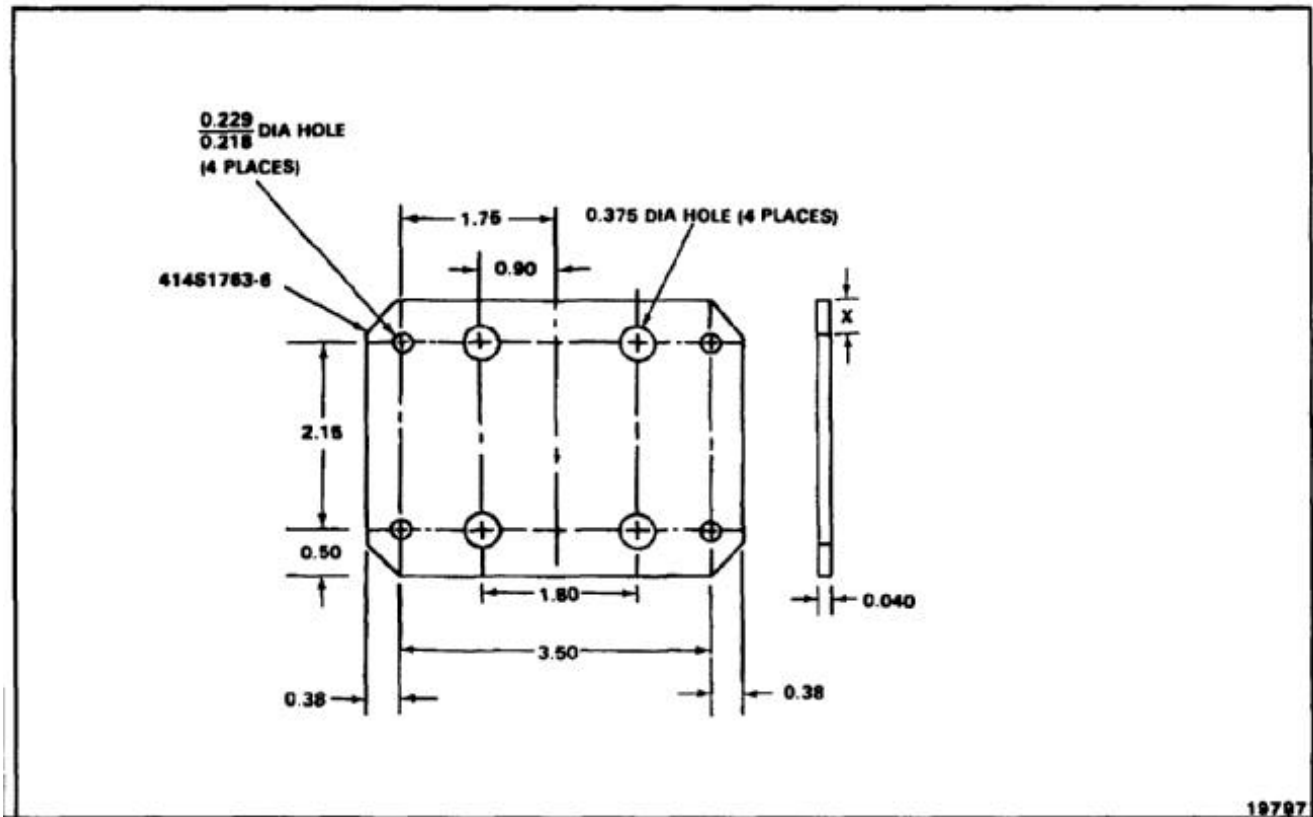


END OF TASK

E-272

**NOTES:**

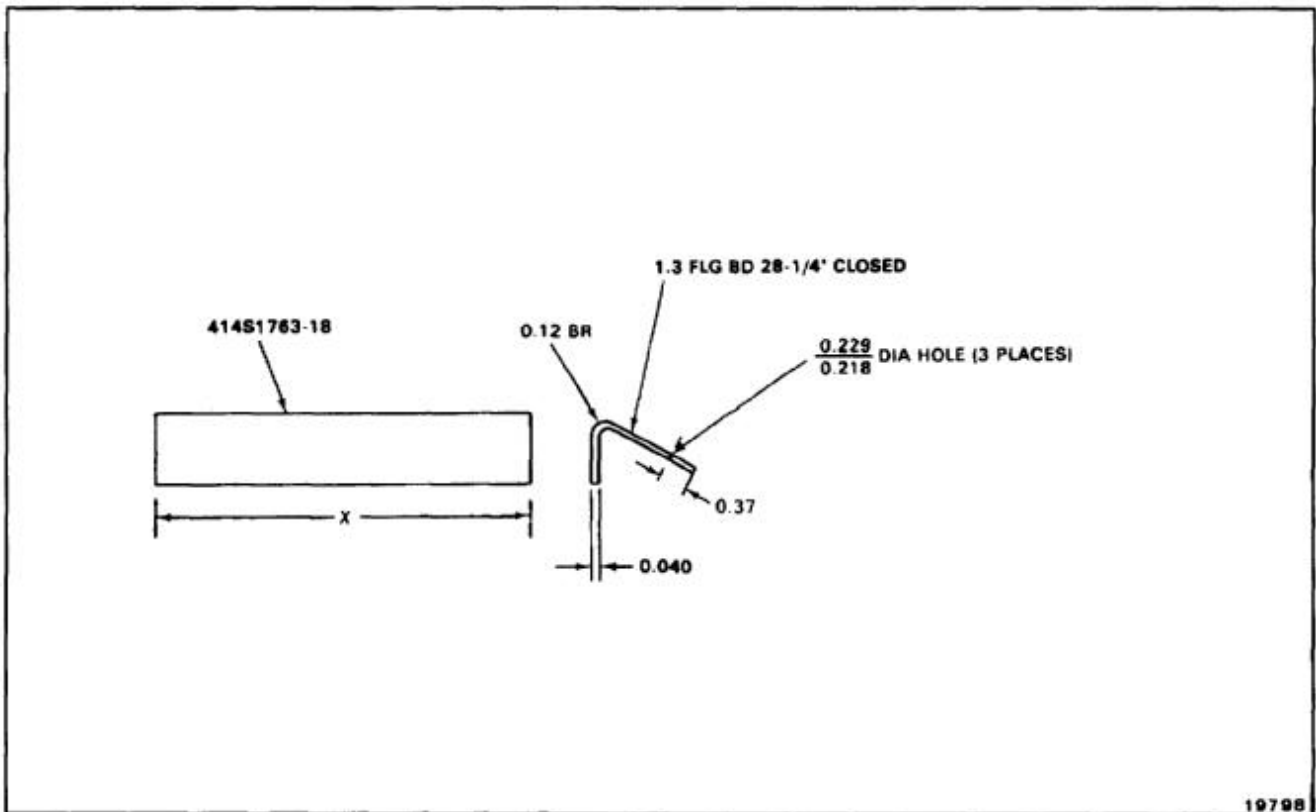
1. FABRICATE FROM ALUMINUM ALLOY SHEET 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.040 X 3.2 X 4.3.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL PLATE TO DETERMINE DIMENSION X.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY SHEET 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.040 X 2.3 X 4.5.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL ANGLE TO DETERMINE HOLE LOCATIONS AND DIMENSION X.

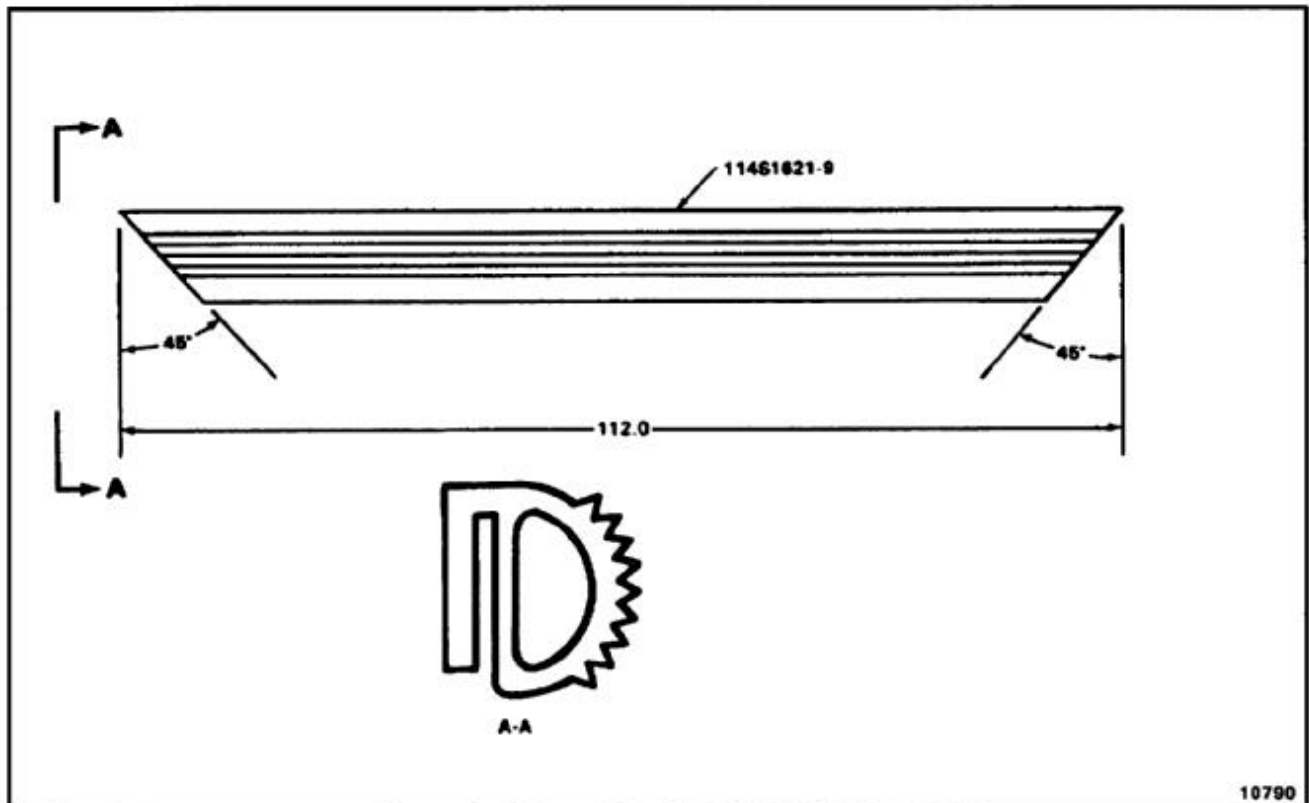


END OF TASK

E-274

**NOTES:**

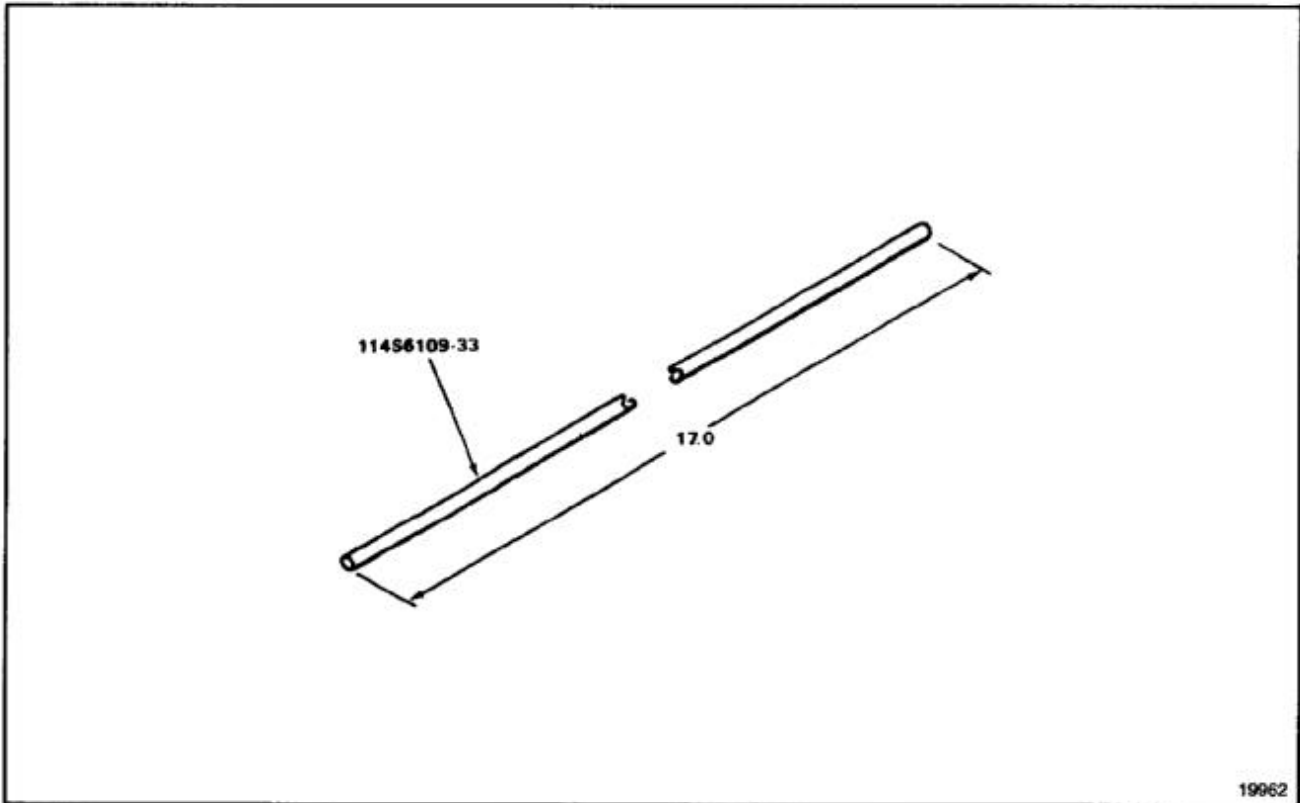
1. FABRICATE FROM NONMETALLIC SPECIAL VS80540 SEAL.
2. STOCK SIZE 112.0 LG.
3. ALL DIMENSIONS IN INCHES.
4. TRIM TO FIT.



END OF TASK

**NOTES:**

1. FABRICATE FROM MS20253P5 CADMIUM PLATED CORROSION RESISTANT STEEL.
2. STOCK SIZE 17.0.
3. ALL DIMENSIONS IN INCHES.

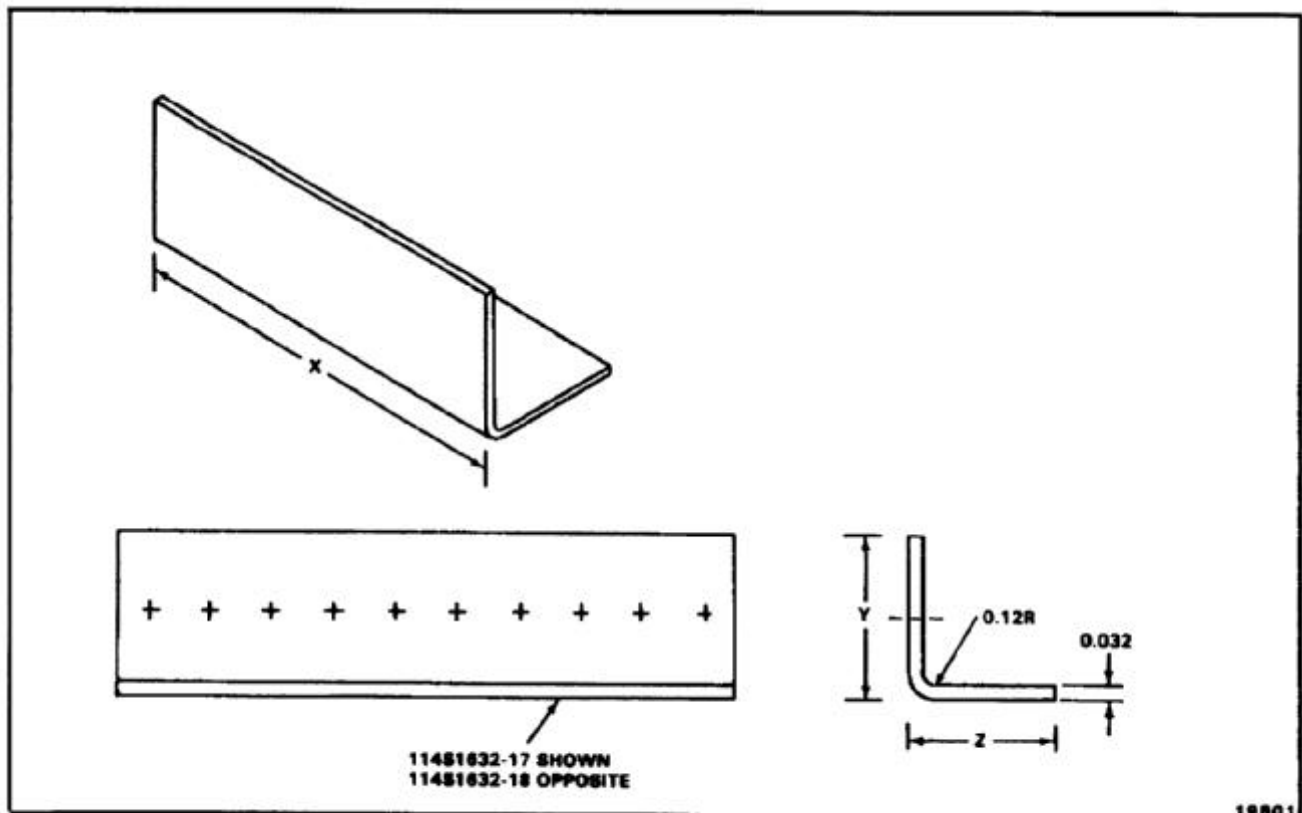


END OF TASK

E-276

**NOTES:**

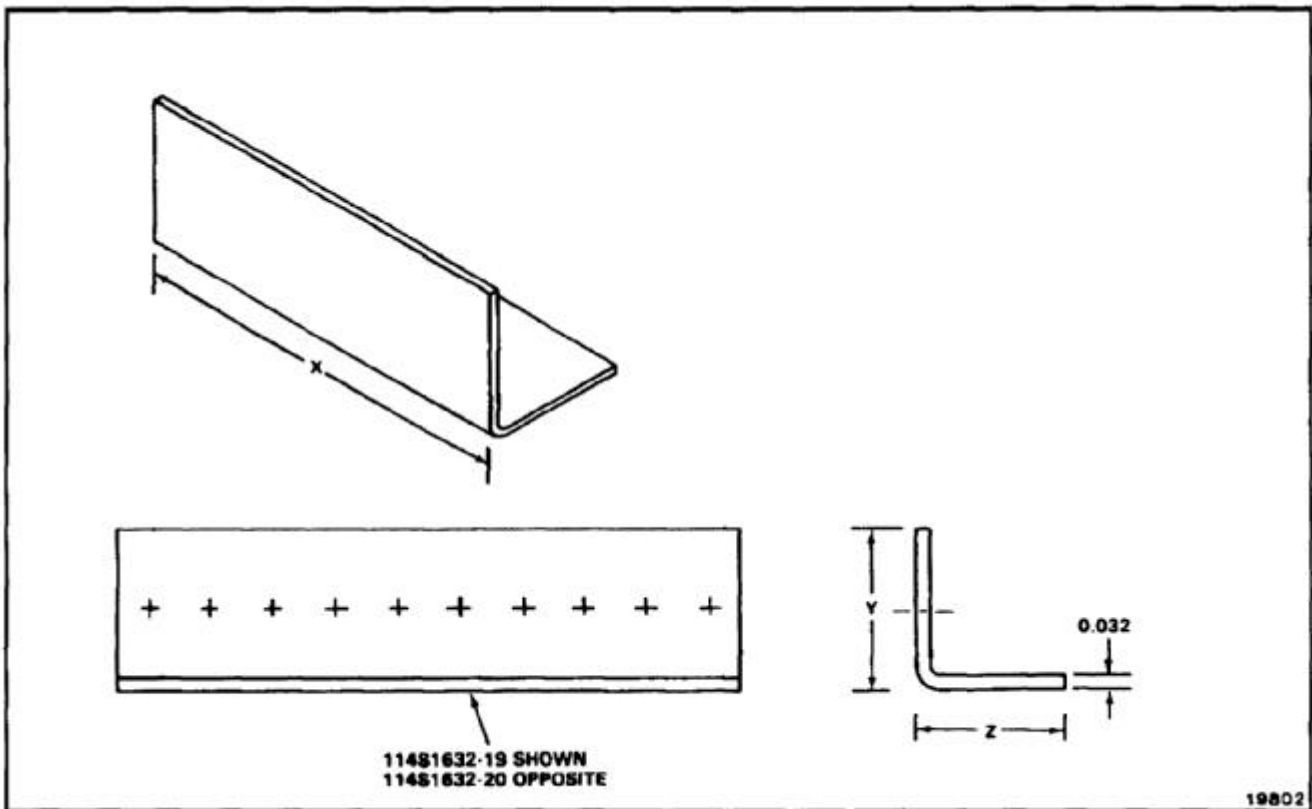
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T4 PER QQ-A-250/5.
2. STOCK SIZE 0.032 X 2.0 X 9.9.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL ANGLE TO DETERMINE HOLE LOCATIONS AND DIMENSIONS X, Y, AND Z.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

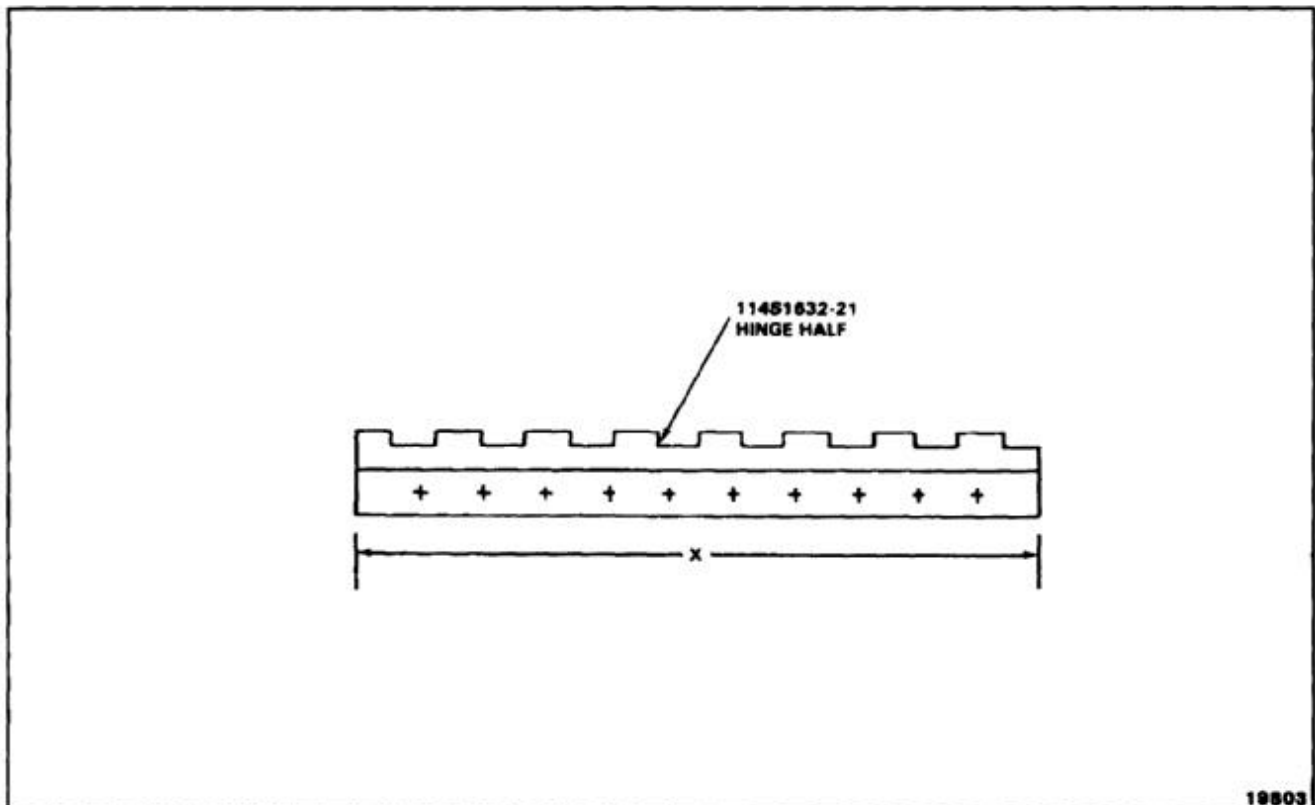
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T4 PER QQ-A-250/5.
2. STOCK SIZE 0.032 X 2.0 X 5.4.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL ANGLE TO DETERMINE DIMENSIONS X, Y, AND Z.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM MS2001-PH4. STOCK SIZE 17.5 INCHES.
2. USE ORIGINAL HINGE HALF TO LOCATE PILOT HOLES AND DETERMINE DIMENSION X VALUE.
3. FINISH AS REQUIRED.

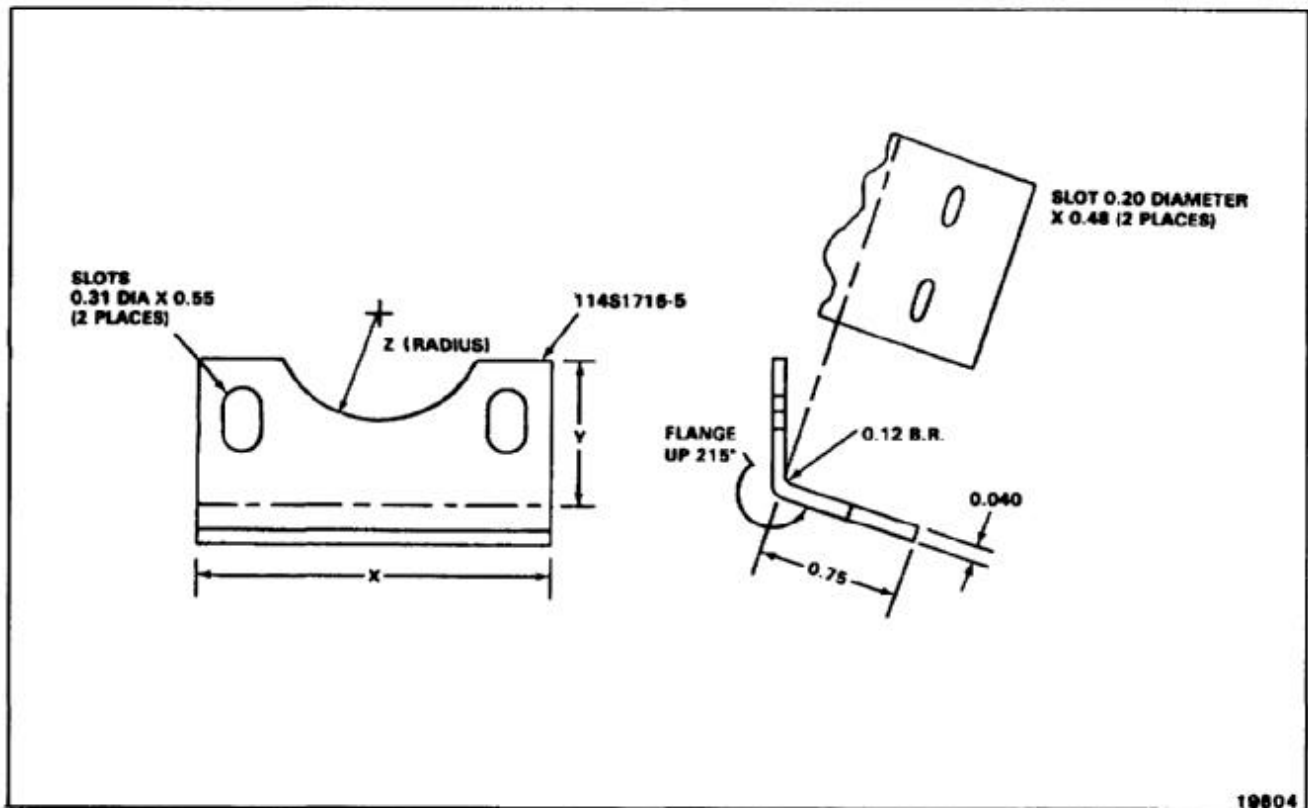


END OF TASK



**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T4 PER QQ-A-250/11.
2. STOCK SIZE 0.040 X 2.3 X 3.1.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL BRACKET TO DETERMINE X, Y, AND Z DIMENSIONS AND SLOT LOCATIONS.
5. FINISH AS REQUIRED.

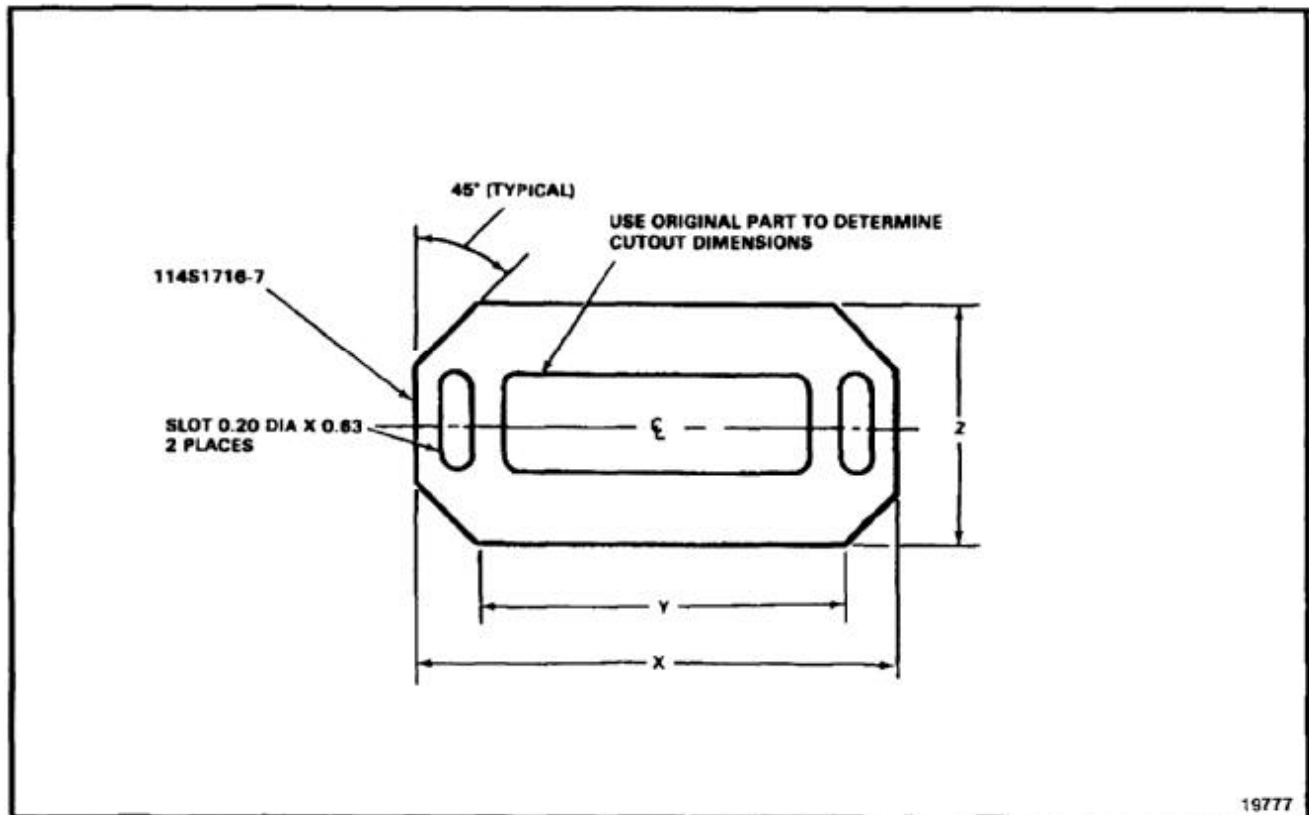


END OF TASK

E-280

**NOTES:**

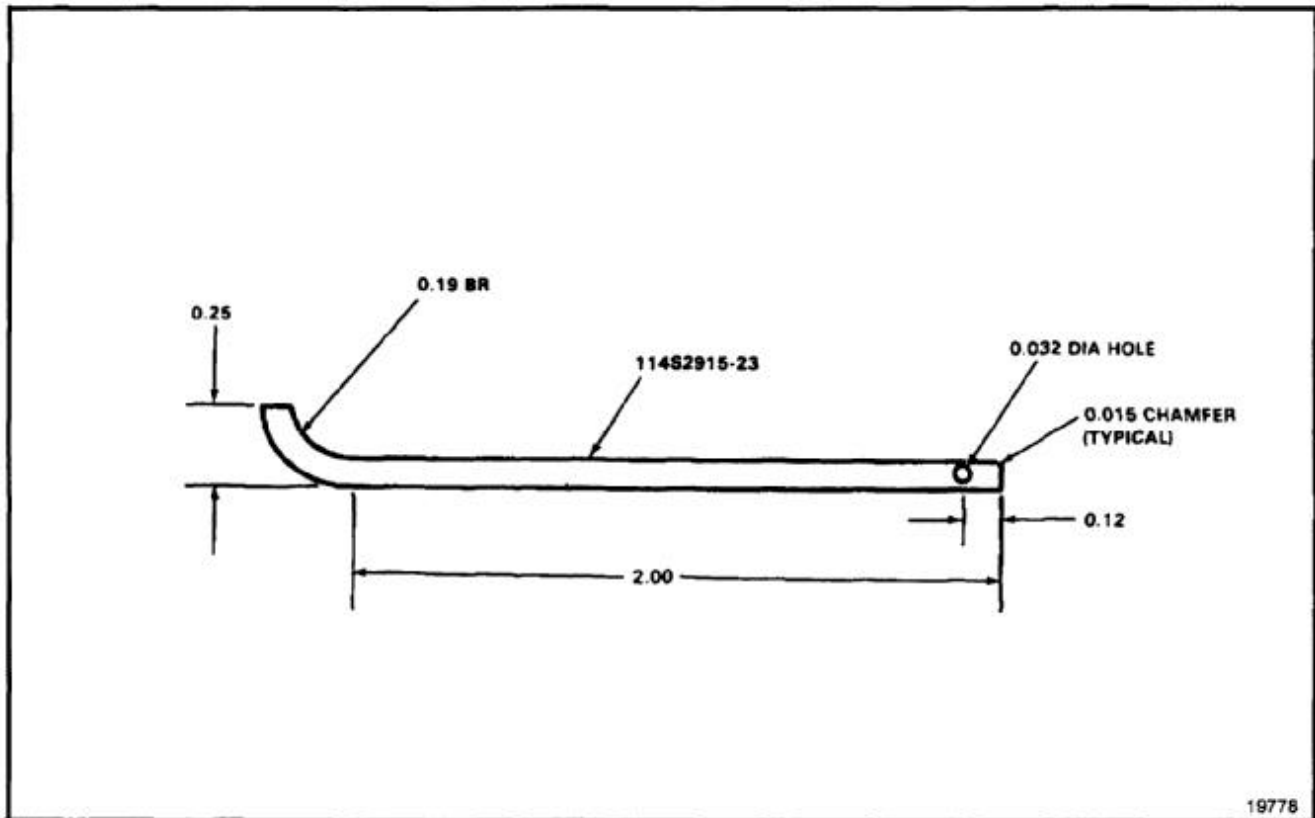
1. FABRICATE FROM CRES SHEET 301, 1/2 HARD, PER MIL-S-5059.
2. STOCK SIZE 0.040 X 1.6 X 3.2.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL PLATE TO DETERMINE X, Y, Z, AND CUTOUT DIMENSIONS.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM MS20253P2-250.
2. STOCK SIZE 2.50 INCHES.
3. ALL DIMENSIONS IN INCHES.

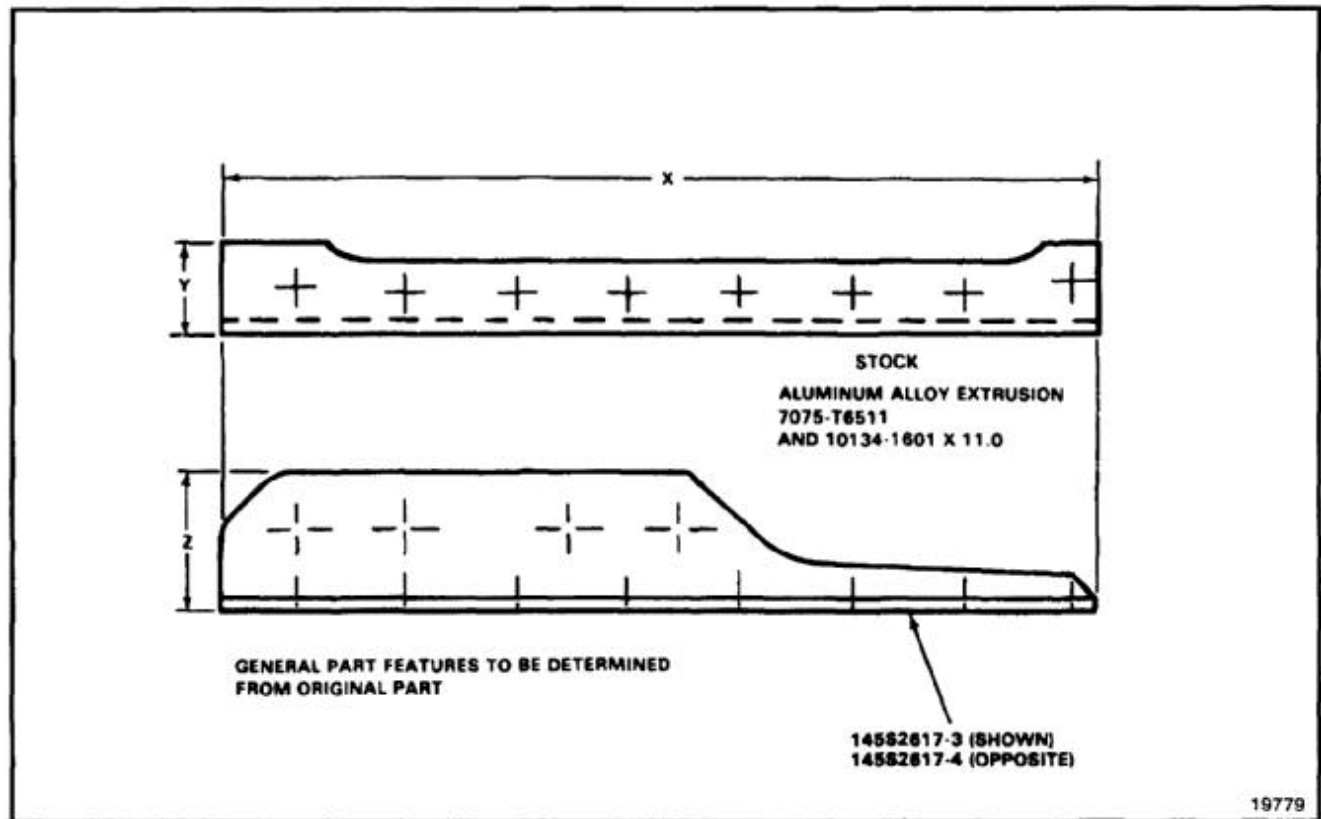


END OF TASK

E-282

**NOTES:**

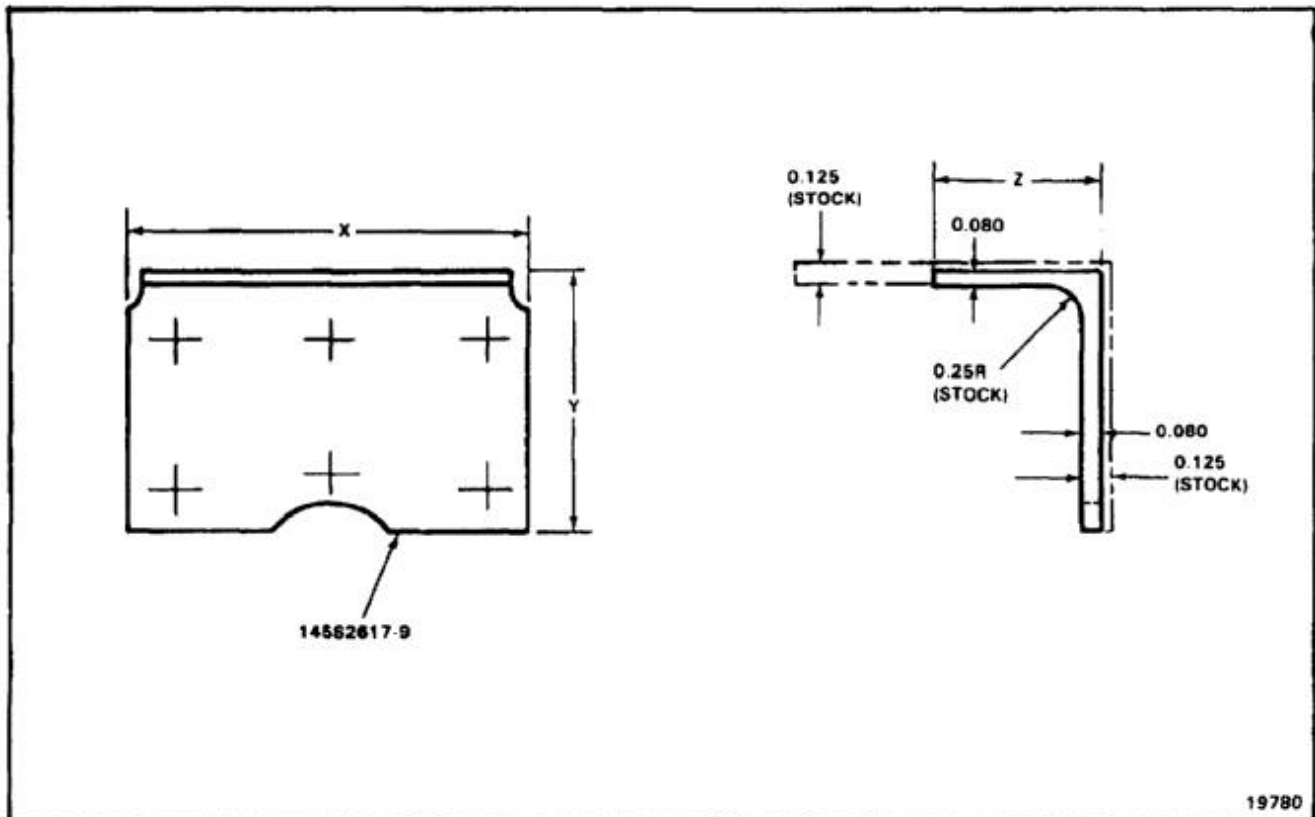
1. FABRICATE FROM AND10134-1601  
ALUMINUM ALLOY EXTRUSION 7075-T6511  
PER QQ-A-200/11.
2. STOCK SIZE 11.0 INCHES.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL CLIP TO LAYOUT SHAPE,  
PILOT HOLES, AND DIMENSIONS X, Y, AND Z.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM AND10133-2401 ALUMINUM ALLOY EXTRUSION 7075-T6511.
2. STOCK SIZE 5.0.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL PART TO LOCATE PILOT HOLES AND DETERMINE X, Y, AND Z VALUES.
5. FINISH AS REQUIRED.

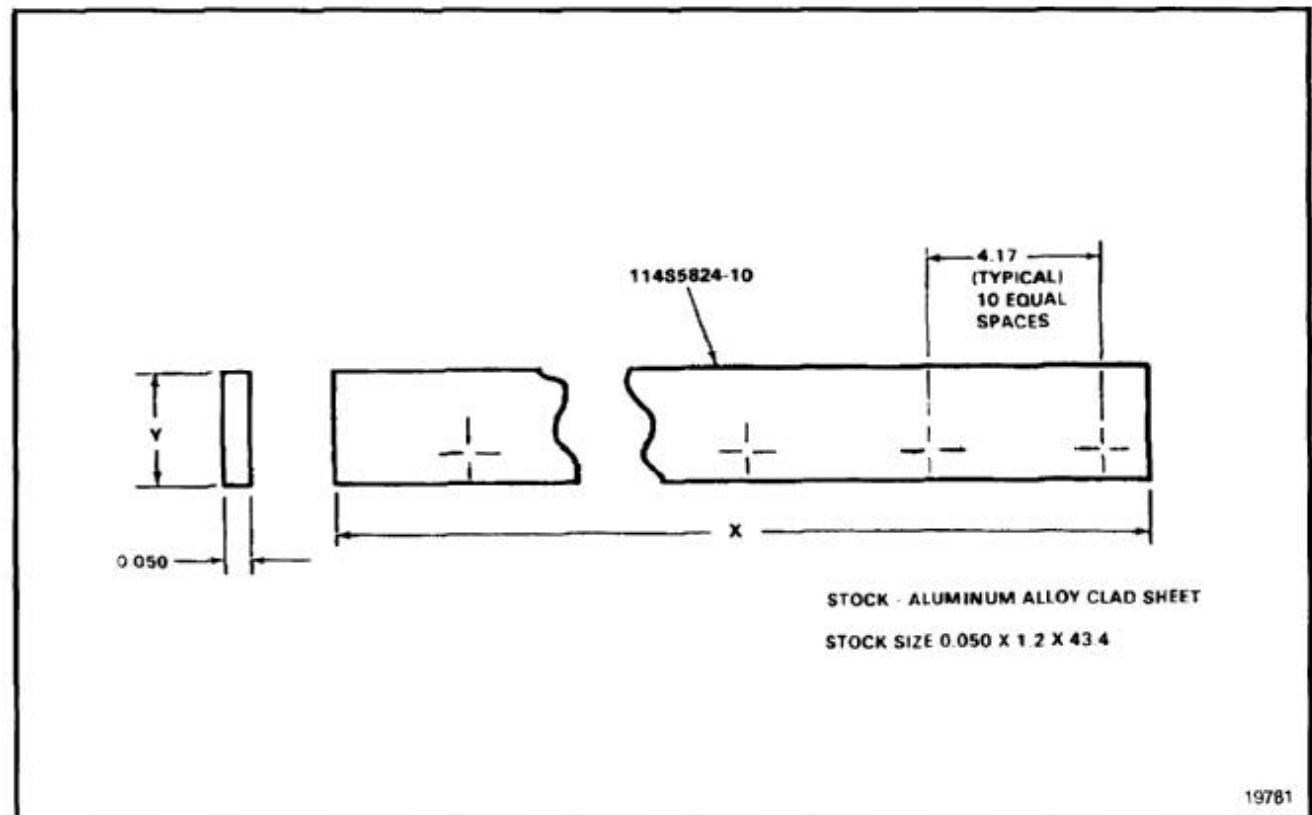


END OF TASK

E-284

**NOTES:**

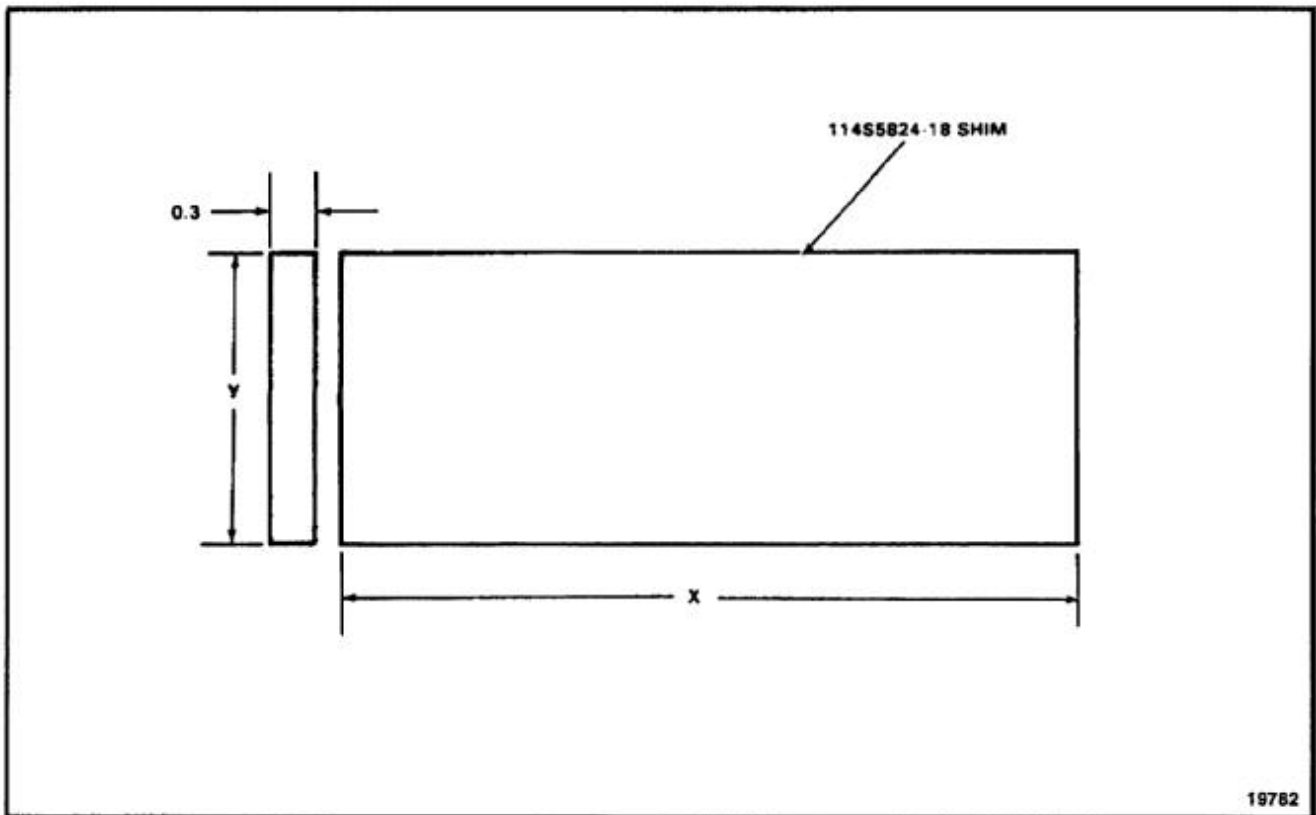
1. FABRICATE FROM ALUMINUM ALLOY CLAD SH 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.050 X 1.2 X 43.4.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL PART TO DETERMINE DIMENSIONS X AND Y AND PILOT HOLE LOCATIONS.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD PLATE 2024-T351 PER QQ-A-250/5.
2. STOCK SIZE 0.30 X 1.3 X 3.9.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL PART TO DETERMINE DIMENSIONS X AND Y.
5. FINISH AS REQUIRED.



END OF TASK

E-286

**E-211 CABIN CROWN ACCESS TUNNEL COVER INSTALLATION SEALS 114S2915-39, -40, -41, AND -42**

E-211

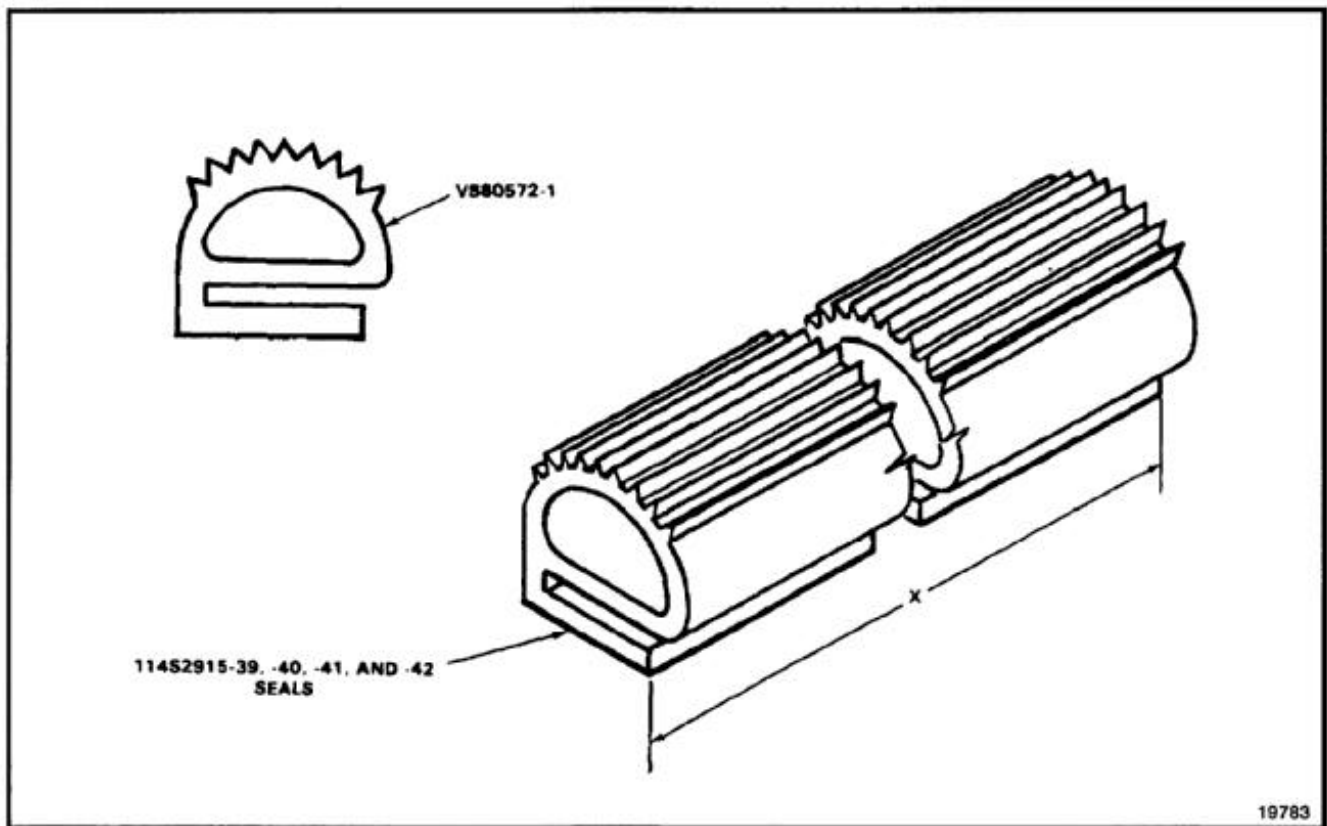
**NOTES:**

1. FABRICATE FROM VS80572-1 SEAL.
2. STOCK SIZE SEE NOTE 3.
- 3.

**PART NUMBER      STOCK SIZE (X DIMENSION) IN INCHES**

114S2915-39	56.2
114S2915-40	39.0
114S2915-41	60.5
114S2915-42	22.0

4. USE ORIGINAL PART TO DETERMINE DIMENSION X.

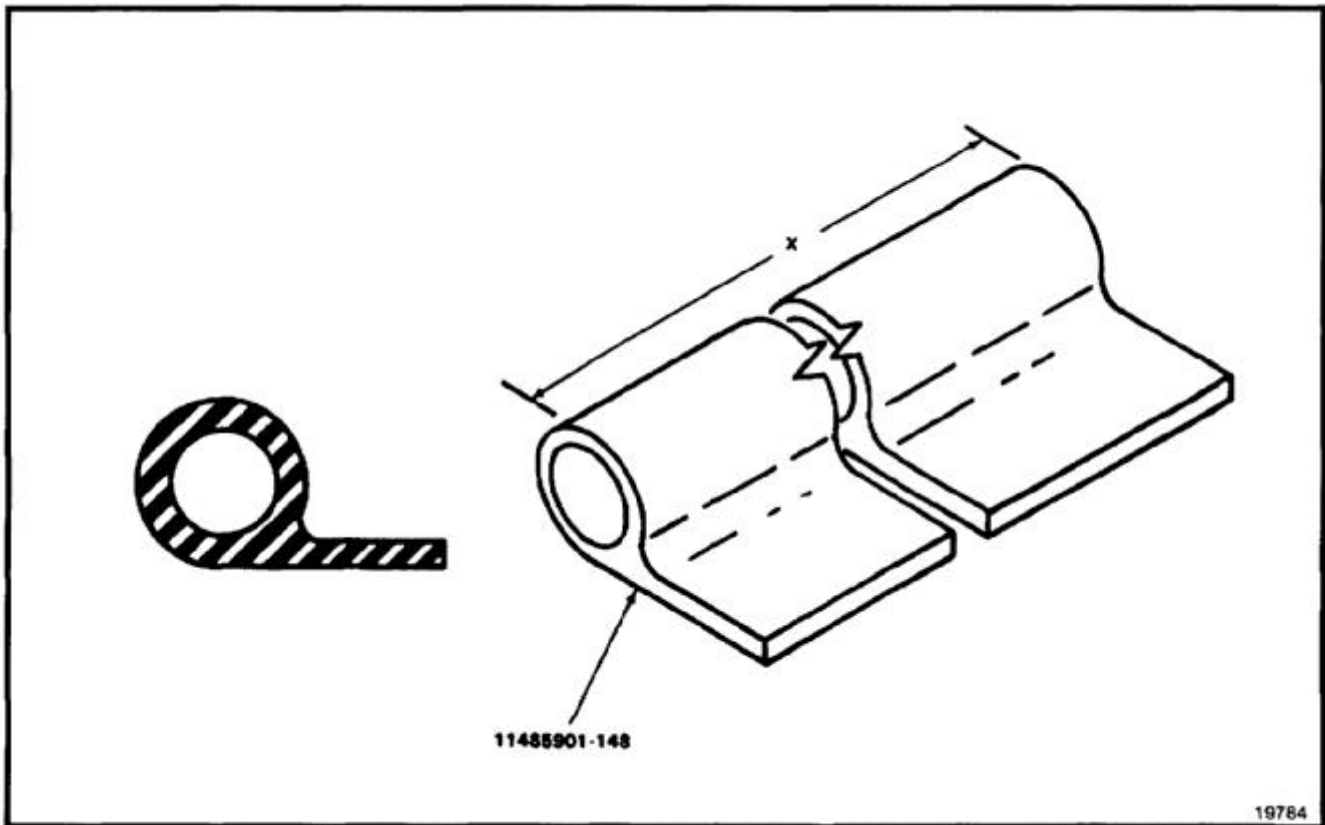


END OF TASK



**NOTES:**

1. FABRICATE FROM SILICONE RUBBER BAC1521-699.
2. USE ORIGINAL PART TO DETERMINE DIMENSION X.



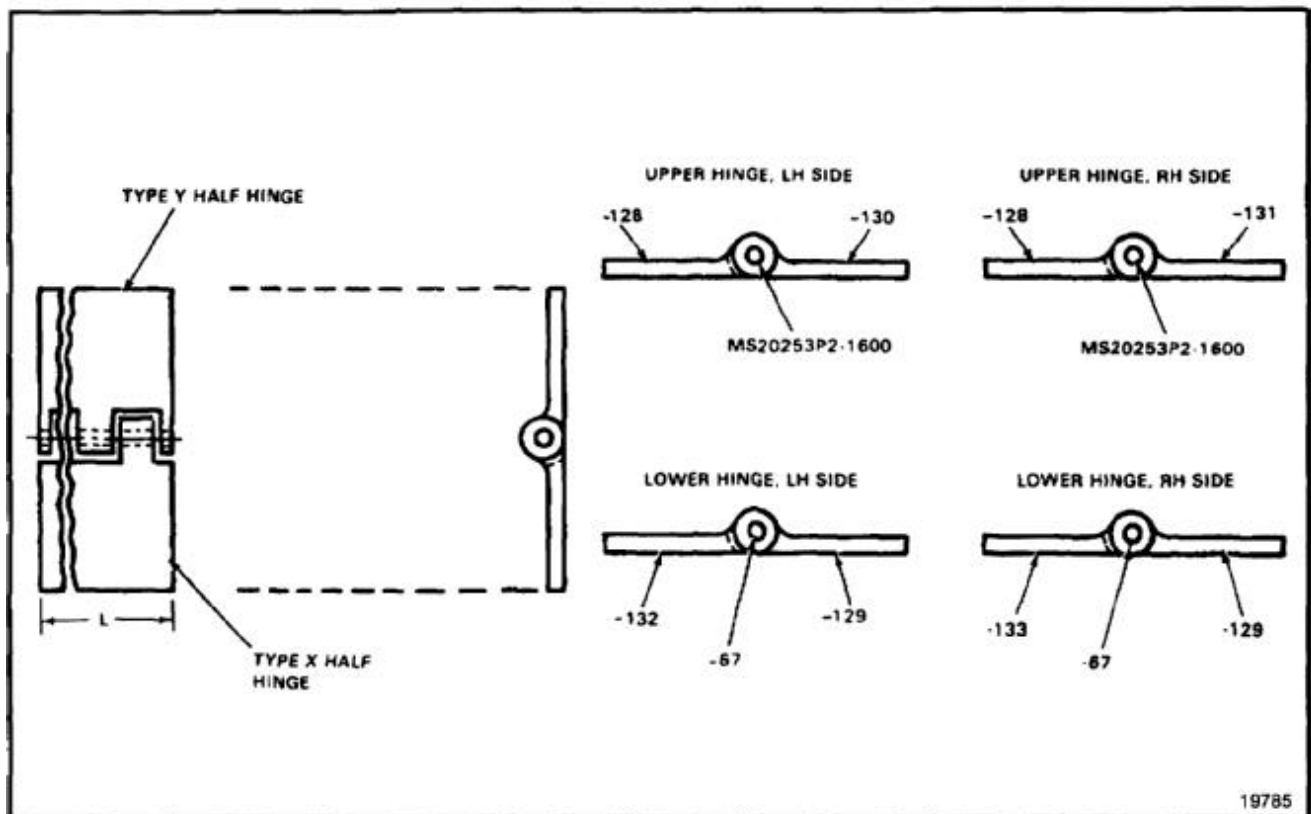
END OF TASK

E-288

**NOTES:**

1. FABRICATE HINGE HALVES FROM HINGE MATERIAL LISTED IN NOTE 5.
2. ALL DIMENSIONS IN INCHES.
3. CUT AND DRILL HINGE HALVES TO MATCH ORIGINAL HINGE HALVES.
4. MAKE HINGE PIN 114S5901-67 FROM MATERIAL LISTED IN NOTE 5.
- 5.

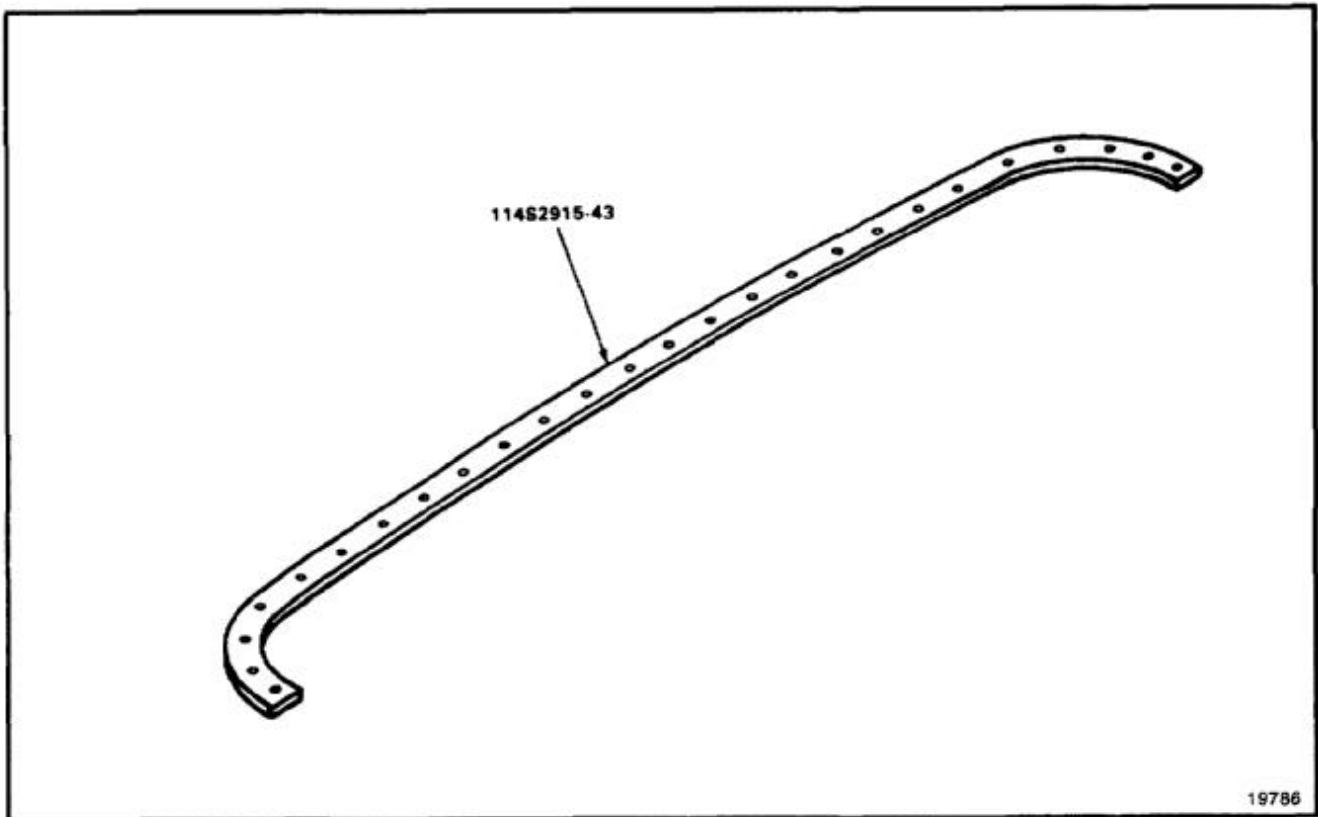
PART NUMBER	MATERIAL	LENGTH
114S5901-128	MS20001PX6	16.2
114S5901-129	MS20001PY6	22.2
114S5901-130	MS20001PY6	16.2
114S5901-131	MS20001PY6	16.2
114S5901-132	MS20001PX6	22.2
114S5901-133	MS20001PX6	22.2
114S5901-67	MS20253P2	22.0
MS20253P2-1600	MS20253P2	16.0



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.032 X 3.8 X 30.5 INCHES.
3. USE ORIGINAL RETAINER TO LAYOUT SHAPE AND TO DETERMINE DIMENSIONS AND HOLE LOCATIONS.



END OF TASK

E-290

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**E-215 CABIN CROWN ACCESS TUNNEL COVER INSTALLATION SEAL RETAINERS**  
**114S2915-44, -45, -46, AND -47**


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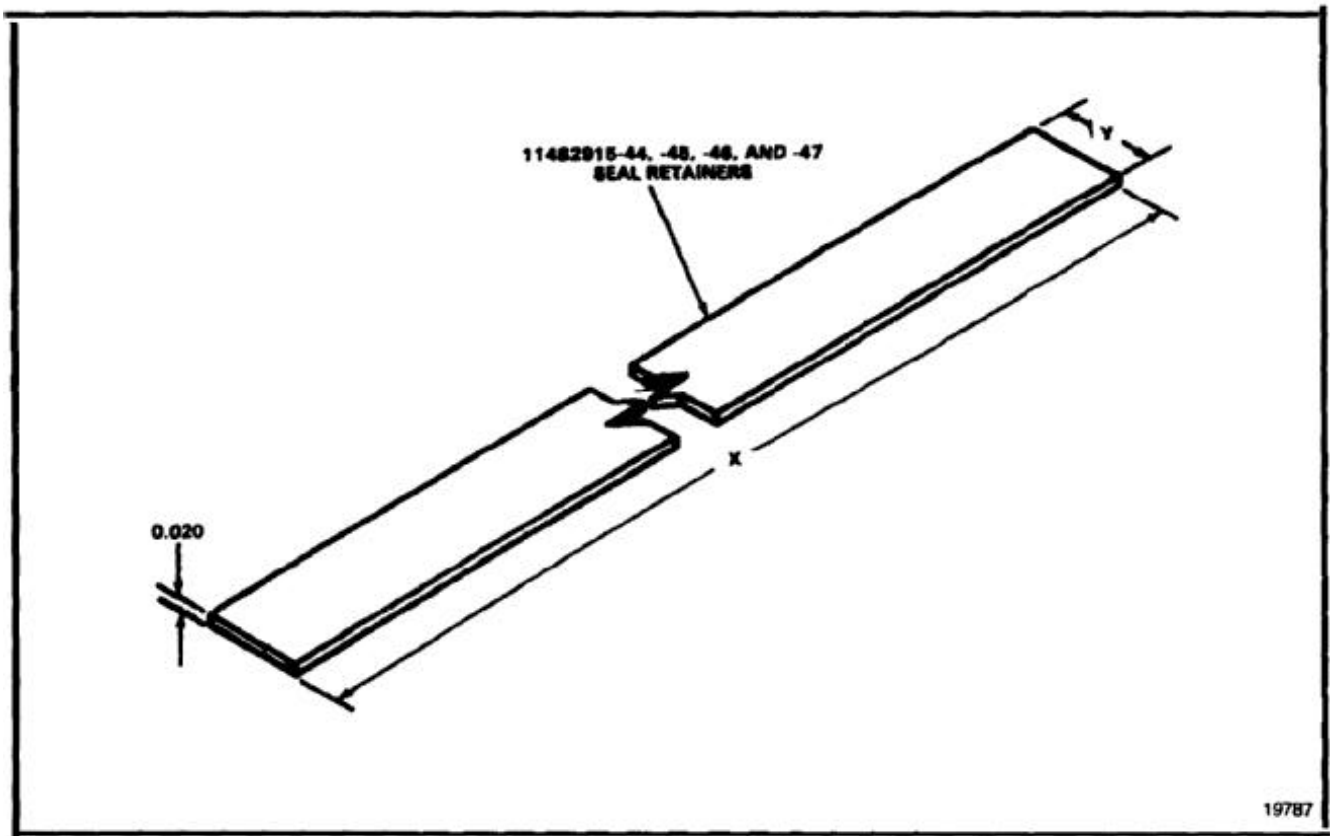
E-215

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.020 X 0.62 (SEE NOTE 4 FOR LENGTH).
3. ALL DIMENSIONS IN INCHES.
- 4.

PART NUMBER	STOCK SIZE (X DIMENSION)
114S2915-44	55.9
114S2915-45	38.8
114S2915-46	60.2
114S2915-47	21.7

5. USE ORIGINAL PART TO DETERMINE DIMENSIONS X AND Y.



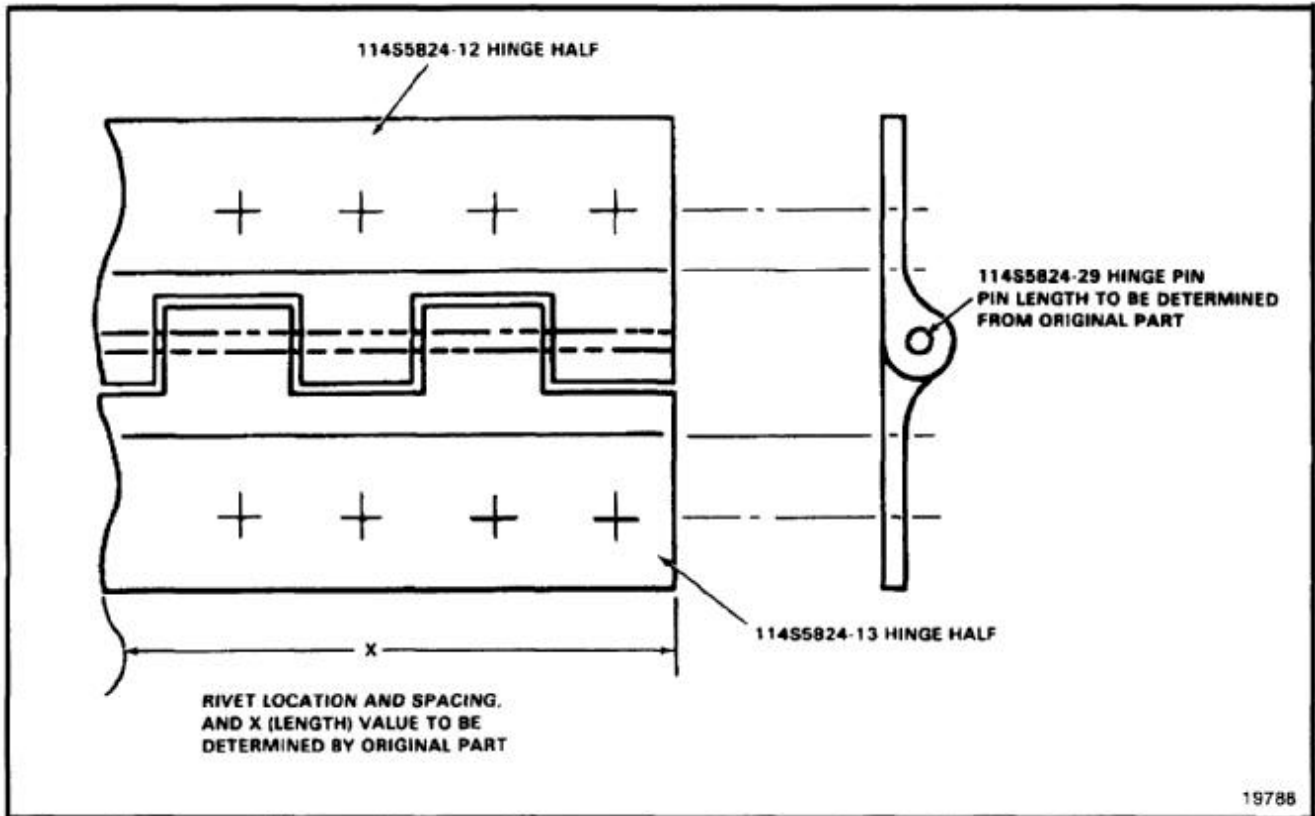
19787

END OF TASK

**NOTES:**

1. FABRICATE HINGE HALVES FROM MS20001PH5-4540.
2. FABRICATE PIN FROM MS20253-2-4340.
3. USE ORIGINAL PARTS TO DETERMINE PILOT HOLE LOCATIONS, HINGE HALF, AND HINGE PIN LENGTH.
4. FINISH AS REQUIRED.
- 5.

NOMENCLATURE	PART NUMBER	MATERIAL
HINGE HALF	114S5824-12	MS20001PH5-4540
HINGE HALF	114S5824-13	MS20001PH5-4540
HINGE PIN	114S5824-29	MS20253-2-4340



END OF TASK

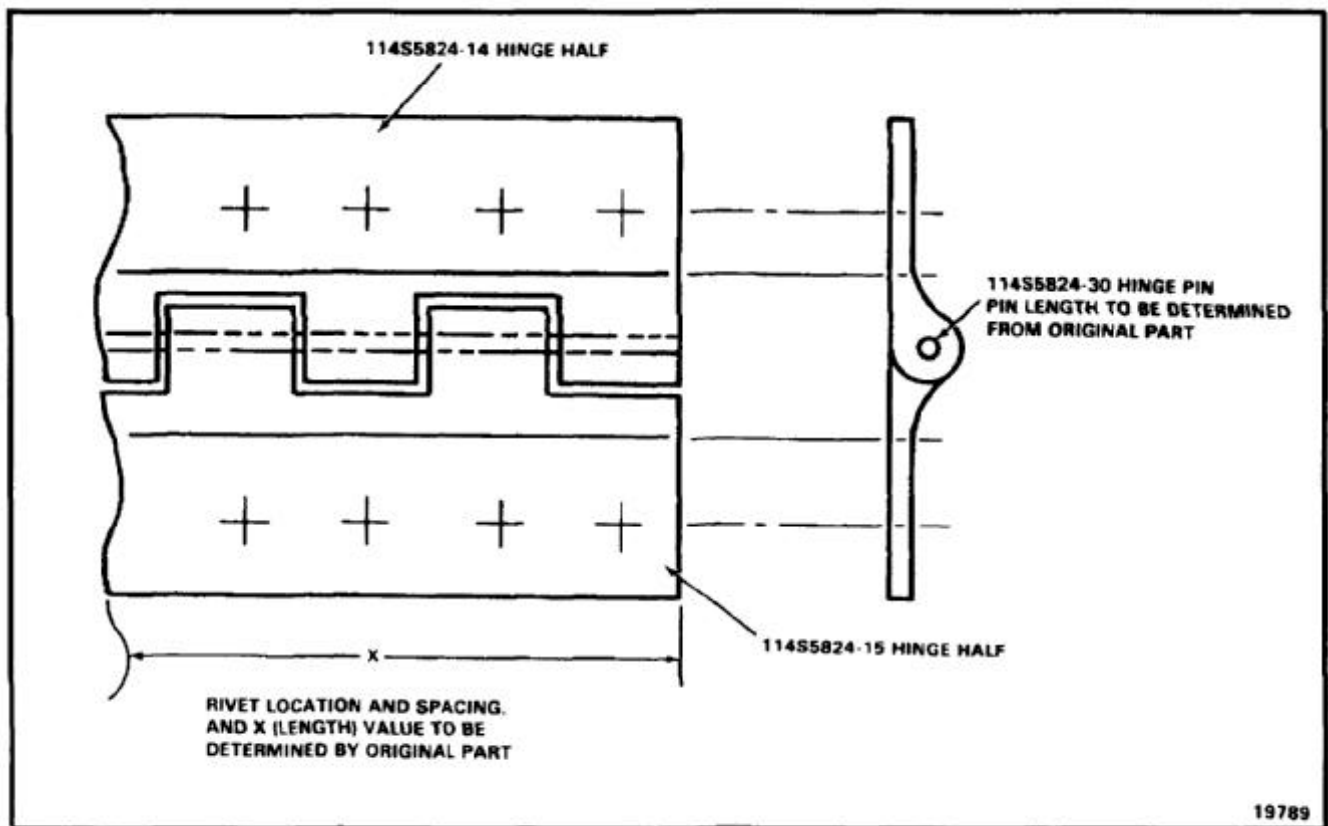
**E-217 ISOLATION INSTALLATION, AUXILIARY FUEL POD BOTTOM HINGE COMPONENTS  
114S5824-14 -15 AND -30**

E-217

**NOTES:**

1. FABRICATE HINGE HALVES AS SHOWN BELOW.
2. FABRICATE PIN FROM MS20253-2-4780.
3. USE ORIGINAL PARTS TO DETERMINE PILOT HOLE LOCATIONS, HINGE HALF, AND HINGE PIN LENGTH.
4. FINISH AS REQUIRED.
- 5.

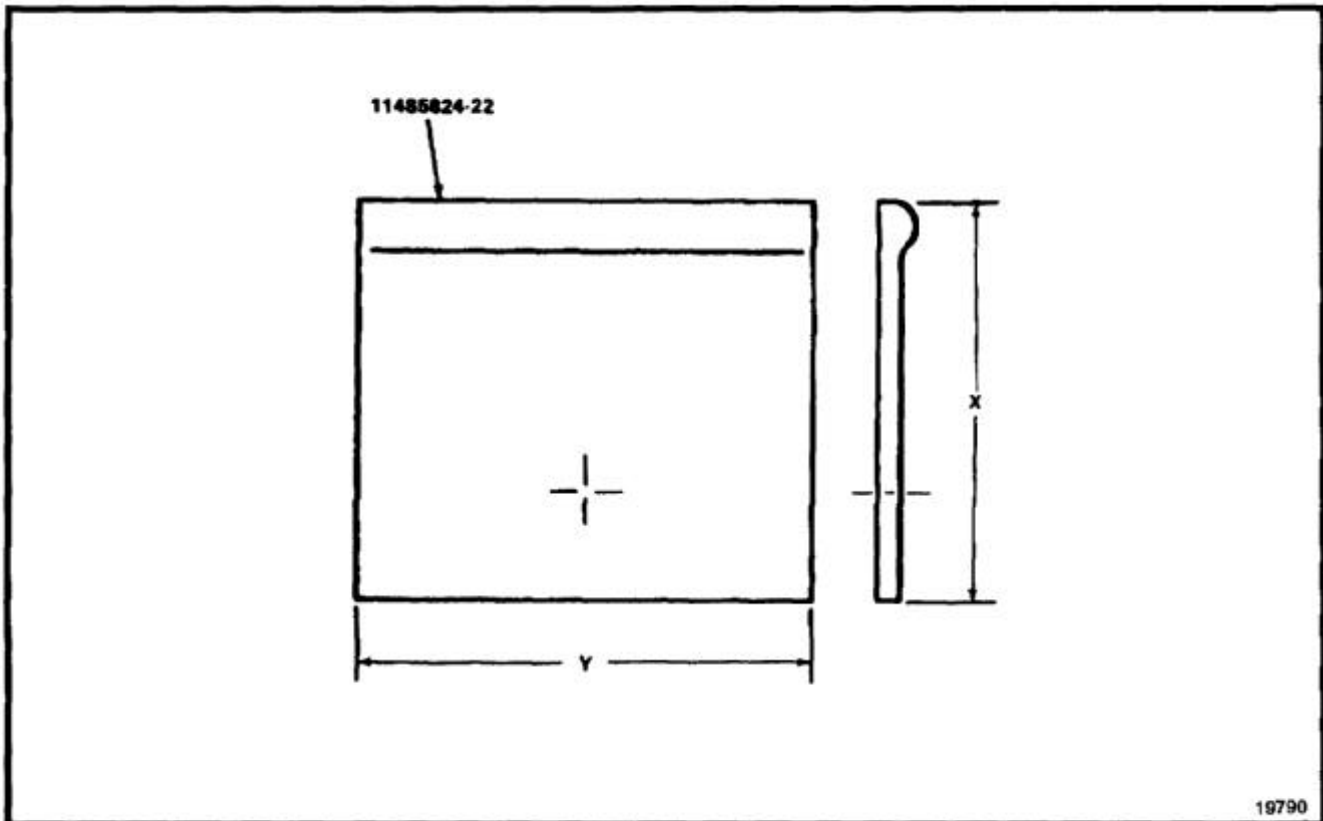
NOMENCLATURE	PART NUMBER	MATERIAL
HINGE HALF	114S5824-14	MS20001PH5-4850
HINGE HALF	114S5824-15	MS20001PH9-4850
HINGE PIN	114S5824-30	MS20253-2-4780



END OF TASK

**NOTES:**

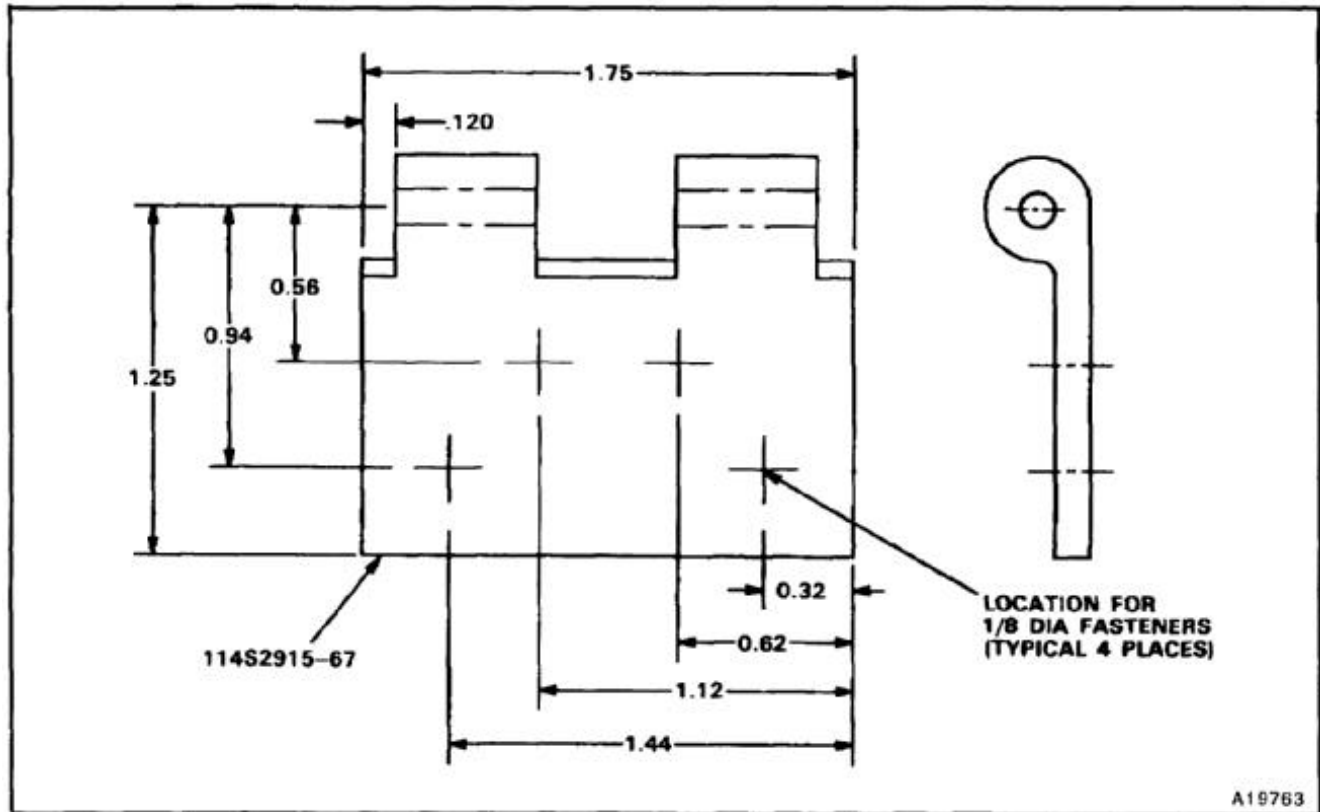
1. FABRICATE FROM ALCOA 83264 AL ALY EXTRUSION 7075-T6 PER QQ-A-200/11.
2. STOCK SIZE 1.6 INCHES.
3. USE ORIGINAL RETAINER TO LOCATE PILOT HOLE AND DETERMINE X AND Y DIMENSIONS.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM MS20001PH12X0180.
2. ALL DIMENSIONS IN INCHES.

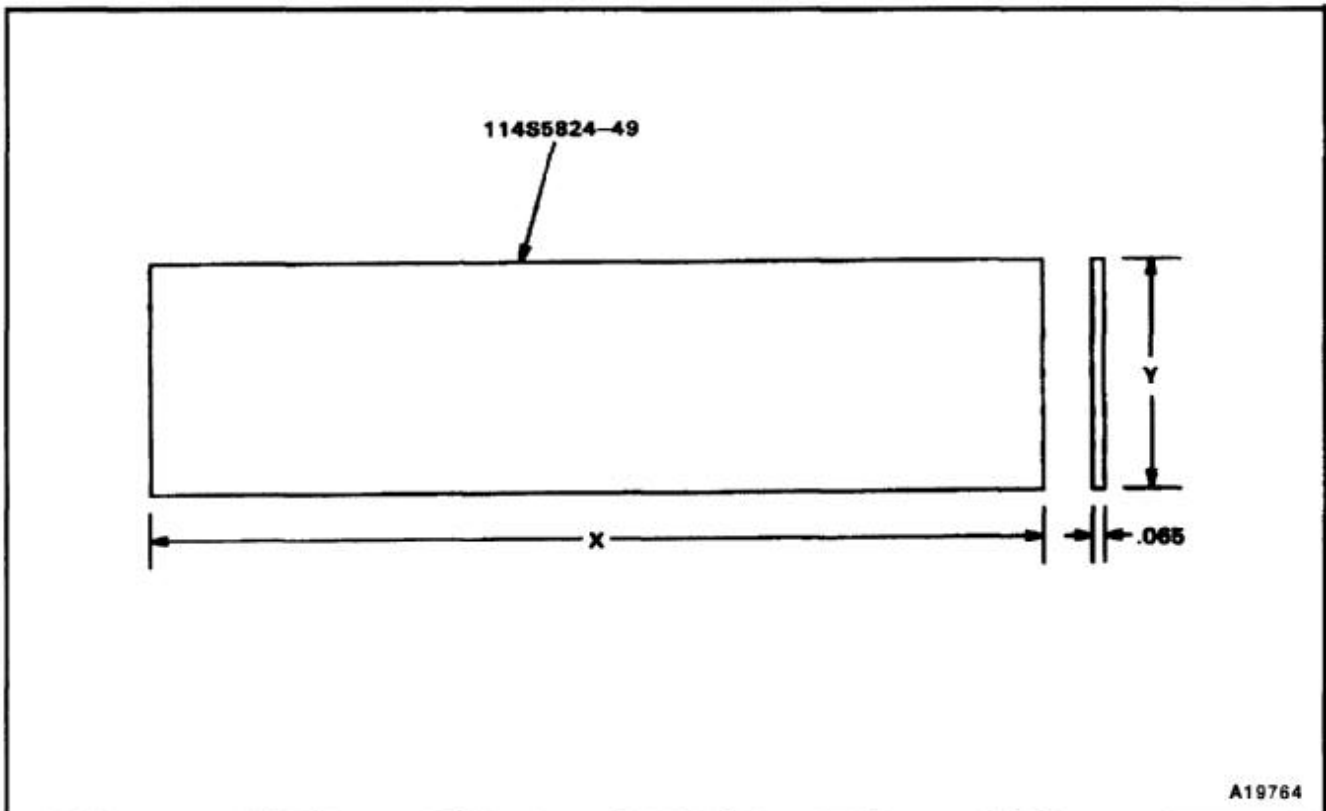


END OF TASK



**NOTES:**

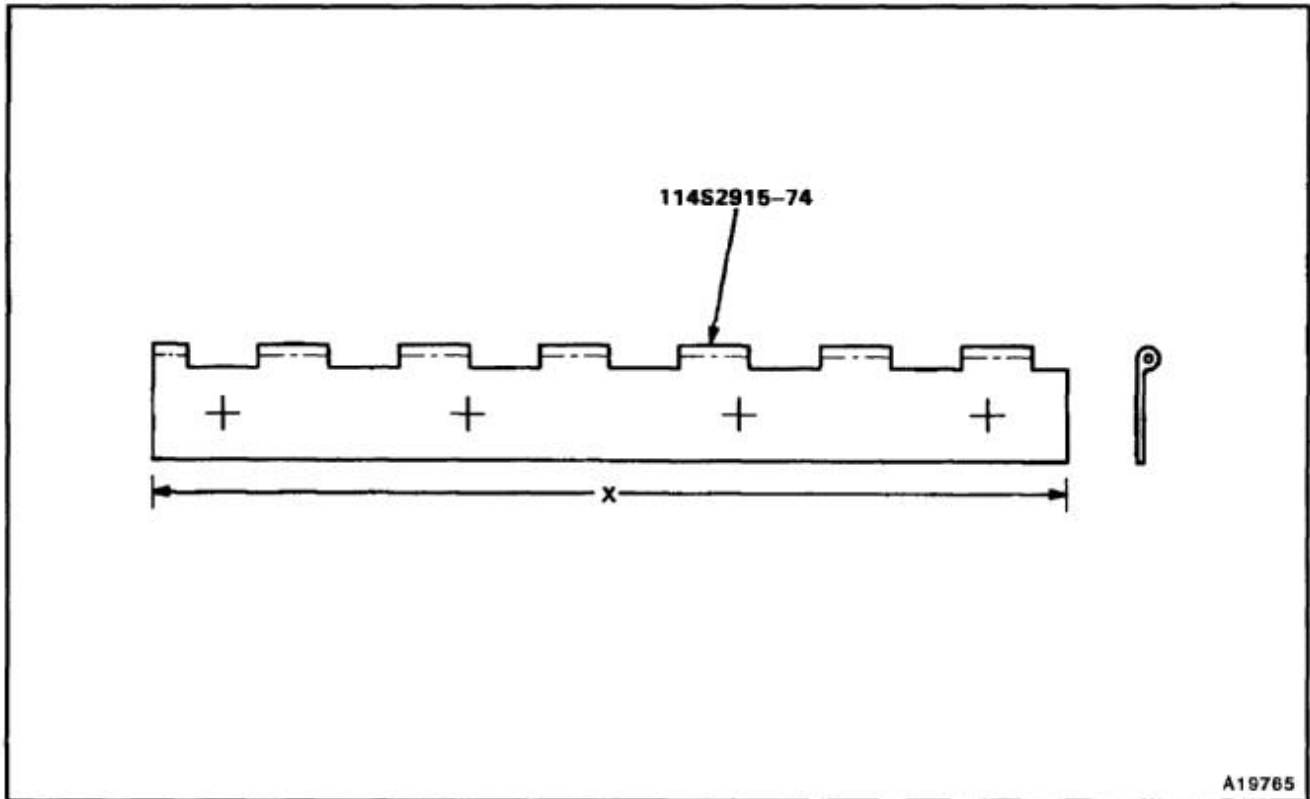
1. FABRICATE FROM NYLON WEBBING-MIL-W-4088 TYPE XXI.
2. STOCK SIZE 0.065 X 1.25 X 4.75.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL PART TO DETERMINE DIMENSIONS X AND Y.



END OF TASK

**NOTES:**

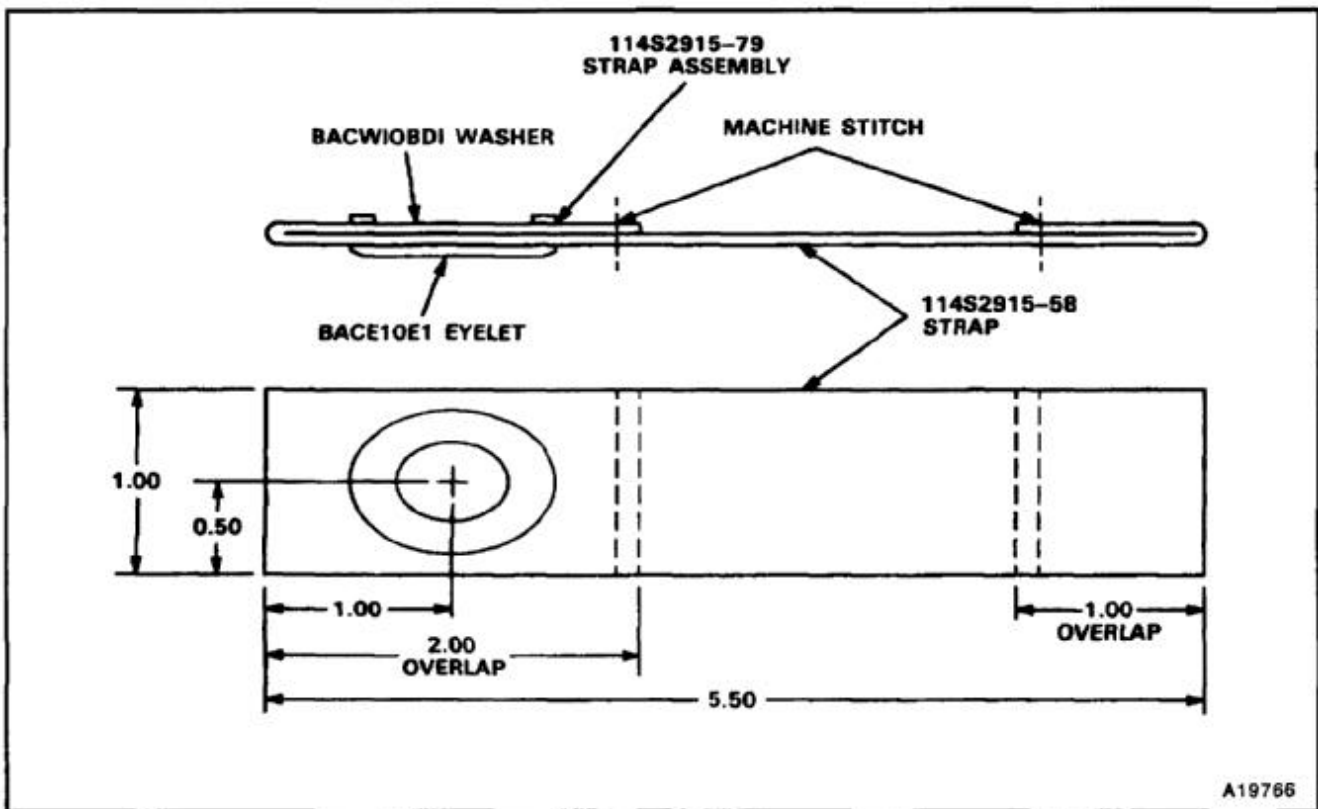
1. FABRICATE FROM MS20257H4-730.
2. USE ORIGINAL HALF HINGE TO DETERMINE X DIMENSION AND TO LOCATE PILOT HOLES.



END OF TASK

**NOTES:**

1. FABRICATE 114S2915-58 STRAP FROM NYLON WEBBING - TCA CABLE 36231 MIL-W-4088, TYPE II, CINDER GRAY.
2. STOCK SIZE 1.00 X 8.50.
3. ASSEMBLE USING BACW10BD1 WASHER AND BACE10E1 EYELET.
4. ALL DIMENSIONS IN INCHES.



A19766

END OF TASK

**E-223 POD ATTACHMENT HINGE PINS 114S5701-1, -3, -5, -7, -9, AND -10**

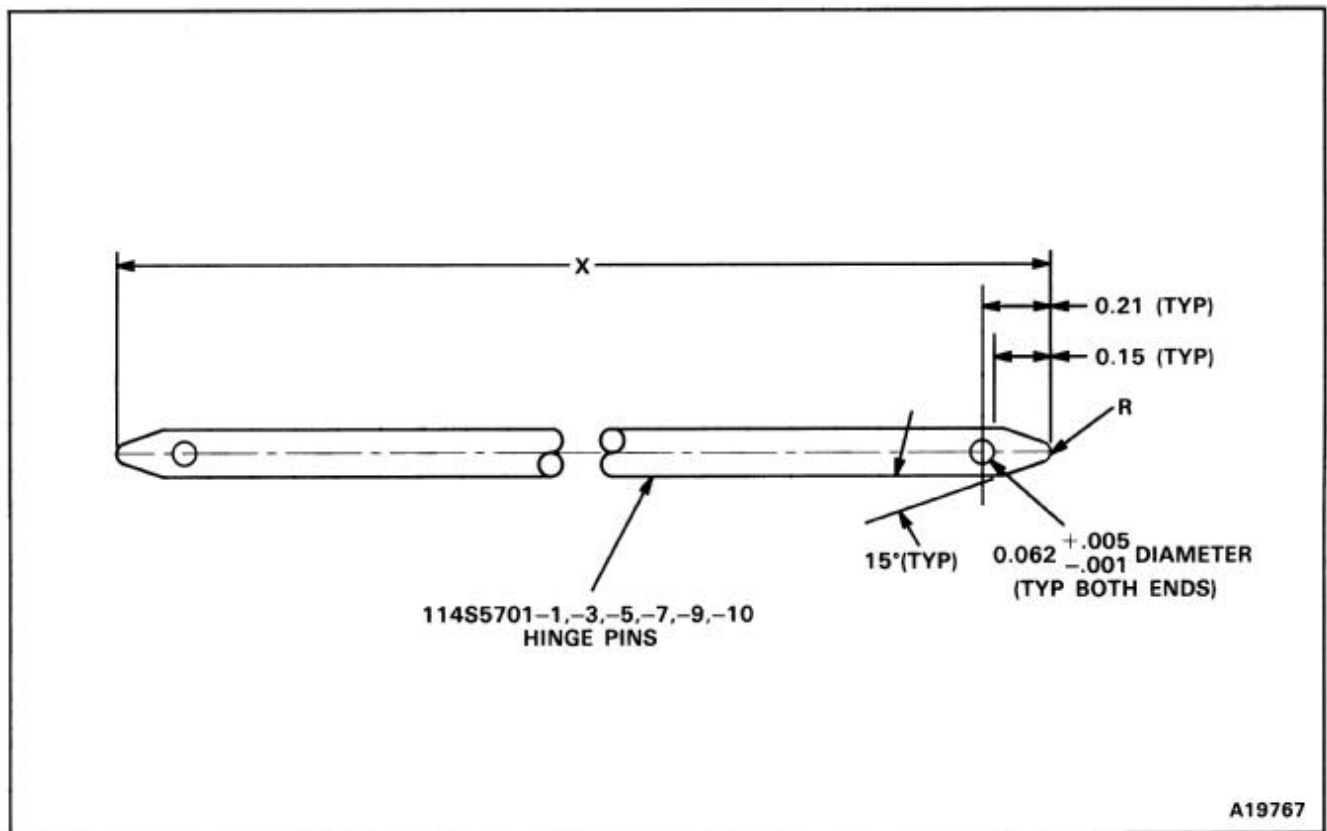
**E-223**

**NOTES:**

1. FABRICATE FROM MS20253P3 X LENGTH (SEE NOTE 3).
2. ALL DIMENSIONS IN INCHES.
- 3.
4. 250 $\sqrt$  MAX MACHINED SURFACE FINISH PER MIL-STD-10.
5. FINISH: AFTER MACHINING DIP ENDS OF HINGE PINS IN ZINC CHROMATE PRIMER (E291) TO A DEPTH OF 0.50 INCH.
6. APPLY DRY FILM SPRAY LUBE MIL-L-23398 TO HINGE PINS PER MANUFACTURER'S INSTRUCTIONS.

**PART NUMBER    LENGTH (X DIMENSION)**

114S5701-1	28.00
114S5701-3	22.40
114S5701-5	20.75
114S5701-7	9.40
114S5701-9	30.00
114S5701-11	19.60

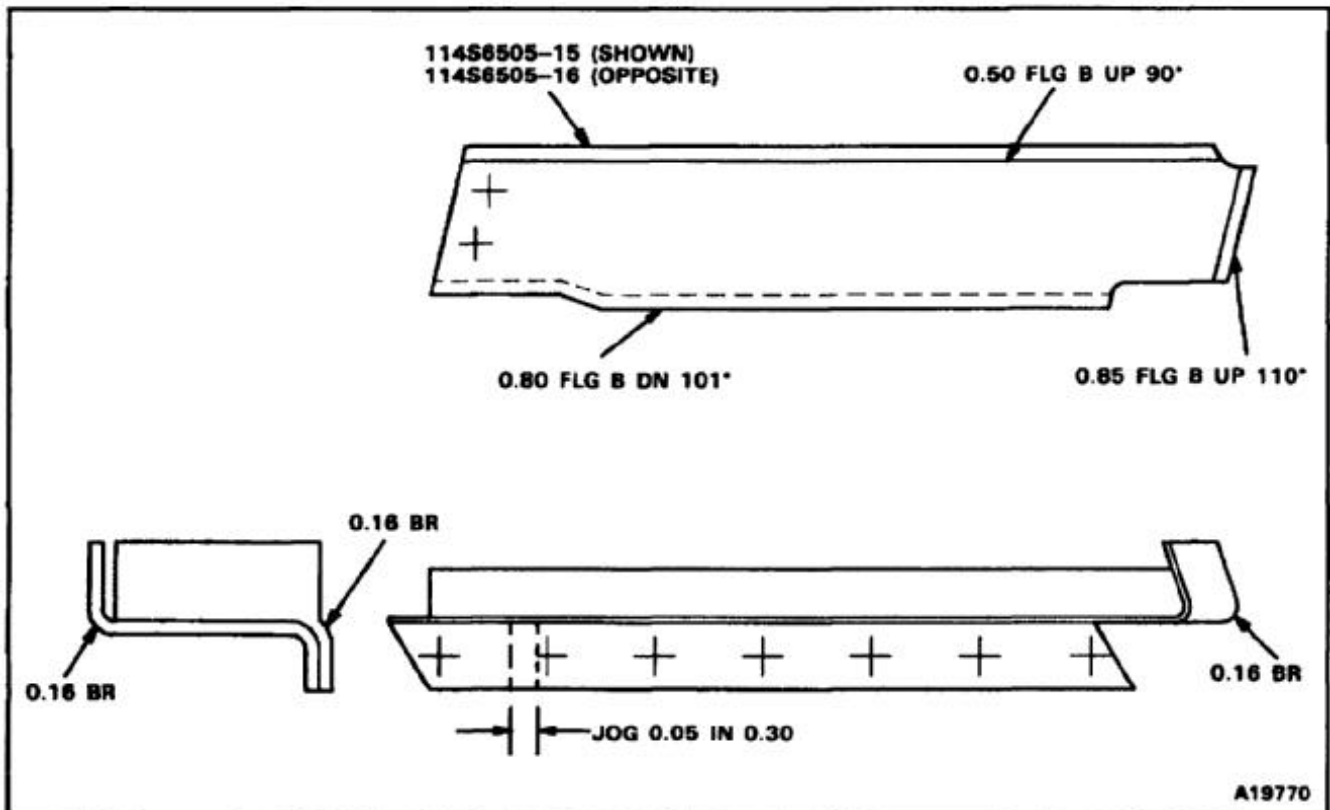


Tasks E-224 thru E-225 deleted.

END OF TASK

**NOTES:**

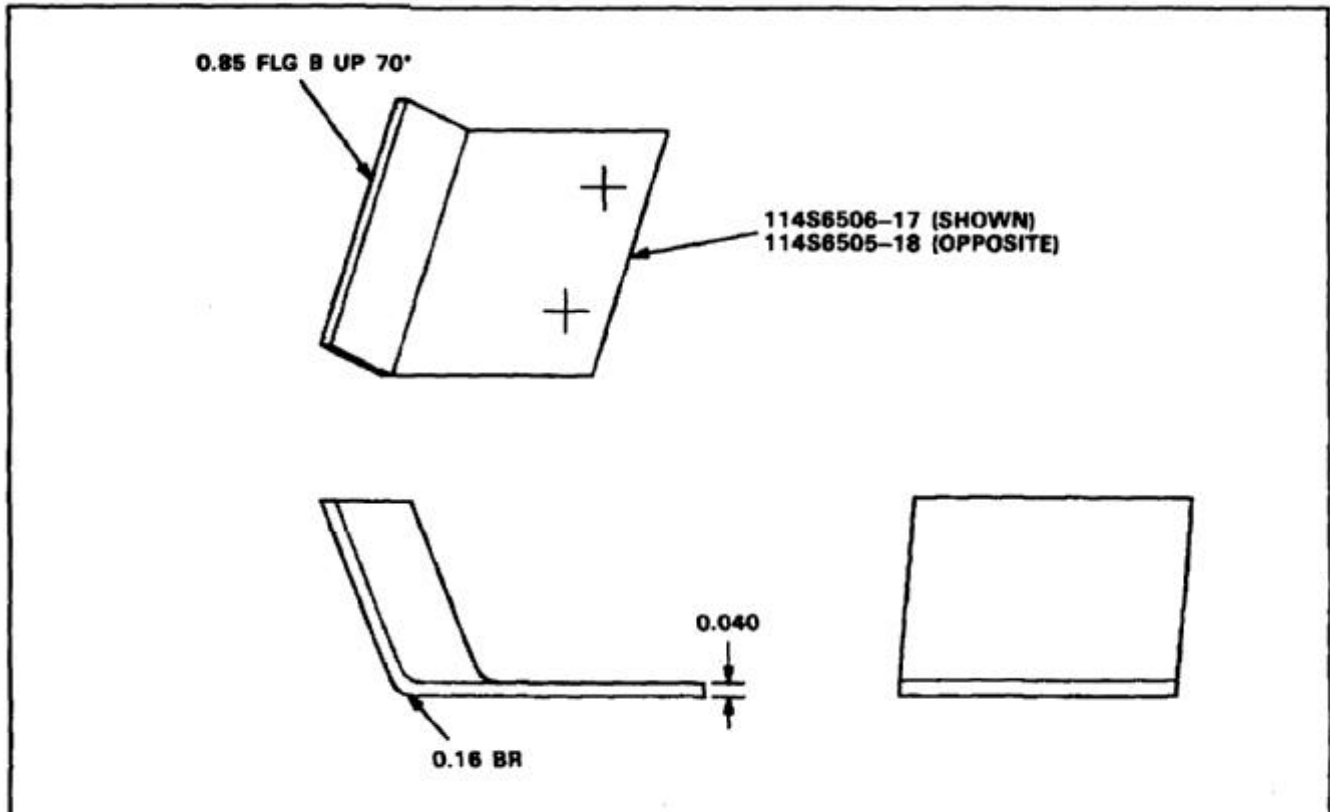
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHT 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.040 X 3.0 X 9.5.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL FORMER TO LAYOUT DIMENSIONS, BENDS, AND PILOT HOLES.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

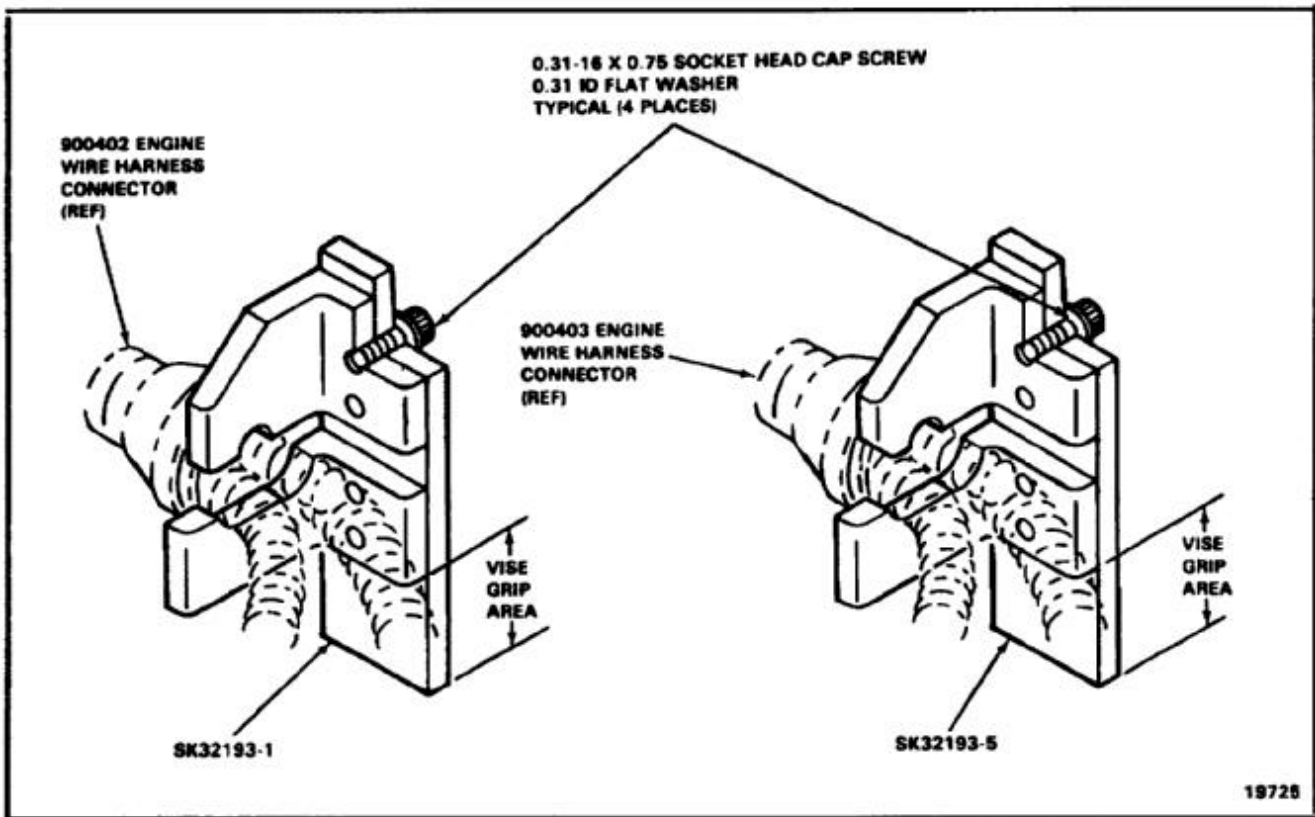
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHT 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.040 X 2.0 X 2.0.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL CLIP AS TEMPLATE TO DETERMINE DIMENSIONS, BENDS, AND PILOT HOLES.



END OF TASK

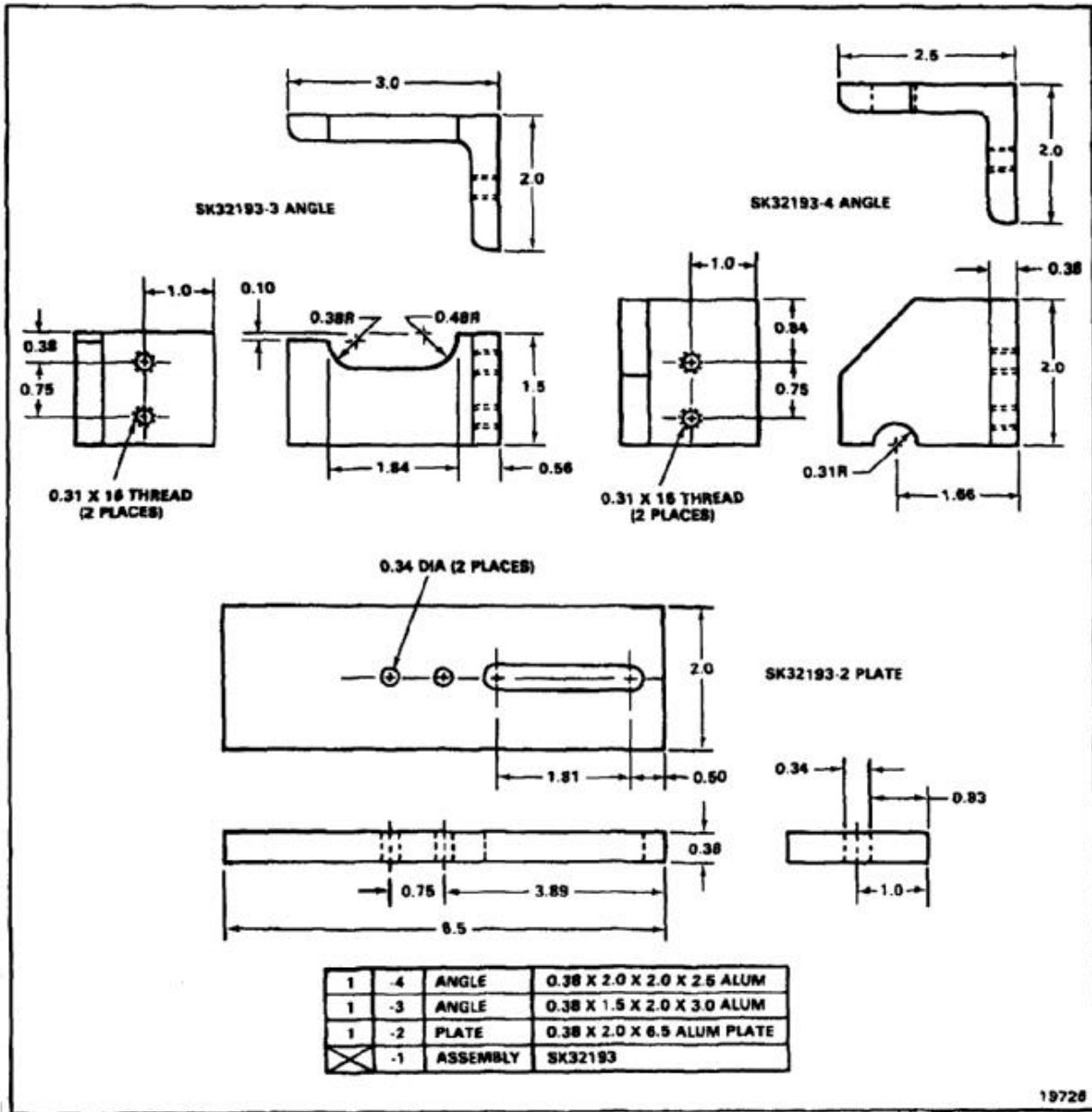
**NOTES:**

1. ALL DIMENSIONS IN INCHES.
2. ±DIMENSION TOLERANCE 0.03.
3. BREAK ALL SHARP EDGES 0.020 RAD. MIN.



**NOTES:**

1. ALL DIMENSIONS IN INCHES.
2. ±DIMENSION TOLERANCE 0.03.
3. BREAK ALL SHARP EDGES 0.020 RAD. MIN.

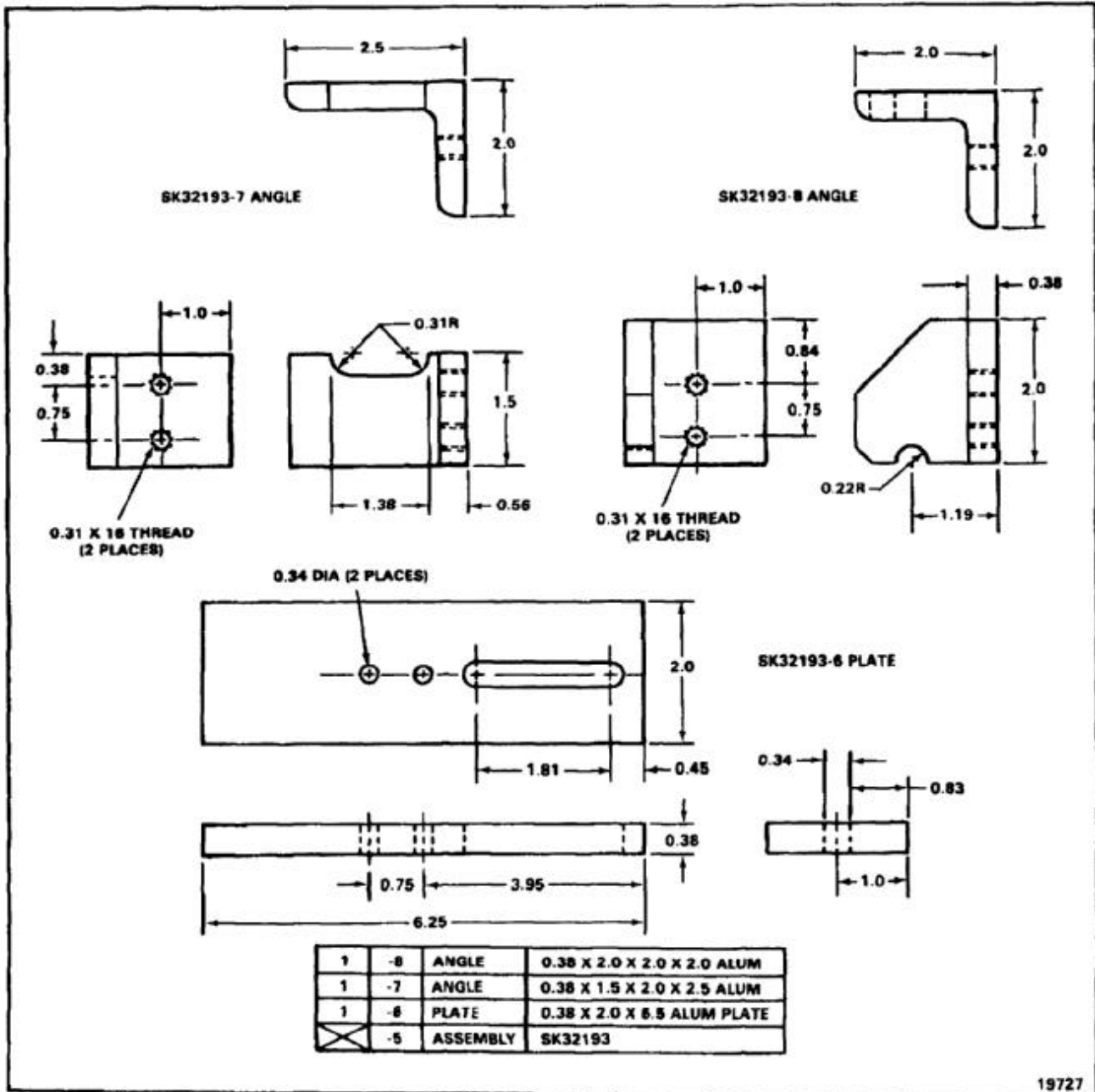


19728



**NOTES:**

1. ALL DIMENSIONS IN INCHES.
2. ±DIMENSION TOLERANCE 0.03.
3. BREAK ALL SHARP EDGES 0.020 RAD. MIN.



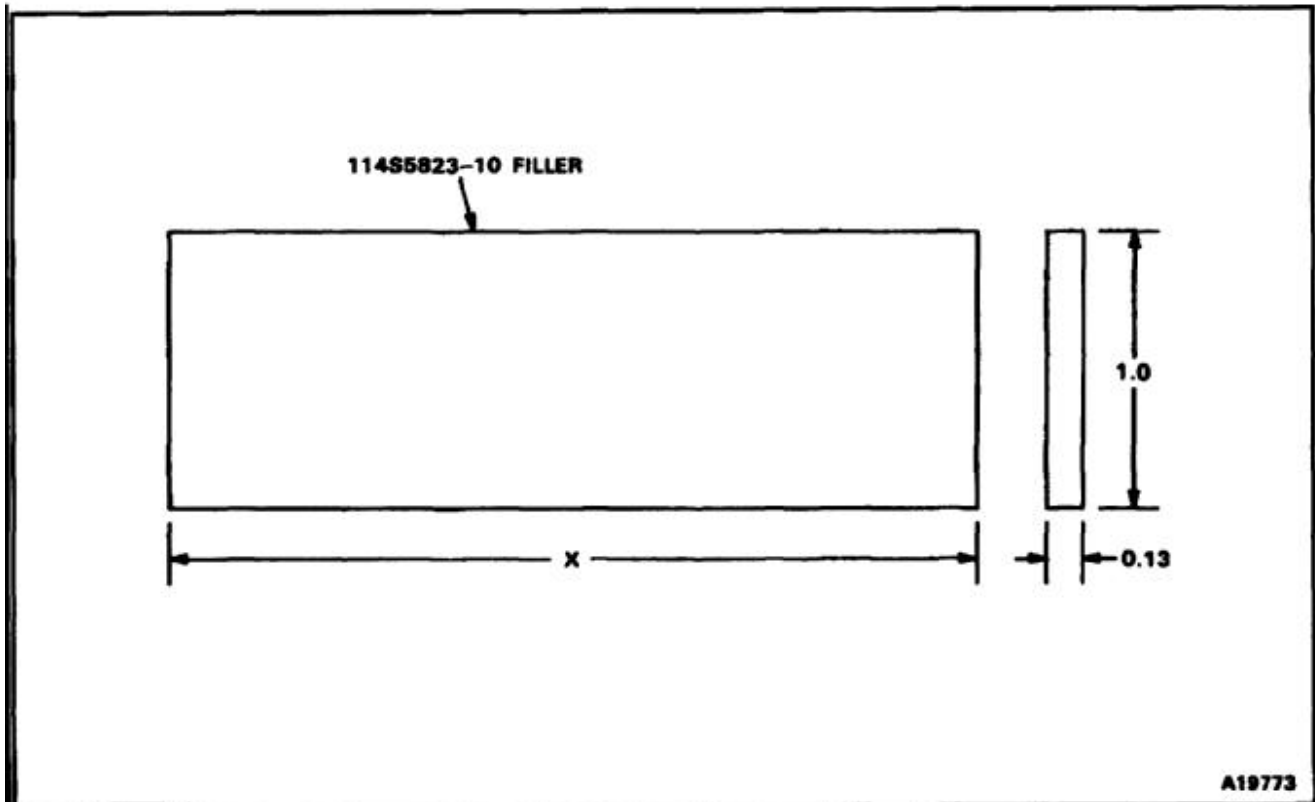
19727

END OF TASK

E-304

**NOTES:**

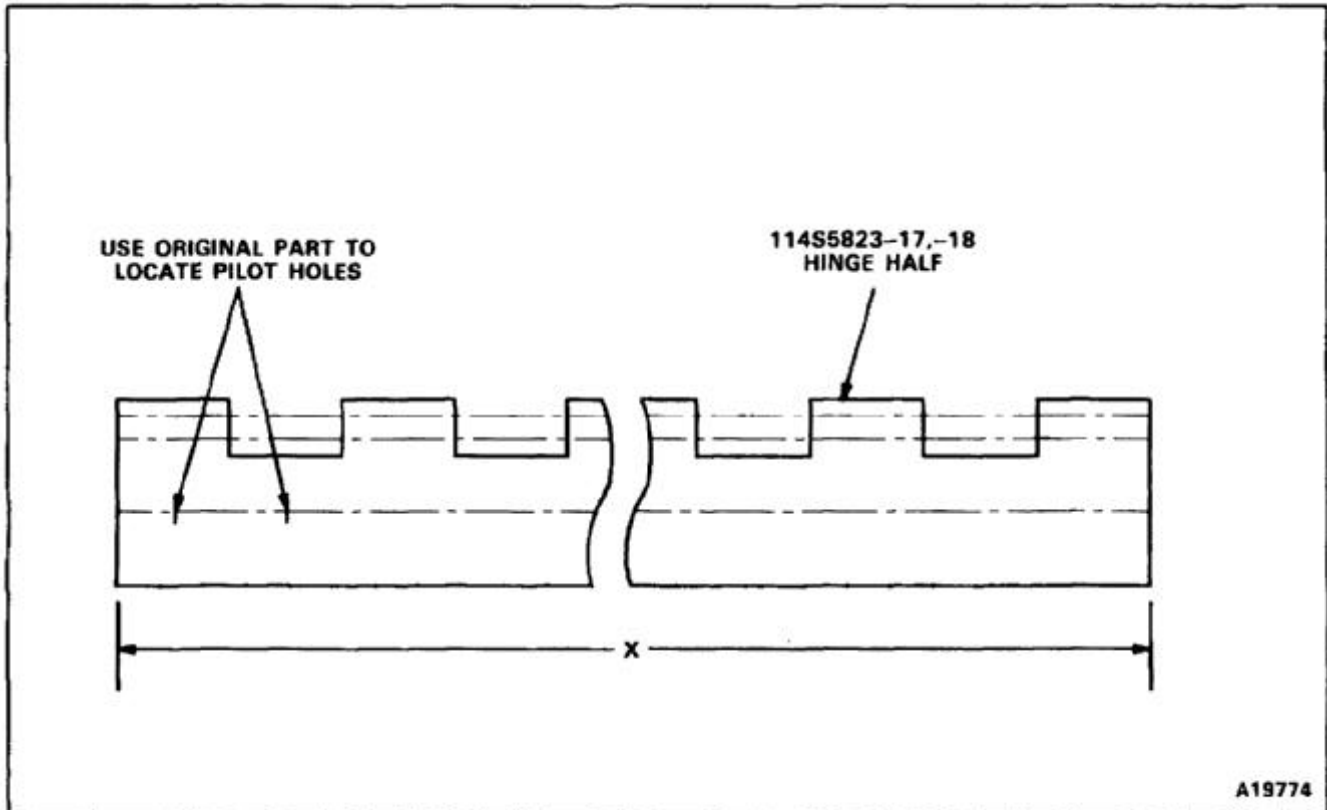
1. FABRICATE FROM LAMINATED PHENOLIC TYPE FBM PER MIL-P-15035.
2. STOCK SIZE 0.13 X 1.0 X 2.9.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.
5. USE ORIGINAL PART TO DETERMINE DIMENSION X.



END OF TASK

**NOTES:**

1. FABRICATE FROM MS20001PH9-5500.
2. THE 114S5823-17 HINGE HALF IS THE OPPOSITE OF THE 114S5823-18 HINGE HALF.
3. USE ORIGINAL PART TO DETERMINE DIMENSION X AND LOCATE PILOT HOLES.
4. FINISH AS REQUIRED.

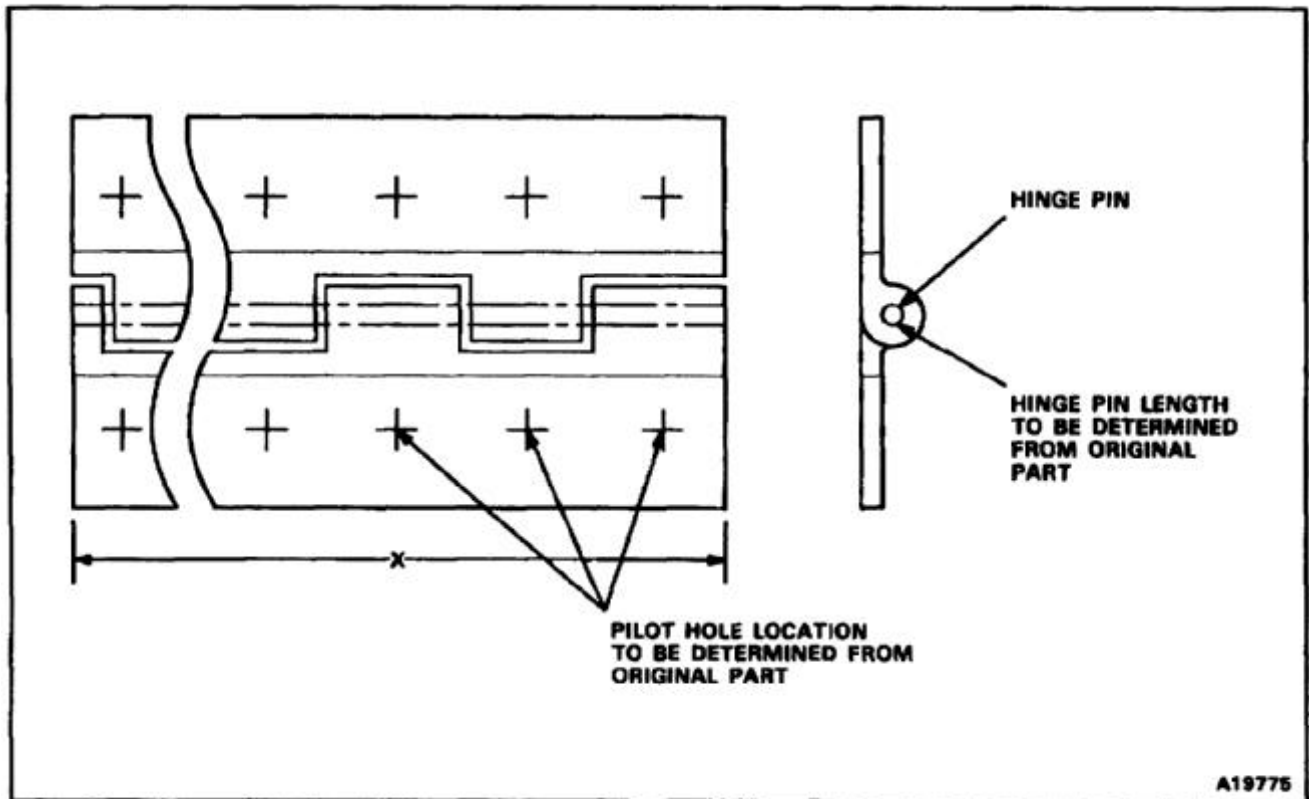


END OF TASK

**NOTES:**

1. USE ORIGINAL PARTS TO DETERMINE PILOT HOLE LOCATIONS, HINGE HALF, AND HINGE PIN LENGTH.
2. FINISH AS REQUIRED.
3. FABRICATE FROM:

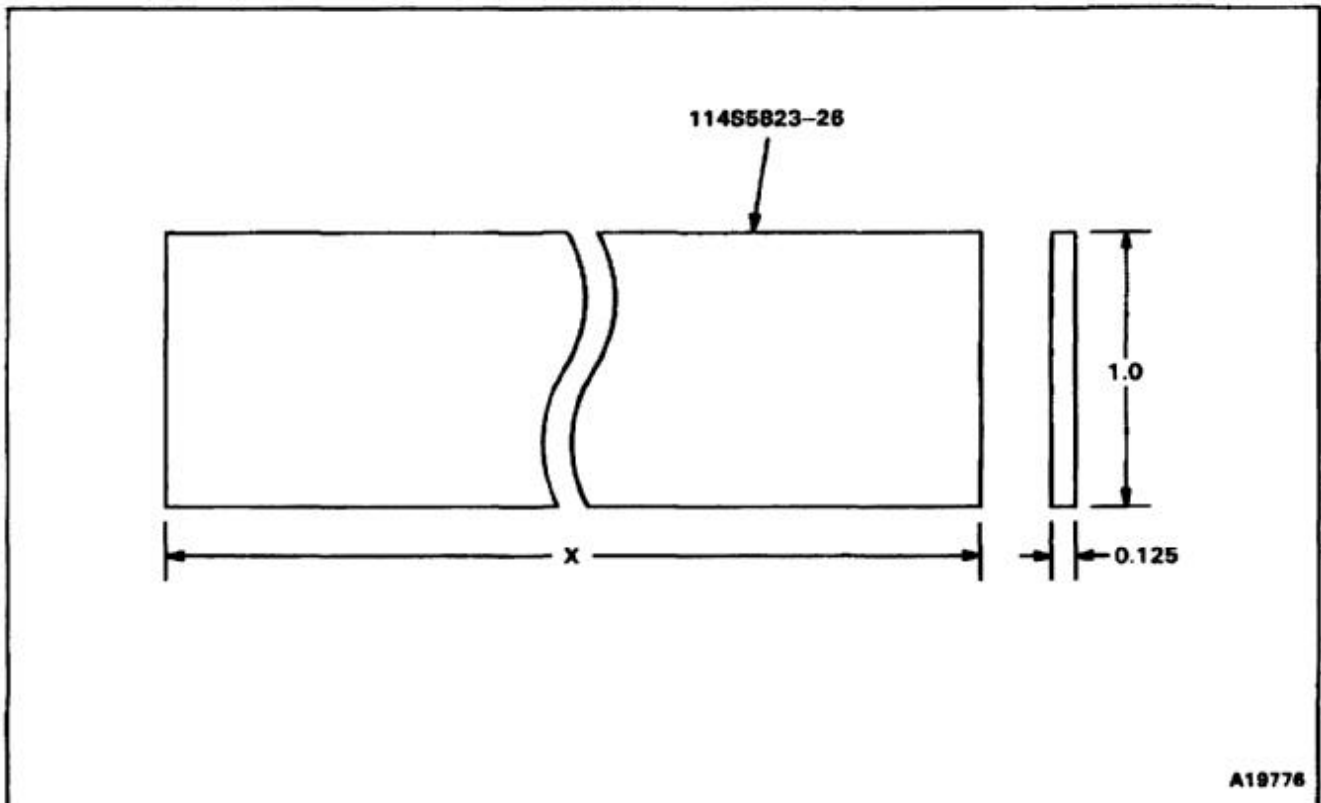
NOMENCLATURE	PART NUMBER	MATERIAL
HINGE HALF	114S5823-19	MS20001PH5-5500
HINGE PIN	114S5823-33	MS20253-2-5500
HINGE HALF	114S5823-20	MS20001PH5-5500
HINGE HALF	11455823-21	MS20001PH5-5500
HINGE PIN	114S5823-34	MS20253-2-5500
HINGE HALF	114S5823-22	MS20001PH5-5500
HINGE HALF	114S5823-23	MS20001PH5-5500
HINGE PIN	114S5823-35	MS20253-2-5500
HINGE HALF	114S5823-24	MS20001PH5-5500



END OF TASK

**NOTES:**

1. FABRICATE FROM LAMINATED PHENOLIC, TYPE FBM PER MIL-P-15035.
2. STOCK SIZE 0.125 X 1.0 X 89.0.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.
5. USE ORIGINAL PART TO DETERMINE DIMENSION X.

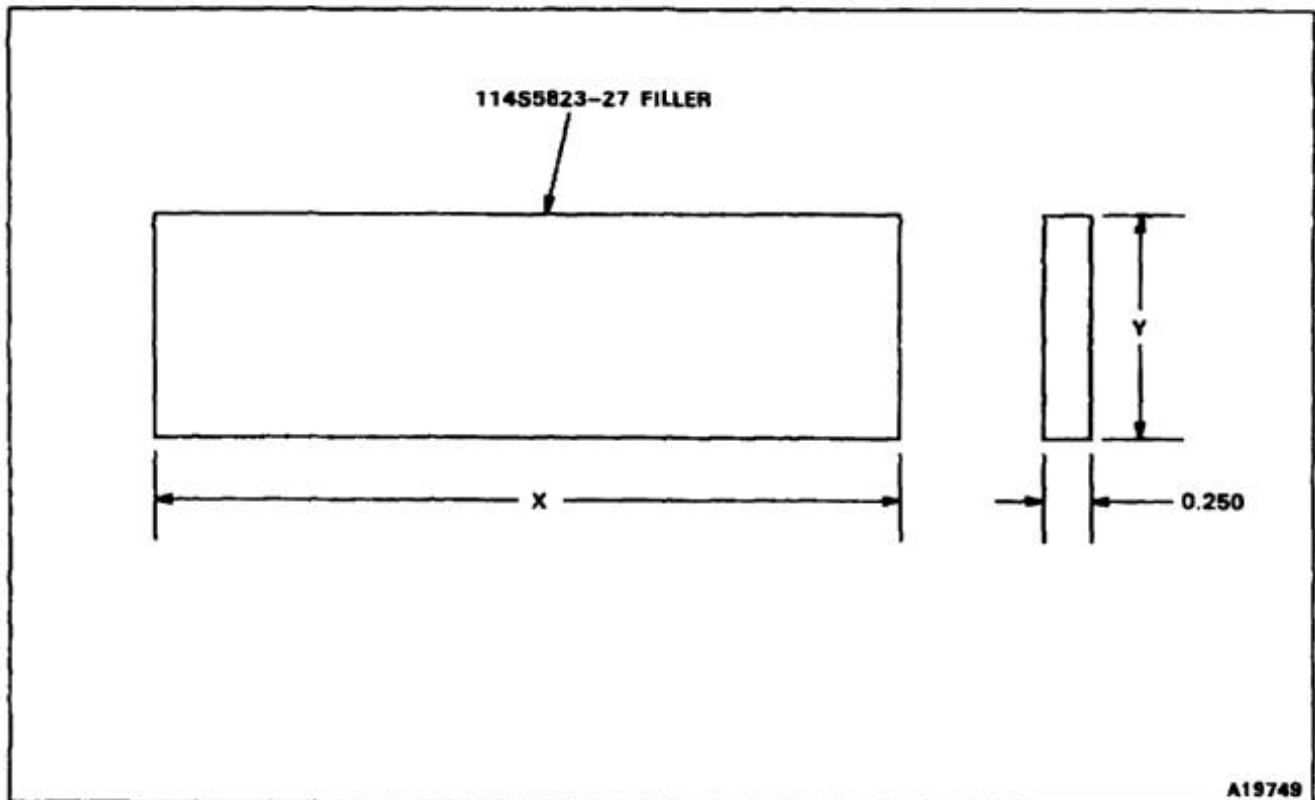


END OF TASK

E-308

**NOTES:**

1. FABRICATE FROM AL ALY CLAD PLATE 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.250 X 1.2 X 4.0.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL PART TO DETERMINE DIMENSIONS X AND Y.
5. FINISH AS REQUIRED.



END OF TASK

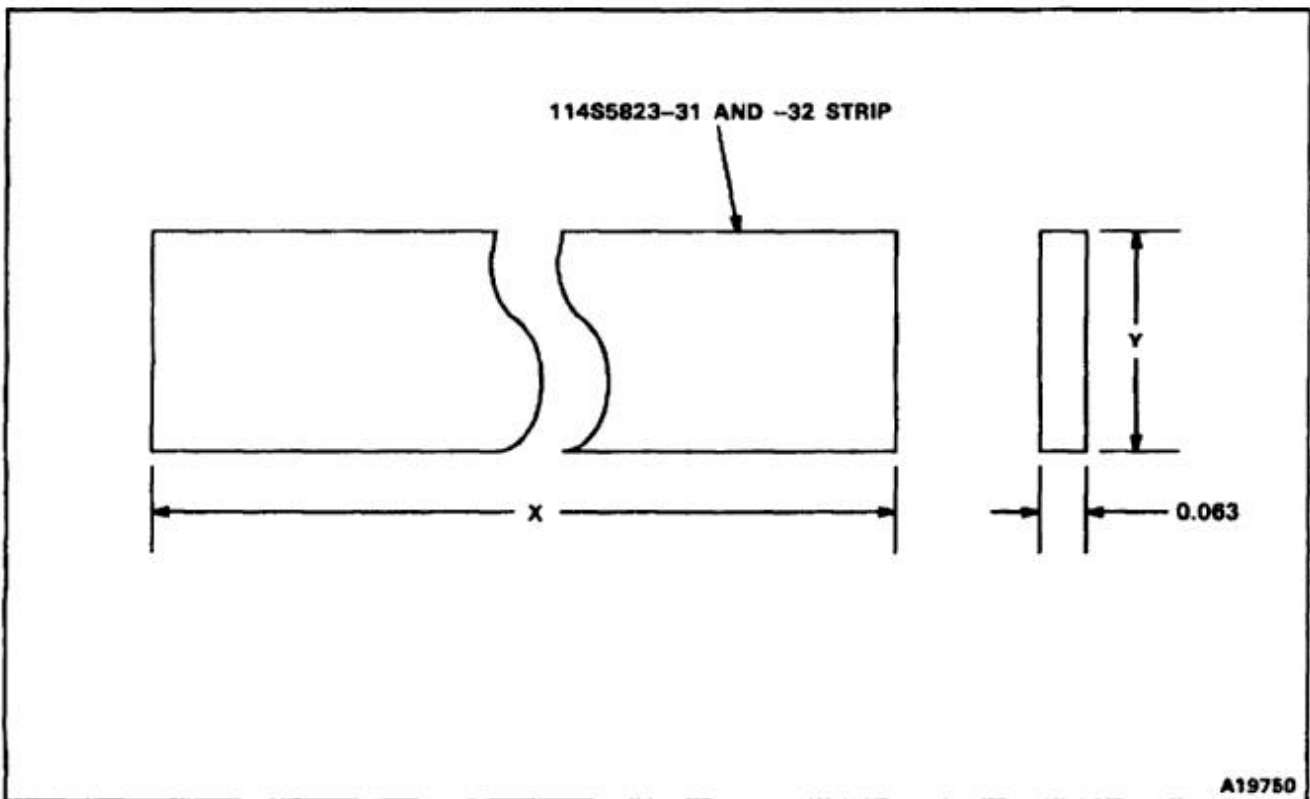
**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. FINISH AS REQUIRED.
- 4.

**STOCK SIZE**

PART NO.	X DIM.	Y DIM.	Z DIM.
114S5823-31	88.0	0.063	2.1
114S5823-32	104.6	0.063	1.3

5. USE ORIGINAL PART TO DETERMINE DIMENSIONS X AND Y.

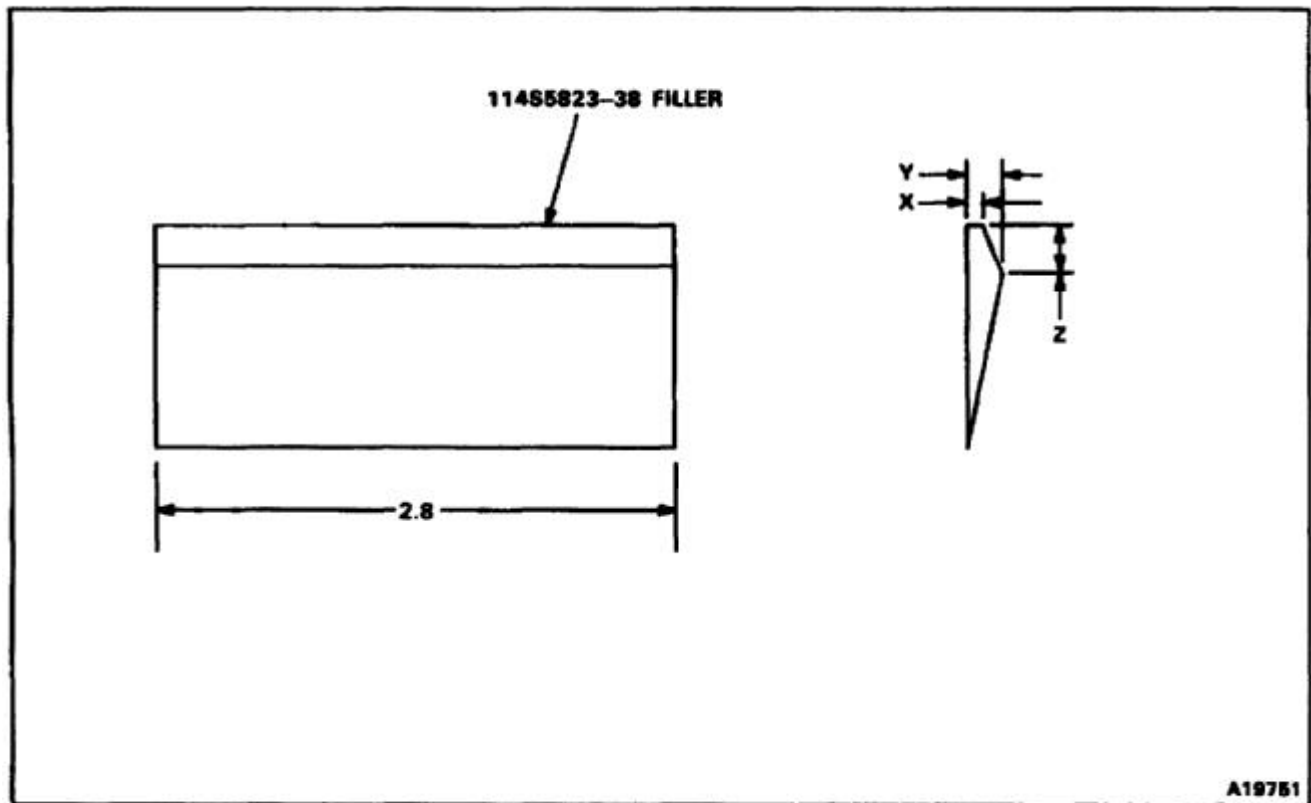


A19750

END OF TASK

**NOTES:**

1. FABRICATE FROM LAMINATED PHENOLIC, TYPE FBM PER MIL-P-15035.
2. STOCK SIZE 0.19 X 1.2 X 2.8.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL PART TO DETERMINE DIMENSIONS X, Y, AND Z.
5. FINISH AS REQUIRED.

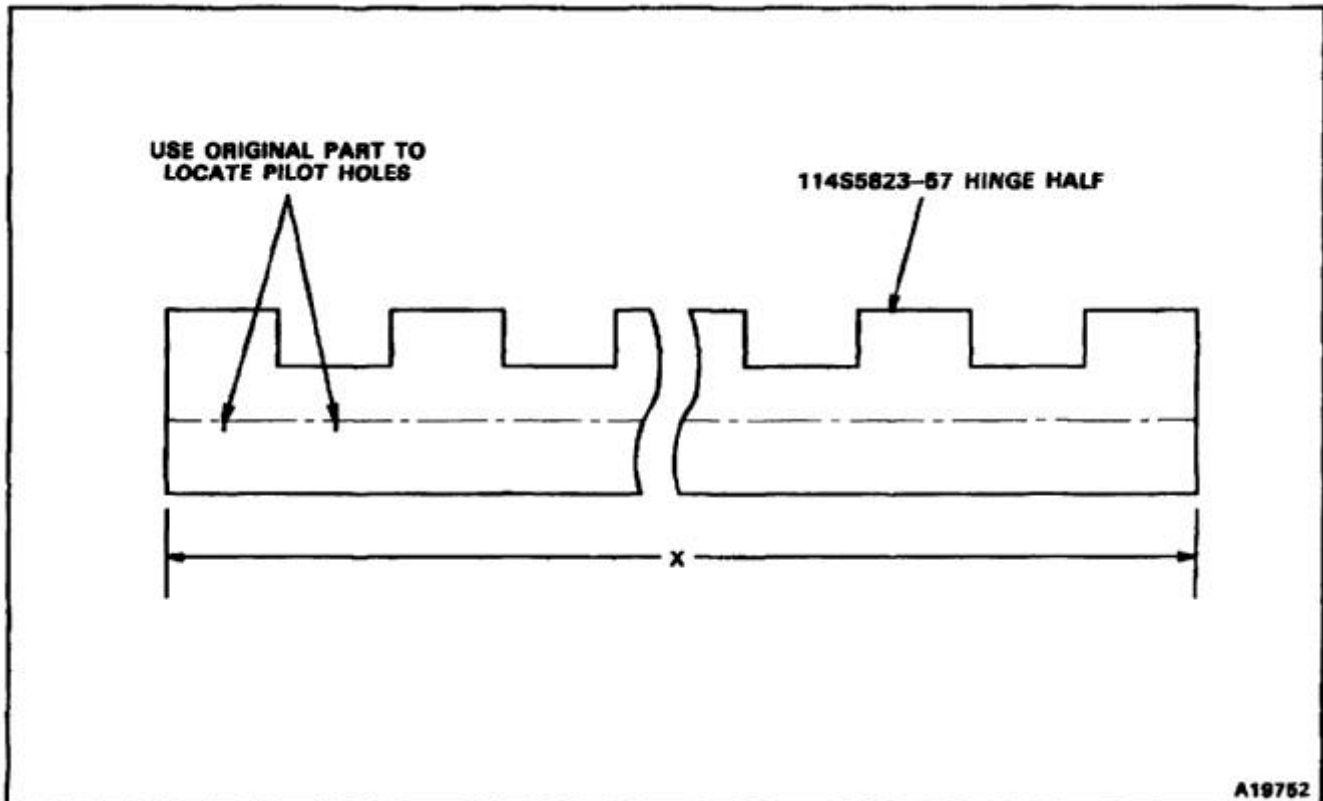


END OF TASK



**NOTES:**

1. FABRICATE FROM MS20001PH9-5300.
2. USE ORIGINAL PART TO DETERMINE DIMENSION X AND LOCATE PILOT HOLES.
3. FINISH AS REQUIRED.

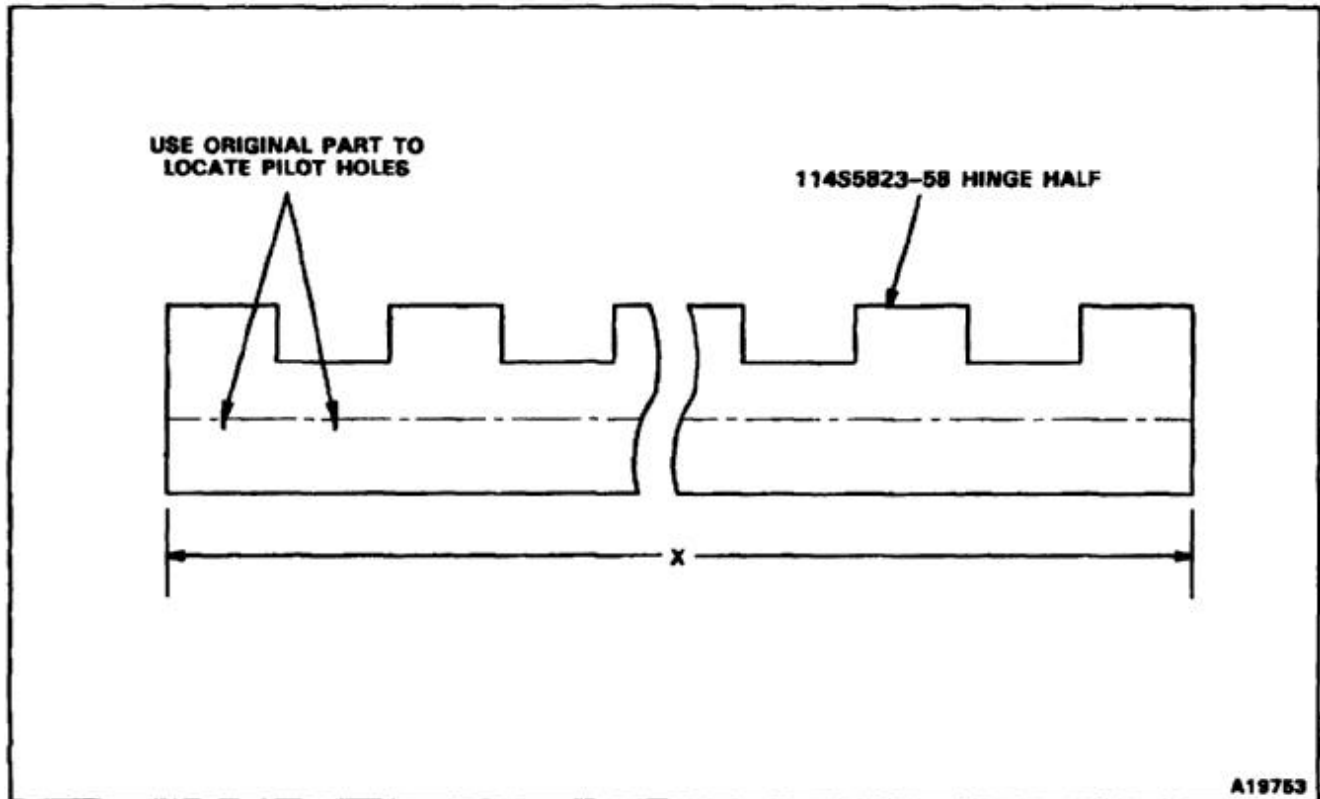


END OF TASK

E-312

**NOTES:**

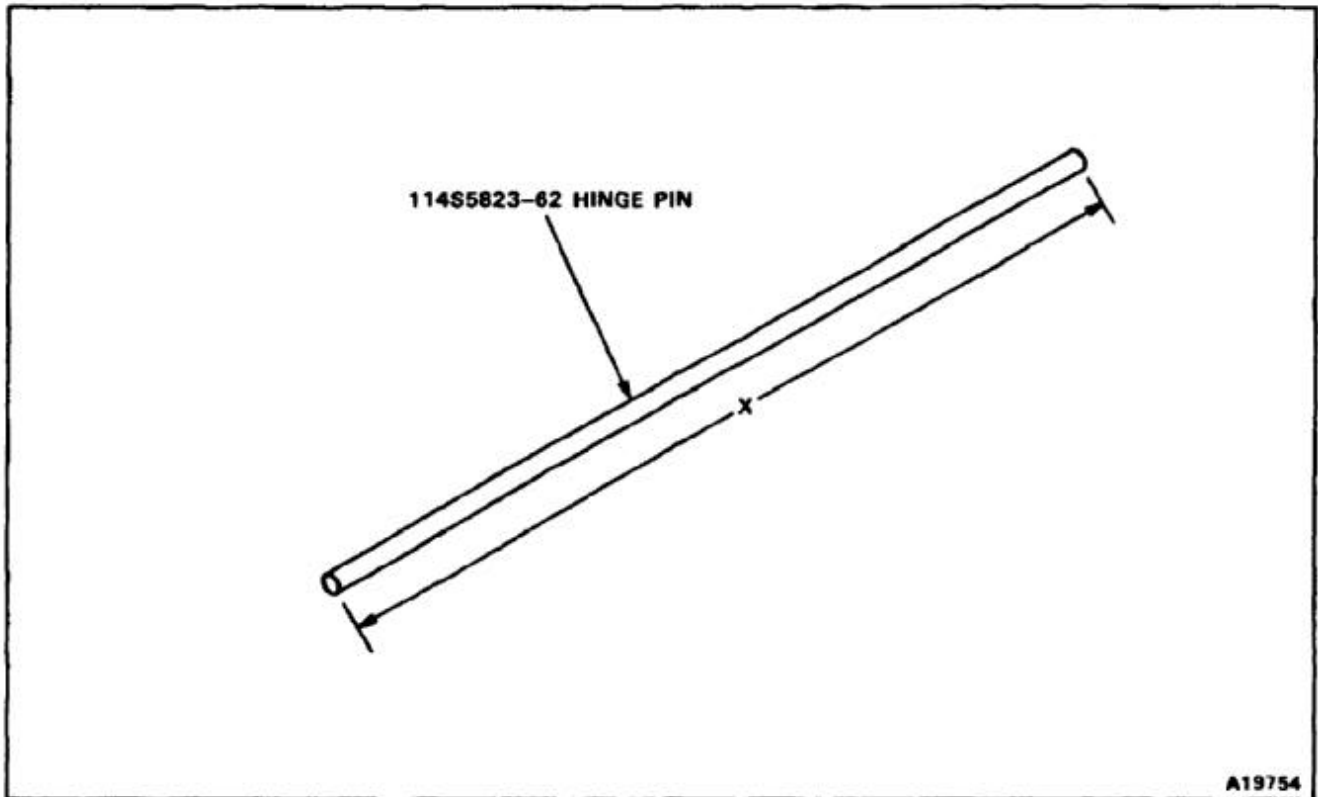
1. FABRICATE FROM M520001PH5-5300.
2. USE ORIGINAL PART TO DETERMINE DIMENSION X AND LOCATE PILOT HOLES.
3. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM MS20253-2-5300.
2. USE ORIGINAL PART TO DETERMINE DIMENSION X.
3. FINISH AS REQUIRED.

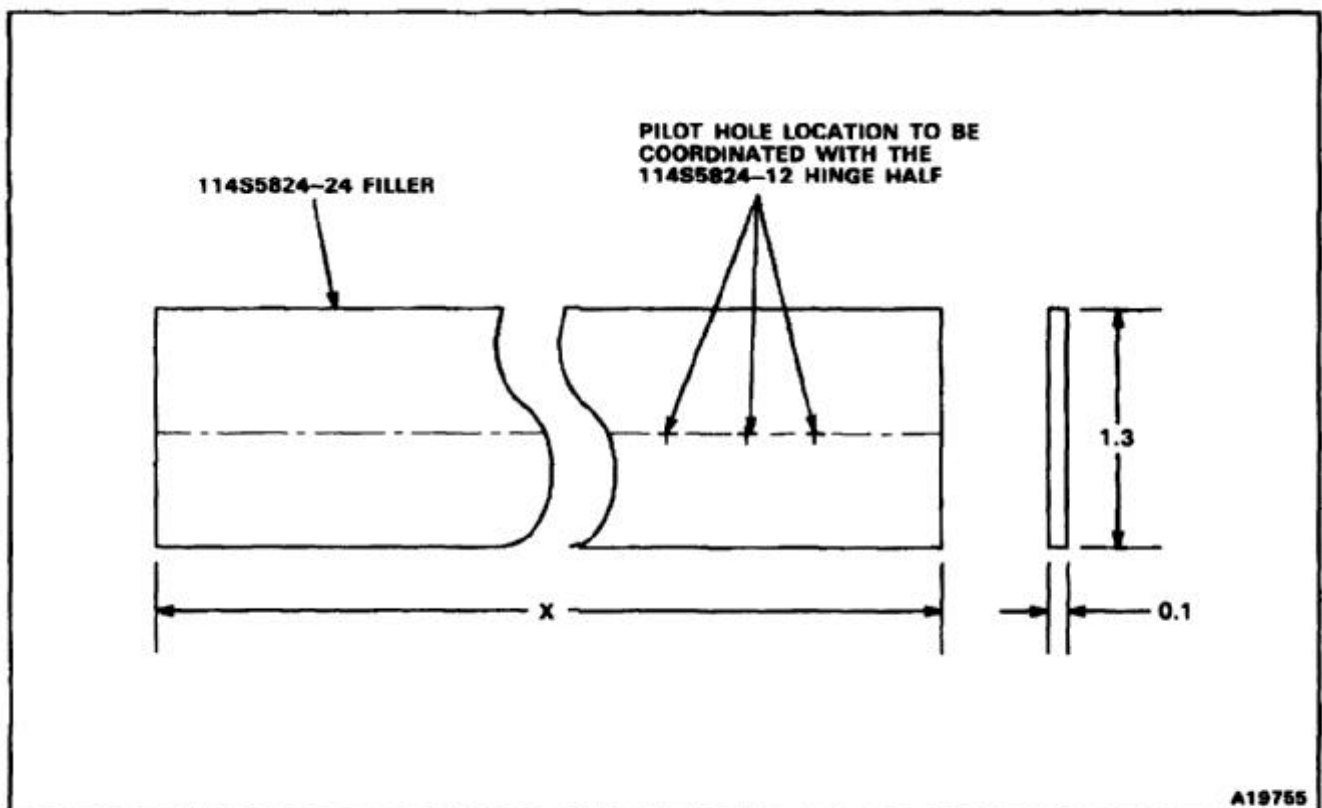


END OF TASK

E-314

**NOTES:**

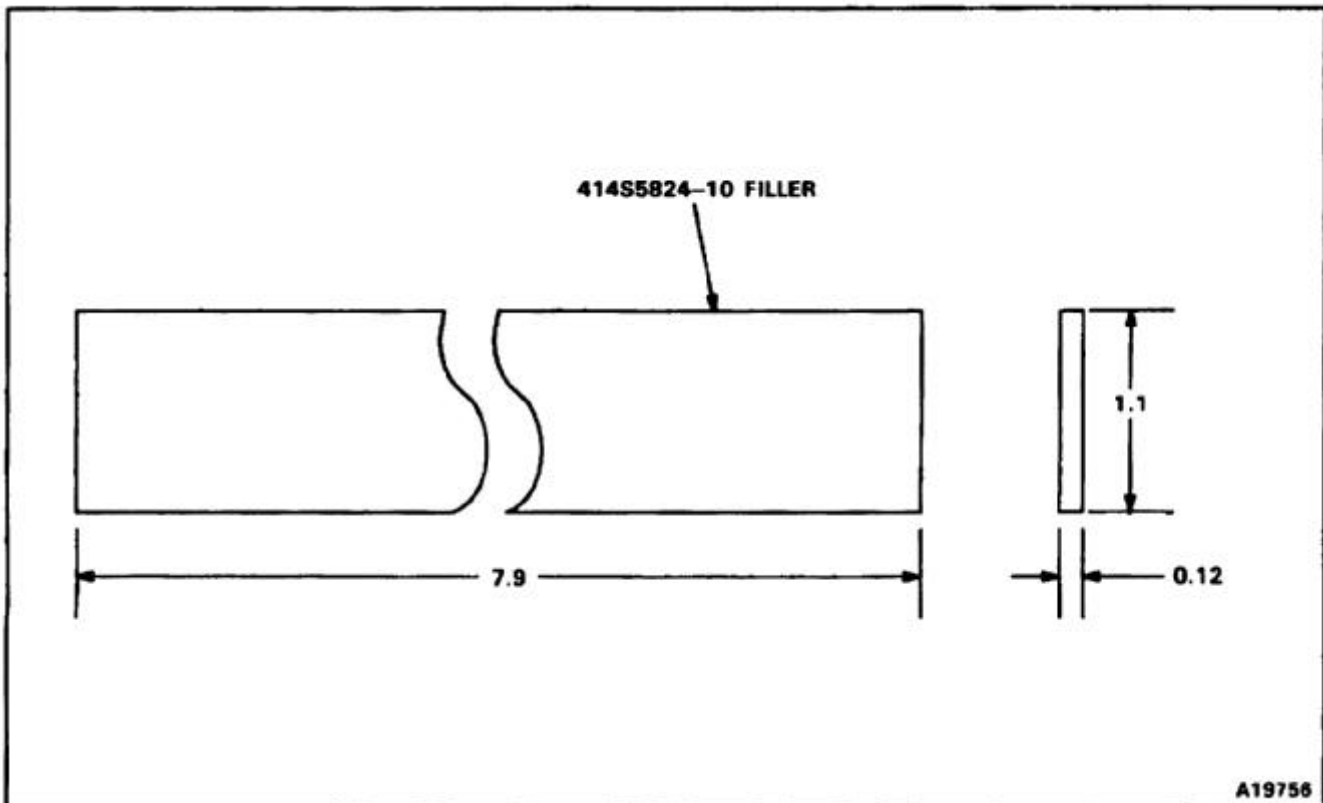
1. FABRICATE FROM MIL-P-15035 LAMINATED PHENOLIC, TYPE FBM.
2. STOCK SIZE 0.1 X 1.3 X 26.5.
3. ALL DIMENSIONS IN INCHES.
4. COORDINATE PILOT HOLE LOCATION WITH THE 114S5824-12 HINGE HALF.
5. USE ORIGINAL PART TO DETERMINE DIMENSION X.
6. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

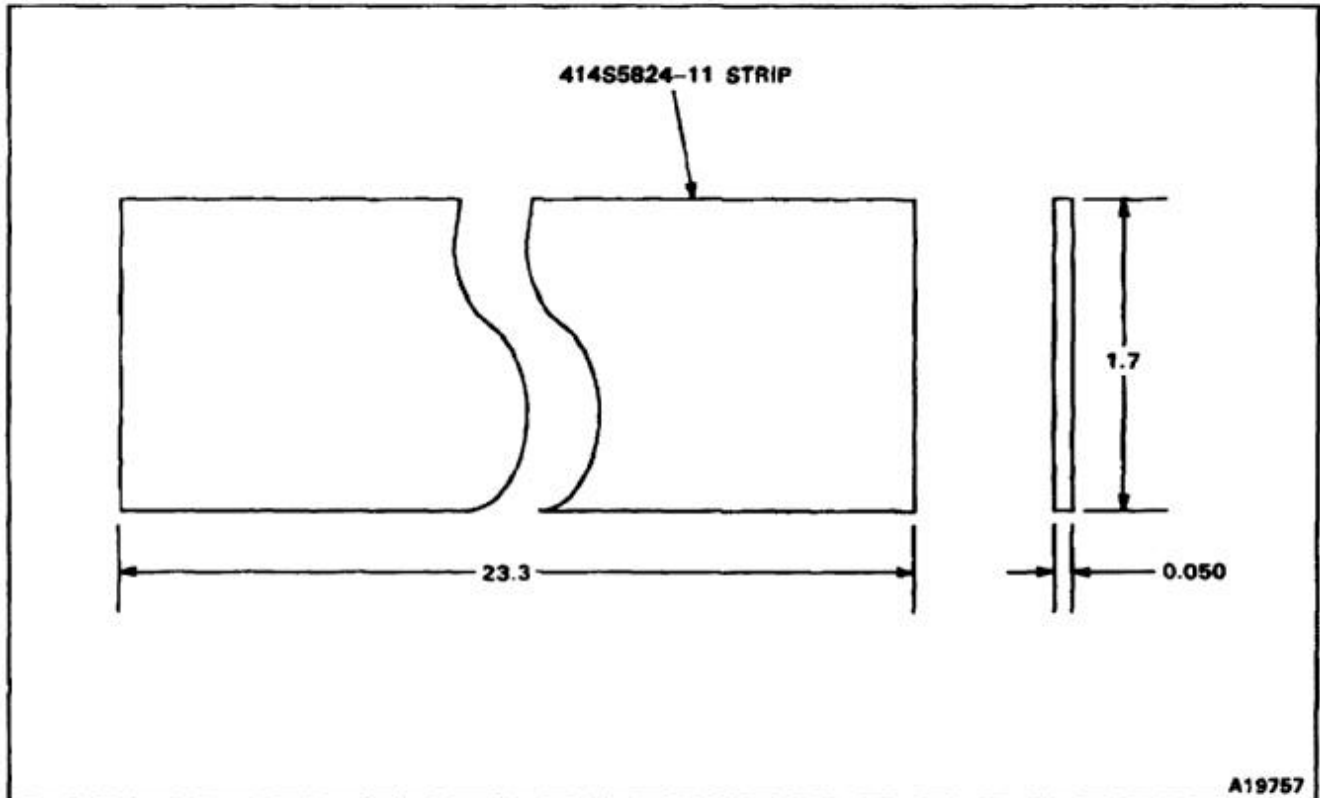
1. FABRICATE FROM LAMINATED PHENOLIC TYPE FBM PER MIL-P-15035.
2. STOCK SIZE 0.12 X 1.1 X 7.9.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

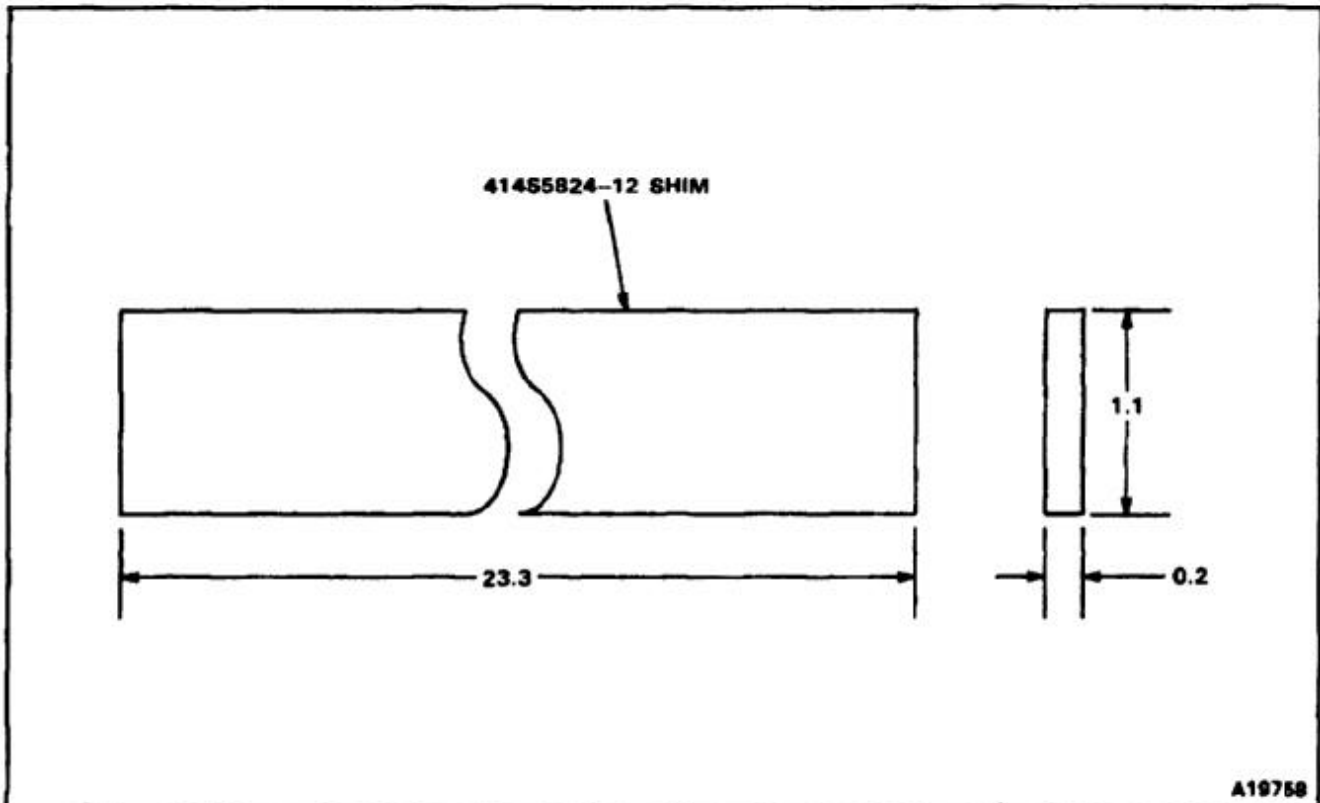
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.050 X 1.7 X 23.3.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL STRIP FOR PILOT HOLE LOCATIONS.



END OF TASK

**NOTES:**

1. FABRICATE FROM LAMINATED PHENOLIC, TYPE FBM PER MIL-P-15035.
2. STOCK SIZE 0.2 X 1.1 X 23.3.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.

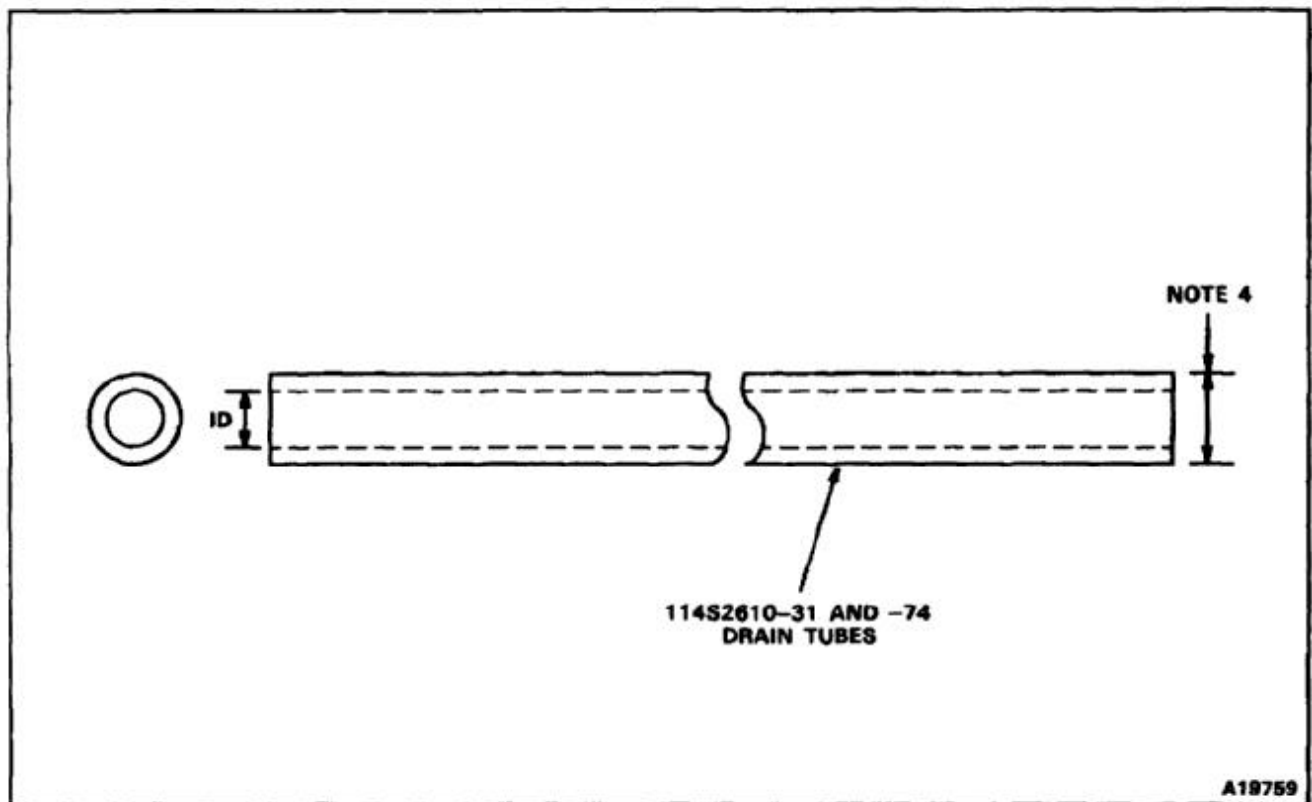


END OF TASK

**NOTES:**

1. FABRICATE FROM RUBBER HOSE MIL-R-6855, CLASS II, GRADE 60.
2. ALL DIMENSIONS IN INCHES.
3. CUT TO SPECIFIED LENGTHS.
4. NOMINAL OUTSIDE DIAMETER TO BE 0.688, WITH A NOMINAL WALL THICKNESS OF 0.188.
- 5.

PART NUMBER	ID	LENGTH
114S2610-31	0.312	15.1
114S2610-74	0.312	28.0

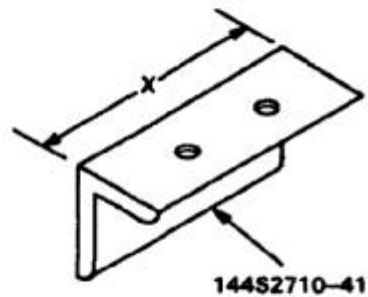


END OF TASK



**NOTES:**

1. FABRICATE FROM AND 10133-1201 AL ALY EXTRUSION 7075-T6 PER QQ-A-277.
2. USE ORIGINAL CLIP TO DETERMINE PILOT HOLES AND DIMENSION X.
3. FINISH AS REQUIRED.



A18780

END OF TASK

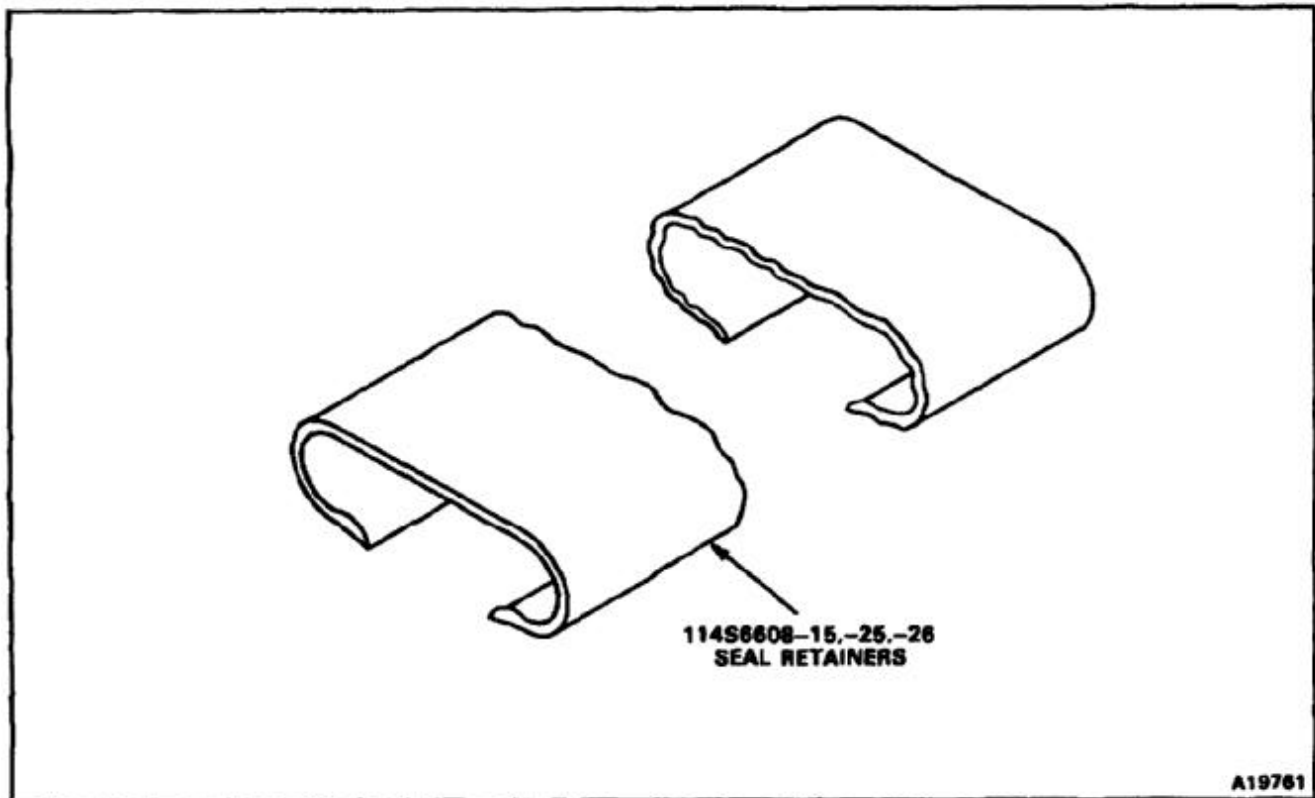
E-320

**NOTES:**

1. FABRICATE FROM VS90415 ALUMINUM EXTRUSION 6061-T6 PER QQ-A-270 CUT TO THE FOLLOWING LENGTHS:

<b>PART NUMBER</b>	<b>LENGTH</b>
114S6608-15	132
114S6608-25 AND -26	84

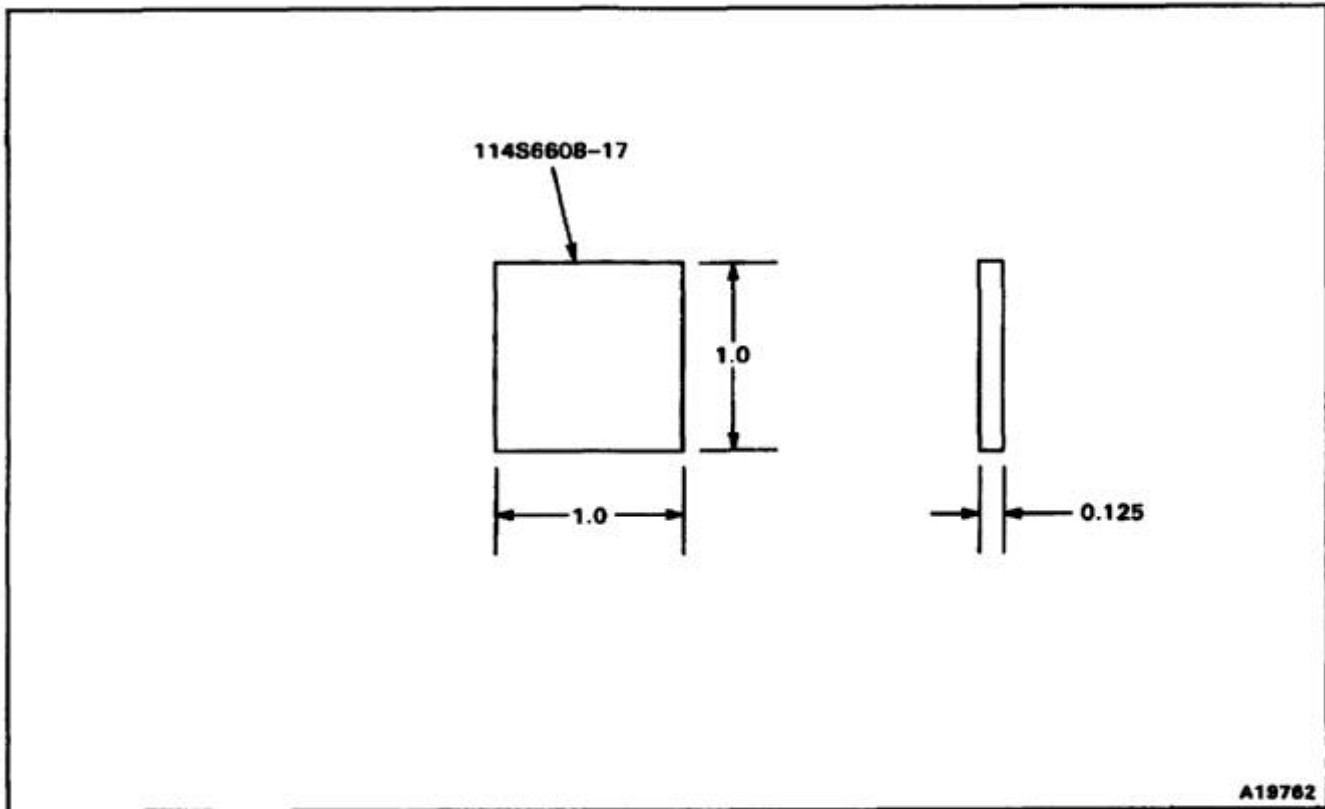
2. FINISH AS REQUIRED.
3. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

1. FABRICATE FROM RECTANGULAR BAR STOCK 2024-T4 PER QQ-A-268.
2. STOCK SIZE 0.125 X 1.0 X 1.0.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.

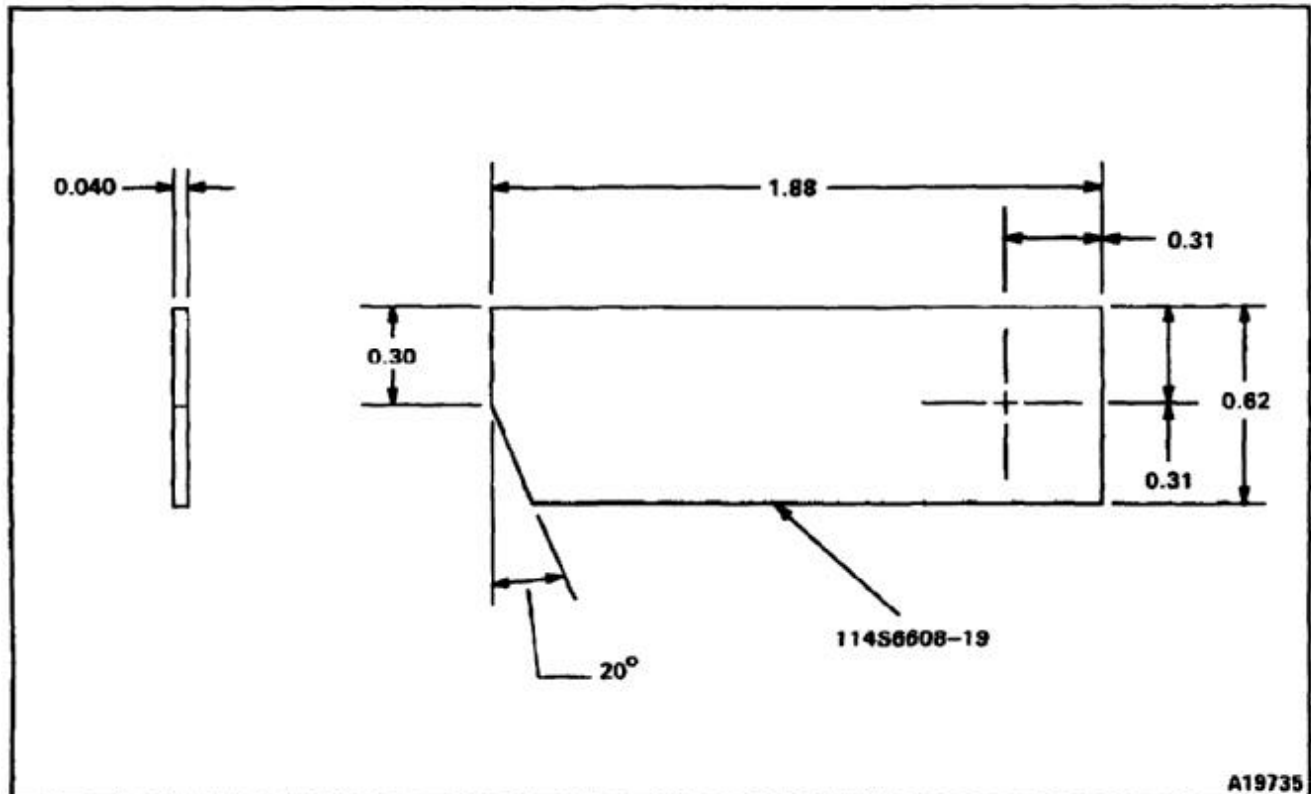


END OF TASK

E-322

**NOTES:**

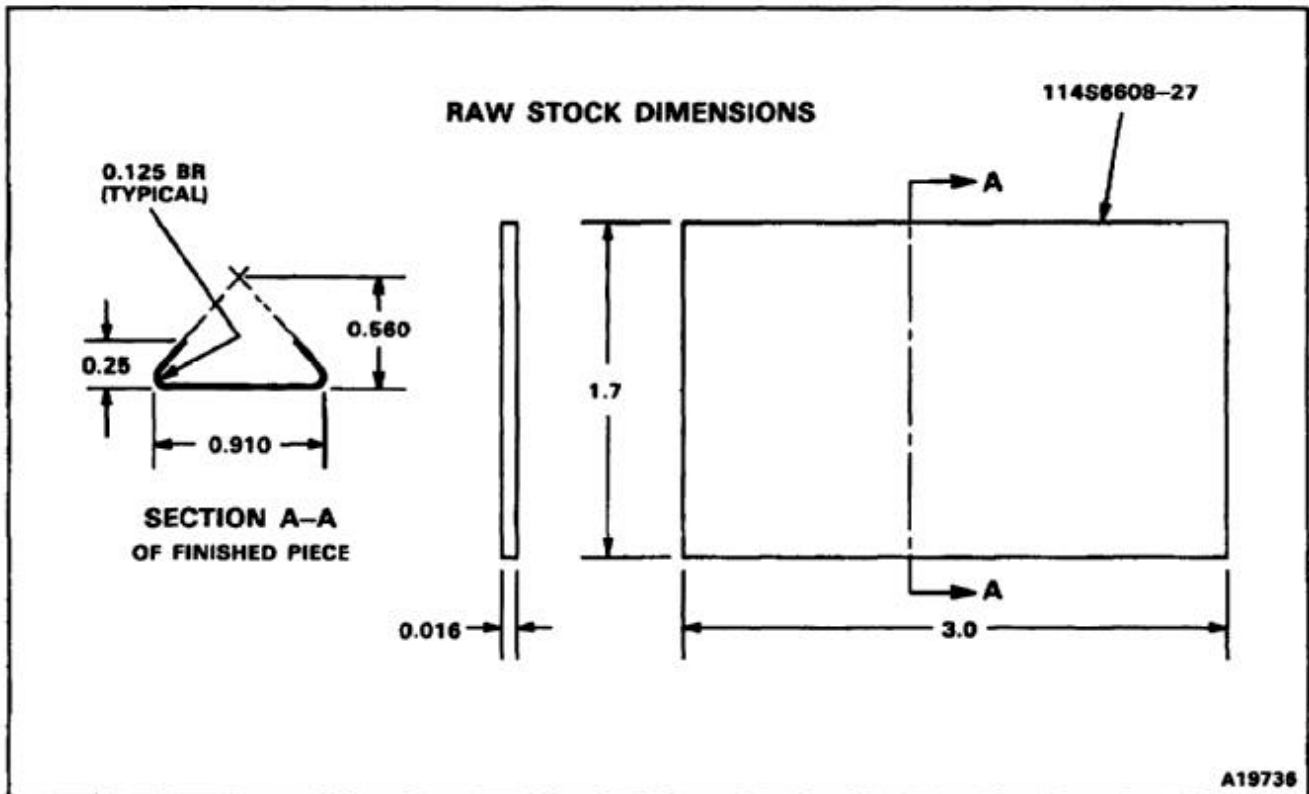
1. FABRICATE FROM CLAD SHEET 2024-T4 PER QQ-A-362.
2. CUT TO DIMENSIONS SHOWN. STOCK SIZE 0.040 X 2.0 X 1.0.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

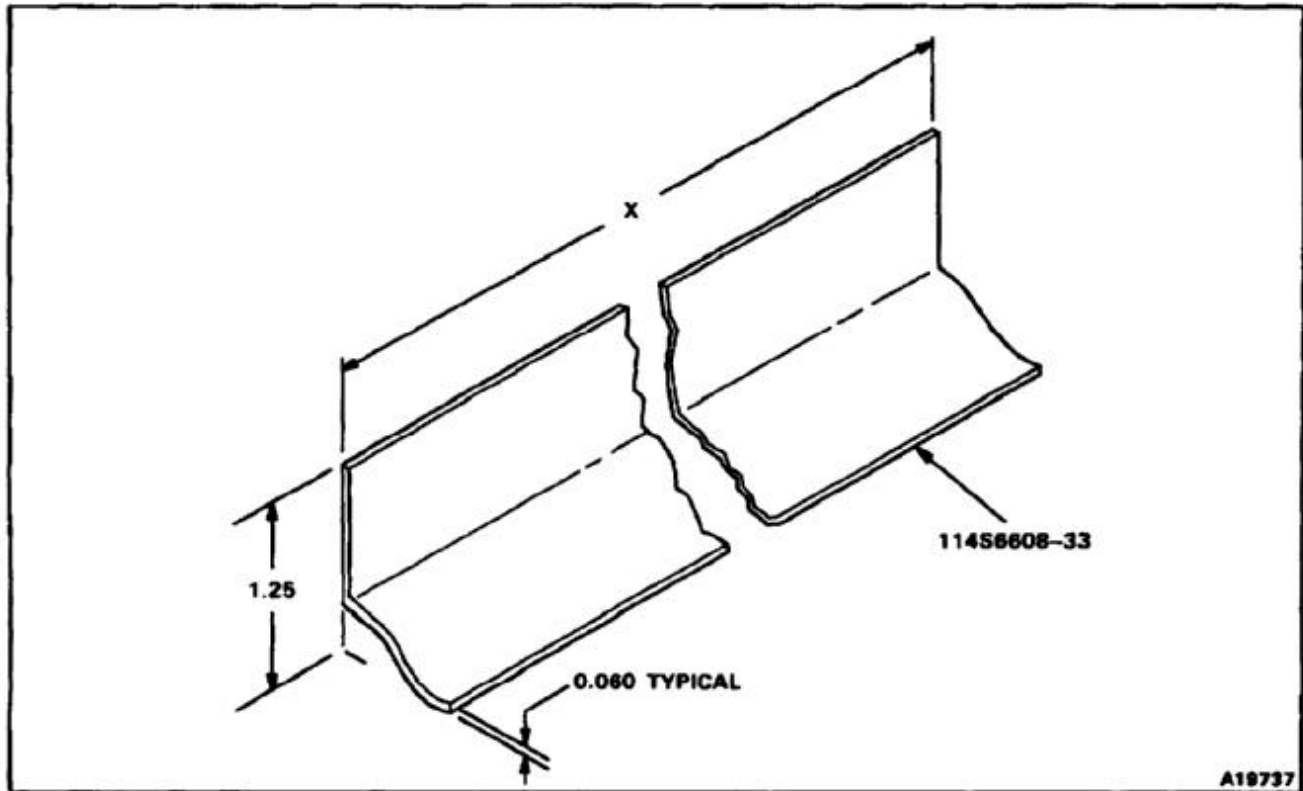
1. FABRICATE FROM AL ALY CLAD SHEET 2024-T4 PER QQ-A-362.
2. CUT AND FORM TO THE DIMENSIONS SHOWN.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

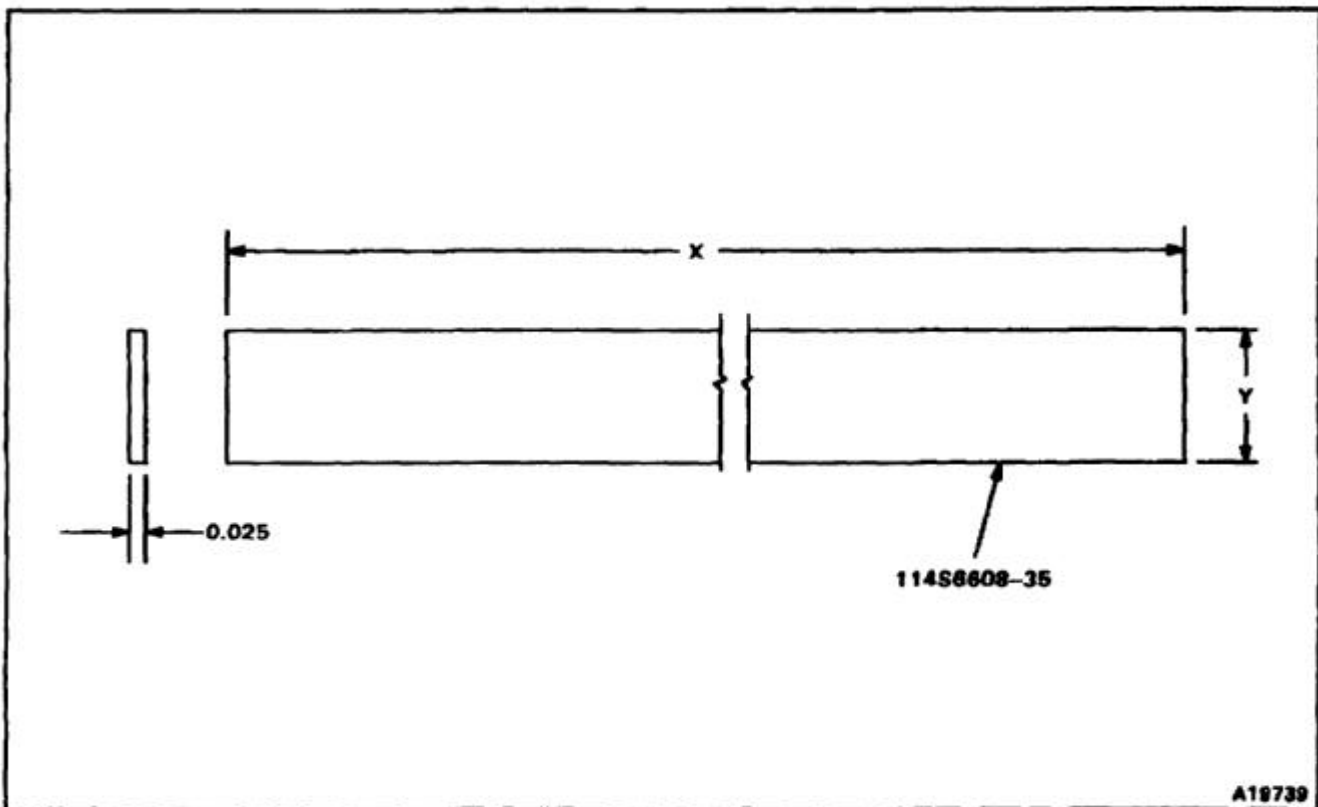
1. FABRICATE FROM VS80550-2 RUBBER EXTRUSION.
2. STOCK SIZE 15.2 INCHES.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL PART TO DETERMINE DIMENSION X.



END OF TASK

**NOTES:**

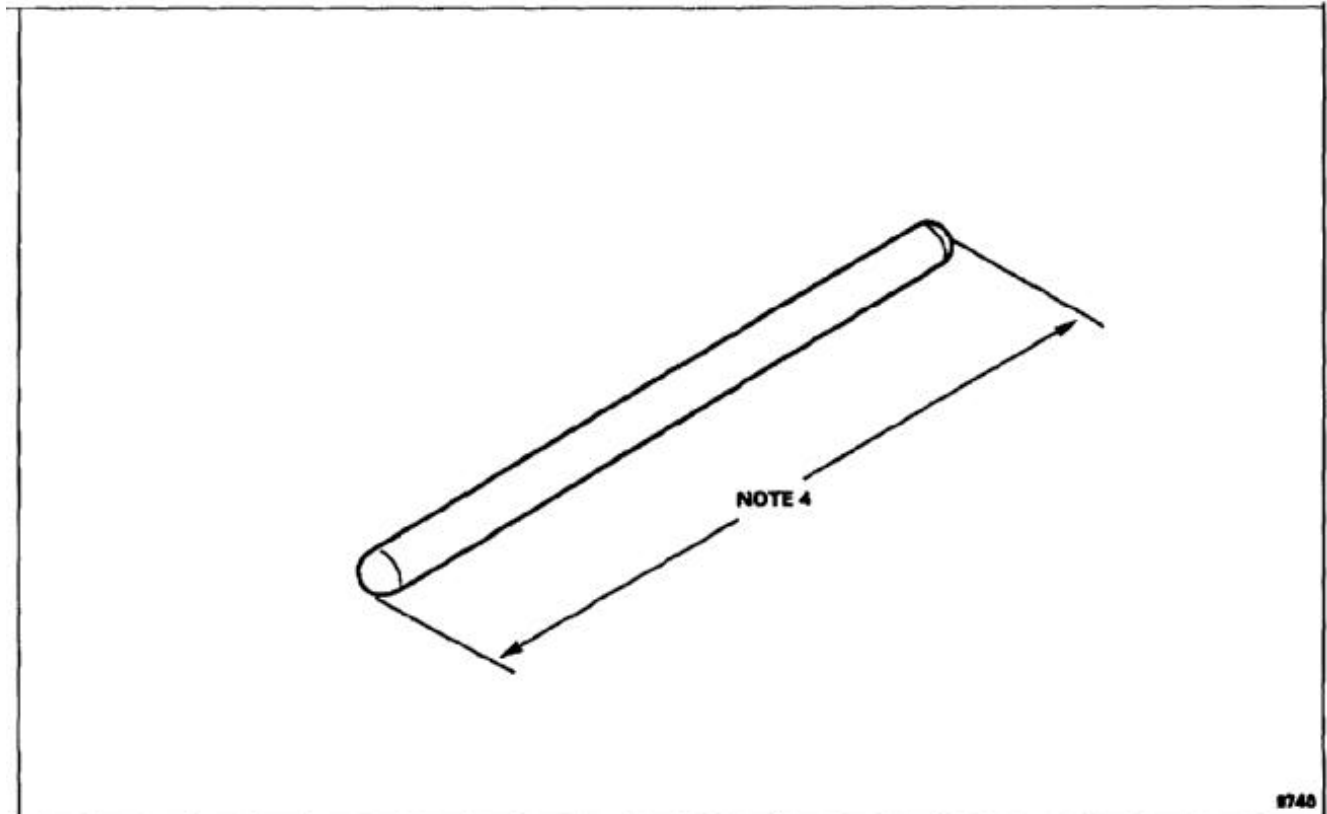
1. FABRICATE FROM AL ALY CLAD SHEET 2024-T4 PER QQ-A-362.
2. STOCK SIZE 0.025 X 0.62 X 15.2.
3. ALL DIMENSIONS IN INCHES.
4. USE ORIGINAL PART TO DETERMINE DIMENSIONS X AND Y.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE HINGE PIN FROM MS20253-P2  
NSN 5340-00-043-3723.
2. ALL DIMENSIONS IN INCHES.
3. CUT PINS TO LENGTH AND ROUND ENDS.  
REMOVE ALL BURRS AND SHARP EDGES.  
FINISH AS REQUIRED.
4. HINGE PIN LENGTHS:  
114S3613-39 49.3  
114S3613-43 48.8  
114S3613-41 48.8



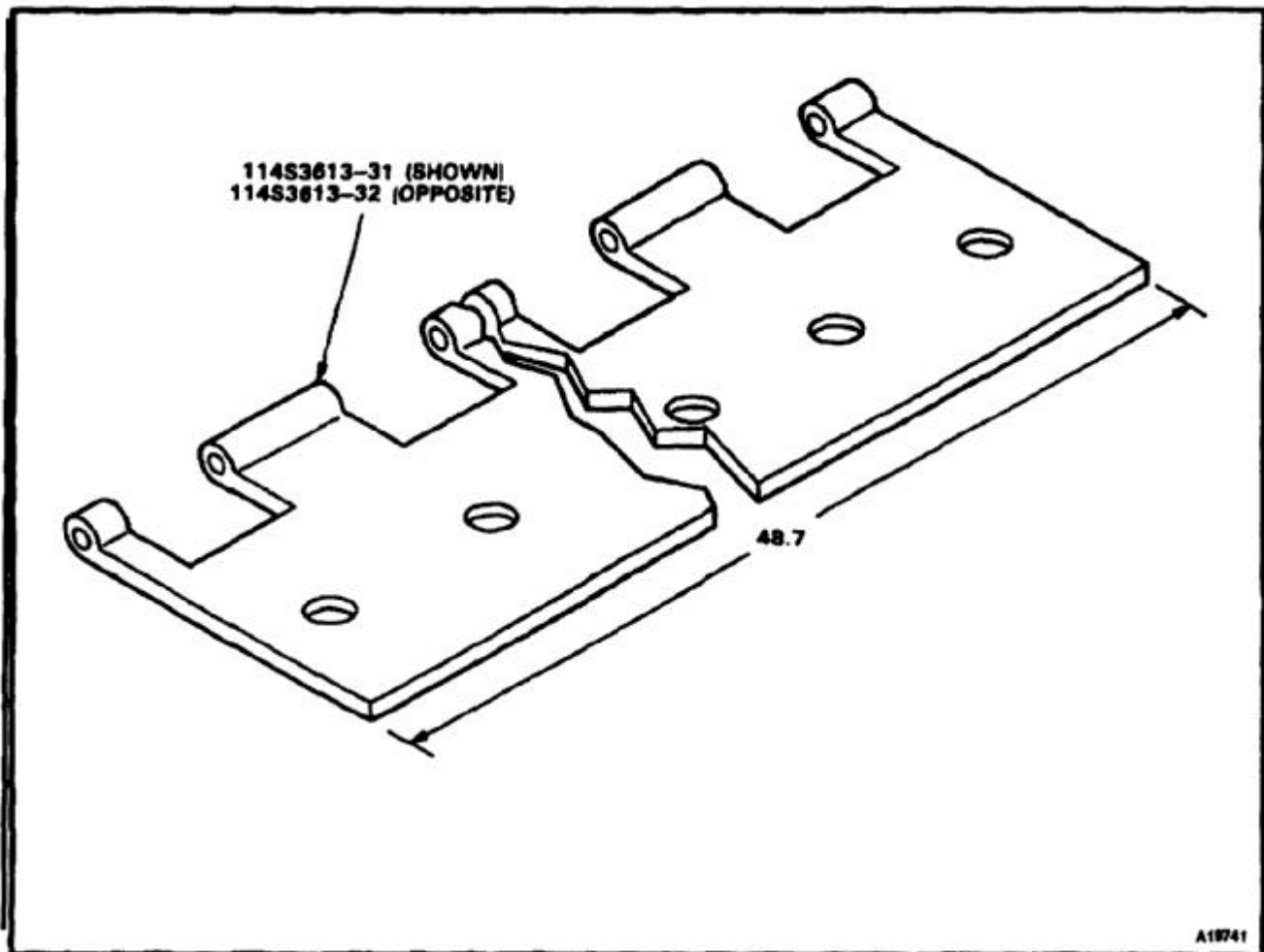
8740

END OF TASK



**NOTES:**

1. FABRICATE FROM MS20001PH9-7200, NSN 5340-00-807-1070.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL HINGE AS A TEMPLATE FOR PILOT HOLES.
4. FINISH AS REQUIRED.



END OF TASK

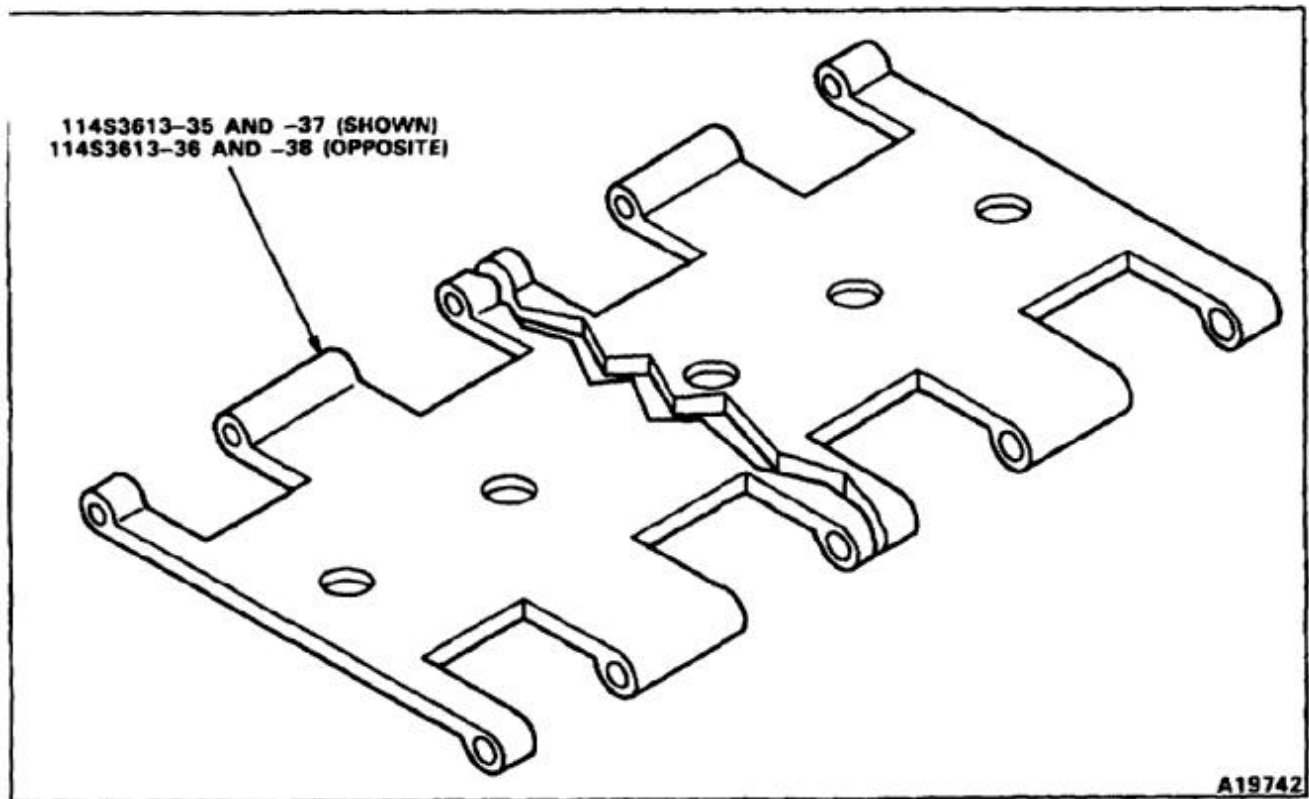
E-328

**NOTES:**

1. FABRICATE FROM VS20106-1 AL ALY EXTRUSION 2024-T4 ALCOA 137692 PER QQ-A-267 TO DIMENSIONS SPECIFIED IN NOTE 3.
2. ALL DIMENSIONS IN INCHES.
- 3.

PART NUMBER	MATERIAL	LENGTH
11483613-35 AND -36	VS20106-1	49.0
11483613-37 AND -38	VS20106	48.7

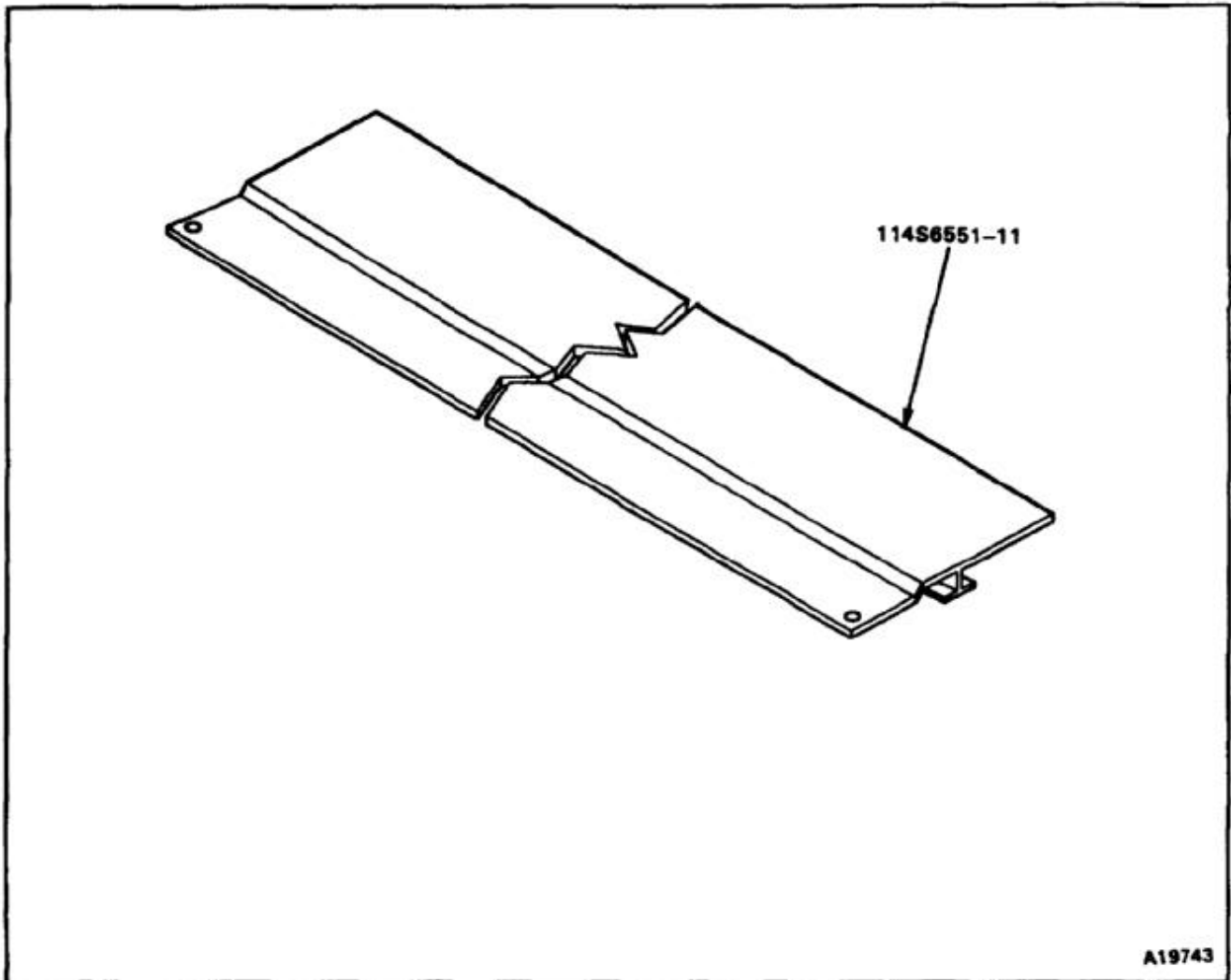
4. USE ORIGINAL HINGE AS A TEMPLATE FOR PILOT HOLES.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM VS90540 MAGNESIUM ALLOY EXTRUSION ZK60A-T5 PER QQ-M-31.
2. STOCK SIZE 91.4 INCHES.
3. USE ORIGINAL PANEL AS TEMPLATE. CUT AND DRILL NEW PANEL TO MATCH.
4. FINISH AS REQUIRED.

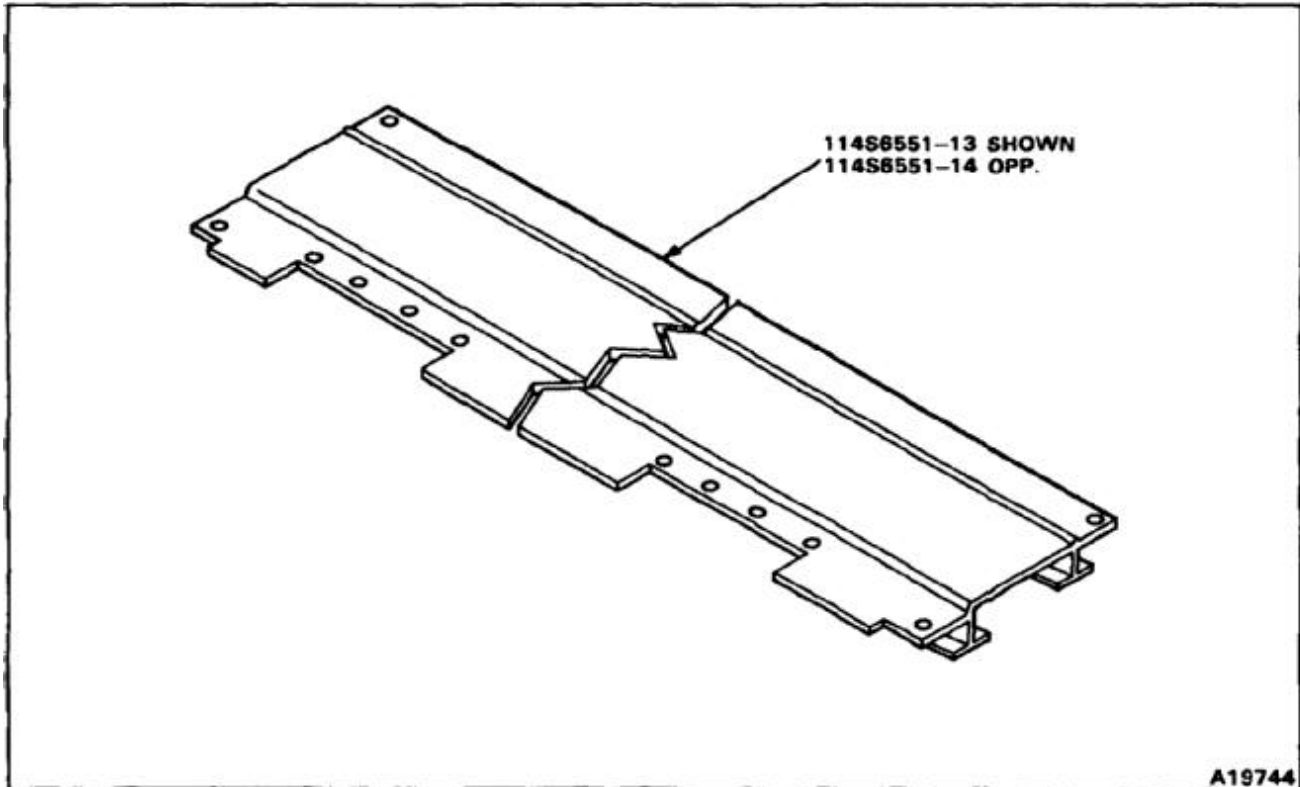


END OF TASK

E-330

**NOTES:**

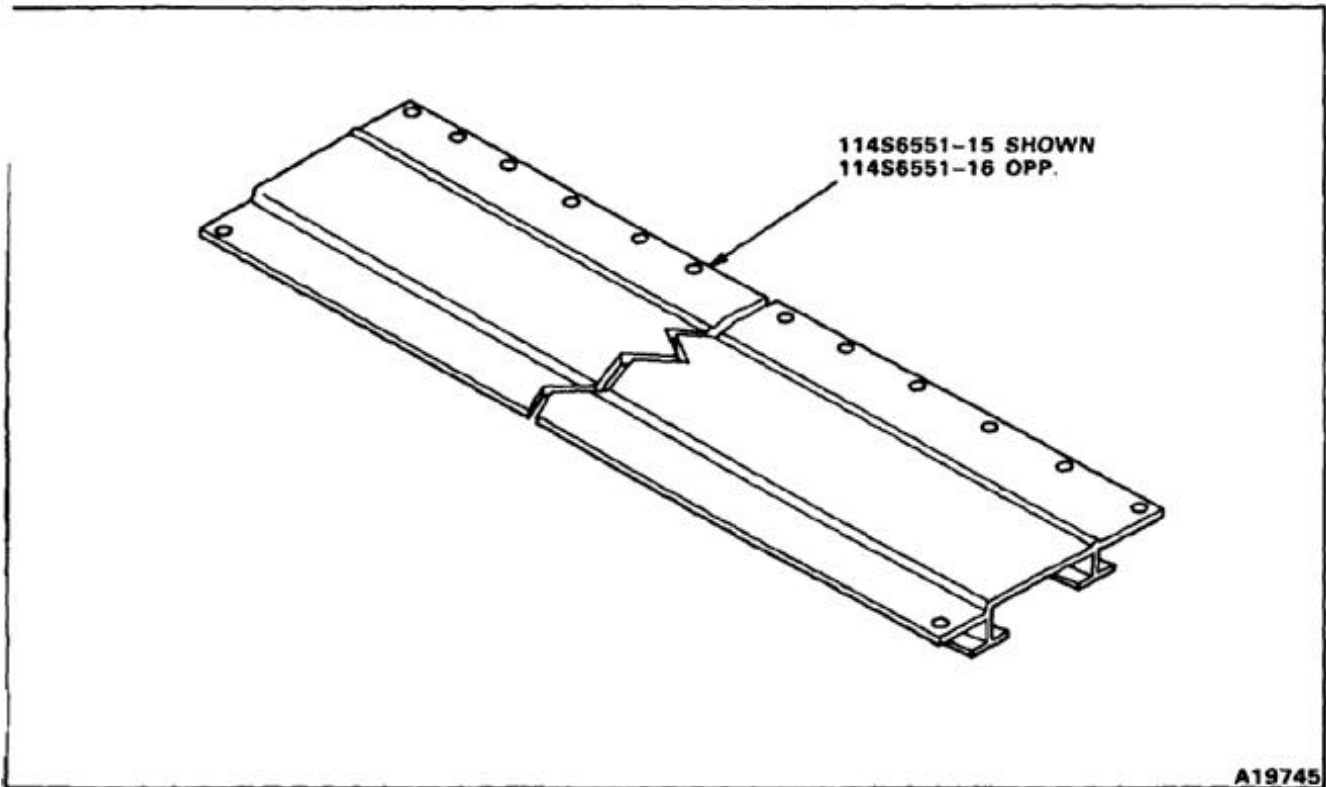
1. FABRICATE FROM VS90578 MAGNESIUM ALLOY EXTRUSION ZK60A-T5 PER QQ-M-31.
2. STOCK SIZE 91.4 INCHES.
3. USE ORIGINAL PANEL AS TEMPLATE. CUT AND DRILL NEW PANEL TO MATCH.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM VS90578 MAGNESIUM ALLOY EXTRUSION ZK60A-T5 PER QQ-M-31.
2. STOCK SIZE 91.4 INCHES.
3. USE ORIGINAL PANEL AS TEMPLATE. CUT AND DRILL NEW PANEL TO MATCH.
4. FINISH AS REQUIRED.

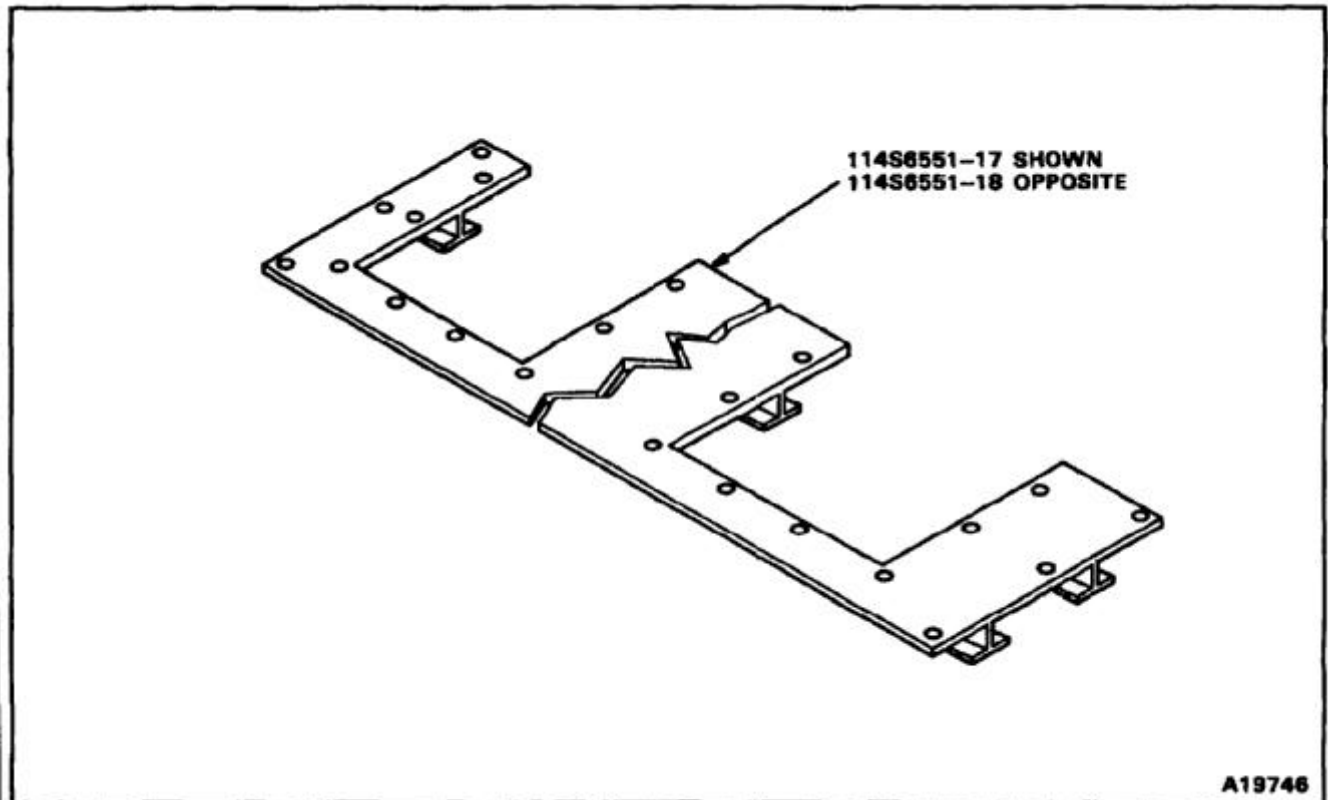


END OF TASK

E-332

**NOTES:**

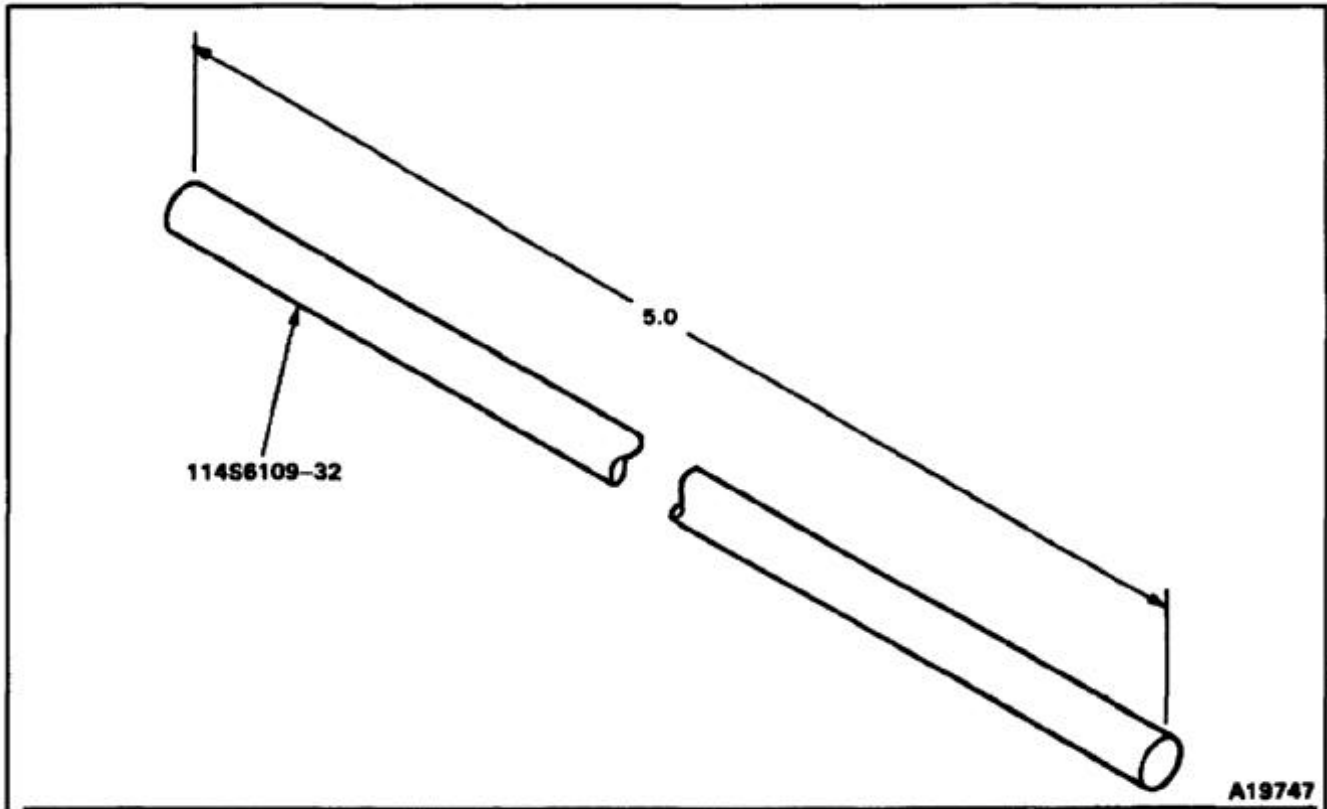
1. FABRICATE FROM VS90579 MAGNESIUM ALLOY EXTRUSION ZK60A-T5 PER QQ-M-31.
2. STOCK SIZE 91.4 INCHES.
3. USE ORIGINAL PANEL AS TEMPLATE. CUT AND DRILL NEW PANEL TO MATCH.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM MS20253P5 CADMIUM PLATED CORROSION RESISTANT STEEL.
2. STOCK SIZE 5.0 INCHES.

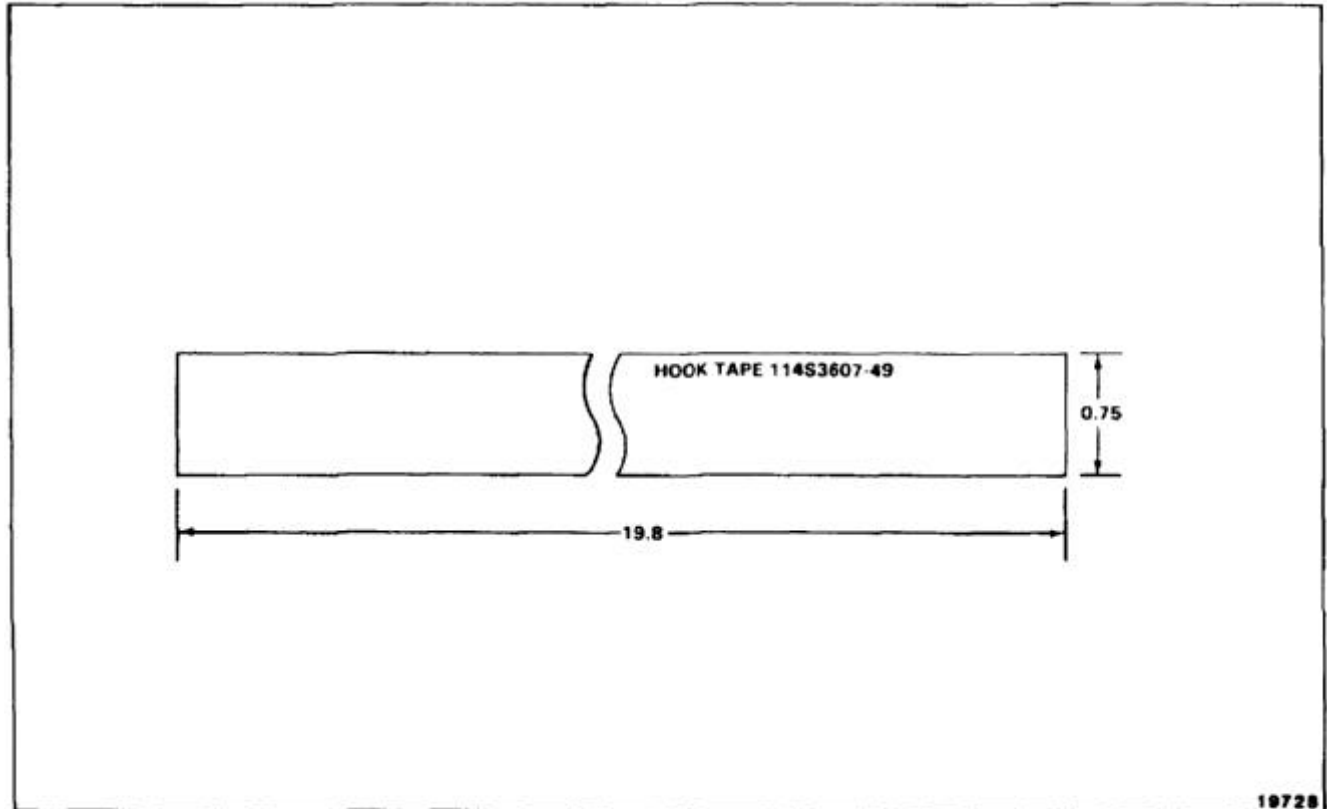


END OF TASK

E-334

**NOTES:**

1. FABRICATE FROM VELCRO 80 HOOK TAPE, COLOR NO. 320.
2. STOCK SIZE 0.75 X 19.8.
3. ALL DIMENSIONS IN INCHES.

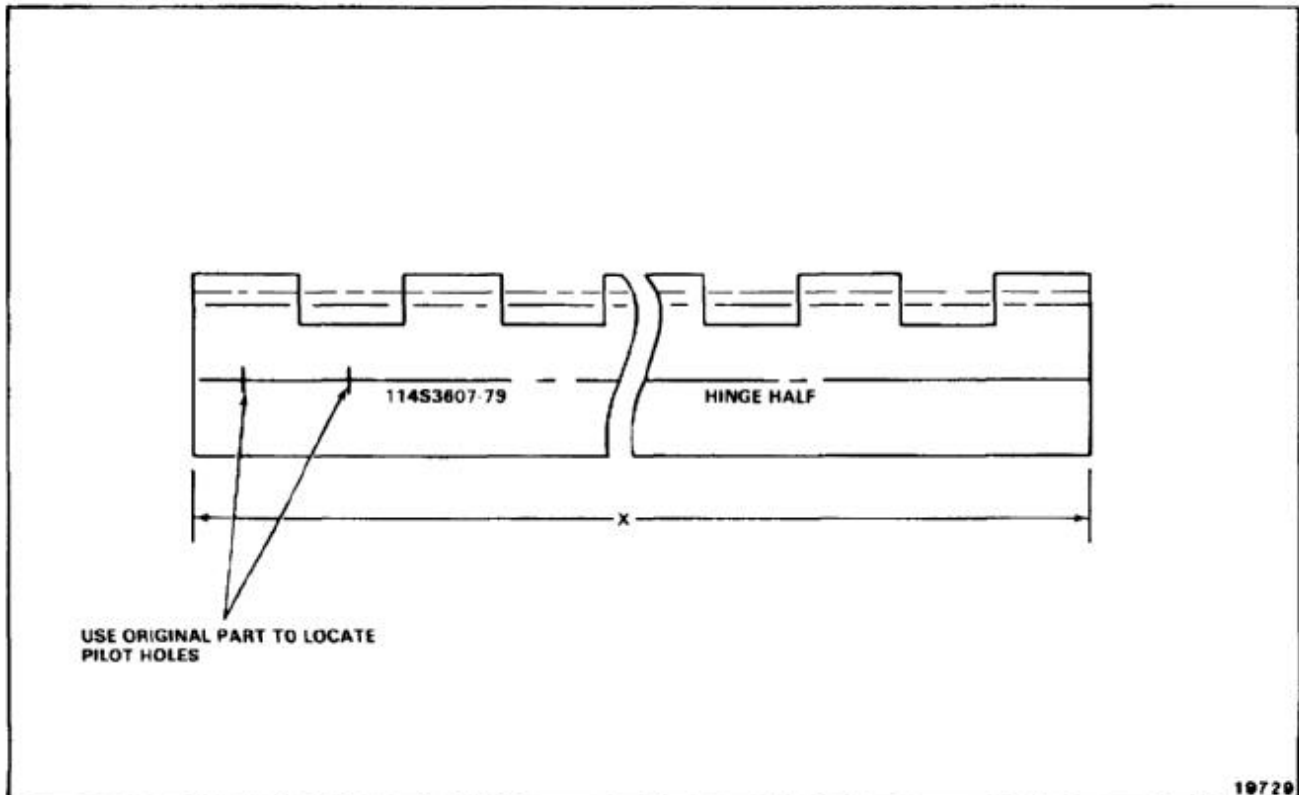


END OF TASK



**NOTES:**

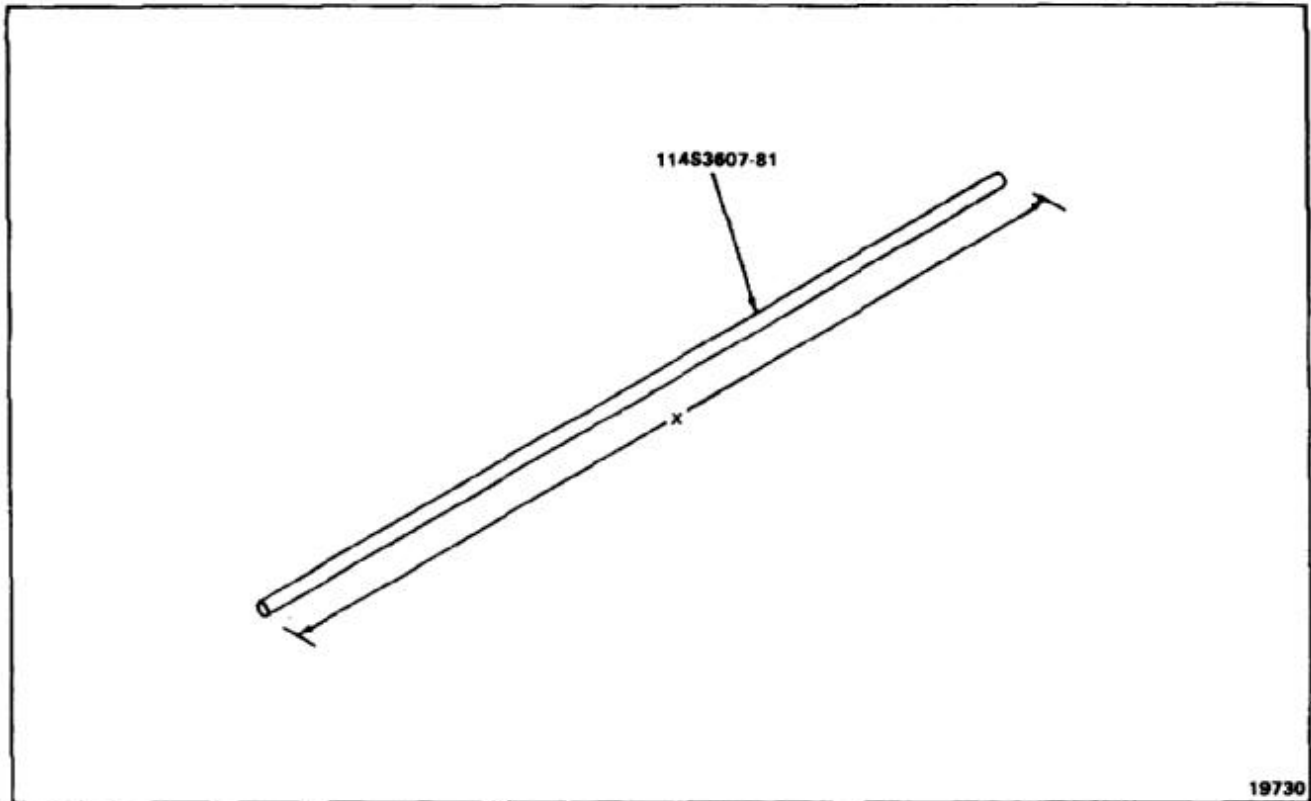
1. FABRICATE FROM MS20001Y6-5417.
2. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND X DIMENSION.
3. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

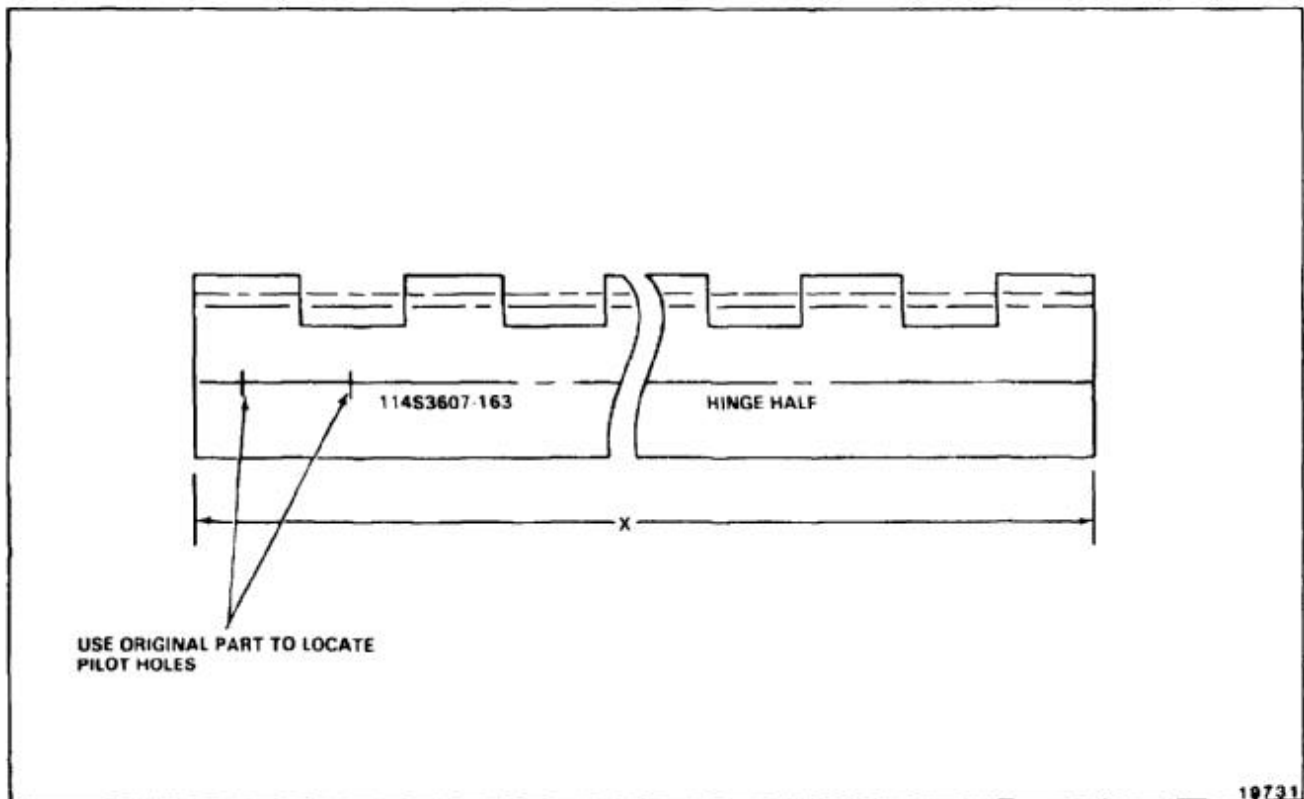
1. FABRICATE FROM MS20253P2-5417.
2. USE ORIGINAL HINGE PIN TO DETERMINE X DIMENSION.
3. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM MS20001PX6-5350.
2. USE ORIGINAL HINGE HALF TO DETERMINE PILOT HOLE LOCATIONS AND X DIMENSION.
3. FINISH AS REQUIRED.

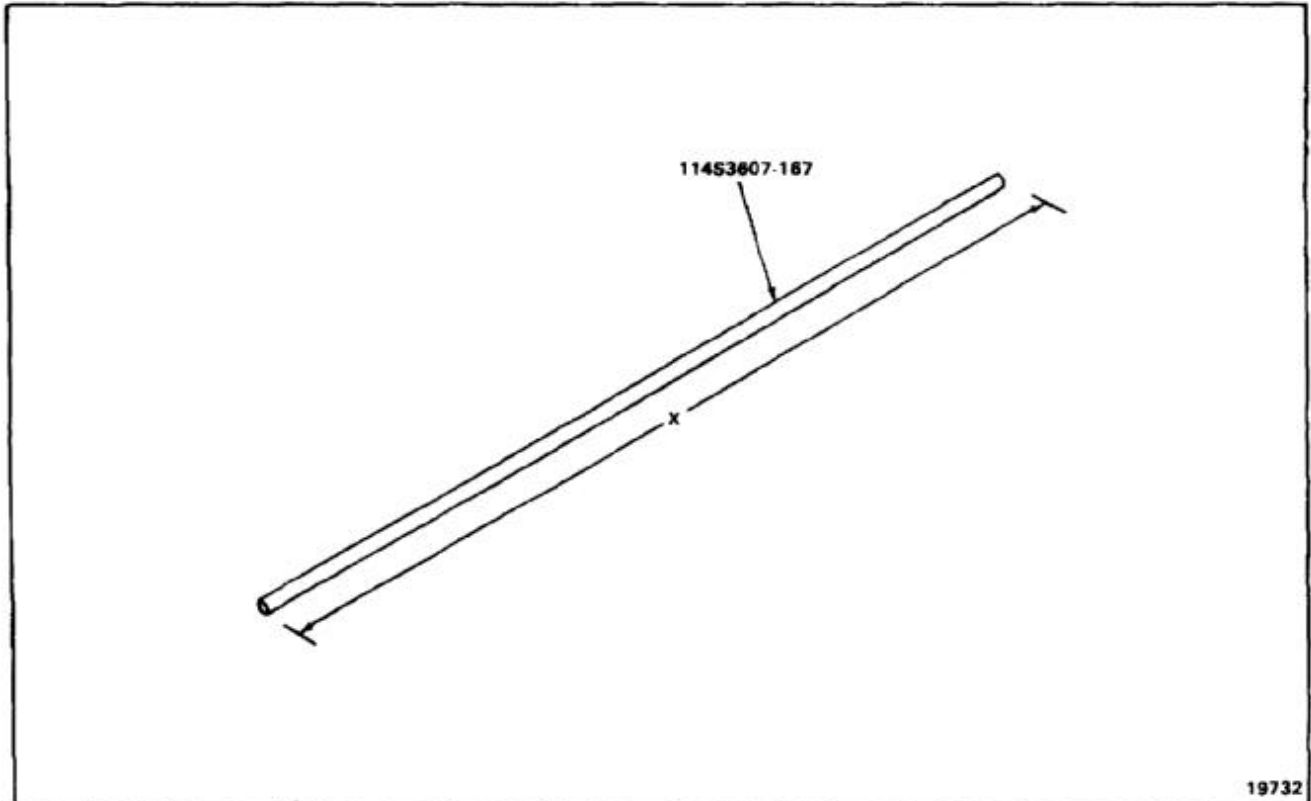


END OF TASK

E-338

**NOTES:**

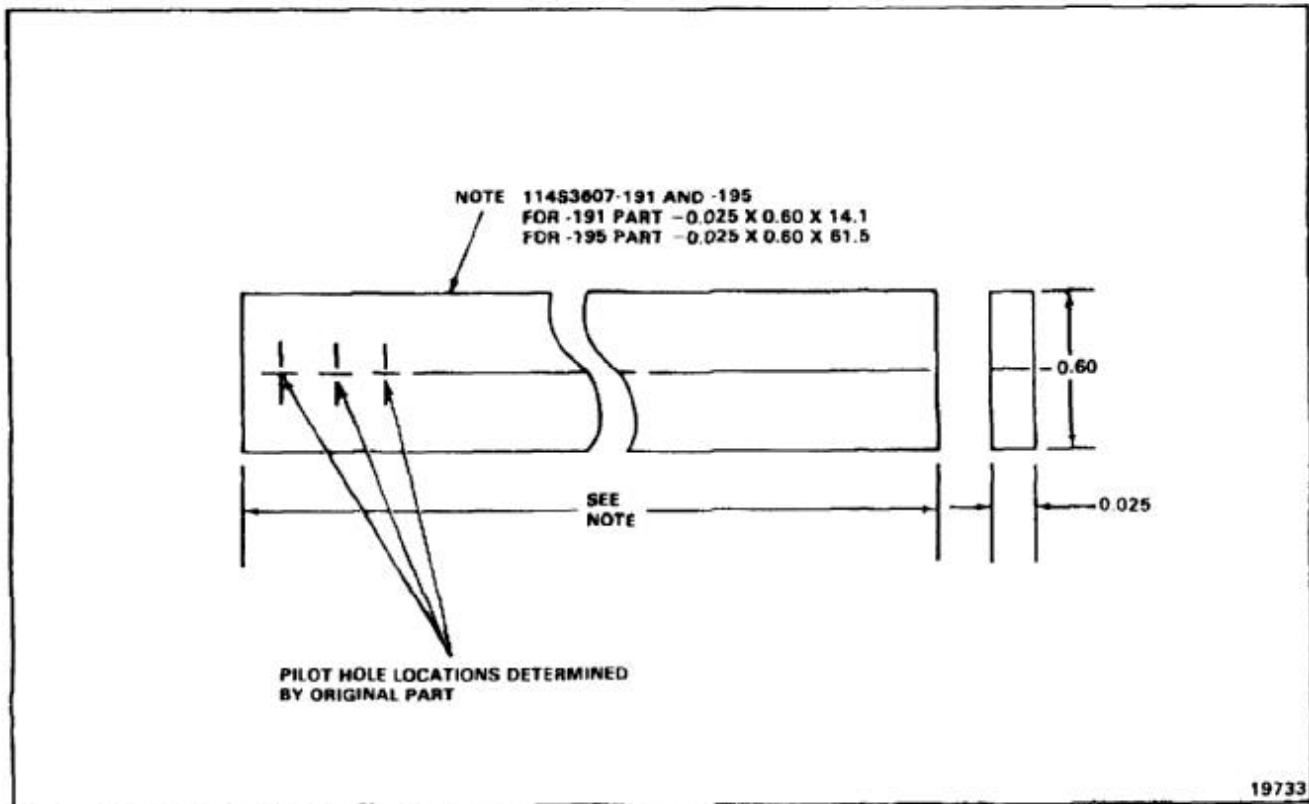
1. FABRICATE FROM MS20253P2-5365.
2. USE ORIGINAL HINGE PIN TO DETERMINE X DIMENSION.
3. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

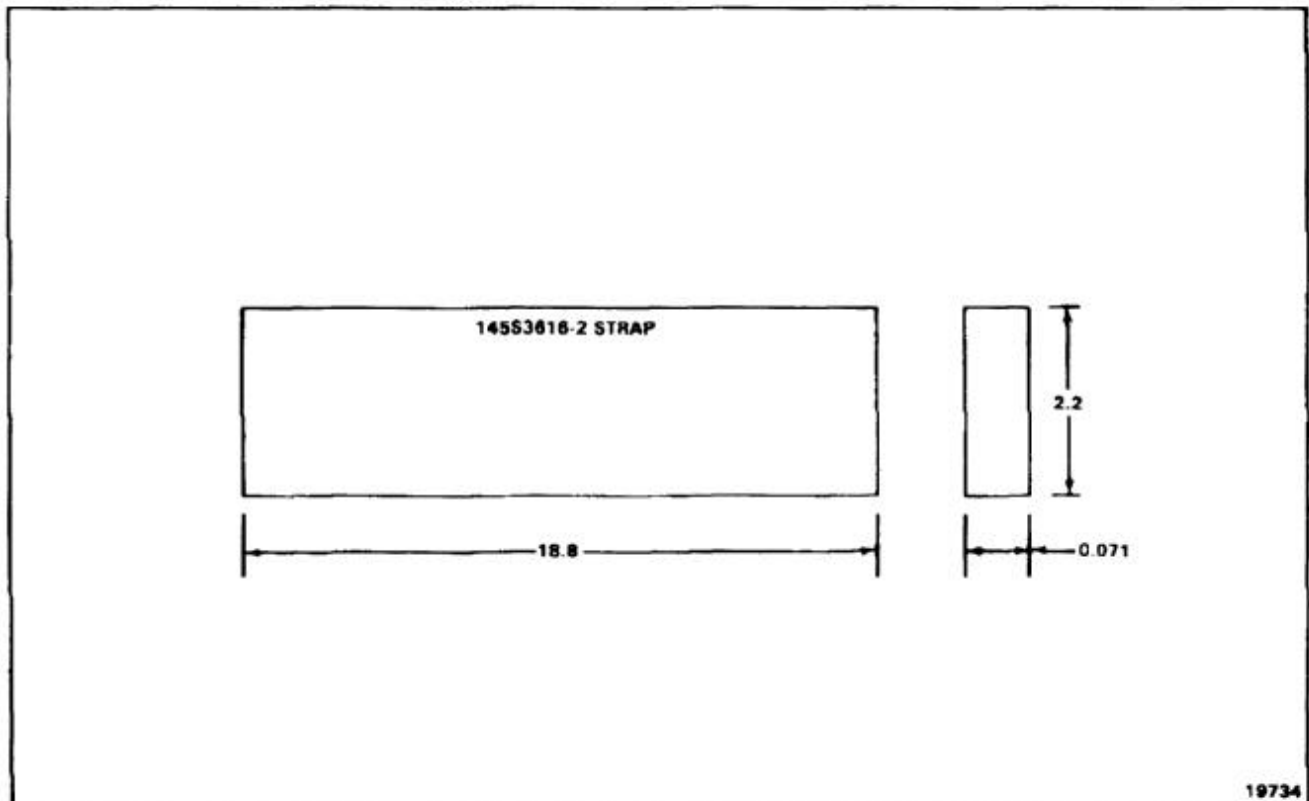
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHT 2024-T4 PER QQ-A-362.
2. STOCK SIZE -191: 0.025 X 0.60 X 14.1.  
STOCK SIZE -195: 0.025 X 0.60 X 61.5.
3. ALL DIMENSIONS IN INCHES.
4. PILOT HOLE LOCATIONS TO BE DETERMINED FROM ORIGINAL PART.
5. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY BARE SHEET 7075-T6 PER QQ-A-250/12.
2. STOCK SIZE 0.071 X 2.2 X 18.8.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.

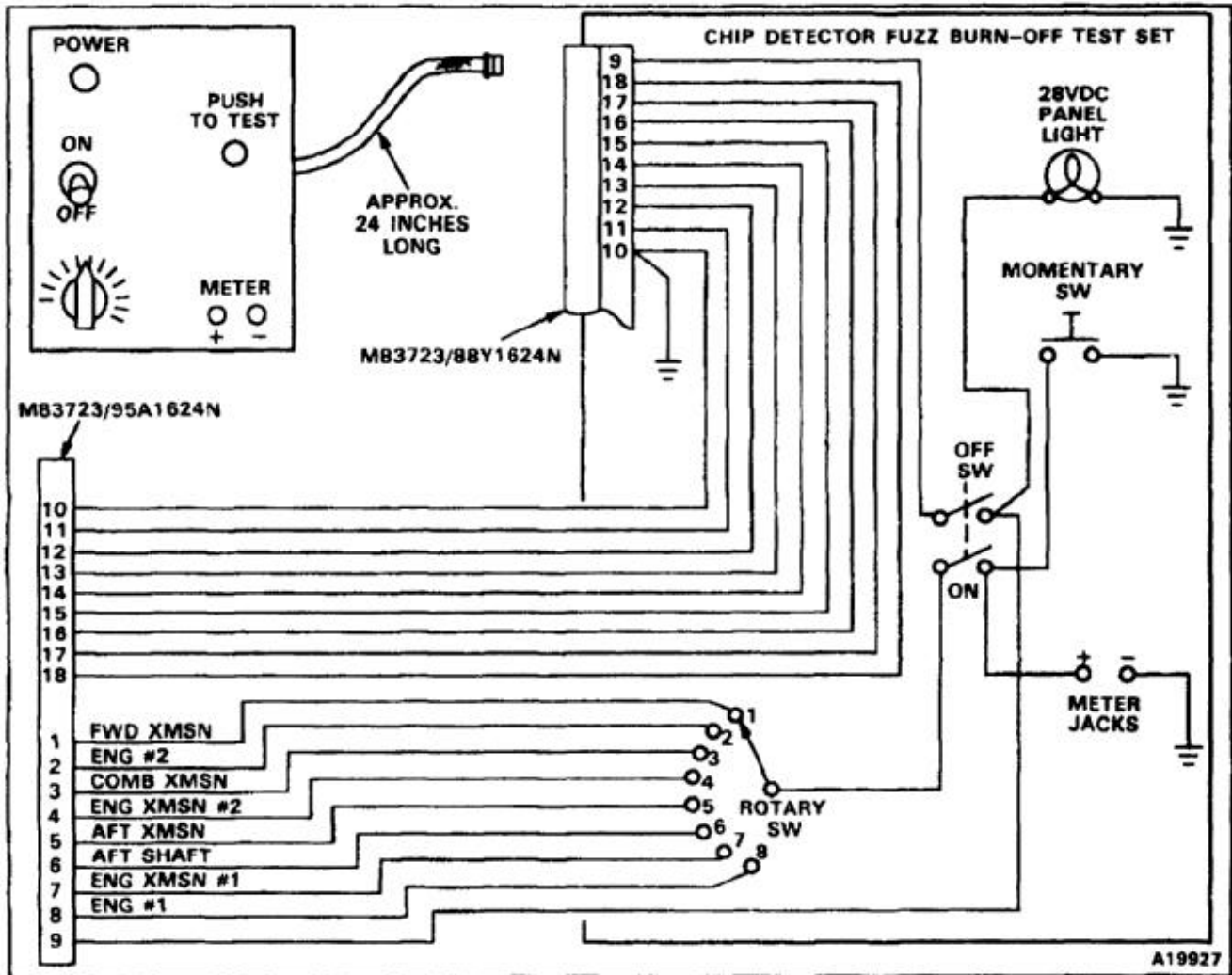


END OF TASK

NOTE:

FABRICATE FROM:

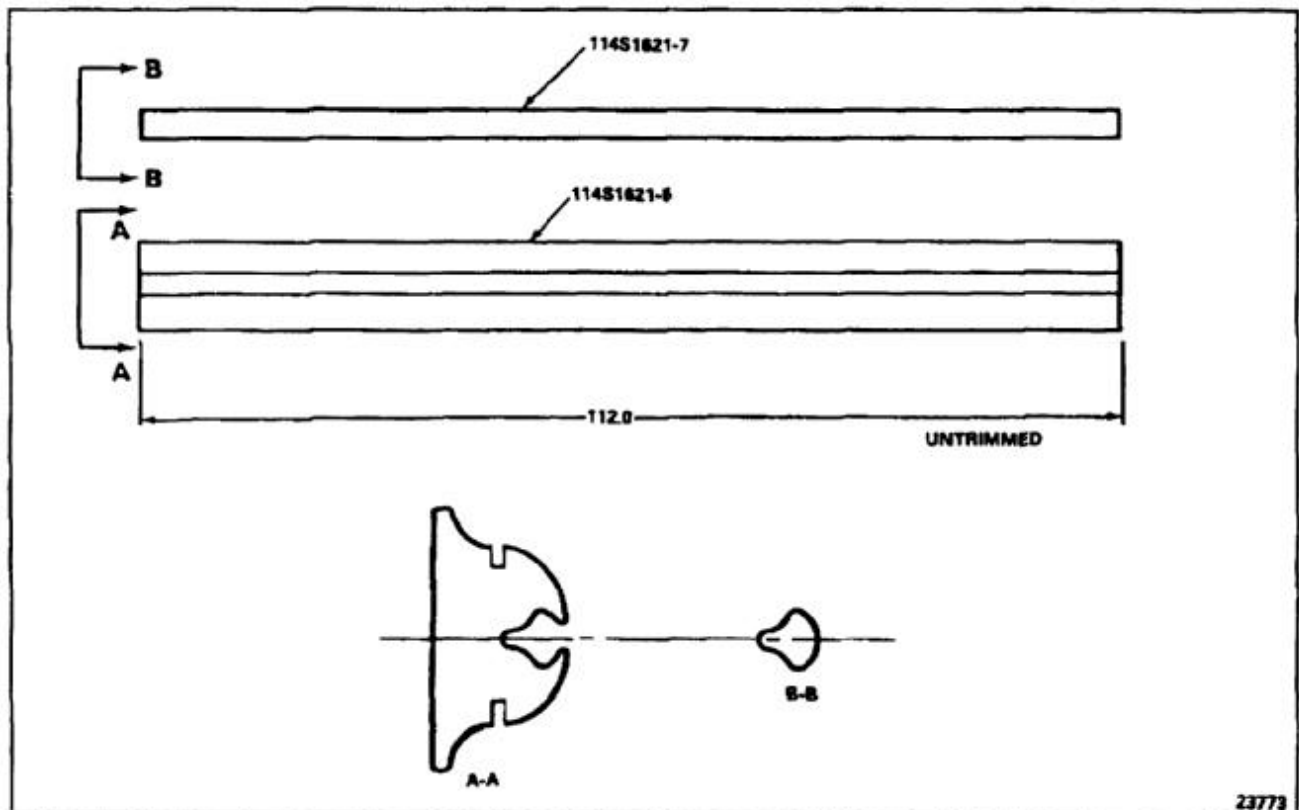
CABINET (SIZE OPTIONAL)	PORTACAB 91F615	TYPE WA-1540	QTY 1
ROTARY SWITCH	PA100 NON-SHORT	22F801	QTY 1
KNOB	P-120	22F646	QTY 1
CONNECTOR	M83723/88Y1624N		QTY 1
CONNECTOR	M83723/95A1624N		QTY 1
LAMP HOLDER	25F1291		QTY 1
PANEL LIGHT	SHORT CYL. 28VDC	25F1434 (RED)	QTY 1
MOMENTARY SWITCH	PUSHBUTTON SPST	23F050	QTY 1
TOGGLE SWITCH	DPST OFF-ON	23F025 (6T2)	QTY 1
JACK	(MUST MATE WITH MULTIMETER TEST LEADS)		QTY 2
	1 RED, 1 BLACK		
WIRE	#22 AWG (STRANDED)		QTY A/R



**E-267 UPPER CABIN DOOR ESCAPE HATCH RUBBER SEAL 114S1621-5 AND SEAL FILLER 114S1621-7 E-267**

**NOTES:**

1. FABRICATE SEAL FROM VS80570-2 BLACK SEAL, NSN 9390-00-937-2611 OR VS80570-1 GREY SEAL, NSN 9390-00-849-6239.
2. FABRICATE SEAL FILLER FROM VS80569-3 BLACK FILLER, NSN NOT AVAILABLE OR VS80569-2 GREY FILLER, NSN 5330-01-218-3259 OR 33197R FILLER, NSN 9390-00-379-2615.
3. ALL DIMENSIONS IN INCHES.
4. TRIM TO FIT AT INSTALLATION.



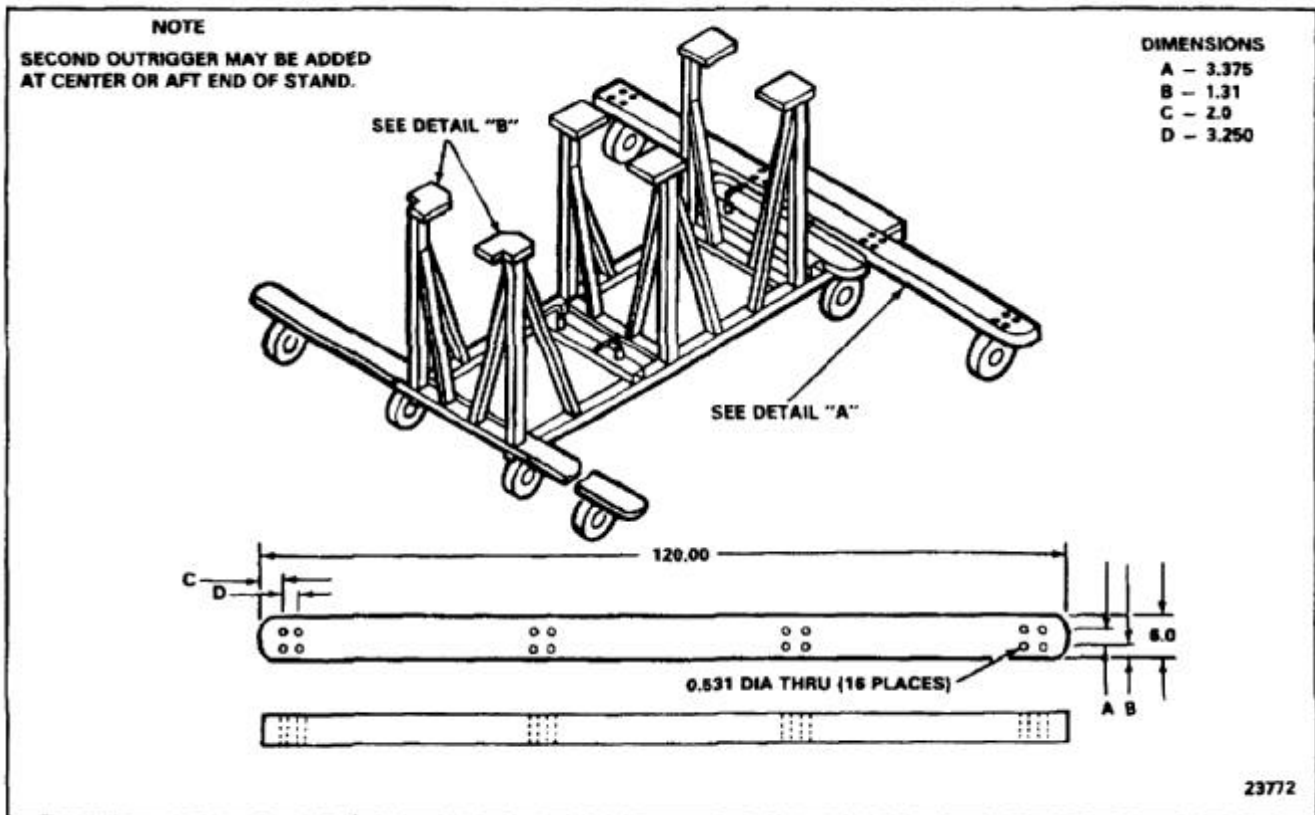
END OF TASK



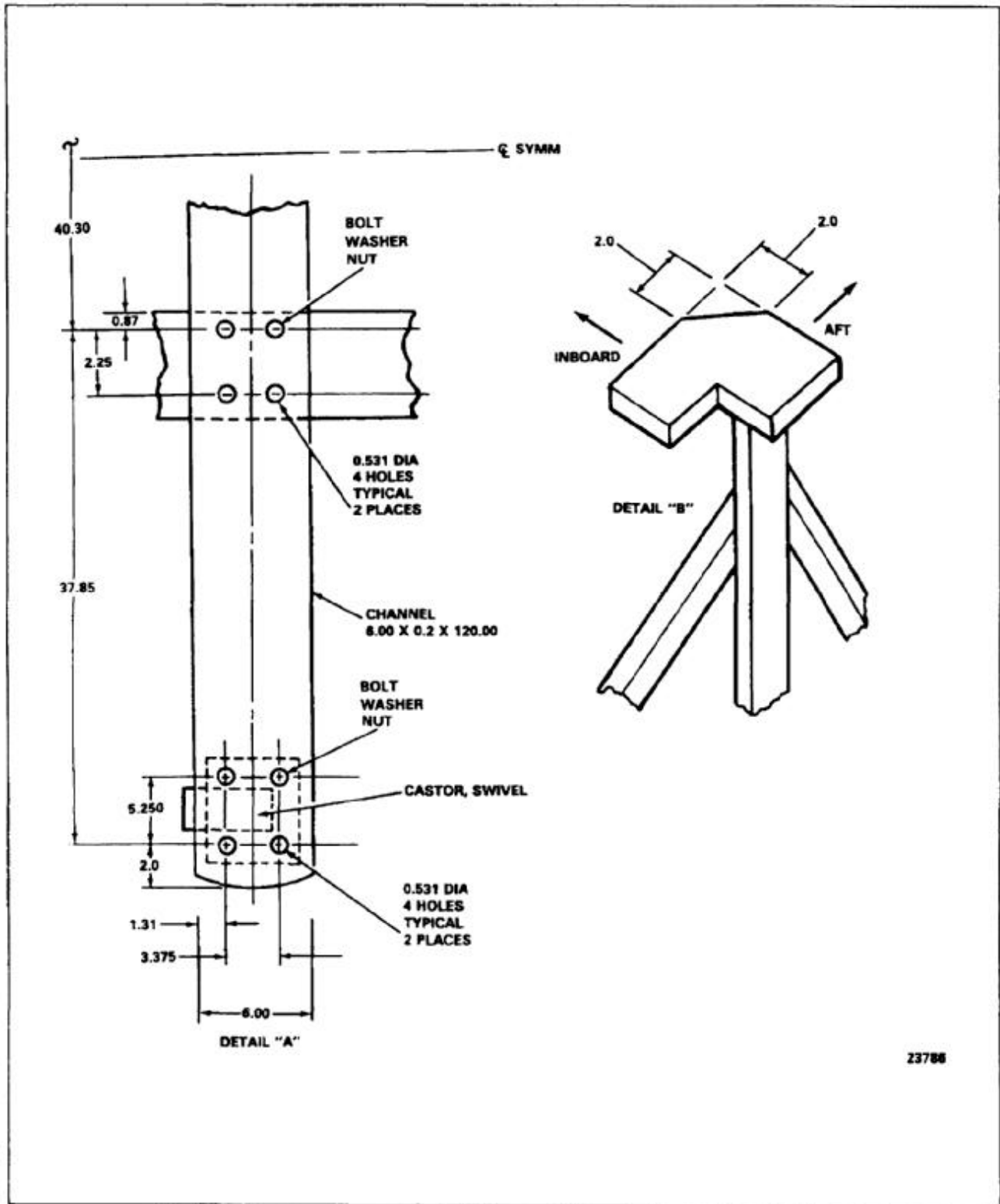
**NOTES:**

FABRICATE FROM:

1. STEEL ASTM A36, NSN 9520-00-596-1877
2. CASTER, SWIVEL, S8996R2, NSN 5340-00-489-3491
3. BOLT, HEX HEAD, AN8-11A, NSN 5306-00-208-3646
4. NUT, SELF LOCKING, MS21045-8, NSN 5310-00-062-4954
5. WASHER, AN960-816, NSN 5310-00-332-0813
6. ALL DIMENSIONS IN INCHES,



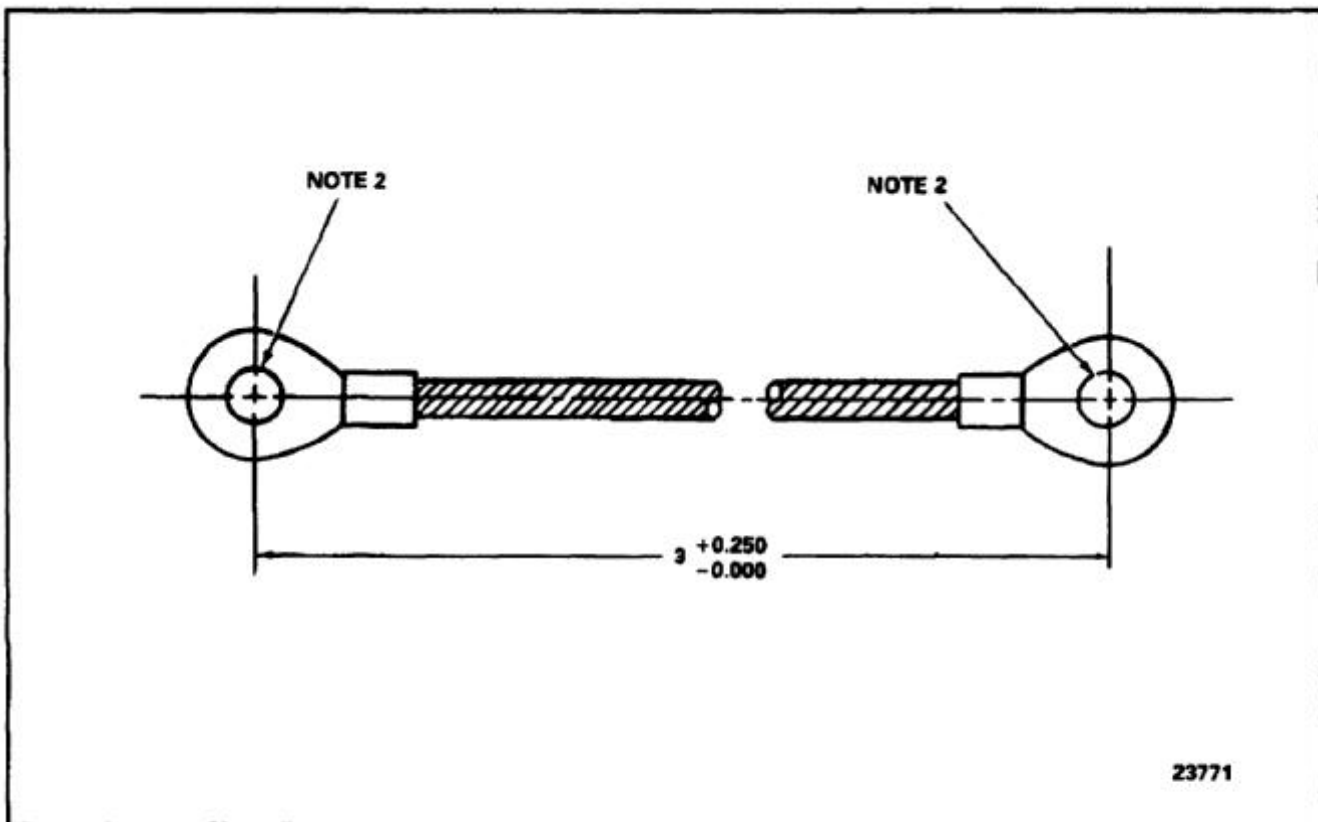
E-268 OUTRIGGER ASSEMBLY 1730CH47-002 FOR VERTICAL PYLON HANDLING SKID  
114E5856-22 (Continued)



END OF TASK

**NOTES:**

1. FABRICATE ELECTRICAL LEAD (NO NSN) FROM ALUMINUM STRANDED ALUMINUM WIRE AWG10 AND TERMINALS.
2. STOCK IS:  
WIRE, AWG10, NSN 6145-00-926-3344  
TERMINAL MS25036-111,  
NSN 5940-00-204-8990, HOLE DIAMETER IS 0.142 TO 0.152 AND ACCOMMODATES NUMBER 4 OR 6 STUD.  
TERMINAL MS25036-112,  
NSN 5940-00-143-4794, HOLE DIAMETER IS 0.193 TO 0.203 AND ACCOMMODATES NUMBER 8 OR 10 STUD.
3. ATTACH TERMINALS (MS25036-111 AND -112) TO WIRE WITH CRIMPING TOOL (MS25441).
4. ALL DIMENSIONS IN INCHES,

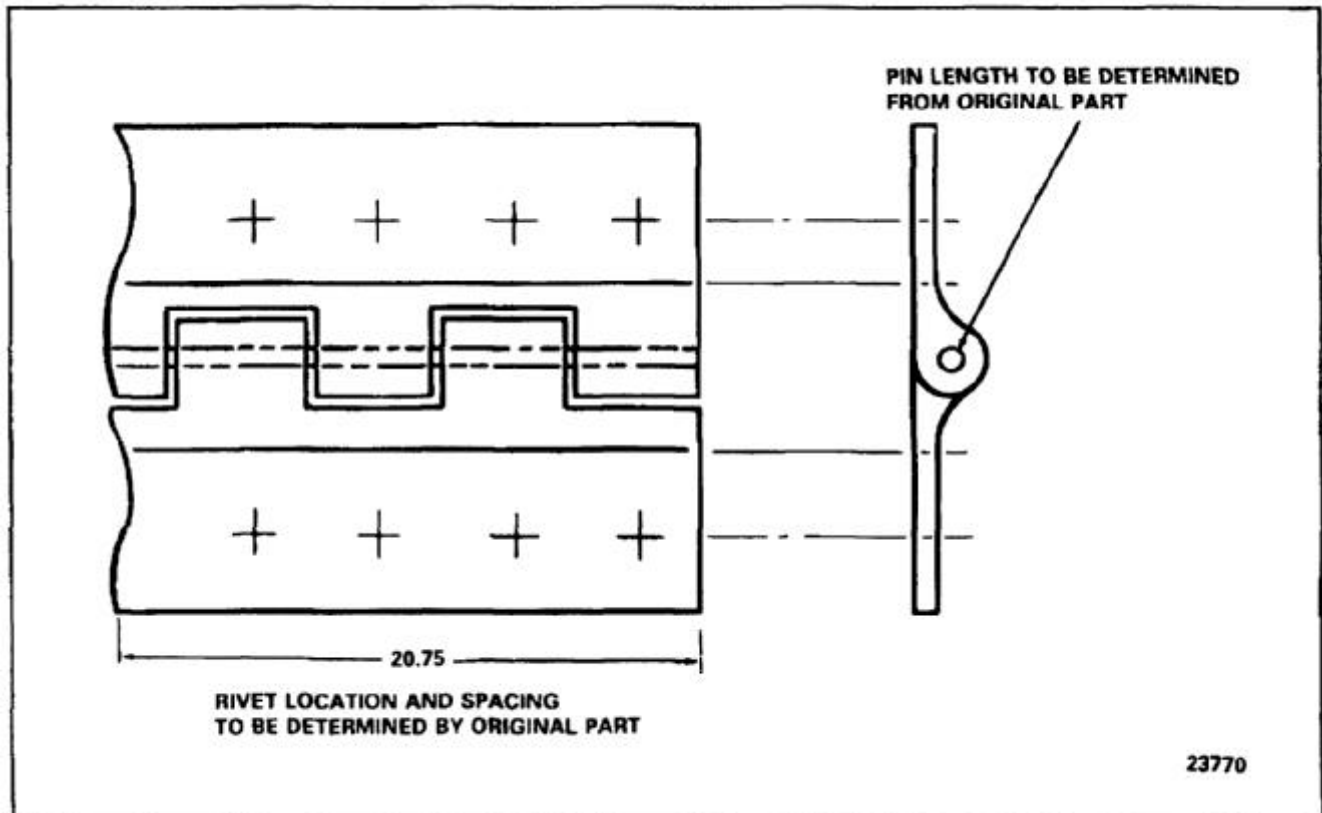


END OF TASK

E-346

**NOTES:**

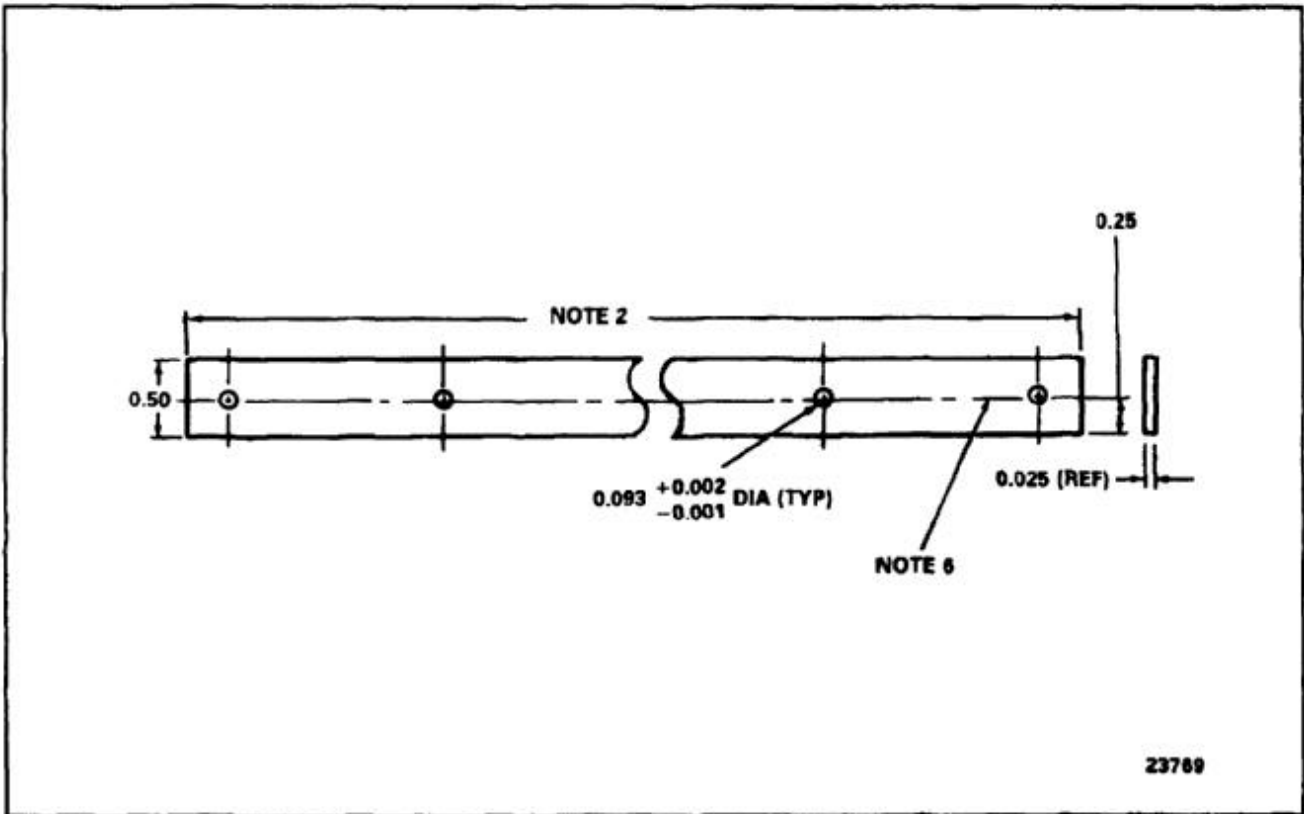
1. FABRICATE HINGE ASSEMBLY FROM MS20001-P8.
2. FABRICATE PIN FROM MS20253-2.
3. FINISH AS REQUIRED.
4. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

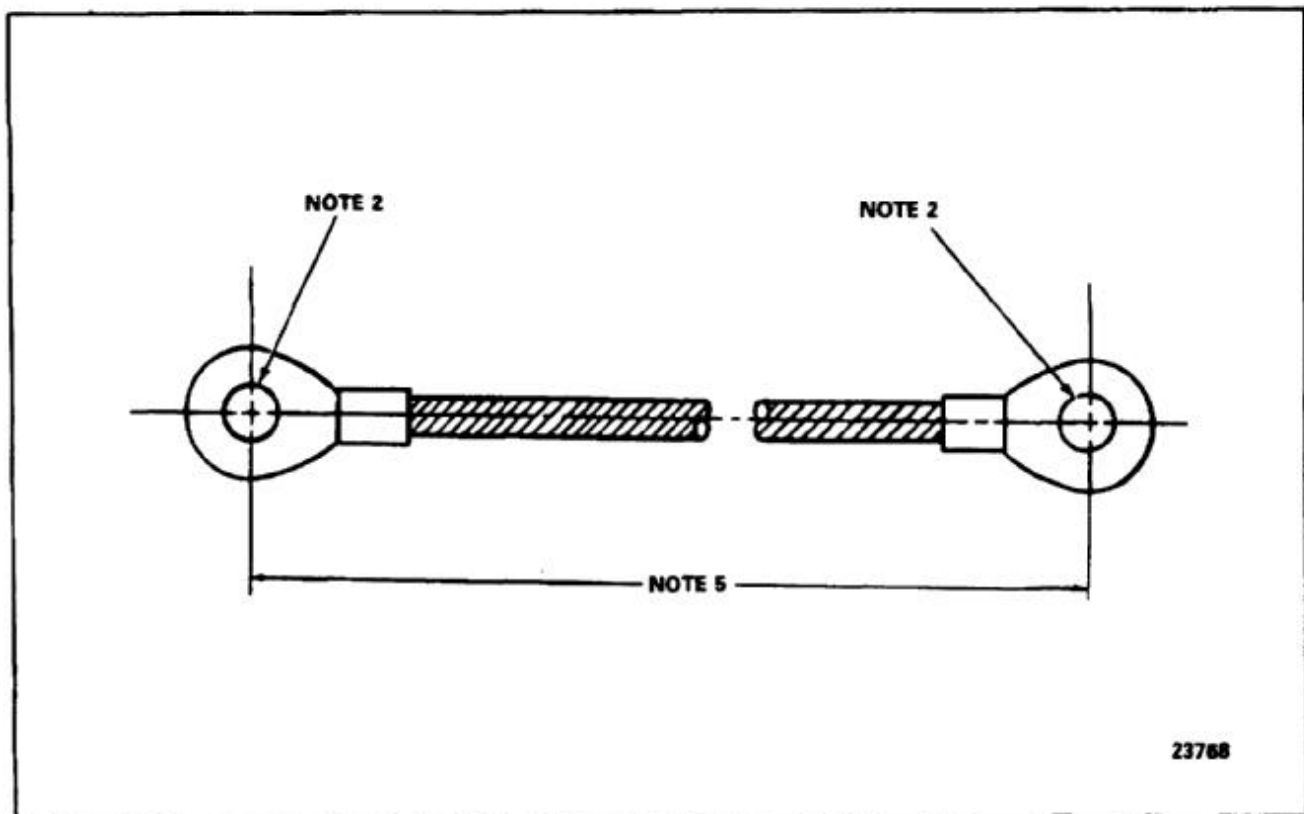
1. FABRICATE RETAINING STRIPS FROM ALUMINUM ALLOY 2024-T4 CLAD SHEET METAL, NSN 9535-00-167-2278.
2. LENGTH FOR VS25201-030-1935 IS 19.35 INCHES. LENGTH FOR VS25201-030-2560 IS 25.60 INCHES,
3. ALL DIMENSIONS IN INCHES.
4. ±TOLERANCES 0.03 UNLESS OTHERWISE NOTED.
5. MATCH DRILL SEAL RETAINING STRIPS TO EXISTING HOLES. BREAK ALL SHARP EDGES (0.005 MAX).
6. ALODIZE PER MIL-C-5541.
7. APPLY ONE COAT OF ZINC CHROMATE PRIMER, FSM 8010-00-515-2208 PER MIL-P-8585, TB746-93-Z.
8. MARK PART BY INK STAMPING.



END OF TASK

**NOTES:**

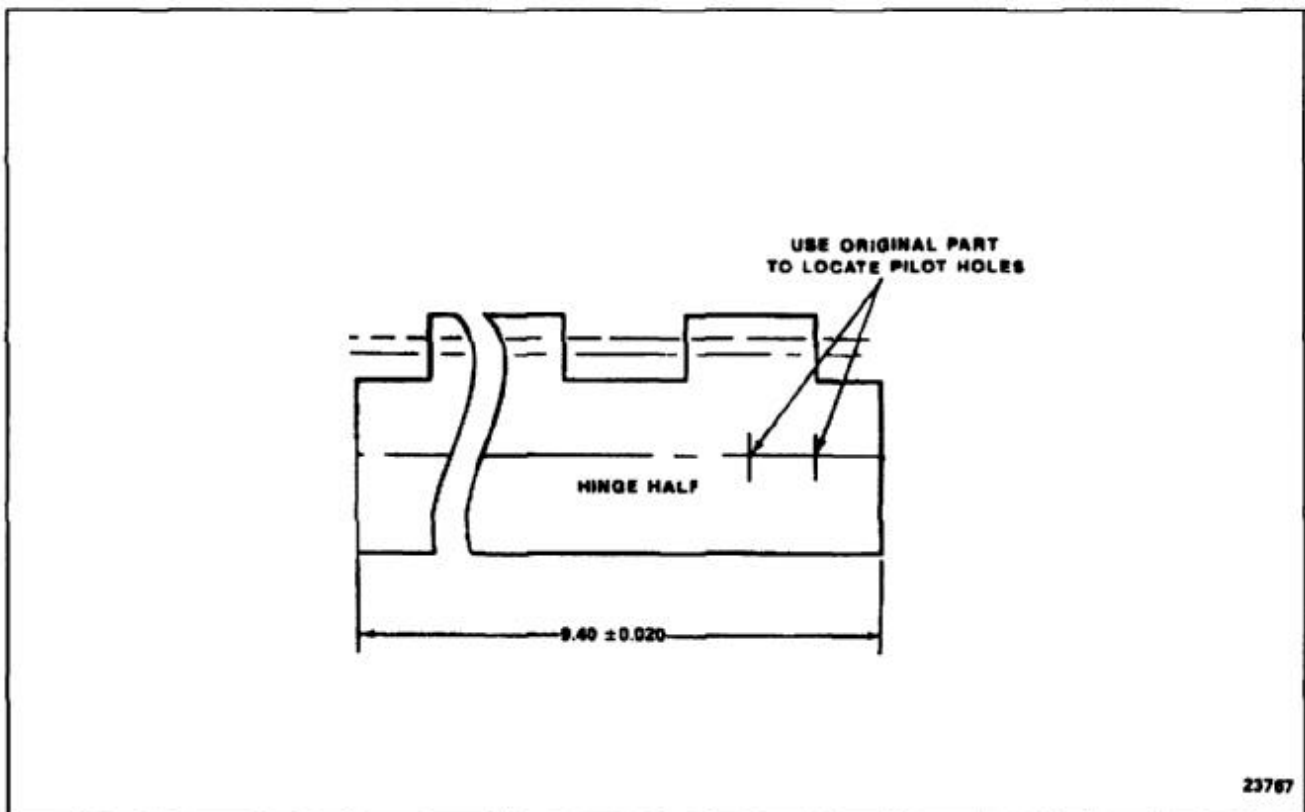
1. FABRICATE ELECTRICAL LEADS, NSN 6150-00-655-2512 AND NSN 6150-00-807-9802, FROM ALUMINUM STRANDED WIRE SIZE AWG10 AND TERMINALS.
2. WIRE, AWG10, NSN 6145-00-926-3344. TERMINAL, MS25036-112, NSN 5940-00-143-4794. HOLE DIAMETER IS 0.193 TO 0.203 AND ACCOMMODATES NUMBER 8 OR 10 STUD.
3. ATTACH TERMINALS (MS25036-112) TO WIRE WITH CRIMPING TOOL (MS25441).
4. ALL DIMENSIONS IN INCHES.
5. LENGTH FOR MS25083-1BB7 IS  
7 +0.250  
- 0.000  
  
LENGTH FOR MS25083-1BB10 IS  
10 +0.250  
- 0.000



END OF TASK

**NOTES:**

1. FABRICATE HALF HINGE FROM MS20001H8-940.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND SHAPE. HALF HINGE MATES WITH HALF HINGE.
4. FINISH AS REQUIRED. ALODINE PER MIL-C-5541. APPLY ONE COAT OF ZINC CHROMATE PRIMER, NSN 8010-00-515-2208, PER MIL-P-8585, TB746-93-2.

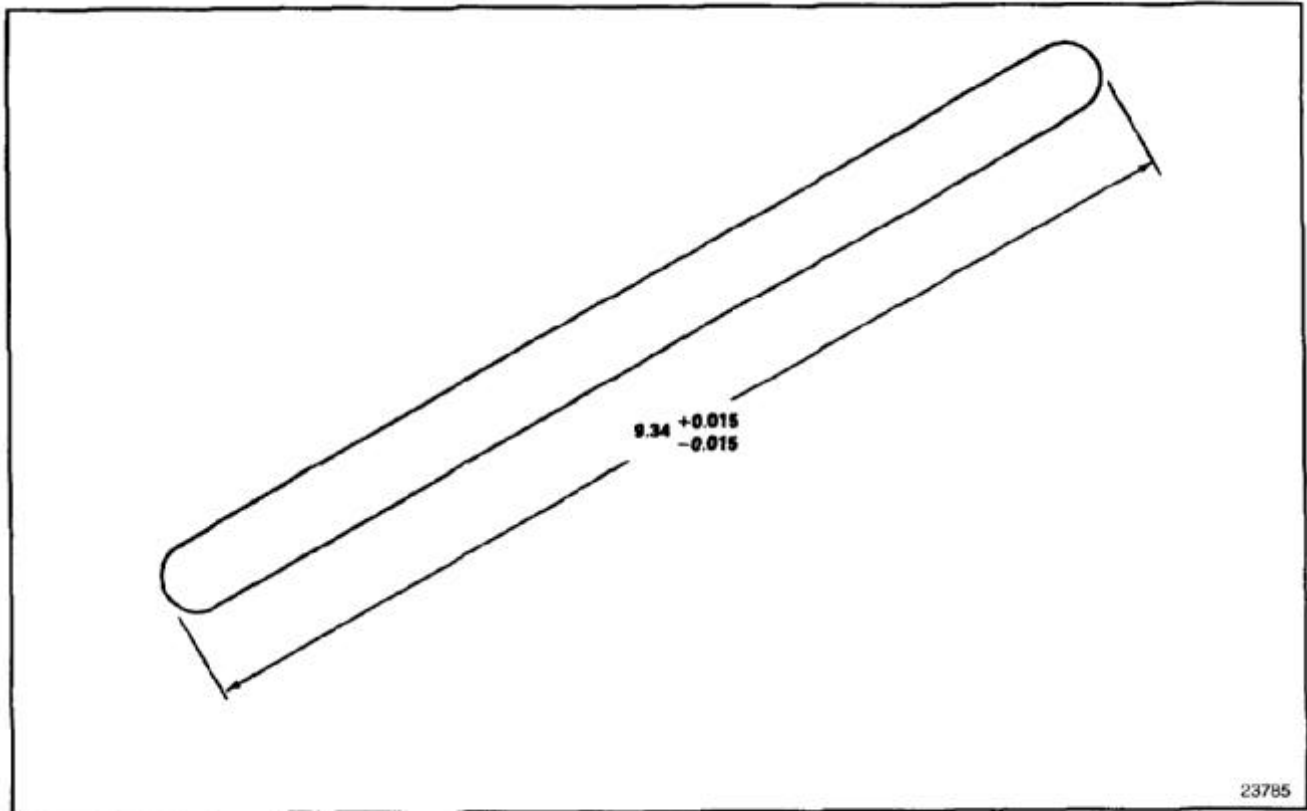


END OF TASK

E-350

**NOTES:**

1. FABRICATE HINGE PIN FROM MS20253P4,  
NSN 5340-00-043-3724.
2. ALL DIMENSIONS IN INCHES.
3. CUT PINS TO LENGTH AND ROUND ENDS.  
REMOVE ALL BURRS AND SHARP EDGES.
4. FINISH AS REQUIRED.

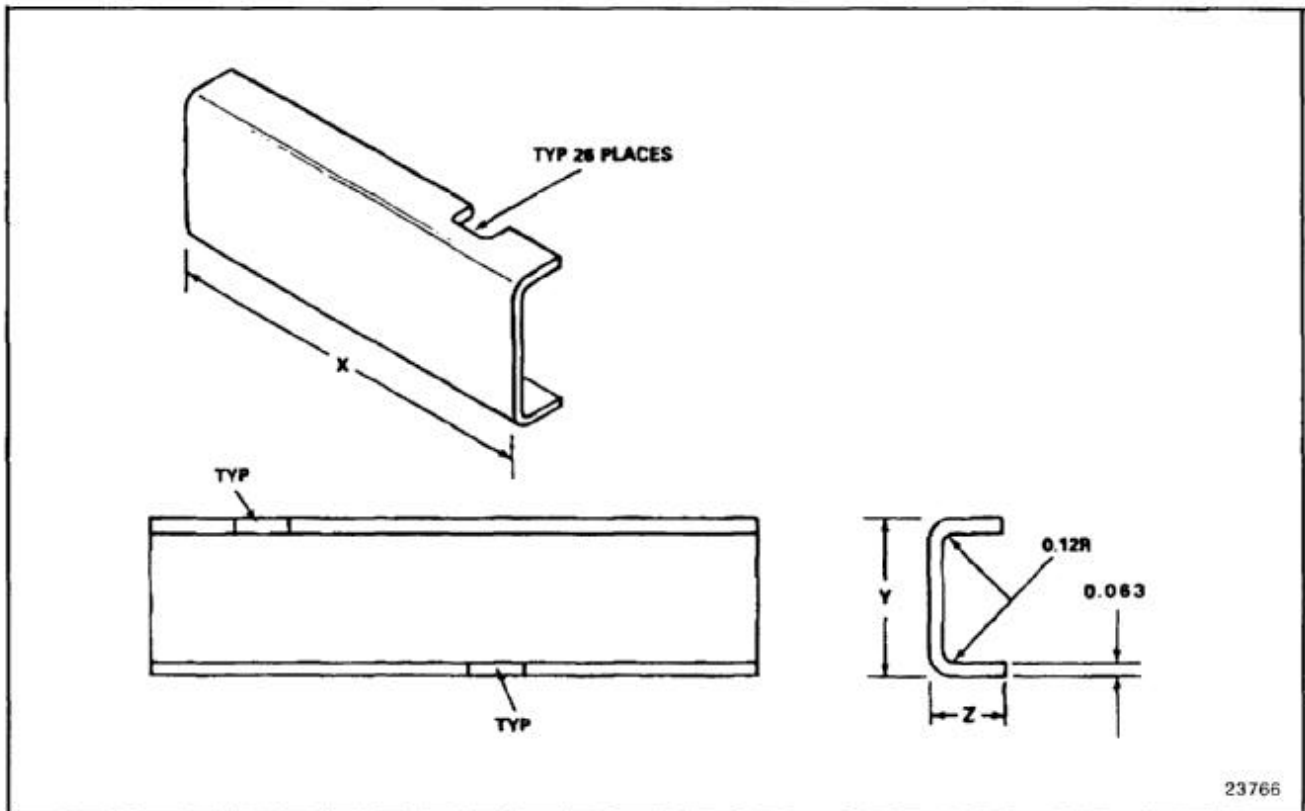


END OF TASK



**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T0 PER QQ-A-250/5.
2. STOCK SIZE 0.063 X 2.0 X 105.0.
3. DIMENSIONS ARE IN INCHES.
4. USE ORIGINAL CHANNEL TO DETERMINE DIMENSIONS X, Y, Z AND SHAPE. SOLUTION HEAT TREAT TO T42 PER MIL-H-6088 AFTER FORMING.
5. FINISH AS REQUIRED.

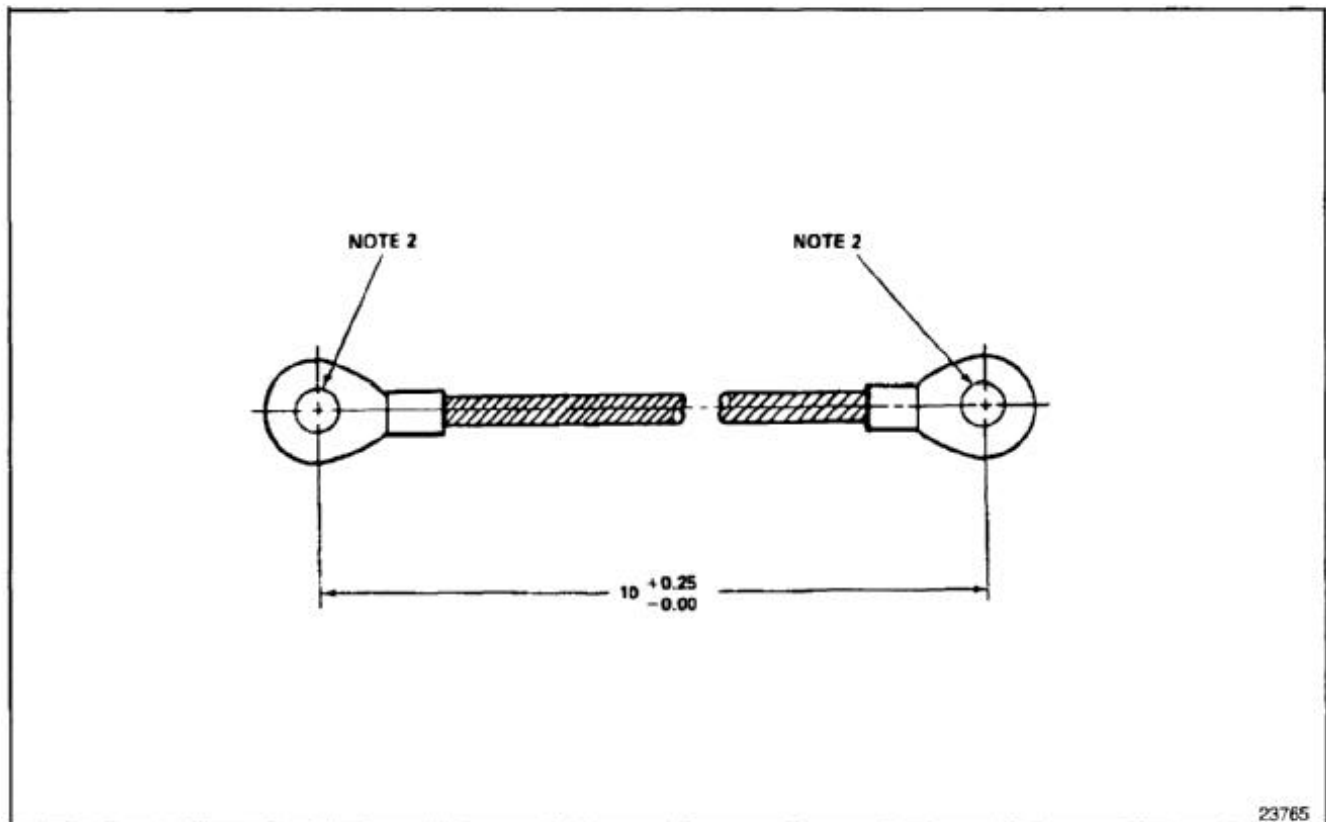


END OF TASK

E-352

**NOTES:**

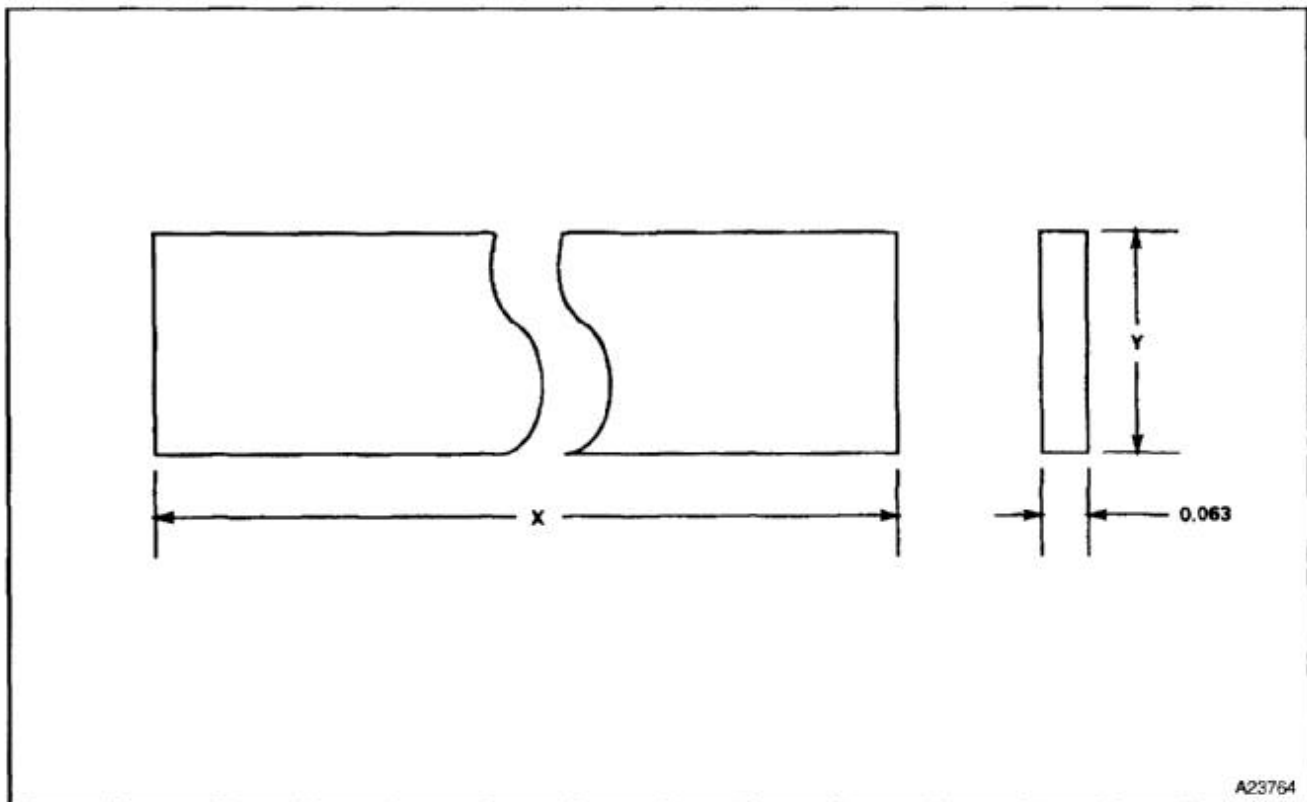
1. FABRICATE ELECTRICAL LEAD (NO NSN) FROM STRANDED ALUMINUM WIRE SIZE AWG10 AND TERMINALS.
2. WIRE, AWG10, (NSN 6145-00-926-3344) TERMINAL, MS25036-112, (NSN 5904-00-204-8990), HOLE DIAMETER IS 0.142 TO 0.152 AND ACCOMMODATES NUMBER 8 OR 10 STUD. TERMINAL, MS25036-152 (NSN 5940-00-143-4777), HOLE DIAMETER IS 0.250 TO 0.285 AND ACCOMMODATES 0.250 STUD.
3. ATTACH TERMINALS (MS25036-112 AND 157) TO WIRE WITH CRIMPING TOOL (MS25441).
4. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. ALL DIMENSIONS IN INCHES.
3. FINISH AS REQUIRED.
4. STOCK SIZE:  
X = 2.9  
Y = 1.7
5. USE ORIGINAL PART TO DETERMINE DIMENSIONS X AND Y.

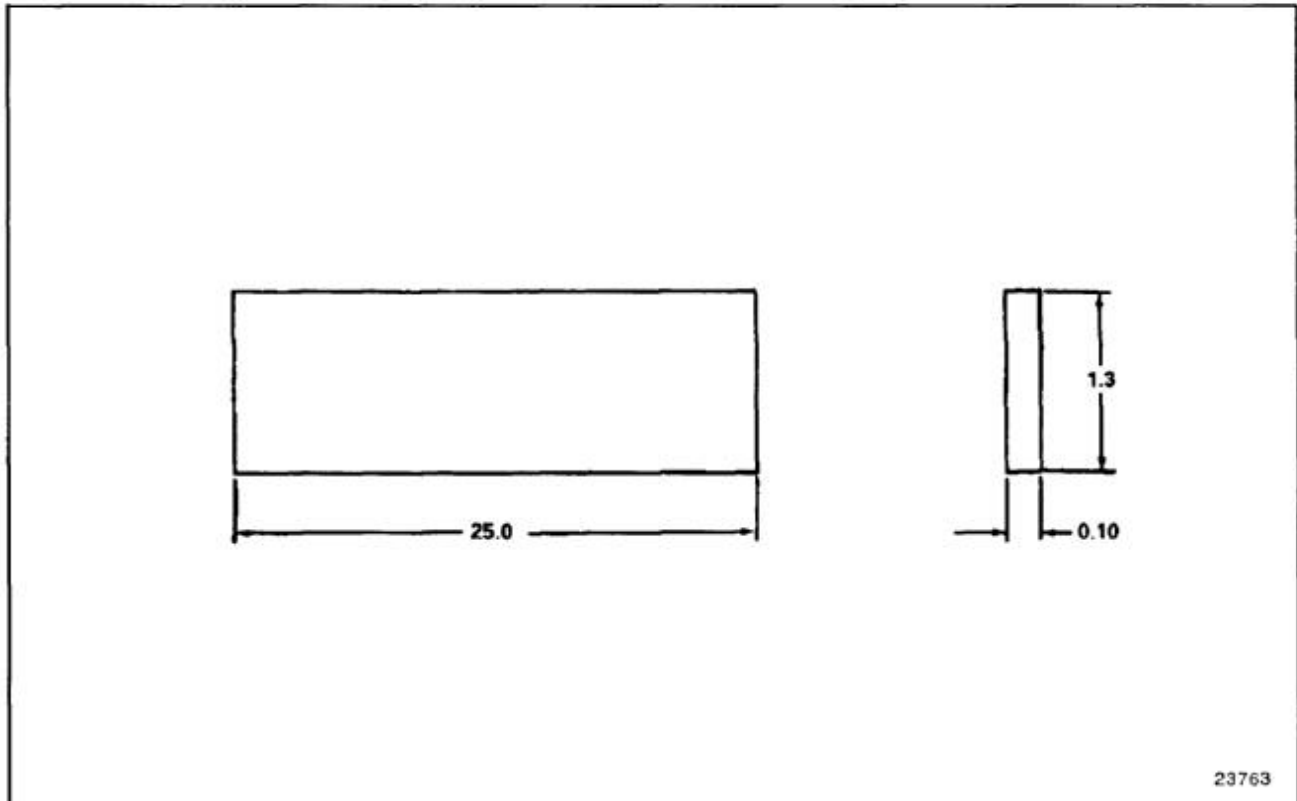


END OF TASK

E-354

**NOTES:**

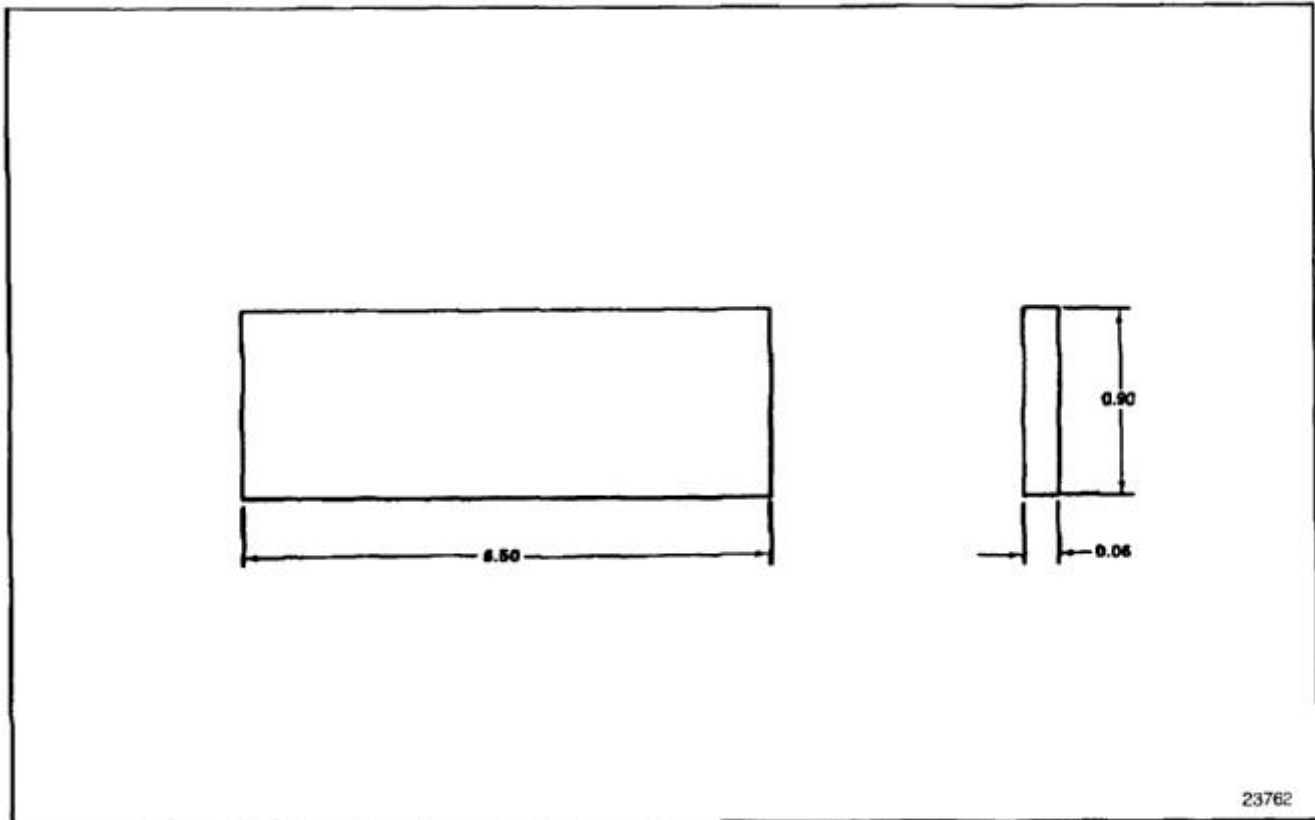
1. FABRICATE FROM LAMINATED PHENOLIC TYPE FBM PER MIL-P-15035.
2. ALL DIMENSIONS IN INCHES.
3. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM SILICONE SPONGE RUBBER CLOSED CELL SHEET, (MEDIUM) AMS 3195.
2. ALL DIMENSIONS IN INCHES.

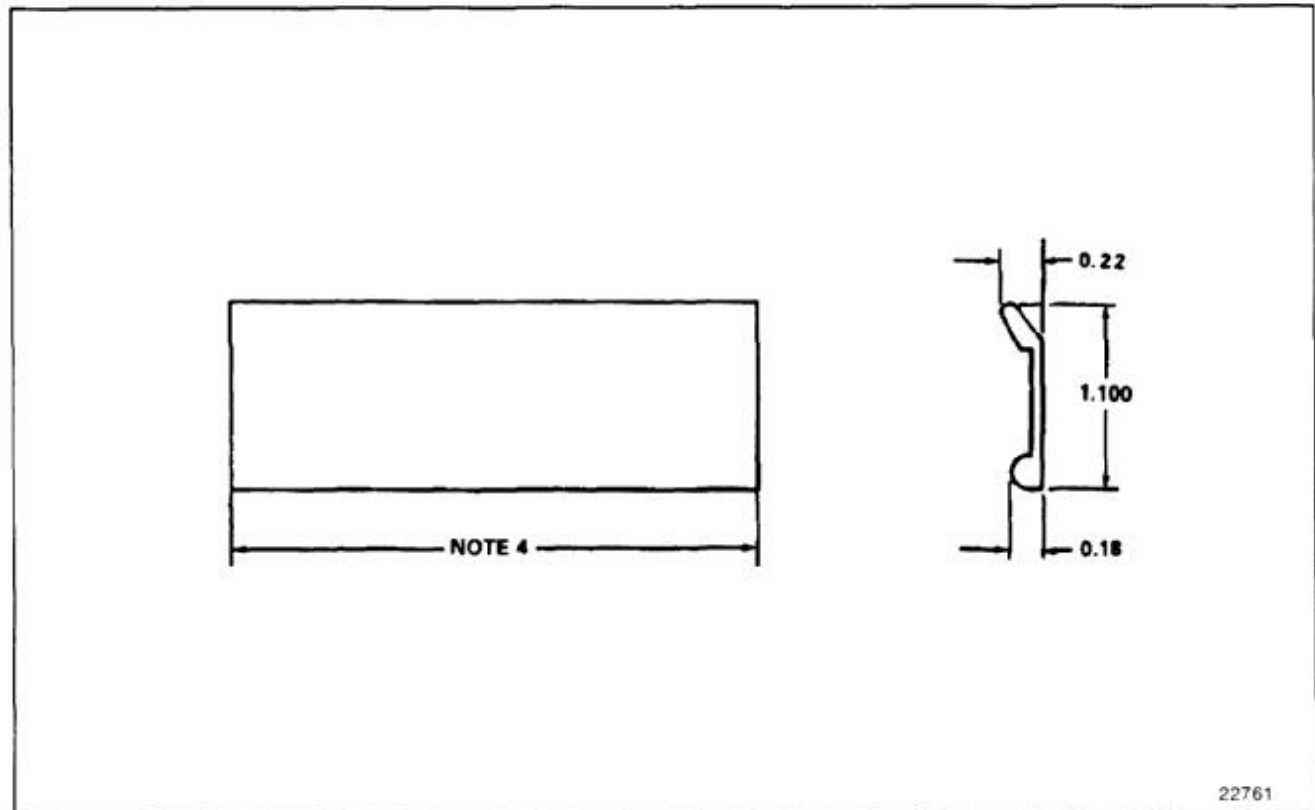


END OF TASK

E-356

**NOTES:**

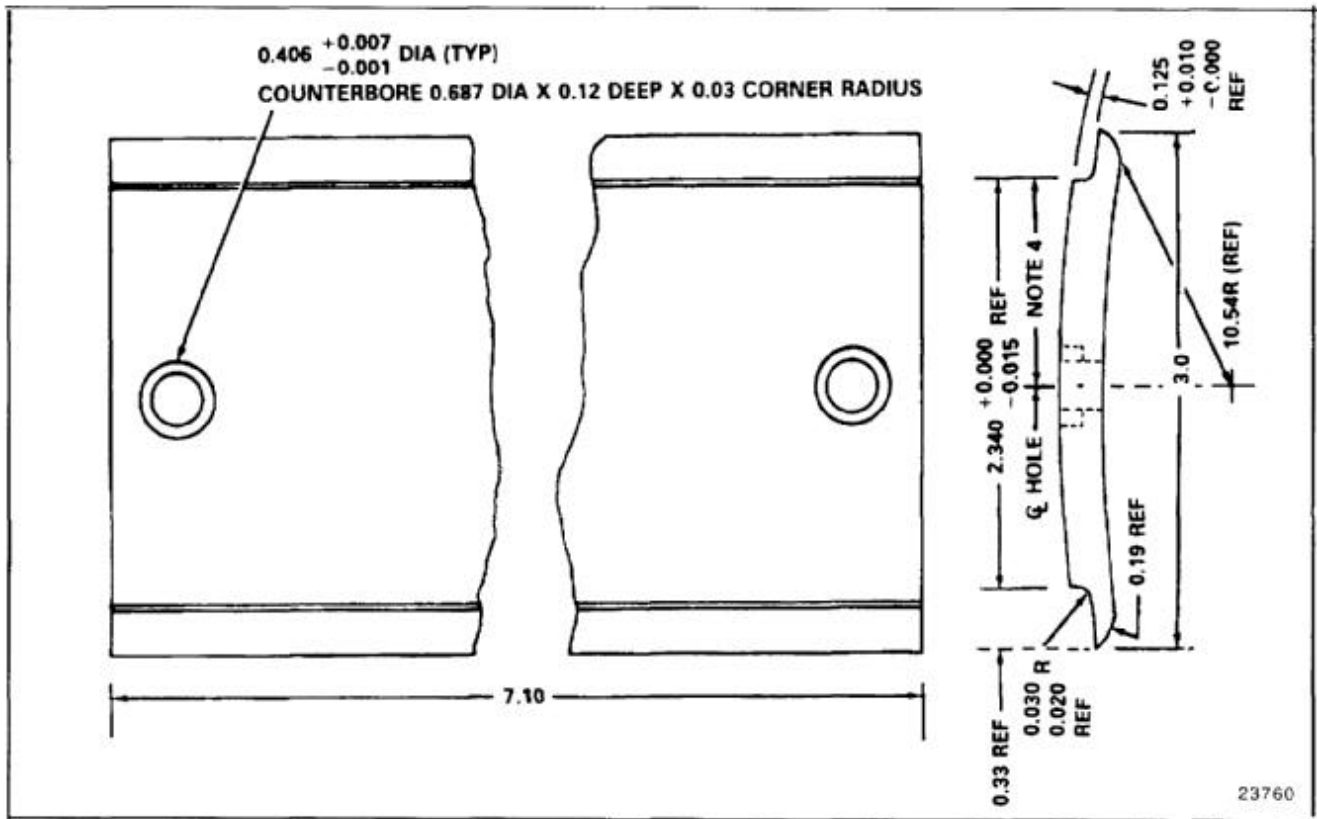
1. FABRICATE FROM AMS 3326 SILICONE RUBBER BAC 1530-48, NSN 9390-00-945-4826.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 80.000
4. LENGTH:  
114S3607-181 = 14.100  
114S3607-187 = 61.500



END OF TASK

**NOTES:**

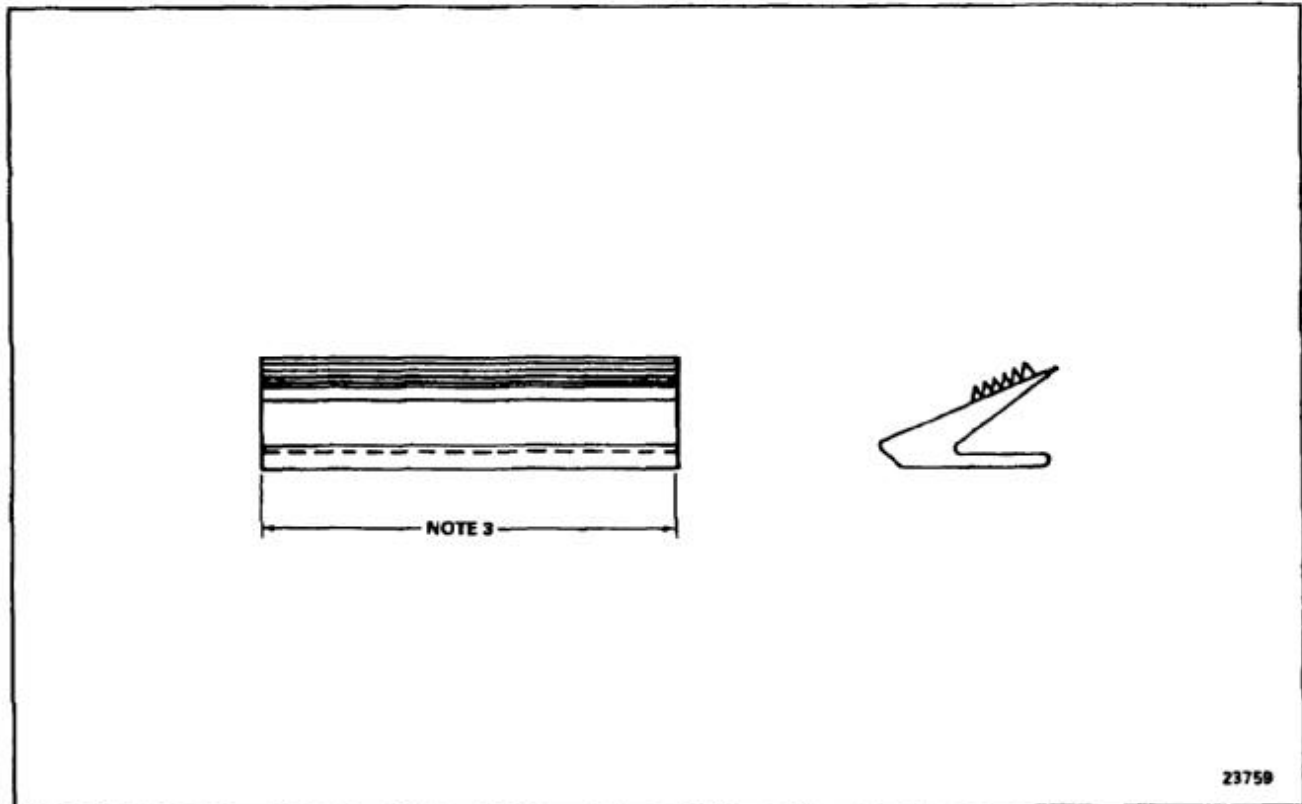
1. FABRICATE FROM VS80574 NYLATRON GS. THE POLYMER CORP. OF PA, READING, PA. 19603 (CAGE NO. 83616) OR NYLON PER MIL-P-46060 COLOR LIGHT TO DARK GREY.
2. ALL DIMENSIONS IN INCHES.
3. TOLERANCES: 0.02, 0.010 UNLESS OTHERWISE SPECIFIED.
4. LATERAL HOLE LOCATION USE OLD BEARING PAD OR TRANSFER DRILL FROM AIRFRAME TO PAD.
5. STOCK SIZE VS80574 X 7.10.
6. TRIM AS NECESSARY TO FIT.



END OF TASK

**NOTES:**

1. FABRICATE FROM BAC 1530-43,  
NSN 9390-00-791-7789.
2. ALL DIMENSIONS IN INCHES.
3. LENGTH:  
114S6002-182 = 105.00  
114S6002-183 = 53.00  
114S6002-184 = 53.00

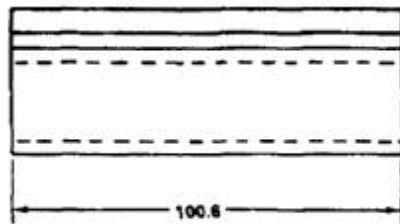


END OF TASK



**NOTES:**

1. FABRICATE FROM BAC 1530-7,  
NSN 9390-00-792-1501.
2. ALL DIMENSIONS IN INCHES.



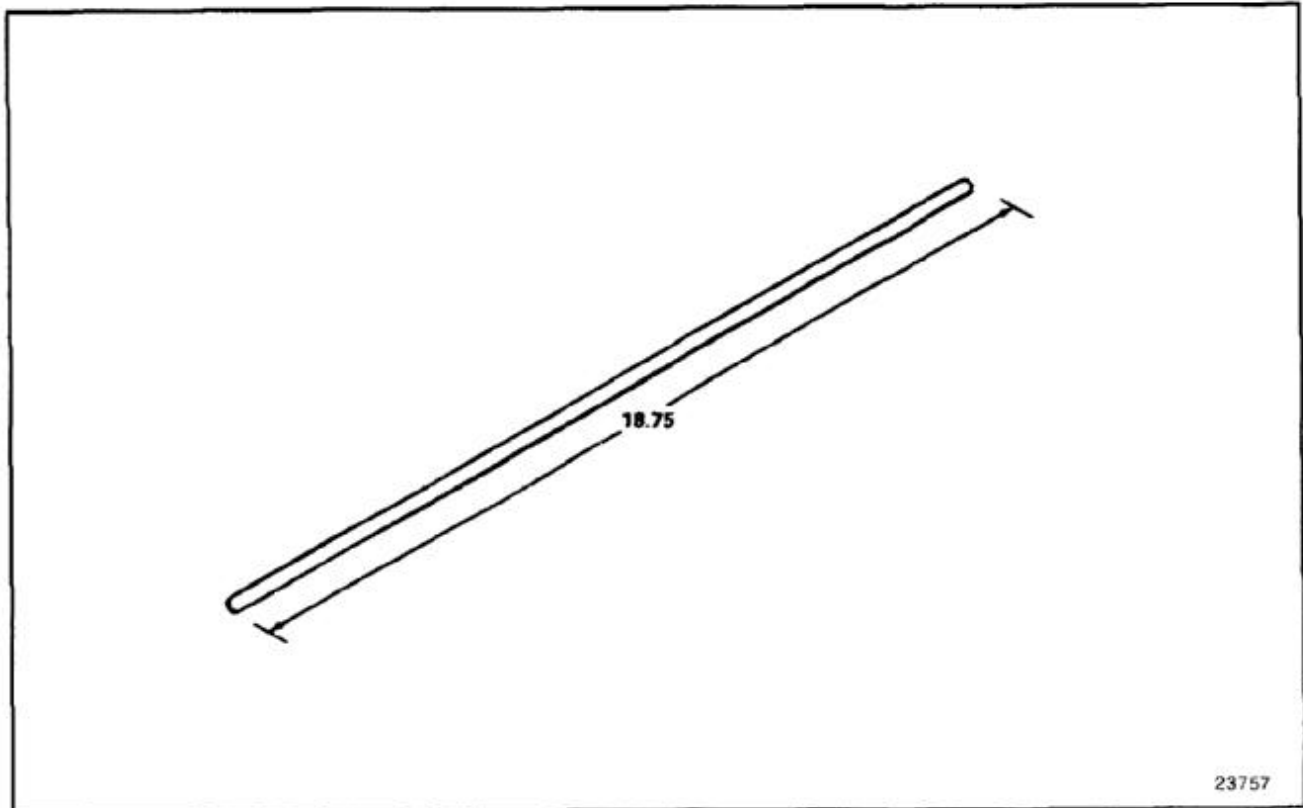
23758

END OF TASK

E-360

**NOTES:**

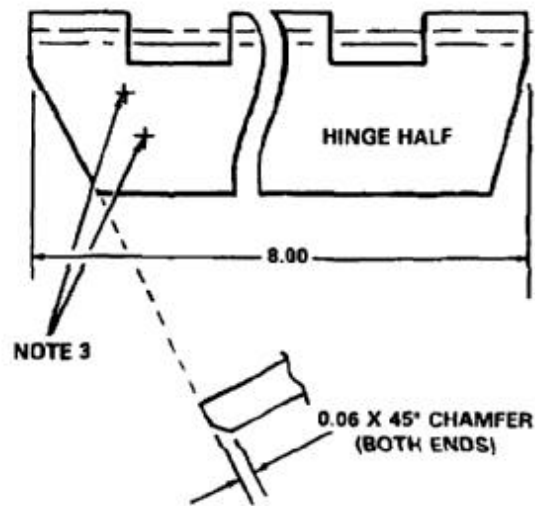
1. FABRICATE FROM MS20253P2-188,  
NSN 5315-00-091-3429.
2. ALL DIMENSIONS IN INCHES.
3. CUT PINS TO LENGTH AND ROUND ENDS.  
REMOVE ALL BURRS AND SHARP EDGES.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM MS20001Y12-800.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND SHAPE.
4. FINISH AS REQUIRED.



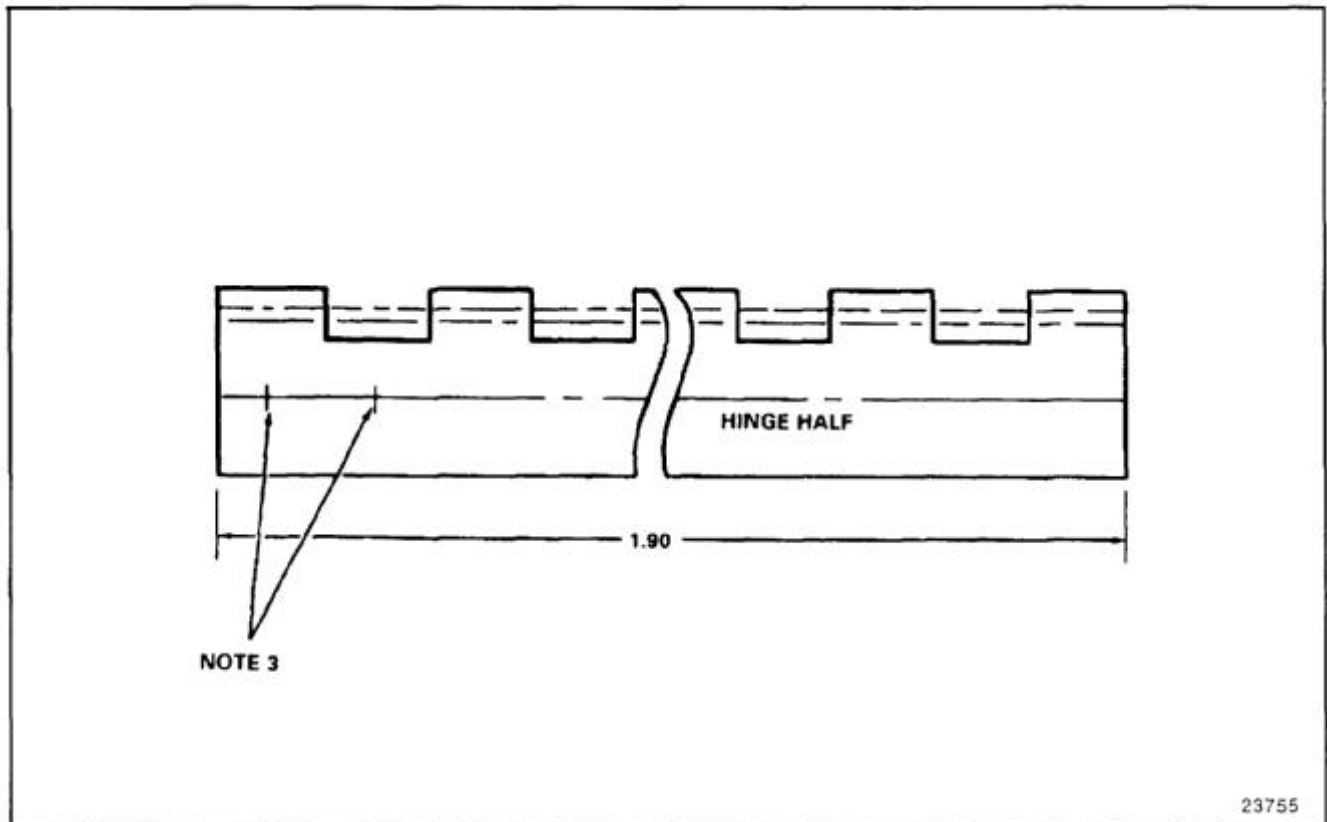
23756

END OF TASK

E-362

**NOTES:**

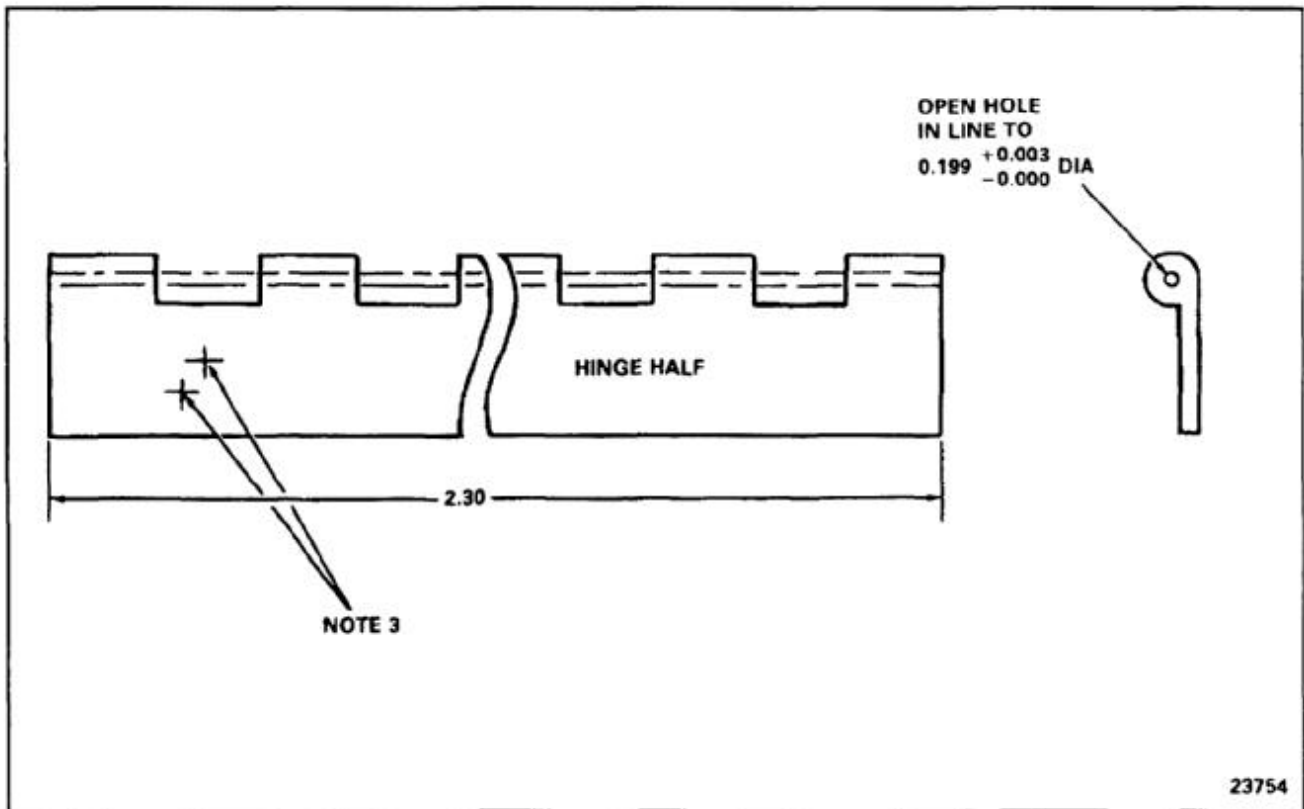
1. FABRICATE FROM MS20001X12-190.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND SHAPE.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

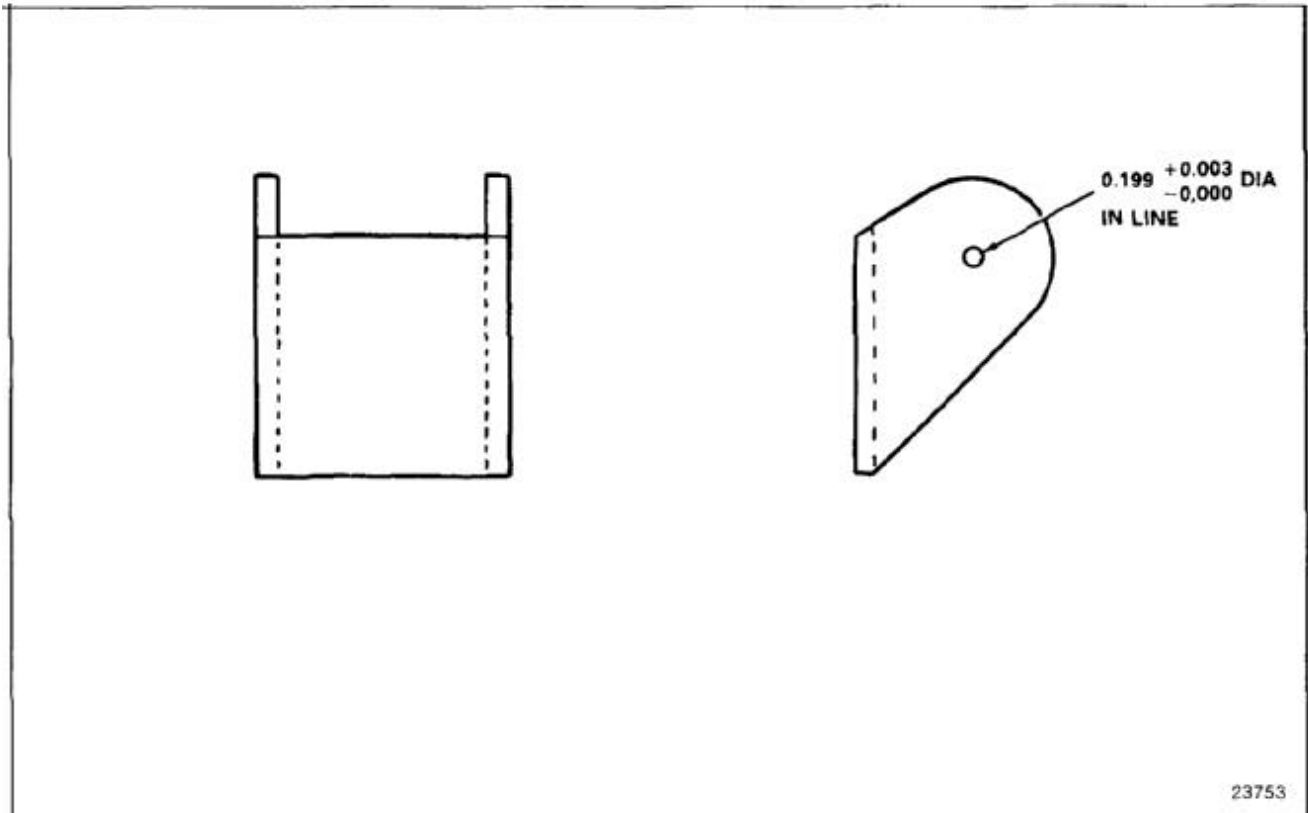
1. FABRICATE FROM MS20001X14-230.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND SHAPE.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

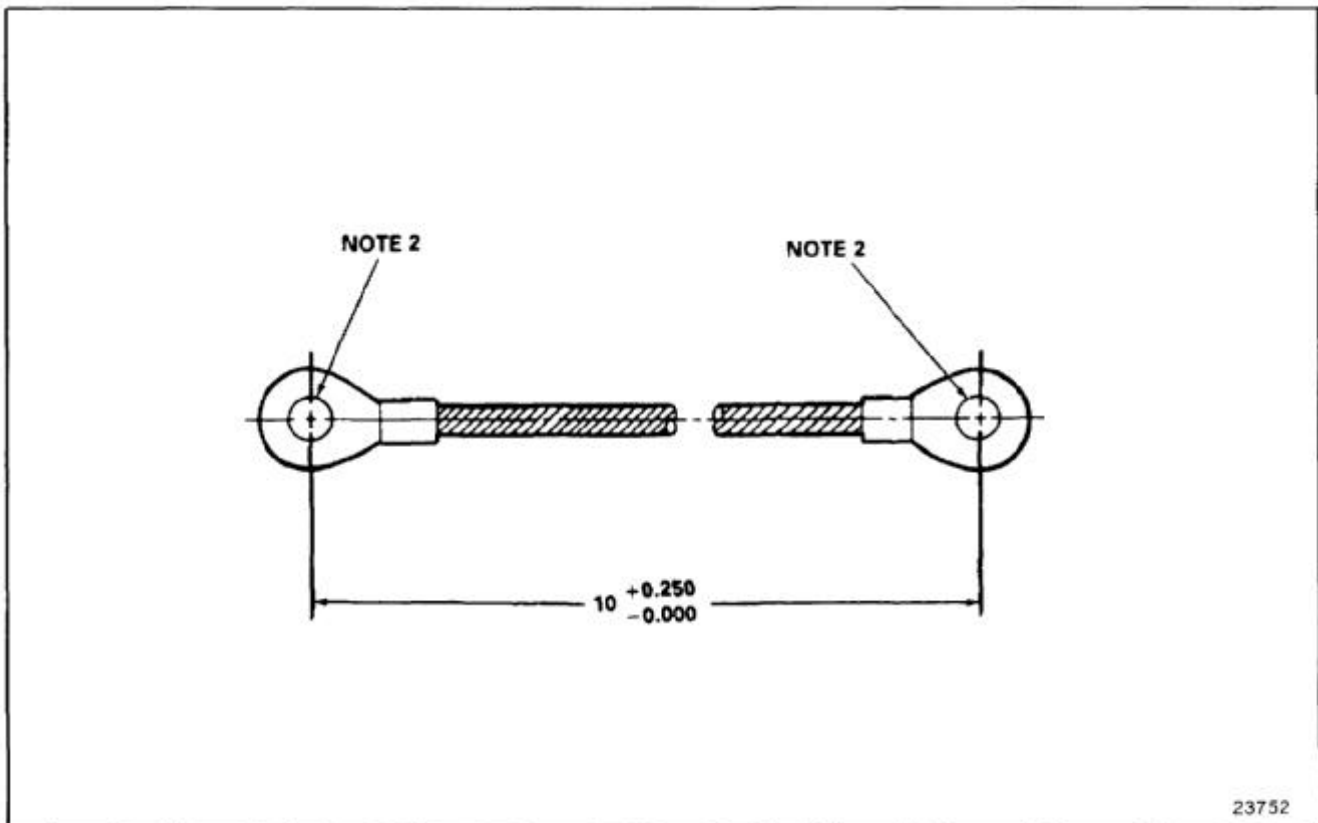
1. FABRICATE FROM AND 10137-1405,  
NSN 9540-00-234-0588.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL PART TO DETERMINE PILOT  
HOLE LOCATIONS AND SHAPE.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE ELECTRICAL LEAD, NSN 6150-00-661-0182, FROM PURE TINNED STRANDED SOFT COPPER WIRE SIZE AWG12 AND TERMINALS.
2. STOCK IS:  
WIRE, AWG12, NSN 6145-00-819-0058  
TERMINAL, MS25036-112,  
(NSN 5940-00-204-8990). HOLE DIAMETER  
IS 0.193 TO 0.203 AND ACCOMMODATES  
NUMBER 10 OR 12 STUD.
3. ATTACH TERMINALS (MS25036-112) TO WIRE  
WITH CRIMPING TOOL (MS25441).
4. ALL DIMENSIONS IN INCHES.

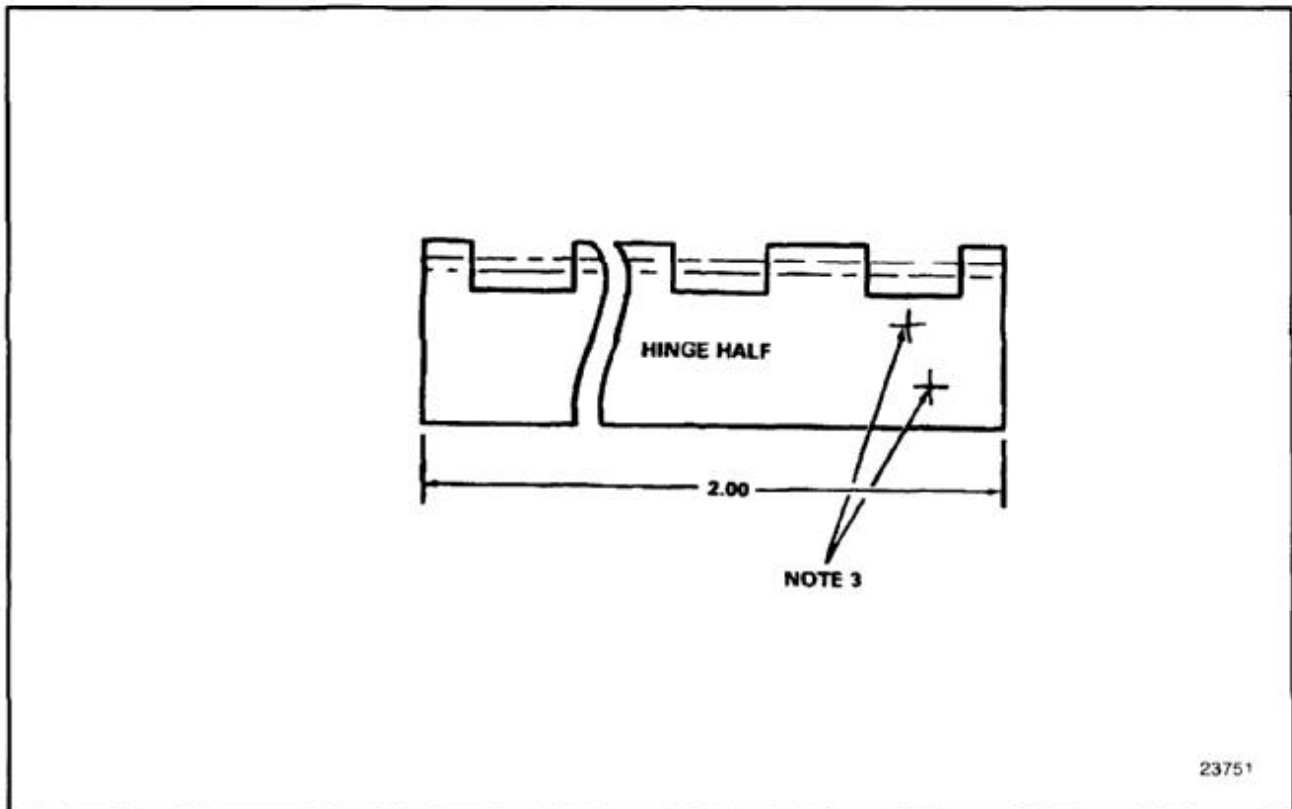


END OF TASK

E-366

**NOTES:**

1. FABRICATE FROM MS20001Y12-200.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND SHAPE.
4. FINISH AS REQUIRED.



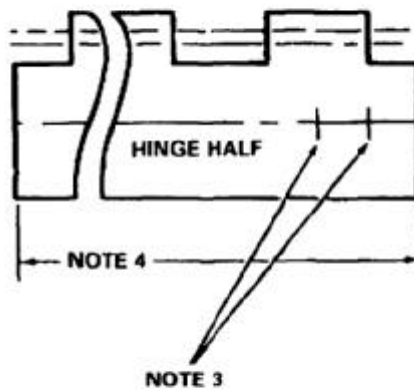
23751

END OF TASK



**NOTES:**

1. FABRICATE FROM MS20001X12-200.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND SHAPE.
4. LENGTH:  
 114S5551-85 = 1.50  
 114S5551-86 = 1.50 (OPP -85)  
 114S5551-87 = 1.70 (OPP -88)  
 114S5551-88 = 1.70
5. FINISH AS REQUIRED.



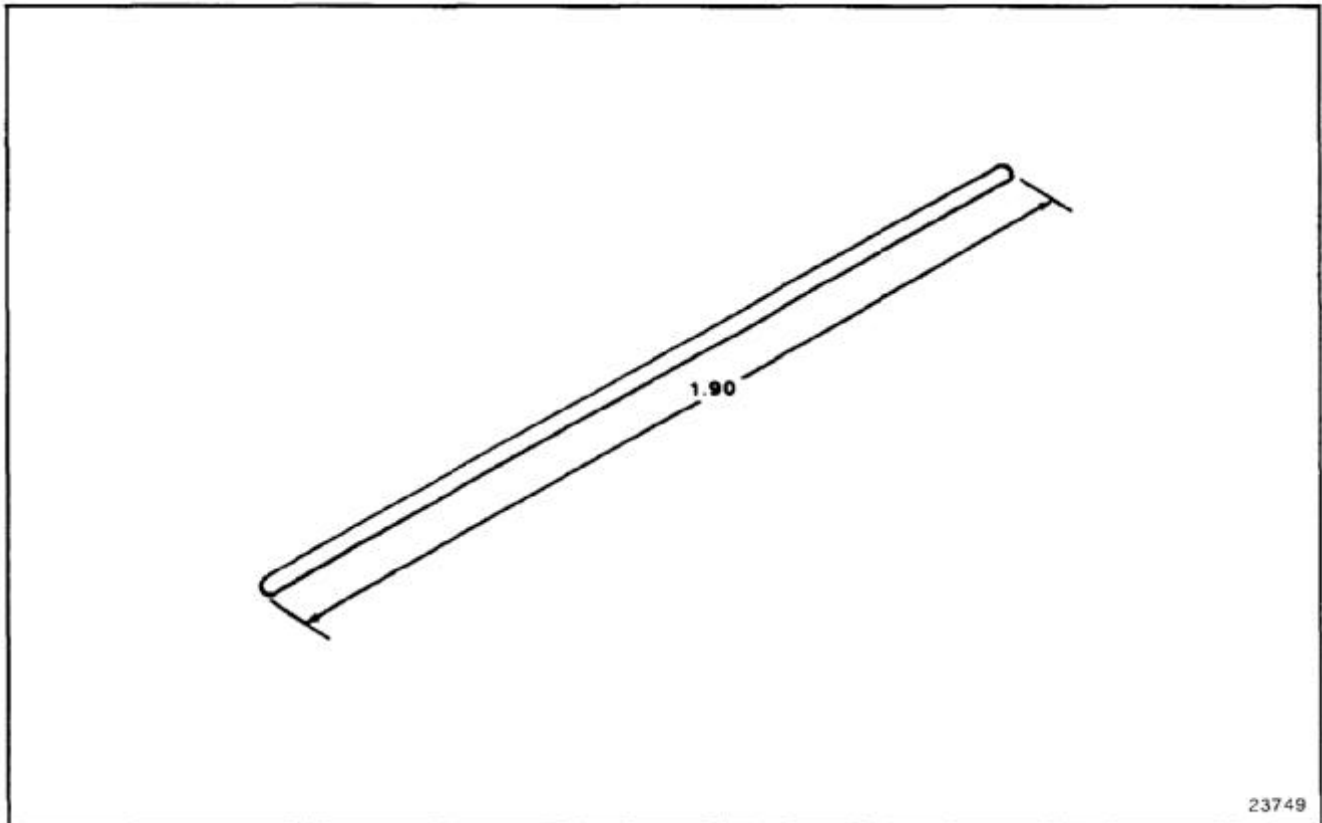
23750

END OF TASK

E-368

**NOTES:**

1.    FABRICATE FROM MS20253P5-190(NSN 5340-00-133-1974).
2.    ALL DIMENSIONS IN INCHES.
3.    CUT PINS TO LENGTH AND ROUND ENDS. REMOVE ALL BURRS AND SHARP EDGES.
4.    FINISH AS REQUIRED.

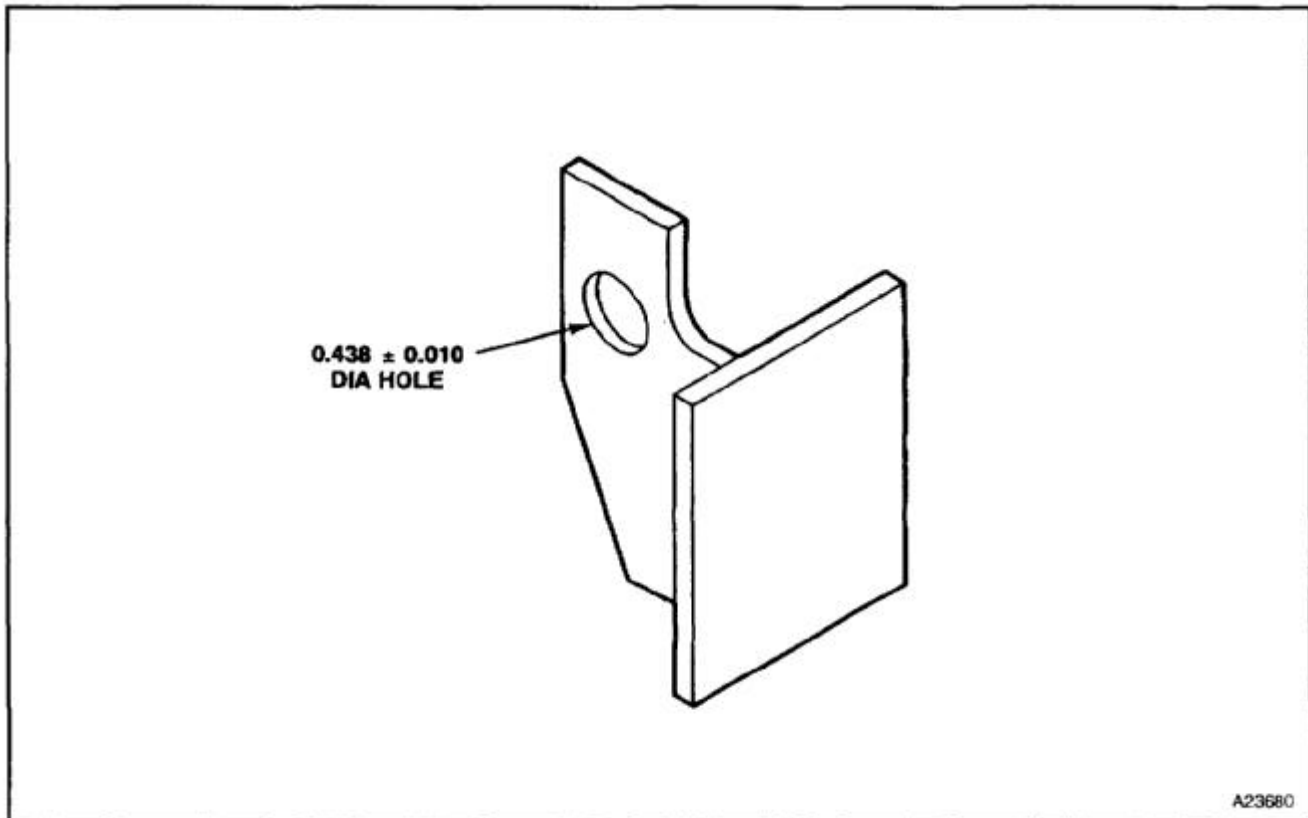


23749

END OF TASK

**NOTES:**

1. FABRICATE FROM ALCOA EXTRUSION NUMBER 32220, ALUMINUM ALLOY 7075-T6511 PER QQ-A-200/11.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 1.9.
4. USE OLD TEE AS TEMPLATE WHEN MAKING NEW TEE.
5. MATCH DRILL ATTACH POINTS WITH MATCHING ASSEMBLY.
6. 145S3617-4 AND -5 ARE OPPOSITE.
7. FINISH AS REQUIRED.

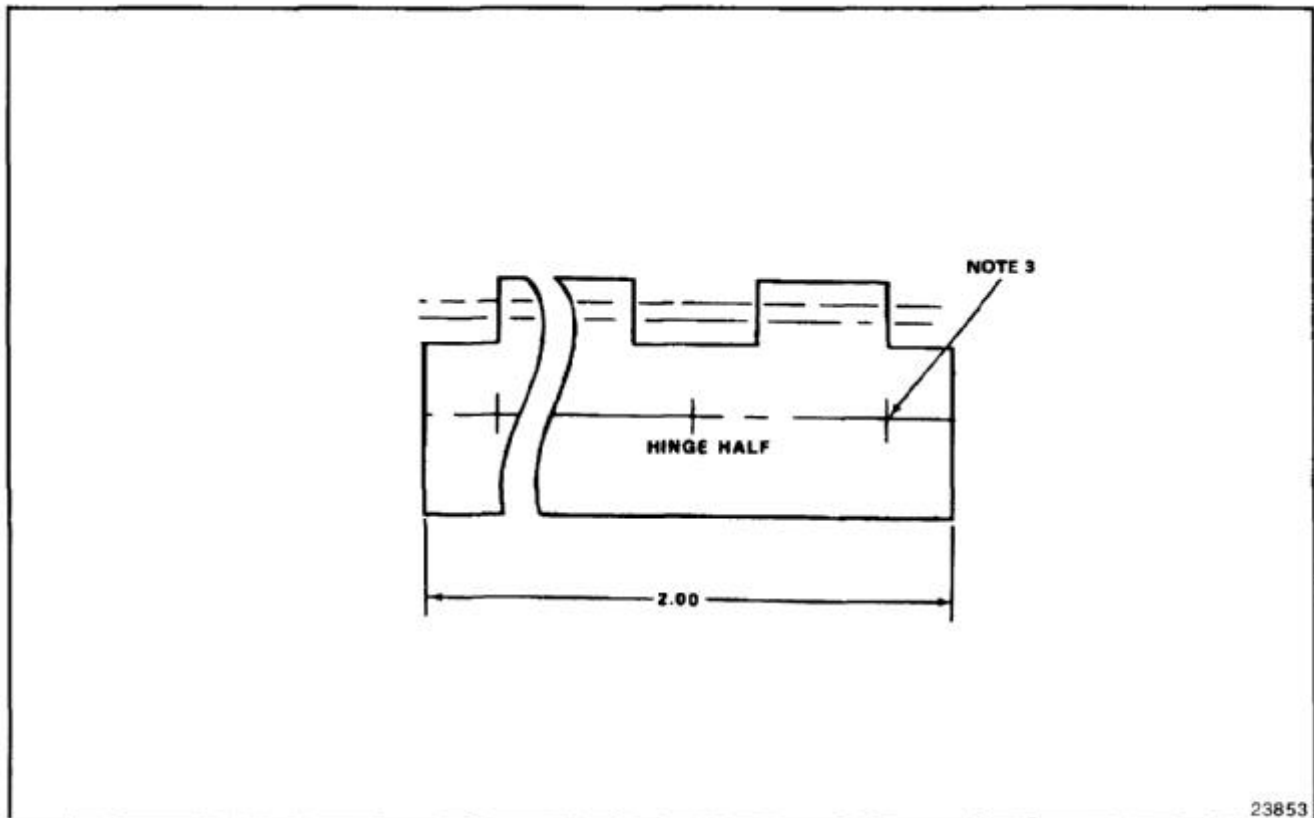


END OF TASK

E-370

**NOTES:**

1. FABRICATE FROM MS20001PX5-200.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND SHAPE.
4. FINISH AS REQUIRED.

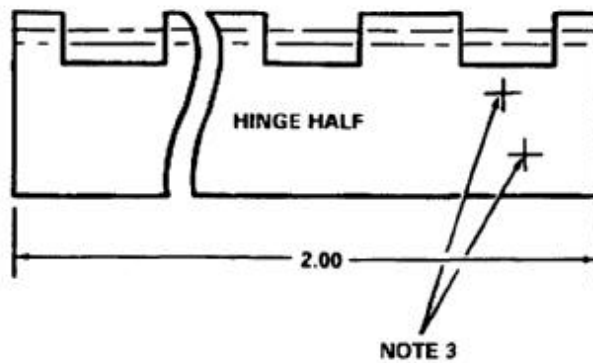


23853

END OF TASK

**NOTES:**

1. FABRICATE FROM MS20001PY5-200.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND SHAPE.
4. FINISH AS REQUIRED.



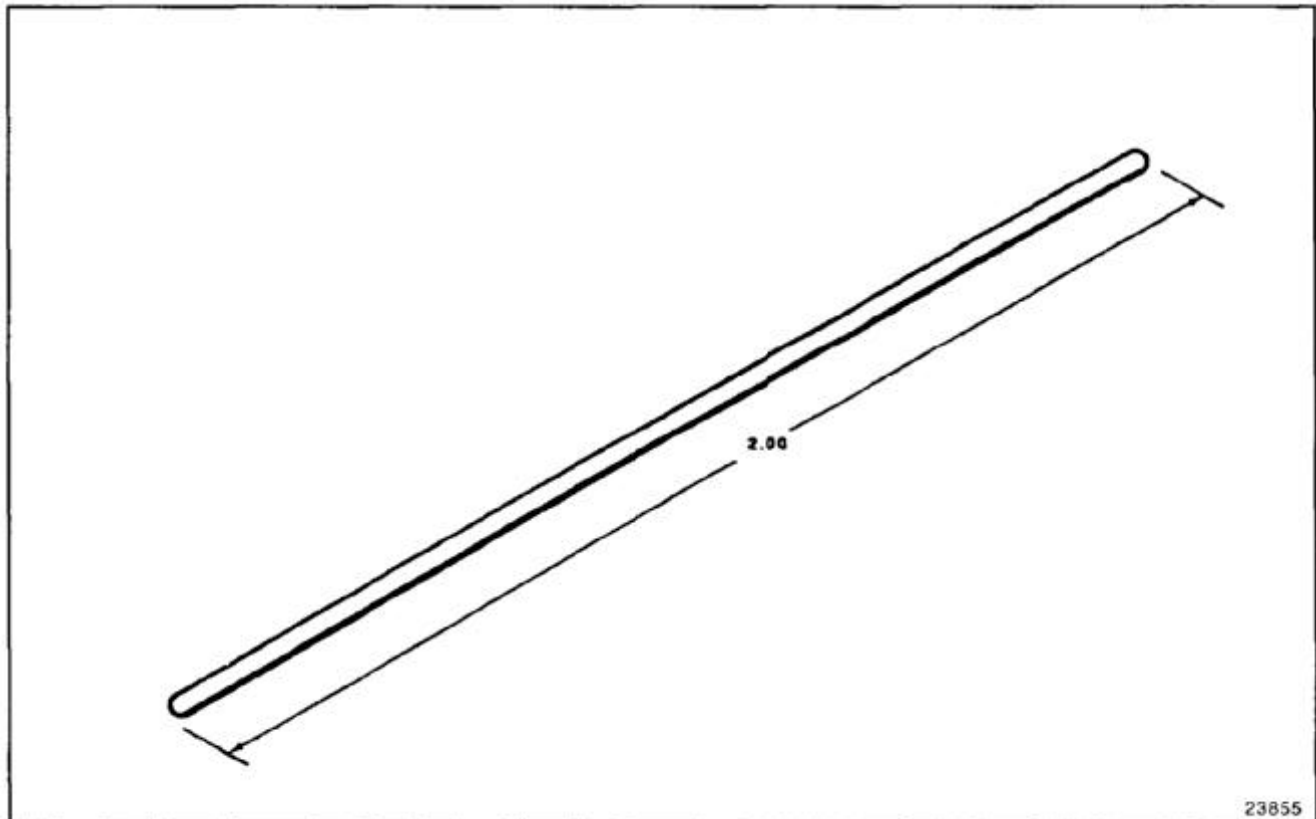
23751

END OF TASK

E-372

**NOTES:**

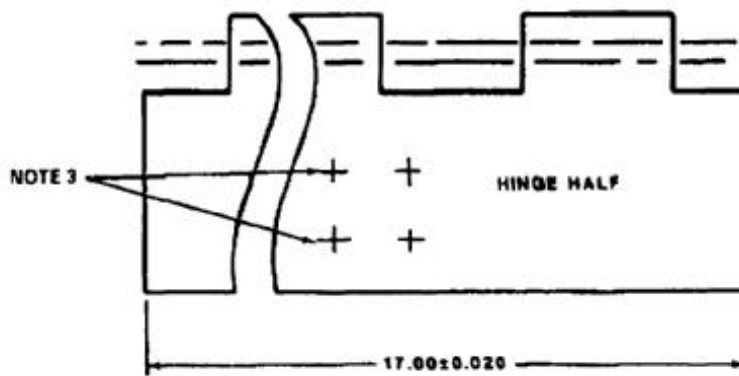
1. FABRICATE FROM MS20253P2-200,  
NSN 5315-00-761-6876.
2. ALL DIMENSIONS IN INCHES.
3. CUT PINS TO LENGTH AND ROUND ENDS.  
REMOVE ALL BURRS AND SHARP EDGES.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE FROM MS20001PH10-1700.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND SHAPE.
4. FINISH AS REQUIRED.



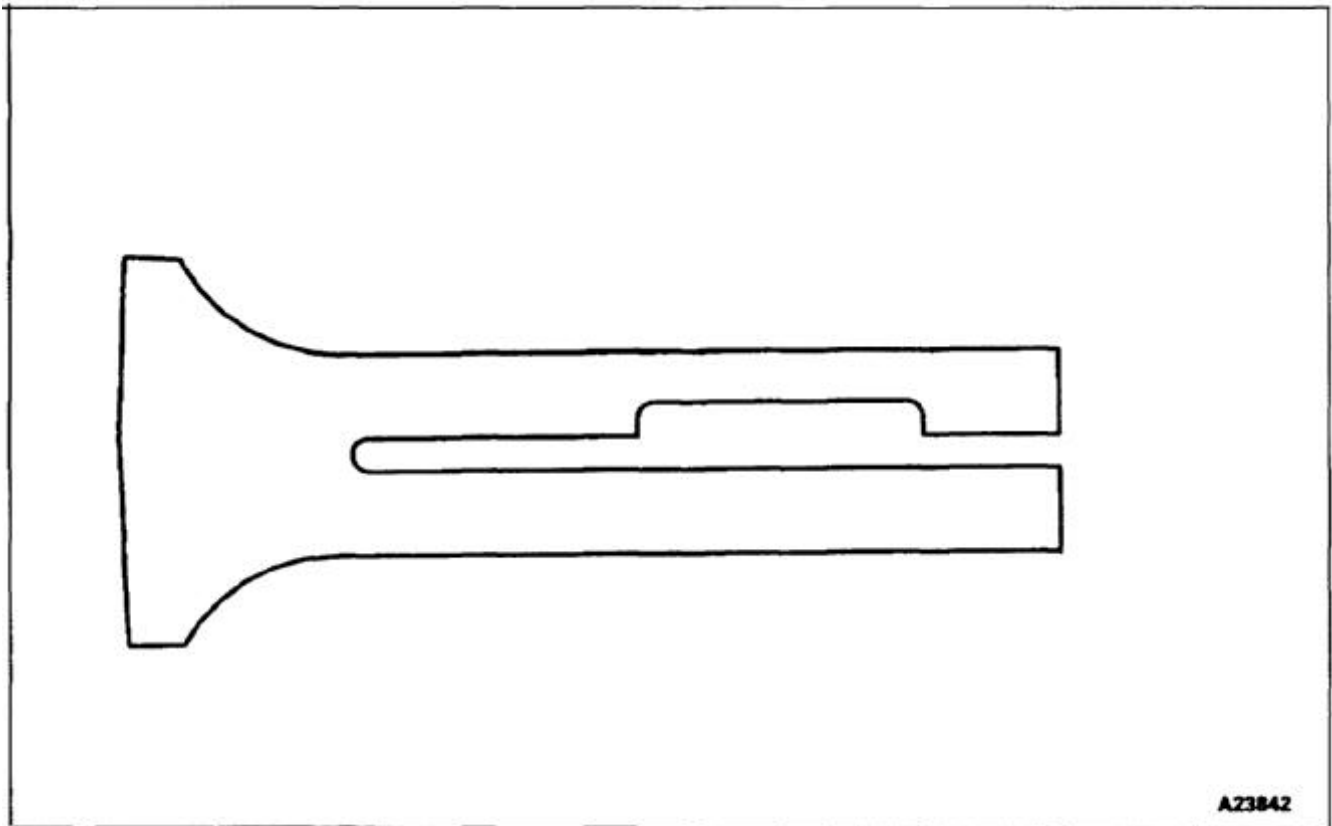
23844

END OF TASK

E-374

**NOTES:**

1. FABRICATE FROM VS80546-1,  
NSN 9390-00-759-9765.
2. ALL DIMENSIONS IN INCHES.
3. 114S5910-27 LENGTH = 16.00  
114S5910-28 LENGTH = 2.80

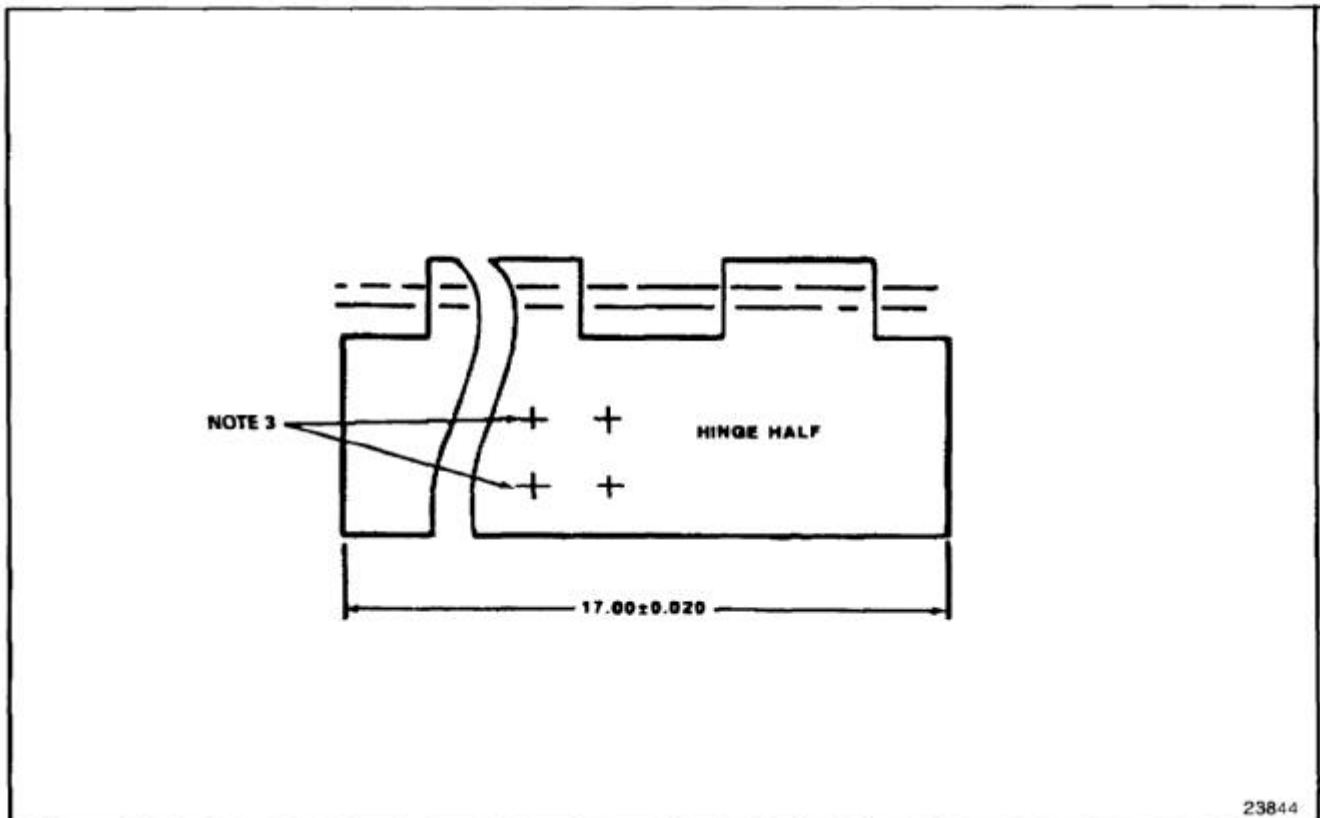


END OF TASK



**NOTES:**

1. FABRICATE FROM MS20001PH10-1700.
2. ALL DIMENSIONS IN INCHES.
3. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND SHAPE.
4. FINISH AS REQUIRED.



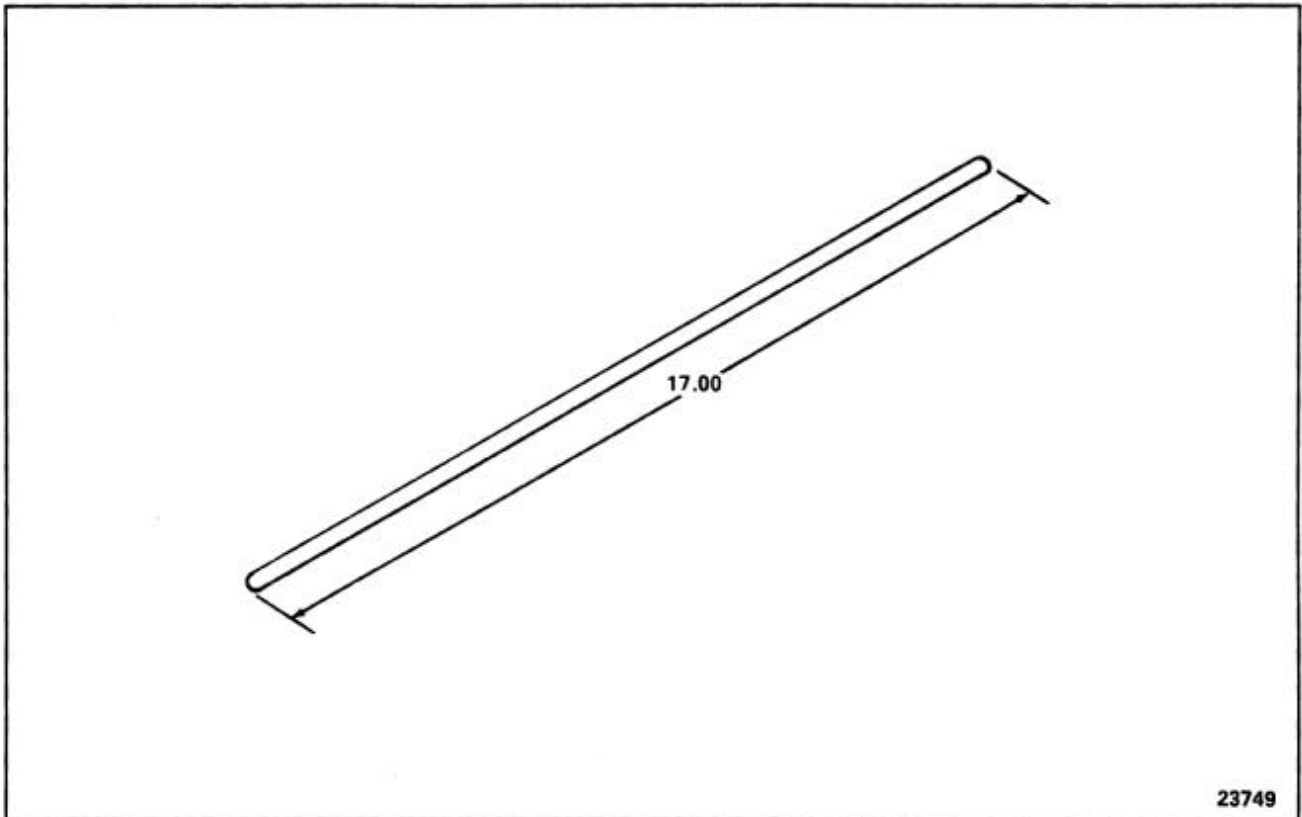
23844

END OF TASK

E-376

**NOTES:**

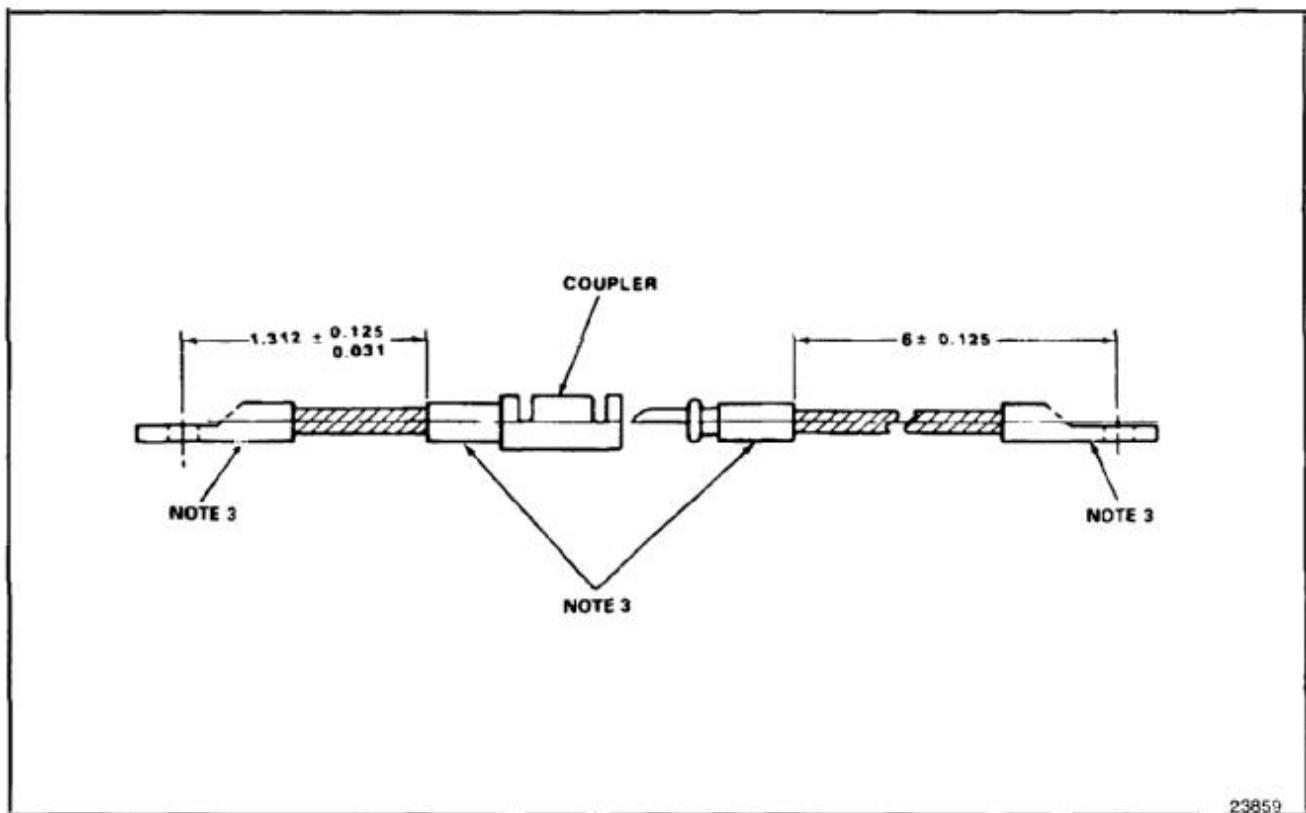
1. FABRICATE HINGE PIN FROM MS20253P2-1700NSN 5340-00-133-1974.
2. ALL DIMENSIONS IN INCHES.
3. CUT PINS TO LENGTH AND ROUND ENDS. REMOVE ALL BURRS AND SHARP EDGES.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE ELECTRIC LEAD, NSN 6150-01-136-5909, FROM PURE TINNED STRANDED SOFT COPPER WIRE SIZE AWG12, TERMINALS, AND QUICK DISCONNECT SPLICE SET, NSN 5340-00-133-1974.
2. STOCK IS:  
WIRE, AWG12, NSN 6145-00-819-0058  
TERMINAL, MS250036-112(NSN 5940-00-143-4794), HOLE DIAMETER IS 0.193 TO 0.203 AND ACCOMMODATES NUMBER 8 OR 10 STUD. QUICK DISCONNECT SPLICE SET, NSN 5940-00-611-3945.
3. ATTACH TERMINALS (MS25036-112) TO WIRE WITH CRIMPING TOOL (MS25441).
4. ALL DIMENSIONS IN INCHES.

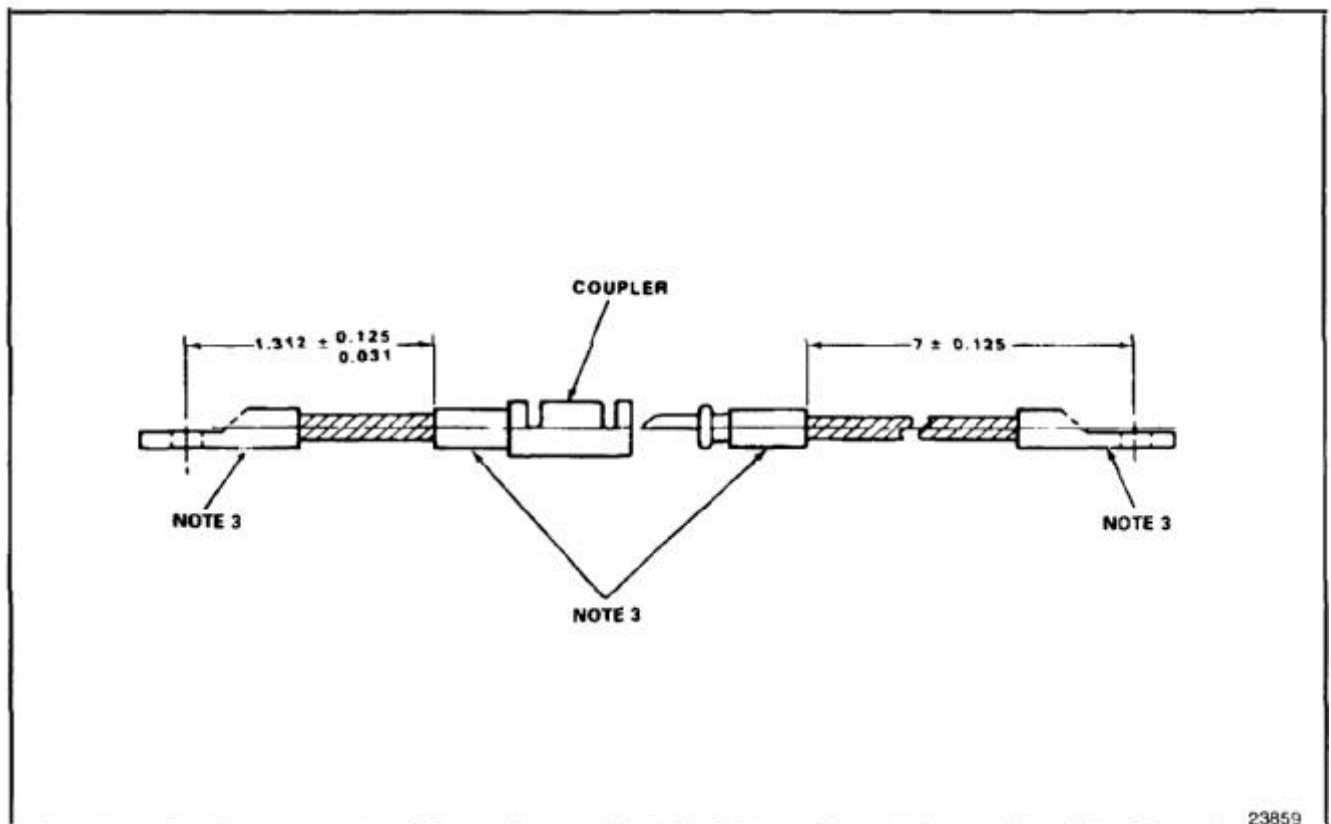


END OF TASK

E-378

**NOTES:**

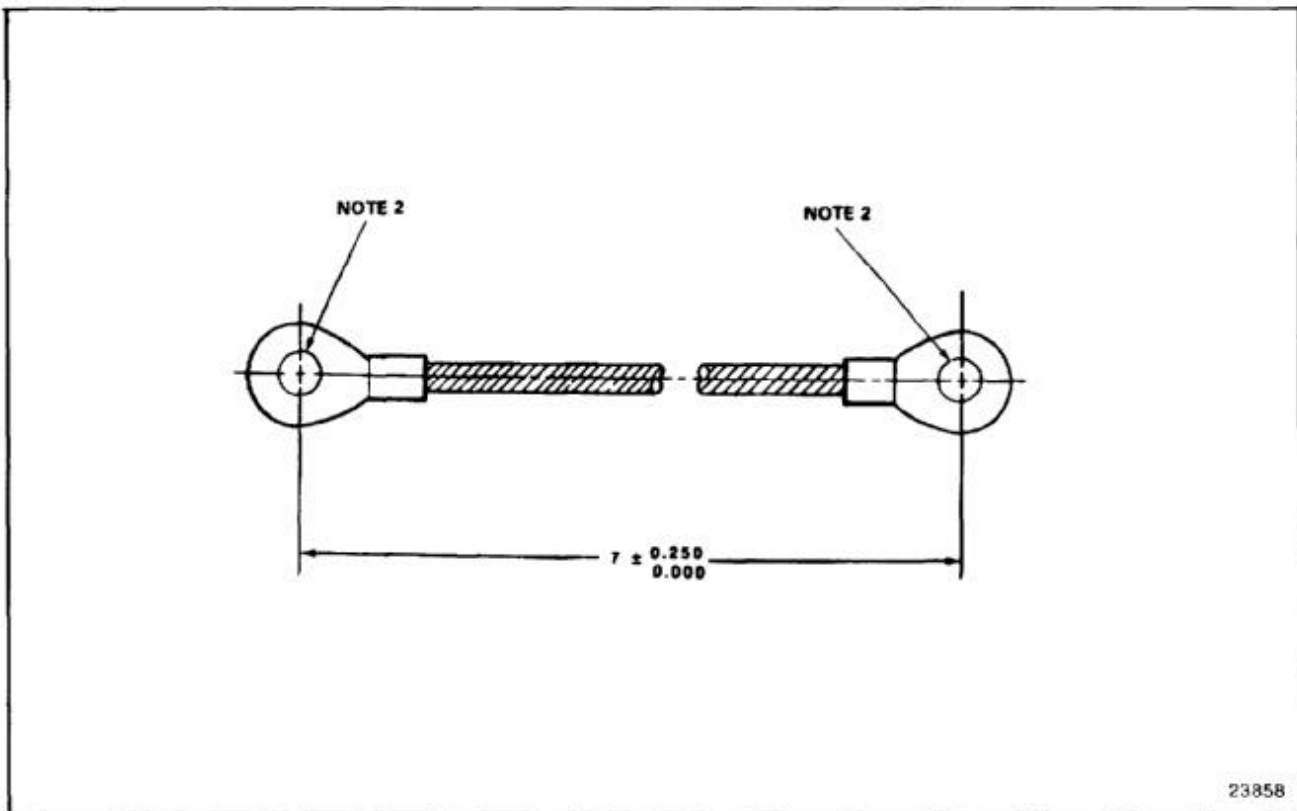
1. FABRICATE ELECTRIC LEAD, NSN 6150-01-136-5909, FROM PURE TINNED STRANDED SOFT COPPER WIRE SIZE AWG12, TERMINALS, AND QUICK DISCONNECT SPLICE SET.
2. STOCK IS: WIRE, AWG12, NSN 6145-00-819-0058 TERMINAL, MS25036-112, NSN 5940-00-143-4794, HOLE DIAMETER IS 0.193 TO 0.203 AND ACCOMMODATES NUMBER 8 OR 10 STUD. QUICK DISCONNECT SPLICE SET, NSN 5940-00-611-3945.
3. ATTACH TERMINALS (MS25036-112) TO WIRE WITH CRIMPING TOOL (MS25441).
4. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

1. FABRICATE ELECTRICAL LEAD, NSN 6150-00-642-1310, FROM PURE TINNED STRANDED SOFT COPPER WIRE SIZE AWG12 AND TERMINALS.
2. STOCK IS: WIRE, AWG12, NSN 6145-00-819-0058, TERMINAL, MS25036-111(NSN 5940-00-204-8990), HOLE DIAMETER IS 0.142 TO 0.152 AND ACCOMMODATES NUMBER 4 OR 6 STUD. TERMINAL, MS25036-157(NSN 5940-00-143-4777), HOLE DIAMETER 0.250 TO 0.285 ACCOMMODATES 0.250 STUD.
3. ATTACH TERMINALS (MS25036-111 AND -157) TO WIRE WITH CRIMPING TOOL (MS25441).
4. ALL DIMENSIONS IN INCHES.

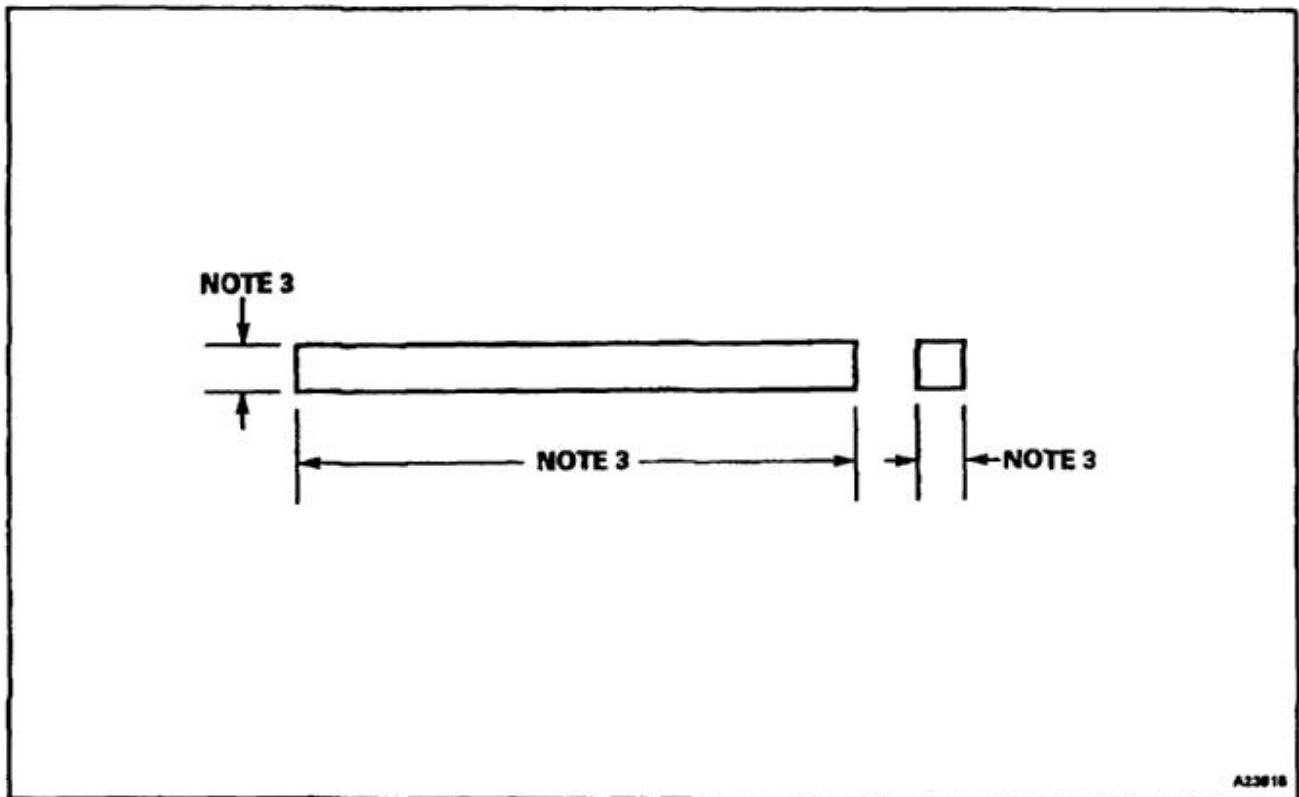


END OF TASK

E-380

**E-303 ENGINE PYLON FAIRING INSTALLATION SEALS 114S3902-241, -247, -365, -366,478,  
AND -380****E-303****NOTES:**

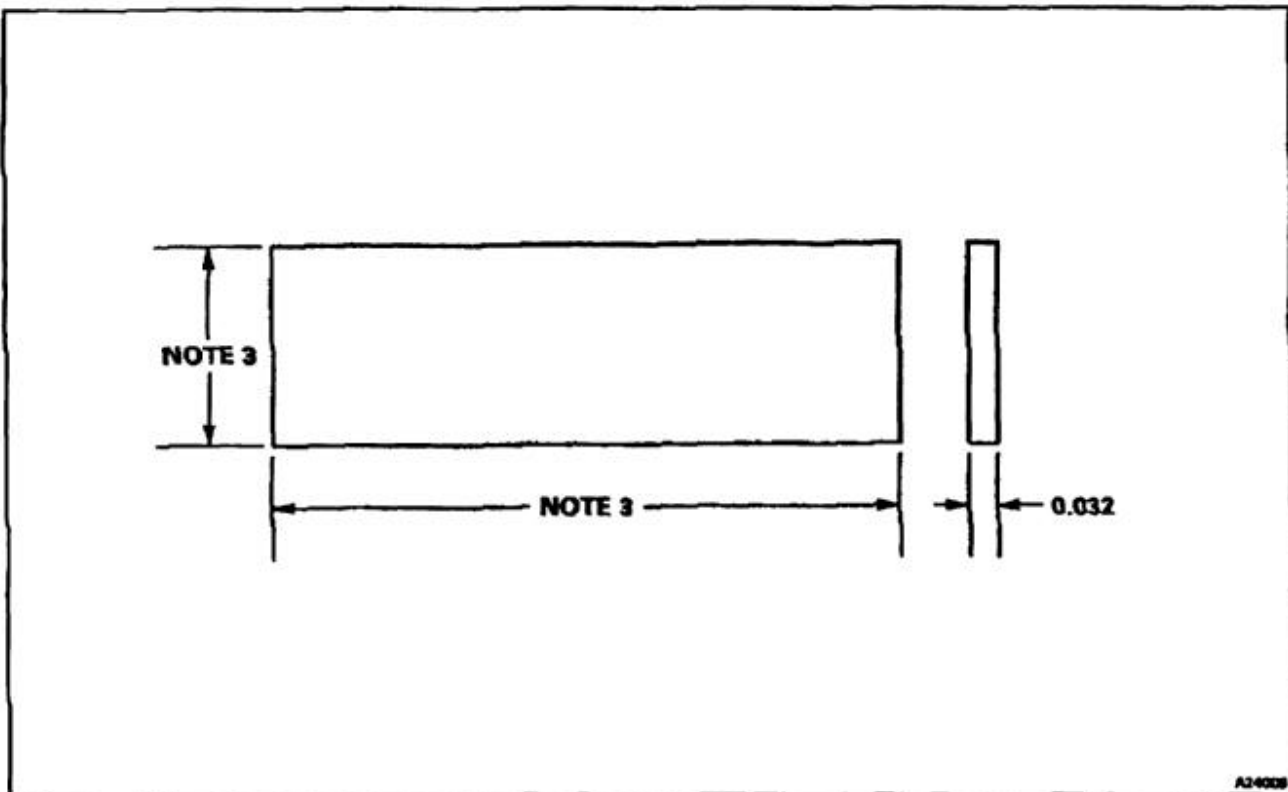
1. FABRICATE FROM SYNTHETIC RUBBER,  
NSN 5330-00-261-5471 SHEET PER  
ML-R-6855, CLASS 1, GRADE 40.
2. ALL DIMENSIONS IN INCHES.
3. DIMENSIONS FOR SEALS:  
114S3902-241 - 0.062 x 0.5 x 2.7  
114S3902-247 - 0.032 x 0.5 x 38  
114S3902-365 - 0.032 x 0.5 x 3.5  
114S3902-366 - 0.032 x 0.5 x 14  
114S3902-379 - 0.032 x 0.5 x 6.1  
114S3902-380 - 0.032 x 0.5 x 7.5
4. USE ORIGINAL PART TO DETERMINE SHAPE.



END OF TASK

**NOTES:**

1. FABRICATE FROM SYNTHETIC RUBBER (NSN 5330-00-261-5471) SHEET PER MIL-R-6855, CLASS 1, GRADE 40.
2. ALL DIMENSIONS IN INCHES.
3. DIMENSIONS FOR SEALS:  
234S3902-19 = 0.032 X 1.1 X 20.4  
23483902-20 = 0.032 X 1.0 X 19.3
4. USE ORIGINAL PART TO DETERMINE SHAPE.

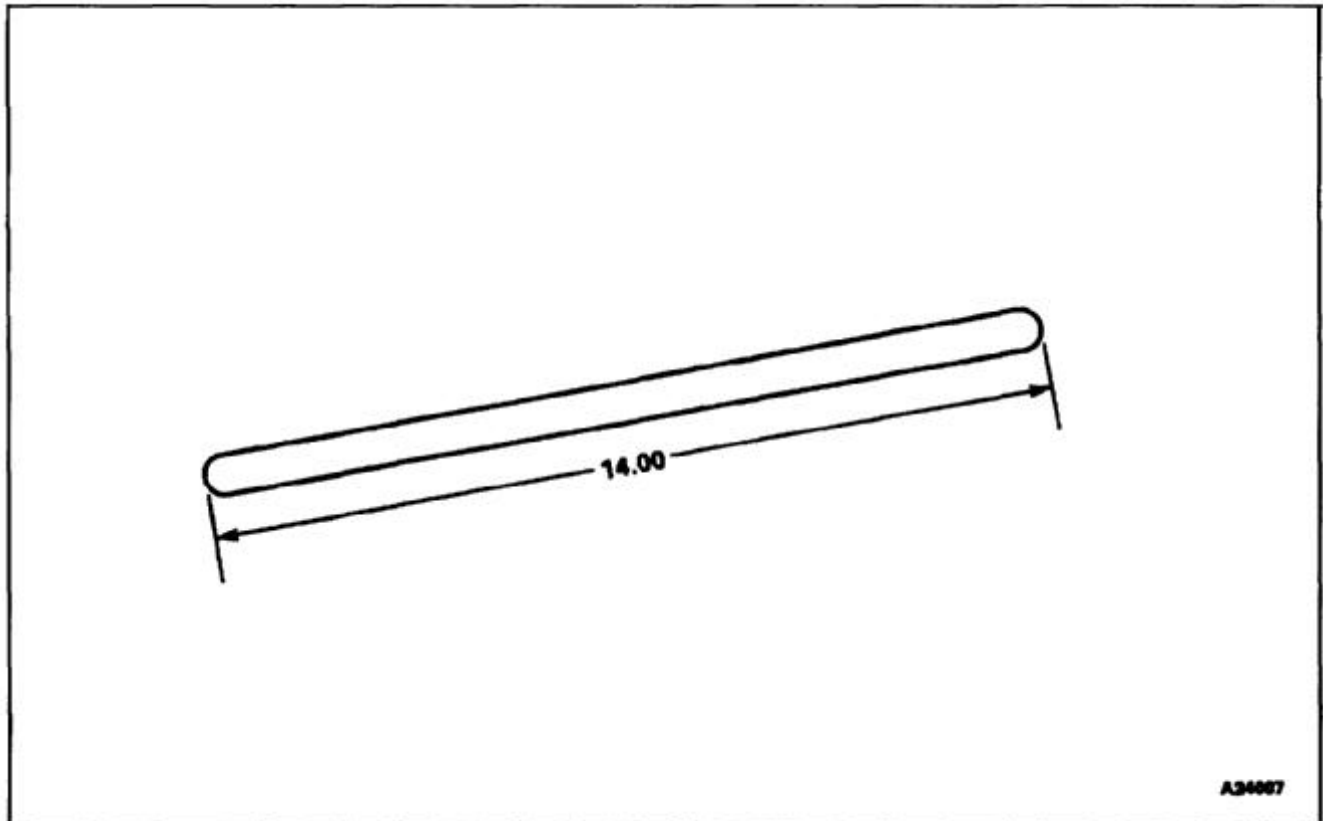


END OF TASK

E-382

**NOTES:**

1. FABRICATE FROM AN253-2 OR MS20253-2(NSN 5340-00-804-9880).
2. ALL DIMENSIONS IN INCHES.
3. CUT PINS TO LENGTH AND ROUND ENDS. REMOVE ALL BURRS AND SHARP EDGES.
4. FINISH AS REQUIRED.

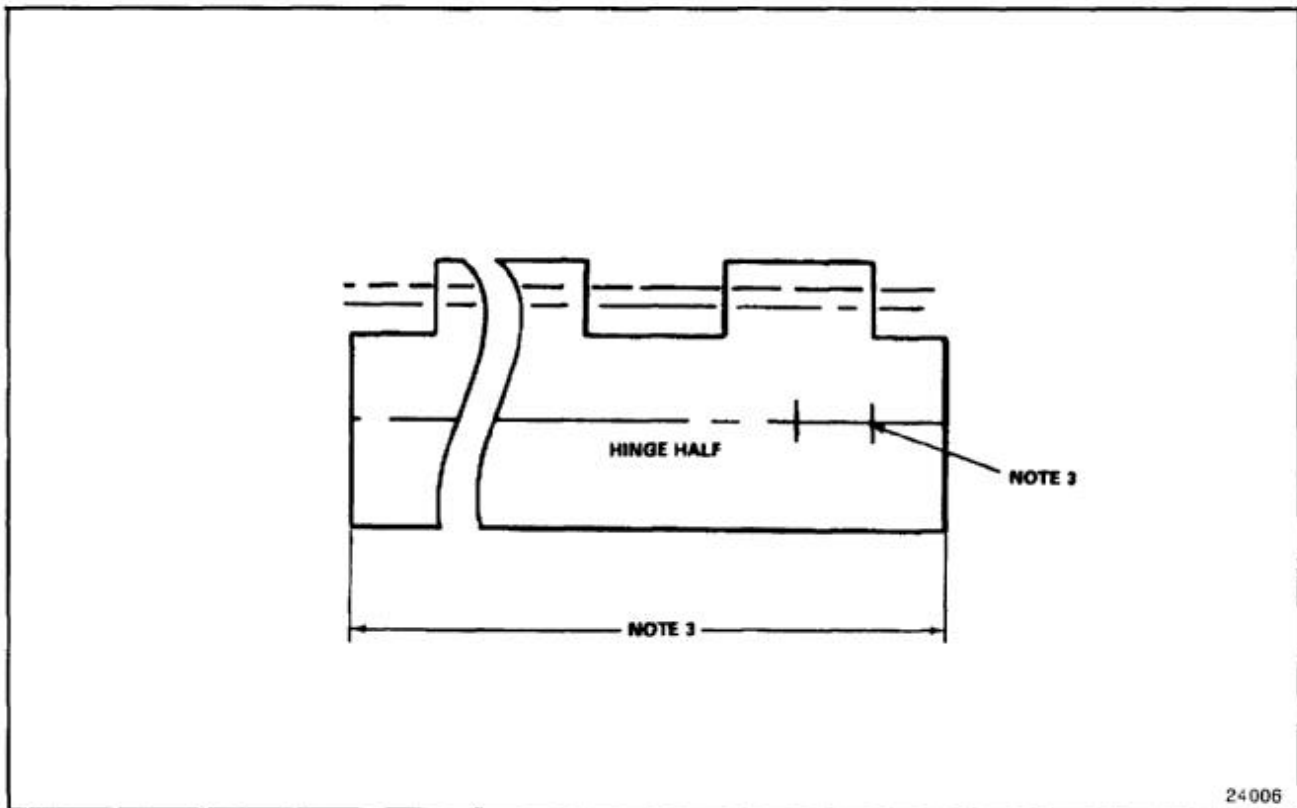


END OF TASK



**NOTES:**

1. FABRICATE FROM MS20001PH3-7200 (NSN 5340-00-899-4454).
2. THE -94 HALF HINGE IS OPPOSITE OF THE -93 HALF HINGE.
3. USE ORIGINAL PART TO DETERMINE PILOT HOLE LOCATIONS AND SHAPE. LENGTH IS 14.00.
4. FINISH AS REQUIRED.

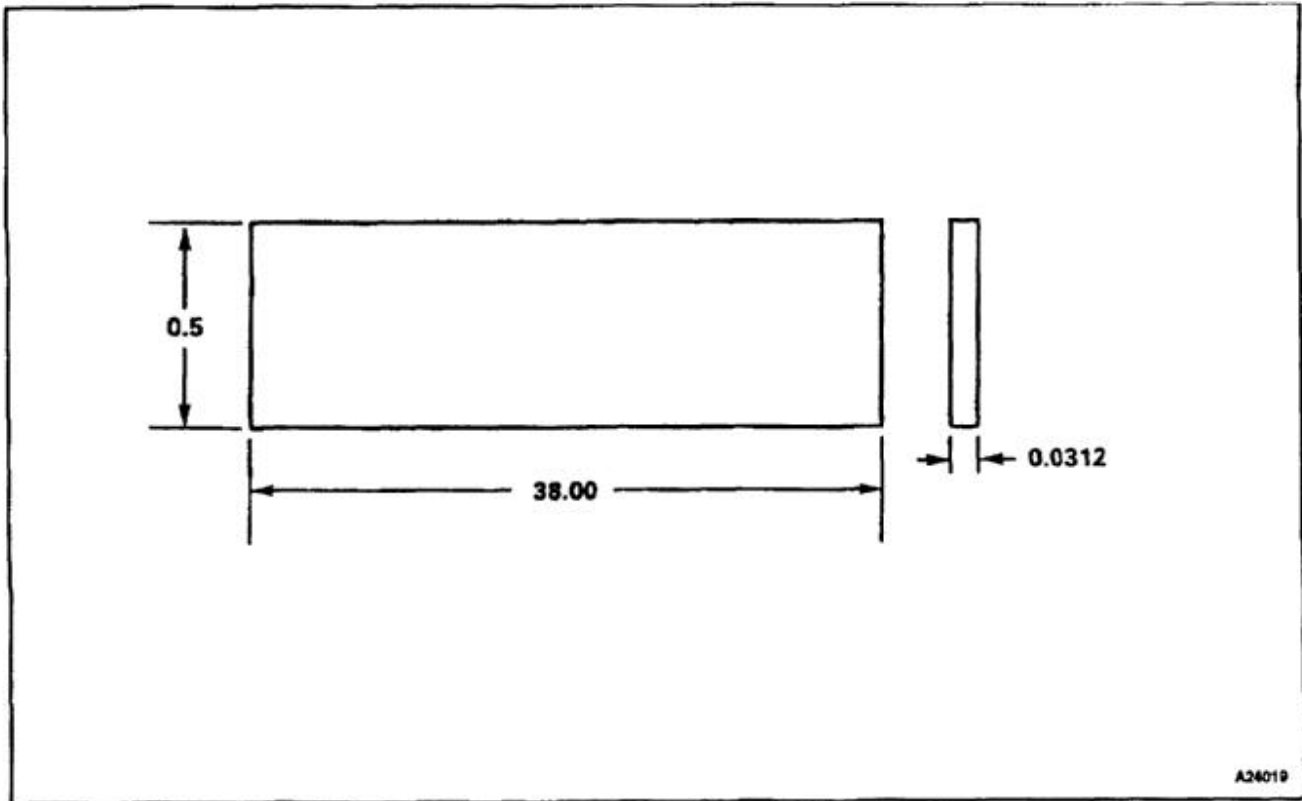


END OF TASK

E-384

**NOTES:**

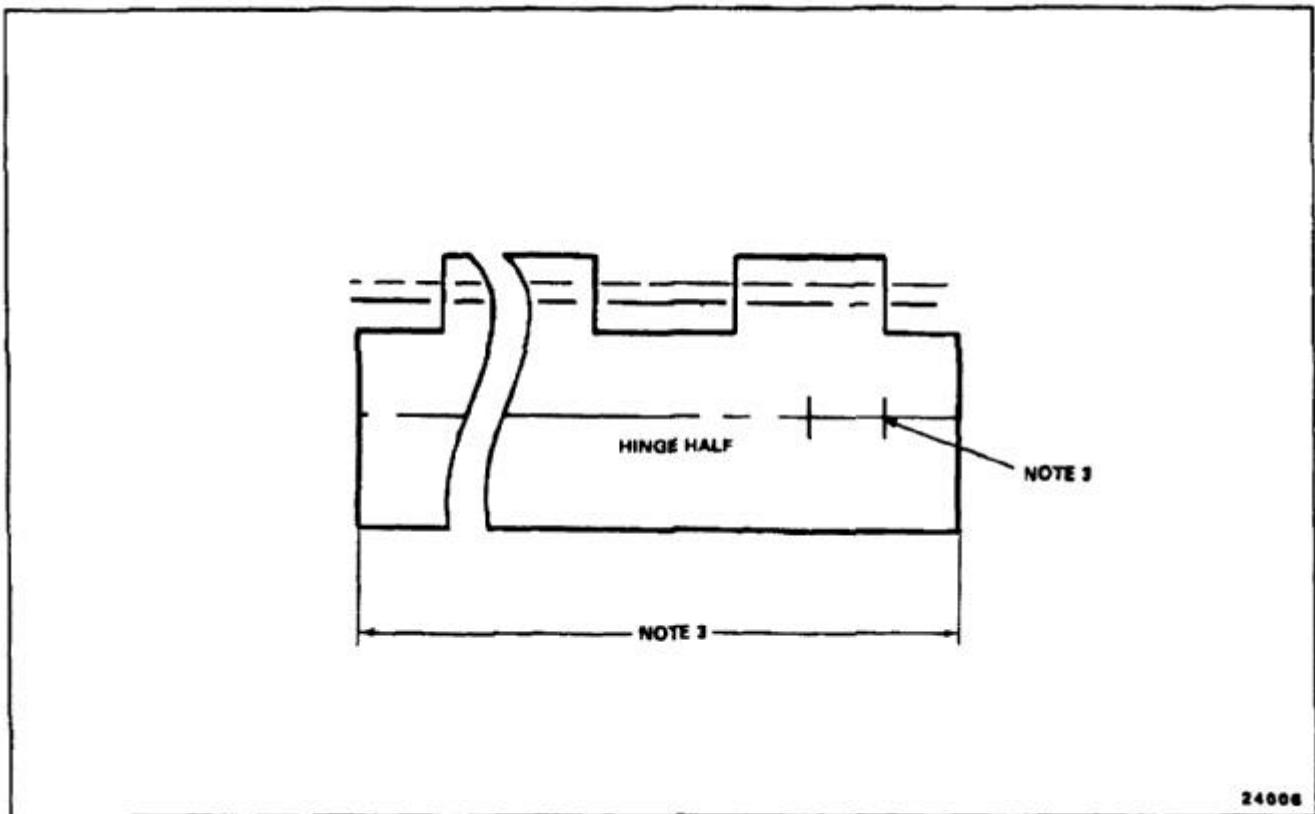
1. FABRICATE FROM SYNTHETIC RUBBER (NSN 5530-00-261-5471) SHEET PER MIL-R-6855, CLASS 1, GRADE 40.
2. ALL DIMENSIONS IN INCHES.



END OF TASK

**NOTES:**

1.    FABRICATE FROM MS20001PH5  
      (NSN 5340-00-582-3721).
2.    ALL DIMENSIONS IN INCHES. THE -63 HALF  
      HINGE IS OPPOSITE OF THE -64 HALF  
      HINGE.
3.    USE ORIGINAL PART TO DETERMINE PILOT  
      HOLE LOCATIONS AND SHAPE. LENGTH IS  
      14.20
4.    FINISH AS REQUIRED.

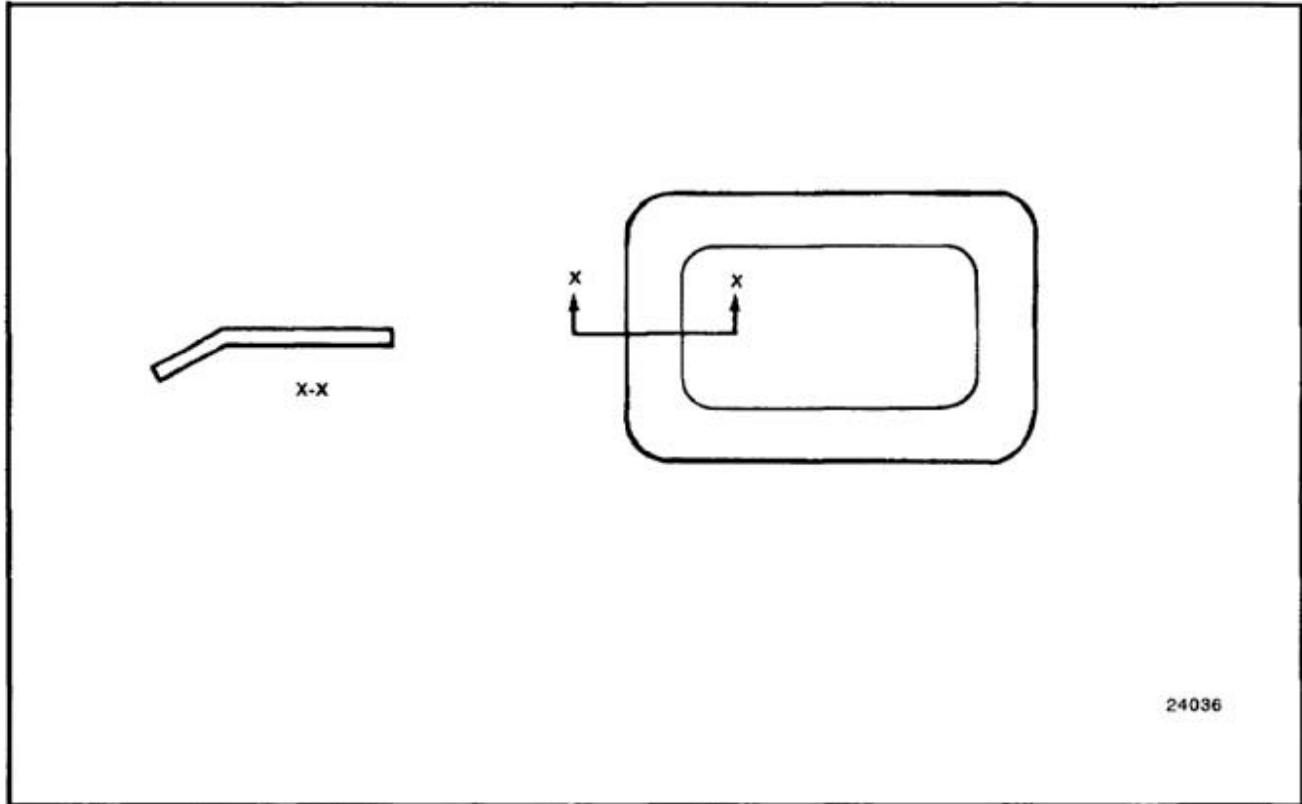


END OF TASK

E-386

**NOTES:**

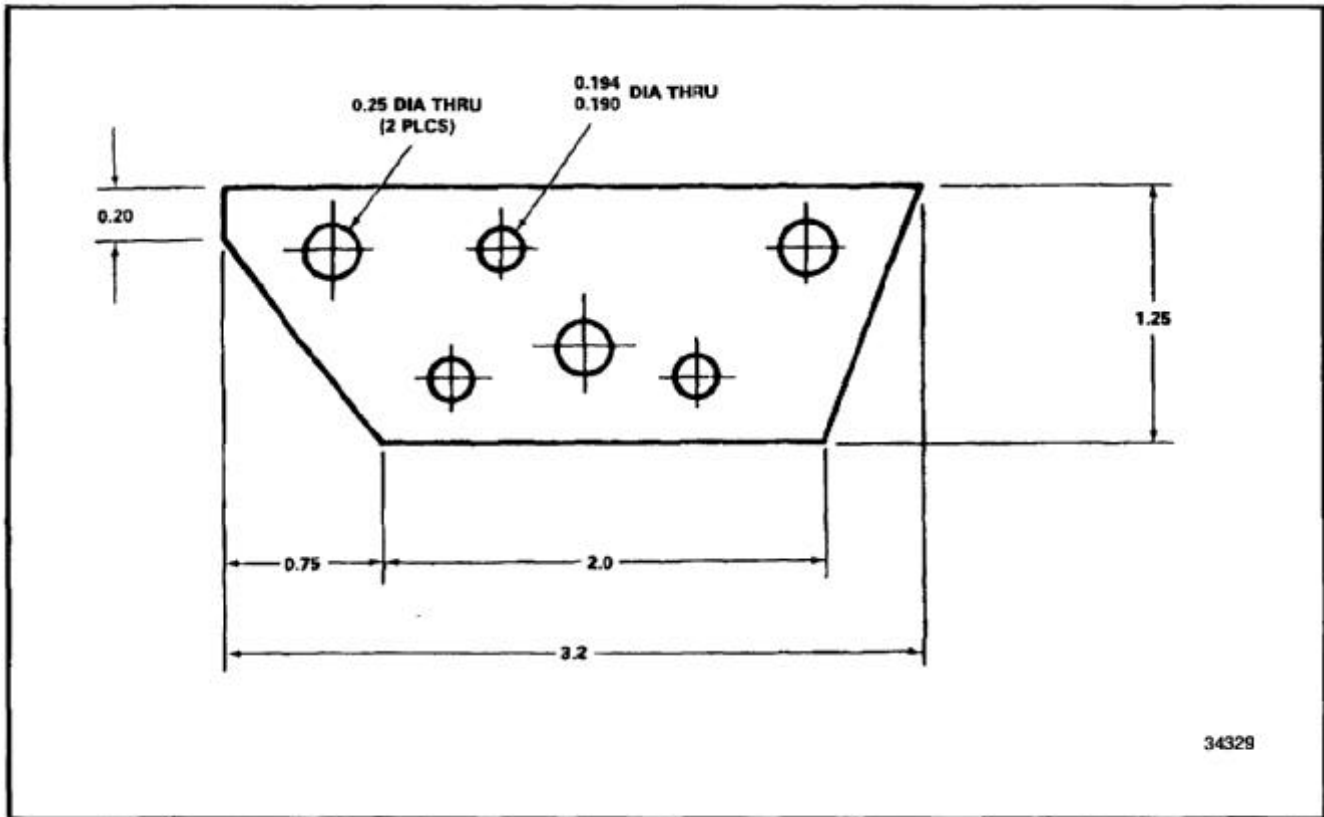
1. FABRICATE FROM RUBBER GASKET VS80567-1, NSN 5330-00-759-0786.
2. USE ORIGINAL PART TO DETERMINE LENGTH AND SHAPE.
3. IDENTIFY THE NEW PART WITH A SUITABLE MARKING INK.



END OF TASK

**NOTES:**

1. FABRICATE FROM ALUMINUM LAMINATED SHIM PER MIL-S-22499 COMPOSITION 1, TYPE 1.
2. ALL DIMENSIONS IN INCHES.
3. STOCK SIZE 0.092 X 1.4 X 3.3
4. FINISH AS REQUIRED.

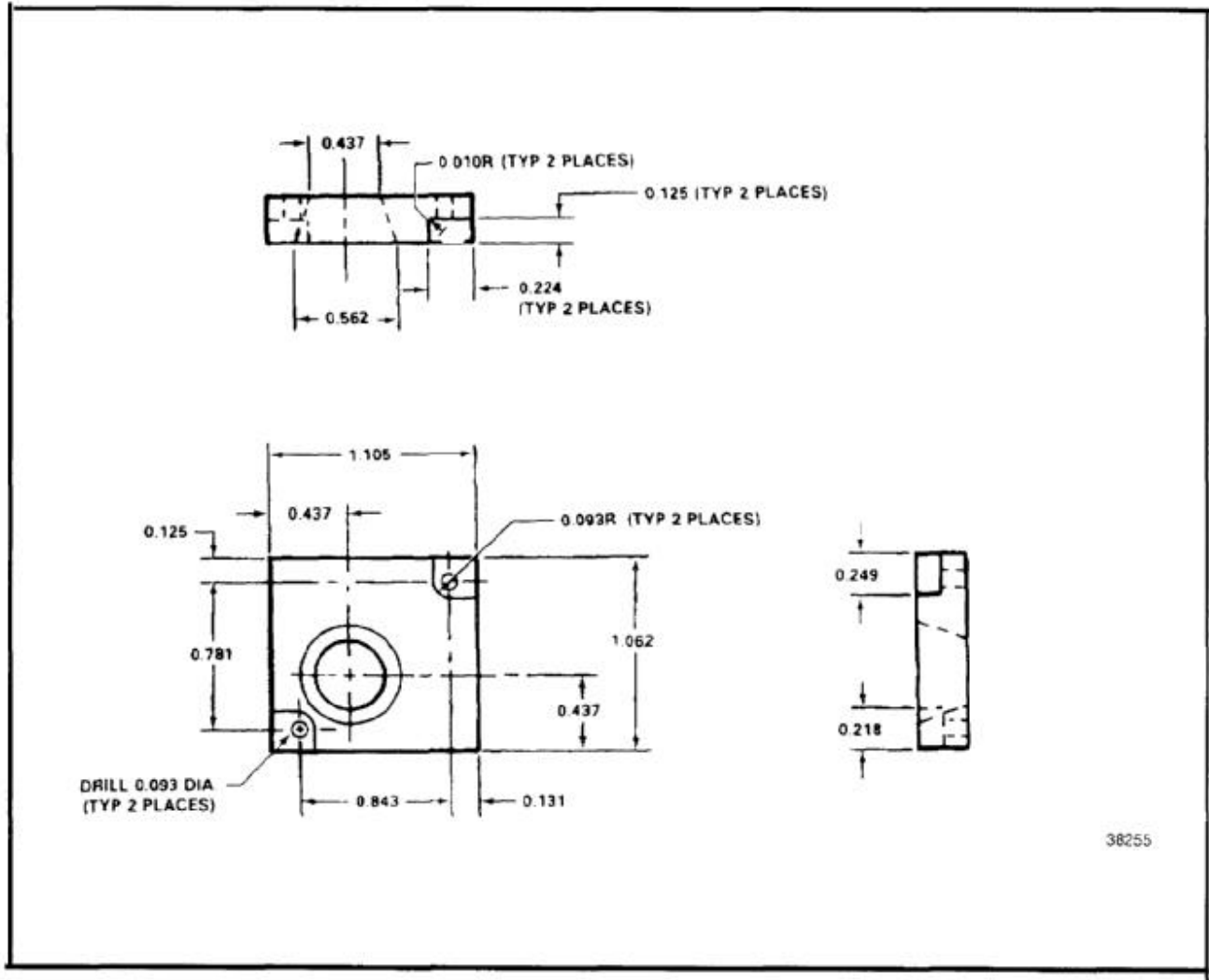


END OF TASK

E-388

**NOTES:**

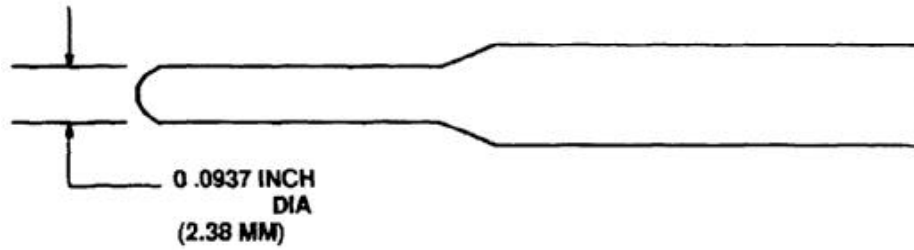
1. FABRICATE FROM CLEAR MODIFIED ACRYLIC SHEET 0.25 THICKNESS.
2. ALL DIMENSIONS IN INCHES.
3. BREAK ALL SHARP EDGES NOT SPECIFIED, TO A RADIUS OR CHAMFER OF 0.010 TO 0.020.
4. ±TOLERANCES 0.005; HOLES± 0.002



END OF TASK

**NOTES:**

1. FABRICATE FROM SUITABLE SIZE DRIFT.
2. DIMENSIONS IN INCHES.

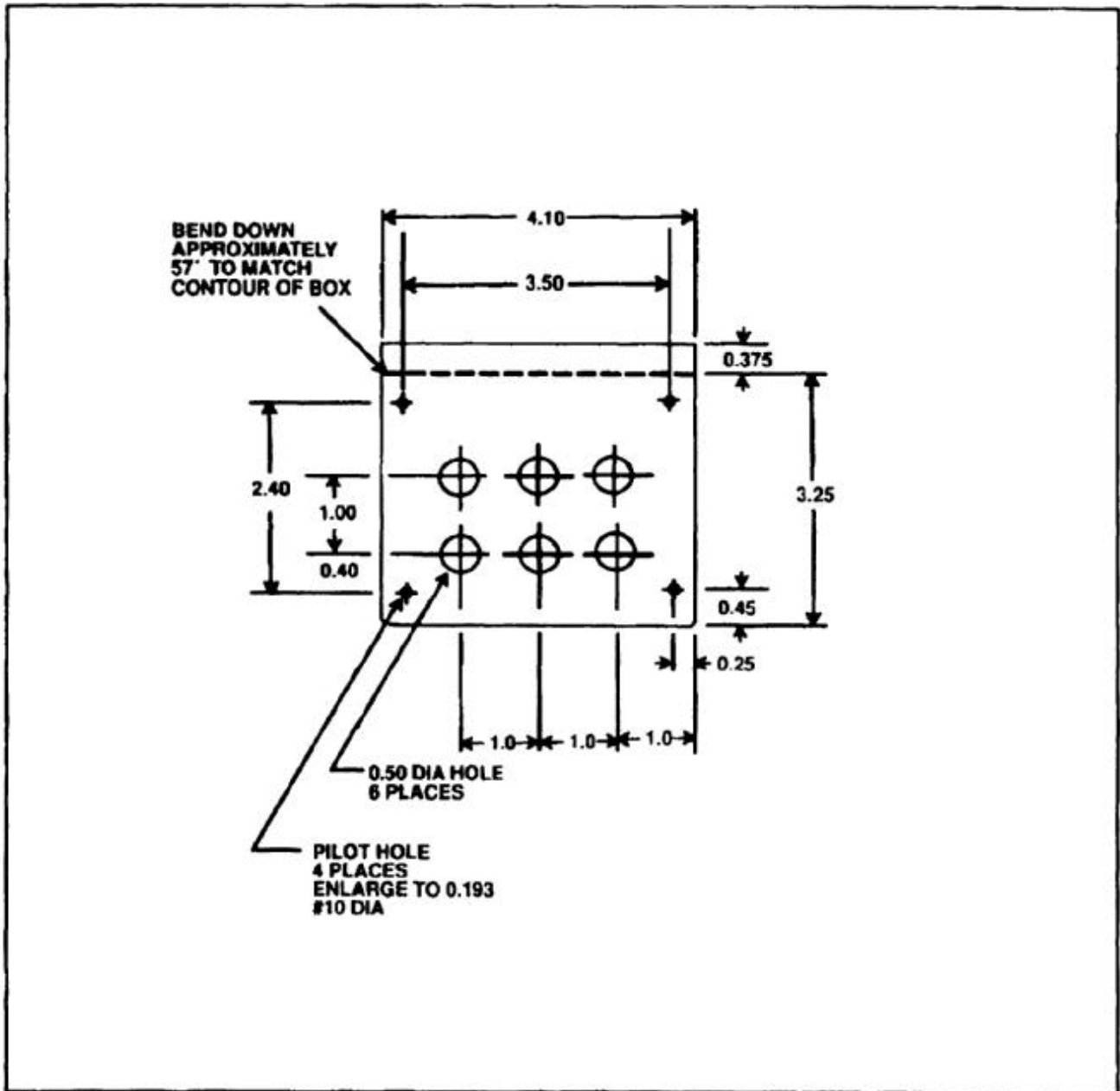


END OF TASK

E-390

**NOTES:**

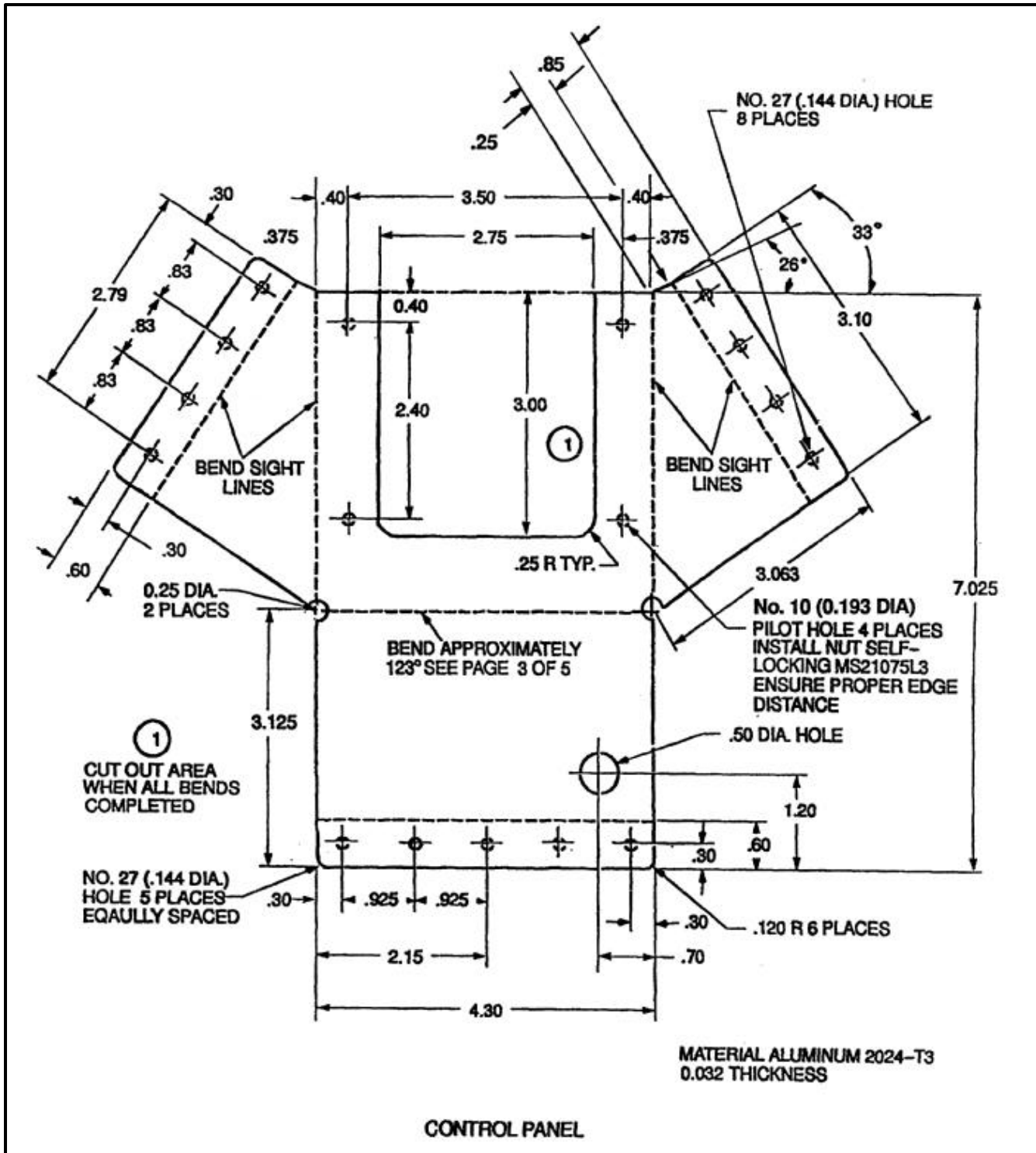
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.032 X 3.625 X 4.0.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.





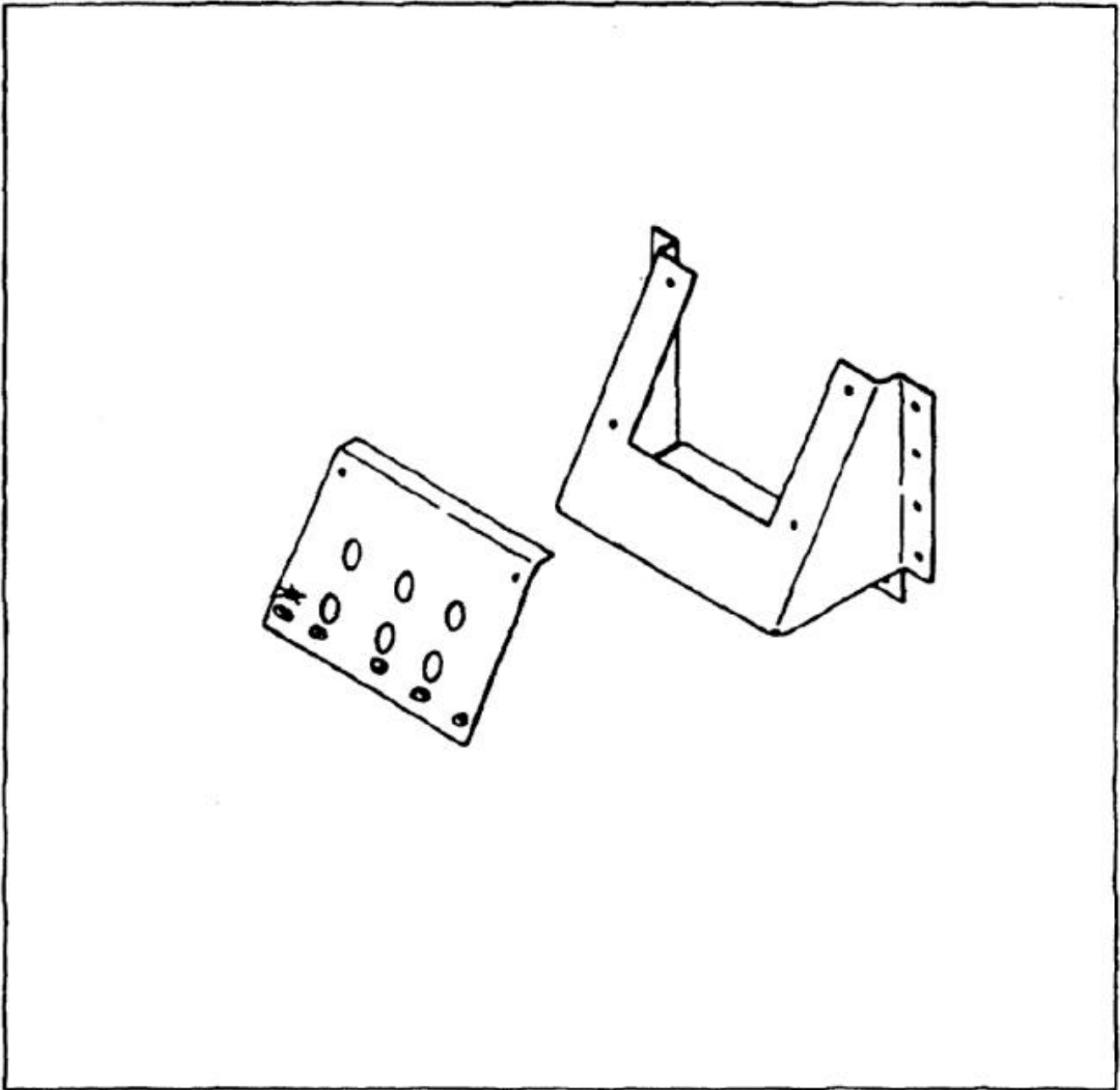
**NOTES:**

1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.032 X 3.625 X 4.0.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.



**NOTES:**

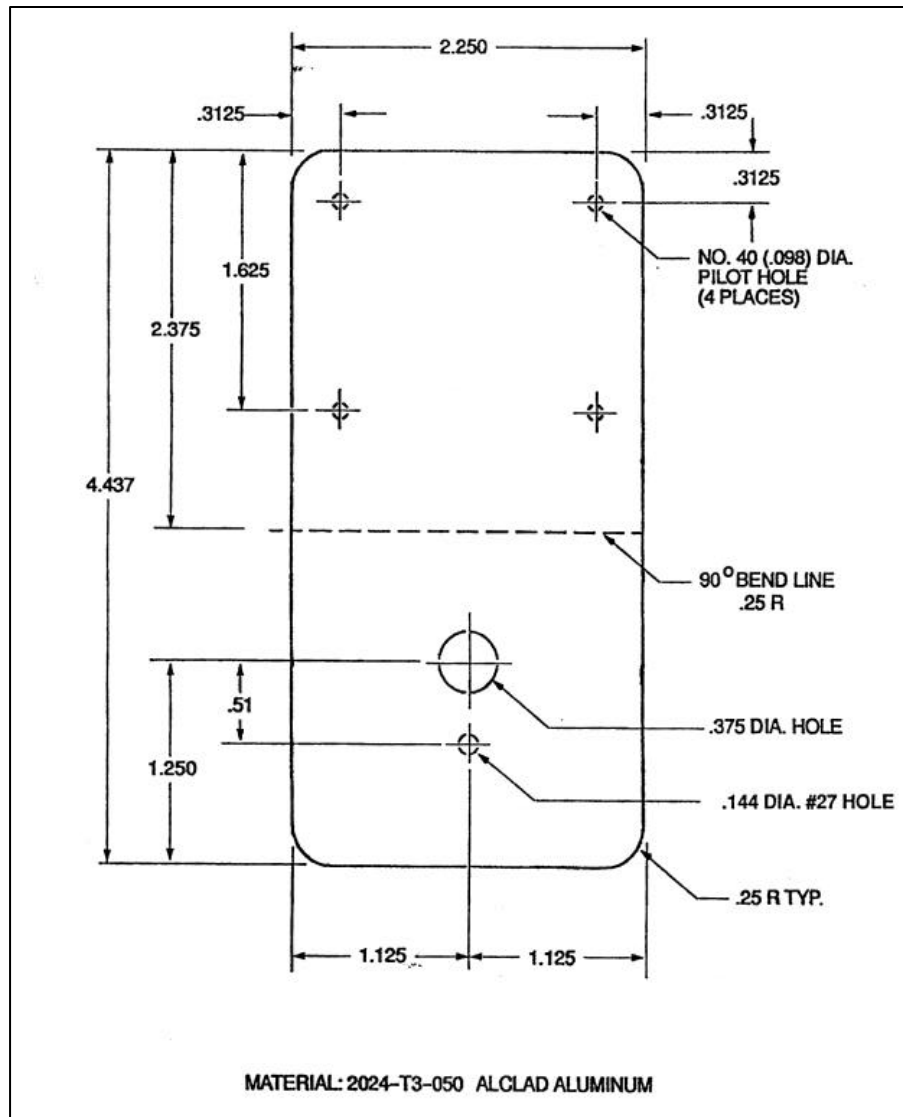
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.032 X 3.625 X 4.0.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

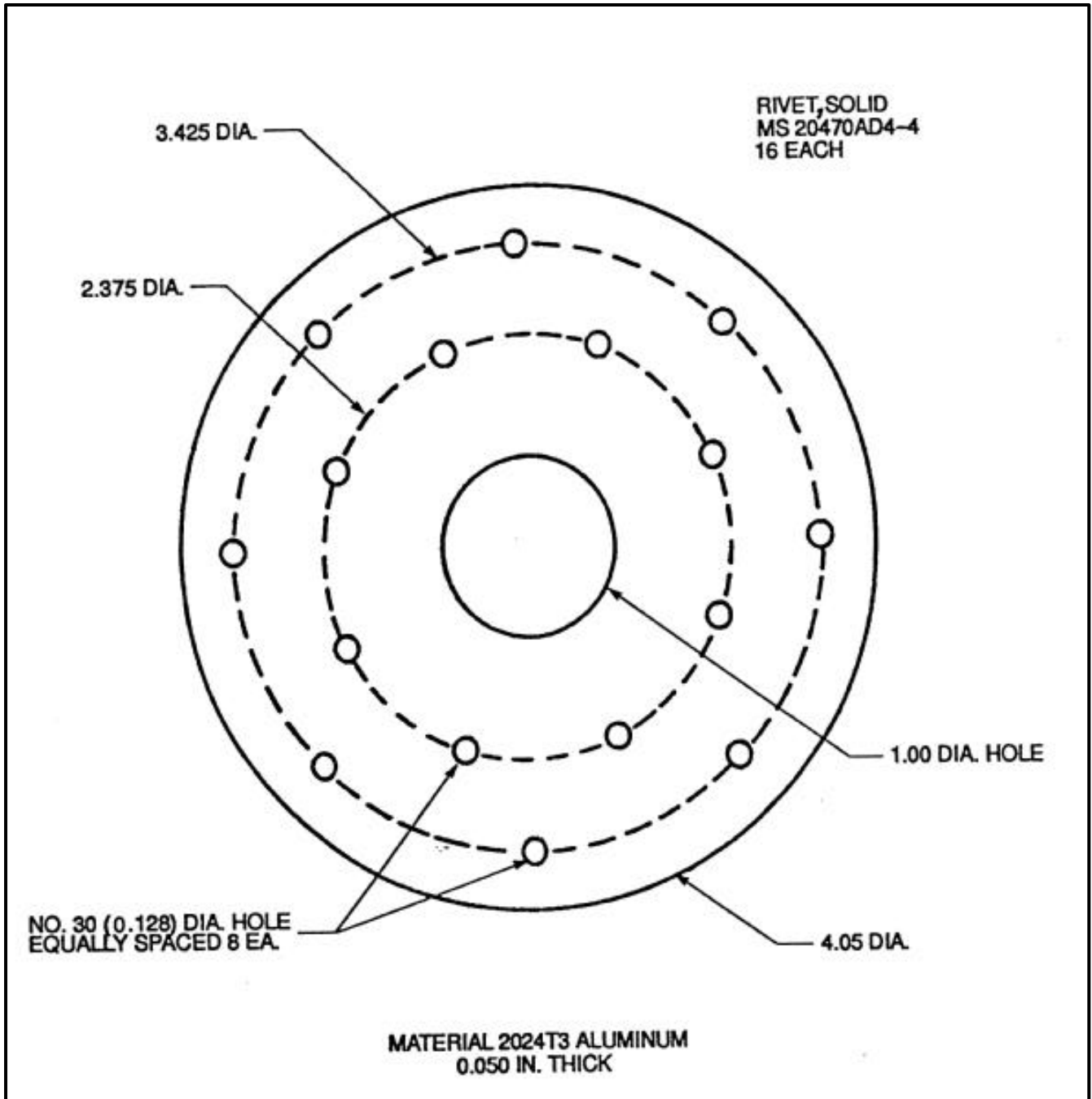
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.50.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

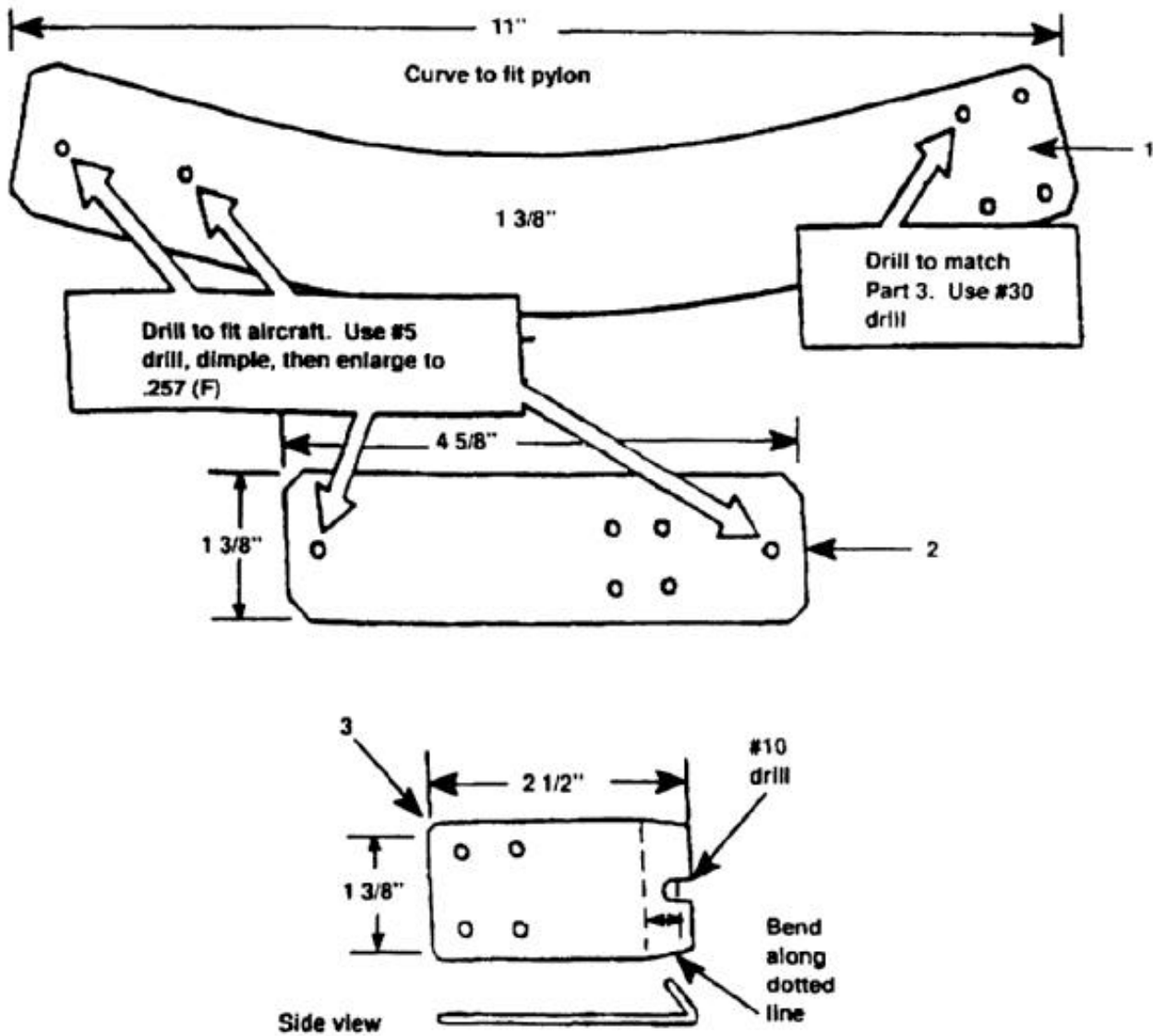
1. FABRICATE FROM ALUMINUM ALLOY CLAD SHEET 2024-T3 PER QQ-A-250/5.
2. STOCK SIZE 0.50.
3. ALL DIMENSIONS IN INCHES.
4. FINISH AS REQUIRED.



END OF TASK

**NOTES:**

1. FABRICATE ITEMS 1 AND 2 FROM .040-INCH THICK, TYPE 301, 1/4 HARD STAINLESS STEEL.
2. FABRICATE ITEM 3 FROM .063-IN TYPE 301, 1/4 HARD STAINLESS STEEL.
3. ALL DIMENSIONS IN INCHES.
4. USE NSN 5340-01-244-4124 OR NSN 5240-01-028-0086 FOR LATCH ASSY.
5. FINISH AS REQUIRED.



END OF TASK

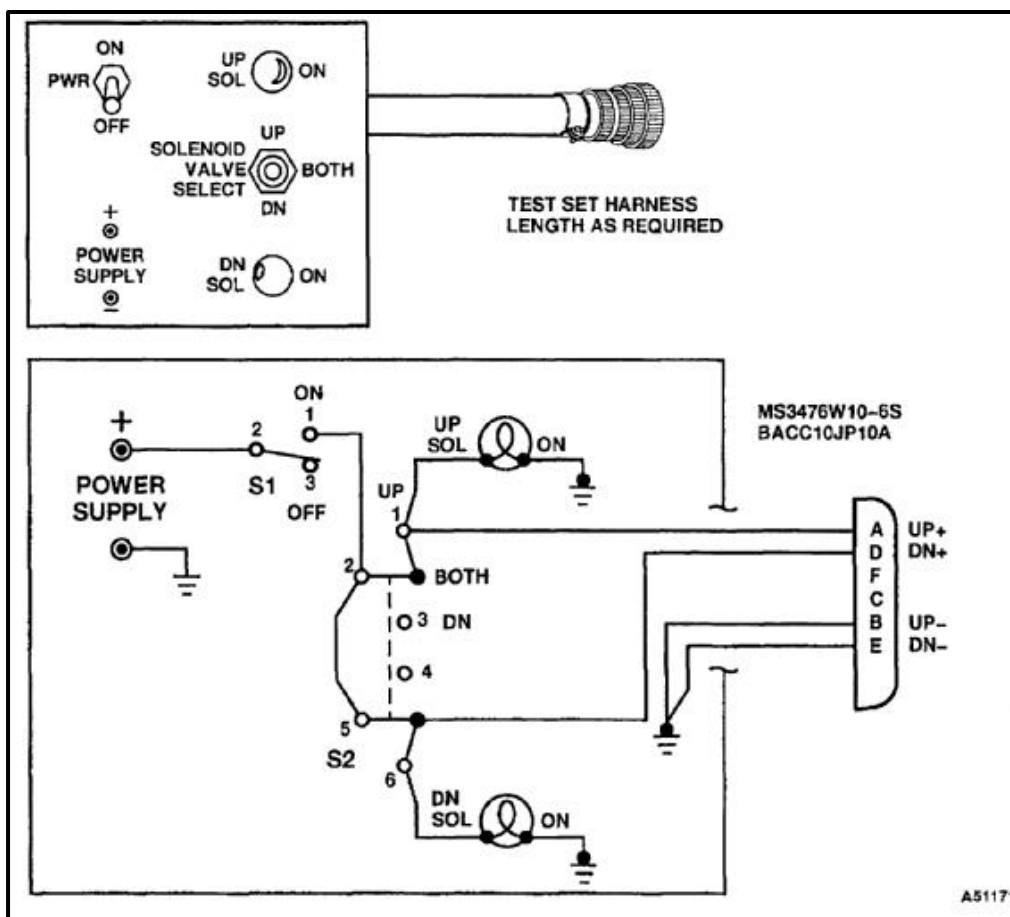
1.

NOTES:

FABRICATE FROM:

SWITCH BOX (SIZE OPTIONAL)	0.032, 2024-T3 CLAD AL	A/R
SWITCH (SPDT) (S1)	MS24523-21	QTY 1
SWITCH (DPTT) (S2)	MS27407-4	QTY 1
CONNECTOR	MS3476W10-6S	QTY 1
BACKSHELL	BACC10JP10A	QTY 1
WIRE	20 AWG (STRANDED)	A/R
TERMINALS (POWER SUPPLY)	TYPE MATEABLE WITH AVAILABLE POWER SUPPLY	QTY 2
LAMP HOLDER	25F1291	QTY 2
PANEL LIGHT	SHORT CYL. 28VDC 25F1434 (RED)	QTY 2

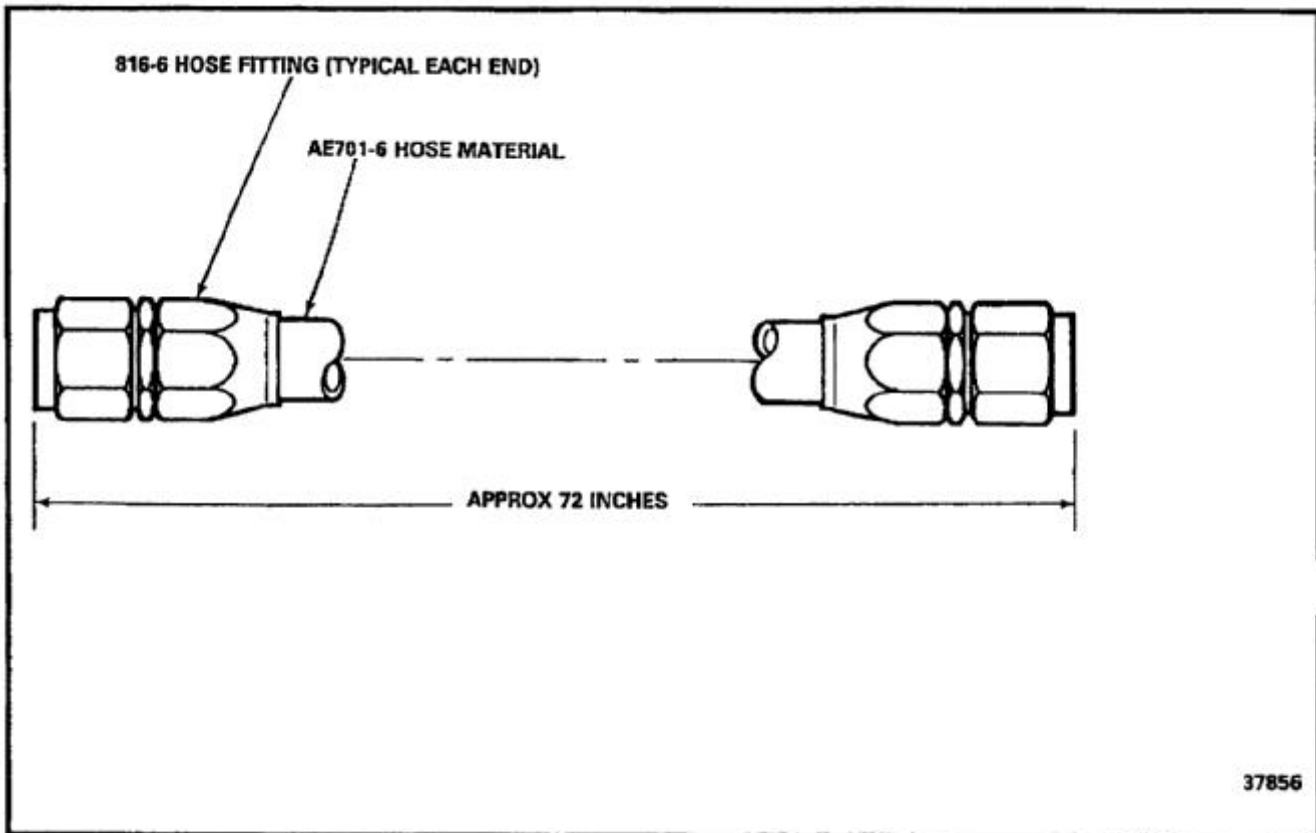
2. HOLES FOR SWITCHES AND THEIR ORIENTATION TAB OR KEY MUST BE PROPERLY INSTALLED IN FACE OF BOX TO ASSURE PROPER ORIENTATION OF SWITCHES TO MARKINGS AS SHOWN.



END OF TASK

**NOTES:**

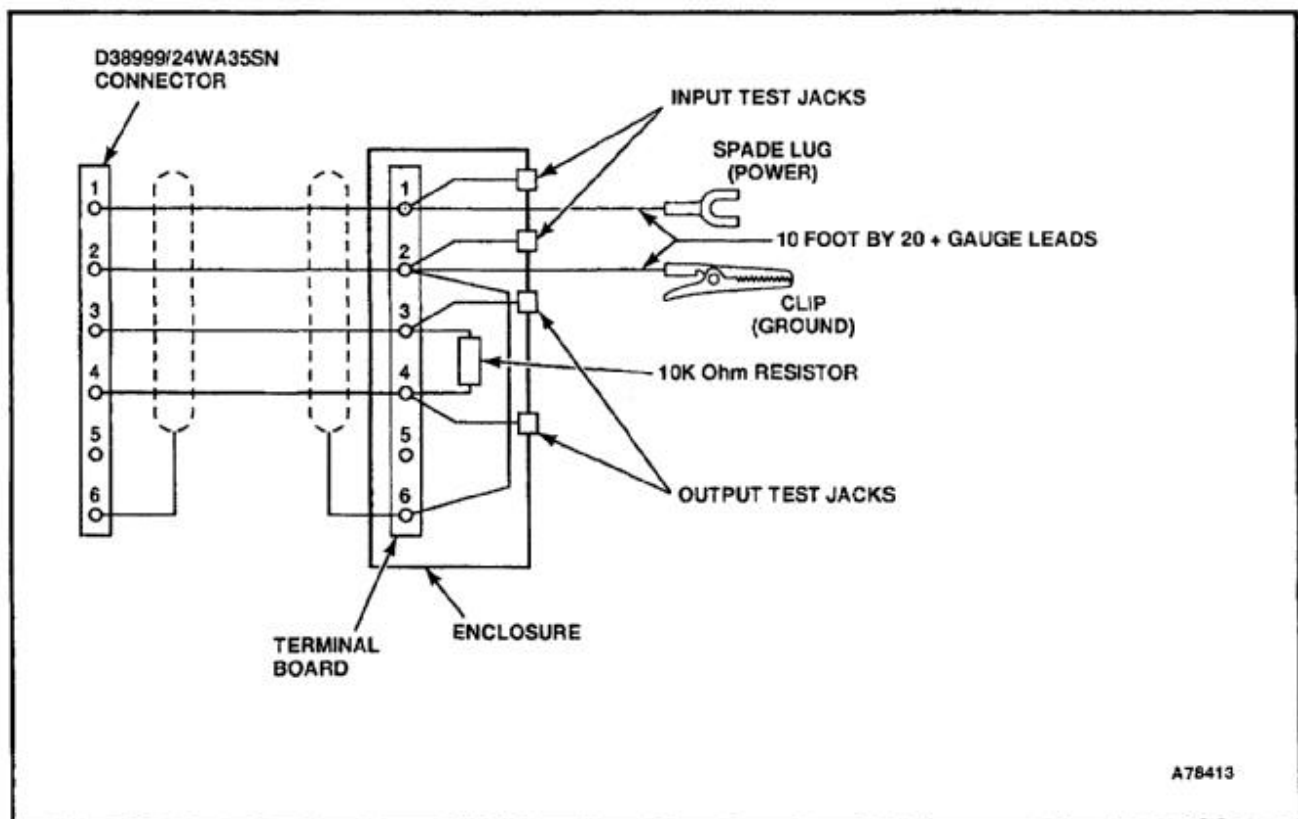
1. FABRICATE FROM 72.0 INCH LENGTH OF AEROQUIP AE701-6 HOSE.
2. INSTALL AEROQUIP 816-6 FITTING ON EACH END OF HOSE.



END OF TASK

**NOTES:**

1. MOUNT A SUITABLE TERMINAL BOARD IN AN ENCLOSURE.
2. USE 3 OR 4 FEET OF SHIELDED DUAL TWISTED PAIR WIRE BETWEEN CONNECTOR (D38999/24WA35SN) PINS AND TERMINAL BOARD.
3. INSTALL A 10K OHM RESISTOR BETWEEN STUDS 3 AND 4 OF THE TERMINAL BOARD (LVDT LOAD).
4. CONNECT A 10 FOOT LENGTH OF 20 GAUGE (OR LARGER) WIRE TO STUD 1 OF THE TERMINAL BOARD AND CRIMP A SPADE LUG TO THE FREE END OF THE WIRE.
5. CONNECT A 10 FOOT LENGTH OF 20 GAUGE (OR LARGER) WIRE TO STUD 2 OF THE TERMINAL BOARD AND CRIMP A GROUND (ALLIGATOR) CLIP TO THE FREE END OF THE WIRE.
6. ATTACH JUMPER BETWEEN STUDS 2 AND 6 OF THE TERMINAL BOARD.
7. MOUNT FOUR INPUT TEST JACKS ON THE FRONT OF THE ENCLOSURE. CONNECT THE JACKS TO THE TERMINAL BOARD PER THE ILLUSTRATION.
8. LABEL THE JACKS INPUT AND OUTPUT PER THE ILLUSTRATION.

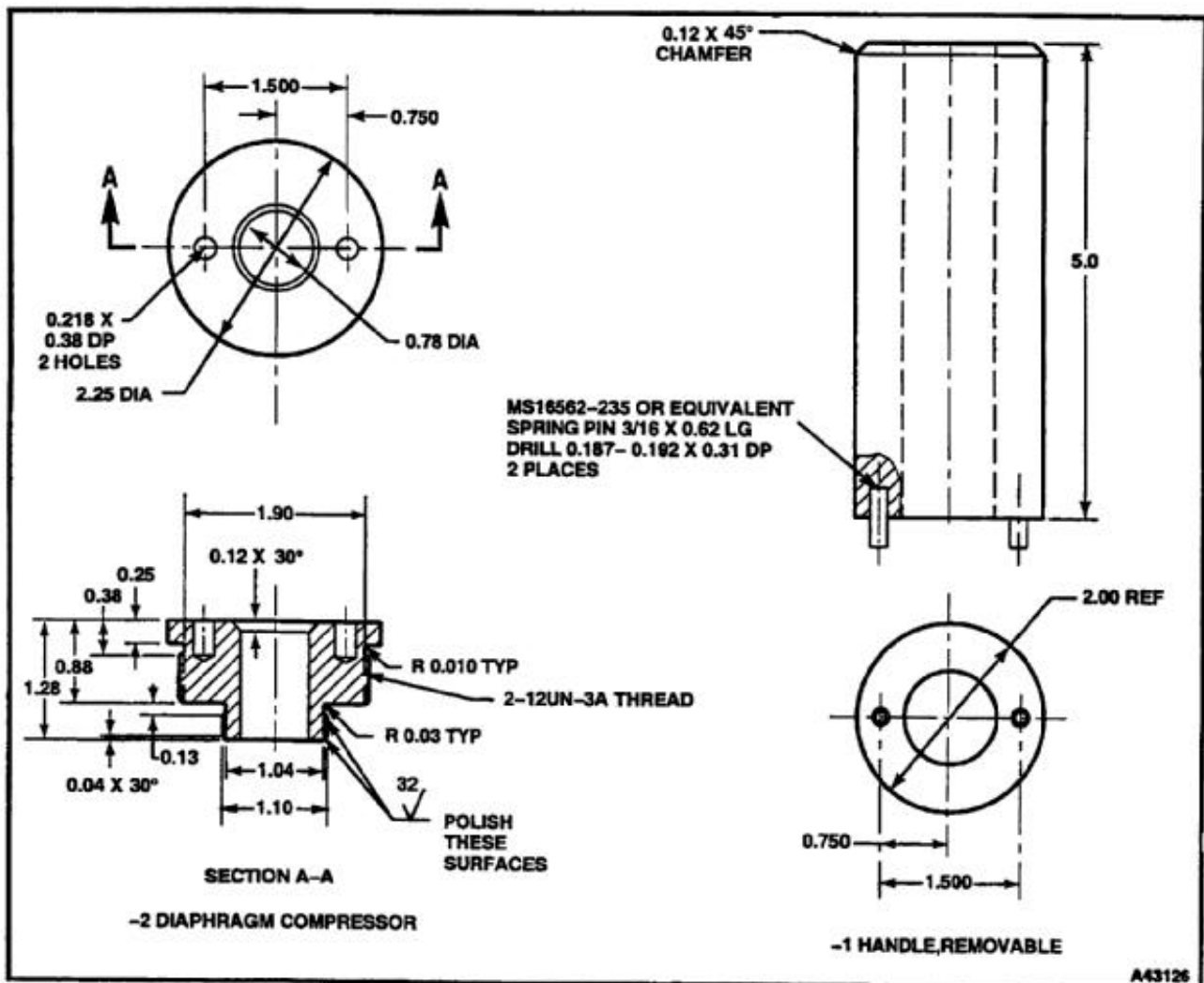


END OF TASK



**NOTES:**

1. DIAPHRAGM REPLACEMENT TOOL CONSISTS OF SK33086-1 HANDLE AND SK 33086-2 DIAPHRAGM COMPRESSOR.
2. BREAK ALL SHARP EDGES AND DEBURR.
3. TOLERANCES:  
 $\pm .X .1$   
 $.X \pm .03$   
 $\pm .XXX .005$
4. ALL DIMENSIONS IN INCHES.
5. DIAPHRAGM COMPRESSOR TOOL SK33086-2 IS FABRICATED FROM STL 1040 RD BAR.
6. HANDLE SK33086-1 IS FABRICATED FROM ALUM 6061 TUBE OF 2.00 OD X 1.00 ID.



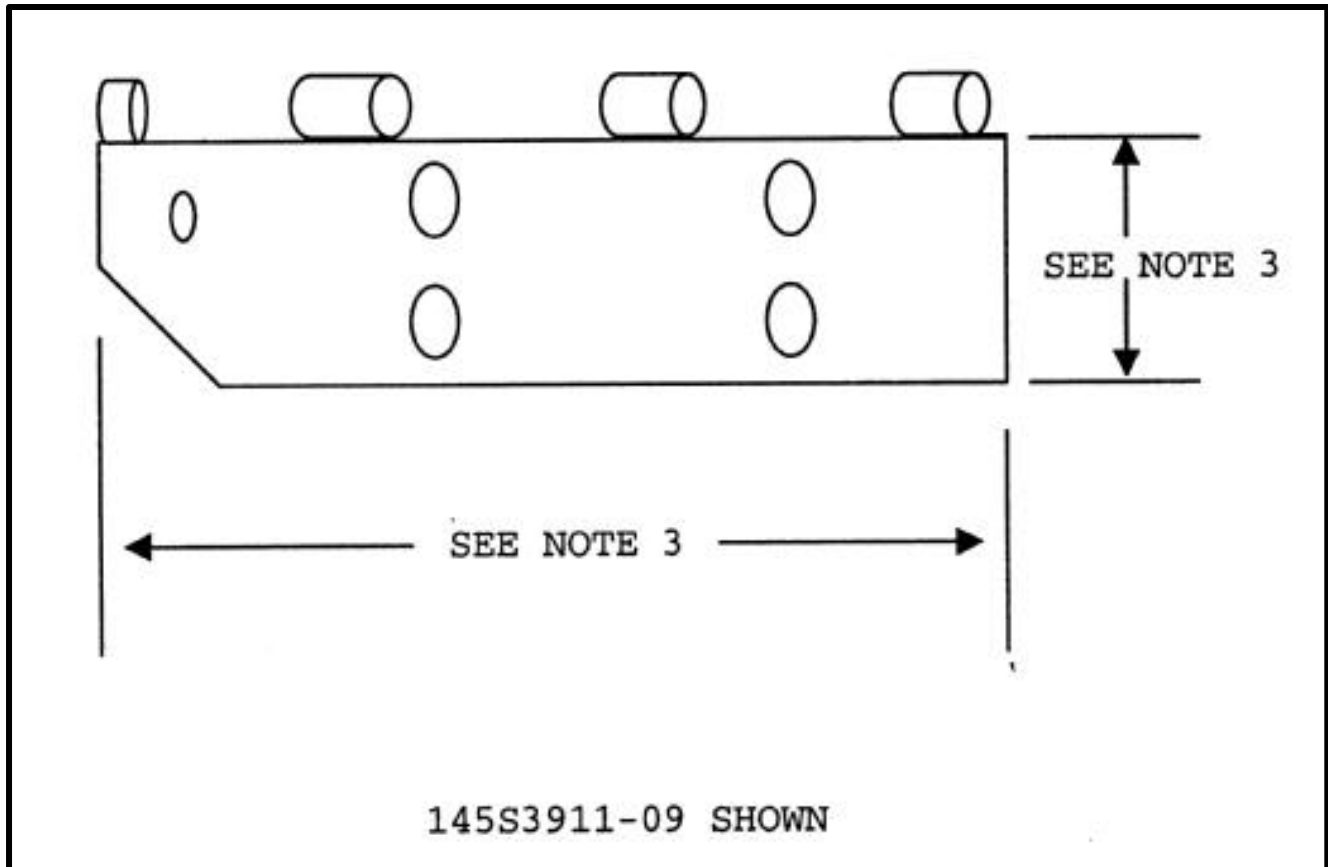
END OF TASK

**E-321    INSTALLATION OF FAIRING, LOWER PYLON, LEADING EDGE HINGE P/N  
145S3911-09,-10**

E-321

**NOTES:**

1. FABRICATE FROM MS20001P12,  
NSN 5340-00-664-8138.
2. THE -09 (LH) IS THE OPPOSITE OF THE -10  
(RH).
3. USE ORIGINAL PART TO DETERMINE HOLE  
LOCATIONS AND SHAPE OF HINGE.
4. FINISH AS REQUIRED.



END OF TASK

E-401/(-402 blank)



## **APPENDIX F WIRING DIAGRAMS**

(See TM 55-1520-240-T)



**APPENDIX G**  
**WEIGHT AND BALANCE**

## SECTION I

### GENERAL INFORMATION

#### G-1. WEIGHT AND BALANCE.

- a. This appendix contains procedures required for intermediate maintenance personnel to perform their phase of the weight and balance control. The procedures are specifically applicable to the CH-47D and include the use of certain forms in the DD 365 series. For general weight and balance information, refer to TM 55-1500-342-23. It is not the intent of this appendix to duplicate information contained in TM 55-1500-342-23.
- b. The weight and balance data provides the service activities with a standard system of intermediate maintenance weight and balance control. It contains brief instructive information to be used with the forms and charts which provide for continuous control of weight and balance of the aircraft. The data to be inserted on the charts and forms are applicable only to the individual aircraft, the serial number of which appears on the various forms and charts. These data are to remain with the aircraft in accordance with existing directives. The charts and forms referred to herein may differ in nomenclature and arrangement from those shown in previously published copies, since these charts are revised from time to time; however, the general principle of use will not change.

**G-2. Responsibility.** The aircraft manufacturer inserts all aircraft identifying data on the various charts, including one sample weight and balance clearance DD Form 365F, if applicable, at time of delivery. This record constitutes the basic weight and balance data of the aircraft at delivery. It is the maintenance officer's responsibility to monitor the technician who maintains the weight and balance data records. These data shall be maintained in a permanent binder for each aircraft. The binder shall reflect the model designation and the aircraft serial number. All DD Form 365 series forms, charts, and any other pertinent weight and balance data shall be maintained therein. All subsequent changes in weight and balance are compiled by the weight and balance technician in accordance with instructions contained herein.

**G-3. Weight definition.** Tare is the weight of equipment necessary for weighing the aircraft (chocks, blocks, slings, jacks, etc.) which is included in the scale reading (or reactions) but is not a part of the aircraft weight. Reference is made to TM 55-1500-342-23 for weight and balance definitions.

## SECTION II

### USE OF FORMS AND CHARTS

**G-4. Instructions for use of the forms and charts.** There are two parts to the weight and balance problem. First, one must have correct information as to the basic weight and moment. Second, gross weight and balance must be maintained within weight and center of gravity limits with the addition of load. The first part is controlled by basic weight check list and basic weight and balance record after the basic weight and balance have been determined by weighing the aircraft. The second part is carried out on form F with the aid of a balance computer or loading data charts or graphs.

#### NOTE

The DD Form 365-series forms shall have no security classification until filled in. The forms, when filled in, shall take on the security classification of the aircraft for which they are used.

**G-5. Forms.** The standard system of intermediate maintenance weight and balance control requires the use of several different forms and shall be presented as samples in this appendix. They are identified as follows:

- a. Record of Weight and Balance Personnel, DD Form 365 (Figure G-1).
- b. Basic Weight Check List, DD Form 365-1 (Figure G-2).
- c. Airplane Weighing Record, DD Form 365-2 (Figure G-3).
- d. Basic Weight and Balance Record, DD Form 365-3 (Figure G-4).
- e. Loading Data, Charts and Graphs. Chart E (Figure G-5).
- f. Weight and Balance Clearance Form F, DD Form 365-4 (Figure G-6).

**G-6. Record of Weight and Balance Personnel, DD Form 365 (Figure G-1).** Listed at the top of this form are the aircraft designation and serial numbers. The form provides a continuous record of the name and grade (civilian or military) of weight and balance personnel responsible for the records, the station, the date assigned, and the date relieved. All entries shall be complete and legible.

**G-7. Basic Weight Checklist, DD Form 365-1 (Figure G-2).** The basic weight checklist is a tabulation of all operating equipment that is or may be installed and for which provision for fixed stowage has been made in a definite location in the aircraft. It gives the weight, arm, and moment/constant of the individual items for use in correcting the basic weight and moment on DD Form 365-3 as changes are made in this equipment. When check marks are entered in the IN AIRCRAFT column, it serves as the inventory of equipment included in the basic weight and moment/constant.

- a. Inventories shall be made periodically, and when:
  - (1) The aircraft undergoes modification, major overhaul, or repair.
  - (2) The aircraft is received at a new base.
  - (3) Changes in equipment are made for a different type of operation or mission.
  - (4) The aircraft is reweighed.
  - (5) The pilot reports unsatisfactory flight characteristics (tail or nose heaviness).
- b. The manufacturer of the aircraft placed check marks in the IN AIRCRAFT column to identify the items of equipment in the aircraft for the delivery condition. This delivery inventory shows equipment included in the initial basic weight entry on DD Form 365-3.
- c. Subsequent checklist inventories shall be carried as follows:



- (1) Inspect aircraft for equipment actually installed, placing check marks in the next unused IN AIRCRAFT column. A check in the column headed IN AIRCRAFT indicates the presence of the item in the aircraft on the date at the head of the column, and a zero (0) indicates its absence. Items should not be checked unless they are installed, and items marked zero are not to be included in the basic weight and balance tabulated on DD Form 365-3 for the corresponding date. During this inventory, note whether any new items of equipment have been installed, and if so, enter item number and name or description, together with other data required through column moment/constant, including date in parentheses following description.





- (2) Compare this inventory with that under last CHECK heading, noting any changes in items of equipment installed in aircraft. Refer to DD Form 365-3 to ascertain whether necessary weight and moment corrections have been made. If so, place check marks opposite such items in CHART C ENTRY column on the DD Form 365-1. If not, correct basic weight and moment/constant data on DD Form 365-3 and then enter CHART C ENTRY column check marks.
- (3) Check marks are made only at the time of a complete inventory. Never change check marks or add new ones under a previously accomplished check heading. Use next CHECK column. When an inventory is included as part of a weighing, the procedures outlined in the preceding paragraph should not be omitted since this correction makes possible the comparison of calculated and actual weight figures. Check marks in CHART C ENTRY column indicate only a calculated change in the basic chart C figures.
- (4) Ensure the same date is entered over CHECK heading on DD Form 365-1 and in date column on DD Form 365-3 for corresponding corrected basic weight and moment/constant.

**G-8. Airplane Weighing Record, DD Form 365-2 (Figure G-3).** Fill out DD Form 365-2 as follows:

- a. Fill in identifying data and enter actual scale readings in first columns.

**NOTE**

The example weighing forms, provided in Figure G-3 have been modified specifically for use with CH-47D helicopters. A reproducible modified DD Form 365-2 is also provided in Figure G-3. This form is usable for 3 or 4 point weighing.

- b. Subtract tare, if any, from scale readings to obtain net weight.



If the helicopter is to be weighed using the 3-point method, the gross weight must be determined by using the chart in task 1-30. If the 4-point method is used, the helicopter is restricted to a maximum gross weight of **33,000 pounds**.

**NOTE**

Actual measurements are not necessary when the helicopter is weighed using either the forward fuselage jack point or the forward landing gear scissor jack pads and the aft fuselage jack points.

- c. When weighing on 3 points, the forward fuselage jack pad is used in lieu of the 2 jack pads located on the forward landing gear. The forward fuselage jack pad is a jig point located at fuselage sta. 96.0 designated as I on weighing form (Figure G-3, sample DD Form 365-2). The 2 aft fuselage jack points as described in the 4 point weighing procedure are used in conjunction with the forward jack pad. They are also jig points and are located at fuselage sta. 484.5. They are designated as J on weighing form Figure G-3. When weighing on 4 points, the jack pads on the landing gear scissors LH and RH are used for the forward reactions. They are located at fuselage sta. 251.6 and designated as F on weighing form. The two aft fuselage jack points are jig points and are located at fuselage sta. 484.5 and designated as J on the weighing form. Moments are taken about the reference datum.
- d. Add net weights and moments of forward and aft reaction.
- e. Divide total moment by total net weight to obtain as weighed CG position in inches from reference datum (H).
- f. Transfer TOTAL (As Weighed) weight, arm, and moment to back of weighing form.

ROTORCRAFT WEIGHING RECORD					
DATE WEIGHED		MODEL		SERIAL NUMBER	
PLACE WEIGHED			WEIGHING PERSONNEL		
REACTION (WHEELS, JACKPOINTS, ETC.)	SCALE READING	TARE	NET WEIGHT	ARM	MOMENT
LEFT FWD.	8630	— 0 —	8630		
RIGHT FWD.	—	—	—		
SUBTOTAL (BOTH FWD.) OR FWD. ONLY	8630		8630	$\frac{F}{OR}$ 96.0	828480
LEFT AFT	6290	— 0 —	6290		
RIGHT AFT	8490	— 0 —	8490		
SUBTOTAL (BOTH AFT)	14780	— 0 —	14780	$\frac{J}{OR}$ 484.5	7160910
TOTAL (AS WEIGHED)	23410	— 0 —	23410	341.3	7989390

**MEASUREMENTS**

**B** — THE DISTANCE FROM THE JIG POINT TO THE CENTER LINE OF THE AFT REACTIONS. OBTAINED BY MEASUREMENT.

**I** — 96.0 THE DISTANCE FROM THE REFERENCE DATUM TO THE JIG POINT ALSO THE FORWARD FUSELAGE JACKPOINT (1). FROM WHICH A PLUMB BOB CAN BE DROPPED TO THE GROUND. OBTAIN FROM THE ROTORCRAFT DIAGRAM IN CHART E.

**E** —  $\frac{1}{2}$  THE DISTANCE FROM THE REFERENCE DATUM TO THE CENTER LINE OF THE AFT REACTIONS.  $E = I + B$

**D** — THE WHEEL BASE (OR THE DISTANCE BETWEEN FORE AND AFT REACTIONS.) OBTAINED BY MEASUREMENT.

**F** —  $\frac{1}{2}$  THE DISTANCE FROM THE REFERENCE DATUM TO THE CENTER LINE OF THE FWD. REACTIONS.  $F = E - D$

**J** — 484.5 THE DISTANCE FROM THE REFERENCE DATUM TO THE AFT FUSELAGE JACKPOINTS (2) OBTAIN FROM THE ROTORCRAFT DIAGRAM IN CHART E.

**EXAMPLE**  
Three point weighing

DIAGRAM FOR MEASURING ROTORCRAFT TO DETERMINE ARM OF SUPPORT POINTS

1/CHECK DIMENSIONS E AND F AGAINST DIMENSIONS LISTED ON CHART E.

DD FORM 365-2 (MODIFIED)

14190

Figure G-3. DD Form 365-2 (Sheet 1 of 6)

DESCRIPTION		NET WEIGHT		ARM	MOMENT	INDEX OR MOM/1000	
TOTAL (AS WEIGHED) (FROM FRONT SIDE)		23410		(341.3)	7989390		
OIL IN AIRPLANE		—		—	—		
TOTAL OF ITEMS WEIGHED BUT NOT PART OF BASIC WEIGHT (FROM COLUMN I BELOW)		10		(251.6)	2516		
TOTAL OF BASIC WEIGHT ITEMS NOT IN AIRCRAFT WHEN WEIGHED (FROM COLUMN II BELOW)							
BASIC AIRCRAFT (POST TO CHART C)		23400		(341.3)	7986874	7986.9	
COLUMN I				COLUMN II			
ITEMS WEIGHED BUT NOT PART OF BASIC WEIGHT	WEIGHT	ARM	MOMENT	BASIC WEIGHT ITEMS NOT IN AIRCRAFT WHEN WEIGHED	WEIGHT	ARM	MOMENT
CHAINS, FWD STRUTS	10	251.6	2516				
TOTAL	10	251.6	2516	TOTAL			
REACTIONS USED				TYPE SCALE COX & STEVENS (REVERE CORP) SERIAL NUMBER S/N 4391 CALIBRATION DATE 11/17/87 CALIBRATED ACCURACY 11/18/88			
FORWARD REACTION - FWD FUSELAGE JACKING PAD							
AFT REACTION - AFT LANDING GEAR JACKING PAD (2)							
REMARKS							
1. AIRCRAFT WEIGHED IN A LEVEL ATTITUDE IN A CLOSED HANGAR.							
2. BASIC WEIGHT INCLUDES FULL ENGINE OIL, TRAPPED AND UNUSABLE FUEL.							
<p><b>EXAMPLE</b></p> <p>Three point weighing</p>							
ENTER CONSTANT HERE							

14191

Figure G-3. DD Form 365-2 (Reverse) (Sheet 2 of 6)

ROTORCRAFT WEIGHING RECORD					
DATE WEIGHED		MODEL		SERIAL NUMBER	
PLACE WEIGHED			WEIGHING PERSONNEL		
REACTION (WHEELS, JACKPOINTS, ETC.)	SCALE READING	TARE	NET WEIGHT	ARM	MOMENT
LEFT FWD.	9582	-0-	9577		
RIGHT FWD.	9692	-0-	9687		
SUBTOTAL (BOTH FWD.) OR FWD. ONLY	19274	-0-	19274	F OR J 251.6	4849338
LEFT AFT	5411	-0-	5411		
RIGHT AFT	5456	-0-	5456		
SUBTOTAL (BOTH AFT)	10867	-0-	10867	E OR J 484.5	5265062
TOTAL (AS WEIGHED)	30,141		30,141	(335.6)	10114400

**MEASUREMENTS**

B - THE DISTANCE FROM THE JIG POINT, TO THE CENTER LINE OF THE AFT REACTIONS. OBTAINED BY MEASUREMENT.

I - THE DISTANCE FROM THE REFERENCE DATUM TO THE JIG POINT ALSO THE FORWARD FUSELAGE JACKPOINT (I). FROM WHICH A PLUMB BOB CAN BE DROPPED TO THE GROUND. OBTAIN FROM THE ROTORCRAFT DIAGRAM IN CHART E.

E - 1/2 THE DISTANCE FROM THE REFERENCE DATUM TO THE CENTER LINE OF THE AFT REACTIONS.  $E = I + B$

D - THE WHEEL BASE (OR THE DISTANCE BETWEEN FORE AND AFT REACTIONS.) OBTAINED BY MEASUREMENT.

F - 251.6 1/2 THE DISTANCE FROM THE REFERENCE DATUM TO THE CENTER LINE OF THE FWD. REACTIONS.  $F = E \cdot D$

J - 484.5 THE DISTANCE FROM THE REFERENCE DATUM TO THE AFT FUSELAGE JACKPOINTS (2) OBTAIN FROM THE ROTORCRAFT DIAGRAM IN CHART E.

**EXAMPLE**  
Four point weighing

DIAGRAM FOR MEASURING ROTORCRAFT TO DETERMINE ARM OF SUPPORT POINTS

1/CHECK DIMENSIONS E AND F AGAINST DIMENSIONS LISTED ON CHART E

DD FORM 385-2 (MODIFIED)

14188

Figure G-3. DD Form 365-2 (Sheet 3 of 6)

DESCRIPTION		NET WEIGHT		ARM	MOMENT	INDEX OR MOM/100	
TOTAL (AS WEIGHED) (FROM FRONT SIDE)		30,141		335.6	10114400		
OIL IN AIRPLANE		—		—	—		
TOTAL OF ITEMS WEIGHED BUT NOT PART OF BASIC WEIGHT (FROM COLUMN I BELOW)		6731		315.7	2124336		
TOTAL OF BASIC WEIGHT ITEMS NOT IN AIRCRAFT WHEN WEIGHED (FROM COLUMN II BELOW)							
BASIC AIRCRAFT (POST TO CHART C)		23410		(341.3)	7990064	7990.0	
COLUMN I				COLUMN II			
ITEMS WEIGHED BUT NOT PART OF BASIC WEIGHT		WEIGHT	ARM	MOMENT	BASIC WEIGHT ITEMS NOT IN AIRCRAFT WHEN WEIGHED		
FUEL JP4		6721	315.7	2121820			
FWD GEAR CHAINS		10	251.6	2516			
TOTAL		6731	(315.6)	2124336	TOTAL		
REACTIONS USED				TYPE SCALE COX & STEVENS (REVERE CORP.)			
FORWARD REACTION - FWD GEAR JACKING PADS				SERIAL NUMBER S/N 4391			
AFT REACTION - AFT GEAR JACKING PADS				CALIBRATION DATE (YYMMDD) 11/17/87			
				CALIBRATED ACCURACY 11/18/88			
REMARKS							
1. AIRCRAFT WEIGHED IN A LEVEL ATTITUDE IN A CLOSED HANGAR.							
2. BASIC WEIGHT INCLUDES FULL ENGINE OIL.							
3. FULL FUEL TANKS, 1034 GAL. JP-4 6.5 LBS PER GAL.							
<p><b>EXAMPLE</b> Four point weighing</p>							
ENTER CONSTANT NEED							

14189

Figure G-3. DD Form 365-2 (Reverse) (Sheet 4 of 6)



<b>ROTORCRAFT WEIGHING RECORD</b>					
DATE WEIGHED		MODEL		SERIAL NUMBER	
PLACE WEIGHED			WEIGHING PERSONNEL		
REACTION (WHEELS, JACKPOINTS, ETC.)	SCALE READING	TARE	NET WEIGHT	ARM	MOMENT
LEFT FWD					
RIGHT FWD					
SUBTOTAL (BOTH FWD) OR FWD ONLY					
LEFT AFT					
RIGHT AFT					
SUBTOTAL (BOTH AFT)					
TOTAL (AS WEIGHED)					

**MEASUREMENTS**

**B** — THE DISTANCE FROM THE JIG POINT TO THE CENTER LINE OF THE AFT REACTIONS OBTAINED BY MEASUREMENT

**I** — THE DISTANCE FROM THE REFERENCE DATUM TO THE JIG POINT ALSO THE FORWARD FUSelage JACKPOINT (I) FROM WHICH A PLUMB BOB CAN BE DROPPED TO THE GROUND. OBTAIN FROM THE ROTORCRAFT DIAGRAM IN CHART E

**E** — 1/2 THE DISTANCE FROM THE REFERENCE DATUM TO THE CENTER LINE OF THE AFT REACTIONS  $E = I + B$

**D** — THE WHEEL BASE (OR THE DISTANCE BETWEEN FORE AND AFT REACTIONS) OBTAINED BY MEASUREMENT

**F** — 1/2 THE DISTANCE FROM THE REFERENCE DATUM TO THE CENTER LINE OF THE FWD REACTIONS  $F = E - D$

**J** — THE DISTANCE FROM THE REFERENCE DATUM TO THE AFT FUSELAGE JACKPOINTS (2) OBTAIN FROM THE ROTORCRAFT DIAGRAM IN CHART E

DIAGRAM FOR MEASURING ROTORCRAFT TO DETERMINE ARM OF SUPPORT POINTS

1) CHECK DIMENSIONS E AND F AGAINST DIMENSIONS LISTED ON CHART E

DD FORM 365-2 (MODIFIED)

14186

Figure G-3. DD Form 365-2 Weighing Record (Sheet 5 of 6)

DESCRIPTION	NET WEIGHT	ARM	MOMENT	INDEX OR MOM/1000			
<b>TOTAL (AS WEIGHED) (FROM FRONT SIDE)</b>							
<b>OIL IN AIRPLANE</b>	—	—	—				
<b>TOTAL OF ITEMS WEIGHED BUT NOT PART OF BASIC WEIGHT (FROM COLUMN I BELOW)</b>							
<b>TOTAL OF BASIC WEIGHT ITEMS NOT IN AIRCRAFT WHEN WEIGHED (FROM COLUMN II BELOW)</b>							
<b>BASIC AIRCRAFT (POST TO CHART C)</b>							
<b>COLUMN I</b>			<b>COLUMN II</b>				
ITEMS WEIGHED BUT NOT PART OF BASIC WEIGHT	WEIGHT	ARM	MOMENT	BASIC WEIGHT ITEMS NOT IN AIRCRAFT WHEN WEIGHED	WEIGHT	ARM	MOMENT
<b>TOTAL</b>				<b>TOTAL</b>			
<b>REACTIONS USED</b> FORWARD REACTION - AFT REACTION -				<b>TYPE SCALE</b> SERIAL NUMBER CALIBRATION DATE (YYMMDD) CALIBRATED ACCURACY			
<b>REMARKS</b>							
<small>1 ENTER CONSTANT NEED</small>							

14187

Figure G-3. DD Form 365-2 (Reverse) (Sheet 6 of 6)

- g. Subtract total weight and moment of items entered in column I. These items should not be checked on chart A as IN AIRCRAFT.
- h. Add total weight and total moment of items in column II. These items must be checked in chart A as IN AIRCRAFT to indicate their inclusion in the basic weight. If aircraft is weighed after overhaul with a completely dry fuel or oil system, include trapped fuel or oil in column II.
- i. Enter new basic weight and moment/constant on DD Form 365-3. All subsequent aircraft loadings will be based on the latest figures entered on DD Form 365-3.
- j. Fill in reactions and type scales used.
- k. Include under REMARKS, information as to attitude of aircraft when weighed, method of support, etc.

**G-9. Basic Weight and Balance Record, DD Form 365-3** (Figure G-4). DD Form 365-3 is a continuous history of the basic weight, moment, and balance computer index resulting from structural and equipment changes in service. At all times the last weight, moment/constant, and index entry is considered the current weight and balance status of the basic aircraft. The basic index for the balance computer can be determined by means of the index scale or index formula on the computer.

- a. At time of delivery of a new aircraft, the manufacturer entered on this chart the basic weight, moment/constant, and index of the aircraft. The itemized list of the equipment included herein is shown and checked on chart A in the IN AIRCRAFT column.
- b. Make additions to or subtractions from basic weight and moment on DD Form 365-3 when:
  - (1) Equipment is added to or removed from the aircraft. If item is listed on DD Form 365-1, enter identical item number, description and applicable weight, arm, and moment data on DD Form 365-3. If item is not listed on DD Form 365-1, determine its actual weight and arm, and record this information on both DD Form 365-1 and DD Form 365-3.

**NOTE**

Do not enter check marks on DD Form 365-1 for these items until a complete inventory is made, but enter the date in parentheses following the description.

- (2) A complete inventory reveals equipment changes not previously recorded. Post equipment changes as noted above. Date newly calculated basic weight and moment to correspond with date entered at head of CHECK column on DD Form 365-1 identifying equipment content of new figures. It is also helpful to record the check column number which substantiates this new basic weight and moment.
  - (3) Structural changes are made in the aircraft. If structural changes are provisions for equipment, list them separately from equipment to be installed thereon.
  - (4) The aircraft is reweighed. Before weighing make a complete inventory and bring calculated DD Form 365-3 figures up to date. Enter new as weighed basic weight and moment from aircraft weighing record.
- c. Any changes or modifications which are caused by a specific order should carry a reference to the order number and date which authorizes the change.

**NOTE**

The date entered on DD Form 365-3 must be consistent with the delivery date or the date entered on the top of the CHECK column on DD Form 365-1 and with the date on the aircraft weighing record if used.



**G-10. Loading data** (Figure G-5). The loading data illustrations provide information necessary to work a loading problem for the aircraft. The balance computer, if furnished, accomplishes the same purpose and requires less computation. From the loading graphs or tables, weight and moment/constant are obtained for all variable load items and are added arithmetically to the current basic weight and moment/constant (from DD Form 365-3) to obtain the gross weight and moment. The center of gravity of the loaded aircraft is represented by the intersection of the gross weight and moment lines on the center of gravity graph or by a moment figure if tables are used. If the aircraft is loaded within the forward and aft center of gravity limits, the intersection will fall between the limiting center of gravity lines on the center of gravity graph, or if a table is used, the moment figure will fall numerically between the limiting moments. The effect of the center of gravity on the expenditures in flight of such items as fuel and expendable stores may be checked by subtracting the weights and moments of such items from the takeoff gross weight and moment and replotting on the center of gravity graph or by checking the new moment with the center of gravity table. This check should be made to determine whether or not the center of gravity will remain within limits during the entire flight.

**NOTE**

U.S. Army Special Mission Aircraft shall use DD Form 365-4 titled TRANSPORT.

**G-11. Weight and Balance Clearance Form F, DD Form 365-4** (Figure G-6). Form F is the summary of the actual disposition of load in the aircraft. It records the balance status of the aircraft step by step. It serves as a work sheet on which the weight and balance technical records and calculations, and any corrections, must be made to insure that the aircraft will be within weight and center of gravity limits. It is necessary to accomplish Form F prior to flight whenever an aircraft is loaded in a manner for which no previous valid Form F is available. Form F is furnished in expendable pads, or as separate sheets, which can be replaced when exhausted. An original and a carbon copy are prepared for each loading. The original sheets, carrying the signature of responsibility, can be removed to serve as certificates of proper weight and balance as required by existing clearance directives. The carbon copy must remain in the aircraft for the duration of the flight. On a cross-country flight, this form aids the weight and balance technician at refueling bases and stopover stations. There are two versions of this form: TRANSPORT and TACTICAL. They were designed to provide for the respective loading arrangements of these two types of aircraft. It will be noted that the general use and fulfillment of either version is the same, although specific instructions for filling out each version are given in the -10 manual. The choice of which version to use in case of a tactical aircraft which is used to transport cargo items, or of a cargo ship which is armed for protection, is the responsibility of the weight and balance technicians at the takeoff base.

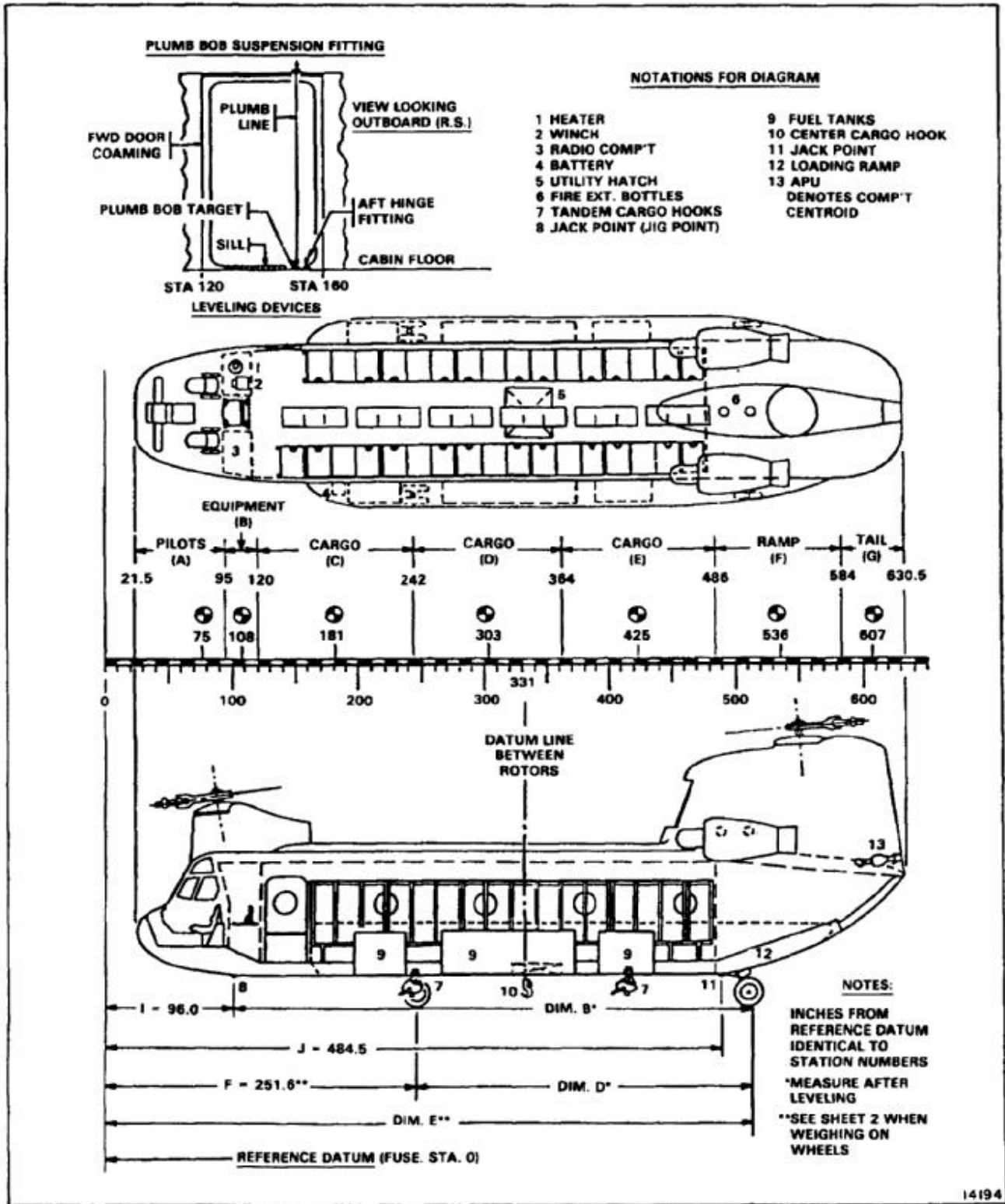
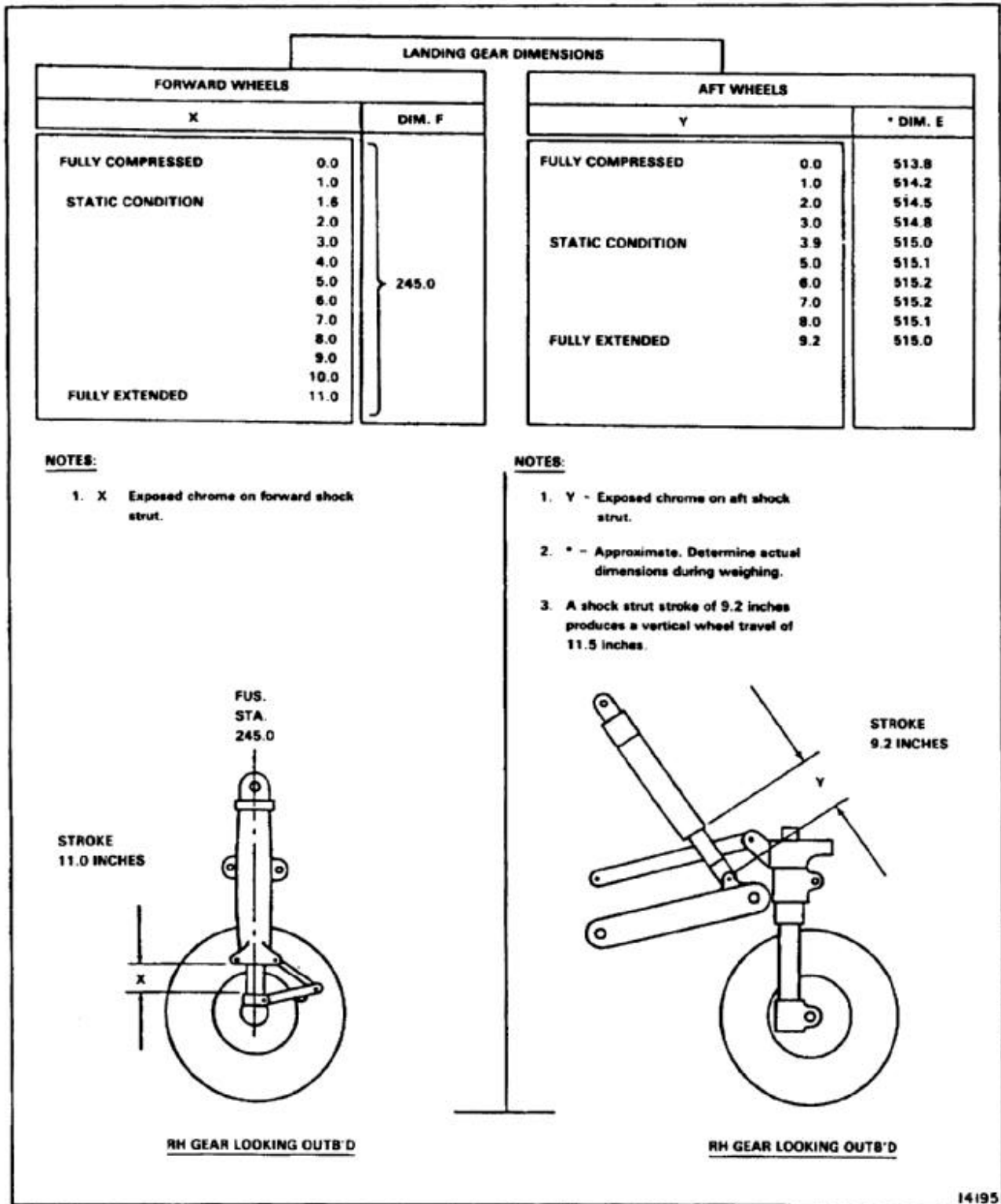


Figure G-5. Chart E (Sheet 1 of 23)



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Figure G-5. Chart E (Sheet 2 of 23)

FUEL LOADING CHART  
MID TANKS

WEIGHT (LB)	ARM - 317.3 MOM/1000	WEIGHT (LB)	ARM - 317.3 MOM/1000	WEIGHT (LB)	ARM - 317.3 MOM/1000
50	15.9	1400	444.2	2750	872.6
100	31.7	1450	460.1	2800	888.4
150	47.6	1500	476.0	2850	904.3
200	63.5	1550	491.8	2900	920.2
250	79.3	1600	507.7	2950	936.0
300	95.2	1650	523.5	3000	951.9
350	111.1	1700	539.4	3050	967.8
400	126.9	1750	555.3	3100	983.6
450	142.8	1800	571.1	3150	999.5
500	158.7	1850	587.0	3200	1015.4
550	174.5	1900	602.9	3250	1031.2
600	190.4	1950	618.7	3300	1047.1
650	206.2	2000	634.6	3350	1063.0
700	222.1	2050	650.5	3400	1078.8
750	238.0	2100	666.3	3450	1094.7
800	253.8	2150	682.2	3500	1110.6
850	269.7	2200	698.1	3550	1126.4
900	285.6	2250	713.9	3600	1142.3
950	301.4	2300	729.8	*3627	1158.1
1000	317.3	2350	745.7	3650	1174.0
1050	333.2	2400	761.5	3700	1189.9
1100	349.0	2450	777.4	3750	1205.8
1150	364.9	2500	793.3	**3794	1221.6
1200	380.8	2550	809.1	3850	1237.5
1250	396.6	2600	825.0	3900	1253.3
1300	412.5	2650	840.8	3950	1269.2
1350	428.4	2700	856.7	4000	

NOTES:

- Two Mid tanks. Fuel consumed simultaneously, 558 gallons, total.
- Asterisk (\*) indicates approximate weight and moment for full Mid tanks (100% self-sealing) based on JP-4 fuel (MIL-F-5624B) at 6.5 pounds per gallon.
- Double asterisk (\*\*) indicates approximate weight and moment for full Mid tanks (100% self-sealing) based on JP-5 fuel (MIL-F-5624B) at 6.8 pounds per gallon.
- Total weight of fuel is dependent upon the specific gravity and temperature. Therefore, the notation "FULL" does not appear on the fuel quantity gages. Variation should be anticipated in gage readings when tanks are full.
- See sheet 1 of 23 for tank arrangement.

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Figure G-5. Chart E (Sheet 3 of 23)



**FUEL LOADING CHART  
FWD. & AFT TANKS**

NORMAL OPERATION		EMERGENCY OPERATION ONLY		
WEIGHT (LB)	COMMON ARM - 314.0 MOM/1000	WEIGHT (LB)	FORWARD ARM - 214.0 MOM/1000	AFT ARM - 414.0 MOM/1000
100	31.4	50	10.7	20.7
200	62.8	100	21.74	41.4
300	94.2	150	32.1	62.1
400	125.6	200	42.8	82.8
500	157.0	250	53.5	103.6
600	188.4	300	64.2	124.2
700	219.8	350	74.9	144.9
800	251.2	400	85.6	165.6
900	282.6	450	96.3	186.3
1000	314.0	500	107.0	207.0
1100	345.4	550	117.7	227.7
1200	376.8	600	128.4	248.4
1300	408.2	650	139.1	269.1
1400	439.6	700	149.8	289.8
1500	471.0	750	160.5	310.5
1600	502.4	800	171.2	331.2
1700	533.8	850	181.9	351.9
1800	565.2	900	192.6	372.6
1900	596.6	950	203.3	393.3
2000	628.0	1000	214.0	414.0
2100	659.4	1050	224.7	434.7
2200	690.8	1100	235.4	455.4
2300	722.2	1150	246.1	476.1
2400	753.6	1200	256.8	496.8
2500	785.0	1250	267.5	517.5
2600	816.4	1300	278.2	538.2
2700	847.8	1350	288.9	558.9
2800	879.2	1400	299.6	579.6
2900	910.6	1450	310.3	600.3
3000	942.0	1500	321.0	621.0
*3094	971.5	**1547	331.1	640.4
3200	1004.8	1600	342.4	662.4
**3236	1016.1	**1618	346.2	669.9
3300	1036.2	1650	353.1	683.1
3400	1067.6	1700	363.8	703.8
3500	1099	1750	374.5	724.5

Two fwd. and two aft tanks. Fuel consumed simultaneously, 476 gallons total.

Two fwd. and two aft tanks. Fuel consumed individually, 238 gallons fwd. and 238 gallons aft.

**NOTES:**

1. Asterisk (\*) indicates approximate weight and moment for full fwd. and aft tanks (100% self-sealing) based on JP-4 fuel (MIL-F-56248) at 6.5 pounds per gallon.
2. Double asterisk (\*\*) indicates approximate weight and moment for full fwd. and aft tanks (100% self-sealing) based on JP-5 fuel (MIL-F-56248) at 6.8 pounds per gallon.
3. Total weight of fuel is dependent upon the specific gravity and temperature. Therefore, the notation "FULL" does not appear on the fuel quantity gages. Variation should be anticipated in gage readings when tanks are full.
4. See sheet 1 of 23 for tank arrangement.

Figure G-5. Chart E (Sheet 4 of 23)

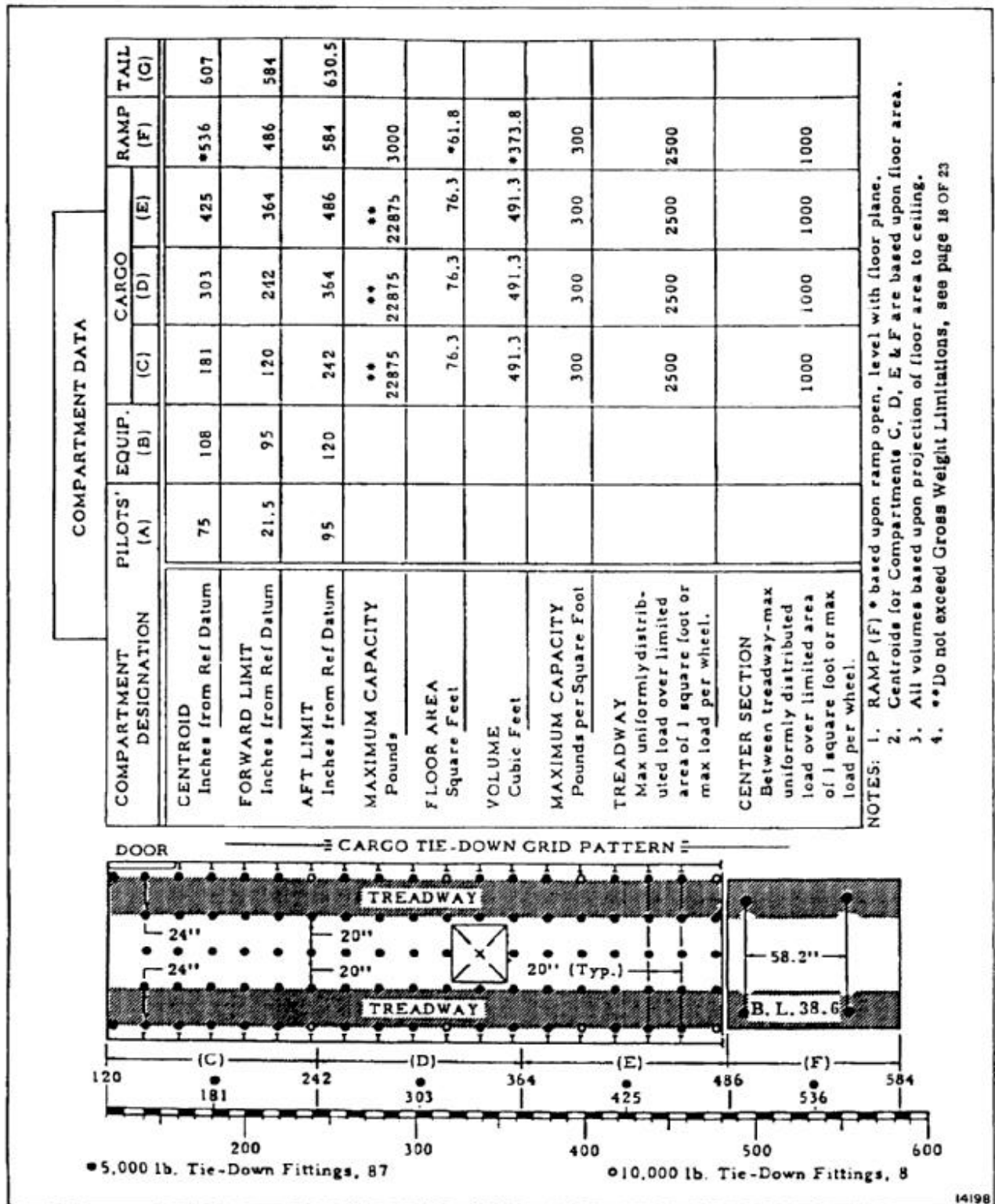


Figure G-5. Chart E (Sheet 5 of 23)

**CARGO COMPARTMENT TABLE**

COMPARTMENT	C	D	E	F
CENTROID (ARM)	181	303	425	536

<u>WEIGHT (LB)</u>	MOM/1000 for Arms Listed Above			
5	1	2	2	3
10	2	3	4	5
20	4	6	9	11
30	5	9	13	16
40	7	12	17	21
50	9	15	21	27
60	11	18	26	32
70	13	21	30	38
80	14	24	34	43
90	16	27	38	48
100	18	30	43	54
200	36	61	85	107
300	54	91	128	161
400	72	121	170	214
500	91	152	213	268
600	109	182	255	322
700	127	212	298	375
800	145	242	340	429
900	163	273	383	482
1000	181	303	425	536
1100	199	333	468	590
1200	217	364	510	643
1300	235	394	553	697
1400	253	424	595	750
1500	272	455	638	804
1600	290	485	680	858
1700	308	515	723	911
1800	326	545	765	965
1900	344	576	808	1018
2000	362	606	850	1072
2200	398	667	935	1179

<u>WEIGHT (LB)</u>	MOM/1000 for Arms Listed Above			
2400	434	727	1020	1286
2600	471	788	1105	1394
2800	507	848	1190	1501
3000	543	909	1275	1608
3500	634	1061	1488	
4000	724	1212	1700	
4500	815	1364	1913	
5000	905	1515	2125	
5500	996	1667	2338	
6000	1086	1818	2550	
6500	1177	1970	2763	
7000	1267	2121	2975	
7500	1358	2273	3188	
8000	1448	2424	3400	
8500	1539	2576	3613	
9000	1629	2727	3825	
9500	1720	2879	4038	
10000	1810	3030	4250	
11000	1991	3333	4675	
12000	2172	3636	5100	
13000	2353	3939	5525	
14000	2534	4242	5950	
15000	2715	4545	6375	
16000	2896	4848	6800	
17000	3077	5151	7225	
18000	3258	5454	7650	
19000	3439	5757	8075	
20000	3620	6060	8500	
21000	3801	6363	8925	
22000	3982	6666	9350	
23000	4163	6969	9775	

**Figure G-5. Chart E (Sheet 6 of 23)**

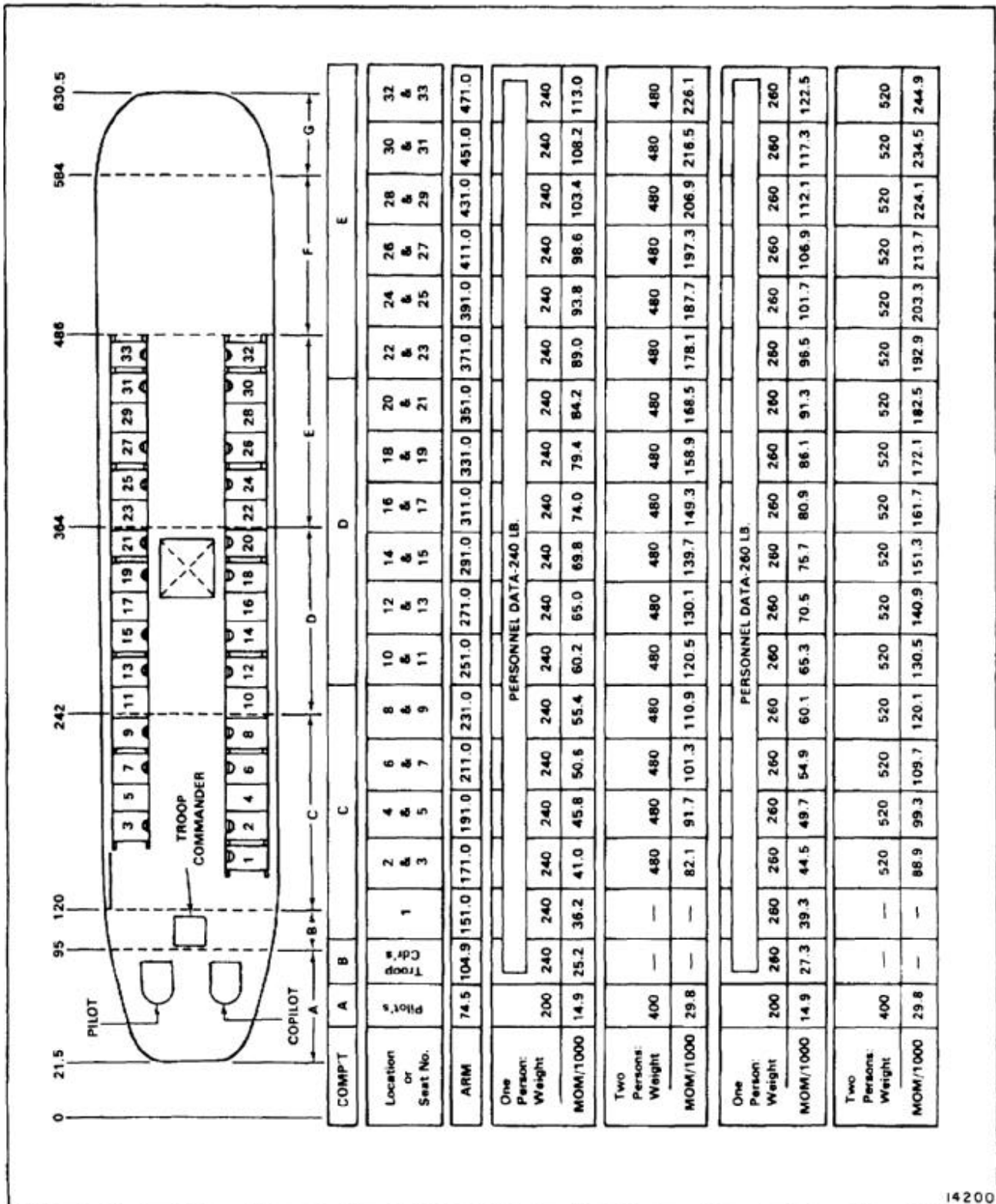


Figure G-5. Chart E (Sheet 7 of 23)

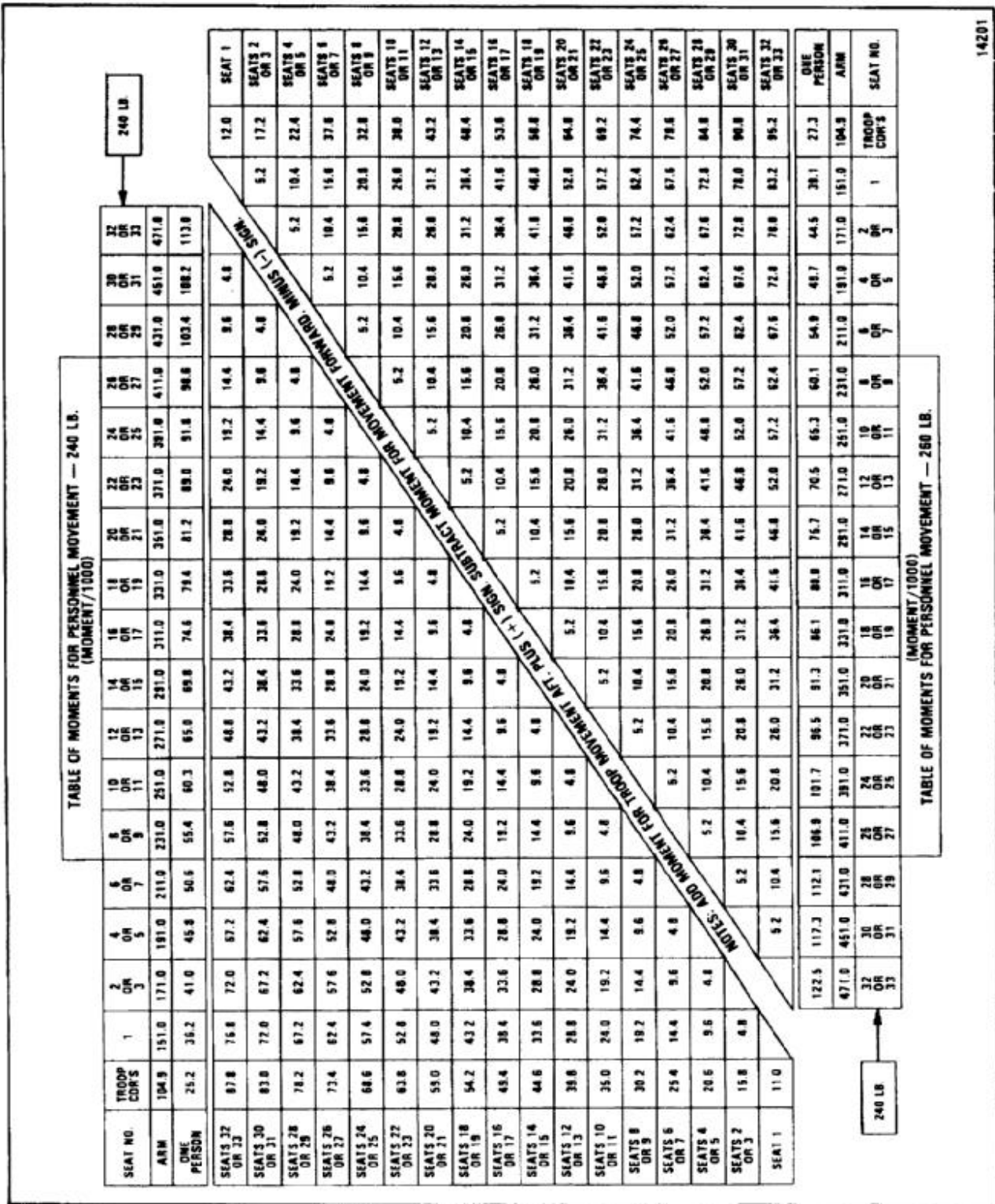


Figure G-5. Chart E (Sheet 8 of 23)

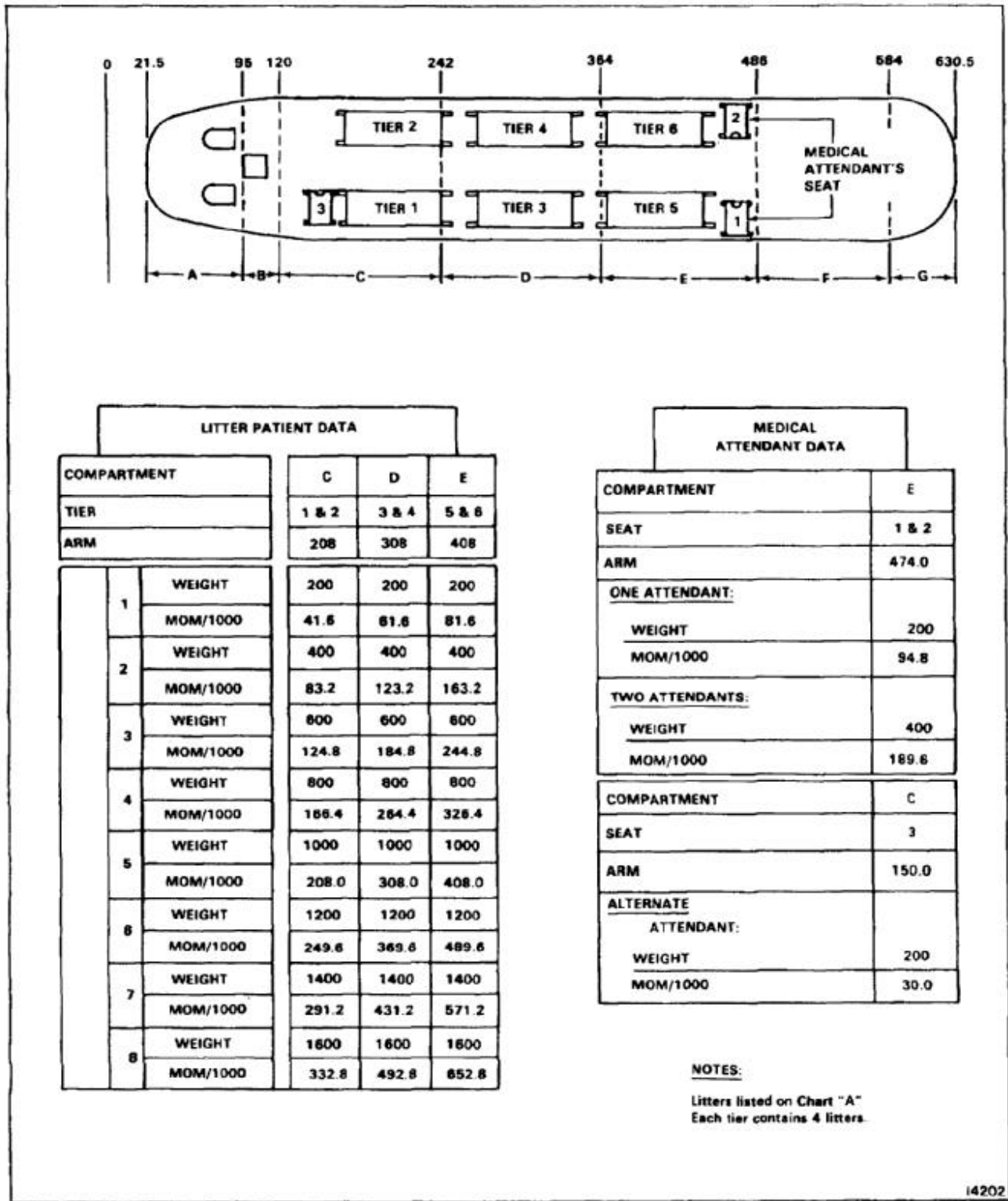


Figure G-5. Chart E (Sheet 9 of 23)

EXTERNAL CARGO HOOK LOADING CHART -CENTER			
ARM = 331.0		ARM = 331.0	
WEIGHT (LB)	MOM/1000	WEIGHT (LB)	MOM/1000
5	2	9000	2979
10	3	9500	3145
20	7	10000	3310
50	17	10500	3476
100	33	11000	3641
200	66	11500	3807
300	99	12000	3972
400	132	12500	4138
500	166	13000	4303
600	199	13500	4469
700	232	14000	4634
800	265	14500	4800
900	298	15000	4965
1000	331	15500	5131
1100	364	16000	5296
1200	397	16500	5462
1300	430	17000	5627
1400	463	17500	5793
1500	497	18000	5958
1600	530	18500	6124
1700	563	19000	6289
1800	596	19500	6455
1900	629	20000	6620
2000	662	20500	6786
2200	728	21000	6951
2400	794	21500	7117
2600	861	22000	7282
2800	927	22500	7443
3000	993	23000	7613
3500	1159	23500	7779
4000	1324	24000	7944
4500	1490	24500	8110
5000	1655	25000	8275
5500	1821	25500	8441
6000	1986	26000	8606
6500	2152	26500	8772
7000	2317	27000	8937
7500	2483	27500	9103
8000	2648	28000	9268
8500	2814		

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Figure G-5. Chart E (Sheet 10 of 23)

EXTERNAL - CARGO HOOK LOADING CHART - TANDEM			
COMMON ARM = 329.0		COMMON ARM = 329.0	
WEIGHT (LB)	MOM/1000	WEIGHT (LB)	MOM/1000
3	2	9000	2961
10	3	9500	3126
20	7	10000	3290
50	16	10500	3455
100	33	11000	3619
200	66	11500	3784
300	99	12000	3948
400	132	12500	4113
500	165	13000	4277
600	197	13500	4442
700	230	14000	4606
800	263	14500	4771
900	296	15000	4935
1000	329	15500	5100
1100	362	16000	5264
1200	395	16500	5429
1300	428	17000	5593
1400	461	17500	5758
1500	494	18000	5922
1600	526	18500	6087
1700	559	19000	6251
1800	592	19500	6416
1900	625	20000	6580
2000	658	20500	6745
2200	724	21000	6909
2400	790	21500	7074
2600	855	22000	7238
2800	921	22500	7403
3000	987	23000	7567
3500	1152	23500	7732
4000	1316	24000	7896
4500	1481	24500	8061
5000	1645	25000	8225
5500	1810		
6000	1974		
6500	2139		
7000	2303		
7500	2468		
8000	2632		
8500	2797		

14204

Figure G-5. Chart E (Sheet 11 of 23)



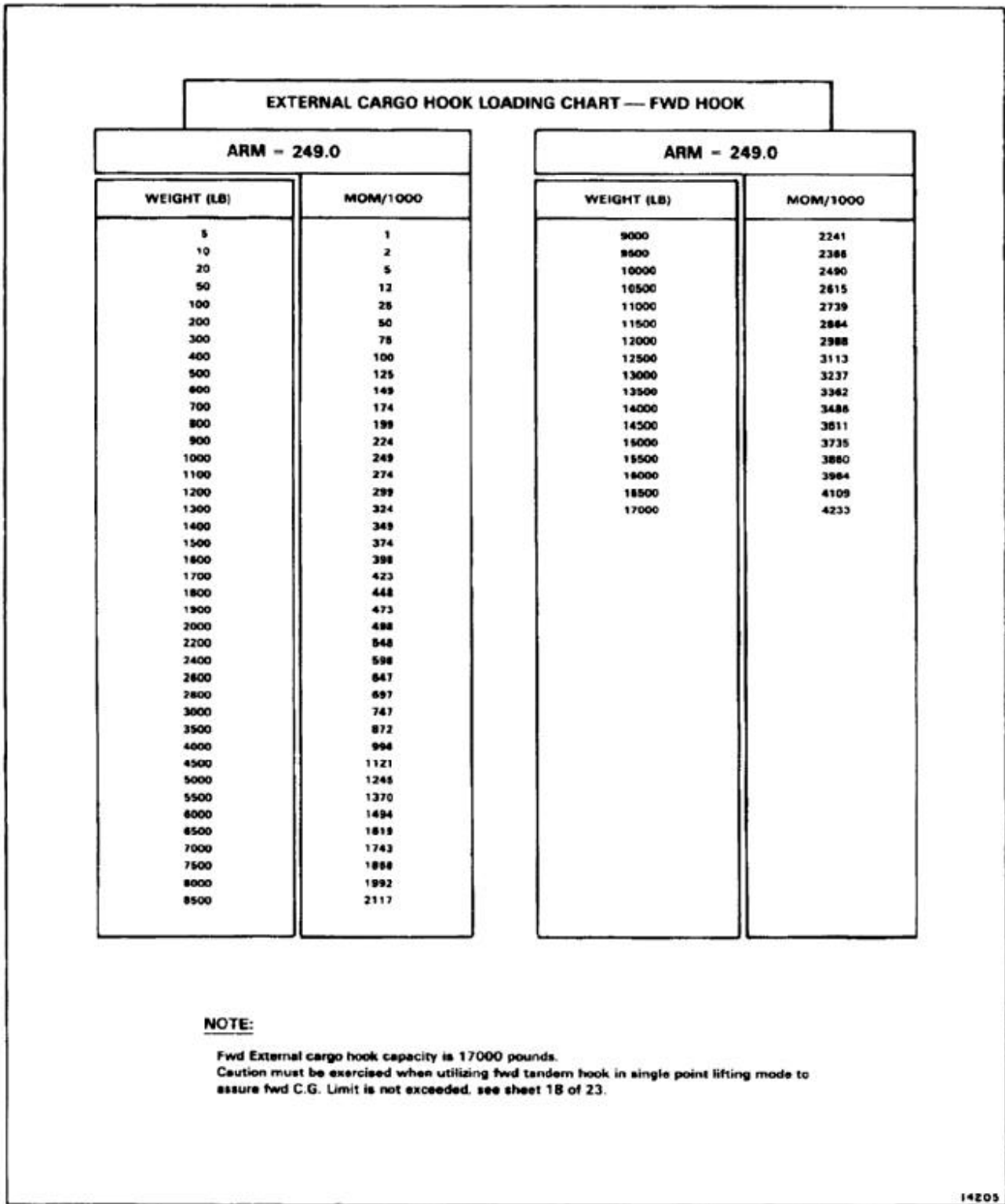


Figure G-5. Chart E (Sheet 12 of 23)

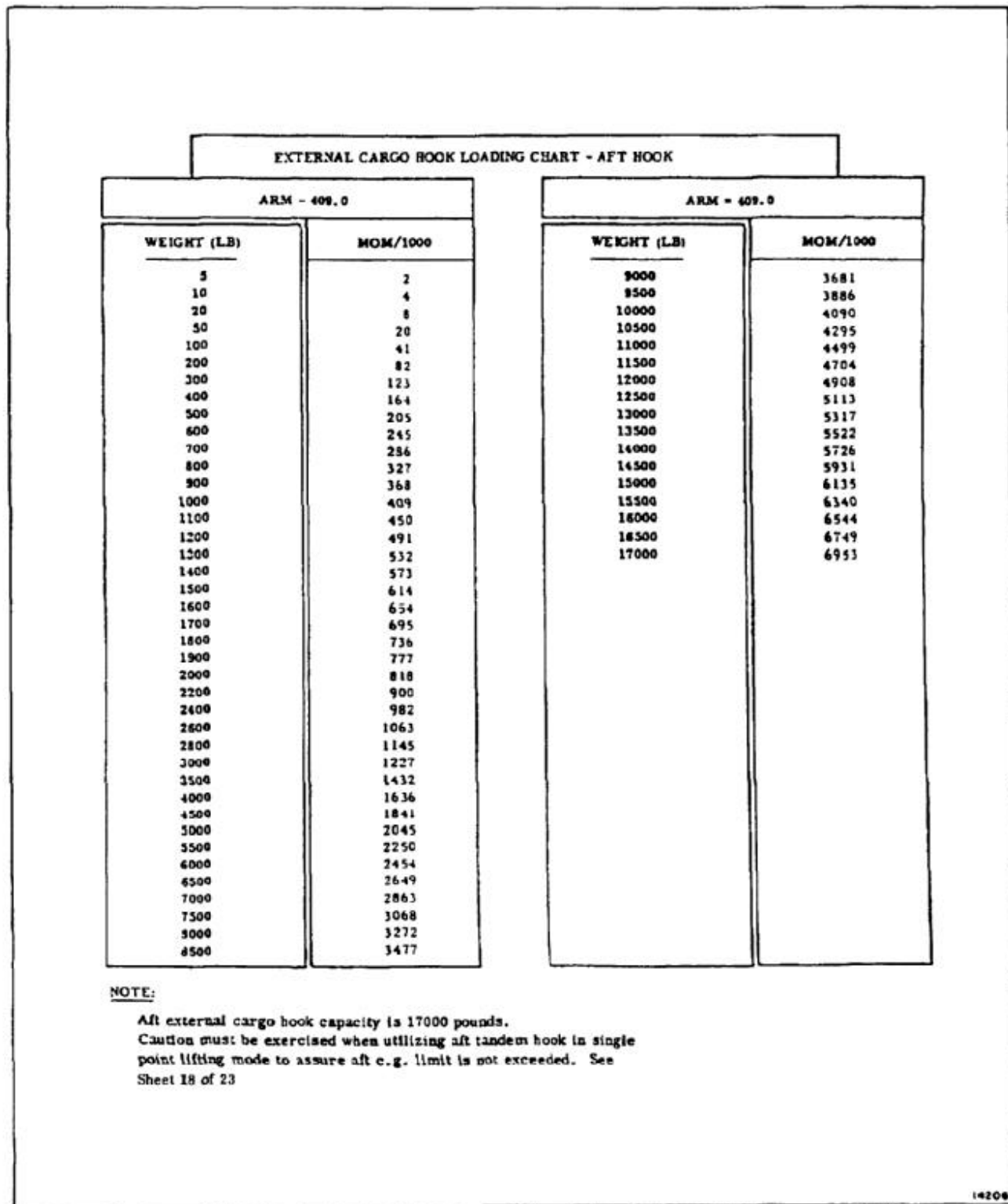


Figure G-5. Chart E (Sheet 13 of 23)

FERRY FUEL LOADING CHART				
WEIGHT (LB) (EACH TANK)	ARM - 194.5 MOM/1000	ARM - 253.5 MOM/1000	ARM - 312.5 MOM/1000	ARM - 371.5 MOM/1000
50	9.7	12.7	15.6	18.6
100	19.3	25.4	31.3	37.2
150	29.2	38.0	46.9	53.7
200	38.9	50.7	62.3	74.3
250	48.6	63.4	78.1	92.9
300	58.4	76.1	93.8	111.3
350	68.1	88.7	109.4	130.0
400	77.9	101.4	125.0	148.8
450	87.3	114.1	140.6	167.2
500	97.3	126.8	156.3	185.8
550	107.0	139.4	171.9	204.3
600	116.7	152.1	187.5	222.9
650	126.4	164.8	203.1	241.5
700	136.2	177.5	218.8	260.1
750	145.9	190.1	234.4	278.8
800	155.6	202.8	250.0	297.2
850	165.3	215.5	265.6	315.8
900	175.1	228.2	281.3	334.4
950	184.8	240.8	296.9	352.9
1000	194.5	253.5	312.5	371.5
1100	214.0	278.9	343.8	408.7
1200	233.4	304.2	375.0	448.8
1300	252.9	329.6	406.3	483.0
1400	272.3	354.9	437.5	520.1
1500	291.8	380.3	468.8	557.3
1600	311.2	405.6	500.0	594.4
1700	330.7	431.0	531.3	631.6
1800	350.1	456.3	562.5	668.7
1900	369.6	481.7	593.8	705.9
2000	389.0	507.0	625.0	743.0
2200	427.9	557.7	687.5	817.3
2400	466.8	608.4	750.0	891.6
2600	505.7	659.1	812.5	965.9
2800	544.6	709.8	875.0	1040.2
3000	583.5	760.5	937.5	1114.5
3200	622.4	811.2	1000.0	1188.8
3400	661.3	861.9	1062.5	1263.1
3600	700.2	912.6	1125.0	1337.4
3800	739.1	963.3	1187.5	1411.7
3900	758.6	988.7	1218.8	1448.9
4000	778.0	1014.0	1250.0	1486.0

**NOTES**

- Each moment column represents one ferry fuel tank (800 gallons each).
- Fuel can be consumed from any individual tank, any combination of tanks or simultaneously. The sequence can be alternated and is completely optional.
- Either one, two, three, or four tanks can be used.
- Asterisk (\*) indicates approximate weight and moment for a full ferry fuel tank based on JP-4 fuel (MIL-E-5624B) at 6.5 pounds per gallon.

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Figure G-5. Chart E (Sheet 14 of 23)

FERRY OIL LOADING CHART		
4.20 GALLONS		ARM - 492.0
GALLONS	WEIGHT (LB.)	MOM/1000
1	8	3.9
2	15	7.4
3	23	11.3
4.2	32	15.7

14208

Figure G-5. Chart E (Sheet 15 of 23)

GROSS WT POUNDS	CENTER OF GRAVITY TABLE																		GROSS WT POUNDS			
	← FWD C.G. LIMIT									C.G. LIMITS										→ AFT C.G. LIMIT		
	309.7	311	313	315	317	319	321	322	325	328	331	333	334	336	337	339	341	343		346	349	
MOMENT / 1000																						
20000	06194	06120	06250	06300	06340	06380	06420	06440	06500	06560	06620	06660	06680	06720	06740	06780	06820	06860	06920	06980		
20400	06318	06244	06375	06426	06467	06508	06548	06569	06630	06691	06752	06793	06814	06854	06875	06916	06956	07017	07078	07139		
20800	06442	06369	06502	06553	06594	06635	06675	06696	06757	06818	06879	06920	06941	06981	07002	07043	07083	07144	07205	07266		
21200	06566	06493	06626	06677	06718	06759	06799	06820	06881	06942	06993	07034	07055	07095	07116	07156	07196	07257	07318	07379		
21600	06690	06617	06750	06801	06842	06883	06923	06944	07005	07066	07117	07158	07179	07219	07240	07280	07341	07402	07463	07524		
22000	06814	06741	06874	06925	06966	07007	07047	07068	07129	07190	07241	07282	07303	07343	07364	07404	07465	07526	07587	07648		
22400	06938	06865	06998	07049	07090	07131	07171	07192	07253	07314	07365	07406	07427	07467	07488	07528	07589	07650	07711	07772		
22800	07062	06989	07122	07173	07214	07255	07295	07316	07377	07438	07489	07530	07551	07591	07612	07652	07713	07774	07835	07896		
23200	07186	07113	07246	07297	07338	07379	07419	07440	07501	07562	07613	07654	07675	07715	07736	07776	07837	07898	07959	08020		
23600	07310	07237	07370	07421	07462	07503	07543	07564	07625	07686	07737	07778	07799	07839	07860	07900	07961	08022	08083	08144		
24000	07434	07361	07494	07545	07586	07627	07667	07688	07749	07810	07861	07902	07923	07963	07984	08024	08085	08146	08207	08268		
24400	07558	07485	07618	07669	07710	07751	07791	07812	07873	07934	07985	08026	08047	08087	08108	08148	08209	08270	08331	08392		
24800	07682	07609	07742	07793	07834	07875	07915	07936	08007	08068	08119	08160	08181	08221	08242	08282	08343	08404	08465	08526		
25200	07806	07733	07866	07917	07958	08009	08049	08070	08141	08202	08253	08294	08315	08355	08376	08416	08477	08538	08599	08660		
25600	07930	07857	07990	08041	08082	08133	08173	08194	08265	08326	08377	08418	08439	08479	08500	08540	08601	08662	08723	08784		
26000	08054	07981	08114	08165	08206	08257	08297	08318	08389	08450	08501	08542	08563	08603	08624	08664	08725	08786	08847	08908		
26400	08178	08105	08238	08289	08330	08381	08421	08442	08513	08574	08625	08666	08687	08727	08748	08788	08849	08910	08971	09032		
26800	08302	08229	08362	08413	08454	08505	08545	08566	08637	08698	08749	08790	08811	08851	08872	08912	08973	09034	09095	09156		
27200	08426	08353	08486	08537	08578	08629	08669	08690	08761	08822	08873	08914	08935	08975	08996	09036	09097	09158	09219	09280		
27600	08550	08477	08610	08661	08702	08753	08793	08814	08885	08946	09007	09048	09069	09109	09130	09170	09231	09292	09353	09414		
28000	08674	08601	08734	08785	08826	08877	08917	08938	09009	09070	09131	09172	09193	09233	09254	09294	09355	09416	09477	09538		
28400	08798	08725	08858	08909	08950	08991	09031	09052	09123	09184	09245	09286	09307	09347	09368	09408	09469	09530	09591	09652		
28800	08922	08849	08982	09033	09074	09115	09155	09176	09247	09308	09369	09410	09431	09471	09492	09532	09593	09654	09715	09776		
29200	09046	08973	09106	09157	09198	09239	09279	09300	09371	09432	09493	09534	09555	09595	09616	09656	09717	09778	09839	09900		
29600	09170	09097	09230	09281	09322	09363	09403	09424	09495	09556	09617	09658	09679	09719	09740	09780	09841	09902	09963	10024		
30000	09294	09221	09354	09405	09446	09487	09527	09548	09619	09680	09741	09782	09803	09843	09864	09904	09965	10026	10087	10148		
30400	09418	09345	09478	09529	09570	09611	09651	09672	09743	09804	09865	09906	09927	09967	09988	10028	10089	10150	10211	10272		
30800	09542	09469	09602	09653	09694	09735	09775	09796	09867	09928	09989	10030	10051	10091	10112	10152	10213	10274	10335	10396		
31200	09666	09593	09726	09777	09818	09859	09899	09920	09991	10052	10113	10154	10175	10215	10236	10276	10337	10398	10459	10520		
31600	09790	09717	09850	09901	09942	09983	10023	10044	10115	10176	10237	10278	10299	10339	10360	10400	10461	10522	10583	10644		
32000	09914	09841	09974	10025	10066	10107	10147	10168	10239	10300	10361	10402	10423	10463	10484	10524	10585	10646	10707	10768		
32400	10038	09965	10098	10149	10190	10231	10271	10292	10363	10424	10485	10526	10547	10587	10608	10648	10709	10770	10831	10892		
32800	10162	10089	10222	10273	10314	10355	10395	10416	10487	10548	10609	10650	10671	10711	10732	10772	10833	10894	10955	11016		
33200	10286	10213	10346	10397	10438	10479	10519	10540	10611	10672	10733	10774	10795	10835	10856	10896	10957	11018	11079	11140		
33600	10410	10337	10470	10521	10562	10603	10643	10664	10735	10796	10857	10898	10919	10959	10980	11020	11081	11142	11203	11264		
34000	10534	10461	10594	10645	10686	10727	10767	10788	10859	10920	10981	11022	11043	11083	11104	11144	11205	11266	11327	11388		
34400	10658	10585	10718	10769	10810	10851	10891	10912	10983	11044	11105	11146	11167	11207	11228	11268	11329	11390	11451	11512		
34800	10782	10709	10842	10893	10934	10975	11015	11036	11107	11168	11229	11270	11291	11331	11352	11392	11453	11514	11575	11636		
35200	10906	10833	10966	11017	11058	11099	11139	11160	11231	11292	11353	11394	11415	11455	11476	11516	11577	11638	11699	11760		
35600	11030	10957	11090	11141	11182	11223	11263	11284	11355	11416	11477	11518	11539	11579	11600	11640	11701	11762	11823	11884		
36000	11154	11081	11214	11265	11306	11347	11387	11408	11479	11540	11601	11642	11663	11703	11724	11764	11825	11886	11947	12008		
36400	11278	11205	11338	11389	11430	11471	11511	11532	11603	11664	11725	11766	11787	11827	11848	11888	11949	12010	12071	12132		
36800	11402	11329	11462	11513	11554	11595	11635	11656	11727	11788	11849	11890	11911	11951	11972	12012	12073	12134	12195	12256		
37200	11526	11453	11586	11637	11678	11719	11759	11780	11851	11912	11973	12034	12075	12115	12136	12176	12237	12298	12359	12420		
37600	11650	11577	11710	11761	11802	11843	11883	11904	12005	12066	12127	12188	12229	12269	12290	12330	12391	12452	12513	12574		

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SEE NOTES ON SHEET 18 OF 23

Figure G-5. Chart E (Sheet 16 of 23)

GROSS WT POUNDS	CENTER OF GRAVITY TABLE																GROSS WT POUNDS			
	FWD C.G. LIMIT								AFT C.G. LIMIT											
	309.7	311	313	315	317	319	321	322	325	328	331	333	334	336	337	339		341	343	346
38000																				
38400																				
38800																				
39200																				
39600																				
40000																				
40400																				
40800																				
41200																				
41600																				
42000																				
42400																				
42800																				
43200																				
43600																				
44000																				
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48600																				
48800																				
49000																				
49200																				
49400																				
49600																				
49800																				
50000																				

SEE NOTES ON SHEET 18 OF 25

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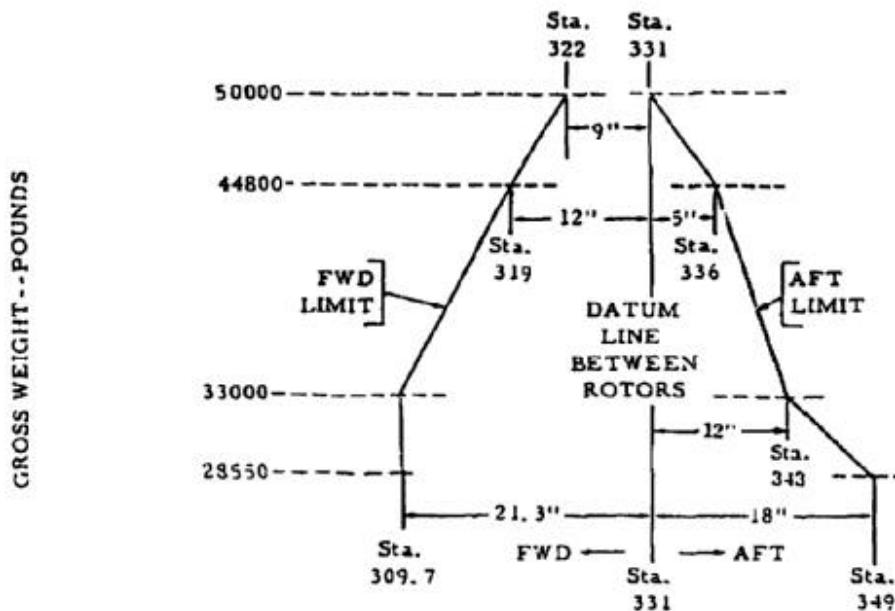
Figure G-5. Chart E (Sheet 17 of 23)

NOTES FOR CENTER OF GRAVITY TABLE

1. Explanation of center of gravity limits:

**Fwd** - The forward CG limit is 21.3 inches forward of the datum line between rotors, up to the gross weight of 33000 pounds. This limit varies in a linear manner from 21.3 inches forward at the gross weight of 33000 pounds to 12 inches forward of the datum line between rotors, at the gross weight of 44800 pounds and to 9.0 inches forward of the datum line between rotors, at the gross weight of 50000 pounds. (See illustration below.)

**Aft** - The aft CG limit is 18 inches aft of the datum line between rotors, up to the gross weight of 28550 pounds. This limit varies in a linear manner from 18 inches aft at the gross weight of 28550 pounds to 12 inches aft of the datum line between rotors, at the gross weight of 33000 pounds and to 5 inches aft of the datum line between rotors, at the gross weight of 44800 pounds and to 0.0 inches (datum line between rotors) at the gross weight of 50000 pounds. (See illustration below.)



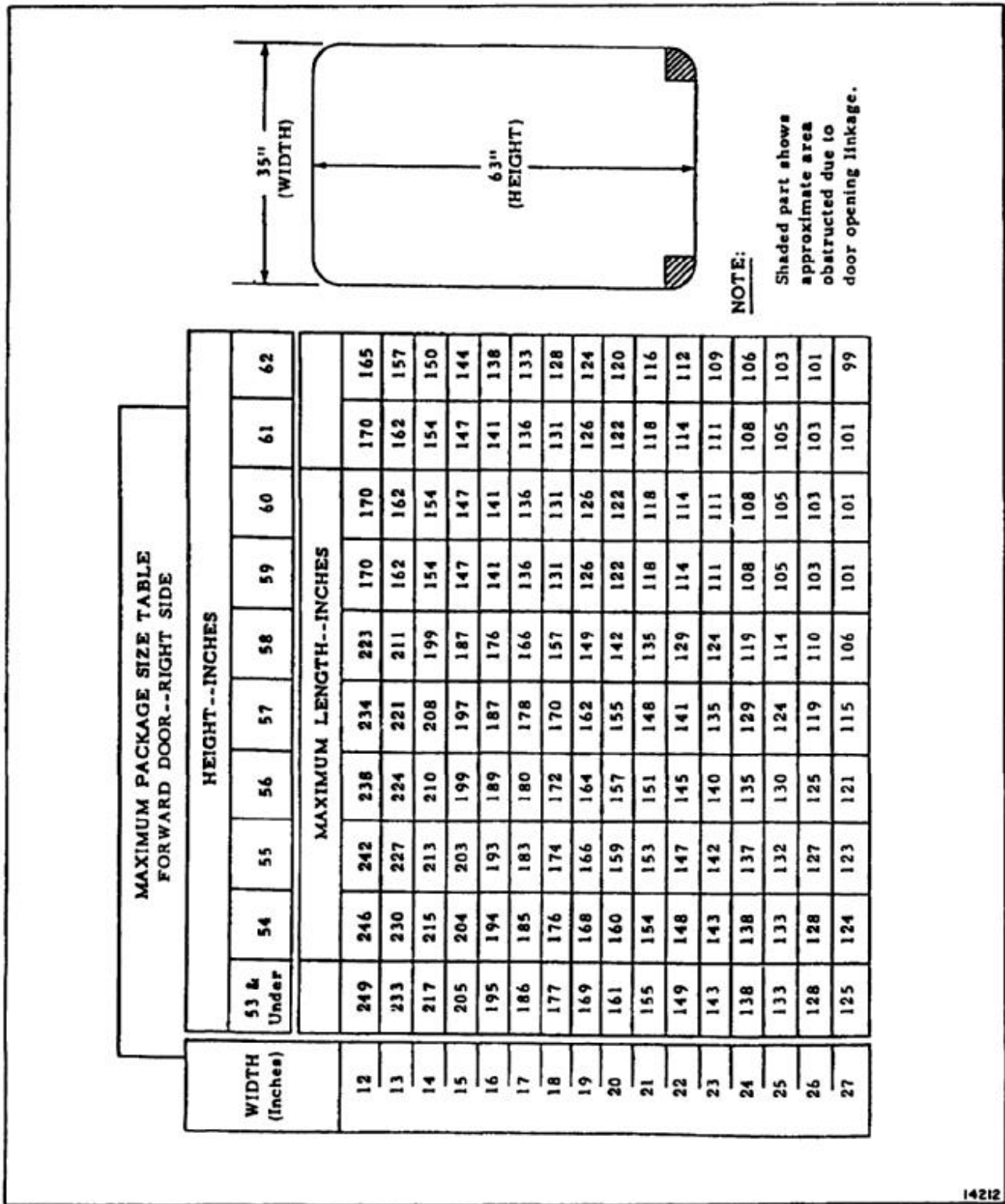
2. Gross weight limitations:

Takeoff \_\_\_\_\_ Pounds\*  
 Landing \_\_\_\_\_ Pounds\*

\*NOTE: Service activities shall insert, or substitute, current figures from latest applicable technical manual covering operating restrictions.

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Figure G-5. Chart E (Sheet 18 of 23)



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Figure G-5. Chart E (Sheet 19 of 23)



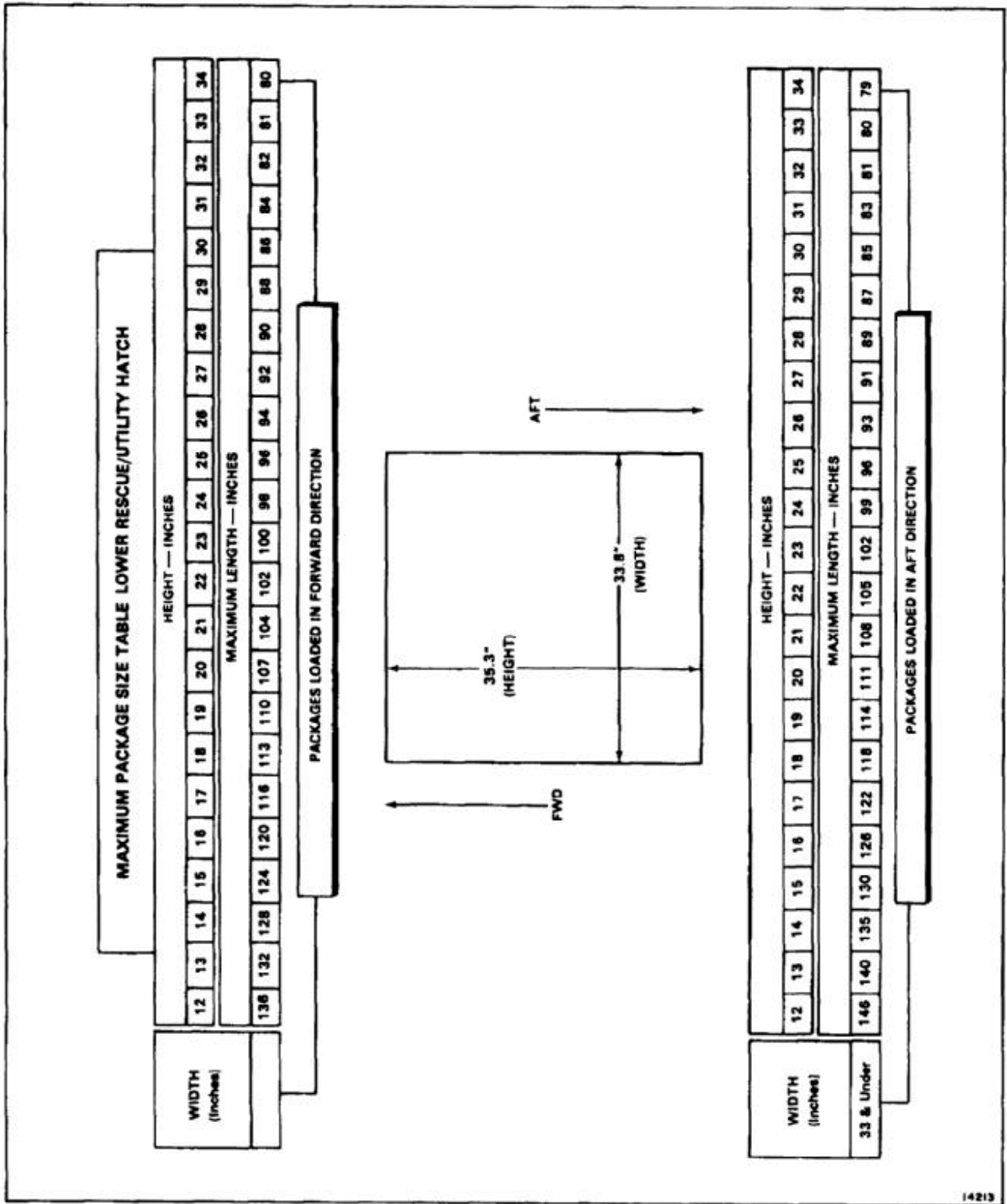


Figure G-5. Chart E (Sheet 20 of 23)

MAXIMUM PACKAGE SIZE TABLE RAMP DOOR																
WIDTH (INCHES)	HEIGHT - INCHES															
	62 & Under	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
	MAXIMUM LENGTH-- INCHES															
62 & Under	362	362	362	362	362	362	362	362	330	282	230	180	135	100	67	30
63	362	362	362	362	362	362	362	362	328	280	228	178	133	98	66	
64	362	362	362	362	362	362	362	362	326	278	226	176	130	96	64	
65	362	362	362	362	362	362	362	362	322	274	222	173	127	93		
66	362	362	362	362	362	362	362	362	318	270	218	169	123	90		
67	362	362	362	362	362	362	362	362	313	266	214	165	119	86		
68	362	362	362	362	362	362	362	357	307	260	208	160	114	81		
69	362	362	362	362	362	362	362	348	299	252	201	154	107	75		
70	362	362	362	362	362	362	362	339	290	243	193	146	99			
71	362	362	362	362	362	362	362	330	281	234	185	139	91			
72	362	362	362	362	362	362	362	321	272	226	177	131	83			
73	362	362	362	362	362	362	352	312	263	216	167	122	75			
74	362	362	362	362	362	362	339	298	250	203	156	112				
75	362	362	362	362	362	362	325	284	237	190	144	101				
76	362	362	362	362	362	348	311	270	223	177	132	90				
77	362	362	362	362	362	334	297	256	209	164	119					
78	362	362	362	362	346	316	278	237	191	147	104					
79	362	362	362	362	329	298	258	218	173	129	85					
80	362	362	362	362	310	276	236	195	151	108						
81	362	362	362	362	289	253	213	172	128	85						
82	362	362	362	362	267	230	188	148	105							
83	362	362	362	362	241	202	161	121								
84	362	362	362	362	213	174	133	93								
85	362	362	362	362	182	142	100									
86	362	362	362	362	146	105										
87	362	362	362	362	105											
88	362	362	362	362												
89	362	362	362	362												
90	362															

The diagram shows a cross-section of a ramp door. It is a rounded rectangle with a height of 78 inches and a minimum width of 90 inches. The height is indicated by a vertical double-headed arrow on the left side, and the width is indicated by a horizontal double-headed arrow at the bottom.

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Figure G-5. Chart E (Sheet 21 of 23)

MISCELLANEOUS DATA

<u>GENERAL HELICOPTER DIMENSIONS</u>	(Inches)
ROTOR BLADE DIAMETER .....	720.0
DISTANCE BETWEEN CENTER LINE OF ROTORS.....	470.0
SPAN--MINIMUM; BLADES UNFOLDED, STATIC, DEPHASED .....	540.0
(One Blade Each Rotor, At Right Angles to Center Line of Aircraft, Both Rotors Same Attitude)	
SPAN--MINIMUM; BLADES UNFOLDED, STATIC, IN PHASE .....	624.0
(One Blade, Either Rotor on $\bar{C}_L$ Aircraft)	
SPAN--BLADES FOLDED .....	149.0
LENGTH--MINIMUM; BLADES UNFOLDED, STATIC, DEPHASED.....	827.0
(One Blade of Forward Rotor on $\bar{C}_L$ Aft, One Blade of Aft Rotor on $\bar{C}_L$ Forward)	
LENGTH--MINIMUM; BLADES UNFOLDED, STATIC, IN PHASE .....	1007.0
(One Blade, Either Rotor, On Center Line of Aircraft and In Forward Position)	
LENGTH--BLADES FOLDED--FUSELAGE .....	609.0
HEIGHT--FORWARD AND AFT LANDING GEAR STRUTS FULLY COMPRESSED ...	221.0
HEIGHT--STATIC .....	225.0
HEIGHT--FORWARD AND AFT LANDING GEAR STRUTS FULLY EXTENDED.....	232.0
WHEEL BASE .....	270.0
TREAD--FORWARD.....	126.0
TREAD--AFT.....	134.0

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Figure G-5. Chart E (Sheet 22 of 23)

**TYPICAL SERVICE LOAD EXAMPLES**

The basic weights and moments/1000 are normally obtained from Chart C, where they are the last figures shown in the weight and moment columns. For the purpose of these examples, it is assumed that the basic weights and moments are as shown. The following calculations are normally accomplished by utilizing weight and balance clearance Form F.

ITEM	ARM	CARGO		TROOP		LITTER		FERRY	
		WT	MOM 1000	WT	MOM 1000	WT	MOM 1000	WT	MOM 1000
<b>BASIC WEIGHT</b>		23363	7908.8	23472	7957.9	23863	8089.7	28253	8818.7
Cargo									
Internal-Compt C	181.0	4775	865.0						
Internal-Compt D	303.0	4774	1447.2						
Internal-Compt E	425.0	4775	2030.0						
External-Fwd Hook	249.0	1000	249.0						
External-Ctr Hook	331.0	2000	882.0						
External-Aft Hook	408.0	2000	818.0						
Pilot & Copilot	74.5	400	29.3	400	29.8	400	29.8	400	29.8
Flight Engineer (At Troop Cdr Loc)	104.9	200	21.0					200	21.0
Troop Commander	104.9			240	25.2				
Troops									
Compt C Seat 1 thru 9	195.4			2180	422.2				
Compt D Seat 10 thru 21	301.0			2880	867.0				
Compt E Seat 22 thru 33	421.0			2880	1212.7				
Litter Patients									
Tier 1 & 2 (8)	208.0					1600	332.8		
Tier 3 & 4 (7)	308.0					1400	431.2		
Tier 5 & 6 (6)	408.0					1200	489.6		
Medical Attendant (2)	471.0					400	189.4		
<b>MINIMUM LANDING GROSS WEIGHT &amp; MOMENT</b>		43277	14030.8	32032	10514.8	28865	9541.5	28853	8867.5

The total weight and moment, as located on the center of gravity limit table, fall within the recommended CG limits. Therefore, the loading is satisfactory for landing.

<b>LANDING WEIGHT &amp; MOMENT</b>		43277	14030.8	32032	10514.8	28865	9541.5	28853	8867.5
Fuel-Mid Tanks	317.3	3662	1162.0	3662	1162.0	3662	1162.0	3662	1162.0
Fuel-Fwd & Aft Tanks	314.0	1811	505.9			3103	974.3	3103	974.3
Fuel-Ferry	312.5							18350	5117.8
Oil-Ferry	492.0							32	15.7
<b>TAKEOFF WEIGHT &amp; MOMENT</b>		48550	15698.7	35694	11676.8	35630	11677.3	50000	16137.1

The total weight and moment, as located on the center of gravity limit table, fall within the recommended CG limits. Therefore, the loading is satisfactory for takeoff.

Figure G-5. Chart E (Sheet 23 of 23)



## SECTION III

### G-12. Aircraft Weighings.

- Aircraft must be weighed.
- Periodically as required by pertinent directives. (Refer to AR 95-16.)
  - When major modifications or repairs are made.
  - When the pilot reports unsatisfactory flight characteristics (nose or tail heaviness).
  - When the basic weight data is suspected to be in error. The basic weight and CG location obtained from a weighing can be only as accurate as the scale equipment employed. Scales must be calibrated as required by existing directives.

### G-13. Preliminary weighing instructions.

- Preliminary weighing instructions are as follows:
- Assemble necessary equipment, including scales, hoisting equipment, jacks, cribbing, leveling bars, level, measuring tape, plumb bob, and string.
  - Remove dirt, grease, moisture, etc., from aircraft.
  - Drain fuel from all tanks, using tank drains, with aircraft in its normal attitude on ground. If impracticable to drain due to fire hazard or local regulations, fill to capacity. Since weight of fuel varies with temperature, determine actual weight per gallon by use of a hydrometer. Multiply by gallons capacity, obtained from loading data sheets, for total fuel weight. Never weigh with partially filled tanks.



If the helicopter is to be weighed with full fuel tanks, the helicopter must be weighed using the 4 point method.

- Fill oil tanks to operating capacity.
- Fill hydraulic systems and reservoirs to normal levels.
- Inflate or deflate main landing gear oleo struts to normal extension or to anticipated desired height. It may be helpful for leveling and in jacking to lash a rope around the torque arm of the forward landing gear and apply the aft shock strut static lock so that the strut will not extend when the aircraft is lifted.
- Conduct an inventory of fixed operating equipment actually installed in aircraft. This shall be accomplished on the Basic Weight Check List, DD Form 365-1.

#### NOTE

A basic weight without the equivalent inventory is of no value to the activity receiving the aircraft.

- Release brakes before aircraft is placed on scales to reduce possibility of side loads and thrusts on scales which may give erroneous weighing results.
- Jacking the aircraft shall be accomplished in accordance with requirements of Chapter 1 of the -23 maintenance manual. Refer to Figure G-6 for location of jack pads and weight restrictions.

#### NOTE

The aircraft must be weighed in a closed hangar.

**G-14. Weighing equipment.** Weighing aircraft with accurately calibrated scales is the only sure method of obtaining an accurate basic weight and CG location. Reference is made to TM 55-1500-342-23 for use of the electronic weighing kit. Additional instruction for aircraft weighing that is not contained in TM 55-1500-342-23 for the individual aircraft shall be covered in this section.

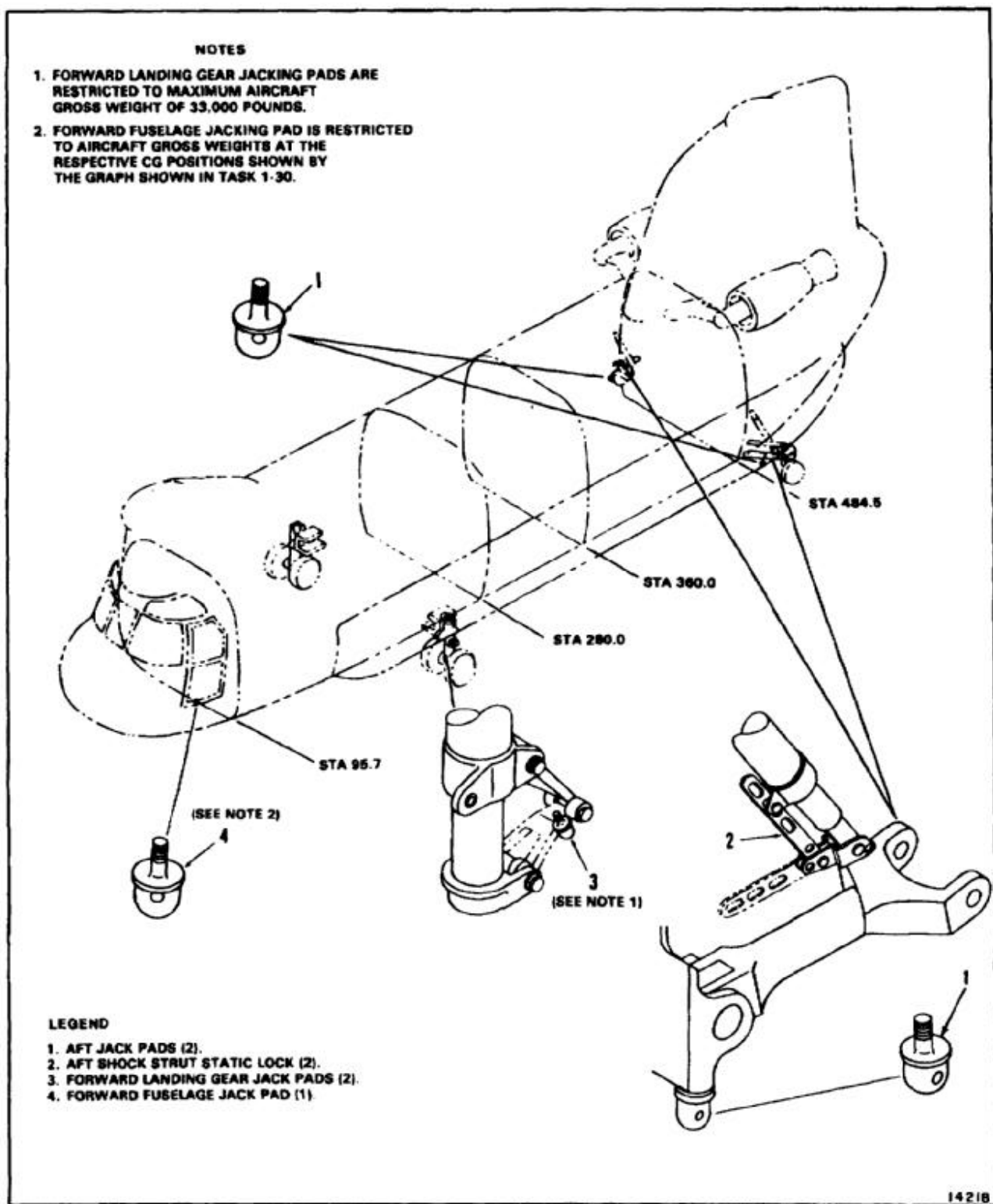


Figure G-7. Jack Pad Locations

## **APPENDIX H STORAGE OF AIRCRAFT**

(See Chapter 1, Section IX)





## **APPENDIX J TORQUE LIMITS**

(See Chapter 1, Task 1-13)



## **APPENDIX K MARKING INFORMATION**

(See Chapter 2, Section VI)



# GLOSSARY

## Section I ABBREVIATIONS

TERM	DEFINITION
ac .....	alternating current
acft .....	aircraft
actr .....	actuator
adf .....	automatic direction finder
afcs .....	automatic flight control system
agb .....	accessory gearbox
agl .....	above ground level
AIMS .....	Altitude Information Monitoring System
al .....	aluminum
alct .....	aft longitudinal cyclic trim
altm .....	altimeter
ang .....	angle
ANVIS .....	aviation night vision imaging system
appx .....	appendix
approx .....	approximately
APU .....	auxiliary power unit
assy .....	assembly
attn .....	attention
aux .....	auxiliary
bat .....	battery
bc .....	bolt circle
bite .....	built-in test equipment
bk .....	brake
bkr .....	breaker
bl .....	butt line
brkr .....	breaker
bst .....	boost
btry .....	battery
C .....	Celsius (C)
cap .....	capacity
cb .....	circuit breaker
cbore .....	counterbore
cc .....	cubic centimeter
ccda .....	cockpit control driver actuator
ccu .....	converter control unit
ccw .....	counterclockwise
CF, BR .....	monobromotrifluoromethane
cg .....	center of gravity
CGI .....	Cruise Guide Indicator
ch .....	chapter
ckpt .....	cockpit
ckt .....	circuit
cmps .....	compass
co .....	cutout
CO <sub>2</sub> .....	carbon dioxide
col .....	column
condition .....	condition
cont .....	control

TERM	DEFINITION
conv .....	converter
cpit .....	copilot
cpo .....	complete provisions only
cps .....	cycles per second
cpt .....	cockpit position transducer
cres .....	corrosion resistant steel
crks .....	crash resistant fuel system
csk .....	countersink
ctr .....	center
cw .....	clockwise
dash .....	differential airspeed hold actuator
dc .....	direct current
dcp .....	differential collective pitch
DE .....	dial empty
dec .....	decrease
deg .....	degree
det .....	detector
dia .....	diameter
dim .....	dimension
disc .....	disconnect
distr .....	distribution
dmwr .....	depot maintenance work requirement
dn .....	down
du .....	display unit
dwg .....	drawing
dx .....	direct exchange
ea .....	each
egt .....	exhaust gas temperature
emer .....	emergency
emf .....	electromotive force
eng .....	engine
equrv .....	equivalent
esu .....	electronic sequencing unit
ext .....	external
ext .....	extinguisher
F .....	Fahrenheit
FAT .....	free air temperature
fed .....	federal
fig .....	figure
flt .....	flight
fict .....	foward longitudinal cyclic trim
fod .....	foreign object damage
ftlb .....	foot pound
FSN .....	federal stock number
fwd .....	forward
gal .....	gallon
gen .....	generator
gpm .....	gallons per minute
gnd .....	ground
gse .....	ground support equipment
hex .....	hexagon
hf .....	high frequency

TERM	DEFINITION
Hg .....	mercury
HIT .....	Health Indicator Test
HUD .....	head up display
hydr .....	hydraulic
Hz .....	Hertz(cyclespersecond)
ias .....	indicated air speed
id .....	inside diameter
iff .....	identification friend or foe
ign .....	ignition
ilca .....	integrated lower control actuator
imp .....	imperial (measurement)
in. ....	inch
in. lb .....	inch-pound
incr .....	incremental
ind .....	indicator
inst .....	instrument
instpn .....	instrument panel
instr .....	instrument
kn .....	knot
knts .....	knots
kva .....	kilovolt-ampere
l .....	left
lb .....	pound
lbft .....	poundfoot
lb in. ....	pound-inch
lct .....	longitudinal cyclic trim
le .....	leading edge
lf .....	low frequency
lg .....	length
lh .....	lefthand
long .....	longitudinal
los .....	line of sight
lt .....	sight
lvdt .....	linear variable differential transducer
mac .....	maintenance allocation chart
mag .....	magnetic
manf .....	manifold
max .....	maximum
mfg .....	manufacturing
mil .....	military
min .....	minimum
misc .....	miscellaneous
mot .....	motor
mph .....	miles per hour
mpi .....	magnetic particle inspection
MWO .....	Modification Work Order
na .....	not applicable
nac .....	nacelle
neg .....	negative
NC .....	normally closed
NO .....	normally open



TERM	DEFINITION
No .....	number
norm .....	normal
N1 .....	gas producer (speed)
N2 .....	power turbine (speed)
NR .....	Rotor Speed (in rpm)
nrp .....	normal rated power
od .....	outside diameter
ohco .....	over haul change order
oper .....	operating
ou .....	optical unit
ovhd .....	overhead
P <sub>3</sub> .....	compress discharge pressure
para .....	paragraph
pf .....	picofarad
ph .....	phase
phr .....	pounds per hour
ph .....	pilot
pmg .....	permanent magnetic generator
pmp .....	pump
pms .....	Preventive Maintenance Services
pot .....	panel
p/o .....	part of
pos .....	positive
posn .....	position
press .....	pressure
pn .....	primary
prim .....	primary
psas .....	pitch stability augmentation system
pscu .....	power supply calibration unit
pst .....	pounds per square inch
psta .....	pounds per square inch absolute
psid .....	pounds per square inch differential
psrg .....	pounds per square inch page
pt .....	point
ptit .....	power turbine inlet temperature
pwr .....	power
pws .....	proximity warning system
qt .....	quart
qty .....	quantity
r .....	right
rad .....	radius
rcco .....	reverse current cutout
recp .....	receptacle
rect .....	rectifier
ref .....	reference
reg .....	regulator
rel .....	release
rev cur .....	reverse current
rh .....	right hand
rhr .....	roughness height rating
rise .....	release

TERM	DEFINITION
rly .....	relay
rmi .....	radio magnetic indicator
rms .....	root mean square
rmte .....	remote
rpm .....	revolutions per minute
rpstl .....	repair parts and special tools list
seem .....	standard cubic centimeters per minute
scfm .....	standard cubic feet per minute
sdc .....	signal data converter
scr .....	silicon controlled rectifier
set .....	second
set .....	secondary
sect .....	second
seq .....	sequence
sh .....	sheet
shp .....	shaft horsepower
sie .....	standard inspection equipment
sig .....	signal
sol .....	solenoid
spec .....	specification
sply .....	supply
sta .....	station
std .....	standard
strg .....	steering
subq .....	subsequent
SW .....	switch
sync .....	synchronizing
sys .....	system
tach .....	tachometer
tas .....	true airspeed
tbo .....	time between overhaul
tc .....	thermocouple
te .....	trailing edge
teat .....	turbine engine analysis check
temp .....	temperature
thd .....	thread
tir .....	total indicator reading
trq .....	torque
typ .....	typical
uhf .....	ultra high frequency
unk .....	unknown
US .....	United States
util .....	utility
uuf .....	micromicrofarad
u/w .....	used with
v .....	volt
va .....	volt-ampere
vat .....	volts alternating current
var .....	volt-ampere reactive
vdc .....	volts direct current

TERM	DEFINITION
vgl.....	vertical gyro indicator
vhf.....	very high frequency
vl.....	varies with load
vne.....	velocity never exceed
vs.....	versus
wl.....	waterline
wshld.....	windshield
wt.....	weight
xmitr.....	transmitter
xmsn.....	transmission
3 pdt.....	triple pole double throw

## Section II DEFINITION OF UN USUAL TERMS

TERM	DEFINITION
aerodynamic .....	Pertaining to motion of air acting on aircraft.
anodizing .....	Treatment of exterior aluminum alloy parts to prevent corrosion.
ballastd .....	Added weight to gain stability.
bowing .....	Curving or gradual change from original line or plane. Usually caused by lateral force or heat.
brinelling .....	Circular indentations on surface of bearing races. Usually caused by shock loading of balls or rollers.
burnishing .....	Smoothing minor damage using a hand tool.
burr .....	Rough edge or sharp protrusion on edge or surface.
chafing .....	Damage caused by two parts rubbing together.
chamfer .....	Beveled edge.
chromidize .....	Treatment for aluminum alloys to receive organic finish.
coaling .....	Raised frame around door.
delamination .....	Separation of material layers.
excluder .....	Screen that will prevent passage of particles larger than allowable size.
extruded .....	Formed by forcing through a shaped hole in a die.
ferrules .....	Metal band or socket.
frayed .....	Worn into shreds by rubbing action.
fusion .....	Joining together of two materials. Usually caused by heat, friction, or electrical current.
galling .....	Fretting or wearing away by friction.
gouged .....	Scooping out of material.
graduate .....	Mark with measurements.
impregnated .....	Saturated or soaked.
inclinometer .....	A device used to measure the angle from the horizontal.
insulate .....	Restrict passage of heat or sound.
integral .....	Formed as a unit with another part.
lee side .....	Downwind side.
limited measures .....	Measures used only if preferred equipment or materials are not available.
manometer .....	An instrument for measuring pressure.
nicked .....	A sharp surface indentation. Parent material is displaced, seldom separated.
oilcanning .....	Skin that springs back when pressed in like an oil can.
pawl .....	A pivoted lever that allows another part to move only in one direction.
pitting .....	Small irregular shaped cavities, usually caused by corrosion, chipping, or heavy electrical discharge.
radius .....	Distance from center to edge of circle. Half the diameter.
scored .....	Deep scratch or scratches. Material is removed.
scratched .....	Light, narrow, shallow, mark or marks on surface. Material is displaced, not removed.
sheet .....	A broad, thin surface of material.
spalling .....	Rough area resulting from progressive chipping away of material.
tacky .....	Sticky to the touch.
transverse .....	In a side-to-side direction



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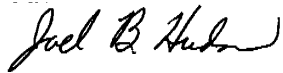
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By Order of the Secretary of the Army:

Official:



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Secretary of the Army  
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General, United States Army  
Chief of Staff

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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.



<b>RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS</b>  <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  <h1 style="text-align: center;">8/30/02</h1>
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TO: (Forward to proponent of publication or form)(Include ZIP Code) 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
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**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
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<b>TO:</b> (Forward direct to addressee listed in publication) Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM-MMC-MA-NP Redstone Arsenal, 35898	<b>FROM:</b> (Activity and location) (Include ZIP Code) MSG, Jane Q. Doe 1234 Any Street Nowhere Town, AL 34565	<b>DATE</b> 8/30/02
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**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
<b>SAMPLE</b>								

**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.)

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<b>RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS</b>  For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM)	DATE
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TO: (Forward to proponent of publication or form)(Include ZIP Code)	FROM: (Activity and location)(Include ZIP Code)
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**PART 1 - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS**

PUBLICATION/FORM NUMBER <b>TM 9-1005-433-24</b>	DATE <b>16 Sep 2002</b>	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
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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.

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**PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS**

PUBLICATION NUMBER	DATE	TITLE
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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
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## 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

<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)

<b>F</b>	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	<b>C</b>
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