ROUTINE

TB 1-1520-238-20-91

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

ONE TIME AND RECURRING INSPECTION, MODIFICATION AND REPAIR OF 7-311140134 ENGINE NACELLE LONGERONS FOR AH-64 HELICOPTERS

Headquarters, Department of the Army, Washington, D.C.

15 May 1999

NOTE

THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.

1. Priority Classification. ROUTINE.

a. Aircraft in use. Upon receipt of this technical bulletin the condition status symbol of the cited aircraft will be changed to a Red Horizontal Dash //-//. The Red Horizontal Dash //-// may be cleared when the inspection of paragraph 8 below are completed. The affected aircraft shall be inspected as soon as practical but no later than the Task/Inspection suspense date. Failure to comply requirements of this Technical Bulletin within the time frame specified will cause the status symbol of the affected aircraft to be upgraded to a Red // X //.

b. Aircraft in Depot Maintenance. Aircraft will not be issued until compliance with this TB has been completed.

c. Aircraft undergoing maintenance. Aircraft will not be issued until compliance with this TB has been completed.

d. Aircraft in transit.

(1) Surface/Air shipment. Prior to first flight.

(2) Ferry status. Inspect at final destination.

e. Maintenance Trainers. (Category A, B and others). Same as paragraph a. above.

f. Component/Parts in Stock Including War Reserves at all Levels (Depot and others). N/A.

2. Task/Inspection Suspense Date. NLT next phase.

3. **Reporting Compliance Suspense Date. N/A.**

4. Summary of Problem.

a. Field reports have indicated the possibility of cracks and corrosion existing in the Engine Nacelle Longerons (P/N 7-311140134).

b. The purpose of this TB is to perform a one time and recurring phase inspection of the Engine Nacelle Longerons (7-311140134) for cracks, locate and drill a drain hole on the aft end of the Longerons for corrosion control and provide a Longeron repair procedure.

c. For manpower/downtime and funding impacts see paragraph 13.

5. **End Items to be Inspected.** All Army AH-64A/D helicopters serial numbers 82-23355 and subsequent.

6. **Assembly Components Affected.**

Nomenclature	Part No.	NSN
Nacelle, Engine, LH	7-31114011 o-53	1560-01-254-l 693
Nacelle, Engine, RH	7-31114011 o-54	1560-01-250-3680

7. **Parts to be Inspected.**

Nomenclature	Part No.	NSN
Longeron, LH	7-311140134-1, -11	1560-01-294-3514
Longeron, RH	7-311140134-2, -12	Pending

8. **Inspection Procedures.**

CAUTION

Ensure that a foreign object damage (FOD) prevention program is implemented in accordance with AR 385-95, chapter 4.

a. Safe the helicopter IAW task 1.57 of reference 14.a.

b. Open the Engine Nacelle Access Doors LN1&RN1.

c. Visually inspect the upper and lower edge of the flange at the aft end of the 7-311140134 Longerons for cracks.

1) Pay particular attention for the possibility of a crack starting at one of the ¼" diameter Pin Rivets that attaches the Longeron to the Aft Fitting Assembly P/N 7-311140048.

2) If a crack is identified, determine its location and direction. If the crack extends from the fastener hole to the edge of the part, proceed to paragraph 10, Repair Procedure. If the crack extends into the radius of the Longeron contact the technical POC, para 17, for further disposition.

d. If no cracks are found proceed to paragraph 9, modification. Visually inspect the aft end of the Longerons during each Phased Maintenance Inspection.

9. Modification.

a. Locate and drill a 3/16-inch diameter drain hole at the aft end of each Longeron per fig. 1. Deburr.

b. Treat with MIL-C-81706 Corrosion Resistant Coating per Ref. 13.d. and rinse with distilled water. Allow to dry.

c. Coat with MIL-P-23377 primer per Ref. 13.d.

10. Repair Procedures.

a. Safe the helicopter IAW task 1.57 of reference 14.a.

b. Remove the Engine Nacelle IAW task 2.133 (LH) or 2.134 (RH) of ref. 14.a.

c. Remove all fasteners attaching the Longeron to the Engine Nacelle. Also remove the four fasteners shown in fig. 2. Note the location of all removed fasteners for later reinstallation, Carefully pull back the Nacelle Skins until it clears the pin in the Longeron and remove the Longeron.

NOTE

Pin rivets (HI-Loks) may be reused if replacements are not available. If reused, install wet with MIL-P-23377 primer. The collars cannot be reused.

d. Rework the Longeron by trimming 0.17 inch from the aft end of the Fitting (Ref. figure 3). Clean up the inside radii as required. Route out any remaining crack that extends into the center web.

e. Remove paint from the aft 1 .OO inch of the Longeron using MIL-R-81294 Paint Remover per ref. 14.d.

f. Fluorescent Penetrant Inspect (Type I, Method C, Level 2) the aft 1 .OO inch of the Fitting per ref. 14.c. No cracks allowed.

g. Measure and note distance “A” on Longeron to be repaired (Ref. figure 3).

h. Fabricate two Fittings from 1 .OO inch thick 303 CRES, ¼ hard, per QQ-S-766, to the dimensions shown in figure 4 and using distance “A” measured in step 10.g. above, to fit in the Longeron (Ref. Figures 4 & 5). A maximum gap 0.030-inch between the Fittings and the Longeron may be shimmed. A shim is not required if the Longeron/Fitting gap is less than 0.002 inch.

i. Fabricate shims, if required. Use shim per MIL-S-22499 composition 1, Class 1 or 2, Type I, II, or III.

j. Passivate the fabricated Fittings per QQ-P-35 by applying Pasa-Jell 101.

(1) Clean fittings by solvent wiping with an oil free solvent.

WARNING

Extremely Hazardous liquid and vapor, avoid contact with skin. Wear rubber gloves, face shield and respirator. In case of contact, flush with water for at least 15 minutes.

(2) Apply Pasa-Jell 101 in a thick layer with a polyethylene, polypropylene or fluorocarbon bristle brush and let stand for 5-10 minutes. The coating should not be so thick that it will sag or run.

(3) Completely remove Pasa-Jell 101 using distilled water.

k. Temporarily assemble Fittings and shims to the Longeron, to the dimensions shown in figure 5, in preparation for drilling. Clamp in place.

l. Locate fastener holes per figure 5. Drill fastener holes 1/64 inch undersize and perform a final reaming per the following table:

Pin Rivet Diameter	Aluminum	Steel or Titanium
5/32 inch	0.1600/0.1620	0.1635/0.1645
3/16 inch	0.1860/0.1880	0.1895/0.1905
¼ inch	0.2460/0.2480	0.2495/0.2505

Locate and drill a 3/16-inch drain hole in the Fittings and in the Longeron at the location shown in figure 1 (Ref. Figures 1 & 5). Disassemble and Deburr.

m. Treat the Longeron with MIL-C-81706 Corrosion Resistant Coating per Ref. 14.d. and rinse with distilled water. Allow to dry.

n. Install Fittings and shims to Longeron with EA9321 Epoxy Adhesive. (Ref. figure 5).

o. Use pin rivets (HS5602-5-5) for installation of the Fittings and shims to the Longeron. Install fasteners wet with MIL-P-23377 primer per figure 5 and Ref. 14.b.

p. Ensure that the final length of the assembled Longeron is within the tolerance given in figure 5.

q. Fit check assembled Longeron to the Engine Nacelle. Match drill holes between the fabricated Fittings and the 7-311140048 Fitting. Drill holes 1/64 inch undersize and ream per the table in paragraph 10.1. Remove assembled Longeron from the Engine Nacelle and deburr.

r. Seal gap between Fitting and Longeron with MIL-S-8802 Type II Class B ½ (Ref. figure 5). Touch up paint with MIL-P-23377 primer per ref. 14.d. Allow to dry.

s. Reinstall Longeron to Engine Nacelle. Install fasteners wet with MIL-P-23377 primer per ref. 14.b.

t. Install Engine Nacelles IAW task 2.133 (LH) or 2.134 (RH) of Ref. 14.a.

11. Supply/Parts and Disposition.

a. Parts Required. Items cited in paragraph 7 may be required to replace unserviceable items.

b. Requisitioning Instructions. Requisition replacement parts through normal supply channels using normal supply procedures.

c. Bulk and Consumable Material.

Nomenclature	Qty	Part Number	NSN
Coating, Corrosion Resistant	A/R	MIL-C-81706	8030-00-057-2354
Water, Distilled	A/R	N/A	6810-01-070-1784
Remover, Paint	A/R	MIL-R-81294	8010-00-142-9273
Primer, Epoxy	A/R	MIL-P-23377	8010-01-050-4082
Pasa-Jell *	A/R	Pasa-Jell 101	N/A
Adhesive, Epoxy	A/R	EA 9321	8040-01-193-6717
Compound, Sealing	A/R	MIL-S-8802 Type II Class B 1/2	8030-00-080-1549
Pin Rivet, Threaded	A/R	HS5602-5-5	5320-00-959-0338

* Pasa-Jell 101 is available from Courtaulds Aerospace, 5454 San Fernando Road, P. 0. Box 1800, Glendale, California 91209, (818) 247-7140, fax (818) 549-7606.

d. Disposition. Dispose of remove parts/remove parts/components in accordance with the normal supply procedures. A QDR is not required.

e. Disposition of Hazardous Material. Dispose of hazardous material in accordance with Environmental Protection Agency directives as implemented by your servicing Environmental Coordinator (AR 200-l).

12. Special Tools, Jigs and Fixtures Required.

Nomenclature	Part Number/Specification	NSN
Kit, Fluorescent Penetrant Inspection	MIL-I-25135 Type I, Method C, Level 3	6850-00-703-7406

13. Application.

a. Category of Maintenance. AVIM, aircraft downtime will be charged to AVIM.

b. Estimated Time Required.

(1) Total of (10) man-hours using (2) persons.

(2) Total of (8) hours downtime per aircraft.

c. Estimated Cost Impact of Stock Fund Items to the Field. TBD.

d. TB/MWOS to be Applied Prior to or Concurrently with this Inspection. N/A.

e. Publications Which Require Change as a Result of This Technical Bulletin.

TM l-l 520-238-23 and TM l-l 520-238-PM will be changed to reflect this message.

f. A copy of this TB shall be inserted in the appropriate TM as authority to implement the change until the printed change is received.

14. References.

a. TM l-l 520-238-23, Aviation Unit and Aviation Intermediate Maintenance Manual, AH-64, dated 16 May 1994.

b. TM l-l 500-204-23, Aviation Unit Maintenance and Aviation Intermediate Maintenance Manual for General Aircraft Maintenance, dated 31 Jul 1992.

c. TM 55-1500-335-23, Nondestructive Inspection Methods, dated 1 Mar 1990.

d. TM 55-l 500-345-23, Painting and Marking of Army Aircraft, dated 12 Jun 1986.

15. Recording and Reporting Requirements.

a. Reporting Compliance Suspense Date (Aircraft). Upon entering requirements of this Technical Bulletin on DA Form 2408-13-l on all subject MDS aircraft, forward a priority message, Datafax or E-Mail to: Commander, AMCOM, ATTN: AMSAM-SF-A (SOF Compliance Officer), Redstone Arsenal, AL 35898-5222, per AR 95-1. Datafax number is DSN 788-8643 or Commercial (256) 842-8643. E-Mail address is "safeadm@redstone.army.mil". The report will cite this Technical Bulletin number, date of entry in DA Form 2408-l 3-1, the aircraft mission design series and serial numbers of aircraft in numerical order.

b. The following forms are applicable and are to be completed in accordance with DA Pam 738-751, 15 June 92.

(1) DA Form 2408-13, Aircraft Status Information Record.

(2) DA Form 2408-l 3-1, Aircraft Inspection and Maintenance Record.

(3) DA Form 2408-l 3-2, Related Maintenance Action Record.

(4) DA Form 2408-l 5, Historical Record for Aircraft.

(5) DA Form 2408-l 8, Equipment Inspection List.

16. Weight and Balance. TBD.

17. Points of Contact for this Technical Bulletin.

a. Technical, Mr. Lee Bumbicka, AMSAM-AR-EI-P, DSN 897-4925 or Commercial (256) 313-4925. E-mail is bumbickal@avrdecr.redstone.army.mil.

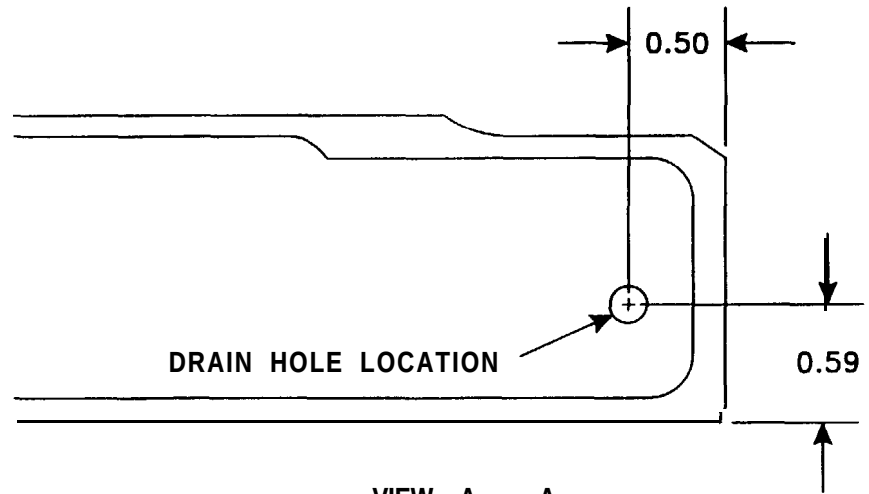
b. Logistical, Mr. Rich Pfeiffer, SFAE-AV-AAH-LF, DSN 897-4245, of Commercial (256) 313-4245. E-mail is pfeifferr@peoavn.redstone.army.mil.

c. Forms and Records, Ms. Ann Waldeck, AMSAM-MMC-RE-F, DSN 746-5564 or Commercial (256) 876-5564. Datafax is DSN 746-4904, Com 876-4904. E-mail is waldeck-ab@ redstone.armv.mil.

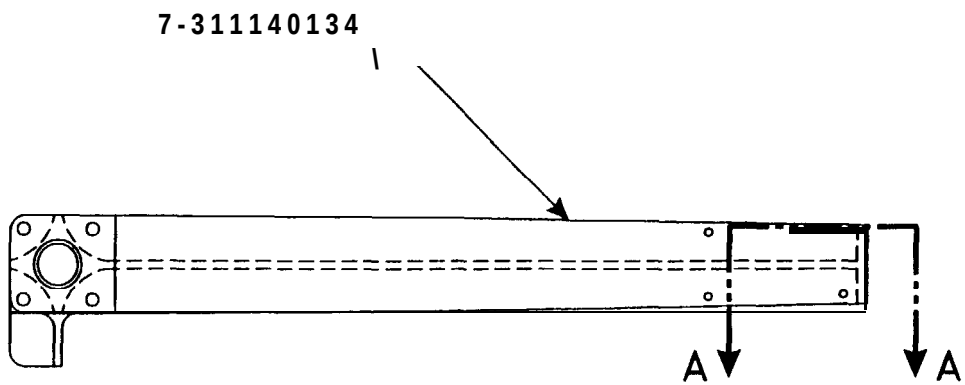
d. Safety, Mr. Howard Chilton, AMSAM-SF-A, DSN 746-7271 or Commercial (256) 876-7271. E-mail is chilton-hl@ redstone.armv.mil.

e. Foreign Military Sales (FMS), Recipients requiring clarification of action advised by this message should contact CW5 Joseph L. Wittstrom, AMSAM-SA, DSN 897-0681 or Commercial (256) 313-0681/041 1. E-mail is joseph.wittstrom@redstone.army.mil, or Mr. Ronnie Sammons, AMSAM-SA-CS-NF, DSN 897-0869 or Commercial (256) 313-0869. Datafax is DSN 897-0916, Com 313-0916. E-mail is ronnie.sammons@ redstone.armv.mil (Huntsville is GMT minus 6 hours).

f. After hours, contact AMCOM Command Operations Center (COC), DSN 897-2066/2067 or Commercial (256) 313-2066/2067.



VIEW A – A



VIEW LOOKING INBOARD
AT LHS

FIGURE 1

MS018017

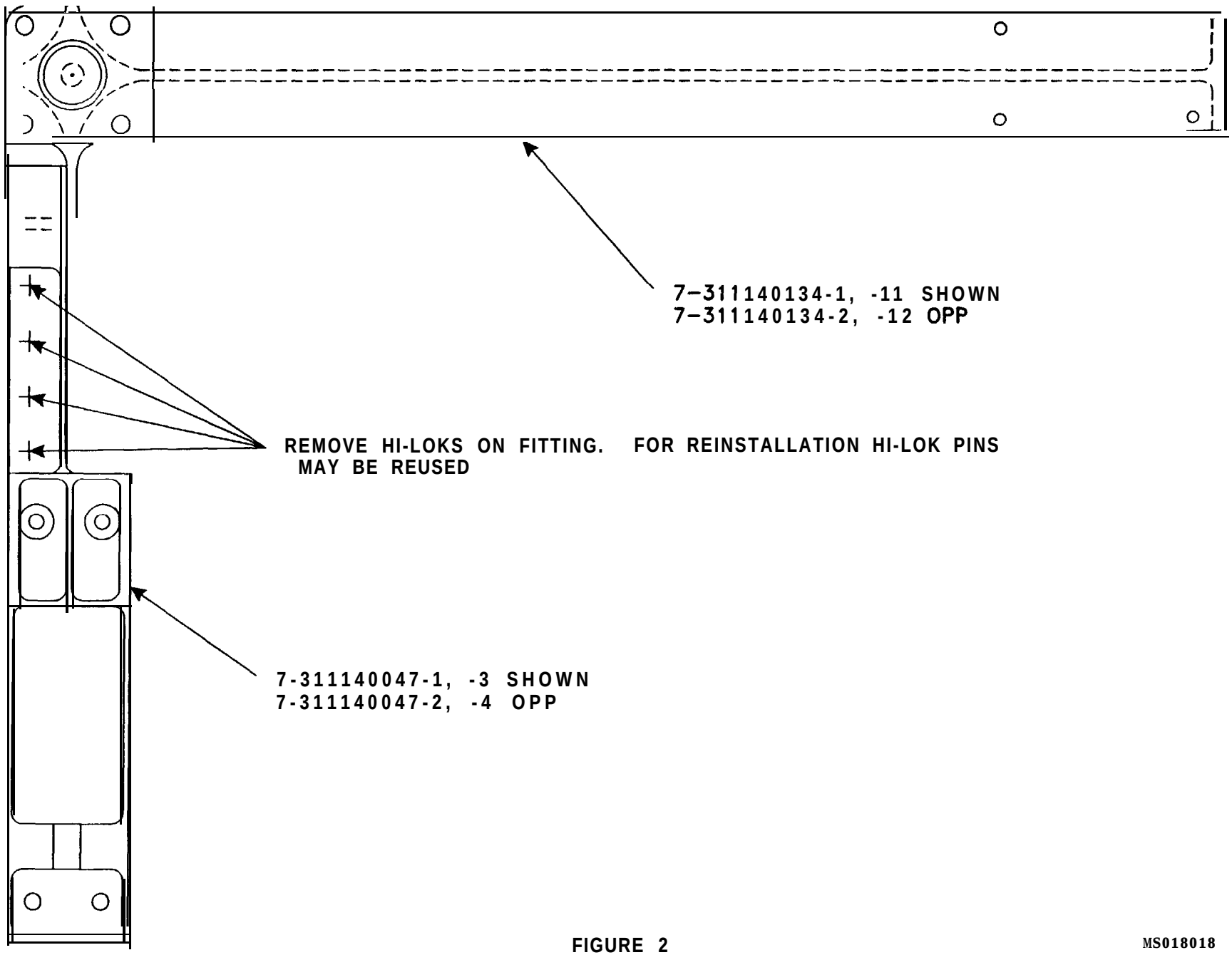


FIGURE 2

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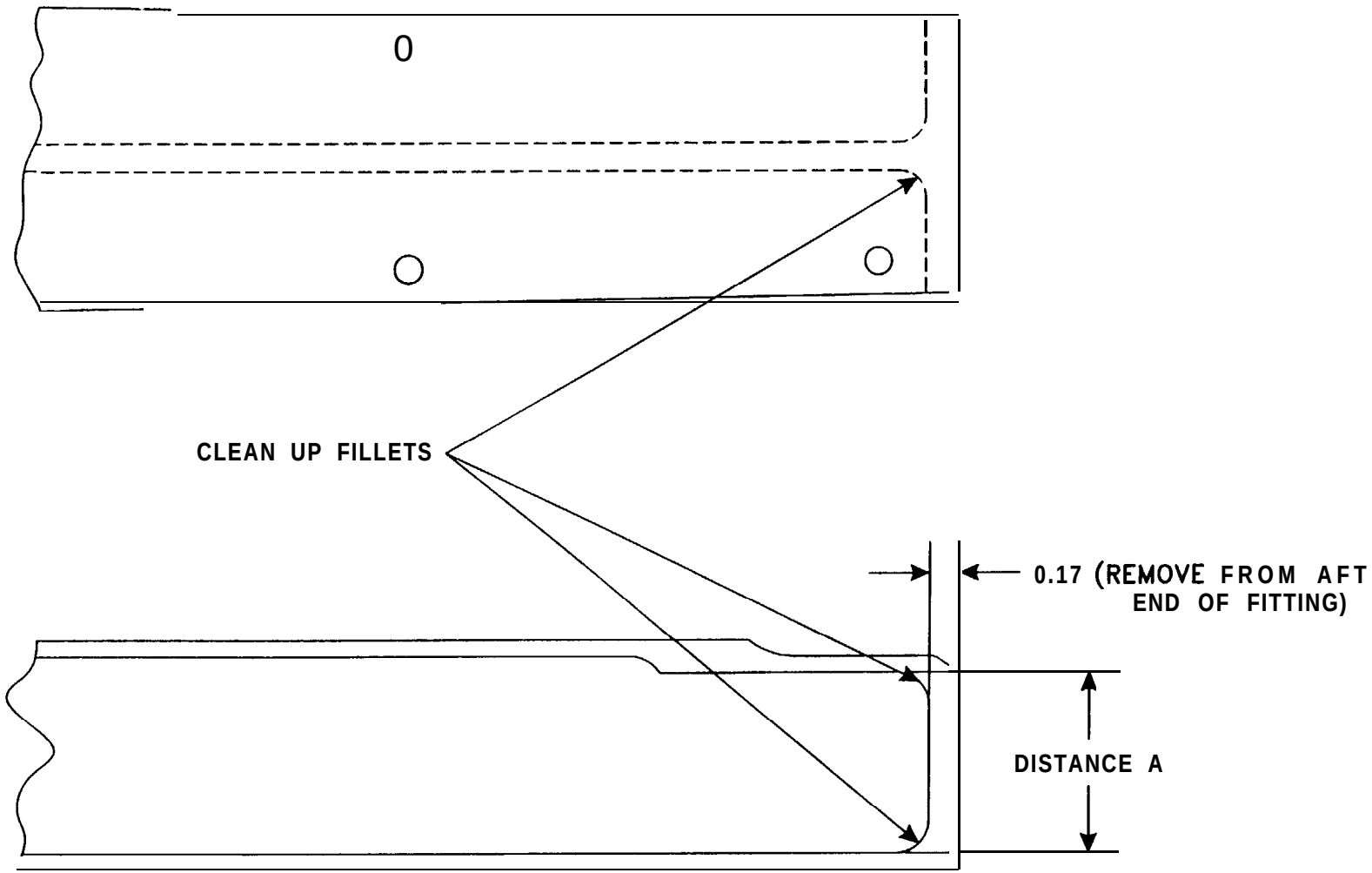

FIGURE 3

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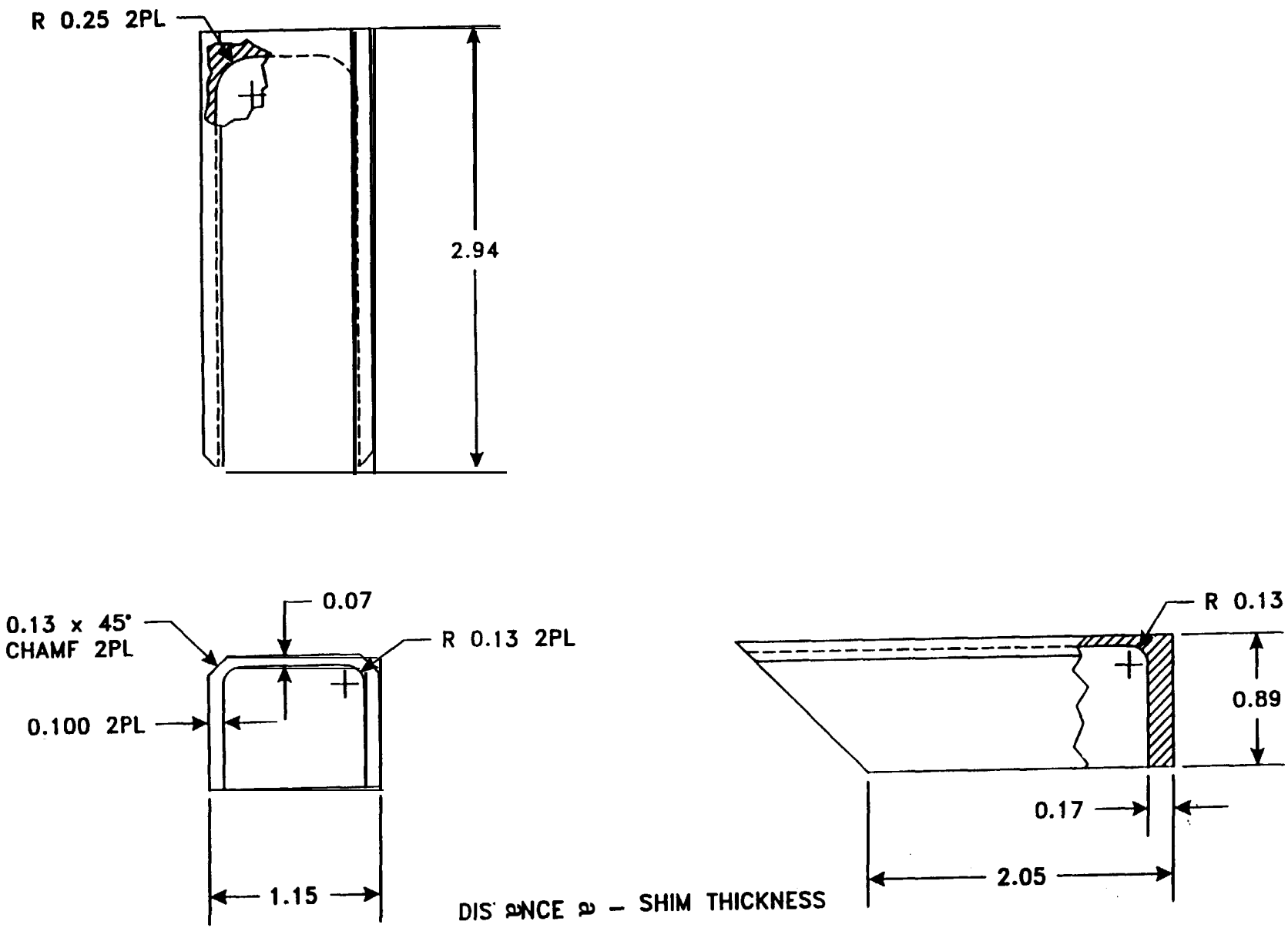

FIGURE 4

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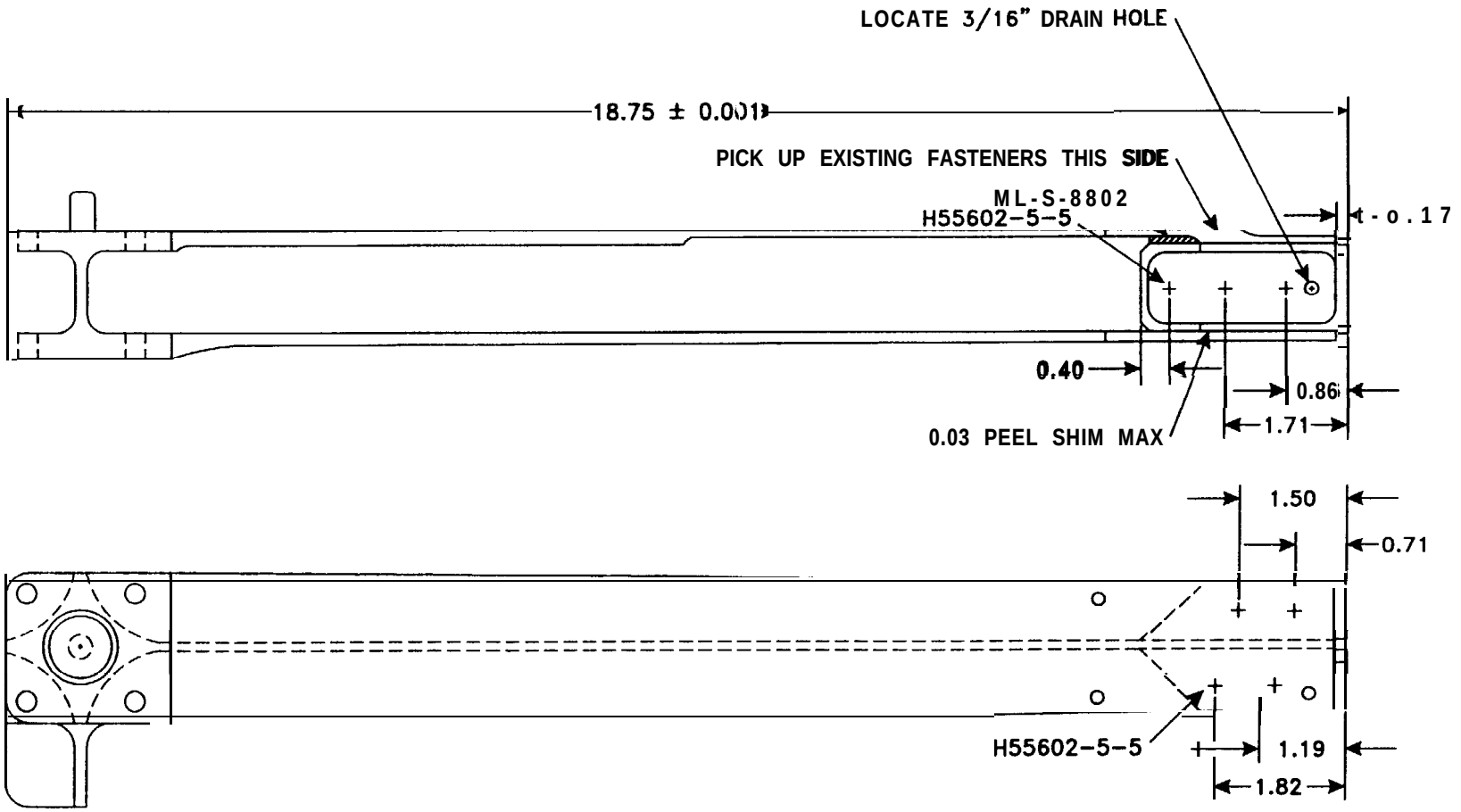

FIGURE 5

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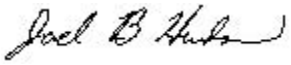
By Order of the Secretary of the Army:

Official:



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Chief of Staff

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THE METRIC SYSTEM AND EQUIVALENTS

'NEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

'VEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

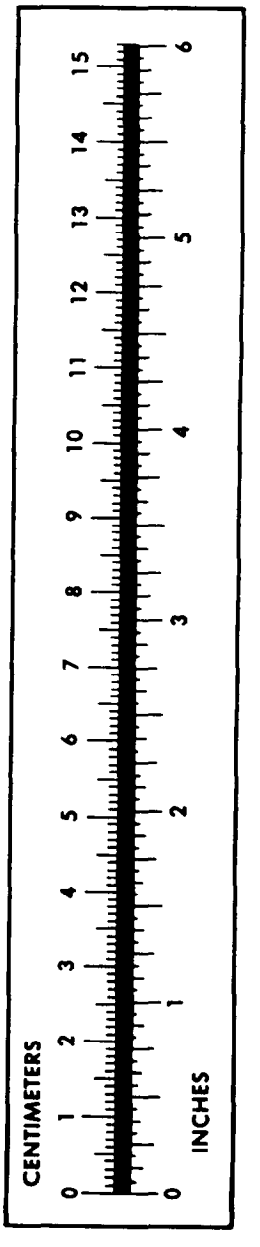
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



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