TO: ALL HOLDERS OF LANDING GEAR PARTS LUBRICATION FITTING REPLACEMENT
COMPONENT MAINTENANCE MANUAL 32-00-03

REVISION NO. 11 DATED JUL 01/04

HIGHLIGHTS

Pages which have been added or revised are outlined below together with the highlights of the revision. Remove and insert the affected pages as listed and enter Revision No. and date on the Record of Revision Sheet.

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
ALL PAGES	Added clarification to header.
DESCRIPTION & OPERATION 1 REPAIR-GEN 601 REPAIR 2-1 601	Added clarifications and changed details.
DESCRIPTION & OPERATION 1 REPAIR-GEN 601 REPAIR 2-1 601 REPAIR 3-1 601	Changed the etch examination type for steel parts.
REPAIR 3-1 601-603	Added repair of lube holes by installation of oversize threaded insert.

LANDING GEAR PARTS
LUBRICATION FITTING REPLACEMENT

NO ASSIGNED PART NUMBER

COMPONENT MAINTENANCE MANUAL

REVISION RECORD

- Retain this record in front of manual. On receipt of revision, insert revised pages in the manual, and enter revision number, date inserted and initial.

REVISION NUMBER	REVISION DATE	DATE FILED	BY	REVISION NUMBER	REVISION DATE	DATE FILED	BY

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		SL 20-4 (757) SL 20-11 (737)	OCT 01/87 OCT 01/87

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32-00-03		
TITLE PAGE		
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REVISION RECORD		
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SPECIAL TOOLS		
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* = REVISED, ADDED OR DELETED

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LANDING GEAR PARTS - LUBRICATION FITTING REPLACEMENT

DESCRIPTION AND OPERATION

1. Description

A. This manual tells how to replace press-fit lubrication fittings in parts from which such fittings were removed. It also gives repair procedures for the mating lube hole in the parts.

2. Operation

A. The procedures are typical for all landing gear parts. The overhaul or repair instructions in the applicable manuals for the landing gear components will tell you when to use this procedure.

REPAIR - GENERAL

1. Content

   A. Repair, refinish and replacement procedures are included in separate repair sections as follows:

NAME	REPAIR
LUBE FITTING REPLACEMENT	1-1
LUBE HOLE REPAIR FOR PRESS-FIT LUBE FITTINGS	2-1
LUBE HOLE REPAIR FOR THREADED LUBE FITTINGS	3-1

2. Standard Practices

   A. Refer to the following standard practices, as applicable, for details of procedures in individual repairs.

20-00-00	Introduction
20-10-01	Repair and Refinish of High Strength Steel Parts
20-10-02	Machining of Alloy Steel
20-20-01	Magnetic Particle Inspection
20-30-03	General Cleaning Procedures
20-30-90	Solvents for Final Cleaning of Solvent Resistant Organic Coatings Before Non-Structural Bonding (Series 90)
20-30-92	Solvents for Final Cleaning Before General Sealing (Series 92)
20-50-03	Bearing and Bushing Replacement
20-50-12	Application of Adhesives
20-60-01	Cleaning Materials
20-60-04	Miscellaneous Materials
32-00-05	Repair of High Strength Steel Landing Gear Parts

3. Materials

   NOTE: Equivalent substitutes can be used.

   A. Cotton swabs (SOPM 20-60-04)

B. Primer, Loctite -- Locquic grade T (SOPM 20-60-04)

C. Adhesive (Retaining Compound) (SOPM 20-60-04)

(1) Loctite 675 (replaces Loctite 75) (preferred)

(2) Loctite 290 (optional)

(3) Loctite RC/680 (optional)

D. Liquid nitrogen (SOPM 20-60-04)

E. Sealant -- BMS 5-95 (SOPM 20-60-04)

F. Solvents

(1) Series 90 (SOPM 20-30-90)

(2) Series 92 (SOPM 20-30-92)

4. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in applicable repair procedures are shown in SOPM 20-00-00.

LUBE FITTING REPLACEMENT - REPAIR 1-1

NOTE: Refer to REPAIR-GEN for a list of applicable standard practices.

1. Repair

A. Lube Fitting Selection (Fig. 601)

(1) Make a check of the diameter of the lube hole in the part.

(2) As applicable for the hole diameter, get the specified standard lube fitting, or modify a lube fitting as shown.

B. Cleaning (Fig. 602)

(1) With cotton swabs, remove as much grease as possible from entire depth of the lube fitting hole.

(2) With a Series 90 solvent on a clean cotton swab, clean the hole to the depth shown. Clean again until no more visible grease or dirt can be removed.

(3) Clean the replacement lube fitting (standard or modified per Fig. 601) with a Series 90 solvent.

C. Hole Preparation (Fig. 602)

(1) With a cotton swab, apply a thin layer of Loctite primer to the bore of the hole, to the depth shown.

(2) Let the primer air dry at room temperature a minimum of 5 minutes.

(3) Immediately before you install the lube fitting, apply a thin layer of adhesive with a cotton swab to the bore of the hole, to the depth shown.

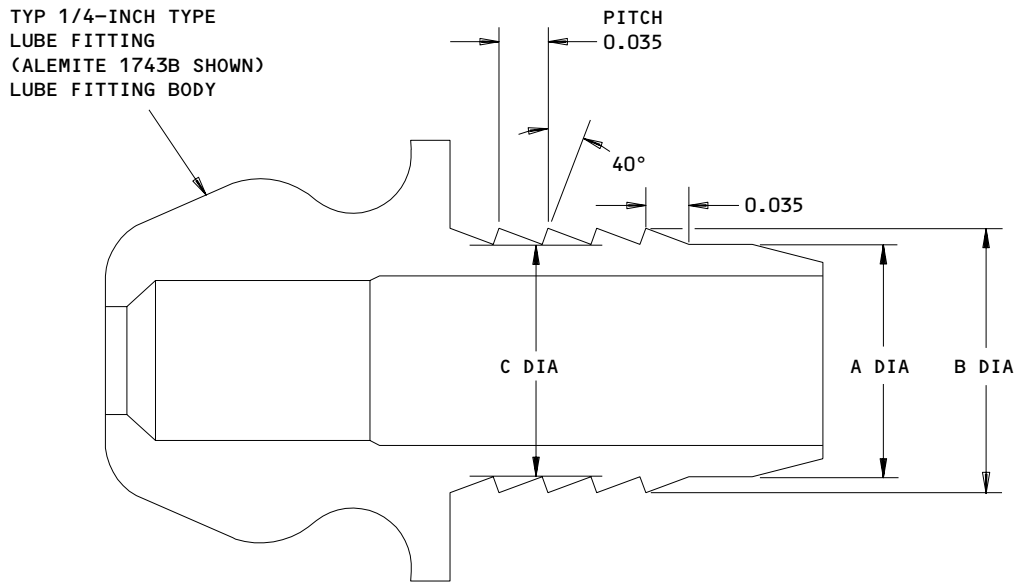
D. Lube Fitting Installation

(1) Soak the lube fitting in liquid nitrogen for a minimum of 1 minute to make sure it is completely cold.

(2) Install the lube fitting in the prepared hole, with the applicable drive tool.

(3) Cure for 12 hours at room temperature. Do not apply grease to the fitting during this cure.

E. After the cure, you can use a proof pressure of 2500-3000 psi to be sure the lube fitting installation is serviceable.



1/4-INCH MODIFIED LUBE FITTING DETAILS

(A)

LUBE HOLE DIA	LUBE FITTING DIA	REPLACEMENT LUBE FITTING 1	
		STRAIGHT	ANGLED
0.194 MAX	3/16 2	1728B	1646B (65°),1992B (45°)
0.195-0.247	1/4 MODIFIED 2	SEE (A)	SEE (A)
0.248-0.249	1/4 3	1743B	1744B (65°),3024B (45°)
0.250-0.254	1/4 2	1743B	1744B (65°),3024B (45°)
0.255-UP	IF THERE ARE NO SPECIAL REPAIR INSTRUCTIONS IN THE COMPONENT OVERHAUL INSTRUCTIONS, CONTACT BOEING FOR REPAIR INSTRUCTIONS.		

FINISH:

BRUSH CADMIUM PLATE MACHINED SURFACES PER SOPM 20-42-05.

1 ALEMITE (V95879) PART NUMBERS

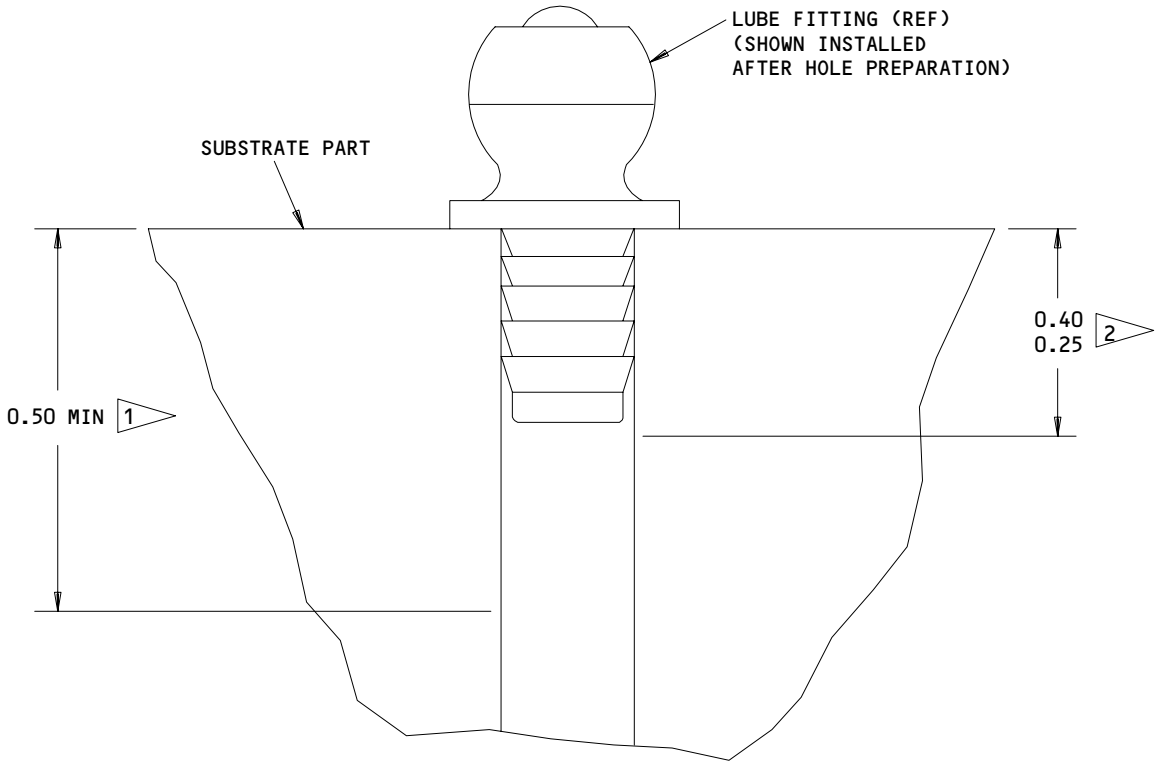
2 INSTALL WITH ADHESIVE.

3 INSTALLATION WITH ADHESIVE OPTIONAL.

X = LUBE HOLE DIA IN MATING COMPONENT
A = SHANK DIA (X MINUS 0.007-0.012)
B = SERRATION OD (X PLUS 0.005-0.010)
C = SERRATION ROOT OD (X MINUS 0.003-0.010)

ALL DIMENSIONS ARE IN INCHES

Lubrication Fitting Selection and Modification Details
Figure 601



1 CLEAN HOLE TO THIS DEPTH

2 APPLY PRIMER AND ADHESIVE TO THIS DEPTH

ALL DIMENSIONS ARE IN INCHES

Hole Preparation and Fitting Installation
Figure 602

277461

LUBE HOLE REPAIR FOR PRESS-FIT LUBE FITTINGS - REPAIR 2-1

NOTE: Refer to REPAIR - GENERAL for a list of applicable standard practices.

1. Installation of Repair Bushing (Fig. 601)

   A. Make sure the area around the damaged lube hole has a flat area sufficiently large to fit the 0.380-0.400 inch flange diameter of the repair bushing.

   B. With the lube hole or passage as a guide, machine the top end of the hole larger, as shown, within the repair limit given in the component overhaul instructions. If the part is steel, machine per SOPM 20-10-02 and CMM 32-00-05.

   C. If the part is steel, local nital etch examine the machined area (SOPM 20-10-02). Then wash the area with a good flow of water to remove all signs of the etch solution.

   D. If the part is steel, magnetic particle examine it (SOPM 20-20-01), Class A critical. If the part is not steel, penetrant examine it (SOPM 20-20-02).

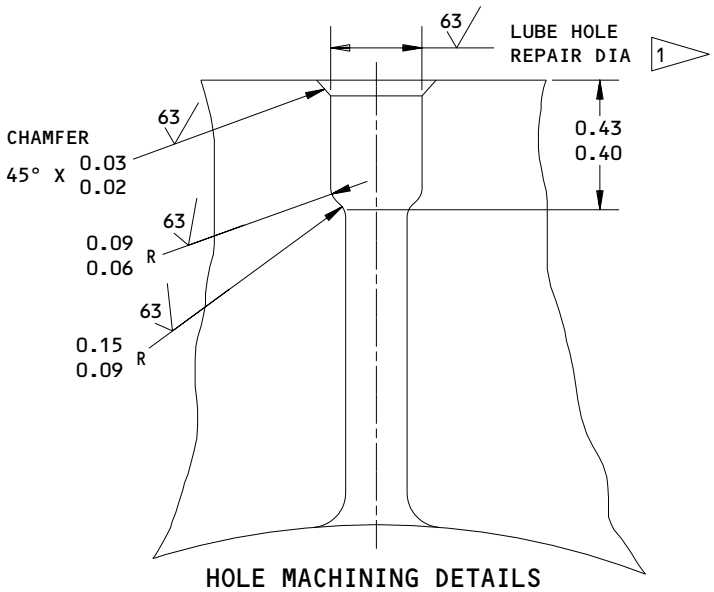
   E. Make a repair bushing (Fig. 602) as required, to adjust for the amount of material removed in step B.

   F. Apply sealant to the machined hole as shown. If sealant gets in deeper, clean out the unwanted sealant with a Series 92 solvent on a cotton swab.

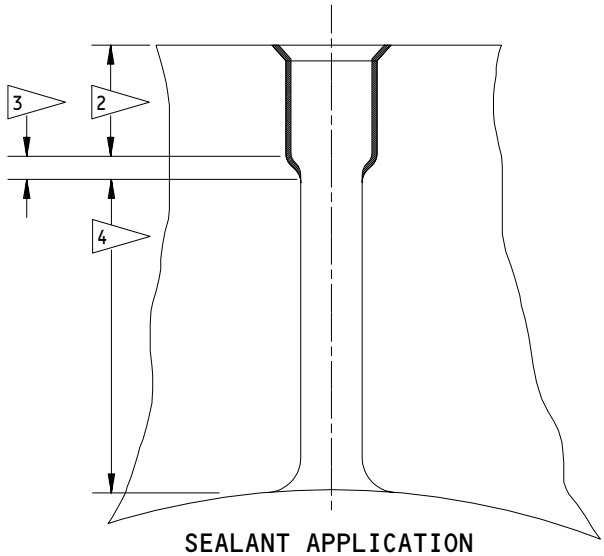
   G. Install the repair bushing by the shrink-fit method (SOPM 20-50-03).

   H. Machine the bushing bore to the design dimensions and finish given in the component overhaul instructions.

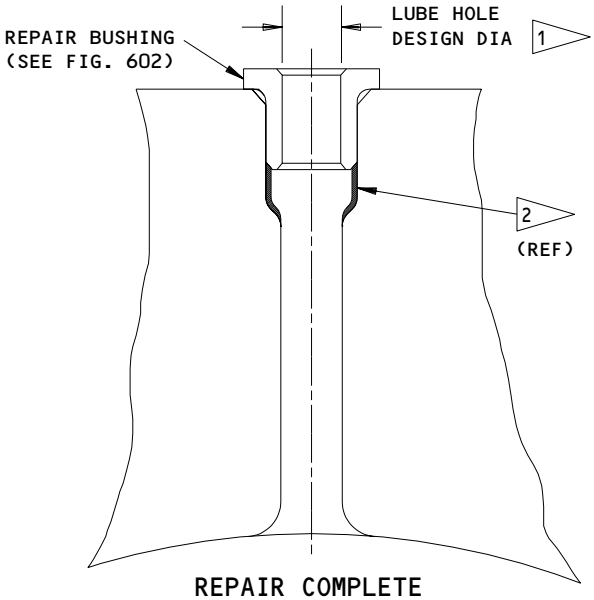
   I. Install a replacement lube fitting per REPAIR 1-1.



HOLE MACHINING DETAILS



SEALANT APPLICATION



REPAIR COMPLETE

NOTE: STRAIGHT LUBE PASSAGE IS SHOWN. THIS REPAIR ALSO IS APPLICABLE TO ANGLED OR SPECIAL CONFIGURATIONS IF PERMITTED BY COMPONENT OVERHAUL INSTRUCTIONS.

1 REFER TO COMPONENT OVERHAUL INSTRUCTIONS FOR DESIGN DIMENSIONS AND REPAIR LIMITS

2 BMS 5-95 SEALANT

3 SEALANT RUNOUT AREA

4 NO SEALANT PERMITTED

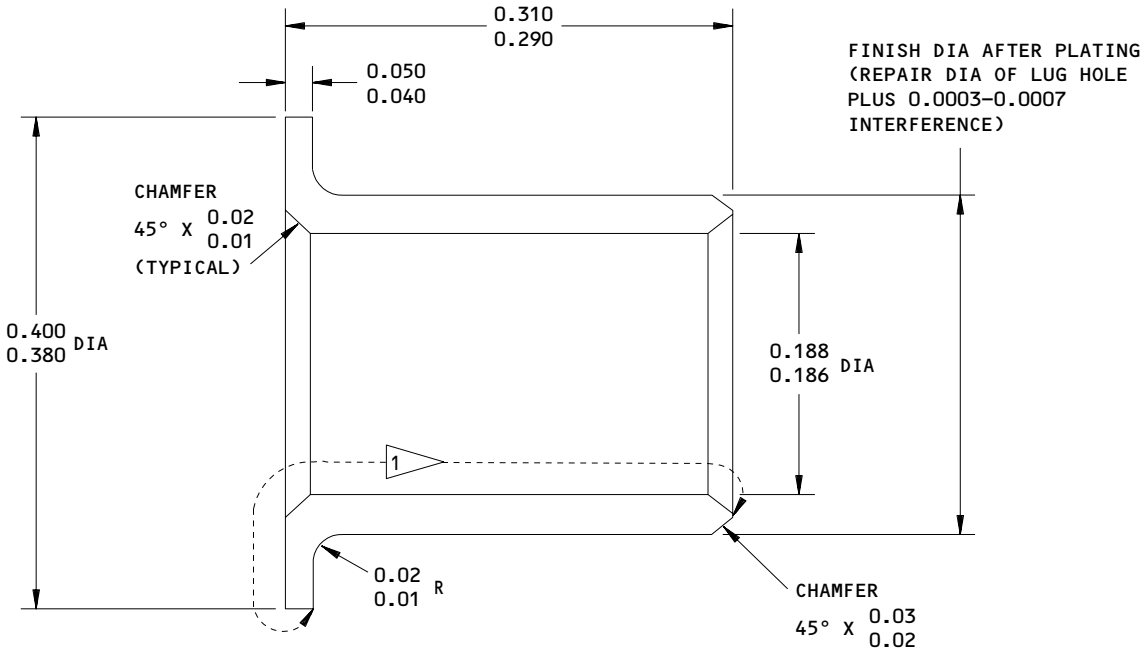
REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE IN INCHES

Lubrication Hole Repair
Figure 601

E87783



1 PLATING OPTIONAL

REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK CORNERS 0.01–0.02 X 45°

CADMIUM PLATE EXCEPT AS NOTED 0.0003–0.0005 THICK PER SOPM 20–42–10 UNLESS SHOWN BY 1

MATERIAL: AL–NI–BRONZE PER AMS 4880 OR AMS 4640

ALL DIMENSIONS ARE IN INCHES

Repair Bushing Details
Figure 602

E87791

LUBE HOLE REPAIR FOR THREADED LUBE FITTINGS - REPAIR 3-1

NOTE: Refer to REPAIR - GENERAL for a list of applicable standard practices.

1. Installation of Oversize Threaded Insert (Fig. 601)

   A. Make sure the area around the damaged lube hole has a flat area sufficiently large to fit the repair diameter of the lube hole. If necessary, machine a spotface on the surface.

   B. With the lube hole or passage as a guide, machine the top end of the hole larger, as shown, within the repair limit. If the part is steel, machine per SOPM 20-10-02 and CMM 32-00-05.

   C. If the part is steel, local nital etch examine the machined area (SOPM 20-10-02). Then wash the area with a good flow of water to remove all signs of the etch solution.

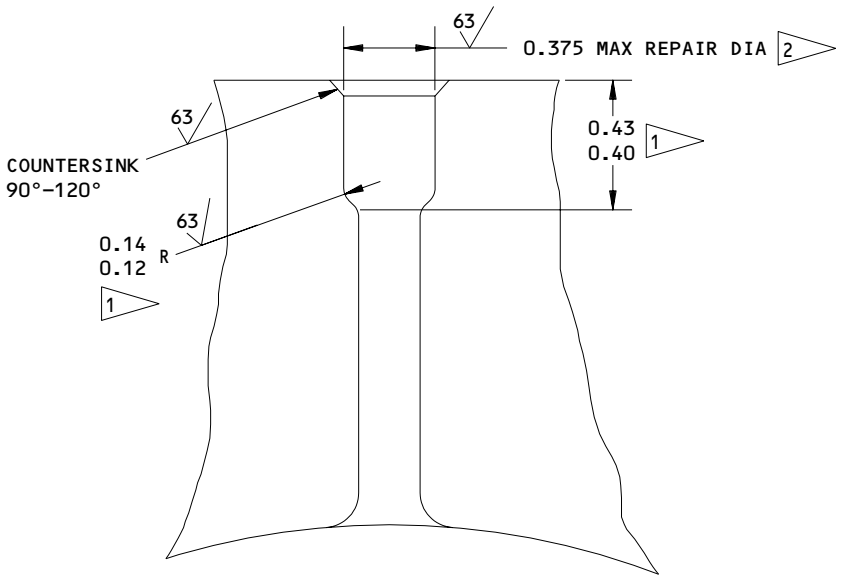
   D. If the part is steel, magnetic particle examine it (SOPM 20-20-01), Class A critical. If the part is not steel, penetrant examine it (SOPM 20-20-02).

   E. Refinish the lube hole by the component overhaul instructions.

   F. Make an oversize threaded insert (Fig. 602) as required, to adjust for the amount of material removed in step B.

   G. Install the threaded insert by the shrink-fit method (SOPM 20-50-03). Use the installation finish specified in the component overhaul instructions.

   H. Install a replacement lube fitting and tighten it to the specified torque or standard torque.



TYPICAL HOLE MACHINING DETAILS

NOTE: STRAIGHT LUBE PASSAGE IS SHOWN. THIS REPAIR ALSO IS APPLICABLE TO ANGLED OR SPECIAL CONFIGURATIONS IF PERMITTED BY COMPONENT OVERHAUL INSTRUCTIONS.

1 UNLESS THE COMPONENT OVERHAUL INSTRUCTIONS SHOW DIFFERENT DESIGN DIMENSIONS

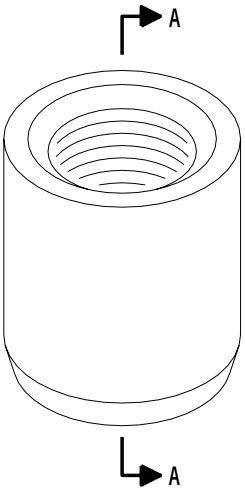
2 UNLESS SHOWN DIFFERENTLY IN COMPONENT OVERHAUL INSTRUCTIONS

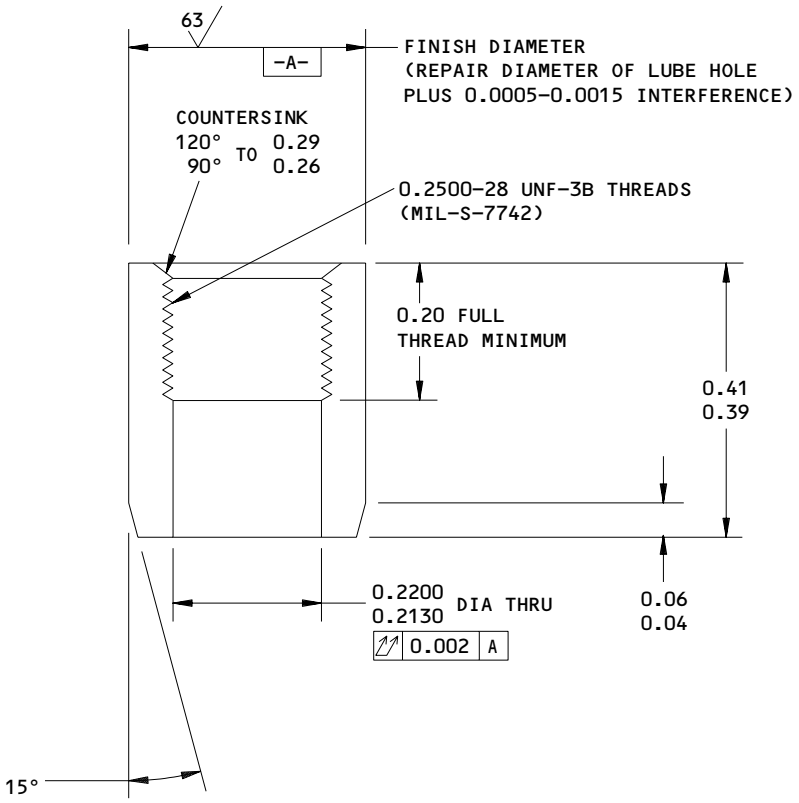
REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE IN INCHES

Lubrication Hole Repair
Figure 601





A-A

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK EDGES 0.01-0.02 R

MATERIAL: AL-NI-BRONZE
(AMS 4640 OR AMS 4880)

FINISH: NO FINISH

ALL DIMENSIONS ARE IN INCHES

Replaces 161W7010-1
Oversize Threaded Insert Details
Figure 602

SPECIAL TOOLS

NOTE: Equivalent substitutes can be used. The vendor for these tools is Alemite (V95879).

1. 5253-1 -- Drive tool for lube fitting 1743B

2. 5253-3 -- Drive tool for lube fitting 1728B

3. 5254-1 -- Drive tool for angled lube fittings 1646B, 1744B, 1992B, 3024B