COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

MAIN LANDING GEAR UPLOCK ACTUATOR ASSEMBLY

PART NUMBER 273A2501–1

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COMPONENT MAINTENANCE MANUAL

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To: All holders of MAIN LANDING GEAR UPLOCK ACTUATOR ASSEMBLY 32-32-42.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL

All revisions to this manual will be accompanied by transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the revision date, the date filed and the initials of the person filing.

Revision		Filed	
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Temporary Revision		Inserted		Removed	
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Temporary Revision		Inserted		Removed	
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INTRODUCTION

1. General

A. The instructions in this manual supply the data necessary to do the maintenance functions together with the test, fault isolation, repair, and replacement of the defective parts.

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

C. Components that can be repaired have a different repair number for each specified repair. To find the repair number location of a component, look in the Repair-General procedure at the beginning of the REPAIR section. The Repair-General procedure also has an explanation of the True Position Dimension symbols used.

D. All dimensions, measures, quantities and weights included are in English units. When metric equivalents are given they will be in the parentheses that follow the English units.

E. The introduction to the Illustrated Parts List (IPL) shows how the IPL data is used.

F. Design changes, optional parts, configuration differences and Service Bulletin modifications may cause different part numbers. These part numbers are identified in the IPL with an alphabetical letter which is added to the end of the basic item number. This new item number is referred to as an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless shown differently.

G. The tool reference numbers found in the individual procedures and in the Special Tools, Fixtures, and Equipment section are used to identify if a tool is a standard tool (STD-XXXX), a commercial tool (COM-XXXX), or a Special Tool (SPL-XXXX). This reference number is also used to distinguish between tools with similar names in the same procedure. These reference numbers are for use in the documentation only. They are not to be used for ordering tools.

MAIN LANDING GEAR UPLOCK ACTUATOR ASSEMBLY - DESCRIPTION AND OPERATION

1. Description

A. The main landing gear uplock actuator assembly is a hydraulic piston type which consists of a CRES piston, a CRES barrel assembly and a CRES rod end assembly.

2. Operation

A. When gear extend is desired, hydraulic pressure is directed to the actuator UNLOCK port by the landing gear selector valve. The actuator will rotate the uplock hook assembly to release the main landing gear extension. During landing gear retraction, the uplock actuator is driven by the uplock hook assembly. The restrictor in the unlock port provides rate control during extension and retraction.

3. Leading Particulars (Approximate)

A. Length

(retracted) – 5-1/4 inches

(extended) – 7 inches

B. Width – 1-3/8 inches

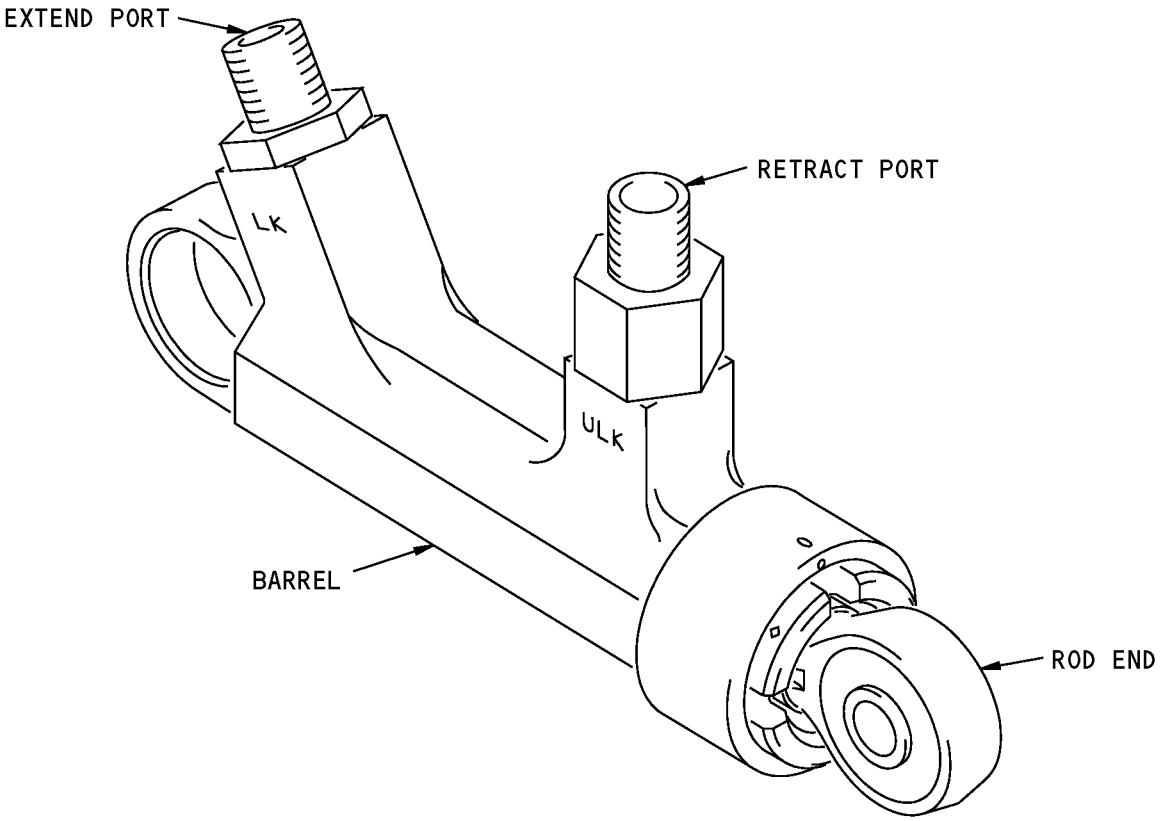
C. Height – 2-1/4 inches

D. Weight – 1.5 pounds

E. Pressure (proof) – 4500 psi

F. Pressure (operate) – 3000 psi

G. Fluid (operate) – fluid, D00153 BMS 3-11 hydraulic fluid



Main Landing Gear Uplock Actuator Assembly
Figure 1

TESTING AND FAULT ISOLATION

1. General

A. This procedure tells how to do a test of the uplock actuator assembly after an overhaul or for fault isolation. There are three parts:

(1) Uplock Actuator Assembly Test

(a) External leakage

(b) Internal leakage

(c) Seal friction

(d) Retract time

(e) Proof pressure

(2) Fault Isolation

(3) Fault Correction

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for the item numbers.

2. Uplock Actuator Test

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-5404	Vise Clamp Assembly (C32038-7 included in C32038-1 Eqpt) (Part #: C32038-7, Supplier: 81205)

B. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

C. References

Reference	Title
SOPM 20-60-03	LUBRICANTS

D. General

(1) You will visually monitor the actuator for leaks and measure the rate of the piston.

(2) Make sure the ambient conditions during the test are:

(a) Temperature of 60-100°F.

(b) Atmospheric pressure of 13-17 psi.

(c) Relative humidity of 10-90 percent.

E. Standard Tools and Equipment

(1) A hydraulic test stand with these requirements:

(a) Can operate with hydraulic fluid, D00153.

(b) Can operate in a range of 0-4600 psi.

(c) Hydraulic fluid, D00153 must be continuously filtered by a filter no larger than 15 micron absolute.

(d) Hydraulic fluid, D00153 is kept at 60-120°F.

F. Prepare for Test

(1) Put the actuator in Vise Clamp Assy., SPL-5404 and put them in a bench vise.

(2) Attach the hydraulic test stand lines to the ports.

(3) Fill the actuator with hydraulic fluid, D00153.

NOTE: The actuator must be full of hydraulic fluid, D00153 for each test.

(4) Remove all of the air from the actuator.

G. Procedure

WARNING: DO NOT APPLY AIR PRESSURE TO THE PORTS. THIS CAN CAUSE DAMAGE TO THE UNIT OR INJURY TO YOU.

NOTE: For lubricants, refer to SOPM 20-60-03.

(1) Do an external leakage test:

(a) Clean around nut (15) near seal (70) to help with leak detection.

(b) Check for external leakage:

1) Fully extend piston (80).

2) Apply 2-10 psi to the extend (LK) port and the retract (ULK) port for 2 minutes.

3) Seal (70) can be moist, but a drop cannot start.

(c) Operate the actuator for 25 full cycles:

1) Fully retract piston (80).

2) Apply the minimum hydraulic pressure to the extend (LK) port that is necessary to move piston (80).

3) Increase the pressure to 3000-3200 psi when the actuator stops at the end of the piston travel.

4) Remove the pressure from the extend (LK) port.

5) Change the direction of hydraulic fluid, D00153.

NOTE: The actuator is in the fully extended position.

6) Apply the minimum hydraulic pressure to the retract (ULK) port that is necessary to move piston (80).

7) Increase the pressure to 3000-3200 psi when the actuator stops at the end of the piston travel.

8) Remove the pressure from the retract (ULK) port.

9) Do TESTING AND FAULT ISOLATION, Paragraph 2.G.(1)(c)1) thru TESTING AND FAULT ISOLATION, Paragraph 2.G.(1)(c)8) for 25 full cycles.

(d) After 25 cycles, do a visual check for leakage around seal (70):

1) The recommended leakage is zero.

2) The leakage limit for seal (70) is 3 drops every 25 cycles.

3) The leakage limit for packing (60) and rings (55) is zero.

(2) Do an internal leakage test:

(a) Fully extend piston (80).

(b) Remove the hydraulic line from the retract (ULK) port.

(c) Apply 2900-3100 psi to the extend (LK) port for a minimum of 1 minute.

(d) Do a visual check for leakage from the open retract (ULK) port:

1) The recommended leakage is zero.

2) The leakage limit is 1 cubic centimeter (cc) per minute.

(e) Remove the pressure from the extend (LK) port.

(f) Attach the hydraulic line to the retract (ULK) port.

(g) Fully retract piston (80).

(h) Remove the hydraulic line from the extend (LK) port.

(i) Apply 2900-3100 psi to the retract (ULK) port for a minimum of 1 minute.

(j) Do a visual check for leakage from the open extend (LK) port:

1) The recommended leakage is zero.

2) The leakage limit is 1 cc per minute.

(k) Remove the pressure from the retract (ULK) port.

(3) Do a seal friction test:

(a) Fully retract piston (80).

(b) Apply no pressure to the retract (ULK) port.

(c) With no load applied to piston (80), slowly increase the pressure to a maximum of 75 psi at the extend (LK) port:

1) Piston (80) must fully extend with a smooth and continuous movement.

(d) Remove the pressure applied to the extend (LK) port.

(e) Make sure piston (80) is fully extended.

(f) Apply no pressure to the extend (LK) port.

(g) With no load applied to piston (80), slowly increase the pressure to a maximum of 100 psi at the retract (ULK) port:

1) Piston (80) must fully retract with a smooth and continuous movement.

(h) Remove the pressure applied to the retract (ULK) port.

(4) Do a retract time test:

(a) Fully extend piston (80).

(b) Let hydraulic fluid, D00153 flow freely from the extend (LK) port to a reservoir.

(c) Apply 165 psi of pressure to the retract (ULK) port:

1) Keep a record of the time for piston (80) to fully retract.

2) The time for the piston to fully retract must be 1 to 2 seconds.

(d) Remove the pressure from the retract (ULK) port.

(5) Do a proof pressure test:

CAUTION: DO NOT EXTEND OR RETRACT THE PISTON AT PROOF PRESSURE (4400-4600 PSI).

(a) Fully retract piston (80).

(b) Apply 4400-4600 psi of pressure to the retract (ULK) port for a minimum of 60 seconds.

(c) Make sure that there is no sign of external leakage or permanent damage to the actuator.

(d) Remove the pressure from the retract (ULK) port.

(e) Fully extend piston (80).

(f) Apply 4400-4600 psi of pressure to the extend (LK) port for a minimum of 60 seconds.

(g) Make sure that there is no sign of external leakage or permanent damage to the actuator.

(h) Remove the pressure from the extend (LK) port.

(6) Make sure that the actuator has an extended length of 6.9330-7.0530 inches and a retracted length of 5.1400-5.2200 inches (TESTING AND FAULT ISOLATION, Figure 101):

(a) Fully retract piston (80).

(7) Remove the actuator from the holding tools after the test.

(8) Fill the unit with hydraulic fluid, D00153 and install the shipping caps.

3. Fault Isolation

A. Refer to TESTING AND FAULT ISOLATION, Table 101 for fault isolation.

Table 101: Fault Isolation Chart

TROUBLE	PROBABLE CAUSE	CORRECTIONS
Too much leakage at rod end assembly (20).	Defective rings (55), packing (60), scraper (65) or seal (70).	Disassemble and replace the parts as specified in TESTING AND FAULT ISOLATION, Paragraph 4.C.
Piston (80) does not move freely.	Defective piston (80), gland (75), barrel (100) or nut (15).	Disassemble and replace the parts as specified in TESTING AND FAULT ISOLATION, Paragraph 4.C. or TESTING AND FAULT ISOLATION, Paragraph 4.D.
	Dirt or foreign material in the cylinder.	Disassemble and clean the parts.

4. Fault Correction

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange~able & intermixable with Type V)

B. References

Reference	Title
SOPM 20-50-01	BOLT AND NUT INSTALLATION
SOPM 20-60-03	LUBRICANTS

C. Procedure

NOTE: For bolt and nut installation, refer to SOPM 20-50-01. For lubricants, refer to SOPM 20-60-03.

(1) Drain all hydraulic fluid, D00153 from the actuator.

(2) Replacement of scraper (65), seal (70), packing (60) and rings (55):

(a) Remove rod end assembly (20) and lockwasher (10) from piston (80).

(b) Remove nut (15) from barrel assembly (90).

(c) Remove scraper (65), seal (70), packing (60), gland (75) and rings (55).

(d) Replace the parts as necessary.

(e) Install rings (55), gland (75), packing (60), seal (70) and scraper (65) on piston (80). Push these parts back into barrel assembly (90).

(f) Install nut (15) in barrel assembly (90). Install lockwasher (10) and rod end assembly (20) on piston (80) as specified in ASSEMBLY. Do the test again to see if the problem was corrected.

(3) Replacement of piston seal (85):

(a) Drain all hydraulic fluid, D00153 from the actuator.

(b) Remove piston (80), rod end assembly (20), lockwasher (10), nut (15) and gland (75) from barrel assembly (90).

(c) Replace defective piston seal (85).

(d) Install piston (80), rod end assembly (20), lockwasher (10), nut (15) and gland (75) in barrel assembly (90).

(e) Do the test again to see if the problem was corrected.

D. Replacement of piston (80) or barrel assembly (90):

NOTE: For bolt and nut installation, refer to SOPM 20-50-01. For lubricants, refer to SOPM 20-60-03.

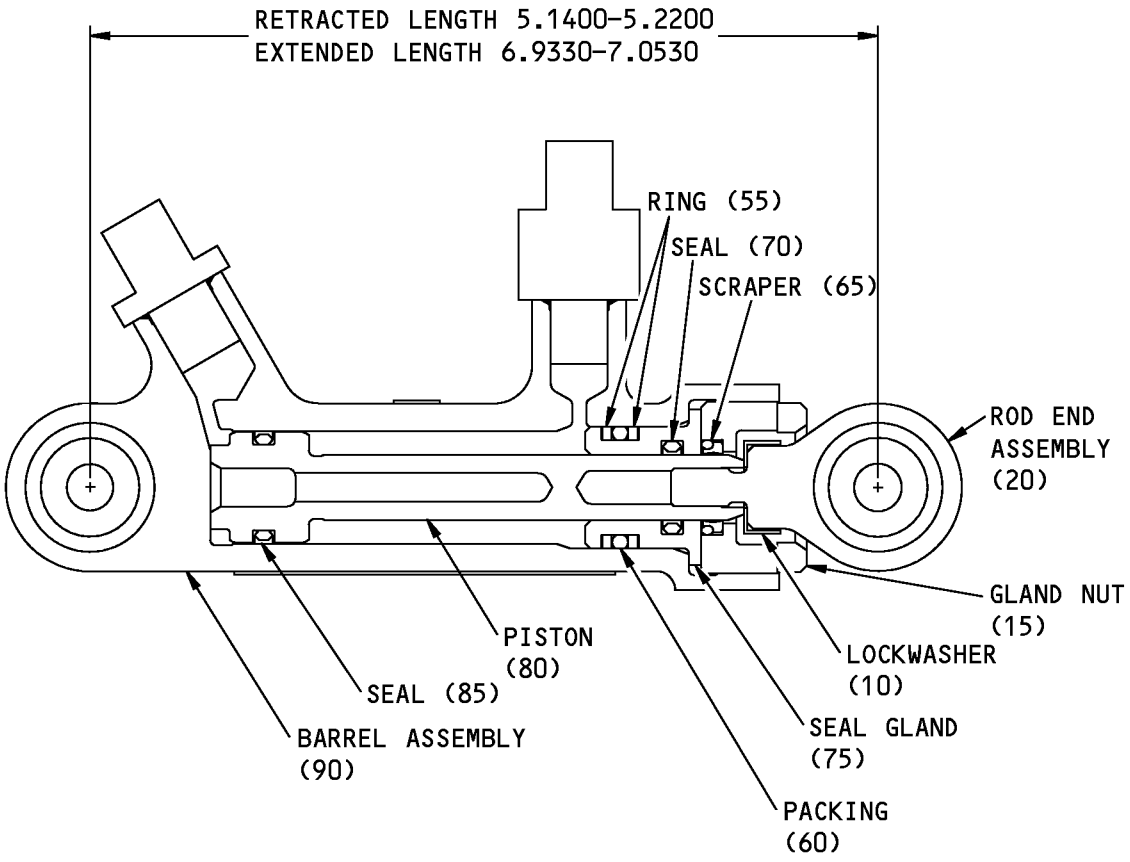
(1) Drain all hydraulic fluid, D00153 from the actuator.

(2) Disassemble the actuator (see DISASSEMBLY).

(3) Replace the defective parts.

(4) Assemble the actuator (see ASSEMBLY).

(5) Test as specified in TESTING AND FAULT ISOLATION, Paragraph 2.



ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

1498625 S0000272057_V1

Actuator Details
Figure 101

DISASSEMBLY

1. General

A. This procedure tells how to disassemble the main landing gear uplock actuator assembly.

B. Disassemble this component sufficiently to isolate the defects, do the necessary repairs, and put the component back to a serviceable condition.

C. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

D. Refer to IPL Figure 1 for the item numbers.

2. Disassembly

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-5404	Vise Clamp Assembly (C32038-7 included in C32038-1 Eqpt) (Part #: C32038-7, Supplier: 81205)

B. Special Tools

NOTE: Equivalent substitutes can be used.

(1) C32038-5 – Rod Retainer

(2) C32038-42 – Spanner

(3) C32038-44 – Rod End Wrench

C. Parts Replacement

(1) The parts that follow are recommended for replacement. Unless a procedure tells you to replace a part, replacement is optional.

(a) Lockwasher (10)

(b) Packings, O-rings and seals (35, 45, 60, 70, 85)

(c) Backup rings (55)

(d) Scraper (65)

D. Procedure

(1) Use standard industry procedures and the steps that follow to disassemble the actuator.

(2) Put the actuator in Vise Clamp Assy., SPL-5404 and put them in a bench vise.

(3) Remove piston (80) and the attached items from barrel assembly (90):

(a) Remove the lockwire from nut (15) and barrel assembly (90).

(b) Carefully loosen nut (15) until piston (80) and the attached items can be removed from barrel assembly (90).

(4) Bend the flanges of lockwasher (10) to release rod end assembly (20).

(5) Remove rod end assembly (20) and lockwasher (10) from piston (80).

(6) Remove nut (15), scraper (65), gland (75) and piston seal (85) from piston (80).

(7) Remove union (40) and restrictor (50) from barrel assembly (90).

CLEANING

1. General

A. This procedure has the data necessary to clean the main landing gear uplock actuator assembly.

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for item numbers.

2. Cleaning

A. References

Reference	Title
SOPM 20-30-01	CLEANING AND RELUBRICATING BEARINGS
SOPM 20-30-03	GENERAL CLEANING PROCEDURES

B. Procedure

(1) Clean the bearings (25A, 95A) as specified in SOPM 20-30-01.

(2) Clean the other parts by standard industry procedures and the instructions in SOPM 20-30-03.

CHECK

1. General

A. This procedure has the data necessary to find defects in the material of the specified parts.

B. Refer to FITS AND CLEARANCES for the design dimension and wear limits.

C. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

D. Refer to IPL Figure 1 for item numbers.

2. Check

A. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-20-02	PENETRANT METHODS OF INSPECTION

B. Procedure

(1) Use standard industry procedures to do a visual check of all the parts for defects. Do the penetrant or magnetic particle check if the visual check shows possible damage or if you suspect possible damage on the parts listed below:

(2) Do a magnetic particle check (SOPM 20-20-01) of these parts:

(a) Barrel (100)

(b) Piston rod (80)

(c) Rod end (30)

(3) Do a penetrant check (SOPM 20-20-02) of these parts:

(a) Nut (15)

(b) Gland (75)

REPAIR

1. General

A. Instructions for repair, refinish, and replacement of the specified subassembly parts are included in each REPAIR when applicable:

Table 601:

PART NUMBER	NAME	REPAIR
—	REFINISH OF OTHER PARTS	1-1
273A2502	BARREL ASSEMBLY	2-1, 2-2
273A2503	PISTON ROD	3-1
273A2504	ROD END ASSEMBLY	4-1, 4-2
273A2505	DELETED	5-1
273A2506	GLAND NUT	6-1
273A2508	NAMEPLATE	7-1

2. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in the applicable repair procedures are shown in REPAIR-GENERAL, Figure 601.

—	STRAIGHTNESS
▱	FLATNESS
⊥	PERPENDICULARITY (OR SQUARENESS)
//	PARALLELISM
○	ROUNDNESS
⌭	CYLINDRICITY
⌒	PROFILE OF A LINE
⌓	PROFILE OF A SURFACE
◎	CONCENTRICITY
⌯	SYMMETRY
∠	ANGULARITY
↗	RUNOUT
↗↗	TOTAL RUNOUT
⌴	COUNTERBORE OR SPOTFACE
∨	COUNTERSINK
⌖	THEORETICAL EXACT POSITION OF A FEATURE (TRUE POSITION)
Ø	DIAMETER
S Ø	SPHERICAL DIAMETER
R	RADIUS
SR	SPHERICAL RADIUS
()	REFERENCE
BASIC (BSC) OR [DIM]	A THEORETICALLY EXACT DIMENSION USED TO DESCRIBE SIZE, SHAPE OR LOCATION OF A FEATURE. FROM THIS FEATURE PERMISSIBLE VARIATIONS ARE ESTABLISHED BY TOLERANCES ON OTHER DIMENSIONS OR NOTES.
[-A-]	DATUM
(M)	MAXIMUM MATERIAL CONDITION (MMC)
(L)	LEAST MATERIAL CONDITION (LMC)
(S)	REGARDLESS OF FEATURE SIZE (RFS)
(P)	PROJECTED TOLERANCE ZONE
FIM	FULL INDICATOR MOVEMENT

EXAMPLES

— | 0.002	STRAIGHT WITHIN 0.002
⊥ | 0.002 | B	PERPENDICULAR TO DATUM B WITHIN 0.002
// | 0.002 | A	PARALLEL TO DATUM A WITHIN 0.002
○ | 0.002	ROUND WITHIN 0.002
⌭ | 0.010	CYLINDRICAL SURFACE MUST LIE BETWEEN TWO CONCENTRIC CYLINDERS, ONE OF WHICH HAS A RADIUS 0.010 INCH GREATER THAN THE OTHER
⌒ | 0.006 | A	EACH LINE ELEMENT OF THE SURFACE AT ANY CROSS SECTION MUST LIE BETWEEN TWO PROFILE BOUNDARIES 0.006 INCH APART RELATIVE TO DATUM A
⌓ | 0.020 | A	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.020 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
◎ | Ø 0.0005 | C	CONCENTRIC TO DATUM C WITHIN 0.0005 DIAMETER
⌯ | 0.010 | A	SYMMETRICAL WITH DATUM A WITHIN 0.010
∠ | 0.005 | A	ANGULAR TOLERANCE 0.005 WITH DATUM A
⌖ | Ø 0.002 (S) | B	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
⊥ | Ø 0.010 (M) | A 0.510 (P)	AXIS IS TOTALLY WITHIN A CYLINDER OF 0.010 INCH DIAMETER, PERPENDICULAR TO DATUM A, AND EXTENDING 0.510 INCH ABOVE DATUM A, MAXIMUM MATERIAL CONDITION
[2.000] OR 2.000 BSC	THEORETICALLY EXACT DIMENSION IS 2.000

True Position Dimensioning Symbols
Figure 601

REFINISH OF OTHER PARTS - REPAIR 1-1

1. General

A. This procedure has the data necessary to refinish the parts which are not given in the specified repairs.

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for item numbers.

2. Refinish of Other Parts

A. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

B. General

(1) Instructions for the repair of the parts listed in REPAIR 1-1, Table 601 is for repair of the initial finish.

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Refer to REPAIR 1-1, Table 601 for the refinish details.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
IPL Fig. 1		
No parts currently applicable		

BARREL ASSEMBLY - REPAIR 2-1

273A2502–1

1. General

A. This procedure has the data necessary to replace the bearing in the barrel assembly (90).

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Bearing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

B. References

Reference	Title
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For miscellaneous materials, refer to SOPM 20-60-04.

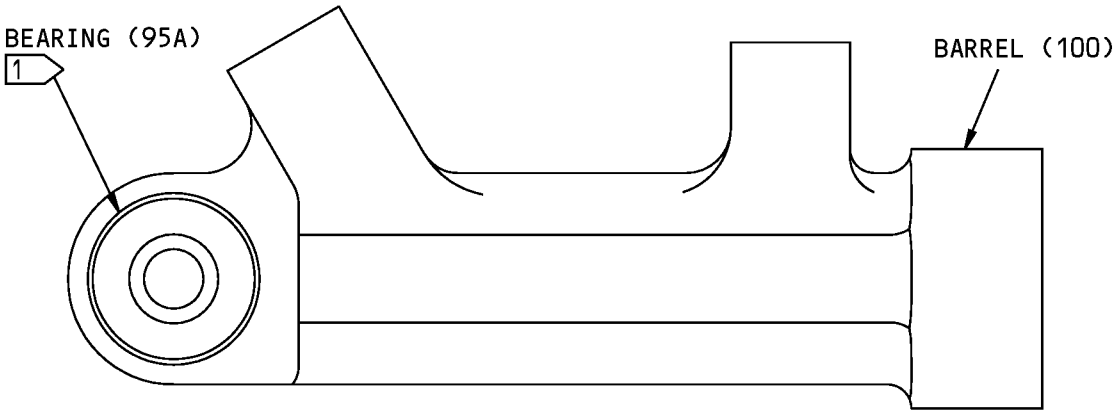
(1) Replace the bearing (95A).

(a) Remove the bearing (95A) from the barrel (90).

(b) Install the bearing (95A) with the sealant, A00247 on the barrel (90) inner diameter and the bearing (95A) outer diameter.

1) Obey the flagnote in REPAIR 2-1, Figure 601.

(c) Roller swage the bearing (95A) as shown in SOPM 20-50-03.



1 INSTALL THE BEARING (SOPM 20-50-03). ROLLER SWAGE THE TWO SIDES.

ITEM NUMBERS REFER TO IPL FIG. 1

273A2502-1 Barrel Assembly Bearing Replacement
Figure 601

BARREL - REPAIR 2-2

273A2502–2

1. General

A. This procedure has the data necessary to repair and refinish the barrel (100).

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to the REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

E. General repair details:

(1) Material: 15-5PH CRES, AMS5659, 180-200 KSI

(2) Shot Peen: All surfaces, except as shown

(a) Intensity:

0.010-0.015A2 (0.780 DIA)

0.004-0.007A2 (0.885 DIA)

2. Barrel Repair

A. References

Reference	Title
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-42-03	HARD CHROME PLATING
SOPM 20-42-09	ELECTRODEPOSITED NICKEL PLATING
SOPM 20-60-02	FINISHING MATERIALS

B. Procedure (REPAIR 2-2, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Repair the barrel (100):

(a) Machine as required, within the repair limits, to remove any defects.

(b) Do a magnetic particle check (SOPM 20-20-01).

(c) Shot peen the barrel (100) (SOPM 20-10-03).

1) Obey the flagnotes in REPAIR 2-2, Figure 601.

(d) Apply nickel plate (SOPM 20-42-09), if it is required (F-15.33) and machine.

1) Obey the flagnotes in REPAIR 2-2, Figure 601.

(e) Apply a layer of chrome plate (F-15.34) (SOPM 20-42-03) to a maximum thickness of 0.01 inch and grind (SOPM 20-10-04) to the dimensions as shown in REPAIR 2-2, Figure 601.

1) Obey the flagnotes in REPAIR 2-2, Figure 601.

(f) Do a magnetic particle check (SOPM 20-20-01).

3. Barrel Refinish

A. References

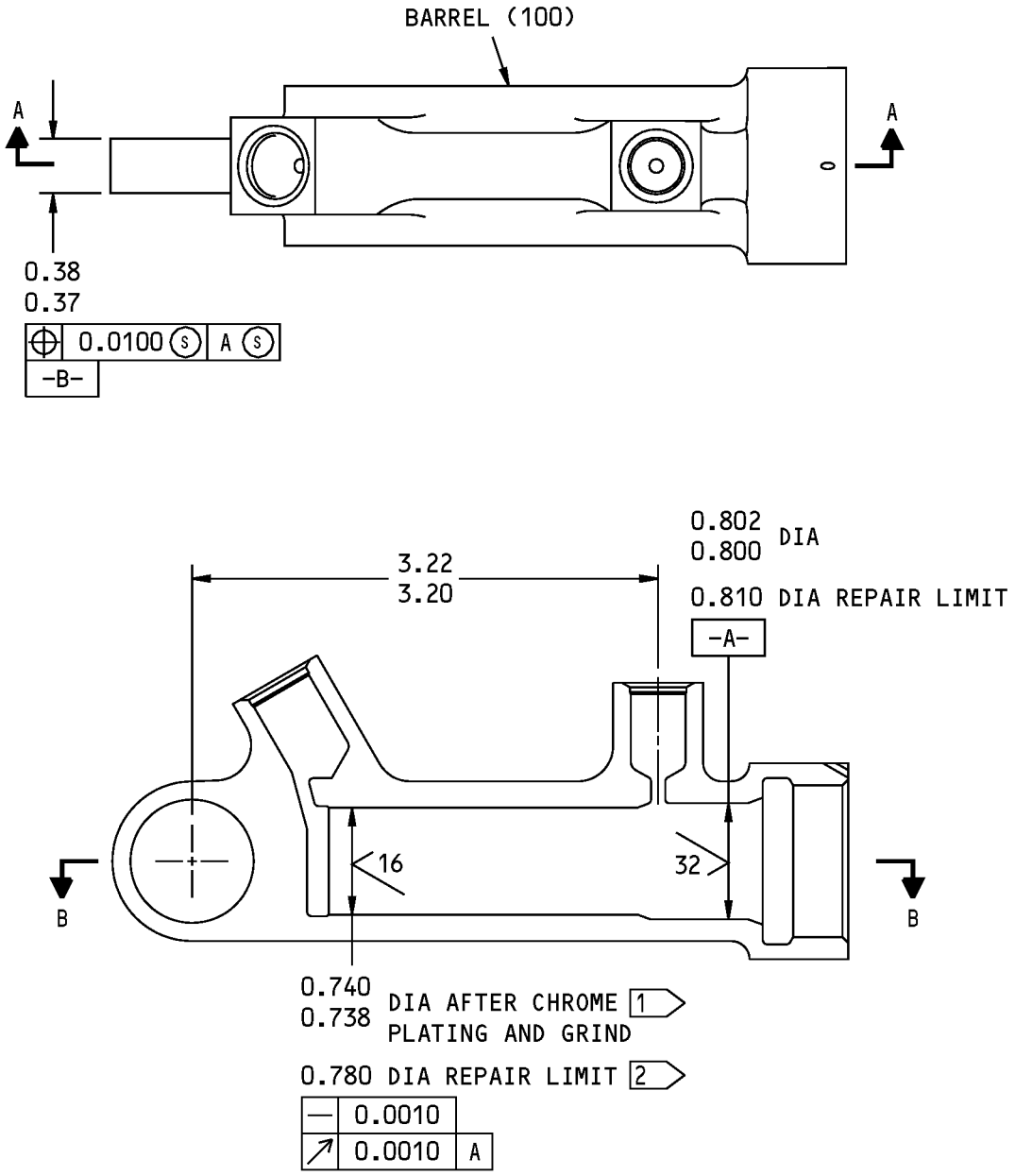
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

B. Procedure

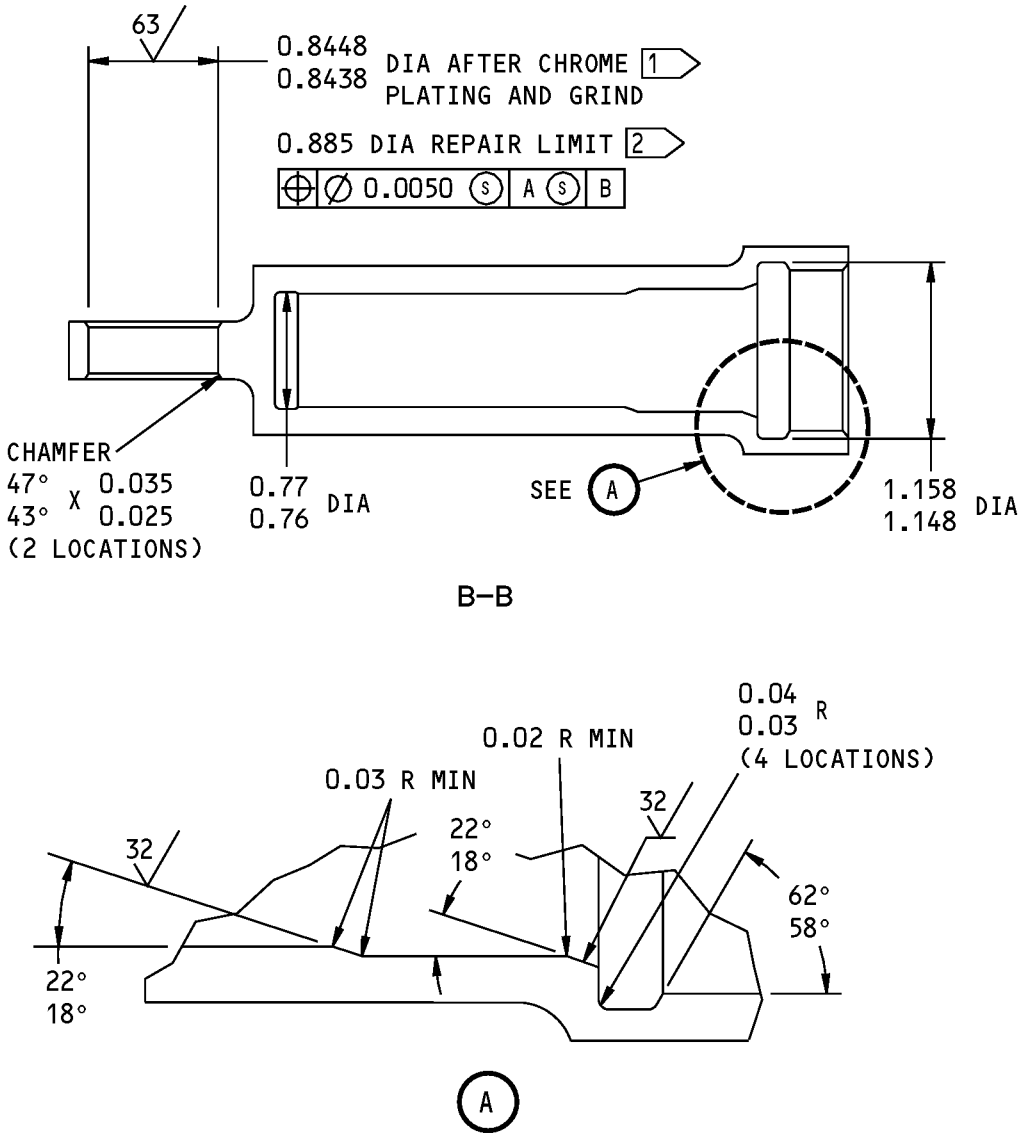
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Put a finish on the barrel (100):

(a) Passivate (F-17.25).



273A2502-2 Barrel Repair
Figure 601 (Sheet 1 of 2)



1 CHROME PLATE THICKNESS AFTER ALL FINISHING OPERATIONS TO BE 0.001 MINIMUM.

2 APPLY CHROME PLATE NOT TO EXCEED 0.01. IF REQUIRED, APPLY NICKEL FIRST SO THAT CHROME PLATE DOES NOT EXCEED 0.01.

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

273A2502-2 Barrel Repair
Figure 601 (Sheet 2 of 2)

PISTON ROD - REPAIR 3-1

273A2503–1

1. General

A. This procedure has the data necessary to repair and refinish the piston rod (80).

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

E. General repair details:

(1) Material: 15-5PH CRES, AMS 5659, 180-200 ksi

(2) Shot Peen: All surfaces, except in the seal groove

(a) Intensity:

0.014-0.019A2 (0.695 DIA)

0.005-0.010A2 (0.393 DIA)

2. Piston Rod Repair

A. Procedure (REPAIR 3-1, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Repair the piston rod (80):

(a) Machine as required, within the repair limits to remove any defects.

(b) Obey the flagnotes in REPAIR 3-1, Figure 601.

(c) Do a magnetic particle check (SOPM 20-20-01).

(d) Shot peen the piston rod (80) (SOPM 20-10-03).

1) Obey the flagnotes in REPAIR 3-1, Figure 601.

(e) Apply nickel plate (F-15.33) (SOPM 20-42-09), if it is required and machine.

1) Obey the flagnotes in REPAIR 3-1, Figure 601.

(f) Chrome plate, class 3, (F-15.34) (SOPM 20-42-03) and grind (SOPM 20-10-04) as shown.

1) Obey the flagnotes.

(g) Do a magnetic particle check (SOPM 20-20-01).

3. Piston Refinish

A. References

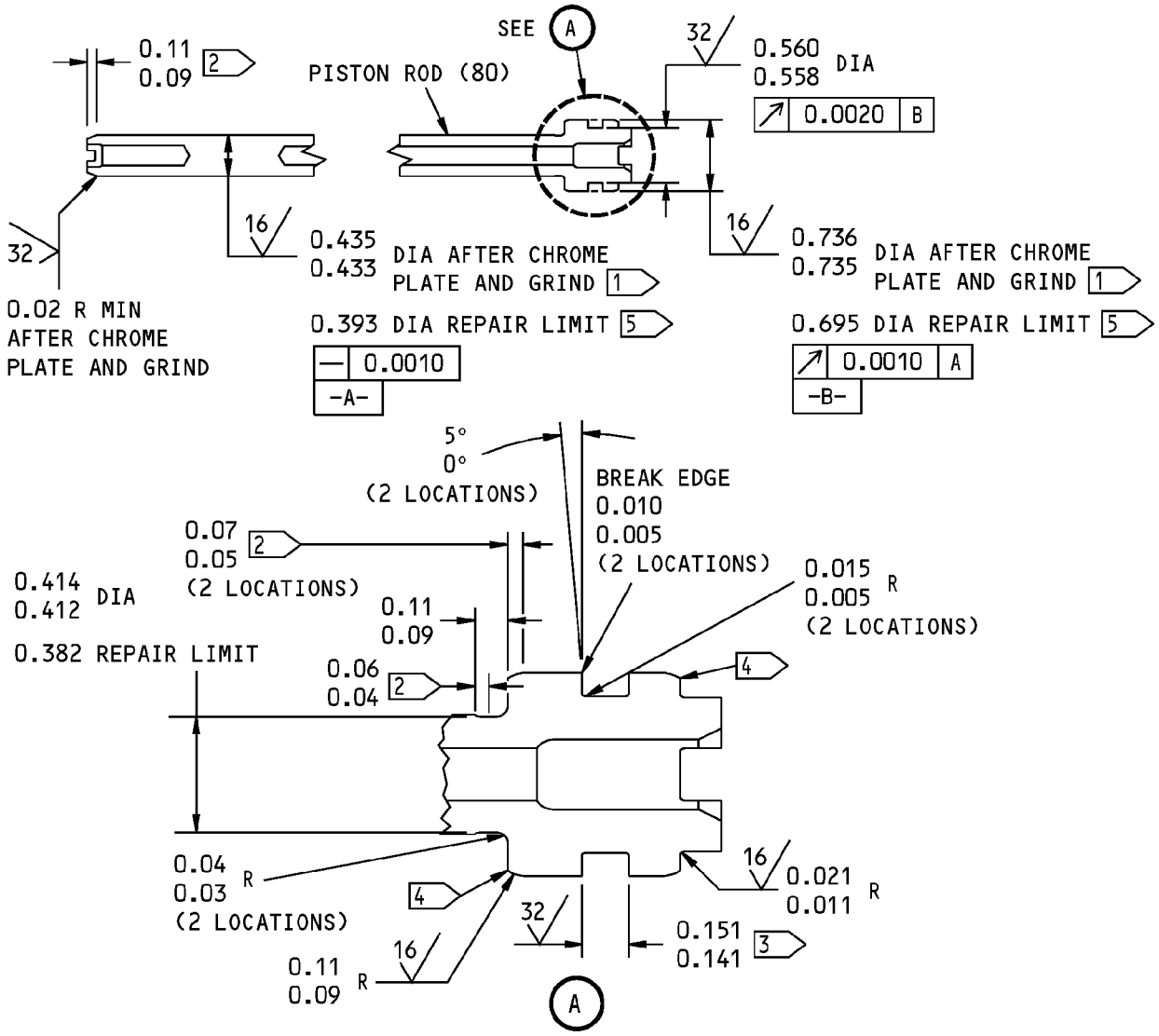
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

B. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Put a finish on the piston rod (80):

(a) Passivate (F-17.25).



1 AFTER SHOT PEENING, CHROME PLATE NOTED SURFACES (F-15.34). CHROME PLATE THICKNESS AFTER ALL FINISHING OPERATIONS TO BE 0.003-0.005.

2 CHROME PLATE RUNOUT THIS AREA.

3 NO CHROME PLATE OR SHOT PEEN IN SEAL GROOVE.

4 NO CHROME PLATE IN THIS AREA.

5 APPLY CHROME PLATE NOT TO EXCEED 0.001. IF REQUIRED APPLY NICKEL PLATE FIRST SO THAT CHROME PLATE DOES NOT EXCEED 0.01.

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

273A2503-1 Piston Repair
Figure 601

ROD END ASSEMBLY - REPAIR 4-1

273A2504–1

1. General

A. This procedure has the data necessary to replace the bearing on the rod end assembly (20).

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to the REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Bearing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For miscellaneous materials, refer to SOPM 20-60-04.

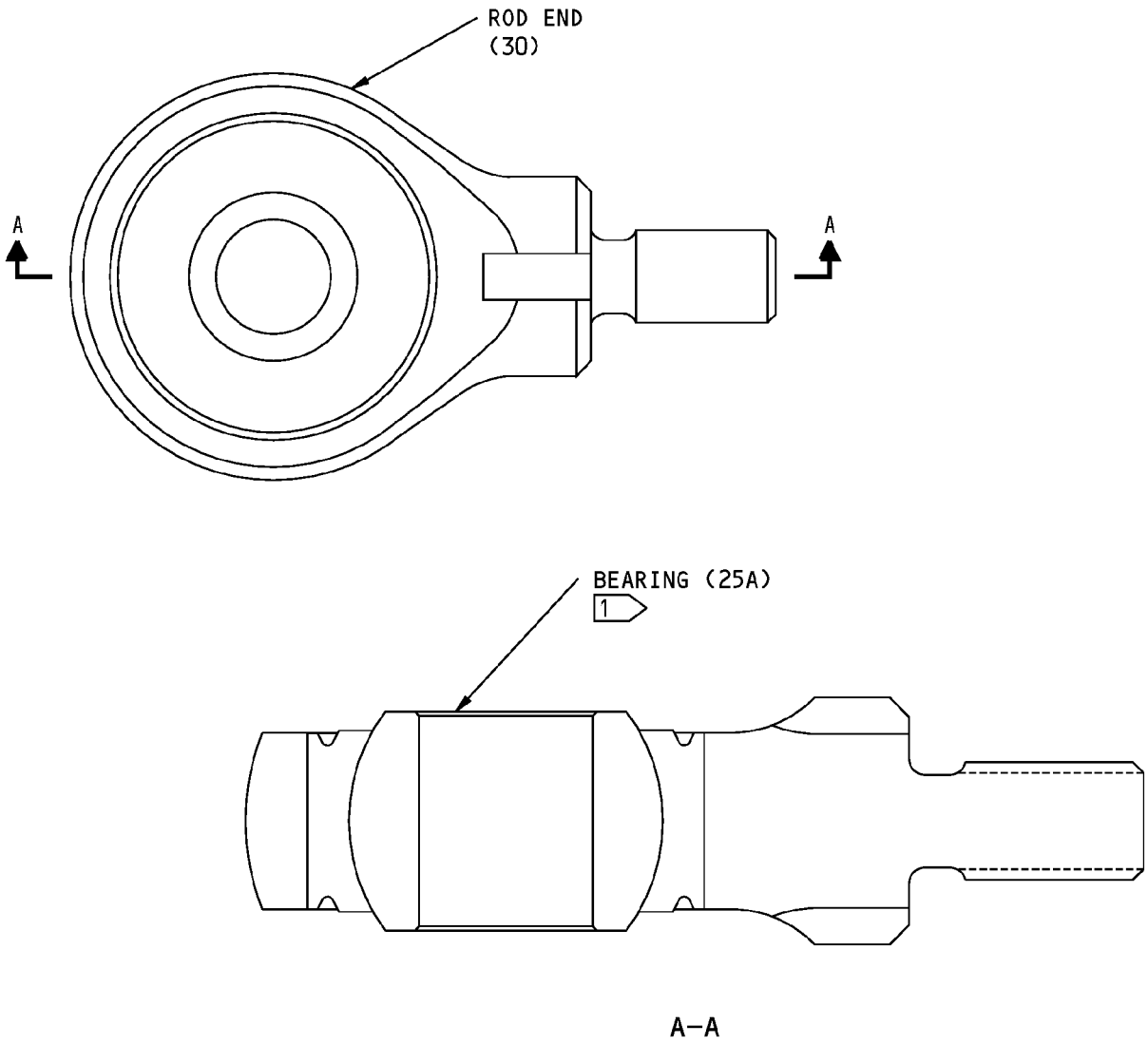
(1) Replace the bearing (25A):

(a) Remove the bearing (25A) from the rod end (30).

(b) Install the bearing with the wet sealant, A00247 on the rod end (30) inner diameter and the bearing outer diameter.

(c) Roller swage (SOPM 20-50-03) the bearing on the two sides.

1) Obey the flagnote in REPAIR 4-1, Figure 601.



1 INSTALL THE BEARING (SOPM 20-50-03). ROLLER SWAGE THE TWO SIDES.

ITEM NUMBERS REFER TO IPL FIG. 1

273A2504-1 Rod End Assembly Bearing Replacement
Figure 601

ROD END ASSEMBLY - REPAIR 4-2

273A2504–2

1. General

A. This procedure has the data necessary to repair and refinish the rod end (30).

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

E. General repair details:

(1) Material: 15-5PH CRES, AMS 5659, 180-200 ksi

(2) Shot peen: All surfaces, unless shown differently

(a) Intensity: 0.004-0.007A2

2. Rod End Repair

A. References

Reference	Title
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-42-03	HARD CHROME PLATING
SOPM 20-42-09	ELECTRODEPOSITED NICKEL PLATING
SOPM 20-60-02	FINISHING MATERIALS

B. Procedure (REPAIR 4-2, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Repair the rod end (30):

(a) Machine as required within the repair limits, to remove any defects.

(b) Obey the flagnotes in REPAIR 4-2, Figure 601.

(c) Do a magnetic particle check (SOPM 20-20-01).

(d) Shot peen the Rod End (30) (SOPM 20-10-03).

1) Obey the flagnotes in REPAIR 4-2, Figure 601.

(e) Apply nickel plate (SOPM 20-42-09), if it is required (F-15.33) and machine.

1) Obey the flagnotes in REPAIR 4-2, Figure 601.

(f) Chrome plate (F-15.34) (SOPM 20-42-03) and grind as shown (SOPM 20-10-04).

1) Obey the flagnotes in REPAIR 4-2, Figure 601.

(g) Do a magnetic particle check (SOPM 20-20-01).

3. Rod End Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00113	Lubricant - Liquid Dispersed Solid Film Lubricant	BMS3-8, BAC 5811, TYPE VIII

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-08	APPLICATION OF BONDED SOLID FILM LUBRICANTS
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure (REPAIR 4-2, Figure 601)

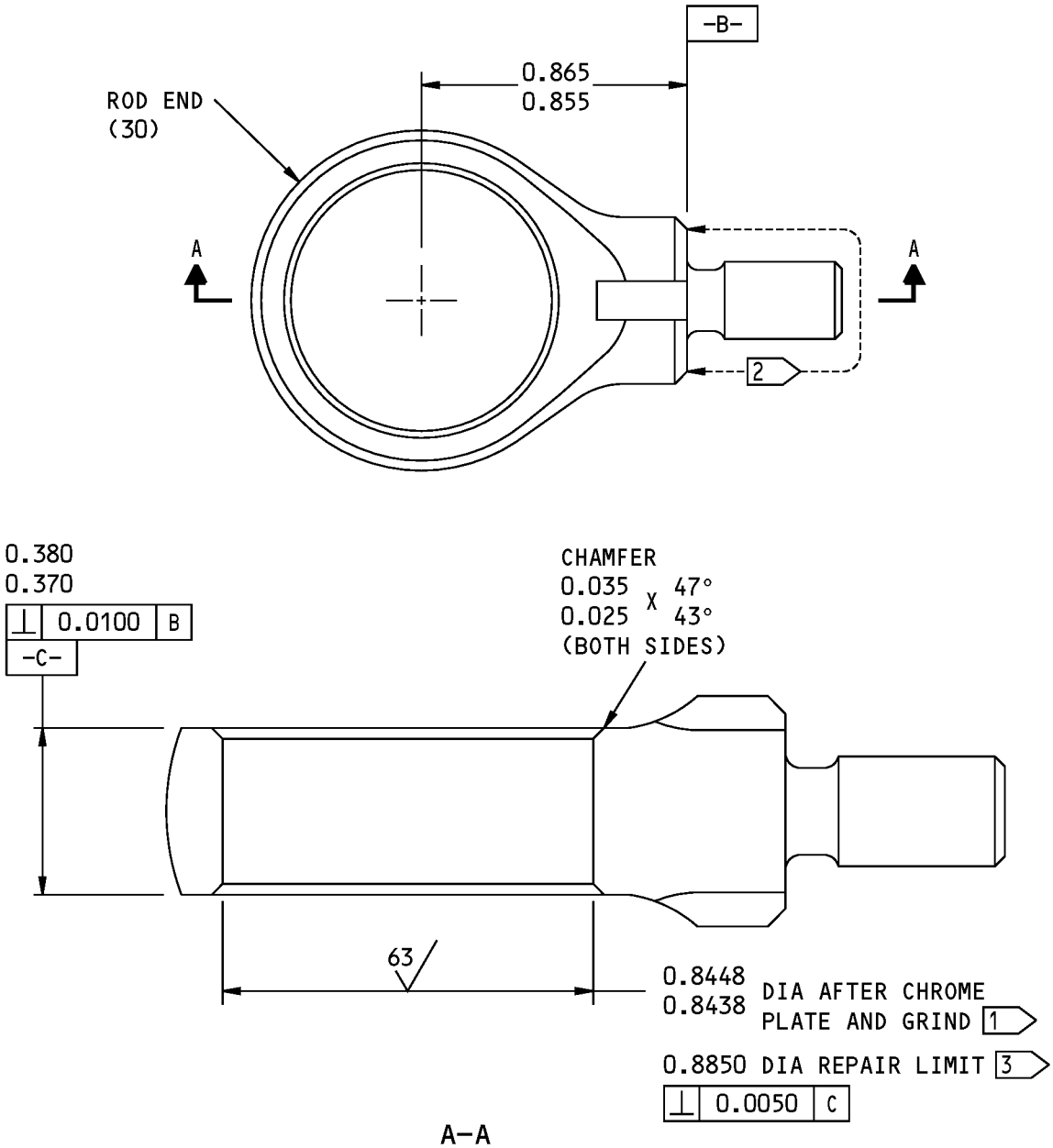
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Put a finish on the rod end (30):

(a) Prepare and passivate (F-17.25).

(b) Apply lubricant, D00113 (F-19.10) (SOPM 20-50-08).

1) Obey the flagnote 2 in REPAIR 4-2, Figure 601.



ITEM NUMBERS REFER TO IPL FIG. 1

1 CHROME PLATE THICKNESS AFTER ALL THE FINISHING OPERATIONS TO BE 0.001 MINIMUM

2 APPLY A COAT OF SOLID FILM LUBRICANT (F-19.10)

3 APPLY CHROME PLATE NOT TO EXCEED 0.01. IF REQUIRED, APPLY NICKEL PLATE FIRST SO THAT CHROME PLATE DOES NOT EXCEED 0.01

273A2504-2 Rod End Repair
Figure 601

SEAL GLAND - REPAIR 5-1

273A2505–1

1.

A. DELETED

2.

A. DELETED

GLAND NUT - REPAIR 6-1

273A2506–1, –2

1. General

A. This procedure has the data necessary to repair and refinish the gland nut (15).

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

E. General repair details:

(1) Material: Aluminum-nickel-bronze, AMS4640

2. Gland Nut Refinish

A. References

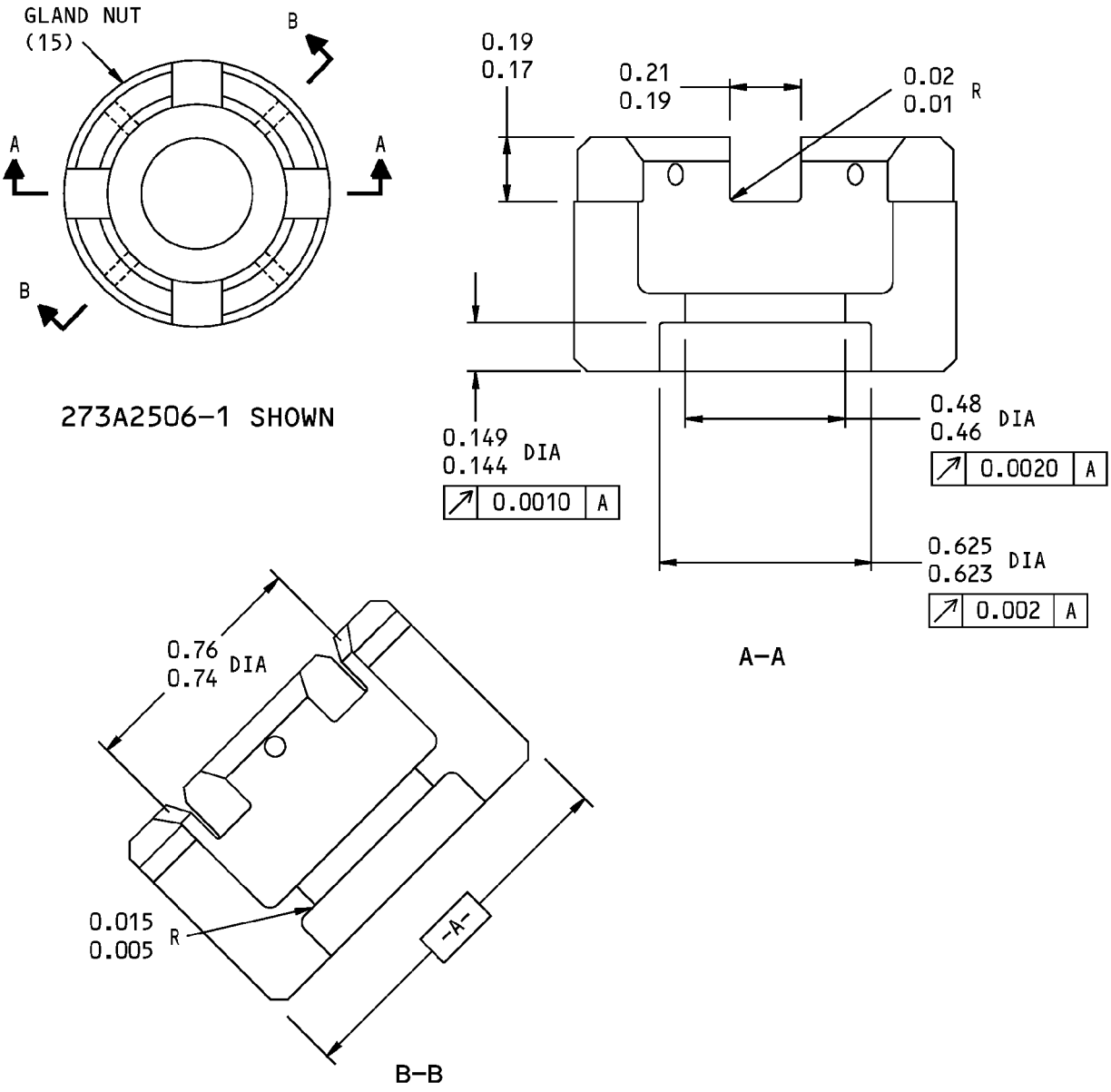
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

B. Procedure (REPAIR 6-1, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Put a finish on the gland nut (15):

(a) Apply no finish (F-25.01). You can use a temporary compound for transportation and storage.



125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

273A2506-1,-2 Gland Nut Repair
Figure 601

NAMEPLATE INSTALLATION - REPAIR 7-1

273A2508–1

1. General

A. This repair has instructions for the replacement of the nameplate (105).

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for item numbers.

2. Nameplate Replacement (REPAIR 7-1, Figure 601)

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00551	Sealant - Fuel Tank	BAC5010, Type 44 (BMS5-44, BMS5-45)

B. References

Reference	Title
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. General

(1) Use the strap (5) only one time.

D. Procedure

NOTE: For miscellaneous materials, refer to SOPM 20-60-04.

(1) Prepare the nameplate (105):

NOTE: Make sure the serial number and the part number are steel stamped on the nameplate (105).

(a) Bend the nameplate (105) in a curve smaller than the barrel radius.

(b) Make a small bend in the nameplate corners to the mounting surface.

(2) Attach the nameplate to the barrel:

(a) Apply sealant, A00551 to the back of the nameplate (105).

(b) Hold the nameplate (105) on the barrel.

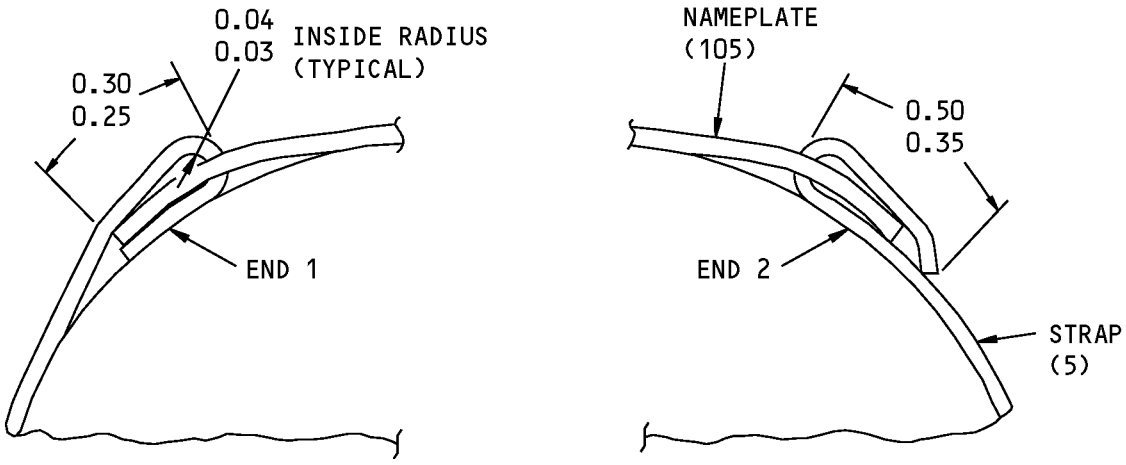
(c) Install the strap (5) through the slot of the nameplate (105).

(d) Pull the strap (5) tight. Make sure the strap (5) and the nameplate (105) are tight against the barrel.

(e) Bend the strap (5) down around the end of the nameplate (105). Keep the strap (5) tight.

(f) Cut the strap 0.35-0.50 inch from the nameplate slot.

(g) Bend the strap (5) end down with a soft-nosed hammer.



125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

273A2508-1 Nameplate Repair
Figure 601

ASSEMBLY

1. General

A. This procedure tells how to assemble the main landing gear uplock actuator assembly.

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for the item numbers.

2. Assembly

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-5404	Vise Clamp Assembly (C32038-7 included in C32038-1 Eqpt) (Part #: C32038-7, Supplier: 81205)
SPL-9253	Uplock - Rod Retainer Assembly (Part #: C32038-5, Supplier: 81205)
SPL-9254	Spanner - Uplock (Part #: C32038-42, Supplier: 81205)
SPL-9255	Wrench - Rod End, Uplock (Part #: C32038-44, Supplier: 81205)

B. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
G50347	Lockwire - Nickel-copper, 0.032 inch diameter	NASM20995N˜C32

C. References

Reference	Title
SOPM 20-50-01	BOLT AND NUT INSTALLATION
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-03	LUBRICANTS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

D. Procedure (ASSEMBLY, Figure 701)

NOTE: For bolt and nut installation, refer to SOPM 20-50-01. For finishing materials, refer to SOPM 20-60-02. For lubricants, refer to SOPM 20-60-03. For miscellaneous materials, refer to SOPM 20-60-04.

(1) Use standard industry procedures and the steps that follow to assemble this component.

(2) Hold barrel assembly (90) with Vise Clamp Assy., SPL-5404 and put them in a bench vise.

(3) Install piston seal (85) on piston (80):

(a) Lubricate piston seal (85) with hydraulic fluid, D00153.

(b) Install piston seal (85) on piston (80).

(4) Install gland (75) on piston (80):

(a) Lubricate seal (70) with hydraulic fluid, D00153.

(b) Install seal (70) in gland (75).

(c) Lubricate packing (60) with hydraulic fluid, D00153.

(d) Install rings (55) and packing (60) on gland (75).

(e) Install gland (75) on piston (80).

(5) Install nut (15) on piston (80):

(a) Lubricate scraper (65) with hydraulic fluid, D00153.

(b) Install scraper (65) in nut (15).

(c) Apply a thin layer of MCS 352B fluid, D00054 to the threads of nut (15).

(d) Install nut (15) on piston (80).

(6) Install lockwasher (10) on rod end assembly (20).

(7) Install rod end assembly (20) on piston (80). Make sure the tabs of lockwasher (10) go into the mating slots of piston (80).

(8) Hold piston (80) and the attached items in rod retainer assembly, SPL-9253.

(9) With rod end wrench, SPL-9255, tighten rod end assembly (20) to 30-40 pound-inches.

(10) Break the flanges of lockwasher (10) fully into the slots on rod end assembly (20). Make sure that the flanges are fully broken.

(11) Remove piston (80) and the attached items from rod retainer assembly, SPL-9253.

(12) Install piston (80) and the attached items in barrel assembly (90).

(13) Tighten nut (15) into barrel assembly (90) with your hand.

(14) Move piston (80) in and out with your hand to make sure that it moves freely.

(15) With uplock spanner, SPL-9254, tighten nut (15) to 300-400 pound-inches.

(16) Safety nut (15) to barrel assembly (90) by the double twist method with lockwire, G50347 (SOPM 20-50-02).

(17) Install union (40), restrictor (50) and packings (35, 45) on barrel assembly (90):

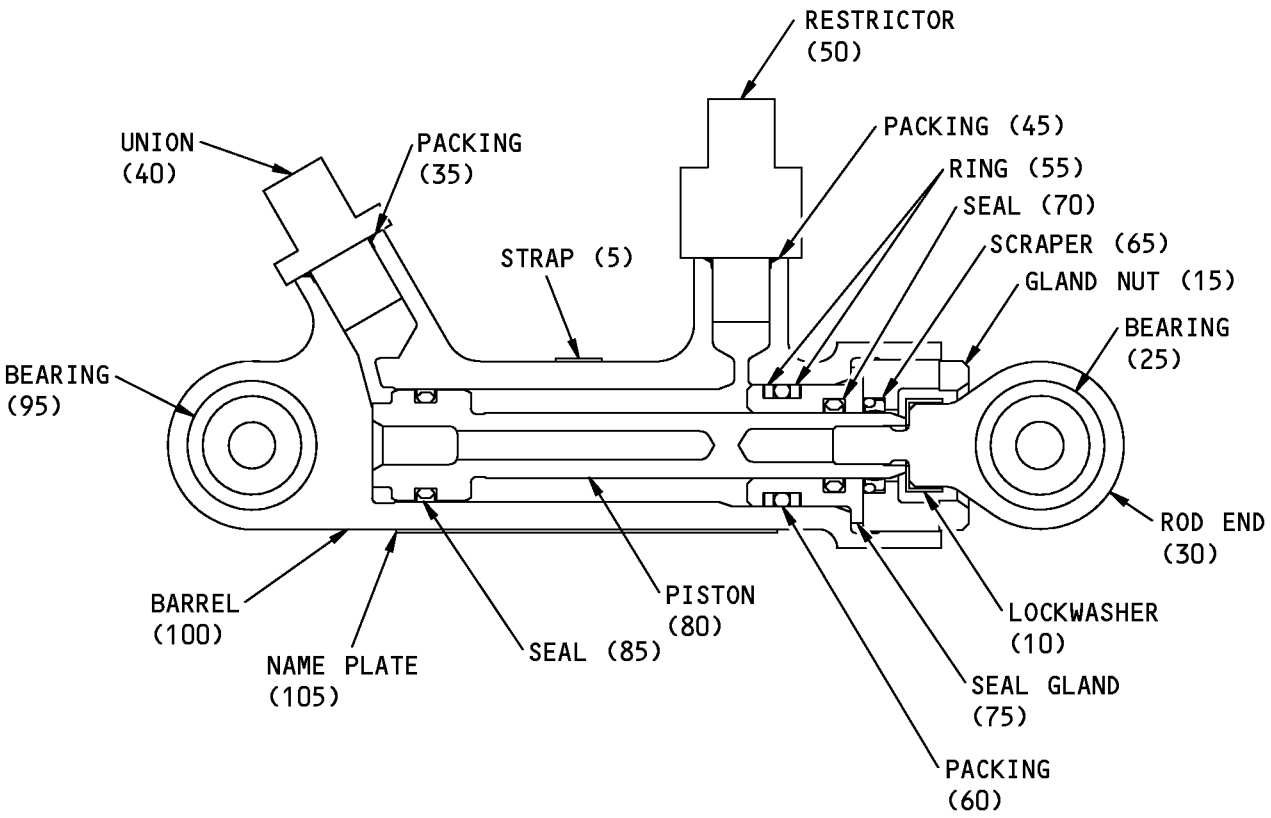
(a) Lubricate packings (35, 45) with hydraulic fluid, D00153.

(b) Install packings (35, 45) on union (40) and restrictor (50).

(c) Install union (40) and restrictor (50) on barrel assembly (90).

(18) Install nameplate (105) (REPAIR 7-1), if it is necessary.

(19) Do a test of the actuator (TESTING AND FAULT ISOLATION).



ITEM NUMBERS REFER TO IPL FIG. 1

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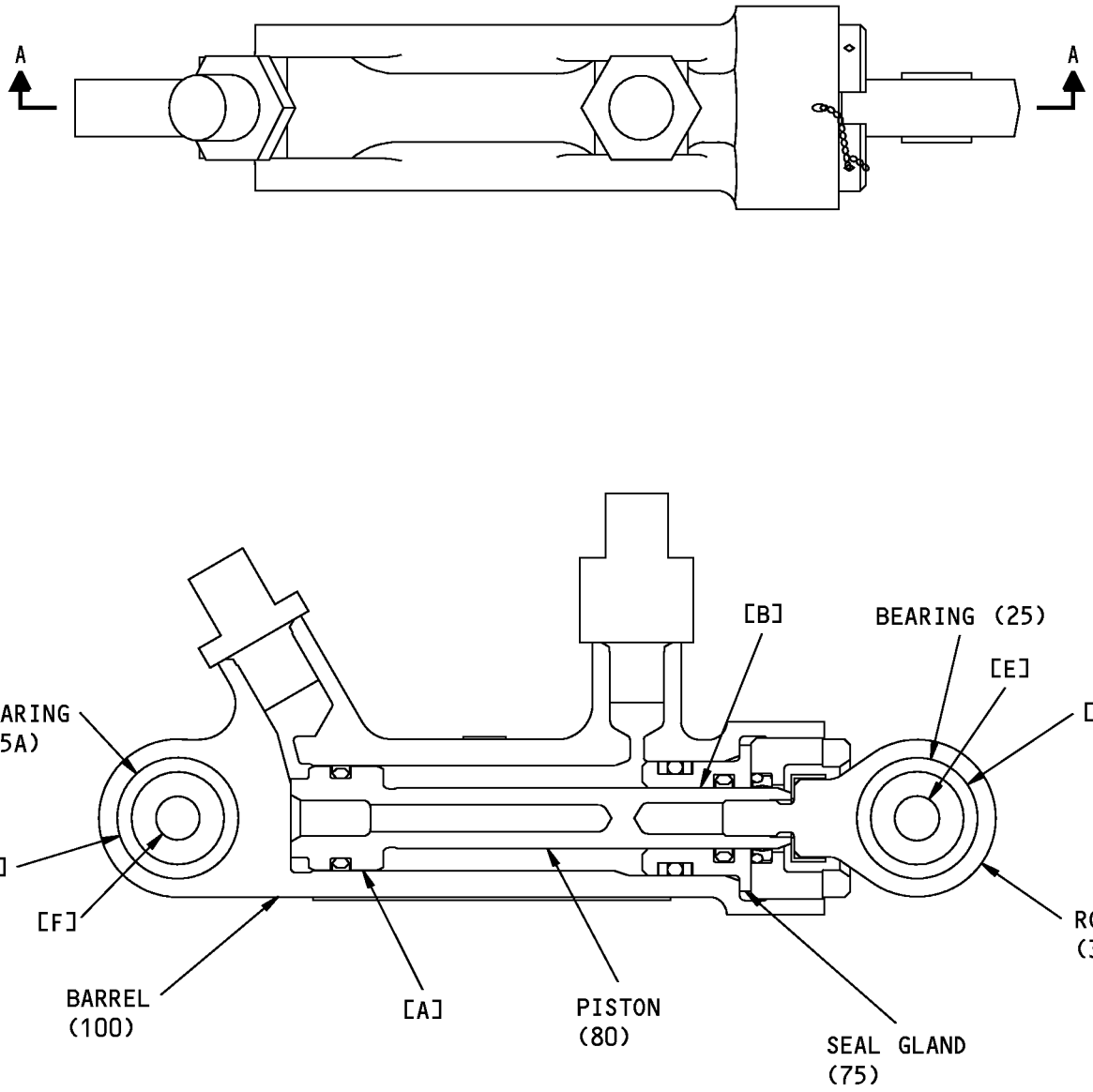
Assembly Details
Figure 701



G02629 S0004999053_V2

Fits and Clearances
Figure 801 (Sheet 1 of 2)

REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[A]	ID 100 OD 80	0.738 0.735	0.740 0.736	0.002	0.005	0.733	0.742	0.007
[B]	ID 75 OD 80	0.437 0.433	0.438 0.435	0.002	0.005	0.431	0.442	0.007
[C]	ID 100 OD 95A	0.8438 0.8433	0.8448 0.8438	0.0000	0.0015	0.8433	0.8478	0.0015
[D]	ID 30 OD 25	0.8438 0.8433	0.8448 0.8438	0.0000	0.0015	0.8433	0.8478	0.0015
[E]	ID 25	0.3125	0.3130					1
[F]	ID 95A	0.3125	0.3130					1

* ALL DIMENSIONS ARE IN INCHES

1 REPLACE THE BEARING IF THE FREE PLAY BETWEEN THE INNER AND OUTER RACES IS MORE THAN 0.003 INCH

G02437 S0004999054_V3

Fits and Clearances
Figure 801 (Sheet 2 of 2)

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

1. General

A. This section lists the special tools, fixtures, and equipment necessary for maintenance.

NOTE: Equivalent substitutes may be used.

Special Tools

Reference	Description	Part Number	Supplier
SPL-5404	Vise Clamp Assembly (C32038-7 included in C32038-1 Eqpt)	C32038-7	81205
SPL-9253	Uplock - Rod Retainer Assembly	C32038-5	81205
SPL-9254	Spanner - Uplock	C32038-42	81205
SPL-9255	Wrench - Rod End, Uplock	C32038-44	81205

Tool Supplier Information

CAGE Code	Supplier Name	Supplier Address
81205	THE BOEING COMPANY	17930 INTERNATIONAL BLVD. SOUTH SEATAC, WA 98188-4321 Telephone: 206-662-6650 Facsimile: 206-662-7145

ILLUSTRATED PARTS LIST

1. Introduction

A. The Illustrated Parts List (IPL) contains an illustration and a list of component parts you can repair or replace. The Illustrated Parts Catalog (IPC) shows how to use the Boeing part number system.

B. This shows how parts are related: The relation of each item to its next higher assembly (NHA) is shown in the NOMENCLATURE column. Use the indenture system that follows:

1 2 3 4 5 6 7

. Assembly

. Attaching parts for assembly

. . Detail parts for assembly

. . Subassembly

. . Attaching parts for subassembly

. . . Detail parts for subassembly

. . . Sub-subassembly

. . . Attaching parts for subassembly

. . . . . Details parts for sub-subassembly

Detail Installation Parts (Included only if installation parts may be sent to the shop as part of assembly)

C. Each top assembly is given one use code letter (A, B, C, etc.) in the USAGE CODE column. All subsequent component parts in the list can have one or more of the use code letters to show effectivity to top assemblies. A component part without a use code applies to all top assemblies.

D. An alphabetical letter is added after the item number for optional parts, parts changed by a Service Bulletin, configuration differences (except left-handed and right-handed parts), last engineering releases, and parts added between item numbers in a sequence. The alphabetical letter will not be shown on the illustration for equivalent parts of the same part number.

E. Color-coded parts are identified with a single digit alpha following the dash number or with ''SP'' suffix. If the ''SP'' suffix is used, it represents consolidation of all color codes applicable for a given usage which are not separately listed. Orders for color-coded parts should include the registry number of the airplane for which the parts are ordered.

F. If a part number is 15 characters long but will not fit in the part number column, the part number will be displayed with a ''~'' at the end of the line and will be continued on the next line. The ''~'' denotes that the part number continues on the next line.

G. Parts changed by a Service Bulletin are shown by PRE SB XXXX and POST SB XXXX added to the NOMENCLATURE column.

(1) When a new top assembly is added by a Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the top assembly level only. The configuration differences at the detail part level are shown by use code letters.

(2) When the top assembly part number is not changed by the Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the detail level.

H. Interchangeable Parts

Optional (OPT)	The part is optional to and interchangeable with other parts that have the same item number.
Replaces, Replaced by and not interchangeable with (REPLACES, REPLACED BY AND NOT INTCHG/W)	The part replaces and is not interchangeable with the initial part.
Replaces, Replaced by (REPLACES, REPLACED BY)	The part replaces and is interchangeable with, or is an alternative to, the initial part.

VENDOR CODES

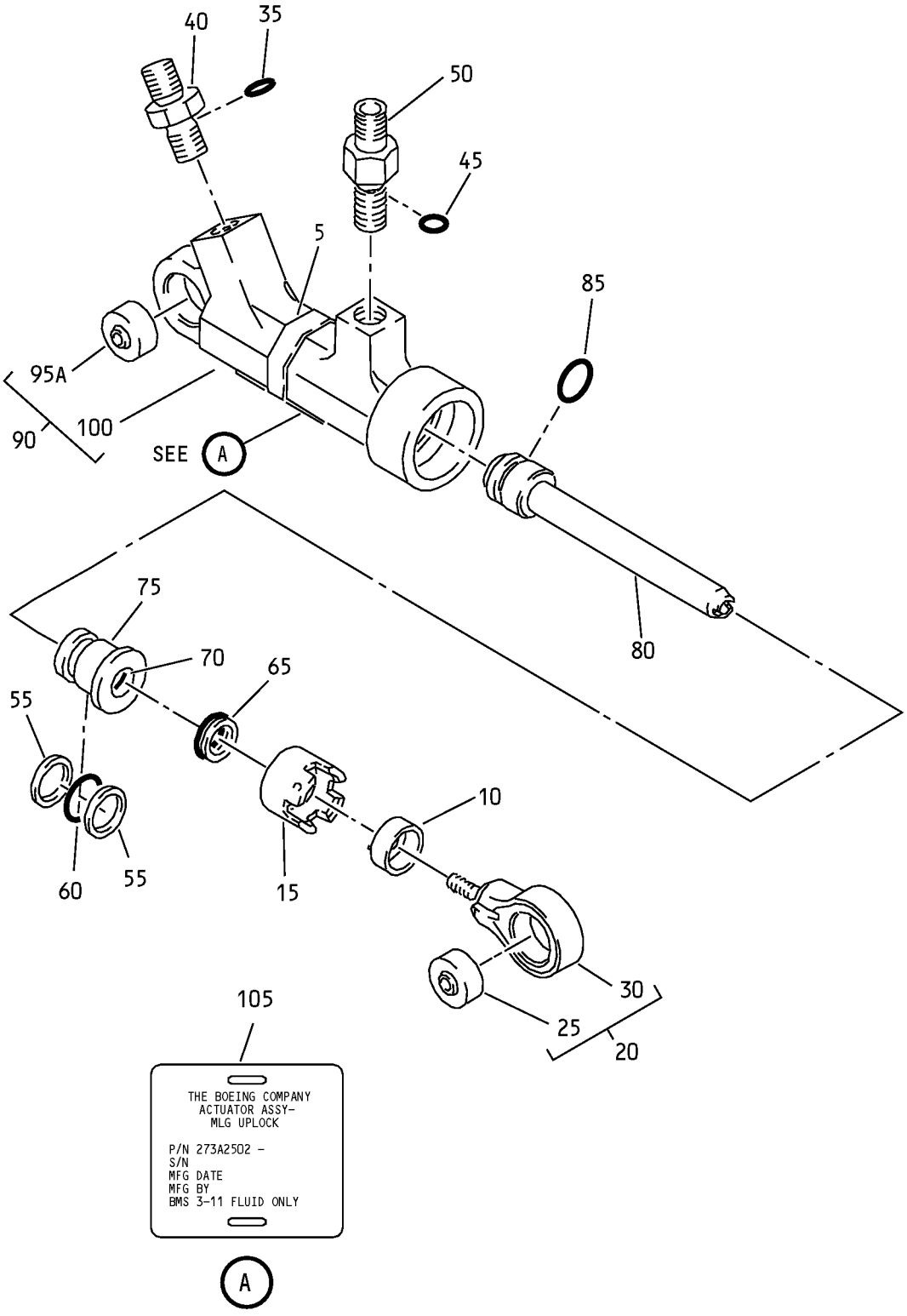
Code	Name
02107	FLOUROCARBON CO OHIO DIV DOVER, OHIO 44622 CANCELLED NO REPLACEMENT FORMERLY SPARTA MANUFACTURING CO
07128	TETRAFLUOR INC 2051 EAST MAPLE AVENUE EL SEGUNDO, CALIFORNIA 90245-5009 FORMERLY ROYAL IND TETRAFLUOR DIV V0667B ENGLEWOOD CALIF
09257	BUSAK AND SHAMBAN INC SEALS DIV 2531 BREMER DR PO BOX 176 FORT WAYNE, INDIANA 46801 FORMERLY SHAMBAN, W S AND CO
15860	NEW HAMPSHIRE BALL BEARINGS, INC ASTRO DIVISION 155 LEXINGTON AVENUE LACONIA, NEW HAMPSHIRE 03246-2937 FORMERLY ASTRO BEARING CORP, LOS ANGELES, CALIF.
26303	GREENE TWEED IND INC ADVANTEC DIV 7101 PATTERSON DRIVE PO BOX 5037 GARDEN GROVE, CALIFORNIA 92645-5037 FORMERLY OHIO AIRCRAFT SUPPLIES INC IN INGLEWOOD, CALIFORNIA FORMERLY ADVANTEC DIV OF IFP INC, LOS ANGELES, CA V5P801
26879	CORONADO MFG INC 11069 PENROSE AVENUE SUN VALLEY, CALIFORNIA 90352-2722 FORMERLY CORONADO PLASTICS INC IN BURBANK, CALIFORNIA

Code	Name
50294	NEW HAMPSHIRE BALL BEARINGS, INC PRECISION DIVISION 9700 INDEPENDENCE AVENUE CHATSWORTH, CALIFORNIA 91311 FORMERLY NIPPON MINATURE BEARING CORP V23589 AND NMB AMERICA INC AND NMB INC
50632	KAMATICS CORP SUB OF KAMAN CORP 1335 BLUE HILLS ROAD BLOOMFIELD, CONNECTICUT 06002-1304
73134	ROLLER BEARING COMPANYOF AMER DBA HEIM BEARINGS DIV 60 ROUND HILL RD FAIRFIELD, CONNECTICUT 06430-0000 FORMERLY INCOM INTL HEIM DIV; HEIM UNIVERSAL CORP INCOM; FORMERLY HEIM DIV INCOM INTL; IMO IND HEIM BEARINGS DIV
81376	SMITH ACQUISITION COMPANY 2240 BUENA VISTA BALDWIN PARK, CALIFORNIA 91706
94878	RAYBESTOS-MANHATTAN INC PACIFIC COAST DIV FULLERTON, CALIFORNIA 92631 BUSINESS DISCONTINUED
97613	SARGENT CONTROLS & AEROSPACE/KAHR BEARING DIV 5675 W BURLINGAME RD TUCSON, ARIZONA 85743 FORMERLY AETNA STEEL PROD KAHR BEARING DIV V96579 FORMERLY SARGENT IND KAHR BEARING DIV, BURBANK, CALIFORNIA
97820	BUSAK AND SHAMBAN INC BEARING DIV 711 MITCHELL ROAD PO BOX 665 NEWBURY PARK, CALIFORNIA 91320-2214 FORMERLY IN CULVER CITY, CALIF; FORMERLY SHAMBAN W S & CO
99240	CRISSAIR, INCORPORATED 38905 10TH STREET EAST PALMDALE, CALIFORNIA 93550-4000 FORMERLY IN EL SEGUNDO, CALIFORNIA
S0352	NIPPON MINIATURE BEARING CO LTD TOKYO, JAPAN

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
2100-114		1	55	2
273A2501-1		1	1A	RF
273A2502-1		1	90	1
273A2502-2		1	100	1
273A2503-1		1	80	1
273A2504-1		1	20	1
273A2504-2		1	30	1
273A2505-1		1	75	1
273A2506-1		1	15	1
273A2506-2		1	15A	1
273A2507-1		1	10	1
273A2508-1		1	105	1
273T0050-5		1	5	1
6F3756		1	50	1
ADW05V301N		1	25	1
		1	95	1
ADW5V301NC		1	25A	1
		1	95A	1
BACB10FA05G		1	25	1
		1	95	1
BACB10FA05GC		1	25A	1
		1	95A	1
BACR12BM114		1	55	2
C11236-114B		1	55	2
KSC152200BZ05G		1	25	1
		1	95	1
KSC152200BZ5CC		1	25A	1
		1	95A	1
KWDB05-33		1	25	1
		1	95	1
KWDB5-35		1	25A	1
		1	95A	1
MS21902-4T		1	40	1
NAS1611-114		1	60	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
NAS1612-3		1	45	1
NAS1612-4		1	35	1
RMR12BM114		1	55	2
S30294-114-1		1	55	2
S30855-111H99		1	70	1
S32925-7-16H99		1	65	1
S34760-113H99		1	85	1
STF800-114		1	55	2
SWKRS05-350S		1	25	1
		1	95	1
SWKRS05-350SC		1	25A	1
		1	95A	1
TF450-114A		1	55	2
WES05FAG		1	25	1
		1	95	1
WHTFA05V		1	25	1
		1	95	1
WHTFA05VC		1	25A	1
		1	95A	1
WRRS05FAGC		1	25A	1
		1	95A	1



Main Landing Gear Uplock Actuator Assembly
IPL Figure 1

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1A	273A2501-1		ACTUATOR ASSY-MAIN GEAR UPLOCK		RF
5	273T0050-5		. STRAP		1
10	273A2507-1		. LOCKWASHER-CUP		1
15	273A2506-1		. NUT-GLAND (OPT ITEM 15A)		1
15A	273A2506-2		. NUT-GLAND (OPT ITEM 15)		1
20	273A2504-1		. END ASSY-ROD		1
25	WHTFA05V		. . BEARING (VS0352) (SPEC BACB10FA05G) (OPT WES05FAG (V73134)) (OPT KWDB05-33 (V97613)) (OPT KSC152200BZ05G (V50632)) (OPT ADW05V301N (V15860)) (OPT SWKRS05-350S (V81376)) (OPT ITEM 25A)		1
–25A	ADW5V301NC		. . BEARING (V15860) (SPEC BACB10FA05GC) (OPT KSC152200BZ5CC (V50632)) (OPT KWDB5-35 (V97613)) (OPT WHTFA05VC (V50294)) (OPT WRRS05FAGC (V73134)) (OPT SWKRS05-350SC (V81376)) (OPT ITEM 25)		1
30	273A2504-2		. . ROD		1
35	NAS1612-4		. PACKING		1
40	MS21902-4T		. UNION		1
45	NAS1612-3		. PACKING		1
50	6F3756		. RESTRICTOR (V99240)		1
–50A	JETX0531500B		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
55	C11236-114B		. RING (V26879) (SPEC BACR12BM114) (OPT RMR12BM114 (V94878)) (OPT STF800-114 (V02107)) (OPT S30294-114-1 (V97820)) (OPT TF450-114A (V07128)) (OPT 2100-114 (V26303))		2
60	NAS1611-114		. PACKING		1
65	S32925-7-16H99		. SCRAPER (V09257)		1
70	S30855-111H99		. SEAL-GLAND (V09257)		1
75	273A2505-1		. SEAL-GLAND		1
80	273A2503-1		. PISTON		1
85	S34760-113H99		. SEAL-PISTON (V09257)		1
90	273A2502-1		. BARREL ASSY		1
95	WHTFA05V		. . BEARING (VS0352) (SPEC BACB10FA05G) (OPT WES05FAG (V73134)) (OPT KWDB05-33 (V97613)) (OPT KSC152200BZ05G (V50632)) (OPT ADW05V301N (V15860)) (OPT SWKRS05-350S (V81376)) (OPT ITEM 95A)		1
–95A	ADW5V301NC		. . BEARING (V15860) (SPEC BACB10FA05GC) (OPT KSC152200BZ5CC (V50632)) (OPT KWDB5-35 (V97613)) (OPT WHTFA05VC (V50294)) (OPT WRRS05FAGC (V73134)) (OPT SWKRS05-350SC (V81376)) (OPT ITEM 95)		1
100	273A2502-2		. . BARREL		1
105	273A2508-1		. NAMEPLATE		1

–Item not Illustrated