TO: ALL HOLDERS OF MAIN LANDING GEAR DOOR ACTUATOR ASSEMBLY COMPONENT MAINTENANCE MANUAL 32-32-44

REVISION NO. 3 DATED MAR 01/05

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
CONTENTS	Added clarifications and updated callouts.
1	
101	
301,303-304	
501-502	
701-704	
1002-1005,1011-1013	
302	Changed scraper details.
703	
1002-1005,1008-1009, 1011-1013	

BOEING

COMPONENT
MAINTENANCE MANUAL

MAIN LANDING GEAR DOOR ACTUATOR ASSEMBLY

PART NUMBERS 273T4551-1,-2

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

K11312

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

K11313

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR B13227	NOV 01/00

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*[1] Special instructions are not necessary. Use standard industry practices and the instructions in SOPM 20-30-03.

INTRODUCTION

The instructions in this manual provide the information necessary to perform maintenance functions ranging from simple checks and replacement to complete shop-type repair.

This manual is divided into separate sections:

1. Title Page
2. Record of Revisions
3. Temporary Revision & Service Bulletin Record
4. List of Effective Pages
5. Table of Contents
6. Introduction
7. Procedures & IPL Sections

Refer to the Table of Contents for the page location of applicable sections.

The beginning of the REPAIR section includes a list of the separate repairs, a list of applicable standard Boeing practices, and an explanation of the True Position Dimensioning symbols used.

An explanation of the use of the Illustrated Parts List is provided in the Introduction to that section.

All weights and measurements used in the manual are in English units, unless otherwise stated. When metric equivalents are given they will be in parentheses following the English units.

Design changes, optional parts, configuration differences and Service Bulletin modifications create alternate part numbers. These are identified in the Illustrated Parts List (IPL) by adding an alphabetical character to the basic item number. The resulting item number is called an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless otherwise indicated.

Verification:

MAIN LANDING GEAR DOOR ACTUATOR ASSEMBLY

DESCRIPTION AND OPERATION

1. Description

   A. The main landing gear (MLG) door actuator assembly has a barrel assembly, a piston rod, a rod end, and a head end.

   B. The RETRACT port is attached to the outside of the barrel assembly. The EXTEND port is attached to the head end.

   C. The rod end has a spherical ball bearing. It is connected to the bell crank assembly of the MLG door assembly.

   D. The head end has a spherical ball bearing. It is connected to the MLG door and mechanism installation.

2. Operation

   A. The main landing gear (MLG) door actuator assembly is operated hydraulically. It is used to open and close the main landing gear doors.

   B. When hydraulic pressure is applied to the EXTEND port, the piston rod extends and closes the MLG doors.

   C. When hydraulic pressure is applied to the RETRACT port, the piston rod retracts and opens the MLG doors.

3. Leading Particulars (Approximate)

   A. Length from end to end

      -- 42 inches (extended)
      -- 29 inches (retracted)

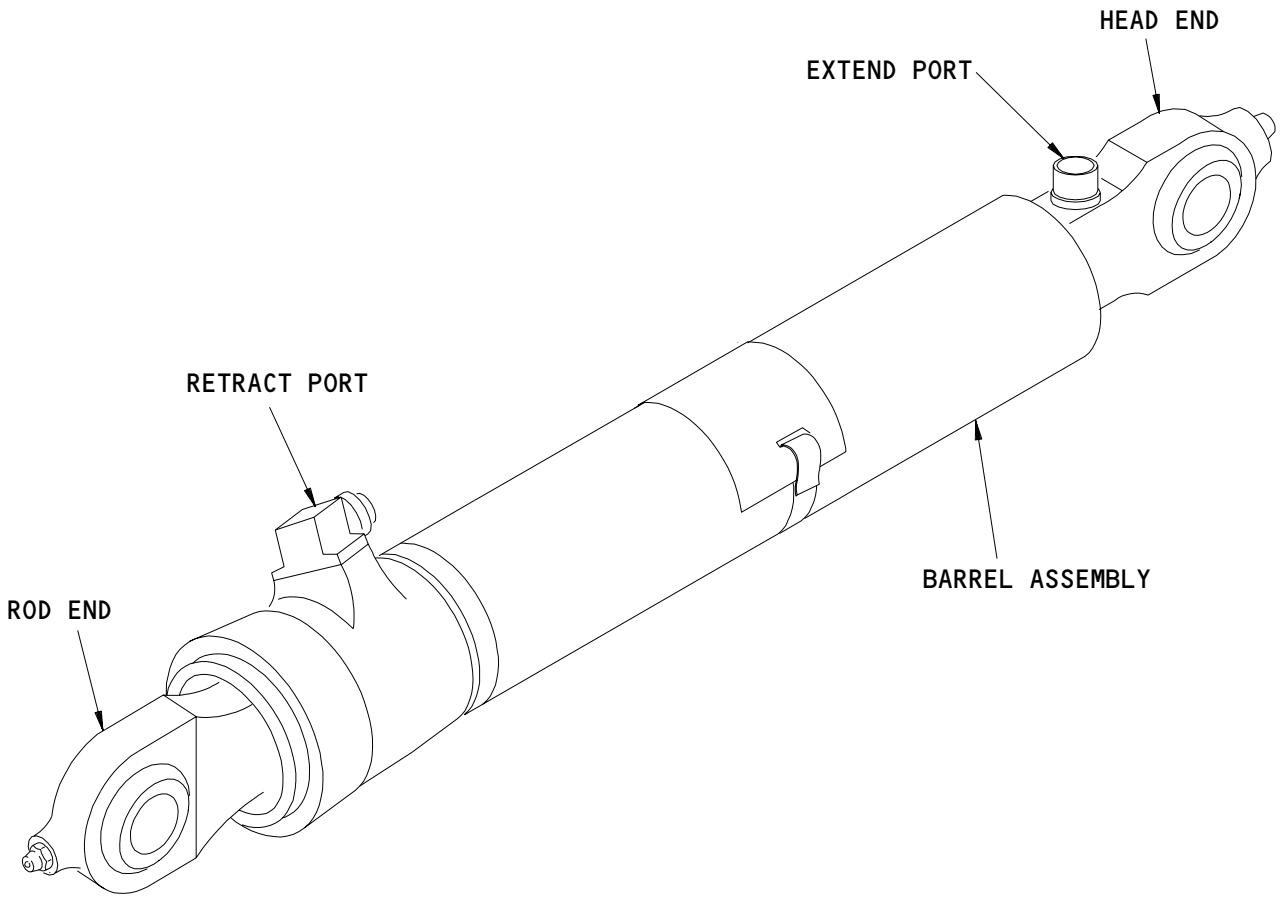
   B. Width -- 5 inches

   C. Height -- 6 inches

   D. Weight -- 50 pounds

   E. Fluid (operate) -- BMS 3-11 Hydraulic Fluid

   F. Pressure (operate) -- 3000-3100 psi



Main Landing Gear Door Actuator Assembly
Figure 1

K11335

TESTING AND FAULT ISOLATION

1. General

A. This procedure tells how to do a test of the actuator after an overhaul or for fault isolation.

(1) MLG Door Actuator Assembly Test

(a) External Leakage

(b) Internal Leakage

(c) Friction

(d) Retract Snubber Operation

(e) Extend Snubber Operation

(f) Proof Pressure

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

C. Refer to IPL Fig. 1 for item numbers.

2. MLG Door Actuator Assembly Test

A. General

(1) To do these tests, it is necessary to hold the actuator assembly in a holding fixture. You will visually monitor the actuator for leaks and measure the rate of the piston.

(2) The fully extended position is 41.0799-41.2119 inches.
The door closed position is approximately 40.4260 inches.
The door open position is approximately 28.424 inches.
The fully retracted position (door open) is 28.4091-28.4391 inches.
The nominal stroke length is 12.7208 inches.

NOTE: The dimensions are measured between the centerlines of the spherical ball bearings (20) of the rod end (15) and the head end (95).

(3) Measurement tolerances: Temperature ±4°F
Pressure ±2%
Hydraulic Flow ±2%

B. Special Tools and Equipment

NOTE: Equivalent tool/equipment can be used.

(1) Holding Fixture Parts -- A32121-series

C. Standard Tools and Equipment

NOTE: Equivalent equipment can be used.

(1) A hydraulic test stand with these requirement:

(a) Can operate in a range of 0-8800 psi.

(b) Can operate with BMS 3-11 type 4 hydraulic fluid.

(c) The hydraulic fluid must be continuously filtered by a filter no larger than 15 micron absolute.

(d) The temperature of the hydraulic fluid must be 60-120 degrees F.

D. Consumable Materials

NOTE: Equivalent materials can be used.

(1) D00153 Fluid-- BMS 3-11, type 4, Hydraulic (SOPM 20-60-03)

E. References

(1) 32-32-44/301, Disassembly

(2) 32-32-44/701, Assembly

(3) SOPM 20-60-03, Lubricants

F. Preparation for Tests

(1) The ambient conditions during the tests must be:

(a) Temperature: 60-100 degrees F.

(b) Atmospheric pressure: 13-17 psi.

(c) Relative humidity: 10-90%.

(2) Install the door actuator assembly in a holding fixture.

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

(4) Fill the door actuator assembly with BMS 3-11 type 4 hydraulic fluid.

NOTE: The door actuator assembly will be continuously full of hydraulic fluid for each test.

(5) Bleed all the air from the door actuator assembly (1A) before each test.

G. Procedure

WARNING: DO NOT APPLY AIR PRESSURE TO THE PORTS AT ANY TIME AND DO NOT CYCLE THE UNIT AT PROOF PRESSURE. THIS CAN CAUSE DAMAGE TO THE UNIT OR INJURY TO YOU.

(1) Do an external leakage test:

(a) Clean around the dynamic rod seal to permit leak detection.

(b) Operate the door actuator assembly for 25 full cycles at a rate of approximately 10 cycles per minute, use pressure as necessary:

NOTE: One full cycle is when the rod end (15) travels from the fully retracted position to the fully extended position, or vice versa.

1) Put the rod end (15) to the fully retracted position.

2) Apply minimum hydraulic pressure to the EXTEND port to move the rod end (15) to the fully extended position.

3) When the rod end (15) is at the fully extended position, increase the hydraulic pressure to 3000-3100 psi.

4) Remove the hydraulic pressure from the EXTEND port.

5) Change the direction of the hydraulic pressure. The door actuator assembly is now in the fully extended position.

6) Apply minimum hydraulic pressure to the RETRACT port to move the rod end (15) to the fully retracted position.

7) When the rod end (15) is at the fully retracted position, increase the hydraulic pressure to 3000-3100 psi.

8) Remove the hydraulic pressure from the RETRACT port.

9) Do the steps 1 through 8 for 25 full cycles.

(c) After 25 cycles, do a visual check for leakage around the dynamic rod seal:

1) The leakage limit for static rod seals is zero drop.

2) The leakage limit for dynamic rod seals 2 drops.

(2) Do an internal leakage test:

(a) Put the rod end (15) to the fully extended position.

(b) Remove the hydraulic line from the RETRACT port. The RETRACT port must be open to the atmosphere.

(c) Apply 3000-3100 psi to the EXTEND port for two minutes. Do the visual check shown in the next step before the end of two minutes.

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

1) The leakage limit is 50 cc for the last minute of the test.

(e) Remove the hydraulic pressure from the EXTEND port.

(f) Attach a hydraulic line to the RETRACT port.

(g) Put the rod end (15) to the fully retracted position.

(h) Remove the hydraulic line from the EXTEND port. The EXTEND port must be open to the atmosphere.

(i) Apply 3000-3100 psi to the RETRACT port for two minutes.

Do the visual check in the next step before the end of two minutes.

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

1) During the last minute, the leakage limit is 50 cc.

(k) Remove the hydraulic pressure from the RETRACT port.

(l) Attach the hydraulic line to the EXTEND port.

(3) Do a friction test:

(a) Put the rod end (15) at the fully retracted position.

(b) Make sure the rod end (15) is unrestrained.

(c) Remove the hydraulic line from the RETRACT port. The RETRACT port must be open to the atmosphere.

(d) Slowly apply the hydraulic pressure to the EXTEND port until a smooth sustained motion is achieved.

Do a visual check as you apply the pressure:

1) The rod end must have a smooth and continuous movement. It must not stick or bind.

2) The rod must extend fully with a maximum differential pressure of 25 psid.

NOTE: In the snubbing area, you can increase the pressure to adjust for the snubbing effect.

(e) Remove the hydraulic pressure from the EXTEND port.

(f) Attach the hydraulic line to the RETRACT port.

(g) Put the rod end (15) at the fully extended position.

(h) Make sure the rod end (15) is unrestrained.

(i) Remove the hydraulic line from the EXTEND port. The EXTEND port must be open to the atmosphere.

(j) Slowly apply the hydraulic pressure to the RETRACT port until a smooth sustained motion is achieved:

1) The rod end (15) must have a smooth and continuous movement. It must not stick or bind.

2) The rod must retract fully with a maximum differential pressure of 25 psid.

NOTE: In the snubbing area, you can increase the pressure to adjust for the snubbing effect.

(k) Remove the hydraulic pressure from the RETRACT port.

(l) Attach the hydraulic line to the EXTEND port.

(4) Do a retract snubber operation test:

(a) Put the rod end (15) at fully extended position.

(b) Apply 800-1000 psi pressure to the RETRACT port.

(c) Apply 0-50 psi pressure to the EXTEND port. Monitor these conditions:

1) When the rod end (15) moves through the mid-stroke area, the speed must be 2.6-3.4 inches per second.

NOTE: The mid-stroke area is approximately 34.8 inches when measured from the centerlines of the spherical bearings (20).

2) After smoothly decelerating into the snubbing area, the piston rod must move at a uniform speed of 0.46-0.93 inch per second.

(d) Remove the hydraulic pressure from the EXTEND and RETURN ports.

(5) Do an extend snubber operation test:

(a) Put the rod end (15) in the fully retracted position.

(b) Apply 800-1000 psi pressure to the EXTEND port.

(c) Apply 0-50 psi pressure to the RETRACT port. Monitor these conditions:

1) When the rod end (15) moves through the mid-stroke area, the speed must be 3.1-3.8 inches per second.

NOTE: The mid-stroke area is approximately 34.8 inches when measured from the centerlines of the spherical bearings (20).

2) After smoothly decelerating into the snubbing area, the piston rod must move at a uniform speed of 0.27-0.34 inch per second.

(d) Remove the hydraulic pressure from the EXTEND and RETURN ports.

(6) Do a proof pressure test:

(a) Put the rod end (15) at the fully retracted position.

WARNING: DO NOT CYCLE THE UNIT AT PROOF PRESSURE.

(b) Apply 8700-8800 psi pressure to the RETRACT port for a minimum of 30 seconds.

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

(d) Remove the pressure from the RETRACT port.

(e) Put the rod end (15) at the fully extended position.

(f) Apply 6750-6850 psi pressure to the EXTEND port for a minimum of 30 seconds.

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

(h) Remove the pressure from the EXTEND port.

H. Preparation after Tests

(1) Drain the hydraulic fluid from the MLG door actuator assembly (1A).

(2) Partially fill the MLG door actuator assembly (1A) with new BMS 3-11 hydraulic fluid. Add only sufficient amount of hydraulic fluid to make sure the seals stay lubricated.

(3) Plug all the ports. Use BMS 3-11 resistant closures with gasket or other positive sealing method to prevent leakage during shipping and handling.

(4) When a dynamic seal is motionless, with or without pressure supplied, it can be slightly wet but not enough to make one drop after two hours, and no more than one drop in three hours.

DISASSEMBLY

1. General

   A. This procedure has the data necessary to disassemble the main landing gear door 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 details of the SOPM subjects identified in this procedure.

   D. Refer to IPL Fig. 1 for item numbers.

2. Disassembly

   A. Special Tools

   NOTE: Equivalent tools can be used.

   (1) Holding Fixture Parts -- A32121-series

   (2) Torque Adaptor Tool Set -- A32120-series

   B. Part Replacement

   NOTE: The parts shown below are recommended for replacement. Replacement of other parts can be by in-service experience.

   (1) Lockwire

   (2) Cuplock washer (10)

(3) Scraper (12)

(4) Packings and seals (35, 40, 45, 50, 55, 90, 145, 150).

(5) Lock nut (75)

(6) Retainer (125)

C. Procedure

(1) Use standard industry procedures and the steps shown below to disassemble this component.

(2) Install the door actuator assembly in a test fixture.

CAUTION: THE SPHERICAL BALL BEARING (20) HAS TWO HALVES. THEY ARE A MATCHED SET. KEEP THE BEARING HALVES TOGETHER. DO NOT MIX WITH HALVES FROM OTHER SETS.

(3) Remove the spherical ball bearing (20) from the head end (95):

(a) Turn one of the bearing halves 90 degrees to the other bearing half and remove it from the head end (95).

(b) Remove the other bearing half from the head end (95).

CAUTION: THE SPHERICAL BALL BEARING (20) HAS TWO HALVES. THEY ARE A MATCHED SET. KEEP THE BEARING HALVES TOGETHER. DO NOT MIX WITH HALVES FROM OTHER SETS.

(4) Remove the spherical ball bearing (20) from the rod end (15):

(a) Turn one of the bearing halves 90 degrees to the other bearing half and remove it from the rod end (15).

(b) Remove the other bearing half from the rod end (15).

(5) Remove the rod and bearing (32) from the barrel (175):

(a) Remove the lockwire between the gland nut (5) and the barrel (175).

(b) With a torque adapter, remove the gland nut (5) from the barrel (175)

(c) Remove the rod scraper (12) from the piston rod (130).

(d) Pull and remove the rod and bearing (32) as a unit from the barrel (175).

(6) Remove the rod end (15) from the piston rod (130):

(a) Remove the two indents on the cuplock washer (10).

(b) Use a torque adapter to remove the rod end (15) from the piston rod (130).

(c) Remove the cuplock washer (10) from the rod end (15).

(7) Remove bearing (32) from rod (130).

(a) Remove the rod seal (55) from inside the bearing (32).

(b) Remove the packings (35, 45) and backup rings (40, 50) from the bearing (32).

(8) Remove the snubber retainer (65) and the snubber ring (70) from the bearing (32):

(a) Use a tool with a small tip to get the lockwire out of the slot on the bearing (32).

(b) Turn the snubber retainer (65) and pull the lockwire through the slot to unwrap the lockwire.

(c) Remove the snubber retainer (65) from the bearing (32).

(d) Remove the snubber ring (70) from the bearing (32).

(9) Remove the head end (95) from the barrel assembly (165):

(a) Remove the hydraulic union (85) and the packing (90) from the head end (95).

(b) Remove the lockwire from the key (80) and the lock nut (75).

(c) With a torque adapter, loosen the lock nut (75) as necessary, then remove the lock key (80) from the slot on the barrel (175).

(d) Remove the lock nut (75) from the head end (95).

(e) Push the head end (95) in until you can remove the three shear rings (100) from the barrel (175), then remove the rings.

(f) Pull and remove the head end (95) from the barrel (175).

(g) Remove the packing (105) and backup ring (110) from the head end (95).

(h) Remove the snubber retainer (125) and the snubber ring (120) from the head end (95):

1) Bend up the edge of retainer (125) to let you turn it in the head end.

2) Use a tool with a small tip to get the lockwire out of the slot on the head end (95).

3) Turn the snubber retainer (125) and pull the lockwire through the slot to unwrap the lockwire.

4) Remove the snubber retainer (125) from the head end (95).

5) Remove the snubber ring (120) from the head end (95).

CHECK

1. General

A. This procedure tells how 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 details of the SOPM subjects identified in this procedure.

D. Refer to IPL Fig. 1 for item numbers.

2. Check

A. References

(1) SOPM 20-20-01, Magnetic Particle Inspection

(2) 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 think there are defects on the parts listed below:

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

(a) Gland nut (5)

(b) Rod end (15)

(c) Snubber retainer (65, 125), or do a penetrant check on these parts as shown below.

(d) Lock nut (75)

(e) Lock key (80)

(f) Head end (95)

(g) Shear ring (100)

(h) Piston rod (130)

(i) Hydraulic fitting (155)

(j) Barrel (175)

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

(a) Spherical ball bearing (20)

(b) Snubber ring (120)

(4) Do a penetrant check, sensitivity level 2 (SOPM 20-20-02) of these parts:

(a) Bearing (32)

(b) Snubber retainer (65, 125)

REPAIR - GENERAL

1. General

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

PART NUMBER	NAME	REPAIR
---	REFINISH OF OTHER PARTS	1-1
273T0150	BARREL ASSEMBLY	2-1, 2-2
273T0151	HEAD END	3-1
273T0152	PISTON ROD	4-1
273T0153	ROD END	5-1
BAC27TLG22	MARKER	6-1

2. Dimensioning Symbols

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

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 details of the SOPM subjects identified in this procedure.

   C. Refer to IPL Fig. 1 for item numbers.

2. Refinish of Other Parts

   A. General

      (1) Repair of these parts is only replacement of the original finish.

   B. References

      (1) SOPM 20-30-02, Stripping of Protective Finishes

      (2) SOPM 20-30-03, General Cleaning Procedures

      (3) SOPM 20-41-01, Decoding Table for Boeing Finish Codes

      (4) SOPM 20-41-02, Application of Chemical and Solvent Resistant Finishes

      (5) SOPM 20-60-02, Finishing Materials

   C. Procedure

IPL FIG. & ITEM	MATERIAL	FINISH
IPL Fig. 1		
Gland nut (5)	15-5PH, heat treat 180-200 ksi	Passivate (F-17.25).
Retainer (65)	15-5PH, heat treat 150-170 ksi	Passivate (F-17.25).
Key (80)	15-5PH, heat treat 180-200 ksi	Passivate (F-17.25).
Ring (100)	17-7PH, CH900	Passivate (F-17.25).
Fitting (155)	15-5PH, heat treat 180-200 ksi	Passivate (F-17.25).
Strap (180)	301 CRES Optional: 302 CRES or 304 CRES	Passivate (F-17.25).

Refinish Details
Table 601

BARREL ASSEMBLY - REPAIR 2-1

273T0150-1

1. General

   A. This procedure has the data necessary to replace the inserts (170) of barrel assembly (165).

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Insert Replacement

   A. Consumable Materials

      NOTE: Equivalent material can be used.

      (1) C00432 Primer -- BMS 10-11, Type 1 (SOPM 20-60-02)

   B. References

      (1) SOPM 20-60-02, Finishing Materials

   C. Procedure

      (1) Remove the bad insert (170) from the barrel (175).

      (2) Install a replacement insert (170) with BMS 10-11, type 1 primer mating surfaces.

BARREL - REPAIR 2-2

273T0150-2

1. General

A. This procedure has the data necessary to repair and refinish the barrel (175).

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

C. Refer to IPL Fig. 1 for item numbers.

D. General repair details:

(1)	Material:	15-5PH CRES Heat treat 180-200 ksi
(2)	Shot Peen:	Shot size 0.017-0.046 Intensity 0.005-0.010A2

2. Barrel Repair

A. References

(1) SOPM 20-10-02, Machining of Alloy Steel

(2) SOPM 20-10-03, Shot Peening

(3) SOPM 20-10-04, Grinding of Chrome Plated Parts

(4) SOPM 20-20-01, Magnetic Particle Inspection

(5) SOPM 20-42-03, Hard Chrome Plating

(6) SOPM 20-42-09, Electrodeposited Nickel Plating

B. Procedure (Fig. 601)

(1) Machine (SOPM 20-10-02) the surface as necessary to remove defects within the repair limits.

(2) Do a magnetic particle check (SOPM 20-20-01, class A).

(3) Shot peen the machined area (SOPM 20-10-03).

(4) Build up the surface with chrome plate (SOPM 20-42-03). The finish thickness of the chrome plate is 0.010 inch maximum after grinding. If material removal is more than this, nickel plate (SOPM 20-42-09) the surface before you chrome plate.

(5) Grind the chrome plate (SOPM 20-10-04) to the design dimensions and finish.

3. Barrel Refinish

A. References

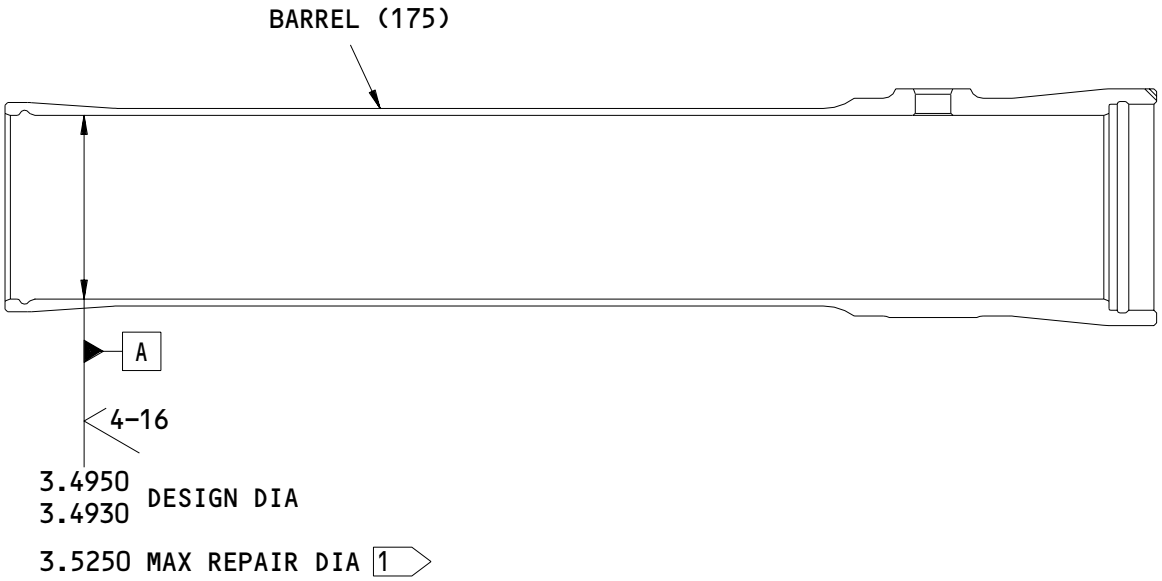
(1) SOPM 20-30-02, Stripping of Protective Finishes

(2) SOPM 20-30-03, General Cleaning Procedures

(3) SOPM 20-41-01, Decoding Table For Boeing Finish Codes

B. Procedure

(1) Passivate (F-17.25).



1 LIMIT FOR CHROME PLATE BUILDUP

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

273T0150-2
Barrel Repair
Figure 601

HEAD END - REPAIR 3-1

273T0151-1

A. This procedure has the data necessary to repair and refinish the head end (95).

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

C. Refer to IPL Fig. 1 for item numbers.

D. General repair details:

(1) Material: 15-5PH CRES
Heat treat 180-200 ksi

(2) Shot Peen: Shot size 0.017-0.046
Intensity 0.005-0.010A2

1. Lube Fitting Replacement

A. Replace lube fitting (25) per cmm 32-00-03.

2. Head End Repair

A. References

(1) SOPM 20-10-02, Machining of Alloy Steel

(2) SOPM 20-10-03, Shot Peening

(3) SOPM 20-10-04, Grinding of Chrome Plated Parts

(4) SOPM 20-20-01, Magnetic Particle Inspection

(5) SOPM 20-42-03, Hard Chrome Plating

(6) SOPM 20-42-09, Electrodeposited Nickel Plating

B. Procedure (Fig. 601)

(1) Machine (SOPM 20-10-02) the surface as necessary to remove defects within the repair limits.

(2) Do a magnetic particle check (SOPM 20-20-01, class A).

(3) Shot peen the machined area (SOPM 20-10-03).

(4) Build up the surface with chrome plate (SOPM 20-42-03). The finish thickness of the chrome plate is 0.010 inch maximum after grinding. If material removal is more than this, nickel plate (SOPM 20-42-09) the surface before you chrome plate.

(5) Grind the chrome plate (SOPM 20-10-04) to the design dimensions and finish.

3. Head End Refinish

A. References

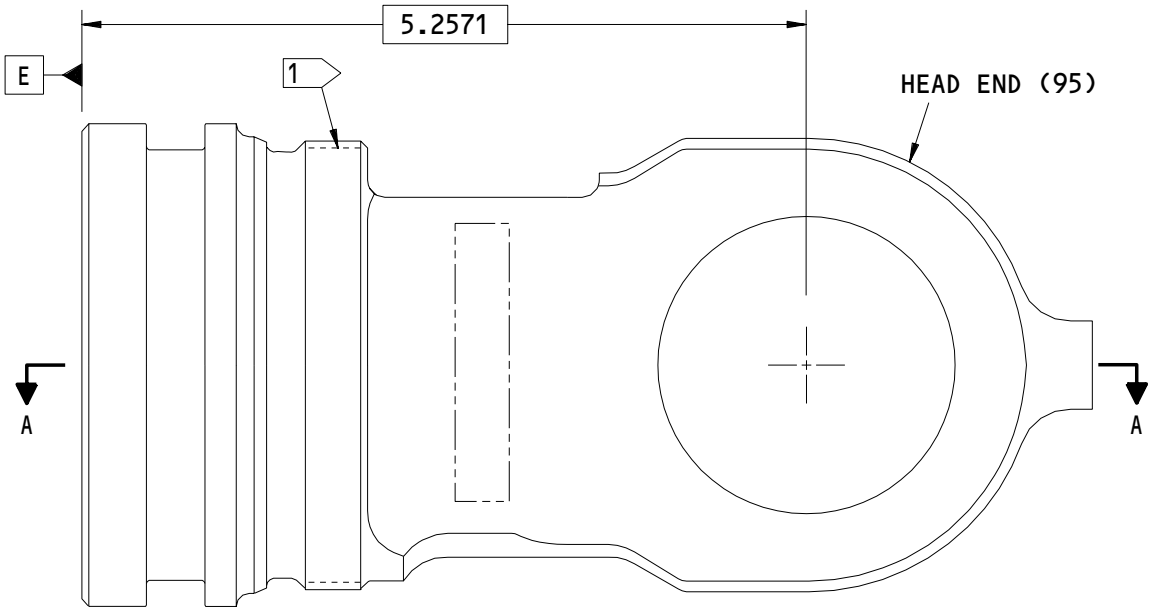
(1) SOPM 20-30-02, Stripping of Protective Finishes

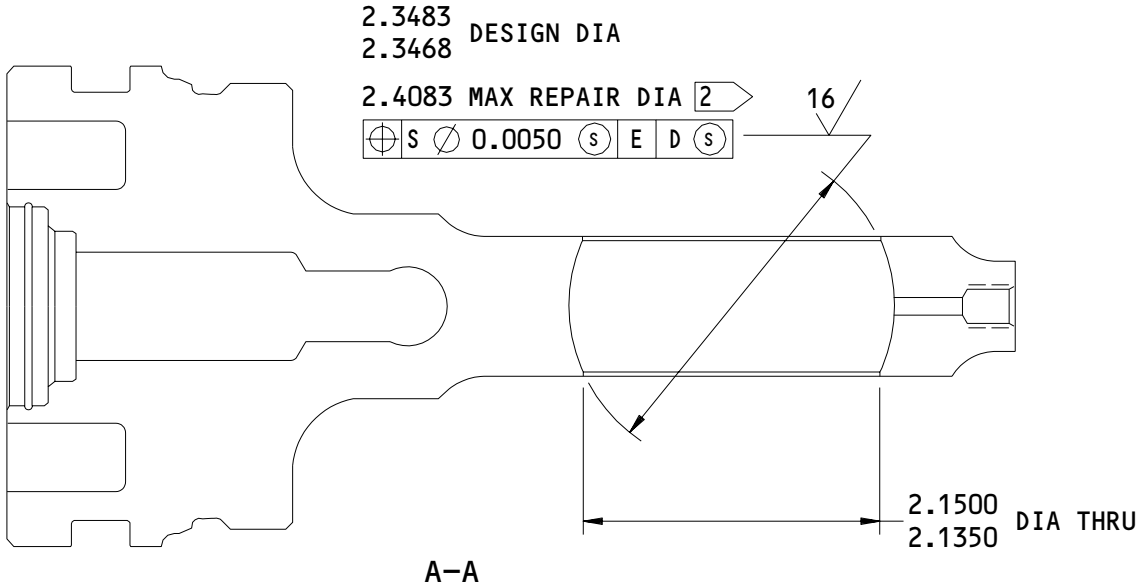
(2) SOPM 20-30-03, General Cleaning Procedures

(3) SOPM 20-41-01, Decoding Table For Boeing Finish Codes

B. Procedure (Fig. 601)

(1) Passivate (F-17.25).





A–A

1 BMS 3-8 LUBRICANT (F-19.10)

2 LIMIT FOR CHROME PLATE BUILDUP

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

273T0151-1
Head End Repair
Figure 601

K13234

PISTON ROD - REPAIR 4-1

273T0152-1

A. This procedure has the data necessary to repair and refinish the piston rod (130).

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

C. Refer to IPL Fig. 1 for item numbers.

D. General repair details:

(1)	Material:	15-5PH CRES Heat treat 180-200 ksi
(2)	Shot Peen:	Shot size 0.017-0.046 Intensity 0.005-0.010A2

1. Rod Repair

A. References

(1) SOPM 20-10-02, Machining of Alloy Steel

(2) SOPM 20-10-03, Shot Peening

(3) SOPM 20-10-04, Grinding of Chrome Plated Parts

(4) SOPM 20-20-01, Magnetic Particle Inspection

(5) SOPM 20-42-03, Hard Chrome Plating

(6) SOPM 20-42-09, Electrodeposited Nickel Plating

B. Procedure (Fig. 601)

(1) Machine (SOPM 20-10-02) the surface as necessary to remove defects, within repair limits.

(2) Do a magnetic particle check (SOPM 20-20-01, class A).

(3) Shot peen the machined area (SOPM 20-10-03).

(4) Build up the surface with chrome plate (SOPM 20-42-03). The finish thickness of the chrome plate is 0.010 inch maximum after grinding. If material removal is more than this, nickel plate (SOPM 20-42-09) the surface before you chrome plate.

(5) Grind the chrome plate (SOPM 20-10-04) to the design dimensions and finish.

2. Rod Refinish

A. References

(1) SOPM 20-30-02, Stripping of Protective Finishes

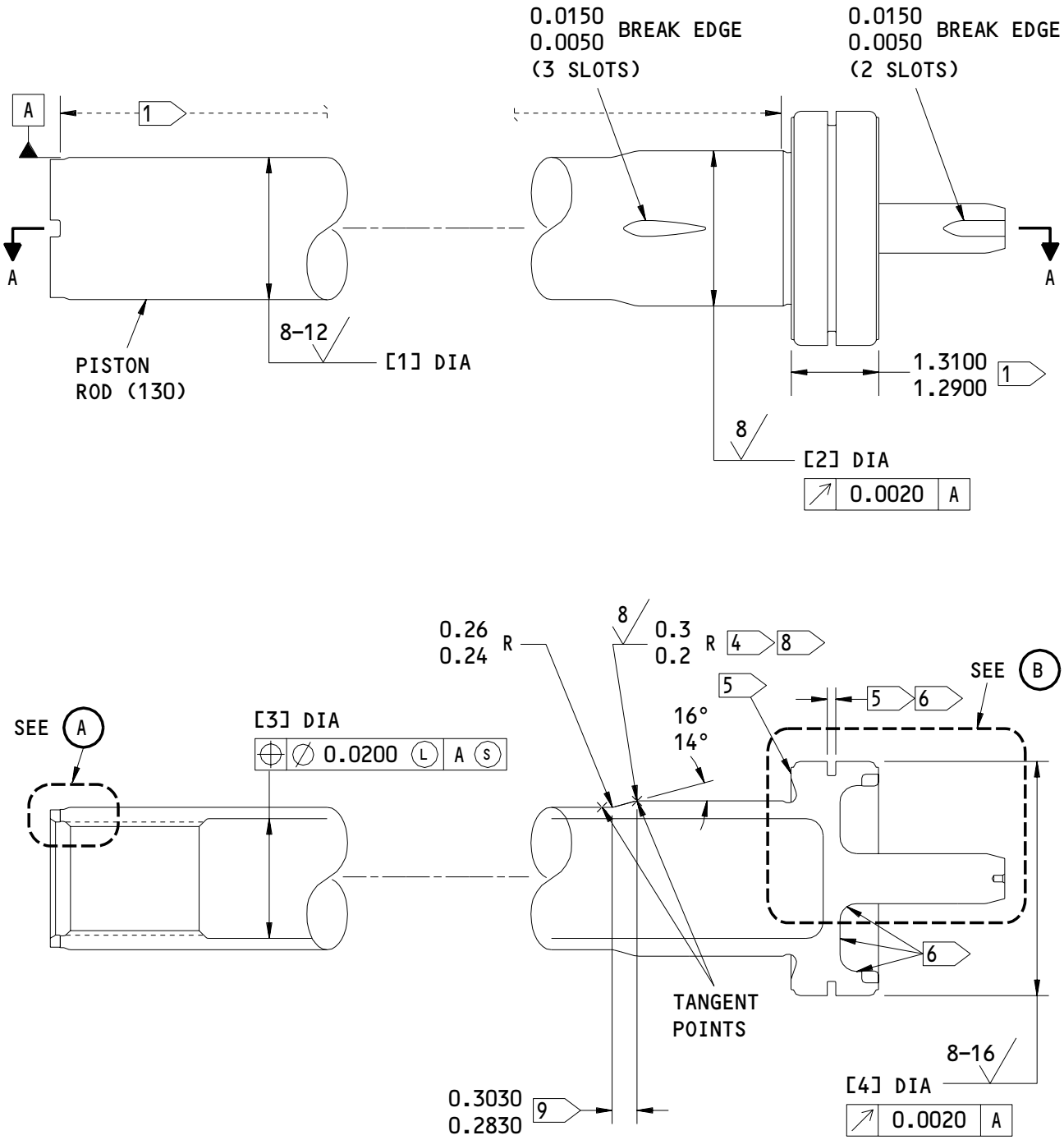
(2) SOPM 20-30-03, General Cleaning Procedures

(3) SOPM 20-41-01, Decoding Table For Boeing Finish Codes

B. Procedure (Fig. 601)

(1) Passivate (F-17.25).

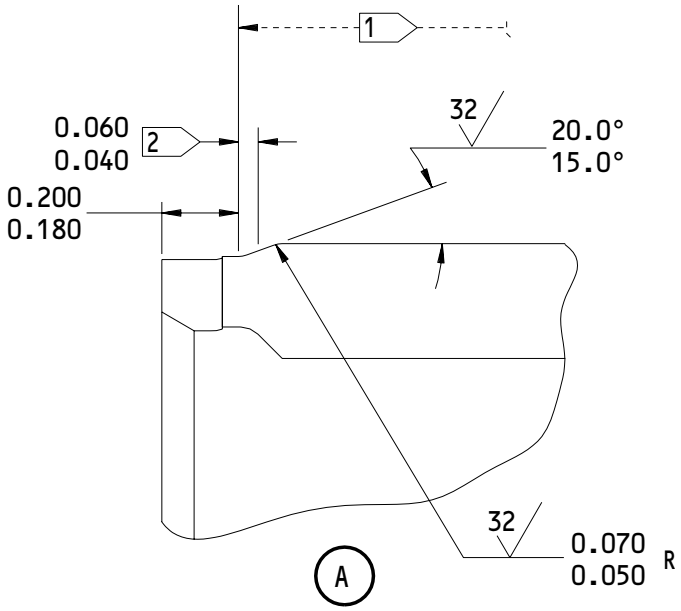
(2) Chrome plate (F-15.34) surfaces indicated.



A–A

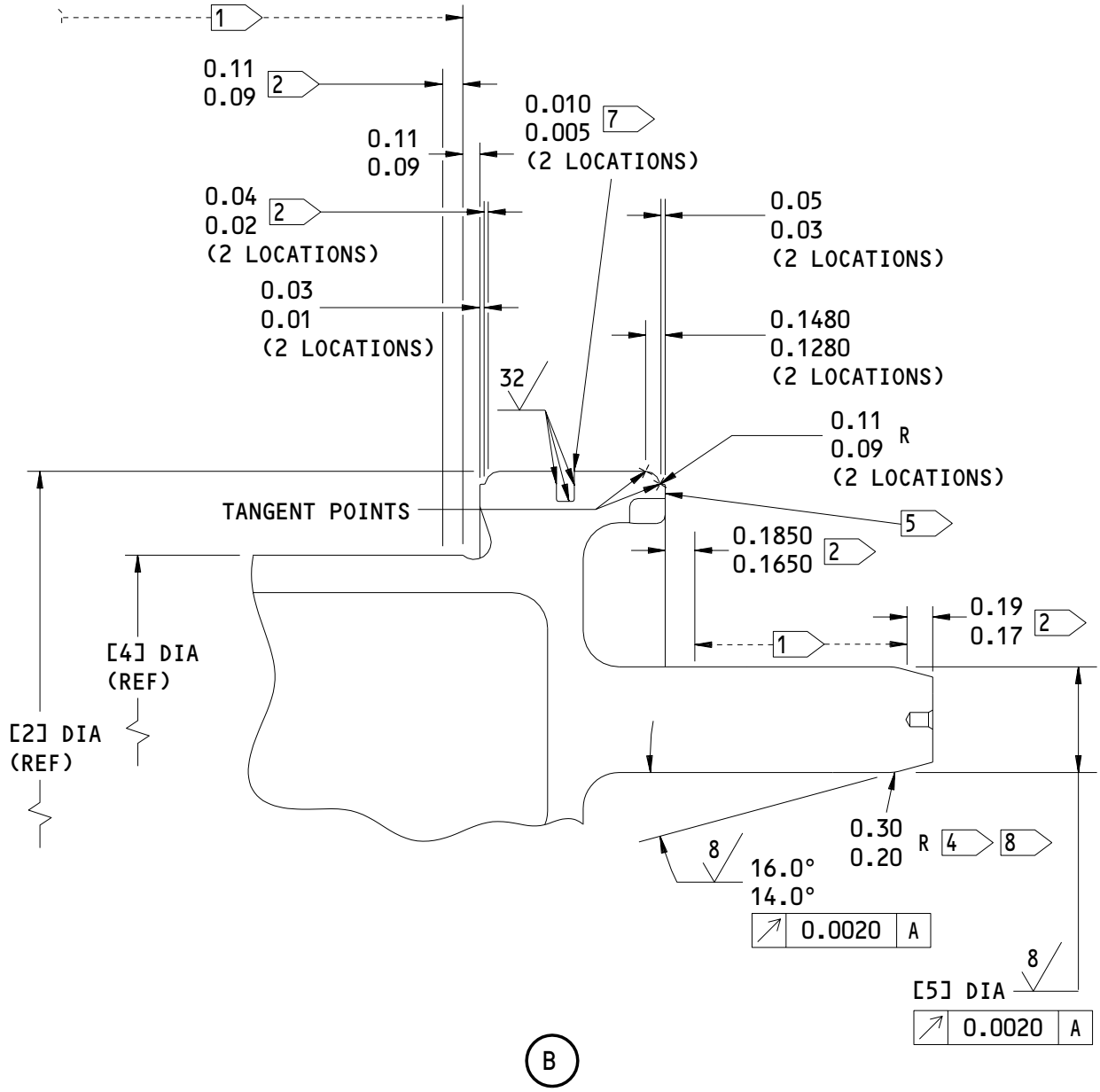
273T0152-1
Piston Rod Repair
Figure 601 (Sheet 1)

K13268



273T0152-1
Piston Rod Repair
Figure 601 (Sheet 2)

K13343



273T0152-1
Piston Rod Repair
Figure 601 (Sheet 3)

K13356

REFERENCE NUMBER	[1]	[2]	[3]	[4]	[5]
DESIGN DIMENSION	2.1230 2.1210	2.3130 2.3120	1.7900 1.7700	3.4900 3.4880	0.7505 0.7495
REPAIR LIMIT	2.0910 <10>	2.2625 <10>	---	3.4580 <10>	0.7000 <10>

<1> CHROME PLATE (F-15.34)

<2> CHROME PLATE RUNOUT

<3> AFTER PLATING AND FINISHING

<4> BEFORE PLATING

<5> NO CHROME PLATE

<6> NO SHOT PEEN

<7> BREAK EDGE AFTER PLATING

<8> AFTER PLATING

<9> CHROME PLATE OPTIONAL- SEE TEXT

<10> LIMIT FOR CHROME PLATE BUILDUP

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

273T0152-1
Piston Rod Repair
Figure 601 (Sheet 4)

L51138

ROD END - REPAIR 5-1

273T0153-1

A. This procedure has the data necessary to repair and refinish the rod end (15).

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

C. Refer to the REPAIR - GENERAL (32-32-44/601, REPAIR - GENERAL) for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Fig. 1 for item numbers.

E. General repair details:

(1)	Material:	15-5PH CRES Heat treat 180-200 ksi
(2)	Shot Peen:	Shot size 0.017-0.046 Intensity 0.005-0.010A2

1. Lube Fitting Replacement

A. Replace lube fitting (25) per CMM 32-00-03.

2. Rod End Repair

A. References

(1) SOPM 20-10-02, Machining of Alloy Steel

(2) SOPM 20-10-03, Shot Peening

(3) SOPM 20-10-04, Grinding of Chrome Plated Parts

(4) SOPM 20-20-01, Magnetic Particle Inspection

(5) SOPM 20-42-03, Hard Chrome Plating

(6) SOPM 20-42-09, Electrodeposited Nickel Plating

B. Procedure

(1) Machine (SOPM 20-10-02) the surface as necessary to remove defects within repair limits.

(2) Do a magnetic particle check (SOPM 20-20-01, class A).

(3) Shot peen the machined area (SOPM 20-10-03).

(4) Build up the surface with chrome plate (SOPM 20-42-03). The finish thickness of the chrome plate is 0.010 inch maximum after grinding. If material removal is more than this, nickel plate (SOPM 20-42-09) the surface before you chrome plate.

(5) Grind the chrome plate (SOPM 20-10-04) to the design dimensions and finish.

3. Rod End Refinish

A. References

(1) SOPM 20-30-02, Stripping of Protective Finishes

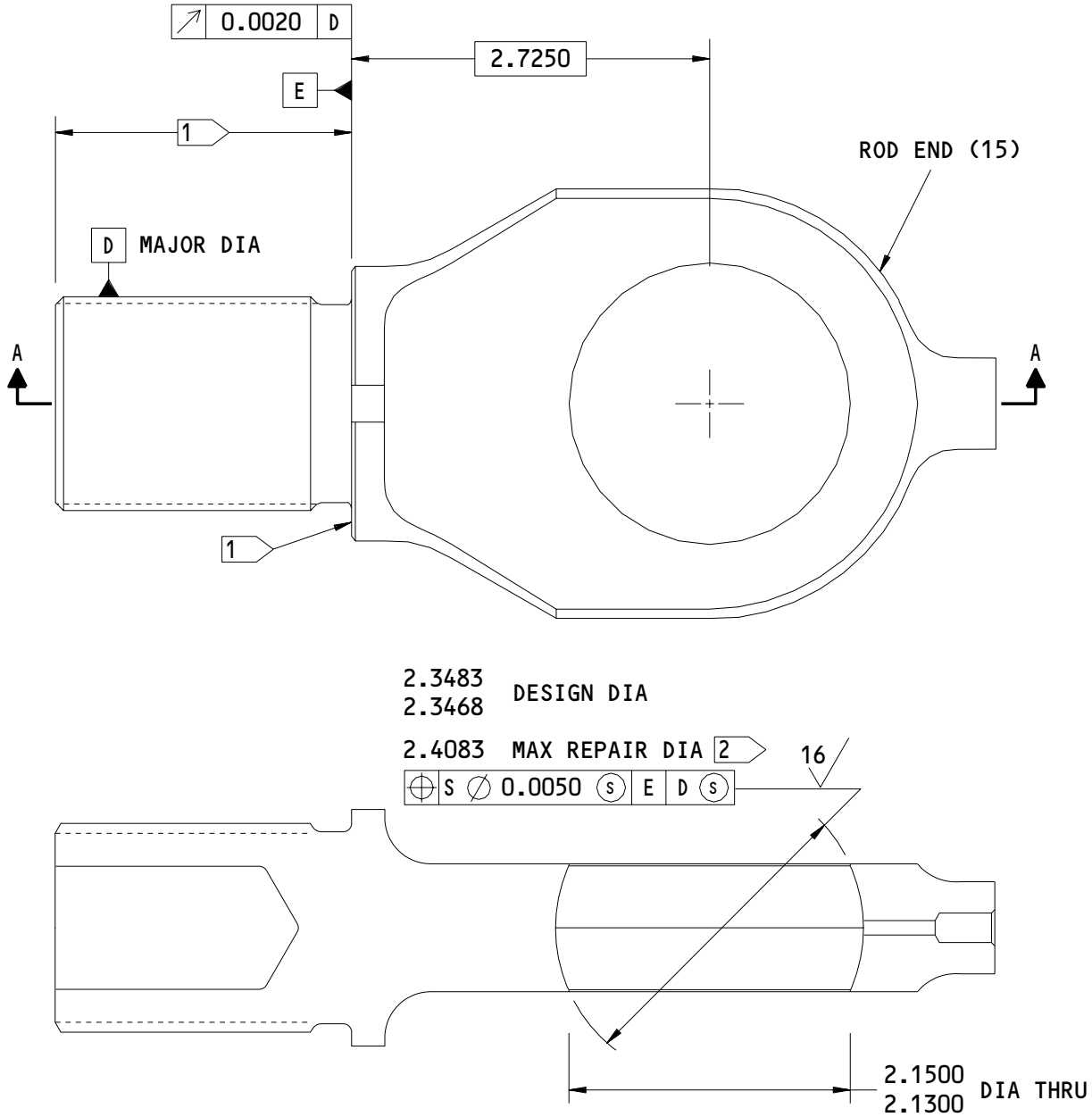
(2) SOPM 20-30-03, General Cleaning Procedures

(3) SOPM 20-41-01, Decoding Table For Boeing Finish Codes

B. Procedure

(1) Passivate (F-17.25).

(2) Apply solid film lubricant (F-19.10) as indicated.



A–A

1 BMS 3-8 LUBRICANT (F-19.10)

2 LIMIT FOR CHROME PLATE BUILDUP

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

273T0153-1
Rod End Repair
Figure 601

K13368

MARKER INSTALLATION - REPAIR 6-1

BAC27TLG22

1. General

   A. This procedure has the data necessary to replace the strap (180) and the marker (185).

   B. Refer to IPL Fig. 1 for item numbers.

2. Marker Replacement

   A. Consumable Materials

      NOTE: Equivalent material may be used.

      (1) A00589 Sealant -- BMS 5-26 (SOPM 20-60-04)

   B. References

      (1) SOPM 20-50-21, How to Install Nameplate Straps and Seals

      (2) SOPM 20-60-04, Miscellaneous Materials

   C. Procedure (Fig. 601)

      (1) Install a replacement marker with new straps and BMS 5-26 sealant as shown in SOPM 20-50-21.

ASSEMBLY

1. General

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

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

C. Refer to IPL Fig. 1 for item numbers.

2. Assembly

A. Special Tools

NOTE: Equivalent tools can be used.

(1) Torque Adapter Tool Set -- A32120-series

(2) Hold Fixture Parts -- A32121-series

B. Consumable Materials

NOTE: Equivalent material can be used.

(1) D00153 Fluid-- BMS 3-11, type 4, Hydraulic (SOPM 20-60-03)

(2) D00633 Grease -- BMS 3-33 (SOPM 20-60-03)

(3) Lockwire -- MS20995C47 (SOPM 20-60-04)

(4) Lockwire -- MS20995NC32 (SOPM 20-60-04)

C. References

(1) SOPM 20-50-01, Bolt and Nut Installation

(2) SOPM 20-50-02, Installation of Safety Devices

(3) SOPM 20-50-04, Installation of Permanent Pins and Plugs In Drill Passages

(4) SOPM 20-60-03, Lubricants

D. Procedure

(1) Use standard industry procedures and the steps shown below to assemble this component.

(2) During assembly, lubricate the seals with BMS 3-11 hydraulic fluid.

(3) Install the snubber ring (70), snubber retainer (65) and the Lee jet (60) on the bearing (32):

(a) Install the Lee jet (60) in the bearing (32) per SOPM 20-50-04.

(b) Install the snubber ring (70) on the bearing (32).

(c) Install the snubber retainer (65) on the bearing (32). Make sure to align the slot hole on the snubber retainer (65) with the slot on the bearing (32).

(d) Put MS20995C47 lockwire through the slot on the bearing (32) and into the hole on the snubber retainer (65). You can use hydraulic fluid to help.

(e) Turn the snubber retainer (65) while you push feed the lockwire in. This will help the lockwire wrap around the snubber retainer (65). Turn approximately one revolution (Fig. 701).

(f) Cut the lockwire to leave a small length for future removal. Bend the wire into the slot on the bearing (32). Both ends of the lockwire must be in the position shown Fig. 701.

(4) Install the bearing (32) on piston rod (130):

(a) Install the packing (45) and the two backup rings (50) on the bearing (32).

(b) Install the packing (35) and the two backup rings (40) on the bearing (32).

(c) Install the rod seal (55) on the inside of the bearing (32).

(d) Make sure the lockwire does not extend out of the slot on the bearing (32).

(e) Install the bearing (32) into the barrel assembly (165) and onto the piston rod (130).

(5) Install the rod scraper (12) on the end of the piston rod (130).

(6) Slide the gland nut (5) into the barrel assembly (165) and onto the piston rod (130). Keep the piston rod (130) outside of the bearing (32) to let you install the rod end (15).

(7) Install the rod end (15) on the piston rod (130):

(a) Install a new cuplock washer (10) on the rod end (15). Do not use the old cuplock washer. Make sure the two tabs on the new cuplock washer (10) are in the slots on the end piston rod (130).

(b) Install the rod end (15) into the piston (130). Tighten the rod end (15) to hold the cuplock washer (10) in place.

(c) With a torque adapter, tighten the rod end (15) to 600-800 pound-inches.

(d) Use a punch tool to deform the cuplock washer (10) into the two slots on the rod end (15). Use a punch tool with a round tip. Do not break the edge of the cuplock washer.

(8) Install the lube fitting (25) on the rod end (15).

(9) Tighten the lube fitting (25) to 15-20 pound-inches.

(10) Install the piston rod (130) in the barrel assembly (165):

(a) Install the piston ring (115A) on the piston rod (130).

CAUTION: BE CAREFUL WHEN YOU PUSH THE PISTON ROD (130) NOT TO DAMAGE THE FINISH ON THE INSIDE SURFACE OF THE BARREL (175) OR THE OUTSIDE SURFACE OF THE PISTON ROD (130).

(b) Push the piston rod with the bearing into barrel assembly (165).

(11) With a torque adapter, tighten the gland nut (5) to 1500-1700 pound-inches.

(12) Install the snubber ring (120) and the snubber retainer (125) on the head end (95):

(a) Install the snubber ring (120) in the head end (95).

(b) Install the snubber retainer (125) on the head end (95). Be sure to align the slot on the head end (95) with the hole on the snubber retainer (125).

(c) Put MS20995C47 lockwire through the slot on the head end (95) and into the hole on the snubber retainer (125). You can use hydraulic fluid to help.

(d) Turn the snubber retainer (125) while you feed the lockwire in. It will help the lockwire wrap around the snubber retainer (125). Turn approximately one revolution (Fig. 701).

(e) Cut the lockwire to leave a small length for future removal. Bend the wire into the slot on the head end (95). Both ends of the lockwire must be in the position shown Fig. 701.

(f) Turn the bearing halves until the index marks are aligned.

(13) Install the head end (95) into the barrel assembly (165):

(a) Install the packing (105) and the two backup rings (110) on the head end (95).

(b) Install the head end (95) into the barrel assembly (165).

(c) Push the head end (95) in, then install the three shear rings (100) in the groove on the inside of the barrel (165). When the shear rings (100) are in the groove, pull the head end (95) out to hold the shear rings (100) in the groove. Turn the head end until its slot aligns with the slot in the barrel.

(d) Install the lock nut (75) on the head end (95).

(e) With a torque adapter, tighten the lock nut (75) to 250-350 pound-inches.

(f) Install the key (80) in the aligned slots of the head end and barrel.

(g) Install MS20995NC32 lockwire on the lock nut (75) and the key (80). Use the double twist method (SOPM 20-50-02) with tamper proof seal.

Optional: You can use corrosion and heat resistant safety cable (AS3510-0206K).

(14) Install the lube fitting (25) on the head end (95).

(15) Tighten the lube fitting (25) to 15-20 pound-inches.

(16) Install the packing (90) and the hydraulic union (85) on the head end (95).

(17) Tighten the hydraulic union (85) to 475-525 pound-inches.

(18) Install the hydraulic fitting (155) on the barrel assembly (165):

(a) Install the packing (145) and the two backup ring (150) on the hydraulic fitting (155).

(b) Install the hydraulic fitting (155) on the barrel assembly (165) with bolts (135) and washers (140).

(c) Tighten the bolts (135) to 20-30 pound-inches.

(19) Install the hydraulic union (160) on the hydraulic fitting (155).

(20) Torque the hydraulic union (160) to 665-735 pound-inches.

(21) If necessary, install the marker (185) and the strap (180) on the barrel assembly (165). See REPAIR 6-1 for details.

(22) Install MS20995NC32 lockwire on the gland nut (5) and the barrel assembly (165). Use the double twist method (SOPM 20-50-02) with tamper proof seal.

Optional: You can use corrosion and heat resistant safety cable (AS3510-0206K).

(23) Install the spherical ball bearing (20) in the rod end (15):

NOTE: The spherical ball bearing (20) has two bearing halves. They are a matched set.

(a) Apply BMS 3-33 grease to the bearing bore and the outside diameter surface of the bearing halves.

(b) Install one half of the spherical ball bearing (20) in the rod end (15).

(c) Turn the half of the spherical ball bearing (20) 90 degrees to the other half and install it in the rod end (15).

NOTE: The index marks on the bearing halves must be on the same side for proper alignment.

(d) Turn the bearing halves until the index marks are aligned.

(24) Install the spherical ball bearing (20) in the head end (95):

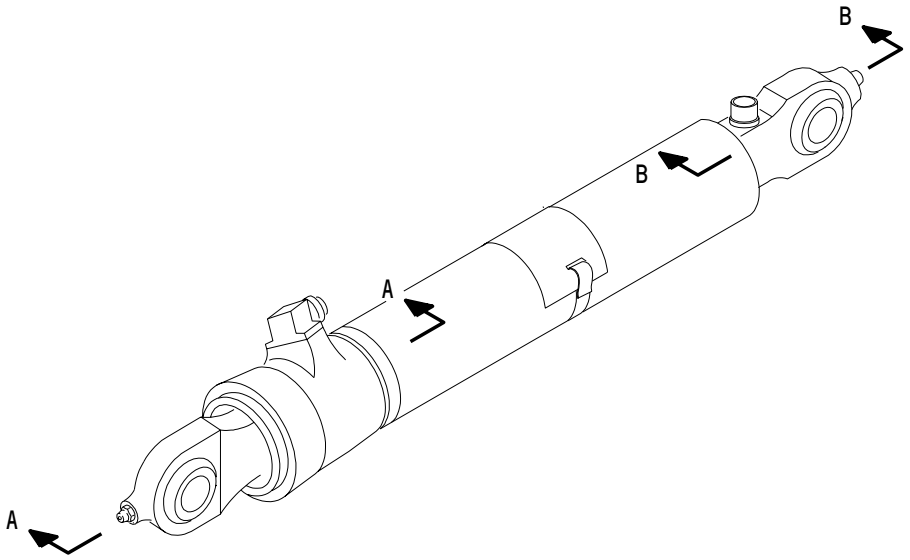
NOTE: The spherical ball bearing (20) has two bearing halves. They are a matched set.

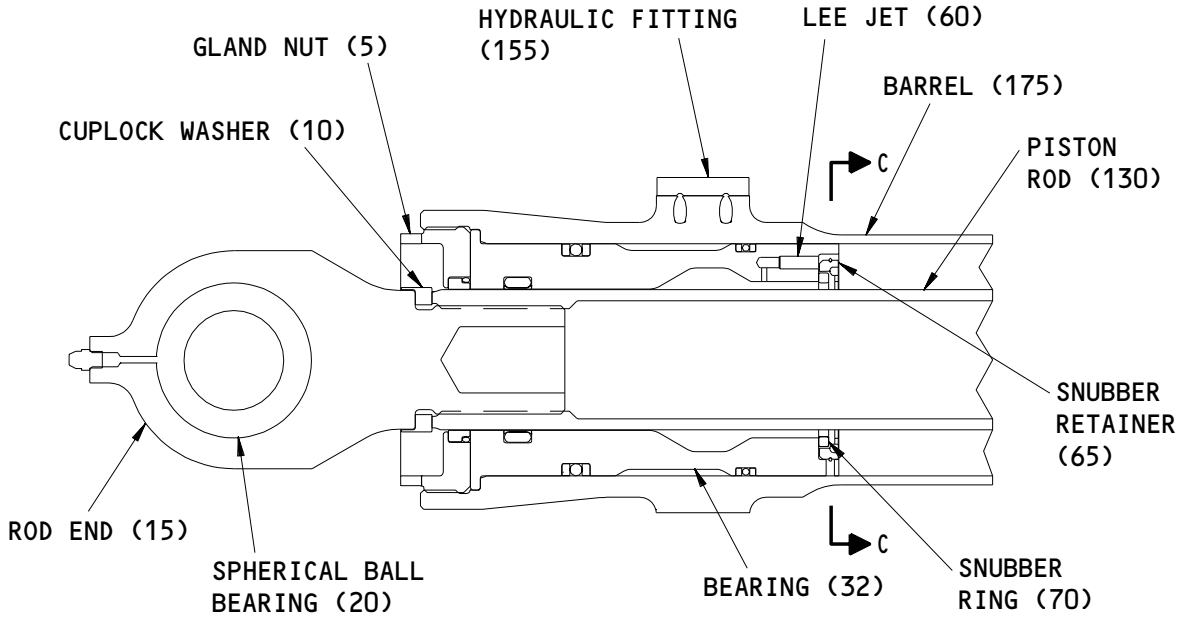
(a) Apply BMS 3-33 grease to the bearing bore and the outside diameter surface of the bearing halves.

(b) Install one half of the spherical ball bearing (20) in the head end (95).

(c) Turn the half of the spherical ball bearing (20) 90 degrees to the other half and install it in the head end (95).

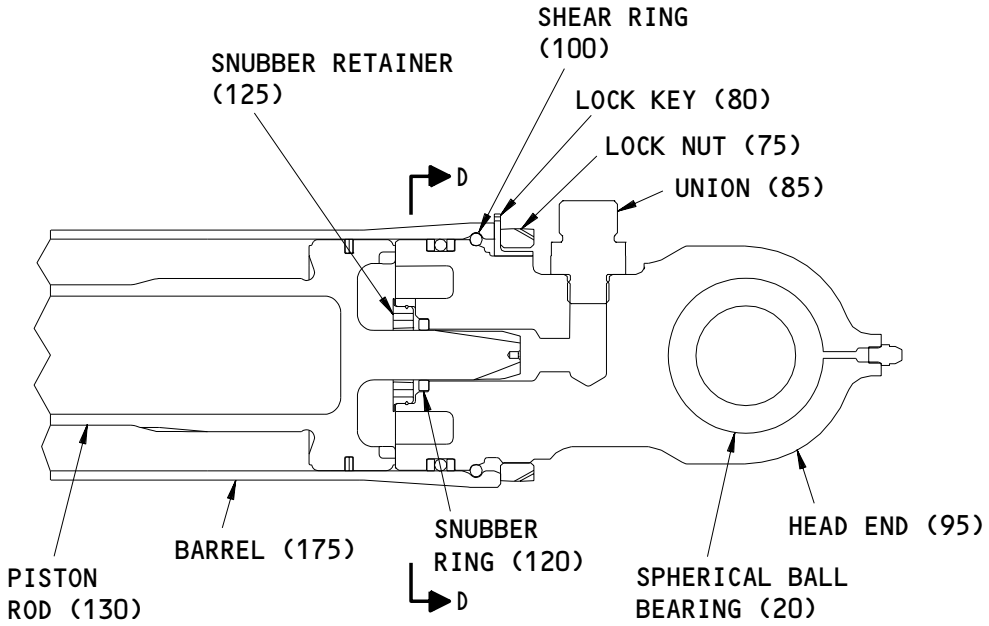
NOTE: The index marks on the bearing halves must be on the same side for proper alignment.





A–A

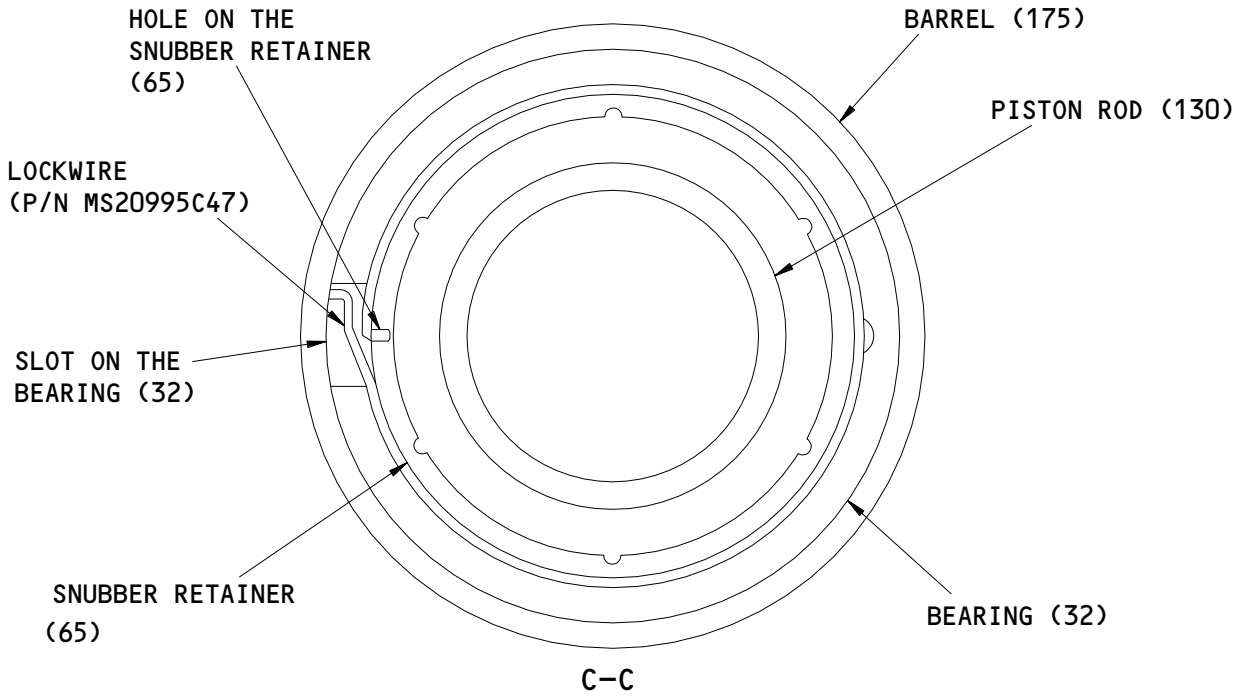
MLG Door Actuator Assembly Details
Figure 701 (Sheet 1)

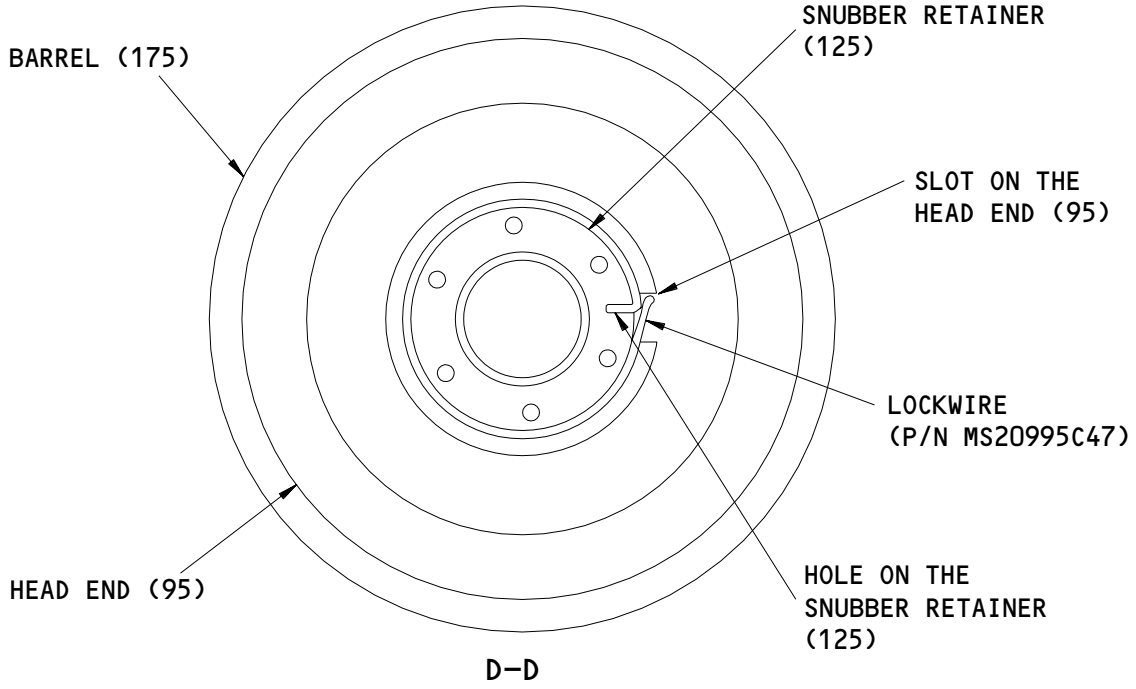


B–B

MLG Door Actuator Assembly Details
Figure 701 (Sheet 2)

K24538

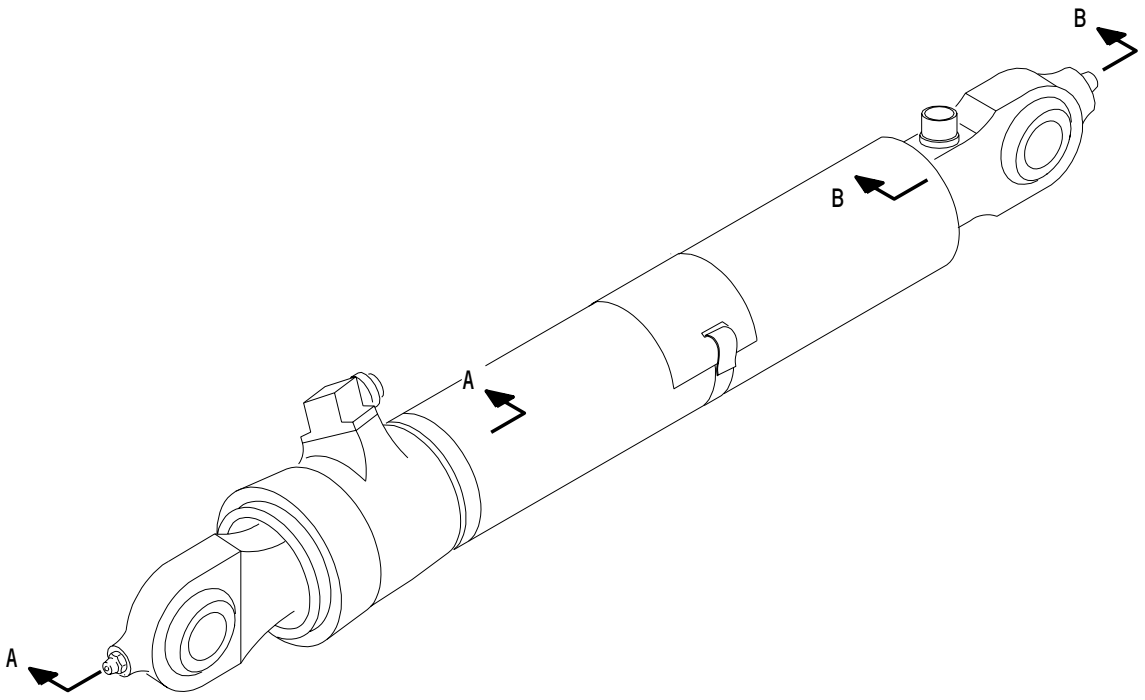




ITEM NUMBERS REFER TO IPL FIG. 1

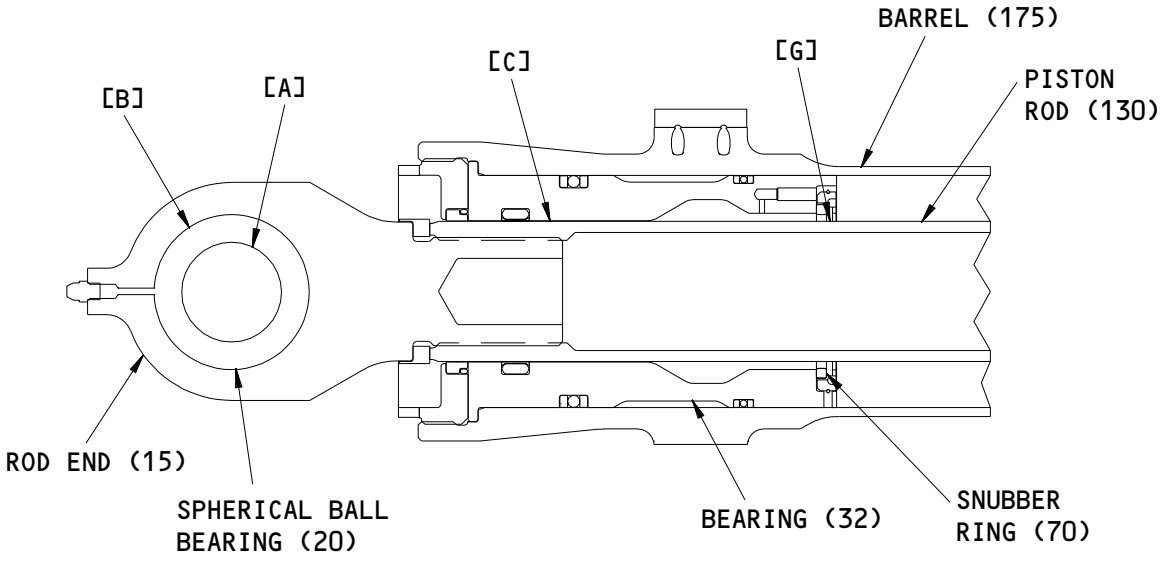
MLG Door Actuator Assembly Details
Figure 701 (Sheet 3)

K24614

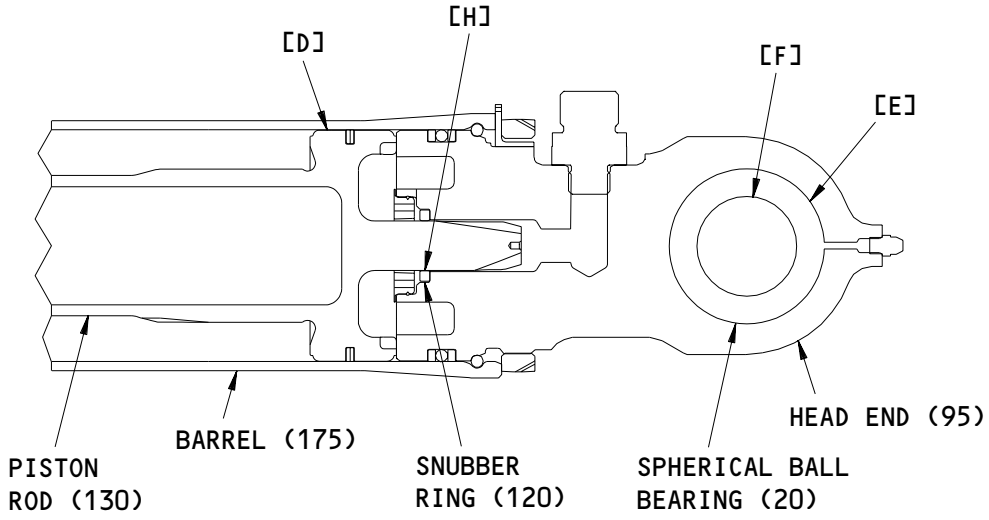


Fits and Clearances
Figure 801 (Sheet 1)

K13737



A–A



B–B

Fits and Clearances
Figure 801 (Sheet 2)

K11339

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 20 OD 1	1.4995 1.4975	1.5000 1.4990	0.0005	0.0025	1.4965	1.5015	0.0050
[B] 5	ID 15 OD 20	2.3468 2.3433	2.3483 2.3433	0.0030	0.0050	2.3423	2.3493	0.0070
[C]	ID 32 OD 130	2.1260 2.1210	2.1280 2.1230	0.0030	0.0070	2.1200	2.1290	0.0090
[D]	ID 175 OD 130	3.4930 3.4880	3.4950 3.4900	0.0030	0.0070	3.4865	3.4965	0.0100
[E] 5	ID 95 OD 20	2.3468 2.3433	2.3483 2.3438	0.0030	0.0050	2.3493	2.3493	0.0070
[F]	ID 20 OD 2	1.4995 1.4975	1.5000 1.4990	0.0005	0.0025	1.4965	1.5015	0.0050
[G]	6 70						0.015 3	
[H]	6 120						0.055 4	

*ALL DIMENSIONS ARE IN INCHES

1 INSTALLATION BOLT 149T6985-9

2 INSTALLATION BOLT 149T6985-11

3 MEASURED WHILE THE SNUBBER RING (70) IS HELD AT 2.3115-2.3135 INCHES DIAMETER.

4 MEASURED WHILE THE SNUBBER RING (120) IS HELD AT 0.749-0.751 INCHES DIAMETER.

5 SPHERICAL DIAMETER

6 SLIT WIDTH

Fits and Clearances
Figure 801 (Sheet 3)

K14707

REF IPL		NAME	TORQUE*	
FIG. NO.	ITEM NO.		POUND-INCHES	POUND-FEET
1	5	Gland Nut	1500-1700	
1	15	Rod End	600-800	
1	25	Lube Fitting	15-20	
1	75	Lock Nut	250-350	
1	85	Hydraulic Union	475-525	
1	135	Bolt	20-30	
1	160	Hydraulic Union	600-800	

* REFER TO SOPM 20-50-01 FOR TORQUE VALUES OF STANDARD FASTENERS.

Torque Table
Figure 802

K22842

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

1. General

A. This is a list of the special tools, fixtures, and equipment used in this manual. Equivalent substitutes can be used.

B. A32120-series -- Torque Adapter Tool Set

C. A32121-series -- Holding Fixture Parts

ILLUSTRATED PARTS LIST

1. This section lists and illustrates replaceable or repairable component parts. The Illustrated Parts Catalog contains a complete explanation of the Boeing part numbering system.

2. Indentures show parts relationships as follows:

    Assembly
      Detail Parts for Assembly
      Subassembly
      Attaching Parts for Subassembly
        Detail Parts for Subassembly

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

3. One use code letter (A, B, C, etc.) is assigned in the EFF CODE column for each variation of top assembly. All listed parts are used on all top assemblies except when limitations are shown by use code letter opposite individual part entries.

4. Letter suffixes (alpha-variants) are added to item numbers for optional parts, Service Bulletin modification parts, configuration differences (Except left- and right-hand parts), product improvement parts, and parts added between two sequential item numbers. The alpha-variant is not shown on illustrations when appearance and location of all variants of the part is the same.

5. Service Bulletin modifications are shown by the notations PRE SB XXXX and POST SB XXXX.

    A. When a new top assembly part number is assigned by Service Bulletin, the notations appear at the top assembly level only. The configuration differences at detail part level are then shown by use code letter.

    B. When the top assembly part number is not changed by the Service Bulletin, the notations appear at the detail part level.

6. Parts Interchangeability

Optional (OPT)	The parts are optional to and interchangeable with other parts having the same item number.
Supersedes, Superseded By (SUPSDS, SUPSD BY)	The part supersedes and is not interchangeable with the original part.
Replaces, Replaced By (REPLS, REPLD BY)	The part replaces and is interchangeable with, or is an alternate to, the original part.

VENDORS

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

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

71687 COOK AIRTOMIC A DOVER RESOURCES CO
916 SOUTH 8TH STREET PO BOX 1038
LOUISVILLE, KENTUCKY 40201-1038
FORMERLY COOK DIVN OF DOVER CORP AND COOK,C LEE CO VB0104
AND DOVER CORP COOK AIRTOMIC DIV

72902 PALMETTO INC SEE GREEN TWEED & CO V5F573

83259 PARKER-HANNIFIN CORP O-SEAL DIV
10567 JEFFERSON BLVD
CULVER CITY, CALIFORNIA 90232-3513
FORMERLY PARKER SEAL CO DIV OF PARKER-HANNIFIN CORP

92555 LEE COMPANY
2 PETTIPAUG ROAD PO BOX 424
WESTBROOK, CONNECTICUT 06498-1543

94878 RAYBESTOS-MANHATTAN INC PACIFIC COAST DIV
FULLERTON, CALIFORNIA 92631
BUSINESS DISCONTINUED

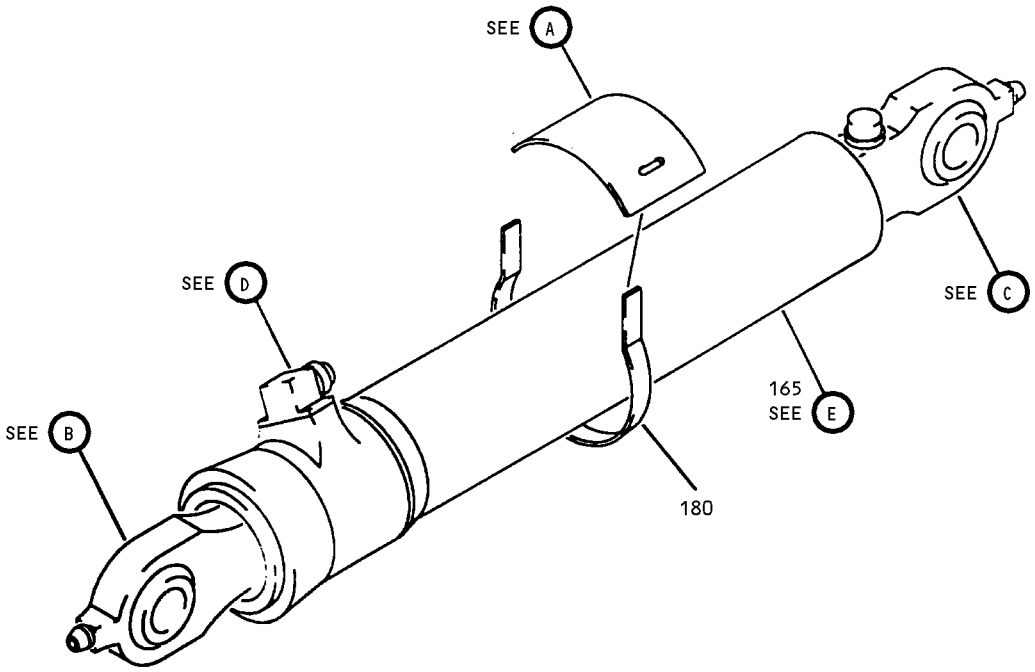
VENDORS

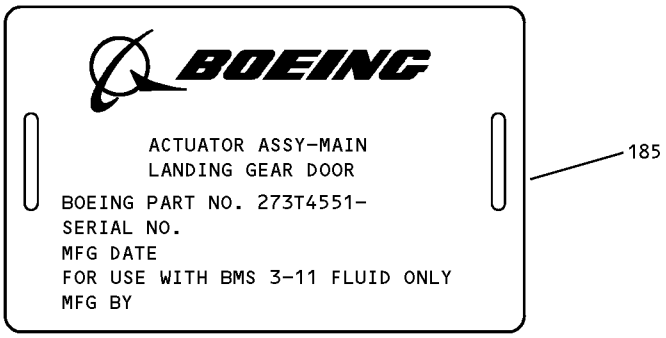
97820 BUSAK AND SHAMBAN INC BEARING DIV
711 MITCHELL ROAD PO BOX 665
NEWBURY PARK, CALIFORNIA 91320-2214
FORMERLY IN CULVER CITY, CALIF; FORMERLY SHAMBAN W S & CO

99240 CRISSAIR, INCORPORATED
38905 10TH STREET EAST
PALMDALE, CALIFORNIA 93550-4000
FORMERLY IN EL SEGUNDO, CALIFORNIA

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
ABC22713		1	70	1
		1	70B	1
BACB30LE3U4		1	135	4
BACR12BM112		1	150	2
BACR12BM236		1	50	2
BACR12BM338		1	40	2
		1	110	2
BACW10BP3ACU		1	140	4
BAC27TLG22		1	185	1
BCREF15714		1	55	1
C11236-112B		1	150	2
C11236-236B		1	50	2
C11236-338B		1	40	2
		1	110	2
JETA187516OD		1	60	1
MS15004-1		1	25	2
MS21209F1-15L		1	170	4
NAS1611-112A		1	145	1
NAS1611-236A		1	45	1
NAS1611-338A		1	35	1
		1	105	1
PFZF0A0062		1	115B	1
RMR12BM112		1	150	2
RMR12BM236		1	50	2
RMR12BM338		1	40	2
		1	110	2
STF800-112		1	150	2
STF800-236		1	50	2
STF800-338		1	40	2
		1	110	2
S30290-338-1		1	40	2
		1	110	2
S30294-112-1		1	150	2
S30294-236-1		1	50	2
TF450-112A		1	150	2
TF450-236A		1	50	2
TF450-338A		1	40	2
		1	110	2
2100-112		1	150	2
2100-236		1	50	2
2100-338		1	40	2
		1	110	2
2278-33800096PH		1	115A	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
270T0002-42		1	20	2
273T0050-13		1	180	1
273T0150-1		1	165	1
273T0150-2		1	175	1
273T0151-1		1	95	1
273T0152-1		1	130	1
273T0153-1		1	15	1
273T0154-1		1	32	1
273T0155-1		1	100	3
273T0156-1		1	10	1
273T0158-1		1	5	1
273T0159-1		1	75	1
273T0160-1		1	155	1
273T0162-1		1	65	1
273T0162-2		1	125	1
273T0162-3		1	125B	1
273T0163-1		1	80	1
273T4551-1		1	1A	RF
273T4551-2		1	1B	RF
293W2511-27		1	120	1
293W511-29		1	70A	1
3-907EP1038		1	90	1
595-330G0-954-0		1	55	1
87351		1	12	1
9R3718		1	85	1
9R3724		1	160	1

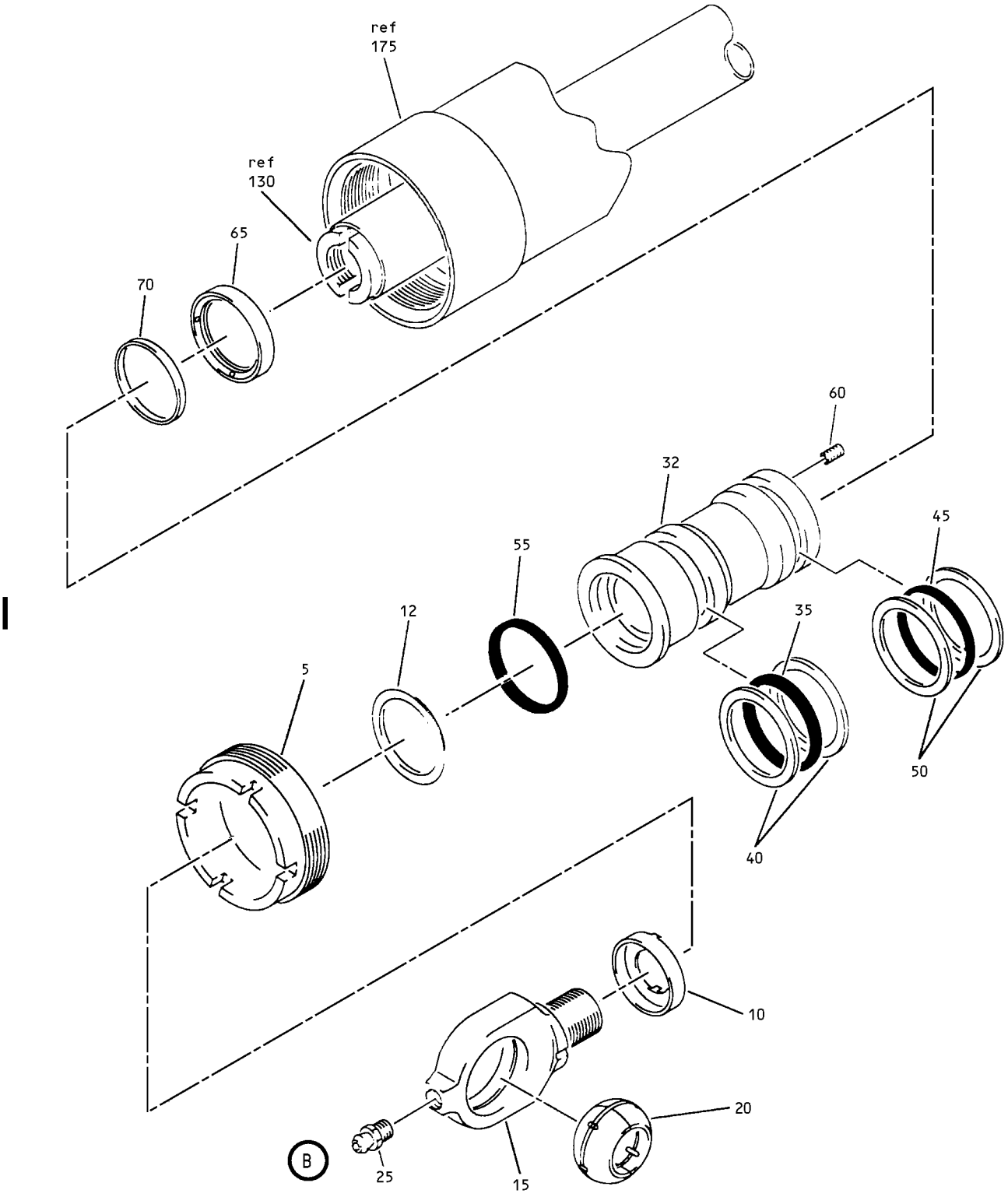




A

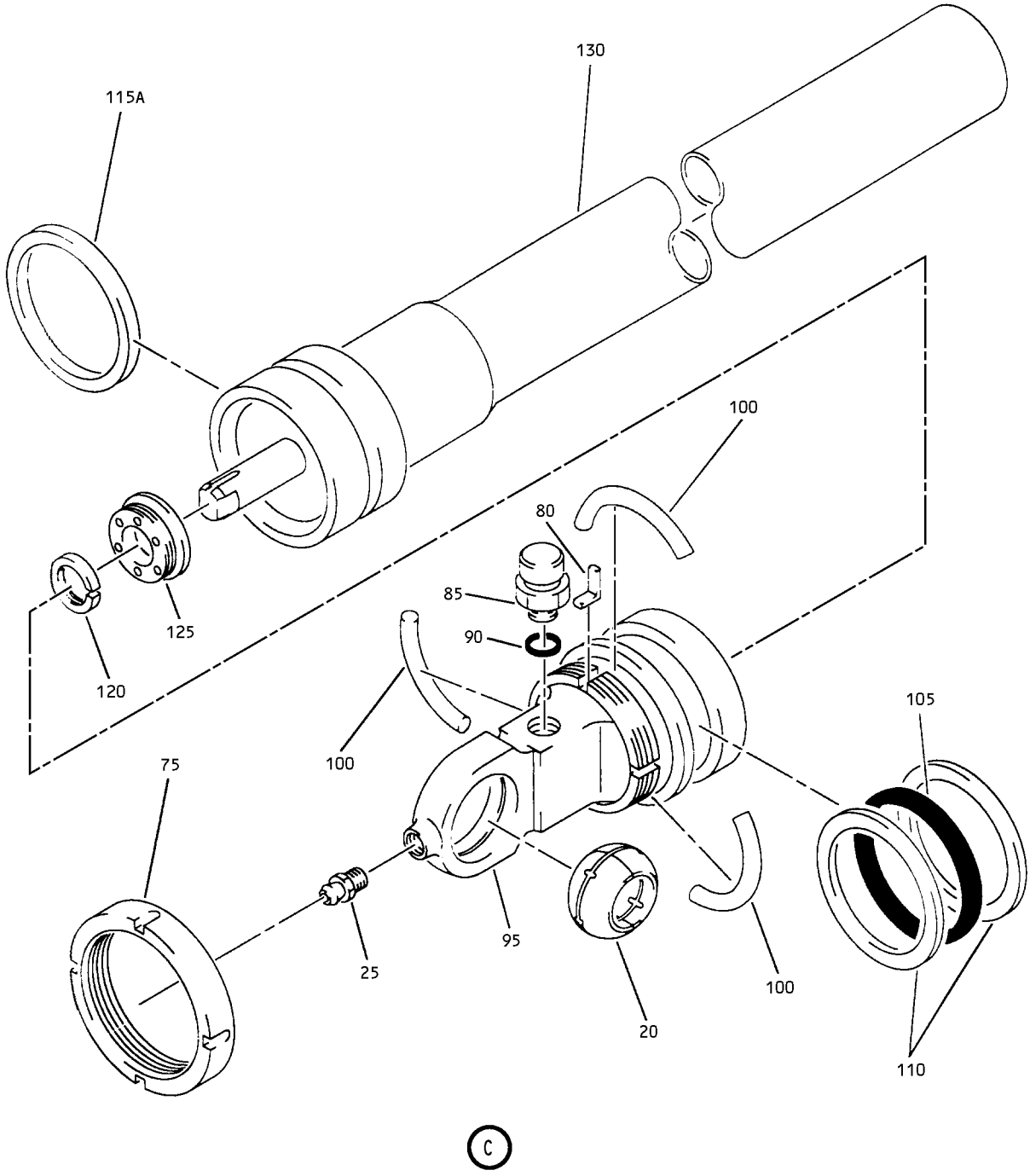
Main Landing Gear Door Acuator Assembly
Figure 1 (Sheet 1)

KD7108



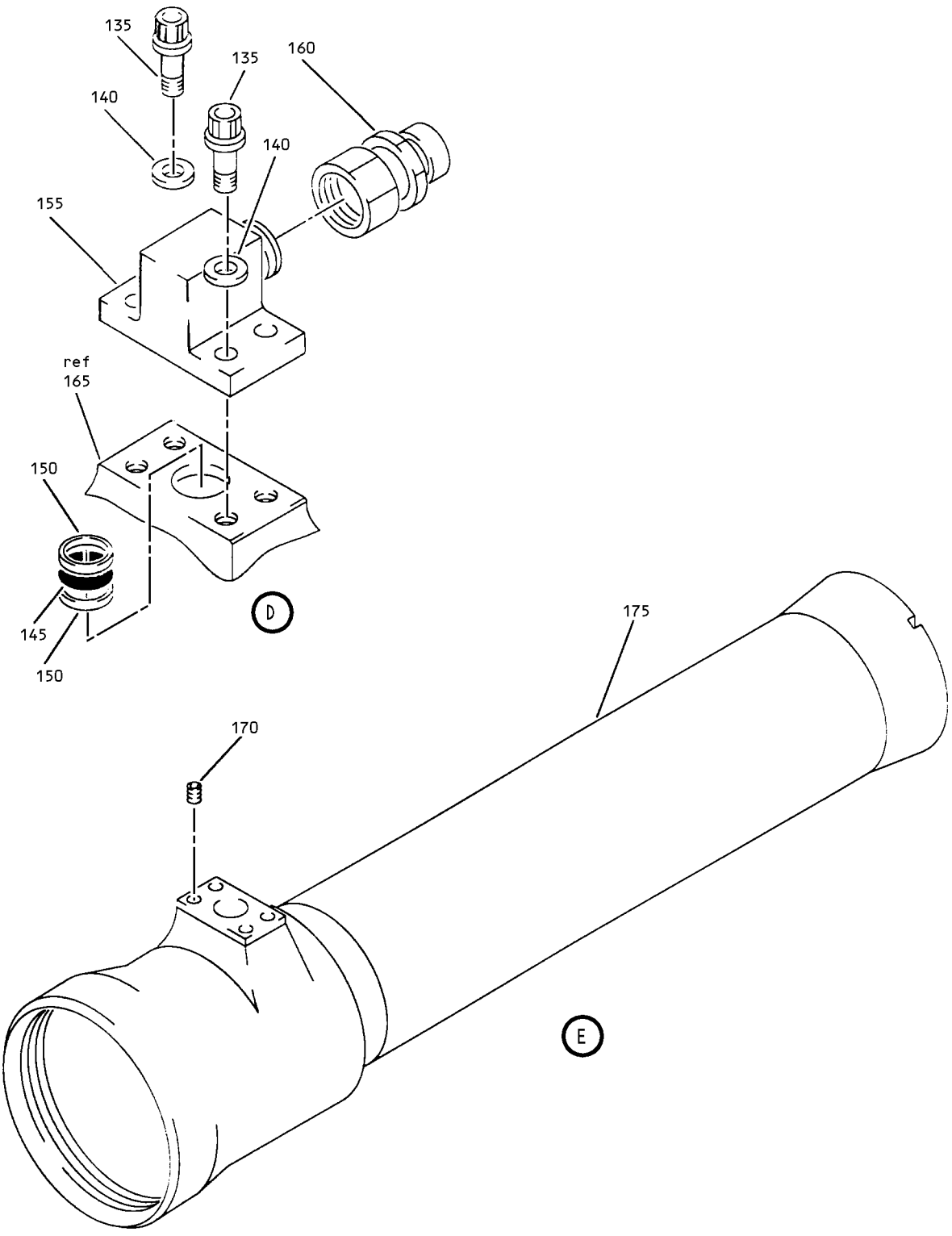
Main Landing Gear Door Acuator Assembly
Figure 1 (Sheet 2)

KD7072



Main Landing Gear Door Acuator Assembly
Figure 1 (Sheet 3)

K07090



Main Landing Gear Door Acuator Assembly
Figure 1 (Sheet 4)

KD7099

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1A	273T4551-1		ACTUATOR ASSY-DOOR MLG	A	RF
-1B	273T4551-2		ACTUATOR ASSY-DOOR MLG	B	RF
5	273T0158-1		.NUT-GLAND		1
10	273T0156-1		.WASHER-CUPLOCK		1
12	87351		.SCRAPER-ROD (V72902)		1
15	273T0153-1		.ROD END		1
20	270T0002-42		.BEARING-SPHERICAL BALL		2
25	MS15004-1		.FITTING-LUBE		2
30	5460S33000S043		DELETED		
32	273T0154-1		.BEARING		1
35	NAS1611-338A		.PACKING		1
40	C11236-338B		.RING-BACK UP (V26879) (SPEC BACR12BM338) (OPT RMR12BM338 (V94878)) (OPT STF800-338 (V02107)) (OPT S30290-338-1 (V97820)) (OPT TF450-338A (V07128)) (OPT 2100-338 (V26303))		2
45	NAS1611-236A		.PACKING		1
50	C11236-236B		.RING-BACKUP (V26879) (SPEC BACR12BM236) (OPT RMR12BM236 (V94878)) (OPT STF800-236 (V02107)) (OPT S30294-236-1 (V97820)) (OPT TF450-236A (V07128)) (OPT 2100-236 (V26303))		2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
55	BCREF15714		.SEAL-ROD (V72902) (595-330G0-954-0430)		1
60	JETA1875160D		.JET-LEE (V92555)		1
65	273T0162-1		.RETAINER-SNUBBER		1
70	ABC22713		.RING-SNUBBER (V71687)	A	1
-70A	293W511-29		.RING-SNUBBER (OPT ITEM 70B)	B	1
-70B	ABC22713		.RING-SNUBBER (V71687) (OPT ITEM 70A)	B	1
75	273T0159-1		.NUT-LOCK		1
80	273T0163-1		.KEY-LOCK		1
85	9R3718		.UNION-HYDRALIC (V99240)		1
90	3-907EP1038		.PACKING- (V83259)		1
95	273T0151-1		.END-HEAD		1
100	273T0155-1		.RING-SHEAR		3
105	NAS1611-338A		.PACKING		1
110	C11236-338B		.RING-BACK UP (V26879) (SPEC BACR12BM338) (OPT RMR12BM338 (V94878)) (OPT STF800-338 (V02107)) (OPT S30290-338-1 (V97820)) (OPT TF450-338A (V07128)) (OPT 2100-338 (V26303))		2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
115	87330		DELETED		
115A	2278-33800096PH		.RING-PISTON	A	1
-115B	PFZF0A0062		.RING-PISTON (V09257)	B	1
120	293W2511-27		.RING-SNUBBER		1
125	273T0162-2		.RETAINER-SNUBBER	A	1
-125A	273T0162-2		.RETAINER-SNUBBER (OPT ITEM 125B)	B	1
-125B	273T0162-3		.RETAINER-SNUBBER (OPT ITEM 125A)	B	1
130	273T0152-1		.ROD-PISTON		1
135	BACB30LE3U4		.BOLT		4
140	BACW10BP3ACU		.WASHER		4
145	NAS1611-112A		.PACKING		1
150	C11236-112B		.RING-BACK UP (V26879) (SPEC BACR12BM112) (OPT RMR12BM112 (V94878)) (OPT STF800-112 (V02107)) (OPT S30294-112-1 (V97820)) (OPT TF450-112A (V07128)) (OPT 2100-112 (V26303))		2
155	273T0160-1		.FITTING-HYDRALIC		1
160	9R3724		.UNION-HYDRALIC (V99240)		1
165	273T0150-1		.BARREL ASSY		1
170	MS21209F1-15L		..INSERT		4
175	273T0150-2		..BARREL		1
180	273T0050-13		.STRAP		1
185	BAC27TLG22		.MARKER-STAINLESS STEEL		1

- Item Not Illustrated