COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

MAIN LANDING GEAR RETRACT ACTUATOR ASSEMBLY

PART NUMBER 65-44925–27, –32, –35, –42, 65C32956–1, –3, –4, –6

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COMPONENT MAINTENANCE MANUAL

Revision No. 30
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To: All holders of MAIN LANDING GEAR RETRACT ACTUATOR ASSEMBLY 32-30-13.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

The COMPONENT MAINTENANCE MANUAL is furnished either as a printed manual, on microfilm, or digital products, or any combination of the three. This revision replaces all previous microfilm cartridges or digital products. All microfilm and digital products are reissued with all obsolete data deleted and all updated pages added.

For printed manuals, changes are indicated on the List of Effective Pages (LEP). The pages which are revised will be identified on the LEP by an R (Revised), A (Added), O (Overflow, i.e. changes to the document structure and/or page layout), or D (Deleted). Each page in the LEP is identified by Chapter-Section-Subject number, page number and page date.

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Location of Change	Description of Change
	NO HIGHLIGHTS

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A = Added, R = Revised, D = Deleted, O = Overflow

TABLE OF CONTENTS

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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
32-1264		PRR 35057	SEP 05/93
32-1303		PRR 35005-222	JUL 01/99

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	
Number	Date	Date	Initials

Revision		Filed	
Number	Date	Date	Initials

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When the temporary revision is incorporated or cancelled, and the pages are removed, enter the date the pages are removed and the initials of the person who removed the temporary revision.

Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials

Temporary Revision		Inserted		Removed	
Date	Initials	Number	Date	Date	Initials

Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials

Temporary Revision		Inserted		Removed	
Date	Initials	Number	Date	Date	Initials

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-RETRACT-ACTUATOR ASSEMBLY - DESCRIPTION AND OPERATION

1. Description

A. The main-landing-gear-retract-actuator assembly is a hydraulic unit that has a piston, a cylinder, and a valve assembly. When hydraulic pressure extends and retracts the actuator piston, the valve assembly moves inside the piston to decrease the speed of the actuator piston.

2. Leading Particulars (approximate)

A. Operating Medium – BMS 3-11 Hydraulic Fluid, fluid, D00153

B. Operating Pressure – 3000 psi

C. Proof Pressure – 4500 psi

D. Length

(1) Extended – 36 inches

(2) Retracted – 24 inches

E. Weight – 32 pounds

TESTING AND FAULT ISOLATION

1. General

A. This procedure contains the data necessary to do a test of the main landing gear retract actuator assembly after an overhaul or for fault isolation.

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. Test Equipment and Materials

NOTE: Equivalent substitutes can be used.

A. Hydraulic Test Stand that can supply hydraulic fluid pressure from 0-5400 psi.

B. Hydraulic fluid – BMS 3-11 (SOPM 20-60-03)

3. Test Preparation

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. Test setup

(1) Hold the actuator assembly tightly, such as in a fixture.

(2) Install hydraulic fittings and connect the unit to the test equipment.

(3) Do this test at room temperature. Use fluid, D00153.

(4) Tolerance on pressure values is ±2 percent unless shown differently.

4. Test

WARNING: DO NOT APPLY COMPRESSED AIR TO PORT AT ANY TIME. IF COMPRESSED AIR IS APPLIED, THE UNIT CAN OPERATE ACCIDENTALLY. THIS CAN CAUSE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT.

CAUTION: DO NOT CYCLE UNIT AT PROOF PRESSURE OF 4500 PSI. THE USUAL PRESSURE IS 3000 PSI FOR THE OPERATION OF THE UNIT. PROOF PRESSURE CAN CAUSE DAMAGE TO INTERNAL PARTS.

A. Pressure Test

(1) Extend the piston rod (195) fully. Apply a pressure of 2-10 psi to the extend port for 2 minutes. Make sure there is no external leakage.

(2) With the piston rod (195) fully extended, apply a pressure of 4500 psi to the extend port for 2 minutes. Make sure there is no external leakage.

(3) Retract the piston rod (195) fully. Do steps TESTING AND FAULT ISOLATION, Paragraph 4.A.(1) and TESTING AND FAULT ISOLATION, Paragraph 4.A.(2) again.

B. Leakage Test

(1) Extend the piston rod (195) fully. Apply a pressure of 3000 psi to the extend port. Make sure the leakage from the retract port is not be more than five drops per minute.

(2) Retract the piston rod (195) fully. Apply a pressure of 3000 psi to the retract port. Make sure the leakage from the extend port is not be more than five drops per minute.

C. Snubbing Valve Test

(1) Retract the piston rod (195) fully. Apply a pressure of 3000 psi to the extend port. Make sure the piston rod (195) extends at a constant rate between 1.10 inches from a fully retracted position and 1.30 inches from a fully extended position.

(2) Extend the piston rod (195) fully. Apply a pressure of 3000 psi to the retract port. Make sure the piston rod (195) retracts at a constant rate between 1.30 inches from a fully extended position and 1.10 inches from a fully retracted position.

D. Cycle Test

(1) Remove pressure from both retract and extend ports. Operate the unit in one complete cycle. Make sure the force necessary is not more than 75 lbs.

(2) Operate the unit through 25 cycles at a pressure of 3000 psi. Control the flow of fluid, D00153 from the head end assy (160) to 6 gpm during retraction. The total leakage from the rod seal must not be more than one drop and the unit must operate smoothly.

5. Post Test Procedure

A. Decrease the pressure to zero. Disconnect the hydraulic lines. Drain all fluid, D00153.

6. Trouble Shooting

A. Refer to TESTING AND FAULT ISOLATION, Table 101 for probable cause and corrective procedure for any test failure.

Table 101: Troubleshooting

TROUBLE	POSSIBLE CAUSE	CORRECTION
External leakage at the head end (53).	Defective O-rings (130)	Replace defective parts. Refer to DISASSEMBLY.
External leakage at the rod end, more than the limits at the scraper.	Defective seal (45)	Replace defective parts. Refer to DISASSEMBLY.
Operation not smooth.	Contamination between sliding surfaces of valve (255) or in restrictor bores.	Disassemble and examine parts. Refer to DISASSEMBLY.

DISASSEMBLY

1. **General**
   A. This procedure has the data necessary to disassemble the main landing gear retract 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 item numbers.
2. **Parts Replacement**

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

   A. Lockwire
   B. Packings, seals or rings (10, 20, 45, 50, 85, 95, 135, 137, 145, 155, 190, 191, 192, 235, 245)
   C. Scraper (35)
   D. Cup lockwasher (55)
   E. Cotter pin (200)
3. **Disassembly (IPL Figure 1)**
   A. Remove the nameplate (275) and the strap (270) from the cylinder (175).
   B. Remove reducer (5), restrictor (15), plugs (80,140,150) and their packings (10,20,85,145,155) from the end cap assembly (105) and the head end assembly (160). Drain the fluid, D00153 from the unit.
   C. Extend the piston rod (195). Bend the edge of the cup lockwasher (55) out of the groove of the rod end assembly (60).
   D. Hold the piston rod (195) tightly. With wrench F71313-22, loosen the rod end assembly (60). Remove the rod end assembly (60) and the cup lockwasher (55).
   E. Hold the cylinder (175) tightly. With MLG Hydraulic Actuator Spanner Wrench, SPL-5398, loosen the locknuts (125). Remove the keys (120).
   F. Pull the head end assembly (160) from the piston rod (195) until the screws (180) and collar (185) can be removed. Remove the transfer tube assembly (100).

   CAUTION: THE SLIDE (260) AND SLEEVE (265) ARE A PRECISION ASSEMBLY. GIVE THESE PARTS PROTECTION AS NECESSARY. KEEP THEM TOGETHER AS A SET.

   G. Remove the head end assembly (160) with the valve assembly (255). Remove the rings (130) and packing (135) from the head end assembly (160).
   H. As applicable, remove pin (230) or lockwasher (217) from sleeve (265). With wrench adapter, SPL-5353, remove operator (215), cotter pin (200), nut (205), washer (210), spring guides (250) and spring (245) from the sleeve (265).
   I. Remove the pin (220) from the head end assembly (160). Remove the slide (260) from the head end assembly (160).
   J. Remove the nut (30), scraper (35), and seal retainer (40) from the end cap assembly (105).
   K. Remove piston rod (195) from end cap assembly (105).

L. Remove the end cap assembly (105) from the cylinder (175).

(NOT APPLICABLE)

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) Check all parts for obvious defects in accordance with standard industry practices.

(2) Magnetic particle check per SOPM 20-20-01:

(a) Nut (30)

(b) Rod end (75)

(c) Cap (115)

(d) Key (120)

(e) Locknut (125)

(f) Plug (140)

(g) End (170)

(h) Cylinder (175)

(i) Collar (185)

(j) Piston (195)

(3) Penetrant check per SOPM 20-20-02:

(a) Washer (55)

REPAIR

1. Content

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

Table 601:

P/N	NAME	REPAIR
65C32925	END CAP ASSEMBLY	1-1
65C32957	PISTON	2-1
65C32958	CYLINDER	3-1
65C33018	ROD END BEARING ASSY	4-1
—	MISCELLANEOUS PARTS REFINISH	5-1
65C32924	HEAD END	6-1

2. Dimensioning Symbols

A. References

Reference	Title
SOPM 20-00-00	INTRODUCTION

B. General

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

END CAP ASSEMBLY - REPAIR 1-1

65C32925–1

1. General

A. This procedure has the data necessary to refinish the end cap assembly (105).

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

C. Refer to the REPAIR-GENERAL, Paragraph 2. for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Finish Repair

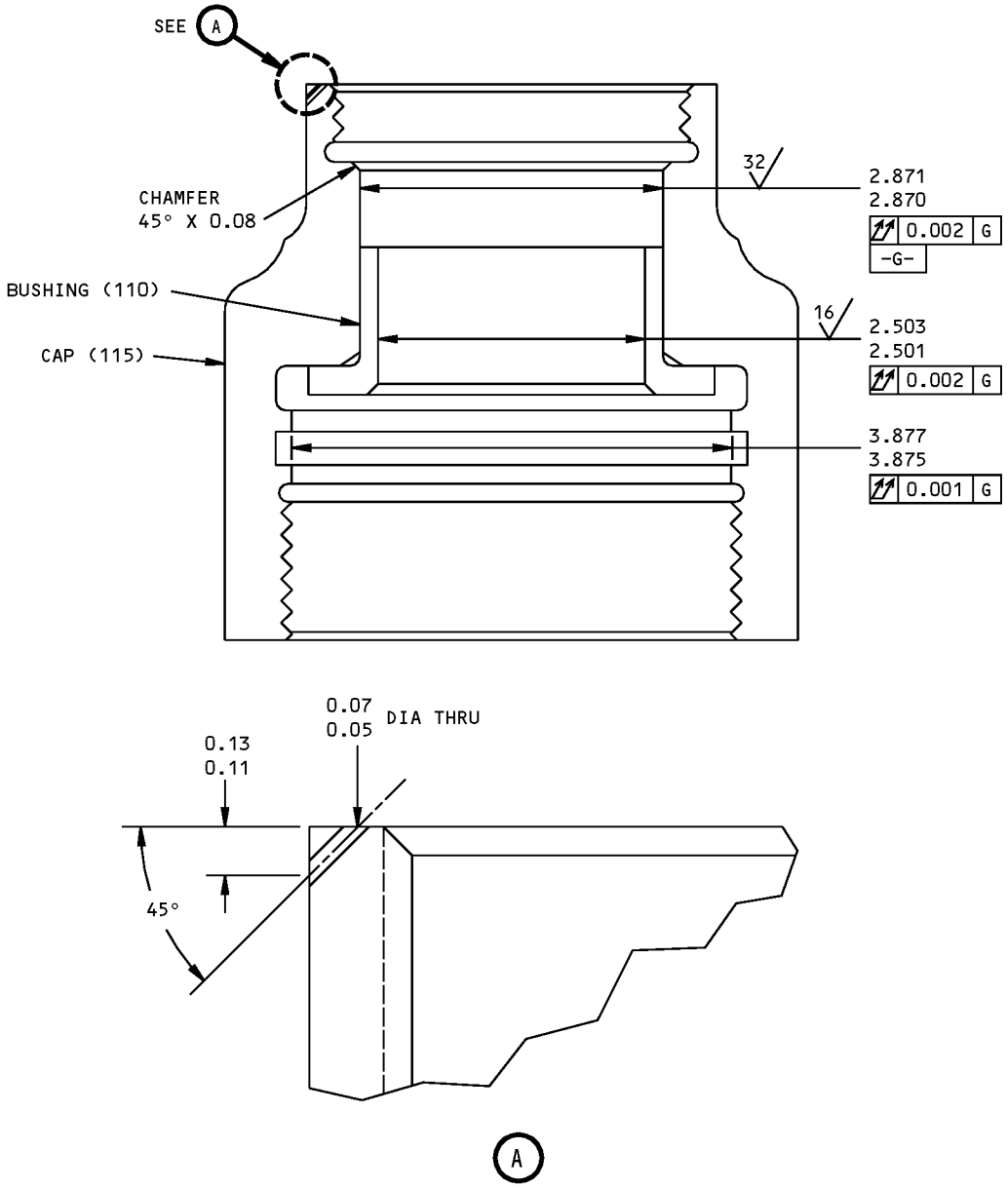
A. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

B. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedure, refer to SOPM 20-30-03. For decoding of Boeing finish codes, refer to SOPM 20-41-01.

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



REFINISH

PASSIVATE (F-17.25, WHICH REPLACES F-17.09) ALL OVER.

REPAIR

SAME AS REFINISH

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

MATERIAL: 15-5PH CRES, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

65C32925-1 End Cap Assembly Repair and Refinish
Figure 601

PISTON - REPAIR 2-1

65C32957–1

1. General

A. This procedure has the data necessary to refinish the piston (195).

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

C. Refer to the REPAIR-GENERAL, Paragraph 2. for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Diameters A and B

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 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-42-03	HARD CHROME PLATING

B. Procedure (REPAIR 2-1, Figure 601)

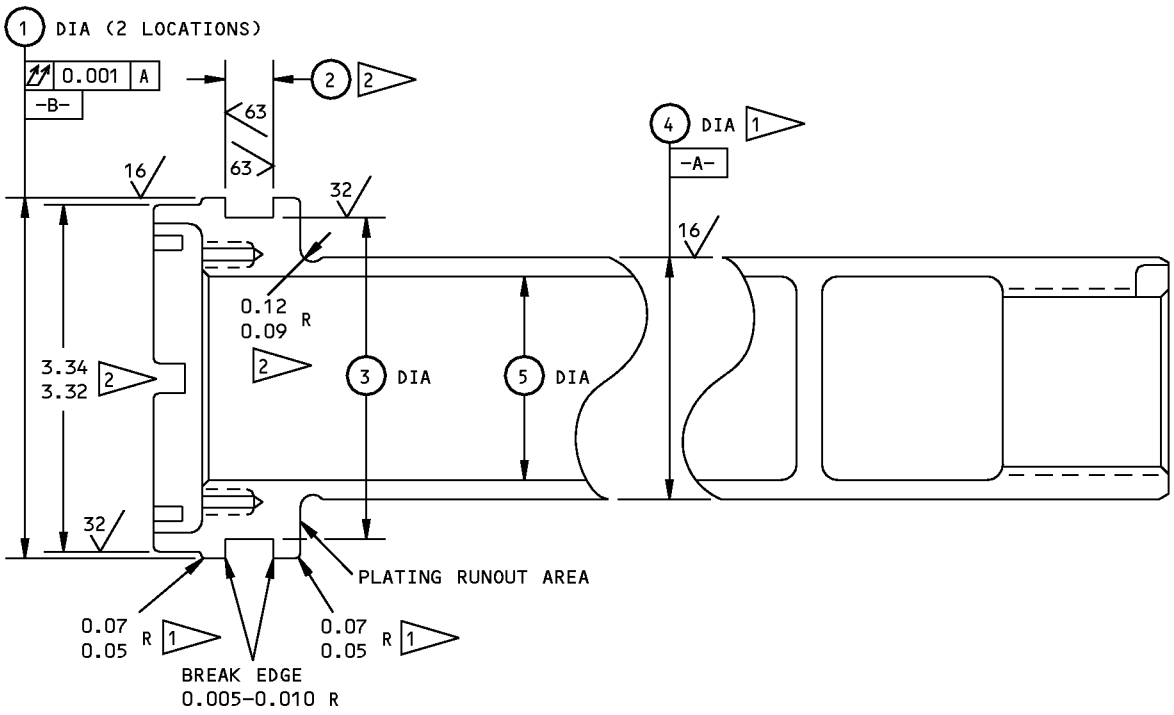
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedure, refer to SOPM 20-30-03. For decoding of Boeing finish codes, refer to SOPM 20-41-01.

(1) For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions in REPAIR 2-1, Figure 601.

(2) Machine as required, within repair limits, to remove defects.

(3) Shot peen, (SOPM 20-10-03) chrome plate, (SOPM 20-42-03) and grind to design dimensions and finish (SOPM 20-10-04).

(4) Magnetic particle examine (SOPM 20-20-01) before and after plating.



	1	2	3	4	5
DESIGN DIM	3.490 3.488	0.434 0.424	3.121 3.119	2.498 2.496	2.07 2.05
REPAIR LIMIT 3	3.478	—	—	2.486	—

REFINISH

PASSIVATE (F-17.25, WHICH REPLACES F-17.09) ALL OVER.

1 CHROME PLATE (F-15.03) 0.0003-0.005 THICK. PUT A 0.06 PLATING RUNOUT AT EDGES, HOLES AND RELIEFS UNLESS OTHERWISE SHOWN. DO NOT PLATE RELIEF RADII.

2 DO NOT PLATE THIS AREA

3 CHROME PLATE (F-15.03) 0.003 MINIMUM THICKNESS. GRIND TO DESIGN DIMENSION AND FINISH.

REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

SHOT PEEN: (SOPM 20-10-03)
0.016-0.033 SHOT SIZE
0.015 A2 INTENSITY

MATERIAL: 15-5PH CRES, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

PISTON (195)

65C32957-1 Piston Repair and Refinish
Figure 601

CYLINDER - REPAIR 3-1

65C32958–1

1. General

A. This procedure has the data necessary to refinish the cylinder (175).

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

C. Refer to the REPAIR-GENERAL, Paragraph 2. for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Diameter A

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 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-42-03	HARD CHROME PLATING
SOPM 20-60-03	LUBRICANTS

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

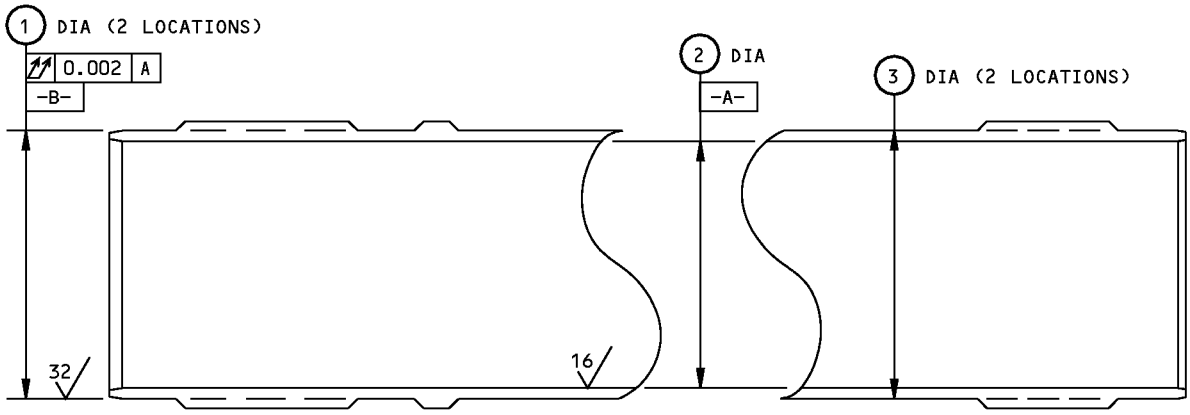
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedure, refer to SOPM 20-30-03. For decoding of Boeing finish codes, refer to SOPM 20-41-01. For lubricants, refer to SOPM 20-60-03.

(1) For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions in REPAIR 2-1, Figure 601.

(2) Machine as required, within repair limits, to remove defects.

(3) Shot peen (SOPM 20-10-03), chrome plate (SOPM 20-42-03), and grind to design dimensions and finish SOPM 20-10-04.

(4) Magnetic particle examine (SOPM 20-20-01) before and after plating.



	1	2	3
DESIGN DIM	3.872 3.870	3.495 3.493	3.822 3.812
REPAIR LIMIT 1	—	3.508	—

REFINISH

PASSIVATE (F-17.25, WHICH REPLACES F-17.09) ALL OVER. APPLY BMS 3-8 SOLID FILM LUBRICANT (F-19.10) ON THREADS ONLY.

1 CHROMIUM PLATE (F-15.03) 0.003 MINIMUM THICKNESS. GRIND TO DESIGN DIMENSIONS AND FINISH.

REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

MATERIAL: 15-5PH, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

SHOT PEEN: (SOPM 20-10-03)
0.016-0.033 SHOT SIZE
0.015 A2 INTENSITY

CYLINDER (175)

65C32958-1 Cylinder Repair and Refinish
Figure 601

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COMPONENT MAINTENANCE MANUAL

ROD END BEARING ASSEMBLY - REPAIR 4-1

65C33018–1, –5

1. General

A. This procedure tells how to repair and refinish rod end bearing assembly (60).

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

C. Refer to the REPAIR-GENERAL, Paragraph 2. for the Standard True Position Dimensioning Symbols shown in the repair figures.

D. Refer to IPL Figure 1 for item numbers.

2. Bearing Replacement

A. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-03	LUBRICANTS

B. Procedure (REPAIR 4-1, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For lubricants, refer to SOPM 20-60-03.

(1) Remove the old bearing (70).

(2) If you find defects on the mating bore of the rod end, refer to REPAIR 4-1, Paragraph 3. for repair instructions.

(3) Install a replacement bearing and roller swage it (SOPM 20-50-03).

3. Rod End Bore for Bearing

A. References

Reference	Title
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-42-03	HARD CHROME PLATING
SOPM 20-60-03	LUBRICANTS

B. Procedure (REPAIR 4-1, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For lubricants, refer to SOPM 20-60-03.

(1) Machine as necessary, within repair limits, to remove defects.

(2) Shot peen (SOPM 20-10-03), build up with chrome plate (SOPM 20-42-03) and grind to design dimensions and finish (SOPM 20-10-04).

4. Lube Fitting Replacement

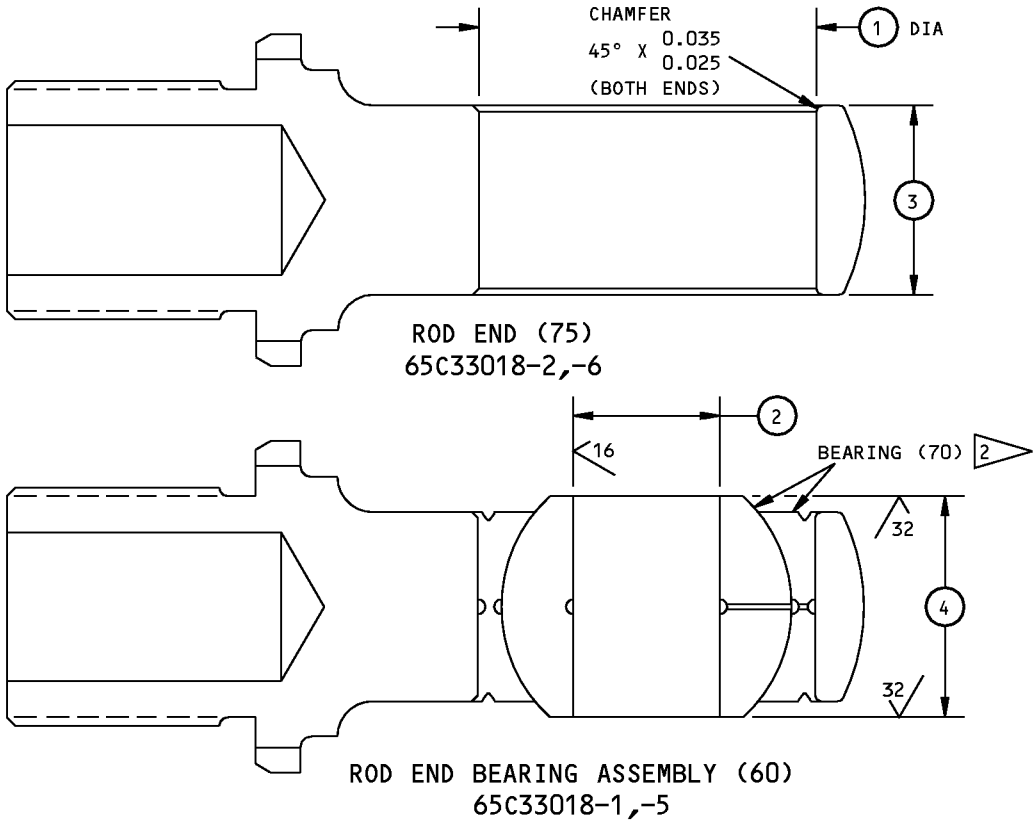
A. References

Reference	Title
32-00-03	Landing Gear Parts - Lubrication Fitting Replacement
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-03	LUBRICANTS

B. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For lubricants, refer to SOPM 20-60-03.

(1) Replace lube fittings (65) per 32-00-03.



	1 3	1 4	2	3	4
DESIGN DIM	2.3765 2.3760	2.3755 2.3750	1.2500 1.2495	1.125 1.120	1.501 1.499
REPAIR LIMIT 1	2.3965	2.3955	____	____	____

REFINISH

PASSIVATE (F-17.25, WHICH REPLACES F-17.09) ALL OVER. APPLY BMS 3-8 SOLID FILM LUBRICANT (F-19.10) OR MIL-L-23398 SOLID FILM LUBRICANT (F-19.90) TO THE THREADS.

1 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIM AND FINISH. PUT A 0.04 MAX CHROME PLATE RUNOUT AT LUBE HOLE EDGES AND EACH END OF BORE.

2 ROLLER SWAGE (SOPM 20-50-03)

3 65C33018-2 (PRE SB 32-1264)

4 65C33018-6 (POST SB 32-1264)

REPAIR

REF 1 2

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

SHOT PEEN: (SOPM 20-10-03)
0.017-0.046 SHOT SIZE
0.016 A2 INTENSITY
DO NOT SHOT PEEN THREADS

MATERIAL: 15-5PH CRES, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

676179 S0004998655_V2

Rod End Bearing Assembly - Repair and Refinish
Figure 601

MISCELLANEOUS PARTS REFINISH - REPAIR 5-1

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 Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to the REPAIR-GENERAL, Paragraph 2. for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Miscellaneous parts refinish

A. Refer to REPAIR 5-1, Table 601 for refinish details.

NOTE: For repair and refinish of high strength steel parts, refer to SOPM 20-10-01. For machining of alloy steel, refer to SOPM 20-10-02. For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedure, refer to SOPM 20-30-03. For decoding of Boeing finish codes, refer to SOPM 20-41-01. For application of chemical and solvent resistant finishes, refer to SOPM 20-41-02. For repair of high strength steel landing gear parts, refer to 32-00-05.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Seal retainer (40)	Al-Ni-Bronze	No finish.
Lockwashers (55, 217)	301 CRES, 1/4 hard	Passivate (F-17.25, which replaces F-17.09).
Transfer tube (100), key (120), plug (140)	15-5PH CRES, 180-200 ksi	Passivate (F-17.25, which replaces F-17.09).
Locknut (125)	15-5PH CRES, 125-145 ksi	Passivate (F-17.25, which replaces F-17.09).
Collar (185)	15-5PH CRES, 180-200 ksi	No finish.
Operator (215), guide (250)	4340 steel, 180-200 ksi	No finish.
Spring (245)	9254 Cr-Si per QQ-W-412, comp. 2, type 1	No finish.
Slide (260), sleeve (265)	Nitralloy per MIL-S-6709	No finish.
Strap (270)	Al alloy	No finish.
Wire (280)	Music wire per QQ-W-470	No finish.

HEAD END ASSEMBLY - REPAIR 6-1

65C32924–1, –5

1. General

A. This procedure has the data necessary to refinish the head end assembly (160).

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

C. Refer to the REPAIR-GENERAL, Paragraph 2. for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Bearing Replacement

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedure, refer to SOPM 20-30-03. For decoding of Boeing finish codes, refer to SOPM 20-41-01.

A. Remove the old bearing (165).

B. If you find defects on the mating bore of the head end, refer to par. 2 for repair instructions.

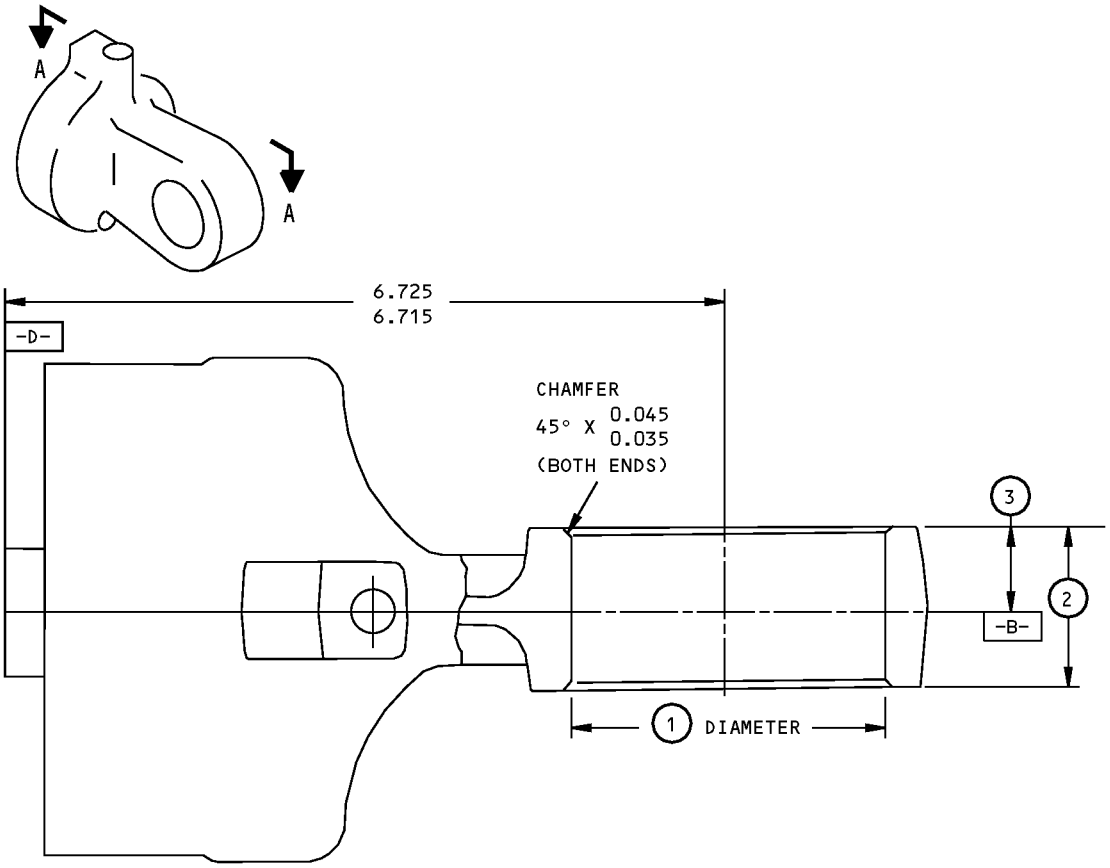
C. Install a replacement bearing and roller swage it per SOPM 20-50-03.

3. Head End Bore for Bearing (REPAIR 6-1, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedure, refer to SOPM 20-30-03. For decoding of Boeing finish codes, refer to SOPM 20-41-01. For lubricants, refer to SOPM 20-60-03.

A. Machine as required, within repair limits, to remove defects.

B. Shot-peen (SOPM 20-10-03), chrome plate (SOPM 20-42-03) and grind to design dimensions and finish (SOPM 20-10-04).



REFERENCE NUMBER	1	2	3
DESIGN DIMENSION	2.9195 2.9190	1.495 1.485	0.745 0.740
REPAIR LIMIT	2.9495 	----	----

REFINISH

PASSIVATE (F-17.25, WHICH REPLACES F-17.09)

 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH

REPAIR

REF 

 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 0.017-0.046 SHOT SIZE
0.012 A2 INTENSITY

MATERIAL: 15-5PH CRES, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

65C32924-2,-3 Head End Repair and Refinish
Figure 601

ASSEMBLY

1. General

A. This procedure has the data necessary to assemble the main landing gear retract 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. Assembly (IPL Figure 1)

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-5353	Adapter - Wrench (Part #: A32045-108, Supplier: 81205)
SPL-5398	MLG Hydraulic Actuator Spanner Wrench (Part #: C32010-1, Supplier: 81205)

B. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
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)
D00633	Grease - Aircraft General Purpose	BMS3-33

C. References

Reference	Title
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES
SOPM 20-50-17	CORROSION PROTECTION PROCEDURES FOR HYDRAULIC COMPONENTS
SOPM 20-60-03	LUBRICANTS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

D. Procedure

NOTE: Lubricate all packings and rings lightly during assembly with fluid, D00153 or MCS 352B fluid, D00054.

Apply grease, D00633 at the lube fittings, if necessary.

NOTE: For lubricants, refer to SOPM 20-60-03. For miscellaneous materials, refer to SOPM 20-60-04.

(1) Install the packing (135) and the rings (130) on the head end assembly (160). Install seal (190) or rings (191,192) on the piston (195).

(2) Install packing (235) and backup rings (240) on one end of the slide (260).

(3) Install wire (280) into slide (260). See ASSEMBLY, Figure 701.

CAUTION: THE SLIDE (260) AND SLEEVE (265) ARE A PRECISION ASSEMBLY. GIVE THESE PARTS PROTECTION AS NECESSARY. KEEP THEM TOGETHER AS A SET.

(4) Install the slide (260) into the head end assembly (160). Tighten slide (260) 100-150 pound-inches until the holes for spring pin (220) align. Install the spring pin (220) into the pin hole of the slide (260). Stake both ends of the pin (220) lightly.

(5) Move the collar (185) along the sleeve (265).

(6) Install the spring guides (250) and the spring (245) on the slide (260). Move the sleeve (265) along the slide (260). Install the washer (210), nut (205). Tighten the nut to 95-160 pound-inches. Install cotter pin (200).

(7) Install the operator (215) on the sleeve (265).

(a) On actuators 65C32956-1, -3, -4, PRE-SB 32-1303, install the operator on the sleeve, then tighten the operator to 100-150 pound-inches with wrench adapter, SPL-5353 until the holes for spring pin (230) align. Install the pin and stake both ends of the pin lightly.

(b) On actuator 65C32956-6 and units POST-SB 32-1303, install tab lockwasher (217) on the threaded end of the operator with the tab away from the operator. Tighten the operator to 100-150 pound-inches with adapter wrench adapter, SPL-5353. Bend the sides of the lockwasher up against the wrench flats of the valve sleeves.

(8) Move the piston rod (195) along the sleeve (265). Attach the collar (185) to the piston rod (195) with screws (180). Tighten the screws to 25-35 pound-inches.

(9) Install the seal (45), packing (50,137), and rings (132) into the end cap assembly (105).

(10) Install the locknuts (125) into the cylinder (175).

(11) Turn the end cap assembly (105) into the cylinder (175) until it bottoms. Loosen the end cap assembly (105) the minimum necessary to install the key (120).

(12) Install the packing (90) and the rings (95) into the transfer tube (100).

(13) Turn the cylinder (175) into the head end assembly (160) until it bottoms. Loosen the head end assembly a maximum of one turn to install the key (120) and the transfer tube (100). With MLG Hydraulic Actuator Spanner Wrench, SPL-5398, tighten the locknut (125) to 700-1000 pound-inches.

(14) Install the rod end assembly (60) into the piston rod (195):

(a) Apply a thin layer of grease, D00633 to the flat face of the rod end assembly (60) which touches the cup lockwasher (55) and the internal piston (195) thread.

(b) Do not let the grease, D00633 touch the end of the piston rod (195) or the mating flat surface of the cup lockwasher (55). Do not lubricate the threads of the rod end assembly (60).

(c) Install the cup lockwasher (55) in the rod end assembly (60).

(d) Install the seal retainer (40), scraper (35), and nut (30) into the end cap assembly (105). Tighten nut (30) to 100-150 pound-inches.

(e) Turn the rod end assembly (60) manually into the piston rod (195). Make a mark on the piston rod (195) surface and the cup lockwasher (55) flange to let you see if the parts turn apart.

(f) Hold the piston rod (195) tightly. With socket wrench F71313-22 for rod end bearing 65C33018, tighten the rod end assembly (60) to 2500-3000 pound-inches.

(g) If the marks moved more than 0.02 inch apart, disassemble the parts and discard the cup lockwasher (55). Do steps ASSEMBLY, Paragraph 2.D.(14)(c) thru ASSEMBLY, Paragraph 2.D.(14)(g) again with a new cup lockwasher.

(h) If the marks moved 0.02 inch or less, use a 0.24-inch square punch and locally break the flange of cup lockwasher (55) into the slot on the rod end. Use the slot with the most distance from the tabs of the lockwasher. Make sure the break is complete.

(15) Install the packing (85) and the bleeder plug (80) on the end cap assembly (105). Tighten the plug to 360 pound-inches.

(16) Install plugs (140, 150) with packing (145, 155) on the head end assembly (160). Tighten plug (140) to 110 pound-inches. Tighten plug (150) to 50 pound-inches.

(17) Install reducer (5) with packing (10). Tighten the reducer to 360 pound-inches.

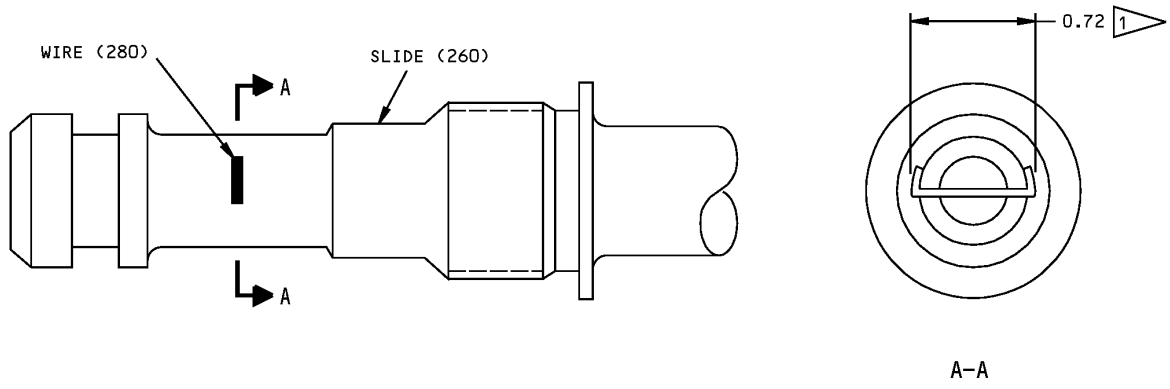
(18) Install restrictor (15) with packing (20). Tighten the restrictor to 170 pound-inches.

(19) Do a test of this unit. Refer to TESTING AND FAULT ISOLATION.

(20) Install the lockwire by the double-twist procedure (SOPM 20-50-02) between plug (80) and end cap assembly (105), plugs (140, 150) and head end assembly (160), keys (120), locknuts (125), nut (30) and end cap assembly (105).

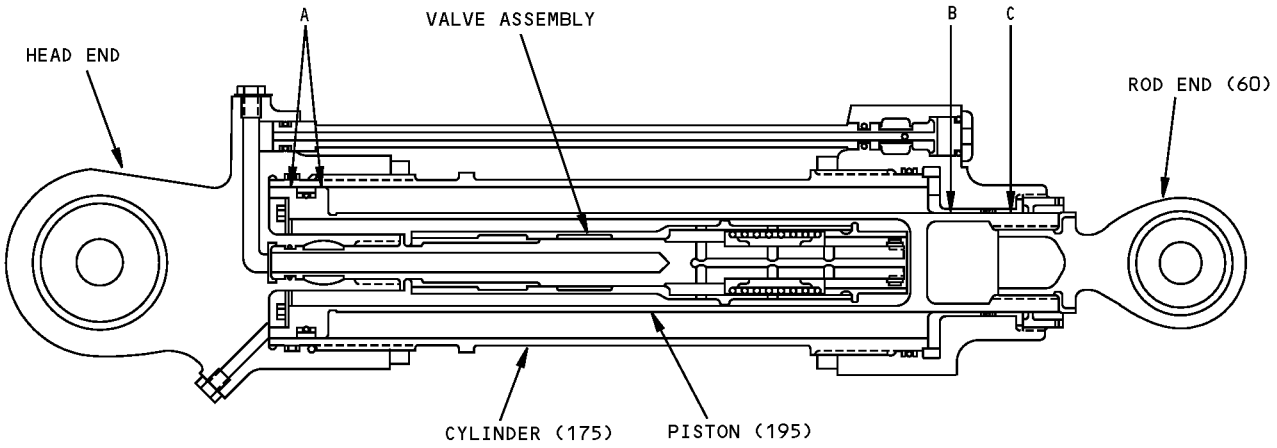
(21) Install the nameplate (275) with the strap (270) on the cylinder (175).

(22) Apply sealant, A00247 to locations identified in the Type 1 procedure of SOPM 20-50-17.



Wire (280) Installation
Figure 701

FITS AND CLEARANCES



Ref Letter Fig.801	Mating Item No. Fig.1		Design Dimensions				Service Wear Limits		
			Dimension (inches)		Assembly Clearance (inch)		Dimension Limits (inches)		Maximum Allowable Clearance (inch)
			Min	Max	Min	Max	Min	Max	
A	ID	175	3.493	3.495	0.003	0.007	3.486	3.497	0.009
	OD	195	3.488	3.490					
B	ID	110	2.501	2.503	0.003	0.007	2.494	2.507	0.013
	OD	195	2.496	2.498					
C	ID	40	2.501	2.503	0.003	0.007	2.495	2.505	0.009
	OD	195	2.496	2.498					

Fits and Clearances
Figure 801

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-5353	Adapter - Wrench	A32045-108	81205
SPL-5398	MLG Hydraulic Actuator Spanner Wrench	C32010-1	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
09455	RBC TRANSPORT DYNAMICS CORP 3131 W SEGERSTROM AVE SANTA ANA, CALIFORNIA 92704-5872 FORMERLY TRANSPORT DYNAMICS AEROSPACE DIV; FABROID DIV TRANSPORT DYNAMICS V17571 & LEAR SEIGLER INC TRANSPORT DIV V98076; FORMERLY BFM TRANSPORT DYNAMICS
15860	NEW HAMPSHIRE BALL BEARINGS, INC ASTRO DIVISION 155 LEXINGTON AVENUE LACONIA, NEW HAMPSHIRE 03246-2937 FORMERLY ASTRO BEARING CORP, LOS ANGELES, CALIF.
16746	SPECLINE INCORPORATED 2230 MOUTON DR CARSON CITY, NV 89706 FORMERLY IN SUN VALLEY, CAIFORNIA
50632	KAMATICS CORP SUB OF KAMAN CORP 1335 BLUE HILLS ROAD BLOOMFIELD, CONNECTICUT 06002-1304
5F573	GREENE TWEED AND CO ILP DBA GREENE TWEED AND CO 2075 DETWILER RD KULPSVILLE, PENNSYLVANIA 19443-0305
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

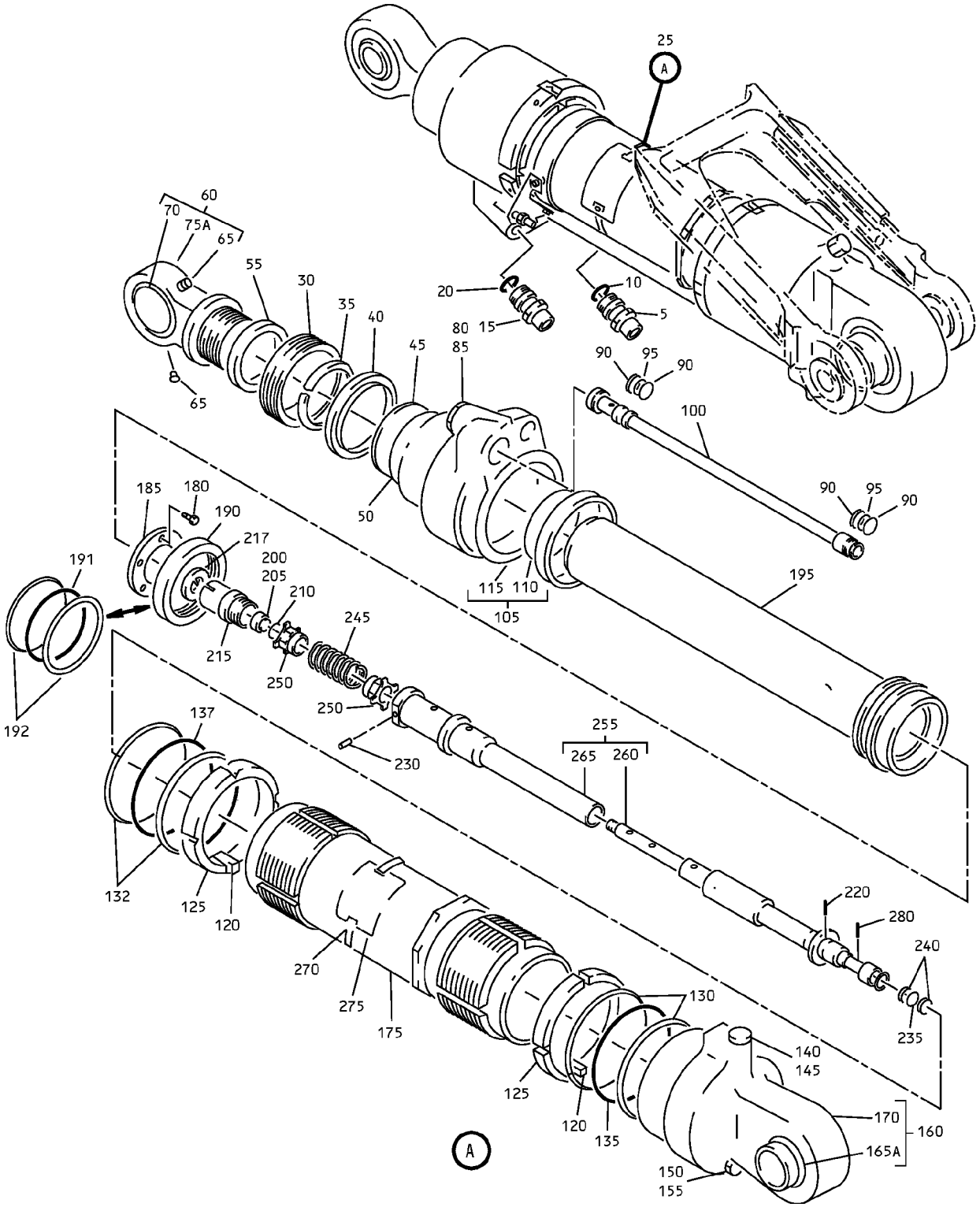
Code	Name
95879	ALEMITE DIVISION OF STEWART WARNER CORP 1826 DIVERSEY PARKWAY CHICAGO, ILLINOIS 60614-1540
97820	BUSAK AND SHAMBAN INC BEARING DIV 711 MITCHELL ROAD PO BOX 665 NEWBURY PARK, CALIFORNIA 91320-2214 FORMERLY IN CULVER CITY, CALIF; FORMERLY SHAMBAN W S & CO
99240	CRISSAIR, INCORPORATED 38905 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
03-526-20E001		1	70	1
03-829-24E001		1	165A	1
10-60545-205SA		1	165A	1
10-61903-5		1	70	1
1728B		1	65	2
65-44917-1		1	265	1
		1	265A	1
65-44917-3		1	265B	1
65-44918-4		1	260	1
65-44925-27		1	1	RF
65-44925-32		1	1A	RF
65-44925-35		1	1B	RF
65-44925-42		1	1C	RF
65C32924-1		1	160	1
65C32924-2		1	170	1
65C32924-3		1	170A	1
65C32924-5		1	160A	1
65C32925-1		1	105	1
65C32925-4		1	115A	1
65C32925-6		1	115	1
65C32956-1		1	25	1
65C32956-2		1	280	1
65C32956-3		1	25A	1
65C32956-4		1	25B	1
65C32956-6		1	25C	1
65C32957-1		1	195	1
65C32958-1		1	175	1
65C33018-1		1	60	1
65C33018-2		1	75A	1
65C33018-5		1	60A	1
		1	60B	1
65C33018-6		1	75B	1
66-22766-1		1	250	1
69-35502-4		1	255	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
69-35502-6		1	255A	1
69-35587-8		1	270	1
69-35620-1		1	215	1
69-35620-2		1	215A	1
		1	215B	1
69-35850-2		1	140	1
69-54682-1		1	245	1
69-72097-2		1	217	1
		1	217A	1
69-77071-1		1	110	1
69-77072-1		1	185	1
69-77073-1		1	40	1
69-77074-2		1	120	2
69-77075-1		1	125	2
69-77076-1		1	55	1
69-77122-1		1	30	1
69-77125-1		1	100	1
6F2812		1	15	1
7338MT952T		1	190A	1
ABW20V103		1	70	1
ADBY24V5		1	165A	1
AGB20V6		1	70	1
AN814-10JL		1	80	1
AN814-2JL		1	150	1
AN960D616		1	210	1
BAC27DHY0347		1	275	1
BACN10JD106AU		1	205	1
BACR12BP241		1	130A	2
		1	132A	2
BACS34A25A		1	35	1
BDS20H121		1	70	1
HTY24V101		1	165A	1
ITEM 165A		1	165B	1
KSC130224P		1	165A	1
KSC218124B		1	165B	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1	165C	1
MS16562-214		1	220	1
MS21916-10-8		1	5	1
MS24665-304		1	200	1
MS28782-11		1	240	2
MS28782-41		1	192	2
MS28782-9		1	90	4
MS28783-19		1	130	2
		1	132	2
NAS1351-3H8P		1	180	6
NAS1611-111		1	95	2
NAS1611-113		1	235	1
NAS1611-241		1	135	1
		1	137	1
NAS1611-333		1	50	1
NAS1611-338		1	191	1
NAS1612-10		1	10	1
		1	85	1
NAS1612-2		1	155	1
NAS1612-4		1	145	1
NAS1612-6		1	20	1
NAS561C2-14		1	230	1
S33121-333-1		1	45	1
S34582-338H1N		1	190	1
VTA09400		1	60C	1
WRRG24-96BAC		1	165A	1



Main Landing Gear Retract 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–					
–1	65-44925-27		ACTUATOR ASSY-MLG RETRACT (PRE SB 737-32-1264)	A	RF
–1A	65-44925-32		ACTUATOR ASSY-MLG RETRACT (PRE SB 737-32-1264)	B	RF
–1B	65-44925-35		ACTUATOR ASSY-MLG RETRACT (POST SB 737-32-1264)	C	RF
–1C	65-44925-42		ACTUATOR ASSY-MLG RETRACT	D	RF
5	MS21916-10-8		. REDUCER		1
10	NAS1612-10		. PACKING		1
15	6F2812		. RESTRICTOR-VALVE (V99240)		1
20	NAS1612-6		. PACKING		1
25	65C32956-1		. ACTUATOR ASSY	A	1
–25A	65C32956-3		. ACTUATOR ASSY	B	1
–25B	65C32956-4		. ACTUATOR ASSY (OPT ITEM 25C)	C	1
–25C	65C32956-6		. ACTUATOR ASSY (OPT ITEM 25B)	CD	1
30	69-77122-1		. . NUT		1
35	BACS34A25A		. . SCRAPER		1
40	69-77073-1		. . RETAINER-SEAL		1
45	S33121-333-1		. . SEAL (V97820)		1
50	NAS1611-333		. . PACKING		1
55	69-77076-1		. . CUP-LOCKWASHER		1
60	65C33018-1		. . BEARING ASSY (OPT ITEM 60A) (USED ON ITEM 25)		1
–60A	65C33018-5		. . BEARING ASSY (PREFERED) (OPT ITEM 60) (USED ON ITEM 25)		1
–60B	65C33018-5		. . BEARING ASSY (USED ON ITEMS 25A, 25B, 25C)		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–60C	VTA09400		. . BEARING ASSY (OPT ITEM 60, 60A, 60B)		1
65	1728B		. . . FITTING (V95879) (USED ON ITEMS 60, 60A, 60B)		2
70	BDS20H121		. . . BEARING (V16746) (SPEC 10-61903-5) (OPT 03-526-20E001 (V09455)) (OPT ABW20V103 (VS0352)) (OPT AGB20V6 (V15860)) (USED ON ITEMS 60, 60A, 60B)		1
75	65C33018-4		DELETED		
75A	65C33018-2		. . . END-ROD (USED ON ITEM 60)		1
–75B	65C33018-6		. . . END-ROD (USED ON ITEM 60A, 60B)		1
80	AN814-10JL		. . PLUG-BLEEDER		1
85	NAS1612-10		. . PACKING		1
90	MS28782-9		. . RING		4
95	NAS1611-111		. . PACKING		2
100	69-77125-1		. . TUBE-TRANSFER		1
105	65C32925-1		. . CAP ASSY-END		1
110	69-77071-1		. . . BUSHING		1
115	65C32925-6		. . . CAP (OPT ITEM 115A)		1
–115A	65C32925-4		. . . CAP (OPT ITEM 115)		1
120	69-77074-2		. . KEY		2
125	69-77075-1		. . LOCKNUT		2
130	MS28783-19		. . RING (OPT ITEM 130A)		2
–130A	BACR12BP241		. . RING (OPT ITEM 130)		2
132	MS28783-19		. . RING (OPT ITEM 132A)		2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–132A	BACR12BP241		. . RING (OPT ITEM 132)		2
135	NAS1611-241		. . PACKING		1
137	NAS1611-241		. . PACKING		1
140	69-35850-2		. . PLUG		1
145	NAS1612-4		. . PACKING		1
150	AN814-2JL		. . PLUG		1
155	NAS1612-2		. . PACKING		1
160	65C32924-1		. . END ASSY-HEAD (USED ON ITEMS 25, 25A)		1
–160A	65C32924-5		. . END ASSY-HEAD (USED ON ITEM 25B)		1
165	10-60545-205SA		DELETED		
165A	HTY24V101		. . . BEARING (OPT ITEM 165B) (VS0352) (SPEC 10-60545-205SA) (OPT ADBY24V5 (V15860)) (OPT WRRG24-96BAC (V73134)) (OPT 03-829-24E001 (V09455)) (OPT KSC130224P (V50632)) (USED ON ITEM 160)		1
–165B	KSC218124B		. . . BEARING (PREFERED) (OPT ITEM 165A (V50632)) (USED ON ITEM 160)		1
–165C	KSC218124B		. . . BEARING (V50632) (USED ON ITEM 160A)		1
170	65C32924-2		. . . END (OPT ITEM 170A)		1
–170A	65C32924-3		. . . END (OPT ITEM 170)		1
175	65C32958-1		. . CYLINDER		1
180	NAS1351-3H8P		. . SCREW		6
185	69-77072-1		. . COLLAR		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
190	S34582-338H1N		. . SEAL-PISTON (V97820) (ITEM 191 WITH (QTY 2) ITEM 192 IS OPTIONAL TO ITEM 190 OR ITEM 190A)		1
–190A	7338MT952T		. . SEAL-PISTON (V5F573) (OPT ITEM 190) (ITEM 191 WITH (QTY 2) ITEM 192 IS OPTIONAL TO ITEM 190 OR ITEM 190A)		
191	NAS1611-338		. . PACKING		1
192	MS28782-41		. . RING		2
195	65C32957-1		. . PISTON		1
200	MS24665-304		. . PIN-COTTER		1
205	BACN10JD106AU		. . NUT		1
210	AN960D616		. . WASHER		1
215	69-35620-1		. . OPERATOR (USED ON ITEMS 25, 25A, 25B) (PRE SB 737-32-1303)		1
–215A	69-35620-2		. . OPERATOR (USED ON ITEMS 25, 25A, 25B) (POST SB 737-32-1303)		1
–215B	69-35620-2		. . OPERATOR (USED ON ITEM 25C)		1
217	69-72097-2		. . LOCKWASHER-CUP (USED ON ITEMS 25, 25A, 25B) (POST SB 737-32-1303)		1
217A	69-72097-2		. . LOCKWASHER-CUP (USED ON ITEMS 25C)		1
220	MS16562-214		. . PIN-SPR (USED ON TIEMS 25, 25A, 25B)		1
225	65-44917-1		DELETED		
230	NAS561C2-14		. . PIN (PRE SB 737-32-1303)		1
235	NAS1611-113		. . PACKING		1
240	MS28782-11		. . RING-BACKUP		2
245	69-54682-1		. . SPRING		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
250	66-22766-1		. . GUIDE-SPR		1
255	69-35502-4		. . VALVE ASSY (USED ON ITEMS 25, 25A, 25B)		1
–255A	69-35502-6		. . VALVE ASSY (USED ON ITEM 25C)		1
260	65-44918-4		. . . SLIDE		1
265	65-44917-1		. . . SLEEVE (USED ON ITEM 255)		1
–265A	65-44917-1		. . . SLEEVE (USED ON ITEM 255A) (OPT)		1
–265B	65-44917-3		. . . SLEEVE (USED ON ITEM 255A)		1
270	69-35587-8		. . STRAP-NAMEPLATE		1
275	BAC27DHY0347		. . NAMEPLATE		1
280	65C32956-2		. . WIRE-MUSIC 0.063 DIA		1

–Item not Illustrated