COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

NOSE GEAR LOCK ACTUATOR ASSEMBLY

PART NUMBER 65-44625–18, 65C31099–1, –2

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COMPONENT MAINTENANCE MANUAL

Revision No. 20
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To: All holders of NOSE GEAR LOCK ACTUATOR ASSEMBLY 32-30-33.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

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Location of Change	Description of Change
32-30-33 ASSEMBLY	Added clarifications and updated callouts.

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

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COMPONENT MAINTENANCE MANUAL

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
SB 32-1201		PRR 34339	SEP 05/89
SB 32-1201,Rev 1			DEC 05/90

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

Revision		Filed	
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Temporary Revision		Inserted		Removed	
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Temporary Revision		Inserted		Removed	
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INTRODUCTION

1. General

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

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

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

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

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

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

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

NOSE LANDING GEAR LOCK ACTUATOR - DESCRIPTION AND OPERATION

1. Description

A. The nose gear lock actuator assembly consists of piston, rod end, rod bearing and barrel, with associated packings and seals. Unions, hydraulic tubing and a bracket are mounted externally. Bearings in the barrel and rod end connect the actuator between the nose gear lock link and the jury strut support fitting.

B. Pressure applied either side of the piston unlocks the lock mechanism to permit normal retraction and extension of the landing gear, or locks the mechanism when the gear is fully extended or retracted.

2. Leading Particulars (approximate)

A. Actuator 65C31099 only

(1) Length – 10 inches (fully retracted)

(2) Height – 3 inches

(3) Width – 2 inches

(4) Length – 10 inches

(5) Weight – 2 pounds

(6) Operating Medium – BMS 3-11 hydraulic fluid fluid, D50036

(7) Proof pressure – 5400 psi

B. Actuator 65-44625 (with bracket and tubing)

(1) Length – 10 inches

(2) Height – 5 inches

(3) Width – 11 inches

(4) Weight – 4 pounds

TESTING AND FAULT ISOLATION

1. General

A. This procedure tells how to do a test of the nose gear lock 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 and IPL Figure 2 for item numbers.

2. Test Equipment and Materials

NOTE: Equivalent substitutes can be used.

A. Hydraulic Test Stand – 0 to 5500 psi (0 to 37921 kPa) hydraulic test stand, STD-3913 that can supply hydraulic fluid up to 5400 psi.

B. Hydraulic Fluid – fluid, D50036, continuously filtered by 15 micron absolute filter.

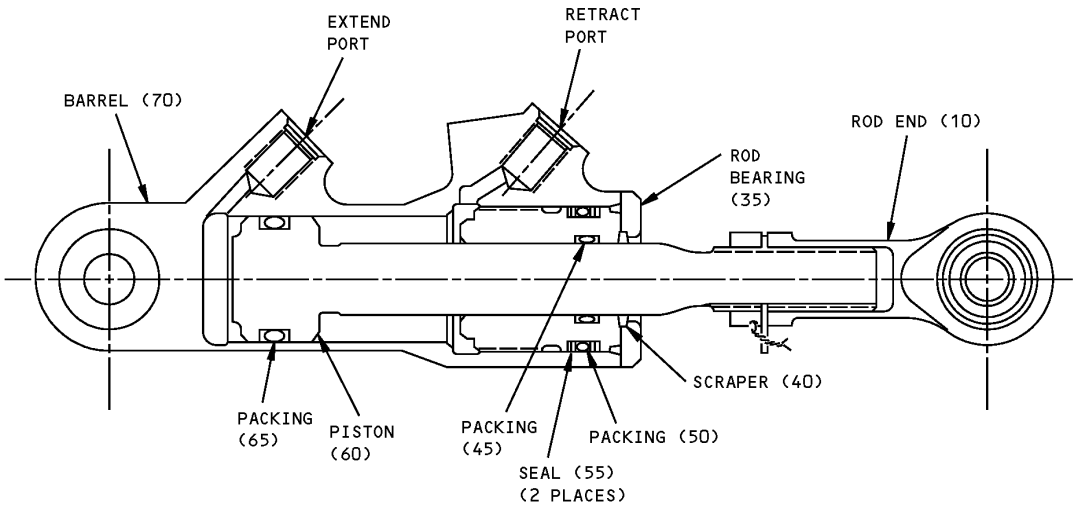
C. Assembly Lube – lubricant, D50097 (SOPM 20-60-03)

3. Preparation for Test

A. Install unions (100) with packings (105) in actuator ports (IPL Figure 1).

B. Connect test equipment to the actuator. See TESTING AND FAULT ISOLATION, Figure 101 for port identification.

C. Tolerance on pressure values is ±2 percent unless shown differently.



Test Port Locations and Internal Details
Figure 101

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.

NOTE: See TESTING AND FAULT ISOLATION, Table 101 for possible causes and corrections.

A. Cycling Test

(1) Cycle the actuator at 3000 psi through 25 full cycles. Leakage at the rod seal must not be more than 2 drops during this test.

(2) The unit must operate smoothly.

B. Operational Test

(1) Apply 50 psi to the extend port and zero pressure to the retract port. The unit must extend smoothly.

(2) Apply 150 psi to the retract port and zero pressure to the extend port. The unit must retract smoothly.

C. Pressure Test

(1) Apply 2-10 psi pressure to the retract port for 2 minutes. There must be no external leakage.

(2) Fully extend the actuator.

(3) Apply 5400 psi to the extend and retract ports at the same time. Hold pressure for 2 minutes. There must be no external leakage other than at the rod seal, and there must be no permanent deformation.

(4) After this 5400 psi test, leakage at the rod seal must not be more than 2 drops in 25 cycles.

(5) Decrease the pressure to zero. Keep the actuator fully extended.

(6) Apply 3000 psi to the extend port only. The leakage from the retract port must not be more 3 drops per minute.

5. **Post Test Procedures**

A. Decrease the pressure to zero. Disconnect the hydraulic lines.

B. Apply sealant, A00247, install lockwire, G01048 and install external parts (IPL Figure 2) (ASSEMBLY).

Table 101: Troubleshooting

TROUBLE	PROBABLE CAUSE	CORRECTION
IPL Fig 2		
Leakage at rod seal	Defective rod bearing (35), scraper (40), seal (45), or piston (60)	Disassemble and replace parts per TESTING AND FAULT ISOLATION, Paragraph 6.A. and TESTING AND FAULT ISOLATION, Paragraph 6.B..

Table 101: Troubleshooting (Continued)

TROUBLE	PROBABLE CAUSE	CORRECTION
Operation not smooth and free	Defective rod bearing (35), piston (60) or barrel (80)	Disassemble and replace parts per TESTING AND FAULT ISOLATION, Paragraph 6.A. and TESTING AND FAULT ISOLATION, Paragraph 6.B..
External leakage	Defective rod bearing (35), packing (50), rings (55), or barrel (80)	Disassemble and replace parts per TESTING AND FAULT ISOLATION, Paragraph 6.A. and TESTING AND FAULT ISOLATION, Paragraph 6.B..
	Defective union seals (105, IPL Figure 1)	Remove unions and replace packings.

6. Corrective Procedures (IPL Figure 2)

A. Drain all fluid, D50036 from the unit.

B. Replacement of scraper (40), packing (50), seals (45, 65).

(1) Disassemble the unit per DISASSEMBLY.

(2) Replace defective parts as required.

(3) Assemble the unit per ASSEMBLY.

(4) Do the test again, per TESTING AND FAULT ISOLATION, Paragraph 4..

DISASSEMBLY

1. General

A. This procedure has the data necessary to disassemble the nose gear lock 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 and IPL Figure 2 for item numbers.

2. Disassembly

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜ C32

B. Parts Replacement

NOTE: The following parts are recommended for replacement. Unless otherwise specified, actual replacement may be based on in-service experience.

(1) lockwire, G01048

(2) Packings (105, IPL Figure 1; 50, 55 IPL Figure 2).

(3) Scraper (40, IPL Figure 2)

(4) Seals (45, 65, IPL Figure 2)

C. Procedure

(1) IPL Figure 1 Parts

(a) Remove nuts (25), bolts (5, 10), washers (15, 20), clamps (30, 35), spacer (40) and bracket (45).

(b) Remove tubes (50, 75), unions (100) and packings (105).

(2) IPL Figure 2 Parts

(a) Remove lockwire and sealant from interface between barrel (70) and rod bearing (35).

(b) Hold rod end (10) and loosen jam nut (25). Remove rod end (10), washer (30) and jam nut (25) from piston (60) rod.

(c) Remove rod bearing (35) from barrel (70). Remove scraper (40), packings (50) and seals (45,55) from rod bearing (35).

(d) Slide piston (60) from barrel (70). Remove seal (65) from piston.

(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 and IPL Figure 2 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) Housing (20)

(b) Piston (60)

(c) Barrel (80)

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

(a) Rod bearing (35)

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
65-44625	TUBE	1-1
65C33652	ROD BEARING	2-1
65C33665	PISTON	3-1
65C33677	ROD END	4-1
65C33738	BARREL	5-1
– – –	MISCELLANEOUS PARTS REFINISH	6-1
BAC27DHY0348	EXTERNAL PARTS REPLACEMENT	7-1

2. Standard practices

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00028	Adhesive - Modified Epoxy For Rigid PVC, Foam Cored Sandwiches	BAC5010, Type 70 (BMS5-92, Type 1)
B00316	Solvent - Aliphatic Naphtha (For Organic Coatings)	TT-N-95 Type I, ASTM D-3735 Type I
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I
C00260	Coating - Chemical And Solvent Resistant Finish, Epoxy Resin Enamel	BMS10-11, Type II
D00113	Lubricant - Liquid Dispersed Solid Film Lubricant	BMS3-8, BAC 5811, TYPE VIII

B. References

Reference	Title
32-00-03	Landing Gear Parts - Lubrication Fitting Replacement
SOPM 20-00-00	INTRODUCTION
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-41-02	APPLICATION OF CHEMICAL AND SOLVENT RESISTANT FINISHES

Reference	Title
SOPM 20-42-03	HARD CHROME PLATING
SOPM 20-43-01	CHROMIC ACID ANODIZING
SOPM 20-50-08	APPLICATION OF BONDED SOLID FILM LUBRICANTS
SOPM 20-50-12	APPLICATION OF ADHESIVES
SOPM 20-60-01	CLEANING MATERIALS
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

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

- SOPM 20-10-04 20-10-04 Grinding of Chrome Plated Parts
- SOPM 20-30-03 20-30-03 General Cleaning Procedures
- SOPM 20-41-01 20-41-01 Decoding Table for Boeing Finish Codes
- SOPM 20-41-02 20-41-02 Application of Chemical and Solvent Resistant Finishes
- SOPM 20-42-03 20-42-03 Hard Chrome Plating
- SOPM 20-43-01 20-43-01 Chromic Acid Anodizing
- SOPM 20-50-08 20-50-08 Application of Bonded Solid - Film Lubricants
- SOPM 20-50-12 20-50-12 Application of Adhesives
- SOPM 20-60-01 20-60-01 Cleaning Materials
- SOPM 20-60-02 20-60-02 Finishing Materials
- 32-00-03 32-00-03 Repair of High Strength Steel Landing Gear Parts

D. Materials

NOTE: Equivalent substitutes can be used.

(1) Primer – primer, C00259 BMS 10-11, Type 1

(2) Enamel – coating, C00260 BMS 10-11, Type 2

(3) Solvent – solvent, B00316 Aliphatic Naphtha

(4) Solid Film Lubricant – lubricant, D00113 BMS 3-8

(5) Adhesive – adhesive, A00028 Type 70

E. Dimensioning Symbols

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

TUBE - REPAIR 1-1

65-44625–3019, 65-44625–3020

1. General

A. This procedure has the data necessary to refinish the tube (50, 75).

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

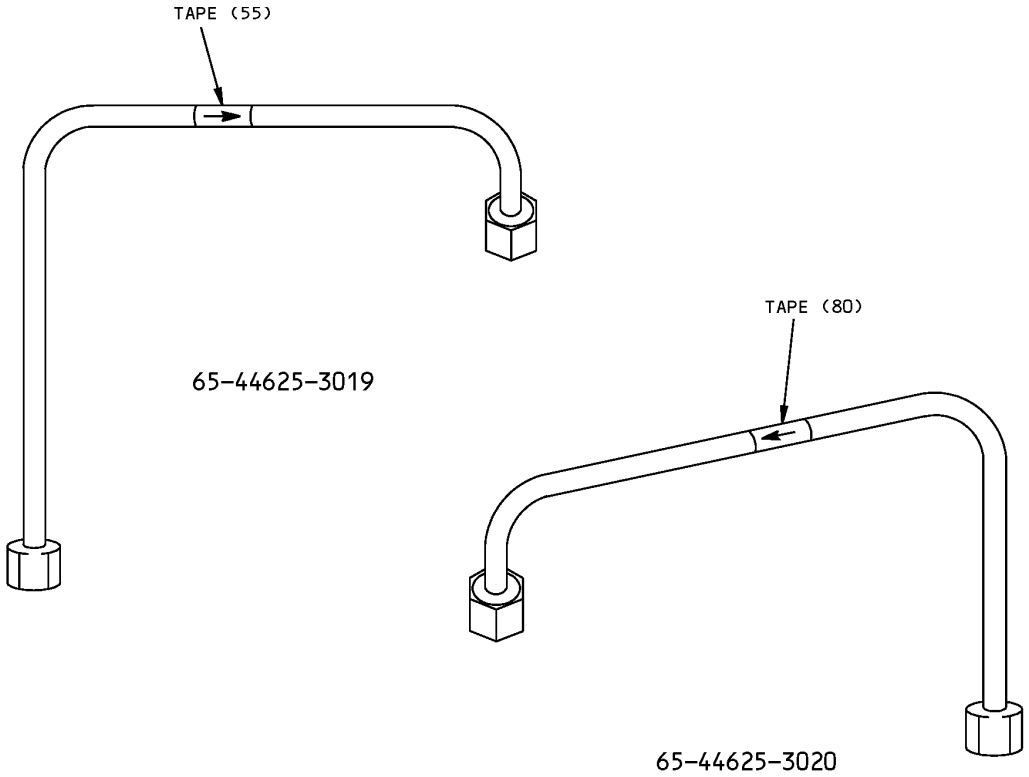
C. Refer to REPAIR-GENERAL, Paragraph 2.D. for the description of the consumable codes identified in this procedure.

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

E. Refer to IPL Figure 1 for item numbers.

2. Coating Repair

A. Repair consists of restoration of original finish. Refer to Refinish instructions, REPAIR 1-1, Figure 601.



REFINISH

APPLY PRIMER BMS 10-11, TYPE 1 (F-20.02) ALL OVER, FOLLOWED BY ENAMEL BMS 10-11, TYPE 2 (F-21.03) ON EXTERIOR ONLY. RESTORE TAPE IDENTIFICATION.

ITEM NUMBERS REFER TO IPL FIG. 1

Tube Refinish
Figure 601

ROD BEARING - REPAIR 2-1

65C33652–1

1. General

A. This procedure has the data necessary to refinish the rod bearing (35).

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

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

D. Refer to IPL Figure 2 for item numbers.

2. Procedure

A. Repair consists of replacement of worn or defective bearing (SOPM 20-50-03).

PISTON - REPAIR 3-1

65C33665–1, –2

1. General

A. This procedure has the data necessary to refinish the piston (60).

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

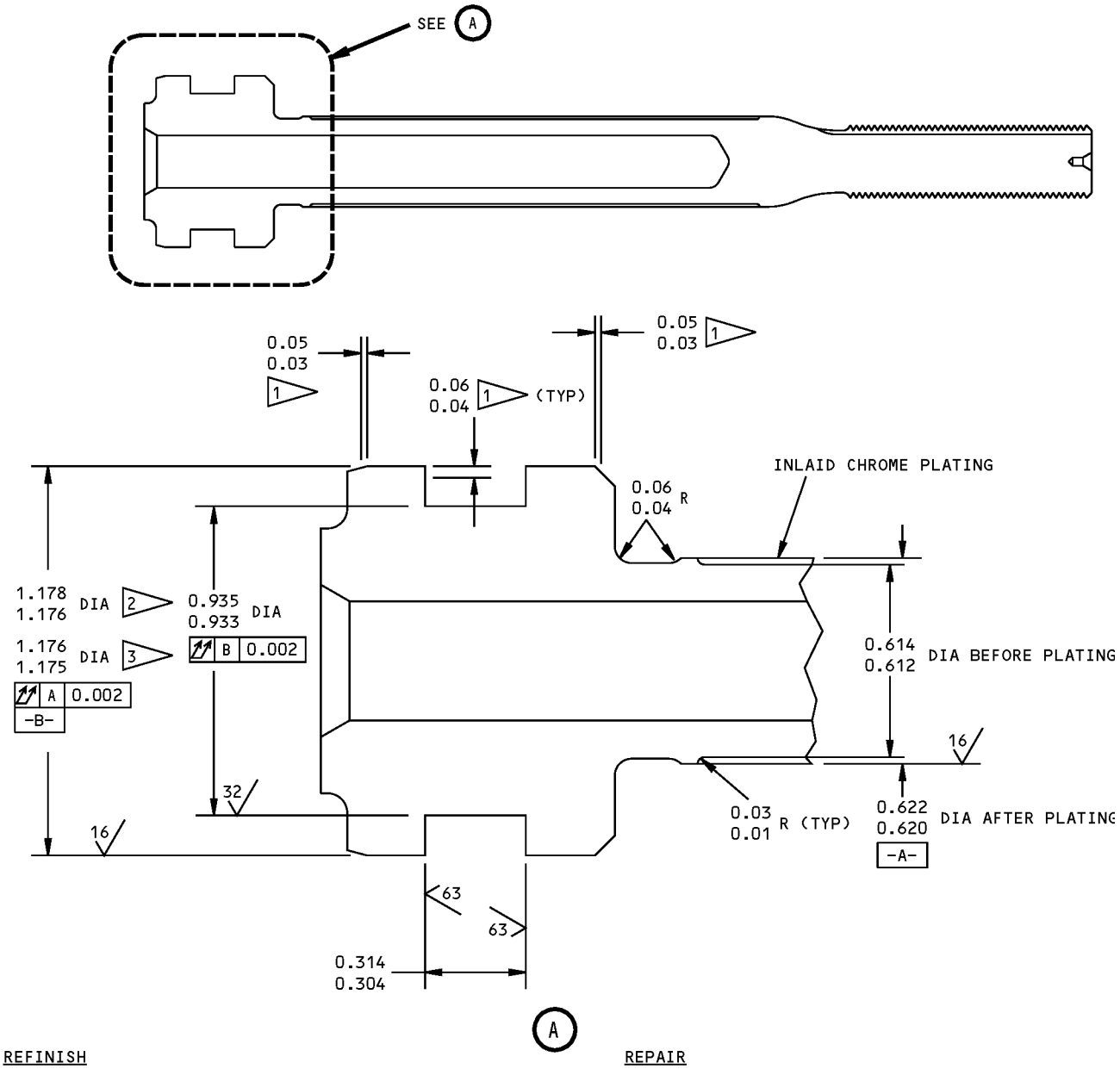
C. Refer to REPAIR-GENERAL, Paragraph 2.D. for the description of the consumable codes identified in this procedure.

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

E. Refer to IPL Figure 1 for item numbers.

2. Plating Repair

A. Repair is only replacement of the original finish. Refer to Refinish instructions, REPAIR 3-1, Figure 601.



REFINISH

CHROME PLATE (F-15.04) DIAMETERS -A- AND -B- 0.003-0.005 THICK, WITH CHROME PLATE RUNOUT AS SHOWN BY 1. PASSIVATE (F-17.09) OTHER SURFACES. APPLY BMS 3-8 SOLID FILM LUBRICANT (F-19.10) ON THREADS.

1. CHROME PLATE RUNOUT
2. 65C33665-1
3. 65C33665-2

REPAIR

(SAME AS REFINISH)

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

SHOT PEEN: (EXCEPT THREADS, ID)
0.017-0.046 SHOT SIZE
0.010 A2 INTENSITY

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

ALL DIMENSIONS ARE IN INCHES

65C33665-1,-2 Piston Repair and Refinish
Figure 601

ROD END ASSEMBLY - REPAIR 4-1

65C33677–1

1. General

A. This procedure has the data necessary to refinish the rod end assembly (10).

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

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

D. Refer to REPAIR-GENERAL, Paragraph 2.D. for the description of the consumable codes identified in this procedure.

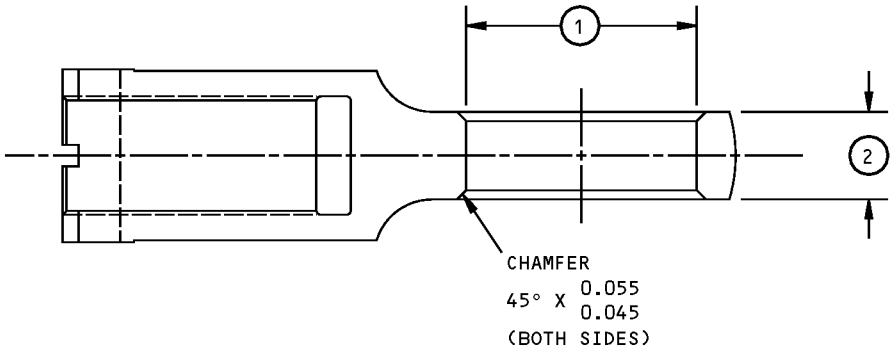
E. Refer to IPL Figure 2 for item numbers.

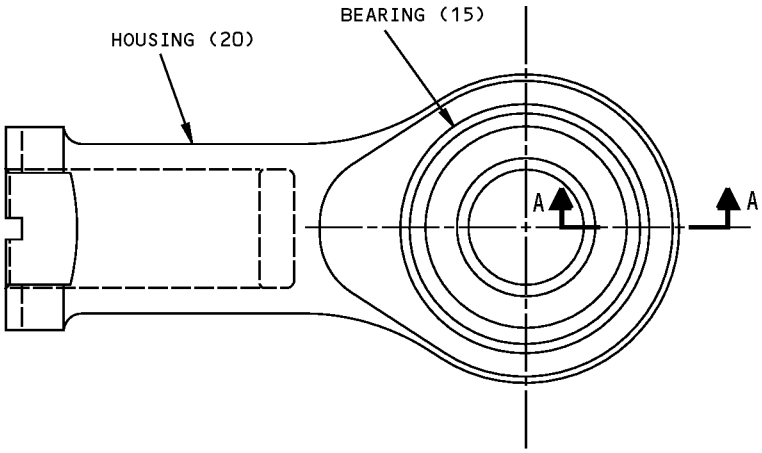
2. Bearing Replacement (REPAIR 4-1, Figure 601)

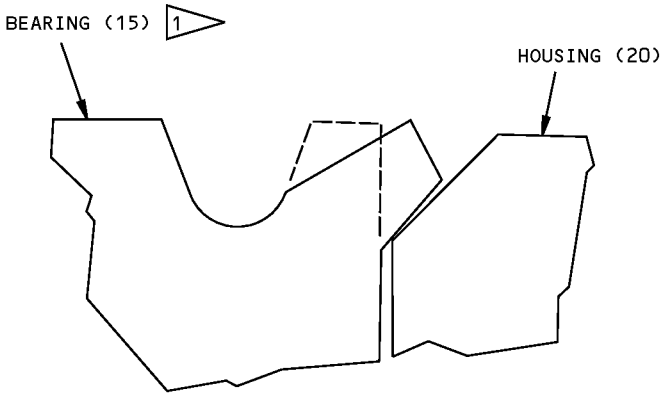
NOTE: For repair of surfaces which may require only stripping and restoration of original finish, refer to Refinish instructions, REPAIR 4-1, Figure 601.

A. Remove existing bearing (15) from housing (20).

B. Install replacement bearing and swage as indicated (SOPM 20-50-03).







A-A

	1	2
DESIGN DIM	1.0005 1.0000	0.390 0.380
REPAIR LIMIT	--	--

REFINISH

HOUSING (20): PASSIVATE (F-17.09) ALL OVER

1 ROLLER SWAGE PER 20-50-03

REPAIR

125 MACHINE FINISH EXCEPT AS NOTED

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

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 2

65C33677-1 Rod End Repair and Refinish
Figure 601

BARREL ASSEMBLY - REPAIR 5-1

65C33738–1

1. General

A. This procedure has the data necessary to repair the barrel assembly (70).

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 2.D. for the description of the consumable codes identified in this procedure.

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

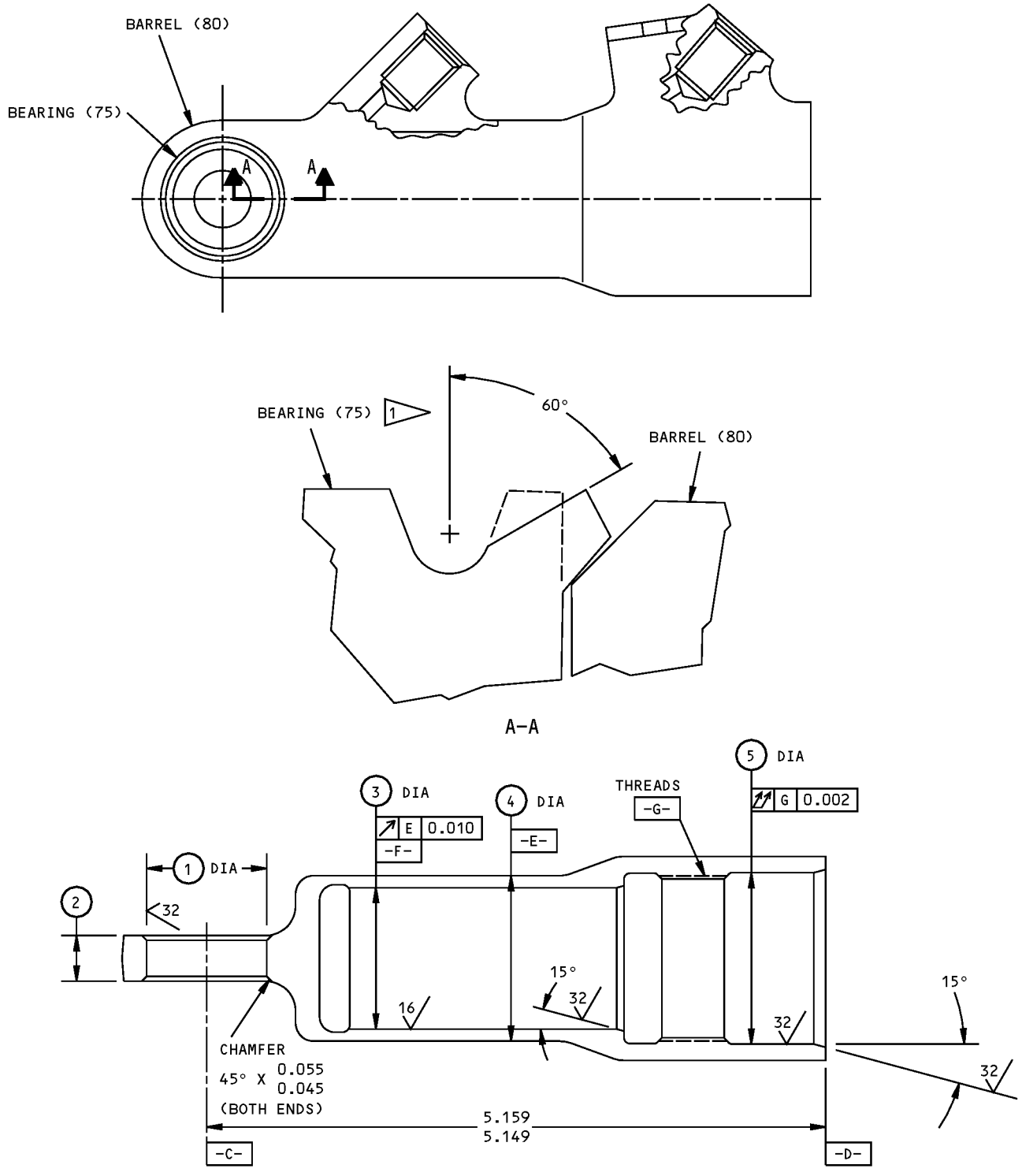
E. Refer to IPL Figure 2 for item numbers.

2. Bearing Replacement (REPAIR 5-1, Figure 601)

NOTE: For repair of surfaces which may require only stripping and restoration of original finish, refer to Refinish instructions, REPAIR 5-1, Figure 601).

A. Remove existing bearing (75) from barrel (80).

B. Install replacement bearing and swage as indicated (SOPM 20-50-03).



65C33738-1 Barrel Repair and Refinish
Figure 601 (Sheet 1 of 2)

	(1)	(2)	(3)	(4)	(5)
DESIGN DIM	1.0005 1.0000	0.390 0.380	1.180 1.178	1.42 1.40	1.430 1.428
REPAIR LIMIT	--	--	--	--	--

REFINISH

BARREL (80):
PASSIVATE (F-17.09) ALL OVER.

REPAIR

(SAME AS REFINISH)

125 MACHINE FINISH EXCEPT AS NOTED

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

ALL DIMENSIONS ARE IN INCHES

1 ROLLER SWAGE PER 20-50-03

65C33738-1 Barrel Repair and Refinish
Figure 601 (Sheet 2 of 2)

MISCELLANEOUS PARTS REFINISH - REPAIR 6-1

1. General

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

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 2.D. for the description of the consumable codes identified in this procedure.

D. Refer to IPL Figure 1 for item numbers.

2. Repair

A. Repair of parts listed in REPAIR 6-1, Table 601 consists of restoration of the original finish.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Clamps (30,35), Spacer (40)	Plastic or nylon	No finish
Bracket (45)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.13) followed by enamel coating, C50069 (F-21.03)

EXTERNAL PARTS REPLACEMENT - REPAIR 7-1

1. General

A. This procedure has the data necessary to replace the external parts.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 2.D. for the description of the consumable codes identified in this procedure.

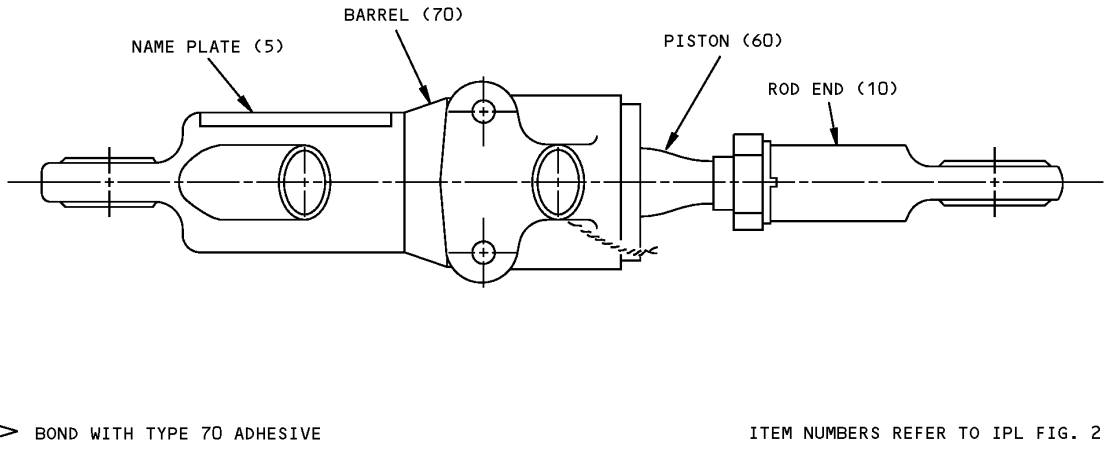
D. Refer to IPL Figure 1 for item numbers.

2. Nameplate (5) (REPAIR 7-1, Figure 601)

A. Remove the old nameplate.

B. Clean the substrate surface with solvent, B00316.

C. Bond a replacement nameplate (5) in location shown, with adhesive, A00028 applied to all of the mating area between nameplate and barrel (SOPM 20-50-12). Use sufficient adhesive, A00028 to let it squeeze out along all of the edges of the installed nameplate.



Nameplate Replacement
Figure 601

ASSEMBLY

1. General

A. Use this procedure to assemble the nose gear lock actuator assembly.

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

C. Refer to IPL Figure 1 and IPL Figure 2 for item numbers.

2. Materials

A. Hydraulic fluid – fluid, D50036 BMS 3-11

B. Assembly lube – MCS 352B fluid, D00054 MCS-352

C. Lockwire – lockwire, G01048 MS20995C32

D. Sealant – sealant, A00247 BMS 5-95

3. Lubrication

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D50036	Fluid - Hydraulic, Erosion Arresting, Fire Resistant (use at -65 to 275 Degree F)	BMS3-11, Type V (interchgable & intermixable with Type IV)

B. Procedure

(1) Lightly lubricate scraper, packings and seals with fluid, D50036 or MCS 352B fluid, D00054 before assembly.

4. Assembly

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜ C32

B. References

Reference	Title
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES

C. Procedure (IPL Figure 2) Parts (ASSEMBLY, Figure 701)

(1) Install seal (65) on piston (60). Slide the piston into barrel (70).

(2) Install scraper (40), packings (50, 55) and seals (45) on rod bearing (35).

(3) Carefully slip rod bearing (35) over piston (60) rod and install into barrel (70). Tighten rod bearing (35) to 700-800 pound-inches.

(4) Thread jamnut (25) onto piston (60) rod. Run the nut up the rod to near the end of the rod threads, to let you adjust the rod end.

(5) Slip washer (30) onto piston (60) rod. Then install rod end (10). With the actuator fully retracted, turn rod end (10) in or out to get a retracted length of 8.51-8.55 inches between bearing centers.

(6) Tighten jamnut (25) against washer (30) and rod end (10) to 250-270 pound-inches.

(7) Fully extend the actuator and make sure the extended length is 10.19-10.29 inches between bearing centers.

(8) Do the functional test (Ref TESTING AND FAULT ISOLATION).

(9) After the test, lockwire jamnut (25) to washer (30) and rod bearing (35) to barrel (70) with lockwire, G01048 using the double twist method (SOPM 20-50-02).

(10) Clean the surface of the splitline between barrel (70) and rod bearing (35). Apply a bead of sealant, A00247 all around the joint, as shown.

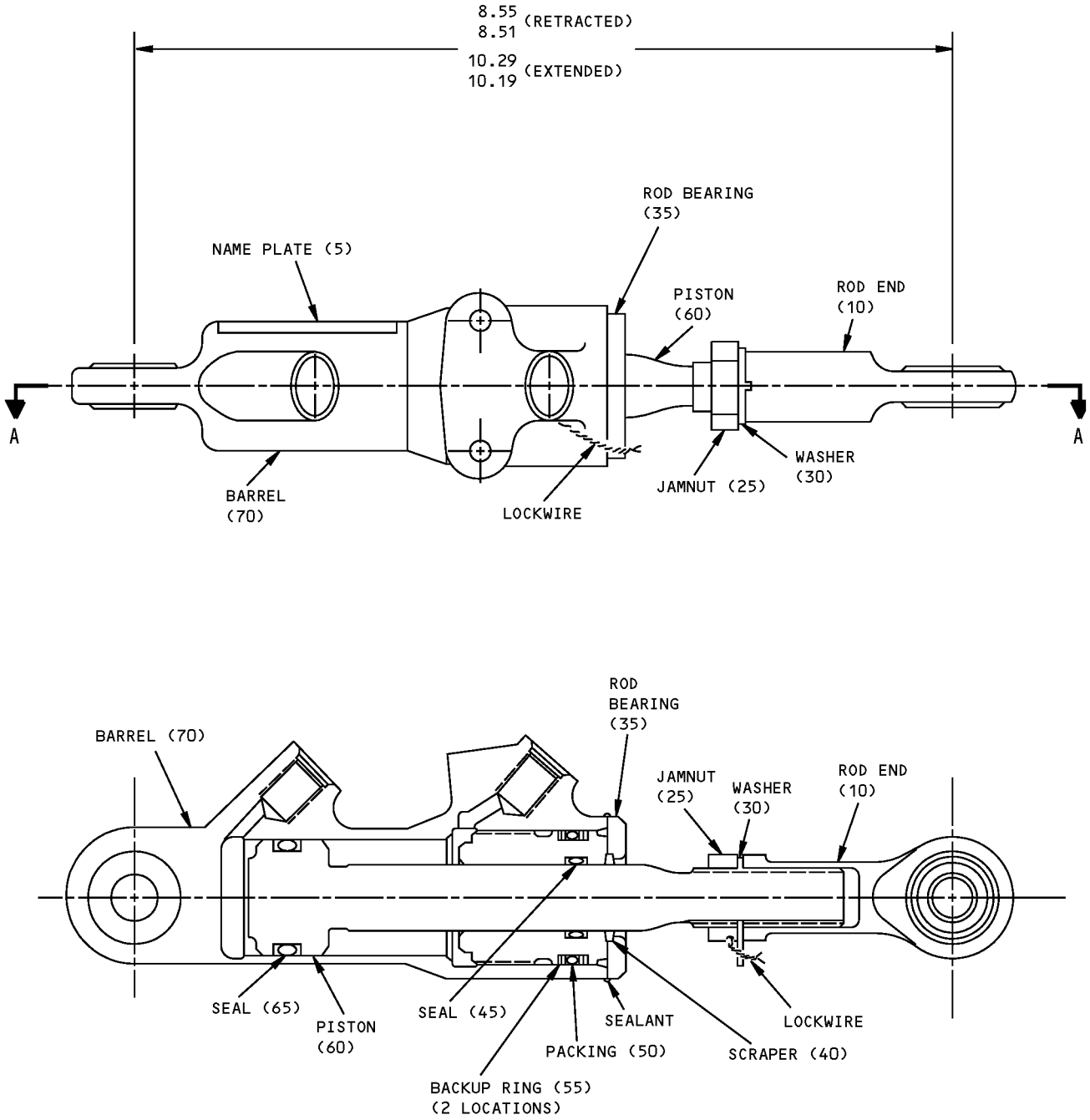
D. Procedure (IPL Figure 1) Parts (ASSEMBLY, Figure 702)

(1) If not already installed, install unions (100) with packings (105) in actuator (110) ports.

(2) Install spacer (40) and bracket (45) on the mounting ears of actuator (110) barrel with bolts (10), washers (15, 20), and nuts (25). At each of the two bolt (10) locations, use one washer (15) under the head and one washer (20) under the nut (25).

(3) Install hydraulic tubes (50, 75) on unions (100). Be sure to install the tubes as shown, to make the flow arrows point toward the actuator.

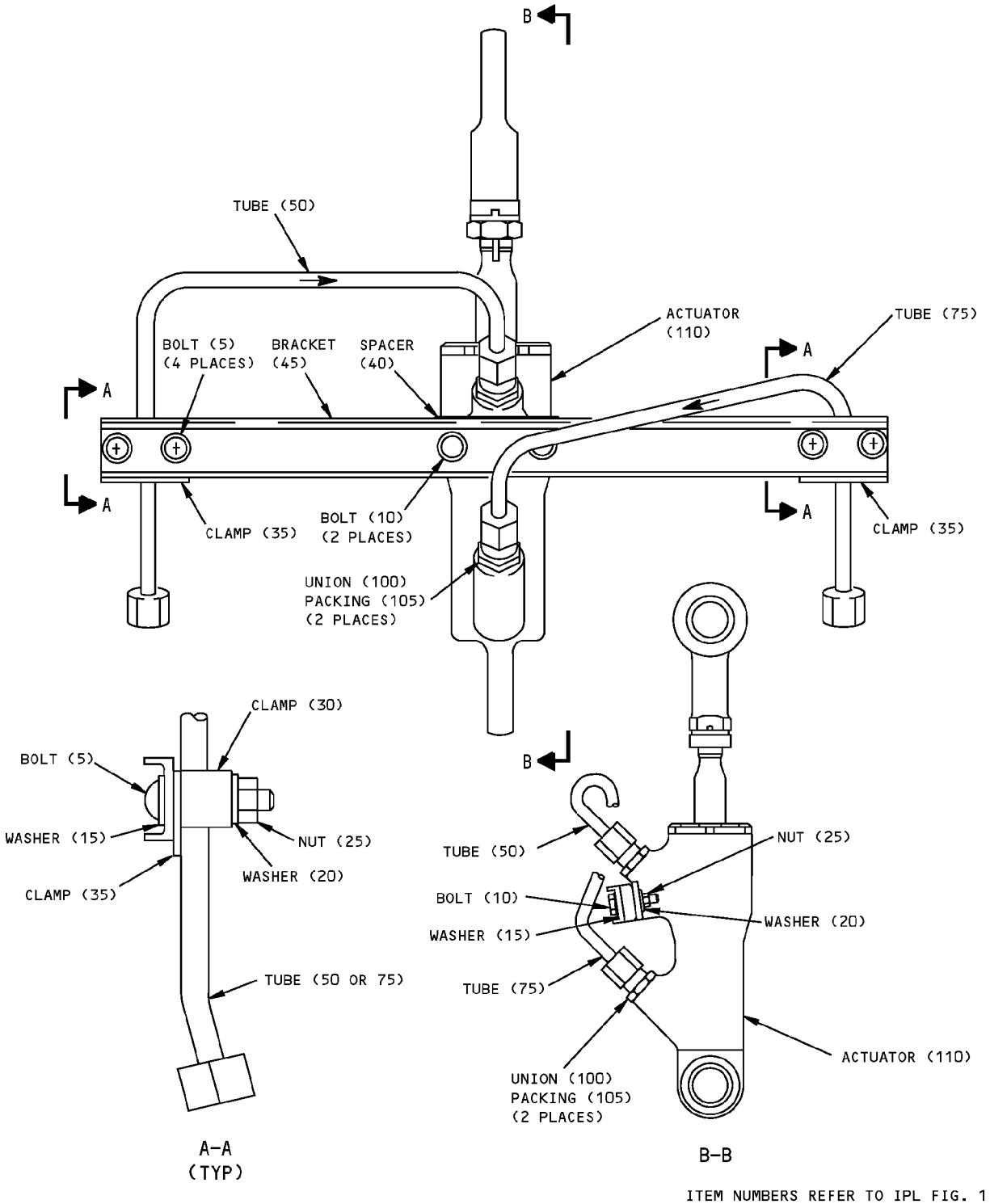
(4) Attach tubes (50, 75) to bracket (45) with clamps (30, 35), bolts (5), washers (15, 20), and nuts (25). At each of the four bolt (5) locations, use one washer (15) under the head, and one washer (20) under the nut (25).



ITEM NUMBERS REFER TO IPL FIG. 2

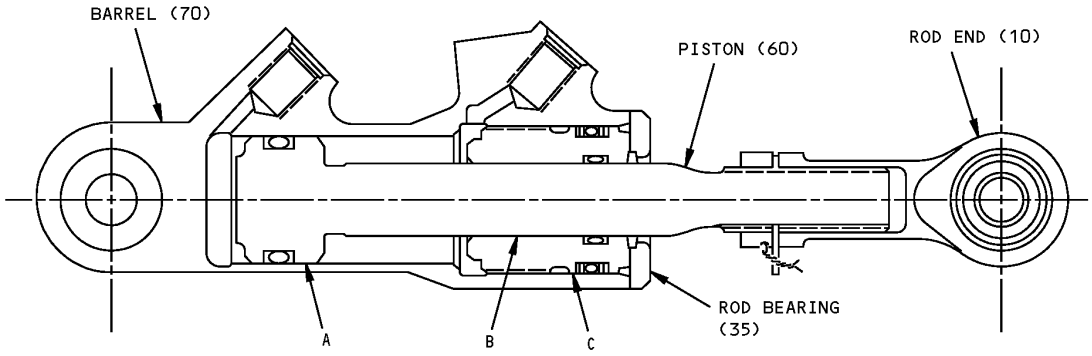
ALL DIMENSIONS ARE IN INCHES

65C31099-1 Assembly Details
Figure 701



65-44625-18 Assembly Details
Figure 702

FITS AND CLEARANCES



Ref Letter Fig.801	Mating Item No. IPL Fig.2	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
A	ID 70 OD 60	1.178 1.176	1.180 1.178	0.000	0.004	1.174	1.182	0.006
A	ID 70 OD 60A	1.178 1.175	1.180 1.176	0.002	0.005	1.174	1.182	0.006
B	ID 35 OD 60	0.625 0.620	0.626 0.622	0.003	0.006	0.618	0.627	0.006
C	ID 70 OD 35	1.428 1.425	1.430 1.426	0.002	0.005	1.423	1.432	0.006

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG. 1	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
25 35	JAMNUT ROD BEARING	250-270 700-800	

Torque Table
Figure 802

BOEING®

COMPONENT MAINTENANCE MANUAL

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

(NOT APPLICABLE)

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.

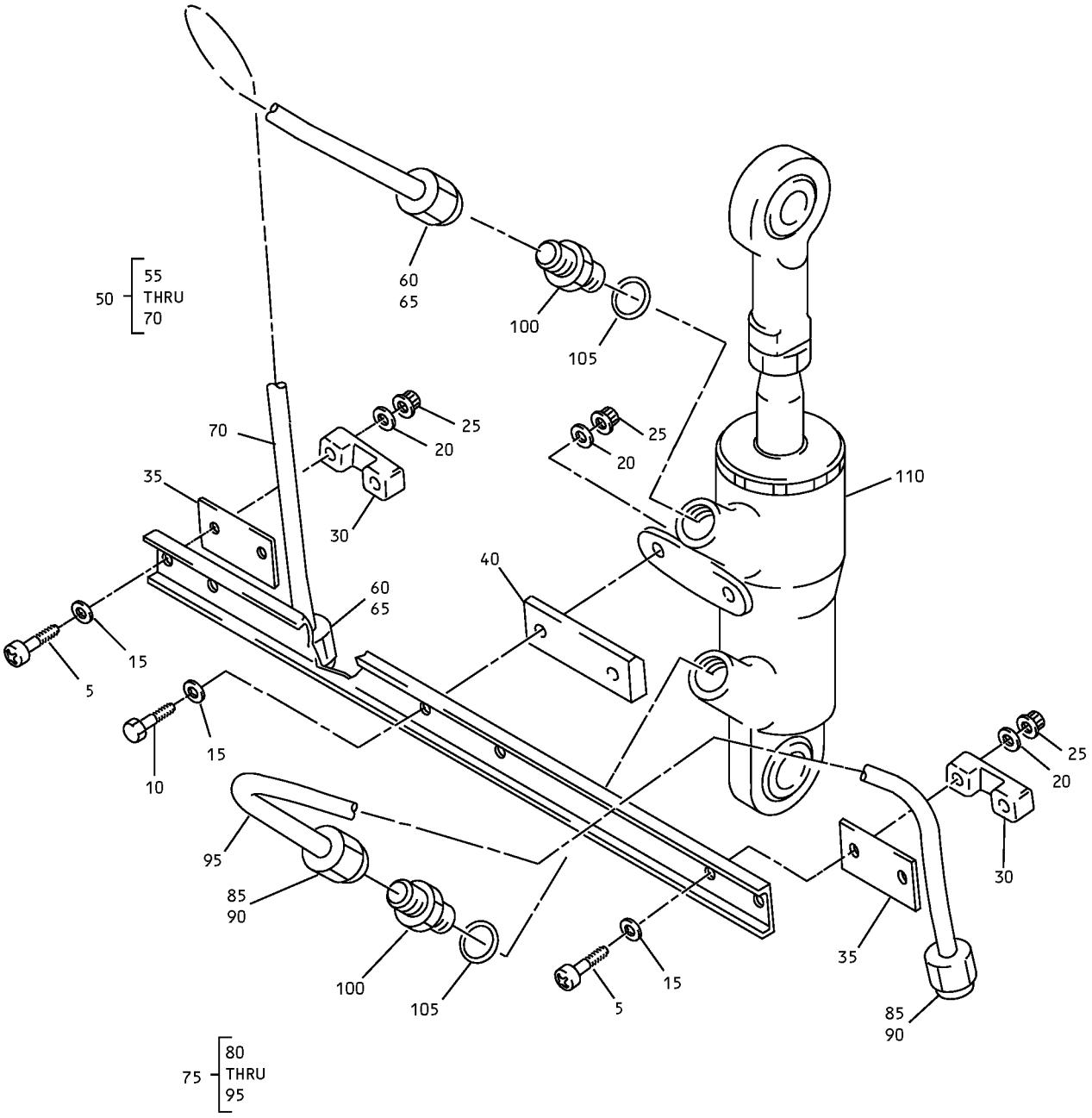
VENDOR CODES

Code	Name
50632	KAMATICS CORP SUB OF KAMAN CORP 1335 BLUE HILLS ROAD BLOOMFIELD, CONNECTICUT 06002-1304
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

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
65-44625-18		1	1	RF
65-44625-3019		1	50	1
65-44625-3020		1	75	1
65C31099-1		1	110	1
		2	1	RF
65C31099-2		1	110A	1
		2	1A	RF
65C33652-1		2	35	1
65C33665-1		2	60	1
65C33665-2		2	60A	1
65C33677-1		2	10	1
65C33677-2		2	20	1
65C33738-1		2	70	1
65C33738-2		2	80	1
69-35863-1		1	30	2
69-35863-2		1	35	2
69-74739-1		1	40	1
69-77530-1		1	45	1
AN960C10L		1	20	6
AN960JD10L		1	15	6
BAC27DHY0348		2	5	1
BACB30LK3-11		1	5	4
BACN10JM4N		1	65	2
		1	90	2
BACS13BX04HP		1	60	2
		1	85	2
BACS34A3A		2	40	1
BACT11YL4L		1	80	1
BACT11YL5L		1	55	1
KR8CNGV03		2	15	1
		2	75	1
MS21042L3		1	25	6
MS21902-4		1	100	2
MS28774-217		2	55A	2

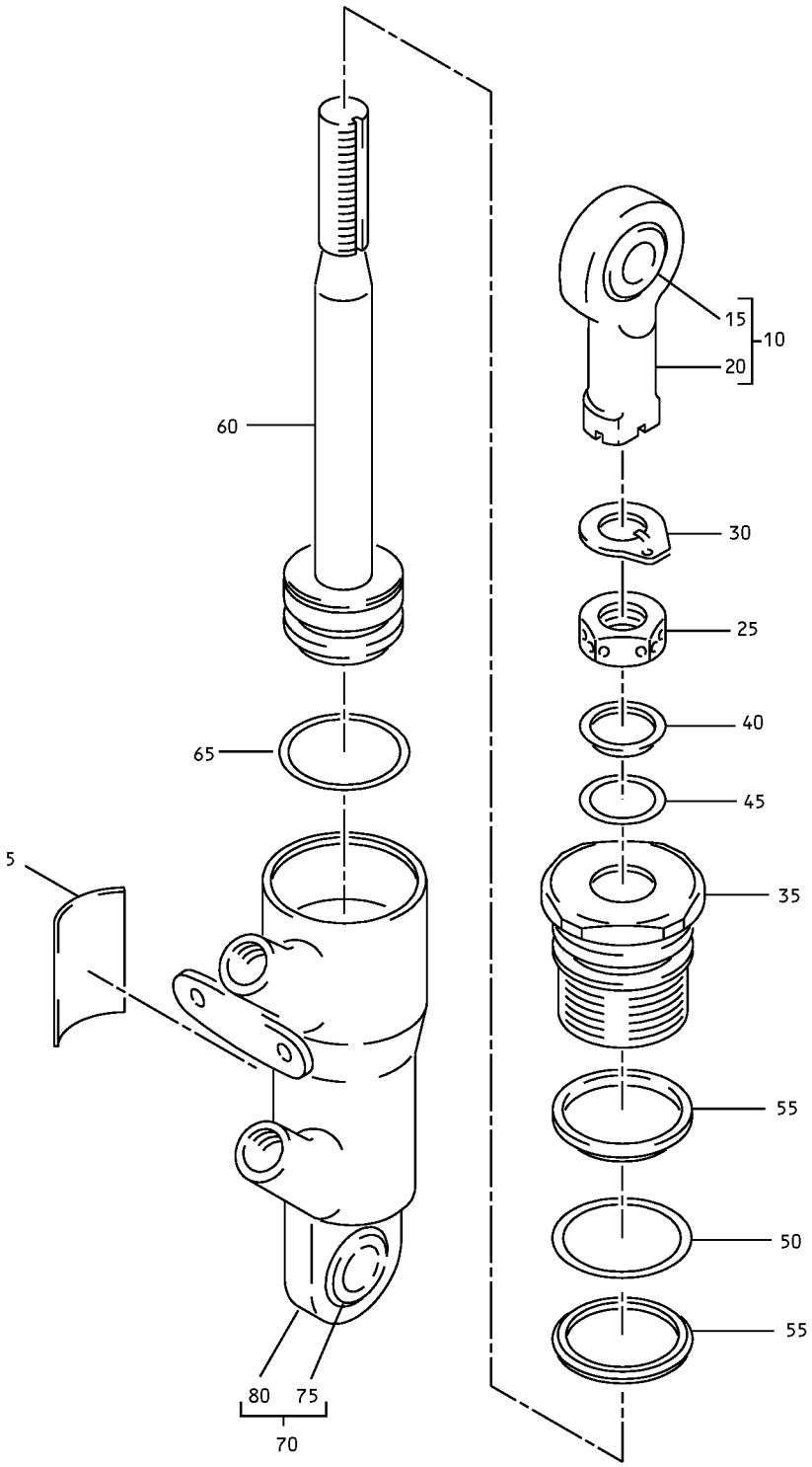
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
NAS1611-217		2	50	1
NAS1612-4		1	105	2
NAS509-8C		2	25	1
NAS513-8		2	30	1
NAS6703-9		1	10	2
S34572-114H7N		2	45	1
S34582-213H7N		2	65	1
TUBE		1	70	1



Nose Gear Lock 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	65-44625-18		ACTUATOR ASSY		RF
5	BACB30LK3-11		. BOLT		4
10	NAS6703-9		. BOLT		2
15	AN960JD10L		. WASHER		6
20	AN960C10L		. WASHER		6
25	MS21042L3		. NUT		6
30	69-35863-1		. CLAMP		2
35	69-35863-2		. CLAMP		2
40	69-74739-1		. SPACER		1
45	69-77530-1		. BRACKET		1
50	65-44625-3019		. TUBE ASSY		1
55	BACT11YL5L		. . TAPE-IDENTIFICATION - FLOW RIGHT, LGU		1
60	BACS13BX04HP		. . SLEEVE		2
65	BACN10JM4N		. . NUT		2
70	TUBE		. . TUBE-SUBSTRATE		1
75	65-44625-3020		. TUBE ASSY		1
80	BACT11YL4L		. . TAPE-IDENTIFICATION - FLOW LEFT, LGD		1
85	BACS13BX04HP		. . SLEEVE		2
90	BACN10JM4N		. . NUT TUBE-SUBSTRATE		2
100	MS21902-4		. UNION		2
105	NAS1612-4		. PACKING-O-RING		2
110	65C31099-1		. ACTUATOR ASSY (OPT ITEM 110A) (POST SB 737-32-1201) (FOR DETAILS SEE FIG. 2)		1
–110A	65C31099-2		. ACTUATOR ASSY (POST SB 737-32-1201) (FOR DETAILS SEE FIG. 2)		1

–Item not Illustrated



Nose Gear Lock Actuator Assembly
IPL Figure 2

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–1	65C31099-1		ACTUATOR ASSY-NOSE GEAR LOCK (POST SB 737-32-1201)	A	RF
–1A	65C31099-2		ACTUATOR ASSY-NOSE GEAR LOCK (POST SB 737-32-1201)	B	RF
5	BAC27DHY0348		. NAMEPLATE		1
10	65C33677-1		. ROD END ASSY		1
15	KR8CNGV03		. . BEARING (V50632)		1
20	65C33677-2		. . HOUSING		1
25	NAS509-8C		. NUT-JAM		1
30	NAS513-8		. WASHER		1
35	65C33652-1		. ROD BEARING-RETAINER		1
40	BACS34A3A		. SCRAPER		1
45	S34572-114H7N		. SEAL V97820)		1
50	NAS1611-217		. PACKING-O-RING		1
55	BACS11A217A		DELETED		
55A	MS28774-217		. RING-BACKUP		2
60	65C33665-1		. PISTON	A	1
–60A	65C33665-2		. PISTON	B	1
65	S34582-213H7N		. SEAL ASSY (V97820)		1
70	65C33738-1		. BARREL ASSY		1
75	KR8CNGV03		. . BEARING (V50632)		1
80	65C33738-2		. . BARREL		1

–Item not Illustrated