TO: ALL HOLDERS OF MAIN LANDING GEAR DOOR LATCH ACTUATOR ASSEMBLY COMPONENT MAINTENANCE MANUAL 32-32-13

REVISION NO. 19 DATED JUL 01/02

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
1003-1006	Identified items 200, 205, 210 in the exploded view.

BOEING

COMPONENT
MAINTENANCE MANUAL

MAIN LANDING GEAR DOOR LATCH ACTUATOR ASSEMBLY

PART NUMBERS 257T1200-5,-6,-7,-10,-12,-16,-18
273T4561-2 THRU -9

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

19582

BOEING
COMPONENT
MAINTENANCE MANUAL

REVISION RECORD

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

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

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR B10188	OCT 10/81
		PRR B10293	OCT 10/81
		PRR B10838	APR 10/83
		PRR B11020	JAN 10/84
		PRR B11198	JAN 10/85
32-30			JAN 10/85
32-31, Rev. 1		PRR B11198-1	JUL 10/86
		PRR B11198-2	APR 10/87
		PRR B11526	APR 10/87
	32-3		OCT 01/87
32-31, Rev. 2			JAN 01/88

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*1005	JUL 01/02	01.1
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*[1] Special instructions not required. Use standard industry practices.

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. An asterisked flagnote *[ ] in place of the page number indicates that no special instructions are provided since the function can be performed using standard industry practices.

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:

Testing/TS	Verified 07-14-82
Disassembly	Verified 07-14-82
Assembly	Verified 07-14-82

MAIN LANDING GEAR DOOR LATCH ACTUATOR ASSEMBLY

DESCRIPTION AND OPERATION

1. The MLG door latch actuator assembly consists of a piston, a sleeve and a housing. Hydraulic pressure applied to the actuator extends or retracts the piston rod, unlocks the main landing gear door and sequence pressure to door actuator.

2. Leading Particulars (Approximate)

   Length -- 8 inches
   Height -- 4 inches
   Width -- 3 inches
   Weight -- 3.1 lb (dry)
   Operating Medium -- BMS 3-11 Hydraulic Fluid
   Operating Pressure -- 3000 psi
   Proof Pressure -- 5400 psi
   Stroke -- 1.20 inch

TESTING/TROUBLE SHOOTING

1. Test Equipment

NOTE: Equivalent substitutes may be used.

A. Test Fixture -- A32043-1

B. Hydraulic test stand -- capable of supplying BMS 3-11 hydraulic fluid at a variable rate of 0-5450 psi. Hydraulic fluid must be filtered to 15 microns absolute. Fluid temperature shall be 80-120°F.

C. Fittings to fit MS33649-6 ports

2. Preparation for Test

A. Install fittings in all ports.

B. Mount actuator in test fixture A32043-1. Connect hydraulic lines.

C. Fill unit with hydraulic fluid and bleed all air by cycling unit until there are no air bubbles in discharge fluid.

D. Spring tension scale -- 0-30 lb force.

3. Test

CAUTION: DO NOT APPLY AIR PRESSURE TO PORTS AT ANY TIME.

A. Cycle unit at a rate not exceeding 1 second per stroke for 25 complete cycles with 2900-3100 psi pressure at PRESSURE port and 45-100 psi at RESET port, with RETURN and DOOR ACTUATOR OPEN ports capped. Check that leakage at rod seal does not exceed 1 drop in 25 cycles.

B. With actuator extended, apply 5400 psi to all ports simultaneously and hold for 3 minutes. There shall be no external leakage or permanent set.

C. With piston fully extended, and DOOR ACTUATOR OPEN and RESET ports both capped, apply a minimum of 2800 psi to the PRESSURE port. Check that leakage from RETURN port does not exceed 150 cc per minute. Repeat test at 2-4 psi at PRESSURE port. Check that leakage does not exceed 15 cc per minute.

D. With piston fully retracted, and DOOR ACTUATOR OPEN and PRESSURE ports both capped, apply a minimum of 2800 psi to RESET port. Check that leakage at RETURN port does not exceed 50 cc per minute. Repeat test at 2-4 psi. Check that leakage does not exceed 5 cc per minute.

CAUTION: DO NOT EXTEND OR RETRACT ACTUATOR WHILE PROOF PRESSURE IS APPLIED.

E. Operating Force

(1) With piston fully retracted, apply pressure simultaneously to all ports, and gradually increase until actuator extends. Pressure to extend piston shall not exceed 60 psi.

(2) Reduce pressure to zero psi, allow fluid to come out of the ports, while externally forcing piston rod to the retracted position. The required force shall not exceed 15 pounds.

(3) Repeat steps (1)(2) with piston rotated on its axis 180° from original position.

4. Post Test Procedures

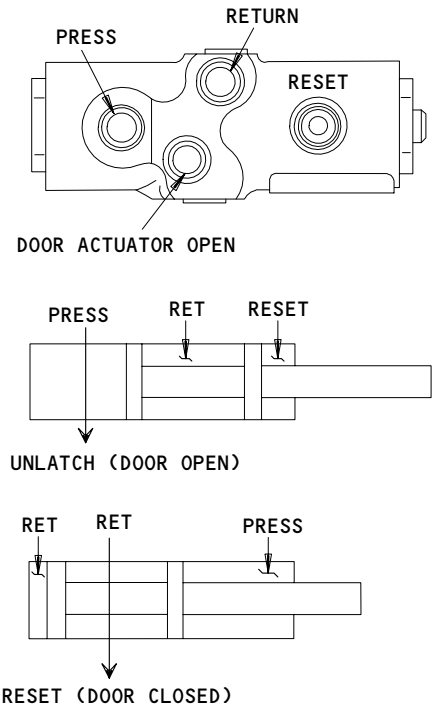
A. Disconnect the unit from the test equipment.

B. Lockwire and apply fillet seal per ASSEMBLY par. 4.G.

C. Partially fill unit with BMS 3-11 hydraulic fluid and cap or plug ports. Mark or tag unit with test date.

TROUBLE	PROBABLE CAUSE	CORRECTION
Leakage at rod seal exceeds 1 drop	Defective packing (15) seal ring (20)	Replace parts per par. 5.A., 5.B.
Leakage at ports exceeds specified limits	Defective packing (50 or 53) or piston rings (40, 41, 43)	Replace parts per par. 5.A., 5.C., 5.D., or 5.E.
Binding or irregular movement	Defective piston (35 or 48C), rod (37), piston ring (40,41,43) or sleeve (45 or 48D)	Replace parts per par. 5.A., 5.C., 5.D., or 5.E.
Operating force exceeds limits	Defective piston (35 or 48C) or rod (37)	Replace parts per par. 5.C. or 5.E.

Trouble Shooting Chart
Figure 101



Test Schematic Details
Figure 102

92244

5. Corrective Procedures

A. Drain all hydraulic fluid.

B. Replacement of packing (15), seal ring (20).

(1) Remove end cap (5) and replace defective parts.

(2) Assemble parts per ASSEMBLY par. 3.F., 3.G., 3.I.

(3) Retest per par. 3.

C. Replacement of piston (35), rod (37) or rings (40, 41, 43).

(1) Remove end cap (5).

(2) Carefully remove rod (37), or piston (35) with attached rings (40, 41, 43), as applicable. Replace defective parts.

(3) Assemble parts per ASSEMBLY par. 3.B. thru 3.G.

(4) Retest unit per par. 3.

D. Replacement of sleeve (45), packing (50), rings (55).

(1) Completely disassemble unit per DISASSEMBLY. Replace defective parts.

(2) Assemble parts per ASSEMBLY.

(3) Retest unit per par. 3.

E. Replacement of piston assembly (47) component parts, packing (53), rings (57).

CAUTION: PISTON (48C) AND SLEEVE (48D) ARE PRECISION LAPPED PARTS. REPLACEMENT AS A SET (SLEEVE ASSEMBLY, ITEM 48) IS RECOMMENDED.

(1) Completely disassemble unit per DISASSEMBLY. Replace defective packings (47E, 53), rings (47F, 57), or sleeve assembly (48).

(2) Assemble parts per ASSEMBLY.

(3) Retest unit per par. 3.

DISASSEMBLY

NOTE: Refer to TESTING/TROUBLE SHOOTING to establish condition or probable cause of any malfunction and to determine extent of disassembly and repair.

1. Parts Replacement (IPL Fig. 1)

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

   A. Lockwire, packings (15, 25, 50 or 53), scrapers (10), cap (20), and backup rings (30, 55 or 57).

   B. As applicable, piston rings (40 or 41), expander rings (42), ring set (43), or packing (47E), backup rings (47F).

2. Disassembly (IPL Fig. 1)

   A. Remove lockwire from end cap (5) and end plug (7). Remove sealant on contact areas of end cap and end plug.

   B. Remove end cap (5) and plug (7). Remove scraper (10), packings (15, 25), cap (20) and backup rings (30) from end cap. Remove packing (25) and backup rings (30) from plug.

   C. On assemblies 273T4561-2, -3, -4, -6, -8, -9, slide piston (35) out and remove as applicable, piston rings (40 or 41) and expander rings (42), ring set (43) from piston. On assembly 273T4561-5, remove rod (37).

      CAUTION: PISTON ASSEMBLY (47) CONTAINS PRECISION LAPPED PISTON (48C) AND SLEEVE (48D) WHICH MUST BE KEPT TOGETHER.

   D. Remove sleeve (45) or piston assembly (47) from housing (60). Remove packings (50 or 53) and backup rings (55 or 57) from sleeve.

   E. If applicable, slide piston (48C) out from sleeve (48D) and remove packing (47E), ring (47F) from piston.

      NOTE: Do not remove inserts (65) or nameplate (75 thru 95) unless necessary for repair or replacement.

CHECK

NOTE: Refer to IPL Fig. 1 for item numbers.

1. Check all parts for obvious defects in accordance with standard industry practices. Refer to FITS AND CLEARANCES for design dimensions and wear limits.

2. Magnetic particle check per 20-20-01 -- piston (35 or 48C), rod (37), sleeve (45 or 48D).

3. Penetrant check per 20-20-02 -- end cap (5), end plug (7), housing (60).

REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
273T0101	PISTON	1-1
273T0103	ROD	2-1
273T4562	END CAP AND PLUG	3-1
273T4563	PISTON	4-1
273T4564	HOUSING	5-1
273T4565	SLEEVE	6-1
- - -	EXTERNAL PARTS REPLACEMENT	7-1

2. Standard Practices

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

   20-10-01 Repair and Refinish of High Strength Steel Parts
   20-10-04 Grinding of Chrome Plated Parts
   20-30-02 Stripping of Protective Finishes
   20-41-01 Decoding Table for Boeing Finish Codes
   20-42-03 Hard Chrome Plating
   20-43-01 Chromic Acid Anodizing
   20-50-12 Application of Adhesives

3. Materials

   NOTE: Equivalent substitutes may be used.

   A. Adhesive -- BMS 5-25, Grade 1 (Ref 20-60-04)

   B. Protective Coating, BMS 3-11 Resistant -- Type 41 (Ref 20-60-02)

4. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in applicable repair procedures are shown in Fig. 601.

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

EXAMPLES

⏤ 0.002	STRAIGHT WITHIN 0.002
⊥ B 0.002	PERPENDICULAR TO B WITHIN 0.002
// A 0.002	PARALLEL TO A WITHIN 0.002
○ 0.002	ROUND WITHIN 0.002
⌭ 0.010	CYLINDRICAL SURFACE MUST LIE BETWEEN TWO CONCENTRIC CYLINDERS, ONE OF WHICH HAS A RADIUS 0.010 INCH GREATER THAN THE OTHER
⌒ A 0.006	EACH LINE ELEMENT OF THE SURFACE AT ANY CROSS SECTION MUST LIE BETWEEN TWO PROFILE BOUNDARIES 0.006 INCH APART RELATIVE TO DATUM PLANE A
⌓ A 0.020	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.02 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
◎ C ∅ 0.0005	CONCENTRIC TO C WITHIN 0.0005 DIAMETER
⌯ A 0.010	SYMMETRICAL WITH A WITHIN 0.010
∠ A 0.005	ANGULAR TOLERANCE 0.005 WITH A
⌖ B ∅ 0.002 Ⓢ	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
⊥ A ∅ 0.010 Ⓜ 0.510 Ⓟ	AXIS IS TOTALLY WITHIN A CYLINDER OF 0.010-INCH DIAMETER, PERPENDICULAR TO, AND EXTENDING 0.510-INCH ABOVE, DATUM A, MAXIMUM MATERIAL CONDITION
2.000 OR 2.000 BSC	EXACT DIMENSION IS 2.000

(NOTE THAT ⌓ A 0.020 MAY ALSO APPEAR AS ⌓ 0.020 A)

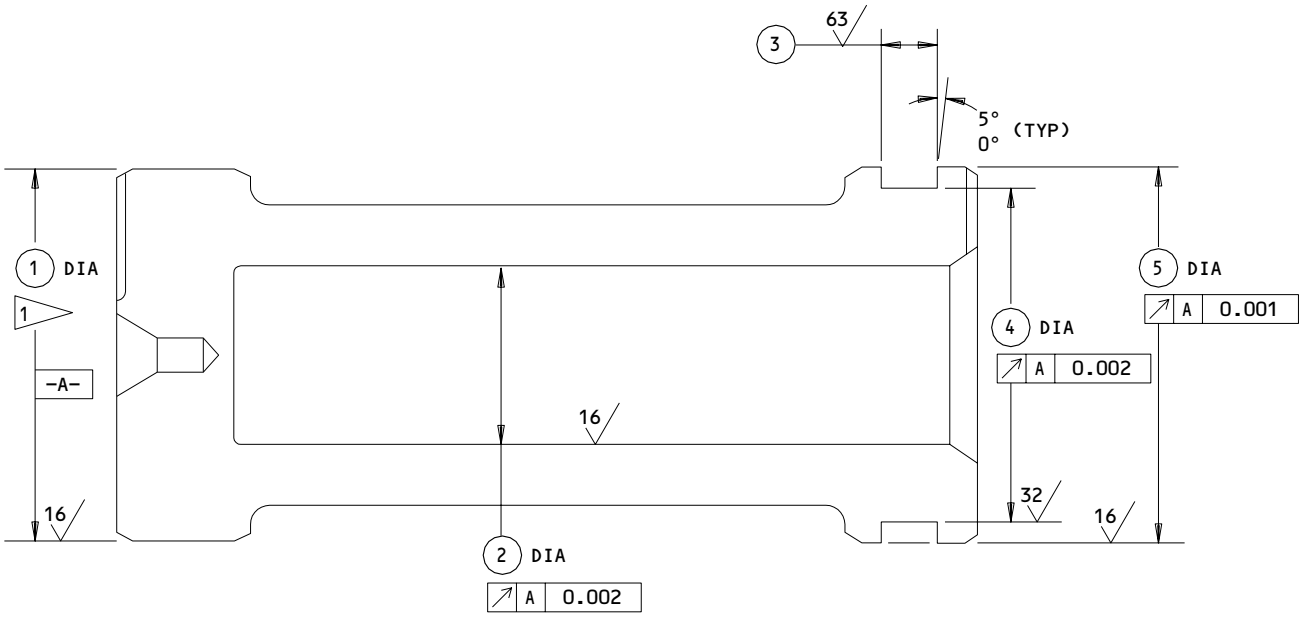
True Position Dimensioning Symbols
Figure 601

PISTON - REPAIR 1-1

273T0101-1

1. Coating Repair

NOTE: Repair consists of restoration of original finish. Refer to Refinish instructions, Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



	1	2	3	4	5
DESIGN DIM	0.866 0.865 1	0.402 0.400	0.151 0.141	0.685 0.683	0.861 0.860
REPAIR LIMIT	———	———	———	———	———

REFINISH

PASSIVATE (F-17.09) ALL OVER

1 THIS DIA TO BE LAP FIT WITH MATING 273T4565-4 SLEEVE (48D)

REPAIR

125 MACHINE FINISH EXCEPT AS NOTED

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

ALL DIMENSIONS ARE IN INCHES

273T0101-1
Piston Repair and Refinish
Figure 601

158845

ROD - REPAIR 2-1

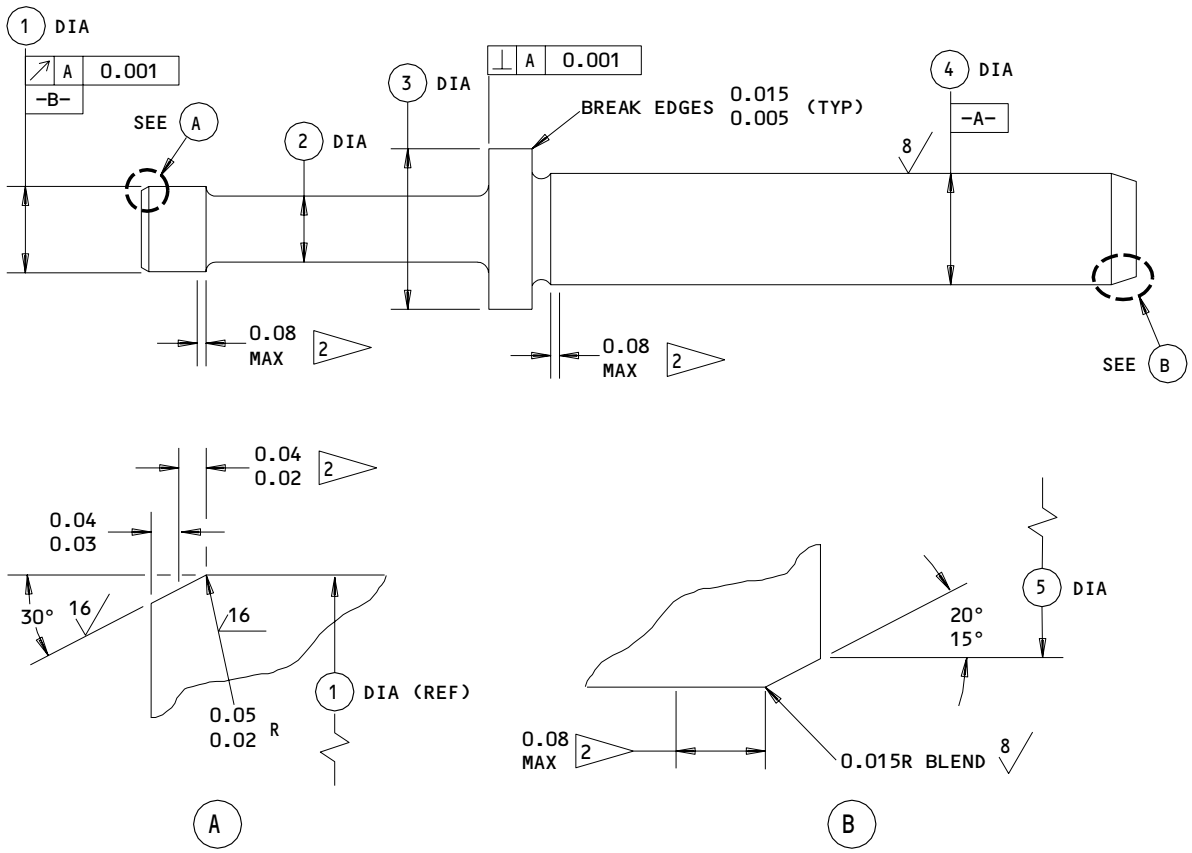
273T0103-1

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may require only restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Plating Repair (Fig. 601)

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

   B. Shot peen, plate, and grind surfaces noted to design dimensions and finish.



	1	2	3	4	5
DESIGN DIM	0.393 0.391	0.31 0.29	0.74 0.72	0.498 0.496	0.46 0.44
REPAIR LIMIT 1	0.371	———	———	0.486	———

REFINISH

CHROME PLATE (F-15.03) DIAS -A-, -B-, 0.003 MIN THICK. OBSERVE PLATING RUNOUT PER 2. PASSIVATE (F-17.09) ALL OTHER SURFACES

1 LIMIT FOR CHROME PLATE BUILDUP AND GRINDING TO DESIGN DIM AND FINISH. OBSERVE PLATING RUNOUT PER 2

2 CHROME PLATE RUNOUT

REPAIR

REF 1

125 MACHINE FINISH EXCEPT AS NOTED

SHOT PEEN: 0.017-0.046 SHOT SIZE
0.016 A2 INTENSITY

MATERIAL: 15-5PH CRES, 180-200 KSI
(MADE FROM 273T4563-3)

ALL DIMENSIONS ARE IN INCHES

273T0103-1
Rod Repair and Refinish
Figure 601

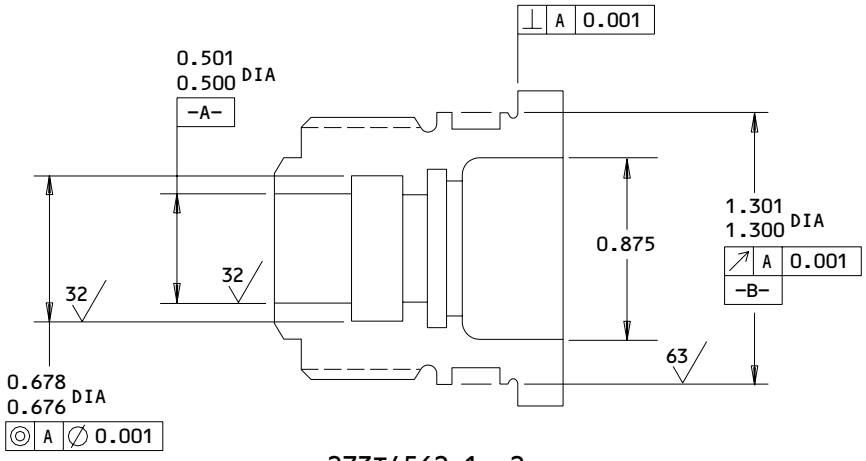
158849

END CAP AND PLUG - REPAIR 3-1

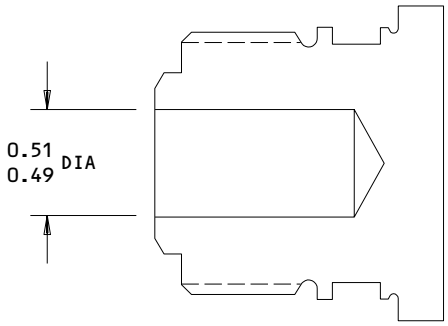
273T4562-1, -2, -3

1. Coating Repair

NOTE: Repair consists of restoration of original finish. Refer to Refinish instructions, Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



273T4562-1,-2



273T4562-3

REFINISH

273T4562-1,-2 -- NO FINISH

273T4561-3 -- CHROMIC ACID ANODIZE (F-17.04)

MATERIAL: 273T4562-1,-2 -- AL-NI-BRZ PER AMS 4640

273T4562-3 -- AL ALLOY

ALL DIMENSIONS ARE IN INCHES

273T4562-1,-2,-3
End Cap and Plug Refinish
Figure 601

PISTON - REPAIR 4-1

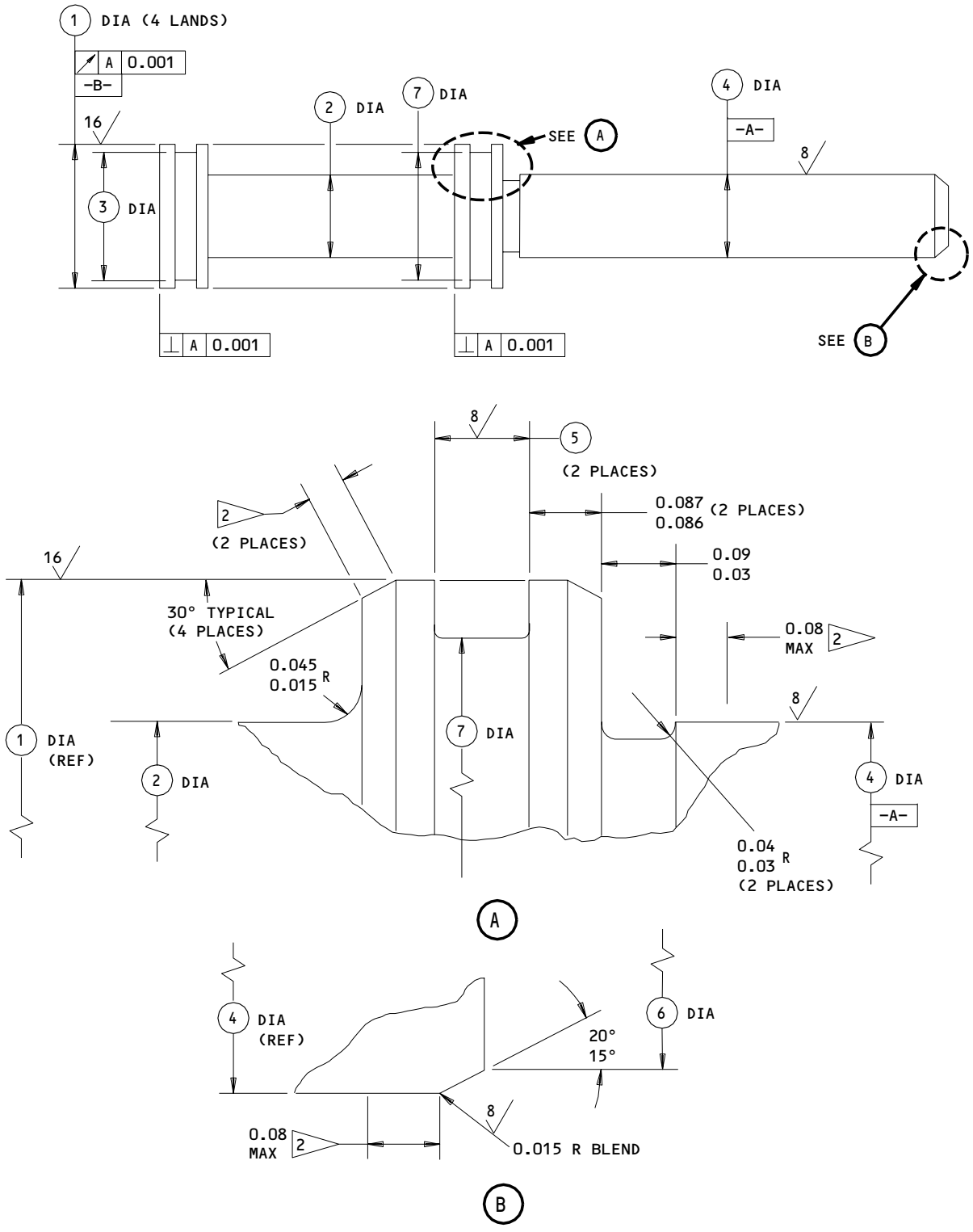
273T4563-2, -3, -4

1. OD Repair-Diameters A, B (Fig. 601)

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

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

   B. Build-up with chrome plate and grind to design dimensions and finish.



273T4563-2,-3,-4
Piston Repair and Refinish
Figure 601 (Sheet 1)

19659

REFERENCE NUMBER	(1) ▷3	(1) ▷4 ▷6	(2)	(3) ▷3 ▷4	(3) ▷6	(4)	(5)	(6)	(7) ▷3 ▷4
DESIGN DIMENSION	0.852 0.850 ▷5	0.861 0.860	0.51 0.49	0.762 0.752	0.742 0.732	0.498 0.496	0.127 0.125	0.46 0.44	0.762 0.752
REPAIR LIMIT ▷1	0.830	0.840	--	--	--	0.486	--	--	--

REFERENCE NUMBER	(7) ▷6
DESIGN DIMENSION	0.557 0.549
REPAIR LIMIT ▷1	--

REFINISH

CHROME PLATE (F-15.03) DIAS -A-, -B-, 0.003 MIN THICK. OBSERVE PLATING RUNOUT PER ▷2. NO FINISH ON OTHER SURFACES

▷1 LIMIT FOR CHROME PLATE BUILDUP AND GRINDING TO DESIGN DIM AND FINISH. OBSERVE PLATING RUNOUT PER ▷2

▷2 CHROME PLATE RUNOUT

▷3 273T4563-2

▷4 273T4563-3

▷5 ORIGINAL DESIGN DIMENSIONS. WHEN DIAS -B- ARE REPAIRED, USE 0.860-0.861 DIA (SAME AS 273T4563-3)

▷6 273T4563-4

REPAIR

REF ▷1

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 0.017-0.046 SHOT SIZE
0.016 A2 INTENSITY

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

ALL DIMENSIONS ARE IN INCHES

273T4563-2,-3,-4
Piston Repair and Refinish
Figure 601 (Sheet 2)

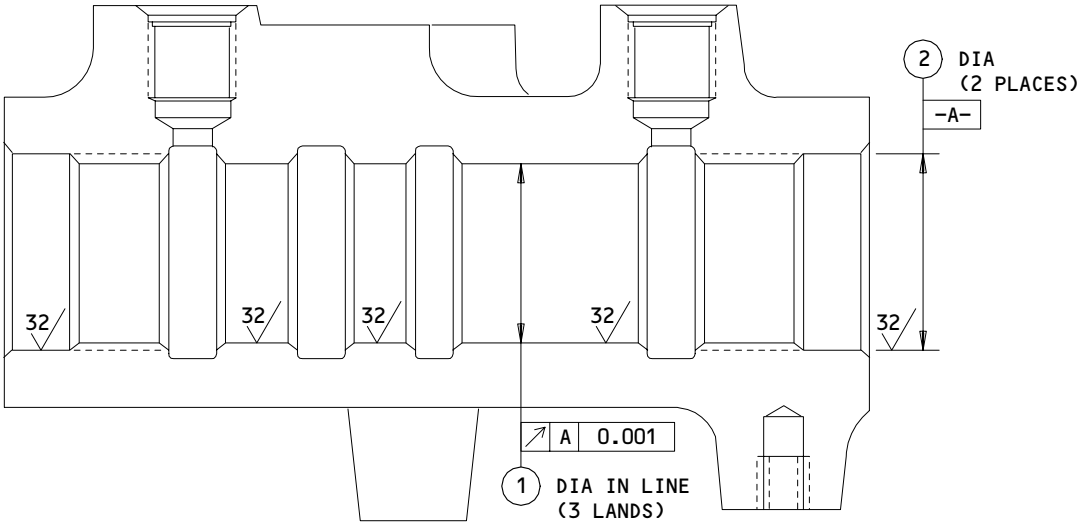
158851

HOUSING - REPAIR 5-1

273T4564-2, -6, -8, -10

1. Coating Repair

   A. Repair consists of restoration of original finish. Refer to Refinish instructions, Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



	1	2
DESIGN DIM	1.118 1.116	1.305 1.303
REPAIR LIMIT	——	——

REFINISH

CHROMIC ACID ANODIZE (F-17.05)

REPAIR

(SAME AS REFINISH)

125 MACHINE FINISH EXCEPT AS NOTED

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

273T4564-2,-6,-8,-10
Housing Repair and Refinish
Figure 601

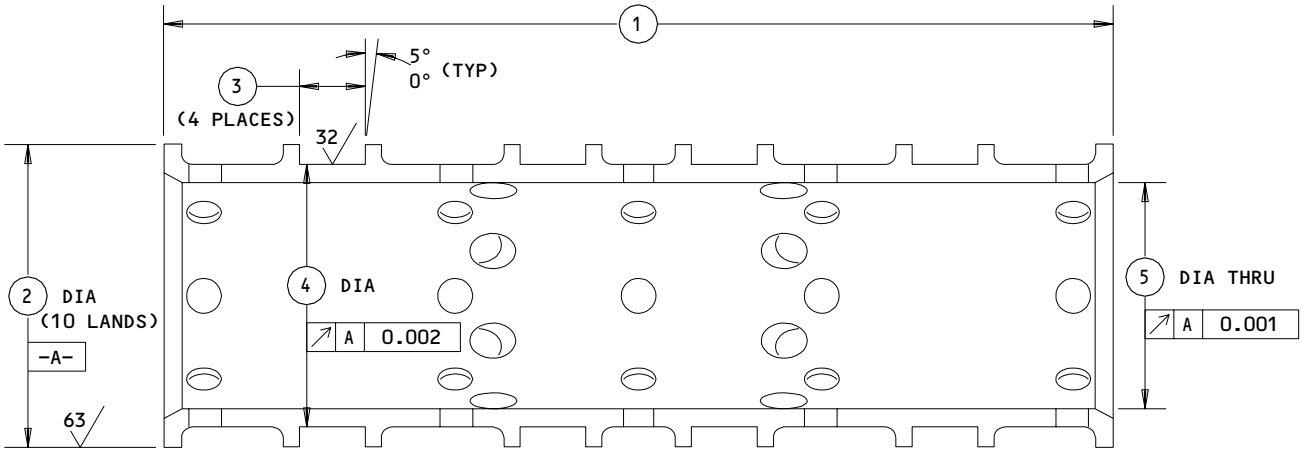
158852

SLEEVE - REPAIR 6-1

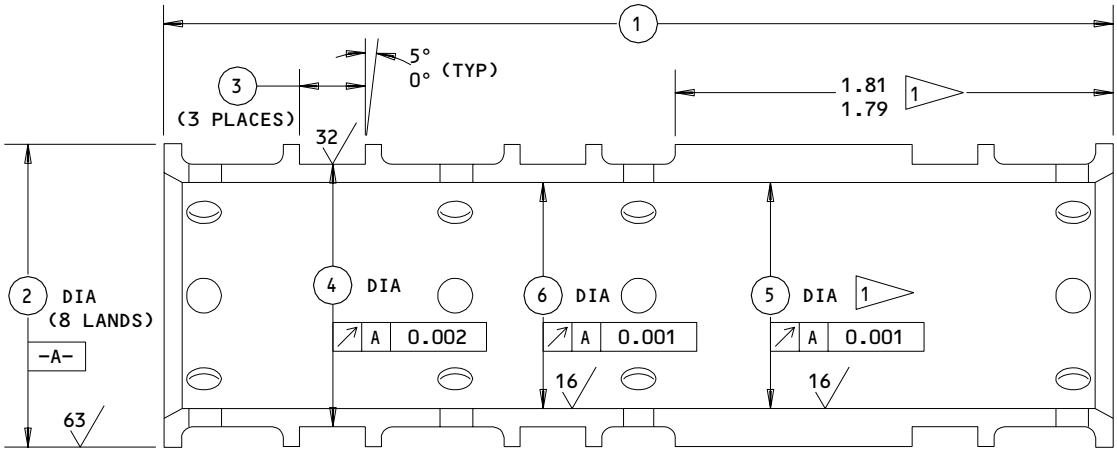
273T4565-1, -3, -4, -5

1. Coating Repair

NOTE: Repair consists of restoration of original finish. Refer to Refinish instructions, Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



273T4565-1,-3



273T4565-4

	1	2	3	4	5	6
DESIGN DIM	3.602 3.598	1.114 1.113	0.255 0.245	0.938 0.936	0.865 0.863	0.864 0.863
REPAIR LIMIT	———	———	———	———	———	———

REFINISH

PASSIVATE (F-17.09) ALL OVER

1 THIS DIA TO BE LAP FIT WITH MATING 273T0101-1 PISTON (48C) FOR LENGTH SHOWN

REPAIR

125 MACHINE FINISH EXCEPT AS NOTED

MATERIAL: 273T4565-1,-3 -- NITRALLOY AMS 6470, NITRALLOY 135, OR 440C CRES
273T4565-4,-5 -- 440C CRES

ALL DIMENSIONS ARE IN INCHES

273T4565-1,-3,-4,-5
Sleeve Repair and Refinish
Figure 601

158853

EXTERNAL PARTS REPLACEMENT - REPAIR 7-1

BAC27THY-4, -22 THRU -25

1. Nameplate and Marker Replacement (Fig. 601, IPL Fig. 1)

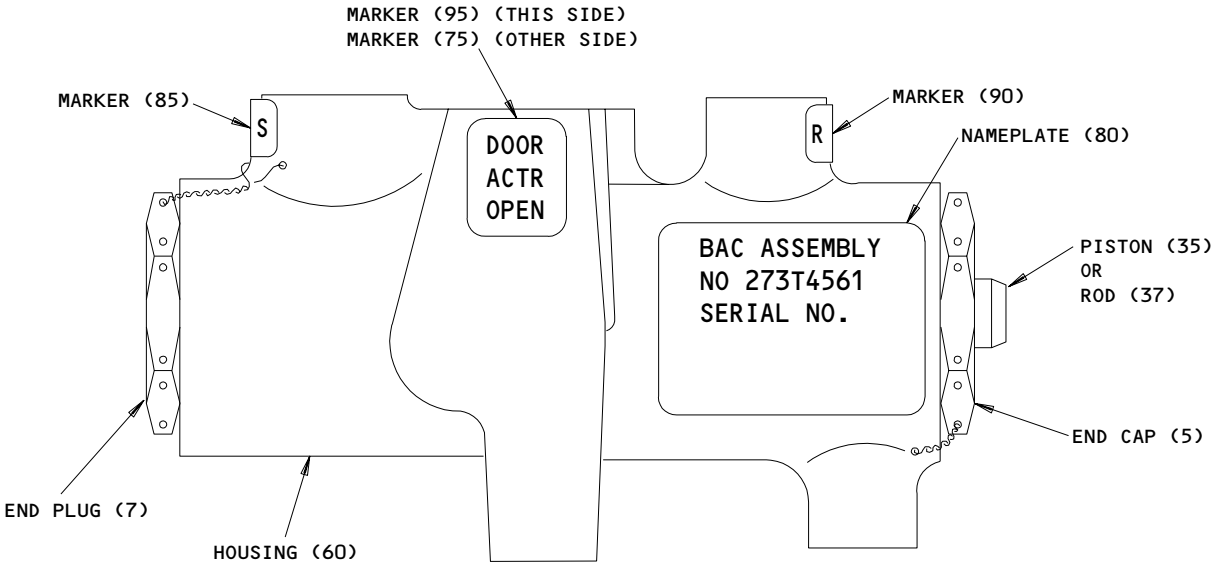
NOTE: Refer to REPAIR-GEN for list of applicable standard practices.

A. Steel stamp serial number on nameplate (80).

B. Preform markers (75, 85, 90, 95) and nameplate (80) to match curvature of actuator surfaces.

C. Bond markers and nameplate to actuator as shown per 20-50-12, using adhesive type 54, grade 1.

D. After installation, apply protective coating. Coating must extend a minimum of 0.38 inch beyond edge of markers and nameplate.



Nameplate and Marker Replacement
Figure 601

158854

ASSEMBLY

1. Materials

NOTE: Equivalent substitutes may be used.

A. Assembly Lube -- MCS 352 (Ref 20-60-03)

B. Hydraulic Fluid -- BMS 3-11 (Ref 20-60-03)

C. Sealant -- BMS 5-95 (Ref 20-60-04)

D. Lockwire -- MS20995NC40

2. Lubrication

A. Lightly lubricate threads of end cap (5) and end plug (7) with hydraulic fluid or assembly lube.

B. On assemblies 273T4561-2, -3, -4, -6, coat piston rings (40 or 41), and ring (42) with hydraulic fluid prior to assembly. On assembly 273T4561-5, lubricate piston (48C) and sleeve (48D) with hydraulic fluid.

3. Assembly (IPL Fig. 1)

NOTE: Install packings and rings per 20-50-06.

A. As applicable, install packings (50 or 53) and backup rings (55 or 57) on sleeve (45 or 48D).

B. On assemblies 273T4561-2, -3, -4, -6, -8, -9, install expander rings (42) and piston rings (40 or 41) on piston (35) and install piston in sleeve (45). Make sure the gaps in the two expander rings are a minimum of 90° out of alignment with the gap in the piston ring, to minimize leakage. Once piston rings (40 or 41) are installed on assemblies 273T4561- 2, -3, -4 , keep them coated with hydraulic fluid. Refer to Fig. 701 for the expander ring and the piston ring installation for 273T4561-8, -9.

NOTE: Install the sleeve in the proper position. This lets fluid flow from the PRESSURE port to the DOOR ACTUATOR OPEN port when the piston is fully extended. The actuator will not operate if it is not done correctly. Refer to IPL Fig. 1 and Fig. 701 for proper sleeve position.

C. On assembly 273T4561-5, install packing (47E) and ring (47F) on piston (48C), then carefully install piston into sleeve (48D).

NOTE: Install the sleeve in the proper position. This lets fluid flow from the PRESSURE port to the DOOR ACTUATOR OPEN port when the piston is fully extended. The actuator will not operate if it is not done correctly. Refer to IPL Fig. 1 and Fig. 701 for proper sleeve position.

D. On assemblies 273T4561-2, -3, -4, -6, install sleeve (45) on housing (60) and install piston (35) in sleeve.

E. On assembly 273T4561-5, install completed piston assembly (47) (with packings (53), rings (57) installed) in housing (60). Insert rod (37) in piston (48C).

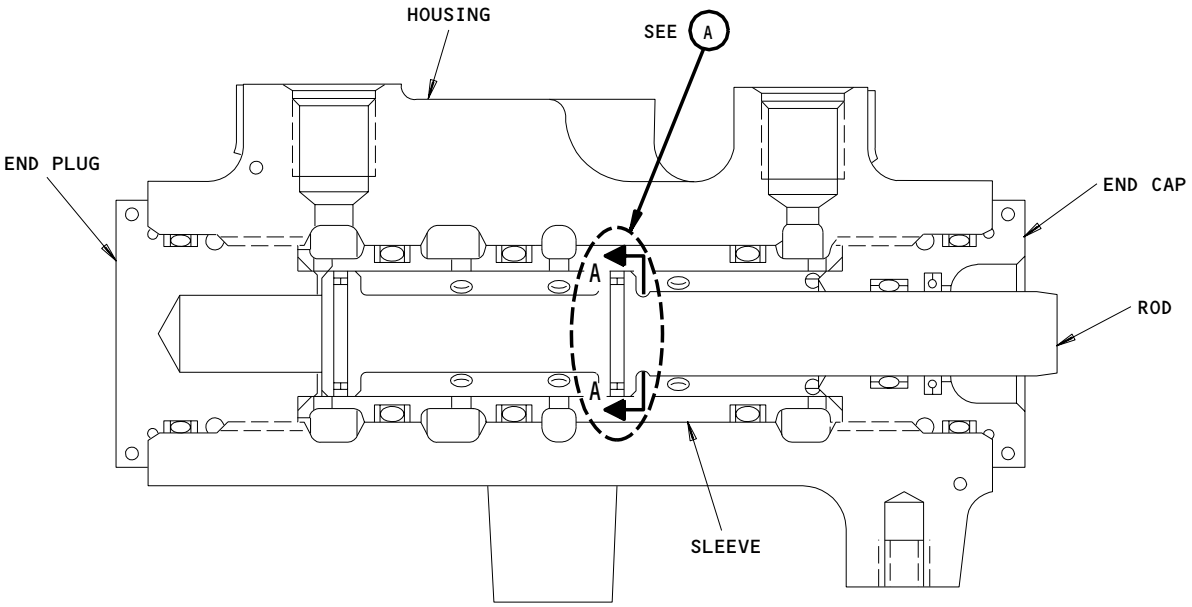
F. Install scrapers (10), packings (15, 25), seal ring (20) and backup rings (30) on end cap (5). Install packing (25) and backup rings (30) on plug (7)

G. Install end cap (5) and end plug (7) on housing (60) and tighten to 432-514 lb-in.

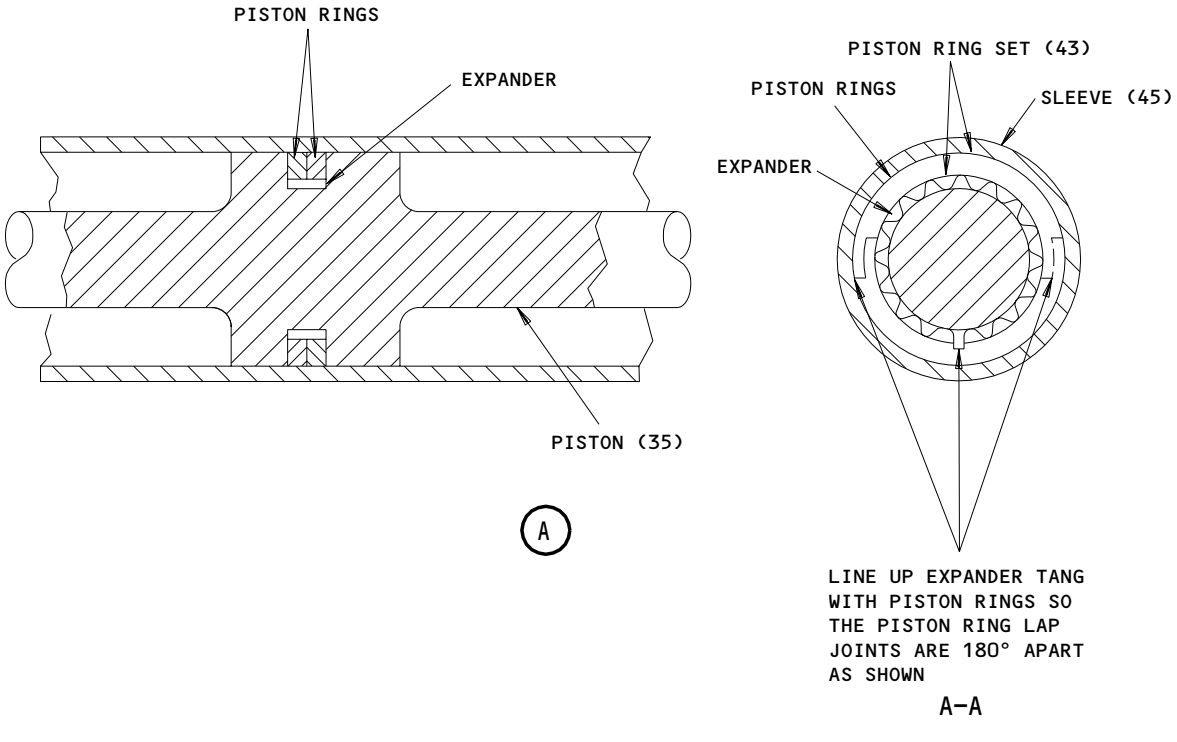
H. Test unit per Testing/Trouble Shooting.

I. After testing is completed, lockwire end cap (5) and end plug (7) to housing assembly (60) using double twist method per 20-50-02. Seal contact areas of end cap, end plug and housing with sealant.

J. Protect and store unit in accordance with standard industry practices and the information contained in 20-44-02 and 20-70-01.

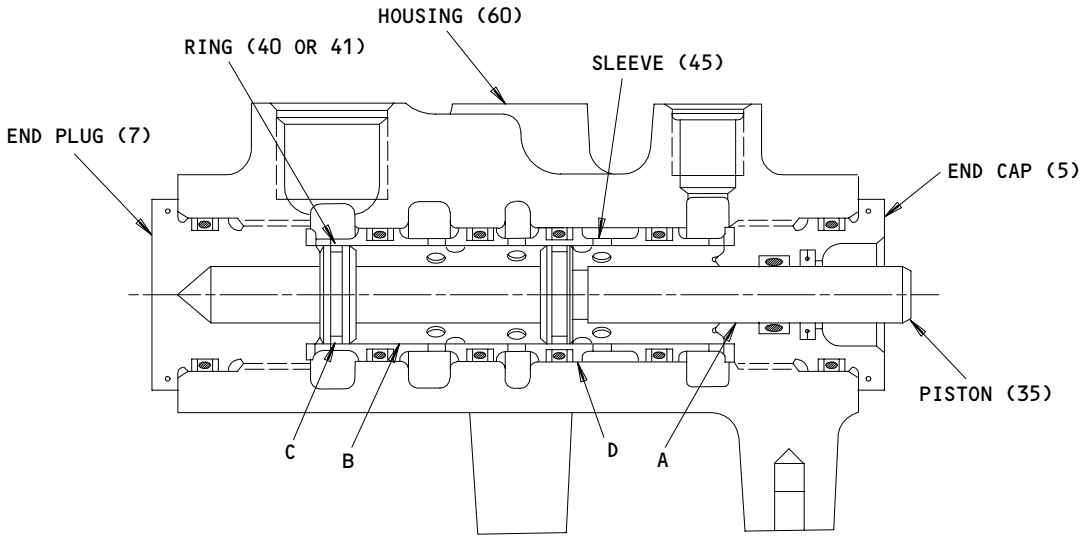


ASSEMBLY 273T4561-6,-8,-9

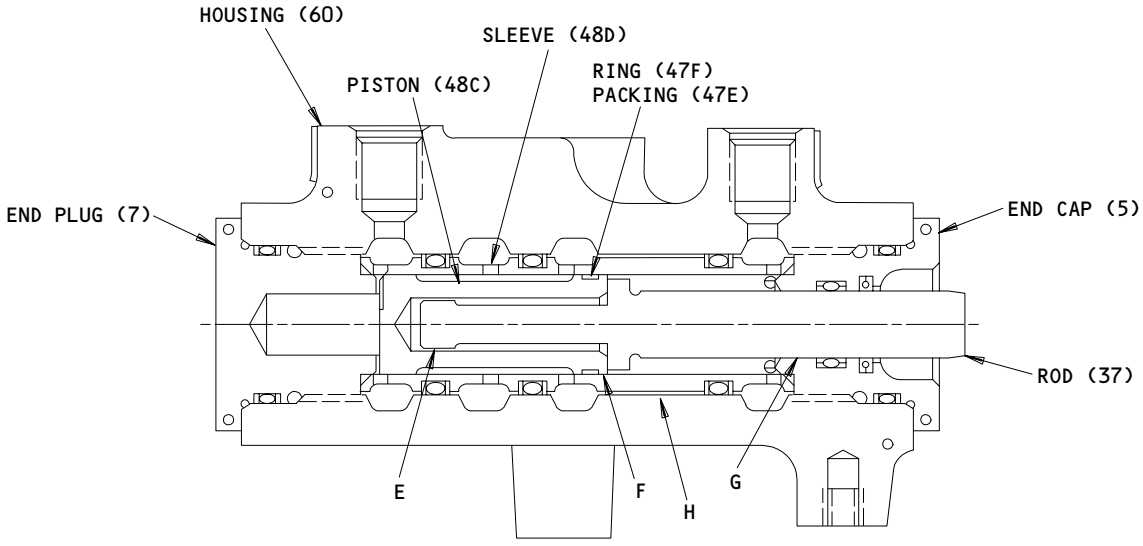


Assembly
Figure 701

FITS AND CLEARANCES

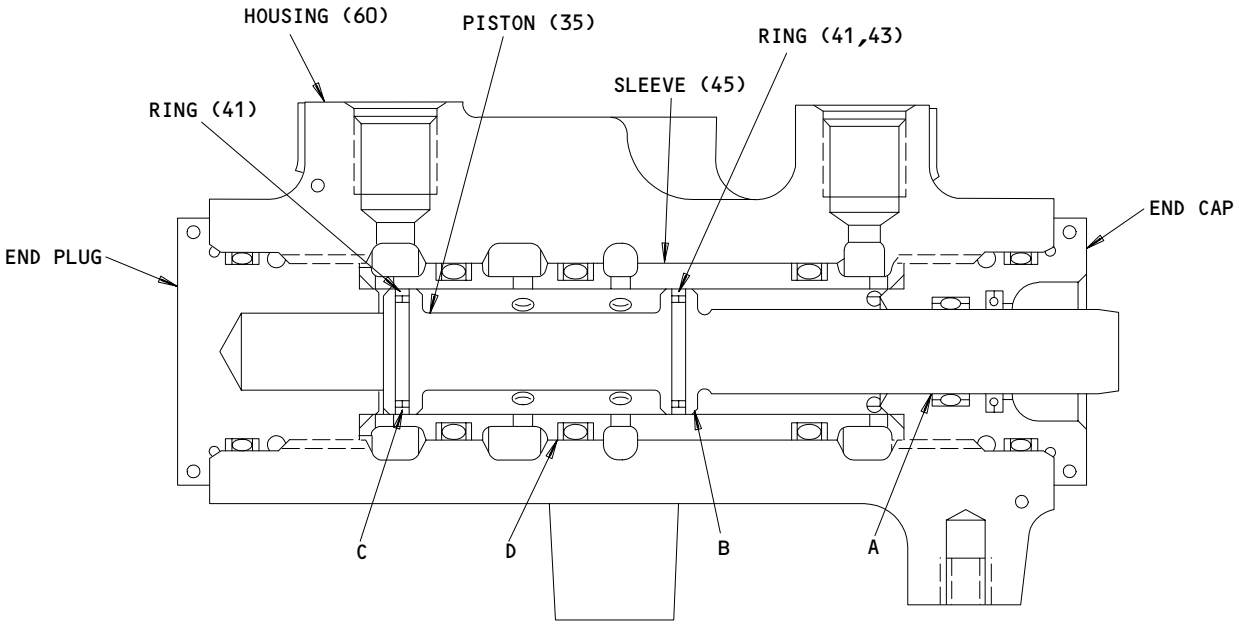


ASSEMBLY 273T4561-2,-3,-4



ASSEMBLY 273T4561-5

Fits and Clearances
Figure 801 (Sheet 1)



ASSEMBLY 273T4561-6,-8,-9

Fits and Clearances
Figure 801 (Sheet 2)

794100

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 5 OD 35	0.500 0.496	0.501 0.498	0.002	0.005	0.494	0.505	0.007
B	ID 45 OD 35 ▷1◁	0.863 0.850	0.865 0.852	0.011	0.015	▷3◁	0.870	0.009
B	ID 45 OD 35 ▷2◁	0.863 0.860	0.865 0.861	0.002	0.005	0.856	0.870	0.009
C	ID 45 OD 40,41	0.8630 0.8645	0.8650 0.8655	-0.0025	0.0005	▷4◁	0.8700	▷4◁
D	ID 60 OD 45	1.116 1.113	1.118 1.114	0.002	0.005			
E	ID 5 OD 37	0.500 0.496	0.501 0.498	0.002	0.005			
F	ID 48D OD 48C	0.863 0.865	0.864 0.866	▷5◁	▷5◁			
G	ID 48C OD 37	0.400 0.391	0.402 0.393	0.007	0.009			
H	ID 60 OD 48D	1.116 1.113	1.118 1.114	0.002	0.005			

* ALL DIMENSIONS ARE IN INCHES

▷1◁ PISTON 273T4563-2

▷2◁ PISTON 273T4563-3,-4

▷3◁ FUNCTIONAL REQUIREMENTS GOVERN UNTIL OVERHAUL

▷4◁ CLEARANCE BETWEEN THE FREE OD OF THE PISTON RING AND THE ID OF THE SLEEVE MUST BE LESS THAN 0.0006

▷5◁ LAP FIT FROM DESIGN DIMS SHOWN

Fits and Clearances
Figure 801 (Sheet 3)

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG. 1	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
5	END CAP	432 - 514	36 - 42
7	END PLUG	432 - 514	36 - 42

Torque Table
Figure 802

19585

SPECIAL TOOLS, FIXTURES AND EQUIPMENT

NOTE: Equivalent substitutes may be used.

1. A32043-1 -- Test fixture

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 SPARTA MANUFACTURING COMPANY
PO BOX 449 5200 NORTH WOOSTER ROAD
DOVER, OHIO 44622

02886 DODGE-WASMUND MFG CO INC
9603 BEVERLY ROAD
PICO RIVERA, CALIFORNIA 90660

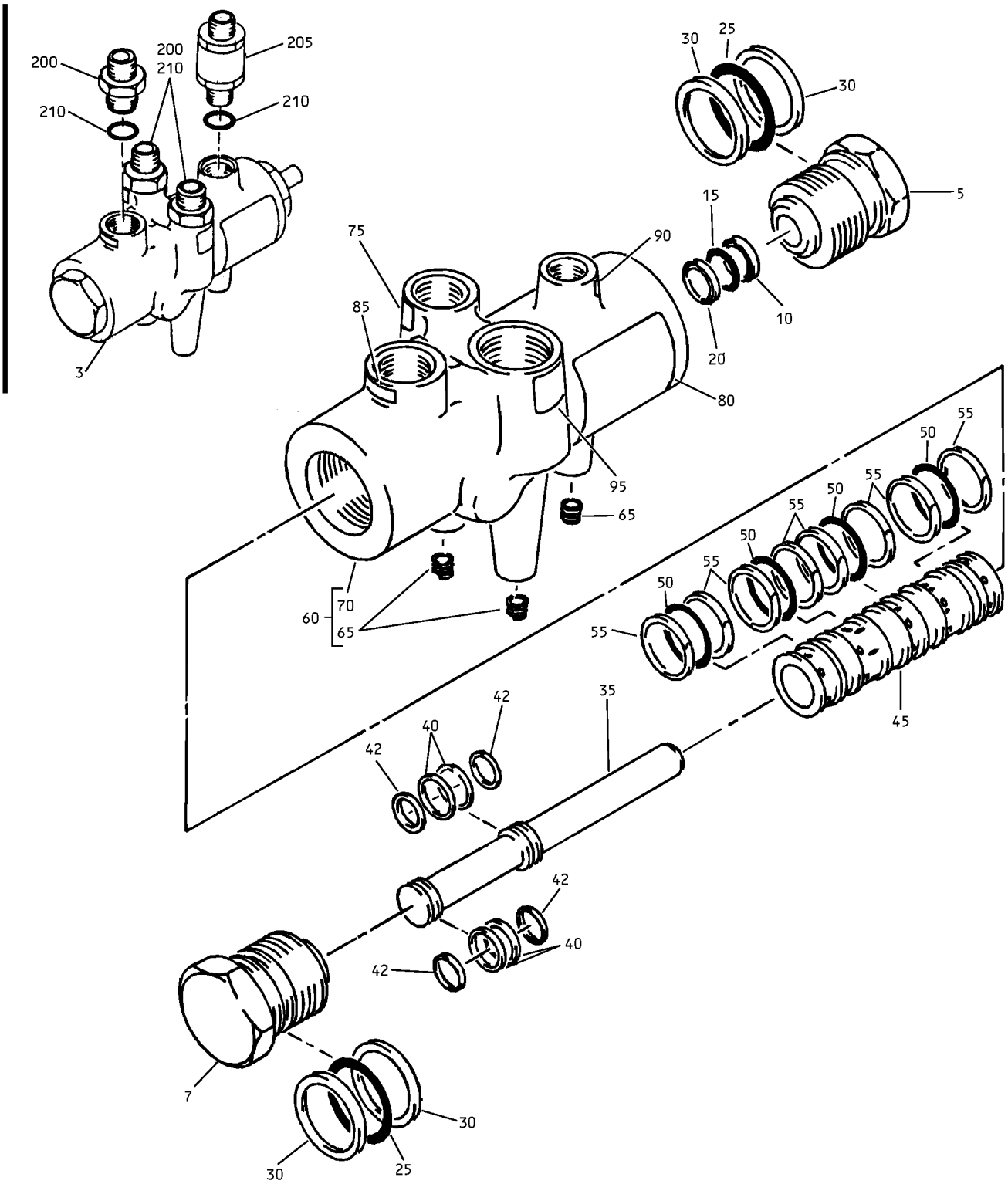
07128 TETRAFLUOR INC
2051 EAST MAPLE AVENUE
EL SEGUNDO, CALIFORNIA 90245

26303 OHIO AIRCRAFT SUPPLIES INC
717 HINDRY AVENUE
INGLEWOOD, CALIFORNIA 90301

26879 CORONADO PLASTICS INCORPORATED
11069 PENROSE AVENUE
SUN VALLEY, CALIFORNIA 91352

94878 RAYBESTOS-MANHATTAN INC PACIFIC COAST DIV
1400 E. ORANGETHROPE
FULLERTON, CALIFORNIA 92631

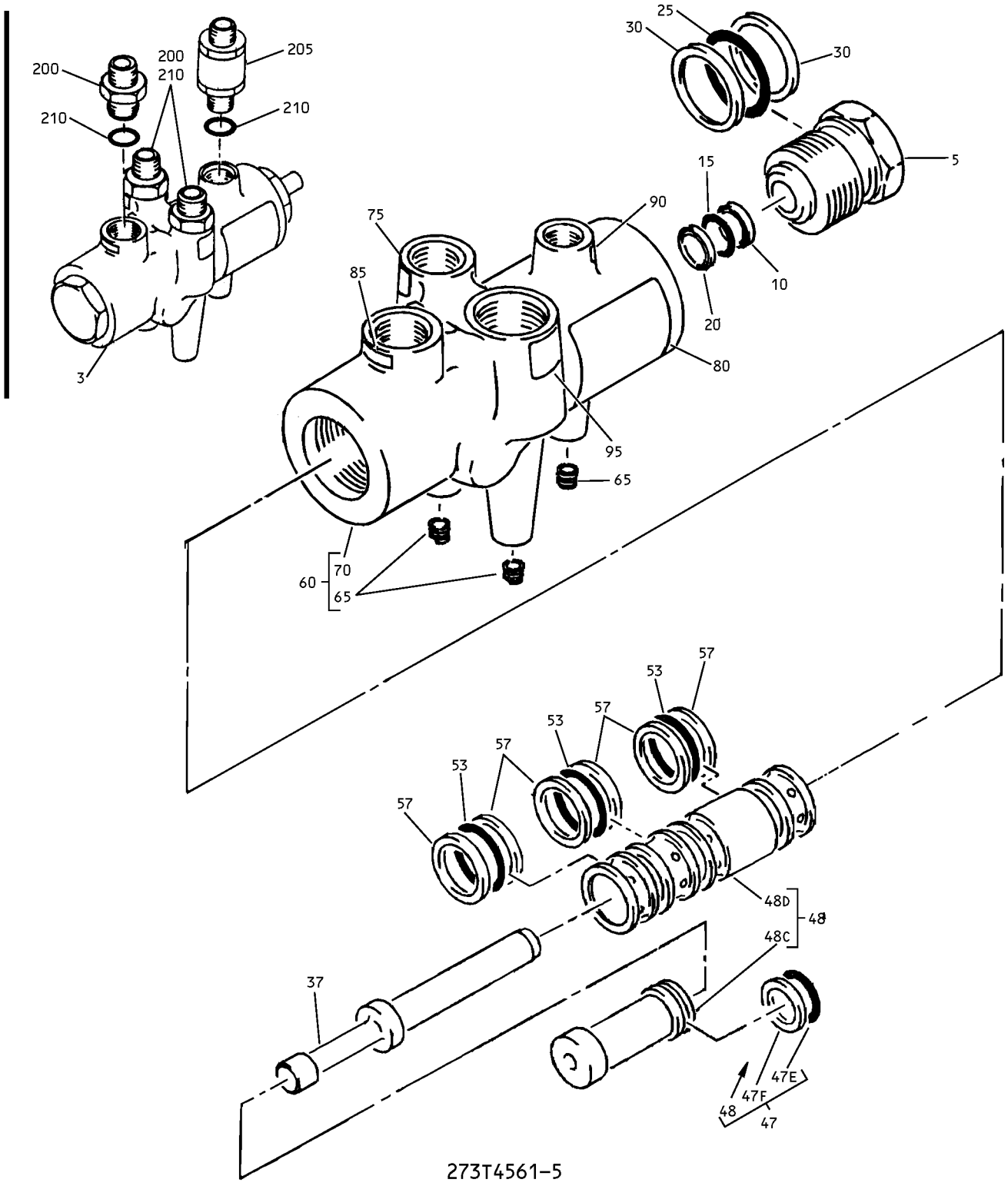
97820 SHAMBAN W S AND CO
711 MITCHELL ROAD
NEWBURY PARK, CALIFORNIA 91320



273T4561-2,-3,-4

Main Landing Gear Door Latch Actuator Assembly
Figure 1 (Sheet 1)

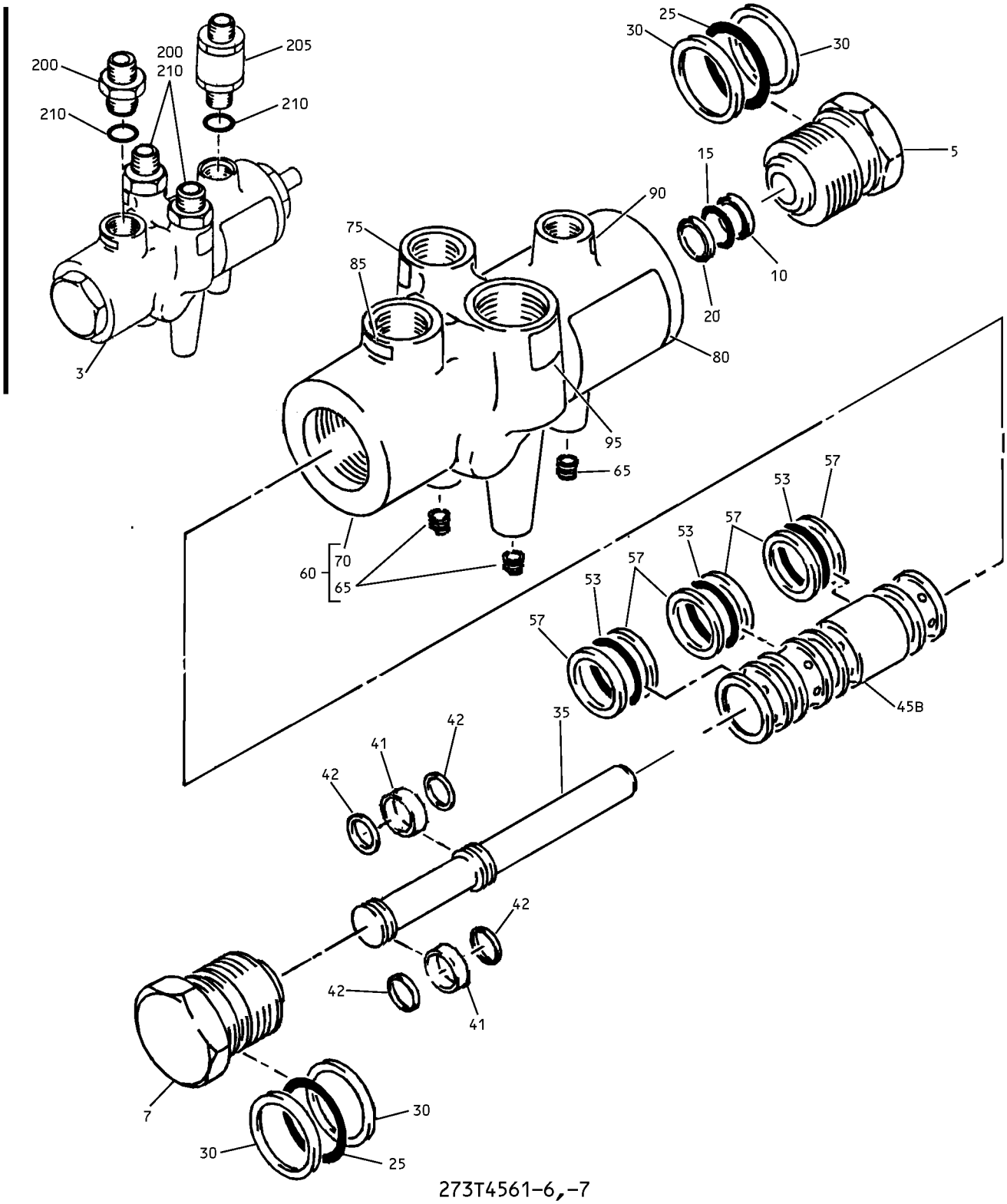
T57409



273T4561-5

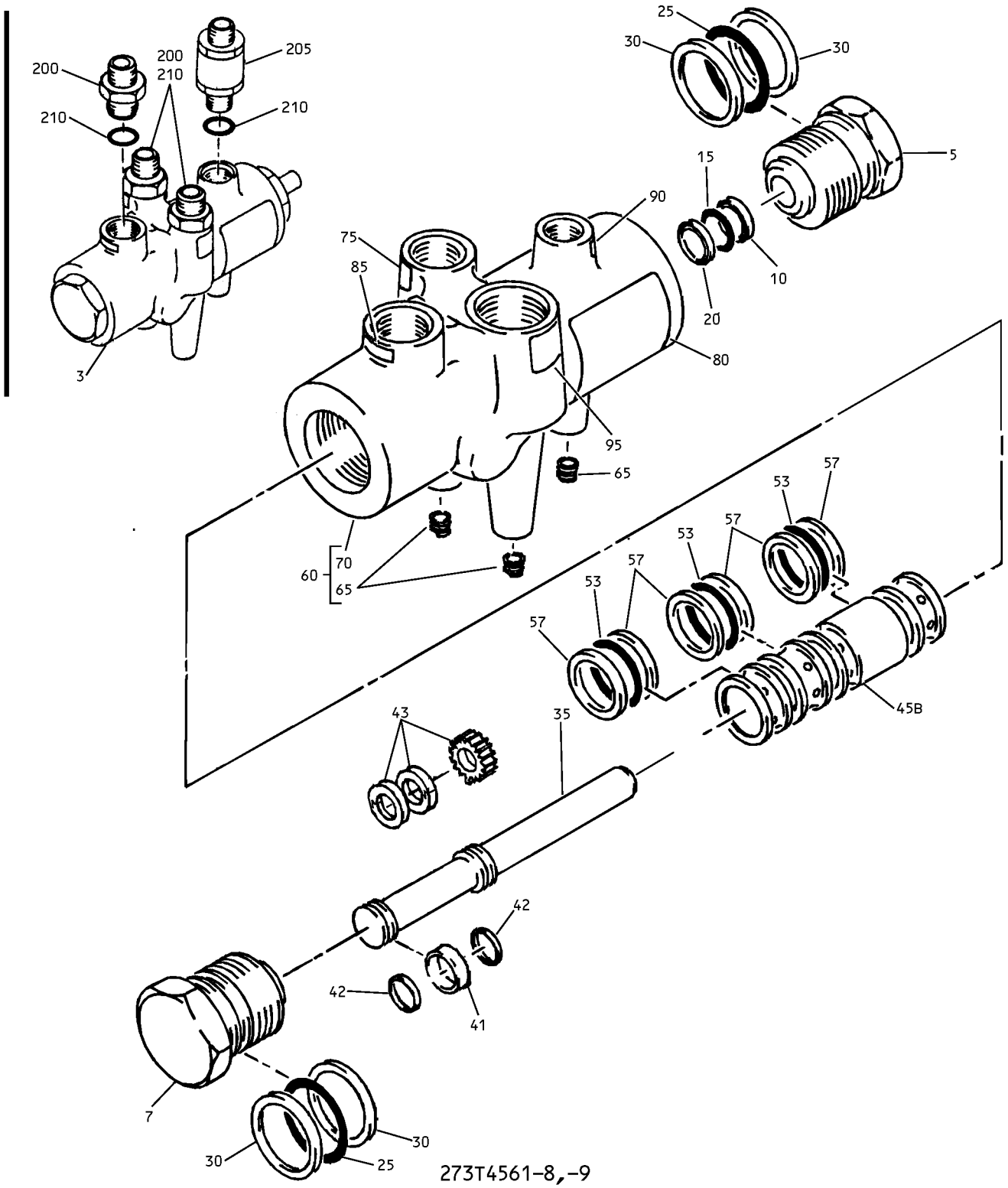
Main Landing Gear Door Latch Actuator Assembly
Figure 1 (Sheet 2)

190686



273T4561-6,-7

Main Landing Gear Door Latch Actuator Assembly
Figure 1 (Sheet 3)



Main Landing Gear Door Latch Actuator Assembly
Figure 1 (Sheet 4)

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	273T4561-2		DELETED		
-1A	273T4561-3		DELETED		
-1B	273T4561-4		DELETED		
-1C	273T4561-5		DELETED		
-1D	273T4561-6		DELETED		
-1E	257T1200-5		ACTUATOR ASSY-MLG DOOR LATCH (PRE SB 32-31)	A	RF
-1F	257T1200-6		ACTUATOR ASSY-MLG DOOR LATCH (PRE SB 32-31)	B	RF
-1G	257T1200-7		ACTUATOR ASSY-MLG DOOR LATCH (PRE SB 32-31)	C	RF
-1H	257T1200-10		ACTUATOR ASSY-MLG DOOR LATCH	D	RF
-1J	257T1200-12		ACTUATOR ASSY-MLG DOOR LATCH (PRE SB 32-31)	E	RF
-1K	257T1200-16		ACTUATOR ASSY-MLG DOOR LATCH (POST SB 32-31)	F	RF
-1L	257T1200-18		ACTUATOR ASSY-MLG DOOR LATCH	G	RF
-3	273T4561-2		.ACTUATOR ASSY (PRE SB 32-30)	A	1
-3A	273T4561-3		.ACTUATOR ASSY (PRE SB 32-30)	B	1
-3B	273T4561-4		.ACTUATOR ASSY (POST SB 32-30)	C	1
-3C	273T4561-5		.ACTUATOR ASSY	D	1
-3D	273T4561-6		.ACTUATOR ASSY	E	1
-3E	273T4561-7		.ACTUATOR ASSY (LIMITED)	*[1]	1
-3F	273T4561-8		.ACTUATOR ASSY	F	1
-3G	273T4561-9		.ACTUATOR ASSY	G	1
5	273T4562-2		..CAP-END (OPT ITEM 5A)		1
-5A	273T4562-1		..CAP-END (OPT ITEM 5)		1
-5D	273T4562-2		DELETED		
7	273T4562-3		..PLUG-END		1
10	S30388-1		..SCRAPER- (V97820)		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
15	NAS1611-112		..PACKING		1
20	S30632-112		..SEAL RING, CAP-PISTON, DOUBLE DELTA (V97820)		1
25	NAS1611-122		..PACKING		2
30	C11237-122		..RING-BACKUP- (V26879) (SPEC BACR12BP122) (OPT DW969516-122 (V02886)) (OPT RM9157BU122 (V94878)) (OPT STS900-122 (V02107)) (OPT S30310-122 (V97820)) (OPT TF456-122 (V07128)) (OPT 2150-122 (V26303)) (OPT ITEM 30A)		4
-30A	C11236-122B		..RING-BACKUP (V26879) (SPEC BACR12BM122) (OPT RMR12BM122 (V94878)) (OPT STF800-122 (V02107)) (OPT S30294-122-1 (V97820)) (OPT TF450-122A (V07128)) (OPT 2100-122 (V26303)) (OPT ITEM 30)		4
30D	C11237-122		DELETED		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
35	273T4563-2		..PISTON	A	1
-35A	273T4563-3		..PISTON	BCE	1
-35B	273T4563-4		..PISTON	FG	1
37	273T0103-1		..ROD	D	1
40	273T4566-1		..RING-PISTON	AB	4
-40A	273T4566-3		..RING-PISTON	C	4
41	SD061184-1-0		..RING, PISTON (V07128)	E	2
41A	SD061184-1-0		..RING, PISTON (V07128)	FG	1
42	273T0069-1		..RING-EXPANDER	AB	4
-42A	273T0069-2		..RING-EXPANDER (OPT)	CE	4
-42B	273T0069-3		..RING-EXPANDER (OPT)	CE	4
-42C	273T0069-2		..RING-EXPANDER	FG	2
-42D	273T0069-3		..RING-EXPANDER	FG	2
43	S32152-115PH5		..RING SET-PISTON	FG	1
45	273T4565-1		..SLEEVE	AB	1
-45A	273T4565-3		..SLEEVE	C	1
45B	273T4565-5		..SLEEVE	EFG	1
47	273T0100-1		..PISTON ASSY	D	1
47E	NAS1611-115		...PACKING	D	1
47F	BACR12BE115NA		...RING	D	1
48	273T0100-2		...SLEEVE ASSY	D	1
48C	273T0101-1		....PISTON	D	1
48D	273T4565-4		....SLEEVE	D	1
50	NAS1611-119		..PACKING	ABCE	4
53	NAS1611-119		..PACKING	DFG	3
55	C11236-119B		..RING-BACKUP- (V26879) (SPEC BACR12BM119) (OPT RMR12BM119 (V94878)) (OPT STF800-119 (V02107)) (OPT S30294-119-1 (V97820)) (OPT TF450-119A (V07128)) (OPT 2100-119 (V26303))	ABC	8
57	C11236-119B		..RING-BACKUP- (V26879) (SPEC BACR12BM119)	DEFG	6

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
60	273T4564-1		..HOUSING ASSY (OPT ITEM 60A) (OPT TO ITEM 60D)	ABC	1
-60A	273T4564-5		..HOUSING ASSY (OPT TO ITEM 60) (OPT TO ITEM 60D)	ABC	1
-60B	273T4564-1		..HOUSING ASSY (OPT ITEM 60C)	D	1
-60C	273T4564-7		..HOUSING ASSY (OPT ITEM 60B)	D	1
-60D	273T4564-9		..HOUSING ASSY (OPT ITEM 60) (OPT ITEM 60A)	ABC	1
-60E	273T4564-1		..HOUSING ASSY (OPT ITEM 60F) (OPT ITEM 60G)	EF	1
-60F	273T4564-7		..HOUSING ASSY (OPT ITEM 60E) (OPT ITEM 60G)	EF	1
-60G	273T4564-9		..HOUSING ASSY (OPT ITEM 60E) (OPT ITEM 60F)	EF	1
-60H	273T4564-9		..HOUSING ASSY (OPT ITEM 60E) (OPT ITEM 60F)	G	1
65	MS21209F4-15		...INSERT		3
70	273T4564-2		...HOUSING (USED ON ITEM 60,60B,60E)		1
-70A	273T4564-6		...HOUSING (USED ON ITEM 60A)		1
-70B	273T4564-8		...HOUSING (USED ON ITEM 60C,60F)		1
-70C	273T4564-10		...HOUSING (USED ON ITEM 60D,60G)		1
75	BAC27THY4		..MARKER, FOIL		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
80	BAC27THY22		..NAMEPLATE		1
85	BAC27THY23		..MARKER, FOIL		1
90	BAC27THY24		..MARKER, FOIL		1
95	BAC27THY25		..MARKER, FOIL		1
200	BC902T6		.UNION (V50948) (SPEC BACU24K6) (OPT DB0U24K6 (V14798)) (OPT ER21902T6 (V88334)) (OPT FER22649T6 (V14397)) (OPT F10-6 (V73197)) (OPT 2-01076T6 (V11328)) (OPT AFP230-06 (V30974)) (OPT AP1001-06 (V01673)) (OPT ITEM 200A)		3
-200A	MS21902J6		.UNION (OPT ITEM 200)		3
205	9R3246-1		.RESTRICTOR-FLOW (V99240) (OPT ITEM 205A)		1
-205A	9R3246		.RESTRICTOR-FLOW (V99240) (OPT ITEM 205)		1
210	NAS1612-6		.PACKING		4

*[1] 273T4561-7 IDENTICAL TO -6, EXCEPT -7 USES 273T4564-9 HOUSING (60D), WITHOUT OPTIONS.