TO: ALL HOLDERS OF LANDING GEAR LOCK ACTUATOR ASSY OVERHAUL MANUAL, 32-30-31

REVISION NO. 20, DATED JUL 1/02

HIGHLIGHTS

DESCRIPTION OF CHANGE	TOPICS AFFECTED												
	D&O	D/Assy	Cleaning	Insp/Chk	Repair	Assy	F/C	Test	T/Shooting	S/Tools	Storage	IPL	L/Overhaul
Changed spanner wrench callouts. Added clarifications		X				X							

LANDING GEAR LOCK ACTUATOR ASSEMBLY
32-30-31

BOEING P/N 65-17819-1, -4, -6, -7, -8, -10, -11, -12, -14, -15
65-17882-3, -5, -7, -12, -13, -14, -17, -18, -21, -22, -24
65-44625-4, -6, -10, -14

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
32-117 (727)		PRR 22303	Nov 15/68
		PRR 30668	Nov 15/68
32-1014 (737)		PRR 31104	Aug 15/69
		PRR 23158-70	Dec 25/72
		PRR 31895-4	Dec 25/72
		PRR 31941	Dec 25/72
		PRR 23717	Feb 10/76
		PRR 24342	Jul 5/79
		PRR 32861	Jul 5/79
32-1201, Rev 1 (737)			Dec 5/90

LIST OF EFFECTIVE PAGES

* Indicates pages revised, added or deleted in latest revision
F Indicates foldout pages - print one side only

	PAGE	DATE	PAGE	DATE	PAGE	DATE
	32-30-31					
	T-1	Dec 5/90				
	T-2	BLANK				
*	LEP-1	Jul 1/02				
	LEP-2	BLANK				
	T/C-1	Nov 10/80				
	T/C-2	BLANK				
	1	Nov 10/80				
	2	BLANK				
*	101	Jul 1/02				
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	201	Nov 10/80				
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*	501	Jul 1/02				
*	502	Jul 1/02				
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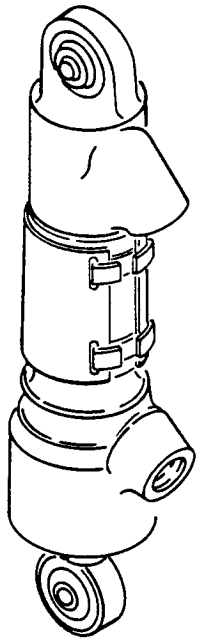
LANDING GEAR LOCK ACTUATOR ASSEMBLY



Landing Gear Lock Actuator Assembly
Figure 1

DESCRIPTION AND OPERATION

1. The landing gear lock actuator is a hydraulic piston barrel assembly with piston rings and O-ring seals. Pressure applied either side of the piston unlocks the lock mechanism to permit normal retraction and extension of the landing gear, or locks it when the gear is fully extended or retracted.

2. Leading Particulars (Approximate)

Operating fluid -- BMS 3-11 Hydraulic Fluid
Operating pressure -- 3000 psi
Proof pressure -- 5400 psi
Length (between bearing centerlines)
    Extended -- 11.7 inches max.
    Retracted -- 8.4 inches max.
Weight -- 2 pounds
Port sizes -- 7/16-20-UNF-3B for 1/4 inch OD tube
          -- 9/16-18-UNF-3B for 3/8 inch OD tube

DISASSEMBLY

NOTE: Refer to Fig. 1101 for item numbers unless shown differently.

1. Remove all external lockwire. Straighten flange of cup lockwasher (6). If attached, remove parts (1 thru 7, Fig. 1102).

2. Loosen plug (7) with spanner wrench F72959-31. Remove piston (18) with assembled parts (17 thru 3) from barrel (21).

3. Hold piston (18) to prevent damage to machined surfaces. With the applicable F71313-series rod end wrench, remove rod end (3) from piston.

4. Remove items (17 thru 6) from piston (18).

CLEANING

1. Clean all parts except bearings (4, 20) in accordance with standard industry practices and the information contained in 20-30-03. Clean bearing (4, 20) only by special method for teflon lined bearing in 20-30-01.

INSPECTION/CHECK

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. Penetrant examine sleeve (9), bearing (14) and barrel (21).

3. Magnetic particle examine rod end (5) and piston (18).

REPAIR

1. Repair

A. Repair minor defects in accordance with standard industry practices. Refer to Fits and Clearances for design dimensions and wear limits.

B. Refer to 20-10-01 and 32-00-05 for machining of high strength steels.

C. Piston (18) -- Fig. 402.

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

(2) Shot peen as indicated.

(3) Build up repaired surface with chrome plate and grind to design dimension and finish.

2. Refinish

NOTE: Refer to 20-30-02 for stripping of protective finishes and to 20-41-01 for explanation of F and SRF finish codes.

A. Rod end (5)(69-35723-2) -- Cadmium plate (F-15.06), 0.0003-0.0005 inch thick all over, except hole for bearing. Material: 4340 steel, 180-200 ksi.

B. Rod end (5)(69-35723-4) -- Cadmium-titanium plate (F-15.01), 0.0003-0.0005 inch thick all over, but not in hole for bearing. Material: 4330M steel, 220-240 ksi.

C. Rod end (5)(69-14204-2, -3, 69-48312-2) -- Cadmium plate (F-1.32, which replaces F-1.1923), 0.0003-0.0005 thick all over except hole for bearing. Material: 4340 steel, 150-170 ksi.

D. Rod end (5)(65-89604-2) -- Cadmium-titanium plate all over (F-1.308, which replaces F-1.181) except hole for bearing, followed by primer, BMS 10-11, type 1 (SRF-12.205). Omit primer on threads. Apply enamel, BMS 10-11, type 2 all over (SRF-12.63) except on threads and bearing. Material: 4330M steel, 180-200 ksi.

E. Plug (7) -- Chromic acid anodize (F-2.26) all over. Material: Al alloy.

F. Sleeve (9) -- Cadmium plate (F-4.201), 0.0003-0.0005 inch thick all over, except 0.562-inch ID. Material: Al-Ni-bronze.

G. Bearing (14) -- Fig. 401.

H. Piston (18) -- Fig. 402.

I. Barrel (21) -- Fig. 403.

3. Replacement

A. Replace all O-rings, backup rings and piston rings at each overhaul.

B. Replace all parts that are unserviceable or too damaged for easy repair.

C. Bearings (4, 20)

(1) Install bearing (4) as follows:

(a) On rod end assembly 69-14204-1, heat rod end 69-14204-2 in boiling water for 15 minutes. Apply coating of Epon 919 to the faying surfaces of the bearing and the rod end. Quickly tap the bearing into the rod end. Remove unwanted resin. Cure at room temperature for 5 days, or at 190°F for 90 minutes. If you use rod end 69-14204-3, install the bearing by the Bearing Retention With Adhesives procedure, Method 1 or 2, in 20-50-03.

(b) On rod end assembly 69-35723-1,-3, apply coating of grease, MIL-G-23827 to the faying surfaces of the bearing and the rod end. Install the bearing. Slightly bend both sides of bearing outer race lip over the bore chamfer, and then roller swage the bearing per 20-50-03.

(c) On rod end assembly 65-48312-1, apply a thin layer of sealant BMS 5-26, class B on the faying surfaces of the bearing and the rod end. Do not let sealant touch the teflon or the bearing ball will not move freely. Install the bearing immediately. Slightly bend both sides of bearing outer race lip over the bore chamfer, and then roller swage the bearing per 20-50-03.

(d) On rod end assembly 65-89604-1, apply a layer of corrosion preventive compound, MIL-C-16173, grade 3 to the faying surfaces of the bearing and the rod end. Install the bearing and swage per 20-50-03.

(2) Install bearing (20) as follows:

(a) On barrel 65-17981-1, clean the bore with 400-grit paper, wipe with methyl ethyl ketone and chemical treat per 20-43-03. Heat the barrel in boiling water for 15 minutes. Apply coating of Epon 919 to the faying surfaces of the bearing and the barrel hole. Quickly tap the bearing into the barrel hole. Remove unwanted resin. Cure at room temperature for five days, or at 190°F for 90 minutes.

(b) On barrel assembly 65-26414-1, bond the bearing in place by the Bearing Retention with Adhesives procedure, Method 1 or 2, in 20-50-03. (Pre SB 32-117 configuration).

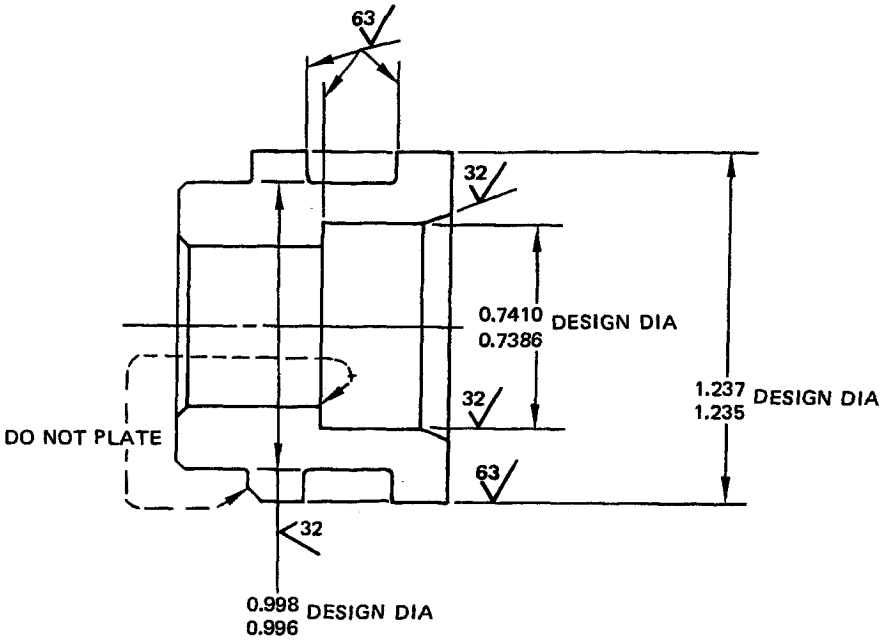
(c) On barrel assembly 65-26414-5 and on, apply a thin layer of sealant BMS 5-26, class B on the faying surfaces of the bearing and the mating hole. Do not let sealant touch the teflon or the bearing ball will not move freely. Install the bearing immediately. Slightly bend both sides of bearing outer race lip over the bore chamfer and then roller swage the bearing per 20-50-03.

(3) Breakaway torque of bearings (4, 20) after installation in housing must not be more than 20 lb-in. Measure the breakaway torque as follows:

(a) Turn the inner race through a minimum of two full turns, and make a note of the positions of higher than average rotational torque.

(b) Measure the breakaway torque at all positions where you found higher than average rotational torque in step (1), or at 3 approximately 120-degree intervals, if the torque was constant.

D. Nameplate (1) — Steel stamp serial number and assembly dash number on nameplate before installation.



REFINISH

CADMIUM PLATE (F-4.201), 0.0003 –0.005 THICK ALL OVER, EXCEPT AS NOTED.

REPAIR

(SAME AS REFINISH)

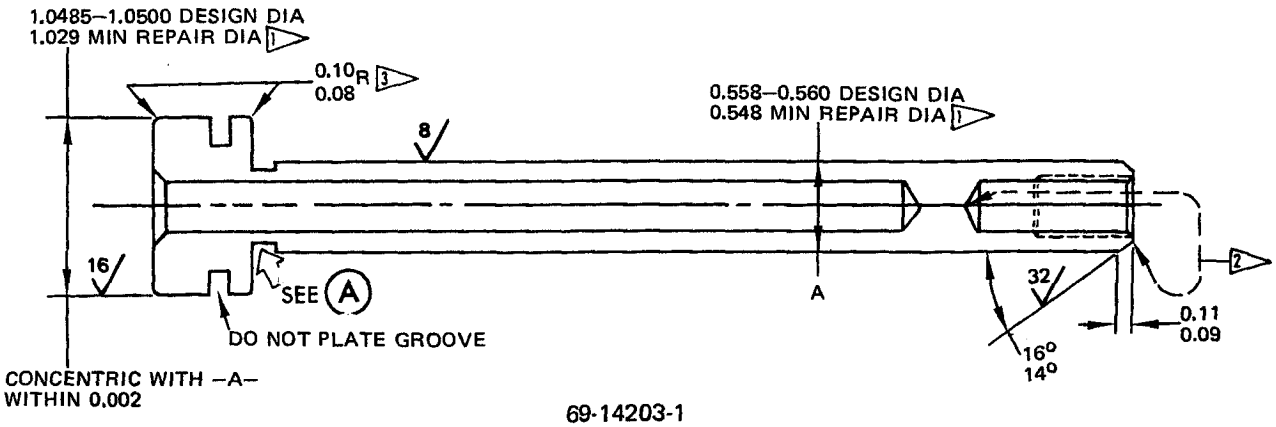
125 MACHINE FINISH EXCEPT AS NOTED

MATERIAL: AL-NI BRONZE

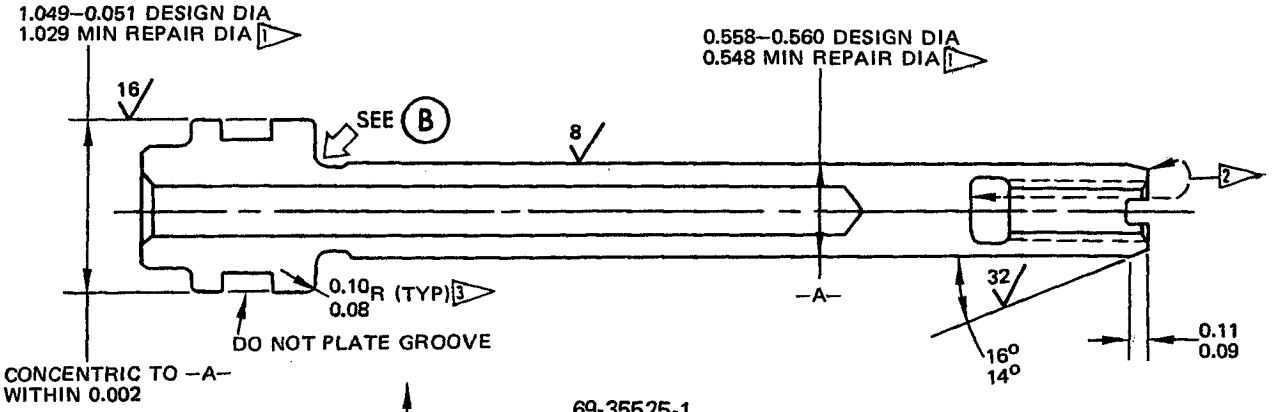
ALL DIMENSIONS ARE IN INCHES

BEARING (14)

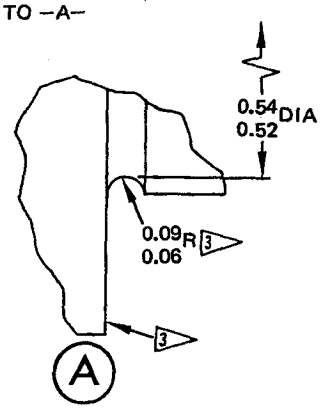
Bearing Refinish
Figure 401

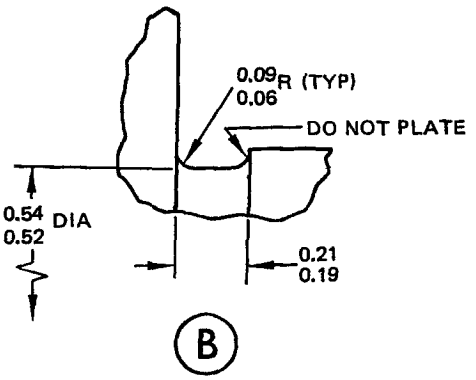


69-14203-1



69-35525-1





REFINISH

CHROME PLATE (F1.90, WHICH REPLACES F-1.842, OR F-15.03) DIA -A-. CADMIUM PLATE SURFACES NOTED BY 2, INCLUDING SLOTS.

1 LIMIT FOR CHROME PLATE BUILDUP (REF 20-42-03). GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN. OBSERVE PLATING RUNOUT

2 CADMIUM PLATE (F-1.32, WHICH REPLACES F-1.1923), 0.0003-0.0005 THICK)

3 PLATING RUN OUT

REPAIR

REF. 1

125 MACHINE FINISH EXCEPT AS NOTED

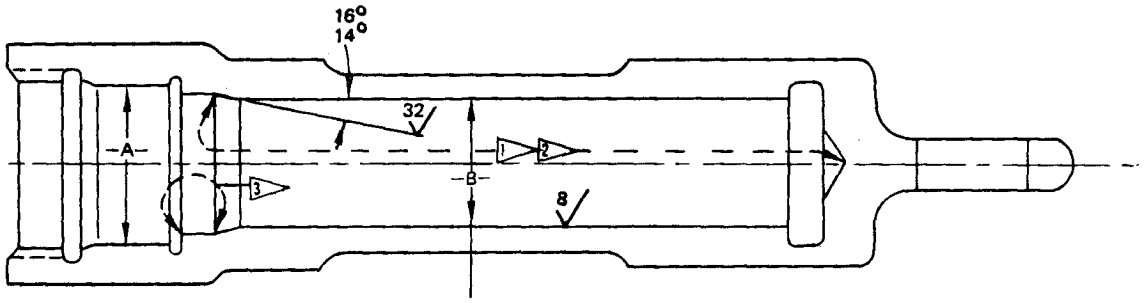
BREAK ALL SHARP EDGES 0.005–0.010R

SHOT PEEN (REF 20-10-03)
0.016–0.033 SHOT SIZE
0.015 A2 INTENSITY

MATERIAL: 69-14203-1: 4340 STEEL, 150–170 KSI
69-35525-1: 4340 STEEL, 180–200 KSI

ALL DIMENSIONS ARE IN INCHES

Piston Repair and Refinish
Figure 402

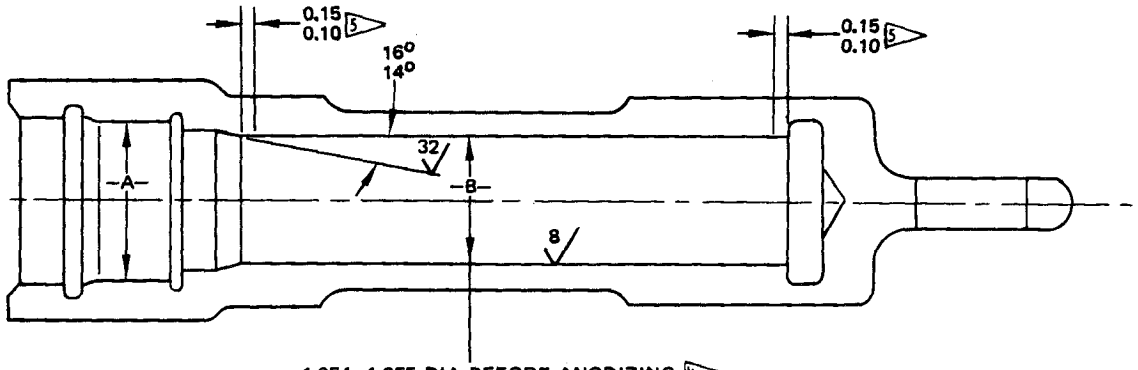


1.053–1.055 DESIGN DIA
AFTER PLATING AND HONING.
CONCENTRIC WITH DIA –A–
WITHIN 0.002

REFINISH

CHROMIC ACID ANODIZE (F-2.26) ALL SURFACES EXCEPT THOSE TO BE PLATED. ELECTROLESS NICKEL PLATE SURFACES NOTED BY 1 AND 2. PLATING OPTIONAL ON SURFACE NOTED BY 3

65–17981–2; 65–26414–2, –8, –10, –15, –21



1.054–1.055 DIA BEFORE ANODIZING 4
1.053–1.055 DESIGN DIA AFTER
HARD ANODIZING AND HONING
CONCENTRIC WITH –A–
WITHIN 0.002

REFINISH

CHROMIC ACID ANODIZE (F-2.26) ALL OVER EXCEPT ON DIA –B–. HARD ANODIZE (F-2.204) DIA –B–, 0.00125 –0.00150 THICK.

65–26414–6, –13, –20

1 ELECTROLESS NICKEL PLATE (F–1.9121) 0.0015–0.0020 THICK (65–17981–2)

2 ELECTROLESS NICKEL PLATE (F-1.9121) 0.0020–0.0025 THICK (65–26414–2, –8, –10, –15, –21)

3 PLATING OPTIONAL

4 DO NOT MACHINE LANDS NOTED BY 5

5 HARD ANODIZE TO STOP IN THESE AREAS.

ASSEMBLY

1. Lightly lubricate O-rings (11, 13, 17), foot seal (12), backup rings (10), scraper ring (8) and threads of plug (7) with hydraulic fluid BMS 3-11 or assembly lube as parts are installed.

2. Assembly

   A. Install O-ring (13) and foot seal (12) into bearing (14). Install O-ring (11) and backup rings (10) on bearing (14).

   B. Install bearing (14) and items (9 thru 6) on piston (18).

   C. Install rod end (3) with cup lockwasher (6) in piston (18):

      (1) Start threaded parts together until you get an engagement of approximately 2 threads. Apply a light coating of grease to exposed male (OD) threads, then continue to thread the parts together.

      (2) Hold piston with strap wrench or equivalent which will not damage piston or rod. With the applicable F71313-series wrench, tighten rod end to 100-110 lb-in. (actuators 65-17819-1, -4, -6, -7, -11, -12, -15), or 160-170 lb-in. (actuators 65-17819-8, -10, -14). As you tighten, hold lockwasher tab to side of piston slot as shown in Fig. 501.

         NOTE: To keep the lockwasher tab in the position shown, during tightening, temporarily put a screwdriver blade tip or piece of shim stock of required thickness (0.010-0.040 inch) in the gap at the slot.

      (3) With an approximately 0.14 inch square punch, bend flange of cup lockwasher (6) into slot on rod end (3). Use slot in rod end assembly farthest from slot in piston (18).

   D. Ring set or seal (15) (as applicable).

      (1) Install ring set (15) on piston (18) with the step cuts in the two rings 180 degrees apart. Make sure that the curled end of the expander ring is engaged in the slots of the rings to prevent rotation between the piston rings.

      (2) Install seal (15) or ring (15) with packing (17) on piston.

   E. Install piston (18) and assembled items (17 thru 6) into barrel (19). Tighten plug (7) to 175-225 lb-in. with an F72959-31 spanner wrench.

   F. Install nameplate (1), and strap (2).

   G. Lockwire barrel (19) to plug (7), by the double twist method.

H. Apply a bead of sealant per par. 3 to seal the joints and splitlines at these threaded areas:

(1) Rod end (3), lockwasher (6), piston (18)

(2) Plug (7), barrel (19)

3. Sealant application

A. Wipe unwanted grease and lubricant from the unit, with a clean cloth.

B. Clean areas to get sealant will be applied, with a clean cloth wetted with solvent.

CAUTION: DO NOT SQUIRT OR APPLY CLEANING SOLVENT TO THE JOINTS.

C. Apply a bead of sealant to the joints and keyways identified in par. 2.

D. Let the sealant to cure for 48 hours.

E. Make sure the sealant is cured and that it has a good bond with the surfaces.

4. Materials

NOTE: Equivalent substitutes can be used.

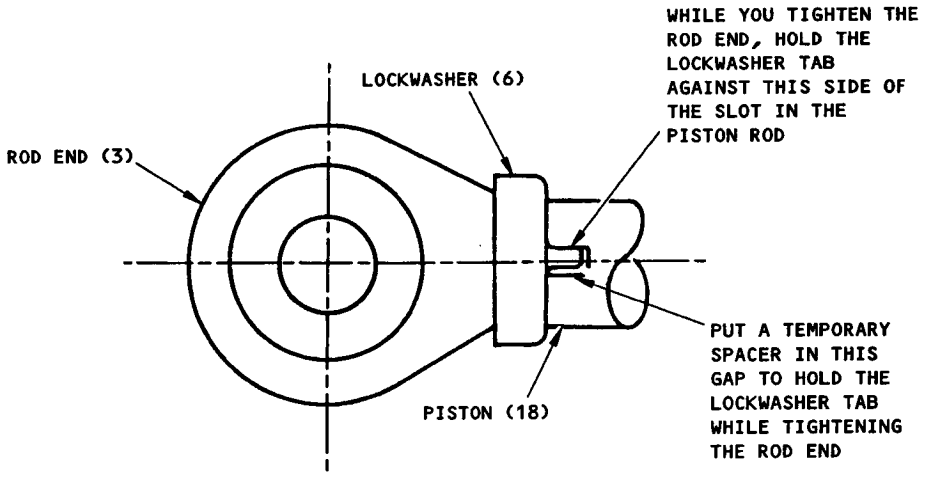
A. Hydraulic Fluid -- BMS 3-11 (SOPM 20-60-03)

B. Assembly Lube -- MCS 352 (SOPM 20-60-03)

C. Grease -- Batco 8401 #1 (#2 optional) (SOPM 20-60-03)

D. Sealant -- BMS 5-26, Type 1, class B-1/2 (Type 2, class B-2 optional) (SOPM 20-60-04)

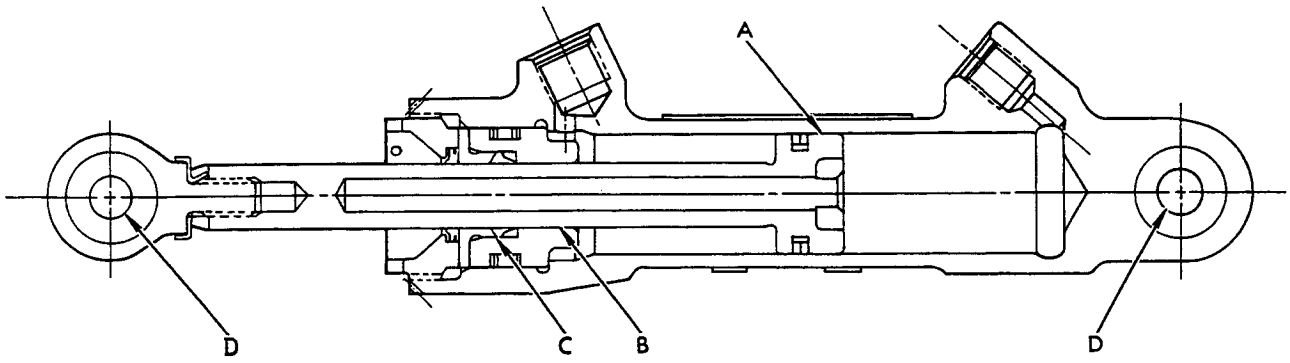
E. Solvent -- Methyl Ethyl Ketone (SOPM 20-60-01)



Assembly Details
Figure 501

FITS AND CLEARANCES

1., 2. DELETED.



Ref Letter Fig.601	Mating Item No. Fig.1101	Design Dimensions				Service Wear Limits		
		Dimensions (inches)		Assembly Clearance (inch)		Dimension Limits (inches)		Maximum Allowable Clearance (inch)
		Min	Max	Min	Max	Min	Max	
A	ID 21	1.0530	1.0550	0.0020	0.0065		1.0560	0.0085
*[1]	OD 18	1.0485	1.0510			1.0470		
A	ID 21	1.0530	1.0540	0.0020	0.0050		1.0550	0.0070
*[2]	OD 18	1.0490	1.0510			1.0470		
A	ID 21	1.0530	1.0550	0.0015	0.0065		1.0560	0.0085
*[3]	OD 18	1.0485	1.0500			1.0470		
B *[1] *[3]	ID 14	0.5620	0.5630	0.0020	0.0050		0.5670	0.0080
	OD 18	0.5580	0.5600			0.5565		
B	ID 14	0.5620	0.5630	0.0020	0.0050		0.5670	0.0070
*[2]	OD 18	0.5580	0.5600			0.5565		
C *[1] *[3]	ID 9	0.5620	0.5630	0.0020	0.0050		0.5670	0.0060
	OD 18	0.5580	0.5600			0.5565		
C	ID 9	0.5620	0.5630	0.0020	0.0050		0.5670	0.0070
*[2]	OD 18	0.5580	0.5600			0.5565		
D *[1] *[3]	ID 4,20	0.3745	0.3750				0.3775	
D *[2]	ID 4,20	0.4995	0.5000				0.5025	

*[1] 65-17819-1, -4, -6, -7, -11, -15
*[2] 65-17819-8, -10, -14
*[3] 65-17819-12

TESTING

1. Test Equipment

   A. A hydraulic test stand that can supply controlled hydraulic pressure to 5400 psi.

2. Preparation for Test

   A. Do the test at 70-80°F.

   B. See that hydraulic fittings and parts (1 thru 7, Fig. 1102), are installed.

   C. Fill unit with hydraulic fluid, BMS 3-11, and bleed off all air. (Skydrol 7000 is optional.)

      CAUTION: DO NOT APPLY COMPRESSED AIR TO PORTS AT ANY TIME. DO NOT CYCLE UNIT AT PROOF PRESSURE.

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

3. Pressure Test

   A. With piston fully extended apply pressure of 2-10 psi to extend port located at barrel (19) closed end, for a period of 2 minutes. There must be no external leakage.

   B. Do step A. again with proof pressure of 5400 psi. There must be no external leakage or permanent deformation.

   C. Repeat tests 3.A. and 3.B. with piston fully retracted and pressure applied to retract port.

   D. With piston fully extended, apply pressure of 3000 psi to extend port. Leakage from open retract port must not be more than 30cc per minute for actuator 65-17819-1, -4, -6, -7, -11, -12, -15 and must not be more than 3 drops per minute for actuator 65-17819-8, -10, -14.

4. Operational Test

   A. Cycle actuator at 3000 psi pressure through 25 full cycles. Leakage at foot seal (12) must not be more than 2 drops total. Unit must operate without sticking or binding.

   B. For actuators 65-17819-8, -10, -14, open both ports and manually operate unit through one complete cycle. See that the force necessary is not more than 70 pounds.

TROUBLE SHOOTING

Trouble	Possible Cause	Correction
Excessive leakage during test	Defective backup rings (10), O-rings (11 or 13) or seal (12)	Replace backup rings, O-rings and seal
Leakage during test	Defective backup rings (10), O-rings (11 or 13) or seal (12)	Replace backup rings, O-rings and seal
Movement of piston (18) is erratic	Sticking or binding due to dirt accumulations on ring or seal (15)	Examine and clean or replace ring or seal (15)
Excessive leakage	Leakage past piston ring or seal (15)	Check ring or seal(15) for proper installation. Replace if necessary

STORAGE INSTRUCTIONS

1. After completion of test, partially fill unit with hydraulic fluid, Specification BMS 3-11.

2. Cap fittings with hydraulic fluid resistant caps to prevent fluid leakage during storage.

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

SPECIAL TOOLS, FIXTURES AND EQUIPMENT

NOTE: Equivalent substitutes can be used.

1. F72959-31 -- Spanner wrench
2. F71313-7 -- Socket wrench (For actuator 65-17819-6)
3. F71313-23 -- Socket wrench (For actuators 65-17819-8, -10, -14)
4. F71313-24 -- Socket wrench (For actuators 65-17819-12, -15)
5. F71313-25 -- Socket wrench (For actuators 65-17819-1, -4, -7, -11)
6. Hydraulic Test Stand -- Pressure controllable 0-5400 psi

ILLUSTRATED PARTS LIST

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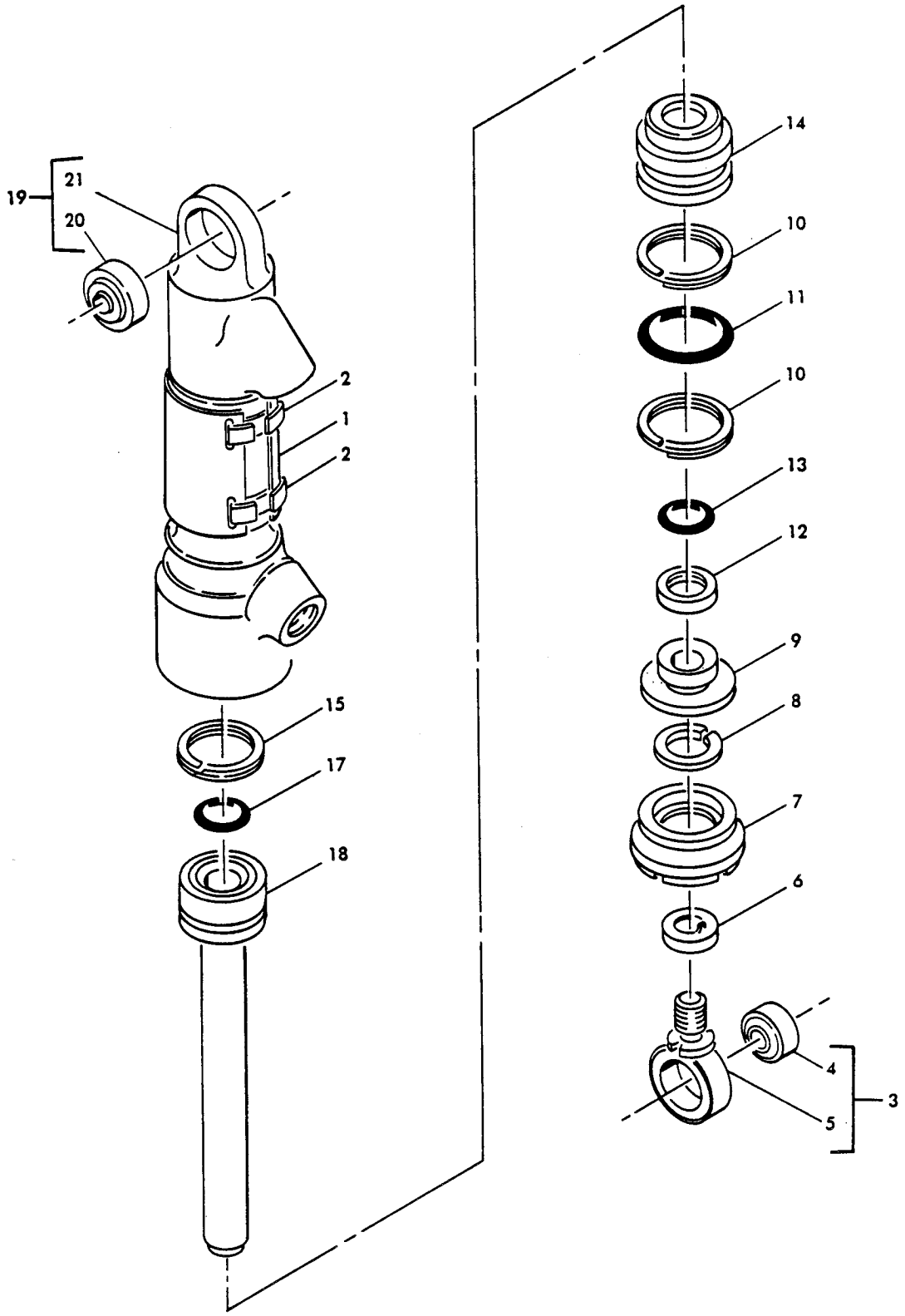


Main Gear Lock Actuator Assembly
Figure 1101

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
	65-17819-1		ACTUATOR ASSY, LANDING GEAR LOCK	A	RF
	65-17819-4		ACTUATOR ASSY, LANDING GEAR LOCK	B	RF
	65-17819-6		ACTUATOR ASSY, LANDING GEAR LOCK	C	RF
	65-17819-7		ACTUATOR ASSY, LANDING GEAR LOCK (SB 32-117)	D	RF
	65-17819-8		ACTUATOR ASSY, LANDING GEAR LOCK	E	RF
	65-17819-10		ACTUATOR ASSY, LANDING GEAR LOCK	F	RF
	65-17819-11		ACTUATOR ASSY, LANDING GEAR LOCK	G	RF
	65-17819-12		ACTUATOR ASSY, LANDING GEAR LOCK	H	RF
	65-17819-14		ACTUATOR ASSY, LANDING GEAR LOCK (PRE SB 32-1201)	I	RF
	65-17819-15		ACTUATOR ASSY, LANDING GEAR LOCK	J	RF
1	BACN12A1FH		. NAMEPLATE	A	1
1	65-17819-2		. NAMEPLATE (OPT TO BACN12A1FH WHEN USED WITH 65-17819-3)	A	1
1	BACN12A1FY		. NAMEPLATE	BCD	1
1	BAC27HY127		. NAMEPLATE	EFI	1
1	BAC27DHY127		. NAMEPLATE (OPT)	GHJ	1
1	BACN12A1FY		. NAMEPLATE (OPT)	E-H	1
1	BAC27DHY249		. NAMEPLATE	GHJ	1
2	65-17819-3		. STRAP (USED WITH 65-17819-2)	A	2
2	65-17819-3		. STRAP	B-H	1
3	177240		. ROD END, V09455 (BOEING 10-60779-9)	DG	1
3	69-14204-1		. ROD END ASSY (PRE SB 32-117)	AB	1
3	177240		. ROD END, V09455 (BOEING 10-60779-9) (POST SB 32-117)	AB	1
3	69-48312-1		. ROD END ASSY	C	1
3	69-35723-1		. ROD END ASSY	EFI	1
3	69-35723-3		. ROD END ASSY (OPT)	EFI	1
3	65-89604-1		. ROD END ASSY	HJ	1
4	03-713-0375		. . BEARING, V09455 (OPT) *[1] (USED ON 69-14204-1)		1
4	BS12ATC26		. . BEARING, V21335 (OPT) *[1] (USED ON 69-14204-1)		1
4	TFA6		. . BEARING, V77896 (OPT) *[1] (USED ON 69-14204-1)		1
4	BLFN6-042		. . BEARING, V81376 (OPT) *[1] (USED ON 69-14204-1)		1
4	KSBN6		. . BEARING, V97613 (OPT) *[1] (USED ON 69-14204-1)		1
4	03-728-0500		. . BEARING, V09455 (OPT) *[2] (USED ON 69-35723-1)		1
4	KSBG8N5		. . BEARING, V97613 (OPT) *[2] (USED ON 69-35723-1)		1
4	SBS16ATC32		. . BEARING, V21335 (OPT) *[2] (USED ON 69-35723-1)		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
4	YTA120		. . BEARING, V77896 (OPT) *[2] (USED ON 69-35723-1)		1
4	BLFN8-019		. . BEARING, V81376 (OPT) *[2] (USED ON 69-35723-1)		1
4	MS14101-8		. . BEARING (USED ON 69-35723-1, -3)		1
4	03-728-0375		. . BEARING, V09455 (OPT) *[3] (USED ON 69-48312-1)		1
4	SBS12ATC26		. . BEARING, V21335 (OPT) *[3] (USED ON 69-48312-1)		1
4	TFA6A		. . BEARING, V77896 (OPT) *[3] (USED ON 69-48312-1)		1
4	BLFN6-043		. . BEARING, V81376 (OPT) *[3] (USED ON 69-48312-1)		1
4	KSBG6N5		. . BEARING, V97613 (OPT) *[3] (USED ON 69-48312-1)		1
4	ASBG6V10		. . BEARING, VS0352 (BOEING 10-61905-6) (USED ON 65-89604-1)		1
4	ASB6-55DU		. . BEARING, V15860 (BOEING 10-61905-6) (USED ON 65-89604-1)		1
5	69-14204-3		. . ROD END (USED ON 69-14204-1)		1
5	69-14204-2		. . ROD END (USED ON 69-14204-1) (OPT)		1
5	69-35723-2		. . ROD END (USED ON 69-35723-1)		1
5	69-35723-4		. . ROD END (USED ON 69-35723-3)		1
5	69-48312-2		. . ROD END (USED ON 69-48312-1)		1
5	65-89604-2		. . ROD END (USED ON 65-89604-1)		1
6	66-12156-18		. LOCKWASHER, CUP (PRE SB 32-117)	AB	1
6	65-17819-9		. LOCKWASHER, CUP (POST SB 32-117)	AD	1
6	66-12156-18		. LOCKWASHER, CUP	C	1
6	65-17819-9		. LOCKWASHER, CUP	DGHJ	1
6	66-12156-19		. LOCKWASHER, CUP	EFI	1
7	66-12187-1		. PLUG		1
8	BACS34A2		. SCRAPER, RING	A-DGHJ	1
8	BACS34A2A		. SCRAPER, RING	EFI	1
9	66-12186-1		. SLEEVE		1
10	MS28782-19		. RING, BACKUP		2
11	NAS1611-214		. PACKING, O-RING		1
12	BACS11AA113		. SEAL, FOOT	A-D G-J	1
12	BACS11AA113A		. SEAL, FOOT	EFHIJ	1
13	NAS1611-113		. PACKING, O-RING		1
13	GTC5394CI13		. SEAL ASSY, V72902 (OPT TO BACS11AA113A AND NAS1611-113 USED TOGETHER)	EFHIJ	1
14	66-12185-1		. BEARING		1
15	S12230-211		. RING SET, PISTON, V97820	A-DGHJ	1
15	S12230-211Q		. RING SET, PISTON, V97820 (OPT)	A	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
15	S12083-211Q		. RING SET, PISTON, V97820 (OPT TO S12230-211)	A	1
15	69-54540-211		. RING, CAP	EFI	1
15	7211MT952T		. SEAL ASSY, V72902 (OPT TO 69-54540-211 AND NAS1611-211 USED TOGETHER)	EFI	1
17	NAS1611-211		. PACKING, O-RING (USED WITH 69-54540-211)	EFI	1
18	69-14203-1		. PISTON	A-DGHJ	1
18	69-35525-1		. PISTON	EFI	1
19	65-17981-1		. BARREL ASSY	A	1
19	65-26414-1		. BARREL ASSY	B	1
19	65-26414-7		. BARREL ASSY	C	1
19	65-26414-9		. BARREL ASSY	D	1
19	65-26414-5		. BARREL ASSY	E	1
19	65-26414-14		. BARREL ASSY	F	1
19	65-26414-16		. BARREL ASSY	G	1
19	65-26414-17		. BARREL ASSY	H	1
19	65-26414-22		. BARREL ASSY	I	1
19	65-26414-23		. BARREL ASSY	J	1
20	03-713-0375		. . BEARING, V09455 (OPT) *[1]*[5] (USED ON 65-17981-1, 65-26414-1)		1
20	SBS12ATC26		. . BEARING, V21335 (OPT) *[1]*[5] (USED ON 65-17981-1, 65-26414-1)		1
20	TFA6		. . BEARING, V77896 (OPT) *[1]*[5] (USED ON 65-17981-1, 65-26414-1)		1
20	BLFN6-042		. . BEARING, V81376 (OPT) *[1]*[5] (USED ON 65-17981-1, 65-26414-1)		1
20	03-728-0375		. . BEARING, V09455 (OPT) *[3]*[6] (USED ON 65-17981-1)		1
20	SBS12ATC26		. . BEARING, V21335 (OPT) *[3]*[6] (USED ON 65-17981-1)		1
20	TFA6A		. . BEARING, V77896 (OPT) *[3]*[6] (USED ON 65-17981-1)		1
20	KSBG6N5		. . BEARING, V97613 (OPT) *[3]*[6] (USED ON 65-17981-1)		1
20	BLFN6-043		. . BEARING, V81376 (OPT) *[3]*[6] (USED ON 65-17981-1)		1
20	SBS12ATC32		. . BEARING, V21335 (OPT) *[4]*[6] (USED ON 65-26414-1)		1
20	TGA8D		. . BEARING, V77896 (OPT) *[4]*[6] (USED ON 65-26414-1)		1
20	BLFN6-197		. . BEARING, V81376 (OPT) *[4]*[6] (USED ON 65-26414-1)		1
20	176289		. . BEARING, V09455 (OPT) *[4]*[6] (USED ON 65-26414-1)		1
20	ABT6V101		. . BEARING, VS0352 (OPT) *[4]*[6] (USED ON 65-26414-1)		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-20	KSBN6-31		. . BEARING, V97613 (OPT) *[4]*[6] (USED ON 65-26414-1)		1
20	NHSB6V62		. . BEARING, V15860 (OPT) *[4]*[6] (USED ON 65-26414-1)		1
20	NRG6BACH		. . BEARING, V73134 (OPT) *[4]*[6] (USED ON 65-26414-1)		1
20	KSBN6		. . BEARING, V97613 (OPT) *[1]*[5] (USED ON 65-17981-1, 65-26414-1)		1
20	03-728-0375		. . BEARING, V09455 (OPT) *[3] (USED ON 65-26414-7)		1
20	SBS12ATC26		. . BEARING, V21335 (OPT) *[3] (USED ON 65-26414-7)		1
20	TFA6A		. . BEARING, V77896 (OPT) *[3] (USED ON 65-26414-7)		1
20	BLFN6-043		. . BEARING, V81376 (OPT) *[3] (USED ON 65-26414-7)		1
20	KSBG6N5		. . BEARING, V97613 (OPT) *[3] (USED ON 65-26414-7)		1
20	SBS12ATC32		. . BEARING, V21335 (OPT) *[4] (USED ON 65-26414-9,-16)		1
20	TGA8D		. . BEARING, V77896 (OPT) *[4] (USED ON 65-26414-9,-16)		1
20	BLFN6-197		. . BEARING, V81376 (OPT) *[4] (USED ON 65-26414-9,-16)		1
20	176289		. . BEARING, V09455 (OPT) *[4] (USED ON 65-26414-9, -16)		1
20	ABT6V101		. . BEARING, VS0352 (OPT) *[4] (USED ON 65-26414-9, -16)		1
20	KSBN6-31		. . BEARING, V97613 (OPT) *[4] (USED ON 65-26414-9, -16)		1
20	NHSB6V62		. . BEARING, V15860 (OPT) *[4] (USED ON 65-26414-9, -16)		1
20	NRG6BACH		. . BEARING, V73134 (OPT) *[4] (USED ON 65-26414-9, -16)		1
20	03-728-0500		. . BEARING, V09455 (OPT) *[2] (USED ON 65-26414-5,-14)		1
20	KSBG8N5		. . BEARING, V97613 (OPT) *[2] (USED ON 65-26414-5, -14)		1
20	SBS16ATC32		. . BEARING, V21335 (OPT) *[2] (USED ON 65-26414-5,-14)		1
20	YTA120		. . BEARING, V77896 (OPT) *[2] (USED ON 65-26414-5,-14)		1
20	BLFN8-019		. . BEARING, V81376 (OPT) *[2] (USED ON 65-26414-5,-14)		1
20	ASB6-55DU		. . BEARING, V15860 (BOEING 10-61905-6) (USED ON 65-26414-17, -23)		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-20	ASBG6V10		. . BEARING, VS0352 (BOEING 10-61905-6) (USED ON 65-26414-17, -23)		1
20	MS14101-8		. . BEARING (USED ON 65-26414-5, -14, -22)		1
21	65-17981-2		. . BARREL (USED ON 65-17981-1)		1
21	65-26414-2		. . BARREL (USED ON 65-26414-1		1
21	65-26414-6		. . BARREL (USED ON 65-26414-5)		1
21	65-26414-8		. . BARREL (USED ON 65-26414-7)		1
21	65-26414-10		. . BARREL (USED ON 65-26414-9)		1
21	65-26414-13		. . BARREL (USED ON 65-26414-14)		1
21	65-26414-15		. . BARREL (USED ON 65-26414-16,-17)		1
21	65-26414-20		. . BARREL (USED ON 65-26414-22)		1
21	65-26414-21		. . BARREL (USED ON 65-26414-23)		1

*[1] BOEING 10-60545-102

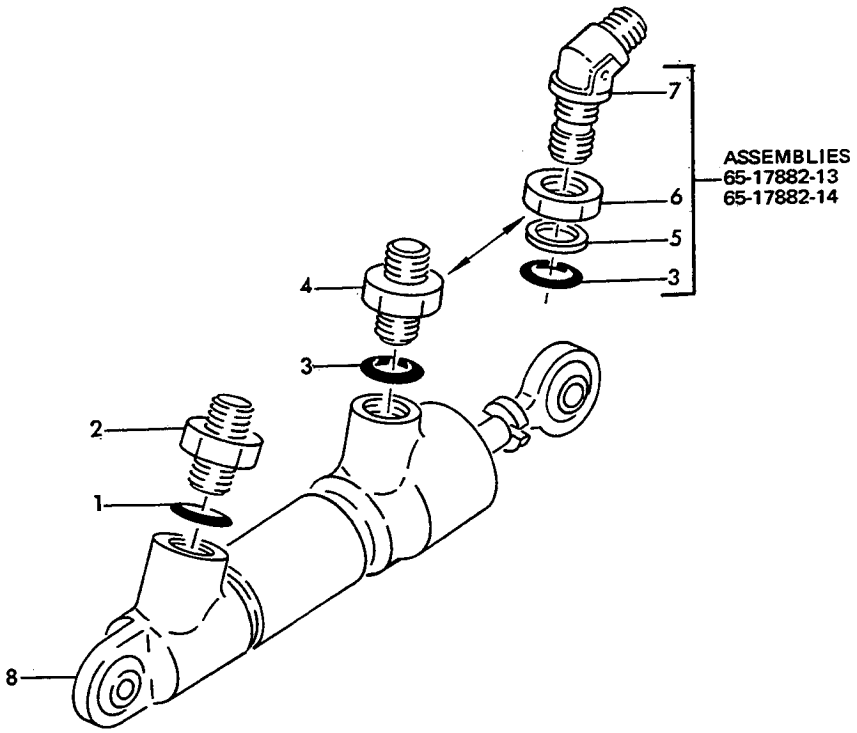
*[2] BOEING 10-60545-115S

*[3] BOEING 10-60545-113S

*[4] BOEING 10-60545-151S

*[5] PRE SB 32-117

*[6] POST SB 32-117



Landing Gear Lock Actuator Assembly
Figure 1102

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1102-					
	65-17882-3		ACTUATOR ASSY, MAIN GEAR LOCK	A	RF
	65-17882-5		ACTUATOR ASSY, MAIN GEAR LOCK	B	RF
	65-17882-7		ACTUATOR ASSY, MAIN GEAR LOCK	C	RF
	65-17882-12		ACTUATOR ASSY, MAIN GEAR LOCKD	D	RF
	65-17882-13		ACTUATOR ASSY, MAIN GEAR LOCKE	E	RF
	65-17882-14		ACTUATOR ASSY, MAIN GEAR LOCK	F	RF
	65-17882-17		ACTUATOR ASSY, MAIN GEAR LOCK	G	RF
	65-17882-18		ACTUATOR ASSY, MAIN GEAR LOCK	H	RF
	65-17882-21		ACTUATOR ASSY, MAIN GEAR LOCK	I	RF
	65-17882-22		ACTUATOR ASSY, MAIN GEAR LOCK	J	RF
	65-17882-24		ACTUATOR ASSY, MAIN GEAR LOCK	K	RF
	65-44625-4		ACTUATOR ASSY, NOSE GEAR LOCK (SB 32-1014)	L	RF
	65-44625-6		ACTUATOR ASSY, NOSE GEAR LOCK	M	RF
	65-44625-10		ACTUATOR ASSY, NOSE GEAR LOCK	N	RF
	65-44625-14		ACTUATOR ASSY, NOSE GEAR LOCK	O	RF
1	NAS1612-4		. PACKING, O-RING		1
2	BACU24K4		. UNION		AB
2	MS21902-4		. UNION (OPT TO BACU24K4)	B	1
2	MS21902-4		. UNION	C	1
2	MS21916-6-4		. REDUCER (POST SB 32-1014)	L	1
2	MS21902-4		. UNION (PRE SB 32-1014)	L	1
2	MS21916-6-4		. REDUCER	D-K MNO	1
3	NAS1612-6		. PACKING, O-RING	ABCE	1
3	NAS1612-4		. PACKING, O-RING	DF-O	1
4	BACU24K6		. UNION	AB	1
4	MS21902-6		. UNION (OPT TO BACU24K6)	B	1
4	MS21902-6		. UNION	C	1
4	MS21902-4		. UNION	DG-O	1
5	MS28777-6		. RING, BACKUP	E	1
5	MS28777-4		. RING, BACKUP	F	1
6	AN6289-6		. NUT	E	1
6	AN6289-4		. NUT	F	1
7	ER837-0604		. ELBOW, REDUCER, 45°, V14798 OR V92003 (PREF)	E	1
7	W20837-0604		. ELBOW, REDUCER, 45°, V11328 (OPT TO ER837-0604)	E	1
7	MS21907-4		. ELBOW, 45°	F	1
8	65-17819-1		. ACTUATOR ASSY (FIG. 1101)	ABCE	1
8	65-17819-4		. ACTUATOR ASSY (FIG. 1101)	DF	1
8	65-17819-6		. ACTUATOR ASSY (FIG. 1101)	G	1
8	65-17819-7		. ACTUATOR ASSY (FIG. 1101)	H	1
8	65-17819-8		. ACTUATOR ASSY (FIG. 1101)	LM	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1102-					
8	65-17819-10		. ACTUATOR ASSY (FIG. 1101)	N	1
8	65-17819-11		. ACTUATOR ASSY (FIG. 1101)	I	1
8	65-17819-12		. ACTUATOR ASSY (FIG. 1101)	J	1
8	65-17819-14		. ACTUATOR ASSY (FIG. 1101) (PRE SB 32-1201)	O	1
8	65-17819-15		. ACTUATOR ASSY (FIG. 1101)	K	1

VENDORS

VS0352	NIPPON MINIATURE BEARING CO. LTD., TOKYO, JAPAN
V09455	RBC TRANSPORT DYNAMICS CORP., P.O. BOX 1953, 3131 W. SEGERSTROM AVE., SANTA ANA, CALIFORNIA 92704-5872
VI1328	AEROQUIP INC., LINAIR DIV., 651 WEST KNOX STREET, GARDENA, CALIFORNIA 90248-4409
V14798	DEUTSCH CO., THE METAL COMPONENTS DIV., 14800 SOUTH FIGUEROA STREET, GARDENA, CALIFORNIA 90248-1795
V15860	NEW HAMPSHIRE BALL BEARINGS, INC., ASTRO DIV., 155 LEXINGTON AVE., LACONIA, NEW HAMPSHIRE 03246-2937
V21335	TORRINGTON CO., FAFNIR BEARINGS DIV., 59 FIELD ST., TORRINGTON, CONNECTICUT 06790-1008
V72902	PALMETTO, INC. (FORMERLY GREENE, TWEED AND CO. INC.), 25 ENGERMAN AVE., DENTON, MARYLAND 21629
V73134	ROLLER BEARING CO. OF AMERICA, INC., HEIM BEARINGS DIV., 60 ROUND HILL RD., P.O. BOX 430, FAIRFIELD, CONNECTICUT 06430-0430
V77896	REXNORD INC., BEARING OPERATION, 2400 CURTISS STREET, DOWNERS GROVE, ILLINOIS 60515-4307
V81376	SMITH ACQUISTION CO., DBA SOUTHWEST PRODUCTS CO., 2240 BUENA VISTA ST., P.O. BOX 2046, BALDWIN PARK, CALIFORNIA 91706
V92003	PARKER-HANNIFIN CORP., 18321 JAMBOREE BLVD., P.O. BOX C-19510, IRVINE, CALIFORNIA 92612
V97613	SARGENT CONTROLS AND AEROSPACE, KAHR BEARING DIVISION, 5675 W. BURLINGAME RD., P.O. BOX 730, CORTARO, ARIZONA 85652-0730
V97820	SHAMBAN POLYMER TECH GROUP, 711 MITCHELL ROAD, P.O. BOX 665, NEWBURY PARK, CALIFORNIA 91320-2214