TO: ALL HOLDERS OF ENTRY DOOR SNUBBER ASSEMBLY OVERHAUL MANUAL, 52-11-02

REVISION NO. 7, DATED NOV 1/07

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
Added clarifications and updated callouts. Deleted procedures which can be done by standard industry practices	X	X	X	X	X	X	X	X	X		X	X	

ENTRY DOOR SNUBBER ASSEMBLY

52-11-02

BOEING P/N 90-10072, 90-10072-1, -2

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 22248	May 15/67

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
52-11-02						
*	T-1	Nov 1/07				
	T-2	BLANK				
*	LEP-1	Nov 1/07				
	LEP-2	BLANK				
*	T/C-1	Nov 1/07				
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*	1	Nov 1/07				
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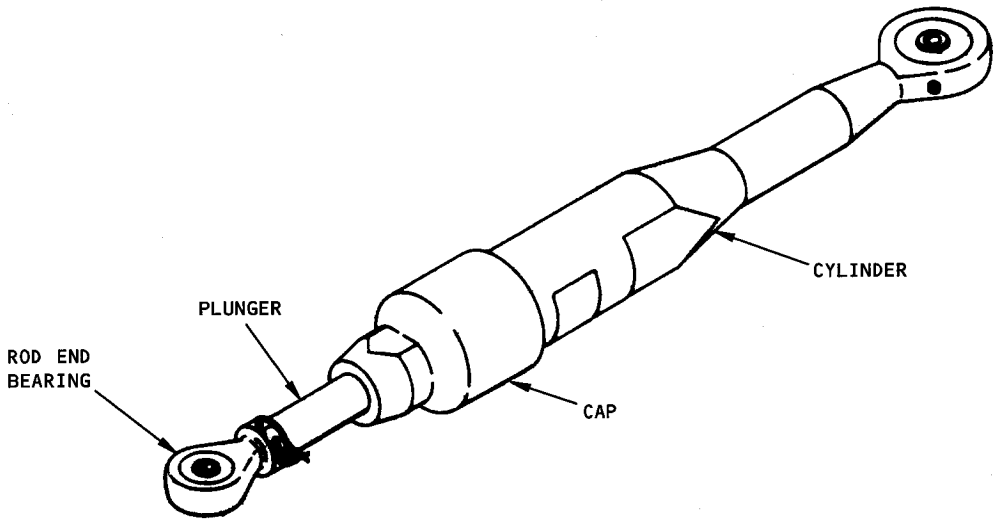
*[1] Special instructions are not necessary. Use standard industry practices and the instructions in SOPM 20-44-02 and 20-70-01.

ENTRY DOOR SNUBBER ASSEMBLY



Entry Door Snubber Assembly
Figure 1

DESCRIPTION AND OPERATION

1. Description

   A. The entry door snubber assembly is a hydraulic unit with a cylinder, a cap, and a plunger with a piston-type end. A spring-loaded piston in the bore of the plunger gives more snubbing action.

2. Operation

   A. The entry door snubber helps to control the entry door during opening and closing.

3. Leading Particulars (approximate)

   Operating fluid -- MIL-H-5606 hydraulic fluid
   Length (measured between centers of spherical bearings)
      Extended -- 12.5 inches
      Retracted -- 10.3 inches
   Weight -- 2 pounds

DISASSEMBLY

NOTE: Refer to Fig. 1101 for item numbers.

1. Remove all external lockwire.
2. Remove screw (2), washer (3) and fluid washer seal (4).
3. Operate the pump snubber several times to drain all fluid from the cylinder.
4. Loosen nut (5), release lockwasher (6) and remove rod end bearing (7).
5. Pull out spring (8) and piston (9) with parts (10, 11).
6. Carefully hold cylinder assembly (24) in a vise. Remove cap (12) with parts (13 thru 16).
7. Hit the rap cylinder sharply against a block of wood to loosen plunger (18).
8. Pull out plunger (18) with parts (17, 19 thru 23).
9. Do not remove items (1, 25, 26) from cylinder assembly (24), unless necessary for repair or replacement.

CLEANING

NOTE: Refer to Fig. 1101 for item numbers.

1. Clean all parts, bearings (7, 26), by standard industry practices and the instructions in SOPM 20-30-03. Make sure the vent hole near the closed end of cylinder (27) is not blocked.

2. Clean bearings (7, 26), by the special procedure for Teflon bearings in SOPM 20-30-01.

INSPECTION/CHECK

NOTE: Refer to Fig. 1101 for item numbers.

1. Examine all parts defects by standard industry practices. Refer to Fits and Clearances for design dimensions and wear limits.

2. Do a strength check of springs (8, 17, 21) (Fig. 301). Make sure no permanent set occurs because of the test load.

3. Magnetic particle check (SOPM 20-20-01) -- Springs (8, 17, 21), piston (9), cap (12), plunger (18), cylinder (27).

   CAUTION: TO PREVENT DAMAGE TO ANTIFRICTION BEARINGS, IT IS NECESSARY TO PROTECT THEM FROM INSPECTION FLUID WHEN PERFORMING MAGNETIC PARTICLE OR DYE PENETRANT EXAMINATION OF COMPONENTS CONTAINING BEARINGS. AN ADEQUATE EXAMINATION CAN BE MADE BY MASKING OFF BEARINGS AND APPLYING FLUID WITH BRUSH RATHER THAN DIPPING.

   NOTE: It is not necessary to press out a bearing to check inside at component bore unless crack indications are detected during visual examination.

Item No. (Fig. 1101)	Approximate Free Length (Inches)	Test Length (Inches)	Allowable Load Limits (Pounds)
8	2.16	2.00	10 - 12
17 (30-3157)	2.19	0.99	10 - 14
17 (66-13260-1)	2.22	1.69	6.75 - 8.25
21 (30-3158)	2.82	2.21	4.5 - 5.5
21 (66-13261-1)	3.11	2.23	6.75 – 8.25

Spring Check Data
Figure 301

REPAIR

1. Materials

   A. Grease -- BMS 3-33 or MIL-G-23827 (SOPM 20-60-03)

2. References

SOPM 20-00-00	Introduction
SOPM 20-10-01	Repair and Refinish of High Strength Steel Parts
SOPM 20-10-02	Machining of Alloy Steel
SOPM 20-10-03	Shot Peening
SOPM 20-10-04	Grinding of Chrome Plated Parts
SOPM 20-20-01	Magnetic Particle Inspection
SOPM 20-30-02	Stripping of Protective Finishes
SOPM 20-41-01	Decoding Table for Boeing Finish Codes
SOPM 20-50-03	Bearing and Bushing Replacement
SOPM 20-50-05	Application of Aluminum Foil and Other Markers
SOPM 20-60-03	Lubricants

3. Repair (Fig. 1101)

   A. Repair small defects by standard industry practices. Refer to Fits and Clearances for design dimensions and wear limits.

   B. Plunger (18)

      CAUTION: THIS IS A PRECISION PART. WHEN NOT IN WORK, GIVE THIS PART THE PROTECTION OF A CONTAINER.

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

      (2) Magnetic particle examine (SOPM 20-20-01).

      (3) Build up with hard chrome plate (SOPM 20-42-03).

      (4) Grind to design dimensions and finish (SOPM 20-10-04).

   C. Cylinder (27) (Fig. 402).

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

      (2) Make a repair sleeve (Fig. 403).

      (3) Install the sleeve by the shrink-fit method (SOPM 20-50-03).

4. Refinish (Fig. 1101)

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

   A. Springs (8, 17, 21) -- Cadmium plate (F-1.20). Material: Steel music wire.

   B. Cap (12) -- Cadmium plate exterior surfaces (F-1.103, which replaces F-1.1930). Bake for a minimum of 3 hours at 350-400°F after plating. Material: 4130 steel, 125-145 ksi.

   C. Plunger (18) – See Fig. 401.

   D. Cylinder (27) -- See Fig. 402.

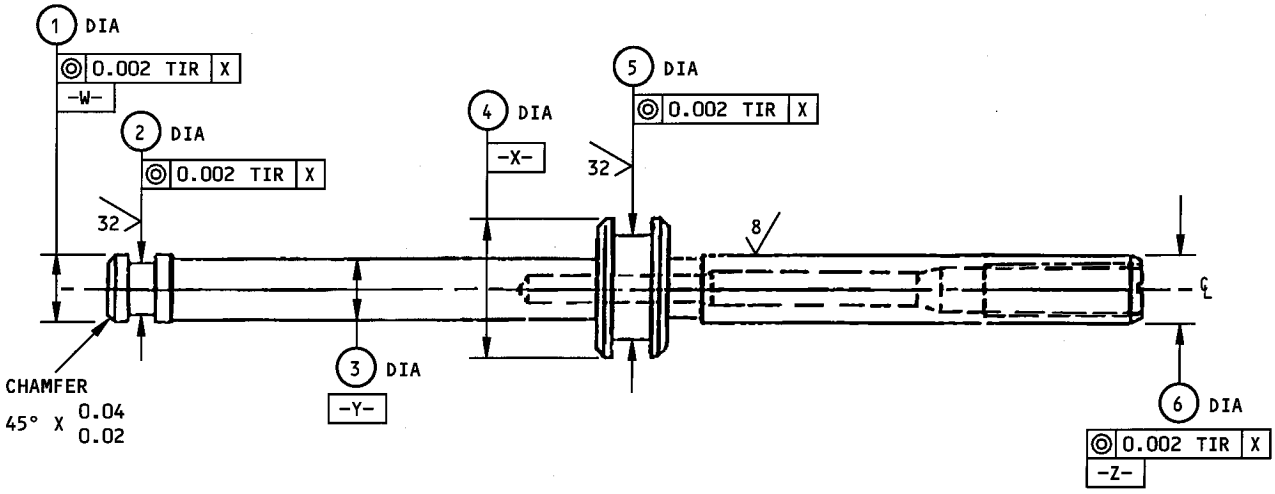
5. Replacement (Fig. 1101)

   A. Replace defective or worn rod end bearing (7).

   B. Bearing (26) requires replacement. Apply a thin layer of BMS 3-33 or MIL-G-23827 grease to the mating surfaces of bearing (26) and cylinder (27). Use a bearing pressing mandrel to press the bearing into the rod end of the cylinder until the bearing is centered with equal depth on both sides. Point stake or ball stake (SOPM 20-50-03) in five locations on both sides, equally spaced, between the old staking points. Optionally, roller swage the housing on both sides. After staking or swaging, make sure the bearing turns freely through the full range of misalignment.

   C. Replace all O-rings (11, 14, 16, 20, 23), backup rings (10, 13, 15, 19, 22), lockwasher (6) and seals, (4, 19).

   D. Aluminum foil marker (1) -- Install a replacement (SOPM 20-50-05).



	1	2	3	4	5	6
DESIGN DIM	0.4980 0.4970	0.389 0.387	0.470 0.450	0.9970 0.9960	0.758 0.756	0.4980 0.4970
REPAIR LIMIT 1	0.4780	---	---	0.9770	---	0.4780

REFINISH

60-7262-SERIES:
CHROME PLATE (F-1.843) DIAS -W-, -X-, -Y-, -Z-, 0.0035-0.0045 THICK.
BUFF TO HIGH POLISH AFTER PLATING.
NO FINISH (F-25.01) ON OTHER SURFACES

69-49963-SERIES:
PASSIVATE (F-8.07).

REPAIR

REF 1

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

MATERIAL:

60-7262-SERIES: 4130 OR 4340 STEEL, 180-200 KSI

69-49963-SERIES: 17-4PH CRES, 180-200 KSI

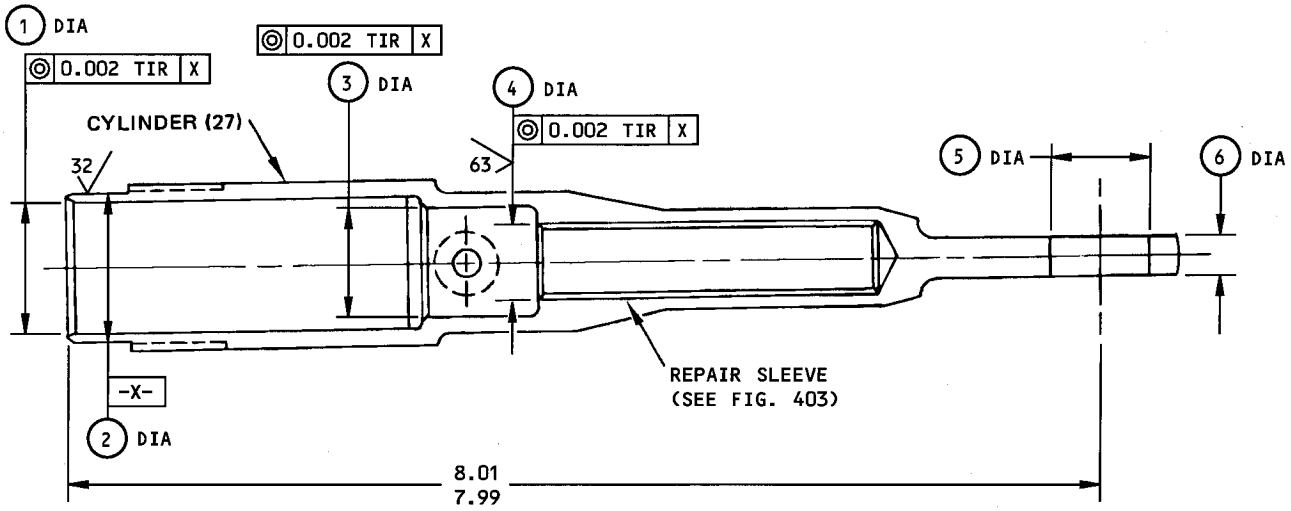
ALL DIMENSIONS ARE IN INCHES

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

PLUNGER (18)

Plunger Repair and Refinish
Figure 401

1454156



	1	2	3	4	5	6
DESIGN DIM	1.002 1.000	1.1220 1.1210	0.83 0.81	0.501 0.499	0.7500 0.7495	0.32 0.30
REPAIR LIMIT	—	—	—	0.540 1	—	—

REFINISH

CADMIUM PLATE EXTERIOR SURFACES (F-1.103, WHICH REPLACES F-1.1930). NO PLATING ON INTERNAL SURFACES OR BORE FOR BEARING. BAKE FOR A MINIMUM OR 3 HOURS AT 350-400°F AFTER PLATING.

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

MATERIAL: 4130 OR 4340 STEEL, 150-170 KSI

ALL DIMENSIONS ARE IN INCHES

1 LIMIT FOR INSTALLATION OF REPAIR SLEEVE

CYLINDER (27)

Cylinder Repair
Figure 402

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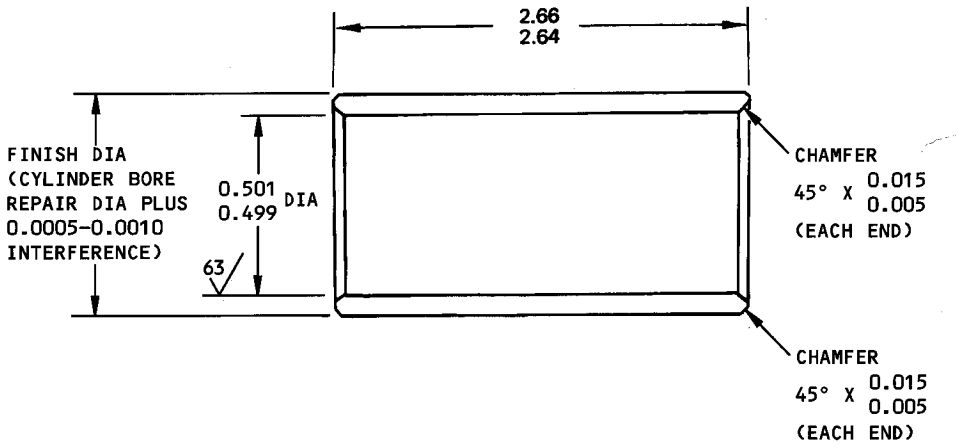


125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

MATERIAL: 15-5PH CRES, 140-160 KSI

FINISH: NO FINISH.

ALL DIMENSIONS ARE IN INCHES

Repair Sleeve Details
Figure 403

1454494

ASSEMBLY

1. Materials

   A. Hydraulic fluid -- MIL-H-5606 (SOPM 20-60-03)

   B. Grease -- BMS 3-33 or MIL-G-23827 (SOPM 20-60-03)

   C. Lockwire -- MS20995C32, MS20995N32 or MS20995F32 (SOPM 20-60-04)

2. References

SOPM 20-30-01	Cleaning and Relubricating Bearings
SOPM 20-50-02	Installation of Safetying Devices
SOPM 20-50-06	Installation of O-Rings and Teflon Seals
SOPM 20-60-03	Lubricants
SOPM 20-60-04	Miscellaneous Materials

3. Preassembly (Fig. 1101)

   A. Before assembly, soak O-rings and backup rings in hydraulic fluid.

   B. Assemble parts (23 thru 17) and (11 thru 9) as units.

4. Assembly (Fig. 1101)

   A. Install O-rings (16, 14) and backup rings (15, 13) into cap (12).

   B. Make a bath of hydraulic fluid. Assemble the parts in the bath to keep air out of the unit.

   C. Put the preassembled parts in the bath and install them in cylinder assembly (24).

   D. Make sure all air is removed from the unit during the assembly procedure.

   E. Keep the plunger (18) in the fully extended position.

   F. Install fluid washer seal (4), and washer (3) completely on screw (2). Turn screw (2) into cylinder assembly (24) and tighten securely.

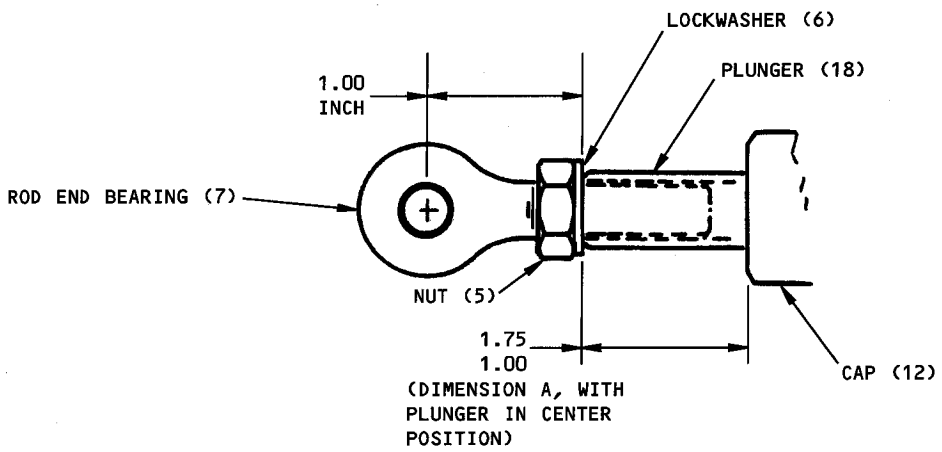
   G. Now remove the unit from the bath. Carefully hold cylinder assembly (24) in vise and tighten cap (12).

   H. Drain unwanted hydraulic fluid from cylinder assembly (24). To do this, fully compress the plunger (18) and blow compressed air through the vent holes.

I. Install spring (8) into cap (12) and connect bearing (7), lockwasher (6), and nut (5) to plunger (18). Keep the 1.00-inch dimension from the center of rod end bearing (7) to the contact surface of lockwasher (6) and plunger (18), as shown in Fig. 501.

J. Do the test (Ref TESTING). After the test, lockwire nut (5) to lockwasher (6) and screw (2) to cap (12) by the double-twist method (SOPM 20-50-02) with lockwire options (MS20995C32, MS20995N32 or MS20995F32).

K. Lubricate bearings (7, 26) with grease.



ITEM NUMBERS REFER TO FIG. 1101
ALL DIMENSIONS ARE IN INCHES

Assembly Procedures
Figure 501

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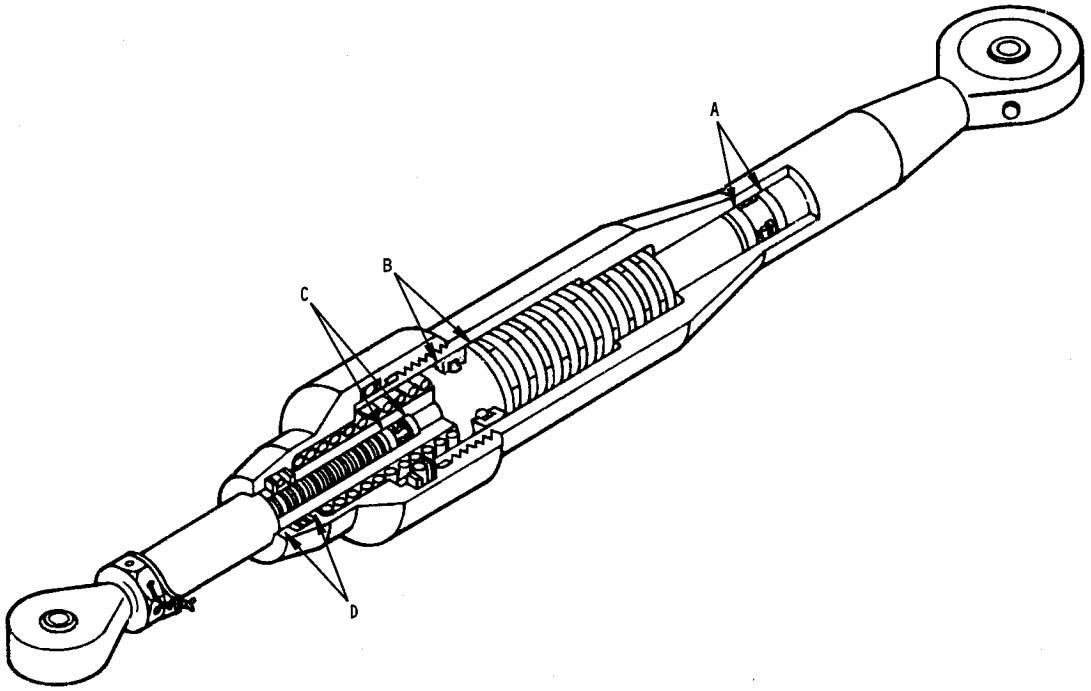
FITS AND CLEARANCES



Fits and Clearances
Figure 601 (Sheet 1)

1454624

Ref Letter Fig. 601	Mating Item No. Fig. 1101	Design Dimensions				Service Wear Limits		
		Dimensions (inches)		Assembly Clearance (inch)		Dimension Limits (inch)		Maximum Allowable Clearance (inch)
		Min	Max	Min	Max	Min	Max	
A	ID 27	0.499	0.501	0.001	0.004		0.506	0.010
	OD 18	0.497	0.498			0.491		
B	ID 27	1.000	1.002	0.003	0.006		1.009	0.012
	OD 18	0.996	0.997			0.988		
C	ID 18	0.249	0.251	0.003	0.007		0.256	0.010
	OD 9	0.244	0.246			0.242		
D	ID 12	0.501	0.503	0.003	0.006		0.505	0.0085
	OD 18	0.497	0.498			0.4965		

Fits and Clearances
Figure 601 (Sheet 2)

TESTING

1. Test Equipment

   NOTE: Equivalent test equipment can be used.

   A. Test Jig -- F70339-41 (supersedes TSJ90-10072-1)

2. Preparation for Test

   A. Install unit in the test jig. (See Fig. 701.)

   B. Ignore the setup dimensions if you use the TSJ90-10072-1 test jig.

   C. Do these tests at room temperature.

3. Air Check

   A. Fully compress plunger (18) and release it, then fully extend plunger (18) and release it. Make sure the plunger moves slowly back to the center position, as shown in Fig. 501, from the compressed position and from the extended position. If the piston returns quickly to the center position, there could be air in the unit.

4. Spring Test

   A. Extend plunger (18) to its fully extended position and release it. Make sure the plunger (18) starts to return immediately, and returns to the centered position within 15 seconds.

   B. Do step 4A. again, but compress plunger (18). Make sure the plunger starts to return immediately and returns to the centered position within 15 seconds.

5. Hydraulic Fluid Check

   NOTE: For this check only, the center position of the plunger is 1.36 – 1.38 inches (Dimension "A" in Fig. 501).

   A. Start with the unit in the center position. Apply a constant extending force of 40 - 45 pounds to rod end bearing (7). Measure and record the time necessary to get to the fully extended position. Release rod end bearing (7).

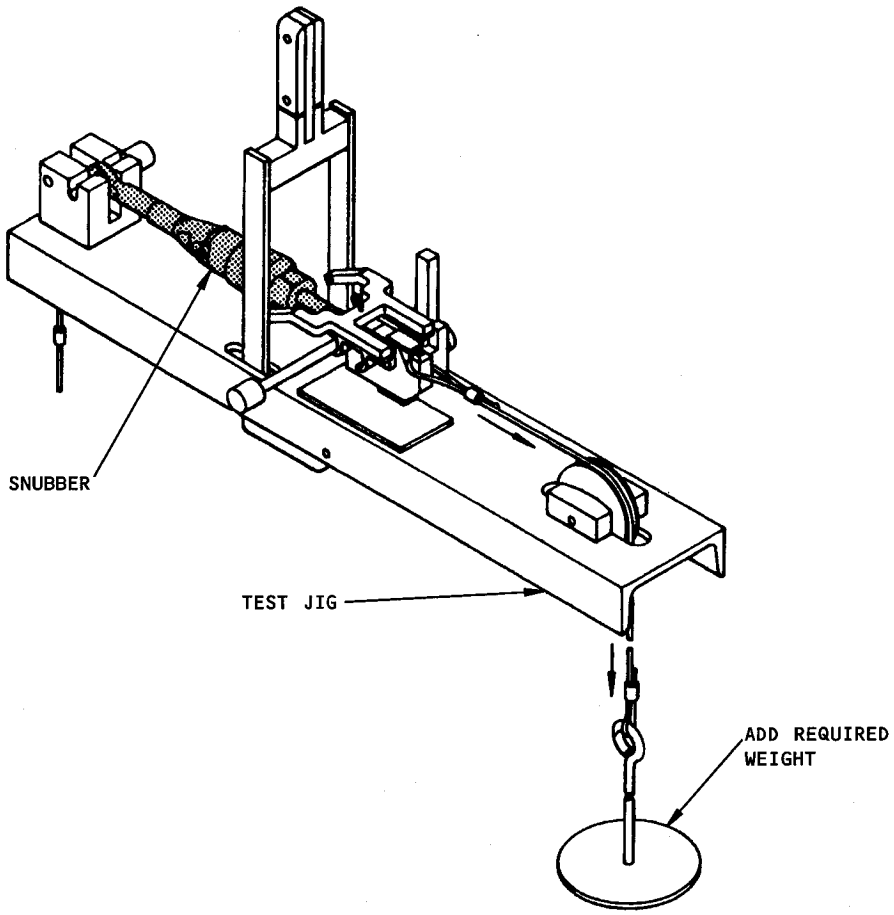
   B. Do step 5.(a) again, but with constant extending force of 55 - 60 pounds.

   C. Plot the two points you got in steps 5.(a) and 5.(b) and draw a straight line through these points to touch load limit lines "A" and "B" on Fig. 702.

   D. The unit is acceptable if the line is on, or to the right of "the acceptable limit line." The unit is not acceptable if the line is to left of, or crosses, the acceptable limit line.

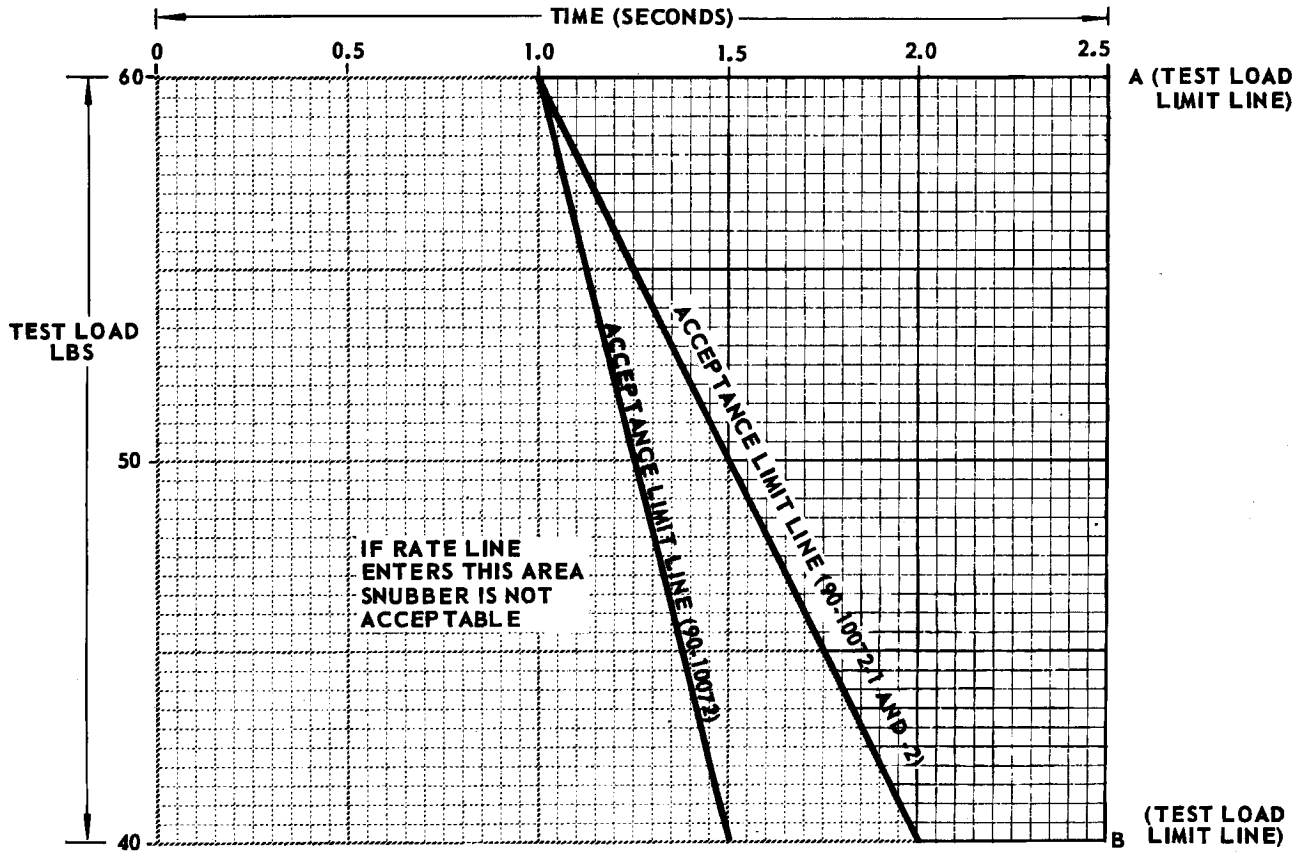
6. Leakage Check

A. During all of the above tests there must be no signs of external leakage.



Door Snubber Test Setup
Figure 701

1453817



Test Acceptance Limits
Figure 702

1454638

TROUBLE SHOOTING

1. Trouble During Test After Overhaul (Fig. 1101)

	Trouble	Possible Cause	Correction
A.	Plunger returns too quickly to center position when plunger (18) is compressed or extended	Unit could contain air	Refill unit per Assembly instructions
B.	Plunger (18) does not return to center position within 15 seconds when fully extended or compressed	Defective springs (8, 17 or 21)	Replace defective springs
C.	Hydraulic fluid check results unsatisfactory (Fig. 702)	Incorrectly installed or defective packings (11, 20) or channel seal (19), or unwanted matter between sliding surfaces	Replace packings and channel seal, clean and install new
D.	Unit leaks during tests	Defective packing (14 or 23), backup rings (13 or 22) or washer (4)	Replace defective parts

SPECIAL TOOLS, FIXTURES AND EQUIPMENT

1. Test Jig -- F70339-41 (supersedes TSJ90-10072-1)

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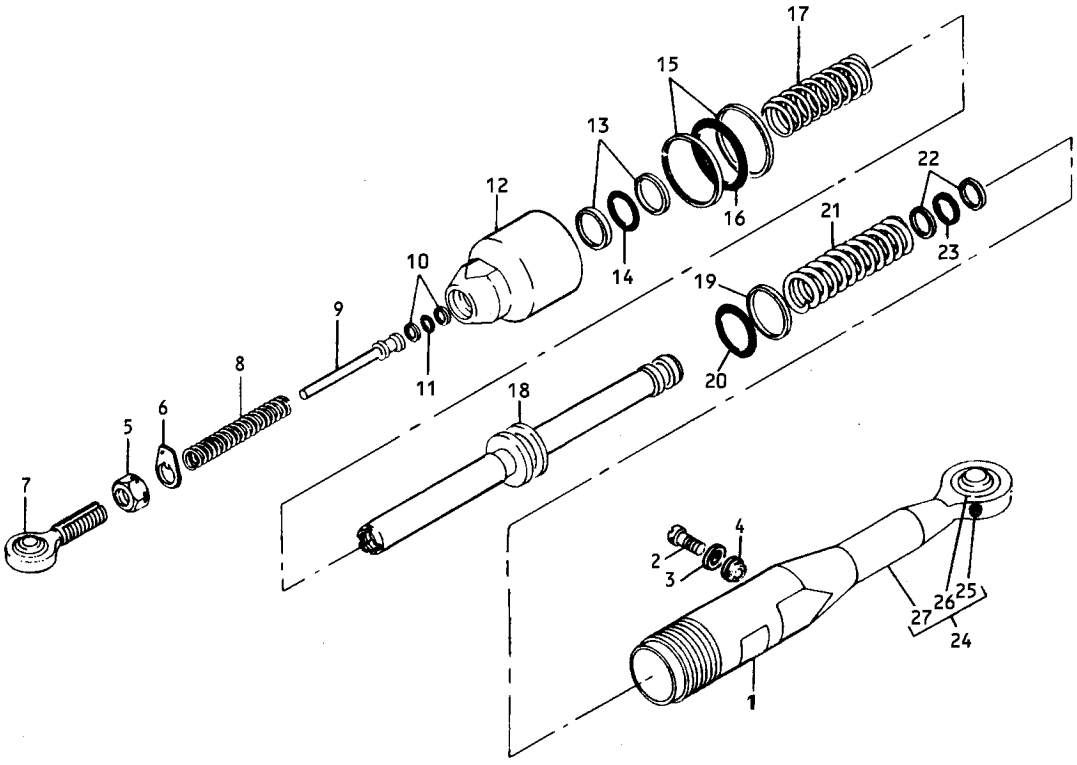

Entry Door Snubber Assembly
Figure 1101

1454738

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
	90-10072		SNUBBER ASSY, ENTRY DOOR	A	RF
	90-10072-1		SNUBBER ASSY, ENTRY DOOR	B	RF
	90-10072-2		SNUBBER ASSY, ENTRY DOOR	C	RF
1	BACM10L10-1BXK		. MARKER, ALUMINUM FOIL		1
2	AN501A10-4		. SCREW		1
3	AN960-10L		. WASHER		1
4	NAS1598-3R		. SEAL, FLUID WASHER (PREF)		1
4	BACS11S23AL		. SEAL, FLUID WASHER (OPT)	AB	1
4	BACS11U1S		. SEAL, FLUID WASHER (OPT)	AB	1
4	NAS1523-3Y		. PACKING (OPT)	AB	1
5	NAS509-6		. NUT, CHECK		1
6	NAS513-6		. WASHER, LOCK		1
7	BACB10A421L		. BEARING, ROD END		1
8	30-3141		. SPRING, COMPRESSION		1
9	63-1619		. PISTON		1
10	MS28782-1		. RING, BACKUP		2
11	AN6227B1		. PACKING, O-RING		1
12	60-7260		. CAP		1
13	MS28782-10		. RING, BACKUP		2
14	AN6227B10		. PACKING, O-RING		1
15	MS28782-21		. RING, BACKUP		2
16	AN6227B21		. PACKING, O-RING		1
17	66-13260-1		. SPRING, COMPRESSION (PREF)		1
17	30-3157		. SPRING, COMPRESSION (OPT)		1
18	60-7262		. PLUNGER	A	1
18	60-7262-1		. PLUNGER	B	1
18	69-49963-1		. PLUNGER	C	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
19	MS28782-15		. RING, BACKUP	A	1
19	S12716-210		. SEAL, CHANNEL, V09257	BC	1
20	AN6227B15		. PACKING, O-RING		1
21	66-13261-1		. SPRING, COMPRESSION (PREF)		1
21	30-3158		. SPRING, COMPRESSION (OPT)		1
22	MS28774-012		. RING, BACKUP (PREF)		2
22	MS28782-7		. RING, BACKUP (OPT)		2
23	AN6227B7		. PACKING, O-RING		1
24	60-7261		. CYLINDER ASSY	AB	1
24	60-7261-2		. CYLINDER ASSY	C	1
25	NAS516-1		. . FITTING, LUBRICATION		1
26	BACB10W3TM		. . BEARING, SPHERICAL (REPLS BACB10A358GCM2)		1
27	60-7261-1		. . CYLINDER (USED ON 60-7261)		1
27	60-7261-3		. . CYLINDER (USED ON 60-7261-2)		1

VENDORS

V09257 TRELLEBORG SEALING SOLUTIONS US INC., DBA BUSAK AND SHAMBAN, 2531 BREMER ROAD, FORT WAYNE, INDIANA 46803-3014