AIRCRAFT WHEEL & BRAKE DIVISION
PARKER HANNIFIN CORPORATION
AVON, OHIO

PARTS LIST

199-538A SEAL REPAIR KIT / INSTRUCTIONS

SFA232-5, Rev B or Later Actuator

PART NO.	CODE NO.	DESCRIPTION	QTY
067-15600	067-15600	Wear Ring	1
100-20031	100-20031	Backup Retainer	2
101-01100	101-01100	O-ring	2
101-63500	101-63500	Seal	1
155-02900	155-02900	Retainer	1
	PP199-538A	Copy of this Parts List w/ Instructions (10 pages)	1

NOTES:

1. This kit is for use only on the SFA232-5, Revision B or later Actuators, (Parker Hannifin Part Code Number: 011-00504). Actuators prior to the Revision B configuration are to be upgraded per SB7076. The 199-538 Seal Repair Kit is no longer available.

2. Seal replacement instructions and IPB have been extracted from the CMSFA232-5 Component Maintenance and are furnished as part of this kit. Please contact Customer Service for additional information.

   Customer Service
   Parker Hannifin Corporation
   Aircraft Wheel and Brake Division
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   Avon, Ohio 44011
   Ph#: 440-937-1315
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199-538A
Rev. NC 03-14-2003 (0355-09)
Rev. A 10-17-2003 (0358-10)

Disassembly Procedures

Refer to IPL Figure 1 for identification of assembly components.

(1) Push the piston rod (15 or 15A) by hand toward the mounting flange end to remove oil from the unit.

(2) Put mounting flange end only in a soft jaw vise and clamp against the mounting flange swivel bearing (25).

(3) Install a fitting (1/8-27) into the end gland (10 or 10A) port. This fitting need not be tight as it will be used for leverage only.

CAUTION: THE WIRE RETAINER CAN BE INSERTED FROM EITHER DIRECTION. USE A 10X MAGNIFIER TO CONFIRM THE FREE END AND DIRECTION (ROTATION) OF REMOVAL.

(4) Remove steel wire retainer (5). (See Figure 3001).
The wire retainer locks the end gland in the cylinder. Once removed, the end gland and piston rod may be pulled from cylinder body.

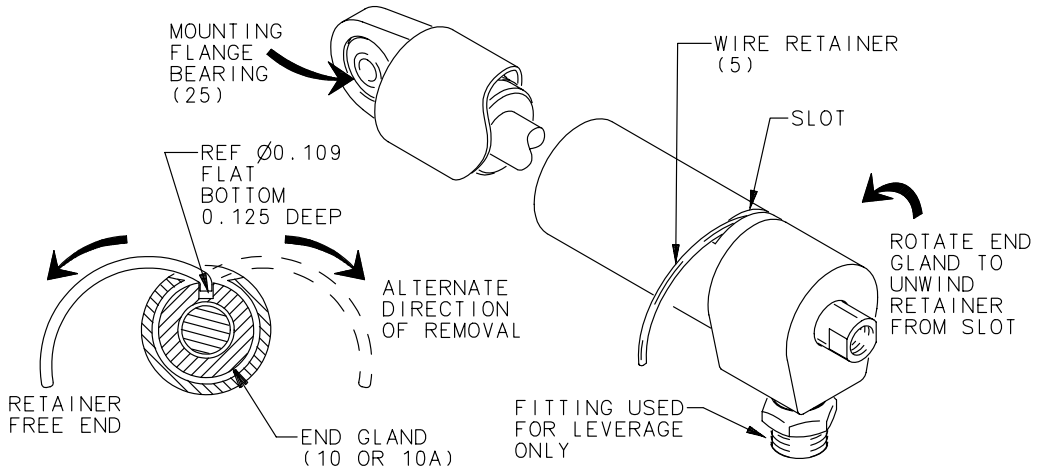
(a) Rotate the end gland (10 or 10A) by utilizing the fitting, until the ends of the steel wire retainer (5) show in the slot in the cylinder body (30).

(b) Insert a strong wire pick or other available tool (flat/pointed screw driver with max. blade width of .059 may be used) in the slot under the free end of the retainer (5).

(c) Pry upwards on the retainer (5) free end and rotate the end gland (10 or 10A) in the direction that permits the retainer to unwind (back-out) from the slot.

(d) Continue to rotate the end gland (10 or 10A) until the retainer (5) is free of the groove in the end gland. Remove and discard retainer.

DISASSEMBLY



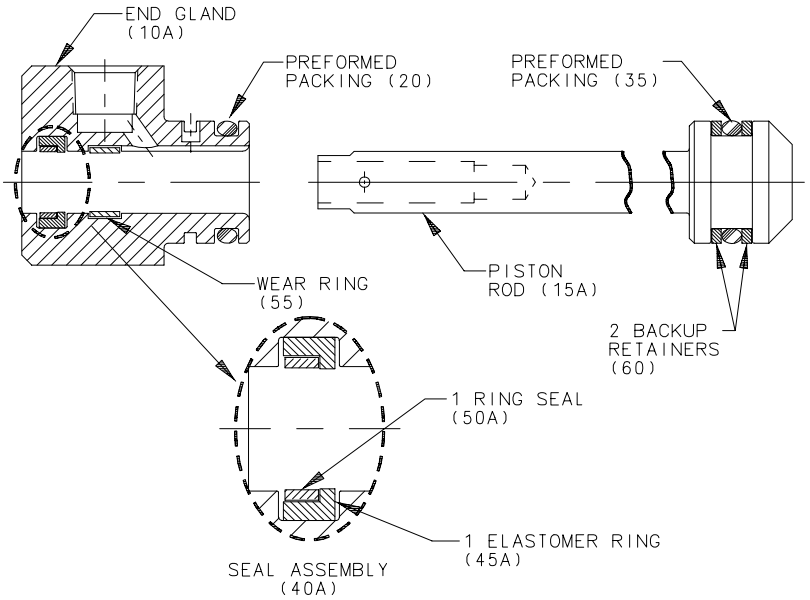
End Gland Retaining Device
Figure 3001

(5) Pull the piston rod (15 or 15A) and end gland (10 or 10A) from the cylinder body (30).

(6) Unthread and remove bolt/rod from piston rod.

(7) With piston rod and end gland removed from cylinder body, pull end gland off piston rod.

(8) Remove seals, rings, and packings. See Figure 3002.



Units Utilizing Seal Assembly (40A) and Wear Ring (55)
Figure 3002

Assembly Procedures

NOTE: Use a brass preformed packing tool set to aid in positioning of seals. The wear ring is installed in the second groove of the end gland. To prevent the wear ring from wanting to fall into the first groove, install the seal assembly (40A) first.

(1) Install the seal assembly (40A) into the mating I.D. groove of end gland (10A) according to the following procedure.

NOTE: Use the end gland bullet (Figure 9003) to provide support of the elastomer ring during installation.

(a) Start with the elastomer ring (45A). Lubricate the ring with O-ring lubricant. Squeeze it between the thumb and forefinger into an oval shape. Insert an end into the first groove of the end gland I.D. keeping the pocket section aligned outboard (see Figure 7003). Use finger pressure and a brass spoon to push the elastomer ring into the groove.

CAUTION: DO NOT CREASE THE SEAL RING. THE SEAL MUST NOT HAVE SHARP BENDS OR PERFORMANCE WILL BE DIMINISHED.

(b) Next, form the seal ring (50A) into a kidney shape being careful not to pinch the seal and push the open end into the pocket of the elastomer ring. See Figure 7003A

NOTE: Use the end gland bullet (Figure 9003) to provide support of the elastomer ring during installation.

(c) Use a brass spoon to finish reshaping and smoothing the seal ring into position and use the end gland installation bullet (Figure 9003) to re-size the seal assembly.

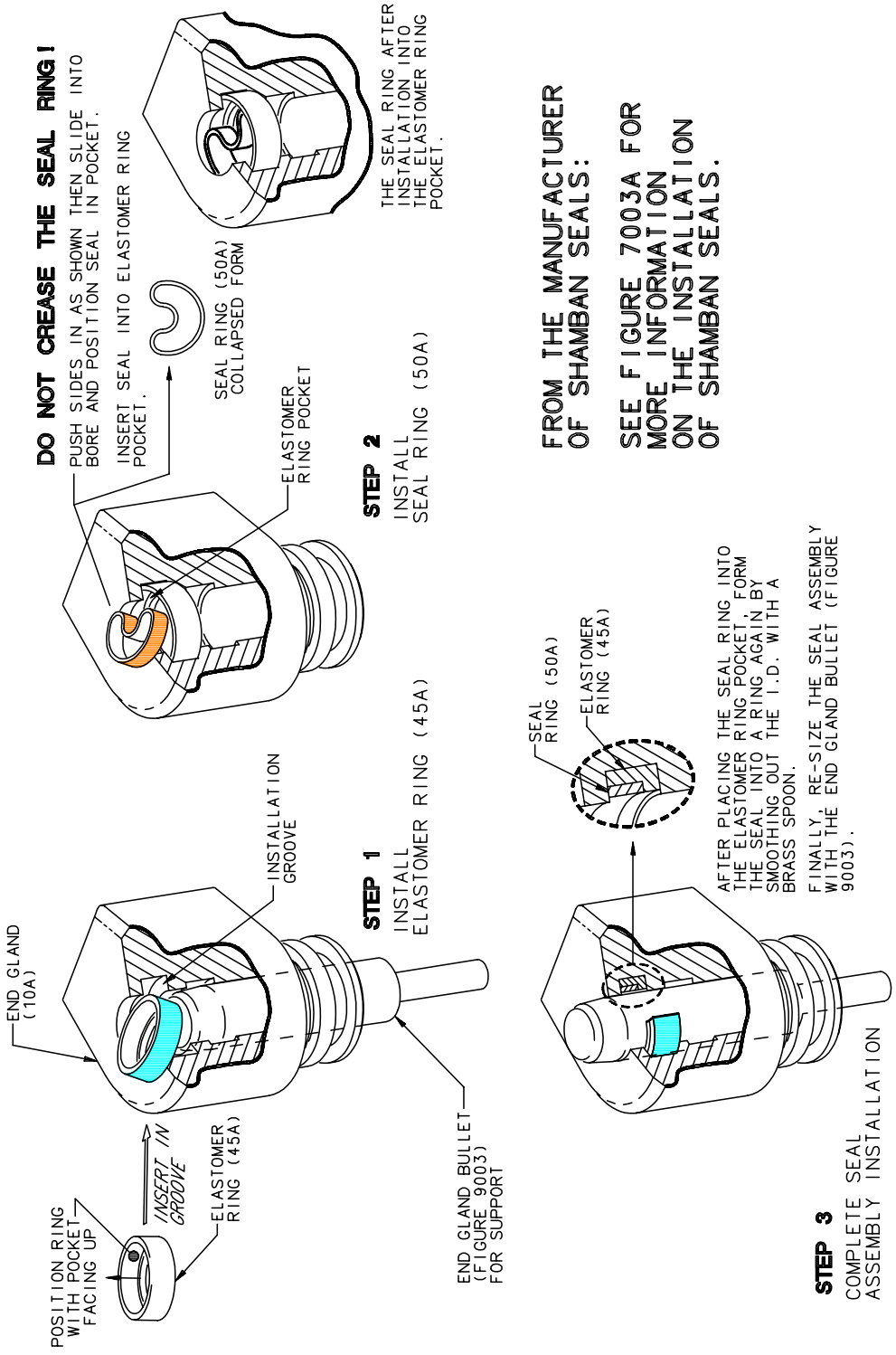


Figure 7003- Seal Assembly (40A) Installation

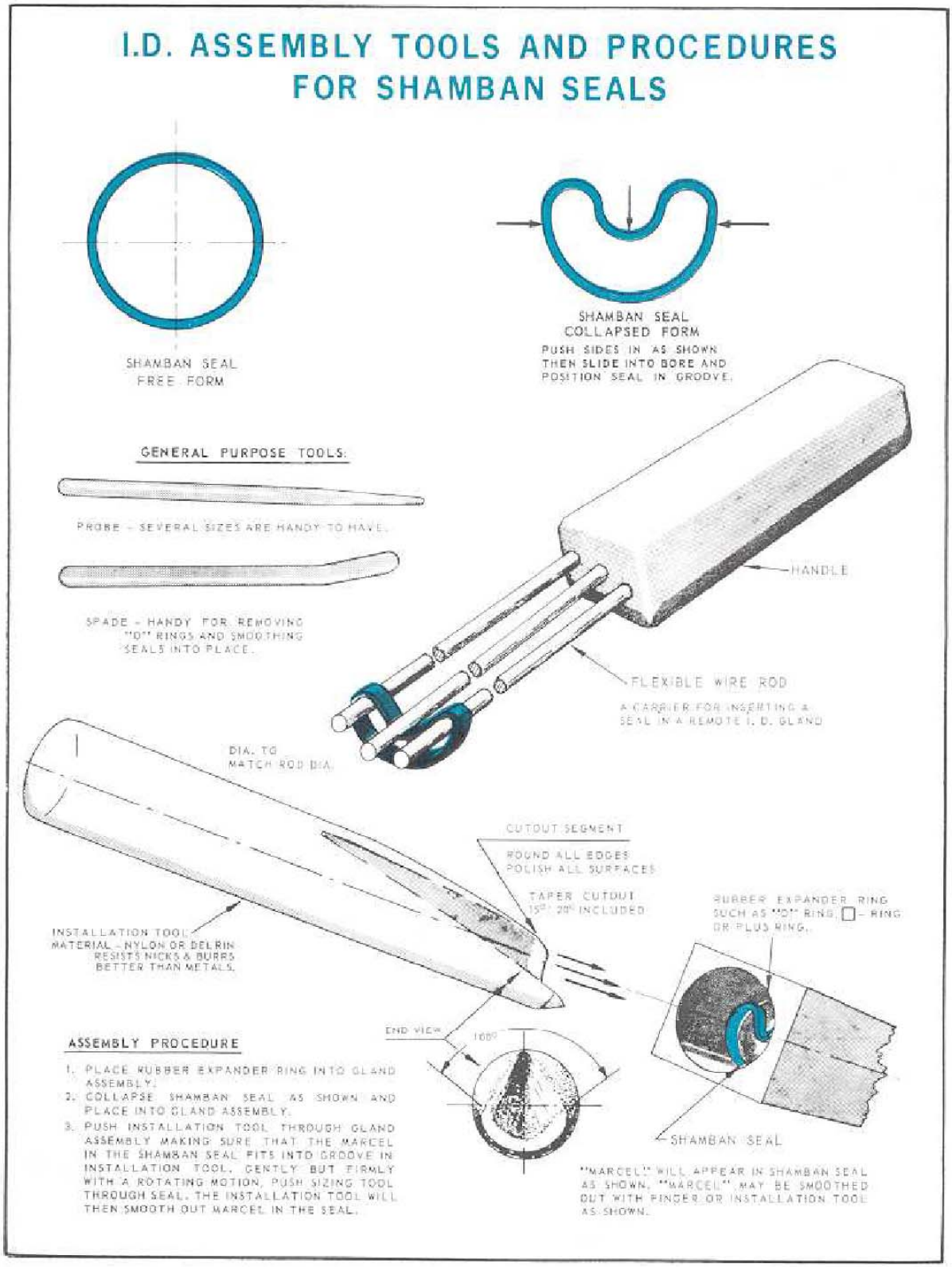
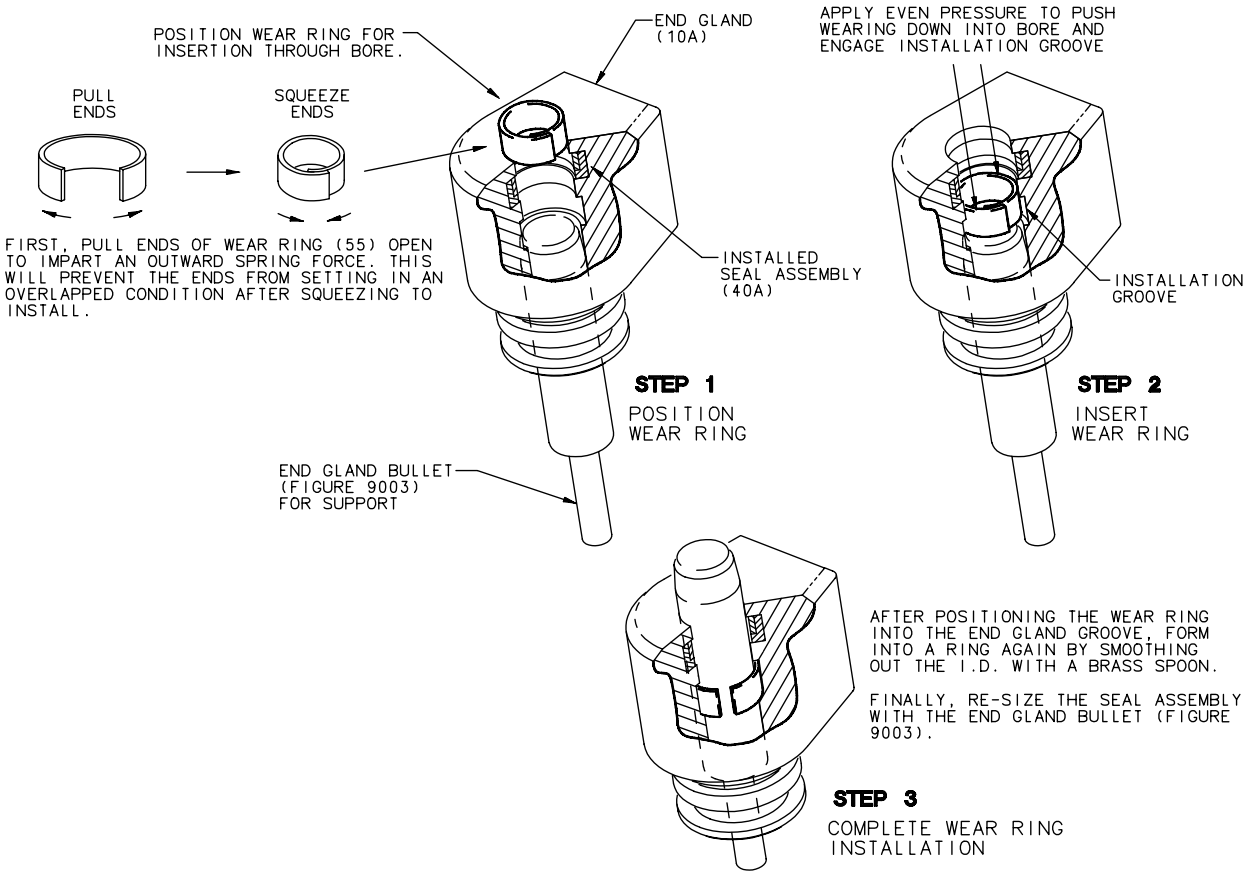


Figure 7003A

(2) Install a new wear ring (55) in the end gland (10A) as follows (see Figure 7003B).

(a) Open the wear ring into a flat section to impart an outward spring force. Next, carefully squeeze to overlap the ends and position over end gland bore. Apply even pressure and push wear ring down into the second groove of the end gland I.D. Smooth it into the groove with a brass spoon. Re-size using the end gland installation bullet (Figure 9003).



Wear Ring (55) Installation
Figure 7003B

(3) Lubricate and install a new preformed packing (20) in mating O.D. groove of the end gland (10A). See Figure 3002.

(4) Lubricate and install a new preformed packing (35) and backup retainers (60) in mating piston O.D. groove of the piston rod (15A). See Figure 3002.

NOTE: One backup retainer (60) is located on each side of preformed packing (35).

NOTE: When fully seated, the bevel faces must mesh fully. Locate backup retainer splits 180° from each other.

(5) Lubricate the areas around the seal assembly, wear ring, preformed packings and backup retainers with O-ring lubricant.

Assemble Piston Rod

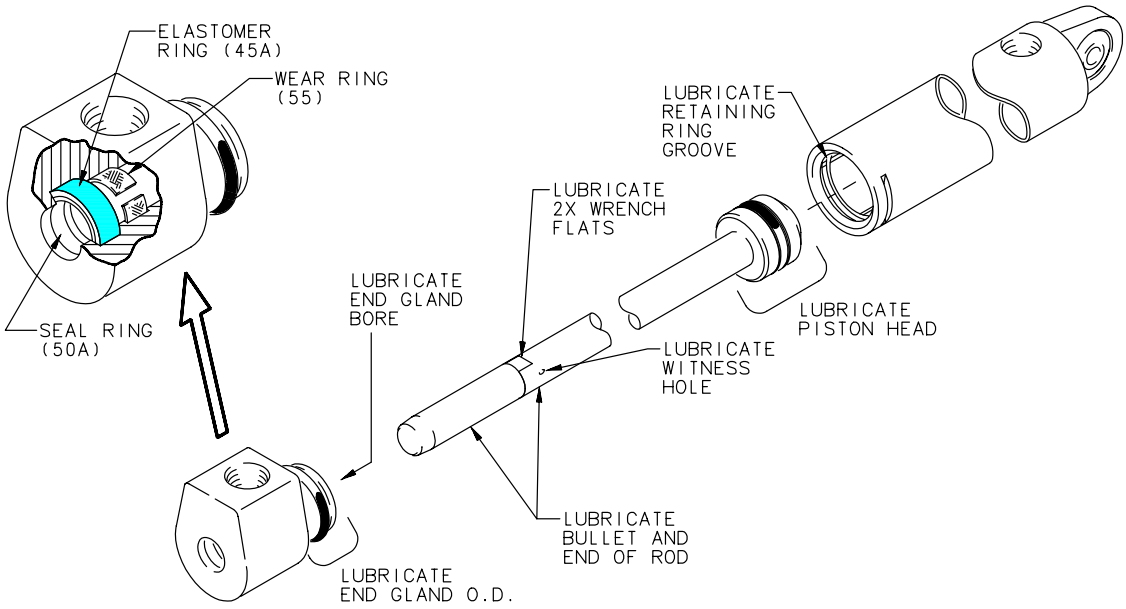
Refer to Figure 7004 for installation and component identification.

(1) Lubricate the end of the rod (15 or 15A), witness hole, wrench flats and end gland bore.

CAUTION: YOU MUST USE THE END GLAND BULLET TO INSTALL THE END GLAND ONTO THE ROD. IF YOU DO NOT USE THE END GLAND BULLET YOU WILL CAUSE DAMAGE TO THE WEAR RING (44) AND THE COMPONENTS OF THE SEAL ASSEMBLY (40A). THE SEAL ASSEMBLY HAS THESE PARTS: ELASTOMER RING (45A) AND SEAL RING (50A).

(2) Insert the end gland bullet (Figure 9003) in the threaded end of the rod and lubricate. Carefully slide the end gland (10 or 10A) over the bullet and onto the piston rod (15 or 15A). Verify that the installed seal assembly (40A) or T-seal assembly (40) is properly seated.

(3) Lubricate the piston head, retaining ring groove and end gland O.D. Carefully slide the piston into the cylinder housing, followed by the gland.

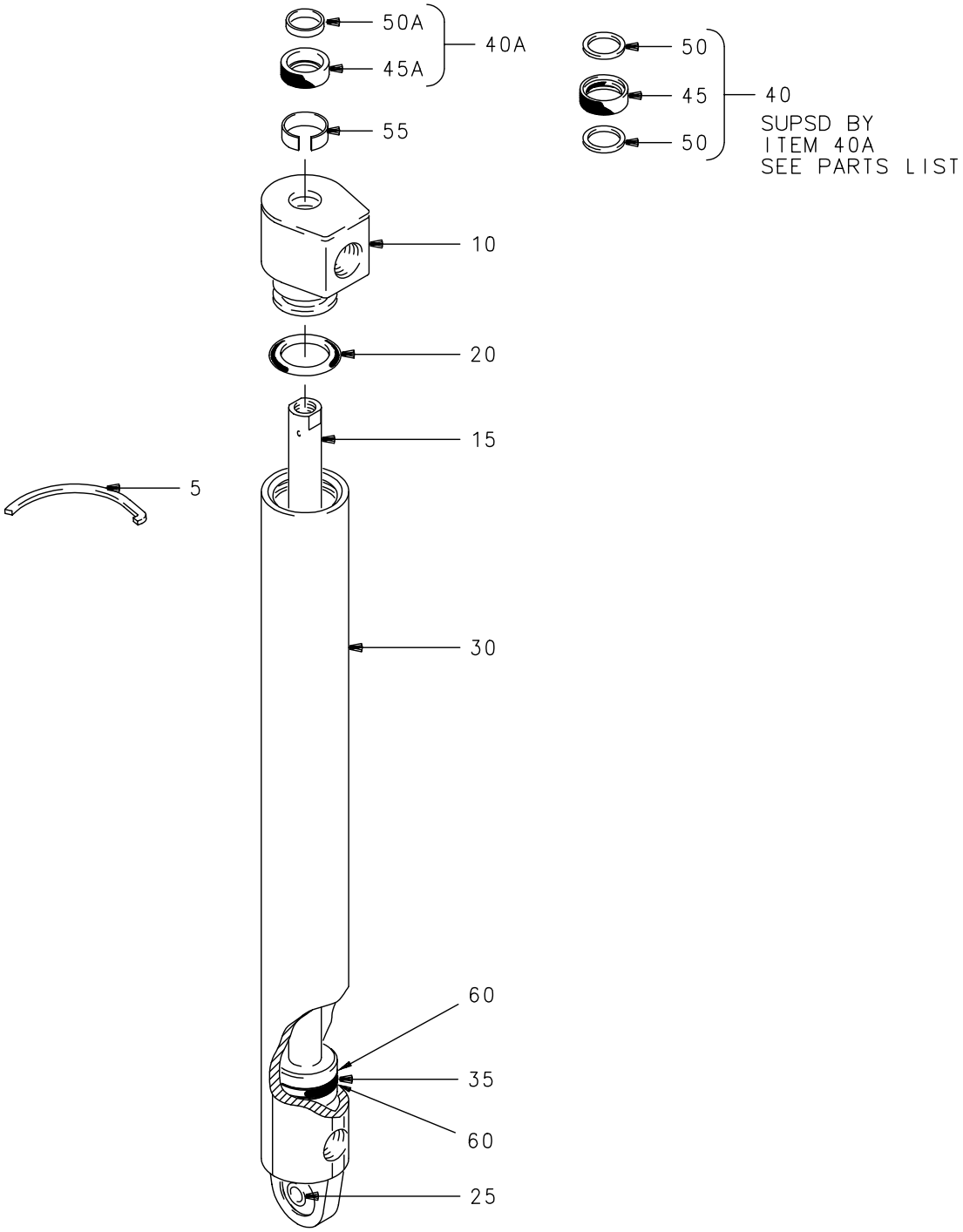


End Gland (10 or 10A) and Piston Rod (15 or 15A) Installation
Figure 7004

(4) Insert the hook end of a new end gland retainer (5) in the slot of the cylinder body (30) and slot in the end gland (10). Rotate gland counterclockwise to completely wrap the retainer into assembly.

(5) Align port in end gland (10) with port of cylinder body (30).

ILLUSTRATED PARTS LIST



ILLUSTRATED PARTS LIST

FIG. ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
1 - 1	SFA232-5	RETRACT ACTUATOR ASSEMBLY (011-00504) The New Piper Aircraft Inc.	RF
5	155-02900	. RETAINER	1
10	141-01901	. END GLAND (SUPSD BY ITEM 10A)	1
10A	141-01902	. END GLAND (SUPSDS ITEM 10)	1
15	182-02500	. PISTON ROD (SUPSD BY ITEM 15A)	1
15A	182-02502	. PISTON ROD (SUPSDS ITEM 15)	1
20	101-01100	. PACKING, PREFORMED (AN6227-11)	1
25	214-80900	. SWIVEL BEARING	1
30	144-03500	. CYLINDER BODY	1
35	101-01100	. PACKING, PREFORMED (AN6227-11)	1
40	101-27400	. T-SEAL ASSEMBLY (SUPSD BY ITEM 40A)	1
45	- - - - - - - -	. . T-SEAL	1 NP
50	- - - - - - - -	. . BACK-UP RING	2 NP
40A	101-63500	. SEAL ASSEMBLY (SUPSDS ITEM 40)	1
45A	- - - - - - - -	. . RING, ELASTOMER	1 NP
50A	- - - - - - - -	. . RING, SEAL	1 NP
55	067-15600	. RING, WEAR	1
60	MS28774-113	. RETAINER, BACKUP (100-20031)	2

– Item Not Illustrated

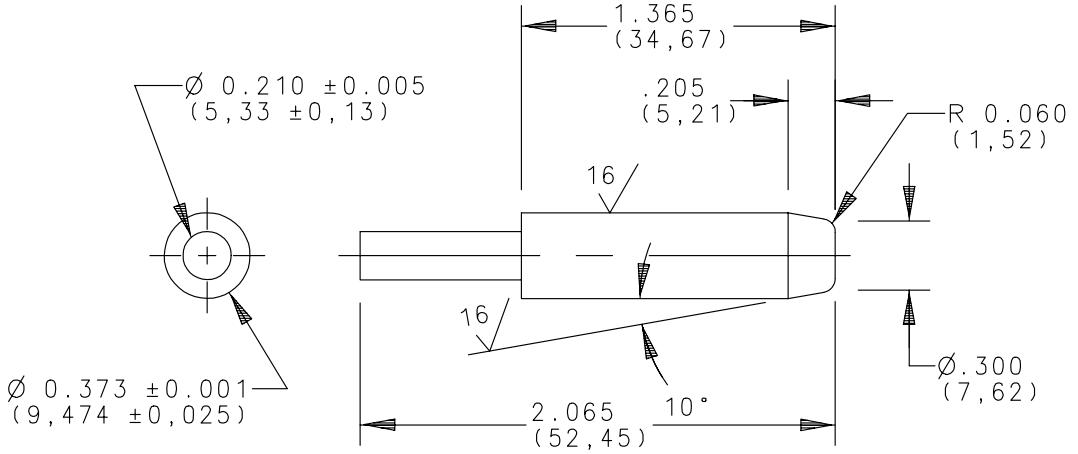
Notes:

1. 199-538A Seal Kit contains items 5, 20, 35, 40A and 55.

2. Parts List for reference only. Contact airframe manufacturer to order Retract Actuator Assembly and components listed.

3. Parker Hannifin Service Bulletin Upgrade Kit P/N SB7076-1 contains Items 10A, 15A, 40A, 55, and 60. Refer to Parker Hannifin Service Bulletin SB7076 for instructions and applicability.

SPECIAL TOOLS, FIXTURES, EQUIPMENT AND CONSUMABLES



Notes:

1. Material: steel or aluminum
2. Break unspecified sharp edges 0.015 (0,381) max.
3. Tolerances unless otherwise specified: .XXX ± 0.005 (0,127) .XX ± 0.03 (0,76) Angular: ± 0.50°

End Gland Bullet
Figure 9003