



FLAT-1 AND SQUARE FLAT-1 AIR CYLINDER GENERAL REPAIR INSTRUCTIONS DOUBLE ROD END MODELS

DISASSEMBLY – Remove screws and separate end caps, tube, and piston/rod assembly.

REPAIR AND REASSEMBLY –

Flat-1

Determine cylinder style by looking at the rod guide from the rear.

If "O"-ring can be seen at the rear end: Insert snap ring and press out bushing as shown in **Figure 4**, using a punch the same diameter as the piston rod. Remove the "O"-ring rod seal but do not touch the snap ring. Insert a new rod seal. Press in new bushing until flush.

Repeat the steps above for the other end cap.

If "O"-ring cannot be seen at the rear end ("O"-ring is at front end): Insert snap ring and press out bushing as shown in **Figure 5** using a punch the same diameter as the piston rod. Remove the

"O"-ring but do not touch the snap ring. Insert a new rod seal. Press in new bushing until flush.

Note: Cylinders with Viton seals cannot be repaired. A rod guide with the bushings staked in place at the factory must be ordered.

Replace other seals, applying a thin film of Bimba's HT-99 or a good hydraulic oil to the piston rod and tube I.D.

Reassemble and torque screws to final specification shown below.

Square Flat-1

End cap with tie rod nuts is provided with two bushings. Use repair instructions on opposite side.

End cap with threaded tie rod holes has one bushing and can be repaired per Flat-1 instructions above.

FIGURE 4

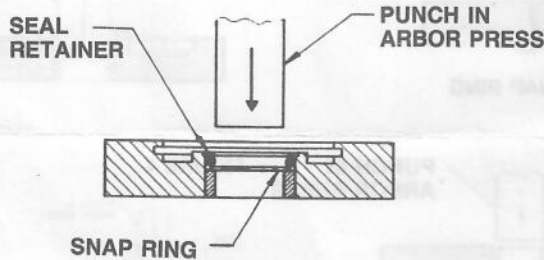
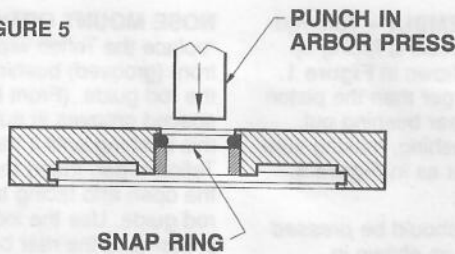


FIGURE 5



ASSEMBLY SCREW TORQUE VALUES – FLAT-1

BORE	SCREW SIZE	TORQUE (IN-LB)
5/16", 3/8", 1/2"	#4-40	7
1 1/2", 2"	#10-24	35
2 1/2", 3"	1/4-20	90
4"	5/16-18	150

TIE ROD TORQUE VALUES – SQUARE FLAT-1

BORE	TIE-ROD SIZE	TORQUE (IN-LB)
3/4", 1 1/8"	#5-44	10
1 1/2", 2"	.185-24	30



FLAT-1 AND SQUARE FLAT-1 AIR CYLINDER GENERAL REPAIR INSTRUCTIONS SINGLE ROD END MODELS

DISASSEMBLY – Remove screws and separate end caps, tube, and piston/rod assembly.

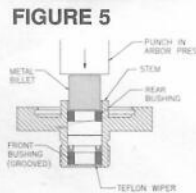
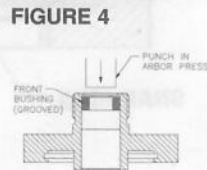
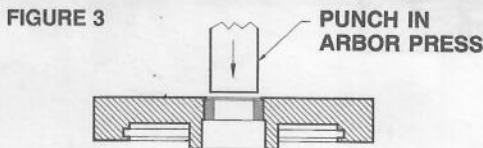
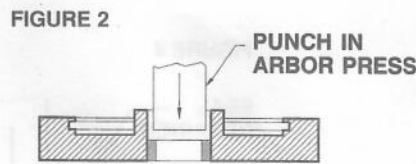
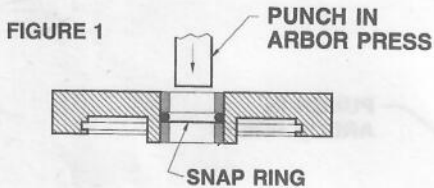
REPAIR AND REASSEMBLY – Remove rear bushing by inserting snap ring and pressing out the bushing as shown in **Figure 1**, using a punch the same diameter as the piston rod.

Determine cylinder style by looking at the front bushing from the rear.

For ungrooved front bushing: Turn over the rod guide and press out the front bushing as shown in **Figure 2**, using a punch slightly larger than the piston rod diameter. This process prevents the bushings from being pressed across the area sealed by the "O"-ring.

Press in two new ungrooved bushings, one from each side, until flush.

Caution: An "O"-ring should be inserted in the bore before pressing in the second bushing.



NOSE MOUNT DISASSEMBLY – Turn rod guide so that the nose thread is facing up. Insert a snap ring as is shown in **Figure 1**. Using a punch slightly larger than the piston rod diameter, press the rear bushing out. Now, remove the front bushing, making sure you press the bushing out as in **Figure 4**. Remove the Teflon wiper.

Caution: Both bushings should be pressed out in the same direction as shown in **Figure 4**.

NOSE MOUNT OPTION ASSEMBLY – First, replace the Teflon wiper. Next, press in the front (grooved) bushing from the rear end of the rod guide. (Front bushing has 3 equally-spaced grooves in outside diameter.) Press this bushing until it fits snugly against the Teflon wiper. Insert the U-cup rod seal with the open end facing toward the rear of the rod guide. Use the included metal billet for pressing of the rear bushing. See **Figure 5**. When the top of the metal billet is flush with the stem of the rod guide, the rear bushing is in the proper location.

Caution: Both bushings should be pressed in the same direction as shown in **Figure 5**.

ASSEMBLY SCREW TORQUE VALUES – FLAT-1

BORE	SCREW SIZE	TORQUE (IN-LB)
3/16", 3/8", 1 1/16"	#4-40	7
1 1/2", 2"	#10-24	35
2 1/2", 3"	1/4-20	90
4"	5/16-18	150

TIE ROD TORQUE VALUES – SQUARE FLAT-1

BORE	TIE-ROD SIZE	TORQUE (IN-LB)
3/4", 1 1/16"	#5-44	10
1 1/2", 2"	.185-24	30

