

4-1/4" AIR MOTOR
6" STROKE

637362 AIR MOTOR



**READ THIS MANUAL CAREFULLY BEFORE INSTALLING,
OPERATING OR SERVICING THIS EQUIPMENT.**

It is the responsibility of the employer to place this information in the hands of the operator. Keep for future reference.

SERVICE KITS

637363 for general repair of all 637362 air motors.
90350 installation tool is recommended for repair of 637362 motor.

GENERAL DESCRIPTION

The 4-1/4" air motor is a general purpose power unit and is used with many 2-ball, 4-ball and chop check pumps. It utilizes tie rod type construction for easy breakdown and it connects to the various lower ends via tie rods for easy operation. Consult pump model operator's manual for specific instructions. It is recommended that a muffler be connected to the exhaust port to reduce noise to acceptable OSHA standards.

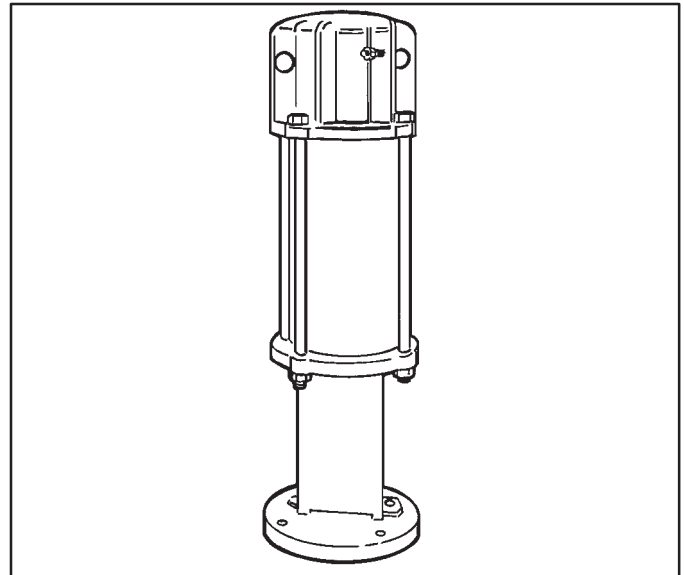
Filtered and oiled air will allow the air motor to operate more efficiently and yield a longer life to operating parts and mechanisms. A filter capable of filtering particles larger than 50 microns should be used with an oiler. Keep the oiler supplied with a good grade of S.A.E. no. 90W non-detergent gear oil, set at a rate not to exceed 1 or 2 drops per minute.

NOTICE DO NOT OPERATE AIR MOTOR ABOVE RECOMMENDED AIR PRESSURE OF 150 P.S.I. (10.3 BAR) OR 75 CYCLES PER MINUTE. Air motor may be rated differently in the next assembly. Check model plate.

DISASSEMBLY

NOTE: All threads are right hand.

1. Place motor in up stroke position. This can be accomplished by pushing (48) rod toward the top of the air motor.
2. Remove four (1) screws from (2) deflector.
3. Remove (2) deflector.
4. Remove six (3) screws from (8) air motor cap.
5. Remove (8) air motor cap and (10) gasket.
6. Loosen four (4) screws (which hold (12) valve plate and (9) valve guide) until (9) valve guide can be removed by pulling upward (see figure 8).
7. Remove four (4) screws and four (5) washers from (19) head assembly by pressing outward with a small allen wrench, as illustrated in figure 1.
8. With the aid of a screwdriver, unhook the legs of (13) insert spring assembly from the bottom of (12) valve plate.
9. Remove (12) valve plate and (13) insert spring assembly from (19) head by pulling upward. If (12) valve plate is stuck, tap the top edge lightly with a soft face mallet. **Do not tap with anything metallic.**
10. Remove both (11 and 14) inserts and (13) insert spring assembly from (12) valve plate.



11. Remove (15) gasket from (19) head assembly.
12. Remove two (6) screws and two (7) lock washers from (33) gland in (19) head assembly.
13. With fingers, pull (31) valve piston upward until (33) gland has pulled out of its chamber.
14. Remove (33) gland by sliding it up over (31) valve piston.
15. Remove (34) seal and (35) "O" ring from (33) gland (see figure 6).

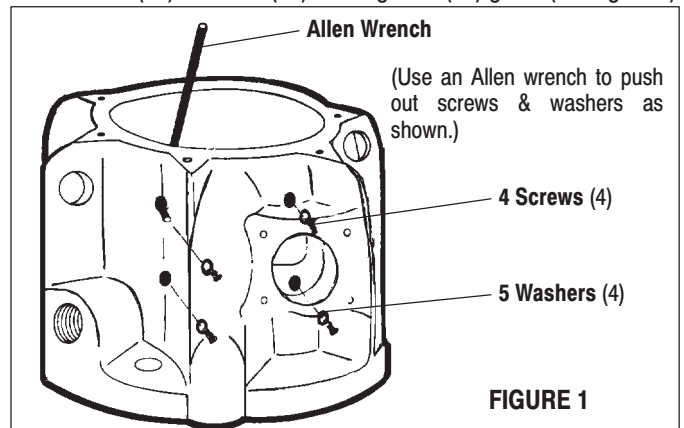


FIGURE 1

16. Disassemble (31) valve piston from (38) adapter as shown in figure 3.
17. Pull (38) adapter upward until assembly is taut and grasp (36) extension rod with fingers, as shown in figure 7. Grasp (36) extension rod below (38) adapter. Now push (38) adapter down on (36) extension rod and remove (32) washer from (36) extension rod. Now remove (38) adapter.

AIR MOTOR PARTS LIST

ITEM	DESCRIPTION (Size in inches)	QTY	PART NO.
1	Machine Screw (#8 - 32 x 7/8") (not shown)	(4)	Y136-90-S
2	Deflector (not shown)	(1)	90409
3	Machine Screw (#10 - 24 x 1/2")	(6)	95956827
✓ 4	Machine Screw (#8 - 32 x 3/4")	(4)	Y19-89-S
✓ 5	Washer	(4)	90084
6	Machine Screw (1/4" - 28 x 3/4")	(2)	Y119-49-C
7	Lock Washer (1/4")	(2)	Y14-416
8	Air Motor Cap	(1)	90078
9	Valve Guide	(1)	90093
✓ 10	Gasket	(1)	90083-1
✓ 11	Valve Insert	(1)	90097
⊙ 12	Valve Plate and Pin Assembly	(1)	65028
12a	Roll Pin (3/32" o.d. x 3/4" long)	(2)	Y178-26-S
13	Insert Spring Assembly	(1)	65032
✓ 14	Valve Insert	(1)	90796
✓ 15	Gasket	(1)	90091
✓ 16	"O" Ring (1/16" x 1-3/8" o.d.)	(2)	Y325-26
✓ 17	Washer	(1)	91344
✓ 18	"O" Ring (1/16" x 3/4" o.d.)	(2)	Y325-16
19	Head Assembly	(1)	65889
✓ 20	"U" Cup (3/16" x 1-3/8" o.d.)	(1)	Y186-51
✓ 21	"O" Ring (1/8" x 4-1/4" o.d.)	(2)	Y325-242
✓ 22	Machine Screw (#8 - 32 x 3/8")	(4)	Y136-85-S
24	Piston Assembly	(1)	61851

⊙ Includes item (12a) roll pin (qty 2).

DISASSEMBLY (continued)

18. Remove (17) washer and (20) "U" cup from (38) adapter.
19. Remove four (47) nuts from four (42) bolts.
20. Remove four (42) bolts.
21. Remove (19) head assembly and place on the workbench with (8) cap side down. This action will allow (40) washer to fall out of its cavity.
22. Remove (21) "O" ring from (19) head assembly.
23. Remove four (22) screws from (39) gland, permitting gland to be removed from (19) head assembly.
24. Remove (16 and 41) "O" rings from (39) gland.
25. Remove (29) tube assembly from (30) base.
26. Remove two (18) "O" rings from (29) tube.
27. Remove (28) cylinder from (30) base. Usually during this step, the (24) piston and (48) piston rod will remain in (28) cylinder.
28. Remove (43) snap ring, (44) washer, (45) "U" cup and (46) washer.
29. Remove (21) "O" ring from (30) base assembly.
30. Separate (48) piston rod and (24) piston assembly from (28) cylinder.
31. Unscrew (36) extension rod from (27) rod assembly by holding (27) rod assembly with adjustable type pliers and placing a wrench on the provided wrench flats at the top of (36) extension rod.
32. Unscrew (48) piston rod from (24) piston assembly. Use provided wrench flats on (48) piston rod. Next, remove (27) rod assembly from (48) piston rod.

NOTE: Caution should be exercised so as not to mar or damage the finish on (36) extension rod or (48) piston rod.

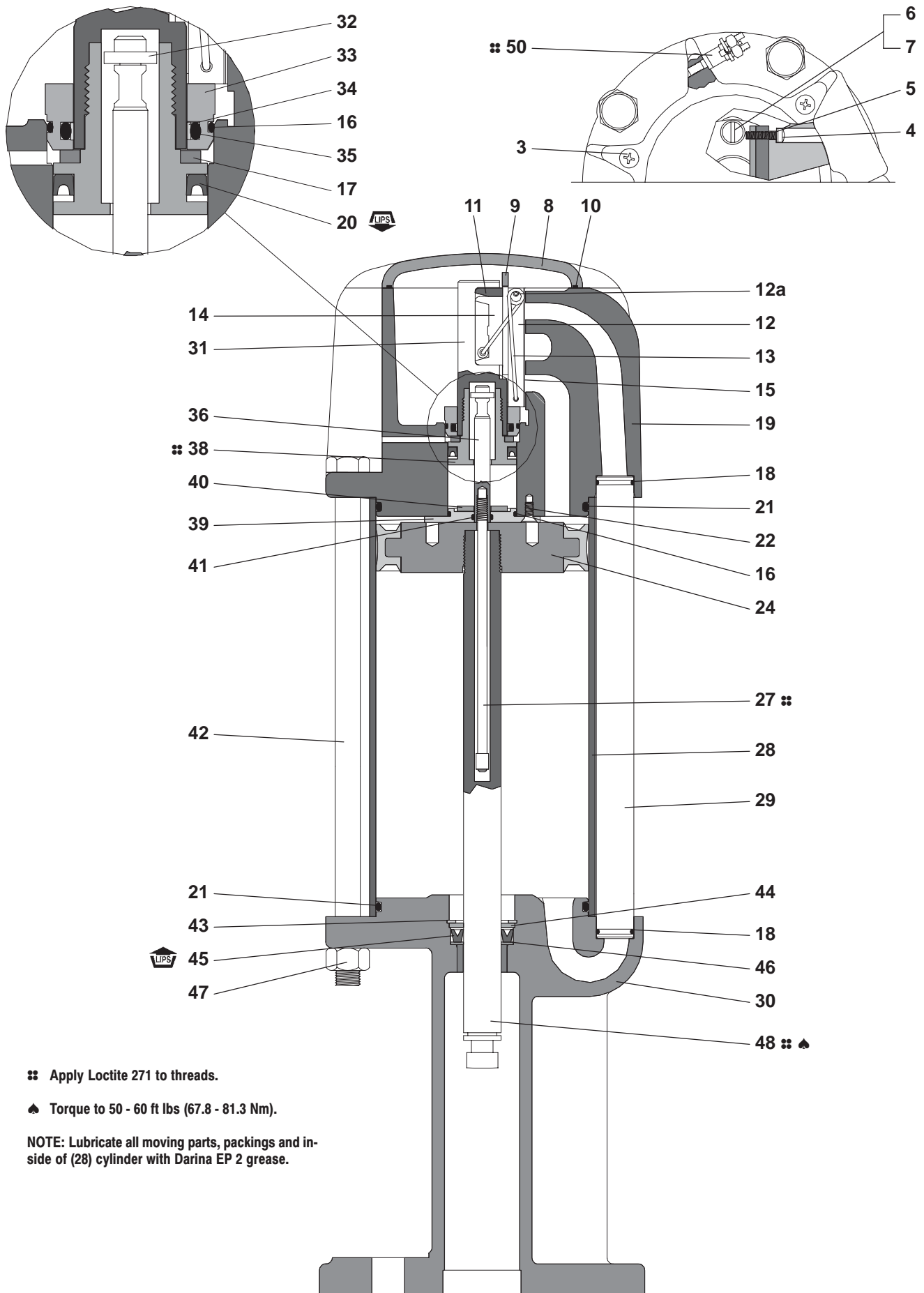
ITEM	DESCRIPTION (Size in inches)	QTY	PART NO.
27	Valve Rod	(1)	90107-1
28	Air Cylinder	(1)	90090-1
29	Tube	(1)	90101-1
30	Air Motor Base Assembly	(1)	65023
✓ 31	Valve Piston	(1)	92394
✓ 32	Washer	(1)	90105
33	Upper Gland	(1)	91006
✓ 34	Seal	(1)	91007
✓ 35	"O" Ring (.103" x 1.255" o.d.)	(1)	91207
36	Extension Rod	(1)	90080
✓ 38	Piston Adapter	(1)	92393
39	Lower Gland	(1)	90114
✓ 40	Washer	(1)	91345
✓ 41	"O" Ring (1/16" x 7/16" o.d.)	(1)	Y325-11
42	Bolt (1/2" - 20 x 10-1/4")	(4)	94046-1
43	Retaining Ring (1.456" o.d.)	(1)	Y147-131
44	Guide Washer	(1)	73986
✓ 45	"U" Cup (1/4" x 1-1/4" o.d.)	(1)	Y186-16
46	Washer	(1)	90103
47	Nut (1/2" - 20)	(4)	Y11-8-C
48	Piston Rod	(1)	90108-1
50	Ground Lug	(1)	93006
✓	Darina EP 2 Grease Pack	(2)	94833
✓	Parts included in Repair Kit		637363

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REASSEMBLY

1. Apply grease to all "O" rings, "U" cups and other rubber goods before installing.
2. Clean the threads on (27) rod assembly and put the threaded end thru (24) piston assembly.
3. Hold (27) rod assembly below threads with locking type pliers. After applying Loctite 271 to the threads, attach (36) extension rod and draw up tight, using the wrench flats provided on (36) extension rod. **NOTE: Do not mar or damage the surface of (36) extension rod.**
4. Place the "machined shoulder" end of (27) rod assembly into the hole in the end of (48) piston rod. After applying Loctite 271 to threads, secure (48) piston rod into (24) piston assembly and tighten to 50 - 60 ft lbs (67.8 - 81.3 Nm), using provided wrench flats on (48) piston rod. **NOTE: Do not mar or damage the surface of (48) piston rod.**
5. Install (21) "O" ring on (30) base assembly.
6. Install (46) washer, (45) "U" cup (lips up), (44) washer and (43) snap ring.
7. Push (48) piston rod thru (30) base assembly, being careful not to damage the lips of (45) "U" cup.
8. Grease the inside of (28) cylinder and fill the area between the lips of (24) piston assembly with grease, then place (28) cylinder over (24) piston and rod assembly (see figure 4, page 4).

AIR MOTOR PARTS LIST



♣ Apply Loctite 271 to threads.

♣ Torque to 50 - 60 ft lbs (67.8 - 81.3 Nm).

NOTE: Lubricate all moving parts, packings and inside of (28) cylinder with Darina EP 2 grease.

FIGURE 2

REASSEMBLY

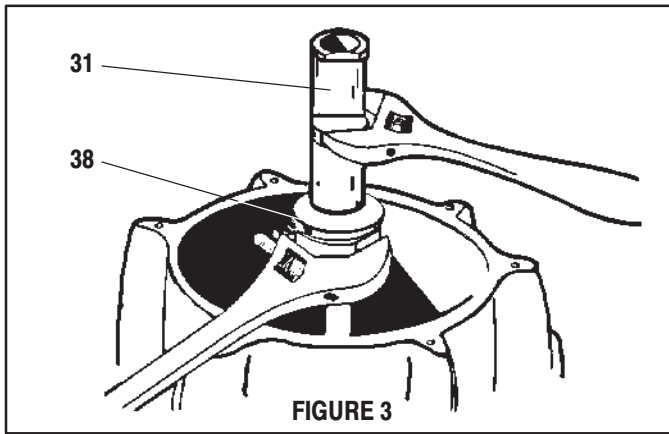


FIGURE 3

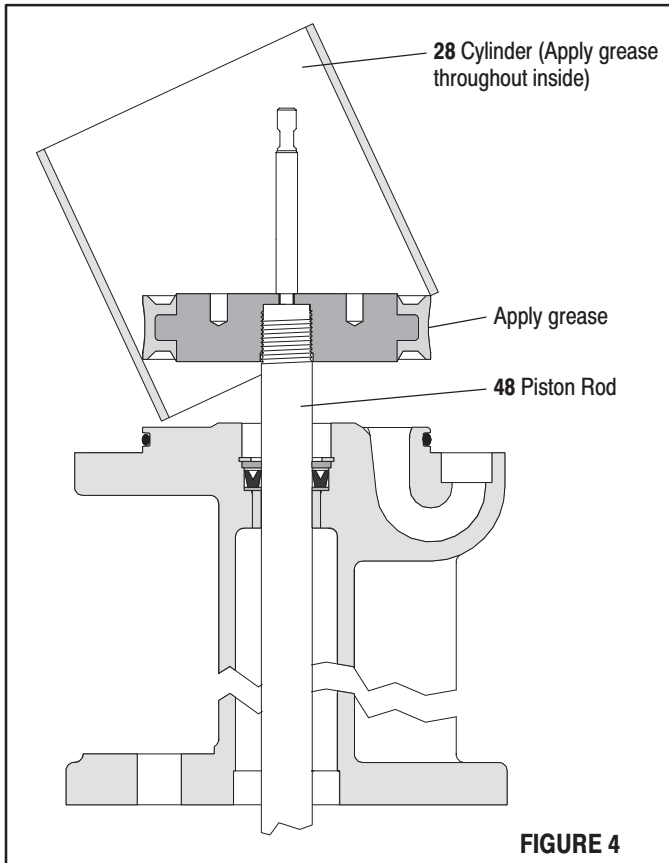


FIGURE 4

9. Push (24) piston assembly to the top of (28) cylinder.
10. Install two (18) "O" rings on (29) tube and insert (29) tube assembly into provided hole of (30) base assembly.
11. Install (16 and 41) "O" rings on (39) gland.
12. Grease the bore in (19) head assembly and insert (39) gland assembly into bore of (19) head assembly with a twisting motion.
13. Align holes in (39) gland and (19) head assembly and secure with four (22) screws.
14. Install (21) "O" ring on (19) head assembly.
15. Push (36) extension rod thru (41) "O" ring in the base of (19) head assembly.
16. Press (19) head assembly down, seating against (28) cylinder and (29) tube assembly.
17. Insert four (42) bolts down thru the holes in the flange of (19) head assembly and (30) base assembly.
18. Screw four (47) nuts on (42) bolts. Alternately and evenly tighten four (47) nuts.
19. Install (20) "U" cup in (38) adapter, with the lips down toward the thick flange of (38) adapter.

20. Install (35 and 16) "O" rings in the (33) gland.
21. Bend (34) seal in a heart shape (see figure 5 below) and install in (33) gland, next to (35) "O" ring (see figure 6 below).

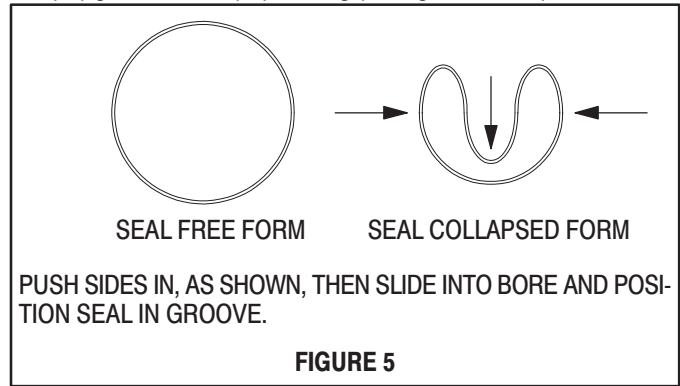


FIGURE 5

22. Carefully push (31) valve piston into (33) gland to size (34) seal (see figure 6 below). After sizing, remove (31) valve piston from (33) gland.

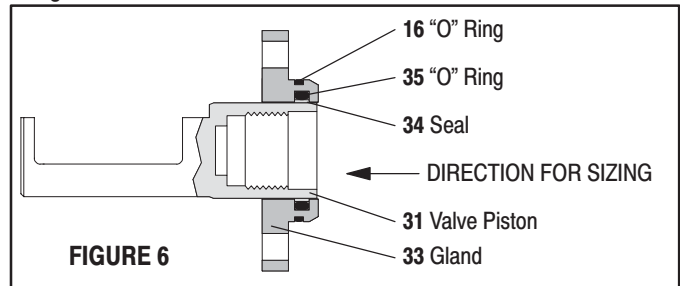


FIGURE 6

23. Slide (40) washer over (36) extension rod.
24. Pull (36) extension rod up and grasp with two fingers (see figure 7 below).
25. Place 90350 special installation tool over (36) extension rod, with turned diameter down and the chamber side up.

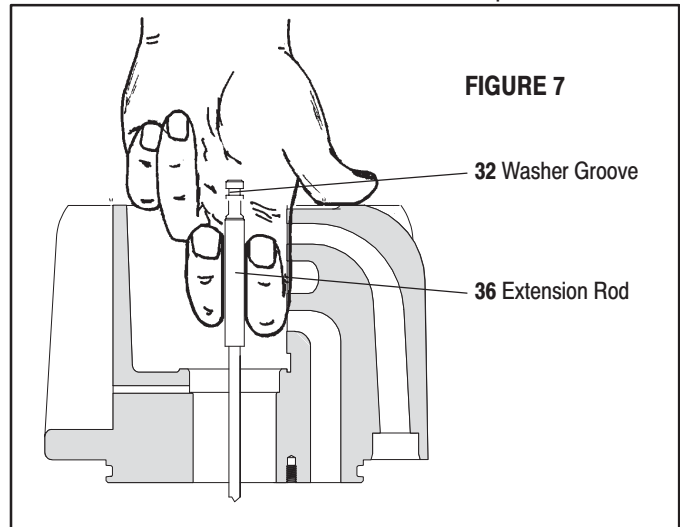


FIGURE 7

26. Fit the turned diameter of the 90350 special installation tool into the bore in the bottom of (19) head assembly.
27. Place (38) adapter assembly down over (36) extension rod, with the thread on the (38) adapter up.
28. Insert (32) washer into the groove on the top of (36) extension rod.
29. Pull (38) adapter up around the (32) washer.
30. Place (17) washer over (36) extension rod and onto (38) adapter.
31. Clean with solvent and put Loctite 271 on the threads of (38) adapter. Screw (31) valve piston onto (38) adapter and tighten (see figure 3).
32. Push the assembled (38) adapter and (31) valve piston down thru the 90350 special installation tool until it bottoms.
33. Remove the 90350 special installation tool by pulling up on it.

34. Install (33) gland assembly over the (31) valve piston and push down, being careful to retain (34) seal in the "O" ring groove.
35. Align the two screw holes and secure (33) gland assembly to (19) head assembly with two (6) screws and two (7) lock washers.
36. Insert (13) insert spring assembly into the (19) head assembly, with the hooks down and the nylon roller toward (31) valve piston.
37. Apply grease to both (11 and 14) inserts and place them in position (see figure 8) with legs of insert toward (31) valve piston and the larger, (14) insert, located in front of the larger diameter nylon roller. Also, the nylon roller on the (13) insert spring assembly should be between the legs of both (11 and 14) inserts.
38. Apply grease to gasket side of (12) valve plate and put (15) gasket on (12) valve plate. To determine the correct side, the screw holes nearest the top and bottom of (12) valve plate are toward the exhaust port on the (19) head assembly. Also, the (12a) roll pins in (12) valve plate are at the top.
39. Hold the (11 and 14) inserts against the (31) valve piston and slide the (15) gasket and (12) valve plate between the two inserts and (19) head assembly. Be sure the larger holes in the (12) valve plate are located in front of the larger or (14) insert. Also, be sure the pins are located at the top of the valve plate.
40. Hook the round coil in (13) insert spring assembly over the (12a) roll pins (see figure 8).
41. Hook the bottoms of the (13) insert spring assembly into the holes on the side of (12) valve plate (see figure 8).
42. Insert (9) valve guide against the face of (12) valve plate. The legs of (9) valve guide should be down, with the leg having the threaded hole nearest the bottom located nearest the exhaust port of the (19) head assembly.
43. Place (5) washer on each of the four (4) screws and insert into the provided holes and tighten evenly across the corners. NOTE: To ease the alignment of the holes, an "O" ring pick is helpful.

44. Install (10) gasket in (8) air motor cap and secure with six (3) screws.
45. Place (2) deflector on the exhaust port of (19) head assembly, with the opening down, and secure with four (1) screws.

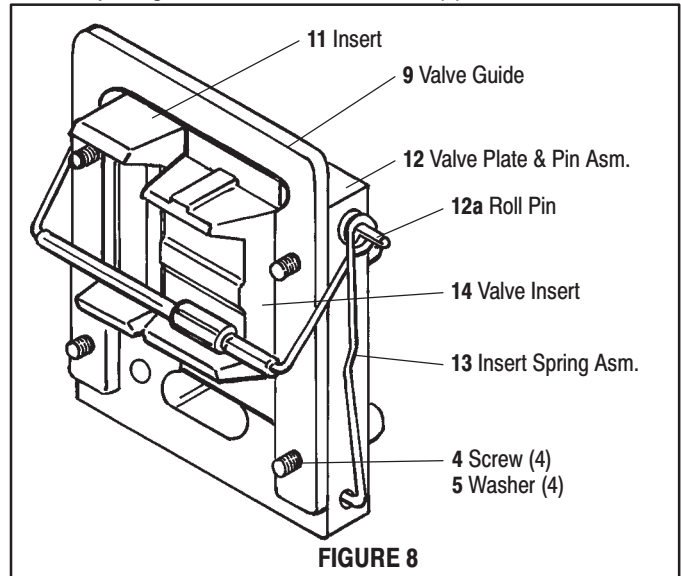
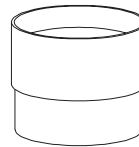


FIGURE 8

90350 INSTALLATION TOOL



NOTE: It is highly recommended that a 90350 installation tool be used. This will greatly ease installation of (38) piston adapter and piston valve and will reduce the chances of damage to the (20) "U" cup. A damaged (20) "U" cup can usually lead to air motor failure.

TROUBLE SHOOTING

PROBLEM
Air leakage out of main exhaust.

CAUSE
Worn (14) insert.

REMEDY
Replace (14) insert.

CAUSE
Worn (12) valve plate and pin assembly.

REMEDY
Replace (12) valve plate and pin assembly.

CAUSE
Damaged (24) piston assembly.

REMEDY
Replace (24) piston assembly.

PROBLEM
Continual air leakage out of bleeder hole in (19) head assembly.

CAUSE
Worn (35) "O" ring or (34) seal.

REMEDY
Replace (35) "O" ring and (34) seal.

PROBLEM
Air leakage around (48) piston rod.

CAUSE
Worn (45) "U" cup.

REMEDY
Replace (45) "U" cup.

