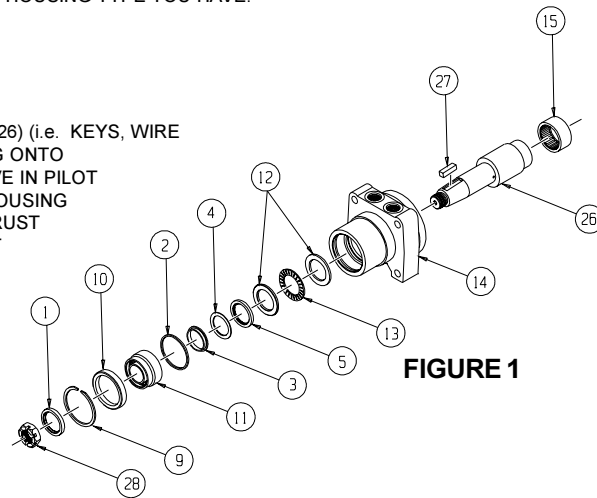


**HOUSING/SHAFT DISASSEMBLY AND ASSEMBLY**

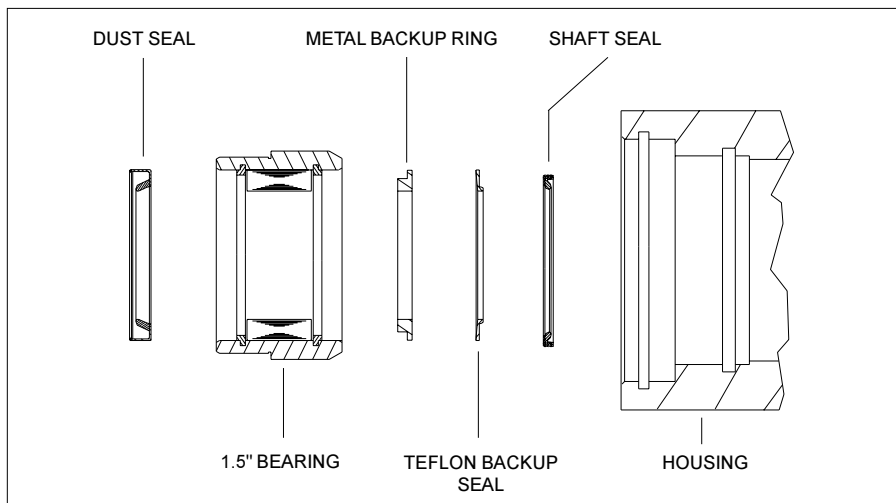
\*\*\*IMPORTANT NOTE - THIS KIT IS INTENDED TO SERVICE ALL RE MOTORS WITH 1.5" BEARINGS. HOWEVER, THERE ARE SLIGHT DIFFERENCES IN THE BEARING/SEAL ASSEMBLIES OF THESE MOTORS. IT IS IMPORTANT THAT YOU DETERMINE WHICH MOTOR TYPE YOU HAVE BEFORE SERVICING SO THAT YOU CAN TURN TO THE APPROPRIATE SECTION. THE SECTION HEADINGS LIST MOTOR TYPES AND HOUSING NUMBERS WITHIN THAT TYPE. THE HOUSING NUMBER IS THE THIRD AND FORTH HEADINGS LIST NUMBER IN THE MODEL NUMBER, WHICH IS LOCATED ON THE WHITE TAG ON THE MOTOR. IF THE TAG IS MISSING, THE EXPLODED VIEWS MAY BE USED TO DETERMINE WHICH HOUSING TYPE YOU HAVE.

**SECTION 1. "R" Flange**  
**See figure 1 for exploded view**

- A) REMOVE ALL SHAFT RELATED COMPONENTS FROM SHAFT (26) (i.e. KEYS, WIRE RINGS, NUTS, ETC.). SECURE MOTOR IN VISE BY CLAMPING ONTO HOUSING. REMOVE RETAINING SNAP RING (9) FROM GROOVE IN PILOT OF HOUSING (14). LIFT SHAFT/BEARING ASSEMBLY FROM HOUSING (14) THEN REMOVE BEARING SPACER (10), BEARING (11), THRUST BEARING (13) AND TWO THRUST WASHERS (12) FROM SHAFT (26)
- B) BEING CAREFUL NOT TO DROP ANY ROLLS FROM BEARING (11), PRY OUT SHAFT SEAL (5), TEFLON BACKUP SEAL (4), AND DUST SEAL (1) FROM BEARING ASSEMBLY (11). (NOTE: METAL BACKUP RING (3) MAY OR MAY NOT COME OUT OF BEARING (11). IT IS NOT NECESSARY TO REMOVE THE METAL BACKUP RING (3) FROM THE BEARING (11) TO SERVICE THE MOTOR.) REMOVE HIGH PRESSURE SEAL (2) FROM GROOVE IN PILOT OF HOUSING (14) DISCARD SHAFT SEAL (5), TEFLON BACKUP SEAL (4) DUST SEAL (1) AND HIGH PRESSURE SEAL (2).
- C) AT THIS POINT, ALL PARTS SHOULD BE CLEANED IN A OIL-BASED SOLVENT AND DRIED USING COMPRESSED AIR (FOR SAFETY, OBSERVE ALL OSHA SAFETY GUIDELINES). ALL NEW SEAL SHOULD BE LIGHTLY COATED WITH CLEAN OIL PRIOR TO INSTALLATION.
- D) INSTALL HIGH PRESSURE SEAL (2) INTO GROOVE IN PILOT OF HOUSING (14). PLACE SHAFT (26) ON A CLEAN, FLAT SURFACE WITH OUTPUT END FACING UP. PLACE THRUST WASHER (12), THRUST BEARING (13) AND SECOND THRUST WASHER (12) OVER SHAFT (26). BEING CAREFUL NOT TO CUT SEAL ON KEYWAY, PLACE SHAFT SEAL (5) OVER SHAFT (26) MAKING SURE THAT LIP ON SEAL FACES DOWN (SEE FIGURE 2). REPEAT PROCESS FOR TEFLON BACKUP SEAL (4) MAKING SURE THAT LIP FACES DOWN. IF METAL BACKUP RING (3) CAME OUT OF BEARING (11), PLACE OVER SHAFT (26) MAKING SURE THAT LARGE O.D. SIDE FACES



**FIGURE 1**



**FIGURE 2**

**PARTS LIST FOR FIGURE 1**

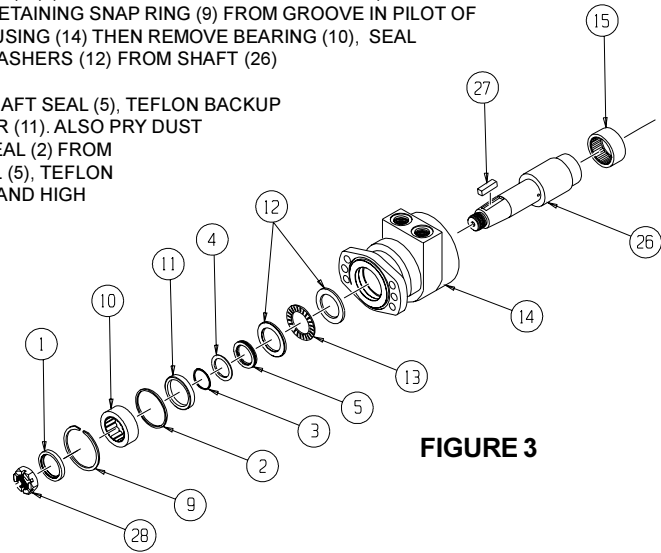
- 1. DUST SEAL
- 2. HIGH PRESSURE SEAL
- 3. METAL BACKUP RING
- 4. TEFLON BACKUP SEAL
- 5. SHAFT SEAL
- 9. RETAINING SNAP RING
- 10. BEARING SPACER
- 11. 1.5" BEARING
- 12. THRUST WASHERS (2)
- 13. THRUST BEARING
- 14. HOUSING
- 15. REAR HOUSING BEARING
- 26. SHAFT
- 27. SHAFT KEY
- 28. SHAFT NUT

DOWN. LIGHTLY GREASE BEARING (11) IF NEEDED. PLACE BEARING (11) OVER SHAFT MAKING SURE THAT THE LARGE O.D. SIDE FACES DOWN. USING AN ARBOR PRESS, CAREFULLY PRESS BEARING (11) DOWN TO PRESS SEAL ASSEMBLY (3-5) INTO BEARING (11).

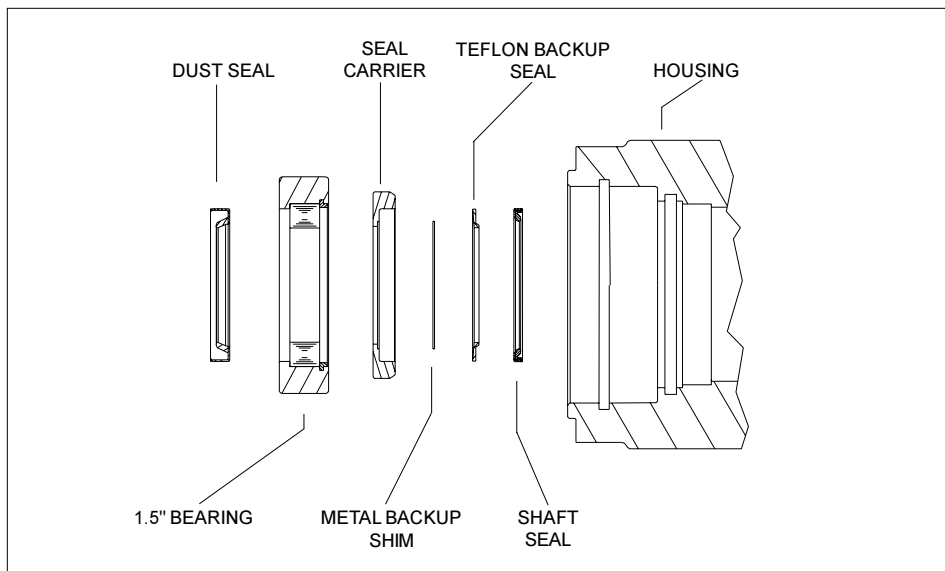
- E) PLACE SHAFT (26) ASSEMBLY INTO HOUSING (14). INSTALL DUST SEAL (1) OVER SHAFT (26) WITH LIP FACING UP (SEE FIGURE 1) AND CAREFULLY PRESS THE SEAL DOWN TO SEAT IT IN THE BEARING (11). PLACE BEARING SPACER (10) OVER SHAFT (26) AND PUSH DOWN UNTIL SNAP RING GROOVE IS VISIBLE. INSTALL RETAINING SNAP RING (9) INTO GROOVE IN HOUSING PILOT (14). (NOTE: IT MAY BE NECESSARY TO LIGHTLY TAP THE RETAINING SNAP RING (9) AND BEARING SPACER (10) TO ALLOW THE RETAINING SNAP RING (9) TO SEAT PROPERLY.) REPLACE ALL SHAFT RELATED COMPONENTS (i.e. KEYS, WIRE RINGS, NUTS).
- F) SEE SECTION 4 FOR MOTOR DISASSEMBLY AND ASSEMBLY.

**SECTION 2. "A" Flange**  
**See figure 3 for exploded view**

- A) REMOVE ALL SHAFT RELATED COMPONENTS FROM SHAFT (26) (i.e. KEYS, WIRE RINGS, NUTS, ETC.). SECURE MOTOR IN VISE BY CLAMPING ONTO HOUSING. REMOVE RETAINING SNAP RING (9) FROM GROOVE IN PILOT OF HOUSING (14). LIFT SHAFT/BEARING ASSEMBLY FROM HOUSING (14) THEN REMOVE BEARING (10), SEAL CARRIER (11), THRUST BEARING (13) AND TWO THRUST WASHERS (12) FROM SHAFT (26)
- B) USING A SMALL THIN BLADED SCREWDRIVER, PRY OUT SHAFT SEAL (5), TEFLON BACKUP SEAL (4) AND METAL BACKUP SHIM (3) FROM SEAL CARRIER (11). ALSO PRY DUST SEAL (1) FROM BEARING (10). REMOVE HIGH PRESSURE SEAL (2) FROM GROOVE IN PILOT OF HOUSING (14) DISCARD SHAFT SEAL (5), TEFLON BACKUP SEAL (4), METAL BACKUP SHIM (3), DUST SEAL (1) AND HIGH PRESSURE SEAL (2).
- C) AT THIS POINT, ALL PARTS SHOULD BE CLEANED IN A OIL-BASED SOLVENT AND DRIED USING COMPRESSED AIR (FOR SAFETY, OBSERVE ALL OSHA SAFETY GUIDELINES). ALL NEW SEAL SHOULD BE LIGHTLY COATED WITH CLEAN OIL PRIOR TO INSTALLATION.
- D) INSTALL HIGH PRESSURE SEAL (2) INTO GROOVE IN PILOT OF HOUSING (14). PLACE SHAFT ON A CLEAN, FLAT SURFACE WITH OUTPUT END FACING UP. PLACE THRUST WASHER (12), THRUST BEARING (13) AND SECOND THRUST WASHER (12) OVER SHAFT (26). BEING CAREFUL NOT TO CUT SEAL ON KEYWAY, PLACE SHAFT SEAL (5) OVER SHAFT (26) MAKING SURE THAT LIP ON SEAL FACES DOWN (SEE FIGURE 3). REPEAT PROCESS FOR TEFLON BACKUP SEAL (4) MAKING SURE THAT LIP FACES DOWN. PLACE METAL BACKUP SHIM (3) OVER SHAFT (26). WITH FLAT SIDE FACING UP, PLACE SEAL CARRIER (11) DOWN OVER SHAFT. USING AN ARBOR PRESS, CAREFULLY PRESS DOWN ON SEAL CARRIER (11) TO PRESS SEAL ASSEMBLY (3-5) INTO SEAL BEARING (10). LIGHTLY GREASE BEARING (10) IF NEEDED. PLACE BEARING (10) OVER SHAFT MAKING SURE THAT SIDE OF BEARING WITH SNAP RING AGAINST BEARING ROLLS FACES DOWN.



**FIGURE 3**



**FIGURE 4**

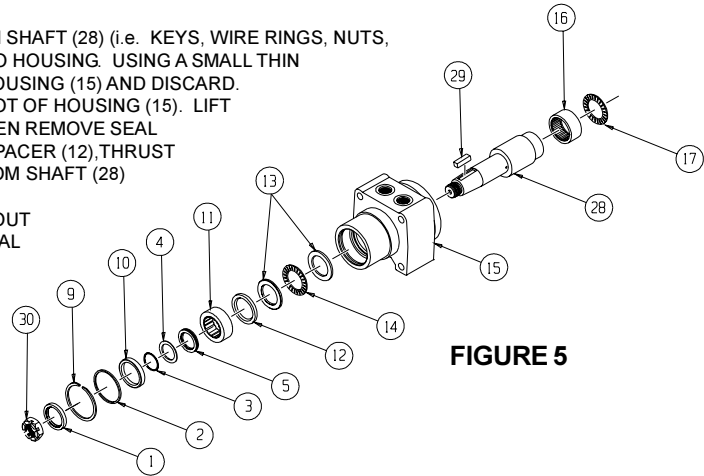
**PARTS LIST FOR FIGURE 3**

1. DUST SEAL
2. HIGH PRESSURE SEAL
3. METAL BACKUP RING
4. TEFLON BACKUP SEAL
5. SHAFT SEAL
9. RETAINING SNAP RING
10. 1.5" BEARING
11. SEAL CARRIER
12. THRUST WASHERS (2)
13. THRUST BEARING
14. HOUSING
15. REAR HOUSING BEARING
26. SHAFT
27. SHAFT KEY
28. SHAFT NUT

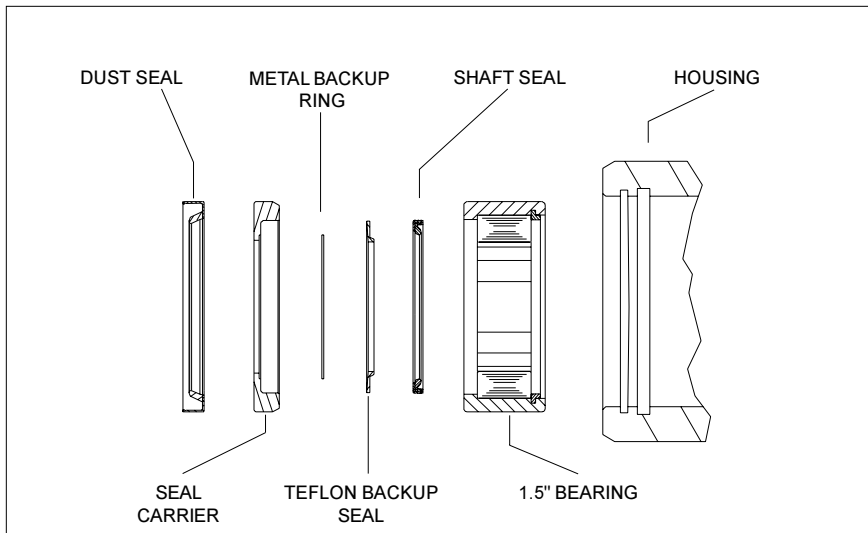
- E) PLACE SHAFT (26) ASSEMBLY INTO HOUSING (14). INSTALL DUST SEAL (1) OVER SHAFT (26) WITH LIP FACING UP (SEE FIGURE 2) AND CAREFULLY PRESS THE SEAL DOWN TO SEAT IT IN THE BEARING (10). INSTALL RETAINING SNAP RING (9) INTO GROOVE IN HOUSING PILOT (14). (NOTE: IT MAY BE NECESSARY TO LIGHTLY TAP THE RETAINING SNAP RING (9) TO ALLOW IT TO SEAT PROPERLY.) REPLACE ALL SHAFT RELATED COMPONENTS (i.e. KEYS, WIRE RINGS, NUTS).
- F) SEE SECTION 4 FOR MOTOR DISASSEMBLY AND ASSEMBLY

**SECTION 3. "W" Flange**  
**See figure 5 for exploded view**

- A) REMOVE ALL SHAFT RELATED COMPONENTS FROM SHAFT (28) (i.e. KEYS, WIRE RINGS, NUTS, ETC.). SECURE MOTOR IN VISE BY CLAMPING ONTO HOUSING. USING A SMALL THIN BLADE SCREWDRIVER, PRY DUST SEAL (1) FROM HOUSING (15) AND DISCARD. REMOVE RETAINING RING (9) FROM GROOVE IN PILOT OF HOUSING (15). LIFT SHAFT/BEARING ASSEMBLY FROM HOUSING (15) THEN REMOVE SEAL CARRIER ASSEMBLY (10), BEARING (11), BEARING SPACER (12), THRUST BEARING (14) AND TWO THRUST WASHERS (13) FROM SHAFT (28)
- B) USING A SMALL THIN BLADED SCREWDRIVER, PRY OUT SHAFT SEAL (5), TEFLON BACKUP SEAL (4) AND METAL BACKUP SHIM (3) FROM SEAL CARRIER (10). REMOVE HIGH PRESSURE SEAL (2) FROM GROOVE IN PILOT OF HOUSING (15) DISCARD SHAFT SEAL (5), TEFLON BACKUP SEAL (4), METAL BACKUP SHIM (3) AND HIGH PRESSURE SEAL (2).
- C) AT THIS POINT, ALL PARTS SHOULD BE CLEANED IN A OIL-BASED SOLVENT AND DRIED USING COMPRESSED AIR (FOR SAFETY, OBSERVE ALL OSHA SAFETY GUIDELINES). ALL NEW SEAL SHOULD BE LIGHTLY COATED WITH CLEAN OIL PRIOR TO INSTALLATION.
- D) INSTALL HIGH PRESSURE SEAL (2) INTO GROOVE IN PILOT OF HOUSING (15). PLACE SHAFT ON A CLEAN, FLAT SURFACE WITH OUTPUT END FACING UP. PLACE THRUST WASHER (13), THRUST BEARING (14) AND SECOND THRUST WASHER (13) OVER SHAFT (28). PLACE BEARING SPACER (12) OVER SHAFT (26). PLACE SEAL CARRIER (10) ON A CLEAN FLAT SURFACE WITH THE FLAT SIDE FACING DOWN. INSTALL METAL BACKUP SHIM (3) INTO SEAL CARRIER (10). MAKING SURE THAT LIPS ON BOTH SEALS FACE UP (SEE FIGURE 6), INSTALL TEFLON BACKUP SEAL (4) INTO SEAL CARRIER (10) FOLLOWED BY SHAFT SEAL (5). USING AN ARBOR PRESS, CAREFULLY PRESS DOWN ON SHAFT SEAL (5) TO PRESS SEAL ASSEMBLY (3-5) INTO SEAL CARRIER (10). WITH SHAFT SEAL (5) FACING DOWN, CAREFULLY LOWER SEAL CARRIER ASSEMBLY DOWN ONTO SHAFT MAKING SURE TO NOT CUT SEAL LIP ON KEYWAY.



**FIGURE 5**



**FIGURE 6**

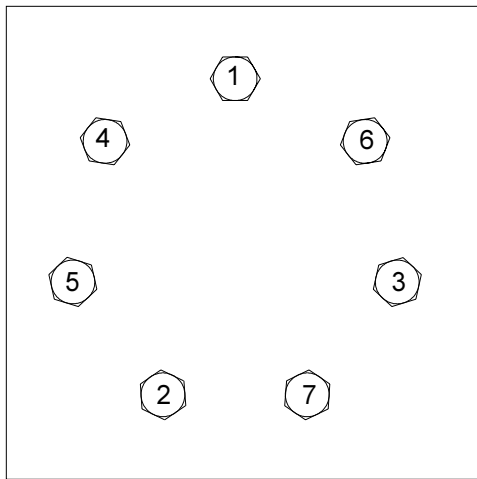
**PARTS LIST FOR FIGURE 5**

1. DUST SEAL
2. HIGH PRESSURE SEAL
3. METAL BACKUP RING
4. TEFLON BACKUP SEAL
5. SHAFT SEAL
9. RETAINING SNAP RING
10. SEAL CARRIER
11. 1.5" BEARING
12. BEARING SPACER
13. THRUST WASHERS (2)
14. THRUST BEARING
15. HOUSING
16. REAR HOUSING BEARING
17. THRUST BEARING
28. SHAFT
29. SHAFT KEY
30. SHAFT NUT

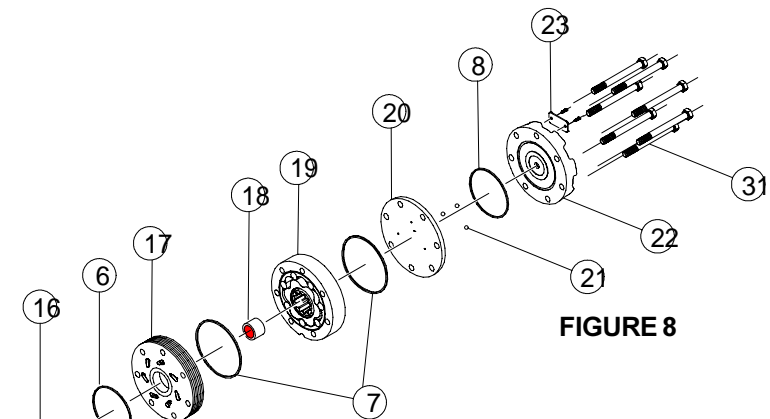
- E) PLACE SHAFT (28) ASSEMBLY INTO HOUSING (15). INSTALL RETAINING SNAP RING (9) INTO GROOVE IN HOUSING PILOT (15). (NOTE: IT MAY BE NECESSARY TO LIGHTLY TAP THE RETAINING SNAP RING (9) TO ALLOW IT TO SEAT PROPERLY.) REPLACE ALL SHAFT RELATED COMPONENTS (i.e. KEYS, WIRE RINGS, NUTS). INSTALL DUST SEAL (1) OVER SHAFT (25) WITH LIP FACING UP (SEE FIGURE 6) AND CAREFULLY PRESS THE SEAL DOWN TO SEAT IT IN THE HOUSING (15).
- F) SEE SECTION 4 FOR MOTOR DISASSEMBLY AND ASSEMBLY

**SECTION 4. MOTOR SECTION DISASSEMBLY AND ASSEMBLY**  
**See figure 8 for exploded view**

- A) LOOSEN AND REMOVE SEVEN BOLTS (31) HOLDING MOTOR ASSEMBLY TOGETHER. REMOVE END COVER (23) AND BODY SEAL (8). DISCARD SEAL. REMOVE BALANCE PLATE (21) TAKING CARE NOT TO DROP THE FOUR STEEL BALLS (22) LOCATED IN THE FOUR HOLES IN THE BALANCE PLATE (21). REMOVE ROTOR ASSEMBLY (20), MANIFOLD BOOT (18), MANIFOLD (17), DRIVE LINK SPACER (19) (NOTE: SOME MOTORS DO NOT USE SPACER), DRIVE LINK (16) AND THRUST BEARING (17). (NOTE: SOME MODELS DO NOT USE THRUST BEARING (17).) REMOVE BODY SEALS (7) FROM ROTOR ASSEMBLY (20) AND HOUSING SEAL (6) FROM HOUSING AND DISCARD SEALS.
- B) AT THIS POINT, ALL PARTS SHOULD BE CLEANED IN A OIL-BASED SOLVENT AND DRIED USING COMPRESSED AIR (FOR SAFETY, OBSERVE ALL OSHA SAFETY GUIDELINES). ALL NEW SEAL SHOULD BE LIGHTLY COATED WITH CLEAN OIL PRIOR TO INSTALLATION.
- C) IF APPLICABLE, INSTALL THRUST WASHER (NOT SHOWN IN FIGURE 8, SEE FIGURE 5, ITEM 17) ONTO END OF SHAFT. PLACE DRIVE LINK (18) INTO SHAFT MAKING SURE THAT END OF DRIVE LINK WITH CROWNED SPLINES GOES INTO SHAFT. PLACE MANIFOLD (17) ONTO HOUSING ALIGNING BOLT HOLES. (NOTE: MANIFOLD SIDE WITH ONLY SEVEN VALVING HOLES GOES TOWARD HOUSING.) PLACE MANIFOLD BOOT (18) AROUND MANIFOLD (17) ALIGNING BOLT HOLES.
- D) INSTALL A BODY SEAL (7) INTO THE SEAL GROOVE IN BOTH SIDES OF ROTOR ASSEMBLY (20). MAKING SURE THAT SIDE OF ROTOR (20) WITH CHAMFER IN SPLINES FACES DOWN, PLACE ROTOR ASSEMBLY (20) ON MANIFOLD (17) ENGAGING DRIVE LINK SPLINES. TURN ROTOR ASSEMBLY (20) TO ALIGN BOLT HOLES.
- E) IF MOTOR CAME WITH SPACER (19), PLACE SPACER ON END OF DRIVE LINK (16). PLACE BALANCE PLATE (21) ONTO THE ROTOR ASSEMBLY (20) WITH FOUR HOLES FOR STEEL BALLS (22) FACING UP. INSTALL FOUR STEEL BALLS (22) INTO THE HOLES IN THE BALANCE PLATE (21).
- F) INSTALL ENDCOVER SEAL (8) INTO ENDCOVER (23). PLACE ENDCOVER (23) ONTO THE BALANCE PLATE (21) AND ALIGN BOLT HOLES. INSERT SEVEN BOLTS (25) INTO MOTOR ASSEMBLY. PRE-TORQUE BOLTS TO 10 FT. LBS. USING THE BOLT TORQUE PATTERN IN FIGURE 7, FINAL TORQUE ALL BOLTS TO 50 FT. LBS.



**FIGURE 7**



**FIGURE 8**

**PARTS LIST FOR FIGURE 8**

- 6. REAR HOUSING SEAL
- 7. BODY SEALS (2)
- 8. ENDCOVER SEAL
- 16. DRIVE LINK
- 17. MANIFOLD
- 18. DRIVE LINK SPACER
- 19. ROTOR ASSEMBLY
- 20. BALANCE PLATE
- 21. STEEL BALLS (3)
- 22. ENDCOVER
- 31. ASSEMBLY BOLTS (7)