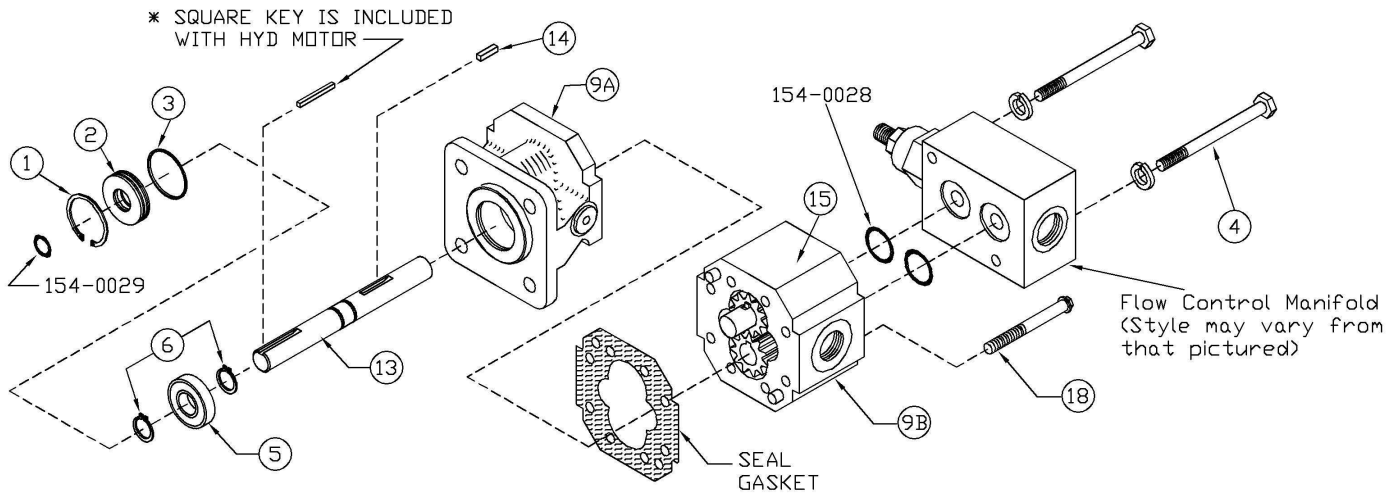


Instructions For Replacing Hydraulic Motor Shaft Seals

1) Mark the hydraulic motor halves before proceeding to avoid reassembling the motor incorrectly.

2) Remove the two 1/4" bolts (4) holding the flow control manifold to the motor. NOTE THE LOCATION OF THESE BOLTS FOR REASSEMBLY.

3) Separate the flow control manifold and motor halves (9A & 9B). Store the flow control manifold, two "O"-rings (154-0028) and bolts (4) in a clean place.



4) Remove the 6 bolts (18) holding the two hydraulic motor halves together using a 1/4" six point socket (this may need to be a 1/4" drive also).

5) Hold the hydraulic motor by the mounting flange with the motor shaft pointing up. Using a rubber or plastic mallet, gently tap on the side of the lower motor half until the two halves separate. USE EXTREME CARE SEPARATING THE HYDRAULIC MOTOR HALVES TO AVOID DAMAGING THE FOIL SHIM WHICH IS SANDWICHED BETWEEN THEM. Store the lower motor half (15) including both gears and the gear key in a clean place.

6) Remove the retaining ring (1) which holds in the motor shaft seal.

7) Using a rubber or plastic mallet, strike the end of the motor shaft which is inside the motor such that it drives the shaft (13), shaft seal (2), spacer ring (3) and shaft bearing (5) out the front of the upper motor half. NOTE- Bearing (5) can be replaced at this time by removing the retaining ring (6). Remove old bearing, replace with new bearing and reinstall retaining ring (6). Discard old motor shaft seal. Reinstall the motor shaft in the upper hydraulic motor half (9A).

8) Reassemble the upper motor half to the lower motor half taking care to note the following items.
 -The foil shim is in the proper position and is not wrinkled.
 - The marks that you made on the hydraulic motor halves are properly lined up.
 -The key for the gear which is on the motor shaft is installed properly.
 - Both gears rotate smoothly and easily once the two hydraulic motor halves are mated.

9) Slide the spacer ring (3) onto the motor shaft (13) and seat it onto the motor shaft bearing (5).

10) Place tape over the motor shaft key way (vinyl electricians tape works the best) to insure that the new seal is not cut when slid onto the motor shaft.

11) Put a thin coat of hydraulic oil on the center of the new shaft seal and slide it over the motor shaft.

12) Drive the new seal into the upper hydraulic motor housing (9A) using an appropriate driver and a ball peen

hammer. NOTE: The driver for the seal should have a large amount of surface contact on the seal itself. In addition it should fit as snugly as possible to the motor shaft to avoid driving the seal in at an angle. The seal should only be driven far enough to allow the retaining ring to be reinstalled.

13) Once the seal has been driven in, reinstall the front seal retaining ring (1).

14) Reinstall the motor housing retaining bolts (18) and torque to 9 ft-lbs. For motor with flow control manifold, reinstall manifold with "O"-rings (154-0028) and torque manifold bolts (4) to 9 ft-lbs.

Item	Tendaire P/N	Description
1	154-0110	Shaft Seal Retaining Ring
2	154-0293	Shaft Seal (replaces 154-0016)
3	154-0132	Spacer between Seal & Bearing
5	136-0007	Motor Bearing, 1/2" ID
6	154-0109	Motor Retaining Rings (Qty. 2)
13	129-0054 129-0071	Motor Shaft- .388, .517 CID motors Motor Shaft- .258 CID motor
Seal Gasket (foil or mylar shim)	154-0099 154-0100 154-0101 154-0366	Gold (.00075" Thick) Silver (.0005" Thick) Amber (.0010" Thick) Purple (.0015" Thick)

For additional assistance, call Tendaire Industries at 1-800-669-2887.