

Diaphragm Replacement: D50

Change Diaphragms every 500 hours or three months, whichever comes first.

1. Drain oil from crankcase as instructed previously.
2. Remove the pump manifolds and valves
3. Remove the pump head retaining nuts and heads.
4. Turn the crankshaft to bring the diaphragm to the top of its stroke. Insert a drift pin into the hole in the retaining bolt to hold it in place. Remove the retaining nut, retaining washer and the diaphragm (see Figure 12).
5. Turn the crankshaft to bring the piston to the bottom of its stroke and seat the new diaphragm into the sleeve groove. Install the retaining washer and tighten the retaining nut while holding the retaining stud in place with the drift pin. Clean any excess oil from the area and install the heads, valves and manifolds.
6. Replace the pulsation dampener diaphragm by first bleeding the air from the dampener. Remove the cover retaining bolts from the dampener cover and

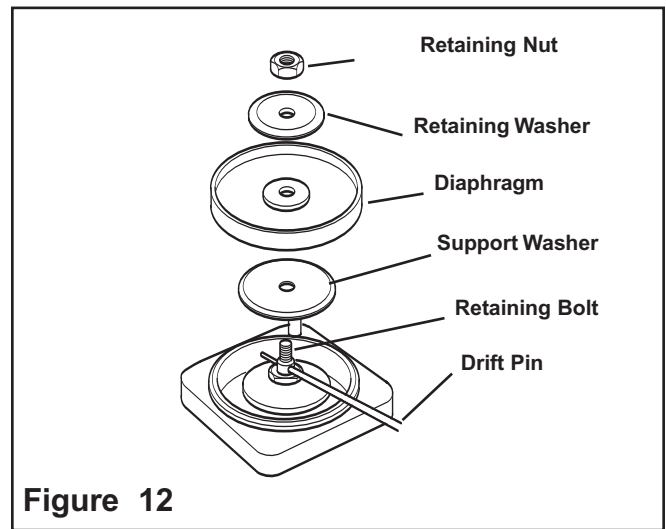


Figure 12

replace the diaphragm. Reassemble the cover and bolts in place and charge the dampener to 20% of operating pressure.

7. Refill the crankcase with Hypro oil (part number 2160-0038). Rotate shaft to distribute oil, and fill to proper level.

Troubleshooting

SYMPTOM	PROBABLE CAUSE(S)	CORRECTIVE ACTION
The Pump does not draw water.	One or more Valves are seating improperly.	Remove Valve and check for debris. Remove any debris found. Examine the Valve Seatings and clean them.
	Suction Line is plugged or collapsed. Clogged Strainer.	Examine and clean the Suction Line. Clean the Strainer.
The liquid flow is irregular.	The charge in the Pulsation Dampener is incorrect.	Check the pressure in the Pulsation Dampener. (It should be 20% of your spray pressure.)
	One or more Valves are seating improperly.	Remove Valve and check for debris. Remove any debris found. Examine the Valve Seatings and clean them.
Output drops and the Pump is noisy.	The oil level is too low.	Add oil to the correct level (halfway up the Sight Tube).
Oil comes out of the Discharge Port or oil is a milky color.	One or more Diaphragms have split.	Remove the Manifold and Heads. Drain the oil and clean the Crankcase of water. Replace the Diaphragms, Heads, and Manifold. Refill with Hypro Oil (Part Number 2160-0038).
Broken diaphragms	High vacuum, collapsed hose, chemical attack, high temps, low oil, air in crankcase, high RPMs.	Determine probable cause and correct.

Parts Models 9910-D303, D303GRGI, D403, & D403GRGI

Ref. No.	Part Number	Description	Qty.
1	9910-800090	Retaining Bolt	3
2	9910-800350	Plate	3
3 ¹	9910-800085	Diaphragm Desmopan (Std.)	3
3	9910-800080	Diaphragm Buna-N (Opt.)	3
4	9910-1880051	Sleeve (D303)	3
4	9910-1880050	Sleeve (D403)	3
5	9910-1880110	Piston Ring	3
6	9910-1880060	Piston	3
7	9910-1880120	Piston Pin	3
8	9910-380080	Pin Ring	6
9	9910-1880070	Connecting Rod	3
10	9910-1880101	Shaft (D303)	1
10	9910-1880100	Shaft (D403)	1
11	9910-1500350	Guard	1
12	9910-900270	Washer	4
13	9910-820670	M10 X 16 Bolt	4
14	9910-620330	Retaining Ring	1
15	9910-620130	Seal Ring	1
16	9910-550060	Roller Bushing	1
17	9910-1880190	Seal Ring	1
18	9910-1880180	Connecting Rod Ring	2
19	9910-1880170	Spacer	1
20	9910-111120	Retaining Ring	1
21	9910-1461430	Bearing	1
22	9910-620291	Retaining Ring	1
25	9910-780060	M6 X 25 Bolt	3
26	9910-1880380	Seal	1
27	9910-1880020	Suction Manifold	1
28 ³	9910-390290	O-Ring	1
29	9910-550340	Threaded Adapter	1

Ref. No.	Part Number	Description	Qty.
30 ³	9910-550350	O-Ring	2
31	9910-550242	Ring Nut	1
32	9910-550370	Elbow (Hose Barb)	1
33 ³	9910-390201	O-Ring	1
34 ³	9910-1880130	O-Ring	1
35 ³	9910-390180	O-Ring	1
36	9910-550331	Washer	2
37	9910-1200440	M6 X 30 Bolt	2
38	9910-1040310	Oil Sight Glass	1
39	9910-650920	O-Ring	1
40	9910-1040322	Black Oil Tank Cap	1
41	9910-540290	M8 X 25 Bolt	2
42	9910-450145	Flange	1
44	9910-110130	1/2" Fitting and Hose	1
48	9910-800860	M8 X 55 Bolt	12
49	9910-1880030	Head	3
50 ²	9910-1889050	Complete Valve Assembly	6
51 ^{2,3}	9910-1140450	O-Ring	6
52	9910-1880010	Pump Body	1
53 ³	9910-1260420	O-Ring	12
54	9910-280080	M8 X 60 Bolt	3
55	2641-1880040	Right Valve Cover	3
57 ³	9910-740290	O-Ring	2
58	2406-0023	Drain Plug, oil	2
59	9910-1880080	Right Base	1
60	9910-1880090	Left Base	1
61	9910-620680	Key	1
62	9910-780050	O-Ring	6

¹ Denotes Diaphragm Kit 9910-KIT2423

² Denotes Valve Kit 9910-KIT2388

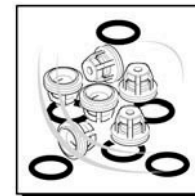
³ Denotes O-Ring Kit 9910-KIT2389

Ref. No.	Description	Tightening Torque	
		In. Lbs.	Nm
1	Bolt	87.5	9.8
13	Bolt	87.5	9.8
25	Bolt	87.5	9.8
37	Bolt	87.5	9.8
41	Bolt	175.0	19.6
48	Bolt	175.0	19.6
54	Bolt	175.0	19.6
58	Plug	175.0	19.6



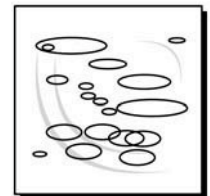
**9910-KIT2423
Diaphragm Kit
Desmopan**

Ref. No.	Qty.
3	3



**9910-KIT2388
Valve Kit**

Ref. No.	Qty.
50	6
51	6



**9910-KIT2389
O-Ring Kit**

Ref. No.	Qty.
28	1
30	2
33	1
34	1
35	1
39	1
51	9
53	6
57	2
62	6