

Maintenance Instructions for All Models

1. After usage, flush the pump with clean water.
2. Hypro diaphragm pumps come with oil in the crankcase. Hypro recommends changing oil after 40 hours of break-in operation and every three months or 500 hours, whichever comes first. Use Hypro oil (part number 2160-0038). Hypro oil is a specially formulated, high-grade, non-detergent, SAE 30 weight oil formulated to prolong pump life.



To drain the oil:

D252

Remove the oil fill cap, turn the pump upside down and rotate the shaft until oil stops flowing out. (D252 gear reduction oil requirements: use 80-90 wt. gear lube and fill to level hole on gear reduction side.)

CRANKCASE OIL CAPACITIES			
Model	Capacity	Model	Capacity
9910-D252	13 oz.	9910-D403	13 oz.
9910-D30	18 oz.	9910-D50	36 oz.
9910-D303	13 oz.	9910-D503	18 oz.

D30, D50, D303, D403 and D503

Remove the drain plug (2406-0023) (or 9910-770070 on D503) and the oil sight glass covers, and rotate shaft until the oil stops flowing out. Re-install the drain plug. To fill the pump with oil, slowly pour oil into sight tube while turning the pump shaft. Turning the pump shaft purges all the air out of the crankcase. Always change oil when replacing diaphragms.

3. For winter storage or if a freezing condition will be encountered, flush the pump with a 50/50 mixture of water and antifreeze.

⚠ CAUTION

The bypass return outlet on all control units must be connected directly to the tank without restrictions or ball valves.

⚠ CAUTION

Oil crankcase capacities are approximate. Fill oil to proper level in sight glass. Always make sure all the air is purged out of crankcase prior to operating.

Valve Replacement

Occasionally debris may cause improper seating of the valves or damage to the o-rings. To check for this problem, follow these steps.

D252

Remove the head bolts and the head. Remove the valve caps and the valve assemblies. Replace the valve assemblies and o-rings, and reassemble.

D30, D50, D303 and D403

Remove the pump manifolds. With the manifolds removed, the valves can easily be removed and inspected for debris and wear. Replace valves, o-rings and manifolds.

D503

Remove valve retainers. With retainers removed, valves and o-rings can easily be removed and inspected. Replace valves, o-rings and valve retainers.

Diaphragm Replacement: D30, D252, D303, D403 and D503

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

1. Drain oil from crankcase as instructed previously.
2. Remove pump head bolts and heads.
3. Remove the bolt securing the diaphragm (See Figure 11).
4. Remove the old diaphragm and the washer (See Figure 11).
5. Install a new diaphragm; then turn the crankshaft to bring the piston to its down-stroke and seat the diaphragm into the sleeve groove.
6. Install the washer and bolts removed in steps 3 and 4.

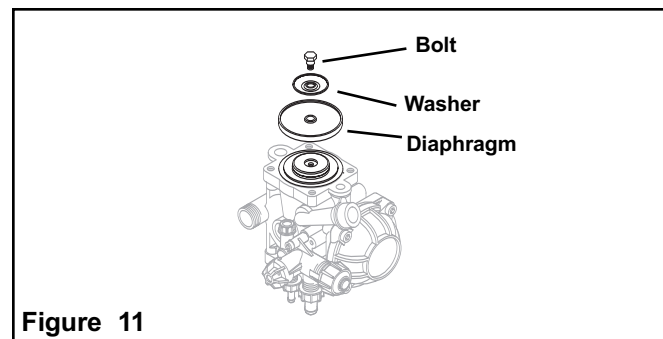


Figure 11

7. Replace the pulsation dampener diaphragm by first bleeding the air from the dampener. Remove the bolts from the dampener cover and replace the diaphragm. Reassemble the cover in place and charge the dampener to 20% of the operating pressure.
8. Refill the crankcase with Hypro oil (part number 2160-0038). Rotate the shaft to distribute the oil, and fill to proper level.

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

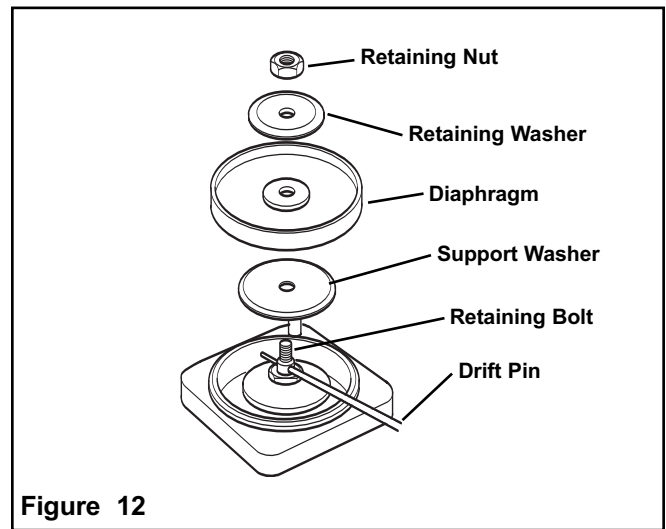


Figure 12

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).