

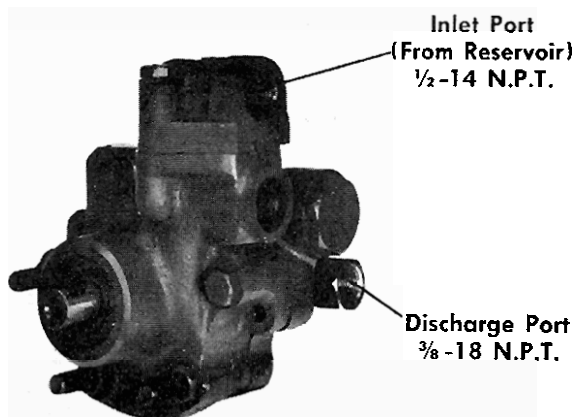
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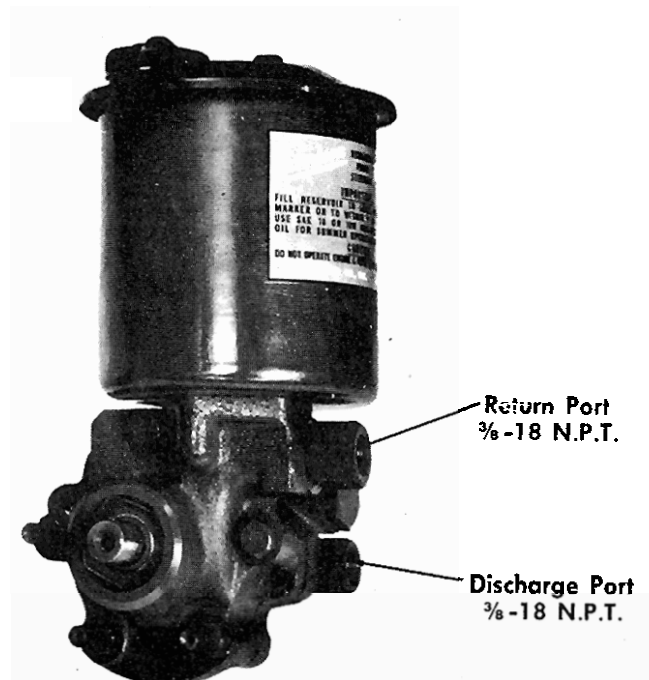
ON ASSEMBLY AND SERVICE CENTER
SANTA ANA, CALIFORNIA 92704

SERVICE INSTRUCTIONS

ROLL-VANE POWER STEERING PUMP Models 1840 and 1841 With Flow Control Valve 2 gpm, 3 gpm, 5 gpm, 6 gpm, and 8 gpm.



MODEL 1841 PUMP



MODEL 1840 PUMP

INSPECTION AND ASSEMBLY PROCEDURE

NOTE: Thoroughly clean exterior of pump and reservoir assembly using care so that dirt does not enter the inlet or outlet holes.

During all assembly operations extreme caution should be used to prevent any dirt from entering pump. All parts should be lightly oiled before assembly.

Clamp mounting bracket of pump and reservoir assembly in vise.

Remove hex head bolt and washer that secures reservoir cover to reservoir. Remove cover sub-assembly and filter element.

Remove the bolt that retains the filter element support, remove the two small bolts.

Remove reservoir body and supports from pump and 'O' ring seals for grooves in top of pump.

Remove cap screw and washers securing pump pulley to pump shaft. Remove pulley and lock key from shaft.

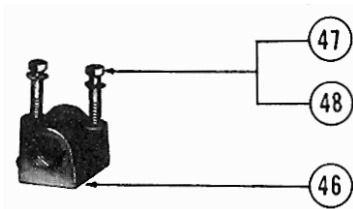
Remove two cap screws securing pump body to pump cover, remove three cap screws securing bracket to pump body and pump cover, remove pump bracket and remove from vise. Separate body from pump cover lifting cover vertically from body to prevent internal parts from falling out.

Remove 'O' ring seals from grooves in pump body housing.

Remove rolls and carrier.

Remove the ball bearing retainer ring.

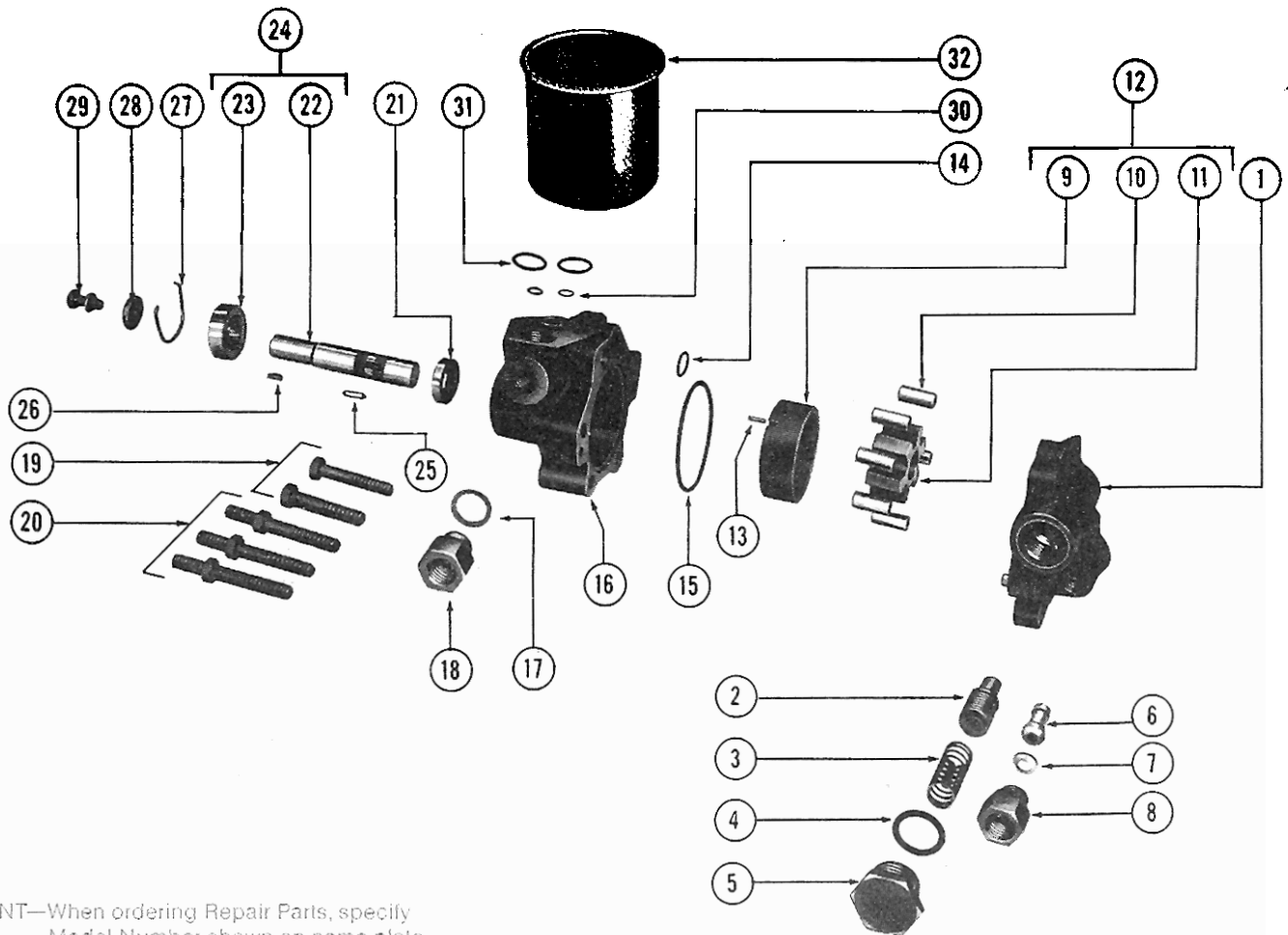
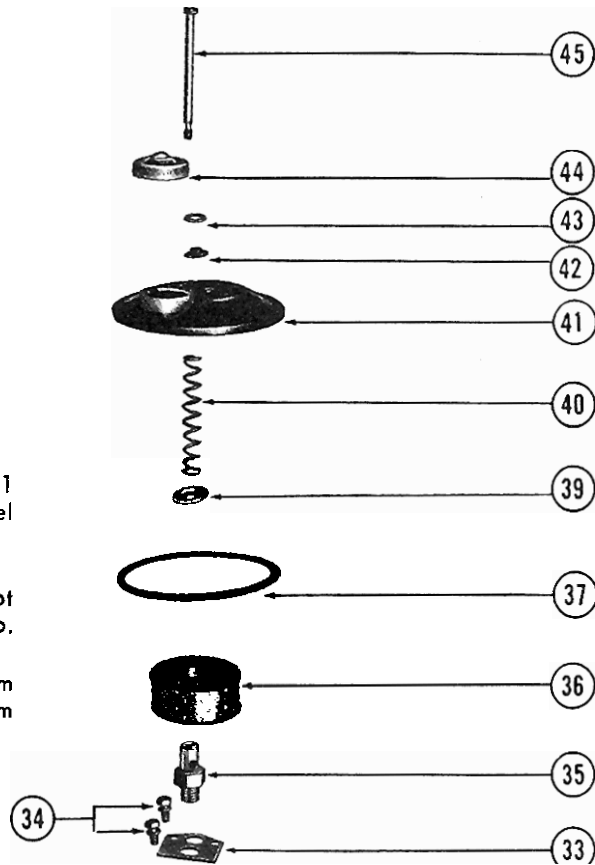
Remove the shaft-bearing sub-assembly.



Parts listed under item numbers 1 through 31 are common to both Models 1840 and Model 1841 pumps.

Parts under item numbers 32 through 45 are not used with the Model 1841 Manifold type pump.

Model 1841 pump includes parts under item numbers 1 through 31 and parts under item numbers 46 through 48.



IMPORTANT—When ordering Repair Parts, specify Model Number shown on name plate.

Item Number	Part Number	DESCRIPTION
1.	32450	Cover, Bushing, Dowel & Tube Seat (2 gpm)
	32451	Cover, Bushing, Dowel & Tube Seat (3 gpm)
	32430	Cover, Bushing, Dowel & Tube Seat (5 gpm)
	32449	Cover, Bushing, Dowel & Tube Seat (6 gpm & 8 gpm)
2.	32433	Flow-Control & Relief Valve (750-900 psi)
	32457	Flow-Control & Relief Valve (975-1100 psi)
	32456	Flow-Control & Relief Valve (1100-1300 psi)
3.	32434	Valve Spring (2 gpm, 3 gpm, 5 gpm & 6 gpm)
	32455	Valve Spring (8 gpm)
4.	32270	'O' Ring, Valve Cap
5.	32435	Valve Cap
6.	32453	Tube Seat (2 gpm)
	32452	Tube Seat (3 gpm)
	32432	Tube Seat (5 gpm)
	32454	Tube Seat (6 gpm & 8 gpm)
7.	32428	Gasket, Inverted Flare
8.	34460	Adapter, Inverted Flare ½ NPT
9.		Cam Insert—Not serviced separately
10.		Roll Vane—Not serviced separately
11.		Carrier—Not serviced separately
12.	32439	Service Kit, Includes Cam Insert, Roll Vanes & Carrier
13.	32438	Dowel Pin, Cam
14.	32220	'O' Ring, By Pass
15.	32436	'O' Ring, Body to Cover
16.	32440	Body, Bushing & Venturi Assembly
17.	32444	Gasket, Hose Adapter
18.	34460	Adapter, Inverted Flare ½ NPT
19.		¾-16X2 Heat Treated Capscrew (2 req'd)
20.	32445	Mounting Stud (3 req'd)
21.	32124	Oil Seal

Item Number	Part Number	DESCRIPTION
22.	32443	Shaft
23.	32121	Bearing
24.	32442	Bearing & Shaft Assembly
25.	32130	Drive Pin
26.	32157	Woodruff Key, No. 3
27.	32437	Snap Ring
28.	32302	Washer
29.	32357	Special Capscrew w/Lockwasher
30.	32117	Gasket, Reservoir Mounting Screw (2 req'd)
31.	32116	Gasket, Reservoir Intake & Return (2 req'd)
32.	32114-3	Reservoir Body (5 / c.u. n)
	32114-5	Reservoir Body (85 c.u. n)
33.	32113	Reinforcement Plate
34.	32112	Capscrew & Lockwasher (2 req'd)
35.	32111	Return Stud
36.	32656	Filter
37.	32659	Gasket, Reservoir & Cover
39.	32107	Washer
40.	32658	Spring
41.	32105	Cover
42.	32103	Gasket, Cover Screw
43.	32102	Flat Washer
44.	32534	Filler Cap
45.	32655	Stud
	32654	Wing Nut (not shown)
46.	33400	Manifold, Pump
47.	32357	Capscrew (2 req'd)
48.	32358	Lockwasher (2 req'd)

35102 Packing Kit (includes all Packing for Complete Pump Overhaul)

Lift out cam and cam retaining pin.

Remove shaft seal cautiously to prevent damage to shaft bushing while removing.

Remove valve cap spring and valve from cover. Caution—place all parts where they will not be damaged or subject to contamination.

Wash all parts in a suitable solvent, air dry or wipe dry with a clean lint free cloth if air is not available.

Check pump body and cover for wear. Replace either part if surface is scored or worn or bushings are worn.

Using a suitable tool install new shaft oil seal in pump body with lip toward pocket (Metal portion of seal should face outside of pump). Grease lip of new seal with Lubriplate or its equivalent.

Replace cam retainer pin in hole in pocket. Inspect cam for wear. Replace if worn or damaged. Install cam in pocket with slot over retaining pin. Insure that cam is all the way in the pocket.

Inspect the shaft-bearing sub-assembly. If bearing balls are loose or excessive grease has seeped out of bearing, replace bearing.

Insert the shaft-bearing sub-assembly from the seal side of body. Replace the bearing retainer ring.

Place the carrier drive key in the shaft.

Inspect carrier and place in pocket. Figure 1 illustrates the correct installation of carrier. If it is installed with the driving side reversed, the pump will not operate properly.

Inspect rolls paying particular attention to the finish on the ends. Replace if scored, damaged, or out of round.

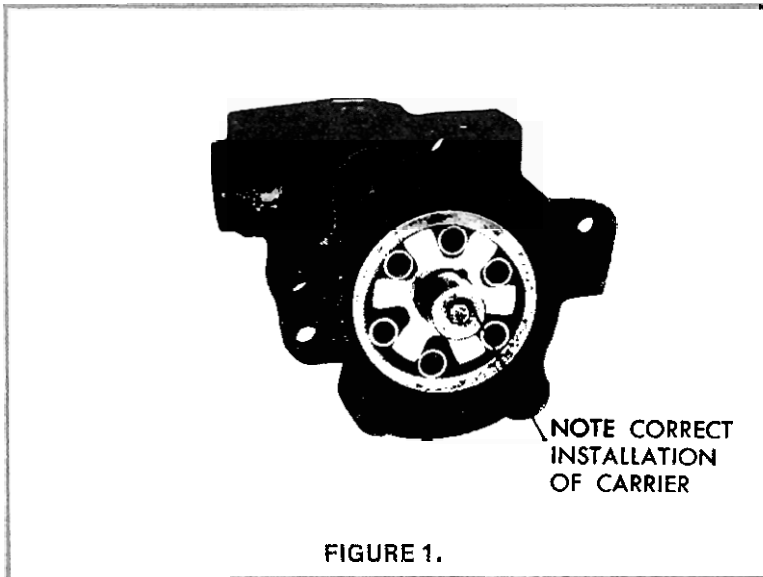
Using a straight edge across the cam surface and feeler gages, check end clearance of carriers and rolls in pump body. If end clearance exceeds .002 replace carrier or rolls. See Figure 2.

Carefully inspect valve assembly and valve bore; all burrs should be removed with crocus cloth. Replace valve in bore inserting valve so that exposed ball end enters first and make sure that valve is not sticking.

Install flow control valve spring in bore. Spring tension should be 8.5 lbs., plus or minus ½ lb. when spring is compressed to a height of .82 inch; if not, replace with new spring.

Replace 'O' ring on valve cap and assembly in pump. Torque cap 30-35 ft. lbs.

Install new 'O' rings and place pump body and cover together and secure loosely with two cap screws.



Place pump bracket on pump and secure the pump bracket.

Tighten all five cap screws evenly. Torque 20-25 ft. lbs. Check shaft rotation for freeness after tightening screws; there must be no bind.

Install new gaskets or 'O' rings in grooves on top of body housing.

Position reservoir reinforcement plate and bolt down with the two small bolts then place the filter element support in position in the reservoir and torque the large bolt to 30-50 ft. lbs.

Install filter element.

Install reservoir cover sub-assembly with a gasket between cover and reservoir. Replace washer and secure with the long 5/16 bolt torqued to 40-60 in. lbs.

Replace pulley key in shaft. Assemble pulley, washer, and torque screw to 15-20 ft. lbs.

MAINTENANCE

Do not operate the pump without a supply of oil in the reservoir.

The oil level should be within one inch (1") from the top of the reservoir.

Use SAE 10 Non-Detergent oil.

The pressure relief valve is set at the factory and can not be adjusted. Failure of the relief valve to function, requires replacement. To test the pressure of the pump in the steering system, install a pressure gage in the discharge line from the pump, and with engine idling, turn the wheels to the axle stops. Pressure should be 700 to 900 psi.

Lack of pressure in the steering system indicates:

1. Drive Belt slippage.
2. Defective relief valve.
3. Defective flow control valve.
4. Worn roll vanes or cam.
5. Low oil level.

Pump Identification

The name plate on the reservoir of the Model 1840 pump bears the part number that will identify the capacity and rating.

The part number and rating identification for the Model 1841 pump is stamped in the top of the body near the inlet manifold.

The rating of the pump can be determined as follows:

1840 identifies the pump with reservoir.

1841 identifies the pump with manifold.

The dash number following the model number indicates the controlled flow rating.

The letter indicates the relief valve setting.

Controlled Flow Rating Identification

2. indicates 2 gpm at 1400 RPM
3. indicates 3 gpm at 1700 RPM
5. indicates 5 gpm at 2000 RPM
6. indicates 6 gpm at 2300 RPM
8. indicates 8 gpm at 2900 RPM

Relief Valve Setting Identification

- B indicates 975 to 1100 psi at 3000 RPM
- D indicates 1100 to 1300 psi at 3000 RPM
- E indicates 750 to 900 psi at 3000 RPM

Example: 1840-5E Pump indicates a pump with a reservoir and having a 5 gpm controlled flow and with a relief valve setting of 900 psi maximum.

Example: 1841-8B Pump indicates a pump with a manifold and having a controlled flow of 8 gpm and with a relief valve setting of 1100 psi maximum.

