PETERS AND RUSSELL, INC. SPRINGFIELD, OHIO

PARTS REPLACEMENT INSTRUCTIONS FOR PAR ELECTRIC PRESSURE WATER, BILGE, AND SHOWER SUMP PUMPS

NOTE: PAR pumps are built and assembled in two (2) basic styles, direct drive and belt driven models. Most of the parts which require repair are interchanged by the same methods on both styles regardless of age of unit.

IMPORTANT: Close attention must be given to pump assembly, parts and exploded instructions before and during disassembly to assure proper part location and alignment during reassembly.

VALVE REPLACEMENT — ALL MODELS

1. Turn off power and bleed pressure from pressure pumps and lines (pressure bleed not required on bilge or shower sump pumps).
2. Remove four (4) drive and diaphragm assembly retaining screws and lift assembly off base. In most installations this may be done without disconnecting wiring or plumbing to pump.
3. Remove old valves from pockets by lifting up.
4. Place new valves in pockets. CAUTION: All pressure water systems use two (2) different valves. It is very important the valve marked intake, which has a small hole in the rubber disc, be placed on the intake side of the pump with the rubber disc up. The discharge valve must be placed on the exhaust side of the pump with the rubber disc down. Both valves are alike on bilge and shower sump pumps. It is still important that the rubber disc be up on intake and down on discharge. Refer to name plate on front of pump to identify intake and discharge.
5. Replace and secure drive and diaphragm assemblies, being careful to tighten evenly.

BELT REPLACEMENT

1. Loosen both motor nuts and allow motor to fall down in adjustment slot and remove old belt.
2. Place new belt on pulleys and slide motor upward until motor is snug. Hand tighten motor nuts and check belt for proper tension. Belt should have ¼" play at point half way between pulleys.
3. If tension is proper, tighten motor nuts all the way. CAUTION: Check tension again to be sure that there is ¼" play at point half way between pulleys. If not, extreme wear will be experienced.

CONNECTING ROD REPLACEMENT

Connecting rod may be replaced on both style models as follows:

(A) DIRECT DRIVE MODELS:

1. Remove four (4) diaphragm and drive assembly retaining screws and lift assembly off base.
2. Turn assembly upside down, place in vise (not too tight), remove two (2) screws from bottom and separate.
3. Leaving connecting rod in place, remove diaphragm retaining screw.
4. After diaphragm and diaphragm washers have been removed, loosen screw in eccentric and slide eccentric and connecting rod off motor shaft.
5. Slide new eccentric and connecting rod onto motor shaft. Do not tighten eccentric screw to shaft at this time, only enough to keep it from revolving off shaft flat.
6. Reassemble diaphragm and diaphragm plates back to connecting rod being careful of alignment and not twisting off connecting rod.
7. Replace bottom ring and reassemble back to base being careful to tighten evenly.
8. After reassembly, turn pump off and on quickly several times to allow eccentric to align itself on motor shaft and tighten eccentric screw.

(B) BELT DRIVEN MODELS:

1. Connecting rods may be replaced on belt driven models by following the preceding instructions to the point where the connecting rod is removed.
2. To remove the connecting rod, grip pulley and remove connecting rod screw. Care should be taken at this time as to from which of the two holes in the shaft the screw is being removed so that it will be replaced in the proper one during reassembly.
3. Replace new connecting rod with head of bearing bushing against the shaft face and retighten the screw being sure it is in the proper hole. The hole closest to the center is for Pressure Water pumps. The hole farthest from the center is for Bilge pumps.

   Replace diaphragm and washer, being careful of alignment and reassemble sub-assembly back on base.

DIAPHRAGM REPLACEMENT — ALL MODELS

Diaphragm may be replaced by following the connecting rod instructions, with the exception that the connecting rod need not be removed.

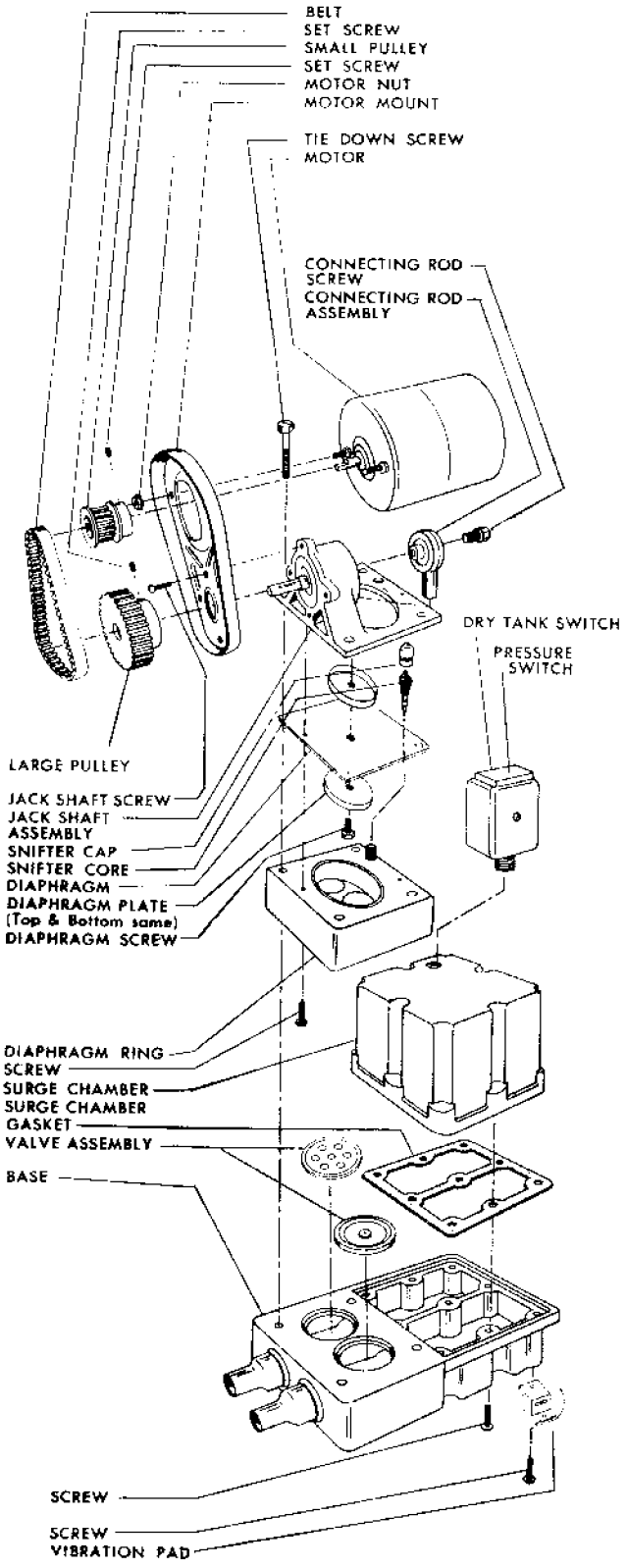
MOTOR REPLACEMENT

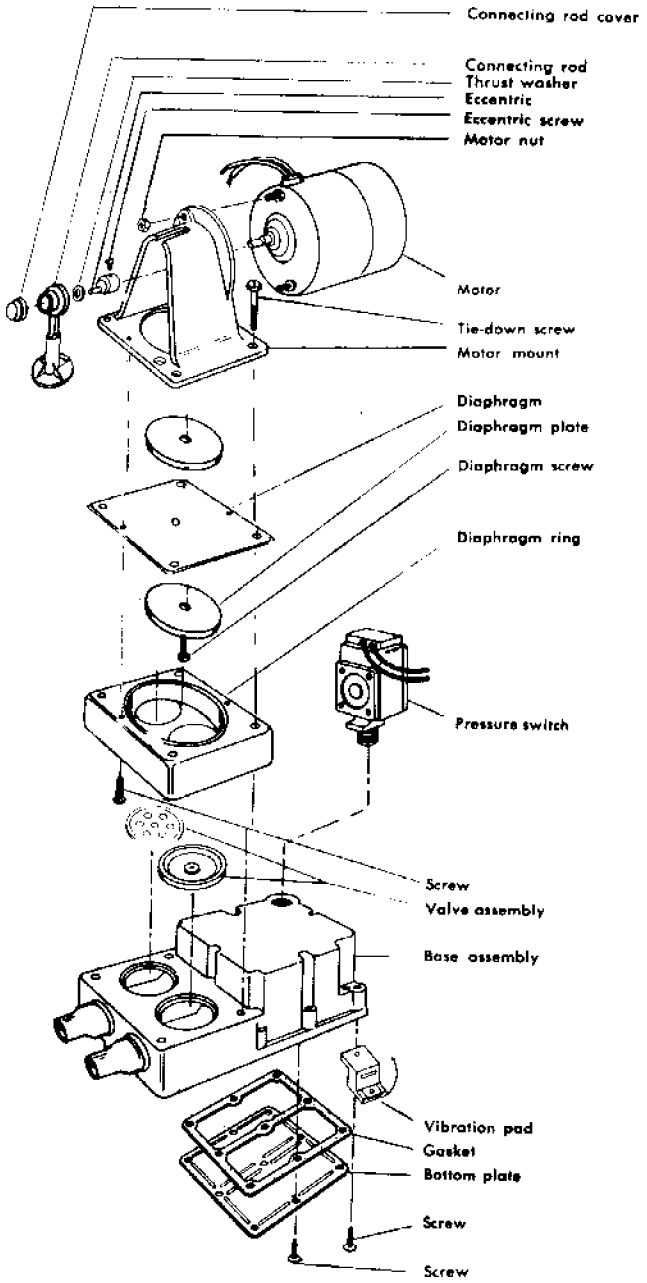
(A) TO REPLACE THE MOTOR ON A DIRECT DRIVE PUMP:

1. Remove wires from pressure switch or power supply.
2. Loosen eccentric screw and motor nuts and remove motor.
3. Replace motor by sliding shaft into eccentric and tightening motor nuts.
4. Tighten eccentric screw only enough to prevent turning on shaft and turn motor off and on quickly several times to align eccentric on motor shaft and then tighten in position.

(B) TO REPLACE MOTOR ON BELT DRIVEN PUMPS:

1. Remove motor nuts and belt.
2. Remove small pulley and replace on new motor, being careful of alignment so belt will track properly.
3. Replace motor and tighten as per belt replacement instructions.


BELT
SET SCREW
SMALL PULLEY
SET SCREW
MOTOR NUT
MOTOR MOUNT
TIE DOWN SCREW
MOTOR
CONNECTING ROD SCREW
CONNECTING ROD ASSEMBLY
DRY TANK SWITCH
PRESSURE SWITCH
LARGE PULLEY
JACK SHAFT SCREW
JACK SHAFT ASSEMBLY
SNIFTER CAP
SNIFTER CORE
DIAPHRAGM
DIAPHRAGM PLATE (Top & Bottom same)
DIAPHRAGM SCREW
DIAPHRAGM RING
SCREW
SURGE CHAMBER
SURGE CHAMBER GASKET
VALVE ASSEMBLY
BASE
SCREW
SCREW
VIBRATION PAD


Connecting rod cover
Connecting rod
Thrust washer
Eccentric
Eccentric screw
Motor nut
Motor
Tie-down screw
Motor mount
Diaphragm
Diaphragm plate
Diaphragm screw
Diaphragm ring
Pressure switch
Screw
Valve assembly
Base assembly
Vibration pad
Gasket
Bottom plate
Screw
Screw