Parker Pumps
Parts & Service

Revised: May 1998

PVP Series
Variable Volume
Piston Pump
Service Bulletin

Model PVP16 **** 12
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Introduction:
The PVP16 **** 12 series piston pumps are designed to provide long life while operating with Hydraulic Oil. Refer to catalog 1550/USA for limits. However, should maintenance be required, the following instructions should be used for disassembly, replacement of parts, cleaning and assembly.

Note:
Prior to any pump disassembly, plug the open ports and clean all dirt from the outside of the pump.
Prior to assembly all parts should be cleaned and then lightly coated with oil.

Warning:
Protective eye wear should be worn during all maintenance procedures.
Notes:

1. Make sure "R" or "L" stamped on port plate (corresponding to rotation) is by antirotation pin.
2. Installed depth of item 2 (trunnion pin) below surface of item 35 (housing) to be .050/.100 with swashplate clearance removed by pressing "in" on pin.
3. Installed height of item 14 (servo post) above item 45 (rear cover) to be 1.538/1.534.
4. Installed height of item 29 (needle bearing) above item 45 (rear cover) to be .150/.130.
5. Illustration shows righthand (CW) rotation pump. Lefthand (CCW) pumps will have inlet and outlet ports reversed with compensator on outlet side.
ORNATE SEAM OF TRUNNION BEARING
(ITEM #7) 30 FROM LOCATION SHOWN
WHEN PRESSING INTO HOUSING (ITEM #27)
Control Options

"OMIT" COMPENSATOR (STANDARD)
ITEM 61

"ME" COMPENSATOR
(REMOTE W/EXTERNAL SENSE)
ITEM 63

HORSEPOWER
CONTROL OPTIONS
"H" & "C" ITEM 65
(SEE NOTE 1)

REMOTE CONTROL OPTION "M"
REQUIRED W/POWER OPTION "H"
ITEM 62

LOAD SENSE OPTION "A"
REQUIRED W/POWER OPTION "C"
ITEM 64

Notes:
1. Must be used with proper compensator assembly. Horsepower (torque) control assembly does not include pressure compensator assembly. For "H" option use "M" compensator, for "C" option use "A" compensator.
THRU SHAFT VARIATION "6A1"
(ITEM 52 - 787241)
REAR PUMP CONFIGURATION:
- SAE AA 2 BOLT
- 2.000 PILOT DIAMETER
- SHAFT SIZE: .500 X .125 KEY

THRU SHAFT VARIATION "6A3"
(ITEM 54 - 787243)
REAR PUMP CONFIGURATION:
- SAE AA 2 BOLT
- 2.000 PILOT DIAMETER
- SHAFT SIZE: 9 TOOTH 20/40 PITCH SPLINE

"6T" VARIATION
(ITEM 56 - 787253)

THRU SHAFT VARIATION "6A2"
(ITEM 53 - 787242)
REAR PUMP CONFIGURATION:
- SAE A 2 BOLT
- 3.250 PILOT DIAMETER
- SHAFT SIZE: .750 X .188 KEY

THRU SHAFT VARIATION "6A4"
(ITEM 55 - 787244)
REAR PUMP CONFIGURATION:
- SAE A 2 BOLT
- 3.250 PILOT DIAMETER
- SHAFT SIZE: 9 TOOTH 16/32 PITCH SPLINE

Notes:
1. Shaft and cover assemblies not included in kits. They must be ordered separately.
2. Later designs incorporate a gasket, P/N 801209 rather than an O-ring.
Notes:

1. Illustration shows righthand (CW) rotation pump. Lefthand (CCW) pumps will have the compensator on opposite side, and port plate kidneys reversed.
2. Seal kit (SKPVP16 12) consists of all O-rings, gaskets and shaft seal.
CAUTION

These service parts are intended for use in hydraulic pumps. Incorrect installation or assembly of these parts could cause the pump or pumps being repaired to fail in subsequent use or to operate incorrectly.

The following precautions should be followed:

1. All parts should be cleaned and then lightly coated with mineral oil, or another lubricating fluid compatible with the system fluid being used, prior to assembly.
2. The pump should be disassembled, repaired and reassembled in a clean environment.
3. Use proper tools to disassemble and reassemble the pump.
4. If you are uncertain at how to install these parts, you should obtain assistance either from a Parker Hannifin distributor, or from the Hydraulic Pump/Motor Division.
Notes:

1. O-Ring compound designation: \(\oplus\) = Nitrile, \(\bigcirc\) = Viton.
2. For proper operation of "H" control, it must be used with a remote compensator assembly.
3. For proper operation of "C" control, it must be used with a load sense compensator assembly.
4. Seal Kit P/N SKPVP 16 \(\bigcirc\) 12

Rotation Group Kit P/N: RRKPVP16 \(\mathbf{12}\)

\[ R \ - \ CW \]
\[ L \ - \ CCW \]
Service Notes:

- Use a clean lubricant (compatible with the working fluid) on all pump components during assembly.
- Most premature pump failures occur when contaminants from a previous failure have not been removed from the system, or cause for previous failure is still present (i.e. water in oil, filter bypassing, etc.)
- Thoroughly clean the reservoir, suction lines, suction strainer, drain lines, etc. before re-installing the pump.
- Always fill the pump case with clean fluid before starting a new or serviced pump for flooded suction, purge air from suction lines by cracking the inlet fitting or vent plug on pump. This should prevent an airlock condition and allow for faster priming.
- Starting the pump slowly by jogging (or turning over engine without allowing it to start) will help the pump prime and make it easier to determine when priming has occurred.
- Start pump with an open circuit whenever possible. Reduce the compensator to it's minimum setting during start-up. Cycle the pump on and off stroke while increasing the compensator to its required setting.
  This will assist in break-in of new components and help purge air from the case.

Basic Troubleshooting:

**Pump Will Not Prime**
- Pump should prime within 30 seconds. If it does not, **STOP**.
- Check for proper drive rotation.
- Make sure pump shaft is turning (i.e. key at coupling hubs is engaged).
- Make sure reservoir is full.
- Check for major sources of a suction leak (vent plug open, shaft seal missing (PAVC), flange not tight, pinched O-Ring at flange or pump housing.

**Cannot Build Any Pressure**
- Make sure pump is primed.
- Check alignment, especially on PAVC pumps without "9" option.
- Make sure systems is not an open circuit.
  A pump produces flow, not pressure. It can only limit pressure when the system requirement is higher than the pump compensator setting.

**Can Only Build A Few Hundred PSI**
- Compensator is backed all the way out.
- The remote or load sense line is vented.
- Control orifice or spool is plugged.
- Incorrect compensator spool (PVP).
- Pressure control dart is lodged open.
- Torque control plug is missing (PAVC).

**Pump Will Not Compensate**
- Differential spring over-compressed (i.e. spring guide dislocated).
- Control drain line blocked (PAVC).
- Pressure control stem vent hole is plugged.
- Control spool travel is hindered.
- Control orifice is missing (PAVC).
- Saturation orifice is missing in load sense circuit.
Notes:
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3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller’s plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller’s delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

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8. Buyer’s property: Any designs, tools, patterns, materials, drawings, Confidential information or equipment furnished by buyer, or any other items which become Buyer’s property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller’s possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such taxes, the amount hereof shall be in addition to amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. Trademarks, copyrights, trade dress, trade secrets (hereinafter “Intellectual Property Rights”). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in any action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller’s obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller’s sole and exclusive liability and buyer’s sole and exclusive remedy for infringement of Intellectual Property Rights.

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