



HY13-PM1653-41-M1/US

## **Parker Pumps Parts & Service**

Effective: January, 2002

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**PV Size 4  
Design Series 41  
Variable Volume  
Piston Pump  
Service Bulletin**

**Model**

**PV140 \*\*\*\* 41**

**PV180 \*\*\*\* 41**





## **WARNING**

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

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**Introduction:**

The PV series piston pumps are designed to provide long life while operating with Hydraulic Oil. Refer to Bulletin HY13-2600-600-3/US for limits. However, should maintenance be required, the following instructions should be used for disassembly, replacement of parts, cleaning and assembly.

**Note:**

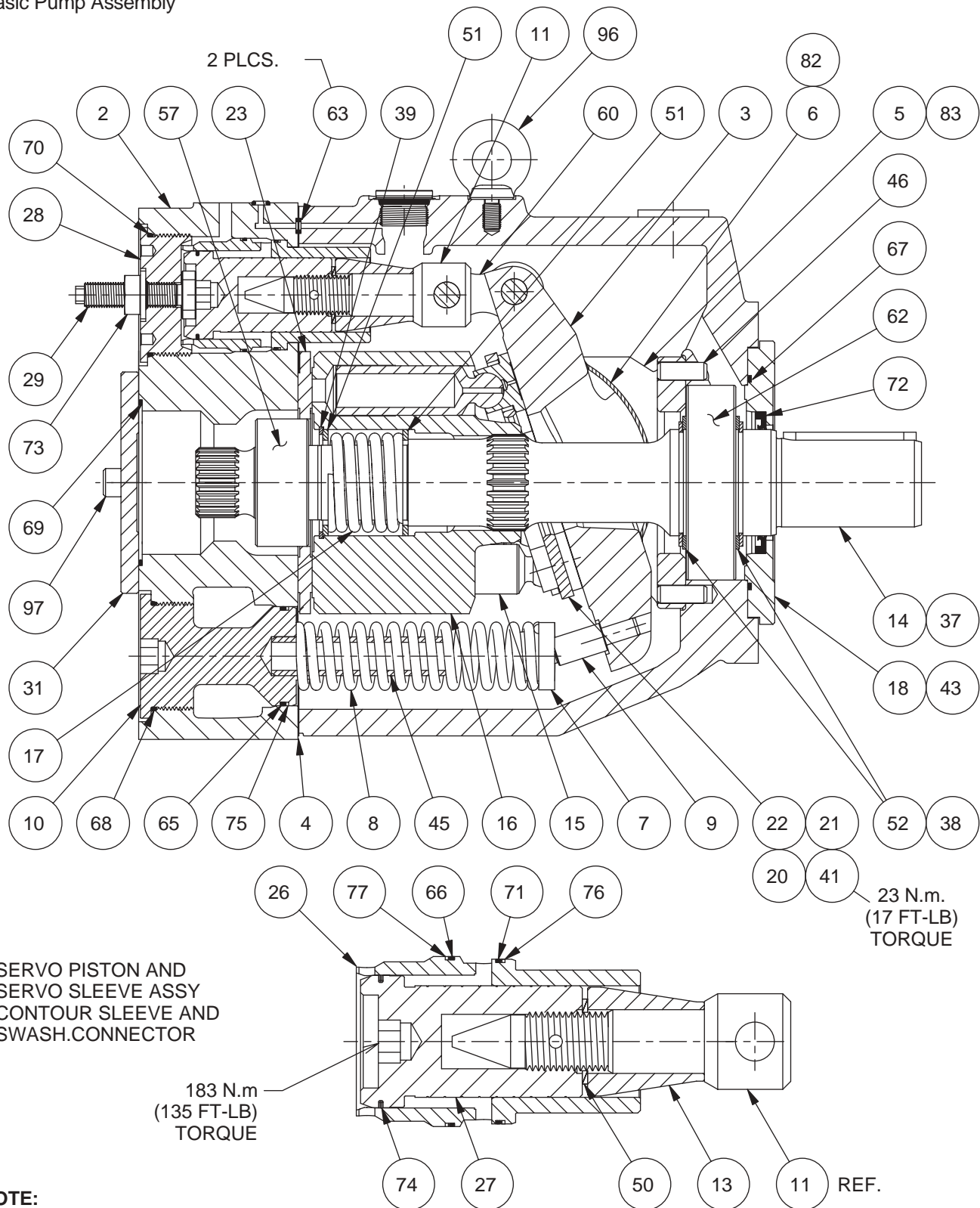
Prior to any pump disassembly, plug the open ports and clean all dirt from the outside of the pump.

Prior to assembly all parts should be cleaned and then lightly coated with oil.

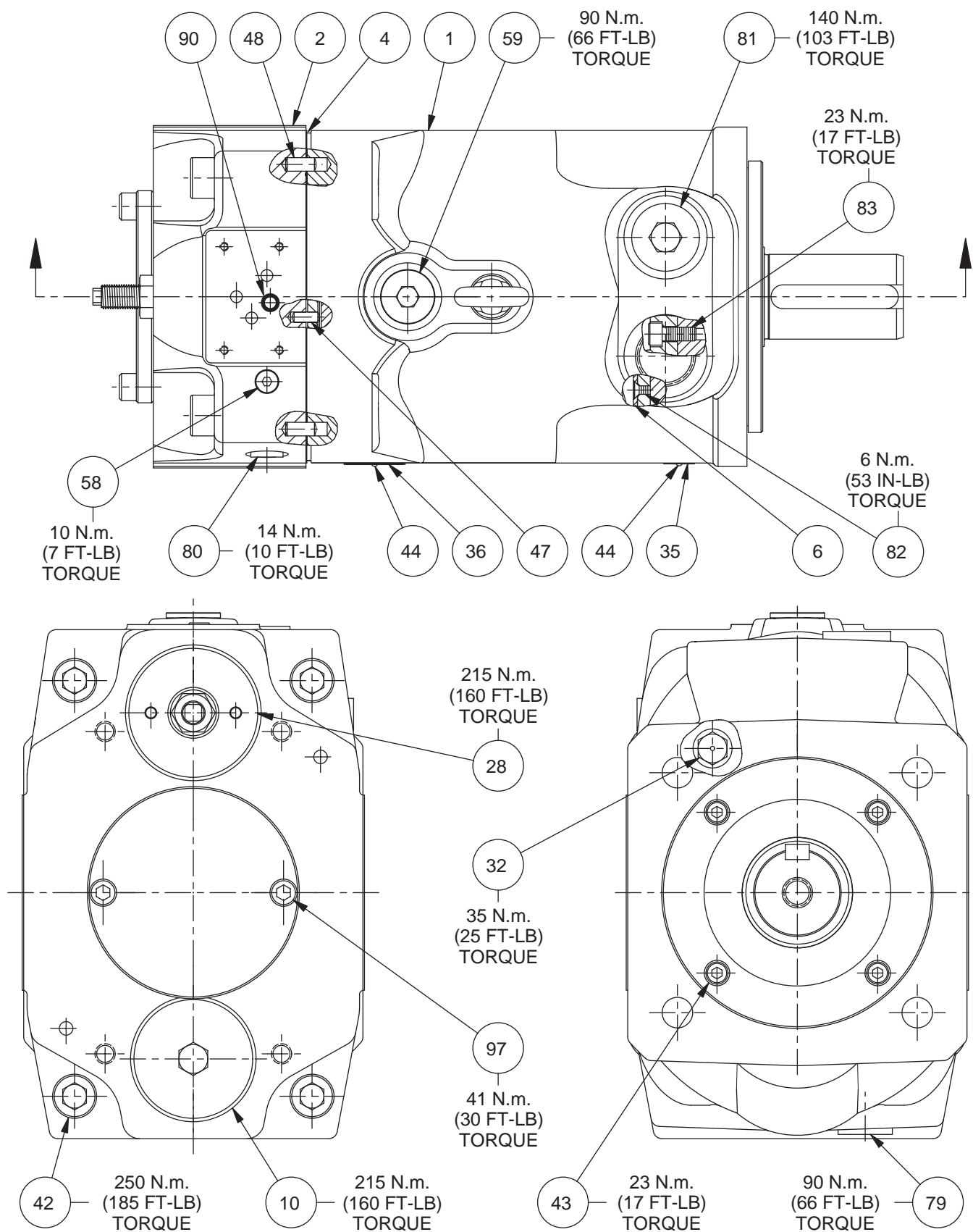
**Warning:**

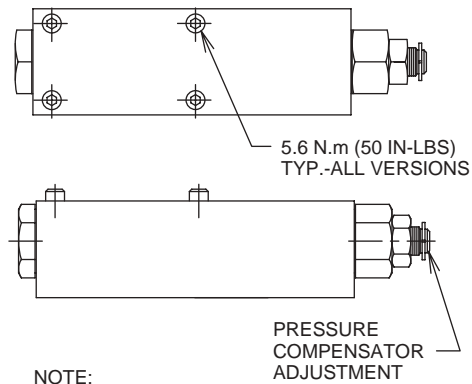
Protective eye wear should be worn during all maintenance procedures.

Basic Pump Assembly

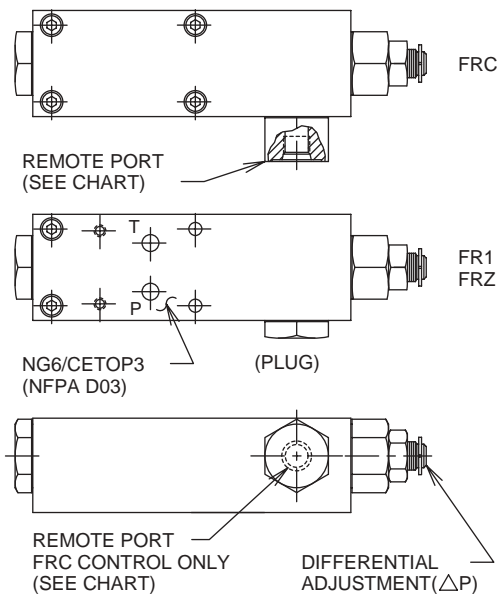
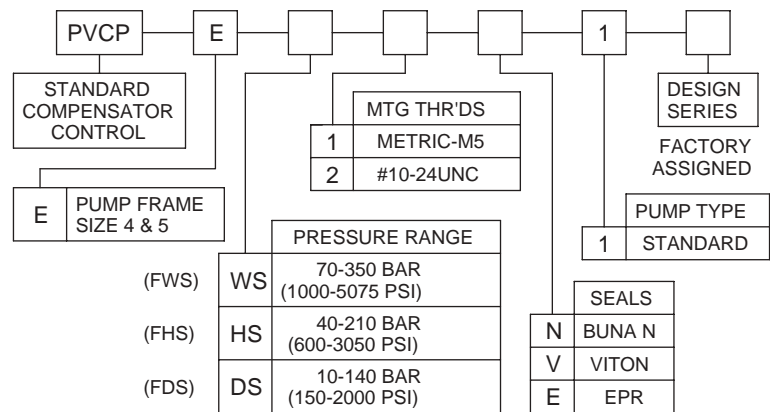
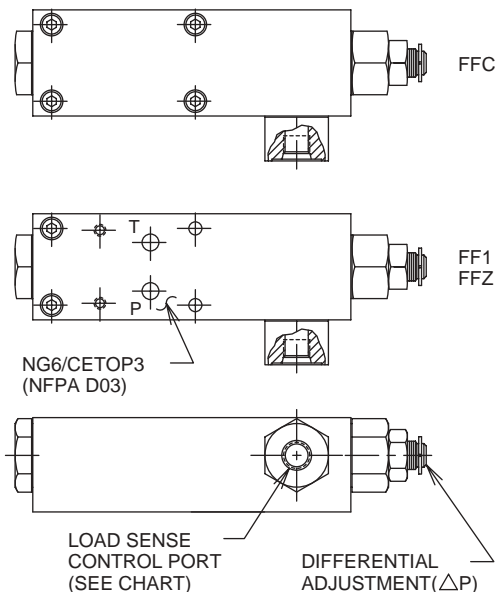
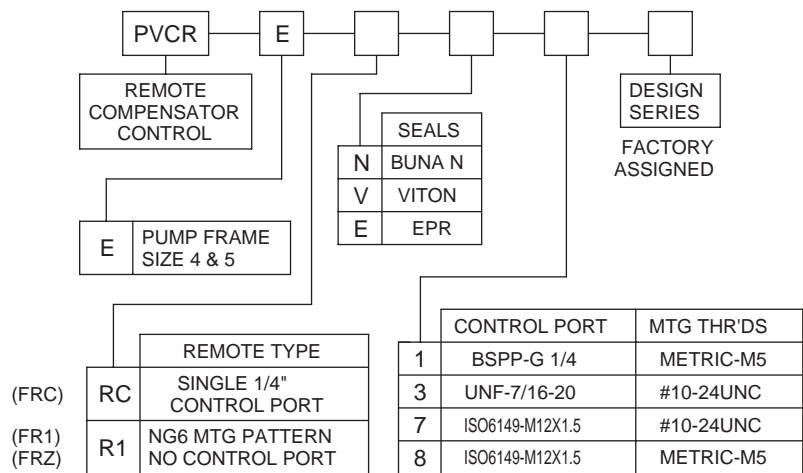
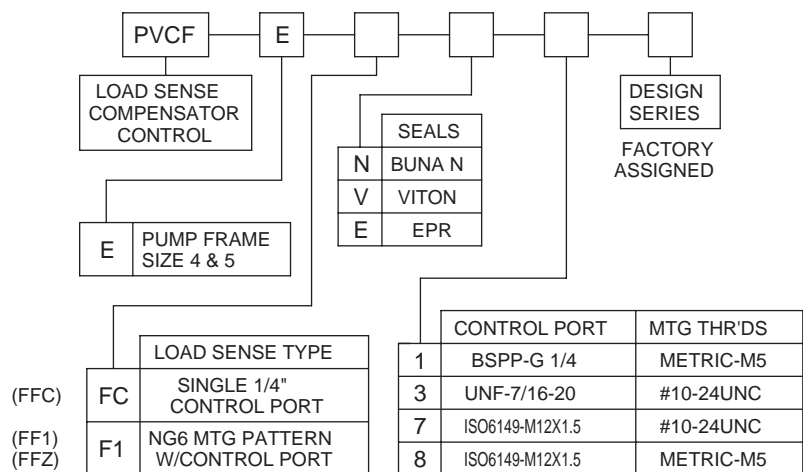


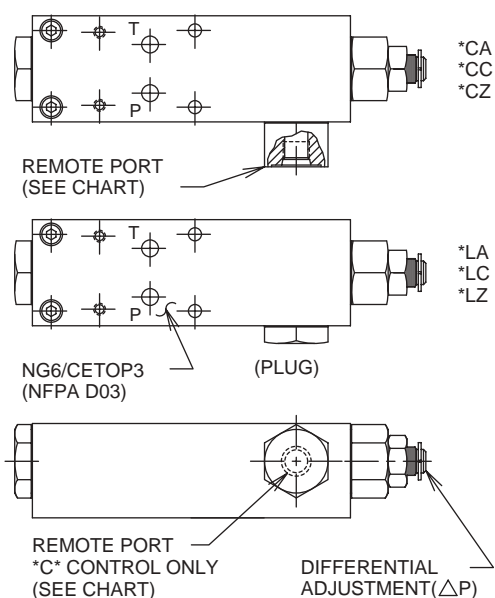
Basic Pump Assembly



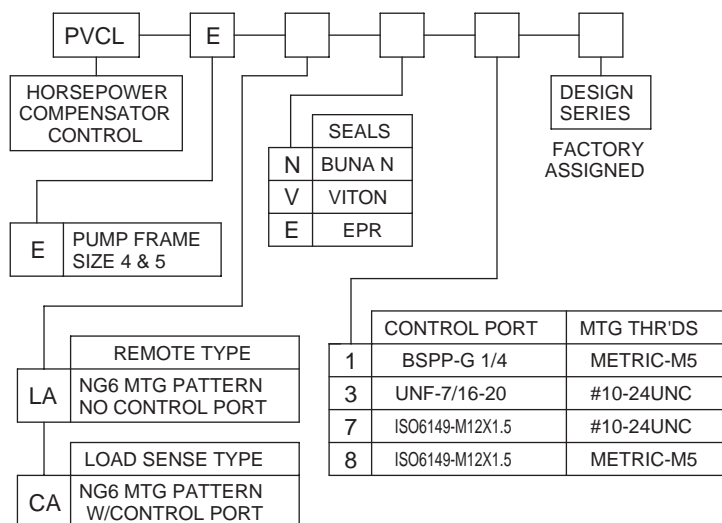
**Control Options****Parker Pumps Parts & Service  
Model PV140, PV180 - Design 41**

NOTE:  
SPRING P/N'S  
W - 2.032.112  
H - 2.032.168  
D - P.000.040

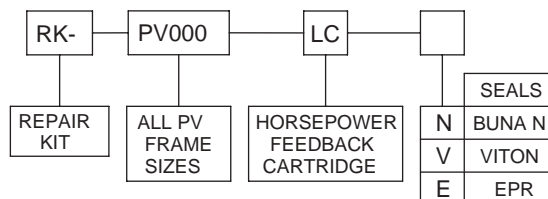
**STANDARD PRESSURE COMPENSATOR  
FDS, FHS AND FWS****REMOTE PRESSURE COMPENSATOR  
FRC, FR1 AND FRZ****LOAD SENSE COMPENSATOR  
FFC, FF1 AND FFZ**

**Control Options****Parker Pumps Parts & Service  
Model PV140, PV180 - Design 41****HORSEPOWER (REMOTE & LOAD SENSE) COMPENSATOR**

\*LA, \*LC, \*LZ, \*CA, \*CC, \*CZ

**HORSEPOWER CARTRIDGE KIT**

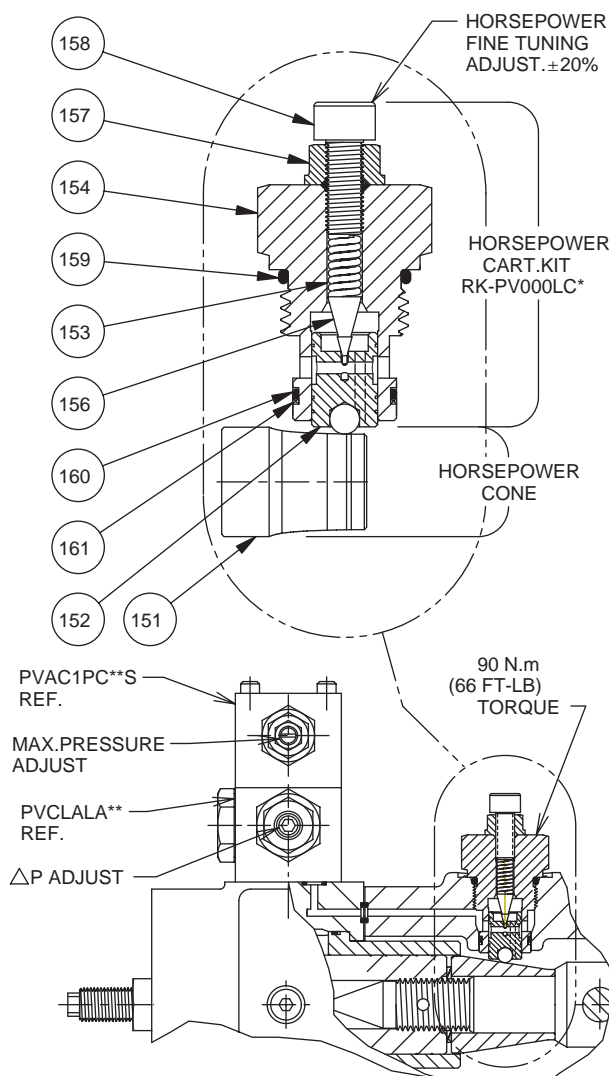
\*LA, \*LC, \*LZ, \*CA, \*CC, \*CZ

**HP CARTRIDGE KIT P/N'S**

| CODE                   | ITEM | QTY | PART NUMBER | DESCRIPTION            |
|------------------------|------|-----|-------------|------------------------|
| RK-<br>PV<br>000<br>LC | 152  | 1   | L000031     | SEAT CARRIER           |
|                        | 153  | 1   | L000025     | SPRING - HP CART.      |
|                        | 154  | 1   | L000030     | BODY - HP CART.        |
|                        | 156  | 1   | L000027     | DART(POPPET)HP CART.   |
|                        | 157  | 1   | 5004299     | LOCKNUT M8 X 1         |
| N                      | 158  | 1   | 5004202     | SHCS M8 X 1 DIN 912    |
|                        | 159  | 1   | 5003143     | O-RING 3-912-N552-90   |
|                        | 160  | 1   | 5000910     | O-RING 2-018-N552-90   |
| V                      | 161  | 1   | 5001127     | B/U-RING 8-020-N300-90 |
|                        | 159  | 1   | 3912V747-75 | O-RING 3-912-V747-75   |
|                        | 160  | 1   | 5001020     | O-RING 2-018-V747-75   |
| E                      | 161  | 1   | 8018V709-90 | B/U-RING 8-018-V709-90 |
|                        | 159  | 1   | 3912E548-80 | O-RING 3-912-E540-80   |
|                        | 160  | 1   | 5002543     | O-RING 2-018-E540-80   |
|                        | 161  | 1   | 5004301     | B/U-RING 8-018-E652-90 |

**HORSEPOWER CONE**

| CODE | ITEM | QTY | PART NUMBER | DESCRIPTION     | 1800 rpm | 1500 rpm |
|------|------|-----|-------------|-----------------|----------|----------|
| K    | 151  | 1   | P180101-8   | H.P.CONE 30 HP  | 29.7 HP  | 18.5 KW  |
| M    |      | 1   | P180101-9   | H.P.CONE 35 HP  | 35 HP    | 22 KW    |
| S    |      | 1   | P180101-10  | H.P.CONE 50 HP  | 48.3 HP  | 30 KW    |
| T    |      | 1   | P180101-11  | H.P.CONE 60 HP  | 59.5 HP  | 37 KW    |
| U    |      | 1   | P180101-12  | H.P.CONE 75 HP  | 72.4 HP  | 45 KW    |
| W    |      | 1   | P180101-13  | H.P.CONE 90 HP  | 88.5 HP  | 55 KW    |
| Y    |      | 1   | P180101-14  | H.P.CONE 120 HP | 120.7 HP | 75 KW    |
| Z    |      | 1   | P180101-15  | H.P.CONE 150 HP | 144 HP   | 90 KW    |



## THRU SHAFT KITS &amp; PARTS BREAKDOWN

|  |      |             |     |                |
|--|------|-------------|-----|----------------|
| <div> <div>MK-</div> <div>PV</div> <div>BG4</div> <div></div> <div></div> <div></div> <div>41</div> </div> <div> <div>MOUNTING KIT</div> <div>AXIAL PISTON PUMP</div> <div>PUMP FRAME SIZE 4</div> <div>THRU SHAFT CODE</div> <div>MNTG THREAD TYPE</div> <div>SEALS</div> <div>DESIGN SERIES</div> </div> |      |             |     |                |
| BG4  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 87   | 5003011     | 2   | LOCATOR PIN    |
| BG4  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 69   | 2153-9      | 1   | O-RING         |
| A  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 30   | 4180071-4S  | 1   | ADAPTER-SAE"A" |
| B  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 84   | 2042-9      | 1   | O-RING         |
| W  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 30   | 4180071-3S  | 1   | ADAPTER-SAE"B" |
| C  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 84   | 2045-9      | 1   | O-RING         |
| D  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 30   | 4180071-2S  | 1   | ADAPTER-SAE"C" |
| H  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 84   | 2049-9      | 1   | O-RING         |
| J  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 30   | 4180071-1S  | 1   | ADAPTER-SAE"D" |
| K  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 84   | 2163-9      | 1   | O-RING         |
| L  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 30   | 4180070-4   | 1   | ADAPTER- 80 MM |
| L  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 84   | 2041-9      | 1   | O-RING         |
| L  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 30   | 4180070-3   | 1   | ADAPTER-100 MM |
| L  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 84   | 2045-9      | 1   | O-RING         |
| L  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 30   | 4180070-2   | 1   | ADAPTER-125 MM |
| L  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 84   | 2049-9      | 1   | O-RING         |
| L  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 30   | 4180070-1   | 1   | ADAPTER-160 MM |
| L  | ITEM | PART NUMBER | QTY | DESCRIPTION    |
|  | 84   | 2164-9      | 1   | O-RING         |

| SEALS |                  |  |  |
|-------|------------------|--|--|
| N     | BUNA-N           |  |  |
| V     | FLUOROCARBON     |  |  |
| E     | ETHYLEN-PROPYLEN |  |  |

| ITEM | PART NUMBER | QTY     | TYPE AND DESCRIPTION               |
|------|-------------|---------|------------------------------------|
| M    | 85          | 5000142 | 4 MERTIC THREAD SHCS M12X30 DIN912 |
| S    | 85          | 10X292  | 4 UNC THREAD SHCS 1/2-13UNCX1-1/4" |

## NOTE:

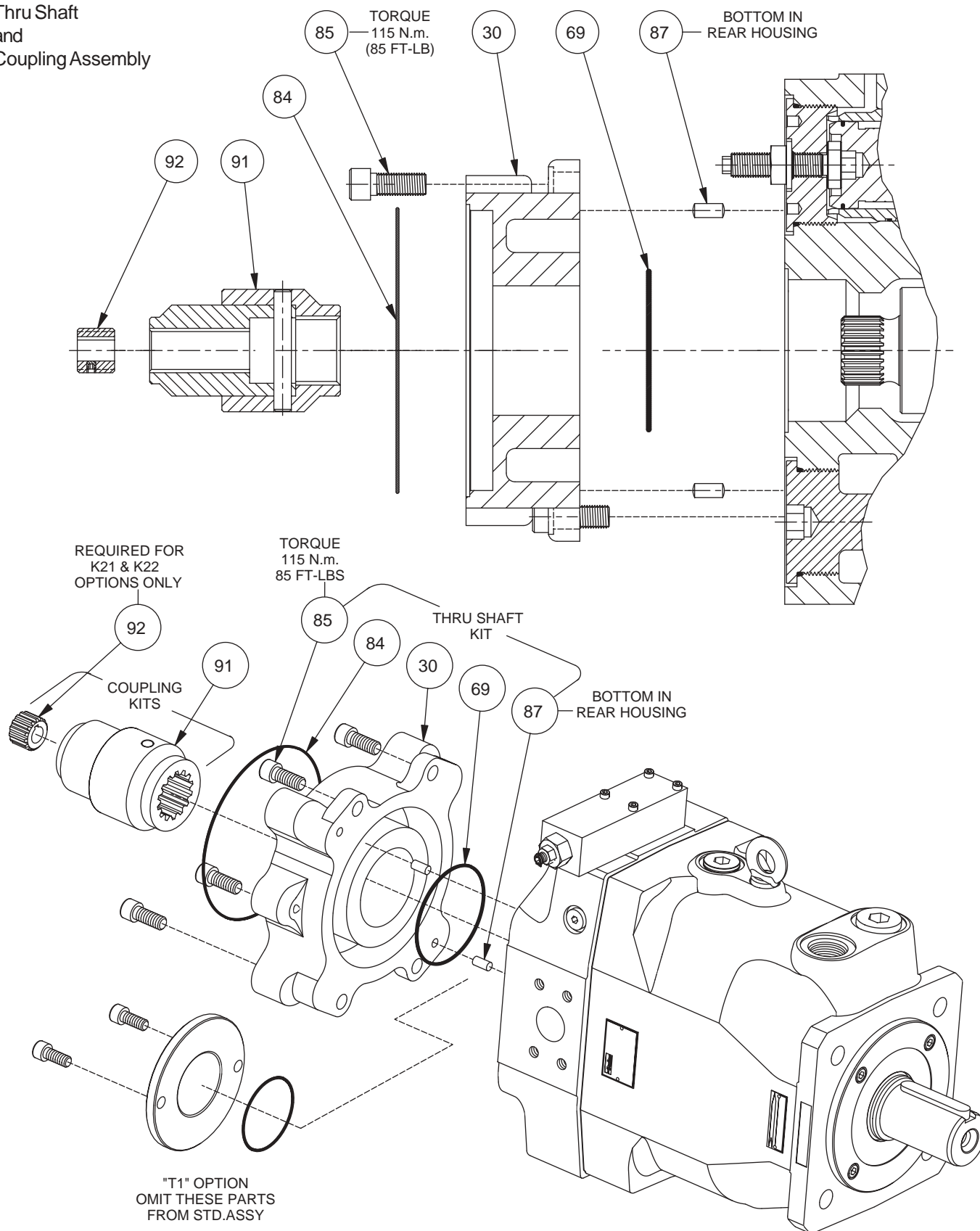
1. SAE ADAPTER P/N'S REFERENCED WITH UNC THREADS. SAE ADAPTERS ALSO AVAILABLE WITH METRIC THREADS (CONSULT FACTORY).
2. METRIC ADAPTER P/N'S REFERENCED WITH METRIC THREADS. METRIC ADAPTERS ALSO AVAILABLE WITH SAE THREADS (CONSULT FACTORY).
3. SCREWS, WASHERS, ETC. NEEDED TO ATTACH THE SECOND PUMP TO THE ADAPTER ARE NOT INCLUDED IN THE KIT.

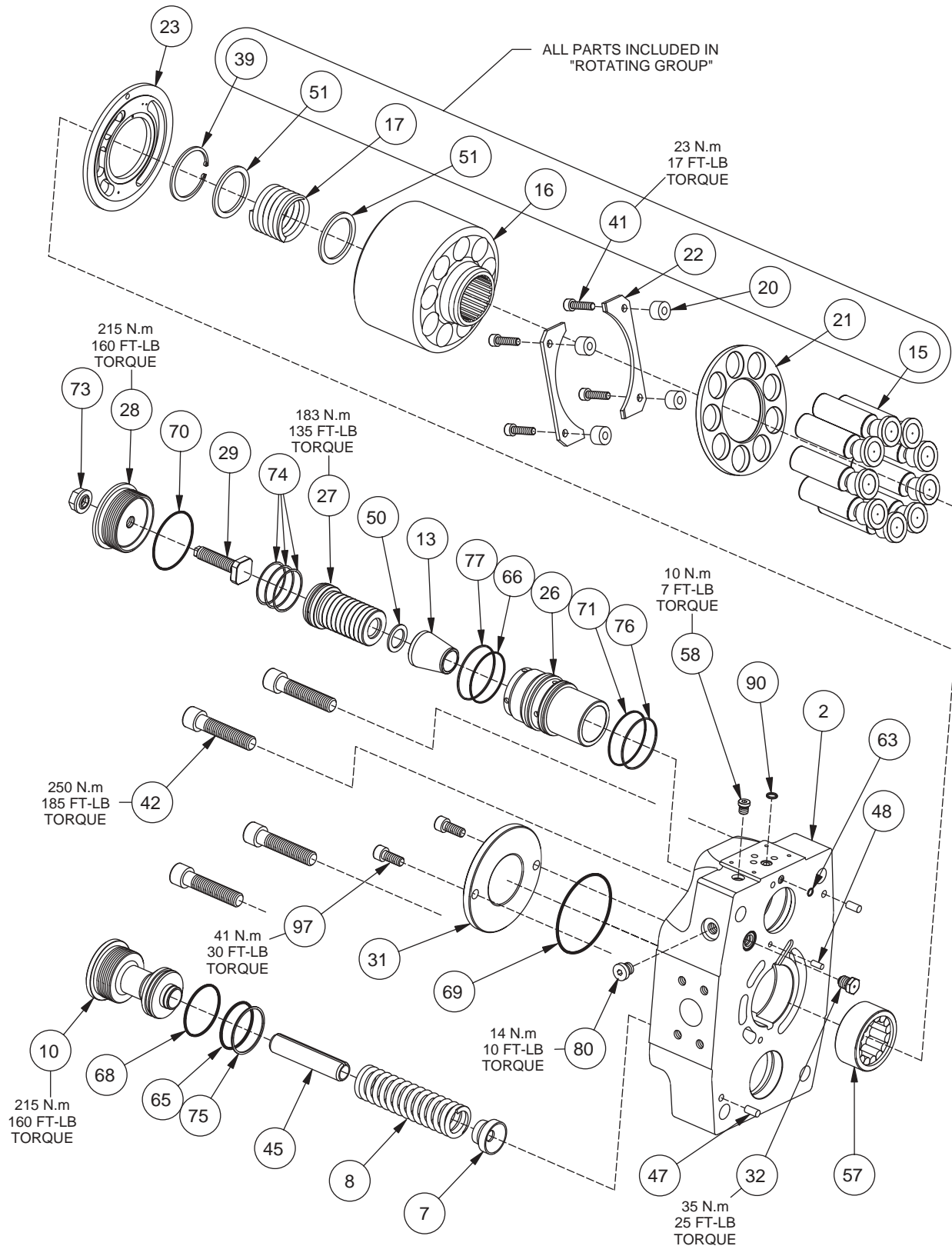
## COUPLING KITS FOR THRU SHAFT OPTION

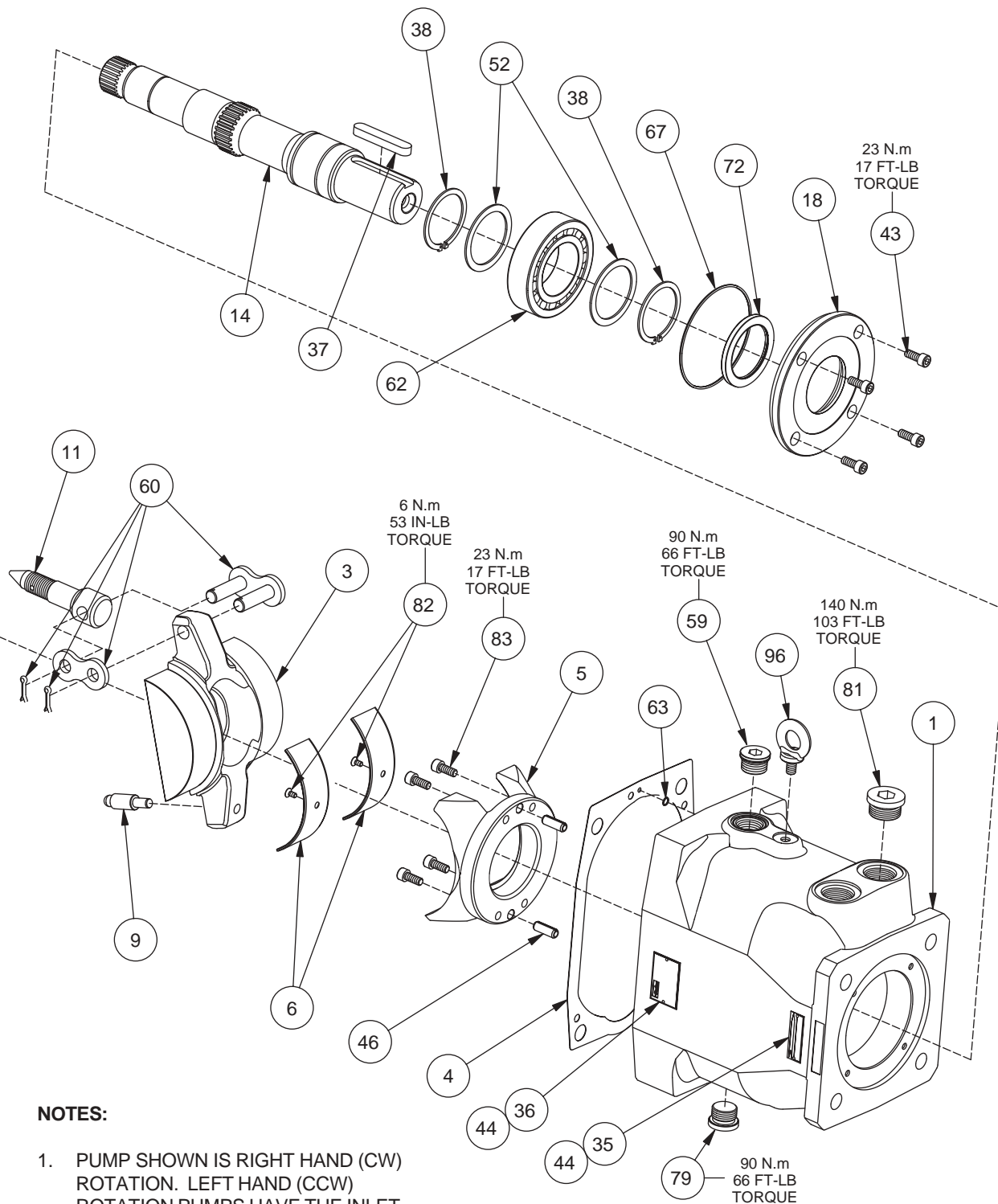
| <div> <div>MK-</div> <div>PV</div> <div>BG4</div> <div></div> <div>41</div> </div> <div> <div>MOUNTING KIT</div> <div>AXIAL PISTON PUMP</div> <div>PUMP FRAME SIZE 4</div> <div>THRU SHAFT CODE</div> <div>DESIGN SERIES</div> </div> |      |             |           |   |
|---|------|-------------|-----------|---|
|   | ITEM | PART NUMBER | QTY       | SECOND PUMP SHAFT TYPE                  |
| K01   | 91   | 3180081-4   | 1         | N25X1.5X15 DIN 5480 - METRIC SPLINE     |
| K02   | 91   | 3180081-3   | 1         | N32X1.5X20 DIN 5480 - METRIC SPLINE     |
| K03   | 91   | 3180081-2   | 1         | N40X1.5X25 DIN 5480 - METRIC SPLINE     |
| K04   | 91   | 3180081-22  | 1         | N50X2X24 DIN 5480 - METRIC SPLINE       |
| K11   | 91   | 3180082-7   | 1         | 9 T00TH, 16/32 D.P. - SAE "A" SPLINE    |
| K12   | 91   | 3180082-9   | 1         | 11T00TH, 16/32 D.P. - SAE SPLINE        |
| K13   | 91   | 3180082-6   | 1         | 13T00TH, 16/32 D.P. - SAE "B" SPLINE    |
| K14   | 91   | 3180082-5   | 1         | 15T00TH, 16/32 D.P. - SAE"BB" SPLINE    |
| K15   | 91   | 3180082-4   | 1         | 14T00TH, 16/32 D.P. - SAE "C" SPLINE    |
| K16   | 91   | 3180082-3   | 1         | 17T00TH, 12/24 D.P. - SAE"CC" SPLINE    |
| K17   | 91   | 3180082-2   | 1         | 13T00TH, 8/16 D.P. - SAE "D" SPLINE     |
| K18   | 91   | 3180082-20  | 1         | 15T00TH, 8/16 D.P. - SAE "F" SPLINE     |
| *   | K21  | 92          | 3046083-2 | 1 16 MM DIA.SHAFT (USED W/ 80 MM PILOT) |
| *   | K22  | 92          | 3046082-1 | 1 18 MM DIA.SHAFT (USED W/ 80 MM PILOT) |

\* MUST BE IN CONJUNCTION WITH MK-PVBG4K02 (3180081-3).



Thru Shaft  
and  
Coupling Assembly

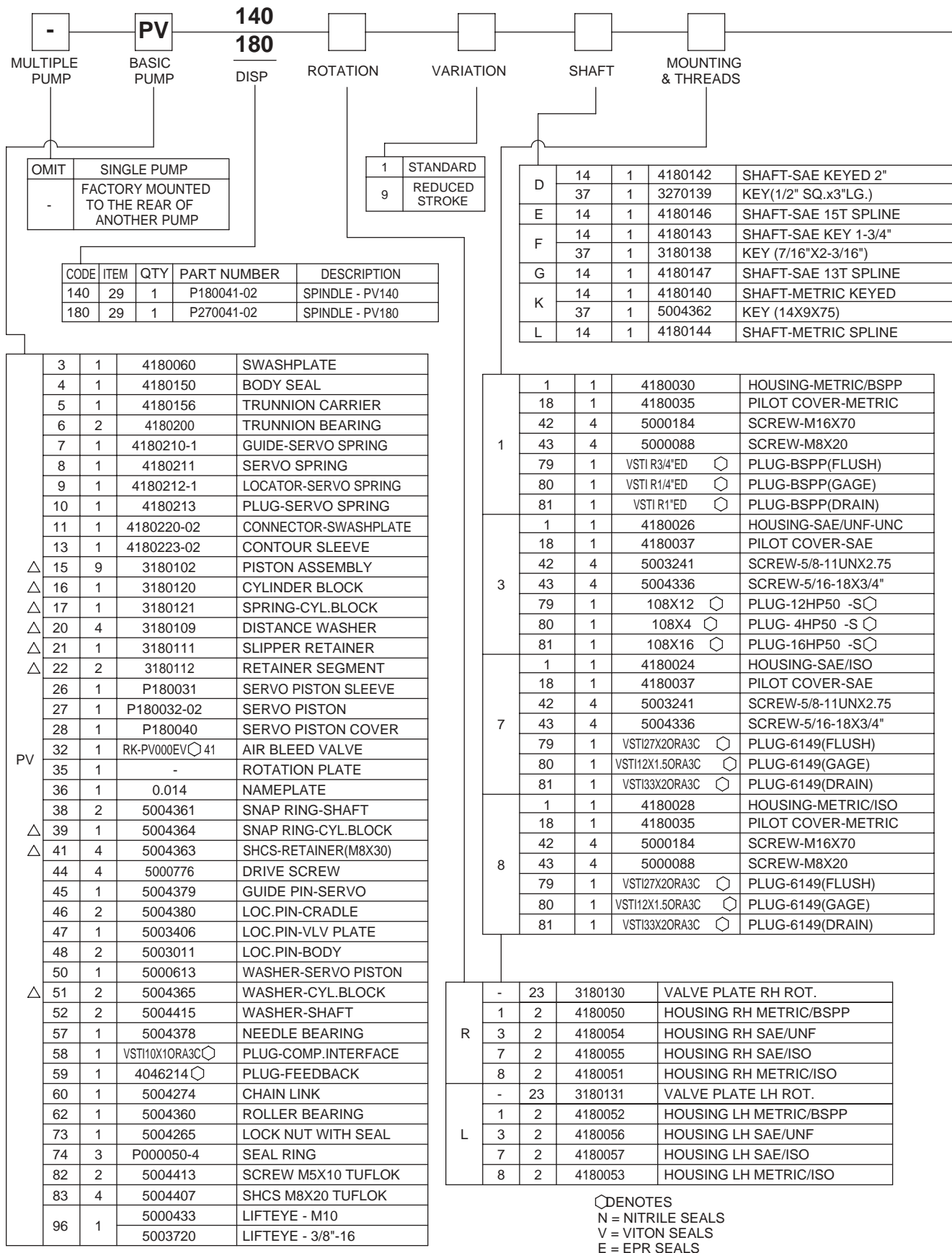


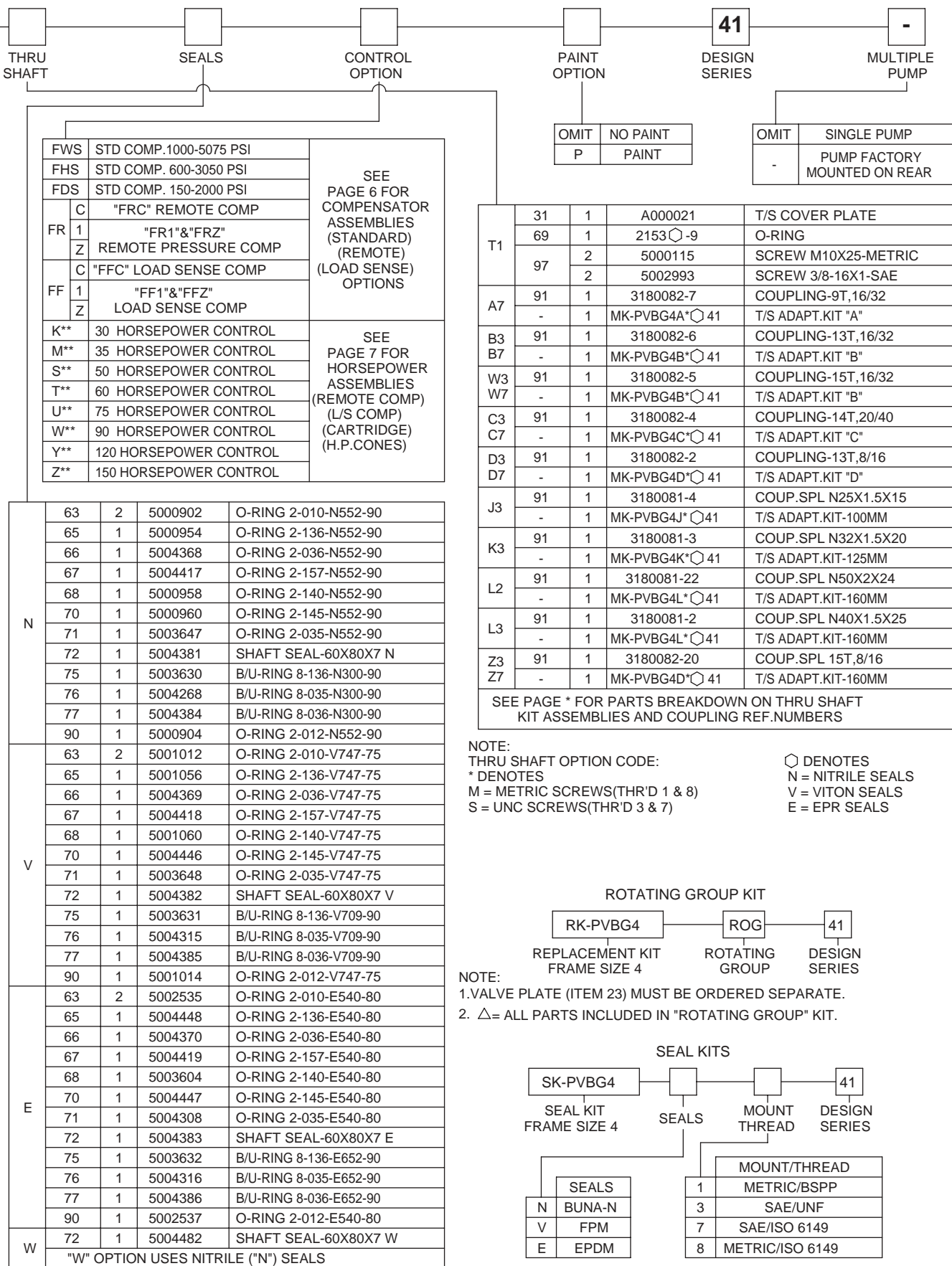


**NOTES:**

1. PUMP SHOWN IS RIGHT HAND (CW) ROTATION. LEFT HAND (CCW) ROTATION PUMPS HAVE THE INLET, OUTLET, DRAIN AND GAGE PORTS REVERSED. COMPENSATOR MOUNT, AIRBLEED AND VALVE PLATE KIDNEYS WILL ALSO BE REVERSED.
2. PUMP SHOWN WITHOUT COMPENSATOR ASSEMBLY - SEE PAGE 6 AND 7 FOR AVAILABLE COMPENSATOR OPTIONS.

## Parts List

Parker Pumps Parts & Service  
Model PV140, PV180 - Design 41



**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 reinstalling 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 its 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 flange not tight, pinched O-Ring at flange or pump housing.

**Cannot Build Any Pressure**

- △ Make sure pump is primed.
- △ Check alignment.
- △ 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.
- △ Pressure control dart is lodged open.

**Pump Will Not Compensate**

- △ Differential spring over-compressed (i.e. spring guide dislocated).
- △ Pressure control stem vent hole is plugged.
- △ Control spool travel is hindered.
- △ Saturation orifice is missing in load sense circuit.



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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.

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01/02