



QS-2200A
ELECTRIC/HYDRAULIC LUBRICATION UNIT
OPERATING MANUAL

CONTENTS:

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- QS-2200A REQUIREMENTS
- LOADING AND OPERATING THE QS-2200A
 - SEE ITEM 5 FOR SAFETY GAUGE INFORMATION
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- MATERIAL SAFETY DATA SHEET



"Quality That Pays For Itself"

Val-Tex QS-2200A

Electric / Hydraulic Lubrication Gun

Delivery: 8 ounces / 30-60 seconds
Weight: 40 Lbs.
Lube Sealant Size: J, P, CT12
PSI Rating: 10,000
Overall Dimensions: 20" H X 13" W X 17" L
Priming: Self-Priming Electric / Hydraulic
Pressure Delivered through a 6 foot hose at 100 PSI:
 Lube Sealant - 8,000 PSI
 Valve Flush - 10,000 PSI
Gauge: Included
Lube Pack Compatible: Yes
Internal Relief Valve: Yes

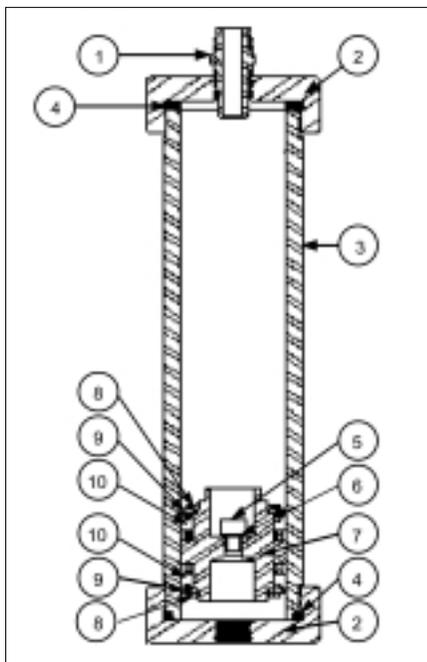


The easy to operate Val-Tex QS-2200A is a fast, compact, rugged lubrication unit. Run by a rechargeable battery powered hydraulic pump, the QS-2200A gives you complete mobility and eliminates the need for an air supply. It is suitable for use with J size lube sealant sticks, Lube Packs, cartridges, and Valve Flush.

The unit comes complete with a six foot, 3/8 inch I.D. high pressure hose, 15,000 PSI gauge, Gauge Guard, dual swivels, and a giant buttonhead coupler. The hydraulic pump requires only periodic maintenance and has an internal safety relief valve set at approximately 10,000 PSI to prevent over pressuring the unit.

Options available:

- Unit available with sealant barrel to fit K size lube sealant sticks (Part # QS-2200A-K).
- Sealant hose lengths up to 10 feet. We do not recommend hoses longer than 10 feet because of the output pressure drop.



Part No.	Item#	Description	Qty.
QS-2001A		Frame	1
PR102		Electric/Hydraulic Pump-12 Volt DC	1
BP212VQ		12 Volt Battery w/ 115 Volt Charger Case	1
QS-2001A-EPLATE		Mounting Plate	1
328030		Air Coupler	
328034		Air Coupler Nipple	1
2016		Grease Hose Assembly	1
		Consists of:	
1420	1	Lube Pack Adapter	1
6		Giant Buttonhead Coupler	1
1/4 CPLG		1/4"x1/4" Coupling	1
321320		1/4"x1/4" Straight Swivel	1
.25 TEE		1/4" Tee	1
15MGF		15,000 PSI Gauge	1
GC-250		Gauge Guard	1
43379		Adapter 1/4"x1/2-27	1
20638		6'x3/8" HP Hose	1
52752		12"-27x1/4" Z-Swivel	

Part No.	Item#	Description	Qty.
2017A		Hydraulic Line Assembly	1
2018		Grease Barrel Assembly	1
		Consists of:	
1407	2	Grease Barrel Cap	2
1409-R	3	Grease Barrel	1
1410	4	O-ring	2
2008		Piston Assembly	1
		Consists of:	
1408-A	5	Cap Screw	1
1408-BA	6	Copper Washer	1
2008-1	7	Piston Body	1
2008-2	8	Snap Ring	2
2008-3	9	Retaining Ring	2
2008-4	10	Upper and Lower Seal Set	1
1413		Handle	1
.25x.375 BSHG		1/4"x3/8" Bushing	1
OPTIONS			
319700		Shut-Off/Bleeder Valve	1
5040		1 Gallon Hydraulic Fluid	1
RB12V		Replacement Battery	1
		Various Hose Lengths	

10600 FALLSTONE ROAD • HOUSTON, TEXAS 77099-4390 • ORDER 1-800-627-9771 • PHONE (281) 530-4848 • FAX (281) 530-5225 • WWW.VALTEX.COM

QS-2200A Requirements

Before Operating the Pump make sure all threaded connections are tight.

Loading and Operating the QS-2200A

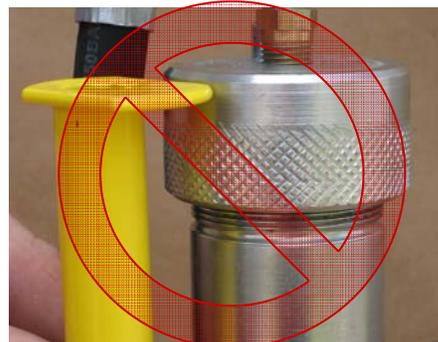
1. Move the two way positional valve to the "return" position.
2. Using the handle (1413) supplied, remove sealant barrel cap (1407).
3. Use the handle (1413) to push piston assembly (2008) to the desired depth. When less than full capacity is required, use 1 oz. marking on handle.
4. Load Val-Tex lube sealant or Valve Flush as required. Remember to remove cellophane wrapper on sticks.
5. Replace sealant barrel (1407) cap. Tighten with handle (1413) provided.

WARNING: FAILURE TO COMPLY WITH THE FOLLOWING SAFETY PROCEDURE COULD RESULT IN SERIOUS INJURY: THE SEALANT CAP MUST BE COMPLETELY SCREWED ONTO THE BARREL BEFORE OPERATING THIS UNIT. THE YELLOW SAFETY GAUGE MUST BE LIFTED UP AND THE BOTTOM SIDE OF THE TAB MUST CLEAR THE TOP OF THE CAP.

SAFE



STOP



6. Move the two way positional valve to the "hold" position. Then depress the rocker switch to activate the pump. Continue until material flows from end of hose.
* Note that the rocker switch requires constant pressure to maintain operation.

7. Before removing the coupler from the valve or when the hydraulic pump is not in use, release the pressure on the hydraulic pump.
8. When the cylinder is empty stop the pump. Please refer to step #1.

WARNING! If the pump is activated when the sealant barrel cap (1407) is removed, the piston assembly (2008) can be pumped out of the cylinder.

* Dispose of any expelled material properly.

SPX Corporation
2121 West Bridge Street
Owatonna, MN 55060 USA
Phone: (507) 455-7100
Tech. Services: (800) 477-8326
Fax: (800) 765-8326
Order Entry: (800) 541-1418
Fax: (800) 288-7031

International Sales: (507) 455-7150
Fax: (507) 455-7122
Internet Address:
<http://www.powerteam.com>

Operating Instructions for:

PE102	PE102A-220	PE104
PE102A	PE102A-220-FE	PE104-220
PE102-28-DC	PE102A-AERO	PR102
PE102-28-220DC	PE102A-COR	PR102-AMP
PE102-28-FSC	PE102A-EMP	P2102-ANCHOR
PE102-220	PE102A-ETT	PR102A
PE102-ANCHOR	PE102AR	PR102A-FE
	PE102AR-220	PR104

ELECTRIC HYDRAULIC PUMP

Max. Capacity: 10,000 PSI

NOTE:

- Inspect the pump upon arrival.
- Read and carefully follow these instructions. Most problems with new equipment are caused by improper operation or installation.

NOTE: These instructions cover several standard pumps. Some special units may appear different or have different specifications. Direct any questions to an appropriate Authorized Hydraulic Service Center or our Technical Services Department.

SAFETY PRECAUTION

WARNING

- All WARNING statements must be carefully observed to prevent personal injury.

General Operation

- Before operation the pump, all hose connections must be tightened with proper tools. Do not overtighten. Connections need only be tightened securely and leak-free. Overtightening may cause premature thread failure or may cause high pressure fittings to split at pressures lower than their rated capacities.
- Should a hydraulic hose ever rupture, burst, or need to be disconnected, immediately shut off the pump and shift the control valve twice to release all pressure. Never attempt to grasp a leaking hose under pressure with your hands. The force of escaping hydraulic fluid could cause serious injury.
- Do not subject the hose to potential hazard such as fire, extreme heat or cold, sharp surfaces, or heavy impact. Do not allow the hose to kink, twist, curl, or bend so tightly that the oil flow within the hose is blocked or reduced. Periodically inspect the hose for wear because any of these conditions can damage the hose and possibly result in personal injury.
- Do not use the hose to move attached equipment. Stress may damage the hose and possibly cause personal injury.
- Hose material and coupler seals must be compatible with the hydraulic fluid used. Hoses also must not come in contact with corrosive materials such as creosote-impregnated objects and some paints. Consult the manufacturer before painting a hose. Never paint the couplers. Hose deterioration due to corrosive materials may result in personal injury.



Note: Shaded areas reflect last revision(s) made to this form.

Safety Precautions (Continued)

Pump

- Do not exceed the PSI hydraulic pressure rating noted on the pump name plate or tamper with the internal high pressure relief valve. Creating pressure beyond rated capacities may result in personal injury.
- Before replenishing the oil level, retract the system to prevent overfilling the pump bladder. An overfill may cause personal injury due to excess bladder pressure created when cylinders are retracted.

Cylinder

- Do not exceed rated capacities of the cylinders. Excess pressure may result in personal injury.
- Do not set poorly-balanced or off-center loads on a cylinder. The load may tip and cause personal injury.

Electrical Supply

- Do not use an ungrounded (two-prong) extension cord (except for 12 VDC).
- Avoid conditions which could create an electrical hazard.
- If the power cord is damaged or wiring exposed, replace or repair immediately.

SET-UP AND OPERATION

Electric Motor



WARNING: To help avoid possible personal injury,

- Any electrical work must be done by a qualified electrician.
- Disconnect the power supply before removing the motor casing cover or performing repairs or maintenance.

Voltages

Motor voltages are not changeable. They are:

12 VDC	-	11-14 VDC
120 VAC	-	90-130 VAC 50/60 Hz
220 VAC	-	190-240 VAC 50/60 Hz



Hydraulic Set-up

1. Clean the areas around the oil ports of the pump and hydraulic cylinders.
2. Inspect the threads and fittings for signs of wear or damage and replace as needed. Clean all hose ends, couplers, and union ends.
3. Remove the thread protectors from the hydraulic outlets. Connect the hose assembly to the valve and couple the hose to the cylinder.
4. Seal all pipe connections with a high quality pipe thread sealant. Teflon tape can be used to seal hydraulic connections provided only one layer of tape is used. Apply the tape carefully, two threads back, to prevent it from being pinched by the coupler and broken off inside the pipe end. Any loose pieces of tape could travel through the system and obstruct the flow of oil or cause jamming of precision-fit parts.

Filling the Bladder

1. Thoroughly clean the area around the filler cap with a clean cloth to prevent contamination of the oil by foreign particles.
2. Retract all cylinders.
3. Remove the filler cap and insert a clean funnel with filter. Bladder must be filled to the top of filler. All air must be out of bladder.
4. Replace filler cap. **IMPORTANT: Tighten filler cap 1/2 - 1 turn after o-ring contacts sealing surface. Overtightening can cause pump damage.**

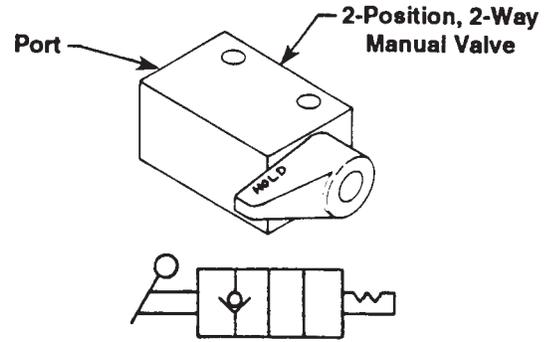
Valve Operation

2-Position, 2-Way Manual Valves used with Single-acting Cylinders

1. To build pressure, turn the valve control handle counterclockwise (CCW).
2. Start the pump by pressing the motor control ON/OFF switch.
NOTE: Oil advances the cylinder when the unit is activated.
3. When the cylinder has advanced to the desired position, release the motor control ON/OFF switch.
4. To retract the cylinder, turn the valve control clockwise (CW).

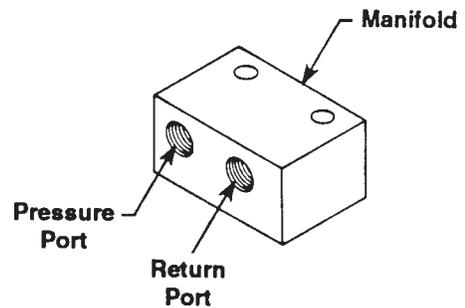
NOTE: The valve works the same as the manifold if the pump is operated with the valve in the RETURN position. In this position, the cylinder advances when the pump is running and retracts when the motor is stopped.

When the valve is in the HOLD position, the cylinder advances when the pump is running and holds when the motor is stopped. The cylinder can be retracted, with the pump off, by moving the valve to the RETURN position.



Manifold Assembly used with Single-acting Cylinders or Remote Valves

1. Start the pump by pressing the motor control ON/OFF switch.
NOTE: Oil advances the cylinder when the unit is activated.
2. When the cylinder has advanced to the desired position, release the motor control ON/OFF switch. The cylinder will retract.

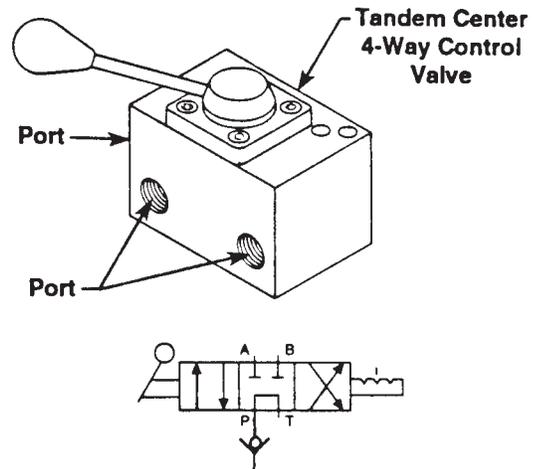


Tandem Center 4-Way Control Valve used with Double-acting Cylinders

1. Place the valve control lever in the NEUTRAL or hold position.
2. Start the pump by pressing the motor control ON/OFF switch.
3. Advance the cylinder by shifting the valve control lever to the ADVANCE position.
4. When the cylinder has advanced to the desired position, release the motor control ON/OFF switch. Cylinder will hold pressure.

NOTE: The cylinder momentarily loses pressure during the transition between valve positions.

5. Retract the cylinder by shifting the valve control lever to the RETRACT position and pressing the motor control ON/OFF switch. Cylinder will retract as long as switch is held.



Pressure Regulator

A pressure regulator can be adjusted to bypass oil at a desired pressure setting while the pump motor continues to run.

IMPORTANT: For easy adjustment of the pressure regulator, always adjust the pressure by INCREASING it to a desired pressure setting. The pressure range for these pumps is from 1,000 PSI to 10,000 PSI.

1. Loosen the regulator locking nut, and turn the adjusting knob a few turns counterclockwise (CCW) to decrease the pressure setting to a lower than desired pressure.
2. Connect the pump completely. Place the pump's rocker switch in the ON position.
3. Slowly turn the adjusting knob in a clockwise (CW) direction to gradually increase the pressure setting. When the desired pressure setting is reached, lock the adjusting knob into position by tightening the locking nut.



Pressure Switch

A pressure switch can be adjusted to stop the pump motor at a desired pressure setting and restart the motor when the pressure falls below that setting.

It is recommended that a pressure switch be used with a pressure regulating valve to insure accuracy when setting a maximum PSI level. A pressure switch alone will break the motor's energy supply at a selected setting, but the hydraulic pump will continue building pressure as it slows to a stop. The pressure regulating valve is adjusted at a setting slightly above the pressure switch setting to compensate by releasing the pressure developed by the hydraulic pump as it "coasts" to a stop. As a result, the pressure limit requirement can be held to approximately 300 PSI.

Adjusting The Pressure Switch Setting

1. Loosen the locknut on the pressure switch. Slowly turn the pressure switch adjusting screw in a counterclockwise (CCW) direction, decreasing the pressure switch setting until the pump motor shuts off. Tighten the locknut to lock the adjusting screw.
2. Release the hydraulic pressure. Run the pump to check the pressure setting and automatic shutoff of the motor. It may be necessary to make a second fine adjustment.

PREVENTIVE MAINTENANCE

 **WARNING:** To help avoid possible personal injury,

- Disconnect the pump from the power supply before performing maintenance or repair procedures.
- Repairs and maintenance should be performed in a dust-free area by a qualified technician.

Bleeding Air from the System

Air can accumulate in the hydraulic system. This air causes the cylinder to respond in an unstable or slow manner. To remove the air:

1. Position hydraulic cylinder(s) on their sides with the couplers located upward and at a lower level than the pump.
2. Remove any load from the cylinder(s), and cycle the hydraulic system through several cycles (fully extend and retract the cylinders).
3. The bladder must be vented and refilled (see "Filling the Bladder" section on sheet 2 of 3).

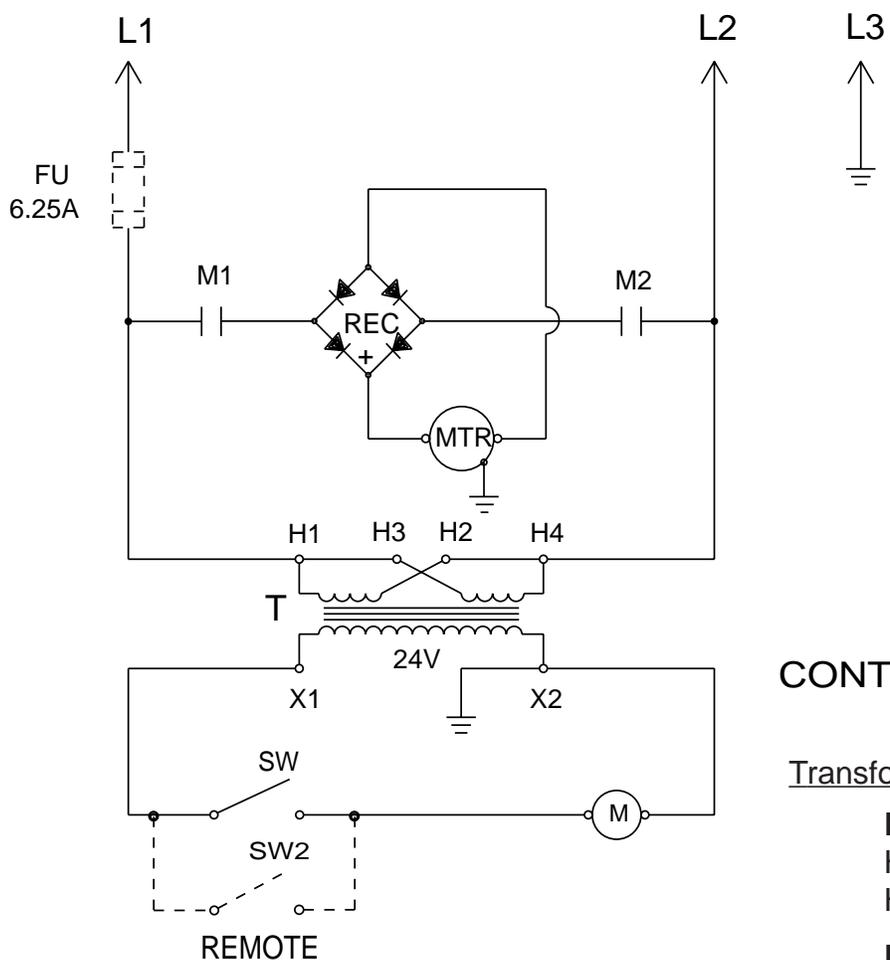
Hydraulic Fluid Level

1. Check the oil level in the bladder after each 10 hours of use. With all cylinders retracted and the pump in the upright (or vertical) position, the oil level should be at the top of the filler hole.
2. When adding oil, use Power Team approved, high-grade hydraulic oil (215 SSU @ 100°F). Retract the cylinders and disconnect the power supply. Clean the area around the filler plug, remove the plug, and insert a clean funnel with filter.
3. The frequency of oil changes will depend upon the general working conditions, severity of use, and overall cleanliness and care given the pump. Three hundred hours of use under general shop conditions is considered a standard change interval. Drain, flush, and refill the bladder with Power Team approved, high-grade hydraulic oil (215 SSU @ 100°F).

Maintenance and Cleaning

1. Keep the pump's outer surface as free from dirt as possible.
2. Seal all unused couplers with thread protectors.
3. Keep all hose connections free of dirt and grime.
4. Equipment connected to the pump must be kept clean.
5. Use only Power Team approved, high-grade hydraulic oil in this pump. Change as recommended (approx. every 300 hours).

**ELECTRICAL SCHEMATIC 115/230 V., 50/60 Hz,
SINGLE PHASE**



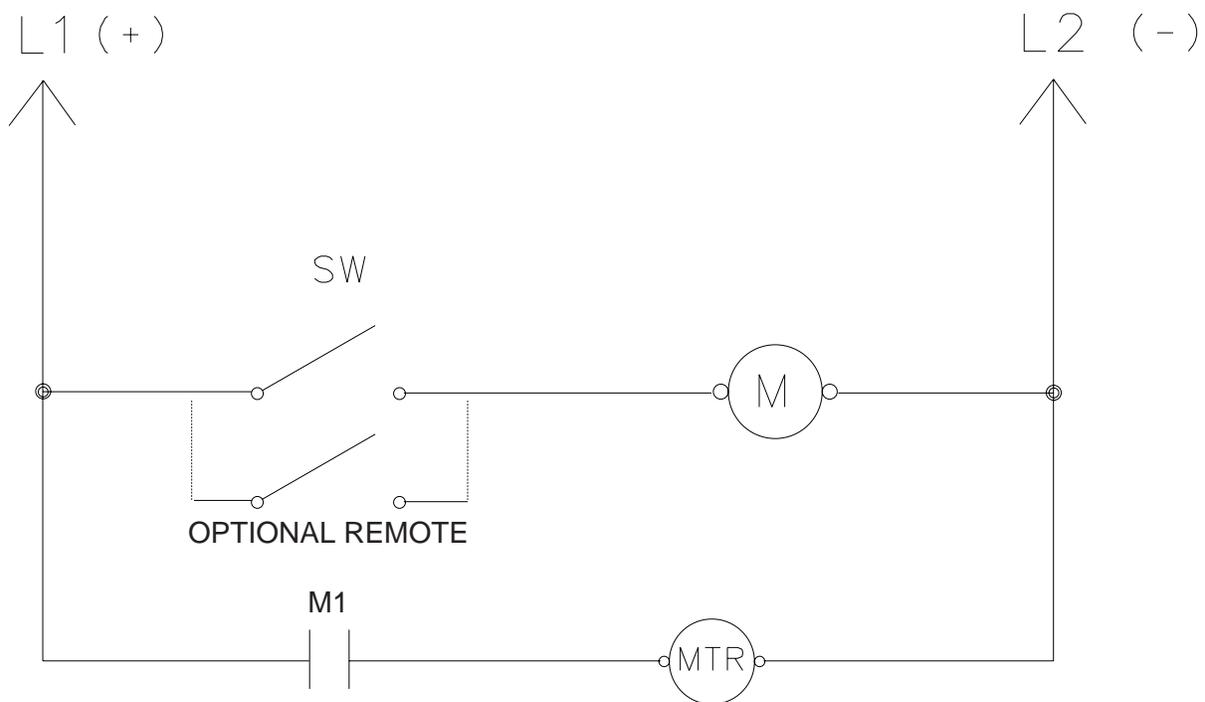
CONTROL CIRCUIT

Transformer Connections:

For 115 VAC
 H1 & H3 to L1
 H2 & H4 to L2

For 230 VAC
 H1 to L1
 H2 to H3
 H4 to L2

**ELECTRICAL SCHEMATIC 12 VDC
(CCW ROTATION FROM LEAD END)**



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 Fax: (800) 765-8326
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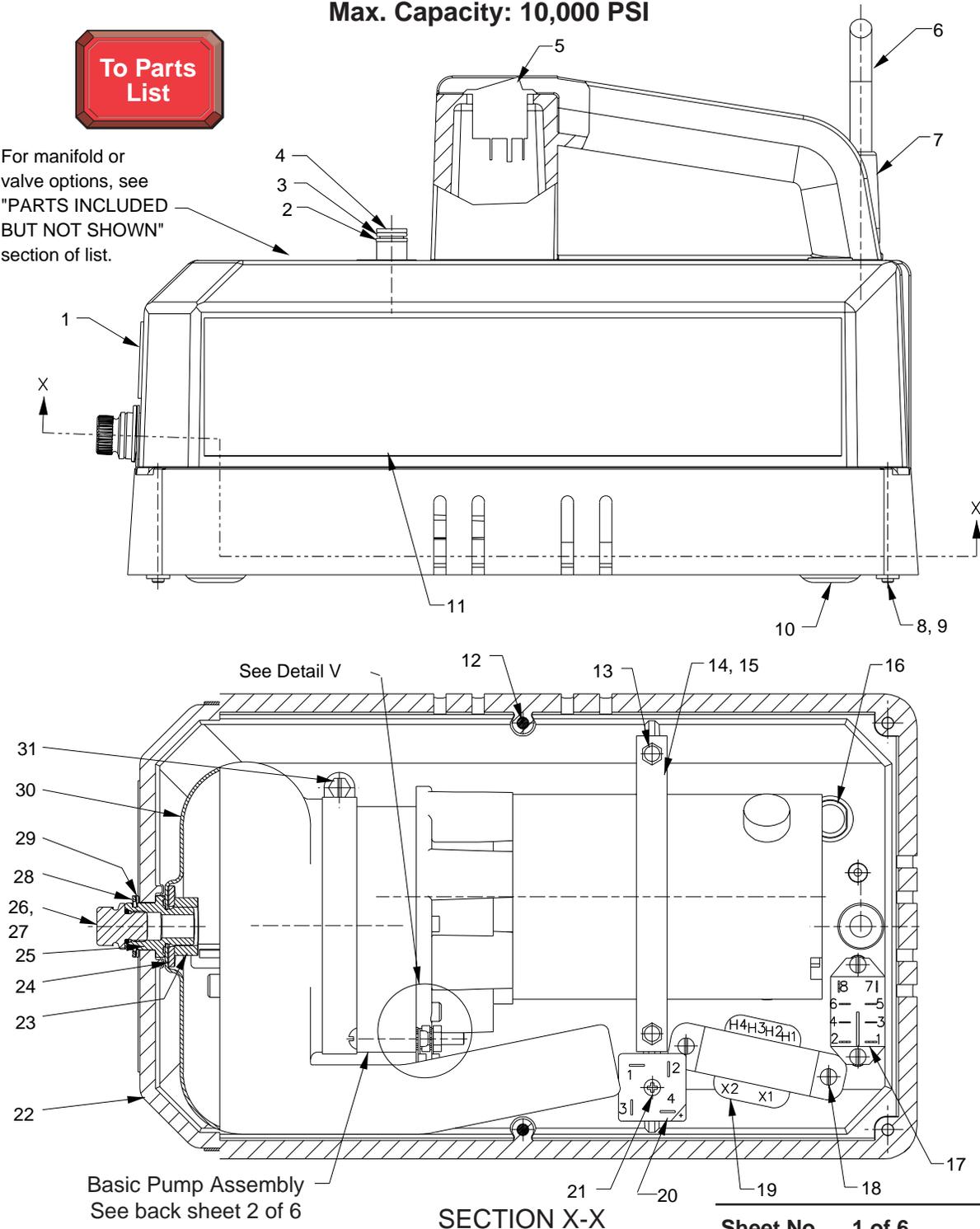
Parts List for:

PE10 Series
 PR10 Series

MODEL B (Model C for PE102A-GRC) ELECTRIC HYDRAULIC PUMP Max. Capacity: 10,000 PSI

To Parts List

For manifold or valve options, see "PARTS INCLUDED BUT NOT SHOWN" section of list.



Sheet No. 1 of 6

Rev. 6 Date: 19 Jan. 2001

Parts List, Form No. 101703, Back sheet 1 of 6

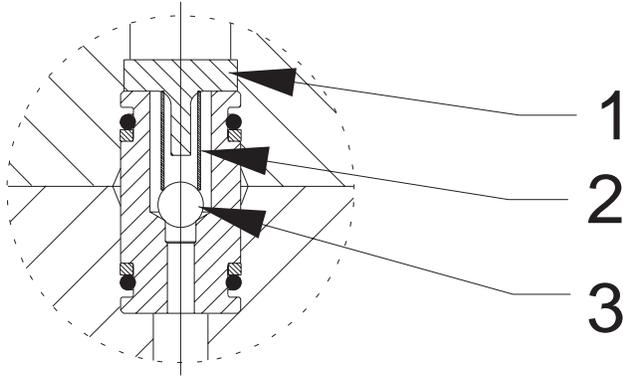
Item No.	Part No.	No. Req'd	Description	Item No.	Part No.	No. Req'd	Description
1	251072	1	Warning & Fill Instructions Decal	30	420643	1	Bladder
2	*11863	2	Backup Washer (1/2 X 3/8 X 1/16)		†420736	1	Bladder
3	*10268	2	O-ring (1/2 X 3/8 X 1/16; For PE102, PE102-220, PE104, PE104-220, PR102 & PR104)	31	350305	1	Hose Clamp
	†17716	2	O-ring (1/2 X 3/8 X 1/16; For PE102, PE102-220, PE104, PE104-220, PR102 & PR104)	PARTS INCLUDED BUT NOT SHOWN			
	*10268	3	O-ring (1/2 X 3/8 X 1/16; For PE102A, PE102A-220 & PR102A)	†250238		1	Decal (EPR Seals)
	†17716	3	O-ring (1/2 X 3/8 X 1/16; For PE102A, PE102A-220 & PR102A)	350646		1	Cord Set (For PR Series only)
4	202505	1	Bushing (For PE102, PE102A, PE102-220, PE102A-220, PR102 & PR104)	10855		2	Screw (Torque to 160/180 in. lbs. Tighten the screw on the right hand side facing the pump first.)
	251128	1	Bushing (For PE104, PE104-220 & PR104)	*10268		1	O-ring (1/2 X 3/8 X 1/16; For PE102A, PE102A-220, & PR102A)
5	251051	1	Rocker Switch	†17716		1	O-ring (1/2 X 3/8 X 1/16; For PE102A, PE102A-220, & PR102A)
6	24733	1	Cord Set (For PE Series only)	251253		1	Remote Switch (For PR102A-DEUT)
	250894	1	Electrical Plug (For PR Series only)	251635		1	Remote Switch (For PE102A-EMP)
	12293	1.5 ft.	Electrical Cable (For PR Series only)	251048		1	Bushing (For units equipped with a remote switch)
7	251048	1	Bushing	250176		1	Fuse (For PE102, PE102A, & PE104)
8	12515	4	Machine Screw (10-24 UNC X 1 3/4 Lg.)	206962		1	Fuse (For PE102-220, PE102A-220, & PE104-220)
9	207405	4	Locknut (10-24 UNC)	251561		1	Receptacle (For PE102AR & PE102AR-220)
10	420607	1	Base Plate	14456		2	Screws (#10-24 X 1/2 Lg.; For PE102AR & PE102AR-220)
11	350672	2	Trade Name Decal (For PR Series)	OTHER OPTIONS AND ACCESSORIES			
	351035	2	Trade Name Decal (For PE Series)	9562		1	Manifold (For PE102A, PE102A-220, PR102A, PE102A-EMP & PR102A-DEUT; See Form No. 101344)
	252102	2	Trade Name Decal (For LUKAS)	9561		1	2 Position, 2-Way Valve (For PE102, PE102-220, PE102A-EMP, PR102A-DEUT & PR102; See Form No. 101327)
12	14456	2	Screw (#10-24 X 1/2 Lg.; Place ground wire terminal between cover & housing.)	9563		1	3 Position, 4-Way Valve (For PE104, PE104-220, & PR104; See Form No. 101326)
13	211060	2	Screw (#9-15 X 1" Lg.)	9560		1	Pressure Regulator (For PE102-ANCHOR; See Form No. 101328)
14	251039	.5 ft.	Motor Mounting Strap	10461		1	Foot Switch Assembly
15	251041	3"	Channel Rubber	25017		1	Hand Switch Assembly
16	251045	1	"D" Bushing Plug	9625		1	Pressure Switch (See Form No. 100589)
17	251046	1	Relay (For PE Series only)	BP12V		1	12 Volt Battery Pack (Includes sealed lead acid battery, 115 V. charger, battery-to-pump 4 ft. cord set, carrying case and shoulder strap.)
18	15468	4	Screw (#6-32 X 3/8 Lg.)	VC220		1	Voltage Converter w/ Plug Adapters (Converts 220 V. 50/60 cycle to 110 V. 50/60 cycle)
19	251049	1	Transformer (For PE Series only)	RB12V		1	Replacement Battery only
	251052	1	Relay (For PR Series only)	RC12V		1	Replacement Battery 4 Ft. Cord Set (For BP12V)
20	251050	1	Rectifier (For PE Series only)	351240		1	Manifold (For PE102-28-DC & PE102-28-220DC)
21	251073	1	Screw (6-32 x 3/4 Lg.; For PE Series only)	351845		1	Electrical Plug (For LUKAS)
22	64363	1	Plastic Housing (For PE102AR & PE102AR-220)				
	64616	1	Plastic Housing				
23	10394	1	Hex Nut (5/8-18 UNF)				
24	13324	1	Washer (For 5/8 Bolt)				
25	350583	1	Filler Adapter				
26	*13755	1	O-ring (.558 x .414 x .072)				
	†251035	1	O-ring (.558 x .414 x .072)				
27	251280	1	O-ring Boss Plug				
28	251043	1	Retaining Ring				
29	201373	1	Retainer Washer				

Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300651.
 Part numbers marked with a dagger (†) are contained in EPR Seal Kit No. 300653.

NOTE: For LUKAS brand pumps, if additional parts (that are not shown here) need replacing, contact your nearest LUKAS service center.



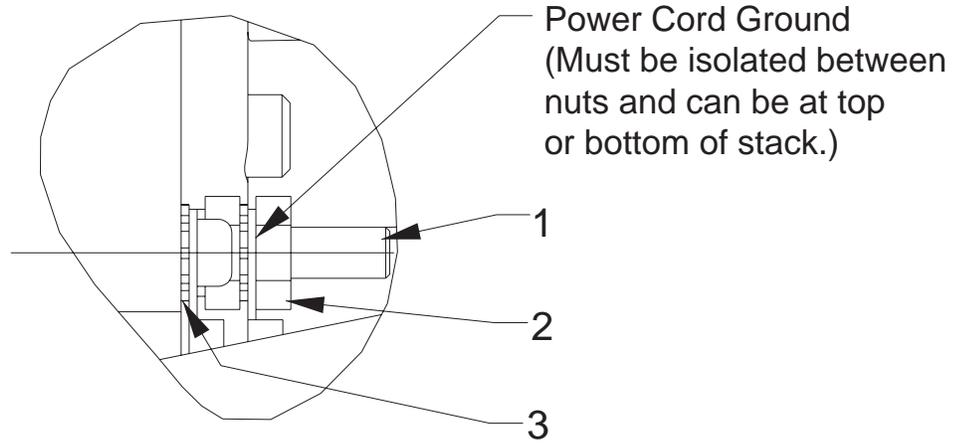
**DETAIL FOR 4-WAY VALVE OUTLET CHECK
(FOR PE104, PE104-220, & PR104)**



Item No.	Part No.	No. Req'd	Description
1	209795	1	Outlet Ball Stop
2	*10445	1	Compression Spring (5/32 O.D. X 3/4 Lg.)
3	*12223	1	Ball (3/16 Dia.)

Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300653.

DETAIL V

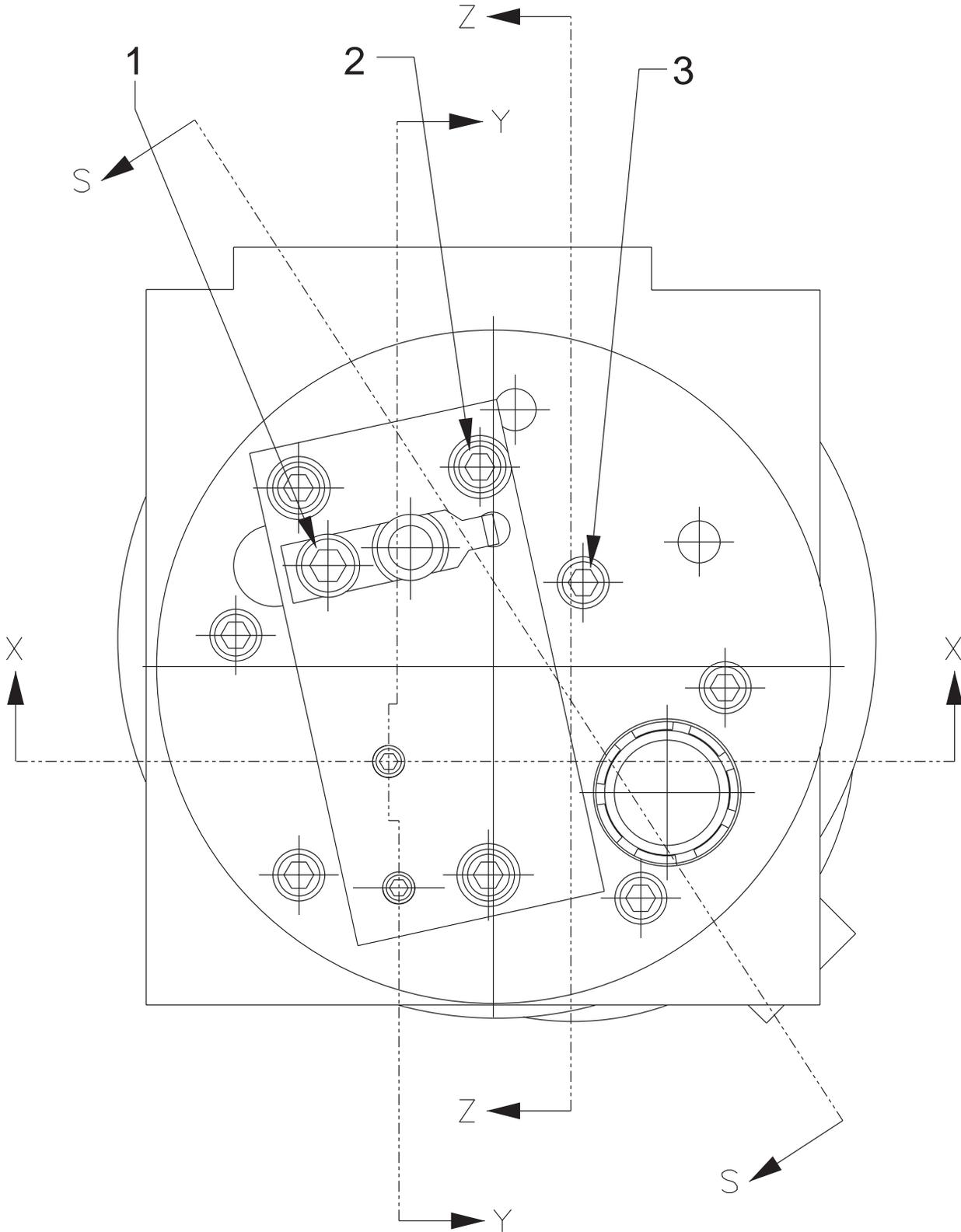


Grd

Note: Serrated lockwasher must be adjacent to pump body.

Item No.	Part No.	No. Req'd	Description
1	12515	1	Machine Screw (#10-24 UNC X 3/4 Lg.)
2	10197	2	Nut (#10-24 UNC)
3	11108	2	Lockwasher (#10 External Tooth)

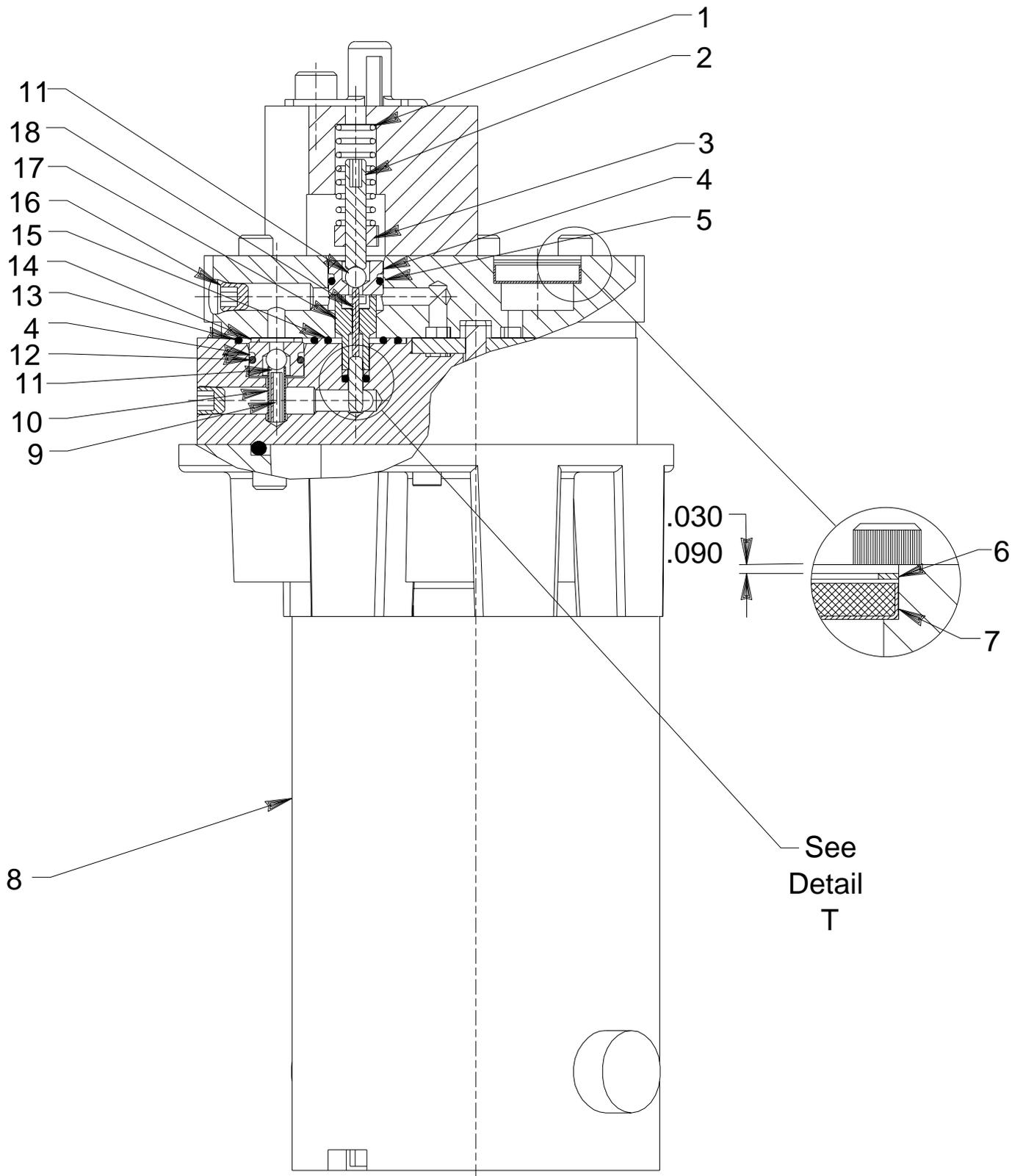
BASIC PUMP ASSEMBLY



Item No.	Part No.	No. Req'd	Description
1	10002	1	Screw (1/4-20 UNC X 3/8 Lg.; Torque to 80/100 in. lbs.)
2	14423	3	Screw (#10-24 X 2" Lg.; Torque to 60/80 in. lbs.)
3	14426	5	Screw (#10-24 UNC X 1" Lg.; Torque to 60/80 in. lbs.)



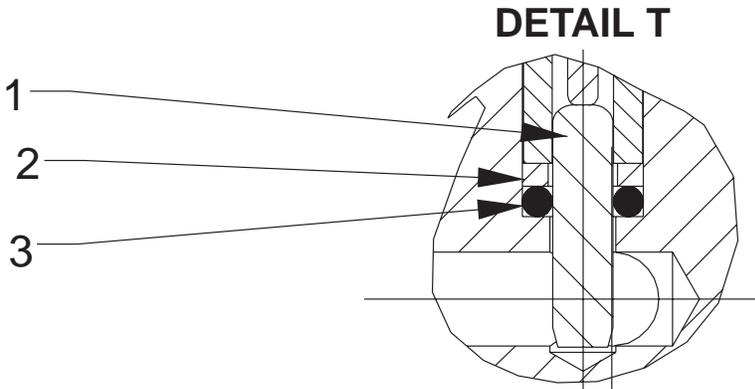
SECTION X-X



Item No.	Part No.	No. Req'd	Description
1	*14484	1	Compression Spring (3/8 O.D. X 1" Lg.)
2	*251067	1	Set Screw (#10-24 UNC x 1" Lg. Set unloading valve to 400/500 PSI)
3	*207405	1	Locknut (10-24 UNC)
4	*251065	1	Replaceable Seat
5	*10268	1	O-ring (1/2 X 3/8 X 1/16)
	†17716	1	O-ring (1/2 X 3/8 X 1/16)
6	*16686	1	Retaining Ring (Internal)
7	*214578	1	Filter
8	421297-110	1	Motor (For PE102, PE102A, & PE104; For replacement brush assembly, order [2] #251114-110)
	421297-220	1	Motor (For PE102-220, PE102A-220, & PE104-220; For replacement brush assembly, order [2] #251114-220)
	421297-12	1	Motor (For PR102, PR102A, & PR104; For replacement brush assembly, order [2] #251114-12)
9	11512	1	Roll Pin
10	*15141	1	Compression Spring (3/16 O.D. X 5/8 Lg.)
11	*12223	2	Ball (3/16 Dia.)
12	*13943	1	O-ring (1/2 X 3/8 X 1/16)
	†17716	1	O-ring (1/2 X 3/8 X 1/16)
13	*10302	1	O-ring (3/4 X 5/8 X 1/16)
	†12400	1	O-ring (3/4 X 5/8 X 1/16)
14	*11031	1	Copper Washer (15/32 X 5/16 X 1/32)
15	*12098	1	O-ring (9/16 X 7/16 x 1/16)
	†250136	1	O-ring (9/16 X 7/16 x 1/16)
16	15130	3	Plug (1/16 NPTF)
17	251068	1	Guide
18	13937	1	Dowel Pin



Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300651.
Part numbers marked with a dagger (†) are contained in EPR Seal Kit No. 300653.

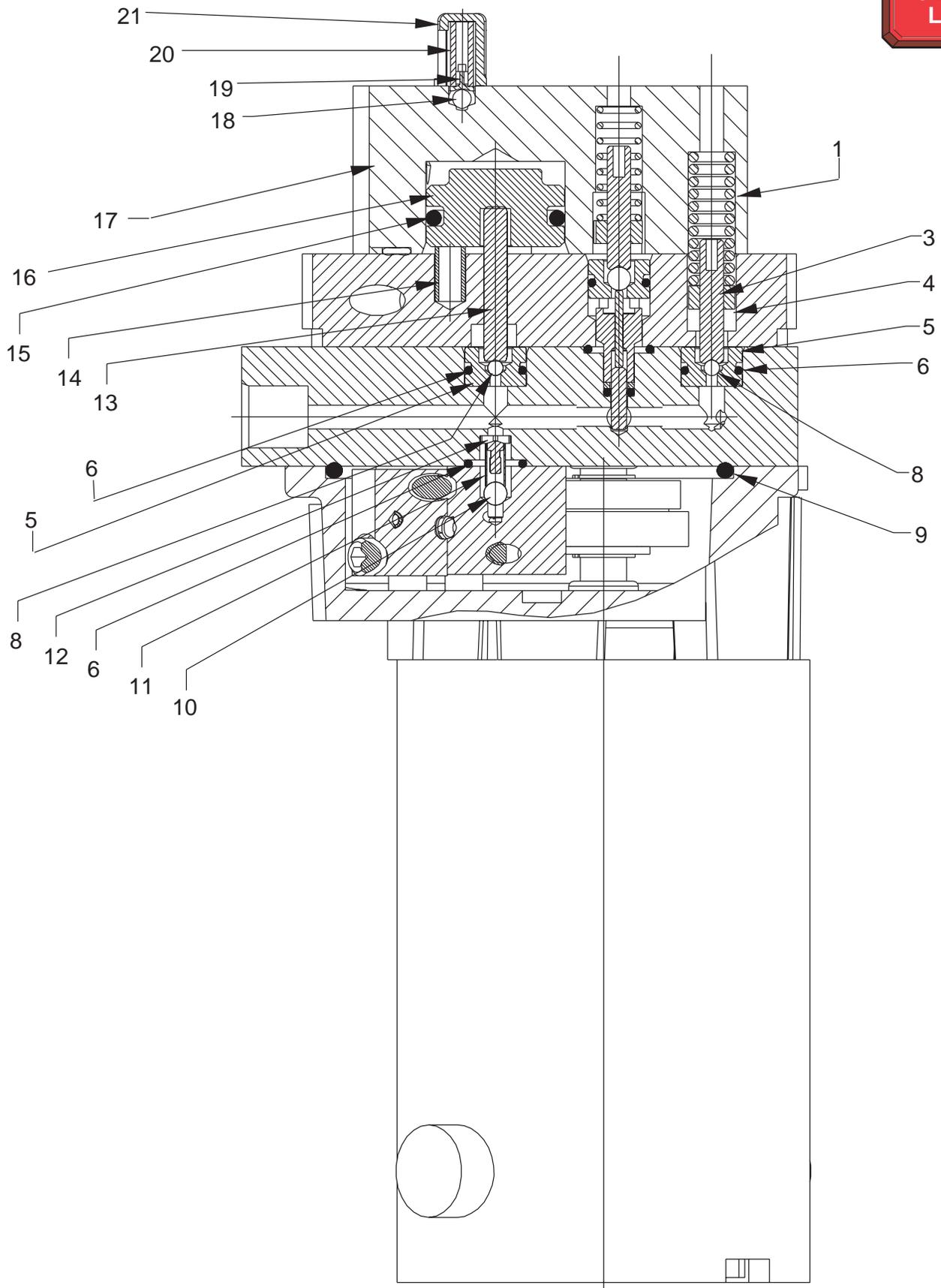


Item No.	Part No.	No. Req'd	Description
1	10796	1	Dowel Pin
2	*214992	1	Backup Washer (15/64 x 1/8 x 3/64)
3	*17797	1	O-ring (1/4 X 1/8 X 1/16)
	†17713	1	O-ring (1/4 X 1/8 X 1/16)

Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300651.
Part numbers marked with a dagger (†) are contained in EPR Seal Kit No. 300653.



SECTION Y-Y



Item No.	Part No.	No. Req'd	Description
1	*16724	1	Compression Spring (3/8 O.D. x 1-1/4 Lg.)
3	*251067	1	Set Screw (#10-24 UNC x 1" Lg.; Set High Pressure Relief Valve to 10,100/10,700 PSI [2,800/3,200 PSI for PE102-28-DC & PE102-28-220DC])
4	*207405	1	Locknut (10-24 UNC)
5	*251064	2	Replaceable Seat
6	*13943	3	O-ring (1/2 X 3/8 X 1/16)
	†17716	3	O-ring (1/2 X 3/8 X 1/16)
8	*10418	2	Steel Ball (1/8 Dia.)
9	*10297	1	O-ring (3-1/2 X 3 -1/4 X 1/8)
	†13454	1	O-ring (3-1/2 X 3 -1/4 X 1/8)
10	*12223	1	Ball (3/16 Dia.)
11	*10445	1	Compression Spring (5/32 O.D. X 3/4 Lg.)
12	24549	1	Ball Guide
13	*251083	1	Dowel Pin
14	*11024	3	Compression Spring (1/4 O.D. X 5/8 Lg.)
15	*19029	1	O-ring (1-1/8 x 15/16 x 1/8)
	†251288	1	O-ring (1-1/8 x 15/16 x 1/8)
16	350619	1	Eccentric
17	420616	1	Automatic Valve Body
18	*10374	1	Steel Ball (7/32 Dia.)
19	200796	1	Adapter
20	*15691	1	Compression Spring (1/4 O.D. X 5/8 Lg.)
21	350577	1	Spring Retainer

Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300651.
 Part numbers marked with a dagger (†) are contained in EPR Seal Kit No. 300653.

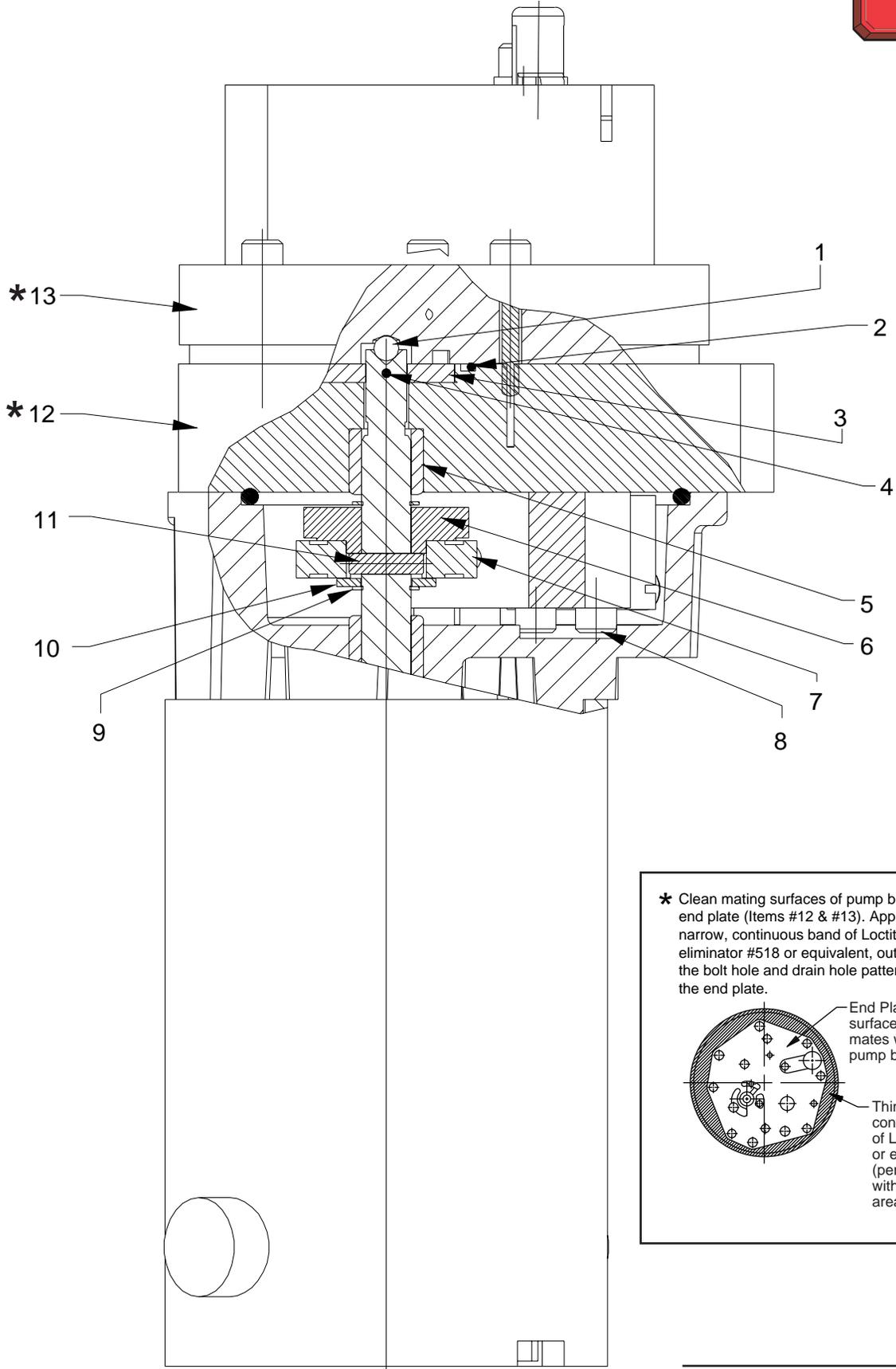


Refer to any operating instructions included with this product for detailed information about operation, testing, disassembly, reassembly, and preventive maintenance.

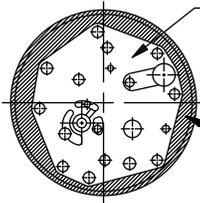
Items found in this parts list have been carefully tested and selected. **Therefore: Use only genuine Power Team replacement parts!**

Additional questions can be directed to our Technical Services Department.

SECTION Z-Z



* Clean mating surfaces of pump body and end plate (Items #12 & #13). Apply a thin, narrow, continuous band of Loctite gasket eliminator #518 or equivalent, outside of the bolt hole and drain hole patterns on the end plate.



End Plate surface that mates with the pump body

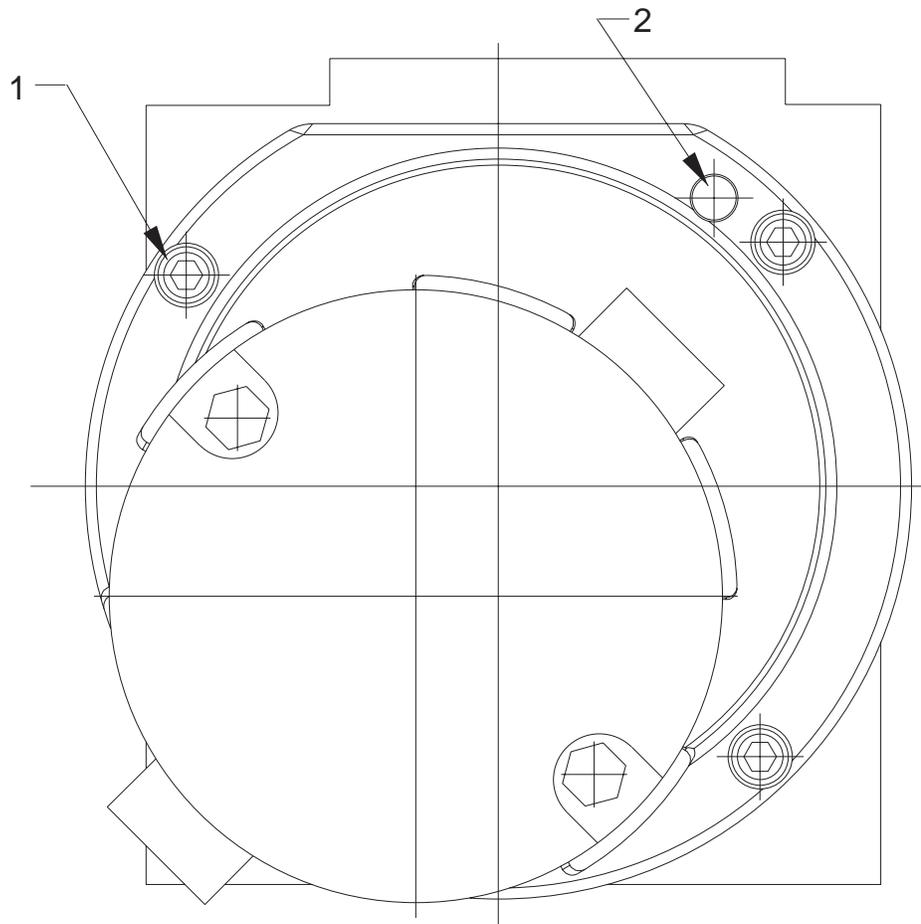
Thin, narrow continuous band of Loctite #518 or equivalent (permissible within shaded area.)

Item No.	Part No.	No. Req'd	Description
1	*12223	1	Ball (3/16 Dia.)
2	*251063	1	O-ring (1-7/16 x 1-5/16 x 1/16)
	†251289	1	O-ring (1-7/16 x 1-5/16 x 1/16)
3	420615	1	Gerotor Set
4	251061	1	Dowel Pin
5	251129	1	Needle Bearing
6	350606	1	Eccentric
7	15695	1	Ball Bearing
8	250491	4	Screw (10-24 UNC x 1-1/4 Lg.; Torque to 60/80 in. lbs.)
9	251069	2	Retaining Ring (Internal)
10	252169	1	Washer (25/64 X 3/4 X 1/16)
11	251117	1	Spring Pin
12	64347	1	End Plate
13	64346	1	Pump Body



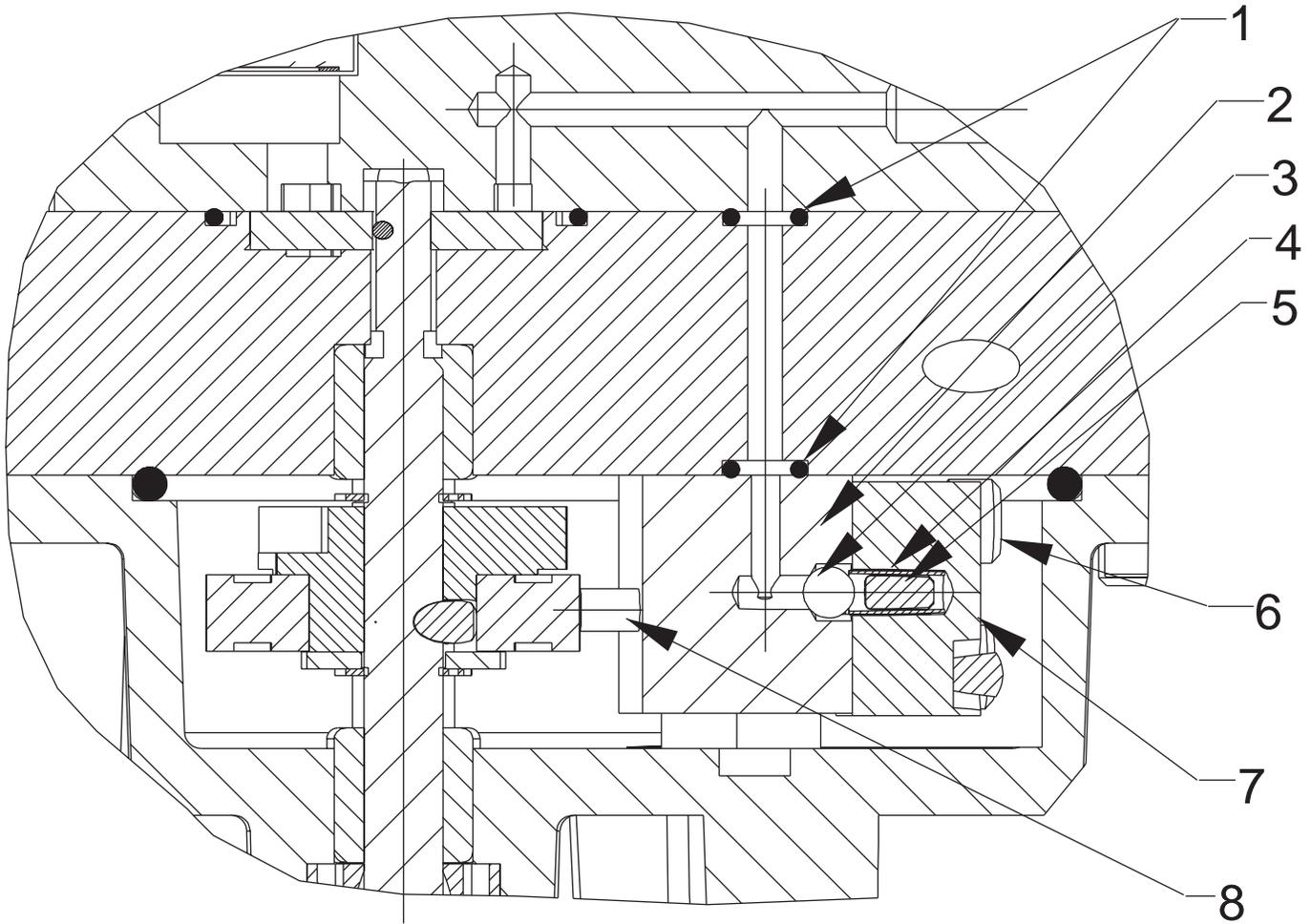
Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300651.
 Part numbers marked with a dagger (†) are contained in EPR Seal Kit No. 300653.

MOTOR END VIEW



Item No.	Part No.	No. Req'd	Description
1	11434	3	Screw (10-24 UNC X 1/2 Lg.; Torque to 60/80 in. lbs.)
2	17567	2	Pin

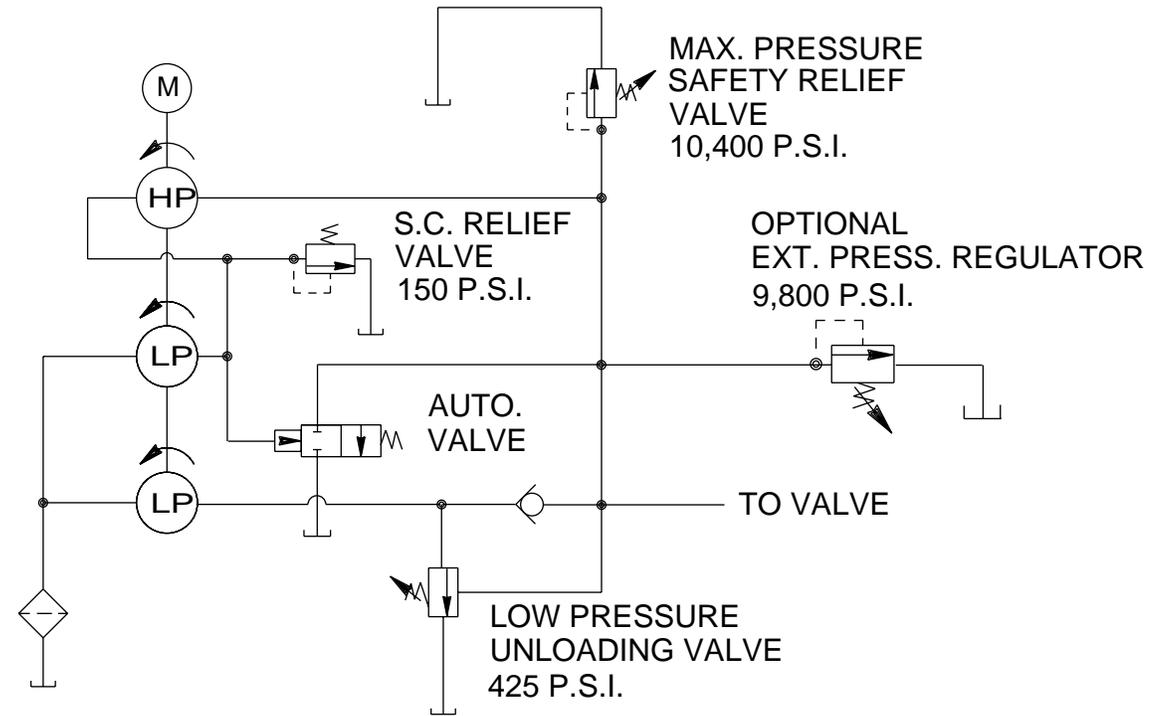
SECTION S-S



Item No.	Part No.	No. Req'd	Description
1	*10265	3	O-ring (5/16 X 3/16 X 1/16)
	†17714	3	O-ring (5/16 X 3/16 X 1/16)
2	420617	1	High Pressure Piston Body
3	*12223	1	Ball (3/16 Dia.)
4	*10445	1	Compression Spring (5/32 O.D. X 3/4 Lg.)
5	251040	1	Dowel Pin
6	12102	3	Screw (#10-24 UNC X 3/4 Lg.; Torque to 60/80 in. lbs.)
7	350620	1	High Pressure Cap Body
8	251062	1	Piston (Position with chamfer towards bearing.)

Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300651.
 Part numbers marked with a dagger (†) are contained in EPR Seal Kit No. 300653.

HYDRAULIC SCHEMATIC



ELECTRICAL INFORMATION

Note: All electrical information and schematics for these units can be found in Form No. 102808 Operating Instructions.

SPX Corporation
 2121 West Bridge Street
 Owatonna, MN 55060 USA
 Phone: (507) 455-7100
 Tech. Services: (800) 477-8326
 Fax: (800) 765-8326
 Order Entry: (800) 541-1418
 Fax: (800) 288-7031

International Sales: (507) 455-7150
 Fax: (507) 455-7122
 Internet Address:
<http://www.powerteam.com>

RECOMMENDED MINIMUM WIRE SIZE-AWG (mm²) OF EXTENSION CORDS FOR POWER TEAM ELECTRIC PUMPS

Current At Full Load (Amps)	Cord Size AWG (mm ²) 3.2 Volt Drop			
	Length of Cord			
	0-25 feet (0-8 m)	25-50 feet (8-15 m)	50-100 feet (15-30 m)	100-150 feet (30-45 m)
6	18 (.82)	16 (1.33)	14 (2.09)	12 (3.32)
8	18 (.82)	16 (1.33)	12 (3.32)	10 (5.37)
10	18 (.82)	14 (2.09)	12 (3.32)	10 (5.37)
12	16 (1.33)	14 (2.09)	10 (5.37)	8 (8.37)
14	16 (1.33)	12 (3.32)	10 (5.37)	8 (8.37)
16	16 (1.33)	12 (3.32)	10 (5.37)	8 (8.37)
18	14 (2.09)	12 (3.32)	8 (8.37)	8 (8.37)
20	14 (2.09)	12 (3.32)	8 (8.37)	6 (13.30)
22	14 (2.09)	10 (5.37)	8 (8.37)	6 (13.30)
24	14 (2.09)	10 (5.37)	8 (8.37)	6 (13.30)
26	12 (3.32)	10 (5.37)	8 (8.37)	6 (13.30)
28	12 (3.32)	10 (5.37)	6 (13.30)	4 (21.29)
30	12 (3.32)	10 (5.37)	6 (13.30)	4 (21.29)

Note: Shaded areas reflect last revision(s) made to this form.

Sheet No. 1 of 1

Issue Date: Rev. 10-25-95

Material Safety Data Sheet

Material Safety Data Sheet

Page 1.

AW Hydraulic Oil ISO 46

Section 1. Chemical Product and Company Identification. Product Name:

AW Hydraulic Oil ISO 46

Code / Part Number: 9636, 9637, 9638, 9616, 11360

Manufacturer: SPX Fluid Power

5885 11th Street

Rockford, IL 61109, USA

Phone: 815-874-5556

CHEMTREC 24 Hr Emergency Number: 800-424-9300

Material Use: The product designed for use in heavy duty Hydraulic fluid applications.

Validated on January, 2007

Section 2. Composition and Information on Ingredients.

Name: Hydrotreated or severely refined base oil and proprietary additives

CAS#: Mixture

% (V/V): 100

Exposure Limits:

TLV-TWA (8hr): 5mg/cubic m (oil mist)

STLE: 10 mg/ cubic m (oil mist)

Manufacturer Recommendation: Not applicable

Other Exposure Limits: Consult local, state, provincial or territorial authorities for acceptable exposure limits.

Section 3. Hazardous Identification.

Potential Health Effects: Not irritating to slight irritation to skin and eyes with no permanent damage. Relatively non-toxic via ingestion. This product has a low vapor pressure and is not expected to present an inhalation exposure at ambient conditions. At high temperatures or mechanical actions may produce vapors or mists, inhalation may cause irritation of the breathing passages. See section 11.

Section 4. First Aid Measures

Eye contact: Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention.

Skin Contact: Remove contaminated clothing – launder before reuse. Wash contaminated skin with running water and non-abrasive soap. Get medical attention if irritation develops or if product is injected under pressure into or under the skin.

Inhalation: Remove to fresh air. Get medical attention if breathing difficulty persists. If victim is not breathing, perform artificial respiration.

Ingestion: DO NOT induce vomiting. Seek medical attention.

Section 5. Fire-fighting Measures

Flammability: May be combustive at high temperature.

Flash point: ≥ 200 deg C (392 deg F) (COC)

Flammable Limits: Not available

Auto-Ignition Temperature: Not available

Fire Hazard in Presence of Various Substances: Low fire hazard. This material must be heated before ignition will occur.

Explosion Hazards in Presence of Various Substances: Do not cut, weld, drill or pressurize empty container. Containers may explode in heat of fire.

Products of Combustion: various oxides of carbon, nitrogen, sulfur, smoke and irritating vapors from incomplete combustion.

Fire Fighting Media Instructions: NAERG96, Guide 171, Substances (low to moderate hazard). If tank, rail car or tank is involved in fire, ISOLATE for 800 meters (0.5 mile) in all directions. Shut off fuel to fire if it is possible to do without hazard. If it is not possible, withdraw from area and let fire burn out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire. Cool containing vessels

with water spray in order to prevent pressure build-up, auto ignition or explosion.

Small fire: use DRY chemicals, foam, water spray or CO2.

Large Fire: use water spray, fog or foam. For small outdoor fires, portable fire extinguishers may be used. For all indoor fires and significant outdoor fires self-contained breathing apparatus is required. Respiratory and eye protection are required for fire fighting personnel.

Section 6. Accidental Release Measures

Material Release or Spill: NAERG96, Guide 171, Substances (low to moderate hazard). ELIMINATE ALL IGNITION SOURCES. Avoid contact. Stop leak if without risk. Contain spill. Absorb with inert absorbents. Place used absorbent in closed metal containers for later disposal or burn absorbent in suitable combustion chamber. DO NOT FLUSH TO SEWERS, STREAMS OR OTHER BODIES WATER. Check with applicable jurisdiction for specific disposal requirements of spilled materials and empty containers. Notify the appropriate authorities immediately.

Section 7. Handling and Storage.

Handling: Avoid inhalation and skin contact especially when handling used oil. Keep away from sources of ignition. Do not reuse empty containers without commercial reconditioning. Practice good personal hygiene. Wash hands after handling oil and before eating. Launder work clothes frequently. Discard saturated leather goods.

Storage: Store in tightly closed containers in cool, dry, isolated, well-ventilated area, and away from incompatibles.

Section 8. Exposure Control / Personal Protection.

Engineering Controls: For normal application, special ventilation is not necessary. If user's operations generate vapors or mists, use ventilation to keep contaminants below exposure limits. Make-up air should always be supplied to balance air removed by exhaust. Have eyewash station and safety-shower close to workstation.

Personal Protection:

Eyes: Eye protection should be determined based on conditions of use. If product is used in application where splashing may occur, the use of safety goggles and/or a face shield should be considered.

Hands and Body: Wear appropriate chemically protective gloves and wear appropriate clothing to prevent skin contact.

Respiratory: NIOSH approved respirators should be used when airborne contamination is above exposure limits.

Feet: Wear appropriate footwear to prevent product from coming in contact with feet and skin.

Section 9. Physical and Chemical Properties.

Appearance, Physical State: Clear, Blue, Viscous Liquid

Odor: Mild petroleum

Viscosity: 41.4 – 50.6 cSt @ 40 deg C

Flash Point: ≥ 200 deg.C (392 deg. F)

Vapor Pressure: Negligible at ambient temperature and pressure

Specific Gravity: 0.875 kg/L @20 deg. C (68 deg.F)

Water solubility: Insoluble in water

pH: Not applicable

Section 10. Stability and Reactivity

Stability: Stable under normal handling and storage condition

Hazardous Polymerization: Will not occur at normal working conditions.

Incompatible Substances / Conditions to Avoid: Reactive with oxidizing agents and acids.

Decomposition Products: Combustion can yield carbon, nitrogen, sulfur, phosphorus, and zinc oxides.

Section 11. Toxicological Information

Routes of entry: Skin and eye contact, inhalation, ingestion.
Acute Lethality: Based on toxicity of components.
Acute oral toxicity (LD50): >2000mg/kg rat.
Chronic or Other Toxic Effects.
Dermal Route: Prolonged or repeated contact may cause skin irritation characterized by dermatitis or oil acne.
Inhalation Route: Negligible breathing hazard at normal temperature. Elevated temperatures or mechanical action may form vapors, mists or fumes. Inhalation of oil mists or vapors from hot oil may cause irritation of the upper respiratory track.
Oral Route: Low toxicity.
Eye Irritation / Inflammation: Repeated or prolonged contact may cause irritation but not permanent damage.
Immunotoxicity: Not available.
Skin Sensitization: Not expected to be skin sensitizer.
Respiratory Tract Sensitization: Not expected to be respiratory tract sensitizers.
Carcinogenicity: This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by NTP, IARC, OSHA.
Other Considerations: No additional remark.

Section 12. Ecological Information

Environmental Fate: Not available.
Persistence / Bioaccumulation Potential: Not available.
BOD5 and COD: Not available.
Product of Biodegradation: Not available.
Additional Remarks: No additional remarks.

Section 13. Disposal Considerations

Waste Disposal: Spent/used/waste oil may meet the requirements of a hazardous waste. Consult your local or regional authorities. Preferred waste management priorities are: (1) recycle or reprocess, (2) incinerate with energy recovery, (3) disposal at licensed waste disposal facility. Ensure that disposal or reprocessing is in compliance with government requirements and local disposal regulations.

Section 14. Transport Information

TDG Classification: Not controlled under TDG (Canada).
DOT Shipping Description: Not classified as hazardous.
Special Provisions for Transport: Not applicable.

Section 15. Regulatory Information

This product is acceptable for use under the provisions of WHMIS-CPR. All components of this formulation are listed on the CEPA-DSL (Domestic Substances List).

All components of this formulation are listed on the US EPA-TSCA Inventory.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required By the CPR.

This product is not known to contain any chemicals at reportable quantities that are listed on the SARA 313 and 40 CFR 372.

This product is not controlled under the HCS.

HMIS (USA): Health Hazard	1
Fire Hazard	1
Reactivity	0
Personal Protection	B

NFPA (USA): Health Hazard	1
Fire Hazard	1
Reactivity	0
Specific Hazard	none

Rating:	0	Insignificant
	1	Slight
	2	Moderate
	3	High
	4	Extreme

Section 16. Other Informations

Prepared by SPX Fluid Power
5885 11th Street
Rockford, IL 61109, USA

Phone: 815-874-5556
Fax: 815-874-7886

Date of preparation: January, 2007

The information presented herein has been compiled from source considered to be dependable and accurate to the best of SPX Fluid Power knowledge; however, SPX Fluid Power, makes no warranty whatsoever, expressed or implied, of Merchantability or Fitness for the Particular Purpose, regarding the accuracy of such data or the results to be obtained from the user thereof. SPX Fluid Power assumes no responsibility for the injury to recipient or to the third persons or for any damage to any property and recipient assumes all such risks.