

L1499 Rev. I 08/17

For date codes beginning with the letter "O".
 Pumps manufactured 2008 and earlier.

To Protect Your Warranty, Use Only ENERPAC Hydraulic Oil.

Enerpac recommends that all kit components be installed to insure optimum performance of the repaired unit.



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PUMP MODEL CODE CHART		
Position	Represents	Letter Code
1	Pressure Range	P = 10,000 psi W = 5,000 psi
2	Power Source	E = electric
3	Pump Type	M = manual J = jog R = remote S = pressure switch D = dump
4	Pump Series	1 = 1/2 HP
5	Valve Type	0 = dump 2 = 3-way, 2-pos., N.O. 3 = 3-way, 3 pos., tandem center 4 = 4-way, 3-pos., tandem center 5 = other, must be specified
6 & 7	Reservoir Capacity	01 = 1.5 gallon
8	Motor Voltage & Heat Exchanger	B = 115V, 1 phase, 50/60 Hz D = 115V, 1 phase, 50/60 Hz, heat exchanger E = 230V, 1 phase, 50/60 Hz F = 230V, 1 phase, 50/60 Hz, heat exchanger

SPECIFICATIONS		
	5,000 psi Models	10,000 psi Models
Flow	150 cu.in./min. at 0 to 1000 psi 40 cu. in./min. at 1000 to 5000 psi	
Electric Motor and Heat Exchanger	B Models - 115V, 1 phase, 50/60 Hz D Models - 115V, 1 phase, 50/60 Hz with heat exchanger E Models - 230V, 1 phase, 50/60 cycle F Models - 230V, 1 phase, 50/60 Hz with heat exchanger	
Current Draw	13.5 Amps at maximum pressure @115V 6.75 Amps at maximum pressure @230V	
Relief Valve Adjustment Range	1000 to 5000 psi maximum	1000 to 10,000 psi maximum
Oil Capacity	1.75 gallon total - 1.5 gallon usable	
Pressure Switches • NEMA Classification • Pressure Range • Maximum Differential	NEMA 1 3000 to 5000 psi maximum 200 to 500 psi	NEMA13 700 to 10,000 psi maximum 115 to 500 psi
dbA	72-78	

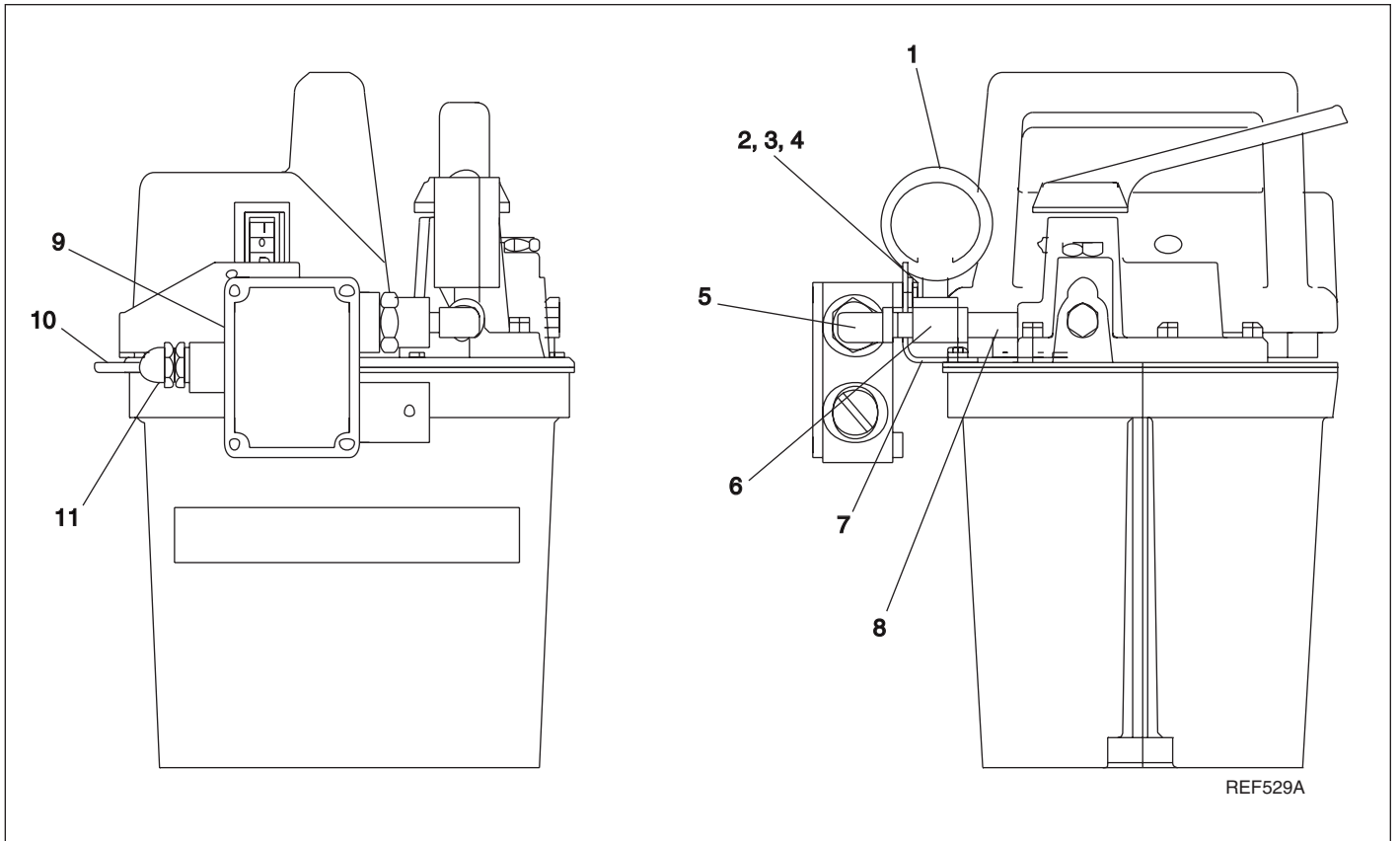


Figure 1, Pressure Switch Pumps

Repair Parts List for Figure 1 - PES 10,000 psi Pump							
Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
1	G2536L	1	15,000 psi Gauge	7	DA2395111	1	Bracket
2	B1001046	1	Screw	8	DA1841431	1	Nipple
3	B1001066	1	Lock Washer	9	DA2271372	1	Pressure Switch
4	B1089108	1	Flat Washer	10	DA2272900	1	Cord Assembly
5	DA1840095	1	Elbow	11	DA1522095	1	Fitting
6	CH482096	1	Tee				
All Items listed above included in Repair Parts Kit SUB10000PSK.							

Repair Parts List for Figure 1 - WES 5,000 psi Pump							
Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
1	G2535L	1	10,000 psi Gauge	9	PA949372	1	Pressure Switch
5	F100095-7	1	Elbow	10	DA5788900	1	Cord Assembly
6	CH482096	1	Tee				
All Items listed above included in Repair Parts Kit SUB10000PSK.							

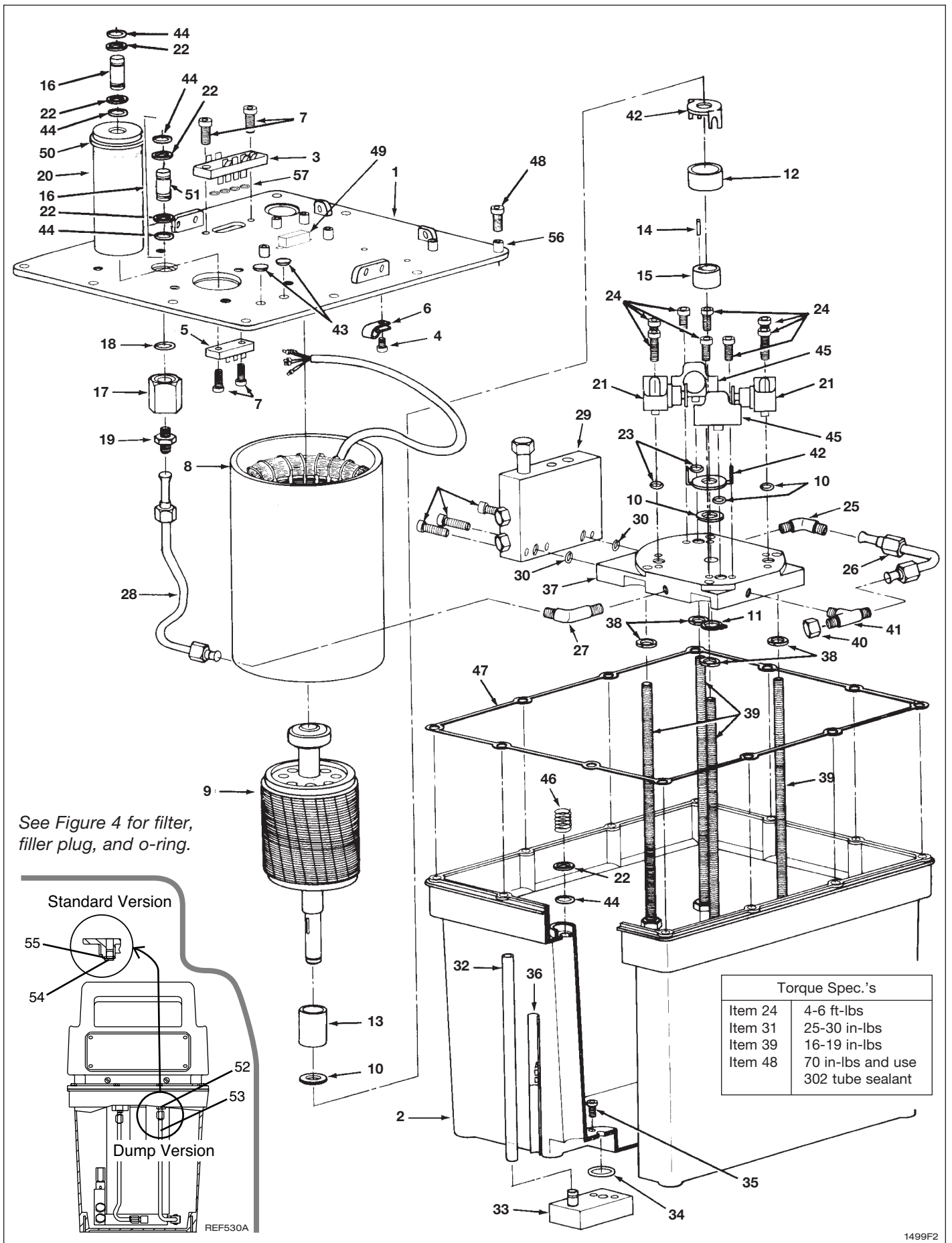


Figure 2, Pump and Motor Assembly

Repair Parts List for Figure 2

Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
1	DA3520098	1	Cover Plate		PE10000SR	1	Unloader Block 10,000 psi pump
2	CW108025	1	Reservoir	30	★B1010803	2	O-Ring
3	E1000007	1	Terminal Block	31	B1329028	3	Socket Head Screw
4	CU876028	1	Screw	32	CR665885	1	Sight Tube
5	E100006	1	Terminal Block	33	CW142900SR	1	Tube Fitting
6	F100299-27	1	Cable Clamp	34	★B1228503	1	O-Ring
7	DA3927028	4	Bolt	35	CW151028	2	Screw
8	DA3745900SR	1	Stator	36	CU969026	1	Oil Level Decal
9	CR764900SR	1	Rotor	37	CR686900SR	1	Manifold
10	CR620108	2	Thrust Washer	38	B1080066	4	Lock Washer
11	CR654044	1	Retaining Ring	39	CR964107	4	Thru Bolt
12	CW24044	1	Ring	40	F100094-12	1	Cap
13	CR653186	1	Spacer	41	Y530096	1	Tee
14	CR965251	1	Key	42	DA3922017	1	Clip 5,000 psi pump
15	CR510350	1	Eccentric		DA2952017	2/1-5,000	Clip 10,000 psi pump
16	CN529950	2 (3)	Connector Assembly (for dump)	43	DA2165009	2	Hole Plug
17	CR610900SR	1	Check Valve Adaptor	44	★B1007503	5	O-Ring
18	★B1910503	1	O-Ring	45	CR367900SR	2	Piston Block
19	A8013094	1	Fitting	46	CR757110	1	Spring
20	DA1062900SR	1	Filter	47	★CU877167	1	Gasket
21			Piston Block Assembly:	48	DA3772028	12	Screw
	CR113950SR	2	10,000 psi pump	49	DA3482980	1	Relay
	CR114950SR	2	5,000 psi pump	50	DA2844517	1	Square Ring
22	★B1012564	5	Back-Up Washer	51	CN528096	2 (3)	Connector (for dump)
23	★B1012803	4	O-Ring	52	DA2175096	1	Connector
24	B1012028	8	Socket Hd. Cap Screw	53	DA1947268	1	Tube
25	B202291	1	Elbow	54	B1004006	1	Plug
26	CR607900SR	1	Tube	55	B1905503	1	O-Ring
27	CU913291	1	Male Elbow	56	DA6954167	12	Gasket
28	CR606268	1	Tube	57	B1006503	4	O-ring
29	WE5000SR	1	Unloader Block 5,000 psi pump				

★ Items included in and available only as part of Repair Parts Kit SP1K1.

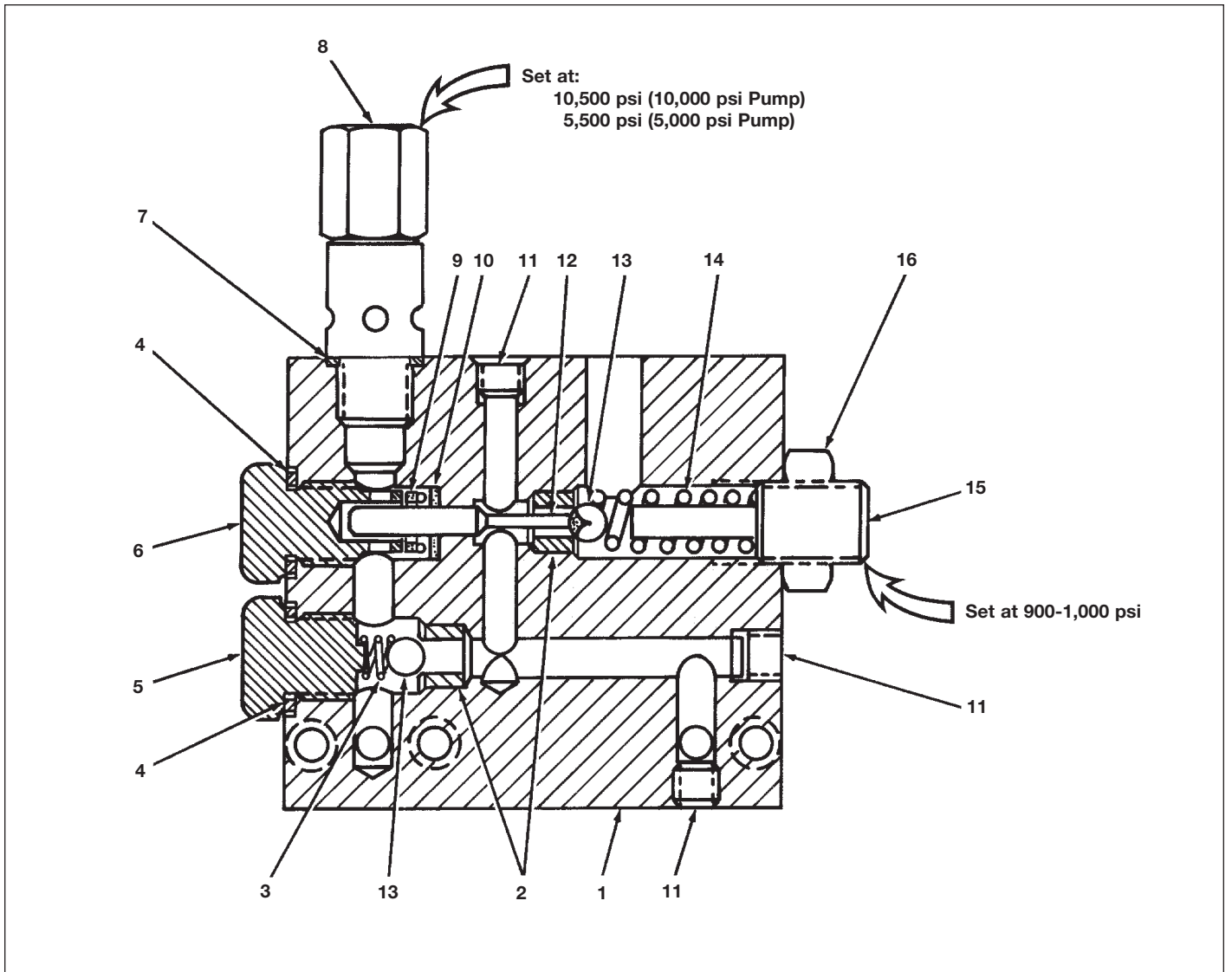


Figure 3, Unloader Block

Repair Parts List for Figure 3							
Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
	WE5000SR	1	Unloader Block 5000 psi pump	8	P181190	1	Relief Valve
	PE10000SR	1	Unloader Block 10,000 psi pump	9	★DA2232041	1	U-Cup
1	CR516190	1	Unloader Body Block	10	★SJ100016	1	Back-Up Washer
2	CR351290	2	Ball Seat	11	A1006145	3	Pipe Plug
3	CR360110	1	Compression Spring	12	CR348339	1	Plunger
4	★S15167	2	Gasket	13	★B1007016	2	Ball
5	CR349006	1	Plug	14	CR352110	1	Die Spring
6	CR359006	1	Plug	15	CR361860	1	Actuator Stud
7	★B159167	1	Gasket	16	B1010123	1	Jam Nut

★ Items included in and available only as part of Repair Parts Kit SP1K1.

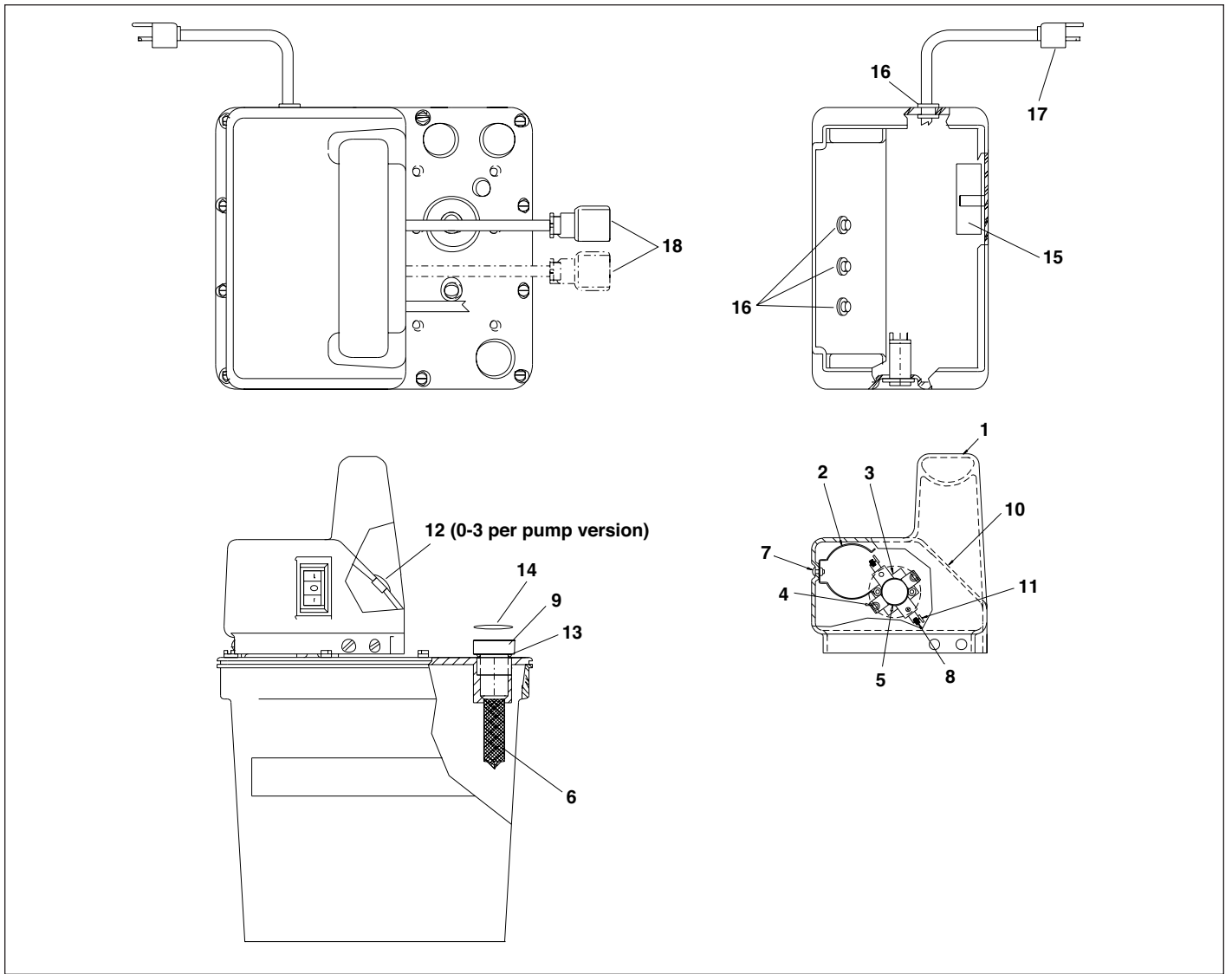


Figure 4, Shroud Assembly

Repair Parts List for Figure 4

Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
1	DA3747001	1	Electrical Housing	12	DA3731009	1	Hole Plug
2	CU794017	1	Spring Clip	13	★B1910503	1	O-Ring
3	DA2561111	1	Bracket	14	CW328026	1	Vent Decal
4	CU971003	2	Pop Rivet	15	DA12447380	1	Motor Capacitor
5	DA3748380	1	Thermostat	16	CR759291	2-4 per version	Cord Bushing PEJ-2, PED-3, PEM-2
6	CR703018	1	Filter	17	DA3752950SR	1	115V Power Cord Ass'y
7	CU970003	4	Pop Rivet		DA3771900SR	1	230V Power Cord Ass'y
8	DA3751270	2	Quick Connect Tab	18	CU943900SR	1	Electric Valve Cable 2 position
9	CR624024	1	Vent Filler Plug		CU943900SR	2	Electric Valve Cable 3 position
10	DA2588026	1	Decal				
11	C302128	2	Screw				

★ Items included in and available only as part of Repair Parts Kit SP1K1.

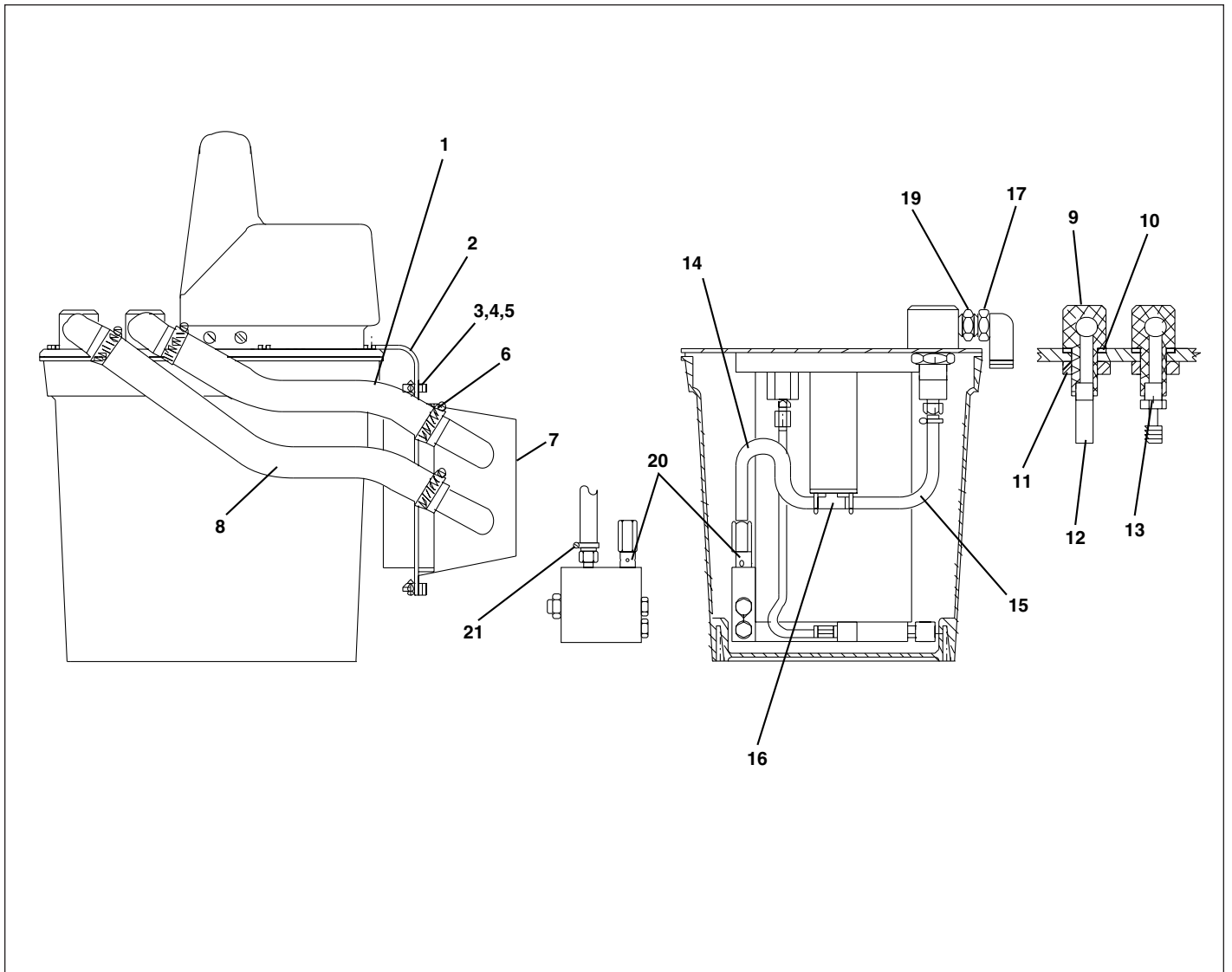


Figure 5, Heat Exchanger

Repair Parts List for Figure 5							
Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
			Replacement Unit:	6	CB40299	4	Hose Clamp
	PAC115	1	115V Heat Exchanger	7	DA3946900SR	1	Heat Exchanger Assy: 115V
	PAC230	1	230V Heat Exchanger		DA3947900SR	1	Heat Exchanger Assy: 230V
1	DA1658646	1	9" Tube	8	DA1659646	1	12" Tube
2	DA3945111	1	Mounting Bracket	9	DA1034095	2	Fitting
3	B1321028	4	Cap Screw	10	B1016503	2	O-Ring
4	B1017121	4	Hex Nut	11	B1016123	2	Hex Nut
5	B1064066	8	Lock Washer				
SUB115HEK - 115 Heat Exchanger Repair Kit (contains Items 1-21 listed above and a cord bushing) SUB230HEK - 230V Heat Exchanger Repair Kit (contains Items 1-21 listed above and a cord bushing) PAC115 contains: 2 wire assemblies, SUB115HEK, and a cord bushing PAC230 contains: 2 wire assemblies, SUB230HEK, and a cord bushing							

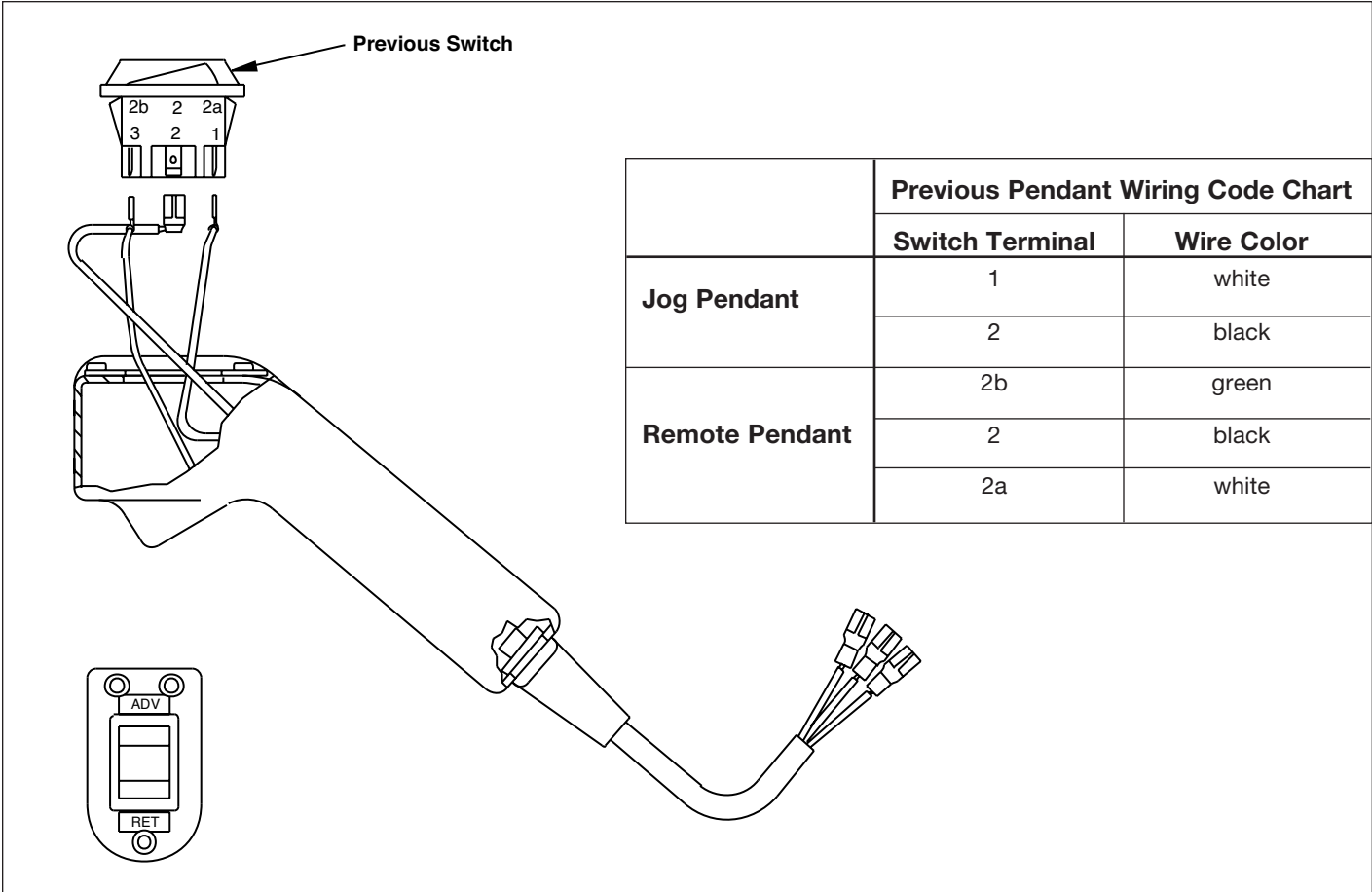


Figure 6a, Previous Pendant Wiring

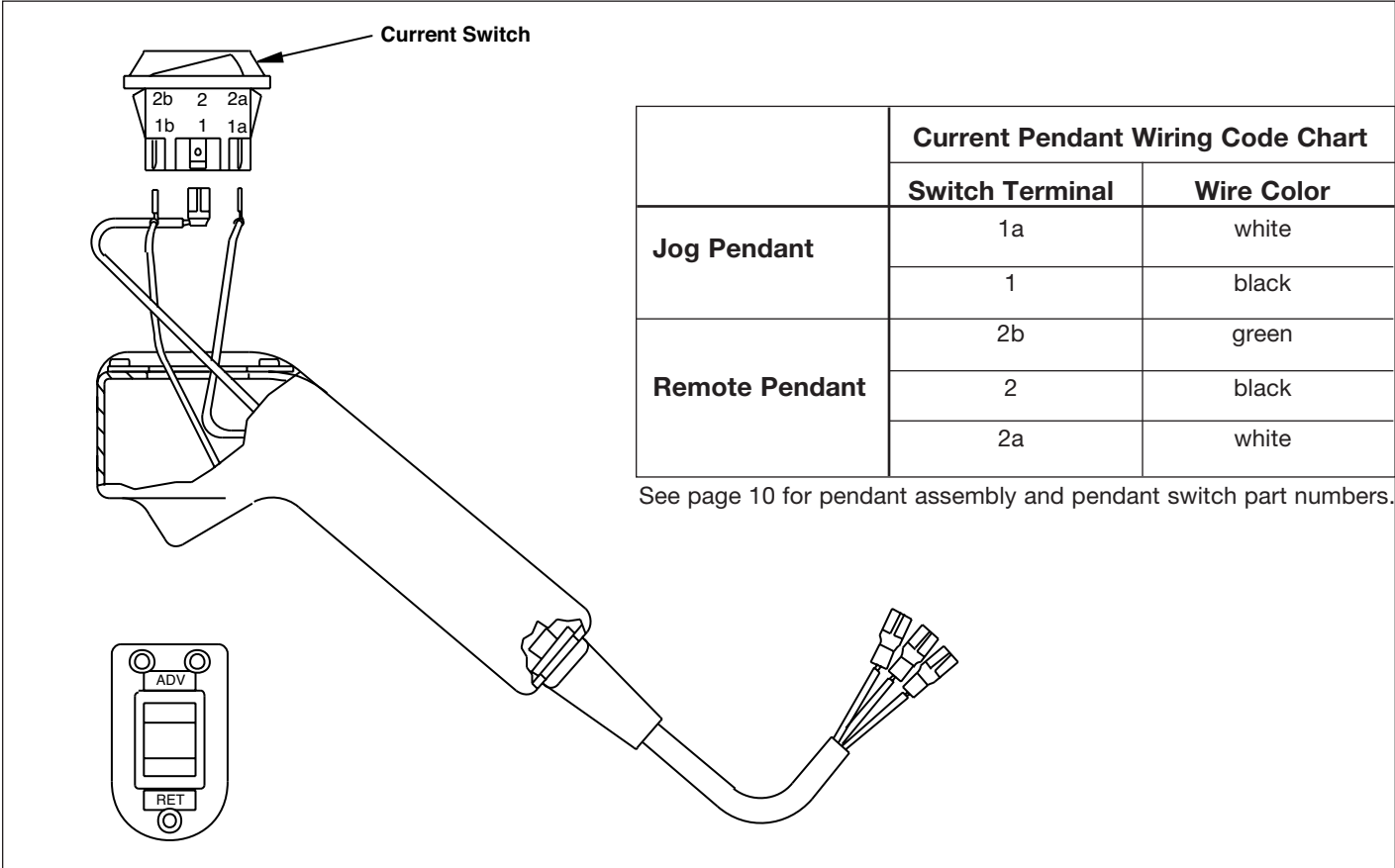


Figure 6b, Current Pendant Wiring

Electrical Parts for Pumps with 115V Electric Motor (No Heat Exchanger)					
Pump Model Number	Wiring Diagram	PC Board Number	Pendant Ass'y. Number	Pendant Switch Number	Shroud Switch Number
PEM/WEM	A	—	—	—	E1500000
PEJ/WEJ	B	E1900009	CR881900SR	CU911372	EST0413604
PER13/WER13	C	E1900008	CW432900SR	E1500003	EST0413604
PER14/WER14	C	E1900008	CU925900SR	E1500001	EST0413604
PES12/WES12	D	E1900009	—	—	EST0413604
PES13/WES13	D	E1900009	—	—	EST0413604
PES14/WES14	D	E1900009	—	—	EST0413604
PED/WED	E	EAB1012020SR	DA2213900SR	CU911372	EST0413604

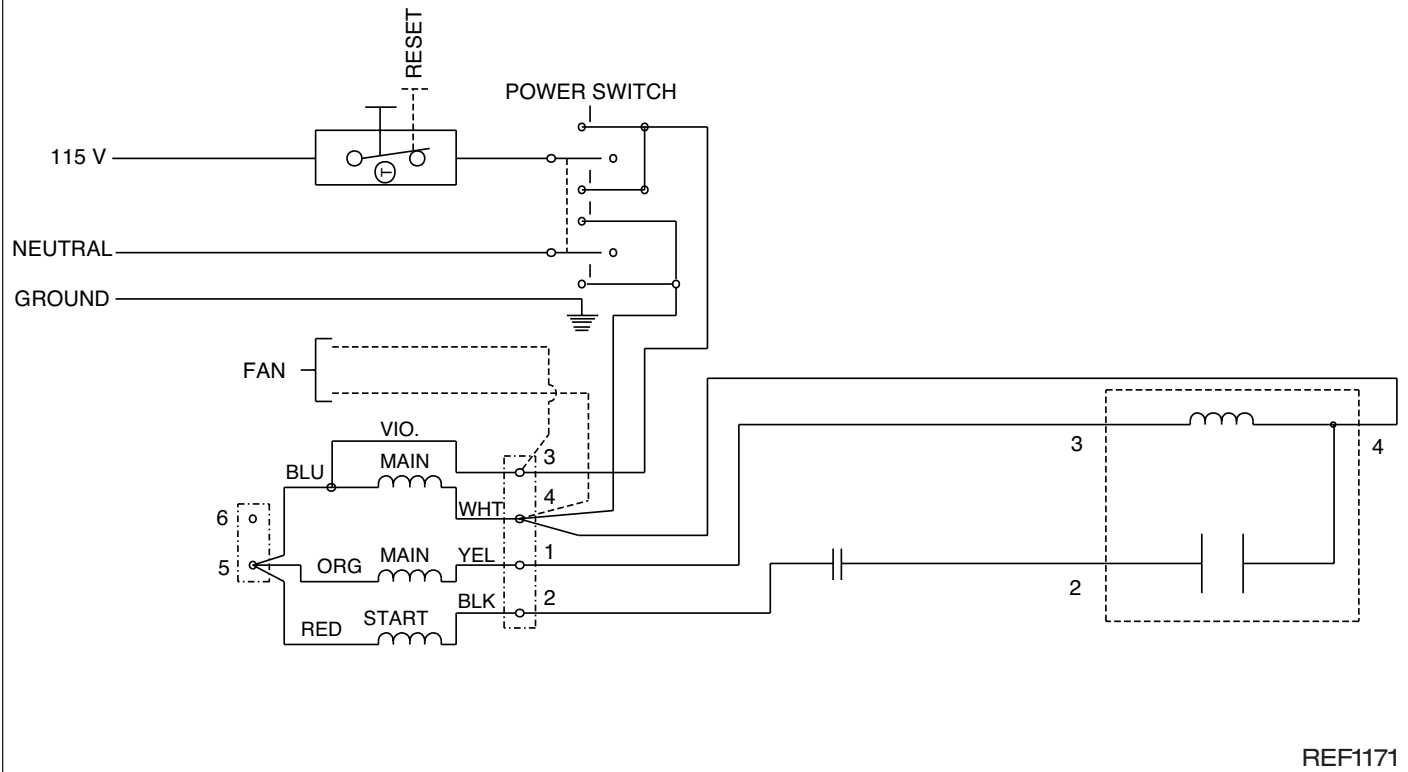
Electrical Parts for Pumps with 115V Electric Motor and Heat Exchanger					
Pump Model Number	Wiring Diagram	PC Board Number	Pendant Ass'y. Number	Pendant Switch Number	Shroud Switch Number
PEM/WEM	A	—	—	—	E1500000
PEJ/WEJ	F	E1900009	CR881900SR	CU911372	EST0413604
PER13/WER13	G	E1900008	CW432900SR	E1500003	EST0413604
PER14/ WER14	G	E1900008	CU925900SR	E1500001	EST0413604

Electrical Parts for Pumps with 230V Electric Motor (No Heat Exchanger)					
Pump Model Number	Wiring Diagram	PC Board Number	Pendant Ass'y. Number	Pendant Switch Number	Shroud Switch Number
PEM/WEM	H	—	—	—	E150000
PEJ/WEJ	I	EAB1020010	CR881900SR	CU911372	EST0413604
PES/WES	J	EAB1020010	—	—	EST0413604
PED/WED	K	EAB1020010	DA2213900SR	CU911372	EST0413604

Electrical Parts for Pumps with 230V Electric Motor and Heat Exchanger					
Pump Model Number	Wiring Diagram	PC Board Number	Pendant Ass'y. Number	Pendant Switch Number	Shroud Switch Number
PEM/WEM	H	—	—	—	E1500000
PEJ/WEJ	H	EAB1020010	CR881900SR	CU911372	EST0413604

Important: The printed circuit board subassembly used on pumps manufactured before January 2009 is out of production and is no longer available for purchase. If circuit board is damaged, a complete replacement service shroud of the latest design must be ordered. See L2987 RPS, pages 9 through 11, for replacement service shroud model numbers. Contact your Enerpac Authorized Service Center for additional upgrade information.

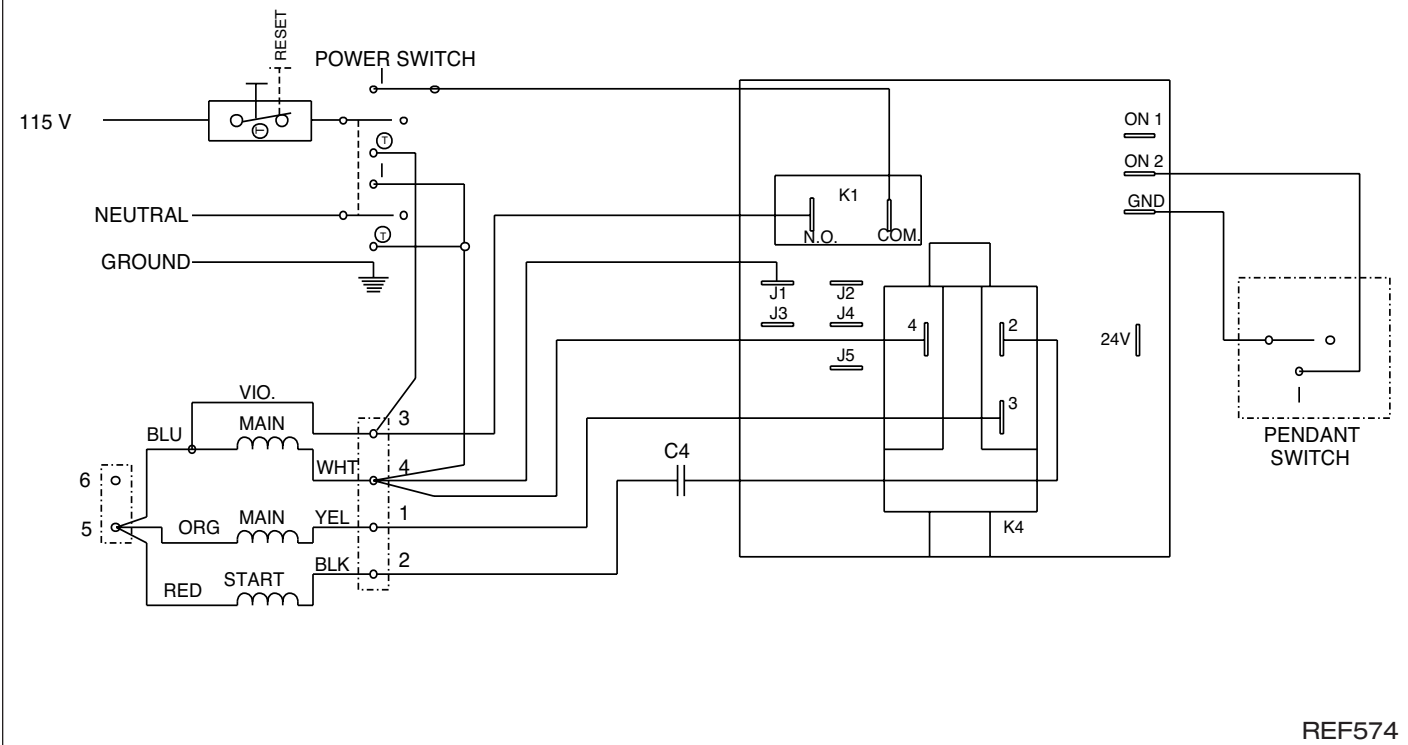
Wiring Diagram A



REF1171

115V Pump with Manual Valves

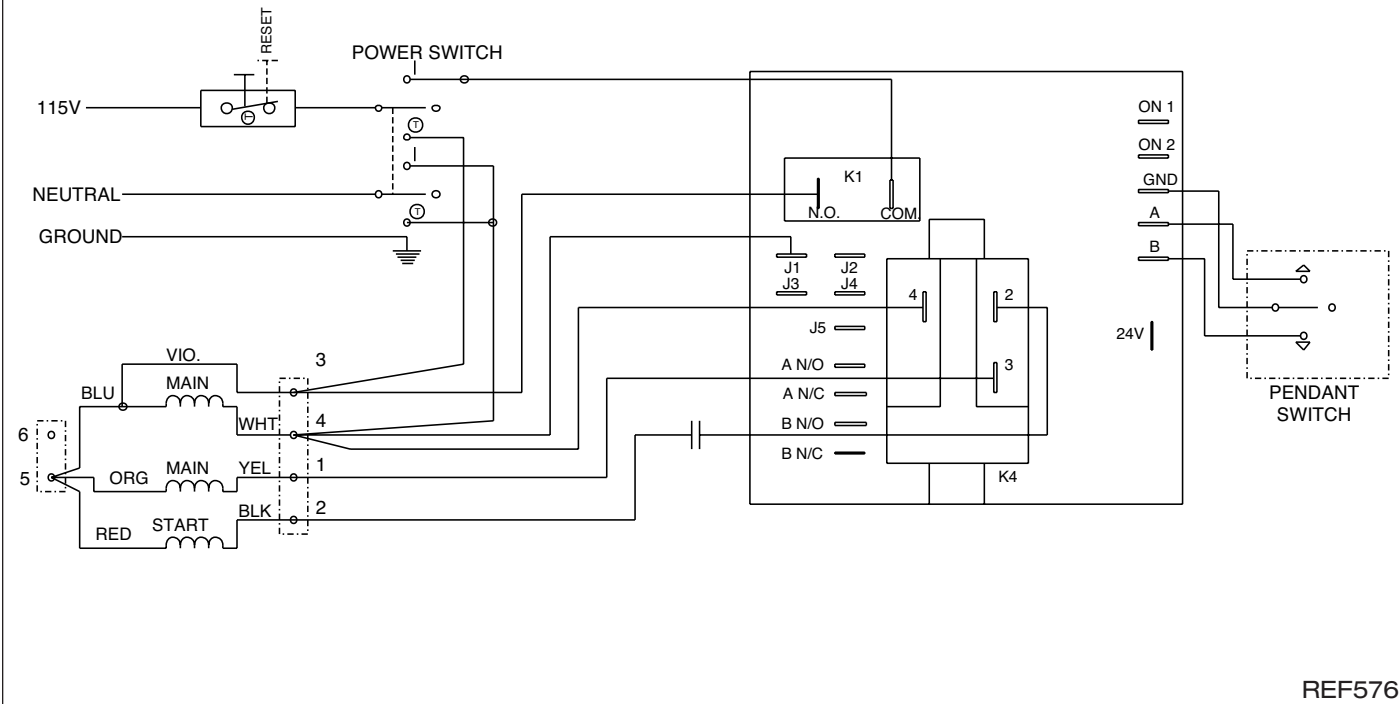
Wiring Diagram B



REF574

115V Pump with Manual Valve and Remote Jog

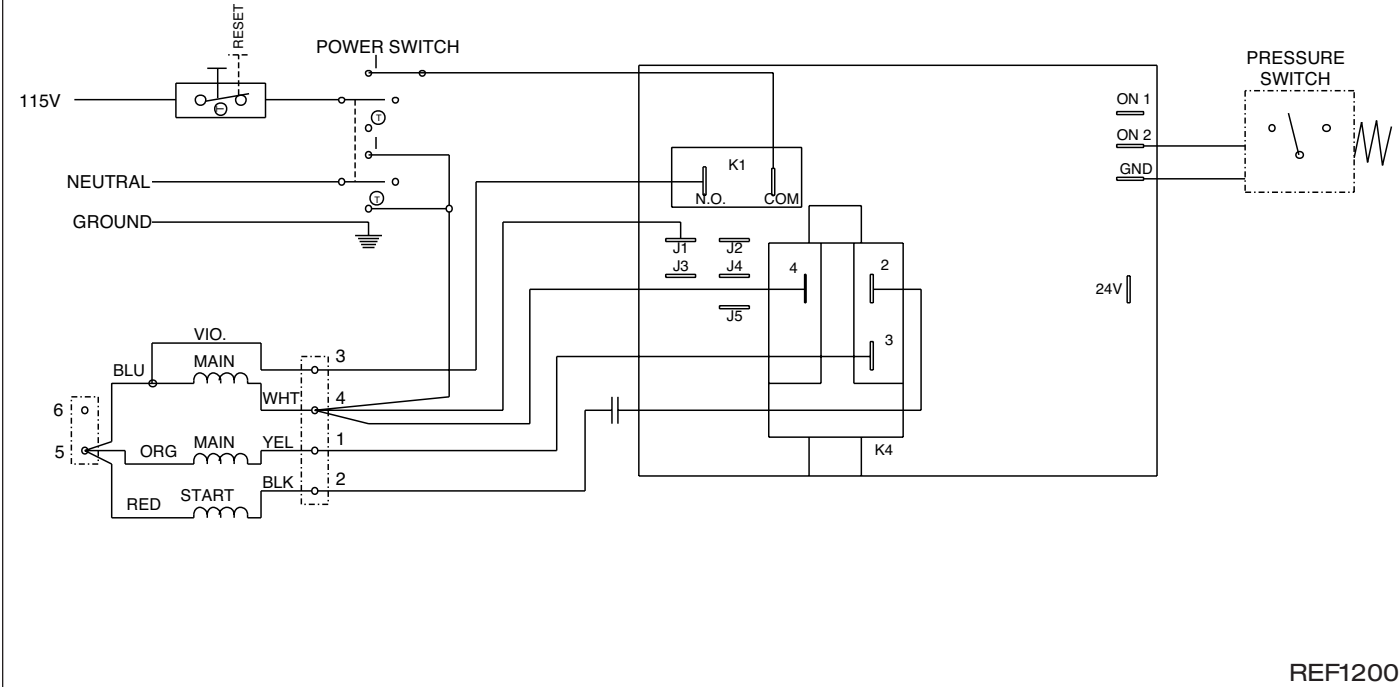
Wiring Diagram C



REF576

115V Pump with Electric Valves

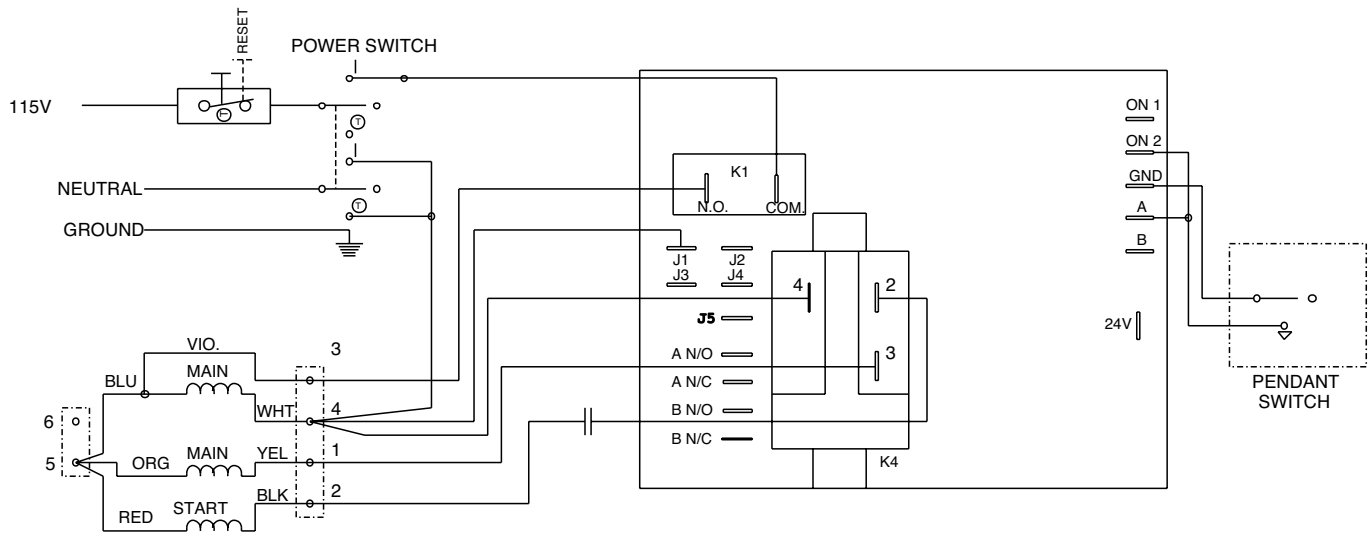
Wiring Diagram D



REF1200

115V Pump with Pressure Switch

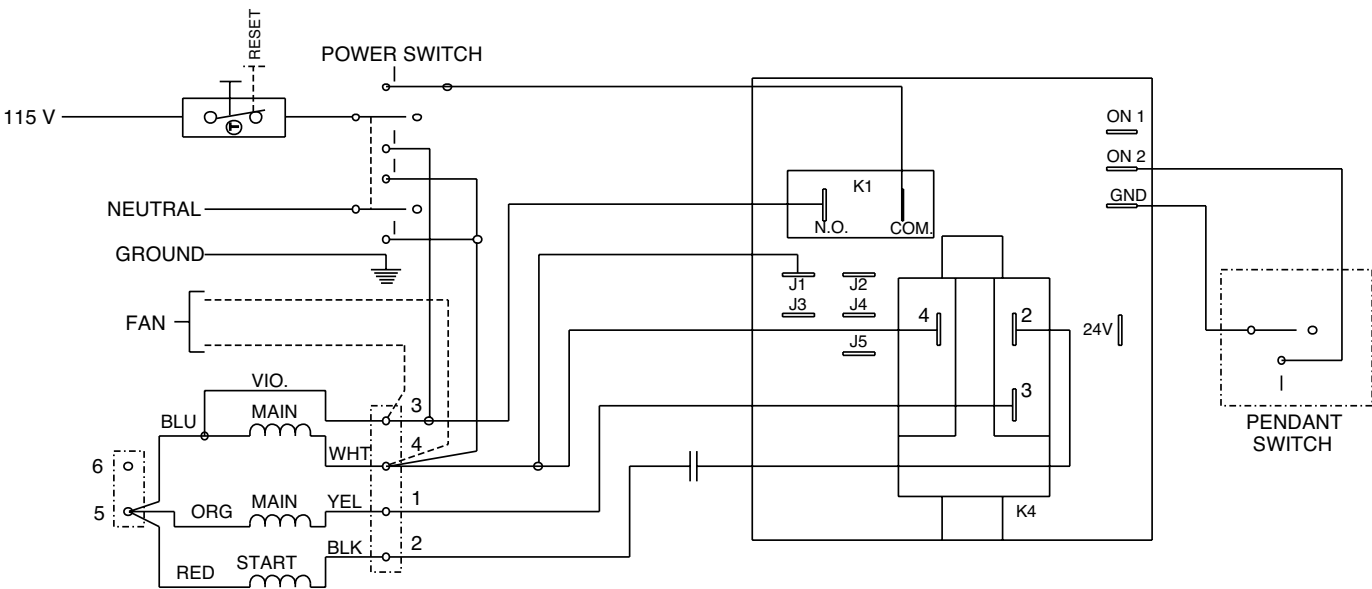
Wiring Diagram E



REF1214

115V Pump with Dump Valve

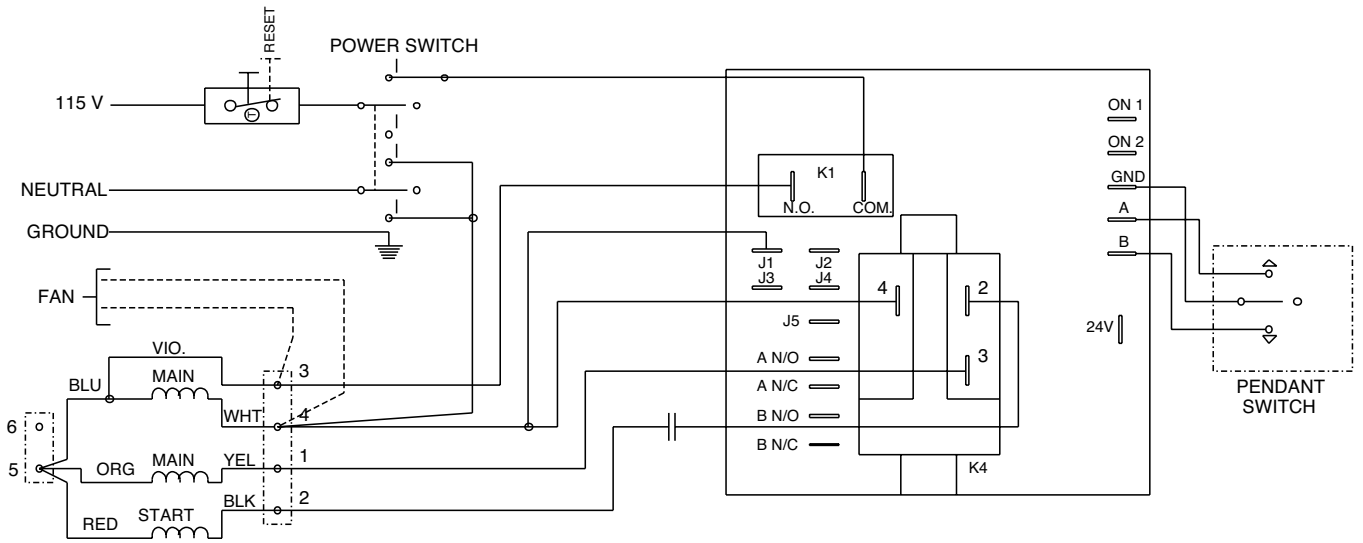
Wiring Diagram F



REF1168

115V Pump with Manual Valves, Remote Jog, and Heat Exchangers

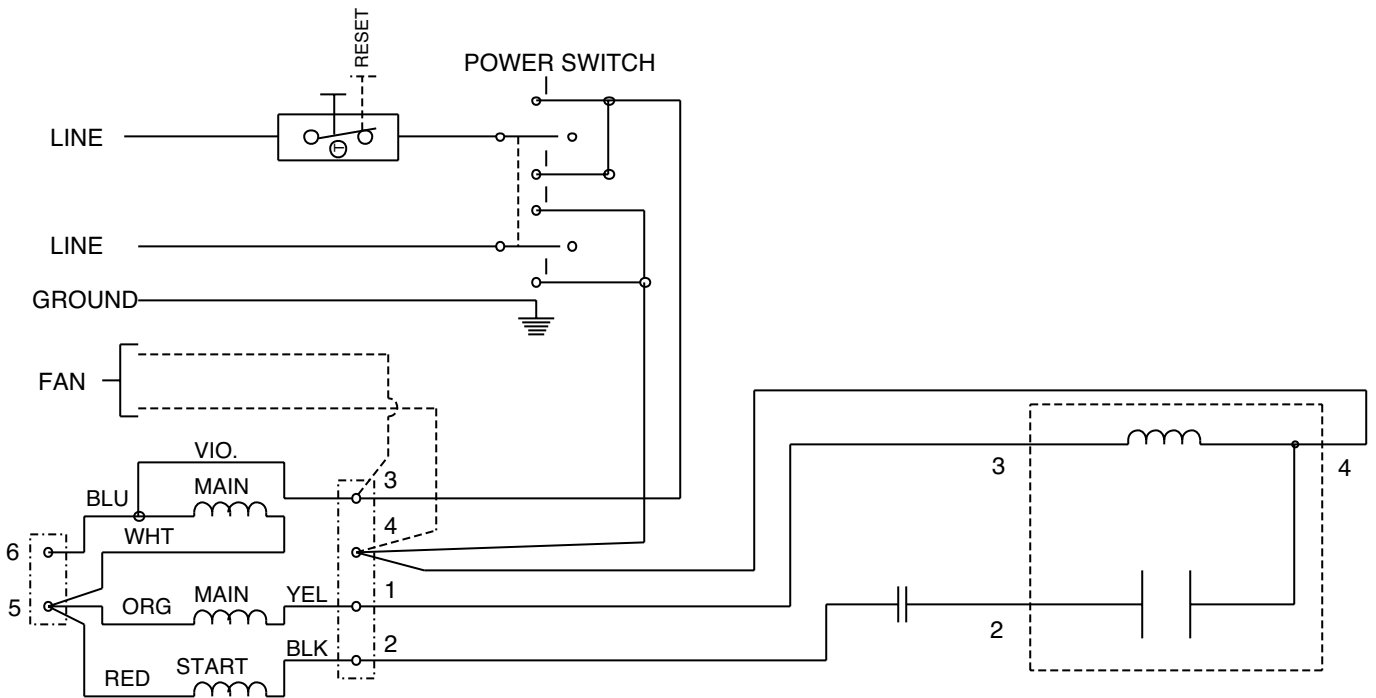
Wiring Diagram G



REF1172

115V Pump with Electric Valve and Heat Exchanger

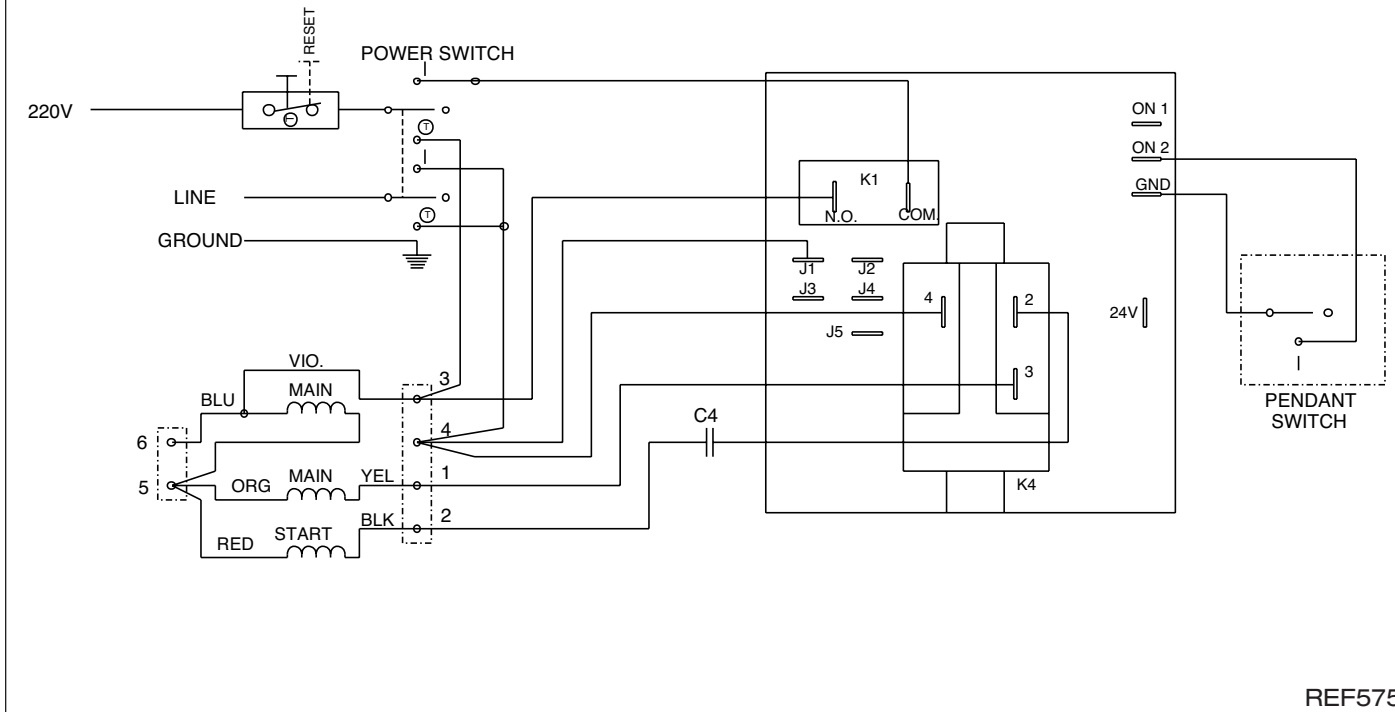
Wiring Diagram H



REF1170

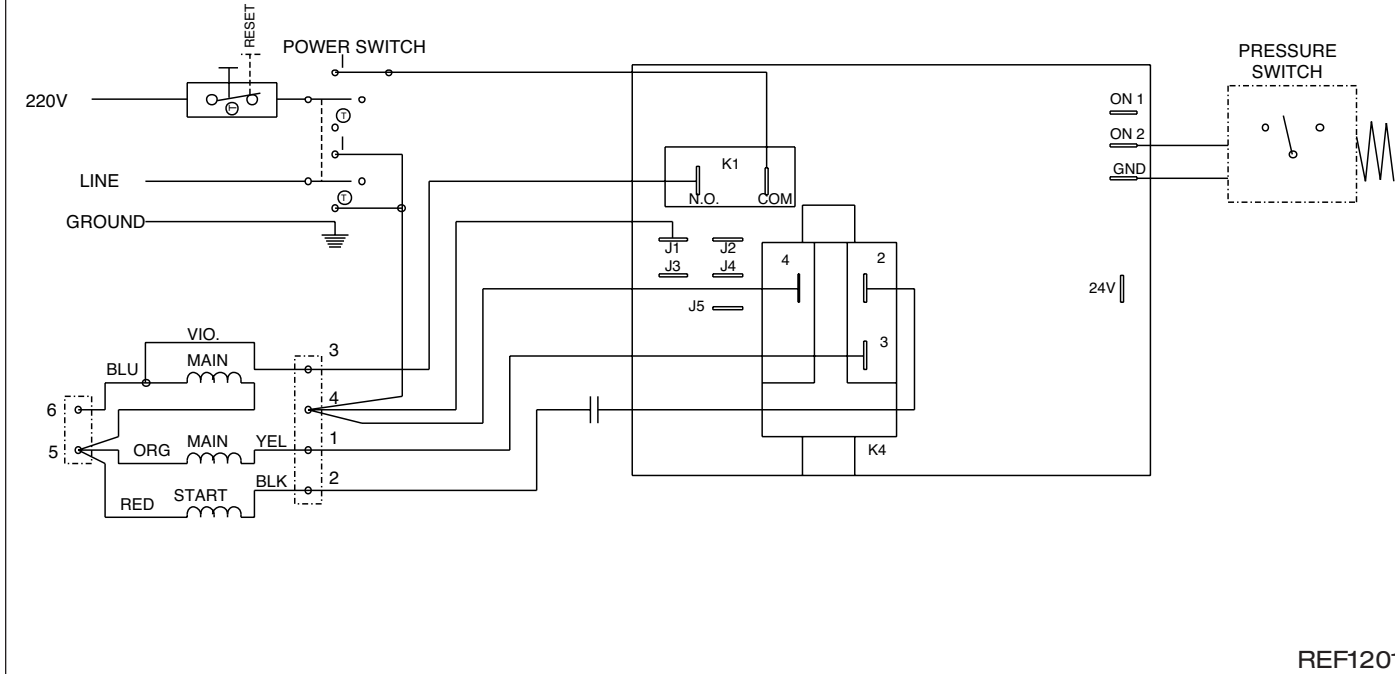
230V Pump with Manual Valves

Wiring Diagram I



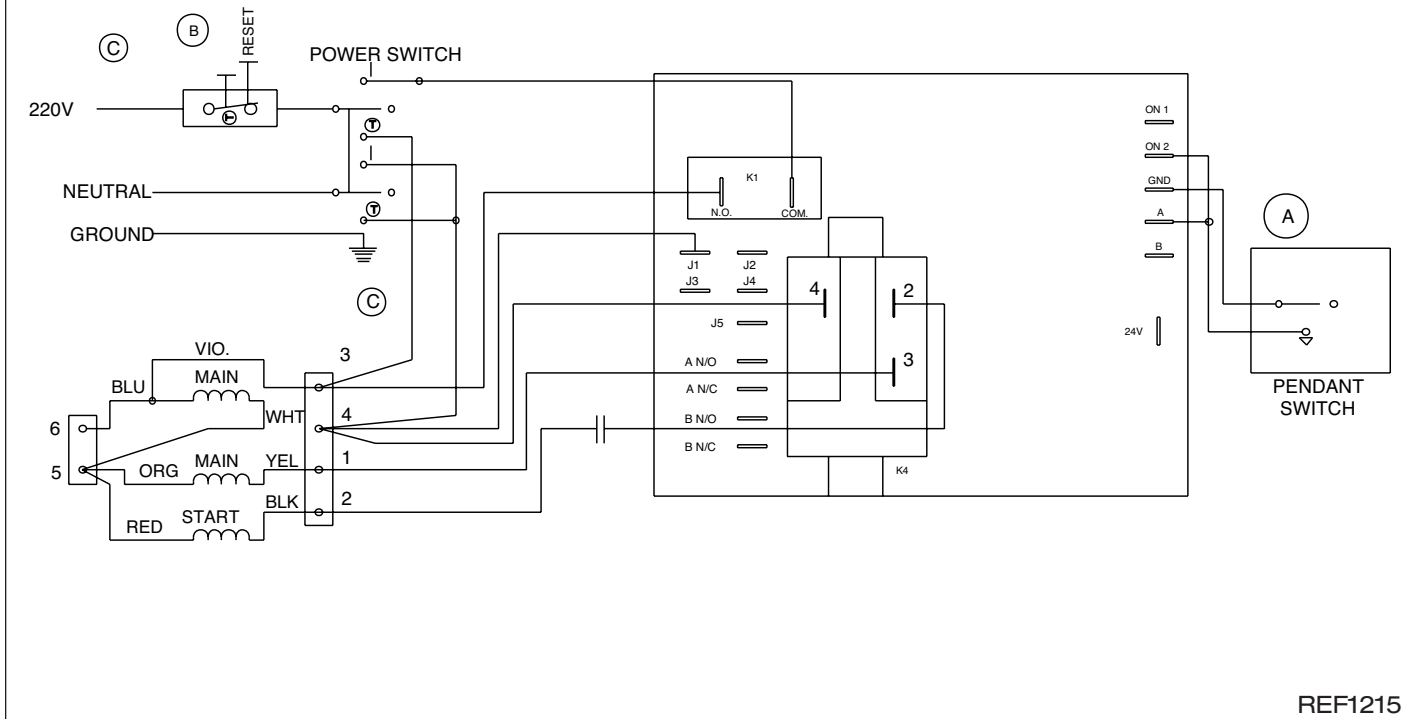
230V Pump with Manual Valves and Remote Jog

Wiring Diagram J



230V Pump with Pressure Switch

Wiring Diagram K



230V Pump with Dump Valve

■ VALVE SECTION

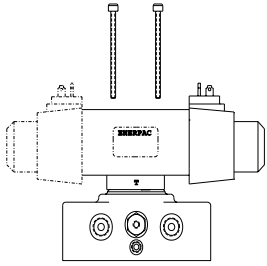
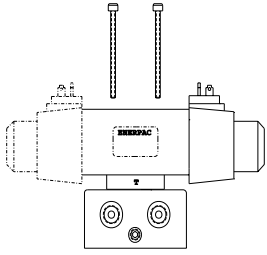
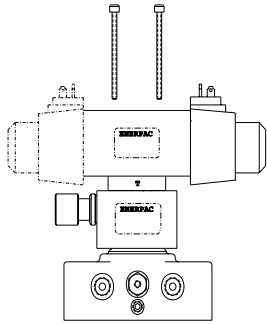
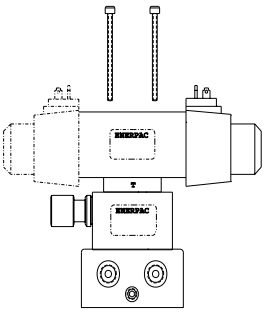
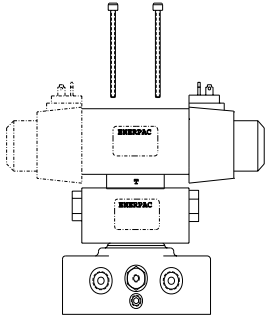
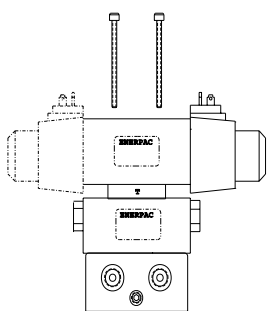
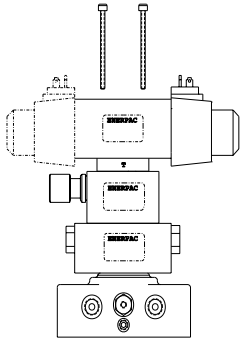
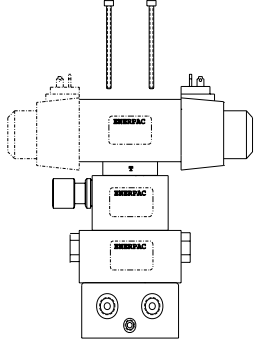
Bolting Configuration	Pump Manifold	Remote Manifold
<p>Use Bolt Kit BK1</p> <p>Configuration includes:</p> <ul style="list-style-type: none"> ·solenoid valve ·manifold 		
<p>Use Bolt Kit BK2</p> <p>Configuration includes:</p> <ul style="list-style-type: none"> ·solenoid valve ·adjustable relief valve ·manifold 		
<p>Use Bolt Kit BK2</p> <p>Configuration includes:</p> <ul style="list-style-type: none"> ·solenoid valve ·locking (P.O. check) valve ·manifold 		
<p>Use Bolt Kit BK3</p> <p>Configuration includes:</p> <ul style="list-style-type: none"> ·solenoid valve ·adjustable relief valve ·locking (P.O. check) valve ·manifold 		
<p>Torque bolts (4) to 21-26 in-lbs (2,5-3,1 Nm) with lubricated threads.</p>		

Figure 7, Valve Bolting Configurations

REF531

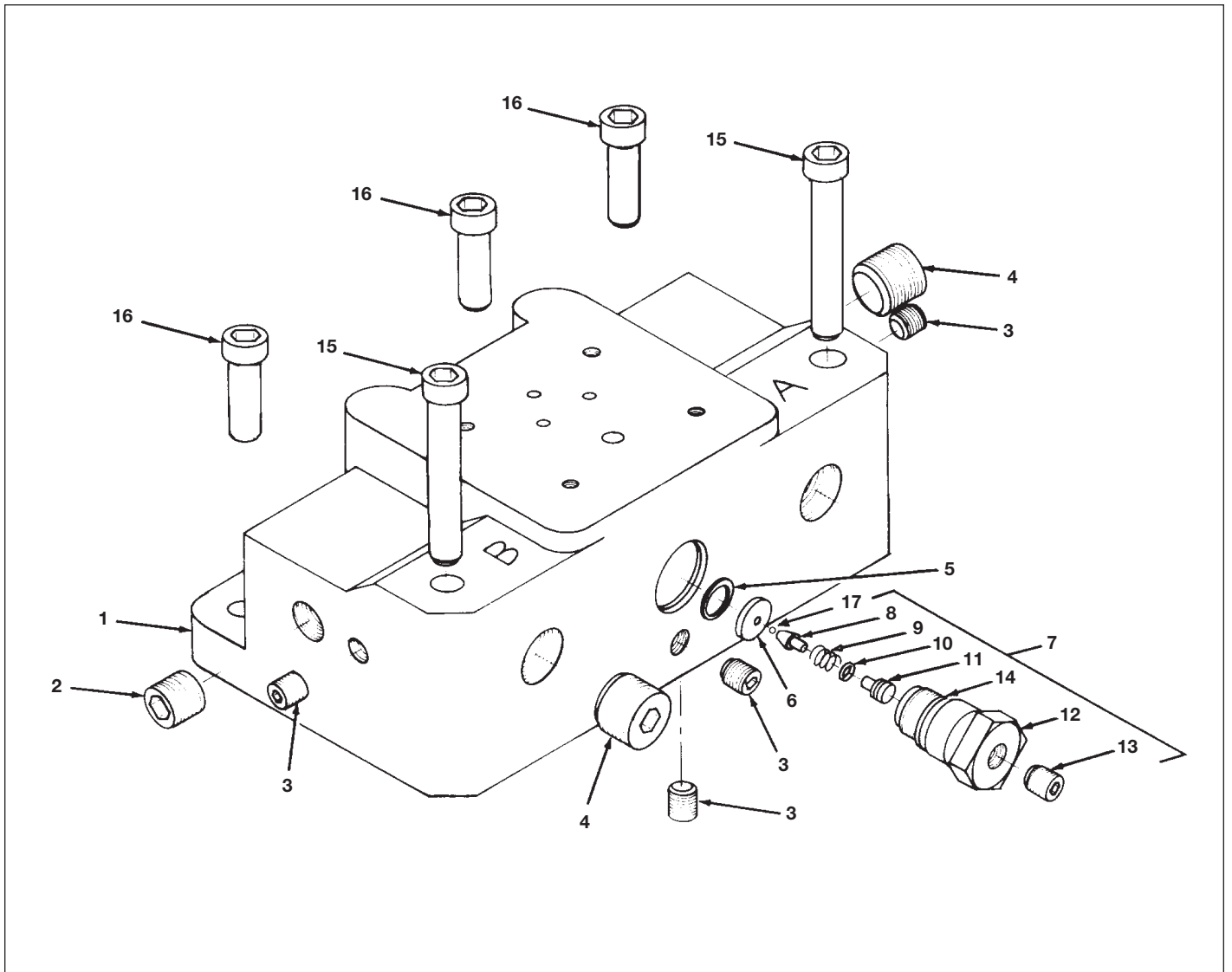


Figure 8, Pump Manifold

Repair Parts List for Figure 8

Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
1	■ CR910038	1	Solenoid Valve Manifold	9	■★ A8038110	1	Spring
	CR909038	1	Manual Valve Manifold	10	■★ B1003503	1	O-Ring
2	■ A1008245	1	Plug	11	■ A8005007	1	Plug
3	■ A1006245	4	Plug	12	■ CU13190	1	Valve Body
	■ A1009245	1	Plug (4-Way Valve)	13	■ L86028	1	Set Screw
4	■ A1009245	2	Plug (3-Way Valve)	14	■★ B1223503	1	O-Ring
	■★ P20037	1	Gasket	15	B1359028	2	Screw
5	■ CB576290	1	Ball Seat	16	B1349028	3	Screw
6	■ CU460900SR	1	Relief Valve Assembly	17	■ B1003016	1	1/8" Dia. Ball
7	■ CH179013	1	Ball Guide				

■ Items included in and available only as part of Repair Kit MPK2.

★ Items included in and available only as part of Repair Kit MVK2.

NOTE: This plug (Item 29) replaces the solenoid on 2-position valves.

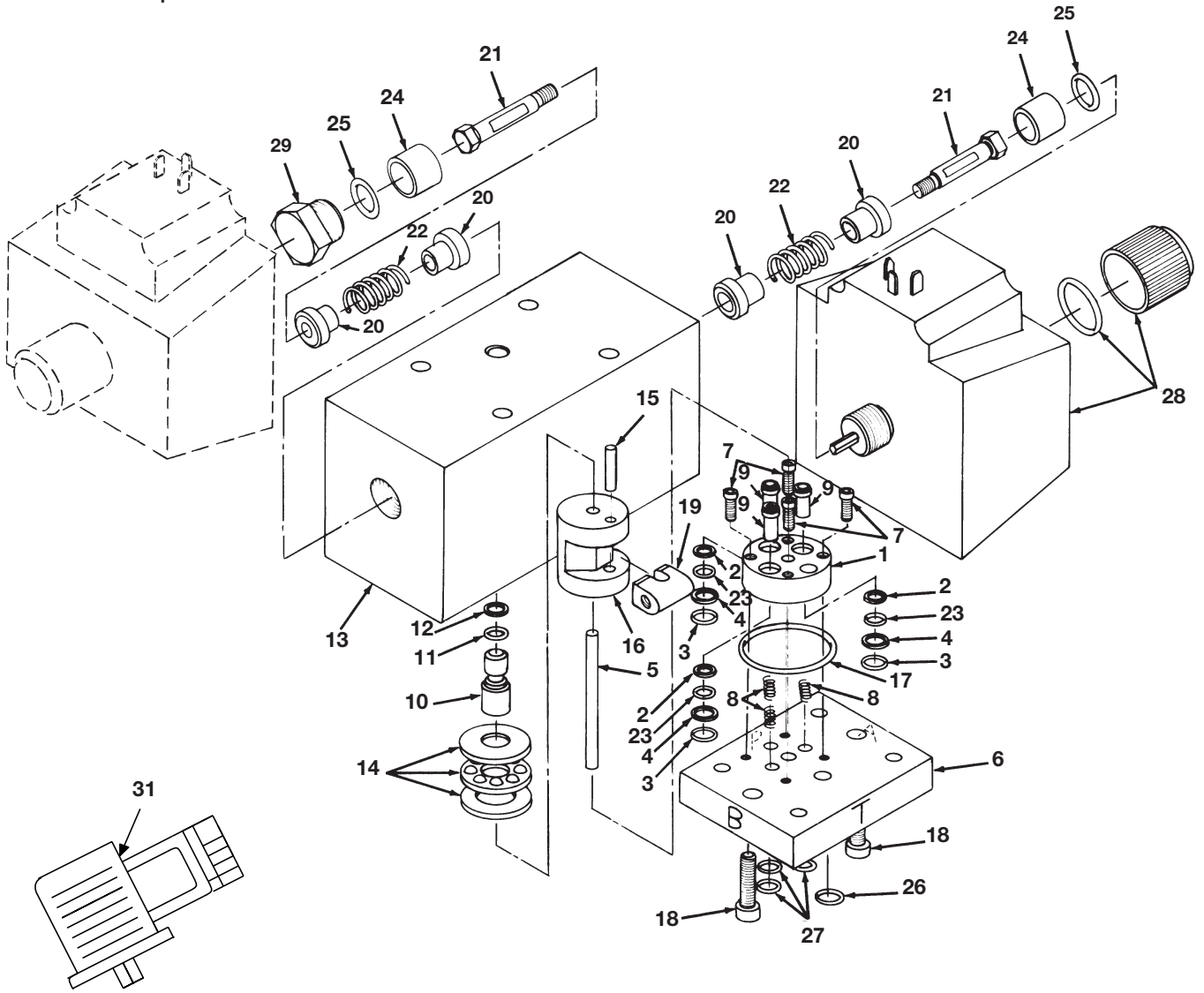
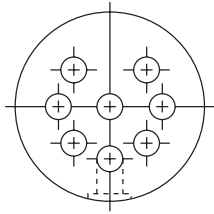


Figure 9, Modular Valve Assembly

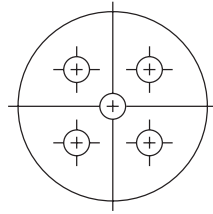
Repair Parts List for Figure 9

Item	Part No.	Qty.	Description	Item	Part No.	Qty.	Description
1	*DC458101	1	Clamp Plate	18	B1321028	2	Cap Screw
2	★	3	Back-Up: 4-Way, 3-Way Locking	19	CN624190	1	Pivot Block
	★	2	Back-Up: 3-Way	20	CN626001	4	Spring Guide
3	★	3	O-Ring: 4-Way, 3-Way Locking	21	CN553149	2	Shift Rod
	★	2	O-Ring: 3-Way	22	DA11757110	2	Spring
4	★	3	Ring: 4-Way, 3-Way Locking	23	★	3	O-ring: 4-Way, 3-Way Locking
	★	2	Ring: 3-Way		★	2	O-ring: 3-Way
5	CN544061	1	Dowel Pin	24	CW75186	2	Spacer
6	*DC522190	1	Mounting Plate	25	★	2	O-Ring
7	*DC461028	4	Cap Screw	26	★	1	O-Ring
8	★	3	Comp. Spring: 4-, 3-Way Locking	27	★	3	O-Ring
	★	2	Compression Spring: 3-Way	28	E1300007	A/R	115 VAC Solenoid Assy.
9	CN628040	3	Metal Seal: 4-, 3-Way Locking		DA3582720	A/R	220/240V 50Hz Solenoid Assy.
	CN628040	2	Metal Seal: 3-Way		DA3036720	A/R	24 VDC Solenoid Assembly
10	CU282416	1	Valve Stem		DA3035720	A/R	230 VAC Solenoid Assembly, 60Hz
11	★	1	Back-Up	29	CU574006	1	Plug (2 Position only)
12	★	1	O-Ring	31	VEP1	A/R	Standard Terminal Plug, 250VAC Maximum
13	CR967190	1	Elev. Valve Housing				
14	CN552107	1	Bearing				
15	DA1567061	1	Needle Roller				
16	See Figure 4 for Flow Path		Barrel Assembly				
17	★	1	O-Ring				

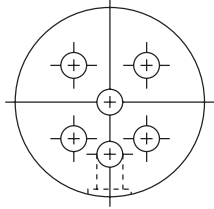
★ Items included in and available only as part of Repair Kit MVK2 or MVK3.
 MVK2-for valves with a date code beginning with the letter "O"
 MVK3-for valves with a date code beginning with the letter "A"
 * MVK2SR includes parts from MVK3 with additional parts to update valve to latest design



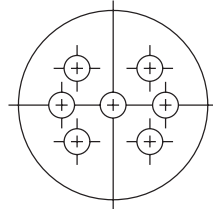
Valve Code	A, P
Part Number	CR378.900SR
Description	Open Center



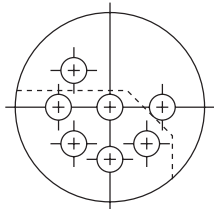
Valve Code	B, G, H
Part Number	CR376.900SR
Description	Closed Center



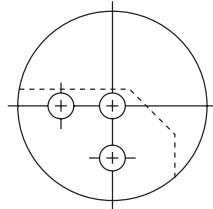
Valve Code	C, F
Part Number	CR377.900SR
Description	Tandem Center



Valve Code	D, M
Part Number	CR375.900SR
Description	Float Center



Valve Code	E
Part Number	CR380.900SR
Description	Crossover Center



Valve Code	K
Part Number	CR379.900SR
Description	Normally Open Center

Valve Flow-path Codes

Symbol	Description	Valve Code	Symbol	Description	Valve Code
	4-way/3-position (4/3) Open Center	A		3-way/3-position (3/3) Closed Center	G
	4-way/3-position (4/3) Closed Center	B		2-way/2-position (2/2) Normally Closed	H*
	4-way/3-position (4/3) Tandem Center	C		2-way/2-position (2/2) Open Center	K*
	4-way/3-position (4/3) Float Center	D		4-way/2-position (4/2) Float Offset	M
	4-way/2-position (4/2) Crossover Offset	E		3-way/2-position (3/2) Normally Center	P
	3-way/3-position (3/3) Tandem Center	F	* Requires use of tank port for dump or unloading.		

Figure 10, Barrel Assemblies and Flow Paths

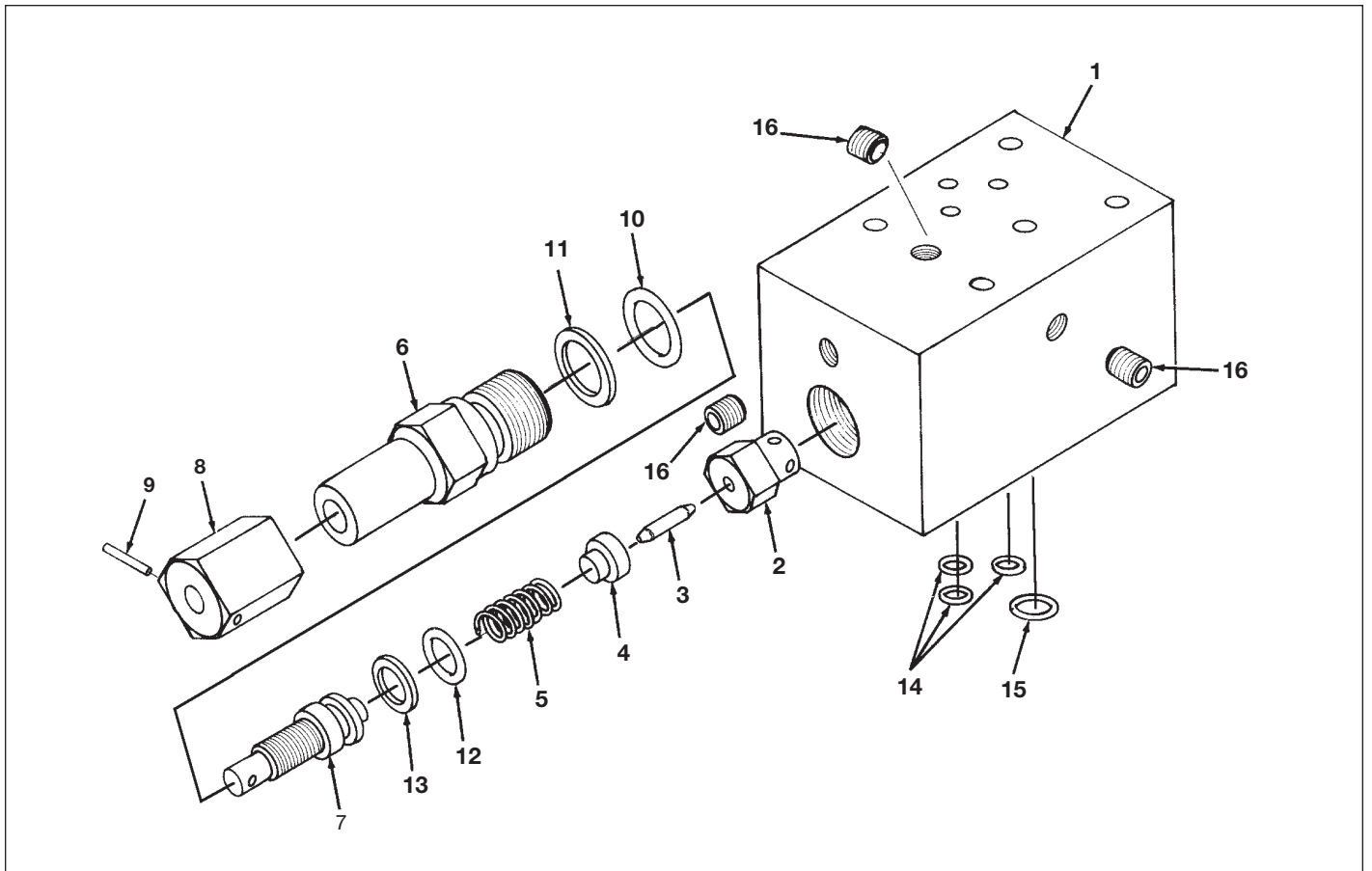


Figure 11, Relief Valve

Repair Parts List for Figure 11

Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
	VS11		Replacement Valve				
1	CW111190	1	Relief Valve Block	9	B1057057	1	Spring Pin
2	CW112290	1	Valve Seat	10	★B1013503	1	O-Ring
3	CW113051	1	Piston	11	★B1115564	1	Back-Up Washer
4	CW114013	1	Spring Guide	12	★B1219503	1	O-Ring
5	★A8072110	1	Spring	13	★B1013564	1	Back-Up Washer
6	CW115190	1	Valve Body	14	★B1008903	3	O-Ring
7	CW116028	1	Adjustment Screw	15	★B1011903	1	O-Ring
8	CW117020	1	Valve End Cap	16	A1006245	4	Pipe Plug

★ Items included in and available only as part of Repair Kit MVK2.

NOTE: Torque plug
(Item 5) to 29-30 ft-lbs.

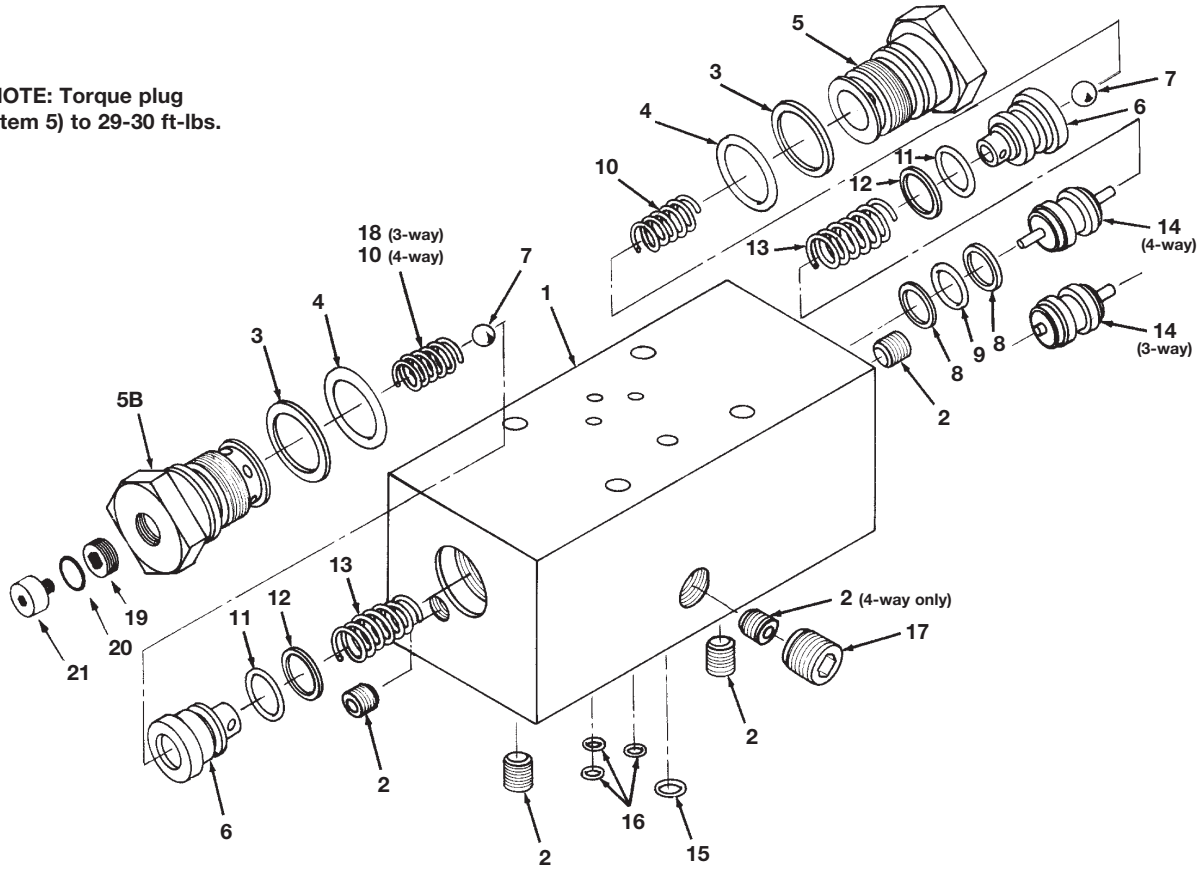


Figure 12, 3 and 4-way Locking (P.O. Check) Valves

Repair Parts List for Figure 12

Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
	VS51		3-Way P.O. Check	10	CR121110	1	Compression Spring 3-Way Valve
	VS61		4-Way P.O. Check		CR121110	2	Compression Spring 4-Way Valve
1	CR126190	1	Valve Body	11	★B1014903	2	O-Ring
2	A1006245	4	Pipe Plug 3-Way Valve	12	★B1014564	2	Back-Up
	A1006245	5	Pipe Plug 4-Way Valve	13	CR122110	2	Compression Spring
3	★B1019565	2	Split Back-Up	14	DA2945051	1	Piston 3-Way Valve
4	★B1019903	2	O-Ring		CR123051	1	Piston 4-Way Valve
5	CR125006	2	Plug 4-Way Valve	15	★B1011903	1	O-Ring
5B	DA4995006	1 ea. 5&5B	Plug 3-Way Valve	16	★B1008903	3	O-Ring
6	CR124290	2	Seat	17	A1008245	1	Plug
	★B1008016	2	Ball	18	A8126110	1	Spring, 3-Way Valve
8	★B1110564	2	Back-Up	19	DA4994028	1	Set Screw
9	★B1008503	1	O-Ring	20	★C846037	1	Gasket
				21	B1342028	1	Screw

★ Items included in and available only as part of Repair Kit MVK2.

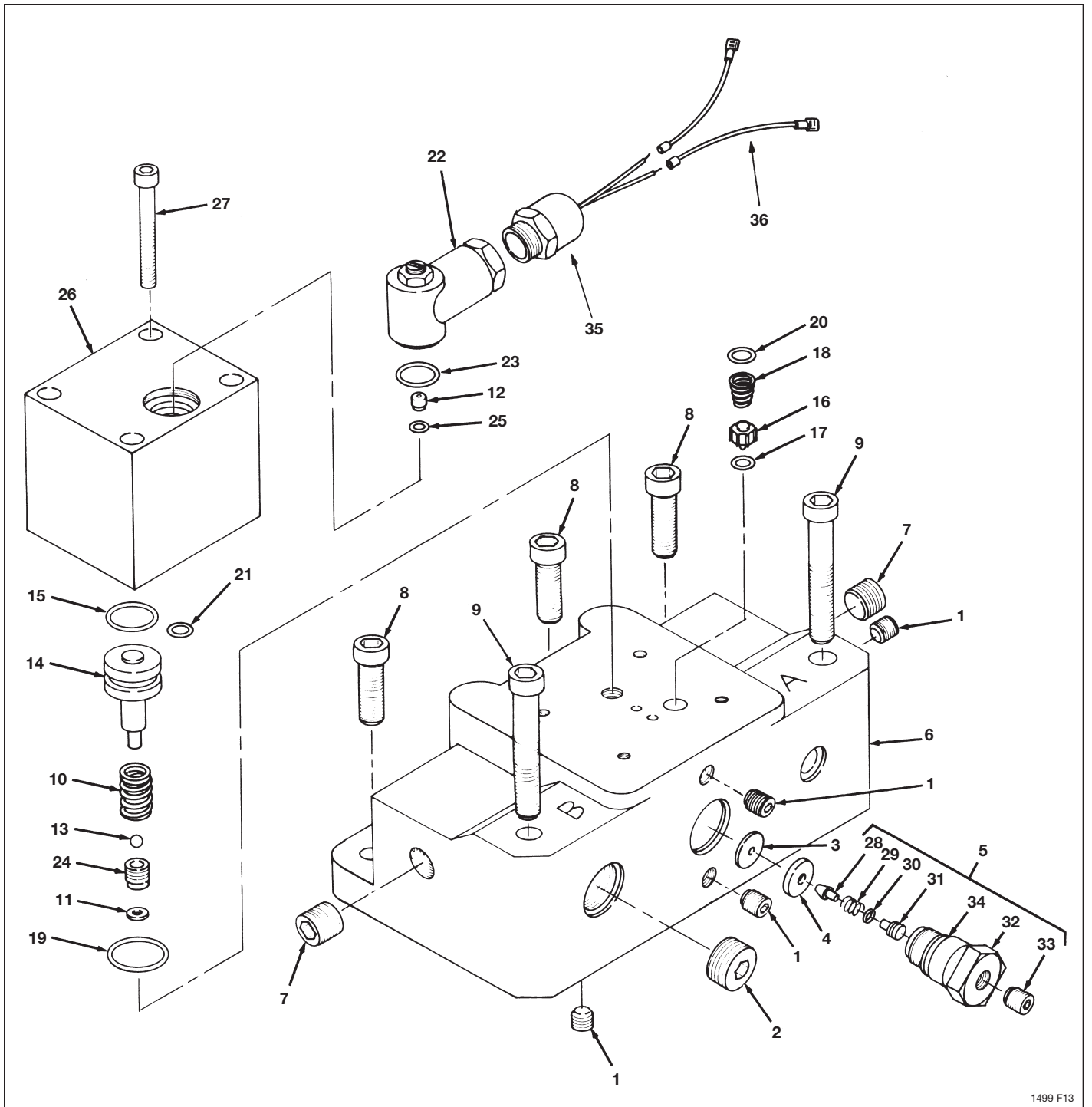


Figure 13, Dump Valve

1499 F13

Repair Parts List for Figure 13

Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
	DA1895900SR		Replacement Valve 120V	19	★B1230503	1	O-Ring
	DA2182900SR		Replacement Valve 240V	20	★B1219503	1	O-Ring
1	A1006245	4	Pipe Plug	21	★B1001503	1	O-Ring
2	R515245-2	1	Plug	22	DA1873720	1	120 V. Solenoid
3	★P20037	1	Gasket		DA2181720	1	240 V. Solenoid
4	CB576290	1	Ball Seat	23	★B1221503	1	O-Ring
5	CU460900SR	1	Relief Valve Assembly	24	DA1810290	1	Seat
6	DA1820038	1	Valve Body	25	★DA498503	1	O-Ring
7	A1008245	2	Plug	26	DA1811190	1	Dump Block
8	B1349028	3	Screw	27	B1019028	4	Screw
9	B1359028	2	Screw	28	CH179013	1	Ball Guide
10	★CU906110	1	Spring	29	★A8038110	1	Spring
11	★C846037	1	Gasket	30	★B1003503	1	O-Ring
12	DA1865290	1	Seat	31	A8005007	1	Plug
13	★B1007016	1	Ball	32	CU13190	1	Valve Body
14	DA1818051	1	Piston	33	L86028	1	Set Screw
15	★B1210503	1	O-Ring	34	★B1223503	1	O-Ring
16	DSA8039290	1	Valve Seat	35	DA1522095	1	Fitting
17	★B1002503	1	O-Ring	36	DA1887900	1	Cable
18	★CA978110	1	Spring	37	B1003016	1	1/8" Dia. Ball

★ Items included in and available only as part of Repair Kit DVK1.

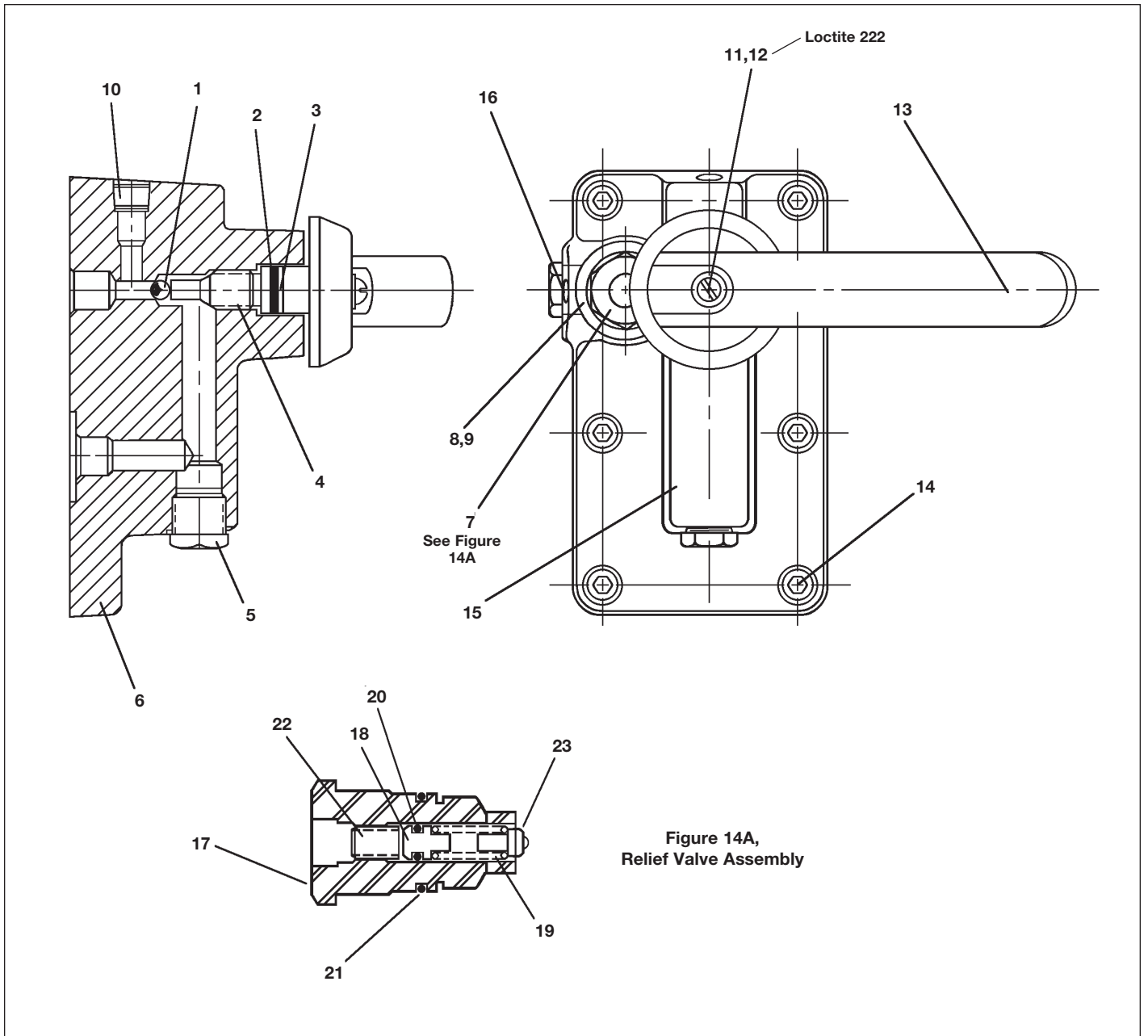


Figure 14, 2-Way Manual Valve

Repair Parts List for Figure 14

Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
	VMP10000D		Replacement Valve	13	Y402070	1	Valve Handle
1	★B1009016	1	Ball	14	B1349028	6	Screw
2	★B1111203	1	O-Ring	15	CN677026	1	Decal
3	★B1111564	1	Washer	16	A1006245	1	Pipe Plug (not shown)
4	C790010	1	Stem	17	CU13190	1	Valve Body
5	R515245-2	1	Plug	18	A8005007	1	Plug
6	CR908038	1	Valve Manifold	19	★A8038110	1	Spring
7	See Figure 14A	1	Relief Valve Assembly	20	★B1003503	1	O-Ring
8	★P20037	1	Gasket	21	★B1223503	1	O-Ring
9	★CB576290	1	Ball Seat	22	L86028	1	Set Screw
10	A1008245	1	Hex Plug (not shown)	23	★CH179013	1	1/8" Dia. Ball and Ball
11	★B1086108	1	Washer		★B1003016		Guide Assembly
12	★A8076048	1	Screw (after May 2008)				
	C302128	1	Screw (before May 2008)				

★ Items included in and available only as part of Repair Kit VMP10000DK.

Repair Parts List for Figure 15

Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
Valve	VMF10000D		3-Way, 3 Position Manual	19	A8005071	1	Detent Disc
	VMF10500D		3-Way, 3 Position Manual Valve w/ Locking Center	20	Y325070	1	Handle
1	B1326028	2	Socket Hd.Cap Screw	21	B1086108	1	Washer
2	★B1111803	4	O-Ring (8 in. locking valve)	23	★CB28110	3	Spring
3	DA1264190	1	Valve Body	24	B1389028	4	Capscrew 3-Way Valve
4	★B1006503	3	O-Ring		B1401028	4	Capscrew 3-Way Valve with Locking Center
5	★B1011564	6	Back-Up Ring	25	★A8076048	1	Screw
6	DA9560041	3	Metal Seal	Items 26-38 are for locking center valves only.			
7	★B1269503	1	O-Ring	26	DA1262013	2	Guide Spring
8	★B1109057	1	Spring Pin	27	★B1116803	2	O-Ring
9	CH542950SR	1	Disc Assembly	28	★CJ656110	1	Compression Spring
10	CH536104	1	Shaft	29	★B1008016	1	Ball
11	★B1007503	1	O-Ring	30	★B1011503	1	O-Ring
12	★B1012564	1	Back-Up Ring	31	★B1113564	1	Back-Up Washer
13	CB328281	1	Needle Bearing	32	CK598900	1	Piston Assembly
14	CB327101	1	Bearing Plate	33	★B1009503	1	O-Ring
15	DA1260001	1	Cap	34	★B1111564	2	Back-Up Washer
16	★A8039110	1	Spring	35	Y126290	2	Seat
17	★B1006016	1	Ball	36	DA1267900SR	1	Body Assembly
18	★B1126057	1	Spring Pin	37	★CR355167	2	Gasket
				38	Y383900SR	1	Valve Assembly

★ Items included in and available only as part of Repair Kit VM4K3.

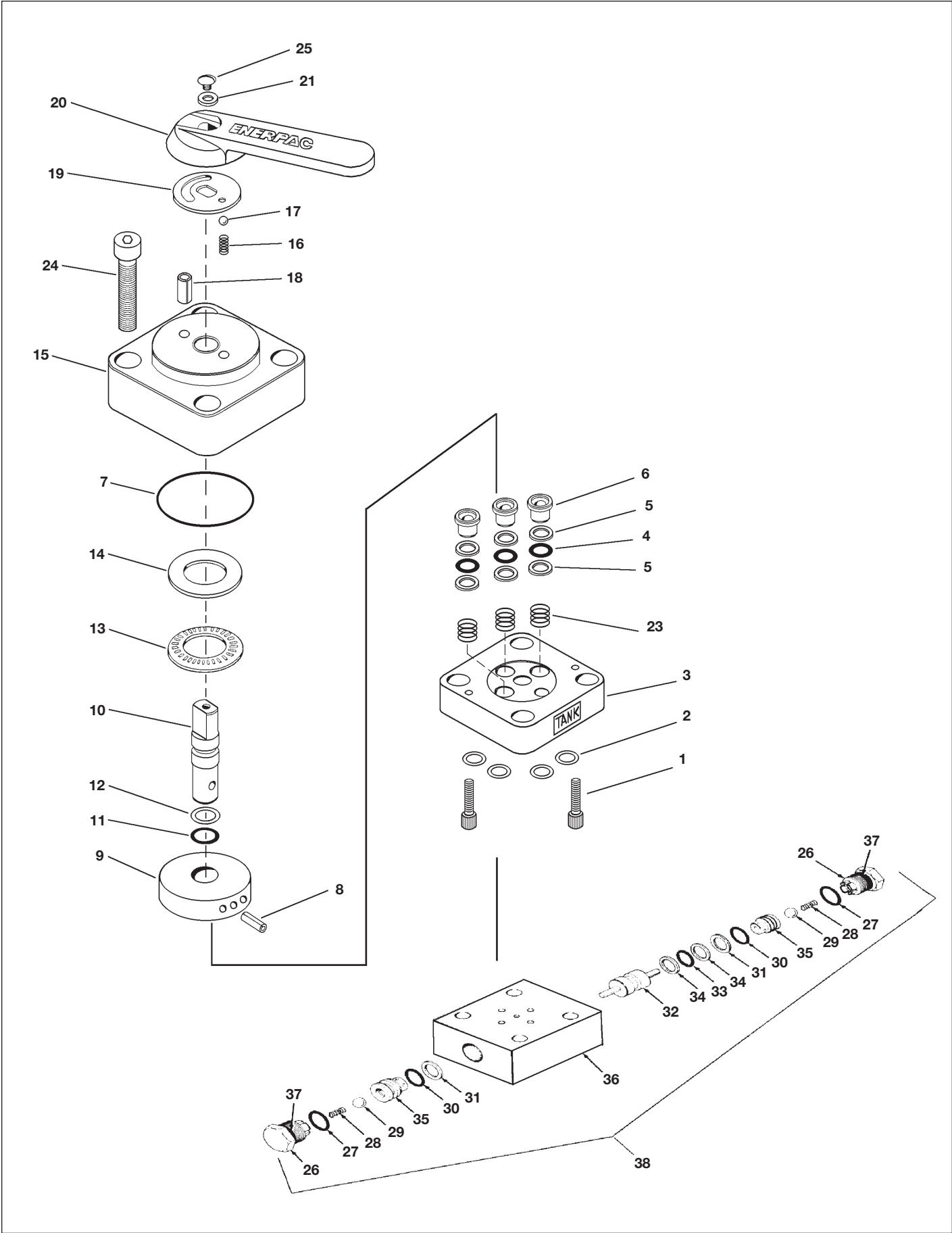


Figure 16, 4-Way Manual Valve

Repair Parts List for Figure 16

Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
	VMC1000D		4-Way, 3 Position Manual Valve	20	Y325070	1	Handle
	VMC10600D		4-Way, 3 Position Manual Valve w/ Locking Center	21	★B1086108	1	Washer
1	B1326028	2	Socket Hd.Cap Screw	22	CB27013	3	Spring Guide
2	★B1111803	8	O-Ring	23	★CB28110	3	Spring
3	DA1264190	1	Valve Body	24	B1389028	4	Capscrew 4-Way Valve
4	★B1006503	3	O-Ring		B1401028	4	Capscrew 4-Way Valve with Locking Center
5	★CF224041	6	Back-Up Ring Items	25	★A8076048	1	Truss Head Screw
6	CB25041	3	Metal Seal	26-38 are for locking center valves only.			
7	★B1269503	1	O-Ring	26	DA1262013	2	Guide Spring
8	★B1109057	1	Spring Pin	27	★B1116803	2	O-Ring
9	CH542950	1	Disc Assembly	28	★CJ656110	2	Compression Spring
10	CH536104	1	Shaft	29	★B1008016	2	Ball
11	★B1007503	1	O-Ring	30	★B1011503	2	O-Ring
12	★B1012564	1	Back-Up Ring	31	★B1113564	2	Back-Up Washer
13	CB328281	1	Needle Bearing	32	Y128900W	1	Piston Assembly
14	CB327101	1	Bearing Plate	33	★B1009503	1	O-Ring
15	DA1260001	1	Bonnet	34	★B1111564	2	Back-Up Washer
16	★A8039110	1	Spring	35	Y126290	2	Seat
17	★B1006016	1	Ball	36	DA1268900SR	1	Body Assembly
18	★B1126057	1	Spring Pin	37	★CR355167	2	Gasket
19	A8005071	1	Detent Disc	38	Y123900SR	1	Valve Assembly
★ Items included in and available only as part of Repair Kit VM4K3.							

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