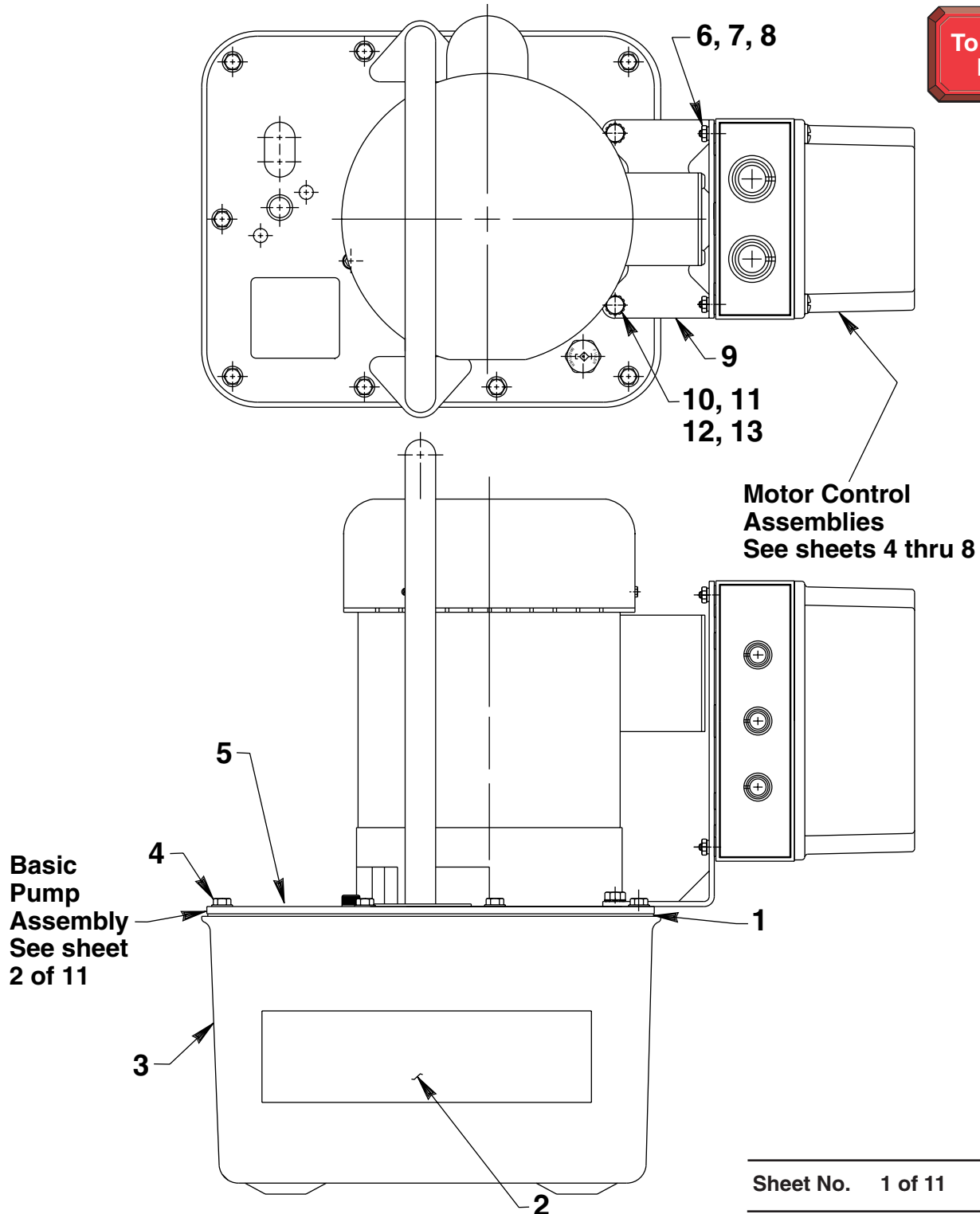


Parts List for:

PE172-E110
PE172-E220
PE172A-E220
PE172S-E110

PE172S-E220
PE174-E110
PE174-E220
PE174S-E220
PE174SM-E220

MODEL B
ELECTRIC HYDRAULIC PUMP



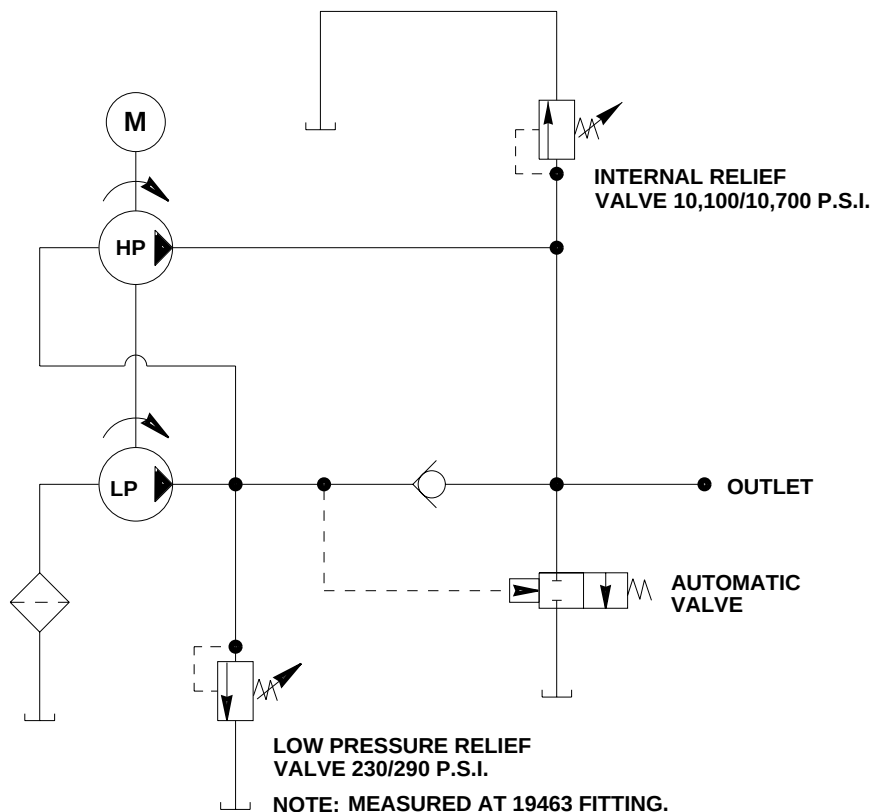
Parts List, Form No. 108083, Back sheet 1 of 11

Item No.	Part No.	No. Req'd	Description
1	*40164	1	Gasket
2	309219	2	Decal
3	61165	1	Reservoir (Plastic; For PE172-E220, PE172-E110, PE172A-E220, PE174-E220, PE174-E110, PE172S-E220, PE172S-E110, & PE172S-E220)
	40063OR9	1	Reservoir (Metal; For PE174SM-E220)
4	209799	10	Cap Screw (For plastic reservoir; 1/4-10 X 7/8 Lg. Self-tapping; Torque to 50/60 in. lbs.)
	10177	10	Cap Screw (For metal reservoir; 1/4-20 UNC X 3/4 Lg.)
5	421547	1	Valve, Solenoid (3-Way, 110V.; For PE172S-E110; See sheet 10 of 11)
	421451	1	Valve, Solenoid (3-Way, 220V.; For PE172S-E220; See sheet 10 of 11)
	9552	1	Valve, Solenoid (4-Way, 230V.; For PE174S-E220 & PE174SM-E220; See sheet 9 of 11)
	9517	1	Valve (2-Way; For PE172-E220 & PE172-E110; See back sheet 9 of 11)
	9500	1	Valve, Manual (4-Way, Tandem Ctr.; For PE174-E220 & PE174-E110; See back sheet 11 of 11)
	45554	1	Body, Manifold (For PE172A-E220; See sheet 11 of 11)
6	253508	4	Soc. Hd. Screw (8-32 x 7/8)
7	10241	4	Lockwasher (.33 x .20)
8	10196	4	Hex Nut (8-32)
9	59396BK2	1	Mounting Bracket
10	10009	2	Cap Screw (1/4-20 x 3/4)
11	11351	2	Ext. Tooth Washer (.50 x .26)
12	10245	2	Lockwasher (.49 x .26)
13	10199	2	Hex Nut (1/4-20)

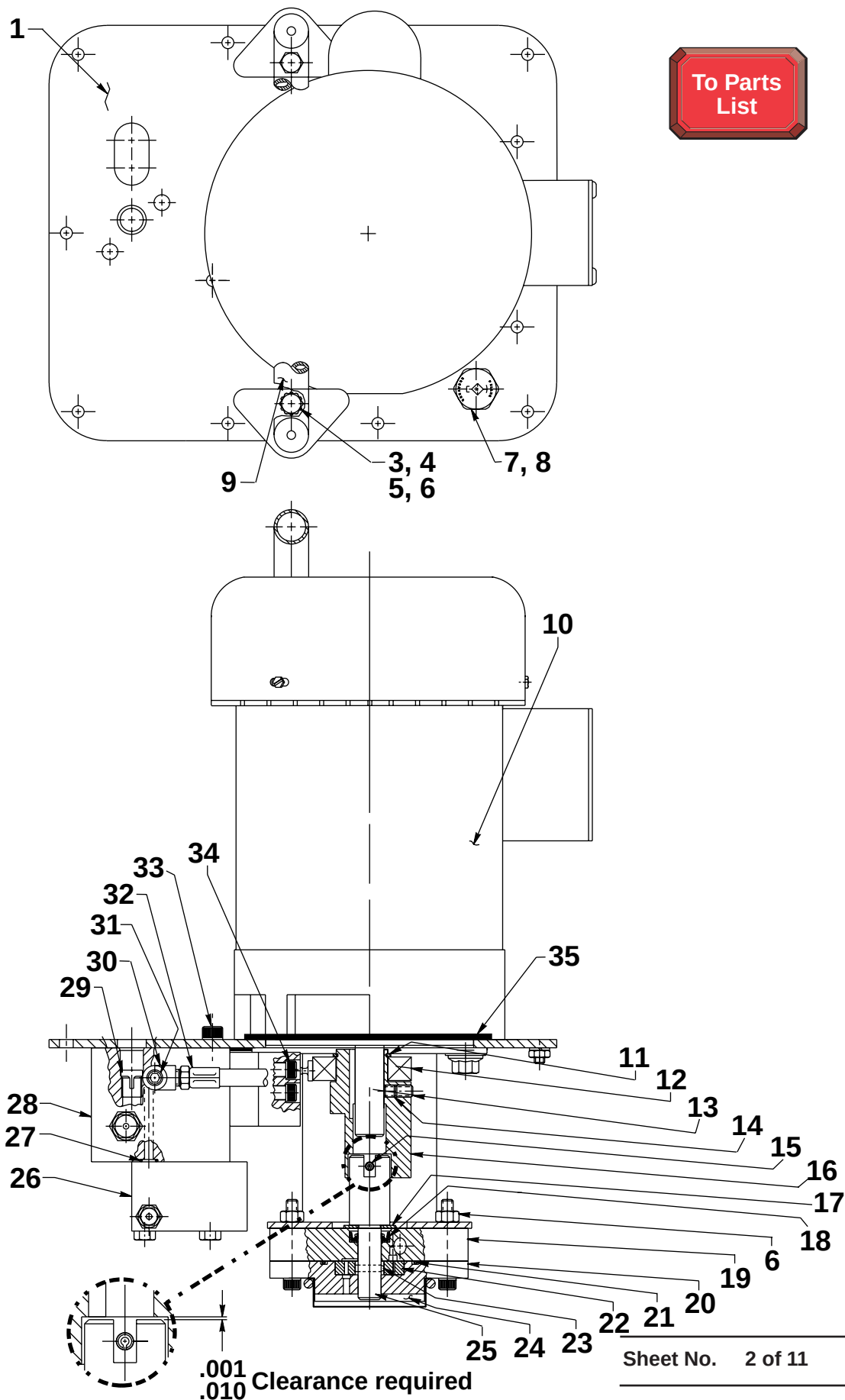


Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300430.

HYDRAULIC SCHEMATIC



BASIC PUMP ASSEMBLY

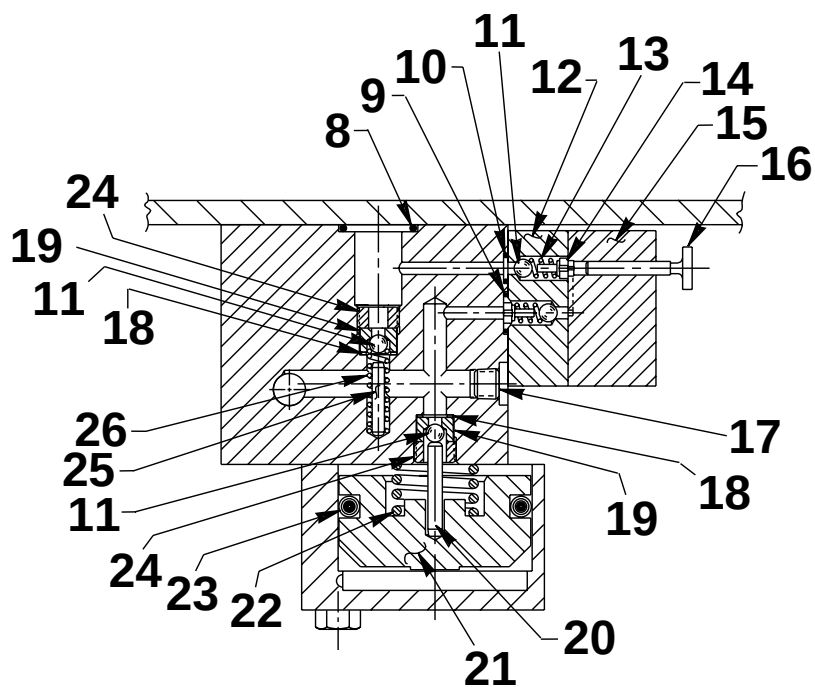
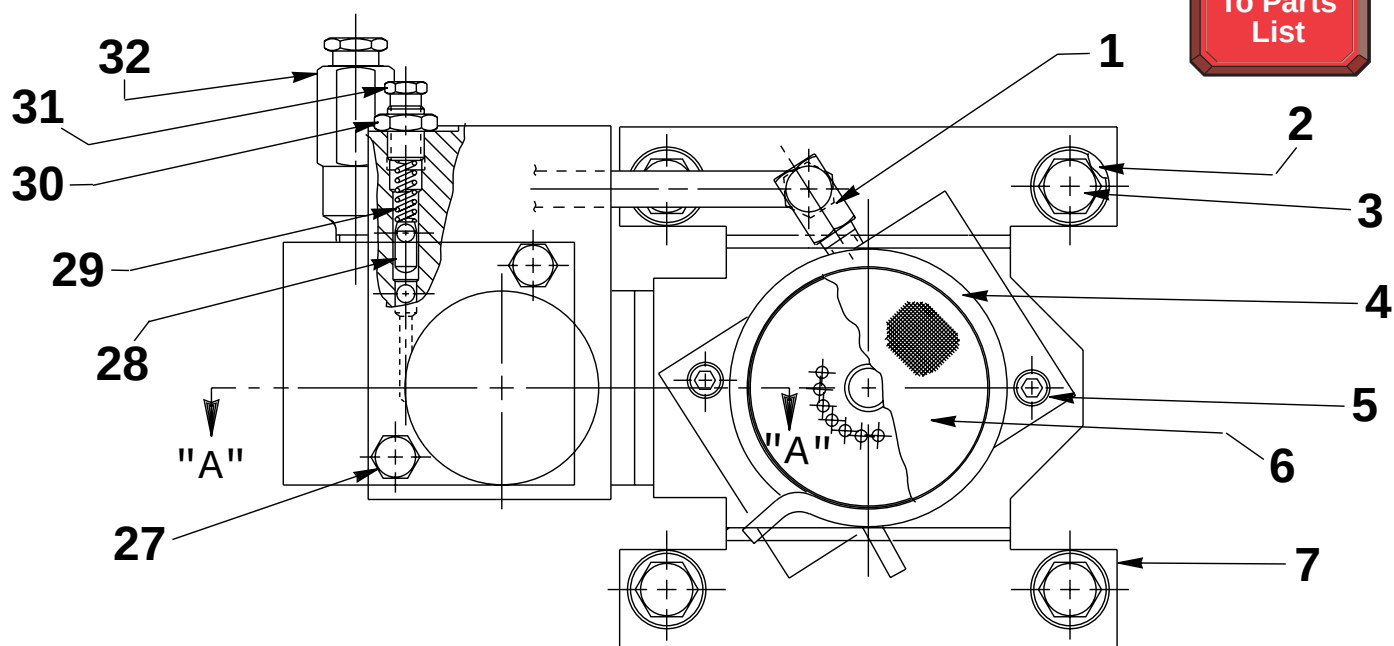


Item No.	Part No.	No. Req'd	Description
1	64966BK2	1	Cover Plate
3	10009	2	Cap Screw (1/4-20 UNC X 3/4 Lg.; Torque to 60/80 in. lbs.)
4	11351	2	Washer (1/4 External Tooth)
5	10245	2	Washer (For 1/4 bolt)
6	10199	2	Hex Nut (1/4-20 UNC)
7	20937	1	Vent Cap
8	200415	1	Rubber Gasket
9	47492	1	Tube Handle
10	58687	1	Motor (1/2 HP)
	59211	1	Motor (110/220V 50 HZ)
11	209798	1	Retaining Ring
12	209805	1	Ball Bearing
13	10519	1	Set Screw (1/4-20 UNC X 3/8 Lg.; Torque to 60/80 in. lbs.)
14	10136	1	Set Screw (1/4-20 UNC x 1/4 Lg.; Torque to 60/80 in. lbs.)
15	10973	1	Slotted Spring Pin (Note: Locate slot as shown.)
16	45596	1	Eccentric
17	12595	1	Washer (1-1/8 X 1/2 X .077 Thk.)
18	*304830	1	Oil Seal
19	61170	1	Housing
20	61169	1	Gerotor Housing
21	*10922	1	O-ring (2-1/8 X 1-15/16 X 3/32)
22	304826	1	Gerotor
23	209794	1	Gerotor Drive Pin
24	21846	1	Filter Support
25	304835	1	Drive Shaft
26	52167	1	Block
27	*10266	1	O-ring (3/8 X 1/4 X 1/16)
28	61167	1	Body
29	209795	1	Outlet Ball Stop
30	19463	1	Street Tee
31	10427	1	Pressure Plug (1/8 NPTF)
32	304819	1	Hose Assembly
33	10030	2	Cap Screw (5/16-18 UNC X 3/4 Lg.; Torque to 220/240 in. lbs.)
34	10022	4	Screw (1/4-20 UNC X 1-1/2 Lg.; Torque to 180/200 in. lbs.)
35	351060	1	Motor Base Gasket



Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300430.

BOTTOM VIEW & SECTION A-A

To Parts
ListSECTION A-A

Item No.	Part No.	No. Req'd	Description
1	14440	1	90° Elbow Fitting
2	10258	4	Washer (For 3/8 bolt)
3	213663	4	Cap Screw (3/8-16 UNC X 1" Lg.; Torque to 230/250 in. lbs.)
4	11461	1	Hose Clamp
5	10854	2	Cap Screw (1/4-20UNC X 1-3/4 Lg.; Torque to 60/80 in. lbs.)
6	21608	1	Filter
7	52174	1	Pump Mounting Bracket
8	*10273	1	O-ring (13/16 X 5/8 X 3/32)
9	*14763	1	O-ring (7/16 X 5/16 X 1/16)
10	*10265	1	O-ring (5/16 X 3/16 X 1/16)
11	*12223	4	Ball (3/16 Dia.)
12	45559	1	Block
13	*10445	2	Compression Spring (5/32 O.D. X 3/4 Lg.)
14	24549	2	Ball Guide
15	45560	1	Block
16	304820	1	Piston
17	15130	1	Plug (1/16 NPTF)
18	*10442	2	Washer (3/8 X 1/4 X 1/32)
19	*209787	2	Replaceable Seat
20	211843	1	Dowel Pin (Note: Install with radius end out.)
21	46063	1	Piston
22	*16346	1	Compression Spring (1" O.D. X 7/8 Lg.)
23	*10283	1	O-ring (2" X 1-5/8 X 3/16)
24	209797	2	Hollow Lock Screw (7/16-20 UNF-3A; Torque to 180/200 in. lbs.)
25	12149	1	Pin
26	*16057	1	Compression Spring (3/16 O.D. X 1" Lg.)
27	13037	2	Cap Screw (1/4-20 UNC X 2" Lg.; Torque to 40/50 in. lbs.)
28	15156	1	Pin (Note: Install tapered end toward spring.)
29	*11221	1	Compression Spring (1/4 O.D. X 1" Lg.)
30	10386	1	Nut (3/8-24 UNF)
31	*29786	1	Valve Adjusting Screw
32	21278	1	Relief Valve Assembly (Set at 10,100/10,700 PSI)



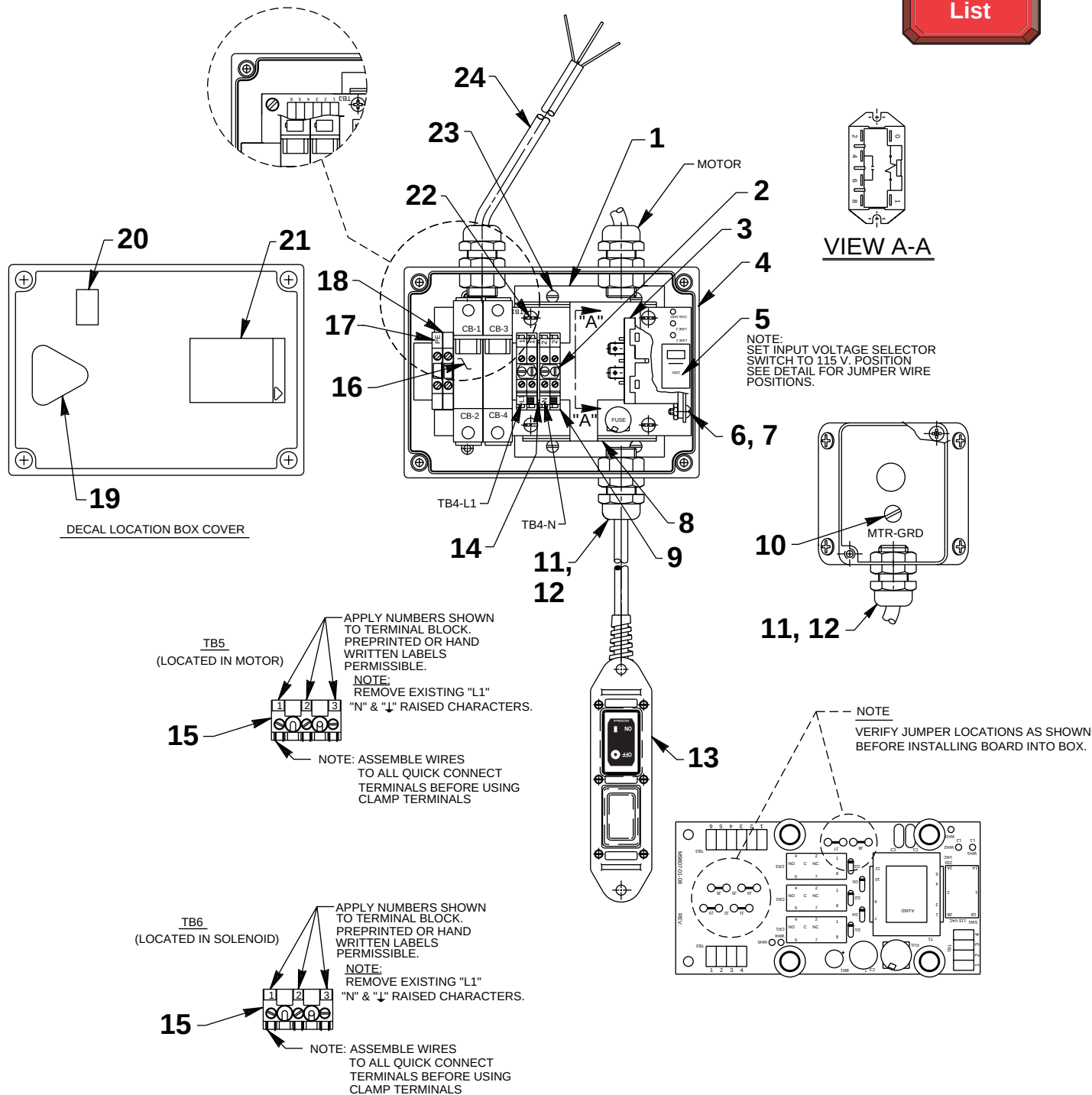
Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300430.

MOTOR CONTROL ASSEMBLY

110 V., 50 Hz.

(For PE172-E110 & PE174-E110)

To Parts
List

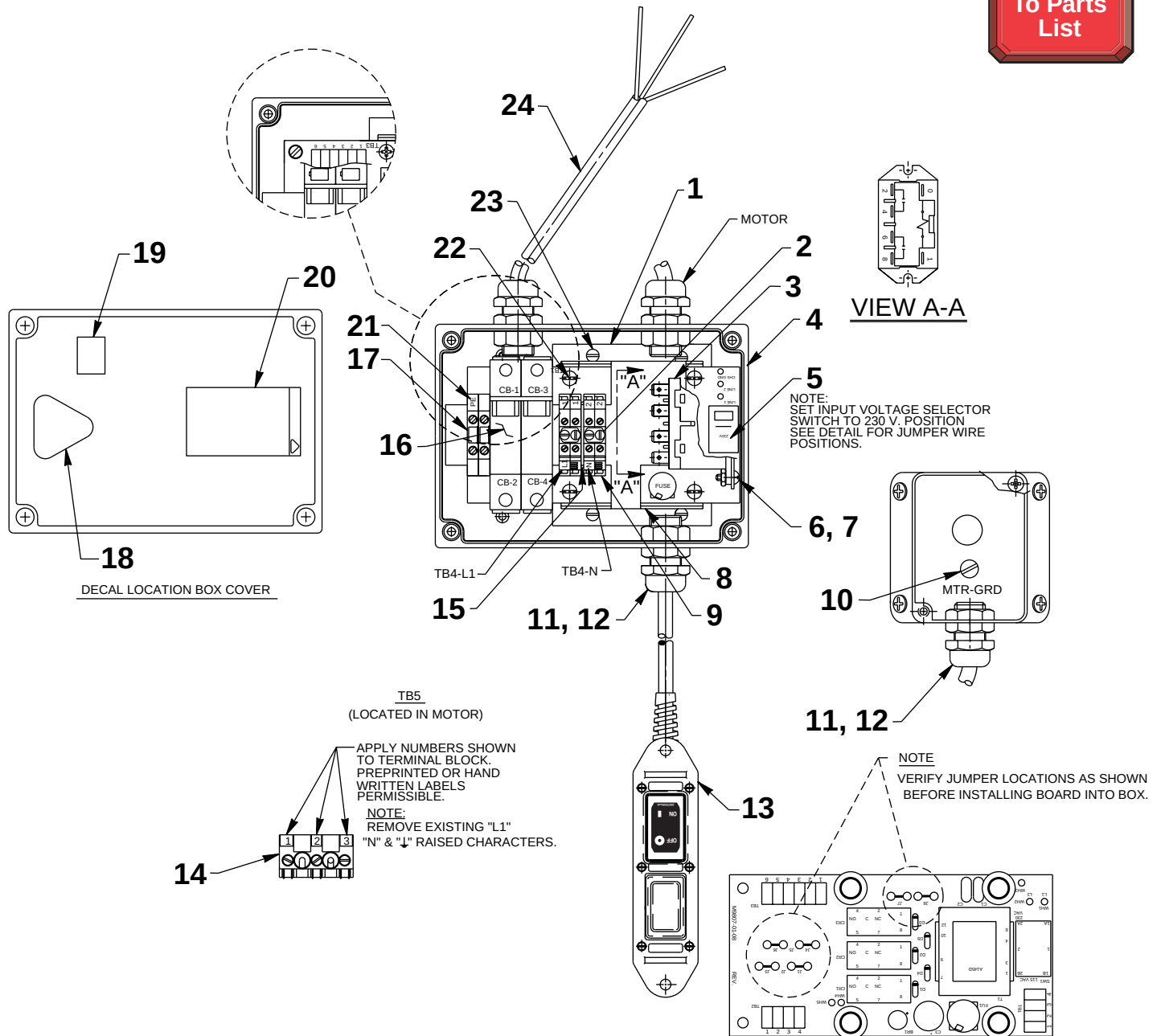


Item No.	Part No.	No. Req'd	Description
1	351588	1	Mounting Plate
2	251845	2	Jumper (2 pole)
3	360001	1	Relay (120 V.)
4	59036	1	Control Box
5	421898	1	Circuit Board
6	10447	2	Rnd. Hd. Screw (8-32 x 5/16)
7	10196	2	Hex Nut (8-32)
8	421608WH2	1	Mounting Bracket
9	251840	4	Terminal Block (Single Level)
10	10443	2	Ring Tongue Terminal
11	216666	4	Bushing
12	216680	4	Conduit Locknut
13	251881	1	Hand Switch Assembly (See back sheet 5 of 11)
14	251842	1	End Barrier
15	251550	1	Terminal Block
16	360002-13	1	Circuit Breaker (13 AMP)
17	251852	7	Markers
18	251841	2	Terminal Block
19	251898	1	CE Elect. Warning Decal
20	350988	1	CE Decal
21	251762	1	Warning Decal
22	12409	4	Machine Screw (8-32 x 5/8)
23	252253	4	Pan Hd. Screw (8-32 x 3/8)
24	251879	10'	Cable (1.5MM/3 HAR)



MOTOR CONTROL ASSEMBLY
220 V., 50 HZ.
 (For PE172-E220, PE172A-E220, & PE174-E220)

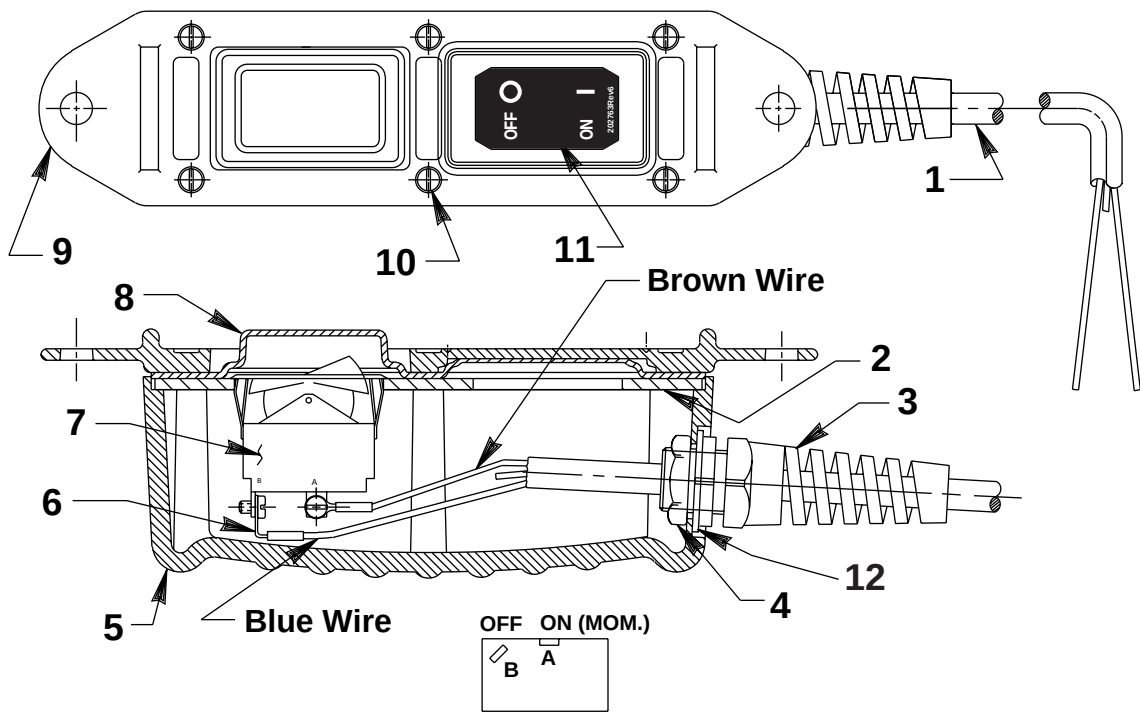
**To Parts
List**



Item No.	Part No.	No. Req'd	Description	Item No.	Part No.	No. Req'd	Description
1	351588	1	Mounting Plate	14	251550	1	Terminal Block
2	251845	2	Jumper (2 pole)	15	251842	1	End Barrier
3	421663	1	Relay (240 V.)	16	360002-6	1	Circuit Breaker (6 AMP)
4	59036	1	Control Box	17	251841	2	Terminal Block
5	421898	1	Circuit Board	18	251898	1	CE Elect. Warning Decal
6	10447	2	Rnd. Hd. Screw (8-32 x 5/16)	19	350988	1	CE Decal
7	10196	2	Hex Nut (8-32)	20	251762	1	Warning Decal
8	421608WH2	1	Mounting Bracket	21	251852	7	Markers
9	251840	4	Terminal Block (Single Level)	22	12409	4	Machine Screw (8-32 x 5/8)
10	10443	2	Ring Tongue Terminal	23	252253	4	Pan Hd. Screw (8-32 x 3/8)
11	216666	4	Bushing	24	251879	10'	Cable (1.5MM/3 HAR)
12	216680	4	Conduit Locknut				
13	251881	1	Hand Switch Assembly (See below)				

To Drawing

REMOTE HAND SWITCH
No. 251881



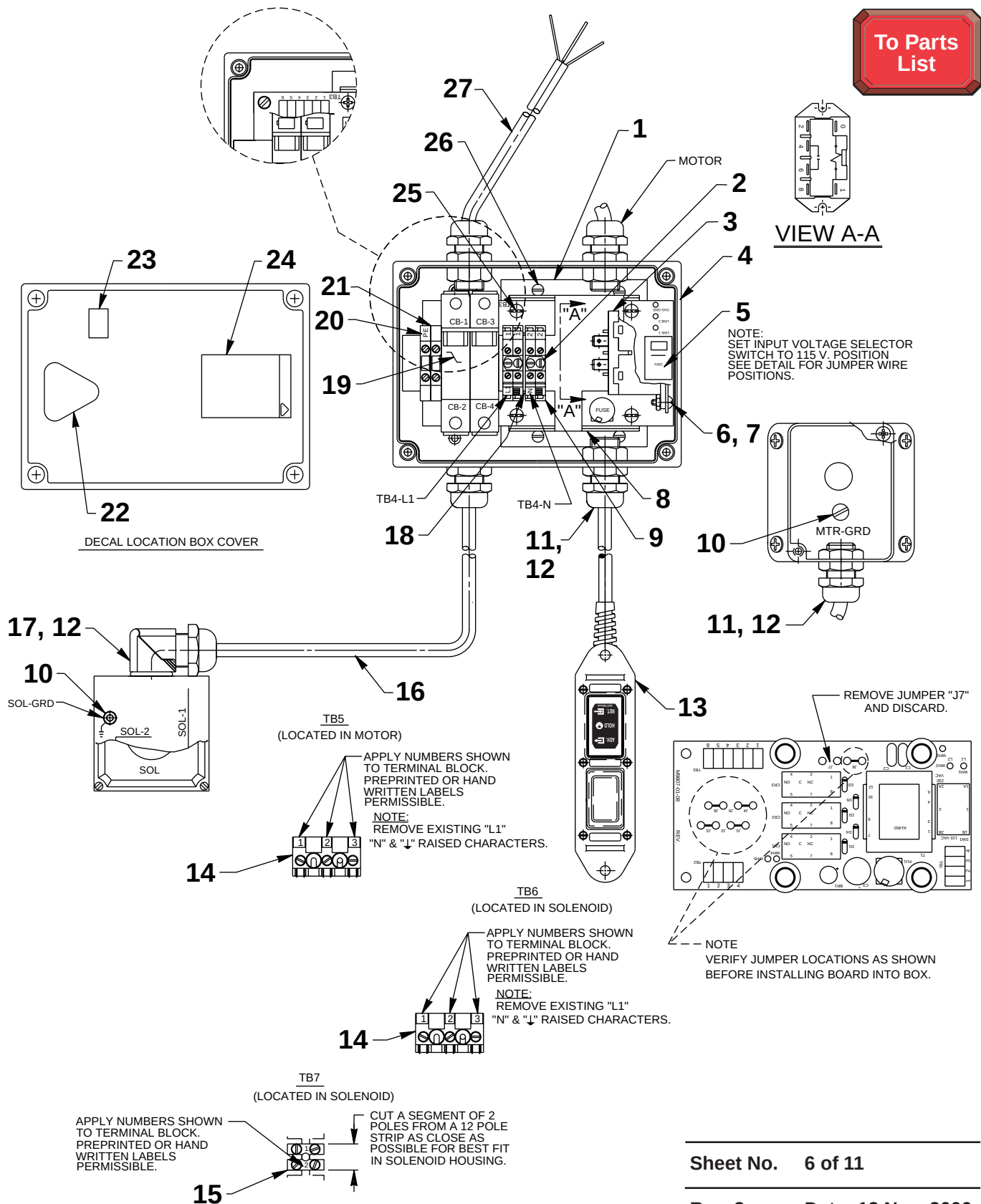
Item No.	Part No.	No. Req'd	Description
1	251879	10 ft.	Electrical Cable (14/3)
2	420050-3	1	Switch Mounting Plate
3	251818	1	Strain Relief Connector
4	251802	1	Locknut (3/4-16 UNF)
5	420050-4	1	Switch Housing
6	10525	2	Ring Terminal
7	16772	1	Rocker Switch
8	420050-2	1	Gasket
9	420050-1	1	Cover
10	250248	6	Screw (4-24 x 3/4 Lg.)
11	202763	1	Decal
12	253607	1	Rubber Seal

MOTOR CONTROL ASS'Y (3-WAY SOL. OP.)

110 V., 50 HZ.

(For PE172S-E110)

To Parts
List

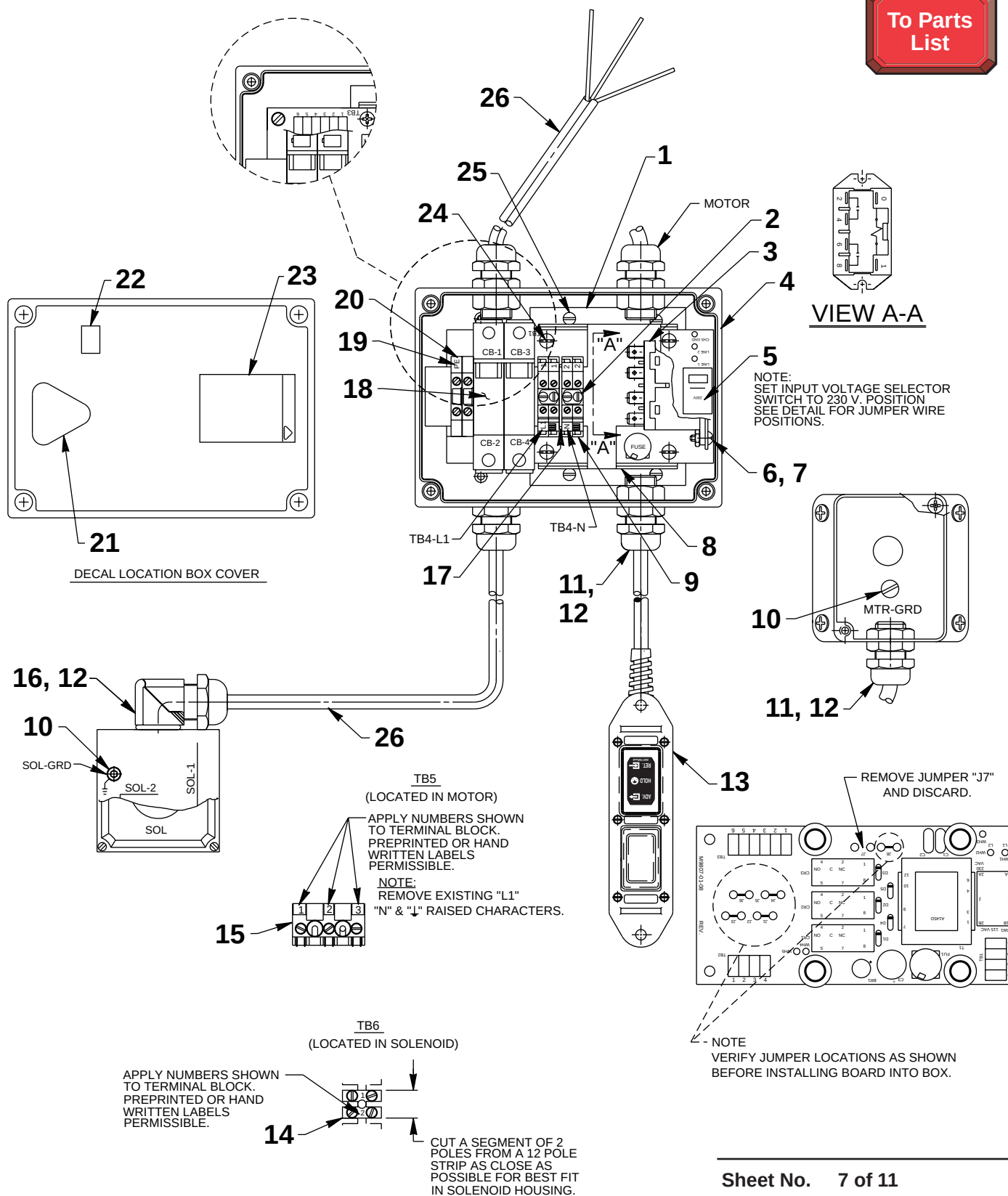


Item No.	Part No.	No. Req'd	Description
1	351588	1	Mounting Plate
2	251845	2	Jumper (2 pole)
3	360001	1	Relay (120 V.)
4	59036	1	Control Box
5	421898	1	Circuit Board
6	10447	2	Rnd. Hd. Screw (8-32 x 5/16)
7	10196	2	Hex Nut (8-32)
8	421608WH2	1	Mounting Bracket
9	251840	4	Terminal Block (Single Level)
10	10443	2	Ring Tongue Terminal
11	216666	5	Bushing
12	216680	6	Conduit Locknut
13	252508	1	Hand Switch Assembly (See back sheet 7 of 11)
14	251550	2	Terminal Block
15	351130	1	Terminal Block
16	251879	4.75'	Cable (1.5MM/3 HAR)
17	216667	1	Strain Relief Bushing
18	251842	1	End Barrier
19	360002-13	1	Circuit Breaker (13 AMP)
20	251852	7	Markers
21	251841	2	Terminal Block
22	251898	1	CE Elect. Warning Decal
23	350988	1	CE Decal
24	251762	1	Warning Decal
25	12409	4	Machine Screw (8-32 x 5/8)
26	252253	4	Pan Hd. Screw (8-32 x 3/8)
27	251839	1	Cord Set

**To
Drawing**

MOTOR CONTROL ASS'Y (3-WAY SOL. OP).
220 V., 50 HZ.
(For PE172S-E220)

To Parts
List



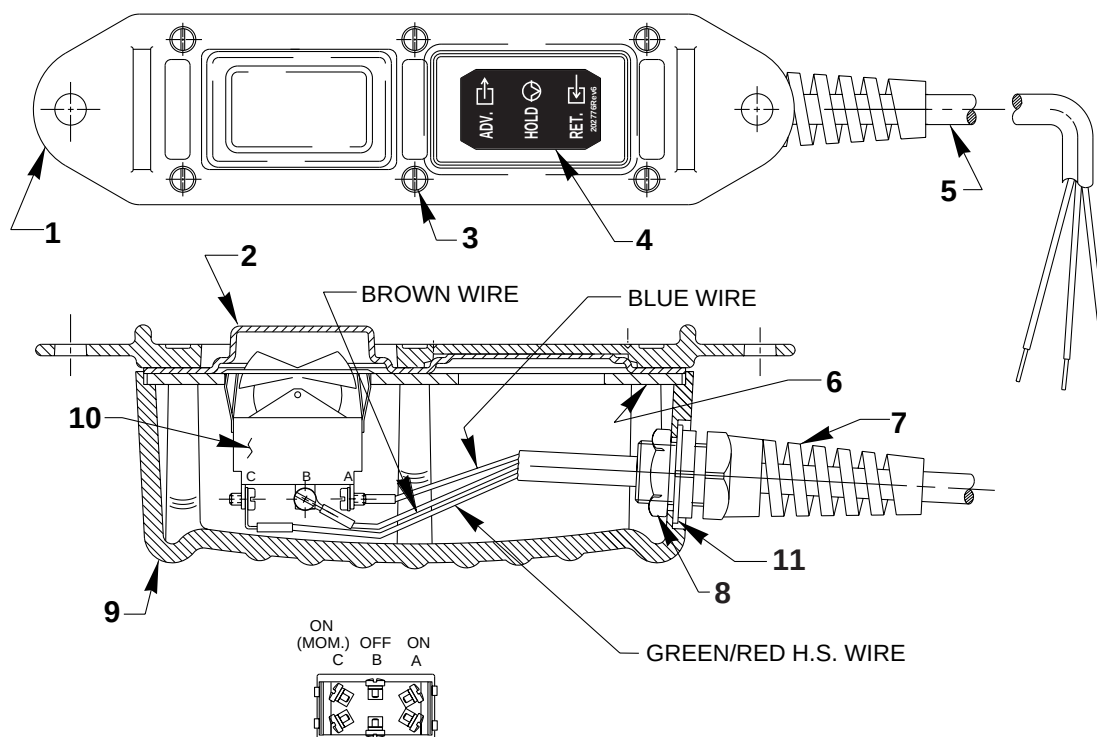
Parts List, Form No. 108083, Back sheet 7 of 11

Item No.	Part No.	No. Req'd	Description
1	351588	1	Mounting Plate
2	251845	2	Jumper (2 pole)
3	421663	1	Relay (240 V.)
4	59036	1	Control Box
5	421898	1	Circuit Board
6	10447	2	Rnd. Hd. Screw (8-32 x 5/16)
7	10196	2	Hex Nut (8-32)
8	421608WH2	1	Mounting Bracket
9	251840	4	Terminal Block (Single Level)
10	10443	2	Ring Tongue Terminal
11	216666	5	Bushing
12	216680	6	Conduit Locknut
13	252508	1	Hand Switch Assembly (See below)
14	351130	1	Terminal Block

Item No.	Part No.	No. Req'd	Description
15	251550	1	Terminal Block
16	216667	1	Strain Relief Bushing
17	251842	1	End Barrier
18	360002-6	1	Circuit Breaker (6 AMP)
19	251852	7	Markers
20	251841	2	Terminal Block
21	251898	1	CE Elect. Warning Decal
22	350988	1	CE Decal
23	251762	1	Warning Decal
24	12409	4	Machine Screw (8-32 x 5/8)
25	252253	4	Pan Hd. Screw (8-32 x 3/8)
26	251879	12.75'	Cable (1.5MM/3 HAR)



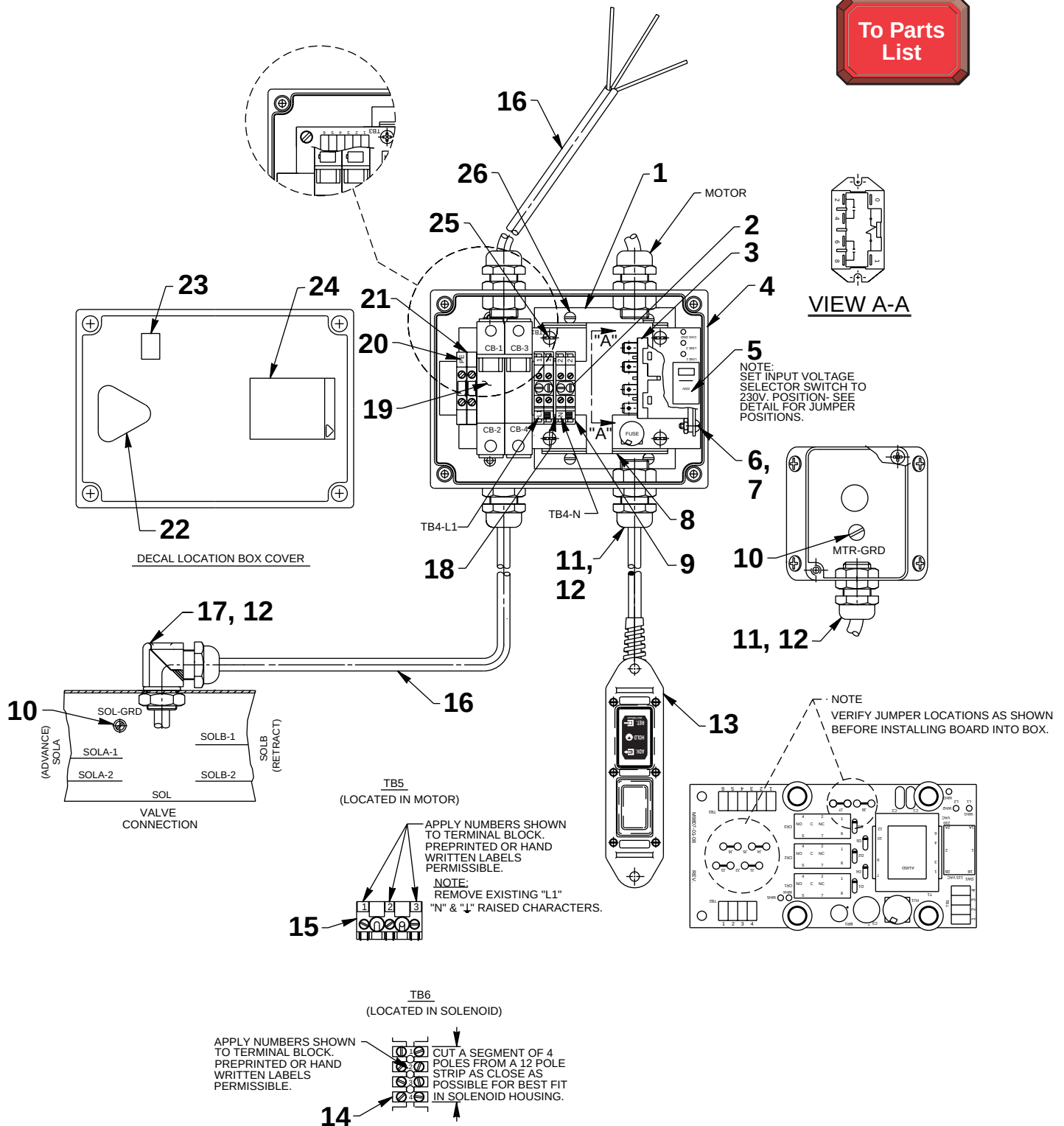
REMOTE HAND SWITCH No. 252508



Item No.	Part No.	No. Req'd	Description
1	420050-1	1	Plastic Cover
2	420050-2	1	Gasket
3	250248	6	Screw (4-24 x 3/4 Lg.)
4	202776	1	Decal
5	251879	10 ft.	Electrical Cable (1.5 MM/3)
6	420050-3	1	Switch Mounting Plate

Item No.	Part No.	No. Req'd	Description
7	251818	1	Strain Relief Bushing
8	251802	1	Locknut (Torque to 30/35 in. lbs.)
9	420050-4	1	Switch Housing
10	16773	1	Rocker Switch
11	253607	1	Rubber Seal

MOTOR CONTROL ASS'Y (4-WAY SOL. OP.)
220 V., 50 HZ.
(For PE174S-E220 & PE174SM-E220)



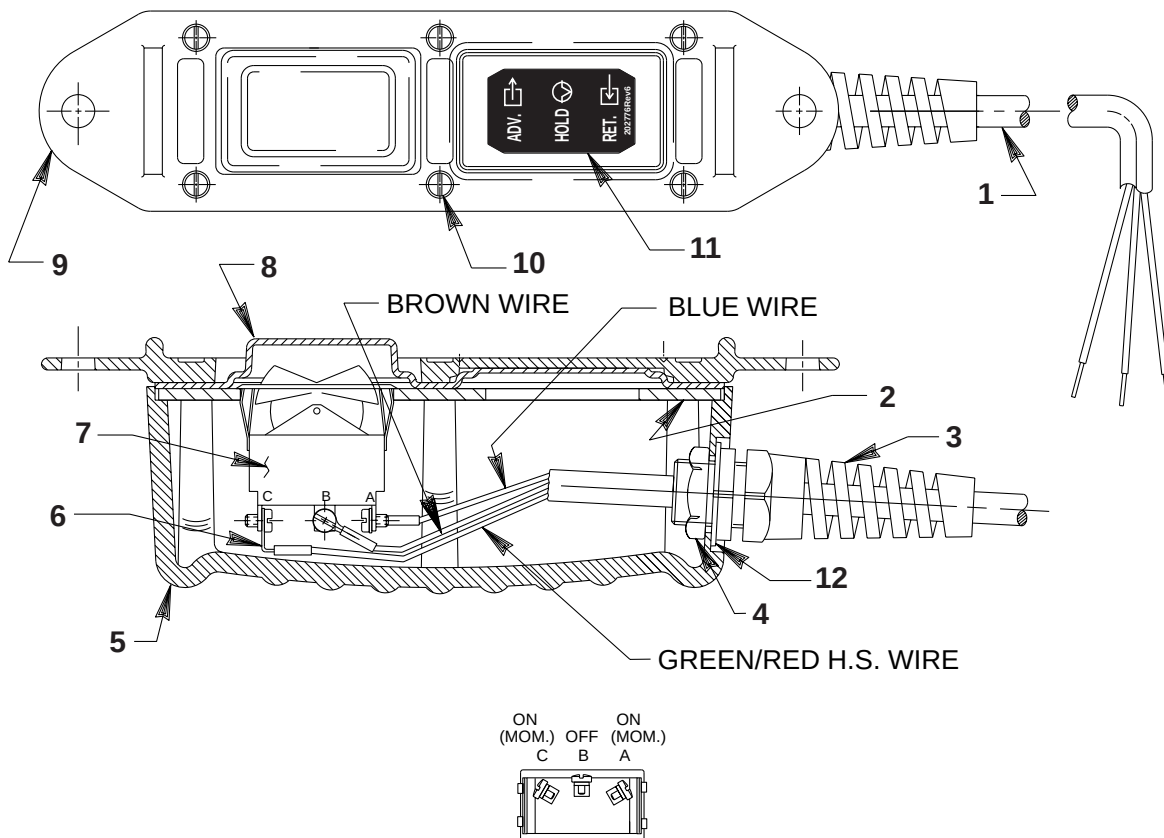
Parts List, Form No. 108083, Back sheet 8 of 11

Item No.	Part No.	No. Req'd	Description
1	351588	1	Mounting Plate
2	251845	2	Jumper (2 pole)
3	421663	1	Relay (240 V.)
4	59036	1	Control Box
5	421898	1	Circuit Board
6	10447	2	Rnd. Hd. Screw (8-32 x 5/16)
7	10196	2	Hex Nut (8-32)
8	421608WH2	1	Mounting Bracket
9	251840	4	Terminal Block (Single Level)
10	10443	2	Ring Tongue Terminal
11	216666	5	Bushing
12	216680	6	Conduit Locknut
13	252508	1	Hand Switch Assembly
			(See back sheet 7 of 11)
14	351130	1	Terminal Block

Item No.	Part No.	No. Req'd	Description
15	251550	1	Terminal Block
16	251879	10'	Cable (1.5MM/3 HAR)
17	216667	1	Strain Relief Bushing
18	251842	1	End Barrier
19	360002-6	1	Circuit Breaker (6 AMP)
20	251852	7	Markers
21	251841	2	Terminal Block
22	251898	1	CE Elect. Warning Decal
23	350988	1	CE Decal
24	251762	1	Warning Decal
25	12409	4	Machine Screw (8-32 x 5/8)
26	252253	4	Pan Hd. Screw (8-32 x 3/8)



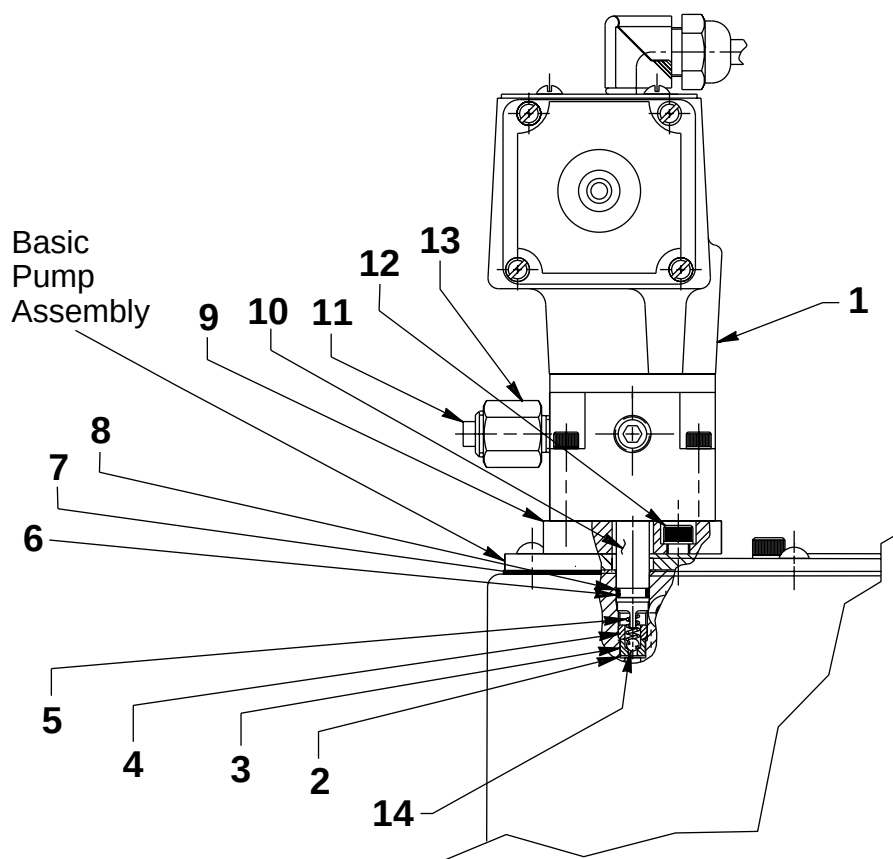
REMOTE HAND SWITCH No. 251872



Item No.	Part No.	No. Req'd	Description
1	251879	2.25 ft.	Electrical Cable (1.5 mm/3)
2	420050-3	1	Switch Mounting Plate
3	251818	1	Strain Relief Connector
4	251802	1	Locknut (3/4-16 UNF)
5	420050-4	1	Switch Housing
6	10525	2	Ring Terminal

Item No.	Part No.	No. Req'd	Description
7	16773	1	Rocker Switch
8	420050-2	1	Gasket
9	420050-1	1	Cover
10	250248	6	Screw (4-24 x 3/4 Lg.)
11	202776	1	Decal
12	253607	1	Rubber Seal

VALVE ASSEMBLY (FOR PE174S-E220 & PE174SM-E220)



Item No.	Part No.	No. Req'd	Description
1	66206-220	1	Solenoid Valve (4-way, 230 V.; See Form No. 108066)
2	10442	1	Copper Washer (.37 x .25)
3	209787	1	Replaceable Seat
4	209797	1	Hollow Lock Screw (7/16-20 x 1/4; Torque to 180/200 in. lbs.)
5	211797	1	Spring (.16 OD x .63 x .01 ws)
6	10268	2	O-ring (.50 x .37 Nitrile)
7	200395	1	Gasket
8	11863	2	Backup Washer (.50 x .38)
9	52165	1	Manifold
10	209809	1	Coupling
11	11127	2	Plug Fitting (3/8 NPTF)
12	10030	2	Soc. Hd. Screw (5/16-18 x 3/4)
13	9689	1	Reducer Connector
14	12223	1	Steel Ball (3/16 dia.)

PARTS INCLUDED BUT NOT SHOWN

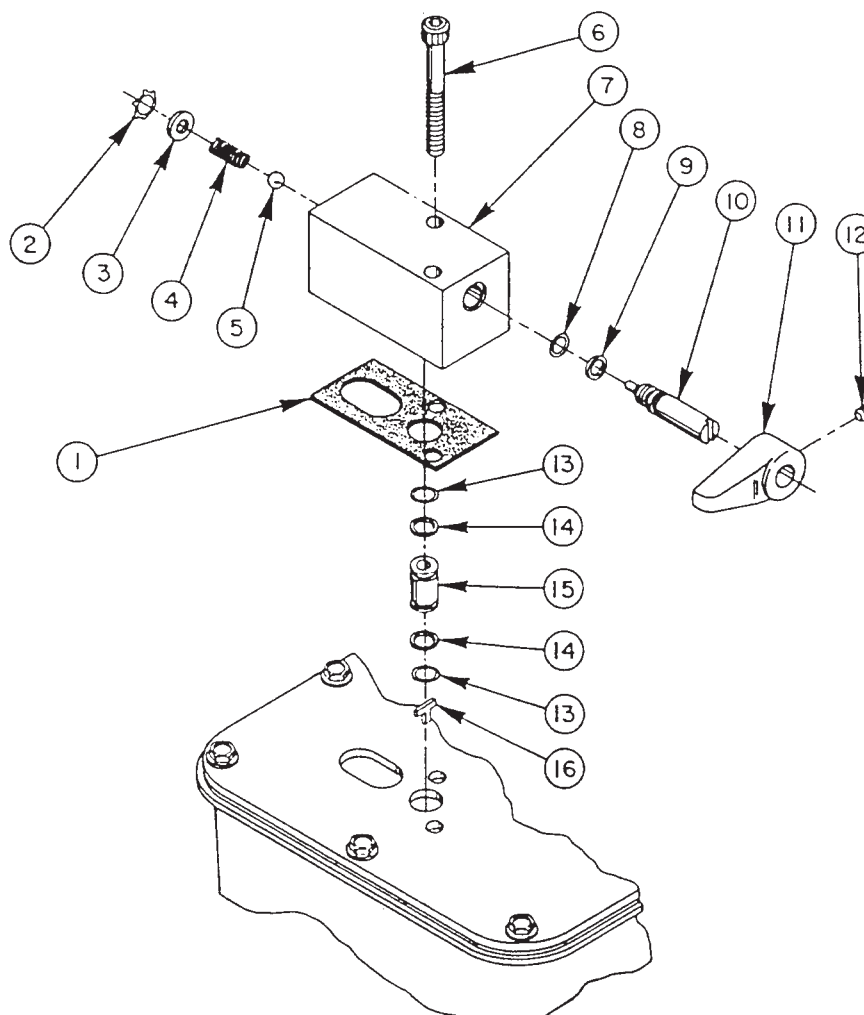
16797 1 90° Elbow Fitting

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

Sheet No. 9 of 11

Rev. 3 Date: 13 Nov. 2000

TWO POSITION, 2-WAY MANUAL VALVE (FOR PE172-E220 & PE172-E110)



Item No.	Part No.	No. Req'd	Description
1	*304829	1	Gasket
2	*11088	1	Retaining Ring (9/16 Shaft)
3	11089	1	Washer (3/16 Bolt)
4	*11024	1	Compression Spring (1/4 O.D. X 5/8 Lg.)
5	10423	1	Steel Ball (9/32 Dia.)
6	209945	2	Cap Screw (5/16-18 UNC X 2-1/2 Lg.; Torque to 220/240 in. lbs.)
7	52168	1	Valve Body
8	*10267	1	O-ring (7/16 X 5/16 X 1/16)
	†13472	1	O-ring (7/16 X 5/16 X 1/16)
9	*15085	1	Backup Washer (7/16 X 5/16 X 3/64 Thk.)

Item No.	Part No.	No. Req'd	Description
10	304849	1	Release Valve Screw
11	213109	1	Release Valve Handle
12	10556	1	Set Screw (1/4-20 UNC X 1/4 Lg.; Torque to 30/50 in. lbs.)
13	*10268	2	O-ring (1/2 x 3/8 X 1/16)
	†17716	2	O-ring (1/2 x 3/8 X 1/16)
14	*11863	2	Backup Washer (1/2 X 3/8 X 1/16)
15	202505	1	Coupling
16	209795	1	Outlet Ball Stop (Part of the Basic Pump Ass'y)
	52170	1	Complete Valve Ass'y (Consists of Items 1 thru 15)

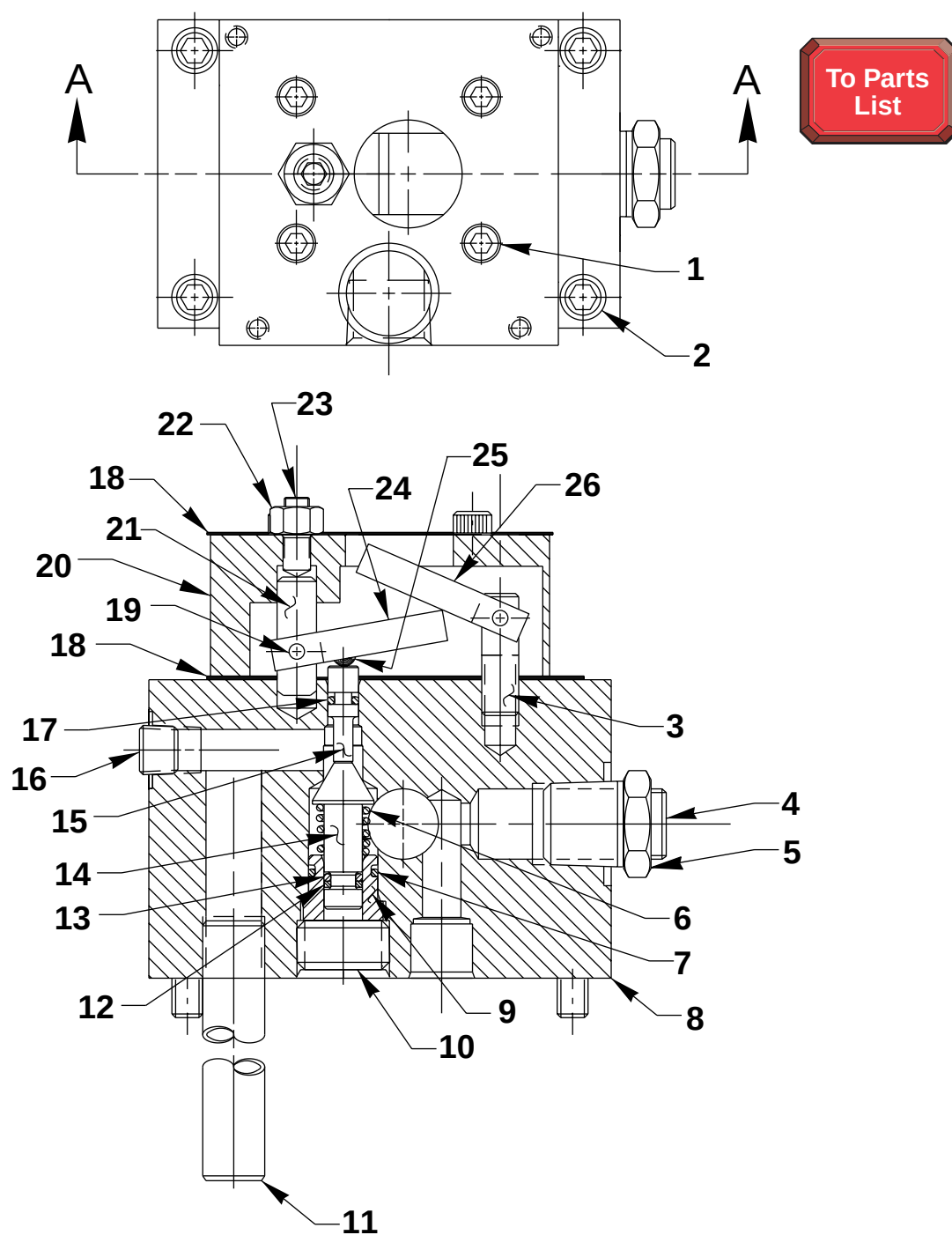
Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300430.

Part numbers marked with a dagger (†) are contained in EPR Seal Kit No. 300648.

VALVE ASSEMBLY

(For PE172S-E110 & PE172S-E220;

These also require manifold parts #2 through #13 on sheet 11 of 11)

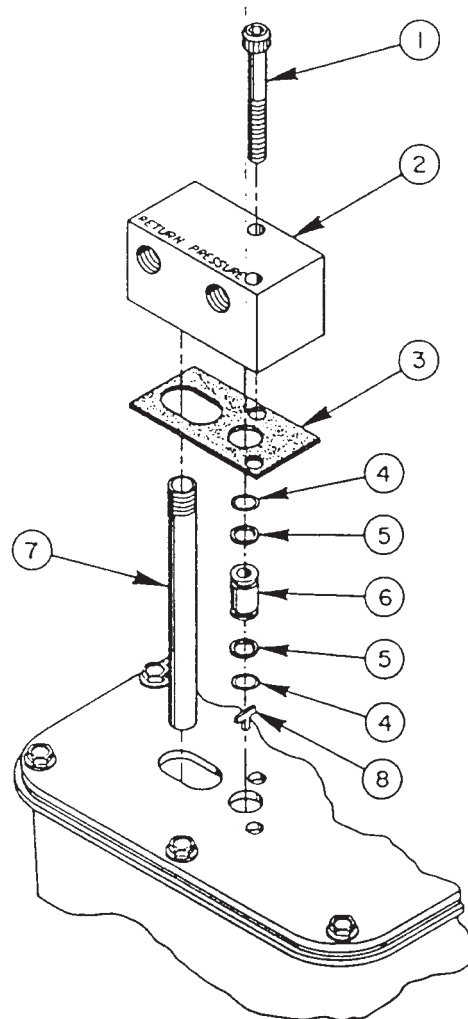


Item No.	Part No.	No. Req'd	Description
1	12650	4	Cap Screw (Torque to 35/40 in. lbs.)
2	10890	4	Cap Screw (1/4-20 X 2" Lg.)
3	203100	1	Threaded Pin
4	10479	1	Pipe Plug (1/4 NPTF)
5	10676	1	Straight Fitting
6	*17033	1	Comp. Spring (.480 O.D. X 5/8 Lg.)
7	15292	1	O-ring (9/16 X 7/16 X 1/16; Disogrin)
8	51025	1	Body
9	*203105	1	Guide
10	17055	1	Jam Screw (Torque to 225/250 in. lbs.)
11	200609	1	Drain Line
12	15174	1	Backup Washer (5/16 X 3/16 X 3/64)
13	*10265	1	O-ring (5/16 X 3/16 X 1/16; Nitrile)
14	*203106	1	Poppet (NOTE: Apply NAPA Anti-seize #7651150 [spray] or Permatex #133K [paste] or Bravo Type 13 [paste] to poppet stem.)
15	*203104	1	Stem
16	10427	1	Pipe Plug (1/8 NPTF)
17	10264	1	O-ring (1/4 X 1/8 X 1/16; Nitrile)
18	351404	2	Gasket
19	17026	2	Dowel Pin
20	421452	1	Linkage Block
21	203101	1	Pin
22	10199	1	Nut (1/4-20 UNC: Torque to 60/80 in. lbs.)
23	250019	1	Set Screw
24	203103	1	Lever (Lower)
25	12223	1	Ball (3/16 dia.)
26	203102	1	Lever (Upper)
PARTS INCLUDED BUT NOT SHOWN			
	11127	1	Pressure Plug
	17027-2	1	Solenoid (220/230 V., 50/60 Hz; For 421451)
	17027-1	1	Solenoid (110/115 V., 50/60 Hz; For 421547)



Part numbers marked with an (*) asterisk are included in Repair Kit No. 300605.

MANIFOLD ASSEMBLY (FOR PE172A-E220)

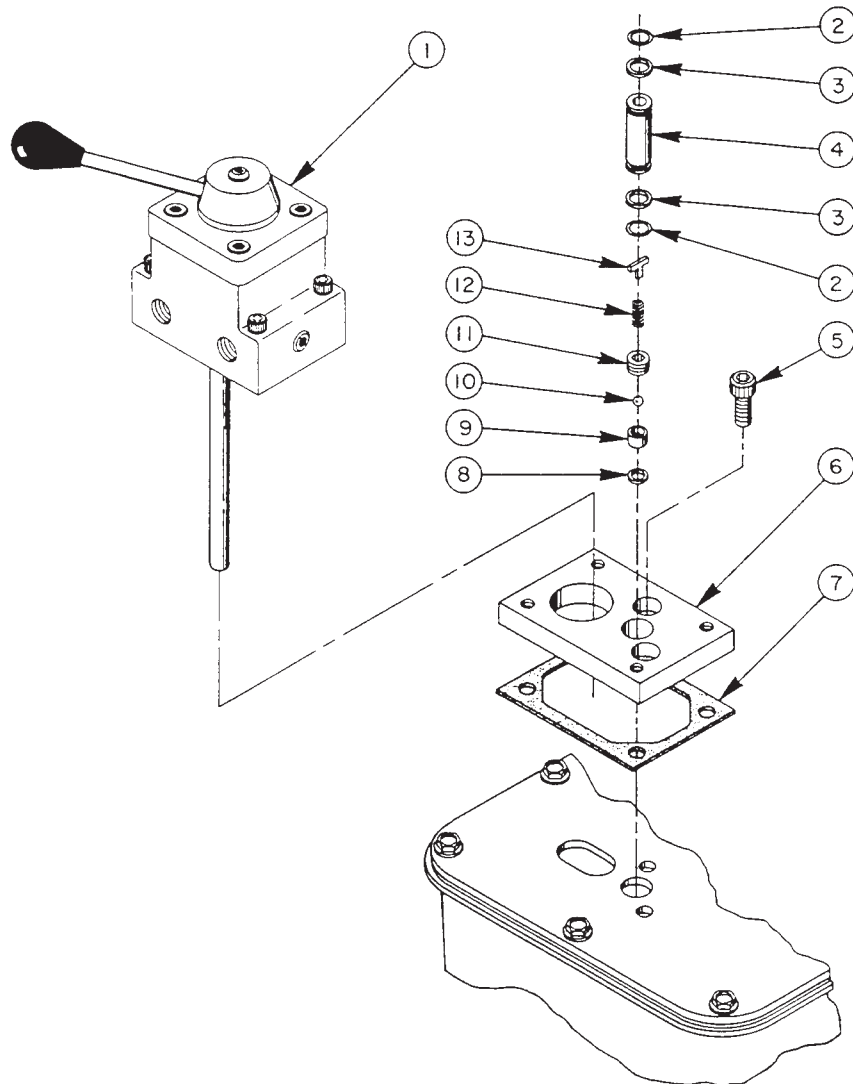


Item No.	Part No.	No. Req'd	Description
1	209945	2	Cap Screw (5/16-18 UNC X 2-1/2 Lg.; Torque to 220/240 in. lbs.)
2	45554	1	Manifold
3	*304829	1	Gasket
4	*10268	2	O-ring (1/2 X 3/8 X 1/16)
	†17716	2	O-ring (1/2 X 3/8 X 1/16)

Item No.	Part No.	No. Req'd	Description
5	*11863	2	Backup Washer (1/2 X 3/8 X 1/16)
6	202505	1	Coupling
7	200609	1	Drain Line
8	209795	1	Outlet Ball Stop (Part of the Basic Pump Ass'y)

Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300430.
Part numbers marked with a dagger (†) are contained in EPR Seal Kit No. 300648.

4-WAY TANDEM CENTER DIRECTIONAL VALVE (FOR PE174-E110 & PE174-E220)



Item No.	Part No.	No. Req'd	Description
1	9500	1	4-Way Valve Ass'y (see Form No. 100623)
2	*10268	2	O-ring (1/2 X 3/8 X 1/16)
	†17716	2	O-ring (1/2 X 3/8 X 1/16)
3	*11863	2	Backup Washer (1/2 X 3/8 X 1/16)
4	209809	1	Coupling
5	10030	2	Cap Screw (5/16-18 UNC X 3/4 Lg.; Torque to 220/240 in. lbs.)

Item No.	Part No.	No. Req'd	Description
6	58805	1	Adapter Block Manifold
7	*200395	1	Gasket
8	*10442	1	Copper Washer (1/4 Bolt)
9	*209787	1	Replaceable Seat
10	*12223	1	Steel Ball (3/16 Dia.)
11	209797	1	Hollow Lock Screw (7/16-20 UNF-3A; Torque to 180/200 in. lbs.)
12	*211797	1	Compression Spring (5/32 O.D. X 5/8 Lg.)
13	209795	1	Outlet Ball Stop

Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300430.
Part numbers marked with a dagger (†) are contained in EPR Seal Kit No. 300648.