

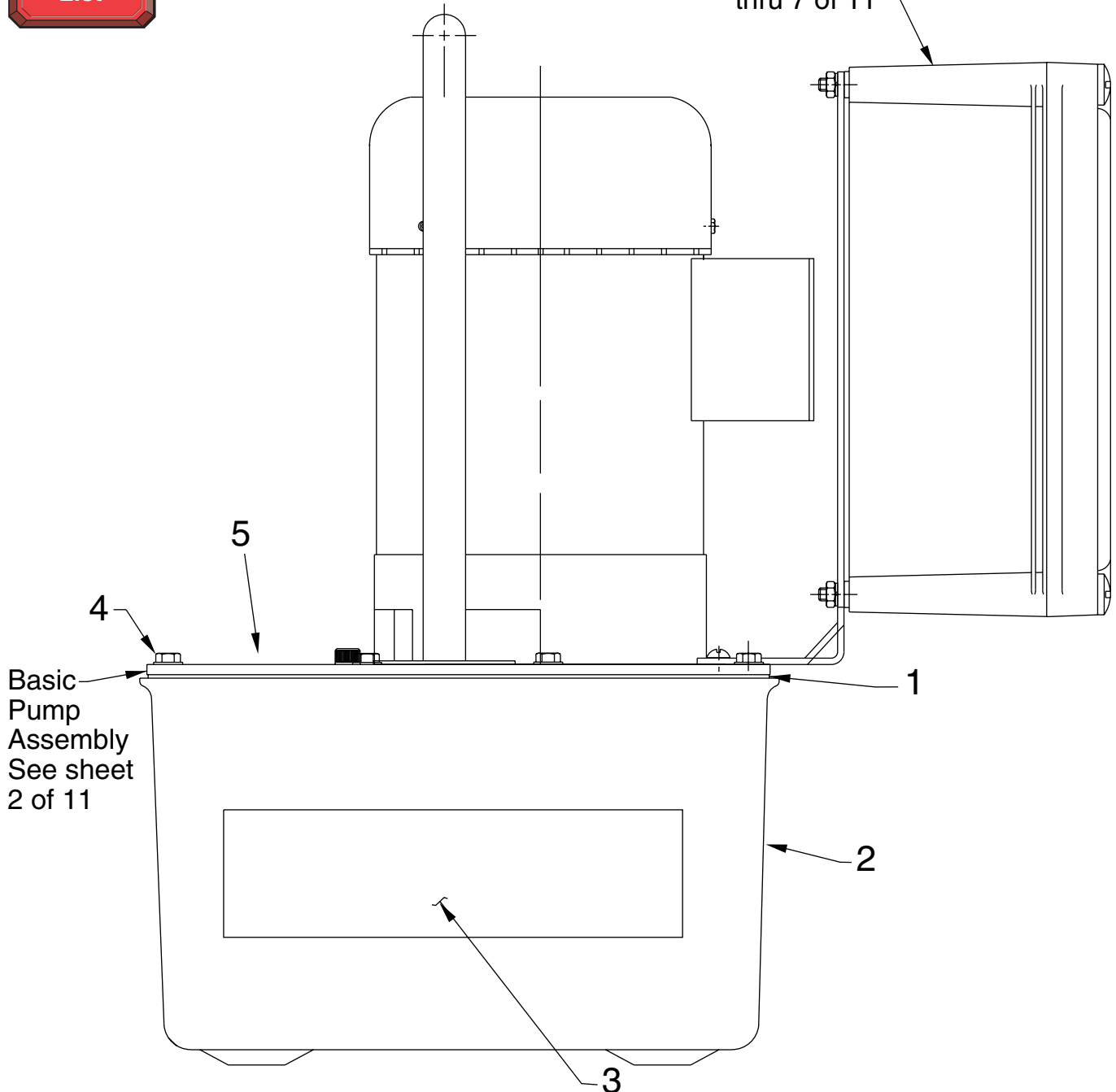
Parts List for:

PE82S-E220	PE172A-UK220	PE172S-UK220
PE84S-E220	PE172AM-E220	PE172SM-UK110
PE174S-E220	PE172M-E220	PE172SM-UK220
PE172-E220	PE172S-E220	PE174-E220
PE172-UK110	PE172SM-E220	PE174-UK110
PE172A-E220	PE172S-UK110	PE174M-E220

ELECTRIC HYDRAULIC PUMP

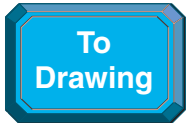


Motor Control Assemblies
See sheets 4 of 11
thru 7 of 11



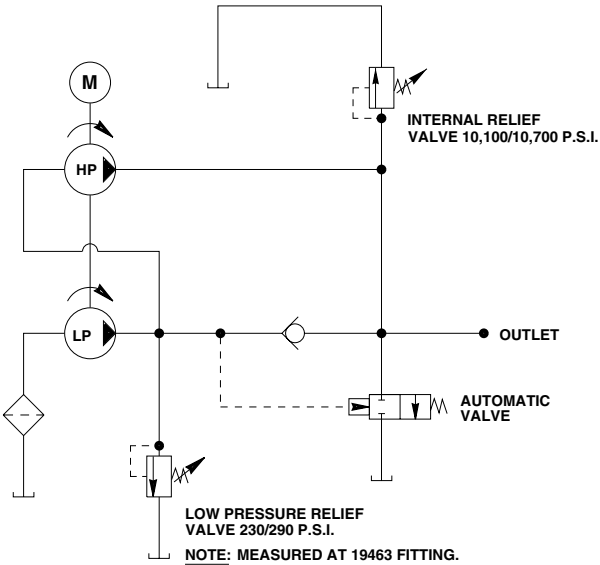
Basic
Pump
Assembly
See sheet
2 of 11

Item No.	Part No.	No. Req'd	Description
1	*40164	1	Gasket
2	61165	1	Reservoir (Plastic; For PE172-E220, PE172-UK110, PE172A-E220, PE172A-UK220, PE174-E220, PE174-UK110, PE172S-E220, PE172S-UK110, & PE172S-UK220)
	40063OR9	1	Reservoir (Metal; For PE82S-E220, PE172AM-E220, PE172M-E220, & PE174M-E220)
	64538OR9	1	Reservoir (Metal; For PE84S-E220, PE172SM-E220, PE172SM-UK110, PE172SM-UK220 & PE174S-E220)
3	309219	2	Decal
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	421451	1	Valve, Solenoid (3-Way, 220V.; For PE82S-E220, PE172S-E220, PE172SM-E220, PE172S-UK110, PE172S-UK220, PE172M-UK110, & PE172SM-UK220; See sheet 10 of 11)
	9552	1	Valve, Solenoid (4-Way, 230V.; For PE84S-E220 & PE174S-E220; See Form No. 108066)
	52170	1	Valve (2-Way; For PE172-E220, PE172-UK110, & PE172M-E220; See back sheet 9 of 11)
	52510	1	Valve, Manual (4-Way, Tandem Ctr.; For PE174-E220, PE174-UK110, PE172M-E220; See back sheet 11 of 12)
	45554	1	Body, Manifold (For PE172A-E220, PE172A-UK220, & PE172AM-E220; See sheet 11 of 11)

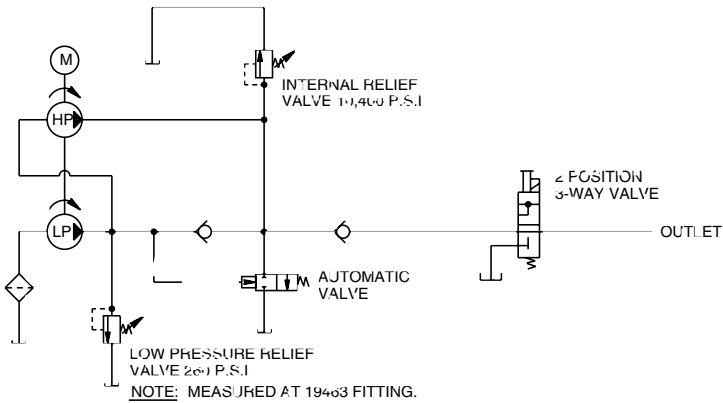


Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300430.

HYDRAULIC SCHEMATIC

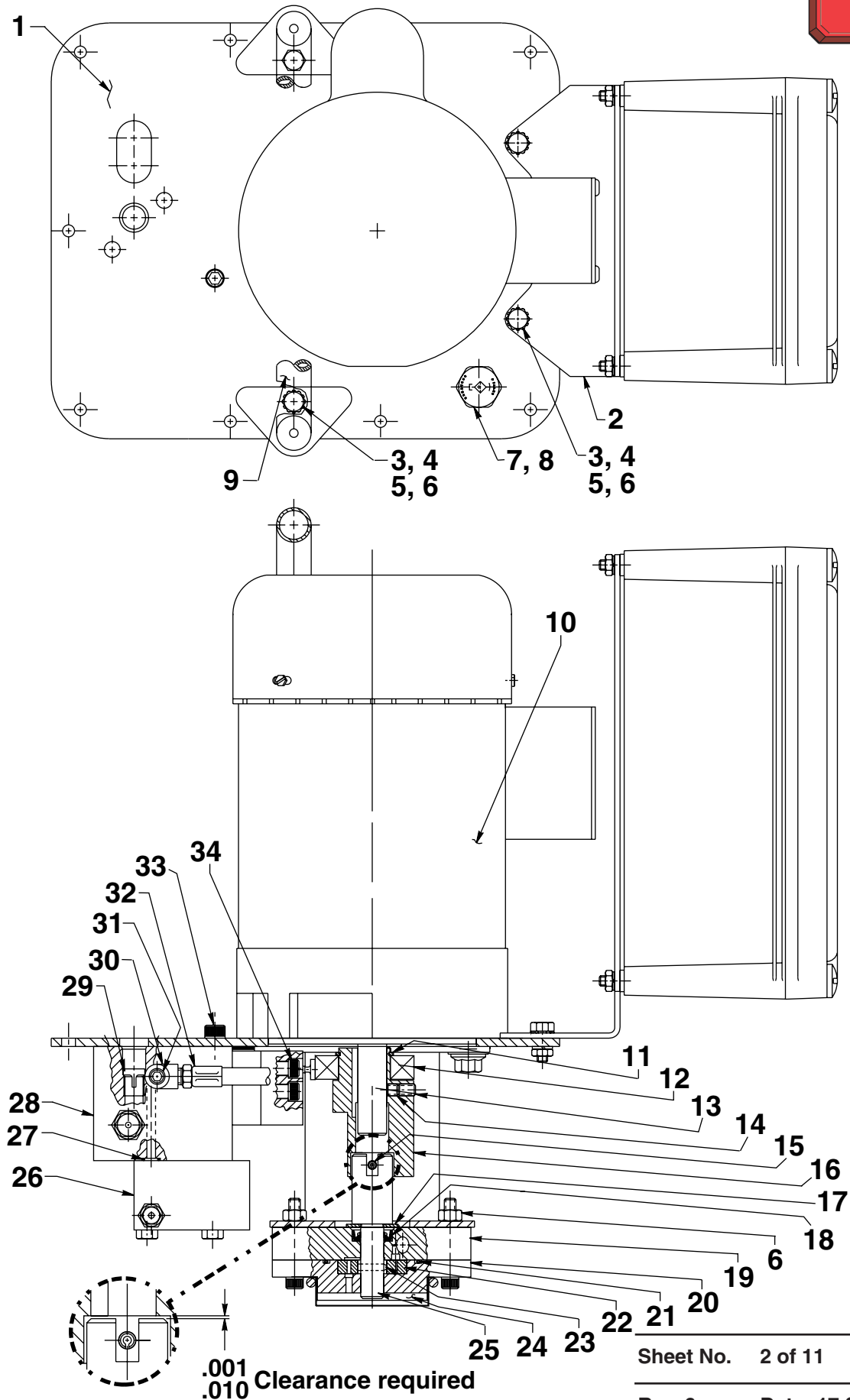


HYDRAULIC SCHEMATIC FOR PE82S-E220



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

BASIC PUMP ASSEMBLY

To Parts
List

Sheet No. 2 of 11

Rev. 6

Date: 17 Sept. 1999

Item No.	Part No.	No. Req'd	Description
1	64966BK2	1	Cover Plate
2	64877BK2	1	Mounting Bracket
3	10009	4	Cap Screw (1/4-20 UNC X 3/4 Lg.; Torque to 60/80 in. lbs.)
4	11351	4	Washer (1/4 External Tooth)
5	10245	8	Washer (For 1/4 bolt)
6	10199	10	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; For PE82S-E220)
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.)



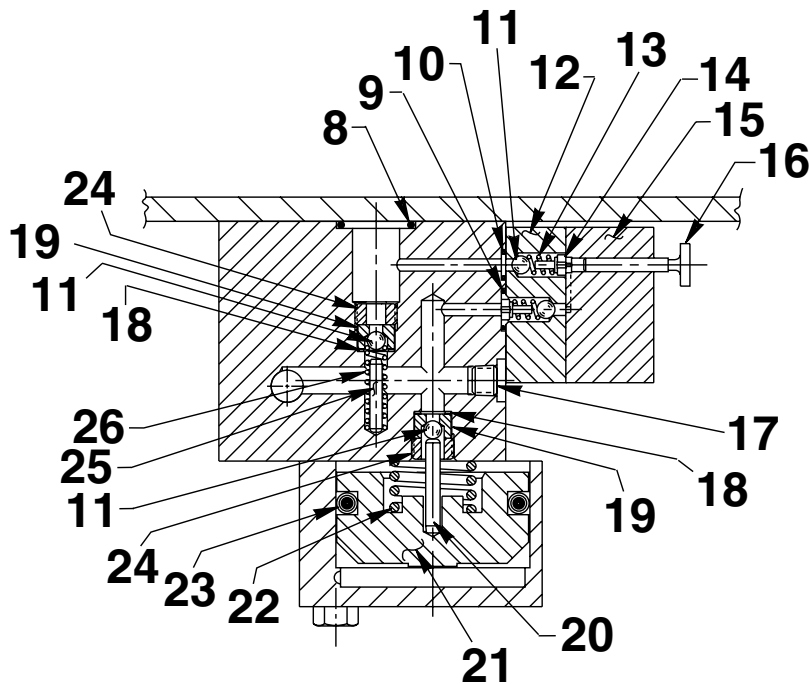
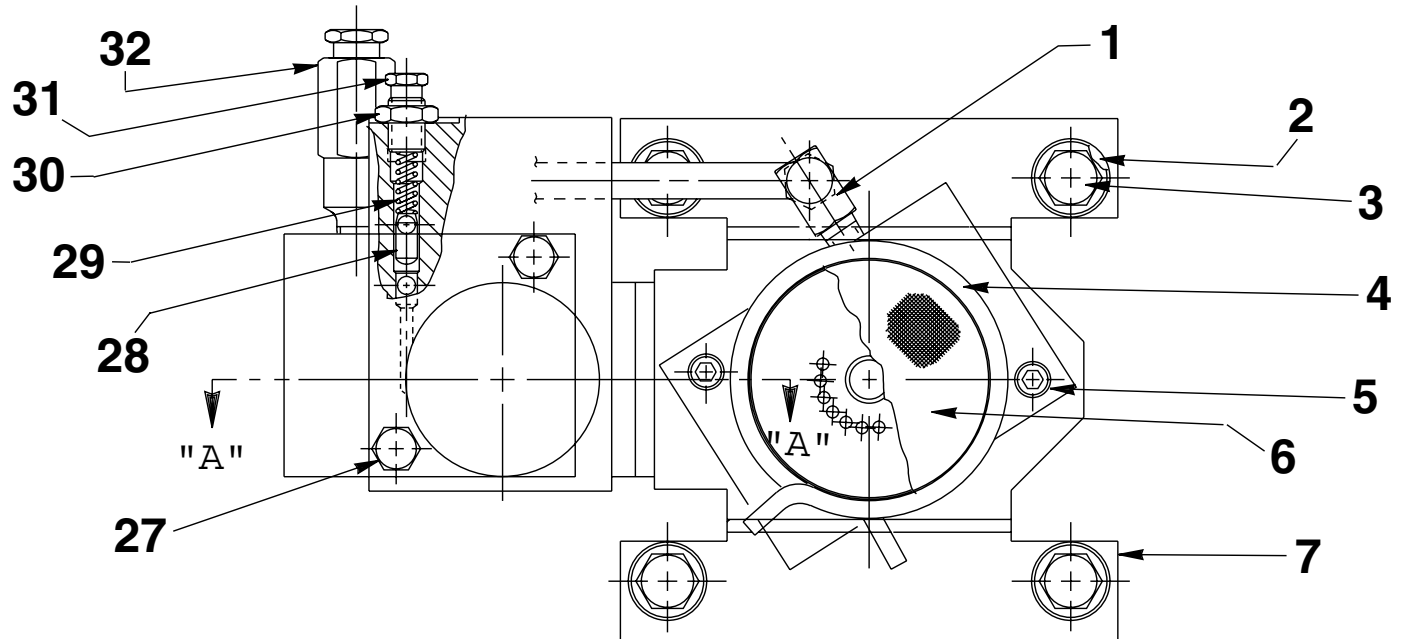
PARTS INCLUDED BUT NOT SHOWN

351060 1 Motor Base Gasket

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

To Parts
List

BOTTOM VIEW & SECTION A-A



SECTION A-A

Sheet No. 3 of 11

Rev. 6

Date: 17 Sept. 1999

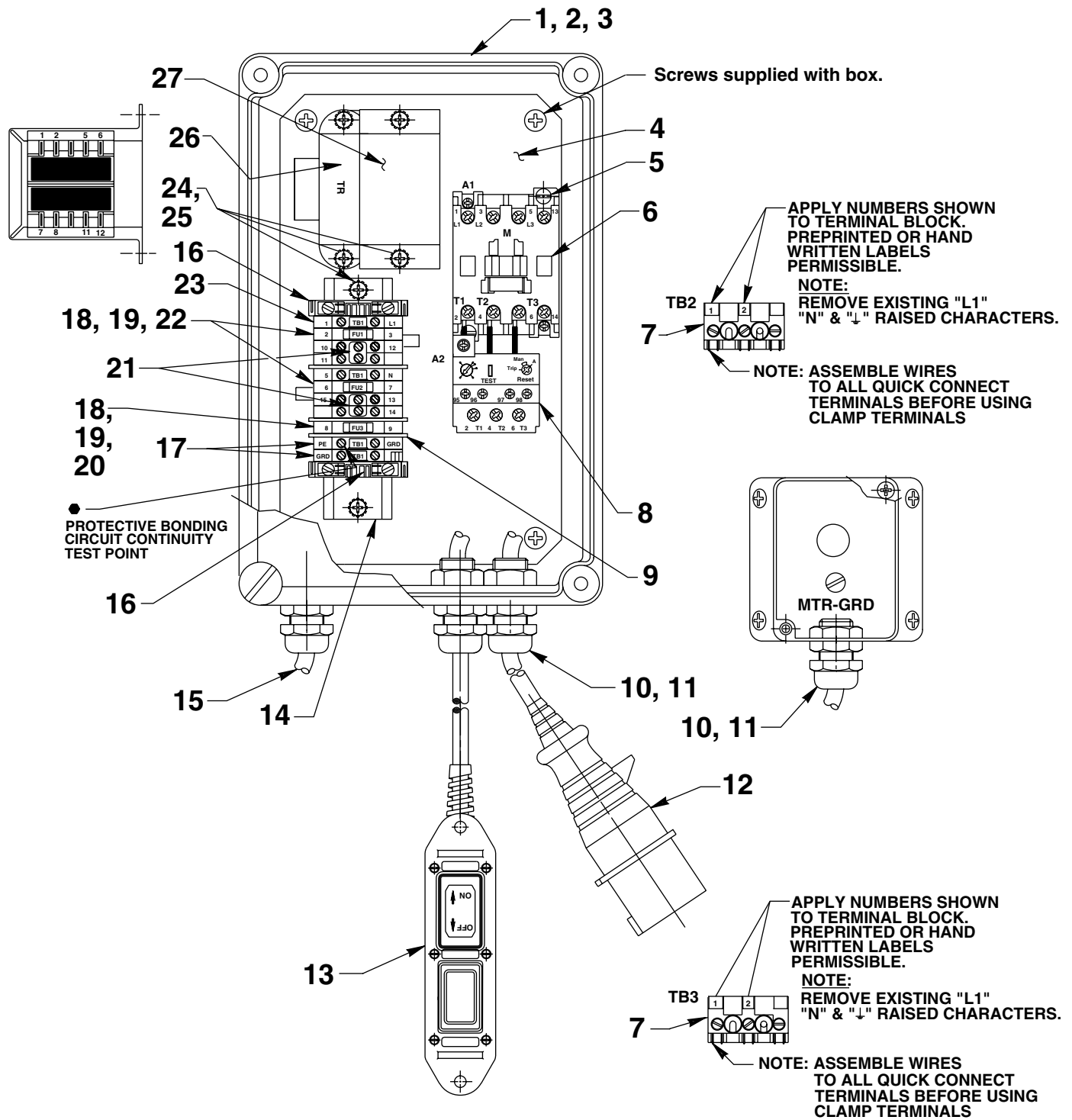
Item No.	Part No.	No. Req'd	Description
1	14440	1	90° Elbow Fitting
2	10258	4	Washer (For 3/8 bolt)
3	213663	4	Cap Screw (3/8-16 UNC X 1" Lg.; Torque to 230/250 in. lbs.)
4	11461	1	Hose Clamp
5	10854	2	Cap Screw (1/4-20UNC X 1-3/4 Lg.; Torque to 60/80 in. lbs.)
6	21608	1	Filter
7	52174	1	Pump Mounting 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-UK110 & PE174-UK110)

To Parts List



Item No.	Part No.	No. Req'd	Description	Item No.	Part No.	No. Req'd	Description
1	251886	1	Control Box	14	251967	1	DIN Mounting Rail
2	251762	1	Warning Decal	15	251879	2.25 ft.	Electrical Cable (14/3)
3	251898	1	Decal	16	251843	2	End Anchor
4	421153	1	Mounting Plate	17	251840	2	Grounding Terminal Block
5	12409	2	Machine Screw (#8-32 UNC x 5/8 Lg.)	18	251849	3	Fuse Block
6	421148	1	Contactor	19	251848	3	Fuse Terminal Block
7	251550	1	Terminal Block	20	251857	1	Fuse (3.15 AMP)
8	351125	1	Overload Relay (Set at 11.0 AMPS)	21	251845	2	Center Jumper (2 pole)
9	251847	3	Partition Plate	22	252040	2	Fuse (630 mA)
10	216666	4	Bushing	23	251841	2	Terminal Block
11	216680	4	Conduit Locknut	24	13158	6	Machine Screw (#8-32 UNC x 1/4 Lg.)
12	351193	1	Power Cord Assembly (PE172-E220, PE172A-E220, & PE174-E220, PE172M-E220, PE172AM-220, & PE174M-220)	25	11388	6	Lockwasher (#8 External Tooth)
	351194	1	Power Cord Assembly (PE172-UK220 & PE174-UK220)	26	351119	1	Transformer (50 VA)
13	251881	1	Hand Switch Assembly (See back sheet 8 of 11)	27	421146	1	Transformer Cover

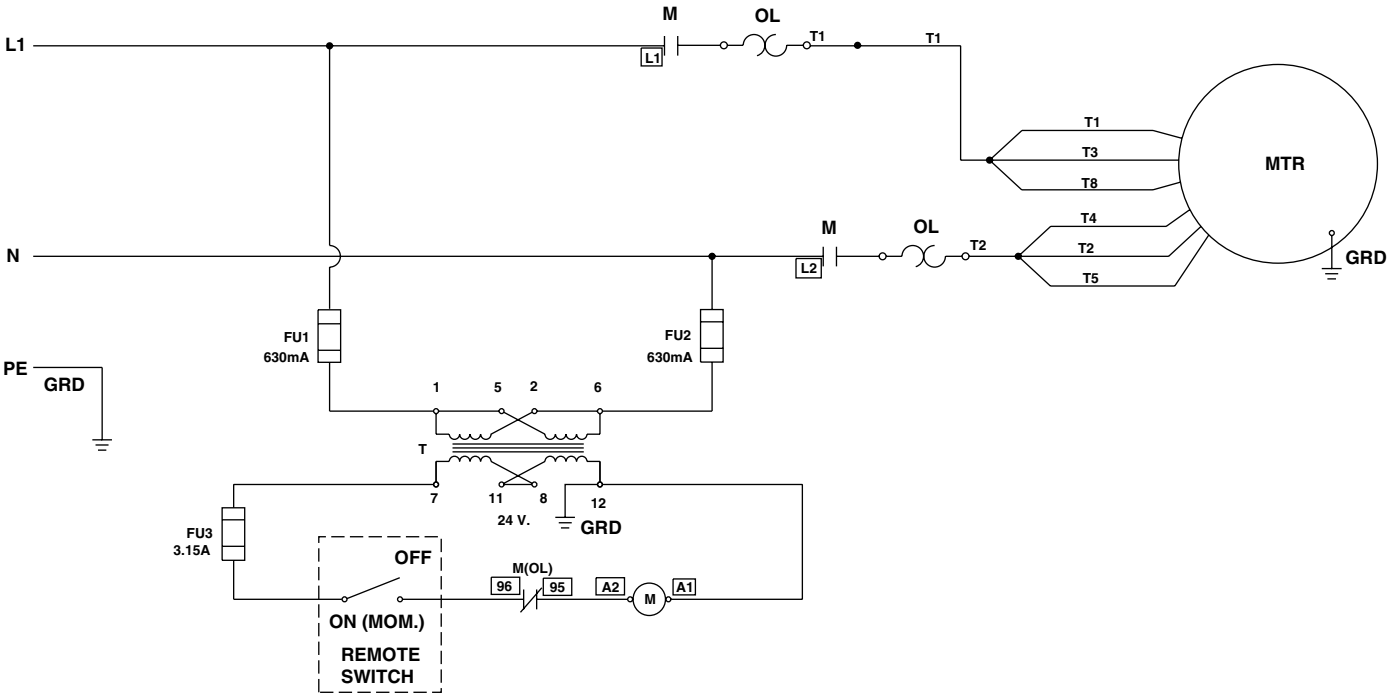


ELECTRICAL SCHEMATIC

110 V., 50 Hz. Single Phase



WARNING: To help prevent personal injury, all electrical work must be done by a qualified electrician.



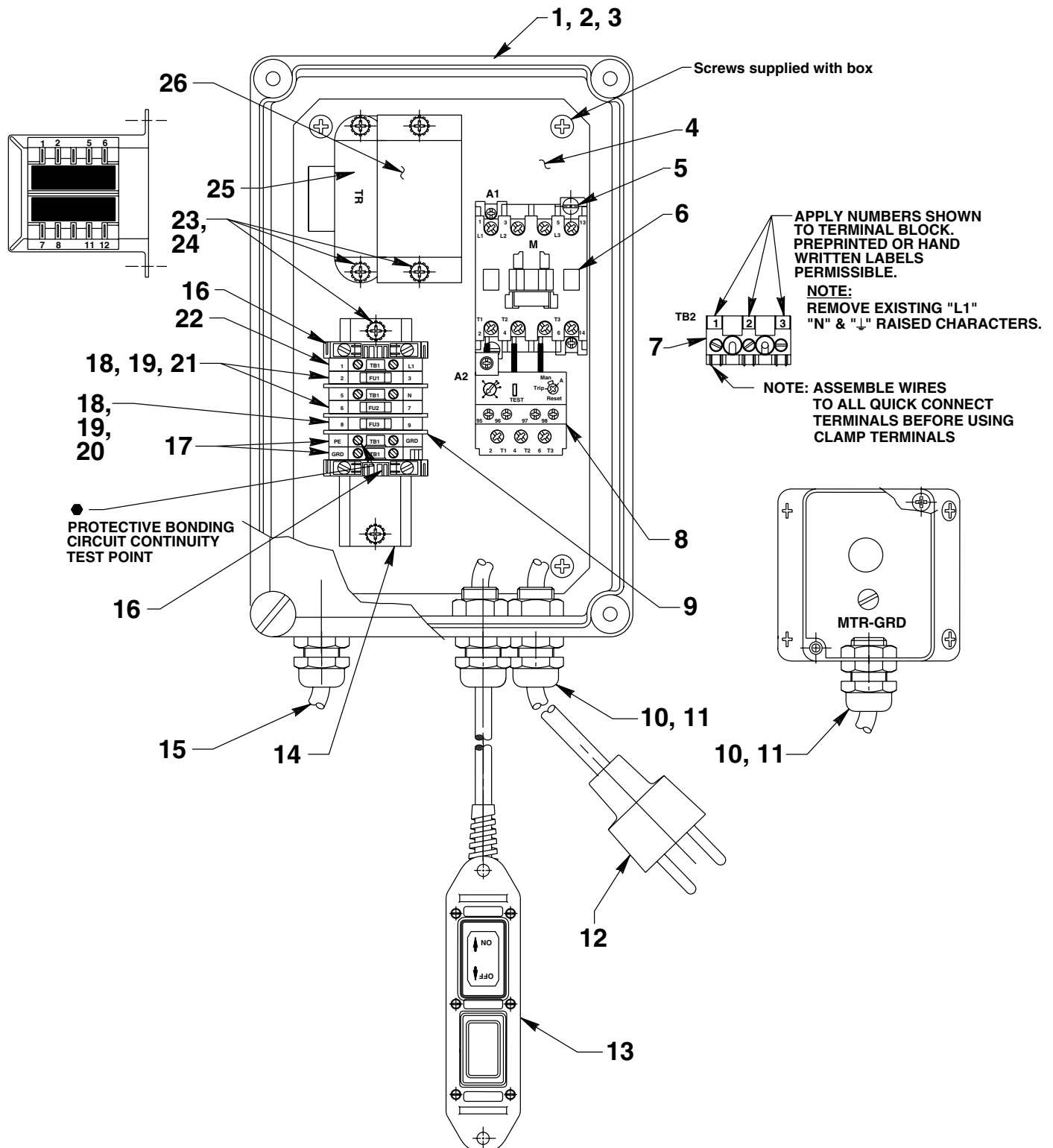
North American & International Color Codes

Conductors	North American	International
Line	Black	Brown
Neutral	White	Blue
Ground	Green	Green/Yellow

MOTOR CONTROL ASSEMBLY 220 V., 50 HZ.

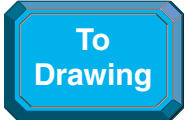
(For PE172-E220, PE172A-E220, PE172A-UK220, PE172AM-E220,
PE172M-E220, PE174-E220 & PE174M-E220)

To Parts
List



Item No.	Part No.	No. Req'd	Description
1	251886	1	Control Box
2	251762	1	Warning Decal
3	251898	1	Decal
4	421153	1	Mounting Plate
5	12409	2	Machine Screw (#8-32 UNC x 5/8 Lg.)
6	421148	1	Contactor
7	251550	1	Terminal Block
8	351124	1	Overload Relay (Set at 5.5 AMPS)
9	251847	3	Partition Plate
10	216666	4	Bushing
11	216680	4	Conduit Locknut
12	251839	1	Power Cord Assembly
13	251881	1	Hand Switch Assembly (See back sheet 8 of 11)

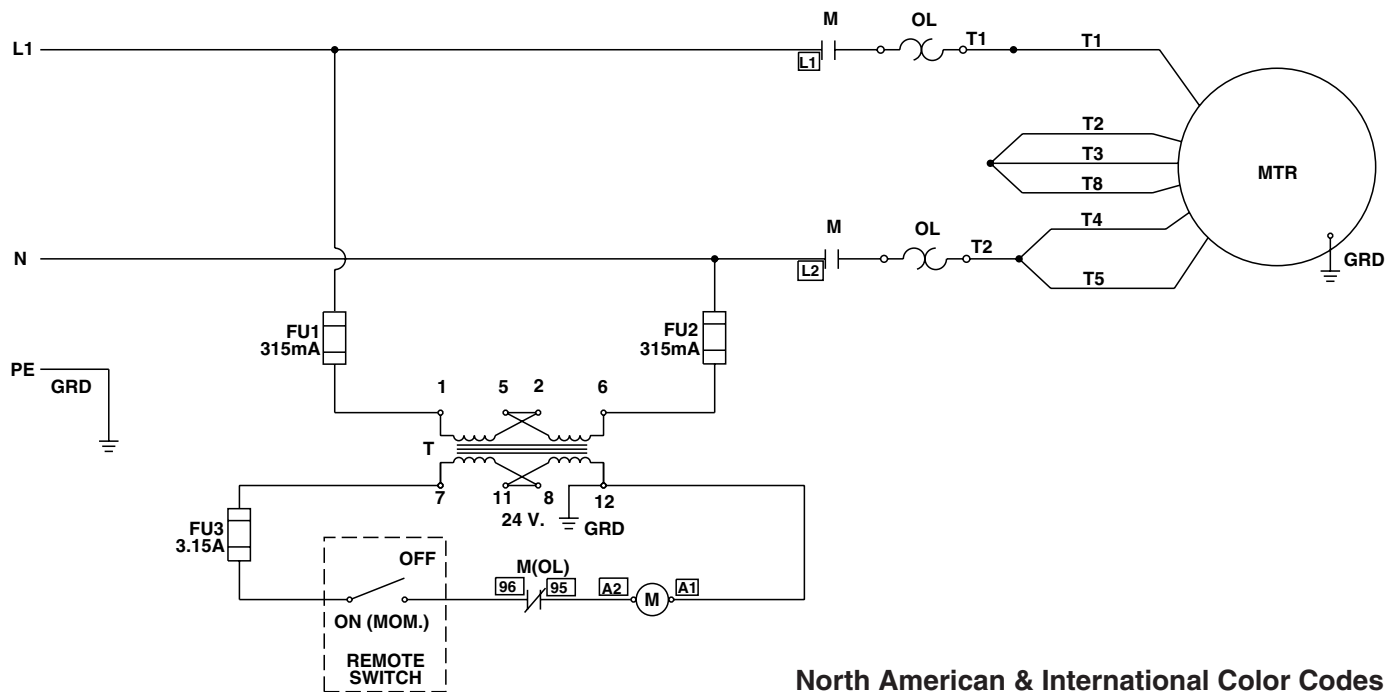
Item No.	Part No.	No. Req'd	Description
14	251967	1	DIN Mounting Rail
15	251879	2.25 ft.	Electrical Cable (14/3)
16	251843	2	End Anchor
17	251840	2	Grounding Terminal Block
18	251849	3	Fuse Block
19	251848	3	Fuse Terminal Block
20	251857	1	Fuse (3.15 AMP)
21	251855	2	Fuse (315 mA)
22	251841	2	Terminal Block
23	13158	6	Machine Screw (#8-32 UNC x 1/4 Lg.)
24	11388	6	Lockwasher (#8 External Tooth)
25	351119	1	Transformer (50 VA)
26	421146	1	Transformer Cover



ELECTRICAL SCHEMATIC
220 V., 50 Hz. Single Phase



WARNING: To help prevent personal injury, all electrical work must be done by a qualified electrician.



North American & International Color Codes

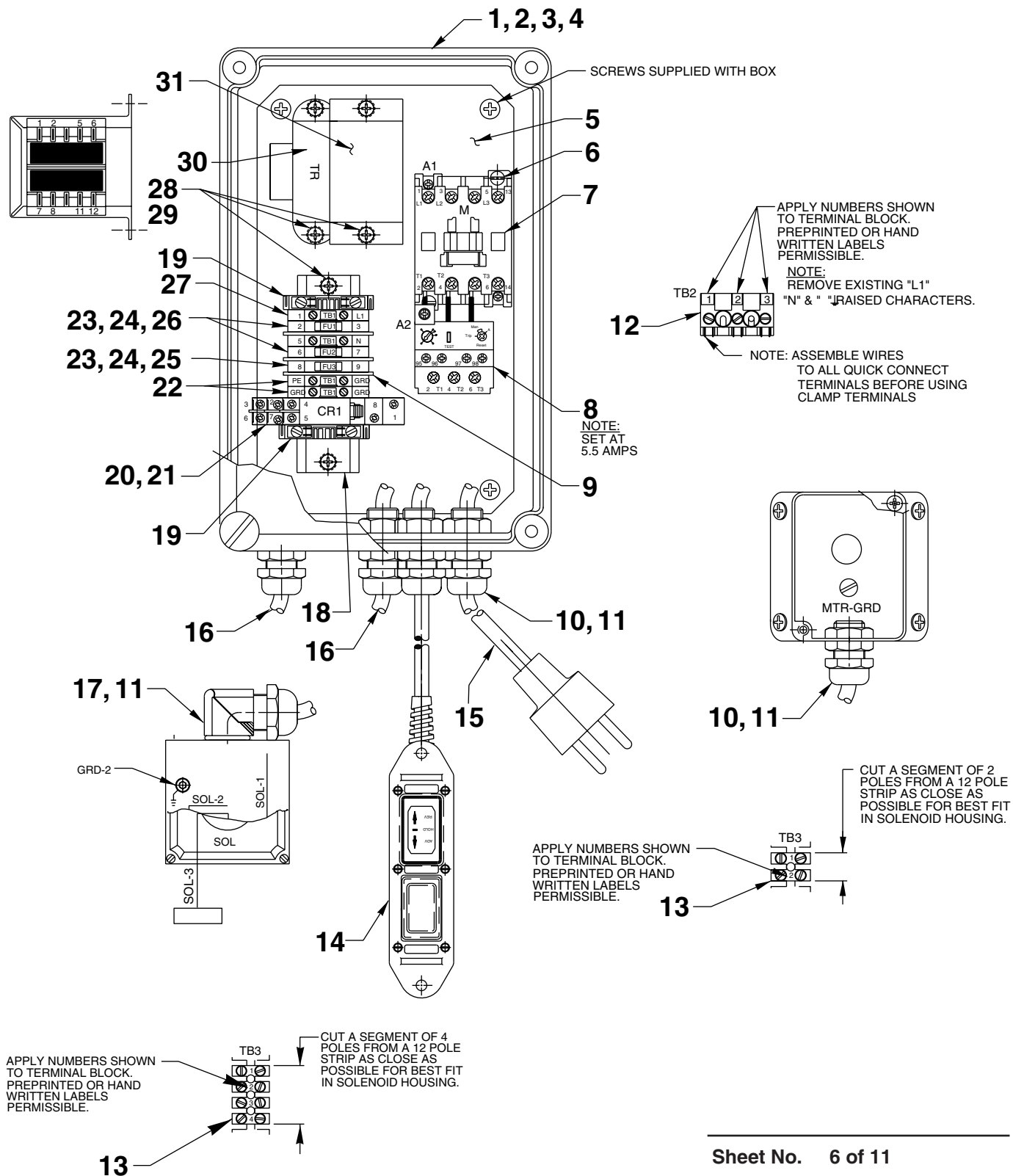
Conductors	North American	International
Line	Black	Brown
Neutral	White	Blue
Ground	Green	Green/Yellow

To Parts
List

MOTOR CONTROL ASS'Y SOL. OP.

220 V., 50 HZ.

(For PE82S-E220, PE84S-E220, PE172S-E220, PE172SM-E220,
PE172S-UK220, PE172SM-UK220 & PE174S-E220)



For PE84S-E220 & PE174S-E220

Sheet No. 6 of 11

Rev. 6

Date: 17 Sept. 1999

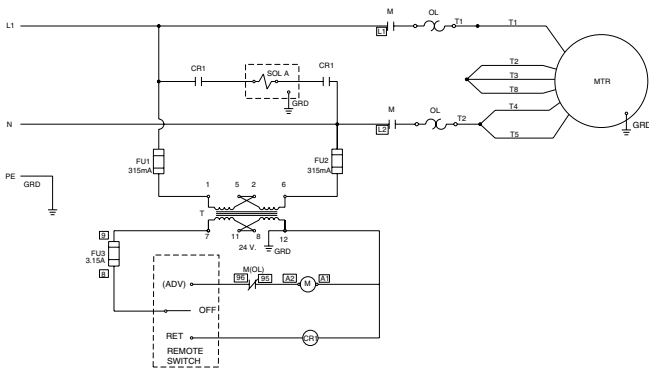
Parts List, Form No. 101635, Back sheet 6 of 11

Item No.	Part No.	No. Req'd	Description
1	251886	1	Control Box
	251875	1	Control Box (For PE82S-E220)
2	251762	1	Warning Decal
3	251898	1	Warning Decal (CE Electrical)
4	350988	1	Decal (CE)
5	421153	1	Mounting Plate
6	12409	2	Screw (#8-32 UNC x 5/8 Lg.)
7	421148	1	Contact
8	351124	1	Overload Relay (Set at 5.5 amps)
9	251847	3	Partition Plate
10	216666	5	Strain Relief Bushing
11	216680	6	Conduit Locknut
12	251550	1	Terminal Block
13	351130	.1660	Terminal Block
	351130	.33	Terminal Block (For PE84S-E220 & PE174S-E220)
14	252508	1	Remote Hand Switch Assembly (See Back sheet 8 of 11)
	251872	1	Remote Hand Switch Assembly (For PE82S-E220, PE84S-E220, & PE174S-E220; See sheet 8 of 11)
15	251879	5.25 ft.	Electrical Cable (14/3)
16	251839	1	Cord (8 ft.; For PE82S-E220, PE84S-E220, PE172S-E220, PE172SM-E220 & PE174S-E220)
	351194	1	Plug Connector (For PE172S-UK220 & PE172SM-UK220)
	251879	8 ft.	Electrical Cable (For UK models)

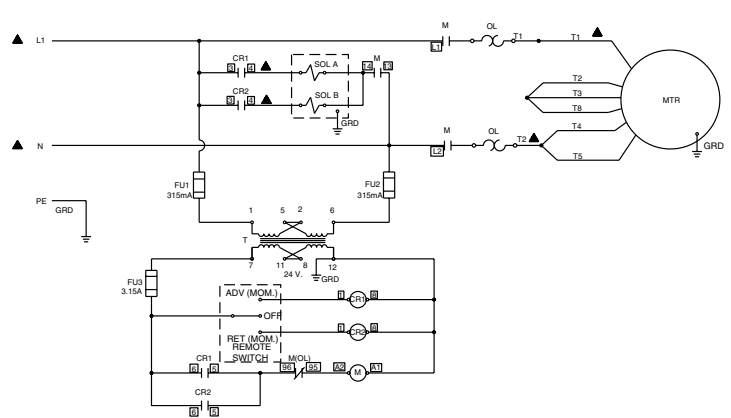
Item No.	Part No.	No. Req'd	Description
17	216667	1	Strain Relief Bushing
18	251967	1	DIN Mounting Rail
19	251843	2	End Anchor
20	251859	1	General Purpose Relay
	251859	2	General Purpose Relay (For PE84S-E220 & PE1174S-E220)
21	251869	1	Relay Socket
	251869	2	Relay Socket (For PE84S-E220 & PE174S-E220)
22	251841	2	Grounding Terminal Block
23	251849	3	Fuse Block
24	251848	3	Terminal Fuse Block
25	251857	1	Fuse (315 amp 250 V.)
26	251855	2	Fuse (315 MAMP 250 V.)
27	251840	2	Terminal Block
28	13158	6	Screw (#8-32 UNC x 1/4 Lg.)
29	11388	6	Washer (#8 External Tooth)
30	351119	1	Transformer
31	421146	1	Transformer Cover



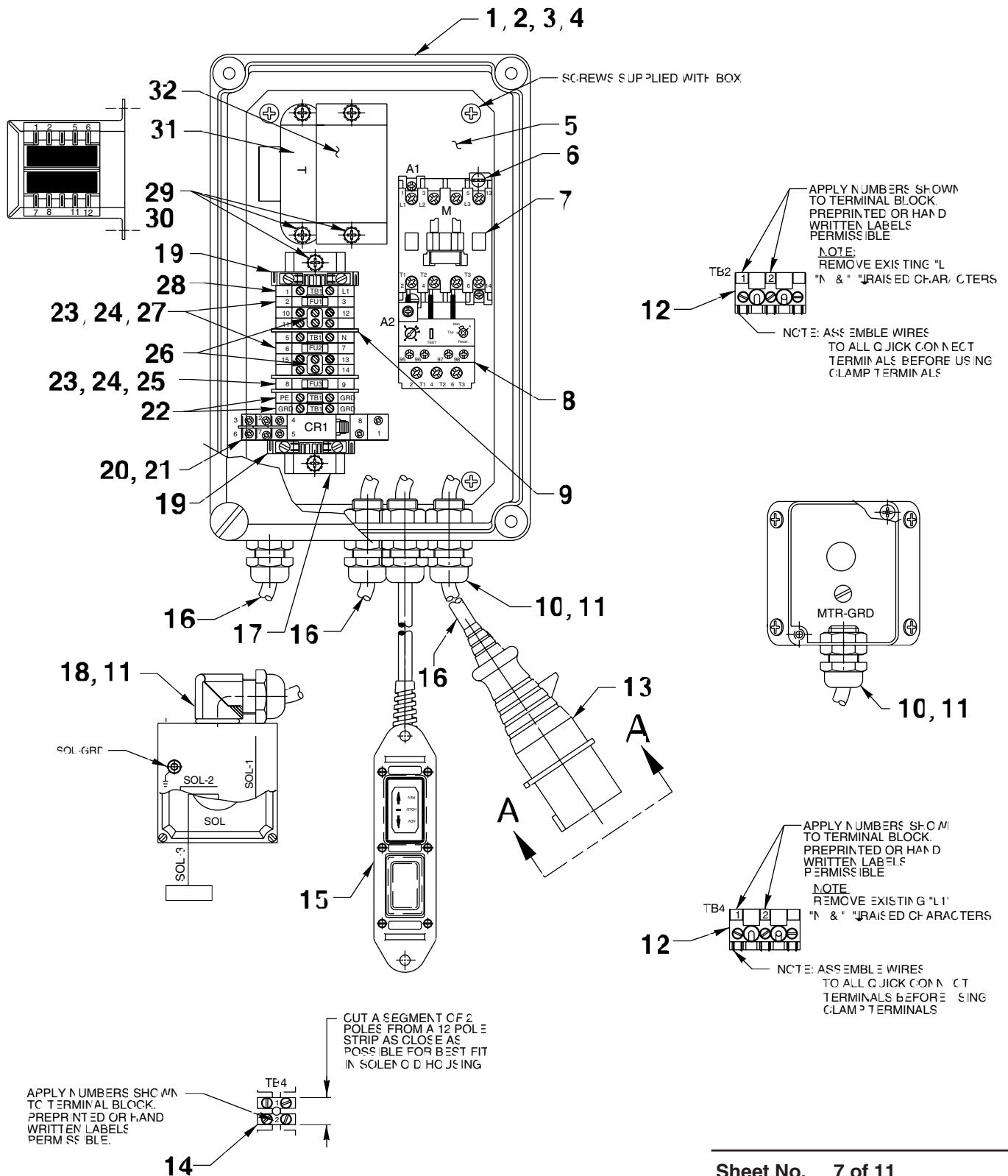
ELECTRICAL SCHEMATIC 220 V., 50 Hz.



ELECTRICAL SCHEMATIC FOR PE84S-E220 & PE174S-E220 220 V., 50 Hz.



MOTOR CONTROL ASS'Y SOL. OP.
110 V., 50 HZ.
(For PE172S-UK110 & PE172SM-UK110)

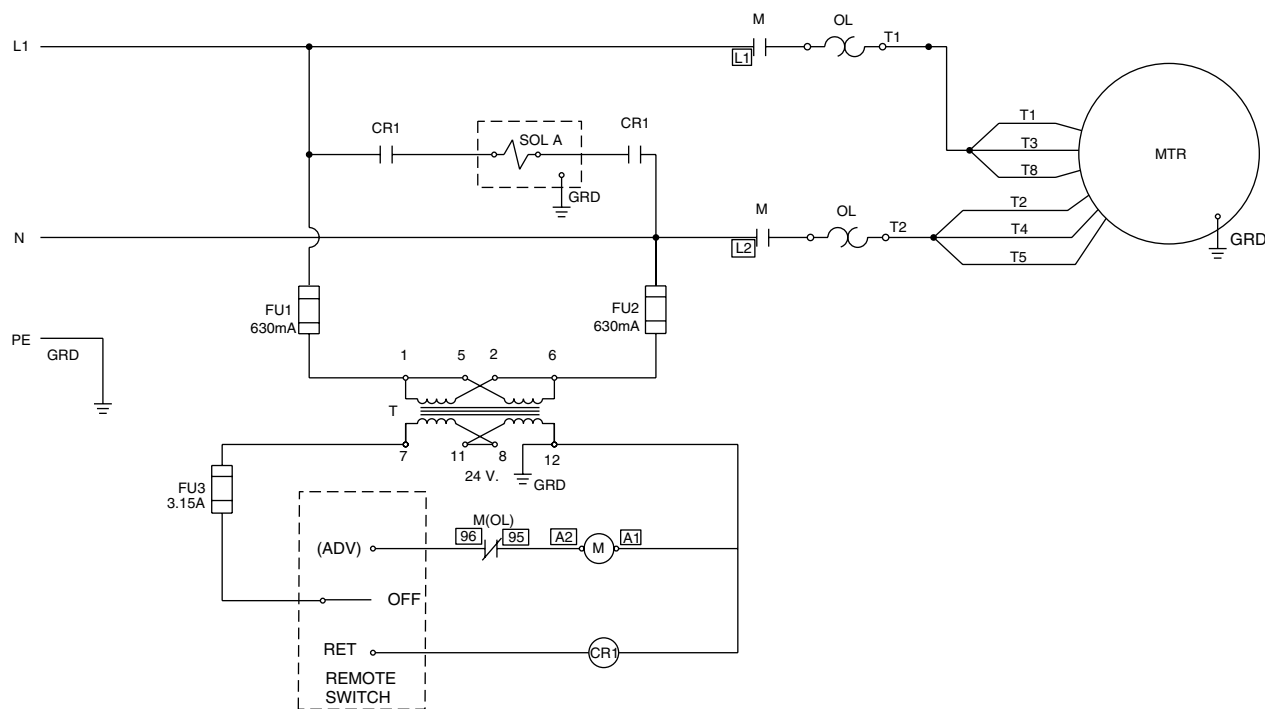


Item No.	Part No.	No. Req'd	Description
1	251886	1	Control Box
2	251762	1	Warning Decal
3	251898	1	Warning Decal (CE electrical)
4	350988	1	Decal (CE)
5	421153	1	Mounting Plate
6	12409	2	Screw (#8-32 UNC x 5/8 Lg.)
7	421148	1	Contactor
8	351125	1	Overload Relay (Set at 11 amps)
9	251847	3	Partition Plate
10	216666	5	Strain Relief Bushing
11	216680	6	Conduit Locknut
12	251550	2	Terminal Block
13	351193	1	Connector Plug
14	351130	1	Terminal Block
15	252508	1	Remote Hand Switch Assembly (See sheet 9 of 11)
16	251879	13'3"	Electrical Cable (14/3)
17	251967	1	DIN Mounting Rail
18	216667	1	Strain Relief Bushing

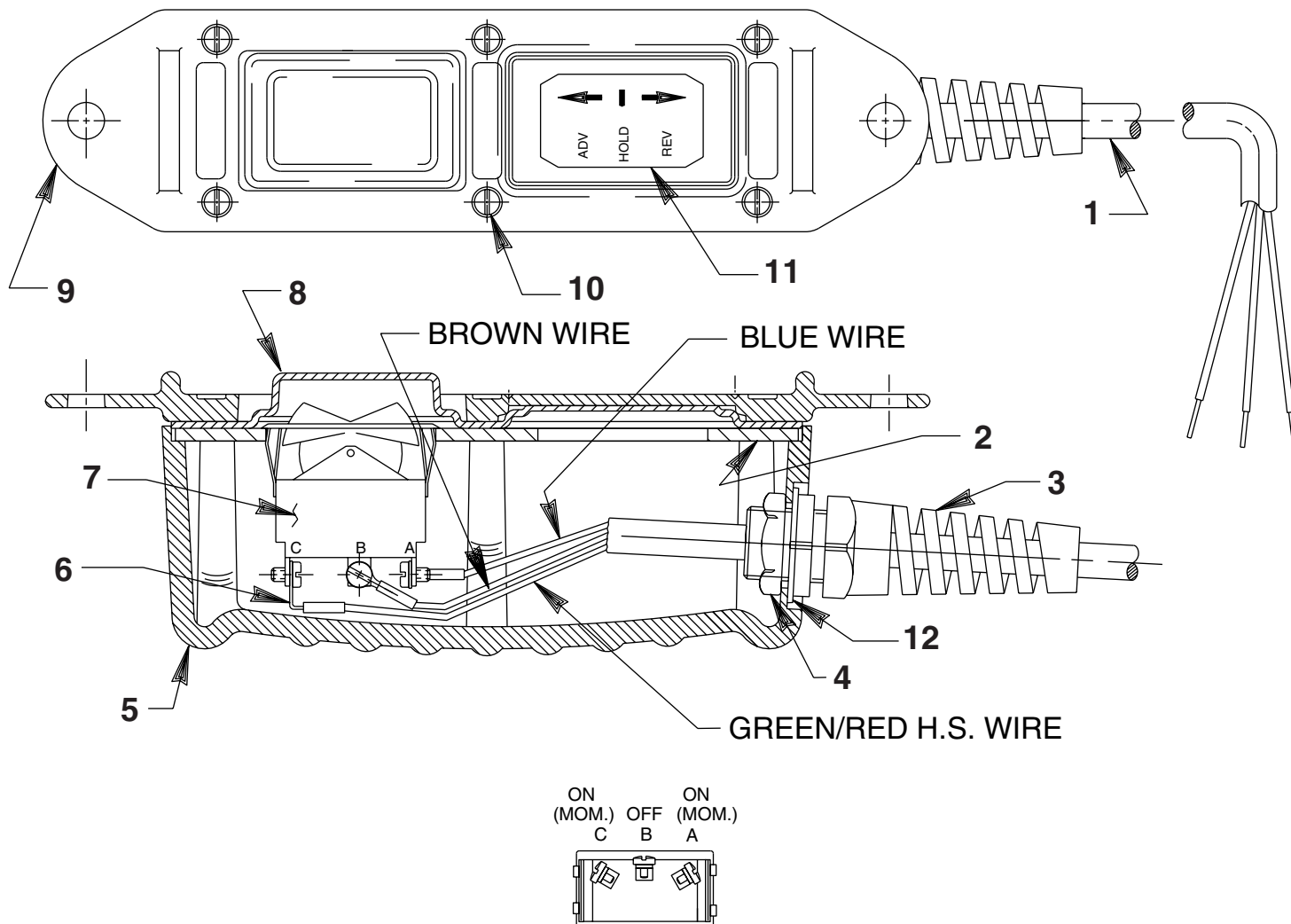
Item No.	Part No.	No. Req'd	Description
19	251843	2	End Anchor
20	251859	1	General Purpose Relay
21	251869	1	Relay Socket
22	251841	2	Grounding Terminal Block
23	251849	3	Fuse Block
24	251848	3	Terminal Fuse Block
25	251857	1	Fuse (3.15 amp 250 V.)
26	251845	2	Center 2 Pole Jumper
27	252040	2	Fuse (630 MAMP 250 V.)
28	251840	6	Terminal Block
29	13158	6	Screw (#8-32 UNC x 1/4 Lg.)
30	11388	6	Washer (#8 External Tooth)
31	351119	1	Transformer
32	421146	1	Transformer Cover



ELECTRICAL SCHEMATIC
110 V., 50 Hz.



REMOTE HAND SWITCH No. 251872



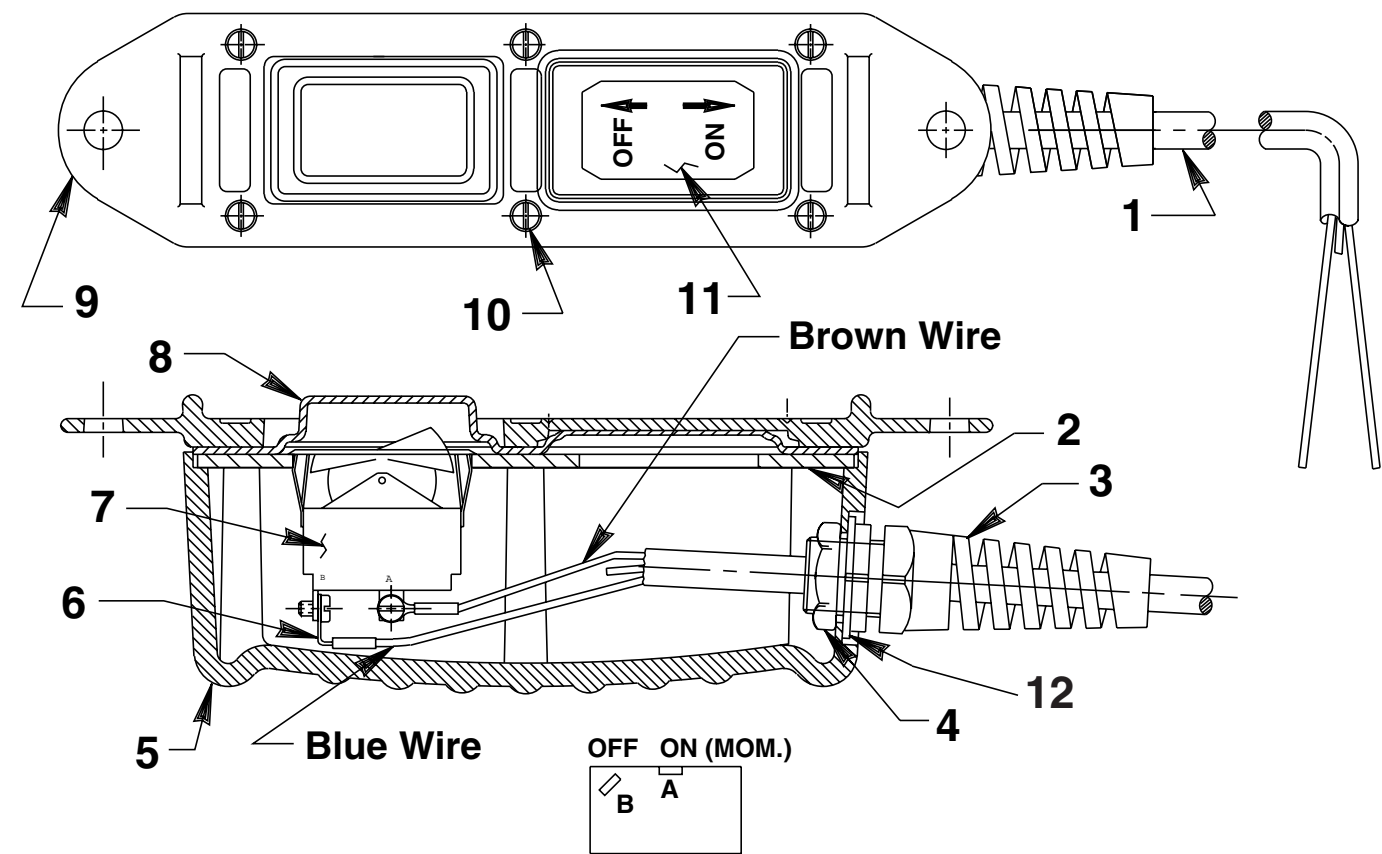
Item No.	Part No.	No. Req'd	Description
1	251879	2.25 ft.	Electrical Cable (1.5 mm/3)
2	420050-3	1	Switch Mounting Plate
3	251818	1	Strain Relief Connector
4	251802	1	Locknut (3/4-16 UNF)
5	420050-4	1	Switch Housing
6	10525	2	Ring Terminal
7	16773	1	Rocker Switch
8	420050-2	1	Gasket
9	420050-1	1	Cover
10	250248	6	Screw (4-24 x 3/4 Lg.)
11	202776	1	Decal
12	253607	1	Rubber Seal

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

Sheet No. 8 of 11

Rev. 6 Date: 17 Sept. 1999

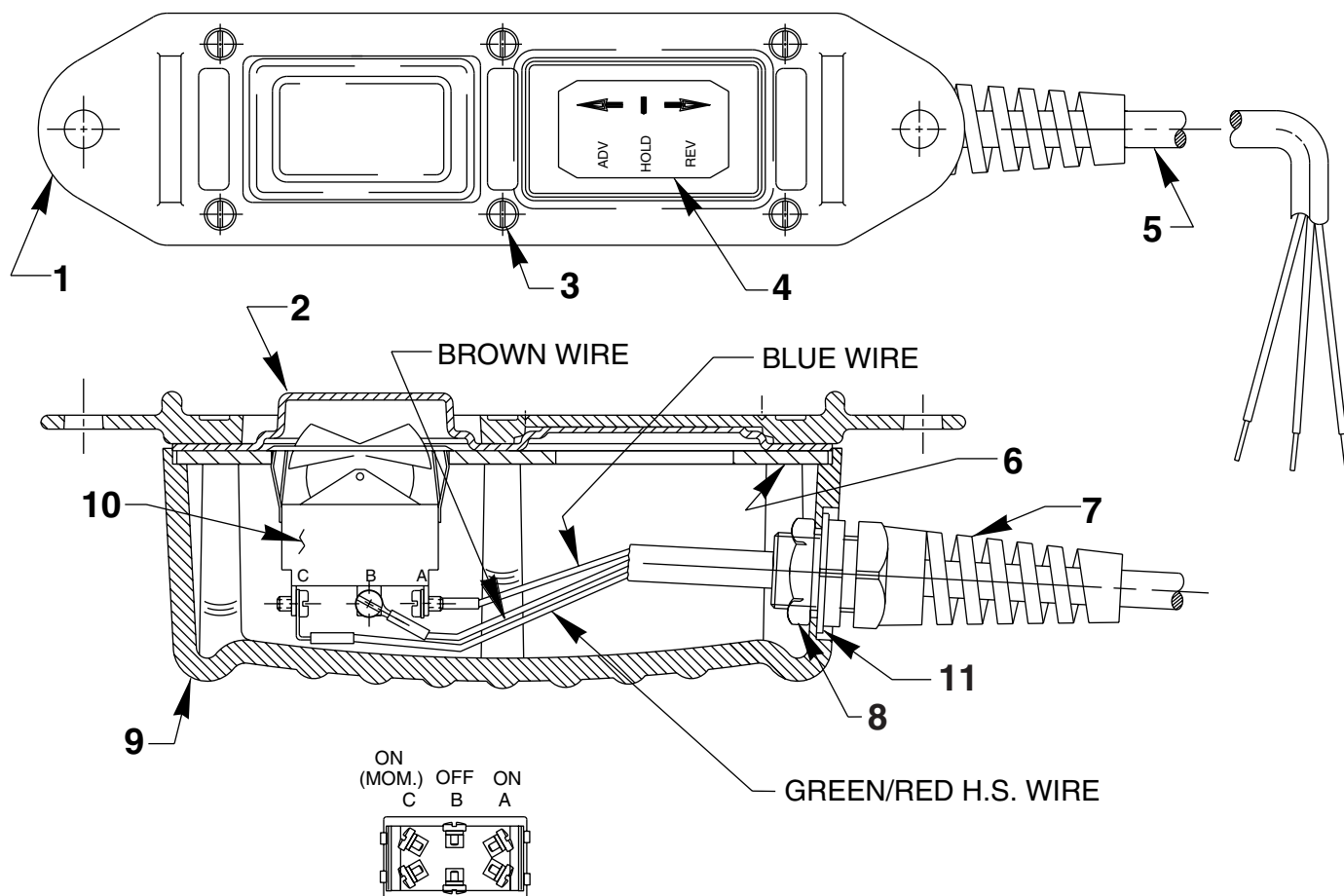
REMOTE HAND SWITCH
No. 251881



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

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

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
7	251818	1	Strain Relief Bushing
8	251802	1	Locknut (Torque to 30/35 in. lbs.)
9	420050-4	1	Switch Housing
10	16774	1	Rocker Switch
11	253607	1	Rubber Seal

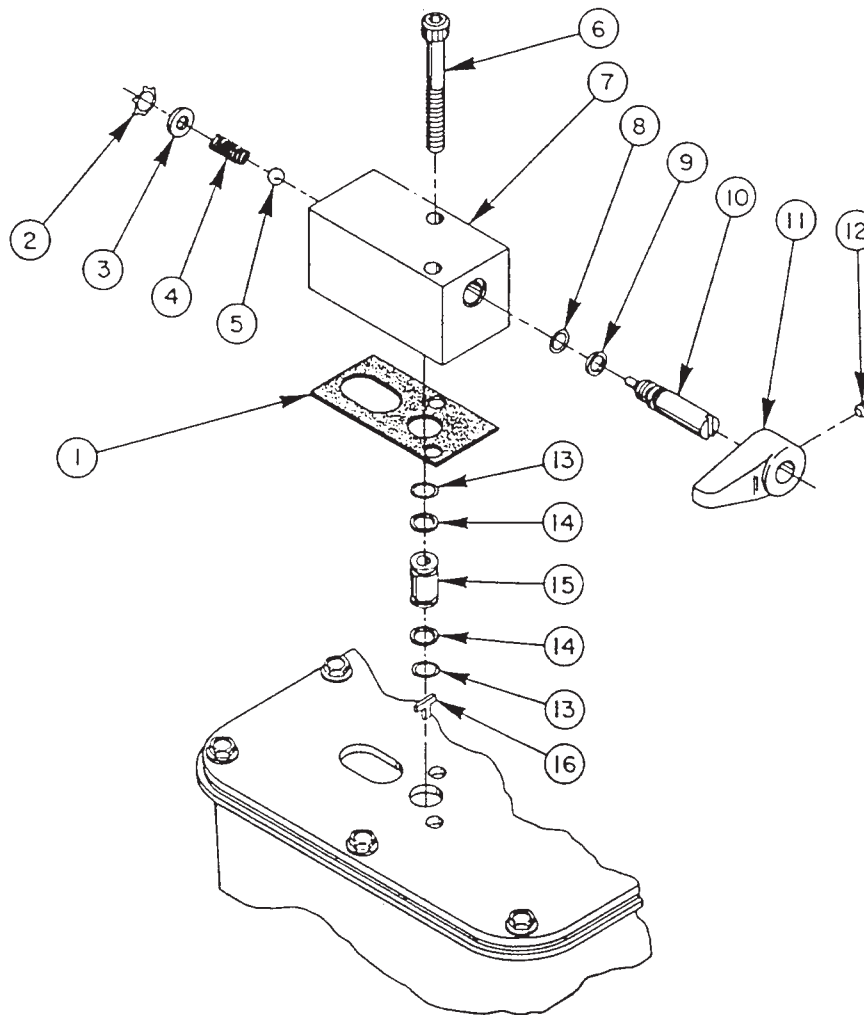
Note: Shaded areas reflect last revision(s) made to this form.

Sheet No. 9 of 11

Rev. 6

Date: 17 Sept. 1999

TWO POSITION, 2-WAY MANUAL VALVE (FOR PE172-E220, PE172-UK110, & PE172M-E220)



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)

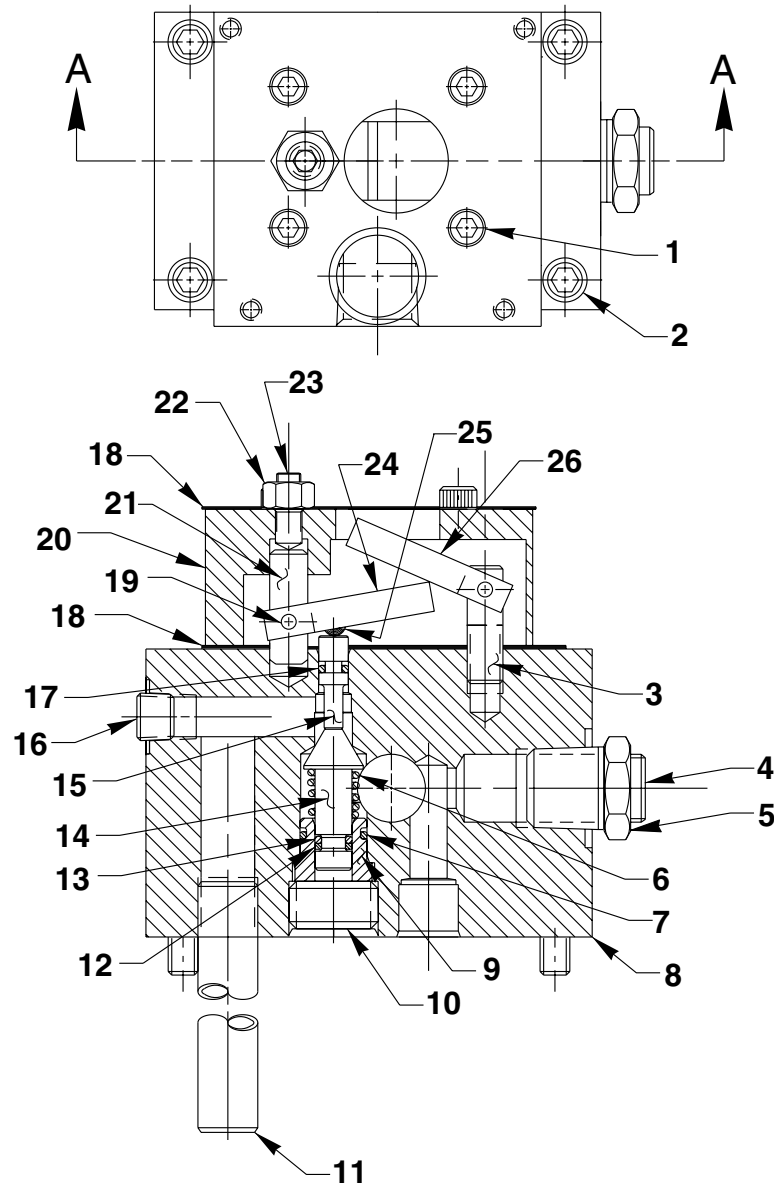
Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300430.
Part numbers marked with a dagger (†) are contained in EPR Seal Kit No. 300648.

VALVE ASSEMBLY

(For PE82S-E220, PE172S-E220, PE172SM-E220, PE172S-UK110, PE172S-UK220,
PE172SM-UK110 & PE172SM-UK220;

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

To Parts
List



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)

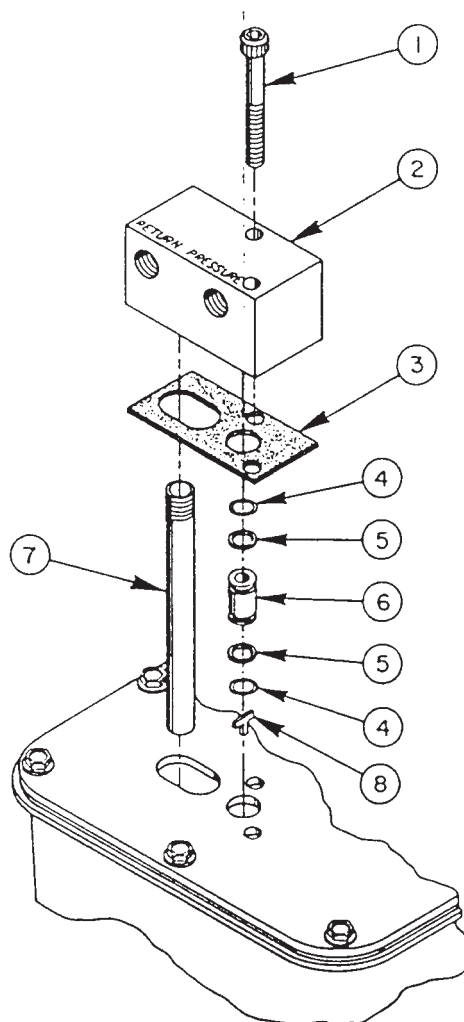
PARTS INCLUDED BUT NOT SHOWN

11127	1	Pressure Plug
17027-2	1	Solenoid (220/230 V., 50/60 Hz)
17027-1	1	Solenoid (110/115 V., 50/60 Hz)

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



MANIFOLD ASSEMBLY (FOR PE172A-E220, PE172A-UK220, & PE172AM-E220)

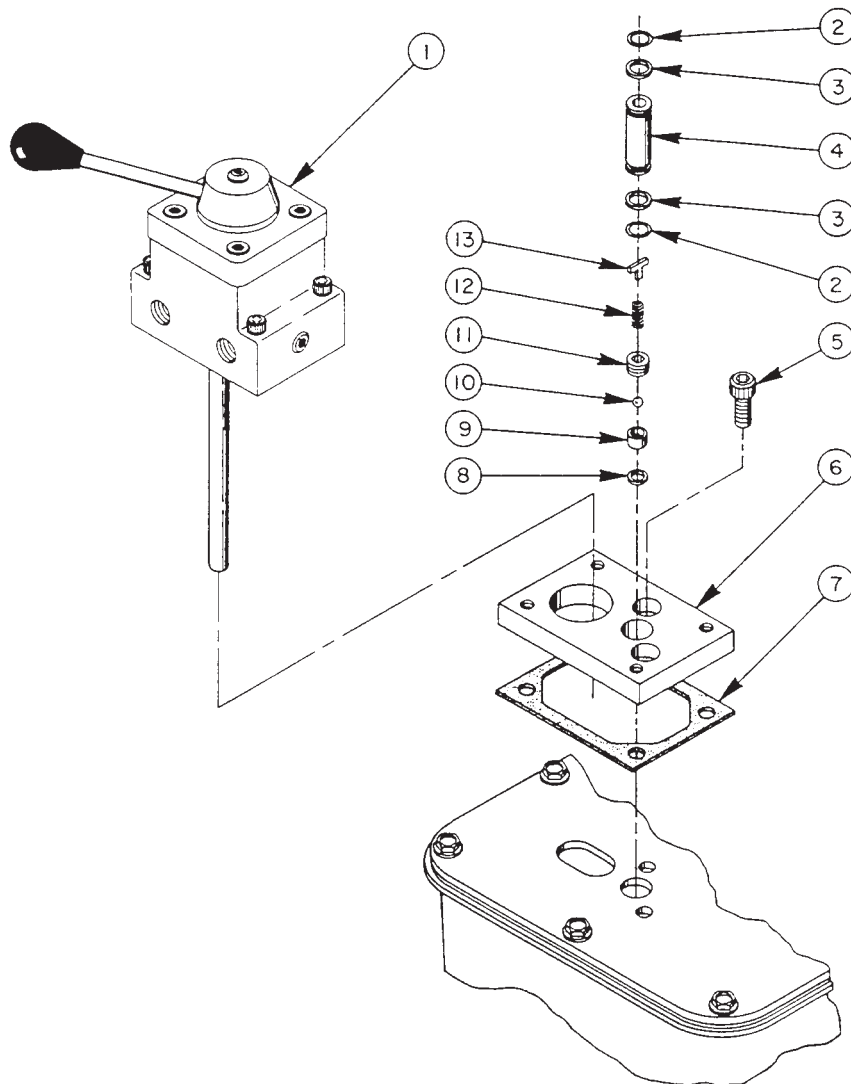


Item No.	Part No.	No. Req'd	Description
1	209945	2	Cap Screw (5/16-18 UNC X 2-1/2 Lg.; Torque to 220/240 in. lbs.)
2	45554	1	Manifold
3	*304829	1	Gasket
4	*10268	2	O-ring (1/2 X 3/8 X 1/16)
	†17716	2	O-ring (1/2 X 3/8 X 1/16)

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-E220, PE174-UK110, & PE174M-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.)
6	58805	1	Adapter Block Manifold

Item No.	Part No.	No. Req'd	Description
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.