

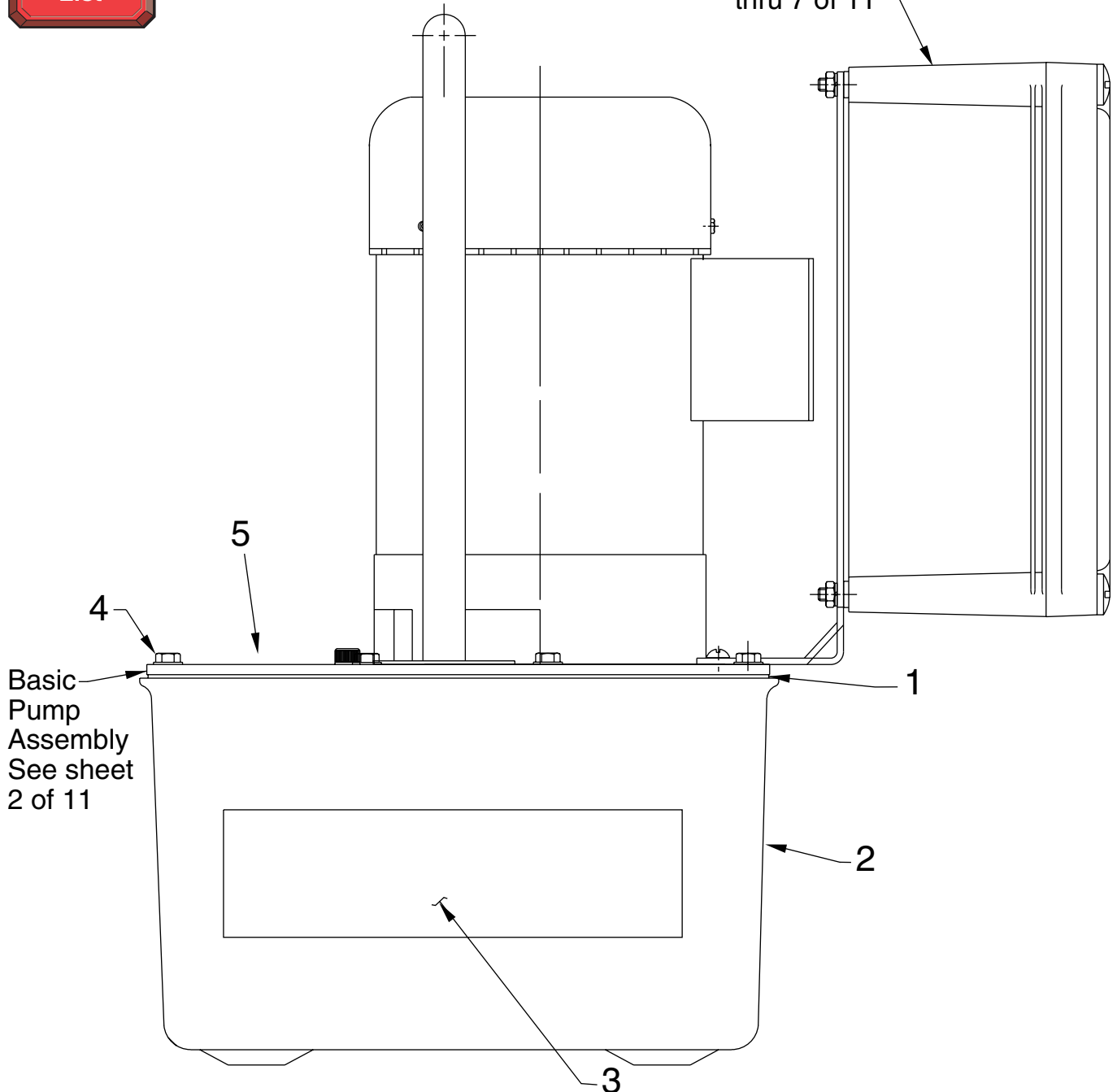
Parts List for:

| | | |
|-------------|--------------|---------------|
| 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



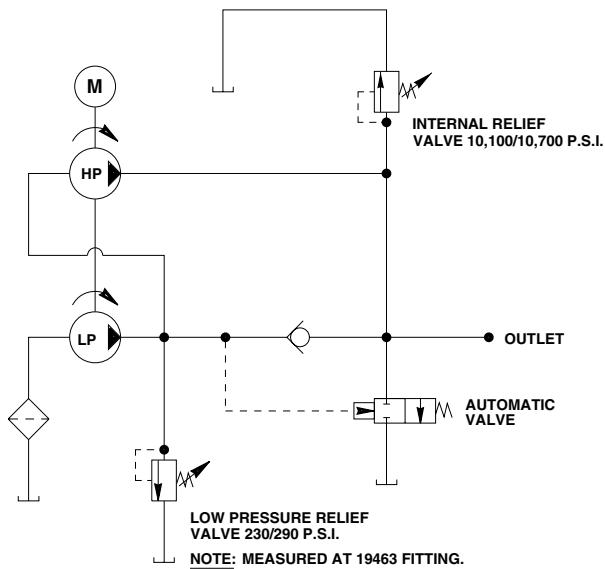
Basic Pump Assembly
See sheet 2 of 11

| 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) |

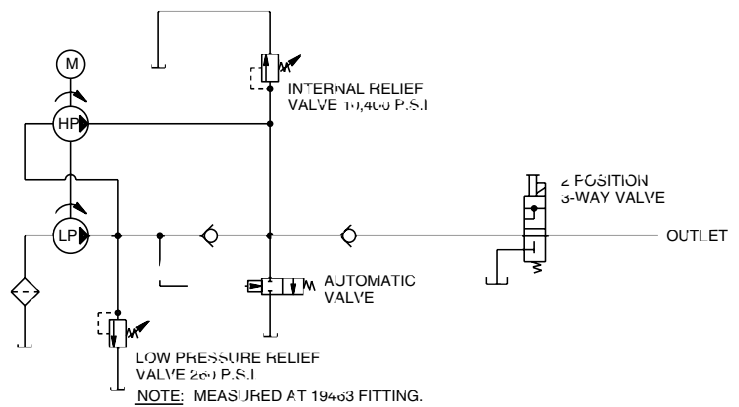


Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300430.

HYDRAULIC SCHEMATIC



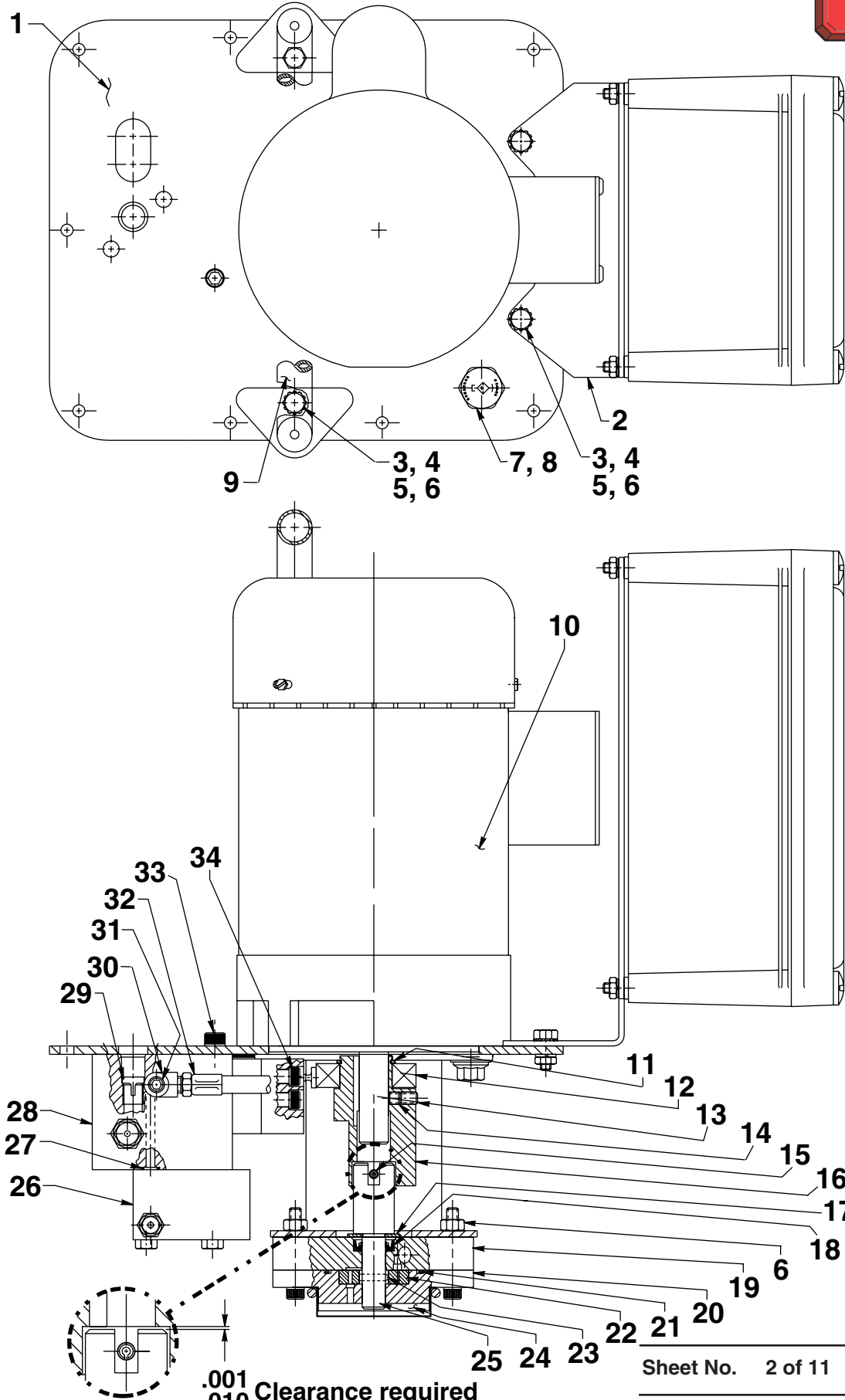
HYDRAULIC SCHEMATIC FOR PE82S-E220



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

BASIC PUMP ASSEMBLY

To Parts List



| 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.) |



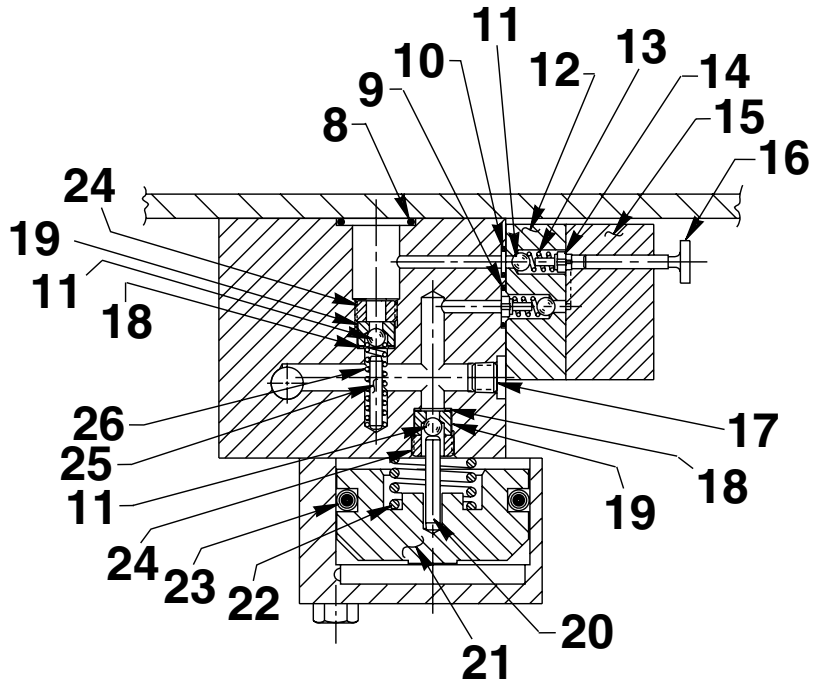
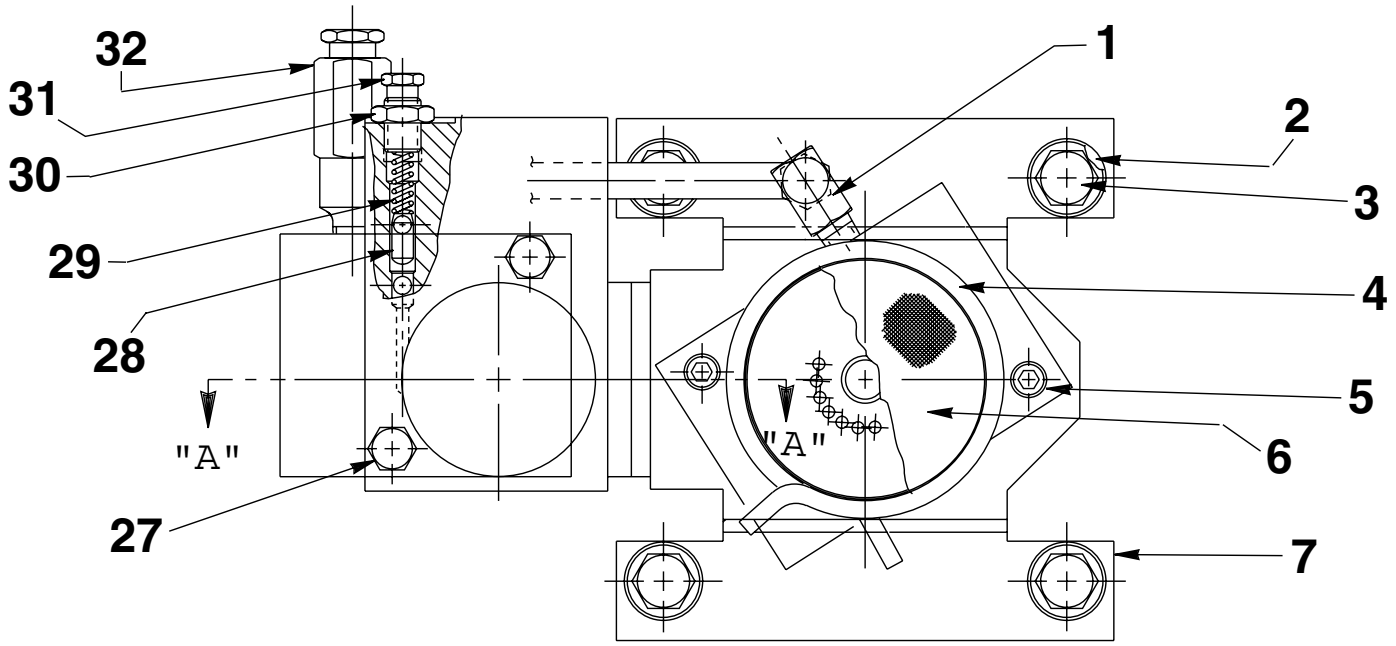
PARTS INCLUDED BUT NOT SHOWN

351060 1 Motor Base Gasket

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



BOTTOM VIEW & SECTION A-A



SECTION A-A

Parts List, Form No. 101635, Back sheet 3 of 11

| 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) |

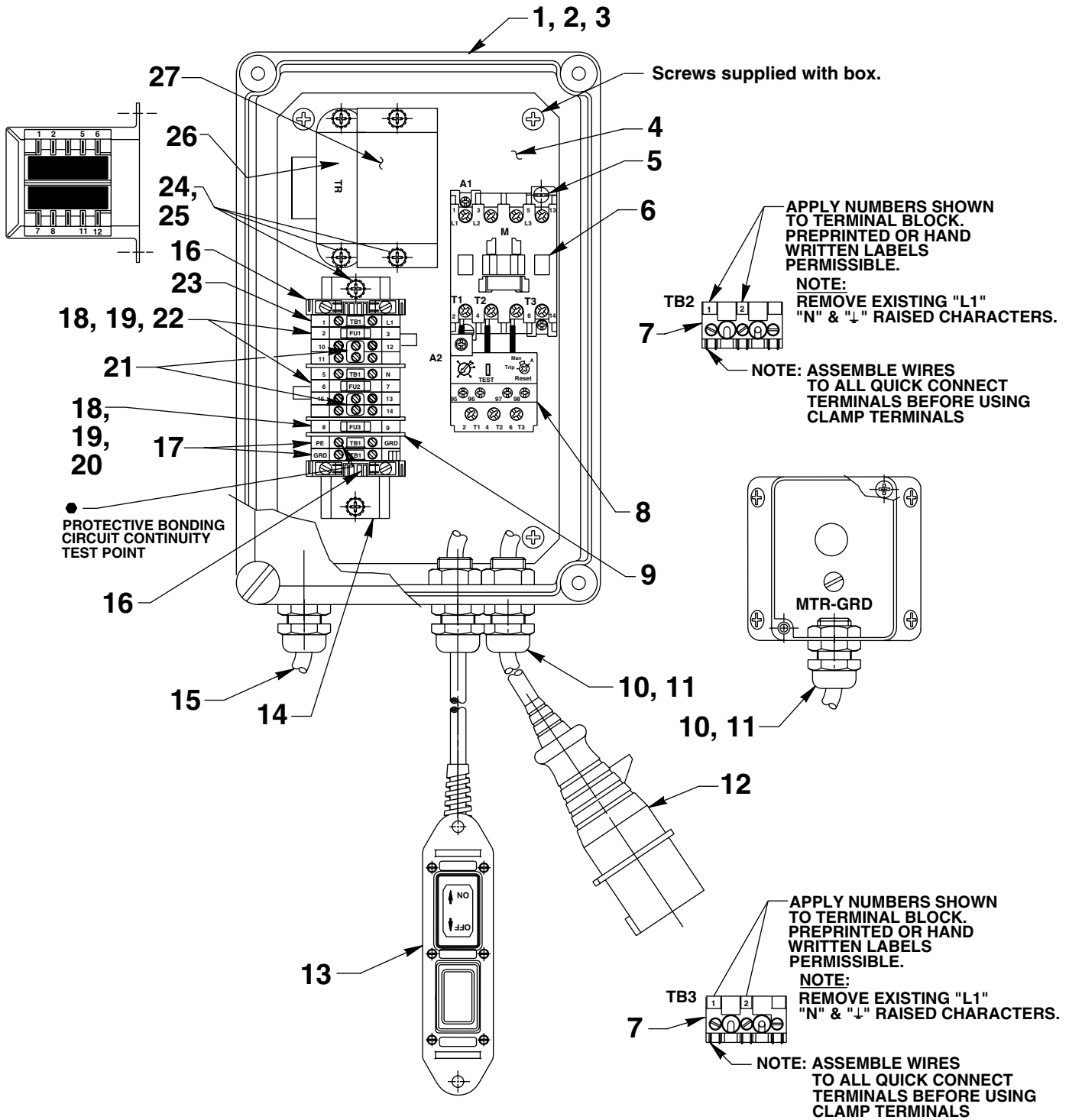
Part numbers marked with an asterisk (*) are contained in Repair Kit No. 300430.



MOTOR CONTROL ASSEMBLY

110 V., 50 HZ.

(For PE172-UK110 & PE174-UK110)



Parts List, Form No. 101635, Back sheet 4 of 11

| 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 | Contactora | 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 |

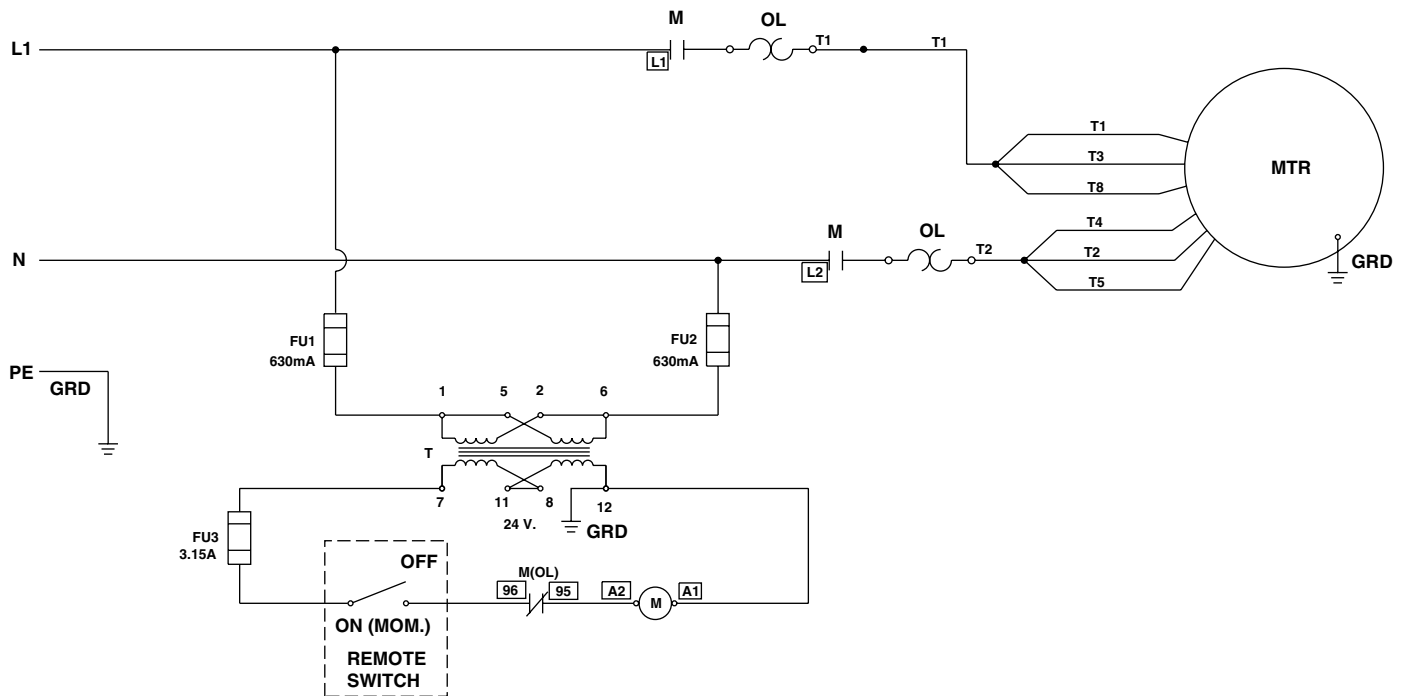


ELECTRICAL SCHEMATIC

110 V., 50 Hz. Single Phase



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

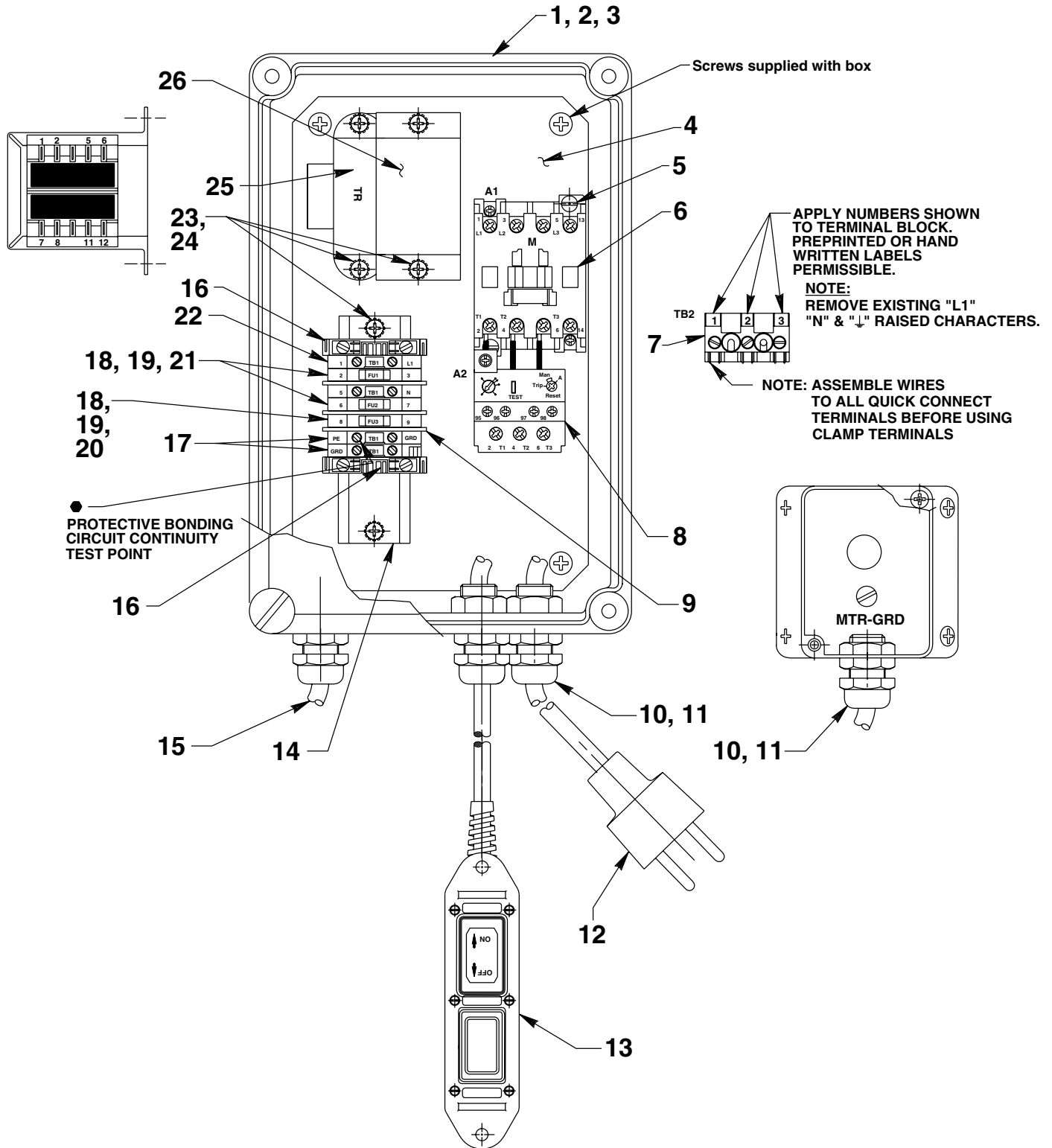


North American & International Color Codes

| 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)



| 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 | Contactur |
| 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) |

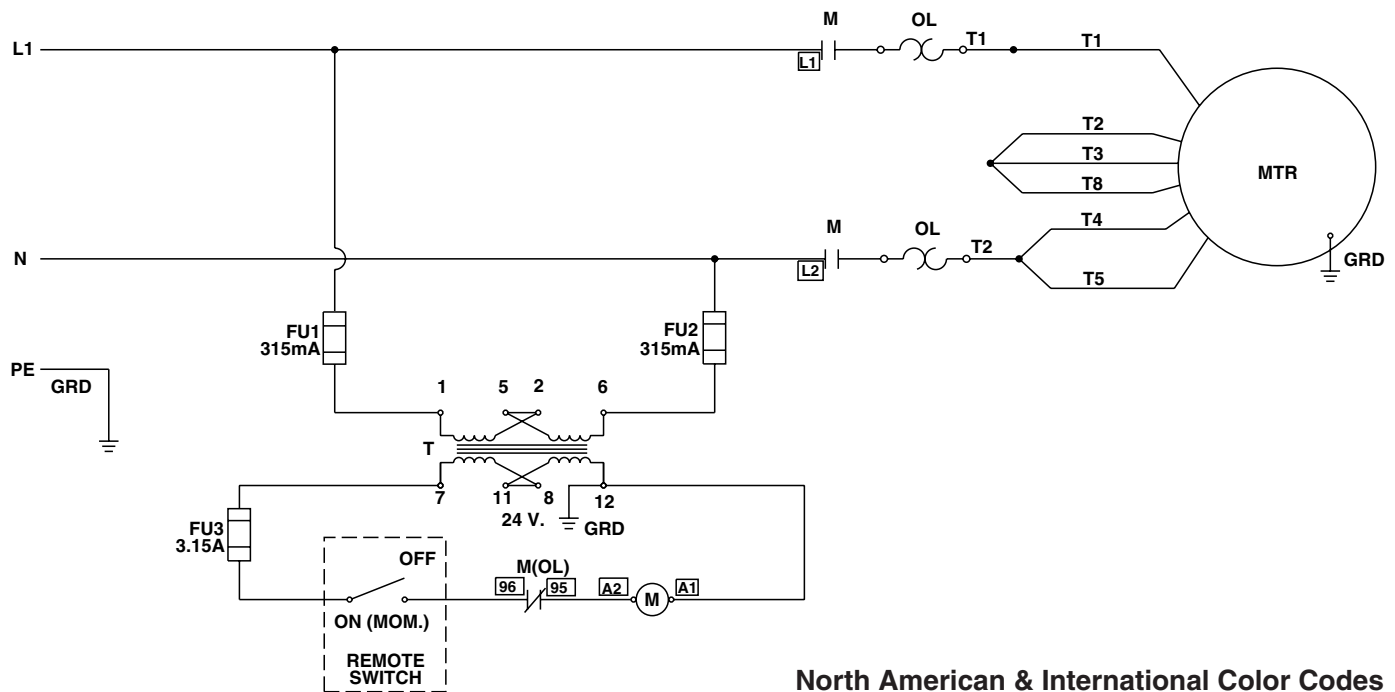
| Item No. | Part No. | No. Req'd | Description |
|----------|----------|-----------|----------------------------------------|
| 14 | 251967 | 1 | DIN Mounting Rail |
| 15 | 251879 | 2.25 ft. | Electrical Cable (14/3) |
| 16 | 251843 | 2 | End Anchor |
| 17 | 251840 | 2 | Grounding Terminal Block |
| 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.



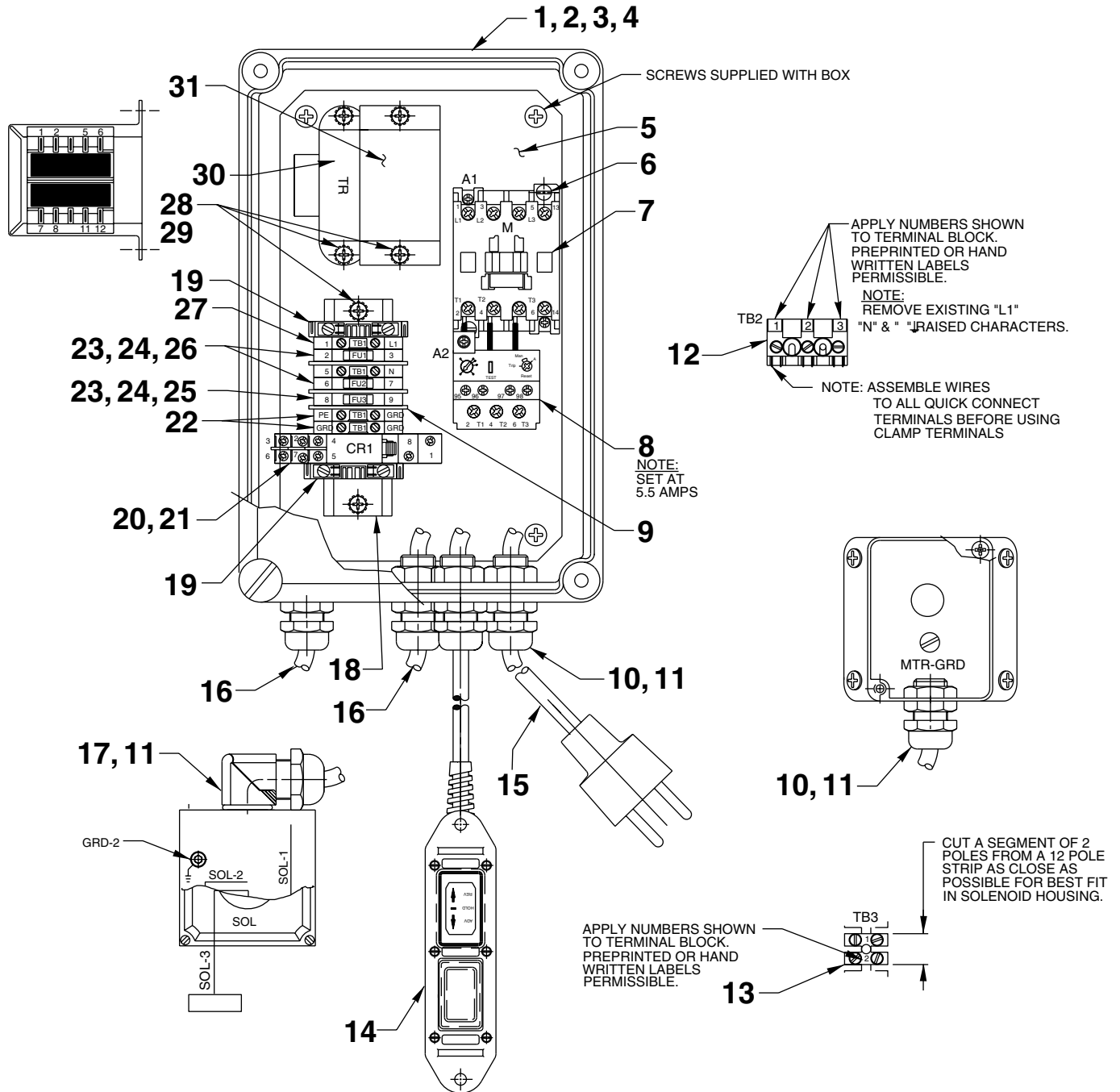
North American & International Color Codes

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



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)

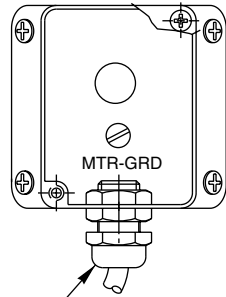


APPLY NUMBERS SHOWN TO TERMINAL BLOCK. PREPRINTED OR HAND WRITTEN LABELS PERMISSIBLE.

NOTE: REMOVE EXISTING "L1" "N" & " "RAISED CHARACTERS.

NOTE: ASSEMBLE WIRES TO ALL QUICK CONNECT TERMINALS BEFORE USING CLAMP TERMINALS

NOTE: SET AT 5.5 AMPS



10, 11

CUT A SEGMENT OF 2 POLES FROM A 12 POLE STRIP AS CLOSE AS POSSIBLE FOR BEST FIT IN SOLENOID HOUSING.

APPLY NUMBERS SHOWN TO TERMINAL BLOCK. PREPRINTED OR HAND WRITTEN LABELS PERMISSIBLE.

13

APPLY NUMBERS SHOWN TO TERMINAL BLOCK. PREPRINTED OR HAND WRITTEN LABELS PERMISSIBLE.

CUT A SEGMENT OF 4 POLES FROM A 12 POLE STRIP AS CLOSE AS POSSIBLE FOR BEST FIT IN SOLENOID HOUSING.

13

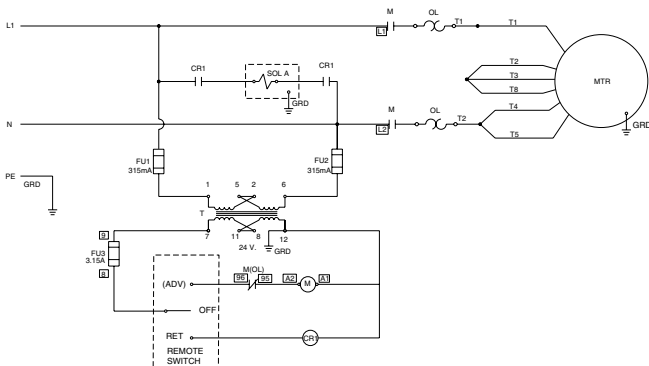
Parts List, Form No. 101635, Back sheet 6 of 11

| 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) |

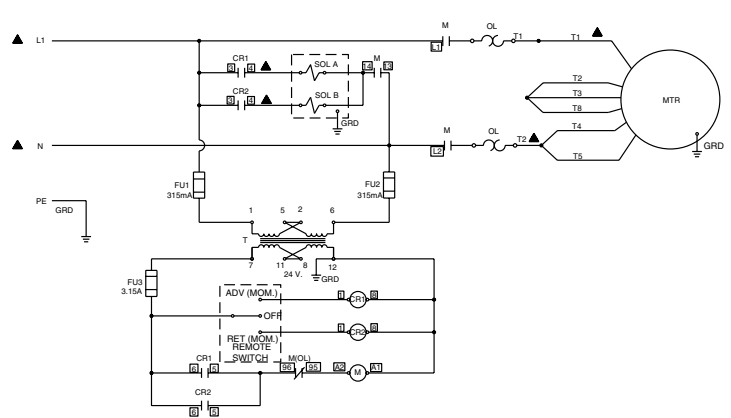
| Item No. | Part No. | No. Req'd | Description |
|----------|---------------|-----------|-------------------------------------------------------|
| 17 | 216667 | 1 | Strain Relief Bushing |
| 18 | 251967 | 1 | DIN Mounting Rail |
| 19 | 251843 | 2 | End Anchor |
| 20 | 251859 | 1 | General Purpose Relay |
| | 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.

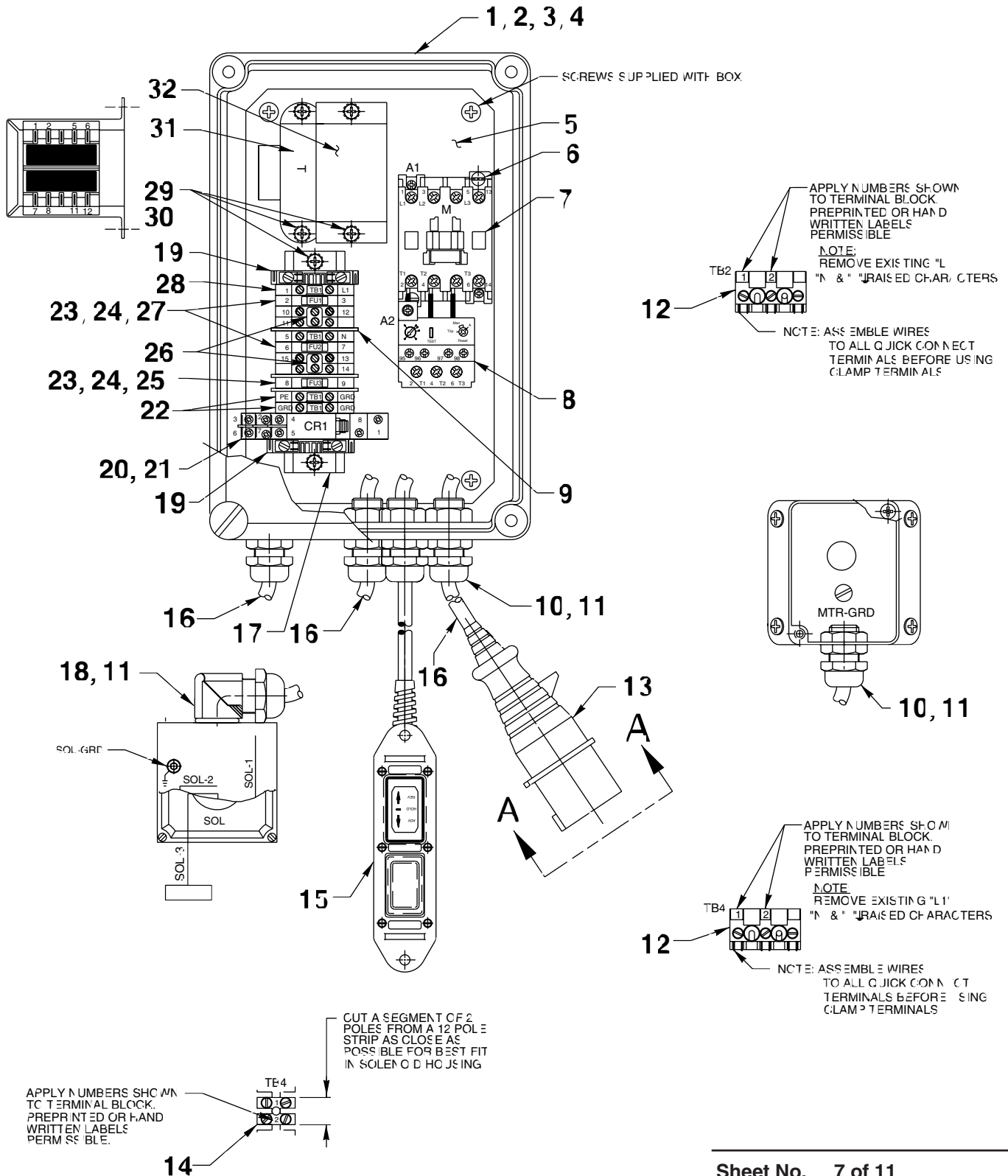


ELECTRICAL SCHEMATIC FOR PE84S-E220 & PE174S-E220 220 V., 50 Hz.





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

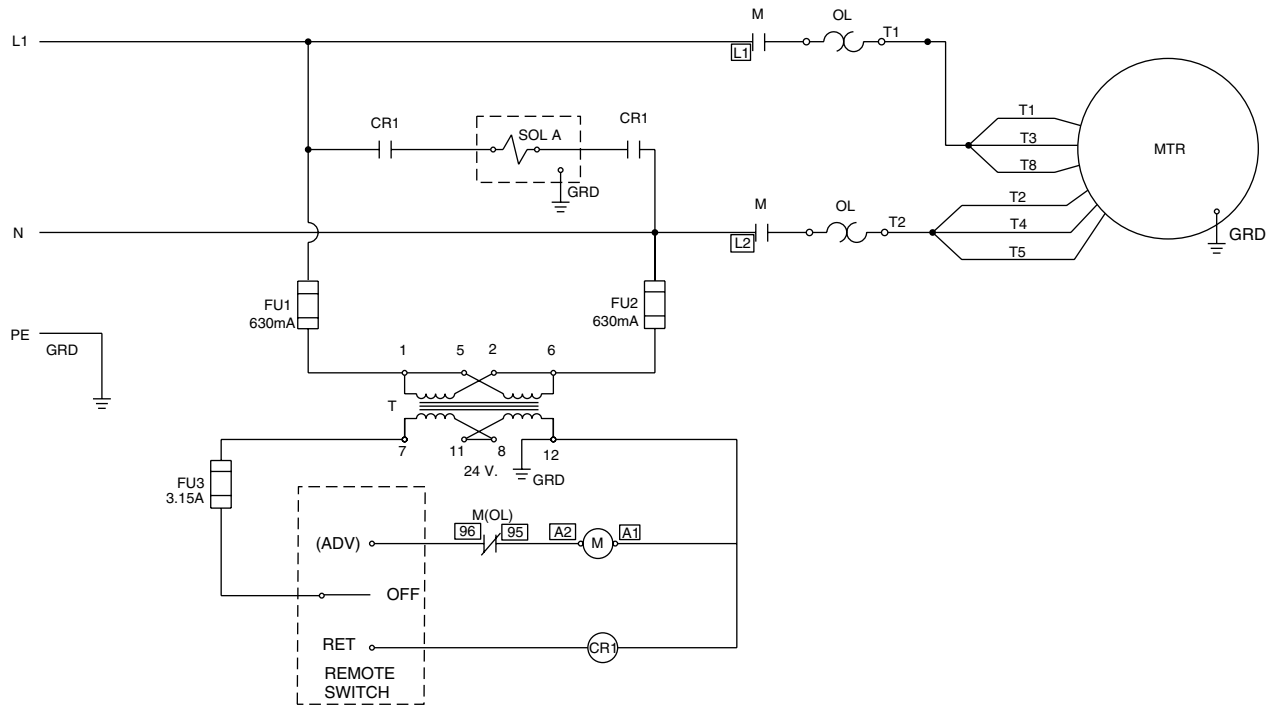


| Item No. | Part No. | No. Req'd | Description |
|----------|----------|-----------|----------------------------------------------------|
| 1 | 251886 | 1 | Control Box |
| 2 | 251762 | 1 | Warning Decal |
| 3 | 251898 | 1 | Warning Decal (CE electrical) |
| 4 | 350988 | 1 | Decal (CE) |
| 5 | 421153 | 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 | 1660 | 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 |

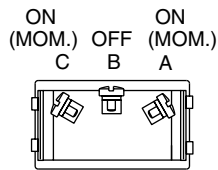
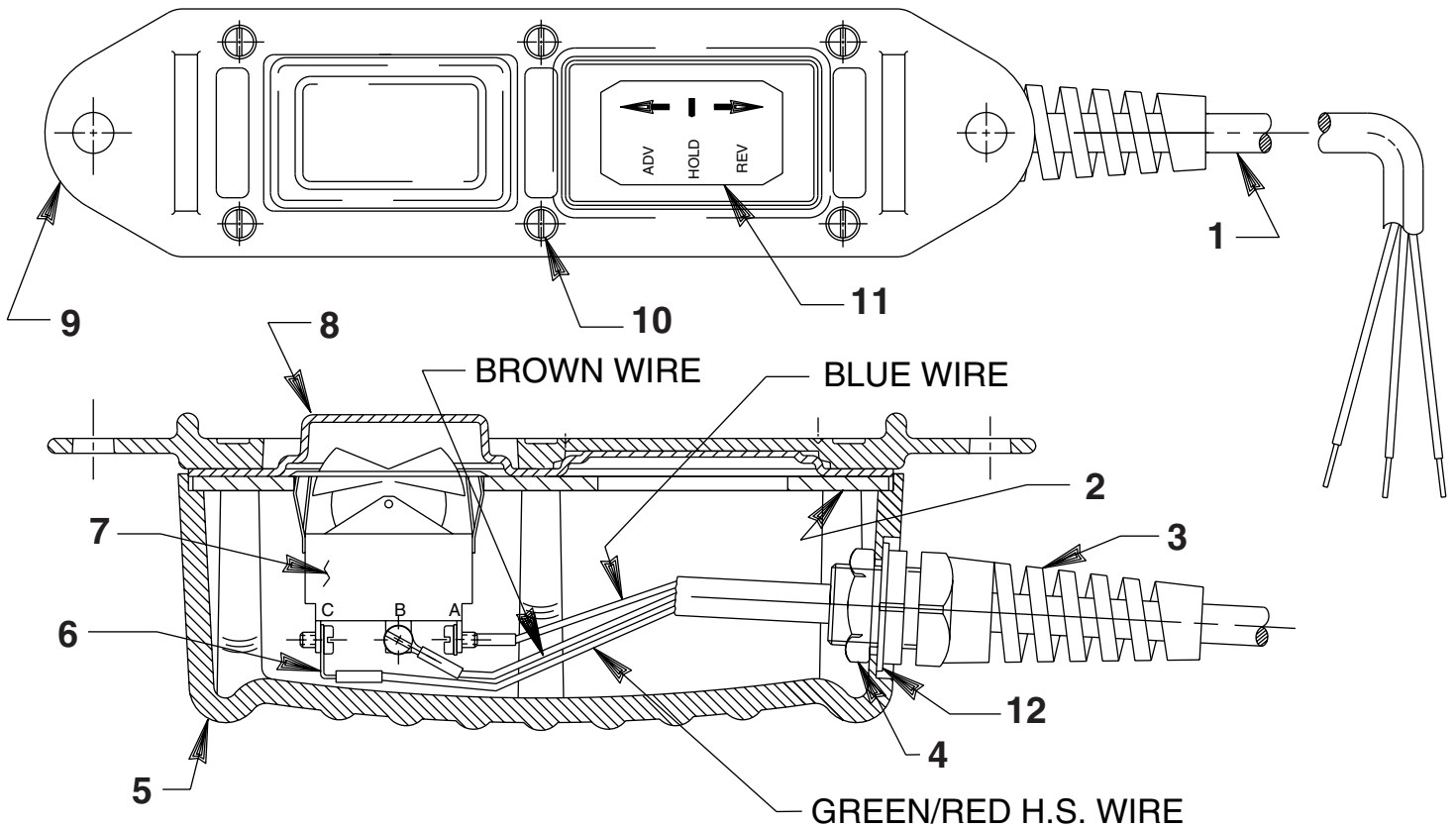
| Item No. | Part No. | No. Req'd | Description |
|----------|----------|-----------|-----------------------------|
| 19 | 251843 | 2 | End Anchor |
| 20 | 251859 | 1 | General Purpose Relay |
| 21 | 251869 | 1 | Relay Socket |
| 22 | 251841 | 2 | Grounding Terminal Block |
| 23 | 251849 | 3 | Fuse Block |
| 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.



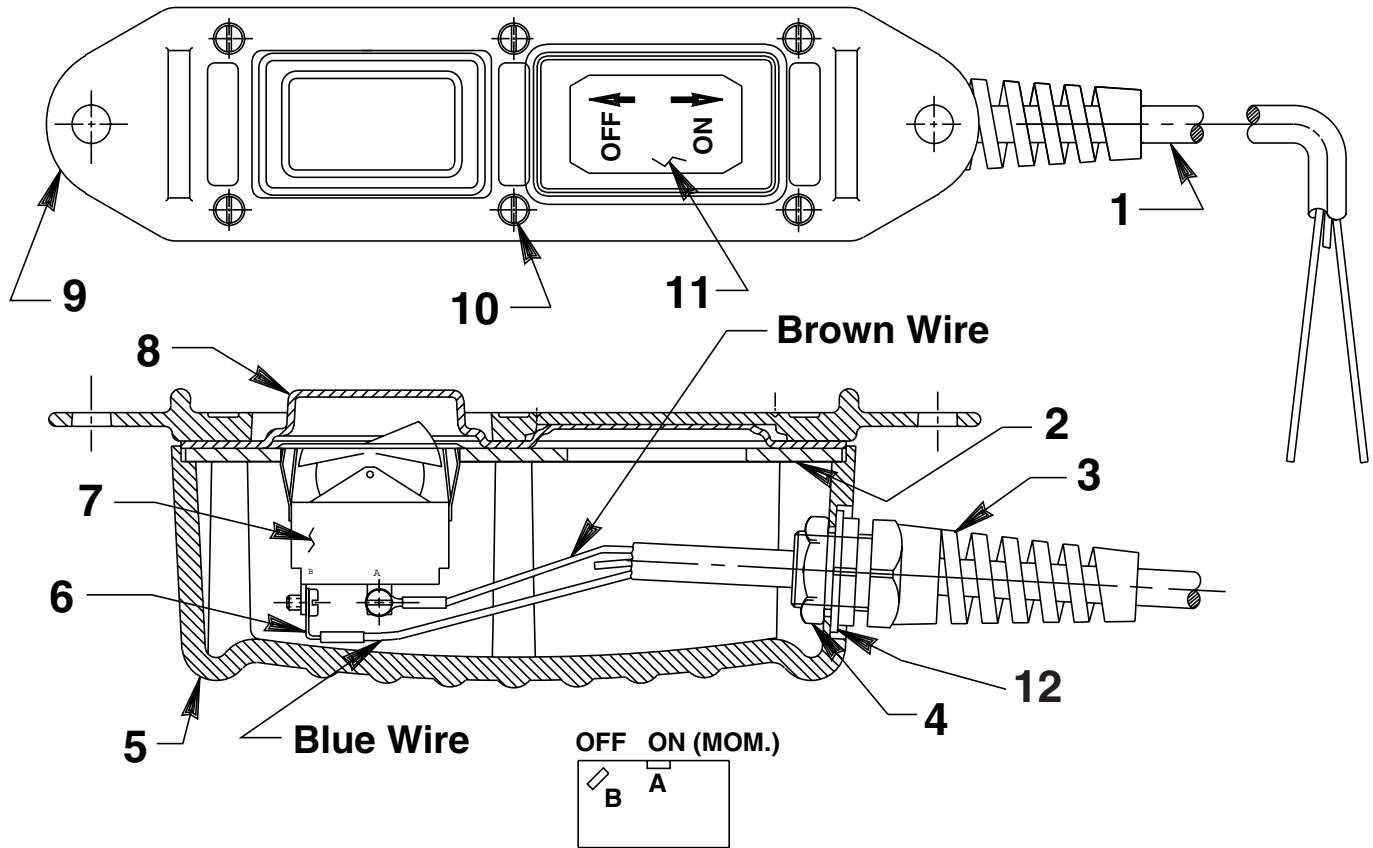
REMOTE HAND SWITCH No. 251872



| 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.

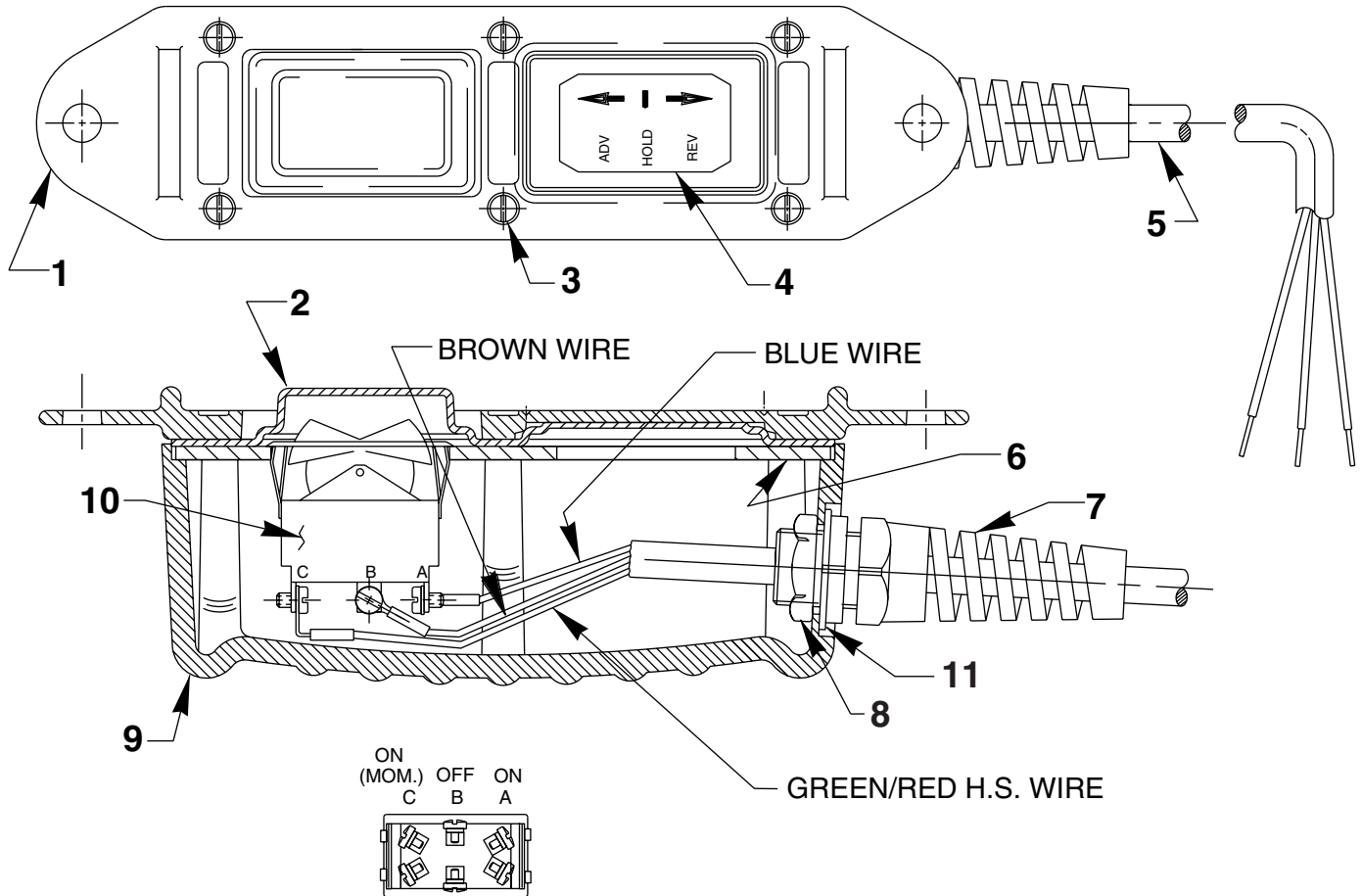
REMOTE HAND SWITCH No. 251881



| 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



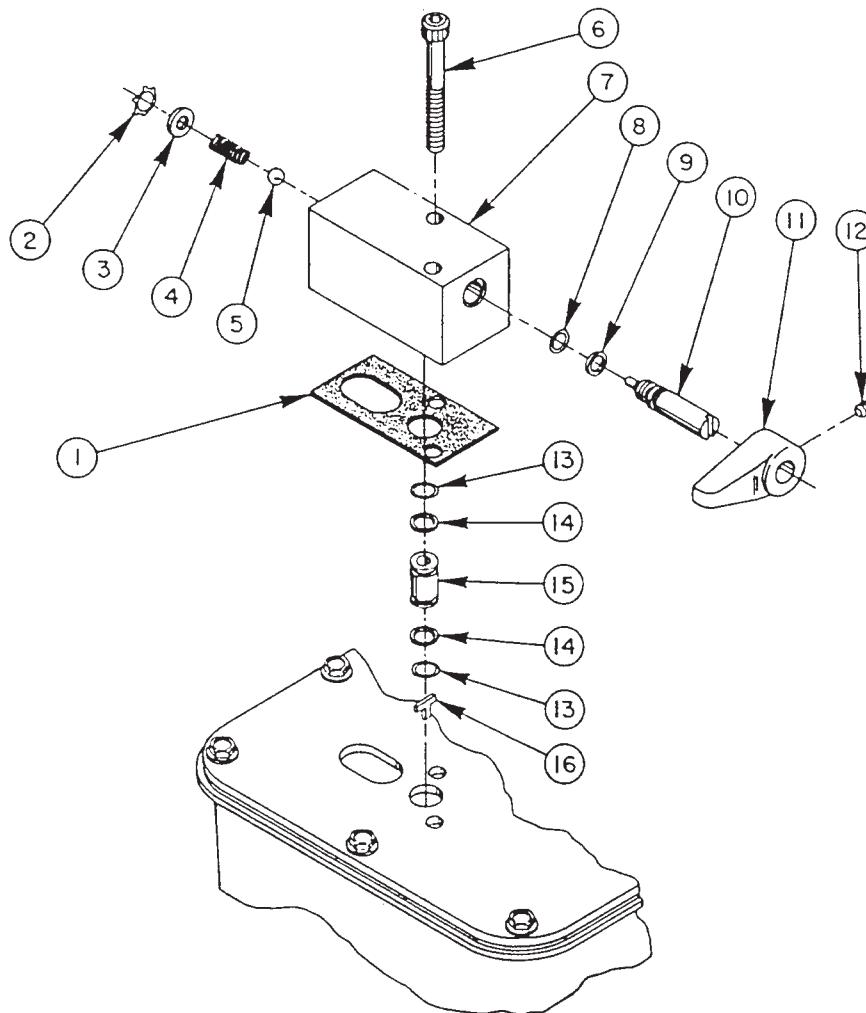
| Item No. | Part No. | No. Req'd | Description |
|----------|----------|-----------|------------------------------------|
| 1 | 420050-1 | 1 | Plastic Cover |
| 2 | 420050-2 | 1 | Gasket |
| 3 | 250248 | 6 | Screw (4-24 x 3/4 Lg.) |
| 4 | 202776 | 1 | Decal |
| 5 | 251879 | 10 ft. | Electrical Cable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

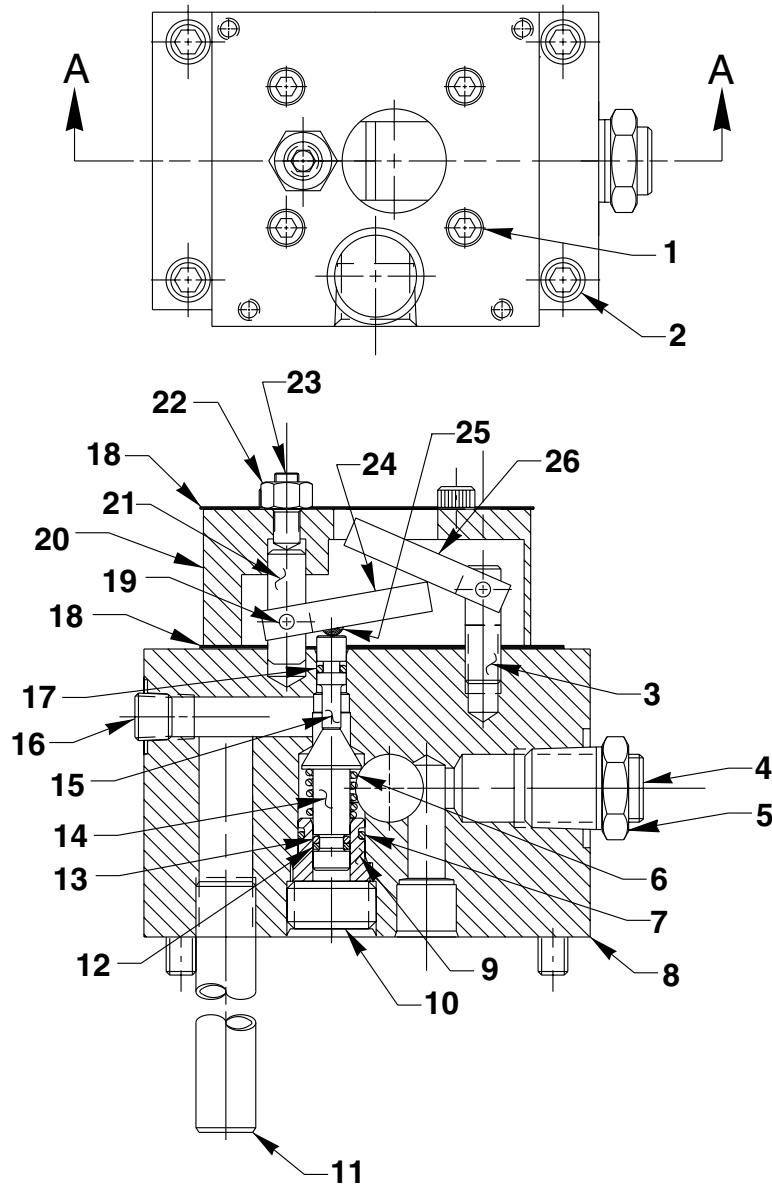
| Item No. | Part No. | No. Req'd | Description |
|----------|----------|-----------|---------------------------------------------------------------|
| 10 | 304849 | 1 | Release Valve Screw |
| 11 | 213109 | 1 | Release Valve Handle |
| 12 | 10556 | 1 | Set Screw (1/4-20 UNC X 1/4 Lg.; Torque to 30/50 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)



Parts List, Form No. 101635, Back sheet 10 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) |

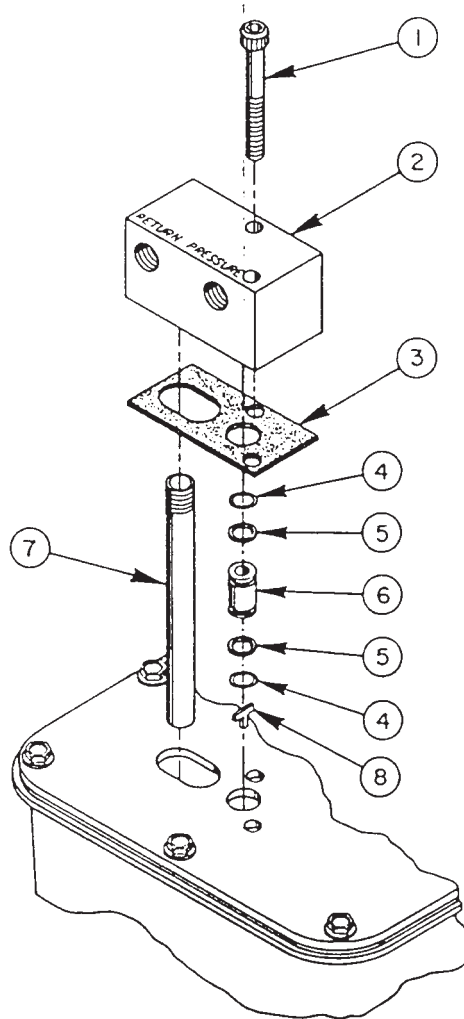
PARTS INCLUDED BUT NOT SHOWN

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

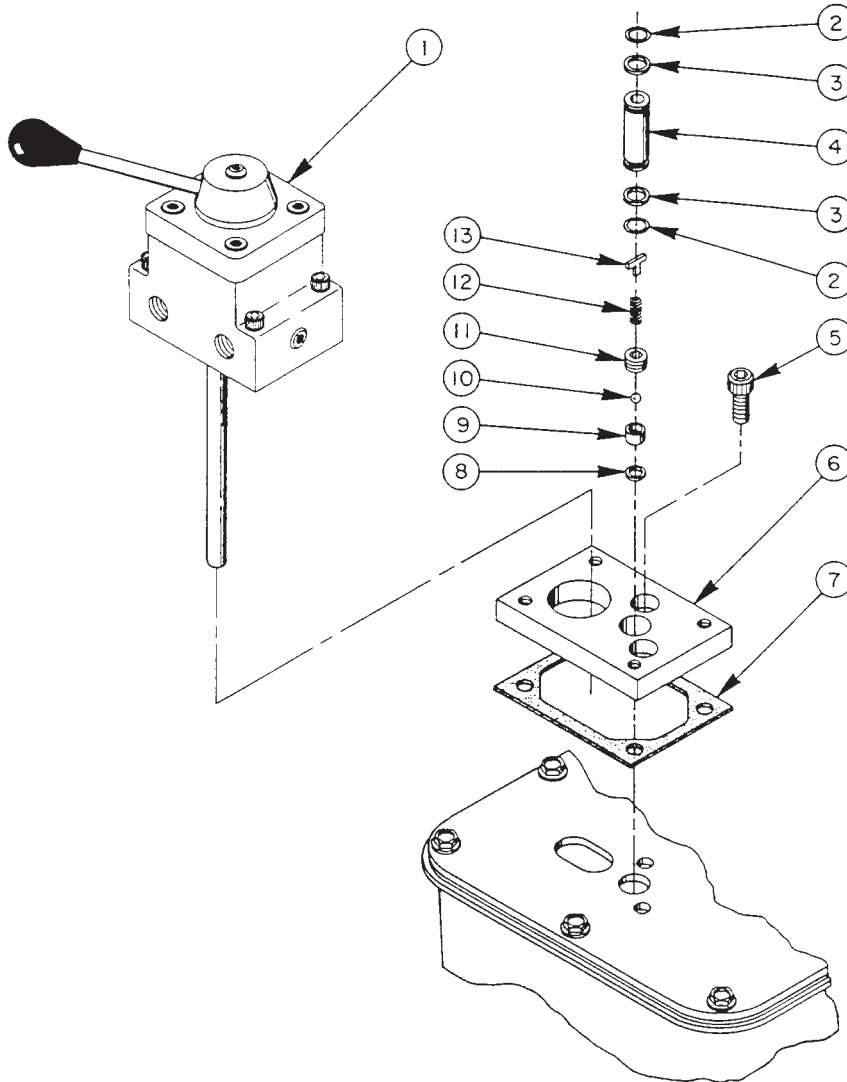


| Item No. | Part No. | No. Req'd | Description |
|----------|----------|-----------|-----------------------------------------------------------------|
| 1 | 209945 | 2 | Cap Screw (5/16-18 UNC X 2-1/2 Lg.; Torque to 220/240 in. lbs.) |
| 2 | 45554 | 1 | Manifold |
| 3 | *304829 | 1 | Gasket |
| 4 |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