

ZU4 Classic Bolting Pump Single-Solenoid Control Valve Upgrade

L2915 Rev. A 04/09

INTRODUCTION

This document applies to all Enerpac ZU4 Classic Bolting Pumps equipped with dual-solenoid valves. It includes instructions for performing the following product upgrade procedures:

- Replacement of the existing VE Series *dual-solenoid* control valve with the new *single-solenoid* VE Series control valve.
- Replacement of the existing front and middle brackets with new brackets that are electrically compatible with the single-solenoid control valve.

ELECTRICAL SERVICE KITS AND VALVES

To upgrade an existing pump to use the new single-solenoid control valve, a new electrical service kit must first be installed. Refer to Table 1 for service kit model numbers and descriptions.

Pump Voltage	Service Kit Model Number	Description
115V	ZTERK-115	ZTW 115V Electrical Service Kit
230V NORTH AMERICA	ZTERK-230	ZTW 230V Electrical Service Kit
230V CE EUROPE AND ASIA	(Contact Enerpac)	

Each electrical service kit includes a new front electrical bracket, middle electrical bracket and pendant. The pump's existing rear electrical bracket is reused.

New single-solenoid control valves are available in various voltages and configurations as described in Table 2.

Pump Voltage	Valve Model	Description
115V	VE42Q-115	115V 10,000 PSI [700 bar]
	VE42QM-115	115V 10,000 PSI [700 bar] - Multiport
	VE42E-115	115V 11,600 PSI [800 bar]
	VE42EM-115	115V 11,600 PSI [800 bar] - Multiport
230V	VE42Q-230	230V 10,000 PSI [700 bar]
	VE42QM-230	230V 10,000 PSI [700 bar] - Multiport
	VE42E-230	230V 11,600 PSI [800 bar]
	VE42EM-230	230V 11,600 PSI [800 bar] - Multiport

Note: Control valves and electrical service kits must be ordered separately.

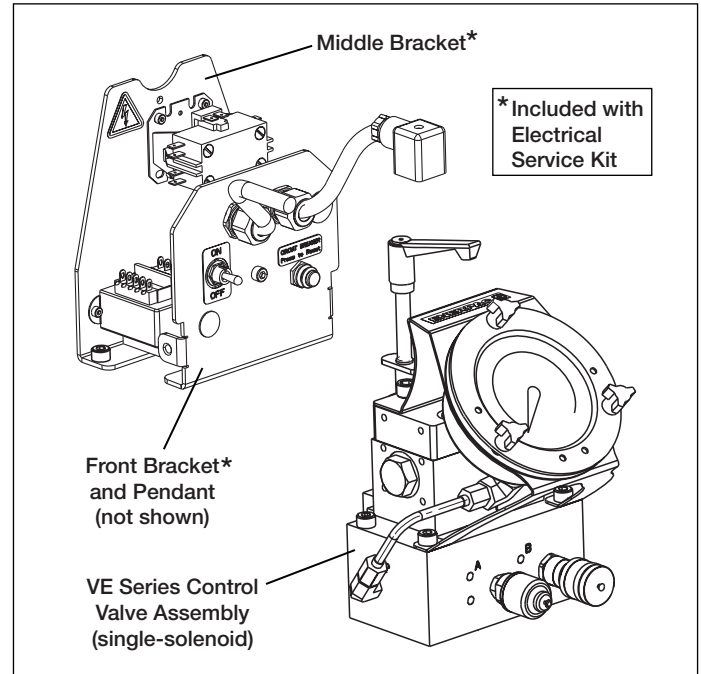


Figure 1, New Components (typical)

230 VOLT CE MODELS - IMPORTANT NOTE

Consult your local Authorized Enerpac Service Center before beginning electrical upgrade procedures on 230V pumps with CE style electrical components. Power cord wire colors and various other wiring details are different for 230V CE models.

A complete wiring diagram covering all pump wiring configurations and voltages - including 230V CE models - is shown in Figure 14 of this document.

BEFORE YOU BEGIN



WARNING: Disconnect power from pump before beginning the following procedure. Be sure hydraulic pressure is zero (0) psi/bar.



CAUTION: Standard safety procedures are to be followed during disassembly and reassembly to minimize any possibility of injury.



CAUTION: Allow only trained and qualified personnel to perform the electrical wiring procedures described in this document.

IMPORTANT: Some components on the new front and middle brackets are pre-wired at the factory, prior to shipment. Be careful not to disturb wiring when unpacking the shipment or during installation procedures.

Note: The graphics contained in this document are provided for reference and instructional purposes only. Various pump features and/or configurations may be different than shown for your pump. Optional features may be shown that are not present on your pump.

REMOVAL OF OLD COMPONENTS

1. Disconnect pump power cord from electrical outlet. Be sure pressure gauge indicates zero (0) psi/bar.
2. Loosen solenoid plug retaining screws. Unplug solenoid plugs from old control valve.
3. Remove capscrews and old control valve. Remove and discard old valve gasket. See Figure 3.
4. Loosen capscrews and remove pump shroud halves. See Figure 2. Save capscrews for use during reinstallation.
5. Loosen screw at contactor terminal L5. Disconnect white (neutral) power cord wire from contactor.
6. Disconnect black (hot) power cord wire from top pin (pin 1) of circuit breaker.
7. Disconnect two black motor wires from terminals T2 and T4 of contactor.
8. At top of motor, disconnect green (ground) power cord wire. Also disconnect two yellow and green striped solenoid ground wires.
9. Loosen capscrews and remove the existing front and middle brackets from the pump cover plate.

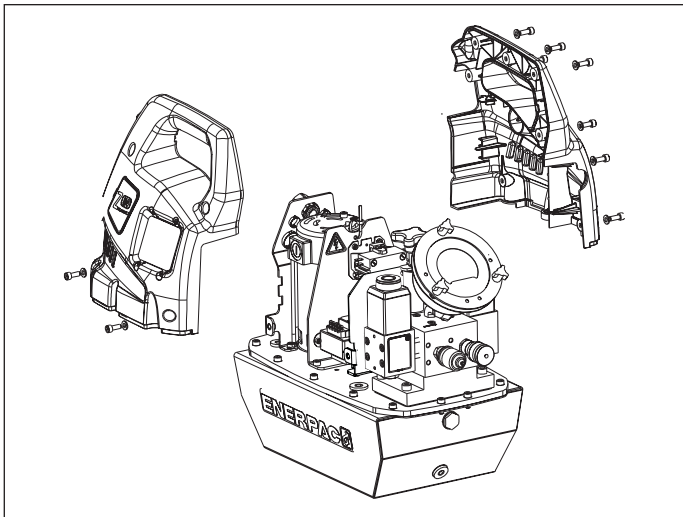


Figure 2, Removing the Shroud Halves

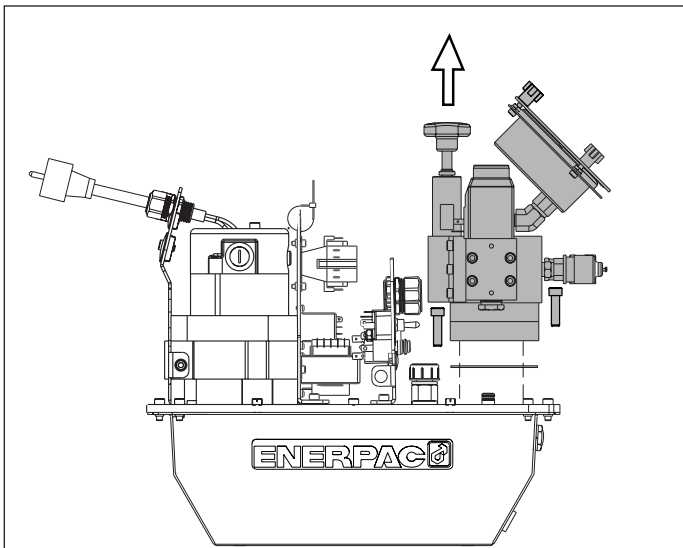


Figure 3, Removing Old Valve

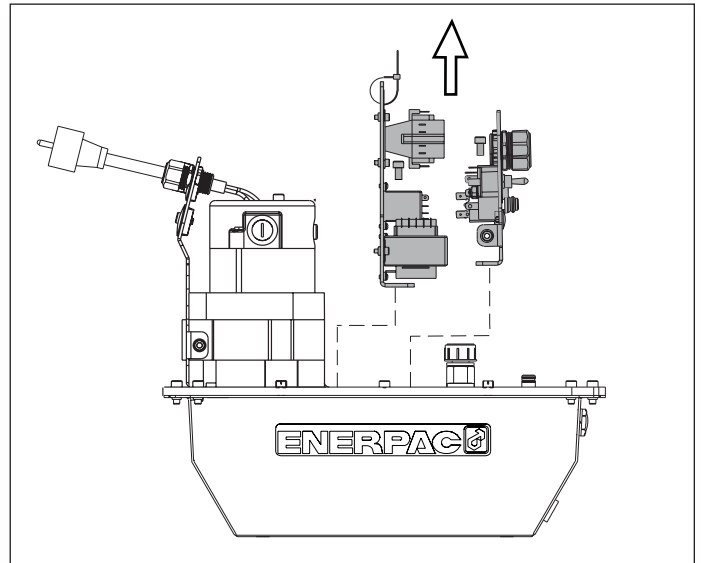


Figure 4, Removing Old Front and Middle Brackets

Notes:

- Save the old bracket capscrews for later use. They will be used to re-secure the new front and middle brackets.
- a new pendant is supplied with the new front bracket. The old pendant can be discarded.
- Discard the old valve gasket and capscrews. A new gasket and capscrews are included with the new valve.

INSTALLATION AND WIRING OF NEW FRONT AND MIDDLE BRACKET ASSEMBLIES

1. Secure the new front and middle brackets to the pump cover plate, using the capscrews from the old brackets. Apply Loctite 545 sealant to capscrew threads before installation. Torque capscrews to 84-108 in-lbs [9.5-12.2 Nm]. See Figure 5.



WARNING: Be certain that power cord is disconnected before making electrical connections in the following steps.

IMPORTANT: Wire colors and other wiring details are different for 230V models sold in the European Union, parts of Asia and various other regions outside of North America. Refer to the wiring diagram in Figure 14 of this document for CE style wiring details. Consult your local Authorized Enerpac Service Center if assistance is required.

2. Connect green (ground) wire from power cord and the green and yellow striped (solenoid ground) wire to the motor ground screw. Tighten screw to secure wires. See Figure 6.
3. Insert white (neutral) wire from power cord into L5 terminal of contactor. Tighten screw on the contactor to secure the wire. See Figure 7.
4. Connect black (hot) wire of power cord to top pin (pin 1) of circuit breaker. See Figure 8.
5. Using a wire tie, secure the power cord wires to the top of the middle bracket. See Figure 9.

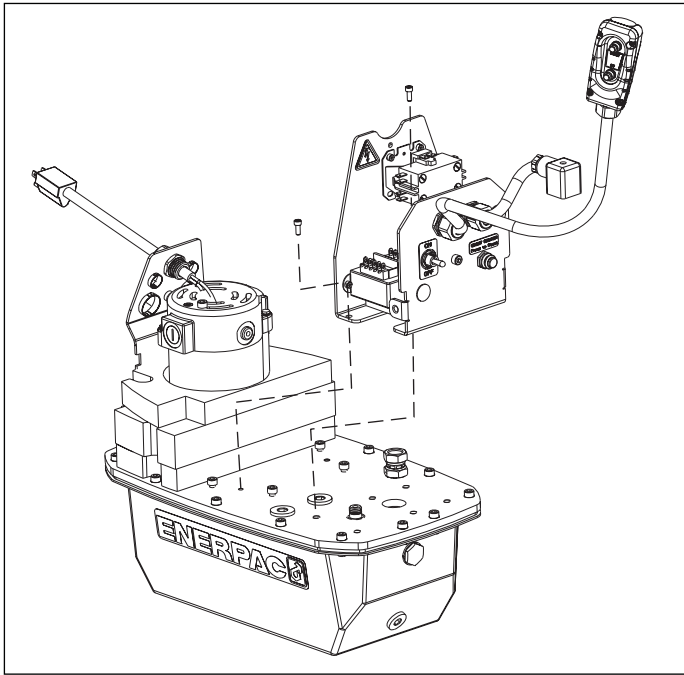


Figure 5, Installing new Front and Middle Brackets

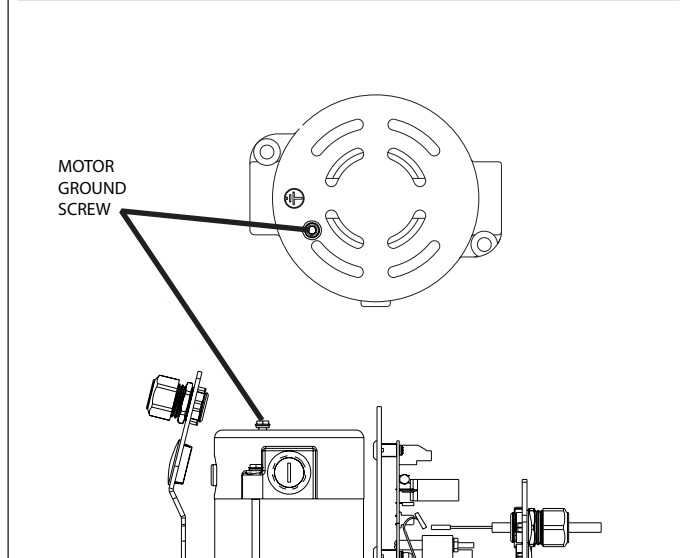
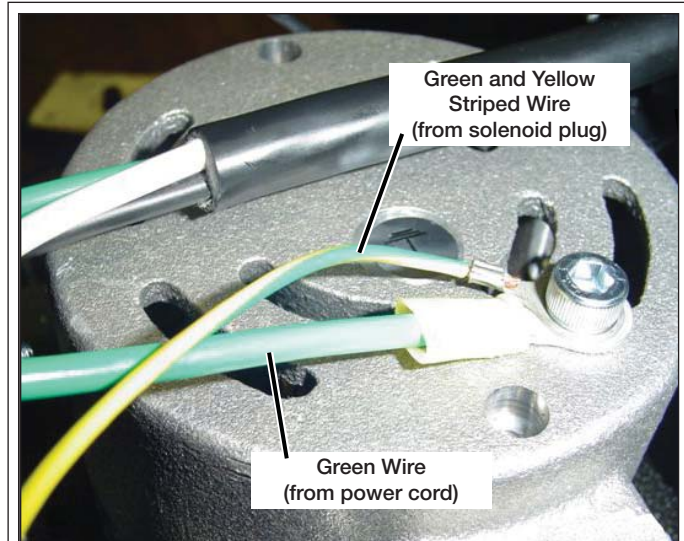
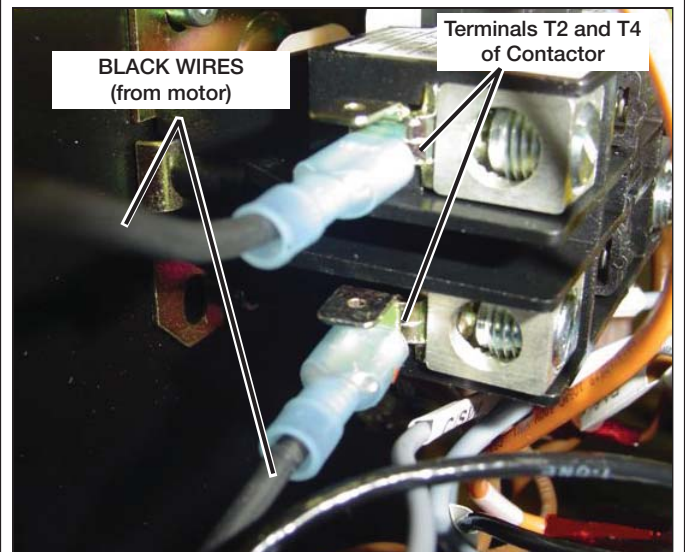
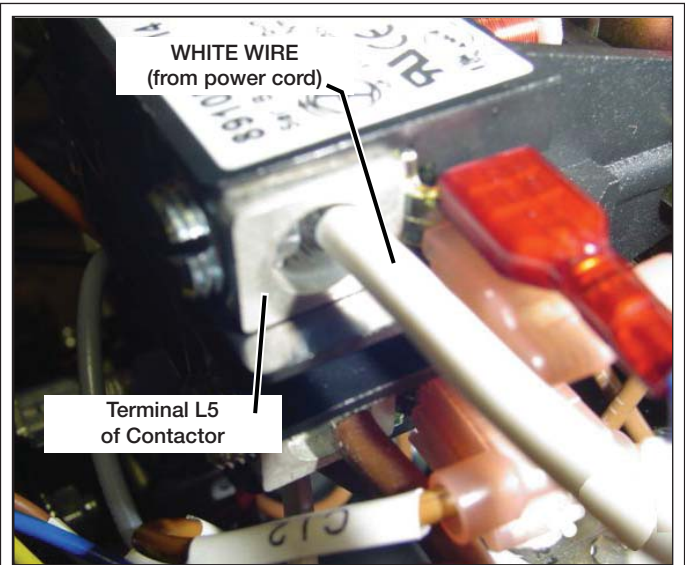


Figure 6, Ground Wire Connection to Pump Motor

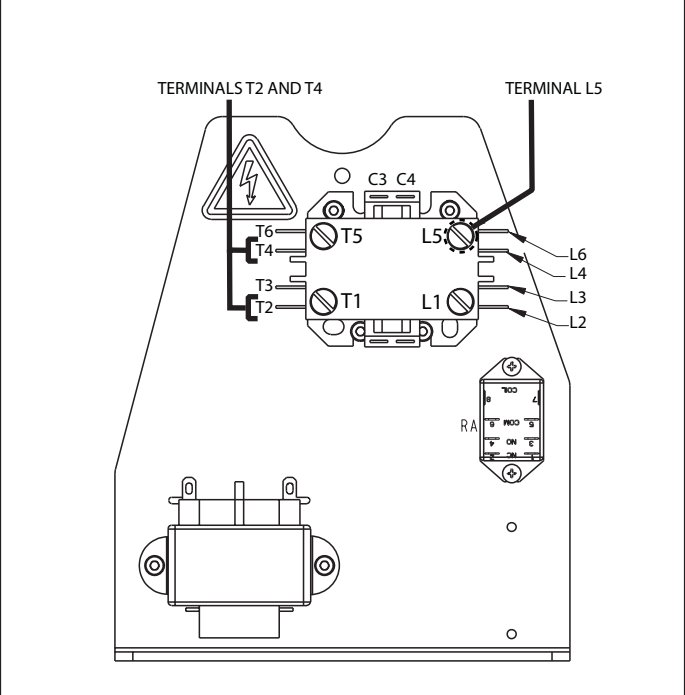


Figure 7, Middle Bracket Contactor Connections

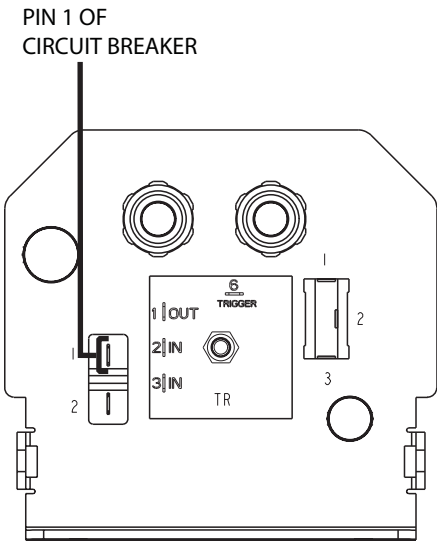
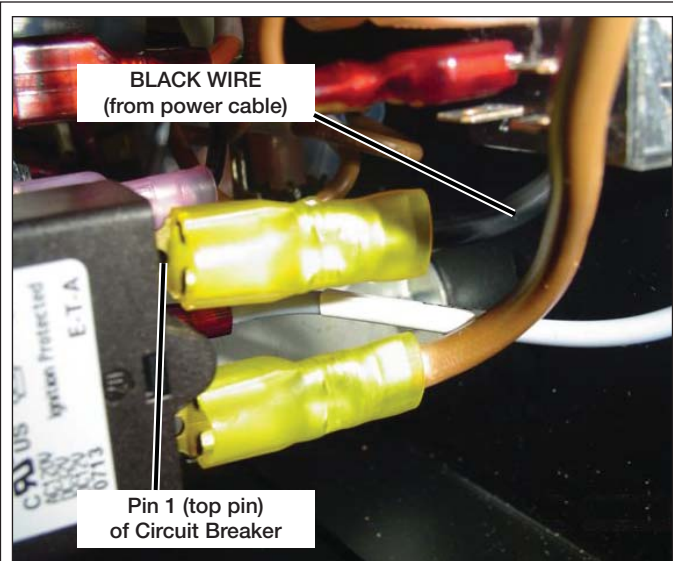


Figure 8, Front Bracket Connections

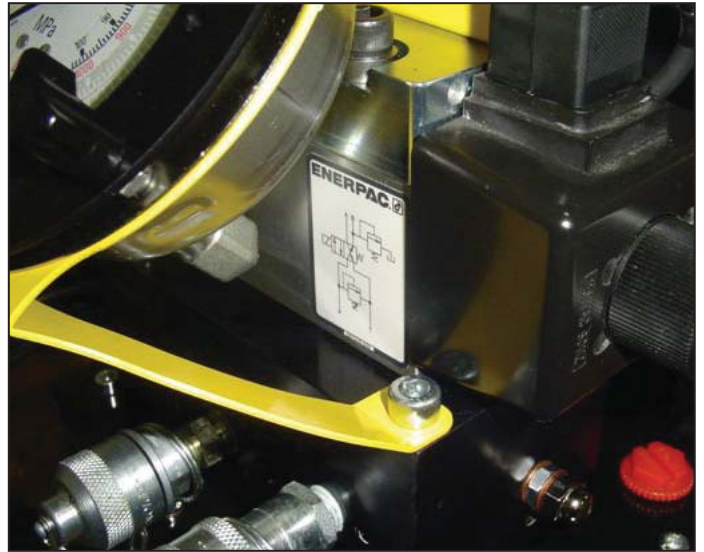


Figure 10, Mounting Screw Securing Gauge Bracket



Figure 11, Solenoid Plug

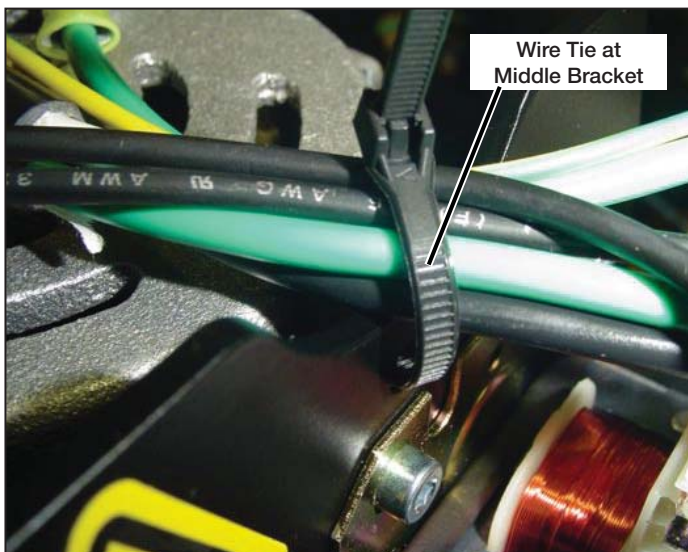


Figure 9, Wire Tie Installation (Middle Bracket)



WARNING: Disconnect power before making electrical connections.



WARNING: Allow only trained and qualified personnel to perform the electrical upgrades described in this document.

IMPORTANT: 230 volt CE models: Some electrical wire colors will be different. Refer to wiring diagram in Figure 14 for additional 230V CE wiring information.

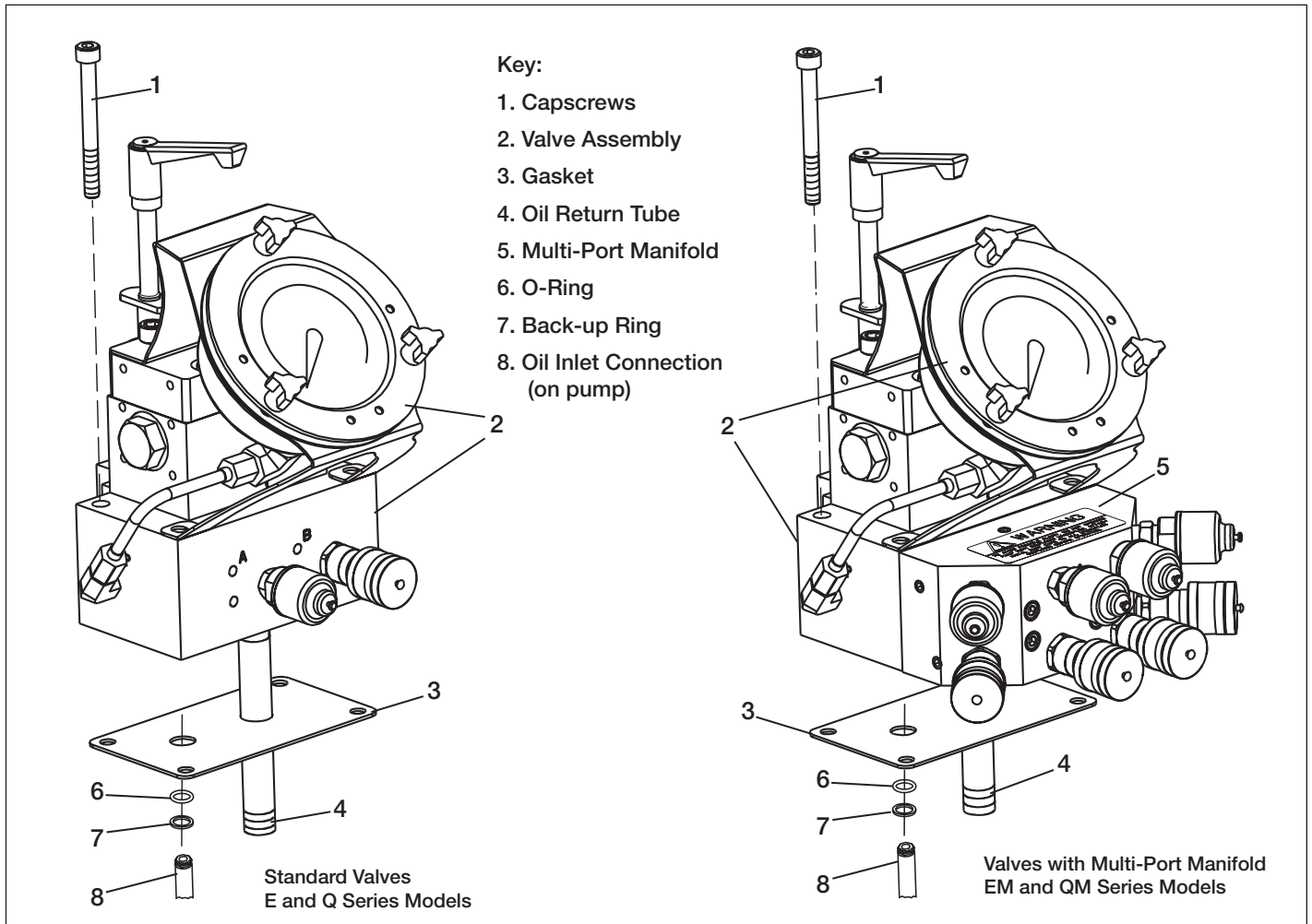


Figure 12, Valve Installation Details

INSTALLATION OF NEW VALVE ASSEMBLY

Refer to exploded view in Figure 12 during the following steps. Refer to other figures as indicated.

1. Install oil return tube into port on bottom of valve manifold.
2. Be sure valve mounting surface on pump coverplate is clean. Remove any dirt or dust from this area.
3. Install new backup ring and new O-Ring on pump oil supply tube.
4. Mount the new valve assembly and gasket to the pump cover plate using the four socket head capscrews provided with the valve. Apply Loctite 545 sealant to threads of capscrews as installed. Torque to 16-19 ft-lbs [22-25 Nm].

Note: The front two capscrews are also used to help secure the gauge bracket. See Figure 10.

5. Plug the solenoid cord into the solenoid to the valve and hand tighten the plug retaining screw. See Figure 11.

FINAL ASSEMBLY AND TESTING

Install the shroud halves. Torque the shroud mounting screws to 18-20 in-lbs [2,0- 2,9 Nm]. See Figure 13

Check pump for proper operation. Refer to operating instructions in Enerpac instruction sheet L2906.

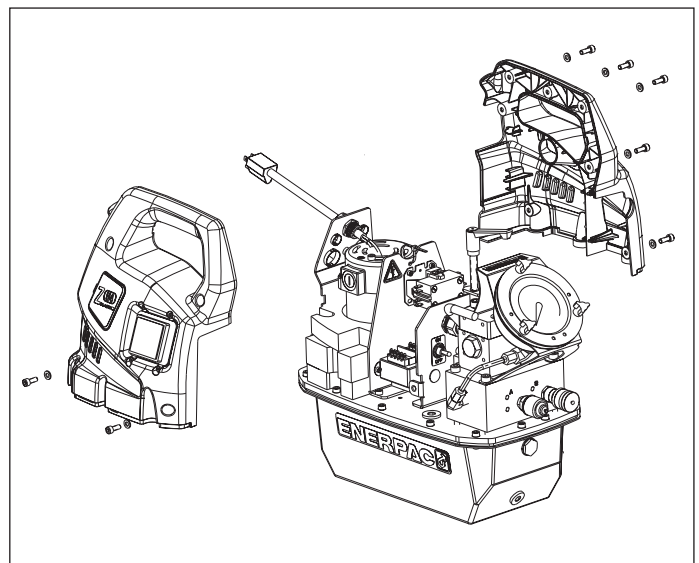


Figure 13, Shroud Reinstallation

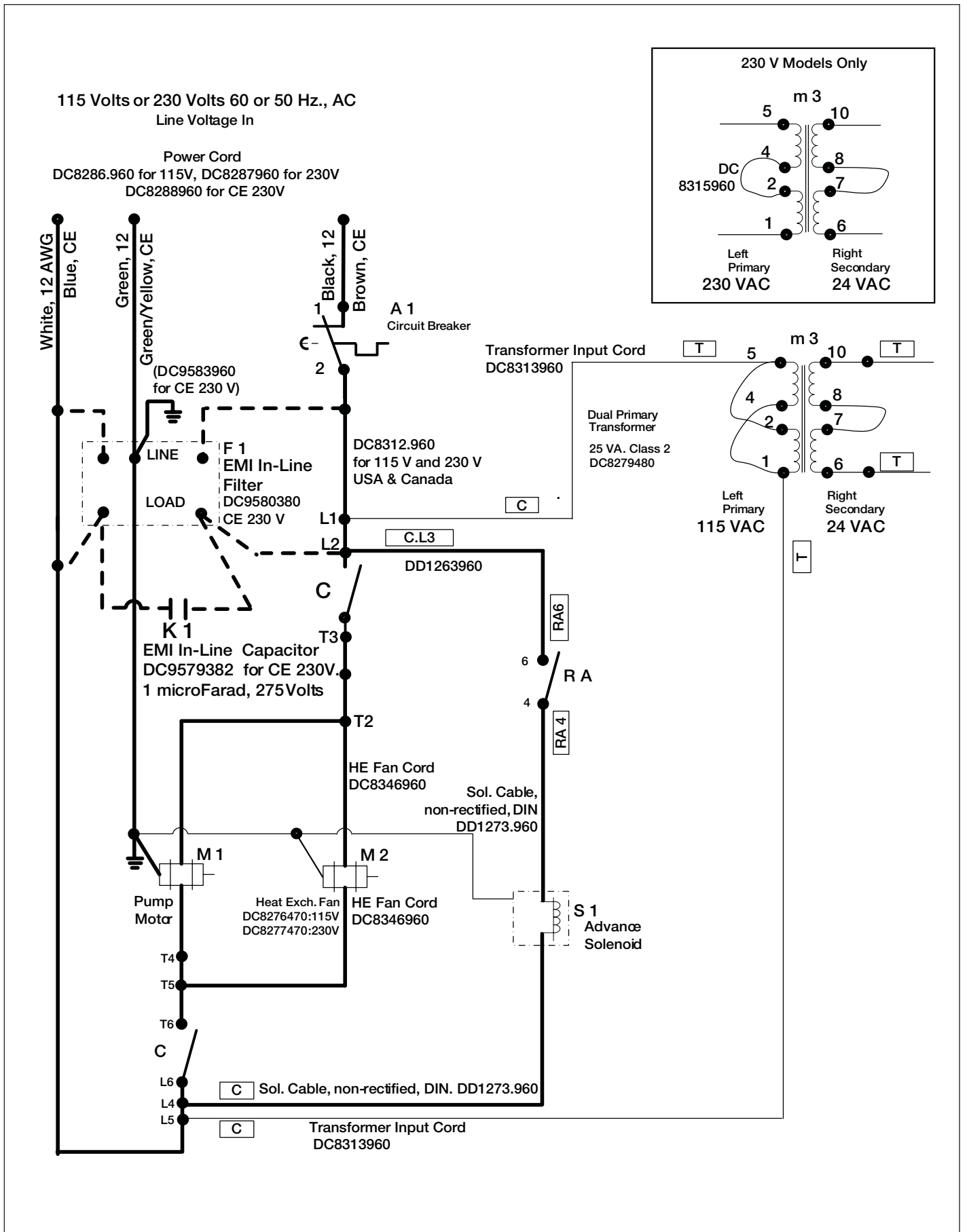
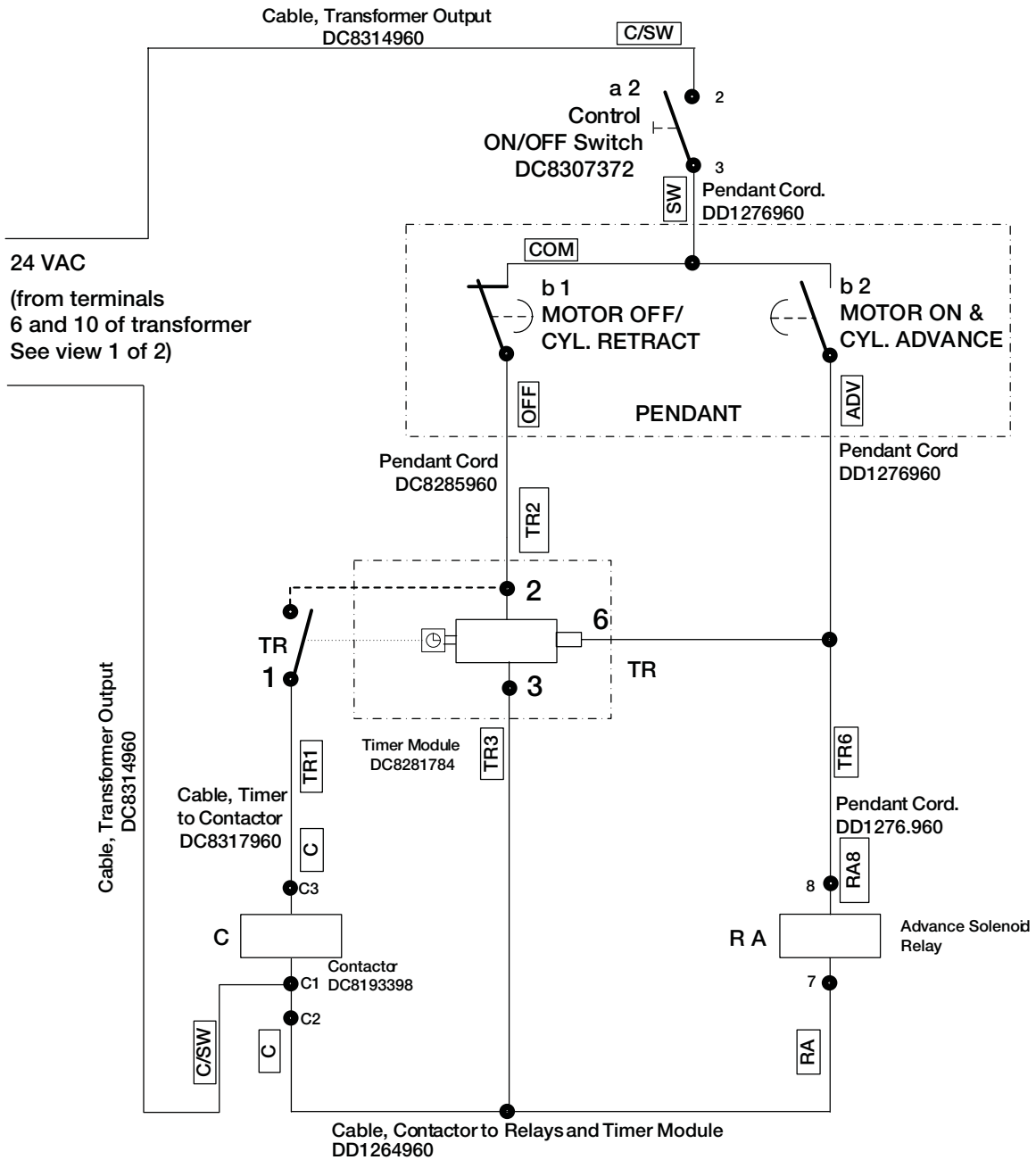


Figure 14, Electrical Diagram, ZU4 Classic Bolting Pump (View 1 of 2)



FUNCTIONAL CHART:

DESCRIPTION	a2	b1	b2	RA	TR	C	M1 & M2	S1
	OFF	released	released	OFF	OFF	OFF	STOP	OFF
	ON	released	released	ON	OFF	OFF	STOP	OFF
C, M1 and M2 will be off after the time delay	ON	released	pressed and released	ON	ON	ON	RUN	ON
	ON	pressed	released	OFF	OFF	OFF	STOP	OFF

Figure 14, Electrical Diagram, ZU4 Classic Bolting Pump (View 2 of 2)

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