

L4149 Rev. B 03/25

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1.0 IMPORTANT RECEIVING INSTRUCTIONS

Visually inspect all components for shipping damage. Shipping damage is not covered by warranty. If shipping damage is found, notify carrier at once. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

2.0 SAFETY

2.1 Introduction

Read all instructions carefully. Follow all recommended safety precautions to avoid personal injury as well as damage to the product and/or damage to other property. Enerpac cannot be responsible for any damage or injury from unsafe use, lack of maintenance or incorrect operation. Do not remove warning labels, tags, or decals. In the event any questions or concerns arise, contact Enerpac or a local Enerpac distributor for clarification.

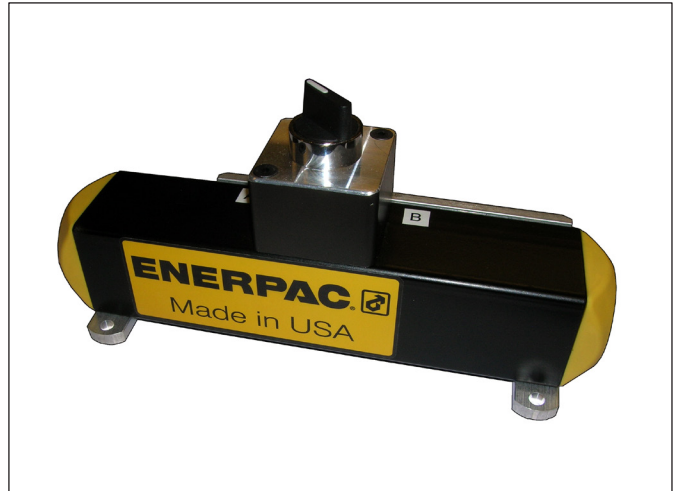
If you have never been trained on high-pressure hydraulic safety, consult your distributor or service center for a free Enerpac Hydraulic Safety Course.

This manual follows a system of safety alert symbols, signal words and safety messages to warn the user of specific hazards. Failure to comply with these warnings could result in death or serious personal injury, as well as damage to the equipment or other property.



The **Safety Alert Symbol** appears throughout this manual. It is used to alert you to potential physical injury hazards. Pay close attention to Safety Alert Symbols and obey all safety messages that follow this symbol to avoid the possibility of death or serious personal injury.

Safety Alert Symbols are used in conjunction with certain Signal Words that call attention to safety messages or property damage messages and designate a degree or level of hazard seriousness. The Signal Words used in this manual are DANGER, WARNING, CAUTION and NOTICE.



Indicates a hazardous situation that, if not avoided, **will** result in death or serious personal injury.



Indicates a hazardous situation that, if not avoided, **could** result in death or serious personal injury.



Indicates a hazardous situation that, if not avoided, **could** result in minor or moderate personal injury.



Indicates information considered important, but not hazard related (e.g. messages relating to property damage). Please note that the Safety Alert Symbol will **not** be used with this signal word.

2.2 General Hydraulic Safety Precautions



Failure to observe and comply with the following precautions could result in death or serious personal injury. Property damage could also occur.

- Do not remove or disable the pump relief valve.
- Never set a relief valve to a higher pressure than the maximum rated pressure of the pump.
- Enerpac workholding products are designed for a maximum operating pressure of 350 Bar [5,000 PSI]. Do not connect a pump with a higher pressuring rating to any Enerpac workholding device.
- Wear personal protective gear when operating hydraulic equipment. Always wear eye protection. Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection (used as appropriate) will reduce personal injuries.

- Stay clear of loads supported and/or retained by hydraulics. To avoid personal injury, keep hands and feet away from cylinder and work piece during operation.
- Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin. If oil is injected under the skin, see a doctor immediately.
- Do not pressurize disconnected couplers.
- Only use hydraulic cylinders in a coupled system. Never use a cylinder with uncoupled couplers. If the cylinder becomes extremely overloaded, components can fail catastrophically, causing severe personal injury.
- The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Install pressure gauge(s) in the system to monitor operating pressure. It is your window to see what is happening in the system.
- Do not exceed equipment ratings. Never attempt to support or retain a load weighing more than the capacity of the cylinder. Overloading can result in possible personal injury and/or equipment failure.

CAUTION

Failure to observe and comply with the following precautions could result in minor or moderate personal injury. Property damage could also occur.

- Avoid damaging hydraulic hose. Avoid sharp bends and kinks when routing hydraulic hoses. Using a bent or kinked hose will cause severe back-pressure. Sharp bends and kinks will internally damage the hose, leading to premature hose failure.
- Do not drop heavy objects on hose. A sharp impact may cause internal damage to hose wire strands. Applying pressure to a damaged hose may cause it to rupture.
- Do not lift hydraulic equipment by the hoses or swivel couplers. Use the carrying handle or strap.
- Keep hydraulic equipment away from flames and heat. Excessive heat will soften packings and seals, resulting in fluid leaks. Heat also weakens hose materials and packings. For optimum performance, do not expose equipment to temperatures of 150°F [65°C] or higher. Protect all hydraulic equipment from weld spatter.
- Immediately replace worn or damaged parts with genuine Enerpac parts. Enerpac parts are designed to fit properly and to withstand high loads. Non-Enerpac parts may break or cause the product to malfunction.

NOTICE

- Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the Enerpac Authorized Service Center in your area.
- To help ensure proper operation and best performance, use only Enerpac oil.

2.3 Additional Safety Precautions - Pendant and Pump

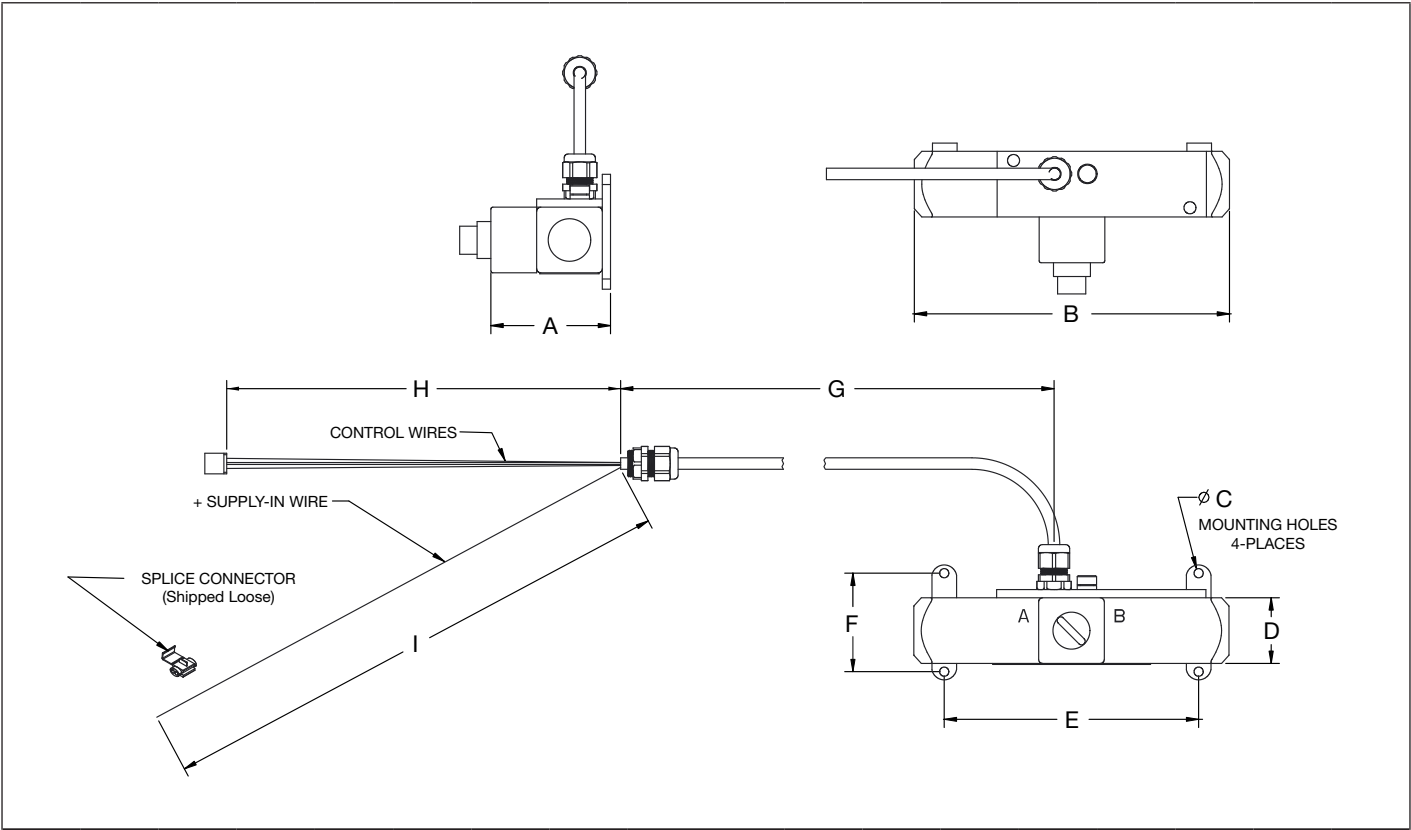
WARNING

Failure to observe and comply with the following precautions could result in death or serious personal injury. Property damage could also occur.

- Use care to avoid entangling the pendant cable in moving machinery or vehicles.
- Do not place the pendant cable in walkways or other areas where it could present a trip hazard. If possible, secure the cable with cable clamps.
- Do not expose the pendant or pendant cable to water. If water enters the pendant, disconnect electrical power and have the pendant inspected by an Enerpac Authorized Service Center before putting the pump back into service.
- If the pendant cable becomes cut or damaged, immediately stop using the pendant and disconnect electrical power. Have the pendant repaired or replaced by a Enerpac Authorized Service Center before putting the pump back into service.
- Replace the pendant fuse only with an equivalent fuse of the original rating and size (refer to Section 10.0).
- If the pendant fuse blows repeatedly, have the pendant inspected and repaired by an Enerpac Authorized Service Center.
- Inspect the pendant and pendant cable before each use. If the pendant buttons, selector knob, housing or cable become damaged, loose or worn, have the pendant repaired or replaced by an Enerpac Authorized Service Center.
- Keep the pendant free of dirt and grease.
- Never attempt to disassemble or modify the pendant. The pendant contains no user-serviceable components except for the fuse.
- Do not use the pendant or electric pump in an explosive atmosphere.
- Adhere to all local and national electrical codes. A qualified electrician must perform installation and modification.
- Before removing the pump electrical enclosure cover, always disconnect the pump electrical cord from power source.
- Always test pump and pendant operation before placing the unit into a production environment. Know what pump function(s) will be performed when the pendant buttons are pressed and released, with the selector switch in both the "A" and "B" positions.

3.0 PRODUCT DATA

3.1 Mounting Dimensions and Specifications



Mounting Dimensions																	
A		B		C		D		E		F		G		H		I	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
3.65	92.7	9.60	243.8	0.265	6.7	2.00	50.8	7.75	196.9	3.00	76.2	120.0	3048.0	12.00	304.8	16.00	406.4

NOTICE Mounting dimensions are for reference only.

Specifications				
For Use With:	Power	Fuse Rating	Weight	
			lb	kg
- Enerpac ZE Electric Hydraulic Pump (Firmware codes 7.6) - Enerpac ZW Series Workholding Pumps (Firmware codes 6 and 9)	24-48 Volts DC (Supplied by pump circuit board)	3 Amp	4.6	1.8

3.2 Major Features and Components

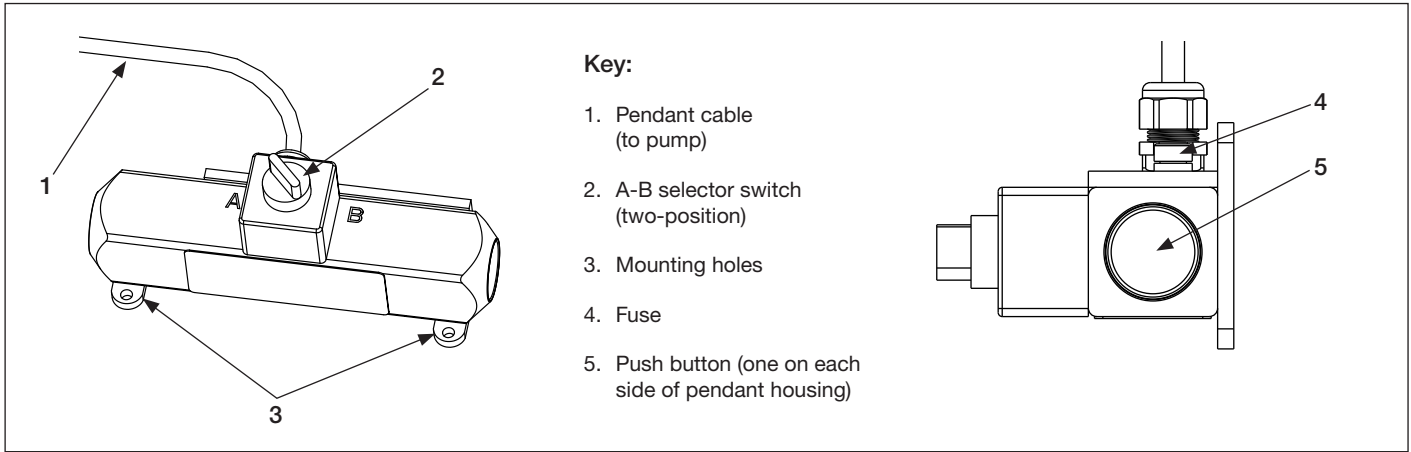


Figure 1, Major Features and Components

4.0 PRODUCT DESCRIPTION

The Enerpac ZPBW24 no tie-down pendant controller is an optional safety device available on selected ZE/ ZW Series workholding pumps. It is designed to prevent pump users from interacting with a part while it is being clamped in a machining fixture.

The pendant contains two large buttons, spaced 180 degrees apart. The operator must simultaneously depress BOTH buttons to activate the pump function. Due to the distance between the buttons, two hands are required to operate the pump. This virtually eliminates the possibility of the operator placing one hand in the fixture while a part is being clamped or un-clamped.

In addition, if the operator ties-down one button and then presses the second button, the pendant will not provide an output signal, and the pump function will not be activated.

Additional product features include:

- 12 foot [365 cm] pendant cable length allows for multiple mounting options and permits the pendant to be located a safe distance from the pump and machining center.
- Four mounting holes allow for rigid mounting to any flat surface (mounting hardware not included).
- When ordered from Enerpac as part of a custom configured ZW pump, pendant is pre-wired to pump and ready to use.
- Convenient two-position A-B selector switch allows an easy change between “advance” and “retract” operations.
- Power is supplied by the pump’s internal circuit board. No external power source is required.

5.0 COMPATIBILITY

The Enerpac ZPBW24 pendant is intended for use with ZE Electric Hydraulic Pump (firmware code 7.6), ZW Series *continuous connection* pumps (firmware code 6), and ZW Series *pallet coupling pumps* (firmware code 9). It is available as a factory-installed option or as an optional retrofit accessory for existing pumps.

Not all ZE/ ZW Series pump configurations have been tested with the ZPBW24 pendant. The ZW *continuous connection* and *pallet coupling* pumps are the **only** pump versions which are officially approved for use with the ZPBW24 pendant. Contact the Enerpac Engineering Department before installing the ZPBW24 pendant on any other ZE/ ZW Series pump model.

6.0 PREPARING FOR OPERATION

1. If the Enerpac ZPBW24 pendant was not factory-installed on the pump, make connections and install the pendant as described in Section 9.0.
2. Mount the pendant on a wall or other suitable surface. See Section 7.0.
3. Make hydraulic connections.
4. Check oil level in pump reservoir.
5. Connect electrical power to pump.
6. Read and understand the following instructions and precautions before proceeding with operation:
 - Refer to the appropriate ZE/ ZW Series pump instruction sheet for detailed information regarding pump setup, programming and operation.
 - Be aware that pump functions will vary, depending on pump model, features, automatic functions and user-programming.

- Before using the pump in a production environment, know the expected pump response when pendant buttons are depressed and released, for both the “A” and “B” circuits. Refer to the pump operation information at the back of the pump instruction sheet.
- Before placing the pump into service with the new pendant, always test all pump functions and verify proper operation.

7.0 MOUNTING LOCATION

Install the Enerpac ZPBW24 pendant only in a clean, dry and accessible area, away from potential hazards, such as moving machinery, electrical wires, hot surfaces, coolant spray or water.

Mount the pendant on a wall, structural member, workbench or other solid and flat surface. Using the four mounting holes, secure the pendant with four bolts (user-supplied). Bolt length and style will vary depending on mounting surface details.

Be sure that the pendant cable is routed so that it does not present a trip hazard. Use cable clamps (user supplied) as needed to secure the cable.

8.0 OPERATION

Using the Enerpac ZPBW24 pendant, operate the pump as described in the following steps.

For continuous connection pumps (firmware code 6), the pump motor will need to be started manually, using the on-off button mounted on the pump. For pallet coupling pumps (firmware code 9) the pump motor will start automatically when both pendant buttons are simultaneously depressed.

To operate the advance (“A”) circuit:

1. Move the pendant selector switch to the “A” position. See Figure 2.
2. Press the pump on-off button to start the pump motor (if applicable).
3. Using two hands, push both pendant buttons simultaneously to activate the “A” switch function. See Figure 3.
4. Release one or both pendant buttons to de-activate the “A” switch function.

NOTICE With the selector switch in the “A” position: Simultaneously pressing and releasing both pendant buttons will result in the same action as pressing and releasing the advance button on a standard pendant.

To operate the retract (“B”) circuit:

1. Move the pendant selector switch to the “B” position. See Figure 2.
2. Press the pump on-off button to start the pump motor (if applicable).
3. Using two hands, push both pendant buttons simultaneously to activate the “B” switch function. See Figure 3.
4. Release one or both pendant buttons to de-activate the “B” switch function.

NOTICE With the selector switch in the “B” position: Simultaneously pressing and releasing both pendant buttons will result in the same action as pressing and releasing the retract button on a standard pendant.

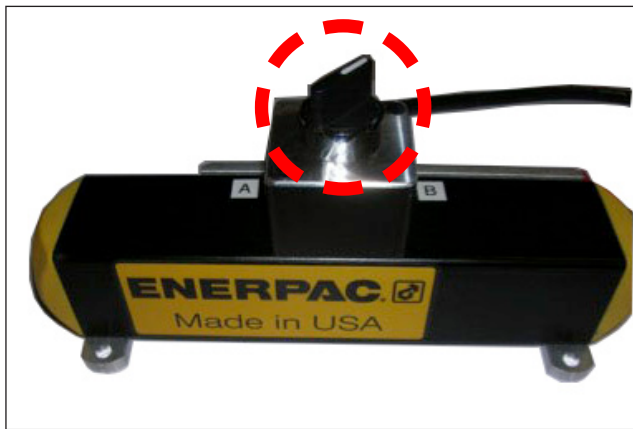


Figure 2, Pendant A-B Selector Switch



Figure 3, Pressing Both Pendant Buttons

9.0 INSTALLING THE ZPBW24 PENDANT ON AN EXISTING ZE/ ZW SERIES PUMP

WARNING Disconnect pump power cord from electrical power source before beginning pendant installation procedures. Always follow standard electrical safety practises. Failure to observe these precautions may result in death or serious personal injury due to electric shock.

NOTICE

- The following installation procedure should only be conducted by trained professionals with experience in electrical systems. It is recommended that the procedure be performed by an Enerpac Authorized Service Center.
- It is assumed in the following procedure that the ZPBW24 pendant is being installed on an Enerpac ZE Electric Hydraulic Pump (firmware code 7.6), ZW Series *continuous connection pump* (firmware code 6) or an Enerpac ZW Series *pallet coupling pump* (firmware code 9). Contact the Enerpac Engineering Department before installing the ZPBW24 pendant on pumps with other firmware codes.

Install the ZPBW24 pendant as described in the following steps:

1. Disconnect pump power cord from electrical power source.
2. Loosen and remove the six screws and flatwashers securing the electrical enclosure cover. Remove the cover from the electrical enclosure. See Figure 4.

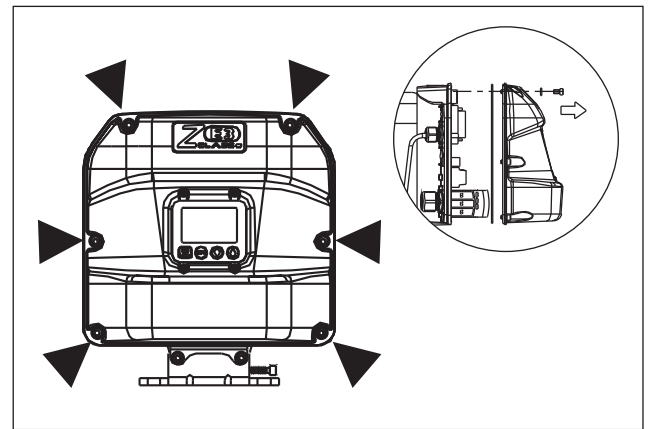


Figure 4, Electrical Enclosure Front Cover

NOTICE Before installing the new pendant, remove the old pendant and cable as described in steps 3, 4 and 5 of this procedure.

3. Locate the three electrical connections “ADVANCE”, “RETRACT” and “PENDANT” on the upper left-hand corner of the power board. See Figure 5.

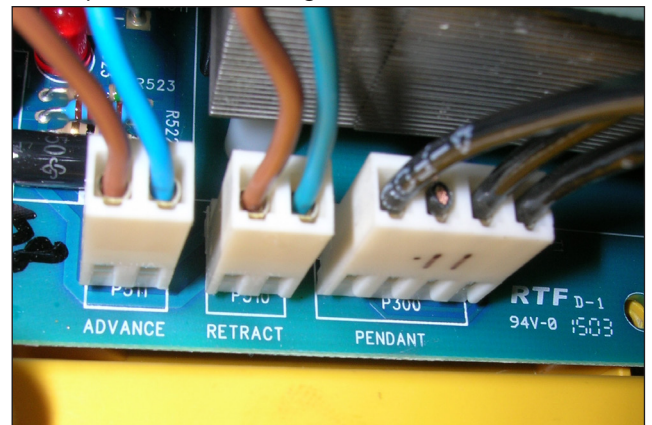


Figure 5, Connections - Advance, Retract and Pendant

4. Disconnect the 4-pin connector from the “PENDANT” terminal on the pump control board. See Figure 6.

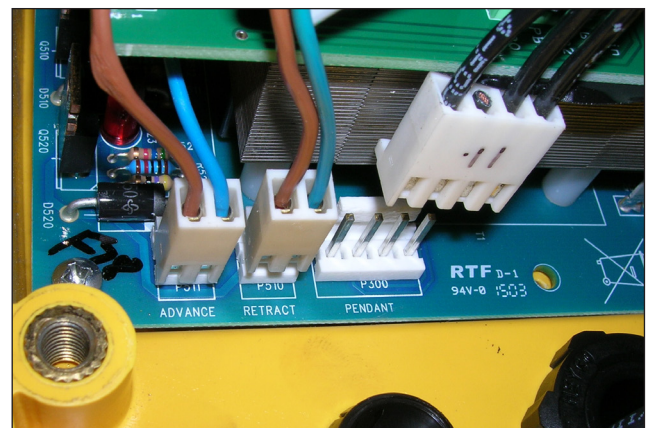


Figure 6, 4-Pin Pendant Connector

5. Loosen and remove the cord grip retaining nut. Carefully slide the old pendant cable through the opening in the pump electrical enclosure until the cable is completely removed. See Figure 7.



Figure 7, Pendant Cable Routing

NOTICE The new pendant cable includes a new cord grip. A new cord grip retaining nut is also included. The retaining nut may be threaded onto the cord grip. Or, it may be packed loose inside the shipping carton.

6. If installed, unscrew and remove the cord grip retaining nut from the cord grip on the new pendant cable. This nut must be removed to allow cable installation in the next step.
7. Carefully slide the new pendant cable through the pendant cable opening in the pump electrical enclosure.
8. Using the cord grip retaining nut, secure the new pendant cable to the electrical enclosure.

NOTICE The cable sheathing should extend approximately 1/2 inch to 1 inch [12.5 - 2.5 cm] inside the electrical enclosure when the cord grip is secured. If necessary, loosen the cord grip and reposition it on the cable so that the cable length (extending inside the enclosure) is within the proper range. Tighten cord grip after making adjustments.

9. Connect the 4-pin connector from the new pendant cable to the “PENDANT” terminal on the pump control board. See Figure 6.
10. Locate the power wire feeding into the *advance* 2-pin connector. See Figure 8.

NOTICE Of the two wires feeding into the *advance* connector, the power wire is the wire located **closest** to the *retract* connector. Note that wire colors will vary and may be different than shown for your pump.

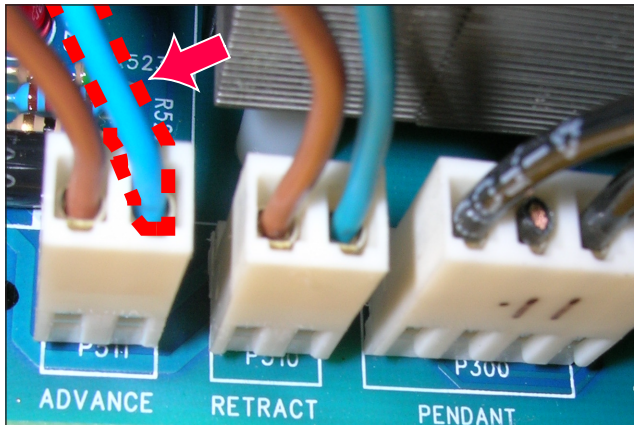


Figure 8, Power Wire

11. To make wire splicing easier in the following steps, temporarily disconnect the *advance* 2-pin connector from the “ADVANCE” terminal on the pump control board.
12. Locate the supply-in wire (marked “+ supply-in”) on the new pendant cable. Also locate the splicing connector (shipped loose in the carton with the pendant). See Figure 9.

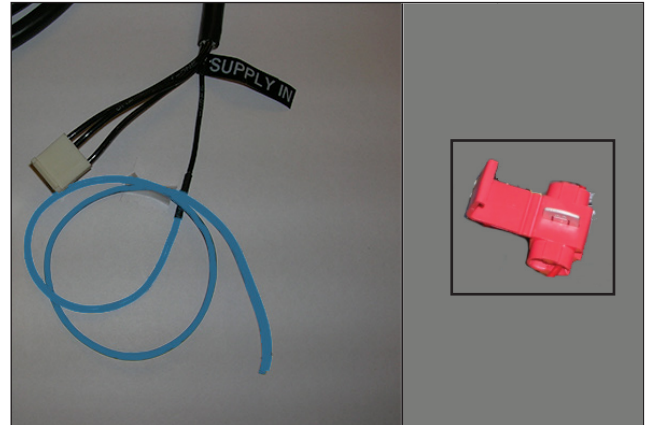


Figure 9, Supply-In Wire and Splicing Connector

13. Insert the power wire (shown in Figure 8) into the thru-hole groove of the splicing connector. See Figure 10.
14. Insert the supply-in wire (shown in Figure 9) into the blind hole of the splicing connector. Be sure that the supply-in wire is fully inserted (bottomed out) in the blind hole. See Figure 10.

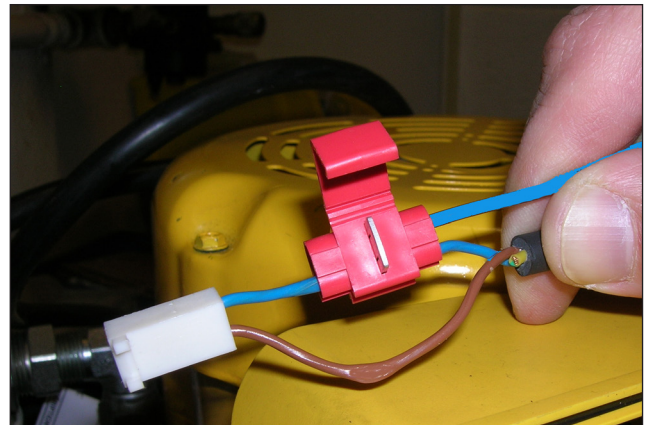


Figure 10, Assembling the Power and Supply-in Wires

15. Fold over the splicing connector tab and crimp the connector with a needle nose pliers. See Figure 11. Be sure that the tab is fully closed and firmly engages with the connector body.

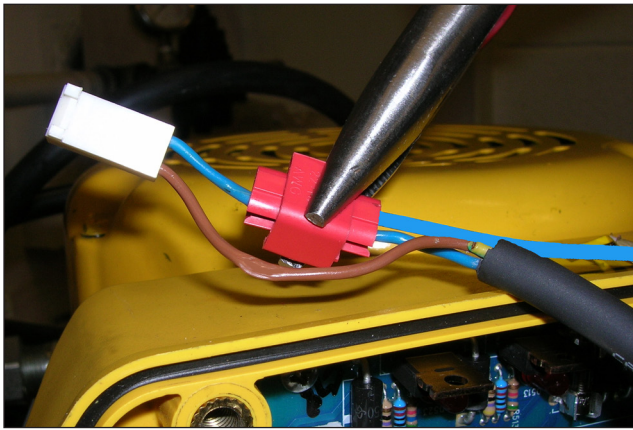


Figure 11, Crimping the Splicing Connector

16. Reconnect the *advance* 2-pin connector to the “ADVANCE” terminal on the pump control board. See Figure 12.

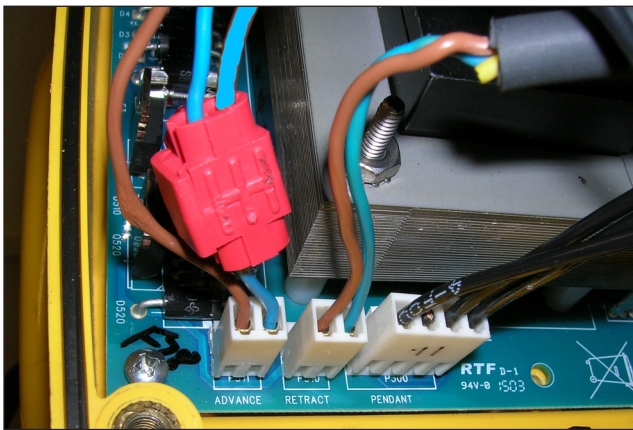


Figure 12, Final Installation

17. Position the cover on the pump electrical enclosure. Reinstall the six flatwashers and screws. Tighten all screws snug tight. See Figure 4.

NOTICE After installation and wiring procedures are completed, test pendant and pump operation to verify proper operation before placing the unit into service.

10.0 PENDANT FUSE REPLACEMENT

WARNING Disconnect pump power cord from electrical power source before replacing fuse. Failure to observe this precaution may result in death or serious personal injury due to electric shock.

The pendant contains a user-replaceable 3 amp fuse. The fuse is located on the backside of the pendant housing, next to the pendant cable connection. See Figure 13.

Check fuse condition and replace the fuse (if necessary) as described in the following steps:

1. Disconnect pump power cord from electrical power source.
2. Push down on the fuse cover and rotate it counter clockwise in one motion. Remove fuse cover and fuse.
3. Separate the fuse and fuse cover. Verify fuse continuity.
4. If the fuse is blown, replace it only with a new fuse of the equivalent size and rating (3A/250V).

NOTICE If the pendant fuse blows repeatedly, have the pendant and pump inspected by an Enerpac Authorized Service Center. Do not attempt to disassemble or repair the pendant. It contains no user-serviceable components except for the fuse.

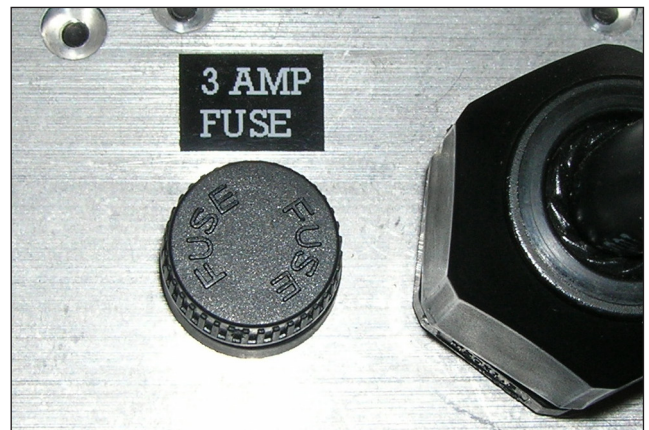


Figure 13, Pendant Fuse

