



# LS60TD and LS600 (Deutz Engine)

## Control Box Replacement

The following instructions are intended to assist the user in the installation of the replacement control box on the LS60TD and LS600 Concrete Pump. Please read all instructions before installing the control box and relay kit.

### REQUIRED TOOLS/COMPONENTS

- Crimping Tool
- Wire Cutter Tool
- Wire Stripper Tool
- Two 12-10 AWG Butt Splice
- One 14-16 AWG Butt Splice
- One 12-10 AWG Spade Lug

### PARTS

Verify that parts are accounted for. See Figure 1 and Table 1.

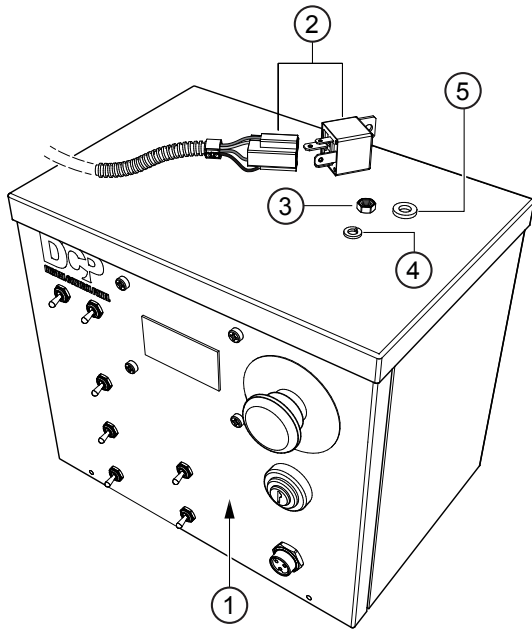


Figure 1. Required Parts

Table 1. Required Parts

Item No.	Part No.	Description	QTY.	Remarks
1	EM517648A	Digital Control Box	1	
2	EM515799	Relay Kit	1	
3	—	10/32" Hex Nut	1	Not Provided
4	—	#10 Lock Washer	1	Not Provided
5	—	#10 Flat Washer	1	Not Provided

### WORK SAFELY!

Only a **qualified service technician** with proper training should perform this installation. Follow all shop safety rules when performing this installation.

### PREPARATION

1. Place the pump in an area free of dirt and debris.
2. Disconnect negative battery cable from the battery.
3. Disconnect the 4 plugs from the receptacles on the rear of the control box currently installed on the pump (see Figure 2). Mark and tag the plugs for reference when new control box is installed. Remove the fuse from the rear of the control box and keep the nut and washers. They will be used to reinstall the fuse on the new control box.
4. Remove the existing control box as shown in Figure 2. Keep the hex bolts, flat washers and lock nuts. They will be used in the installation of the new control box.

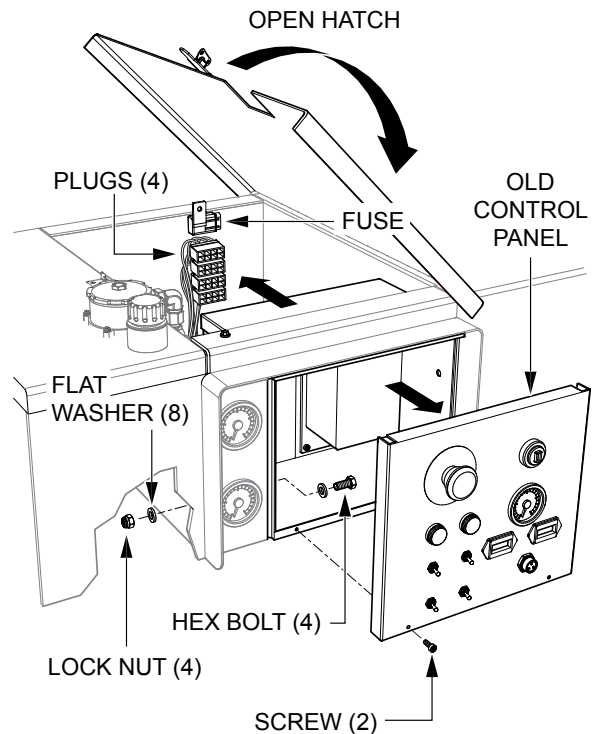
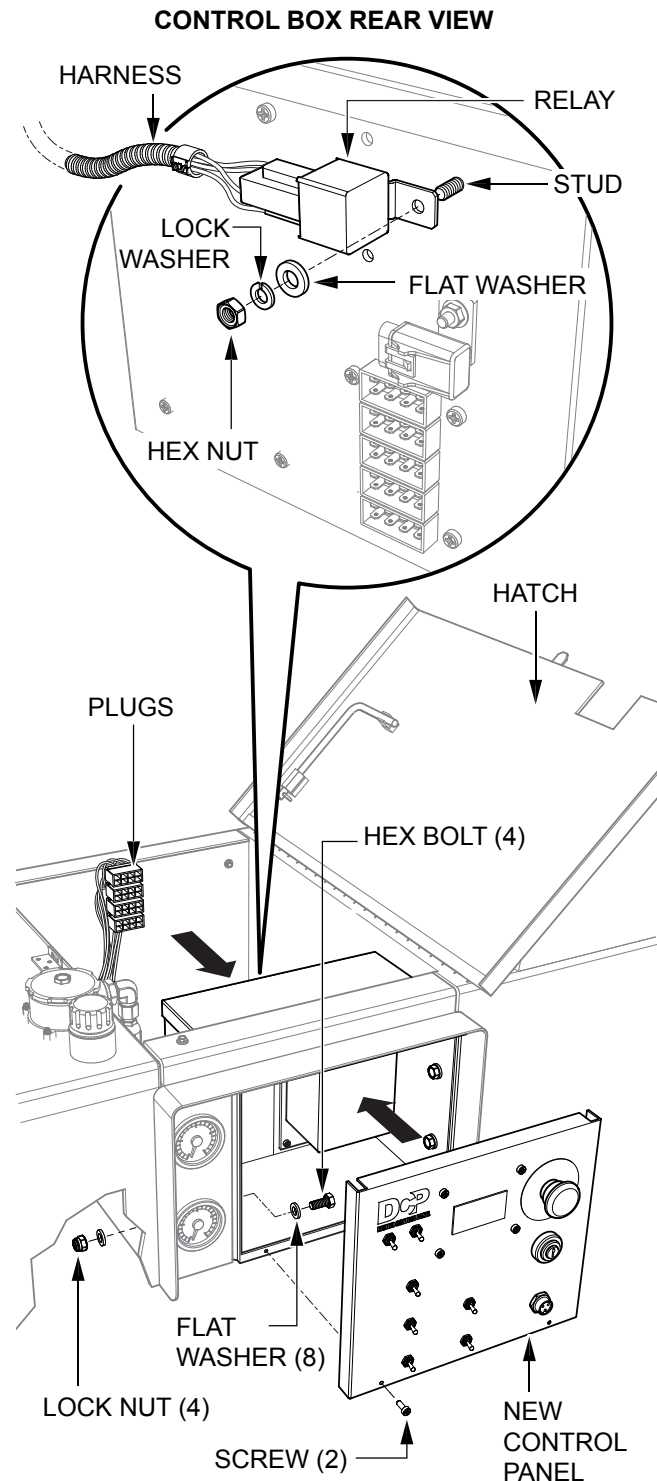


Figure 2. Removing Existing Control Box

## INSTALLATION

1. Install the replacement digital control box on the pump using the existing hardware. See Figure 3.



**Figure 3. Replacement Digital Box Installation**

2. Attach the relay kit to the digital control box by securing it to the stud shown in Figure 3, using the appropriate hardware (user provided).

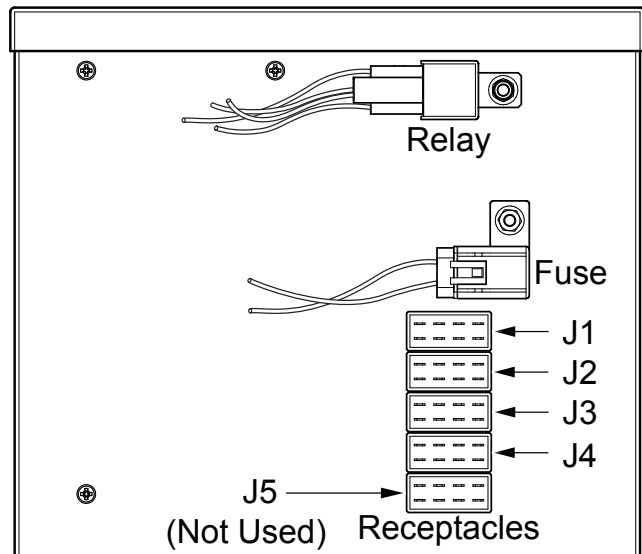
## CONNECTIONS

Refer to Figure 5 for connections from the relay to the plugs.

1. Connect #86 purple 12 AWG wire from Relay K1 to terminal #6 on Plug P1 using a spade connector.
2. Connect #85 black wire from Relay K1 to starter ground point using a butt splice.
3. Connect #87 purple 10 AWG wire from Relay K1 to terminal #4 on Plug P1 using a butt splice.
4. Cut wire from terminal #4 on Plug P4 flush to the plug. Terminal will not be used.
5. Connect #30 red wire from Relay K1 to the other end of the cut wire using a butt splice.
6. Reconnect the 4 plugs to the corresponding receptacles on the new control box. See Figure 4 for location of receptacles. Receptacle J5 will not be used.

### NOTICE

Use extreme care when connecting the control box rear receptacle plugs to make sure that correct orientation is followed.



**Figure 4. Control Box Rear Receptacles**

7. Install the fuse to the rear of the new control box.
8. After all connections are made, reconnect the battery. Turn the control panel ignition switch to the ON position. The control box panel should light. You will see and hear the engine fuel solenoid energize.
9. Perform control box programming instructions.

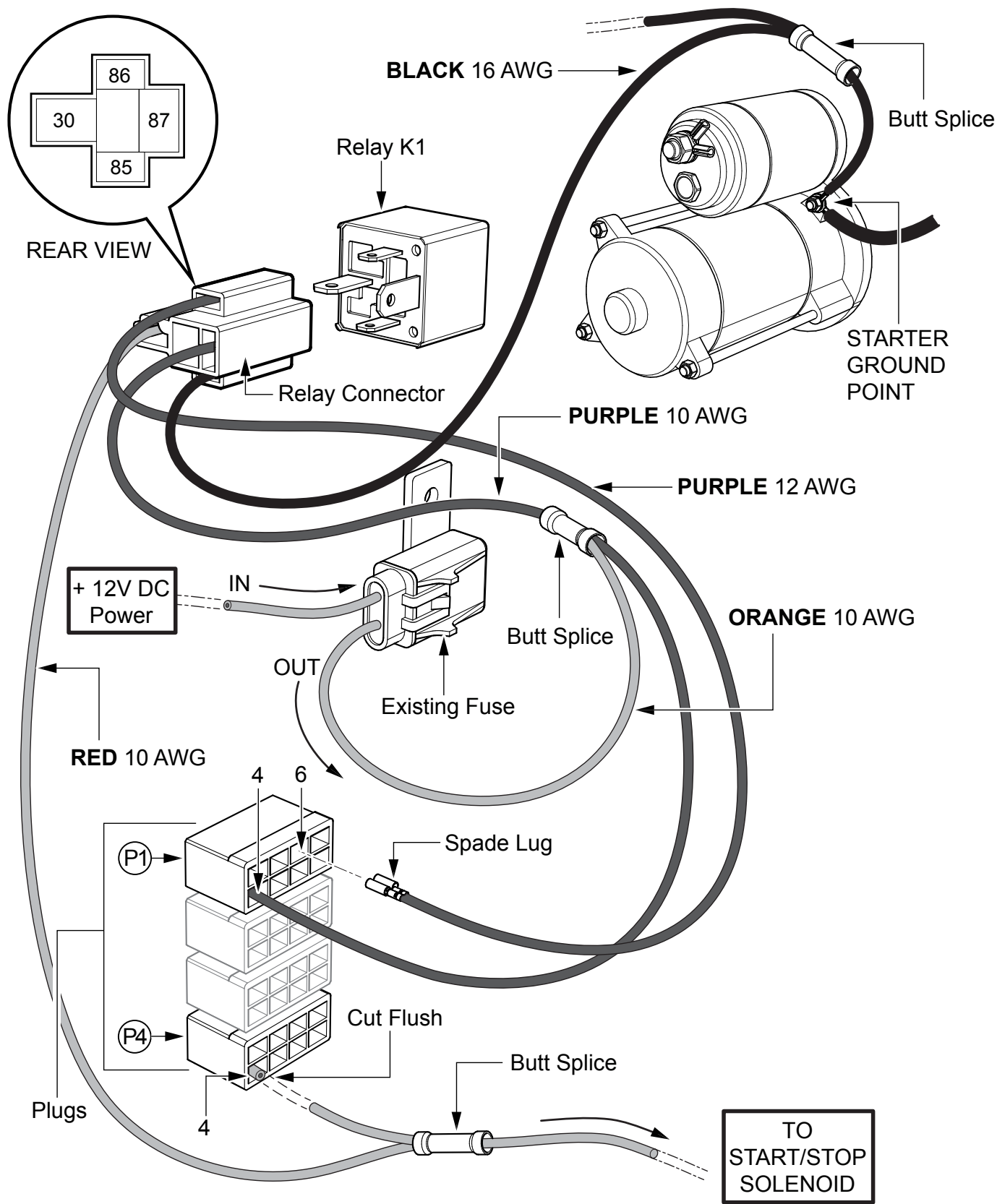
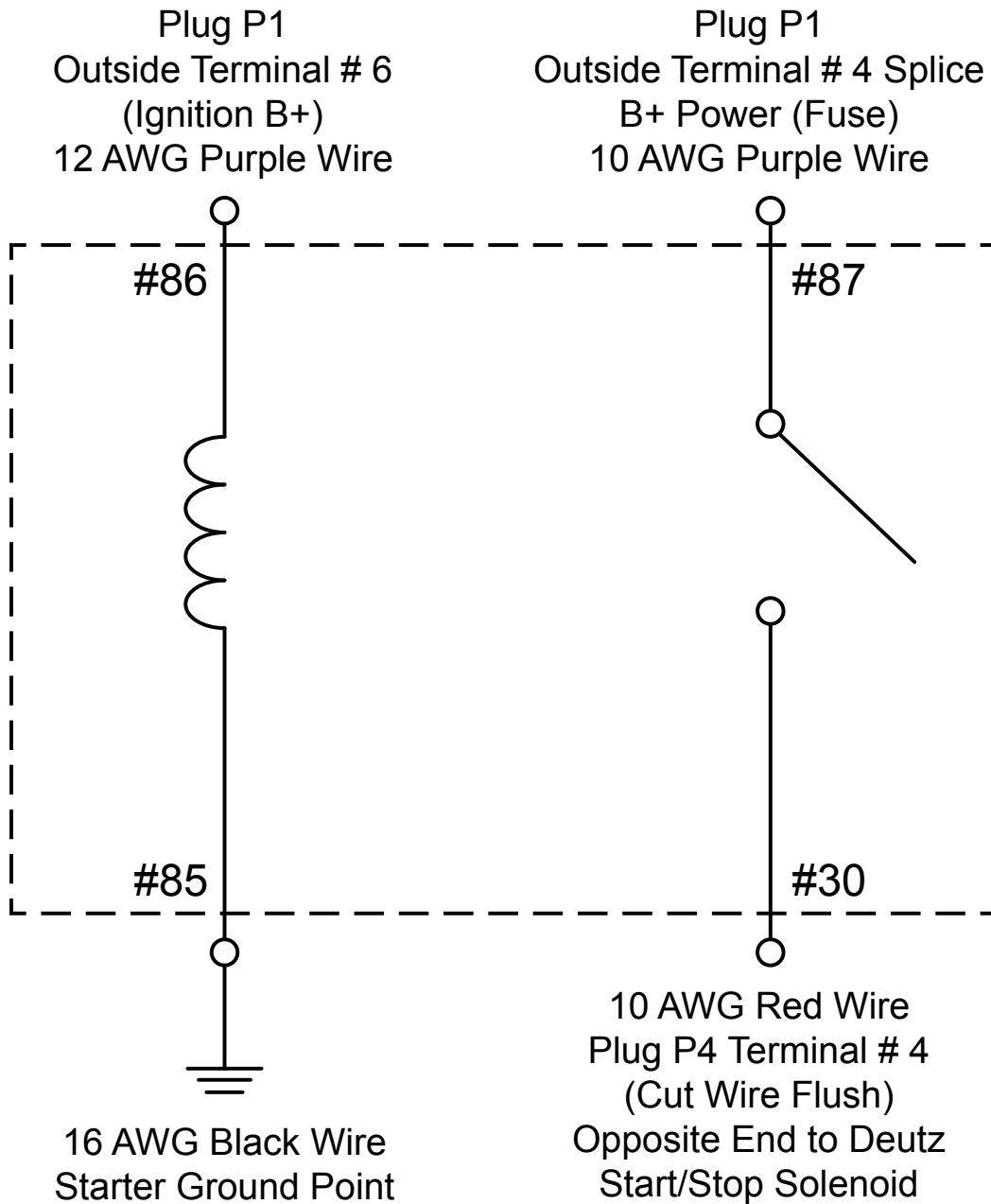


Figure 5. Connections Between Control Box and Relay



**Figure 6. Relay P/N EM515799 Relay Schematic Diagram**

## CONTROL BOX PROGRAMMING

### NOTICE

Control boxes come pre-programmed from the factory and configured to Model LS300. It is necessary to reprogram the model configuration to match your unit.

See Figure 7 to identify control box switches.

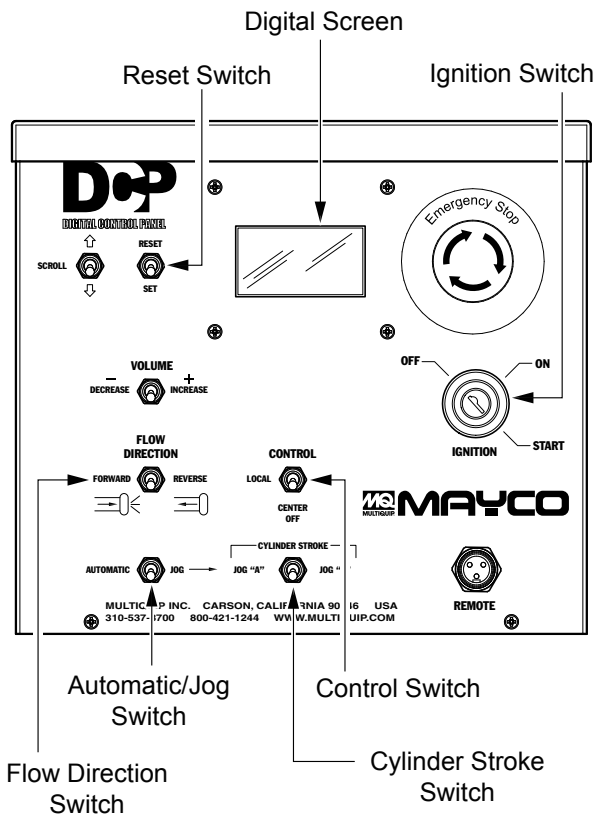


Figure 7. Control Box Switches

### Language Selection

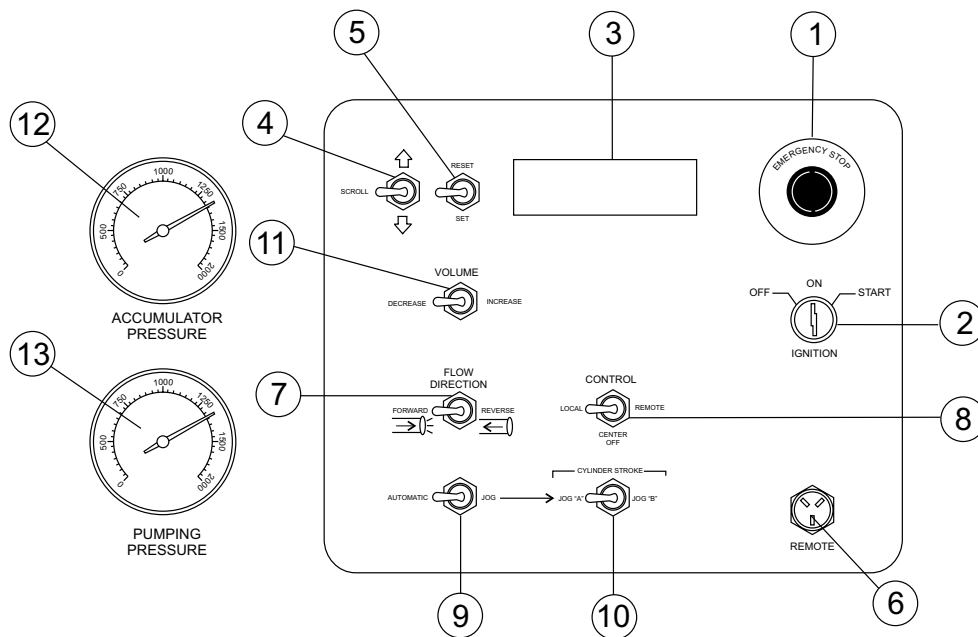
1. Turn the IGNITION switch to the ON position. Do not start engine.
2. Place the FLOW DIRECTION switch to reverse.
3. Place the AUTOMATIC/JOG switch to jog.
4. Place the CONTROL switch to remote.
5. Manually hold the CYLINDER STROKE switch to the jog B position. While holding the switch to the jog B position, toggle the RESET switch down 5 times. On the fifth time, the digital screen will display the current set language. Toggle RESET switch again to change language, if desired.

6. Once the language is selected, place the CONTROL switch to the center off position.
7. Turn the IGNITION switch to OFF then ON again to memorize final configuration.

### Machine Model Configuration

1. Turn the IGNITION switch to the ON position. Do not start engine.
2. Place the FLOW DIRECTION switch to reverse.
3. Place the AUTOMATIC/JOG switch to jog.
4. Place the CONTROL switch to remote.
5. Manually hold the CYLINDER STROKE switch to the jog B position. While holding the switch to the jog B position, toggle the RESET switch down 5 times. **After the fifth time, move the CYLINDER STROKE switch to the jog A position.** While holding the switch to the jog A position, toggle the RESET switch down to the desired model (LS60TD or LS600).
6. Once the model is selected, place the CONTROL switch to the center off position.
7. Turn the IGNITION switch to OFF then ON again to memorize final configuration.

## CONTROL PANEL COMPONENTS



**Figure 8. Digital Control Panel Components**

- Emergency Stop Button** — Press emergency stop button to stop pump in an emergency. Turn knob counterclockwise to disengage the stop button.
- Ignition Switch** — Insert the ignition key here to start the engine. Turn the key clockwise to the ON position, then continue turning clockwise to the START position and release. To stop the engine turn the key fully counterclockwise to the STOP position.
- Digital Readout Screen** — Displays and monitors the various functions of the machine.
- Scroll Switch** — Allows the operator to scroll the various readout screens.
- Reset Switch** — Allows the operator to reset the stroke counter.
- Remote Cable Connector** — Insert the remote control input cable into this connector.
- Direction Control Switch** — This 2-position switch controls the direction of flow for any mix in the pump. The leftmost position sets the pumping direction to forward and the rightmost position sets the pumping direction to reverse.
- Pumping Control Switch** — This 3-position switch controls the pumping of the pump. The rightmost position (REMOTE) is for use with the remote control unit, the leftmost position (LOCAL) is for normal pumping operation, and the centermost position (CENTER OFF) prevents pumping.
- Cylinder Stroke Control Switch** — This 2-position switch controls the pumping function. The leftmost position (AUTOMATIC) sets the pump to automatic cycling. Set the switch to this position for normal pump operation.  
  
The rightmost position (JOG) changes the pump from automatic to manual cycling. This allows the cylinders to be manually cycled using the Manual Cylinder Jogging Switch.
- Manual Cylinder Jogging Switch** — This 2-position switch allows the operator to manually jog the cylinders to assist in clearing material line packs and is used to test pumping pressure.  
  
The leftmost position jogs Cylinder "A" and the rightmost position jogs Cylinder "B".
- Stroke Volume Control Switch** — Increases or decreases the number of strokes per minute of the pump (not used on model LS60TD).
- Accumulator Pressure Gauge** — This gauge monitors the internal pressure of the Accumulator tank. Normal internal pressure should read approximately 1750 PSI during pumping.
- Main Pressure Gauge** — This gauge monitors the system pressure while pumping material. The maximum pressure rating is 4400 PSI  $\pm$  50.

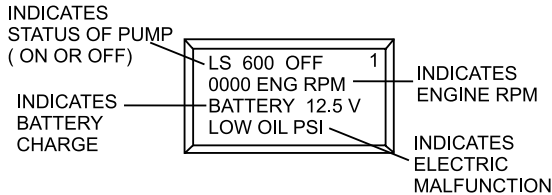
# DIGITAL READOUT SCREENS

## Primary Screen

### Screen 1

Indicates the various modes of the switch settings.

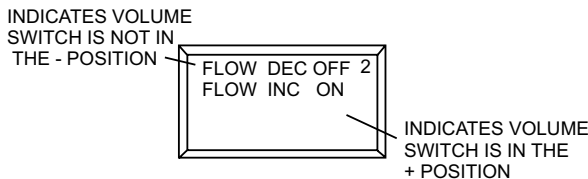
Monitors engine RPM - Idle speed 900, High speed 2550. Battery charge indicator - Normal charge 13+ volts. Indicates electrical malfunction.



## Secondary Screens

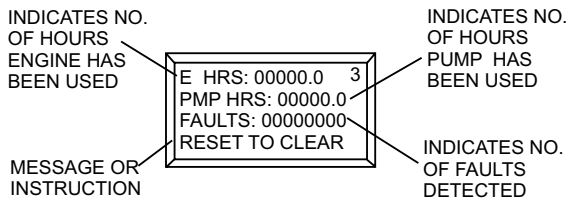
### Screen 2 (not used on Model LS60TD)

Displays the position of the VOLUME CONTROL switch by indicating whether the increase or decrease position is on or off.



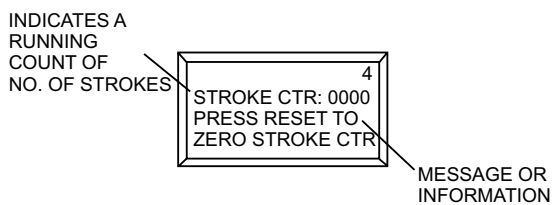
### Screen 3

Displays the number of hours the engine and pump have been used and the number of faults the pump has registered. All three indicators can be reset to zero by the RESET switch on the control panel.



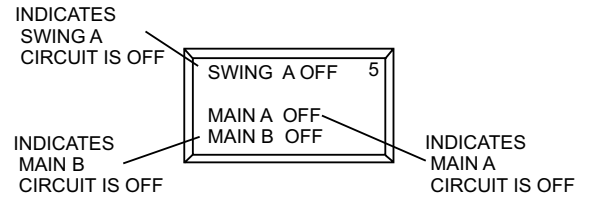
### Screen 4

Displays the number of strokes the main hydraulic cylinders have gone through. This indicator can be reset to zero by the RESET switch on the control panel.



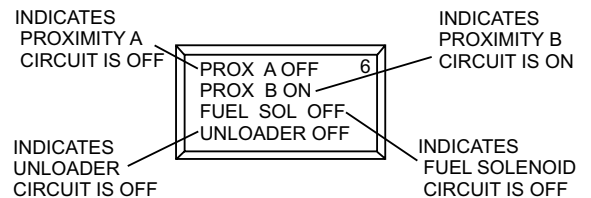
### Screen 5

Displays the ON/OFF electrical signal status of the various 12 volt solenoids (Swing A circuit, Main A circuit, Main B circuit).



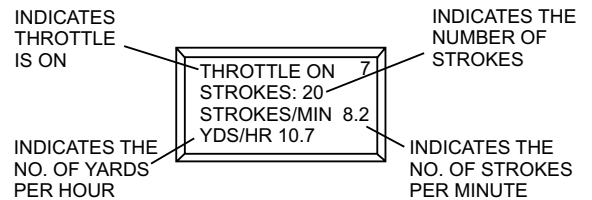
### Screen 6

Displays the ON/OFF electrical signal status for the Proximity Switch A, Proximity Switch B, Engine Fuel Solenoid, and Unloader Solenoid.



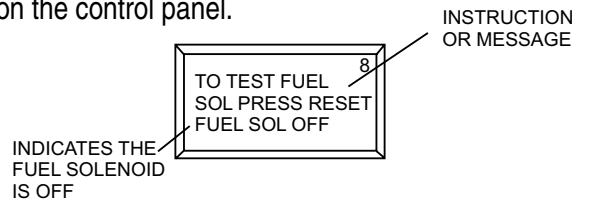
### Screen 7

Displays the number of times the main hydraulic cylinders stroke and the yards per hour output. This indicator can be reset to zero by the RESET switch on the control panel.



### Screen 8

Displays the electrical status of the engine fuel solenoid. To test the 12-Volt solenoid status, activate with the RESET switch on the control panel.



### Screen 9

Displays the communication status of the (optional) radio remote control. To activate a new remote control connection, use the reset switch on the control panel.





# LS60TD and LS600

## Control Box Replacement

## HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL  
NUMBER ON-HAND WHEN CALLING

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#### ***Multiquip Corporate Office***

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Carson, CA 90746 Fax (800) 537-3927  
Contact: mq@multiquip.com

#### ***Service Department***

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Contact: pmastretta@cipsa.com.mx

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