

Condensing Boilers

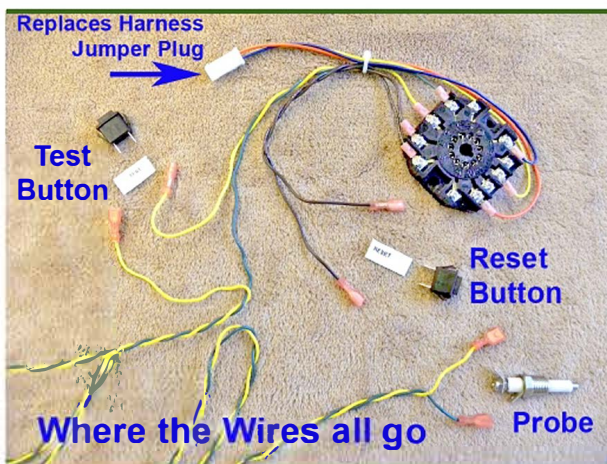
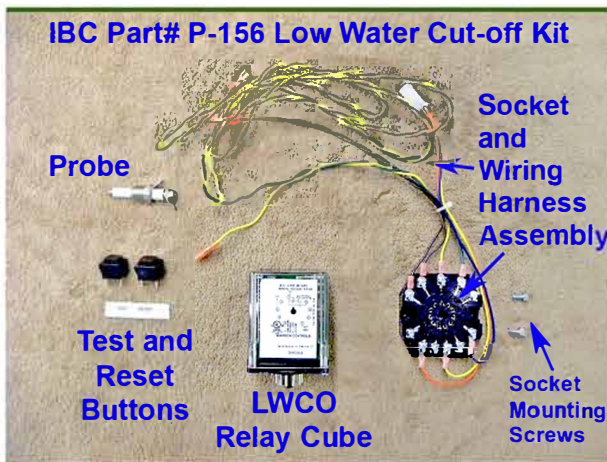
IBC Technologies – 8015 North Fraser Way, Burnaby, BC V5J 5M8 – www.ibcboiler.com
Ph – 604 877 0277 Fax – 604 877 0295 E – info@ibcboiler.com

Introduction

IBC Model SL 30-175 and 45-260 Boilers are shipped without pre-installed Low Water Cut-Off devices, however they are designed to be easily retrofitted with a probe-type LWCO Kit. If you are required to equip either of these models with a LWCO, order IBC Part# P-156, LWCO Kit.

The P-156 Kit includes the following components:

- LWCO Module, IBC Part# 240-005 - includes LWCO Relay Cube and Socket (the Socket is pre-wired to the Wiring Harness as an Assembly)
- LWCO Probe, IBC Part# 240-010
- Test and Reset Buttons with labels
- Socket Mounting Screws
- Instruction Sheet, IBC Part# xxxx



SL 30-175 and SL 45-260 front view. The arrow points to the tapping for the Low Water Cut-off Probe



Getting Started

Open the P-156 LWCO Kit and make sure all of the parts are included and there are no damages.

The following tools and additional materials will be required for this installation:

- 1/4" Allen Wrench
- 9/64" Allen Wrench
- 14mm Open-end Wrench
- Ruler
- Marker
- Sharp Knife
- These instructions
- Metallic Pipe Dope
- Zip Ties
- #2 Phillips Screwdriver
- Large Slot Screwdriver or Gasket Scraper



WARNING

This Kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, an explosion or production of carbon monoxide may result causing property damage, personal injury or loss of life. The qualified service agency is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the appliance is checked as specified in the manufacturer's instructions supplied with this kit, and as referenced to the Boiler's Certified Installation and Operating Instruction Manual.

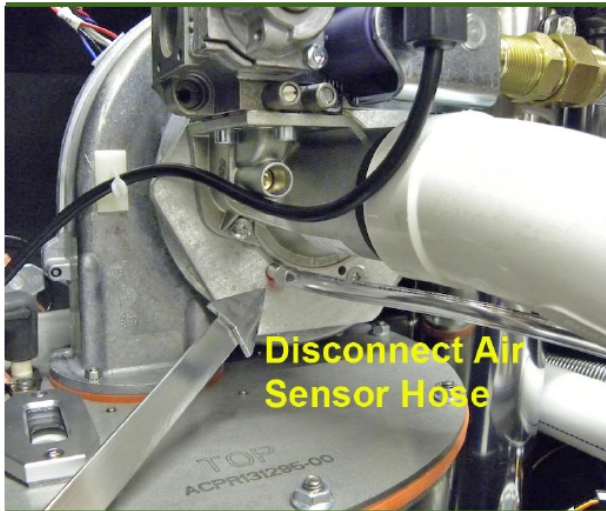
Field Retrofit/Installation



DANGER



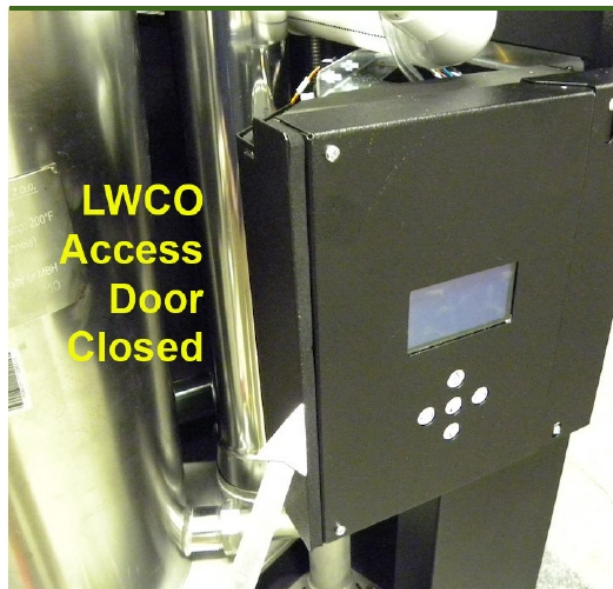
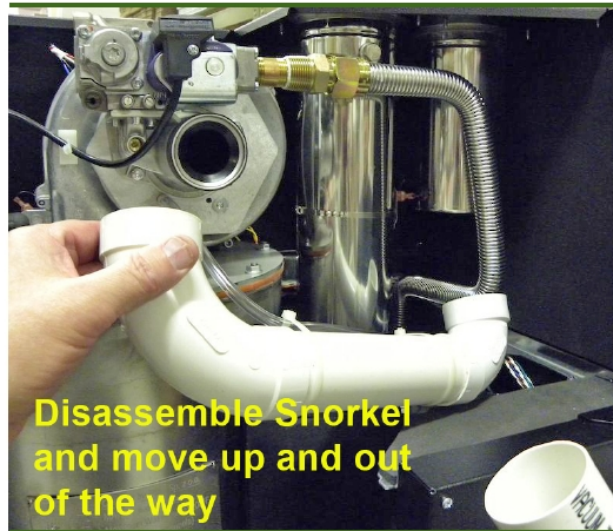
Before proceeding with this installation, the gas supply shall be shut off, and the electrical power shall be disconnected.

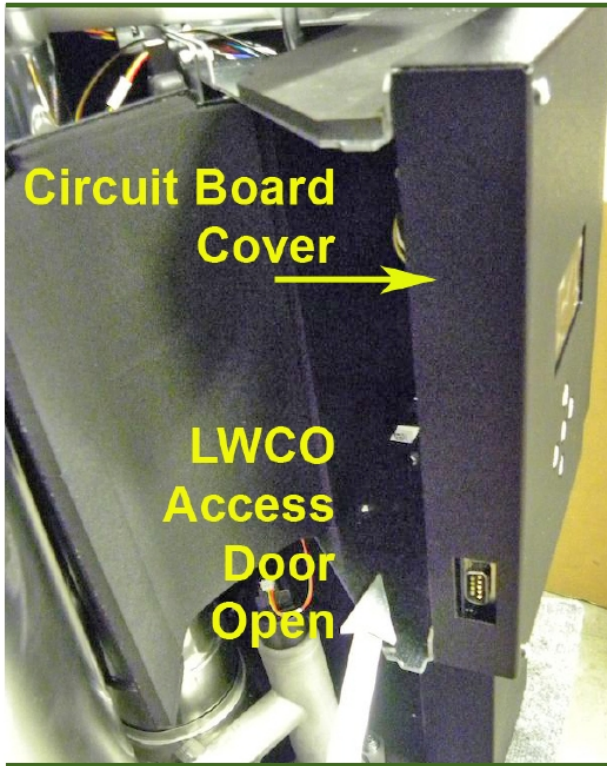


Installation Step #1 - Making Room

The photos in this section illustrate the steps required to allow clear and easy access to the places where the LWCO components are to be installed.

Tools Required: #2 Phillips Screwdriver





Lay out all of the components from the P-156 LWCO Retrofit Kit and check with the list above to make sure you have all of the components as listed.

Review the required tool list above, and make sure you have the equipment and materials necessary to complete the job.

Once you remove the Wiring Harness Jumper Plug in Step #6, the boiler will not function until the installation of the LWCO has been finished.



Notes:

Remove the Wiring Chamber cover and the Circuit Board cover to reveal the Circuit board. **Do Not remove the circuit board from the aluminum back plate - rather, remove the four screws that hold the back plate to the boiler frame.**

Pull the Circuit board on its mounting plate forward a few inches and un-plug all of the wiring plugs from the back of the board. Place the Circuit board, covers and mounting screws in a dry, secure location.

Installation Step #2 - Test and Reset Buttons

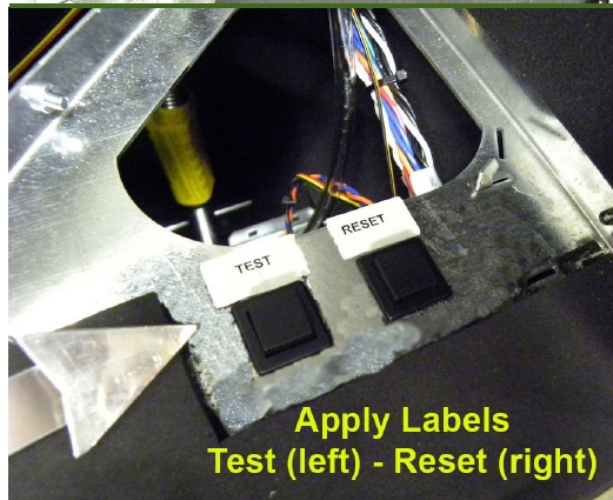
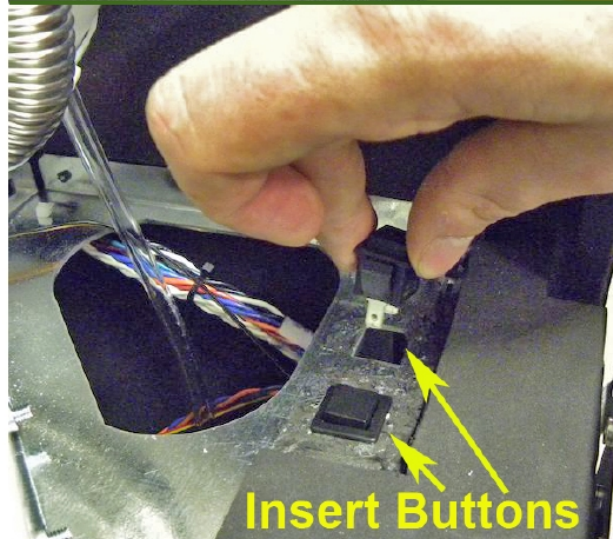
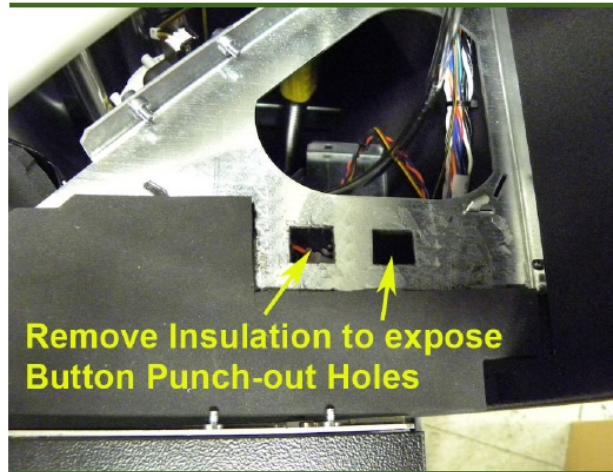
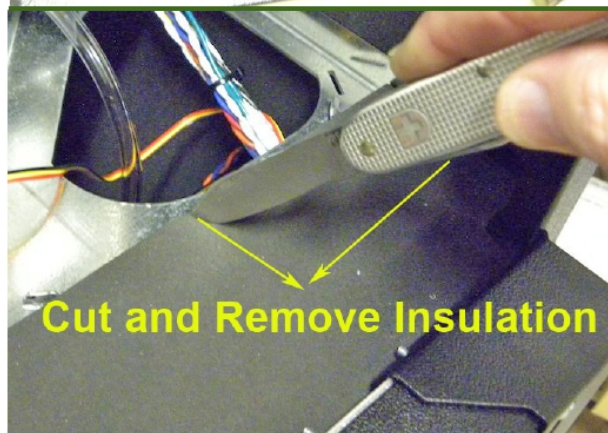
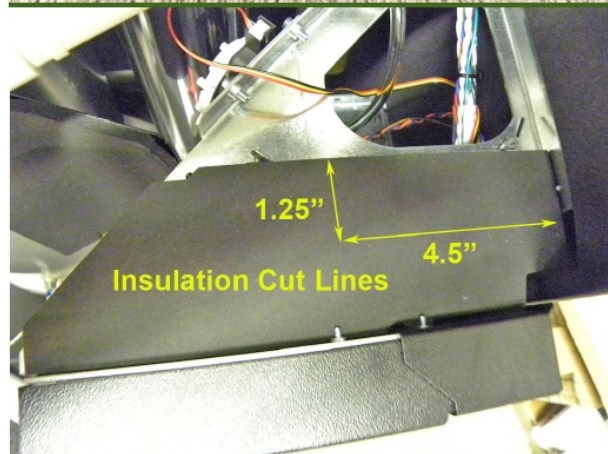
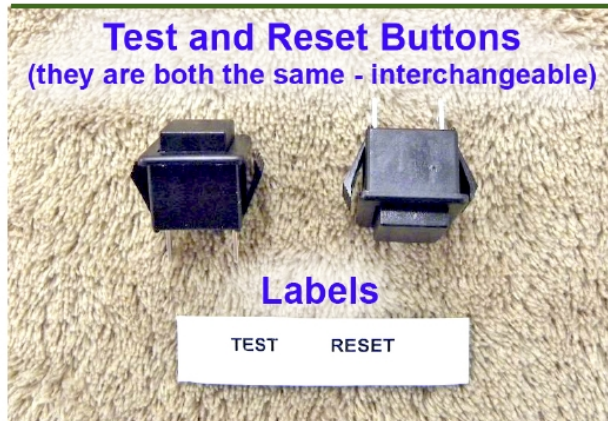
The photos in the following section illustrate the steps required to install the LWCO Test and Reset Buttons.

Tools Required: Ruler/Tape Measure

Marker to mark cut lines on Insulation

Utility Knife

Gasket Scraper



Notes:

Measure from the right side and back of the LWCO Relay chamber, and mark as indicated. With a sharp knife, cut through the insulation, and then peel it off. Scrape the remaining glue and insulation with a gasket scraper down to the bare metal.

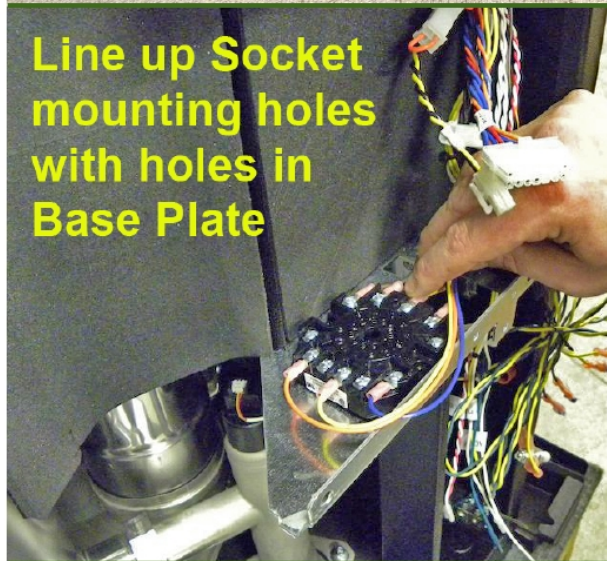
Notes:

Snap the buttons into place by pushing them down through the two holes. Both buttons are identical, so they can be installed in either position. For consistency from boiler to boiler, place the Test button label as shown in the Leftmost position, and the Reset button label in the Rightmost position.

Installation Step #3 - LWCO Socket and Wiring Assembly

The photos in the following section illustrate the steps required to install the LWCO Control Socket and Wiring Assembly.

Tools Required: 9/64" Allen Wrench
#2 Philips Screw Driver



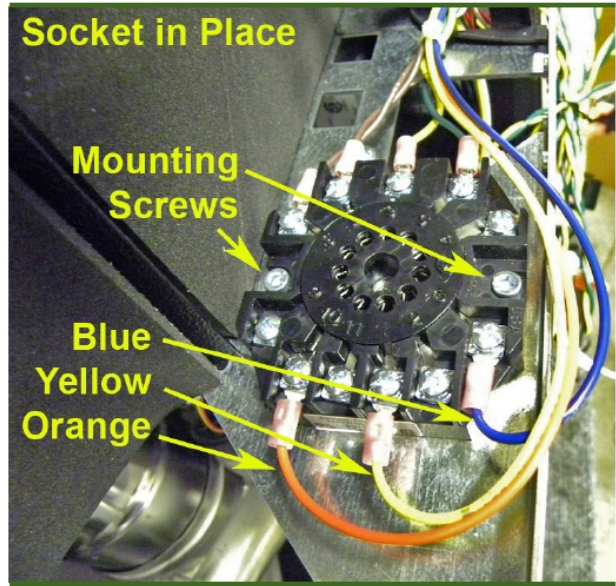
Notes:

Unravel the wires and straighten them out from the Socket so they won't get tangled up, you want them to hang loose.

Position the LWCO Socket on the Base Plate of the Relay chamber with the wires hanging down in front and line up the mounting holes with the threaded holes in the base plate. Make sure the side of the Socket with the Orange Yellow and Blue wires is facing to the Left.

Start the Mounting Screws in the threaded holes and tighten.

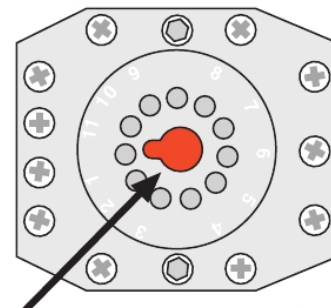
With a Philips screw driver, check each wiring terminal to make sure none of them have come loose and there is a good connection to each wire.



Installation Step #4 - Install the LWCO Relay Cube

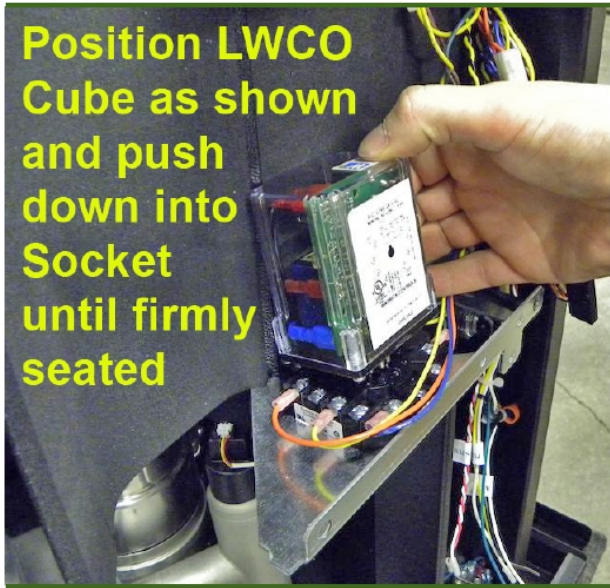
The photos in the following section illustrate the steps required to install the LWCO Relay Cube.

Tools Required: None



Keyed, Center-Post Hole in Relay Socket

Carefully align the Key of the Relay Cube Center-Post



Notes:

Remove the Relay Cube from its box and note the position of the center post key. Line up the key of the Relay Cube with that of the relay Socket. Ensuring that all of the pins and the key line up properly, force the Cube down into the socket until it bottoms out. It may take some force to fully engage the cube.



Notes:

Using a 1/4" Allen wrench, remove the 1/2" NPT plug from the LWCO Probe tapping. It is important to use a metallic based pipe dope on the threads of the LWCO probe in order to enhance grounding and increase the sensitivity of the probe. Do not use teflon tape or teflon based pipe dope as it may result in nuisance shut-downs or prevent the LWCO Relay from resetting.



Installation Step #5 - LWCO Probe Installation

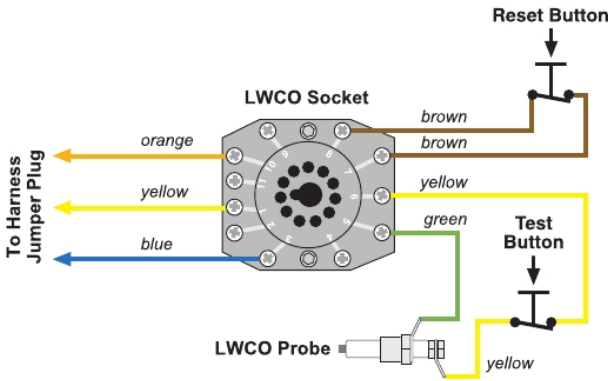
The photos in the following section illustrate the steps required to allow install the LWCO Probe.

- Tools Required:** 1/4" Allen Wrench
 14mm Open-end Wrench
 Metallic-based Pipe Dope

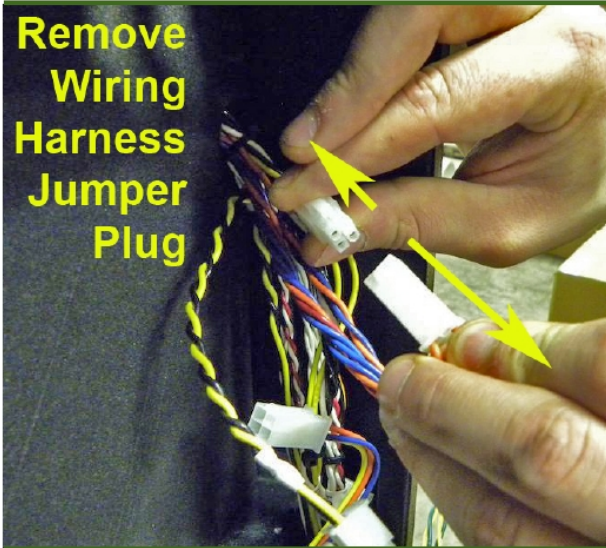
Installation Step #6 - Wiring

The photos in the following section illustrate the steps required to complete the wiring to the boiler's wiring harness and the LWCO Probe, Test and Reset Buttons.

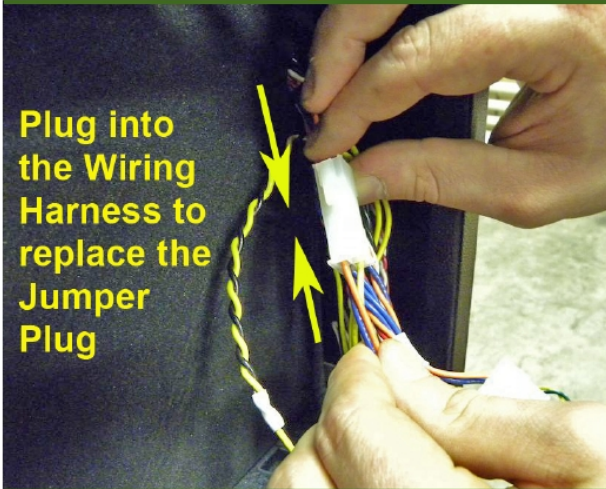
Tools Required: Zip Ties



Remove Wiring Harness Jumper Plug



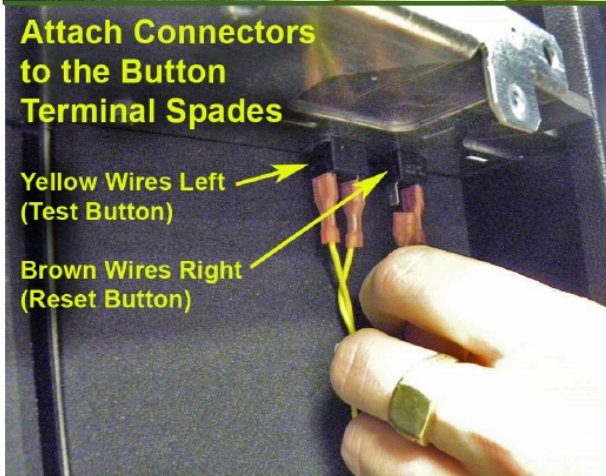
Plug into the Wiring Harness to replace the Jumper Plug



Attach Connectors to the Button Terminal Spades

Yellow Wires Left (Test Button)

Brown Wires Right (Reset Button)



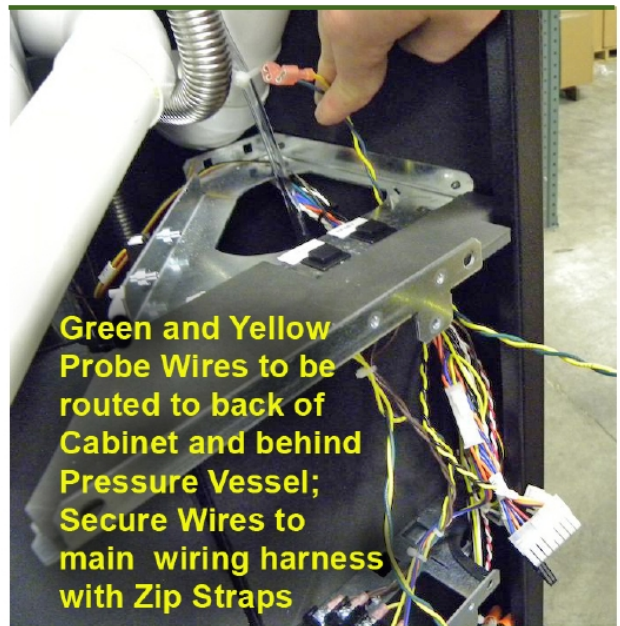
Inside the Relay chamber, attach the Yellow wire spade connectors to the Test Button on the left and the Brown wire spade connectors to the Reset Button on the right.

Fit the remaining two wires (Green and Yellow Probe wires) through the hole in the back of the Relay chamber where the boiler wiring harness wires pass through. Pull the two wires all the way through until there is no slack in the chamber.

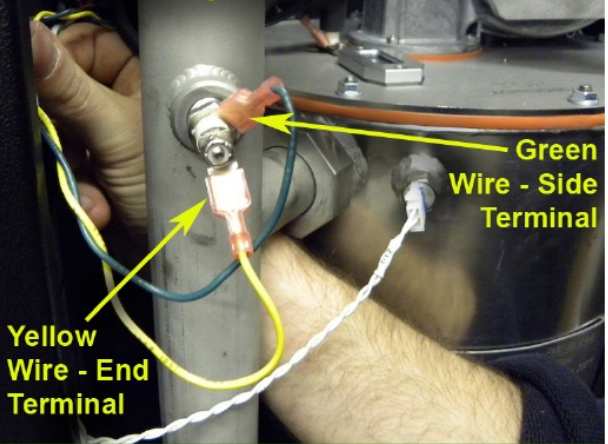
Carefully feed the two wires around the back of the boiler cabinet and behind the pressure vessel, bringing them back to the front left side near the LWCO Probe. Follow the boiler wiring harness around the cabinet and secure the two wires on the harness with zip ties as you go.

Attach the green wire to the side terminal spade on the LWCO Probe and the remaining Yellow wire on the end terminal spade. The LWCO installation and wiring is now complete.

Green and Yellow Probe Wires to be routed to back of Cabinet and behind Pressure Vessel; Secure Wires to main wiring harness with Zip Straps

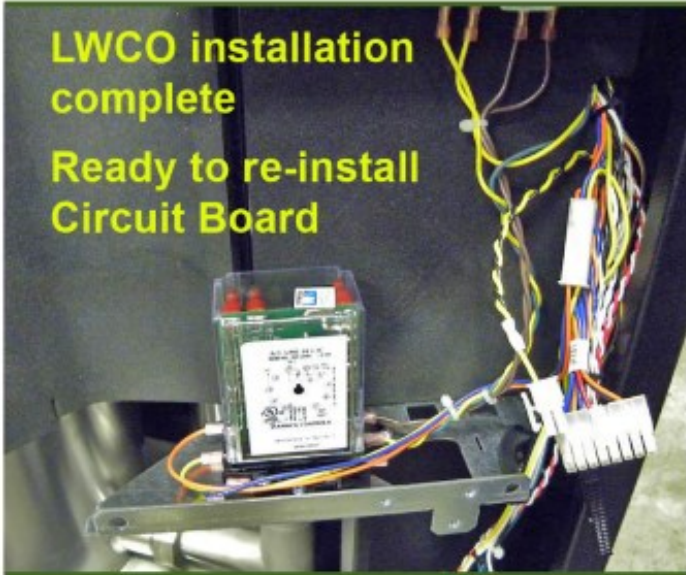


Connect Wires to Probe Terminal Spades



Notes:

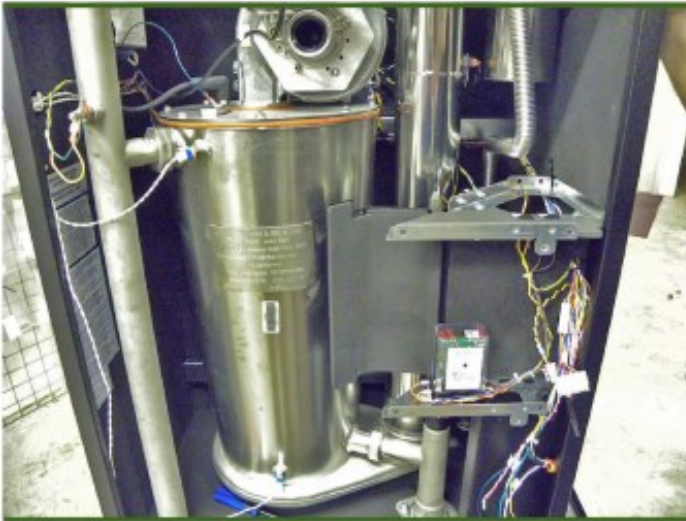
The relay socket is pre-wired, ready to connect. Remove the Jumper plug from the boiler's wiring harness as illustrated and snap in the corresponding plug from the Relay Socket wiring harness.



Installation Step #7 - Re-assembly and Testing

The boiler is now ready for re-assembly and testing

Tools Required: none



Re-assembly Notes:

Retrieve the Circuit Board and mounting screws.

Snap the Circuit Board rear wiring Plugs into their respective sockets on the back of the Board.

Place the Board's aluminum mounting plate back in position to line up with the mounting screws on the boiler frame and loosely tighten the mounting screws.

Visually check to ensure that none of the wires are pinched between components, and finish tightening the mounting screws.

Reach behind the circuit board and push forward on all of the wiring Plugs to make sure they are firmly in place.

Re-install the Circuit board cover, and the wiring chamber cover.

Leave the LWCO access door open until testing is complete, as you will need to be able to observe the red error LED.

Testing Notes:

If this is a new installation: Refer to Section 3.0 "Start-Up and Commissioning" of the SL 30-175, SL 45-260 certified Installation and Operating Instruction Manual - Pages 3-1 to 3-3, to ensure all of the correct procedures are followed before firing the boiler for the first time. If you did not do the installation yourself, you must review the installation and the Instruction Manual to ensure the boiler has been properly installed.

Look inside the LWCO Relay Cube chamber to see if the red LED in the Relay Cube is illuminated. If the LED is lit, the module recognizes the presence of water. The boiler should initialize and go to a purge cycle and, provided there is a call for heat, an ignition trial.

If there is no red light, push the Reset Button. The LED should light. The error must be cleared by cycling power to the boiler (or waiting an hour).

With boiler running, push test button. Boiler should shut off—red light will go out and error will be displayed.

Restarting requires pushing restart button and also cycling power to the boiler.



Better Boilers

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