

24V Low Water Cutoff Option Kit

(For use with boilers equipped with IHC boiler controls)

P/N: 104083-01

Safgard™
Model 1100-H6
**Low Water Cut-Off
For Residential
Hot Water Boilers**
24 VAC Operating Voltage

- Advanced Solid State Design
- Test Button for Easy Diagnostics
- Power and Low Water LED Indicators
- Molex Connector for Easy Wiring
- Compact Size allows for Mounting in Tight Spaces



Kit Includes:

- Low Water Cutoff – Hydrolevel 1100-H6
- Wire Harness (P/N 104081-01)
- Snap Bushing – Heyco SB 875-11 (P/N 12285-01)
- Installation Instructions (P/N 104577-02)

WARNING: Be sure to shut off the electrical power, gas and water to the boiler following boiler manufacturer's instructions before completing any of the following steps.

WARNING

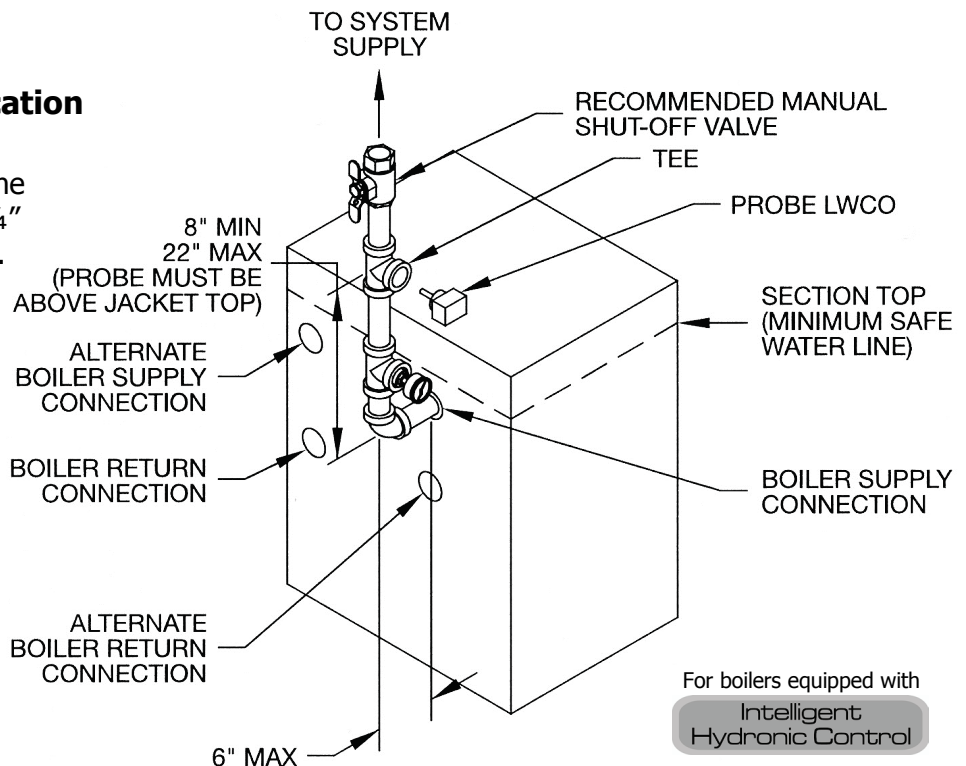
Kit must be installed by a qualified service agency in accordance with these instructions and all applicable codes and requirements of authority having jurisdiction. Failure to follow these instructions may cause electrical shock or explosion resulting in personal injury or death.

Step 1: Determine Mounting Location

The Safgard™ 1100-H6 must be installed above the minimum safe water level in the boiler piping using a standard tee with 3/4" side outlet. See figure at right for details.

Note: When installing in piping, stay within specified dimensions to insure the 4-foot wiring harness will reach the boiler control and harness connector located inside the boiler vestibule.

IMPORTANT: Check for adequate clearance (minimum 1/4-inch) from LWCO metal probe sensor to any surface inside the pipe (tee). Do not install in location that could hold or trap water in the event of a low water condition.



**HYDROLEVEL
COMPANY**

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WARNING **Electrical shock hazard.** To prevent electrical shock, death or equipment damage, disconnect power supply before installing or servicing control. Only qualified personnel may install or service this control in accordance with local codes and ordinances. Read instructions completely before proceeding.

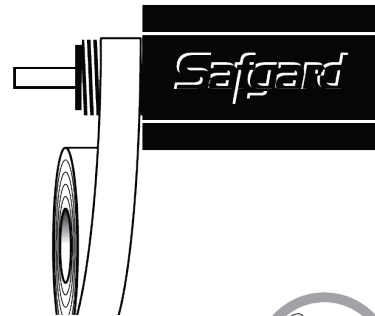
WARNING To prevent serious burns, boiler should be thoroughly cooled before installing or servicing control.

NOTICE **Frozen pipes/water damage.** Central heating systems are prone to shut down as a result of power or fuel outages, safety related fault conditions or equipment failure. Installation of freeze protection monitoring or other precautions is recommended for unattended dwellings in climates subject to sustain below-freezing temperatures.

Step 2:

Apply Teflon[®] tape to the threads of the Model 1100-H6 LWCO.

NOTE: Do not use pipe dope or other pipe sealants.

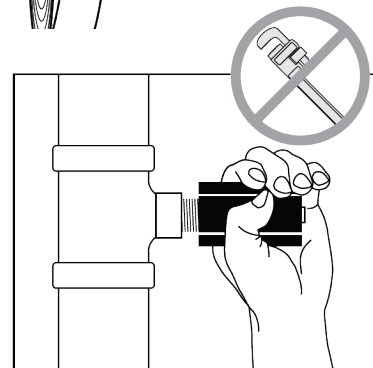


Step 3:

Hand-tighten the control into the boiler tapping or pipe tee.

Be careful not to cross thread.

NOTE: Do not use a wrench. Hand-tighten only.

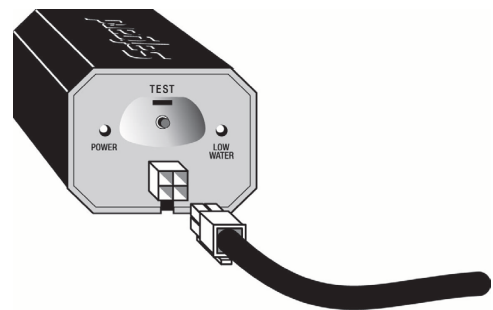


Step 4:

Remove boiler left side jacket panel $\frac{7}{8}$ -inch knockout and insert snap bushing.

Feed the supplied LWCO harness 4-pin square connector from inside the boiler vestibule through the jacket panel knockout hole.

Plug the 4-pin square harness connector into the receptacle on the face of the LWCO.

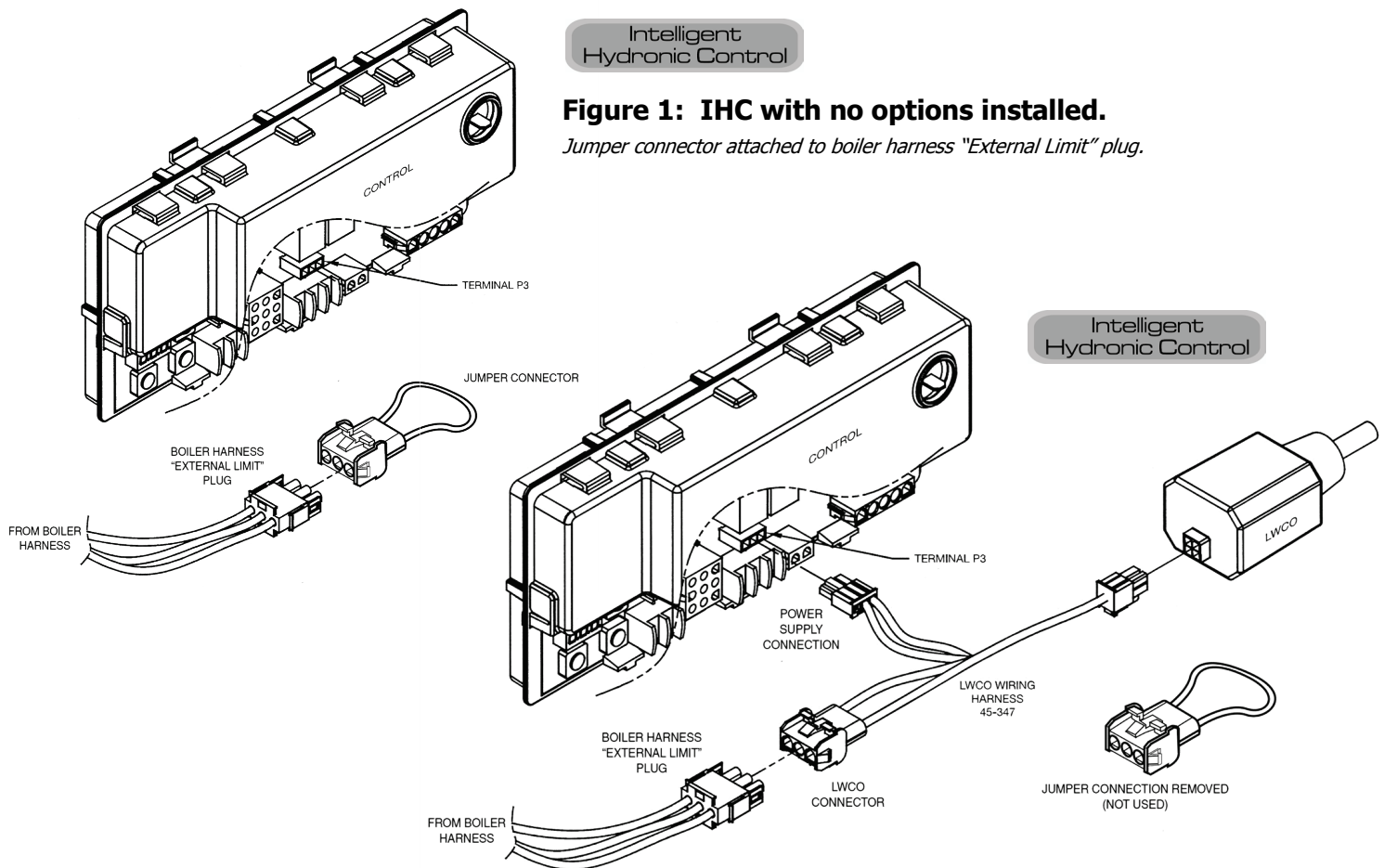


Step 5:

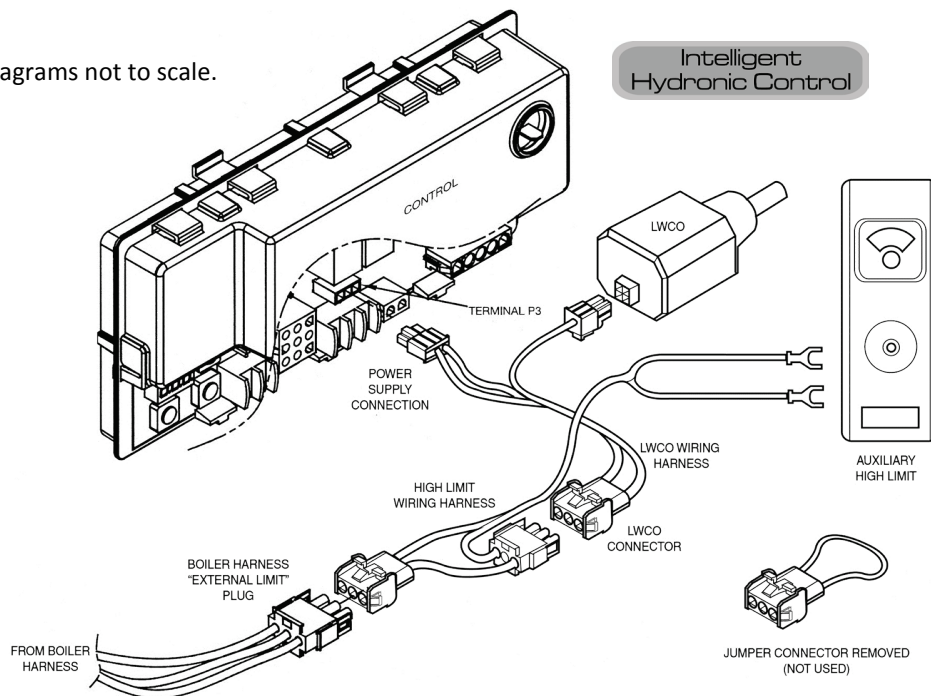
Plug in the LWCO harness power supply connector (small 3-pin connector) into Terminal P3 on the IHC boiler control module (see Figure #2).

If no optional auxiliary limit control is installed or is being installed, remove the jumper connector (shown in Figure 1) from the boiler harness plug tagged "External Limit". Then plug in the LWCO inline harness limit connector (large 3-pin connector) into the boiler harness plug tagged "External Limit". The jumper connector that was removed is not used in this installation.

If an optional auxiliary limit control is installed or is being installed with the LWCO, plug in the large 3-pin limit connector into the auxiliary limit harness (supplied with the optional auxiliary limit control). See Figure 3 for wiring details.



NOTE: Diagrams not to scale.



Step 6: Continue to the Operational Test Procedure shown on the next page.

Operational Test Procedure

IMPORTANT: Do not run boiler unattended until the following procedure is completed.

1. Before raising the water level above the Model 1100-H6, turn on power to the boiler and set the thermostat to call for heat. Both the green "POWER" LED and amber "LOW WATER" LED should illuminate. The burner should not fire. **IMPORTANT:** If the burner fires with no water at the probe, immediately shut down power to the boiler and refer to the Troubleshooting instructions below.
2. Proceed to fill the boiler with water. When water reached the LWCO position, the burner should fire. If the burner does not fire, refer to the Troubleshooting instructions below.
3. Turn off the power to the boiler and finish filling the system.
4. Follow boiler manufacturer's Installation, Operating and Service Instructions for boiler start-up and check out.
5. Before leaving the job, power up the system and push the TEST button on the Model 1100-H6 to simulate a low water

Maintenance

- Every Year** Check control operation annually by pressing the TEST button. The amber "LOW WATER" LED should illuminate and the burner should shut down.
- 5 Years** Remove the low water cutoff every five years and clean all surfaces in contact with water. Recommend replacement after ten years of service.

Troubleshooting

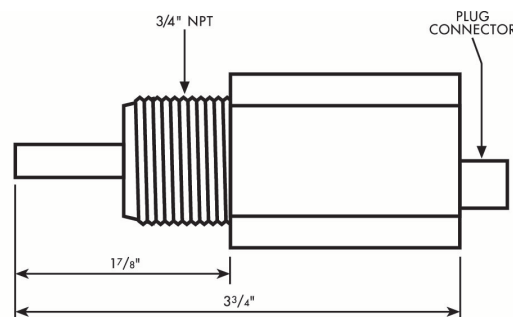
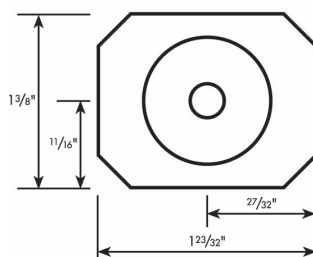
1. **If burner does not shut down** when water is below low water cutoff or when red TEST button is pressed.
 - a. Follow instructions TO TURN OFF GAS TO BOILER. Turn off electrical power to boiler.
 - b. Check wiring. Refer to wiring diagram on boiler or *Installation, Operating and Service Instructions* for boiler.
 - c. Drain system to below low water cutoff. Verify minimum 1/4" clearance from metal probe sensor to any metal surface.
2. **If burner does not operate** turn off the electrical power, gas and water to the boiler.
 - a. Make sure water has reached the level of the control.
 - b. Check green wire for proper ground. Make sure the wire is attached to an unpainted surface that is electrically common to the boiler.
 - c. Check to ensure the control's metal probe tip is not surrounded by an air pocket. Shut down power to the boiler and slowly loosen, but do not remove, the control. Allow any air to escape. When water begins to seep past the threads, retighten the control.
 - d. Re-check wiring and check for correct incoming voltage.

Specifications

Voltage	24VAC
Power Consumption	1 VA
Switching Capacity	50 VA
Max Load	5 AMPS
Max Pressure	160 PSI (11.25 kg/cm ²)
Max Water Temperature	250°F (121°C)
Max Ambient Temperature	170°F (77°C)



Dimensions



LIMITED MANUFACTURER'S WARRANTY

We warrant products manufactured by Hydrolevel Company to be free from defects in material and workmanship for a period of two years from the date of manufacture or one year from the date of installation, whichever occurs first. In the event of any claim under this warranty or otherwise with respect to our products which is made within such period, we will, at our option, repair or replace such products or refund the purchase price paid to us by you for such products. In no event shall

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