

TESTING INSTRUCTIONS

TESTING OF CSD-1

SAFETY DEVICES

⚠ WARNING

In some cases, causing these devices to fail means **CREATING** an unsafe condition, so the test needs to be as brief as possible.

⚠ CAUTION

These tests may require temporarily disconnecting or disabling some components, and must be performed by a qualified individual. At the completion of testing, the unit must be restored to normal operational condition by a qualified individual.

⚠ WARNING

These instructions are for use by qualified personnel specifically trained and experienced in the installation of this type of heating equipment and related system components. Installation and service personnel may be required to be licensed in some states. Persons not qualified shall not attempt to install this equipment nor attempt repairs according to these instructions.

SCOPE: This manual provides instructions for testing CSD-1 safety devices for Raypak commercial boilers.

RECOMMENDED TOOLS:

Description
• Flat-bladed Screwdriver
• Phillips Head Screwdriver

HONEYWELL LIMITS WITH ADJUSTABLE SETTINGS:

1. Make note of the existing temperature setting of the limit.
2. Turn down the temperature dial to a setting low enough (just above the setpoint) that the limit trips. On limits with manual-reset, the controlled temperature must drop at least 20°F below the setpoint before the contacts can be reset.
3. Turn the temperature dial of the limit back to the original setting.
4. Push the red button to reset the limit if necessary.

VERSA PLATFORM IGNITION MODULE (PIM) MANUAL-RESET HIGH LIMIT

This function is built into the PIM:

1. Make sure the unit is in STANDBY mode.
2. Turn off power to the unit.
3. On the PIM, turn DIP switch 8 ON. This allows the high limit to be tested at a lower temperature.
4. Turn power back on to the unit.
5. Adjust the high limit setting using the setpoint potentiometer on the PIM (see **Figure 1**). Using a small flat-bladed screwdriver, slowly turn the setpoint potentiometer to a lower setting.

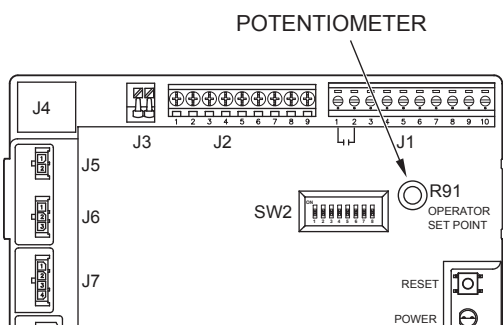


Figure 1. PIM Potentiometer Location

6. When the unit turns OFF on a manual-reset high limit fault, the device has proven operational.
7. Push the RESET button on the main display to reset the limit.
8. Turn the potentiometer back to its original setting.
9. With the unit back in STANDBY mode, turn off power to the unit.

10. Turn DIP switch 8 OFF.
11. Return power to the unit and place it back into normal operation.

GAS PRESSURE SWITCHES – RAYTHERM, HI DELTA, DELTA LTD, DELTA SS

LOW GAS PRESSURE SWITCH

1. Note the existing setting.
2. Adjust the setting dial higher until the switch trips.
3. Turn the dial back to the original setting.
4. Push the button to reset the switch.



Figure 2. Low Gas Pressure Switch

HIGH GAS PRESSURE SWITCH

1. Ensure the unit is in standby (not firing).
2. Note the existing setting.
3. Adjust the setting dial down to 2 inches or half the previous setting.
4. Allow the unit to fire the burner; the switch should trip once the firing gas valve opens.
5. Turn the dial back to the original setting.
6. Push the reset button.



Figure 3. High Gas Pressure Switch

GAS PRESSURE SWITCHES – MVB, XTHERM, XPAKFT, XFYRE, XFIIRE, XVERS FAMILY

LOW GAS PRESSURE SWITCH

1. Note the existing setting.
2. Increase the setting dial until the switch trips.
3. Return the dial to the original setting.
4. Push the button to reset the switch.



Figure 4. Low Gas Pressure Switch

HIGH GAS PRESSURE SWITCH

1. With the unit in standby (idle), locate the downstream manual valve on the gas manifold, after the firing valve.
2. Initiate a call-for-heat (burner), and as soon as the unit fires (gas valve opens), quickly close the downstream manual valve.
3. The unit will shut down and display a high gas pressure switch fault.
4. Open the downstream manual valve.
5. Reset the gas pressure switch to allow the unit to restart.



Figure 5. High Gas Pressure Switch

LOW WATER CUTOFF, SALES OPTION F-9 (RAYTHERM ONLY)

1. Push and hold down the TEST button. The red LED lamp will illuminate after approximately 30 seconds, indicating that the control is locked out. Unit should drop to standby, or fault state.
2. Once the red LED is lit, release the TEST button. The burner will not fire.
3. Push the RESET button to reset the control and restore burner operation.

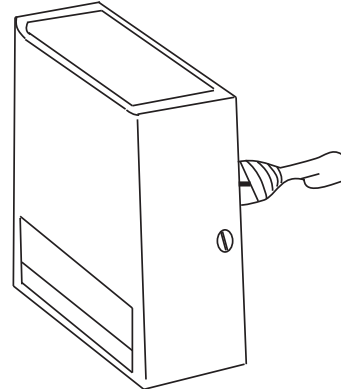


Figure 6. Low-Water Cut-Off (F-9)

LOW WATER CUTOFF, SALES OPTION F-10

1. Push and hold down the TEST button until the unit indicates a fault.
2. Release the TEST button. The unit will not fire.
3. Push the RESET button to reset the control and restore burner operation.

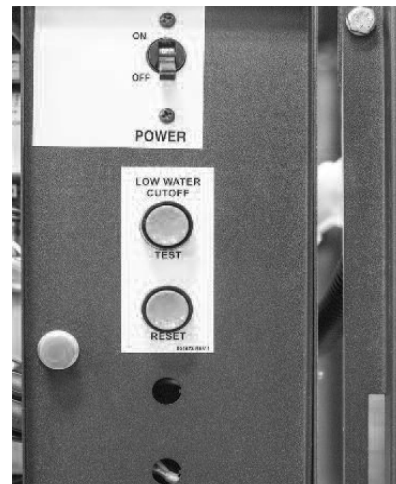


Figure 7. Low-Water Cut-Off (F-10)

FLOW SWITCH

The flow switch will not operate if the flow is less than 12 GPM. The most reliable operation is at 20+ GPM.

1. Allow the unit to fire, then turn off the flow to the unit:
 - This can be done by interrupting power to the pump, if it is equipped with a dedicated power disconnect.
 - If there is no dedicated pump power disconnect, close the isolation valve at the inlet to the boiler pump until the flow switch opens and shuts down the unit. Do not close the isolation valve on the outlet of the unit, as this can cause the pressure relief valve to open.
2. With flow off, the flow switch should open and shut down the unit.
3. Immediately restore flow to prevent damage to the pump and to avoid an overheat condition. The flow switch should re-engage and allow the unit to fire.

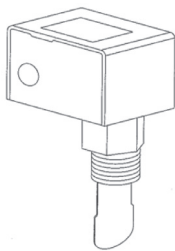


Figure 8. Flow Switch

COMBUSTION AIR SWITCH – RAYTHERM WITH POWER VENT, HI DELTA, DELTA LTD, DELTA SS, MVB 503A-2004A, XTHERM 1005A-2005A

No such device on the large MVB series. When present:

1. Fire the unit.
2. Disconnect the hose so the switch is exposed only to ambient pressure.
3. The unit should shut down.
4. Reconnect the hose and initiate a new call-for-heat. The unit should fire.

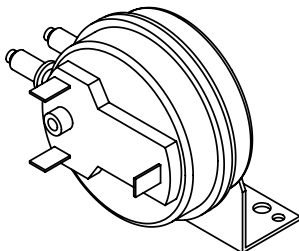


Figure 9. Pressure Vent Switch

BLOCKED VENT SWITCH – HI DELTA, MVB, XTHERM, XVERS FAMILY, XFIRE, XFIIRE, XPAKFT

If the switch has a second hose connection:

1. Connect a length of rubber tubing to the second connection and blow into it to force the switch to change state.
2. The unit should shut down.
3. Stop blowing and allow the switch pressure to normalize.
4. The unit should restart.

If the switch does NOT have a second hose connection:

1. Disconnect the hose, leaving one end connected to the switch.
2. Blow gently into it, using only enough force to cause the switch to change state.
3. The unit should shut down.
4. Reconnect the hose.
5. The unit should restart.

If the blocked vent line has a test port, connect an incline manometer to the test port and use it to gauge the amount of pressure you blow into the hose. The pressure required is less than 3.0" WC.

LOW WATER LEVEL

Not applicable.

LOW WATER PRESSURE

Not a standard safety device for Raypak.

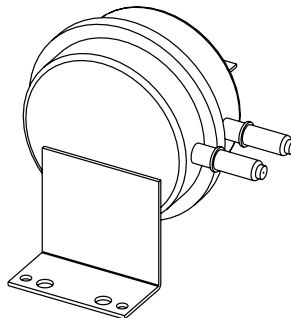


Figure 10. Blocked Vent Switch