



Conquest FAQs

Is a trap required on the condensate drain?

The Conquest water heater produces a significant amount of condensate. The condensate drain is under slightly positive flue pressure, so the provided 3/4" PVC condensate trap must always be used. This trap is sized and designed to fill with the proper amount of condensate to create a liquid barrier to prevent flue gases escaping through the condensate drain into the installed space. See product I&M for proper installation instructions.

Where do I tie in remote connections for a Building Management System (BMS), Building Automation System (BAS), remote alarm or other proving devices?

For Conquest BTU inputs of 199 to 299 Mbtu, the terminal strip for remote connections is located at the top of the unit under the top access cover. For Conquest BTU inputs of 399 to 800 Mbtu the terminal strip for remote connections is located behind the bottom control panel door and is accessed by removing the four thumb screws and lifting the hinged door. **IMPORTANT:** Do not use single strand bell wire for remote field connections to terminals R1-R2 and C1-C2. Use only multi-strand copper wire. See table in I&M manual for terminal functions, wire length and gauge.

My gas pressure is within the required range while the unit is not firing. Why does the gas pressure drop too low when the unit attempts to fire?

A drop in gas supply pressure indicates excessive pressure drop in the gas supply piping system. This pressure drop may be caused by frictional losses from excessive length of pipe or an excessive number of fittings in the pipe system. Pressure drop can also be caused by regulators or gas meters that are marginally or improperly sized to deliver the volume of gas required to allow the unit to fire at full rate manifold pressure.

Are referenced gas valves more forgiving when it comes to gas pressure or volume? If so, approximately how much?

A referenced gas valve allows the gas output from the regulator to vary as the output of the combustion air fan varies. Many conditions such as voltage, draft, wind, equipment room pressures, etc. can change the output pressure of the combustion air fan. A referenced gas valve will automatically vary the gas supply to balance the changes in combustion air. This ensures a reliable clean combustion process and eliminates nuisance flame failure problems due to job site related conditions.

What advantage do "biased" gas valves serve, and what exactly are they?

A biased gas valve references the gas manifold pressure to the outlet pressure of the combustion air fan. When ever there is a variation in the fan output, the gas output from the biased gas valve responds accordingly to prevent nuisance flame failure or operational problems.

I have 14" of supply gas pressure? Will this damage the unit?

The individual gas valves, regulators and pressure switches are rated by the component manufacturer to withstand a maximum supply pressure of 14 inches w.c. or 1/2 psi gas pressure. As long as the maximum incoming gas supply pressure does not exceed the 14 inches w.c. of pressure, you will not damage the internal components of the gas train.

Why does the drop in gas pressure cause the unit to stop running?

PVI units designed for fan assisted combustion, delivers air in a fixed volume. When the required volume of gas is decreased it can lean the combustion process where the flame can not be sensed by the ignition control. This results in a flame failure condition. Many times you may experience a flame failure but the movement of the analog/U-tube gas manometer indicates that the gas pressure only reached the minimum required for opera-

tion. This is because the movement of the water column in the analog/U-tube manometer has a lag between the actual drop in pressure and the time that it takes to show the indicated change. The change in pressure is not sustained for an extended period of time and the manometer will not give an instantaneous indication of the change in pressure. A properly calibrated magnahelic or digital manometer will usually show these quick response changes in gas supply pressure more readily than a basic analog/U-tube manometer.

What happens if my gas supply pressure is too high?

Excessive gas supply pressure can either lock the gas valve or regulator in a closed position or, in the case of extremely high gas pressure; it may override the gas valve, damage the diaphragm and allow unrestricted gas flow to the burners. Extremely high gas pressure can result in a catastrophic failure of the equipment.

How do I measure draft?

A draft gauge must be used. A small ¼" hole should be placed in the stack approximately 3 to 4 feet above the unit's flue outlet and below any installed barometric dampers. Insert the tube from the draft gauge just into the flue and measure the draft on the scale as the unit is firing.

Why do the Conquest heaters have a LWCO test button and reset button? Is this code?

Some jurisdictions require a functional test of all safety controls. The LWCO test button provides a practical way to simulate a loss of liquid level in the tank by opening the circuit between the electrode in the tank and the control. Note - There is a three-second time delay before the control de-energizes. The LWCO is a manual reset type.

Does the water heater need to be firing in order to perform the LWCO test?

The water heater does not need to fire to functionally test the LWCO control. The control is energized when the liquid rises to the electrode in the tank and the reset button is pushed. The LWCO control is de-energized when the test button is pushed (LED will not be lit).

Under normal operation, how many degrees from set point does the water temp fall before activating the call for heat?

The differential from the EOS set point is -4 degrees.

Some jurisdictions require you to test a LWCO device. How do I perform this test?

Push the LWCO Test Button for three seconds to de-energize the control (the LED on the control should go out). Push the LWCO Reset pushbutton to re-energize the LWCO control.

