

WATER HEATER CONTROL KIT

Model: CK-21



Designed for use on SWG Series Power Venters for controlling Natural Gas and LP Gas Instantaneous Water Heaters with a pressure tap port.

ITEMS INCLUDED IN KIT:

- 1- Junction box
- 1- Fan control gas pressure switch
- 1- 1/8" NPT x 3" pipe nipple
- 1- 1/8" NPT pipe tee
- 1- 6 ft length of 12-2 wire
- 1- 8" jumper wire
- 1- Flexible conduit connector
- 2- Spillage Switches
- 3- Adhesive Tabs

READ THESE INSTRUCTIONS CAREFULLY AND COMPLETELY BEFORE PROCEEDING WITH THE INSTALLATION.

This device **MUST** be installed by a qualified agency in accordance with the manufacturer's installation instructions. The definition of a qualified agency is: any individual, firm, corporation or company which either in person or through a representative is engaged in, and is responsible for, the installation and operation of HVAC appliances, who is experienced in such work, familiar with all the precautions required, and has complied with all the requirements of the authority having jurisdiction.

Please retain these instructions after installation.

Installed By: _____ Phone: _____ Installation Date: _____



FIELD CONTROLS

www.fieldcontrols.com

MOUNTING JUNCTION BOX

The junction box can be mounted at the venter or remotely mounted away from the venter.

(See Figure 1 & Figure 2)

1. Remove one of the knockouts from the side of the junction box where the pressure switch is mounted. Install the flexible conduit connector onto the CK-21 junction box and secure with fastening nut. If remote mounting the CK-21 junction box, mount the flexible conduit connector onto a 2" x 4" installer supplied junction box.
2. Fasten the flexible conduit from the SWG Venter into the conduit connector. Mount the CK-21 junction box or installer supplied junction box onto the wall or floor joist without straining the flexible conduit. Fasten the CK-21 junction box through the four dimpled locations on the base of the box. (See Figure 3)

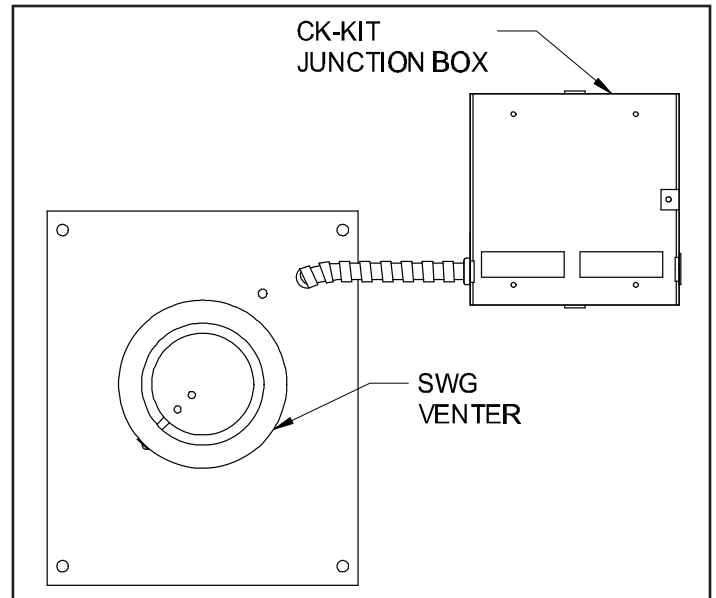


Figure 1

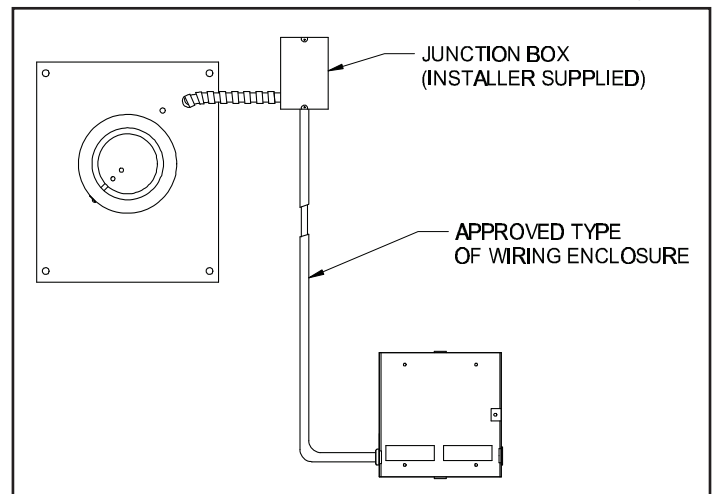


Figure 2

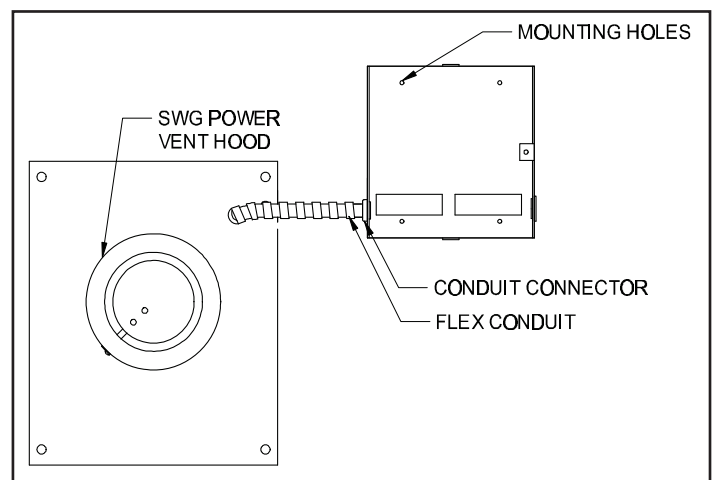


Figure 3

INSTALLATION OF GAS PRESSURE SWITCH

CAUTION: Maximum gas pressure MUST NOT exceed 14" W.C. Pressure. Gas supply must be shut off before working on piping systems.

NOTE: Seal all pipe connections with pipe thread sealant.

1. Remove pressure tap plug in manifold.
2. Install $\frac{1}{8}$ " NPT Street elbow (if required for mounting the gas pressure switch vertically) in place of the pressure tap plug. Then install the 3" x $\frac{1}{8}$ " NPT nipple, pipe tee and pressure tap plug. (See Figure 4)
3. Install the gas pressure switch into the side of the pipe tee. Position the switch vent, on the side of the switch, down.

CAUTION: If for any reason the system has shut down during operation, the cause of the system failure should be investigated and corrected before resetting the safety switch and restarting the system.

NOTE: Gas Pressure Switch MUST be mounted vertically.

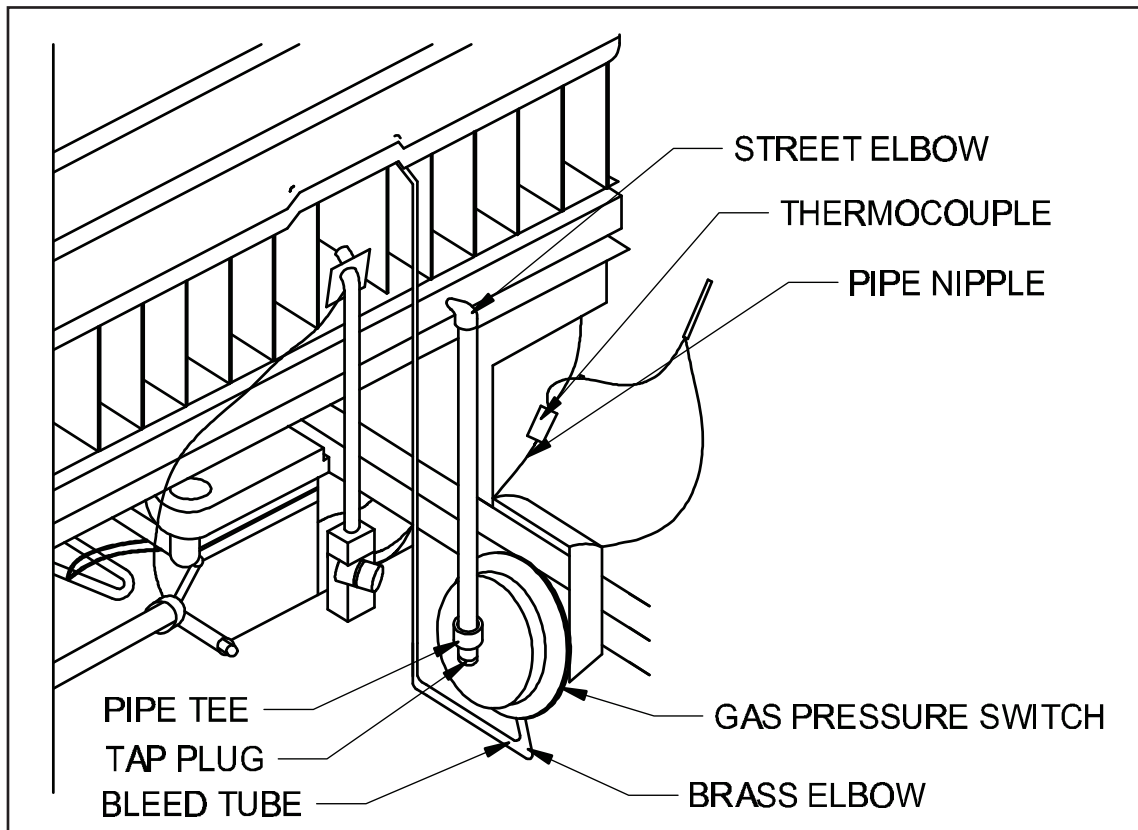


Figure 4

INSTALLATION OF SAFETY SPILLAGE SWITCHES

NOTE: Water Heater MUST have safety switches installed. Installation of a SAFETY SWITCH is REQUIRED for water heaters, for the purpose of detecting spillage from a blocked flue system and/or inadequate draft.

1. Bend the tab attached to the spillage switches as shown in Figure 5.
2. Mount the spillage switches along the opening of the draft hood. (See Figure 6) Connect one terminal on each spillage switch with the 8" jumper wire. Then connect the other two terminals to the jacketed wire. Route the jacketed wire along the frame or enclosure of the water heater, keeping the wires away from any HOT surface area. Secure the wire with adhesive tabs. (See Figure 6)
3. Splice the jacketed wire in series with one of the leads connected to the thermocouple splicing terminal. (See Figure 6)

CAUTION: If for any reason the system has shut down during operation, the cause of the system failure should be investigated and corrected before resetting the safety switch and re-starting the system.

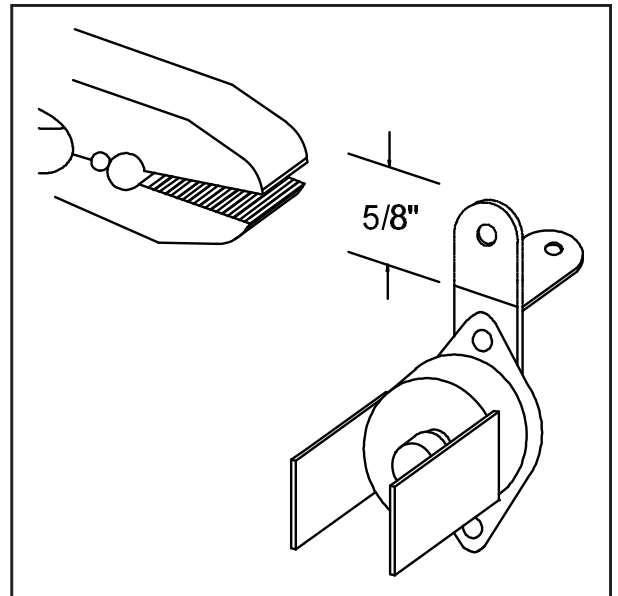


Figure 5

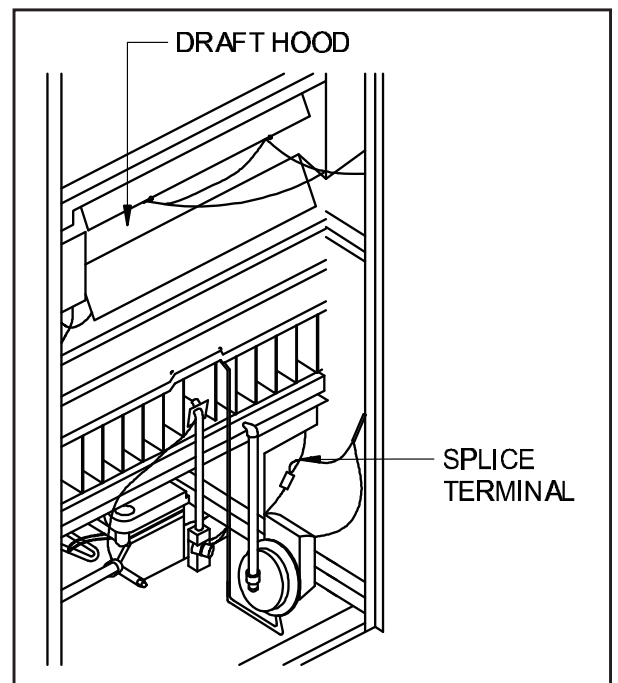


Figure 6

WIRING

Wire the venter motor and controls in accordance with the National Electrical Code, manufacturer's recommendations and/or applicable local codes. UNIT MUST BE GROUNDED. Check ground circuit to make certain that the unit has been properly grounded. The wiring should be protected by an over current device rated at 15 amperes. CAUTION must be taken to ensure that the wiring does not come into contact with any heat source. All line voltage and safety control circuits between the venter and the appliance must be wired in accordance with the National Electrical Code for Class I wiring or equivalent methods.

Route the venter motor and control wiring with an appropriate wiring method. Refer to Wiring Diagram A.

Refer to SWG Venter Installation Instructions for setting system airflow.

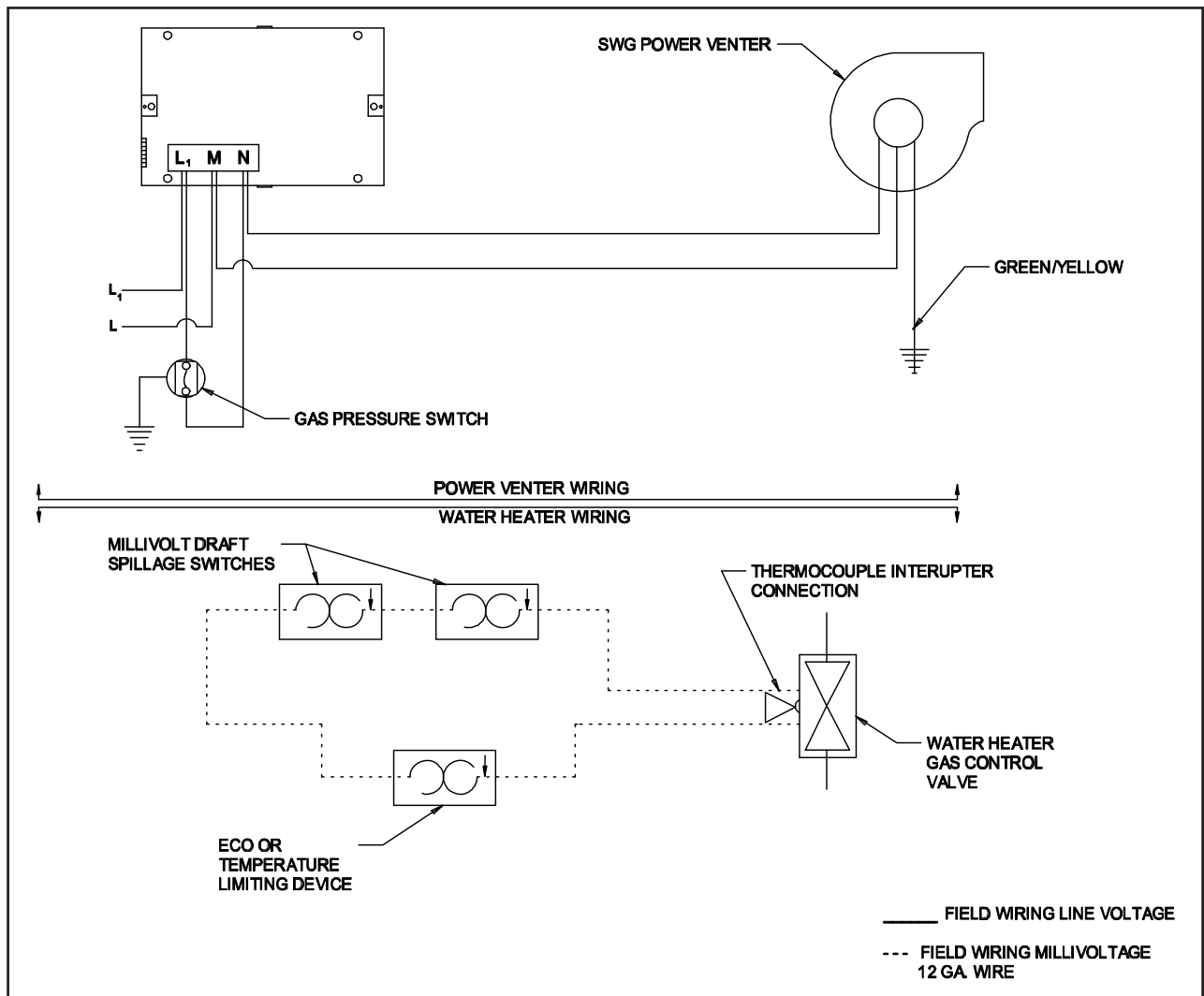


Diagram A

SYSTEM CHECK-OUT PROCEDURE FOR HOT WATER HEATER CONTROLS

WATER HEATER GAS PRESSURE SWITCH

1. Following water heater manufacturer's instructions to light the pilot, turn the gas control valve to the ON position.
2. Open the hot water faucet; this should energize the venter. Next, close the hot water faucet; this should de-energize the venter.
3. Repeat Step 2 to assure proper operation.

SAFETY SPILLAGE SWITCHES

1. Allow water heater to heat up to operating temperature by opening the hot water faucet, then disconnect the power supply to the venter.
2. Allow approximately 2 minutes for the spillage switches to sense the spillage of flue gas and de-energize the thermocouple circuit. This will halt the gas flow to the pilot and burner.
3. Wait 2 or 3 minutes, reset spillage switches and relight pilot. Then perform a second spillage test (Steps 1 and 2).

TROUBLE SHOOTING HINTS

1. Venter does not activate when hot water faucet is opened.
 - a. Check wiring.
 - b. Check gas pressure switch for continuity across terminals when gas valve is pressurized.
 - c. Check gas pressure.
 - d. Check amount of water flow.
2. Flue gas odor.
 - a. Check system draft.
 - b. Check for negative pressure in building.
3. Pilot will not stay lit.
 - a. Solder all spillage switch wire terminal connections.
 - b. Check reset buttons on spillage switches.

MAINTENANCE

1. Motor: Inspect motor once a year, the motor should rotate freely.
2. Wheel: Inspect venter wheel annually to clear any soot, ash or coating, which inhibits either rotation or air flow. Remove all foreign material before operating.
3. Vent System: Inspect all vent pipe connections annually for looseness and for evidence of flue gas leakage. Seal or tighten pipe connections if necessary.

WARRANTY

For warranty about this or any Field Controls product, visit:
www.fieldcontrols.com/warranty



FIELD CONTROLS
Phone: 252.522.3031 • Fax: 252.522.0214
www.fieldcontrols.com