

SYSTEM CONTROL KIT

Model: CK-20F and CK-20FG

(NOTE: CK-20FG units are designed for the Flame Guard units built by American Water Heater. All other manufacturers use CK-20F)



Designed for use with the SWG Series Power Venter for controlling 30-millivolt controlled Natural or LP Gas appliances with a pressure tap port in the Gas Valve. This kit may also be used with the PVG series sidewall Power Venters, DI series Draft Inducers, and CAS-4 Combustion Air System. The included junction box is not required when using a PVG or CAS-4.

ITEMS INCLUDED IN KIT

- 1- Junction box
- 1- Fan control gas pressure switch with built in post purge option
- 1- 1/8" NPT x 3" pipe nipple
- 1- 1/8" NPT pipe tee
- 1- TCA-1 Thermocouple Adapter (CK-20F)
- 1- TCA-2 Left Handed Thermocouple Adapter (CK-20FG)
- 1- 6 ft. length of 12-2 wire
- 1- 12" jumper wire
- 1- Flexible conduit connector
- 2- GSK-3 Spillage Switches

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: _____



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MOUNTING JUNCTION BOX

The junction box can be mounted at the venter or remotely mounted away from the venter.
(See Figures 1 & 2)

1. Remove one of the knockouts from the side of the junction box. Install the flexible conduit connector onto the CK-20F junction box and secure with fastening nut. If remote mounting the CK-20F 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-20F junction box or installer supplied junction box onto the wall or floor joist without straining the flexible conduit. Fasten the CK-20F junction box through the four dimpled locations on the base of the box. (See Figure 1)

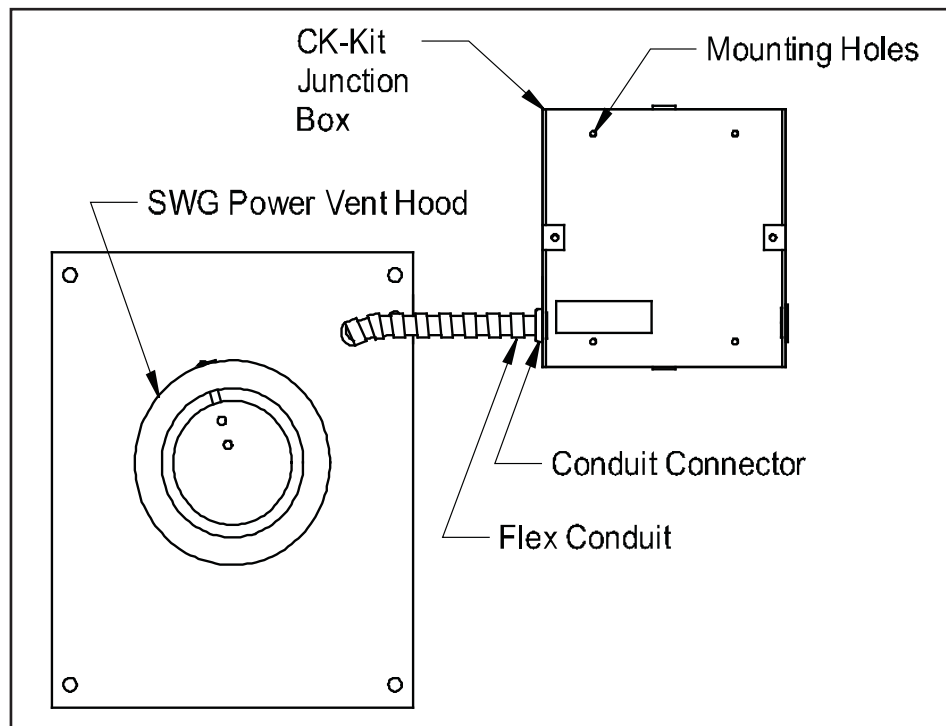


Figure 1

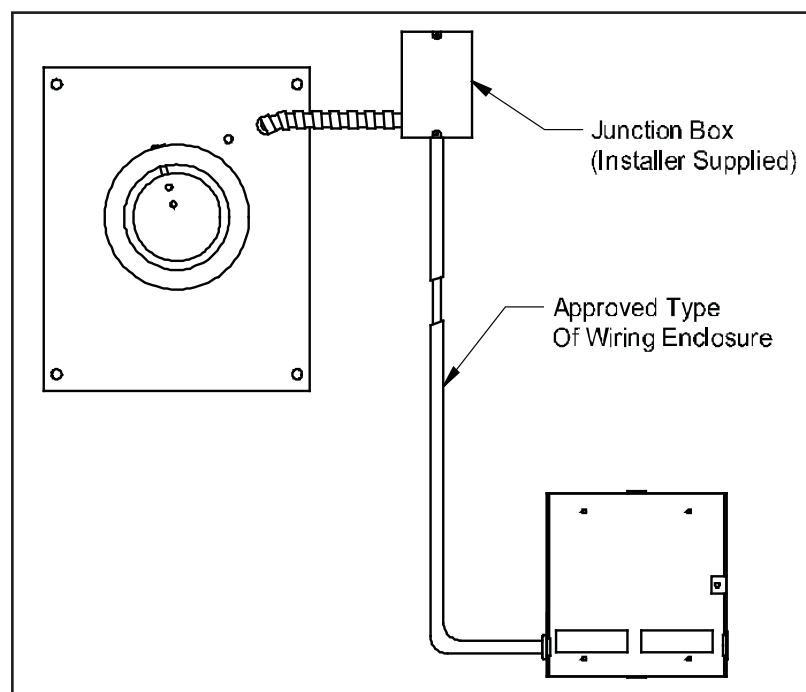


Figure 2

INSTALLATION OF GAS PRESSURE SWITCH

CAUTION: Check gas control valve pressure.

Pressure must not exceed 14" WC pressure.

1. Remove pressure tap plug in gas valve.
(See Figure 3) NOTE: If installing on an existing appliance, shut off gas supply to gas valve before plug removal.
2. Replace the pressure tap plug with the $\frac{1}{8}$ " pipe nipple and pipe tee. Install pressure tap plug at the bottom of the pipe tee. (See Figure 4)
3. Install the gas pressure switch into the side of the pipe tee. The gas pressure switch is supplied with a restrictor orifice in the inlet and outlet ports. With these orifices in place, the switch does not need to be vented. This feature complies with current ANSI standards for gas regulators. (See Figure 5)

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.

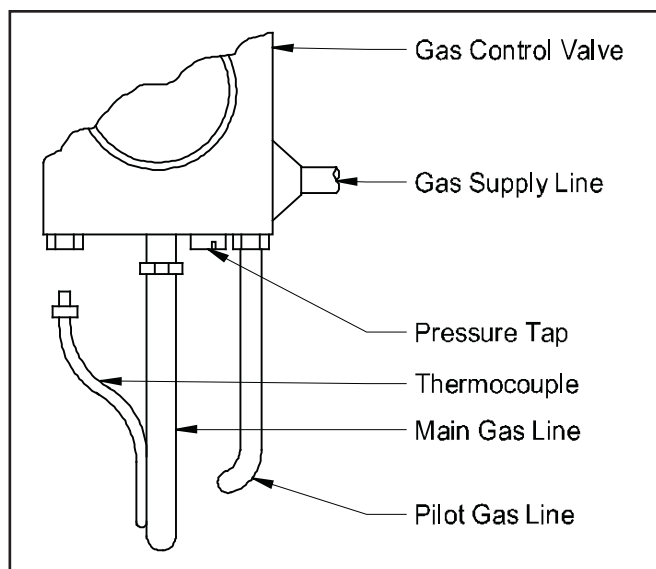


Figure 3

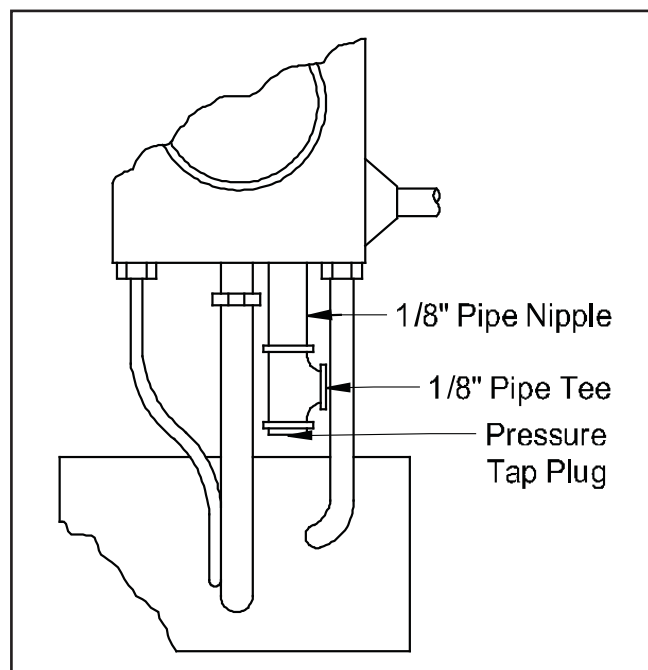


Figure 4

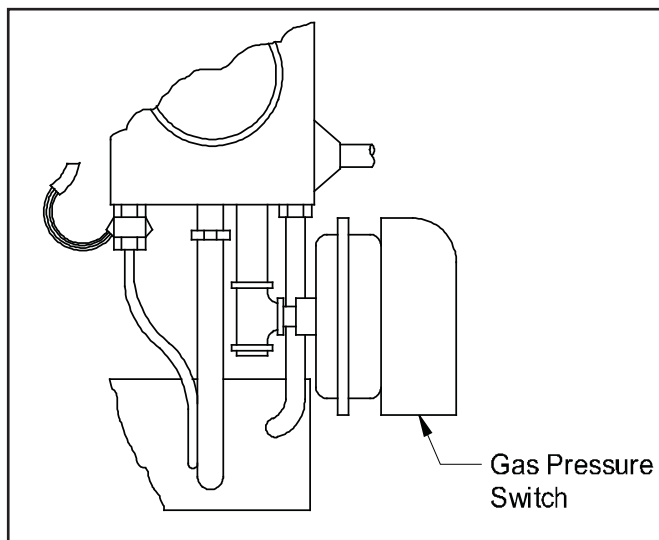


Figure 5

DRAFT HOOD SAFETY SWITCH INSTALLATION

NOTE: 12 ga. wire must be used when wiring safety spillage switches, to reduce the voltage drop in the thermocouple circuit.

1. Remove the thermocouple from the gas control valve.
(See Figure 3)
2. Thread the junction block into the thermocouple port and thermocouple into the bottom of the junction block. Connect lead wire from the junction block to the jacketed lead wires or wire enclosed in an accepted wiring enclosure. (See Figure 6) NOTE: Draft spillage switches must be mounted 90 degrees apart, and mounted opposite from the vent outlet direction. (See Figure 7)
3. Mount the two spillage switches onto the draft hood and connect inside terminals of switches with jumper wire. Connect outside terminals to lead wires which are connected to the thermocouple junction block. (See Diagram A)
4. Route jacketed lead wires or accepted wiring enclosure on the outside of the water heater enclosure. Secure them to the enclosure with an accepted hold down tab. Keep wiring away from any HOT surface area.

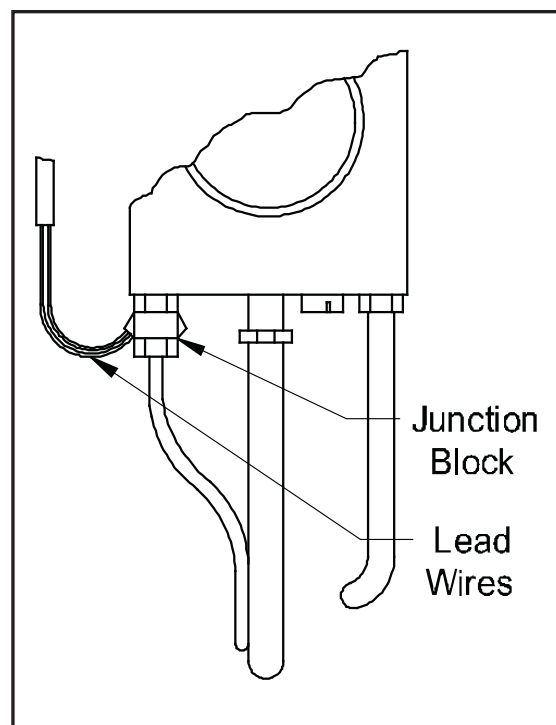


Figure 6

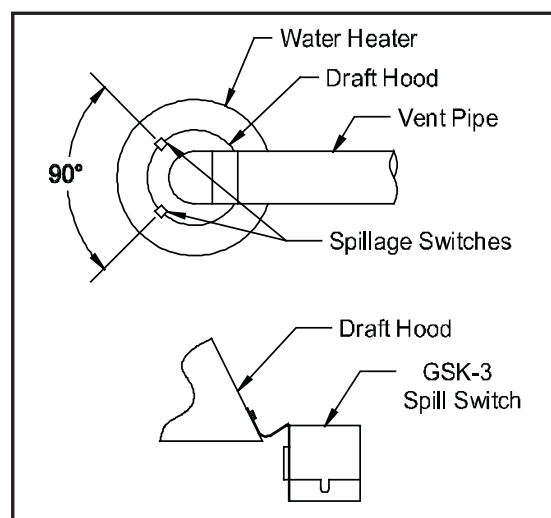


Figure 7

WIRING

CAUTION: Disconnect electrical power when wiring power venter.

Wire the venter motor and controls in accordance with the National Electrical Code, manufacturer's recommendations and/or applicable local codes. Units must be grounded. Check ground circuit to make certain that the unit has been properly grounded. The wiring should be protected by an overcurrent circuit 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 one wiring or equivalent methods. Route the venter motor and control wiring with an appropriate wiring method. Refer to Wiring Diagram A.

Refer to the SWG Venter Installation Instructions for setting system airflow.

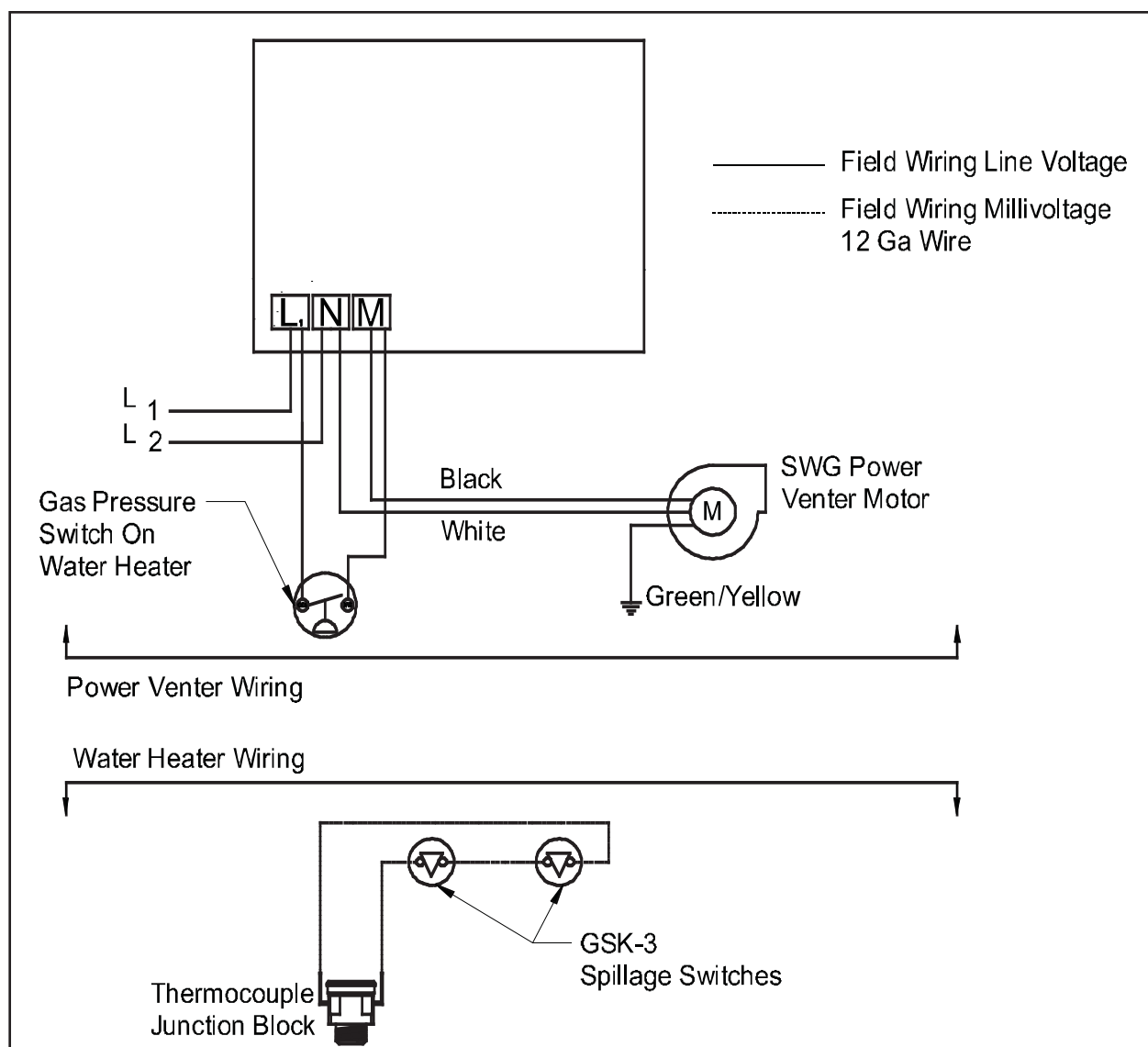


Diagram A

WIRING 750mV GAS VALVE SYSTEM WITH ELECTRONIC TEMPERATURE CONTROL

CAUTION: Disconnect electrical power when wiring power venter.

When wiring with a power-pile system having an integrated electronic control, which have a diagnostic LED indicator; please refer to Wiring Diagram B. You will not use the TCA thermocouple adapter, supplied with the CK-20FV. Install the GSK spill switches per instruction and connect to the red wire and the thermal door switch per diagram. Wire the venter motor and controls in accordance with the National Electrical Code, manufacturer's recommendations and/or applicable local codes. Units must be grounded. Check ground circuit to make certain that the unit has been properly grounded. The wiring should be protected by an overcurrent circuit 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 one wiring or equivalent methods. Route the venter motor and control wiring with an appropriate wiring method.

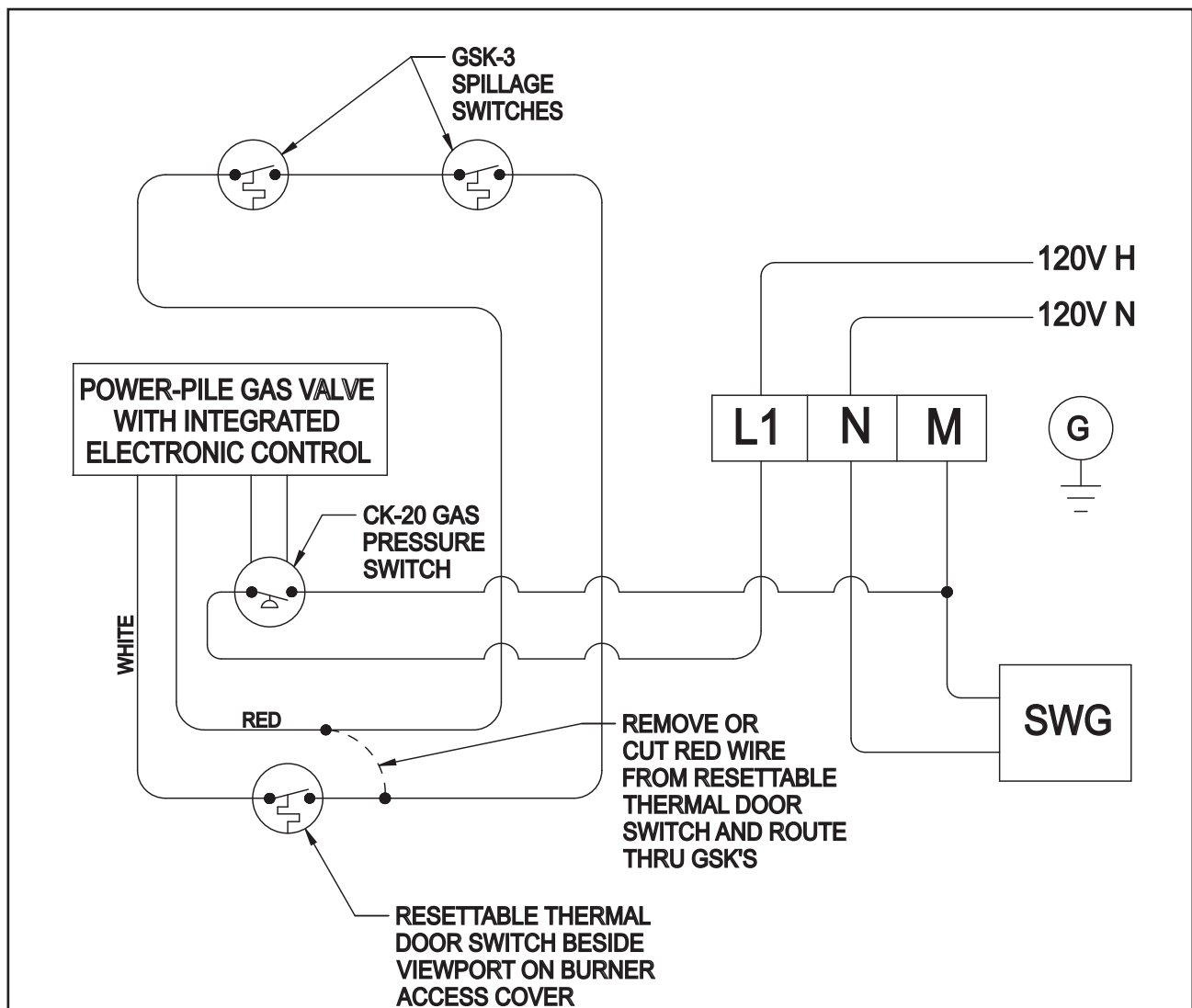


Diagram B

SYSTEM CONTROL CHECK OUT PROCEDURES:

GAS PRESSURE SWITCH FOR WATER HEATER

1. Follow water heater manufacturer's instructions to light pilot. Turn the gas control valve to the ON position. Adjust the thermostat to call for heat, which will energize the venter motor. (May see a 1 to 8 second delay of venter motor)
2. Turn gas control valve to the PILOT position, which will start a 1 to 3 minute post purge of the venter motor.
3. Repeat Steps 1 and 2 to ensure proper operation.

SPILLAGE SWITCHES

1. Allow the water heater to heat up to operating temperature, then disconnect the power to the gas pressure switch.
2. Adjust the thermostat to call for heat with the venter inoperative. Allow approximately 2 minutes of flue gas spillage for the spillage switches to sense the spillage and disrupt the thermocouple circuit, halting the gas flow to the pilot and burner.
3. Wait 2 to 3 minutes. Reset the spillage switches and light the pilot, then perform a second safety spillage test. (Steps 1 and 2)

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.

TROUBLE SHOOTING HINTS

1. Venter does not activate when thermostat calls for heat:
 - a. Check wiring.
 - b. Check gas pressure switch for continuity across terminals when gas valve is pressurized.
 - c. Check gas pressure.
2. Flue gas odor:
 - a. Check system draft.
 - b. Check for negative pressure in building.
3. Pilot will not stay lit on water heater:
 - a. Solder all spillage switch wire terminal connections.
 - b. Check reset buttons on spillage switches.
 - c. Use 12 gauge wire for all spillage switch wiring.
 - d. Check for interruption of power supply.

REPAIR AND REPLACEMENT PARTS LIST

REPAIR AND REPLACEMENT PARTS LIST	
DESCRIPTION	PART NUMBER
Gas Pressure Switch	46284200
GSK-3 Spillage Switch	46086400
Thermocouple Junction Box	46082700

WARRANTY

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



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