

24 VAC SYSTEM CONTROL KIT

Model: CK-92FVP



Designed for use with the SWG Series Power Venter for controlling Natural Gas or L.P. Gas appliances equipped with a 24 VAC automatic vent damper and a 30-millivolt controlled Natural or L.P. Gas Water Heater.

ITEMS INCLUDED IN KIT:

- 1- Junction box with mounted pressure switch and post purge timer
- 1- Fan control gas pressure switch with built in post purge option
- 1- 1/8" NPT x 3" pipe nipple
- 1- 1/8" NPT x 1/4" OD tubing elbow
- 1- 1/8" NPT pipe tee
- 1- TCA-1 Thermocouple Adaptor
- 1- 6 ft. length of 12-2 wire
- 1- 8" jumper wire
- 2- Flexible conduit connector
- 2- GSK-3 Spillage Switch
- 1- 1/4" tubing connector



WARNING: Installer: if the 24V appliance does not have a blocked vent switch, an additional GSK-3P spillage switch kit, p/n 46458600 (not included), must be installed. (See Diagram B)

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: _____

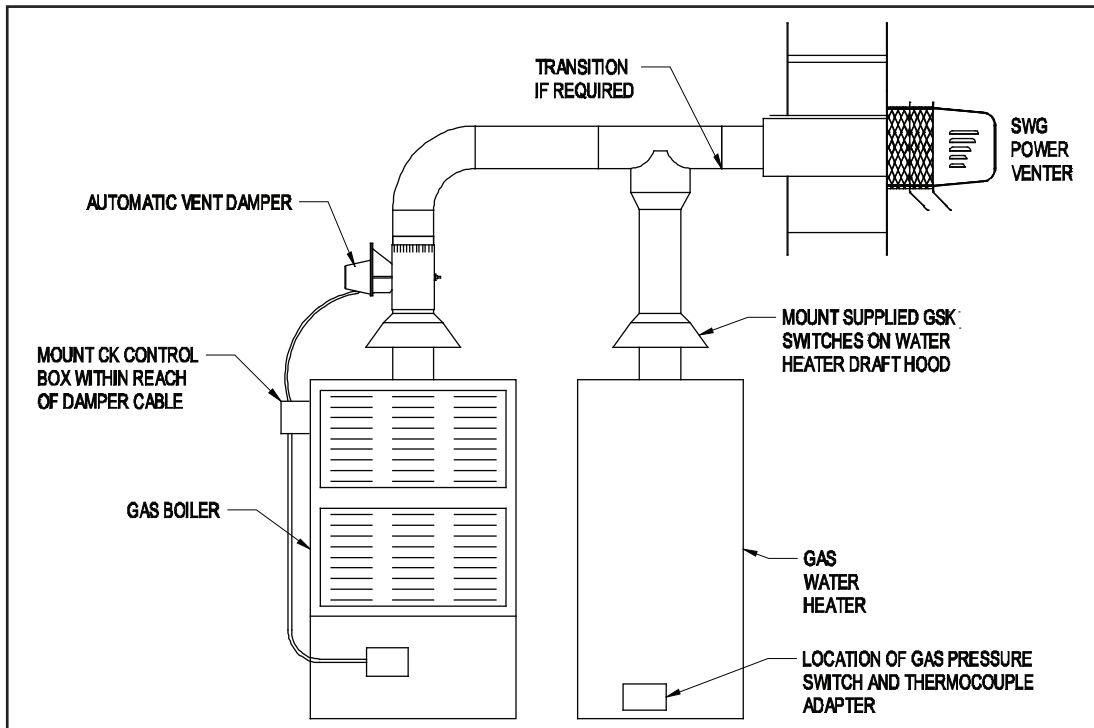


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P/N 46490500 Rev D 04/20

INSTALLATION



MOUNTING CONTROL BOX

The control box must be mounted within 6' of the vent damper, and within reach of the appliance's existing damper cable. If the control box must be mounted out of reach of the power venter's attached wiring, an additional installer supplied junction box and wiring (with approved wiring enclosure if necessary) will be required. (See Figure 1 & 2)

1. Install the flexible conduit connector onto the CK-92FVP control box and secure with fastening nut. If additional wiring is required, install the flexible conduit connector onto the installer supplied junction box.
2. Fasten the flexible conduit from the SWG Venter into the conduit connector. Mount the CK-92FVP control box onto a non-heated vertical surface of the appliance or nearby wall or floor joist through the four dimpled locations on the base of the box. NOTE: The mounted pressure switch diaphragm must be mounted with a vertical orientation; see label on pressure switch. (See Figure 3) If required, run additional wiring as in figure 2 and connect to CK-92FVP control box, if required, using the supplied flexible conduit connector and approved connectors and anti-short bushings.

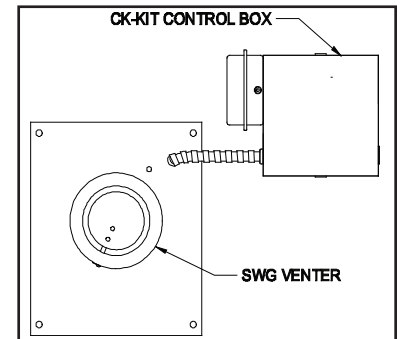


Figure 1

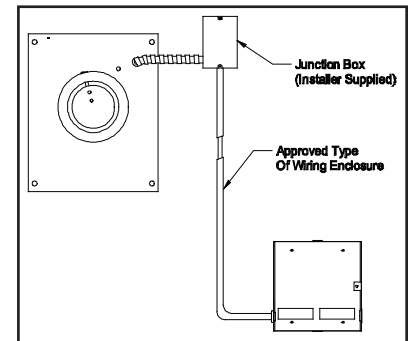


Figure 2

PRESSURE SWITCH SENSING TUBE INSTALLATION

1. Attach the 1/4" tubing connector to the pressure tube on the SWG Venter. (See Figure 3)
2. Connect installer supplied 1/4" OD aluminum, copper or stainless steel tubing to the tubing connector.
3. Route the tubing to the CK control box and connect the tubing to the pressure switch using supplied plastic nut. When routing the tubing, avoid kinking the tubing by bending the tubing too sharply. Support the tubing at 2' intervals using installer supplied tube clamps.

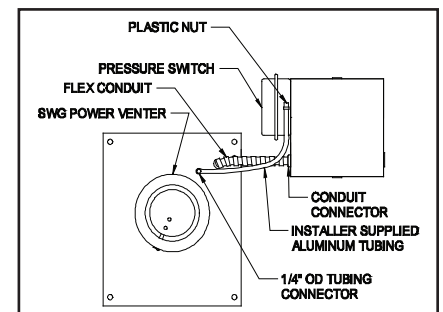


Figure 3

ADJUSTMENTS

PROVING SWITCH ADJUSTMENTS

After proper air flow is established, the pressure switch adjustment is made by turning the pressure switch adjustment screw clockwise (See Figure 4) until burner operation stops. Turn the adjustment screw counterclockwise until burner ignites. Turn the adjustment screw an additional $\frac{1}{4}$ to $\frac{3}{4}$ turn counterclockwise to ensure adequate switch adjustment.

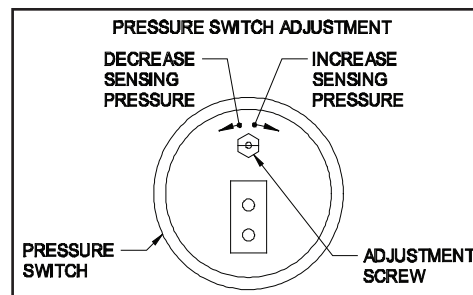


Figure 4

⚠ WARNING: Failure to properly adjust the pressure switch as specified above could lead to improper operation of the pressure switch which will result in a hazardous condition and bodily harm!

THERMOSTAT HEAT ANTICIPATOR ADJUSTMENT

After venting kit installation and checkout, check the amperage current draw through the thermostat circuit and adjust the thermostat anticipator accordingly.

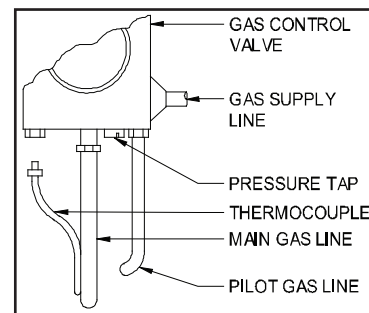


Figure 5

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 5) **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 6)
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 7)

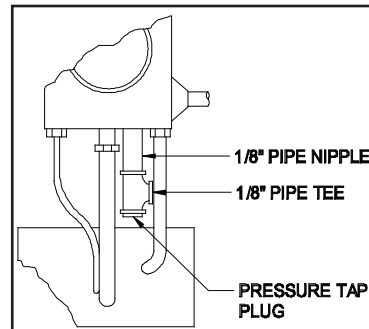


Figure 6

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 restarting the system.

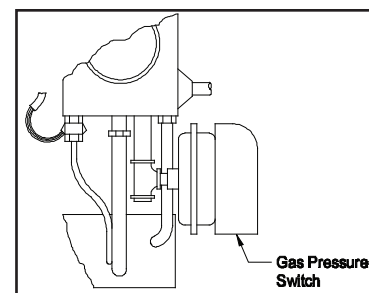


Figure 7

DRAFT HOOD SAFETY SWITCH INSTALLATION PROCEDURE

NOTE: 12 ga. wire should 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 5)
2. Thread the junction block into the thermocouple port and thermocouple into the bottom of the junction block. (See Figure 8)

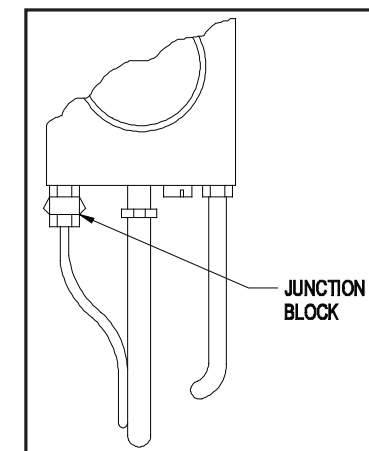


Figure 8

NOTE: Draft spillage switches should be mounted 90 degrees apart, and mounted opposite from the vent outlet direction. (See Figure 9)

3. Mount the two spillage switches onto the draft hood and connect inside terminals of switches with jumper wire. Connect outside terminals to 6' 12ga 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.

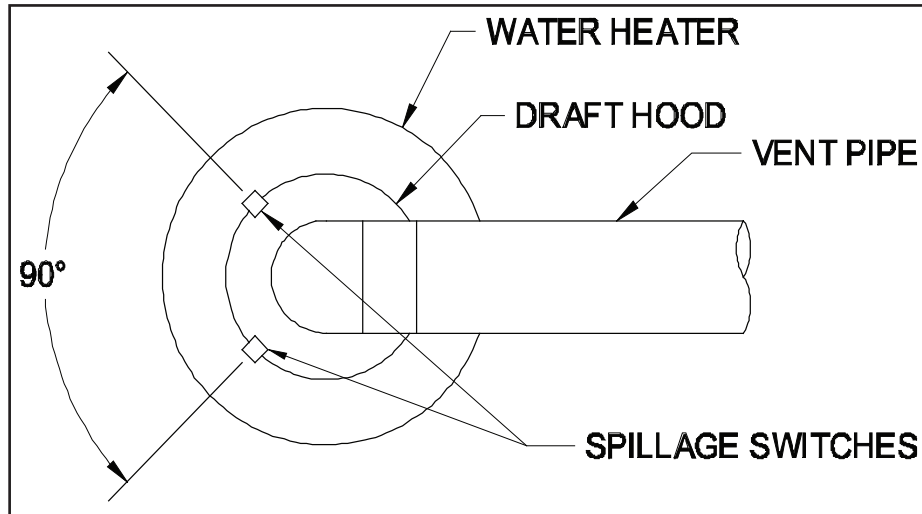


Figure 9

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 Diagrams A and B.

INTERNAL WIRING FOR CK-CONTROL KIT

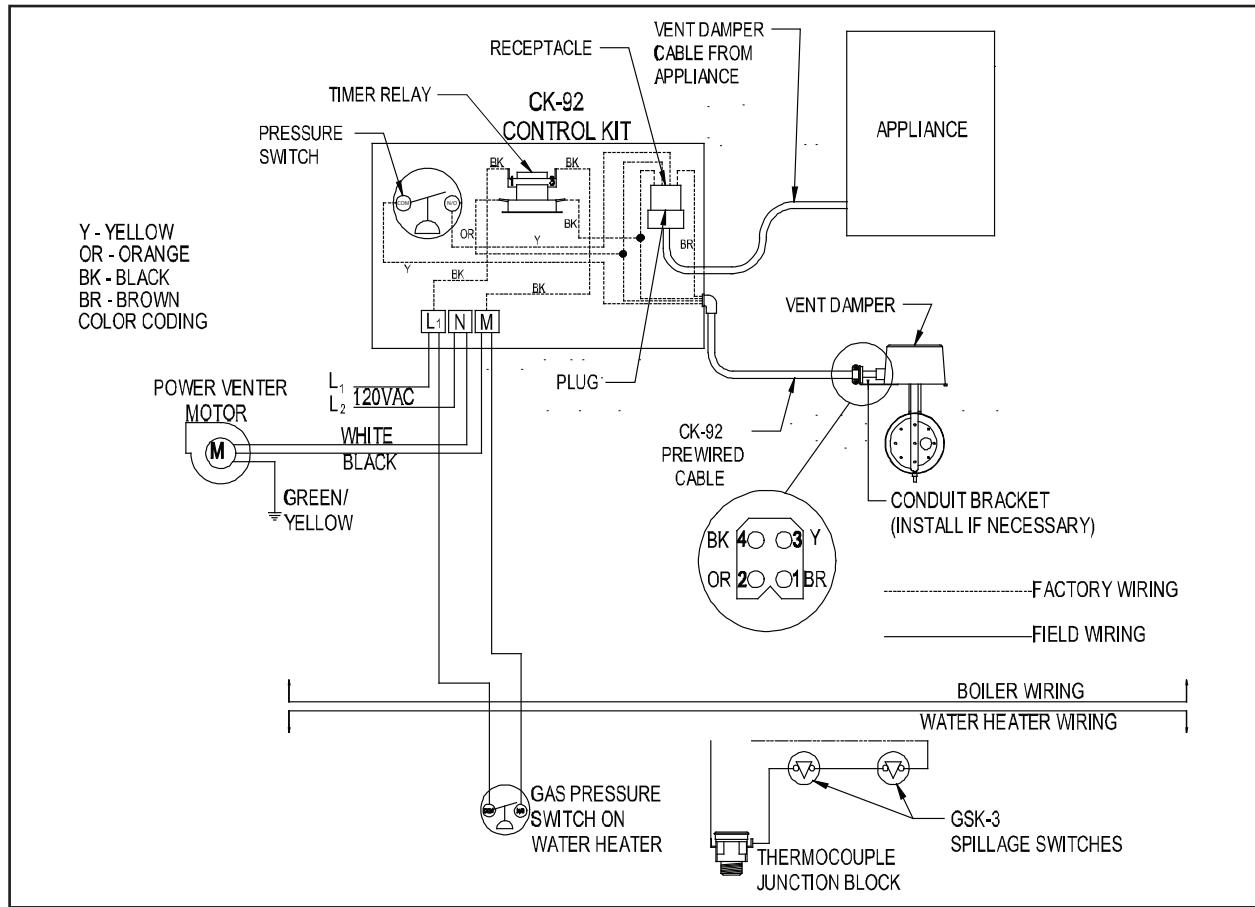


Diagram A

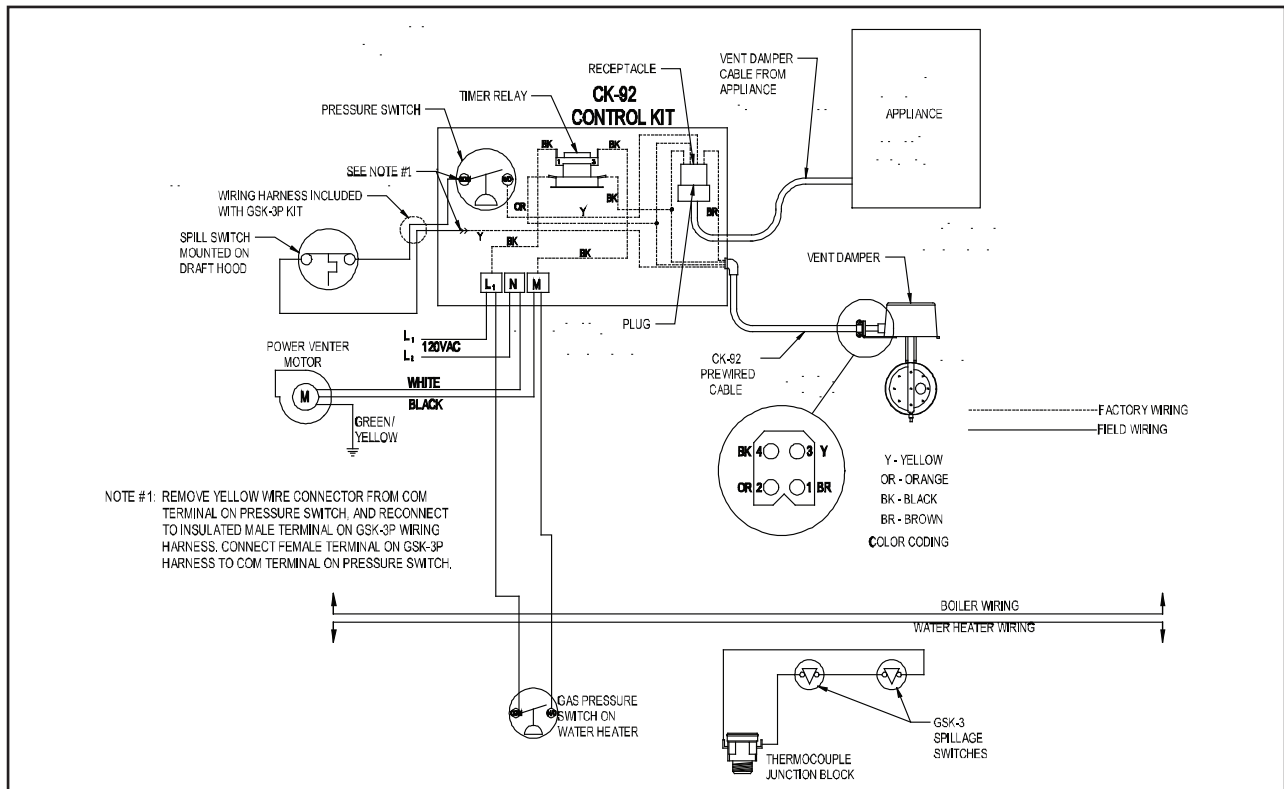


Diagram B

L1 to 1 on post purge timer	T2 to timer relay base
M to 3 on post purge timer	T3 to N/O on pressure switch
T1 to common on pressure switch	Timer base to common on pressure switch

LOW VOLTAGE WIRING INSTRUCTIONS FOR BOILERS

1. Route the appliance's vent damper cable to the CK-92FVP. Plug the cable into the receptacle located inside the CK-92FVP using the supplied plastic knockout grommet (if the cable does not have a conduit connector). (See Diagram A)
2. Connect the CK-92FVP's pre-wired damper cable to the vent damper. (See Diagram A) Snap the end of the flexible conduit into place on the vent damper conduit bracket. If the damper has a round type motor assembly and does not have a conduit bracket (See Diagram A), install the supplied conduit bracket using the supplied #6 screws and nuts. (See Figure 10) If it has a rectangular or "box-like" motor assembly, refer to Figure 11 for cable attachments.

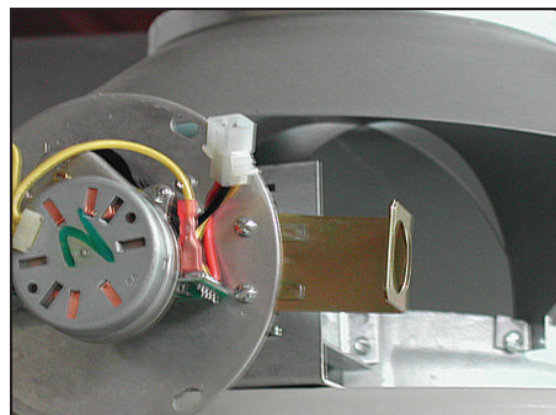


Figure 10

LINE VOLTAGE WIRING INSTRUCTIONS

1. Connect 120 volts hot power source wire to terminal L1 on CK-92FVP.
2. Connect 120 volts neutral power source wire and white wire from venter motor to terminal N on the CK-92FVP.
3. Connect black wire from venter motor to terminal M on the CK-92FVP.
4. Wire gas pressure switch terminals COM and NO to L1 and M respectively, per local and national electrical code requirements.

Refer to the SWG Venter installation instructions for setting system airflow.

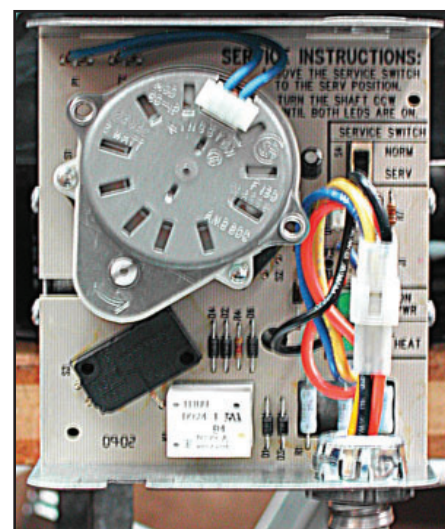


Figure 11

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 intergrated electronic control, which have a diagnostic LED indicator; please refer to Diagram C. You will not use the TCA thermocouple adapter, supplied with the CK-92FVP. 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.

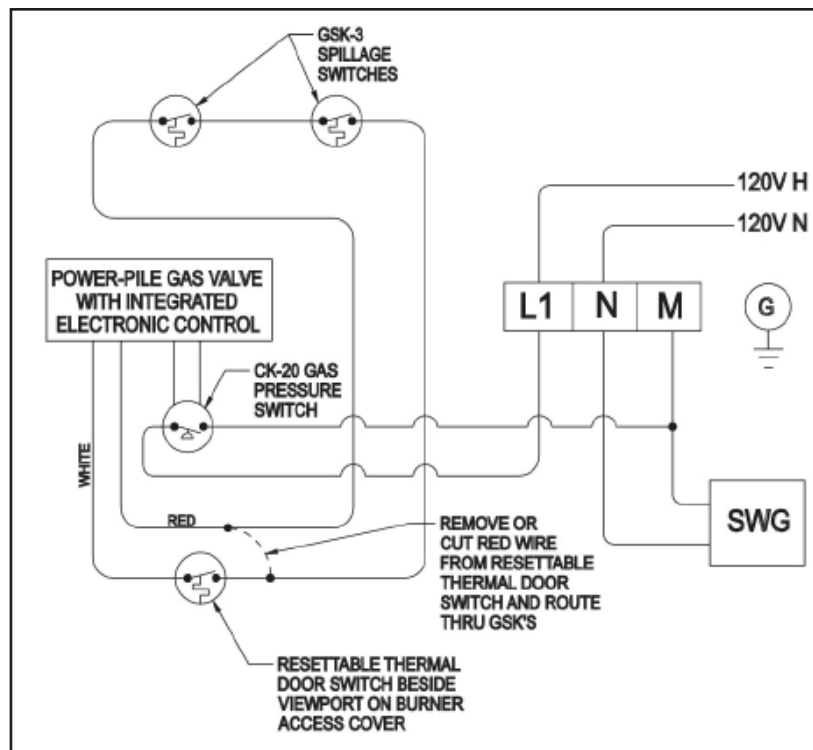


Diagram C

SYSTEM CONTROL CHECK OUT PROCEDURES

1. Adjust the thermostat and/or aquastat to call for heat and observe the power venting system for proper operation sequence. (Repeat if necessary.)
 - a. Aquastat calls for heat.
 - b. After a short delay, the relay is energized, the venter motor starts and the vent damper begins opening.
 - c. Pressure switch closes, the vent damper reaches the open position and the burner starts.
 - d. Aquastat is satisfied, the burner stops and the vent damper begins closing.
 - e. This starts the post purge cycle. Purge time 1 to 2 min.
2. While system is operating, disconnect power to the venter motor. This should open the pressure switch contacts and stop burner operation.

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. Then 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 min. post purge of the venter motor.
3. Repeat Step 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: 115 VAC from L1 to ground; N connected to a neutral.
 - b. Check for 24V from orange to black wires on base of timer relay. If no other voltage, the appliance is not calling for heat to the CK-92. If there is 24 volts continuously for at least 45 seconds there should be 115 volts from N to M. If not, the time relay is defective, or L1 and N are not properly wired.
 - c. Check gas pressure switch for continuity across terminals when water heater burner is lit.
2. Flue gas odor:
 - a. Check system draft. Adjust power venter's airflow adjustment damper if necessary.
 - b. Check for negative pressure in building.
3. Venter activates but burner does not fire after a minimum of 45 seconds continuous call for heat:
 - a. Check wiring.
 - b. Check pressure switch adjustment.
 - c. Make sure the vent damper is in open position.
 - d. Check for 24 volts from both yellow wires on pressure switch to black wire on base of timer relay. If neither yellow wire has 24 volts, the vent damper is defective, has loose wiring, or is not receiving call for heat on the orange wire. If one yellow wire has 24 volts but the other does not, the pressure switch is not closing.
4. Pilot will not stay lit on water heater:
 - a. Solder all spillage switch wire terminal connections.
 - b. Check reset buttons on spillage switches.

REPAIR AND REPLACEMENT PARTS LIST

Model	Part Number
Gas Pressure Switch	46284200
GSK-3 Spillage Switch	46086400
Post Purge Timer	46282800
Pressure Switch	46273100
TCA-1 Thermocouple	46082700
Wire Harness	46457200

This manual may be downloaded and printed from the Field Controls website (www.fieldcontrols.com)

WARRANTY

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