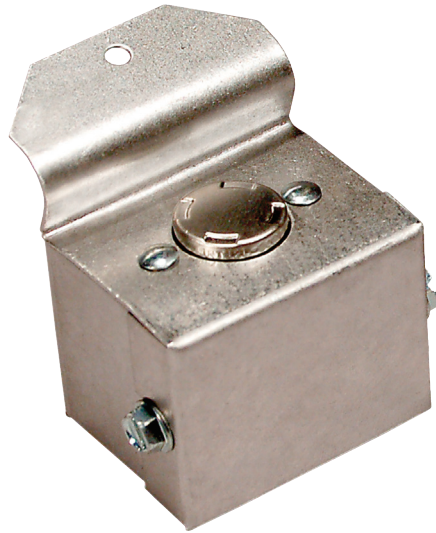


# GAS SPILLAGE SENSING KIT

Model: GSK-3



Installation of a spillage SAFETY Switch is recommended for LP and Natural gas fired systems with draft hoods, draft diverter, and gas barometric draft controls. This device is installed to detect flue gas spillage caused by a blocked flue system and/or inadequate draft. This device **MUST** be installed by a qualified installer in accordance with the manufacturer's installation instructions. Wiring **MUST** be in accordance with the National Electrical Code and applicable local codes.

Before and after adding this safety control on existing appliances, an installation inspection in accordance with the National Fuel Gas Code 54, Z223.1 Appendix H should be performed and a combustion analysis is recommended to determine the operating condition of the appliance.

**CAUTION:** Disconnect electrical power when wiring spillage switch

MODEL	P/N	CONTACT MATERIAL	LOAD RATING		SETPOINT °F	RESET	SWITCH TYPE	APPLICATION
			AMPS	VOLTS				
GSK-3	46086400	GOLD	24VA	mV-24AC	180	MANUAL	SPST NC	Gas-fired mV or 24VAC
GSK-4	46086402	GOLD	24VA	mV-24AC	200	MANUAL	SPST NC	Gas-fired mV or 24VAC, where slower response time is a requirement
GSK-250M	46086404	SILVER	24VA	mV-24AC	250	MANUAL	SPST NC	Steam Boilers

**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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## INSTALLATION ON DRAFT HOODS

### IN-LINE HORIZONTAL DRAFT HOOD (See Figures 1 & 2)

1. Two (2) switches are recommended on these hoods. Mount the switches approximately 2½" from the opposite ends and sides of the draft hood opening. (See Figure 1)
2. The switch should not contact the metal. They should be mounted at least ¾" below the hood opening. (See Figure 2) Mount with supplied sheet metal screw.

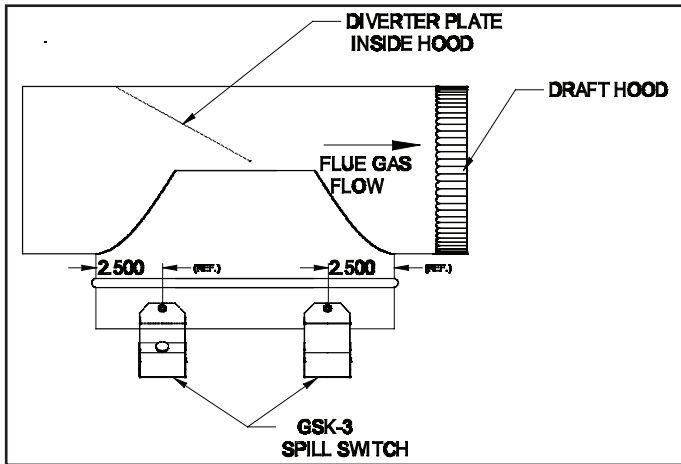


Figure 1

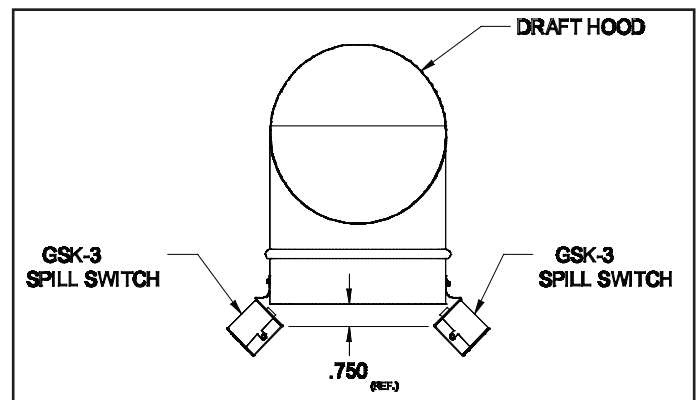


Figure 2

### BUILT-IN DRAFT HOOD (See Figures 3 & 4)

1. Two (2) switches are recommended on appliances without a factory supplied spill switch. Mount the switches approximately 3" from the side of the draft hood opening and the second switch (if used) 3" from the opposite side of the draft hood. (See Figure 3) If the appliance has a factory built-in switch, mount a single switch 3" from the side opposite the factory switch.
2. The switch should not contact the metal. They should be mounted at least 1" below the hood opening. (See Figure 4) Mount with supplied sheet metal screw.

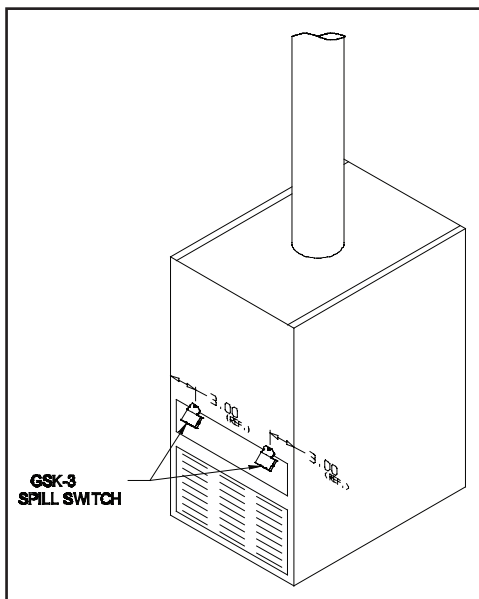


Figure 3

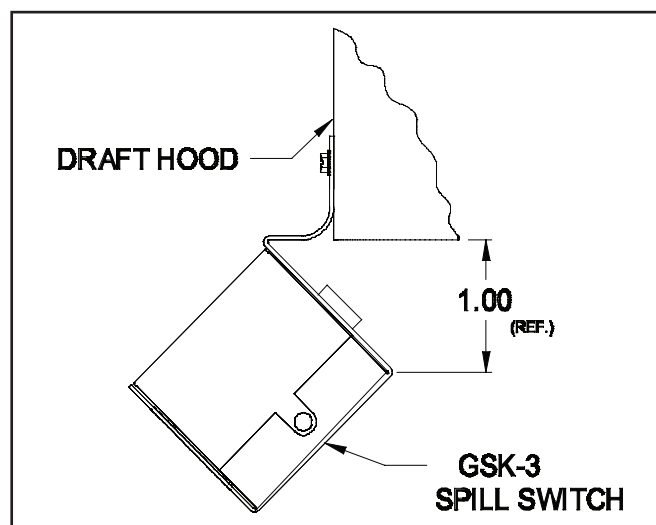


Figure 4

**VERTICAL DRAFT HOOD**

(See Figures 5 & 6 or Figure 13 for water heaters)

1. Two (2) switches are recommended on appliances without a factory supplied spill switch. Mount the spill switch onto the bottom edge of the draft hood and the second switch (if used) approximately 90° from the first switch or 90° from the factory supplied switch. (See Figure 5)
2. The switch should not contact the metal. They should be mounted at least 3/4" below the hood opening. (See Figure 6) Mount with supplied sheet metal screw.

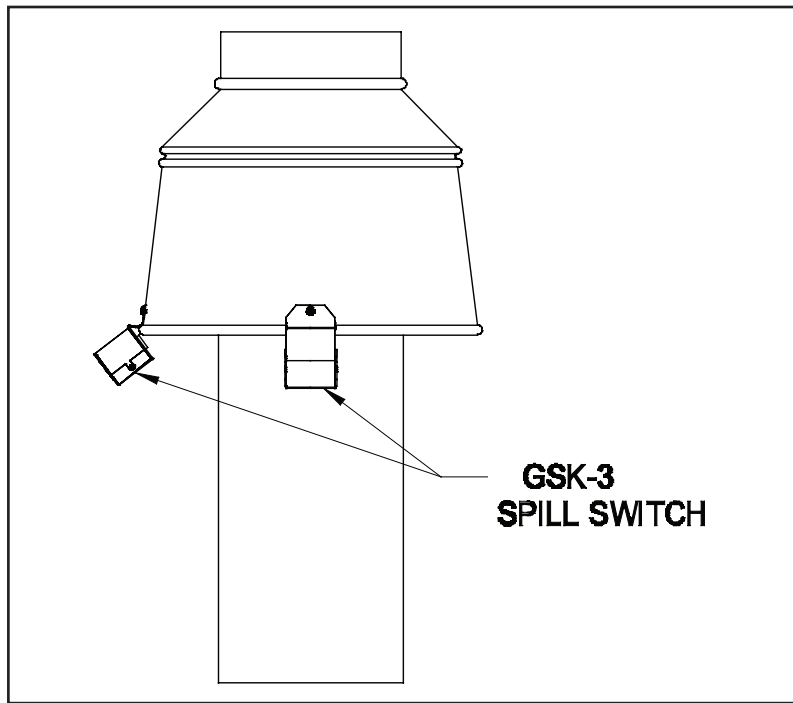


Figure 5

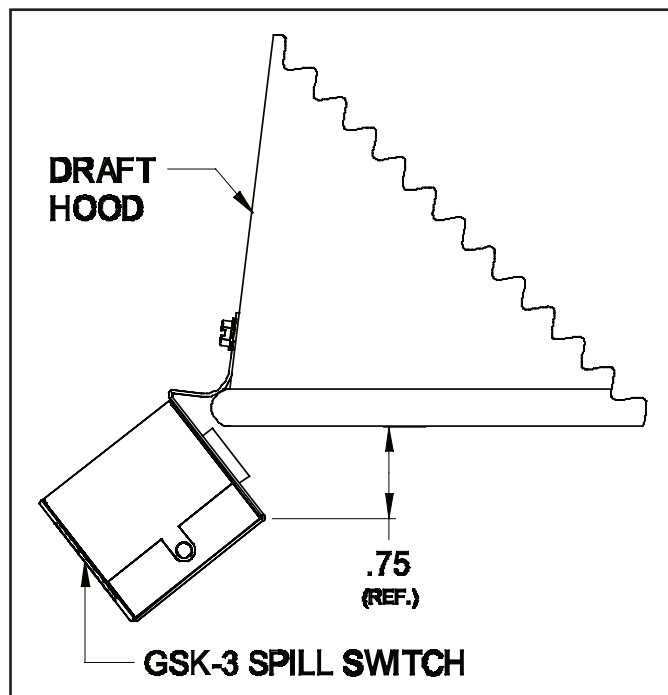


Figure 6

DRAFT CONTROLS (See Figures 7 & 8)

NOTE: GSK style switches are designed for draft control models 4" MG1 through 9" MG1. Larger size draft controls require the FTS Series switches.

1. Locate the spill switch along the bottom edge of the draft control ring. (See Figure 7) Mark and drill a  $\frac{5}{32}$ " dia. hole through the ring.
2. Mount the switch with the supplied #5-40 machine screw and nut. Note, the head of the screw is to be on the inside of the ring. (See Figure 8)
3. Swing the gate to make sure the gate does not hit the screw head or the switch.

NOTE: Mounting the spill switch on the top of the draft control ring will function properly, but will react slower during a blocked flue condition. If GSK switch(es) are supplied in a draft control kit, install the switches as directed in the kit's instructions.

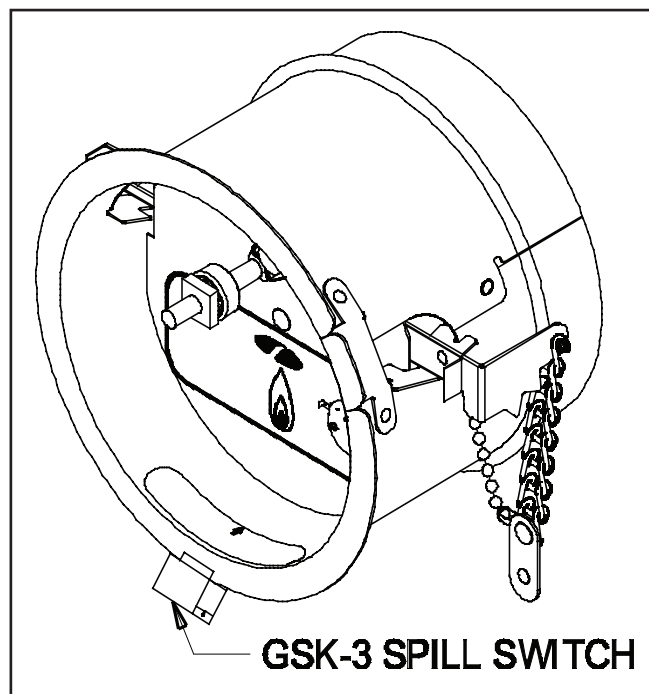


Figure 7

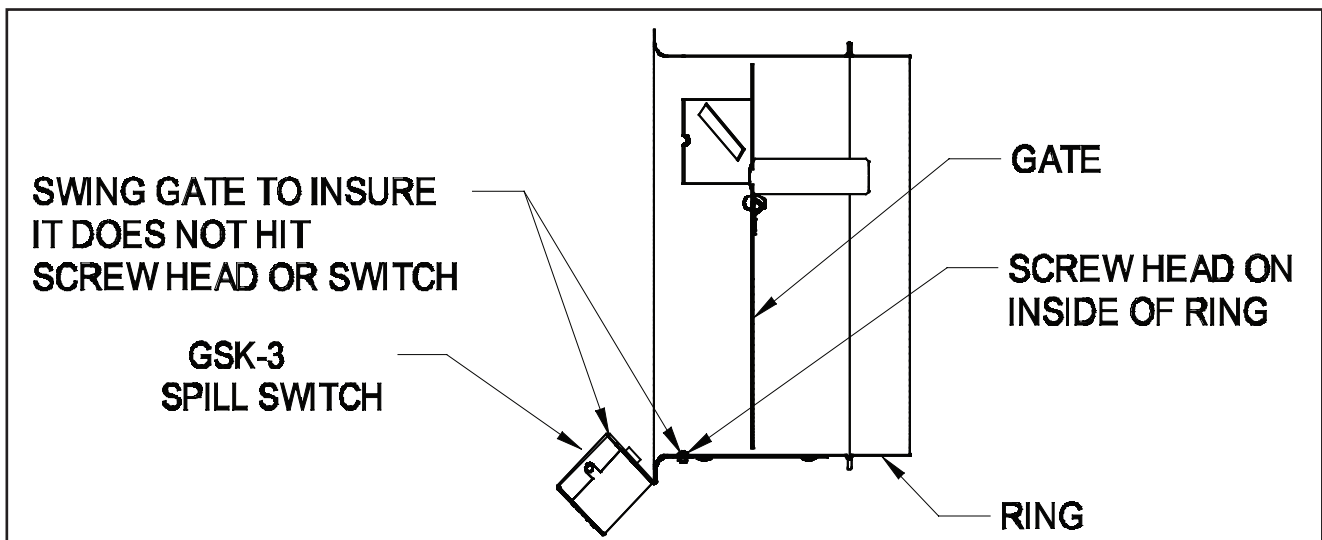


Figure 8

## WIRING

**CAUTION:** When wiring the spillage switch into the burner circuit, route the wiring and secure away from any hot surface. Shut off all electrical power and gas supply to the appliance before working with any electrical connections.

### 24 VOLT APPLICATIONS

1. Disconnect the hot lead between the thermostat or temperature control and the TH terminal on the gas valve or the TH, TH-W or 24V terminal on the ignition module. Check the thermostat anticipator (if applicable) circuit for proper setting.

**CAUTION:** Never wire to the 24V GND terminal.

2. Wire the spill switch or switches into series with this circuit by wiring from the thermostat or temperature control to the spill switch or switches then to the gas valve or ignition module. (See Figure 9 & 10)

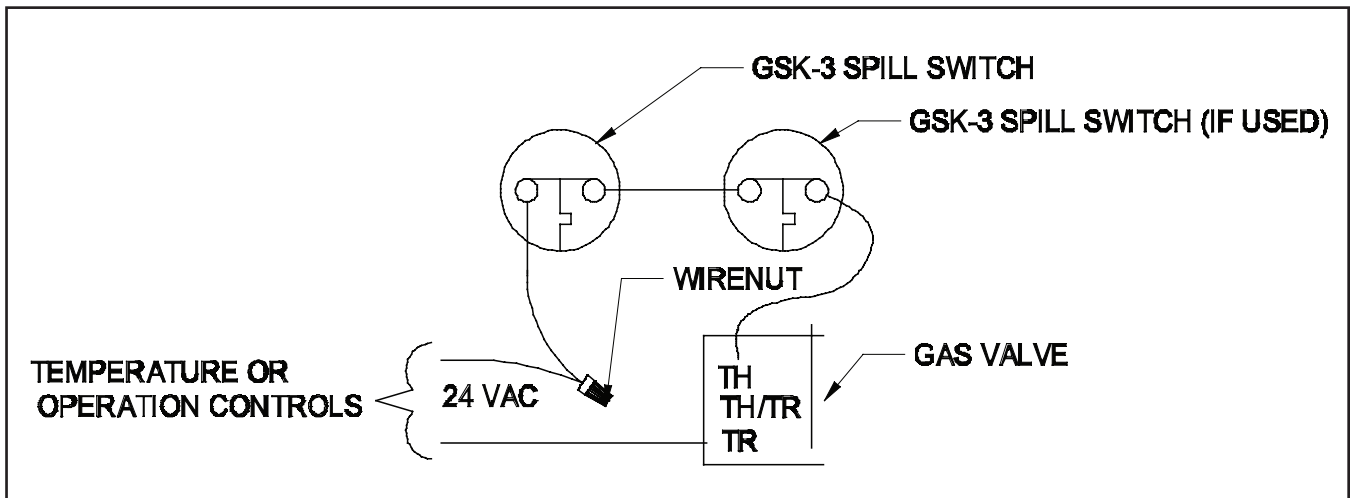


Figure 9

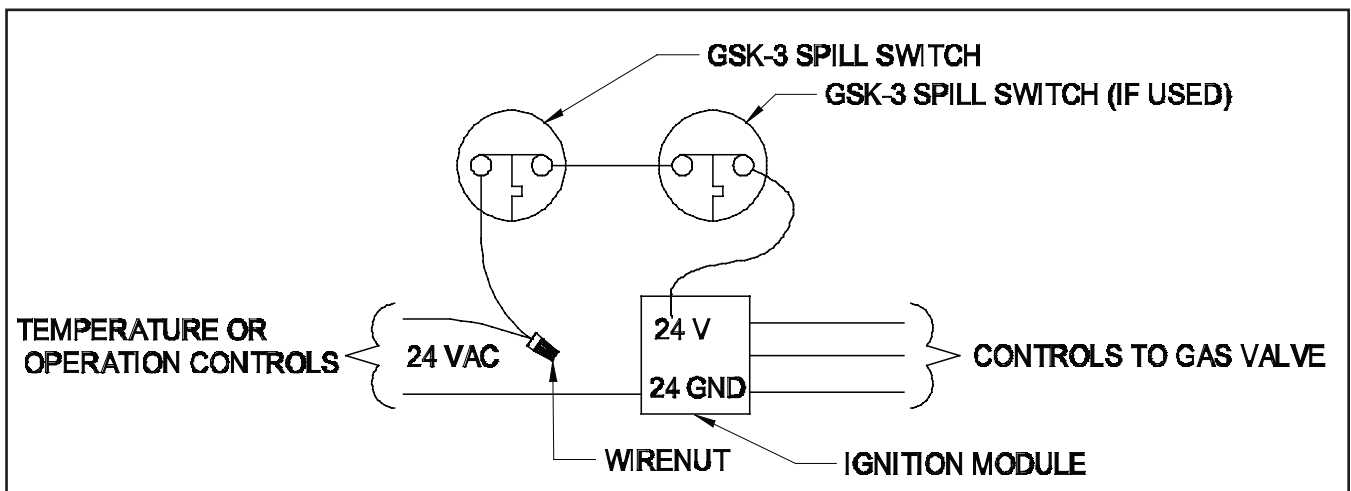


Figure 10

## 750 MILLIVOLT PILOT GENERATOR APPLICATIONS

1. Disconnect the hot lead between the thermostat and the TH terminal on the gas valve. On older bleed tube style equipment split one lead of the E.C.O. (energy cut off) circuit.
2. Wire the spill switch or switches into series with this circuit by wiring from the thermostat to the spill switch or switches then to the TH terminal on the gas valve. On older bleed tube style equipment wire switches in series with one wire of the E.C.O circuit. (See Figure 11)

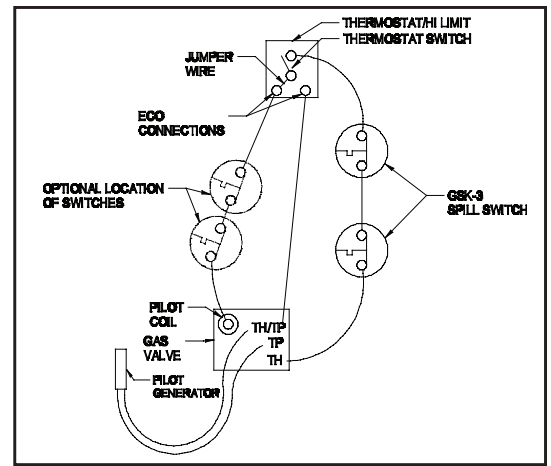


Figure 11

## 30 MILLIVOLT WATER HEATER:

Two (2) switches are recommended for this application. The application requires a TCA-1 Thermal Couple Junction block (P/N 46082700 NOT INCLUDED) and a 6 foot length of 12 ga. two (2) wire conductor (NOT INCLUDED) to wire between the spill switches and the TCA-1.

**CAUTION:** Shut off gas supply before working on appliance.

1. Remove thermocouple from gas control valve. (See Figure 12)
2. Thread the junction block into the thermocouple port and thread the thermocouple into the bottom of the junction block.
3. Mount the two (2) spill switches onto the draft hood so the switches do not contact any metal. (See Figure 13)
4. Connect the one terminal of each switch with 12 ga wire and then connect it to the thermocouple junction block. Next, connect the two remaining terminals together using a short length of 12 ga wire. (See Figure 14)
5. Route and secure the wires to the water heater enclosure with acceptable hold down tabs, keeping the wires away from any hot surface area.

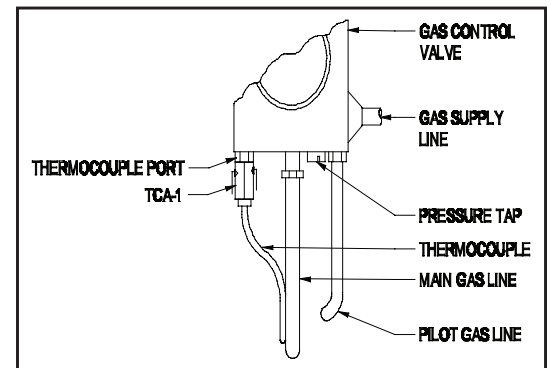


Figure 12

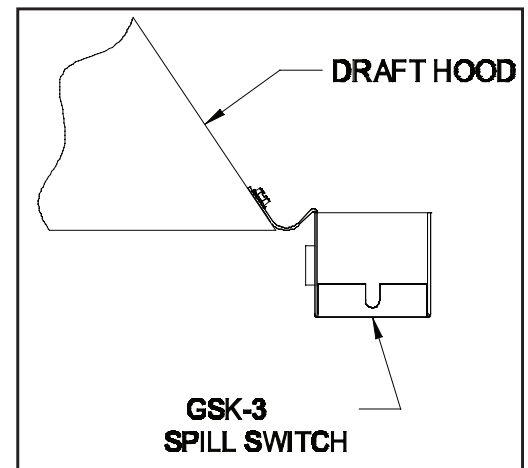


Figure 13

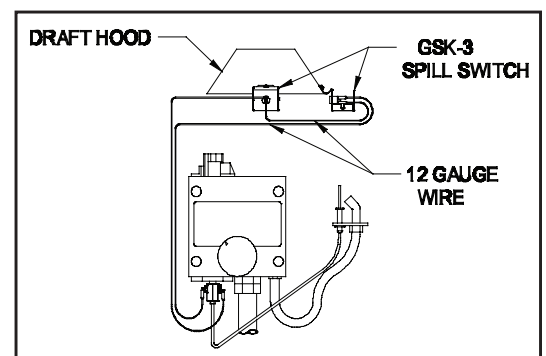


Figure 14

## SYSTEM CHECK-OUT PROCEDURE FOR GAS SPILLAGE SWITCH CONTROL

1. Shut off gas supply to appliance(s).
2. Block the flue pipe above the draft control, draft hood or draft diverter.
3. Re-establish gas supply to appliance and re-light pilot (if required).
4. Adjust thermostat to call for heat.
5. Flue gases should be emitting from draft control, draft diverter or draft hood. Note the location of the most flue gas spillage. Allow approximately 2 minutes for the system to back up and the gas burner to shut down. Wait 2 to 3 minutes, reset switches, and re-light pilot. If the spillage switch does not trip within the 2 minute period, relocate the switch onto the area where the observed highest spillage occurred. Then perform this test again.

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

## WARRANTY

For warranty about this or any Field Controls product, visit:  
[www.fieldcontrols.com/warranty](http://www.fieldcontrols.com/warranty)



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