

# THE FIELD CONTROLS CO.

## MODEL: SSK-3 SPILLAGE SAFETY KIT

Installation of a SPILLAGE SAFETY SWITCH is recommended for L.P. and Natural Gas-fired systems with draft hoods. This device is installed to detect flue gas spillage from 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 should be in accordance with the National Electrical Code and applicable local codes.

### ITEMS SUPPLIED WITH THIS KIT:

#### MODEL SSK-3

- 2 - Spillage Sensing Switches  
with 200°F. Manual Reset
- 1 - 6 Ft. Length 12/2 Jacketed Lead Wire
- 1 - 8 In. Length 12 GA Jumper Wire
- 3 - Adhesive Tabs
- 2 - #8 Self-drilling Sheet Metal Screws

NOTE: Junction Block Adapter must be ordered separately. (Part No. 46082700)

### INSTALLATION PROCEDURE FOR SPILLAGE SAFETY SWITCH FOR 24 VOLT CONTROLS

**BEFORE INSTALLATION, IT IS RECOMMENDED TO FOLLOW PRE-INSTALLATION INSPECTION INSTRUCTIONS.**

**CAUTION: DISCONNECT ELECTRICAL POWER WHEN WIRING SPILLAGE SWITCH.**

1. Mount the 2 Spillage Switches on the draft hood and connect inside terminals of switch with jumper wire. Connect outside terminals to lead wire. (See Figures 4 and 5.)
2. Route Jacketed Lead Wire along enclosure. Secure the wire to the enclosure with acceptable hold-down tabs, keeping the wires away from any HOT surface area.
3. Remove one of the thermostat wires from the gas control valve and wire the safety switches in series into one side of the thermostat circuit. (See Diagram A.)

**CAUTION: REFER TO SYSTEM CHECK-OUT PROCEDURE SECTION BEFORE OPERATING.**

4. After installing the safety switch system, check amperage through the thermostat circuit and adjust the thermostat anticipator accordingly. Refer to thermostat anticipator adjustment instructions.

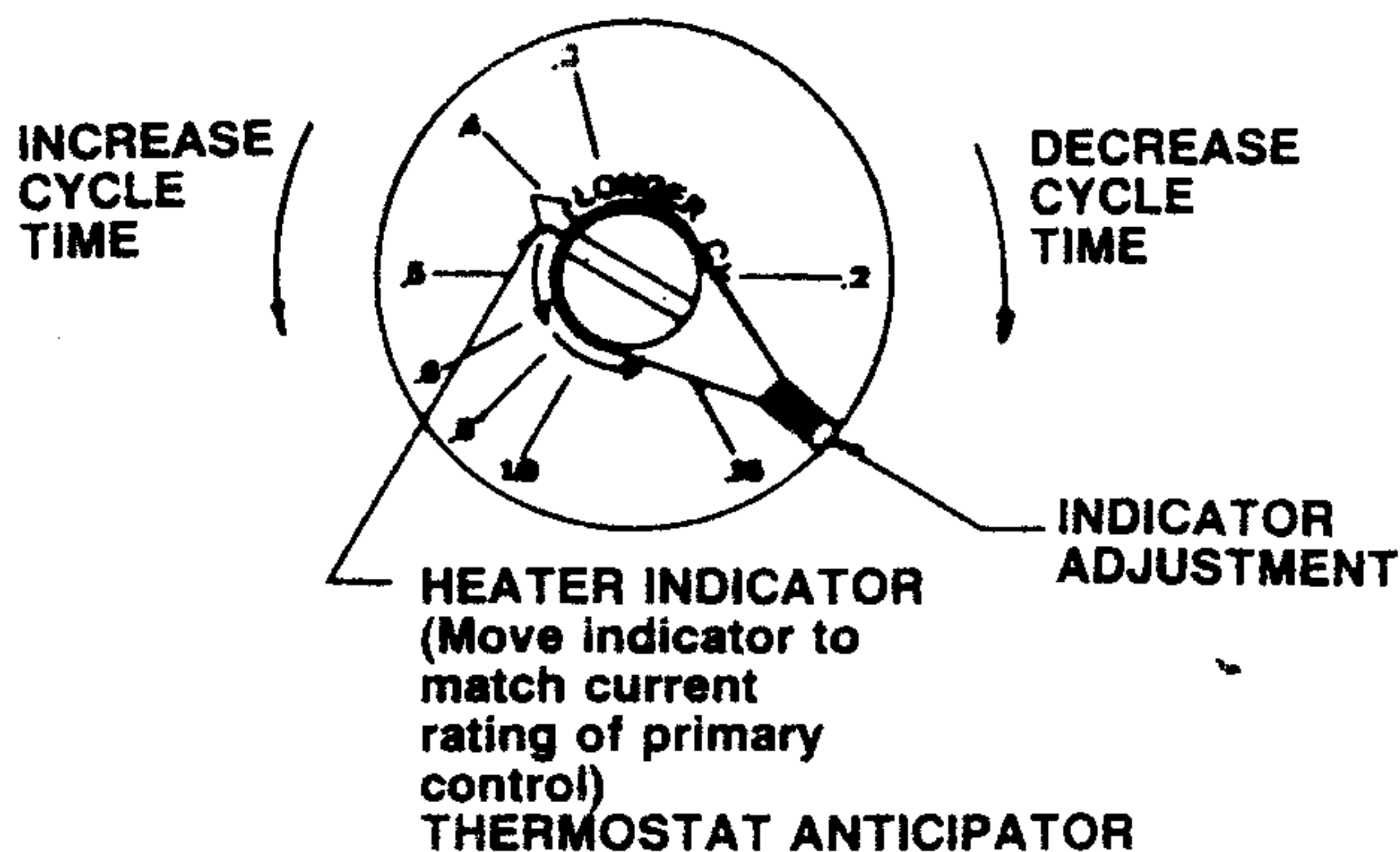
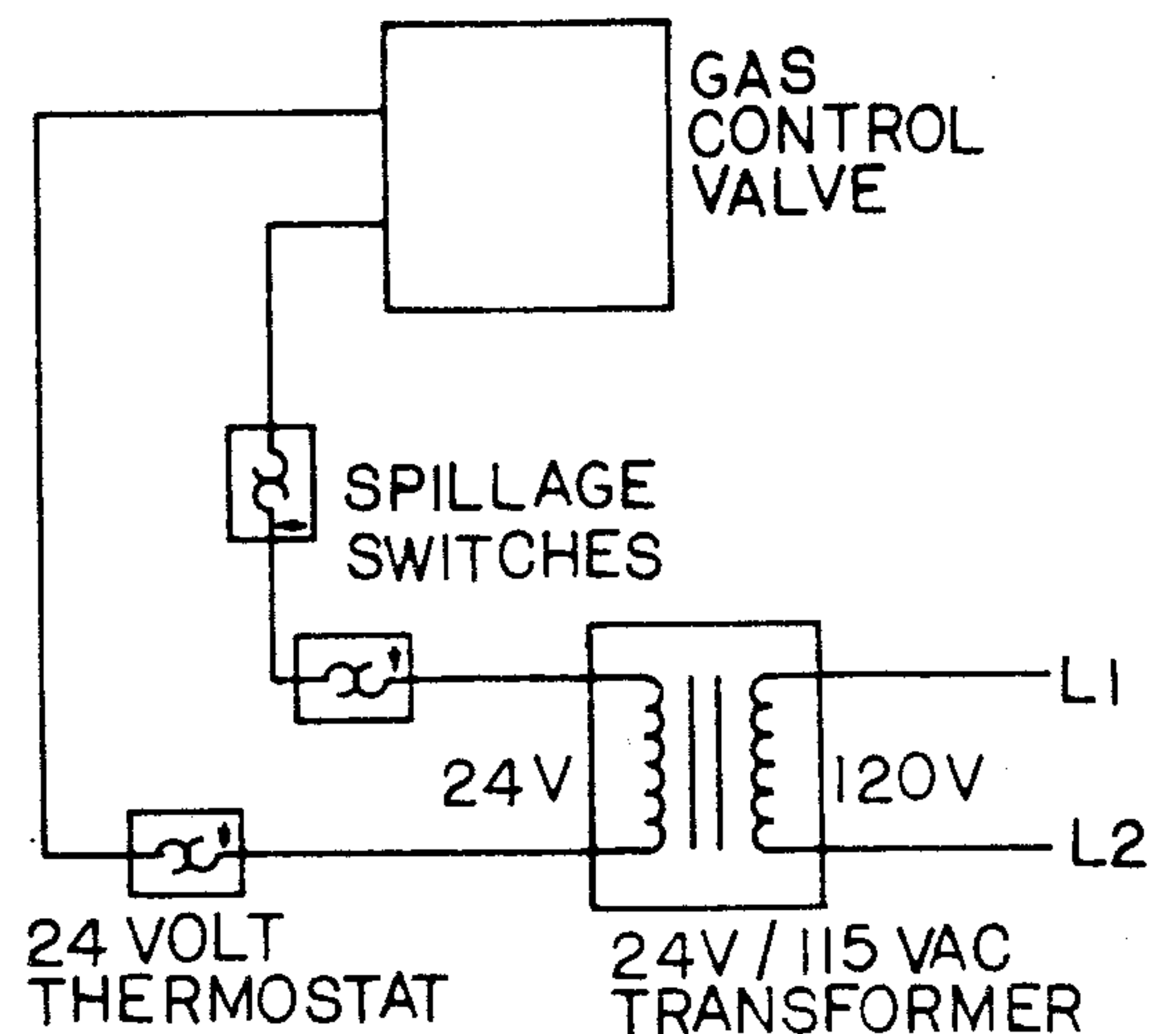


DIAGRAM A



## ADJUSTING THERMOSTAT ANTICIPATOR:

Disconnect one side of the thermostat circuit at the gas valve or burner control, and connect an ampere meter into the circuit. With the system running, take an amperage reading on the circuit. Check the nameplate or instructions for the thermostat to obtain the proper amperage level. Adjust amperage level by moving the anticipator lever. Reconnect the thermostat to the gas valve and start the system operating. Time the burn cycles and adjust as follows: To make the cycle time longer, increase the amount on the anticipator. (Example: .45 to .5 AMPS); to decrease cycle, time reduce the amount on the anticipator. (Example: .45 to .3 AMPS). (See Figure 1.)

## INSTALLATION PROCEDURES FOR HOT WATER HEATER:

BEFORE INSTALLATION, IT IS RECOMMENDED TO FOLLOW PRE-INSTALLATION INSPECTION INSTRUCTION.

**CAUTION:** BEFORE DISCONNECTING THERMOCOUPLE, SHUT OFF MAIN GAS SUPPLY TO APPLIANCE.

1. Remove thermocouple from gas control valve. (See Figure 2.)
2. Thread junction block into thermocouple port and thread thermocouple into bottom of junction block. Connect lead wire from junction block to jacketed lead wires or wires enclosed in an accepted wiring enclosure. (See Figure 3.)

**NOTE:** Draft spillage switches must be mounted 90° apart, and mounted opposite from the vent outlet direction. (See Figure 4.)

3. Mount the 2 spillage switches on to draft hood and connect inside terminals of switch with jumper wire. Connect outside terminals to lead wires, which are connected to thermocouple junction block. (See Diagram B.)
4. Route jacketed lead wires, or accepting wiring enclosure on the outside of the water heater enclosure. Secure them to the enclosure with acceptable hold-down tabs, keeping the wires away from any HOT surface area.
5. Turn on main gas supply. Follow appliance manufacturer's instruction for lighting pilot.

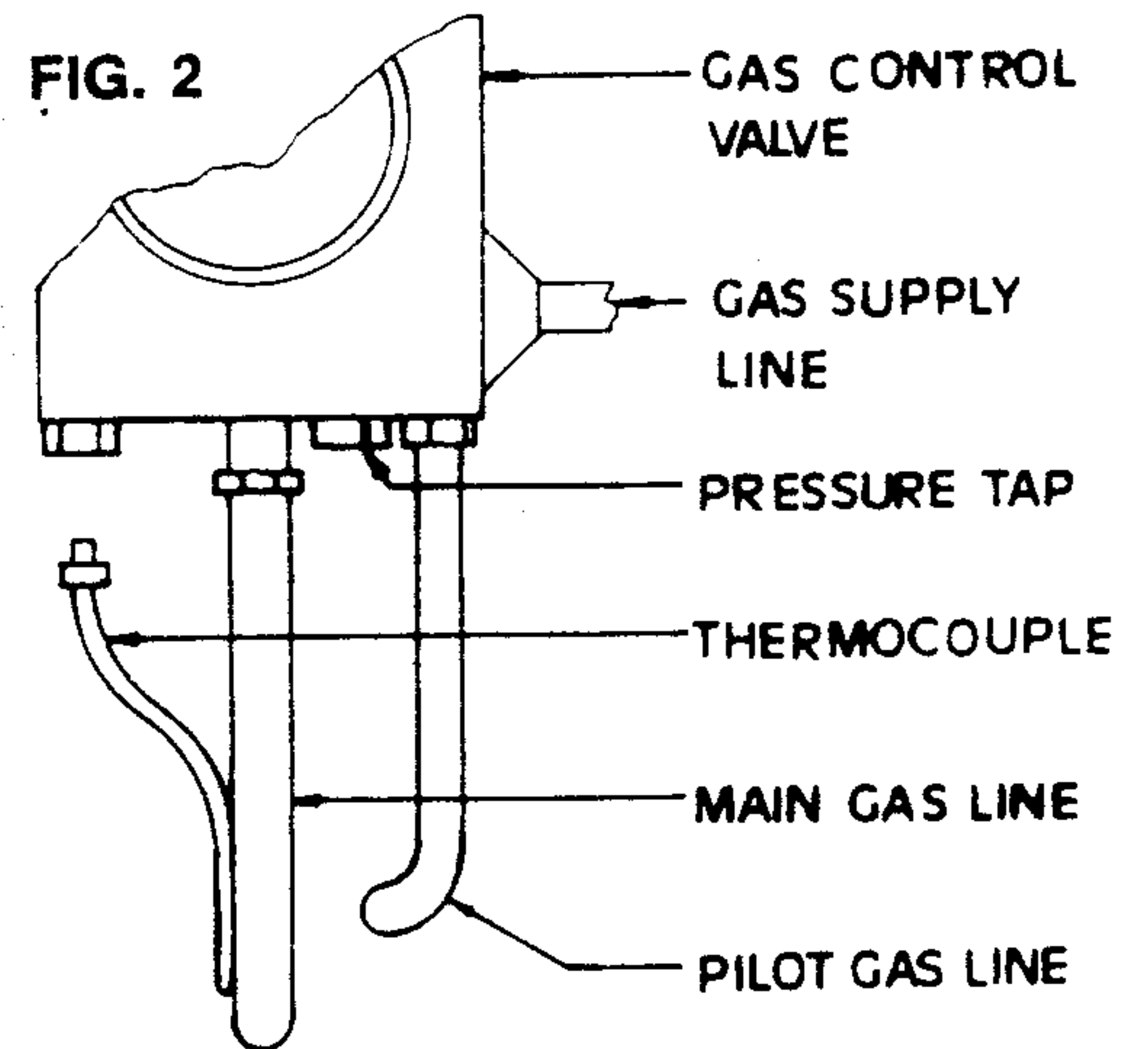
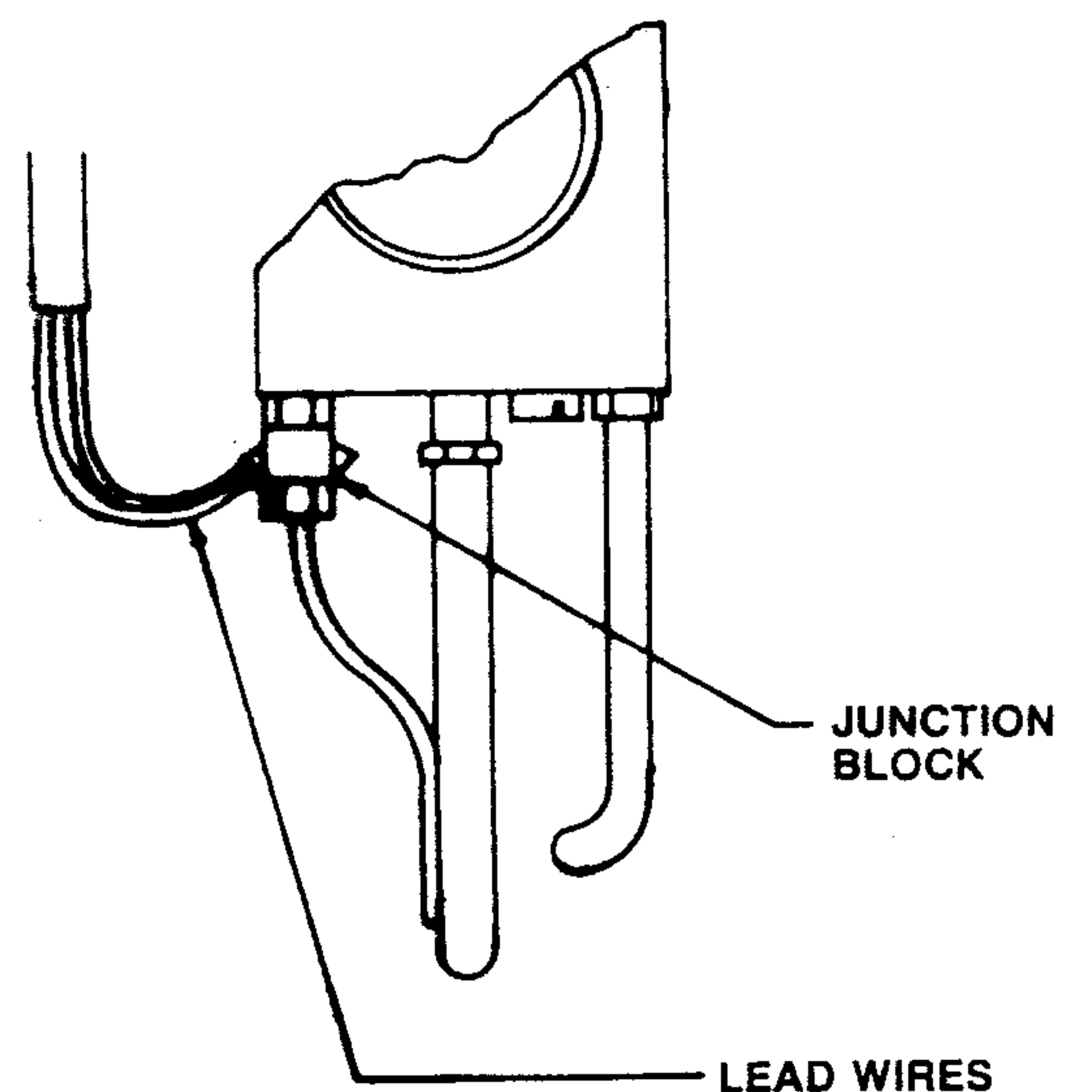


FIG. 3



**CAUTION:** REFER TO SYSTEM CHECK-OUT PROCEDURE SECTION BEFORE OPERATING.

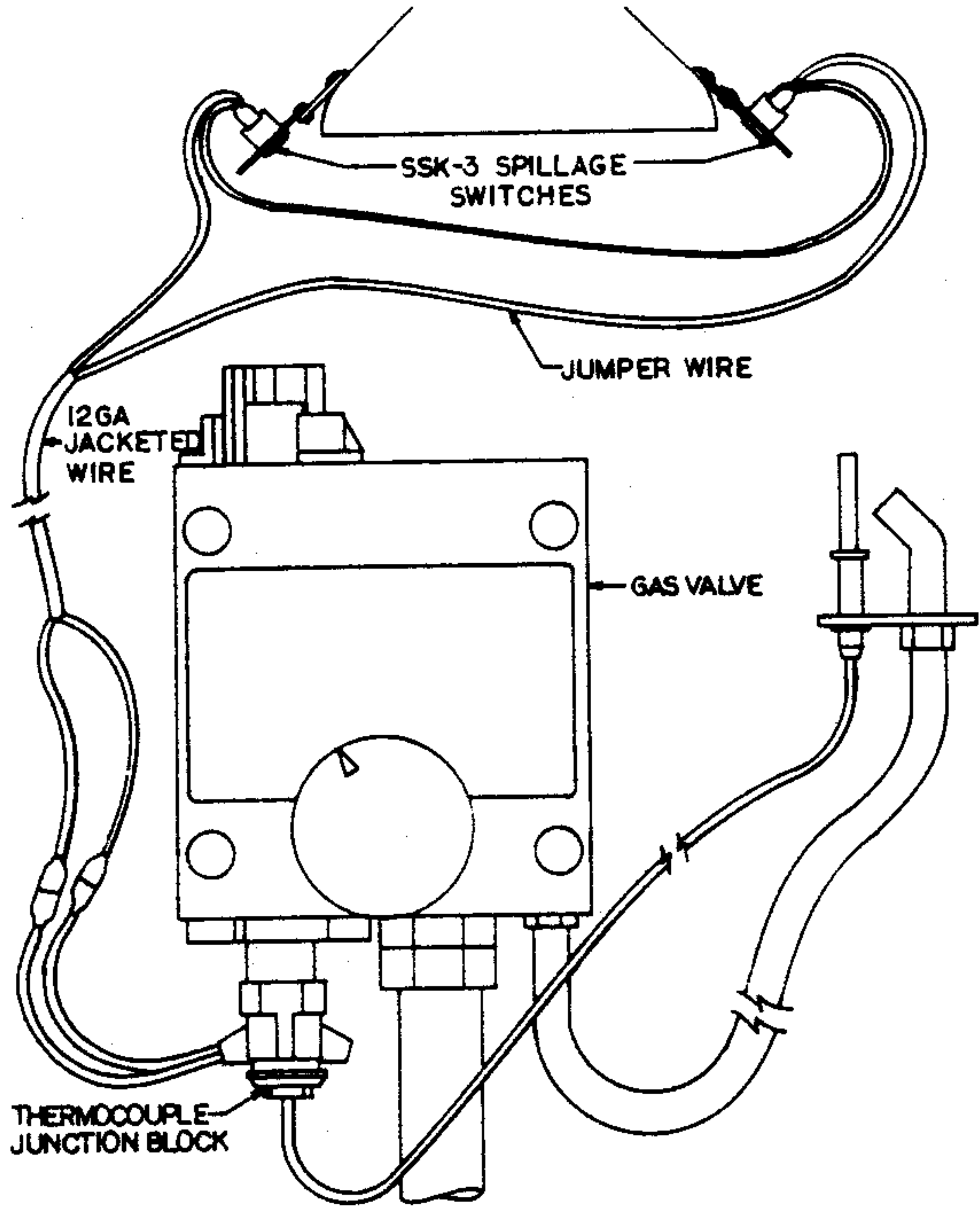
**NOTE:** Junction block is not supplied with SSK Kit.

### SYSTEM CHECK-OUT PROCEDURE

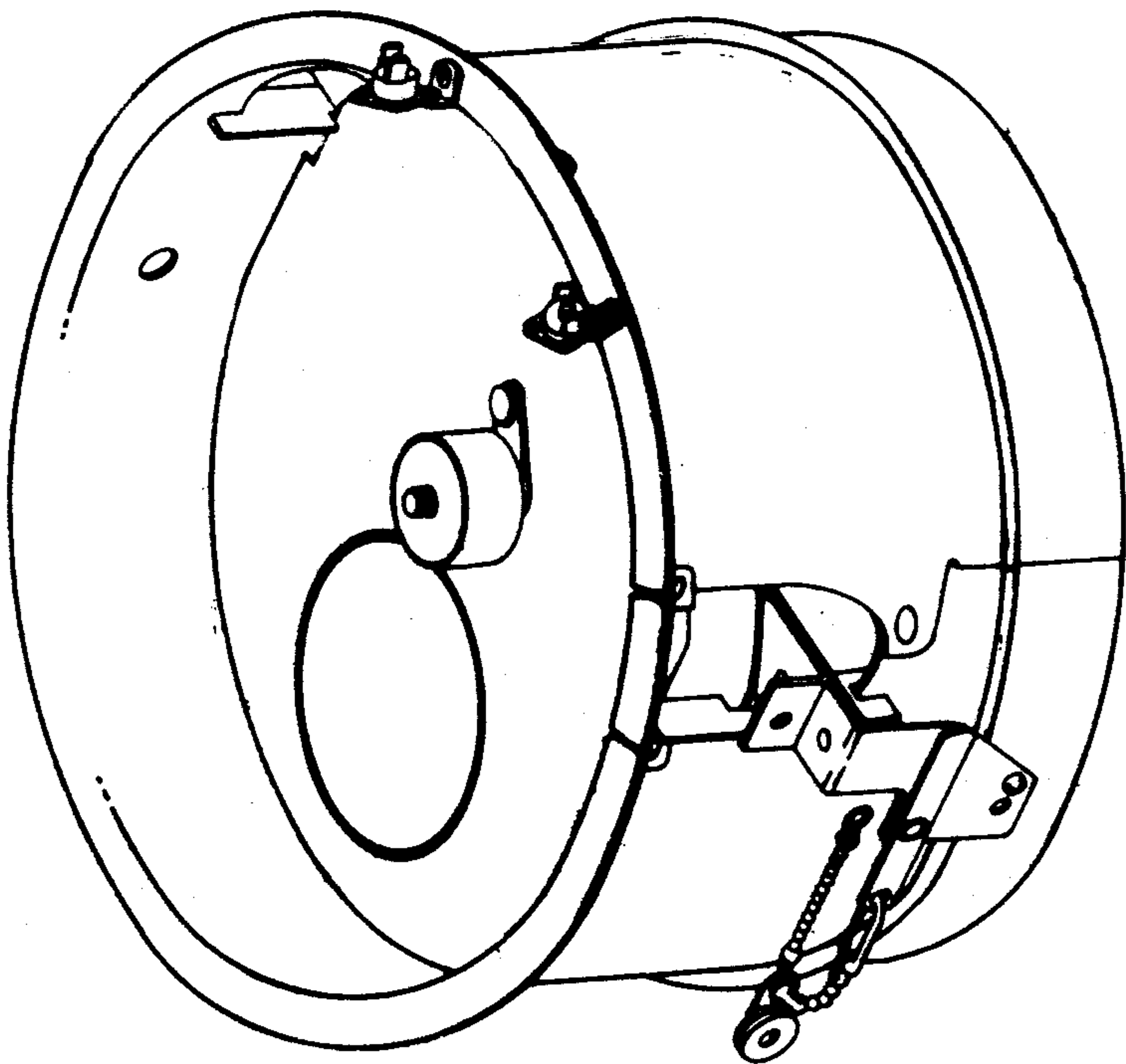
1. Push the reset on the spillage switches. Light the appliance burner in accordance with manufacturer's instructions. Operate the appliance to determine that the appliance will operate continuously.
2. Adjust thermostat so the appliance burner is shut off. Allow system to cool down, then remove the vent pipe connection near the appliance.
3. Block the appliance vent outlet with a non-combustible material.



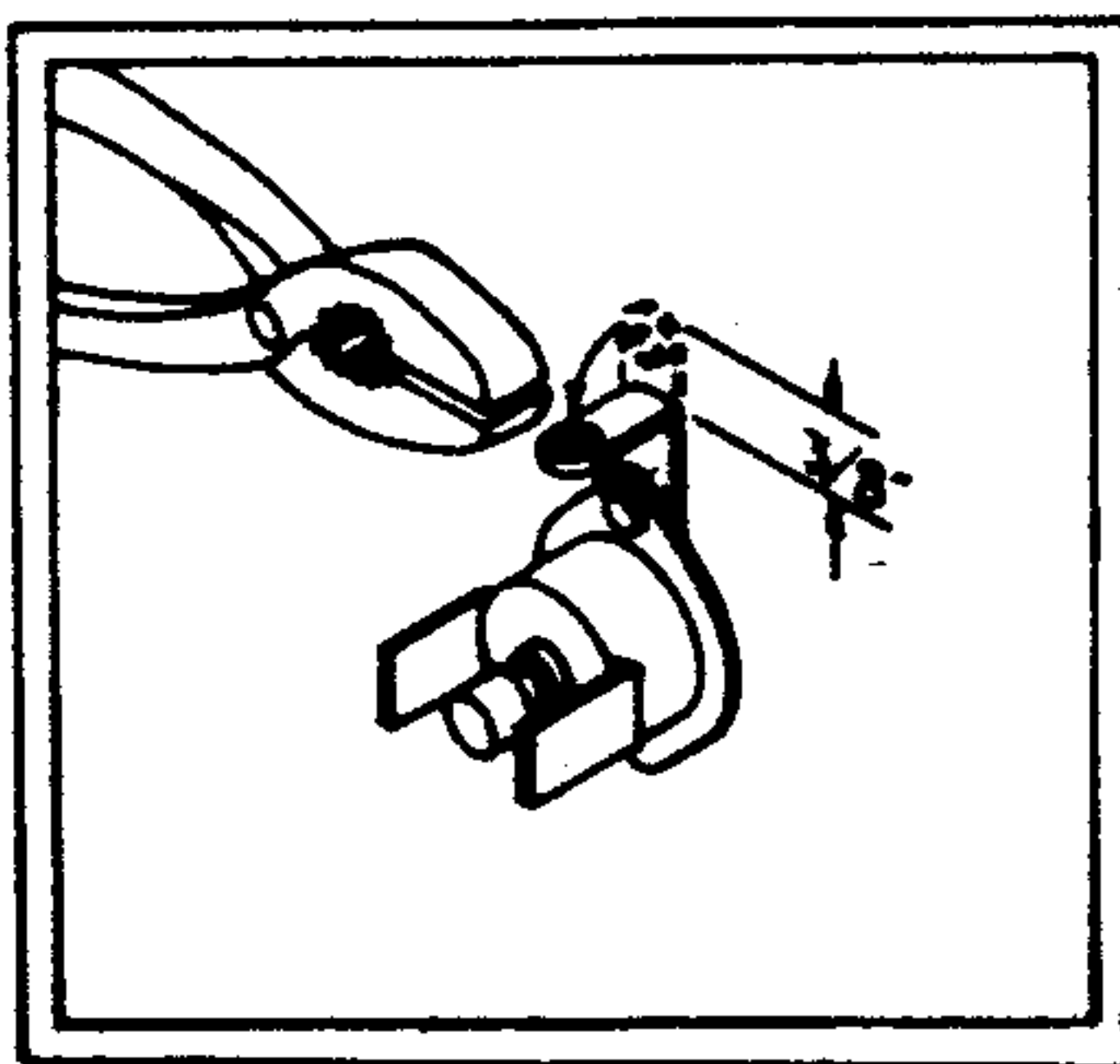
**DIAGRAM B**



**FIGURE 5: TYPICAL BAROMETRIC CONTROL MOUNTING**



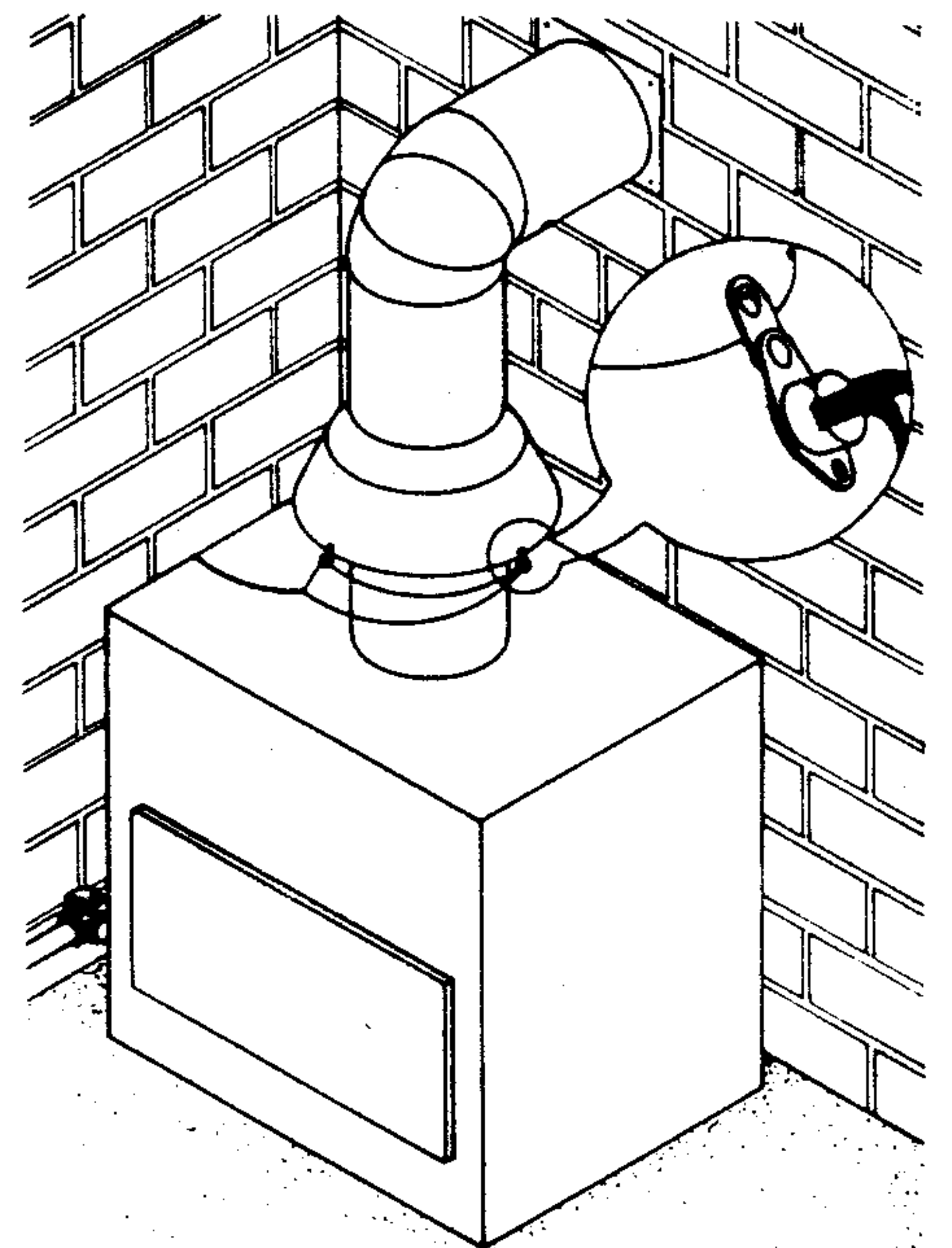
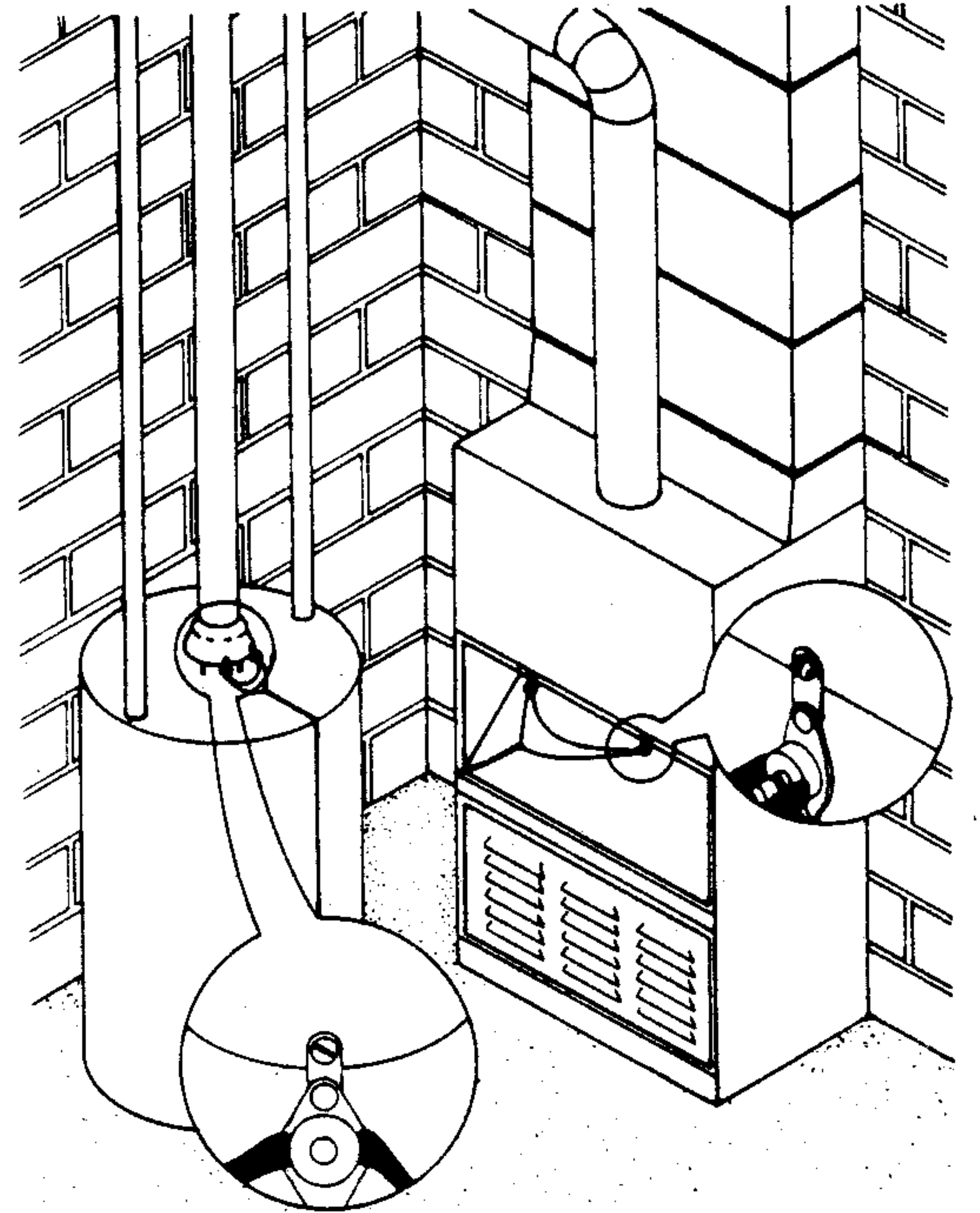
**CAUTION:**  
After installation,  
swing gate to ensure that  
gate will swing freely.



4. Adjust thermostat control to call for heat. Allow approximately 2 minutes for the system flue gases to back up and the gas burner to shut off.
5. Wait 2 to 3 minutes. Push the reset on the spillage switches, then re-light appliance and perform Step 3 again.
6. Re-connect vent pipe connection and cycle system 2 to 3 times to ensure proper operation.

**NOTE:** Shut-down of appliance burner should not be more than 10 minutes.

**FIGURE 4: TYPICAL DRAFT HOOD MOUNTING**





## **PRE-INSTALLATION INSPECTION INSTRUCTIONS FOR EXISTING APPLIANCES:**

Recommended procedure for safety inspection of an existing appliance installation by the National Fuel Gas Code 54, Z223.1 Appendix H:

The following procedure is intended as a guide to aid in determining that an appliance is properly installed and is in a safe condition for continuing use.

This procedure is predicated, on central furnace and boiler installations, and it should be recognized that generalized procedures cannot anticipate all situations. Accordingly, in some cases deviation from this procedure may be necessary to determine safe operation of the equipment:

- a. This procedure should be performed prior to any attempt to modification of the appliance or of the installation
- b. If it is determined there is a condition which could result in unsafe operation, the appliance should be shut off and the owner advised of the unsafe condition.

The following steps should be followed in making the safety inspection:

1. Conduct a gas leakage test of the appliance piping and control system downstream of the shut off valve in the supply line to the appliance.
2. Visually inspect the venting system for proper size and determine there is no blockage or restriction, leakage, corrosion, and other deficiencies which could cause an unsafe condition.
3. Shut off all gas to the appliance and shut off any other fuel-gas burning appliance within the same room. Use the shutoff valve in the supply line to each appliance.
4. Inspect burners and crossovers for blockage and corrosion.
5. Applicable only to furnaces. Inspect heat exchanger for cracks, openings, or excessive corrosion.
6. Applicable only to boilers. Inspect for evidence of water or combustion product leaks.
7. Insofar as is practical, close all building doors and windows and all doors between the space in which the appliance is located and other spaces of the building. Turn on clothes dryers. Turn on any exhaust fans, such as range hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan. Close fireplace dampers. If, after completing Steps 8 through 13, it is believed sufficient combustion air is not available, refer to local codes, or in the absence of local codes, to the National Fuel Gas Code, A.N.S.I. Z223.1 No. 54 for guidance.
8. Place in operation the appliance being inspected. Follow the lighting instructions. Adjust thermostat so appliance will operate continuously.
9. Determine that the pilot(s) is burning properly and that main burner ignition is satisfactory by interrupting and reestablishing the electrical supply to the appliance in any convenient manner. Test the pilot safety device to determine it is operating properly by extinguishing the pilot burner(s) when the main burner(s) is off and determining, after 3 minutes, that the main burner gas does not flow upon a call for heat.
10. a. Visually determine that main burner gas is burning properly: i.e., no floating, lifting or flashback. Adjust the primary air shutter(s) as required.  
b. If appliance is equipped with high and low flame controlling or flame modulation, check for proper main burner operation at low flame.
11. Test for spillage at draft hood relief opening after 5 minutes of main burner operation. Use a draft gauge, flame of a match or candle, or smoke from a cigarette, cigar, or pipe.
12. Turn on all other fuel-gas burning appliances within the same room so they will operate at their full inputs. Follow lighting instructions for each appliance.
13. Repeat Steps 10 through 11 on the appliance being inspected.
14. Return doors, windows, exhaust fans, fireplace dampers, and any other fuel-gas burning appliance to their previous conditions of use.
15. Applicable only to furnaces. Check both the limit control and fan control for proper operation. Limit control operation can be checked by blocking the circulation air inlet or temporarily disconnecting the electrical supply to the venter motor and determining that the limit control acts to shut off the main burner gas.
16. Applicable only to boilers.
  - a. Determine that the water pumps are in operating condition.
  - b. Test low water cutoffs, automatic feed controls, pressure and temperature limit controls, and relief valves in accordance with the manufacturer's recommendations to determine they are in operating condition.

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