

DRAFT INDUCER INSTALLATION INSTRUCTIONS

DO NOT DESTROY: These instructions **MUST** remain with heating appliance instructions.

IMPORTANT: Read all instructions prior to installation and operation of Draft Inducer.

CAUTION: DRAFT INDUCERS ARE DESIGNED TO INCREASE DRAFT IN VENTING APPLICATIONS WHERE INADEQUATE NATURAL DRAFT EXISTS. THIS DEVICE IS **NOT** DESIGNED FOR SIDEWALL VENTING APPLICATIONS. THE VENT TO WHICH THE INDUCER IS TO BE MOUNTED IS TO BE INSTALLED IN ACCORDANCE WITH NFPA 54, NFPA 31, OR OTHER LOCAL CODES.

This device **MUST** be installed by a **qualified installer** in accordance with the manufacturers installation instructions. Appliances should have a maximum measured flue gas temperature of (750 degrees F) at the desired location of the Draft inducer.

(See Figure 4.) "**Qualified installer**" shall mean an individual who has been properly trained or a licensed installer. The installer **MUST** write or imprint his name , phone number, and date of installation on the tag provided with this device. This tag **MUST** be attached to the draft inducer. Recording burner and draft inducer operation information (draft level, efficiency, etc.) is recommended as a guide for future service.

ETL LISTED MODELS: Draft Inducer Models DI-1, DI-2, DI-3, DI-4, and DI-5 are ETL listed devices, for use on vent systems of oil, natural gas, or propane fired heating appliances.



TYPICAL COMPONENTS REQUIRED

(* Refer to UNIT SELECTION TABLE for proper draft inducer selection.)

**24 VAC Gas
Fired appliance**

**120 VAC Oil
Fired Appliance**

**30 Millivolt
Water Heater**

**24 VAC Gas
Fired Appliance
and Millivolt
Water Heater**

**DRAFT INDUCER *
RJR-5 RELAY.
DIP-1 FAN PROVING
SWITCH.
GSK-3 EXHAUST
GAS SPILLAGE
SENSING SWITCH.**

**DRAFT INDUCER. *
RJR-6 RELAY.
DIP-1 FAN PROVING
SWITCH.
WMO-1 SECONDARY
STACK SAFETY
SWITCH.**

**DRAFT INDUCER. *
HWK-6 MILLIVOLT
CONTROL KIT.**

**DRAFT INDUCER. *
RJR-5 RELAY.
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ELECTRICAL DATA					
	DI-1	DI-2	DI-3	DI-4	DI-5
VOLTS AC	115	115	115	115	115
WATTS	33	78	186	440	560
AMPS	0.43	1.1	3.9	5.0	5.7
HZ	60	60	60	60	60
RPM	1550	1550	1750	1750	1725



**The
Field Controls
Company**

Your Number-One Draft Choice.

2308 Airport Road
Kinston, NC 28501

Caution: This draft inducer is to be installed on FUEL OIL, NATURAL GAS or PROPANE burning appliances. This draft inducer is NOT to be installed on solid fuel burning appliances. Refer to unit selection table to determine proper draft inducer selection.

Caution: Failure to install, maintain, and/or operate the draft inducer in accordance with the manufacturers instructions will result in conditions which may produce bodily injury and/or property damage.

DRAFT INDUCER SELECTION TABLE														
GAS FIRING WITH DRAFT HOOD					GAS FIRING WITH BAROMETRIC DRAFT CONTROL					OIL OR COAL FIRING WITH BAROMETRIC DRAFT CONTROL				
GROSS INPUT (BTU/HR)	PIPE DIA. (IN)	DI	STATIC PRESSURE (IN. W.C.)	FLOW (CFM)	GROSS INPUT (BTU/HR)	PIPE DIA. (IN)	DI	STATIC PRESSURE (IN. W.C.)	FLOW (CFM)	GROSS INPUT (BTU/HR)	PIPE DIA. (IN)	DI	STATIC PRESSURE (IN. W.C.)	FLOW (CFM)
69,000	3		.04	47	69,000	3		.05	36	72,000	3		.05	36
105,000	4	DI-1	.04	72	105,000	4	DI-1	.05	55	96,000	4	DI-1	.05	48
111,000	5		.06	75	118,000	5		.06	65	134,000	5		.05	67
120,000	6		.05	82	123,000	6		.05	68	136,000	6		.04	68
279,000	5		.06	190	300,000	5		.07	156	312,000	5		.06	156
308,000	6	DI-2	.07	210	340,000	6	DI-2	.08	176	350,000	6	DI-2	.07	175
330,000	7		.11	225	364,000	7		.09	189	400,000	7		.08	200
353,000	8		.07	240	390,000	8		.06	200	430,000	8		.05	215
522,000	8		.18	355	683,000	8		.15	355	710,000	8		.13	355
674,000	9	DI-3	.15	458	880,000	9	DI-3	.13	458	916,000	9	DI-3	.11	458
694,000	10		.12	472	908,000	10		.10	472	944,000	10		.09	472
835,000	12		.08	568	1,092,000	12		.06	568	1,136,000	12		.06	568
900,000	10		.18	612	1,177,000	10		.15	612	1,224,000	10		.13	612
1,250,000	12	DI-4	.20	850	1,635,000	12	DI-4	.17	850	1,700,000	12	DI-4	.14	850
1,400,000	14		.19	952	1,831,000	14		.16	952	1,900,000	14		.13	952
1,800,000	16		.15	1,224	2,300,000	16		.13	1,224	2,448,000	16		.10	1,224
1,800,000	14		.14	1,224	2,350,000	14		.12	1,224	2,450,000	14		.10	1,224
2,200,000	16	DI-5	.18	1,500	2,885,000	16	DI-5	.15	1,500	3,000,000	16	DI-5	.13	1,500
2,400,000	18		.10	1,632	3,140,000	18		.09	1,632	3,260,000	18		.07	1,632
2,800,000	20		.09	1,900	3,654,000	20		.08	1,900	3,800,000	20		.06	1,900

- Inputs shown are believed to be typical capacities for inducers when mounted on pipe sizes shown. This chart indicates applications where moderate level of mechanically induced draft is required.
- Where pressure requirements are known and believed to be unusually severe, consult factory.
- Heating capacities shown are for 1,000 BTU per cubic foot natural gas and for 139,000 BTU per gallon No. 2 fuel oil.

Caution:

- Always install draft inducer between draft hood and/or barometric draft control and chimney. (See Fig. 2.)
- Never install inducer on top or side of horizontal or inclined vent pipe.
- When venting two or more appliances, with the Draft Inducer installed in common vent pipe, follow ASHRAE standards for vent pipe sizing.

Note: If the draft inducer is to be installed in an unsupported run of vent pipe, install adequate support brackets to prevent vent pipe separation from the additional weight.

A. If installing a DI-2, DI-3, DI-4, or DI-5, mount draft adjustment plate onto fan housing. (See Figure 1.)

B. Draft inducer can be installed on horizontal, vertical or inclined vent pipe. **Never** install draft inducer on top or side of horizontal or inclined vent pipe. Using supplied mounting template, cut out indicated area on vent pipe. Install inducer into vent pipe and mark the location of the mounting holes. Drill holes to the diameter indicated on template. Secure inducer housing to vent pipe with screws supplied. (See Fig. 1.) Support the vent pipe and draft inducer with an accepted method.

Note: For DI-2, DI-3, DI-4 and DI-5 units, install supplied speed nuts before installing mounting screws.

Caution: Disconnect electrical power when wiring inducer.

C. Wire the draft inducer in accordance with the National Electrical Code and applicable local codes. **UNIT MUST BE GROUNDED!** Check ground circuit to make certain that the unit has been properly grounded.

For wiring instructions, refer to Diagrams A-D. For wiring diagrams of systems not shown, contact distributor or factory.

Note: For typical installation diagrams, see Figs. 3, 4 and 5.

D. Fan proving switch kit (Model DIP-1) **MUST** be installed on all systems **EXCEPT** 30 millivolt controlled appliances. A HWK-6 Control Kit **MUST** be installed when installing a draft inducer on a 30 millivolt controlled appliance. Installation of an optional exhaust gas spillage sensing switch (Model GSK-3 for gas, Model WMO-1 for oil) is recommended.

E. To adjust draft inducer air flow on the Model DI-1, manually bend the draft adjustment plate until desired draft is obtained. For Models DI-2, DI-3, DI-4 and DI-5, loosen the nut(s) and readjust the position of the draft adjustment plate until desired draft is obtained. Then retighten nut(s). (See Figure 1.) Removal of adjustment plate will increase air flow.

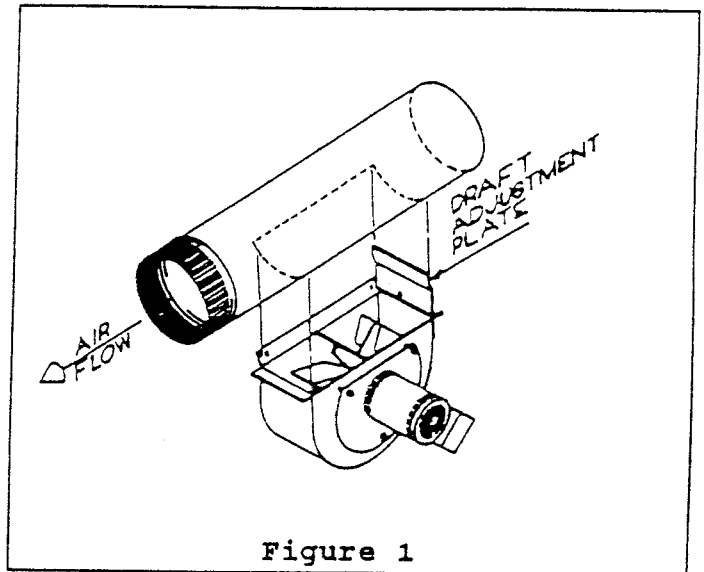


Figure 1

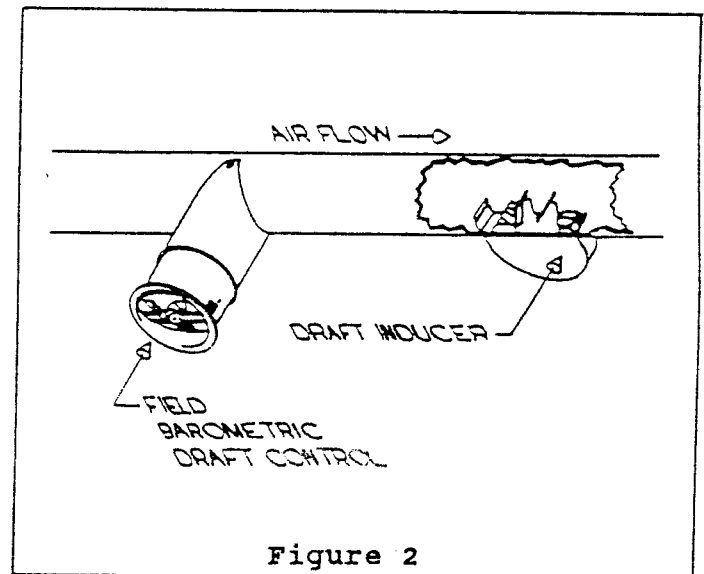


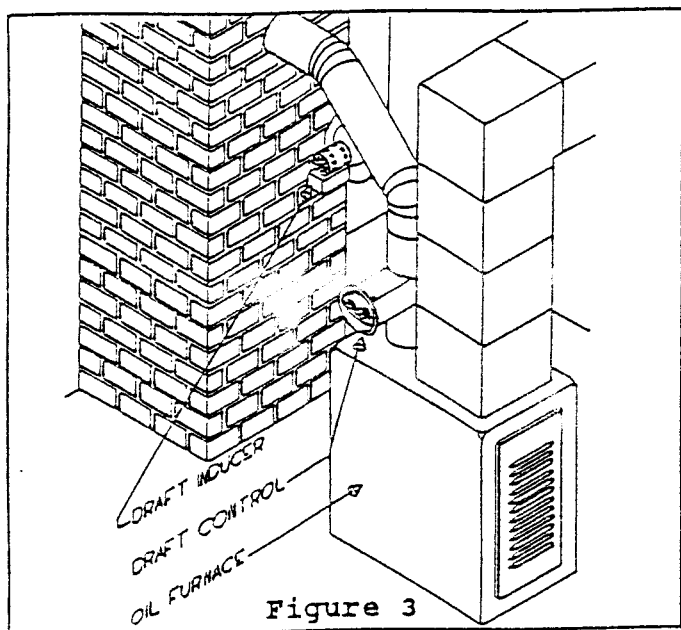
Figure 2

F. A Field barometric draft control should be installed on all oil-fired and gas-fired appliances not equipped with a draft hood. The barometric draft control is used to fine tune the desired draft at the appliance. Some type of draft control device **MUST** be used on all heating systems with a draft inducer installed. (See Figure 3.)

Note: For gas-fired appliances equipped with draft hood, a barometric draft control is not normally required. (See Figure 4.)

G. Seal ALL pipe joints and seams on the positive pressure side of the inducer with a high temperature silicone sealant or equivalent.

Note: Run draft inducer through 2 or 3 cycles to insure proper operation.



H. Draft Inducer Installation onto Type "B" Vent or Other Multiwall Vent Pipe:

Remove one section of the double wall vent pipe which is long enough to accommodate the draft inducer. (See Figure 6.)

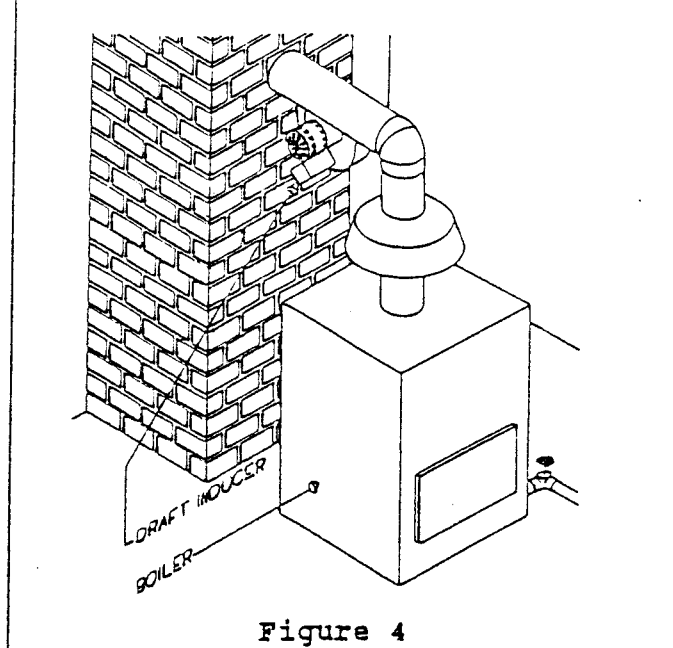


Figure 4

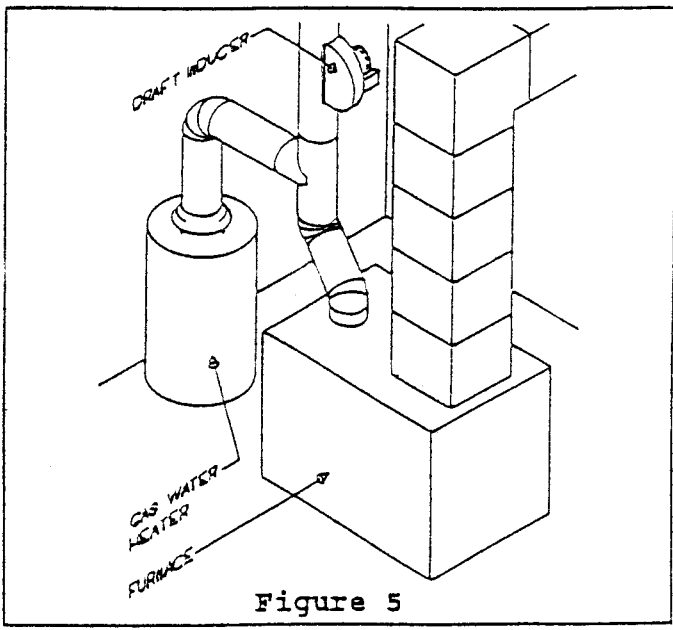


Figure 5

Choose a suitable draft inducer location according to the instructions stated previously.

Replace the section of double wall vent pipe with a section of single wall vent pipe of similar length. (See Figure 6.)

Crimp both ends of the single wall pipe and insert each end into the inner pipe of the Type "B" vent. (See Figure 7.)

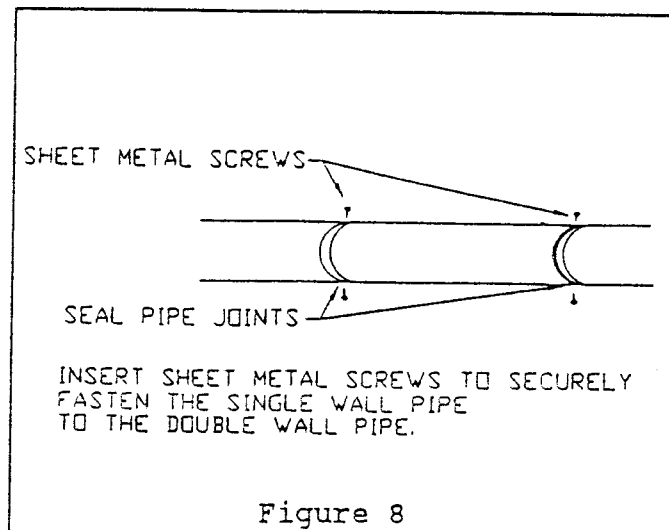
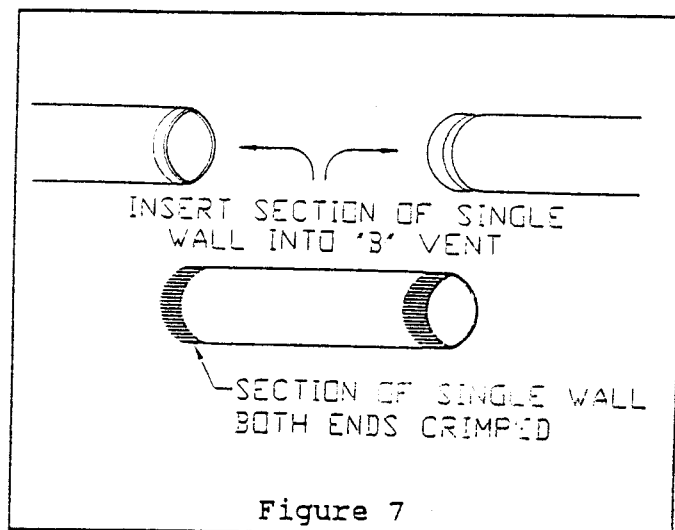
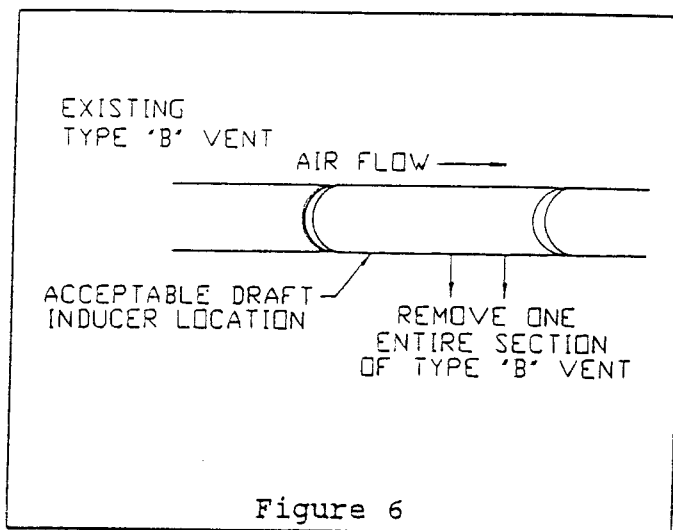
Securely fasten each end by inserting sheet metal screws through both layers of the double wall vent pipe and the single wall vent pipe. Seal any air gaps which exist between the double wall vent pipe and the single wall vent pipe. Use a high temperature rated silicone sealant or other approved material. (See Figure 8.)

Install the draft inducer onto the section of single wall vent pipe in accordance with the instructions stated within this manual.

Caution: Clearance to combustible materials **MUST** be maintained. Any section of single wall vent installed **MUST** be at least the minimum allowable distance from combustible materials as required by the pipe manufacturer. Refer to NFPA 54, NFPA 31 and any local codes for installation guidelines. The draft inducer requires a minimum of six (6) inches clearance to combustible materials from any point of the fan housing surface.

I. Fan Proving Switch (DIP-1)

The Field Controls Fan Proving Switch has been designed to monitor pressure within the fan housing. Its use is **REQUIRED** on all systems other than 30 millivolt controlled appliances. (Use the HWK-6 Kit on 30 millivolt systems.) This switch is not meant to prove draft, however, it does detect inducer failure, vent obstructions and other system deficiencies affecting pressures within the inducer housing.



Venting deficiencies will be automatically sensed by the switch which will prevent heating appliance operation until the vent system is inspected and the deficiency has been corrected.

Note: It is the responsibility of the end user to properly maintain the combustion system. The combustion system should be inspected and serviced annually by qualified personnel. Failure to follow such maintenance and inspection procedures may result in generation of toxic carbon monoxide gas.

The amperage rating of the Fan Proving Switch is 15 amps non-inductive to 277 Volts AC.

Fan Proving Switch Installation

Location: The Field Fan Proving Switch can be mounted on any vertical surface within 5 feet of the draft inducer. It **MUST NOT** be mounted on the inducer or any other surface with a temperature in excess of 190 degrees F. (Figs. 9 and 10.)

Maintenance: Under normal usage the Draft Inducer Motor should not need oiling more than twice a year. (Models DI-3, DI-4 and DI-5 do not require oiling.) No more than two drops of S.A.E. 20 oil should be used. The oil hole locations are indicated on the inducer motor. Misadjustment and inefficient combustion of a heating unit may cause soot and hard carbon buildup on the inducer blower wheel. This buildup can cause the blower wheel to become unbalanced and, therefore, cause damage to the motor shaft and bearings, as well as reduce the effectiveness of the Draft Inducer. Inspect the Draft Inducer periodically, at least once a year, and clean if necessary. Burner adjustment may be required to reduce carbon buildup on the inducer.

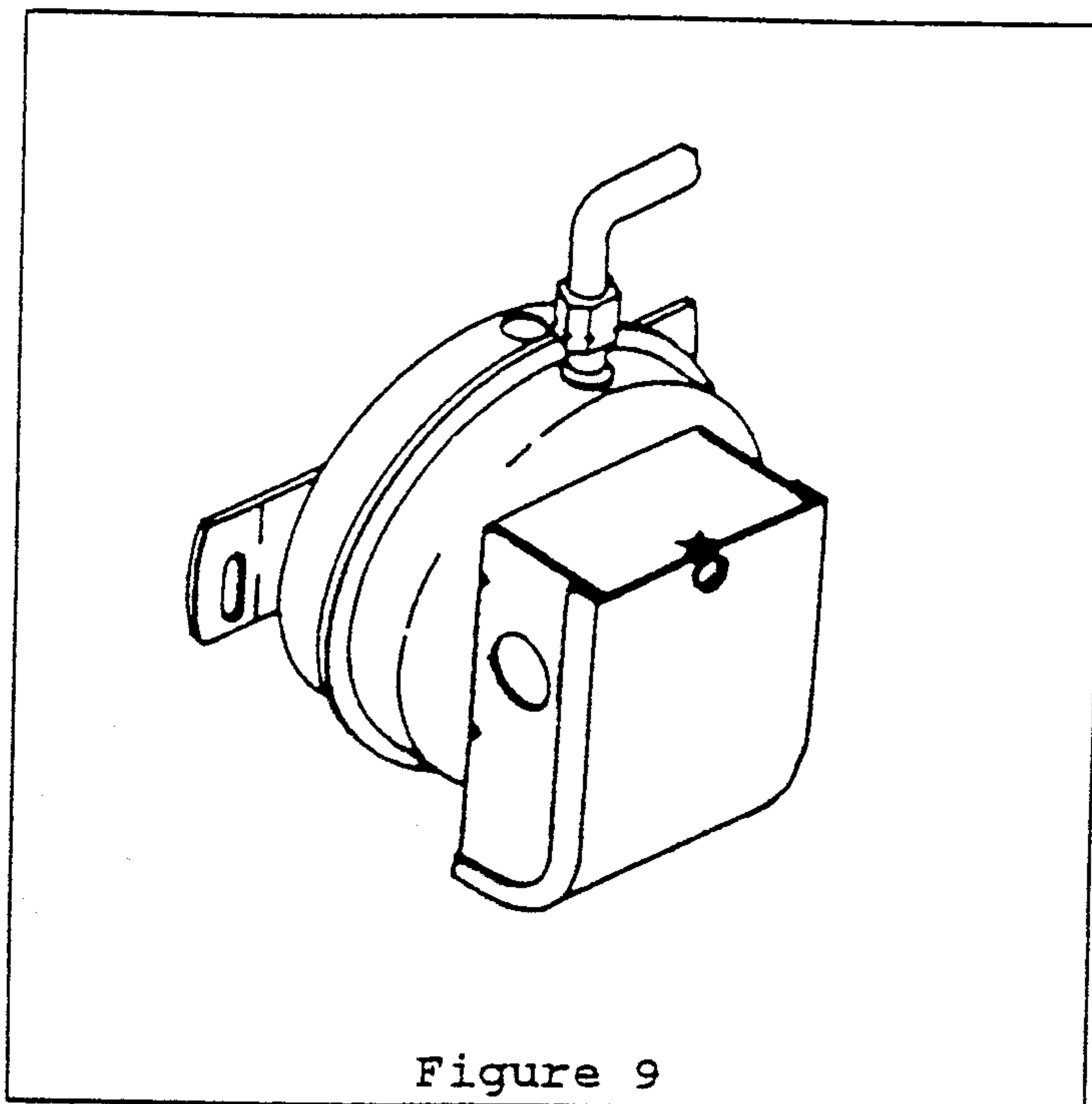


Figure 9

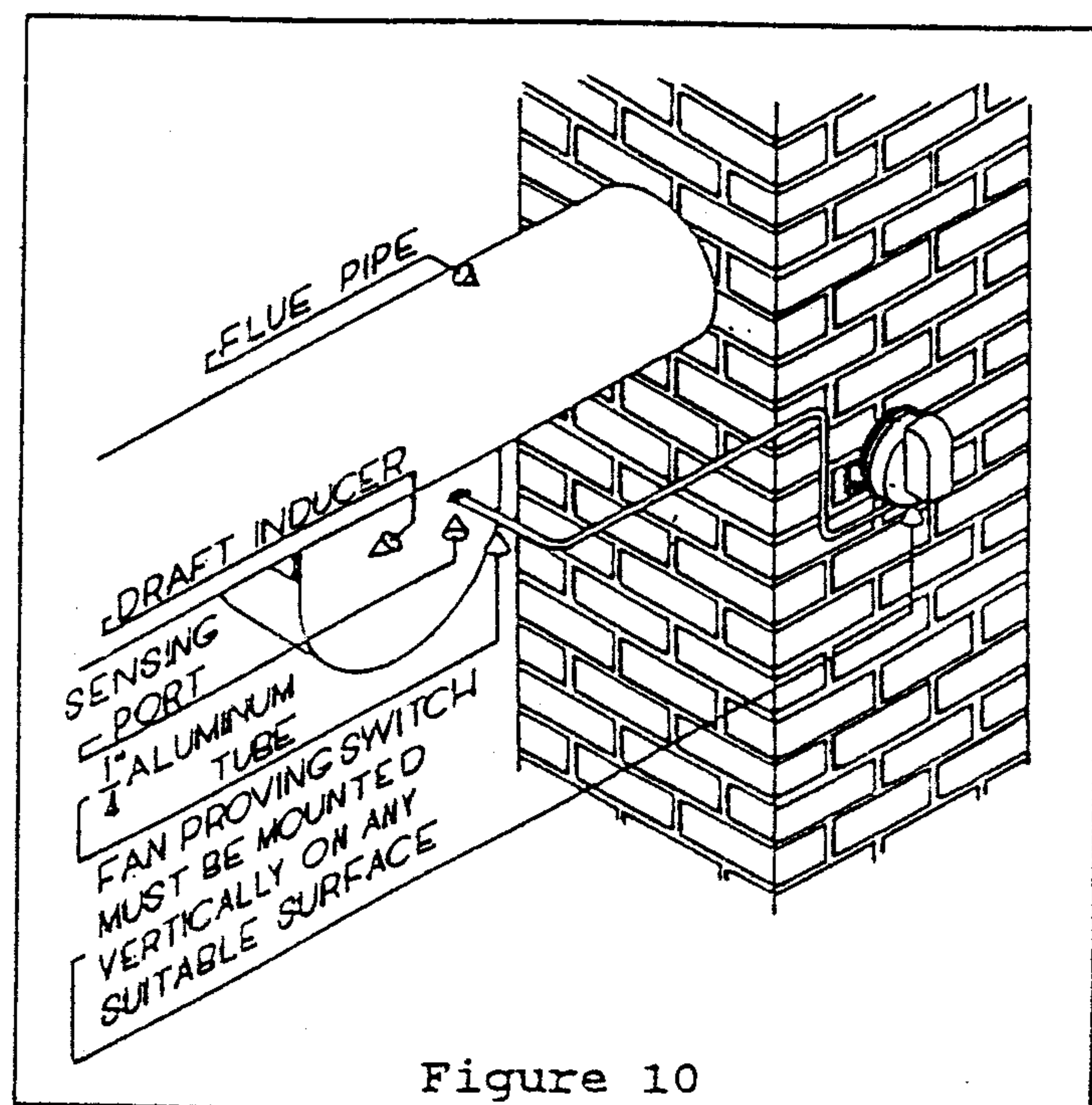


Figure 10

DRAFT INDUCER WIRING DIAGRAMS

DIAGRAM 1

GAS FIRED MILLIVOLT CONTROLLED WATER HEATER*

* (WIRING COMPONENTS INCLUDED IN HWK-6 CONTROL KIT)

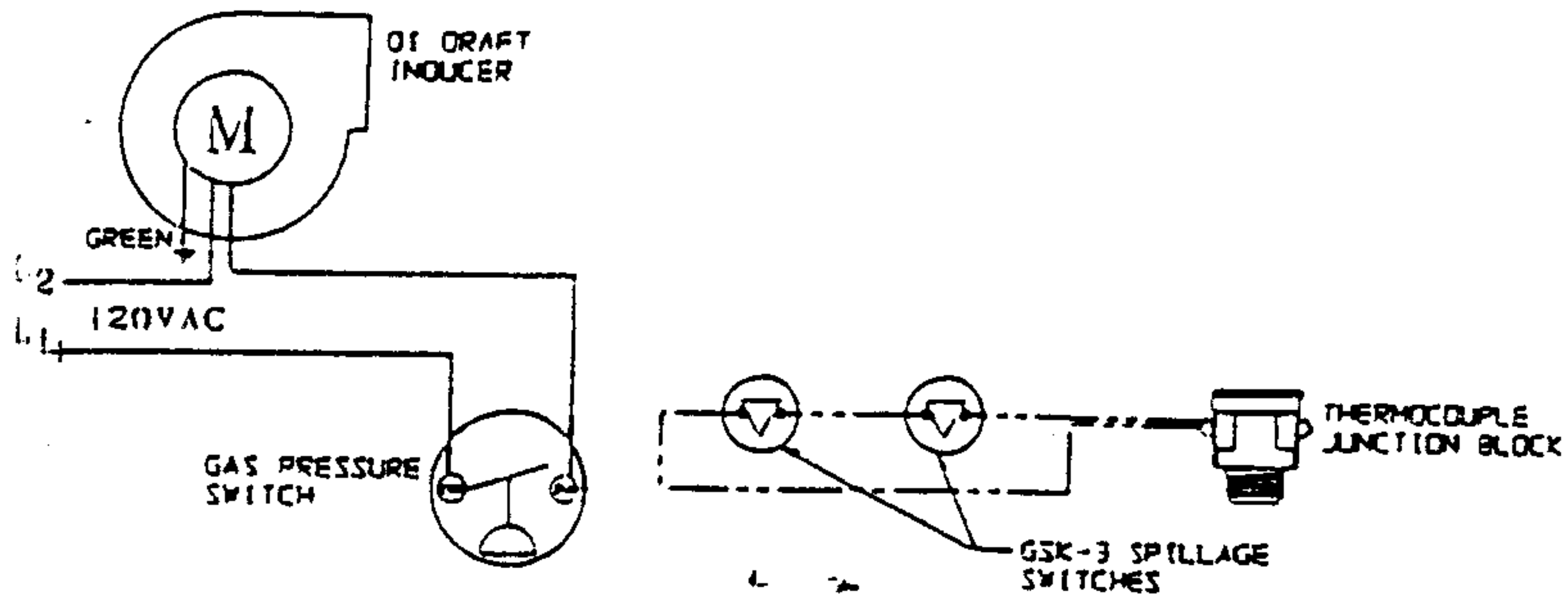


DIAGRAM 2

GAS FIRED WARM AIR FURNACE

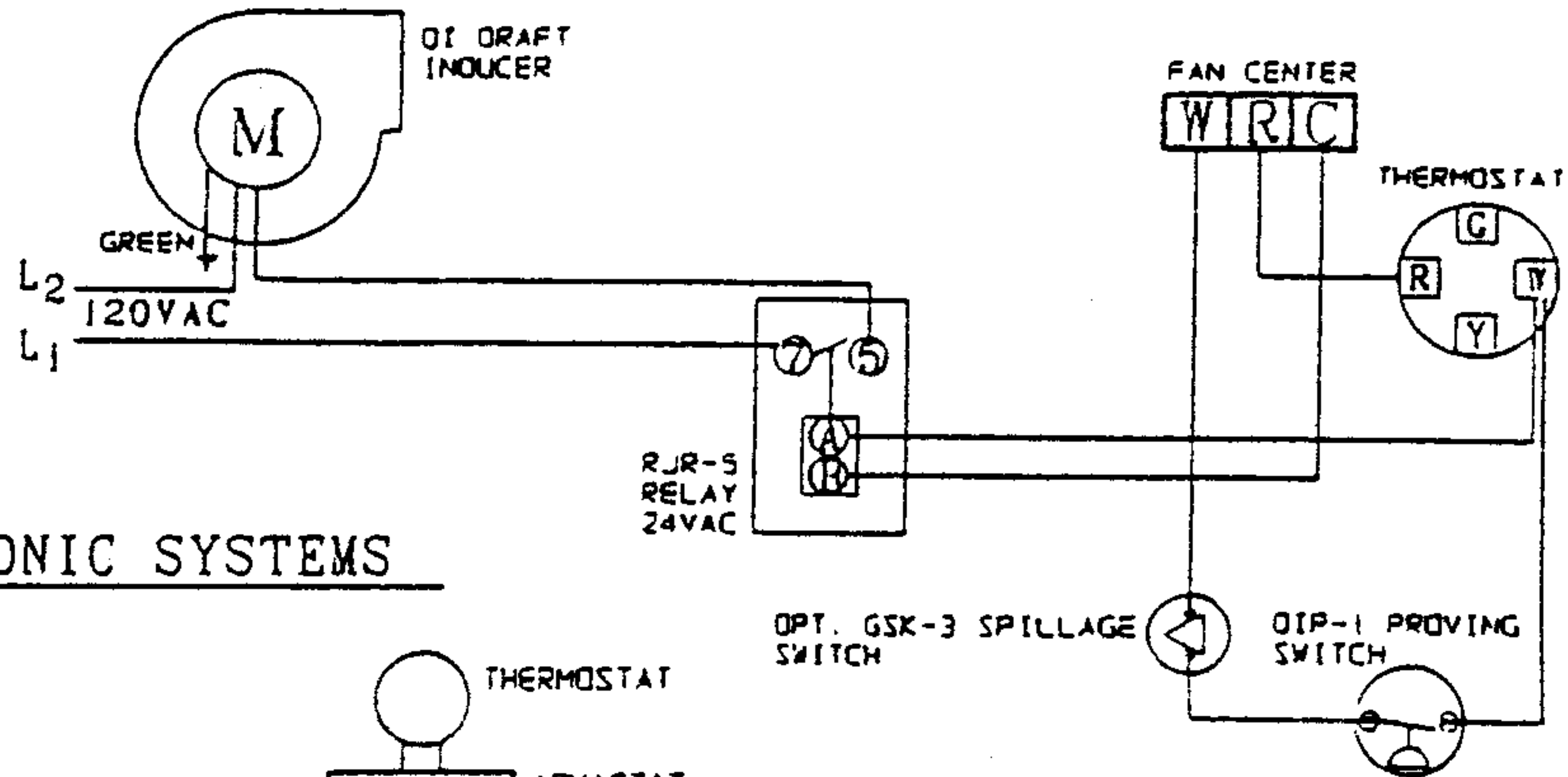


DIAGRAM 3

GAS FIRED HYDRONIC SYSTEMS

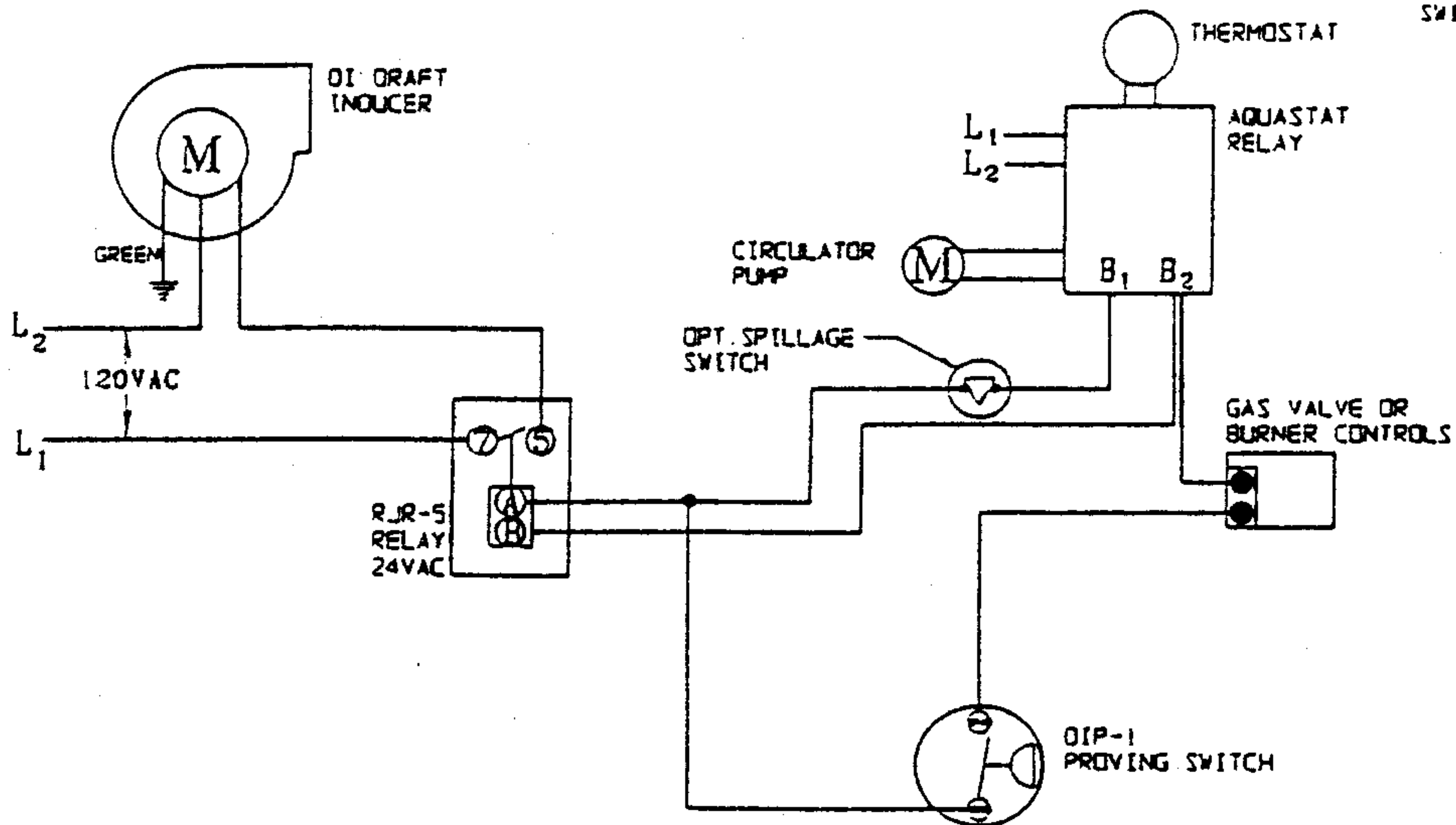
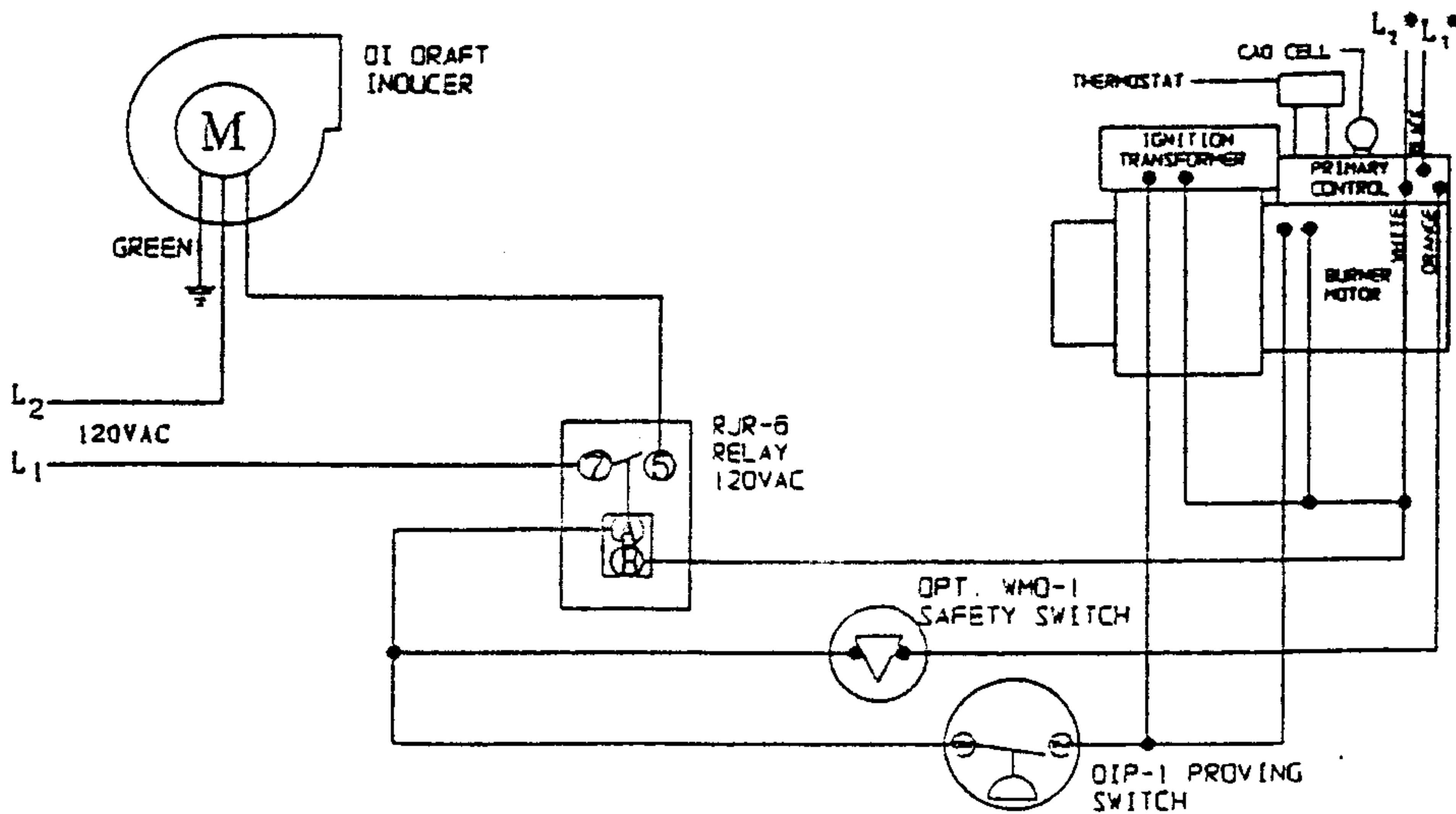


DIAGRAM 4

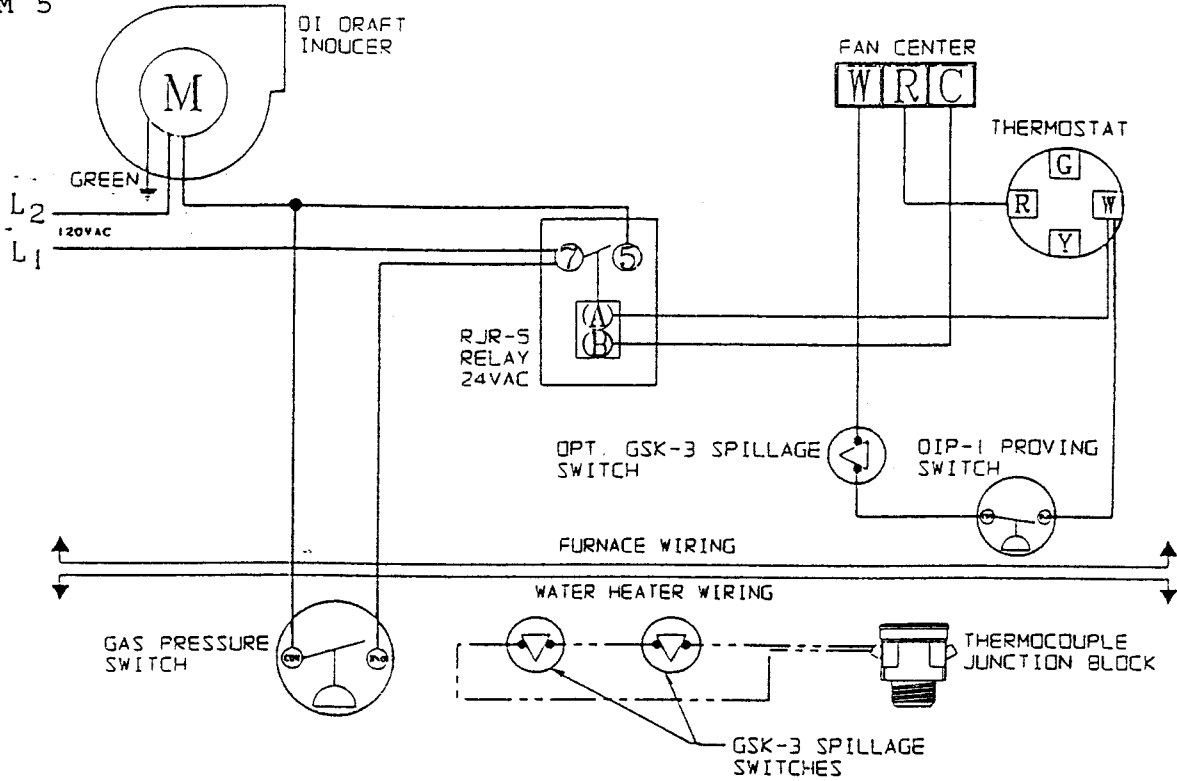
OIL FIRED SYSTEMS



* POWER FROM FAN LIMIT CONTROL ON FURNACES OR B1 AND B2 FROM AQUASTAT ON BOILERS

MULTIPLE GAS FIRED SYSTEM
(FURNACE & WATER HEATER)

DIAGRAM 5



INITIAL BURNER AND VENTING SYSTEM OPERATION INFORMATION

List operation information for for each heating appliance on the draft induced venting system as a guide for future tune up and service.

GAS FIRED APPLIANCES:

- GROSS BTU/HOUR INPUT _____
- GAS SUPPLY PRESSURE _____
- GAS MANIFOLD PRESSURE _____
- CO2 MEASUREMENT _____
- CO MEASUREMENT _____
- APPLIANCE OUTLET FLUE _____
- GAS TEMPERATURE _____

OIL FIRED APPLIANCES:

- NOZZLE SIZE _____
- BURNER PUMP PRESSURE _____
- BURNER PUMP VACUUM _____
- OVER-FIRE DRAFT _____
- CO2 MEASUREMENT _____
- SMOKE NUMBER _____
- APPLIANCE OUTLET FLUE _____
- GAS TEMPERATURE _____