INSTA-FLAME

INSTALLATION AND OPERATING INSTRUCTIONS

POWER VENTING SYSTEM
MODEL PVS-1

APPROVED FOR THE FOLLOWING INSTA-FLAME PRODUCT MODELS:

* HE20VN	Vented Fireplace Insert	Natural Gas
* HE20VP	Vented Fireplace Insert	Propane Gas
ZC36VN	Zero Clearance Fireplace	Natural Gas
ZC36VP	Zero Clearance Fireplace	Propane Gas
+ ZC36VNB	Zero Clearance Fireplace	Natural Gas
+ ZC36VPB	Zero Clearance Fireplace	Propane Gas
ST36VN	See Through Fireplace	Natural Gas
ST36VP	See Through Fireplace	Propane Gas
+ ST36VNB	See Through Fireplace	Natural Gas
+ ST36VPB	See Through Fireplace	Propane Gas

+ – Approved for use in a bedroom or bed sitting room.
* – Models HE20VN and HE20VP may be converted into a Zero Clearance Fireplace or a Free-Standing Stove by use of optional Kits - HE20ZC (Zero Clearance) or HE20FS (Free Standing) respectively. The Power Venting System is approved for use with these Kits.

WARNING: MODEL #PVS-1 POWER VENTING SYSTEM MUST NOT BE INSTALLED WITH ANY OTHER THAN ABOVE LISTED PRODUCTS.

FOR YOUR SAFETY	***FOR YOUR SAFETY***
IF YOU SMELL GAS: 1. Open Windows. 2. Don't touch electrical switches. 3. Extinguish any open flame. 4. Immediately call your gas supplier.	DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPOURS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

CFM INC.

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PVS-1 1091

PLEASE KEEP THIS MANUAL FOR FUTURE REFERENCES

GENERAL INFORMATION AND INSTRUCTIONS FOR THE INSTA-FLAME POWER VENT SYSTEM MODEL #PVS-1

1. This Power Vent System must be installed by a qualified installer in accordance with all applicable local codes and with the current CAN/CGA B149-1-M86 installation code for gas burning appliances.

2. This device must be installed by a qualified professional installer in accordance with these instructions. If improperly installed a hazardous condition such as an explosion or carbon monoxide poison could result.

3. The Power Vent System #PVS-1 has been certified by C.G.A. to be installed as a component part and is for use only with fireplace models listed on the front page of this manual. C.G.A. certification is cancelled if used with other than listed products.

4. Plan the vent system so that Code required distances are maintained from plumbing and wiring.

5. The Power Venter motor shaft must be mounted horizontally to ensure proper operation of the fan pressure proving switch and to prevent motor bearing wear.

6. Flue gas temperatures must not exceed 470°F at Power Venter inlet. Ambient temperature must not exceed 104°F.

7. **Disconnect power supply when making wiring connections or when working around the fan blade and motor. Failure to do so may result in severe personal injury and equipment damage. Ensure connections to valve and wall switch (or thermostat) are complete before connecting the power supply.**

8. Make certain the power source is adequate for the fan motor requirements. Do not add the Power Venter to a circuit where the total load is unknown.

9. It is highly recommended that a sound reducer (SR-4 or SR-5) be used with every power vented fireplace.

10. For tightly sealed homes, we recommend the use of an outside air kit to bring in air for combustion.

POWER VENT SYSTEM PARTS AND DESCRIPTION

1. Fan Assembly - comes complete with 6 ft. power co for plugging into a standard house receptacle. The system is completely pre-wired and includes the pressure switch and 24 Volt transformer.

2. 24 Volt Wiring Harness - a 40 ft. wiring harness with plug-in connectors. Eliminates costly and time consuming electrical installations.

3. Vent Terminal - the device which exhausts flue gases into the atmosphere.

4. Fan Mounting Bracket - to secure the fan in a vibration-free mode so as to reduce vibration through the pipes.

5. Anti-Vibration Sleeve - an additional device to reduce vibration and noise through the pipes. It is mounted to the negative inlet side of the fan.

6. Approved 4" diameter insulated aluminum flex liner, 4" diameter B-Vent* or 4" diameter single wall vent connector.

7. Assorted clamps, connectors and wall mounting brackets.

GENERAL CODE REQUIREMENTS

Always consult your local codes and authorities. In the absence of such codes, follow the current CAN/CGA B149-1 or 2 Installation Code.

The exit terminal shall be so arranged that flue gases are not directed so as to jeopardize people, overheat combustible structures or enter buildings, and that proper clearances are maintained.

(a) less than 7 feet (213 cm) above a paved sidewalk or a paved driveway located on public property;
(b) within 6 feet (180 cm) of a mechanical *air supply* inlet to any building;
(c) above a meter/regulator assembly within 3 feet (91 cm) horizontally of the vertical centre-line of the *regulator*;
(d) within 6 feet (182 cm) of any gas *service regulator* vent outlet;
(e) less than 1 foot (30 cm) above grade level;
(f) within the following distances of a window or a dc

which can be opened, any non-mechanical *air supply* inlet or the *combustion air* inlet of another *appliance*,

(i) 12 inches (30 cm) for inputs up to 100,000 Btuh (30 kW); and
(ii) 3 feet (91 cm) for inputs exceeding 100,000 Btuh (30 kW)

(g) underneath a veranda, porch or deck where,

(i) the veranda, porch or deck is not fully open on a minimum of two sides beneath the floor; and
(ii) the distance between the top of the vent termination and the underside of the veranda, porch or deck is less than 4 feet (122 cm).

GENERAL VENTING INFORMATION

Always consult your local codes and authorities. In the absence of such codes, follow the current CAN/CGA B149-1-M86 Installation Code.

1. Clearance to Combustible Materials:
   - 1" (25 mm) for approved #PVS-1 insulated flex liner system (kit #FVK).
   - 6" (152 mm) for single wall fan housing, (1" (25 mm) when insulated using insulation provided in # FVK vent kit)
   - 1" (25 mm) for fan motor.
   - 1" (25 mm) for B-Vent*.
   - 6" (152 mm) for single wall vent connector.

   NOTE: When B-Vent is being used, it must not be installed on the negative side of the fan, i.e., between the appliance and the fan. - Approved #PVS-1 insulated flex liner system (Kit #FVK) can be used on the inlet or the outlet side of the power venter. To reduce the fan noise and condensation, we recommend that all venting pipes be insulated with a minimum of 1" fiberglass insulation.

   When installing Model HE20FS Fireplace, B-Vent or single wall vent should be used from the unit to the ceiling or wall depending upon the installation, and insulated flexible liner should be used from this point to its termination. For Vent pipe transitions, where necessary an approved tapered connector should be used.

2. Total allowable system length is 100 equivalent feet of straight vent pipe. Minimum allowable vent length is 5 feet.

   NOTE: Deduct 10 feet for each 90° elbow and 5 feet for each 45° elbow.

   EXAMPLE: An installation requires 30 feet of straight pipe with one 45° and three 90° elbows.

Straight pipe	30 feet
45° Elbow (1)	5 feet
90° Elbow (3)	30 feet
TOTAL	65 feet

   Total equivalent pipe length = 65 feet.

3. Vent System Termination Before installing Power Venter, determine location of vent system termination.

4. Location of the Fan: To keep the noise level to a minimum, the fan should be located as far from the appliance as possible. A storage cupboard, or laundry area are preferred locations.
   Permanent access for inspection and servicing must be provided.

5. All portions of the vent system under positive pressure during operation (on the outlet side of the Power Venter) shall be designed and installed so as to prevent leakage of flue or vent gases into a building.

6. When passing through a combustible wall or partition, the following clearances and installation procedures must be observed:

   a) Approved insulated flex liner kit #FVK-1" (25 mm) clearance to combustibles.
   b) B-Vent - 1" (25 mm) to combustibles.
   c) Single Wall Vent Connector - 6" (152 mm) to combustibles. A wall thimble must be installed in this case.

LOCATION OF VENT TERMINATION

It is imperative that the vent termination be located observing the minimum clearances as shown on this page. There must not be *any* obstruction such as bushes, garden sheds, fences, decks or utility buildings within 24" from the front of the terminatio

Do not locate termination where excessive snow or ice build up may occur. Be sure to check vent termination area after snow falls and clear to prevent accidental blockage of venting system. When using snow blowers make sure snow is not directed towards vent termination area.

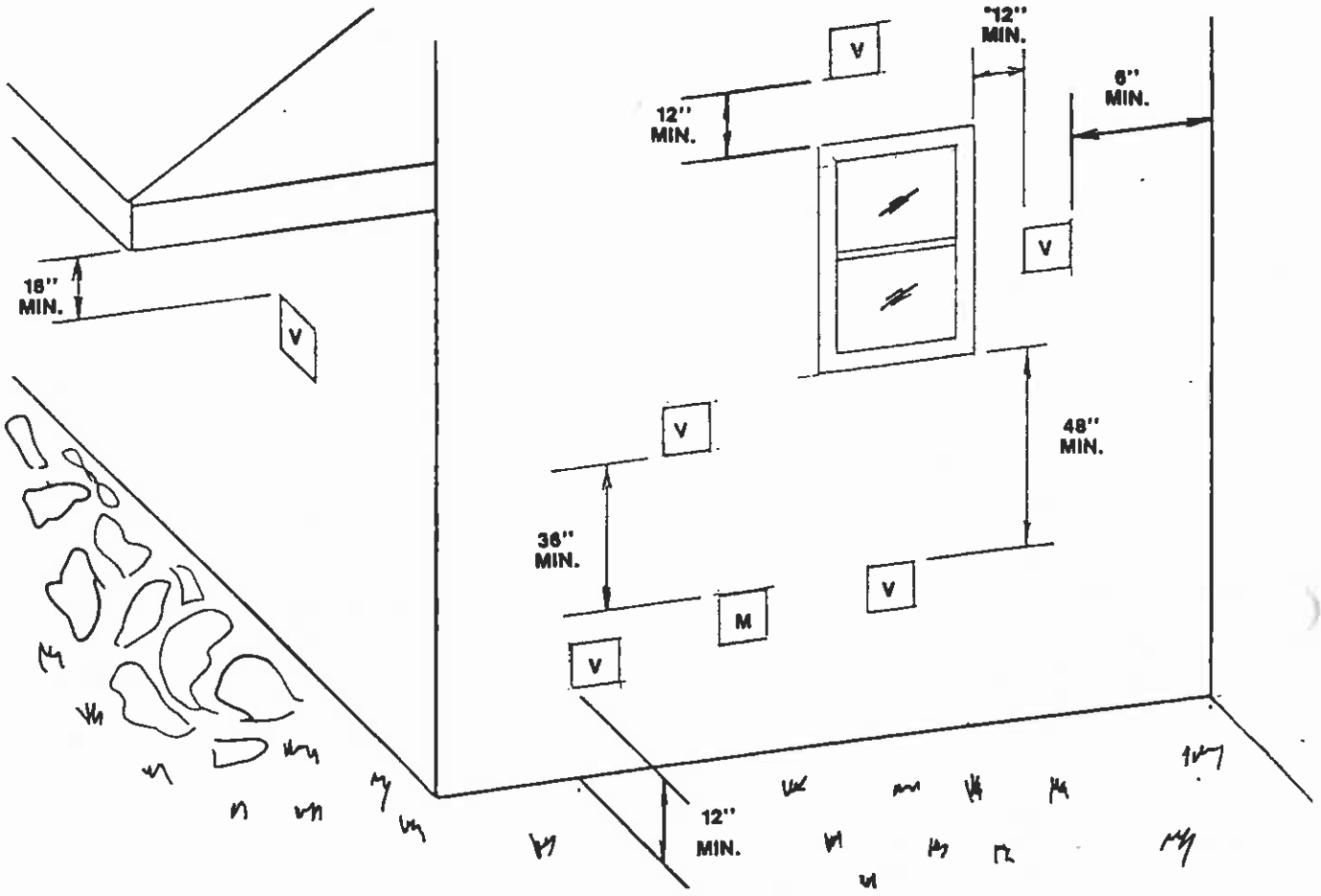


DIAGRAM A

* Check with local codes or in the absence of same with Can 1-B149.1 installation code regarding special vent termination clearances.

MINIMUM VENT TERMINATION CLEARANCES

From combustible exterior surfaces

V - Vent Termination
M - Mechanical Air Intake

INSTALLATION RESTRICTIONS

Although the Power Venter can be installed anywhere in the exhaust system, it is best if it is installed as close to the termination of the vent system as possible to obtain optimal appliance efficiency and to prevent flue gas leakage. (Diagram B).

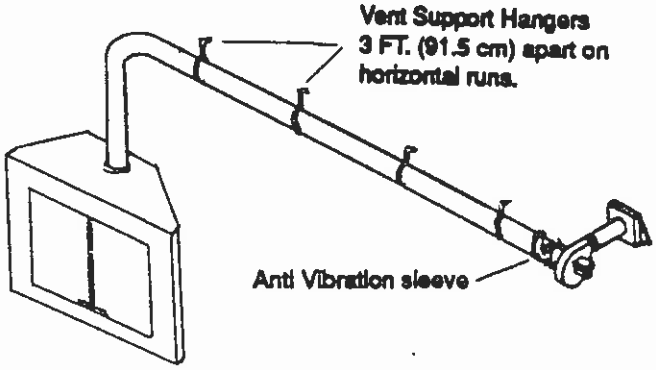
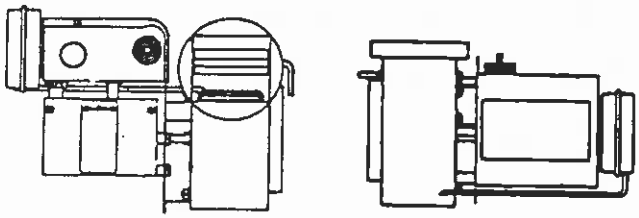


DIAGRAM B

2. Power Venter must be mounted with motor shaft horizontal to ensure proper operation of the fan proving switch and to prevent motor bearing wear. (Diagram C).



Horizontal Discharge Vertical Discharge

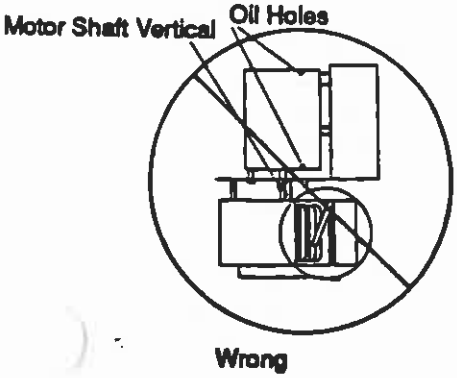


DIAGRAM C

3. Power Venter housing in single wall. Six-inch clearance must be maintained. (Diagram D). However, if fan housing is insulated with mylar insulation, clearance can be reduced to 1".

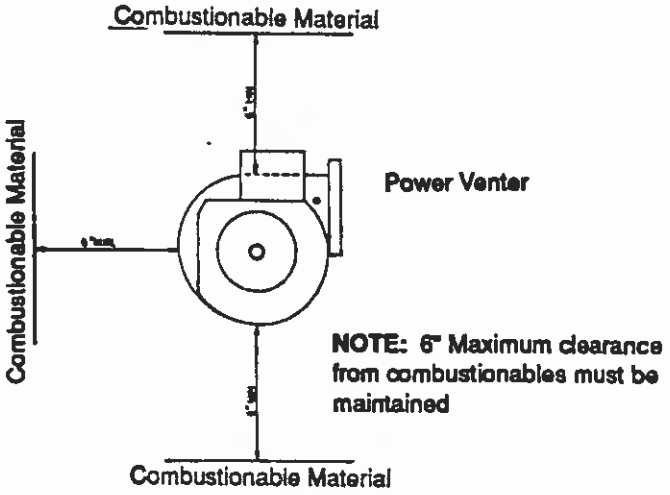


DIAGRAM D

5. For Vent pipe transitions, where necessary, an approved tapered connector should be used. (Diagram G).

6. Power Venter to vent pipe connections and all joints on the outlet side of the Power Venter must be sealed with high-temperature silicone sealant or aluminum vent pipe tape to prevent flue gas leakage. (Diagram F).

7. The vent terminal must not be more than 20 feet below the appliance's flue outlet.

8. Power ventor must not be less than 2 ft from flue collar.

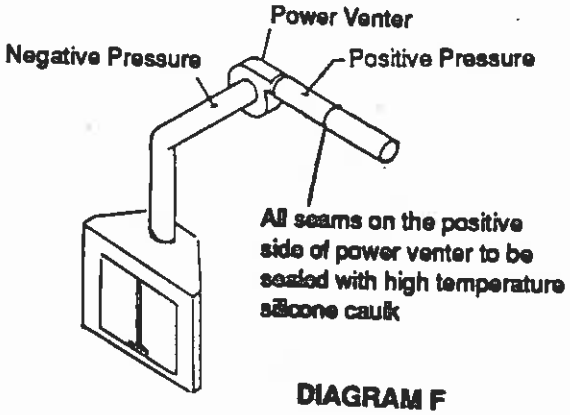


DIAGRAM F

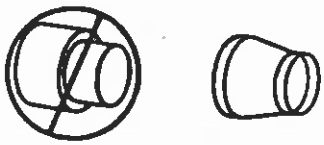


DIAGRAM G

INSTALLATION

1. Cut opening (6¼" dia. hole) through outside wall -see general code requirement for proper location.

2. Install vent terminal. Fasten from outside with 4 screws and caulk around flange edge.

3. Locate fireplace and fasten to floor as shown in fireplace manual.

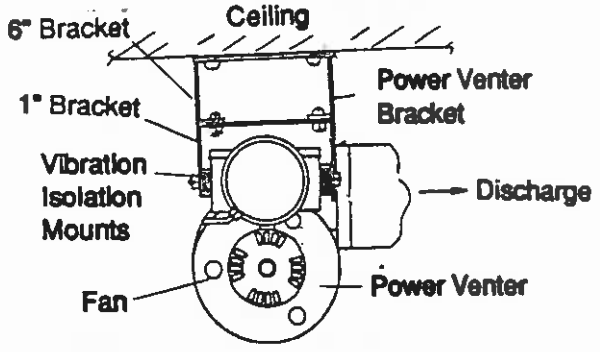
4. Install optional sound reducer (Model SR5 or SR4) onto fireplace. See Installation Instructions packaged with sound reducer. Ensure flanged joints are sealed with high temperature silicone or aluminum vent pipe tape.

5. Mount Power Venter
   NOTE: It is best to locate the fan near the Vent Terminal. However, if such a location is not suitable, the fan can be installed anywhere within the vent system.

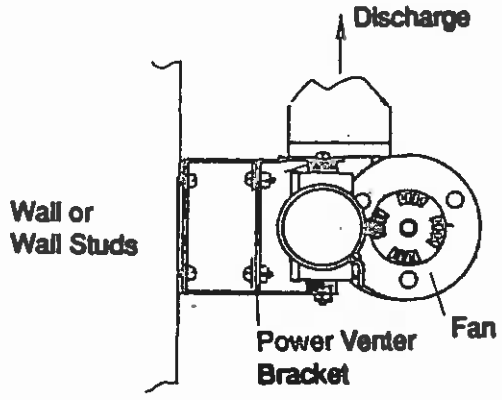
   A. Remove Vibration Isolation Mount and keps nut from parts bag and install. Install on Power Venter as shown in diagram. Next install flexible duct piece and outlet collar using four (4) screws to fasten.

   B. To prevent vibration, securely support Power Venter from ceiling or joist with Power Venter Bracket.

   C. By using 1" Bracket, clearance to Fan is maintained at 1". The addition of the 6" Bracket, maintains a 6" clearance to combustibles.



VERTICAL MOUNTING



HORIZONTAL MOUNTING

6. Measure distance between fireplace's flue outlet (top of Sound Reducer) and fan inlet. Cut flexible duct and insulate with insulation sleeve sections using nose cone for ease of mounting.
   Please note that wherever possible use continuous length pipe without joints.

7. Apply silicone at both ends, and attach flex pipe to collars. Secure with clamps (provided). For added security it is recommended that three sheet metal screws be used at each joint to prevent pipe from accidentally separating.

8. If fan is located at Vent Terminal, connect it by first sealing the joints with silicone. Again use three (3) sheet metal screws for each joint.

9. Seal all joints with aluminum vent pipe tape and cover with insulation. Joints between fan and Vent Terminal must be absolutely air and water tight to prevent flue gas or condensation leakage.

10. Support venting duct with plumber's strap (supplied by installer). On horizontal runs support vent pipe every three (3) feet to prevent it from sagging.

11. Enclose venting system, leaving at least one (1" inch clearance between the insulated flexible venting and combustible materials, and six (6") inches between the uninsulated fan housing and combustibles. See als p3. item 1.

OPERATION SEQUENCE OF 24 VAC CONTROLLED APPLIANCE

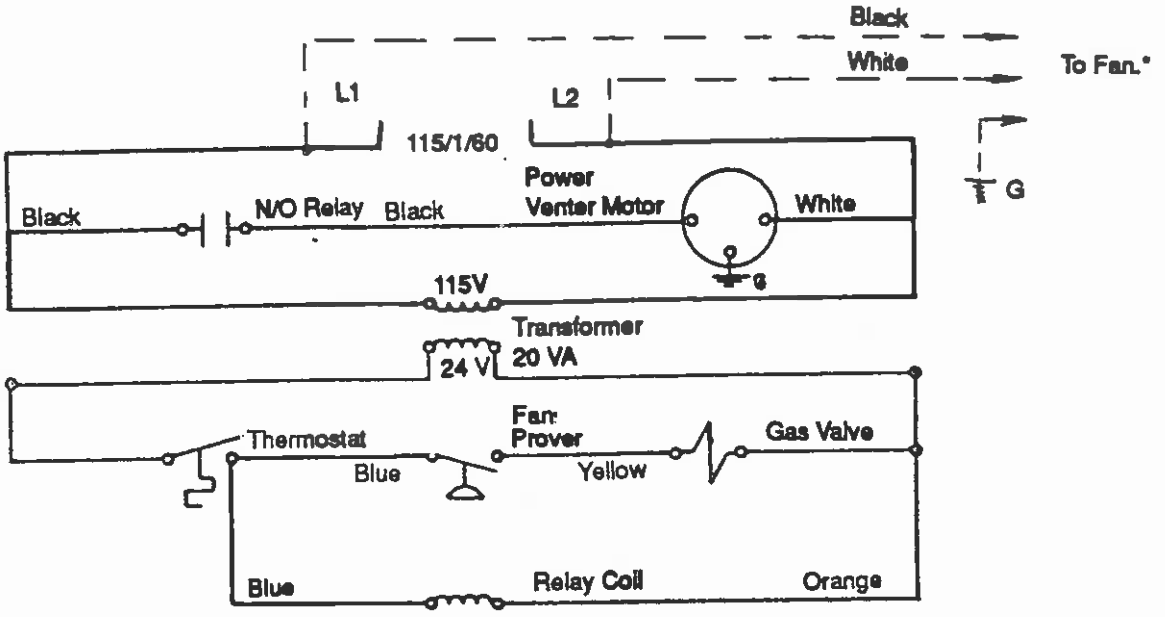
When Power Vent Switch is activated, its closure completes the 24 VAC electrical circuit from the appliance transformer through the switch to the Power Venter relay. The 24 volts applied to the relay coil bring in the 115 volt power to the motor. The air movement generated by the Power Venter closes the Fan Proving Switch contacts which allows the switch signal to reach the 24 volt burner control. The Fan Proving Switch actually becomes the burner controller and will allow the appliance to operate only when the Power Venter is operating.

WARNING: ALL 120 VOLT WIRING MUST COMPLY WITH APPLICABLE CODES AND ORDINANCES. THE POWER VENTER MODEL PVS-1 IS EQUIPPED WITH A PLUG-IN CORD AND AN ELECTRIC KNOCKOUT. WHEN UNIT IS WIRED DIRECTLY THE CORD MUST BE REMOVED.

*Any wiring passing through insert to gas valve should be well taped to prevent any possibility of shorts.

"Install 24 Volt wiring harness. Slide connectors onto the gas valve operator and connect to power switch or if applicable, to thermostat.
NOTE: Ensure these connections are made before installing wires at the electrical box, to prevent shorting out of the 24 volt wires.

Plug connectors into fan electrical box. See diagram. Be sure to keep wires away from heated areas. Within the fireplace, route the wires along the gas line and tape them to the gas line."



TYPICAL WIRING: 24 VAC CONTROL

* If optional FAN and/or Power Venter is used wire electrical system as shown in diagram. (Dotted line). Wiring connections must be made within junction box of Power Venter and/or optional Fan.

POWER VENTER - ELECTRICAL SPECIFICATIONS

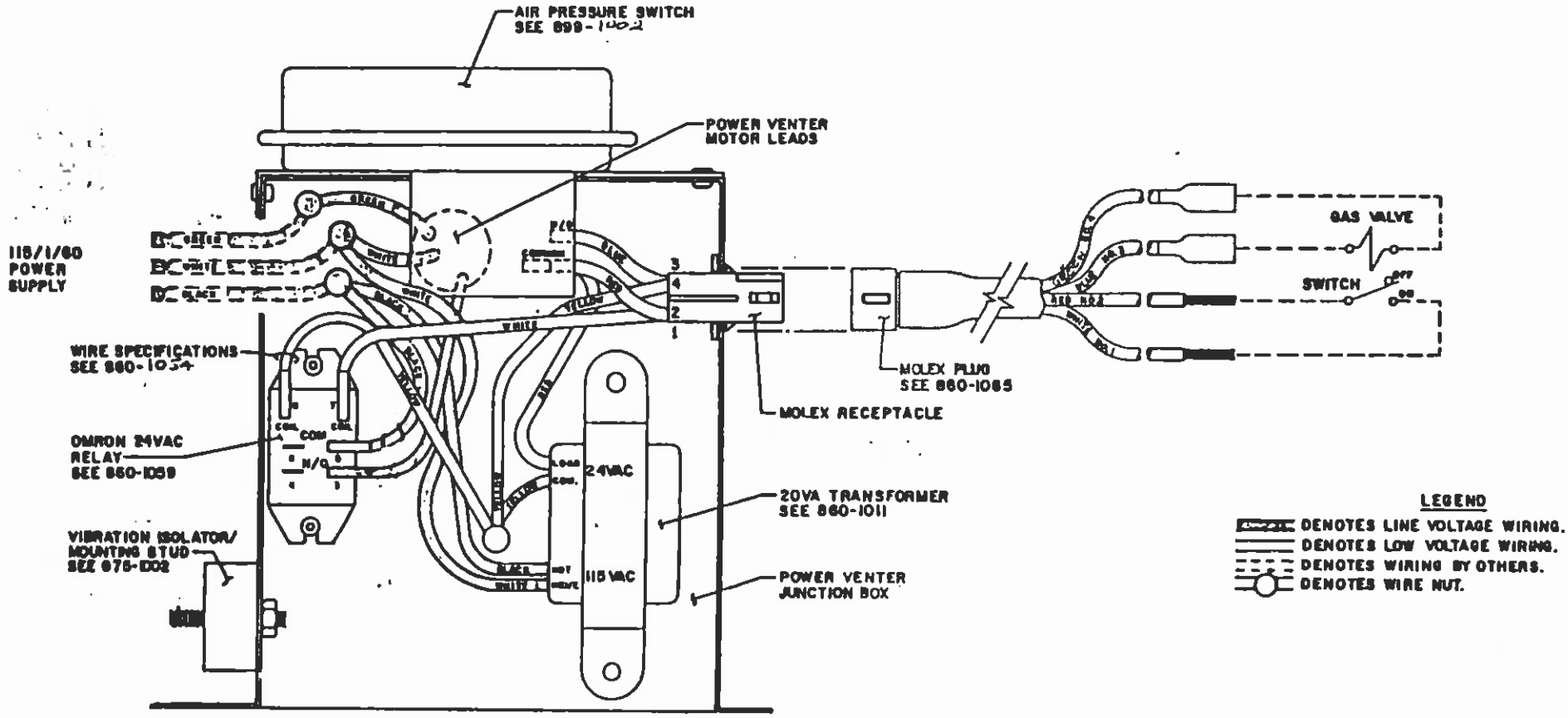
Motor Voltage	115
Control Circuit Voltage	24
HZ	60
RPM	3,000
Watts	95
Amps	1.26
Thermal Protection	Yes

POWER VENTER - MECHANICAL SPECIFICATIONS

Shaded Pole Motor	Yes
Int. Fan Cooled	Yes
Shaft Diameter (inch)	.313
Bearings	Sleeve Type

POWER VENTER - PART LIST

Motor	#S 880-0202
Wheel	#A 200-1071
Pressure Switch	#S 899-0405
Timer/Relay	#S 860-0345



POWER VENTER HOUSING

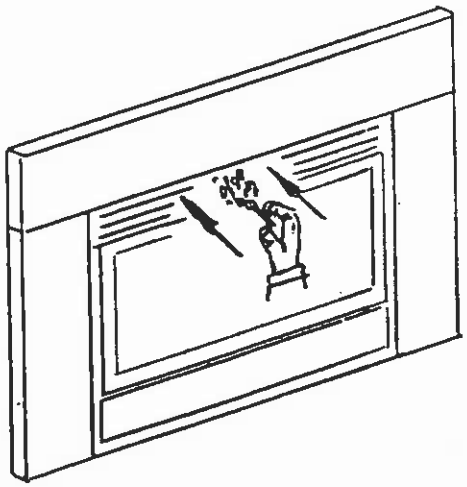
OPERATION AND CHECKING THE DRAFT

As far as is practical, close all doors, windows and air inlets to the building. Turn on all exhaust fans (range hood, bathroom exhaust, etc.) so they will operate at their maximum speed.

B. Place appliance into operation. See fireplace manual for gas start up information. Once pilot has been lit and gas valve has been set open, activate power switch, or where applicable, adjust thermostat so the appliance will operate continuously. At this point the fan will start up and once air flow has been proven, the main burner will start.

C. After allowing appliance to operate for five minutes, test for spillage at the draft hood relief opening or at fireplace front opening.

CHECKING THE DRAFT. Vent connected gas utilization equipment shall be operated for several minutes and checked to see that the combustion products are going up the chimney or gas vent properly, by passing a lighted match or taper around the edge of the relief opening of the draft hood. If the chimney or gas vent is drawing properly, the smoke from the match flame will be drawn into the draft hood or opening. If smoke is not drawn in, then the combustion products are escaping from the relief opening into the room. Under these conditions, the equipment shall not be operated until proper adjustments or repairs are made to provide adequate draft through the chimney or gas vent.



D. Next, turn on all other fuel-burning appliances within the same room so they will operate at their full input. Repeat step C above, checking the draft on each appliance.

E. The Air-Flow Adjustment on the Power Venter is factory set for maximum air flow. Operating a properly sized Power Venter at its maximum setting will assure that combustion gases are safely removed to the outside. If the Power Venter has excess venting capacity than what is required for this application, operating the Power Venter with the Air-Flow Adjustment at the maximum setting may draw more dilution air than necessary.

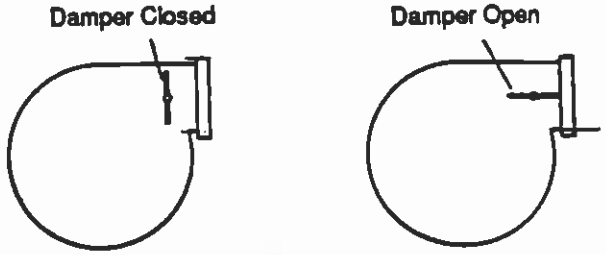
The Air-Flow Adjustment may be set by use of a combustion analyzer, inclined manometer or draft gauge. Alternatively, the Air-Flow Adjustment can be set using a smoke candle or taper, as follows.

1. With exhaust fans operating, air inlets closed and all appliances firing (as instructed above), hold lighted match or taper around the edge of the relief opening of the draft hood or fireplace opening.

2. Set Air-Flow Adjustment by loosening locknut and turning rod handle. CAUTION: HANDLE MAY BE HOT, use pliers to move handle. Position of rod handle on outside of Power Venter housing indicates position of Air-Flow Adjustment inside housing.

3. Using pliers, move handle towards minimum draft setting until spillage is detected at relief opening, then re-open Adjustment just enough to eliminate spillage.

4. Lock Adjustment at desired setting by tightening locknut.



Adjustable Damper Control

5. Return doors, windows, exhaust fans and fireplace dampers to their previous condition of use.

6. Turn off appliances started in step D above.

MAINTENANCE

The Power Venters must be inspected semi-annually.

Points of inspection are:

1. Motor - Motor must rotate freely. Oil every six months of operation with 4 drops of SAE 20 oil.

2. Wheel - Wheel must be clean of soot, ash or any other coating which inhibits rotation or air flow. Remove all foreign material from vent system before operation.

3. Pressure Switch - Pressure Switch must operate freely. Verify proper operation by observing Operation Sequence at least every six months.

4. Check that the inducer is drawing flue products from the fireplace by checking the draw at the draft hood with a match. (see page 9).