EMPIRE®
Comfort Systems

INSTALLATION AND OWNER'S GUIDE

(R-534)

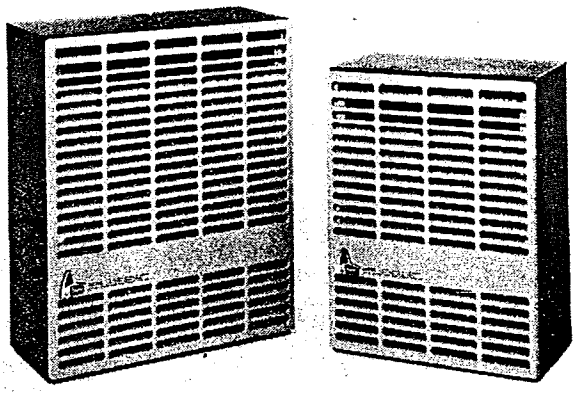
(REVISED AUGUST, 1985)

'Mini-Line' Wall Furnace

Models	Optional Blower
DV-210-6-SG	DVB-1
DV-215-6-SG	DVB-1

INSTALLER MUST LEAVE INSTRUCTIONS WITH THE OWNER AFTER INSTALLATION.

IMPORTANT: Installer must have owner fill out and mail warranty card attached to furnace.



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.**

THIS IS A HEATING APPLIANCE

DO NOT OPERATE THIS APPLIANCE WITHOUT FRONT PANEL INSTALLED.

Due to high temperatures, the appliance should be located out of traffic and away from furniture and draperies.

Children and adults should be alerted to the hazard of high surface temperature and should be kept away to avoid burns or clothing ignition.

Young children should be carefully supervised when they are in the same room with the appliance.

Do not place clothing or other flammable material on or near appliance.

INSTALLATION AND REPAIR SHOULD BE DONE BY A QUALIFIED SERVICE PERSON. The appliance should be inspected before use and at least annually by a professional service person. More frequent cleaning may be required due to excessive lint from carpeting, bedding material, etc. It is imperative that control compartments, burners, and circulating air passageways of the appliance be kept clean.

DON'T put anything around the furance that will obstruct the flow of combustion and ventilation air.

DO keep the appliance area clear and free from combustible material, gasoline and other flammable vapors and liquids.

DO examine venting system periodically and replace damaged parts.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

This series is design certified by the American Gas Association Laboratories as a Gravity Direct Vent Wall Furnace to be installed on an outside wall according to these instructions.

The installation must conform to local codes. In the absence of local codes, the installation must conform with American National Standard (National Fuel Gas Code) known as NFPA 54 and ANSI Z223.1, 1984.

*Available from the American National Standards Institute, Inc., 1430 Broadway, New York, N.Y. 10018, or from the National Fire Protection Association, 470 Atlantic Avenue, Boston, Mass. 02210.

IMPORTANT

All correspondence should refer to complete Model No., Serial No., and type of gas.

ANY ALTERATION OF THE ORIGINAL DESIGN, INSTALLED OTHER THAN AS SHOWN IN THESE INSTRUCTIONS OR USE WITH A TYPE OF GAS NOT SHOWN ON THE RATING PLATE IS THE RESPONSIBILITY OF THE PERSON AND COMPANY MAKING THE CHANGE.

CLEARANCES (Locating the Unit)

Although certified for 0 clearance to the floor, the unit is held in place by a wall bracket. Enough clearance (2" suggested) to allow changing or adding floor covering is recommended. Other clearances to combustible constructions: Sides one inch and 12" from the top.

Note the position of the vent relative to the center of the unit. The DV-210 has the vent in the center while the DV-215 vent is 4" off center to the right.

Minimum distance from the center of the outside vent to the nearest outside corner is 16 inches.

The minimum wall depth is 4½" and the maximum is 13". The use of tubes not supplied by the manufacturer results in unsatisfactory performance during wind conditions.

WALL OPENINGS

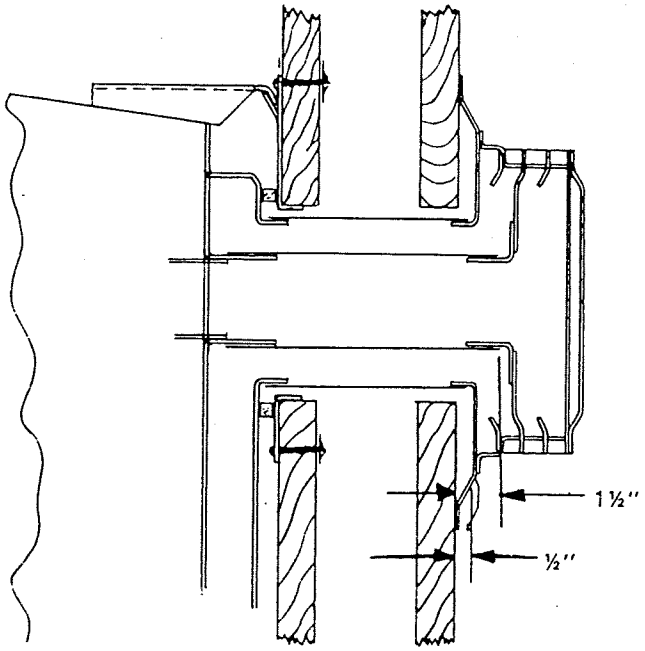
The wall opening required as shown in Fig. 1 is a minimum of 6¼" dia. The inside wall bracket and the outside wall plate are large enough to permit a larger opening if desired.

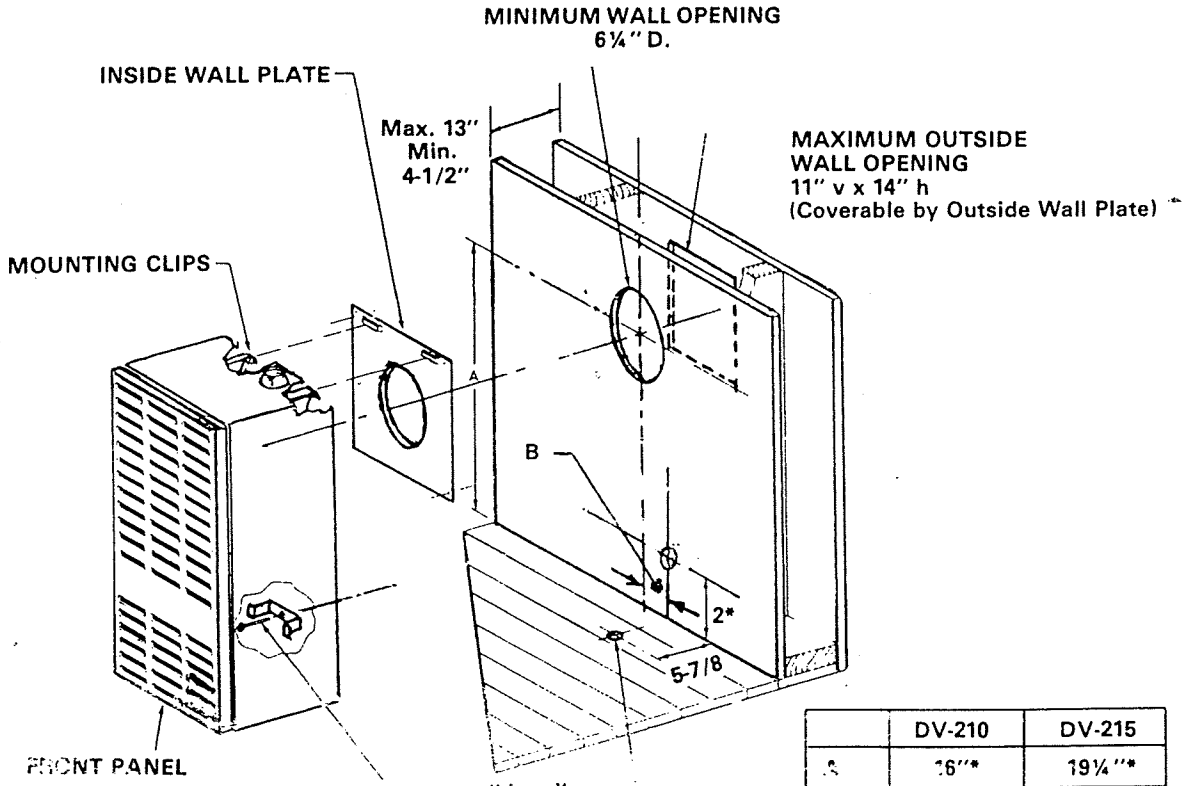
CUTTING THE VENT TUBES

This is a most important part of the installation. With the unit installed, place the full length tubes on the unit tightly. Refer to Fig. 2 for the length each tube should extend past the outside wall plane (this method allows for the amount of telescoping the tubes do onto the units collars). Mark the 5" dia. tube ½" past the wall, remove and then mark the 3" dia. tube 1½" from the outside wall. Mark or wrap tape completely around the tube at the marked points to help in making a true cut. Do not crimp or enlarge the tubes. When cut to the proper length, no sealing material or tape is required.

INSTALLING THE VENT ASSEMBLY

With air and flue tubes cut and in place on the collars, at the back of the unit, place caulking beneath the edges of the wall plate, heavy enough to correct uneven wall surfaces. Place the wall plate into the 5" tube and position on the wall to obtain a slight downward slope to the outside. The slope is necessary to prevent the entry of water. Install vent cap with the 3" tube and secure.





To remove — pull out at the bottom and lift up. Catch at the bottom of inner-casing can be adjusted for proper fit.

For non-solid walls use toggle bolt. Predrill 5/8" dia.

	DV-210	DV-215
A	16"*	19¼"*
B	2"	2"

*Add distance above the floor.

FIGURE 1

GAS SUPPLY

Compounds used on threaded joints of gas piping shall be resistant to the action of liquefied petroleum gases. The gas lines must be checked for leaks by the installer. This should be done with a soap solution watching for bubbles on all exposed connections and, if unexposed, a pressure test should be made. NEVER USE AN EXPOSED FLAME TO CHECK FOR LEAKS.

A gas valve and ground joint union or equal should be installed in the gas line upstream of the gas control to aid in servicing. It is required by the National Fuel Gas Code that a drip line be installed near the gas inlet. This should consist of a vertical length of pipe tee-connected into the gas line that is capped on the bottom in which condensate and foreign particles may collect.

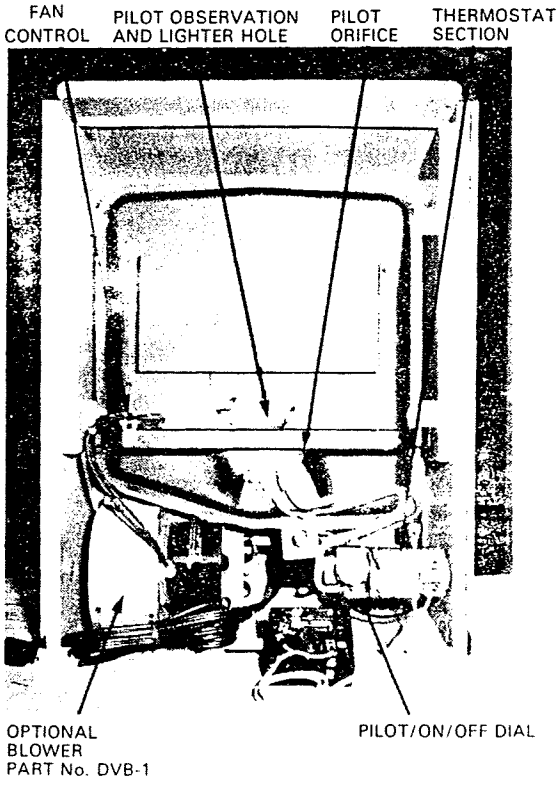
To check the inlet pressure to the gas valve, a 1/8" N.P.T. plugged tapping must be placed upstream of the gas valve.

CHECKING MANIFOLD PRESSURE (Fig. 5)

Both Propane and Natural gas valves have a built-in pressure regulator that has a sealed adjustment. Natural gas models will have a manifold pressure approximately 3.5" at the valve outlet with the inlet pressure to the valve from a minimum of 5.0" w.c. to a maximum of 7.0" w.c. Propane units will have approximately 10.0" w.c. manifold pressure and the inlet pressure to the valve should be a minimum of 11.0" w.c. to a maximum of 14.0" w.c.

PRESSURE TESTING OF THE GAS SUPPLY SYSTEM

1. If test pressure is above 1/2 PSI, the entire unit including the manual cut-off valve must be disconnected from the gas supply system.
2. If the test pressure is 1/2 PSI or less, the manual valve shut-off must be closed to isolate the appliance from the gas supply system.



THERMOSTAT INSTALLATION SG SUFFIX MODELS

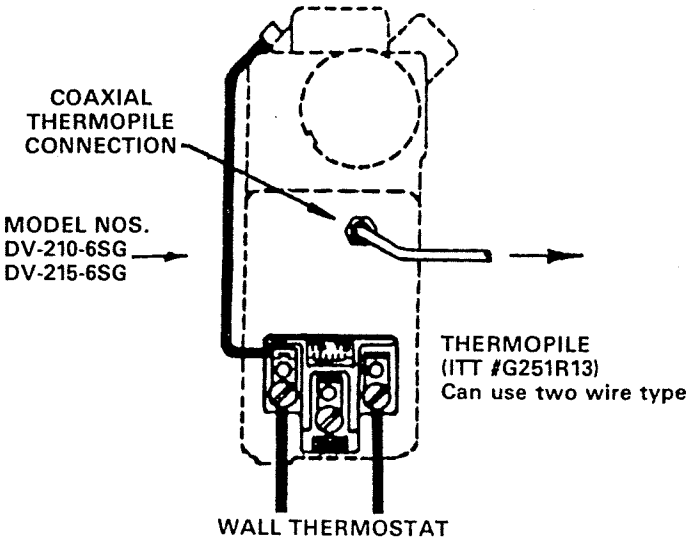
EXTERIOR WALL — The thermostat may be mounted on an exterior wall above the heater if it is located in the same stud space as the vent tubes and is a minimum of 6" above the heater.

INTERIOR WALL — The thermostat should be installed on an inside wall away from the unit but in the same room.

If over 15 feet of wire is used, it should be 16 gauge to prevent excessive loss of millivolts.

Proper operation depends on a good pilot flame. The flame must cover the top of the thermocouple. Cleaning of the pilot orifice and burner may be required due to spiders.

It is necessary to use a "millivolt meter" to check the operation. The readings should be 250 mv across the TP terminals with the thermostat off and 140 with the thermostat on. NOTE: Thermostat wires are connected to the two outside terminals.



PIEZO PILOT IGNITER INSTRUCTIONS

Depressing the Red Button completely causes a spark to occur at the pilot. This is a substitute for a match which requires opening the pilot hole cover.

To light the pilot, it is important that the electrode be 1/8" from the thermocouple. The spark must occur at the point the burner flame hits the thermocouple. The end of the electrode will be red hot with the pilot on.

On a new installation with air in the gas line, it is suggested that a match be used. The match will light the pilot faster than the piezo under this condition.

LIGHTING INSTRUCTIONS

CAUTION: Valve knob must be in "off" position 5 minutes before lighting pilot.

1. Uncover pilot hole, depress valve knob and turn to "pilot."
2. Light match then depress valve knob and insert match while head is still flaring. After pilot is burning, close pilot hole cover, while holding valve knob depressed.
3. Allow pilot to burn 30 seconds before releasing knob.
4. Turn valve knob to "on" position. Set thermostat if supplied. To turn completely off, depress valve knob and turn to "off" position.

CAUTION: Pilot hole cover must be kept tightly closed during operation.

SERVICE AND MAINTENANCE SUGGESTIONS

CALL SERVICEMAN

SYMPTOMS	POSSIBLE CAUSES AND CORRECTIONS
1. Lit match goes out as it enters lighter port.	a. Certain wind conditions will blow out match. Ignite match and as it flares, thrust match through opening. b. Open nearby door or window and relight pilot. c. Cover entire vent cap, relight pilot and then remove cover before turning main burner on.
2. Pilot flames but goes out when knob is released.	a. See Lighting Instructions. Relight pilot. b. Relight the pilot and hold knob down longer and harder. Close lighter hole cover just after igniting. Check for a good pilot flame. c. Defective thermocouple or defective magnet in safety section of valve. Replace.
3. Yellow pilot flame	a. Obstruction at pilot orifice. b. Clean and properly size orifice.
4. Pilot and main burner go out during normal operation.	a. Proper size of pilot flame. b. Defective or weak thermocouple. c. Cover on pilot lighter hole must be air tight. d. Check for tight fit of air and flue tubes at both ends of vent assembly. No obstruction around vent that would prevent the wind from hitting all of the vent equally.

STEPS IN REMOVING MAIN BURNER, ORIFICE AND VALVE

1. Disconnect the thermocouple and pilot supply line at the gas valve.
2. Remove the burner compartment cover. 5/16" socket suggested.
3. Remove bolt holding left side of burner and lift out.
4. Main burner orifice is now accessible. Use 1/2" box end wrench to remove and apply non-hardening pipe dope sparingly to orifice threads when replaced.
5. To remove the entire gas valve the nut holding the orifice fitting to the chamber must be removed and the gas supply to the valve disconnected. After this, the valve and orifice elbow can be removed as a unit.

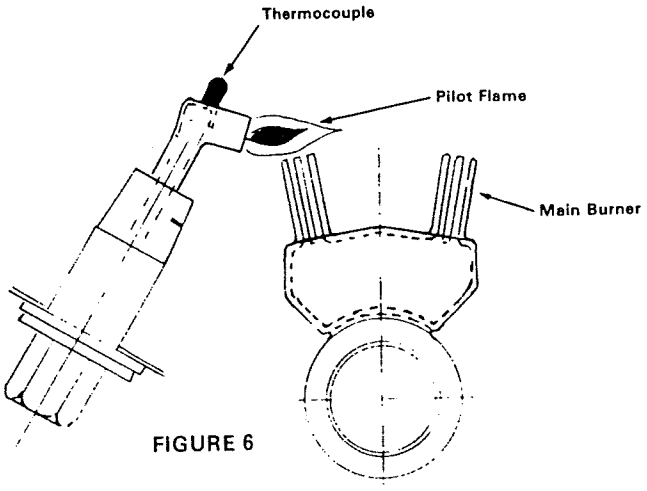


FIGURE 6

CLEANING THE PILOT BURNER

Cleaning of the pilot may be an annual necessity due to spiders. After removing the supply tubing and orifice, use a pipe cleaner or wire to clean the entire internal part of the pilot.

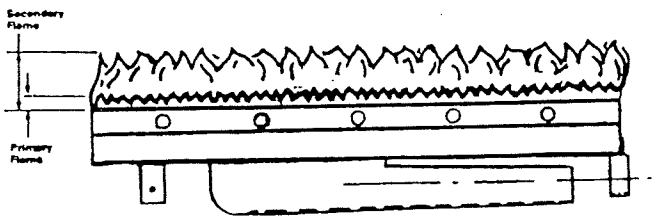
CLEANING THE COMBUSTION CHAMBER AND MAIN BURNER

When the main burner and vent cap are removed, all internal areas of the combustion chamber are accessible for cleaning with a vacuum hose. The main burner may be cleaned by forcing water into the ports and the throat of the burner. The burner should be blown dry or heated to dry all water out before reinstalling.

PROPER GAS FLAMES

(Check at least once before heating season)
The pilot flame is blue and goes toward the main burner and thermocouple horizontally. A slight yellow tip on the flame is normal. See Fig. 6. The pilot flame must surround and extend approximately ¼" beyond the thermocouple, and must extend beyond the first row toward the second row of main burner ports.

On the main burner (Fig. 7), the burning gas forms a primary flame and a secondary flame. The primary flame is blue and about 3/16 inch high. The secondary flame is very pale blue, 3 inches to 5 inches high. Dust in the combustion air will produce an orange flame. Do not mistake it for an improper yellow flame.



Main Burner Flame

FIGURE 7

IMPORTANT
All correspondence should refer to complete Model No., Serial No., and type of gas.

HOW TO ORDER REPAIR PARTS . . .

All parts listed in the Parts List have a part No. When ordering parts, first obtain the Model No. from the name plate on your equipment. Then determine the Part No. (not the Index No.) and the Description of each part from the following appropriate illustration and list. Be sure to give all this information . . .

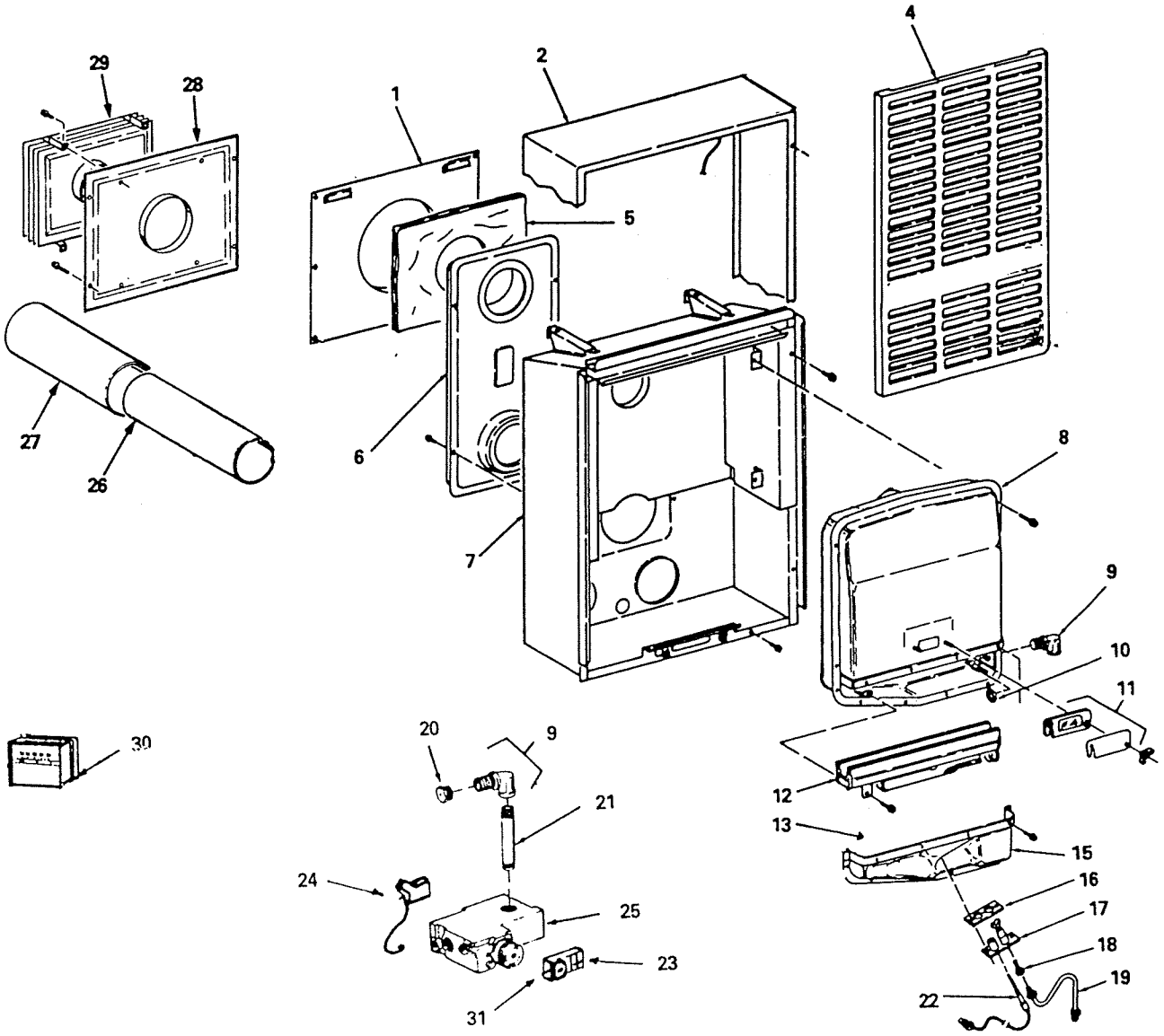
Furnace Model Number _____ Part Description _____

Furnace Serial Number _____ Kind of Gas (Propane or Natural) _____

Part Number _____

Do not order bolts, screws, washers, or nuts. They are standard hardware items and can be purchased at any local hardware store. Order parts from Empire Comfort Systems through your local dealer.

Shipments contingent upon strikes, fires, and all causes beyond our control.



PLEASE NOTE: When ordering parts, it is very important that part number and description of part coincide.

Model Nos. DV-210-6-SG and DV-215-6-SG

INDEX NO.	PART NUMBER	NAME OF DESCRIPTION
1	TH-100	Inside wall plate
2	TH-102-R	Outer casing DV-210-6
	TH-103-R	Outer casing DV-215-6
4	TH-008	Front panel for DV-210-6
	TH-009	Front panel for DV-215-6
5	TH-104	Gasket, Inside wall plate
6	TH-015	Air drop assembly DV-210
	TH-018	Air drop assembly DV-215
7	TH-142-10	Inner casing assembly for DV-210-6
	TH-143-15	Inner casing assembly for DV-215-6
8	TH-130-10	Combustion chamber complete for DV-210-6
	TH-131-15	Combustion chamber complete for DV-215-6
9	P-104	Orifice fitting
10	R-206	Nut for orifice fitting
11	DV-722	Pilot observation hole cover assembly
12	TH-275	Burner for DV-210-6
	TH-267	Burner for DV-215-6
13	TH-281	Gasket material for burner door (DV-215-6)
	TH-300	Gasket material for burner door (DV-210-6)
15	TH-133-10	Burner door for DV-210-6
	TH-134-15	Burner door for DV-215-6
16	M-151	Pilot burner gasket
17	R-774 N	Pilot burner 26C Natural Gas
	R-774 L	Pilot burner 26C LP gas
18	R-831	Orifice for 26C pilot, Natural gas
	R-830	Orifice for 26C pilot, LP gas
19	TH-122G	Pilot supply tubing ¼" Model and Serial No. needed
20	P-86-64	Burner orifice DV-210 LP gas
	P-86-57	Burner orifice DV-215 LP gas
	P-86-53	Burner orifice DV-210 Natural gas
	P-86-49	Burner orifice DV-215 Natural gas
21	P-108	Manifold pipe 3/8" dia.
22	R-388	Thermocouple (250 mv.) G-25LP
23	R-784	Thermostat section (Operator) LP
	R-785	Thermostat section (Operator) Nat.
24	R-783	Safety magnet (millivolt)
25	R-787	Valve complete Natural gas 7000 MVRLC
	R-786	Valve complete LP gas 7000 MVRLC
26	TH-109	3" dia. flue tube
27	TH-107	5" dia. air tube
28	TH-276	Outside wall plate
29	TH-282	Vent cap
30	R-479	Thermostat (millivolt)
31	R-609	Regulator section natural 3.5" w.c.
	R-615	Regulator section LP 10.0" W.C.
not shown	R-854	Piezo Sparker
not shown	R-851	Electrode and wire

IMPORTANT

All correspondence should refer to complete Model No., Serial No., and type of gas.

OPTIONAL BLOWER PART NO. DVB-1
INSTALLATION INSTRUCTIONS

FOR 'MINI-LINE' WALL FURNACE DV-210 and DV-215
(R-547)
EFFECTIVE DATE AUGUST 1, 1976
(REVISED AUGUST. 1985)

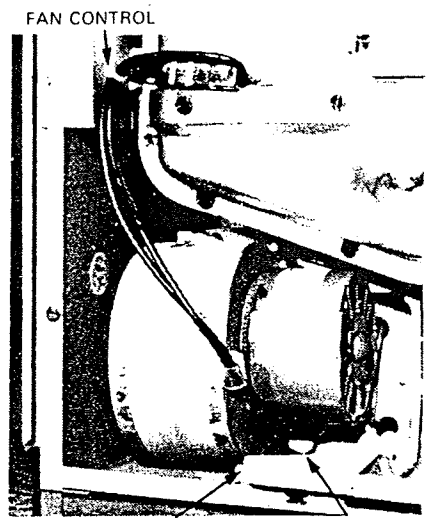


FIGURE 1

INSTALLING OPTIONAL BLOWER

The blower must be positioned as shown in Fig. 1. Relocate gas line, if necessary, using elbow fitting at the gas valve. A slot on the bottom of the blower package engages a tab on the bottom of the inner casing and is secured by one screw in front.

ATTACHING THE FAN CONTROL

The automatic fan control (57T) has a one bolt bracket to be mounted to the unit using the left bolt of the top row on the burner compartment See Fig. 1. The time required for the blower to come on and go off is approximately 5 minutes.

WIRING

The unit must be electrically grounded according to the National Electrical Code ANSI C1 (Latest Edition). The cord normally supplied with this unit has a three-prong plug which requires a mating grounded wall receptacle. For an ungrounded receptacle, an adapter can be purchased that has two prongs and a wire for grounding. A 7/8 inch hole is provided at the junction box for use with a conduit adapter if local codes require this type of connection.

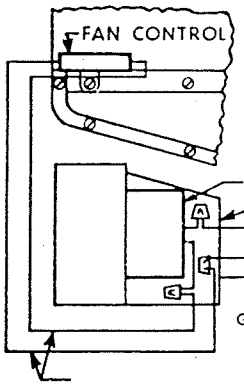
OILING THE MOTOR

A plastic tube is provided on each end of the motor for oiling. The blower should have a few drops of #20 motor oil every 3 months. DO NOT USE MACHINE OIL.

CLEANING THE BLOWER WHEEL

In some areas, such as near bedrooms and on floors with a hard surface, the blower wheel will be filled with lint very quickly. A visual check of the blower wheel should be made after 30 days use. The blower will run faster with a dirty wheel, but move less air. Remove the entire blower and clean each blade of the wheel with a tooth brush as often as necessary.

WIRING DIAGRAM



IF ANY OF THE ORIGINAL WIRE ON THE APPLIANCE HAS TO BE REPLACED, REPLACE WITH WIRE HAVING EQUIVALENT INSULATION AND TEMPERATURE RATING.

INDEX NO.	PART NUMBER	DESCRIPTION
1	TH-135	Blower housing assembly
2	R-319	Blower wheel
3	TH-137	Motor mount & junction box assembly
4	TH-080	Blower cushion
5	R-336	Motor cushion
6	R-285	Motor
7	R-315	Cord set
8	R-320	Fan control
	DVB-1	Blower (115 V AC) DV-210 & DV-215 only