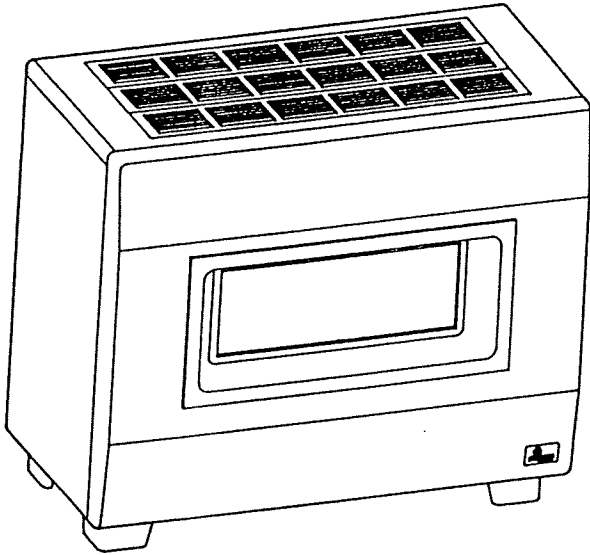




# INSTALLATION INSTRUCTIONS AND OWNER'S MANUAL



## VENTED VISUAL FLAME ROOM HEATER

**MODELS  
RH-50-1  
RH-65-1**

**WARNING:** If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- **WHAT TO DO IF YOU SMELL GAS**
  - Do not try to light any appliance.
  - Do not touch any electrical switch; do not use any phone in your building.
  - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.



**EFFECTIVE DATE  
JANUARY, 1994**

**WARNING:** If not installed, operated and maintained in accordance with the manufacturer's instructions, this product could expose you to substances in fuel or from fuel combustion which can cause death or serious illness and which are known to cause cancer, birth defects or other reproductive harm.

## Introduction

Always consult your local Building Department regarding regulations, codes or ordinances which apply to the installation of a vented wall furnace.

## Instructions to Installer

1. Installer must leave instruction manual with owner after installation.
2. Installer must have owner fill out and mail warranty card supplied with heater.
3. Installer should show owner how to start and operate heater and thermostat.

### Warning:

Any change to this room heater or its controls can be dangerous. Any safety screen or guard removed for servicing a room heater must be replaced prior to operating the room heater.

## General Information

This series is design certified in accordance with American National Standards Institute Z21.11.1 (latest standard) and CAN1-2.1-M86 by the American Gas Association and Canadian Gas Association, as a Vented Room Heater and must be installed according to these instructions.

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.

## Important

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

**Notice:** During initial firing of this unit, its paint will bake out and smoke will occur. To prevent triggering of smoke alarms, venti-

late the room in which the unit is installed.

## Installation on Rugs and Tile

If this appliance is to be installed directly on carpeting, tile, or other combustible material, *other than wood flooring*, the appliance shall be installed on a metal or wood panel extending full width and depth of the appliance.

The base referred to above does not mean the fire-proof base as used on wood stoves. The protection is primarily for rugs that may be extremely thick and light-color tile that can discolor.

Heater pad is available from Empire Comfort Systems, Inc., Part No. RH-425.

## Specifications

Models	RH-50-1	RH-65-1
Input BTU/HR	50,000	65,000
Height	29 9/16"	29 9/16"
Width	34"	34"
Depth including diverter	22"	26 1/2"
Gas Inlet	1/2"	1/2"
Size Draft Diverter Collar	5 "	5 "
Vertical Draft Diverter	RH-582	RH-577
Floor to collar on Vertical Draft Diverter	25 1/2"	25 1/2"
<b>Accessories</b>		
Blower Package	FRB-2	FRB-2
Radiant Package	RAD-8	RAD-8
Heater Pad	RH-425	RH-425
Horizontal Draft Diverter	RH-572	RH-572
Floor to center of collar on Horizontal Draft Diverter	23"	23"

## THIS IS A HEATING APPLIANCE

DO NOT OPERATE THIS APPLIANCE WITHOUT FRONT PANEL INSTALLED.

- Due to high temperatures, the room heater should be located out of traffic and away from furniture and draperies.
- Children and adults should be alerted to the hazards of high surface temperature and should stay away to avoid burns or clothing ignition.
- Young children should be carefully supervised when they are in the same room as the room heater.
- Clothing or other flammable material should not be placed on or near the room heater.
- Due to high surface temperatures, keep children, clothing and furniture away.
- Keep burner and control compartment clean.
- Installation and repair should be done by a **QUALIFIED SERVICE PERSON**. The room heater should be inspected before use and at least annually by a qualified 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 room heater be kept clean.

- **DO NOT** put anything around the heater that will obstruct the flow of combustion and ventilation air. See clearances.
- **DO** keep the appliance area clear and free from combustible material, gasoline and other flammable vapors and liquids.
- **DO** examine venting system periodically. Clean and replace damaged parts. Examinations should be made at the start of the heating season and also in mid heating season under average conditions.
- **DO** examine burners periodically. Clean and replace damaged parts.
- **DO NOT** use this heater if any part has been under water. Immediately call a qualified service technician to inspect the heater and to replace any part of the control system and any gas control which has been under water.

## SAFETY INFORMATION FOR USERS OF LP-GAS

**Propane (LP-Gas) is a flammable gas which can cause fires and explosions. In its natural state, propane is odorless and colorless. You may not know all the following safety precautions which can protect both you and your family from an accident. Read them carefully now, then review them point**

**by point with the members of your household. Someday when there may not be a minute to lose, everyone's safety will depend on knowing exactly what to do. If, after reading the following information, you feel you still need more information, please contact your gas supplier.**

### LP-GAS WARNING ODOR

**If a gas leak happens, you should be able to smell the gas because of the odorant put in the LP-Gas. That's your signal to go into immediate action!**

- Do not operate electric switches, light matches, use your phone. Do not do anything that could ignite the gas.
- Get everyone out of the building, vehicle, trailer, or area. Do that IMMEDIATELY.
- Close all gas tank or cylinder supply valves.
- LP-Gas is heavier than air and may settle in low areas such as basements. When you have reason to suspect a gas leak, keep out of basements and other low areas. Stay out until firefighters declare them to be safe.
- Use your neighbor's phone and call a trained LP-Gas service person and the fire department. Even though you may not continue to smell gas, do not turn on the gas again. Do not re-enter the building, vehicle, trailer, or area.
- **Finally**, let the service man and firefighters check for escaped gas. Have them air out the area before you return. Properly trained LP-Gas service people should repair the leak, then check and relight the gas appliance for you.

### NO ODOR DETECTED - ODOR FADE

**Some people cannot smell well. Some people cannot smell the odor of the chemical stench put into the gas. You must find out if you can smell the odorant in propane.** Smoking can decrease your ability to smell. Being around an odor for a time can affect your sensitivity or ability to detect that odor. Sometimes other odors in the area mask the gas odor. People may not smell the gas odor or their minds are on something else. Thinking about smelling a gas odor can make it easier to smell.

**The odorant in LP-gas is colorless, and it can fade under some circumstances.** For example, if there is an underground leak, the movement of the gas through soil can filter the odorant. Odorants in LP-Gas also are subject to oxidation. This fading

can occur if there is rust inside the storage tank or in iron gas pipes.

The odorant in escaped gas can adsorb or absorb onto or into walls, masonry and other materials and fabrics in a room. That will take some of the odorant out of the gas, reducing its odor intensity.

LP-Gas may stratify in a closed area, and the odor intensity could vary at different levels. Since it is heavier than air, there may be more odor at lower levels. Always be sensitive to the slightest gas odor. If you detect any odor, treat it as a serious leak. Immediately go into action as instructed earlier.

### SOME POINTS TO REMEMBER

- **Learn to recognize the odor of LP-gas.** Your local LP-Gas Dealer can give you a "Scratch and Sniff" pamphlet. Use it to find out what the propane odor smells like. If you suspect that your LP-Gas has a weak or abnormal odor, call your LP-Gas Dealer.
- If you are not qualified, do not light pilot lights, perform service, or make adjustments to appliances on the LP-Gas system. If you are qualified, consciously think about the odor of LP-Gas prior to and while lighting pilot lights or performing service or making adjustments.
- Sometimes a basement or a closed-up house has a musty smell that can cover up the LP-Gas odor. Do not try to light pilot lights, perform service, or make adjustments in an area where the conditions are such that you may not detect the odor if there has been a leak of LP-Gas.
- Odor fade, due to oxidation by rust or adsorption on walls of new cylinders and tanks, is possible. Therefore, people should be particularly alert and careful when new tanks or cylinders are placed in service. Odor fade can occur in new tanks, or reinstalled old tanks, if they are filled and allowed to set too long before refilling. Cylinders and tanks which have been out of service for a time may develop internal rust which will cause odor fade. If such conditions are suspected to exist, a periodic sniff test of the gas is advisable. **If you have any question about the gas odor, call your LP-gas dealer. A periodic sniff test of the LP-gas is a good safety measure under any condition.**
- If, at any time, you do not smell the LP-Gas odorant and you think you should, assume you have a leak. Then take the same immediate action recommended above for the occasion when you do detect the odorized LP-Gas.
- If you experience a complete "gas out," (the container is under no vapor pressure), turn the tank valve off immediately. If the container valve is left on, the container may draw in some air through openings such as pilot light orifices. If this occurs, some new internal rusting could occur. If the valve is left open, then treat the container as a new tank. Always be sure your container is under vapor pressure by turning it off at the container before it goes completely empty or having it refilled before it is completely empty.

## Qualified Installing Agency

Installation and replacement of gas piping, gas utilization equipment or accessories and repair and servicing of equipment shall be performed only by a qualified agency. The term "qualified agency" means any individual, firm, corporation, or company which whether in person or through a representative is engaged in and is responsible for (a) the installation or replacement of gas piping or (b) the connection, installation, repair or servicing of equipment, who is experienced in such work, familiar with all precautions required and has complied with all the requirements of the authority having jurisdiction.

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 (latest edition)\* or CAN1-B149 Installation Code.

\*Available from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018, or from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

## Locating and Venting the Room Heater

Clearances: When facing the front of the room heater the minimum clearances to combustible construction (material) are the following:

Left side 6 inches. Right side 6 inches.  
Recommended 18 inches on left side for servicing.  
Do not install in alcove or closet. No horizontal projection above heater permitted within 55 inches.  
Ceiling 55 inches. Draft hood to rear wall 2 inches.

Open in front to provide service, access, and clearance to construction.

## Venting

1. Flue pipe must be as large as the flue collar on the draft diverter.
2. Maintain an upward slope of at least 1/4 inch per foot of horizontal run.
3. Run flue pipe as directly as possible with a minimum of elbows.
4. Flue pipe should extend through the wall of a chimney to be flush with inner wall.
5. Flue pipe must be adequately supported by metal strips.
6. Single wall vent pipe may be attached directly to the draft hood of the room heater when a clearance of 2 1/2 inches is maintained between the single wall vent pipe and the combustible wall of the room in which the room heater is located. Use double wall vent pipe for 1 inch clearance to combustibles.
7. For flue pipe running through walls and roof, use B-1 (1 inch clearance to combustibles) vent pipe.
8. Chimneys should extend at least 2 feet above the roof and above any object or nearby building within 10 feet.
9. Open tees should not be used in the flue pipe.
10. Appliance must not be connected to a chimney flue that is servicing a separate solid-fuel burning appliance.

For proper venting, do not attach a 90° elbow directly to draft diverter. If possible, attach 2 feet of straight vent pipe before an elbow is used. Use of 45° elbows is recommended.

**Uninsulated single-wall metal pipe shall not be used outdoors in cold climates for venting gas utilization equipment.**

## Ventilation and Combustion Air

Room heaters shall be installed in a location in which the

facilities for ventilation permit satisfactory combustion of gas and proper venting under normal conditions. In buildings of conventional frame, brick or stone construction without tight storm windows and doors, infiltration is normally adequate to provide for combustion and draft hood dilution.

Where appliances are installed in a confined space within a building, the building being of unusually tight construction, air for combustion and ventilation must be obtained directly from outdoors or from such spaces that freely communicate with the outdoors. Under these conditions, the confined space shall be provided with two permanent openings, one near the top of the enclosure and one near the bottom; each opening shall have a free area of not less than one square inch per 1,000 BTU's of total input. The draft hood must be in the same atmospheric pressure zone as the combustion air inlet to the appliance.

## Gas Supply

Check all local codes for requirements, especially for the size and type of gas supply line required. On Natural gas lines less than 15' long, use 1/2" pipe; on longer runs, use 3/4" iron pipe or equal. On LP gas lines please consult LP gas supplier.

## Installing a New Main Gas Cock

Each appliance should have its own manual gas cock.

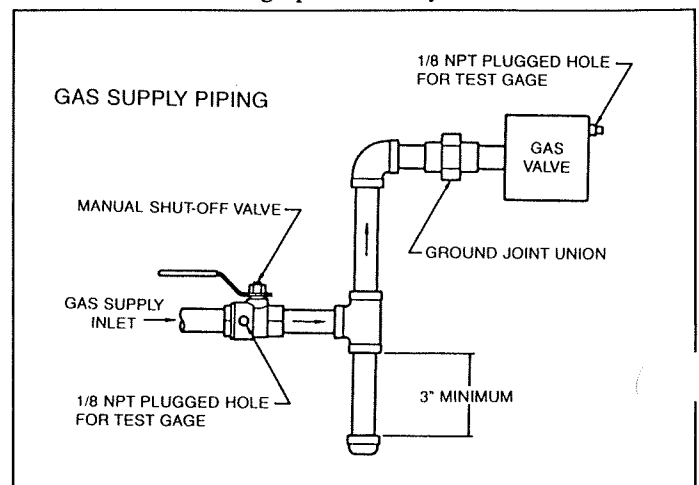
A manual main gas cock should be located in the vicinity of the unit. Where none exists, or where its size or location is not adequate, contact your local authorized installer for installation or relocation.

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 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.

**Appliance must be disconnected from piping at inlet of control valve and pipe capped or plugged for pressure test. Never Pressure Test With Appliance Connected; Control Valve Will Sustain Damage!**

A gas valve and ground joint union 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 condensation and foreign particles may collect.



Method of Installing A Tee Fitting Sediment Trap

The use of the following gas connectors is recommended:

- ANS Z21.24 Appliance Connectors of Corrugated Metal Tubing and Fittings
- ANS Z21.45 Assembled Flexible Appliance Connectors of Other Than All-Metal Construction

The above connectors may be used if acceptable by the authority having jurisdiction.

### Pressure Testing of the Gas Supply System

1. To check the inlet pressure to the gas valve, a 1/8" N.P.T. plugged tapping, accessible for the test gauge connection, must be placed immediately upstream of the gas supply connection to the appliance.
2. The appliance, and its individual shutoff valve, must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.5kPa).
3. The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.5kPa).

**Attention!** If one of the above procedures results in pressures in excess of 1/2 psig (14" w.c.) (3.5kPa) on the appliance gas valve, it will result in a hazardous condition.

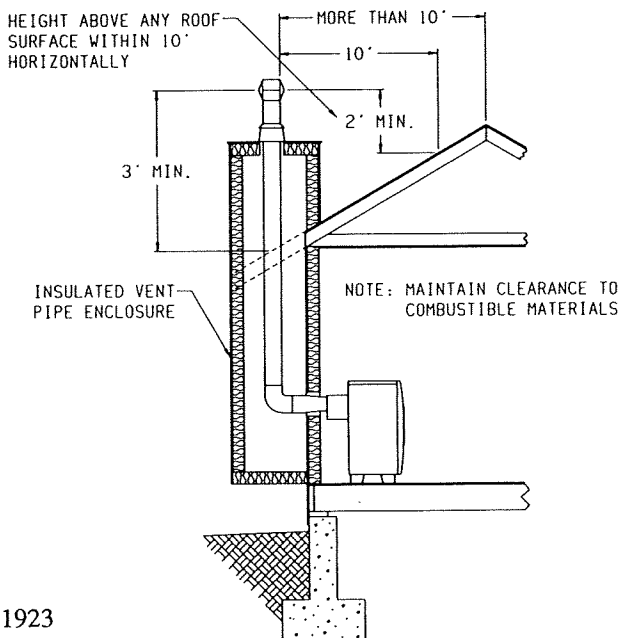
### Checking Manifold Pressure

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 4.0" w.c. at the valve outlet with the inlet pressure to the valve from a minimum of 5.0" w.c. for the purpose of input adjustment to a maximum of 10.5" w.c. Propane gas models will have a manifold pressure approximately 10.0" w.c. at the valve outlet with the inlet pressure to the valve from a minimum of 11.0" w.c. for the purpose of input adjustment to a maximum of 13.0" w.c.

A 1/8" N.P.T. plugged tapping, accessible for test gauge connection is located on the outlet side of the gas control.

### Insulated Vent Enclosure

Vented room heaters installed with the vent going directly to the outside and above the eaves can cause poor venting. The cold pipe will have a delay in proper venting and cause the room heater to shut "off" by the vent safety switch. To prevent delayed venting



as well as condensation of flue products an insulated enclosure is recommended.

Use type B 5" diameter vent pipe and maintain at least a one inch clearance to combustibles.

Use metal thimble to protect vent pipe as it passes through combustibles.

### High Altitudes

For altitudes/elevations above 2,000 feet, input ratings should be reduced at the rate of 4 percent for each 1,000 feet above sea level. **Canadian High Altitudes** for locations having an elevation above mean sea level between 2,000 feet (610m) and 4,500 feet (1370m), the manifold pressure is to be decreased from 4.0" w.c. to 3.2" w.c. for Natural Gas and from 10.0" w.c. to 8.0" w.c. for Propane Gas.

### Piezo Pilot Ignitor Instructions

Depressing the red button completely causes a spark to occur at the pilot. 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.

### Vent Safety Shutoff System

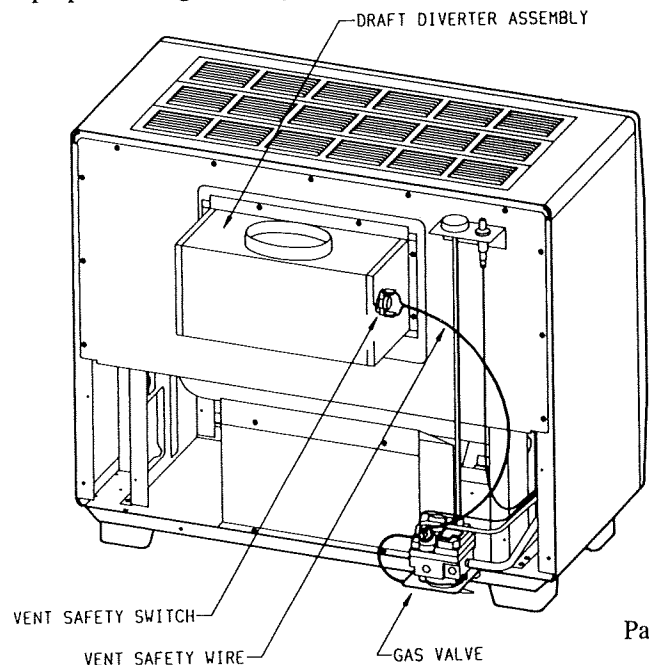
This heater must be properly connected to a venting system. This heater is equipped with a vent safety shutoff system.

**Warning:**  
Operation of this heater, when not connected to a properly installed and maintained venting system or tampering with the vent safety shutoff system, can result in carbon monoxide (CO) poisoning and possible death.

This appliance needs fresh air for safe operation and must be installed so there are provisions for adequate combustion and ventilation air.

This room heater is equipped with a vent safety switch. The vent safety switch will cause gas flow to the pilot to "shut off" due to improper venting or a blocked flue.

If the vent safety switch continues to "shut off" the gas flow to the pilot a qualified service person must be contacted to inspect for improper venting, blockage in the vent pipe or the vent safety



## FOR YOUR SAFETY READ BEFORE LIGHTING

**WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury, or loss of life.**

- A. This appliance has a pilot which must be lighted by hand. When lighting the pilot, follow these instructions exactly.
- B. **BEFORE LIGHTING** smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

### WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.

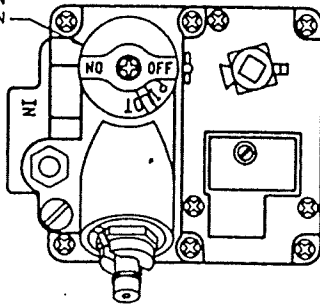
- If you cannot reach your gas supplier, call the fire department.

- C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it; call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

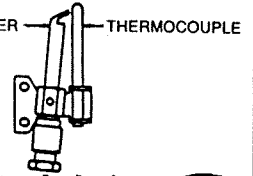
## LIGHTING INSTRUCTIONS

1. **STOP!** Read the safety information above.
2. Set thermostat to lowest setting.
3. Turn off all electric power to the appliance (if applicable).
4. Push in gas control knob slightly and turn clockwise to "OFF".

GAS CONTROL KNOB SHOWN IN "OFF" POSITION



metal tube from gas control. Observe pilot through combustion chamber glass.



**NOTE:** Knob cannot be turned from "PILOT" to "OFF" unless knob is pushed in slightly. Do not force.

5. Wait ten (10) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, **STOP!** Follow "B" in the safety information above. If you don't smell gas, go to the next step.
6. Remove casing front and find pilot by following

7. Turn knob on gas control counterclockwise to "PILOT."

8. Push and hold gas control knob in and repeatedly push the ignitor button until pilot is lit (or use match to light). Continue to hold gas control knob in for about one (1) minute after the pilot is lit. Release knob and it will pop back up. Pilot should remain lit. If it goes out, repeat steps 4 through 8.

- If knob does not pop up when released, stop and immediately call your qualified service technician or gas supplier.
- If the pilot will not stay lit after several tries, turn the gas control knob to "OFF" and call your service technician or gas supplier.

9. Replace casing front.
10. Turn gas control knob counterclockwise to "ON."
11. Turn on all electric power to the appliance (if applicable).
12. Set thermostat to desired setting.

## TO TURN OFF GAS TO APPLIANCE

1. Set thermostat to lowest setting.
2. Turn off all electric power to appliance (if applicable) if service is to be performed.
3. Push in gas control knob slightly and turn clockwise to "OFF". Do not force.

switch for being defective.

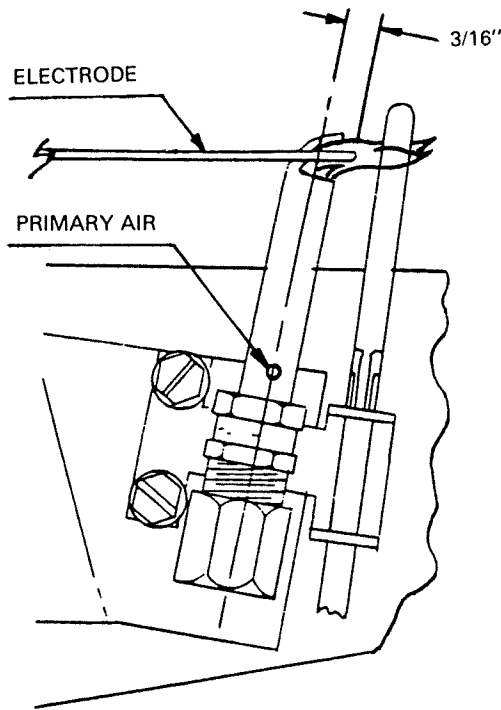
### Proper Pilot Flame

The correct flame will be almost horizontal, blue and will extend past the thermocouple 1/4". The flame will surround the thermocouple just below the tip.

On Propane (LP-gas) slight yellow might occur where the pilot flame and the burner flame meet.

Natural gas pilots require adjusting when the inlet pressure is above 5" w.c. Remove pilot adjustment cover. Turn adjustment screw clockwise to reduce flame.

Propane (LP-gas) will not require adjusting.



### Proper Main Burner Flame

There will be a short blue inner flame with a larger, lighter blue secondary flame. The burner flame may have yellow tips when hot. See the main burner drawing showing the approximate heights of each part of the flame for each gas. Dust in the combustion air will produce an orange or red flame. Do not mistake the orange or red flame for an improper yellow flame. The flame will be proper if the factory-set pressure and orifice are

used. After use, cleaning may be required for the proper flame.

### Cleaning Pilot Burner

After use, cleaning of the pilot burner may be required for the proper flame. The pilot orifice can be cleaned with high pressure air or by placing under running water. Pilot orifice must be dry before replacement. Use a pipe cleaner to clean inside the pilot after the pilot orifice has been removed.

### Removing Pilot Orifice

1. Disconnect the pilot supply line at the pilot burner.
2. Remove pilot orifice from pilot burner. It may be necessary to tap on pilot burner in order to remove the pilot orifice.

### Cleaning Main Burner

Remove the burner and apply water pressure inside the throat of the burner and down into the ports; follow with air pressure.

### Removing Main Burner

1. Remove casing front.
2. Disconnect pilot bracket from the burner.
3. Remove brass nut from burner.
4. Disconnect burner from chamber leg flange.
5. Remove burner from bottom of combustion chamber.

### Cleaning Combustion Chamber

A qualified serviceman should remove the chamber and apply air pressure to the inside in order to clear all passageways.

### Thermostat Operation

To turn on burner, rotate dial knob toward setting number 9. To shut down burner, rotate dial knob toward setting number 1.

The dial numbers 1 to 9 correspond to 58° to 90°F. This is the temperature at the bulb thermostat not the room temperature. The owner is advised to determine the particular heat setting that is desired for comfort, as heating requirements are different for every owner.

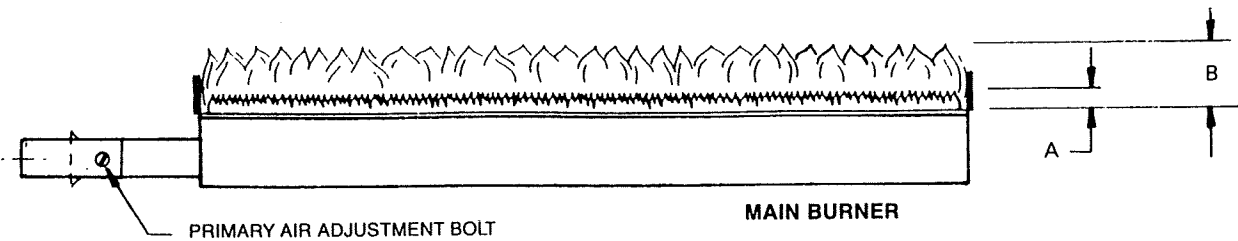
**Attention:** When the control knob is in the "Night Off" position and the bulb temperature drops to 55°F, the thermostat will call for heat and the main burner will ignite.

If no heat is desired, turn the gas control knob to the PILOT position.

### Primary Air Adjustment

An air adjustment bolt is provided on the left or front side of the burner throat. Normally, the adjustment will be with the bolt unscrewed as far as possible.

**On Propane gas, if a whistling noise (resonation) occurs screw the air adjustment bolt into the burner throat to eliminate the whistling noise (resonation).**



MODEL	DIM. A	DIM. B
RH-50-1	1/2" Blue Flame	5" Light-Blue Flame
RH-65-1	3/4" Blue Flame	6" Light-Blue Flame

# SERVICE AND MAINTENANCE SUGGESTIONS

## SYMPTOMS

## POSSIBLE CAUSES OR CORRECTION

1. Impossible to light pilot. . . . .
  - a. If using piezo ignitor, check electrode location.
  - b. Remove nut at orifice and check for gas.
  - c. If gas available, check for blocked orifice or pilot.
2. Pilot outage . . . . .
  - a. Proper size of pilot flame.
  - b. Defective or weak thermocouple.
3. Pilot flames but goes out. . . . .  
when knob is released.
  - a. Pilot flame not covering the thermocouple properly.
  - b. Defective thermocouple.
  - c. Defective magnet in the safety section of valve.
4. Poor thermostatic control . . . . .
  - a. Thermostat needs calibrating.
  - b. Defective thermostat section.
5. Noisy blower . . . . .
  - a. Tighten blower screws.
  - b. Check blower wheel in the open for balance.
6. Yellow main burner flame. . . . .
  - a. Remove main burner to check for obstructions in throat, ports and orifices.
  - b. Install new main burner orifice and pilot orifice.
  - c. Check gas valve for leaking.
  - d. Open the air bolt on the main burner in order to increase the amount of primary air.
7. Yellow pilot flame . . . . .
  - a. Small yellow tip not objectionable.
  - b. Remove pilot orifice. Check and clean.
8. Pilot and main burner goes out . . . . .  
after burning a few minutes.
  - a. Improper venting of flue products. Relight and check for improper venting.
  - b. If vented properly, check vent safety switch, replace if defective
9. Burner back-flashes or 'pops' and burns . . . . .  
at main burner orifice.
  - a. Examine burner for defects.
10. Inoperative blower . . . . .
  - a. Check fan control by shorting across terminals.
  - b. Check for blower wheel bind by removing wheel and operating motor.
  - c. Check for frozen bearings due to lack of oil.
11. On Propane gas, if a whistling noise . . . . .  
(resonation) occurs.
  - a. Screw the air adjustment bolt into the burner throat to eliminate the whistling noise (resonation).
  - b. Size main burner orifice with a drill bit. For RH-50-1 use #47 drill bit. For RH-65-1 use #43 drill bit.

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

### How To Order Repair Parts . . .

Parts can be ordered **only** through your **service person or dealer**. For best results, the **service person or dealer** should order parts through the distributor. Parts can be shipped directly to the **service person/dealer**.

All parts listed in the Parts List have a Part Number. When ordering parts, first obtain the Model Number from the name plate on your equipment. Then determine the Part Number (**not** the Index Number) 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.

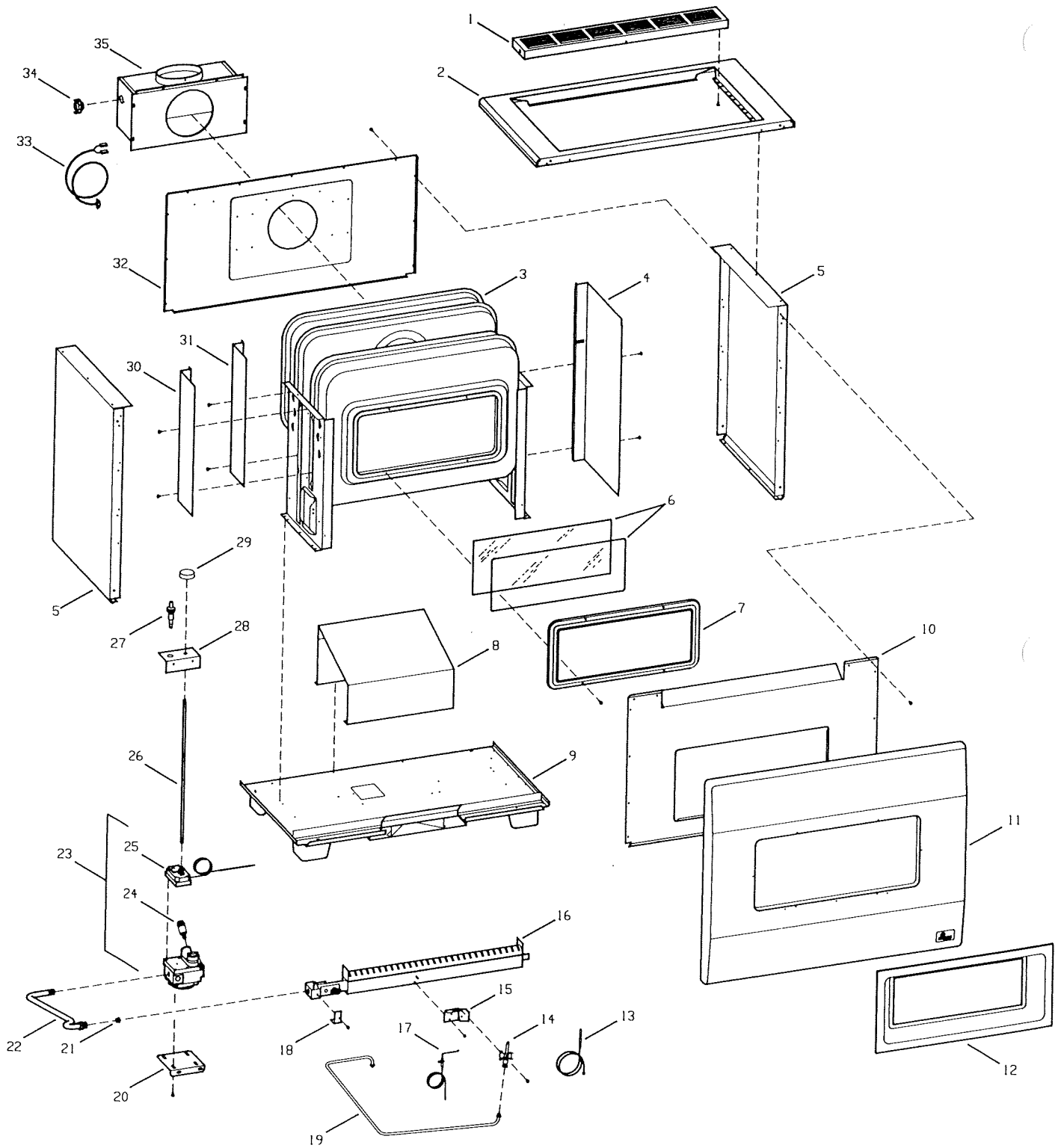
Shipments contingent upon strikes, fires and all causes beyond our control.



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

Index No.	Part Number	Description	Index No.	Part Number	Description
1	RH-603	Louver (RH-50-1, 3 Required) (RH-65-1, 4 Required)	21	742124	Main Burner Orifice (RH-50-1 Natural Gas)
2	RH-637	Casing Top (RH-50-1)	21	742235	Main Burner Orifice (RH-50-1 LP Gas)
2	RH-613	Casing Top (RH-65-1)	21	P86-27N	Main Burner Orifice (RH-65-1 Natural Gas)
3	RH-652	Combustion Chamber (RH-50-1)	21	742228	Main Burner Orifice (RH-65-1 LP Gas)
3	RH-626	Combustion Chamber (RH-65-1)	22	P-169	Manifold (RH-50-1)
4	RH-654	Chamber Shield - Right (RH-50-1)	22	P-170	Manifold (RH-65-1)
4	RH-655	Chamber Shield - Right (RH-65-1)	23	R-1625	Gas Valve (Natural) #7000 ASR-3 (Includes 24 and 25)
5	RH-640	Casing Side (RH-50-1, 2 Required)	23	R-1624	Gas Valve (LP) #7000 ASR-LP-3 (Includes 24 and 25)
5	RH-602	Casing Side (RH-65-1, 2 Required)	24	652012	Magnet for #7000 Series
6	862029	Radiant Glass With Rope Gasket	25	R-1627	Operator (Natural Gas) for #7000 ASR-3
7	RH-520	Frame for Glass with Rope Gasket	25	R-1626	Operator (LP Gas) for #7000 ASR-3
8	RH-665	Bottom Reflector (RH-50-1)	26	RH-623	Control Rod
8	RH-666	Bottom Reflector (RH-65-1)	27	732021	Piezo Ignitor
9	RH-641	Bottom (RH-50-1)	28	RH-659	Control Rod Bracket
9	RH-616	Bottom (RH-65-1)	29	662015	Control Knob
10	RH-618	Inner Front	30	RH-653	Chamber Shield - Left
11	RH-619	Casing Front With Heat Shield	31	RH-656	Chamber Shield - Rear
12	RH-620	Pouch	32	RH-600	Casing Back
13	R-776-A	Thermocouple 40"	33	871018	Vent Safety Wire 24"
14	762126	Pilot Burner With Orifice (Natural Gas)	34	R-1912	Vent Safety Switch
14	762223	Pilot Burner With Orifice (LP Gas)	35	RH-582	Diverter Assembly (RH-50-1)
15	RH-366	Pilot Bracket	35	RH-577	Diverter Assembly (RH-65-1)
16	602045	Burner	Not Shown	742250	Pilot Orifice .008 (LP Gas)
17	732064	Electrode and Wire	Not Shown	742148	Pilot Orifice .011 (Natural Gas)

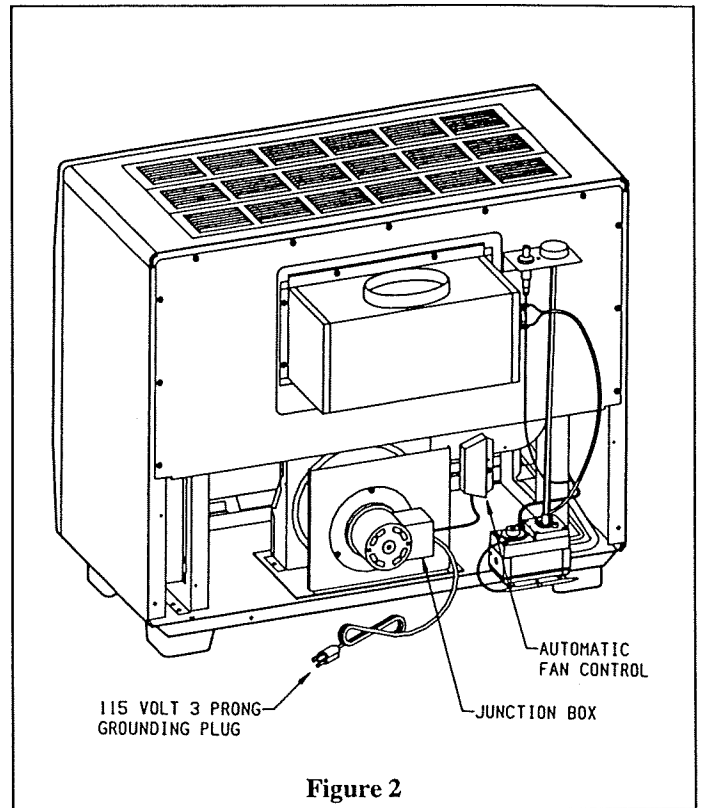
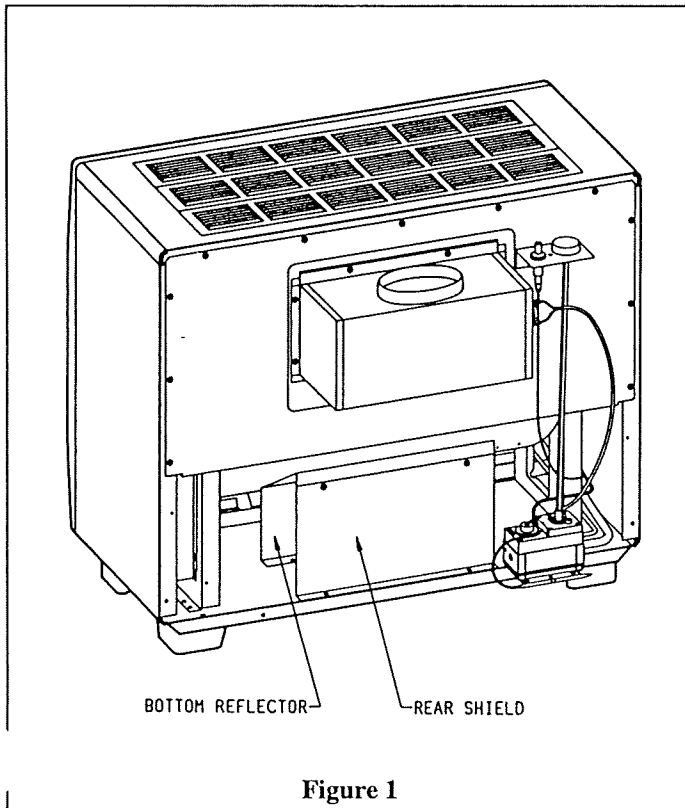
**USE ONLY MANUFACTURER'S REPLACEMENT PARTS. USE OF ANY OTHER PARTS COULD CAUSE INJURY OR DEATH.**



RH-65-1 SHOWN

Empire Comfort Systems, Inc. Nine Eighteen Freeburg Ave. Belleville, Illinois 62222-0529

**OPTIONAL BLOWER**  
FRB-2 For Vented Visual Flame Room Heaters  
Models RH-50-1/RH-50-2  
RH-65-1/RH-65-2

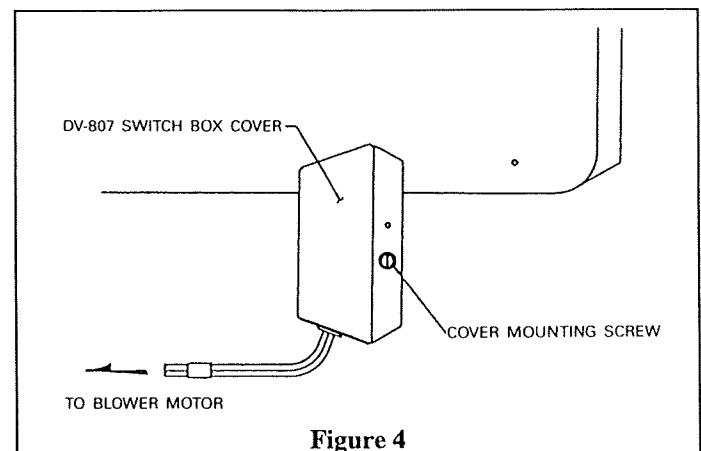
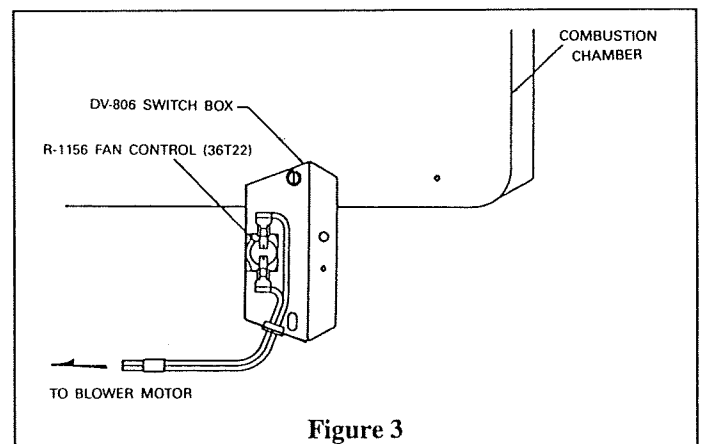


**Installing Optional Blower**

1. Remove rear shield (2 screws) and bottom reflector (4 screws). (See Figure 1)
2. Align blower cushion with bottom assembly air discharge opening. Foil face side of blower cushion should be placed upward.
3. Align blower housing with blower cushion and use two, #10 x 1/2" hex-head screws to attach blower housing to bottom assembly. (See Figure 2)

4. Save bottom reflector and rear shield (removed in Step 1) in the event the blower housing is removed from room heater.  
**Attention! Bottom reflector and rear shield must be attached to bottom assembly whenever the blower housing is removed from the room heater and the room heater is in operation.**

5. Remove switch box cover from the switch box by removing the #8 x 1/4" hex-head screw.
6. There are two screw holes on the lower back of the combustion chamber. Use only the left screw hole for mounting.
7. With the switch box perpendicular to the combustion chamber, align the round clearance hole on the switch box with the left screw hole on the combustion chamber. (See Figure 3)
8. Attach switch box to the combustion chamber using the #10 x 1/2" hex-head screw provided.
9. Attach switch box cover to the switch box by using the #8 x 1/4" hex-head screw. (See Figure 4)

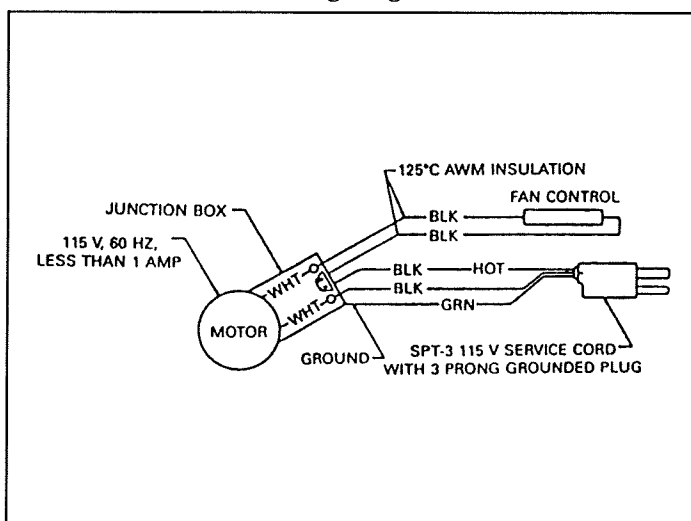


Index No.	Part No.	Description
1	RH-667	Blower Housing & Chute Assembly
2	9120106	Fan Control Switch
3	DV-806	Switch Box
4	DV-807	Switch Box Cover
5	8720125	Wire Assembly (23")
6	642031	Blower Wheel
7	RH-036	Motor Mounting Plate
8	632016	Motor Cushion
9	622044	Motor
10	872020	Cord Set
11	RH-138	Blower Cushion

### Wiring

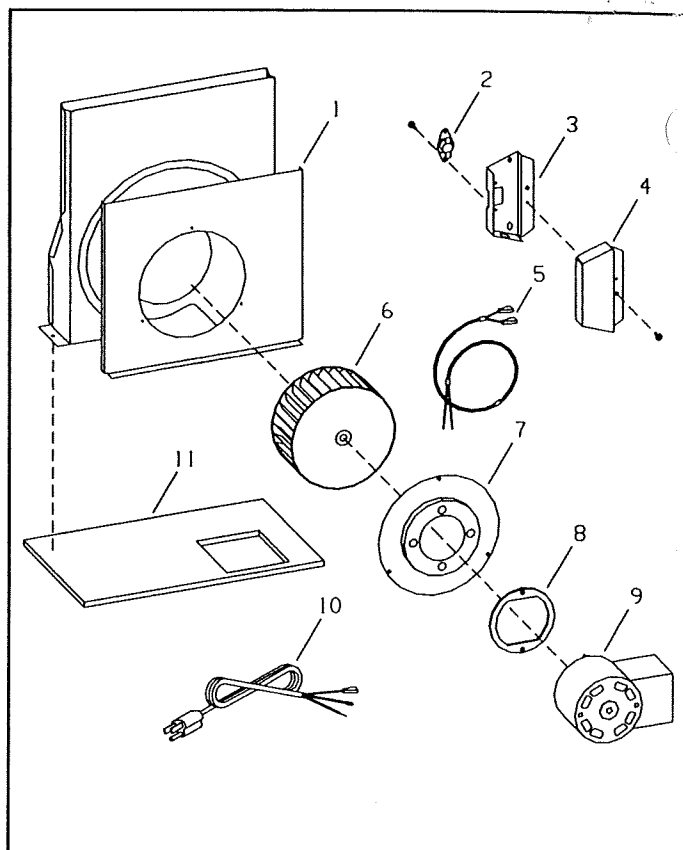
The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70 (latest edition) or CSA C22.1 Canadian Electrical Code. **This appliance is equipped with a three-prong [grounding] plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.** For an ungrounded receptacle, an adapter, which has two prongs and a wire for grounding, can be purchased, plugged into the ungrounded receptacle and its wire connected to the receptacle mounting screws. With this wire completing the ground, the appliance cord plug can be plugged into the adapter and be electrically grounded. A 7/8" hole is provided in the junction box for use with a conduit connector if local codes require this type of protection.

### Wiring Diagram



If any of the original wire as supplied with the appliance must be replaced, it must be replaced with type 125°C wire or its equivalent.

**CAUTION:** Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify operation after servicing.



### Warning:

**Unplugging of blower accessory will not stop the heater from cycling. To shut heater off:**

1. Turn temperature dial or thermostat to lowest setting.
2. Turn knob on gas control to "OFF", depressing slightly. Do not force.

### Cleaning

The blower wheel will collect lint and could require cleaning once a year. If the air output decreases or the noise level increases, it indicates a dirty wheel. Complete removal of the wheel and scrubbing it with a brush under flowing water is recommended.

### Oiling

The blower motor has an oil hole located on each end of the motor. Use #20 motor oil only. It is best to oil the motor several times during the heating season using 2 or 3 drops each time. If the motor fails to start and hums, it could be a tight bearing due to lack of oil. This may be corrected by pouring kerosene in the oil holes, allowing to stand for a few hours and then oiling properly.

# OPTIONAL BLOWER ASSEMBLY INSTALLATION INSTRUCTIONS

R-1924  
EFFECTIVE DATE JANUARY, 1994

## OPTIONAL BLOWER

FRB-2  
Vented Visual Flame Room Heaters  
Models RH-50-1/RH-50-2  
RH-65-1/RH-65-2

INSTRUCTIONS MUST BE LEFT WITH THE OWNER FOR FUTURE REFERENCE AFTER INSTALLATION

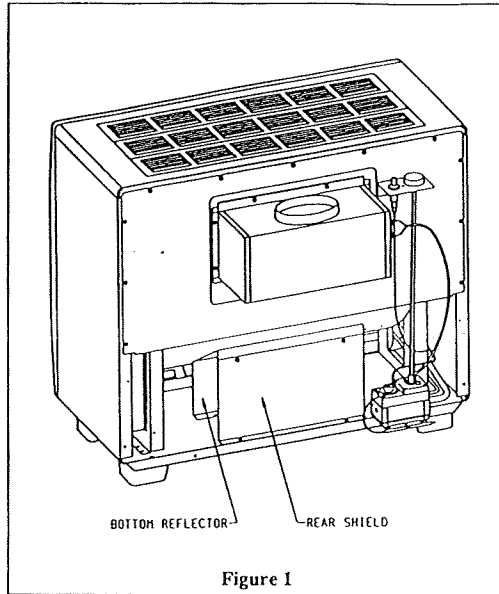


Figure 1

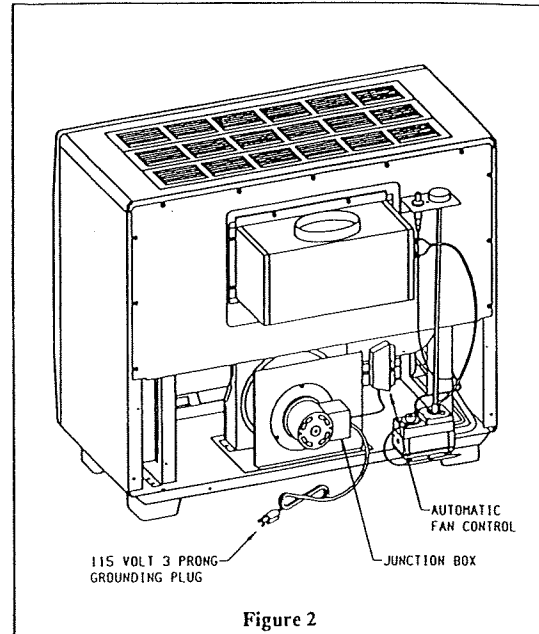


Figure 2

### Installing Optional Blower

1. Remove rear shield (2 screws) and bottom reflector (4 screws). (See Figure 1)
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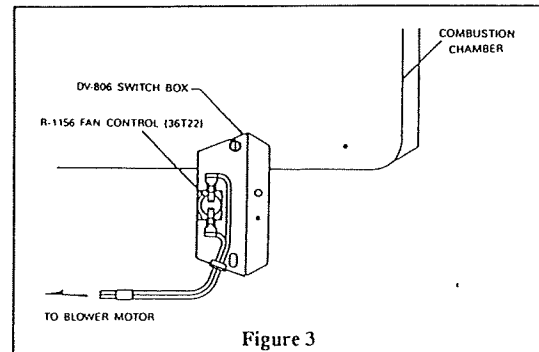


Figure 3

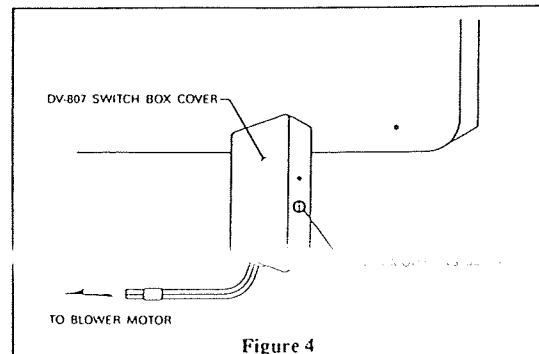


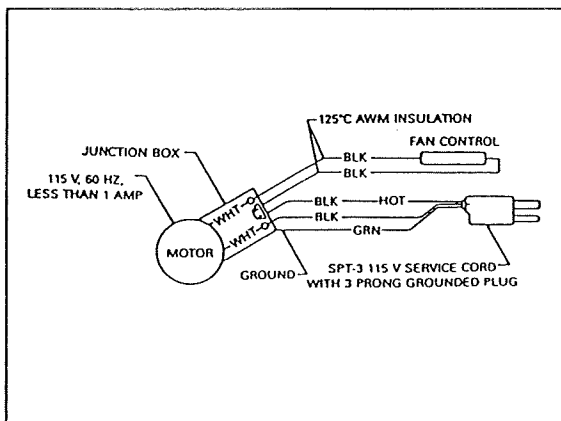
Figure 4

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2	R-1156	Fan Control Switch
3	DV-806	Switch Box
4	DV-807	Switch Box Cover
5	R-1268	Wire Assembly (23")
6	R-369	Blower Wheel
7	RH-036	Motor Mounting Plate
8	R-587	Motor Cushion
9	R-386	Motor
10	R-315	Cord Set
11	RH-138	Blower Cushion

### Wiring

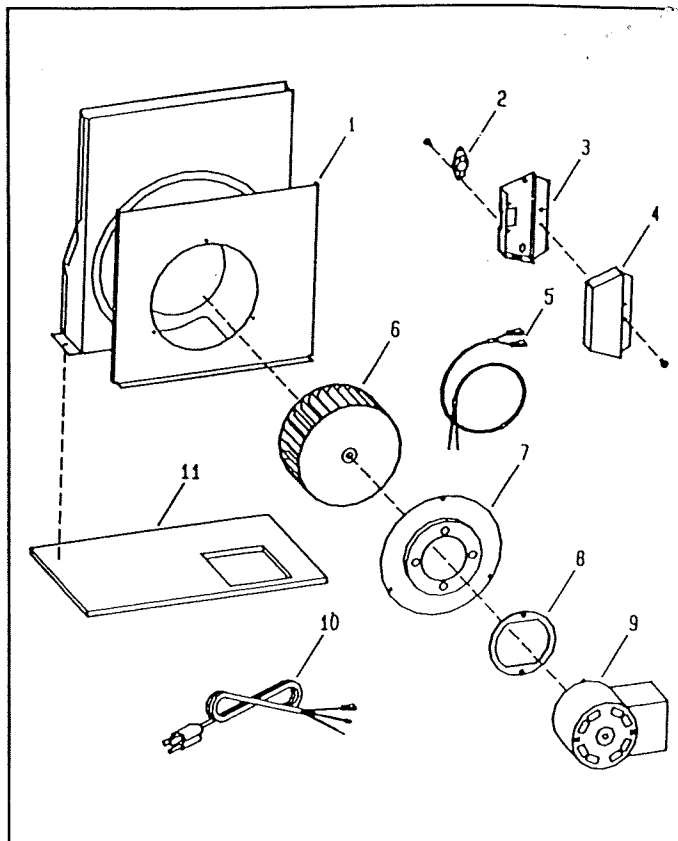
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