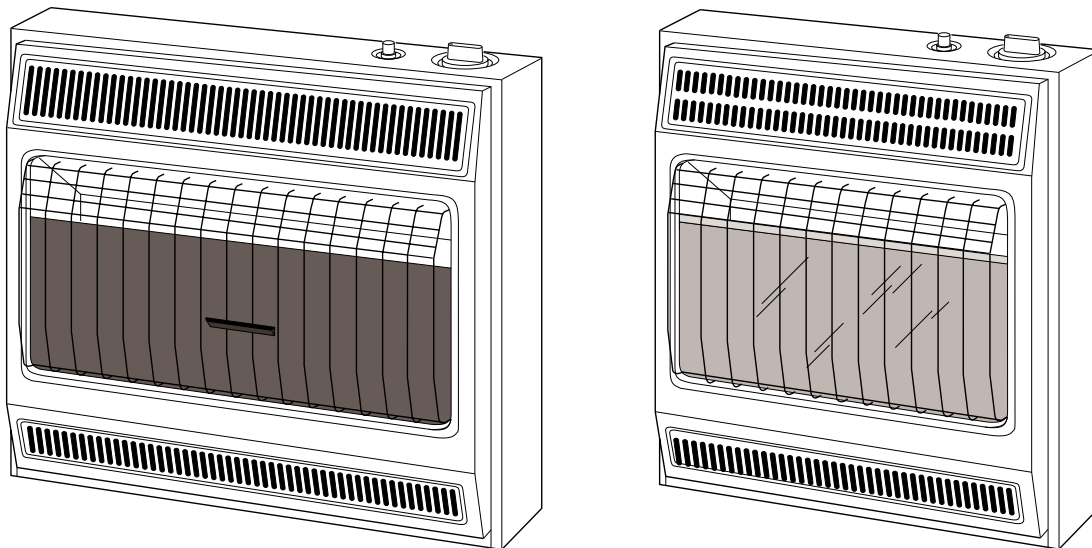


# BLUE-FLAME VENT-FREE NATURAL GAS HEATER

## OWNER'S OPERATION AND INSTALLATION MANUAL

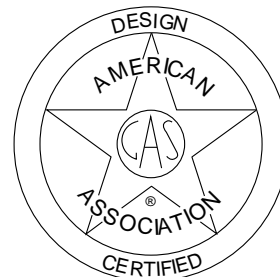


### Model: RN30BT, RN30B and CGN18B

**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.

**WARNING:** Improper installation, adjustment, alteration, service, or maintenance can cause injury or property damage. Refer to this manual for correct installation and operational procedures. For assistance or additional information consult a qualified installer, service agency, or the gas supplier.



**Save this manual for future reference.**

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# SAFETY INFORMATION

## WARNINGS

**IMPORTANT:** Read this owner's manual carefully and completely before trying to assemble, operate, or service this heater. Improper use of this heater can cause serious injury or death from burns, fire, explosion, electrical shock, and carbon monoxide poisoning.

## DANGER

**Carbon monoxide poisoning may lead to death!**

**Carbon Monoxide Poisoning:** Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness, or nausea. If you have these signs, the heater may not be working properly. **Get fresh air at once!** Have heater serviced. Some people are more affected by carbon monoxide than others. These include pregnant women, persons with heart or lung disease or anemia, those under the influence of alcohol, and those at high altitudes.

**Natural Gas:** Natural gas is odorless. An odor-making agent is added to natural gas. The odor helps you detect a natural gas leak. However, the odor added to natural gas can fade. Natural gas may be present even though no odor exits.

Make certain you read and understand all warnings. Keep this manual for reference. It is your guide to safe and proper operation of this heater.

*Safety Information continued on next page*

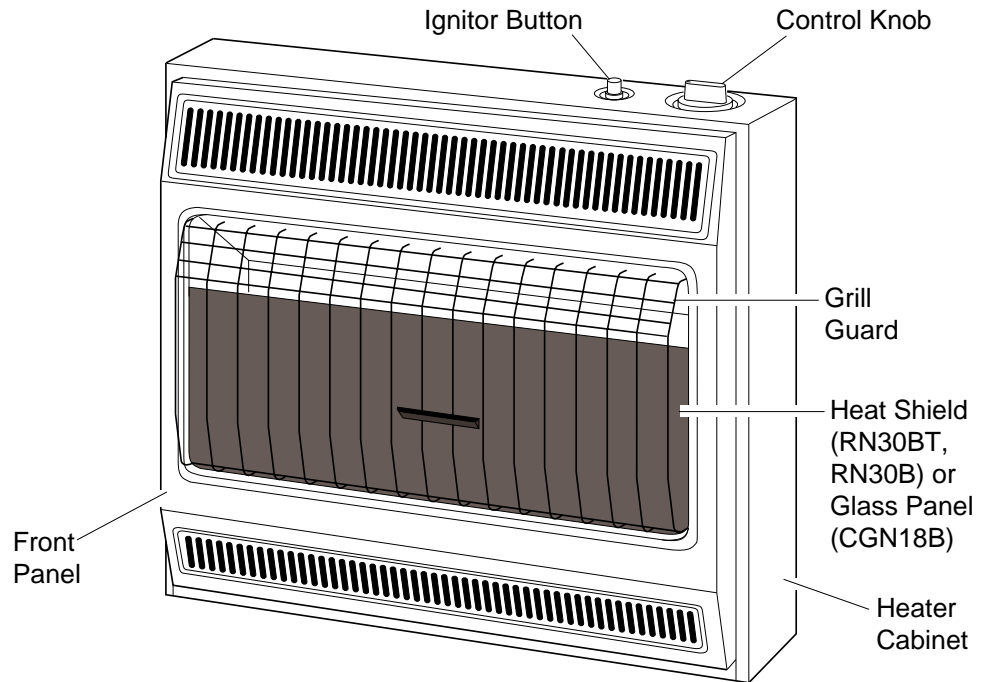
## **SAFETY INFORMATION**

*Continued*

## **⚠ WARNINGS** *Continued*

1. Use only natural gas. Do not convert heater to use different fuel type.
2. If you smell gas
  - Shut off gas supply.
  - 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.
3. Never install the heater
  - in sleeping quarters, a mobile home, or a recreational vehicle
  - where curtains, furniture, clothing, or other flammable objects are less than 36 inches from the front, top, or sides of the heater
  - as a fireplace insert
  - in high traffic areas
  - in windy or drafty areas
4. Open window, door, or garage door to admit fresh, outside air when using heater. Open window one or two inches. When used without fresh, outside air, heater may give off carbon monoxide gas.
5. Never run heater in small, closed room.
6. If heater shuts off, do not relight until you provide fresh, outside air. If heater keeps shutting off, have it serviced.
7. Do not run heater
  - where flammable liquids or vapors are used or stored
  - under dusty conditions
8. Never place any objects on the heater.
9. Surface of heater becomes very hot when running heater. Keep children and adults away from hot surface to avoid burns or clothing ignition. Heater will remain hot for a time after shut-down. Allow surface to cool before touching.
10. Make sure grill guard is in place before running heater.
11. Do not alter heater or its controls. Any change may create a safety hazard.
12. Do not use heater if any part of heater has been under water.
13. Turn off and unplug heater and let cool before servicing. Only a qualified service person should service and repair heater.
14. Do not operate heater above elevations of 4,500 feet.

## PRODUCT IDENTIFICATION



**Figure 1 - Vent-Free Natural Gas Heater**

## LOCAL CODES

Install and use heater with care. Follow all local codes. In the absence of local codes, use the latest edition of National Gas Code ANSI Z223.1, also known as NFPA 54\*.

\*Available from:

American National Standards Institute, Inc.  
1430 Broadway  
New York, NY 10018

National Fire Protection Association, Inc.  
Batterymarch Park  
Quincy, MA 02269

## UNPACKING

1. Remove heater from carton.
2. Remove all protective packaging applied to heater for shipment.
3. Check heater for any shipping damage. If heater is damaged, promptly inform dealer where you bought heater.

## PRODUCT FEATURES

### **Safety Device**

This heater has a pilot with an Oxygen Depletion Sensor Shutoff System (ODS). The ODS/pilot is a required feature for vent-free heaters. The ODS/pilot shuts off the heater if there is not enough fresh air.

### **Piezo Ignition System**

This heater has a piezo ignitor. This system requires no matches, batteries, or other sources to light heater.

### **Thermostatic Heat Control (Thermostat Model Only)**

Thermostat model has a thermostat sensing bulb and a control valve. This results in the greatest heater comfort. This can also result in lower gas bills.

# INSTALLING TO WALL

## NOTICE

**A qualified service person must install heater. Follow all local codes.**

### CHECK GAS TYPE

Use only natural gas. If your gas supply is not natural gas, do not install heater. Call dealer where you bought heater for proper type heater.

### INSTALLATION ITEMS

Before installing the heater, make sure you have the items listed below.

- piping (check local codes)
- sealant (resistant to propane gas)
- manual shutoff valve \*
- ground joint union
- test gauge connection \* (see Figure 11, page 11)
- sediment trap
- tee joint
- pipe wrench

\* An A.G.A. design certified manual shutoff valve with 1/8" NPT tap is an acceptable alternative to test gauge connection. Purchase the optional A.G.A. design certified manual shutoff valve from your dealer. See *Accessories*, page 25.

### LOCATING HEATER

This heater is designed to be mounted on a wall.

## WARNING

**Maintain the minimum clearances shown in Figure 2 (page 6). If you can, provide greater clearances from floor, ceiling, and joining wall.**

You can locate model CGN18B on floor, away from a wall. An optional floor mounting stand is needed. Purchase the floor mounting stand from your dealer. See *Accessories*, page 25.

## WARNING

### Never install the heater

- in sleeping quarters, a mobile home, or a recreational vehicle
- where curtains, furniture, clothing, or other flammable objects are less than 36 inches from the front, top, or sides of the heater
- as a fireplace insert
- in high traffic areas
- in windy or drafty areas

## CAUTION

**Operating heater where impurities in the air (such as tobacco smoke) exist may discolor walls.**

*Continued*

# INSTALLING TO WALL

*Continued*

## ⚠ CAUTION

If you install the heater in a home garage

- heater pilot and burner must be at least 18 inches above floor
- locate heater where moving vehicle will not hit it

For convenience and efficiency, install heater

- where there is easy access for operation, inspection, and service
- where strong wind gusts from an open door or garage door can not blow directly into heater.

An optional fan kit is available from your dealer. See *Accessories*, page 25. If planning to use fan, locate heater near an electrical outlet.

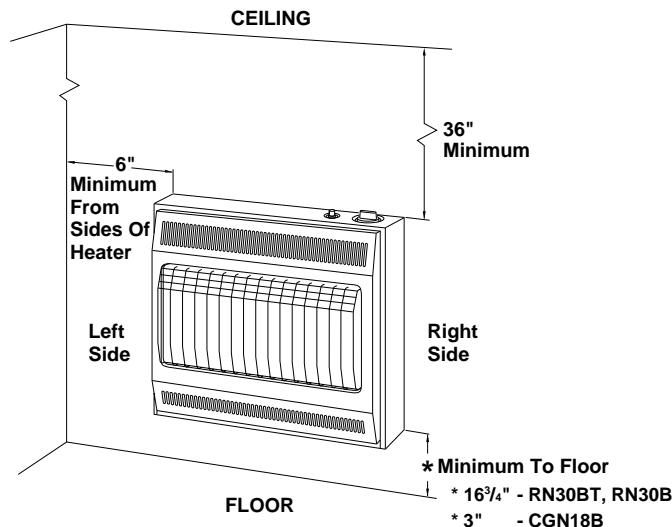


Figure 2 - Mounting Clearances As Viewed From Front of Heater

## THERMOSTAT SENSING BULB (Thermostat Model Only)

The thermostat sensing bulb has been placed inside the heater for protection during shipping.

### Locating Thermostat Sensing Bulb

1. Remove front panel of heater (see Figure 5, page 7).
2. Locate thermostat sensing bulb just under burner assembly.

**IMPORTANT:** Attach thermostat sensing bulb to back of heater for proper operation.

### Attaching Thermostat Sensing Bulb

1. Remove thermostat sensing bulb from holders inside heater. Route through slot opening in bottom of heater.
2. Place clamp on thermostat sensing bulb as shown in Figure 3. Clamp is provided in hardware package.
3. Snap clamp into upper mounting hole as shown in Figure 3. Mounting hole is located on lower left edge on back of heater. Make sure the thermostat sensing bulb is pointing up.

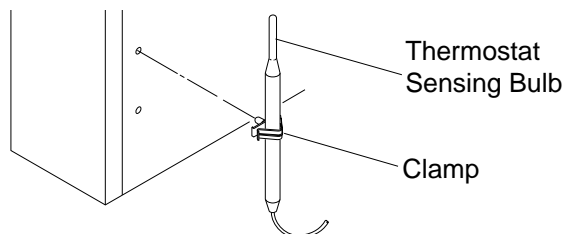


Figure 3 - Attaching Thermostat Sensing Bulb

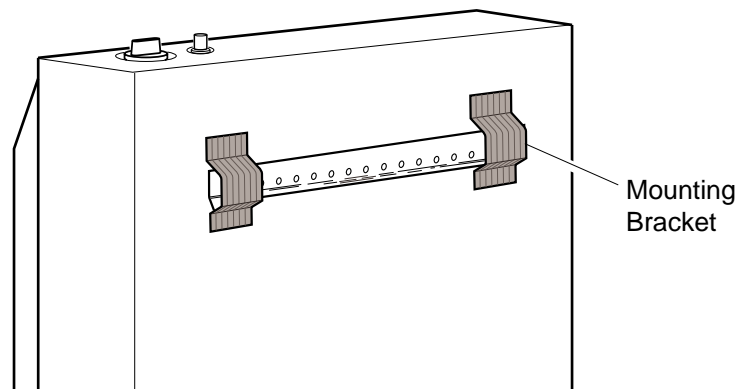
# INSTALLING TO WALL

*Continued*

## INSTALLING HEATER TO WALL

### Mounting Bracket

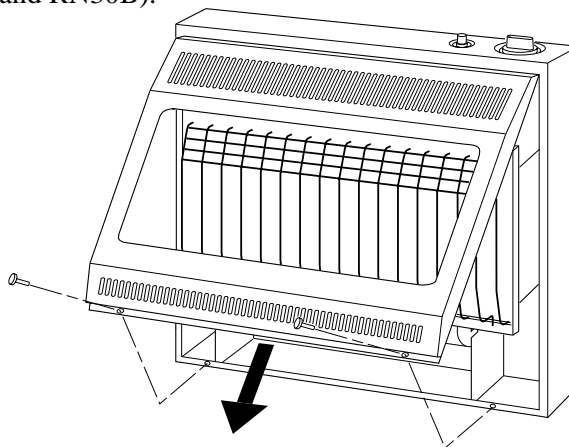
The mounting bracket is located on back panel of heater. It has been taped there for shipping. Remove mounting bracket from back panel.



**Figure 4 - Mounting Bracket Location**

### Removing Front Panel Of Heater

1. Remove two screws near bottom corners of front panel.
2. Lift straight up on grill guard until it stops. Grill guard will slide up about 1/4".
3. Pull bottom of front panel forward, then down.
4. Remove cardboard packing from grill and glass (CGN18B) or heat shield (RN30BT and RN30B).



**Figure 5 - Removing Front Panel Of Heater**

### Methods For Attaching Mounting Bracket To Wall

Only use last hole on each end of mounting bracket to attach bracket to wall. These two holes are 16 inches apart from their centers. Attach mounting bracket to wall in one of two ways.

1. Attaching to wall stud
2. Attaching to wall anchor

**Attaching to wall stud** This method provides the strongest hold. Insert mounting screws through mounting bracket and into wall studs.

**Attaching to wall anchor** This method allows you to attach mounting bracket to hollow walls (wall areas between studs) or to solid walls (concrete or masonry).

Decide which method better suits your needs. Either method will provide a secure hold for the mounting bracket.

# INSTALLING TO WALL

*Continued*

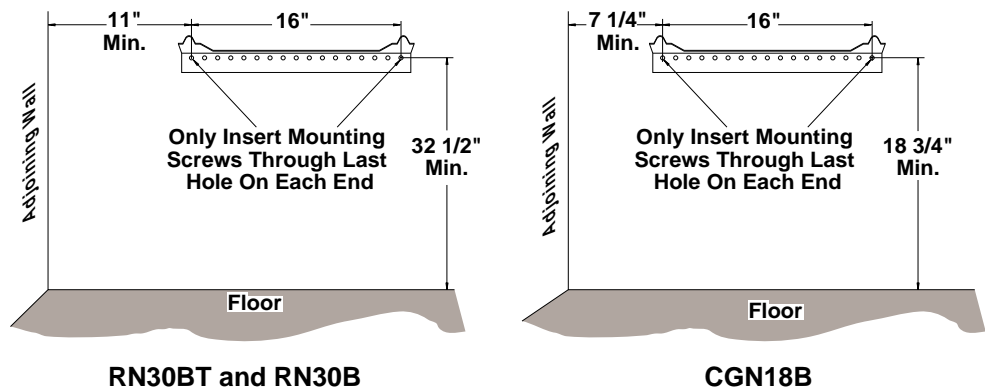
## Marking Screw Locations

1. Tape mounting bracket to wall where heater will be located. Make sure mounting bracket is level.

## WARNING

**Maintain minimum clearances shown in Figure 6. If you can, provide greater clearances from floor and joining wall.**

2. Mark screw locations on wall (see Figure 6).  
*Note:* Only mark last hole on each end of mounting bracket. Insert mounting screws through these holes only.
3. Remove tape and mounting bracket from wall.



**Figure 6 - Mounting Bracket Clearances**

## Attaching Mounting Bracket To Wall

*Note:* Wall anchors, mounting screws, and spacers are in hardware package. The hardware package is provided with heater.

### Attaching to wall stud method

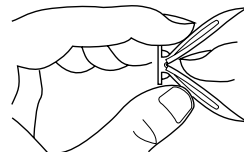
For attaching mounting bracket to wall studs

1. Drill holes at marked locations using 9/64" drill bit.
2. Place mounting bracket onto wall. Line up last hole on each end of bracket with holes drilled in wall.
3. Insert mounting screws through bracket and into wall studs.
4. Tighten screws until mounting bracket is firmly fastened to wall studs.

### Attaching to wall anchor method

For attaching mounting bracket to hollow walls (wall areas between studs) or solid walls (concrete or masonry)

1. Drill holes at marked locations using 5/16" drill bit. For solid walls (concrete or masonry), drill at least 1" deep.
2. Fold wall anchor as shown in Figure 7.



**Figure 7 - Folding Anchor**

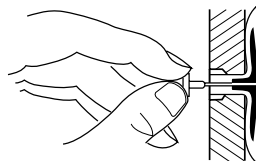
3. Insert wall anchor (wings first) into hole. Tap anchor flush to wall. *Continued*



# INSTALLING TO WALL

*Continued*

4. For thin walls (1/2" or less), insert red key into wall anchor. Push red key to "pop" open anchor wings. **IMPORTANT:** Do not hammer key!  
For thick walls (over 1/2" thick) or solid walls, do not pop open wings.

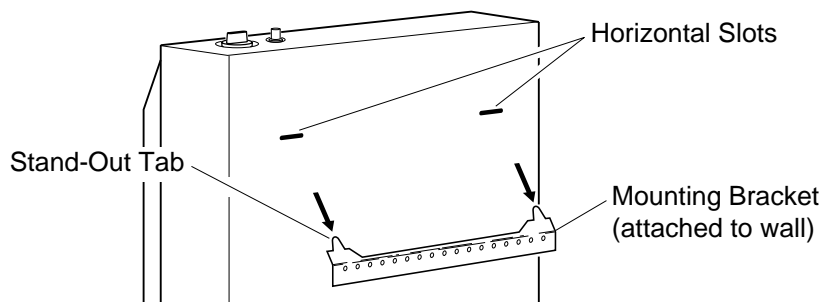


**Figure 8 - Popping Open Anchor Wings For Thin Walls**

5. Place mounting bracket onto wall. Line up last hole on each end of bracket with wall anchors.
6. Insert mounting screws through bracket and into wall anchors.
7. Tighten screws until mounting bracket is firmly fastened to wall.

## Placing Heater On Mounting Bracket

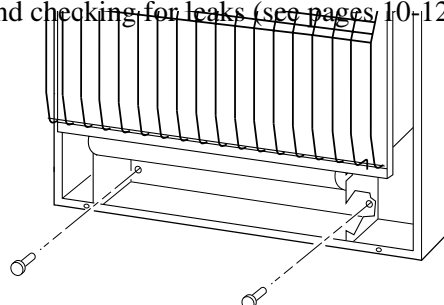
1. Locate two horizontal slots on back panel of heater.
2. Place heater onto mounting bracket. Slide horizontal slots onto stand-out tabs on mounting bracket.



**Figure 9 - Mounting Heater Onto Mounting Bracket**

## Installing Bottom Mounting Screws

1. Locate two bottom mounting holes. These holes are near bottom on back panel of heater (see Figure 10).
2. Mark screw locations on wall.
3. Remove heater from mounting bracket.
4. If installing bottom mounting screws into hollow or solid wall, install wall anchors. Follow steps 1 through 4 under *Attaching To Wall Anchor Method*, page 8.  
If installing bottom mounting screw into wall stud, drill holes at marked locations using 9/64" drill bit.
5. Replace heater onto mounting bracket.
6. Place spacers between bottom mounting holes and wall anchor or drilled hole.
7. Hold spacer in place with one hand. With other hand, insert mounting screw through bottom mounting hole and spacer. Place tip of screw in opening of wall anchor or drilled hole.
8. Tighten both screws until heater is firmly secured to wall. Do not over tighten.  
**Note:** Do not replace front panel at this time. Replace front panel after making gas connections and checking for leaks (see pages 10-12).



**Figure 10 - Installing Bottom Mounting Screws**

# CONNECTING TO GAS SUPPLY

## NOTICE

A qualified service person must connect heater to gas supply. Follow all local codes.

## WARNING

Never connect heater to private (non-utility) gas wells. This gas is commonly known as well-head gas.

*IMPORTANT:* Check gas line pressure before connecting heater to gas line. Gas line pressure must be no greater than 14 inches of water. If gas line pressure is higher, heater regulator damage could occur.

## CAUTION

Use only new, black iron or steel pipe. Copper tubing may be used in certain areas. Check your local codes. Use pipe of 1/2" diameter or greater to allow proper gas volume to heater. If pipe is too small, undue loss of pressure will occur.

Installation must include a manual shutoff valve, union, and plugged 1/8" NPT tap. Locate NPT tap within reach for test gauge hook up. NPT tap must be upstream from heater (see Figure 11, page 11).

Apply pipe joint sealant lightly to male threads. This will prevent excess sealant from going into pipe. Excess sealant in the pipe could result in clogged heater valves.

## CAUTION

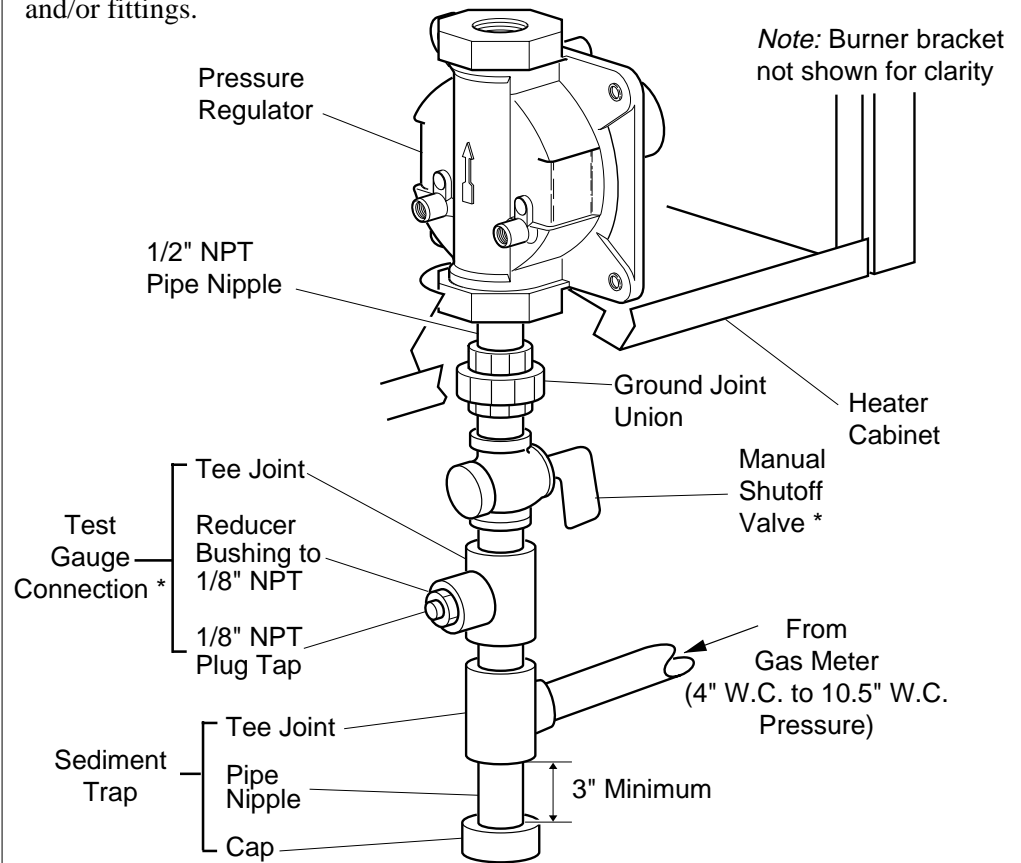
Use pipe joint sealant that is resistant to liquid petroleum (LP) gas.

Install sediment trap in supply line as shown in Figure 11. Locate sediment trap where it is within reach for cleaning. Locate sediment trap where trapped matter is not likely to freeze. A sediment trap traps moisture and contaminants. This keeps them from going into heater controls. If sediment trap is not installed or is installed wrong, heater may not run properly.

# CONNECTING TO GAS SUPPLY

*Continued*

**IMPORTANT:** Hold pressure regulator with wrench when connecting it to gas piping and/or fittings.



**Figure 11 - Gas Connection**

\* An A.G.A. design certified manual shutoff valve with 1/8" NPT tap is an acceptable alternative to test gauge connection. Purchase the optional A.G.A. design certified manual shutoff valve from your dealer. See *Accessories*, page 25.

# CHECKING GAS CONNECTIONS

## **⚠ WARNING**

**Test all gas piping and connections for leaks after installing or servicing. Correct all leaks at once.**

## **⚠ WARNING**

**Never use an open flame to check for a leak. Apply a mixture of liquid soap and water to all joints. Bubbles forming show a leak. Correct all leaks at once.**

### **PRESSURE TESTING GAS SUPPLY PIPING SYSTEM**

#### **Test Pressures In Excess Of 1/2 PSIG**

1. Disconnect heater and its individual manual shutoff valve from gas supply piping system. Pressures in excess of 1/2 PSIG will damage heater regulator.
2. Cap off open end of gas pipe where manual shutoff valve was connected.
3. Pressurize supply piping system by either using compressed air or opening main gas valve located on or near gas meter.

# CHECKING GAS CONNECTIONS

*Continued*

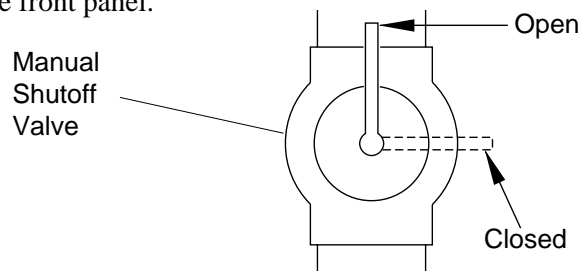
4. Check all joints of gas supply piping system. Apply mixture of liquid soap and water to gas joints. Bubbles forming show a leak.
5. Correct all leaks at once.

## Test Pressures Equal To or Less Than 1/2 PSIG

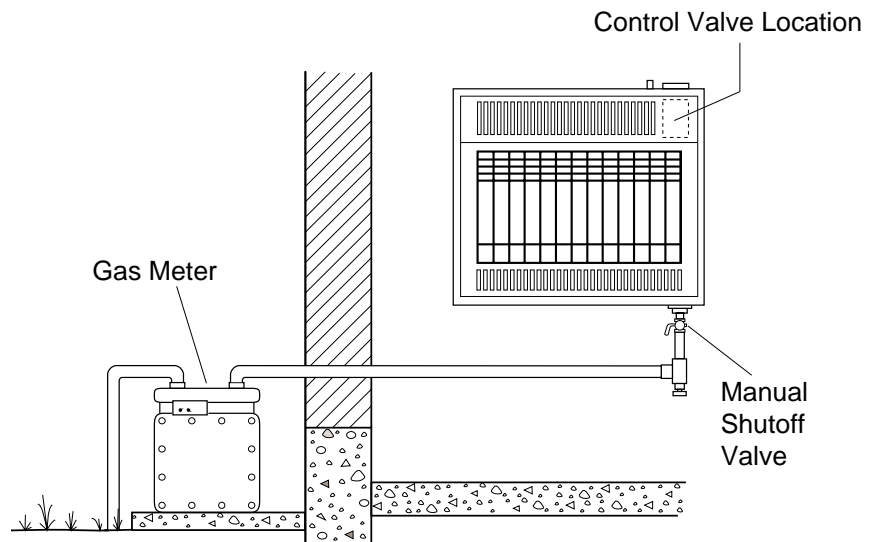
1. Close manual shutoff valve (see Figure 12).
2. Pressurize supply piping system by either using compressed air or opening main gas valve located on or near gas meter.
3. Check all joints from gas meter to manual shutoff valve (see Figure 13). Apply mixture of liquid soap and water to gas joints. Bubbles forming show a leak.
4. Correct all leaks at once.

## PRESSURE TESTING HEATER GAS CONNECTIONS

1. Open manual shutoff valve (see Figure 12).
2. Open main gas valve located on or near gas meter.
3. Make sure control knob of heater is in the OFF position.
4. Check all joints from manual shutoff valve to control valve (see Figure 13). Apply mixture of liquid soap and water to gas joints. Bubbles forming show a leak.
5. Correct all leaks at once.
6. Light heater (see *Operating Heater*, pages 13 through 17). Check the rest of the internal joints for leaks.
7. Turn off heater (see *To Turn Off Gas to Appliance*, page 15 [Thermostat Model] or page 18 [Non-Thermostat Models]).
8. Replace front panel.



**Figure 12 - Manual Shutoff Valve**



**Figure 13 - Checking Gas Joints**

# OPERATING HEATER Thermostat Model

## 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.**

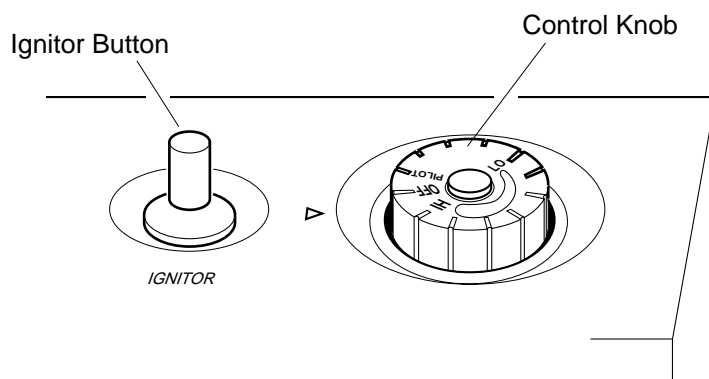
- A. This appliance has a pilot which must be lighted by hand. When lighting the pilot, follow these instructions exactly.
- B. **BEFORE LIGHTING** smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

#### WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
  - Do not touch any electric 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 or gas supplier. 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. Make sure manual shutoff valve is fully open.
3. Turn control knob clockwise  to the OFF position.




**Figure 14 - Control Knob In The OFF Position**

# OPERATING HEATER

## Thermostat Model *Continued*

4. Wait five (5) 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 at the top of page 13. If you don’t smell gas, go to the next step.

5. Turn control knob counterclockwise  to the PILOT position. Press in control knob for five (5) seconds (see Figure 14).

**Note:** You may be running this heater for the first time after hooking up to gas supply. If so, the control knob may need to be pressed in for 30 seconds. This will allow air to bleed from the gas system.

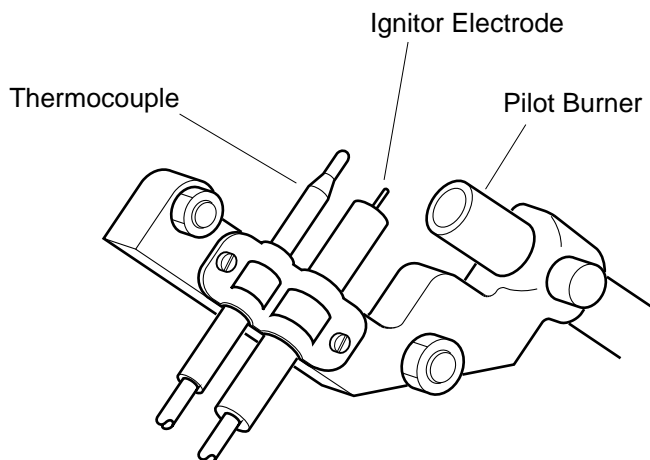
- If control knob does not pop up when released, contact a qualified service person or gas supplier for repairs.

6. With control knob pressed in, push down and release ignitor button. This will light pilot. The pilot is attached to the front of burner. The pilot can be seen through the glass panel. If needed, keep pressing ignitor button until pilot lights.

**Note:** If pilot does not stay lit, refer to *Troubleshooting*, pages 20 through 23.


Also contact a qualified service person or gas supplier for repairs. Until repairs are made, light pilot with match. To light pilot with match, see *Manual Lighting Procedure*, page 15.

7. Keep control knob pressed in for 30 seconds after lighting pilot. After 30 seconds, release control knob.



**Figure 15 - Pilot**

**Note:** If pilot goes out, repeat steps 3 through 7. This heater has a safety interlock system. Wait one (1) minute before lighting pilot again.

8. Turn control knob counterclockwise  to desired heating level. The main burner should light. Set control knob to any heat level between HI and LO.

### CAUTION


**Do not try to adjust heating levels by using the manual shutoff valve.**

# OPERATING HEATER


## Thermostat Model *Continued*

### TO TURN OFF GAS TO APPLIANCE

#### Shutting Off Heater

1. Turn control knob clockwise  to the OFF position.
2. Turn off all electric power to the appliance if service is to be performed.

#### Shutting Off Burner Only (pilot stays lit)

1. Turn control knob clockwise  to the PILOT position.

### THERMOSTAT CONTROL OPERATION (Thermostat Models Only)

The thermostatic control used on these models differs from standard thermostats. Standard thermostats simply turn on and off the burner. The thermostat used on this heater senses the room temperature. The thermostat adjusts the amount of gas flow to the burner. This increases or decreases the burner flame height. At times the room may exceed the set temperature. If so, the burner will shut off. The burner will cycle back on when room temperature drops below the set temperature. The control knob can be set to any heat level between HI and LO.

*Note:* The thermostat sensing bulb measures the temperature of air near the heater cabinet. This may not always agree with room temperature (depending on housing construction, installation location, room size, open air temperatures, etc.). Frequent use of your heater will let you determine your own comfort levels.

### MANUAL LIGHTING PROCEDURE

1. Remove front panel (see Figure 5, page 7).
2. Follow steps 1 through 5 under *Lighting Instructions*, pages 13 and 14.
3. With control knob pressed in, strike match. Hold match to pilot until pilot lights.
4. Keep control knob pressed in for 30 seconds after lighting pilot. After 30 seconds, release control knob.
5. Replace front panel.

# OPERATING HEATER Non-Thermostat Models

## 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 electric 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 or gas supplier. 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. Make sure manual shutoff valve is fully open.
3. Turn control knob clockwise  to the OFF position.

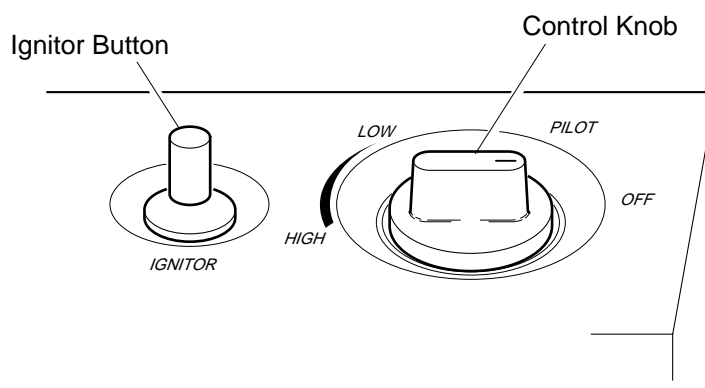


Figure 16 - Control Knob In The OFF Position




# OPERATING HEATER

## Non-Thermostat Models

*Continued*

4. Wait five (5) 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 at the top of page 16. If you don’t smell gas, go to the next step.

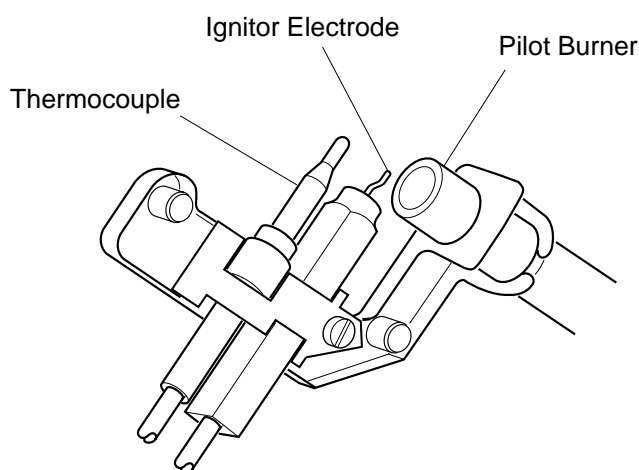
5. Press in control knob and turn counterclockwise  to the PILOT position. Keep control knob pressed in for five (5) seconds (see Figure 16).

*Note:* You may be running this heater for the first time after hooking up to gas supply. If so, the control knob may need to be pressed in for 30 seconds. This will allow air to bleed from the gas system.

- If control knob does not pop up when released, contact a qualified service person or gas supplier for repairs.

6. With control knob pressed in, push down and release ignitor button. This will light pilot. The pilot is attached to the front of burner. The burner and pilot are located behind the heat shield. If needed, keep pressing ignitor button until pilot lights.



*Note:* If pilot does not stay lit, refer to *Troubleshooting*, pages 20 through 23. Also contact a qualified service person or gas supplier for repairs. Until repairs are made, light pilot with match. To light pilot with match, see *Manual Lighting Procedures*, page 18.



**Figure 17 - Pilot**

7. Keep control knob pressed in for 30 seconds after lighting pilot. After 30 seconds, release control knob.

*Note:* If pilot goes out, repeat steps 3 through 7.

8. Turn control knob counterclockwise  to the LOW position. The main burner should light. Set control knob to any heat level between HIGH and LOW. To turn control knob from LOW to a higher setting, press in the control knob and turn counterclockwise .

*Note:* Both HIGH and LOW are locked positions. You must press in control knob before turning it from these positions.

### CAUTION

**Do not try to adjust heating levels by using the manual shutoff valve.**

# OPERATING HEATER



## Non-Thermostat

### Models


*Continued*

## TO TURN OFF GAS TO APPLIANCE

### Shutting Off Heater

1. Turn control knob clockwise  to the PILOT position.
2. Press in control knob and turn clockwise  to the OFF position.
3. Turn off all electric power to the appliance if service is to be performed.

### Shutting Off Burner Only (pilot stays lit)

1. Turn control knob clockwise  to the PILOT position.

## MANUAL LIGHTING PROCEDURE

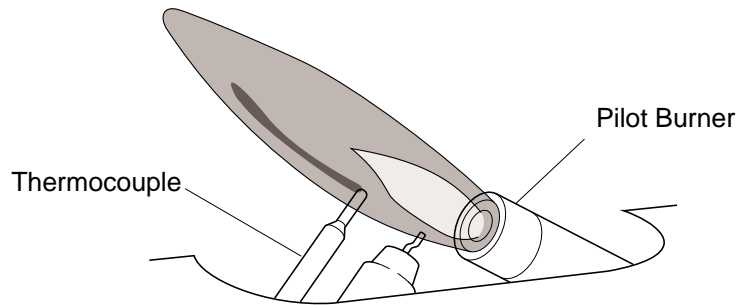
1. Remove front panel (see Figure 3, page 7).
2. Follow steps 1 through 5 under *Lighting Instructions*, pages 16 and 17.
3. With control knob pressed in, strike match. Hold match to pilot until pilot lights.
4. Keep control knob pressed in for 30 seconds after lighting pilot. After 30 seconds, release control knob.
5. Replace front panel.

## INSPECTING BURNER

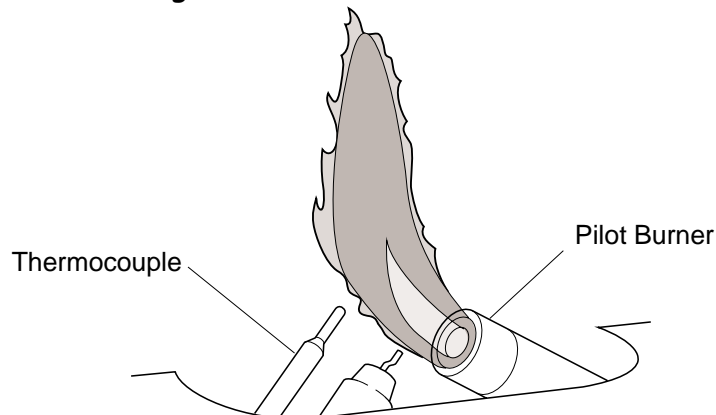
Check pilot flame pattern and burner flame pattern often.

### PILOT FLAME PATTERN

Figure 18 shows a correct pilot flame pattern. Figure 19 shows an incorrect pilot flame pattern. The incorrect pilot flame is not touching the thermocouple. This will cause the thermocouple to cool. When the thermocouple cools, the heater will shut down.



**Figure 18 - Correct Pilot Flame Pattern**



**Figure 19 - Incorrect Pilot Flame Pattern**

# INSPECTING BURNER

*Continued*

If pilot flame pattern is incorrect, as shown in Figure 19

- turn heater off (see *To Turn Off Gas to Appliance*, page 15 [Thermostat Model] or page 18 [Non-Thermostat Models])
- see *Troubleshooting*, pages 20 through 23

## BURNER FLAME PATTERN

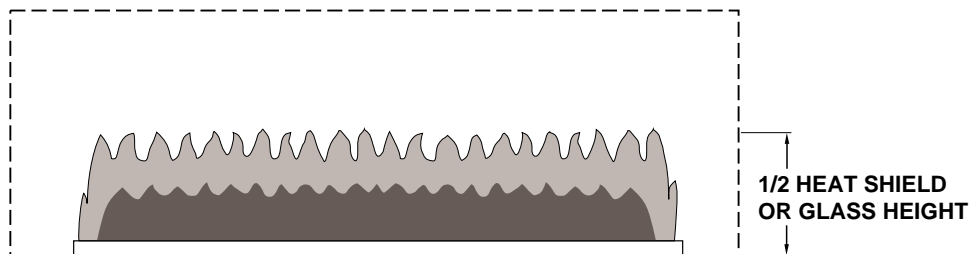
Figure 20 shows a correct burner flame pattern. Figure 21 shows an incorrect burner flame pattern. The incorrect burner flame pattern shows yellow tipping of the flame. It also shows the flame higher than 1/2 the heat shield height.

### WARNING

If yellow tipping occurs, your heater could produce increased levels of carbon monoxide. If burner flame pattern shows yellow tipping, follow instructions at bottom of this page.

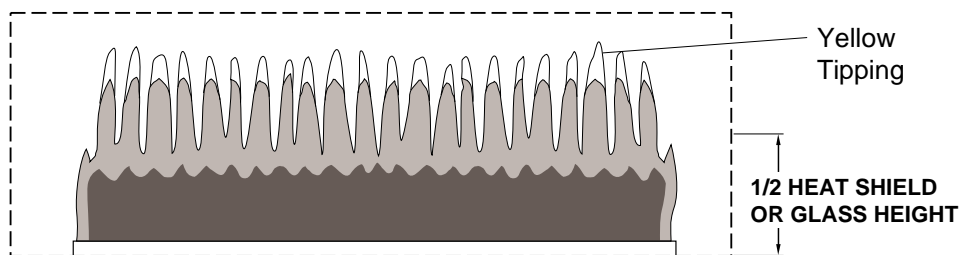
### NOTICE

Do not mistake orange flames with yellow tipping. Dirt or other fine particles enter the heater and burn causing brief patches of orange flame.



#### CORRECT FLAME PATTERN AT HIGH POSITION

*Figure 20 - Correct Burner Flame Pattern*



#### INCORRECT FLAME PATTERN AT HIGH POSITION

*Figure 21 - Incorrect Burner Flame Pattern*

If burner flame pattern is incorrect, as shown in Figure 21

- turn heater off (see *To Turn Off Gas to Appliance*, page 15 [Thermostat Model] or page 18 [Non-Thermostat Models])
- see *Troubleshooting*, pages 20 through 23

# CLEANING AND MAINTENANCE

## WARNING

Turn off heater and let cool before cleaning.

## CAUTION

You must keep control areas, burner, and circulating air passageways of heater clean. Inspect these areas of heater before each use. Have heater inspected yearly by a qualified service person. Heater may need more frequent cleaning due to excessive lint from carpeting and bedding material, sawdust, cobwebs, etc.

### ODS/PILOT AND BURNER

- Use a vacuum cleaner, pressurized air, or small, soft bristled brush to clean.

### CABINET

#### Air Passageways

- Use a vacuum cleaner or pressurized air to clean.

#### Exterior

- Use a soft cloth dampened with a mild soap and water mixture. Wipe the cabinet to remove dust.

# TROUBLE-SHOOTING

Note: All troubleshooting items are listed in order of operation.

## WARNING

Turn off and unplug heater and let cool before servicing. Only a qualified service person should service and repair heater.

## CAUTION

Never use a wire, needle, or similar object to clean ODS/pilot. This can damage ODS/pilot unit.

OBSERVED PROBLEM	POSSIBLE CAUSE	REMEDY
When ignitor button is pressed, there is no spark at ODS/pilot.	<ol style="list-style-type: none"> <li>1. Ignitor electrode positioned wrong.</li> <li>2. Ignitor electrode broken</li> <li>3. Ignitor electrode not connected to ignitor cable.</li> <li>4. Ignitor cable pinched or wet</li> <li>5. Piezo ignitor nut is loose</li> <li>6. Broken ignitor cable</li> <li>7. Bad piezo ignitor</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace ignitor.</li> <li>2. Replace ignitor.</li> <li>3. Reconnect ignitor cable.</li> <li>4. Free ignitor cable if pinched by any metal or tubing. Keep ignitor cable dry.</li> <li>5. Tighten nut holding piezo ignitor to heater cabinet. Nut is located inside heater cabinet at top.</li> <li>6. Replace ignitor cable.</li> <li>7. Replace piezo ignitor.</li> </ol>

# TROUBLE-SHOOTING

*Continued*

OBSERVED PROBLEM	POSSIBLE CAUSE	REMEDY
When ignitor button is pressed, there is spark at ODS/pilot but no ignition.	<ol style="list-style-type: none"> <li>1. Gas supply turned off or manual shutoff valve closed</li> <li>2. Control knob not in PILOT position</li> <li>3. Control knob not pressed in while in PILOT position</li> <li>4. Air in gas lines when installed</li> <li>5. ODS/pilot is clogged.</li> <li>6. Gas regulator setting is not correct.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn on gas supply or open manual shutoff valve.</li> <li>2. Turn control knob to PILOT position.</li> <li>3. Press in control knob while in PILOT position.</li> <li>4. Continue holding down control knob. Repeat igniting operation until air is removed.</li> <li>5. Clean ODS/pilot (see <i>Cleaning and Maintenance</i>, page 20) or replace ODS/pilot assembly.</li> <li>6. Replace gas regulator.</li> </ol>
ODS/pilot lights but flame goes out when control knob is released.	<ol style="list-style-type: none"> <li>1. Control knob not fully pressed in</li> <li>2. Control knob not pressed in long enough</li> <li>3. Safety interlock system has been triggered (thermostat model only).</li> <li>4. Manual shutoff valve not fully open</li> <li>5. Thermocouple connection loose at control valve</li> <li>6. Pilot flame not touching thermocouple, which allows thermocouple to cool, causing pilot flame to go out. This problem could be caused by one or both of the following: A) Low gas pressure B) Dirty or partially clogged ODS/pilot</li> <li>7. Thermocouple damaged</li> <li>8. Control valve damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Press in control knob fully.</li> <li>2. After ODS/pilot lights, keep control knob pressed in 30 seconds.</li> <li>3. Wait one minute for safety interlock system to reset. Repeat ignition.</li> <li>4. Fully open manual shutoff valve.</li> <li>5. Hand tighten until snug, then tighten 1/4 turn more.</li> <li>6. A) Contact local natural gas company.  B) Clean ODS/pilot (see <i>Cleaning and Maintenance</i>, page 20) or replace ODS/pilot assembly.</li> </ol>
Burner does not light after ODS/pilot is lit.	<ol style="list-style-type: none"> <li>1. Burner orifice is clogged.</li> </ol>	<ol style="list-style-type: none"> <li>7. Replace thermocouple.</li> <li>8. Replace control valve.</li> <li>1. Clean burner (see <i>Cleaning and Maintenance</i>, page 20) or replace burner orifice.</li> </ol>

*Continued*

# TROUBLE-SHOOTING

*Continued*

OBSERVED PROBLEM	POSSIBLE CAUSE	REMEDY
Burner does not light after ODS/pilot is lit. (continued from page 21)	<ol style="list-style-type: none"> <li>2. Burner orifice diameter is too small.</li> <li>3. Inlet gas pressure is too low.</li> </ol>	<ol style="list-style-type: none"> <li>2. Replace burner orifice.</li> <li>3. Contact local natural gas company.</li> </ol>
Delayed ignition of burner	<ol style="list-style-type: none"> <li>1. Manifold pressure is too low.</li> <li>2. Burner orifice is clogged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact local natural gas company.</li> <li>2. Clean burner (see <i>Cleaning and Maintenance</i>, page 20) or replace burner orifice.</li> </ol>
Burner backfiring during combustion.	<ol style="list-style-type: none"> <li>1. Burner orifice is clogged or damaged.</li> <li>2. Burner damaged</li> <li>3. Defective gas regulator</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean burner (see <i>Cleaning and Maintenance</i>, page 20) or replace burner orifice.</li> <li>2. Replace burner.</li> <li>3. Replace gas regulator.</li> </ol>
Yellow flame during burner combustion	<ol style="list-style-type: none"> <li>1. Not enough air</li> <li>2. Defective gas regulator</li> </ol>	<ol style="list-style-type: none"> <li>1. Check burner for dirt and debris. If found, clean burner (see <i>Cleaning and Maintenance</i>, page 20).</li> <li>2. Replace gas regulator.</li> </ol>
Slight smoke or odor during initial operation	<ol style="list-style-type: none"> <li>1. Residues from manufacturing processes</li> </ol>	<ol style="list-style-type: none"> <li>1. Problem will stop after a few hours of operation.</li> </ol>
Heater produces a whistling noise when burner is lit.	<ol style="list-style-type: none"> <li>1. Turning control knob to HIGH position when burner is cold</li> <li>2. Air in gas line</li> <li>3. Air passageways on heater blocked</li> <li>4. Dirty or partially clogged burner orifice</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn control knob to LOW position and let warm up for a minute.</li> <li>2. Operate burner until air is removed from line. Have gas line checked by local natural gas company.</li> <li>3. Observe minimum installation clearances (see Figure 2, page 6).</li> <li>4. Clean burner (see <i>Cleaning and Maintenance</i>, page 20) or replace burner orifice.</li> </ol>

*Continued*

# TROUBLE-SHOOTING

*Continued*

## WARNING

If you smell gas

- Shut off gas supply.
- 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.

OBSERVED PROBLEM	POSSIBLE CAUSE	REMEDY
Heater produces a clicking/ticking noise just after burner is lit or shut off.	1. Metal expanding while heating or contracting while cooling	1. This is common with most heaters. If noise is excessive, contact qualified service person.
Heater produces unwanted odors.	1. Heater burning vapors from paint, solvents, glues, etc. 2. Gas leak. <b>See Warning statement at top of page.</b>	1. Ventilate room. Stop using odor causing products while heater is running. 2. Locate and correct all leaks (see <i>Checking Gas Connections</i> , page 11).
Heater shuts off in use. (ODS operates)	1. Not enough fresh air is available 2. Low line pressure 3. ODS/pilot is partially clogged.	1. Open window and/or door for ventilation. 2. Contact local natural gas company. 3. Clean ODS/pilot (see <i>Cleaning and Maintenance</i> , page 20).
Gas odor even when control knob is in OFF position	1. Gas leak. <b>See Warning statement at top of page.</b> 2. Control valve defective	1. Locate and correct all leaks (see <i>Checking Gas Connections</i> , page 11). 2. Replace control valve.
Gas odor during combustion	1. Foreign matter between control valve and burner 2. Gas leak. <b>See Warning statement at top of page.</b>	1. Take apart gas tubing and remove foreign matter. 2. Locate and correct all leaks (see <i>Checking Gas Connections</i> , page 11).

# TECHNICAL SERVICE

## SPECIFICATIONS

You may have further questions about installation, operation, or troubleshooting. If so, contact DESA International's Technical Service Department at 1-800-323-5190.

	<b>RN30BT</b>	<b>RN30B</b>	<b>CGN18B</b>
B.T.U (Variable)	15,000/30,000		9,000/18,000
Type Gas	Natural Only		Natural Only
Ignition	Piezo		Piezo
Pressure Regulator Setting	3" W.C.		3" W.C.
Inlet Gas Pressure (inches of water)			
Maximum	10.5"		10.5"
Minimum	4"		4"
Dimensions, Inches (H x W x D)			
Heater	23.5 x 25.9 x 8.0		23.5 x 18.5 x 8.0
Carton	25.8 x 28.7 x 10.1		25.8 x 21.3 x 10.1
Weight (pounds)			
Heater	30		22
Shipping	35		27

## SERVICE HINTS

### When gas pressure is too low

- pilot will not stay lit
- burner will have delayed ignition
- heater will not produce specified heat

### When gas quality is bad

- pilot will not stay lit
- burner will produce flames and soot
- heater will backfire when lit

You may feel your gas pressure is too low or gas quality is bad. If so, contact your local natural gas supplier.

## REPLACEMENT PARTS

*Note:* Use only original replacement parts. This will protect your warranty coverage for parts replaced under warranty.

### Parts Under Warranty

Contact authorized dealers of this product. If they can't supply original replacement part(s), either contact your nearest Parts Central (see below) or call DESA International's Technical Service Department at 1-800-323-5190. When calling, have ready:

- your name
- your address
- model number of your heater
- how heater was malfunctioning
- type of gas used (propane or natural gas)
- purchase date

Usually, we will ask you to return the defective part to the factory.

### Parts Not Under Warranty

Contact authorized dealers of this product. If they can't supply original replacement part(s), either contact your nearest Parts Central (see below) or call DESA International's Parts Department at 1-800-972-7879. When calling, have ready:

- model number of your heater
- the replacement part number



## PARTS CENTRALS

These Parts Centrals are privately owned businesses. They have agreed to support our customer's needs by providing original replacement parts and accessories. When calling a Parts Central, ask for the Parts Department.

**Portable Heater Parts**  
342 N. County Rd 400 E.  
Valparaiso, IN 46383  
All States 219-462-7441  
1-800-362-6951

**Master Service Center**  
1184 Wilson NW  
Walker, MI 49504  
US 1-800-446-1446  
616-791-4760

**Washer Equipment Co.**  
1715 Main Street  
Kansas City, MO 64108  
KS, MO, AR 816-842-3911

**East Coast Energy Products**  
833 Broadway  
West Long Branch, NJ 07764  
908-870-8809  
1-800-755-8809

**Taratin Tank Co.**  
P.O. Box 6129  
Freehold, NJ 07728  
908-780-9340

**Albany Ladder**  
1586 Central Ave.  
Albany, NY 12205  
NY, MA, VT 518-869-5335  
1-800-354-7368

**Dayton Hardware**  
P.O. Box 275  
North Dayton Station  
Dayton, OH 45404  
All States 513-258-3721  
OH 1-800-762-3426

**Warmer Image**  
Halco Enterprises  
208 Carter Drive, Unit 21  
West Chester, PA 19382  
US 1-800-368-0803  
215-696-2670

**Cans Unlimited, Inc.**  
P.O. Box 645  
Taylor, SC 29687  
All States 1-800-845-5301  
803-879-3009

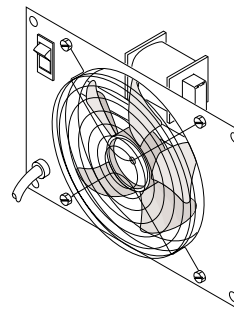
**Dealers LP**  
P.O. Box 341145  
Bartlett, TN 38184  
AL, TN 901-386-8780

## ACCESSORIES

Purchase these heater accessories from your local dealer. If they can not supply these accessories, either contact your nearest Parts Central (see above) or call DESA International's Parts Department at 1-800-972-7879. You can also write to the address listed on the back page of this manual.

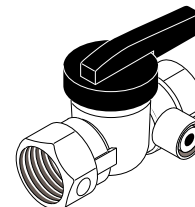
### FAN KIT - GA2100A

Provides better heat distribution.  
Makes heater more efficient. Complete installation and operating instructions included.



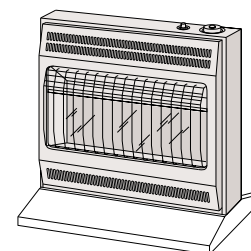
### MANUAL SHUTOFF VALVE - GA5010

Manual shutoff valve with 1/8" NPT tap.

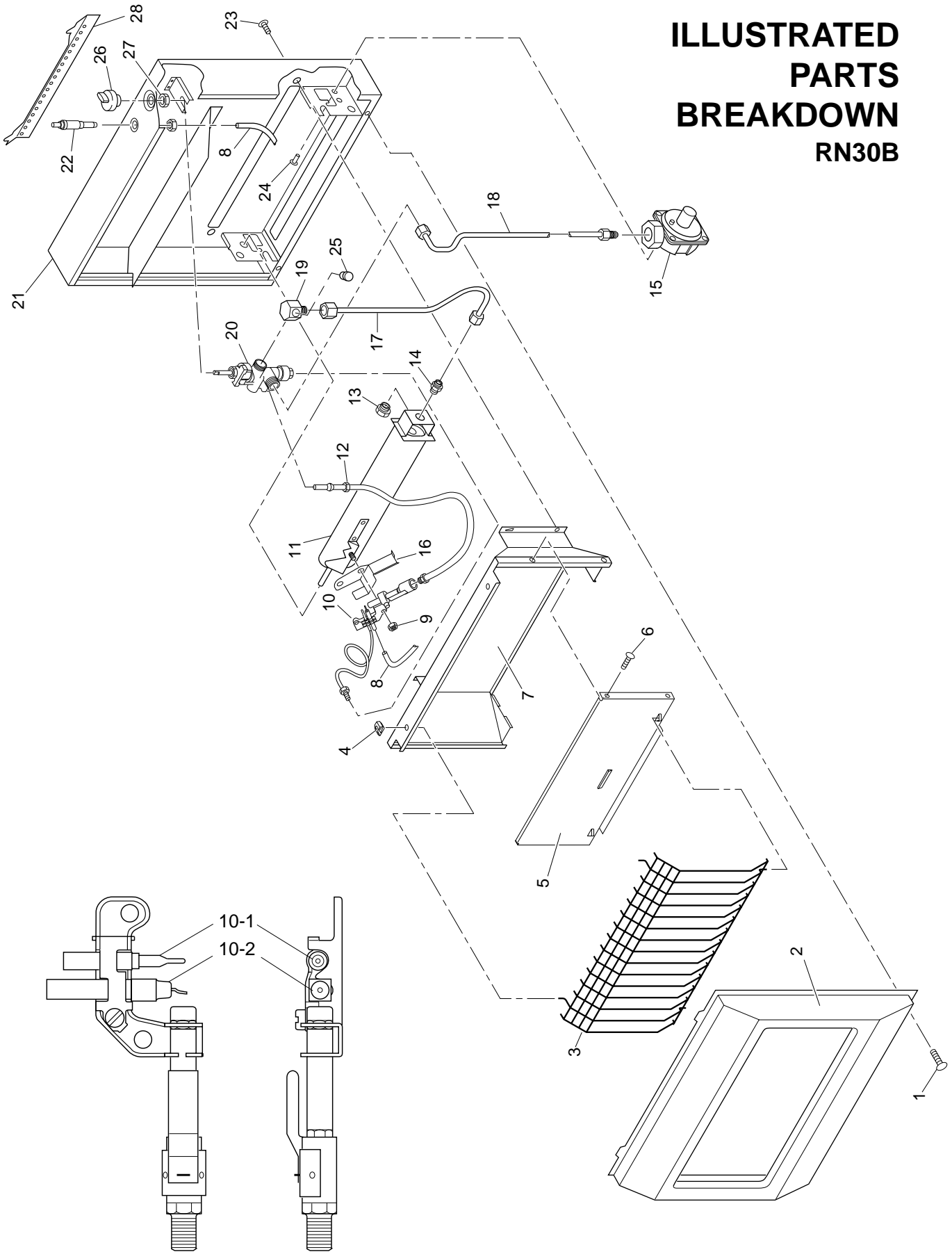


### FLOOR MOUNTING STAND - GA4000 Model CGN18B only

For locating heater on the floor, away from a wall. Complete installation instructions included.



# ILLUSTRATED PARTS BREAKDOWN RN30B



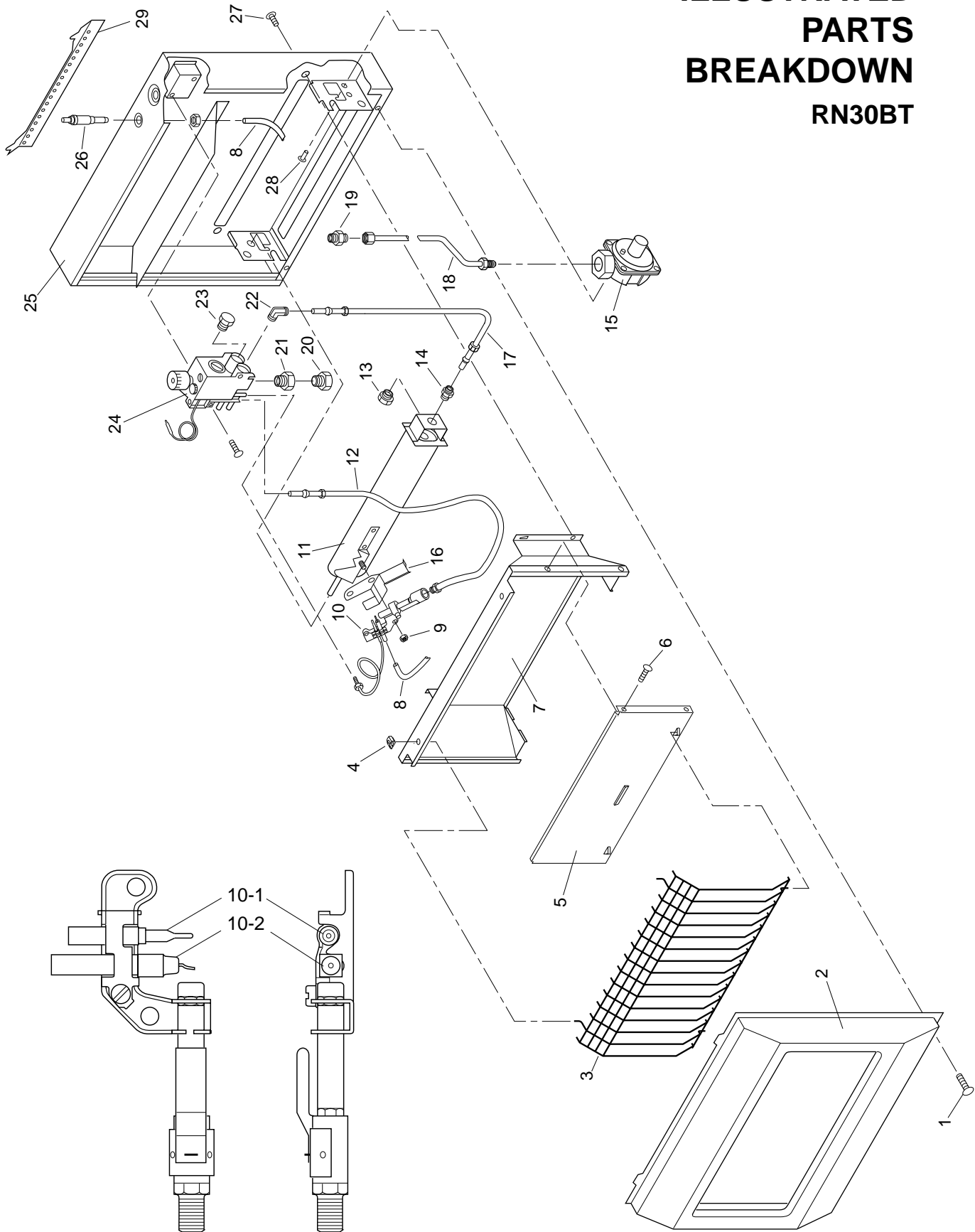
ODS/Pilot

# RN30B PARTS LIST

This list contains replaceable parts used in your heater. When ordering parts, follow the instructions listed under *Replacement Parts* on page 24 of this manual.

KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	098304-01	Screw, #10 x 3/8"	2
2	098742-09	Front Panel	1
3	098197-02	Grill Guard	1
4	098342-01	Clip, Grill Guard	2
5	099001-01BR	Heat Shield	1
6	M11084-26	Screw, #10 x 3/8"	4
7	098352-02BR	Deflector Unit	1
8	098271-03	Ignitor Cable	1
9	098249-01	Nut, M5	2
10	503329-02	ODS/Pilot, N.G.	1
10-1	098514-01	Thermocouple	1
10-2	098594-01	Ignitor Electrode	1
11	098243-02	Burner	1
12	099387-05	3/16" Pilot Tubing	1
13	098251-06	Injector	1
14	098250-01	Injector Holder	1
15	098867-04	Pressure Regulator	1
16	099553-01	Pilot Shield	1
17	100091-01	3/8" Outlet (Burner) Tubing	1
18	100092-01	3/8" Inlet Tubing	1
19	100068-01	Pressure Tap Fitting	1
20	100047-01	Control Valve	1
21	098529-02	Cabinet	1
22	097159-01	Piezo Ignitor	1
23	M11084-26	Screw, #10 x 3/8"	2
24	M11084-38	Screw, #8 x 3/8"	2
25	098276-01	1/8" NPT Plug	1
26	098354-01	Control Knob	1
27	098508-01	Valve Retainer Nut	1
28	099066-01	Mounting Bracket	1
<b>PARTS AVAILABLE — NOT SHOWN</b>			
	098306-02	Control Position Decal	1
	099261-02	Operating Instructions Decal	1

# ILLUSTRATED PARTS BREAKDOWN RN30BT



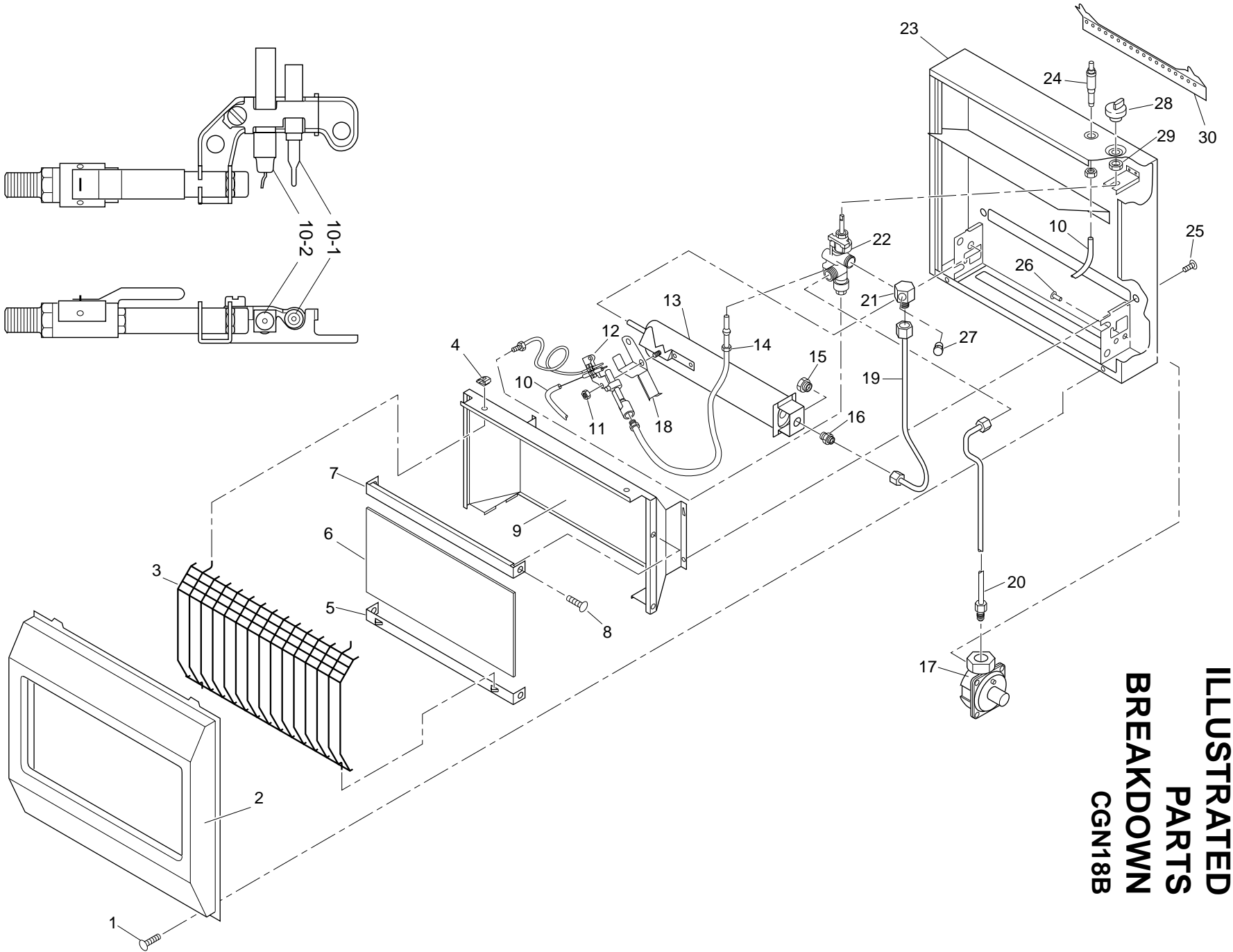
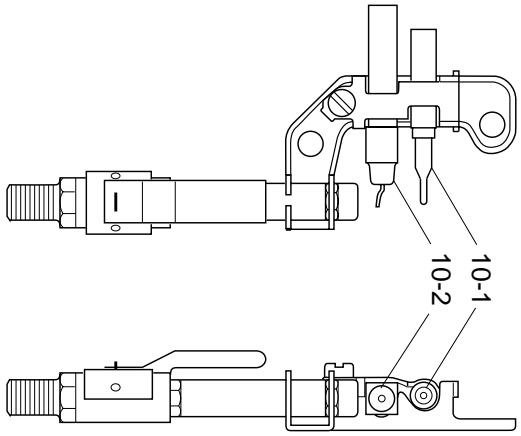
ODS/Pilot

# RN30BT PARTS LIST

This list contains replaceable parts used in your heater. When ordering parts, follow the instructions listed under *Replacement Parts* on page 24 of this manual.

KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	098304-01	Screw, #10 x 3/8"	2
2	098742-09	Front Panel	1
3	098197-02	Grill Guard	1
4	098342-01	Clip, Grill Guard	2
5	099001-01BR	Heat Shield	1
6	M11084-26	Screw, #10 x 3/8"	4
7	098352-02BR	Deflector Unit	1
8	098271-02	Ignitor Cable	1
9	098249-01	Nut, M5	2
10	099440-05	ODS/Pilot Assembly	1
10-1	098514-01	Thermocouple	1
10-2	098515-01	Ignitor Electrode	1
11	099126-02	Burner	1
12	098517-01	3/16" Pilot Tubing	1
13	098251-04	Injector	1
14	098250-01	Injector Holder	1
15	098867-04	Pressure Regulator	1
16	099553-01	Pilot Shield	1
17	098518-01	3/8" Outlet (Burner) Tubing	1
18	098297-03	3/8" Inlet Tubing	1
19	098264-02	3/8" NPT Male Connector	1
20	098276-01	1/8" NPT Plug	1
21	098277-01	3/8" to 1/8" NPT Bushing	1
22	098265-01	3/8" NPT Male Elbow	1
23	098275-01	3/8" NPT Plug	1
24	098522-04	Thermostat Gas Valve	1
25	098529-02	Cabinet	1
26	097159-01	Piezo Ignitor	1
27	M11084-26	Screw, #10 x 3/8"	2
28	M11084-38	Screw, #8 x 3/8"	2
29	099066-01	Mounting Bracket	1
<b>PARTS AVAILABLE — NOT SHOWN</b>			
	098305-01	Control Position Label	1

ODS/Pilot



**ILLUSTRATED  
PARTS  
BREAKDOWN  
CGN18B**

# CGN18B PARTS LIST

This list contains replaceable parts used in your heater. When ordering parts, follow the instructions listed under *Replacement Parts* on page 24 of this manual.

KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	098304-01	Screw, #10 x 3/8"	2
2	098742-03	Front Panel	1
3	098197-01	Grill Guard	1
4	098342-01	Grill Guard Clip	2
5	098533-01BR	Bottom Glass Retainer	1
6	098260-01	Glass Panel	1
7	098532-01AA	Top Glass Retainer	1
8	M11084-26	Screw, #10 x 3/8"	4
9	098352-01BR	Deflector Unit	1
10	098271-03	Ignitor Cable	1
11	098249-01	Nut, M5	2
12	503329-02	ODS/Pilot Assembly	1
12-1	098514-01	Thermocouple	1
12-2	098594-01	Ignitor Electrode	1
13	099120-02	Burner	1
14	099387-05	3/16" Pilot Tubing	1
15	098251-02	Injector	1
16	098250-01	Injector Holder	1
17	098867-04	Pressure Regulator	1
18	099553-01	Pilot Shield	1
19	100091-01	3/8" Outlet (Burner) Tubing	1
20	100092-01	3/8" Inlet Tubing	1
21	100068-01	Pressure Tap Fitting	1
22	100047-03	Control Valve	1
23	098529-01	Cabinet	1
24	097159-01	Piezo Ignitor	1
25	M11084-26	Screw, #10 x 3/8"	2
26	M11084-38	Screw, #8 x 3/8"	2
27	098276-01	1/8" NPT Plug	1
28	098354-01	Control Knob	1
29	098508-01	Valve Retainer Nut	1
30	099066-01	Mounting Bracket	1
<b>PARTS AVAILABLE — NOT SHOWN</b>			
	098306-02	Control Position Decal	1
	099491-07	Operating Instructions Decal	1

# WARRANTY INFORMATION

## KEEP THIS WARRANTY

Model \_\_\_\_\_

Serial No. \_\_\_\_\_

Date Purchased \_\_\_\_\_

Always specify model and serial numbers when communicating with the factory.

We reserve the right to amend these specifications at any time without notice. The only warranty applicable is our standard written warranty. We make no other warranty, expressed or implied.

### LIMITED WARRANTY VENT-FREE HEATERS

DESA International warrants this product to be free from defects in materials and components for one (1) year from the date of first purchase, provided that the product has been properly installed, operated and maintained in accordance with all applicable instructions. To make a claim under this warranty the Bill of Sale or cancelled check must be presented.

This warranty is extended only to the original retail purchaser. This warranty covers only the cost of part(s) required to restore this heater to proper operating condition. Warranty part(s) MUST be obtained through authorized dealers of this product and/or DESA International who will provide original factory replacement parts. Failure to use original factory replacement parts voids this warranty. The heater MUST be installed by a qualified installer in accordance with all local codes and instructions furnished with the unit.

This warranty does not apply to parts that are not in original condition because of normal wear and tear, or parts that fail or become damaged as a result of misuse, accidents, lack of proper maintenance or defects caused by improper installation. Travel, diagnostic cost, labor, transportation and any and all such other costs related to repairing a defective heater will be the responsibility of the owner.

TO THE FULL EXTENT ALLOWED BY THE LAW OF THE JURISDICTION THAT GOVERNS THE SALE OF THE PRODUCT; THIS EXPRESS WARRANTY EXCLUDES ANY AND ALL OTHER EXPRESSED WARRANTIES AND LIMITS THE DURATION OF ANY AND ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE TO ONE (1) YEAR FROM THE DATE OF FIRST PURCHASE; AND DESA INTERNATIONAL'S LIABILITY IS HEREBY LIMITED TO THE PURCHASE PRICE OF THE PRODUCT AND DESA INTERNATIONAL SHALL NOT BE LIABLE FOR ANY OTHER DAMAGES WHATSOEVER INCLUDING INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states do not allow a limitation on how long an implied warranty lasts or an exclusion or limitation of incidental or consequential damages, so the above limitation on implied warranties, or exclusion or limitation on damages may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

For information about this warranty write:

**DESA**  
**INTERNATIONAL**

2701 Industrial Drive  
P.O. Box 90004  
Bowling Green, KY 42102-9004

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