

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Dyna-Glo® Delux Natural Gas Radiant Heaters

Description

Dyna-Glo Delux Models RA100NGDGD and RA250NGDGD heaters are 50,000 to 100,000 and 250,000 BTU/Hr construction heaters. These heaters use natural gas for combustion. They are primarily intended for temporary heating of well-ventilated buildings under construction, alteration or repair. These heaters should be utilized in sheltered, well-ventilated areas, but never in occupied dwellings.



CSA 2.14b-2009, ANS Z83.7b-2009 Construction Heater

GHP Group, Inc.
8280 Austin Avenue
Morton Grove, IL 60053



Figure 1 – Models RA100NGDGD / RA250NGDGD

Specifications

Model	BTU/Hr	Fuel Consumption Maximum	Min. Gas Supply Pressure	Max. Gas Supply Pressure	Manifold Pressure	Ignitor Gap	Weight (Lbs)	Size L x W x H (in.)
RA100NGDGD	50,000 to 100,000	5.1 lbs	8" W.C.	14" W.C.	7.5" W.C.	0.19"	18.7 (heater)	16.3 x 16.3 x 29.8
RA250NGDGD	250,000	12.8 lbs	10 PSI	250 PSI	6 PSI	0.19"	30.8 (heater)	14.7 x 14.7 x 44.3

Fuel Type – Natural Gas Only

Ignition Type – Piezo (RA100NGDGD)
Pilot (RA250NGDGD)

Minimum Operating Temp. – -20°F (-29°C)

Unpacking

1. Unpack all materials used to protect the heater inside of carton. Retain plastic caps attached to exposed fittings for use during storage.
2. Remove heater, accessories and all hardware from carton.
3. Inspect all items for damage that may have occurred during shipment.

General Safety Information

Make sure you read and thoroughly understand these safety and operating instructions. Keep these instructions for future reference. They are your guides to safe and proper operation of this heater.

Safety information appears throughout this manual. Pay close attention to them. Below are definitions for the safety information listed throughout this manual.

⚠ DANGER Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.

⚠ WARNING Not for home or recreational vehicle use.

⚠ WARNING GENERAL HAZARD

WARNING: Failure to comply with the precautions and instructions provided with this heater can result in death, serious bodily injury, and property loss, or damage from hazards of fire, explosion, burn, asphyxiation, carbon monoxide poisoning, and/or electrical shock. Only persons who can understand and follow these instructions should use or service this heater. If you need assistance or heater information such as an instruction manual, labels, etc., contact your local manufacturer.

Consumer: Retain this manual for future reference.

Dyna-Glo® Delux Natural Gas Radiant Heaters

General Safety Information (Continued)

▲ WARNING **GENERAL HAZARD WARNING:** Failure to comply with the precautions and instructions provided with this heater can result in death, serious bodily injury, and property loss, or damage from hazards of fire, explosion, burn, asphyxiation, carbon monoxide poisoning, and/or electrical shock. Only persons who can understand and follow these instructions should use or service this heater. If you need assistance or heater information such as an instruction manual, labels, etc. contact the manufacturer.

▲ WARNING **FIRE, BURN, INHALATION AND EXPLOSION HAZARD:** Keep solid combustibles such as building materials, paper, or cardboard, at a safe distance away from heater as recommended by the instructions. Never use the heater in spaces which do or may contain volatile or airborne combustibles or products such as gasoline, solvents, paint thinner, dust particles, or unknown chemicals.

▲ WARNING Not for home or recreational vehicle use.

This heater has been designed as a construction heater in accordance with CSA 2.14b-2009, ANS Z83.7b-2009. Other standards govern the use of fuel gases and heating products for specific uses. Your local authority can inform you of these. The primary purpose of these construction heaters are to provide temporary heating of building under construction, alteration, or repair. When properly used, the heater provides safe economical heating. Products of combustion are vented into the heated area.

- For either indoor or outdoor use. Adequate ventilation must be provided.

▲ WARNING Combustible byproducts produced when using this product contain carbon monoxide, a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

IMPORTANT: Every possible circumstance that might involve a hazard cannot be anticipated. The warnings in this manual on tags or decals affixed to the unit are not all inclusive. If a procedure, work method, or operating technique not specifically recommended by Dayton is used, you must make sure it is safe for you and others. You should also ensure that equipment will not be damaged or be made unsafe by the operating or maintenance method you use.

▲ DANGER Carbon Monoxide poisoning may lead to death! Some people are more affected by Carbon Monoxide than others. Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness, and/or nausea. If you have these signs, the heater may not be operating properly or the area may not be sufficiently ventilated. Get fresh air at once! Have heater serviced.

▲ WARNING Carefully install and always use great care when operating this heater. Be sure to research and follow all local ordinances and codes. In the absence of local codes, with the Standard for the Storage and Handling of Liquefied Petroleum Gases, ANSI/NFPA 58 and the Natural Gas and Propane Installation Code CSA B149.1.

Natural Gas: Natural gas has a very distinctive odor that will help you detect a leak. However, this odor may fade in time. Natural gas may be present in the area even though no odor is detected.

- Use only natural gas. Do not attempt to use propane gas. Use only factory preset regulator provided on heater.
- Provide adequate ventilation. Before using heater, provide at least a 3 square foot opening of fresh, outside air for every 100,000 BTU/Hr rating.

▲ WARNING California Proposition 65
Warning: Fuels used in gas or oil fired appliances and the products of combustion of such fuels, contain

chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. This product contains chemicals, including lead and lead compounds, known to the state of California to cause cancer, birth defects or other reproductive harm. **Wash hands after handling.**

- This heater should be utilized in sheltered, well-ventilated areas, but never in occupied dwellings.
- Do not use heater in occupied dwellings, in living or sleeping areas.
- Do not use heater in basement or below ground levels. If a leak occurs, gas may accumulate to hazardous amounts.
- Keep appliance clear and free from combustible materials, gasoline, paint thinner, and other flammable vapors and liquids. Dust is combustible. Do not use heaters in areas with high dust content.

Models RA100NGDGD and RA250NGDGD

General Safety Information (Continued)

- Check heater for damage before each use. Do not use damaged heater.

Minimum heater clearance from combustibles:

Sides: 6 feet Top: 5 feet

Floor: Combustible - Not for use on finished floors

- The heater, other than a heater with integral propane gas container, must be located at least 6 feet (in Canada, distance must be 10 feet) from any propane gas container.
- Blower or radiant type heaters shall not be directed toward any propane gas container within 20 feet (6 m).
- Check hose before each use of heater. Do not use if hose is cut or damaged. Replace with hose specified by manufacturer.
- Always be sure to place the heater on a stable and level surface while the heater is in operation.
- The heater is not intended for use on finished floors. Warping or other damage may occur.
- Place heater away from any breezes or drafts. Keep away from dripping water or rain.
- Keep small children and animals away from the heater.
- Never handle, move or service a hot or operating heater. Wait 20 minutes after turning heater off before touching the heater. Severe burns can result.
- Always wear gloves when handling the heater to prevent injury.
- Never attach ductwork to heater.
- Do not alter heater. Keep heater in its original state.

- Do not use heater if altered.
- Turn off gas supply to heater when not in use.
- Use only original replacement parts. This heater must use design specific parts. Do not substitute or use generic parts. Improper replacement parts could cause serious or fatal injury.

Assembly

MODEL RA100NGDGD

1. Provide natural gas supply system.
2. Install plumbing to a low pressure natural gas source to heater. The source must be regulated to 1/2 PSI, maximum 3/4 inch I.D. pipe or flexible connector, not longer than 10 feet.
3. Be sure to use thread sealing compound when connecting the hose to the heater at the 1/2 NPT fitting at the regulator inlet. Tighten all fittings with a wrench.
4. Open natural gas supply valve SLOWLY.
5. Check all connections for leaks.

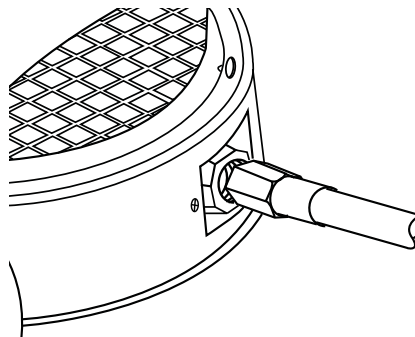


Figure 2 – Pipe and Valve Inlet

⚠ WARNING

Never use an open flame to check for a leak. Apply 50/50 mixture of liquid soap and water to all joints. Bubbles forming show a leak. Correct all leaks at once.

6. Close natural gas supply valve.

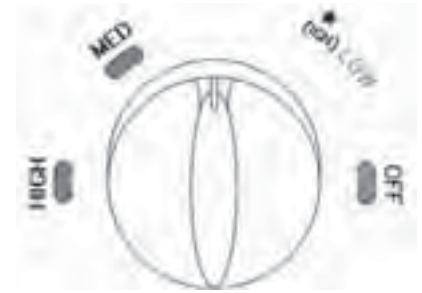


Figure 3 – Heater Control Knob – RA100NGDGD

MODEL RA250NGDGD

1. Insert AA battery (included) into ignition by turning counterclockwise and unscrewing ignition cap.
2. Provide natural gas supply system.
3. Install plumbing to a low pressure natural gas source to heater.
4. Connect gas supply to heater using minimum 3/8" ID pipe. Maximum pipe length is 10 feet.
5. Connect hose or plumbing to 1/2" NPT flare fitting at the valve inlet. Tighten all fittings with a wrench.
6. Open natural gas supply valve SLOWLY. Check all connections for leaks. Never use an open flame to check for leaks.
7. Close natural gas supply valve.

NOTE: Keep hands and face away from outlet (around top of shelf) of heater while attempting to start heater.

Dyna-Glo® Delux Natural Gas Radiant Heaters

Operation

⚠ WARNING *Hot while in operation. Do not touch. Keep children, clothing, furniture, gasoline, and other liquids having flammable vapors away.*

The gas supply attaches to the heater by a minimum 3/8 inch I.D. pipe or flexible connector. User must supply pipe or flexible connector. The length should be no more than 10 feet. The natural gas moves through the regulator and out the nozzle.

Ignition System: The ignitor initiates a spark which ignites the gas from the main burner.

Automatic Control System: This system causes the heater to turn off if the flame is extinguished.

TO START HEATER (RA100NGDGD)

1. Follow all of the safety, ventilation and installation instructions previously noted in this manual.

2. Always be sure to place the heater on a stable and level surface while the heater is in operation. Be sure that no strong winds blow into the ends of the heater.
3. Turn control knob clockwise to OFF position.
4. Turn natural gas supply valve on.
5. Depress heater control knob and turn counterclockwise to (IGN) LOW position to light burner (see Figure 3).
6. If burner does not light, turn heater control knob to OFF position and repeat step 5. Keep control knob depressed for approximately 10 to 15 seconds, then release control knob.
7. If burner flame goes out, wait 5 minutes then repeat steps 5 and 6.
8. With burner operating, the control knob may be turned counterclockwise to desired heating level between LOW, MED, and HIGH.

TO SHUT DOWN HEATER

1. Shut off the main burner valve, being sure to wear a glove for protection. Turn the control knob to the OFF position.
2. Firmly close the natural gas supply valve.

TO RESTART HEATER

1. Wait five minutes for heater to cool.
2. Follow steps in TO START HEATER section.

TO START HEATER (RA250NGDGD)

1. Follow all of the safety, ventilation and installation instructions previously noted in this manual.
2. Always be sure to place the heater on a stable and level surface while the heater is in operation. Be sure that no strong winds blow into the ends of the heater.
3. SLOWLY open the gas valve.
4. Push in and hold the automatic control button (see Figure 4). Push ignitor button (see Figure 4). You may need to repeat pushing the ignitor button several times before the pilot will light.

NOTE: The gas line may have air in it. Press in the automatic control button for about 15 seconds for the air to pass out of the system. Then push the ignitor button once again. Once the pilot lights, keep the automatic control button pressed in. Release after at least 15 seconds.

5. If pilot does not light, repeat Step 4.
6. When pilot stays lit, fully open the main burner valve by turning the handle of the burner valve counterclockwise until it stops all the way to the ON position.

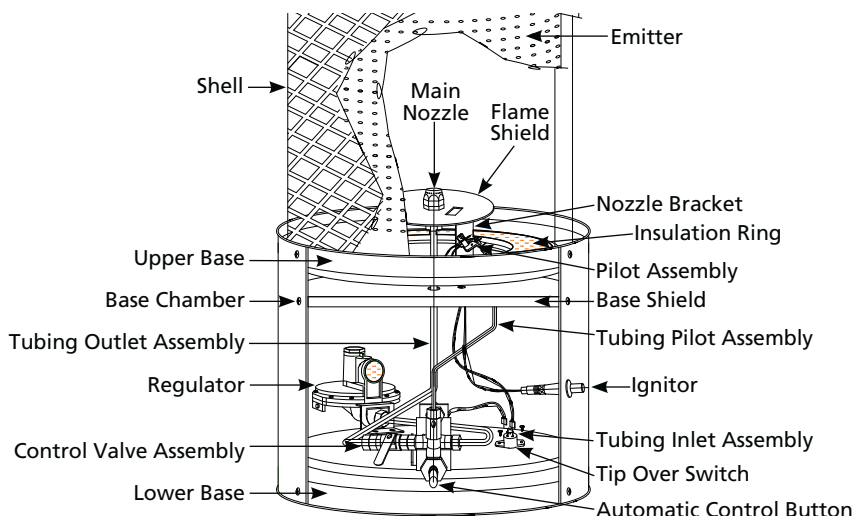


Figure 4 – RA250NGDGD Part Identification

Models RA100NGDGD and RA250NGDGD

Operation (Continued)

NOTE: Arrows on main burner valve handle show directions for ON and OFF.

TO SHUT DOWN HEATER

1. Firmly close the natural gas supply valve.
2. Shut off the main burner valve, being sure to wear a glove for protection. Turn the main burner handle clockwise until it stops all the way to the OFF position.

TO RESTART HEATER

1. Wait five minutes for heater to cool.
2. Follow steps in TO START HEATER section.

⚠ WARNING *Running heater below specified gas pressure may cause flashback. During flashback, the burner flame is mostly yellow. The flame will burn inside the burner tube causing a roaring noise. If flashback occurs, turn heater off. After burner tube cools off, restart heater.*

NATURAL GAS SUPPLY

You must provide the natural gas supply along with all pipe and fittings. The gas supply must be regulated down to a maximum of 1/2 PSI, and to a minimum of 6 inches water column. The supply system must supply 8" WC min. (RA100NGDGD) for each heater connected to the system.

Check with your local gas supplier to properly size all of your supply lines. Be sure to follow all local codes, or refer to the Natural Fuel Gas Code Handbook – NFPA54/ANSI Z223.1, or the Natural Gas Installation Code – CAN/CSA B149.1.

VENTILATION

⚠ WARNING *A three square foot opening of fresh outside air for each 100,000 BTU/Hr of heater output must be provided to operate each heater safely. If the proper ventilation air is not provided, carbon monoxide poisoning can occur.*

Always be sure that the proper ventilation is being provided before starting this heater.

FRESH OUTSIDE AIR OPENING REQUIREMENTS

Heater size	Square foot opening
100,000 BTU	3.0
250,000 BTU	7.5

⚠ WARNING *Read and understand all of the warnings in the General Safety Information pages of this manual. They are essential to the safe operation of this heater. Be sure to follow all local codes when operating this heater.*

⚠ WARNING *Be sure to leak test all fittings and pipe connections after installation or repairs. Use a 50/50 mixture of liquid dish soap and water. Bubbles forming reveal a leak. You must repair all leaks at once!*

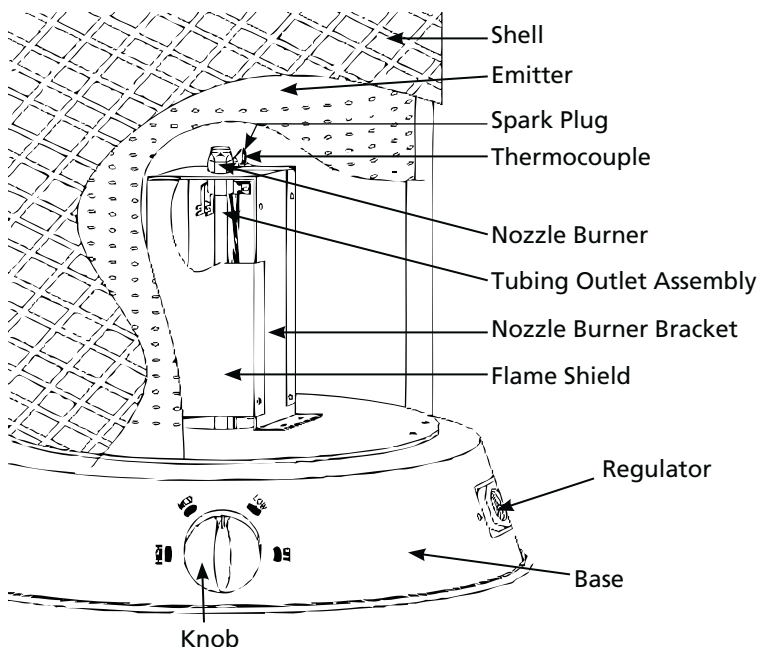


Figure 5 – RA100NGDGD Part Identification

Dyna-Glo® Delux Natural Gas Radiant Heaters

Maintenance

⚠ WARNING *Never attempt to service heater while it is connected to natural gas supply, operating, or hot. Severe burns can occur.*

1. Always keep heater clean.
2. Inspect heater before each use. Check connections for leaks. Apply a 50/50 solution of dish soap and water. Bubbles forming show a leak that must be corrected. Correct leaks at once.
3. Inspect regulator hose assembly before each use. If hose is highly worn or cut, replace with hose specified by manufacturer.
4. Keep appliance area clear and free from combustible materials, gasoline, and other flammable vapors and liquids.
5. Have heater inspected yearly by a qualified service person.
6. The flow of combustion and ventilation air cannot be obstructed.

STORAGE

⚠ CAUTION *Disconnect heater from natural gas supply.*

1. Place plastic cover over brass fitting on inlet connector.
2. Store in a dry, clean, safe place.
3. When taking the heater out of storage, always check inside the heater. Small animals or insects may place foreign objects in the heater. Keep heater free from foreign objects and combustible materials.

Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
Burner fails to light	<ol style="list-style-type: none"> 1. More warm-up time needed 2. Gas pressure is low 3. Thermocouple loose or in need of replacement 4. Automatic control valve in need of replacement 	<ol style="list-style-type: none"> 1. Relight, holding control valve button in for 45 seconds 2. Inspect natural gas supply 3. Tighten, reconnect or replace thermocouple 4. Replace automatic control valve
Burner lights but goes out when automatic control valve button is released	<ol style="list-style-type: none"> 1. Main burner valve not completely open 2. Clogged gas orifice 3. Low gas pressure 4. Low gas supply 	<ol style="list-style-type: none"> 1. Completely open main burner valve by turning control knob to HIGH position 2. Replace gas orifice 3. Check gas supply, regulator function 4. Contact gas supplier
Burn rate is low, emitter does not glow	<ol style="list-style-type: none"> 1. Main burner valve not fully open 2. Plugged gas orifices 3. Low gas pressure 4. Low fuel supply 	<ol style="list-style-type: none"> 1. Fully open main burner valve by turning control knob towards HIGH position until it stops 2. Replace gas orifice 3. Check gas supply, regulator output 4. Consult gas supplier
Flames are extremely high and coming from emitter	Unit has been connected to a propane gas supply instead of natural gas	Check gas source and replace with natural gas supply

Notes

ENGLISH

For Technical Support or Troubleshooting, Call: 1-877-447-4768, 8:00 am - 5:00 pm CST

www.ghpgroupinc.com



For Repair Parts, call 1-877-447-4768

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

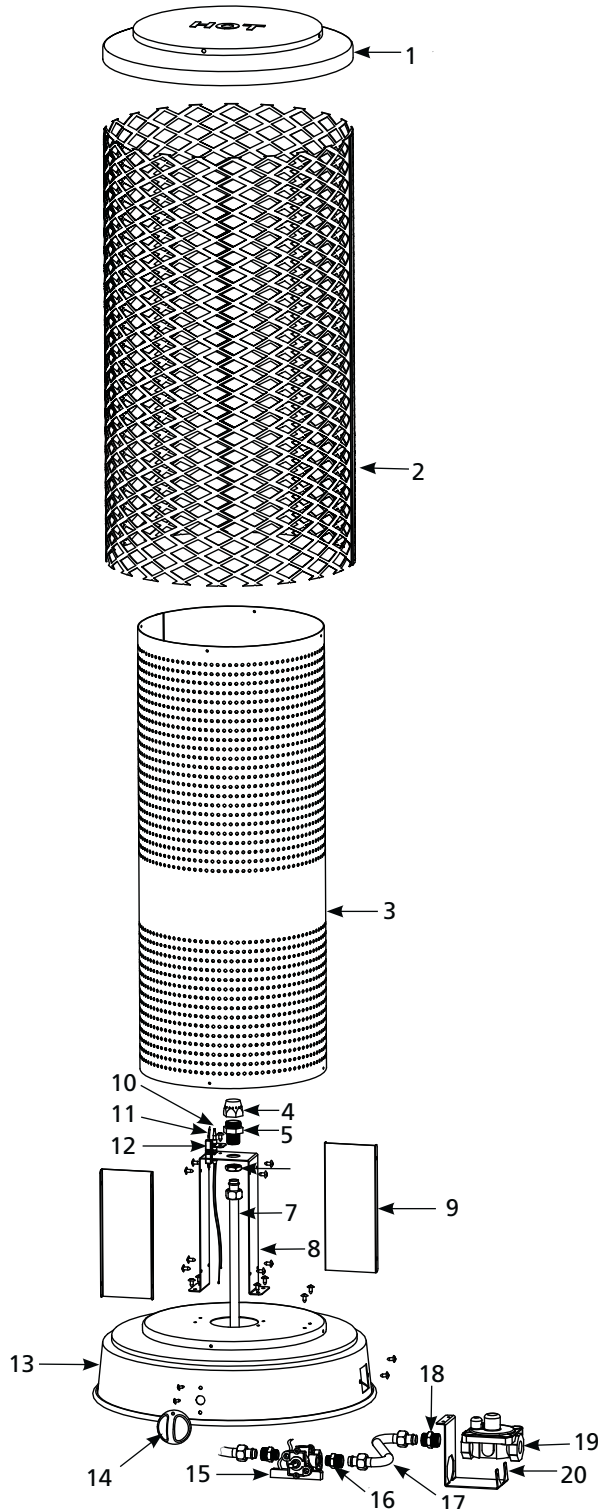


Figure 6 – Repair Parts Illustration for Natural Gas Radiant Heater RA100NGDGD

For Technical Support or Troubleshooting, Call: 1-877-447-4768, 8:00 am - 5:00 pm CST

www.ghpgroupinc.com

Model RA100NGDGD

Repair Parts List for Natural Gas Radiant Heater RA100NGDGD

Reference Number	Description	Part Number for Model: RA100NGDGD	Quantity
1	Top Cover	5002854	1
2	Guard	2315528	1
3	Emitter	2315519	1
4	Nozzle	2315521	1
5	Nozzle Connector	2315545	1
6	Nozzle Nut	2315546	1
7	Main Gas Tubing Assy (NG)	2315523	1
8	Nozzle Bracket	2315517	1
9	Flame Shield	2315516	2
10	Thermocouple	2201584	1
11	Spark Plug	2201583	1
12	Thermocouple Holder	2315520	1
13	Base	5002851	1
14	Control Knob	2101451	1
15	Control Valve	5050651	1
16	Fitting	2304948	2
17	Tubing Inlet Assy	2315524	1
18	Fitting-Regulator to Tubing Inlet	2315547	1
19	Regulator	2315555	1
20	Regulator Bracket	2315518	1

ENGLISH

For Repair Parts, call 1-877-447-4768

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

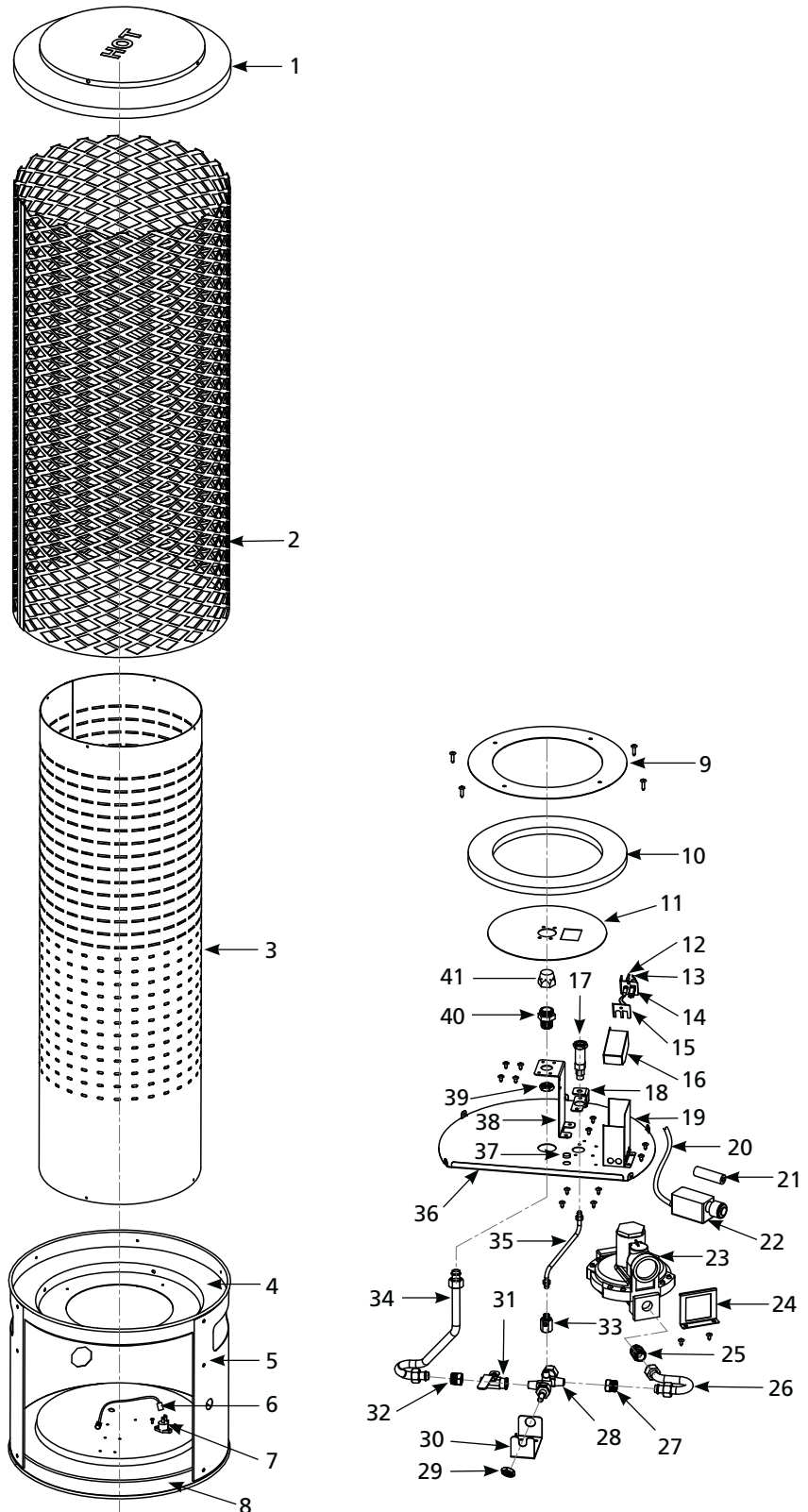


Figure 7 – Repair Parts Illustration for Natural Gas Radiant Heater RA250NGDGD

Model RA250NGDGD

Repair Parts List for Natural Gas Radiant Heater RA250NGDGD

Reference Number	Description	Part Number for Model: RA250NGDGD	Quantity
1	Top Cover	5002854	1
2	Guard	2315554	1
3	Emitter	2315537	1
4	Upper Base	5002853	1
5	Base Cover	2315532	1
6	Lead Wire	2315643	1
7	Tilt Switch	2300186	1
8	Lower Base	5002852	1
9	Blanket	2315539	1
10	Insulation	2315544	1
11	Flame Shield	2315540	1
12	Thermocouple	2201591	1
13	Spark Plug	2201583	1
14	Spark Plug Bracket	2315609	1
15	Bracket	2315520	1
16	Box for Lead Wire	2315535	1
17	Pilot Assy	GL250.39	1
18	Pilot Bracket	2315608	1
19	Wind Box	2315610	1
20	Ignition Wire	2201585	1
21	Battery	2300481	1
22	Ignition	2201220	1
23	Regulator	2315513	1
24	Regulator Holder	2315536	1
25	Regulator Connector	2315547	1
26	Inlet Tubing Assy	2315542	1
27	Connector	2315549	1
28	Control Valve	5001423	1
29	Contol Valve Fixing Nut	2305687	1
30	Contol Valve Bracket	2315538	1
31	Ball Valve	2304630	1
32	Ball Valve Connector	2305391	1
33	Pilot Connector	2315548	1
34	Main Tubing Assy	2315550	1
35	Pilot Tubing	2001402	1
36	Base Shield	2315541	1
37	Rubber Ring for Wire	2315543	1
38	Nozzle Bracket	2315533	1
39	Nut	2101008	1
40	Nozzle Connector	2315534	1
41	Nozzle	2315546	1

For Technical Support or Troubleshooting, Call: 1-877-447-4768, 8:00 am - 5:00 pm CST www.ghpgroupinc.com