Dyna-Glo® Delux Natural Gas Construction Heater

**Description**

Dyna-Glo Delux model RMC-FA150NGDGD is a natural gas fired construction heater, having a built-in thermostat, and a 150,000 BTU/Hr rating. The heater uses natural gas for combustion and electricity to operate the motor and fan. It is primarily to be used to temporarily heat well-ventilated buildings under construction, alteration or repair. This heater should be utilized in sheltered, well-ventilated areas, but never in occupied dwellings.

**Specifications**

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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 certain you read and understand all warnings. Keep these instructions for reference. They are your guide to safe and proper operation of this heater. Safety information appears throughout these instructions. 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.

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

Consumer: Retain this manual for future reference.
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.

**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 standard codes. 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 is 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.

**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.

**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 areas may not be sufficiently ventilated. Get fresh air at once! Have heater serviced.

Natural Gas: Natural gas has a distinctive odor. This odor helps you detect a natural gas leak. However, the odor may fade. Natural gas may be present even though no odor exists.

**WARNING**

Install and use heater with care.

Follow all local ordinances and codes. In the absence of local ordinances and codes, refer to the National Fuel Gas Code handbook NFPA54/ANSI Z223.1 and the Natural Gas Installation Code, CAN/CSA B149.1. This instructs on the safe storage and handling of flammable gases.

- Use only the electrical voltage and frequency specified on model plate. The electrical connections and grounding of the heater shall follow the National Electric Code, ANSI/NFPA 70 or the Canadian Electrical Code, Part 1.
- Electrical grounding instructions - 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 or extension cord.
- Use only natural gas. Do not attempt to operate on LP gas.
- Provide adequate ventilation. Before using heater, provide at least a three-square-foot opening of fresh, outside air for each 100,000 Btu/Hr of rating.
- Do not use heater in occupied dwellings or in living or sleeping quarters.
- Keep appliance area clear and free from combustible materials, gasoline, paint thinner, and other flammable vapors and liquids. Dust is combustible. Do not use heater in areas with high dust content.

Minimum heater clearances from combustibles:
- Outlet: 6 Ft. (1.83 m) Sides: 2 Ft. (0.61 m)
- Top: 3 Ft. (0.91 m) Rear: 2 Ft. (0.61 m)
- Check heater for damage before each use. Do not use a damaged heater.
- Check hose (if used) before each use of heater. If highly worn or cut, replace with hose specified by manufacturer before using heater.
- Locate heater on stable and level surface if heater is hot or operating.
- Never block air inlet (rear) or air outlet (front) of heater.
- Never operate heater while unattended.
- Keep heater away from strong drafts, wind, water spray, rain, or dripping water.
- Keep children and animals away from heater.
General Safety Information (Continued)

– This heater is equipped with a thermostat. Heater may start at anytime.
– Never move, handle, or service a hot, or operating heater. Severe burns may result. You must wait 15 minutes after turning heater off.
– To prevent injury, wear gloves when handling heater.
– Never attach ductwork to heater.
– Do not alter heater. Keep heater in its original state.
– Do not use heater if altered.
– Turn off natural gas supply to heater and unplug when not in use.
– This heater is not to be used with external thermostats, timers or other devices that control or alter electrical supply to the heater.

Principals of Operation

FUEL SYSTEM
The pipe runs from the gas supply to the heater itself. After the gas runs through the pipe, it passes through the solenoid valve and out the nozzle into the combustion chamber.

AIR SYSTEM
The internal motor turns the fan, which pushes air around and through the combustion chamber. Here the air is heated and provides a constant stream of warmth.

IGNITION SYSTEM
The spark module sends voltage to the ignitor. The ignitor ignites the fuel and air mixture.

SAFETY CONTROL SYSTEM
This system shuts the heater down if the flame is extinguished. The fan and motor will continue to operate, but there will not be any heat.

TEMPERATURE CONTROL SYSTEM
A built-in thermostat allows the heater to turn on and off to maintain a consistent temperature.

THE NATURAL GAS SUPPLY
The user of this heater must provide the natural gas supply and all fittings to properly install the heater.

The natural gas supply should be able to provide a minimum of 150 cubic feet of gas per hour for each heater being used. Consult with your natural gas supplier for the proper sizing of all gas lines. You must regulate the natural gas supply down from a minimum of 5 inches of water column to a maximum of 1/2 PSI.

Be sure to research and follow all local ordinances and codes. In the absence of local codes, follow the National Fuel Gas Code Handbook NFPA54/ANSI Z223.1 and the Natural Gas Installation Code, CAN/CSA B149.1.

VENTILATION

A WARNING A three square foot opening of fresh outside air must be provided to operate each heater safely. If the proper air ventilation is not provided, carbon monoxide poisoning can occur. Always be sure that the proper ventilation is being provided before starting this heater.

Figure 2 – Cross Section Operational View

For Technical Support or Troubleshooting, Call: 1-877-447-4768, 8:30 am - 4:30 pm CST www.ghpgroupinc.com
Dyna-Glo® Delux Natural Gas Construction Heater

Installation

**WARNING** Review and understand all of the warnings in the Safety Information Section on pages 1–3. They are required to operate this heater safely. Follow all local and state codes when operating this heater.

**WARNING** Be sure to test all connections for leaks after installation or service. Never use an open flame to check for leaks. Apply a 50/50 mixture of dish soap and water to each connection. If bubbles appear, there is a leak. Correct all leaks immediately.

1. Provide the natural gas supply system (See Natural Gas Supply, on page 3).
2. Connect all plumbing and fittings to the low-pressure Natural Gas source. This source must be regulated to a maximum of 1/2 PSI, and the piping must be a 3/4” (19.1 mm) inside diameter minimum, and not be over 10 feet (3 m) in length.
3. Line up the female threaded end of the hose with the fitting on the heater base and tighten.
4. Slowly open valve at natural gas supply.
5. Check for leaks at all connections.

**WARNING** After installing all gas piping, and making the proper connections, be sure to check for leaks. Apply a 50/50 mixture of dish soap and water to all connections. Bubbles forming are evidence of a leak. Be sure to correct all leaks at once!

Operation

**WARNING** Review and understand all of the warnings in the Safety Information Section on pages 1–3. They are required to operate this heater safely. Follow all local and state codes when operating this heater.

TO START HEATER

1. Follow all safety, installation and ventilation instructions in this manual.
2. Position the heater on a stable and level surface, and be sure that no drafts blow into the inlet or outlet of the heater.
3. Plug the power cord of the heater into a three hole grounded extension cord. Be sure that the extension cord is at least 6 feet (1.8 m) long, and is UL listed.
4. Following the extension cord requirements, plug the extension cord into a 120 volt/60 Hertz, three hole grounded outlet.
5. Open gas supply valve slowly.
6. Rotate on/off switch to the ON (I) position. Set thermostat to desired temperature. Thermostat setting may be too low if heater does not start. Select a higher temperature and start heater.

NOTE: If the heater does not ignite, turn on/off switch to OFF (O) position. Wait for the safety control to reset (usually about five (5) seconds), and try again.

NOTE: If this does not work, the high temperature switch may have opened while the thermostat was shutting down. Wait 10 to 15 minutes for the switch to reset, then attempt to light heater. Continued outages indicate a system problem, have unit serviced by a professional.

TO SHUT DOWN HEATER

1. Shut off the gas supply by closing the valve tightly.
2. After a few seconds, the heater will burn off the gas that was left in the supply line.
3. Turn on/off switch to the OFF (O) position.
4. Disconnect heater from power supply.

Maintenance

**WARNING** Do not attempt to service the heater while it is hot, operating or plugged in. Severe burns or electrical shock can occur.

1. Be sure to inspect the heater before each use. Check for leaks using the method described in Installation

For Technical Support or Troubleshooting, Call: 1-877-447-4768, 8:30 am - 4:30 pm CST     www.ghpgroupinc.com
section. Repair any leaks immediately.

**Maintenance (Continued)**

2. Always keep heater clean. Clean the heater annually, or as often as needed to remove any dust or debris. When the heater becomes dirty, wipe it down with a damp cloth.

3. Keep the inside of the heater free from foreign objects and combustibles.

4. Have the heater inspected annually by a qualified service person.

**SERVICE PROCEDURES**

**WARNING** *Never service heater while hot, operating or connected to the gas supply. Severe burns or electrical shock may occur.*

**REMOVING PROTECTIVE COVER**

1. Remove base lower at the bottom of the heater.

2. Remove fan guard.

**FAN**

**IMPORTANT:** Always remove the fan from the motor shaft before removing the motor assembly from the heater. This will help prevent damage to the fan.

1. Remove base lower.

2. Remove fan guard.

3. Remove base.

4. Disconnect lead wires attached to the motor.

5. Remove motor assembly.

6. Loosen fan setscrew using a 1/8" (3.2 mm) hex wrench, and remove fan.

7. Using a soft cloth moistened with kerosene or a cleaning solvent, carefully clean the fan blades making sure not to bend them.

8. Dry fan with clean cloth.

9. Assemble fan on motor shaft and tighten hex nuts firmly (be careful not to overtighten).

10. Reconnect lead wires as shown in the Wiring Diagram (Figure 6).

11. Reassemble base, fan guard and base lower.

**IGNITOR**

The only maintenance necessary for the ignitor is to be sure that the gap between the electrodes is kept between .10" and .15" (2.54 - 3.81 mm). The ignitor is accessible through the combustion chamber.

**Storage**

**CAUTION** *Always disconnect heater from gas supply.*

1. Replace the plastic caps over the fittings they were installed when you originally unpacked your heater.

2. Store the heater in a safe, clean and dry location.

3. When removing the heater from storage, always check inside of the heater for any foreign objects left by spiders or small animals. Keep the inside of the heater clean from foreign objects and combustibles.

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**Figure 4 – Protective Cover Removal**

**Figure 5 – Fan Motor Shaft, Hex Nut Location**
Figure 6 – Wiring Diagram

If any original wiring as supplied with the heater must be replaced, it must be replaced with type AWG105°C wire or its equivalent except as indicated (*Type SF2-200, **SGI-250°C)
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

WARNING 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 injuries.

Figure 7 – Repair Parts Illustration for Natural Gas Construction Heater

Repair Parts List for Natural Gas Construction Heater

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Description</th>
<th>Part No.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nozzle Assembly</td>
<td>2315481</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Nozzle Nut</td>
<td>2304945</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Thermal Switch Bracket</td>
<td>2304826</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Thermal Switch</td>
<td>2201373</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Spark Plug Nut</td>
<td>2305686</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Spark Plug</td>
<td>2301974</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Tubing Assembly</td>
<td>2315483</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Handle Assembly</td>
<td>2304823</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Motor Support</td>
<td>2101447</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Motor Assembly</td>
<td>2315547</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Motor Bracket</td>
<td>2304938</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Fan Guard</td>
<td>2304939</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>Thermostat Assembly</td>
<td>2201186</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Clip</td>
<td>2301973</td>
<td>1</td>
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<tr>
<td>15</td>
<td>Power Cord Assembly</td>
<td>2201163</td>
<td>1</td>
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<tr>
<td>16</td>
<td>Connector Inlet</td>
<td>2315478</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>Solenoid Valve Bracket</td>
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<tr>
<td>18</td>
<td>Knob</td>
<td>2101207</td>
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<tr>
<td>19</td>
<td>Solenoid Valve</td>
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</tr>
<tr>
<td>20</td>
<td>Fitting</td>
<td>2315479</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>Regulator</td>
<td>2315556</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>Fitting</td>
<td>2315480</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>PCB Assembly</td>
<td>2201181</td>
<td>1</td>
</tr>
<tr>
<td>24</td>
<td>Switch</td>
<td>2201549</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>Capacitor</td>
<td>2201390</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>Cord Wrap</td>
<td>2101423</td>
<td>2</td>
</tr>
<tr>
<td>27</td>
<td>Back Pressure Switch</td>
<td>2201594</td>
<td>1</td>
</tr>
</tbody>
</table>
**Troubleshooting Chart**

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause(s)</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan does not turn when electrical connection is made</td>
<td>1. No electric power to heater&lt;br&gt;2. Fan blade contacts inside of heater housing&lt;br&gt;3. Fan blade(s) bent&lt;br&gt;4. Fan motor defective</td>
<td>1. Check current to electric outlet. If voltage is correct, check power cord and extension cord for cuts and breaks&lt;br&gt;2. Be sure that housing is not damaged. Make sure there are no obstructions to the fan&lt;br&gt;3. Straighten blade(s) to match others&lt;br&gt;4. Replace motor</td>
</tr>
<tr>
<td>Heater will not fire</td>
<td>1. No spark at igniter&lt;br&gt;2. Improper spark gap&lt;br&gt;3. Bad electrode</td>
<td>1. Check igniter wire. Reattach or tighten if loose. Check spark module. Replace if necessary. Check all electrical components&lt;br&gt;2. Set gap to 0.12” (3 mm)&lt;br&gt;3. Replace spark plug</td>
</tr>
<tr>
<td>Heater quits while running</td>
<td>1. Internal temperature too high causing limit switch to shut down operation&lt;br&gt;2. Damaged control valve&lt;br&gt;3. Dust or debris build-up inside of heater</td>
<td>1. If the heater's output is restricted, internal temperature becomes too high. Move heater away from any obstructions&lt;br&gt;2. Replace control valve&lt;br&gt;3. Clean inside of heater</td>
</tr>
</tbody>
</table>

Always be sure to follow proper maintenance procedures, by cleaning the heater once per month during regular usage, and check spark gap at least once per season.
LIMITED WARRANTY:
This limited warranty is extended to the original retail purchaser of this Forced Air/Convection/Radiant Heater and warrants against any defect in materials and workmanship for a period of one (1) year from the date of retail sale. GHP Group, Inc., at its option, will either provide replacement parts or replace or repair the unit, when properly returned to the retailer where purchased or one of our service centers as directed by GHP Group, Inc., within one (1) year of retail purchase. (Shipping costs, labour costs, etc. are the responsibility of the purchaser.)

DUTIES OF THE OWNER:
This heating appliance must be operated in accordance with the written instructions furnished with this heater. This warranty shall not excuse the owner from properly maintaining this heater in accordance with the written instructions furnished with this heater. A bill of sale, canceled check or payment record must be kept to verify purchase date and establish warranty period. Original carton should be kept in case of warranty return of unit.

WHAT IS NOT COVERED:
1. Damage resulting from use of improper fuel.
2. Damage caused by misuse or use contrary to the owners manual and safety guidelines.
3. Damage caused by a lack of normal maintenance.
4. Fuses
5. Use of non-standard parts or accessories.
6. Damage caused in transit. Freight charges on warranty parts or heaters to and from the factory shall be the responsibility of the owner.

This warranty does not imply or assume any responsibility for consequential damages that may result from the use, misuse, or the lack of routine maintenance of this heating appliance. A cleaning fee and the cost of parts may be charged for appliance failures resulting from lack of maintenance. This warranty does not cover claims which do not involve defective workmanship or materials. FAILURE TO PERFORM GENERAL MAINTENANCE (INCLUDING CLEANING) WILL VOID THIS WARRANTY.

THIS LIMITED WARRANTY IS GIVEN TO THE PURCHASER IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. THE REMEDY PROVIDED IN THIS WARRANTY IS EXCLUSIVE AND IS GRANTED IN LIEU OF ALL OTHER REMEDIES. IN NO EVENT WILL GHP GROUP, INC. BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

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

CLAIMS HANDLED AS FOLLOWS:
1. Contact your retailer and explain the problem.
2. If the retailer is unable to resolve the problem, contact our Customer Service Dept. detailing the heater model, the problem, and proof of date of purchase.
3. A representative will contact you. DO NOT RETURN THE HEATER TO GHP GROUP, INC. unless instructed by our Representative. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

TO REGISTER THE WARRANTY ON YOUR HEATER, PLEASE FILL OUT THIS CARD COMPLETELY AND MAIL WITHIN 14 DAYS FROM DATE OF PURCHASE OR REGISTER ON-LINE AT www.ghpgroupinc.com

NAME: ______________________________________ PHONE: ( ) __________________ EMAIL: ____________________________
ADDRESS: _________________________________ CITY: ______________________________ STATE:__________ ZIP: ____________
MODEL: ____________________ SERIAL #: ______________________________________ DATE PURCHASED: __________________
DEALER PURCHASED FROM: ____________________________________________ TYPE OF STORE: __________________________
CITY & STATE WHERE PURCHASED: ______________________________________________ PRICE PAID: _______________________

Please Take a Minute To Give Us Your Answers To The Following Questions.

All Responses Are Used Solely For Market Research And Are Held In Strict Confidence.

Who primarily decided this purchase? □ Male □ Female □ 18-24 □ 25-39 □ 40-59 □ 60 and over
Purpoose of Purchase?

Do you own any other portable heaters? □ Yes □ No □ If yes, type__________________________ brand__________________________
How do you intend to use your new heater? □ Construction Site □ Farm □ Warehouse/Commercial □ Garage/Outbuilding □ Other
How did you become aware of this heater? □ In-Store Display □ Newspaper Ad □ Magazine Ad □ Friend/Relative
□ TV Commercial □ Store Salesperson □ Other__________________________
What made you select this heater? □ Style □ Size/Portability □ Price □ Package □ Brand □ Other__________________________
Do you: □ own □ rent Would you recommend this heater to a friend? □ Yes □ No
Please give us your comments:__________________________

THANK YOU FOR COMPLETING THIS FORM!
Information will be held confidential.
WARRANTY REGISTRATION

IMPORTANT: We urge you to fill out your warranty registration card within fourteen (14) days of date of purchase. You can also register your warranty on the internet at www.ghpgroupinc.com. Complete the entire serial number. Retain this portion of the card for your records.

GHP Group, Inc.
6440 W Howard St
Niles, IL 60714-3302
Tel: (877) 447-4768
www.ghpgroupinc.com

SAVE THIS CARD!