

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.

# Dayton® Propane Construction Heater

## Description

Dayton Model 3VH18 heater is 100,000 Btu/Hr construction heater. This heater uses propane gas for combustion. It is primarily intended for the temporary heating of buildings under construction, alteration, or repair. This heater should never be used in occupied dwellings.

## Unpacking

1. Remove all packing items applied to heater for shipment. Keep plastic cover caps (attached to valve inlet and hose/regulator assembly) for storage.
2. Remove all items from carton.
3. Check all items for shipping damage. If heater is damaged, promptly inform dealer where you bought heater.



Figure 1 – Model 3VH18



## ▲ 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 instructions should use this heater.

If you need assistance or heater information such as an instructions manual, labels, etc. contact the manufacturer.

▲ WARNING Not for home or recreational vehicle use.

▲ WARNING Fire, burn, inhalation, and explosion hazard. Keep solid combustibles such as building materials, paper or cardboard, a safe distance away from the 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.

The heater is designed for use as a construction heater in accordance with ANSI Z83.7/CGA 2.14. Other standards govern the use of fuel gases and heating products for specific uses. Your local authority can advise you about these. The primary purpose of construction heaters is to provide temporary heating of buildings under construction, alteration or repair. Properly used, the heater provides safe economical heating. Products of combustion are vented into the area being heated.

We cannot foresee every use which may be made of our heaters. **CHECK WITH YOUR LOCAL FIRE SAFETY AUTHORITY IF YOU HAVE QUESTIONS ABOUT HEATER USE.**

Other standards govern the use of fuel gases and heat producing products for specific uses. Your local authorities can advise you about these.

# Dayton® Propane Construction Heater

## General Safety Information

Make certain you read and understand all warnings. Keep these instructions for reference. It is 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** Under this heading, installation, operating and maintenance procedures or practices will be found that, if not carefully followed, WILL result in IMMEDIATE serious personal injury or death.

**▲ WARNING** Under this heading, installation, operating, and maintenance procedures or practices will be found that, if not carefully followed, COULD result in severe personal injury or death.

**▲ CAUTION** Under this heading, installation, operating, and maintenance procedures or practices will be found that, if not carefully followed, MAY result in minor personal injury, product or property damage.

**IMPORTANT:** Every possible circumstance that might involve a hazard cannot 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 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 made unsafe by the operating or maintenance method you choose.

**▲ DANGER** *Carbon monoxide poisoning: 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. Get fresh air at once! Have heater serviced.*

*Propane Gas: Propane gas is odorless. An odor-making agent is added to propane gas. The odor helps you detect a propane gas leak. However, the odor added to propane gas can fade. Propane 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 Standard for Storage and Handling of Liquefied Petroleum Gas, ANSI/NFPA 58 and the Natural Gas Installation Code, CAN/CGA B149.2. This instructs on the safe storage and handling of propane gases.*

- *Use only the hose and factory preset regulator provided with the heater.*
- *Use only propane gas set up for vapor withdrawal.*
- *Provide adequate ventilation. Before using heater, provide at least a three-square-foot opening of fresh, outside air. This heater produces carbon monoxide, which is listed by the State of California as a reproductive toxin under Proposition 65.*
- *For indoor use only. Do NOT use heater outdoors.*
- *Do NOT use heater in occupied dwellings or in living or sleeping quarters.*
- *Do NOT use heater below ground level. Propane gas is heavier than air. If a leak occurs, propane gas may sink to the lowest possible level.*

- *Keep appliance area clear and free from combustible materials, gasoline, paint thinner, and other flammable vapors and liquids. Do NOT use heater in areas with high dust content.*

- *Minimum heater clearances from combustible materials:*

*Sides: 6 ft.      Top: 5 ft.*

- *Keep heater at least six feet from propane tank(s).*
- *Keep propane tank(s) below 100° F.*
- *Check heater for damage before each use. Do NOT use a damaged heater.*
- *Check hose before each use of heater. If highly worn or cut, replace before using heater.*
- *Locate heater on stable and level surface if heater is hot or operating.*
- *Not intended for use on finished floors.*
- *Never block air inlet (bottom of shell) or air outlet (around top of shell) of heater.*
- *Keep heater away from strong drafts, water spray, rain, or dripping water.*
- *Do NOT leave heater unattended.*
- *Keep children and animals away from heater.*
- *Never move, handle, or service a hot or operating heater. Severe burns may result. You must wait 20 minutes after turning heater off.*
- *To prevent injury, wear gloves when handling heater.*
- *Never attach duct work to heater.*
- *Do NOT alter heater. Keep heater in its original state.*
- *Do NOT use heater if altered.*
- *Turn off propane 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 injuries.*

# Model 3VH18

## Theory of Operation

### THE FUEL SYSTEM

The hose/regulator assembly attaches to the propane gas supply. This provides fuel to the heater.

### THE IGNITION SYSTEM

The piezo ignitor lights the pilot fuel supply.

### THE AUTOMATIC CONTROL SYSTEM

The automatic control valve shuts off the heater if the flame goes out.

## Product Identification

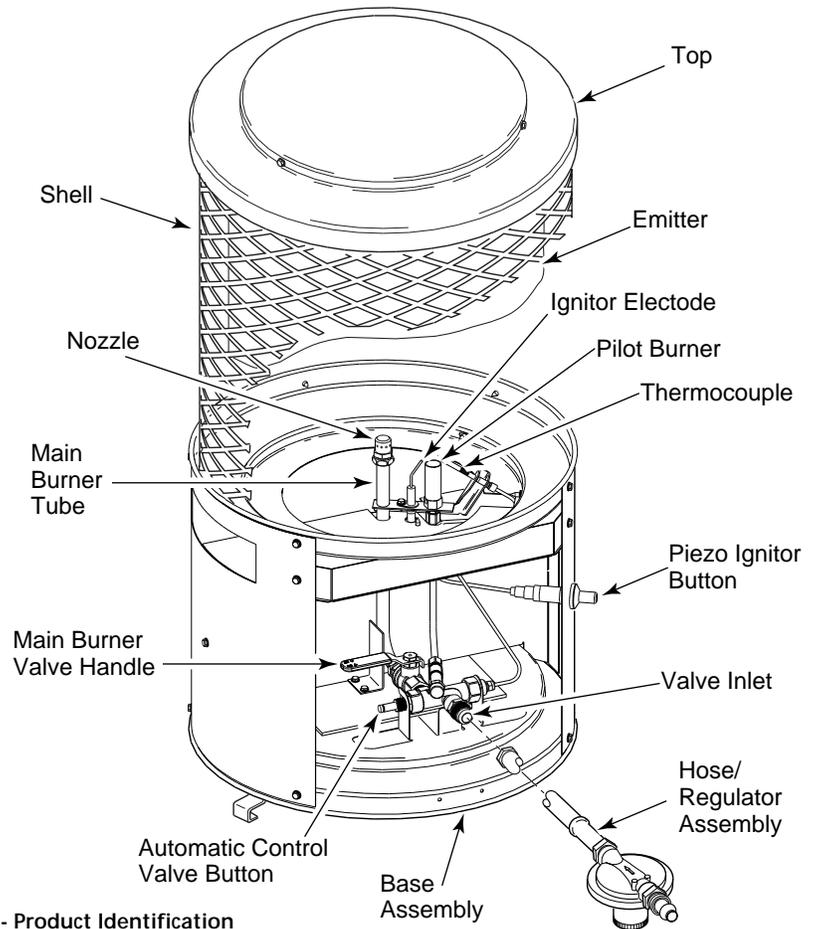


Figure 2 - Product Identification

## Specifications

Model	Output Rating Btu/Hr	Fuel	Fuel Consumption	Size LxWxH(Inches)	Weight (pounds)	Manifold Pressure
3VH18	100,000	Propane Vapor Only	1.1 Gallons/Hour 4.7 Pounds/Hour.	16 x 16 x 29.5	23 (Heater) 30 (Shipping)	10.3" w.c.

Maximum Supply Pressure to Regulator	Minimum Supply Pressure to Regulator
200 PSI	10 PSI (for purposes of input adjustment)

# Dayton® Propane Construction Heater

## Propane Supply

You must provide propane gas and propane tank(s).

Use this heater only with a propane vapor withdrawal supply system. See Chapter 5 of the *Standard for Storage and Handling of Liquefied Petroleum Gas, ANSI/NFPA 58 and/or CAN/CGA B149.2*. Your local library or fire department will have this booklet.

The amount of propane gas ready for use from propane tanks varies. Two factors decide this amount.

1. The amount of propane gas in tank(s)
2. The temperature of tank(s)

The chart below shows the minimum number of 100-pound tanks needed to run the heater. Connect tanks together with a manifold. Do not operate this product with any tank smaller than 100 pounds.

Average Temperature (°F) at Tank Location	Number of Tanks (100-lbs)
60°	2
40°	2
32°	2
20°	2
10°	3
0°	3

Less gas is vaporized at lower temperatures. Two or more 100-pound tanks or one larger tank may be needed in colder weather. Your local propane gas dealer will help you select the proper supply system.

## Ventilation

**▲WARNING** Provide at least a 3-square-foot opening of fresh, outside air while running heater. If proper fresh, outside air ventilation is not provided, carbon monoxide poisoning can occur. Provide proper fresh, outside air ventilation before running heater.

FRESH OUTSIDE AIR OPENING REQUIREMENTS	
Heater Size	Square feet opening
100,000 Btu/Hr	3.0

## Installation

**▲WARNING** Review and understand the warnings in the Safety Information Section. They are needed to safely operate this heater. Follow all local codes when using this heater.

**▲WARNING** Test all gas piping and connections for leaks after installation or servicing. 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.

1. Provide propane supply system (See Propane Supply).
2. Connect fuel gas fitting on hose/regulator assembly to propane tank(s). Turn fuel gas fitting counterclockwise into threads on tank. Tighten firmly using a wrench.

**IMPORTANT:** Tighten regulator with vent pointing down. Pointing vent down protects regulator from weather damage.

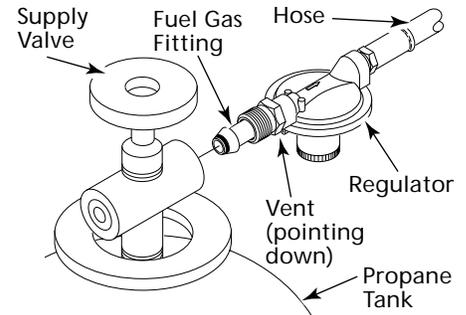


Figure 3 - Regulator With Vent Pointing Down

3. Connect hose to the valve inlet. Tighten firmly using a 9/16" wrench. You must use the regulator supplied with heater even if propane tank has one.

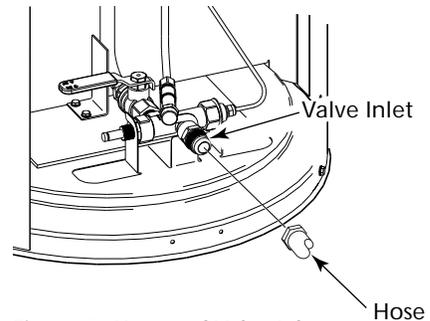


Figure 4 - Hose and Valve Inlet

4. Open propane supply valve on propane tank(s) slowly.

**NOTE:** If not opened slowly, excess-flow check valve on propane tank may stop gas flow. If this happens, close propane supply valve and open again slowly.

5. Check all connections for leaks. Apply mixture of liquid soap and water to gas joints. Bubbles forming show a leak that must be corrected.

**▲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 that must be corrected. Correct all leaks at once.

6. Close propane supply valve.

# Model 3VH18

## Operation

**▲WARNING** Review and understand the warnings in the Safety Information Section. They are needed to safely operate this heater. Follow all local codes when using this heater.

### TO START HEATER

1. Follow all installation, ventilation, and safety information.
2. Locate heater on stable and level surface. Make sure strong drafts do not blow on heater.

**▲WARNING** Fully close main burner valve before lighting pilot. If not, severe burns can occur. Do this by turning valve handle towards the OFF position until it stops.

3. Open propane supply valve on propane tank(s) slowly.

**NOTE:** If not opened slowly, excess-flow check valve on propane tank may stop gas flow. If this happens, close propane supply valve and open again slowly.

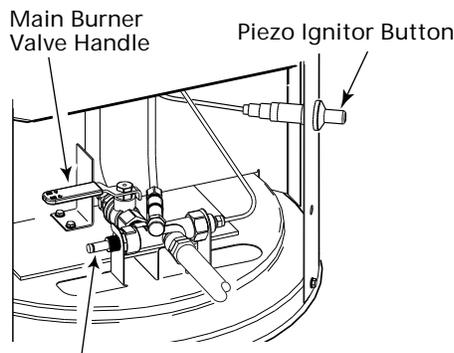
4. Push in and hold automatic control valve button (See Figure 5). Push piezo ignitor button (See Figure 5). You may need to push the piezo ignitor button 3-8 times until the pilot lights.

**NOTE:** Hose may be filled with air. If so, keep automatic control valve button pressed and wait 20 seconds for propane to clear before pressing ignitor button again. When pilot lights, keep automatic control valve button pushed in. Release button after 30 seconds.

5. If pilot light goes out, repeat step 4.

6. When pilot remains lit, fully open main burner valve. Do this by turning main burner valve handle towards the ON position until it stops.

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



**Figure 5 - Main Burner Valve Handle, Automatic Control Valve Button, and Piezo Ignitor Button Locations**

### TO STOP HEATER

1. Tightly close propane supply valve on propane tank(s).
2. Shut off main burner valve. Do this by turning main burner valve handle towards the OFF position until it stops.

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

### TO RESTART HEATER

1. Wait five minutes after stopping heater.
2. Restart heater by following steps under *To Start Heater*.

## Storage

**▲CAUTION** Disconnect heater from propane supply tank(s).

**▲CAUTION** Do not stack heaters over three high if more than one heater is being stored. Secure heaters with rope or strap after stacking.

1. Store propane tank(s) in safe manner. Refer to Chapter 5 of *Standard for Storage and Handling of Liquefied Petroleum Gases, ANSI/NFPA 58 and/or CAN/CGA B149.2*. Follow all local codes. Always store propane tanks outdoors.
2. Place plastic cover caps over brass fittings on valve inlet and hose/regulator assembly.
3. Store in a dry, clean, and safe place.
4. When taking heater out of storage, always check inside of heater. Insects and small animals may place foreign objects in heater. Keep inside of heater free from combustible and foreign objects.

## Maintenance

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

1. Keep heater clean.
2. Inspect heater before each use. Check connections for leaks. Apply mixture of liquid soap and water to connections. Bubbles forming show a leak that must be corrected. Correct all leaks at once.
3. Inspect hose/regulator assembly before each use. If hose is highly worn or cut, replace.
4. Have heater inspected yearly by a qualified service person.

# Replacement Parts For Model 3VH18 Propane Construction Heater, call 1-800-323-0620

24 hours a day — 365 days a year

Please provide following information:

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

Address parts correspondence to:

Grainger Parts Operations  
 P.O. Box 3074  
 1657 Shermer Road  
 Northbrook, IL 60065-3074 U.S.A.

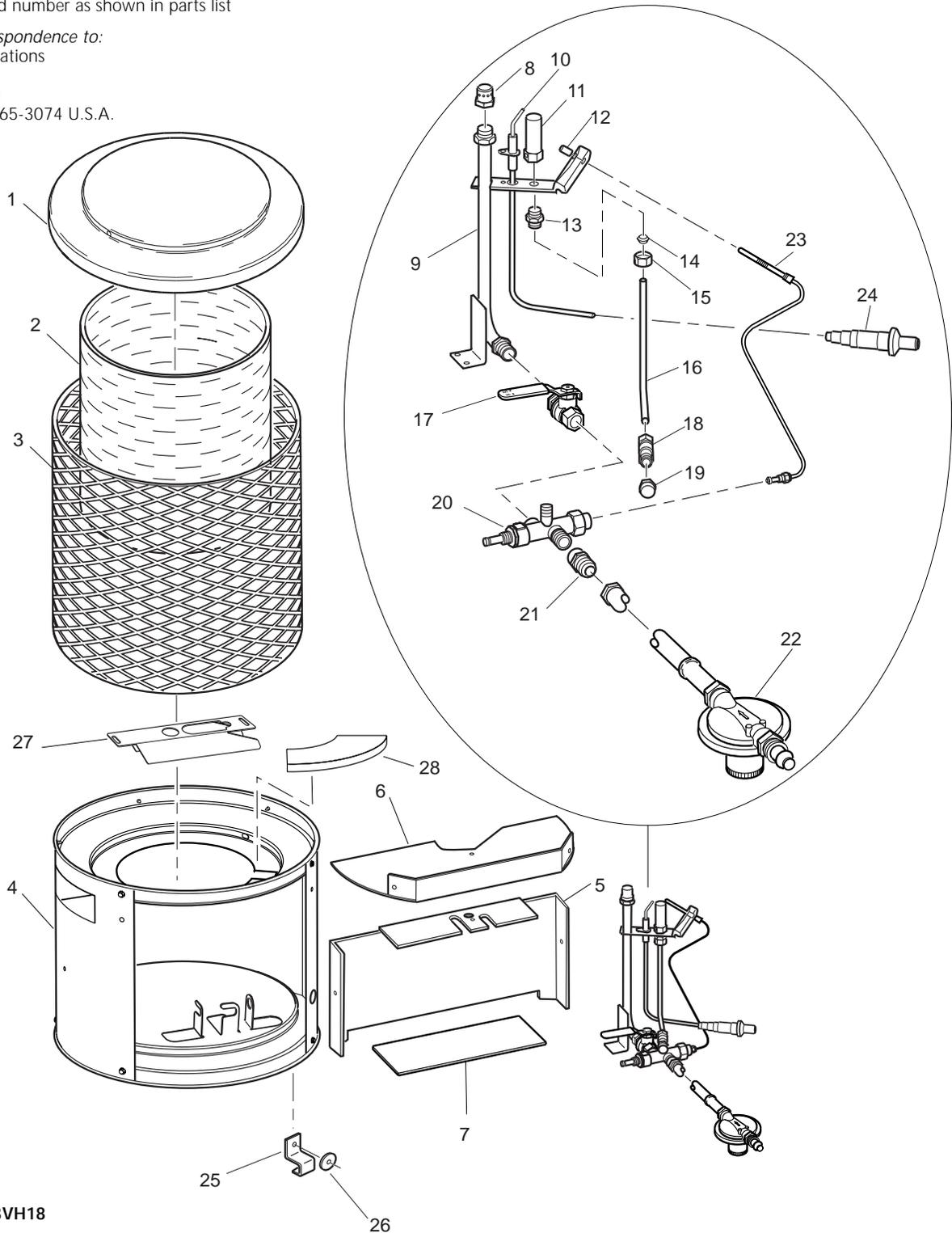


Figure 6 - Model 3VH18

## Replacement Parts List

### Model 3VH18 Propane Construction Heater

**▲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. This will also protect your warranty coverage for parts replaced under warranty.*

Reference Number	Description	Part No. For Model 3VH18	Quantity
1	Upper Disk	104145-01	1
2	Emitter	103897-03	1
3	Shell	103898-01	1
4	Base Assembly	104135-01	1
5	Rear Burner Shield	103935-01	1
6	Burner Shield	103900-02	1
7	Burner Support	103901-01	1
8	Nozzle	099138-03	1
9	Burner Tube Assembly	104114-01	1
10	Ignitor Electrode	104118-01	1
11	Pilot Burner Assembly	097163-05	1
12	Thermocouple Clip	099237-01	1
13	Pilot Burner Orifice	097161-03	1
14	Sleeve	M5788	1
15	Hex Nut	M5787	1
16	Pilot Fuel Tube	103028-02	1
17	Manual Control Valve	097152-01	1
18	Compression Gauge Tee	099461-01	1
19	Brass Hex Cap	099460-01	1
20	Automatic Control Valve	097155-01	1
21	Female Connector	097157-02	1
22	Regulator/Hose Assembly	LPA3100	1
23	Thermocouple Kit	099236-01	1
24	Piezo Ignitor	102445-01	1
25	Leg	103902-01	3
26	Spacer	103903-01	3
27	Pilot Shield	104143-01	1
28	Insulation	104116-02	1
Δ	Tradename Decal	099153-09	1
Δ	Dayton Information Decal	104126-02	1
Δ	Dayton Owner's Manual	104130-01	1
†	Regulator & Hose Assembly	LPA3100	1
†	10' Hose	LPA1000	1
†	Regulator	LPA2150	1
†	Fuel Gas Connector	LPA4020	1

(Δ) Not shown

(†) Accessories

# Dayton® Propane Construction Heater

## Troubleshooting Chart

**⚠ WARNING**

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

Symptom	Possible Cause(s)	Corrective Action
Pilot fails to light	<ol style="list-style-type: none"> <li>1. Propane supply valve closed on propane tank(s)</li> <li>2. Excess flow check valve closed</li> <li>3. Air in gas line</li> <li>4. Blockage in burner orifice</li> <li>5. Piezo ignition system not sparking</li> </ol>	<ol style="list-style-type: none"> <li>1. Open propane supply valve slowly</li> <li>2. Close propane supply valve on propane tank and reopen slowly</li> <li>3. Allow several minutes to purge air with automatic control valve button depressed</li> <li>4. Replace burner orifice</li> <li>5. Adjust ignitor electrode gap to .120". Check wire lead for damage. Replace piezo ignitor and/or ignitor electrode as necessary</li> </ol>
Pilot lights but goes out when automatic control valve button is released	<ol style="list-style-type: none"> <li>1. Not enough warm-up time</li> <li>2. Low gas pressure</li> <li>3. Thermocouple loose or needs to be replaced</li> <li>4. Automatic control valve needs to be replaced</li> </ol>	<ol style="list-style-type: none"> <li>1. Relight, hold automatic control valve button in 45 seconds</li> <li>2. Check propane tank(s) for proper gas supply</li> <li>3. Tighten connection or replace thermocouple</li> <li>4. Replace automatic control valve</li> </ol>
Burn rate is low; Emitter not glowing	<ol style="list-style-type: none"> <li>1. Main burner valve not fully open</li> <li>2. Plugged gas orifice</li> <li>3. Low gas pressure</li> <li>4. Low fuel supply</li> </ol>	<ol style="list-style-type: none"> <li>1. Fully open main burner valve by pushing in control knob and turning towards HIGH position until it stops</li> <li>2. Replace gas orifice</li> <li>3. Check gas supply; check regulator output</li> <li>4. Consult propane gas supplier</li> </ol>
Soot forming inside heater, flame 100% yellow	<ol style="list-style-type: none"> <li>1. Main burner valve not fully open</li> <li>2. Low fuel supply</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust main burner valve slowly towards ON position</li> <li>2. Consult propane gas supplier</li> </ol>







# Dayton® Propane Construction Heater

## Limited Warranty

**Dayton One-Year Limited Warranty.** Propane construction gas heater model covered in this manual, is warranted by Dayton Electric Mfg. Co. (Dayton) to the original user against defects in workmanship or materials under normal use for one year after date of purchase. Any part which is determined to be defective in material or workmanship and returned to an authorized service location, as Dayton designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at Dayton's option. For limited warranty claim procedures, see PROMPT DISPOSITION below. This limited warranty gives purchasers specific legal rights which vary from jurisdiction to jurisdiction.

**Limitation of Liability.** To the extent allowable under applicable law, Dayton's liability for consequential and incidental damages is expressly disclaimed. Dayton's liability in all events is limited to, and shall not exceed, the purchase price paid.

**Warranty Disclaimer.** Dayton has made a diligent effort to provide product information and illustrate the products in this literature accurately; however, such information and illustrations are for the sole purpose of identification, and do not express or imply a warranty that the products are merchantable, or fit for a particular purpose, or that the products will necessarily conform to the illustrations or descriptions.

Except as provided below, no warranty or affirmation of fact, expressed or implied, other than as stated in "LIMITED WARRANTY" above is made or authorized by Dayton.

**Product Suitability.** Many jurisdictions have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While Dayton attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, review the product applications, and all applicable national and local codes and regulations, and be sure that the product, installation, and use will comply with them.

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some jurisdictions do not allow limitations on how long an implied warranty lasts, consequently the above limitation may not apply to you; and (c) by law, during the period of this Limited Warranty, any implied warranties of implied merchantability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

**Prompt Disposition.** Dayton will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.



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NOT A UPC