



Premier Ductable Heaters

TS080	80,000 Btuh / 23.4 kW
TS170	170,000 Btuh / 49.8 kW
CS080	80,000 Btuh / 23.4 kW
CS170	170,000 Btuh / 49.8 kW

LP Vapor Withdrawal or Natural Gas
Dual Fuel

View this manual online at www.lbwhite.com

Attention

This heater has been tested and evaluated by the CSA Group in accordance with the requirements of Standard ANSI Z83.7•CSA 2.14 and is listed and approved as a ductable direct gas-fired forced-air construction heater with application for the temporary heating of buildings under construction, alteration, or repair. Additionally, this heater has been application reviewed and approved by the CSA Group for U.S. and Canadian Tent Heating Applications with temporary human occupancy. CHECK WITH YOUR LOCAL FIRE SAFETY AUTHORITY, YOUR LOCAL FUEL GAS SUPPLIER, OR THE L.B. WHITE COMPANY IF YOU HAVE QUESTIONS REGARDING APPLICATIONS.

www.lbwhite.com



Congratulations!

You have purchased the finest circulating heater available. Your new L.B. White heater incorporates the benefits from the most experienced manufacturer of heating products using state-of-the-art technology.

We, at L.B. White, thank you for your confidence in our products and welcome any suggestions or comments you may have... contact us at 1-800-345-7200, or email us at customerservice@lbwhite.com.

SEE ASSEMBLY
INSTRUCTIONS
INSIDE

**Please refer to important
elevation information on
inside cover.**



SCAN THIS
with your smartphone or
visit <http://goo.gl/nvneR>
to view maintenance
videos for L.B.White heaters.*

* Requires an app like QR Droid
for Android or for iPhone

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WARNING

Standard products are manufactured to operate at optimum efficiency at elevations between 0 and 2000 ft. (0-610 m) above sea level.

If operated at higher elevations the product will not function correctly and may function in an unsafe nature.

Products providing proper operation for alternate elevations may be available.

If you require a high elevation product, did not specify when ordering, and/or the box this unit came in does not have an alternate altitude designation sticker please contact technical support.

GENERAL HAZARD WARNING

- FAILURE TO COMPLY WITH THE PRECAUTIONS AND INSTRUCTIONS PROVIDED WITH THIS HEATER CAN RESULT IN:
 - DEATH
 - SERIOUS BODILY INJURY OR BURNS
 - PROPERTY DAMAGE OR LOSS FROM FIRE OR EXPLOSION
 - ASPHYXIATION DUE TO LACK OF ADEQUATE AIR SUPPLY OR CARBON MONOXIDE POISONING
 - ELECTRICAL SHOCK
- READ THIS OWNER'S MANUAL BEFORE INSTALLING OR USING THIS PRODUCT.
- ONLY PERSONS WHO CAN READ, UNDERSTAND, AND FOLLOW THE INSTRUCTIONS SHOULD USE OR SERVICE THIS HEATER.
- SAVE THIS OWNER'S MANUAL FOR FUTURE USE AND REFERENCE.
- OWNER'S MANUALS AND REPLACEMENT LABELS ARE AVAILABLE AT NO CHARGE. SEE WEBSITE, OR FOR ASSISTANCE, CONTACT L.B. WHITE AT 1-800-345-7200.

WARNING

- PROPER GAS SUPPLY PRESSURE MUST BE PROVIDED TO THE INLET OF THE HEATER.
- REFER TO DATA PLATE FOR PROPER GAS SUPPLY PRESSURE.
- GAS PRESSURE IN EXCESS OF THE MAXIMUM INLET PRESSURE SPECIFIED AT THE HEATER INLET CAN CAUSE FIRES OR EXPLOSIONS.
- FIRES OR EXPLOSIONS CAN LEAD TO SERIOUS INJURY, DEATH, OR BUILDING DAMAGE.
- GAS PRESSURE BELOW THE MINIMUM INLET PRESSURE SPECIFIED AT THE HEATER INLET MAY CAUSE IMPROPER COMBUSTION.
- IMPROPER COMBUSTION CAN LEAD TO ASPHYXIATION OR CARBON MONOXIDE POISONING AND THEREFORE SERIOUS INJURY OR DEATH.

WARNING

FIRE AND EXPLOSION HAZARD

- NOT FOR HOME OR RECREATIONAL VEHICLE USE.
- INSTALLATION OF THIS HEATER IN A HOME OR RECREATIONAL VEHICLE MAY RESULT IN A FIRE OR EXPLOSION.
- FIRE OR EXPLOSIONS CAN CAUSE PROPERTY DAMAGE OR LOSS OF LIFE.

WARNING

FIRE, BURN, INHALATION, AND EXPLOSION HAZARD

- KEEP SOLID COMBUSTIBLES A SAFE DISTANCE AWAY FROM THE HEATER.
- SOLID COMBUSTIBLES INCLUDE WOOD, PAPER, OR PLASTIC PRODUCTS, BUILDING MATERIALS AND DUST.
- DO NOT USE THE HEATER IN SPACES WHICH CONTAIN OR MAY CONTAIN VOLATILE OR AIRBORNE COMBUSTIBLES.
- VOLATILE OR AIRBORNE COMBUSTIBLES INCLUDE GASOLINE, SOLVENTS, PAINT THINNER, DUST PARTICLES OR UNKNOWN CHEMICALS.
- FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A FIRE OR EXPLOSION.
- FIRE OR EXPLOSIONS CAN LEAD TO PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

FOR YOUR SAFETY

If you smell gas:

1. Open windows.
2. Don't touch electrical switches.
3. Extinguish any open flame.
4. Immediately call your gas supplier.

WARNING

Cancer and reproductive harm.
See www.P65Warnings.ca.gov.

Specifications

		TS080		CS080DF		TS170		CS170DF	
Fuel Type		Propane	Natural	Propane	Natural	Propane	Natural	Propane	Natural
Maximum Input (Btu/h/kW)		80,000/23.4				170,000/49.8			
Burner Manifold Pressure (Inches W.C./kPa)		10.0/2.49	4.0/1.0	10.0/2.49		10.0/2.49	4.0/1.0	5.4/1.34	5.5/1.37
Gas Supply Pressure Acceptable at the Inlet of the Heater for Purpose of Input Adjustment (Inches W.C./kPa)	MAX.	13.5/3.36							
	MIN.	12.0/2.99	8.0/1.99	11.0/2.74		11.0/2.74	7.0/1.74	11.0/2.74	
Fuel Consumption/ Hour	Propane (lbs./kg)	3.71 / 1.68				7.88 / 3.5			
	Natural Gas (cu.ft/m ³)	80 / 2.27				170 / 4.81			
Motor Characteristics	Ball Bearing								
		1/8 H.P. / 93 Watts 1,100 RPM				1/3 H.P. / 248 Watts 1,100 RPM			
Electrical Supply (Volts/Hz/Phase)	120/60/1								
Amp Draw	Starting	5.0				7.3			
	Continuous Operation	1.5				5.0			
Dimensions (Inches/cm) LxWxH	29.5 x 13.5 x 20/75 x 34 x 51					30.75 x 18.25 x 28.25/78 x 46.3 x 71.7			
Minimum Safe Distances from Nearest Combustible Materials (feet/ meter)	Top	1 / 0.3							
	Sides	1 / 0.3							
	Back	1 / 0.3							
	Blower Outlet	6 / 1.83							
	Gas Supply	Propane Gas - U.S: 6/1.83, Canada: 3.05 Natural Gas - N/A							
Minimum Ambient Temperature in Which Heater May Be Used	-20°F / -29°C								

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General Information

This Owner's Manual includes accessories commonly used on this heater. These accessories must be ordered separately.

When calling for technical service assistance, or for other specific information, **always** have model number, configuration number and serial number available. This information is contained on the dataplate.

This manual will instruct you in the operation and care of your unit. Have your installer review this manual with you so that you fully understand the heater and how it functions.

Contact your local L.B. White distributor or the L.B. White Company, LLC for assistance, or if you have any questions about the use of the equipment or its application.

The L.B. White Company, LLC has a policy of continuous product improvement. It reserves the right to change specifications and design without notice.

Safety Precautions



WARNING

Air Quality Hazard

- Do not use this heater for heating human living quarters.
- Use of direct-fired heaters in the construction environment can result in exposure to levels of CO, CO₂, and NO₂ considered to be hazardous to health and potentially life threatening.
- Do not use in unventilated areas.
- Know the signs of CO and CO₂ poisoning
 - Headaches, stinging eyes.
 - Dizziness, disorientation.
 - Difficulty breathing, feeling of being suffocated.
- Proper ventilation air exchange (OSHA 29 CFR 1926.57) to support combustions and maintain acceptable air quality shall be provided in accordance with OSHA 29 CFR part 1926.154, ANSI A10.10 Safety Requirements for Temporary and Portable Space Heating Devices and Equipment used in the Construction Industry or the Natural Gas and Propane Installation Codes CSA B149.1.
 - Periodically monitor levels of CO, CO₂, and NO₂ existing at the construction site – at the minimum at the start of the shift and after 4 hours.
 - Provide ventilation air exchange, either natural or mechanical, as required to maintain acceptable indoor air quality.

USA 8-Hr. Time weighted average
(OSHA 29 CFR 1926.55 App A)

CO 50 ppm
CO₂ 5,000 ppm
NO₂

USA – Ceiling Limit
(Short Term Exposure Limit = 15 minutes)

CO
CO₂

NO₂ 5 ppm

Canada 8-Hr. Time weighted average
WorkSafe BC OHS Guidelines Part 5.1
and Ontario Workplaces Reg 833

25 ppm
5,000 ppm
3 ppm (Reg 833)

Canada STEL (15 minutes Reg 833/1 hr.
WSBC) WorkSafe BC OHS Guidelines part
5.1 and Ontario Workplaces Reg 833

100 ppm
15,000 ppm (WSBC)
30,000 ppm (Reg 833)
1.0 ppm (WorkSafeBC)
5.0 ppm (Reg 833)

- Ensure that the flow of combustion and ventilation air exchange cannot become obstructed.
- As the building "tightens up" during the construction phases, ventilation may need to be increased.

Fuel Gas Odor

Propane gas and natural gas have man-made odorants added specifically for detection of fuel gas leaks. If a gas leak occurs, you should be able to smell the fuel gas. THAT'S YOUR SIGNAL TO GO INTO IMMEDIATE ACTION!

- Do not take any action that could ignite the fuel gas. Do not operate any electrical switches. Do not pull any power supply or extension cords. Do not light matches or any other source of flame. Do not use your telephone.
- Get everyone out of the building and away from the area immediately.
- Close all fuel supply valves.
- Propane gas is heavier than air and may settle in low areas. When you have reason to suspect a propane leak, keep out of all low areas.
- Use your neighbor's phone and call your fuel gas-supplier and your fire department. Do not re-enter the building or area.
- Stay out of the building and away from the area until declared safe by the firefighters and your fuel gas supplier.
- FINALLY, let the fuel gas service person and the firefighters check for escaped gas. Have them air out the building and area before you return. Properly trained service people must repair the leak, check for further leakages, and then relight the heater for you.

Odor Fading - No Odor Detected

- Some people cannot smell well. Some people cannot smell the odor of the man-made chemical added to propane or natural gas. You must determine if you can smell the odorant in these fuel gases.
- Learn to recognize the odor of propane gas and natural gas. Local propane gas dealers and your local natural gas supplier (utility) will be more than happy to give you a "scratch and sniff" pamphlet. Use it to become familiar with the fuel gas odor.
- Smoking can decrease your ability to smell. Being around an odor for a period of time can affect your sensitivity to that particular odor.
- The odorant in propane gas and natural gas is colorless and the intensity of its odor can fade under some circumstances.
- If there is an underground leak, the movement of gas through the soil can filter the odorant.
- Propane gas odor may differ in intensity at different levels. Since propane gas is heavier than air, there may be more odor at lower levels.
- Always be sensitive to the slightest gas odor. If you continue to detect any gas odor, no matter how small, treat it as a serious leak. Immediately go into action as discussed previously.

Attention - Critical Points to Remember!

- Propane gas and natural gas have a distinctive odor. Learn to recognize these odors. (Reference "Fuel Gas Odor" and "Odor Fading" sections above.
 - If you have not been properly trained in repair and service of propane gas and natural gas fueled heaters, then do not attempt to light the heater, perform service or repairs, or make any adjustments to the heater on a propane gas or natural gas fuel system.
 - Even if you are not properly trained in the service and repair of radiant heaters, ALWAYS be consciously aware of the odors of propane gas and natural gas.
 - A periodic "sniff test" around the heater or at the heater's joints; i.e. hose, connections, etc., is a good safety practice under any conditions. If you smell even a small amount of gas, CONTACT YOUR FUEL GAS SUPPLIER IMMEDIATELY. DO NOT WAIT!
1. Do not attempt to install, repair, or service this heater or the gas supply line unless you have continuing expert training and knowledge of gas heaters.

QUALIFICATIONS FOR SERVICING AND INSTALLATION:

- a. To be a qualified gas heater service person, you must have been trained in gas-fired heater servicing, repair and also have sufficient experience to allow you to troubleshoot, replace defective parts, and test heaters in order to get them into a continuing safe and normal operation condition. You must completely familiarize yourself with each model heater by reading and complying with the safety instructions, labels, owner's manual, etc. that are provided with each heater.
- b. To be a qualified gas installation person, you must have sufficient training and experience to handle all aspects of installing, repairing, and altering gas lines, including selecting and installing the proper equipment, and selecting proper pipe size to be used. This must be done in accordance with all local, state and national codes as well as the manufacturer's requirements.

- c. In the Commonwealth of Massachusetts, this product must be installed by a gas fitter licensed in the Commonwealth of Massachusetts.

WARNING **ELECTRICAL GROUNDING** **INSTRUCTIONS**

This heater is equipped with a three prong (grounding) plug for your protection against electrical shock hazard. It must be plugged into a properly grounded three prong receptacle. Failure to use a properly grounded receptacle can result in electrical shock or death.

2. All installations or applications of L. B. White Co., Inc.'s heaters shall meet the requirements of local, state and national L.P. gas and natural gas, electrical and safety codes. Your gas supplier, local licensed electrician, local fire department and government agencies can help you determine these requirements. In the absence of local codes, comply with the following:
 - a. Installations in the U.S.A.:
 - NFPA 102, standard for assembly seating, tents and membrane structures
 - ANSI/NFPA 58, latest edition, Standard for Storage and Handling of Liquefied Petroleum Gas and/or
 - ANSI Z223.1/NFPA 54, National Fuel Gas Code
 - ANSI/NFPA 70, National Electrical Code.
 - b. Installations in Canada:
 - CAN1-B149.1 or CAN1-B149.2 Installation Codes
 - CSA C22.1 Part 1 Standard Canadian Electrical Code.
 - CSA C22.2 No.3, Electrical Features of Fuel Burning Equipment.
3. We cannot anticipate every use which maybe made of our heaters. Other standards govern the use of fuel gases and heat producing products in specific applications. Your local authority can advise you about these. Check with the local fire safety authority if you have questions about applications.
4. Forced air heaters shall not be directed toward any propane gas container within 20 feet/6.10 meters.
5. Do not wash the heater. Use only compressed air, a soft brush or dry cloth to clean the interior of the heater and it's components.

6. For safety, this heater is equipped with manual reset high limit switches, an air-proving switch, and a redundant gas control valve. Never operate the heater with any safety device that has been bypassed. Do not operate this heater unless all of these features are fully functioning.
7. Do not direct the heater toward any propane gas supply container or gas hose within 20 ft. (6m) of the heaters hot air discharge.
8. Do not block air intakes or discharge outlets of the heater. Doing so may cause improper combustion or damage to heater components leading to property damage.
9. The hose assembly shall be visually inspected on a daily basis after heater relocation and when the heater is in use. If it is evident there is excessive abrasion or wear, or if the hose is cut, it must be replaced prior to the heater being put into operation. The hose assembly shall be protected from building materials, and contact with hot surfaces both during use and while in storage. The replacement hose assembly shall be that specified by the manufacturer. See parts list.
10. Check for gas leaks and proper function upon heater installation, when relocating, and after servicing. Refer to leak check instructions within installation section of this manual.
11. This heater should be inspected for proper operation by a qualified service person before each use and at least annually.
12. Always turn off the gas supply to the heater if the heater is not going to be used in the heating of the work space.
13. If gas flow is interrupted and flame goes out, do not relight the heater until you are that all gas that may have accumulated has cleared away. In any event, do not relight the heater for at least 5 minutes.
14. Minimum propane gas cylinder size to be used:
170,000 btuh heaters: (1) 100 lb./45 kg or (2) 40 lb./18 kg. : 80,000 btuh heaters: 40 lb./18 kg
Multiple cylinder installations require a manifold to ensure continuous supply of gas. The system must be arranged to provide vapor withdrawal from the operating cylinder.
15. When the heater is to be stored indoors, the connection between the propane gas supply cylinder(s) and the heater must be disconnected and the cylinder(s) removed from the heater and stored in accordance with the Standard for the Storage and Handling of Liquefied Petroleum Gases, ANSI/NFPA 58 or Standard CSA B149.1 Natural Gas and Propane Installation Code as appropriate.
16. Propane gas supply containers have left handed threads. Use the manual hand wheel supplied with the regulator to make a connection of the regulator's P.O.L. fitting into the cylinders' gas supply valve.
17. Use pipe joint compound that is resistant to propane and natural gas.
18. For either indoor or outdoor installation. Adequate ventilation shall be provided in accordance with OSHA 29 CFR 1926.154, Safety Requirements for Temporary and Portable Space Heating Devices and Equipment, ANSI A10.10, National Fuel Gas Code, ANSI Z223.1/NFPA54, Liquefied Petroleum Gas Code, NFPA 58 or the Natural Gas and Propane Installation Code, CAN B149.1, as appropriate.

General Installation Instructions

WARNING

Burn Hazard

Can cause property damage, severe injury or death.

1. To avoid dangerous accumulation of fuel gas, turn off gas supply at the appliance service valve before starting installation, and perform gas leak test after completion of installation.
2. Do not force the gas control knob. Use only your hand to turn the gas control knob. Never use any tools. If the knob will not operate by hand, the control should be replaced by a qualified service technician. Force or attempted repair may result in fire or explosion.

1. Read all safety precautions and follow L.B. White recommendations when installing this heater. If during the installation or relocating of heater, you suspect that a part is damaged or defective, call a qualified service agency for repair or replacement.

2. The heating equipment must be properly positioned before use on a flat, stable, and horizontal surface. Ensure the heater is level. (Use a level, check lengthwise & crosswise). Observe and obey all minimum safe distances of the heater to the nearest combustible materials. Safe distances are given on the heater dataplate and on page 4 of this manual.

3. L.P Gas Installation Requirements

- All L.P. gas containers must be placed at least 5 feet/1.52 meters from the nearest tent wall structure.
- Ensure all L.P. gas containers are secured and protected from all people, vehicular traffic and contact.
- L.P. gas containers must be located on a flat, level, and stable surface.
- L.P. gas cylinders (a.k.a. 100 lb/45 kg. cylinders/ tanks) must be secured from tip-over.

Contact your local authorities, L.P. gas dealers, or fire marshalls for specifics dealing with installation in your area

4. This heater may be installed either indoors or outdoors and is approved for use with or without ductwork. For outdoor installations, additional accessories are needed to properly provide heated air to the inside. These accessories are as follows:

Only the ducting and the air distribution accessories as supplied and specified by the heater's manufacturer shall be used.

Unit Diffuser:

This accessory provides the necessary clearance to combustible materials and also spreads the heated air inside the tent. Local codes may require a 3.04 m separation between the tent and the heater. In this case the unit mounted diffuser shall not be used.

Unit Diffuser Part Numbers:

80,000 btu/h heaters: 500-26349

170,000 btu/h heaters: 500-26351

Duct Kit, 12 in./0.3 m. diameter x 12 ft/3.65 m. length:

This accessory provides for locating the heater 10 ft./3.04 meters away from the tent as required by some local codes.

Use only one duct (12 ft. x 12 in. / 3.65 m x 30.4 cm) per heater with or without an end diffuser.

Duct Kit Part Numbers: Gray 500-26346

White 500-26347 Clear 500-26348

End Diffuser:

This accessory is used with the 12 in./3 m. diameter x 12 ft./3.65 m. duct. It is placed under the tent edge and provides for spreading of the heated air inside the tent.

End Diffuser Part Number: 500-26350

DO NOT USE ANY OTHER DUCT-WORK, DUCTING, FIELD FABRICATED DUCTS, TARPS, STOVE PIPE, or any other means of making the connection between the heater and the inside of the tent.

5. When using the unit diffuser or end diffuser air distribution accessories, ensure the tent material is laid within the accessory's channel, and the tent material is firmly anchored to hold the tent material securely within the channel. See pages 16 and 17 for specifics when using these air distribution accessories.

6. The heater's gas pressure regulator (with pressure relief valve) must be protected from adverse weather conditions (rain, ice, snow) as well as from building materials (tar, concrete,

plaster, etc.) which can affect safe operation and could result in property damage or injury.

7. Insure that all accessories that ship within the heater have been removed from inside the heater and installed.
8. Check all connections for gas leaks using approved gas leak detectors. Gas leak testing is performed as follows:

WARNING

Fire and Explosion Hazard

- Do not use open flame (matches, torches, candles, etc.) in checking for gas leaks.
- Use only approved leak detectors.
- Failure to follow this warning can lead to fires or explosions.
- Fires or explosions can lead to property damage, personal injury or loss of life.

- Check all pipe connections, hose connections, fittings and adapters upstream of the gas control with approved gas leak detectors.
 - In the event a gas leak is detected, check the components involved for cleanliness and proper application of pipe compound before further tightening.
 - Tighten the gas connections as necessary to stop the leak.
 - After all connections are checked and any leaks are stopped, turn on the main burner.
 - Stand clear while the main burner ignites to prevent injury caused from hidden leaks that could cause flashback.
 - With the main burner in operation, check all connections, hose connections, fittings and joints as well as the gas control valve inlet and outlet connections with approved gas leak detectors.
 - If a leak is detected, check the components involved for cleanliness in the thread areas and proper application of pipe compound before further tightening.
 - Tighten the gas connection as necessary to stop the leak.
 - If necessary, replace the parts or components involved if the leak cannot be stopped.
9. A qualified service agency must check for proper operating gas pressure upon installation of the heater.
 10. Light according to instructions on heater or within owner's manual.
 11. The heater must have the proper gas regulator for the application. Use only the L.B. White regulator originally supplied with the heater. This regulator includes a POL fitting incorporating an excess flow valve. The excess flow valve is a safety device which protects against discharge from the propane gas supply container if the regulator is broken off. If the POL fitting is ever replaced, it needs to be replaced with an L.B. White POL fitting. Failure to do so can result in fires, explosions, loss of property, injury or death.
 12. A regulator must be connected to the gas supply so that the pressure to the inlet of the gas control valve is regulated within the range specified on the dataplate at all times. Contact your gas supplier or the L.B. White Co., if you have any questions.
 13. This heater is configured for use for propane gas vapor withdrawal only. Do not use the heater in an propane gas liquid withdrawal system or application. If you are in doubt, contact the L.B. White Co., Inc.
 14. The heater must be installed so as not to interfere with or obstruct normal exits, emergency exits, doors and walkways.
 15. Railing, fencing or suitable substitute materials must be used to keep the heating equipment from any people using and visiting the structure.
 16. The unit shall be located so that rain, ice, or snow drainage from the structure does not affect equipment operation. If the unit is mounted outside, it must be mounted above any pooled or standing water. If the unit is to be located on the ground, a surrounding trench is recommended to drain any rain, ice or snow away from the unit.
 17. The ground and surrounding terrain must be cleared of any combustible vegetation and

other combustible materials when the heater is mounted outside.

- 18. Eventually, like all electrical/mechanical devices, the thermostat can fail. Thermostat failure may result in an underheating condition. The thermostat should be tested to make sure it turns the heater on and off within a temperature differential of $\pm 3^{\circ}\text{F}$ ($\pm 1.5^{\circ}\text{C}$).
- 19. Take time to understand how to operate and maintain the heater by using this Owner's Manual. Make sure you know how to shut off the gas supply to the building and also to the individual heater. Contact your fuel gas supplier if you have any questions.
- 20. Any defects found in performing any of the service or maintenance procedures must be eliminated and defective parts replaced immediately. The heater must be retested by properly qualified service personnel before placing the heater back into use.

Propane Gas Supply Sizing

The vaporization of propane is affected by several factors: the surface area of the container, the liquid level of propane, temperature surrounding the container, and the relative humidity. All of these factors are specific to a site. Therefore, a degree of experience and judgement is required to select the proper propane supply.

Although experience is the best guide, the following recommendations can be used as a starting point. The table is based on experience in northern climates where cold weather and high humidity are prevalent in the winter. If more or less favorable conditions prevail at a specific site, adjustments can be made on the basis of experience.

Recommended Propane Gas Supply - Cylinders Required Per Heater

Average Temp ° F/°C	50/10	40/4.4	30/-1.1	20/-6.7	10-12.2	0/-17.8	-10/-23
40 lb./18 kg CS080/TS080	1	1	1	1	2	2	2
100 lb./45 kg CS170/TS170	1	1	1	2	2	2	3

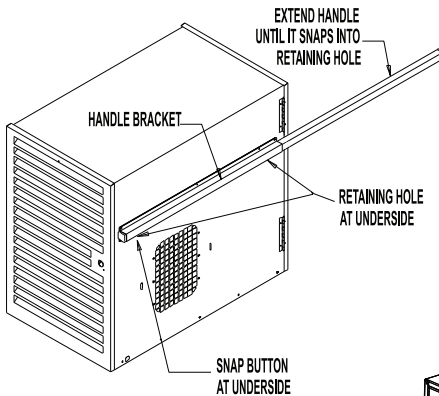
* Cylinders must be manifolded together to allow simultaneous vapor withdrawal from all cylinders.

Sliding Handle (Premier 170)

The Premier 170 is equipped with sliding handles for convenient "wheel-barrow" style mobility.

- Depress the snap-button on the underside of the sliding handle storage bracket.
- Fully extend both handles until the snap button locks into place.
- For storage, depress the snap button and push the handles to fully retracted position.

FIG. 1



Hose Hanger, Regulator Storage Bracket & Thermostat Storage Bracket Assembly

1. Hose Hanger Assembly (all models)

- a. Align wire hose hanger to cage nuts on back of heater.
- b. Mount the hanger using the 1/4-20 x 3/4 in. bolts and 1/4 in. flat washers. Tighten securely. See Fig. 2.

2. Thermostat Storage Bracket Assembly (all models)

- a. Thread four 3/8 in. hex head screws into the four holes at lower corner on back of heater, at louvered door end. DO NOT TIGHTEN. See Fig. 2, Premier 170 shown.

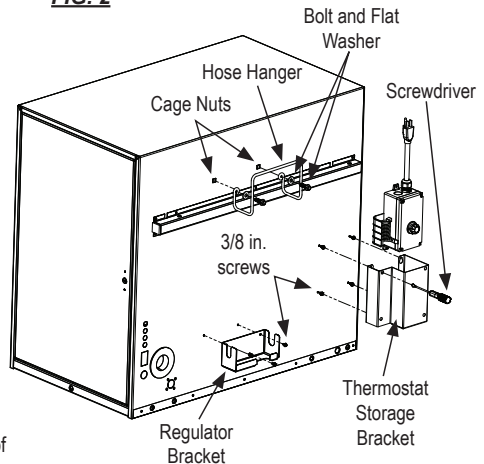
- b. Slide the four keyholes of the thermostat bracket mounting flanges over the four screws.

- c. After pushing the bracket down to hold into position, insert a 1/4 in. nut driver or standard screwdriver through the bracket's holes and tighten the screws securely. Store the thermostat when not in use.

3. Regulator Storage Bracket Assembly (Premier 170) BRACKET

- a. Align regulator storage bracket to the two 1/8 in. diameter holes on heater's lower case back.
- b. Mount the storage bracket to the case using the two 3/8 in. hex head screws at this point. Tighten securely.

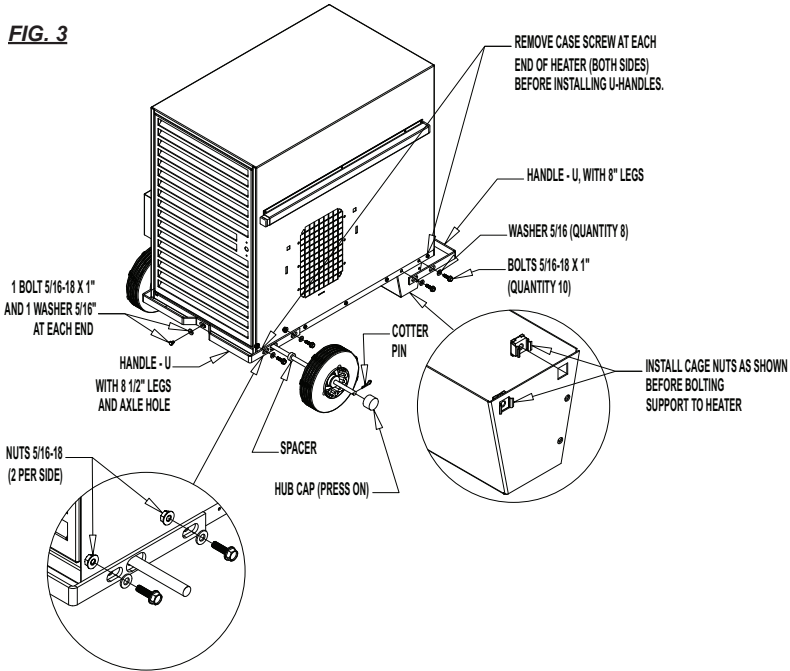
FIG. 2



Wheel, Leg & Lifting Handle Assembly (Premier 170)

See Fig. 3 for assembly of components. Ensure all hardware is tightened securely.

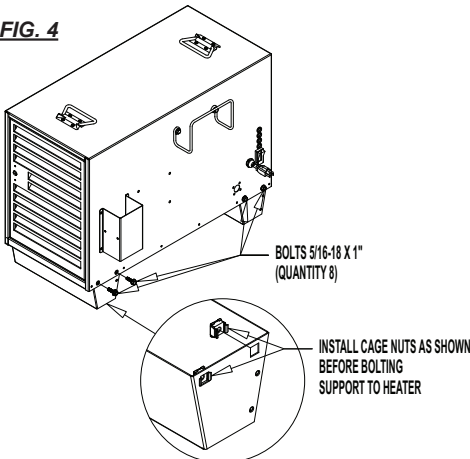
FIG. 3



Leg Assembly (Premier 80)

Assemble the legs to the heater as shown. Tighten all hardware securely.

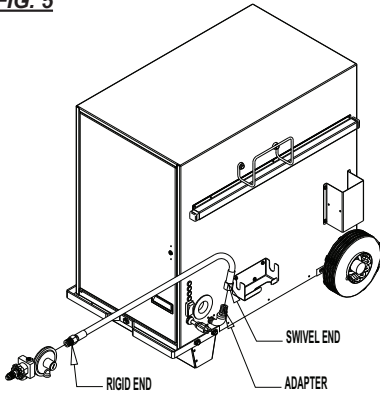
FIG. 4



Hose and Regulator Assembly

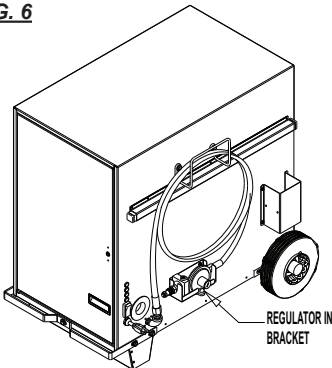
1. Connect rigid end of hose to regulator outlet.
Connect other end to hose adapter at heater.
Tighten securely. See Fig 5.

FIG. 5



2. The hose may be coiled up and hung on the hose hanger as shown in Fig. 6.
3. For Premier 170 heaters, store the regulator in the storage bracket (Fig. 6) when the regulator is not in use.

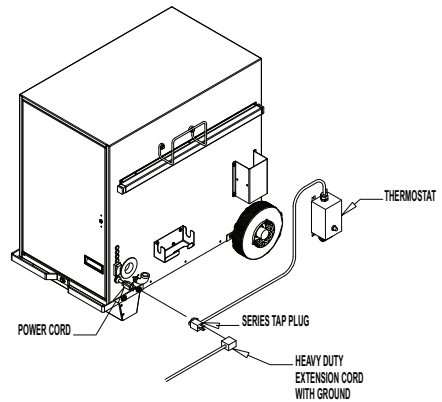
FIG. 6



Thermostat Assembly (All models - kit part number is 500-09454)

1. Connect male plug on heater into female side of FIG. 7 series tap plug on thermostat.
See Fig. 7.
2. Plug male side of series tap plug into grounded, heavy-duty, electrical extension cord. Plug extension cord into approved electrical outlet.

FIG. 7

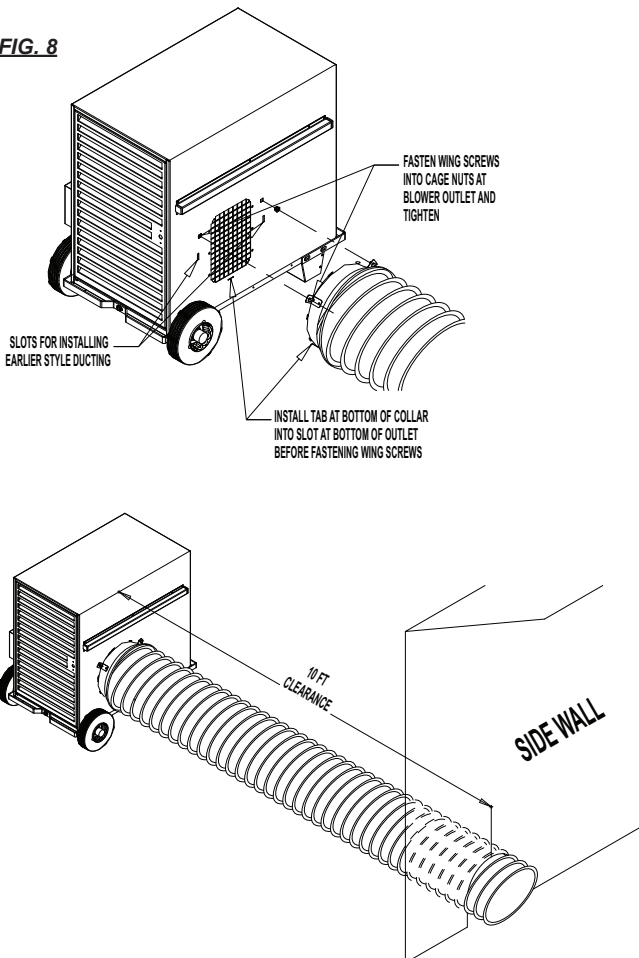


Duct Kit Assembly

Accessory 500-26346 - Gray & 500-26347 - White (Not included)

1. See Fig. 8 for installation of duct. Hand tighten the screws snugly. (Note: Slots are also provided at the sides of heater's air discharge to accommodate earlier style duct adapters with tab mounting configuration.)
2. Extend duct kit to 12 ft./3.65 m. length.
FIG. 8
3. Position duct as shown. Eliminate any kinks in duct.

FIG. 8

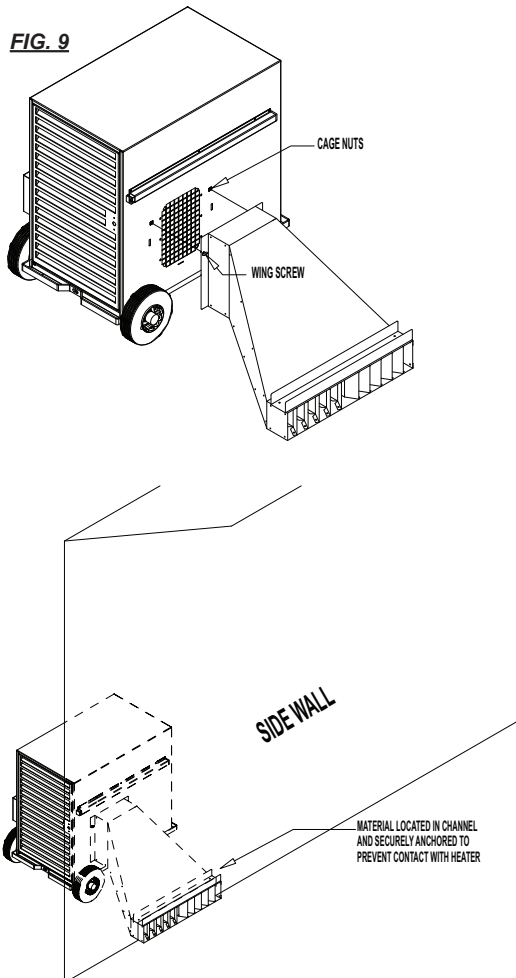


Unit Diffuser

Accessory 500-26349 (Premier 80) &
500-26351 (Premier 170) (Not included)

1. See Fig. 9 for installation of unit diffuser.
Hand tighten FIG. 9 the screws snugly. (Note:
Slots are provided to accommodate earlier
style unit diffusers with tab mounting.)
2. Position the diffuser under the tent wall
as shown. Lay the tent material within the
channel of the diffuser. Ensure the material
is securely anchored within the channel to
prevent contact with the heater. See below
for typical installation.

FIG. 9



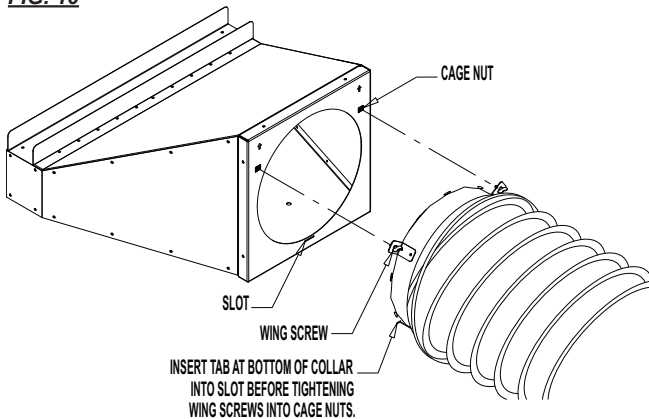
End Diffuser

Accessory 500-26350

(Not included)

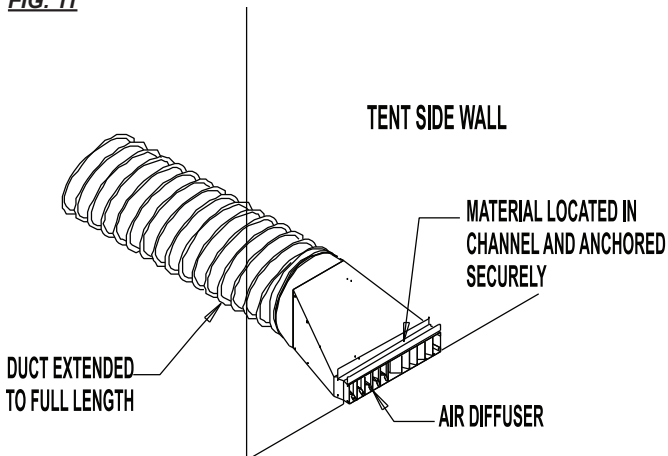
1. Wrap the duct clamp around duct and collar. Saddle of clamp lays over duct coil. Connect clamp ends together and tighten securely. See Fig. 10.

FIG. 10



2. Position the diffuser under the tent wall as shown. Lay the tent material within the channel of the diffuser. Ensure the material is securely anchored within the channel. See Fig. 11.

FIG. 11



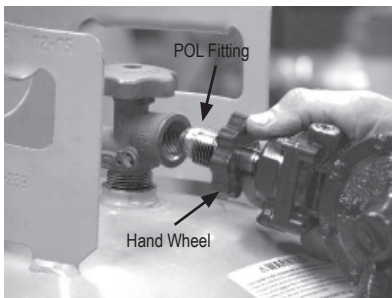
Connecting the Regulator to the Gas Supply

- Only use the L.B. White regulator supplied with the heater.
- Use pipe joint compound that is resistant to propane and natural gas at all threaded connections
- The heater must be regulated at all times for proper operation.
- Leak check all regulator connections after connecting to the gas supply.

Standard Premier Propane Gas Heaters (Models TS080/170)

1. Remove the cap from the POL fitting on the regulator. (Do not discard the cap)
2. Insert the POL stem into the cylinder valve. Push the spring loaded hand wheel up against the threaded nut. Turning counter clockwise, thread the POL nut into into the container valve using the hand wheel. Firmly tighten. See Fig. 12.

FIG. 12



3. Slowly open the cylinder valve. This will prevent lock-up of the excess flow valve built within POL stem.
4. When storing or transporting the heater, use the protective cap to ensure the POL fitting is protected from damage and water entry.

Standard Premier Natural Gas Heaters (Models TS080/170)

- Use the regulator shipped with the natural gas heater if the supply pressure to the heater is above the maximum inlet pressure of 13.5 In.W.C./3.36 kPA, as stated on the heater's data plate and in this owner's manual.
- The natural gas regulator supplied with the heater requires a minimum 2 PSIG inlet pressure.
- Connect the natural gas regulator (part # 09795) to the natural gas supply line, using the proper connections.

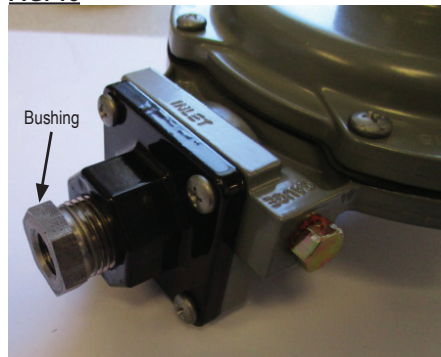
Dual Fuel Premier Heaters (Models CS080/CS170)

- The regulator provided with dual fuel heaters is suitable for both propane or natural gas
- Only use the L.B. White regulator supplied with the heater.
- Use pipe joint compound that is resistant to propane and natural gas at all threaded connections
- The heater must be regulated at all times for proper operation.
- Leak check all regulator connections after connecting to the gas supply.

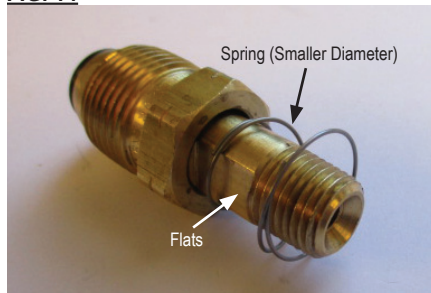
When using propane gas as the fuel:

1. Thread the bushing into the regulator inlet. Tighten securely. See Fig. 13.

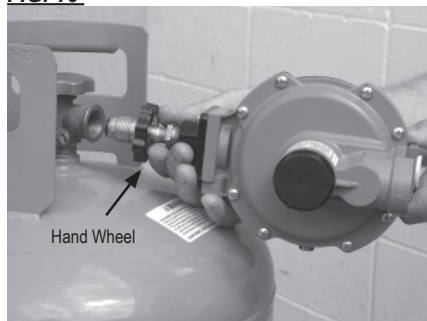
FIG. 13



2. Remove the plastic cap from the POL fitting. (POL fitting is located in hardware bag. Do not discard the cap)
3. Slide the spring over the POL stem. Smaller diameter end of spring is toward brass nut of POL. See Fig. 14. Slide the open side of the hand wheel over the POL stem. Thread the assembly into the 1/4 in. inlet of the bushing installed in the regulator. Tighten securely using a wrench at the flats of the POL stem See Figs. 14 and 15.

FIG. 14**FIG. 15**

4. Insert the POL stem into the cylinder valve. Push the spring loaded hand wheel up against the threaded nut. Turning counter clockwise, thread the POL nut into the container valve using the hand wheel. Firmly tighten. See Fig. 16.

FIG. 16

5. Slowly open the cylinder valve. This will prevent lock-up of the excess flow valve built within POL stem.
6. When storing or transporting the heater, use the protective cap to ensure the POL fitting is protected from damage and water entry.

When using natural gas as the fuel:

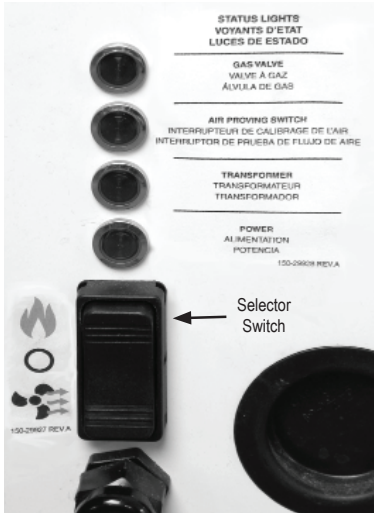
- The regulator supplied with the dual fuel heater is required for use with natural gas if the natural gas supply pressure to the heater is above the maximum inlet pressure of 13.5 in.W.C./3.36 kPA, as stated on the heater's data plate and in this owner's manual.
- The regulator requires a minimum natural gas supply pressure of 2 PSIG.
- Remove the POL fitting assembly with hand-wheel from the regulator inlet.
- Connect the regulator to the natural gas supply line using the proper connections.

Start-Up Instructions

1. Connect the electrical cord to an approved electrical outlet.

A selector switch located on the back of the heater allows operation in either heating or ventilation (no heat) modes. See Fig. 17.

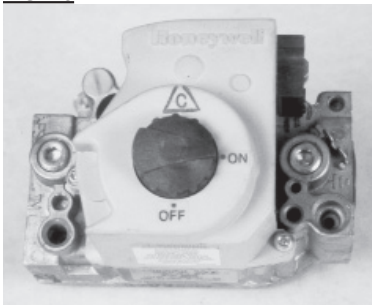
FIG. 17




A. Heat Mode Operation

- a. Open all manual fuel supply valves. Check for gas leaks using an approved leak detector. The gas control valve in the heater has a manual shut-off feature incorporated into the valve assembly. Ensure the indicator on the valve is positioned to ON. See Fig 18.

FIG. 18



- b. Push the selector switch to heat.  See. Fig. 17.


- c. Set the thermostat above room temperature
 - The fan motor will start
 - Igniter will spark
 - Ignition occurs

- d. The thermostat cycles the heater on and off based on set point.

(It is normal for air to be trapped in the gas hose on new installations. The heater may attempt more than one trial for ignition before air is finally purged from line and ignition takes place.)

When the switch is set to heat, four status lights (see Fig.17) will be activated in sequence as specific circuits are checked by the ignition control. If the heater does not light, and a status light is off, refer to the troubleshooting label on the inside of the heater's burner end access door or the troubleshooting of the manual.

B. Vent Mode Operation

- Push the selector switch to off, **O**, then to vent 
- Only the fan motor will operate. The igniter will not spark, nor will ignition occur.

The ventilation feature is used when air circulation is required. The heater will not cycle on its thermostat setting.

C. Off **O**

1. Position the switch to midpoint **O**.
2. **Do not exceed input rating stamped on nameplate or manufacturer's recommended burner orifice pressure for size orifice(s) used. Make certain that the primary air supply to main burner is open and free of dust, dirt and debris for complete, proper combustion.**

Shut-Down Instructions

For normal shut-down, set the thermostat below room temperature. When servicing or performing maintenance, follow steps 1 - 5.

1. Close the fuel supply valve.
2. Allow the heater to burn off any fuel gas remaining in the gas supply line.
3. Set the thermostat to "Off" or "No Heat".
4. Position selector switch to O (off).
5. Disconnect the heater from its gas and electrical supplies.

Gas Selector Valve Dual Fuel (DF) Heaters Only

This heater is shipped from the factory with the fuel selector valve in the propane gas (LP) position. Ensure the fuel selector valve's handle is properly positioned for the fuel being used.

1. This feature allows the heater to operate on either propane or natural gas without changing out the burner orifice. The gas selector valve is located between the gas control valve and the burner. Gas selection is made by sliding the locking sleeve (if provided) up and repositioning the valve's handle. **THIS IS NOT A MANUAL GAS SHUT OFF VALVE.**
2. Refer to Figs. 19 and 20. The valve handle must be properly positioned for the specific gas being used (Premier 170 DF shown). Same handle positions for Premier 80 DF).

FIG. 19

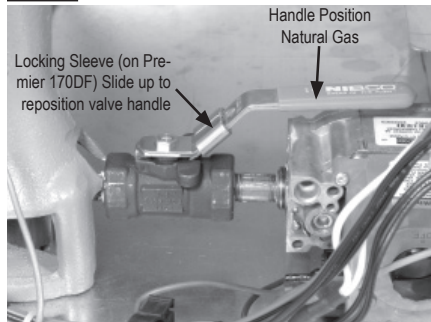
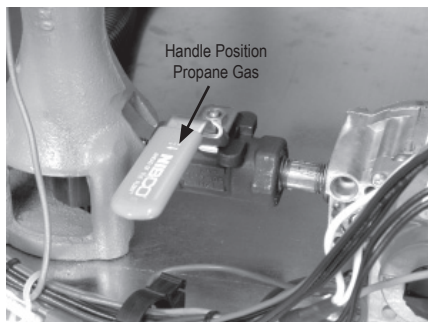


FIG. 20

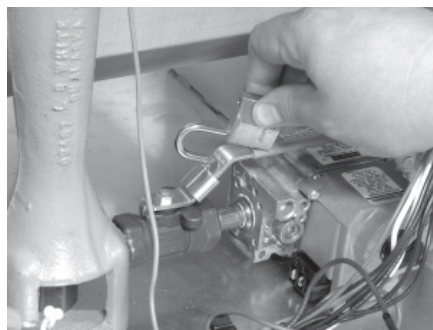


3. The handle must be fully set at 90 degrees to gas flow (propane gas) or parallel to gas flow (natural gas) for proper operation. Also refer to the decal located on the heater's base, adjacent to the selector valve.

Do not operate the heater with the selector valve handle set between either position, otherwise improper operation will occur.

4. Premier 170 DF: The valve's handle can be locked to prevent improper positioning. Use the hole provided. See Fig. 21.

FIG. 21



Cleaning Instructions



WARNING

Fire, Burn, and Explosion Hazard

- This heater contains electrical and mechanical components in the gas management, safety and airflow systems.
- Such components may become inoperative or fail due to dust, dirt, wear, aging, or the corrosive atmosphere of an animal confinement building.
- Periodic cleaning and inspection as well as proper maintenance are essential to avoid serious injury or property damage.

1. Before cleaning, shut off all gas supply valves and disconnect the electrical supply.
2. The heater should have dirt or dust removed periodically:
 - a. Before each use give the heater a general cleaning using compressed air or a soft brush or dry rag on its case and internal components. At this time, dust off the motor case to prevent the motor from overheating.
 - b. At least once a year, give the heater a thorough cleaning. At this time, remove the fan and motor assembly and brush or blow off the fan blade assembly. Additionally, make sure the burner air inlet venturi ports and the casting are free of dust accumulation.



WARNING

Do not use a pressure washer, water, or liquid cleaning solution on any gas controls. Use of a pressure washer, water, or liquid cleaning solution on the control components can cause severe personal injury or property damage due to water and/or liquids:

- In electrical components, and wires causing electrical shock or equipment failure.
- On gas control valves causing corrosion which can result in gas leaks and fire or explosion from the leak.

Clean all components of the heater with pressurized air, a dry brush, or a dry cloth.

Maintenance Instructions

BEFORE EACH USE:

- Check the area surrounding the heater to ensure it is clear and free of combustible materials, gasoline, and other flammable vapors and liquids.
- Have your gas supplier check all gas connections for leaks or restrictions in gas lines.
- Inspect the regulator vent to make sure the regulator vent is not blocked. Debris, insects, insect nests, snow, or ice on a regulator can block vents and cause excess pressure at the heater.
- Check all wiring, associated terminals, and electrical components within the heater for corrosion, frayed or cut insulation, tight connections, etc. Repair or replace as necessary.
- Check the hose assembly after heater installation, relocation, and when the heater is in use. If it is evident there is excessive abrasion or wear, or if the hose is cut, it must be replaced prior to the heater being put back into operation
- Review all heater markings (i.e. wiring diagram, warnings, start-up, shut-down, troubleshooting, etc.) at the time of maintenance for legibility. Make sure none are cut, torn, or otherwise damaged. Any damaged markings must be replaced immediately by contacting the L.B. White Co., Inc. Data plate, startup and shut-down instructions and warnings are available at no cost.

ANNUALLY:

- Clean and check the igniter for cracks. Replace if necessary.
- Regulators can wear out and function improperly. Have your gas supplier check the date codes on all regulators installed and check delivery pressures to the heater to make sure that the regulator is reliable.
- Test both manual reset high limit heat switches to ensure proper operation. (See Testing instructions for same in this owner's manual.)

Service Instructions

WARNING Burn Hazard

- Heater surfaces are hot for a period of time after the heater has been shut down.
- Allow the heater to cool before performing service, maintenance, or cleaning.
- Failure to follow this warning will result in burns causing injury.

WARNING Fire and Explosion Hazard

- Do not disassemble or attempt to repair any heater components or gas train components such as gas valves, or gas hoses.
- All component parts must be replaced if defects are found.
- Failure to follow this warning will result in fire or explosions, causing property damage, injury, or death.

1. Close the fuel supply valve to the heater and disconnect the electrical supply before servicing unless necessary for your service procedure.
2. Clean the heater's orifice with compressed air or a soft, dry rag. Do not use files, drills, broaches, etc. to clean the orifice hole. Doing so will enlarge the hole, causing combustion or ignition problems. Replace the orifice if it cannot be cleaned properly.
3. The high limit switch can be tested by:
 - Disconnecting the leads at the component, and jumpering the leads together.:
 - Reconnect the electrical supply and open fuel supply valves.
 - If the heater lights, the component is defective and must be replaced.
 - Do not leave the jumper on or operate the heater if the part is defective. Replace the part immediately.
 - An alternate method for checking the components is to perform a continuity check.

4. The air proving switch must not be jumpered. If jumpered, the ignition control will not allow heater operation. Test the air proving switch for continuity. If defective, replace the switch.
5. Open the respective case panel for access to burner or fan related components. Open the control box for access to the ignition controller, and transformer.
6. Disconnect the appropriate electrical leads when replacing components.
7. For reassembly, reverse the respective service procedure. Ensure gas connections are tightened securely and leak checked.
8. After servicing, start the heater to ensure proper operation.

Motor & Fan Assembly

1. Open louvered access panel opposite the burner end of heater. Disconnect motor leads.
2. Remove all screws securing the motor mounting plate to the housing.
3. Pull the fan and motor assembly from the housing.
4. Loosen set screws on fan wheel.
5. Pull the fan wheel from motor shaft.
6. Remove the four nuts securing motor to mounting plate.

FIG. 22

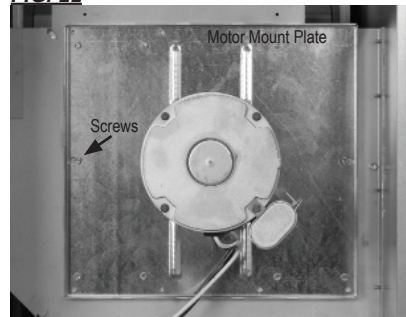
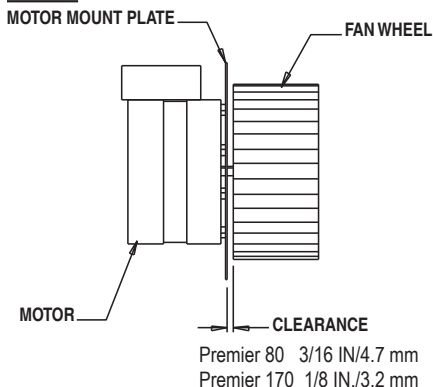


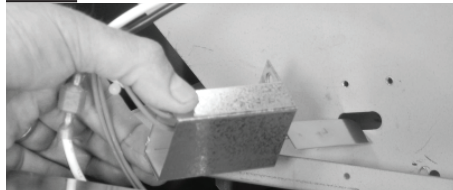
FIG. 23

Air Proving Switch

The air proving switch is located on the fan housing at the motor end of the heater. It must work properly to allow an ignition cycle. If the air proving switch contacts are closed before the ignition control starts the fan motor, or do not close on a call for heat after the fan motor starts, ignition will not occur. See Fig. 24.

To service:

- Remove the two (2) sheet metal screws holding the switch with bracket to blower housing.
- Remove the assembly by turning the switch so the paddle on the switch arm can be pulled through the oblong hole on side of fan housing.

FIG. 24

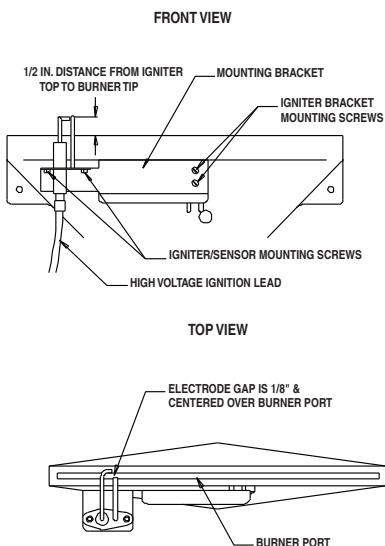
Igniter and Flame Sensor Assembly

The igniter is of local sense design, meaning it also serves to sense burner flame.

1. See Fig. 25 for location of igniter/sensor assembly.
 2. Remove the two screws securing the mounting bracket to the burner. Remove igniter assembly.
 3. Disconnect high voltage cable from igniter assembly.
 4. Remove the two screws that secure the igniter sensor to the mounting bracket.
- The igniter and ground rod should be cleaned to maintain proper ignition.
 - Use steel wool or emery cloth.
 - Rub briskly to remove buildup of dust, dirt, and oxide.
 - Check the igniter's ceramic base for cracks.
 - Replace the igniter if cracks are found.

FIG. 25

Same specifications for all versions - Premier 170 shown



Manual Reset High Limit Switches

⚠️ WARNING **Fire Hazard**

- Do not operate the heater with the high limit switch bypassed.
- Operating the heater bypassed high limit switch may lead to overheating, possibly resulting in a fire, with subsequent damage to the heater or property damage.

This heater has two limit switches: one inside the solid door end on the heat chamber, the other inside the louvered door end mounted on the fan housing side panel. Both are easily identified by a red reset button in the center of the switch. See Figs. 26 and 27, Premier 170 shown.

FIG. 26

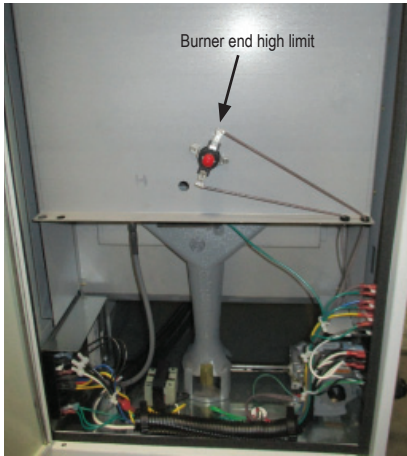
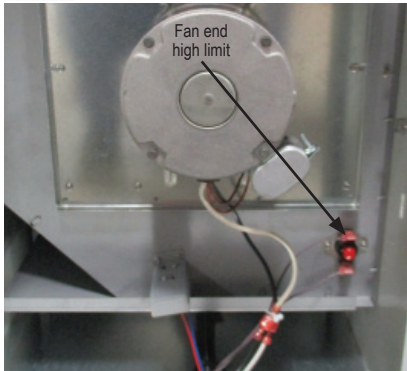


FIG. 27



Function

If the heater overheats, one or both of the limit switches can trip, opening the electrical circuit to the gas control valve. Overheating is generally caused by duct restrictions, low voltage, blocking the heater's air inlet, or excessive gas pressure.

Resetting

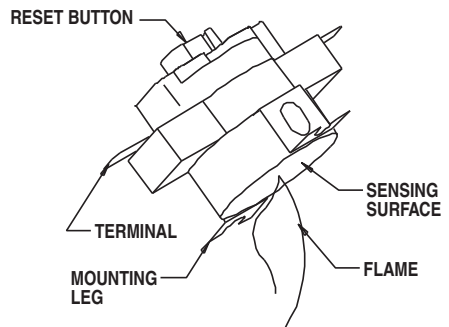
If either trips, remove the red cap and firmly press the reset button in the middle of the switch. Then, shut the heater off and turn it back on. Determine the cause of the limit tripping.

Testing

To ensure proper function of these critical safety components, both switches should be tested annually, typically when the heater is given a thorough cleaning.

1. Remove either high limit switch.
2. Holding the switch by one of its mounting legs, apply a small, soft flame only to the sensing portion on the back of the switch. See Fig. 28. Be careful not to melt the plastic housing of the switch when conducting this test.
3. Within a minute, you should hear a click coming from the switch, indicating the contacts of the switch have opened.
4. Allow the switch cool down for about a minute. Remove the red cap and firmly press the reset button on the switch.
5. Check for electrical continuity across the switch terminals to make sure the contacts have closed. Install the red cap.

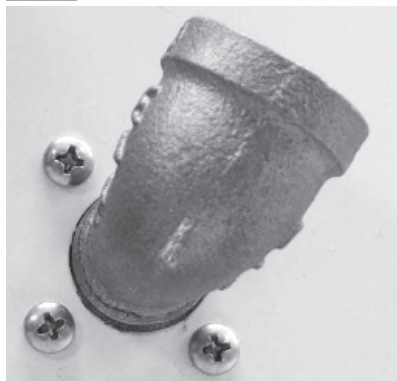
FIG. 28



Burner Orifice & Gas Control Valve

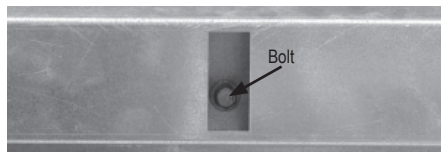
1. Remove the gas hose from heater
2. Remove the elbow and all screws at inlet of gas control valve. See Fig. 29.

FIG. 29



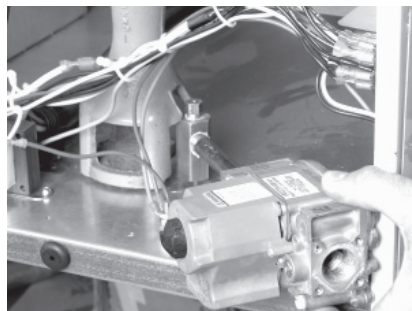
3. Open the solid door at the gas inlet end of the heater.
4. Remove the burner retaining bolt at the underside of the heaters base. For Premier 170 heaters, the bolt is accessible through an opening in the heater's support leg. Use a ratchet with extension and 9/16 in. socket. See Fig. 30.

FIG. 30



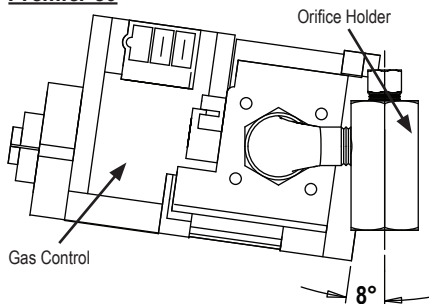
5. Lift and pivot the gas control assembly to expose the burner orifice. See Fig. 31. Replace burner components as needed.

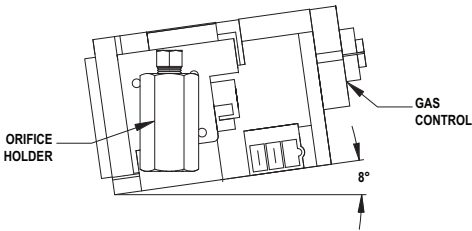
FIG. 31



6. When assembling the control valve to manifold, the valve must be offset 8 degrees from the orifice holder to ensure the control valve aligns to its mounting holes. See Fig. 32.

FIG. 32
Premier 80



Premier 170

Ignition control

The control sends and receives voltages to operate or verify operation of components. Refer to the following and Fig. 33 to understand the ignition control's terminal designators if doing voltage checks on the control.

- L1:** Main power supply voltage to control.
- IND:** Main power supply voltage from control to motor.
- LED:** Not used
- MV:** 24 VAC from ignition control through both high limit switches to gas control valve.
- PS2:** 24 VAC return from air proving switch back to ignition control.
- PS1:** 24 VAC from ignition control to air proving switch.
- W:** 24 VAC from transformer to ignition control. (without this voltage from the transformer, the ignition control will not function.)
- FS:** No terminal.
- R:** No terminal.
- X:** No terminal
- C/COM:** Earth ground for transformer and ignition control.

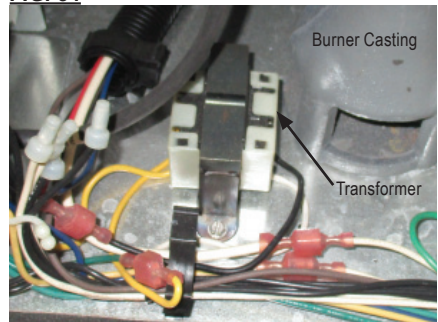
Also refer to "Operation Sequence" within this manual as needed to understand operation of the ignition control during a call for heat.

FIG. 33

Transformer

The transformer reduces main power supply voltage to 24 VAC for operation of the the ignition control. Without 24 VAC from the transformer, the ignition control will not function, nor will the heater operate.

See Fig. 34 for location of the transformer, Premier 170 shown.

FIG. 34

Gas Pressure Checks

WARNING

- Do not disassemble the gas control valve.
- Do not attempt to replace any components of the gas control valve.
- The gas control valve must be replaced if any physical damage occurs to the control valve assembly.
- Failure to follow this warning will result in fire or explosions, leading to injury or death to humans, and property damage.

- The following explains a typical procedure to be followed in checking gas pressures.
- The gas pressures will vary depending upon fuel type.
- Consult the dataplate on the heater or page 4 in this manual for specific pressures to be used in conjunction with this procedure.
- Gas pressure measured at the inlet to the gas valve is Inlet Pressure and gas pressure measured at the outlet of the gas valve is Burner Manifold Pressure.

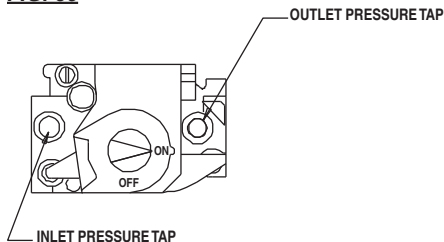
A. Preparation

1. Obtain two pressure gauges capable of reading up to 35 in. W.C.
2. Disconnect the heater from the electrical supply and close the fuel supply valve to the heater inlet.
3. Open the burner access panel.
4. Brush or blow off any dust and dirt on or in the vicinity of the gas control valve.

B. Gauge Installation

1. Locate the inlet and outlet pressure taps, see Fig. 35. Remove the pressure tap plug using a 3/16 in. allen key.

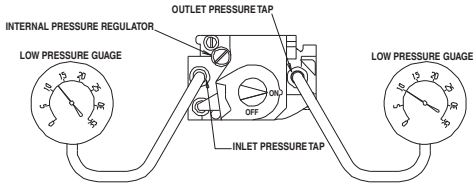
FIG. 35



2. Securely connect a pressure gauge to each pressure tap.
3. Open the fuel supply valves to the heater and reconnect the heater electrical supply.
4. Start the heater

C. Reading Pressures

1. With the heater operating, the pressure gauges should read the pressures specified on the dataplate .
2. Do the readings at the inlet and outlet pressure gauges agree with that specified on the dataplate? If so, then no further checking or adjustment is required. Proceed to section D.
3. If the inlet pressures do not agree with that specified on the dataplate, then the regulator controlling gas pressure to the heater requires adjustment.
4. If the inlet pressures are correct and the burner manifold pressure does not agree with that specified on the dataplate, then the gas control valve's internal pressure regulator requires adjustment. See Fig. 36 for regulator location.

FIG. 36

EXAMPLE SHOWS PRESSURE FOR L.P. GAS!
ALWAYS REFER TO PRESSURE ON DATAPLATE

D. Completion

1. Once the proper inlet and burner manifold pressures have been confirmed and/or properly set, close the fuel supply valve to the heater and allow the heater to burn off any gas remaining in the gas supply line.
2. Disconnect the heater from its electrical supply.
3. Remove the gauges and connecting hoses.
4. Install pressure tap plugs and tighten securely. Check for gas leaks.

Troubleshooting Guide

READ THIS ENTIRE SECTION BEFORE BEGINNING TO TROUBLESHOOT PROBLEMS.

 **WARNING**

- This heater can start at any time.
- Troubleshooting this system may require operating the unit with line voltage present and gas on. Use extreme caution when working on the heater.
- Failure to follow this warning may result in property damage, personal injury or death.

The following troubleshooting guide provides systematic procedures for isolating equipment problems. This guide is intended for use by a QUALIFIED GAS HEATER SERVICE PERSON. **DO NOT ATTEMPT TO SERVICE THESE HEATERS UNLESS YOU HAVE BEEN PROPERLY TRAINED.**

TEST EQUIPMENT REQUIRED

The following pieces of test equipment will be required to troubleshoot this system with minimal time and effort.

- Digital Multimeter - for measuring AC and DC voltage and resistance.
- Low Pressure Gauge - for checking inlet and outlet pressures at the gas control valve against dataplate rating.
- Visually inspect equipment for apparent damage.
- Check all wiring for loose connections and worn insulation.

Refer to the system operation sequence in this section to gain an understanding as to how the heater operates during a call for heat. Understanding the sequence of operation is important as it relates to problem solving.

Four green lights are located next to the selector switch. Each light will be activated in sequence as that circuit within the heater is verified by the ignition control. If the circuit is not verified, that respective light will not be activated. The most common heating mode problems are identified

by a green light being OFF if a specific fault occurs. However, two other problems may also occur. See the following.

Identify the specific problem and then refer to the appropriate troubleshooting flow chart.

Heating Mode Problems **Page**

Power status light not on	34
Transformer status light not on	34
Air proving status light not on	35
Gas control status light not on	36
All lights are on, fan motor runs, burner does not light.....	37
All lights are on, EXCEPT gas valve light. Fan motor does not run, burner does not light. ..	38
Heater lights but does not stay lit	38

Ventilation Mode Problem **Page**

Motor Does Not Run.....	38
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Components should be replaced only after each step has been completed and replacement is suggested in the flow chart. Refer to the Servicing sections as necessary to obtain information on disassembly and replacement procedures of the component once the problem is identified by the flow chart.

DIRECT IGNITION OPERATION SEQUENCE:

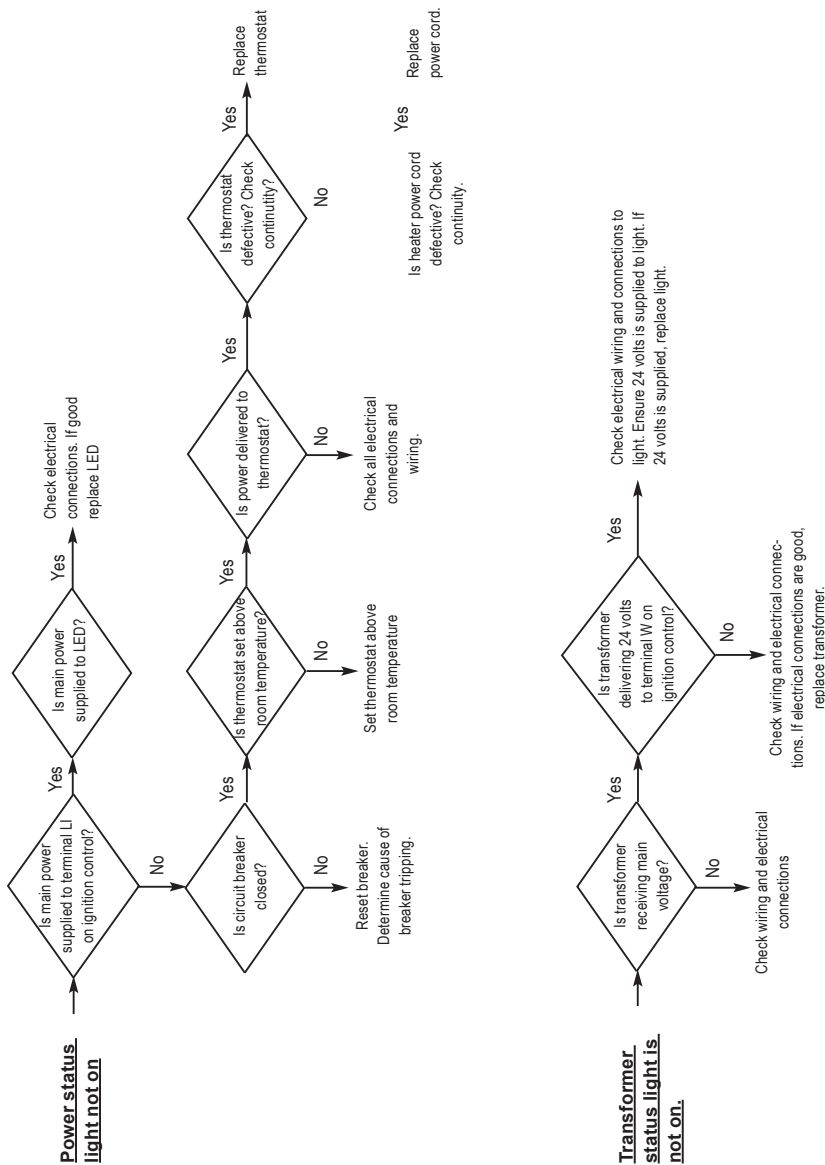
- The thermostat calls for heat.
 - Power light activated indicating heater is receiving its main power supply.
- Line voltage is sent to selector switch.
- Selector switch sends line voltage to the transformer and to ignition control.
- Transformer reduces line voltage to 24 volts which is sent to ignition control.
 - Transformer light is activated indicating that ignition control is receiving 24 volts from transformer.
- Ignition control module performs self safety check.
- Fan motor starts.
- Ignition control module sends 24 volts to air proving switch.
 - Internal components are tested.
 - Air proving circuit is checked and proven.
- Ignition control module begins ignition trial sequence.

- Air proving switch closes and 24 volts are returned to the ignition control module.
 - Air proving switch light is activated indicating that the air proving circuit is operating properly.
- Ignition control module sends high voltage to the igniter electrode.
 - Igniter sparks.
- Ignition control module sends 24 volts to the gas control valve through the high limit switches.
 - Gas valve light is activated indicating that gas control valve is receiving 24 volts.
 - Gas control valve opens. - Ignition occurs.
- Igniter continues to spark until flame proving occurs.
 - Ignition spark is cut off.
 - Gas valve stays open.
- Room warms to desired temperature.
 - Thermostat is satisfied.
 - Heater shuts down.
- Process starts again on a call for heat.

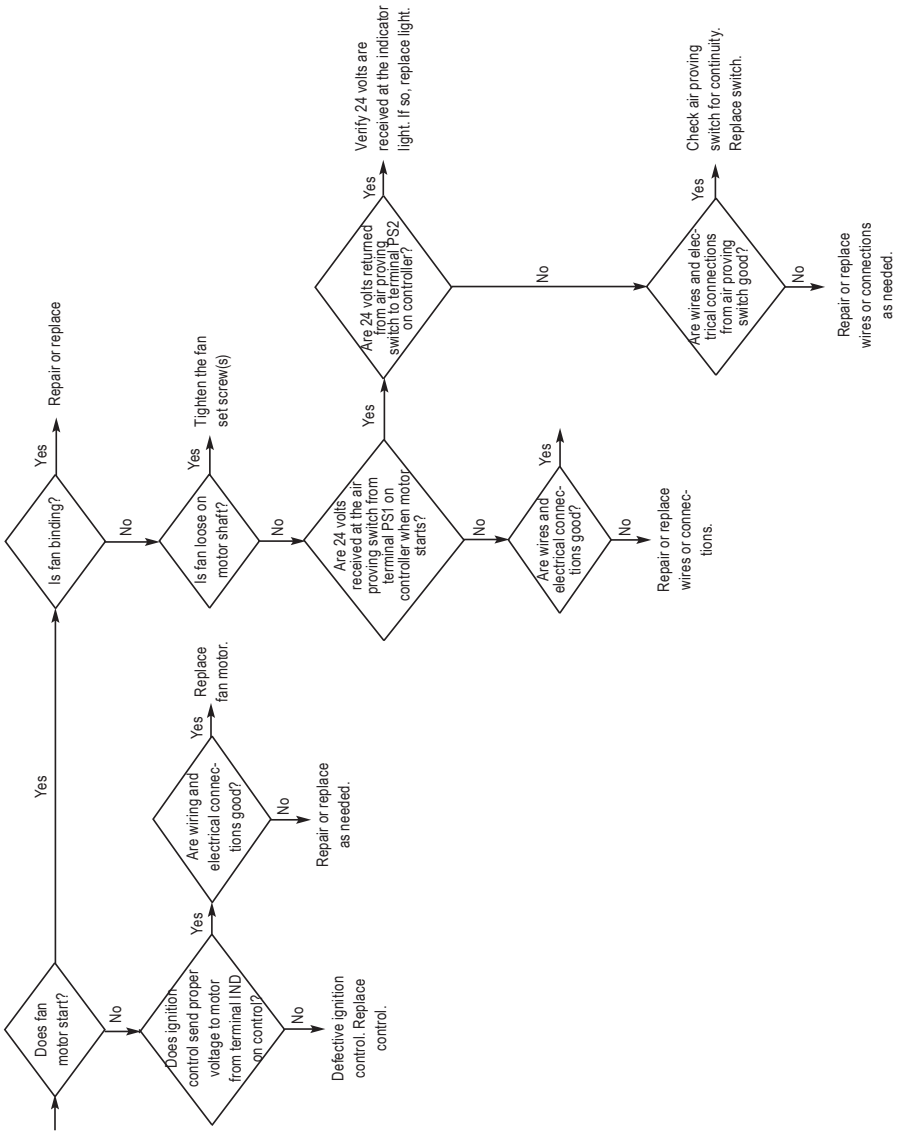
IGNITION FAILURE SEQUENCE:

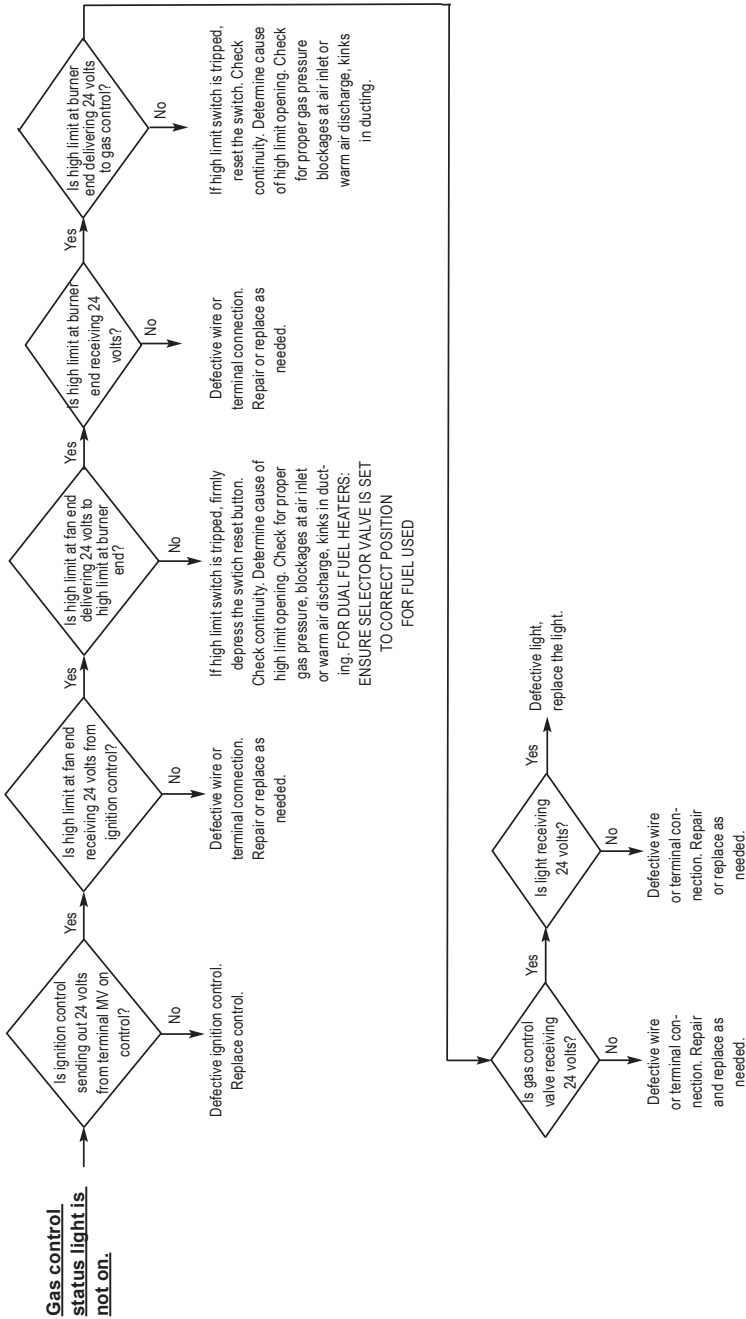
- There are three ignition trials. Each trial takes 10 seconds.
- If burner flame is not maintained at the end of the third trial, the module goes into safety lockout
 - Gas valve closes.
 - Ignition spark shuts off.
 - Fan motor stops.
- **To retry for ignition, the systems must be reset:**
 - Turn the thermostat down and then up to call for heat or unplug heater and plug it back in or
 - Position selector switch to off and then back to on.

HEATING MODE: All lights are ON → **Normal operation**

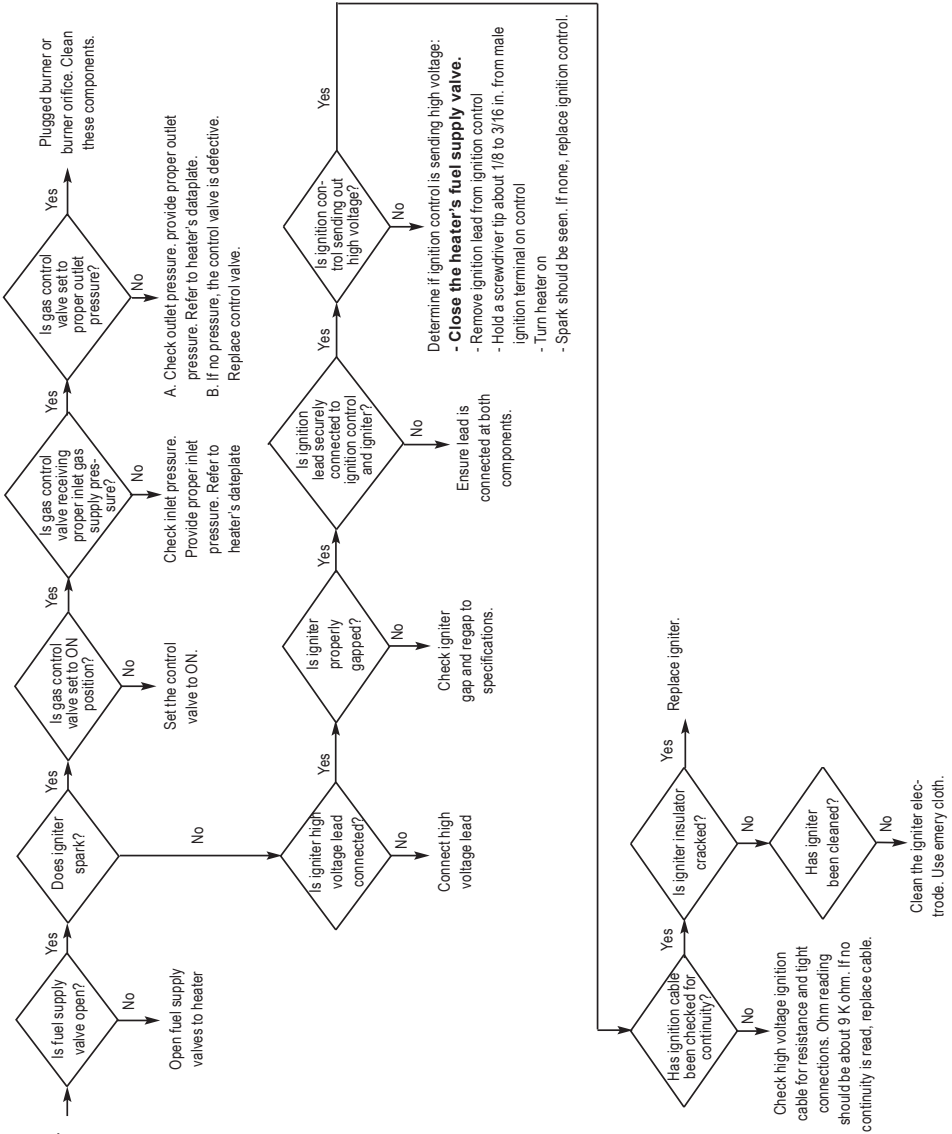


Air proving status light is not on.





**All lights are on.
Fan motor runs
but burner does
not light.**



All lights are on. EXCEPT gas valve light. Fan motor does not run. burner does not light.

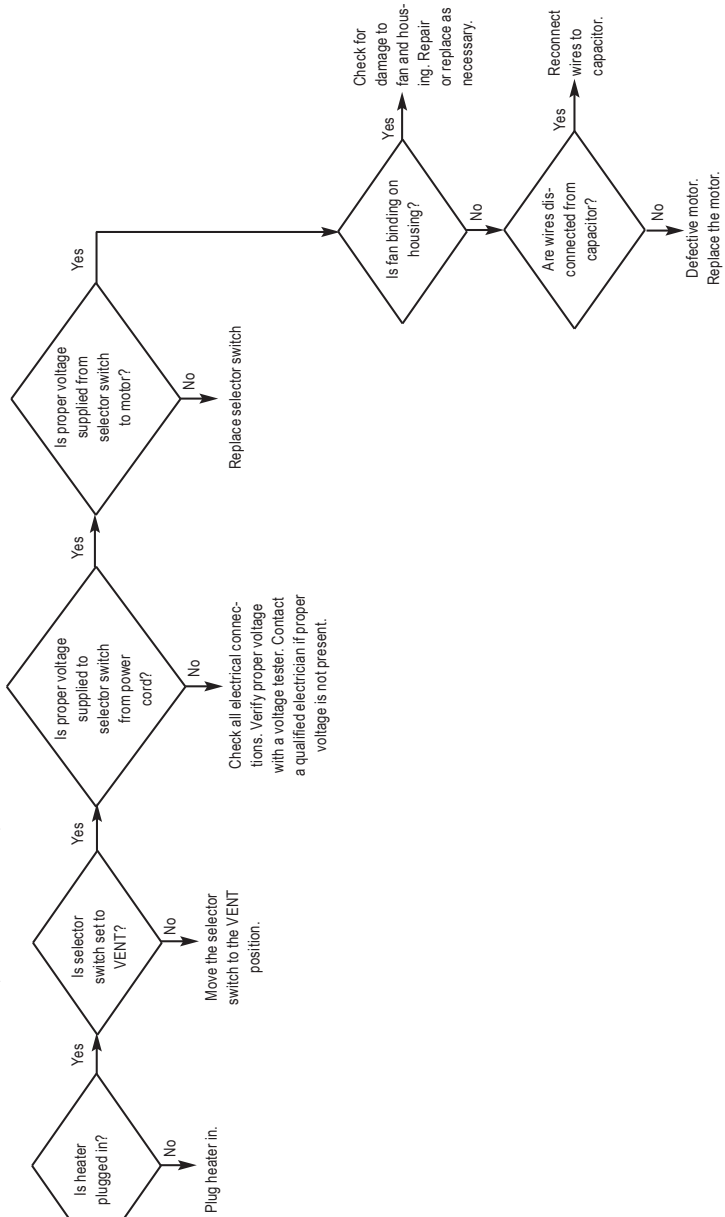
↑
Air proving switch has failed in the closed position or air proving switch arm is binding against fan housing side panel. If arm is not binding, replace the switch.

All lights are on. Burner lights but does not stay lit.

↑
Caused by poor flame sense or flame sense related problems. Check for cracked or dirty flame sensor, improperly positioned sensor, or poor power supply grounds. (The heater requires a grounded electrical supply for continued operation.)

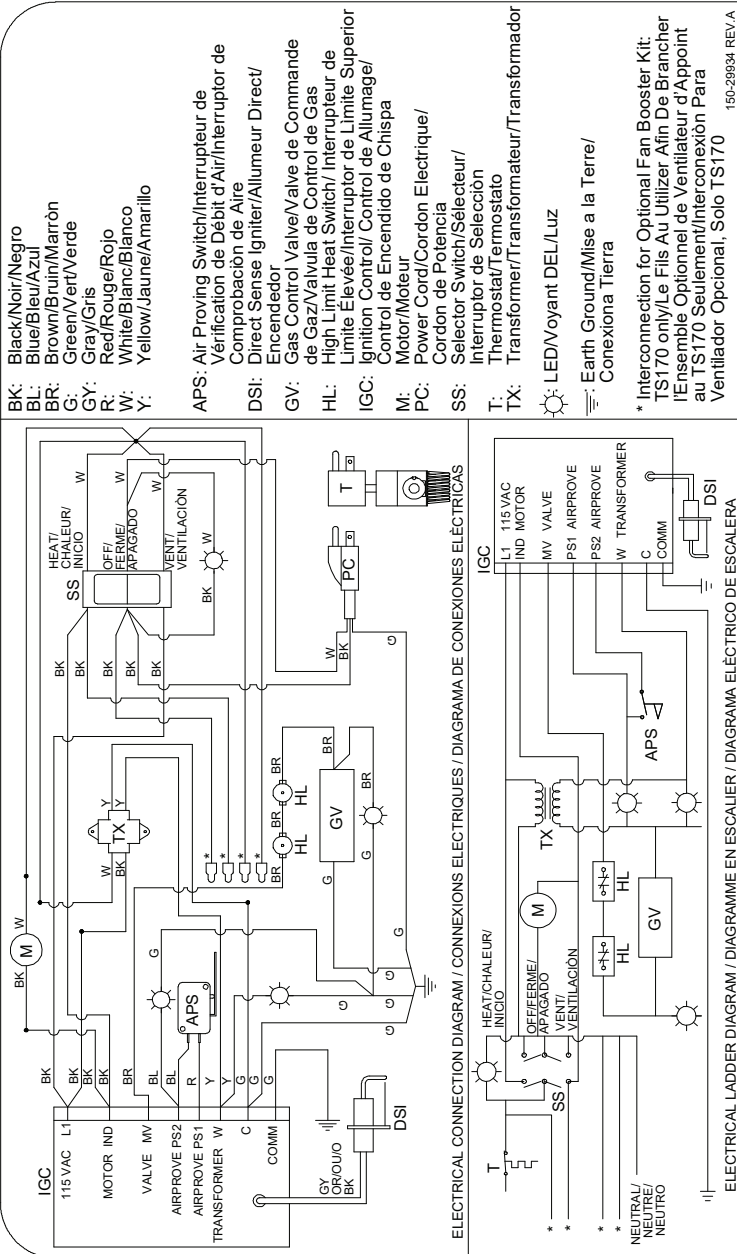
VENTILATION MODE:

**Problem
Motor does
not run.**



CAUTION

Always refer to the heater's electrical connection diagram when servicing to avoid wiring errors and heater malfunction. Check for proper operation after servicing.



Heater Component Function

Air Proving Switch

Safety device used to insure that the proper air flow is being achieved before the gas valve is opened.

Burner

Cast iron component used to channel gas and provide an area at which the fuel may ignite.

Burner Orifice

Brass metering device used to feed gas to burner at a specific rate.

Direct Spark Ignition Control Module

Electronic printed circuit board which sends and receives voltages to various controls in an automatic ignition system. An important safety feature of the control board is that it will shut down the entire heater, thereby stopping the flow of fuel gas if burner flame goes out.

Fan Housing

Chamber used for delivering air for efficient air movement.

Fan Wheel

Component used in conjunction with the motor and fan housing to pull the hot air from heater and blow it into room for heating (also known as a squirrel cage).

Gas Control Valve

Electrical device consisting of a low pressure regulator and electrical solenoids used for the control of gas flow to the burner assembly. A feature of the control valve is a built-in gas shut off which may be used to isolate the heater from its gas supply when servicing.

Gas Hose

Flexible connector used to convey gas from supply line in building to heater.

Gas Selector Valve

Allows easy gas conversion depending on gas being supplied at job site. Eliminates the need for changeout of the burner orifice. (Available on DF heaters only.)

Heat Chamber

Metal fire box within the appliance that provides an area where burner flame mixes with combustion air, thereby providing heat.

High Limit Switch

Safety device wired into the control system which is used to break an electrical circuit to the gas control valve in event of overheat situation. (All Premier heaters have two limit switches.)

Igniter

Ignition device used on automatic direct spark ignition control systems. Ignites gas by spark.

Motor

Electric device used to force preheated air through the heater and to circulate heat within a certain area. Converts electrical energy into mechanical energy.

Regulator

Mechanical device used in gas distribution systems to reduce a higher inlet pressure to a preset lower pressure. The regulator is responsible to supply a steady outlet pressure to the heater(s) despite changes in inlet pressure, heater demand and weather conditions.

Selector Switch

Electrical device which is used to allow the end user to use the heater in either a heating or ventilation application.

Status Light

A green light emitting diode (L.E.D.) wired into the electrical circuit. Provides an easily recognizable indication of heater operation.

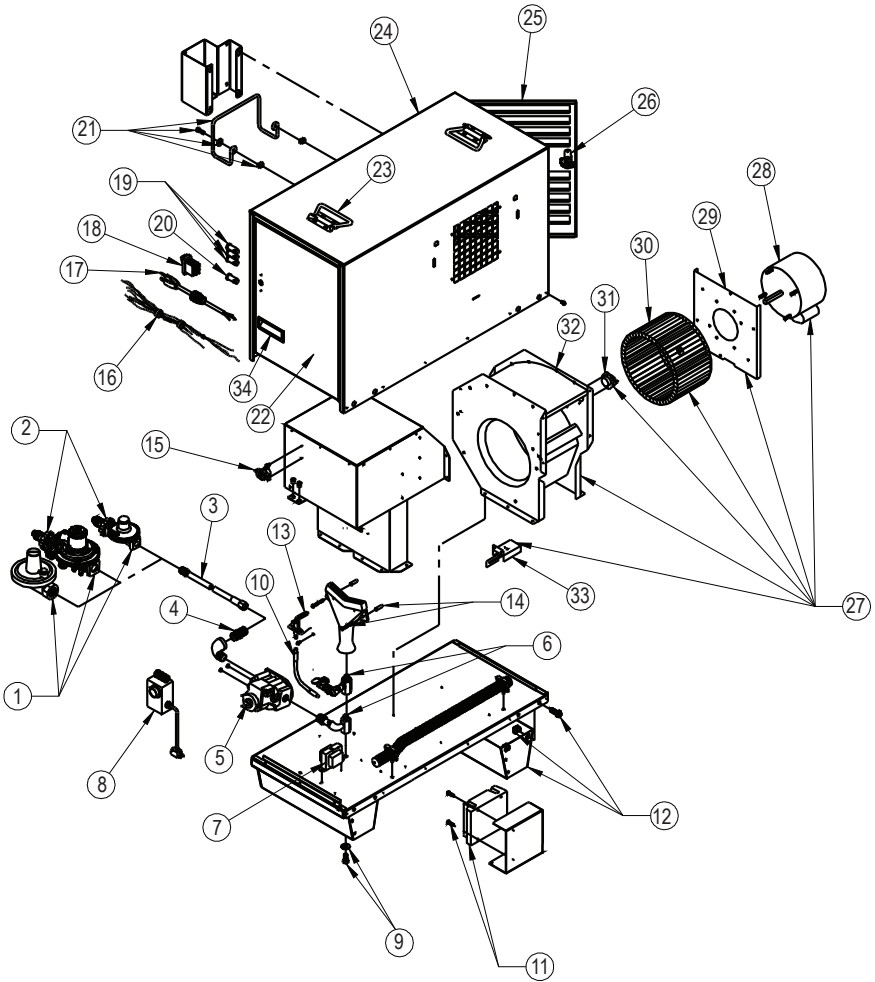
Thermostat

Electrical device used as an automatic "on/off" switch which will respond to changes in temperature in a certain area. Can be wired so contacts in the thermostat open or close on temperature increase or decrease.

Transformer

Electrical control used to accept line power supply primary voltage and reduce it to lower secondary voltage to operate certain control systems.

Service Parts Identification Schematic

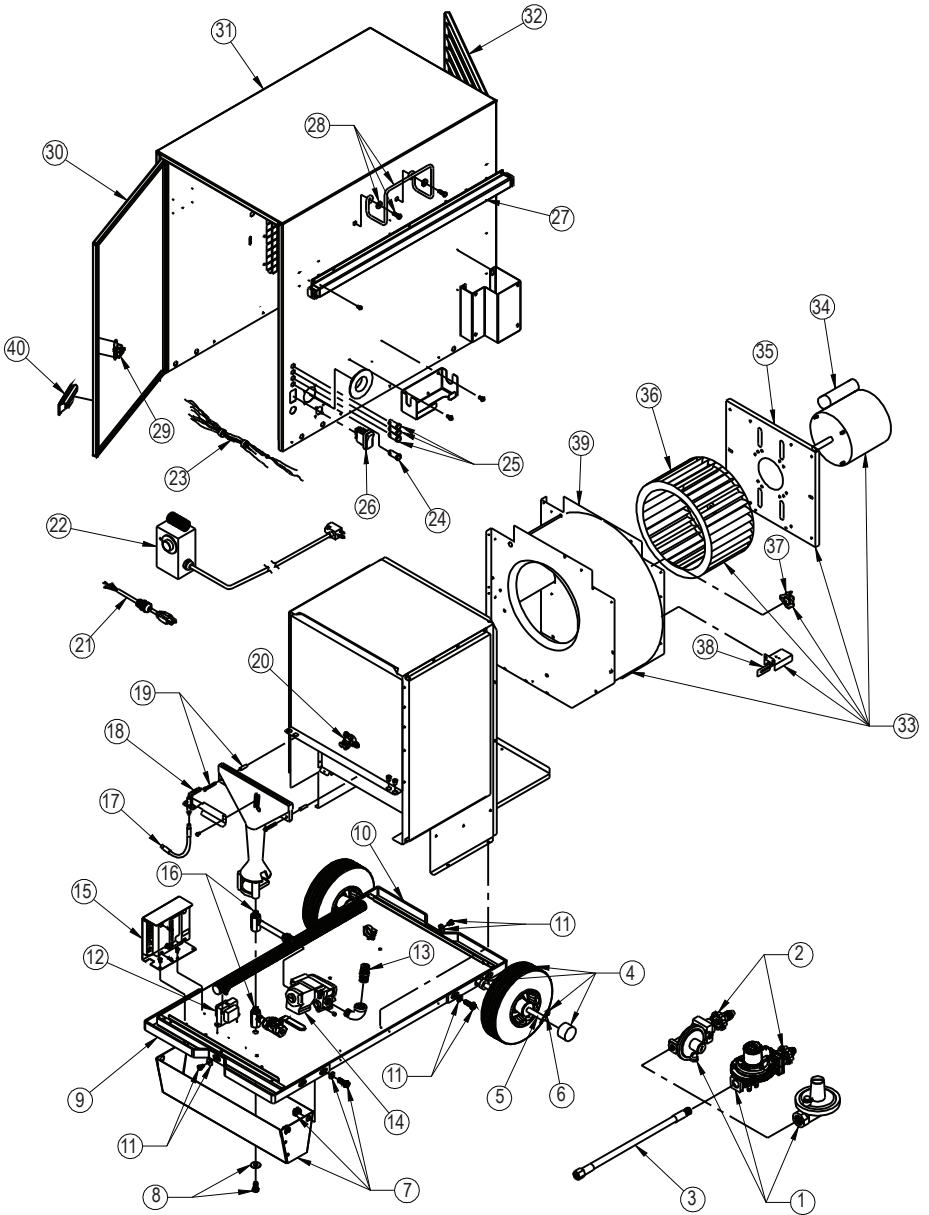


Item	Description	Part Number	
1	Regulator	Propane Gas	500-26377
		Natural Gas	500-21999
		Dual Fuel	573610
2	Handwheel w/ Spring	Propane Gas / Dual Fuel	500-26395
3	Universal Hose Kit, 15 ft./4.57 m. Hose w/ Adapters		500-24600
4	Adapter, Hose 1/2 NPT x 5/8 - 18		573804

Parts List - Premier 80, LP, NG, and DF

Item	Description	Part Number	
5	Valve, Gas Control	Propane Gas / Dual Fuel	522076
		Natural Gas	522078
6	Orifice, Burner	Propane Gas	571625
		Natural Gas	571626
		Dual Fuel	573611
7	Transformer	500-26412	
8	Thermostat Kit w/ 20 ft./6.10 m.Cord	500-09454	
9	Washer, Bolt	500-25866	
10	Wire, Igniter	500-25840	
11	Control Ignition	500-25865	
12	Support Leg	500-26378	
13	Igniter	571662	
14	Burner Mounting Hardware	570211	
15	Switch, High Limit, Burner End (275°F)	503933	
16	Harness, Wire	573934	
17	Power Cord	500-26379	
18	Switch, Selector	500-26385	
19	Light, Status, 24 Volt	500-26392	
20	Light, Status, 120 Volt	500-26393	
21	Hanger, Hose	571619	
22	Door Assembly, Burner End	573453	
23	Handle, Case Top	571628	
24	Case Assembly, Propane Gas, Natural Gas	573455	
	Dual Fuel	574104	
25	Door Assembly, Fan End	573457	
26	Latch, Door	500-26437	
27	Fan Housing Assembly with Motor, Fan, High Limit and Air Proving Switches	500-26384	
28	Motor	520292	
29	Motor Mount	571686	
30	Fan	570304	
31	Switch, High Limit, Fan End (250°F)	571671	
32	Housing, Fan	571612	
33	Switch, Air Proving	500-26485	
34	Handle, Door Pull	500-26479	

Service Parts Identification Schematic



Parts List - Premier 170 LP, NG and DF

Item	Description	Part Number	
1	Regulator	Propane Gas	500-26419
		Natural Gas	500-09795
		Dual Fuel	500-26423
2	Hand Wheel with Spring	Propane Gas / Dual Fuel	500-26395
3	Universal Hose Kit, 15 ft./4.57m. Hose w/ Adapters		500-24600
4	Wheel Kit		500-26418
5	Axle Kit		500-26415
6	Cotter Pin		500-26417
7	Leg Bracket Kit		500-26413
8	Bolt and Washer		500-25866
9	Handle, Bracket, Burner End		500-26426
10	Handle, Bracket, Motor End		500-26427
11	Nut, Bolt & Washer		500-26443
12	Transformer		500-26412
13	Adapter,Hose, 1/2 NPT x 5/8-18	Propane Gas/Dual Fuel	573804
		Natural Gas	500-25873
14	Valve, Gas Control	Propane Gas	522076
		Natural Gas	522078
		Dual Fuel	500-25831
15	Ignition Control		500-25865
16	Orifice	Propane Gas	573829
		Natural Gas	571624
		Dual Fuel	500-25870
17	Wire, Igniter		500-25840
18	Igniter		571662
19	Burner Mounting Hardware		570211
20	Switch, High Limit, Burner End (275°F)		503933
21	Cord, Power		500-26379
22	Thermostat Kit w/ 20 ft/6.10 m. Cord		500-09454
23	Wire Harness		573935
24	Light,Status, 120 Volt		500-26393
25	Light,Status, 24 Volt		500-26392
26	Switch, Heat/Vent, Rocker		500-26385

Item	Description	Part Number
27	Handle, Sliding	571760
28	Hanger, Hose	571619
29	Latch, Door	500-26437
30	Door, Burner End	573458
31	Case Assembly, Propane Gas, Natural Gas	573460
	Dual Fuel	574105
32	Door, Louvered, Motor End	573462
33	Fan Housing Assembly w/ Motor, Fan, High Limit and Air Proving Switches	500-26439
34	Motor	520169
35	Mount, Motor	500-25835
36	Fan	570481
37	Switch, High Limit, Motor End (190°F)	571400
38	Switch, Air Proving	500-09925
39	Housing, Fan	500-26440
40	Handle, Door	500-26479

Notes

Warranty Policy

HEATER

L.B. White Company, LLC warrants that the component parts of its heater are free from defects in material and workmanship, when properly installed, operated, and maintained in accordance with the Installation and Maintenance Instructions, safety guides and labels contained with each unit. If, within 24 months from the date of purchase by the end user, any component is found to be defective, L.B. White Company, LLC will at its option, repair or replace the defective part or heater, with a new part or heater, F.O.B., Onalaska, Wisconsin. Registering your product online with L.B.White will automatically qualify a unit and its component parts for warranty consideration. If a product has not been registered with L.B.White, a copy of the bill of sale will be required to establish warranty qualification. If neither is available, the warranty period will be 24 months from date of shipment from L.B. White.

PARTS

L.B. White Company, LLC warrants that replacement parts purchased from the company and used on the appropriate L. B. White equipment are free from defects both in material and workmanship for 12 months from the date of purchase by the end user. Warranty is automatic if a component is found defective within 12 months of the date code marked on the part. If the defect occurs more than 12 months later than the date code but within 12 months from the date of purchase by the end user, a copy of a bill of sale will be required to establish warranty qualification.

The warranty set forth above is the exclusive warranty provided by L.B. White, and all other warranties, including any implied warranties or merchantability or fitness for a particular purpose, are expressly disclaimed. In the event any implied warranty is not hereby effectively disclaimed due to operation of law,

such implied warranty is limited in duration to the duration of the applicable warranty stated above. The remedies set forth above are the sole and exclusive remedies available hereunder. L.B. White will not be liable for any incidental or consequential damages directly or indirectly related to the sale, handling or use of the equipment, and in any event L.B. White's liability in connection with the equipment, including for claims based on negligence or strict liability, is limited to the purchase price.

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

To register your product and ensure full warranty, go to http://www.lbwhite.com/customer_care_center/product-registration/. Please have the serial number(s) and model(s) handy for the products you are registering.

Service

Contact your local L.B. White dealer for replacement parts and service. You may also call the L.B. White Company, LLC at 1-800-345-7200, for assistance, or email us at customerservice@lbwhite.com.

Be sure that you have your heater model number and configuration number when calling.



WORLD PROVIDER - INNOVATIVE HEATING SOLUTIONS

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