

⚠ 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 properly-trained service people should repair or install this heater.
- Save this Owner's Manual for future use and reference.
- Owner's Manuals and replacement labels are available at no charge. For assistance, contact L.B. White at 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.

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.

FOR YOUR SAFETY

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

⚠ WARNING

Fire 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 loss of life.

Heater Specifications

SPECIFICATIONS

Model

CP400

Fuel Type

Propane Gas

Maximum / Minimum Input (BTU/H)

400,000/250,000

Burner Manifold Pressure (PSI)

5.2

Inlet Gas Supply Pressure Acceptable at the Gas Connection (PSI)

MAX.

5.2

MIN.

5.2

Fuel Consumption Per Hour (lbs.)

18.5

Motor Characteristics

Sleeve Bearing

1/5 H.P., 3,300 RPM

Electrical Supply (Volts/Hz/Phase)

115/60/1

STARTING

4.0

CONTINUOUS OPERATION

1.5

Dimensions (Inches)

34 1/4 x 12 5/8 x 21 3/4

L x W x H

TOP

7 ft.

SIDES

5 ft.

BACK

5 ft.

BLOWER OUTLET

15 ft.

GAS SUPPLY

6 ft., (1.83 m.)

Minimum Safe Distances From Nearest Combustible Materials

Safety Precautions

A WARNING **Asphyxiation Hazard**

- Do not use this heater for heating human living quarters.
- Do not use in unventilated areas.
- The flow of combustion and ventilation air must not be obstructed.
- Proper ventilation air must be provided to support the combustion air requirements of the heater being used.
- Lack of proper ventilation air will lead to improper combustion.
- Improper combustion can lead to carbon monoxide poisoning leading to serious injury or death. Symptoms of carbon monoxide poisoning can include headaches, dizziness and difficulty in breathing.

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 propane gas tank or cylinder fuel supply valves, or the main fuel supply valve located at the meter if you use natural gas.
- 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 appliance 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 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 has 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 then do not attempt to light heater, perform service or repairs, or make any adjustments to the heater on the propane gas fuel system.
- Even if you are not properly trained in the service and repair of the heater, 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!

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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 service and installation of this equipment are as follows:

- a. To be a qualified gas heater service person, you must have sufficient training and experience to handle all aspects of gas-fired heater installation, service and repair. This includes the task of installation, troubleshooting, replacement of defective parts and testing of the heater. You must be able to place the heater into a continuing safe and normal operating condition. You must completely familiarize yourself with each model heater by reading and complying with the safety instructions, labels, Owner's Manual, etc., that is 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 and tank 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 by the Commonwealth of Massachusetts.

2. All installations and applications of L.B. White heaters must meet all relevant local, state and national codes. Included are L.P. gas, natural gas, electrical, and safety codes. Your local fuel gas supplier, a local licensed electrician, the local fire department or similar government agencies, or your insurance agent can help you determine code requirements.

Also refer to:

- ANSI/NFPA 58, latest edition, Standard for Storage and Handling of Liquefied Petroleum Gas
- ANSI Z223.1/NFPA 54, National Fuel Gas Code
- ANSI/NFPA 70, National Electrical Code.

3. Adequate ventilation air for combustion must be provided in accordance with OSHA 29 CFR 1926.154, Temporary Heating Devices, and ANSI A10.10, Safety Requirements for Temporary and Portable Space Heating Devices.

4. We cannot anticipate every use which may be made of our heaters. Check with the local fire safety authority if you have questions about applications.

5. Once the heater has been lit, high surface and exhaust temperatures can ignite clothing or burn users who come too close to the heater. When the heater is in operation, those working around the heater should never touch the heater or come within the clearances stated. Use extreme caution when lighting the heater or adjusting heat levels.

6. Forced air heaters shall not be directed toward any propane gas container within 20 feet (6.10 meters). 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.

7. Use only the regulator supplied with the heater. The heater must be regulated at all times for proper operation.

8. For safety this heater is equipped with an auto reset backflash switch, and an air proving switch. Never operate the heater with any safety device that has been bypassed. Do not operate this heater unless these features are fully functioning.

9. 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.

10. 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 during use. The hose assembly shall be that specified by the manufacturer. See parts list.

11. 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.

12. This heater should be inspected for proper operation by a qualified service person before each use and at least annually.

13. 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.

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

15. 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.

16. The heater requires a minimum 500 gallon propane tank for proper gas supply pressure and operation. A larger tank may be required depending upon temperature conditions at the site.

17. When the heater is to be stored indoors, the connection between the propane gas supply container and the heater must be disconnected. The container must be stored in accordance with the Standard for the Storage and Handling of Liquefied Petroleum Gases, ANSI/NFPA 58.

18. Propane gas supply containers have left handed threads. Always use the appropriate wrench to make a connection to tighten or loosen the P.O.L. fitting at the cylinders' gas supply valve.

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Installation and Assembly Instructions

GENERAL

⚠ WARNING

Fire and Explosion Hazard

Can cause property damage, severe injury or death

To avoid dangerous accumulation of fuel gas, turn off gas supply at the heater service valve before starting installation, and perform gas leak test after completion of installation.

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. Ensure the heater is properly positioned before use. The heater must be installed on a level, flat and stable surface when in operation and according to minimum safe distances from combustible materials. Safe distances are given on the heater dataplate and on page 4 of this manual.
3. This heater is approved for indoor use only. The heater shall be installed so it is not directly exposed to water spray, rain, and / or dripping water.
4. 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.
5. Heaters used in the vicinity of combustible tarpaulins, canvases, plastics, wind barriers, or similar coverings shall be located at least 10 feet from the coverings. The coverings shall be securely fastened to prevent ignition or upsetting of the heater due to wind action on the covering or other material.
6. Insure that all accessories that ship with the heater have been and installed.
7. Check all connections for gas leaks using approved gas leak detectors. Gas leak testing is performed as follows:
 - 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.
8. Check all pipe connections, hose connections, fittings and adapters upstream of the gas control with approved gas leak detectors.
9. In the event a gas leak is detected, check the components involved for cleanliness and proper application of pipe compound before further tightening.
10. Tighten the gas connections as necessary to stop the leak.
11. After all connections are checked and any leaks are stopped, turn on the main burner.
12. Stand clear while the main burner ignites to prevent injury caused from hidden leaks that could cause flashback.
13. 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.
14. If a leak is detected, check the components involved for cleanliness in the thread areas and proper application of pipe compound before further tightening.
15. Tighten the gas connection as necessary to stop the leak.
16. If necessary, replace the parts or components involved if the leak cannot be stopped.
17. Ensure all gas leaks have been identified and repaired before proceeding.
18. A qualified service agency must check for proper operating gas pressure upon installation of the heater.
19. Always use pipe thread compound that is resistant to propane and natural gas on threaded connections.
20. Light according to instructions on heater or within owner's manual.
21. Make sure the heater has the proper gas regulator for the application. A regulator must be connected to the gas supply so that gas pressure at the inlet to the gas valve is regulated within the range specified on the dataplate at all times. Contact your gas supplier, or the L.B. White Co., Inc. if you have any questions.
22. 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.

⚠ 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.

13. The heater must be installed so as not to interfere with or obstruct normal exits, emergency exits, doors and walkways.
14. Railing, fencing or suitable substitute materials must be used to keep the heating equipment from any people using and visiting the structure.
15. Eventually, like all electrical/mechanical devices, the thermostat can fail. Thermostat failure may result in an overheating condition. The thermostat should be tested to make sure it turns the heater on and off within a temperature differential of $\pm 3^{\circ}\text{F}$.
16. 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.
17. 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

Recommended Gas Supply

Propane Supply Tank:	Heaters/Containers:
500 gallon	1 heater per tank
1,000 gallon	2 heaters per tank

If more than one gas supply container is used per heater, the containers must be manifolded together to allow vapor withdrawal simultaneously from multiple containers. Manifold system shall be in accordance with NFPA 58.

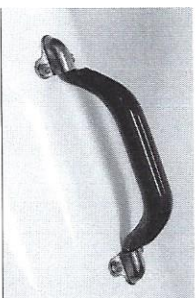
The vaporization of propane is affected by several factors: the surface area of the container, the liquid level of the propane, temperature surrounding the container, and the relative humidity. All of these factors are specific to a site. Therefore, a degree of experience and judgement is required to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

HANDLE ASSEMBLY

Assembly handle to four holes at barrel top as shown in Fig. 1. Tighten screws securely.

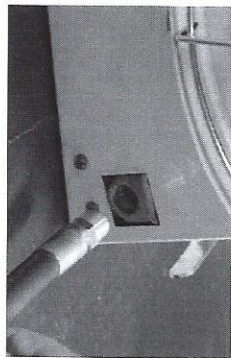
FIG. 1



HOSE AND REGULATOR ASSEMBLY

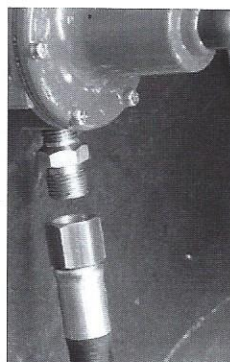
1. Thread rigid end of hose into gas inlet of heater. Tighten securely. See Fig. 2.

FIG. 2



2. Thread hose adapter to regulator outlet and tighten securely. Connect end of hose with nut to hose adapter. Tighten hose nut securely. See Fig. 3.

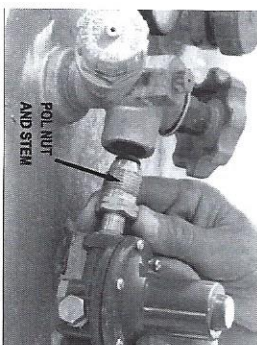
FIG. 3



CONNECTING PROPANE REGULATOR TO PROPANE GAS TANK

1. At the inlet of the regulator is a male nut and stem called a POL. Remove the cap from the POL but do not discard it. Insert POL stem into the valve on the tank. Thread the nut counterclockwise into the tank valve. Tighten the nut securely with a wrench. See Fig. 4.
2. Slowly open the tank valve. This will prevent lock-up of the excess flow valve within POL stem.
3. Check all connections with approved leak detector. Do not use flame to check for leaks. A fire or explosion may result.
4. When storing or transporting the heater, ensure the cap is pushed back onto the POL fitting to protect the fitting from damage and prevent entry of dirt.

FIG. 4



Start-Up Instructions

1. Connect the heater's electrical cord to an approved electrical outlet.
2. Open the gas supply valve. For LP heaters, this is located on the tank.
3. Set thermostat on heater to a setting above room temperature. The heater will start and the burner will ignite.
4. Do not exceed input rating provided on dataplate or manufacturer's recommended burner manifold pressure for size orifice used. Ensure that the primary air supply to heater is open and free of dust, dirt and debris for complete, proper combustion.

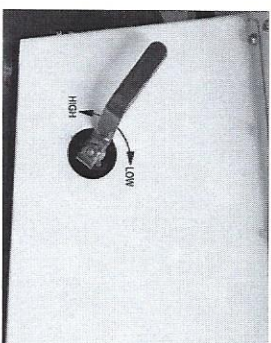
Shut-Down Instructions

1. If the heater is to be shut down for cleaning, maintenance, or repair, follow steps 1-4. Otherwise turn the thermostat to a lower setting.
2. Close the gas supply valve.
3. Allow the heater to burn off any fuel gas remaining in the gas supply line.
3. Set the thermostat to its lowest setting.
4. Disconnect the heater from its gas and electrical supplies.

Variable Rate Valve

FIG. 5

This heater includes a variable rate valve for adjusting the heat output from low to high heat, or anywhere in-between. See Figs. 5.



Cleaning Instructions

WARNING Fire, Burn, and Explosion Hazard

- This heater contains electrical and mechanical components in the gas management, and safety systems.
- Such components may become inoperative or fail due to dust, dirt, wear and aging.
- 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 electrical supply.

2. The heater should have dirt or dust removed periodically.

NOTE: Before each use clean the heater 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 over-heating. Also ensure the fan blade is free of material build-up.

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

1. The area surrounding the heater shall be kept clear and free from combustible materials, gasoline, and other flammable vapors and liquids.
2. Have your gas supplier check all gas piping annually for leaks or restrictions in gas lines.
3. Regulators must be periodically inspected to make sure the regulator vents are not blocked. Debris, insects, insect nests, snow, or ice on a regulator can block vents and cause excess pressure at the heater.
4. 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.
5. 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.
6. 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. Dataplates, start-up and shut-down instructions and warnings are available at no cost. A nominal charge will be applied for wiring diagrams.