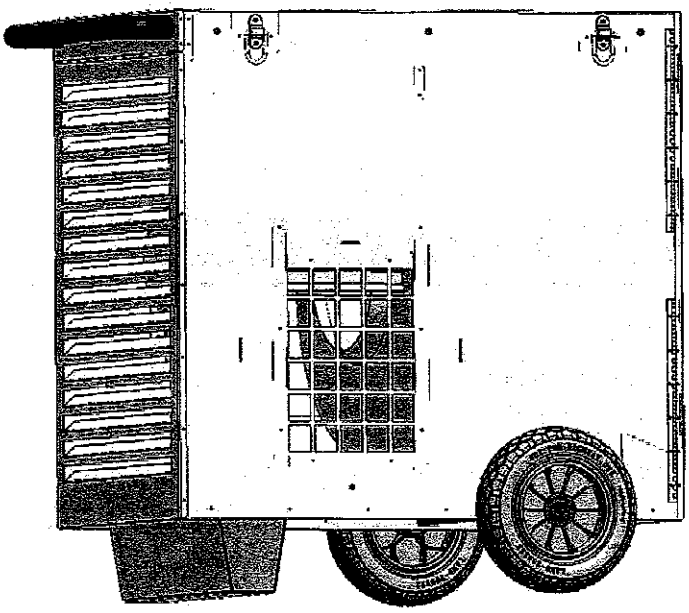
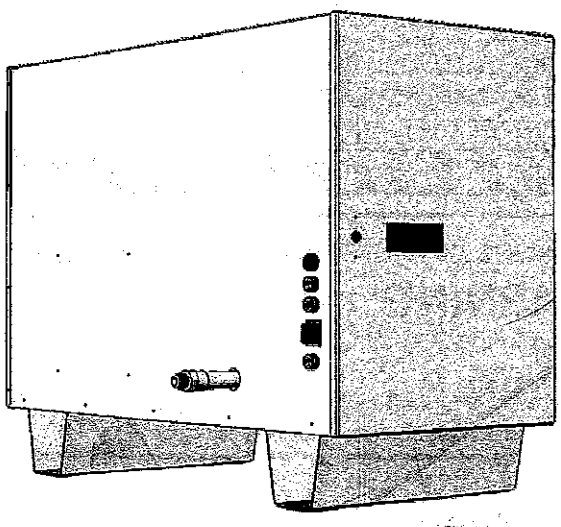
HEATSTAR

OPERATING INSTRUCTIONS AND OWNER'S MANUAL

Model #
HS115TC
HS190TC
HS250TC

READ INSTRUCTIONS CAREFULLY: Read and follow all instructions. Place instructions in a safe place for future reference. Do not allow anyone who has not read these instructions to assemble, light, adjust or operate the heater.





FORCED AIR DUAL-FUEL NOMAD HEATER

LANGUAGES INCLUDED
•ENGLISH
•FRENCH
•SPANISH

WARNING: **If the information in this manual is not followed exactly, a fire or explosion may result, causing property damage, personal injury or loss of life.**

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- An LP cylinder not connected for use shall not be stored in the vicinity of this or any other appliance.
- WHAT TO DO IF YOU SMELL GAS
  - Do not try to light appliance.
  - Extinguish any open flame.
  - Shut off gas to appliance.
- Service must be performed by a qualified service agency.

This is an un-vented gas-fired portable heater. It uses air (oxygen) from the area in which it is used. Adequate combustion and ventilation must be provided. Refer to pages 4 & 5.

SPECIFICATIONS

MODEL# (Stock#)	HS115TC (F109100)	HS190TC (F109110)	HS250TC (F109120)
PROPANE BTU/kW INPUT			
HIGH LP (kW)	110,833 BTU/HR (32kW)	190,200 BTU/HR (56kW)	248,625 BTU/HR (73kW)
LOW LP (kW)	80,612 BTU/HR (24kW)	127,100 BTU/HR (37kW)	181,119 BTU/HR (53kW)
HIGH NG (kW)	107,586 BTU/HR (32kW)	183,600 BTU/HR (54kW)	248,625 BTU/HR (73kW)
LOW NG(kW)	77,124 BTU/HR (23kW)	128,700 BTU/HR (38kW)	172,252 BTU/HR (50kW)
OPERATINGS GAS PRESSURES (W.C./kPa)			
MAX IN-LP	TANK PRESSURE	TANK PRESSURE	TANK PRESSURE
MAX IN-NG (Kpa)	14" W.C. (3.49 Kpa)	14" W.C. (3.49 Kpa)	14" W.C. (3.49 Kpa)
MIN IN-LP (Kpa)	15 PSI (103.4 Kpa)	15 PSI (103.4 Kpa)	15 PSI (103.4Kpa)
MIN IN-NG (Kpa)	7" W.C. (1.74 Kpa)	7" W.C. (1.74 Kpa)	7" W.C. (1.74 Kpa)
MANIFOLD PRESSURE	4" W.C. (.99 Kpa)	4" W.C. (.99 Kpa)	4" W.C. (.99 Kpa)
FUEL CONSUMPTION PER HOUR			
LP-HIGH LBS (Kg)	5.326 LBS/HR (2.41 Kg)	8.8 LBS/HR (3.99Kg)	12.042 LBS/HR (5.46 Kg)
LP-LOW LBS (Kg)	3.937 LBS/HR (1.78 Kg)	6.253 LBS/HR (2.83 Kg)	8.568 LB/HR (3.88 Kg)
NG-HIGH MCF	.110 MCF	.185 MCF	.240 MCF
NG-LOW MCF	.08 MCF	.130 MCF	.175 MCF
ELECTRICAL SPECIFICATIONS			
ELEC. SUPPLY (VOLTS/Hz/PHASE)	115V-60HZ- 1Ø	115V-60HZ-1Ø	115V-60HZ-1Ø
CONTINUOUS AMPS	3.5 AMPS	5.5 AMPS	8 AMPS
MOTOR H.P.	1/3HP	1/2HP	3/4HP
MOTOR WATTS	220 W	500 W	800 W
MOTOR R.P.M.	1100	1100	1035
HEATER DIMENSIONS/WEIGHTS			
HEATER WEIGHT	91 LBS (40.3KG)	159 LBS (72 KG)	165 LBS (75 KG)
HEATER DIMENSIONS (LxWxH)	30" x 23.75" x 15"	35.75" x 34.75" x 20.25"	35.75" x 34.75" x 20.25"
CARTON WEIGHT (LBS/K.G.)	102 LBS (46.3KG)	176 LBS (79.8 KG)	182 LBS (83 KG)
CARTON DIMENSIONS (LxWxH)	34.5" x 25.75" x 20"	39" x 36.75" x 24.25"	39" x 36.75" x 24.25"

CLEARANCE TO COMBUSTIBLES

	TOP	SIDES	BACK	OUTLET
HS115TC	1'	1'	1'	6'
HS190TC	1'	1'	1'	6'
HS250TC	1'	1'	1'	6'

ODOR FADE WARNING

⚠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.
- Refer to the specification section of the heater's manual, heater data-plate, or contact the Factory to determine combustion air ventilation requirements of the heater.
- Lack of proper ventilation air will lead to improper combustion.
- Improper combustion can lead to carbon monoxide poisoning leading to serious injury or death. Symptom of carbon monoxide poisoning can include headaches dizziness and difficulty in breathing.

FUEL GAS ODOR

LP 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. Since these fuels are heavier than air you should smell for the gas odor low to the floor. ANY GAS ODOR IS 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 (LP) gas tank or cylinder fuel supply valves, or the main fuel supply valve located at the meter if you use natural gas.
- Propane (LP) 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 any leaks, 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 (LP) or natural gas. You must determine if you can smell the odorant in these fuel gases.
- Learn to recognize the odor of propane (LP) gas and natural gas. Local propane (LP) 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. Odors present in animal confinement buildings can mask fuel gas odor.
- **The odorant in propane (LP) 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 (LP) gas odor may differ in intensity at different levels. Since Propane (LP) 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 (LP) gas has a distinctive odor. Learn to recognize these odors. (Reference Fuel Gas Odor and Odor Fading sections above.
- Even If you are not properly trained in the service and repair of the heater, ALWAYS be consciously aware of the odors of propane (LP) gas and natural gas.
- If you have not been properly trained in repair and service of propane (LP) gas then do not attempt to light heater, perform service or repairs, or make any adjustments to the heater on the propane (LP) gas fuel system.
- 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!

UNPACKING (Tools needed: Box cutter)

Remove heater and all components from cardboard container. Thoroughly inspect all packing material for pieces that are not garbage. Next check the unit for possible shipping damage. If any is found immediately notify the factory.

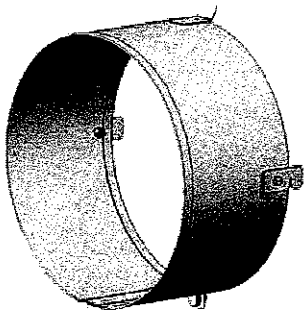
USING NOMAD HEATER ACCESSORIES

The Nomad line of forced air heaters is designed to be used as a stand alone gas fired heating appliance. It is also designed and certified to be used with a collection of useful accessories. For information on any additional accessories that may be available for your model refer to the list of accessories in this booklet or visit www.heatstarbyenerco.com.

USING NOMAD HEATERS WITH DUCT & DIFFUSERS

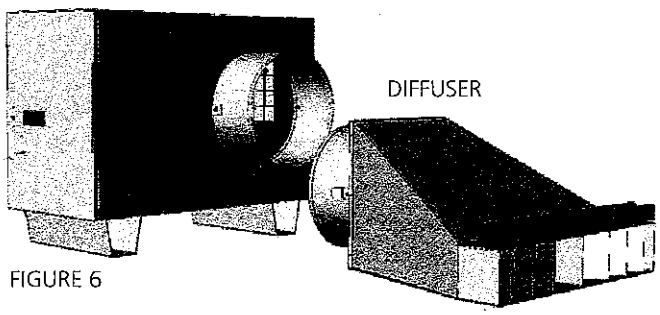
When using this heater to heat a party tent or construction environment from out side of the space you will need to employ the help of a few different diffuser attachments.

Direct Diffuser & Duct Adapter



DUCT ADAPTER

A direct diffuser allows the user to duct the heat being produced by the Nomad heater into a space needing heat without having the heater in that space. To do this you will need a duct adapter. The duct adapter attaches to special connection points on the heater that match up to the connectors on the adapter. Align the tabs on the adapter to the holes on the heater and turn clock wise to lock them in place. Next you will need the flexible duct transition piece. The duct transition is a short piece of special silicone lined ducting that attaches the adapter to the End diffuser. With the duct adapter attached to the heater, place the transition duct piece over the outside of the adapter ring and tighten down the strap. The other end of the Duct is then attached to the diffuser see figure 6. The diffuser is an accessory designed to help direct the air being discharged from the heater. The air comes out of the diffuser and spreads out in multiple directions to better fill the space and heat more evenly. The channel on top of the diffuser is designed to hold the tent material from falling in front of the diffuser. The heater can be used without the diffuser but it is recommended for more effective and efficient use.



DIFFUSER

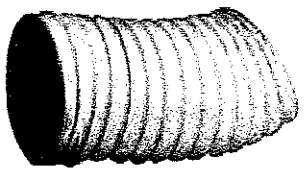
FIGURE 6

Long Duct & Diffuser

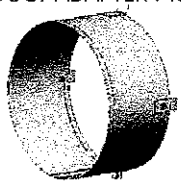
Nomad heaters are also designed to be used with 10' of flexible duct for when distance from the area to be heated is needed or required. To use this setup you will need the end diffuser and the 10' specially designed ducting. To assemble attach one end of the 10' length of duct to the duct adapter and the other to the end Diffuser. Then place the end diffuser in the space to be heated.

FITS HS115TC

12" X 30" TRANSITION DUCT F109107

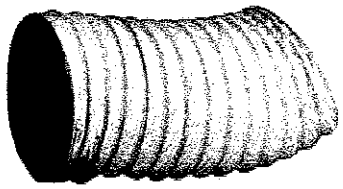


12" DUCT ADAPTER F109106

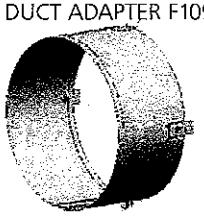


FITS HS190TC & HS250TC

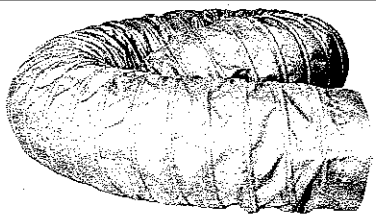
16" X 30" TRANSITION DUCT F109117



16" DUCT ADAPTER F109116

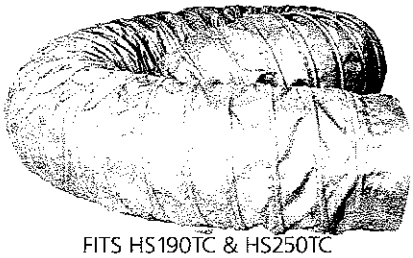


12" X 10' SILICONE LINED FLEXIBLE HEATING DUCT F109108



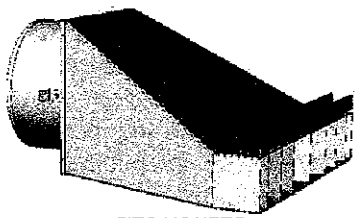
FITS HS115TC

16" X 10' SILICONE LINED FLEXIBLE HEATING DUCT F109118



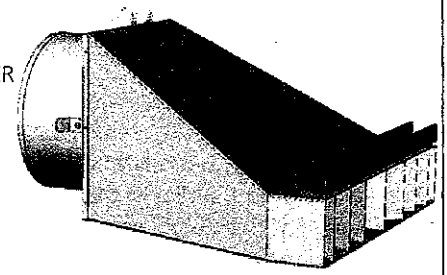
FITS HS190TC & HS250TC

12" UNIVERSAL DIFFUSER F109105



FITS HS115TC

16" UNIVERSAL DIFFUSER F109115



FITS HS190TC & HS250TC

RATE AND FUEL SELECTION

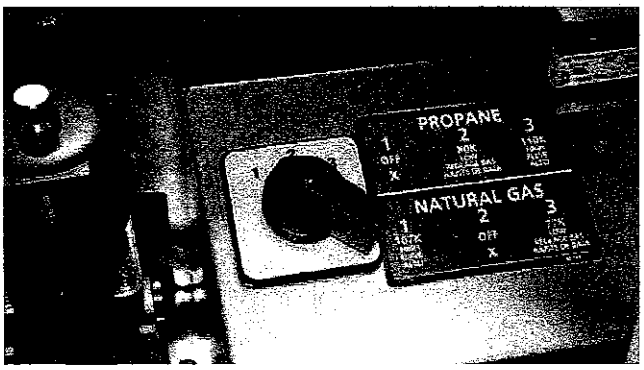
FUEL SELECTION

When setting up your Nomad heater you will need to know which fuel you will be using and move the Rate/ Fuel selector switch to the correct settings before use. For LP you will use the Red settings and rate. For NG you will use the Blue settings and rates Refer to figure 5.

RATE SELECTION

Your Nomad heater is equipped with multi-rate and dual fuel technology. During setup of your area to be heated you have the option to use the heater on either the high or low setting. In order to bring the heat in your space up to your desired temperature as quickly as possible set the heater on its high setting (refer to figure 5). Once you have your space heated to the desired temperature, you can then turn your setting to the low position to maintain your desired temperature resulting in dramatic cost savings from the lower fuel consumption during the entire heating project.

FIGURE 5



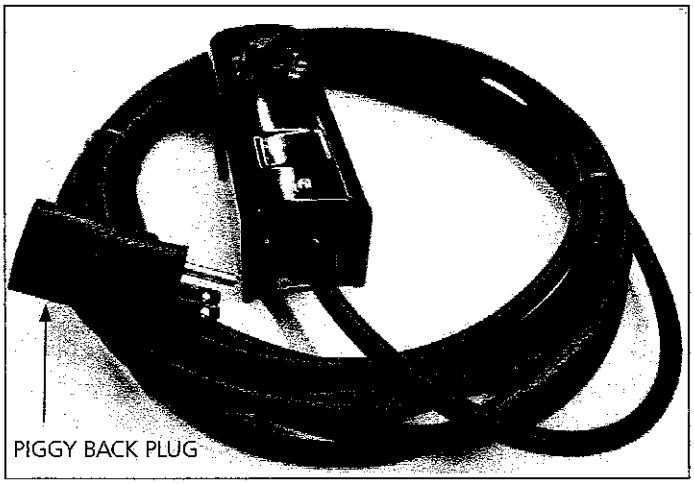
OPERATION (NO THERMOSTAT)

Plug in your unit using an appropriately sized properly grounded three pronged extension cord. Attach the small length of power cord on the heater to your extension cord. Once power is supplied to the heater you should see the green indicator light above the switch light up. Before you turn on your heater you will want to ensure that you make your fuel and rate selection. Refer to the "Rate and fuel selection" section for more information. You can now flip your power switch to the ON position. After a few seconds your heater will light and you should feel hot air begin to emit from the outlet of the heater. With this setup the heater will run continuously until the operator flips the switch to the off position. If you would like your heater to cycle on and off based on the temperature of the space, you will need to use the supplied remote thermostat.

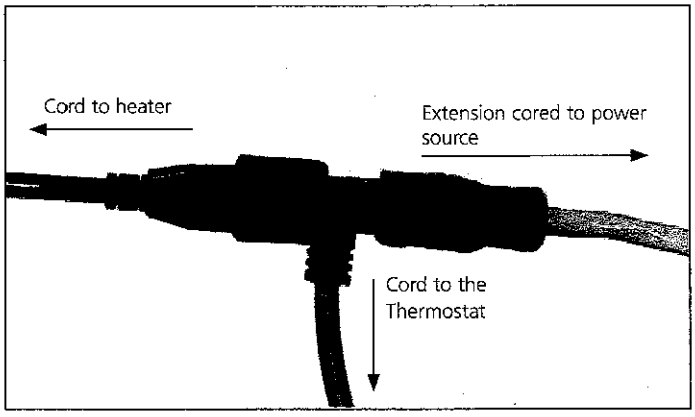
OPERATION (WITH THERMOSTAT)

To operate your Nomad heater with a thermostat you will need to place the thermostat in the environment to be heated and turn the dial to the lowest temperature. Take the "Piggy-Back" style plug end that was factory installed on the thermostat and attach it to the small length of power cord attached to the heater (located near the power switch). The male plug end of the heater will go inside the female receptacle on the thermostat plug end. Next plug in your properly grounded three pronged extension cord into the other side of the thermostat plug. You can now switch on your heater and return to where you have your thermostat located and set the temperature at which you would like your heater to cycle on and off at. Once the temperature in the space to be heated drops below the point at which your thermostat is set, the green indicator light above the switch will illuminate and the heat sequence will begin. The unit will continue to run until the setting of the thermostat is satisfied. If your heater shuts down for any reason other than the operator turns it off or the thermostat is satisfied, refer to the troubleshooting portion of this manual on page 11.

INCLUDED THERMOSTAT



THERMOSTAT HOOKUP



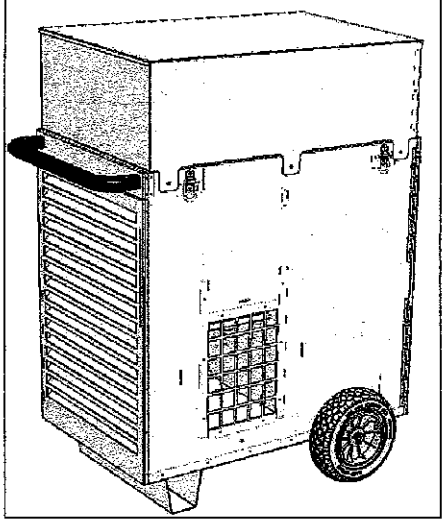
SHUTDOWN , STORAGE & MAINTENANCE

When your Nomad heater is no longer needed there are a few steps you should take to ensure it is ready and in working condition the next time you need it.

SHUTDOWN

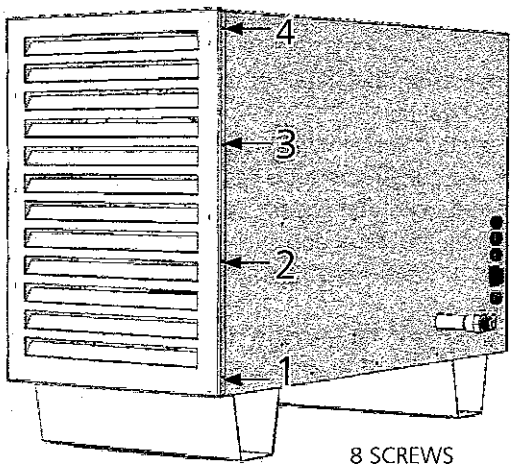
While the heater is running, turn off the gas supply to the heater and allow the fuel left in the system and in the hose and regulator to burn off. This should only take a few seconds. Then at the heater, flip the switch to the middle or **OFF** position. You should allow your heater to completely cool before placing your heater in storage or before you perform any service or maintenance. Once the unit has cooled verify that the gas has been shut off. Then disconnect the hose and regulator from the fuel source. Next disconnect the hose from the inlet fitting on the heater and neatly wrap up your hose assembly. You can then place your hose into storage until it is needed again. On the HS190TC and HS250TC Nomad units you can use the optional top mounted storage box to store your heater hose and regulator along with any other accessories or tools needed for setup and tear down. Next unplug the unit and wrap up the thermostat and return it to storage. Your heater can now be stored.

STORAGE UNIT AVAILABLE FOR THE HS190TC & HS250TC



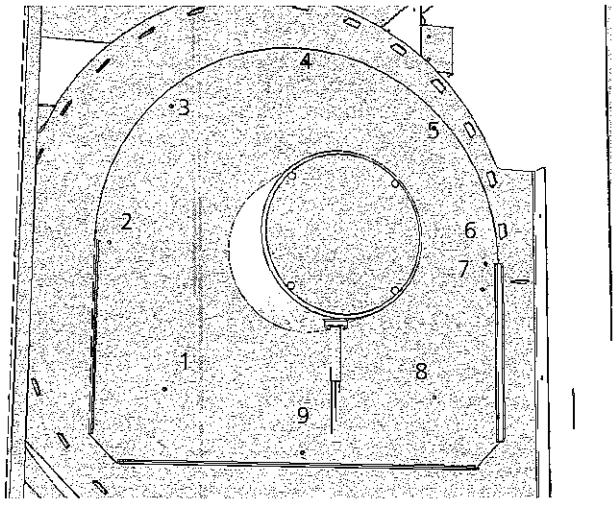
STORAGE & MAINTENANCE

Before and after extended storage or if the heater was used in dusty conditions you should thoroughly clean the heater. With the heater unplugged, use soap, water and a soft cloth to clean off any loose dust or dirt. While your Nomad heater is certified to be used outdoor and can withstand wet weather, water should not be used. This can cause water to be forced into components where it should not be. To clean off the inside, you will need a standard flat head screwdriver to open the access panel. **To clean do not use water**, use compressed air to blow dust and debris from the insides. Once the unit is again clean shut the door and secure the latch with the screwdriver used to open it. You can now store your heater until it is needed again. Be sure to make note of the storage "do's and Don't" listed on this page. At least once a year or the heater has been used in a dusty environment, it is recommended that the blower wheel be thoroughly cleaned. Start by removing the access panel cover on the blower side of the heater. There are 8 screws on the HS115 and 14 Screws on the larger HS190 and HS250 (4 and 7 on each side respectively) holding the panel in place.



8 SCREWS
4 ON EACH SIDE

Once you have access to the blower motor mounting plate remove the motor and wheel then use compressed air to blow off the wheel. If a more aggressive cleaning method is required to get the wheel clean you can remove the wheel from the motor by loosening the set screw. Water solvents and cleaners can then be utilized to complete the cleaning. Re install the blower in the reverse it was removed.



DO NOT....

- Do not store the unit outside.
- Do not lose the components shipped with your heater.
- Do not store your heater in an area prone to rodents. They can damage internal wiring and the nesting material is a fire hazard. Always open and inspect your heater for signs of insect and rodents before use especially after long bouts of storage.

SERVICE & REPAIR

A hazardous condition may result if a heater is used that has been modified or is not functioning properly.

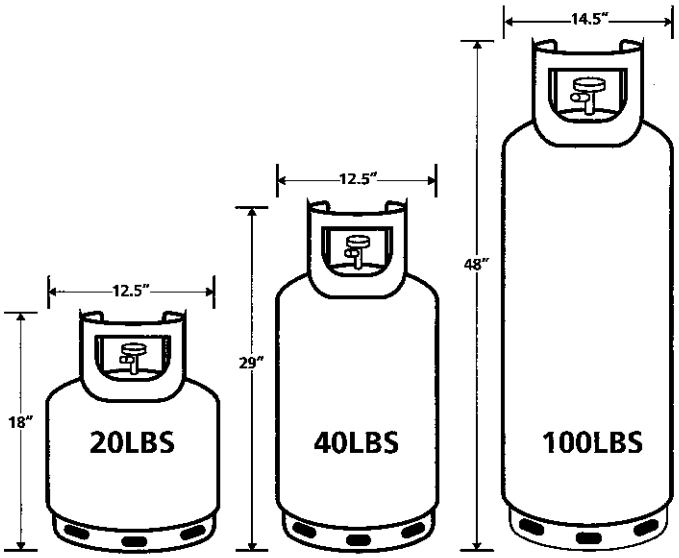
When the heater is working properly:

- The flame is contained within the heater.
- The flame is essentially blue with perhaps some yellow tipping.
- There is no strong disagreeable odor, eye burning or other physical discomfort.
- There is no smoke or soot internal or external to the heater.
- There are no unplanned or unexplained shut downs of the heater.
- The parts lists and wiring diagram show the heater as it was constructed. Do not use a heater which is different from that shown. In this regard, use only the hose, regulator and cylinder connection fitting (called a POL fitting) supplied with the heater.

For this heater, the regulator must be set as shown in "SPECIFICATIONS". If there is any uncertainty about the regulator setting, have it checked. A heater which is not working right must be repaired, but only by a trained, experienced service person. The heater is equipped with a 1 year Limited Warranty, for full warranty information please read page 20. Please include a brief statement indicating date, place of purchase, the nature of the problem and proof of purchase for warranty inquiries. Out-of-warrranty products can be repaired with a charge for parts and labor. Contact customer service for a list of certified repair centers near you.

PROPANE TANK SIZE SELECTION

Below are a few quick points of reference for when you need to select propane cylinders for your applications. There are two major points to consider. What is the temperature outside? & What are the BTU requirements of the heater I will be using. While 20lb, 40lb and 100lb tanks are the most common tank sizes, there are various other options available. Contact you propane supplier for details.



LBS OF LP IN THE CYLINDER	MAXIMUM CONTINUOUS BTU OUTPUT PER HOUR @ VARIOUS TEMPERATURES		
	0°F (-18°C)	20°F(-7°C)	40°F (4°C)
200 (2 x 100's)	226,000	334,000	428,000
100	113,000	167,000	214,000
80 (2 x 40's)	94,000	137,000	180,000
40	55,000	79,000	105,000
20	36,000	51,000	69,000

EXAMPLE TANK SELECTION

PROPANE TANK SELECTION @ 20°F (-7°C)		
	HIGH SETTING	LOW SETTING
HS115TC	110,833 BTU/HR	80,612 BTU/HR
	2 X 40LB TANKS	1 X 40LB TANK
HS190TC	190,200 BTU/HR	127,100 BTU/HR
	2 X 100LB TANKS	2 X 40LB TANKS
HS250TC	248,625 BTU/HR	181,119 BTU/HR
	2 X 100LB TANKS	2 X 100LB TANKS

Symptom	Troubleshooting
Blower does not come on	1. Make sure the switch is either in the on or fan only position 2. Verify the extension cord being used is not too long 3. Check power source is 110v 4. Verify the setting on the thermostat is higher than the temperature in the space to be heated
Blower runs but the burner does not ignite	1. Make sure the switch is in the on position not in the fan only position 2. Verify that the fuel connected to the unit is turned on and flowing. It may take a few cycles to get all the air out of the lines. 3. Make sure the rate and fuel switch are in the desired position for the fuel you are using and the setting (high or low) that you desire.
Unit producing little heat or no heat.	1. Make sure the switch is in the on position not the fan only position 2. Make sure the rate and fuel switch are in the desired position for the fuel you are using and the setting (high or low) that you desire. 3. Verify that the fuel pressure being supplied to the heater is adequate. Refer to the specification table in this manual for required pressures. 4. Make sure the factory supplied hose and regulator are being used.
Heater will not shut down	1. Verify the switch is in the off position not on or fan only. 2. Check current setting on the thermostat. Is it set to a temperature higher than the space being heated? 3. Heater will only cycle on and off when optional thermostat is installed.
Unit will not turn on with thermostat installed	1. Verify that the thermostat is installed correctly. Heater will only cycle on and off when the optional thermostat is installed. 2. Verify the setting on the thermostat is higher than the temperature in the space to be heated 3. Check that the power switch is in the "on" position. The thermostat will only cycle on and off if the power switch is in the on position
Unit will not turn off with thermostat installed.	1. Verify the setting of the thermostat is lower than the temperature in the space being heated. 2. Verify that the thermostat is installed correctly, the unit may just be on the on position. 3. Heater may be undersized or for the space being heated.
Red HLS fault light is on	1. Verify that the path of heat is not obstructed. 2. Check for blockage in the duct and at the end diffuser 3. Check the fuel and rate selections are accurate. If the wrong fuel is selected the unit will over heat.

FOR FURTHER ASSISTANCE

If after you have reviewed the trouble shooting in this manual and you still require assistance please use any of the following methods to contact our technical service department. We will do our absolute best to resolve any issues or problems that arise. Most problems can be solved in just a few minutes.

HOURS ARE: Monday- Friday 8:00am until 5:00pm

CALL: 866-447-2194

FAX: 800-321-0552

VISIT: HEATSTARBYENERCO.COM

INQUIRIES IN CANADA ONLY

PLEASE CALL: 877-477-3353

VISIT IPSPOWER.COM