

# NATURAL GAS / L.P.G. SPACE HEATER

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# PHOEN/N 380

L-S 104.00-BM



## WARNING

The operations described in this booklet must be carried out by qualified and instructed personnel only. Incorrect maintenance may result in improper operation and serious injury.

# 1. SPECIFICATIONS

				<b>PHOEN/N 380</b>
Natural gas		Supply pressure	[in w.c.]	min 7" w.c. max 10" w.c.
	Normal altitude 0 - 2,000 ft above sea level (U.S.A. and Canada)	Heat input	[BTU/h]	380,548
		Manifold pressure	[in w.c.]	6,40
		Fuel consumption	[CFH]	355,97
	Altitude 2,000 - 4,500 ft above sea level (Canada only)	Heat input	[BTU/h]	342.493
		Manifold pressure	[in w.c.]	6,07
Fuel consumption		[CFH]	320,37	
L.P.G.		Supply pressure	[in w.c.]	min 8" w.c. max 13" w.c.
	Normal altitude 0 - 2,000 ft above sea level (U.S.A. and Canada)	Heat input	[BTU/h]	363.972
		Manifold pressure	[in w.c.]	6,52
		Fuel consumption	[CFH]	133,89
	Altitude 2,000 - 4,500 ft above sea level (Canada only)	Heat input	[BTU/h]	327.575
		Manifold pressure	[in w.c.]	6,19
Fuel consumption		[CFH]	120,50	
Air flow			[cfm]	3.250
Power supply				1 ~, 120V, 60Hz
Power consumption			[W]	1.400
			[A]	12,5
Fuse size (T type)			[A]	20
Adjustment of combustion air flap			[N°]	3,0
Ring nozzle			[in]	N. 12 holes x 0,106"
Flue diameter			[in]	5,91
Compulsory flue draft			[in]	0,05
Maximum air temperature			[°F]	250
Max. operating pressure elec. gas valve			[psi]	2
Gas inlet connection thread				3/4" NPT
Air distribution duct	Max Static pressure		[in]	0,60
	Max length 1 way - dia 20"		[ft]	100
	Max length 2 ways - dia 16"		[ft]	60
	Max length 3 way - dia 12"		[ft]	25
Noise level at 1 m			[dBA]	74
Heater		Dimensions, L x W x H	[in]	82,6 x 33,9 x 48,8
		Weight	[lb]	430

## 2. MAINTENANCE SCHEDULE

Service Operation	Period of service			
	Daily	2 weeks	6 months	Yearly
Inspect the heater	X			
Inspect the gas hose assembly	X			
Clean the machine	X			
Clean the fan blades and the motor		X		
Check gas supply and manifold pressure		X		
Clean the interior shell			X	
Inspect electrical connections			X	
Inspect flame head			X	
Test the burner			X	
Inspect and clean the combustion chamber				X

### 3. MAINTENANCE PROCEDURES



Before carrying out any maintenance operation the heater must be disconnected from power supply. Refer to instruction manual to fully stop the heater. Therefore:

- Stop the machine as instructed
- Turn off the disconnecting switch on the main electric switchboard
- Ensure gas valve supply to the heater is closed
- Wait until the heater has cooled.

Never service heater while it is plugged in, operating, hot or if gas valve supply is not closed. Severe burns or electrical shock can occur.

#### 3.1 INSPECT THE HEATER AND GAS HOSE ASSEMBLY

Carry out the following controls:

- Ensure that heater is not installed where there may be a risk of fire or explosion
- Ensure inflammable materials are kept at safe distance
- If you smell gas:
  - Open windows
  - Do not touch electrical switches
  - Extinguish any open flame
- Do not operate heater with panels removed
- The room or building which is being heated must be sufficiently ventilated so
- Ensure air suction and/or supply pipes are not blocked in any way,
- Ensure no sheets or covers are resting on the machine or walls
- Check the unit is placed in a fixed position;
- Ensure the heater is regularly monitored during operation and checked before being started up;

#### 3.2 CLEAN THE MACHINE

Clean the following parts to ensure proper operation:

- Burner
  - Remove all dirt and debris.
  - Ensure that the air intake area is unobstructed.
- Hoses, connectors and couplings
  - Wipe clean with cloth.
- Covers/machine exterior
  - Wipe clean with cloth.
- Air inlets/ouputs
  - Remove all dirt and debris.
  - Ensure that the air intake area is unobstructed.

### 3.3 CLEAN THE FAN BLADES AND THE MOTOR

To clean the fan blades and motors, carry out the following procedure:

- Remove the fan guard **(a)**. There are four screws that secure the fan guard.

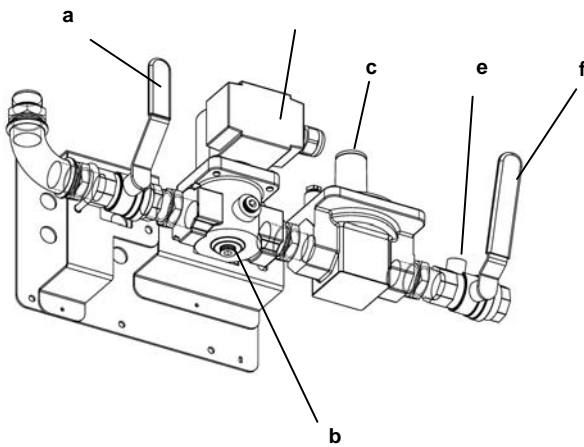


- Inspect and, if necessary, clean the motors using compressed air.
- Clean the fan blades using a stiff brush.
- Reinstall the fan guard.

### 3.4 CHECK GAS SUPPLY AND MANIFOLD PRESSURE

To check gas pressure, carry out the following procedure:

- Install a manometer on inlet pressure port (e)
- Install a manometer on manifold pressure port (b)
- Run the heater and check gas pressure be as specified in par. 1.
- If gas supply pressure is lower or higher than specified, then operate on the supply pressure regulator
- If manifold pressure is lower or higher than specified, then operate on manifold pressure regulator (c)
- Stop the heater and seal port (e) and port (b)

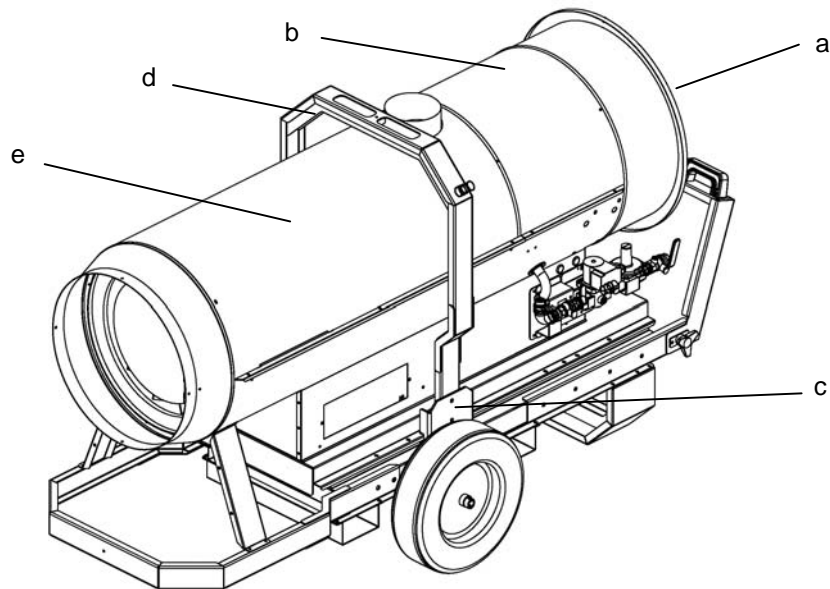


- a GAS SELECTOR VALVE
- b MANIFOLD PRESSURE PORT (MANIFOLD)
- c MANIFOLD PRESSURE REGULATOR
- d MAIN GAS VALVE
- e INLET PRESSURE PORT
- f SHUT OFF / FIRING VALVE



### 3.5 CLEAN THE INTERIOR SHELL

To clean the interior shell, carry out the following procedure:



- Remove the fan guard **(a)**
- Remove the inspection panel **(b)**.
- Unscrew and remove the four lift bracket screws **(c)**. Carefully raise and maneuver the lift bracket **(d)** away from the machine shell cover **(e)**, resting it on the rear frame as shown.
- Remove the six mounting screws and lift the machine shell cover off the machine.
- Inspect and clean the interior shell using compressed air.
- Re-install the machine shell cover.
- Re-install the lift bracket.
- Re-install the access cover.
- Re-install the fan guard.

### **3.6 INSPECT ELECTRICAL CONNECTIONS**

After disconnecting the power cord, check all electrical connections for the following:

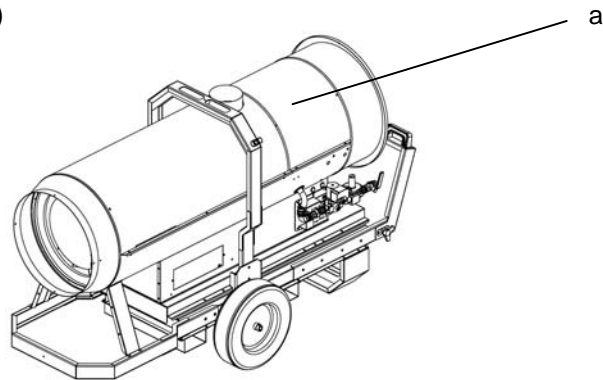
- Proper connections.
  - Be sure that all connections are complete and tight.
- Corrosion.
  - Clean or replace if necessary.
- Damaged wires/connectors.
  - Replace if necessary.
- Proper ground.



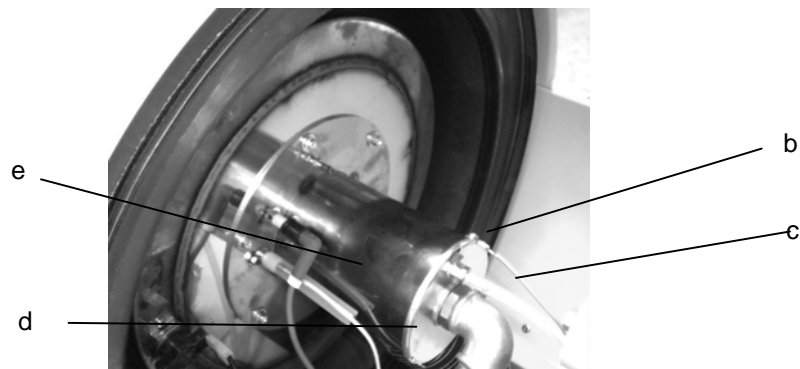
### 3.7 INSPECT FLAME HEAD

To inspect and clean flame head, carry out the following procedure:

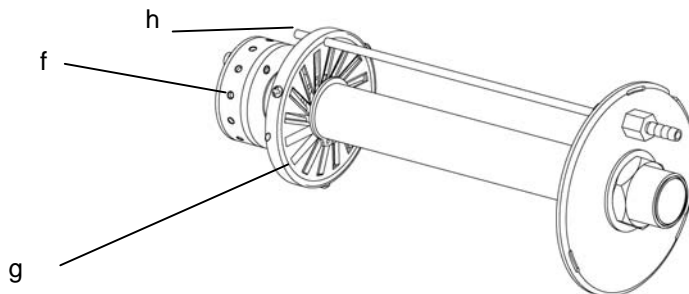
- Remove the access panel (a)



- Remove the screw (b) to disconnect the ground wire (c).
- Rotate the burner assembly (d) counter-clockwise and remove it from the flame head and air tube assembly (e).



- Perform the required maintenance.
- The flame head is attached to the burner assembly. Inspect the flame head for the following:
  - Wear. Replace if necessary.
  - Cleanliness. Clean the nozzle ring (f) and air diffuser (g) if necessary.
  - Thermal stress. Replace if necessary.
  - Pressure port (h) of air pressure switch: clean if necessary



- Reinstall the burner assembly. Refer to the steps below to install the burner assembly:
  - Place the burner assembly into the flame head and air tube assembly.
  - Rotate the burner assembly clockwise to lock it into place.
  - Install the ground wire using the screw (d).
- Reinstall the access panel (a).

### 3.8 TEST THE BURNER

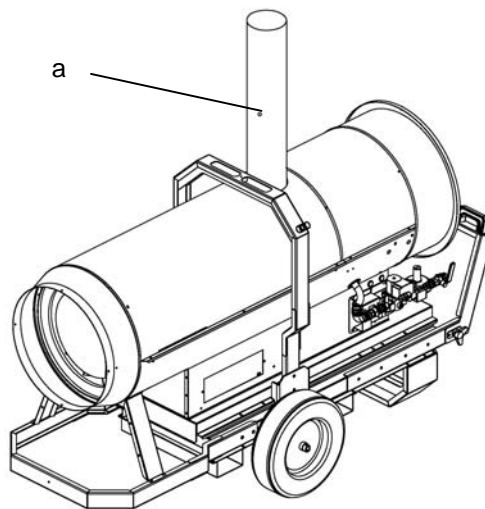
The following instruments are necessary

- High-quality combustion analyzer
- Two gas pressure meters

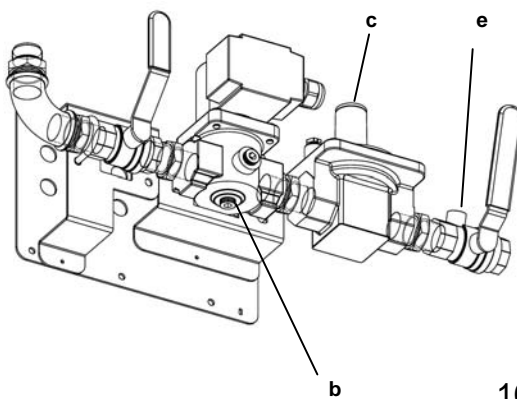


To test the burner,, carry out the following procedure:

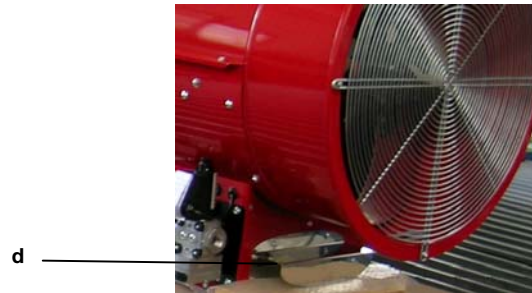
- Follow the combustion analyzer manufacturer's instructions and the general guidelines below.
- Use the access hole (a) in the exhaust stack to connect combustion analyzer probes



- Fit one pressure meter on supply pressure port (e) and one pressure meter on manifold pressure port (b)



- Take several samples as the heater warms.
- Re-adjust the air band (d) and pressure regulator (c), if necessary, until combustion analysis is within the following parameters:
  - O<sub>2</sub> content: 3–5%



### 3.9 INSPECT AND CLEAN THE COMBUSTION CHAMBER

To clean combustion chamber, carry out the following procedure:

- Remove inspection and cover panel as for procedure 3.5
- Remove screws (a) and remove burner assembly head (b)
- Inspect the combustion chamber with light
- Clean inside with a wire brush if necessary
- Re-install the burner

