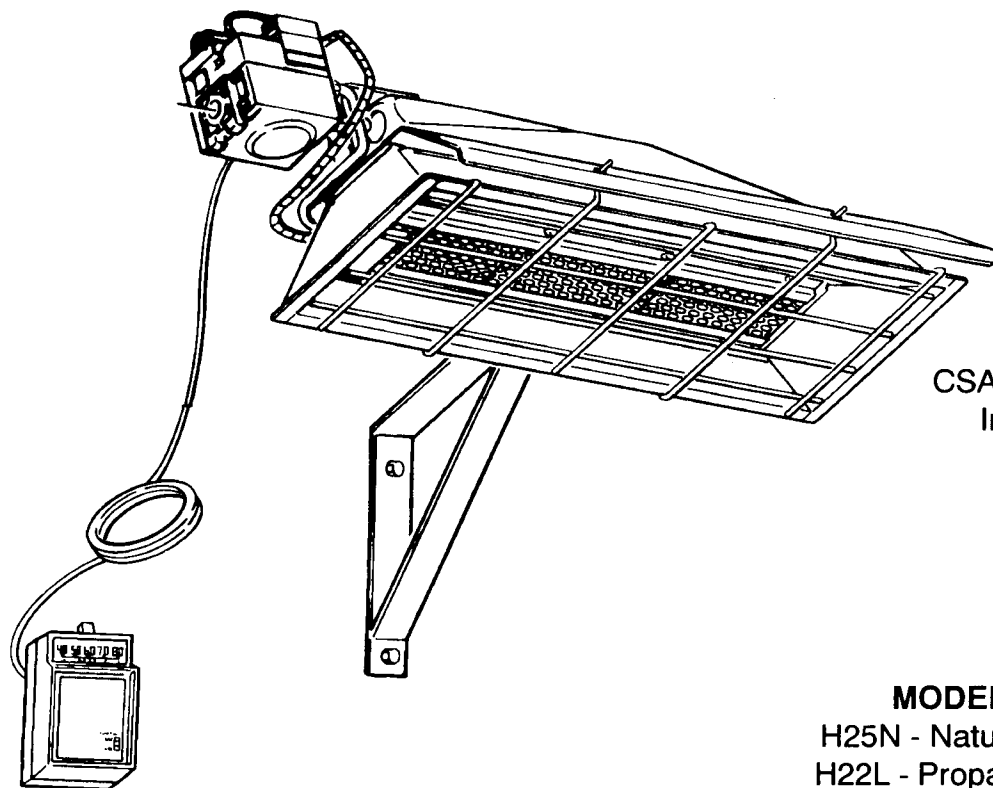


# INSTALLATION and OPERATING INSTRUCTIONS

for



## GAS-FIRED INFRA-RED GARAGE/SHOP HEATER



CSA Requirements, 7-89 U.S.  
Infrared Garage Heater  
ANSI Z83.6b - 1993  
CAN 1-2.16-M81  
LATEST EDITIONS

### MODELS

H25N - Natural Gas  
H22L - Propane Gas



**WARNING:** Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information consult a qualified installer, service agency or the gas supplier.

### FOR YOUR SAFETY

#### WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions
- If you cannot reach your gas supplier; call the Fire Department.

Manufactured by:



### FOR YOUR SAFETY

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

Keep this manual in a safe place for future reference.

## 1. GENERAL INFORMATION

- a. Your heater comes fully assembled and is tested at the factory for proper gas and input as stated on the name plate.
- b. Before proceeding with the installation, be sure to inspect for damages. Freight company must be notified of any damages and request that an inspection be made. ENERCO will send replacement parts for damaged parts only after receiving a signed inspection report to prove the liability of the freight company.
- c. Check parts received against material list. Report at once to your dealer if any parts are missing.
- |                                    |  |
|------------------------------------|--|
| 1 - Heater                         | 2 - 1/4" x 2-1/2" Long Lag Screws                              |
| 1 - Wall Bracket                   | 2 - #6 x 1" Long Sheet Metal Screws (Included with Thermostat) |
| 1 - Thermostat Lead Wire           | 1 - 1/4" - 20 x 3/4" Long Hex Hd. Bolt                         |
| 1 - Wall Thermostat/Thermostat Tag | 1 - 1/4" - 20 Hex Nut  |
- d. Do not attempt to operate heater with any other gas than that indicated on the heater name plate.
- e. The installation of the heater must conform with local building codes or, in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1 (NFPA 54). A manual can be purchased from CSA International, 8501 East Pleasant Valley Road, Cleveland, OH 44131, or NFPA, Battery March Park, Quincy, MA 02269. Canadian installations must comply with CAN/CGA-B149.1.2. gas code, which can be purchased from CSA International, 55 Scarsdale Road, Don Mills, Ontario M3B 2R3.
- f. A plugged 1/8" N.P.T. Test Gage Connection is located on the heater gas control.
- g. Contact factory when appliance is to be installed at high altitudes. Factory will supply high altitude conversion kit with instructions and data plate.

When used without fresh air, heater may give off **Carbon Monoxide**, an odorless, poisonous gas.

This heater is equipped with a  
**PILOT LIGHT SAFETY SYSTEM.**

If heater shuts off, do not relight until you provide fresh air. If heater keeps shutting off, have it serviced. Keep burner and control clean.

This heater needs fresh air for safe operation and must be installed so there are provisions for adequate combustion and ventilation air.

**DO NOT TAMPER WITH PILOT  
LIGHT SAFETY SYSTEM.**

**CARBON MONOXIDE POISONING  
MAY LEAD TO DEATH.**

Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness and/or nausea. If you have these signs, heater may not be working properly. Get fresh air at once! Have heater serviced.

## 2. CLEARANCES

Minimum clearances to combustibles  
(Refer to Figure 1 below and Figure 8, Page 6).

Figure 1

MODEL NO.	BTU/HR. RATING		NORMAL MOUNTING POSITION	CLEARANCE TO COMBUSTIBLES			
	GAS			TOP	SIDES	BACK	BELOW
	NATURAL	PROPANE					
H25N	25,000	—	30°	14"	16"	16"	48"
H22L	—	22,000	30°	14"	16"	16"	48"

Provide adequate clearance to combustibles, Figure 1, between control end of heater for servicing and minimum on top and sides for ventilation and combustion air supply.

**WARNING:** Certain materials or items, when stored under the heater, will be subjected to radiant heat and could be seriously damaged. The heater is meant to be installed with the supplied wall bracket only.

**WARNING: ALWAYS MAINTAIN CLEARANCES AS SHOWN IN FIGURE 8 – PAGE 6, OR ON HEATER NAME PLATE.**

### GAS SUPPLY (FIGURE 4)

All gas piping installed must comply with local codes. In absence of local codes, the installation must conform with the National Fuel Gas Code, ANSI Z223.1 1984, and ADDENDA Z223.1a-1987 also known as NFPA 54\*.

\* Available from the National Standards Institute, Inc., 1430 Broadway, New York, NY 10018 or from the National Fire Protection Association Inc., Battery March Park, Quincy, MA 02269.

Use only new, black iron or steel pipe. On threaded pipe, use a sealant which is resistant to the action of all gases. The use of corrugated, stainless-steel tubing, (CSST) may be approved in your area and is recommended. CHECK LOCAL CODES.

All gas piping and connections must be tested for leaks after installation or servicing, using a soap/water solution.

**WARNING: NEVER USE AN OPEN FLAME TO CHECK FOR LEAKS.**

The supply system must include a manual shut-off valve. FIGURE 4, PAGE 5. **Always include a drip leg (trap) in the supply line.** The purpose of the drip leg is to prevent moisture and contaminants in the gas supply from entering the heater controls. Failure to use a drip leg can result in operational difficulties with the heater.

The heater and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig.

The heater must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig.

The gas supply line shall be sized and installed to provide a sufficient supply of gas to meet the maximum demand of the heater without undue loss of pressure. The gas supply to the heater must be regulated to maintain the inlet pressure within the following limits.

## MODELS

H25N - Natural  
H22L - Propane

**GAS PRESSURE**  
**(Inches W.C.)**  
7" Min / 14" Max  
11" Min / 14" Max

**WARNING: DO NOT EXCEED 14" W.C. (1/2 P.S.I.) INLET PRESSURE TO HEATER.**

If supply pressure is greater than the maximum listed in Figure 2 it will be necessary to install an external regulator to reduce the incoming pressure. This regulator must reduce the incoming supply pressure to a maximum of 14" W.C. **ON PROPANE (LP) INSTALLATIONS, THIS HEATER MUST NEVER BE CONNECTED DIRECTLY TO A PROPANE SUPPLY TANK WITHOUT A REGULATOR.**

FIGURE 2

MODEL NO.	BTU/HR. RATING		GAS SUPPLY PRESSURE (W.C.)						ORIFICE SIZE	
	GAS		MIN.		MAX		MANIFOLD			
	NATURAL	PROPANE	NAT.	L.P.	NAT.	L.P.	NAT.	L.P.	NAT.	L.P.
H25N	25,000	—	7.0"	—	14"	—	6"	—	45	—
H22L	—	22,000	—	11"	—	14"	—	10"	—	55

FIGURE 3

HEATER SPECIFICATIONS

GAS	OPERATING PRESSURE	ORIFICE SIZE		INPUT BTU/H	SIZE			
		BURNER	PILOT		WIDTH	LENGTH	HEIGHT	WEIGHT
Natural	6.0" w.c.	45	.016	25,000	12 - 1/4"	29 - 3/4"	7"	20
Propane	10" w.c.	55	.012	22,000	12 - 1/4"	29 - 3/4"	7"	20

## ELECTRICAL AND THERMOSTAT

The garage heater Model H25N, H22L is equipped with an Automatic Combination Gas Control system with a standing pilot lit by a match and monitored by a thermocouple (powerpile generator); therefore, no outside electrical source is required to operate this heater.

The control valve will maintain gas flow to the main burner and the pilot burner only if the thermocouple is sufficiently heated. The heated thermocouple provides a low level of electric current to the electromagnetic plunger in the control valve. If the pilot flame is extinguished or adjusted improperly, the plunger will close, shutting off all gas supply to the heater. The gas control valve is also equipped with a manual ON/PILOT/OFF gas cock.

Since the entire system is powered by the millivoltage generated by the powerpile generator, the control must **NEVER** be connected to line voltage or a transformer.

Only a millivolt thermostat, as supplied with the heater, can be used with this control system. Use the thermostat wiring as supplied. If additional length wire is necessary, refer to the chart in FIGURE 5. **The thermostat tag must be attached to the wall directly under the thermostat using the thermostat mounting screws.**

For best results, the thermostat should be positioned about 5 feet above the floor where air can circulate freely around it. **DO NOT MOUNT** directly to a cold exterior wall without an insulated mounting block. The thermostat should never be mounted in a direct draft. SEE INSTALLATION INSTRUCTIONS PAGE 4, NO. 9.

## VENTILATION

This heater needs fresh air for safe operation and must be installed so there are provisions for adequate combustion and ventilation air. Do not operate this heater without installing the exhaust/air intake vent supplied or provide for the following: 1(one) square inch of outside air for every 1000 Btu/hr of input. The air intake louver should be installed at or above the mounting height of the heater. It is not necessary to install the louver directly above the heater.

**Fresh Air Opening (minimum)**

**25 sq. in. H25N**

**22 sq. in H22L**

**NOTE:** Depending upon the type of construction of your garage, you may experience moisture on the walls, ceiling, windows or doors. Contact the factory or installing dealer if condition occurs.

Please make note of the following before proceeding with the installation of your Enerco Gas-Fired Infrared Garage Heater in a residential garage or similar area.

## INSTALLATION

1. Check ceiling for minimum height required. It is extremely important that clearances be maintained at all times.
2. The heater may be mounted on any wall, however, for garage heating, it is recommended that the unit be mounted in the middle of the wall opposite the overhead door.
3. Never mount the heater above an overhead door.
4. Wall anchoring method, see FIGURE 7, PAGE 6, is for attaching bracket to a 2' x 4' wood stud. For brick or masonry wall mounting, use expansion type anchors (1/4" min.) for heater bracket. (Not supplied with heater).
5. Locate 2" x 4" stud centerline. Layout and drill 5/32" diameter pilot holes. Use template as supplied in heater carton to locate correct minimum distance heater must be installed from ceiling.
6. Fasten heater-mounting bracket to wall with two (2) 1/4" x 2 1/2" long lag screws, supplied.
7. Slide heater via clip on back of heater onto wall mounting bracket as shown in FIGURE 7, PAGE 6. Lock mounting clip to heater mounting bracket with 1/4"-20 x 3/4" long hex head bolt and nut, supplied.
8. Heater is now ready for gas line hook up. Refer to FIGURE 4, PAGE 5, for recommended hook up. Also refer to information on page 3 regarding gas pressure requirements. **WARNING:** When installing gas supply line to heater, do not change position of control valve. It's important that the burner orifice always be centered with the venturi opening.
9. Mount thermostat to wall. See instructions included with thermostat for mounting. Do not install thermostat directly in line of infrared rays. **The thermostat tag supplied with the heater must be installed under the thermostat.**
10. Install fresh air louver, supplied with heater, on outside wall. Louver should be at the mounting height of the heater or higher. It is not necessary to install louver directly above, next to, or near heater. The louver is installed to provide exhaust/air intake for the proper operation of the heater.

### NOTE:

When installed in **RESIDENTIAL GARAGES**, the heater must be installed a minimum of 6' 6" from floor/ground level.

### INSTALLATION IN PUBLIC GARAGES

The heater must be installed a minimum of 8' above floor for PUBLIC GARAGES in accordance with NFPA No. 88 most recent edition. Canadian installations in PUBLIC GARAGES must comply with CGA 149B 1.9 most recent edition.

### INSTALLATION IN AIRPLANE HANGERS

There should be a minimum clearance of 10' from the bottom of heater to top of wing, or engine enclosure, where aircraft are housed, and 8' above floor in other areas of the hanger in accordance with NFPA No. 409 most recent edition.

### OPERATION

Upon completion of the heater installation, electrical wiring and gas piping, refer to lighting instructions on plate attached to heater.

### TO START OPERATION

1. Set the thermostat to the "off" position.
2. Open manual gas supply valve.
3. Turn gas cock knob on top of control valve to "pilot" position.
4. Depress gas cock knob and light pilot with match or lighter. Time must be allowed for air to escape from gas lines during the first start up. After pilot lights, hold knob depressed for approximately 30 seconds. PLEASE NOTE: Sufficient time must be allowed for a proper size pilot flame to heat the thermocouple and hold the electromagnetic plunger in a locked position.  
**NOTE:** The pilot flame should envelope the tip of the thermocouple 3/8" to 1/2" (10 to 13mm).
5. Release knob and turn to "on" position.
6. Turn on thermostat and set to desired temperature.

**WARNING:** DURING THE INITIAL STARTUP OF THE HEATER, AN ODOR AND PERHAPS SOME VAPOR, WILL COME FROM THE HEATER. THIS IS THE GASKET BINDING MATERIAL EMITTING THIS ODOR AND/OR VAPOR. AFTER APPROXIMATELY 20 MINUTES, THIS ODOR WILL DISAPPEAR AND NOT OCCUR AGAIN.

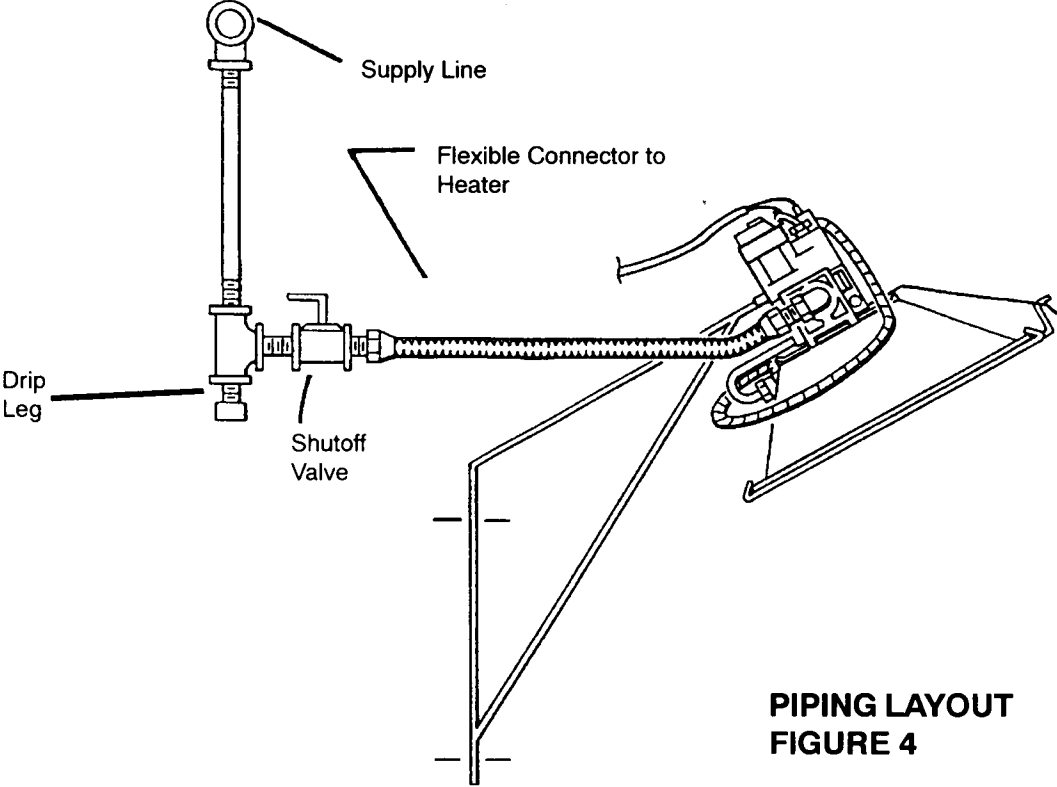
### SHUTDOWN

1. Turn thermostat to OFF
2. Turn gas control knob on gas valve to pilot position. **NOTE:** It is recommended that the pilot light be left ON when the heater is not in use. The amount of gas that will be used is minimal and it will prevent insects from building a nest in the pilot orifice. The pilot being on does not present any safety concerns.
3. If you choose to shutdown the pilot, turn the gas control knob to the "OFF" position.
4. Close manual valve at gas supply.

### CLEANING INSTRUCTIONS

Blow out venturi and burner face with compressed air (no more than 25 psi maximum). Clean orifices (see FIGURE 2, PAGE 3. for correct size drill). For additional information on detailed maintenance and cleaning instructions, contact your local dealer or the factory.

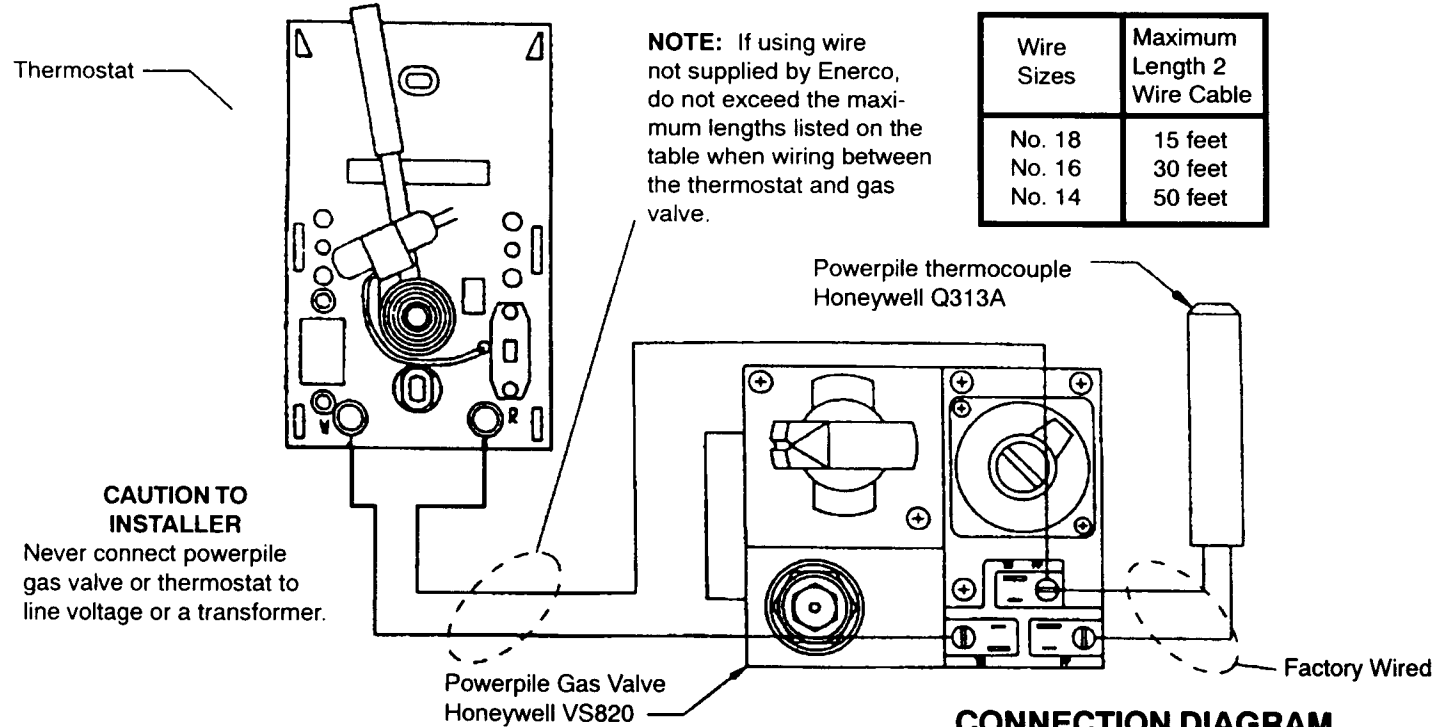
**NOTE:** Only a pipe compound which is resistant to LP (Propane) and Natural gas is permitted.



**PIPING LAYOUT  
FIGURE 4**

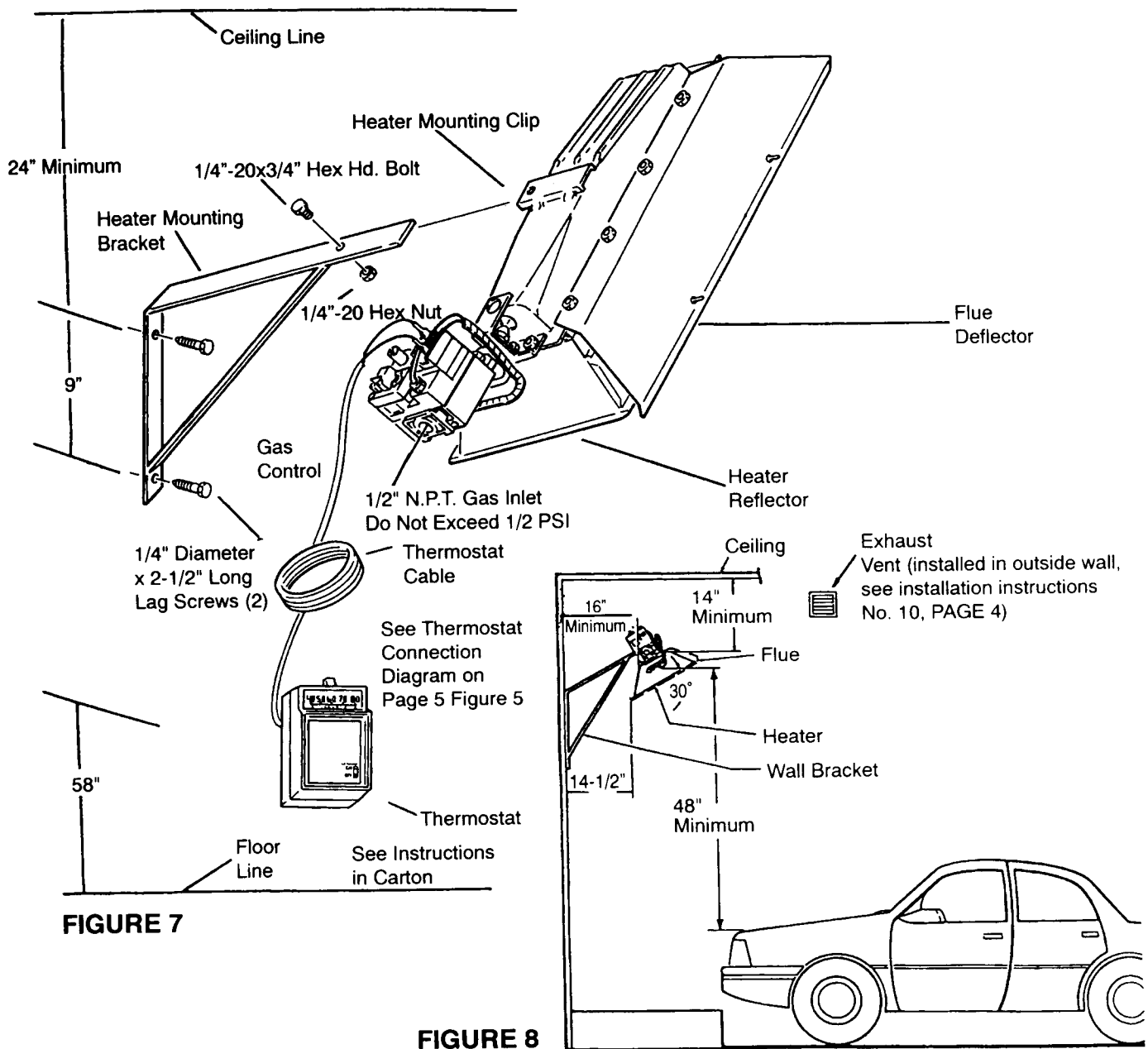
**NOTE:** Fittings shown in Figure 4 are not included with heater.

**CONNECTION DIAGRAM**



**CONNECTION DIAGRAM  
PP SYSTEM**

**FIGURE 5**



### WARRANTY Industrial Heating Products

Enerco warrants that Infra-Red Heaters manufactured and sold by its Industrial Heating Division will be free from defects in material and workmanship.

Enerco pro-rated grid warranty shall continue in effect until the expiration of five (5) years from the date of shipment of original grid by Enerco.

Parts, assemblies, controls, etc., furnished by Enerco suppliers will carry a one (1) year warranty or the applicable warranties of the suppliers.

The sole responsibility of Enerco under this warranty shall be to replace or repair any part for which a written claim is made to Enerco within the time limit of this warranty, which is returned upon request to Enerco – F.O.B. Cleveland, Ohio – or F.O.B. and Enerco authorized service facility and which is proved to be defective upon inspection by Enerco.

This warranty shall not apply to any part or product which has been subjected to misuse or neglect, damaged by accident, or rendered defective by reason of improper installation. **THIS WARRANTY IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED**, and in any other responsibility of Enerco for parts or products sold by Enerco, including consequential or special damages.

**ALL WARRANTY CLAIMS REQUIRE PROOF OF PURCHASE**

Below, in chart form, are various symptoms of malfunctioning systems, possible defects that will cause these symptoms and suggested corrective measures. The chart assumes that the proper gas pressure is available to the heater and that the lighting procedure is followed as is stated on the plate attached to the heater.

SYMPTOMS	CAUSES	SOLUTIONS
Pilot cannot be ignited	Main gas supply turned off Gas cock not in correct position Blocked pilot orifice Air in the gas line Pilot out of adjustment	Turn on Turn knob to <b>pilot</b> position Clean or replace Purge Adjust pilot*
Pilot lights, but goes out when knob is released	Wiring incorrect Pilot out of adjustment Defective thermocouple Defective gas valve	Check wiring Adjust pilot Replace Replace
Pilot stays lit but main burner will not light	Gas valve not in correct position Blocked burner orifice Loose wire or improperly wired Gas pressure low Pilot out of adjustment Defective gas valve Defective thermostat	Turn knob to <b>on</b> position Clean or replace Check wiring Check gas pressure Adjust pilot Replace Replace
Burner lights off very slow	Partially blocked pilot orifice Pilot out of adjustment (too small)	Clean or replace Adjust pilot
Burner light off slow and color is dull	Partially blocked burner orifice Gas pressure low	Clean or replace Adjust gas pressure (see page 3 for pressure)
Burner flash back (burning inside venturi)	High gas pressure Defective burner Delayed ignition	Adjust gas pressure Replace Check pilot flame size
Burner sooting	Dirty burner orifice Damaged burner orifice Damaged manifold Dirty burner Gas pressure incorrect	Clean Replace Replace Clean Adjust

\* For additional information refer to Honeywell Field Bulletin, enclosed in heater carton.

## IMPORTANT — PLEASE READ

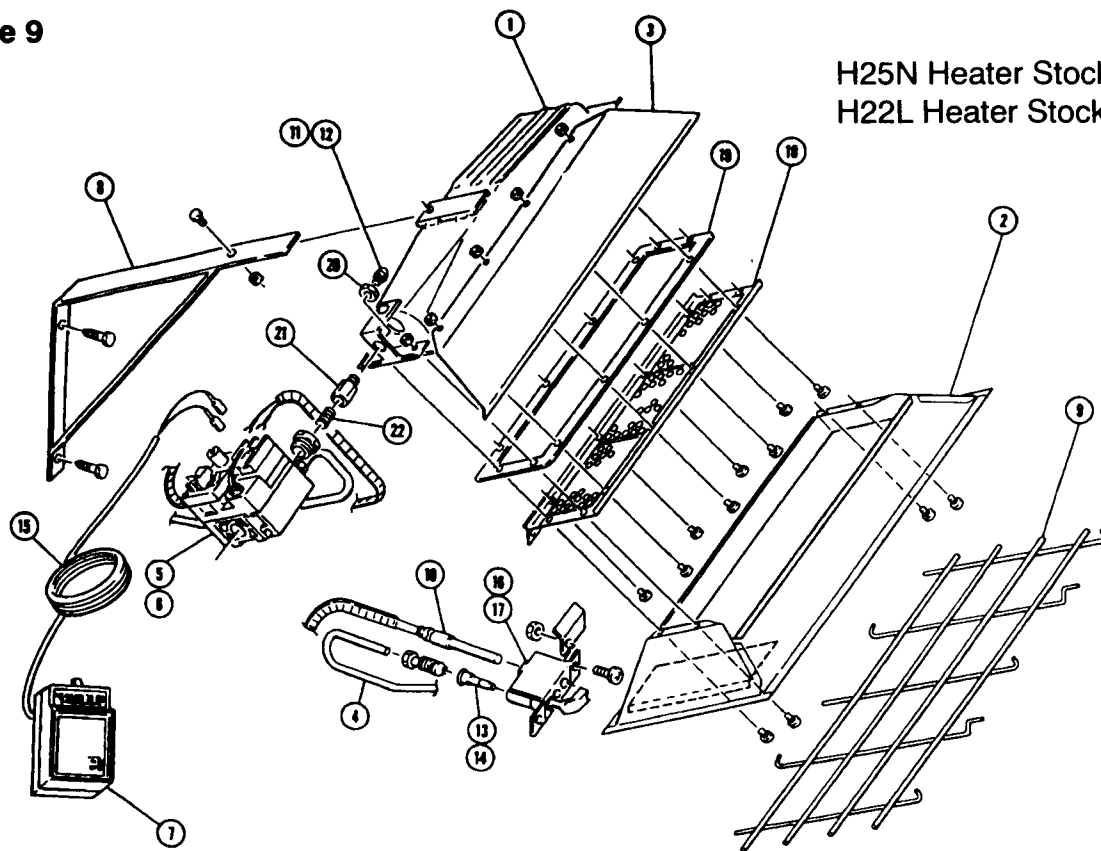
**Children and adults should be alerted to the hazards of high surface temperatures and should stay away to avoid burns or clothing ignition.**

**Young children should be carefully supervised when they are in the same space as the heater.**

**Clothing or flammable materials should not be hung from the heater, or placed on or near the heater.**

**Any guard or protective device removed for servicing a heater must be replaced prior to operating the heater.**

**Installation and repair should be done by a qualified service person. The heater should be inspected before use and a least annually by a qualified service person. More frequent cleaning may be required as necessary.**

**Figure 9**

H25N Heater Stock No. F125444

H22L Heater Stock No. F125545

### Replacement Parts Listed for Heater Models H25N & H22L

ITEM NO.	STOCK NO.	DESCRIPTION	ITEM NO.	STOCK NO.	DESCRIPTION
1	02529 A	Burner Assembly Complete	12	05455	Orifice - Burner - Propane Gas
2	00377 A	Reflector Assembly	13	05576	Orifice - Pilot - Natural Gas
3	01357	Flue Deflector	14	05573	Orifice - Pilot - Propane Gas
4	16451	Pilot Tube	15	10358	Thermostat Cable
5	00024	Gas Valve - Natural Gas	16	11406	Pilot Burner N/G
6	00025	Gas Valve - Propane Gas	17	11405	Pilot Burner L/P
7	10367	Thermostat	18	04435 A	Grid Replacement
8	14405	Wall Mounting Bracket	19	12369	Gasket
9	04432	Face Guard	20	05354	Jamb Nut
10	09360	Thermocouple/Generator	21	05351	Connector
11	05445	Orifice - Burner - Natural Gas	22	98593	3/8" Close Nipple
			23	19014	Intake Louver (not shown)

This manual will help you to obtain efficient, dependable service from your heater and enable you to order repair parts correctly. When inquiring, always give full model number and serial number as it is stated on the name plate attached to the heater.

**Contact your local dealer or Enerco Technical Products, Inc., Cleveland, Ohio for replacement parts and information. 1-800-251-0001**

For additional products manufactured by Enerco Technical Product, contact us at [www.enerco.com](http://www.enerco.com).