

Att Craig

(New)

# Installation Instructions

## NTC6/GNE & NTN6/NNE

### Upflow/Horizontal Series

#### SAFETY REQUIREMENTS

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the furnace and in instructions manuals be alert to the potential for personal injury.

Understand the signal words **DANGER**, **WARNING**, or **CAUTION**. These words are used with the safety-alert symbol. **DANGER** identifies the most serious hazards, those that will result in severe personal injury or death. **WARNING** signifies a hazard that could result in personal injury or death. **CAUTION** is used to identify unsafe practices that could result in minor personal injury or product and property damage.

Installing and servicing heating equipment can be hazardous due to gas and electrical components. Only trained and qualified personnel should install, repair, or service heating equipment.

Untrained service personnel can perform basic maintenance functions such as cleaning and replacing air filters. All other operations must be performed by trained service personnel. When working on heating equipment, observe precautions in the literature, on tags, and on labels attached to or shipped with the unit and other safety precautions that may apply.

Follow all safety codes. In the United States, follow all safety codes including the current edition National Fuel Gas Code (NFPA No. 54/ANSI Z223.1. In Canada, refer to the current edition of the National Standard Canada CAN/CGA-8149.1- and 2-M91 Natural Gas and Propane Installation Codes (NSC/NPIC). Wear safety glasses and work gloves. Have fire extinguisher available during start-up and adjustment procedures and service calls.

These instructions cover minimum requirements and conform to existing national standards and safety codes. In some instances, these instructions exceed certain local codes and ordinances, especially those that may not have kept up with changing residential construction practices. We require these instructions as a minimum for a safe installation.



Manufactured by:  
**International Comfort Products Corporation (USA)**  
Lewisburg, TN USA 37091

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**⚠ DANGER**

Electric Shock Hazard

Turn Off All Power Before Servicing

#### WARNING

This furnace is not designed for use in mobile homes, trailers or recreational vehicles. Such use could result in property damage, bodily injury and/or death.

## 1. Installation

### ▲ WARNING

Installation or repairs made by unqualified persons can result in hazards to you and others. Installation **MUST** conform with local codes or, in the absence of local codes, with codes of all governmental authorities having jurisdiction.

The information contained in this manual is intended for use by a qualified service technician who is experienced in such work, who is familiar with all precautions and safety procedures required in such work, and is equipped with the proper tools and test instruments.

Failure to carefully read and follow all instructions in this manual can result in furnace malfunction, property damage, personal injury and/or death.

**NOTE:** This furnace is design certified by the American Gas Association and the Canadian Gas Association for installation in the United States and Canada. Refer to the appropriate codes, along with this manual, for proper installation.

- This furnace is **NOT** approved for installation in mobile homes, trailers or recreation vehicles.
- Do **NOT** use this furnace as a construction heater or to heat a building that is under construction.
- Use only the Type of gas approved for this furnace (see Rating Plate on unit). Overfiring will result in failure of heat exchanger and cause dangerous operation. (Furnace can be converted to L.P. gas with approved kit.)
- Do **NOT** use open flame to test for gas leak.
- Ensure adequate combustion and ventilation air is provided to the furnace.
- Seal supply and return air ducts.
- The vent system **MUST** be checked to determine that it is the correct type and size.
- Install correct filter type and size.
- Unit **MUST** be installed so electrical components are protected from direct contact with water.
- It is the suggestion of this manufacturer to install fire and carbon monoxide detectors.

### Safety Rules

Your unit is built to provide many years of safe and dependable service providing it is properly installed and maintained. However, abuse and/or improper use can shorten the life of the unit and create hazards for you, the owner.

- A. The U.S. Consumer Product Safety Commission recommends that users of gas-burning appliances install carbon monoxide detectors. There can be various sources of carbon monoxide in a building or dwelling. The sources could be gas-fired clothes dryers, gas cooking stoves, water heaters, furnaces, gas-fired fireplaces, wood fireplaces, and several other items. Carbon monoxide can cause serious bodily injury and/or death. Therefore, to help alert people of potentially dangerous carbon monoxide levels, you should have carbon monoxide detectors listed by a nationally recognized agency (e.g. Underwriters Laboratories or International Approval Services) installed and maintained in the building or dwelling (see Note below).
- B. There can be numerous sources of fire or smoke in a building or dwelling. Fire or smoke can cause serious bodily injury, death, and/or property damage. Therefore, in order to alert people of potentially dangerous fire or smoke, you should have fire extinguisher and smoke detectors listed by Underwriters Laboratories installed and maintained in the building or dwelling (see Note below).

**Note:** The manufacturer of your furnace does not test any detectors and makes no representations regarding any brand or type of detector.

- C. To ensure safe and efficient operation of your unit, you should do the following:
  1. Thoroughly read this manual and labels on the unit. This will help you understand how your unit operates and the hazards involved with gas and electricity.
  2. Do not use this unit if any part has been under water. Immediately call a qualified service technician to inspect the unit and to replace any part of the control system and any gas control which has been under water.
  3. Never obstruct the vent grilles, or any ducts that provide air to the unit. Air must be provided for proper combustion and ventilation of flue gases. Carbon monoxide or "CO" is a colorless and odorless gas produced when fuel is not burned completely or when the flame does not receive sufficient oxygen.

### Freezing Temperatures and Your Structure

#### ▲ WARNING

Freeze warning.

Turn off water system.

If your unit remains shut off during cold weather the water pipes could freeze and burst, resulting in serious water damage.

Your unit is equipped with safety devices that may keep it from operating if sensors detect abnormal conditions such as clogged exhaust flues.

If the structure will be unattended during cold weather you should take these precautions.

1. Turn off main supply water into the structure and drain the water lines if possible. Open faucets in appropriate areas.



- Have someone check the structure frequently during cold weather to make sure it is warm enough to prevent pipes from freezing. Suggest they call qualified service agency, if required.

## ▲ WARNING

Poison carbon monoxide gas hazard.

If this furnace is replacing a previously common-vented furnace, it may be necessary to resize the existing vent line and chimney to prevent oversizing problems for the other remaining appliances(s). See applicable codes and *Venting and Combustion Air Check in Gas Vent Installation* section.

Failure to properly vent this furnace or other appliances can result in property damage, personal injury and/or death.

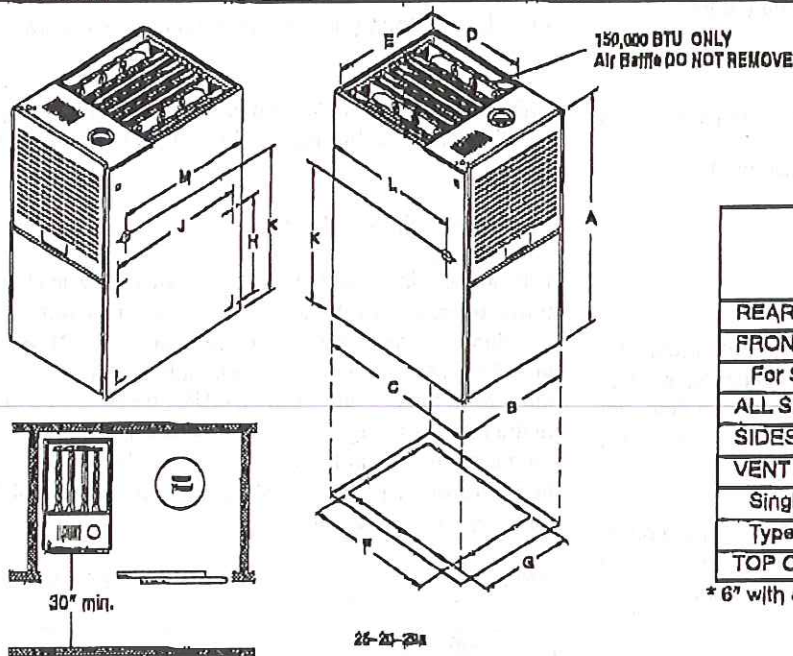
## Location and Clearances

If furnace is a replacement, it is usually best to install the furnace where the old one was. Choose the location or evaluate the existing location based upon the minimum clearance and furnace dimensions (Figure 1).

## CAUTION

Do NOT operate furnace in a corrosive atmosphere containing chlorine, fluorine or any other damaging chemicals. Refer to Combustion & Ventilation Air section, Contaminated Combustion Air.

### Dimensions and Clearances



#### MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS FOR ALL UNITS

REAR	0
FRONT	3" (75mm)*
For Service	30" (760mm)
ALL SIDES OF SUPPLY PLENUM	1" (25mm)
SIDES	0
VENT	
Single Wall Vent	6" (150mm)
Type B-1 Double Wall Vent	1" (25mm)
TOP OF FURNACE	6" (150mm)

\* 6" with accessory Masonry Chimney drafthood kit installed.

### DIMENSIONAL INFORMATION

MODEL	CABINET			SUPPLY AIR		RETURN AIR				GAS CONNECTION		
	A	B	C	D	E	BOTTOM		SIDE		K	L	M
050FB / 075FB 050B12 / 075B12	40	15 1/2	28 1/2	18 1/2	14	23 1/8	12 5/8	12 1/4	22 1/2	28 1/4	26	23 7/8
075HF & 075F16 100KF / 100F20	40	19 1/8	28 1/2	18 1/2	17 5/8	23 1/8	14 3/4	14 1/2	22 1/2	28 1/4	26	23 7/8
100KJ / 100J20 125KJ / 125J20 150BK / 150J20	40	22 3/4	29 1/2	18 1/2	21 1/4	23 1/8	16 3/4	14 1/2	22 1/2	28 1/4	26	23 7/8
mm Equivalents	40=1016	15 1/2 = 394	28 1/2 = 726	18 1/2 = 467	14 = 354	23 1/8 = 593	12 5/8 = 321	12 1/4 = 311	22 1/2 = 571	28 1/4 = 726	26 = 660	23 7/8 = 603
	21 1/4 = 539	23 1/8 = 587	12 5/8 = 311	14 3/4 = 375	18 3/4 = 476	12 1/4 = 311	14 1/2 = 368	17 = 432	22 1/2 = 572			
	28 1/4 = 717	26 = 660	23 7/8 = 603	ALL DIMENSIONS IN INCHES (mm)								

### Installation Requirements

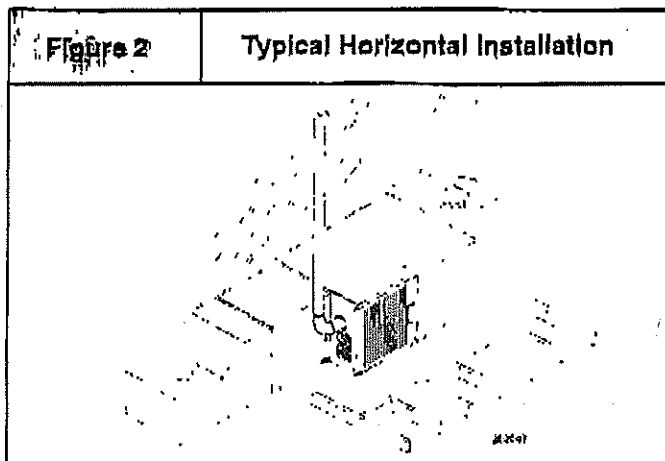
1. Install furnace level.
2. Install furnace as centralized as practical with respect to the heat distribution system.
  - The 150,000 Btuh furnace is manufactured with an air baffles to equalize air flow through the heat exchanger. (See Figure 1). **DO NOT REMOVE THESE AIR BAFFLES**
3. Install the vent pipes as short as practical. (See *Gas Vent Installation* section).
4. Do **NOT** install furnace directly on carpeting, tile or other combustible material other than wood flooring.
5. Maintain clearance for fire safety and servicing. A front clearance of 30" (760mm) is minimum for access to the burner, controls and filter.
6. Use a raised base if the floor is damp or wet at times.
7. Residential garage installations require:
  - Burners and ignition sources installed at least 18" (457mm) above the floor.
  - Furnace must be located or physically protected from possible damage by a vehicle.

### Horizontal Furnace Installation

#### IMPORTANT

**NOTE:** Inspect unit rating plate to be certain model number begins with "NTC6, GNE, NTN6, NNE". This identifies unit as horizontally mountable. If unit does **NOT** bear this designation, you may **NOT** mount this unit horizontally. Horizontal furnace may not be mounted on its back.

If you purchased a horizontally mountable furnace, it can be installed horizontally in an attic, basement, crawl space, alcove, or suspended from a ceiling in a basement or utility room in either a right or left airflow position. See Figure 2.



The following minimum clearances to combustibles **MUST** be maintained between the furnace and adjacent construction. As shown in Figure 1, **ONLY** the corner of the cabinet is allowed to contact the rafters Figure 2. All other clearances **MUST** be observed as shown in Figure 1.

If the furnace is to be suspended from the floor joists in a crawl space or the rafters in an attic, it is necessary to use steel pipe straps or an angle iron frame to attach the furnace. These straps should be attached to the furnace with sheet metal screws and to the rafters or joists with bolts. The preferred method is to use an angle iron frame bolted to the rafters or joists.

Thirty inches (30") (760mm) between the front of the furnace and adjacent construction or other appliances **MUST** be maintained for service clearance.

Keep all insulating materials clear from louvered door. Insulating materials may be combustible.

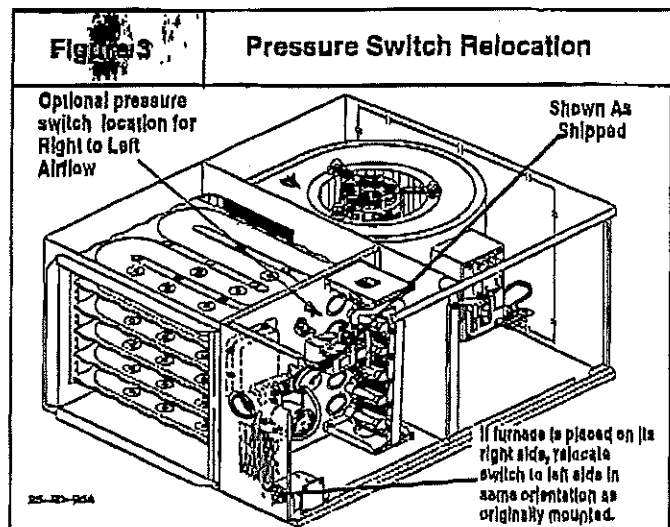
It is recommended for further fire protection that cement board or sheet metal is placed between the furnace and the combustible wood floor and extend 12" (300mm) beyond the front of the furnace louver door. (This is a recommendation only, not a requirement).

This furnace **MUST NOT** be installed directly on carpeting or tile or other combustible material other than wood flooring or supports.

### Pressure Switch Relocation

If the furnace is installed in a right to left airflow position (left side of furnace facing down), the pressure switch will remain in the same position as installed by the factory (see Figure 3). If the furnace is installed in a left to right airflow position (right side of furnace facing down), the pressure switch **MUST** be relocated to the left side of the furnace using the holes provided in the top panel. Position the pressure switch in the same orientation as the original location. To prevent possible kinking of the pressure switch hose, trim the hose to remove excess.

**Note:** Care **MUST** be taken not to cut the tube too short.





## 2. Combustion & Ventilation Air

### **▲ WARNING**

Poison carbon monoxide gas hazard,

Use methods described here to provide combustion and ventilation air.

Failure to provide adequate combustion and ventilation air can result in personal injury and/or death.

Furnaces require ventilation openings to provide sufficient air for proper combustion and ventilation of flue gases. All duct or openings for supplying combustion and ventilation air must comply with the gas codes, or in the absence of local codes, the applicable national codes.

When the installation is complete, check that all appliances have adequate combustion air and are venting properly. See *Venting And Combustion Air Check* in this manual.

### Contaminated Combustion Air

Installations in certain areas or types of structures will increase the exposure to chemicals or halogens that may harm the furnace. These instances must use only outside air for combustion.

The following areas or types of structures may contain or have exposure to the substances listed below. The installation must be evaluated carefully as it may be necessary to provide outside air for combustion.

- Commercial buildings.
- Buildings with indoor pools.
- Furnaces installed in laundry rooms.
- Furnaces installed in hobby or craft rooms.
- Furnaces installed near chemical storage areas.
- Permanent wave solutions for hair.
- Chlorinated waxes and cleaners.
- Chlorine based swimming pool chemicals.
- Water softening chemicals.
- De-icing salts or chemicals.
- Carbon tetrachloride.
- Halogen type refrigerants.
- Cleaning solvents (such as perchloroethylene).
- Printing inks, paint removers, varnishes, etc.
- Hydrochloric acid.
- Sulfuric Acid.
- Solvent cements and glues.
- Antistatic fabric softeners for clothes dryers.
- Masonry acid washing materials.

### Confined Space Installation

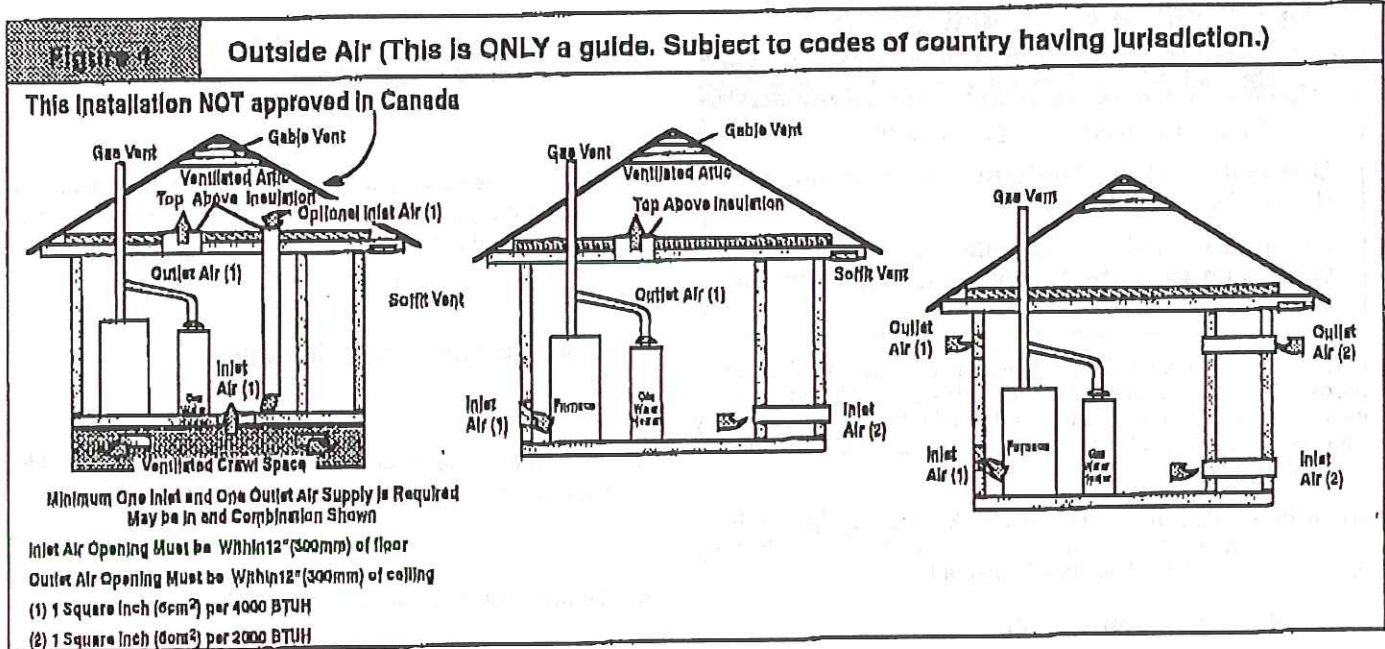
**NOTE:** A confined space is defined as an area with less than 50 cubic feet (1.4m<sup>3</sup>) per 1,000 BTUH input rating for all gas appliances installed in the area.

### Air Openings and Connecting Ducts

1. Total input rating for all gas appliances **MUST** be considered when determining free area of openings.
2. Connect ducts or openings directly to outside.
3. When screens are used to cover openings, the openings **MUST** be no smaller than 1/4" (6mm) mesh.
4. The minimum dimension of rectangular air ducts **MUST NOT** be less than 3" (75mm).
5. When sizing grille or louver, use the free area of opening. If free area is **NOT** stamped or marked on grill or louver, assume a 20% free area for wood and 60% for metal.

### Requirements

1. Provide confined space with sufficient air for proper combustion and ventilation of flue gases using horizontal or vertical ducts or openings.
2. **Figure 4** illustrates how to provide combustion and ventilation air. A minimum of two permanent openings, one inlet and one outlet, are required.



3. One opening **MUST** be within 12" (300mm) of the floor and the second opening within 12" (300mm) of the ceiling.
4. Size openings and ducts per Table 1.
5. Horizontal duct openings require 1 square inch (25sq. mm) of free area per 2,000 BTUH of combined input for all gas appliances in area (see Table 1).
6. Vertical duct openings or openings directly to outside require 1 square inch (6.5mm<sup>2</sup>) of free area per 4,000 BTUH for combined input of all gas appliances in area (see Table 1).

- 1 sq. in per 3000 Btu per hr (7cm<sup>2</sup> per kW) of the total input rating of all equipment located in the enclosure, and
- Not less than the sum of the areas of all vent connectors in the confined space.

**Unconfined Space Installation**

**WARNING**

**Polson carbon monoxide gas hazard.**

**Most homes will require additional air.**

**An unconfined space or homes with tight construction may not have adequate air infiltration for proper combustion and ventilation of flue gases.**

**Failure to supply additional air by means of ventilation grilles or ducts could result in personal injury and/or death.**

An unconfined space is defined as an area having a minimum volume of 50 cubic feet (1.4m<sup>3</sup>) per 1,000 Btu total input rating for all gas appliances in area.

Adjoining rooms can be considered part of an unconfined area if there are no doors between rooms.

An attic or crawl space may be considered an unconfined space provided there are adequate ventilation openings directly to outdoors. Openings **MUST** remain open and **NOT** have any means of being closed off. Ventilation openings to outdoors **MUST** be at least 1 square inch (25mm<sup>2</sup>) of free area per 4,000 BTUH of total input rating for all gas appliances in area.

In unconfined spaces, infiltration should be adequate to provide air for combustion, ventilation and dilution of flue gases. However, in buildings with unusually tight construction, additional air **MUST** be provided using the methods described in section titled *Confined Space Installation*:

Table 1		Free Area		
BTUH Input Rating	Minimum Free Area Required for Each Opening			Round Duct (4,000 BTUH)
	Horizontal Duct (2,000 BTUH)	Vertical Duct or openings to outside (4,000 BTUH)		
50,000	161 cm <sup>2</sup> (25 sq. in.)	81 cm <sup>2</sup> (12.5 sq. in.)		4"
75,000	242 cm <sup>2</sup> (36.5 sq. in.)	121 cm <sup>2</sup> (18.75 sq. in.)		5"
100,000	323 cm <sup>2</sup> (50 sq. in.)	161 cm <sup>2</sup> (25 sq. in.)		6"
125,000	403 cm <sup>2</sup> (62.5 sq. in.)	202 cm <sup>2</sup> (31.25 sq. in.)		7"
150,000	484 cm <sup>2</sup> (71 sq. in.)	242 cm <sup>2</sup> (37.5 sq. in.)		7"

**EXAMPLE: Determining Free Area**

Furnace Water Heater Total Input  
100,000 + 30,000 = (130,000 + 4,000) = 210 cm<sup>2</sup>  
(32.5 Sq. In.) Vertical

Furnace Water Heater Total Input  
100,000 + 30,000 = (130,000 + 2,000) = 210 cm<sup>2</sup>  
(65 Sq. In.) Horizontal

One permanent opening, commencing within 12" (30 cm) of the top of the enclosure, shall be permitted where the equipment has clearances of at least 1" (2.5 cm) from the sides and back and 6" (16 cm) from the front of the appliance. The opening shall directly communicate with the outdoors or shall communicate through a vertical or horizontal duct to the outdoors or spaces (crawl or attic) that freely communicate with the outdoors, and shall have a minimum free area of:

Unusually tight construction is defined as: Construction with

- 1 Walls and ceilings exposed to the outside have a continuous, sealed vapor barrier. Openings are gasketed or sealed and
- 2 Doors and openable windows are weather stripped and
3. Other openings are caulked or sealed. These include joints around window and door frames, between sole plates and floors, between wall-ceiling joints, between wall panels, at penetrations for plumbing, electrical and gas lines, etc.

### 3. Gas Vent Installation

#### **▲ WARNING**

Poison carbon monoxide gas, fire and explosion hazard.

Read and follow all instructions in this section.

Failure to properly vent this furnace can result in property damage, personal injury and/or death.

Install the vent in compliance with codes of the country having jurisdiction, local codes or ordinances and these instructions.

These fan assisted combustion furnaces have been classified as Category I appliances which means that they **MUST** operate with a negative vent pressure.

#### Category I Safe Venting Requirements

**NOTE:** The following instructions comply with the United States National Fuel Gas Code. Based on the highest input rate on the furnace rating plate.

1. If a Category I vent passes through an attic, any concealed space or floor, use **ONLY** Type B or Type L double wall vent pipe. If vent pipe passes through interior wall, use type B vent pipe with ventilated thimble **ONLY**.
2. Do **NOT** vent furnace into any chimney serving an open fireplace or solid fuel burning appliance.
3. Use the same diameter Category I connector or pipe as permitted by the United States National Fuel Gas Code venting tables.
4. Keep vertical Category I vent pipe or vent connector runs as short and direct as possible.
5. Vertical outdoor runs of type B or **ANY** single wall vent pipe below the roof line are **NOT** permitted.
6. Slope all horizontal runs up away from furnace a minimum of  $\frac{1}{4}$ " (6mm) per foot.
7. Support all horizontal vent pipe every 6' (2m) using proper clamps and metal straps.
8. Check existing gas vent or chimney to ensure they meet clearances and local codes.
9. The furnace **MUST** be connected to a factory built chimney or vent complying with a recognized standard. **Venting into a masonry or concrete chimney is only permitted as out-**

#### Ventilation Air

Some provincial codes and local municipalities require ventilation or make-up air be brought into the conditioned space as replacement air. Whichever method is used, the mixed return air temperature across the heat exchanger **MUST** not fall below 80°F (15° c) or flue gases will condense in the heat exchanger. This will shorten the life of the heat exchanger and possibly void your warranty.

Refer to the United States National Fuel Gas Code venting tables or *Masonry Chimney* section in these instructions.

#### **▲ WARNING**

Poison carbon monoxide gas hazard.

If this furnace is replacing a previously common-vented furnace, it may be necessary to resize the existing chimney liner or vent to prevent over sizing problems for the other remaining appliances(s). See codes of country having jurisdiction.

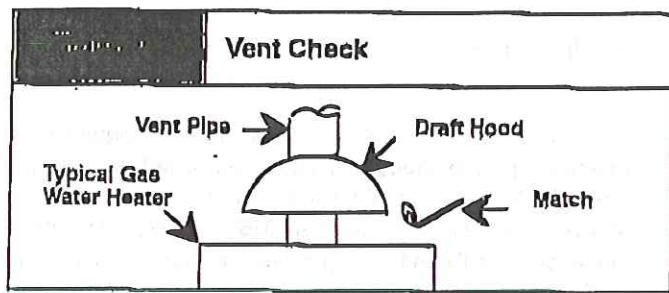
Failure to properly vent this furnace or other appliances can result in property damage, personal injury and/or death.

#### Venting and Combustion Air Check

**NOTE:** If this installation removes an existing furnace from a venting system serving one or more other appliances, and to make sure there is adequate combustion air for all appliances, **MAKE THE FOLLOWING CHECK,**

1. Seal any unused openings in the venting system.
2. Visually inspect the venting system for proper size and horizontal pitch to ensure there is no blockage or restriction, leakage, corrosion or other deficiencies which could cause an unsafe condition.
3. Insofar as is practical, close all doors and windows and all doors between the space in which the appliance(s) remaining connected to the venting system are located and other spaces of the building.
4. Turn on clothes dryers and any appliance not connected to the venting system. Turn on any exhaust fans, such as range hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan. Close fireplace dampers.
5. Follow the lighting instructions for each appliance being inspected. Adjust thermostat so appliance(s) will operate continuously.
6. Allow 5 minutes of main burner operation, then check for spillage at the draft hood relief opening of each appliance. Use the flame of a match or candle (Figure 5).





7. After it has been determined that each appliance vents properly, return doors, windows, appliances etc. to their normal condition.
8. If improper venting is observed, the cause **MUST** be corrected.

**NOTE:** If flame pulls towards draft hood, this indicates sufficient infiltration air.

### Venting to Existing Masonry Chimney

**NOTE:** The tables and notes referred to below are found in the most recent printing of the United States National Fuel Gas Code venting tables.

## 4. Horizontal Venting

### Category I Furnaces With External Power Venters

In order to maintain a Category I classification of fan assisted furnaces when vented horizontally with sidewall termination, a power venter is **REQUIRED** to maintain a negative pressure in the venting system. Please consult the Field Controls Co. or Tjernlund Products, Inc. for power venters certified for use with our furnaces.

### Vent Termination

#### Venting Through a Non-Combustible and Combustible Wall

Consult **External Power Venter** manufacturer instructions.

#### **CAUTION**

It is the responsibility of the installer to properly terminate the vent and provide adequate shielding. This is essential in order to avoid water/ice damage to building, shrubs and walk-ways.

## 5. Masonry Chimney Venting with Optional Kit (USA ONLY)

### Chimney Inspection

All masonry chimney construction must conform to Standard ANSI/NFPA211 and to any state or local codes applicable. The chimney must be in good condition and a complete investigation must be conducted prior to installation. If the inspection reveals damage or abnormal conditions, make necessary repairs or seek expert help. See "The Chimney Inspection Chart". Measure area of tile-liner and exact height of chimney.

### Connector Type

To reduce flue gas heat loss and the chance of condensate problems, the vent connector must be double wall Type B vent.

### Venting Restrictions for Chimney Types

**Interior Chimney** - has no sides exposed to the outside below the roofline. All installations can be single furnace or common vented with another draft hood equipped Category I appliance.

**Exterior Chimney** - has one or more sides exposed to the outside below the roof line. All installations must be common vented only with another draft hood equipped Category I appliance.

**Caution** - failure to follow these guidelines may cause severe property damage.

### Optional Masonry Vent Kit Draft Hood Assy. Installation (See Figure 8)

**NOTE:** These instructions apply to the NTC6 & GNE series furnaces only.

1. Disconnect power and gas supply to furnace.
2. Remove louvered door.  
NTC6, GNE, NTN6 & NNE Series furnaces - Discard louvered door.
3. NTC6, GNE, NTN6 & NNE may be installed upflow or horizontal position per furnace application. When installing NTC6, GNE, NTN6 & NNE furnaces in a horizontal left hand application you will need to mount the pressure switch to the side of the cabinet.
4. NTC6, GNE, NTN6 & NNE series furnaces - Detach pressure switch from top panel by removing two screws. Set aside screws.



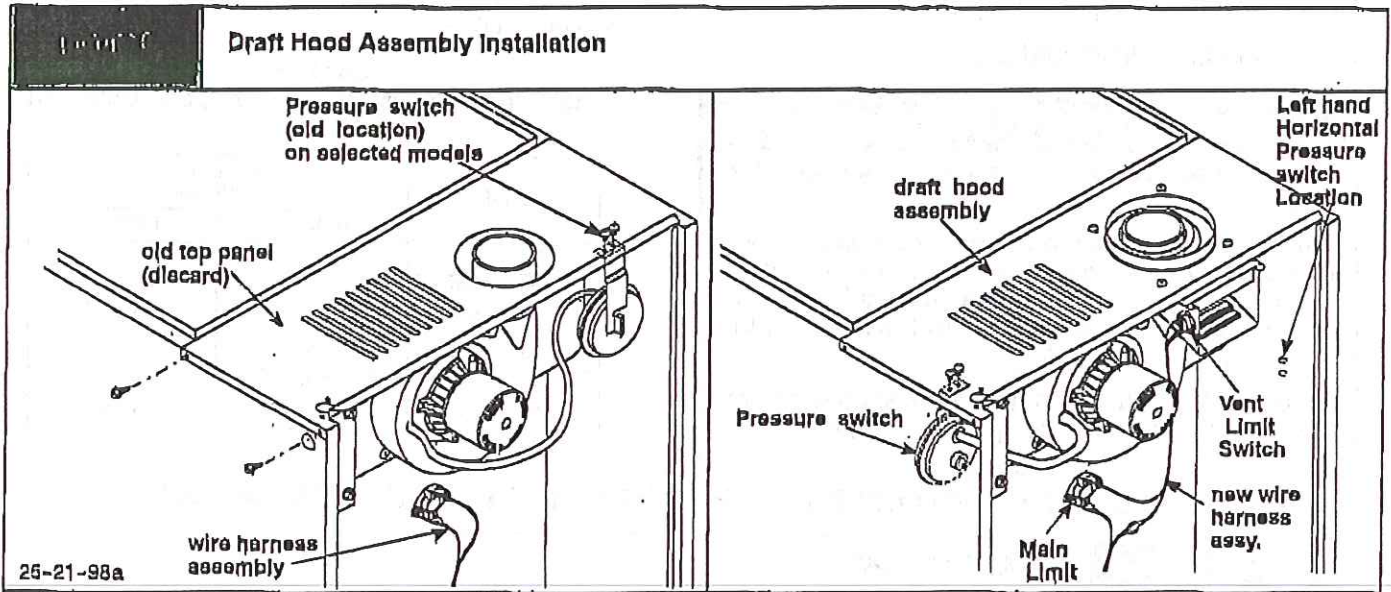
5. Detach field connect box from top panel by removing two screws. Set aside screws,
6. Remove four screws holding top panel to casing. Remove top panel. Discard top panel. Set screws aside,
7. Install draft hood assy, to casing using four screws previously set aside.
8. Attach field connect box to draft hood assy, using two screws previously set aside,
9. NTC6, GNE, NTN6 & NNE Series furnaces - Attach pressure switch to draft hood assy, using two screws previously set aside.

### Vent Limit Switch Wiring (See Figure 6)

1. Locate wire harness assy, which is supplied with kit. Attach terminals on one end of wire harness assy, to vent limit switch located on draft hood assy.
  2. Locate furnace's main limit. Detach wire with insulated terminal from one side of main limit.
  3. Route wire harness assy, from vent limit switch to main limit. Attach female terminal of wire harness assy, to vacated main limit terminal. Attach male terminal of wire harness assy, to insulated terminal of wire previously detached from main limit.
2. Refer to installation instructions provided with furnace to put the furnace into operation.

### Completion of Installation

1. NTC6, GNE, NTN6 & NNE Series furnaces - Locate louvered door supplied with kit. Install on furnace.



Masonry chimney venting shall be approached as follows: Using Table 1 and Table 2 in the masonry chimney draft hood kit instructions, the NFGC Z223.1-1992 or the United States National Fuel Gas Code Venting Tables.

## 6. Gas Supply and Piping

**⚠ WARNING**

**Fire and explosion hazard.**

**Natural Gas**

**Models designated for Natural Gas are to be used with Natural Gas ONLY.**

**Failure to follow these instructions can result in property damage, personal injury and/or death.**

- Do not allow minimum supply pressure to vary downward. Doing so will decrease input to furnace. Refer to Table 2 for Gas supply and manifold pressures.

Gas Type	Supply Pressure			Manifold Pressure
	Recommended	Max.	Min.	
Natural	7" (1.7 kPa)	14" (3.5 kPa)	4.5" (1.1 kPa)	3.5" (0.9 kPa)
Propane	11" (2.7 kPa)	14" (3.5 kPa)	11" (2.7 kPa)	10" (2.5 kPa)

### Gas Supply Requirements

- Use only the Type of gas approved for this furnace. See rating plate for approved gas type.
- Gas input must not exceed the rated input shown on the rating plate. Overfiring will result in failure of heat exchanger and cause dangerous operation.

### Natural Gas Input Rating Check

The gas meter can be used to measure input to furnace. Rating is based on a natural gas BTU content of 1,000 BTU's per cubic foot. Check with gas supplier for actual BTU content.

1. Turn OFF gas supply to all appliances other than furnace and start furnace.

- Time how many seconds it takes the smallest dial on the gas meter to make one complete revolution. Refer to Example. Note: If meter uses a 2 cubic foot dial, divide results (seconds) by two.

Example			
Natural Gas BTU Content	No. of Seconds Per Hour	Time Per Cubic Foot In Seconds	BTU Per Hour
1,000	3,600	48	75,000
$1,000 \times 3,600 \div 48 = 75,000$ BTUH			

- Relight all appliances and ensure all pilots are operating.

### Orifice Sizing

NOTE: Factory sized orifices for natural and LP gas are listed in the furnace Technical Support manual.

### Operation Above 2000' Altitude

▲ WARNING

Fire, Explosion, Poison carbon monoxide gas hazard.

This conversion shall be done by a qualified service agency in accordance with the Manufacturer's instructions and all applicable codes and requirements, or in the absence of local codes, the applicable national codes.

Failure to follow these instructions exactly can result in property damage, personal injury and/or death.

These units may be used at full input rating when installed at altitudes up to 2000'. When installed above 2000', the input must be decreased 2% (natural) or 4% (LP) for each 1000' above sea level. This may be accomplished by a simple adjustment of manifold pressure or an orifice change, or a combination of a pressure adjustment and an orifice change. The changes required depend on the installation altitude and the heating value of the fuel. Table 3 & Table 4 show the proper furnace manifold pressure and gas orifice size to achieve proper performance based on elevation above sea level for both natural gas and propane.

To use the natural gas table, first consult your local gas utility for the heating value of the gas supply. Select the heating value on the vertical border and follow across the table until the appropriate elevation for the installation is reached. The first value in the box at the intersection of the heating value and elevation will be the manifold pressure required. If a gas orifice change is also required, the box is shaded. The required orifice size is shown at the bottom of the table.

Sea Level  
 High Altitude Input Rate = Nameplate x (Multiplier)  
 Input Rate

Elevation	High Altitude Multiplier	
	Natural	LP Gas
2000' - 2999'	0.96	0.92
3000' - 3999'	0.94	0.88
4000' - 4999'	0.92	0.84
5000' - 5999'	0.90	0.80
6000' - 6999'	0.86	0.76
7000' - 7999'	0.86	0.72

## MANIFOLD PRESSURE AND ORIFICE SIZE FOR HIGH ALTITUDE APPLICATIONS

TABLE 3		NATURAL GAS						
		MEAN ELEVATION FEET ABOVE SEA LEVEL						
HEATING VALUE BTU/CU. FT.								
	0 to 1999	2000 to 2999	3000 to 3999	4000 to 4999	5000 to 5999	6000 to 6999	7000 to 8000	
800	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.5" wc	
850	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.5" wc	
900	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.4" wc	
950	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.3" wc	3.2" wc	3.1" wc	
1000	3.5" wc	3.4" wc	3.3" wc	3.2" wc	3.0" wc	2.9" wc	2.8" wc	
1050	3.2" wc	3.1" wc	3.0" wc	2.9" wc	2.7" wc	2.6" wc	2.5" wc	
1100	2.9" wc	2.8" wc	2.7" wc	2.6" wc	2.5" wc	2.4" wc	2.3" wc	
Orifice Size	#42	#42	#42	#42	#42	#42	#42	

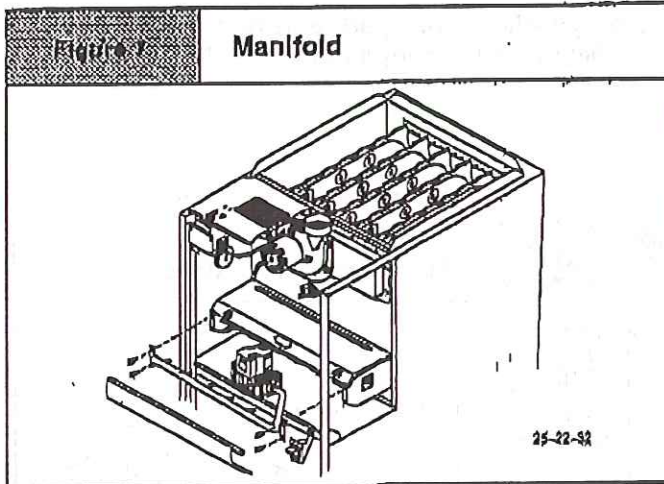
TABLE 4		LP Gas						
		MEAN ELEVATION FEET ABOVE SEA LEVEL						
HEATING VALUE BTU/CU. FT.								
	0 to 1999	2000 to 2999	3000 to 3999	4000 to 4999	5000 to 5999	6000 to 6999	7000 to 8000	
2500	10.0" wc	10.0" wc	9.4" wc	10.0" wc	9.8" wc	8.8" wc	7.9" wc	
Orifice Size	#54	#54	#54	#55	#55	#55	#55	

NOTE: NATURAL GAS DATA BASED ON 0.60 SPECIFIC GRAVITY. PROPANE DATA BASED ON 1.53 SPECIFIC GRAVITY. FOR FUELS WITH DIFFERENT SPECIFIC GRAVITY CONSULT THE LATEST EDITION OF THE NATIONAL FUEL GAS CODE ANSI Z223.1 and CAN B149.

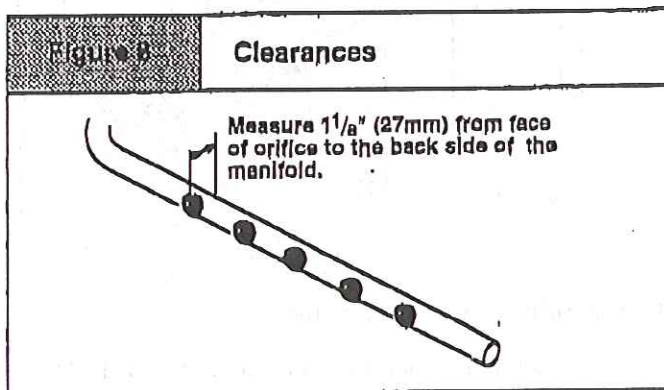


## Changing Orifices

- After disconnecting power and gas supply to the furnace, remove the access door, exposing the burner compartment.
  - Remove the five (5) screws holding the burner box cover to expose the manifold and burners. (Figure 7)
- Disconnect gas line and pilot tubing from gas valve so manifold can be removed.
- Disconnect wiring at gas valve. Be sure to note the proper location of any and all electrical wiring disconnected.
- Remove the four (4) screws holding the manifold and gas valve to the manifold supports. Do not discard any screws. See Figure 7.



- Carefully remove the manifold assembly.
- Remove the orifices from the manifold and replace them with proper sized orifices. See Figure 8.
- Tighten orifices so there is  $1/8$ " from the face of the orifice to the back side of the manifold. See Figure 8.

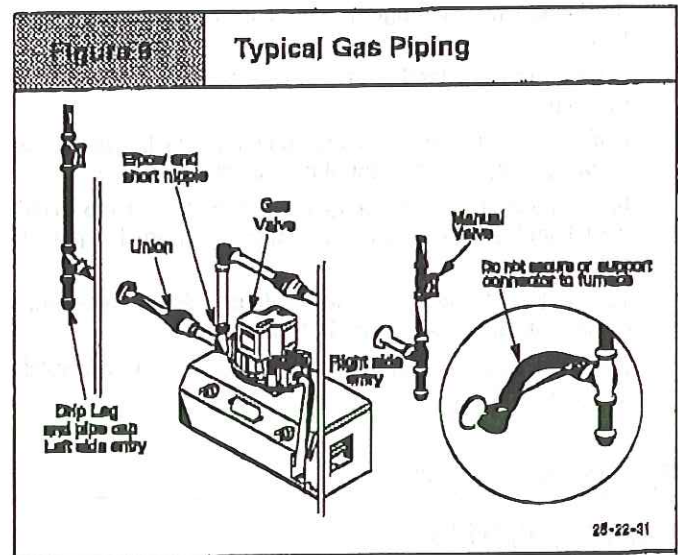


- Reassemble all parts in reverse order as removed. Be sure to engage the main burner orifices in the proper opening in the burners.
- After reassembling, turn gas on and check all joints for gas leaks using a soapy solution. All leaks must be repaired immediately.

## Gas Piping Requirements

- Install gas piping in accordance with local codes, or in the absence of local codes, the applicable national codes.

- It is recommended that a manual shutoff valve be installed in the gas supply line outside the unit. Locate valve as close to the furnace as possible where it is readily accessible. Refer to Figure 9.



- Use black iron or steel pipe and fittings or other pipe approved by local code.
- Use pipe thread compound which is resistant to natural and LP gases.
- Install a drip leg no less than 3" long to trap dirt and moisture before it can enter gas valve.
- Provide a  $1/8$ " inch plug for test gauge connection immediately up stream of gas supply connection to furnace.
- Use two pipe wrenches when making connections to prevent gas valve from turning.
- Flexible corrugated metal gas connector may NOT be used inside the furnace or be secured or supported by the furnace or ductwork.
- Properly size gas pipe to handle combined appliance load or run gas pipe directly from gas meter or LP gas regulator.
- Install correct pipe size for run length and furnace rating.
- Measure pipe length from gas meter or LP second stage regulator.

## ⚠ WARNING

Fire or explosion hazard.

Gas connector must be properly installed, cannot go through the side of the furnace, and can not be used inside the furnace.

Failure to properly install gas connector can result in property damage, bodily injury and/or death.

## Additional LP Piping Requirements

- Have a licensed LP gas dealer make all connections at storage tank and check all connections from tank to furnace.
- If copper tubing is used, it MUST comply with limitation set in Local Codes, or in the absence of local codes, the gas codes of the country having jurisdiction. See Appendix.

- Two-stage regulation of LP gas is recommended.

## Final Check

- Test all pipe for leaks.
- If orifices were changed, make sure they are checked for leaks.
- During pressure testing of gas piping system, observe the following:
  - a. If test pressure does not exceed  $1/2$ " PSIG, isolate the furnace by closing its individual manual shutoff valve.
  - b. If test pressure exceeds  $1/2$ " PSIG, the furnace and its individual shutoff valve must be disconnected from the gas supply system.
- To check for leaks apply soap suds or a liquid detergent to each joint. Bubbles forming indicate a leak.
- Do not use an open flame to test for gas leaks. Fire or explosion could occur.

- Correct even the smallest leak at once.

## ⚠ WARNING

Fire or explosion hazard.

Liquid petroleum (LP) gas is heavier than air and will settle and remain in low areas and open depressions.

Thoroughly ventilate area and dissipate gas. Do NOT use a match or open flame to test for leaks, or attempt to start up furnace before thoroughly ventilating area.

An open flame or spark can result in property damage, personal injury and/or death.

## 7. Electrical Wiring

### Power Supply Wiring

The furnace **MUST** be electrically wired and grounded in accordance with local codes, or in the absence of local codes, the applicable national codes.

Field wiring connections must be made inside the furnace connection box. A suitable strain relief should be used at the point the wires exit the furnace casing.

Copper conductors shall be used. Line voltage wires should be sized for the input amps stated on the rating plate. Furnace must be connected to its own separate circuit.

### Thermostat

Thermostat location has an important effect on the operation of the unit. Follow instructions included with thermostat for correct mounting and wiring.

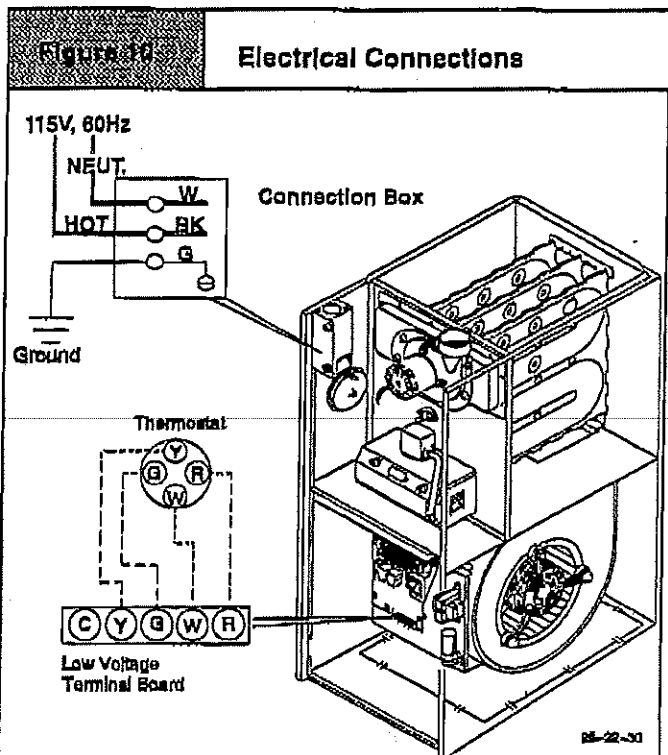
Low voltage connections to furnace must be made on terminal board to fan control.

Set thermostat heat anticipator in accordance with the *Technical Support Manual*.

### Optional Equipment

All wiring from furnace to optional equipment **MUST** conform to local codes or, in the absence of local codes, the applicable national codes. Install wiring in accordance with manufacturer's instructions.

"Y" terminal on thermostat sub-base must be connected to "Y" terminal on furnace fan timer for proper fan speed during operation in air conditioning mode.



### Humidifier/Electronic Air Cleaner

The furnace is wired for humidifier and/or electronic air cleaner connection.

#### CAUTION

Do NOT exceed 115V/0.8 amp maximum current load for both the EAC terminal and the HUM terminal combined.

**NOTE:** The humidifier will be powered when the furnace is fired and the circulating air blower comes on. The electronic air cleaner will be powered anytime the thermostat calls for air movement. However, the electronic air cleaner is **NOT** energized during continuous fan operation controlled by the electronic fan control.

## 8. Ductwork and Filter

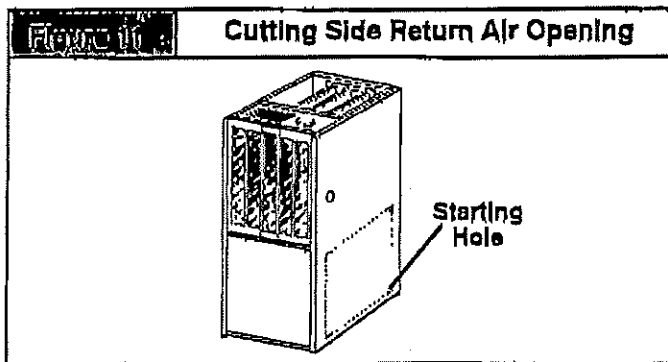
### ⚠ WARNING

**Poison carbon monoxide gas hazard.**  
**Do NOT draw return air from inside a closet or utility room where furnace is located. Return air duct MUST be sealed to furnace casing.**  
**Failure to properly seal duct can result in personal injury and/or death.**

### Duct Connections

This furnace may be installed in only a bottom or side return application. Return air through the back of the unit is NOT allowed.

Side connections can be made by cutting out the embossed area shown in Figure 11.



Bottom returns can be made by removing the knockout panel in the furnace base. Do NOT remove knock-out except for a bottom return.

### Duct Design

Design and install air distribution system to comply with Air Conditioning Contractors of America manuals or other approved methods that conform to local codes and good trade practices.

When the furnace is located in an area near or adjacent to the living area, the system should be carefully designed with returns to minimize noise transmission through the return air grille. Any blower moving a high volume of air will produce audible noise which could be objectionable when the unit is located very close to a living area. It is often advisable to route the return air ducts under the floor or through the attic.

- Refer to furnace Technical Support Manual (Blower Data) for air flow information.
- Size ductwork to handle air flow for heating and air conditioning.

### Duct Installation Requirements

- When furnace supply ducts carry air outside furnace area, seal return air duct to furnace casing and terminate duct outside furnace space.
- When a refrigeration coil is used in conjunction with this unit, it must be installed on the discharge side of the unit to avoid condensation on the heat exchanger.

- If separate evaporator and blower unit is used, install good sealing dampers for air flow control. Chilled air going through the furnace could cause condensation and shorten furnace life. Dampers (purchased locally) can be either automatic or manual. Manually operated dampers MUST be equipped with a means to prevent furnace or air conditioning operation unless damper is in the full heat or cool position.

### ⚠ WARNING

**Poison carbon monoxide gas hazard.**  
**Cool air passing over heat exchanger can cause condensate to form resulting in heat exchanger failure.**  
**This could result in personal injury and/or death.**

- Installation of locking-type dampers are recommended in all branches, or in individual ducts to balance system's air flow.
- Non-combustible, flexible duct connectors are recommended for return and supply connections to furnace.
- If air return grille is located close to the fan inlet, install at least one, 90° air turn between fan and inlet grille to reduce noise.
- Ductwork installed in attic, or exposed to outside temperatures require 2" of insulation with outdoor type vapor barrier.
- Ductwork installed in an indoor unconditioned space requires a minimum of 1" of insulation with indoor type vapor barrier.

### Inspection Panel

A removable access panel should be provided in the outlet duct when the furnace is installed without a cooling coil. This will allow smoke or reflected light to be observable inside the casing to indicate the presence of leaks in the heat exchanger. This access cover shall be attached in such a manner as to prevent air leaks.

### Filters

The furnaces, with 1600 or less CFM rating, are supplied with a 16" x 25" high velocity filter and rack. On these models, the supplied filter rack may be mounted internally for bottom return or externally for side return.

The furnaces with greater than 1600 CFM requires that both left and right side returns are used in side return applications. Two 16" x 25" high velocity filters and racks are provided with furnace. Filter racks must be mounted externally. If return air must be on one side only, an optional 20" x 25" filter standoff rack kits can be used. (See Figure 15) For bottom return, an optional 20" x 25" filter rack kit can be mounted internally.

### Filters Rack Installation

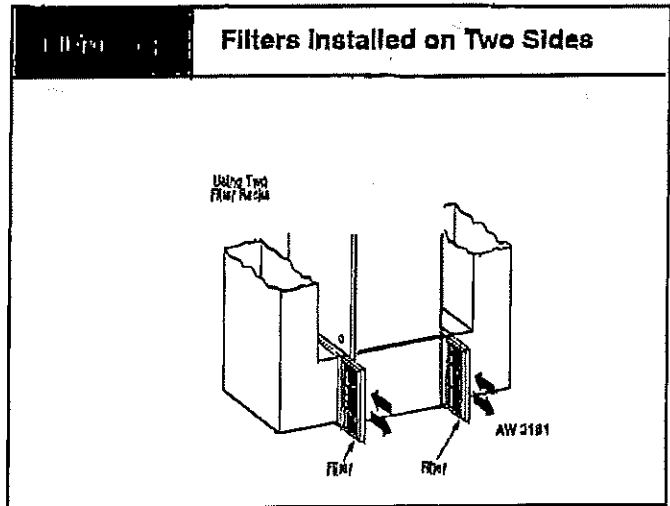
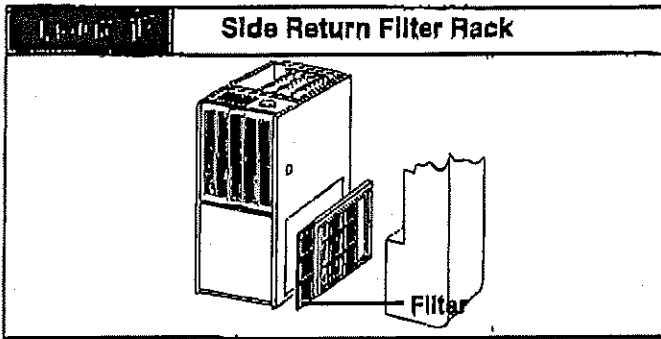
#### Side Return

Center the filter rack on the side panel, flush with the bottom edge of the furnace. Mark the fastening holes. Drill the fastening holes in the side panel and fasten the filter rack in place with sheet metal screws. See Figure 12 & Figure 14.

### CAUTION

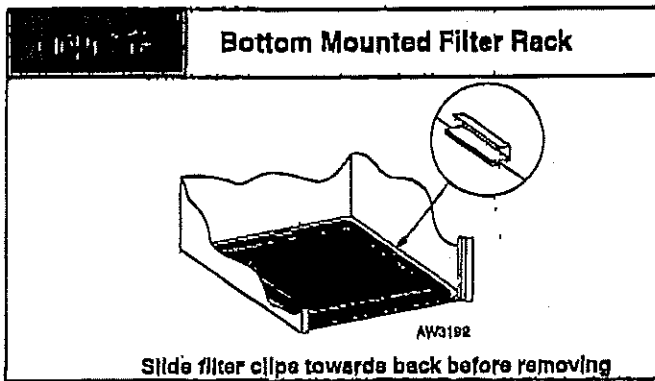
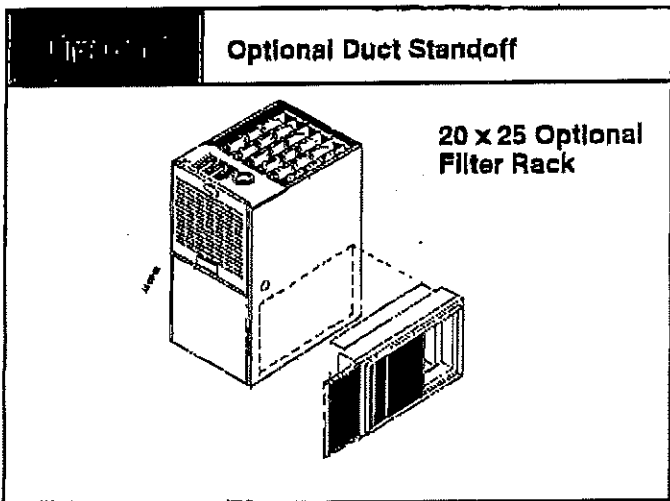
If filters are only suitable for heating application, advise homeowner that filter size may need to be increased if air conditioning is added.





**Bottom Return**

When installing a bottom mounted filter rack, slide the two side filter clips to the back of the furnace **BEFORE** installing. This will allow the rack to clear the front raised edge of the furnace. Insert rack into side clips first and push rack back until it is fully engaged into back clip. When rack is in place, slide clips back into place midway on rack as shown in Figure 13.



**9. Checks and Adjustments**

**Startup**

**NOTE:** Refer to startup procedures in the *Users Information Manual*.

**CAUTION**

If any sparks, odors or unusual noises occur, immediately shut OFF power to furnace. Check for wiring errors or obstruction to blower.

**Gas Supply Pressure**

Gas supply pressure should be within minimum and maximum values listed on rating plate. Pressures are usually set by gas suppliers.

**Manifold Gas Pressure Adjustment**

**NOTE:** Make adjustment to manifold pressure with burners operating.

**WARNING**

Fire or explosion hazard.  
 Turn OFF gas at shut off before connecting U-tube manometer.  
 Failure to turn OFF gas at shut off before connecting U-tube manometer can result in personal injury and/or death.

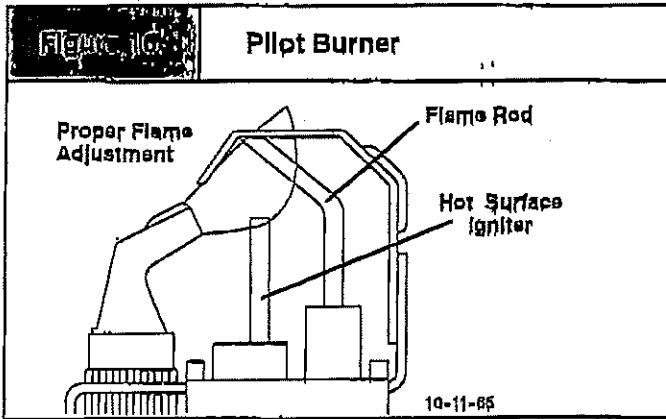
1. With gas OFF, Connect U-Tube manometer to tapped opening on gas valve. Use manometer with a 0 to min. 12" water column range.
2. Turn gas ON and remove adjustment screw cover on gas valve. Turn counterclockwise to decrease pressure and clockwise to increase.

**NOTE:** Adjustment screw cover **MUST** be placed on gas valve before reading manifold pressure and operating furnace.

3. For altitudes up to 2000', set pressure to value shown in Table 2. For altitudes up to 2000' to 8000', see Section 6. "Gas Supply and Piping" for correct pressure value.

### Adjust Pilot Burner

The furnace has a pilot flame to light the main burner. The flame should surround  $\frac{3}{8}$ " to  $\frac{1}{2}$ " of the flame rod. See Figure 16. To adjust, remove cap from pilot adjusting screw on gas valve. Turn screw counterclockwise to increase or clockwise to decrease flame as required. Replace cap after adjusting screw.



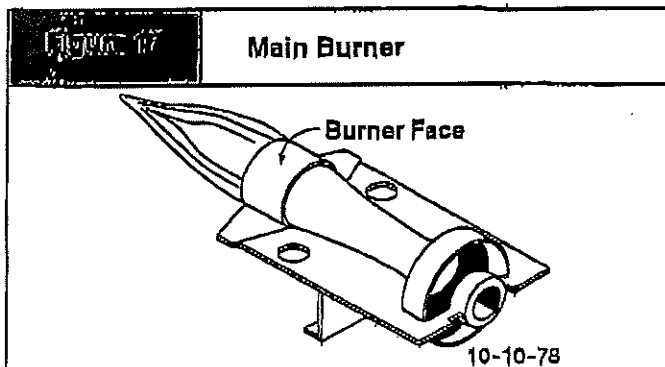
### Main Burner Flame Check

Allow the furnace to run approximately 10 minutes then inspect the main burner and pilot flames. See Figure 17.

Check for the following (Figure 17):

- Stable and blue flames. Dust may cause orange tips or wisps of yellow, but flames **MUST NOT** have solid, yellow tips.
- Flames extending directly from burner into heat exchanger.
- Flames do **NOT** touch sides of heat exchanger

If any problems with main burner flames are noted, it may be necessary to adjust gas pressures, or check for drafts.



### Temperature Rise Check

The blower speed **MUST** be set to give the correct air temperature rise through the furnace as marked on the rating plate. Temperature rise is the difference between supply and return air temperatures.

To check temperature rise, use the following procedure:

1. Place thermometers in supply and return air registers as close to furnace as possible, avoiding direct radiant heat from heat exchangers.
2. Operate furnace on high fire for 10 minutes with all the registers and duct dampers open by using a jumper wire on R to W1 and W/W2 thermostat connections on the fan board.
3. Take readings and compare with range specified on rating plate.
4. If the temperature rise is not in the correct range, the blower speed must be changed. A higher blower speed will lower the temperature rise. A lower blower speed will increase the temperature rise.
5. Repeat steps 2 thru 4 with the furnace operating on low fire for 10 minutes by using a jumper wire on the R to W/W2 thermostat connections on the fan board.
6. Remove the jumper wire after the adjustments are complete.

### Changing Blower Speed

**▲ WARNING**

**Electrical shock hazard.**  
**Turn OFF power to furnace before changing speed taps.**  
**Failure to do so can result in personal injury and/or death.**

**NOTE:** Wiring diagram may not reflect actual factory settings. Installer/contractor must choose proper speed taps for individual application.

Since the manufacturer cannot establish the static pressure that will be applied to the unit, it is the responsibility of the installer dealer/contractor to select the proper speed taps for the application when the unit is installed.

If it is necessary to change speeds, refer to steps below.

1. Refer to *Furnace Wiring Diagram* for location of the heating and cooling speed taps located on the electronic fan control as well as location of unused blower motor speed leads. Use the chart (Table 5) to determine the blower motor speed settings.

Table 5	Blower Speed Chart
Wire Color	Motor Speed
Black	High
Orange*	Med-High
Blue	Medium
Red	Low

\* Med-High speed may not be provided on all models.

2. Change the heat or cool blower motor speed by removing the motor lead from the "Heat" or "Cool" terminal and replace it with the desired motor speed lead from the "Unused Motor Lead" location. Connect the wire previously removed from the "Heat" or "Cool" terminal to the vacated "Unused Motor Lead" terminal.

3. If the same speed must be used for both heating and cooling, remove the undesired motor speed lead from the "Heat" or "Cool" terminal and connect that lead to the open terminal at "Unused Motor Lead" location or tape off. Attach a jumper between the "Heat" and "Cool" terminals and the remaining motor speed lead.

**Note:** When using the same speed on motors with (4) speed leads, it will be necessary to tape off the terminal of the motor speed lead removed from the "Heat" or "Cool" terminal with electrical tape since an open terminal will not be available at the "Unused Motor Lead" location.

### Continuous Fan Operation

A terminal is provided on the electronic fan control located in the circulating blower compartment for operation of the continuous fan option. This connection is intended for the low speed motor tap, and has a lower contact rating (8 amps) than the heat and cool taps. When the low speed blower lead is connected to this terminal, this will provide low speed blower operation whenever the other two speeds (Heat or Cool) are not energized.

Thoroughly check the system after modification to ensure the proper operation of the circulating air blower in all modes of operation.

### Separate speed selections for Heat, Cool, and Continuous Fan

Connect low speed lead from circulating motor to the "Cont" terminal at the electronic fan control. The appropriate motor leads should already be connected to the "Heat" and "Cool" terminals.

### Heating and Continuous Blower Speed the Same

If it is necessary to operate the heating speed and continuous blower speed using the same blower speed, connect a jumper between the "Heat" and "Cont" terminals on the electronic fan control.

**Note:** There should be only ONE motor lead going to the "Heat" and "Cont" terminals.

## 9. Furnace Maintenance

### CAUTION

It is recommended that the furnace be inspected and serviced on an annual basis (before the heating season) by a qualified service technician.

See "User's Information Manual",

### Labeling

### CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

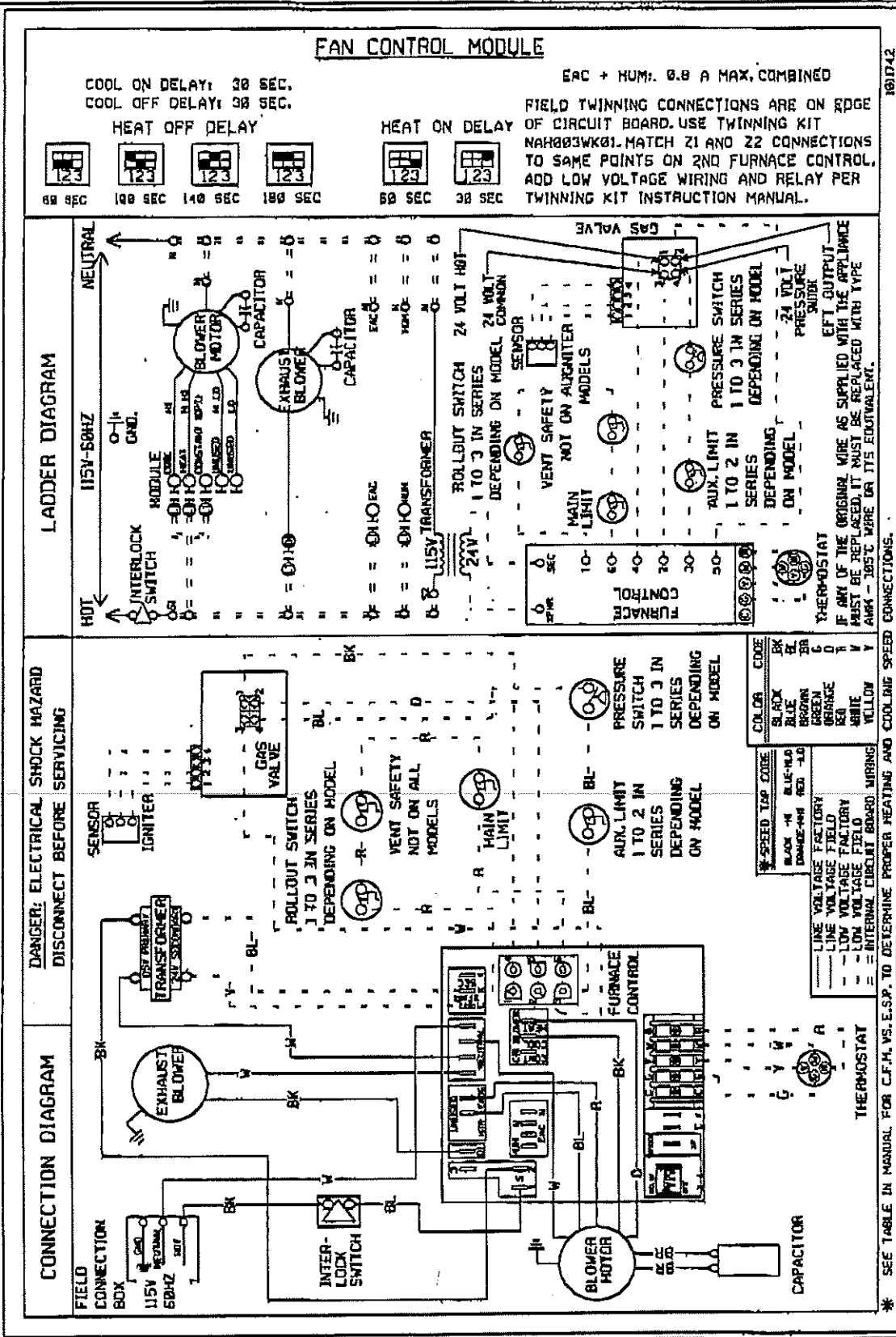
Verify proper operation after servicing.

### Pressure Switches

During regular yearly maintenance check for cracks in any tubes on the pressure switches.

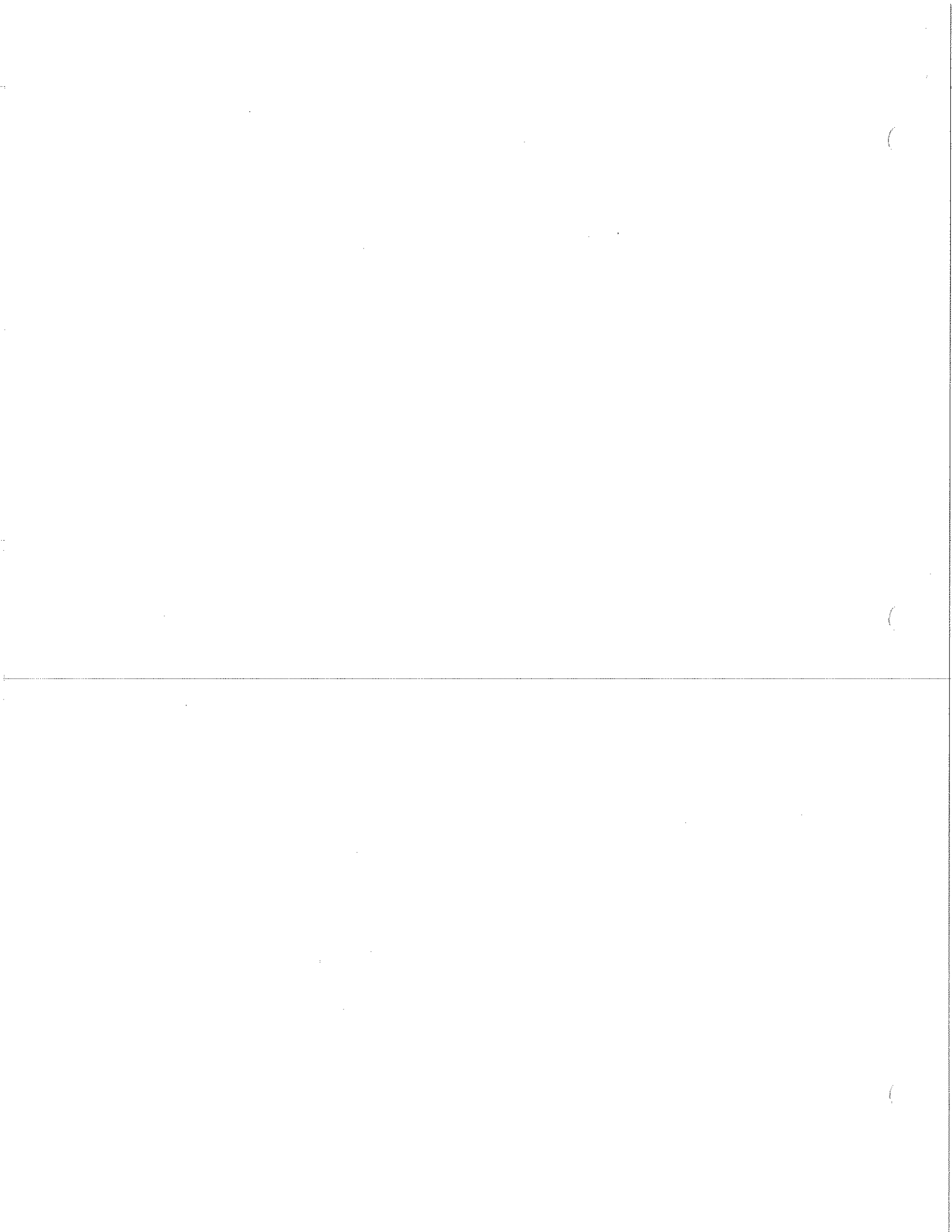


# 1. Wiring Diagram



101742

\* SEE TABLE IN MANUAL FOR C.F.M. VS. E.S.P. TO DETERMINE PROPER HEATING AND COOLING SPEED CONNECTIONS.










(old)

# Installation Instructions

## NTC6/GNE Upflow/Horizontal Series

### SAFETY REQUIREMENTS

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the furnace and in instructions manuals be alert to the potential for personal injury.

Understand the signal words *DANGER*, *WARNING*, or *CAUTION*. These words are used with the safety-alert symbol. *DANGER* identifies the most serious hazards, those that will result in severe personal injury or death. *WARNING* signifies a hazard that could result in personal injury or death. *CAUTION* is used to identify unsafe practices that could result in minor personal injury or product and property damage.

Installing and servicing heating equipment can be hazardous due to gas and electrical components. Only trained and qualified personnel should install, repair, or service heating equipment.

Untrained service personnel can perform basic maintenance functions such as cleaning and replacing air filters. All other operations must be performed by trained service personnel. When working on heating equipment, observe precautions in the literature, on tags, and on labels attached to or shipped with the unit and other safety precautions that may apply.

Follow all safety codes. In the United States, follow all safety codes including the current edition National Fuel Gas Code (NFGC) NFPA No. 54/ANSIZ223.1. In Canada, refer to the current edition of the National Standard Canada CAN/CGA-B149.1- and .2-M91 Natural Gas and Propane Installation Codes (NSCNGPIC). Wear safety glasses and work gloves. Have fire extinguisher available during start-up and adjustment procedures and service calls.

These instructions cover minimum requirements and conform to existing national standards and safety codes. In some instances, these instructions exceed certain local codes and ordinances, especially those that may not have kept up with changing residential construction practices. We require these instructions as a minimum for a safe installation.



Manufactured by:  
**International Comfort Products Corporation (USA)**  
Lewisburg, TN USA 37091

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 **DANGER**  
**Electric Shock Hazard**  
Turn Off All Power Before Servicing.

**WARNING**  
This furnace is not designed for use in mobile homes, trailers or recreational vehicles. Such use could result in property damage, bodily injury and/or death.



# 1. Installation

## **⚠ WARNING**

Installation or repairs made by unqualified persons can result in hazards to you and others. Installation **MUST** conform with local codes or, in the absence of local codes, with codes of all governmental authorities having jurisdiction.

The information contained in this manual is intended for use by a qualified service technician who is experienced in such work, who is familiar with all precautions and safety procedures required in such work, and is equipped with the proper tools and test instruments.

Failure to carefully read and follow all instructions in this manual can result in furnace malfunction, property damage, personal injury and/or death.

**NOTE:** This furnace is design certified by the American Gas Association and the Canadian Gas Association for installation in the United States and Canada. Refer to the appropriate codes, along with this manual, for proper installation.

- This furnace is **NOT** approved for installation in mobile homes, trailers or recreation vehicles.
- Do **NOT** use this furnace as a construction heater or to heat a building that is under construction.
- Use only the Type of gas approved for this furnace (see **Rating Plate** on unit). Overfiring will result in failure of heat exchanger and cause dangerous operation. (Furnace can be converted to L.P. gas with approved kit.)
- Do **NOT** use open flame to test for gas leak.
- Ensure adequate combustion and ventilation air is provided to the furnace.
- Seal supply and return air ducts.
- The vent system **MUST** be checked to determine that it is the correct type and size.
- Install correct filter type and size.
- Unit **MUST** be installed so electrical components are protected from direct contact with water.
- It is the suggestion of this manufacturer to install fire and carbon monoxide detectors.

## Safety Rules

Your unit is built to provide many years of safe and dependable service providing it is properly installed and maintained. However, abuse and/or improper use can shorten the life of the unit and create hazards for you, the owner.

- A. The U.S. Consumer Product Safety Commission recommends that users of gas-burning appliances install carbon monoxide detectors. There can be various sources of carbon monoxide in a building or dwelling. The sources could

be gas-fired clothes dryers, gas cooking stoves, water heaters, furnaces, gas-fired fireplaces, wood fireplaces, and several other items. Carbon monoxide can cause serious bodily injury and/or death. Therefore, to help alert people of potentially dangerous carbon monoxide levels, you should have carbon monoxide detectors listed by a nationally recognized agency (e.g. Underwriters Laboratories or International Approval Services) installed and maintained in the building or dwelling (see Note below).

- B. There can be numerous sources of fire or smoke in a building or dwelling. Fire or smoke can cause serious bodily injury, death, and/or property damage. Therefore, in order to alert people of potentially dangerous fire or smoke, you should have fire extinguisher and smoke detectors listed by Underwriters Laboratories installed and maintained in the building or dwelling (see Note below).

**Note:** The manufacturer of your furnace does not test any detectors and makes no representations regarding any brand or type of detector.

- C. To ensure safe and efficient operation of your unit, you should do the the following:
  1. **Thoroughly read this manual and labels on the unit.** This will help you understand how your unit operates and the hazards involved with gas and electricity.
  2. **Do not use this unit if any part has been under water.** Immediately call a qualified service technician to inspect the unit and to replace any part of the control system and any gas control which has been under water.
  3. **Never obstruct the vent grilles, or any ducts that provide air to the unit.** Air must be provided for proper combustion and ventilation of flue gases. Carbon monoxide or "CO" is a colorless and odorless gas produced when fuel is not burned completely or when the flame does not receive sufficient oxygen.

## Freezing Temperatures and Your Structure

### **⚠ WARNING**

**Freeze warning.**

**Turn off water system.**

**If your unit remains shut off during cold weather the water pipes could freeze and burst, resulting in serious water damage.**

Your unit is equipped with safety devices that may keep it from operating if sensors detect abnormal conditions such as clogged exhaust flues.

If the structure will be unattended during cold weather you should take these precautions.

1. Turn off main supply water into the structure and drain the water lines if possible. Open faucets in appropriate areas.
2. Have someone check the structure frequently during cold weather to make sure it is warm enough to prevent pipes from freezing. Suggest they call qualified service agency, if required.



# WARNING

Poison carbon monoxide gas hazard.

If this furnace is replacing a previously common-vented furnace, it may be necessary to resize the existing vent line and chimney to prevent oversizing problems for the other remaining appliances(s). See applicable codes and *Venting and Combustion Air Check in Gas Vent Installation* section.

Failure to properly vent this furnace or other appliances can result in property damage, personal injury and/or death.

## Location and Clearances

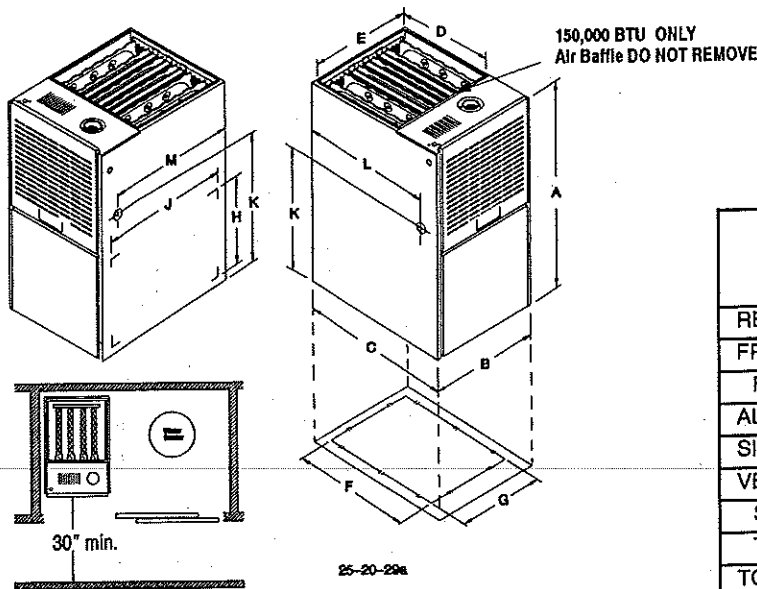
If furnace is a replacement, it is usually best to install the furnace where the old one was. Choose the location or evaluate the existing location based upon the minimum clearance and furnace dimensions (Figure 1).

## CAUTION

Do NOT operate furnace in a corrosive atmosphere containing chlorine, fluorine or any other damaging chemicals. Refer to *Combustion & Ventilation Air* section, *Contaminated Combustion Air*.

Figure 1

Dimensions and Clearances



### MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS FOR ALL UNITS

REAR	0
FRONT	3" (75mm)*
For Service	30" (760mm)
ALL SIDES OF SUPPLY PLENUM	1" (25mm)
SIDES	0
VENT	
Single Wall Vent	6" (150mm)
Type B-1 Double Wall Vent	1" (25mm)
TOP OF FURNACE	6" (150mm)

\* 6" with accessory Masonry Chimney draft hood kit installed.

## DIMENSIONAL INFORMATION

MODEL	CABINET			SUPPLY AIR		RETURN AIR				GAS CONNECTION		
	A	B	C	D	E	BOTTOM		SIDE		K	L	M
						F	G	H	J			
050FB / 075FB 050B12 / 075B12	40	15 <sup>1</sup> / <sub>2</sub>	28 <sup>1</sup> / <sub>2</sub>	18 <sup>1</sup> / <sub>2</sub>	14	23 <sup>1</sup> / <sub>8</sub>	12 <sup>5</sup> / <sub>8</sub>	12 <sup>1</sup> / <sub>4</sub>	22 <sup>1</sup> / <sub>2</sub>	28 <sup>1</sup> / <sub>4</sub>	26	23 <sup>7</sup> / <sub>8</sub>
075FH & 075F16	40	19 <sup>1</sup> / <sub>8</sub>	28 <sup>1</sup> / <sub>2</sub>	18 <sup>1</sup> / <sub>2</sub>	17 <sup>5</sup> / <sub>8</sub>	23 <sup>1</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>4</sub>	14 <sup>1</sup> / <sub>2</sub>	22 <sup>1</sup> / <sub>2</sub>	28 <sup>1</sup> / <sub>4</sub>	26	23 <sup>7</sup> / <sub>8</sub>
100GF, 100KF 100F14 / 100F20	40	19 <sup>1</sup> / <sub>8</sub>	28 <sup>1</sup> / <sub>2</sub>	18 <sup>1</sup> / <sub>2</sub>	17 <sup>5</sup> / <sub>8</sub>	23 <sup>1</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>4</sub>	14 <sup>1</sup> / <sub>2</sub>	22 <sup>1</sup> / <sub>2</sub>	28 <sup>1</sup> / <sub>4</sub>	26	23 <sup>7</sup> / <sub>8</sub>
100KJ & 100J20 125BK / 150BK 125J20 / 150J20	40	22 <sup>3</sup> / <sub>4</sub>	28 <sup>1</sup> / <sub>2</sub>	18 <sup>1</sup> / <sub>2</sub>	21 <sup>1</sup> / <sub>4</sub>	23 <sup>1</sup> / <sub>8</sub>	18 <sup>3</sup> / <sub>4</sub>	14 <sup>1</sup> / <sub>2</sub>	22 <sup>1</sup> / <sub>2</sub>	28 <sup>1</sup> / <sub>4</sub>	26	23 <sup>7</sup> / <sub>8</sub>
mm Equivalents	40=1016	15 <sup>1</sup> / <sub>2</sub> = 394	28 <sup>1</sup> / <sub>2</sub> = 714	18 <sup>1</sup> / <sub>2</sub> = 464	14 = 354	23 <sup>1</sup> / <sub>8</sub> = 587	12 <sup>5</sup> / <sub>8</sub> = 311	12 <sup>1</sup> / <sub>4</sub> = 311	22 <sup>1</sup> / <sub>2</sub> = 572	28 <sup>1</sup> / <sub>4</sub> = 717	26 = 660	23 <sup>7</sup> / <sub>8</sub> = 606

ALL DIMENSIONS IN INCHES (mm)

## Installation Requirements

1. Install furnace level.

- Install furnace as centralized as practical with respect to the heat distribution system
  - The 150,000 Btu/h furnace is manufactured with an air baffles to equalize air flow through the heat exchanger. (See Figure 1). **DO NOT REMOVE THESE AIR BAFFLES**

3. Install the vent pipes as short as practical. (See *Gas Vent Installation* section).
4. Do **NOT** install furnace directly on carpeting, tile or other combustible material other than wood flooring.
5. Maintain clearance for fire safety and servicing. A front clearance of 30" (760mm) is minimum for access to the burner, controls and filter.

**▲ WARNING**

**Fire Hazard.**

If installing horizontally, place furnace on noncombustible cement board or sheet metal.

Failure to install unit on noncombustible cement board or sheet metal can result in property damage, personal injury and/or death.

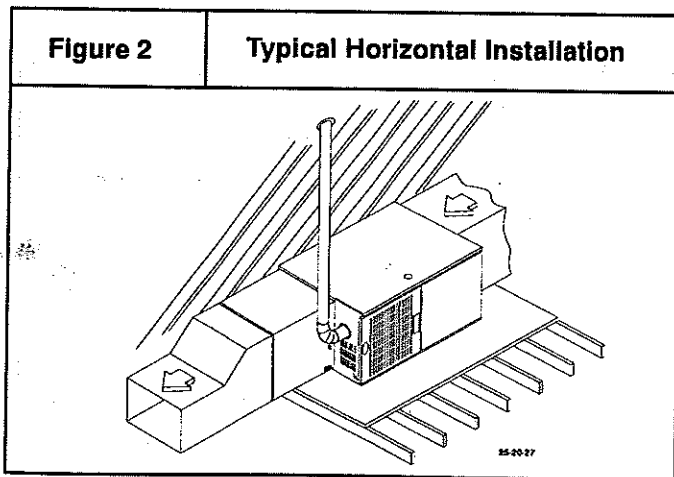
6. Use a raised base if the floor is damp or wet at times.
7. Residential garage installations require:
  - Burners and ignition sources installed at least 18" (457mm) above the floor.
  - Furnace must be located or physically protected from possible damage by a vehicle.

### Horizontal Furnace Installation

#### IMPORTANT

**NOTE:** Inspect unit rating plate to be certain model number begins with "NTC6 or GNE". This identifies unit as horizontally mountable. If unit does **NOT** bear this designation, you may **NOT** mount this unit horizontally. Horizontal furnace may not be mounted on its back.

If you purchased a horizontally mountable furnace, it can be installed horizontally in an attic, basement, crawl space, alcove, or suspended from a ceiling in a basement or utility room in either a right or left airflow position. See Figure 2.



The following minimum clearances to combustibles **MUST** be maintained between the furnace and adjacent construction. As shown in Figure 1, **ONLY** the corner of the cabinet is allowed to

contact the rafters Figure 2. All other clearances **MUST** be observed as shown in Figure 1.

If the furnace is to be suspended from the floor joists in a crawl space or the rafters in an attic, it is necessary to use steel pipe straps or an angle iron frame to attach the furnace. These straps should be attached to the furnace with sheet metal screws and to the rafters or joists with bolts. The preferred method is to use an angle iron frame bolted to the rafters or joists.

If the furnace is to be installed ground level in a crawl space, consult local codes. A concrete pad 1" to 2" (25 to 50mm) thick is recommended.

Thirty inches (30") (760mm) between the front of the furnace and adjacent construction or other appliances **MUST** be maintained for service clearance.

Keep all insulating materials clear from louvered door. Insulating materials may be combustible.

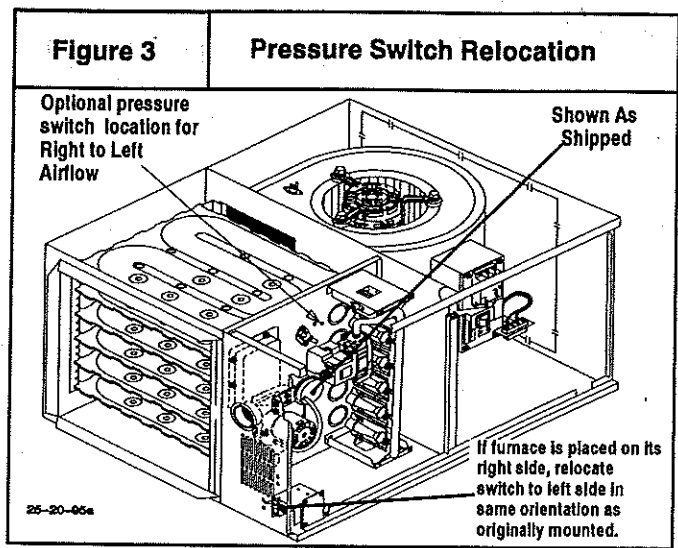
The horizontal furnaces may be installed directly on combustible wood flooring or supports it is recommended for further fire protection that cement board or sheet metal is placed between the furnace and the combustible wood floor and extend 12" (300mm) beyond the front of the furnace louver door.

This furnace **MUST NOT** be installed directly on carpeting or tile or other combustible material other than wood flooring or supports.

### Pressure Switch Relocation

If the furnace is installed in a right to left airflow position (left side of furnace facing down), the pressure switch will remain in the same position as installed by the factory (see Figure 3). If the furnace is installed in a left to right airflow position (right side of furnace facing down), the pressure switch **MUST** be relocated to the left side of the furnace using the holes provided in the top panel. Position the pressure switch in the same orientation as the original location. To prevent possible kinking of the pressure switch hose, trim the hose to remove excess.

**Note:** Care **MUST** be taken not to cut the tube too short.



## 2. Combustion & Ventilation Air

### **WARNING**

**Poison carbon monoxide gas hazard.**

**Use methods described here to provide combustion and ventilation air.**

**Failure to provide adequate combustion and ventilation air can result in personal injury and/or death.**

Furnaces require ventilation openings to provide sufficient air for proper combustion and ventilation of flue gases. All duct or openings for supplying combustion and ventilation air must comply with the gas codes, or in the absence of local codes, the applicable national codes.

When the installation is complete, check that all appliances have adequate combustion air and are venting properly. See *Venting And Combustion Air Check* in this manual.

### **Contaminated Combustion Air**

Installations in certain areas or types of structures will increase the exposure to chemicals or halogens that may harm the furnace. These instances must use only outside air for combustion.

The following areas or types of structures may contain or have exposure to the substances listed below. The installation must be evaluated carefully as it may be necessary to provide outside air for combustion.

- Commercial buildings.
- Buildings with indoor pools.
- Furnaces installed in laundry rooms.
- Furnaces installed in hobby or craft rooms.
- Furnaces installed near chemical storage areas.
- Permanent wave solutions for hair.
- Chlorinated waxes and cleaners.
- Chlorine based swimming pool chemicals.
- Water softening chemicals.
- De-icing salts or chemicals.

- Carbon tetrachloride.
- Halogen type refrigerants.
- Cleaning solvents (such as perchloroethylene).
- Printing inks, paint removers, varnishes, etc..
- Hydrochloric acid.
- Sulfuric Acid.
- Solvent cements and glues.
- Antistatic fabric softeners for clothes dryers.
- Masonry acid washing materials.

### **Confined Space Installation**

**NOTE:** A confined space is defined as an area with less than 50 cubic feet (1.4m<sup>3</sup>) per 1,000 BTUH input rating for all gas appliances installed in the area.

### **Air Openings and Connecting Ducts**

1. Total input rating for all gas appliances **MUST** be considered when determining free area of openings.
2. Connect ducts or openings directly to outside.
3. When screens are used to cover openings, the openings **MUST** be no smaller than 1/4" (6mm) mesh.
4. The minimum dimension of rectangular air ducts **MUST NOT** be less than 3" (75mm).
5. When sizing grille or louver, use the free area of opening. If free area is **NOT** stamped or marked on grill or louver, assume a 20% free area for wood and 60% for metal.

### **Requirements**

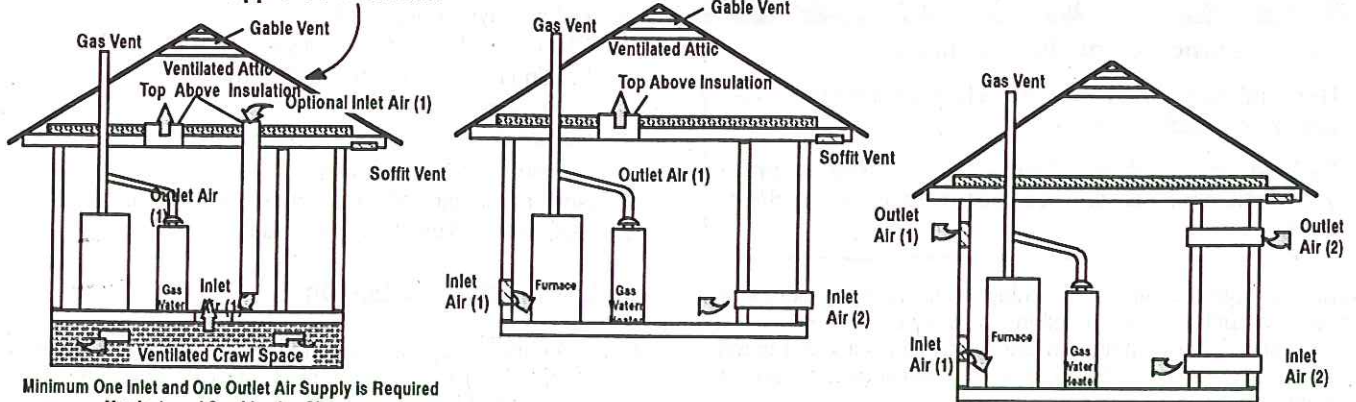
1. Provide confined space with sufficient air for proper combustion and ventilation of flue gases using horizontal or vertical ducts or openings.
2. **Figure 4** illustrates how to provide combustion and ventilation air. A minimum of two permanent openings, one inlet and one outlet, are required.



Figure 4

Outside Air (This is ONLY a guide. Subject to codes of country having jurisdiction.)

This installation NOT approved in Canada



Minimum One Inlet and One Outlet Air Supply is Required  
May be In and Combination Shown

- Inlet Air Opening Must be Within 12" (300mm) of floor
- Outlet Air Opening Must be Within 12" (300mm) of ceiling
- (1) 1 Square Inch (6cm<sup>2</sup>) per 4000 BTUH
- (2) 1 Square Inch (6cm<sup>2</sup>) per 2000 BTUH

3. One opening **MUST** be within 12" (300mm) of the floor and the second opening within 12" (300mm) of the ceiling.
4. Size openings and ducts per Table 1.
5. Horizontal duct openings require 1 square inch (25sq. mm) of free area per 2,000 BTUH of combined input for all gas appliances in area (see Table 1).
6. Vertical duct openings or openings directly to outside require 1 square inch (6.5mm<sup>2</sup>) of free area per 4,000 BTUH for combined input of all gas appliances in area (see Table 1).

vertical or horizontal duct to the outdoors or spaces (crawl or attic) that freely communicate with the outdoors, and shall have a minimum free area of:

- 1 sq. in per 3000 Btu per hr (7cm<sup>2</sup> per kW) of the total input rating of all equipment located in the enclosure, and
- Not less than the sum of the areas of all vent connectors in the confined space.

Unconfined Space Installation

**WARNING**

Poison carbon monoxide gas hazard.

Most homes will require additional air.

An unconfined space or homes with tight construction may not have adequate air infiltration for proper combustion and ventilation of flue gases.

Failure to supply additional air by means of ventilation grilles or ducts could result in personal injury and/or death.

An unconfined space is defined as an area having a minimum volume of 50 cubic feet (1.4m<sup>3</sup>) per 1,000 Btu total input rating for all gas appliances in area.

Adjoining rooms can be considered part of an unconfined area if there are no doors between rooms.

An attic or crawl space may be considered an unconfined space provided there are adequate ventilation openings directly to outdoors. Openings **MUST** remain open and **NOT** have any means of being closed off. Ventilation openings to outdoors **MUST** be at least 1 square inch (25mm<sup>2</sup>) of free area per 4,000 BTUH of total input rating for all gas appliances in area.

Table 1		Free Area		
BTUH Input Rating	Minimum Free Area Required for Each Opening			Round Duct (4,000 BTUH)
	Horizontal Duct (2,000 BTUH)	Vertical Duct or openings to outside (4,000 BTUH)		
50,000	161 cm <sup>2</sup> (25 sq. in.)	81 cm <sup>2</sup> (12.5 sq. in.)		4"
75,000	242 cm <sup>2</sup> (35.5 sq. in.)	121 cm <sup>2</sup> (18.75 sq. in.)		5"
100,000	323 cm <sup>2</sup> (50 sq. in.)	161 cm <sup>2</sup> (25 sq. in.)		6"
125,000	403 cm <sup>2</sup> (62.5 sq. in.)	202 cm <sup>2</sup> (31.25 sq. in.)		7"
150,000	484 cm <sup>2</sup> (71 sq. in.)	242 cm <sup>2</sup> (37.5 sq. in.)		7"

**EXAMPLE: Determining Free Area**  
 Furnace Water Heater Total Input  
 100,000 + 30,000 = (130,000 ÷ 4,000) = 210 cm<sup>2</sup>  
 (32.5 Sq. In.) Vertical

Furnace Water Heater Total Input  
 100,000 + 30,000 = (130,000 ÷ 2,000) = 210 cm<sup>2</sup>  
 (65 Sq. In.) Horizontal

One permanent opening, commencing within 12" (30 cm) of the top of the enclosure, shall be permitted where the equipment has clearances of at least 1" (2.5 cm) from the sides and back and 6" (16 cm) from the front of the appliance. The opening shall directly communicate with the outdoors or shall communicate through a



In unconfined spaces, infiltration should be adequate to provide air for combustion, ventilation and dilution of flue gases. However, in buildings with unusually tight construction, additional air **MUST** be provided using the methods described in section titled *Confined Space Installation*:

Unusually tight construction is defined as: Construction with

- 1 Walls and ceilings exposed to the outside have a continuous, sealed vapor barrier. Openings are gasketed or sealed and
- 2 Doors and openable windows are weather stripped and

### 3. Gas Vent Installation

#### **WARNING**

Poison carbon monoxide gas, fire and explosion hazard.

Read and follow all instructions in this section.

Failure to properly vent this furnace can result in property damage, personal injury and/or death.

Install the vent in compliance with codes of the country having jurisdiction and the GAMA venting tables, local codes or ordinances and these instructions.

These fan assisted combustion furnaces have been classified as Category I appliances which means that they **MUST** operate with a negative vent pressure.

#### Category I Safe Venting Requirements

**NOTE:** The following instructions comply with the United States National Fuel Gas Code.

1. If a Category I vent passes through an attic, any concealed space or floor, use **ONLY** Type B or Type L double wall vent pipe. If vent pipe passes through interior wall, use type B vent pipe with ventilated thimble **ONLY**.
2. Do **NOT** vent furnace into any chimney serving an open fireplace or solid fuel burning appliance.
3. Use the same diameter Category I connector or pipe as permitted by the GAMA venting tables.
4. Keep vertical Category I vent pipe or vent connector runs as short and direct as possible.
5. Vertical outdoor runs of type B or **ANY** single wall vent pipe below the roof line are **NOT** permitted.
6. Slope all horizontal runs up away from furnace a minimum of  $\frac{1}{4}$ " (6mm) per foot.
7. Support all horizontal vent pipe every 6' (2m) using proper clamps and metal straps.
8. Check existing gas vent or chimney to ensure they meet clearances and local codes.
9. The furnace **MUST** be connected to a factory built chimney or vent complying with a recognized standard. **Venting into a masonry or concrete chimney is only permitted as out-**

3. Other openings are caulked or sealed. These include joints around window and door frames, between sole plates and floors, between wall-ceiling joints, between wall panels, at penetrations for plumbing, electrical and gas lines, etc.

#### Ventilation Air

Some provincial codes and local municipalities require ventilation or make-up air be brought into the conditioned space as replacement air. Whichever method is used, the mixed return air temperature across the heat exchanger **MUST** not fall below 60°F (15° c) or flue gases will condense in the heat exchanger. This will shorten the life of the heat exchanger and possibly void your warranty.

lined in the GAMA venting tables or *Masonry Chimney* section in these instructions.

#### **WARNING**

Poison carbon monoxide gas hazard.

If this furnace is replacing a previously common-vented furnace, it may be necessary to resize the existing chimney liner or vent to prevent over sizing problems for the other remaining appliances(s). See codes of country having jurisdiction.

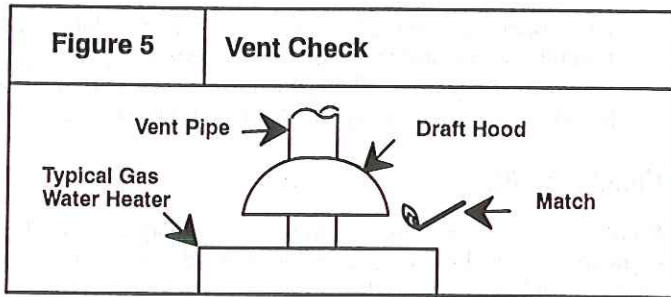
Failure to properly vent this furnace or other appliances can result in property damage, personal injury and/or death.

#### Venting and Combustion Air Check

**NOTE:** If this installation removes an existing furnace from a venting system serving one or more other appliances, and to make sure there is adequate combustion air for all appliances, **MAKE THE FOLLOWING CHECK.**

1. Seal any unused openings in the venting system.
2. Visually inspect the venting system for proper size and horizontal pitch to ensure there is no blockage or restriction, leakage, corrosion or other deficiencies which could cause an unsafe condition.
3. Insofar as is practical, close all doors and windows and all doors between the space in which the appliance(s) remaining connected to the venting system are located and other spaces of the building.
4. Turn on clothes dryers and any appliance not connected to the venting system. Turn on any exhaust fans, such as range hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan. Close fireplace dampers.
5. Follow the lighting instructions for each appliance being inspected. Adjust thermostat so appliance(s) will operate continuously.
6. Allow 5 minutes of main burner operation, then check for spillage at the draft hood relief opening of each appliance. Use the flame of a match or candle (Figure 5).





- After it has been determined that each appliance vents properly, return doors, windows, appliances etc. to their normal condition.
- If improper venting is observed, the cause **MUST** be corrected.

**NOTE:** If flame pulls towards draft hood, this indicates sufficient infiltration air.

### Venting to Existing Masonry Chimney

**NOTE:** The tables and notes referred to below are found in the most recent printing of the **GAMA** venting tables.

**Dedicated venting of one fan assisted furnace into any masonry chimney is prohibited.** The chimney must first be lined with either type B vent sized in accordance with tables 1 or 2 or a listed single wall, metal lining system, sized in accordance with the following: or (Venting as outlined with use of optional masonry chimney kit as applicable.) (See Section 5)

Listed, corrugated metallic chimney liner systems in masonry chimneys shall be sized by using **GAMA** tables 1 or 2 for dedicated venting and **GAMA** tables 3 or 4 for common venting with the maximum capacity reduced by 20% (0.80 X maximum capacity) and the minimum capacity as shown in the applicable table. Corrugated metal vent systems installed with bends or offsets require additional reduction of 10% of the vent capacity for each 90° elbow.

**NOTE:** Two(2) 45° elbows are equivalent to one (1) 90° elbow.

### Combined Venting into a Masonry Chimney

Venting into a masonry or concrete chimney is only permitted as outlined in the **GAMA** venting tables. Follow all safe venting requirements, or (Venting as outlined with use of optional masonry chimney kit as applicable.) (See Section 5)

**NOTE:** See section "Masonry Chimney Venting"

## 4. Horizontal Venting

### Category I Furnaces With External Power Venters

In order to maintain a Category I classification of fan assisted furnaces when vented horizontally with sidewall termination, a power venter is **REQUIRED** to maintain a negative pressure in the venting system. Please consult the Fields Controls Co. or Tjernlund Products, Inc. for power venters certified for use with our furnaces.

### Vent Termination

#### Venting Through a Non-Combustible and Combustible Wall

Consult External Power Venter manufacturer instructions.

### CAUTION

**It is the responsibility of the installer to properly terminate the vent and provide adequate shielding. This is essential in order to avoid water/ice damage to building, shrubs and walk-ways.**

## 5. Masonry Chimney Venting with Optional Kit

### Chimney Inspection

All masonry chimney construction must conform to Standard ANSI/NFPA211 and to any state or local codes applicable. The chimney must be in good condition and a complete investigation must be conducted prior to installation. If the inspection reveals damage or abnormal conditions, make necessary repairs or seek expert help. See "The Chimney Inspection Chart". Measure area of tile-liner and exact height of chimney.

### Connector Type

To reduce flue gas heat loss and the chance of condensate problems, the vent connector must be double wall Type B vent.

### Venting Restrictions for Chimney Types

**Interior Chimney** – has no sides exposed to the outside below the roofline. All installations can be single furnace or common vented with another draft hood equipped Category I appliance.

**Exterior Chimney** – has one or more sides exposed to the outside below the roof line. All installations must be common vented only with another draft hood equipped Category I appliance.

**Caution** – failure to follow these guidelines may cause severe property damage.

### Optional Masonry Vent Kit Draft Hood Assy. Installation (See Figure 8)

**NOTE:** These instructions apply to the NTC6 & GNE series furnaces only.

- Disconnect power and gas supply to furnace.
- Remove louvered door.  
NTC6 & GNE Series furnaces – Discard louvered door.
- NTC6 & GNE may be installed upflow or horizontal position per furnace application. When installing NTC6 & GNE furnaces in a horizontal left hand application you will need to mount the pressure switch to the side of the cabinet.
- NTC6 & GNE series furnaces – Detach pressure switch from top panel by removing two screws. Set aside screws.
- Detach field connect box from top panel by removing two screws. Set aside screws.



- Remove four screws holding top panel to casing. Remove top panel. Discard top panel. Set screws aside.
- Install draft hood assy. to casing using four screws previously set aside.
- Attach field connect box to draft hood assy. using two screws previously set aside.
- NTC6 & GNE Series furnaces – Attach pressure switch to draft hood assy. using two screws previously set aside.

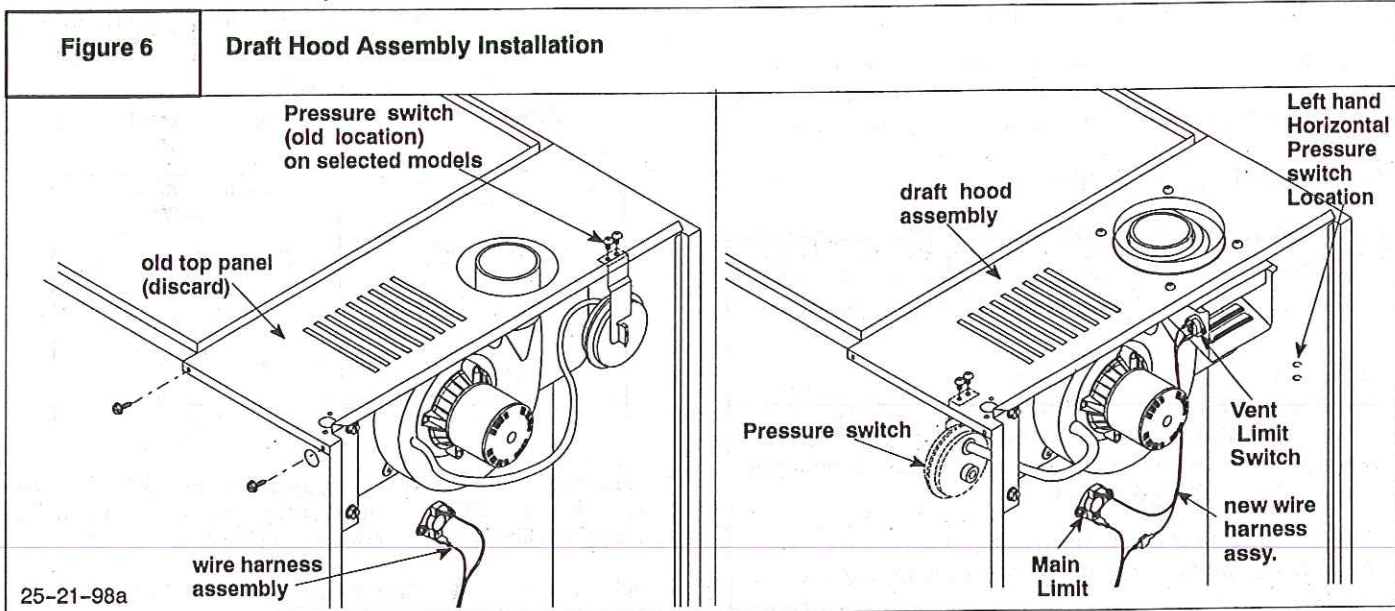
### Vent Limit Switch Wiring (See Figure 6)

- Locate wire harness assy. which is supplied with kit. Attach terminals on one end of wire harness assy. to vent limit switch located on draft hood assy.

- Locate furnace's main limit. Detach wire with insulated terminal from one side of main limit.
- Route wire harness assy. from vent limit switch to main limit. Attach female terminal of wire harness assy. to vacated main limit terminal. Attach male terminal of wire harness assy. to insulated terminal of wire previously detached from main limit.

### Completion of Installation

- NTC6 & GNE Series furnaces – Locate louvered door supplied with kit. Install on furnace.
- Refer to installation instructions provided with furnace to put the furnace into operation.



Masonry chimney venting shall be approached as follows: Using Tables 1 and 2 in the masonry chimney draft hood kit instructions, the NFGC Z223.1-1992 or the GAMA Venting Tables.

## 6. Gas Supply and Piping

### WARNING

Fire and explosion hazard.

Natural Gas

Models designated for Natural Gas are to be used with Natural Gas ONLY.

Failure to follow these instructions can result in property damage, personal injury and/or death.

- Do not allow minimum supply pressure to vary downward. Doing so will decrease input to furnace. Refer to Table 2 for Gas supply and manifold pressures.

Table 2		Gas Pressures		
Gas Type	Supply Pressure			Manifold Pressure
	Recommended	Max.	Min.	
Natural	7 inches (1.7 kPa)	14 inches (3.5 kPa)	4.5 inches (1.1 kPa)	3.5 inches (0.9 kPa)
Propane	11 inches (2.7 kPa)	14 inches (3.5 kPa)	11 inches (2.7 kPa)	10 inches (2.5 kPa)

### Gas Supply Requirements

- Use only the Type of gas approved for this furnace. See rating plate for approved gas type.
- Gas input must not exceed the rated input shown on the rating plate. Overfiring will result in failure of heat exchanger and cause dangerous operation.

### Natural Gas Input Rating Check

The gas meter can be used to measure input to furnace. Rating is based on a natural gas BTU content of 1,000 BTU's per cubic foot. Check with gas supplier for actual BTU content.

- Turn OFF gas supply to all appliances other than furnace and start furnace.

2. Time how many seconds it takes the smallest dial on the gas meter to make one complete revolution. Refer to **Example**.  
**Note:** If meter uses a 2 cubic foot dial, divide results (seconds) by two.

Example			
Natural Gas BTU Content	No. of Seconds Per Hour	Time Per Cubic Foot In Seconds	BTU Per Hour
1,000	3,600	48	75,000
$1,000 \times 3,600 \div 48 = 75,000$ BTUH			

3. Relight all appliances and ensure all pilots are operating.

### Orifice Sizing

**NOTE:** Factory sized orifices for natural and LP gas are listed in the furnace Technical Support manual.

Ensure furnace is equipped with the correct main burner orifices. Refer to **Table 3 & Table 4** for correct orifice size for a given heating value and specific gravity for natural and propane gas.

### Operation Above 2000' Altitude

**WARNING**

**Fire, Explosion, Poison carbon monoxide gas hazard.**

**This conversion shall be done by a qualified service agency in accordance with the Manufacturer's instructions and all applicable codes and requirements, or in the absence of local codes, the applicable national codes.**

**Failure to follow these instructions exactly can result in property damage, personal injury and/or death.**

These units may be used at full input rating when installed at altitudes up to 2000'. When installed above 2000', the input must be decreased 4% for each 1000' above sea level. This may be accomplished by a simple adjustment of manifold pressure or an orifice change, or a combination of a pressure adjustment and an orifice change. The changes required depend on the installation altitude and the heating value of the fuel. **TABLE 3 & TABLE 4** show the proper furnace manifold pressure and gas orifice size to achieve proper performance based on elevation above sea level for both natural gas and propane.

To use the natural gas table, first consult your local gas utility for the heating value of the gas supply. Select the heating value on the vertical border and follow across the table until the appropriate elevation for the installation is reached. The first value in the box at the intersection of the heating value and elevation will be the manifold pressure required. If a gas orifice change is also required, the box is shaded. The required orifice size is shown at the bottom of the table.

#### Sea Level

**High Altitude Input Rate = Nameplate x (Multiplier)  
Input Rate**

Elevation	High Altitude Multiplier
2000' - 2999'	0.92
3000' - 3999'	0.88
4000' - 4999'	0.84
5000' - 5999'	0.80
6000' - 6999'	0.76
7000' - 8000'	0.72

For installations above 4000', the inlet air restrictor of the combustion air blower **MUST** be changed, whether gas has been derated by the utility or orifices have been changed.

A High Altitude Kit is available which includes restrictors, orifices and installation instructions.

## MANIFOLD PRESSURE AND ORIFICE SIZE FOR HIGH ALTITUDE APPLICATIONS

Table 3	NATURAL GAS						
	MEAN ELEVATION FEET ABOVE SEA LEVEL						
	0 to 1999	2000 to 2999	3000 to 3999	4000 to 4999	5000 to 5999	6000 to 6999	7000 to 8000
HEATING VALUE BTU/CU. FT.							
800	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.2" wc	2.9" wc
850	3.5" wc	3.5" wc	3.5" wc	3.5" wc	3.2" wc	2.9" wc	2.6" wc
900	3.5" wc	3.5" wc	3.4" wc	3.1" wc	2.8" wc	2.5" wc	2.3" wc
950	3.5" wc	3.3" wc	3.1" wc	2.8" wc	2.5" wc	2.3" wc	3.5" wc
1000	3.5" wc	3.0" wc	2.8" wc	2.5" wc	2.3" wc	3.5" wc	3.1" wc
1050	3.2" wc	2.7" wc	2.5" wc	2.3" wc	3.5" wc	3.2" wc	2.8" wc
1100	2.9" wc	2.5" wc	2.3" wc	3.5" wc	3.2" wc	2.9" wc	2.6" wc
Orifice Size	#42	#42	#42	#45	#45	#45	#45

SHADED AREA REQUIRES ORIFICE CHANGE. NO SHADING INDICATES MANIFOLD PRESSURE CHANGE ONLY.

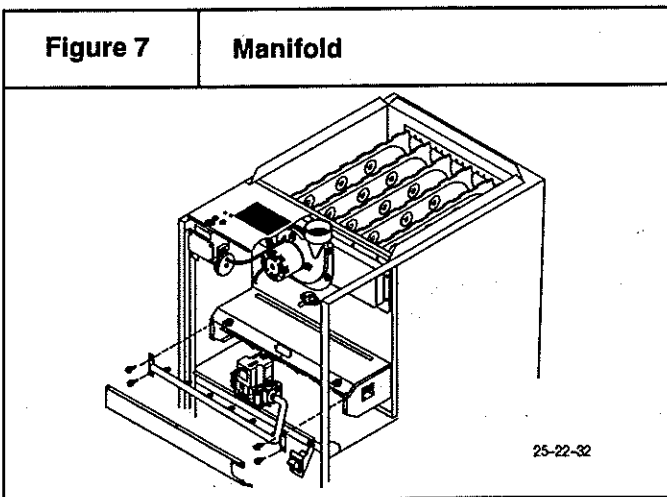
*Old*

Table 4		PROPANE					
		MEAN ELEVATION FEET ABOVE SEA LEVEL					
HEATING VALUE BTU/CU. FT.	0 to 1999	2000 to 2999	3000 to 3999	4000 to 4999	5000 to 5999	6000 to 6999	7000 to 8000
2500	10.0" wc	10.0" wc	9.4" wc	10.0" wc	9.8" wc	8.8" wc	7.9" wc
Orifice Size	#54	#54	#54	#55	#55	#55	#55

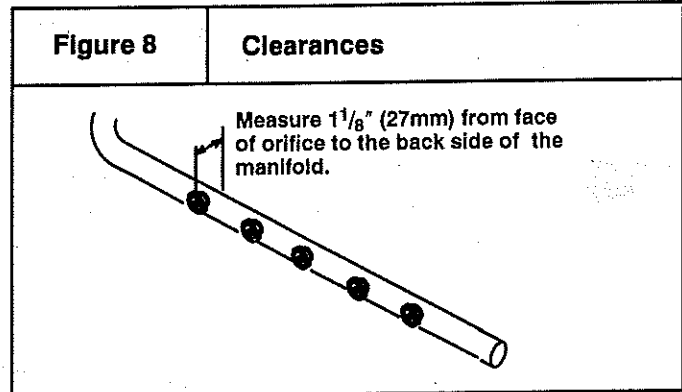
NOTE: NATURAL GAS DATA BASED ON 0.60 SPECIFIC GRAVITY. PROPANE DATA BASED ON 1.53 SPECIFIC GRAVITY. FOR FUELS WITH DIFFERENT SPECIFIC GRAVITY CONSULT THE LATEST EDITION OF THE NATIONAL FUEL GAS CODE ANSI Z223.1 and CAN B149.

### Changing Orifices

- After disconnecting power and gas supply to the furnace, remove the access door, exposing the burner compartment.
  - Remove the five (5) screws holding the burner box cover to expose the manifold and burners. (Figure 7)
- Disconnect gas line and pilot tubing from gas valve so manifold can be removed.
- Disconnect wiring at gas valve. Be sure to note the proper location of any and all electrical wiring disconnected.
- Remove the four (4) screws holding the manifold and gas valve to the manifold supports. Do not discard any screws. See Figure 7.



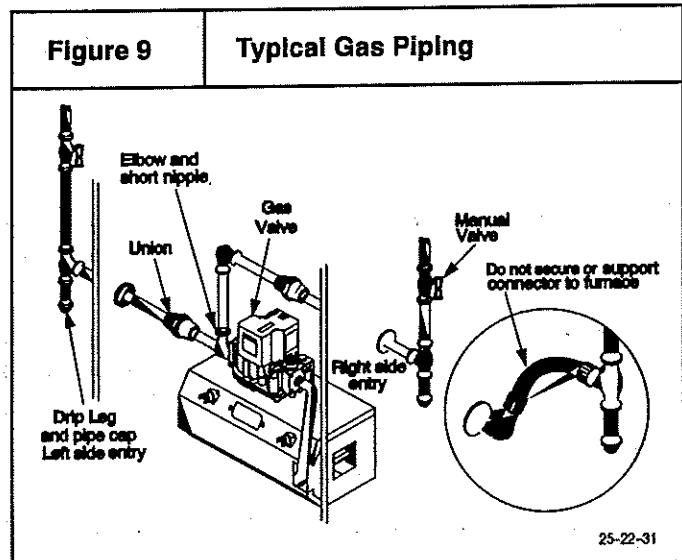
- Carefully remove the manifold assembly.
- Remove the orifices from the manifold and replace them with proper sized orifices. See Figure 8.
- Tighten orifices so there is  $1\frac{1}{8}$ " from the face of the orifice to the back side of the manifold. See Figure 8.



- Reassemble all parts in reverse order as removed. Be sure to engage the main burner orifices in the proper opening in the burners.
- After reassembling, turn gas on and check all joints for gas leaks using a soapy solution. All leaks must be repaired immediately.

### Gas Piping Requirements

- Install gas piping in accordance with local codes, or in the absence of local codes, the applicable national codes.
- It is recommended that a manual shutoff valve be installed in the gas supply line outside the unit. Locate valve as close to the furnace as possible where it is readily accessible. Refer to Figure 9.



- Use black iron or steel pipe and fittings or other pipe approved by local code.
- Use pipe thread compound which is resistant to natural and LP gases.
- Install a drip leg no less than 3" long to trap dirt and moisture before it can enter gas valve.



6. Provide a 1/8" inch plug for test gauge connection immediately up stream of gas supply connection to furnace.
7. Use two pipe wrenches when making connections to prevent gas valve from turning.
8. Flexible corrugated metal gas connector may **NOT** be used inside the furnace or be secured or supported by the furnace or ductwork.
9. Properly size gas pipe to handle combined appliance load or run gas pipe directly from gas meter or LP gas regulator.
10. Install correct pipe size for run length and furnace rating.
11. Measure pipe length from gas meter or LP second stage regulator.

## WARNING

**Fire or explosion hazard.**

**Gas connector must be properly installed, cannot go through the side of the furnace, and can not be used inside the furnace.**

**Failure to properly install gas connector can result in property damage, bodily injury and/or death.**

### Additional LP Piping Requirements

- Have a licensed LP gas dealer make all connections at storage tank and check all connections from tank to furnace.
- If copper tubing is used, it **MUST** comply with limitation set in Local Codes, or in the absence of local codes, the gas codes of the country having jurisdiction. See Appendix.
- Two-stage regulation of LP gas is recommended.

### Final Check

- Test all pipe for leaks.
- If orifices where changed, make sure they are checked for leaks.
- During pressure testing of gas piping system, observe the following:
  - a. If test pressure does not exceed 1/2" PSIG, isolate the furnace by closing its individual manual shutoff valve.
  - b. If test pressure exceeds 1/2" PSIG, the furnace and its individual shutoff valve must be disconnected from the gas supply system.
- To check for leaks apply soap suds or a liquid detergent to each joint. Bubbles forming indicate a leak.
- Do not use an open flame to test for gas leaks. Fire or explosion could occur.
- Correct even the smallest leak at once.

## WARNING

**Fire or explosion hazard.**

**Liquid petroleum (LP) gas is heavier than air and will settle and remain in low areas and open depressions.**

**Thoroughly ventilate area and dissipate gas. Do NOT use a match or open flame to test for leaks, or attempt to start up furnace before thoroughly ventilating area.**

**An open flame or spark can result in property damage, personal injury and/or death.**

## 7. Electrical Wiring

### Power Supply Wiring

The furnace **MUST** be electrically wired and grounded in accordance with local codes, or in the absence of local codes, the applicable national codes.

Field wiring connections must be made inside the furnace connection box. A suitable strain relief should be used at the point the wires exit the furnace casing.

Copper conductors shall be used. Line voltage wires should be sized for the input amps stated on the rating plate. Furnace must be connected to its own separate circuit.

### Thermostat

Thermostat location has an important effect on the operation of the unit. Follow instructions included with thermostat for correct mounting and wiring.

Low voltage connections to furnace must be made on terminal board to fan control.

Set thermostat heat anticipator in accordance with the *Technical Support Manual*.

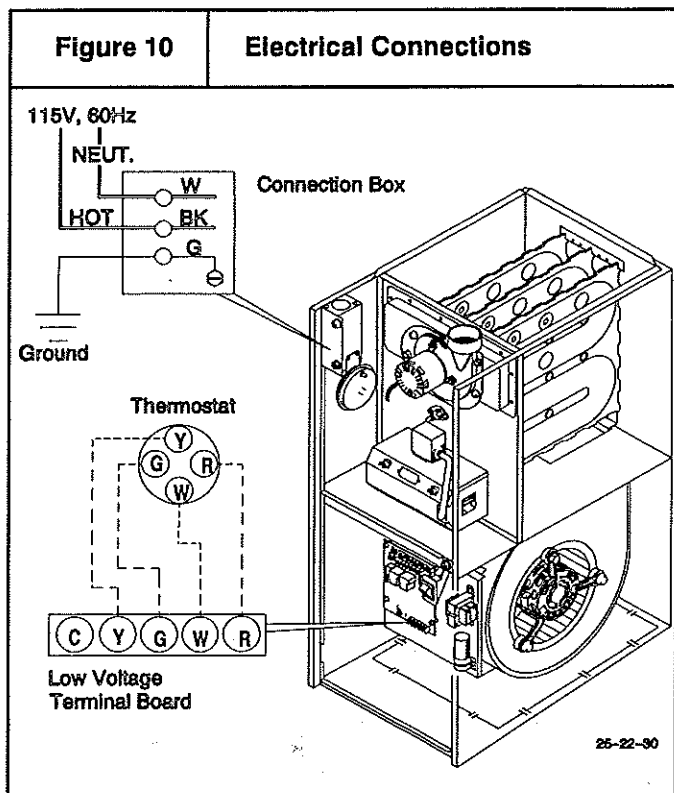
### Optional Equipment

All wiring from furnace to optional equipment **MUST** conform to local codes or, in the absence of local codes, the applicable national codes. Install wiring in accordance with manufacturer's instructions.

\*"Y" terminal on thermostat sub-base must be connected to "Y" terminal on furnace fan timer for proper fan speed during operation in air conditioning mode.

### Humidifier/Electronic Air Cleaner

The furnace is wired for humidifier and/or electronic air cleaner connection.



### CAUTION

Do NOT exceed 115V/0.8 amp maximum current load for both the EAC terminal and the HUM terminal combined.

**NOTE:** The humidifier will be powered when the furnace is fired and the circulating air blower comes on. The electronic air cleaner will be powered anytime the thermostat calls for air movement. However, the electronic air cleaner is NOT energized during continuous fan operation controlled by the electronic fan control.

## 8. Ductwork and Filter

### WARNING

**Poison carbon monoxide gas hazard.**

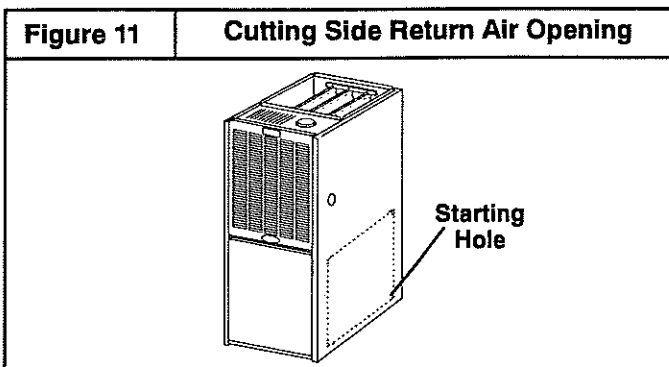
Do NOT draw return air from inside a closet or utility room where furnace is located. Return air duct **MUST** be sealed to furnace casing.

Failure to properly seal duct can result in personal injury and/or death.

### Duct Connections

This furnace may be installed in only a bottom or side return application. Return air through the back of the unit is **NOT** allowed.

Side connections can be made by cutting out the embossed area shown in Figure 11.



Bottom returns can be made by removing the knockout panel in the furnace base. Do NOT remove knock-out except for a bottom return.

### Duct Design

Design and install air distribution system to comply with Air Conditioning Contractors of America manuals or other approved methods that conform to local codes and good trade practices.

When the furnace is located in an area near or adjacent to the living area, the system should be carefully designed with returns to minimize noise transmission through the return air grille. Any blower moving a high volume of air will produce audible noise which could be objectionable when the unit is located very close to a living area. It is often advisable to route the return air ducts under the floor or through the attic.

- Refer to furnace **Technical Support Manual (Blower Data)** for air flow information.
- Size ductwork to handle air flow for heating and air conditioning.

### Duct Installation Requirements

- When furnace supply ducts carry air outside furnace area, seal return air duct to furnace casing and terminate duct outside furnace space.
- When a refrigeration coil is used in conjunction with this unit, it must be installed on the discharge side of the unit to avoid condensation on the heat exchanger.



- If separate evaporator and blower unit is used, install good sealing dampers for air flow control. Chilled air going through the furnace could cause condensation and shorten furnace life. Dampers (purchased locally) can be either automatic or manual. Manually operated dampers **MUST** be equipped with a means to prevent furnace or air conditioning operation unless damper is in the full heat or cool position.

## WARNING

**Poison carbon monoxide gas hazard.**

**Cool air passing over heat exchanger can cause condensate to form resulting in heat exchanger failure.**

**This could result in personal injury and/or death.**

- Installation of locking-type dampers are recommended in all branches, or in individual ducts to balance system's air flow.
- Non-combustible, flexible duct connectors are recommended for return and supply connections to furnace.
- If air return grille is located close to the fan inlet, install at least one, 90 degree air turn between fan and inlet grille to reduce noise.
- Ductwork installed in attic, or exposed to outside temperatures require 2" of insulation with outdoor type vapor barrier.
- Ductwork installed in an indoor unconditioned space requires a minimum of 1" of insulation with indoor type vapor barrier.

## Inspection Panel

A removable access panel should be provided in the outlet duct when the furnace is installed without a cooling coil. This will allow smoke or reflected light to be observable inside the casing to indicate the presence of leaks in the heat exchanger. This access cover shall be attached in such a manner as to prevent air leaks.

## Filters

The furnaces, with 1600 or less CFM rating, are supplied with a 16" x 25" high velocity filter and rack. On these models, the supplied filter rack may be mounted internally for bottom return or externally for side return.

The furnaces with greater than 1600 CFM requires that both left and right side returns are used in side return applications. Two 16" x 25" high velocity filters and racks are provided with furnace. Filter racks must be mounted externally. If return air must be on one side only, an optional 20" x 25" filter standoff rack kits can be used. (See Figure 15) For bottom return, an optional 20" x 25" filter rack kit can be mounted internally.

## Filters Rack Installation

### Side Return

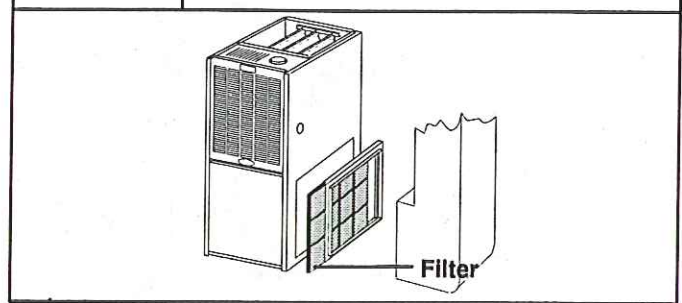
Center the filter rack on the side panel, flush with the bottom edge of the furnace. Mark the fastening holes. Drill the fastening holes

in the side panel and fasten the filter rack in place with sheet metal screws. See Figure 12 & Figure 14.

## CAUTION

**If filters are only suitable for heating application, advise homeowner that filter size may need to be increased if air conditioning is added.**

Figure 12 Side Return Filter Rack



### Bottom Return

When installing a bottom mounted filter rack, slide the two side filter clips to the back of the furnace **BEFORE** installing. This will allow the rack to clear the front raised edge of the furnace. Insert rack into side clips first and push rack back until it is fully engaged into back clip. When rack is in place, slide clips back into place midway on rack as shown in Figure 13.

Figure 13 Bottom Mounted Filter Rack

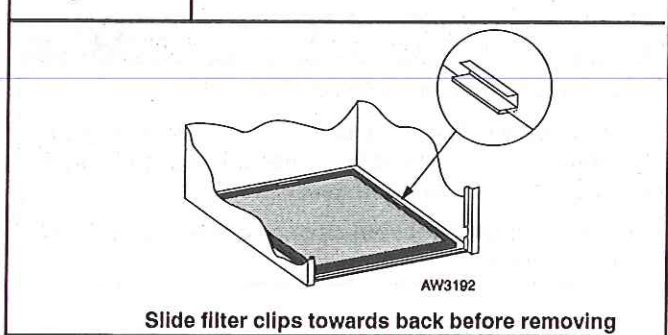


Figure 14 Filters Installed on Two Sides

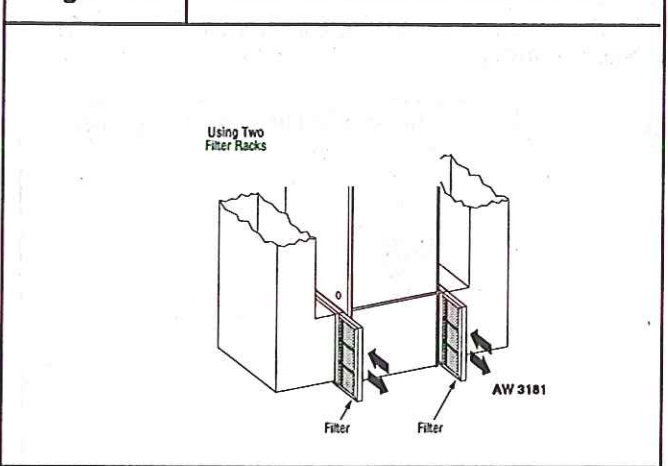
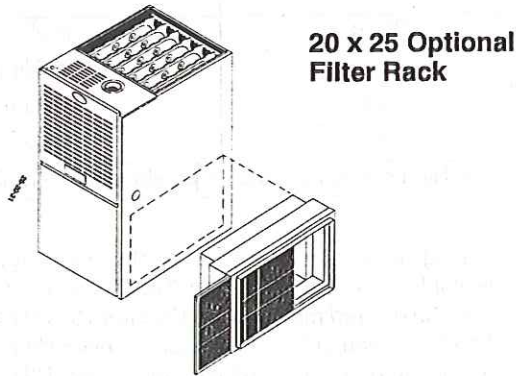




Figure 15

## Optional Duct Standoff

20 x 25 Optional  
Filter Rack

## 9. Checks and Adjustments

### Startup

**NOTE:** Refer to startup procedures in the *Users Information Manual*.

#### CAUTION

If any sparks, odors or unusual noises occur, immediately shut OFF power to furnace. Check for wiring errors or obstruction to blower.

### Gas Supply Pressure

Gas supply pressure should be within minimum and maximum values listed on rating plate. Pressures are usually set by gas suppliers.

### Manifold Gas Pressure Adjustment

**NOTE:** Make adjustment to manifold pressure with burners operating.

## WARNING

**Fire or explosion hazard.**

**Turn OFF gas at shut off before connecting U-tube manometer.**

**Failure to turn OFF gas at shut off before connecting U-tube manometer can result in personal injury and/or death.**

1. With gas OFF, Connect U-Tube manometer to tapped opening on gas valve. Use manometer with a 0 to min. 12" water column range.
2. Turn gas ON and remove adjustment screw cover on gas valve. Turn counterclockwise to decrease pressure and clockwise to increase.

**NOTE:** Adjustment screw cover **MUST** be placed on gas valve before reading manifold pressure and operating furnace.

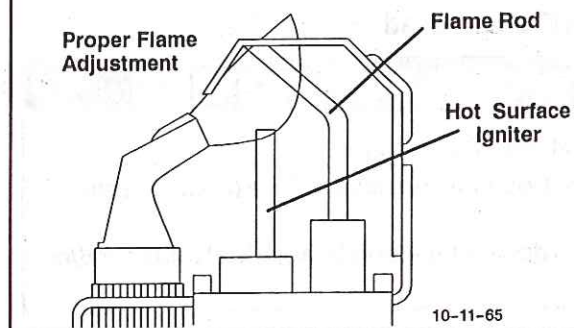
3. For altitudes up to 2000', set pressure to value shown in **Table 2**. For altitudes up to 2000' to 8000', see Section 6 for correct pressure value.

### Adjust Pilot Burner

The furnace has a pilot flame to light the main burner. The flame should surround  $\frac{3}{8}$ " to  $\frac{1}{2}$ " of the flame rod. See **Figure 16**. To adjust, remove cap from pilot adjusting screw on gas valve. Turn screw counterclockwise to increase or clockwise to decrease flame as required. Replace cap after adjusting screw.

Figure 16

## Pilot Burner



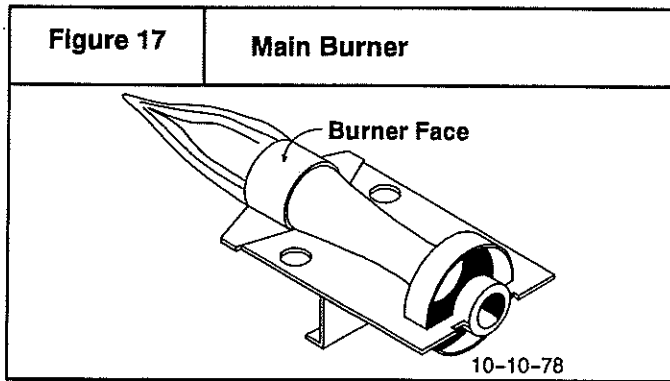
### Main Burner Flame Check

Allow the furnace to run approximately 10 minutes then inspect the main burner and pilot flames. See **Figure 17**.

Check for the following (**Figure 17**):

- Stable and blue flames. Dust may cause orange tips or wisps of yellow, but flames **MUST NOT** have solid, yellow tips.
- Flames extending directly from burner into heat exchanger.
- Flames do **NOT** touch sides of heat exchanger

If any problems with main burner flames are noted, it may be necessary to adjust gas pressures, or check for drafts.



## Temperature Rise Check

The blower speed **MUST** be set to give the correct air temperature rise through the furnace as marked on the rating plate. Temperature rise is the difference between supply and return air temperatures.

To check temperature rise, use the following procedure:

1. Place thermometers in supply and return air registers as close to furnace as possible, avoiding direct radiant heat from heat exchangers.
2. Operate furnace continuously for 15 minutes with all registers and duct dampers open.
3. Take reading and compare with range specified on rating plate.
4. If the correct amount of temperature rise is **NOT** obtained, it may be necessary to change blower speed. A higher blower speed will lower the temperature rise. A lower blower speed will increase the temperature rise.

## Changing Blower Speed

### **WARNING**

**Electrical shock hazard.**

**Turn OFF power to furnace before changing speed taps.**

**Failure to do so can result in personal injury and/or death.**

**NOTE:** Wiring diagram may not reflect actual factory settings. Installer/contractor must choose proper speed taps for individual application.

Since the manufacturer cannot establish the static pressure that will be applied to the unit, it is the responsibility of the installer dealer/contractor to select the proper speed taps for the application when the unit is installed.

If it is necessary to change speeds, refer to steps below.

1. Refer to *Furnace Wiring Diagram* for location of the heating and cooling speed taps located on the electronic fan control as well as location of unused blower motor speed leads. Use the chart (Table 5) to determine the blower motor speed settings.

<b>Table 5</b>	<b>Blower Speed Chart</b>	
<b>Wire Color</b>	<b>Motor Speed</b>	
Black	High	
Orange*	Med-High	
Blue	Medium	
Red	Low	
* Med-High speed may not be provided on all models.		

2. Change the heat or cool blower motor speed by removing the motor lead from the "Heat" or "Cool" terminal and replace it with the desired motor speed lead from the "Unused Motor Lead" location. Connect the wire previously removed from the "Heat" or "Cool" terminal to the vacated "Unused Motor Lead" terminal.
3. If the same speed must be used for both heating and cooling, remove the undesired motor speed lead from the "Heat" or "Cool" terminal and connect that lead to the open terminal at "Unused Motor Lead" location or tape off. Attach a jumper between the "Heat" and "Cool" terminals and the remaining motor speed lead.

**Note:** When using the same speed on motors with (4) speed leads, it will be necessary to tape off the terminal of the motor speed lead removed from the "Heat" or "Cool" terminal with electrical tape since an open terminal will not be available at the "Unused Motor Lead" location.

## Continuous Fan Operation

A terminal is provided on the electronic fan control located in the circulating blower compartment for operation of the continuous fan option. This connection is intended for the low speed motor tap, and has a lower contact rating (8 amps) than the heat and cool taps. When the low speed blower lead is connected to this terminal, this will provide low speed blower operation whenever the other two speeds (Heat or Cool) are not energized.

Thoroughly check the system after modification to ensure the proper operation of the circulating air blower in all modes of operation.

## Separate speed selections for Heat, Cool, and Continuous Fan

Connect low speed lead from circulating motor to the "Cont" terminal at the electronic fan control. The appropriate motor leads should already be connected to the "Heat" and "Cool" terminals.

## Heating and Continuous Blower Speed the Same

If it is necessary to operate the heating speed and continuous blower speed using the same blower speed, connect a jumper between the "Heat" and "Cont" terminals on the electronic fan control.

**Note:** There should be only **ONE** motor lead going to the "Heat" and "Cont" terminals.

## 10. Furnace Maintenance

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### CAUTION

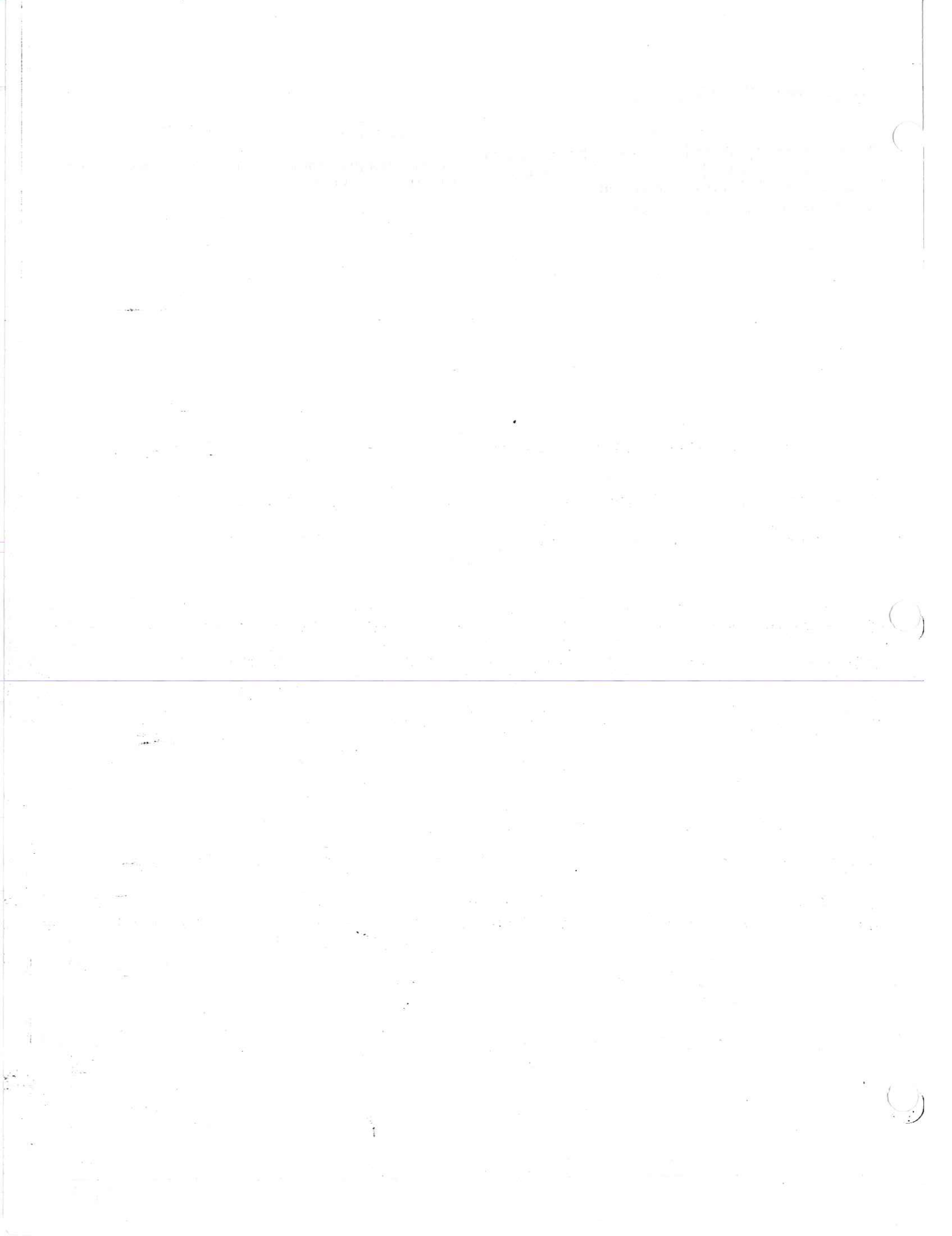
It is recommended that the furnace be inspected and serviced on an annual basis (before the heating season) by a qualified service technician.

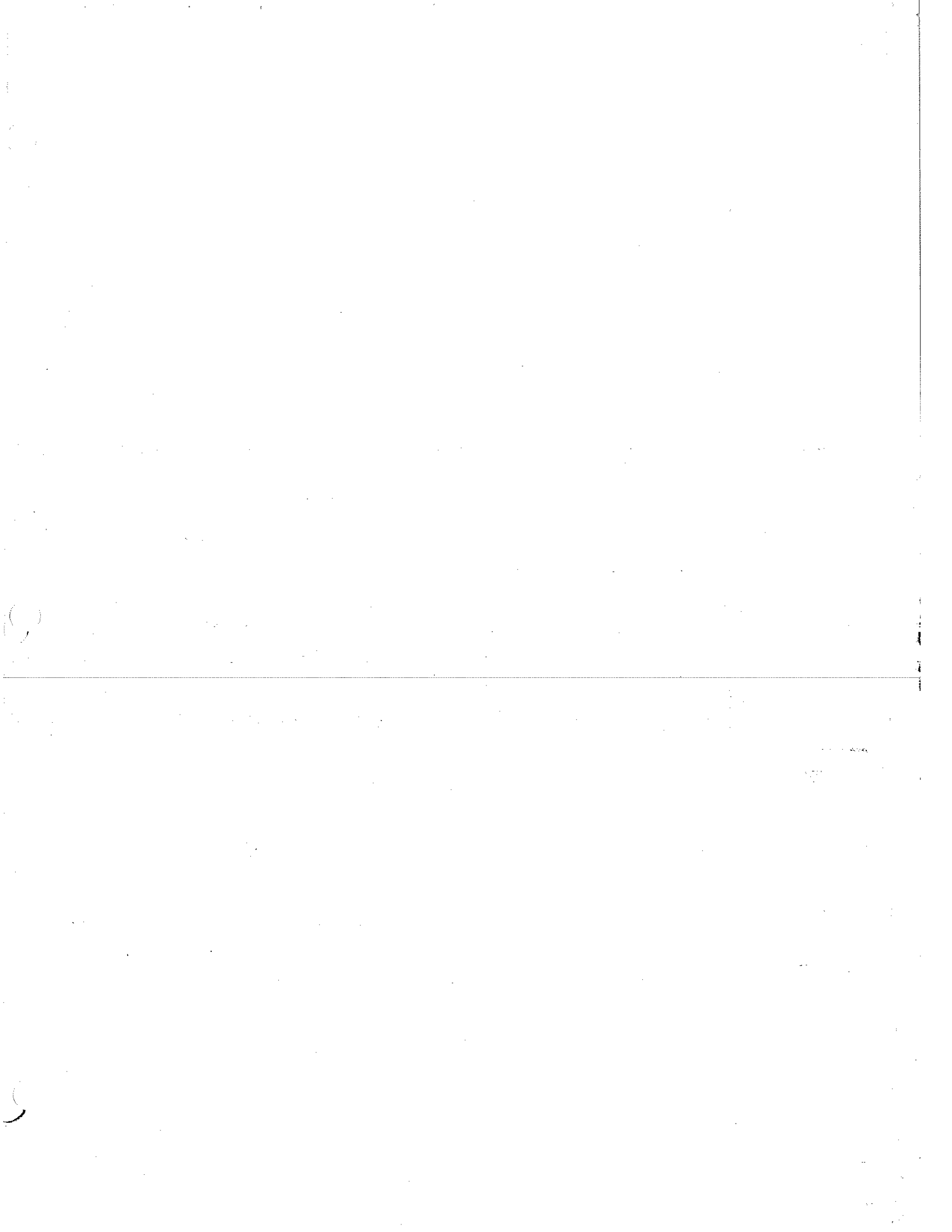
See *"User's Information Manual"*.

### Pressure Switch

During regular yearly maintenance check for cracks in any tubes on the pressure switch.

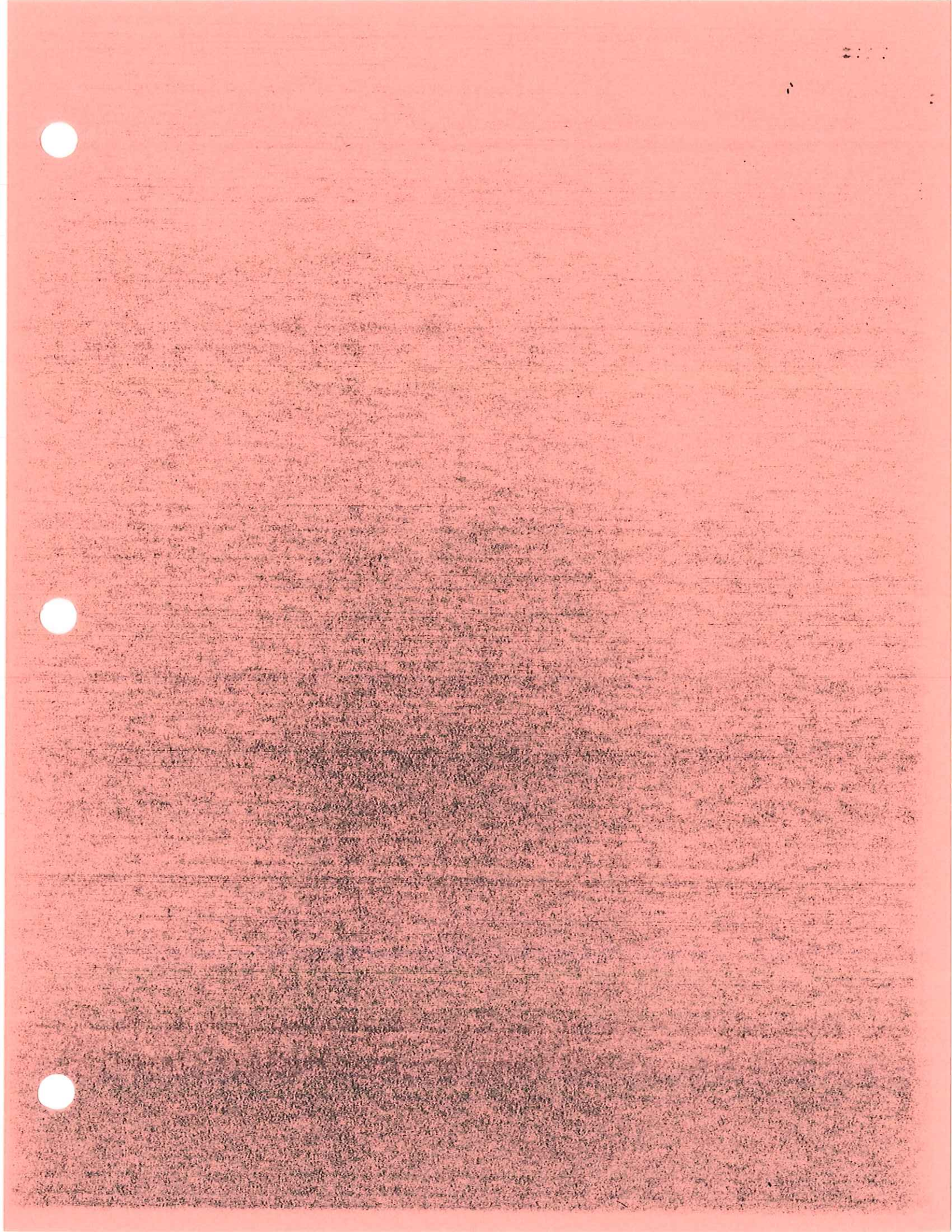














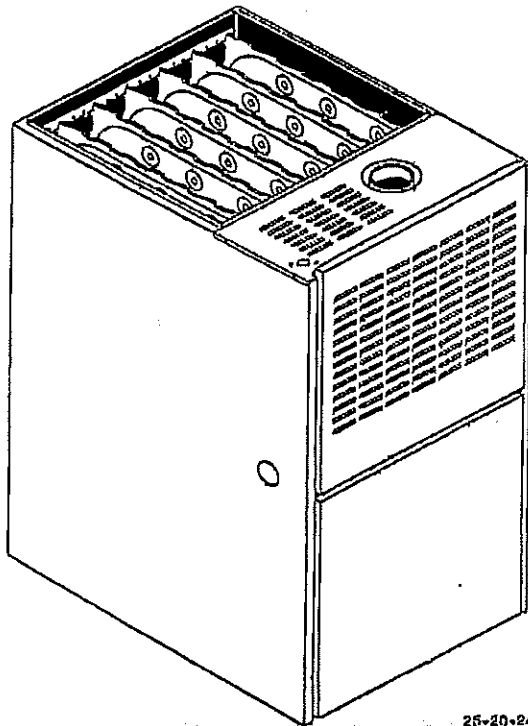




New NTC-6 (Restrictor) (NEW)

# Technical Support Manual

## Models



25-20-24

- |             |             |
|-------------|-------------|
| NTC6050FBA1 | GNE050B12A1 |
| NTC6075FBA1 | GNE075B12A1 |
| NTC6075HFA1 | GNE075F16A1 |
| NTC6100GFA1 | GNE100F14A1 |
| NTC6100KFA1 | GNE100F20A1 |
| NTC6100KJA1 | GNE100J20A1 |
| NTC6125KJA1 | GNE125J20A1 |
| NTC6150KJA1 | GNE150J20A1 |
|             |             |
| NTN6050FBA1 | NNE050B12A1 |
| NTN6075FBA1 | NNE075B12A1 |
| NTN6075HFA1 | NNE075F16A1 |
| NTN6100KFA1 | NNE100F20A1 |
| NTN6100KJA1 | NNE100J20A1 |
| NTN6125KJA1 | NNE125J20A1 |

Manufactured by:  
*International Comfort Products Corporation (USA)*  
Lewisburg, TN USA 37091

# FAN ASSISTED COMBUSTION GAS FURNACES



Save This Manual For Future Reference



THIS DATA IS SUBJECT TO CHANGE

Manufacturers Number (Mfr No -See Rating Plate) NTC6075HFA/GNE075F16A & NTN6075HFA/NNE075F16A										
Specifications			Circulation Air Blower Data							
GENERAL	Gas Type	Nat	LP	Type & Size	10-10	Filt Type	Washable			
	Input (Btuh) Std/Alt.	75,000	75,000					Motor Amps/RPM	10.3/1100	Filt Size (")
GAS & IGNITION	Output (Btuh) Std/Alt.	59,000	59,000	Motor Type/ H.P.	PSC 1/2	Min. Cool	3			
	Temp. Rise (°F)	25-55	25-55	Cap. MFD/Volts	10/370	Max. Cool				
	Electrical (Volts/Hz/FLA)	115/60/12.0	115/60/12.0			Cap. (Tons)		4		
	Transformer Size (VA)	40	40							
COMBUSTION	T'stat Heat Anticipator	.30	.30	Air Delivery in Cubic Feet per Minute (C.F.M.) (Furnace Rated @0.5" WC ESP)						
	Gas Valve	HW SV9500	HW SV9500	External Static Pressure Inches of W.C.	.TAP	LOW	MED L	MED	MED H	HIGH
	Regulation Type	SNAP	SNAP							
Manifold Press. (Inch's WC)	3.5	10.0								
Std. Main Orifices (No/Size)	3/#42	3/#54								
Pilot Orifice Size	.018	.011								
Ignition Type/Series	HW HSP	HW HSP								
Lock-Out Time	---	---								
LIMITS & CONTROLS	Flue Outlet Size (Inches)	3	3	Air Delivery in Liters Per Second (L/S) (Furnace Rated @0.5" WC ESP)						
	Flue Outlet Temp (°F)	<480	<480	External Static Pressure Inches of W.C.	.TAP	LOW	MED L	MED	MED H	HIGH
	Rollout Switch (°F)	300	300							
	Limit Control Setting (°F)	300	300							
	Auxiliary Limit (°F)	130	130							
	Fan Control (Type)	HW ST9120	HW ST9120							
Fan Control On	30/60	30/60								
(Timed -Secs) Off	60,100,140,180	60,100,140,180								
Pressure Sw. (Part No)	1010897	1010897	Air Delivery in Cubic Feet per Minute (C.F.M.) (Furnace Rated @0.5" WC ESP)							
Press Differential (Close)	-0.50	-0.50	External Static Pressure Inches of W.C.	.TAP	LOW	MED L	MED	MED H	HIGH	
Press Differential (Open)	-0.40	-0.40								
High Alt. Restrictor (Part No)	734020026	734020026								

THIS DATA IS SUBJECT TO CHANGE

Manufacturers Number (Mfr No -See Rating Plate) NTC6100GFA/GNE100F14A										
Specifications			Circulation Air Blower Data							
GENERAL	Gas Type	Nat	LP	Type & Size	10-10	Filt Type	Washable			
	Input (Btuh) Std/Alt.	100,000	100,000					Motor Amps/RPM	8.0/1050	Filt Size (")
GAS & IGNITION	Output (Btuh) Std/Alt.	79,000	79,000	Motor Type/ H.P.	PSC 1/2	Min. Cool	1.5			
	Temp. Rise (°F)	45-75	45-75	Cap. MFD/Volts	7.5/370	Max. Cool				
	Electrical (Volts/Hz/FLA)	115/60/7.5	115/60/7.5			Cap. (Tons)		3.5		
	Transformer Size (VA)	40	40							
COMBUSTION	T'stat Heat Anticipator	.30	.30	Air Delivery in Cubic Feet per Minute (C.F.M.) (Furnace Rated @0.5" WC ESP)						
	Gas Valve	HW SV9500	HW SV9500	External Static Pressure Inches of W.C.	.TAP	LOW	MED L	MED	MED H	HIGH
	Regulation Type	SNAP	SNAP							
Manifold Press. (Inch's WC)	3.5	10.0								
Std. Main Orifices (No/Size)	4/#42	4/#54								
Pilot Orifice Size	.018	.011								
Ignition Type/Series	HW HSP	HW HSP								
Lock-Out Time	---	---								
LIMITS & CONTROLS	Flue Outlet Size (Inches)	3	3	Air Delivery in Liters Per Second (L/S) (Furnace Rated @0.5" WC ESP)						
	Flue Outlet Temp (°F)	<480	<480	External Static Pressure Inches of W.C.	.TAP	LOW	MED L	MED	MED H	HIGH
	Rollout Switch (°F)	300	300							
	Limit Control Setting (°F)	270	270							
	Auxiliary Limit (°F)	130	130							
	Fan Control (Type)	HW ST9120	HW ST9120							
Fan Control On	30/60	30/60								
(Timed -Secs) Off	60,100,140,180	60,100,140,180								
Pressure Sw. (Part No)	1010896	1010896	Air Delivery in Cubic Feet per Minute (C.F.M.) (Furnace Rated @0.5" WC ESP)							
Press Differential (Close)	-0.60	-0.60	External Static Pressure Inches of W.C.	.TAP	LOW	MED L	MED	MED H	HIGH	
Press Differential (Open)	-0.50	-0.50								
High Alt. Restrictor (Part No)	734020034	734020034								



THIS DATA IS SUBJECT TO CHANGE

Manufacturers Number (Mfr No -See Rating Plate) NTC6100KFA/GNE100F20A & NTN6100KFA/NNE100F20A								
Specifications			Circulation Air Blower Data					
GENERAL	Gas Type	Nat	LP	Type & Size	11-10	Filt Type	Washable	
	Input (Btuh) Std/Alt.	100,000	100,000		Motor Amps/RPM			10.6/1100
GAS & IGNITION	Output (Btuh) Std/Alt.	79,000	79,000	Motor Type/ H.P.	PSC <sup>3</sup> / <sub>4</sub>	Mfn. Cool	3	
	Temp. Rise (°F)	35-65	35-65	Cap. MFD/Volts	10/370	Cap. (Tons)		4.5
	Electrical (Volts/Hz/FLA)	115/60/12.0	115/60/12.0					
Transformer Size (VA)	40	40						
LIMITS & CONTROLS	T'stat Heat Anticipator	.30	.30					
	Gas Valve Regulation Type	HW SV9500	HW SV9500					
	Manifold Press. (Inch's WC)	3.6	10.0					
COMBUSTION	Std. Main Orifices (No/Size)	4/#42	4/#54					
	Pilot Orifice Size	.018	.011					
GAS & IGNITION	Ignition Type/Series	HW HSP	HW HSP					
	Lock-Out Time	---	---					
COMBUSTION	Flue Outlet Size (Inches)	3	3					
	Flue Outlet Temp (°F)	<480	<480					
LIMITS & CONTROLS	Rollout Switch (°F)	300	300					
	Limit Control Setting (°F)	195	195					
GAS & IGNITION	Auxiliary Limit (°F)	130	130					
	Fan Control (Type)	HW ST9120	HW ST9120					
COMBUSTION	Fan Control (On)	30/60	30/60					
	Fan Control (Off)	60,100,140,180	60,100,140,180					
LIMITS & CONTROLS	Pressure Sw. (Part No)	1010898	1010898					
	Press Differential (Close)	-0.60	-0.60					
GAS & IGNITION	Press Differential (Open)	-0.50	-0.50					
	High Alt. Restrictor (Part No)	734020034	734020034					

Air Delivery in Cubic Feet per Minute (C.F.M.) (Furnace Rated @0.5" WC ESP)						
External Static Pressure Inches of W.C.	.TAP	LOW	MED L	MED	MED H	HIGH
.10	1278	1546	--	1822	2302	
.20	1264	1543	--	1784	2291	
.30	1244	1499	--	1737	2171	
.40	1212	1471	--	1683	2098	
.50	1195	1417	--	1641	2012	
.60	1178	1387	--	1574	1921	
.70	1118	1304	--	1485	1826	

Air Delivery in Liters Per Second (L/S) (Furnace Rated @0.5" WC ESP)						
External Static Pressure Inches of W.C.	.TAP	LOW	MED L	MED	MED H	HIGH
.10	603	730	--	860	1087	
.20	597	728	--	842	1289	
.30	587	708	--	820	1025	
.40	572	694	--	794	990	
.50	559	669	--	775	950	
.60	556	645	--	743	907	
.70	528	615	--	708	862	

THIS DATA IS SUBJECT TO CHANGE

Manufacturers Number (Mfr No -See Rating Plate) NTC6100KJA/GNE100J20A & NTN6100KJA/NNE100J20A								
Specifications			Circulation Air Blower Data					
GENERAL	Gas Type	Nat	LP	Type & Size	11-10	Filt Type	Washable	
	Input (Btuh) Std/Alt.	100,000	100,000		Motor Amps/RPM			11.9/900
GAS & IGNITION	Output (Btuh) Std/Alt.	79,000	79,000	Motor Type/ H.P.	PSC <sup>3</sup> / <sub>4</sub>	Mfn. Cool	3	
	Temp. Rise (°F)	35-65	35-65	Cap. MFD/Volts	10/370	Cap. (Tons)		5
	Electrical (Volts/Hz/FLA)	115/60/12.0	115/60/12.0					
Transformer Size (VA)	40	40						
LIMITS & CONTROLS	T'stat Heat Anticipator	.30	.30					
	Gas Valve Regulation Type	HW SV9500	HW SV9500					
	Manifold Press. (Inch's WC)	3.5	10.0					
COMBUSTION	Std. Main Orifices (No/Size)	4/#42	4/#54					
	Pilot Orifice Size	.018	.011					
GAS & IGNITION	Ignition Type/Series	HW HSP	HW HSP					
	Lock-Out Time	---	---					
COMBUSTION	Flue Outlet Size (Inches)	3	3					
	Flue Outlet Temp (°F)	<480	<480					
LIMITS & CONTROLS	Rollout Switch (°F)	300	300					
	Limit Control Setting (°F)	130	130					
GAS & IGNITION	Auxiliary Limit (°F)	130	130					
	Fan Control (Type)	HW ST9120	HW ST9120					
COMBUSTION	Fan Control (On)	30/60	30/60					
	Fan Control (Off)	60,100,140,180	60,100,140,180					
LIMITS & CONTROLS	Pressure Sw. (Part No)	1010898	1010898					
	Press Differential (Close)	-0.60	-0.60					
GAS & IGNITION	Press Differential (Open)	-0.50	-0.50					
	High Alt. Restrictor (Part No)	734020034	734020034					

Air Delivery in Cubic Feet per Minute (C.F.M.) (Furnace Rated @0.5" WC ESP)						
External Static Pressure Inches of W.C.	.TAP	LOW	MED L	MED	MED H	HIGH
.10	1210	1441	--	1773	2104	
.20	1201	1430	--	1740	2078	
.30	1197	1453	--	1740	2061	
.40	1191	1441	--	1718	2020	
.50	1187	1425	--	1707	2005	
.60	1180	1390	--	1676	1953	
.70	1130	1365	--	1654	1917	

Air Delivery in Liters Per Second (L/S) (Furnace Rated @0.5" WC ESP)						
External Static Pressure Inches of W.C.	.TAP	LOW	MED L	MED	MED H	HIGH
.10	571	680	--	837	993	
.20	587	675	--	821	981	
.30	585	686	--	821	973	
.40	562	680	--	811	953	
.50	552	673	--	808	946	
.60	548	656	--	791	922	
.70	533	644	--	781	905	



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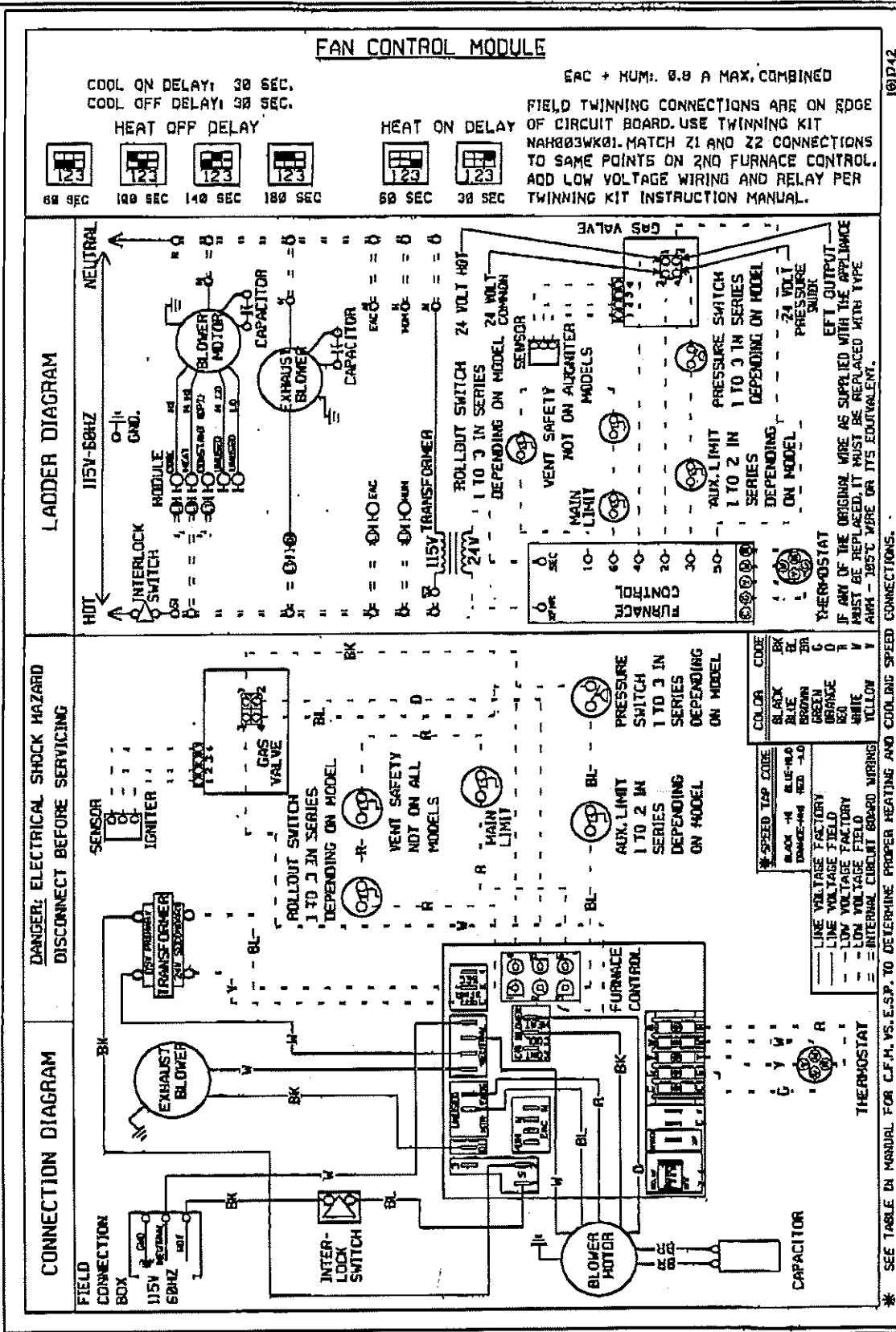
Manufacturers Number (Mfr No -See Rating Plate) NTC6125KJA/GNE125J20A & NTN6125KJA/NEE125J20A																																																										
Specifications			Circulation Air Blower Data																																																							
GENERAL	Gas Type	Nat	LP	Type & Size Motor Amps/RPM Motor Type/ H.P. Cap. MFD/Volts	11-10 11,9/900 PSC <sup>3</sup> / <sub>4</sub> 10/370	Filt Type Filt Size (") Min. Cool Cap. (Tons) Max. Cool Cap. (Tons)	Washabl 16x25x2 3 6																																																			
	Input (Btuh) Std/Alt, Output (Btuh) Std/Alt, Temp. Rise (°F)	125,000 99,000 40-70	125,000 99,000 40-70																																																							
GAS & IGNITION	Electrical (Volts/Hz/FLA) Transformer Size (VA) T'at Heat Anticipator	115/60/12.0 40 .30	115/60/12.0 40 .30	Air Delivery In Cubic Feet per Minute (C.F.M.) (Furnace Rated @0.5' WC ESP)																																																						
	Gas Valve Regulation Type Manifold Press. (Inch's WC)	HW SV9500 SNAP 3.5	HW SV9500 SNAP 10.0	External Static Pressure Inches of W.C.	<table border="1"> <thead> <tr> <th>.TAP</th> <th>LOW</th> <th>MED L</th> <th>MED</th> <th>MED H</th> <th>HIGH</th> </tr> </thead> <tbody> <tr><td>.10</td><td>1284</td><td>1520</td><td>--</td><td>1841</td><td>2161</td></tr> <tr><td>.20</td><td>1251</td><td>1506</td><td>--</td><td>1803</td><td>2132</td></tr> <tr><td>.30</td><td>1249</td><td>1486</td><td>--</td><td>1772</td><td>2079</td></tr> <tr><td>.40</td><td>1219</td><td>1458</td><td>--</td><td>1736</td><td>2042</td></tr> <tr><td>.50</td><td>1168</td><td>1427</td><td>--</td><td>1702</td><td>1991</td></tr> <tr><td>.60</td><td>1178</td><td>1415</td><td>--</td><td>1672</td><td>1914</td></tr> <tr><td>.70</td><td>1143</td><td>1368</td><td>--</td><td>1614</td><td>1838</td></tr> </tbody> </table>						.TAP	LOW	MED L	MED	MED H	HIGH	.10	1284	1520	--	1841	2161	.20	1251	1506	--	1803	2132	.30	1249	1486	--	1772	2079	.40	1219	1458	--	1736	2042	.50	1168	1427	--	1702	1991	.60	1178	1415	--	1672	1914	.70	1143	1368	--	1614	1838
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COMBUSTION	Flue Outlet Size (Inches) Flue Outlet Temp (°F)	3 <480	3 <480	Air Delivery In Liters Per Second (L/S) (Furnace Rated @0.5' WC ESP)																																																						
	Rollout Switch (°F) Limit Control Setting (°F) Auxiliary Limit (°F)	300 150 130	300 150 130	External Static Pressure Inches of W.C.	<table border="1"> <thead> <tr> <th>.TAP</th> <th>LOW</th> <th>MED L</th> <th>MED</th> <th>MED H</th> <th>HIGH</th> </tr> </thead> <tbody> <tr><td>.10</td><td>597</td><td>717</td><td>--</td><td>869</td><td>1020</td></tr> <tr><td>.20</td><td>590</td><td>711</td><td>--</td><td>851</td><td>1006</td></tr> <tr><td>.30</td><td>590</td><td>701</td><td>--</td><td>836</td><td>981</td></tr> <tr><td>.40</td><td>575</td><td>687</td><td>--</td><td>819</td><td>964</td></tr> <tr><td>.50</td><td>551</td><td>674</td><td>--</td><td>803</td><td>940</td></tr> <tr><td>.60</td><td>556</td><td>668</td><td>--</td><td>789</td><td>903</td></tr> <tr><td>.70</td><td>540</td><td>641</td><td>--</td><td>762</td><td>868</td></tr> </tbody> </table>						.TAP	LOW	MED L	MED	MED H	HIGH	.10	597	717	--	869	1020	.20	590	711	--	851	1006	.30	590	701	--	836	981	.40	575	687	--	819	964	.50	551	674	--	803	940	.60	556	668	--	789	903	.70	540	641	--	762	868
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	High Alt. Restrictor (Part No)	734020035	734020035																																																							

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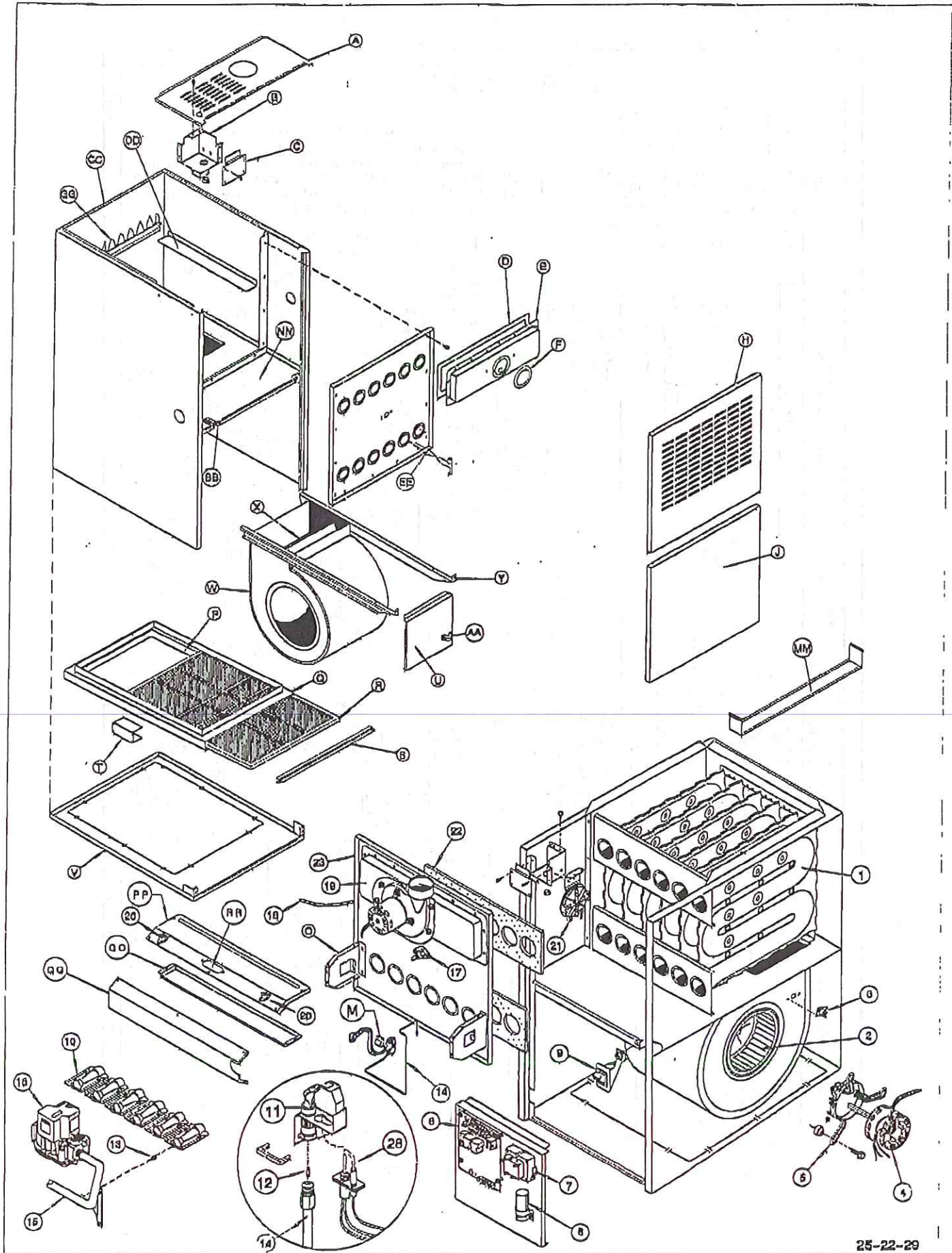
Manufacturers Number (Mfr No -See Rating Plate) NTC6150KJA/GNE150J20A																																																										
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GAS & IGNITION	Electrical (Volts/Hz/FLA) Transformer Size (VA) T'at Heat Anticipator	115/60/12.0 40 .30	115/60/12.0 40 .30	Air Delivery In Cubic Feet per Minute (C.F.M.) (Furnace Rated @0.5' WC ESP)																																																						
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LIMITS & CONTROLS	Fan Control (Type) Fan Control On (Timed-Secs) Off	HW ST9120 30/60 60,100,140,180	HW ST9120 30/60 60,100,140,180																																																							
	Pressure Sw. (Part No) Press Differential (Close) Press Differential (Open)	1010898 -0.75 -0.65	1010898 0.39 0.29																																																							
	High Alt. Restrictor (Part No)	734020028	734020028																																																							



# 1. Wiring Diagram



101742



25-22-29

## Replacement Parts - NTC6/GNE (Natural Gas)

Models - NTC6050FBA, NTC6075FBA, NTC6075HFA, NTC6100GFA, NTC6100KFA, NTC6100KJA, NTC6125KJA, NTC6150KJA; GNE050B12A1, GNE075B12A1, GNE075F16A1, GNE100F14A1, GNE100F20A1, GNE100J20A1, GNE125J20A1 & GNE150J20A1

Replacement part supplied will be current active part. For parts not listed, consult place of purchase.

Key No.	Functional Description	Part Number	NTC6/GNE								
			050FB/ 050B12	075FB/ 075B12	075HF/ 075F16	100GF/ 100F14	100KF/ 100F20	100KJ/ 100J20	125KJ/ 125J20	150KJ/ 150J20	
1	Heat Exchanger	231010102	1	-	-	-	-	-	-	-	-
		231010103	-	-	-	-	-	-	-	-	-
		231010104	-	-	-	1	1	1	-	-	-
		231010105	-	-	-	-	-	-	1	-	-
		231010108	-	-	-	-	-	-	-	1	1
2	Blower Wheel	601210	-	-	1	1	-	-	-	-	-
		600587	1	1	-	-	-	-	-	-	-
		1011420	-	-	-	-	1	1	1	1	-
		1011433	-	-	-	-	-	-	-	-	1
3	Switch, Auxiliary Limit	1000735	2	2	2	2	2	2	2	2	
		1009064	1	1	-	-	-	-	-	-	-
4	Blower Motor	1008414	-	-	1	-	-	-	-	-	-
		1009063	-	-	-	1	-	-	-	-	-
		1011404	-	-	-	-	-	1	1	1	1
		1010263	-	-	-	-	1	-	-	-	-
		609227	1	1	1	1	-	-	-	-	-
5	Motor Mount Kit	522020024	-	-	-	-	1	1	1	1	
		1002804	-	-	-	-	-	-	-	1	
		1009838	1	1	1	1	1	1	1	1	
7	Transformer, 40VA	1011103	1	1	1	1	1	1	1	1	
8	Capacitor 10mf 370V	1094956	-	-	1	-	1	1	1	1	
		1094954	1	1	-	-	-	-	-	-	
		1084239	-	-	-	1	-	-	-	-	
9	Switch Door	1010886	1	1	1	1	1	1	1	1	
10	Burner Assembly	1008723	1	-	-	-	-	-	-	-	
		1008724	-	1	-	-	-	-	-	-	
		1008725	-	-	-	1	1	1	1	1	
		1008726	-	-	-	-	-	-	1	-	
		1009179	-	-	-	-	-	-	-	1	
11	Pilot, Natural & LP	1149856	1	1	1	1	1	1	1	1	
12	Pilot Orifice, NAT (.020)	1160403	1	1	1	1	1	1	1	1	
		1009136	1	1	1	1	1	1	1	1	
13	Orifice, #42 NAT	1004149	2	3	3	4	4	4	5	6	
		1004142	2	3	3	4	4	4	5	6	
14	Tube, Pilot	64930	1	1	1	1	1	1	1	1	
15	Manifold	1011458	1	-	-	-	-	-	-	-	
		1011459	-	1	1	-	-	-	-	-	
		1011460	-	-	-	1	1	1	-	-	
		1011461	-	-	-	-	-	-	1	-	
		1011462	-	-	-	-	-	-	-	1	
16	Valve, Natural & LP	1011024	1	1	1	1	1	1	1	1	
17	Switch, Limit	1320365	1	-	-	1	-	-	-	-	
		34333002	-	1	-	-	-	-	-	-	
		1008418	-	-	1	-	-	-	-	-	
		1320363	-	-	-	-	1	-	-	-	
		1320364	-	-	-	-	-	1	-	-	
1320362	-	-	-	-	-	-	1	1			
18	Tubing, Silicone 24"	1149483	1	1	1	1	1	1	1	1	
19	Combustion Blower Assembly	1010975	1	1	1	1	1	1	1	1	
20	Rollout Switch, Limit	1005549	2	2	2	2	2	2	2	2	
21	Switch, Pressure	1010888	1	1	1	1	1	1	1	1	
22	Heat Exchanger Gaskets	2480804	2	-	-	-	-	-	-	-	
		2480805	-	2	-	-	-	-	-	-	
		2480808	-	-	2	2	2	2	-	-	
		2480807	-	-	-	-	-	-	-	2	
		2480809	-	-	-	-	-	-	-	-	
23	Heat Exchanger Front Partition	1008068	1	-	-	-	-	-	-	-	
		1008069	-	1	-	-	-	-	-	-	
		1008070	-	-	1	-	-	-	-	-	
		1008072	-	-	-	1	1	-	-	-	
		1008071	-	-	-	-	-	1	-	-	
		1008073	-	-	-	-	-	-	1	-	
1008074	-	-	-	-	-	-	-	1			
28	Ignitor/Sensor with clip	1009524	1	1	1	1	1	1	1	1	
(	PART NOT ILLUSTRATED										
(	Wire Harness Assy, Low Volt	1010881	1	1	1	1	1	1	1	1	



## Replacement Parts - NTC6/GNE (Natural Gas)

Models - NTC6050FBA, NTC6075FBA, NTC6075HFA, NTC6100GFA, NTC6100KFA, NTC6100KJA, NTC6125KJA, NTC6150KJA, GNE050B12A1, GNE075B12A1, GNE075F16A1, GNE100F14A1, GNE100F20A1, GNE100J20A1, GNE125J20A1 & GNE150J20A1

Replacement part supplied will be current active part. For parts not listed, consult place of purchase.

Key No.	Functional Description	Part Number	NTC6/GNE							
			050FB/ 050B12	075FB/ 075B12	075HF/ 075F16	100GF/ 100F14	100KF/ 100F20	100KJ/ 100J20	125KJ/ 125J20	150KJ/ 150J20
A	Top	1011534	1	1	-	-	-	-	-	-
		1011535	-	-	1	-	-	-	-	-
		1011536	-	-	-	1	1	-	-	-
		1011537	-	-	-	-	-	1	1	1
B	Field Connect Box	1010359	1	1	1	1	1	1	1	
C	Cover, Field Connect	1010360	1	1	1	1	1	1	1	
D	Gasket, Collector	1093661	1	1	1	-	-	-	-	-
		1093662	-	-	-	1	1	1	-	-
		1093663	-	-	-	-	-	-	1	1
E	Collector	1011045	1	-	-	-	-	-	-	-
		1011048	-	1	1	-	-	-	-	-
		1011052	-	-	-	1	1	1	-	-
		1011055	-	-	-	-	-	-	1	-
		1011057	-	-	-	-	-	-	-	1
F	Gasket, Combustion Blower	1011379	1	1	1	1	1	1	1	
H	Door, Louvered	NTC6 only 1011519	1	1	-	-	-	-	-	-
		NTC8 only 1011520	-	-	1	1	1	-	-	-
		NTC8 only 1011521	-	-	-	-	-	1	1	1
		GNE only 1011522	1	1	-	-	-	-	-	-
		GNE only 1011523	-	-	1	1	1	-	-	-
GNE only 1011524	-	-	-	-	-	-	1	1	1	
J	Door, Blower	1010191	1	1	-	-	-	-	-	-
		1010190	-	-	1	1	1	-	-	-
		1010192	-	-	-	-	-	1	1	1
M	Bracket, Pilot	1010901	1	1	1	1	1	1	1	
O	Manifold Support Bracket	1011450	2	2	2	2	2	2	2	
P	Filter Rack Wrapper	741010042	1	1	-	-	-	-	-	-
		741010039	-	-	1	1	1	2	2	2
Q	Filter Rack Front	741020004	1	1	-	-	-	-	-	-
		741020001	-	-	1	1	1	2	2	2
R	Filter 14" x 25" x 1/2" 16" x 25" x 1/2"	1010364	1	1	-	-	-	-	-	-
		1010365	-	-	1	1	1	2	2	2
S	Filter Cover Plastic	2791042	1	1	-	-	-	-	-	-
		2791043	-	-	1	1	1	2	2	2
T	Clip, Filter	1008482	9	9	9	9	9	9	9	
U	Fan Timer Bracket	1011178	1	1	1	1	1	1	1	
V	Base	1010112	1	1	-	-	-	-	-	-
		1010113	-	-	1	1	1	-	-	-
		1010114	-	-	-	-	-	1	1	1
W	Blower Housing	1010475	1	1	-	-	-	-	-	-
		1010479	-	-	1	1	-	-	-	-
		1010322	-	-	-	-	1	1	1	-
		1008888	-	-	-	-	-	-	-	1
X	Blower Cutoff	721020008	-	-	1	1	1	1	1	-
		721020013	1	1	-	-	-	-	-	-
		721020015	-	-	-	-	-	-	-	1
Y	Blower Hanger	1010690	2	2	2	2	2	2	2	
AA	Strap Capacitor	1095020	1	1	1	1	1	1	1	
BB	Rail, Blower Slide	57059	2	2	2	2	2	2	2	
CC	Casing, Wrapper	1010610	1	1	-	-	-	-	-	-
		1010611	-	-	1	1	-	-	-	-
		1010612	-	-	-	-	-	1	1	1
DD	Baffle, Circulating Air	707010031	2	2	-	2	2	2	2	
GG	Heat Exchanger Support	1008880	-	-	2	-	-	-	-	-
		1011026	1	-	-	-	-	-	-	-
		750010045	-	1	-	-	-	-	-	-
		750010046	-	-	1	-	-	-	1	-
		1010333	-	-	-	1	1	1	-	-
750010047	-	-	-	-	-	-	-	1		
MM	Baffle, Air Heat Exch.	738010022	-	-	-	-	-	-	3	
NN	Partition, Blower	1010810	1	1	-	-	-	-	-	-
		1010811	-	-	1	1	1	-	-	-
		1011075	-	-	-	-	-	1	1	-
		1010812	-	-	-	-	-	-	-	1

## Replacement Parts - NTC6/GNE (Natural Gas)

Models - NTC6050FBA, NTC6075FBA, NTC6075HFA, NTC6100GFA, NTC6100KFA, NTC6100KJA, NTC6125KJA, NTC6150KJA; GNE050B12A1, GNE075B12A1, GNE075F16A1, GNE100F14A1, GNE100F20A1, GNE100J20A1, GNE125J20A1 & GNE150J20A1

Replacement part supplied will be current active part. For parts not listed, consult place of purchase.

Key No.	Functional Description	Part Number	NTC6/GNE							
			050FB/ 050B12	075FB/ 075B12	075HF/ 075F16	100GF/ 100F14	100KF/ 100F20	100KJ/ 100J20	125KJ/ 125J20	150KJ/ 150J20
OO	Baffle, Burner Box	1011454	1	1	1	-	-	-	-	-
		1011455	-	-	-	1	1	1	-	-
		1011456	-	-	-	-	-	-	1	-
		1011457	-	-	-	-	-	-	-	1
		1011464	1	1	1	-	-	-	-	-
PP	Top, Burner Box	1011464	1	1	1	-	-	1	-	-
		1011465	-	-	-	1	1	1	-	-
		1011466	-	-	-	-	-	-	1	-
		1011467	-	-	-	-	-	-	-	1
		1011469	1	1	1	-	-	-	-	-
QQ	Cover, Burner Box	1011470	-	-	-	1	1	1	-	-
		1011471	-	-	-	-	-	-	1	-
		1011472	-	-	-	-	-	-	-	1
		2480878	1	1	1	1	1	1	1	1
XX	PART NOT ILLUSTRATED									
XX	Manual, Homeowners	441 02200101	1	1	1	1	1	1	1	1
XX	Manual, Installation	441 01230602	1	1	1	1	1	1	1	1
XX	Manual, Tech Support	441 03230802	1	1	1	1	1	1	1	1

### Gas Conversion Kits - All models

Nat to LP      NAHF002LP \*1008509 or NAHL002LP \*1160991  
 LP to Nat      \*1009510  
 LP High Altitude \*1160992  
 Nat High Altitude \*1160993

\*Must be ordered from Service Parts

## Replacement Parts - NTN6/NNE (Natural Gas)

Models - NTN6050FBA1, NTN6075FBA1, NTN6075HFA1, NTN6100KFA1, NTN6100KJA1, NTN6125KJA1; NNE050B12A1, NNE075B12A1, NNE075F16A1, NNE100F20A1, NNE100J20A1 & NNE125J20A1

Replacement part supplied will be current active part. For parts not listed, consult place of purchase.

Key No.	Functional Description	Part Number	NTN6/NNE					
			050FB/ 050B12	075FB/ 075B12	075HF/ 075F16	100KF/ 100F20	100KJ/ 100J20	125KJ/ 125J20
1	Heat Exchanger	1008878	1	-	-	-	-	-
		1008877	-	1	1	-	-	-
		1008878	-	-	-	1	1	-
		1008879	-	-	-	-	-	1
2	Blower Wheel	801210	-	-	1	-	-	-
		800587	1	1	-	-	-	-
		1011420	-	-	-	1	1	1
		1011433	-	-	-	-	-	-
3	Switch, Auxiliary Limit	1000735	2	2	2	2	2	2
4	Blower Motor	1009054	1	1	-	-	-	-
		1008414	-	-	1	-	-	-
		1009059	-	-	-	-	-	-
		1011404	-	-	-	-	1	1
		1010269	-	-	-	1	-	-
5	Motor Mount Kit	809227	1	1	1	-	-	-
		522020024	-	-	-	1	1	1
6	Control, Fan Timer	1009838	1	1	1	1	1	1
7	Transformer, 40VA	1011628	1	1	1	1	1	1
8	Capacitor	1094958	-	-	1	1	1	1
		1094954	1	1	-	-	-	-
		1094239	-	-	-	-	-	-
9	Switch Door	1010888	1	1	1	1	1	1
10	Burner Assembly	1008729	1	-	-	-	-	-
		1008724	-	-	1	-	-	-
		1008725	-	1	-	1	1	-
		1008726	-	-	-	-	-	1
11	Pilot, Natural & LP	1149856	1	1	1	1	1	1
12	Pilot Orifice, NAT (.020)	1160403	1	1	1	1	1	1
		1009136	1	1	1	1	1	1
13	Orifice, #42 NAT	1011351	2	3	3	4	4	5
		1004142	2	3	3	4	4	5

## Replacement Parts - NTN6/NEE (Natural Gas)

Models - NTN6050FBA1, NTN6075FBA1, NTN6075HFA1, NTN6100KFA1, NTN6100KJA1, NTN6125KJA1;  
 NNE050B12A1, NNE075B12A1, NNE075F16A1, NNE100F20A1, NNE100J20A1 & NNE125J20A1

Replacement part supplied will be current active part. For parts not listed, consult place of purchase.

Key No.	Functional Description	Part Number	NTN6/NEE					
			050FB/ 050B12	075FB/ 075B12	075HF/ 075F16	100KF/ 100F20	100KJ/ 100J20	125KJ/ 125J20
14	Tube, Pilot	64930	1	1	1	1	1	1
15	Manifold	1011458	1	-	-	-	-	-
		1011459	-	1	1	-	-	-
		1011460	-	-	-	1	1	-
		1011461	-	-	-	-	-	1
		1011462	-	-	-	-	-	-
		1011024	1	1	1	1	1	1
16	Valve, Natural & LP	1320365	1	-	-	-	-	-
		34233002	-	1	-	-	-	-
		1008418	-	-	1	-	-	-
		1320363	-	-	-	1	-	-
		1320364	-	-	-	-	1	-
		1320362	-	-	-	-	-	1
18	Tubing, Silicone 24"	1149488	1	1	1	1	1	
19	Combustion Blower Assembly	1010975	1	1	1	1	1	
20	Rollout Switch, Ljml	1005549	2	2	2	2	2	
21	Switch, Pressure	1010898	1	1	1	1	1	
22	Heat Exchanger Gaskets	2480904	2	-	-	-	-	-
		2480905	-	2	2	-	-	-
		2480906	-	-	-	2	2	-
		2480907	-	-	-	-	-	2
		1008068	1	-	-	-	-	-
23	Heat Exchanger Front Partition	1008069	-	1	-	-	-	-
		1008070	-	-	1	-	-	-
		1008072	-	-	-	1	-	-
		1008071	-	-	-	-	1	-
		1008073	-	-	-	-	-	1
28	Ignitor/Sensor with clip	1009524	1	1	1	1	1	
(	PART NOT ILLUSTRATED							
(	Wire Harness Assy, Low Volt	1010891	1	1	1	1	1	

Key No.	Non-Functional Description	Part Number	NTN6/NEE					
			050FB/ 050B12	075FB/ 075B12	075HF/ 075F16	100KF/ 100F20	100KJ/ 100J20	125KJ/ 125J20
A	Top	1011534	1	1	-	-	-	-
		1011535	-	-	1	-	-	-
		1011536	-	-	-	1	-	-
		1011537	-	-	-	-	1	1
		1010359	1	1	1	1	1	1
C	Cover, Field Connect	1010360	1	1	1	1	1	
D	Gasket, Collector	1093661	1	1	1	-	-	-
		1093662	-	-	-	1	1	-
		1093663	-	-	-	-	-	1
E	Collector	1011047	1	-	-	-	-	-
		1011050	-	1	1	-	-	-
		1011052	-	-	-	1	1	-
		1011056	-	-	-	-	-	1
F	Gasket, Combustion Blower	1011370	1	1	1	1	1	
H	Door, Louvered NTN6 only	1011519	1	1	-	-	-	-
		1011520	-	-	1	1	-	-
		1011521	-	-	-	-	1	1
J	Door, Blower	1010191	1	1	-	-	-	-
		1010190	-	-	1	1	-	-
		1010182	-	-	-	-	1	1
M	Bracket, Pilot	1010901	1	1	1	1	1	
O	Manifold Support Bracket	1011450	2	2	2	2	2	
P	Filter Rack Wrapper	741010042	1	1	-	1	-	-
		741010039	-	-	1	1	2	2
Q	Filter Rack Front	741020004	1	1	-	-	-	-
		741020001	-	-	1	1	2	2
R	Filter 14" x 25" x 1/2"	1010364	1	1	-	-	-	-
		1010365	-	-	1	1	2	2
S	Filter Cover Plastic	2791042	1	1	-	-	-	-
		2791043	-	-	1	1	2	2
T	Clip, Filter	1008482	3	3	3	3	3	
U	Fan Timer Bracket	1011178	1	1	1	1	1	



## Replacement Parts - NTN6/NNE (Natural Gas)

Models - NTN6050FBA1, NTN6075FBA1, NTN6075HFA1, NTN6100KFA1, NTN6100KJA1, NTN6125KJA1;  
 NNE050B12A1, NNE075B12A1, NNE075F16A1, NNE100F20A1, NNE100J20A1 & NNE125J20A1

Replacement part supplied will be current active part. For parts not listed, consult place of purchase.

Key No.	Functional Description	Part Number	NTN6/NNE					
			050FB/ 080B12	075FB/ 075B12	075HF/ 075F16	100KF/ 100F20	100KJ/ 100J20	125KJ/ 125J20
V	Base	1010112	1	1	-	-	-	-
		1010113	-	-	1	1	-	-
		1010114	-	-	-	-	1	1
W	Blower Housing	1011880	1	1	-	-	-	-
		1011881	-	-	1	-	-	-
		1010322	-	-	-	1	-	-
		1010481	-	-	-	-	1	1
		721020008	-	-	1	1	1	1
X	Blower Cutoff	721020013	1	1	-	-	-	-
		1010690	2	2	2	2	2	2
Y	Blower Hanger	1095020	1	1	1	1	1	1
AA	Strap Capacitor	57059	2	2	2	2	2	2
BB	Rail, Blower Slide	1010810	1	1	-	-	-	-
CC	Casing, Wrapper	1010811	-	-	1	1	-	-
		1010812	-	-	-	-	1	1
		707010031	2	2	-	2	2	2
DD	Baffle, Circulating Air	1008890	-	-	2	-	-	-
		1008878	2	3	3	4	4	5
EE	Baffle, NOx	1011028	1	-	-	-	-	-
GG	Heat Exchanger Support	750010045	-	1	-	-	-	-
		750010046	-	-	1	-	-	1
		1010353	-	-	-	1	1	-
		1010810	1	1	-	-	-	-
		1010811	-	-	1	1	-	-
NN	Partition, Blower	1011076	-	-	-	-	1	1
		1010812	-	-	-	-	-	-
		1011454	1	1	1	-	-	-
		1011455	-	-	-	1	1	-
OO	Baffle, Burner Box	1011456	-	-	-	-	-	1
		1011768	1	1	1	-	-	-
		1011769	-	-	-	1	1	-
PP	Top, Burner Box	1011770	-	-	-	-	-	1
		1011469	1	1	1	-	-	-
		1011470	-	-	-	1	1	-
QQ	Cover, Burner Box	1011471	-	-	-	-	-	1
		1011781	1	1	1	1	1	1
		RR	Sightglass	441 02200101	1	1	1	1
(	PART NOT ILLUSTRATED	441 01230602	1	1	1	1	1	1
(	Manual, Homeowners	441 03230802	1	1	1	1	1	1
(	Manual, Installation							
(	Manual, Tech Support							

**Gas Conversion Kits - All models**

Nat to LP      NAHF002LP \*1008509 or NAHL002LP \*1160991  
 LP to Nat      \*1009510  
 LP High Altitude      \*1160992  
 Nat High Altitude      \*1160993

\*Must be ordered from Service Parts

