INSTALLATION, OPERATION, 
AND MAINTENANCE GUIDE

ALL phases of this installation must comply with NATIONAL, STATE AND LOCAL CODES

Model:
CUB1A040A9241A  CUB1D120A9601A
CUB1A060A9241A  CUB1D140A9601A
CUB1A060A9361A  
CUB1B060A9361A  CDB1A060A9361A
CUB1B080A9361A  CDB1B060A9361A
CUB1B080A9481A  CDB1B080A9451A
CUB1B100A9361A  CDB1B100A9451A
CUB1C100A9481A  CDB1C100A9601A
CUB1C100A9601A  CDB1D120A9601A

IMPORTANT — This Document is customer property and is to remain with this unit. 
Please return to service information pack upon completion of work.

For VENT SIZING INFORMATION see:
USA —
National Fuel Gas Code ....... ANSI Z223.1/NFPA 54 (latest version)

CANADA —
Natural Gas Installation Code ..... CAN/CGA-B149.1 (latest version)
Propane Installation Code .......... CAN/CGA-B149.2 (latest version)

USA/CANADA ALTERNATE —

Upflow Only and Downflow / Horizontal, Gas-Fired 
Furnaces “Fan Assisted Combustion System”

*Horizontal Conversion for these furnaces may be left or right side rotation.
The following safety practices and precautions must be followed during the installation, servicing, and operation of this furnace.

1. Use only with the type of gas approved for this furnace. Refer to the furnace rating plate.

2. Install this furnace only in a location and position as specified in “Location and Clearances” (pages 3 & 6), of these instructions.

3. Provide adequate combustion and ventilation air to the furnace space as specified in “Air for Combustion and Ventilation” (pages 7 & 8), of these instructions.

4. Combustion products must be discharged outdoors. Connect this furnace to an approved vent system only, as specified in the “Venting” section (pages 11-12), of these instructions.

5. Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections, as specified in “Gas Piping” (page 14), of these instructions.

6. Always install the furnace to operate within the furnace’s intended temperature-rise range with a duct system which has an external static pressure within the allowable range, as specified on the unit rating plate. Airflow with temperature rise for cfm versus static is shown in the Service Facts accompanying this furnace.

7. When a furnace is installed so that supply ducts carry air circulated by the furnace to areas outside the space containing the furnace, the return air shall also be handled by a duct(s) sealed to the furnace casing and terminating outside the space containing the furnace.

8. A gas-fired furnace for installation in a residential garage must be installed as specified in “Location and Clearances” section (pages 3 & 6), of these instructions.

9. The furnace may be used for temporary heating of buildings or structures under construction only when the following conditions have been met:
   a. The furnace venting system must be complete and installed per manufacturer’s instructions.
   b. The furnace is controlled only by a room thermostat (no field jumpers).
   c. The furnace return air duct must be complete and sealed to the furnace and clean air filters are in place.
   d. The furnace input rate and temperature rise must be verified to be within nameplate marking.
   e. 100% of the furnace combustion air requirement must come from outside the structure.
   f. The furnace return air temperature range is between 55 and 80 degrees Fahrenheit.
   g. Clean the furnace, duct work, and components upon substantial completion of the construction process, and verify furnace operating conditions including ignition, input rate, temperature rise and venting, according to the manufacturer’s instructions.

10. This product must be gas piped by a Licensed Plumber or Gas Fitter in the Commonwealth of Massachusetts.

Safety signal words are used to designate a degree or level of seriousness associated with a particular hazard. The signal words for safety markings are DANGER, WARNING, and CAUTION.

a. **DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations.

b. **WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

c. **CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It is also used to alert against unsafe practices and hazards involving only property damage.
**INSTALLATION INSTRUCTIONS**

General Installation Instructions ........................................ 3
Location and Clearances .................................................. 3

**Outline Drawings** .................................................. 4-5
Horizontal Installation .................................................. 6
Air For Combustion and Ventilation .................................. 7
Duct Connections .......................................................... 8
Return Air Filters .......................................................... 9
General Venting Instructions ............................................ 11
Venting Into a Masonry Chimney ...................................... 11
Electrical Connections ..................................................... 12

**Field Wiring Diagrams** ............................................. 13
Gas Piping ................................................................. 14
Sequence of Operation ................................................... 14
Start-up and Adjustment .................................................. 15
Preliminary Inspections ................................................... 15
Combustion and Input Check ............................................ 15
High Altitude Derate ...................................................... 16
Control and Safety Switch Adjustment ................................. 17

**OPERATING INSTRUCTIONS** ............................................. 18-24
Lighting Instructions ...................................................... 19
Main Gas Cutoff Locations .............................................. 19
Filter Replacement ........................................................... 21
Problem Solver ............................................................... 23
Regular Dealer Maintenance .............................................. 24

**MAINTENANCE AND SERVICE** .......................................... 25-35
Product Specifications – Upflow ..................................... 25
Product Specifications – Downflow ................................... 27
Sequence of Operation ....................................................... 28
Airflow Adjustment .......................................................... 28
Abnormal Conditions ....................................................... 28
IFC Error Flash Codes ..................................................... 28
Upflow Wiring Diagrams ................................................... 29
Downflow Wiring Diagrams .............................................. 30
Upflow Airflow Table ...................................................... 31
Upflow CFM vs. Temp Rise Table ..................................... 32
Downflow Airflow Table ................................................... 33
Downflow CFM vs. Temp Rise Table .................................. 34
Periodic Servicing Requirements ..................................... 35
Warranties .................................................................... 39-40

**GENERAL**

The manufacturer assumes no responsibility for equipment installed in violation of any code or regulation. It is recommended that Manual J of the Air Conditioning Contractors Association (ACCA) or A.R.I. 230 be followed in estimating heating requirements. When estimating heating requirements for installation at Altitudes above 2000 ft., remember the gas input must be reduced (See GAS INPUT ADJUSTMENT).

Material in this shipment has been inspected at the factory and released to the transportation agency without known damage. Inspect exterior of carton for evidence of rough handling in shipment. Unpack carefully after moving equipment to approximate location. If damage to contents is found, report the damage immediately to the delivering agency.

Codes and local utility requirements governing the installation of gas fired equipment, wiring, plumbing, and flue connections must be adhered to. In the absence of local codes, the installation must conform with the National Fuel Gas Code ANSI Z223.1 “latest edition” or CAN/CGA B149 Installation Codes. The latest code may be obtained from the American Gas Association Laboratories, 8501 E. Pleasant Valley Rd., Cleveland, Ohio 44131.

These furnaces have been classified as Fan Assisted Combustion system CATEGORY I furnaces as required by ANSIZ21.47 “latest edition” and CAN/CGA 2.3. Therefore they do not require any special provisions for venting other than what is indicated in these instructions. (Category I defined page 11).

**CAUTION**

To prevent shortening its service life, the furnace should not be used as a “Construction Heater” during the finishing phases of construction until the requirements listed in item 9, a-g of the safety section of this publication have been met. Condensate in the presence of chlorides and fluorides from paint, varnish, stains, adhesives, cleaning compounds, and cement create a corrosive condition which may cause rapid deterioration of the heat exchanger.

**WARNING**

These furnaces are not approved or intended for installation in manufactured (mobile) housing, trailers, or recreational vehicles. Failure to follow this warning could result in property damage, personal injury, or death.

**CAUTION**

Do not install the furnace in a corrosive or contaminated atmosphere.

**LOCATION AND CLEARANCES**

The location of the furnace is normally selected by the architect, the builder, or the installer. However, before the furnace is moved into place, be sure to consider the following requirements:

1. Is the location selected as near the chimney or vent and as centralized for heat distribution as practical?
2. Do all clearances between the furnace and enclosure equal or exceed the minimums stated in Clearance Table on the Outline Drawings?
3. Is there sufficient space for servicing the furnace and other equipment? A minimum of 24 inches front accessibility to the furnace must be provided. Any access door or panel must permit removal of the largest component.
4. Are there at least 3 inches of clearance between the furnace combustion air openings in the front panel and any closed panel or door provided?
5. Are the ventilation and combustion air openings large enough and will they remain unobstructed? If outside air is used, are the openings set above the highest snow accumulation level? (See the Air for Combustion and Ventilation section.)
6. Allow sufficient height in supply plenum above the furnace to provide for cooling coil installation, if the cooling coil is not installed at the time of this furnace installation.
7. A furnace shall be installed so electrical components are protected from water.
8. If the furnace is installed in a residential garage, it must be installed so that the burners, and the ignition source are located not less than 18 inches above the floor and the furnace must be located or protected to avoid physical damage from vehicles.
CUB-A OUTLINE DRAWING
(ALL DIMENSIONS ARE IN INCHES)

CUB CLEARANCE FROM COMBUSTIBLE MATERIALS

LEFT SIDE 0" (SEE NOTE 1)
RIGHT SIDE 2" (SEE NOTE 2)
FRONT 2" (SEE NOTE 1)
REAR 0"
TOP 1"
FLUE 6" (SEE NOTE 2)

NOTES:
1. FIT 14-1/2" CLEAR AT 0"
   WHEN TYPE "A" VENT IS USED
2. MAY BE 1" WHEN TYPE B-VENT IS USED
3. MINIMUM CLEARANCE TO FRONT ON CUB1400496A IS 0"

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DIM A&quot;</th>
<th>DIM B&quot;</th>
<th>DIM C&quot;</th>
<th>DIM D&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUB140049241**</td>
<td>14-1/2&quot;</td>
<td>9-5/8&quot;</td>
<td>14-7/8&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>CUB140049241**</td>
<td>14-1/2&quot;</td>
<td>9-5/8&quot;</td>
<td>14-7/8&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>CUB140049241**</td>
<td>14-1/2&quot;</td>
<td>9-5/8&quot;</td>
<td>14-7/8&quot;</td>
<td>10&quot;</td>
</tr>
<tr>
<td>CUB140049241**</td>
<td>14-1/2&quot;</td>
<td>9-5/8&quot;</td>
<td>14-7/8&quot;</td>
<td>10&quot;</td>
</tr>
</tbody>
</table>

** SUFFIX LETTER MAY BE AA THRU ZZ
**Suffix letter may be "A" through "Z"**
Installation Instructions

UPFLOW INSTALLATION

Standoffs and screws (See Figure 1) are included with the cased coils for attachment to the furnace. There are clearance alignment holes near the bottom of the coil wrapper. Drill screws are used to engage the furnace top flanges. The standoff is inserted into the cabinet alignment hole. The drill screws are inserted through the standoffs then screwed into the furnace flange. The coil is always placed downstream of the furnace airflow. The above instructions only apply if the coil is on top of an upflow furnace.

DOWNFLOW INSTALLATION

Do not install the furnace directly on carpeting, tile or other combustible material other than wood flooring. For vertical downflow application, subbase (BAYBASE205) must be used between the furnace and combustible flooring. When the downflow furnace is installed vertically with a cased coil, a subbase is not required.

HORIZONTAL INSTALLATION

The coil and furnace must be fully supported when used in the horizontal position.

Three brackets (with screws) are included with downflow furnaces for installation to stabilize and secure the furnace and TXC cased coil in the horizontal position (See Figure 4). The coil is placed downstream of the furnace, with the apex of the coil pointing in the direction of the airflow for horizontal installation. The cased coil is secured to the furnace and both the furnace and the cased coil must be properly supported. The brackets must be mounted using the rear screws on the coil case and use the screws provided to secure the bracket to the furnace. The remaining bracket is placed as close to center as possible (horizontally) between the coil case front and the furnace bottom channel (for downflow/horizontal furnace). Use four of the screws provided to secure the bracket.

Required floor opening: (DOWNFLOW)
See Figure 2 and Table 1

The downflow/horizontal furnace may be installed in an attic or crawl space in the horizontal position by placing the furnace on the left or right side (as viewed from the front in the upright position). The downflow/horizontal furnace installation in an attic should be on a service platform large enough to allow for proper clearances on all sides and service access to the front of the furnace (See Clearance Table on Outline Drawings and Figure 5).

If the furnace is suspended using perforated steel strap (plumber’s strap), it must be supported at all four corners and in the middle at the front of the furnace. The forward most screw on the side of the furnace may be used to connect the strapping (See Figure 6). Line contact is only permissible between lines formed by the intersection of the top and two sides of the furnace casing and the building joists, studs, or framing.

A cutout is provided on both sides of the downflow furnace cabinet to allow a 90° elbow to be attached inside the cabinet and the vent piping to connect there. In horizontal, the downflow furnace may be vented through the top of the cabinet if needed. In vertical configuration, the downflow furnace may be vented using the side cabinet cutouts. This venting configuration could be used if an electronic air cleaner is installed. When the downflow furnace is vented through the left side of the furnace cabinet in horizontal or vertical configuration, Type B vent pipe must be used within the cabinet.
Installation Instructions

AIR FOR COMBUSTION AND VENTILATION

Adequate flow of combustion and ventilating air must not be obstructed from reaching the furnace. Air openings provided in the furnace casing must be kept free of obstructions that restrict the flow of air. Airflow restrictions affect the efficiency and safe operation of the furnace. Keep this in mind should you choose to remodel or change the area which contains your furnace. Furnaces must have a free flow of air for proper performance.

Provisions for combustion and ventilation air shall be made in accordance with “latest edition” of Section 5.3, Air for Combustion and Ventilation, of the National Fuel Gas Code, ANSI Z223.1, or Sections 7.2, 7.3 or 7.4 of CAN/CGA B149 Installation Codes, and applicable provisions of the local building codes. Special conditions created by mechanical exhausting of air and fireplaces must be considered to avoid unsatisfactory furnace operation.

Furnace locations may be in “confined space” or “unconfined space”. Unconfined space is defined in Table 2 and Figure 7. These spaces may have adequate air by infiltration to provide air for combustion, ventilation, and dilution of flue gases. Buildings with tight construction (for example, weather stripping, heavily insulated, caulked, vapor barrier, etc.), may need additional air provided as described for confined space.

Confined spaces are installations with less than 50 cu. ft. of space per 1000 BTU/hr input from all equipment installed. Air for combustion and ventilation requirements can be supplied from inside the building as in Figure 9 or from the outdoors, as in Figures 10 & 11.

1. All air from inside the building as in Figure 9: The confined space shall be provided with two permanent openings communicating directly with an additional room(s) of sufficient volume so that the combined volume of all spaces meets the criteria for an unconfined space. The total input of all gas utilization equipment installed in the combined space shall be considered in making this determination. Refer to Table 3, for minimum open areas required.

2. All air from outdoors as in Figures 10 & 11: The confined space shall be provided with two permanent openings, one commencing within 12 inches of the top and one commencing within 12 inches of the bottom of the enclosure. The openings shall communicate directly, or by ducts, with the outdoors or spaces (crawl or attic) that freely communicate with the outdoors. Refer to Table 3, for minimum open areas required.

3. The following types of installations will require use of OUTDOOR AIR for combustion, due to chemical exposures:
   - Commercial buildings
   - Buildings with indoor pools
   - Furnaces installed in commercial laundry rooms
   - Furnaces installed in hobby or craft rooms
   - Furnaces installed near chemical storage areas.

Exposure to the following substances in the combustion air supply will also require OUTDOOR AIR for combustion:
   - Permanent wave solutions
   - Chlorinated waxes and cleaners
   - Chlorine based swimming pool chemicals
   - Water softening chemicals
   - Deicing salts or chemicals
   - Carbon Tetrachloride
   - Halogen type refrigerants
   - Cleaning solvents (such as perchloroethylene)
   - Printing inks, paint removers, varnish, etc.
   - Hydrochloric acid
   - Cements and glues
   - Antistatic fabric softeners for clothes dryers
   - Masonry acid washing materials

Pub. No. 41-5010-20
Installation Instructions

**TABLE 2**

| Furnace Maximum BTUH / Input Rating | With 8 Foot Ceiling
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Area in Square Feet of Unconfined Space</td>
<td></td>
</tr>
<tr>
<td>40,000</td>
<td>250</td>
</tr>
<tr>
<td>60,000</td>
<td>375</td>
</tr>
<tr>
<td>80,000</td>
<td>500</td>
</tr>
<tr>
<td>100,000</td>
<td>625</td>
</tr>
<tr>
<td>120,000</td>
<td>750</td>
</tr>
<tr>
<td>140,000</td>
<td>875</td>
</tr>
</tbody>
</table>

**TABLE 3**

| Furnace Maximum BTUH/Input Rating | Air From Inside | Air From Outside
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vertical Duct</td>
<td>Horizontal Duct</td>
</tr>
<tr>
<td>40,000</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>60,000</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>80,000</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>100,000</td>
<td>100</td>
<td>25</td>
</tr>
<tr>
<td>120,000</td>
<td>120</td>
<td>30</td>
</tr>
<tr>
<td>140,000</td>
<td>140</td>
<td>35</td>
</tr>
</tbody>
</table>

**FIGURE 9**

**FIGURE 10**

**FIGURE 11**

**DUCT CONNECTIONS**

Air duct systems should be installed in accordance with standards for air conditioning systems, National Fire Protection Association Pamphlet No. 90. They should be sized in accordance with ACCA Manual D or whichever is applicable.

Central furnaces, when used in connection with cooling units, shall be installed in parallel or on the upstream side of the cooling units to avoid condensation in the heating element, unless the furnace has been specifically approved for downstream installation. With a parallel flow arrangement, the dampers or other means used to control flow of air shall be adequate to prevent chilled air from entering the furnace, and if manually operated, must be equipped with means to prevent operation of either unit unless the damper is in full heat or cool position.

On any job, flexible connections of nonflammable material may be used for return air and discharge connections to prevent transmission of vibration. Though these units have been specifically designed for quiet, vibration free operation, air ducts can act as sounding boards and could, if poorly installed, amplify the slightest vibration to the annoyance level.

When the furnace is located in a utility room adjacent to the living area, the system should be carefully designed with returns which minimize noise transmission through the return air grille. Although these winter air conditioners are designed with large blowers operating at moderate speeds, 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. Such design permits the installation of air return remote from the living area (i.e. central hall).

When the furnace is installed so that the supply ducts carry air circulated by the furnace to areas outside the space containing the furnace, the return air shall also be handled by a duct(s) sealed to the furnace and terminating outside the space containing the furnace.
Minimum return air “entering temperature” for the furnace is 50° F.

Where there is no complete return duct system, the return connection must be run full size from the furnace to a location outside the utility room, basement, attic, or crawl space.

**Do Not install return air through the back of the furnace cabinet.**

**Do Not install return air through the side of the furnace cabinet on horizontal applications.**

**RETURN AIR DUCT CONNECTION**

All return air duct systems should provide for installation of return air filters.

1. Set the furnace in place.
2. For side return installations on upflow models, remove the insulation around the opening in the blower compartment.
3. The side panels on upflow furnaces include locating notches which may be used as guides for cutting an opening for return air. Refer to Figure 12 and the Outline Drawing on page 4 for duct connection dimensions for various furnaces.
4. If a 3/4” flange is to be used for attaching the air inlet duct, add to cut where indicated by solid lines in Figure 12. Cut corners diagonally and bend outward to form flange.

5. If flanges are not required, and a filter frame is installed, cut along knockout guidelines.

6. Upflow furnaces: filter retainer brackets are factory supplied (See Figure 14). Use the filter retainer brackets on either side or on bottom if filter is to be used within the furnace cabinet.

**NOTE:**

On upflow 5 ton airflow models, if the airflow requirement exceeds 1800 CFM, these models will require return air openings and filters on both sides; OR 1 side and the bottom; OR just the bottom.

**FILTER RETAINER BRACKETS FOR UPFLOW FURNACES**

If locating filter inside the furnace blower compartment is desired, it is necessary to install the 2 filter retainer brackets. Filter retainer brackets are shipped with the furnace in a plastic bag attached to the control platform. Follow the installation instructions included inside the plastic bag with the filter retainer brackets. (See Figure 14 “Typical Side Return Filter”).

<table>
<thead>
<tr>
<th>CABINET WIDTH</th>
<th>QTY (See Note)</th>
<th>CABINET BOTTOM FILTER</th>
<th>CABINET SIDE FILTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-1/2&quot;</td>
<td>1</td>
<td>14&quot; X 25&quot; X 1&quot;</td>
<td>17&quot; X 25&quot; X 1&quot;</td>
</tr>
<tr>
<td>17-1/2&quot;</td>
<td>1</td>
<td>17&quot; X 25&quot; X 1&quot;</td>
<td>17&quot; X 25&quot; X 1&quot;</td>
</tr>
<tr>
<td>21&quot;</td>
<td>1</td>
<td>20&quot; X 25&quot; X 1&quot;</td>
<td>17&quot; X 25&quot; X 1&quot;</td>
</tr>
<tr>
<td>24-1/2&quot;</td>
<td>1</td>
<td>24&quot; X 25&quot; X 1&quot;</td>
<td>17&quot; X 25&quot; X 1&quot;</td>
</tr>
</tbody>
</table>

*NOTE - On upflow 5 ton airflow models, if the airflow requirement exceeds 1800 CFM, these models will require return air openings and filters on both sides; OR 1 side and the bottom; OR just the bottom.*

7. Connect duct work to furnace. See Outline Drawing for supply and return duct size and location. Flexible duct connectors are recommended to connect both supply and return air ducts to the furnace. If only the front of the furnace is accessible, it is recommended that both supply and return air plenums are removable.

8. When replacing a furnace, old duct work should be cleaned out. Thin cloths should be placed over the registers and the furnace fan should be run for 10 minutes. Don't forget to remove the cloths before you start the furnace.

**RETURN AIR FILTER**

Filters are field supplied for these furnaces. These furnaces require high velocity type air filters which may be located within the furnace blower compartment for UPFLOW furnaces in either a BOTTOM or SIDE (left side or right side) return air inlet. See Figure 14. Some filters may need to be trimmed for side or bottom filter use.
**Installation Instructions**

**TYPICAL DOWNFLOW FURNACE RETURN AIR FILTER INSTALLATIONS**

![Diagram of Typical Downflow Furnace Return Air Filter Installations]

**TABLE 5**

<table>
<thead>
<tr>
<th>CABINET WIDTH</th>
<th>FILTER SIZE</th>
<th>FILTER BRACKET LOCATION *</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-1/2&quot;</td>
<td>2 - 14X20X1</td>
<td>12-7/8&quot;</td>
</tr>
<tr>
<td>17-1/2&quot;</td>
<td>2 - 16X20X1</td>
<td>14-3/8&quot;</td>
</tr>
<tr>
<td>21&quot;</td>
<td>2 - 16X20X1</td>
<td>13-1/8&quot;</td>
</tr>
<tr>
<td>24-1/2&quot;</td>
<td>2 - 16X20X1</td>
<td>11-5/8&quot;</td>
</tr>
</tbody>
</table>

*Location dimension is from end of duct to the screw holes for the bracket.

**TYPICAL UPFLOW FURNACE RETURN AIR FILTER INSTALLATIONS**

![Diagram of Typical Upflow Furnace Return Air Filter Installations]

**TABLE 6**

<table>
<thead>
<tr>
<th>CABINET WIDTH</th>
<th>RETURN DUCT WIDTH</th>
<th>FILTER ACCESS OPENING - DIMENSION &quot;A&quot;</th>
<th>FILTER ACCESS OPENING - DIMENSION &quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-1/2&quot;</td>
<td>13-1/4&quot;</td>
<td>12&quot;</td>
<td>14&quot;</td>
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<tr>
<td>17-1/2&quot;</td>
<td>16-1/4&quot;</td>
<td>15&quot;</td>
<td>14&quot;</td>
</tr>
<tr>
<td>21&quot;</td>
<td>19-3/4&quot;</td>
<td>19-1/2&quot;</td>
<td>14&quot;</td>
</tr>
<tr>
<td>24-1/2&quot;</td>
<td>23-1/4&quot;</td>
<td>22&quot;</td>
<td>14&quot;</td>
</tr>
</tbody>
</table>

**FIGURE 13**

**FIGURE 14**

**TABLE 13**

**TABLE 14**

---

*Page 10*
GENERAL VENTING INSTRUCTIONS

VENT PIPING

These furnaces have been classified as Fan-Assisted Combustion System, Category I furnaces under the “latest edition” provisions of ANSI Z21.47 and CAN/CGA 2.3 standards. Category I furnaces operate with a non-positive vent static pressure and with a flue loss of not less than 17 percent.

NOTE:
If desired, a sidewall termination can be accomplished through the use of an “add-on” draft inducer. The inducer must be installed according to the inducer manufacturer’s instructions. Set the barometric pressure relief to achieve 0.02 inch water column.

NOTE:
When the downflow furnace is vented through the left side of the furnace cabinet using the provided cutout, Type B vent piping must be used.

The furnace shall be connected to a factory built chimney or vent complying with a recognized standard, or a masonry or concrete chimney lined with a lining material acceptable to the authority having jurisdiction.

WARNING

Furnace venting into an unlined masonry chimney or concrete chimney is prohibited. Failure to follow this warning could result in property damage, personal injury, or death.

VENTING INTO A MASONRY CHIMNEY

If the chimney is oversized, the liner is inadequate, or flue-gas condensation is a problem in your area, consider using the chimney as a pathway or chase for type “B” vent or flexible vent liner. If flexible liner material is used, size the vent using the “B” vent tables, then reduce the maximum capacity by 20% (multiply 0.80 times the maximum capacity).

Internal Masonry Chimneys

Venting of fan assisted appliances into a lined, internal masonry chimney is allowed only if it is common vented with at least one natural draft appliance; OR, if the chimney is lined with type “B”, double wall vent or suitable flexible liner material (See Table 7).

WARNING

The chimney liner must be thoroughly inspected to insure no cracks or other potential areas for flue gas leaks are present in the liner. Liner leaks will result in early deterioration of the chimney.

Failure to follow this warning could result in carbon monoxide poisoning or death.

TABLE 7
MASONRY CHIMNEY VENTING

<table>
<thead>
<tr>
<th>Type Furnace</th>
<th>Tile Lined Chimney</th>
<th>Chimney Lining</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal</td>
<td>External</td>
</tr>
<tr>
<td>Single Fan Assist</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Fan Assist</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Fan Assist + Natural</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

* Flexible chimney liner size is determined by using the type “B” vent size for the available BTUH input, then reducing the maximum capacity by 20% (multiply maximum capacity times 0.80). The minimum capacity is the same as shown in the “B” vent tables.

External Masonry Chimney

Venting of fan assisted appliances into external chimneys (one or more walls exposed to outdoor temperatures), requires the chimney be lined with type “B”, double wall vent or suitable flexible chimney liner material. This applies in all combinations of common venting as well as for fan assisted appliances vented alone.

WARNING

CARBON MONOXIDE POISONING HAZARD

Failure to follow the installation instructions for the venting system being placed into operation could result in carbon monoxide poisoning or death.

The following installation practices are recommended to minimize corrosion caused by condensation of flue products in the furnace and flue gas system.

1. Avoid an excessive number of bends.
2. Horizontal runs should pitch upward at least 1/4” per foot.
3. Horizontal runs should be as short as possible.
4. All vent pipe or connectors should be securely supported and must be inserted into, but not beyond the inside wall at the chimney vent.
5. When vent connections must pass through walls or partitions of combustible material, a thimble must be used and installed according to local codes.
6. Vent pipe through the roof should be extended to a height determined by National Fuel Gas Code or local codes. It should be capped properly to prevent rain water from entering the vent.
7. Use type “B” double wall vent when vent pipe is routed through cool spaces (below 60° F).
8. Where long periods of airflow are desired for comfort, use long fan cycles instead of continuous airflow.
10. Vent connectors serving appliance vented by natural draft or non-positive pressure shall not be connected into any portion of a mechanized draft system operating under positive pressure.
11. Horizontal pipe runs must be supported by hangers, straps or other suitable material in intervals at a minimum of every 3 feet of pipe.
12. A furnace shall not be connected to a chimney or flue serving a separate appliance designed to burn solid fuel.
13. The flow area of the largest section of vertical vent or chimney shall not exceed 7 times the smallest listed appliance categorized vent area, flue collar area, or draft hood outlet area unless designed in accordance with approved engineering methods.

Maximum Vent or Tile Lined Chimney Flow Area = \( \frac{\pi (D^2)}{4} \times 7 \)

*Draft hood outlet diameter, flue collar diameter, or listed appliance categorized vent diameter.
Installation Instructions

ELECTRICAL CONNECTIONS

WARNING
The cabinet must have an uninterrupted or unbroken ground according to National Electrical Code, ANSI/NFPA 70 - “latest edition” and Canadian Electrical Code, CSA C22.1 or local codes to minimize personal injury if an electrical fault should occur. A failure to follow this warning could result in an electrical shock, fire, injury, or death.

WARNING
To prevent injury or death due to electrical shock or contact with moving parts, lock unit disconnect switch in the open position before servicing the unit. Failure to follow this warning could result in electrical shock, personal injury, or death.

CAUTION
The integrated furnace control is polarity sensitive. The hot leg of the 115 VAC power must be connected to the BLACK factory lead.

Make wiring connections to the unit as indicated on enclosed wiring diagram. As with all gas appliances using electrical power, this furnace shall be connected into a permanently live electric circuit. It is recommended that it be provided with a separate “circuit protection device” electric circuit. The furnace must be electrically grounded in accordance with local codes or in the absence of local codes with the National Electrical Code, ANSI/NFPA 70 “latest edition” or Canadian Electrical Code, CSA C22.1, if an external electrical source is utilized.

All field supplied wiring must conform with the temperature limitation for Type T wire [69° F (35° C)], when installed in accordance with these instructions and wiring diagrams supplied with the furnace. A disconnecting means must be located within sight from, and readily accessible to, the furnace.

Refer to the Maintenance and Service section of the literature for unit wiring diagrams in addition to the diagram inside the blower door.

### TABLE 8

<table>
<thead>
<tr>
<th>ROOF PITCH</th>
<th>MINIMUM HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAT TO 7/12</td>
<td>1.0 FEET *</td>
</tr>
<tr>
<td>OVER 7/12 TO 8/12</td>
<td>1.5 FEET</td>
</tr>
<tr>
<td>OVER 8/12 TO 9/12</td>
<td>2.0 FEET</td>
</tr>
<tr>
<td>OVER 9/12 TO 10/12</td>
<td>2.5 FEET</td>
</tr>
<tr>
<td>OVER 10/12 TO 11/12</td>
<td>3.25 FEET</td>
</tr>
<tr>
<td>OVER 11/12 TO 12/12</td>
<td>4.0 FEET</td>
</tr>
<tr>
<td>OVER 12/12 TO 14/12</td>
<td>5.0 FEET</td>
</tr>
<tr>
<td>OVER 14/12 TO 16/12</td>
<td>6.0 FEET</td>
</tr>
<tr>
<td>OVER 16/12 TO 18/12</td>
<td>7.0 FEET</td>
</tr>
<tr>
<td>OVER 18/12 TO 20/12</td>
<td>7.5 FEET</td>
</tr>
<tr>
<td>OVER 20/12 TO 22/12</td>
<td>8.0 FEET</td>
</tr>
</tbody>
</table>

* THIS REQUIREMENT COVERS MOST INSTALLATIONS
FIELD WIRING DIAGRAM FOR 1 STAGE FURNACE
1 STAGE HEATING
USING A 1 STAGE HEATING THERMOSTAT
NO COOLING

NOTES:
1. BE SURE POWER AGREES WITH EQUIPMENT NAMEPLATE(S)
2. LOW VOLTAGE (24 V, WIRING) TO BE NO. 18 A.W.G. MIN.
3. GROUNDING OF EQUIPMENT MUST COMPLY WITH LOCAL CODES.
4. SET THERMOSTAT HEAT ANTICIPATOR PER UNIT WIRING DIAGRAM.
5. IGNITION CONTROL IS POLARITY SENSITIVE. HOT LEG OF 120 VOLT POWER SUPPLY MUST BE CONNECTED TO THE BLACK LINE POWER LEAD AS INDICATED ON THE WIRING DIAGRAM OR IGNITION LOCKOUT WILL OCCUR.
6. THIS CONNECTION IS ONLY USED FOR THERMOSTATS REQUIRING CONNECTION TO THE 24 V. POWER SUPPLY. (COMMON)

FIELD WIRING DIAGRAM FOR 1 STAGE FURNACE
1 STAGE HEATING, 1 STAGE COOLING
USING A 1 STAGE HEATING, 1 STAGE COOLING THERMOSTAT
(OUTDOOR SECTION WITHOUT TRANSFORMER)

NOTES:
1. BE SURE POWER AGREES WITH EQUIPMENT NAMEPLATE(S)
2. LOW VOLTAGE (24 V, WIRING) TO BE NO. 18 A.W.G. MIN.
3. GROUNDING OF EQUIPMENT MUST COMPLY WITH LOCAL CODES.
4. SET THERMOSTAT HEAT ANTICIPATOR PER UNIT WIRING DIAGRAM.
5. THE **Y** TERMINAL FROM THE THERMOSTAT MUST BE WIRING TO THE **Y** TERMINAL OF THE FURNACE CONTROL FOR PROPER BLOWER OPERATION DURING COOLING.
6. IGNITION CONTROL IS POLARITY SENSITIVE. HOT LEG OF 120 VOLT POWER SUPPLY MUST BE CONNECTED TO THE BLACK LINE POWER LEAD AS INDICATED ON THE WIRING DIAGRAM OR IGNITION LOCKOUT WILL OCCUR.
7. THIS CONNECTION IS ONLY USED FOR THERMOSTATS REQUIRING CONNECTION TO THE 24 V. POWER SUPPLY. (COMMON)
Installation Instructions

**GAS PIPING**

This unit is shipped standard for left side installation of gas piping. A piping knockout is also provided in the right side for an alternate piping arrangement. The installation of piping shall be in accordance with piping codes and the regulations of the local gas company. Pipe joint compound must be resistant to the chemical reaction with liquefied petroleum gases.

Refer to piping Table 9 for delivery sizes. Connect gas supply to the unit, using a ground joint union and a manual shut-off valve as shown in Figure 16. National codes require a condensation drip leg to be installed ahead of the controls as shown in Figure 16.

The furnace and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig. The furnace must be isolated from the gas supply piping by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig.

**NOTE:**

Maximum pressure to the gas valve for natural gas is 13.8" W.C. Minimum pressure is 5.0" W.C. Maximum pressure to the gas valve for propane is 13.8" W.C. Minimum pressure is 11.0" W.C.

All gas fittings must be checked for leaks using a soapy solution before lighting the furnace. **DO NOT CHECK WITH AN OPEN FLAME!**

The following warning complies with State of California law, Proposition 65.

**Hazardous Gases!**

Exposure to fuel substances or by-products of incomplete fuel combustion is believed by the state of California to cause cancer, birth defects, or other reproductive harm.

**SEQUENCE OF OPERATION**

Thermostat call for heat

R and W thermostat contacts close signaling the control module to run its self-check routine. After the control module has verified that the pressure switch contacts are open and the limit switch(es) contacts are closed, the draft blower will be energized.

As the induced draft blower comes up to speed, the pressure switch contacts close and the ignitor warm up period will begin. The ignitor will heat for approx. 17 seconds, then the gas valve is energized to permit gas flow to the burners. The flame sensor confirms that ignition has been achieved within the 4 second ignition trial period.

After the flame sensor confirms that ignition has been achieved, the delay fan ON period (fixed at 45 seconds) begins timing. After the delay of 45 seconds, the indoor blower motor will be energized and will continue to run during the heating cycle.

When the thermostat is satisfied, R and W thermostat contacts open, the gas valve will close, the flames will extinguish, and the induced draft blower will be de-energized. The indoor blower motor will continue to run for the fan off period (fixed at 100 seconds), then will be de-energized by the control module.

**WARNING**

TO PREVENT AN EXPLOSION OR POSSIBLE INJURY, DEATH AND EQUIPMENT DAMAGE, DO NOT STORE COMBUSTIBLE MATERIALS, GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS NEAR THE UNIT.
START-UP AND ADJUSTMENT

PRELIMINARY INSPECTIONS

With gas and electrical power “OFF”
1. Duct connections are properly sealed
2. Filters are in place
3. Venting is properly assembled
4. Blower door is in place

Turn main gas valve within the unit to the “OFF” position. Turn the external gas shut-off valve to “ON”. Purge the air from the gas lines. After purging, check all gas connections for leaks with a soapy solution — DO NOT CHECK WITH AN OPEN FLAME. Allow 5 minutes for any gas that might have escaped to dissipate.

COMBUSTION AND INPUT CHECK

1. Make sure all gas appliances are off except the furnace.
2. Clock the gas meter with the furnace operating (determine the dial rating of the meter) for one revolution.
3. Match the “Sec” column in the gas flow (in cfh) Table 12 with the time clocked.
4. Read the “Flow” column opposite the number of seconds clocked.
5. Use the following factors if necessary:
   - For 1 Cu. Ft. Dial Gas Flow CFH = Chart Flow Reading ÷ 2
   - For 1/2 Cu Ft. Dial Gas Flow CFH = Chart Flow Reading ÷ 4
   - For 5 Cu. Ft. Dial Gas Flow CFH = 10X Chart Flow Reading ÷ 4
6. Multiply the final figure by the heating value of the gas obtained from the utility company and compare to the nameplate rating. This must not exceed the nameplate rating.
7. Changes can be made by adjusting the manifold pressure or changing orifices (orifice change may not always be required).
   a. Turn off all electrical power to the system.
   b. Attach a manifold pressure gauge to the outlet pressure tap marked “OUT PRESS TAP” on White-Rodgers gas valve model 36F or boss marked “OUT P” on White-Rodgers gas valve model 36G. (See Figure 18 for White-Rodgers gas valve model 36F and Figure 17 for White-Rodgers gas valve model 36G.) For the gas valve model 36F, measurement requires removal of the plug and installation of a barbed fitting. Attach flexible tubing and a manometer directly onto the outlet pressure boss.
   c. Turn on system power and energize valve.
   d. Remove the regulator adjustment screw cap and on the gas valve for manifold pressure adjustment.
   e. Turn the adjustment nut clockwise to increase the gas flow rate, and counterclockwise to decrease the gas flow rate using a 3/32” hex wrench.
   f. The final manifold pressure setting shall be 3.5” W.C. with an input of no more than nameplate rating and no less than 93% of the nameplate rating, unless the unit is derated for high altitude.
   g. Replace the regulator adjustment screw cap and tighten securely.
   h. Turn off all electrical power to the system.
   i. Remove the manometer and flexible tubing. Remove the barbed fitting and replace the plug or tighten the pressure test screw.
   j. Turn on electrical power to the system and energize valve.
   k. Using a leak detection solution or soap suds, check for leaks at plug or pressure boss screw.

CAUTION

Replace and/or tighten all plugs removed or loosened when adjusting gas pressure. Leak check the fittings before placing the furnace into regular service. Failure to follow this warning could result in fire, explosion, or property damage.

For LP gases, the final manifold pressure setting shall be 10.5” W.C. with an input of no more than the nameplate rating and no less than 93% of the nameplate rating, unless the unit is derated for altitude.

Table 10 lists the main burner orifices shipped with the furnace. If a change of orifices is required to correct the input rate, refer to Table 11.

**TABLE 9**

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
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<td>1/2</td>
<td>132</td>
<td>92</td>
<td>73</td>
<td>63</td>
<td>56</td>
<td>50</td>
<td>46</td>
</tr>
<tr>
<td>3/4</td>
<td>278</td>
<td>190</td>
<td>152</td>
<td>130</td>
<td>115</td>
<td>105</td>
<td>96</td>
</tr>
<tr>
<td>1</td>
<td>520</td>
<td>350</td>
<td>285</td>
<td>245</td>
<td>215</td>
<td>195</td>
<td>180</td>
</tr>
<tr>
<td>1-1/4</td>
<td>1050</td>
<td>590</td>
<td>520</td>
<td>440</td>
<td>400</td>
<td>370</td>
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</tbody>
</table>

This table is based on pressure drop of 0.3 inch W.C. and 0.6 SP. GR. gas.

**TABLE 10**

<table>
<thead>
<tr>
<th>INPUT RATING BTUH</th>
<th>NUMBER OF BURNERS</th>
<th>MAIN BURNER ORIFICE DRILL SIZE</th>
</tr>
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<tr>
<td></td>
<td></td>
<td>NAT. GAS</td>
</tr>
<tr>
<td>40,000</td>
<td>2</td>
<td>45</td>
</tr>
<tr>
<td>60,000</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>80,000</td>
<td>4</td>
<td>45</td>
</tr>
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<tr>
<td>120,000</td>
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<td>45</td>
</tr>
<tr>
<td>140,000</td>
<td>7</td>
<td>45</td>
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</table>

**TABLE 11**

<table>
<thead>
<tr>
<th>DRILL SIZE</th>
<th>PART NUMBER</th>
<th>DRILL SIZE</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>ORF00501</td>
<td>54</td>
<td>ORF00555</td>
</tr>
<tr>
<td>45</td>
<td>ORF00644</td>
<td>55</td>
<td>ORF00693</td>
</tr>
<tr>
<td>46</td>
<td>ORF00909</td>
<td>56</td>
<td>ORF00907</td>
</tr>
<tr>
<td>47</td>
<td>ORF00910</td>
<td>57</td>
<td>ORF00908</td>
</tr>
<tr>
<td>48</td>
<td>ORF01099</td>
<td>58</td>
<td>ORF01338</td>
</tr>
<tr>
<td>49</td>
<td>ORF00503</td>
<td>59</td>
<td>ORF01339</td>
</tr>
<tr>
<td>50</td>
<td>ORF00493</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Installation Instructions

HIGH ALTITUDE DERATE
Input rate changes can be made by adjusting the manifold pressure (min 3.0 - max 3.7 in. W.C. - Natural Gas) or changing orifices (orifice change may not always be required). If the desired input rate cannot be achieved with a change in manifold pressure, then the orifices must be changed. LP installations will require an orifice change.

IMPORTANT:
Reinstall the propane orifices to the same depth as the orifices supplied with the equipment.

See Table 13 for help in selecting orifices if orifice change is required.

Furnace input rate and temperature rise should be checked again after changing orifices to confirm the proper rate for the altitude.

Installations above 4,000 feet may require a pressure switch change. If required, use the BAYHALT*** Kit (High Altitude Accessory Kit) listed in PRODUCT DATA.

TABLE 13

<table>
<thead>
<tr>
<th>Orifice Twist Drill Size If Installed At Sea Level</th>
<th>ALTITUDE ABOVE SEA LEVEL and Orifice Required At Other Elevations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2000 3000 4000 5000 6000 7000 8000 9000 10000</td>
</tr>
<tr>
<td>42</td>
<td>42 43 43 43 44 44 45 46 46 47</td>
</tr>
<tr>
<td>43</td>
<td>44 45 45 46 47 47 48 48 49 49</td>
</tr>
<tr>
<td>44</td>
<td>47 47 47 48 48 48 48 49 49 50</td>
</tr>
<tr>
<td>46</td>
<td>48 48 49 49 49 49 50 50 51 52</td>
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<tr>
<td>47</td>
<td>54 55 55 55 55 55 55 56 56 56</td>
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<td>54</td>
<td>55 55 55 55 55 55 55 56 56 56</td>
</tr>
<tr>
<td>55</td>
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<tr>
<td>56</td>
<td>57 59 59 59 60 60 60 61 61 62</td>
</tr>
<tr>
<td>57</td>
<td>58 60 60 61 61 61 61 62 62 63</td>
</tr>
<tr>
<td>58</td>
<td>62 63 63 63 63 63 63 64 64 64</td>
</tr>
</tbody>
</table>

From National Fuel Gas Code - Table F-4

**WARNING**

DO NOT attempt to manually light the burner. Failure to follow this warning could result in property damage, personal injury or death.

Lighting instructions appear on each unit. Each installation must be checked out at the time of initial start up to insure proper operation of all components. Check out should include putting the unit through one complete cycle as outlined below.

Turn on the main electrical supply and set the thermostat above the indicated temperature. The ignitor will automatically heat, then the gas valve is energized to permit the flow of gas to the burners. After ignition and flame is established, the flame control module monitors the flame and supplies power to the gas valve until the thermostat is satisfied.

TO SHUT OFF

For complete shutdown: Move the control switch on the main gas valve to the “OFF” position (See Figure 17 & 18). Disconnect the electrical supply to the unit.
Installation Instructions

CAUTION

If this is done during the cold weather months, provisions must be taken to prevent freeze-up of all water pipes and water receptacles. Failure to follow this warning could result in property damage.

Whenever your house is to be vacant, arrange to have someone inspect your house for proper temperature. This is very important in below freezing weather. If for any reason your furnace should fail to operate damage could result, such as frozen water pipes.

CONTROL AND SAFETY SWITCH ADJUSTMENT

LIMIT SWITCH CHECK OUT

The limit switch is a safety device designed to close the gas valve should the furnace become overheated. Since proper operation of this switch is important to the safety of the unit, it must be checked out on initial start up by the installer.

To check for proper operation of the limit switches, set the thermostat to a temperature higher than the indicated temperature to bring on the gas valve. Restrict the airflow by blocking the return air or by disconnecting the blower. When the furnace reaches the maximum outlet temperature as shown on the rating plate, the burners must shut off. If they do not shut off after a reasonable time and overheating is evident, a faulty limit switch is probable and the limit switch must be replaced. After checking the operation of the limit control, be sure to remove the paper or cardboard from the return air inlet, or reconnect the blower.

AIRFLOW ADJUSTMENT

Check inlet and outlet air temperatures to make sure they are within the ranges specified on the furnace rating nameplate. If the airflow needs to be increased or decreased, see the wiring diagram for information on changing the speed of the blower motor.

WARNING

Disconnect power to the unit before removing the blower door. Failure to follow this warning could result in property damage, personal injury or death.

This unit is equipped with a blower door switch which cuts power to the blower and gas valve causing shutdown when the door is removed. Operation with the door removed or ajar can permit the escape of dangerous fumes. All panels must be securely closed at all times for safe operation of the furnace.

NOTE:
Direct drive motors have bearings which are permanently lubricated and under normal use, lubrication is not recommended.

INDOOR BLOWER TIMING

The control module controls the indoor blower. The blower starts approximately 45 seconds after ignition. The FAN-OFF period is approximately 100 seconds from the interruption of gas flow.

ROOM AIR THERMOSTAT HEAT ANTICIPATOR ADJUSTMENT

Set the thermostat heat anticipator according to the current flow measured, or the settings found in the notes on the furnace wiring diagram (found inside the furnace casing).

WARNING

This product contains fiberglass wool insulation! Fiberglass dust and ceramic fibers are believed by the State of California to cause cancer through inhalation. Glasswool fibers may also cause respiratory, skin, or eye irritation.

PRECAUTIONARY MEASURES

- Avoid breathing fiberglass dust.
- Use a NIOSH approved dust/mist respirator.
- Avoid contact with the skin or eyes. Wear long-sleeved, loose-fitting clothing, gloves, and eye protection.
- Wash clothes separately from other clothing: rinse washer thoroughly.
- Operations such as sawing, blowing, tear-out, and spraying may generate fiber concentrations requiring additional respiratory protection. Use the appropriate NIOSH approved respirator in these situations.

FIRST AID MEASURES

Eye Contact – Flush eyes with water to remove dust. If symptoms persist, seek medical attention.

Skin Contact – Wash affected areas gently with soap and warm water after handling.

INSTRUCTIONS TO THE OWNERS

In the event that electrical, fuel, or mechanical failures occur, the owner should immediately turn the gas supply off at the manual gas valve, located in the burner compartment (See Figure 16). Also turn off electrical power to the furnace and contact the service agency designated by your dealer.

WARNING

Should overheating occur, or the gas supply fail to shut off, shut the gas valve to the unit before shutting off the electrical supply. Failure to follow this warning could result in property damage, personal injury, or death.

WARNING

FIRE OR EXPLOSION HAZARD

Failure to follow the safety warnings exactly could result in serious injury, death or property damage.

Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections. A fire or explosion may result causing property damage, personal injury, or loss of life.
User’s Information Guide
Upflow Only and Downflow / Horizontal, Gas-Fired Furnaces “Fan Assisted Combustion System”

Contents:
Dangers, Warnings & Cautions ............................... 18
General Information ........................................ 18-19
To Start The Furnace ....................................... 19-20
Proper Maintenance ........................................ 21-22
The Problem Solver ........................................ 23
Regular Dealer Maintenance ............................... 24
Warranty ............................................................ 39-40

GENERAL INFORMATION
Understand the signal words DANGER, WARNING, AND CAUTION. These words are safety alert words. DANGER indicates the most serious hazards which will result in severe personal injury or death. WARNING indicates hazards which could result in personal injury or death. CAUTION is used to indicate unsafe practices which could result in minor injury or property damage.

IMPORTANT FACTS
The flow of combustion and ventilating air must not be obstructed from reaching the furnace. Air openings provided in the casing of the furnace must be kept free of obstructions which would restrict airflow, thereby affecting efficiency and safe operation of your furnace.

Also, air openings provided to the area in which the furnace is installed and the space around the furnace shall not be blocked or obstructed. Keep this in mind should you choose to remodel the area which contains your furnace. If additional insulation is added after the furnace is installed, the area around the furnace must be inspected to ensure it is free and clear of insulation. If this furnace is installed in an attic or other insulated space it must be kept free and clear of all insulating materials as some insulating materials are combustible.

Furnaces must have air for proper performance. There must be a free flow of fresh air sufficient for efficient combustion and safe ventilation of your furnace.

The combustion air for your furnace must be fresh uncontaminated air. Paints, varnishes, laundry bleaches, detergents, many household cleaners, water softening salts, adhesives, and all such products release fumes containing compounds which could lead to early heat exchanger and vent system deterioration. Do not store these types of products near your furnace.

Never store gasoline, combustible materials, or other flammable liquids or vapors near your furnace.

Carbon monoxide, fire or smoke can cause serious bodily injury, death, and/or property damage.

A variety of potential sources of carbon monoxide can be found in a building or dwelling such as gas-fired clothes dryers, gas cooking stoves, water heaters, furnaces and fireplaces. The U.S. Consumer Product Safety Commission recommends that users of gas-burning appliances install carbon monoxide detectors as well as fire and smoke detectors per the manufacturer's installation instructions to help alert dwelling occupants of the presence of fire, smoke or unsafe levels of carbon monoxide. These devices should be listed by Underwriters Laboratories, Inc. Standards for Single and Multiple Station Carbon Monoxide Alarms, UL 2034 or CSA International Standard, Residential Carbon Monoxide Alarming Devices, CSA 6.19

WARNING
DO NOT USE THIS UNIT IF ANY PART HAS BEEN UNDER WATER. IMMEDIATELY CALL A QUALIFIED SERVICE TECHNICIAN TO INSPECT THE FURNACE AND REPLACE ANY PART OF THE CONTROL SYSTEM AND ANY GAS CONTROL WHICH HAS BEEN UNDER WATER.
Lighting instructions.

Your furnace does not use a continuously burning pilot flame. Therefore, manually lighting your furnace is not required. Your furnace is equipped with an automatic ignition system. It uses a hot surface ignition device that automatically lights the burners each time the thermostat signals the furnace to start.

⚠️ WARNING ⚠️

Do not attempt to manually light the furnace.

1. Please read all safety information in this book before operating furnace.
2. Set thermostat to lowest setting. Turn off all electric power to furnace.
3. Remove the furnace front panel to gain access to the main gas valve.
4. Turn gas cock knob clockwise or the toggle switch located on the main gas valve inside the unit to “OFF” position (see illustration on this page). If external gas cock is used, turn to “OFF” position (see illustration on next page). Allow 5 minutes for any gas within the unit to escape. LP gas being heavier than air may require forced ventilation. If you smell gas STOP! Follow the “What To Do If You Smell Gas” instructions on the front cover of this book. If you don’t smell gas, go to next step.
5. Turn gas cock knob counterclockwise or the toggle switch to “ON” marker (see illustration on this page).
6. Replace the furnace front access panel.

7. Turn on main electrical supply and set thermostat to desired setting. Combustion blower will start and ignition device will start to heat up. After approximately 15 seconds main gas valve will open and burners will ignite.
8. When thermostat is satisfied, main burners will extinguish.
9. If main burners fail to ignite, lower thermostat setting or disconnect electrical supply, wait 5 minutes, raise thermostat setting above indicated temperature.
10. If furnace will not light, turn “OFF” all gas and electricity to unit and call servicer or gas supplier.

For complete shutdown.
Turn gas cock knob on main gas valve to “OFF” position. Disconnect electrical supply to unit.

⚠️ WARNING ⚠️

If this is done during the cold weather months, provisions must be taken to prevent freeze-up of all water pipes and water receptacles.

Whenever your house is to be vacant, arrange to have someone inspect your house for proper temperature. If your furnace should fail to operate, damage could result, such as frozen water pipes.

Flame Roll-out Device.
All models are equipped with a fusible link located near the burners. In case of flame roll-out, the link will open (melt) and cause the circuit to open which shuts off all flow of gas.

Your Gas Valve Shut-Off May Be MANUAL OR ELECTRIC SWITCH

Untrained personnel can perform basic maintenance functions such as cleaning and replacing filters. All other operations must be performed by trained service personnel.

Parts and controls of this furnace are unique. Should service or modification be required, be sure your servicer uses only factory authorized parts, kits, or accessories for this furnace.

If you experience a problem with the operation of your furnace, check the “Problem Solver” section of this manual before you call for a possibly unneeded service call.

⚠️ WARNING ⚠️

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to the installation instructions provided with the furnace and this manual. For assistance or additional information consult a qualified installer, service agency or the gas supplier.
NOTE THE LOCATION OF THE MANUAL MAIN GAS SHUT-OFF VALVE FOR YOUR FURNACE.
Have your installer or servicer show you the location if you have any questions.

UPFLOW FURNACE Manual Main Gas Shut-off Valve May Be Located on the Left or Right Side

DOWNFLOW FURNACE Manual Main Gas Shut-off Valve May Be Located on the Right or Left Side

HORIZONTAL FURNACE Manual Main Gas Shut-off Valve May Be Located on the Top or Bottom Side
Proper maintenance reduces energy use.

A clean filter saves money.

When the furnace circulates and filters the air in your home, dust and dirt particles build up on the filter. Excessive accumulation can block the airflow, forcing the unit to work harder to maintain desired temperatures.

And the harder your unit has to work, the more energy it uses. So you pay more any time your system is running with a dirty filter.

Never operate your unit for either heating or cooling with filters removed.

Help ensure top efficiency by cleaning the filter once a month. Clean it twice a month during seasons when the unit runs more often.

You can clean the filter with a vacuum, OR you can wash it with a household detergent.

Both methods are quick and easy, and guaranteed to improve the performance of your system.

Replacing your filter.

When replacing your furnace filters, always use high velocity type which are the same size as originally supplied. Filters are available from your dealer.

Where disposable filters are used, they must be a high velocity type which are the same size as originally supplied.

How to remove your filter.

Disconnect power to unit before removing blower door.

Upflow furnaces use a high velocity type air filter which may be located within the furnace blower compartment in either a BOTTOM or SIDE (left or right) return air inlet. The furnace may be secured with filter retaining brackets (as shown) or a filter retainer wire.

To replace filters, remove blower access door, push back to flex the filter and clear the filter retaining bracket at the front of the unit. After cleaning, replace the filter in the same manner making sure that the filter wire is secured in place in both front and back filter retaining brackets. Replace blower access door.
Operating Instructions

Upflow/Horizontal Furnace Filters

The Upflow/Horizontal furnace when installed horizontally requires a horizontal filter kit. The filters may be located remote to the furnace or in the return air duct near the furnace. Check with your dealer for the location of your filters.

An upflow/horizontal furnace in horizontal return air filter application, as shown, features two 16” x 20” x 1” filters in the 17-1/2”, 21” and 24-1/2” wide furnace cabinets.

To replace filters, remove the filter access door, lift the filter from the lower bracket and shift the filter to the side to free the top filter from the bracket and slide the filters out through the filter access door. After cleaning, replace the filters in the same manner making sure that the filters are secured in place in both top and bottom filter brackets. Replace filter access door.

Air filters may also be located outside of the furnace using a remote filter grille. The filter grille could be in a hallway, wall, or in the ceiling. Check with your dealer for the exact location of your filter and the method of changing the filters.

UPFLOW/HORIZONTAL WITH FILTER KIT

Airflow

Downflow/Horizontal furnaces are factory supplied with 2 standard size permanent type air filters which may be located remote to the furnace or in the return air duct. Check with your dealer for the location of your filters.

A downflow/horizontal furnace return air filter application, as shown, features two 14” x 20” x 1” filter in the 17-1/2” wide furnace cabinets; or two 16” x 20” x 1” filter in the 21” and 24-1/2” wide furnace cabinets.

UPFLOW (Vertical) FILTER TABLES

<table>
<thead>
<tr>
<th>CABINET WIDTH</th>
<th>FILTER QUANTITY &amp; SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-1/2”</td>
<td>1 - 17” X 25” X 1”</td>
</tr>
<tr>
<td>21”</td>
<td>1 - 20” X 25” X 1”</td>
</tr>
<tr>
<td>24-1/2”</td>
<td>1 - 24” X 25” X 1”</td>
</tr>
</tbody>
</table>

DOWNFLOW/HORIZONTAL FILTER

<table>
<thead>
<tr>
<th>CABINET WIDTH</th>
<th>FILTER QUANTITY &amp; SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-1/2”</td>
<td>1 - 17” X 25” X 1”</td>
</tr>
<tr>
<td>21”</td>
<td>1 - 20” X 25” X 1”</td>
</tr>
<tr>
<td>24-1/2”</td>
<td>1 - 24” X 25” X 1”</td>
</tr>
</tbody>
</table>

DOWNFLOW FILTER

A downflow/horizontal furnace return air filter application, as shown, features two 14” x 20” x 1” filter in the 17-1/2” wide furnace cabinets; or two 16” x 20” x 1” filter in the 21” and 24-1/2” wide furnace cabinets.

REQUIRED FILTERS - BOTTOM

<table>
<thead>
<tr>
<th>CABINET WIDTH</th>
<th>FILTER QUANTITY &amp; SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-1/2”</td>
<td>1 - 17” X 25” X 1”</td>
</tr>
<tr>
<td>21”</td>
<td>1 - 20” X 25” X 1”</td>
</tr>
<tr>
<td>24-1/2”</td>
<td>1 - 24” X 25” X 1”</td>
</tr>
</tbody>
</table>

REQUIRED FILTERS - SIDE **

<table>
<thead>
<tr>
<th>CABINET WIDTH</th>
<th>FILTER QUANTITY &amp; SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-1/2”</td>
<td>1 - 17” X 25” X 1”</td>
</tr>
<tr>
<td>21”</td>
<td>1 - 20” X 25” X 1”</td>
</tr>
<tr>
<td>24-1/2”</td>
<td>1 - 24” X 25” X 1”</td>
</tr>
</tbody>
</table>

DOWNFLOW (Vertical) FILTER TABLE

<table>
<thead>
<tr>
<th>CABINET WIDTH</th>
<th>FILTER QUANTITY &amp; SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-1/2”</td>
<td>1 - 17” X 25” X 1”</td>
</tr>
<tr>
<td>21”</td>
<td>1 - 20” X 25” X 1”</td>
</tr>
<tr>
<td>24-1/2”</td>
<td>1 - 24” X 25” X 1”</td>
</tr>
</tbody>
</table>

** ON UPFLOW 5 TON AIRFLOW MODELS, IF THE AIRFLOW REQUIREMENT EXCEEDS 1800 CFM, THESE MODELS WILL REQUIRE FILTERS ON BOTH SIDES OR 1 SIDE AND THE BOTTOM, OR JUST THE BOTTOM
The problem solver.

A furnace is not a household appliance. It is complex and requires professional maintenance and repair. That’s why attempts at “do-it-yourself” repairs on an in-warranty unit may void the remainder of your warranty. Other than performing the simple maintenance recommended in this manual, you should not attempt to make any adjustments to your furnace. Your dealer will be able to take care of any questions or problems you may have. A periodic inspection of your furnace should be made by a qualified service agency at the start of each heating season.

Keep your furnace looking like new for years.
Clean the enamel finish of your furnace with ordinary soap and water. For stubborn grease spots, use a household detergent. Lacquer thinner or other synthetic solvents may damage the finish.

Save time and money. Before calling for service, check the following:

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Trouble</th>
<th>Possible Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Heating - Blower Does not operate</td>
<td>1. Thermostat set incorrectly.</td>
<td>1. Adjust thermostat. See operating instructions</td>
</tr>
<tr>
<td></td>
<td>2. Blown fuse or tripped circuit breaker.</td>
<td>2. Replace or reset protective device or call for servicer.</td>
</tr>
<tr>
<td></td>
<td>3. Defective component.</td>
<td>3. Most controls are automatic and will recycle. If your unit still does not operate call for servicer.</td>
</tr>
<tr>
<td></td>
<td>4. Burner does not ignite.</td>
<td>4. Call servicer.</td>
</tr>
<tr>
<td></td>
<td>5. Main gas line turned off.</td>
<td>5. Have gas company check.</td>
</tr>
<tr>
<td></td>
<td>6. Blower door removed or ajar.</td>
<td>6. Close door securely to restore power to blower and gas valve.</td>
</tr>
<tr>
<td></td>
<td>7. Lockout</td>
<td>7. Turn power on-off-on-off twice in 30 seconds.</td>
</tr>
<tr>
<td>Insufficient Heating - Blower operates continuously</td>
<td>1. Dirty air filters.</td>
<td>1. Clean or replace filters.</td>
</tr>
<tr>
<td></td>
<td>2. Blocked supply or return registers.</td>
<td>2. Make sure registers are open and no obstacles blocking off the air.</td>
</tr>
<tr>
<td>No Heat - Vent motor is running</td>
<td>Restricted or plugged furnace condensate drain.</td>
<td>1. Remove drain clamps to condensate trap and drain pan outlet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Flush or clean drain blockage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Reinstall clamps.</td>
</tr>
<tr>
<td>Unusual Noise</td>
<td></td>
<td>Call your servicer</td>
</tr>
</tbody>
</table>

The following warning complies with State of California law, Proposition 65.

⚠️ WARNING
THIS PRODUCT CONTAINS FIBERGLASS WOOL INSULATION!
Fiberglass dust and ceramic fibers are believed by the State of California to cause cancer through inhalation. Glasswool fibers may also cause respiratory, skin, or eye irritation.

PRECAUTIONARY MEASURES
- Avoid breathing fiberglass dust.
- Use a NIOSH approved dust/mist respirator.
- Avoid contact with the skin or eyes. Wear long-sleeved, loose-fitting clothing, gloves, and eye protection.
- Wash clothes separately from other clothing: rinse washer thoroughly.
- Operations such as sawing, blowing, tear-out, and spraying may generate fiber concentrations requiring additional respiratory protection. Use the appropriate NIOSH approved respirator in these situations.

FIRST AID MEASURES
Eye Contact – Flush eyes with water to remove dust. If symptoms persist, seek medical attention.
Skin Contact – Wash affected areas gently with soap and warm water after handling.

⚠️ WARNING
CARBON MONOXIDE POISONING HAZARD
Failure to follow the installation and operation instructions for the venting system’s operation could result in carbon monoxide poisoning or death.
Operating Instructions

Regular dealer maintenance.

Never stop the cooling system by shutting off the main power.

If the main power to your air conditioner is ever disconnected for more than three hours, turn off the thermostat. Then wait for at least three more hours after the power has been restored before turning the thermostat back on. Failure to follow this procedure could result in damage to your air conditioning system.

1. GENERAL INSPECTION — Examine the furnace installation for the following items:

   a. All flue product carrying areas external to the furnace (i.e. chimney, vent connector) are clear and free of obstruction.
   b. The vent connector is in place, slopes upward and is physically sound without holes or excessive corrosion.
   c. The return air duct connection(s) is physically sound, is sealed to the furnace and terminates outside the space containing the furnace.
   d. The physical support of the furnace should be sound without sagging, cracks, gaps, etc., around the base so as to provide a seal between the support and the base.
   e. There are no obvious signs of deterioration of the furnace.

The following warning complies with State of California law, Proposition 65.

**WARNING**

Hazardous Gases!
Exposure to fuel substances or by-products of incomplete fuel combustion is believed by the state of California to cause cancer, birth defects, or other reproductive harm.

**NOTE:** On LP (propane) units, some light yellow tipping of the outer mantle is normal. Inner mantle should be bright blue.

Natural gas units should not have any yellow tipped flames. This condition indicates that a service call is required. For best operation, burners must be cleaned annually using brushes and vacuum cleaner.

**NOTE:** On LP (propane) units, due to variations in BTU content and altitude, servicing may be required at shorter intervals.

2. BLOWERS — The blower size and speed determine the air volume delivered by the furnace. The blower motor bearings are factory lubricated and under normal operating conditions usually do not require servicing. Annual cleaning of the blower wheel and housing is recommended for maximum air output, and this must be performed only by a qualified servicer or service agency.

**WARNING**

Unit is equipped with a blower door switch which cuts power to blower and gas valve causing shutdown when door is removed. Operation with doors removed or ajar can permit the escape of dangerous fumes. All panels must be securely closed at all times for safe operation of the furnace.

3. IGNITER — This unit has a special hot surface direct ignition device that automatically lights the burners. Please note that it is very fragile and should be handled with care.

**CAUTION**

Do not touch igniter. It is extremely hot.

4. BURNER — Gas burners do not normally require scheduled servicing, however, accumulation of foreign material may cause a yellowing flame or delayed ignition. Either condition indicates that a service call is required. For best operation, burners must be cleaned annually using brushes and vacuum cleaner.

Turn off gas and electric power supply. To clean burners, remove top burner bracket and lift burner from orifice.

**NOTE:**

Be careful not to break igniter when removing burners.

5. HEAT EXCHANGER / FLUE PIPE — These items must be inspected for signs of corrosion, and/or deterioration at the beginning of each heating season by a qualified service technician and cleaned annually for best operation.

6. CIRCUIT PROTECTION — If blower or gas valve fail to operate, the cause could be the circuit breaker or a loose or blown fuse. Replace fuse or reset circuit breaker.

7. OPERATION — Your warm air furnace should not be operated in a corrosive atmosphere. Paint solvents, cleaning chemicals, spray propellants, and bleaches should not be used in the vicinity of the furnace during normal operation.

8. COOLING COIL CONDENSATE DRAIN — If you have a cooling coil installed with your furnace, condensate drains should be checked and cleaned periodically to assure that condensate can drain freely from coil to drain. If condensate cannot drain freely water damage could occur.

9. AIR CIRCULATION — To ensure increased comfort, the blower on this unit may be operated continuously for both heating and cooling. This will result in constantly filtered air and aid in maintaining more even temperatures by avoiding temperature stratification throughout the conditioned area. To accomplish constant air circulation, set your thermostat fan switch to “ON”.

**WARNING**

Should overheating occur, or the gas supply fail to shut off, shut off the manual gas valve to the furnace before shutting off the electrical supply.

In the event that electrical, fuel or mechanical failures occur, the owner should immediately turn off the gas supply at the manual gas valve located in the burner compartment and electrical power to the furnace and contact servicer.
## MAINTENANCE AND SERVICE INFORMATION

**WARNING**

DISCONNECT POWER BEFORE SERVICING

### PRODUCT SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CUB1A040A9241A</th>
<th>CUB1A060A9361A</th>
<th>CUB1B060A9361A</th>
<th>CUB1B080A9361A</th>
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<tbody>
<tr>
<td>TYPE</td>
<td>Uplow</td>
<td>Uplow</td>
<td>Uplow</td>
<td>Uplow</td>
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<tr>
<td>RATINGS</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Input BTUH</td>
<td>40,000</td>
<td>60,000</td>
<td>60,000</td>
<td>80,000</td>
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<tr>
<td>Capacity BTUH (ICS)</td>
<td>31,000</td>
<td>47,000</td>
<td>47,000</td>
<td>63,000</td>
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<td>Temp. rise (Min.-Max.) °F.</td>
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<td>30 - 60</td>
<td>30 - 60</td>
<td>30 - 60</td>
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<td>AFUE</td>
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<td>80.0</td>
<td>80.0</td>
<td>80.0</td>
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<td>BLOWER DRIVE</td>
<td>Direct</td>
<td>Direct</td>
<td>Direct</td>
<td>Direct</td>
</tr>
<tr>
<td>Diameter - Width (In.)</td>
<td>See Fan Performance Table</td>
<td>See Fan Performance Table</td>
<td>See Fan Performance Table</td>
<td>See Fan Performance Table</td>
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<tr>
<td>No. Used</td>
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<td>1</td>
<td>1</td>
<td>1</td>
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<td>Speeds (No.)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Motor HP</td>
<td>1/50 - 3180</td>
<td>1/50 - 3180</td>
<td>1/50 - 3180</td>
<td>1/50 - 3180</td>
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<tr>
<td>R.P.M.</td>
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<td>115/1/60</td>
<td>115/1/60</td>
<td>115/1/60</td>
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<tr>
<td>Volts / Ph / Hz</td>
<td>Centrifugal</td>
<td>Centrifugal</td>
<td>Centrifugal</td>
<td>Centrifugal</td>
</tr>
<tr>
<td>FLA</td>
<td>1.09</td>
<td>1.09</td>
<td>1.09</td>
<td>1.09</td>
</tr>
<tr>
<td>COMBUSTION FAN - Type</td>
<td>Centrifugal</td>
<td>Centrifugal</td>
<td>Centrifugal</td>
<td>Centrifugal</td>
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<td>Drive - No. Speeds</td>
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<td>Direct - 1</td>
<td>Direct - 1</td>
<td>Direct - 1</td>
</tr>
<tr>
<td>Motor HP - RPM</td>
<td>10 x 6</td>
<td>10 x 6**</td>
<td>10 x 7</td>
<td>10 x 7</td>
</tr>
<tr>
<td>Volts / Ph / Hz</td>
<td>115/1/60</td>
<td>115/1/60</td>
<td>115/1/60</td>
<td>115/1/60</td>
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<tr>
<td>FLA</td>
<td>1.09</td>
<td>1.09</td>
<td>1.09</td>
<td>1.09</td>
</tr>
<tr>
<td>FILTER — Furnished?</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Type Recommended</td>
<td>High Velocity</td>
<td>High Velocity</td>
<td>High Velocity</td>
<td>High Velocity</td>
</tr>
<tr>
<td>Hi Vel. (No.-Size-Thk.)</td>
<td>1 - 16x25 - 1in.</td>
<td>1 - 16x25 - 1in.</td>
<td>1 - 16x25 - 1in.</td>
<td>1 - 17x25 - 1in.</td>
</tr>
<tr>
<td>VENT — Size (In.)</td>
<td>4 Round</td>
<td>4 Round</td>
<td>4 Round</td>
<td>4 Round</td>
</tr>
<tr>
<td>HEAT EXCHANGER</td>
<td>Alum. Steel</td>
<td>Alum. Steel</td>
<td>Alum. Steel</td>
<td>Alum. Steel</td>
</tr>
<tr>
<td>Type — Fired</td>
<td>-Unfired</td>
<td>-Unfired</td>
<td>-Unfired</td>
<td>-Unfired</td>
</tr>
<tr>
<td>Gauge (Fired)</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>ORIFICES — Main</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nat. Gas. Qty. — Drill Size</td>
<td>2 — 45</td>
<td>3 — 45</td>
<td>3 — 45</td>
<td>3 — 45</td>
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<tr>
<td>L.P. Gas Qty. — Drill Size</td>
<td>2 — 56</td>
<td>3 — 56</td>
<td>3 — 56</td>
<td>4 — 56</td>
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<tr>
<td>GAS VALVE</td>
<td>Redundant - Single Stage</td>
<td>Redundant - Single Stage</td>
<td>Redundant - Single Stage</td>
<td>Redundant - Single Stage</td>
</tr>
<tr>
<td>PILOT SAFETY DEVICE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Hot Surface Ignition</td>
<td>Hot Surface Ignition</td>
<td>Hot Surface Ignition</td>
<td>Hot Surface Ignition</td>
</tr>
<tr>
<td>BURNERS — Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>POWER CONN. — V / Ph / Hz (°)</td>
<td>115/1/60</td>
<td>115/1/60</td>
<td>115/1/60</td>
<td>115/1/60</td>
</tr>
<tr>
<td>Ampacity (In Amps)</td>
<td>5.4</td>
<td>9.0</td>
<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Max. Overcurrent Protection (Amps)</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
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<tr>
<td>PIPE CONN. SIZE (IN.)</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
</tr>
<tr>
<td>DIMENSIONS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H x W x D</td>
<td>41-3/4 x 16-1/2 x 30-1/2</td>
<td>41-3/4 x 16-1/2 x 30-1/2</td>
<td>41-3/4 x 19-1/2 x 30-1/2</td>
<td>41-3/4 x 19-1/2 x 30-1/2</td>
</tr>
<tr>
<td>Crated (In.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipping (Lbs.) / Net (Lbs.)</td>
<td>119 / 110</td>
<td>127 / 118</td>
<td>137 / 127</td>
<td>142 / 132</td>
</tr>
</tbody>
</table>

** CUB1A060A9361A was built with a 10 X 7 blower housing, however the 10 X 7 and 10 X 6 have identical airflow in this model.

1. Central Furnace heating designs are certified by AGA and CSA.
2. For U.S. applications, above input ratings (BTUH) are up to 2,000 ft., derate 4% per 1,000 ft. for elevations above 2,000 ft. above sea level.
3. For Canadian applications, above input ratings (BTUH) are up to 4,500 ft., derate 4% per 1,000 ft. for elevations above 4,500 ft. above sea level.
4. Based on U.S. government standard tests.
5. The above wiring specifications are in accordance with National Electrical Code; however, installations must comply with local codes.

**WARNING**

BODILY INJURY CAN RESULT FROM HIGH VOLTAGE ELECTRICAL COMPONENTS, FAST MOVING FANS, AND COMBUSTIBLE GAS. FOR PROTECTION FROM THESE INHERENT HAZARDS DURING INSTALLATION AND SERVICING, THE ELECTRICAL SUPPLY MUST BE DISCONNECTED AND THE MAIN GAS VALVE MUST BE TURNED OFF. IF OPERATING CHECKS MUST BE PERFORMED WITH THE UNIT OPERATING, IT IS THE TECHNICIAN’S RESPONSIBILITY TO RECOGNIZE THESE HAZARDS AND PROCEED SAFELY.

**WARNING**

TO PREVENT AN EXPLOSION OR POSSIBLE INJURY, DEATH AND EQUIPMENT DAMAGE, DO NOT STORE COMBUSTIBLE MATERIALS, GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS NEAR THE UNIT.
### PRODUCT SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CUB1B080A9481A</th>
<th>CUB1B100A9361A</th>
<th>CUB1C100A9481A</th>
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<tr>
<td><strong>TYPE</strong></td>
<td>Upflow</td>
<td>Upflow</td>
<td>Upflow</td>
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<tr>
<td><strong>RATINGS</strong></td>
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<td>Input BTUH ①</td>
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<td>Temp. rise (Min.-Max.) °F.</td>
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<td><strong>BLOWER DRIVE</strong></td>
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<tr>
<td>Diameter - Width (In.)</td>
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<td>10 x 8</td>
<td>10 x 8</td>
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<td>See Fan Performance Table</td>
<td>See Fan Performance Table</td>
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<tr>
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<td>Centrifugal</td>
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<td>1.09</td>
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<td>No</td>
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<td>High Velocity</td>
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<td>1 - 20x25 - 1in.</td>
<td>1 - 20x25 - 1in.</td>
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<td>4 Round</td>
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<td>5 — 45</td>
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<td>L.P. Gas Qty. — Drill Size</td>
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<td>Type</td>
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<td>Redundant - Single Stage</td>
<td>Redundant - Single Stage</td>
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<td>Hot Surface Ignition</td>
<td>Hot Surface Ignition</td>
<td>Hot Surface Ignition</td>
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<td><strong>BURNERS — Type</strong></td>
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<td>5</td>
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<td>115/1/60</td>
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<td>H x W x D</td>
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<td>41-3/4 x 19-1/2 x 30-1/2</td>
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<td>151 / 141</td>
<td>162 / 151</td>
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<tr>
<td><strong>PRODUCT SPECIFICATIONS</strong></td>
<td></td>
<td></td>
<td></td>
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① Central Furnace heating designs are certified by AGA and CSA.
② For U.S. applications, input ratings (BTUH) are up to 2,000 ft., derate 4% per 1,000 ft. for elevations above 2,000 ft. above sea level.
③ For Canadian applications, input ratings (BTUH) are up to 4,500 ft., derate 4% per 1,000 ft. for elevations above 4,500 ft. above sea level.
④ Based on U.S. government standard tests.
⑤ The above wiring specifications are in accordance with National Electrical Code; however, installations must comply with local codes.
### PRODUCT SPECIFICATIONS

**MODEL**
- **CDB1A060A9361A**
- **CDB1B060A9361A**
- **CDB1B080A9451A**

#### RATINGS

- **Input BTUH (**)**
  - **CDB1A060A9361A**: 60,000
  - **CDB1B060A9361A**: 60,000
  - **CDB1B080A9451A**: 80,000

- **Capacity BTUH (ICS) (**)**
  - **CDB1A060A9361A**: 48,000
  - **CDB1B060A9361A**: 48,000
  - **CDB1B080A9451A**: 64,000

- **Temp. rise (Min.-Max.) °F.**
  - **CDB1A060A9361A**: 30 - 60
  - **CDB1B060A9361A**: 30 - 60
  - **CDB1B080A9451A**: 35 - 65

- **AFUE**
  - **CDB1A060A9361A**: 80.0
  - **CDB1B060A9361A**: 80.0
  - **CDB1B080A9451A**: 80.0

#### BLOWER DRIVE

- **Diameter - Width (In.)**
  - **CDB1A060A9361A**: 10 x 7
  - **CDB1B060A9361A**: 10 x 7
  - **CDB1B080A9451A**: 10 x 8

- **No. Used**
  - **CDB1A060A9361A**: 4
  - **CDB1B060A9361A**: 4
  - **CDB1B080A9451A**: 4

- **CFM vs. in. w.g.**
  - **CDB1A060A9361A**: See Fan Performance Table
  - **CDB1B060A9361A**: See Fan Performance Table
  - **CDB1B080A9451A**: See Fan Performance Table

- **Motor HP**
  - **CDB1A060A9361A**: 1/3
  - **CDB1B060A9361A**: 1/3
  - **CDB1B080A9451A**: 1/3

- **Volts / Ph / Hz**
  - **CDB1A060A9361A**: 115/1/60
  - **CDB1B060A9361A**: 115/1/60
  - **CDB1B080A9451A**: 115/1/60

#### COMBUSTION FAN - Type

- **Drive - No. Speeds**
  - **CDB1A060A9361A**: Centrifugal
  - **CDB1B060A9361A**: Centrifugal
  - **CDB1B080A9451A**: Centrifugal

- **Motor HP - RPM**
  - **CDB1A060A9361A**: 3180
  - **CDB1B060A9361A**: 3180
  - **CDB1B080A9451A**: 3180

- **FLA**
  - **CDB1A060A9361A**: 1.09
  - **CDB1B060A9361A**: 1.09
  - **CDB1B080A9451A**: 1.09

#### FILTER — Furnished?

- **Type Recommended**
  - **CDB1A060A9361A**: Hot Surface Ignition
  - **CDB1B060A9361A**: Hot Surface Ignition
  - **CDB1B080A9451A**: Hot Surface Ignition

- **Hi Vel. (No.-Size-Thk.)**
  - **CDB1A060A9361A**: 2 - 14x20 - 1in.
  - **CDB1B060A9361A**: 2 - 14x20 - 1in.
  - **CDB1B080A9451A**: 2 - 14x20 - 1in.

#### VENT — Size (in.)

- **CDB1A060A9361A**: 4 Round
- **CDB1B060A9361A**: 4 Round
- **CDB1B080A9451A**: 4 Round

#### HEAT EXCHANGER

- **Type**
  - **CDB1A060A9361A**: Fired
  - **CDB1B060A9361A**: Fired
  - **CDB1B080A9451A**: Fired

- **Gauge (Fired)**
  - **CDB1A060A9361A**: 20
  - **CDB1B060A9361A**: 20
  - **CDB1B080A9451A**: 20

- **PILOT SAFETY DEVICE**

- **Type**
  - **CDB1A060A9361A**: Hot Surface Ignition
  - **CDB1B060A9361A**: Hot Surface Ignition
  - **CDB1B080A9451A**: Hot Surface Ignition

- **BURNERS — Type**

- **Number**
  - **CDB1A060A9361A**: Multi-port In-shot
  - **CDB1B060A9361A**: Multi-port In-shot
  - **CDB1B080A9451A**: Multi-port In-shot

- **POWER CONN. — V / Ph / Hz (**)**
  - **CDB1A060A9361A**: 115/1/60
  - **CDB1B060A9361A**: 115/1/60
  - **CDB1B080A9451A**: 115/1/60

- **Amplitude (in Amps)**
  - **CDB1A060A9361A**: 9.0
  - **CDB1B060A9361A**: 9.0
  - **CDB1B080A9451A**: 9.0

- **Max. Overcurrent Protection (Amps)**
  - **CDB1A060A9361A**: 15
  - **CDB1B060A9361A**: 15
  - **CDB1B080A9451A**: 15

#### PIPE CONN. SIZE (IN.)

- **CDB1A060A9361A**: 1/2
  - **CDB1B060A9361A**: 1/2
  - **CDB1B080A9451A**: 1/2

#### DIMENSIONS

- **H x W x D**
  - **CDB1A060A9361A**: 43-3/4 x 19-1/2 x 30-1/2
  - **CDB1B060A9361A**: 43-3/4 x 19-1/2 x 30-1/2
  - **CDB1B080A9451A**: 43-3/4 x 19-1/2 x 30-1/2

#### WEIGHT

- **Shipping (Lbs.) / Net (Lbs.)**
  - **CDB1A060A9361A**: 156 / 145
  - **CDB1B060A9361A**: 156 / 145
  - **CDB1B080A9451A**: 156 / 145

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For Canadian applications, above input ratings (BTUH) are up to 4,500 ft., derate 4% per 1,000 ft. for elevations above 4,500 ft. above sea level.

For U.S. applications, above input ratings (BTUH) are up to 4,000 ft., derate 4% per 1,000 ft. for elevations above 4,000 ft. above sea level.

Central Furnace heating designs are certified by AGA and CSA.

Based on U.S. government standard tests.

The above wiring specifications are in accordance with National Electrical Code; however, installations must comply with local codes.
SEQUENCE OF OPERATION
Thermostat call for heat

R and W thermostat contacts close signaling the control module to run its self-check routine. After the control module has verified that the pressure switch contacts are open and the limit switch(es) contacts are closed, the draft blower will be energized.

As the induced draft blower comes up to speed, the pressure switch contacts will close and the ignitor warm up period will begin. The ignitor will heat for approx. 17 seconds, then the gas valve is energized to permit gas flow to the burners. The flame sensor confirms that ignition has been achieved within the 4 second ignition trial period.

After the flame sensor confirms that ignition has been achieved, the delay fan ON period (fixed at 45 seconds) begins timing. After the delay of 45 seconds, the indoor blower motor will be energized and will continue to run during the heating cycle.

When the thermostat is satisfied, R and W thermostat contacts open, the gas valve will close, the flames will extinguish, and the induced draft blower will be de-energized. The indoor blower motor will continue to run for the fan off period (fixed at 100 seconds), then will be de-energized by the control module.

AIRFLOW ADJUSTMENT

Check inlet and outlet air temperatures to make sure they are within the ranges specified on the furnace rating nameplate. If the airflow needs to be increased or decreased, see the wiring diagram for information on changing the speed of the blower motor.

WARNING
Disconnect power to the unit before removing the blower door.

This unit is equipped with a blower door switch which cuts power to the blower and gas valve causing shutdown when the door is removed. Operation with the door removed or ajar can permit the escape of dangerous fumes. All panels must be securely closed at all times for safe operation of the furnace.

INTEGRATED FURNACE CONTROL ERROR FLASH CODES

| Flashing Slow --- | Normal - No call for Heat |
| Continuous ON --- | Replace IFC |
| Continuous OFF --- | Check Power |
| 2 Flashes --- | System Lockout (Retries or Recycles exceeded) |
| 3 Flashes --- | Draft Pressure Error - Possible problems: |
| 4 Flashes --- | Open Temperature Limit Circuit |
| 5 Flashes --- | Flame sensed when no flame should be present |
| 6 Flashes --- | 115 volt AC power reversed, poor grounding or system voltage too low |
| 7 Flashes --- | Gas valve circuit error |
| 8 Flashes --- | Low flame sense signal |

ABNORMAL CONDITIONS

1. EXCESSIVE COMBUSTION VENT PRESSURE OR FLUE BLOCKAGE
If pressure against the induced draft blower outlet becomes excessive, the pressure switch will shut off the gas valve until acceptable combustion pressure is again available.

2. LOSS OF FLAME OR GAS SUPPLY FAILURE
If loss of flame occurs during a heating cycle (when flame is not present at the sensor), the control module will retry the ignition sequence up to two times after the sensor cools. If ignition is not achieved, it will lockout the furnace.

3. POWER FAILURE
If there is a power failure during a heating cycle, the system will restart the ignition sequence automatically when power is restored, if the thermostat still calls for heat.

4. INDUCED DRAFT BLOWER FAILURE
If pressure is not sensed by the pressure switch, it will not allow the gas valve to open, therefore the unit will not start. If failure occurs during a running cycle, the pressure switch will cause the gas valve to close and shut the unit down.
SCHEMATIC DIAGRAM

TABLE "A"

<table>
<thead>
<tr>
<th>MODEL</th>
<th>HEAT &quot;A&quot;</th>
<th>PARK &quot;B&quot;</th>
<th>PARK &quot;C&quot;</th>
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<td>YL</td>
<td>RD</td>
<td>BL</td>
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<tr>
<td>TDE1B600A9361A4</td>
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<td>RD</td>
<td>YL</td>
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<tr>
<td>ADE1B600A9451A4</td>
<td>BL</td>
<td>RD</td>
<td>YL</td>
</tr>
</tbody>
</table>

WARNING
HAZARDOUS VOLTAGE: DISCONNECT ALL ELECTRICAL POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING. FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

CAUTION
USE COPPER CONDUCTORS ONLY! UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS. FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

INTEGRATED FURNACE CONTROL
REPLACE WITH PART CNT020291 OR CNT01120 OR EQUIVALENT INPUT: 25 VAC, 60 HZ XTMR SEC. CURRENT: 450 MA. MV OUTPUT: 1.5 A @ 24 VAC IN0 OUTPUT: 2.7 FLA, 3.5 LRA @ 120 VAC CIRC. BLOWER OUTPUT: 14.5 FLA, 26 LRA @ 120 VAC HUMIDIFIER & AIR CLEANER MAX. LOAD: 1.0 A @ 120 VAC IGNITOR OUTPUT: 6.0 A @ 120 VAC

DIAGNOSTIC CODES
FLASHING SLOW: NORMAL - NO CALL FOR HEAT 5 FLASHES: FLAME SENSED WHEN NO FLAME CONTINUOUS ON: REPLACE IFC 6 FLASHES: 115 VAC POWER REVERSED CONTINUOUS OFF: CHECK POWER 2 FLashes: EXTERNAL LOCKOUT (RETRIES OR RECYCLES EXCEEDED) OR 7 FLASHES: GAS VALVE CIRCUIT ERROR OR LOW FLAME SIGNAL PRESSURE SWITCH ERROR 8 FLASHES: LOW FLAME SIGNAL DEVICE

NOTE:
1. IF ANY OF THE ORIGINAL WIRING AS SUPPLIED WITH THIS FURNACE MUST BE REPLACED, IT MUST BE WITH WIRE HAVING A TEMPERATURE RATING OF AT LEAST 105 C.
2. THERMOSTAT HEAT ANTICIPATOR SETTING: 38 AMPS.
3. FOR PROPER OPERATION OF COOLING SPEED, "Y" TERMINAL MUST BE CONNECTED TO THE ROOM THERMOSTAT.
4. THESE TERMINALS PROVIDE 120V POWER CONNECTIONS FOR ELECTRONIC AIR CLEANER (EAC) AND HUMIDIFIER (EUM). MAX. LOAD: 1.0 AMPS EACH.

From Dwg. D342780P01 Rev.01
## Furnace Airflow (CFM) vs. External Static Pressure (In. W.C.)

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<th>0.30</th>
<th>0.40</th>
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<td>982</td>
<td>950</td>
<td>910</td>
<td>860</td>
<td>802</td>
<td>763</td>
<td>660</td>
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<td></td>
<td>3 - Med.-High - Blue</td>
<td>847</td>
<td>832</td>
<td>809</td>
<td>779</td>
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<td>697</td>
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<td>2 - Med.-Low - Yellow</td>
<td>716</td>
<td>701</td>
<td>678</td>
<td>648</td>
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<td>565</td>
<td>512</td>
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<td>384</td>
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<td>1 - Low - Red</td>
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<td>599</td>
<td>575</td>
<td>544</td>
<td>507</td>
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<td>659</td>
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<td>636</td>
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<td>930</td>
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## CFM vs. Temperature Rise

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### Furnace Airflow (CFM) vs. Static Pressure (in. w.c.)

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From C330671 Sh. 3 Rev. 10
**PERIODIC SERVICING REQUIREMENTS**

**WARNING**

Disconnect power to the unit before removing the blower door. Failure to follow this warning could result in personal injury from moving parts.

**WARNING**

CARBON MONOXIDE POISONING HAZARD

Failure to follow the service and/or periodic maintenance instructions for the furnace and venting system, could result in carbon monoxide poisoning or death.

1. GENERAL INSPECTION — Examine the furnace installation annually for the following items:
   a. All flue product carrying areas external to the furnace (i.e. chimney, vent connector) are clear and free of obstruction. A vent screen in the end of the vent (flue) pipe must be inspected for blockage annually.
   b. The vent connector is in place, slopes upward and is physically sound without holes or excessive corrosion.
   c. The return air duct connection(s) is physically sound, is sealed to the furnace and terminates outside the space containing the furnace.
   d. The physical support of the furnace should be sound without sagging, cracks, gaps, etc., around the base so as to provide a seal between the support and the base.
   e. There are no obvious signs of deterioration of the furnace.

2. FILTERS — Filters should be cleaned or replaced (with high velocity filters only), monthly and more frequently during high use times of the year such as midsummer or midwinter.

3. BLOWERS — The blower size and speed determine the air volume delivered by the furnace. The blower motor bearings are factory lubricated and under normal operating conditions do not require servicing. If motor lubrication is required it should only be done by a qualified servicer. Annual cleaning of the blower wheel and housing is recommended for maximum air output, and this must be performed only by a qualified servicer or service agency.

4. IGNITER — This unit has a hot surface direct ignition device that automatically lights the burners. Please note that it is very fragile and should be handled with care.

**WARNING**

Do not touch igniter. It is extremely hot. Failure to follow this warning could result in severe burns.

5. BURNER — Gas burners do not normally require scheduled servicing, however, accumulation of foreign material may cause a yellowing flame or delayed ignition. Either condition indicates that a service call is required. For best operation, burners must be cleaned annually using brushes and vacuum cleaner.

Turn off gas and electric power supply. To clean burners, remove burner box cover (6 to 8 screws) and top burner bracket. Lift burners from orifices.

**NOTE:**

Be careful not to break igniter when removing burners.

Clean burners with brush and/or vacuum cleaner. Reassemble parts by reversal of the above procedure. The burner box must be resealed when replacing box cover.

**NOTE:**

On LP (propane) units, some light yellow tipping of the outer mantle is normal. Inner mantle should be bright blue.

Natural gas units should not have any yellow tipped flames. This condition indicates that a service call is required. For best operation, burners must be cleaned annually using brushes and vacuum cleaner.

**NOTE:**

On LP (propane) units, due to variations in BTU content and altitude, servicing may be required at shorter intervals.

6. HEAT EXCHANGER/FLUE PIPE — These items must be inspected for signs of corrosion, and/or deterioration at the beginning of each heating season by a qualified service technician and cleaned annually for best operation. To clean flue gas passages, follow recommendations below:

   a. Turn off gas and electric power supply.
   b. Inspect flue pipe exterior for cracks, leaks, holes or leaky joints.
   c. Remove burner compartment door from furnace.
   d. Inspect flue collector box. Inspect induced draft blower flue pipe connection.
   e. Remove burners. (See 4.)
   f. Use a mirror and flashlight to inspect interior of heat exchanger, be careful not to damage the igniter, flame sensor or other components.
   g. If any corrosion is present, contact a service agency. Heat exchanger should be cleaned by a qualified service technician.
   h. After inspection is complete replace furnace door.
   i. Restore gas supply. Check for leaks using a soap solution. Restore electrical supply. Check unit for normal operation.

7. COOLING COIL CONDENSATE DRAIN — If a cooling coil is installed with the furnace, condensate drains should be checked and cleaned periodically to assure that condensate can drain freely from coil to drain. If condensate cannot drain freely water damage could occur. (See Condensate Drain in Installation Section).

**CAUTION**

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

Verify proper operation after servicing.
Limited Warranty
High Efficiency Induced Draft Gas Furnace
UD-R, DD-R, UD-RV, DD-RV, UD1-H, DD1-H, UD1, DD1,
UE1, DE1, CUB1 and CDB1
(First letter may be preceded by an “A” or “T”)
(Parts Only)

Models Less Than 20 Tons for Residential Use*

This limited warranty is extended by American Standard Inc., to the original purchaser and to any succeeding owner of the real property to which the Gas Furnace is originally affixed, and applies to products purchased and retained for use within the U.S.A. and Canada.

If any part of your Gas Furnace fails because of a manufacturing defect within five years from the date of the original purchase, Warrantor will furnish without charge the required replacement part. Any local transportation, related service labor, air filters and diagnosis calls are not included.

In addition, if the steel heat exchanger fails because of a manufacturing defect within the sixth through twentieth year from the date of original purchase, Warrantor will furnish without charge a replacement heat exchanger. Any local transportation, related service labor, air filters, and diagnosis calls, are not included.

This limited warranty does not cover failure of your gas furnace if it is damaged while in your possession, damage caused by unreasonable use of the gas furnace and/or damage from failure to properly maintain the gas furnace as set forth in the Use and Care manual (see Proper Maintenance section).

THE LIMITED WARRANTY AND LIABILITY SET FORTH HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, WHETHER IN CONTRACT OR IN NEGLIGENCE, EXPRESS OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR USE, AND IN NO EVENT SHALL WARRANTOR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states do not allow limitations on how long an implied limited warranty lasts or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Parts will be provided by our factory organization through an authorized service organization in your area listed in the yellow pages. If you wish further help or information concerning this limited warranty, contact:

American Standard Inc.
Troup Highway
Tyler, TX  75711-9010
Attention:  Manager, Field Operations Excellence

GW-661-0106

* This limited warranty is for residential usage of this equipment and not applicable when this equipment is used for a commercial application. A commercial use is any application where the end purchaser uses the product for other than personal, family or household purposes.

Extended warranties are available from the manufacturer through your dealer. The limited warranty is backed by the manufacturer and any representations made about extending the limited warranty would be backed by the manufacturer if and only if an extended warranty agreement was received from the manufacturer.
Limited Warranty
Induced Draft Gas Furnace
UC1, DC1, UX1, DX1, UX1-H, DX1-H, UX, DX, UY, DY, UD-R, DD-R, UD-RV, DD-RV, UD1-H, DD1-H, UD1, DD1, UE1, DE1, CUB1 and CDB1 (First letter may be preceded by an “A” or “T”) (Parts Only)
Models Less Than 20 Tons for Commercial Use*

This warranty is extended by American Standard Inc., to the original purchaser and to any succeeding owner of the real property to which the Gas Furnace is originally affixed, and applies to products purchased and retained for use within the U.S.A. and Canada. There is no warranty against corrosion, erosion or deterioration.

If any part of your Gas Furnace fails because of a manufacturing defect within one year from the date of the original purchase, Warrantor will furnish without charge the required replacement part.

This limited warranty does not cover failure of your gas furnace if it is damaged while in your possession, damage caused by unreasonable use of the gas furnace and/or damage from failure to properly maintain the gas furnace as set forth in the Use and Care manual (see Proper Maintenance section).

In addition, if the steel heat exchanger fails because of a manufacturing defect within the second through twentieth year from the date of original purchase, Warrantor shall furnish without charge a replacement heat exchanger. Warrantor’s obligations and liabilities under this warranty are limited to furnishing F.O.B. Warrantor factory or warehouse replacement parts for Warrantor’s products covered under this warranty. No liability shall attach to Warrantor until products have been paid for and then liability shall be limited solely to the purchase price of the equipment under warranty shown to be defective.

THE WARRANTY AND LIABILITY SET FORTH HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, WHETHER IN CONTRACT OR IN NEGLIGENCE, EXPRESS OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR USE, AND IN NO EVENT SHALL WARRANTOR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

American Standard Inc.
Troup Highway
Tyler, TX 75711-9010
Attention: Manager, Field Operations Excellence
GW-662-0106

* This warranty is for commercial usage of said equipment and not applicable when the equipment is used for a residential application. Commercial use is any application where the end purchaser uses the product for other than personal, family or household purposes.