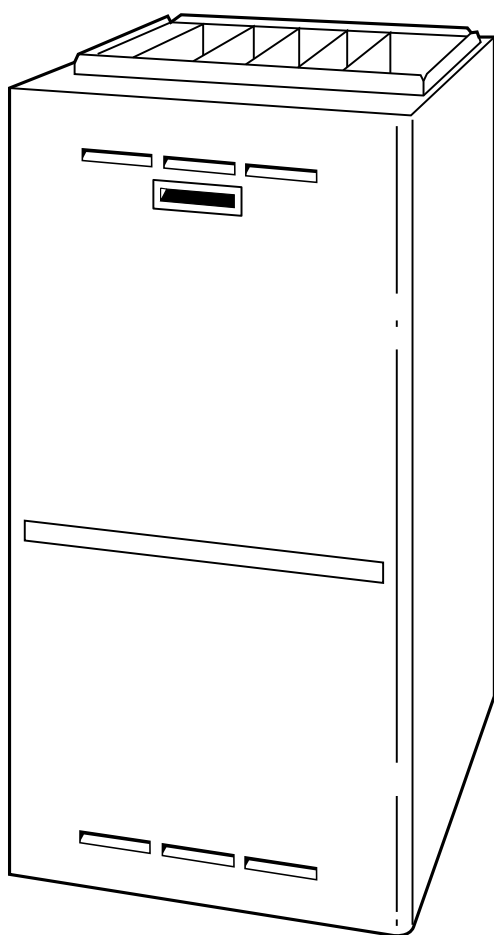




## Product Data

# 58MCA 4-Way Multipoise Fixed-Capacity Condensing Gas Furnace

Series 111  
Input Capacities: 40,000 thru 120,000 Btuh



### High Efficiency and Flexibility Designed to Meet the Needs of New Homes

The model 58MCA combines high efficiency with flexibility to meet the changing needs of new home construction. The unique 4-way, multipoise design of the 58MCA allows for installation in upflow, downflow, horizontal left, and horizontal right orientations, meaning it is perfect for a variety of installation applications. The 58MCA can be installed in a manufactured (mobile) home when the optional kit is used. The furnace is factory configured for upflow application but can easily be made ready for downflow or horizontal installation.

Horizontal applications offer the advantage of reduced space requirements by locating the furnace in an attic or crawl space, freeing space formerly dedicated to a furnace or utility room.

The 58MCA is specifically designed to meet the needs of home builders and new home owners. Home builders benefit from the 58MCA's unmatched flexibility and by building a reputation of using quality appliances in homes. Home owners benefit by energy savings from one of the most important home appliances.

The components of the 58MCA represent the finest in the industry. Hot surface ignition (HSI) and an integrated control center provide reliable and efficient ignition. The inducer and inducer motor are unique in that efficient operation is achieved

in any type of installation. Standard 2-in. PVC pipe connects the combustion-air and vent pipes to the furnace. The primary and secondary heat exchangers are backed by a 25-year Limited Warranty.

The 58MCA is a standard part of a quality-built new home. This high-efficiency furnace will provide years of quality service to home builders and home owners alike.

As with other Carrier furnaces, this model is designed to work as a part of the total home comfort system which includes elements for cooling, air cleaning, humidification, ventilation, and zoning.

## 58MCA FEATURES/ BENEFITS

**Casing**—One piece, seamless wrap-around construction of heavy, galvanized steel resists corrosion.

**Certifications**—The 58MCA units are A.G.A. and C.G.A. design certified for use with natural and propane gases. The efficiency is GAMA efficiency rating certified. The 58MCA meets the oxides of nitrogen (NO<sub>x</sub>) emission levels set by

South Coast and Bay Area Air Quality Management Districts in California.

The 58MCA can be installed in a manufactured (mobile) home when the optional kit is used.

**Warranties**—25-year Limited Warranty on the heat exchangers.

One-year Warranty on microprocessor control, HSI, and inducer motor. Contact your dealer for details.

**Combustion Products Venting**—The combustion-air and vent pipes can terminate through a side wall or through the roof when used with a factory-authorized vent termination kit.

**Blower Access Panel Switch**—Shuts off all 24-v power to furnace whenever blower access panel is opened.

**Hot Surface Ignitor**—No pilot flame to waste gas or cause ignition problems.

**Slow Opening Redundant Gas Valve**—The slow opening feature reduces start-up noise from rapid ignition.

**Insulation**—Foil-faced insulation in

heat exchanger section of the casing minimizes heat loss.

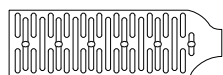
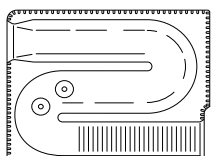
**Control Center**—Microprocessor controls sequencing and furnace operation. Equipped with a component test feature and status indicator light to assist in troubleshooting. Microprocessor blower control times blower start after main burners ignite to eliminate cold air blowing into rooms.

**Adjustable Blower Speed**—For precise airflow selection of heating or cooling operation.

**Direct Vent Sealed Combustion System**—Model 58MCA uses 100% outdoor air, which results in especially quiet operation. Direct venting also minimizes the possibility of chloride contamination which can result in heat exchanger corrosion; also reduces air infiltration into the home.

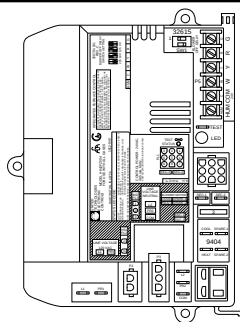
**Monoport Burners**—The burners are finely tuned for smooth, quiet combustion plus economical gas usage.

**Serpentuff™**—Exclusive Serpentuff coating, a patented Polypropylene laminate is used on the secondary heat exchanger.



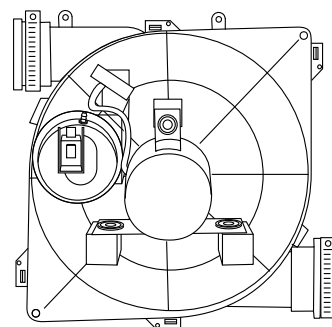
A92505

HEAT EXCHANGERS



A94151

CONTROL CENTER



A94152

INDUCER ASSEMBLY

# Model number nomenclature

| 58MCA                                                             |  | 040                                                                                                                       | 111                                                                                                                               | 08     |
|-------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------|
| Deluxe 4-Way Multipoise Fixed-Capacity<br>Condensing Gas Furnance |  | Input Capacity<br>040 — 40,000 Btuh    100 — 100,000 Btuh<br>060 — 60,000 Btuh    120 — 120,000 Btuh<br>080 — 80,000 Btuh | Cooling Airflow<br>(Nominal 400 CFM per<br>12,000 Btuh Cooling<br>08 — 800 CFM<br>12 — 1200 CFM<br>16 — 1600 CFM<br>20 — 2000 CFM | Series |
|                                                                   |  |                                                                                                                           |                                                                                                                                   |        |

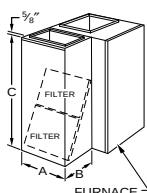
## Carrier accessories\*

| UNIT SIZE                                                        | 040                                           | 060          | 080                | 100 | 120 |
|------------------------------------------------------------------|-----------------------------------------------|--------------|--------------------|-----|-----|
| ELECTRONIC AIR CLEANER (EAC)                                     | Model 31KAX                                   |              |                    |     |     |
| HUMIDIFIER                                                       | Models 49BF, 49BG, 49BP, 49FH, 49FP, and 49WS |              |                    |     |     |
| TWINNING KIT (Upflow Only)                                       | N/A                                           | KGATW0301HS† |                    |     |     |
| MANUFACTURED (Mobile) HOME KIT                                   | KGAMH0101KIT                                  |              |                    |     |     |
| RETURN-AIR PLENUM (With Washable Filters) Upflow Only            | KGARP0201ALL                                  |              |                    |     |     |
| SIDE FILTER RACK (Without Filter) Upflow Only                    | KGAFR0206ALL                                  |              |                    |     |     |
| GAS CONVERSION KIT—NATURAL-TO-PROPANE                            | KGANP2001ALL                                  |              |                    |     |     |
| GAS CONVERSION KIT—PROPANE-TO-NATURAL                            | KGAPN1601ALL                                  |              |                    |     |     |
| DOWNFLOW BASE (For Combustible Floors, with or without A/C Coil) | KGASB0201ALL                                  |              |                    |     |     |
| VENT TERMINATION KIT (Bracket Only for 2 Pipes)                  | 2-in.—KGAVT0101BRA                            |              | 3-in.—KGAVT0201BRA |     |     |
| CONCENTRIC TERMINATION KIT (Single Exit)                         | 2-in.—KGAVT0501CVT                            |              | 3-in.—KGAVT0601CVT |     |     |
| SIDE-WALL VENT TERMINAL COVER                                    | 2-in.—KGAVT0301COV                            |              | 3-in.—KGAVT0401COV |     |     |

\* Factory authorized and field installed. Gas conversion kits are A.G.A. recognized.

† For 16 and 20 sizes only and in upflow application ONLY. See kit Installation Instructions for details.

N/A — Not Applicable

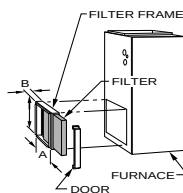


A93067

### RETURN-AIR PLENUM

Custom-made return-air plenum can be mounted on either side of the furnace. Two framed washable filters included.

|   |            |
|---|------------|
| A | 25 in.     |
| B | 16 in.     |
| C | 39-7/8 in. |



A93068

### SIDE FILTER RACK

Custom-made filter rack for easy connection when a return plenum already exists. Provides easy access for cleaning filter. Accepts one 16 x 25 x 1 in. filter.

|   |            |
|---|------------|
| A | 23-1/8 in. |
| B | 2-3/8 in.  |
| C | 14-1/2 in. |

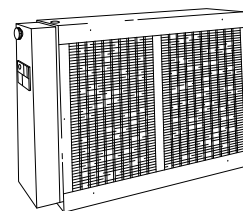


A93086

### CONCENTRIC VENT

A concentric vent kit allows vent and combustion-air pipes to terminate through a single exit in a roof or sidewall.

One pipe runs inside the other allowing venting through the inner pipe and combustion air to be drawn through the outer pipe.

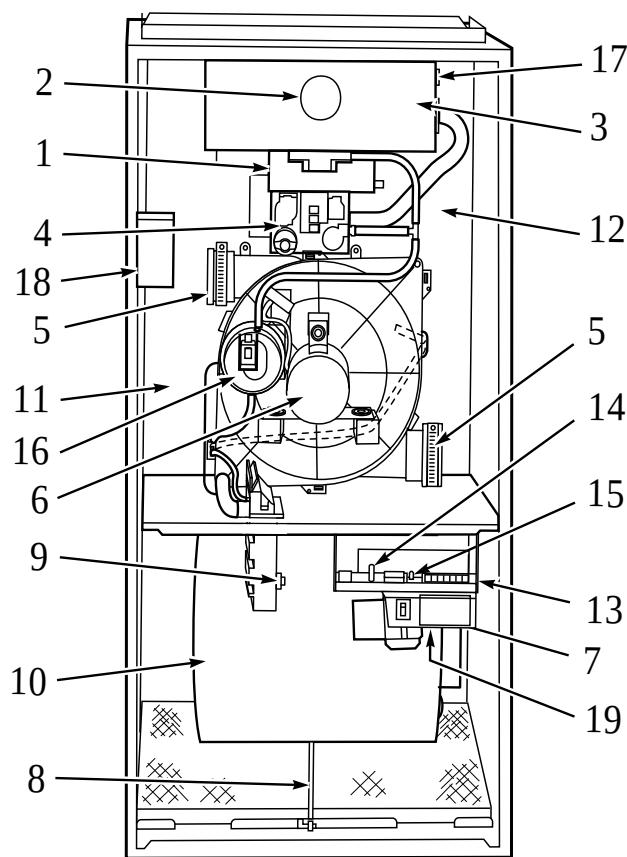


A91465

### INDOOR AIR QUALITY

EAC (shown) cleans the air of smoke, dirt, and many pollens.

A Carrier humidifier will add moisture to winter-dry air to improve comfort and help keep household items in better condition. Moisturizing household air also helps to retain body heat and provide comfort at lower temperature.



A93202

#### NOTES:

1. The 58MCA Furnaces are for use with natural gas, but can be field-converted for propane gas with a factory-authorized and listed accessory conversion kit.
2. Component location and configuration may be different than shown above.

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>❶ Combustion-air intake connection to ensure contaminant-free air (right or left side).</p> <p>❷ Burner sight glass for viewing burner flame.</p> <p>❸ Burner assembly (inside). Operates with energy-saving, inshot burners and hot surface ignitor for safe, dependable heating.</p> <p>❹ Redundant gas valve. Safe, efficient. Features 1 gas control with 2 internal shut-off valves.</p> <p>❺ Vent outlet. Uses PVC pipe to carry vent gases from the furnace's combustion system (right or left side).</p> <p>❻ Inducer motor. Pulls hot flue gases through the heat exchangers, maintaining negative pressure for added safety.</p> <p>❼ Blower access panel safety interlock switch.</p> <p>❽ Air filter and retainer. May be used for side return application.</p> <p>❾ Condensate drain connection. Collects moisture condensed during the combustion process.</p> <p>❿ Heavy-duty blower. Circulates air across the heat exchangers to transfer heat into the home.</p> | <p>⓫ Secondary condensing heat exchanger (inside). Wrings out more heat through condensation. Constructed with Polypropylene-laminated steel to ensure durability.</p> <p>⓬ Primary serpentine heat exchanger (inside). Stretches fuel dollars with the S-shaped heat-flow design. Solid construction of corrosion-resistant aluminized steel means reliability.</p> <p>⓭ Control center.</p> <p>⓮ 3-amp fuse provides electrical and component protection.</p> <p>⓯ Light emitting diode (LED) on control center. Code lights are for diagnosing furnace operation and service requirements.</p> <p>⓰ Pressure switch ensures adequate flow of flue products through furnace and out vent system.</p> <p>⓱ Rollout switch (manual reset) to prevent overtemperature.</p> <p>⓲ Junction box for 115-v electrical power supply.</p> <p>⓳ Transformer (24v) behind control center provides low-voltage power to furnace control center and thermostat.</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# Physical data

| UNIT SIZE                                     |         | 040-08                              | 040-12 | 060-12 | 060-16 | 080-12 | 080-16 | 080-20        | 100-16  | 100-20        | 120-20        |
|-----------------------------------------------|---------|-------------------------------------|--------|--------|--------|--------|--------|---------------|---------|---------------|---------------|
| OUTPUT CAPACITY BTUH†<br>(Nonweatherized ICS) |         | 37,200                              | 37,200 | 55,800 | 55,800 | 74,400 | 74,400 | 74,400        | 93,000  | 93,000        | 111,600       |
| INPUT BTUH*                                   |         | 40,000                              | 40,000 | 60,000 | 60,000 | 80,000 | 80,000 | 80,000        | 100,000 | 100,000       | 120,000       |
| SHIPPING WEIGHT (Lb)                          |         | 149                                 | 152    | 163    | 166    | 172    | 175    | 197           | 193     | 196           | 228           |
| CERTIFIED TEMP RISE RANGE °F)                 |         | 30—60                               | 15—45  | 30—60  | 20—50  | 40—70  | 30—60  | 20—50         | 45—75   | 30—60         | 40—70         |
| CERTIFIED EXT STATIC PRESSURE<br>(In. wc)     | Heating | 0.10                                | 0.10   | 0.12   | 0.12   | 0.15   | 0.15   | 0.15          | 0.20    | 0.20          | 0.20          |
|                                               | Cooling | 0.50                                | 0.50   | 0.50   | 0.50   | 0.50   | 0.50   | 0.50          | 0.50    | 0.50          | 0.50          |
| AIRFLOW CFM‡                                  | Heating | 740                                 | 1205   | 1260   | 1300   | 1160   | 1285   | 1785          | 1315    | 1690          | 1650          |
|                                               | Cooling | 895                                 | 1230   | 1250   | 1545   | 1255   | 1525   | 1925/<br>2035 | 1570    | 1930/<br>2130 | 2040/<br>2130 |
| LIMIT CONTROL                                 |         | SPST                                |        |        |        |        |        |               |         |               |               |
| HEATING BLOWER CONTROL (Off Delay)            |         | Selectable 90, 135, 180, or 225 Sec |        |        |        |        |        |               |         |               |               |
| BURNERS (Monoport)                            |         | 2                                   | 2      | 3      | 3      | 4      | 4      | 4             | 5       | 5             | 6             |
| GAS CONNECTION SIZE                           |         | 1/2-in. NPT                         |        |        |        |        |        |               |         |               |               |
| GAS VALVE (Redundant) Manufacturer            |         | White-Rodgers                       |        |        |        |        |        |               |         |               |               |
| Minimum Inlet Pressure (In. wc)               |         | 4.5 (Natural Gas)                   |        |        |        |        |        |               |         |               |               |
| Maximum Inlet Pressure (In. wc)               |         | 13.6 (Natural Gas)                  |        |        |        |        |        |               |         |               |               |
| IGNITION DEVICE                               |         | Hot Surface                         |        |        |        |        |        |               |         |               |               |

\*Gas input ratings are certified for elevations to 2000 ft. For elevations above 2000 ft, reduce ratings 4% for each 1000 ft above sea level. In Canada, derate the unit 10% for elevations 2000 to 4500 ft above sea level.

†Capacity in accordance with U.S. Government DOE test procedures.

‡Air delivery above 1800 CFM requires that both sides, or a combination of 1 side and bottom, or bottom only of the furnace be used for return air. Where 2 sets of data are listed, the first set is for bottom only return-air supply. The second set is for both sides, or 1 side and bottom return-air supply. A filter is required for each return-air supply.

ICS—Isolated Combustion System

## Clearance to combustibles

This unit complies with CAN/CGA 2.3 M86, CAN/CSA C22.2 No. 0-M91, CSA C22.2 No.3-1988 standards.

This appliance is equipped only for altitudes 0 - 2,000 ft (0-610 m) for use with natural gas and propane. A conversion kit, supplied by the manufacturer, shall be used to convert to the alternate fuel or elevation.

This direct-vent, forced-air furnace is for indoor installation in a building constructed on site. For installation in alcove or closet at minimum clearances from combustible material as shown below, minimum front clearance for service is 30 inches (762 mm).

This furnace is for use with schedule-40 PVC, PVC-DWV, or ABS-DWV pipe, and must not be vented in common with other gas-fired appliances. Construction through which vent/air intake pipes may be installed is maximum 24 inches (600 mm), minimum 3/4 inches (19 mm) thickness (including roofing materials).

Special venting system required. In Canada use certified venting system specified by furnace manufacturer. See Installation Instructions provided with furnace. Flue gas temperature 131°F (55°C) vent pressure positive.

### MINIMUM CLEARANCE TO COMBUSTIBLE MATERIAL

| INCHES | TOP | BOTTOM | SIDES | BACK | FRONT | VENT |            |
|--------|-----|--------|-------|------|-------|------|------------|
| 1      | 0   | 0      | 0     | 0    | 3     | 0    | UPFLOW     |
| 1      | ++  | 0      | 0     | 0    | 3     | 0    | DOWNFLOW   |
| 1      | 0+  | 1*     | 0     | 0    | 3     | 0    | HORIZONTAL |

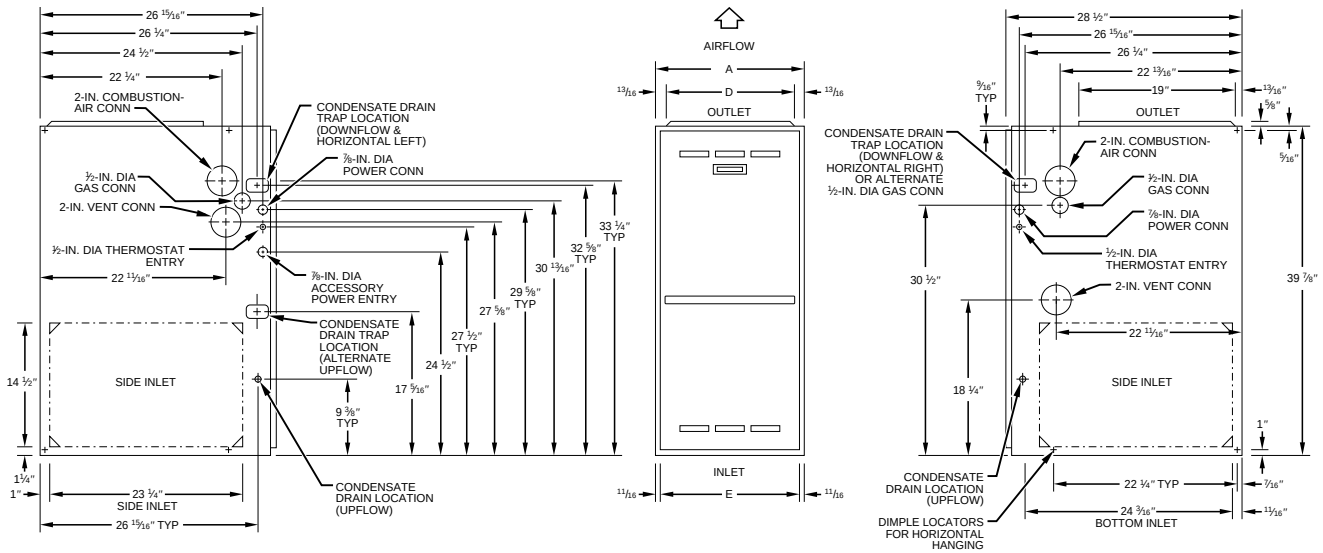
++ For installation on combustible floors only when installed on special base No. KGASB0201ALL.

\* Clearance shown is for air inlet and air outlet end.

Horizontal position: Line contact is permissible only between lines formed by intersections of top and two sides of furnace jacket, and building joists, studs, or framing.

+ 120,000 BTU Input Furnaces require 1 inch bottom clearance to combustible materials.

# Dimensions

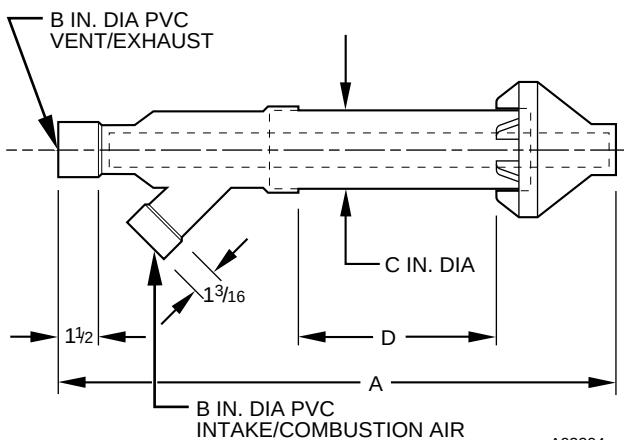


A93023

## DIMENSIONS (In.)

| UNIT SIZE | A      | D      | E      |
|-----------|--------|--------|--------|
| 040-08    | 17-1/2 | 15-7/8 | 16     |
| 040-12    | 17-1/2 | 15-7/8 | 16     |
| 060-12    | 17-1/2 | 15-7/8 | 16     |
| 060-16    | 17-1/2 | 15-7/8 | 16     |
| 080-12    | 17-1/2 | 15-7/8 | 16     |
| 080-16    | 17-1/2 | 15-7/8 | 16     |
| 080-20    | 21     | 19-3/8 | 19-1/2 |
| 100-16    | 21     | 19-3/8 | 19-1/2 |
| 100-20    | 21     | 19-3/8 | 19-1/2 |
| 120-20    | 24-1/2 | 22-7/8 | 23     |

## CONCENTRIC VENT



A93294

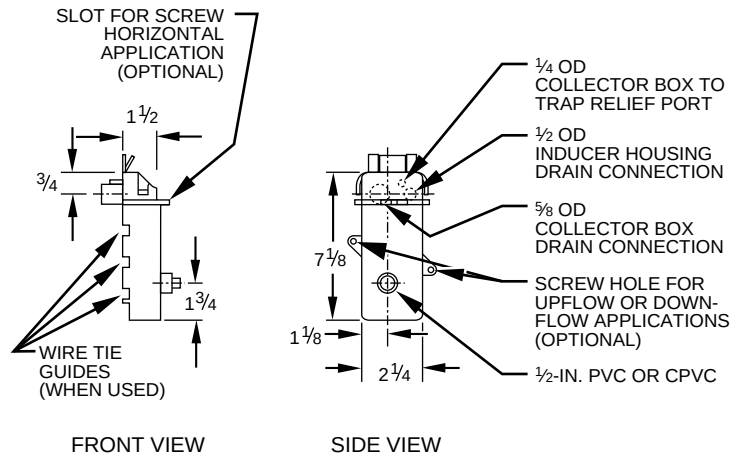
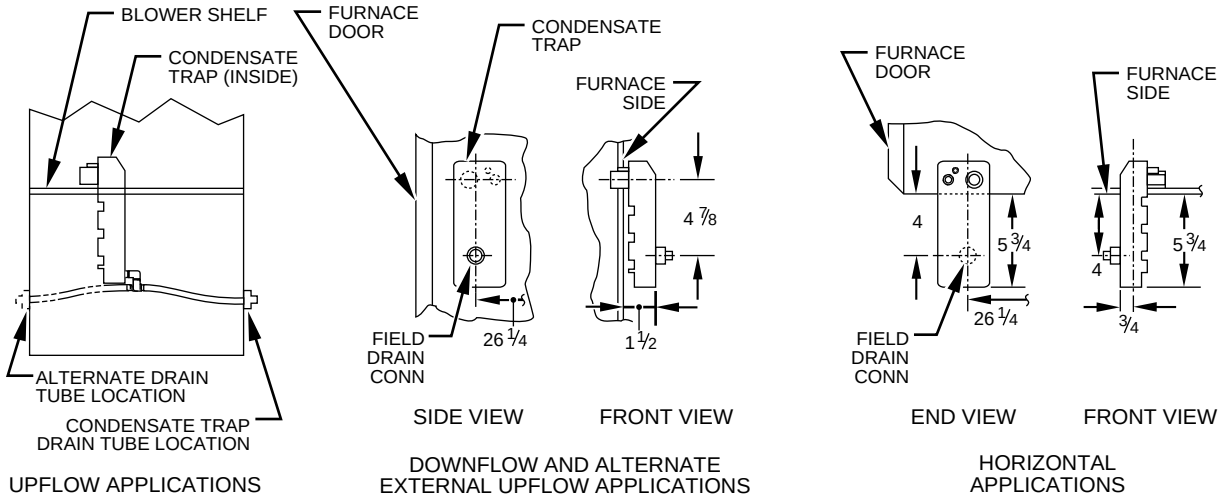
## DIMENSIONS (In.)

| PART NO.     | A*     | B | C     | D†     |
|--------------|--------|---|-------|--------|
| KGAVT0501CVT | 41-1/8 | 2 | 3-1/2 | 27-1/4 |
| KGAVT0601CVT | 46-3/4 | 3 | 4-1/2 | 31-7/8 |

\* Dimension A will change accordingly as dimension D is lengthened or shortened.

† Dimension D may be lengthened to 60 in. maximum. Dimension D may also be shortened by cutting the pipes provided in the kit to 12 in. minimum.

# CONDENSATE TRAP



A93026

MEETS DOE RESIDENTIAL CONSERVATION SERVICES PROGRAM STANDARDS.

Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.



# Performance data

| UNIT SIZE                                  | 040-08          | 040-12 | 060-12 | 060-16 | 080-12 | 080-16 | 080-20          | 100-16 | 100-20  | 120-20         |
|--------------------------------------------|-----------------|--------|--------|--------|--------|--------|-----------------|--------|---------|----------------|
| <b>DIRECT-DRIVE MOTOR<br/>Hp (PSC)</b>     | 1/5             | 1/3    | 1/3    | 1/2    | 1/3    | 1/2    | 3/4             | 1/2    | 3/4     | 3/4            |
| <b>MOTOR FULL LOAD AMPS</b>                | 4.9             | 5.8    | 5.8    | 7.9    | 5.8    | 7.9    | 11.1            | 7.9    | 11.1    | 11.1           |
| <b>RPM (Nominal) —SPEEDS</b>               | 1075—3          | 1075—4 |        |        |        |        |                 |        |         |                |
| <b>BLOWER WHEEL DIAMETER X WIDTH (In.)</b> | 10 x 6          | 10 x 7 | 10 x 7 | 11 x 8 | 10 x 7 | 11 x 8 | 11 x 10         | 11 x 8 | 11 x 10 | 11 x 10        |
| <b>FILTER SIZE (In.)—(Washable)</b>        | (1) 16 x 25 x 1 |        |        |        |        |        | (1) 20 x 25 x 1 |        |         | (2)<br>16x25x1 |

PSC—Permanent Split Capacitor

## EFFICIENCY

| UNIT SIZE                           | 040-08 | 040-12 | 060-12 | 060-16 | 080-12 | 080-16 | 080-20 | 100-16 | 100-20 | 120-20  |
|-------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| <b>CAPACITY*</b> Nonweatherized ICS | 37,200 | 37,200 | 55,800 | 55,800 | 74,400 | 74,400 | 74,400 | 93,000 | 93,000 | 111,600 |
| <b>AFUE%*</b> Nonweatherized ICS    | 90.5   | 90.5   | 90.5   | 90.5   | 90.5   | 90.5   | 90.5   | 90.5   | 90.5   | 90.5    |

\*Capacity and AFUE in accordance with U.S. Government DOE test procedures.

ICS—Isolated Combustion System

## AIR DELIVERY—CFM (With Filter)\*

| UNIT SIZE | RETURN-AIR SUPPLY               | SPEED    | EXTERNAL STATIC PRESSURE (In. wc) |      |      |      |      |      |      |      |
|-----------|---------------------------------|----------|-----------------------------------|------|------|------|------|------|------|------|
|           |                                 |          | 0.1                               | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  |
| 040-08    | 1 side or bottom                | High     | 1075                              | 1040 | 995  | 945  | 895  | 840  | 760  | 670  |
|           |                                 | Med-High | 850                               | 825  | 780  | 740  | 685  | 635  | 560  | 480  |
|           |                                 | Med-Low  | 740                               | 700  | 650  | 620  | 565  | 515  | 455  | 385  |
| 040-12    | 1 side or bottom                | High     | 1500                              | 1445 | 1370 | 1300 | 1230 | 1145 | 1030 | 910  |
|           |                                 | Med-High | 1370                              | 1310 | 1255 | 1195 | 1130 | 1040 | 950  | 840  |
|           |                                 | Med-Low  | 1205                              | 1160 | 1125 | 1070 | 1020 | 940  | 855  | 760  |
|           |                                 | Low      | 1035                              | 1005 | 970  | 930  | 885  | 825  | 745  | 675  |
| 060-12    | 1 side or bottom                | High     | 1505                              | 1445 | 1385 | 1320 | 1250 | 1170 | 1090 | 1005 |
|           |                                 | Med-High | 1415                              | 1360 | 1295 | 1235 | 1170 | 1100 | 1010 | 920  |
|           |                                 | Med-Low  | 1270                              | 1230 | 1170 | 1120 | 1050 | 985  | 905  | 810  |
|           |                                 | Low      | 1080                              | 1045 | 1005 | 965  | 915  | 855  | 785  | 705  |
| 060-16    | 1 side or bottom                | High     | 1700                              | 1695 | 1640 | 1580 | 1545 | 1450 | 1380 | 1310 |
|           |                                 | Med-High | 1500                              | 1465 | 1435 | 1385 | 1355 | 1300 | 1250 | 1185 |
|           |                                 | Med-Low  | 1325                              | 1295 | 1265 | 1230 | 1190 | 1150 | 1105 | 1050 |
|           |                                 | Low      | 1205                              | 1170 | 1145 | 1110 | 1080 | 1035 | 990  | 950  |
| 080-12    | 1 side or bottom                | High     | 1525                              | 1465 | 1400 | 1335 | 1255 | 1175 | 1070 | 960  |
|           |                                 | Med-High | 1385                              | 1330 | 1280 | 1220 | 1155 | 1075 | 985  | 880  |
|           |                                 | Med-Low  | 1165                              | 1150 | 1115 | 1060 | 1005 | 940  | 865  | 780  |
|           |                                 | Low      | 1000                              | 985  | 950  | 905  | 860  | 790  | 725  | 655  |
| 080-16    | 1 side or bottom                | High     | 1750                              | 1685 | 1635 | 1575 | 1525 | 1445 | 1380 | 1310 |
|           |                                 | Med-High | 1495                              | 1455 | 1405 | 1355 | 1305 | 1250 | 1185 | 1120 |
|           |                                 | Med-Low  | 1310                              | 1260 | 1225 | 1170 | 1125 | 1095 | 1040 | 980  |
|           |                                 | Low      | 1135                              | 1105 | 1075 | 1040 | 995  | 950  | 910  | 860  |
| 080-20    | bottom only                     | High     | 2200                              | 2175 | 2085 | 2025 | 1925 | 1820 | 1735 | 1635 |
|           |                                 | Med-High | 2100                              | 2025 | 1945 | 1865 | 1785 | 1700 | 1620 | 1540 |
|           |                                 | Med-Low  | 1815                              | 1760 | 1720 | 1670 | 1620 | 1550 | 1480 | 1405 |
|           |                                 | Low      | 1560                              | 1555 | 1515 | 1460 | 1435 | 1390 | 1340 | 1270 |
|           | both sides or 1 side and bottom | High     | 2360                              | 2280 | 2210 | 2130 | 2035 | 1960 | 1875 | 1790 |
|           |                                 | Med-High | 1965                              | 1925 | 1870 | 1830 | 1760 | 1710 | 1670 | 1575 |
| 100-16    | 1 side or bottom                | High     | 1740                              | 1705 | 1660 | 1615 | 1570 | 1500 | 1425 | 1355 |
|           |                                 | Med-High | 1500                              | 1470 | 1445 | 1410 | 1375 | 1330 | 1280 | 1210 |
|           |                                 | Med-Low  | 1340                              | 1315 | 1300 | 1270 | 1235 | 1200 | 1140 | 1095 |
|           |                                 | Low      | 1195                              | 1175 | 1165 | 1130 | 1100 | 1070 | 1030 | 975  |
| 100-20    | bottom only                     | High     | 2250                              | 2175 | 2090 | 2020 | 1930 | 1855 | 1760 | 1670 |
|           |                                 | Med-High | 2020                              | 1950 | 1900 | 1840 | 1790 | 1710 | 1640 | 1545 |
|           |                                 | Med-Low  | 1725                              | 1690 | 1660 | 1630 | 1575 | 1520 | 1460 | 1370 |
|           |                                 | Low      | 1490                              | 1480 | 1460 | 1440 | 1380 | 1340 | 1295 | 1230 |
|           | both sides or 1 side and bottom | High     | 2360                              | 2315 | 2265 | 2200 | 2130 | 2055 | 1965 | 1890 |
|           |                                 | Med-High | 1960                              | 1940 | 1930 | 1900 | 1850 | 1800 | 1740 | 1660 |
| 120-20    | bottom only                     | High     | 2350                              | 2250 | 2160 | 2070 | 2000 | 1885 | 1790 | 1635 |
|           |                                 | Med-High | 2100                              | 2015 | 1955 | 1875 | 1810 | 1710 | 1650 | 1540 |
|           |                                 | Med-Low  | 1770                              | 1720 | 1675 | 1620 | 1575 | 1515 | 1450 | 1365 |
|           |                                 | Low      | 1545                              | 1520 | 1465 | 1415 | 1365 | 1325 | 1265 | 1185 |
|           | both sides or 1 side and bottom | High     | 2435                              | 2360 | 2285 | 2220 | 2130 | 2050 | 1965 | 1875 |
|           |                                 | Med-High | 2040                              | 2000 | 1950 | 1905 | 1835 | 1790 | 1725 | 1650 |

\*Air delivery above 1800 CFM requires that both sides, a combination of 1 side and bottom, or bottom only of the furnace be used for return air.

A filter is required for each return-air supply.

# Electrical data

| UNIT SIZE                            | 040-08   | 040-12 | 060-12 | 060-16 | 080-12 | 080-16 | 080-20 | 100-16 | 100-20 | 120-20 |
|--------------------------------------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| UNIT VOLTS—HERTZ—PHASE               | 115—60—1 |        |        |        |        |        |        |        |        |        |
| OPERATING VOLTAGE RANGE (Min—Max)†   | 104—127  |        |        |        |        |        |        |        |        |        |
| MAXIMUM UNIT AMPS                    | 6.1      | 7.3    | 7.1    | 9.5    | 7.6    | 10.0   | 14.1   | 10.2   | 14.8   | 14.6   |
| UNIT AMPACITY**                      | 8.4      | 10.0   | 9.8    | 12.8   | 10.4   | 13.4   | 18.4   | 13.5   | 19.3   | 19.1   |
| MINIMUM WIRE SIZE                    | 14       | 14     | 14     | 14     | 14     | 14     | 12     | 14     | 12     | 12     |
| MAXIMUM WIRE LENGTH (Ft)*            | 44       | 37     | 38     | 29     | 36     | 28     | 31     | 27     | 30     | 30     |
| MAXIMUM FUSE SIZE OR CKT BKR (Amps)‡ | 15       | 15     | 15     | 15     | 15     | 15     | 20     | 15     | 20     | 20     |
| TRANSFORMER (24v)                    | 40VA     |        |        |        |        |        |        |        |        |        |
| EXTERNAL CONTROL POWER AVAILABLE     | Heating  | 13VA   |        |        |        |        |        |        |        |        |
|                                      | Cooling  | 21VA   |        |        |        |        |        |        |        |        |
| AIR CONDITIONING BLOWER RELAY        | Standard |        |        |        |        |        |        |        |        |        |

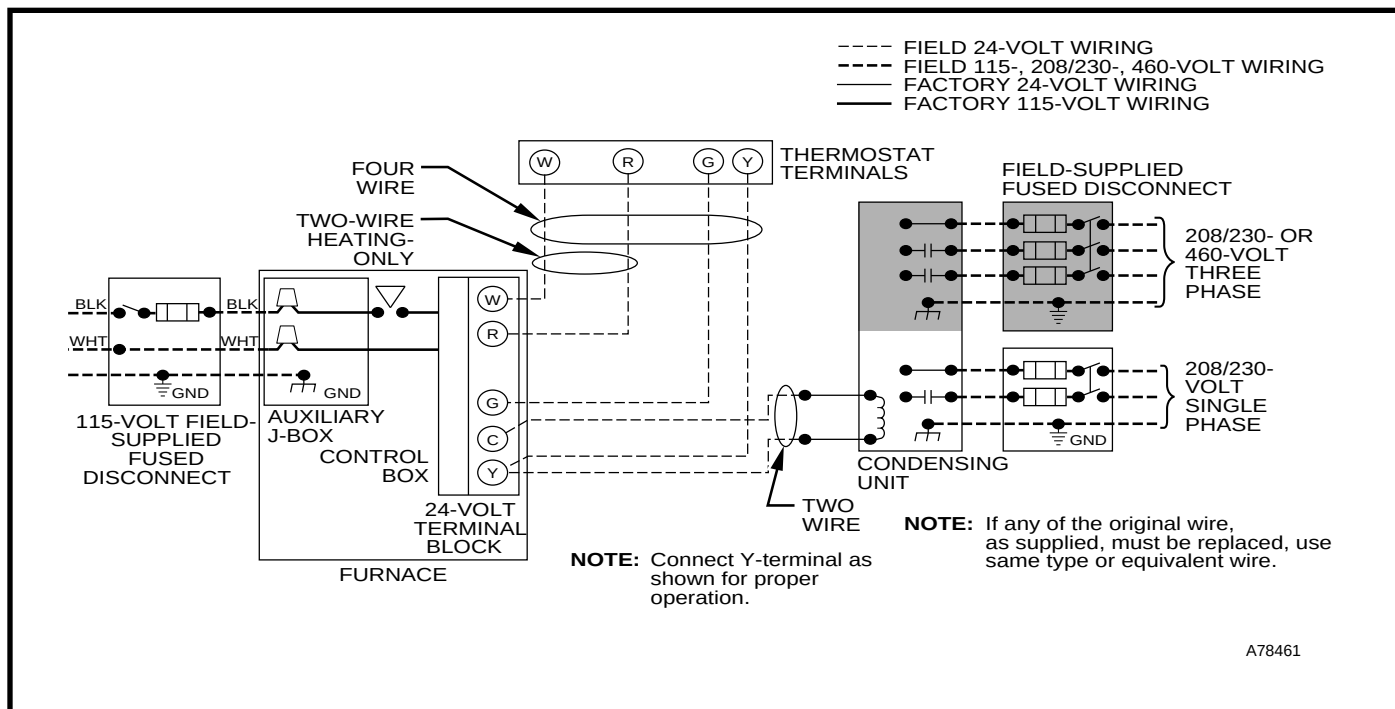
\* Length shown is as measured 1 way along wire path between unit and service panel for maximum 2% voltage drop.

† Permissible limits of the voltage range at which the unit will operate satisfactorily.

‡ Time-delay fuse is recommended.

\*\* Unit ampacity = 125 percent of largest operating component's full load amps plus, 100 percent of all other potential operating component's (EAC, humidifier, etc.) full load amps.

## Typical wiring schematic



# Combustion-air and vent piping

## MAXIMUM ALLOWABLE PIPE LENGTH (FT)

| ALTITUDE<br>ABOVE SEA<br>LEVEL (FT) | UNIT SIZE                  | TERMINATION TYPE           | PIPE<br>DIA<br>(IN.)* | NUMBER OF 90° ELBOWS |    |    |    |    |    |
|-------------------------------------|----------------------------|----------------------------|-----------------------|----------------------|----|----|----|----|----|
|                                     |                            |                            |                       | 1                    | 2  | 3  | 4  | 5  | 6  |
| 0 to 2000                           | 040-08<br>040-12           | 2 Pipe or 2-In. Concentric | 1                     | 5                    | NA | NA | NA | NA | NA |
|                                     |                            |                            | 1-1/2                 | 70                   | 70 | 65 | 60 | 60 | 55 |
|                                     |                            |                            | 2                     | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 060-12<br>060-16           | 2 Pipe or 2-In. Concentric | 1-1/2                 | 20                   | 15 | 10 | 5  | NA | NA |
|                                     |                            |                            | 2                     | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 080-12<br>080-16<br>080-20 | 2 Pipe or 2-In. Concentric | 1-1/2                 | 10                   | NA | NA | NA | NA | NA |
|                                     |                            |                            | 2                     | 55                   | 50 | 35 | 30 | 30 | 20 |
|                                     |                            |                            | 2-1/2                 | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 100-16<br>100-20           | 2 Pipe or 3-In. Concentric | 2                     | 5                    | NA | NA | NA | NA | NA |
|                                     |                            |                            | 2-1/2                 | 40                   | 30 | 20 | 20 | 10 | NA |
|                                     |                            |                            | 3                     | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 120-20                     | 2 Pipe or 3-In. Concentric | 2-1/2 one disk        | 10                   | NA | NA | NA | NA | NA |
|                                     |                            |                            | 3 one disk            | 35                   | 30 | 15 | NA | NA | NA |
|                                     |                            |                            | 3† one disk           | 35                   | 35 | 35 | 30 | 30 | 30 |
|                                     |                            |                            | 3† no disk            | 70                   | 70 | 70 | 70 | 70 | 70 |
| 2001 to 3000                        | 040-08<br>040-12           | 2 Pipe or 2-In. Concentric | 1-1/2                 | 67                   | 62 | 57 | 52 | 52 | 47 |
|                                     |                            |                            | 2                     | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 060-12<br>060-16           | 2 Pipe or 2-In. Concentric | 1-1/2                 | 17                   | 12 | 7  | NA | NA | NA |
|                                     |                            |                            | 2                     | 70                   | 67 | 66 | 61 | 61 | 61 |
|                                     | 080-12<br>080-16<br>080-20 | 2 Pipe or 2-In. Concentric | 2                     | 49                   | 44 | 30 | 25 | 25 | 15 |
|                                     |                            |                            | 2-1/2                 | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 100-16<br>100-20           | 2 Pipe or 3-In. Concentric | 2-1/2                 | 35                   | 26 | 16 | 16 | 6  | NA |
|                                     |                            |                            | 3                     | 70                   | 70 | 70 | 70 | 66 | 61 |
|                                     | 120-20                     | 2 Pipe or 3-In. Concentric | 3 one disk            | 31                   | 26 | 12 | NA | NA | NA |
|                                     |                            |                            | 3† one disk           | 31                   | 30 | 30 | 25 | 25 | 24 |
|                                     |                            |                            | 3† no disk            | 63                   | 62 | 62 | 61 | 61 | 61 |
| 3001 to 4000                        | 040-08<br>040-12           | 2 Pipe or 2-In. Concentric | 1-1/2                 | 64                   | 59 | 54 | 49 | 48 | 43 |
|                                     |                            |                            | 2                     | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 060-12<br>060-16           | 2 Pipe or 2-In. Concentric | 1-1/2                 | 16                   | 11 | 6  | NA | NA | NA |
|                                     |                            |                            | 2                     | 68                   | 63 | 62 | 57 | 57 | 56 |
|                                     | 080-12<br>080-16<br>080-20 | 2 Pipe or 2-In. Concentric | 2                     | 46                   | 41 | 28 | 23 | 22 | 13 |
|                                     |                            |                            | 2-1/2                 | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 100-16<br>100-20           | 2 Pipe or 3-In. Concentric | 2-1/2                 | 33                   | 24 | 15 | 14 | 5  | NA |
|                                     |                            |                            | 3                     | 70                   | 70 | 70 | 66 | 61 | 56 |
|                                     | 120-20                     | 2 Pipe or 3-In. Concentric | 3 one disk            | 29                   | 24 | 10 | NA | NA | NA |
|                                     |                            |                            | 3† one disk           | 29                   | 28 | 28 | 23 | 22 | 21 |
|                                     |                            |                            | 3† no disk            | 59                   | 59 | 58 | 57 | 57 | 56 |
| 4001 to 5000†                       | 040-08<br>040-12           | 2 Pipe or 2-In. Concentric | 1-1/2                 | 60                   | 55 | 50 | 45 | 44 | 39 |
|                                     |                            |                            | 2                     | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 060-12<br>060-16           | 2 Pipe or 2-In. Concentric | 1-1/2                 | 15                   | 10 | 5  | NA | NA | NA |
|                                     |                            |                            | 2                     | 64                   | 59 | 58 | 53 | 52 | 52 |
|                                     | 080-12<br>080-16<br>080-20 | 2 Pipe or 2-in Concentric  | 2                     | 44                   | 39 | 26 | 21 | 20 | 11 |
|                                     |                            |                            | 2-1/2                 | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 100-16<br>100-20           | 2 Pipe or 3-In. Concentric | 2-1/2                 | 31                   | 22 | 13 | 12 | NA | NA |
|                                     |                            |                            | 3                     | 70                   | 70 | 67 | 62 | 57 | 52 |
|                                     | 120-20                     | 2 Pipe or 3-In. Concentric | 3† one disk           | 27                   | 26 | 26 | 21 | 20 | 19 |
|                                     |                            |                            | 3† no disk            | 56                   | 55 | 54 | 53 | 52 | 52 |
| 5001 to 6000†                       | 040-08<br>040-12           | 2 Pipe 2-In. Concentric    | 1-1/2                 | 57                   | 52 | 47 | 42 | 40 | 35 |
|                                     |                            |                            | 2                     | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 060-12<br>060-16           | 2 Pipe or 2-In. Concentric | 1-1/2                 | 14                   | 9  | NA | NA | NA | NA |
|                                     |                            |                            | 2                     | 60                   | 55 | 54 | 49 | 48 | 47 |
|                                     | 080-12<br>080-16<br>080-20 | 2 Pipe or 2-In. Concentric | 2                     | 41                   | 36 | 23 | 18 | 17 | 8  |
|                                     |                            |                            | 2-1/2                 | 70                   | 70 | 70 | 70 | 70 | 70 |
|                                     | 100-16<br>100-20           | 2 Pipe or 3-in Concentric  | 2-1/2                 | 29                   | 21 | 12 | 11 | NA | NA |
|                                     |                            |                            | 3                     | 70                   | 67 | 62 | 57 | 52 | 47 |
|                                     | 120-20                     | 2 Pipe or 3-In. Concentric | 3† one disk           | 26                   | 24 | 23 | 18 | 17 | 16 |
|                                     |                            |                            | 3† no disk            | 53                   | 52 | 50 | 49 | 48 | 47 |

See notes on pg. 11.

# **MAXIMUM ALLOWABLE PIPE LENGTH (FT) Continued**

| ALTITUDE<br>ABOVE SEA<br>LEVEL (FT) | UNIT SIZE                  | TERMINATION TYPE           | PIPE DIA<br>(IN.)* | NUMBER OF 90° ELBOWS |    |    |    |    |    |
|-------------------------------------|----------------------------|----------------------------|--------------------|----------------------|----|----|----|----|----|
|                                     |                            |                            |                    | 1                    | 2  | 3  | 4  | 5  | 6  |
| 6001 to 7000‡                       | 040-08<br>040-12           | 2 Pipe or 2-In. Concentric | 1-1/2              | 53                   | 48 | 43 | 38 | 37 | 32 |
|                                     |                            |                            | 2                  | 70                   | 70 | 68 | 67 | 66 | 64 |
|                                     | 060-12<br>060-16           | 2 Pipe or 2-In. Concentric | 1-1/2              | 13                   | 8  | NA | NA | NA | NA |
|                                     |                            |                            | 2                  | 57                   | 52 | 50 | 45 | 44 | 43 |
|                                     | 080-12<br>080-16<br>080-20 | 2 Pipe or 2-In. Concentric | 2                  | 38                   | 33 | 21 | 16 | 15 | 6  |
|                                     |                            |                            | 2-1/2              | 70                   | 70 | 68 | 67 | 66 | 64 |
|                                     | 100-16<br>100-20           | 2 Pipe or 3-In. Concentric | 2-1/2              | 27                   | 19 | 10 | 9  | NA | NA |
|                                     |                            |                            | 3                  | 68                   | 63 | 58 | 53 | 48 | 43 |
|                                     | 120-20                     | 2 Pipe or 3-In. Concentric | 3† one disk        | 24                   | 22 | 21 | 16 | 15 | 13 |
|                                     |                            |                            | 3† no disk         | 49                   | 48 | 47 | 45 | 44 | 43 |
| 7001 to 8000‡                       | 040-08<br>040-12           | 2 Pipe or 2-In. Concentric | 1-1/2              | 49                   | 44 | 39 | 34 | 33 | 28 |
|                                     |                            |                            | 2                  | 66                   | 65 | 63 | 62 | 60 | 59 |
|                                     | 060-12<br>060-16           | 2 Pipe or 2-In. Concentric | 1-1/2              | 12                   | 7  | NA | NA | NA | NA |
|                                     |                            |                            | 2                  | 53                   | 48 | 46 | 41 | 40 | 38 |
|                                     | 080-12<br>080-16<br>080-20 | 2 Pipe or 2-In. Concentric | 2                  | 36                   | 31 | 19 | 14 | 12 | NA |
|                                     |                            |                            | 2-1/2              | 66                   | 65 | 63 | 62 | 60 | 59 |
|                                     | 100-16<br>100-20           | 2 Pipe or 3-In. Concentric | 2-1/2              | 25                   | 17 | 8  | 7  | NA | NA |
|                                     |                            |                            | 3                  | 63                   | 58 | 53 | 48 | 43 | 38 |
|                                     | 120-20                     | 2 Pipe or 3-In. Concentric | 3† one disk        | 22                   | 20 | 19 | 14 | 12 | 11 |
|                                     |                            |                            | 3† no disk         | 46                   | 44 | 43 | 41 | 40 | 38 |
| 8001 to 9000‡                       | 040-08<br>040-12           | 2 Pipe or 2-In. Concentric | 1-1/2              | 46                   | 41 | 36 | 31 | 29 | 24 |
|                                     |                            |                            | 2                  | 62                   | 60 | 58 | 56 | 55 | 53 |
|                                     | 060-12<br>060-16           | 2 Pipe or 2-In. Concentric | 1-1/2              | 11                   | 6  | NA | NA | NA | NA |
|                                     |                            |                            | 2                  | 49                   | 44 | 42 | 37 | 35 | 34 |
|                                     | 080-12<br>080-16<br>080-20 | 2 Pipe or 2-In. Concentric | 2                  | 33                   | 28 | 17 | 12 | 10 | NA |
|                                     |                            |                            | 2-1/2              | 62                   | 60 | 58 | 56 | 55 | 53 |
|                                     | 100-16<br>100-20           | 2 Pipe or 3-In. Concentric | 2-1/2              | 23                   | 15 | 7  | 5  | NA | NA |
|                                     |                            |                            | 3                  | 59                   | 54 | 49 | 44 | 39 | 34 |
|                                     | 120-20                     | 2 Pipe or 3-In. Concentric | 3† one disk        | 20                   | 18 | 17 | 12 | 10 | 8  |
|                                     |                            |                            | 3† no disk         | 43                   | 41 | 39 | 37 | 35 | 34 |
| 9001 to 10,000‡                     | 040-08<br>040-12           | 2 Pipe or 2-In. Concentric | 1-1/2              | 42                   | 37 | 32 | 27 | 25 | 20 |
|                                     |                            |                            | 2                  | 57                   | 55 | 53 | 51 | 49 | 47 |
|                                     | 060-12<br>060-16           | 2 Pipe or 2-In. Concentric | 2                  | 45                   | 40 | 38 | 33 | 31 | 29 |
|                                     |                            |                            | 2                  | 30                   | 25 | 14 | 9  | 7  | NA |
|                                     | 080-12<br>080-16<br>080-20 | 2 Pipe or 2-In. Concentric | 2-1/2              | 57                   | 55 | 53 | 51 | 49 | 47 |
|                                     |                            |                            | 2-1/2              | 21                   | 13 | 5  | NA | NA | NA |
|                                     | 100-16<br>100-20           | 2 Pipe or 3-In. Concentric | 3                  | 54                   | 49 | 44 | 39 | 34 | 29 |
|                                     |                            |                            | 3† one disk        | 18                   | 16 | 14 | 9  | 7  | 5  |
|                                     | 120-20                     | 2 Pipe or 3-In. Concentric | 3† no disk         | 39                   | 37 | 35 | 33 | 31 | 29 |

\* Disk usage—Unless otherwise specified, use perforated disk assembly (factory supplied in loose parts bag). If stated, unsnap 1/2 perforated disk assembly and use shouldered disk half or no disk assembly.

† Wide radius elbow.

‡ Vent sizing for Canadian installations above 4500 ft (1370m) above sea level are subject to acceptance by the local authorities having jurisdiction.  
NA — Not allowed; pressure switch will not make.

## **NOTES:**

1. Do not use pipe size greater than those specified in table or incomplete combustion, flame disturbance, or flame sense lockout may occur.
2. Size both the combustion-air and vent pipe independently, then use the larger diameter for both pipes.
3. Assume two 45° elbows equal one 90° elbow. Long radius elbows are desirable and may be required in some cases.
4. Elbows and pipe sections within the furnace casing and at the vent termination should not be included in vent length or elbow count.
5. The minimum pipe length is 5 ft for all applications.

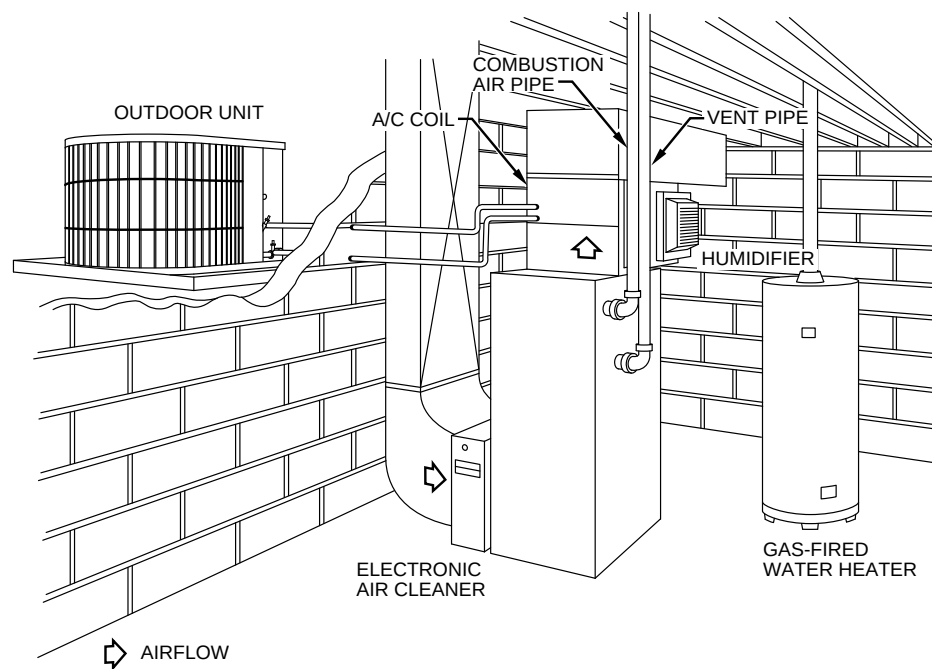
**MAXIMUM ALLOWABLE EXPOSED VENT PIPE LENGTH (FT) WITH INSULATION  
IN WINTER DESIGN TEMPERATURE AMBIENT\***

| UNIT SIZE                  | WINTER DESIGN<br>TEMP °F | MAXIMUM PIPE<br>DIA | INSULATION THICKNESS (IN.)† |     |     |     |    |
|----------------------------|--------------------------|---------------------|-----------------------------|-----|-----|-----|----|
|                            |                          |                     | 0                           | 3/8 | 1/2 | 3/4 | 1  |
| 040-08<br>040-12           | 20                       | 1-1/2               | 31                          | 56  | 63  | 70  | 70 |
|                            | 0                        | 1-1/2               | 16                          | 34  | 39  | 47  | 54 |
|                            | -20                      | 1-1/2               | 9                           | 23  | 27  | 34  | 39 |
| 060-12<br>060-16           | 20                       | 2                   | 45                          | 70  | 70  | 70  | 70 |
|                            | 0                        | 2                   | 25                          | 51  | 58  | 70  | 70 |
|                            | -20                      | 2                   | 16                          | 36  | 42  | 51  | 60 |
| 080-12<br>080-16<br>080-20 | 20                       | 2-1/2               | 55                          | 70  | 70  | 70  | 70 |
|                            | 0                        | 2-1/2               | 31                          | 61  | 69  | 70  | 70 |
|                            | -20                      | 2-1/2               | 20                          | 43  | 49  | 61  | 70 |
| 100-16<br>100-20           | 20                       | 3                   | 61                          | 70  | 70  | 70  | 70 |
|                            | 0                        | 3                   | 33                          | 65  | 70  | 70  | 70 |
|                            | -20                      | 3                   | 20                          | 45  | 52  | 65  | 70 |
| 120-20                     | 20                       | 3                   | 70                          | 70  | 70  | 70  | 70 |
|                            | 0                        | 3                   | 40                          | 70  | 70  | 70  | 70 |
|                            | -20                      | 3                   | 26                          | 55  | 64  | 70  | 70 |

\* Pipe length (ft) specified for maximum vent pipe lengths located in unconditioned spaces. Vent pipes located in unconditioned space cannot exceed the total allowable pipe length as specified in maximum allowable pipe length table.

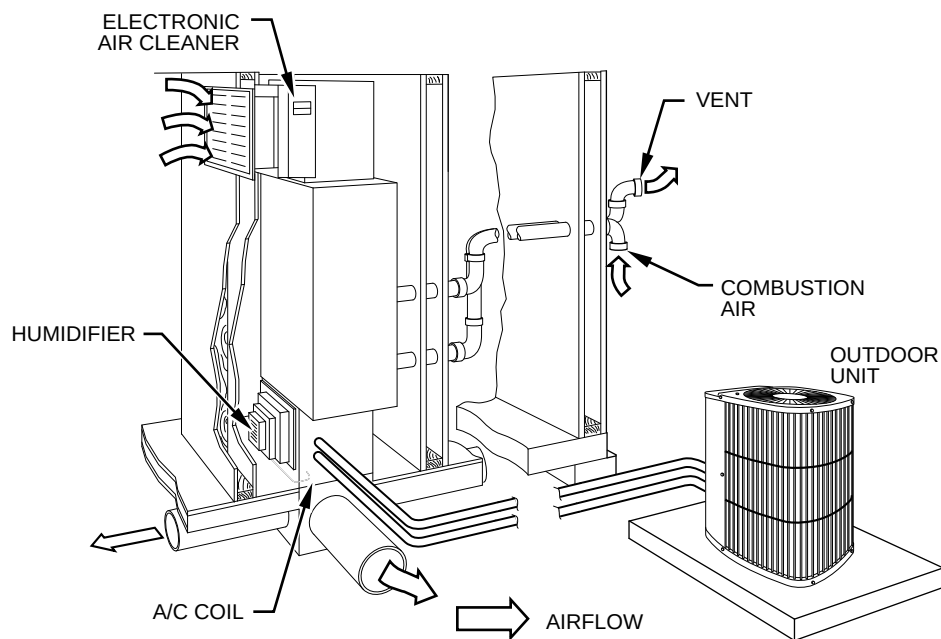
† Insulation thickness based on R value of 3.5 per in.

# Typical installations



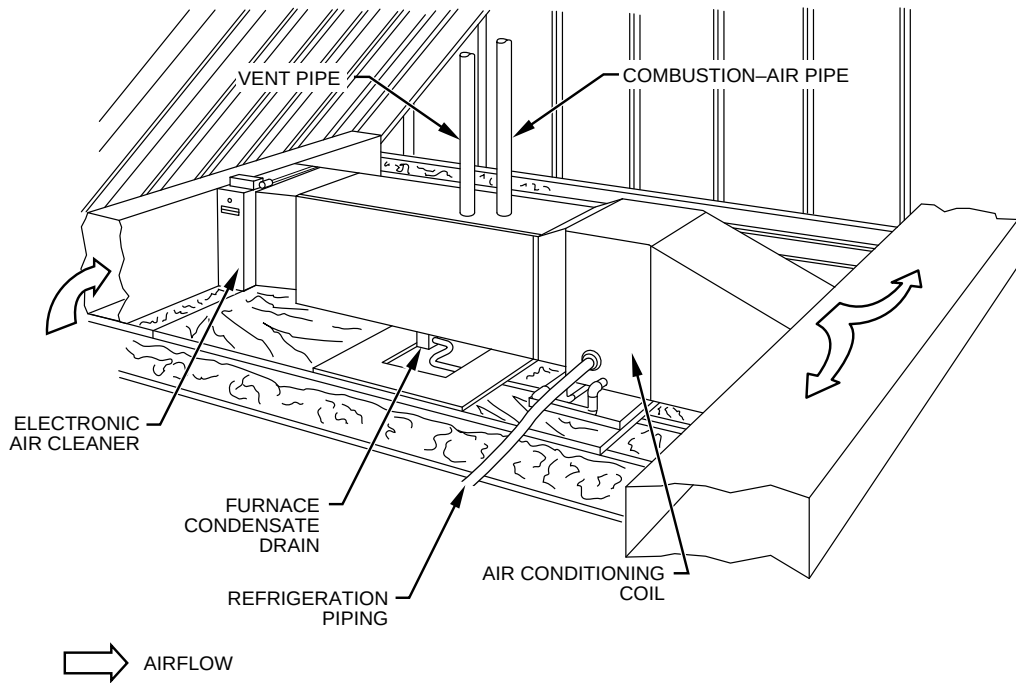
**Basement — Upflow Application**

A93063



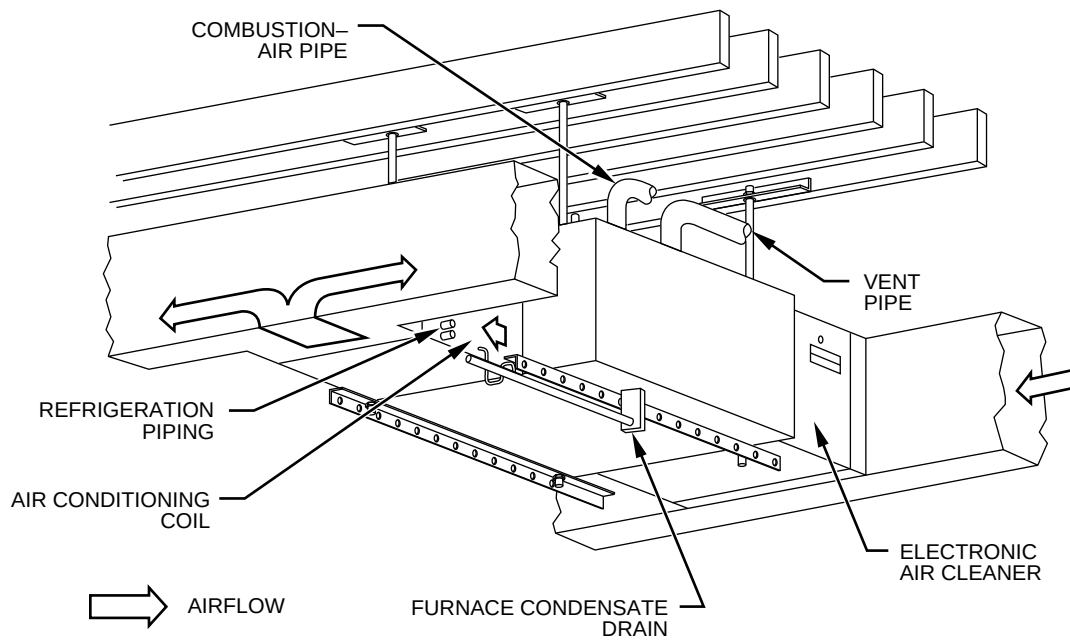
**Closet — Downflow Application**

A93064



**Attic — Horizontal Application**

A93065



**Crawlspace — Horizontal Application**

A93066