



Product Data

58VCA Variable-Speed Downflow Gas-Fired Condensing Furnace

60,000 — 100,000 Btuh Output

The Ultimate Comfort Machine . . .

Carrier continues to lead the HVAC industry with the 58VCA Weathermaker® Infinity Variable-Speed Condensing Furnace — the ultimate in home heating and cooling. The 58VCA is designed for variable heating capacity and can be used in conjunction with either standard or variable-speed air conditioners.

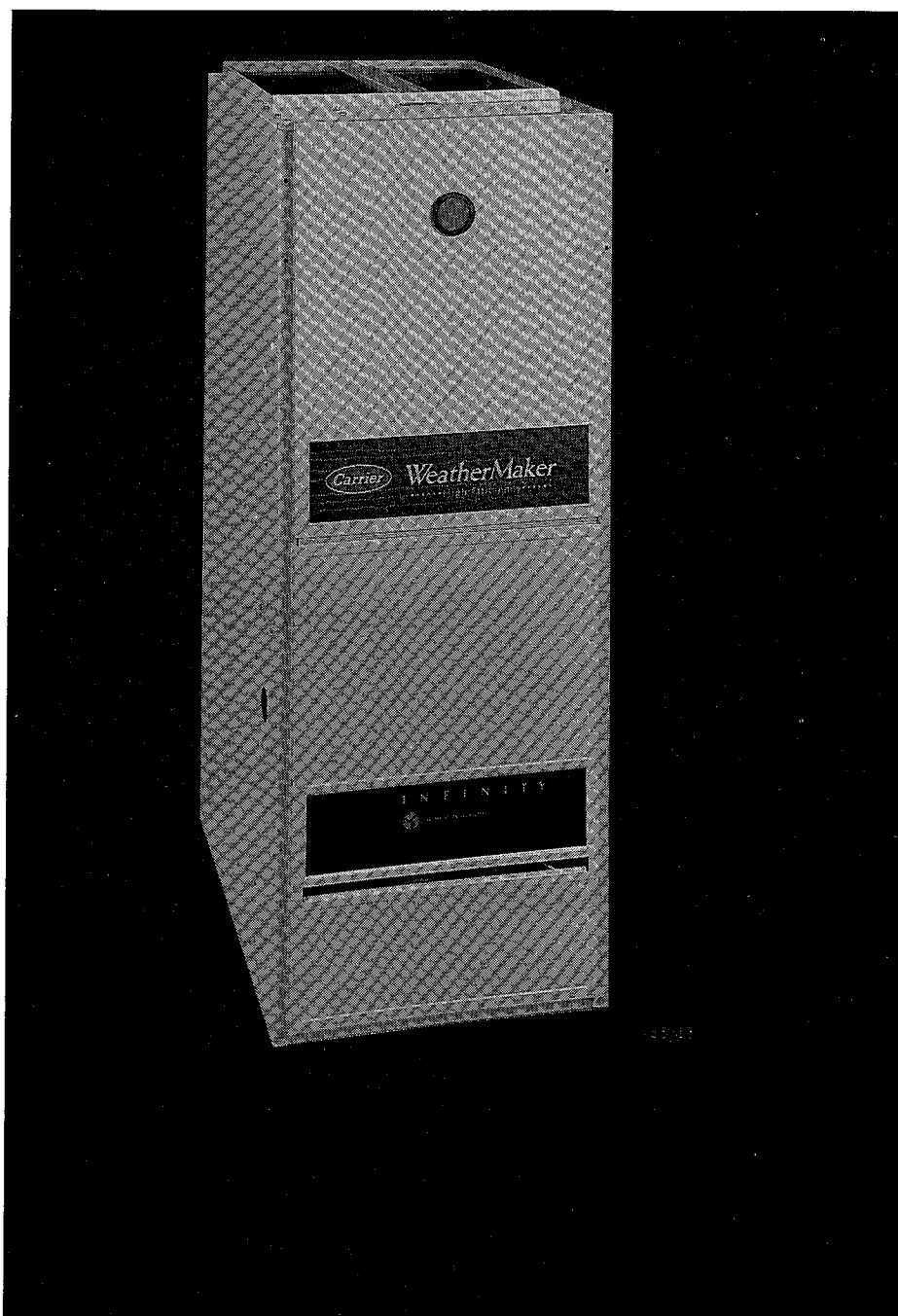
The utmost in economic operation is achieved in gas and electric savings. The 58VCA Weathermaker® Infinity operates efficiently — providing a 91.3%* Annual Fuel Utilization Efficiency (AFUE). Variable-speed motors provide performance and economy. When compared to standard furnaces, the 58VCA uses 80% less power. The result? You save money.

The 58VCA Weathermaker® Infinity is designed to provide comfort. The variable heating capacity enables the furnace to heat the home on the coldest days. Then, in low-fire operation, the furnace supplies heating on the more common, moderate-temperature days. This furnace is designed to keep you warm and cozy in all types of weather.

But, supplying heat isn't the only comfort concern the 58VCA resolves — it has a sealed combustion system which brings combustion air into the furnace and vents the flue gases. This sealed system isolates burner noise, resulting in quiet furnace operation. It also reduces the amount of air infiltration into the home, allowing fewer cold drafts and improved humidification.

Durability and reliability were key concerns in the design of the 58VCA. Both were accomplished. The heat exchanger, the heart of the

*Preliminary.



furnace, is backed by a Lifetime Warranty†. The electronics are backed by a 5-year warranty — including the microprocessor control board, the variable-speed inducer motor and its controller, and the variable-speed blower motor with its controls.

Designed to provide the ultimate in economy, comfort, and reliability for every homeowner . . . Carrier's 58VCA Weathermaker® Infinity — The Ultimate Comfort Machine. †See warranty for details.

58VCA FEATURES/ BENEFITS

Insulated Blower Compartment

— The acoustical insulation reduces air and motor noise to promote quiet operation.

Certifications — The 58VCA units are A.G.A. and C.G.A. design certified for use with natural or propane gas. If use with propane gas is desired, field conversion is required. The 58VCA is A.G.A. approved for installation in manufactured housing (mobile homes) in the U.S. only. The units are also GAMA efficiency rating certified. The 58VCA meets the oxides of nitrogen (NO_x) emission levels set by South Coast and Bay Area Air Quality Management Districts in California.

Side-Wall 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 Door Switch — Shuts off all power and fuel to furnace whenever blower door is opened.

Serpentine Heat Exchangers — Designed to accelerate heat transfer and extract heat that conventional

heat exchangers waste up the flue. The primary heat exchanger is made of aluminized steel for corrosion resistance.

The Serpentuff™ condensing heat exchanger is also a serpentine design. The sheet metal cells are laminated with polypropylene for greater resistance to corrosion and epoxy coated externally to prevent oxidation. This breakthrough in heating technology (Patent No. 4,738,307) helps extend the life of the furnace for years of dependable performance. The heat exchanger is positioned in the furnace to extract additional Btu's of heat from the combustion products as they move through its 4 passes.

WARRANTY — Limited Warranty for lifetime of original owner in single-family residence; 20 years in other residential and commercial applications. Your dealer has details.

Electronic Variable-Speed

Motors — Special motors provide variable-speed operation to improve the comfort levels in the home. They are also more economical to operate than standard motors. Motor and electronic controls are guaranteed by a 5-year Limited Warranty.

2-Stage Heating Capacity — On the coldest days of the year, the 58VCA Furnace has the capacity to heat your home. For the moderate days when less heat is required, this furnace will regulate the heat to a lower capacity—providing a more comfortable home.

Microprocessor Control Center

— The microprocessor control center features state-of-the-art control of combustion, temperature, and airflow to maximize comfort while operating at peak efficiency.

Combustion control is obtained by taking the appropriate inducer motor

rpm readings when the low- and high-fire pressure switches make. Using this information, the microprocessor maintains consistent air-to-fuel ratio independent of vent sizing.

A single-stage thermostat may be used to provide 2-stage heating. The first cycle after power reset will provide 6 minutes of low heat before switching to high heat unless the room thermostat has been satisfied. Subsequent thermostat cycles will provide anywhere from 0 to 15 minutes of low heat depending on the length of the previous thermostat cycle.

Airflow control is accomplished by using a technique involving the microprocessor and blower motor whereby the static load on the air delivery system is measured each heating cycle. The microprocessor then uses this information to deliver correct airflow independent of variations in system restrictions. (For example, dirty filter and zone damper.)

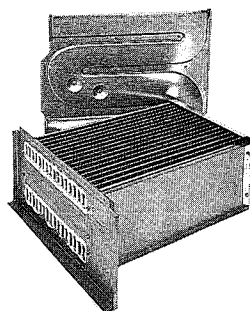
Insulation — Foil-faced insulation in heat exchanger section of the casing minimizes heat loss.

Direct Vent Sealed Combustion

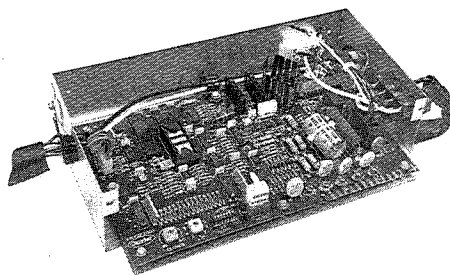
System — Model 58VCA uses 100% outdoor air, which results in especially quiet operation. Direct venting also minimizes the possibility of chloride contamination which can result in heat exchanger corrosion. Also reduces air infiltration into the home.

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

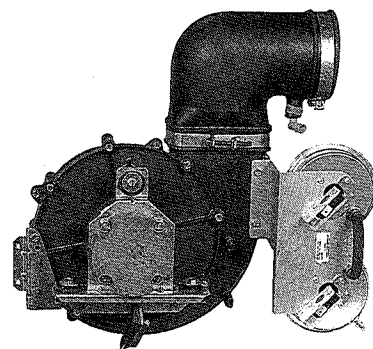
Bottom Closure — Factory installed for side return; easily removable for bottom return.



HEAT EXCHANGERS A88199

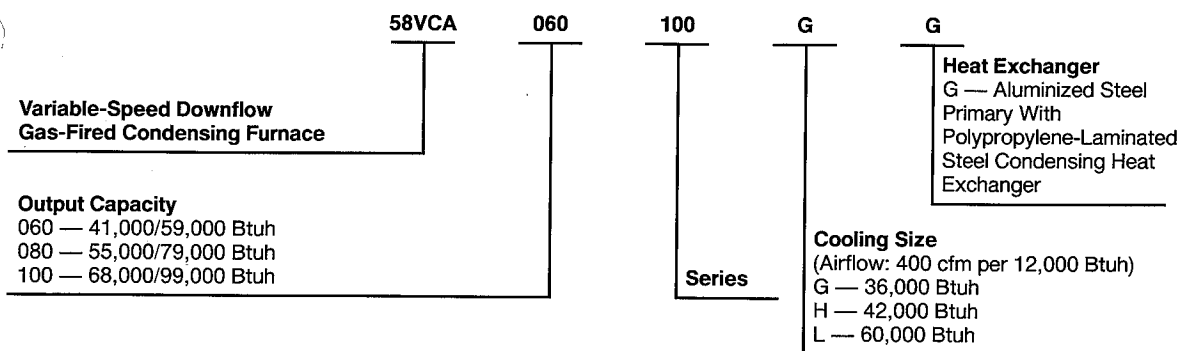


PRINTED-CIRCUIT BOARD A87335



INDUCER BLOWER A92098

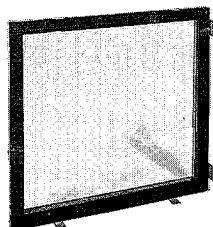
Model number nomenclature



Carrier accessories*

MODEL 58VCA	060-GG	080-HG	100-LG
ELECTRONIC AIR CLEANER		Model 31KAX	
HUMIDIFIER		Model 49FH	
2-STAGE THERMOSTAT		KGATT0101VSP	
VENT TERMINAL KIT	2-in. — KGAVT0101BRA	3-in. — KGAVT0201BRA	
SIDE-WALL VENT TERMINAL COVER	2-in. — KGAVT0301COV	3-in. — KGAVT0401COV	
RIGID FRAME FILTER		KGAWF0806KIT	
GAS CONVERSION KIT — NATURAL-TO-PROPANE		KGANP1601IID	
GAS CONVERSION KIT — PROPANE-TO-NATURAL		KGAPN1201IID	

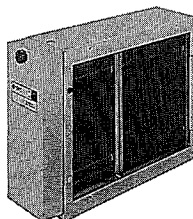
* Factory-authorized and field-installed. Gas conversion kits are A.G.A. recognized.



A88202

DOWNFLOW FURNACE SUBBASE

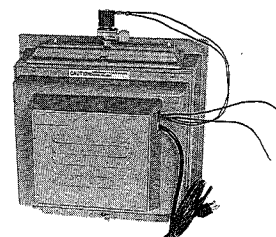
One base fits all furnace sizes. The base is designed to be installed between the furnace or coil box and a combustible floor. It is A.G.A. and C.G.A. design certified for use with Carrier 58VCA furnaces.



A89239

MODEL 31KAX ELECTRONIC AIR CLEANER

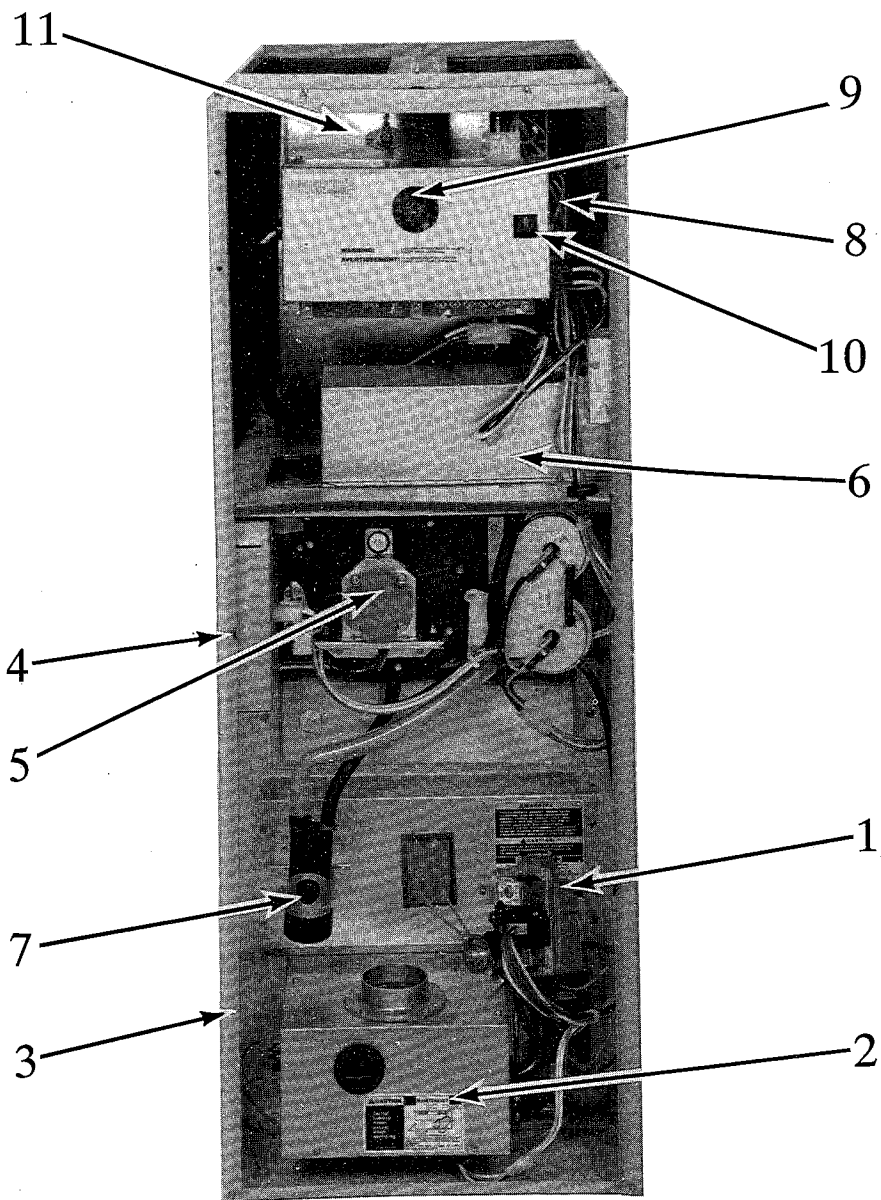
Cleans the air of smoke, dirt, and many pollens. Saves on decorating and cleaning expenses.



A91362

MODEL 49FH HUMIDIFIER

By adding moisture to winter-dry air, a Carrier humidifier can often improve comfort and keep furniture, rugs, and draperies in better condition. Moisturizing household air also helps to retain normal body heat and provides comfort at lower temperature.



A92097

NOTE: The 58VCA Furnace is factory built for use with natural gas. The furnace can be field converted for propane gas with a factory-authorized and listed accessory conversion kit.

NOTE: Control location and actual controls may be different than shown above.

- | | |
|-------------------------------------|---|
| ① 2-Stage Gas Valve | ⑦ Condensate Trap |
| ② Burner Enclosure | ⑧ Blower Assembly With Variable-Speed Motor |
| ③ Primary Heat Exchanger (Inside) | ⑨ Light Emitting Diode (LED) View Port |
| ④ Secondary Heat Exchanger (Inside) | ⑩ Low-Voltage Circuit Breaker |
| ⑤ Variable-Speed Inducer Motor | ⑪ Manual-Reset Auxiliary Limit Switch |
| ⑥ Vent Pipe Connection | |

Physical data

FURNACE MODEL 58VCA		060-GG	080-HG	100-LG
OUTPUT CAPACITY BTUH† (ICS)‡	Low/High	41,000/59,000	55,000/79,000	68,000/99,000
INPUT BTUH*	Low/High	43,500/63,000	58,000/84,000	72,500/105,000
SHIPPING WEIGHT (lb)		182	195	237
CERTIFIED TEMP RISE RANGE (°F)	Low/High	70 — 80/55 — 65	70 — 80/55 — 65	70 — 80/55 — 65
CERTIFIED EXT STATIC PRESSURE (in. wc)	Heating	0.12	0.15	0.20
	Cooling	0.50	0.50	0.50
AIRFLOW CFM	Heating Low/High	500/925	665/1235	835/1320
	Cooling	1200	1400	2000
LIMIT CONTROL		SPST		
HEATING BLOWER CONTROL		Microprocessor Timed Operation 60 — 240 Sec @ 20-Sec Intervals		
BURNERS (Monoport)		3	4	5
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)		
PILOT MODEL		740A		

* 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, from 2000 to 4500 ft above sea level, derate the unit 10%.

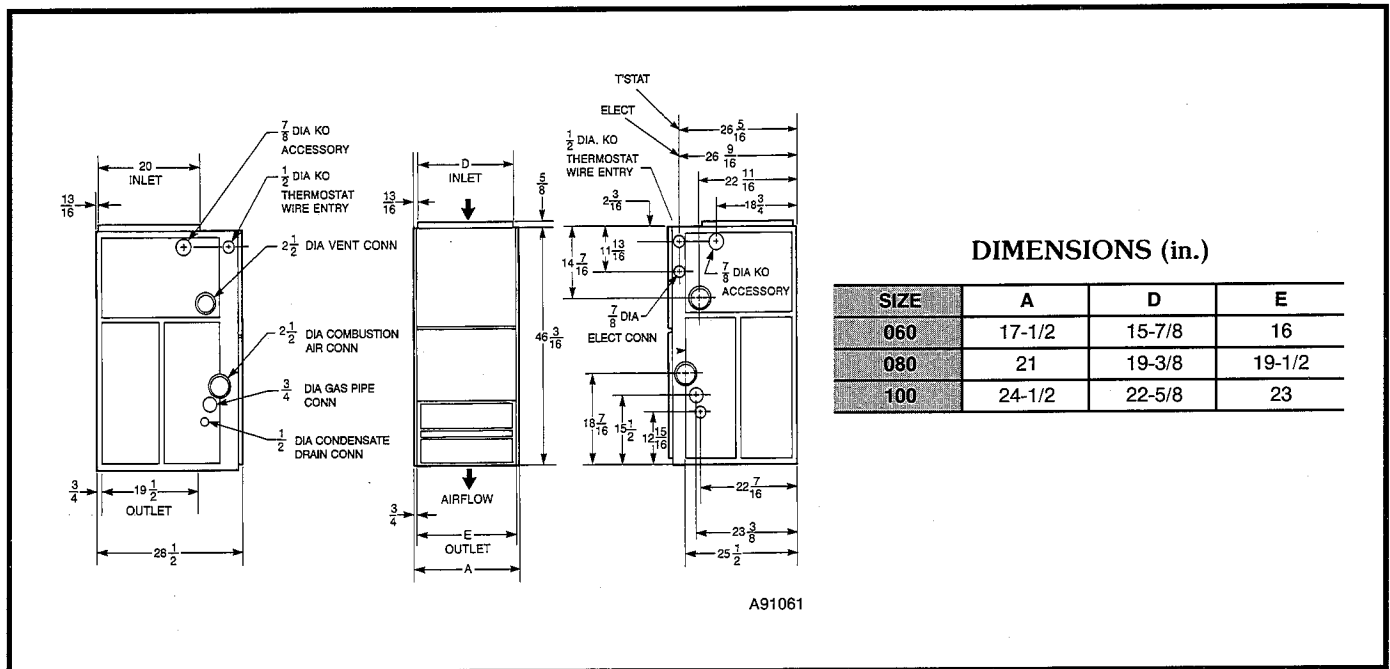
† Preliminary capacity in accordance with U.S. Government DOE test procedures.

‡ ICS — Isolated Combustion System.

Dimensions

CLEARANCES (in.)

SIZE	060, 080, AND 100
SIDES	0
BACK	0
TOP OF PLENUM	1
VENT CONNECTOR	0
FRONT — CASING VENTILATION	3
SERVICE	30



DIMENSIONS (in.)

SIZE	A	D	E
060	17-1/2	15-7/8	16
080	21	19-3/8	19-1/2
100	24-1/2	22-5/8	23

Performance data

FURNACE MODEL 58VCA	060-GG	080-HG	100-LG
DIRECT-DRIVE MOTOR Hp (ICM)	1/2	1/2	1
MOTOR FULL LOAD AMPS	7.0	7.0	12.0
RPM (Nominal) — SPEEDS	Variable 300 — 1300		
BLOWER WHEEL DIAMETER x WIDTHS (in.)	10 x 7	10 x 8	11 x 10
FILTER SIZE (in.) — (WASHABLE)	(2) 16 x 20 x 1		

EFFICIENCY

FURNACE MODEL 58VCA	060-GG	080-HG	100-LG
CAPACITY BTUH (Low/High)*			
Nonweatherized (ICS)†	41,000/59,000	55,000/79,000	68,000/99,000
AFUE %*			
Nonweatherized (ICS)†	91.3	91.3	91.3

* Preliminary ratings in accordance with U.S. Government DOE test procedures.

† ICS — Isolated Combustion System

AIR DELIVERY — Cfm* (With Filter)

AIRFLOW CFM		OPERATIONAL EXTERNAL STATIC PRESSURE RANGE*
060-GG		
Low Heat	500	0 — 0.20
High Heat	925	0 — 0.68‡
1-1/2-Ton A/C Setting	600	0 — 0.28†
2-Ton A/C Setting	800	0 — 0.51†
2-1/2-Ton A/C Setting	1000	0 — 0.80
3-Ton A/C Setting	1200	0 — 0.60
080-HG		
Low Heat	675	0 — 0.35
High Heat	1240	0 — 0.60
1-1/2-Ton A/C Setting	600	0 — 0.29†
2-Ton A/C Setting	800	0 — 0.50†
2-1/2-Ton A/C Setting	1000	0 — 0.80†
3-Ton A/C Setting	1200	0 — 0.68†
3-1/2-Ton A/C Setting	1400	0 — 0.55
100-LG		
Low Heat	835	0 — 0.32
High Heat	1320	0 — 0.80
2-Ton A/C Setting	800	0 — 0.30†
2-1/2-Ton A/C Setting	1000	0 — 0.46†
3-Ton A/C Setting	1200	0 — 0.67†
3-1/2-Ton A/C Setting	1400	0 — 0.80
4-Ton A/C Setting	1600	0 — 0.80
4-1/2-Ton A/C Setting	1800	0 — 0.75
5-Ton A/C Setting	2000	0 — 0.50

* Actual external static pressure can be determined by using the fan laws (cfm² proportional to ESP); i.e., a system with 925 cfm at 0.5 ESP would operate at cooling airflow of 800 cfm at 0.37 ESP and low-heating airflow of 500 cfm at 0.15 ESP (See fan curves.) Air delivery values shown are preliminary.

† Ductwork must be sized for high-heating cfm within the operational range of external static pressure.

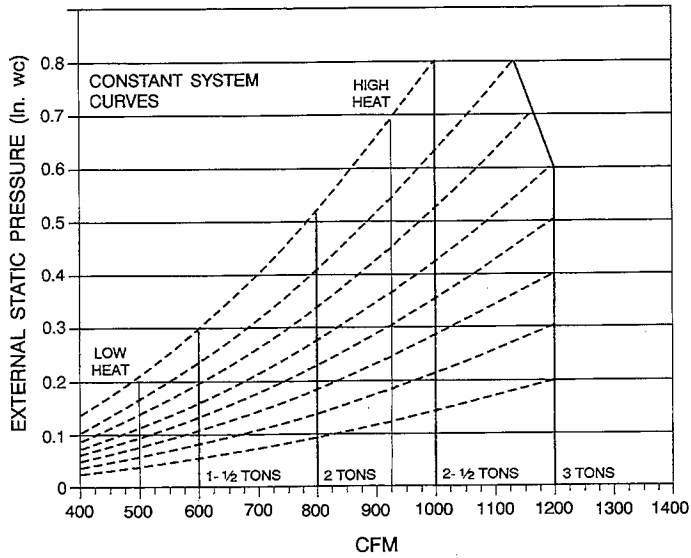
‡ 0.8-in. wc when used with a 1-1/2- or 2-ton air conditioner.

MEETS DOE RESIDENTIAL CONSERVATION SERVICES
PROGRAM STANDARDS.

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

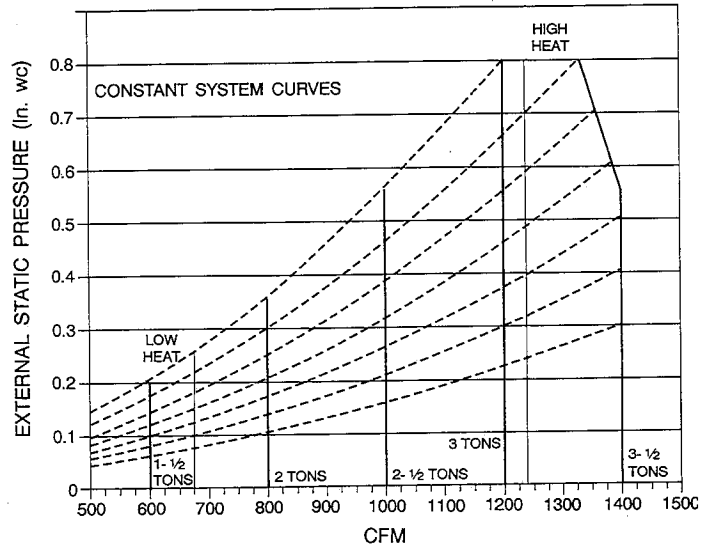


AIR DELIVERY CURVE — 060-GG



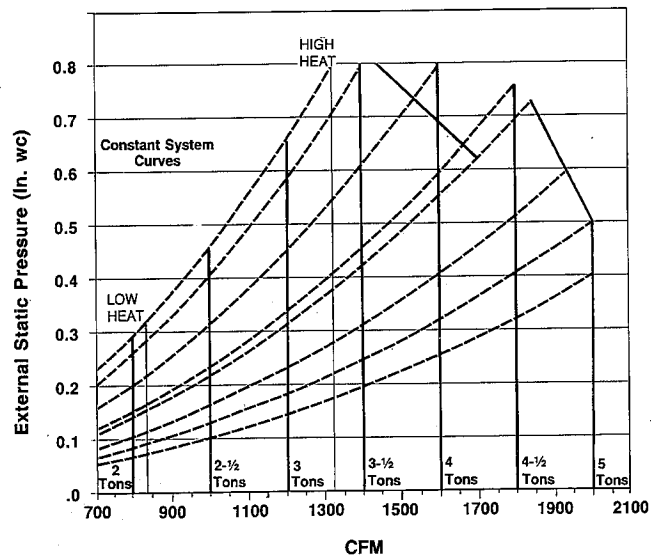
A92140

AIR DELIVERY CURVE — 080-HG



A92141

AIR DELIVERY CURVE — 100-LG



A89375

Combustion-Air and Vent Pipe

MAXIMUM ALLOWABLE VENT PIPE LENGTH (Ft)

ALTITUDE (FT ABOVE SEA LEVEL)	FURNACE SIZE	PIPE SIZE (IN.)	NUMBER OF 90° ELBOWS					
			1	2	3	4	5	6
0 to 2000	060-GG	2 2-1/2	55 70	55 70	55 70	55 70	45 70	45 70
	080-HG	2 2-1/2	35 70	35 70	30 70	25 70	20 70	15 70
	100-LG	2-1/2 3	45 70	45 70	35 70	30 70	20 70	15 70
2001 to 3000	060-GG	2 2-1/2	49 62	48 61	48 61	42 60	38 60	37 59
	080-HG	2 2-1/2	31 62	30 61	25 61	20 60	15 60	10 59
	100-LG	2-1/2 3	40 62	39 61	30 61	24 60	15 60	10 59
3001 to 4001	060-GG	2 2-1/2	45 57	44 56	43 55	37 54	33 53	32 52
	080-HG	2 2-1/2	28 57	27 56	21 55	17 54	11 53	16 52
	100-LG	2-1/2 3	37 57	36 56	26 55	20 54	11 53	6 52
4001 to 5000	060-GG	2 2-1/2	42 53	41 52	40 51	34 50	30 49	29 48
	080-HG	2 2-1/2	26 53	25 52	19 51	15 50	9 49	0 48
	100-LG	2-1/2 3	34 53	33 52	24 51	18 50	9 49	0 48
5001 to 6000	060-GG	2 2-1/2	39 49	37 47	36 46	29 44	25 43	24 41
	080-HG	2 2-1/2	24 49	22 47	16 46	12 44	5 43	0 41

ALTITUDE (FT ABOVE SEA LEVEL)	FURNACE SIZE	PIPE SIZE (IN.)	NUMBER OF 90° ELBOWS					
			1	2	3	4	5	6
5001 to 6000 (cont'd)	100-LG	2-1/2 3	31 49	30 47	21 46	14 44	5 43	0 41
6001 to 7000	060-GG	2 2-1/2	36 45	34 43	33 42	26 40	23 39	21 37
	080-HG	2 2-1/2	22 45	20 43	14 42	10 40	0 39	0 37
	100-LG	2-1/2 3	29 45	27 43	19 42	12 40	0 39	0 37
7001 to 8000	060-GG	2 2-1/2	32 41	30 39	28 37	21 35	18 33	16 31
	080-HG	2 2-1/2	19 41	17 39	10 37	7 35	0 33	0 31
	100-LG	2-1/2 3	26 41	24 39	15 37	8 35	0 33	0 31
8001 to 9000	060-GG	2 2-1/2	29 36	27 34	25 32	18 30	15 28	13 26
	080-HG	2 2-1/2	17 36	15 34	10 32	5 30	0 28	0 26
	100-LG	2-1/2 3	23 36	21 34	13 32	6 30	0 28	0 26
9001 to 10,000	060-GG	2 2-1/2	21 32	19 29	16 26	9 23	6 20	0 17
	080-HG	2 2-1/2	10 32	8 29	0 26	0 23	0 20	0 17
	100-LG	2-1/2 3	16 32	13 29	5 26	0 23	0 20	0 17

NOTES:

1. Size both the combustion-air and vent pipe independently, then use the larger diameter for both pipes.
2. Assume two 45° elbows equal one 90° elbow. Long radius elbows are desirable and may be required in some cases.
3. Elbows and pipe sections within the furnace casing and at the vent termination should not be included in vent length or elbow count.
4. The installer may use one larger pipe size than what is specified above (up to 4 in. diameter maximum).

Electrical data

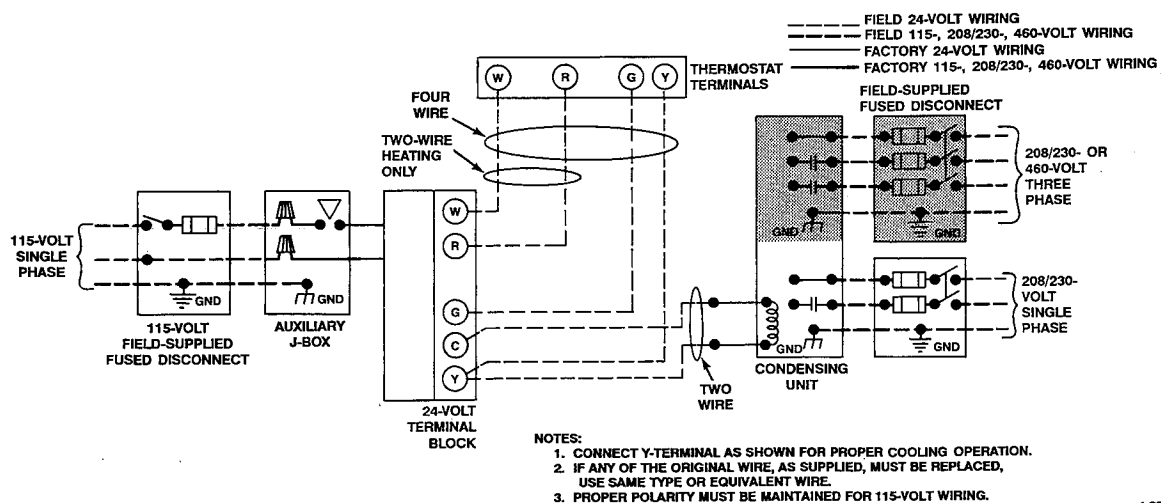
FURNACE MODEL 58VCA		060-GG	080-HG	100-LG
UNIT VOLTS — HERTZ — PHASE		115 — 60 — 1		
MINIMUM WIRE SIZE		14	14	12
MAXIMUM WIRE LENGTH* (Ft)		44	44	44
MAXIMUM UNIT AMPS		9.0	9.0	13.0
OPERATING VOLTAGE RANGE† (Min — Max)		104 — 127		
MAXIMUM FUSE SIZE OR HACR-TYPE CKT BKR‡ (Amps)		15	15	20
TRANSFORMER (24v)		60 va		
EXTERNAL CONTROL POWER AVAILABLE —	Heating	16 va		
	Cooling	24 va		
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.

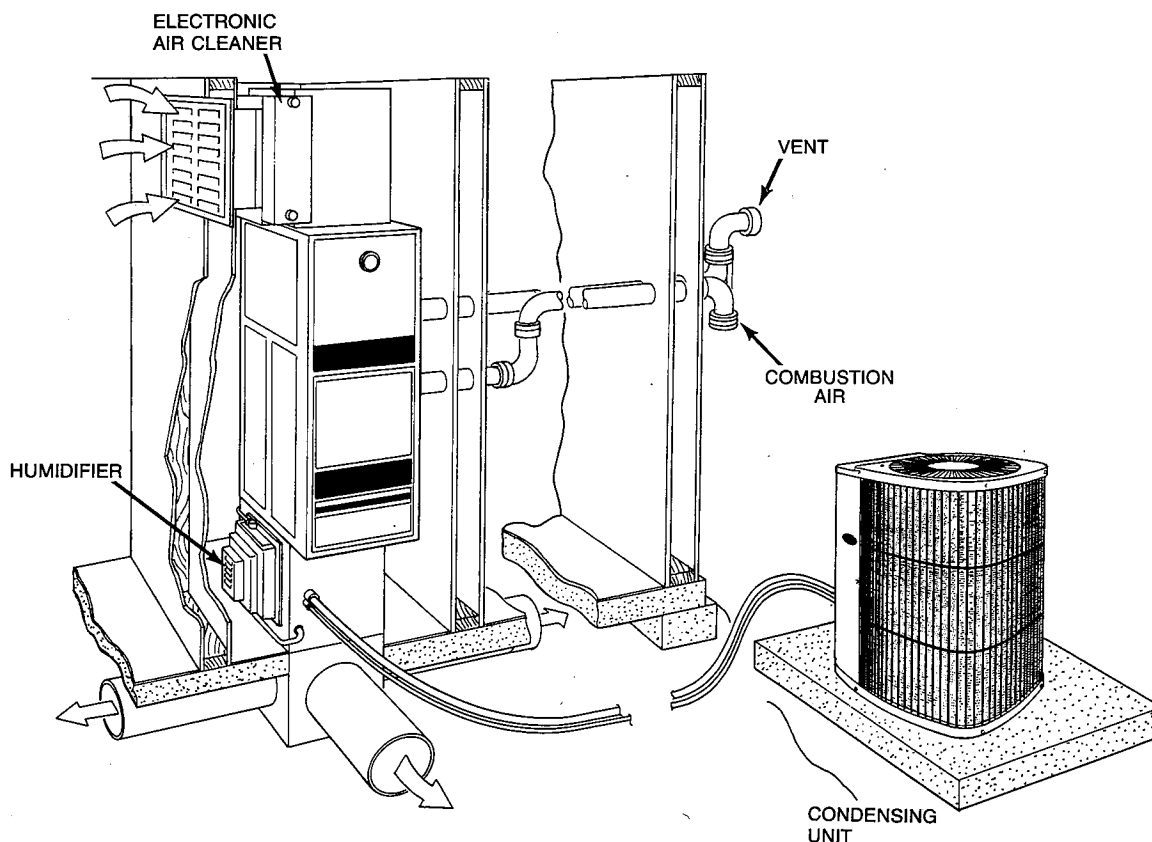
‡ Time-delay fuse is recommended.

Typical wiring schematic



A87502

Typical installation



A92116