

CITY OF SACRAMENTO

Permit No: 9812390

1231 I Street, Sacramento, CA 95814

Insp Area: 1

8481

Site Address: 8491 FOLSOM BL SAC

Sub-Type: ACOM

Parcel No: 0790162003

Housing (Y/N): N

Roma Pizza II

CONTRACTOR

DKM HEATING & AIR  
P O BOX  
LOOMIS, CA 95650

OWNER

GUERRERA MARIA  
8491 FOLSOM BL  
SACRAMENTO CA 95826

ARCHITECT

Nature of Work: REPLACE HEAT PUMP W/GAS & ELECTRIC UNIT

CONSTRUCTION LENDING AGENCY : I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name \_\_\_\_\_ Lender's Address \_\_\_\_\_

LICENSED CONTRACTORS DECLARATION: I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

License Class C20 License Number 548704 Date 12-17-98 Contractor Signature Eric Payne

OWNER-BUILDER DECLARATION: I hereby affirm under penalty of perjury that I am exempt from the contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code; any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 8 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars (\$500.00);

I, as a owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professional Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his/her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he/she did not build or improve for the purpose of sale.)

I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

I am exempt under Sec. \_\_\_\_\_ B & PC for this reason: \_\_\_\_\_

Date \_\_\_\_\_ Owner Signature \_\_\_\_\_

IN ISSUING THIS BUILDING PERMIT, the applicant represents, and the city relies on the representation of the applicant, that the applicant verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and hereby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

Date 12-17-98 Applicant/Agent Signature Eric Payne

WORKER'S COMPENSATION DECLARATION: I hereby affirm under penalty of perjury one of the following declarations:

I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 3700 of the Labor Code, for the performance of work for which the permit is issued.

I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier Legion Insurance Co Policy Number WC2-0570046 Exp Date 7/1/99

(This section need not be completed if the permit is for \$100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date 12-17-98 Applicant Signature Eric Payne

WARNING: FAILURE TO SECURE WORKER'S COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS (\$100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST AND ATTORNEY'S FEE.

THIS PERMIT SHALL EXPIRE BY LIMITATION IF WORK IS NOT COMMENCED WITHIN 180 DAYS.

# REVISION ON ACTIVE PERMIT

NEW PLAN CHECK NO: \_\_\_\_\_  
 OLD PC # 9812593

DATE: 12-21-98

● This sheet is to be used only when a permit has been issued, is still active, and the applicant wishes to make changes to the existing approved plans.

● All revisions clouded? Yes \_\_\_\_\_ No \_\_\_\_\_

JOB ADDRESS 3-21 ... EHD SUITE: \_\_\_\_\_ PERMIT NO. 9812390C

AREA: \_\_\_\_\_ DBA: See ...

DESCRIPTION OF REVISIONS low ... line and add ...

DISCIPLINE	B	L	P	M	E	F	S	R	D
CHECKED BY			JMT						
ROUTE TO									
CODE			13						
HOURS SPENT									

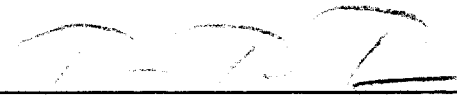
CONTACT: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_

# OF PLANS SUBMITTED: 2 SUBMITTED TO: AR

I understand that I am responsible for all plan check fees that I incur during the course of this additional plan check and that any approved plans not claimed and paid for within 3 months of notification will be disposed of and an invoice procedure for the amount due will be initiated. I further understand that an unclaimed revision may result in delay of final approval for the subject project.

  
 Applicant Signature Date 12-21-98

DATE NOTIFIED	PLAN BIN

APPLIC. FEE	PD.

AGENCY	TOT. HRS.	TOTAL FEES
BID		
PW		
PLEASE PAY THIS AMOUNT <input type="checkbox"/>		

1" FRP. W.D. A.  
150'

EXIST Heat Pump

Hair Salon

New 89000 BTU  
input unit

Money store

Max. dist. from gas meter to  
new unit is  
150'

EXIST Heat Pump

Nails

Max. dist. from gas meter to  
new unit is nominal 2 1/2' for 11.

EXIST Heat Pump

Insurance

EXIST 8 1/2 ton  
gas/heat

EXIST gas line

Form P-220

EXISTING 1" on roof  
1 1/2" gas line  
Reduce to 1/2" unit.

The approval of all work  
plumbing and mechanical  
is subject to field inspection  
12/17/98 existing gas meter

NOTES

- 1) Remove old H.P. on roof  
Approx weight 375165
- 2) Replace with NEW BDF  
Model 589403030080  
2 1/2" 13 ton cooling 81%  
A/FUE Heating. Approx. weight  
375165.
- 3) Unit to be mounted  
on exist. 4x4 sleepers  
EXIST 80 amp ed. service to be  
used.

199,000 BTU  
Input W. A.

EXIST  
Heat Pump

Hair Salon

New 80,000 BTU  
input unit.

EXIST  
Heat Pump

ISSUED  
Money Store  
1/1/1996

Plumbing  
is subject to  
JMT

150

EXISTING  
1/2" GAS  
line

EXIST  
Heat pump

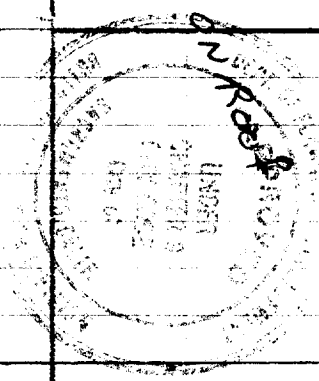
Nails

New 1/4" Gas line  
(Approx 125' total run)

MECHANICAL WORK  
FIELD INSPECTION  
12/21/98

EXIST  
Heat Pump

Insurance



EXIST  
8 1/2 ton  
Gas/Elect

Roman Pizza

EXISTING  
Gas line

NOTES

- 1) Remove old H.P. on Roof  
Approx weight 3751bs
- 2) Replace with NEW BDF  
Model 589403030080  
2 1/2" 13 over cooling 81%  
ATUE Heating. Approx weight  
3751bs.
- 3) Unit to be mounted  
on exist 4x4 sleepers  
Exist 30 Amp ed. service to be  
used.

Proposed New Gas meter

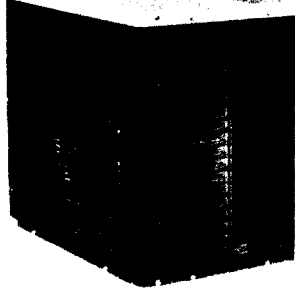
8/4/91

**Day &  
Night**

**Day & Night**  
Air Conditioning

**HIGH EFFICIENCY  
SINGLE PACKAGE  
GAS HEATING/ELECTRIC COOLING UNITS**

**Model 589A**  
**Sizes 024-060**  
2 to 5 Tons



**DESCRIPTION**

All 589A models feature one piece, compact design for easy use in either downflow or horizontal applications. Models are available in a variety of standard heating/cooling size combinations with voltage options to meet residential and light commercial requirements. These units install easily on a rooftop or a ground level pad.

**STANDARD FEATURES**

**HIGH-EFFICIENCY DESIGN** with SEERs (Seasonal Energy Efficiency Ratios) up to 12.0.

**FACTORY-ASSEMBLED PACKAGE** is a compact, fully self-contained gas heating/electric cooling unit that is prewired, piped, and precharged for minimum installation expense.

**CONVERTIBLE DUCT CONFIGURATION** on the 589A is designed for easy use in either downflow or horizontal discharge applications. Units are also available shipped from the factory in the optional, downflow configuration.

**DURABLE, DEPENDABLE COMPRESSORS** are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Vibration isolation provides quiet operation. Scroll compressors are used on all units. Compressors have internal high-pressure and overcurrent protection.

**EVAPORATOR AND CONDENSER COILS** are computer-designed for optimum heat transfer and cooling efficiency. They are located inside the unit to protect against damage for long life and reliable operation. The evaporator and condenser coils are fabricated of copper tubes and aluminum fins. Coils are protected by a rubber coated, metal grille.

Copper fin coils for the condenser coil are also available by special order. These coils are recommended in applications where aluminum fins are likely to be damaged due to corrosion. Copper fin coils are ideal for seacoast applications.

**DIRECT-DRIVE, MULTISPEED, PSC (PERMANENT SPLIT CAPACITOR) FAN MOTOR** is standard on unit sizes 024-042. Variable-speed, integrated control motor is standard for unit size 048 and 060.

**DIRECT-DRIVE, PSC, CONDENSER-FAN MOTORS** are designed to help reduce energy consumption and provide for cooling operation down to 40 F.

**REFRIGERANT SYSTEM** is designed to provide dependability. Liquid refrigerant strainers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier. A fixed metering device controls refrigerant flow.

**MONOPORT INSHOT BURNERS** produce precise air-to-gas mixture, which provides for clean and efficient combustion. The large monoport on the inshot (or injection type) burners seldom, if ever, needs cleaning.

**WEATHERIZED CABINETS** are constructed of heavy-duty, phosphated, zinc-coated, prepainted steel capable of withstanding 500 hours in salt spray. Interior surfaces of the evaporator compartment are insulated with foil-faced insulation to help keep the conditioned air from being affected by the outdoor ambient temperature and to provide improved air quality. Unit conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 62P. Sloped condensate pan permits an external drain.

**EASY TO SERVICE CABINETS** provide easy accessibility to serviceable components during maintenance and installation. Rounded corners are an important safety feature, and a high-quality finish ensures an attractive appearance.

**LOW SOUND RATINGS** ensure a quiet indoor and outdoor environment with sound ratings as low as 8.0 bels.

**LOW- AND HIGH- VOLTAGE ELECTRICAL ENTRIES** allow low and high voltage to be brought in through either the front duct panel or rear flue panel.

**INTEGRATED GAS CONTROL BOARD** provides safe and efficient control of heating and simplifies troubleshooting through its built-in diagnostic function.

**OPTIONAL BASE RAILS** provide rigging holes, as well as an elevated mounting frame that gives additional structural support for horizontal applications.

# CONTENTS

	Page
Model Description .....	3
ARI Capacities .....	4
Dimensional Drawings .....	6-11
Specifications .....	12,13
Selection Procedure .....	14
Net Cooling Capacities .....	15,16
Air Delivery .....	17
Electrical Data .....	19
Operating Sequence .....	20
Application Data .....	20
Typical Field Wiring .....	21,22
Typical Installation .....	23
Engineers' Specification Guide .....	24

## Quality Assurance

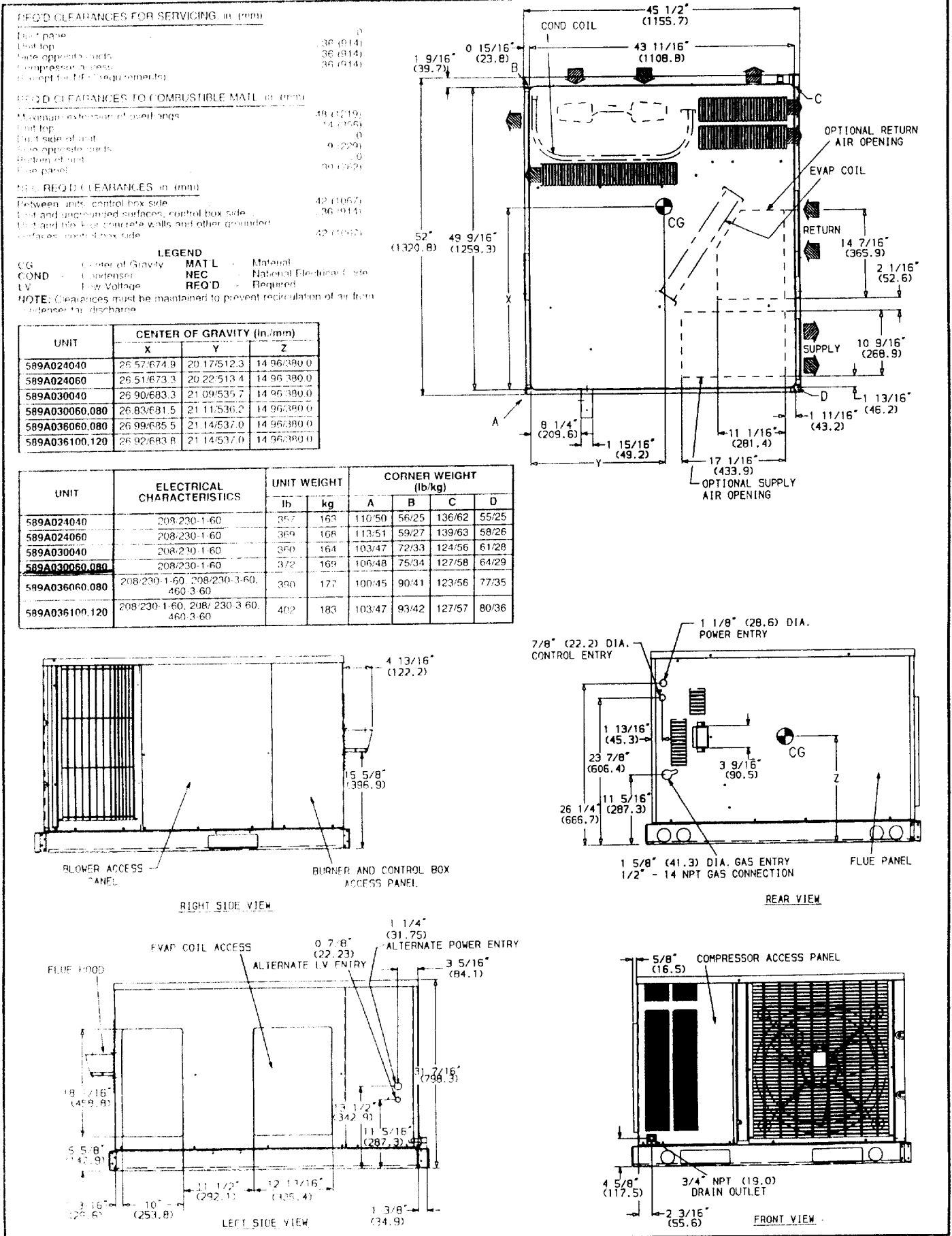


**Approvals:**  
 ISO 9002  
 EN 29002  
 BS5750 PART 2  
 ANSVASOC Q92

## MODEL DESCRIPTION

	589	A	N	W	030	040	AA	B	D																																																																
<b>Model Number</b>	589																																																																								
		Single-Package Gas Heating Air Conditioning Unit																																																																							
<b>Efficiency</b>	A	12.0 SEER																																																																							
<b>V-Ph Hz</b>	N	208-230-1-60																																																																							
	F	208-230-3-60																																																																							
	E	460-3-60																																																																							
<b>W</b>		Natural Gas																																																																							
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## DIMENSIONAL DRAWINGS (cont)



**Unit 589A; Sizes 024-036; With Optional Base Rail**

## SPECIFICATIONS

UNIT SIZE 589A	024040	024060	030040	030060	030080	036060
<b>NOMINAL CAPACITY (tons)</b>	2	2	2½	2½	2½	3
<b>OPERATING WEIGHT (lb)</b>						
Without Base Rail	333	345	336	348	348	366
With Optional Base Rail	357	369	360	372	372	390
<b>COMPRESSOR</b>	Hermetic Scroll					
Quantity	1					
<b>REFRIGERANT</b>	R-22					
Charge (lb)	3.9	3.9	4.5	4.5	4.5	5.4
<b>REFRIGERANT METERING DEVICE</b>	Fixed Orifice Metering Device					
<b>CONDENSER COIL</b>						
Face Area (sq ft)	7.0	7.0	7.0	7.0	7.0	7.0
Rows...Fins/in.	2...17	2...17	2...17	2...17	2...17	2...17
<b>CONDENSER FAN</b>						
Nominal Airflow (cfm)	2200	2200	2200	2200	2200	2200
Nominal Speed (rpm)	1100	1100	1100	1100	1100	1100
Quantity...Diameter (in.)	1...20	1...20	1...20	1...20	1...20	1...20
Motor Hp	¼	¼	¼	¼	¼	¼
<b>EVAPORATOR COIL</b>						
Face Area (sq ft)	3.6	3.6	2.7	2.7	2.7	3.6
Rows...Fins/in.	2...15	2...15	3...15	3...15	3...15	4...15
<b>EVAPORATOR FAN*</b>						
Nominal Airflow (cfm)	800	800	1000	1000	1000	1200
Nominal Speed (rpm)	1075	1075	1075	1075	1075	1100
Diameter x Width (in.)	10 x 10	10 x 10	10 x 10	10 x 10	10 x 10	10 x 10
Motor Hp (single-phase)	¼	¼	¼	¼	¼	½
(three-phase)	—	—	—	—	—	½
<b>FURNACE SECTION†</b>						
Burner Orifice No. (Qty...drill size)						
Natural Gas	1...32	2...41	1...32	2...41	2...32	2...41
Propane Gas	1...41	2...46	1...41	2...46	2...42	2...46
<b>RETURN-AIR FILTERS (In.)**</b>						
Throwaway	24 x 24	24 x 24	24 x 24	24 x 24	24 x 24	24 x 24

UNIT SIZE 589A	036080	036100	036120	042060	042080	042100
<b>NOMINAL CAPACITY (tons)</b>	3	3	3	3½	3½	3½
<b>OPERATING WEIGHT (lb)</b>						
Without Base Rail	366	378	378	391	391	403
With Optional Base Rail	390	402	402	415	415	427
<b>COMPRESSOR</b>	Hermetic Scroll					
Quantity	1					
<b>REFRIGERANT</b>	R-22					
Charge (lb)	5.4	5.4	5.4	5.7	5.7	5.7
<b>REFRIGERANT METERING DEVICE</b>	Fixed Orifice Metering Device					
<b>CONDENSER COIL</b>						
Face Area (sq ft)	7.0	7.0	7.0	8.7	8.7	8.7
Rows...Fins/in.	2...17	2...17	2...17	2...17	2...17	2...17
<b>CONDENSER FAN</b>						
Nominal Airflow (cfm)	2200	2200	2200	2400	2400	2400
Nominal Speed (rpm)	1100	1100	1100	1100	1100	1100
Quantity...Diameter (in.)	1...20	1...20	1...20	1...20	1...20	1...20
Motor Hp	¼	¼	¼	¼	¼	¼
<b>EVAPORATOR COIL</b>						
Face Area (sq ft)	3.6	3.6	3.6	4.4	4.4	4.4
Rows...Fins/in.	4...15	4...15	4...15	3...15	3...15	3...15
<b>EVAPORATOR FAN*</b>						
Nominal Airflow (cfm)	1200	1200	1200	1400	1400	1400
Nominal Speed (rpm)	1100	1100	1100	1100	1100	1100
Diameter x Width (in.)	10 x 10	10 x 10	10 x 10	10 x 10	10 x 10	10 x 10
Motor Hp (single-phase)	½	½	½	½	½	½
(three-phase)	½	½	½	½	½	½
<b>FURNACE SECTION†</b>						
Burner Orifice No. (Qty...drill size)						
Natural Gas	2...32	2...30	3...32	2...41	2...32	2...30
Propane Gas	2...42	2...41	3...42	2...46	2...42	2...41
<b>RETURN-AIR FILTERS (In.)**</b>						
Throwaway	24 x 24	24 x 24	24 x 24	24 x 30	24 x 30	24 x 30

\* Size 048 evaporator fan is equipped with a 160 v or integrated control motor (ICM). Size 060 evaporator fan is equipped with ICM only. The ICM provides variable speed.

† Based on an altitude of 0-2000 ft.

\*\* Required field supplied filter sizes are based on ARI-rated (Air Conditioning & Refrigeration Institute) heating airflow at a velocity of 300 ft/min for throwaway type. For non-standard filters, air filter pressure drop must not exceed 0.08 in. wg.

†† Square inch. Filter is mounted external to unit.



## ELECTRICAL DATA

UNIT 589A	V-PH-HZ	VOLTAGE RANGE		COMPRESSOR		COND FAN MOTOR	EVAPORATOR FAN FLA	POWER SUPPLY FUSE OR HACR BRK		AWG 60 C MIN WIRE SIZE*	MAX WIRE LENGTH (ft)
		Min	Max	RLA	LRA	FLA		MCA	MOCP		
024	208-230-1-60	187	253	12.9	62.5	1.4	2.0	19.5	30	12	75
030				15.0	76.0	1.4	2.6	22.8	30	10	100
036				16.7	95.0	1.4	2.8	25.1	30	10	95
042				20.0	104.0	1.4	3.1	29.5	45	10	80
048				26.4	129.0	1.4	7.2	41.6	60	6	100
060				32.1	169.0	2.1	7.2	49.4	60	6	100
036	208/230-3-60	187	253	10.9	75.0	1.4	2.8	17.8	25	12	70
042				13.9	88.0	1.4	3.1	21.9	30	10	60
048				15.0	99.0	1.4	7.2	27.4	40	10	70
060				19.3	123.0	2.1	7.2	33.4	50	8	90
036	160-3-60	414	506	5.4	40.0	0.8	1.4	9.0	10	14	100
042				6.8	44.0	0.8	1.6	10.9	15	14	100
048				8.2	49.5	0.8	2.3	13.4	20	14	100

### LEGEND

- AWG -- American Wire Gage
- COND -- Condenser
- CSA -- Canadian Standards Association
- FLA -- Full Load Amps
- HACR -- Heating, Air Conditioning and Refrigeration
- LRA -- Locked Rotor Amps
- MCA -- Minimum Circuit Amps
- MOCP -- Maximum Overcurrent Protection (fuse or HACR type circuit breaker)
- NEC -- National Electrical Code
- RLA -- Rated Load Amps

\*Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, determine size from NEC. Voltage drop of wire must be less than 2% of rated voltage.

#### NOTES:

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. To comply with CSA (Canadian Standards Association) requirements, a fuse or circuit breaker overcurrent protective device must be used.

#### 2. Unbalanced 3-Phase Supply Voltage

Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percent of voltage imbalance.

% Voltage Imbalance

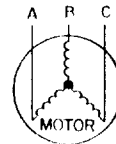
$$100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example: Supply voltage is 460-3-60.

AB = 452 v

BC = 464 v

AC = 455 v



$$\text{Average Voltage} = \frac{452 + 464 + 455}{3}$$

$$= \frac{1371}{3}$$

$$= 457$$

Determine maximum deviation from average voltage.

(AB) 457 - 452 = 5 v

(BC) 464 - 457 = 7 v

(AC) 457 - 455 = 2 v

Maximum deviation is 7 v.

Determine percent of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{7}{457}$$

$$= 1.53\%$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

**IMPORTANT:** If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.



**WET COIL PRESSURE DROP**

UNIT SIZE 589A	AIRFLOW (cfm)	PRESSURE DROP (in. wg)
024	600	0.039
	700	0.058
	800	0.075
	900	0.088
030	900	0.088
	1000	0.095
	1200	0.123
036	1000	0.068
	1200	0.088
	1400	0.108
	1600	0.123
042	1000	0.048
	1200	0.069
	1400	0.088
	1600	0.102
048	1400	0.068
	1600	0.075
	1800	0.088
060	1700	0.082
	1900	0.095
	2100	0.108
	2300	0.123

**FILTER PRESSURE DROP (in. wg)**

UNIT SIZE	FILTER SIZE (in.)	CFM																
		700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
024-036	24 x 24	0.06	0.06	0.07	0.07	0.08	0.09	0.10	—	—	—	—	—	—	—	—	—	—
042-060	24 x 30	—	—	—	—	—	—	0.08	0.09	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.17	0.18

**DRY COIL AIR DELIVERY\* — HORIZONTAL AND DOWNFLOW DISCHARGE; UNITS 024-048**  
(Deduct 10% for 208 v)

UNIT SIZE 589A	MOTOR SPEED	AIR DELIVERY	230 and 460 VOLT HORIZONTAL DISCHARGE										
			External Static Pressure (In. wg)										
			0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
024 030	Low	Watts	280	275	265	255	250	245	240	--	--	--	--
		Cfm	820	810	755	700	660	600	560	--	--	--	--
	Med	Watts	365	360	350	345	340	330	320	310	300	--	--
		Cfm	1025	1010	975	940	900	850	800	720	630	--	--
	High	Watts	--	--	490	480	470	460	445	430	410	390	380
		Cfm	--	--	1300	1255	1200	1150	1080	1005	915	790	620
036	Low	Watts	520	495	474	458	445	425	--	--	--	--	--
		Cfm	1375	1335	1290	1240	1200	1140	--	--	--	--	--
	Med	Watts	575	560	535	510	480	460	440	425	--	--	--
		Cfm	1520	1490	1450	1400	1380	1300	1200	1080	--	--	--
	High	Watts	--	--	--	--	650	614	575	540	510	480	--
		Cfm	--	--	--	--	1560	1500	1380	1280	1170	1060	--
042	Low	Watts	490	480	470	460	450	430	410	390	--	--	--
		Cfm	1400	1380	1340	1300	1250	1200	1140	1070	--	--	--
	Med	Watts	590	580	560	545	525	505	480	450	420	--	--
		Cfm	1600	1560	1540	1470	1430	1360	1300	1220	1120	--	--
	High	Watts	--	--	--	--	--	700	670	640	600	560	500
		Cfm	--	--	--	--	--	1780	1670	1600	1480	1340	1100
048†	Low	Watts	1050	1000	970	930	870	810	750	680	600	--	--
		Cfm	1850	1830	1800	1785	1750	1700	1640	1500	1330	--	--
	High	Watts	--	--	--	1050	1000	930	870	810	740	665	--
		Cfm	--	--	--	2000	1940	1850	1750	1635	1500	1300	--

\*Air delivery values are based on operating voltage of 230 v or 460 v, dry coil, without filter. Deduct wet coil and filter pressure drops to obtain external static pressure available for ducting.  
†For 460 v units only.

**NOTES:**

1. Do not operate the unit at a cooling airflow that is less than 350 cfm for each 12,000 Btuh of rated cooling capacity. Evaporator coil frosting may occur at airflows below this point.
2. Dashes indicate portions of table that are beyond the blower motor capacity or are not recommended.

**DRY COIL AIR DELIVERY\* — HEATING;  
UNITS 048 AND 060; HORIZONTAL AND DOWNFLOW  
DISCHARGE FOR INTEGRATED CONTROL  
MOTOR UNITS AT 230-V  
(Deduct 10% from Cfm for 208-V Operation)**

HEATING INPUT (Btuh)	EASY SELECT BOARD TERMINALS (Cfm)			
	1	2	3	4
80,000	1300	1400	1600	1750
95,000	--	1400	1600	1750
120,000	--	--	1600	1750
136,000	--	--	--	1750

\*Air delivery values are for dry coil at 230 v. Airflow is independent of external static pressure within ±5% of table values up to 0.8 in. wg.

**NOTES:**

1. Dashed areas do not fall within approved range.
2. The above values occur with the AC/HP CFM ADJUST select jumper on Easy Select interface board set on MED.
3. Airflow can be adjusted ±10% or ±10% by selecting HI or LO for all modes except FAN ONLY.

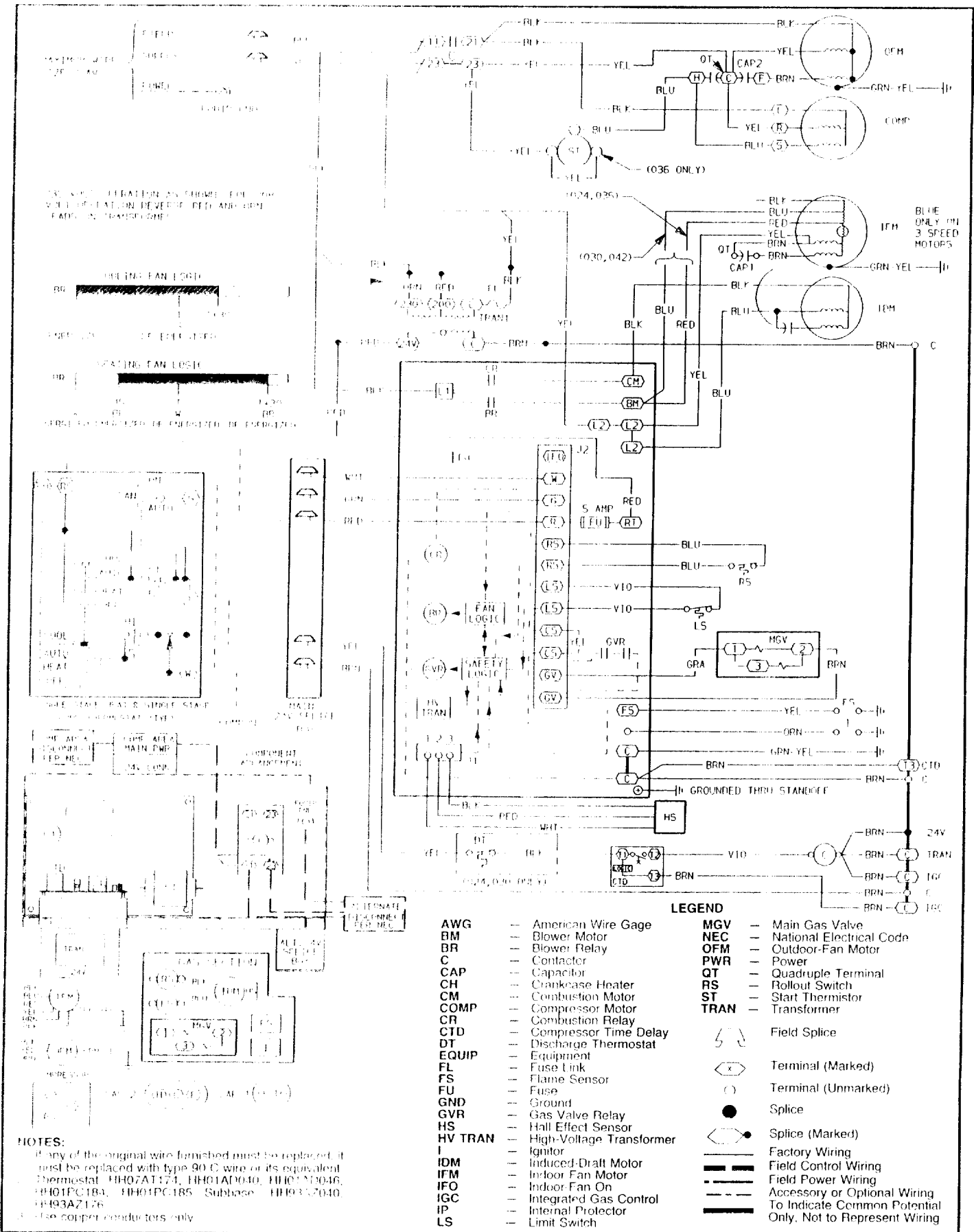
**DRY-COIL AIR DELIVERY\* — FAN ONLY AND  
COOLING; UNITS 048 AND 060; HORIZONTAL  
AND DOWNFLOW DISCHARGE FOR INTEGRATED  
CONTROL MOTOR UNITS AT 230-V  
(Deduct 10% from Cfm for 208-V Operation)**

UNIT 589A	FAN ONLY (Cfm)	COOLING (Cfm)
048	1400	1600
060	1750	2000

\*Air delivery values are for dry coil at 230 v. Airflow is independent of external static pressure within ±5% of table values up to 0.8 in. wg.

**NOTE:** Do not operate the unit at a cooling airflow that is less than 350 cfm for each 12,000 Btuh of rated cooling capacity. Evaporator-coil icing may occur at airflows below this point. Water blow-off may occur at airflows above 450 cfm per 12,000 Btuh of rated cooling capacity.

# TYPICAL FIELD WIRING



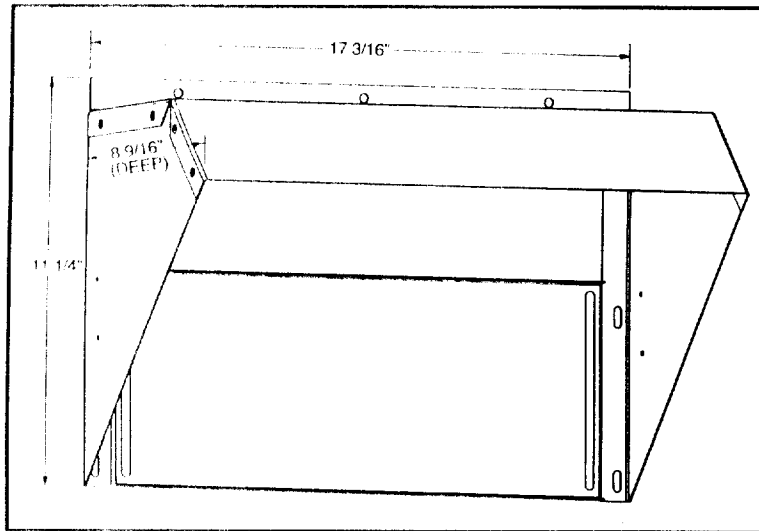
**NET COOLING CAPACITIES**

589A024 (2 TONS)			Condenser Coil Entering-Air Temperature (F)															
Evap Coil Air			85				95				105				115			
Cfm	BF	Ewb (F)	Capacity (Btuh x 1000)		Total System kW	Capacity (Btuh x 1000)		Total System kW	Capacity (Btuh x 1000)		Total System kW	Capacity (Btuh x 1000)		Total System kW				
			Total	Sensible		Total	Sensible		Total	Sensible		Total	Sensible					
700	0.13	72	26.2	12.2	2.00	25.5	12.0	2.18	24.5	11.7	2.39	23.3	11.4	2.61				
		67	24.0	15.6	1.99	23.1	15.4	2.17	22.1	15.1	2.38	20.8	14.6	2.60				
		62	21.8	18.8	1.99	20.6	18.3	2.17	19.0	17.6	2.36	18.1	17.1	2.58				
785	0.14	72	26.5	12.5	2.04	25.8	12.4	2.22	24.9	12.2	2.42	23.6	11.9	2.65				
		67	24.3	16.4	2.03	23.4	16.1	2.21	22.5	16.0	2.42	21.1	15.5	2.64				
		62	22.1	19.7	2.02	21.2	19.5	2.21	19.5	18.8	2.40	18.0	17.9	2.62				
900	0.15	72	26.8	12.9	2.07	25.8	12.5	2.25	25.0	12.5	2.46	23.8	12.2	2.68				
		67	24.6	17.1	2.07	23.7	16.9	2.25	22.7	16.7	2.45	21.4	16.4	2.68				
		62	22.5	20.7	2.06	21.5	20.5	2.24	20.2	19.9	2.44	18.6	18.5	2.67				

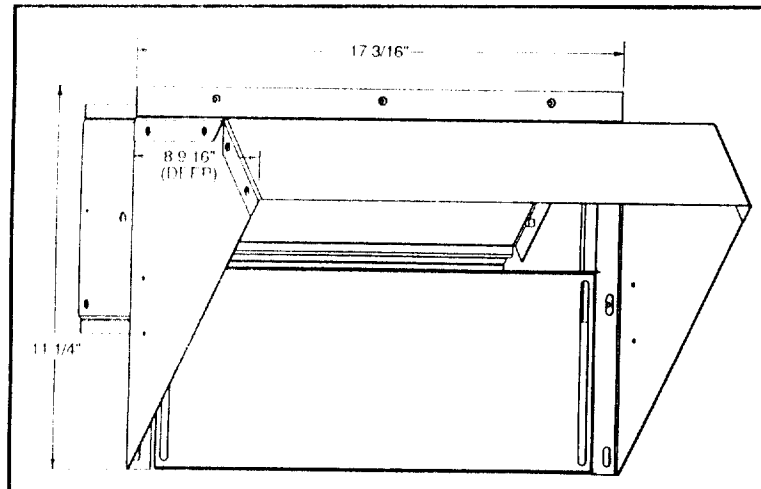
589A030 (2½ TONS)			Condenser Coil Entering-Air Temperature (F)															
Evap Coil Air			85				95				105				115			
Cfm	BF	Ewb (F)	Capacity (Btuh x 1000)		Total System kW	Capacity (Btuh x 1000)		Total System kW	Capacity (Btuh x 1000)		Total System kW	Capacity (Btuh x 1000)		Total System kW				
			Total	Sensible		Total	Sensible		Total	Sensible		Total	Sensible					
875	0.10	72	33.3	16.4	2.59	32.0	15.9	2.82	30.8	15.5	3.07	29.2	15.1	3.36				
		67	30.5	20.9	2.56	29.3	20.5	2.79	27.8	20.1	3.04	25.7	19.3	3.31				
		62	27.8	25.3	2.54	25.9	24.4	2.75	24.0	23.4	2.99	22.9	22.7	3.26				
990	0.11	72	33.6	16.9	2.64	32.4	16.5	2.87	31.1	16.1	3.13	29.6	15.8	3.41				
		67	31.1	22.2	2.61	29.8	21.7	2.84	28.3	21.3	3.10	25.9	20.5	3.37				
		62	28.4	26.9	2.59	27.0	26.2	2.81	24.8	24.8	3.05	23.1	23.1	3.33				
1125	0.12	72	34.2	17.6	2.70	32.9	17.3	2.93	31.3	16.7	3.18	29.9	16.5	3.46				
		67	31.4	23.3	2.66	30.1	22.8	2.89	28.7	22.5	3.14	26.4	21.8	3.42				
		62	28.9	28.2	2.64	27.6	27.4	2.86	26.1	26.1	3.11	24.0	24.0	3.39				

589A036 (3 TONS)			Condenser Coil Entering-Air Temperature (F)															
Evap Coil Air			85				95				105				115			
Cfm	BF	Ewb (F)	Capacity (Btuh x 1000)		Total System kW	Capacity (Btuh x 1000)		Total System kW	Capacity (Btuh x 1000)		Total System kW	Capacity (Btuh x 1000)		Total System kW				
			Total	Sensible		Total	Sensible		Total	Sensible		Total	Sensible					
1050	0.04	72	41.6	20.9	3.25	39.7	20.2	3.52	37.9	19.7	3.81	35.8	18.9	4.12				
		67	37.9	26.7	3.17	36.2	26.0	3.43	34.4	25.3	3.73	31.5	24.2	4.02				
		62	34.6	32.1	3.09	32.6	31.3	3.36	30.1	30.0	3.63	28.4	28.4	3.92				
1225	0.04	72	42.1	21.8	3.31	40.5	21.3	3.60	38.4	20.6	3.88	36.4	19.9	4.19				
		67	38.5	28.4	3.24	36.8	27.7	3.50	35.0	27.1	3.80	31.8	25.9	4.10				
		62	35.2	34.3	3.17	33.7	33.5	3.44	31.7	31.7	3.72	29.1	29.1	4.03				
1350	0.05	72	42.7	22.8	3.39	40.8	22.2	3.66	38.9	21.6	3.97	36.6	20.9	4.26				
		67	39.1	30.1	3.31	37.3	29.5	3.58	35.3	28.8	3.87	32.5	27.8	4.18				
		62	35.9	35.9	3.24	34.7	34.6	3.52	33.0	33.0	3.82	30.3	30.3	4.12				

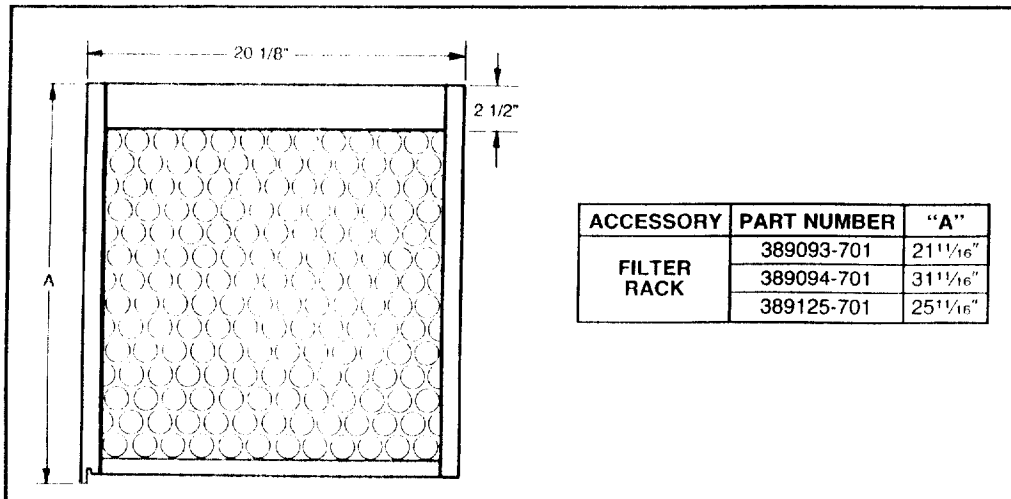
**DIMENSIONAL DRAWINGS (cont)**



**Manual Outdoor-Air Damper**



**Two-Position Damper**



**Filter Racks and Filters**

## ARI\* CAPACITIES

UNIT 589A	NOMINAL TONS	STANDARD CFM	NET COOLING† CAPACITIES (Btuh)	SEER†**	SOUND RATINGS†† (Bels)
024	2	785	23,400	12.0	8.0
030	2½	990	29,800	12.0	8.0
036	3	1225	36,800	12.0	8.0
042	3½	1400	41,500	12.0	8.0
048	4	1585	47,500	12.0	8.2
060	5	1995	60,000	11.0	8.2

### LEGEND

Bels — Sound Levels (1 bel = 10 decibels)  
 db — dry bulb  
 DOE — Department of Energy  
 SEER — Seasonal Energy Efficiency Ratio  
 wb — wet bulb

\* Air Conditioning and Refrigeration Institute  
 † Rated in accordance with U.S. Government DOE test procedures and/or ARI Standard 210/240-89  
 †† All single phase units have factory installed time delay relay.

†† Rated in accordance with ARI Standard 270-89.  
 † The SEER for unit size 048, 460 v is 11.3.

**NOTE:** Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on 80 F db, 67 F wb evaporator entering-air temperature and 95 F db condenser entering-air temperature.



## HEATING CAPACITIES AND EFFICIENCIES

UNIT 589A	HEATING INPUT (Btuh)	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE RANGE (°F)	AFUE (%)	CSE (%)
024040 030040	40,000	32,800	20-50	81.0	76.5
024060 030060 036060 042060	56,000	45,400	25-55	81.0	77.5
030080 036080 042080 048080 060080	80,000	64,800	40-70	81.0	77.5
036100 042100 048100 060100	95,000	77,000	50-80	81.0	78.0
036120 042120 048120 060120	120,000	97,200	60-90	80.0	77.5
048140 060140	136,000	110,160	50-80	80.0	77.9

### LEGEND

AFUE — Annual Fuel Utilization Efficiency  
 CSE — California Seasonal Efficiency

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



## FACTORY-INSTALLED ACCESSORY DESCRIPTION AND USAGE

**Unit With Base Rail** — Unit has rigging holes and an elevated mounting frame.

### SUGGESTED USE:

- Rigging holes to provide greater ease in handling. Frame provides elevation and structural support for horizontal applications.

**Downflow Option** — Unit is shipped from factory configured for downflow (vertical discharge) application. Unit is equipped with base rail.

### SUGGESTED USE:

- To provide easy vertical ductwork connections.

## FIELD-INSTALLED ACCESSORY DESCRIPTION AND USAGE

**Flat Roof Curb** — Consists of galvanized steel support frame in 8-, 11-, and 14-in. high designs. Provides wood nailer to attach roof counter flashing. Insulated basepans in curbs are provided to prevent condensation. Ductwork attaches to rails provided in the roof curb. A gasket is provided to form an airtight and watertight seal between unit and curb. The roof curb design meets the standards of the NRCA (National Roofing Contractors' Association).

### SUGGESTED USE:

- Slab mounted applications when elevation of the unit above the slab is necessary.
- Rooftop application for downflow discharge.
- Curbs are preassembled and are available for flat or pitched roofs.

**Pitched Roof Curb** — Provided in ratios of 1, 2, 3, 4, 5, and 6 to 12 for use on pitched roof applications.

### SUGGESTED USE:

- When a roof curb is needed on a pitched roof.

**Two-Position Damper** — Package consists of a low-leak damper assembly which allows outdoor air into the unit when the evaporator fan is energized. When the evaporator fan is off, the damper will be closed.

### SUGGESTED USE:

- Allows a fixed percentage of outdoor air any time the evaporator fan is on. Damper closes when evaporator fan is off to prevent cold back draft and wasted energy.

**Thermostat and Subbase** — These accessories provide cooling control for unit. Autochangeover and manual changeover types are available.

### SUGGESTED USE:

- To operate and control unit, and to maintain desired building temperature.

**The 0° F Low Ambient Kit (Weatherprobe™ II Device)** — Kit permits operation down to 0° F.

### SUGGESTED USE:

- When mechanical cooling is required when outdoor-air temperature is between 40° F and 0° F.

**Natural-to-Propane Conversion Kit** — Kit consists of gas orifices and other hardware required to convert the unit for use with LP (liquid propane) gas.

### SUGGESTED USE:

- When natural gas cannot be obtained and liquid propane is used as fuel.

**Manual Outdoor-Air Damper** — Package consists of manually adjustable damper and includes a rainhead and birdscreen.

### SUGGESTED USE:

- To allow outdoor air for ventilation under all conditions.
- Damper may be used on either downflow or horizontal airflow applications.

**Flexible Duct Kit** — Consists of 2 flexible UL-listed (Underwriters' Laboratories) ducts. The duct construction includes vapor barrier and 1-in. fiberglass insulation. The "K" factor is 0.23. Each duct has a square-to-round snap adapter for attachment to the accessory roof curb on one end, and a round clamp collar for attachment to the concentric diffuser box on the other end.

### SUGGESTED USE:

- For use with accessory roof curb and concentric box to provide an easily-installed concentric system.

**Concentric Diffuser Box** — Is aerodynamically designed and equipped with a combination 4-way supply and a center return diffuser. A special core is provided within the diffuser box to provide even 4-way distribution.

### SUGGESTED USE:

- For use with accessory roof curb and concentric box to provide an easily-installed concentric system.

**Solid-State Comprotec® Device** — Package consists of a control to be field-wired into the unit controls, and provides a 5-minute delay in compressor operation between cooling cycles.

### SUGGESTED USE:

- Prevents compressor short cycling when rapid compressor cycles may be a problem.

**Filter Rack** — Allows for mounting 1-in. filters inside unit. The filter rack simplifies installation and servicing.

### SUGGESTED USE:

- For use on downflow applications.

**Square-To-Round Transition** — Enables the building's round ductwork to be attached to the unit's square ductwork.

**Lifting Bracket Kit** — Provides attachment point for rigging straps.

### SUGGESTED USE:

- When unit needs to be lifted or moved. Kit is not required when unit is equipped with optional base rail or downflow application.

**High- and Low-Pressure Switch Kits** — Protect the unit from running at unsuitable pressures.

### SUGGESTED USE:

- Provides additional safety features when needed.

**Downshot-to-Sideshot Conversion Kit** — Kit consists of downflow (vertical) duct covers, blower mounting bracket, and blower support bracket.

### SUGGESTED USE:

- Converts a dedicated downflow discharge unit to a sideshot (horizontal) discharge unit.