

**CITY OF SACRAMENTO**  
1231 I Street, Sacramento, CA 95814

**Permit No: 0105255**  
**Insp Area: 1**

**Site Address: 2306 J ST SAC**  
Parcel No: 007-0095-003

Sub-Type: COM  
Housing (Y/N): N

**CONTRACTOR**  
BEUTLER HEATING AND AIR  
9608 OATES DR  
SAC CA

**OWNER**  
KARAS MIKE/ANTHI  
641  
SACRAMENTO CA 95825

**ARCHITECT**

**Nature of Work: CHANGE OUT TWO HVAC ROOF TOP UNITS--SAME FOR SAME**

**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 C License Number 16125 Date 4-27-01 Contractor Signature Man A. Christy

**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: CITY OF SACRAMENTO  
Date \_\_\_\_\_ Owner Signature APR 27 2001

**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 4-27-01 Applicant/Agent Signature Man A. Christy

**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 U. S. FIRE INSURANCE CO Policy Number 406027862 Exp Date 04/01/2002

(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 4-27-01 Applicant Signature Man A. Christy

**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.**

## APPLICATION FOR COMMERCIAL BUILDING PERMIT

**CITY OF SACRAMENTO**  
 DEVELOPMENT SERVICES DIVISION  
 PERMIT SERVICES SECTION  
 1231 I Street, Rm. 200  
 Sacramento, CA 95814 (916) 264-7619 FAX 264-7046

ACTIVITY # <span style="font-size: 1.5em; font-family: cursive;">0105255</span>	Insp. Area
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Applicant **MUST** complete ALL Unshaded areas

ADDRESS 2306 J Street Suite \_\_\_\_\_  
 PARCEL # 0070095003

**CONTACT**

Name Marc A. Charly  
 Street Address PO Box 515015  
 City/State/Zip Sacramento, CA 95851  
 Phone (916) 646-2222 FAX 646-2263  
 E-mail: \_\_\_\_\_

**LICENSED CONTRACTOR** Lic No. # 162634

Name Beutler Heating & Air  
 Address P.O. Box 515015  
 City/State/Zip Sacramento, CA 95851  
 Phone 646-2222 FAX 646-2263  
 E-mail: \_\_\_\_\_

**ARCHITECT/ENGINEER**

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City/State/Zip \_\_\_\_\_  
 Phone \_\_\_\_\_ FAX \_\_\_\_\_  
 E-mail: \_\_\_\_\_

**OWNER**

Name Mike Karas  
 Address 2306 J Street  
 City/State/Zip Sacramento, CA 95816  
 Phone 487-5050 FAX \_\_\_\_\_  
 E-mail: \_\_\_\_\_

→ Will permittee have any employees on the jobsite?  No  Yes → INSURANCE CO: United States Fire Ins Co  
 → WORKER'S COMPENSATION POLICY # 406027862 EXPIRATION DATE: 4/01/02

NATURE OF WORK IN DETAIL: HVAC Change out

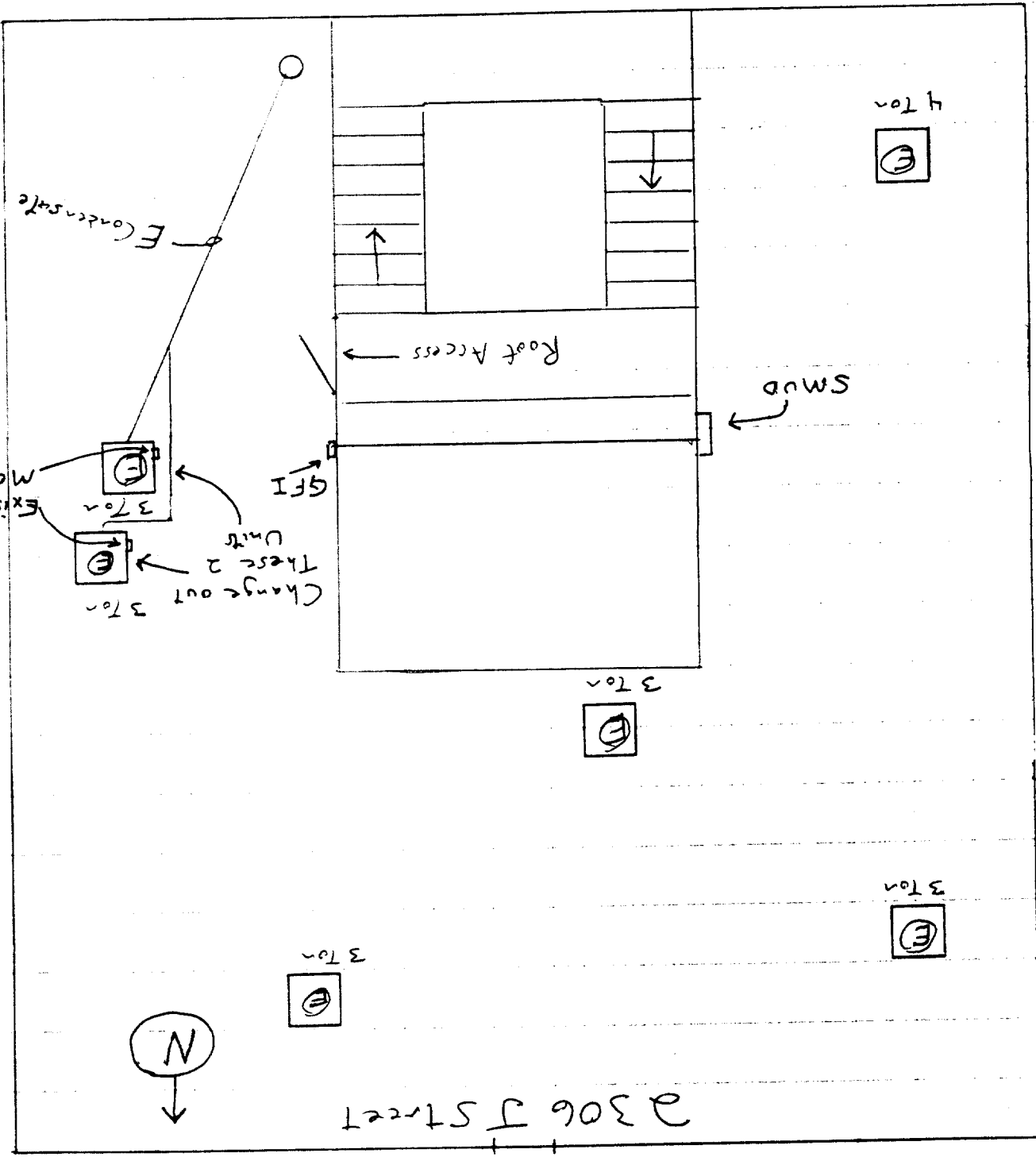
OCCUPANT/TENANT: Office Building VALUATION: \$ 6820

<b>FLOOD STATUS:</b>				<b>S.C.A.T.</b>						
<b>JOB DESCRIPTION</b>		<b>BLDG</b>	<b>SHELL</b>	<b>APT</b>	<b>TI( )</b>	<b>REM( )</b>	<b>SW</b>	<b>FIRE</b>	<b>ADD</b>	<b>OTH</b>
<b>INSPECTION DISCIPLINES</b>			<b>BLDG</b>	<b>MECH</b>	<b>PLUMB</b>	<b>ELEC</b>		<b>SITE</b>	<b>FIRE</b>	
# Stories	1st flr Area.	Total Area	Use Zone	Occp Group	Const type	<b>Fire Req. Y / N</b>		Fed Code	<b>Vio. File</b>	
						SPR	ALARM		[H]	[Quad]
B	L	P	M	E	F	S		D	PW	UTIL

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

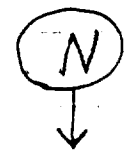
REGIONAL SANITATION FEES?  Yes  No HEALTH DEPARTMENT?  Yes  No  
 WATER FLOW TEST FOR NEW BUILDINGS OR ADDITIONS?  Provided  Faxed

23rd Street



2306 J Street

J Street

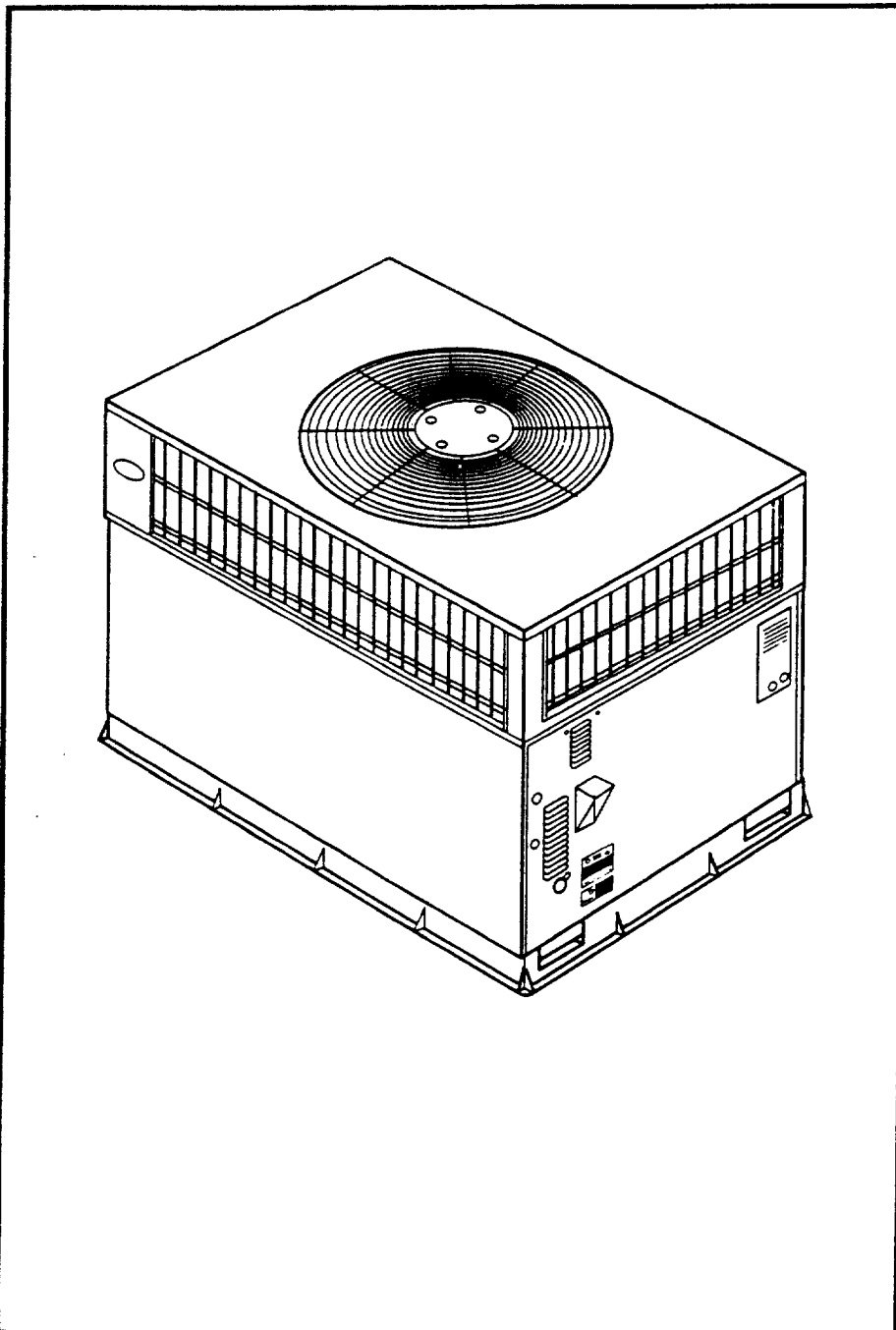




## Product Data

# 48GS/48GSN Single-Package Gas Heating/Electric Cooling Units

1 1/2 to 5 Nominal Tons



Single-Package Rooftop Products with Energy-Saving Features.

- Direct Spark Ignition
- Low Sound Levels
- AFUE ratings up to 81.1%
- 10 SEER

### Available Options

One-piece heating and cooling units with low sound levels, easy installation, maintenance, and dependable performance.

#### Easy Installation

Factory-assembled package is a compact, fully self-contained, combination gas heating/electric cooling unit that is pre-wired, pre-piped, and pre-charged for minimum installation expense.

The 48GS units are available in a variety of standard and optional heating/cooling size combinations with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite base pan eliminates rust problems associated with ground level applications.

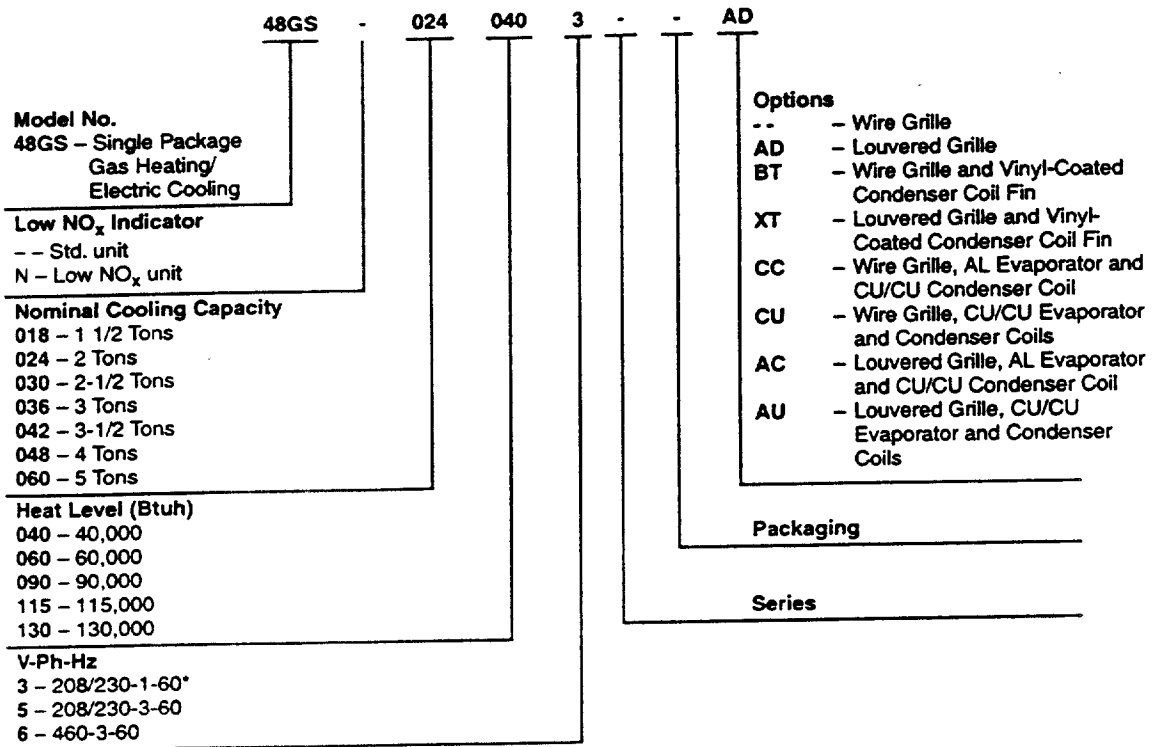
#### Convertible duct configuration

Unit is designed for easy use in either downflow or horizontal applications. Each unit is easily converted from horizontal to downflow with addition of two accessory duct covers.

#### Efficient operation

High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of 10.0 and AFUE (Annual Fuel Utilization Efficiency) ratings as high as 81.1%.

# Model number nomenclature



## LEGEND

AL - Aluminum  
CU - Copper

\*The 048 unit is 208-230/1/60. Minimum voltage of 197 at maximum load conditions.

# ARI\* capacities

## COOLING CAPACITIES AND EFFICIENCIES

UNIT 48GS	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITIES (Btuh)	SEER†	SOUND RATINGS‡ (Bels)
018040	1-1/2	600	18,000	10.0	7.5
024040 024060	2	800	24,600	10.0	7.5
030040 030060	2-1/2	1000	28,800	10.0	7.5
<del>036040</del> <del>036060</del>	<del>3</del>	<del>1200</del>	<del>34,400</del>	<del>10.0</del>	<del>8.0</del>
042060 042090	3-1/2	1400	42,000	10.0	8.0
048090 048115 048130	4	1600	46,500	10.0	8.0
060090 060115 060130	5	2000	60,000	10.0	8.0

## LEGEND

Bels - Sound Levels (1 bel = 10 decibels)  
db - Dry Bulb  
SEER - Seasonal Energy Efficiency Ratio  
wb - Wet Bulb

\* Air Conditioning & Refrigeration Institute.

† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or ARI Standard 210-89.

‡ Tested in accordance with ARI Standard 270-89 (not listed in ARI).

## NOTES:

1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:  
**Cooling Standard:** 80°F db, 67°F wb indoor entering-air temperature and 95°F db outdoor entering-air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

# ARI capacities (cont)

## HEATING CAPACITIES AND EFFICIENCIES

UNIT 48GS	HEATING INPUT (Btuh)	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE RANGE (°F)	AFUE (%)
018040	40,000	31,000	20-50	79.9
024040		31,000		80.1
030040		31,000		80.1
024060	60,000	46,000	35-65	78.4
030060		46,000	35-65	78.4
<del>030060</del>		46,000	25-55	78.7
042060		47,000	25-55	78.7
036090	90,000	71,000	40-70	79.9
042090		71,000		79.9
049090		70,000		78.6
060090		70,000		78.6
048115	115,000	92,000	50-80	81.1
060115				
048130	130,000	104,000	50-80	80.3
060130		103,000		

### LEGEND

AFUE — Annual Fuel Utilization Efficiency

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



# Physical data

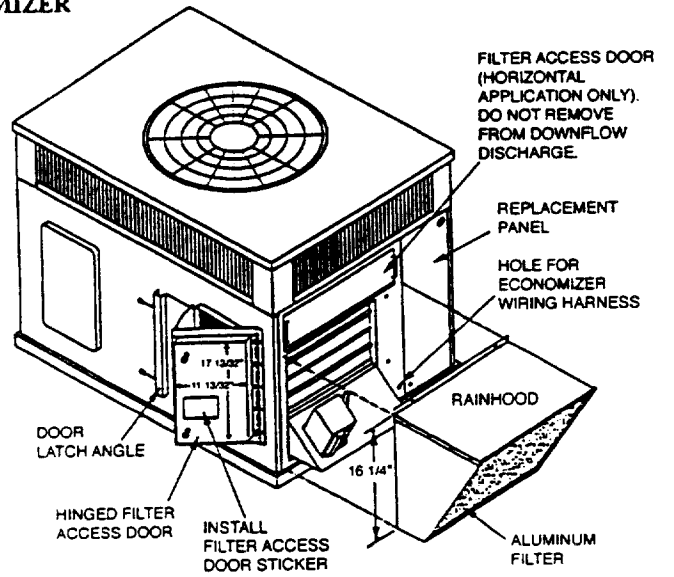
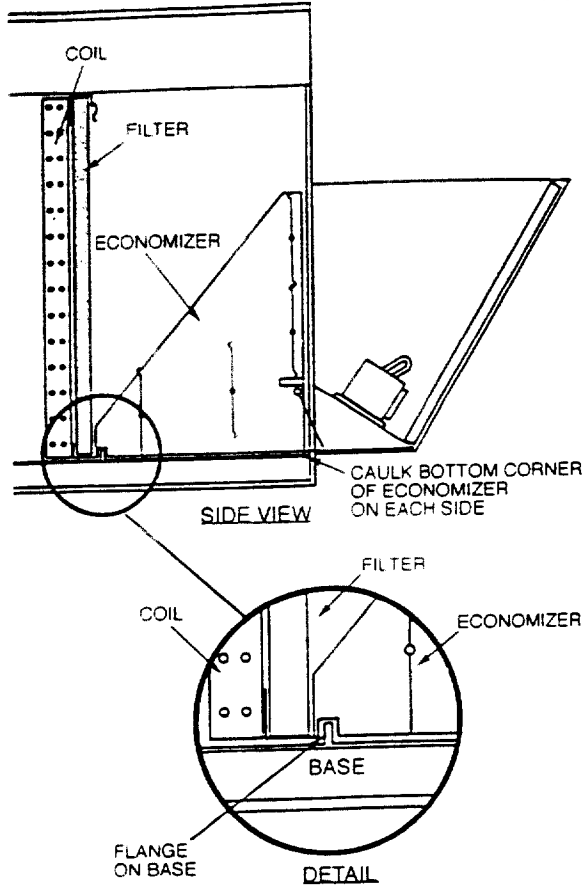
UNIT SIZE 48GS	018040	024040	024060	030040	030060	<del>030080</del>	036090	042060	042090
NOMINAL CAPACITY (ton)	1-1/2	2	2	2-1/2	2-1/2	<del>3</del>	3	3-1/2	3-1/2
OPERATING WEIGHT (lb)	249	280	280	280	280	<del>314</del>	314	355	355
COMPRESSORS Quantity	Reciprocating 1								
REFRIGERANT (R-22) Quantity (lb)	2.6	3.5	3.5	3.65	3.65	<del>3.75</del>	3.75	5.7	5.7
REFRIGERANT METERING DEVICE Orifice ID (in.)	Acutrol™ Device								
	.034	.034	.034	.034	.034	<del>.032</del>	.032	.034	.034
CONDENSER COIL Rows—Fins/in. Face Area (sq ft)	1—17 6.1	1—17 9.1	1—17 9.1	1—17 9.1	1—17 9.1	1—17 <del>9.1</del>	1—17 9.1	1—17 9.1	1—17 9.1
CONDENSER FAN Nominal Cfm Diameter (in.) Motor Hp (Rpm)	2000 22 1/8 (825)	2400 22 1/8 (825)	2400 22 1/8 (825)	2400 22 1/8 (825)	2400 22 1/8 (825)	3000 22 1/4 (1100)	3000 22 1/4 (1100)	3000 22 1/4 (1100)	3000 22 1/4 (1100)
EVAPORATOR COIL Rows—fins/in. Face Area (sq ft)	2—15 3.1	2—15 3.1	2—15 3.1	2—15 3.7	2—15 2.29	3—15 <del>3.06</del>	3—15 3.06	4—15 3.06	4—15 3.06
EVAPORATOR BLOWER Nominal Airflow (Cfm) Size (in.) Motor (Hp)	600 10 x 10 1/4	800 10 x 10 1/4	800 10 x 10 1/4	1000 10 x 10 1/4	1000 10 x 10 1/4	1200 11 x 10 1/2	1200 11 x 10 1/2	1400 11 x 10 3/4	1400 11 x 10 3/4
FURNACE SECTION* Burner Orifice No. (Qty—Drill Size) Natural Gas Burner Orifice No. (Qty—Drill Size) Propane Gas	2—44  2—52	2—44  2—52	2—38  2—46	2—44  2—52	2—38  2—46	2—38  2—46	3—38  3—46	2—38  2—46	3—38  3—46
RETURN-AIR FILTERS (in.)† Throwaway Size	20 x 20 x 1	20 x 20 x 1	20 x 20 x 1	20 x 20 x 1	20 x 20 x 1	<del>20 x 24 x 1</del>	20 x 24 x 1	20 x 24 x 1	20 x 24 x 1

UNIT SIZE 48GS	048090	048115	048130	060090	060115	060130
NOMINAL CAPACITY (ton)	4	4	4	5	5	5
OPERATING WEIGHT (lb)	415	415	415	450	450	450
COMPRESSORS Quantity	Scroll 1			Reciprocating 1		
REFRIGERANT (R-22) Quantity (lb)	6.0	6.0	6.0	8.0	8.0	8.0
REFRIGERANT METERING DEVICE Orifice ID (in.)	Acutrol™ Device					
	.032	.032	.032	.030	.030	.030
CONDENSER COIL Rows—Fins/in. Face Area (sq ft)	1—17 12.3	1—17 12.3	1—17 12.3	2—17 12.3	2—17 12.3	2—17 12.3
CONDENSER FAN Nominal Cfm Diameter (in.) Motor Hp (Rpm)	3600 22 1/4 (1100)	3600 22 1/4 (1100)	3600 22 1/4 (1100)	3600 22 1/4 (1100)	3600 22 1/4 (1100)	3600 22 1/4 (1100)
EVAPORATOR COIL Rows—fins/in. Face Area (sq ft)	3—15 4.7	3—15 4.7	3—15 4.7	4—15 4.7	4—15 4.7	4—15 4.7
EVAPORATOR BLOWER Nominal Airflow (Cfm) Size (in.) Motor (Hp)	1600 11 x 10 3/4	1600 11 x 10 3/4	1600 11 x 10 3/4	2000 11 x 10 1.0	2000 11 x 10 1.0	2000 11 x 10 1.0
FURNACE SECTION* Burner Orifice No. (Qty—Drill Size) Natural Gas Burner Orifice No. (Qty—Drill Size) Propane Gas	3—38  3—46	3—33  3—42	3—31  3—41	3—38  3—46	3—33  3—42	3—31  3—41
RETURN-AIR FILTERS (in.)† Throwaway Size	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1

\* Based on altitude of 0 to 2000 feet.

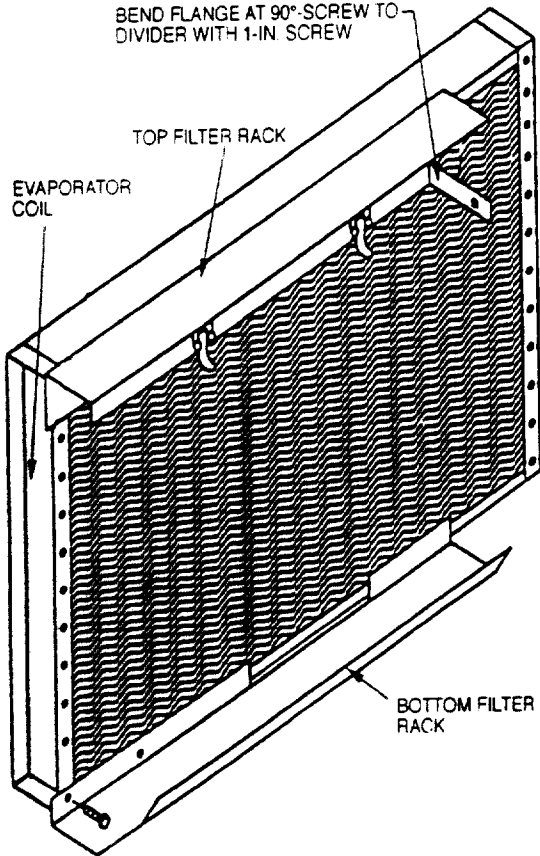
† Required filter sizes shown are based on the larger of the ARI (Air Conditioning and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/min for throwaway type or 450 ft/min for high-capacity type. Air filter pressure drop for non-standard filters must not exceed 0.08 in. wg.

### ECONOMIZER

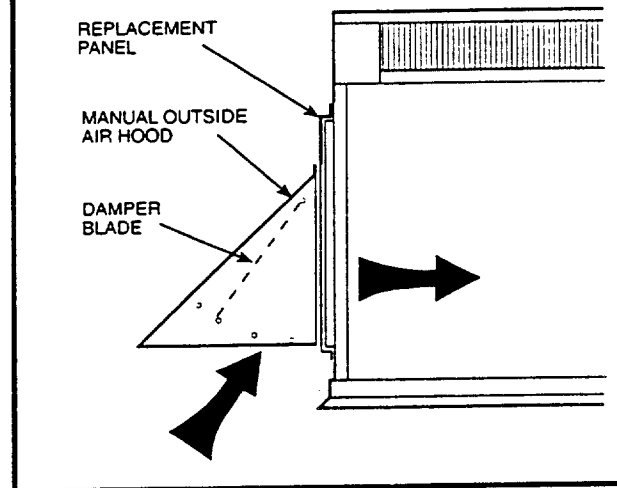


### FILTER RACK

BEND FLANGE AT 90°-SCREW TO DIVIDER WITH 1-IN SCREW

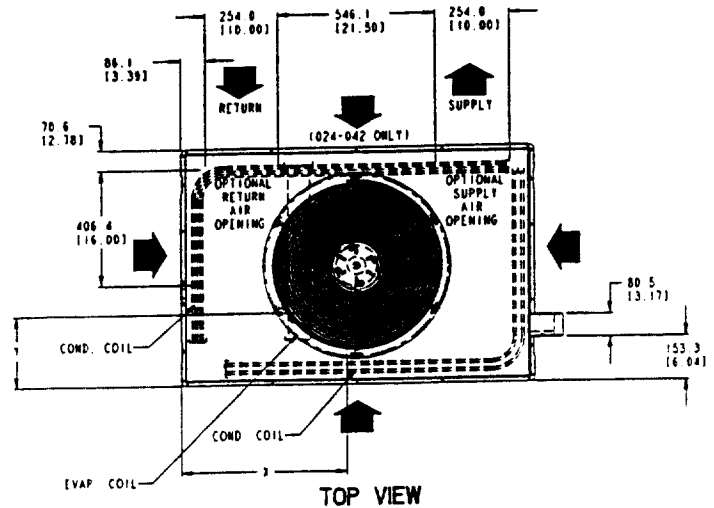
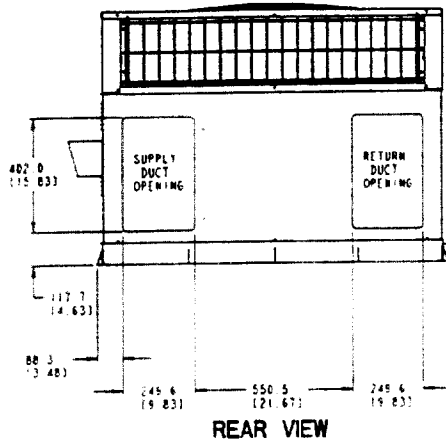


### MANUAL OUTSIDE AIR DAMPER





# Base unit dimensions — 48GS018-042



**REQ'D CLEARANCES FOR OPERATION AND SERVICING. in. (mm)**

Evaporator coil access side	36 (914)
Power entry side (except for NEC requirements)	36 (914)
Unit top	48 (1219)
Side opposite ducts	36 (914)
Duct panel	12 (304.8)

\*Minimum distances: If unit is placed less than 12 in. (304.8 mm) from wall system, then the system performance may be compromised.

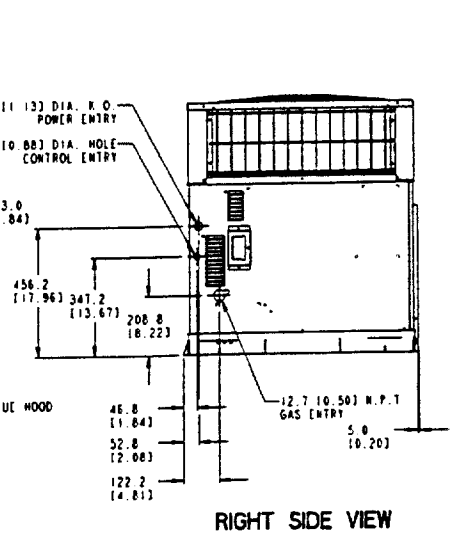
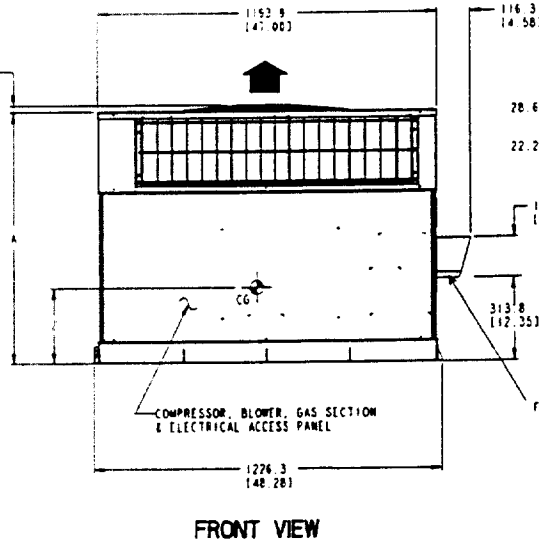
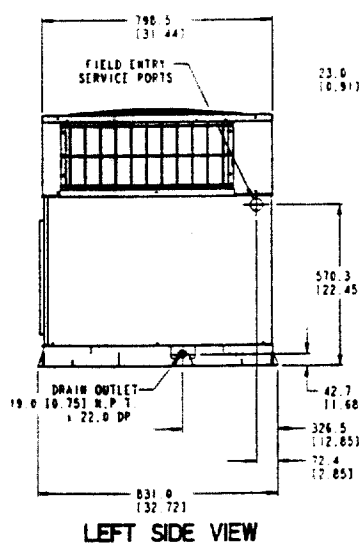
**REQ'D CLEARANCES TO COMBUSTIBLE MAT'L. in. (mm)**

Top of unit	14 (355.6)
Duct side of unit	2 (50.8)
Side opposite ducts	14 (355.6)
Bottom of unit	0.50 (12.7)
Flue panel	36 (914.4)

**NEC REQ'D CLEARANCES. in. (mm)**

Between units, power entry side	42 (1066.8)
Unit and ungrounded surfaces, power entry side	36 (914)
Unit and block or concrete walls and other grounded surfaces, control box side	42 (1066.8)

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WEIGHT		UNIT HEIGHT in. [mm] "A"	CENTER OF GRAVITY in. [mm]		
		lb	kg		X	Y	Z
48GS024040/060	208/230-1-60	290.0	131.8	35.02 [889.5]	22.0 [558.8]	14.5 [368.3]	16.0 [406.4]
48GS030040/060	208/230-1-60, 208/230-3-60	313.0	142.3	36.02 [911.1]	22.0 [558.8]	15.3 [387.4]	17.6 [447.0]
48GS036040/060	208/230-1-60, 208/230-3-60, 480-3-60	321.0	145.9	35.02 [889.5]	22.0 [558.8]	15.3 [387.4]	16.5 [419.1]

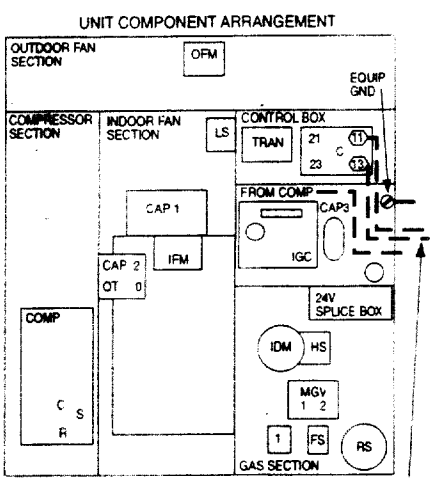
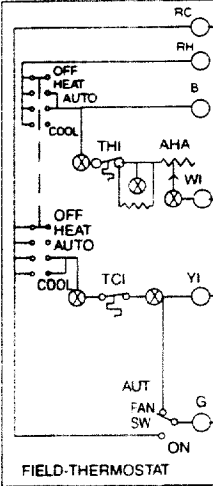
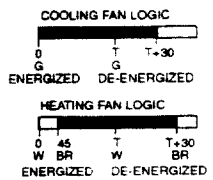
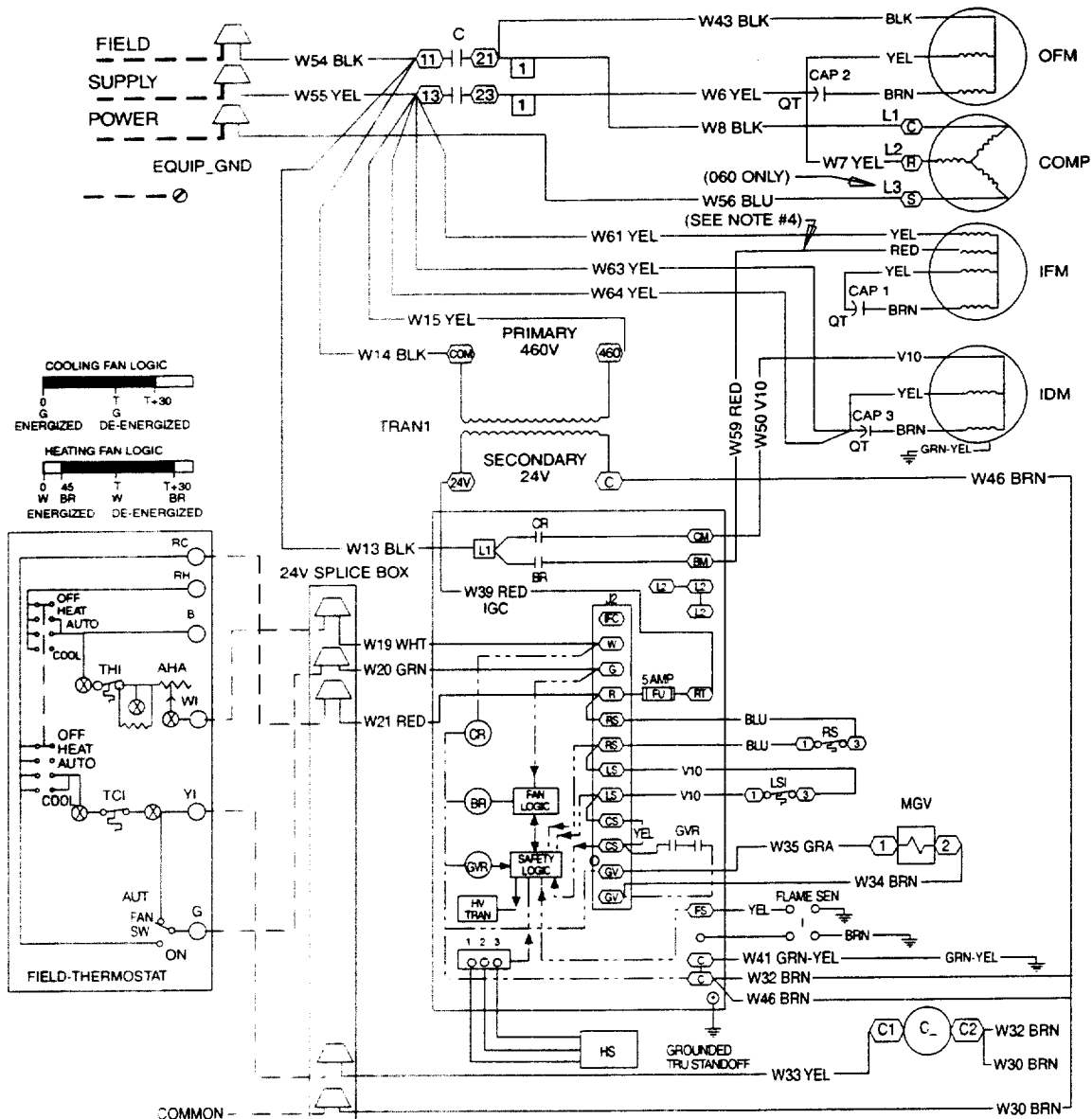


- LEGEND**
- CG — Center of Gravity
  - COND — Condenser
  - EVAP — Evaporator
  - NEC — National Electrical Code
  - REQ'D — Required

NOTE: Dimensions are in mm [in.]

# Typical wiring schematics, 48GS018-060 (cont)

460-3-60



## LEGEND

- |   |   |
|---|---|
| <p>AHA - Adjustable Heat Anticipator<br/>         BR - Blower Relay<br/>         C - Contactor<br/>         CAP - Capacitor<br/>         COMP - Compressor Motor<br/>         CR - Combustion Relay<br/>         CS - Centrifugal Switch<br/>         EQUIP - Equipment<br/>         FS - Fusible Link<br/>         FU - Fuse<br/>         GND - Ground<br/>         GV - Gas Valve<br/>         GVR - Gas Valve Relay<br/>         HS - Hall Effect Sensor<br/>         HV - High Voltage<br/>         I - Ignitor<br/>         IDM - Induced-Draft Motor<br/>         IFC - Indoor-Fan Contactor<br/>         IFM - Indoor-Fan Motor<br/>         IGC - Integrated Gas Unit Controller<br/>         L1 - Line<br/>         LS - Limit Switch<br/>         LS1 - Limit Switch<br/>         MG - Main Gas Valve</p> | <p>NEC - National Electrical Code<br/>         OFM - Outdoor-Fan Motor<br/>         QT - Quadruple Terminal<br/>         RS - Rollout Switch<br/>         SEN - Sensor<br/>         SW - Switch<br/>         TRAN - Transformer</p> |
| <p>Field Splice<br/>         Terminal (Marked)<br/>         Terminal (Unmarked)<br/>         Splice<br/>         Splice (Marked)<br/>         Factory Wiring<br/>         Field Control Wiring<br/>         Field Power Wiring<br/>         Accessory or Optional Wiring<br/>         To Indicate Common Potential Only, Not to Represent Wiring</p>  |   |

- NOTES:
1. If any of the original wires furnished are replaced, they must be replaced with type 90 degree C wire or its equivalent.
  2. See price pages for thermostat and subbases.
  3. Use 75 degree C copper conductors for field installation.
  4. For high speed IFM, disconnect RED wire from IGC terminal BM and connect BLK wire from IFM. For medium speed, disconnect RED wire from IGC terminal BM and connect BLU wire from IFM.

# Electrical data

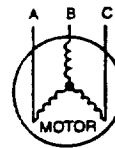
UNIT SIZE 48GS	V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		COND FAN MOTOR	EVAP FAN MOTOR	POWER SUPPLY	
		Min	Max	RLA	LRA	FLA	FLA	MCA	MOCP*
018	208/230-1-60	187	253	9.0	45.0	0.8	1.8	13.9	20
024	208/230-1-60	187	253	12.8	61.0	0.8	2.0	18.8	30
030	208/230-1-60	187	253	14.4	73.0	0.8	2.0	20.8	30
	208/230-3-60	187	253	8.3	68.0	0.8	2.0	13.2	20
036	208/230-1-60	187	253	15.1	81.0	1.6	3.6	24.1	35
	<del>208/230-3-60</del>	<del>187</del>	<del>253</del>	<del>10.9</del>	<del>78.0</del>	<del>1.6</del>	<del>3.6</del>	<del>18.8</del>	<del>25</del>
	460-3-60	414	506	5.8	40.0	0.9	1.9	10.1	15
042	208/230-1-60	187	253	18.6	105.0	1.6	3.8	28.9	45
	208/230-3-60	187	253	10.7	85.0	1.6	3.8	18.8	25
	460-3-60	414	506	5.3	42.0	0.9	2.0	9.5	15
048	208-230/1/60	197	253	25.3	131.0	1.6	3.8	37.0	60
	208/230-3-60	187	253	14.6	108.0	1.6	3.8	23.7	35
	460-3-60	414	506	7.3	47.5	0.9	2.0	12.0	15
060	208/230-1-60	187	253	28.9	147.0	1.6	6.2	43.9	60
	208/230-3-60	187	253	18.6	125.0	1.6	6.2	31.1	45
	460-3-60	414	506	8.5	66.5	0.9	3.2	14.7	20

### LEGEND

- FLA — Full Load Amps
- LRA — Locked Rotor Amps
- MCA — Minimum Circuit Amps
- MOCP — Maximum Overcurrent Protection
- RLA — Rated Load Amps



EXAMPLE: Supply voltage is 460-3-60.



- AB = 452 v
- BC = 464 v
- AC = 455 v

$$\begin{aligned} \text{Average Voltage} &= \frac{452 + 464 + 455}{3} \\ &= \frac{1371}{3} \\ &= 457 \end{aligned}$$

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.

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{7}{457} \\ &= 1.53\% \end{aligned}$$

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.

### NOTES:

1. In compliance with NEC (National Electrical Code) requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be Power Supply fuse. The CGA (Canadian Gas Association) units may be fuse or circuit breaker.
2. Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, or if length exceeds wire length in table, determine size from NEC.
3. 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 percentage of voltage imbalance.*

% Voltage imbalance

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