



Installation Instructions

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SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform the basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguishers available for all brazing operations.

▲ WARNING

Before performing service or maintenance operations on unit, turn off main power switch to unit. Electrical shock could cause personal injury.

▲ WARNING

1. Improper installation, adjustment, alteration, service, or maintenance can cause property damage, personal injury, or loss of life. Refer to the User's Information Manual provided with this unit for more details.
2. Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

What to do if you smell gas:

1. DO NOT try to light any appliance.
2. DO NOT touch any electrical switch, or use any phone in your building.
3. IMMEDIATELY call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
4. If you cannot reach your gas supplier, call the fire department.

▲ WARNING

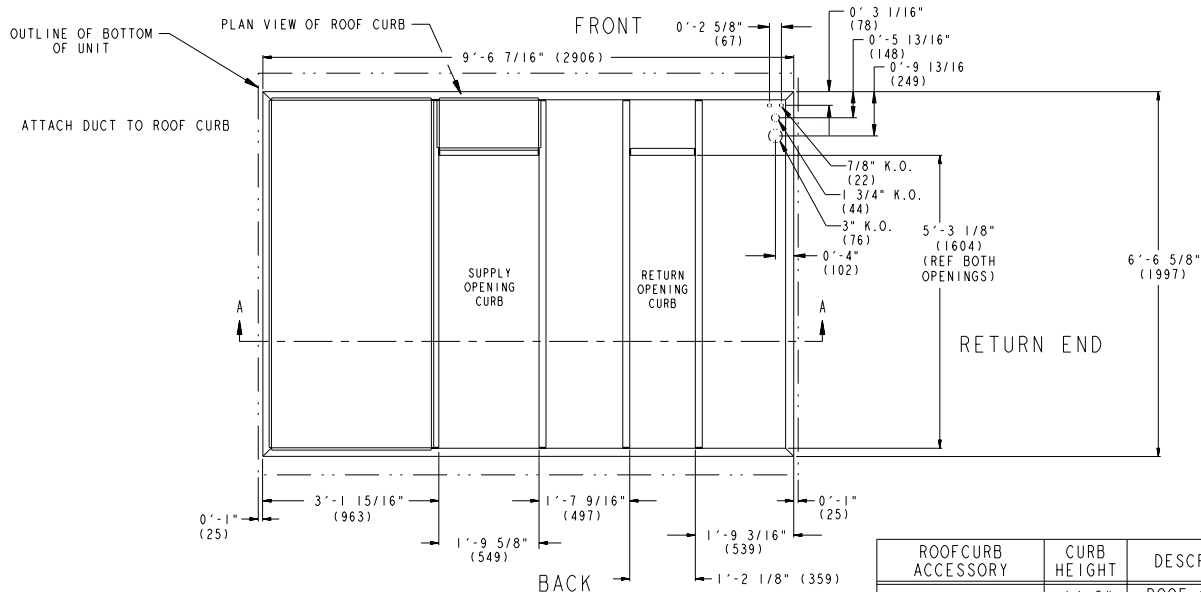
Disconnect gas piping from unit when pressure testing at pressure greater than 0.5 psig. Pressures greater than 0.5 psig will cause gas valve damage resulting in hazardous condition. If gas valve is subjected to pressure greater than 0.5 psig, it *must* be replaced before use. When pressure testing field-supplied gas piping at pressures of 0.5 psig or less, a unit connected to such piping must be isolated by closing the manual gas valve(s).

IMPORTANT: Units have high ambient operating limits. If limits are exceeded, the units will automatically lock the compressor out of operation. Manual reset will be required to restart the compressor.

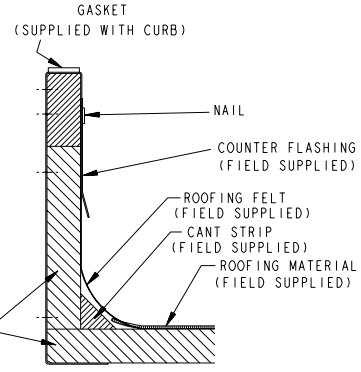
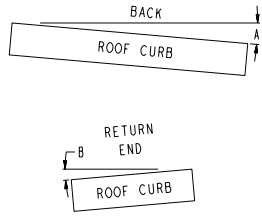
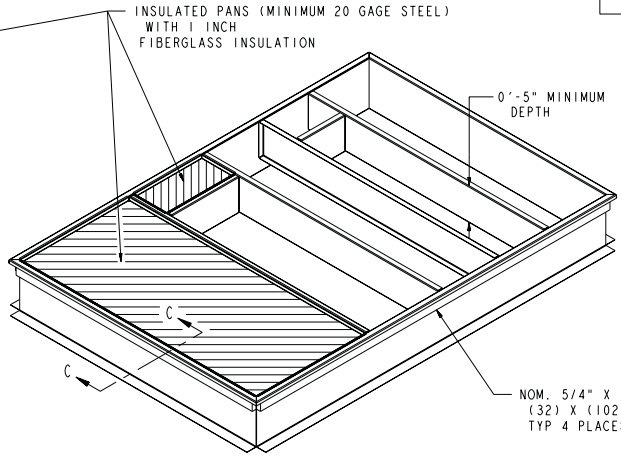
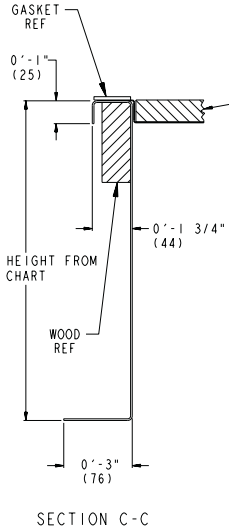
INSTALLATION

Step 1 — Provide Unit Support

ROOF CURB — Assemble or install accessory roof curb in accordance with instructions shipped with this accessory. See Fig. 1. Install insulation, cant strips, roofing, and counter flashing as shown. Ductwork can be installed to roof curb before unit is set in place. Curb must be level. This is necessary to permit unit drain to function properly. Unit leveling tolerance is $\pm 1/16$ in. per linear ft in any direction. Refer to Accessory Roof Curb Installation Instructions for additional information as required. When accessory roof curb is used, unit may be installed on class A, B, or C roof covering material.

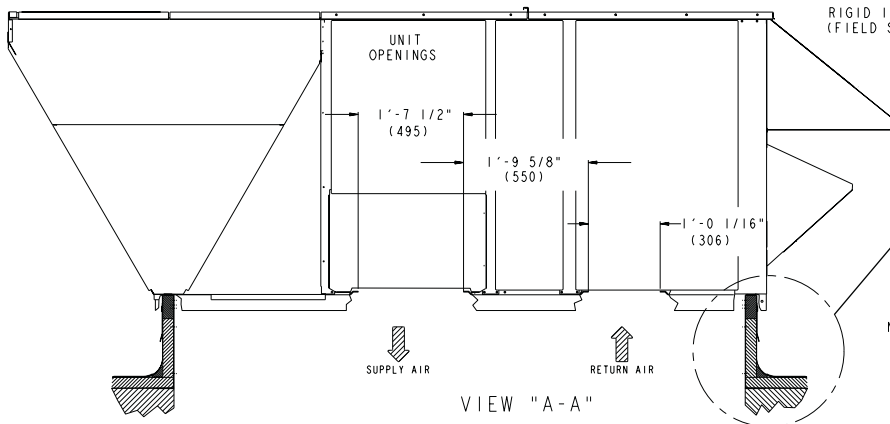


ROOFCURB ACCESSORY	CURB HEIGHT	DESCRIPTION
CRRFCURB018B00	1'-2" [356]	ROOF CURB 14" HIGH
CRRFCURB019B00	2'-0" [610]	ROOF CURB 24" HIGH



MAX CURB LEVELING TOLERANCES:

UNIT	A		B	
	DEG.	IN.	DEG.	IN.
ALL	.28	.57	.28	.42



- NOTES:
1. ROOFCURB ACCESSORY IS SHIPPED DISASSEMBLED.
 2. DIMENSIONS IN () ARE IN MILLIMETERS.
 3. DIRECTION OF AIRFLOW.
 4. ROOF CURB: 16 GA. (VA03-56) STEEL.
 5. TO PREVENT THE HAZARD OF STAGNANT WATER BUILD-UP IN THE UNIT DO NOT EXCEED CURB LEVELING TOLERANCES.
 6. CLEARANCE BETWEEN UNIT BASE RAIL AND CURB FLANGE IS 1/4-IN. (6 MM) ON EACH SIDE.

Fig. 1 — Roof Curb Details

IMPORTANT: The gasketing of the unit to the roof curb is critical for a watertight seal. Install gasket with the roof curb as shown in Fig. 1. Improperly applied gasket can also result in air leaks and poor unit performance.

ALTERNATE UNIT SUPPORT — When a curb cannot be used, install unit on a noncombustible surface. Support unit with sleepers, using unit curb support area. If sleepers cannot be used, support long sides of unit with a minimum of 3 equally spaced 4-in. x 4-in. pads on each side.

Step 2 — Remove Shipping Rails — Remove shipping rails prior to lowering unit onto roof curb. See Fig. 2. The rails are attached to the unit at both the return end and condenser end. Remove the screws from both ends of each rail. Be careful not to drop the rails onto any surface that could be damaged. Discard the rails. It is important to replace the screws into the unit to avoid any air or water leakage.

▲ CAUTION

Do not allow the shipping rail to drop on the roof surface. Damage to the roof surface may result.

Step 3 — Rig and Place Unit — Inspect unit for transportation damage. See Table 1 for physical data. File any claim with transportation agency.

▲ CAUTION

All panels must be in place when rigging. Unit is not designed for handling by fork truck. Damage to unit may result.

Do not drop unit; keep upright. Use spreader bars over unit to prevent sling or cable damage. Rollers may be used to move unit across a roof. Level by using unit frame as a reference; leveling tolerance is $\pm 1/16$ in. per linear ft in any direction. See Fig. 3 for additional information. Unit rigging weight is shown in Fig. 3.

Four lifting holes are provided in the unit base rails as shown in Fig. 3. Refer to rigging instructions on unit.

POSITIONING — Maintain clearance, per Fig. 4, around and above unit to provide minimum distance from combustible materials, proper airflow, and service access.

Do not install unit in an indoor location. Do not locate air inlets near exhaust vents or other sources of contaminated air. For proper unit operation, adequate combustion and ventilation air must be provided in accordance with Section 5.3 (Air for Combustion and Ventilation) of the National Fuel Gas Code, ANSI Z223.1 (American National Standards Institute).

Although unit is weatherproof, guard against water from higher level runoff and overhangs.

Locate mechanical draft system flue assembly at least 4 ft from any opening through which combustion products could enter the building, and at least 4 ft from any adjacent building. When unit is located adjacent to public walkways, flue assembly must be at least 7 ft above grade.

ROOF MOUNT — Check building codes for weight distribution requirements. Unit operating weight is shown in Table 1.

INSTALLATION ONTO CURB — The 48HG units are designed to fit on either the accessory full perimeter curb or onto existing 48/50TJ,HJ or 48/50DP,DR curbs. In either case, correct placement of the unit onto the curb is critical to operating performance. To aid in correct positioning, $3/8$ -in. diameter locating holes have been added to the unit base rails. When placing the unit, these holes should line up with the roof curb edge as shown in Fig. 5 and 6, to assure proper duct opening alignment. Select the alignment holes suited for the curb being used. For installation on the HJ,TJ,DP,DR curb use the alignment holes located approximately 20-in. from the end of the base rail on the return end of the unit. For placement on the HG curb, use the alignment holes located approximately 2-in. from the end of the base rail on the return end of the unit. See labels on the side of the unit for more details.

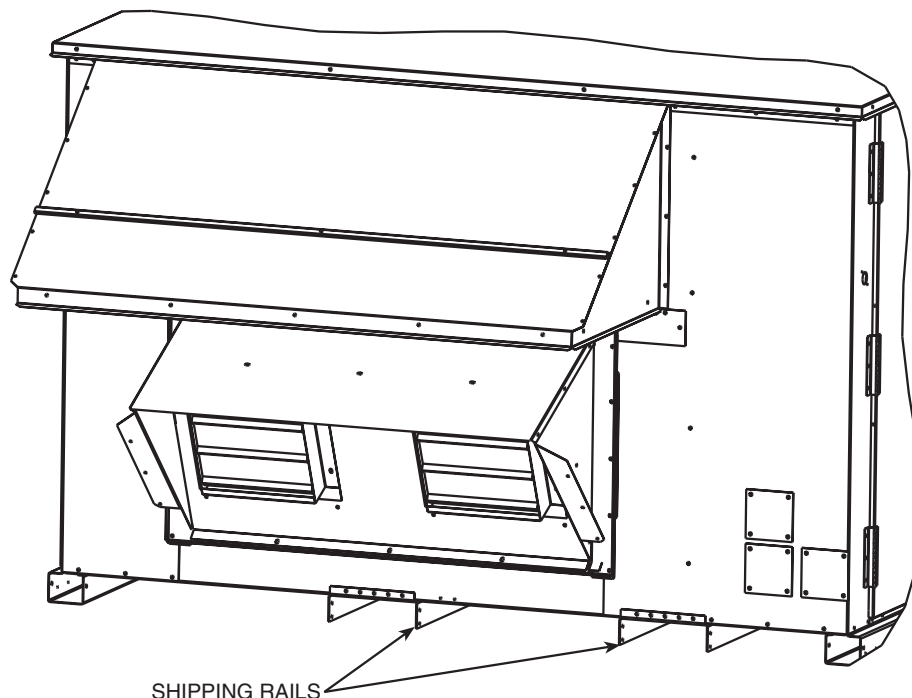


Fig. 2 — Shipping Rail Removal

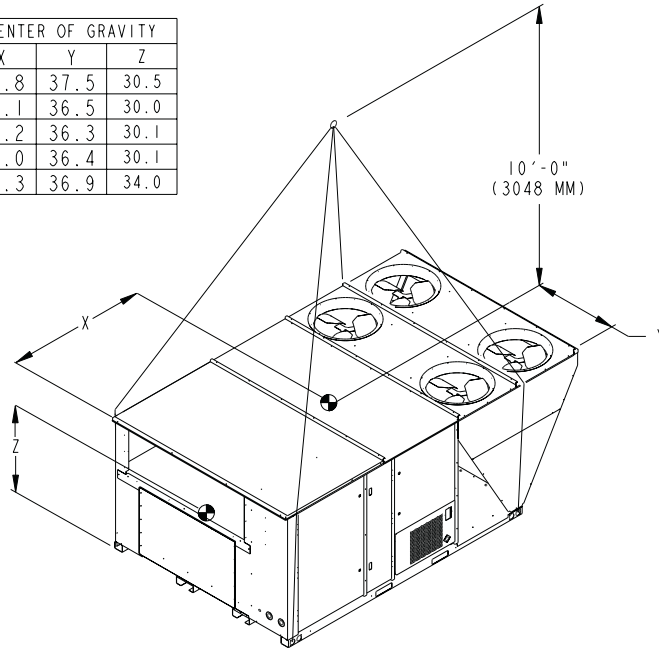


CAUTION - NOTICE TO RIGGERS:

ALL PANELS MUST BE IN PLACE WHEN RIGGING.

NOTICE TO RIGGERS: Rig by inserting hooks into unit base rails as shown. Maintain a distance of 120 inches (3048 MM) from top of unit to eyehook. Leave coil cover attached to unit while rigging to protect coil of unit from damage.

48/50 UNIT SIZE	MAX WEIGHT	CENTER OF GRAVITY		
		X	Y	Z
HG014	2792	61.8	37.5	30.5
HG016	2915	61.1	36.5	30.0
HG020	2943	61.2	36.3	30.1
HG024	2991	61.0	36.4	30.1
HG028	3211	65.3	36.9	34.0

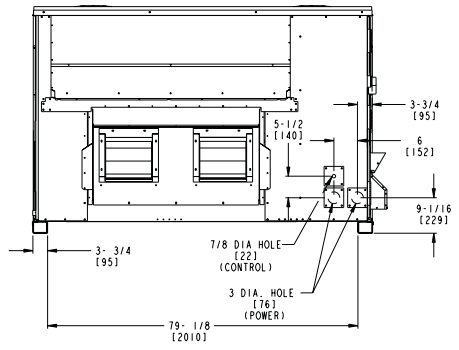


NOTE:
Add 150lb (68kg) for domestic crating.

NOTE:
SEE LABEL FOR UNIT
LOCATION ON ROOF CURB

50TG500606 -

Fig. 3 — Rigging Details



UNIT SIZE	OPERATING WEIGHT LOW GAS (48HGD) LB [KG]	UNIT HEIGHT W IN [MM]	CENTER OF GRAVITY LOCATION			CORNER WEIGHT LB [KG]			
			X IN [MM]	Y IN [MM]	Z IN [MM]	A	B	C	D
HG028	2526 [1146]	70-1/8 [1781]	[1727]	[1876]	[876]	[300]	[390]	[198]	[260]

UNIT SIZE	OPERATING WEIGHT LOW GAS (48HGD) LB [KG]	UNIT HEIGHT W IN [MM]	CENTER OF GRAVITY LOCATION			CORNER WEIGHT LB [KG]			
			X IN [MM]	Y IN [MM]	Z IN [MM]	A	B	C	D
HG014	2102 [953]	58-1/8 [1476]	65-1/2 [1664]	35 [889]	30 [762]	549 [249]	703 [319]	373 [169]	477 [216]
HG016	2196 [996]	58-1/8 [1476]	64 [1626]	34 [864]	29-1/2 [749]	599 [272]	737 [334]	386 [175]	474 [215]
HG020	2224 [1008]	58-1/8 [1476]	64-1/2 [1636]	33-1/2 [851]	30 [762]	610 [277]	751 [341]	387 [176]	476 [216]
HG024	2272 [1030]	58-1/8 [1476]	64 [1626]	34 [864]	30 [762]	625 [283]	760 [345]	400 [181]	487 [221]

- NOTES:
- WEIGHTS SHOWN ARE FOR 48H (LOW HEAT) UNIT WITH MANUAL 25% OUTDOOR AIR OPTION, ALUMINUM COILS, AND STANDARD DRIVE. FOR WEIGHTS OF OPTIONAL EQUIPMENT CONSULT PRODUCT DATA BOOK.
 - DO NOT LOCATE ADJACENT UNITS WITH FLUE DISCHARGE FACING ECONOMIZER INLET. MIN. CLEARANCES TO BE: ADJACENT UNITS: 15'-0" [4572]. RIGHT SIDE: 6'-0" [1830] FOR PROPER CONDENSER AIR FLOW; 4'-0" [1219] TO COMBUSTIBLE SURFACES. ALL FOUR SIDES (INCLUDES BETWEEN UNITS). LEFT SIDE: 10'-0" [3048] FOR PROPER ECONOMIZER AIR FLOW. FRONT SIDE: 8'-0" [2438] FOR SERVICE ACCESS AND COIL REMOVAL. REAR SIDE: 6'-6" [1981] FOR ECONOMIZER REMOVAL AND PROPER CONDENSER AIR FLOW. TOP: 6'-0" [1829] TO ASSURE PROPER CONDENSER FAN OPERATION. BOTTOM: 14" [356] TO COMBUSTIBLE SURFACES (WHEN NOT USING CURB).
 - FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
 - DOWN SHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB ONLY. IF UNIT IS MOUNTED SIDE SUPPLY, IT IS RECOMMENDED THE DUCTS MUST BE SUPPORTED BY CROSS BRACES AS DONE ON ACCESSORY ROOF CURB.
 - DIMENSIONS IN [] ARE IN MILLIMETERS OR KILOGRAMS.
 - WITH THE EXCEPTION OF CLEARANCE FOR THE CONDENSER COIL AND THE DAMPER/POWER EXHAUST AS STATED IN NOTE #2, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
 - DIMENSIONS ARE FROM OUTSIDE OF BASE RAIL. ALLOW 0-5/16 (8) ON EACH SIDE FOR TOP COVER DRIP EDGE.

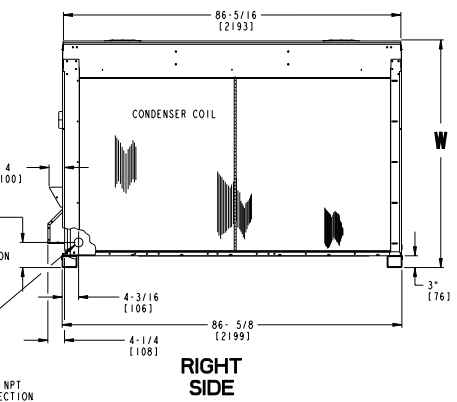
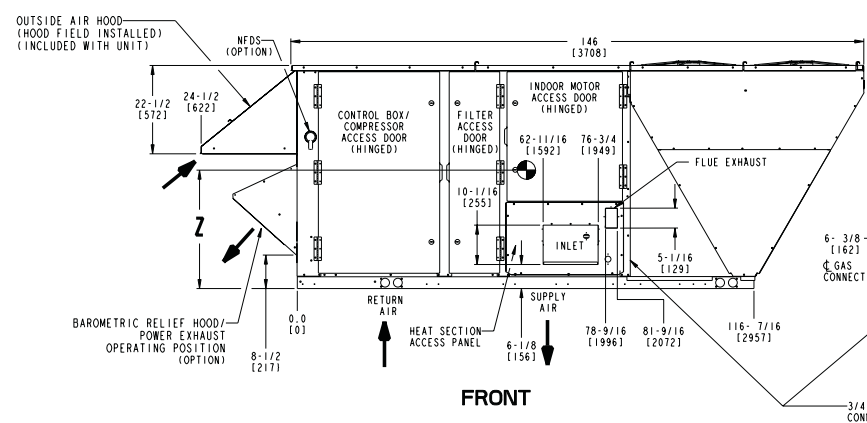
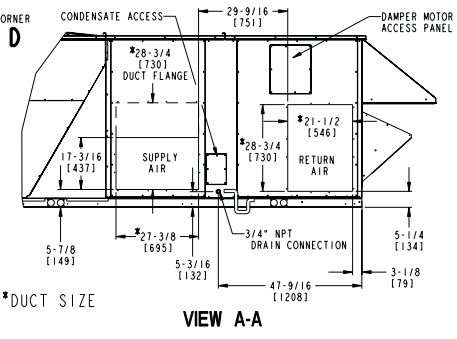
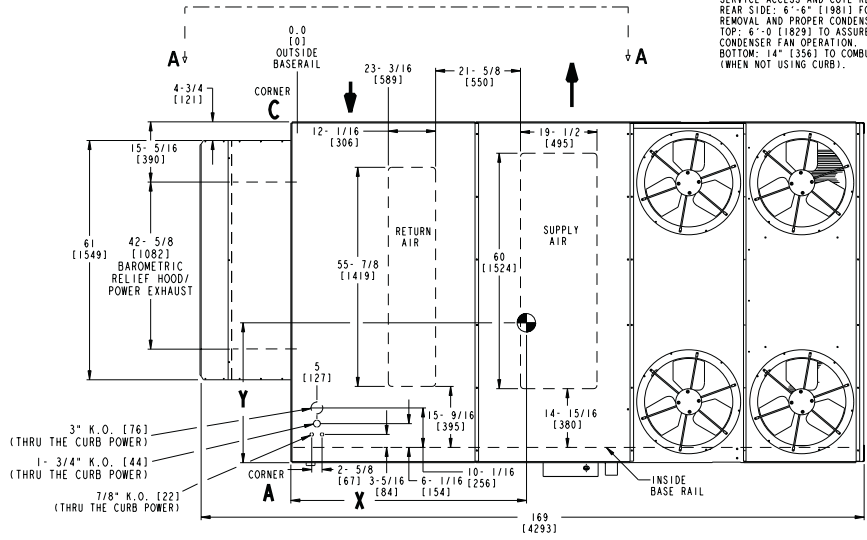
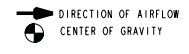


Fig. 4 — Base Unit Dimensions

Table 1 — Physical Data

UNIT 48HG	014		016		020	
VOLTAGE	208/230 and 460	575	208/230 and 460	575	208/230 and 460	575
NOMINAL CAPACITY (Tons)	12.5	12.5	15	15	17.5	17.5
OPERATING WEIGHT (lb) 48 SERIES (Low Heat)	2102	2102	2196	2196	2224	2224
COMPRESSOR						
Quantity	2	2	3	3	3	3
Number of Refrigerant Circuits	2	2	3	3	3	3
Oil (ounces) Ckt A...Ckt B...Ckt C	72...72...NA	72...72...NA	68...68...68	68...68...68	68...68...72	68...68...72
REFRIGERANT TYPE				R-22		
Expansion Device	TXV	TXV	TXV	TXV	TXV	TXV
Operating Charge (lb)						
Circuit A	19.6	19.6	13.2	13.2	13.1	13.1
Circuit B	18.3	18.3	12.2	12.2	12.7	12.7
Circuit C	NA	NA	15.4	15.4	15.2	15.2
CONDENSER COIL						
Rows...Fins/inch	2...17	2...17	2...17	2...17	2...17	2...17
Total Face area (sq. ft)	57.78	57.78	57.78	57.78	57.78	57.78
CONDENSER FAN						
Nominal Cfm (Total, all fans)	14,000	14,000	14,000	14,000	14,000	14,000
Quantity...Diameter (in.)	4...22	4...22	4...22	4...22	4...22	4...22
Motor Hp...Rpm	1/4...1100	1/4...1100	1/4...1100	1/4...1100	1/4...1100	1/4...1100
Watts input (Total)	1400	1400	1400	1400	1400	1400
EVAPORATOR COIL				Face Split		
Rows...Fins/inch	3...15	3...15	3...15	3...15	3...15	3...15
Total Face area (sq. ft)	23.33	23.33	23.33	23.33	23.33	23.33
EVAPORATOR FAN						
Quantity...Size	2...15x11	2...15x11	2...15x11	2...15x11	2...15x11	2...15x11
Type Drive	Belt	Belt	Belt	Belt	Belt	Belt
Nominal Cfm	5000	5000	6000	6000	7000	7000
Std Motor Hp	3.7	3	3.7	3	5	5
Alt Motor Hp	5	5	5	5	7 1/2	7 1/2
Motor Nominal Rpm	1725	1725	1725	1725	1725	1725
Std Maximum Continuous Bhp	4.25	3.45	4.25	3.45	5.75	5.75
Std Maximum Continuous Watts	3171	2574	3171	2574	4290	4290
Alt Maximum Continuous Bhp	5.75	5.75	5.75	5.75	8.63	8.63
Alt Maximum Continuous Watts	4290	4290	4290	4290	6438	6438
Motor Frame Size	Standard	Standard	Standard	Standard	Standard	Standard
Motor Frame Size	56HZ	56H	56HZ	56H	S184T	184T
Fan Drive Rpm Range	S184T	S184T	S184T	S184T	S213T	S213T
	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive
	485-613	472-619	618-789	609-778	658-808	658-808
	618-789	609-778	485-613	472-619	794-974	794-974
	778-1021	778-1021	778-1021	778-1021	949-1145	949-1145
	1000-1227	1000-1227	1000-1227	1000-1227	1126-1328	1126-1328
Motor Bearing Type	Ball	Ball	Ball	Ball	Ball	Ball
Maximum Allowable Rpm	1400	1400	1400	1400	1400	1400
Motor Pulley Pitch Diameter						
	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive
	3.7-4.7	3.1-4.1	3.4-4.4	3.4-4.4	4.3-5.3	4.3-5.3
	3.4-4.4	3.4-4.4	3.7-4.7	3.1-4.1	4.3-5.3	4.3-5.3
	3.1-4.1	3.1-4.1	3.1-4.1	3.1-4.1	5.4-6.6	5.4-6.6
	4.3-5.3	4.3-5.3	4.3-5.3	4.3-5.3	5.5-6.5	5.5-6.5
Motor Shaft Diameter (in.)	Standard	Standard	Standard	Standard	Standard	Standard
Motor Shaft Diameter (in.)	7/8	7/8	7/8	7/8	1 1/8	1 1/8
Belt, Quantity...Type...Length (in.)	Alternate	Alternate	Alternate	Alternate	Alternate	Alternate
	1...BX...51	1...BX...48	1...A...45	1...A...45	1...BX...46	1...BX...46
	1...A...45	1...A...45	1...BX...51	1...BX...48	1...BX...42	1...BX...42
	1...BX...38	1...BX...38	1...BX...38	1...BX...38	1...BX...46	1...BX...46
	1...B...38	1...B...38	1...B...38	1...B...38	1...BX...42	1...BX...42
Pulley center line distance (in.)	11.3-12.3	11.3-12.3	11.3-12.3	11.3-12.3	10.0-12.2	10.0-12.2
Speed change per full turn of moveable pulley flange (rpm)						
	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive	Std motor/Std drive
	21	25	29	28	25	25
	29	28	21	25	30	30
	41	41	41	41	33	33
	38	38	38	38	34	34
	Alt motor/Alt drive	Alt motor/Alt drive	Alt motor/Alt drive	Alt motor/Alt drive	Alt motor/Alt drive	Alt motor/Alt drive
	6	6	6	6	6	6
Moveable pulley maximum full turns from closed position						
Factory Pulley Setting (turns from closed position)						
	3	3	3	3	3	3
Fan Shaft Diameter (in.)	1 9/16	1 9/16	1 9/16	1 9/16	1 9/16	1 9/16
Factory Speed Setting (rpm)	549	546	704	694	733	733
FURNACE SECTION						
Rollout Switch Cutout Temp (F)	225	225	225	225	225	225
Burner Orifice Diameter (in...drill size)	HIGH/LOW HEAT	HIGH/LOW HEAT	HIGH/LOW HEAT	HIGH/LOW HEAT	HIGH/LOW HEAT	HIGH/LOW HEAT
Burner Orifice Diameter (in...drill size)	0.136"-#29	0.136"-#29	0.136"-#29	0.136"-#29	0.136"-#29	0.136"-#29
Gas	—	—	0.1285"-#30	0.1285"-#30	0.1285"-#30	0.1285"-#30
Thermostat Heat Anticipator Setting	Natural	Natural	Natural	Natural	Natural	Natural
Stage 1 (amps)	0.98	0.98	0.98	0.98	0.98	0.98
Stage 2 (amps)	0.44	0.44	0.44	0.44	0.44	0.44
Gas Input (Btuh) HIGH HEAT						
	Stage 1	Stage 1	Stage 1	Stage 1	Stage 1	Stage 1
	224,000	224,000	317,000	317,000	317,000	317,000
	Stage 2	Stage 2	Stage 2	Stage 2	Stage 2	Stage 2
	296,000	296,000	400,000	400,000	400,000	400,000
Efficiency (Steady State) %	Downshot	Downshot	Downshot	Downshot	Downshot	Downshot
Temperature Rise Range	82	82	82	82	82	82
Gas Input (Btuh) MEDIUM HEAT						
	Stage 1	Stage 1	Stage 1	Stage 1	Stage 1	Stage 1
	NA	NA	281,000	281,000	281,000	281,000
	Stage 2	Stage 2	Stage 2	Stage 2	Stage 2	Stage 2
	NA	NA	365,000	365,000	365,000	365,000
Efficiency (Steady state) %	Downshot	Downshot	Downshot	Downshot	Downshot	Downshot
Temperature Rise Range	NA	NA	81	81	81	81
Gas Input (Btuh) LOW HEAT						
	Stage 1	Stage 1	Stage 1	Stage 1	Stage 1	Stage 1
	199,000	199,000	199,000	199,000	199,000	199,000
	Stage 2	Stage 2	Stage 2	Stage 2	Stage 2	Stage 2
	250,000	250,000	250,000	250,000	250,000	250,000
Efficiency (Steady state) %	Downshot	Downshot	Downshot	Downshot	Downshot	Downshot
Temperature Rise Range	82	82	82	82	82	82
Manifold Pressure	15-45	15-45	15-45	15-45	15-45	15-45
Natural Gas (in. wg)						
Natural Gas (in. wg)	Downshot	Downshot	Downshot	Downshot	Downshot	Downshot
Gas Valve Quantity	3.00	3.00	3.00	3.00	3.00	3.00
Gas Valve Pressure Range	Sideshot	Sideshot	Sideshot	Sideshot	Sideshot	Sideshot
Min-Max Allowable	2.95	2.95	2.95	2.95	2.95	2.95
Field Gas Connection Size (in...FPT)	1	1	1	1	1	1
	(in. wg)	(in. wg)	(in. wg)	(in. wg)	(in. wg)	(in. wg)
	5.5-13.0	5.5-13.0	5.5-13.0	5.5-13.0	5.5-13.0	5.5-13.0
	(psig)	(psig)	(psig)	(psig)	(psig)	(psig)
	.235-.469	.235-.469	.235-.469	.235-.469	.235-.469	.235-.469
	3/4	3/4	3/4	3/4	3/4	3/4
HIGH PRESSURE SWITCHES (psig)						
Cutout	426	426	426	426	426	426
Reset (Auto)	320	320	320	320	320	320
OUTDOOR AIR INLET SCREENS						
Quantity...Size (in.)	3...20x25	3...20x25	3...20x25	3...20x25	3...20x25	3...20x25
RETURN AIR FILTERS						
Quantity...Size (in.)	9...16x25	9...16x25	9...16x25	9...16x25	9...16x25	9...16x25

LEGEND
 Bhp — Brake Horsepower
 TXV — Thermostatic Expansion Valve

Table 1 — Physical Data (cont)

UNIT 48HG	024		028
VOLTAGE	208/230 and 460	575	ALL
NOMINAL CAPACITY (Tons)	20	20	25
OPERATING WEIGHT (lb) 48 SERIES (Low Heat)	2272	2272	2526
COMPRESSOR			
Quantity	3	3	2
Number of Refrigerant Circuits	3	3	2
Oil (ounces) Ckt A...Ckt B...Ckt C	72...72...72	72...72...72	110...110...NA
REFRIGERANT TYPE		R-22	
Expansion Device	TXV	TXV	TXV
Operating Charge (lb)			
Circuit A	13.8	13.8	23.9
Circuit B	13.7	13.7	21.5
Circuit C	15.5	15.5	NA
CONDENSER COIL			
Rows...Fins/inch	2...17	2...17	2...17
Total Face area (sq. ft)	57.78	57.78	66.67
CONDENSER FAN			
Nominal Cfm (Total, all fans)	14,000	14,000	21,000
Quantity...Diameter (in.)	4...22	4...22	6...22
Motor Hp...Rpm	1/4...1100	1/4...1100	1/4...1100
Watts input (Total)	1400	1400	2100
EVAPORATOR COIL		Face Split	
Rows...Fins/inch	4...15	4...15	4...15
Total Face area (sq. ft)	23.33	23.33	27.22
EVAPORATOR FAN			
Quantity...Size	2...15x11	2...15x11	2...15x11
Type Drive	Belt	Belt	Belt
Nominal Cfm	8000	8000	10,000
Std Motor Hp	5	5	7 1/2
Alt Motor Hp	7 1/2	7 1/2	10
Motor Nominal Rpm	1725	1725	1725
Std Maximum Continuous Bhp	5.75	5.75	8.63
Std Maximum Continuous Watts	4290	4290	6438
Alt Maximum Continuous Bhp	8.63	8.63	11.50
Alt Maximum Continuous Watts	6438	6438	8579
Motor Frame Size	Standard S184T	184T	S213T
Motor Frame Size	Alternate S213T	S213T	S215T
Fan Drive Rpm Range	Std motor/Std drive 658-808	658-808	799-965
	Std motor/Alt drive 794-974	794-974	939-1152
	Alt motor/Std drive 949-1145	949-1145	945-1187
	Alt motor/Alt drive 1126-1328	1126-1328	1152-1366
Motor Bearing Type	Ball	Ball	Ball
Maximum Allowable Rpm	1400	1400	1400
Motor Pulley Pitch Diameter			
	Std motor/Std drive 4.3-5.3	4.3-5.3	5.4-6.6
	Std motor/Alt drive 4.3-5.3	4.3-5.3	4.2-5.2
	Alt motor/Std drive 5.4-6.6	5.4-6.6	4.2-5.2
	Alt motor/Alt drive 5.5-6.5	5.5-6.5	5.2-6.2
Motor Shaft Diameter (in.)	Standard 1 1/8	1 1/8	1 3/8
Motor Shaft Diameter (in.)	Alternate 1 3/8	1 3/8	1 3/8
Belt, Quantity...Type...Length (in.)	Std motor/Std drive 1...BX...46	1...BX...46	1...BX...50
	Std motor/Alt drive 1...BX...42	1...BX...42	2...AX...38
	Alt motor/Std drive 1...BX...46	1...BX...46	2...BX...38
	Alt motor/Alt drive 1...BX...42	1...BX...42	2...BX...38
Pulley center line distance (in.)	10.0-12.2	10.0-12.2	9.6-12.0
Speed change per full turn of moveable pulley flange (rpm)			
	Std motor/Std drive 25	25	28
	Std motor/Alt drive 30	30	36
	Alt motor/Std drive 33	33	40
	Alt motor/Alt drive 34	34	36
Moveable pulley maximum full turns from closed position	6	6	6
Factory Pulley Setting (turns from closed position)	3	3	3
Fan Shaft Diameter (in.)	1 3/16	1 3/16	1 3/16
Factory Speed Setting (rpm)	733	733	882
FURNACE SECTION			
Rollout switch cutout Temp (F)	225	225	225
Burner orifice diameter (in...drill size)	HIGH/LOW HEAT 0.136"-#29	0.136"-#29	0.136"-#29
Burner orifice diameter (in...drill size)	MEDIUM HEAT 0.1285"-#30	0.1285"-#30	0.1285"-#30
Gas	Natural	Natural	Natural
Thermostat Heat anticipator setting			
Stage 1 (amps)	0.98	0.98	0.98
Stage 2 (amps)	0.44	0.44	0.44
Gas Input (Btuh) HIGH HEAT			
Stage 1	317,000	317,000	317,000
Stage 2	400,000	400,000	400,000
Efficiency (Steady state) %	Downshot 82	82	82
Temperature Rise Range	25-55	25-55	25-55
Gas Input (Btuh) MEDIUM HEAT			
Stage 1	281,000	281,000	281,000
Stage 2	365,000	365,000	365,000
Efficiency (Steady state) %	Downshot 81	81	81
Temperature Rise Range	25-55	25-55	25-55
Gas Input (Btuh) LOW HEAT			
Stage 1	199,000	199,000	199,000
Stage 2	250,000	250,000	250,000
Efficiency (Steady state) %	Downshot 82	82	82
Temperature Rise Range	15-45	15-45	15-45
Manifold Pressure			
Natural Gas (in. wg)	Downshot 3.00	3.00	3.00
Natural Gas (in. wg)	Sideshot 2.95	2.95	2.95
Gas Valve Quantity	1	1	1
Gas Valve Pressure Range	(in. wg) 5.5-13.0	5.5-13.0	5.5-13.0
Min-Max Allowable	(psig) .235-.469	.235-.469	.235-.469
Field Gas Connection Size (in...FPT)	3/4	3/4	3/4
HIGH PRESSURE SWITCHES (psig)			
Cutout	426	426	426
Reset (Auto)	320	320	320
OUTDOOR AIR INLET SCREENS			
Quantity...Size (in.)	3...20x25	3...20x25	3...20x25
RETURN AIR FILTERS			
Quantity...Size (in.)	9...16x25	9...16x25	9...20x25

LEGEND
 Bhp — Brake Horsepower
 TXV — Thermostatic Expansion Valve

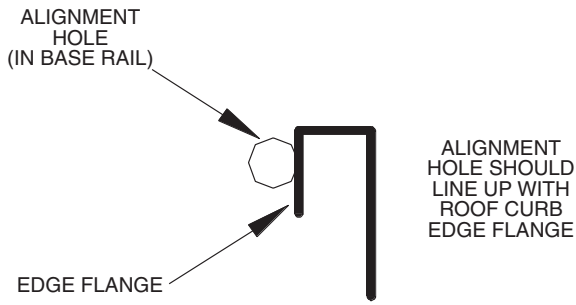


Fig. 5 — Alignment Hole Details

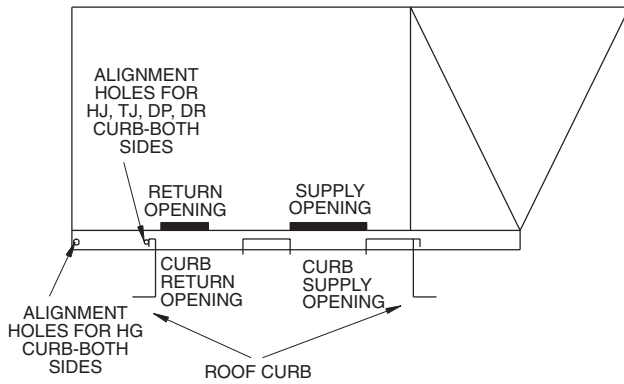


Fig. 6 — Alignment Hole Location

Step 4 — Field Fabricate Ductwork — Secure all ducts to building structure. Use flexible duct connectors between unit and ducts as required. Insulate and weatherproof all external ductwork, joints, and roof openings with counter flashing and mastic in accordance with applicable codes.

Ducts passing through an unconditioned space must be insulated and covered with a vapor barrier.

Step 5 — Make Unit Duct Connections

VERTICAL CONFIGURATION — Unit is shipped for vertical supply and return duct connections. Ductwork openings are shown in Fig. 1 and 4. Duct connections for vertical configuration are shown in Fig. 7. Field fabricated concentric ductwork may be connected as shown in Fig. 8 and 9. The unit is designed to attach the ductwork to the roof curb. Do not attach duct directly to the unit basepans.

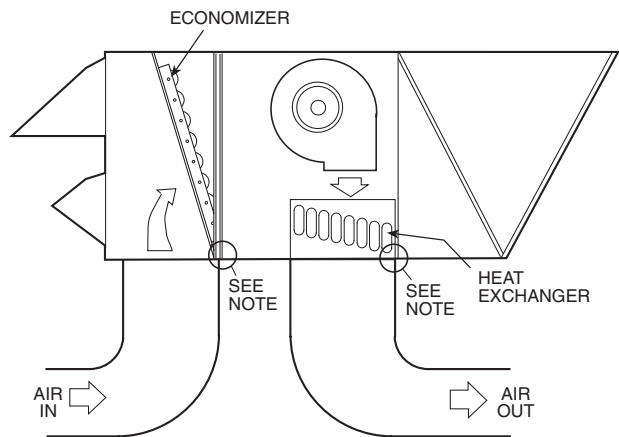
Unit basepans must be supported under the unit and around duct openings in order to prevent air leakage.

⚠ WARNING

For vertical supply and return units, tools or parts could drop into ductwork and cause an injury. Install a 90 degree turn in the return ductwork between the unit and the conditioned space. If a 90 degree elbow cannot be installed, then a grille of sufficient strength and density should be installed to prevent objects from falling into the conditioned space.

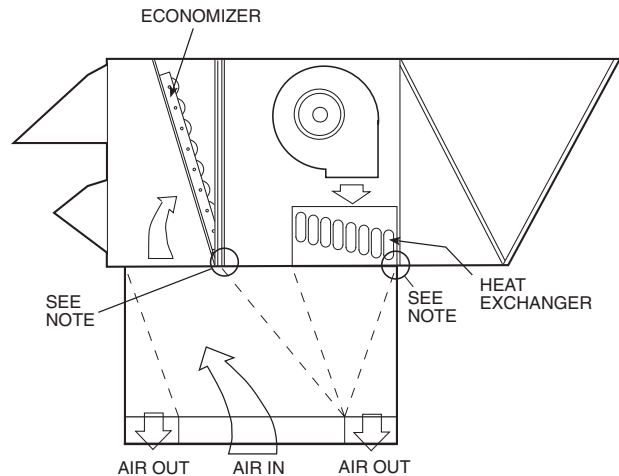
HORIZONTAL APPLICATIONS — Horizontal units are shipped with outer panels that allow for side by side horizontal duct connections. If specified during ordering, the unit will be shipped with the vertical duct openings blocked off from the factory, ready for side supply installation. If the horizontal supply/return option was not specified at time of ordering the unit, a field-installed accessory kit is required to convert the vertical unit into a horizontal supply configuration.

Installation of the duct block-off covers should be completed prior to placing the unit unless sufficient side clearance is available. A minimum of 66-in. is required between the unit and any obstruction to install the duct block-off covers. Side supply duct dimensions and locations are shown on Fig. 4. Install ductwork to horizontal duct flange connections on side of unit.



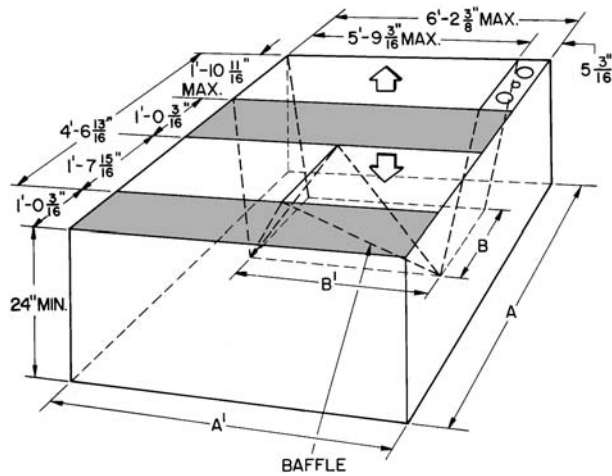
NOTE: Do not drill in this area; damage to basepan may result in water leak.

Fig. 7 — Air Distribution — Vertical Supply/Return



NOTE: Do not drill in this area; damage to basepan may result in water leak.

Fig. 8 — Air Distribution — Concentric Duct



NOTE: Dimensions A, A', B, and B' are obtained from field-supplied ceiling diffuser.

Shaded areas indicate block-off pans.

Fig. 9 — Concentric Duct Details

Step 6 — Install Flue Hood and Inlet Hood —

Flue hood (smaller hood), inlet hood (larger hood), and screens are shipped inside the unit in the fan section. To install, remove the heat panel. The flue hood is attached to the heat section panel from the outside using the screws provided. See Fig. 10.

The inlet hood is installed by inserting the hood through the back of the heat panel. Attach the hood by inserting the screws provided through the clearance holes in the heat panel and into the intake hood.

Install the screens into both hoods using the screws and retaining nuts provided with the unit.

Attach the cover of the observation hole on the intake hood and then replace the heat panel onto the unit to complete the installation.

NOTE: When properly installed, the flue hood will line up with the combustion fan housing. See Fig. 11.

Step 7 — Trap Condensate Drain — See Fig. 12 for drain location. One 3/4-in. half coupling is provided outside unit evaporator section for condensate drain connection. A trap at least 4-in. deep must be used. See Fig. 13.

Step 8 — Install Gas Piping — Unit is equipped for use with natural gas. Installation must conform with local building codes or, in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1.

Install field-supplied manual gas shutoff valve with a 1/8-in. NPT pressure tap for test gage connection at unit. The pressure tap is located on the gas manifold, adjacent to the gas valve. Field gas piping must include sediment trap and union. See Fig. 14.

⚠ WARNING

Do not pressure test gas supply while connected to unit. Always disconnect union before servicing.

IMPORTANT: Natural gas pressure at unit gas connection must not be less than 5.5 in. wg or greater than 13.0 in. wg.

Size gas-supply piping for 0.5-in. wg maximum pressure drop. Do not use supply pipe smaller than unit gas connection.

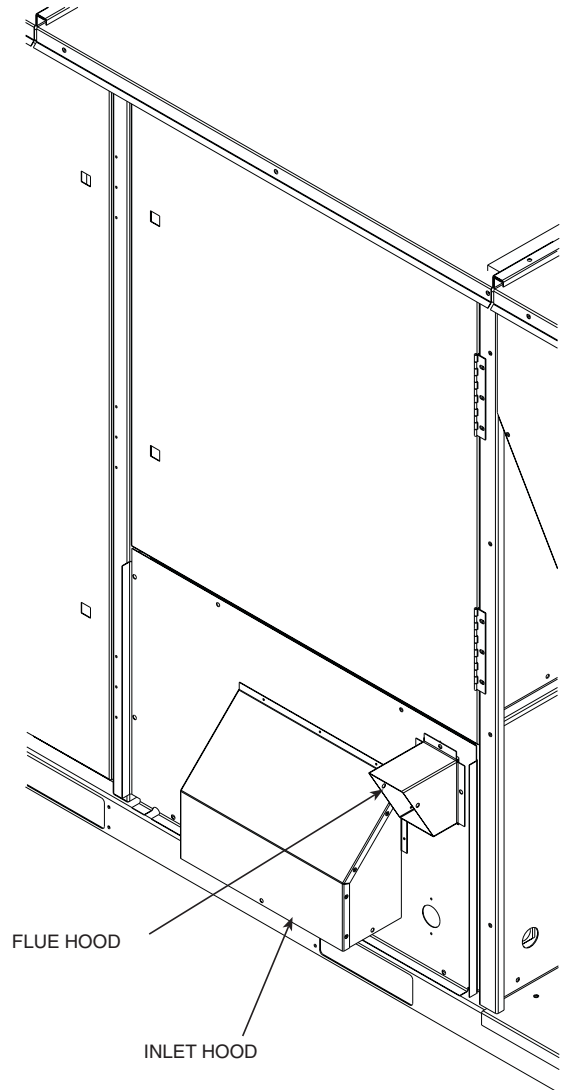


Fig. 10 — Flue and Inlet Hood Locations

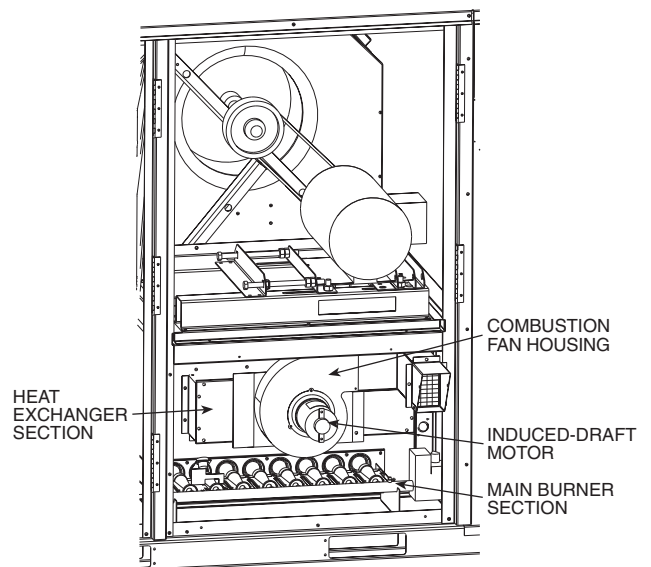


Fig. 11 — Combustion Fan Housing Location

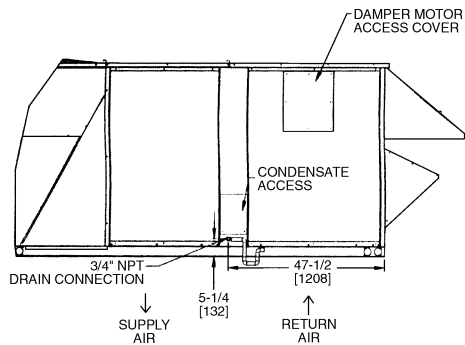


Fig. 12 — Condensate Drain Details

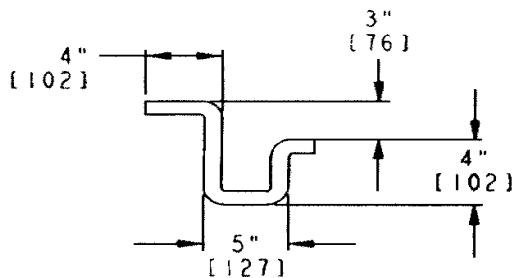


Fig. 13 — Condensate Drain Piping Details

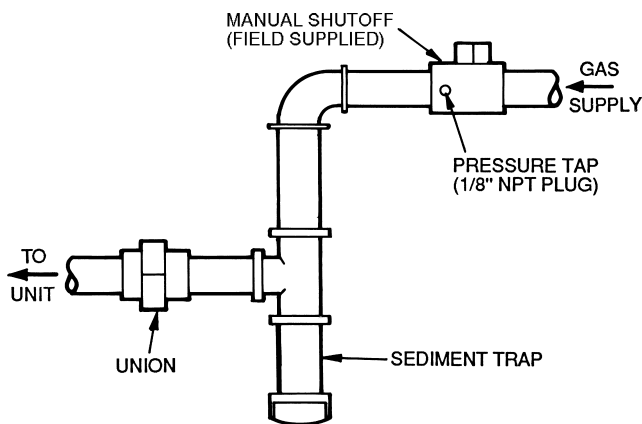


Fig. 14 — Field Gas Piping

Step 9 — Make Electrical Connections

FIELD POWER SUPPLY — Unit is factory wired for voltage shown on unit nameplate.

When installing units, provide disconnect per NEC (National Electrical Code) of adequate size (MOCP [Maximum Overcurrent protection] of unit is on the informative plate). See Tables 2A and 2B. All field wiring must comply with NEC and local codes. Size wire based on MCA (Minimum Circuit Amps) on the unit informative plate. See Fig. 15 for power wiring connection to the unit power terminal block and equipment ground.

Route power and ground lines through control box end panel or unit basepan (see Fig. 4) to connections as shown on unit wiring diagram and Fig. 15.

⚠ CAUTION

The correct power phasing is critical to the operation of the scroll compressors. An incorrect phasing will result in an alarm being generated and compressor operation lockout. Should this occur, power phase correction must be made to the incoming power.

⚠ WARNING

The unit must be electrically grounded in accordance with local codes and NEC ANSI/NFPA 70 (National Fire Protection Association).

Field wiring must conform to temperature limitations for type “T” wire. All field wiring must comply with NEC and local requirements.

Operating voltage to compressor must be within voltage range indicated on unit nameplate. On 3-phase units, voltages between phases must be balanced within 2%.

Unit failure as a result of operation on improper line voltage or excessive phase imbalance constitutes abuse and may cause damage to electrical components.

FIELD CONTROL WIRING — Unit can be controlled with either a Carrier-approved accessory thermostat or a Carrier-approved space temperature sensor. Install thermostat according to the installation instructions included with accessory. Locate thermostat assembly or space temperature sensor on a solid interior wall in the conditioned space to sense average temperature.

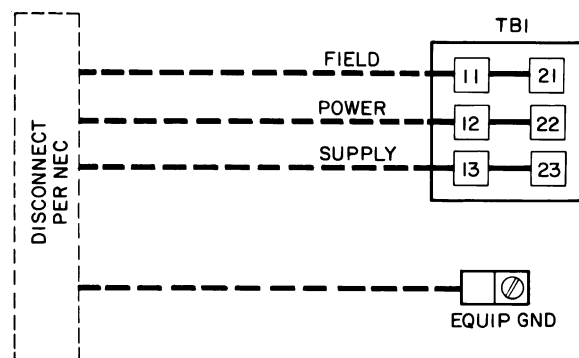
Route thermostat or space temperature sensor cable or equivalent single leads of colored wire from subbase terminals through conduit into unit to low-voltage connections as shown on unit label wiring diagram and in Fig. 16 or 17.

NOTE: For wire runs up to 50 ft, use no. 18 AWG (American Wire Gage) insulated wire (35 C minimum). For 50 to 75 ft, use no. 16 AWG insulated wire (35 C minimum). For over 75 ft, use no. 14 AWG insulated wire (35 C Minimum). All wire larger than no. 18 AWG cannot be directly connected at the thermostat and will require a junction box and splice at the thermostat.

Set heat anticipator settings as follows:

VOLTAGE	STAGE 1 (W1) ON	STAGE 1 AND 2 (W1 AND W2) ON
All	0.15	0.30

Settings may be changed slightly to provide a greater degree of comfort for a particular installation.



LEGEND

- EQUIP** — Equipment
- GND** — Ground
- NEC** — National Electrical Code
- TB** — Terminal Board

NOTE: The maximum wire size for TB1 is 2/0.

Fig. 15 — Field Power Wiring Connections

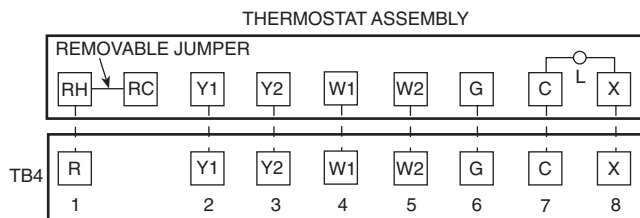
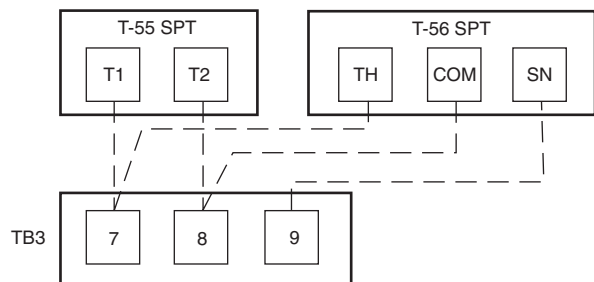


Fig. 16 — Field Control Thermostat Wiring



SPT — Space Temperature Sensor

Fig. 17 — Field Control Space Temperature Sensor Wiring

Step 10 — Install Outdoor Air Hood — Perform the following procedure to install the outdoor-air hood:

1. Remove blank panel from return end of unit (hood section). Save the screws. See Fig. 18 for shipping location of components.
2. Hood sides are fastened to sides of outdoor air opening. Remove the hood sides and save the screws (3 each side).
3. Remove the bracket holding the bottom half of the hood in the shipping position. Remove the hood bottom half and filters (or manual dampers on units so equipped) from outdoor section.

NOTE: On units without economizers, the components are attached to the unit basepan. To access the components, remove the panel below the outdoor air intake section.

4. Remove inner filter track from shipping position in outdoor section. Position inner filter track so the track is facing outward from the unit. Install the filter track with 4 screws provided.
5. Apply seal strip (provided) to back flange of both hood sides where hood side connects to the unit back panel. See Fig. 19.
6. Apply seal strip (provided) to top flange of both hood sides where hood sides connect to the hood top panels. See Fig. 19.

7. Install hood sides to the back panels using the screws from Step 2. The sloped flanges point outward. The drip edges of the side panels should face outward as well. The filter guides to the hood sides. The flanges should face inward to hold the filters in place. See Fig. 19.
8. Apply seal strip along the entire length of the bottom flange of the hood top. See Fig. 19.
9. Install the bottom part of the hood top using 4 screws provided. See Fig. 19.
10. Remove the packaging from filters (3) and install into the filter tracks. Slide the filters to the sides then place the last filter into the center of the filter track.

NOTE: For units with manual dampers, replace the end filters with the manual dampers. Install the filter in the center between the manual dampers.

11. Install the filter retainer track along the bottom edge of the outdoor air hood using 4 screws provided. See Fig. 19.
12. Install top section of the outdoor air hood using 9 screws provided. See Fig. 19. See Fig. 20 for a picture of the assembled outdoor air hood.

NOTE: For filter removal, remove the four screws holding the filter retainer. The filters can then be removed, cleaned, or replaced. Install the filters by reversing the procedure.

MANUAL DAMPER ASSEMBLY — For units equipped with manual dampers, the assembly process is similar to the outdoor air hood for units with economizers. There are two slide dampers shipped with the unit to allow for manual setting of the outside air volume. When assembling the hood, place one of the manual slide dampers in each of the end positions and the remaining filter in the center position. The manual dampers can then be moved to the appropriate position and then locked into place using the screws mounted in the adjustment slots. See Fig. 21.

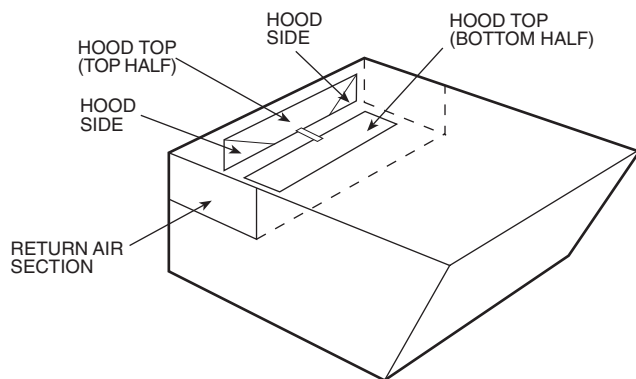


Fig. 18 — Outdoor-Air Hood Component Shipping Location

Table 2A — Electrical Data (Units Without Optional Convenience Outlet)

UNIT SIZE 48HG	NOMINAL VOLTAGE (3 Ph, 60 Hz)	VOLTAGE RANGE		COMPRESSOR						OFM			IFM		POWER EXHAUST			COMBUSTION FAN MOTOR	POWER SUPPLY		DISCONNECT SIZE
				No. 1		No. 2		No. 3											FLA (ea)	FLA	FLA
		Min	Max	RLA	LRA	RLA	LRA	RLA	LRA	Qty	Hp	FLA (ea)	Hp	FLA	Qty	Hp	FLA (ea)	FLA	MCA	MOCP*	FLA
014	208/230	187	253	19.2	146.0	19.2	146.0	—	—	4	1/4	1.5	3.7	10.6/ 9.6	—	—	—	.45/.52	60/ 59	70/ 70	70/ 70
													5.0	16.7/15.2	2	1.0	5.9		72/ 71	90/ 90	80/ 80
													—	—	—	—	—		66/ 65	80/ 80	80/ 70
	460	414	506	9.5	73.0	9.5	73.0	—	—	4	1/4	0.7	3.7	4.8	—	—	—	0.3	29	35	35
													5.0	7.6	2	1.0	3.1		35	40	40
													—	—	—	—	—		32	40	35
	575	518	633	7.6	58.4	7.6	58.4	—	—	4	1/4	0.7	3.0	3.9	—	—	—	0.3	24	30	30
													5.0	6.1	2	1.0	3.1		30	35	35
													—	—	—	—	—		26	30	30
016	208/230	187	253	16.7	130.0	16.7	130.0	16.7	130.0	4	1/4	1.5	3.7	10.6/ 9.6	—	—	—	.45/.52	71/ 70	80/ 80	80/ 80
													5.0	16.7/15.2	2	1.0	5.9		83/ 82	90/ 90	100/ 90
													—	—	—	—	—		77/ 76	90/ 90	90/ 90
	460	414	506	9.0	70.0	9.0	70.0	9.0	70.0	4	1/4	0.7	3.7	4.8	—	—	—	0.3	37	45	45
													5.0	7.6	2	1.0	3.1		43	50	50
													—	—	—	—	—		40	45	45
	575	518	633	7.0	55.0	7.0	55.0	7.0	55.0	4	1/4	0.7	3.0	3.9	—	—	—	0.3	30	35	35
													5.0	6.1	2	1.0	3.1		36	40	40
													—	—	—	—	—		32	35	35
020	208/230	187	253	16.7	130.0	16.7	130.0	22.4	184.0	4	1/4	1.5	5.0	16.7/15.2	—	—	—	.45/.52	85/ 83	100/100	100/ 90
													7.5	24.2/22.0	2	1.0	5.9		96/ 95	110/110	110/110
													—	—	—	—	—		93/ 90	110/110	100/100
	460	414	506	9.0	70.0	9.0	70.0	10.7	90.0	4	1/4	0.7	5.0	7.6	—	—	—	0.3	42	50	50
													7.5	11.0	2	1.0	3.1		48	50	60
													—	—	—	—	—		46	50	50
	575	518	633	7.0	55.0	7.0	55.0	9.3	73.0	4	1/4	0.7	5.0	6.1	—	—	—	0.3	35	40	40
													7.5	9.0	2	1.0	3.1		41	50	45
													—	—	—	—	—		38	45	45
024	208/230	187	253	22.4	184.0	22.4	184.0	22.4	184.0	4	1/4	1.5	5.0	16.7/15.2	—	—	—	.45/.52	96/ 95	110/110	110/110
													7.5	24.2/22.0	2	1.0	5.9		108/106	125/125	125/125
													—	—	—	—	—		104/101	125/110	125/125
	460	414	506	10.7	90.0	10.7	90.0	10.7	90.0	4	1/4	0.7	5.0	7.6	—	—	—	0.3	45	50	50
													7.5	11.0	2	1.0	3.1		52	60	60
													—	—	—	—	—		49	50	60
	575	518	633	9.3	73.0	9.3	73.0	9.3	73.0	4	1/4	0.7	5.0	6.1	—	—	—	0.3	39	45	45
													7.5	9.0	2	1.0	3.1		46	50	50
													—	—	—	—	—		42	50	50
028	208/230	187	253	47.1	245.0	47.1	245.0	—	—	6	1/4	1.5	7.5	24.2/22.0	—	—	—	.45/.52	140/137	175/175	150/150
													10.0	30.8/28.0	2	1.0	5.9		151/149	175/175	175/175
													—	—	—	—	—		146/143	175/175	175/175
	460	414	506	19.6	125.0	19.6	125.0	—	—	6	1/4	0.7	7.5	11.0	—	—	—	0.3	60	70	70
													10.0	14.0	2	1.0	3.1		66	80	80
													—	—	—	—	—		63	80	70
	575	518	633	15.8	100.0	15.8	100.0	—	—	6	1/4	0.7	7.5	9.0	—	—	—	0.3	49	60	60
													10.0	11.0	2	1.0	3.1		55	70	60
													—	—	—	—	—		51	60	60

See Legend and Notes on page 14.

Table 2B — Electrical Data (Units With Optional Convenience Outlet)

UNIT SIZE 48HG	NOMINAL VOLTAGE (3 Ph, 60 Hz)	VOLTAGE RANGE		COMPRESSOR						OFM			IFM		POWER EXHAUST			COMBUSTION FAN MOTOR	POWER SUPPLY		DISCONNECT SIZE
				No. 1		No. 2		No. 3											MCA		MOCPS*
		Min	Max	RLA	LRA	RLA	LRA	RLA	LRA	Qty	Hp	FLA (ea)	Hp	FLA	Qty	Hp	FLA (ea)	FLA	MCA	MOCPS*	FLA
014	208/230	187	253	19.2	146.0	19.2	146.0	—	—	4	1/4	1.5	3.7	10.6/ 9.6	—	—	—	.45/.52	65/ 64	80/ 80	70/ 70
													5.0	16.7/15.2	2	1.0	5.9		77/ 76	90/ 90	80/ 80
	460	414	506	9.5	73.0	9.5	73.0	—	—	4	1/4	0.7	3.7	4.8	—	—	—	0.3	32	40	35
													5.0	7.6	2	1.0	3.1		38	45	40
													3.0	3.9	—	—	—		35	40	35
													5.0	6.1	2	1.0	3.1		41	50	45
575	518	633	7.6	58.4	7.6	58.4	—	—	4	1/4	0.7	3.0	3.9	—	—	—	0.3	27	30	30	
												5.0	6.1	2	1.0	3.1		33	40	35	
016	208/230	187	253	16.7	130.0	16.7	130.0	16.7	130.0	4	1/4	1.5	3.7	10.6/ 9.6	—	—	—	.45/.52	76/ 75	90/ 90	80/ 80
													5.0	16.7/15.2	2	1.0	5.9		88/ 87	100/100	100/ 90
	460	414	506	9.0	70.0	9.0	70.0	9.0	70.0	4	1/4	0.7	3.7	4.8	—	—	—	0.3	40	45	45
													5.0	7.6	2	1.0	3.1		46	50	50
													3.0	3.9	—	—	—		43	50	45
													5.0	6.1	2	1.0	3.1		49	50	60
575	518	633	7.0	55.0	7.0	55.0	7.0	55.0	4	1/4	0.7	3.0	3.9	—	—	—	0.3	33	35	35	
												5.0	6.1	2	1.0	3.1		39	45	40	
020	208/230	187	253	16.7	130.0	16.7	130.0	22.4	184.0	4	1/4	1.5	5.0	16.7/15.2	—	—	—	.45/.52	90/ 88	110/110	100/ 90
													7.5	24.2/22.0	2	1.0	5.9		101/100	110/110	110/110
	460	414	506	9.0	70.0	9.0	70.0	10.7	90.0	4	1/4	0.7	5.0	7.6	—	—	—	0.3	45	50	50
													7.5	11.0	2	1.0	3.1		51	60	60
													5.0	6.1	—	—	—		49	50	50
													7.5	9.0	2	1.0	3.1		55	60	60
575	518	633	7.0	55.0	7.0	55.0	9.3	73.0	4	1/4	0.7	5.0	6.1	—	—	—	0.3	38	45	40	
												7.5	9.0	2	1.0	3.1		44	50	45	
024	208/230	187	253	22.4	184.0	22.4	184.0	22.4	184.0	4	1/4	1.5	5.0	16.7/15.2	—	—	—	.45/.52	101/100	110/110	110/110
													7.5	24.2/22.0	2	1.0	5.9		113/111	125/125	125/125
	460	414	506	10.7	90.0	10.7	90.0	10.7	90.0	4	1/4	0.7	5.0	7.6	—	—	—	0.3	48	50	50
													7.5	11.0	2	1.0	3.1		55	60	60
													5.0	6.1	—	—	—		52	60	60
													7.5	9.0	2	1.0	3.1		58	60	70
575	518	633	9.3	73.0	9.3	73.0	9.3	73.0	4	1/4	0.7	5.0	6.1	—	—	—	0.3	42	50	45	
												7.5	9.0	2	1.0	3.1		49	50	50	
028	208/230	187	253	47.1	245.0	47.1	245.0	—	—	6	1/4	1.5	7.5	24.2/22.0	—	—	—	.45/.52	145/142	175/175	150/150
													10.0	30.8/28.0	2	1.0	5.9		156/154	200/200	175/175
	460	414	506	19.6	125.0	19.6	125.0	—	—	6	1/4	0.7	7.5	11.0	—	—	—	0.3	63	80	70
													10.0	14.0	2	1.0	3.1		69	80	80
													7.5	9.0	—	—	—		66	80	70
													10.0	11.0	2	1.0	3.1		72	90	80
575	518	633	15.8	100.0	15.8	100.0	—	—	6	1/4	0.7	7.5	9.0	—	—	—	0.3	52	60	60	
												10.0	11.0	2	1.0	3.1		58	70	60	

See Legend and Notes on page 14.

LEGEND AND NOTES FOR TABLES 2A AND 2B

LEGEND

- FLA** — Full Load Amps
- HACR** — Heating, Air Conditioning and Refrigeration
- IFM** — Indoor (Evaporator) Fan Motor
- LRA** — Locked Rotor Amps
- MCA** — Minimum Circuit Amps
- MOCP** — Maximum Overcurrent Protection
- NEC** — National Electrical Code
- OFM** — Outdoor (Condenser) Fan Motor
- RLA** — Rated Load Amps

*Fuse or HACR circuit breaker.

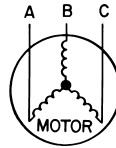


NOTES:

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. Canadian units may be fuse or circuit breaker.
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 voltage imbalance.

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

EXAMPLE: Supply voltage is 460-3-60.



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

Determine maximum deviation from average voltage.

$$\begin{aligned} (\text{AB}) \quad &457 - 452 = 5 \text{ v} \\ (\text{BC}) \quad &464 - 457 = 7 \text{ v} \\ (\text{AC}) \quad &457 - 455 = 2 \text{ v} \end{aligned}$$

Maximum deviation is 7 v.

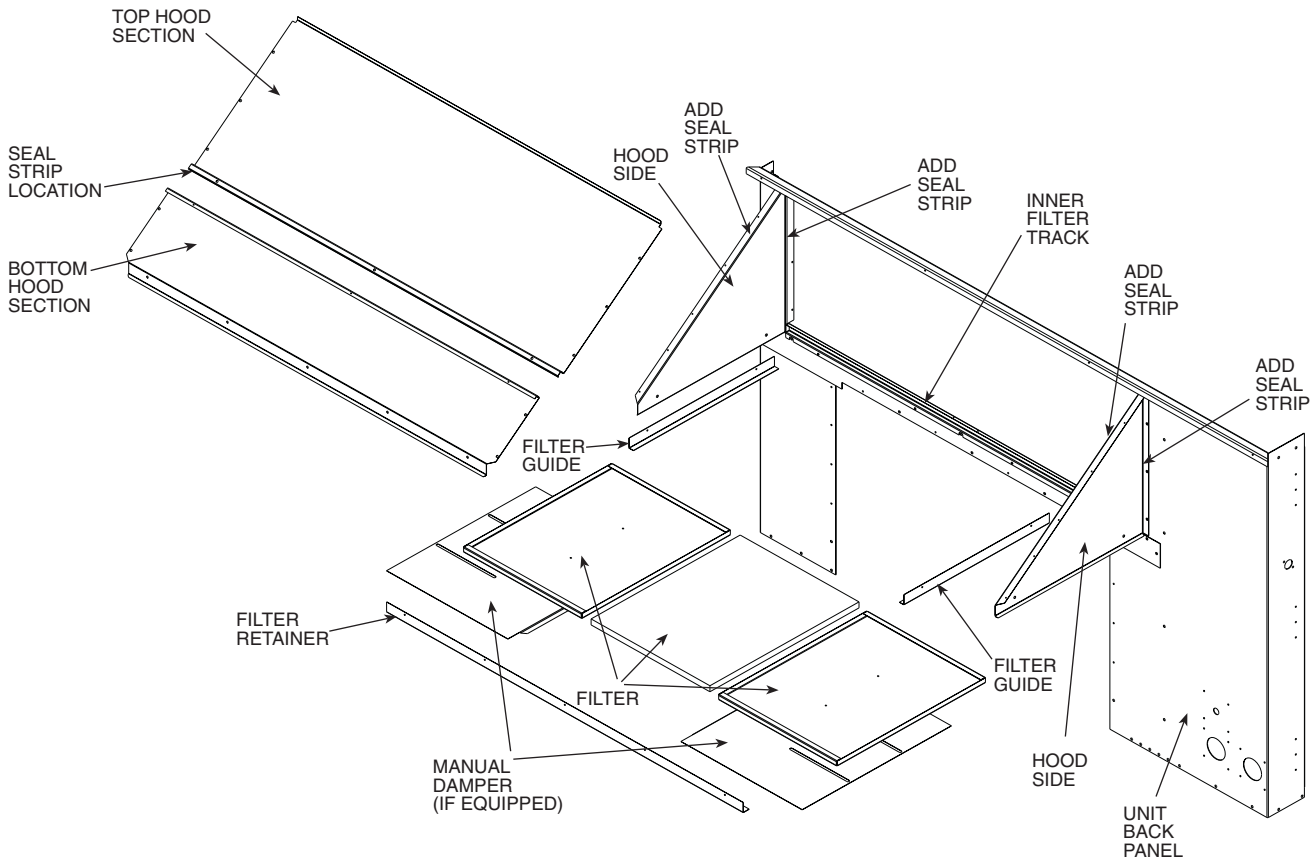
Determine percent voltage imbalance.

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

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.

3. The convenience outlet full load amps (FLA) are 5, 3, and 3 for 208/230, 460, 575-V units, respectively.



NOTE: Units with manual damper only use one filter.

Fig. 19 — Outdoor-Air Hood Details

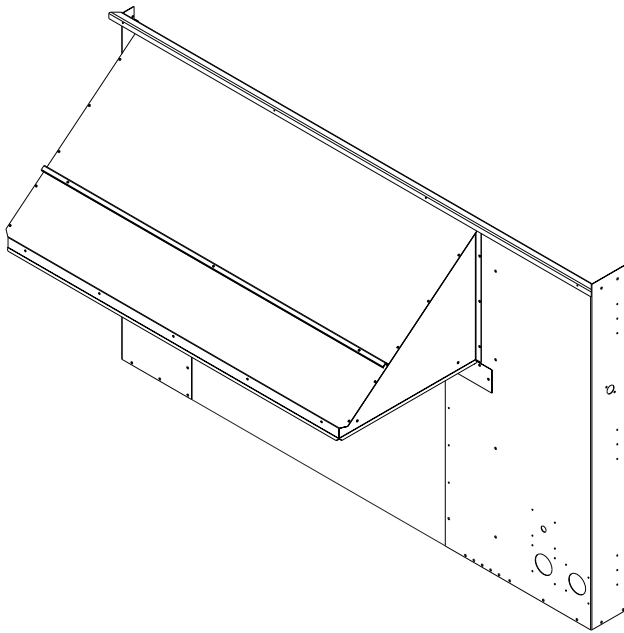


Fig. 20 — Outdoor-Air Hood Assembled

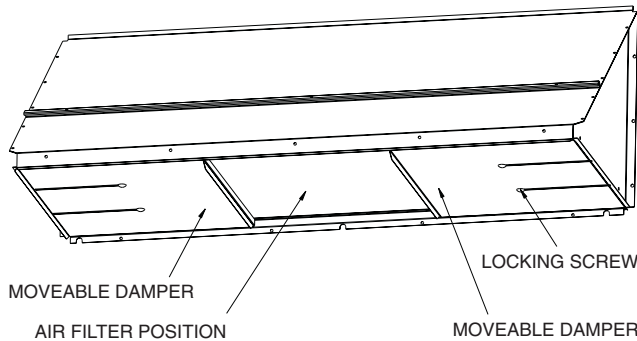


Fig. 21 — Manual Damper Details

Step 11 — Position Optional Power Exhaust or Barometric Relief Damper Hood — The optional power exhaust or barometric relief dampers are shipped assembled and tilted back into the unit for shipping. Brackets and extra screws are shipped in shrink wrap around the dampers.

1. Remove 9 screws holding each damper assembly in place. See Fig. 22. Each damper assembly is secured with 3 screws on each side and 3 screws along the bottom. Save screws.

⚠ CAUTION

Be careful when tilting blower assembly. Hoods and blowers are heavy and can cause injury if dropped.

2. Pivot the damper assembly outward until top edge of the damper assembly rests against the inside wall of unit.
3. Secure each damper assembly to unit with 6 screws across top (3 screws provided) and bottom (3 screws from Step 1) of damper.

4. With screws saved from Step 1, install brackets on each side of damper assembly. See Fig. 23.
5. Remove tape from damper blades.

Step 12 — Non-Fused Disconnect — The handle for the factory-installed non-fused disconnect is shipped inside the unit to prevent the handle from damage during shipping. Follow these steps to complete installation of the handle.

⚠ WARNING

BE SURE POWER IS SHUT OFF TO THE UNIT FROM THE BUILDING POWER SUPPLY.

1. Open the control box access door.
2. Remove the small cover plate located on the unit corner post near the control section.
3. Remove the inner control box cover. The handle and shaft are located in a plastic bag at the bottom of the control box.
4. Insert the square shaft into the disconnect with the pins vertical. On the 100-amp disconnect, the shaft is keyed into the disconnect and can only be installed one way (with the pins vertical).
5. Insert the handle through the corner post and onto the shaft with the handle positioned so that “OFF” is on top.
6. Rotate the handle to the “ON” position to lock the pins into the handle.
7. From the inside of the corner post, attach the handle mounting screws to the handle. Slide the shaft fully into the handle and tighten the set screw(s) on the disconnect to lock the shaft. Tighten the screws that attach the handle to the corner post.
8. Rotate the handle back to the “OFF” position.
9. Replace all panels and doors. Power can now be turned back on to the unit.

Step 13 — Install All Accessories — After all of the factory-installed options have been adjusted, install all field-installed accessories. Refer to the accessory installation instructions included with each accessory. Consult the Carrier Price Pages for accessory package numbers for particular applications. The available field-installed accessories for the Centurion units are:

- economizer
- power exhaust
- barometric relief damper
- 14-in. roof curb
- 24-in. roof curb
- enthalpy control
- differential enthalpy control
- plugged filter indicator
- LP (liquefied propane) conversion kit
- carbon dioxide detector
- smoke detector
- filter status switch
- fan status switch
- condenser hail guard
- horizontal duct accessory
- thermostats
- two-position damper

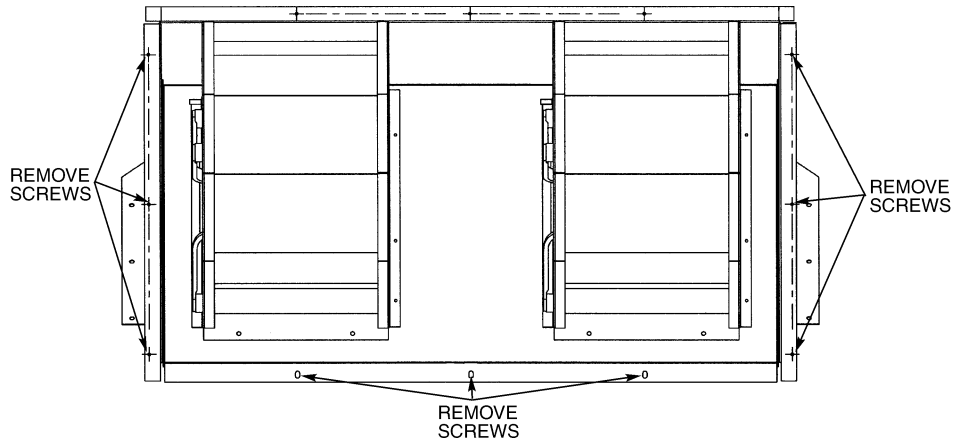


Fig. 22 — Power Exhaust or Barometric Relief Damper Mounting Details

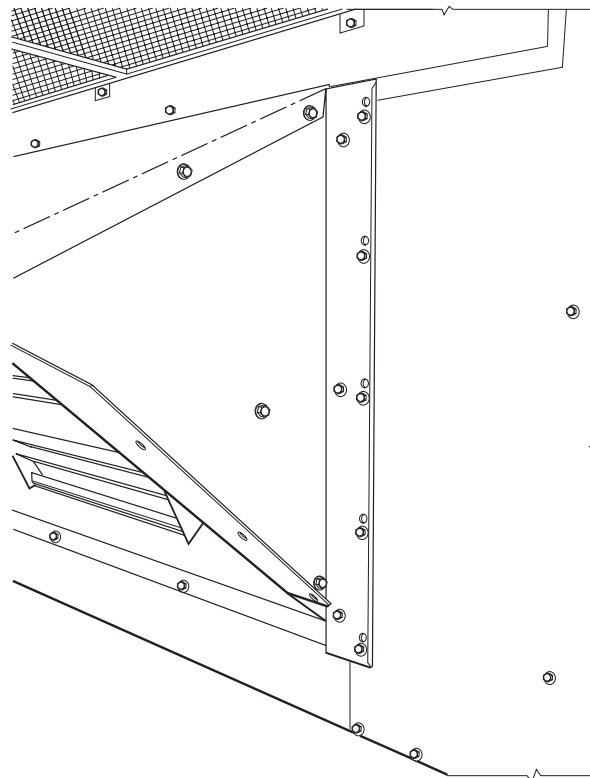


Fig. 23 — Bracket and Hood Positioning