WEATHERMAKER®
48A2,A3,A4,A5020-060
Single Package Gas Heating/Electric Cooling Rooftop Units with *COMFORT*LINK™ Controls and PURON® (R-410A) Refrigerant

Installation Instructions

CONTENTS

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).

⚠ CAUTION

Puron (R-410A) refrigerant systems operate at higher pressures than standard R-22 systems. Do not use R-22 service equipment or components on Puron refrigerant equipment. If service equipment is not rated for Puron refrigerant, equipment damage or personal injury may result.

INSTALLATION

Step 1 — Provide Unit Support

⚠ CAUTION

1. All panels must be in place when rigging or damage to unit may occur.
2. Unit is not designed for handling by fork truck. Damage to unit may occur.

ROOF CURB — For vertical discharge units, assemble or install accessory roof curb in accordance with instructions shipped with this accessory. See Fig. 1-3. Install insulation, cant strips, roofing, and counter flashing as shown. Ductwork can be installed to roof curb before unit is set in place. Curb should be level. This is necessary to permit unit drain to function properly. Unit leveling tolerance is shown in Fig. 1-3. 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.

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. 1-3. Improperly applied gasket can also result in air leaks and poor unit performance.

ALTERNATE UNIT SUPPORT — When the preferred curb or slab mount cannot be used, support unit with sleepers on perimeter, using unit curb support area. If sleepers cannot be used, support long sides of unit (refer to Fig. 4-10) with a minimum number of 4-in. x 4-in. pads spaced as follows: 48A2,A3,A4,A5020-035 units require 3 pads on each side; 48A2,A3,A4,A5040-050 units require 4 pads on each side; 48A2,A3,A4,A5060 units require 6 pads on each side. Unit may sag if supported by corners only.

Step 2 — Rig and Place Unit —

Inspect unit for transportation damage. See Tables 1-6 for physical data and specifications. File any claim with transportation agency.

Do not drop unit; keep upright. Use spreader bars over unit to prevent sling or cable damage. This unit must be handled with a crane and can not be handled by a fork truck. Level by using unit frame as a reference; leveling tolerance is shown in Fig. 1-3. See Fig. 11 for additional information. Unit operating weight is shown in Table 2.

NOTE: On retrofit jobs, ductwork may be attached to the old unit instead of a roof curb. Be careful not to damage ductwork when removing old unit. Attach existing ductwork to roof curb instead of unit.

Four lifting lugs are provided on the unit base rails as shown in Fig. 4-10. Refer to rigging instructions on unit.

POSITIONING — Maintain clearance, per Fig. 4-10, 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 unit 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. See Fig. 11. Unit operating weight is shown in Table 2.

Step 3 — 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.

NOTE: Due to width of the horizontal supply and return ductwork, provisions should be made for servicing of the outdoor air filters (i.e., catwalk over ductwork).

Ducts passing through an unconditioned space must be insulated and covered with a vapor barrier. Outlet grilles must not lie directly below unit discharge. The return duct must have a 90-degree elbow before opening into the building space if the unit is equipped with power exhaust.

To attach ductwork to roof curb, insert duct approximately 10 to 11 in. up into roof curb. Connect ductwork to 14-gage roof curb material with sheet metal screws driven from inside the duct.

Follow AMCA (Air Movement and Control Association) guidelines relating to ductwork connections to the unit. These guidelines recommend a minimum $2^1/_2$ equivalent duct diameters of straight duct connected to supply air inlet and outlet openings before any transitions, fittings, dampers, etc. Failure to adhere to these guidelines may result in system effects which can impact the unit's ability to achieve published performance.

⚠ WARNING

For vertical supply and return units, tools or parts could drop into ductwork and cause an injury. Install a 90-degree elbow turn in the supply and 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.

Step 4 — Make Unit Duct Connections

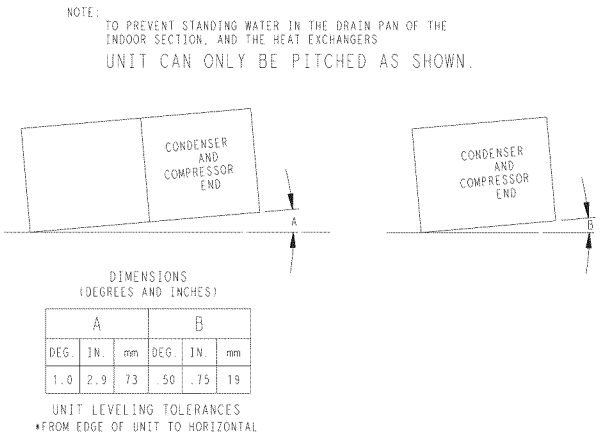
48A2 AND A3 UNITS — Unit is shipped for through-the-bottom duct connections. Field-fabricated ductwork should be **attached to the roof curb**. Supply and return duct dimensions are shown in Fig. 4-6. Air distribution is shown in Fig. 12. Refer to installation instructions shipped with roof curb for more information.

48A4 AND A5 UNITS — Remove shipping covers from supply and return air openings. Attach field-supplied ductwork to unit. Connect to the unit with a single duct for **all** supply openings and with a single duct for all return openings. Splitting of the airflow into branch ducts should not be done at the unit. Sufficient duct length should be used prior to branching to ensure the air temperatures are well mixed within the ductwork. See Fig. 7-9 for duct opening dimensions. Secure all ducts to building structure. Air distribution is shown in Fig. 7-9 and Fig. 13.

Install accessory barometric relief or power exhaust in the field-fabricated return ductwork. Refer to Step 10 — Position Power Exhaust/Barometric Relief Damper Hood section on page 30 for more information.

Instructions continued on page 17.

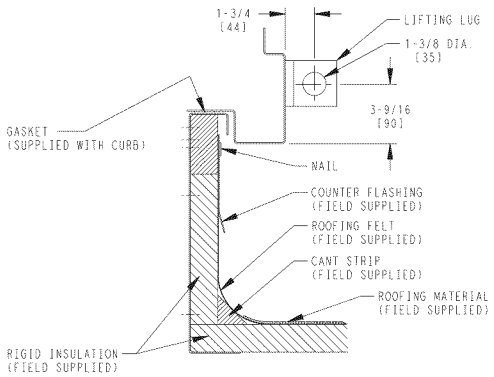
NOTES:
1. Unless otherwise specified, all dimensions are to outside of part.
2. Roof curb accessory CRRFCURB005A00 is shipped disassembled.
3. All roof curb parts are to be 14 ga. galvanized steel.
4. Dimensions in [ ] are in millimeters. All other dimensions are in inches.

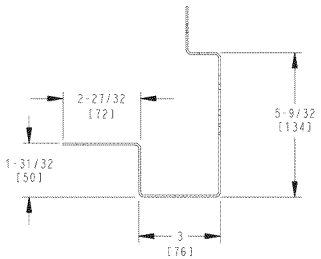


DIMENSIONS
(DEGREES AND INCHES)

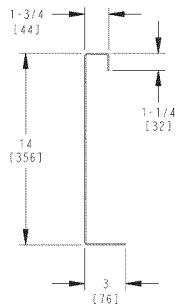
A			B		
DEG.	IN.	mm	DEG.	IN.	mm
1.0	2.9	73	.50	.75	19

UNIT LEVELING TOLERANCES
*FROM EDGE OF UNIT TO HORIZONTAL

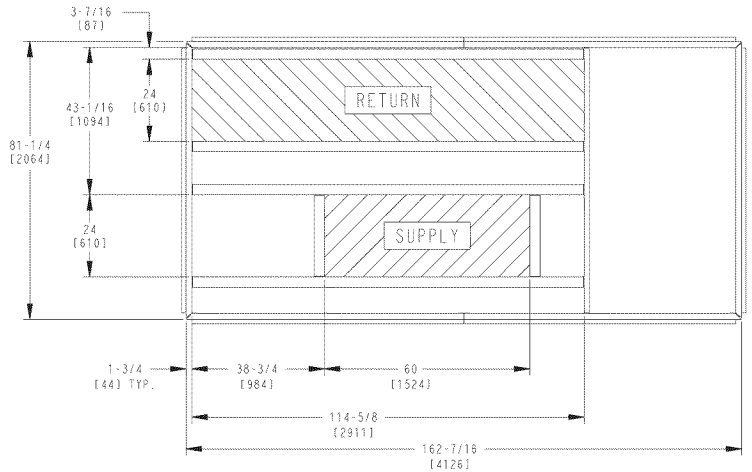




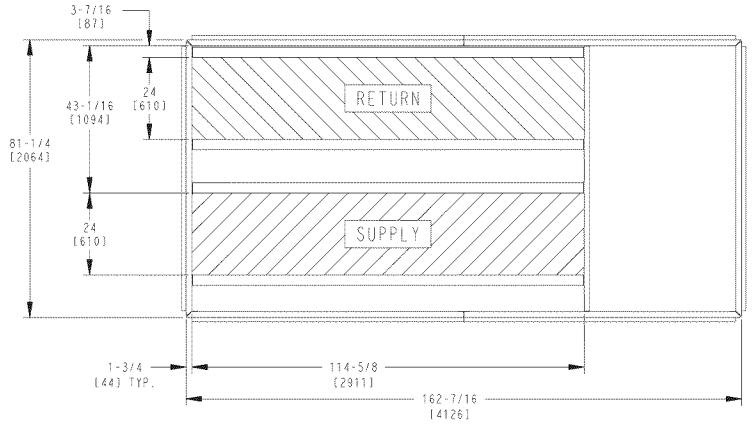
BASE RAIL CROSS SECTION
TYP 2 SIDES



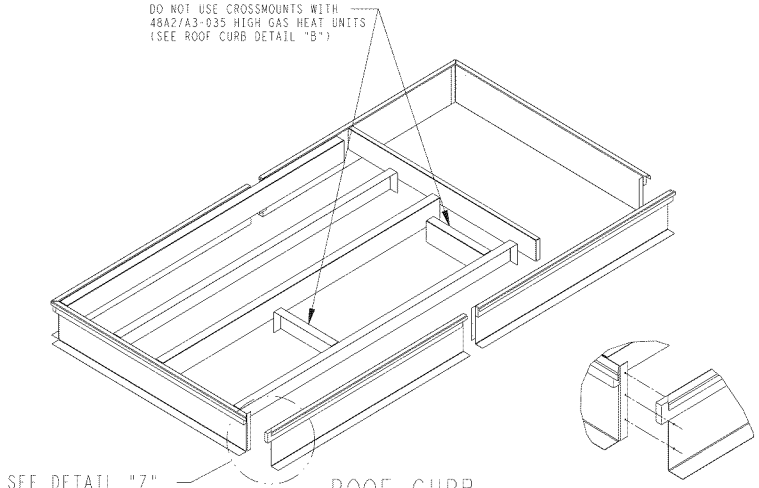
ROOF CURB CROSS SECTION
TYP 4 SIDES



ROOF CURB DETAIL 'A'
(ALL OTHERS)



ROOF CURB DETAIL "B"
(48A2/A3-035 HIGH GAS HEAT ONLY)



ROOF CURB
SCALE 1:16

DETAIL "Z"
SCALE 1:8
TYP 4 CORNERS

Fig. 1 — Roof Curb — 48A2,A3020-035 Units

NOTES:
1. Unless otherwise specified, all dimensions are to outside of part.
2. Roof curb accessory CRRFCURB006A00 is shipped disassembled.
3. All roof curb parts are to be 14 ga. galvanized steel.
4. Dimensions in [ ] are in millimeters. All other dimensions are in inches.

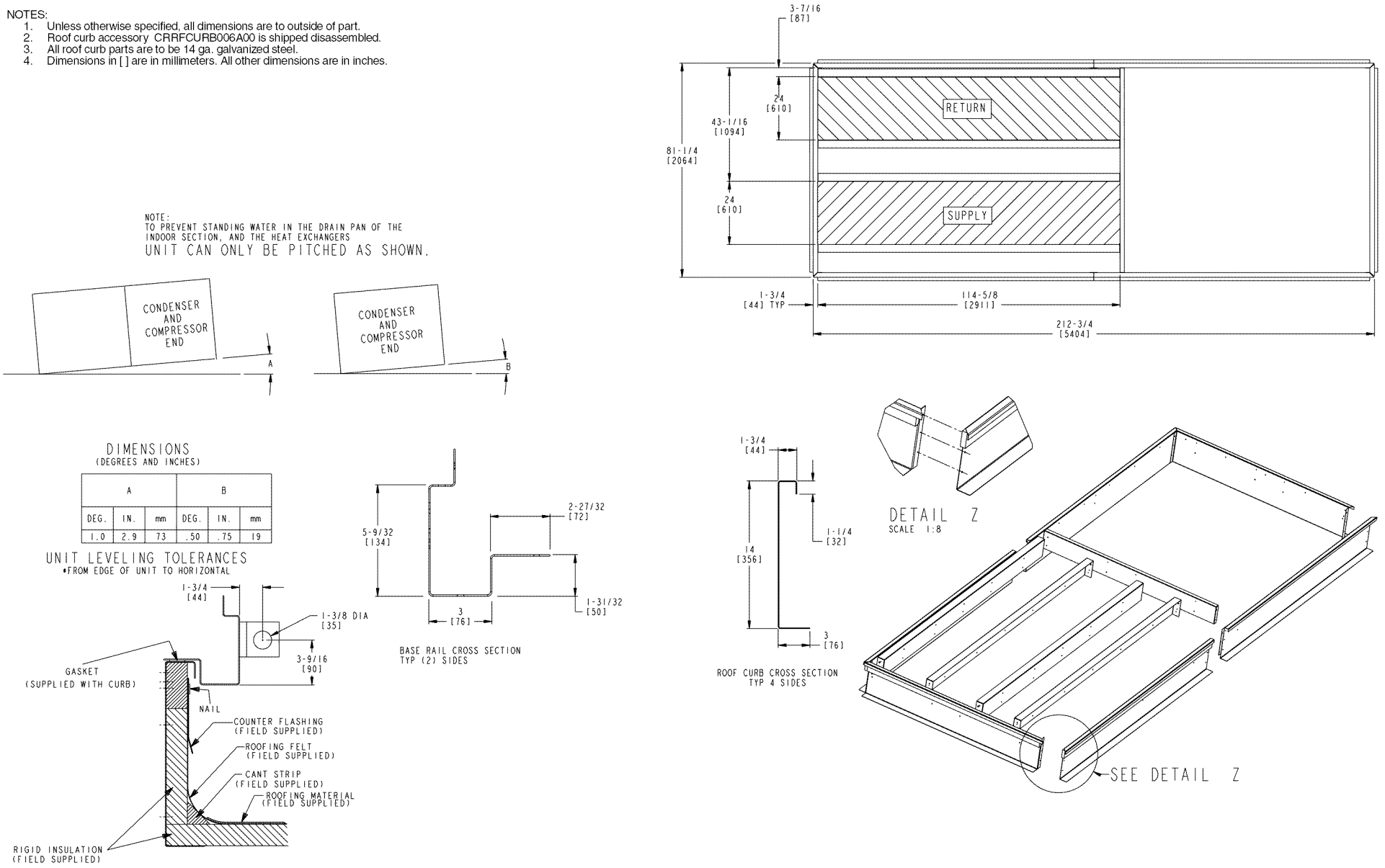
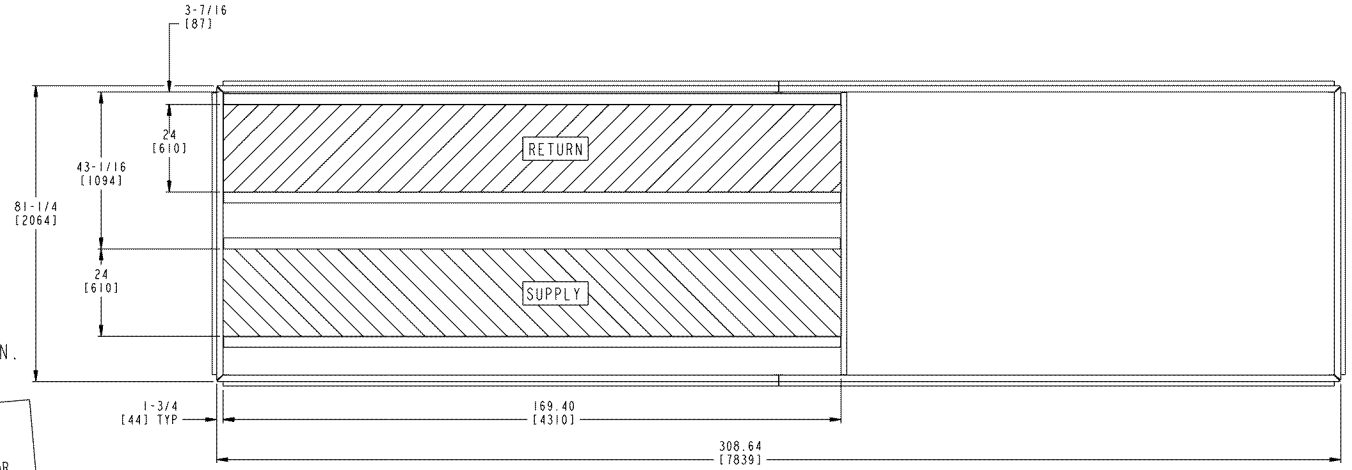
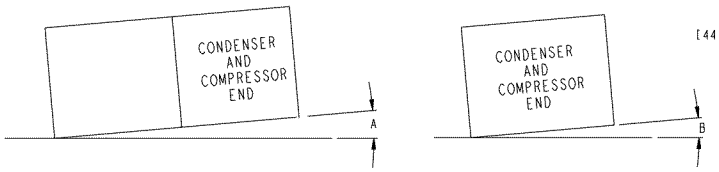


Fig. 2 — Roof Curb — 48A2,A3040-050 Units

NOTES:
1. Unless otherwise specified, all dimensions are to outside of part.
2. Roof curb accessory CRRFCURB014A00 is shipped disassembled.
3. All roof curb parts are to be 14 ga. galvanized steel.
4. Dimensions in [ ] are in millimeters. All other dimensions are in inches.



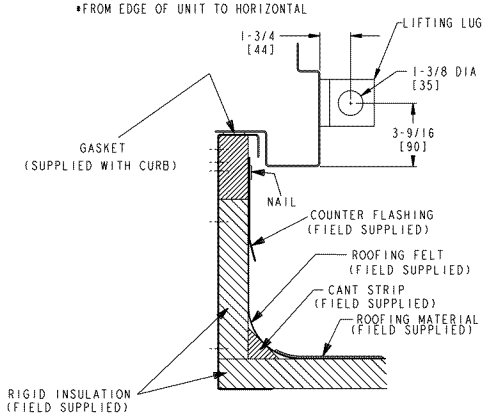
NOTE:
TO PREVENT STANDING WATER IN THE DRAIN PAN OF THE INDOOR SECTION, AND THE HEAT EXCHANGERS
UNIT CAN ONLY BE PITCHED AS SHOWN.

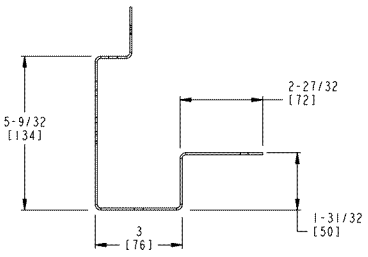


DIMENSIONS
(DEGREES AND INCHES)

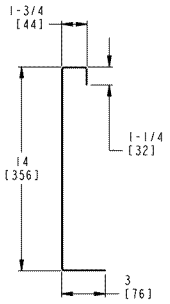
A			B		
DEG.	IN.	mm	DEG.	IN.	mm
1.0	5.43	138	.50	.75	19

UNIT LEVELING TOLERANCES
*FROM EDGE OF UNIT TO HORIZONTAL

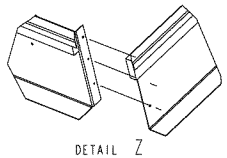




BASE RAIL CROSS SECTION
TYP (2) SIDES



ROOF CURB CROSS SECTION
TYP 4 SIDES



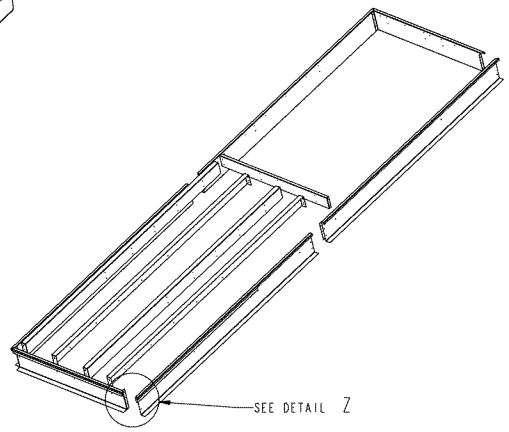


Fig. 3 — Roof Curb — 48A2,A3060 Units

NOTES:
1. Weights include economizer.
2. ⊕ center of gravity.
3. Unit clearances:
   Top of units: no overhang
   Condenser coil: 4' - 0" [1219]
   Economizer side: 6' - 0" [1829]
   Heat side: 4' - 0" [1219]
   Filter access side: 10' - 0" [3048] (for removal of evaporator coil)
4. For smaller service and operational clearances, contact Carrier application engineering department.
5. Bottom ducts are designed to be attached to accessory roof curb. If unit is mounted on dunnage, it is recommended that the ducts be supported by cross braces as done on accessory roof curb.
6. Dimensions in [ ] are in millimeters. All other dimensions are in inches.

UNIT SIZE	OPERATING WEIGHT *	CORNER WEIGHTS (LBS)					
		A	B				
	LBS	FT/IN	FT/IN	1	2	3	4
48A2/A3 (D,M,S) 020	4689	8 - 0 7/8"	3 - 8 1/2"	949	989	1382	1370
48A2/A3 (E,N,T) 020	4769	8 - 0 1/4"	3 - 8 1/8"	980	1006	1388	1396
48A2/A3 (D,M,S) 025	4825	8 - 1 3/8"	3 - 8 1/4"	963	1015	1414	1434
48A2/A3 (E,N,T) 025	4905	8 - 0 7/8"	3 - 8"	994	1032	1419	1460
48A2/A3 (D,M,S) 027	4891	8 - 0 1/8"	3 - 7 3/4"	1029	1015	1414	1434
48A2/A3 (E,N,T) 027	4971	7 - 11 5/8"	3 - 7 3/8"	1060	1032	1419	1460
48A2/A3 (D,M,S) 030	4922	7 - 10"	3 - 8"	1058	1058	1403	1403
48A2/A3 (E,N,T) 030	5002	7 - 9 1/2"	3 - 7 3/4"	1090	1075	1408	1428
48A2/A3 (D,M,S) 035	5339	7 - 10 3/4"	3 - 5"	1211	1061	1430	1637
48A2/A3 (E,N,T) 035	5499	7'- 10 1/4"	3 - 4 3/4"	1266	1093	1453	1687

UNIT SIZE	OPERATING WEIGHT *	CORNER WEIGHTS (kg)					
		A	B				
	kg	MM	MM	1	2	3	4
48A2/A3 (D,M,S) 020	2127	2460	1130	430	448	627	621
48A2/A3 (E,N,T) 020	2163	2446	1122	445	456	630	633
48A2/A3 (D,M,S) 025	2189	2474	1125	437	460	641	651
48A2/A3 (E,N,T) 025	2225	2460	1117	451	468	644	662
48A2/A3 (D,M,S) 027	2219	2440	1110	467	460	641	651
48A2/A3 (E,N,T) 027	2255	2427	1102	481	468	644	662
48A2/A3 (D,M,S) 030	2233	2389	1118	480	480	636	636
48A2/A3 (E,N,T) 030	2269	2376	1110	495	488	639	648
48A2/A3 (D,M,S) 035	2422	2408	1043	549	481	649	743
48A2/A3 (E,N,T) 035	2494	2393	1035	574	496	659	765

*Operating weight includes largest indoor fan motor, microchannel heat exchanger, modulating power exhaust (variable air volume units), and variable frequency drive (variable air volume units).

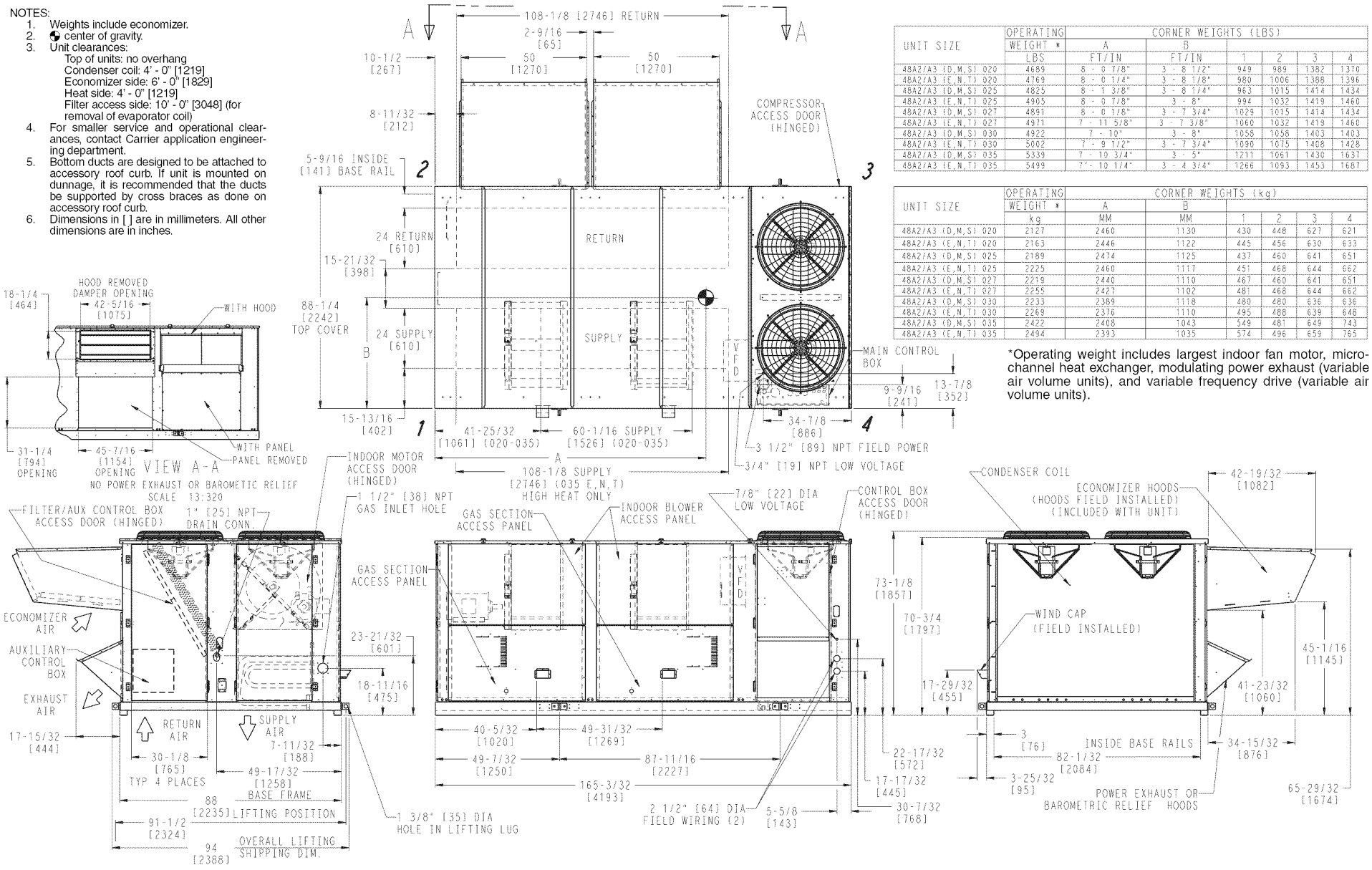


Fig. 4 — Base Unit Dimensions — 48A2,A3020-035

NOTES:

1. Weights include economizer.
2. ◔ center of gravity.
3. Unit clearances:
   Top of units: no overhang
   Condenser coil: 4' - 0" [1219]
   Economizer side: 6' - 0" [1829]
   Heat side: 4' - 0" [1219]
   Filter access side: 10' - 0" [3048] (for removal of evaporator coil)
4. For smaller service and operational clearances, contact Carrier application engineering department.
5. Bottom ducts are designed to be attached to accessory roof curb. If unit is mounted on dunnage, it is recommended that the ducts be supported by cross braces as done on accessory roof curb.
6. Dimensions in [ ] are in millimeters. All other dimensions are in inches.

UNIT SIZE	OPERATING WEIGHT *	A	B	CORNER WEIGHT (LBS)			
	LBS	FT/IN	FT/IN	1	2	3	4
48A2/A3(D,M,S)040	5769	10- 0 3/8"	3-5"	1355	1186	1502	1727
48A2/A3(E,N,T)040	5929	9- 10 7/8"	3- 4 3/4"	1423	1229	1513	1764
48A2/A3(D,M,S)050	5949	9- 10 1/8"	3- 5 1/4"	1419	1264	1527	1740
48A2/A3(E,N,T)050	6109	9- 8 5/8"	3-5"	1489	1308	1536	1777

UNIT SIZE	OPERATING WEIGHT *	A	B	CORNER WEIGHT (kg)			
	kg	MM	MM	1	2	3	4
48A2/A3(D,M,S)040	2617	3056	1041	615	538	681	783
48A2/A3(E,N,T)040	2690	3018	1034	646	557	686	800
48A2/A3(D,M,S)050	2699	2999	1048	644	573	693	789
48A2/A3(E,N,T)050	2771	2962	1040	675	593	697	806

*Operating weight includes largest indoor fan motor, microchannel heat exchanger, modulating power exhaust (variable air volume units), and variable frequency drive (variable air volume units).

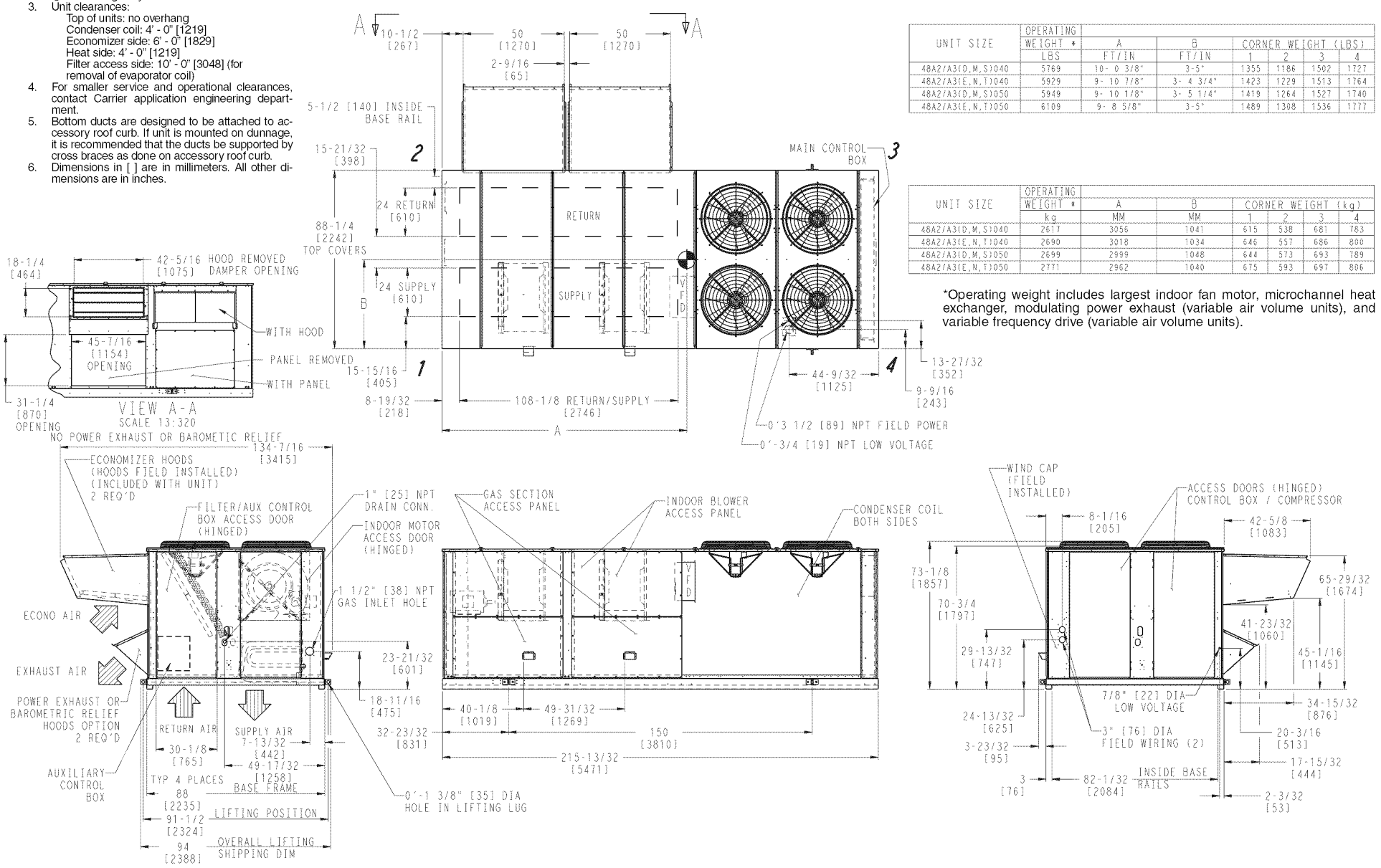


Fig. 5 — Base Unit Dimensions — 48A2,A3040-050

FOR CENTERS OF GRAVITY, OPERATING AND CORNER WEIGHTS, SEE FIG. 10

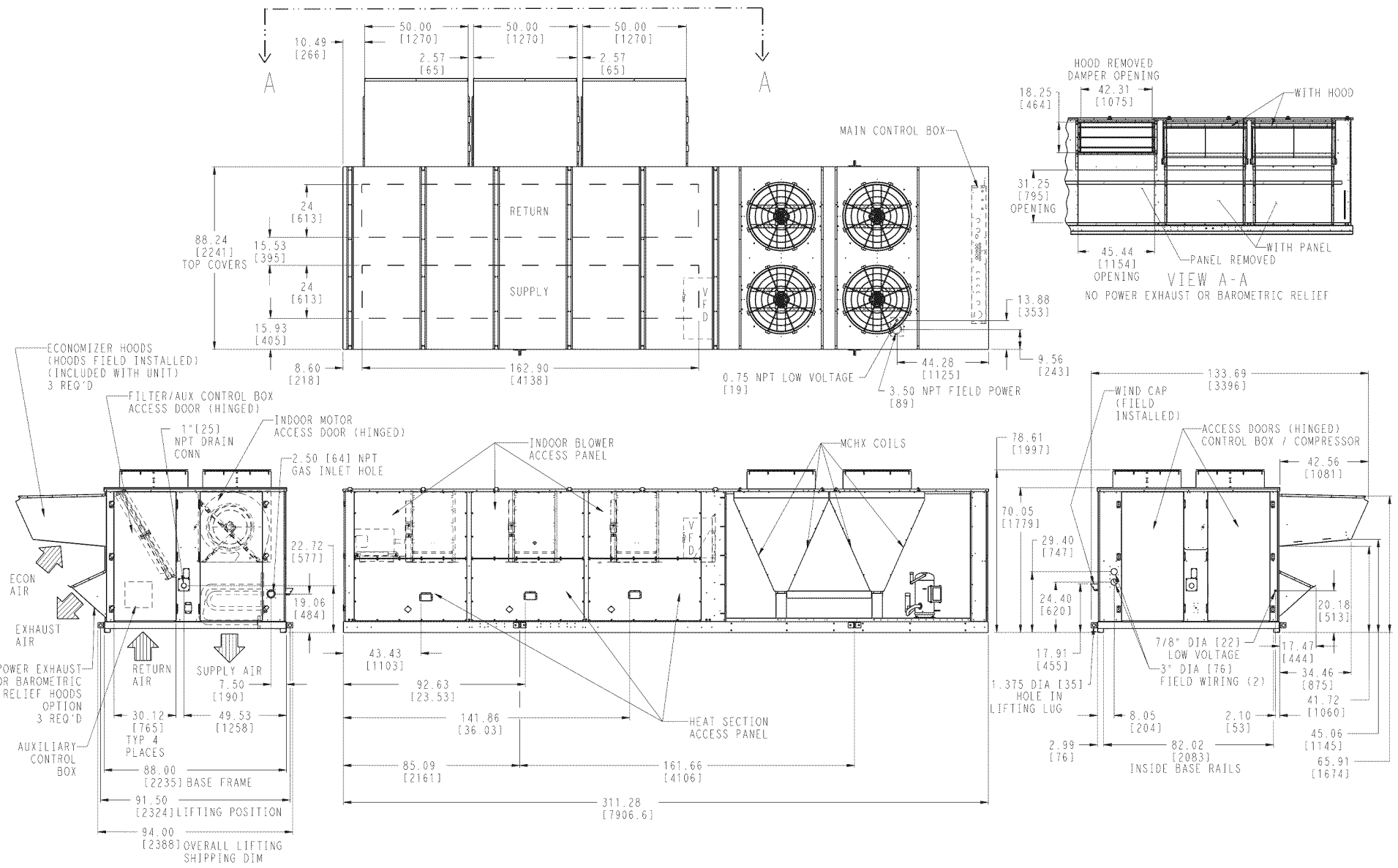


Fig. 6 — Base Unit Dimensions — 48A2,A3060

NOTES:
1. Weights include economizer.
2. ⊕ center of gravity.
3. Unit clearances:
   Top of units: no overhang
   Condenser coil: 4' - 0" [1219]
   Economizer side: 6' - 0" [1829]
   Heat side: 4' - 0" [1219]
   Filter access side: 10' - 0" [3048] (for removal of evaporator coil)
4. For smaller service and operational clearances, contact Carrier application engineering department.
5. Dimensions in [ ] are in millimeters. All other dimensions are in inches.

UNIT SIZE	OPERATING WEIGHT *	A	B	CORNER WEIGHT (LBS)			
	LBS	FT/IN	FT/IN	1	2	3	4
48A4/A5 (D,M,S) 020	4729	7 - 9 1/4"	4 - 1"	855	1201	1435	1238
48A4/A5 (E,N,T) 020	4809	7 - 8 7/8"	4 - 0 3/4"	886	1218	1443	1263
48A4/A5 (D,M,S) 025	4865	7 - 9 7/8"	4 - 0 3/4"	869	1227	1467	1302
48A4/A5 (E,N,T) 025	4945	7 - 9 1/2"	4 - 0 1/4"	899	1244	1474	1327
48A4/A5 (D,M,S) 027	4931	7 - 8 5/8"	4 - 0"	935	1227	1467	1302
48A4/A5 (E,N,T) 027	5011	7 - 8 1/4"	3 - 11 3/4"	965	1244	1474	1327
48A4/A5 (D,M,S) 030	4962	7 - 6 5/8"	4 - 0 1/4"	966	1271	1455	1271
48A4/A5 (E,N,T) 030	5042	7 - 6 1/4"	4 - 0"	996	1288	1462	1297
48A4/A5 (D,M,S) 035	5379	7 - 0 5/8"	3 - 9 3/8"	1112	1279	1491	1498
48A4/A5 (E,N,T) 035	5539	7 - 7 1/4"	3 - 8 7/8"	1165	1312	1516	1547

UNIT SIZE	OPERATING WEIGHT *	A	B	CORNER WEIGHT (kg)			
	kg	MM	MM	1	2	3	4
48A4/A5 (D,M,S) 020	2145	2368	1246	388	545	651	561
48A4/A5 (E,N,T) 020	2182	2358	1237	402	553	654	573
48A4/A5 (D,M,S) 025	2207	2385	1238	394	557	665	591
48A4/A5 (E,N,T) 025	2243	2374	1229	408	564	669	602
48A4/A5 (D,M,S) 027	2237	2353	1221	424	557	665	591
48A4/A5 (E,N,T) 027	2273	2343	1213	438	564	669	602
48A4/A5 (D,M,S) 030	2251	2303	1228	438	576	660	577
48A4/A5 (E,N,T) 030	2287	2293	1219	452	584	663	588
48A4/A5 (D,M,S) 035	2440	2329	1151	504	580	676	679
48A4/A5 (E,N,T) 035	2513	2317	1141	528	595	688	702

*Operating weight includes largest indoor fan motor, microchannel heat exchanger, modulating power exhaust (variable air volume units), and variable frequency drive (variable air volume units).

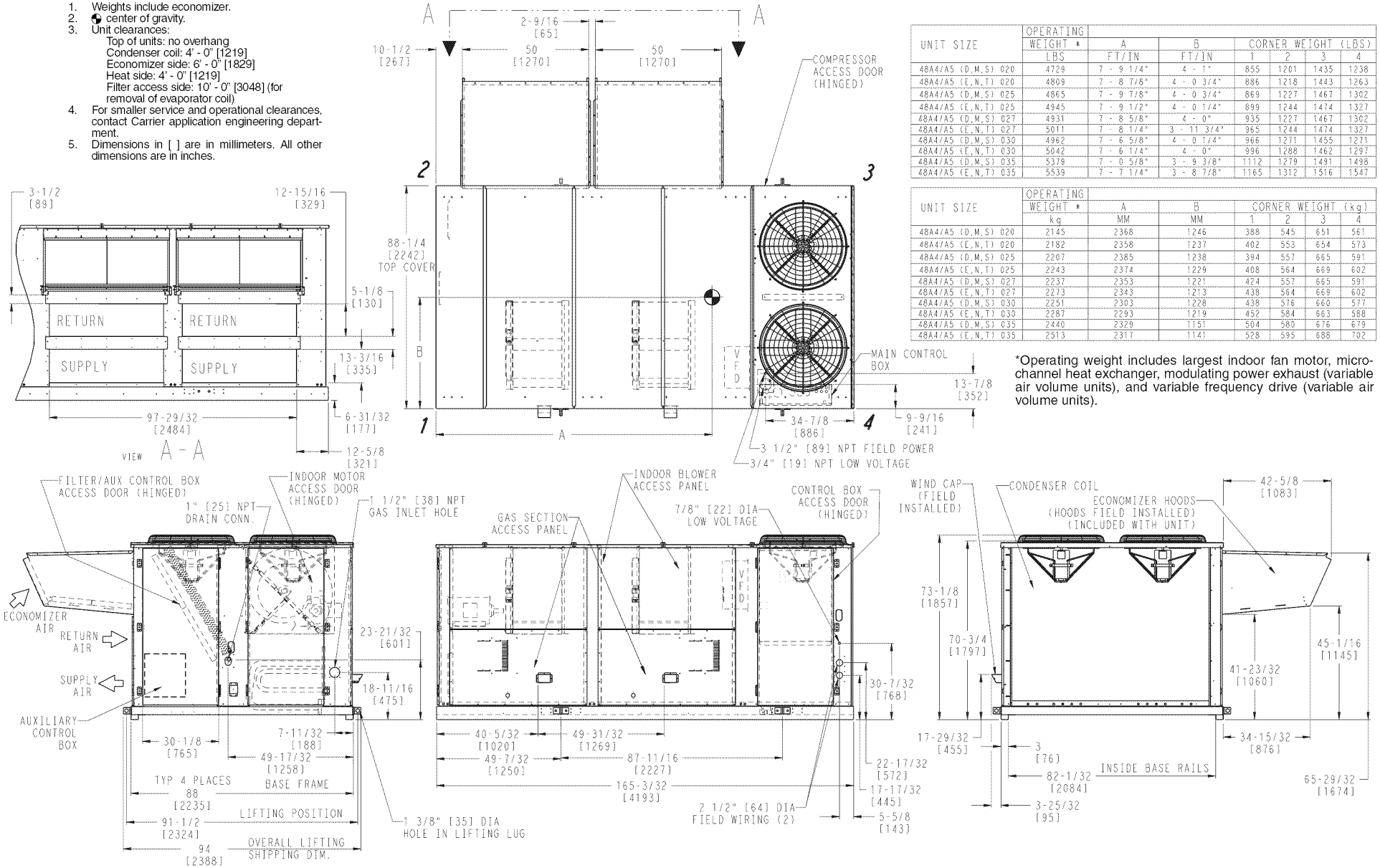


Fig. 7 — Base Unit Dimensions — 48A4,A5020-035

NOTES:
1. Weights include economizer.
2. ◔ center of gravity.
3. Unit clearances:
   Top of units: no overhang
   Condenser coil: 4' - 0" [1219]
   Economizer side: 6' - 0" [1829]
   Heat side: 4' - 0" [1219]
   Filter access side: 10' - 0" [3048] (for removal of evaporator coil)
4. For smaller service and operational clearances, contact Carrier application engineering department.
5. Dimensions in [ ] are in millimeters. All other dimensions are in inches.

UNIT SIZE	OPERATING WEIGHT *	A	B	CORNER WEIGHT (LBS)			
	LBS	FT/IN	FT/IN	1	2	3	4
48A4/A5(D,M,S)040	5809	9 - 7 1/8"	3 - 9"	1254	1445	1522	1588
48A4/A5(E,N,T)040	5969	9 - 5 7/8"	3 - 8 1/2"	1320	1488	1535	1627
48A4/A5(D,M,S)050	5989	9 - 4 7/8"	3 - 9 1/8"	1320	1524	1544	1601
48A4/A5(E,N,T)050	6149	9 - 3 3/4"	3 - 8 5/8"	1388	1567	1555	1639

UNIT SIZE	OPERATING WEIGHT *	A	B	CORNER WEIGHT (kg)			
	kg	MM	MM	1	2	3	4
48A4/A5(D,M,S)040	2635	2924	1142	569	656	690	720
48A4/A5(E,N,T)040	2708	2893	1132	599	675	696	738
48A4/A5(D,M,S)050	2717	2868	1145	599	691	700	726
48A4/A5(E,N,T)050	2789	2837	1135	630	711	706	744

*Operating weight includes largest indoor fan motor, microchannel heat exchanger, modulating power exhaust (variable air volume units), and variable frequency drive (variable air volume units).

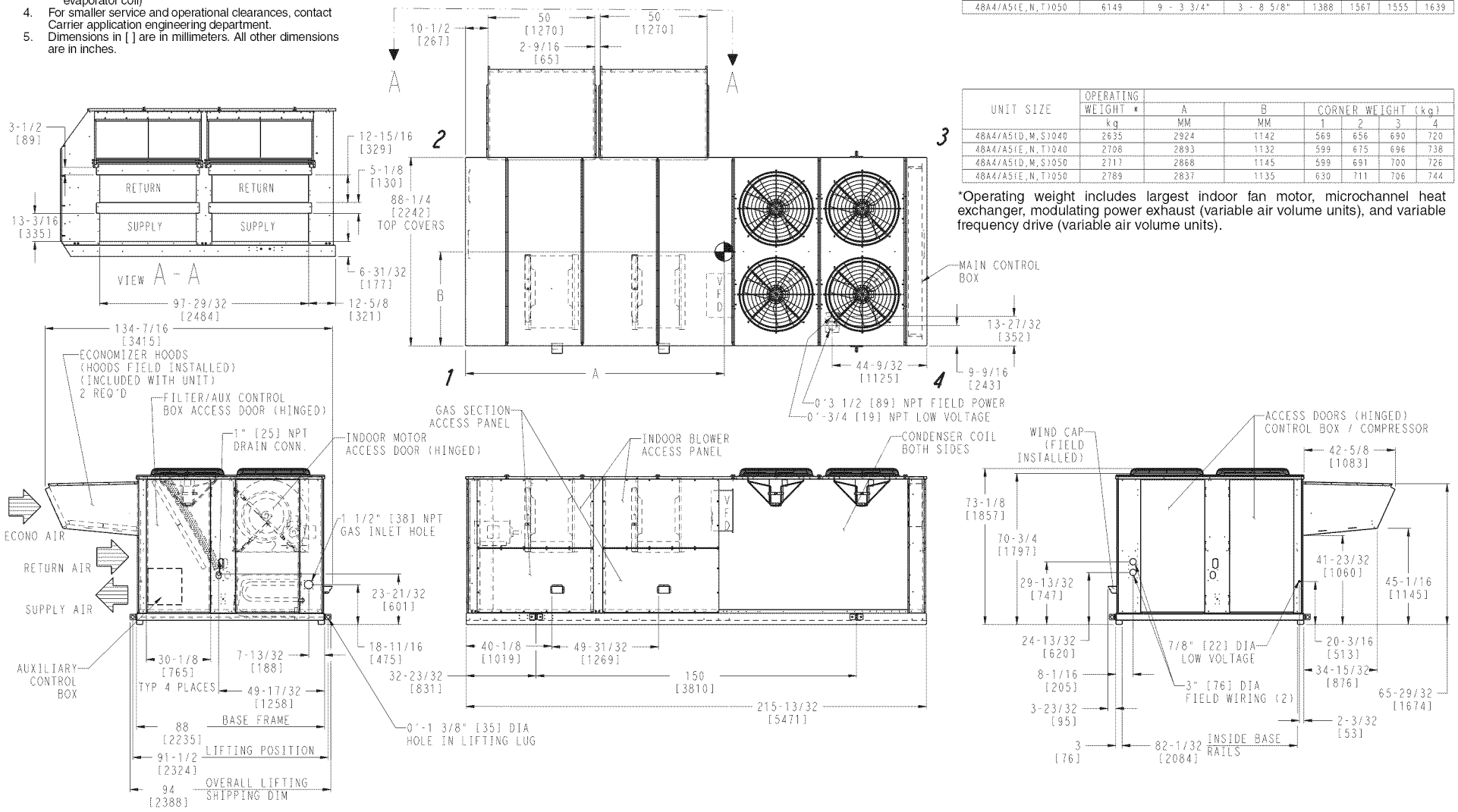


Fig. 8 — Base Unit Dimensions — 48A4,A5040-050

FOR CENTERS OF GRAVITY, OPERATING AND CORNER WEIGHTS, SEE FIG. 10

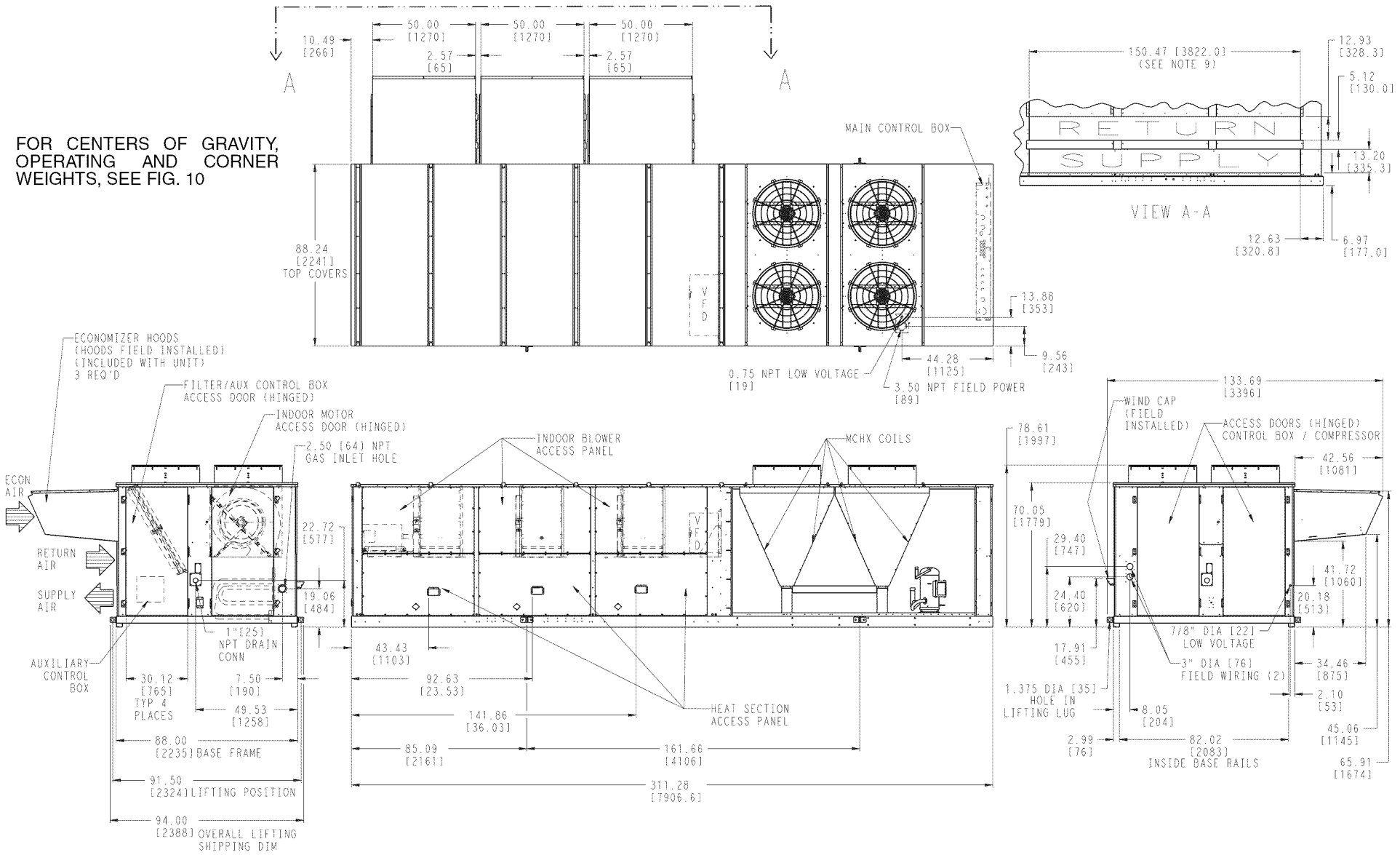


Fig. 9 — Base Unit Dimensions — 48A4,A5060

NOTES:
1. Weights include economizer or outdoor air damper.
2. ⊕ center of gravity.
3. Unit clearances:
   Top of units: no overhang
   Condenser coil: 4' - 0" [1219]
   Economizer side: 6' - 0" [1829]
   Heat side: 4' - 0" [1219]
   Filter access side: 10' - 0" [3048] (for removal of evaporator coil)
4. For smaller service and operational clearances, contact Carrier application engineering department.
5. Bottom ducts are designed to be attached to accessory roof curb. If unit is mounted on dunnage, it is recommended that the ducts be supported by cross braces as done on accessory roof curb.
6. Base unit weights include outdoor air hoods and filters (indoor fan motor is not included). Add indoor fan motor, FIOPs, and accessories for total operating weight.
7. VAV motor weights include indoor motor, VFD, VFD transducer, and associated wiring.
8. Dimensions in [ ] are in millimeters. All other dimensions are in inches.
9. For side-supply/return applications, a single return and supply ductwork connection is recommended for covering all three return and all three supply openings. The entire area around the duct openings is available for a 1.5" duct flange attachment.

BASE UNIT WEIGHTS (SEE NOTE 6) LBS. (Kg)	
	060
48A2D/A3D	7066 (3205)
48A2E/A3E	7306 (3314)
48A4D/A5D	7106 (3223)
48A4E/A5E	7356 (3337)
OPTIONS / ACCESSORIES (SEE NOTE 6)	
BAROMETRIC RELIEF	450 (204)
NON MOD. POWER EXHAUST	675 (306)
MOD. POWER EXHAUST	725 (329)
CU TU/AL FIN COND COIL	26 (12)
CU TU/CU FIN COND COIL	677 (307)

UNIT SIZE	OPERATING WEIGHT* (lb)	CENTER OF GRAVITY (ft - in.)		CORNER WEIGHTS (lb)			
		A	B	1	2	3	4
48A2,A3 (D, M, S) 060	8386	14 - 9 5/8	3 - 5 1/4	1909	1693	2243	2541
48A2,A3 (E, N, T) 060	8626	14 - 2 3/8	3 - 3 1/4	2159	1745	2100	2622
48A4,A5 (D, M, S) 060	8426	14 - 1 5/8	3 - 9 1/4	1763	2072	2259	2333
48A4,A5 (E, N, T) 060	8676	13 - 7 1/4	3 - 7 1/4	2000	2126	2134	2417

UNIT SIZE	OPERATING WEIGHT* (kg)	CENTER OF GRAVITY (mm)		CORNER WEIGHTS (kg)			
		A	B	1	2	3	4
48A2,A3 (D, M, S) 060	3804	4514	1048	866	768	1017	1153
48A2,A3 (E, N, T) 060	3913	4329	997	979	792	953	1189
48A4,A5 (D, M, S) 060	3822	4310	1150	800	940	1024	1058
48A4,A5 (E, N, T) 060	3936	4146	1099	907	964	968	1096

*Operating weight includes largest indoor fan motor, microchannel heat exchanger, modulating power exhaust (variable air volume units), and variable frequency drive (variable air volume units).

		CV MOTOR WEIGHTS LBS. (Kg)		VAV MOTOR WEIGHTS LBS. (Kg) (SEE NOTE 7)	
		HIGH EFFC'Y IFM	PREMIUM EFFC'Y IFM	HIGH EFFC'Y IFM	PREMIUM EFFC'Y IFM
25 HP (18.65 Kw)	230/460	240 (109)	309 (140)	375 (170)	444 (201)
	575	240 (109)	319 (145)	375 (170)	454 (206)
30 HP (22.38 Kw)	230/460	283 (128)	355 (161)	418 (190)	490 (222)
	575	283 (128)	359 (163)	418 (190)	494 (224)
40 HP (29.84 Kw)	230/460	372 (169)	415 (188)	507 (230)	550 (249)
	575	372 (169)	410 (186)	507 (230)	545 (247)

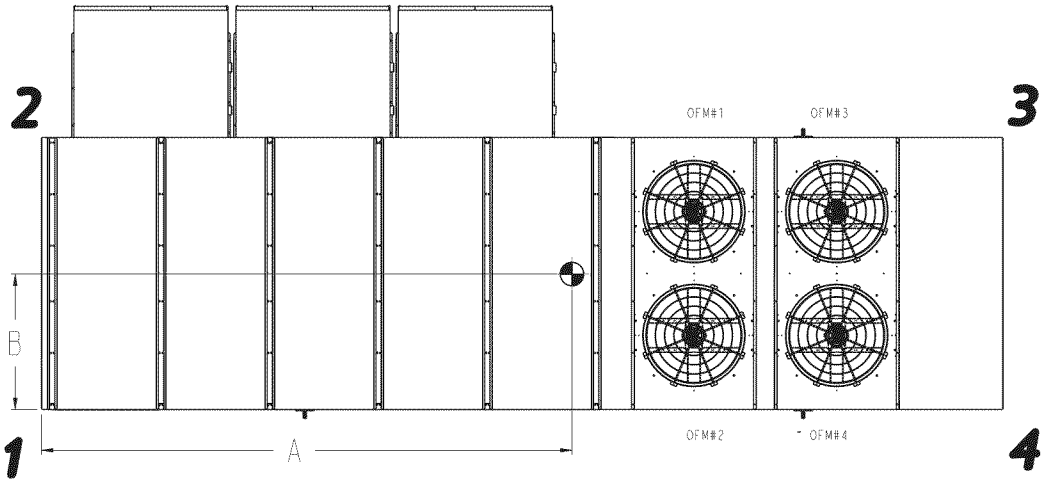


Fig. 10 — Center of Gravity and Weights — 48A2,A3,A4,A5060

Table 1 — Physical Data — 48A2,A3,A4,A5 Units

UNIT 48A2,A3,A4,A5	020D/E			025D/E			027D/E			030D/E		
NOMINAL CAPACITY (tons)	20			25			27			30		
BASE UNIT OPERATING WEIGHT (lb)	See Unit Weights Table											
COMPRESSOR												
Quantity ... Type (Ckt 1/Ckt 2)	2 ... ZP67/1...ZP90			2 ... ZP90/1...ZP90			2 ... ZP90/1...ZP90			2...ZP72, 2...ZP72		
Number of Refrigerant Circuits	2			2			2			2		
Oil	Precharged			Precharged			Precharged			Precharged		
REFRIGERANT TYPE	R-410A											
Operating Charge (lb-oz)												
Circuit 1	14-14			20-6			20-6			15-2		
Circuit 2	11-13			12-13			12-13			15-5		
MCHX CONDENSER*												
Quantity	1			1			1			1		
Total Face Area (sq ft)	32.9			32.9			32.9			32.9		
CONDENSER FAN	Propeller Type											
Nominal Cfm	19,500			19,500			19,500			19,500		
Quantity... Diameter (in.)	2 ... 30			2 ... 30			2 ... 30			2 ... 30		
Motor Hp	1			1			1			1		
EVAPORATOR COIL	Cross-Hatched Copper Tubes, Aluminum Plate Fins with Intertwined Circuits											
Tube Size (in.)	3/8			3/8			3/8			3/8		
Rows ... Fins/in.	3 ... 15			4 ... 14			4 ... 15			4 ... 15		
Total Face Area (sq ft)	31.7			31.7			31.7			31.7		
EVAPORATOR FAN	Centrifugal Type											
Quantity ... Size (in.)	2 ... 20 X 15			2 ... 20 X 15			2 ... 20 X 15			2 ... 20 X 15		
Type Drive	Belt			Belt			Belt			Belt		
Nominal Cfm	8,000			10,000			11,000			12,000		
Motor Hp	5	10	15	5	10	15	10	15	20	10	15	20
Motor Frame Size	184T	215T	254T	184T	215T	254T	215T	254T	256T	215T	254T	256T
Motor Bearing Type		Ball			Ball			Ball			Ball	
Maximum Allowable Rpm		1200			1200			1200			1200	
Motor Pulley Pitch Diameter	4.8	4.4	5.7	4.8	6.1	5.5	4.4	4.9	5.9	4.4	5.7	5.9
Nominal Motor Shaft Diameter (in.)	1 1/8	1 3/8	1 5/8	1 1/8	1 3/8	1 5/8	1 3/8	1 5/8	1 5/8	1 3/8	1 5/8	1 5/8
Fan Pulley Pitch Diameter (in.)	12.4	8.6	9.1	12.4	11.1	8.7	9.4	8.1	8.7	9.0	9.1	8.7
Nominal Fan Shaft Diameter (in.)		1 15/16			1 15/16			1 15/16			1 15/16	
Belt Quantity	1	2	2	1	1	2	2	2	2	2	2	2
Belt Type	BX56	BX50	5VX530	BX56	5VX570	5VX530	BX50	5VX500	5VX530	BX50	5VX530	5VX530
Belt Length (in.)	56	63	53	56	57	53	50	50	53	50	53	53
Pulley Center Line Distance (in.)	16.0-18.7	15.6-18.4	15.0-17.9	15.6-18.4	15.6-18.4	15.0-17.9	15.6-18.4	15.0-17.9	15.0-17.9	15.6-18.4	15.0-17.9	15.0-17.9
Factory Speed Setting (rpm)	717	924	1096	717	962	1106	848	1059	1187	856	1096	1187
FURNACE SECTION												
Supply Line Pressure Range	5.0-in. wg min/13.5-in. wg max.											
Rollout Switch Cutout Temp (F)†	225			225			225			225		
Burner Orifice Diameter (in. ...drill size)												
Natural Gas Std	.111 ... 34			.111 ... 34			.111 ... 34			.111 ... 34		
Liquid Propane Alt	.089 ... 43			.089 ... 43			.089 ... 43			.089 ... 43		
Thermostat Heat Anticipator Setting												
Stage 1 (amps)	0.1			0.1			0.1			0.1		
Stage 2 (amps)	0.1			0.1			0.1			0.1		
Gas Input (Btuh) Stage 1 (Low Heat/High Heat)	262,500/394,000			262,500/394,000			262,500/394,000			262,500/394,000		
Stage 2 (Low Heat/High Heat)	350,000/525,000			350,000/525,000			350,000/525,000			350,000/525,000		
Efficiency (Steady State) (%)	81			81			81			81		
Temperature Rise Range (Low Heat/High Heat)	15-45/35-65			15-45/35-65			15-45/35-65			15-45/35-65		
Manifold Pressure (in. wg)												
Natural Gas Std	3.5			3.5			3.5			3.5		
Liquid Propane Alt	3.5			3.5			3.5			3.5		
Gas Valve Quantity	2			2			2			2		
HIGH-PRESSURE SWITCH (psig)												
Cutout	650			650			650			650		
Reset (Auto.)	500			500			500			500		
MIXED-AIR FILTERS												
Quantity ... Size (in.) Standard	10 ... 20 x 24 x 2			10 ... 20 x 24 x 2			10 ... 20 x 24 x 2			10 ... 20 x 24 x 2		
Pleated	5 ... 20 x 20 x 4			5 ... 20 x 20 x 4			5 ... 20 x 20 x 4			5 ... 20 x 20 x 4		
	5 ... 20 x 24 x 4			5 ... 20 x 24 x 4			5 ... 20 x 24 x 4			5 ... 20 x 24 x 4		
OUTDOOR-AIR FILTERS												
Quantity...Size (in.)	8...16 x 25 x 2 4...20 x 25 x 2											
POWER EXHAUST	Direct Drive, Single-Phase Motors (Factory-Wired for High Speed Operation), Forward-Curved Fan Wheels with Backdraft Dampers on Each Fan Housing											
Motor, Quantity...Hp	4...1											
Fan, Diameter...Width (in.)	11 x 10											

LEGEND

MCHX— Microchannel Heat Exchanger

*Sizes 020 to 027: Circuit 1 uses the lower portion of condenser coil, Circuit 2 uses the upper portion.
Sizes 030 and 035: Circuit 1 uses the upper portion of condenser coil, Circuit 2 uses the lower portion.
Sizes 040 and 050: Circuit 1 uses the left condenser coil, Circuit 2 the right.
Size 060: Circuit A uses the two MCHX coils near the bulkhead, Circuit B uses the two MCHX coils near the control box.
†Rollout switch is manual reset.

Table 1 — Physical Data — 48A2,A3,A4,A5 Units (cont)

UNIT 48A2,A3,A4,A5		035D/E			040D/E			050D/E			060D/E		
NOMINAL CAPACITY (tons)		35			40			50			60		
BASE UNIT OPERATING WEIGHT (lb)		See Unit Weights Table											
COMPRESSOR													
Quantity ... Type (Ckt 1/Ckt 2)		2 ... ZP67/2...ZP103			2...ZP103/2...ZP103			2...ZP120/2...ZP120			2...SM154/2...ZP154		
Number of Refrigerant Circuits		2			2			2			2		
Oil		Precharged			Precharged			Precharged			Precharged		
REFRIGERANT TYPE		R-410A											
Operating Charge (lb-oz)													
Circuit 1		22-0			25-8			31-11			30-10		
Circuit 2		30-11			26-0			31-11			38-5		
MCHX CONDENSER*													
Quantity		1			2			2			4		
Total Face Area (sq ft)		32.9			65.8			65.8			105.2		
CONDENSER FAN		Propeller Type									Shrouded Axial Type		
Nominal Cfm		19,500			32,000			35,000			40,000		
Quantity... Diameter (in.)		2 ... 30			4 ... 30			4 ... 30			4...30.5		
Motor Hp		1			1			1			1		
EVAPORATOR COIL		Cross-Hatched Copper Tubes, Aluminum Plate Fins with Intertwined Circuits											
Tube Size (in.)		1/2			1/2			1/2			1/2		
Rows ... Fins/in.		6 ... 16			4 ... 17			6 ... 16			4...17		
Total Face Area (sq ft)		31.3			31.3			31.3			48.1		
EVAPORATOR FAN		Centrifugal Type											
Quantity ... Size (in.)		2 ... 20 X 15			2 ... 20 X 15			2 ... 20 X 15			3 ... 20 X 15		
Type Drive		Belt			Belt			Belt			Belt		
Nominal Cfm		14,000			16,000			18,000			24,000		
Motor Hp		15	20	25	15	20	25	20	25	30	25	30	40
Motor Frame Size		254T	256T	284T	254T	256T	284T	256T	284T	286T	284T	286T	324T
Motor Bearing Type			Ball			Ball			Ball			Ball	
Maximum Allowable Rpm			1300			1300			1300			1200	
Motor Pulley Pitch Diameter		5.1	5.7	6.2	5.3	5.7	7.5	5.7	6.2	6.7	5.3	5.9	6.5
Nominal Motor Shaft Diameter (in.)		1 5/8	1 5/8	1 7/8	1 5/8	1 5/8	1 7/8	1 5/8	1 7/8	1 7/8	1 7/8	1 7/8	2 1/8
Fan Pulley Pitch Diameter (in.)		8.7	8.7	8.7	9.5	9.5	11.1	9.5	9.5	9.5	9.1	9.5	9.5
Nominal Fan Shaft Diameter (in.)			1 15/16			1 15/16			1 15/16			1 15/16	
Belt Quantity		2	2	2	2	2	2	2	2	2	3	3	3
Belt Type		5VX500	5VX530	5VX550	5VX530	5VX550	5VX590	5VX550	5VX570	5VX570	5VX530	5VX550	5VX570
Belt Length (in.)		50	53	55	53	55	59	55	57	57	53	55	57
Pulley Center Line Distance (in.)		15.0-17.9	15.0-17.9	15.0-17.9	15.0-17.9	15.0-17.9	14.6-17.6	15.0-17.9	14.6-17.6	14.6-17.6	15.2-17.5	14.7-17.2	14.2-17.0
Factory Speed Setting (rpm)		1025	1147	1247	976	1050	1182	1050	1142	1234	1019	1087	1197
FURNACE SECTION													
Supply Line Pressure Range		5.0-in. wg min/13.5-in. wg max.											
Rollout Switch Cutout Temp (F)†		225			225			225			225		
Burner Orifice Diameter (in ...drill size)													
Natural Gas	Std	.111 ... 34 (low)/.120 ... 31 (high)			.120 ... 31			.120 ... 31			.120...31		
Liquid Propane	Alt	.089 ... 43			.096 ... 41			.096 ... 41			.096...41		
Thermostat Heat Anticipator Setting													
Stage 1 (amps)		0.1			0.24			0.1			0.1		
Stage 2 (amps)		0.1			0.13			0.1			0.1		
Gas Input (Btuh) Stage 1 (Low Heat/High Heat)		262,500/600,000			300,000/600,000			300,000/600,000			582,000/873,000		
Stage 2 (Low Heat/High Heat)		350,000/800,000			400,000/800,000			400,000/800,000			776,000/1,164,000		
Efficiency (Steady State) (%)		81			81			81			82		
Temperature Rise Range (Low Heat/High Heat)		15-45/30-60			10-40/30-60			10-40/30-60			10-40/30-60		
Manifold Pressure (in. wg)													
Natural Gas	Std	3.5			3.5			3.5			3.3		
Liquid Propane	Alt	3.5			3.5			3.5			3.3		
Gas Valve Quantity		2			2			2			3		
HIGH-PRESSURE SWITCH (psig)													
Cutout		650			650			650			650		
Reset (Auto.)		500			500			500			500		
MIXED-AIR FILTERS													
Quantity ... Size (in.) Standard		10 ... 20 x 24 x 2			10 ... 20 x 24 x 2			10 ... 20 x 24 x 2			16...20 x 24 x 2		
Pleated		5 ... 20 x 20 x 4			5 ... 20 x 20 x 4			5 ... 20 x 20 x 4			8...20 x 20 x 4		
		5 ... 20 x 24 x 4			5 ... 20 x 24 x 4			5 ... 20 x 24 x 4			8...20 x 24 x 4		
OUTDOOR-AIR FILTERS													
Quantity...Size (in.)		8...16 x 25 x 2			8...16 x 25 x 2			8...16 x 25 x 2			12...16 x 25 x 2		
		4...20 x 25 x 2			4...20 x 25 x 2			4...20 x 25 x 2			6...20 x 25 x 2		
POWER EXHAUST		Direct Drive, Single-Phase Motors (Factory-Wired for High Speed Operation), Forward-Curved Fan Wheels with Backdraft Dampers on Each Fan Housing											
Motor, Quantity...Hp		4...1			4...1			4...1			6...1		
Fan, Diameter...Width (in.)		11 x 10			11 x 10			11 x 10			11 x 10		

LEGEND

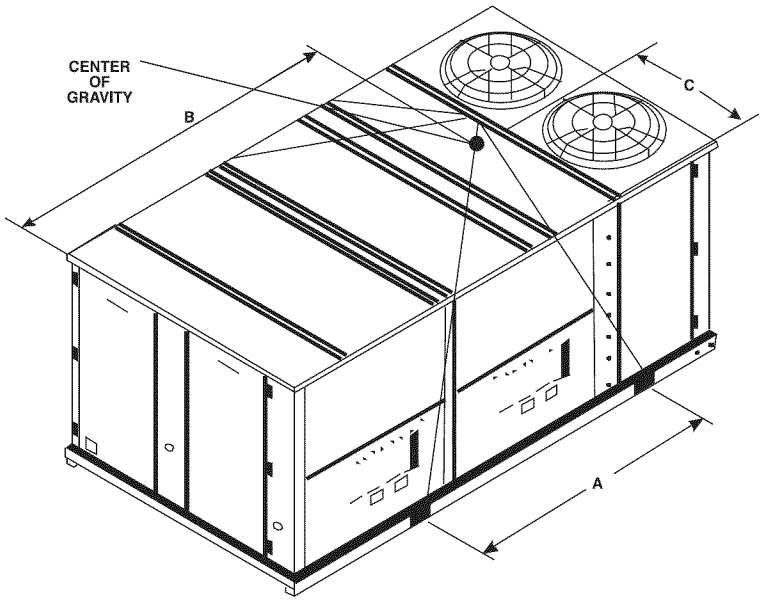
MCHX— Microchannel Heat Exchanger

*Sizes 020 to 027: Circuit 1 uses the lower portion of condenser coil, Circuit 2 uses the upper portion.
Sizes 030 and 035: Circuit 1 uses the upper portion of condenser coil, Circuit 2 uses the lower portion.
Sizes 040 and 050: Circuit 1 uses the left condenser coil, Circuit 2 the right.
Size 060: Circuit A uses the two MCHX coils near the bulkhead, Circuit B uses the two MCHX coils near the control box.
†Rollout switch is manual reset.

⚠ CAUTION - NOTICE TO RIGGERS:

ALL PANELS MUST BE IN PLACE WHEN RIGGING.

NOTE: Rig with four cables and spread with two 92 inch (2337 MM) spreader bars.
Maintain a distance of 74 inches (1880 MM) from top of unit to eyehook.



MODEL	WEIGHT		A		B		C	
	LBS	KGS	INCHES	MM	INCHES	MM	INCHES	MM
50A2/A3 020	4599	2086	87.7	2227	98.0	2489	44.9	1141
48A2/A3D 020	4689	2127	87.7	2227	96.8	2460	44.5	1130
48A2/A3E 020	4769	2163	87.7	2227	96.3	2446	44.2	1122
50A4/A5 020	4677	2122	87.7	2227	94.2	2394	49.5	1257
48A4/A5D 020	4729	2145	87.7	2227	93.2	2368	49.1	1246
48A4/A5E 020	4809	2182	87.7	2227	92.8	2358	48.7	1237
50A2/A3 025	4735	2148	87.7	2227	98.5	2503	44.7	1135
48A2/A3D 025	4825	2189	87.7	2227	97.4	2474	44.3	1125
48A2/A3E 025	4905	2225	87.7	2227	96.9	2460	44.0	1117
50A4/A5 025	4813	2183	87.7	2227	94.9	2410	49.1	1248
48A4/A5D 025	4865	2207	87.7	2227	93.9	2385	48.7	1238
48A4/A5E 025	4945	2243	87.7	2227	93.5	2374	48.4	1229
50A2/A3 027	4801	2178	87.7	2227	97.2	2468	44.1	1120
48A2/A3D 027	4891	2219	87.7	2227	96.1	2440	43.7	1110
48A2/A3E 027	4971	2255	87.7	2227	95.6	2427	43.4	1102
50A4/A5 027	4879	2213	87.7	2227	93.6	2377	48.5	1232
48A4/A5D 027	4931	2237	87.7	2227	92.6	2353	48.1	1221
48A4/A5E 027	5011	2273	87.7	2227	92.2	2343	47.7	1213
50A2/A3 030	4832	2192	87.7	2227	95.2	2417	44.4	1128
48A2/A3D 030	4922	2233	87.7	2227	94.1	2389	44.0	1118
48A2/A3E 030	5002	2269	87.7	2227	93.6	2376	43.7	1110
50A4/A5 030	4910	2227	87.7	2227	91.6	2327	48.8	1238
48A4/A5D 030	4962	2251	87.7	2227	90.7	2303	48.3	1228
48A4/A5E 030	5042	2287	87.7	2227	90.3	2293	48.0	1219
50A2/A3 035	5134	2329	87.7	2227	95.9	2435	41.5	1053
48A2/A3D 035	5339	2422	87.7	2227	94.8	2408	41.0	1043
48A2/A3E 035	5499	2494	87.7	2227	94.2	2393	40.7	1035
50A4/A5 035	5327	2416	87.7	2227	92.7	2353	45.7	1161
48A4/A5D 035	5379	2440	87.7	2227	91.7	2329	45.3	1151
48A4/A5E 035	5539	2513	87.7	2227	91.2	2317	44.9	1141
50A2/A3 040	5564	2524	87.7	2227	121.8	3093	41	1052
48A2/A3D 040	5769	2617	87.7	2227	120.3	3056	41	1041
48A2/A3E 040	5929	2690	87.7	2227	118.8	3018	41	1034
50A4/A5 040	5757	2612	87.7	2227	116.5	2958	45.4	1152
48A4/A5D 040	5809	2635	87.7	2227	115.1	2924	44.9	1142
48A4/A5E 040	5969	2708	87.7	2227	113.9	2893	44.6	1132
50A2/A3 050	5744	2606	87.7	2227	119.5	3035	42	1059
48A2/A3D 050	5949	2699	87.7	2227	118.1	2999	41	1048
48A2/A3E 050	6109	2771	87.7	2227	116.6	2962	41	1040
50A4/A5 050	5937	2693	87.7	2227	114.3	2904	45.5	1156
48A4/A5D 050	5989	2717	87.7	2227	112.9	2868	45.1	1145
48A4/A5E 050	6149	2789	87.7	2227	111.7	2837	44.7	1135
50A2/A3 060	8311	3770	161.7	4106	184.9	4698	43	1102
48A2/A3D 060	8386	3804	161.7	4106	177.6	4511	41	1049
48A2/A3E 060	8626	3913	161.7	4106	170.4	4329	39	996
50A4/A5 060	8526	3868	161.7	4106	176.5	4484	47.1	1196
48A4/A5D 060	8426	3822	161.7	4106	169.6	4309	45.2	1149
48A4/A5E 060	8676	3936	161.7	4106	163.3	4147	43.2	1097

The weight distribution and center of gravity information are representative of a standard unit and include the impact of factory installed economizer, largest IFM motor & VFD, modulating power exhaust (both factory installed and field installed options), and electric heat (on 50A only). **50EJ500305 REV. 3.0**

NOTE:
Add 312 lbs (142 kg) for export crating. (020-035 units)
Add 346 lbs (157 kg) for export crating. (040-050 units)
Add 588 lbs (266 kg) for export crating. (060 units)
Add the weights shown below for round tube plate fin coils

Unit Size ----------	020-027	030-035	040	050	060
Copper Tube/Aluminum Fin Cond Coil	100 lbs (45 kg)	150 lbs (68 kg)	187 lbs (85 kg)	317 lbs (144 kg)	26 lbs (12 kg)
Copper Tube/Copper Fin Cond.Coil	263 lbs (119 kg)	370 lbs (168 kg)	512 lbs (232 kg)	751 lbs (341 kg)	677 lbs (307 kg)

Fig. 11 — Rigging Information

Table 2 — Unit Operating Weights (lb)

UNIT	020	025	027	030	035	040	050	060
48A2D,A3D	3825	3961	3961	3992	4340	4770	4914	7066
48A2E,A3E	3905	4041	4041	4072	4500	4930	5074	7306
48A4D,A5D	3865	4001	4001	4032	4380	4810	4954	7106
48A4E,A5E	3945	4081	4081	4112	4540	4970	5114	7356

Table 3 — Option and Accessory Weights (lb)

UNIT	020	025	027	030	035	040	050	060
	OPTIONS/ACCESSORIES (WEIGHT ADDERS) (lb)							
Barometric Relief	300	300	300	300	300	300	300	450
Non-Modulating Power Exhaust	450	450	450	450	450	450	450	675
Modulating Power Exhaust	500	500	500	500	500	500	500	725
Cu Tube/Alum Fin Cond. Coil	100	100	100	150	150	187	317	26
Cu Tube/Cu Fin Cond. Coil	263	263	263	370	370	512	751	677
OA Hood Crate/Packaging (Less Hoods' Weight)	45	45	45	45	45	45	45	45
	(Packaging Only)							
Outdoor Air Hoods/Filters (included with unit)	170	170	170	170	170	170	170	255
Hail Guards	73	73	73	73	73	146	146	219
Roof Curb (14-in.)	365	365	365	365	365	410	410	540

Table 4 — Constant Volume Fan Motor Weights (lb)

MOTOR HP	UNIT VOLTAGE	HIGH EFFICIENCY IFM	PREMIUM EFFICIENCY IFM
5 HP	230/460	78	94
	575	78	92
10 HP	230/460	118	164
	575	118	156
15 HP	230/460	150	217
	575	150	220
20 HP	230/460	212	250
	575	212	258
25 HP	230/460	240	309
	575	240	319
30 HP	230/460	283	355
	575	283	359
40 HP	230/460	372	415
	575	372	410

Table 5 — Variable Volume Fan Motor Weights (lb)

MOTOR HP	UNIT VOLTAGE	HIGH EFFICIENCY IFM	PREMIUM EFFICIENCY IFM
5 HP	230/460	136	152
	575	147	161
10 HP	230/460	187	233
	575	187	225
15 HP	230/460	249	316
	575	249	319
20 HP	230/460	347	385
	575	311	357
25 HP	230/460	375	444
	575	375	454
30 HP	230/460	418	490
	575	418	494
40 HP	230/460	507	550
	575	507	545

LEGEND AND NOTES FOR TABLES 2-5

LEGEND

Cu — Copper
FIOP — Factory-Installed Option
HP — Horsepower
IFM — Indoor-Fan Motor
OA — Outdoor Air
VAV — Variable Air Volume
VFD — Variable Frequency Drive

*Outdoor-air hoods and filters included in base unit weights; indoor-fan motors are NOT included.

NOTES:
1. Base unit weight includes OA hoods (economizer or outdoor air damper); does not include an indoor-fan motor. ADD indoor motor, FIOPs and Accessories for TOTAL operating weight.
2. VAV motor weights include the indoor motor and the VFD, optional VFD bypass, VFD transducer and associated wiring.

Table 6 — Evaporator Fan Motor Data

UNIT SIZE 48A2,A3, A4,A5	MOTOR HP	MOTOR SHAFT DIA. (in.)	FAN SHAFT SPEED (rpm)	MOTOR SHEAVE (P/N)	MOTOR SHEAVE PITCH DIAMETER (in.)	BUSHING DIAMETER (in.)	FAN SHEAVE (P/N)	FAN SHEAVE PITCH DIAMETER (in.)	BUSHING DIAMETER (in.)	BELT (Quantity) (P/N)	BELT TENSION (lb at .25 in.)
020	5	1.125	717	BK55	4.8	NONE - 1.125	1B5V124	12.4	B - 1.9375	BX56	8
	10	1.375	924	2BK50	4.4	NONE - 1.375	2B5V86	8.6	B - 1.9375	(2) BX50	8
	15	1.625	1096	2B5V56	5.7	B - 1.625	2B5V90	9.1	B - 1.9375	(2) 5VX530	9
025	5	1.125	717	BK55	4.8	NONE - 1.125	1B5V124	12.4	B - 1.9375	BX56	8
	10	1.375	962	1B5V60	6.1	H - 1.375	1B5V110	11.1	B - 1.9375	5VX570	11
	15	1.625	1106	2B5V54	5.5	B - 1.625	2B5V86	8.7	B - 1.9375	(2) 5VX530	9
027	10	1.375	848	2BK50	4.4	NONE - 1.375	2B5V94	9.4	B - 1.9375	(2) BX50	8
	15	1.625	1059	2B5V56	4.9	B - 1.625	2B5V90	8.1	B - 1.9375	(2) 5VX530	10
	20	1.625	1187	2B5V58	5.9	B - 1.625	2B5V86	8.7	B - 1.9375	(2) 5VX530	11
030	10	1.375	856	2BK50	4.4	H - 1.375	2B5V94	9.0	B - 1.9375	(2) BX50	8
	15	1.625	1096	2B5V56	5.7	B - 1.625	2B5V90	9.1	B - 1.9375	(2) 5VX530	9
	20	1.625	1187	2B5V58	5.9	B - 1.625	2B5V86	8.7	B - 1.9375	(2) 5VX530	11
035	15	1.625	1025	2B5V50	5.1	B - 1.625	2B5V86	8.7	B - 1.9375	(2) 5VX500	9
	20	1.625	1147	2B5V56	5.7	B - 1.625	2B5V86	8.7	B - 1.9375	(2) 5VX530	10
	25	1.875	1247	2B5V62	6.2	B - 1.875	2B5V86	8.7	B - 1.9375	(2) 5VX530	11
040	15	1.625	976	2B5V52	5.3	B - 1.625	2B5V94	9.5	B - 1.9375	(2) 5VX530	10
	20	1.625	1050	2B5V56	5.7	B - 1.625	2B5V94	9.5	B - 1.9375	(2) 5VX550	11
	25	1.875	1182	2B5V74	7.5	B - 1.875	2B5V110	11.1	B - 1.9375	(2) 5VX590	11
050	20	1.625	1050	2B5V56	5.7	B - 1.625	2B5V94	9.5	B - 1.9375	(2) 5VX550	10
	25	1.875	1142	2B5V62	6.2	B - 1.875	2B5V94	9.5	B - 1.9375	(2) 5VX570	11
	30	1.875	1234	2B5V66	6.7	B - 1.875	2B5V94	9.5	B - 1.9375	(2) 5VX570	13
060	25	1.875	1019	3B5V52	5.3	B - 1.875	3B5V90	9.1	B - 1.9375	(3) 5VX530	12
	30	1.875	1086	3B5V58	5.9	B - 1.875	3B5V94	9.5	B - 1.9375	(3) 5VX550	12
	40	2.125	1197	3B5V64	6.5	B - 2.125	3B5V94	9.5	B - 1.9375	(3) 5VX570	14

NOTES:
1. Motor shaft speed is 1750 rpm. The fan shaft diameter is $1^{15}/_{16}$ inches.
2. All indoor fan motors meet the minimum efficiency requirements as established by the Energy Policy Act of 1992 (EPACT), effective October 24, 1997.

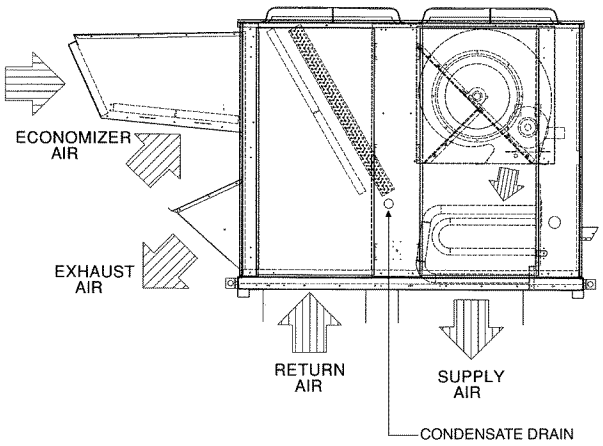


Fig. 12 — Air Distribution — Thru-the-Bottom

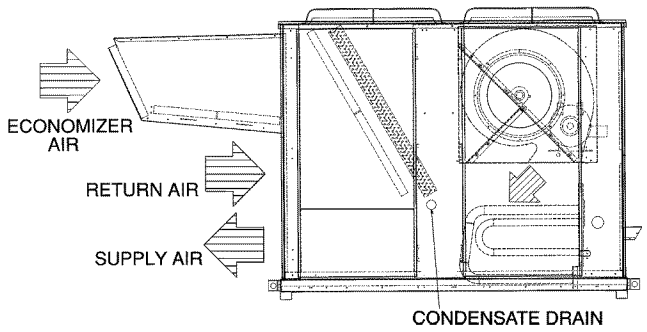


Fig. 13 — Air Distribution — Thru-the-Side

Step 5 — Install Flue Hood

48A2,A3,A4,A5020-050 UNITS — Flue hood is shipped inside gas section of unit. To install, secure flue hood to access panel. See Fig. 14.

48A2,A3,A4,A5060 UNITS — Flue hood and wind baffle are shipped inside gas section of unit. To install, secure flue hood to access panel. Install the two pieces of the wind baffle over the flue hood. See Fig. 15.

NOTE: When properly installed, flue hood will line up with combustion fan housing. See Fig. 16.

Step 6 — Trap Condensate Drain — See Fig. 4-9 for drain location. Condensate drain is open to atmosphere and must be trapped. Install a trapped drain at the drain location. One 1-in. female coupling is provided inside the unit evaporator section for condensate drain connection. A trap at least 4-in. deep must be used. See Fig. 17. Trap must be installed to prevent freeze-up.

Condensate pans are sloped so that water will completely drain from the condensate pan to comply with indoor air quality guidelines. The condensate drain pans are not insulated.

Step 7 — 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 manual gas shutoff valve with a $^1/_8$-in. NPT pressure tap for test gage connection at unit. Field gas piping must include sediment trap and union. See Fig. 18. An $^1/_8$-in. NPT is also located on the gas manifold adjacent to the gas valve.

⚠ WARNING

Do not pressure test gas supply while connected to unit. Always disconnect union before servicing. Personal injury or damage to unit may occur.

IMPORTANT: Natural gas pressure at unit gas connection must not be less than 5 in. wg or greater than 13.5 in. wg.

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

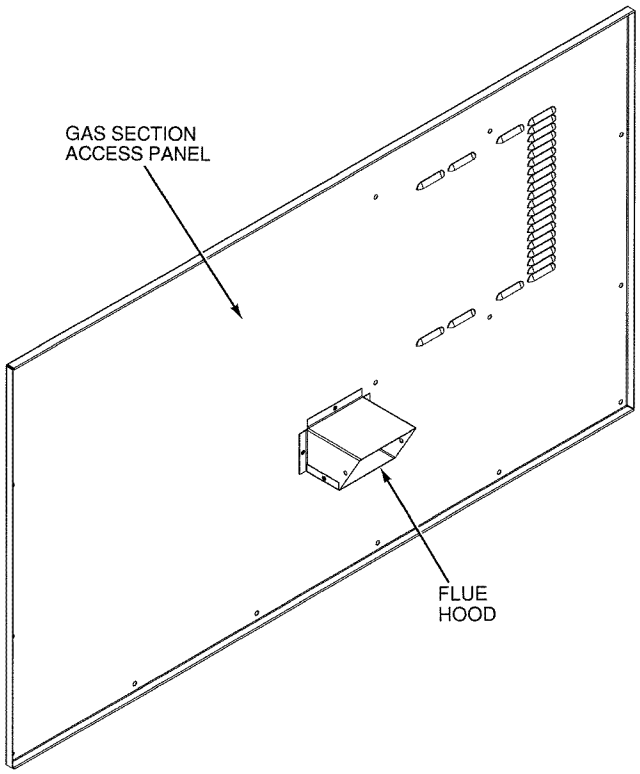


Fig. 14 — Flue Hood Location (48A2,A3,A4,A5020-050 Units)

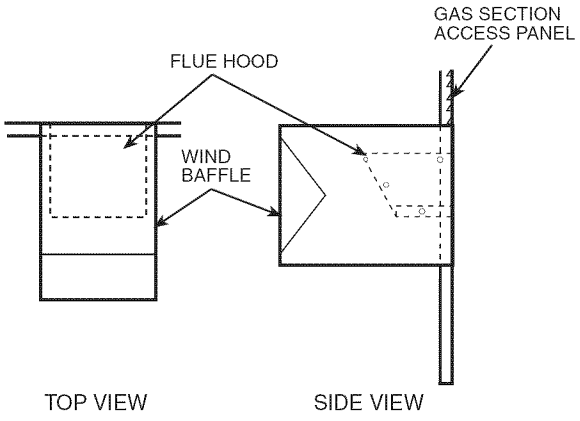


Fig. 15 — Flue Hood Location (48A2,A3,A4,A5060 Units)

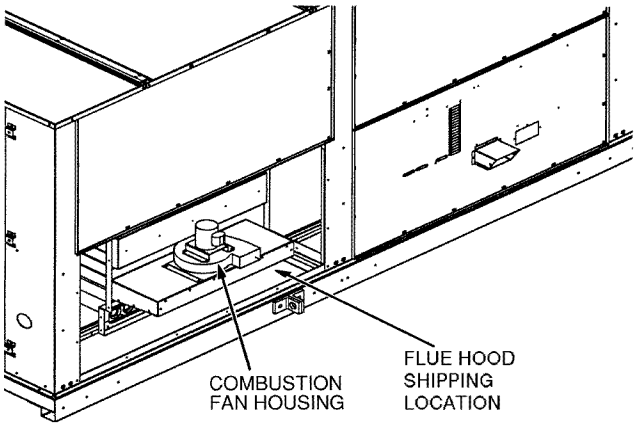


Fig. 16 — Combustion Fan Housing Location (48A2,A3,A4,A5020-050 Shown)

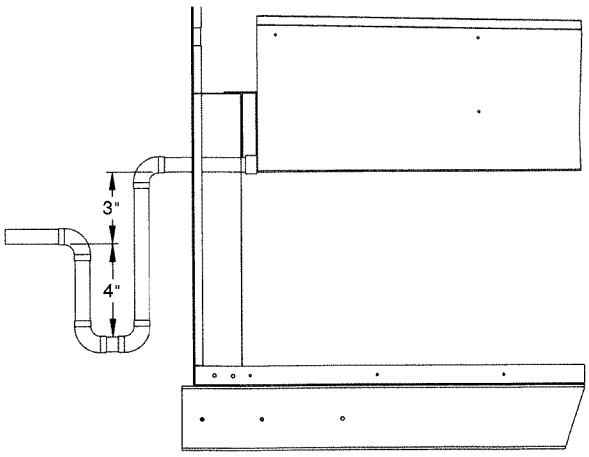


Fig. 17 — Condensate Drain Trap Piping Details (Typical Roof Curb or Slab Mount Shown)

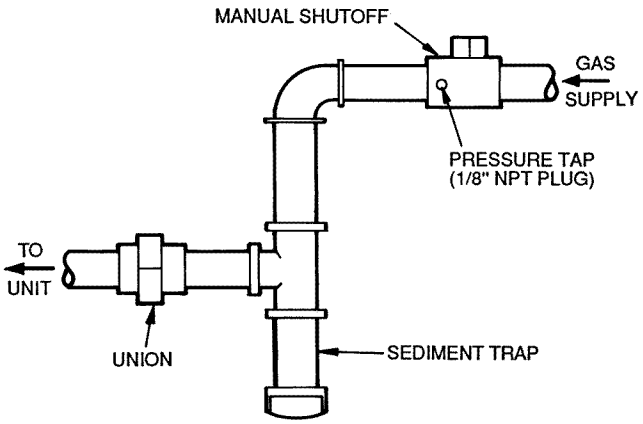


Fig. 18 — Field Gas Piping

OPTIONAL STAGED GAS UNITS — See Table 7 for staged gas information. Staging pattern is selected during controls start-up.

For complete information and service instructions for staged gas control units, see Control Operation and Troubleshooting literature.

Step 8 — Make Electrical Connections

POWER WIRING — Units are factory wired for the voltage shown on the unit nameplate.

Provide a unit safety disconnect switch in the main power supply to each unit (see Fig. 19). Select switch size and mounting location in accordance with applicable local codes or National Electrical Code (NEC). If combining the functions of safety disconnect with maximum overcurrent protection (MOCP) fuses ("fused disconnect"), coordinate safety switch size with MOCP size data as marked on unit informative plate.

Table 7 — 48A Series Staged Gas Control

NUMBER OF STAGES	MODEL NUMBER POSITION		HEAT SIZE
	5	6,7,8	
5 stages	S	020 025 027 030 035 040 050	Low
	T	035 040 050	High
7 stages	T	020 025 027 030	High
9 stages	T	060	High
11 stages	S	060	Low

Unit may be equipped with optional factory-installed non-fused disconnect switch (see Fig. 19). Provide maximum overcurrent protection devices (fuses or HACR breakers, per local codes) in branch circuit wiring remote from unit. Observe requirements of NEC Article 440. Install service switch upstream of remote fuses if required.

The main power terminal block is suitable for use with aluminum or copper wire. See Fig. 19. Units have circuit breakers for compressors, fan motors, and control circuit. The unit must be electrically grounded in accordance with local codes, or in absence of local codes, with NEC, ANSI C1-latest year.

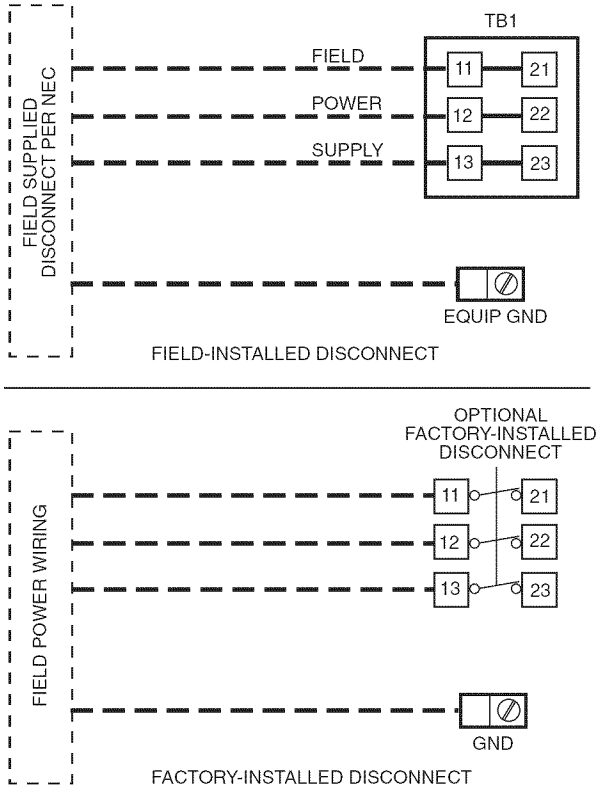
FIELD POWER SUPPLY — Unit is factory wired for voltage shown on unit nameplate. See Tables 8A and 8B for electrical data.

Field wiring can be brought into the unit from bottom (through basepan and roof curb) or through side of unit (corner post next to control box).

A $3^1/_2$-in. NPT coupling for field power wiring and a $^3/_4$-in. NPT coupling for 24-v control wiring are provided in basepan. In the side post, there are two $2^1/_2$-in. (sizes 020-035) or 3-in. (sizes 040-060) knockouts for the field power wiring. See Fig. 4-9. If control wiring is to be brought in through the side of unit, a $^7/_8$-in. diameter hole is provided in the condenser side post next to the control box.

Do not route control wiring in the same conduit as power wiring.

If disconnect box is mounted to corner post, be careful not to drill or screw into the condenser coil.



LEGEND

GND — Ground
NEC — National Electrical Code
TB — Terminal Block

Fig. 19 — Field Power Wiring Connections

LEGEND AND NOTES FOR TABLES 8A AND 8B

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MCHX — Microchannel Heat Exchanger
MOCP — Maximum Overcurrent Protection
NEC — National Electrical Code
RLA — Rated Load Amps
RTPF — Round Tube Plate Fin Coil

*Fuse or HACR circuit breaker per NEC.

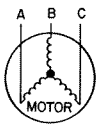
NOTES:

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. The 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 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.

Table 8A — 48A2,A3,A4,A5020-060 Units Without Convenience Outlet

UNIT SIZE 48A	VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR								CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST	POWER SUPPLY	
				Cir A, No. 1		Cir A, No. 2		Cir B, No. 1		Cir B, No. 2								
		Min	Max	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	FLA (total)	MCA	MOCP*
020	208	187	229	22.4	149	22.4	149	29.5	195	—	—	2	6.5 (ea)	5	16.7	— 23.6	111.4 135.0	125 150
														10	30.8	— 23.6	125.8 149.4	150 175
														15	46.2	— 23.6	145.1 168.7	175 200
	230	207	253	22.4	149	22.4	149	29.5	195	—	—	2	6.6 (ea)	5	15.2	— 23.6	110.1 133.7	125 150
														10	28.0	— 23.6	122.9 146.5	150 175
														15	42.0	— 23.6	140.0 163.6	175 200
	380	342	418	11.0	88	11.0	88	16.7	123	—	—	2	3.6 (ea)	5	9.1	— 14.8	59.2 74.0	70 90
														10	16.7	— 14.8	66.8 81.6	80 90
														15	24.5	— 14.8	76.5 91.3	100 110
	460	414	508	10.6	75	10.6	75	14.7	95	—	—	2	3.3 (ea)	5	7.6	— 12.6	53.8 66.4	60 80
														10	14.0	— 12.6	60.2 72.8	70 80
														15	21.0	— 12.6	68.8 81.4	80 100
	575	518	632	7.7	54	7.7	54	12.2	80	—	—	2	2.6 (ea)	5	6.1	— 9.6	42.0 51.6	50 60
														10	11.0	— 9.6	46.9 56.5	50 60
														15	17.0	— 9.6	54.1 63.7	70 80
025	208	187	229	29.5	195	29.5	195	29.5	195	—	—	2	6.5 (ea)	5	16.7	— 23.6	125.6 149.2	150 175
														10	30.8	— 23.6	140.0 163.6	150 175
														15	46.2	— 23.6	159.3 182.9	200 225
	230	207	253	29.5	195	29.5	195	29.5	195	—	—	2	6.6 (ea)	5	15.2	— 23.6	124.3 147.9	150 175
														10	28.0	— 23.6	137.1 160.7	150 175
														15	42.0	— 23.6	154.2 177.8	175 200
	380	342	418	16.7	123	16.7	123	16.7	123	—	—	2	3.6 (ea)	5	9.1	— 14.8	70.6 85.4	80 100
														10	16.7	— 14.8	78.2 93.0	90 100
														15	24.5	— 14.8	87.9 102.7	110 125
	460	414	508	14.7	95	14.7	95	14.7	95	—	—	2	3.3 (ea)	5	7.6	— 12.6	62.0 74.6	70 80
														10	14.0	— 12.6	68.4 81.0	80 90
														15	21.0	— 12.6	77.0 89.6	90 110
	575	518	632	12.2	80	12.2	80	12.2	80	—	—	2	2.6 (ea)	5	6.1	— 9.6	51.0 60.6	60 70
														10	11.0	— 9.6	55.9 65.5	60 70
														15	17.0	— 9.6	63.1 72.7	80 80

See Legend and Notes on page 19.

Table 8A — 48A2,A3,A4,A5020-060 Units Without Convenience Outlet (cont)

UNIT SIZE 48A	VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR								CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST	POWER SUPPLY	
				Cir A, No. 1		Cir A, No. 2		Cir B, No. 1		Cir B, No. 2								
		Min	Max	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	FLA (total)	MCA	MOCP*
027	208	187	229	29.5	195	29.5	195	29.5	195	—	—	2	6.5 (ea)	10	30.8	— 23.6	140.0 163.6	150 175
														15	46.2	— 23.6	159.3 182.9	200 225
														20	59.4	— 23.6	175.8 199.4	225 250
	230	207	253	29.5	195	29.5	195	29.5	195	—	—	2	6.6 (ea)	10	28.0	— 23.6	137.1 160.7	150 175
														15	42.0	— 23.6	154.2 177.8	175 200
														20	54.0	— 23.6	169.2 192.8	200 225
	380	342	418	16.7	123	16.7	123	16.7	123	—	—	2	3.6 (ea)	10	16.7	— 14.8	78.2 93.0	90 100
														15	24.5	— 14.8	87.9 102.7	110 125
														20	30.0	— 14.8	94.8 109.6	110 125
	460	414	508	14.7	95	14.7	95	14.7	95	—	—	2	3.3 (ea)	10	14.0	— 12.6	68.4 81.0	80 90
														15	21.0	— 12.6	77.0 89.6	90 110
														20	27.0	— 12.6	84.5 97.1	110 110
	575	518	632	12.2	80	12.2	80	12.2	80	—	—	2	2.6 (ea)	10	11.0	— 9.6	55.9 65.5	60 70
														15	17.0	— 9.6	63.1 72.7	80 80
														20	22.0	— 9.6	69.3 78.9	90 110
030	208	187	229	23.2	184	23.2	164	23.2	164	23.2	164	2	6.5 (ea)	10	30.8	— 23.6	144.3 167.9	175 175
														15	46.2	— 23.6	163.6 187.2	200 225
														20	59.4	— 23.6	180.1 203.7	225 250
	230	207	253	23.2	164	23.2	164	23.2	164	23.2	164	2	6.6 (ea)	10	28.0	— 23.6	141.0 164.6	150 175
														15	42.0	— 23.6	158.5 182.1	200 200
														20	54.0	— 23.6	173.5 197.1	225 250
	380	342	418	12.2	73	12.2	73	12.2	73	12.2	73	2	3.6 (ea)	10	16.7	— 14.8	76.9 91.7	90 100
														15	24.5	— 14.8	86.6 101.4	110 125
														20	30.0	— 14.8	93.5 108.3	110 125
	460	414	508	11.2	75	11.2	75	11.2	75	11.2	75	2	3.3 (ea)	10	14.0	— 12.6	68.9 81.5	80 90
														15	21.0	— 12.6	77.7 90.3	90 110
														20	27.0	— 12.6	85.2 97.8	110 110
	575	518	632	7.9	54	7.9	54	7.9	54	7.9	54	2	2.6 (ea)	10	11.0	— 9.6	50.6 60.2	60 70
														15	17.0	— 9.6	58.1 67.7	70 80
														20	22.0	— 9.6	64.3 73.9	80 90

See Legend and Notes on page 19.

Table 8A — 48A2,A3,A4,A5020-060 Units Without Convenience Outlet (cont)

UNIT SIZE 48A	VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR								CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST	POWER SUPPLY	
				Cir A, No. 1		Cir A, No. 2		Cir B, No. 1		Cir B, No. 2								
		Min	Max	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	FLA (total)	MCA	MOCP*
035	208	187	229	22.4	149	22.4	149	30.1	225	30.1	225	2	6.5 (ea)	15	46.2	— 23.6	175.8 199.4	200 225
														20	59.4	— 23.6	192.3 215.9	250 250
														25	74.8	— 23.6	211.5 235.1	250 300
	230	207	253	22.4	149	22.4	149	30.1	225	30.1	225	2	6.6 (ea)	15	42.0	— 23.6	170.7 194.3	200 225
														20	54.0	— 23.6	185.7 209.3	225 250
														25	68.0	— 23.6	203.2 226.8	250 250
	380	342	418	11.0	88	11.0	88	19.2	140	19.2	140	2	3.6 (ea)	15	24.5	— 14.8	98.2 113.0	110 125
														20	30.0	— 14.8	105.1 119.9	125 125
														25	38.0	— 14.8	115.1 129.9	150 150
	460	414	508	10.6	75	10.6	75	16.7	114	16.7	114	2	3.3 (ea)	15	21.0	— 12.6	87.5 100.1	100 110
														20	27.0	— 12.6	95.0 107.6	110 125
														25	34.0	— 12.6	103.7 116.3	125 150
	575	518	632	7.7	54	7.7	54	12.2	80	12.2	80	2	2.6 (ea)	15	17.0	— 9.6	66.3 75.9	80 90
														20	22.0	— 9.6	72.5 82.1	90 100
														25	27.0	— 9.6	78.8 88.4	100 110
040	208	187	229	30.1	225	30.1	225	30.1	225	30.1	225	4	6.5 (ea)	15	46.2	— 23.6	204.2 227.8	250 250
														20	59.4	— 23.6	220.7 244.3	250 300
														25	74.8	— 23.6	239.9 263.5	300 300
	230	207	253	30.1	225	30.1	225	30.1	225	30.1	225	4	6.6 (ea)	15	42.0	— 23.6	199.3 222.9	225 250
														20	54.0	— 23.6	214.3 237.9	250 250
														25	68.0	— 23.6	231.8 255.4	250 300
	380	342	418	19.2	140	19.2	140	19.2	140	19.2	140	2	3.6 (ea)	15	24.5	— 14.8	121.8 136.6	125 150
														20	30.0	— 14.8	128.7 143.5	150 150
														25	38.0	— 14.8	138.7 153.5	175 175
	460	414	508	16.7	114	16.7	114	16.7	114	16.7	114	4	3.3 (ea)	15	21.0	— 12.6	106.3 118.9	125 125
														20	27.0	— 12.6	113.8 126.4	125 150
														25	34.0	— 12.6	122.5 135.1	150 150
	575	518	632	12.2	80	12.2	80	12.2	80	12.2	80	4	2.6 (ea)	15	17.0	— 9.6	80.5 90.1	90 100
														20	22.0	— 9.6	86.7 96.3	100 110
														25	27.0	— 9.6	93.0 102.6	110 125

See Legend and Notes on page 19.

Table 8A — 48A2,A3,A4,A5020-060 Units Without Convenience Outlet (cont)

UNIT SIZE 48A	VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR								CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST	POWER SUPPLY	
				Cir A, No. 1		Cir A, No. 2		Cir B, No. 1		Cir B, No. 2								
		Min	Max	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	FLA (total)	MCA	MOCP*
050	208	187	229	33.3	239	33.3	239	33.3	239	33.3	239	4	6.5 (ea)	20	59.4	— 23.6	233.5 257.1	250 300
														25	74.8	— 23.6	252.7 276.3	300 350
														30	88.0	— 23.6	269.2 292.8	350 350
	230	207	253	33.3	239	33.3	239	33.3	239	33.3	239	4	6.6 (ea)	20	54.0	— 23.6	227.1 250.7	250 300
														25	68.0	— 23.6	244.6 268.2	300 300
														30	80.0	— 23.6	259.6 283.2	300 350
	380	342	418	23.7	145	23.7	145	23.7	145	23.7	145	4	3.6 (ea)	20	30.0	— 14.8	146.7 161.5	175 175
														25	38.0	— 14.8	157.7 171.5	175 200
														30	43.5	— 14.8	163.6 178.4	200 200
	460	414	508	17.9	125	17.9	125	17.9	125	17.9	125	4	3.3 (ea)	20	27.0	— 12.6	118.6 131.2	125 150
														25	34.0	— 12.6	127.3 139.9	150 150
														30	40.0	— 12.6	134.8 147.4	150 175
	575	518	632	12.8	80	12.8	80	12.8	80	12.8	80	4	2.6 (ea)	20	22.0	— 9.6	89.1 98.7	110 110
														25	27.0	— 9.6	95.4 105.0	110 125
														30	32.0	— 9.6	101.6 111.2	125 125
060 (MCHX)	208	187	229	51.3	300	51.3	300	51.3	300	51.3	300	4	5.5 (ea)	25	74.8	— 35.4	320.7 356.1	350 400
														30	88.0	— 35.4	337.2 372.6	400 450
														40	114.0	— 35.4	369.7 405.1	450 500
	230	207	253	51.3	300	51.3	300	51.3	300	51.3	300	4	5.8 (ea)	25	68.0	— 35.4	313.4 348.8	350 400
														30	80.0	— 35.4	328.4 363.8	400 400
														40	104.0	— 35.4	358.4 393.8	450 450
	380	342	418	26.9	139	26.9	139	26.9	139	26.9	139	4	3.7 (ea)	25	38.0	— 22.2	169.9 192.1	200 225
														30	43.5	— 22.2	176.8 199.0	200 225
														40	56.2	— 22.2	192.7 214.9	225 250
	460	414	508	22.4	150	22.4	150	22.4	150	22.4	150	4	2.9 (ea)	25	34.0	— 18.9	143.7 162.6	175 175
														30	40.0	— 18.9	151.2 170.1	175 200
														40	52.0	— 18.9	166.2 185.1	200 225
	575	518	632	19.9	109	19.9	109	19.9	109	19.9	109	4	2.3 (ea)	25	27.0	— 14.4	122.6 137.0	125 150
														30	32.0	— 14.4	128.8 143.2	150 175
														40	41.0	— 14.4	140.1 154.5	175 175
060 (RTPF)	208	187	229	51.3	300	51.3	300	51.3	300	51.3	300	6	6.5 (ea)	25	74.8	— 35.4	337.7 373.1	400 400
														30	88.0	— 35.4	354.2 389.6	400 450
														40	114.0	— 35.4	386.7 422.1	500 500
	230	207	253	51.3	300	51.3	300	51.3	300	51.3	300	6	6.6 (ea)	25	68.0	— 35.4	329.8 365.2	350 400
														30	80.0	— 35.4	344.8 380.2	400 450
														40	104.0	— 35.4	374.8 410.2	450 500
	380	342	418	26.9	139	26.9	139	26.9	139	26.9	139	6	3.6 (ea)	25	38.0	— 22.2	151.9 170.8	175 200
														30	43.5	— 22.2	159.4 178.3	175 200
														40	56.2	— 22.2	174.4 193.3	225 225
	460	414	508	22.4	150	22.4	150	22.4	150	22.4	150	6	3.3 (ea)	25	34.0	— 18.9	151.9 170.8	175 200
														30	40.0	— 18.9	159.4 178.3	175 200
														40	52.0	— 18.9	174.4 193.3	225 225
	575	518	632	19.9	109	19.9	109	19.9	109	19.9	109	6	2.6 (ea)	25	27.0	— 14.4	129.0 143.4	150 150
														30	32.0	— 14.4	135.2 149.6	150 175
														40	41.0	— 14.4	146.5 160.9	175 200

See Legend and Notes on page 19.

Table 8B — 48A2,A3,A4,A5020-060 Units With Convenience Outlet

UNIT SIZE 48A	VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR								CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST	CONVENIENCE OUTLET	POWER SUPPLY	
				Cir A, No. 1		Cir A, No. 2		Cir B, No. 1		Cir B, No. 2									
		Min	Max	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	FLA (total)	FLA	MCA	MOCP*
020	208	187	229	22.4	149	22.4	149	29.5	195	—	—	2	6.5 (ea)	5	16.7	— 23.6	7.0 7.0	118.4 142.0	125 150
														10	30.8	— 23.6	7.0 7.0	132.8 156.4	150 175
														15	46.2	— 23.6	7.0 7.0	152.1 175.7	175 200
	230	207	253	22.4	149	22.4	149	29.5	195	—	—	2	6.6 (ea)	5	15.2	— 23.6	7.0 7.0	117.1 140.7	125 150
														10	28.0	— 23.6	7.0 7.0	129.9 153.5	150 175
														15	42.0	— 23.6	7.0 7.0	147.0 170.6	175 200
	460	414	508	10.6	75	10.6	75	14.7	95	—	—	2	3.3 (ea)	5	7.6	— 12.6	3.5 3.5	57.3 69.9	70 80
														10	14.0	— 12.6	3.5 3.5	63.7 76.3	70 90
														15	21.0	— 12.6	3.5 3.5	72.3 84.9	90 100
	575	518	632	7.7	54	7.7	54	12.2	80	—	—	2	2.6 (ea)	5	6.1	— 9.6	2.5 2.5	44.5 54.1	50 60
														10	11.0	— 9.6	2.5 2.5	49.4 59.0	60 70
														15	17.0	— 9.6	2.5 2.5	56.6 66.2	70 80
025	208	187	229	29.5	195	29.5	195	29.5	195	—	—	2	6.5 (ea)	5	16.7	— 23.6	7.0 7.0	132.6 156.2	150 175
														10	30.8	— 23.6	7.0 7.0	147.0 170.6	175 200
														15	46.2	— 23.6	7.0 7.0	166.3 189.9	200 225
	230	207	253	29.5	195	29.5	195	29.5	195	—	—	2	6.6 (ea)	5	15.2	— 23.6	7.0 7.0	131.3 154.9	150 175
														10	28.0	— 23.6	7.0 7.0	144.1 167.7	150 175
														15	42.0	— 23.6	7.0 7.0	161.2 184.8	200 225
	460	414	508	14.7	95	14.7	95	14.7	95	—	—	2	3.3 (ea)	5	7.6	— 12.6	3.5 3.5	65.5 78.1	80 90
														10	14.0	— 12.6	3.5 3.5	71.9 84.5	80 90
														15	21.0	— 12.6	3.5 3.5	80.5 93.1	100 110
	575	518	632	12.2	80	12.2	80	12.2	80	—	—	2	2.6 (ea)	5	6.1	— 9.6	2.5 2.5	53.5 63.1	60 70
														10	11.0	— 9.6	2.5 2.5	58.4 68.0	70 80
														15	17.0	— 9.6	2.5 2.5	65.6 75.2	80 90
027	208	187	229	29.5	195	29.5	195	29.5	195	—	—	2	6.5 (ea)	10	30.8	— 23.6	7.0 7.0	147.0 170.6	175 200
														15	46.2	— 23.6	7.0 7.0	166.3 189.9	200 225
														20	59.4	— 23.6	7.0 7.0	182.8 206.4	225 250
	230	207	253	29.5	195	29.5	195	29.5	195	—	—	2	6.6 (ea)	10	28.0	— 23.6	7.0 7.0	144.1 167.7	150 175
														15	42.0	— 23.6	7.0 7.0	161.2 184.8	200 225
														20	54.0	— 23.6	7.0 7.0	176.2 199.8	225 250
	460	414	508	14.7	95	14.7	95	14.7	95	—	—	2	3.3 (ea)	10	14.0	— 12.6	3.5 3.5	71.9 84.5	80 90
														15	21.0	— 12.6	3.5 3.5	80.5 93.1	100 110
														20	27.0	— 12.6	3.5 3.5	88.0 100.6	110 125
	575	518	632	12.2	80	12.2	80	12.2	80	—	—	2	2.6 (ea)	10	11.0	— 9.6	2.5 2.5	58.4 68.0	70 80
														15	17.0	— 9.6	2.5 2.5	65.6 75.2	80 90
														20	22.0	— 9.6	2.5 2.5	71.8 81.4	90 100

See Legend and Notes on page 19.

Table 8B — 48A2,A3,A4,A5020-060 Units With Convenience Outlet (cont)

UNIT SIZE 48A	VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR								CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST	CONVENIENCE OUTLET	POWER SUPPLY	
				Cir A, No. 1		Cir A, No. 2		Cir B, No. 1		Cir B, No. 2									
		Min	Max	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	FLA (total)	FLA	MCA	MOCP*
030	208	187	229	23.2	184	23.2	164	23.2	164	23.2	164	2	6.5 (ea)	10	30.8	— 23.6	7.0 7.0	151.3 174.9	175 200
														15	46.2	— 23.6	7.0 7.0	170.6 194.2	200 225
														20	59.4	— 23.6	7.0 7.0	187.1 210.7	225 250
	230	207	253	23.2	164	23.2	164	23.2	164	23.2	164	2	6.6 (ea)	10	28.0	— 23.6	7.0 7.0	148.0 171.6	175 175
														15	42.0	— 23.6	7.0 7.0	165.5 189.1	200 225
														20	54.0	— 23.6	7.0 7.0	180.5 204.1	225 250
	460	414	508	11.2	75	11.2	75	11.2	75	11.2	75	2	3.3 (ea)	10	14.0	— 12.6	3.5 3.5	72.4 85.0	80 90
														15	21.0	— 12.6	3.5 3.5	81.2 93.8	100 110
														20	27.0	— 12.6	3.5 3.5	88.7 101.3	110 125
	575	518	632	7.9	54	7.9	54	7.9	54	7.9	54	2	2.6 (ea)	10	11.0	— 9.6	2.5 2.5	53.1 62.7	60 70
														15	17.0	— 9.6	2.5 2.5	60.6 70.2	70 80
														20	22.0	— 9.6	2.5 2.5	66.8 76.4	80 90
035	208	187	229	22.4	149	22.4	149	30.1	225	30.1	225	2	6.5 (ea)	15	46.2	— 23.6	7.0 7.0	182.8 206.4	225 250
														20	59.4	— 23.6	7.0 7.0	199.3 222.9	250 250
														25	74.8	— 23.6	7.0 7.0	218.5 242.1	250 300
	230	207	253	22.4	149	22.4	149	30.1	225	30.1	225	2	6.6 (ea)	15	42.0	— 23.6	7.0 7.0	177.7 201.3	200 225
														20	54.0	— 23.6	7.0 7.0	192.7 216.3	225 250
														25	68.0	— 23.6	7.0 7.0	210.2 233.8	250 300
	460	414	508	10.6	75	10.6	75	16.7	114	16.7	114	2	3.3 (ea)	15	21.0	— 12.6	3.5 3.5	91.0 103.6	110 110
														20	27.0	— 12.6	3.5 3.5	98.5 111.1	125 125
														25	34.0	— 12.6	3.5 3.5	107.2 119.8	125 150
	575	518	632	7.7	54	7.7	54	12.2	80	12.2	80	2	2.6 (ea)	15	17.0	— 9.6	2.5 2.5	68.8 78.4	80 90
														20	22.0	— 9.6	2.5 2.5	75.0 84.6	90 100
														25	27.0	— 9.6	2.5 2.5	81.3 90.9	100 110
040	208	187	229	30.1	225	30.1	225	30.1	225	30.1	225	2	6.5 (ea)	15	46.2	— 23.6	7.0 7.0	211.2 234.8	250 250
														20	59.4	— 23.6	7.0 7.0	227.7 251.3	250 300
														25	74.8	— 23.6	7.0 7.0	246.9 270.5	300 300
	230	207	253	30.1	225	30.1	225	30.1	225	30.1	225	2	6.6 (ea)	15	42.0	— 23.6	7.0 7.0	206.3 229.9	225 250
														20	54.0	— 23.6	7.0 7.0	221.3 244.9	250 250
														25	68.0	— 23.6	7.0 7.0	238.8 262.4	300 300
	460	414	508	16.7	114	16.7	114	16.7	114	16.7	114	2	3.3 (ea)	15	21.0	— 12.6	3.5 3.5	109.8 122.4	125 125
														20	27.0	— 12.6	3.5 3.5	117.3 129.9	125 150
														25	34.0	— 12.6	3.5 3.5	126.0 138.6	150 150
	575	518	632	12.2	80	12.2	80	12.2	80	12.2	80	2	2.6 (ea)	15	17.0	— 9.6	2.5 2.5	83.0 92.6	90 100
														20	22.0	— 9.6	2.5 2.5	89.2 98.8	110 110
														25	27.0	— 9.6	2.5 2.5	95.5 105.1	110 125

See Legend and Notes on page 19.

Table 8B — 48A2,A3,A4,A5020-060 Units With Convenience Outlet (cont)

UNIT SIZE 48A	VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR								CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST	CONVENIENCE OUTLET	POWER SUPPLY	
				Cir A, No. 1		Cir A, No. 2		Cir B, No. 1		Cir B, No. 2									
		Min	Max	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	FLA (total)	FLA	MCA	MOCP*
050	208	187	229	33.3	239	33.3	239	33.3	239	33.3	239	4	6.5 (ea)	20	59.0	— 23.6	7.0 7.0	240.5 264.1	250 300
														25	75.0	— 23.6	7.0 7.0	259.7 283.3	300 350
														30	88.0	— 23.6	7.0 7.0	276.2 299.8	350 350
	230	207	253	33.3	239	33.3	239	33.3	239	33.3	239	4	6.6 (ea)	20	54.0	— 23.6	7.0 7.0	234.1 257.7	250 300
														25	68.0	— 23.6	7.0 7.0	251.6 275.2	300 300
														30	80.0	— 23.6	7.0 7.0	266.6 290.2	300 350
	460	414	508	17.9	125	17.9	125	17.9	125	17.9	125	4	3.3 (ea)	20	27.0	— 12.6	3.5 3.5	122.1 134.7	125 150
														25	34.0	— 12.6	3.5 3.5	130.8 143.4	150 175
														30	40.0	— 12.6	3.5 3.5	138.3 150.9	175 175
	575	518	632	12.8	80	12.8	80	12.8	80	12.8	80	4	2.6 (ea)	20	22.0	— 9.6	2.5 2.5	91.6 101.2	110 110
														25	27.0	— 9.6	2.5 2.5	97.9 107.5	110 125
														30	32.0	— 9.6	2.5 2.5	104.1 113.7	125 125
060 (MCHX)	208	187	229	51.3	300	51.3	300	51.3	300	51.3	300	4	5.5 (ea)	25	75.0	— 35.4	7.0 7.0	327.7 363.1	400 400
														30	88.0	— 35.4	7.0 7.0	344.2 379.6	400 450
														40	114.0	— 35.4	7.0 7.0	376.7 412.1	450 500
	230	207	253	51.3	300	51.3	300	51.3	300	51.3	300	4	5.8 (ea)	25	68.0	— 35.4	7.0 7.0	320.4 355.8	350 400
														30	80.0	— 35.4	7.0 7.0	335.4 370.8	400 450
														40	104.0	— 35.4	7.0 7.0	365.4 400.8	450 500
	460	414	508	22.4	150	22.4	150	22.4	150	22.4	150	4	2.9 (ea)	25	34.0	— 18.9	3.5 3.5	147.2 166.1	175 200
														30	40.0	— 18.9	3.5 3.5	154.7 173.6	175 200
														40	52.0	— 18.9	3.5 3.5	169.7 188.6	200 225
	575	518	632	19.9	109	19.9	109	19.9	109	19.9	109	4	2.3 (ea)	25	27.0	— 14.4	2.5 2.5	125.1 139.5	150 150
														30	32.0	— 14.4	2.5 2.5	131.3 145.7	150 175
														40	41.0	— 14.4	2.5 2.5	142.6 157.0	175 175
060 (RTPF)	208	187	229	51.3	300	51.3	300	51.3	300	51.3	300	6	6.5 (ea)	25	74.8	— 35.4	7.0 7.0	344.7 380.1	400 450
														30	88.0	— 35.4	7.0 7.0	361.2 396.6	400 450
														40	114.0	— 35.4	7.0 7.0	393.7 429.1	500 500
	230	207	253	51.3	300	51.3	300	51.3	300	51.3	300	6	6.6 (ea)	25	68.0	— 35.4	7.0 7.0	336.8 372.2	400 400
														30	80.0	— 35.4	7.0 7.0	351.8 387.2	400 450
														40	104.0	— 35.4	7.0 7.0	381.8 417.2	450 500
	460	414	508	22.4	150	22.4	150	22.4	150	22.4	150	6	3.3 (ea)	25	34.0	— 18.9	3.5 3.5	155.4 174.3	175 200
														30	40.0	— 18.9	3.5 3.5	162.9 181.8	200 200
														40	52.0	— 18.9	3.5 3.5	177.9 196.8	225 225
	575	518	632	19.9	109	19.9	109	19.9	109	19.9	109	6	2.6 (ea)	25	27.0	— 14.4	2.5 2.5	131.5 145.9	150 150
														30	32.0	— 14.4	2.5 2.5	137.7 152.1	150 175
														40	41.0	— 14.4	2.5 2.5	149.0 163.4	175 200

See Legend and Notes on page 19.

Routing Through Bottom of Unit — If wiring is brought in through bottom of unit, use field-supplied watertight conduit to route power wiring through the $3^1/_2$-in. diameter hole provided in the unit basepan.

Install conduit connector in unit basepan as shown in Fig. 4-9. Route power and ground lines through connector to terminal connections in unit control box as shown on unit wiring diagram and Fig. 19.

Use strain relief going into control box through $3^5/_8$-in. diameter hole provided. After wires are in unit control box, connect to power terminal block (see Power Wiring section on page 18).

Low-voltage wiring must be run in watertight conduit from the basepan to control box and through $^7/_8$-in. diameter hole provided in bottom of unit control box. Field-supplied strain relief must be used going into the box. After wiring is in control box, make connections to proper terminals on terminal blocks (see Field Control Wiring section on this page).

Routing Through Side of Unit — Route power wiring in field-supplied watertight conduit into unit through $2^1/_2$-in. (sizes 020-035) or 3-in. (sizes 040-060) hole.

Use field-supplied strain relief going into control box through $3^5/_8$-in. diameter hole provided. After wires are in unit control box, connect to power terminal block (see Power Wiring section on page 18).

Bring low-voltage control wiring through the $^7/_8$-in. diameter hole provided in the condenser section side post. Use strain relief going into $^7/_8$-in. diameter hole in bottom of unit control box.

After wiring is in control box, make connection to proper terminals on terminal blocks (see Field Control Wiring section below).

IMPORTANT: The VAV (variable air volume) units use variable frequency drives, which generate and can radiate radio frequency energy. If units are not installed and used in accordance with these instructions, they may cause radio interference. They have been tested and found to comply with limits of a Class A computing device as defined by FCC (Federal Communications Commission) regulations, Subpart J of Part 15, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

⚠ WARNING

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

Affix crankcase heater sticker (located in the installers packet) to unit disconnect switch.

Voltage to compressor terminals during compressor operation must be within the voltage range indicated on the unit nameplate. Phases must be balanced within 2%.

Use the formula in Tables 8A and 8B to determine the percentage of voltage imbalance.

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

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

On 208/230-v units, transformers 1-5 are wired for 230-v. If 208/230-v unit is to be run with 208-v power supply, the transformers must be rewired as follows:

For transformer 1 move the black wires connected to terminal H2 and connect it to terminal H3.

For transformers 2-4, that are used for the 24-volt control circuits, connect as follows:

1. Remove cap from red (208 v) wire.
2. Remove cap from spliced orange (230 v) wire. Disconnect orange wire from black unit power wire.
3. Cap orange wire.
4. Splice red wire and black unit power wire. Cap wires.

If the unit is equipped with the optional convenience outlet connect the yellow wire to H2 on transformer 5.

IMPORTANT: BE CERTAIN UNUSED WIRES ARE CAPPED. Failure to do so may damage the transformers.

FIELD CONTROL WIRING — The 48A Series units support a large number of control options that can impact the field control wiring.

The control options that the unit can provide relate to the following parameters:

- CV (constant volume), VAV (variable air volume), VVT® (variable volume variable temperature) or Carrier TEMP system control operation.
- Standalone with a thermostat (CV) or with a space sensor (CV and VAV)
- Network application with CCN (Carrier Comfort Network®) or other networks
- Demand ventilation with CO_2 sensor
- Economizer and economizer with changeover control
- Staged gas heat
- Building and duct static pressure control
- Fire shutdown and smoke control
- Diagnostics and monitoring

For constant volume applications a thermostat (T-Stat) or space temperature sensor (SPT) will be required.

T-STAT (Conventional Thermostat) — Unit can be controlled with a Carrier-approved accessory electro-mechanical or electronic thermostat that has two stages of cooling, two stages of heating control and an output for indoor fan control. It may also include time of day scheduling or use the scheduling routines built into the *Comfort*Link™ controls.

Install thermostat according to the installation instructions included with accessory thermostat and the unit wiring diagrams. Locate thermostat assembly on a solid interior wall in the conditioned space to sense average temperature.

Route thermostat cable or equivalent single leads of colored wire from subbase terminals through conduit into unit to low-voltage connection in the main control box. For thermostat TB4 connections see Fig. 20.

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:

SIZE	STAGE 1 (W1) ON	STAGE 2 (W1 and W2) ON
020-050	0.24	0.13
060	0.36	0.13

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

Staged Gas Control Option Thermistors — If the unit is equipped with the staged gas heat option, supply-air thermistors must be installed. Three supply-air thermistors are shipped with staged gas units and are inside the heating section. The supply-air thermistors should be located in the supply duct with the following criteria:

- Downstream of the heat exchanger cells
- Equally spaced as far as possible from the heat exchanger cells
- In a duct location where none of the supply-air thermistors are within sight of the heat exchanger cells
- In a duct location with good mixed supply-air portion of the unit.

SPT (Space Temperature Sensor) — For constant volume applications the *Comfort*Link™ controls can also be used with T55 and T56 space temperature sensors that use a 10K thermistor. The T56 sensor also has the capability for a configurable temperature set point offset. For variable air volume applications only the T55 sensor can be used.

Install sensor according to the installation instructions included with accessory sensor. Locate sensor assembly on a solid interior wall in the conditioned space to sense average temperature.

Run wiring to the space sensor as shown in Fig. 21.

Note that when the remote sensor is used, the red jumper wires provided must be connected from TB4 terminal 4 to 5 and TB4 terminal 5 to 1.

Both the T55 and T56 have a CCN communications port and this should be wired to the CCN Communications TB3 board if it is desired to have access to the CCN system through the sensor. If more than one T-55 sensor is being used and averaged, sensors must be wired in multiples of 4 or 9 as shown in Fig. 22.

T58 Communicating Thermostat — Carrier also has a fully communicating thermostat which, if used, will be wired to the CCN communication connections on TB3 as described in the Carrier Comfort Network® Interface section below.

Carrier Comfort Network Interface — The rooftop units can be connected to the CCN system. The communication bus wiring is supplied and installed in the field. Wiring consists of shielded, 3-conductor cable with drain wire. The system elements are connected to the communication bus in a daisy chain arrangement. The positive pin of each system element communication connector must be wired to the positive pins of the system element on either side of it, the negative pins must be wired to the negative pins, and the signal pins must be wired to signal ground pins. Wiring connections for CCN system should be made at the TB3 terminal block using the screw terminals. The TB3 board also contains an RJ14 CCN plug that can be used to connect a field service computer or other CCN device temporarily. There is also an RJ14 LEN (local equipment network) connection that is used to connect a Navigator™ device or download software.

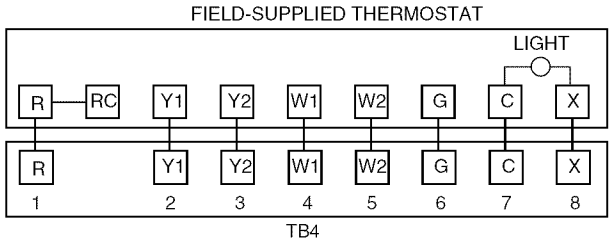


Fig. 20 — Field Control Thermostat Wiring

Conductors and drain wire must be 20 AWG minimum stranded, tinned copper. Individual conductors must be insulated with PVC, PVC/nylon, vinyl, Teflon, or polyethylene. An aluminum/polyester 100% foil shield and an outer jacket of PVC, PVC/nylon, chrome vinyl, or Teflon with a minimum operating temperature range of –20 C to 60 C (–4 F to 140 F) is required. Table 9 lists cables that meet the requirements.

Table 9 — CCN Connection Approved Shield Cable

MANUFACTURER	CABLE PART NO.
Alpha	2413 or 5463
American	A22503
Belden	8772
Columbia	02525

IMPORTANT: When connecting to CCN communication bus to system elements, use color coding system for the entire network to simplify installation and checkout. See Table 10.

Table 10 — Color Code Recommendations

SIGNAL TYPE	CCN BUS CONDUCTOR INSULATION COLOR	CCN PLUG PIN NO.
Positive (+)	RED	1
Ground	WHITE	2
Negative (–)	BLACK	3

If a cable with a different color scheme is selected, a similar color code should be adopted for the entire network. At each system element, the shields of the communication bus cables must be tied together. If the communication bus is entirely within one building, the resulting continuous shield must be connected to a ground at one point only. If the communication bus cable exits from one building and enters another, the shields must be connected to grounds at the lightning suppressor in each building where the cable enters or exits the building (one point per building only).

To connect the unit to the network:

1. Turn off power to the control box.
2. Cut the CCN wire and strip the ends of the red (+), white (ground), and black (–) conductors. (If a different network color scheme is used, substitute appropriate colors.)
3. Remove the 3-pin male plug from the base control board in the main control box, and connect the wires as follows:
   a. Insert and secure the red (+) wire to terminal 1 of the 3-pin plug.
   b. Insert and secure the white (ground) wire to terminal 2 of the 3-pin plug.
   c. Insert and secure the black (–) wire to terminal 3 of the 3-pin plug.

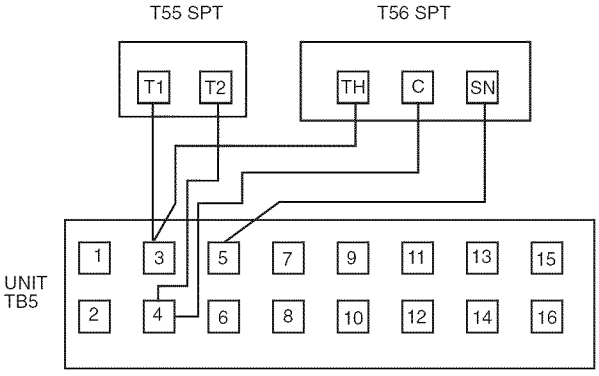


Fig. 21 — Space Temperature Sensor Wiring

4. Insert the plug into the existing 3-pin mating connector on the base module in the main control box.

VAV Units With Heat — For variable air volume units that will use heat, the variable air volume terminals should be interlocked with the unit at TB5 terminals 1 and 2.

Demand Ventilation — The unit can be equipped with a CO_2 sensor for use in demand ventilation. This can be factory supplied and will be mounted in the return duct. It can also be field supplied and mounted in the return duct or in the space. Connect the field-installed 4 to 20 mA sensor to TB5 terminals 6 and 7. Do not remove the factory-installed 182-ohm resistor.

If an outdoor air quality sensor is used then it should be wired to terminal 11 and 12 on TB6. This will require the use of the optional controls expansion module.

Remote IAQ Override — If the control is being used with non Carrier building management system it supports the use of the remote IAQ override switch. This should be connected to TB6 terminal 13 and 14. Use of this will require the optional controls expansion module.

Remote Economizer Position Control — The *Comfort*Link™ controls will normally control the position of the economizer, but it can also support field control of the economizer position through a 4 to 20 mA signal. If this is used it should be connected to TB5 terminal 6 and 7. If the signal is a 4 to 20 mA signal then leave the 182-ohm resistor in place.

Remote Economizer Enable — If the control is being used with other building management systems and the system will control the enabling and disabling of the economizer free cooling, this switch input can be connected to TB6 terminals 1 and 2. Note that the controls also support integrated economizer changeover using outdoor dry bulb, differential dry bulb, outdoor enthalpy and differential enthalpy.

Remote Occupancy Switch — For interface to other building management systems the control also supports a switch input for remote occupancy signals. This wiring should be connected to terminal TB6 terminal 1 and 3.

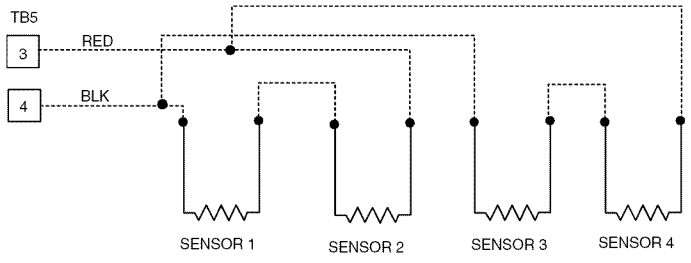
Remote Economizer Minimum Position Control — If the *Comfort*Link control is controlling the economizer, but a remote minimum position is required, then an external 100K potentiometer can be connected to TB5 terminal 6 and 7. Remove the factory-installed 182-ohm resistor.

Smoke Sensor Interface — The *Comfort*Link control includes an optional factory-installed return air smoke detector. Remote alarm circuits can be wired to TB5 terminal 8 and 9.

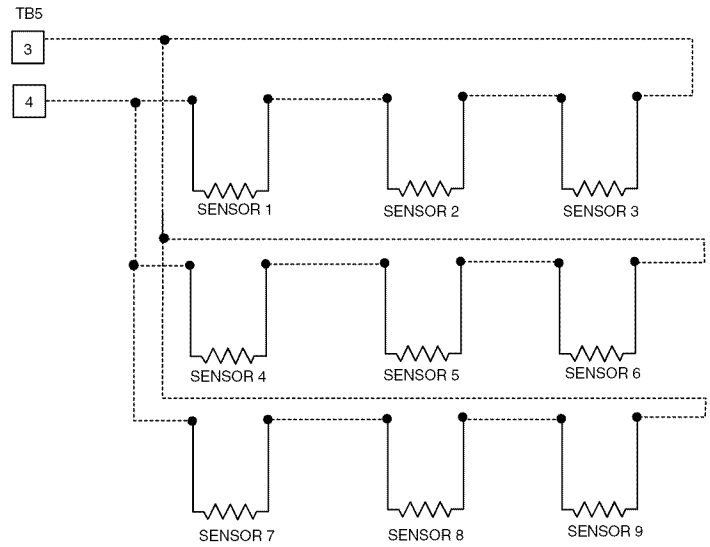
Fire Shutdown and Smoke Control — The control supports interface to fire and smoke control systems and allows for the following system overrides from remote switch inputs.

- Fire Shutdown — Connect to TB6 terminals 8 and 9.
- Smoke Pressurization — Connect to TB6 terminals 12 and 13. This requires the use of the optional controls expansion module.
- Smoke Evacuation — Connect to TB6 terminals 12 and 14. This requires the use of the optional controls expansion module.
- Smoke Purge — Connect to TB6 terminals 12 and 15. This requires the use of the optional controls expansion module.

Demand Limiting — The control can also be used with demand limiting control from remote building management systems. If a two-stage system is going to be used with redline limiting where the machine is not allowed to increase load and load shed where



SPACE TEMPERATURE AVERAGING (4 SENSOR APPLICATION)



SPACE TEMPERATURE AVERAGING (9 SENSOR APPLICATION)

NOTE: Use T55 sensor only.

Fig. 22 — Space Temperature Averaging Wiring

the load is decreased to a configurable limit in capacity then these can be connected to TB6 terminals 4 and 5, and 5 and 6. This requires use of the controls expansion module.

Step 9 — Make Outdoor-Air Inlet Adjustments

ECONOMIZER AND FIXED OUTDOOR AIR DAMPER — Hoods are used on all units with economizer or adjustable self-closing fixed outdoor air damper.

NOTE: If accessory power exhaust or barometric relief packages are being added to the unit, install power exhaust or barometric relief before installing economizer hoods.

Economizer Hood Assembly — The economizer hood is shipped in a package secured to the outside of the unit. The hood assemblies must be field-assembled. The 48A4,A5 units are side supply and side return. The return duct limits access to economizer filters from below. Filter tracks (mounting angle without tabs) must be installed correctly to allow access to economizer filters from each side.

The 48A2,A3,A4,A5020-050 units have two hoods on every unit. Each hood has two lower filter tracks, one slotted side and one side without slots. Construct the assembly so that the slotted side is adjacent to the other hood when mounted on the unit.

The 48A2,A3,A4,A5060 units have 3 hoods on every unit. Each hood has two lower filter tracks, one slotted side and one side without slots. Construct the two outer hood assemblies so that the slotted sides are adjacent to the center hood when mounted on the unit.

NOTE: Before assembly of the economizer hood, check along the outer edges of the economizer assembly for any seal strip protruding past the flanges. Trim the excess seal strip so that it is flush with the economizer assembly flanges.

Perform the following procedure to assemble the economizer hood.

1. Apply black seal strip (provided) to outside top-edge of hood sides. Wrap seal strip over edge to cover top flange (6 hood sides). Make sure seal strip covers screw holes. Allow strip to overhang $^1/_8$-in. past the end opposite the mounting flange. See Fig. 23.
2. Assemble hood sides, top, and cross member with gasketed screws provided. See Fig. 24.
3. Attach 15 green speed clips (provided) to hood top.
4. Apply black seal strip (provided) to mounting flanges of hood sides being sure to cover mounting holes. See Fig. 25.
5. Apply black seal strip (provided) to back of hood top mounting flange. Seal strip of hood top mounting flange must press tightly against seal strip of hood side mounting flanges. See Fig. 26.
6. Add gray foam strip (provided) to cross members on bottom tray. See Fig. 27.
7. Place gray foam strip (provided) on inside of slotted hood side between filter and cross member opposite the mounting end. See Fig. 28.
8. Attach gray foam strip (provided) to block-off baffle on outer face of flange. See Fig. 29.
9. Remove the screws on each end and along top of damper assembly of unit. Remove top 4 screws on each side of filter panel under damper assembly. Set hood assembly in place and attach to unit using these screws.
10. Remove screws along bottom of damper assembly. Locate and mount blockoff baffle using these screws.
11. Assemble 2 filter tracks side-by-side with the assembled ends together.
12. Attach mounting angle (without tabs) to the assembled end of the filter track. See Fig. 30.
13. Attach 9 green speed clips (provided) to hood side panels without slots. Engagement section of clip faces up and towards the outside of the hood side panels.
14. Attach remaining mounting angle (with tabs) to other end of the filter track with no. 10 screws provided. See Fig. 31.
15. Place filter track assembly in bottom of hood by placing tabbed end into slotted side (with tab on bottom) and attaching opposite end to hood with speed clips and gasketed screws provided. Tabs can be hand bent after they have been inserted into the side.

NOTE: The filter track assembly end with screws should face away from the other hood when mounted on the unit. Be sure the filters are installed with the airflow in the correct direction.

NOTE: Tabs from both filter tracks will be in the same space. After one filter track has been inserted into hood side, bend the tabs so they will not interfere with installation of the center hood.

16. Attach black seal strip (provided) to filter cover. Seal strip should be applied centered over the holes of the one flange, making sure to fully cover holes and centered over the other large flange. See Fig. 32.
17. Slide two 20 x 25-in. filters into cross members of hood assembly. Attach filter cover over filters with screws and speed clips provided.

Step 10 — Position Power Exhaust/Barometric Relief Damper Hood — All units are shipped with the hoods folded inside the unit in a shipping position. For 48A2, and A3 units the hood must be tilted out once the unit is installed. On 48A4, A5 units, (designed for horizontal supply and return) the assemblies will have to be relocated to return ductwork. See Fig. 33 for dimensions and details.

All electrical connections have been made and adjusted at the factory. The power exhaust blowers and 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. If ordered, each unit will have 4 (48A2,A3,A4,A5020-050 units) or 6 (48A2,A3,A4,A5060 units) power exhaust blowers and motors or barometric relief dampers.

1. Remove 9 screws holding each damper assembly in place. See Fig. 34. 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 each damper assembly outward until edges of damper assembly rest against 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.
5. Remove tape from damper blades.

Step 11 — Route VAV Static Pressure Sensors

VAV DUCT PRESSURE TRANSDUCER — The VAV duct pressure transducer (VAV inverter pressure transducer) is located behind the filter access door on the lower inner panel. See Fig. 35. A section of field-supplied $^1/_4$-in. plastic tubing must be run from the high pressure tap on the differential pressure switch and connected to a field-supplied tap in the supply-air duct. The tap is usually located $^2/_3$ of the way out on the main supply duct. Remove plug button in panel to route tubing.

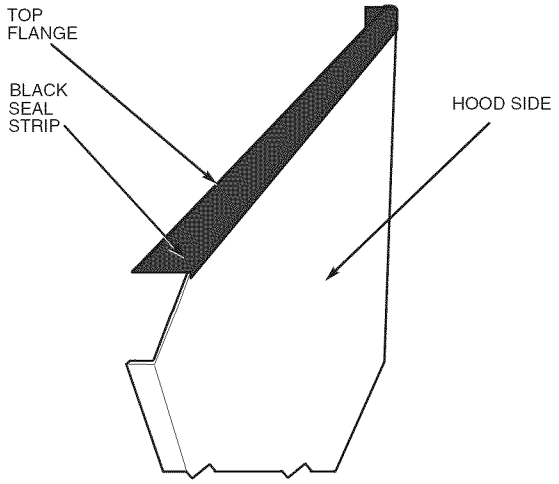


Fig. 23 — Adding Seal Strip to Top of Hood Sides

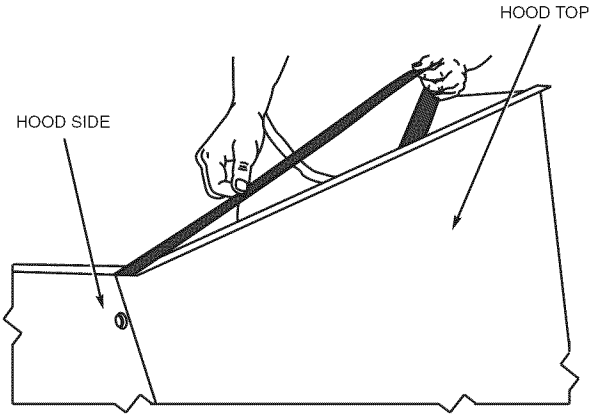
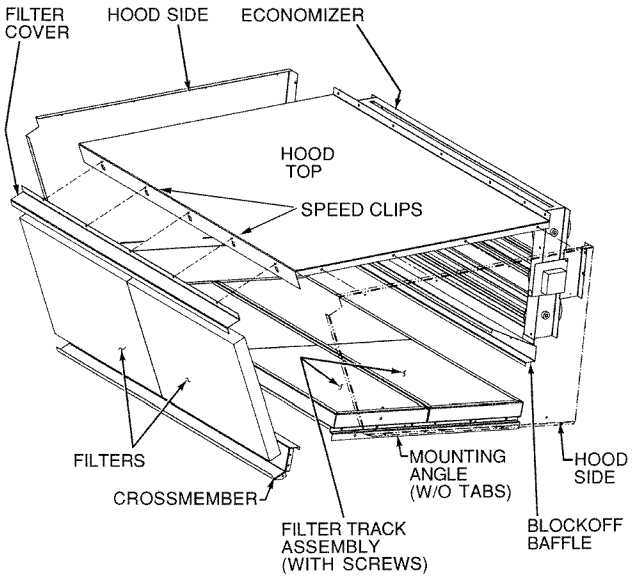


Fig. 26 — Adding Seal Strip to Back of Hood Top Mounting Flange



NOTE: Left side economizer hood has mounting angle without tabs and filter rack assembled end on the opposite side.

Fig. 24 — Economizer Hood Assembly (Right Side/Center Economizer Hood Shown)

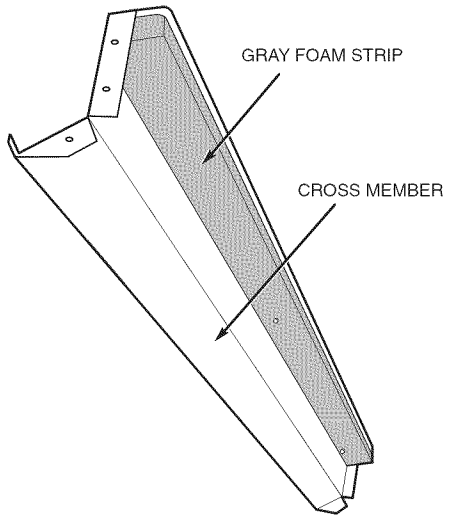


Fig. 27 — Adding Foam Strip to Cross Member

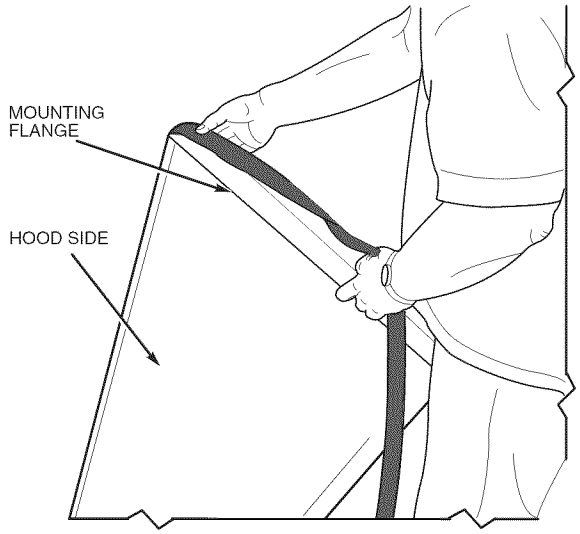


Fig. 25 — Adding Seal Strip to Sides of Hood Top Mounting Flange

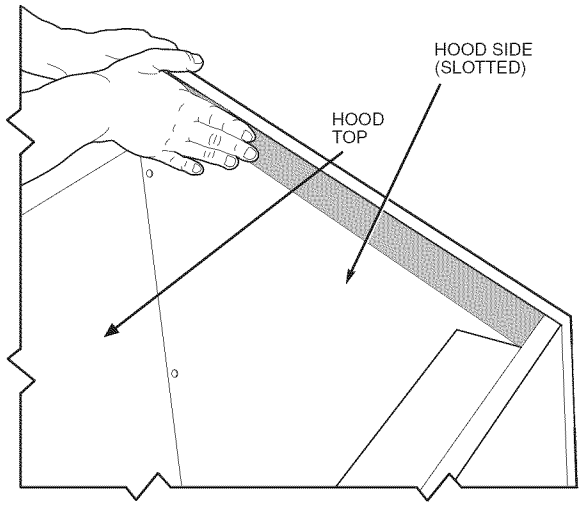


Fig. 28 — Adding Foam Strip to Hood Side

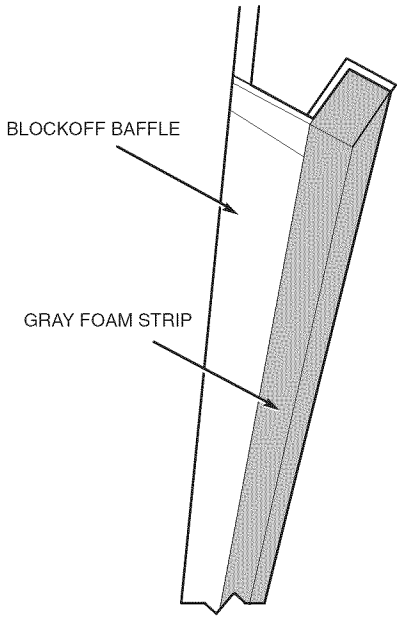


Fig. 29 — Adding Seal Strip to Blockoff Baffle

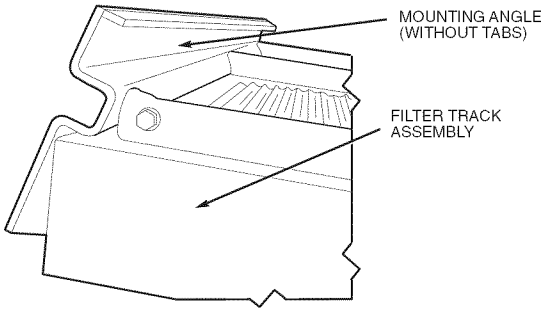


Fig. 30 — Mounting Angle (Without Tabs) Attached to Filter Track Assembly

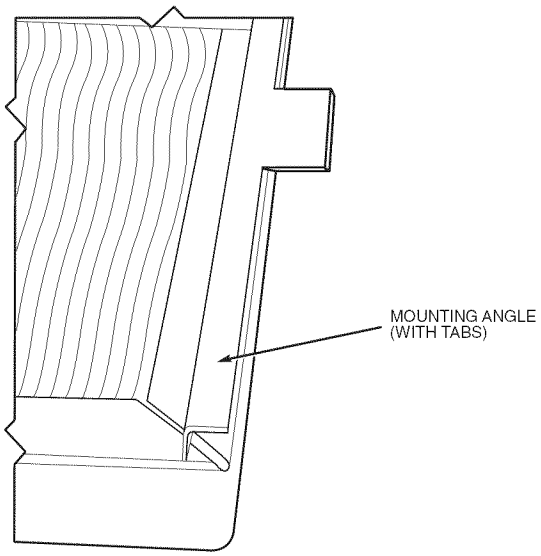


Fig. 31 — Mounting Angle (With Tabs) Attached to Filter Track Assembly

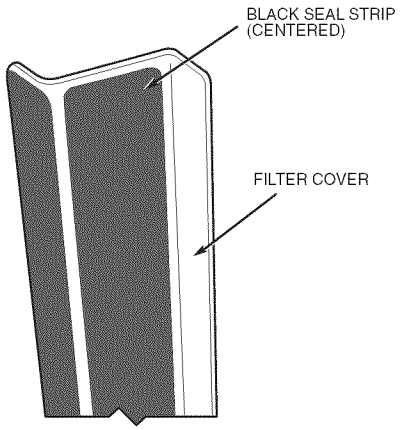


Fig. 32 — Attaching Seal Strip to Filter Cover

VAV BUILDING PRESSURE TRANSDUCER — The VAV building pressure transducer (modulating power exhaust pressure transducer) is located behind the filter access door on the lower inner panel. See Fig. 35. A section of field-supplied $^1/_4$-in. plastic tubing must be run from the high pressure tap on the differential pressure switch to the conditioned space. The pressure tube must be terminated in the conditioned space where a constant pressure is required. This location is usually in an entrance lobby so that the building exterior doors will open and close properly. Remove plug button in panel to route tubing.

The low pressure tap is factory-routed to the atmosphere. For a positive-pressure building, route the high tap to building air and low tap to atmosphere. For a negative-pressure building, route the high tap to atmosphere and the low tap to building air.

Step 12 — Install All Accessories — After all the factory-installed options have been adjusted, install all field-installed accessories. Refer to the accessory installation instructions included with each accessory.

The 48A Series units have a large number of factory-installed options which were previously available only as accessories. Some of the available options can also be installed in the field if needed. In most cases the units have been pre-wired so that the accessories can be easily installed. Instructions are shipped with each accessory. Configuration of the controls for these accessories as well as the factory-installed options can be found in the Controls, Start-up, Operation, Service and Troubleshooting book. The following is a list of some of the common accessories:

- Thermostats and space temperature sensors
- LP (liquid propane) conversion kit
- Accessory barometric relief damper
- Accessory power exhaust
- Non-modulating to modulating power exhaust
- Condenser coil hail guards
- Outdoor humidity sensor (used for economizer enthalpy changeover)
- Return air humidity sensors (used for economizer differential enthalpy changeover)
- Return air smoke detector
- Controls expansion module (used for interface to building management systems, not typically needed on system with the Carrier Comfort Network® [CCN] system)

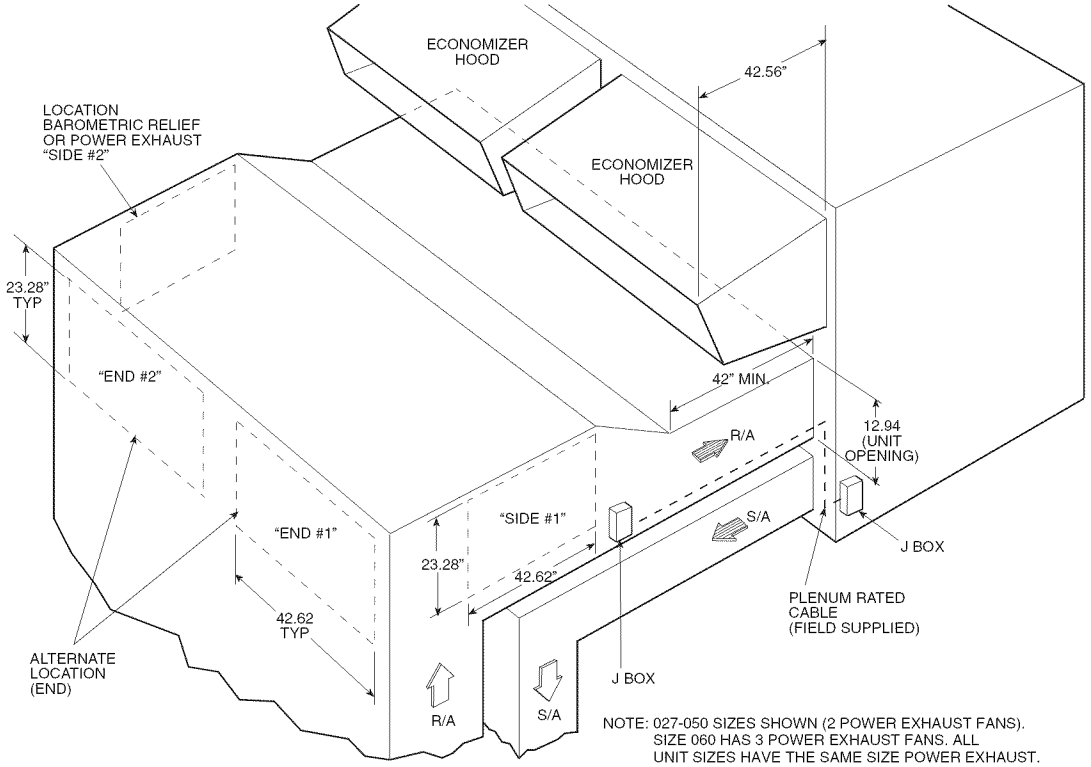
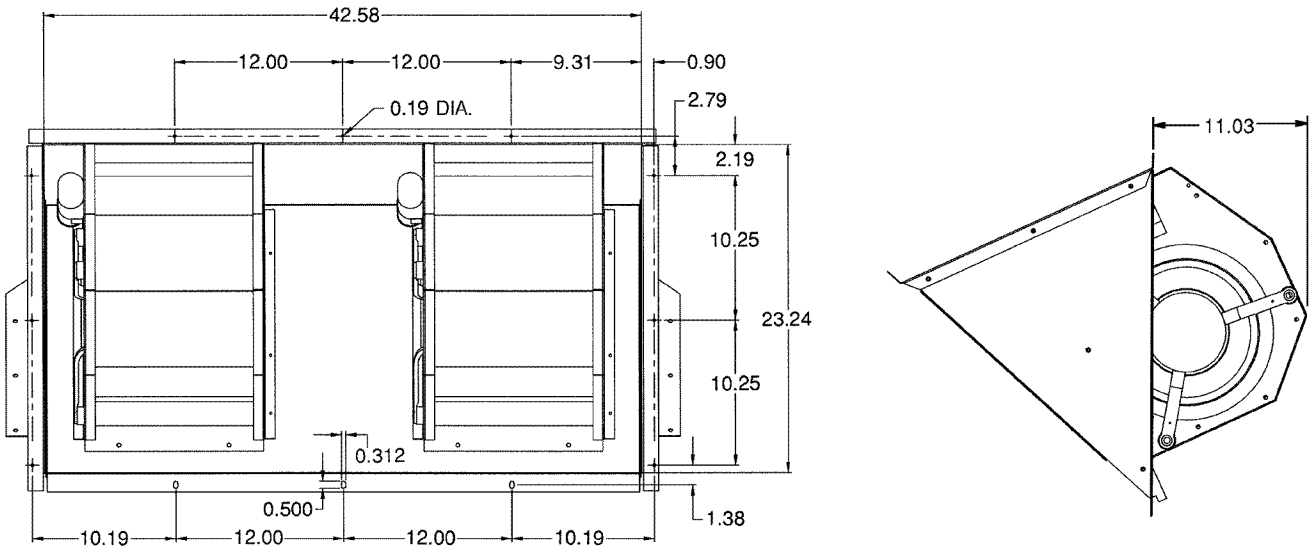


Fig. 33 — Power Exhaust Relocated to Side Return Duct



NOTES:
1. Unless otherwise specified, all dimensions are to outside of part.
2. Dimensions are in inches.
3. On 48A4,A5 units, accessory barometric relief or power exhaust must be mounted in the field-supplied return ductwork.

Fig. 34 — Barometric Relief Damper and Power Exhaust Mounting Details

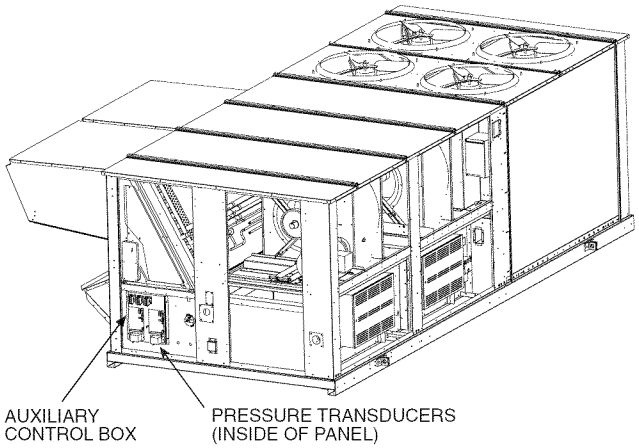


Fig. 35 — Pressure Transducer Locations

- Plugged filter sensor
- Motormaster® V low ambient head pressure control

IMPORTANT: Carrier recommends the installation of field-fabricated wind baffles on all vertically oriented condenser coils when operating in environments with prevailing winds of more than 5 MPH and where temperatures drop below 32 F. See the Motormaster accessory installation guide for instructions.

Step 13 — Field Modifications

DUCTWORK

Bottom Return Units (48A2 and A3) Field-Modified for Side Return — The 48A2 and A3 units with bottom return air connections may be field-modified to accommodate side return air connections.

IMPORTANT: The following section is a guideline and not a comprehensive procedure to field modify the units. The installing contractor must provide some design initiative. Field-conversion is complex and is not recommended.

Conversion to horizontal return requires that the bottom return openings of the unit must be sealed with airtight panels capable of supporting the weight of a person. The return ductwork connection locations on the side of the unit are higher than normal (31-in. high). Unit-mounted power exhaust or barometric relief cannot be used because of return air ductwork will cover the power exhaust or barometric relief installation locations. Power exhaust or barometric relief may be installed in the return air ductwork.

To convert the unit, perform the following:

1. Seal the bottom return openings of the unit with airtight panels capable of supporting the weight of a person.
2. Remove the panels located below the economizer outdoor-air dampers. These openings will be used for the return-air ductwork. There are 2 panels on 48A2,A3020-050 units. There are 3 panels on 48A2,A3060 units. These openings are normally used for power exhaust or barometric relief.
3. Run the return air ductwork up to the openings. One single duct is recommended to connect to the unit over the return air openings. See Fig. 36. The return duct must incorporate a minimum $^{3}/_{4}$-in. flange for connection to the unit cabinet. The unit does not have duct flanges for this conversion.

Side Supply and Return Units (48A4,A5) With Field-Installed Power Exhaust in Return Duct — Space must be available in the return duct to mount the power exhaust fan (gravity relief) modules. Dimensions and suggested locations are shown in Fig. 36. These instructions are a guideline and not a comprehensive procedure. The design contractor must provide some design initiative.

The wiring harness that is provided with the power exhaust accessory is not long enough for the fan modules to be mounted in the return air duct. Field-supplied wiring must be spliced into the harness. Use a junction box at each splice. The wiring may be run in the return duct, or externally in conduit. A service access panel will be needed near each power exhaust fan.

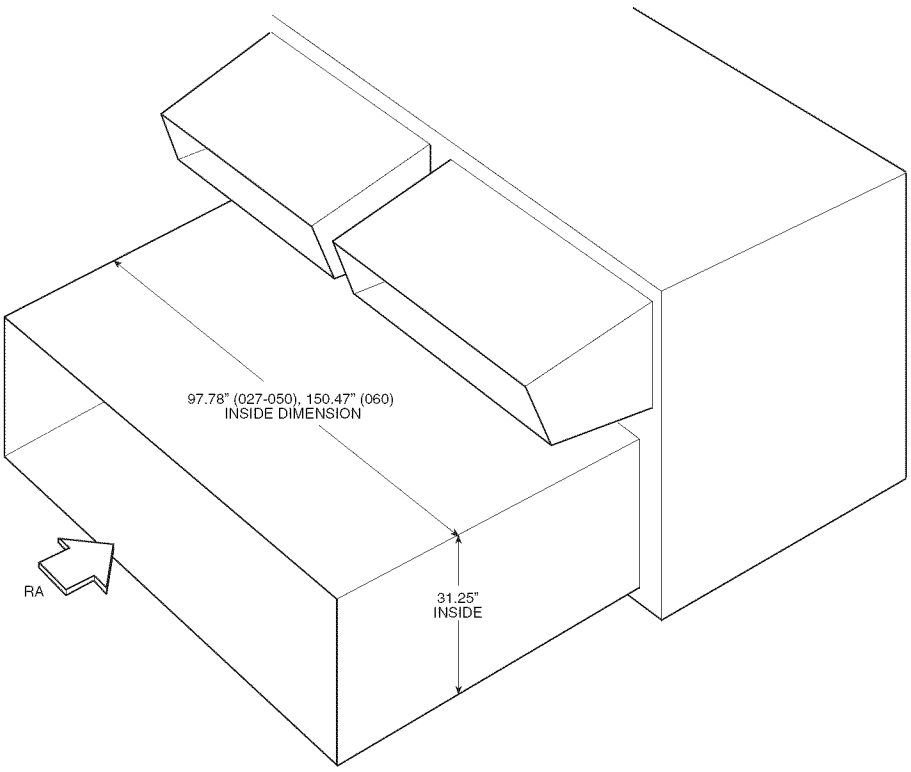


Fig. 36 — Side Return Air Conversion