Carrier

62X 03-55
Dedicated Vertical or Horizontal Outdoor Air Unit with Optional Energy Conservation Wheel

Installation Instructions

IMPORTANT: This installation instruction contains basic unit installation information including installation of field control devices. For information on unit start-up, service, and operation, refer to the unit Controls, Start-Up, Operation, Service, and Troubleshooting Instructions also enclosed in the unit literature packet.

CONTENTS

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SAFETY CONSIDERATIONS

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

Untrained personnel can perform the basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply. Refer to Fig. 1 to locate label placement.

Follow all safety codes, including ANSI (American National Standards Institute) Z223.1. 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

UNIT OPERATION AND SAFETY HAZARD

Failure to follow this warning could cause personal injury, death and/or equipment damage.

R-410A refrigerant systems operate at higher pressures than standard R-22 systems. Do not use R-22 service equipment or components on R-410A refrigerant equipment.

⚠ WARNING

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

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

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

⚠ AVERTISSEMENT

RISQUE D´INCENDIE OU D´EXPLOSION

Si les consignes de sécurité ne sont pas suivies à la lettre, cela peut entraîner la mort, de graves blessures ou des dommages matériels.

Ne pas entreposer ni utiliser d´essence ni autres vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil.

QUE FAIRE SI UNE ODEUR DE GAZ EST DÉTECTÉE

- Ne mettre en marche aucun appareil.
- Ne toucher aucun interrupteur électrique; ne pas utiliser de téléphone dans le bâtiment.
- Quitter le bâtiment immédiatement.
- Appeler immédiatement le fournisseur de gaz en utilisant le téléphone d´un voisin. Suivre les instructions du fournisseur de gaz.
- Si le fournisseur de gaz n´est pas accessible, appeler le service d´incendie.

L´installation et l´entretien doivent être effectués par un installateur ou une entreprise d´entretien qualifié, ou le fournisseur de gaz.

GENERAL

This Installation and Start-Up Instructions literature is for Carrier 62X series packaged dedicated outdoor air units. 62X units are designed for outdoor installation only, do not install indoors.

PRE-INSTALLATION

Inspection

Upon receipt of shipment, carefully check the shipment against the bill of lading. Make sure all units have been received. Inspect inspect each unit for damage on both the interior and exterior. Ensure the shipping company makes proper notation of any shortages or damage on all copies of the freight bill.

Concealed damage not discovered during unloading must be reported to the shipping company within 5 days of receipt of shipment.

NOTE: It is the responsibility of the purchaser to file all necessary claims with the shipping company.

Storage

If the equipment is not needed for immediate installation upon its arrival at the job site, it should be stored in a clean, dry area prior to installation.

INSTALLATION

Step 1 — Check Jobsite

Installation, operation and maintenance instructions are provided with each unit. Before unit start-up, read all manuals and become familiar with the unit and its operation. Thoroughly check out the system before operation. Complete the inspections and instructions listed below to prepare a unit for installation. See Fig. 3-8 for unit example physical data. See the unit submittal for actual unit dimensions.

IMPORTANT: Read the entire instruction manual before starting installation.

⚠ WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation and service. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

IMPORTANT: The installation of dedicated outdoor air units and all associated components, parts, and accessories which make up the installation shall be in accordance with the regulations of ALL authorities having jurisdiction and MUST conform to all applicable codes. It is the responsibility of the installing contractor to determine and comply with ALL applicable codes and regulations.

INSTALLATION GUIDELINES (ALL UNITS)

1. Be sure that the location chosen for unit installation provides adequate space for condenser airflow.
2. Verify that the outdoor air intake is away from any from any exhaust or other contaminant sources.
3. For units with gas heat, ensure proper clearance for flue gas exhaust. Ensure flue gas exhaust is away from the outdoor air intake of other equipment. 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). Verify proper access to make gas pipe connections.
4. For units with a power exhaust, verify that the exhaust outlet is free from obstruction.
5. For units with hot water heat, verify access for hot water pipe routing and valve installation.
6. Verify that the unit is installed with proper access and clearance in accordance with recommended service clearances, which is 48 in. on all sides of the unit. See Fig. 3-8 for typical unit dimensions.
7. Be sure that the unit can be installed with the proper pitch to encourage condensate drainage.
8. Verify the installation location is isolated from sleeping areas, private offices and other acoustically sensitive spaces.
9. For units with horizontal duct connection, provide sufficient space for duct connections and transitions.
10. Provide sufficient access to make power and control wiring connections.
11. Verify the unit power connection and control panel are away from any conductive services in accordance with local code.

Step 2 — Check Unit

Upon receipt of equipment at the jobsite, inspect each unit for damage on both the interior and exterior. Note any damage and contact your local equipment sales office.

INSPECT UNIT

To prepare the unit for installation, complete the procedures listed below:

1. Verify that the correct unit has been received. Check the unit capacity (tonnage), voltage, orientation, and configuration.
2. Compare the electrical data on the unit nameplate with to verify the jobsite power feed (voltage, amperage, MCA) and power protection (MOCP).
3. Verify that the unit is the correct model for the entering water temperature of the job (standard or extended range).
4. Verify all required field installed components, including sensors, control interface, etc. have been received.
5. Check the refrigerant piping connections to make sure they are free from defects, kinks, dents, and leaks.
6. Inspect the blower assembly. Verify that the blower has not come lose during shipping. Verify free blower rotation.
7. For units with energy conservation wheel (ECW), verify the ECW assembly and the drive assembly (belt and motor).
8. Inspect all electrical connections. Be sure connections are clean and tight at the terminals.
9. Verify that a control interface (Equipment Touch or Field Assistant) will be available.

Step 3 — Provide Unit Support

ROOF CURB

Assemble or install accessory roof curb in accordance with instructions shipped with this accessory. See submittal drawings for roof curb dimensions. Install insulation, cant strips, roofing, and counter flashing, if required. For vertical supply and return connections, ductwork can be installed to roof curb before unit is set in place. Ductwork must be attached to curb and not to the unit. Curb must be level. This is necessary to permit unit drain to function properly. Unit leveling tolerance is $\pm$ $^1/_{16}$ in. per linear ft in any direction. Refer to Accessory Roof Curb Installation Instructions for additional information as required. When accessory roof curb is used, unit may be installed on class A, B, or C roof covering material. Carrier roof curb accessories are for flat roofs or slab mounting.

IMPORTANT: The gasketing of the unit to the roof curb is critical for a watertight seal. Install gasket with the roof curb. Improperly applied gasket can also result in air leaks and poor unit performance. Do not slide unit to position on roof curb.

Step 4 — Rig and Place Unit

See Tables 1-5 for physical data. See Fig. 2 for illustrations on lifting small and large units. File any claim with transportation agency.

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage.

All panels must be in place when rigging. Unit is not designed for handling by fork truck when packaging is removed.

If using top crate as spreader bar, once unit is set, carefully lower wooden crate off building roof top to ground. Ensure that no people or obstructions are below prior to lowering the crate.

Do not drop unit; keep upright. Use wooden top skid or spreader bars over unit to prevent sling or cable damage. Rollers may be used to move unit across a roof. Level by using unit rail as a reference; leveling tolerance is ± 1/16 in. per linear ft in any direction.

Refer to the DOAS (Dedicated Outdoor Air System) Builder generated submittal for weights and dimensions of a unit.

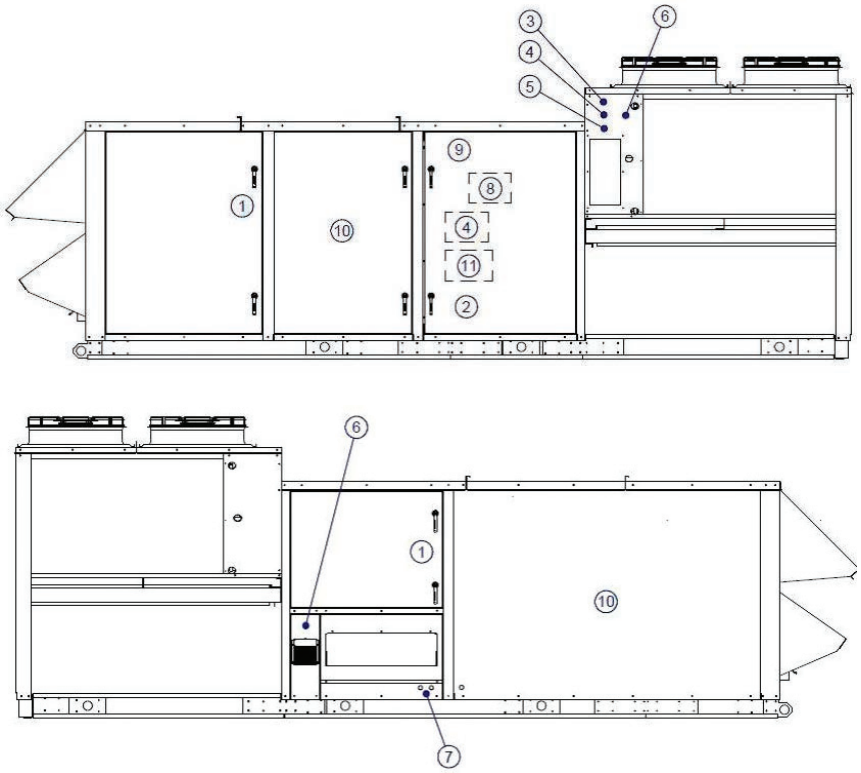
POSITIONING

Maintain clearance around and above unit to provide minimum distance from combustible materials, proper airflow, and service access.

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

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

For gas heat units, 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 (or per local codes). When the unit is located adjacent to public walkways, flue assembly must be at least 7 ft above grade. Locate unit at least 10 ft away from adjacent units.



ITEM #	PART #	DESCRIPTION
1	91070002	Warning Label
2	91031108	Door Latch Label
3	91070016	CA Cancer Warning Label
4		Manufacturer's Data label
5	91060002	R-410A Label
6	9-21577	Hot Surface Label
7	0527N-0018	Condensate Trap Label
8	057-0048	Copper Conductor Label
9	S-8238	Additional Parts Label
10		Brand Label
11	0527N-0620	Rotation Label

Fig. 1 — Label Placement

Clearances

The clearances below are the required distances that the unit must be away from objects and other units to allow service access and proper operation of the unit. For unit dimensions, refer to Fig. 3-8.

Service Clearances

The minimum recommended service clearance is 48-in. on all sides of unit with access doors.

Ventilation Clearances

In order to ensure proper operation of an air source unit, a 24 in. clearance for ventilation must be maintained on the sides. In addition, specific ventilation situational clearance guidelines are listed below.

- Do not locate the unit under an overhang or near a wall or other equipment that fosters short circuiting hot air to the condenser coil intakes.
- Do not locate unit within 10 ft, or directly downwind, from exhaust fans or flues.
- Do not locate adjacent unit condenser sections closer than 6 ft to one another to reduce the possibility of condenser air circulation.

ROOF MOUNT

Check building codes for weight distribution requirements. Unit operating weight is shown in the DOAS Builder generated submittal. When installing the equipment on top of a building, the following should be considered. Structural members supporting the unit must be sufficiently strong for the weight of the unit and mounting rails. Transmission of sound into the building is sometimes a problem when the structure is not strong enough.

SLAB MOUNT

When installed at ground level, the unit should be mounted on a level concrete slab which should extend at least 2 in. beyond the unit on all sides. The top of the slab should be 2 in. above the ground level. The depth of the slab below the ground level and its structural design is governed by the type of soil and climatic conditions. The slab must not be in contact with any part of the building wall or foundation. The space between the slab and building wall prevents the possibility of transmitting vibration to the building. The dimensions of the slab or roof mount should be checked and verified before the equipment arrives. Consider the condensate water trap height when mounting the unit on a slab.

INSTALLATION ONTO CURB

Correct placement of the unit onto the curb is important to operating performance. Refer to product submittal drawings to assure proper duct opening alignment. For locations with seismic or wind load requirements, field engineered and provided curb attachment clips must be provided. The standard Carrier curb is not wind or seismic rated.

⚠ CAUTION

Do not slide unit into position when it is sitting on the curb. Curb gasketing material may be damaged and leaks may result.

NOTE: For weight references, consult the DOAS Builder program submittal.

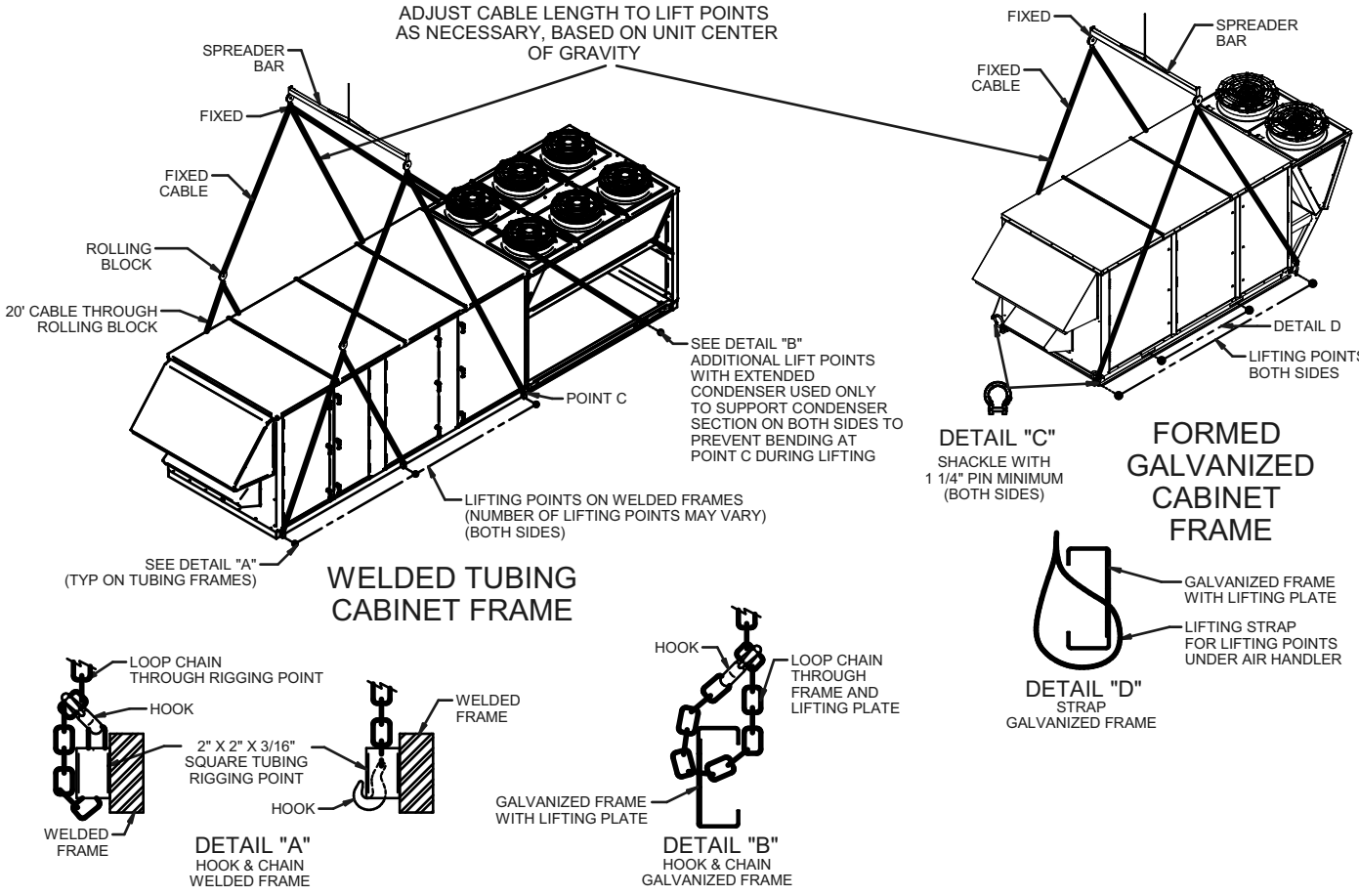
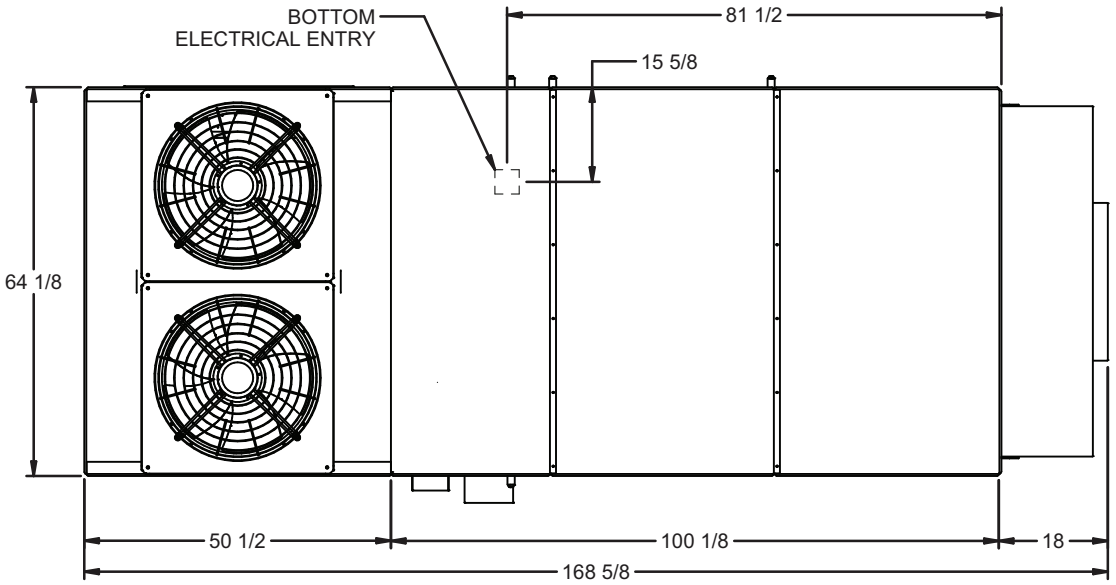
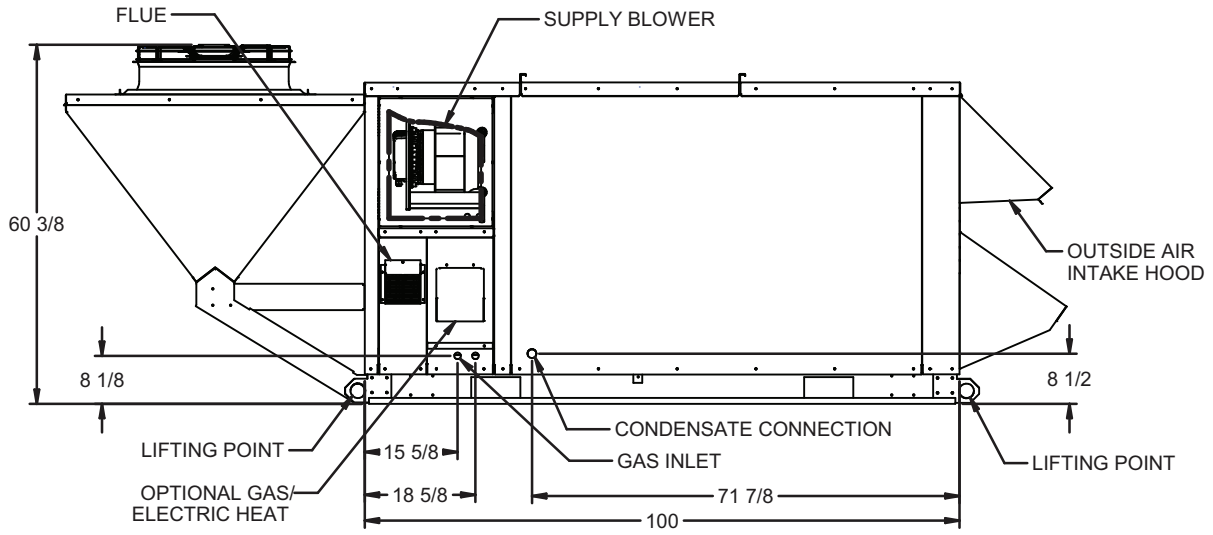


Fig. 2 — Rigging Small and Large Units

TOP VIEW

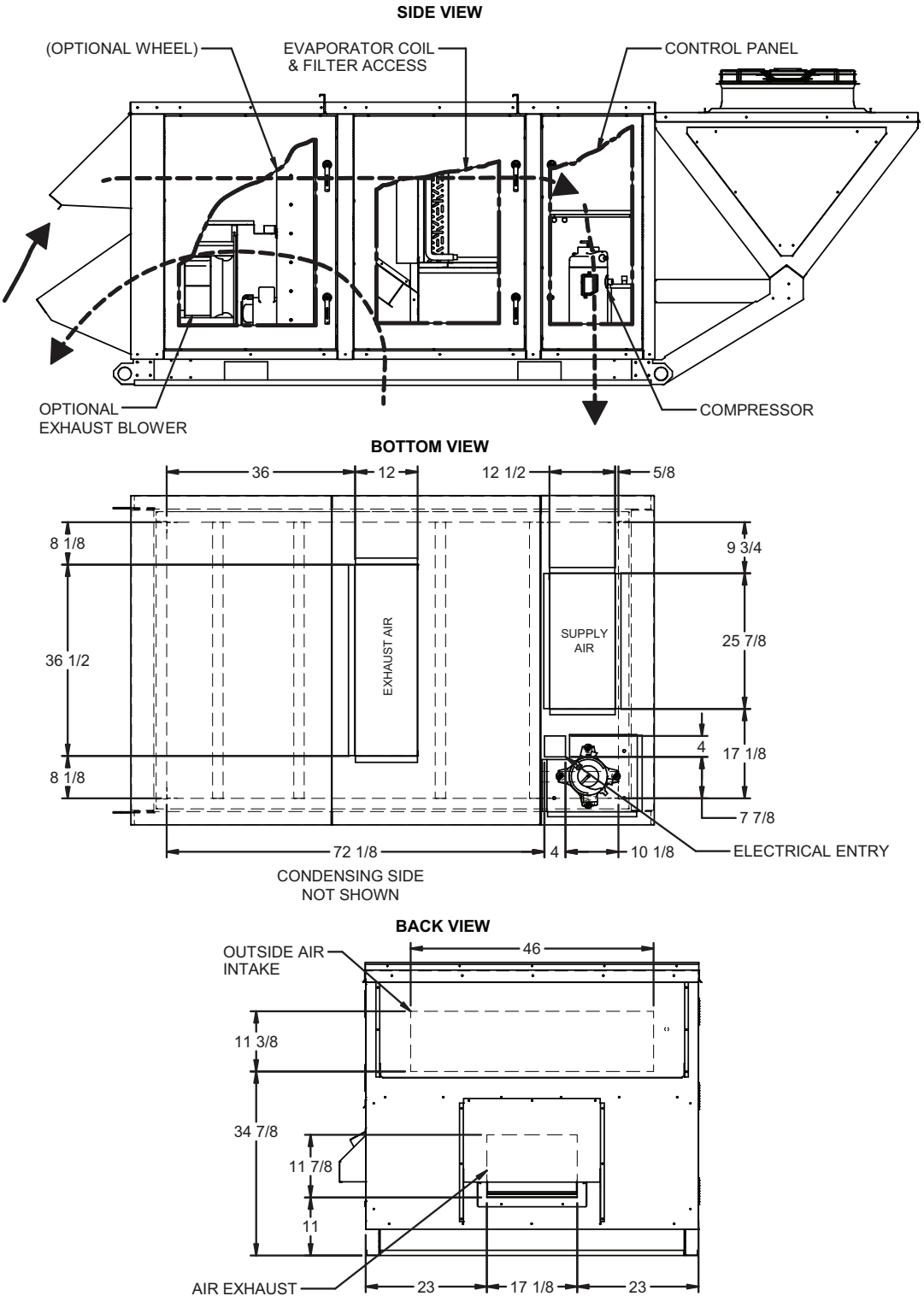


SIDE VIEW



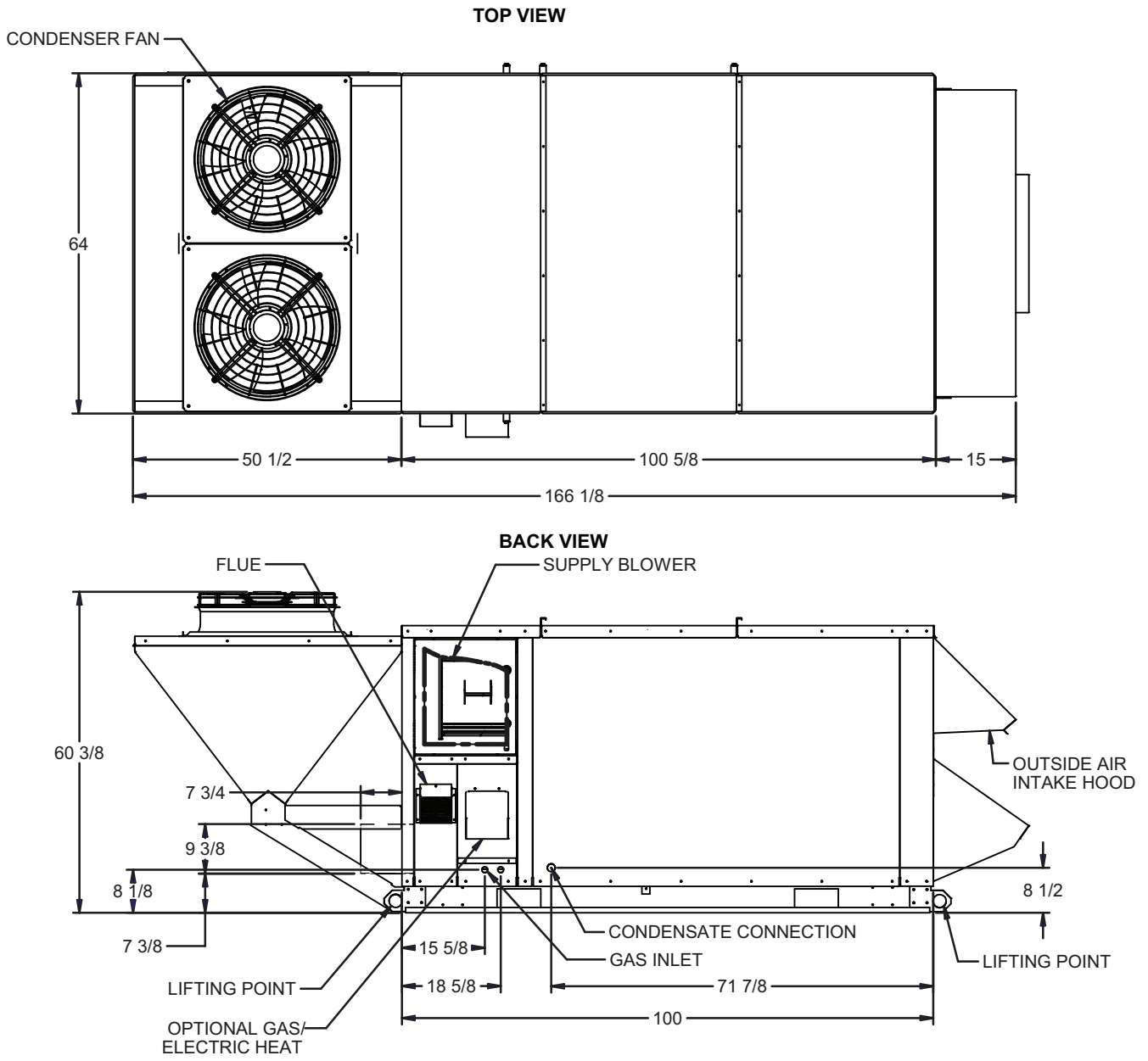
NOTES:
1. Dimensions are in inches.
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

Fig. 3 — 62X A Cabinet, High Capacity with ERV, Vertical Supply, Vertical Exhaust



NOTES:
1. Dimensions are in inches.
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

Fig. 3 — 62X A Cabinet, High Capacity with ERV, Vertical Supply, Vertical Exhaust (cont)



NOTES:
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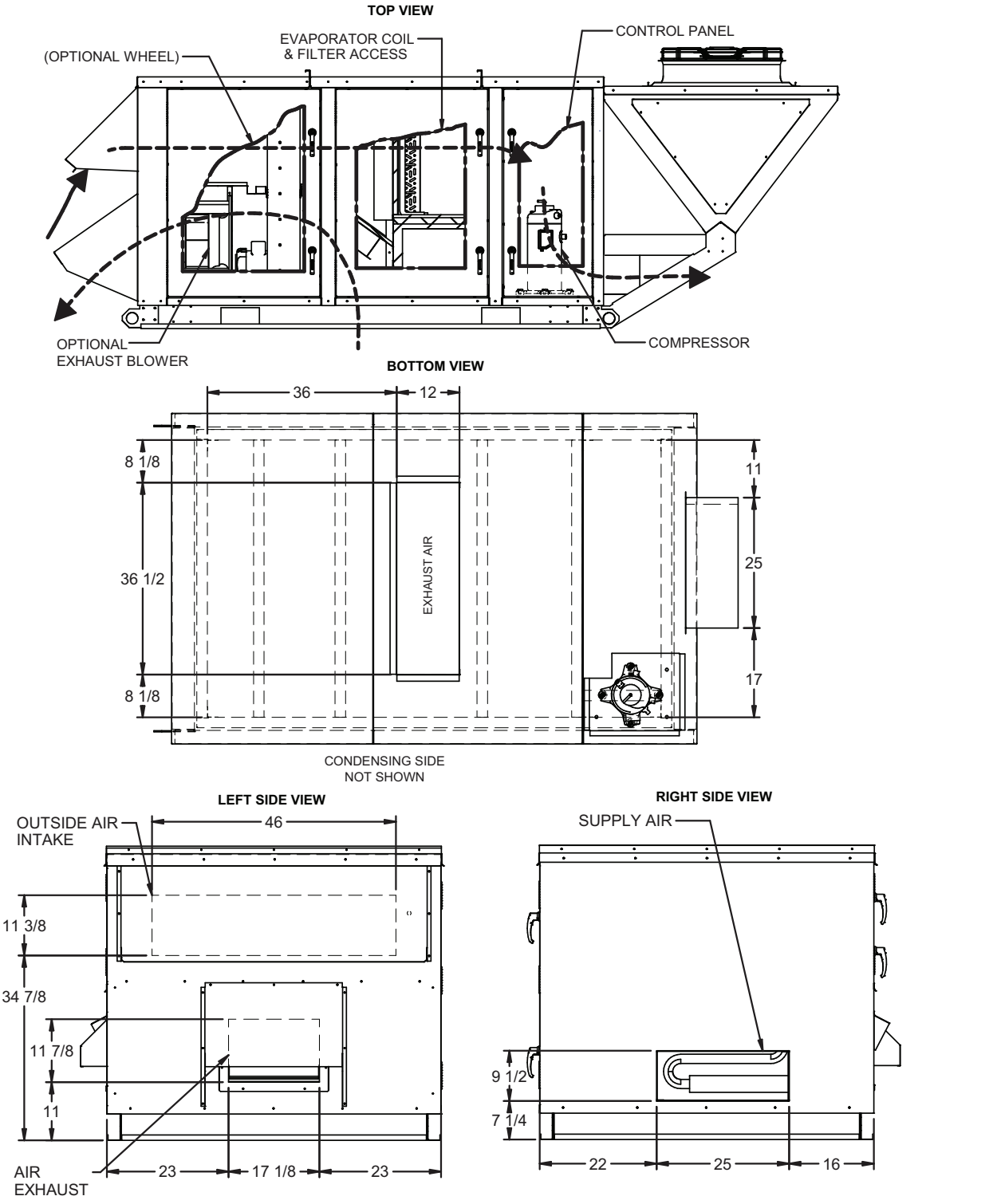
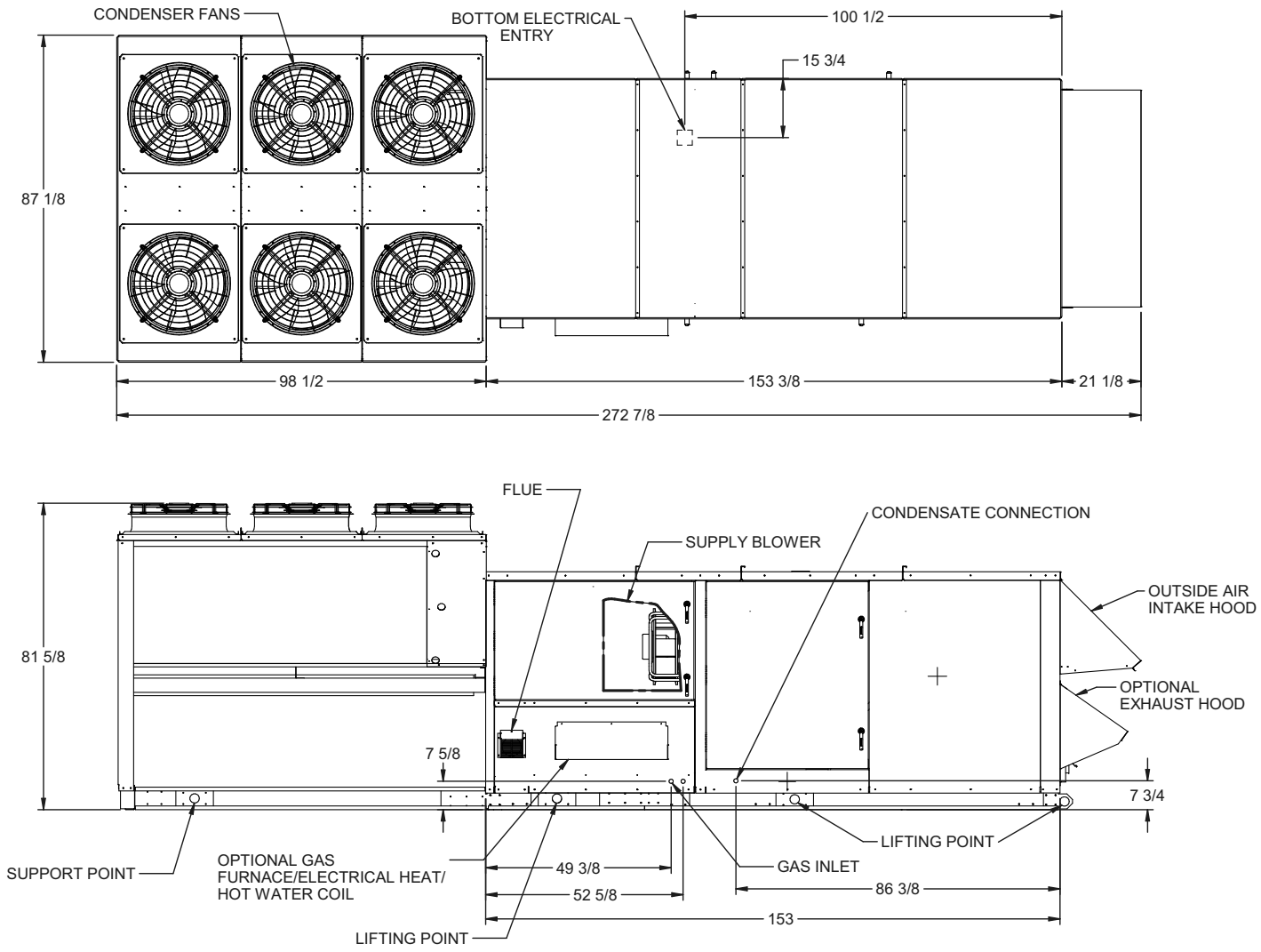
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

Fig. 4 — Unit Dimensions — 62X A Cabinet, High Capacity with ERV, Horizontal Supply, Vertical Exhaust



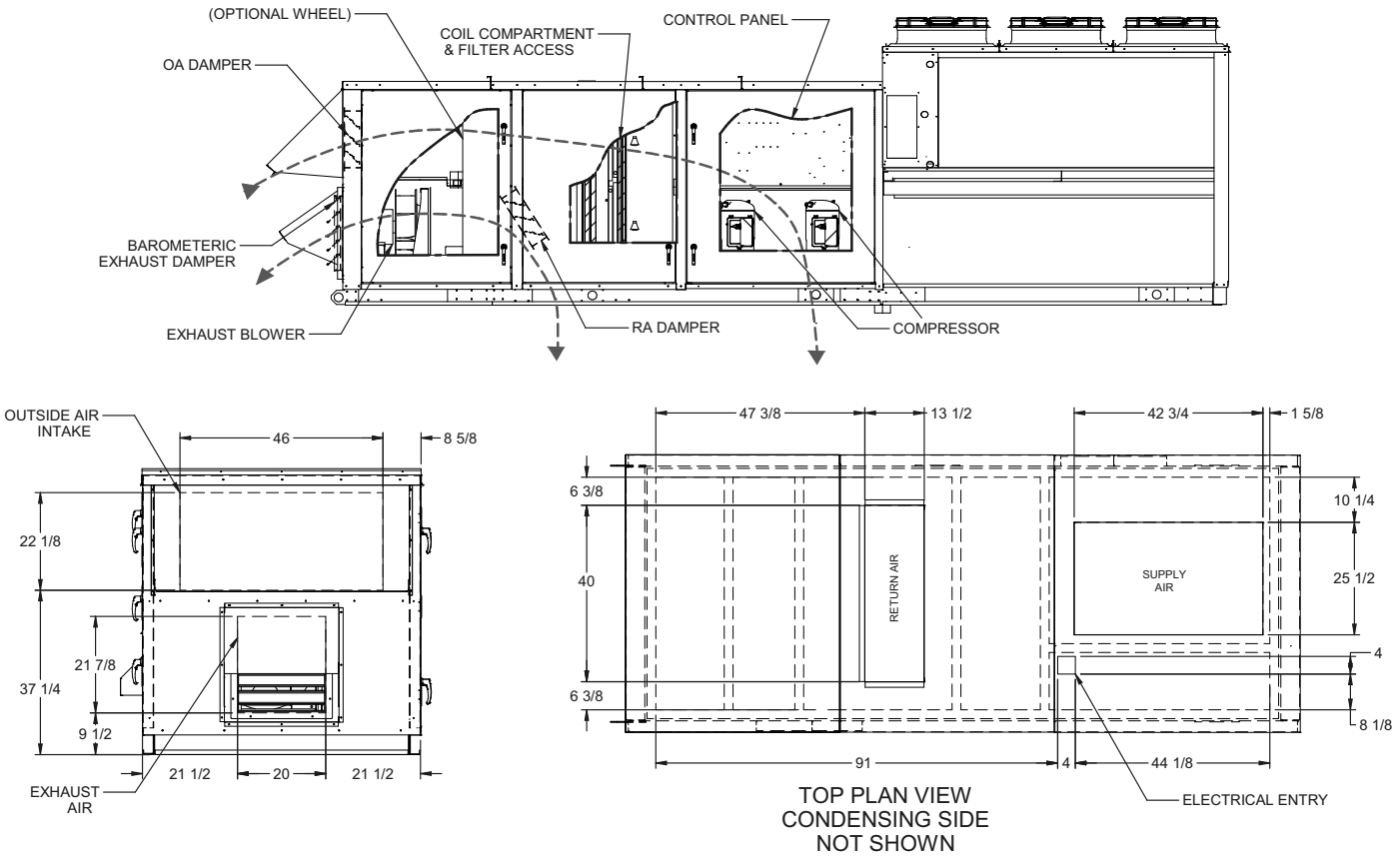
NOTES:
1. Dimensions are in inches.
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

Fig. 4 — Unit Dimensions — 62X A Cabinet, High Capacity with ERV, Horizontal Supply, Vertical Exhaust (cont)



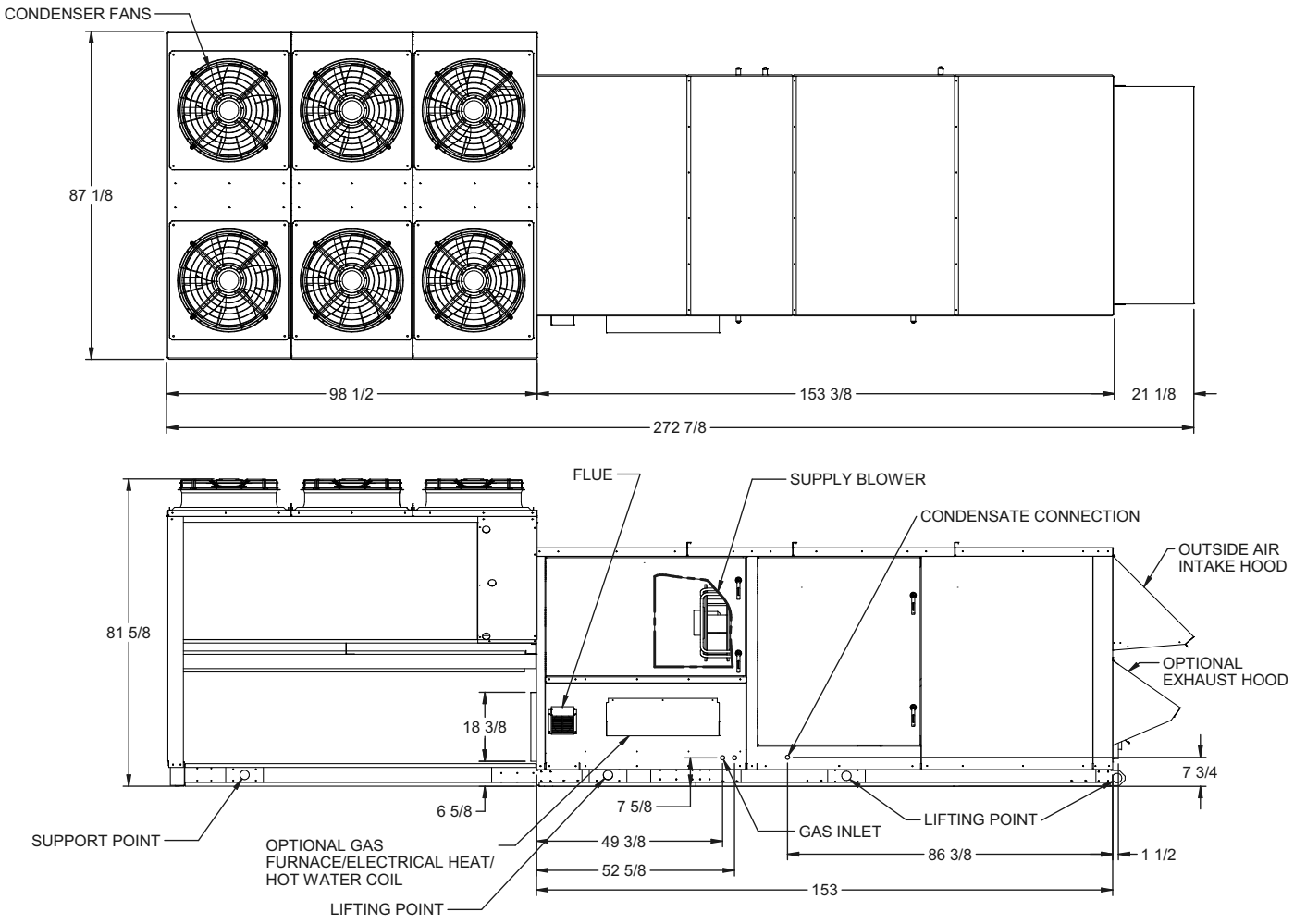
NOTES:
1. Dimensions are in inches.
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

Fig. 5 — Unit Dimensions — 62X CL Cabinet, High Capacity (Size 25), ERV, Vertical Supply, Vertical Exhaust



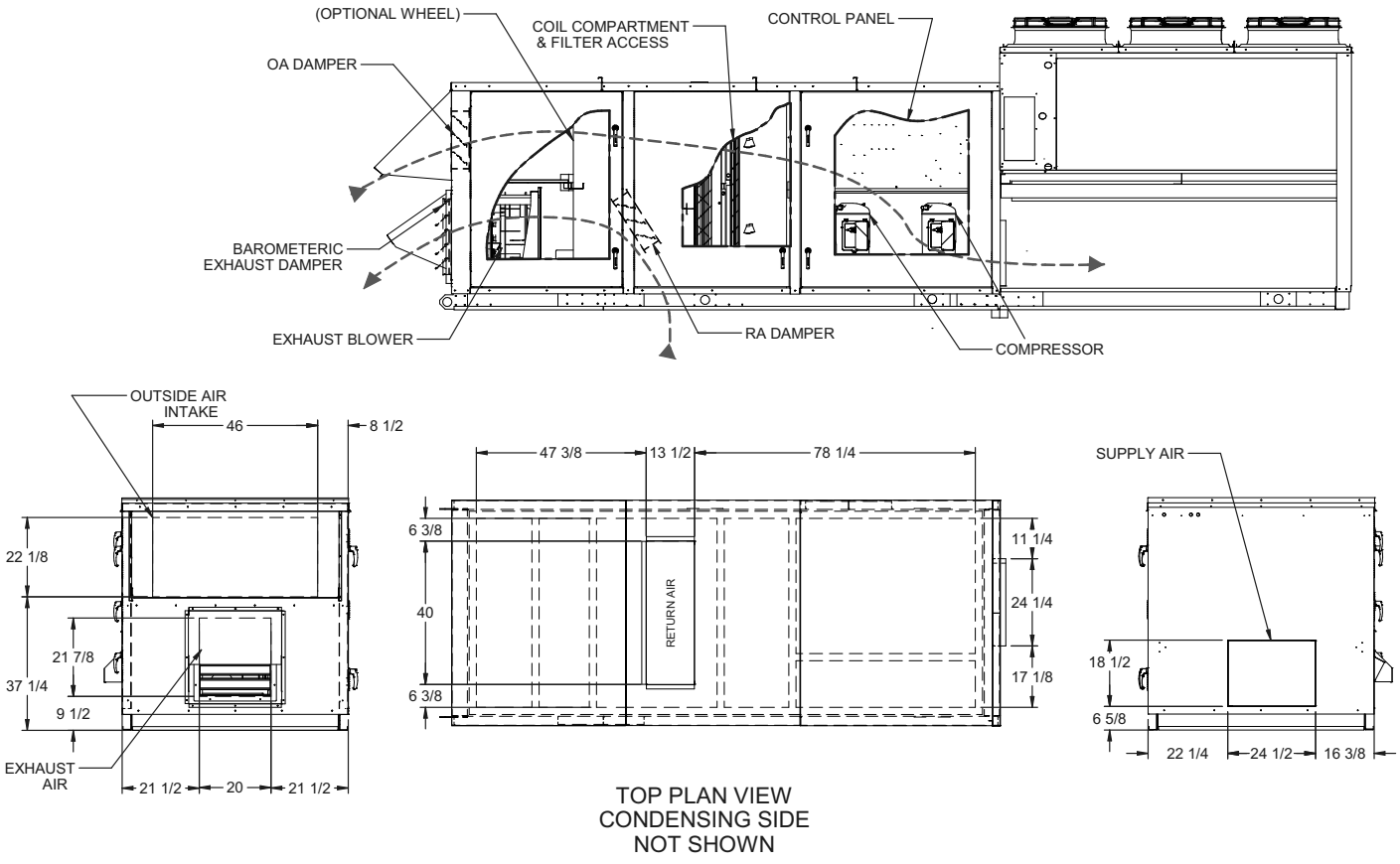
NOTES:
1. Dimensions are in inches.
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

Fig. 5 — Unit Dimensions — 62X CL Cabinet, High Capacity (Size 25), ERV, Vertical Supply, Vertical Exhaust (cont)



NOTES:
1. Dimensions are in inches.
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

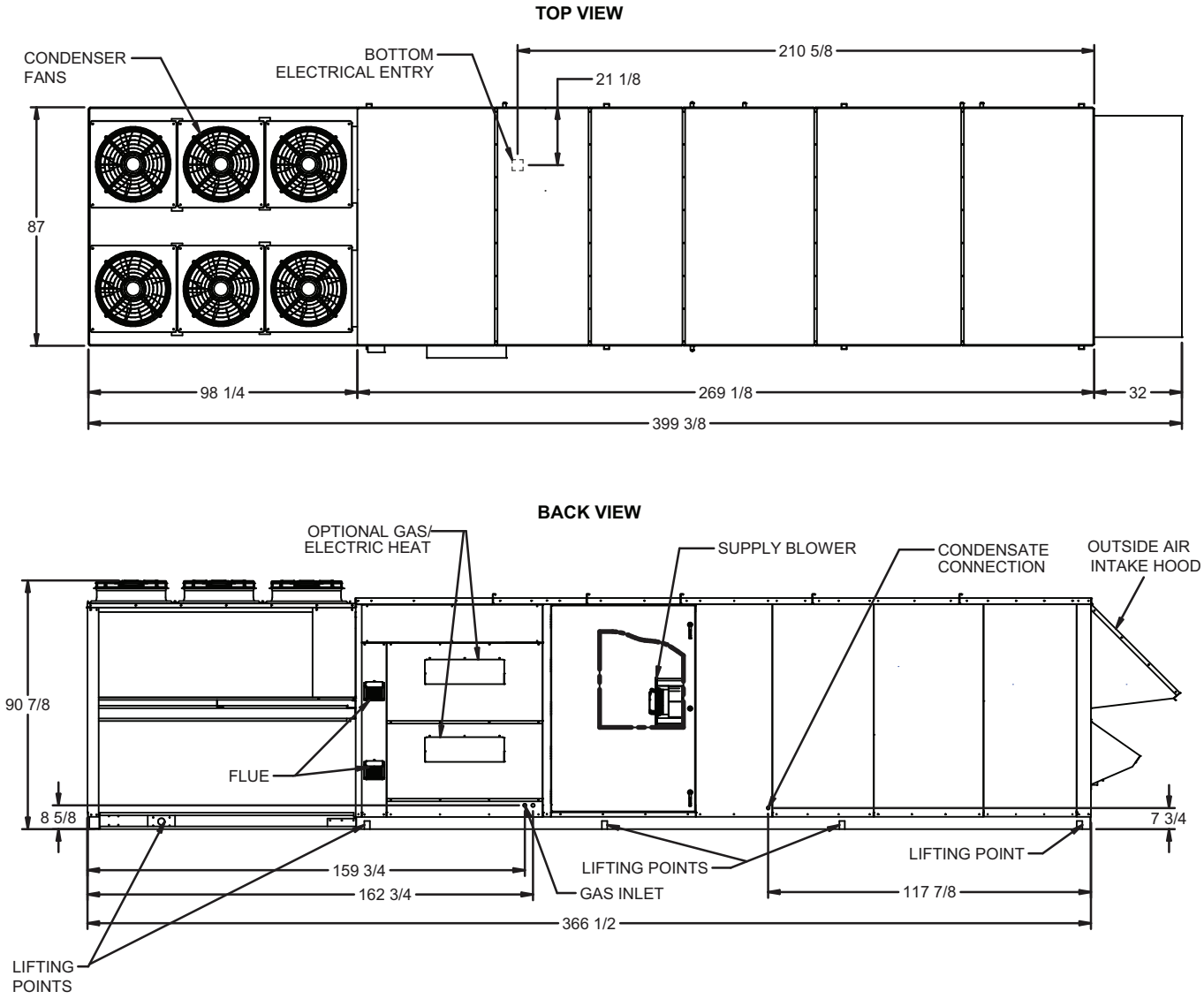
Fig. 6 — Unit Dimensions — 62X CL Cabinet, High Capacity (Size 25) ERV, Horizontal Supply, Vertical Exhaust



TOP PLAN VIEW
CONDENSING SIDE
NOT SHOWN

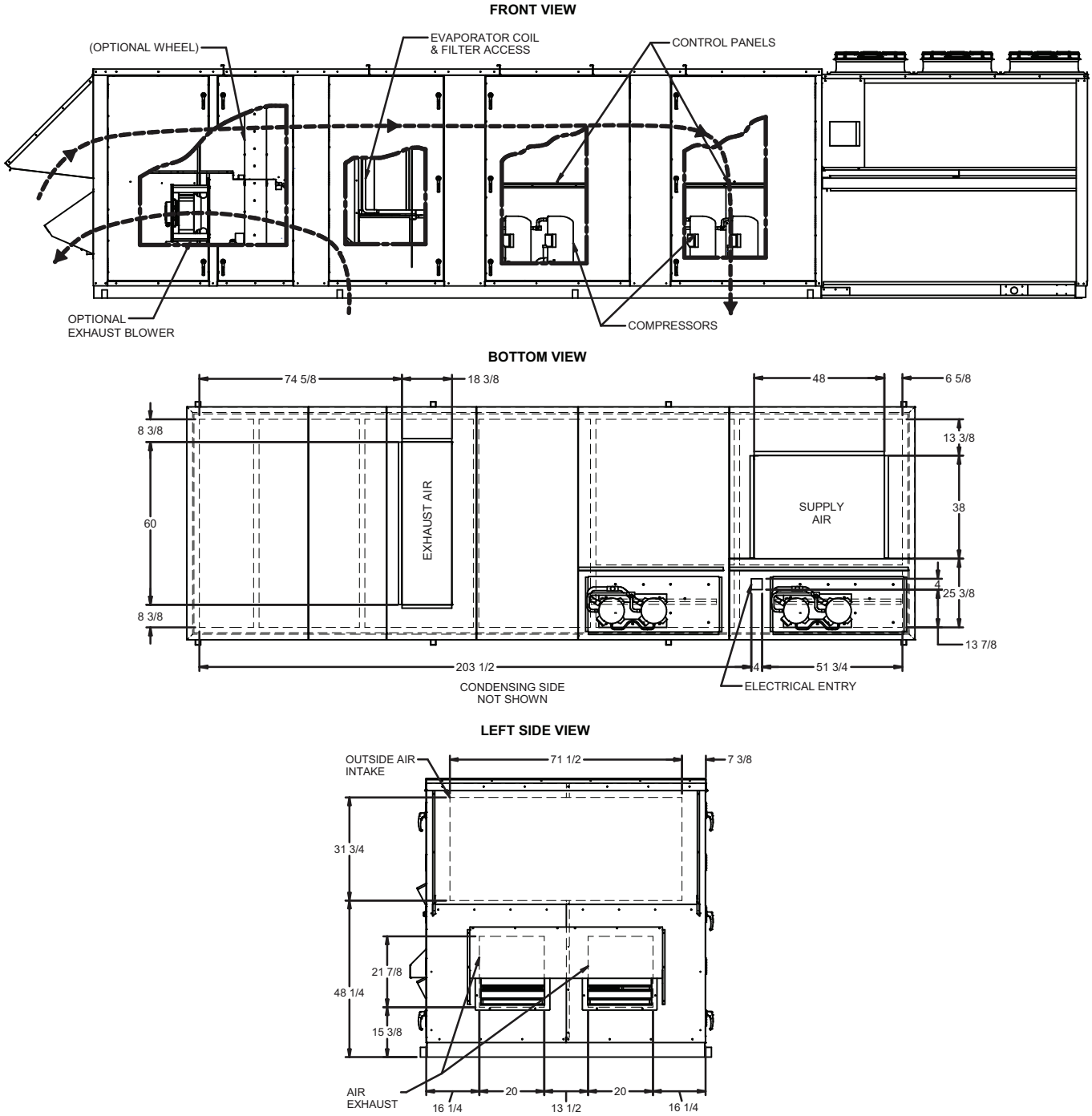
NOTES:
1. Dimensions are in inches.
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

Fig. 6 — Unit Dimensions — 62X CL Cabinet, High Capacity (Size 25) ERV, Horizontal Supply, Vertical Exhaust (cont)



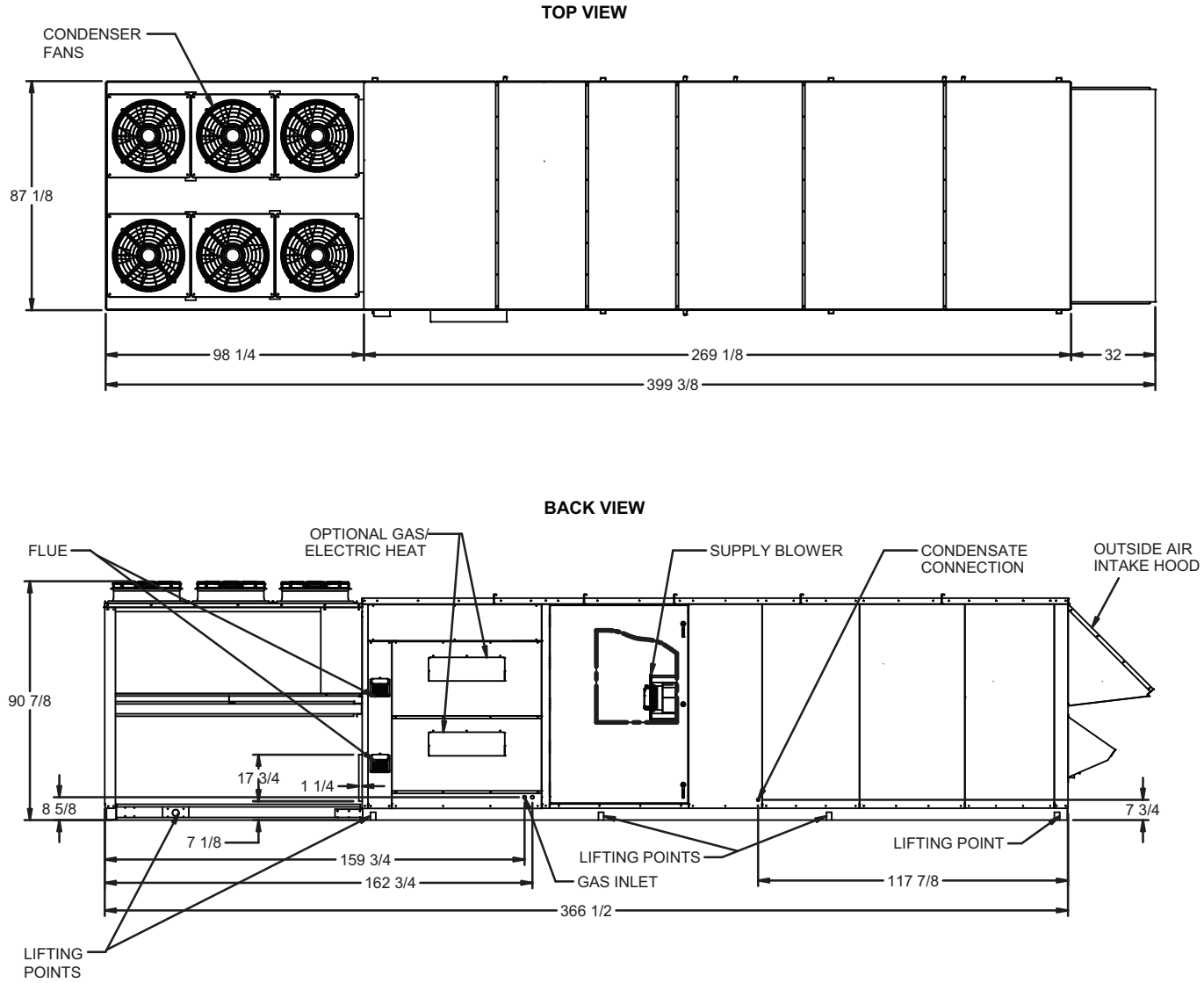
NOTES:
1. Dimensions are in inches.
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

Fig. 7 — Unit Dimensions — 62X DXL Cabinet, High Capacity (Sizes 25-35), ERV, Vertical Supply, Vertical Exhaust



NOTES:
1. Dimensions are in inches.
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

Fig. 7 — Unit Dimensions — 62X DXL Cabinet, High Capacity (Sizes 25-35), ERV, Vertical Supply, Vertical Exhaust (cont)



NOTES:
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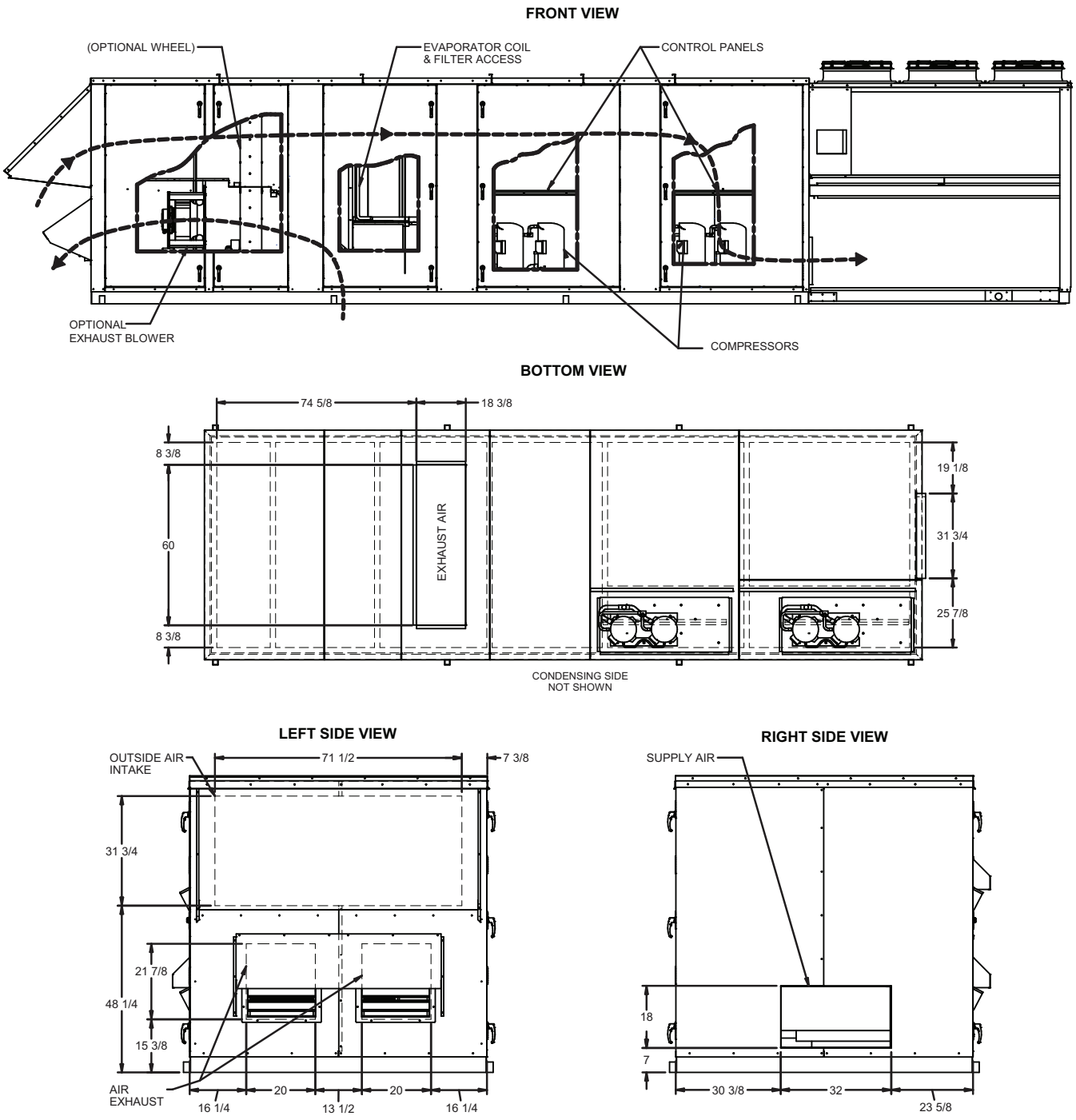
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

Fig. 8 — Unit Dimensions — 62X DXL Cabinet, High Capacity (Sizes 25-35), ERV, Horizontal Supply, Vertical Exhaust



NOTES:
1. Dimensions are in inches.
2. For detailed information on unit dimensions, please refer to a latest edition of Carrier's Dedicated Outdoor Air Systems Builder.
3. For an exact unit drawing, please refer to the DOAS Builder generated submittal.

Fig. 8 — Unit Dimensions — 62X DXL Cabinet, High Capacity (Sizes 25-35), ERV, Horizontal Supply, Vertical Exhaust (cont)

Table 1 — Physical Data — 62X A Cabinet

UNIT 62X A CABINET	03	04	05	06	07	08
NOMINAL CAPACITY (TONS)	3	4	5	6	7	8
COMPRESSOR						
Unit without ERV						
Quantity/Unit … Model	1...ZPD34	1...ZPD42	1...ZPD51	1...ZPD54	1...ZPD72	1...ZPD83
Unit with ERV						
Quantity/Unit … Model	1...ZPD34	1...ZPD42	1...ZPD51	1...ZPD61	1...ZPD72	1...ZPD83
Number of Refrigerant Circuits	1					
Oil	Pre-Charged					
REFRIGERANT TYPE	R-410A					
CONDENSER COIL						
Standard Efficiency Condenser (sq ft)	10.0	10.0	10.0	13.5	13.5	13.5
High-Efficiency Condenser (sq ft)	—	—	—	—	27	27
CONDENSER FAN						
Standard Capacity Condenser						
Nominal Cfm (total)	4000	4000	4000	5200	5200	5200
Quantity … Diameter (mm)	1...630					
Motor Hp	1.3	1.3	1.3	1.3	1.3	1.3
High Capacity Condenser						
Nominal Cfm (total)	—	—	—	—	11200	11200
Quantity … Diameter (mm)	—	—	—	—	2...630	2...630
Motor Hp	—	—	—	—	1.3	1.3
HIGH-PRESSURE SWITCH (PSIG)						
Cutout	640					
Reset (Manual)	595					
EVAPORATOR COIL						
Face Area without ERV (sq ft)	2.8	2.8	2.8	4.7	4.7	4.7
Face Area with ERV (sq ft)	7	7	7	Use B Cabinet		
SUPPLY FAN						
Backward Curved ECM (mm)	350					
Airfoil (in.)	—					
Backward Inclined (in.)	—					
Nominal Cfm 100% OA	450	600	750	900	1050	1200
OPTIONAL HOT GAS REHEAT AND LIQUID SUBCOOLING COIL						
Face Area without ERV (sq ft)	2.8	2.8	2.8	4.7	4.7	4.7
Face Area with ERV (sq ft)	7	7	7	Use B Cabinet		
LOW-PRESSURE SWITCH (PSIG)						
Cutout	35					
Reset (Auto)	55					
CONDENSATE DRAIN CONNECTION (NPT) (in.)	0.75					
OPTIONAL GAS HEAT SECTION						
Gas Input Sizes (Btuh x 1000)	75, 100					
Control Type						
Stages (no. of stages)	2					
Modulating (% range)*	5:1, 10:1*					
Efficiency (Steady State) (%)	80					
Supply Line Pressure Range (in. wg)	5.0 min. - 13.5 max					
Rollout Switch Cutout Temp (F)	350					
Gas Valve Quantity	1 Std - 2 with modulating option					
Manifold Pressure (in. wg)						
Natural Gas Std	3.5					
LP Gas Special Order	10					
OPTIONAL ELECTRIC HEAT						
Size Range (kW)	5, 10, 15, 20, 25, 30					
Control Type						
Stages (no. of stages)	1, 2, 4					
SCR (% range)*	0-100					
OPTIONAL HOT WATER HEAT COIL WITH ERV	Use B Cabinet			Use B Cabinet		
OPTIONAL HOT WATER HEAT COIL WITHOUT ERV	Use B Cabinet			Use B Cabinet		

Table 1 — Physical Data — 62X A Cabinet (cont)

UNIT 62X A CABINET	03	04	05	06	07	08
NOMINAL CAPACITY (TONS)	3	4	5	6	7	8
OUTDOOR AIR FILTERS						
Quantity … Size (in.) with ERV						
Standard 2-in. MERV 8	2...24x24			Use B Cabinet		
Optional 4-in.						
MERV 8	2...24x24			Use B Cabinet		
MERV 11	2...24x24			Use B Cabinet		
MERV 13	2...24x24			Use B Cabinet		
Quantity … Size (in.) without ERV						
Standard 2-in. MERV 8	1...24x24			2...24x24		
Optional 4-in.						
MERV 8	1...24x24			2...24x24		
MERV 11	1...24x24			2...24x24		
MERV 13	1...24x24			2...24x24		
OPTIONAL ERV						
Type	Molecular Sieve			Use B Cabinet		
Diameter ... depth (in.)	32...4, 36...4			Use B Cabinet		
OPTIONAL ERV FILTERS						
Quantity … Size (in.)						
with 32 in. ERV	6...18x20			Use B Cabinet		
with 36 in. ERV	2...20x20 2...20x24			Use B Cabinet		
OPTIONAL EXHAUST FAN						
Backward Curved ECM (mm)	350					
Airfoil (in.)	—					
Backward Inclined (in.)	—					
Nominal Cfm	450	600	750	900	1050	1200

LEGEND

ECM — Electronically Commutated Motor
ERV — Energy Recovery Ventilator
FPI — Fins per Inch
LP — Liquid Propane
OA — Outdoor Air
SCR — Silicon-Controlled Rectifier

* Optional

NOTE: For unit and component weights, refer to the latest edition of Carrier's Dedicated Outdoor Air Systems Builder. 10:1 gas heat not available for 75 MBH heater.

Table 2 — Physical Data — 62X, B Cabinet

UNIT 62X B CABINET	03	04	05	06	07	08	10	12	15	18
NOMINAL CAPACITY (TONS)	3	4	5	6	7	8	10	12	15	17.5
COMPRESSOR										
Unit without ERV										
Quantity/Unit … Model	1...ZPD34	1...ZPD42	1...ZPD51	1...ZPD54	1...ZPD72	1...ZPD83	1...ZPD51, 1...ZP51	1...ZPD61, 1...ZP61	1...ZPD72, 1...ZP72	1...ZPD91, 1...ZP91
Unit with ERV										
Quantity/Unit … Model	1...ZPD34	1...ZPD42	1...ZPD51	1...ZPD61	1...ZPD72	1...ZPD83	1...ZPD51, 1...ZP51	1...ZPD61, 1...ZP61	1...ZPD83, 1...ZP83	1...ZPD91, 1...ZP91
Number of Refrigerant Circuits	1						2			
Oil	Pre-Charged									
REFRIGERANT TYPE	R-410A									
CONDENSER COIL										
Standard Efficiency Condenser (sq ft)	10.0	10.0	10.0	13.5	13.5	13.5	27	27	27	27
High-Efficiency Condenser (sq ft)	—	—	—	—	27.0	27.0	—	—	40	40
CONDENSER FAN										
Standard Capacity Condenser										
Nominal Cfm (total)	4000	4000	4000	5200	5200	5200	11,200	11,200	10,600	10,600
Quantity … Diameter (mm)	1...630	1...630	1...630	1...630	1...630	1...630	2...630	2...630	2...630	2...630
Motor Hp	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
High Capacity Condenser										
Nominal Cfm (total)	—	—	—	—	11,200	11,200	—	—	—	—
Quantity … Diameter (in.)	—	—	—	—	2...630	2...630	—	—	—	—
Motor Hp	—	—	—	—	1.3	1.3	—	—	—	—
HIGH-PRESSURE SWITCH (PSIG)										
Cutout	640									
Reset (Manual)	595									
EVAPORATOR COIL										
Face Area without ERV (sq ft)	2.8	2.8	2.8	4.7	4.7	4.7	7	7	7	10
Face Area with ERV (sq ft)	7	7	7	10	10	10	12	12	Use C Cabinet	
SUPPLY FAN										
Backward Curved ECM (mm)	350, 450 Low (460V only), 450 High									
Airfoil (in.)	12, 14, 16									
Backward Inclined (in.)	10, 11, 12, 14, 16									
Nominal Cfm 100% OA	450	600	750	900	1050	1200	1500	1800	2250	2700
Motor Hp Range	ECM, 1, 1.5, 2, 3, 5									
OPTIONAL HOT GAS REHEAT AND LIQUID SUBCOOLING COIL										
Face Area without ERV (sq ft)	2.8	2.8	2.8	4.7	4.7	4.7	7	7	7	10
Face Area with ERV (sq ft)	7	7	7	10	10	10	12	12	Use C Cabinet	
LOW-PRESSURE SWITCH (PSIG)										
Cutout	35									
Reset (Auto)	55									
CONDENSATE DRAIN CONNECTION (NPT) (in.)	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
OPTIONAL GAS HEAT SECTION										
Gas Input Sizes (Btuh x 1000)	75, 100, 150, 200									
Control Type										
Stages (no. of stages)	2									
Modulating (% range)	5:1, 10:1									
Efficiency (Steady State) (%)	80									
Supply Line Pressure Range (in. wg)	5.0 min. - 13.5 max									
Rollout Switch Cutout Temp (F)	350									
Gas Valve Quantity	1 Std - 2 with modulating option									
Manifold Pressure (in. wg)										
Natural Gas Std	3.5									
LP Gas Special Order	10									
OPTIONAL ELECTRIC HEAT										
Size Range (kW)	5, 10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100									
Control Type										
Stages (no. of stages)	1, 2, 4									
SCR (% range)	0-100									
OPTIONAL HOT WATER HEAT COIL WITH ERV (in.)	27.5 x 27.5, 4 row, 8 FPI (See Hot Water Coil Drawings)								Use C Cabinet	
OPTIONAL HOT WATER HEAT COIL WITHOUT ERV (in.)	27.5 x 27.5, 4 row, 8 FPI (See Hot Water Coil Drawings)									

Table 2 — Physical Data — 62X, B Cabinet (cont)

UNIT 62X B CABINET	03	04	05	06	07	08	10	12	15	18
NOMINAL CAPACITY (TONS)	3	4	5	6	7	8	10	12	15	17.5
OUTDOOR AIR FILTERS										
Quantity … Size (in.) with ERV										
Standard 2-in. MERV 8	2...24x24			4...16 x 25			2...16x25, 2...20x25		Use C Cabinet	
Optional 4-in.										
MERV 8	2...24x24			4...16 x 25			2...16x25, 2...20x25		Use C Cabinet	
MERV 11	2...24x24			4...16 x 25			2...16x25, 2...20x25		Use C Cabinet	
MERV 13	2...24x24			4...16 x 25			2...16x25, 2...20x25		Use C Cabinet	
Quantity … Size (in.) without ERV										
Standard 2-in. MERV 8	1...24x24			2...24x24			4...16x24			
Optional 4-in.										
MERV 8	1...24x24			2...24x24			4...16x24			
MERV 11	1...24x24			2...24x24			4...16x24			
MERV 13	1...24x24			2...24x24			4...16x24			
OPTIONAL ERV										
Type	Molecular Sieve								Use C Cabinet	
Diameter... depth (in.)	32...4, 36...4, 42...4								Use C Cabinet	
OPTIONAL ERV FILTERS										
Quantity … Size (in.)										
with 32 in. ERV	6...18x20									
with 36 in. ERV	2...20x20, 2...20x24									
with 42 in. ERV	2...12x24, 4...20x24									
OPTIONAL EXHAUST FAN										
Backward Curved ECM - (mm)	SINGLE - 350, 450 Low (460V Only), 450 High; DUAL - 450 High (208/230V Only)									
Airfoil (in.)	12, 14, 16									
Backward Inclined - (in.)	10, 11, 12, 14, 16									
Nominal Cfm 100%	450	600	750	900	1050	1200	1500	1800	2250	2700
Motor Hp Range	ECM, 1,1.5,2,3,5									

LEGEND

ECM — Electronically Commutated Motor
ERV — Energy Recovery Ventilator
FPI — Fins per Inch
LP — Liquid Propane
OA — Outdoor Air

NOTE: For unit and component weights, refer to the latest edition of Carrier's Dedicated Outdoor Air Systems Builder. 10:1 gas heat not available for 75 MBH heater.

Table 3 — Physical Data — 62X, C-CL-CXL Cabinet

UNIT 62X C CABINET	07	08	10	12	15	18	20	25	30	35
NOMINAL CAPACITY (TONS)	7	8	10	12	15	17.5	20	25	30	35
COMPRESSOR										
Unit without ERV										
Quantity/Unit … Model	1...ZPD72	1...ZPD83	1...ZPD51, 1...ZP51	1...ZPD61, 1...ZP61	1...ZPD72, 1...ZP72	1...ZPD91, 1...ZP91	2...GSD60120	2...GSD60120	2...GSD60137	2...GSD60182
Unit with ERV										
Quantity/Unit … Model	1...ZPD72	1...ZPD83	1...ZPD51, 1...ZP51	1...ZPD61, 1...ZP61	1...ZPD83, 1...ZP83	1...ZPD91, 1...ZP91	2...GSD60120	2...GSD60137	2...GSD60154	2...GSD60182
Number of Refrigerant Circuits	1	1	2	2	2	2	2	2	2	2
Oil	Pre-Charged									
REFRIGERANT TYPE	R-410A									
CONDENSER COIL										
Standard Efficiency Condenser (sq ft)	—	—	27	27	27	27	—	54	54	54
High-Efficiency Condenser (sq ft)	27	27	—	—	40	40	54	80	80	80
CONDENSER FAN										
Standard Capacity Condenser										
Nominal Cfm (total)	—	—	10,600	10,600	10,600	10,600	—	20,800	20,800	20,800
Quantity … Diameter (mm)	—	—	2...630	2...630	2...630	2...630	—	4...630	4...630	4...630
Motor Hp	—	—	1.3	1.3	1.3	1.3	—	1.3	1.3	1.3
High Capacity Condenser										
Nominal Cfm (total)	11,200	11,200	—	—	—	—	20,800	31,200	31,200	31,200
Quantity … Diameter (mm)	2...630	2...630	—	—	—	—	4...630	6...630	6...630	6...630
Motor Hp	1.3	1.3	—	—	—	—	1.3	1.3	1.3	1.3
HIGH-PRESSURE SWITCH (PSIG)										
Cutout	640									
Reset (Manual)	595									
EVAPORATOR COIL										
Face Area without ERV (sq ft)	Use B Cabinet		7	7	7	10	12	12	16	16
Face Area with ERV (sq ft)	10	10	12	12	16	16	16	Use D Cabinet		
SUPPLY FAN										
Backward Curved ECM (mm)	350, 450 Low (460V Only), 450 High, 500 Low, 500 High (460V Only)									
Airfoil (in.)	14, 16, 18, 20									
Backward Inclined (in.)	14, 16, 18, 20									
Nominal Cfm 100% OA	1050	1200	1500	1800	2250	2700	3000	3750	4500	5250
Motor Hp Range	ECM, 1, 1.5, 2, 3, 5, 7, 5, 10									
OPTIONAL HOT GAS REHEAT AND LIQUID SUBCOOLING COIL										
Face Area w/o Wheel (sq ft)	Use B Cabinet		7	7	7	10	12	12	16	16
Face Area w/ Wheel (sq ft)	10	10	12	12	16	16	16	Use D Cabinet		
LOW-PRESSURE SWITCH (PSIG)										
Cutout	35									
Reset (Auto)	55									
CONDENSATE DRAIN CONNECTION (NPT) (in.)	.75									
OPTIONAL GAS HEAT SECTION										
Gas Input Sizes (Btuh x 1000)	75, 100, 150, 200, 250, 300									
Gas Input Sizes (Btuh x 1000) XL Cabinet	200, 300, 400, 600, 700, 800									
Control Type										
Stages (no. of stages)	2									
Stages XL Cabinet (no. of stages)	4									
Modulating (% range)	5:1, 10:1*									
Efficiency (Steady State) (%)	80									
Supply Line Pressure Range (in. wg)	5.0 min. - 13.5 max									
Manifold Pressure (in. wg)										
Natural Gas Std	3.5									
LP Gas Special Order	10									
OPTIONAL ELECTRIC HEAT										
Size Range (kW)	5, 10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100									
Control Type										
Stages (no. of stages)	1,2,4									
SCR (% range)	0-100									
OPTIONAL HOT WATER HEAT COIL WITH ERV (in.)	27.5 x 36.25, 4 row, 8 FPI (See Hot Water Coil Drawings)								Use D Cabinet	
OPTIONAL HOT WATER HEAT COIL WITHOUT ERV (in.)	Use B Cabinet	27.5 x 36.25, 4 row, 8 FPI (See Hot Water Coil Drawings)								

Table 3 — Physical Data — 62X, C-CL-CXL Cabinet (cont)

UNIT 62X C CABINET	07	08	10	12	15	18	20	25	30	35
NOMINAL CAPACITY (TONS)	7	8	10	12	15	17.5	20	25	30	35
OUTDOOR AIR FILTERS										
Quantity … Size (in.) with ERV										
Standard 2-in. MERV 8	4...16x25		2...16x25, 2...20x25		3...16x16, 6...16x20				Use D Cabinet	
Optional 4-in.										
MERV 8	4...16x25		2...16x25, 2...20x25		3...16x16, 6...16x20				Use D Cabinet	
MERV 11	4...16x25		2...16x25, 2...20x25		3...16x16, 6...16x20				Use D Cabinet	
MERV 13	4...16x25		2...16x25, 2...20x25		3...16x16, 6...16x20				Use D Cabinet	
Quantity … Size (in.) without ERV										
Standard 2-in. MERV 8	Use B Cabinet		2...24x24			4...16x25	2,,,16x25, 2...20x25		3...16x16, 6...20x20	
Optional 4-in.										
MERV 8	Use B Cabinet		2...24x24			4...16x25	2,,,16x25, 2...20x25		3...16x16, 6...20x20	
MERV 11	Use B Cabinet		2...24x24			4...16x25	2,,,16x25, 2...20x25		3...16x16, 6...20x20	
MERV 13	Use B Cabinet		2...24x24			4...16x25	2,,,16x25, 2...20x25		3...16x16, 6...20x20	
OPTIONAL ERV										
Type	Molecular Sieve									
Diameter ... depth (in.)	32...4, 36...4, 42...4, 48...4, 48...6								Use D Cabinet	
OPTIONAL ERV FILTERS										
Quantity … Size (in.)										
with 32 in. ERV	6...18x20								Use D Cabinet	
with 36 in. ERV	2...20x20, 2...20x24								Use D Cabinet	
with 42 in. ERV	2...12x24, 4...20x24								Use D Cabinet	
with 48 in. ERV	6...18x25								Use D Cabinet	
OPTIONAL EXHAUST FAN										
Backward Curved ECM - (mm)	SINGLE - 350, 450 Low (460V Only), 450 High, 500 Low, 500 High (460V Only); DUAL - 450 Low (460 Only), 450 High									
Airfoil (in.)	14, 16, 18, 20									
Backward Inclined - (in.)	14, 16, 18, 20									
Nominal Cfm 100%	1050	1200	1500	1800	2250	2700	3000	3750	4500	5250
Motor Hp Range	ECM, 1, 1.5, 2, 3, 5, 7.5, 10									

LEGEND

ECM — Electronically Commutated Motor
ERV — Energy Recovery Ventilator
FPI — Fins per Inch
LP — Liquid Propane
OA — Outdoor Air
SCR — Silicon-Controlled Rectifier

* XL gas heater only available in 10:1 modulation.

NOTE: For unit and component weights, refer to the latest edition of Carrier's Dedicated Outdoor Air Systems Builder.

Table 4 — Physical Data — 62X, D-DXL Cabinet Sizes 20-35

UNIT 62X, D CABINET	20	25	30	35
NOMINAL CAPACITY (TONS)	20	25	30	35
COMPRESSOR				
Unit without ERV				
Quantity/Unit ... Model	2...GSD60120	2...GSD60120	2...GSD60137	2...GSD60182
Unit with ERV				
Quantity/Unit ... Model	2...GSD60120	2...GSD60137	2...GSD60154	2...GSD60182
Number of Refrigerant Circuits	2			
Oil	Pre-charged			
REFRIGERANT TYPE	R-410A			
CONDENSER COIL				
Standard Efficiency Condenser (sq ft)	—	54	54	54
High-Efficiency Condenser (sq ft)	54	80	80	80
CONDENSER FAN				
Standard Capacity Condenser				
Nominal Cfm (total)	—	20,800	20,800	20,800
Quantity … Diameter (mm)	—	4...630	4...630	4...630
Motor Hp	1.3			
High Capacity Condenser				
Nominal Cfm (total)	20,800	31,200	31,200	31,200
Quantity...Diameter (mm)	4...630	6...630	6...630	6...630
Motor Hp	1.3			
HIGH-PRESSURE SWITCH (PSIG)				
Cutout	640			
Reset (Manual)	595			
EVAPORATOR COIL				
Face Area without ERV (sq ft)	12	12	16	16
Face Area with ERV (sq ft)	16	28.9	28.9	28.9
SUPPLY FAN				
Backward Curved ECM (mm)	SINGLE - 450 Low (460V Only), 450 High, 500 Low, 500 High (460V Only), 560 (208/230V only): DUAL - 450 Low (460V Only), 450 High, 500 Low, 500 High (460V Only)			
Airfoil (in.)	18, 20, 22, 25			
Backward Inclined (in.)	18, 20, 22, 25			
Nominal Cfm 100% OA	3000	3750	4500	5250
Motor Hp Range	ECM, 1.5, 2, 3, 5, 7.5, 10, 15			
OPTIONAL HOT GAS REHEAT AND LIQUID SUBCOOLING COIL				
Face Area without ERV (sq ft)	12	12	16	16
Tube Size with ERV (in.)	16	28.9	28.9	28.9
LOW-PRESSURE SWITCH (PSIG)				
Cutout	35			
Reset (Auto)	55			
CONDENSATE DRAIN CONNECTION (NPT) (in.)	1			
OPTIONAL GAS HEAT SECTION				
Gas Input Sizes (Btuh x 1000)	100, 150, 200, 250, 300, 350, 400			
Gas Input Sizes (Btuh x 1000) XL Cabinet	400, 500, 600, 700, 800, 1000, 1200			
Control Type				
Stages (no. of stages)	2			
Stages XL Cabinet (no. of stages)	4			
Modulating (% range)	5:1, 10:1*			
Efficiency (Steady State) (%)	80			
Supply Line Pressure Range (in. wg)	5.0 min. - 13.5 max			
Rollout Switch Cutout Temp (F)	350			
Gas Valve Quantity	1 Std - 2 with modulating option			
Manifold Pressure (in. wg)				
Natural Gas Std	3.5			
LP Gas Special Order	10			
OPTIONAL ELECTRIC HEAT				
Size Range (kW)	5, 10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100, 110, 120			
Control Type				
Stages (no. of stages)	1,2,4			
SCR (% range)	0-100			
OPTIONAL HOT WATER HEAT COIL WITH ERV (in.)	40.5 x 47.5, 4 row, 8 FPI (See Hot Water Coil Drawings)			
OPTIONAL HOT WATER HEAT COIL WITHOUT ERV (in.)	40.5 x 47.5, 4 row, 8 FPI (See Hot Water Coil Drawings)			

Table 4 — Physical Data — 62X, D-DXL Cabinet, Sizes 20-35 (cont)

UNIT 62X, D CABINET	20	25	30	35
NOMINAL CAPACITY (TONS)	20	25	30	35
OUTDOOR AIR FILTERS				
Quantity … Size (in.) with ERV				
Standard 2-in. MERV 8	3...16x16, 6...16x20	6...20x25, 3...25x25		
Optional 4-in.				
MERV 8	3...16x16, 6...16x20	6...20x25, 3...25x25		
MERV 11	3...16x16, 6...16x20	6...20x25, 3...25x25		
MERV 13	3...16x16, 6...16x20	6...20x25, 3...25x25		
Quantity … Size (in.) without ERV				
Standard 2-in. MERV 8	2...16x25, 2...20x25		3...16x16, 6...20x20	
Optional 4-in.				
MERV 8	2...16x25, 2...20x25		3...16x16, 6...20x20	
MERV 11	2...16x25, 2...20x25		3...16x16, 6...20x20	
MERV 13	2...16x25, 2...20x25		3...16x16, 6...20x20	
OPTIONAL ERV				
Type	Molecular Sieve			
Diameter ... depth (in.)	48…4, 48…6, 54…4, 60…4, 60…6, 66…4, 66…6			
OPTIONAL ERV FILTERS				
Quantity … Size (in.)				
with 48 in. ECW	6...18x25			
with 54 in. ECW	6...20x30			
with 60 in. ECW	10...16x36			
with 66 in. ECW	8...36x20			
OPTIONAL EXHAUST FAN				
Backward Curved ECM (mm)	SINGLE - 450 Low (460V Only), 450 High, 500 Low, 500 High (460V Only), 560 (208/230V Only); DUAL - 450 Low (460V Only), 450 High, 500 Low, 500 High (460V Only)			
Airfoil (in.)	18, 20, 22, 25			
Backward Inclined (in.)	18, 20, 22, 25			
Nominal Cfm 100%	3000	3750	4500	5250
Motor Hp Range	ECM, 1.5, 2, 3, 5, 7.5, 10, 15			

LEGEND
ECM — Electronically Commutated Motor
ERV — Energy Recovery Ventilator
FPI — Fins per Inch
LP — Liquid Propane
OA — Outdoor Air
SCR — Silicon-Controlled Rectifier

* 10:1 modulating control available on DXL Cabinet (400-1200 MBtuh only). 5 kW SCR electric heater not available.

NOTE: For unit and component weights, refer to the latest edition of Carrier's Dedicated Outdoor Air Systems Builder.

Table 5 — Physical Data — 62X, D-DXL Cabinet, Sizes 40-55

UNIT 62X, D CABINET	40	45	50	55
NOMINAL CAPACITY (TONS)	40	45	50	55
COMPRESSOR				
Unit without ERV				
Quantity/Unit ... Model	2...GSD60182	2...GSD60120/ 2...GSD60120 (TANDEM)	2...GSD60137/ 2...GSD60137 (TANDEM)	2...GSD60154/ 2...GSD60154 (TANDEM)
Unit with ERV				
Quantity/Unit ... Model	2...GSD60182	2...GSD60120/ 2...GSD60120 (TANDEM)	2...GSD60137/ 2...GSD60137 (TANDEM)	2...GSD60154/ 2...GSD60154 (TANDEM)
Number of Refrigerant Circuits	2			
Oil	Pre-charged			
REFRIGERANT TYPE	R-410A			
CONDENSER COIL				
Standard Efficiency Condenser (sq ft)	54	80	80	80
High-Efficiency Condenser (sq ft)	80	121	121	121
CONDENSER FAN				
Standard Capacity Condenser				
Nominal Cfm (total)	20,800	31,200	31,200	31,200
Quantity … Diameter (mm)	4...630	6..630	6...630	6...630
Motor Hp	1.3			
High Capacity Condenser				
Nominal Cfm (total)	31,200	52,800	52,800	52,800
Quantity...Diameter (mm)	6...630	6...710	6...710	6...710
Motor Hp	1.3			
HIGH-PRESSURE SWITCH (PSIG)				
Cutout	640			
Reset (Manual)	595			
EVAPORATOR COIL				
Face Area without ERV (sq ft)	28.9	28.9	28.9	28.9
Face Area with ERV (sq ft)	—	—	—	—
SUPPLY FAN				
Backward Curved ECM (mm)	SINGLE - 450 Low (460V Only), 450 High, 500 Low, 500 High (460V Only), 560 (208/230V only): DUAL - 450 Low (460V Only), 450 High, 500 Low, 500 High (460V Only)			
Airfoil (in.)	18, 20, 22, 25			
Backward Inclined (in.)	18, 20, 22, 25			
Nominal Cfm 100% OA	6000	6750	7500	8250
Motor Hp Range	ECM, 1.5, 2, 3, 5, 7.5, 10, 15			
OPTIONAL HOT GAS REHEAT AND LIQUID SUBCOOLING COIL				
Face Area without ERV (sq ft)	28.9	28.9	28.9	28.9
Face Area with ERV (in.)	—	—	—	—
LOW-PRESSURE SWITCH (PSIG)				
Cutout	35			
Reset (Auto)	55			
CONDENSATE DRAIN CONNECTION (NPT) (in.)	1			
OPTIONAL GAS HEAT SECTION				
Gas Input Sizes (Btuh x 1000)	100, 150, 200, 250, 300, 350, 400			
Gas Input Sizes (Btuh x 1000) XL Cabinet	400, 500, 600, 700, 800, 1000, 1200			
Control Type				
Stages (no. of stages)	2			
Stages XL Cabinet (no. of stages)	4			
Modulating (% range)	5:1, 10:1*			
Efficiency (Steady State) (%)	80			
Supply Line Pressure Range (in. wg)	5.0 min. - 13.5 max			
Rollout Switch Cutout Temp (F)	350			
Gas Valve Quantity	1 Std - 2 with modulating option			
Manifold Pressure (in. wg)				
Natural Gas Std	3.5			
LP Gas Special Order	10			
OPTIONAL ELECTRIC HEAT				
Size Range (kW)	5, 10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100, 110, 120			
Control Type				
Stages (no. of stages)	1,2,4			
SCR (% range)	0-100			
OPTIONAL HOT WATER HEAT COIL WITH ERV	—			
OPTIONAL HOT WATER HEAT COIL WITHOUT ERV (in.)	40.5 x 47.5, 4 row, 8 FPI. See Hot Water Coil Drawings.			

Table 5 — Physical Data — 62X, D-DXL Cabinet, Sizes 40-55 (cont)

UNIT 62X, D CABINET	40	45	50	55
NOMINAL CAPACITY (TONS)	40	45	50	55
OUTDOOR AIR FILTERS				
Quantity … Size (in.) with ERV				
Standard 2-in. MERV 8	—			
Optional 4-in.	—			
MERV 8	—			
MERV 11	—			
MERV 13	—			
Quantity … Size (in.) without ERV				
Standard 2-in. MERV 8	6...20x25, 3...25x25			
Optional 4-in.				
MERV 8	6...20x25, 3...25x25			
MERV 11	6...20x25, 3...25x25			
MERV 13	6...20x25, 3...25x25			
OPTIONAL ERV				
Type	—			
Diameter ... depth (in.)	—			
OPTIONAL ERV FILTERS				
Quantity … Size (in.)				
with 48 in. ECW	—			
with 54 in. ECW	—			
with 60 in. ECW	—			
with 66 in. ECW	—			
OPTIONAL EXHAUST FAN				
Backward Curved ECM (mm)	SINGLE - 450 Low (460V Only), 450 High, 500 Low, 500 High (460V Only), 560 (208/230V Only); DUAL - 450 Low (460V Only), 450 High, 500 Low, 500 High (460V Only)			
Airfoil (in.)	18, 20, 22, 25			
Backward Inclined (in.)	18, 20, 22, 25			
Nominal Cfm 100%	6000	6750	7500	8250
Motor Hp Range	ECM, 1.5, 2, 3, 5, 7.5, 10, 15			

LEGEND
ECM — Electronically Commutated Motor
ERV — Energy Recovery Ventilator
FPI — Fins per Inch
LP — Liquid Propane
OA — Outdoor Air
SCR — Silicon-Controlled Rectifier

* 10:1 modulating control available on DXL Cabinet (400-1200 MBtuh only). 5 kW SCR electric heater not available.

NOTE: For unit and component weights, refer to the latest edition of Carrier's Dedicated Outdoor Air Systems Builder.

Step 5 — Field Fabricate Ductwork

On vertical supply or return units, secure all ducts to roof curb and building structure. *Do not connect ductwork to unit.* Insulate and weatherproof all external ductwork, joints, and roof openings with counter flashing and mastic in accordance with applicable codes.

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

If a plenum return is used on a vertical unit, the return should be ducted through the roof deck to comply with applicable fire codes.

A minimum clearance is not required around ductwork. The unit has been selected and ordered to operate at a specific air volume and external static pressure. This external static pressure is generated by any additional components that are added to the air stream (ductwork, etc.). Additional static pressure, beyond the original design, will affect the performance of the packaged air conditioning unit and reduce the air volume that can be delivered. Proper engineering methods must be used when calculating external duct and component static pressure losses.

Step 6 — Make Unit Duct Connections

All 62XA, B, C, D, E, F, G, H, U, V, X, Y, 7, and 8 units bring in 100% outdoor air through the outdoor air intake hood and do not have a return air connection. The 62XA, B, C, D, U, V, 7, and L units have a vertical supply duct opening in the bottom of the unit. The 62XE, F, G, H, X, Y, 8, and 9 units have a horizontal supply duct opening in the side of the unit.

All 62XJ, K, L, M, N, P, Q, R, S, Z, 2, 3, 4, 5, 6, and 9 units bring in 100% outside air through the intake hood and also have a return duct opening in the bottom of the unit for exhaust. They will also be equipped with a factory-installed power exhaust and may be equipped with an energy recovery ventilator (ERV) and/or an energy conservation wheel. The return air to these units is not recirculated or mixed with the incoming outdoor air. The return air may be used to transfer energy to the incoming air via the energy recovery ventilator and is then exhausted. The 62XJ, K, M, N, 2, 3, and L units have a vertical supply and return duct opening in the bottom of the unit. The 62XP, Q, R, S, 5, 6, and 9 units have a horizontal supply duct opening in the side of the unit and a vertical return opening in the bottom of the unit. To determine the specifics regarding a particular unit, see the model number nomenclature found in the product data guide for the 62X unit.

VERTICAL SUPPLY/RETURN CONNECTIONS

For vertical supply or return connections, ductwork openings are shown in the DOAS Builder generated submittal. Attach the ductwork to the roof curb. Do not attach duct directly to the unit.

⚠WARNING

PERSONAL INJURY HAZARD

Failure to follow this warning could cause personal injury.

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

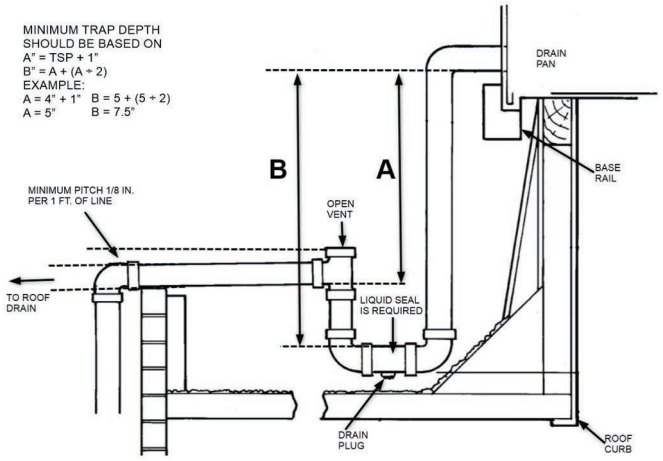
HORIZONTAL SUPPLY CONNECTIONS

For horizontal supply connections, ductwork openings are shown in the DOAS Builder generated submittal. The 62X units do not have horizontal return connections.

Step 7 — Install External Trap for Evaporator Condensate Drain

The unit's condensate drain connection is located on the side of the unit (3/4 in. condensate drain connection on A, B and C cabinet units. 1 in. condensate drain connection on D cabinet units). Refer to the DOAS Builder generated submittal for condensate location.

All units must have an external trap for condensate drainage. Install a trap following "A" and "B" dimensions at minimum (see Fig. 9). Protect trap against freeze-up to avoid trap damage. If drain line is installed downstream from the external trap, pitch the line away from the unit at minimum 1/8 in. per 1 ft of run. Use higher pitch on the line if required by local code. Do not use a pipe size smaller than the unit connection. Refer to the physical data table for condensate drain connection sizes. Failure to follow these guidelines could cause condensate not to drain properly, and potential intrusion of water into the space and/or other negative effects. It is also recommended to pre-prime traps before initial operation, or long shutdown periods. Open vents and drain plugs are recommended. See Fig. 9.



NOTES:
1. Trap should be deep enough to offset maximum unit static difference. A 4-in. trap is recommended.
2. TSP = Total Static Pressure

Fig. 9 — Condensate Drain Piping Details

Step 8 — Install Gas Piping (Gas Heat Units Only)

62X unit heaters are only designed to work with Natural Gas. A special order is available for liquid propane (LP).

A, B, C, CL, and D Cabinets

When equipped with gas heat, the above cabinets only use a single heater. Units with a single heater will include a panel knockout for the gas piping connections.

CXL, DXL Cabinets

When equipped with gas heat, the above cabinets only two heaters. Units with two heaters require a field knockout for the gas heat piping connection and require a field fabricated and installed gas pipe manifold to connect the two heaters to the main gas supply line.

Refer to Table 7 for gas manifold sizes and pressures. Refer to local building codes, or in the absence of local codes, to ANSI. Z223.1-latest year and addendum Z223.1A-latest year entitled HFGC. In Canada, installation must be in accordance with the CAN1.B149.1 and CAN1.B149.2 installation codes for gas burning appliances.

Gas piping length and capacity is shown in Table 6. See Fig. 10 for typical pipe guide and locations of external manual gas shutoff valve. Gas supply piping must be supported starting from connection of the unit. If long stretches of piping are expected to be used, there must be supports at intervals of every 6 to 8 ft Metal straps, blocks, or hooks are acceptable to support the gas piping. The piping should never be strained or bent.

Table 6 — Gas Piping Capacity (cubic ft per hr)

GAS PIPE LENGTH (FT)	PIPE SIZE (IN.)				
	3/4	1	1-1/4	1-1/2	2
10	278	520	1050	1600	2700
20	190	350	730	1100	2100
30	152	285	590	890	1650
40	130	245	500	760	1450
50	115	215	440	670	1270
60	105	195	400	610	1105
70	96	180	370	560	1050
90	84	160	320	490	930
100	79	150	305	460	870
125	72	130	275	410	780
150	64	120	250	380	710
175	59	110	225	350	650
200	55	100	210	320	610

⚠ WARNING

Do not pressure test gas supply while connected to unit. Always disconnect union before servicing. High pressures can cause gas valve damage resulting in a hazardous condition.

IMPORTANT: Natural gas pressure at unit gas connection must not be less than 5.0 in. wg or greater than 13.0 in. wg for all heat sizes.

Install field-supplied manual gas shutoff valve with a 1/8 in. NPT pressure tap for test gage connection at unit. The pressure tap is located on the gas manifold, adjacent to the gas valve. Field gas piping must include sediment trap and union (see Fig. 10). Install a field-supplied gas regulator. Refer to Table 7 for gas manifold sizes and pressures.

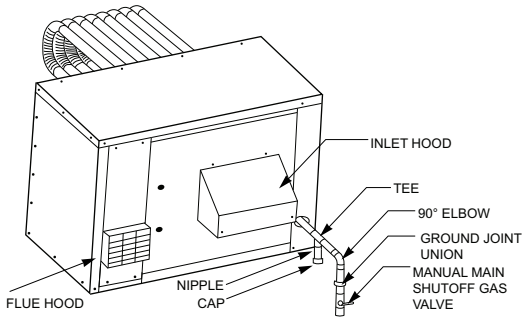


Fig. 10 — Gas Heat Section (Single Heater Unit)

Table 7 — Gas Heat Connection Sizes and Pressures

INDIV. GAS HEATER INPUT (MBH)	GAS NPT CONNECTION (IN.)	MIN. INLET GAS PRESSURE	
		NG IN. WG (MBAR)	LPG IN. WG (MBAR)
75	0.75	5.0 (12.5)	11.0 (27.4)
100	0.75	5.0 (12.5)	11.0 (27.4)
150	0.75	5.0 (12.5)	11.0 (27.4)
200	0.75	5.0 (12.5)	11.0 (27.4)
250	0.75	5.0 (12.5)	11.0 (27.4)
300	0.75	5.0 (12.5)	11.0 (27.4)
350	0.75	5.0 (12.5)	11.0 (27.4)
400	1.00	6.0 (14.9)	12.0 (29.9)
500	1.00	6.0 (14.9)	12.0 (29.9)
600	1.00	6.0 (14.9)	12.0 (29.9)

LEGEND

LPG — Liquid Propane Gas
NG — Natural Gas

Size gas-supply piping for 0.3-in. wg maximum pressure drop. Do not use supply pipe smaller than unit gas connection.

GAS HEAT SAFETY CONTROLS

Safety systems are required for proper performance of the gas heater. The gas heater shall not be permitted to operate with any safety system disabled. If a fault is found in any of the safety systems, then the system shall be repaired only by a contractor qualified in the installation and service of gas-fired heating equipment.

- Combustion Airflow Switch: An airflow switch is provided as part of the control system to verify airflow through an induced draft fan by monitoring the difference in pressure between the fan and the atmosphere. If sufficient negative pressure is not present, indicating lack of proper air movement through heat exchange, the switch opens, shutting off gas supply through the ignition control module. The air pressure switch has fixed settings and is not adjustable.
- Rollout Switch (Manual Reset): The heater is equipped with manual reset rollout switch(es) in the event of burner flame rollout. The switch will open on temperature rise and shut off gas supply through the ignition control module. Flame rollout can be caused by insufficient airflow for the burner firing rate (high gas pressure), blockage of the vent system, or in the heat exchanger. The heater should not be placed back in operation until the cause of the rollout condition is identified. The rollout switch can be reset by pressing the button on top of the switch.
- Primary High Limit Switch: To prevent the heater from operating under low airflow conditions, the unit is equipped with a fixed temperature high limit switch, mounted on the vestibule panel. This switch will shut off gas to the heater through the ignition control module before the air temperature reaches 250.0°F (121.1°C). Reduced airflow may be caused by restrictions upstream or downstream of the circulating air blower, such as dirty or blocked filters or restriction of the air inlet or outlet to the unit. The high limit switch will shut off the gas when the temperature reaches its setpoint and then resets when the temperature drops 30.0°F (16.7°C) below the setpoint, initiating a heater ignition. The heater will continue to cycle on limit until the cause of the reduced air flow is corrected.
- Ignition Control Module: Ignition control modules are available with a number of different operating functions. Refer to the Sequence of Operation and Control Diagnostic data sheets, provided in the instructions package, for a detailed description of the control features, operation, and troubleshooting for the model control installed.

Step 9 — Install Gas Heat Condensate Drain

Units with natural gas or LP heat also require a condensate drain for heater condensate collection. Condensate in gas heaters can occur during low operating temperatures or during heater start-up.

The unit's gas heat condensate drain connection is located on the side of the unit. Refer to the DOAS Builder generated submittal for condensate location.

All units must have an external trap for condensate drainage. Install a trap following "A" and "B" dimensions at minimum (see Fig. 9). Protect trap against freeze-up to avoid trap damage. If drain line is installed downstream from the external trap, pitch the line away from the unit at minimum 1/8 in. per 1 ft of run. Use higher pitch on the line if required by local code. Do not use a pipe size smaller than the unit connection. Refer to the physical data table for condensate drain connection sizes. Failure to follow these guidelines could cause condensate not to drain properly, and potential intrusion of water into the space and/or other negative effects. It is also recommended to pre-prime traps before initial operation, or long shutdown periods. Open vents and drain plugs are recommended. See Fig. 9.

NOTE: Check with local codes for any requirements for draining of gas heat condensate. Also verify any compatibility issues with roofing material or roof warranty and gas heat condensate disposal.

Step 10 — Install Hot Water (Hot Water Units Only)

Coils should be piped according to any relevant local codes. All external piping must be supported independently from the coil. External piping must be insulated to prevent freeze up. See Tables 1-5 for coil connection size and type. See Table 8 for hot water coil connection sizes. Control valves for hot water coils are to be field provided and installed. Coil freeze protection operation (open HW valve when coil temp approaches freeze limit) must be field provided.

Table 8 — Hot Water Coil Connections

CABINET	ERV	HOW WATER COIL CONNECTION (IN.)
B	No	1 5/8
	Yes	1 5/8
C / CL / CXL	No	1 5/8
	Yes	1 5/8
D / D XL	No	3 1/8
	Yes	3 1/8

HOT WATER COIL PIPE ROUTING

The piping for the Hot water coil can be routed either through the bottom of the unit or through the side of the cabinet (see Fig. 11). The contractor must make a hole for the supply and return water pipes and seal it appropriately.

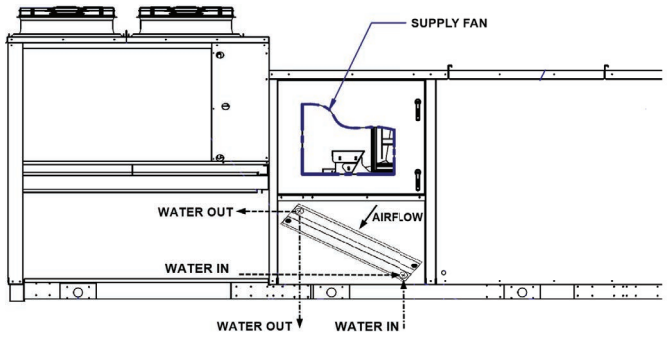


Fig. 11 — Hot Water Coil Pipe Routing Options

HOT WATER HEATING CONTROL

The control valve for units equipped with hot water coils is to be field provided and installed. The control valve will also require field provided power (not from unit). The control signal for the control valve will be provided by the ALC controller by wiring the valve input signal to UO-6 (0 to 10V signal). Valve selection is to be determined by power requirements, pipe size, and water flow and temperature. See Fig. 12.

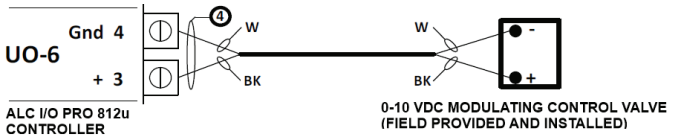


Fig. 12 — Hot Water Coil - Control Valve Wiring

Step 11 — Make Electrical Connections

For units without the factory installed disconnect, power wiring should be connected to the main power terminal block located within the unit main control section. The power wiring connections on units with non-fused factory disconnects should be made at the line side of the disconnect switch.

The internal power and control wiring of these units is factory installed and each unit is thoroughly tested prior to shipment. See Fig. 16 and 17 for typical unit power and control wiring diagrams. Standard 62X units have an SCCR (short circuit current rating) of 5KA. A higher SCCR rating is available as a special order. Consult the unit nameplate to verify SCCR rating. Contact the local service representative if assistance is required.

It is recommended that an independent 115-volt power source be brought to the vicinity of the rooftop unit for portable lights and tools used by the service mechanic, if a factory-installed convenience outlet is not on the unit.

UNIT-POWERED TYPE

A unit-mounted transformer is factory-installed to step down the main power supply voltage to the unit to 115-volt at the duplex receptacle. This option also includes a manual switch with fuse, located in a utility box and mounted on a bracket behind the convenience outlet. The primary leads to the convenience outlet transformer are not factory-connected. Selection of primary power source is a customer option. If national or local codes permit, the transformer primary leads can be connected at the line-side terminals on the unit-mounted non-fused disconnect (if equipped); this will provide service power to the unit when the unit disconnect switch is open. Other connection methods will result in the convenience outlet circuit being de-energized when the unit disconnects.

⚠ WARNING

Depending on how the convenience outlet and transformer are wired, they may remain HOT regardless of the disconnect switch on/off positions. Before performing service or maintenance operations on unit, turn off main power switch to unit. Electrical shock could cause personal injury.

NON-UNIT-POWERED TYPE (FIELD WIRED)

This type requires the field installation of a general-purpose 125-volt 15-A circuit powered from a source elsewhere in the building. Observe national and local codes when selecting wire size, fuse or breaker requirements and disconnect switch size and location, Route 125-volts power supply conductors into the bottom of the utility box containing the duplex receptacle.

FIELD POWER SUPPLY

The units are factory wired for the voltage shown on the nameplate. Main power wiring should be sized for the minimum wire ampacity shown on the nameplate. An external weather-tight disconnect switch properly sized for the unit total load is required for

each unit. Disconnect must be installed in accordance with local and/or national electric codes. This disconnect can be supplied by the factory or by others.

Power wiring may enter the rooftop unit through the unit base and roof curbs on all models. Install conduit connectors at the entrance locations. External connectors must be weatherproof.

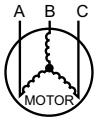
All units must be properly grounded. The ground lug is provided for this purpose. **DO NOT** use the ground lug for connecting a neutral conductor. The unit must be electrically grounded in accordance with local codes, or in the absence of local codes, with the NEC (National Electrical Code) ANSI/NFPA (National Fire Protection Association) 70 1981.

Once it is established that supply voltage is within the utilization range, check and calculate if an unbalanced condition exists between phases.

Use the following formula to determine the percent of voltage imbalance.

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

Example: Supply voltage is 460-3-60.



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.

$$\% \text{ Voltage Imbalance} = 100 \times (7 / 457) = 1.53\%$$

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.

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

Consult the wiring diagram furnished with the unit. These units are custom designed for each application. The unit wiring diagram is located inside the control panel of each unit.

When installing units without a factory-installed disconnect, provide disconnect per NEC Article 440 or local codes. For non-fused disconnects, size the disconnect according to the sizing data provided on unit nameplate. If a fused disconnect is used, determine the minimum size for the switch based on the disconnect sizing data and then coordinate the disconnect housing size to accommodate the maximum overcurrent protection (MOCP) device size as marked on the unit informative plate. All field wiring must comply with NEC and local codes. Size wire based on MCA (minimum circuit amps) on the unit informative plate.

See Fig. 16 and 17 for installation wiring diagrams.

⚠ CAUTION

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

⚠ WARNING

Unit cabinet must have an uninterrupted, unbroken electrical ground to minimize the possibility of personal injury if an electrical fault should occur. This ground may consist of electrical wire connected to unit ground lug in control compartment, or conduit approved for electrical ground when installed in accordance with NEC; ANSI/NFPA, latest edition, and local electrical codes. *Do not use gas piping as an electrical ground.* Failure to follow this warning could result in the installer being liable for personal injury of others.

⚠ WARNING

Disconnect all power to the unit before performing maintenance or service. Unit may automatically start if power is not disconnected. Failure to follow this warning could cause personal injury, death, and/or equipment damage.

SENSOR WIRING

The 62X unit uses a variety of sensors for control purposes. The sensors provided will depend upon the features of the unit as detailed below.

All units are equipped with an outdoor air sensor (OAT) and a combination of supply air temperature (SAT) and duct relative humidity sensor.

The combination sensor should be installed in the supply duct downstream of the heat section. The sensor must be far enough downstream of the heat section so that the discharge air is adequately mixed for proper sensing. If the unit is not equipped with heat, the combination sensor is factory-installed in the cabinet. The sensor is connected to the unit controller as indicated in the wiring diagram with 18 AWG (American Wire Gage) shielded wire. Do not run the sensor wiring in the same conduit as high voltage wiring.

A zone temperature sensor (ZS) may be provided as an accessory with units that have ordered the space temperature override control function. The ZS should be installed in the space and connected to the unit controller at the Rnet connection as shown in the wiring diagram. See Tables 9 and 10 for Rnet wiring specifications.

Use the specified type of wire and cable for maximum signal integrity (see Table 9).

To wire the sensor to the controller:

1. Partially cut, then bend and pull off the outer jacket of the Rnet cable(s), being careful not to nick inner insulation.
2. Strip about 1/4 in. of the inner insulation from each wire (see Fig. 13).
3. Wire each terminal on the sensor to the same terminal on the controller. Table 10 shows the recommended Rnet wiring scheme.

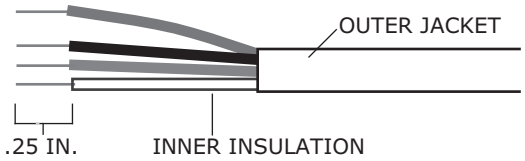


Fig. 13 — Rnet Cable Wire

Table 9 — Rnet Wiring Specifications

RNET WIRING SPECIFICATIONS	
DESCRIPTION	4 conductor, unshielded, CMP, plenum rated cable
CONDUCTOR	18 AWG
MAXIMUM LENGTH	500 ft
RECOMMENDED COLORING	Jacket: white Wiring: black, white, green, red
UL TEMPERATURE	32 to 167 F
VOLTAGE	300-vac, power limited
LISTING	UL: NEC CL2P, or better

LEGEND

AWG — American Wire Gage
CMP — Communications Plenum Cable
NEC — National Electrical Code
UL — Underwriters Laboratories

Table 10 — Rnet Wiring

WIRE	TERMINAL
RED	+12-v
BLACK	Rnet–
WHITE	Rnet+
GREEN	Gnd

NOTE: The wire should be connected to the terminal shown.

Step 12 — Open Exhaust Damper (Units with Optional Exhaust or Energy Conservation Wheel Only)

The optional exhaust damper is secured to the exhaust assembly for shipping. Remove the two screws holding the damper to the panel. Damper should be free to swing open during operation (see Fig. 14).

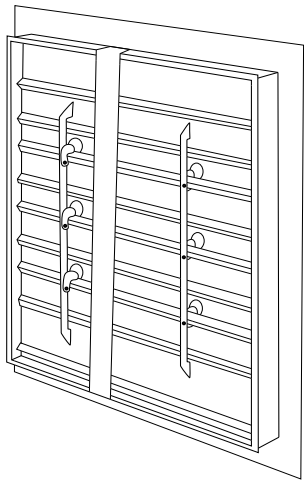


Fig. 14 — Optional Exhaust Damper

Step 13 — Install all Accessories

After all of the factory-installed options have been adjusted, install all of the field-installed accessories. Refer to the accessory installation instructions included with each accessory.

Step 14 — Configure Controls

The unit controller is pre-configured with default set points as detailed below. If changes to the set points are desired, this may be accomplished via Equipment Touch™ device (see Fig. 15). See the Controls, Operation, and Start-up manual for wiring and instructions.

NOTE: Rev H 62X units are compatible with the Equipment Touch 2 (P/N: EQT2) and not with the previous version Equipment Touch (P/N: EQT1).

Fig. 15 — Equipment Touch 2

SEQUENCE OF OPERATION

100% outdoor air units — 62X

The 62X unit is designed to condition 100% outdoor air to room neutral conditions for ventilation purposes. As such, the 62X unit is not designed to, nor will the 62X unit maintain space cooling, heating or relative humidity conditions. A separate ancillary device must be installed to provide primary space heating, cooling, and humidity control.

The controller is turned on by a switch located on its front, upper left corner. Several Occupancy Control options are available for starting the unit. These can be selected from the Equipment Touch display pad on the Controls screen (requires user password). The Resident Program has an adjustable scheduler that uses the internal time clock to allow for separate Sequences for Occupied and Unoccupied periods. This can be accessed from the Equipment Touch display pad on the Schedules screen (requires user password).

NOTE: All temperature-related events have an additional 10-second (fixed) "delay on make" to allow temperatures to settle.

OCCUPIED MODE

When the Equipment Touch Schedule calls for the start of the Occupied mode, and the controller has verified that there are no fault or shutdown conditions, after a 30-second (fixed) delay the unit goes into Occupied mode.

Outdoor Air Damper (OD)

After the unit goes into Occupied mode, the Outdoor Air (OA) damper will open. As the OA damper opens, the Outdoor Air Damper Actuator (OADA) auxiliary switches close. The OA damper stays open until the system reaches the end of the Occupied mode period. It will remain open until the supply fan turns off. After the supply fan turns off, the OA damper will close.

Supply Fan (SF)

The SF Air Monitoring Station (SF-AMS) is included to monitor the SF air flow only. As the OA damper opens, the OADA auxiliary switch (adjustable) will close and the SF will turn on. The SF shall operate continuously while the unit is in the Occupied mode. When the system reaches the end of the Occupied mode period, the SF will continue to run for an additional 2 minutes before turning off.

- *SF-VSC: Supply Fan with Variable Speed Control* — The SF-VSC will modulate its speed based upon the SF Differential Pressure Transmitter (SF-DPT) signal to maintain the supply duct static pressure set point.
- *Optional* — For constant air volume (CAV), select "Manual Override" in the Equipment Touch keypad and input the required speed (%) as determined in the field by Test and Balancing.

Exhaust fan (EF)

At the same time the SF turns on, the EF will be enabled to run. The EF shall be enabled to run continuously while the unit is in the Occupied mode. When the system reaches the end of the Occupied mode period, the EF will be enabled to run for an additional 2 minutes before turning off.

- *EF-VSC: Exhaust Fan with Variable Speed Control* — If the EF Differential Pressure Transmitter (EF-DPT) signal is above the building static pressure set point, the EF-VSC will modulate its speed based upon the EF-DPT to maintain the set point. If the EF-DPT signal is below the building static pressure set point, the EF will modulate down to 0% (adjustable) speed.
- *Optional* — For constant air volume (CAV), select "Manual Override" in the Equipment Touch keypad and input the required speed (%) as determined in the field by Test and Balancing.

Energy Conservation Wheel (ECW)

After the OA damper opens and the SF turns on, the ECW turns on. The ECW Bypass Damper will open when the ECW is off and it will close when the ECW is on.

- *ECW Standard Operation* — When the OAT is 3°F (adjustable) or more above or below the RAT, the ECW will be on, otherwise it is off.
- *ECW with VFD Controlled Defrost (WM-VFD)* — When the OAT is 3°F (adjustable) or more above or below the RAT, the ECW will be on. It will be off, if the OAT is less than 3°F (adjustable) above or below the RAT. It will decrease speed or stop as the WExAT goes below 25°F (adjustable) to allow for wheel defrosting. It will start back up and increase speed when the WExAT rises toward 25°F (adjustable) or more.

Cooling Mode

Cooling mode is available when the Entering Coil Air Temperature (ECAT) is above the ECAT cooling lower limit (55°F, adjustable) and there is a demand for cooling. When the Entering Coil Air Temperature (ECAT) is 1°F (adjustable) or more above the Supply Air Temperature (SAT) cooling set point (72°F, adjustable), compressor no. 1 turns on. When the SAT is 2°F (adjustable) or more above the SAT cooling set point (72°F, adjustable), compressor no. 2 turns on – not less than 10 minutes (adjustable) after compressor no. 1 turned on. When the SAT is 2°F (adjustable) or more below the SAT cooling set point (72°F, adjustable), compressor no. 2 turns off. When the ECAT is 1°F (adjustable) or more below the Supply Air Temperature (SAT) cooling set point (72°F, adjustable), compressor no. 1 turns off.

- *Optional* — When enabled, if there is a call for first stage cooling, second stage cooling will be enabled after a 10-minute (adjustable) delay. Both compressors modulate to maintain the cooling set point. Default is "OFF." Compressor enabling logic includes a 5-minute (fixed) minimum run-time and a 5-minute (fixed) minimum time off delay to prevent compressor short cycling.
- *Digital Compressors* — The controller regulates the capacity of the digital compressor by rapidly loading and unloading the compressor in 15-second intervals. The digital compressor will modulate based upon the DX Leaving Air Temperature (DX LAT) sensor and set point (55°F, adjustable). If the DX LAT drops to 38°F or less, the controller will fix the compressor at 10% (adjustable). If the DX LAT drops to 35°F or less for 10 minutes, the controller will issue an alarm and the compressor stops. When the DX LAT warms back up to 55°F or more, the compressor turns back on. If there is a current call for first stage cooling and compressor no. 1 is shut down due to an alarm (HPS1, LPS1, or DX LAT1), compressor no. 2 will be turned on to take its place until it returns.
- *Hot Gas Reheat (HGRH) – Modulating* — When the SAT is 1°F (adjustable) or more below the SAT cooling set point, HGRH turns on and modulates to maintain the SAT cooling set point. When the SAT is 2°F (adjustable) or more above the SAT cooling set point, HGRH turns off.

Dehumidification Mode

Dehumidification Mode is available if the ECAT is 1°F (fixed) above the dehumidification lower limit of 60°F (adjustable) and there is no call for heating. When the Entering Coil Air Dew Point (ECDP) is 1°F (adjustable) or more above the Supply Air Dew Point (SADP) set point (55°F, adjustable), dehumidification mode is enabled. After the minimum time-off delay, compressor #1 turns on. When the SADP is 2°F (adjustable) or more above the SADP set point, and after minimum time-off delay, compressor #2 turns on — not less than 10 minutes (adjustable) after compressor #1 turns on. When the SADP is 1°F (adjustable) or more below the SADP set point, compressor #2 turns off. When ECDP is 2°F (adjustable or more below the SAFP set point, compressor #1 turns off and dehumidification mode is disabled.

- *Digital Compressors* — The controller controls the capacity of the digital compressor by rapidly loading and unloading the compressor in 15-second intervals. The digital compressor will modulate based upon the DX LAT sensor and the DX LAT Dehumidification set point (55°F, adjustable). If the DX LAT drops to 38°F or less, the controller will fix the compressor at 10% (adjustable).
- *Hot Gas Reheat (HGRH) – Modulating* — When the SAT is 1°F (adjustable) or more below the SAT cooling set point, HGRH turns on and modulates to maintain the SAT cooling set point. When SAT is 2°F (adjustable) or more above the SAT cooling set point, HGRH turns off.
- *Subcooling* — When either of the compressors is enabled during dehumidification mode, the subcooling coil is enabled. When the compressors are disabled, the subcooling coil is disabled.

Heating Mode

Heating mode is available when the OAT is below the OAT heating upper limit (60°F, adjustable) and there is a demand to temper outdoor air to room neutral conditions. When the ECAT is 1°F (adjustable) or more below the ECAT heating set point (50°F, adjustable), heating is enabled and operates to maintain SAT heating set point (70°F, adjustable). When ECAT is 1°F (adjustable) or more above ECAT heating set point (50°F, adjustable), heating is disabled.

STAGED HEAT (ELECTRIC HEAT) 2-STAGE HEAT

Terminal W1 turning on enables first-stage heating. As SAT goes further below the SAT heating set point (70°F, adjustable), terminal W2 energizes and second-stage heating is enabled. As SAT rises, terminal W2 turns off and second-stage heating turns off. As the SAT goes 1°F (adjustable) or more above the SAT heating set point (70°F, adjustable), terminal W1 turns off and first-stage heating turns off.

STAGED HEAT (ELECTRIC HEAT) 4-STAGE HEAT

Terminal W1 turning on enables the Heating Analog Relay Module (HARM) on the control panel which activates the different stages of heating. As the SAT goes further below the SAT heating set point (70°F, adjustable), the different stages will turn on. As the SAT goes further above the SAT heating set point (70°F, adjustable), the different stages will turn off.

STAGED HEAT (GAS HEATER) 2-STAGE

Terminal W1 turning on enables first-stage heating. As SAT goes further below the SAT heating set point (70°F, adjustable), terminal W2 energizes and second-stage heating is enabled. As SAT rises, terminal W2 turns off and second-stage heating turns off. As the SAT goes 1°F (adjustable) or more above the SAT heating set point (70°F, adjustable), terminal W1 turns off and first-stage auxiliary heating turns off.

STAGED HEAT (GAS HEATER) 4-STAGE

Terminal W1 turning on enables the Heating Analog Relay Module (HARM) on the control panel which activates the different stages of heating. As the SAT goes further below the SAT heating set point (70°F, adjustable), the different stages will turn on. As the SAT goes further above the SAT heating set point (70°F, adjustable), the different stages will turn off.

Gas Heater

Terminal W1 turning on energizes the gas heat controller and first-stage axillary heating is enabled. If the SAT is 1°F (adjustable) or more above the SAT heating set point (70°F, adjustable) terminal W1 turns off, which deenergizes the gas heat controller, and first-stage axillary heating is turned off. All other stages operate as above.

MODULATED HEAT

SCR Electric Heat

On demand to temper outdoor air to room neutral conditions, the controller modulates the electric heating SCR in order to maintain the SAT heating set point (70°F, adjustable).

Modulating Gas Heater

On demand to temper outdoor air to room neutral conditions, the controller modulates the gas heat controller to control the gas flow in order to maintain the SAT heating set point (70°F, adjustable).

Modulating Hot Water Heat

On demand to temper outdoor air to room neutral conditions, the controller modulates the hot water valve to control the hot water flow in order to maintain the SAT heating set point (70°F, adjustable).

UNOCCUPIED MODE

When the Occupancy Control indicates the end of the Occupied mode, the compressor(s) and outdoor fan(s) will turn off (subject to minimum run-time) or the heating system will turn off. The SF and EF will continue to run for 2 minutes before turning off. After this, the ECW will turn off and the OA damper will close. The unit is now off.

Safety Switches

- *High Pressure Switch (HPS1):* If HPS1 is open, compressor no. 1 will turn off and the controller will issue an alarm. After manually resetting HPS1, the HPS1 alarm will reset. Following a minimum time off delay, compressor no. 1 will turn on. If the controller records 3 high pressure start/restart failure incidents within 1 hour, compressor no. 1 is locked out and the controller will issue an alarm. The compressor lockout can be reset in the Equipment Touch display pad or by cycling the power of the controller. This sequence is the same for compressor no. 2, Y2, and HPS2.
- *Low Pressure Switch (LPS1):* If LPS1 is open after the LPS1 bypass time, the controller will issue an alarm and compressor no. 1 turns off. After 30 seconds (fixed), the LPS1 alarm will reset. Following a minimum time off delay, compressor no. 1 will turn on. If the controller records 3 low pressure start/restart failure incidents within 1 hour, compressor no. 1 is locked out and the controller will issue an alarm. The compressor lockout can be reset in the Equipment Touch display pad or by cycling the power of the controller. This sequence is the same for compressor no. 2, Y2, and LPS2.

SAFETY SHUTDOWN

Smoke Detector: When a smoke detector (SD) is provided, it is wired directly to the controller. If smoke is detected, the controller will shut down the unit. Other instances where shutdown will occur are as follows: if a compressor fails to start 3 times in an hour due to high/low pressure switch or DX leaving air temperature lock out, or if the controller detects an SAT sensor failure.

REFRIGERANT CHARGING

The 62X series units come from the factory with the appropriate operating charge of R-410A.

Charge adjustment might be necessary if subcooling temperatures are too high due to excess refrigerant in the system that is subsequently backed up in the condenser. This symptom could also indicate a failed TXV or line restriction. If there is no line restriction and the TXV is working correctly, reclaim enough R-410A refrigerant so the system ambient compensated pressure readings are at the desired levels. Use a refrigerant recovery unit to safely remove the refrigerant, because it is illegal to release R-410A refrigerant into the atmosphere. After the addition or removal of refrigerant, the unit must be allowed to stabilize for at least 10 minutes before reaching any conclusions if any other adjustments need to be made.

All 62X series units are equipped with hot gas reheat or liquid subcooling reheat. Operation of the reheat system must be disabled prior to charging unit. To disable, use the unit control interface to disable reheat operation, or disconnect the power or control signal to the reheat valve or solenoid assembly.

The type of unit and operation determines the ranges for liquid subcooling and evaporator superheat. The system is overcharged if the subcooling temperature is too high and the evaporator is fully loaded. High superheat results in increased subcooling. The system is defined as undercharged if the superheat is too high and the subcooling is too low.

To correct an undercharged system, add refrigerant to reduce the superheat and raise subcooling. If the subcooling is correct and the superheat is too high, the TXV may need adjustment to correct the superheat. When checking the charge, units with hot gas reheat must be checked with the hot gas reheat valves closed and the system in cooling mode. To confirm proper charge, the unit should be left in reheat mode to check for proper operation. See Table 11 for proper charge levels.

Table 11 — Ambient Charge — 100% Outside Air and Combined Unit Subcool and Superheat

AMBIENT AIR TEMP	95°F	85°F	75°F	65°F	55°F	45°F
Subcool	10-12°F No reheat circuit in unit				In heating mode	
Subcool	12-15°F No reheat circuit in unit				In heating mode	
Subcool	13-16°F No reheat circuit in unit				In heating mode	

NOTE: Subcooling readings must be taken with the reheat circuit disabled. To calculate subcooling temperature, convert liquid line head pressure to condensing temperature. Then, subtract the liquid line temperature.

Step 15 — Unit Start-Up

Complete unit start-up. Refer to the unit Controls, Operation, and Start-up manual for start-up check lists and start-up instructions.

Step 16 — Test Mode and Fan Balancing

Carrier recommends all 62X unit undergo proper air balancing to verify unit supply and exhaust airflow. Consult the Controls, Operation, and Start-up manual.

Typical Wiring Diagrams

See Fig. 16 and 17 for typical wiring diagrams. See Fig. 18 and 19 for factory mounted convenience outlet diagrams.

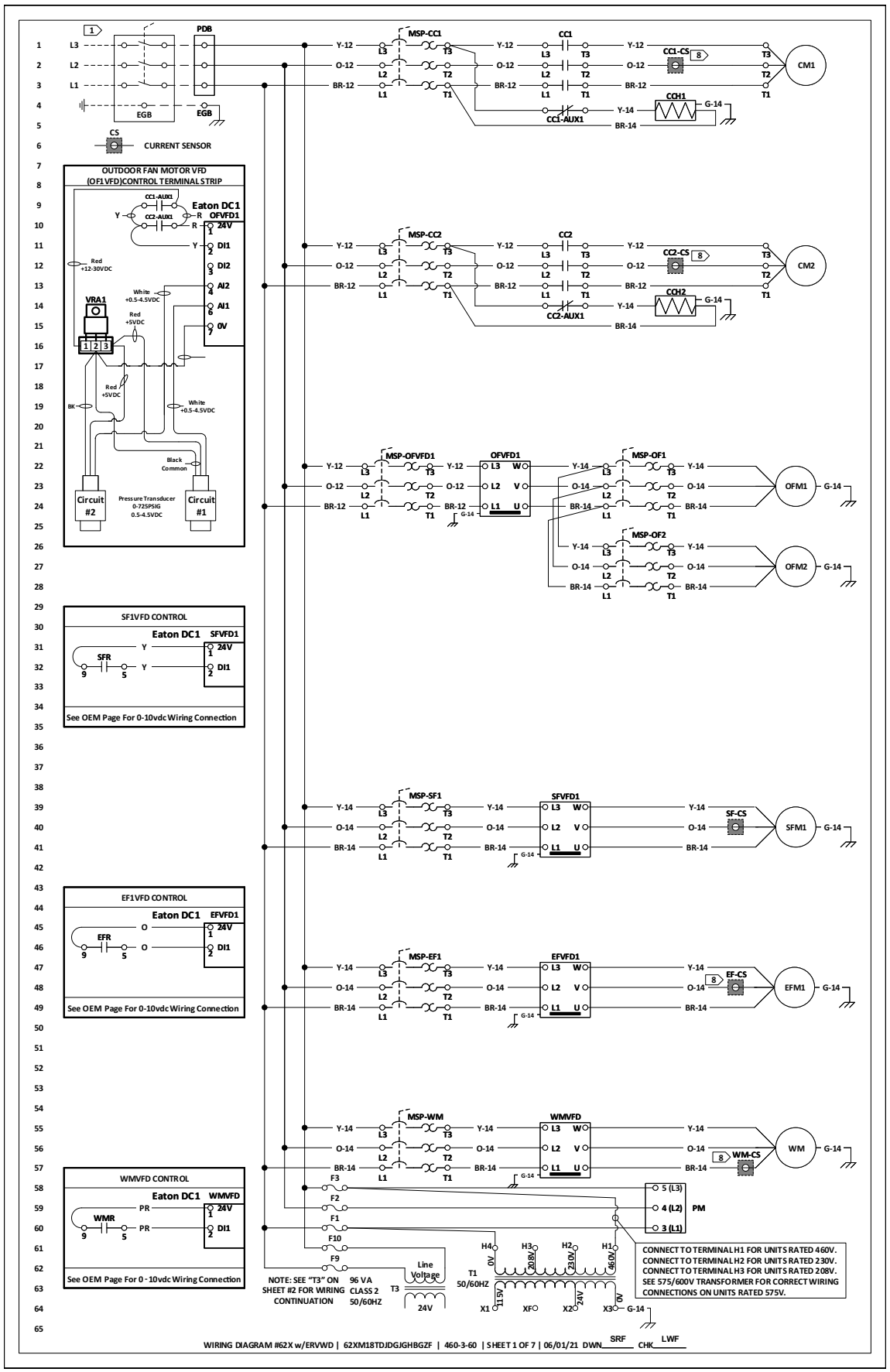


Fig. 16 — Installation Wiring Diagram

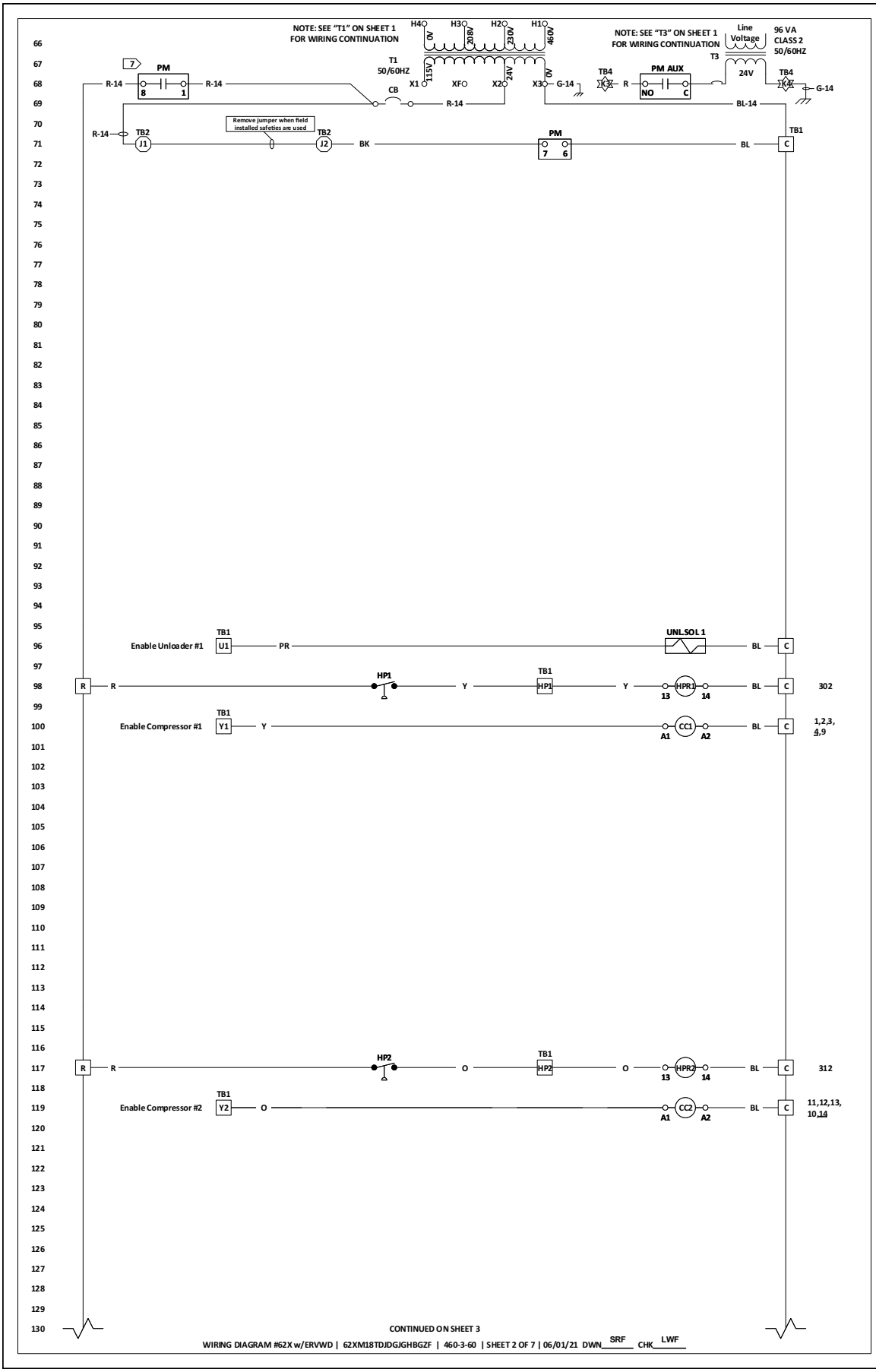


Fig. 16 — Installation Wiring Diagram (cont)

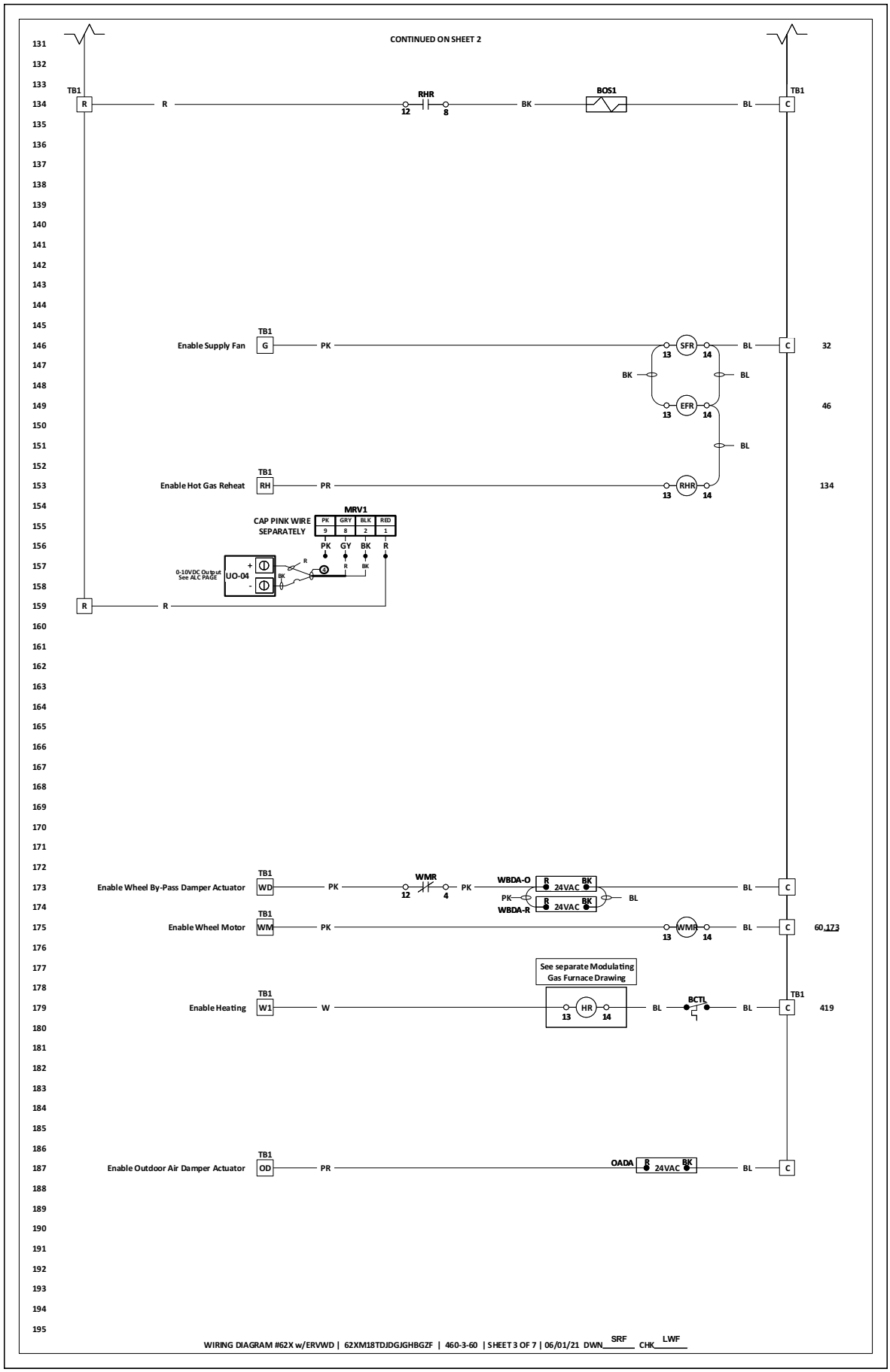


Fig. 16 — Installation Wiring Diagram (cont)

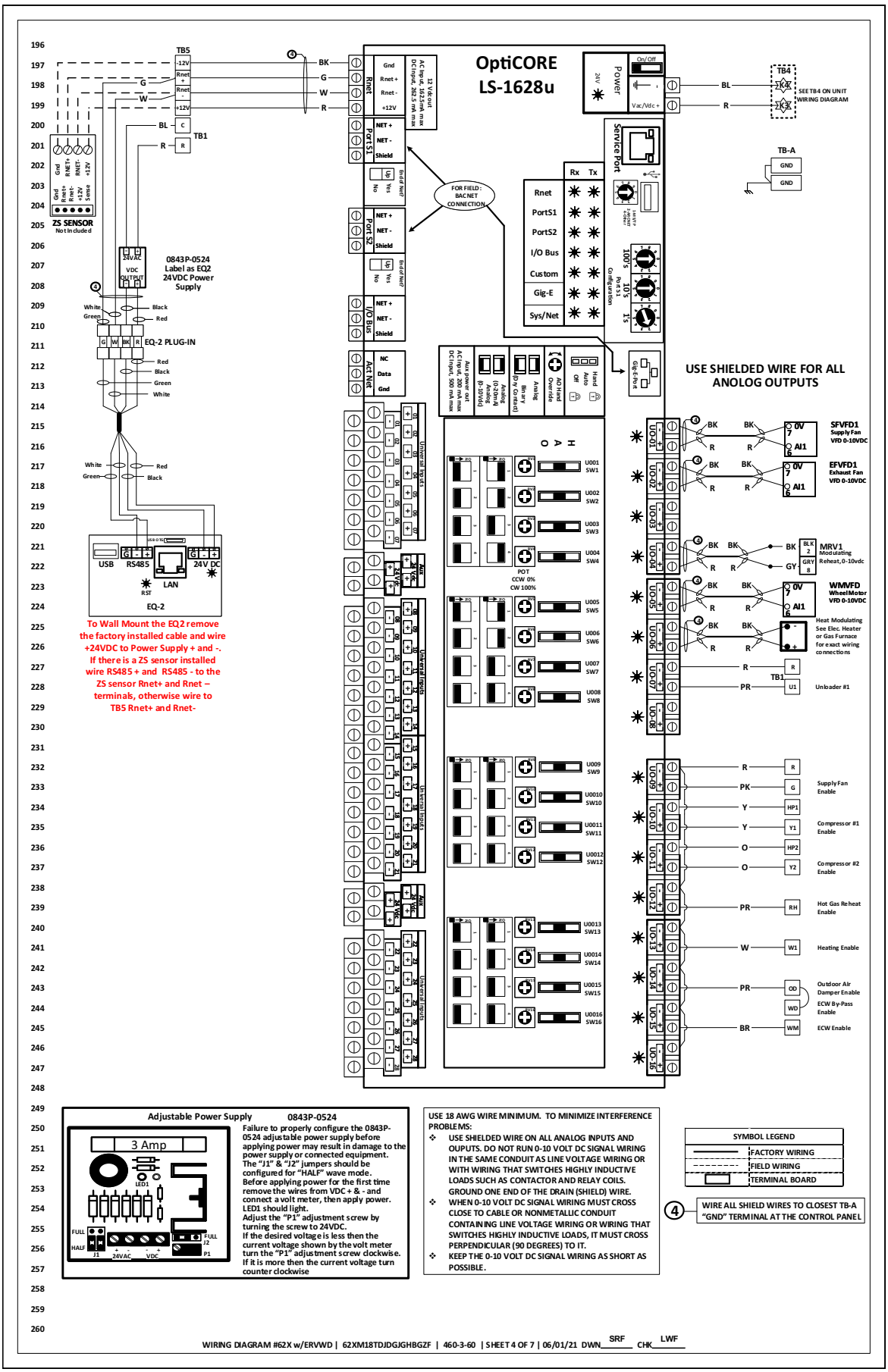


Fig. 16 — Installation Wiring Diagram (cont)

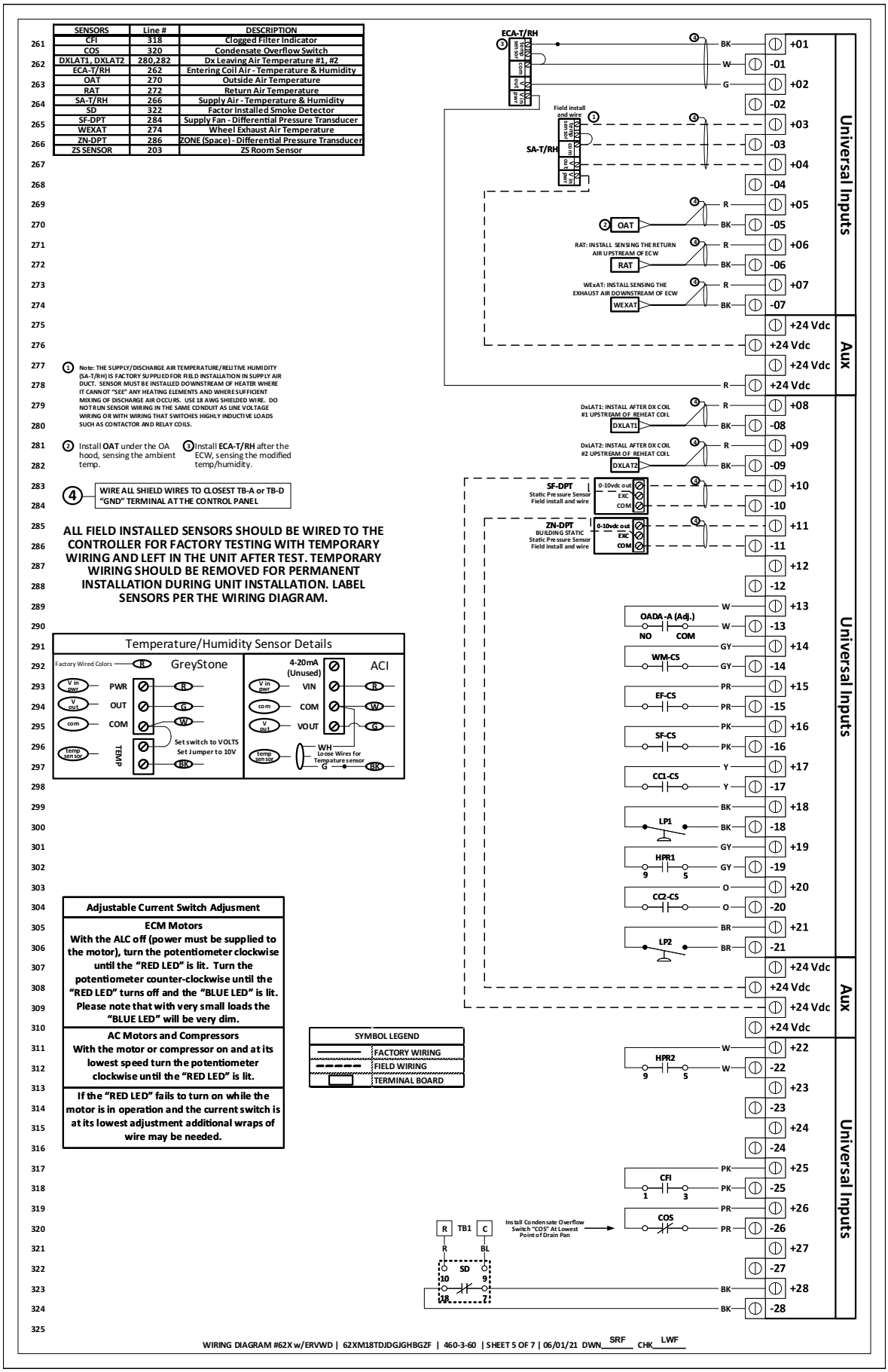


Fig. 16 — Installation Wiring Diagram (cont)

LEGEND - ITEMS INSIDE CONTROL PANEL			
ITEM	FUNCTIONAL DESIGNATION	LINE NUMBER	DESCRIPTION
101	CC1	100	Compressor Contactor no. 1
102	CC1-AUX1	#	CC1 - Auxiliary Contact no. 1
103	CC1-CS	2,298	Compressor #1 - Current Switch
104	CC2	119	Compressor Contactor no. 2
105	CC2-AUX1	#	CC2 - Auxiliary Contact no. 1
106	CC2-CS	12,304	Compressor #2 - Current Switch
107	EF-CS	48,294	Exhaust Fan - Current Switch
108	EFR	149	Exhaust Fan Relay
109	EFVFD1	45,47,217	Exhaust Fan - Variable Frequency Drive #1
110	EGB	4	Equipment Grounding Bar
111	HPR1, HPR2	98, 117	High Pressure Relay #1, #2
112	HR	179,448	Heat Relay
113	MSP-CC1	1	Motor Starter Protection - CC1
114	MSP-CC2	11	Motor Starter Protection - CC2
115	MSP-EF1	47	Motor Starter Protection - Exhaust Motor #1
116	MSP-OF1	22	Motor Starter Protection- Outdoor Fan no. 1
117	MSP-OF2	26	Motor Starter Protection- Outdoor Fan no .2
118	MSP-OFVFD1	22	Motor Starter Protection- OFVFD1
119	MSP-SF1	39	Motor Starter Protection - Supply Motor #1
120	MSP-WM	55	Motor Starter Protection - Wheel Motor
121	OFVFD1	10,22	Outdoor Fan VFD #1
122	PDB	1,391	Power Distribution Block
123	PM	59,68,68,71	Power/Phase Monitor
124	RHR	153	Reheat Relay
125	SF-CS	40,296	Supply Fan - Current Switch
126	SFR	146	Supply Fan Motor Relay
127	SFVFD1	31,39,215	Supply Fan - Variable Frequency Drive #1
128	VRA1	15	Voltage Regulator Assembly #1
129	WM-CS	57,292	Wheel Motor - Current Sensor
130	WMR	175	Wheel Motor Relay
131	WMVFD	55,59,223	Wheel Motor Variable Frequency Drive
# SEE LINE NUMBER TO THE RIGHT OF CONTACTOR COIL ON WIRING DIAGRAM.			

LEGEND - ITEMS OUTSIDE CONTROL PANEL			
ITEM	FUNCTIONAL DESIGNATION	LINE NUMBER	DESCRIPTION
101	BCTL	179,449	Blower Compartment Thremal Limit
102	BOS1	134	Bleed Off Solenoid #1
103	CCH1	4	Crankcase Heater #1
104	CCH2	14	Crank Case Heater #2
105	CM1	2	Compressor Motor No.1
106	CM2	12	Compressor Motor No.2
107	EFM1	48	Exhaust Fan Motor #1
108	HP1	98	High Pressure Switch #1
109	HP2	117	High Pressure Switch #2
110	LP1	300	Low Pressure Switch #1
111	LP2	306	Low Pressure Switch #2
112	MRV1	155	Modulating Reheat Valve #1
113	OADA	187,290	Outside Air Damper Acuator
114	OFM1	23	Outdoor Fan Motor #1
115	OFM2	27	Outdoor Fan Motor #2
116	SFM1	40	Supply Fan Motor #1
117	UNL.SOL 1	96	Unloader Solenoid #1
118	WBDA-O	173	Wheel Bypass Damper Acuator - OA
119	WBDA-R	174	Wheel Bypass Damper Acuator - RA
120	WM	56	Wheel Motor

SYMBOL LEGEND			
	FACTORY WIRING		NORMALLY OPEN CONTACTS
	FIELD WIRING		NORMALLYCLOSED CONTACTS
	EARTH GROUND		IDENTIFIABLE TERMINAL
	CHASSIS (PANEL) GROUND		NON-IDENTIFIABLE TERMINAL, OTHER WIRE JUNCTIONS, INCLUDING SCHEMATIC
	COIL		

WIRE COLOR LEGEND	
ABBREVIATION	COLOR
BK	BLACK
BL	BLUE
BR	BROWN
G	GREEN
O	ORANGE
PK	PINK
PR	PURPLE
R	RED
W	WHITE
Y	YELLOW

NOTE: NUMBER PLACED AFTER DASH FOLLOWING COLOR CODE INDICATES WIRE GAGE. EX. - BK-12 IS A BLACK, 12 AWG WIRE. NO NUMBER AFTER COLOR CODE INDICATES 18 AWG WIRE. EX. - BK IS A BLACK 18 AWG WIRE.

FUSE TABLE						
FUSE NO.	CLASS	VAC	AMPS-208/230V	AMPS-460V	XFMR	TIME DELAY
F1, F3	CC	600	3	2	350VA	YES
	CC	600	2	1.5	250VA	YES
	CC	600	2	1.5	200VA	YES
	CC	600	1.5	3/4	150VA	YES
F2, F9, F10	CC	600	1	1	N/A	YES
CB	CC	600	16	16	350VA	YES
	CC	600	10	10	250VA	YES
	CC	600	10	10	200VA	YES
	CC	600	6	6	150VA	YES

1 FIELD POWER SUPPLY 208/230/460/575-3-60. MINIMUM CIRCUIT AMPACITY AND MAXIMUM SIZE AND TYPE OF BRANCH-CIRCUIT SHORT-CIRCUIT AND GROUND-FAULT PROTECTION PER UNIT RATING PLATE. PROVIDE DISCONNECTING MEANS AS REQUIRED.

2 TYPICAL MOTORS AND COMPRESSORS SHOWN. SEE CONNECTION DIAGRAM ON MOTOR OR COMPRESSOR FOR ACTUAL WIRING DETAIL.

5 SET TIME DELAY PERIOD TO 5-MINUTES. UPON INITIAL APPLICATION OF POWER TO "TD", CONTACTOR "CC" IS ENERGIZES AFTER A 5-MINUTE START DELAY. WHEN POWER IS REMOVED, A LOCKOUT CONDITION AND 5-MINUTE TIME DELAY PERIOD (ADJUSTABLE) IS INITIATED. DURING THIS PERIOD, CONTACTOR "CC" CANNOT BE ENERGIZED.

8 WRAP WIRE THREE TIMES THRU CURRENT SENSOR IF WIRE IS 14 GAUGE. WRAP WIRE TWO TIMES THRU CURRENT SENSRO IF WIRE IS 12 GAUGE.

WIRING DIAGRAM #62X w/ERVWD | 62XM18TDJDGJGHBGZF | 460-3-60 | SHEET 6 OF 7 | 06/01/21 DWN SRF CHK LWF

Fig. 16 — Installation Wiring Diagram (cont)

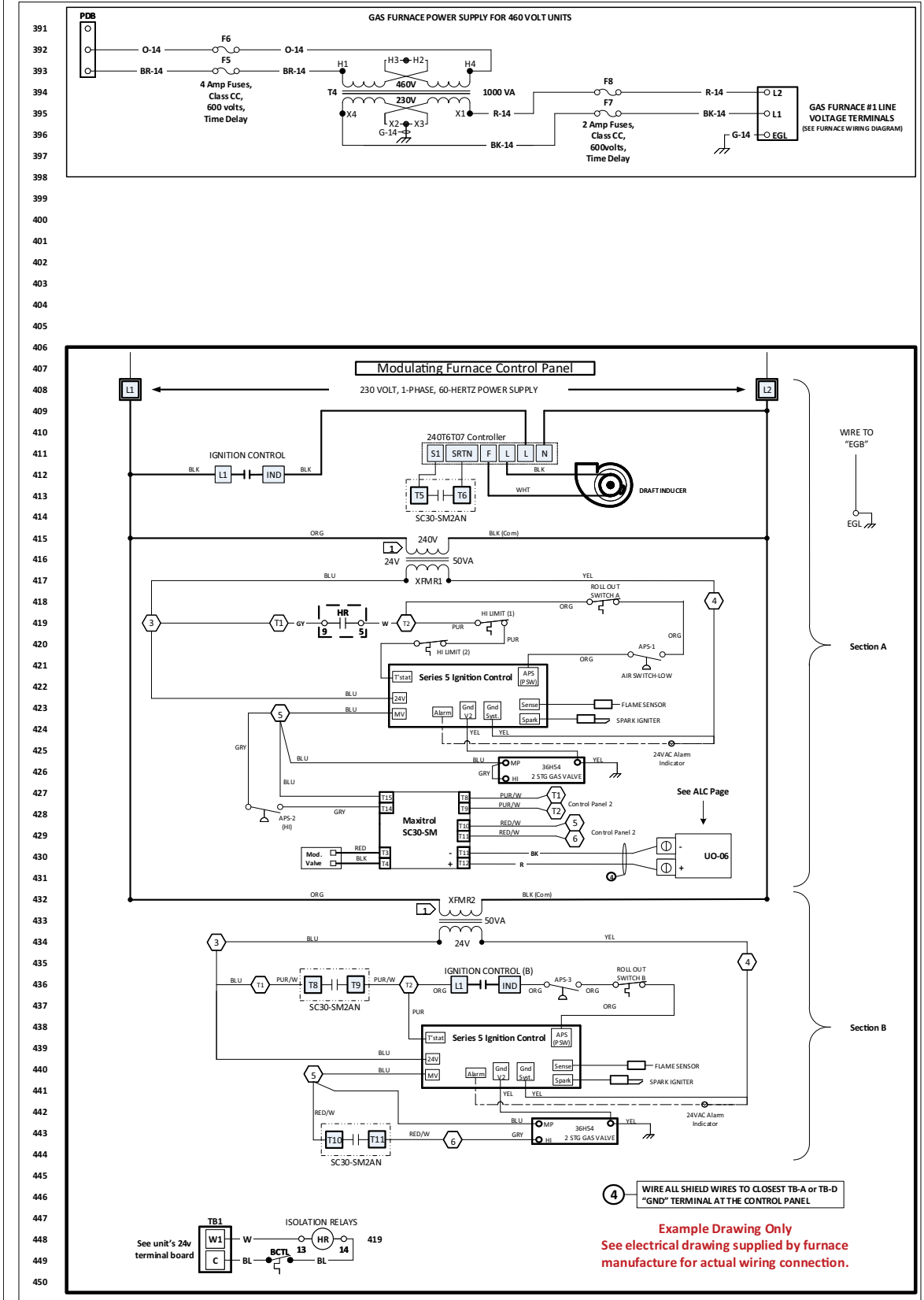


Fig. 16 — Installation Wiring Diagram (cont)

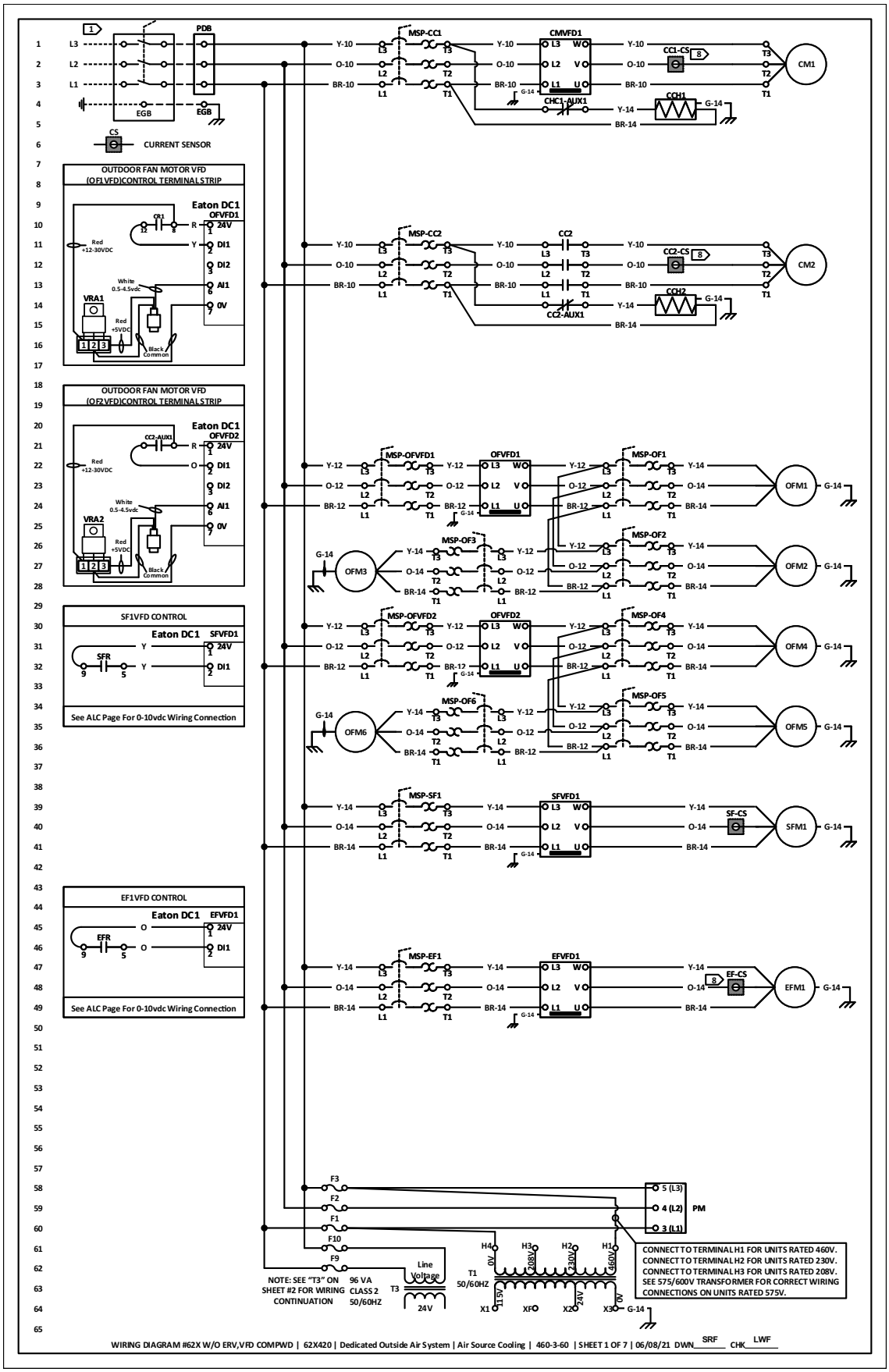


Fig. 17 — Wiring Diagram for Units with Inverter Driven Compressor (20+ tons)

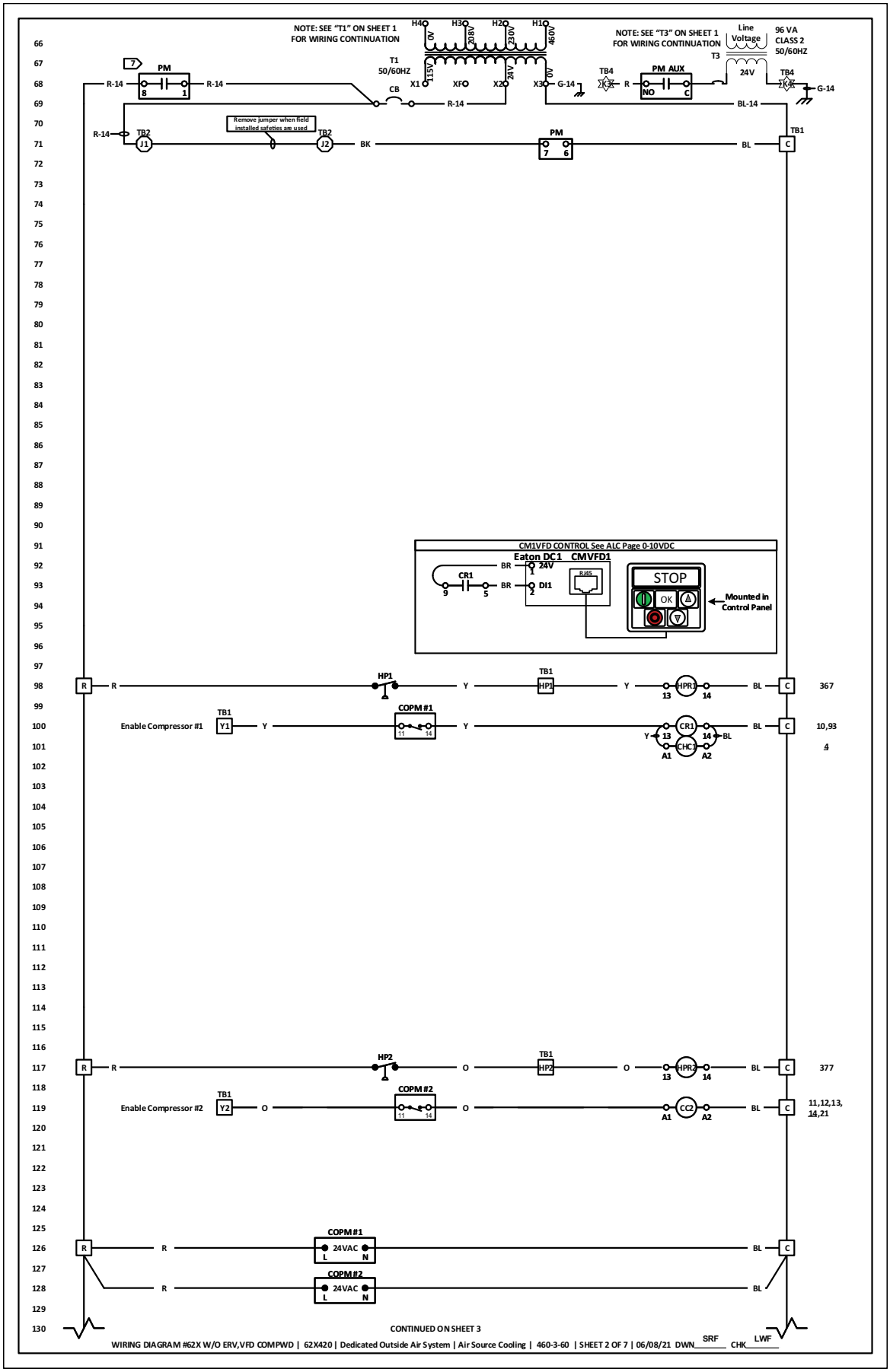


Fig. 17 — Wiring Diagram for Units with Inverter Driven Compressor (20+ tons) (cont)

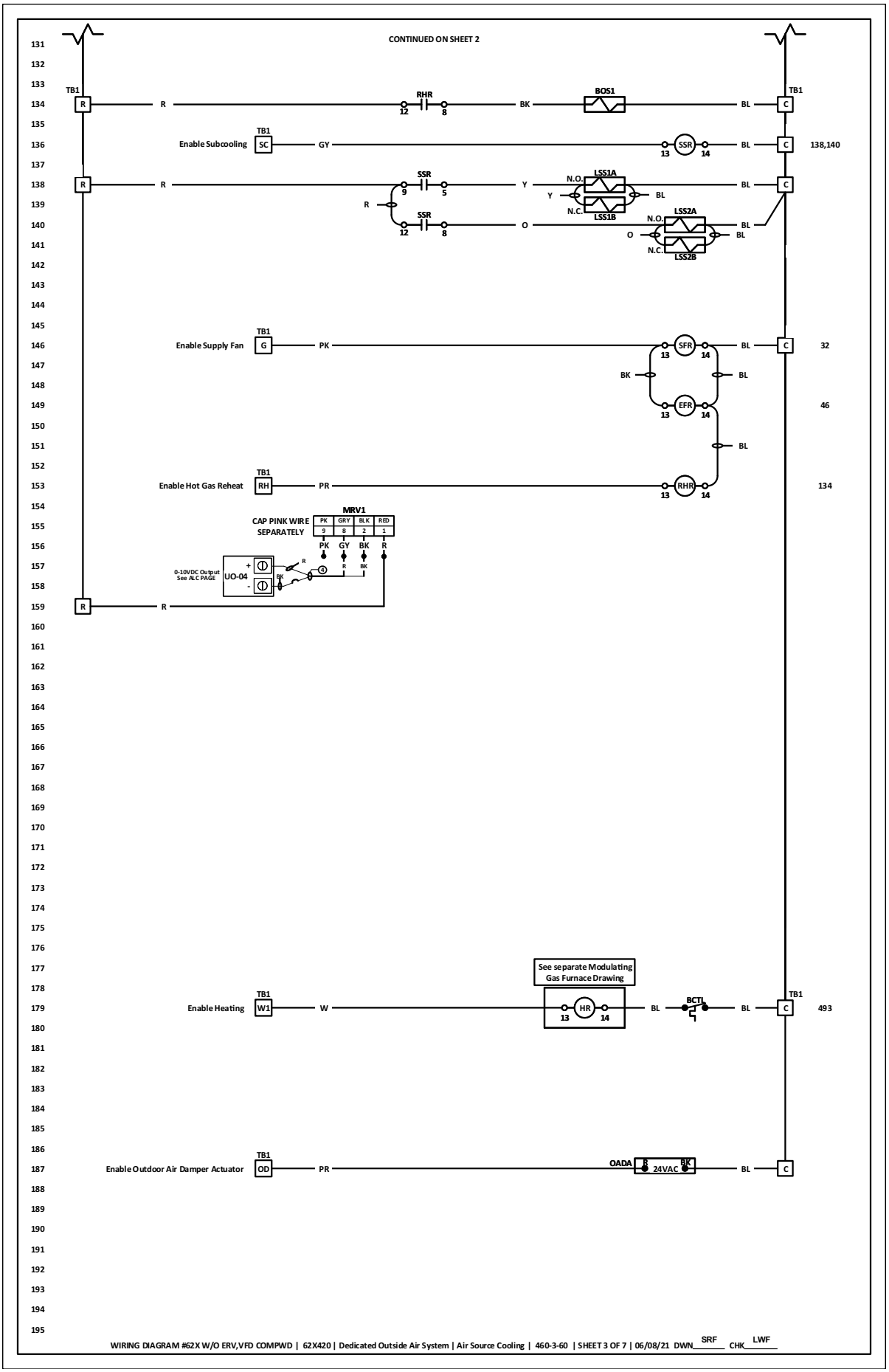


Fig. 17 — Wiring Diagram for Units with Inverter Driven Compressor (20+ tons) (cont)

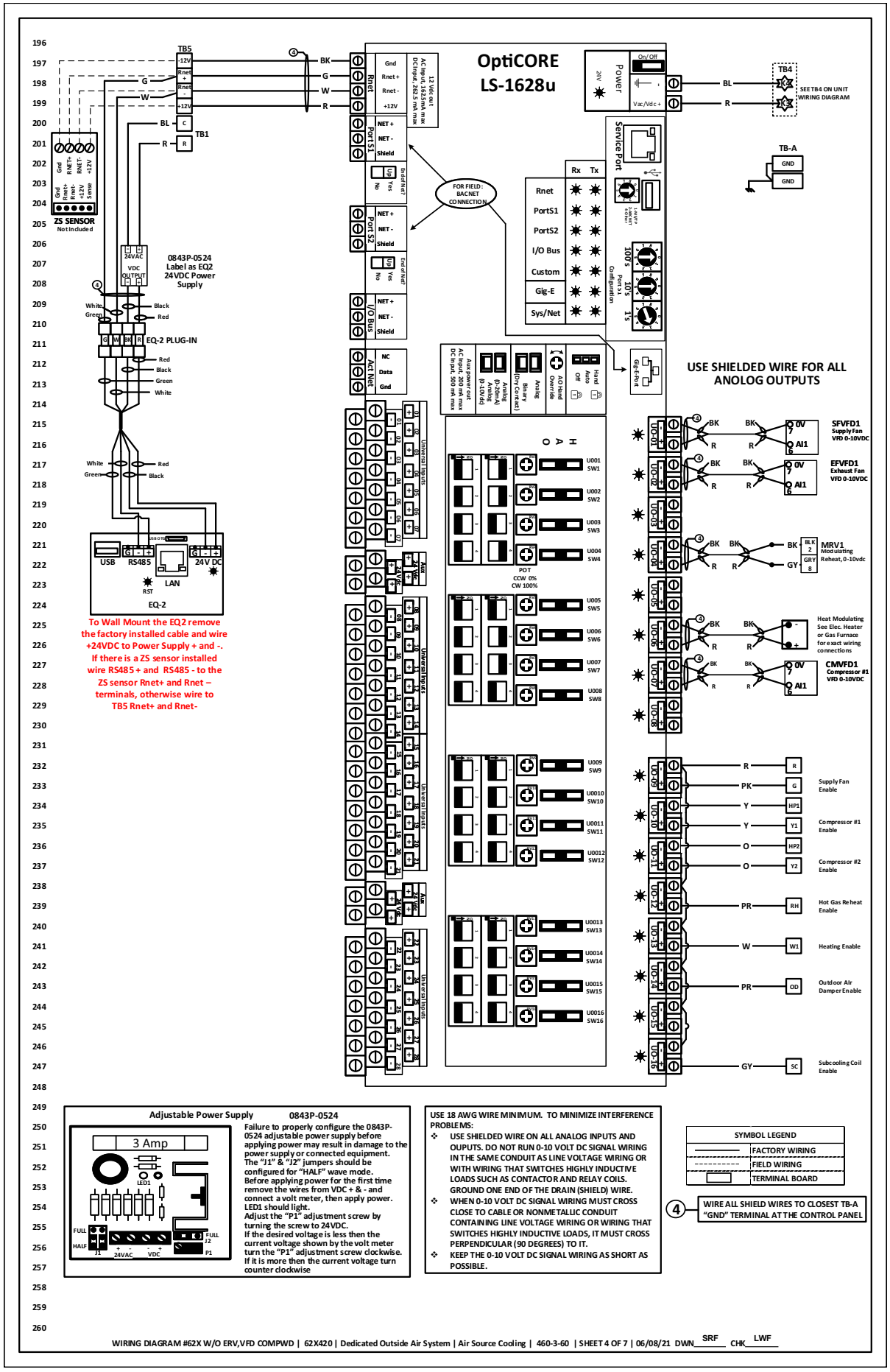


Fig. 17 — Wiring Diagram for Units with Inverter Driven Compressor (20+ tons) (cont)

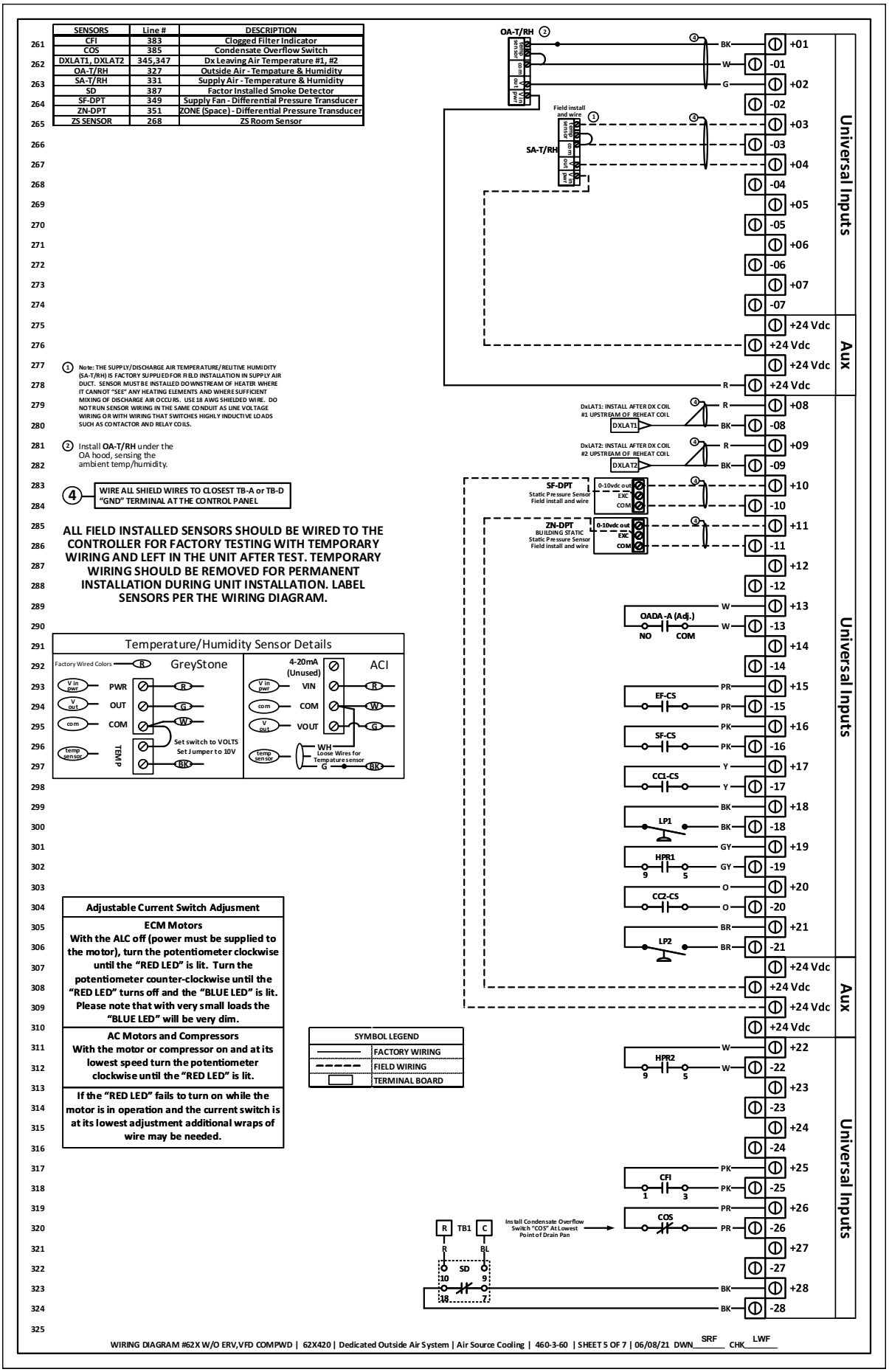
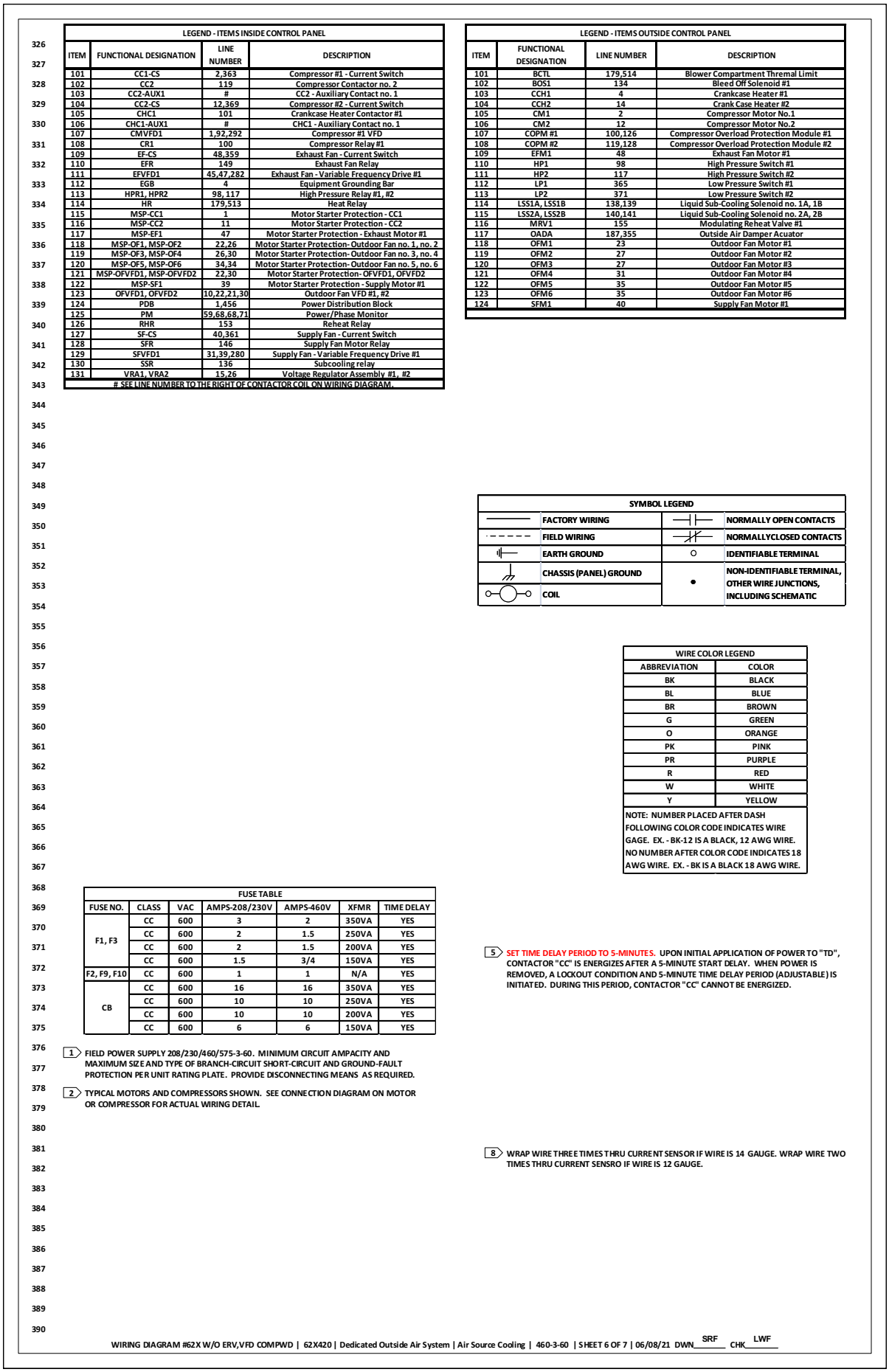


Fig. 17 — Wiring Diagram for Units with Inverter Driven Compressor (20+ tons) (cont)



LEGEND - ITEMS INSIDE CONTROL PANEL

ITEM	FUNCTIONAL DESIGNATION	LINE NUMBER	DESCRIPTION
101	CC1-CS	2,363	Compressor #1 - Current Switch
102	CC2	119	Compressor Contactor no. 2
103	CC2-AUX1	#	CC2 - Auxiliary Contact no. 1
104	CC2-CS	12,369	Compressor #2 - Current Switch
105	CHC1	101	Crankcase Heater Contactor #1
106	CHC1-AUX1	#	CHC1 - Auxiliary Contact no. 1
107	CMVFD1	1,92,292	Compressor #1 VFD
108	CR1	100	Compressor Relay #1
109	EF-CS	48,359	Exhaust Fan - Current Switch
110	EFR	149	Exhaust Fan Relay
111	EFVFD1	45,47,282	Exhaust Fan - Variable Frequency Drive #1
112	EGB	4	Equipment Grounding Bar
113	HPR1, HPR2	98, 117	High Pressure Relay #1, #2
114	HR	179,513	Heat Relay
115	MSP-CC1	1	Motor Starter Protection - CC1
116	MSP-CC2	11	Motor Starter Protection - CC2
117	MSP-EF1	47	Motor Starter Protection - Exhaust Motor #1
118	MSP-OF1, MSP-OF2	22,26	Motor Starter Protection- Outdoor Fan no. 1, no. 2
119	MSP-OF3, MSP-OF4	26,30	Motor Starter Protection- Outdoor Fan no. 3, no. 4
120	MSP-OF5, MSP-OF6	34,34	Motor Starter Protection- Outdoor Fan no. 5, no. 6
121	MSP-OFVFD1, MSP-OFVFD2	22,30	Motor Starter Protection- OFVFD1, OFVFD2
122	MSP-SF1	39	Motor Starter Protection - Supply Motor #1
123	OFVFD1, OFVFD2	10,22,21,30	Outdoor Fan VFD #1, #2
124	PDB	1,456	Power Distribution Block
125	PM	59,68,68,71	Power/Phase Monitor
126	RHR	153	Reheat Relay
127	SF-CS	40,361	Supply Fan - Current Switch
128	SFR	146	Supply Fan Motor Relay
129	SFVFD1	31,39,280	Supply Fan - Variable Frequency Drive #1
130	SSR	136	Subcooling relay
131	VRA1, VRA2	15,26	Voltage Regulator Assembly #1, #2

SEE LINE NUMBER TO THE RIGHT OF CONTACTOR COIL ON WIRING DIAGRAM.

LEGEND - ITEMS OUTSIDE CONTROL PANEL

ITEM	FUNCTIONAL DESIGNATION	LINE NUMBER	DESCRIPTION
101	BCTL	179,514	Blower Compartment Thremal Limit
102	BOS1	134	Bleed Off Solenoid #1
103	CCH1	4	Crankcase Heater #1
104	CCH2	14	Crank Case Heater #2
105	CM1	2	Compressor Motor No.1
106	CM2	12	Compressor Motor No.2
107	COPM #1	100,126	Compressor Overload Protection Module #1
108	COPM #2	119,128	Compressor Overload Protection Module #2
109	EFM1	48	Exhaust Fan Motor #1
110	HP1	98	High Pressure Switch #1
111	HP2	117	High Pressure Switch #2
112	LP1	365	Low Pressure Switch #1
113	LP2	371	Low Pressure Switch #2
114	LSS1A, LSS1B	138,139	Liquid Sub-Cooling Solenoid no. 1A, 1B
115	LSS2A, LSS2B	140,141	Liquid Sub-Cooling Solenoid no. 2A, 2B
116	MRV1	155	Modulating Reheat Valve #1
117	OADA	187,355	Outside Air Damper Acuator
118	OFM1	23	Outdoor Fan Motor #1
119	OFM2	27	Outdoor Fan Motor #2
120	OFM3	27	Outdoor Fan Motor #3
121	OFM4	31	Outdoor Fan Motor #4
122	OFM5	35	Outdoor Fan Motor #5
123	OFM6	35	Outdoor Fan Motor #6
124	SFM1	40	Supply Fan Motor #1

SYMBOL LEGEND

	FACTORY WIRING		NORMALLY OPEN CONTACTS
	FIELD WIRING		NORMALLYCLOSED CONTACTS
	EARTH GROUND		IDENTIFIABLE TERMINAL
	CHASSIS (PANEL) GROUND		NON-IDENTIFIABLE TERMINAL, OTHER WIRE JUNCTIONS, INCLUDING SCHEMATIC
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WIRE COLOR LEGEND

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FUSE TABLE

FUSE NO.	CLASS	VAC	AMPS-208/230V	AMPS-460V	XFMR	TIME DELAY
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	CC	600	2	1.5	250VA	YES
	CC	600	2	1.5	200VA	YES
	CC	600	1.5	3/4	150VA	YES
F2, F9, F10	CC	600	1	1	N/A	YES
CB	CC	600	16	16	350VA	YES
	CC	600	10	10	250VA	YES
	CC	600	10	10	200VA	YES
	CC	600	6	6	150VA	YES

1 FIELD POWER SUPPLY 208/230/460/575-3-60. MINIMUM CIRCUIT AMPACITY AND MAXIMUM SIZE AND TYPE OF BRANCH-CIRCUIT SHORT-CIRCUIT AND GROUND-FAULT PROTECTION PER UNIT RATING PLATE. PROVIDE DISCONNECTING MEANS AS REQUIRED.

2 TYPICAL MOTORS AND COMPRESSORS SHOWN. SEE CONNECTION DIAGRAM ON MOTOR OR COMPRESSOR FOR ACTUAL WIRING DETAIL.

5 SET TIME DELAY PERIOD TO 5-MINUTES. UPON INITIAL APPLICATION OF POWER TO "TD", CONTACTOR "CC" IS ENERGIZES AFTER A 5-MINUTE START DELAY. WHEN POWER IS REMOVED, A LOCKOUT CONDITION AND 5-MINUTE TIME DELAY PERIOD (ADJUSTABLE) IS INITIATED. DURING THIS PERIOD, CONTACTOR "CC" CANNOT BE ENERGIZED.

8 WRAP WIRE THREE TIMES THRU CURRENT SENSOR IF WIRE IS 14 GAUGE. WRAP WIRE TWO TIMES THRU CURRENT SENSRO IF WIRE IS 12 GAUGE.

WIRING DIAGRAM #62X W/O ERV,VFD COMPWD | 62X420 | Dedicated Outside Air System | Air Source Cooling | 460-3-60 | SHEET 6 OF 7 | 06/08/21 DWN SRF CHK LWF

Fig. 17 — Wiring Diagram for Units with Inverter Driven Compressor (20+ tons) (cont)

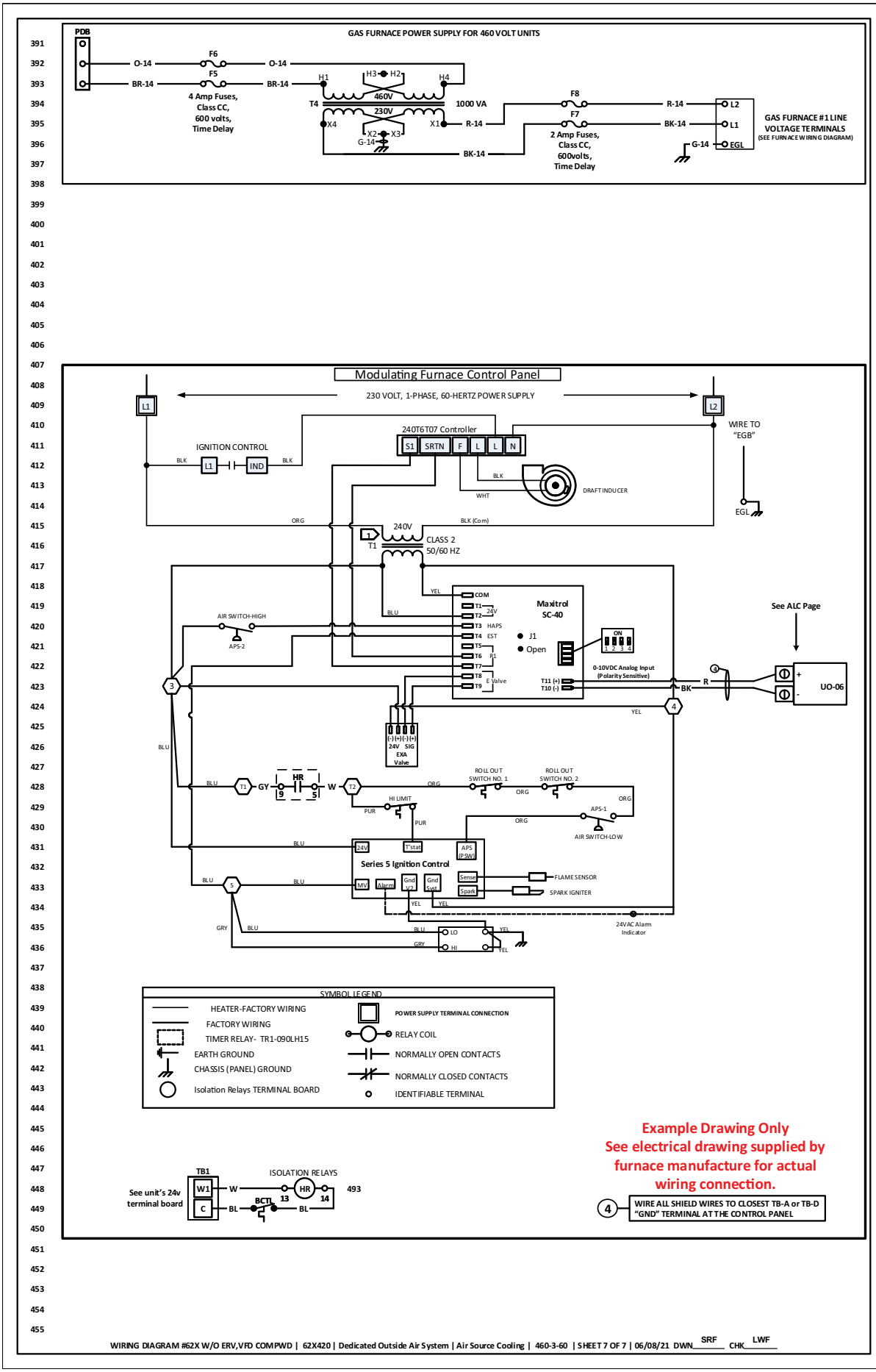
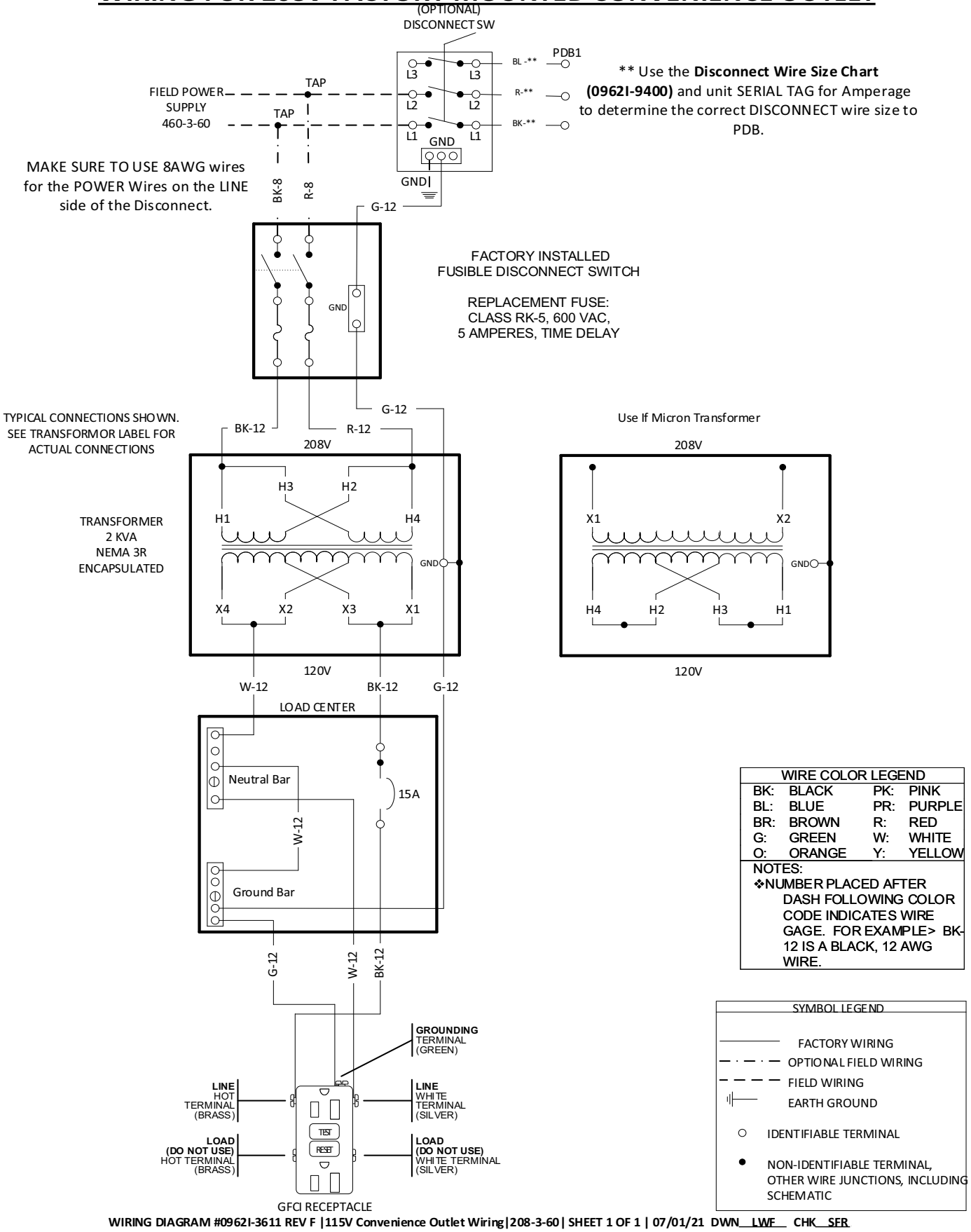


Fig. 17 — Wiring Diagram for Units with Inverter Driven Compressor (20+ tons) (cont)

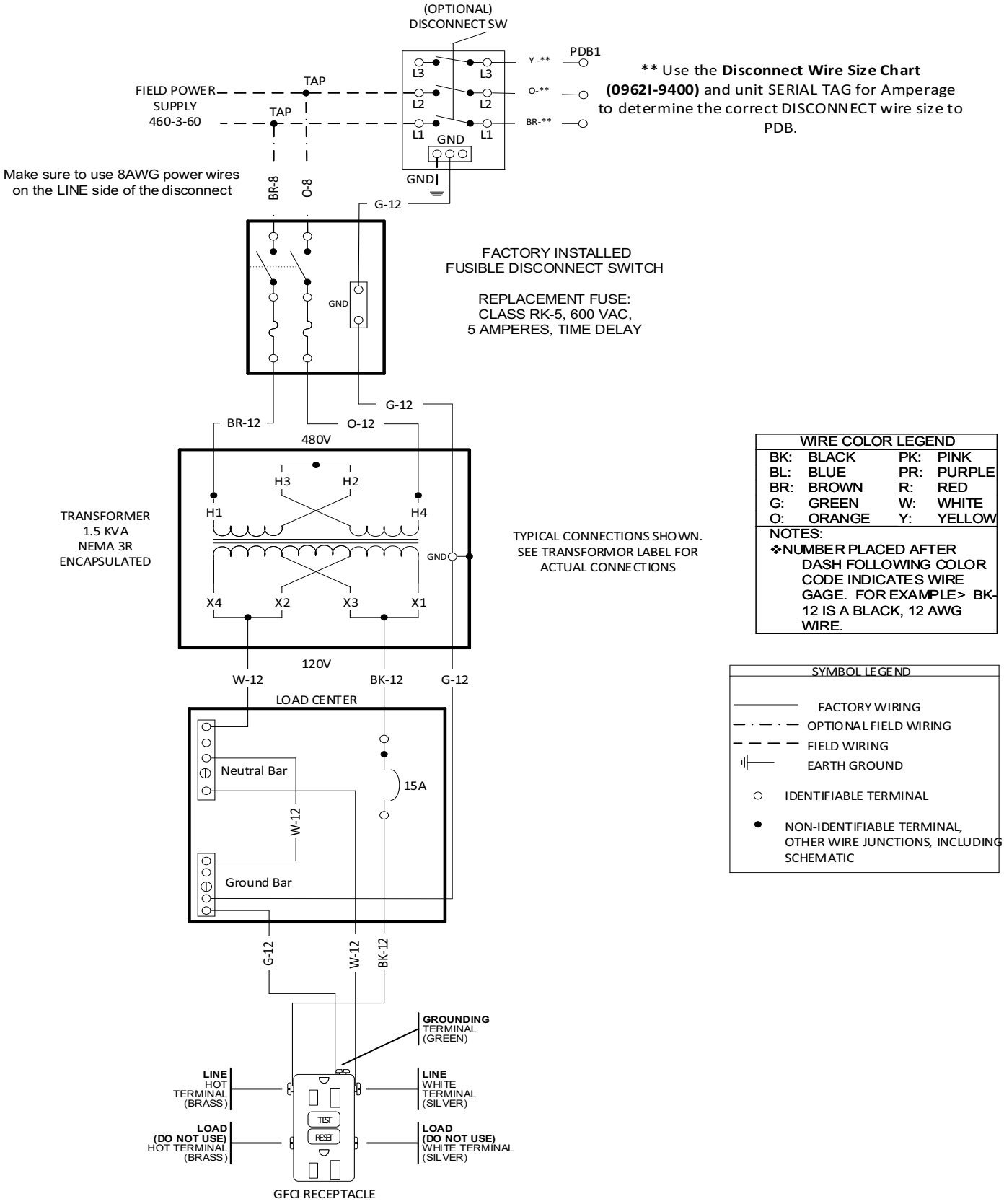
WIRING FOR 208V FACTORY MOUNTED CONVENIENCE OUTLET



WIRING DIAGRAM #0962I-3611 REV F |115V Convenience Outlet Wiring|208-3-60| SHEET 1 OF 1 | 07/01/21 DWN LWF CHK SFR

Fig. 18 — Wiring Diagram for 208V Factory Mounted Convenience Outlet

WIRING FOR 480V FACTORY MOUNTED CONVENIENCE OUTLET



WIRING DIAGRAM #0962I-3582A REV B |115V Convenience Outlet Wiring| 460-3-60 | SHEET 1 OF 1 | 07/01/21 DWN SRF CHK LWF

Fig. 19 — Wiring Diagram for 480V Factory Mounted Convenience Outlet

MAINTENANCE

Prior to any maintenance or service to the unit, shut off, lockout, and tagout the electrical disconnect and fuel valve (if applicable) that supplies the unit in accordance with OSHA regulations and, if the unit includes electric or gas heat, allow ample time for the unit to cool. After maintenance is performed or the unit is serviced, the unit shall be re-commissioned per the start-up procedure.

Installation Code and Quarterly Inspections

All installation and service of Carrier's 62X equipment must be performed by a contractor qualified in the installation and service of equipment sold and supplied by Carrier, as well as conform to all requirements set forth in the manuals and all applicable governmental authorities pertaining to the installation, service, operation, and labeling of the equipment.

To help facilitate optimum performance and safety, Carrier recommends that a qualified contractor conducts, at a minimum, quarterly inspections of your 62X Series equipment and perform service where necessary, using only replacements parts sold and supplied by Carrier.

General

QUARTERLY

Follow the entire start-up procedure at this time and check settings (controls, operating temperatures, operating pressures, power, and control voltages) and operation.

Unit Exterior

CABINET EXTERIOR

After installation, fix scratches. Periodic painting should be done thereafter, as required. The caulk should be inspected annually. Re-apply caulk as needed to maintain integrity. For units with harsh coating protection, contact your Carrier sales office to purchase a touch up coating kit.

UNIT LOCATION

Verify that no flammable objects, liquids, or vapors are present near the unit. If unit includes gas heat, clearances to combustibles around the vent must be adhered to (see Clearances, page 5). Do not hang anything from or place anything on the unit. Keep the area around the unit free of all objects.

Direct Drive Supply and Exhaust Fans

BLOWER WHEEL

Inspect blower wheel and clean as necessary. A small build-up of dust can cause a significant decrease in blower performance. Check for excessive vibration. Clean and repair as required.

MOTORS

Inspection

Inspect motor every 3 months. Keep the motor clean and vent openings clear.

Lubrication

1. Motors with grease fittings must be lubricated as indicated in Table 12.

Table 12 — Motor Lubrication Intervals

NEMA FRAME SIZE (MOTOR HP)	RATED AT 1800 RPM (HRS)
UP TO 210 (3-5)	6,000
210-280 (7.5-20)	4,750
280-360 (25-30)	3,700

NOTE: These intervals are based on severe duty. Over lubricating bearings could result in reduced motor life.

2. A high grade ball or roller bearing grease must be used. Recommended grease for standard service is Mobil Polyrex[1] EM. Other compatible greases include ChevronTexaco Polystar[2], ChevronTexaco Rykon[2] Premium 2, Pennzoil[3] Pen 2 Lube, and ChevronTexaco SRI.
3. Motors without grease fittings are sealed for life and do not require re-lubrication.

Lubricating Instructions

Before greasing, be sure fittings are clean and free from dirt. Remove grease relief plug or plate and, using a low-pressure grease gun, pump in the required grease. Do not over-grease. Re-lubrication intervals are specified in Table 12. After re-lubricating, allow motor to run for 10 minutes before replacing relief hardware.

IMPORTANT: In general, it is not recommended to mix greases of different brands. The mixing of different types of thickeners may destroy the composition and physical properties of the grease. In the event that a different grease is required by the end user, the following steps can be taken. Using the Lubricating Instructions, open grease outlet and purge the system as much as possible of the old or unwanted grease. Repeat this same operation after one week of service.

Condensing Fans

Manually rotate to ensure free movement. Check that all fan mounting hardware is tight. Check motor bearings for wear.

Refrigeration Circuit Components

EVAPORATOR COIL

Check for dirt and bent fins. Clean with water from blower side towards filter side.

CONDENSER COIL

Check for dirt and bent fins. Clean by brushing off with broom.

COMPRESSORS

Compressors are factory-supplied with a charge of oil and should not require additional maintenance.

Condensate Drain Pan and Drain

Check for blockages. Clean as necessary with a mixture of 1/2 cup (0.1 L) bleach and 1 gallon (1.9 L) of warm water, if signs of mold or algae are present.

Dampers

DAMPERS

Check and clean blades.

DAMPER MOTOR/LINKAGES

Verify that all damper linkages move freely. Lubricate if necessary.

Energy Conservation Wheel

BEARINGS

Small ECWs (smaller than ECW666) are provided with no maintenance inboard bearings. These bearings should require no maintenance during the life of the unit. Larger ECWs come equipped with an external flanged bearing that should be greased annually. Use a petroleum based lubricant.

1. Polyrex EM is a trademark of Exxon Mobil corporation.
2. Polystar and Rykon are registered trademarks of Chevron.
3. Pennzoil is a registered trademark of Pennzoil Quaker State Company.

DRIVE MOTOR

The drive motors should not require maintenance. Replace as necessary.

DRIVE BELTS

Belts are multi-link belts with individual links constructed of a high performance polyurethane elastomer reinforced with multiple plies of polyester fabric. This belt provides a strong, yet flexible belting. The multi-link feature provides quick, easy servicing or replacement. Adjust and/or replace as necessary.

SEALS

Adjust and/or replace as necessary. The seals are made to clip on the cassette or post metal easily.

WHEEL

The wheel is somewhat self-cleaning through its normal action of rotating in and out of counter current airflow streams. In the event that routine quarterly inspection indicates that there is dirt or dust buildup within the wheel causing an excessive pressure drop, then wheel cleaning should be performed as follows:

1. Using a standard shop vacuum, vacuum any debris from both faces of the wheel. Slowly work around the entire face of the wheel to complete the procedure. Do not damage wheel face by excessive pressure of the vacuum nozzle on the wheel face.
2. Using 20 psi clean, dry air and a small air nozzle, blow air through one face of the wheel. At a similar location on the opposite side of the wheel, gently apply a shop vacuum to "receive" any remaining debris exiting the wheel. In the event that this method does not remove visual buildup or return pressure drop to within normal parameters, a wheel washing procedure is recommended. The energy conservation wheels can be washed thoroughly with water without affecting the performance of the wheel. The wheel will simply dry out following a washing procedure and resume normal energy transfer without any deviation in performance. If the energy conservation wheel can be easily removed from the cassette or unit, it is recommended to do so to facilitate the washing process. However, in most cases, it is impractical to remove larger wheels. Therefore, the washing procedure must take place within the air handling unit, and provisions need to be made to collect the runoff water from the bottom of the unit or collect the water by using a wet vac on the opposite side of the wheel during the procedure.
3. Shield all electrical components and bearings with plastic sheeting. Ensure that an adequate drainage system exists to collect runoff water from the bottom of the unit. Alternatively, use a wet vac with a wide nozzle on the opposite face of the wheel to collect the water during the washing procedure.
4. Disable the drive motor.
5. Using standard pressure water (do not use a high pressure washer) and working from the one side of the wheel, wash the wheel with a standard "garden" nozzle to flush any debris trapped within the flutes of the wheel. If desired, a mild detergent can also be used to enhance cleaning without affecting the performance of the wheel.

Gas Heater

GAS LINE

Check for gas leaks.

MANUAL SAFETY SHUT OFF VALVE

Check for gas leaks.

DIRECT SPARK IGNITER

Check for cracked ceramics, excessive carbon residue, or erosion of the electrode. Replace as required.

GAS VALVE

Check that gas valve seat is not leaking.

BURNERS

Soft brush or vacuum inside burner, at burner ports, and at air inlet between burner and manifold pipe to eliminate accumulation of lint and/or dirt.

HEAT EXCHANGER

Inspect for cracks, sagging, bending, or distortion. Clean with vacuum and/or stiff brush.

DRAFT INDUCER

Clean with compressed air or vacuum.

VENT PIPE/TERMINAL

Venting must be intact. Using a flashlight, look for obstructions, cracks on the pipe, gaps in the sealed areas, or corrosion. Clean vent terminal.

CONDENSATION DRAIN

Check for blockages.

Electric Heater Wiring and Wiring Connections

Check all wiring connections. Tighten as necessary. Check internal wiring. Replace as necessary with type THHN 221°F (105°C), 600V, 16-gauge wire or equivalent.

CONTROL PANEL

Check heater control panel for dust/dirt and moisture. Clean as necessary.

HEATING ELEMENTS

Check heating elements for dust/dirt buildup and/or broken elements. Replace elements and/or clean elements with low pressure air as necessary. Check element male/female chassis insulators for breaks and/or cracks. Replace as necessary. Check element support frame insulators. Replace missing or broken insulators as necessary.

Filters

Filters should be checked for dirt restriction on a monthly basis (or as required). Replace filters with filters of equal specification when they appear dirty.

TROUBLESHOOTING

See Tables 13-19 for possible causes and solutions to problems that may arise.

Table 13 — Supply Fan

PROBLEM	POSSIBLE CAUSE	SOLUTION
Blower motor does not run	Damper limit switch no closed or inoperative	Repair or replace switch.
	Motor thermal overloads tripped	For tripped condition - reset.
	Fuses blown or missing	Replace fuses.
	External power source lacking	Have incoming power lines checked.
	Motor inoperative	Repair or replace.
Blower motor runs, but fans do not supply enough make-up air	Intake filters dirty	Replace or clean.
	Obstruction in the intake	• Check dampers for proper operation. • Clear all intake passages of obstructions.
	Fan wheel loose on shaft	Reposition and tighten.
	Access doors and panels not closed	Close.
	Excessive discharge resistance from: • Dirty filters in discharge • External dampers	Clean filters and/or re-adjust dampers.
Excessive fan noise	Fan motor bearing	Replace.
	Fan wheel loose on shaft	Reposition and re-tighten.
	Fan wheel rubbing	• Loosen setscrews. • Reposition cone and tighten.
	Fan wheel dirty	Clean.
	Loose duct	Tighten or reinforce.
	Foreign article in fan or duct	Remove.

Table 14 — Compressor

PROBLEM	POSSIBLE CAUSE	SOLUTION
Compressor will not start	Power off, loose electrical connections or fuse open	Check disconnect switch, fuses and wiring.
	Compressor contactor not closing	Check voltage to contactor coil, transformer slave relay, thermostat.
	Internal compressor thermal overload open	If compressor is hot, allow 2 hours to cool – see below.
	Compressor defective	Check compressor for electrical failure. Compressor may be seized; check for lock rotor amps.
	High or low pressure switch open or defective	Check calibration of high or low pressure switch.
	Oil pressure control open or defective	Check oil failure control – see below.
Compressor starts but cuts out on low pressure switch	Low on refrigerant	Check sight glass and check pressures.
	Airflow restricted	Check for dirty evaporator coil, dirty filters, dampers closed, iced evaporator, VFD settings, check motor amps, duct design.
	Restriction in liquid line	Check head pressure. Check and adjust TXV, if not functioning properly. Check pressure drop across filter drier.
	Defective low pressure switch	Check calibration of switch.
Compressor starts but cuts out on high pressure switch	Refrigerant overcharged	Check pressures and charge by subcooling.
	Condenser fan control has incorrect setting	Check calibration of the low ambient control.
	Fan motor defective	Check fan motor.
	Condenser coil inlet obstructed or dirty	Check coil and inlet clearances and for possible air recirculation.
	Air or non-condensables in system	Compare liquid refrigerant pressure with the saturated pressure. If the presence of air or non-condensables is suspected, the refrigerant must be reclaimed through a service port. The system must then be re-evacuated to 250-500 microns and recharged. The filter-drier should also be replaced before charging.
	Defective high pressure switch	Replace switch.
	Restriction in discharge or liquid line.	Check discharge and liquid line pressures. Check TXV.
Compressor cuts out on thermal overload	Low voltage	Check incoming voltage leg-to-leg. All three legs must be within 10% of the required voltage and the leg-to-three-leg average voltage variation must be less than 2% on each leg.
	Sustained high discharge pressure	Check running amperage and conditions described under high discharge pressure.
	High suction and discharge pressures	Check TXV setting. Check for air in system.
	Defective compressor overload	Allow compressor to cool for two hours if compressor is hot. Recheck for open circuit.
	Defective run capacitor	Check run capacitor for compressor and fan motor.
	Improper refrigerant charge	Check subcooling.
	Bearings or pistons too tight	Check for low oil level.
	Allow time for compressor to cool	Check dome temperature of compressor.
Noisy compressor	Scroll compressors are rotation sensitive	Reverse wiring at disconnect switch may require blower to be rechecked for rotation.
	Refrigerant overcharged	Check pressures and subcooling.
	Excess or insufficient oil in compressor crankcase	Check oil level on hermetic compressors. Check total equivalent feet of piping. Add oil, as recommended.
	Liquid floodback	Check TXV setting. Refrigerant overcharge refrigerant circuit problem.
	Cyclical noise pattern	Digital compressors have a significant shift in generated noise when running uploaded.
	Compressor defective	Replace compressor.

LEGEND

TXV — Thermal Expansion Valve
VFD — Variable Frequency Drive

Table 15 — Refrigeration Circuit

PROBLEM	POSSIBLE CAUSE	SOLUTION
Noisy operation	Air noise	Check ductwork. Air velocity too high.
	Chattering contactor	Check for adequate control voltage. Check for shorts or breaks. Check thermostat. Check contactor points.
	Tubing rattle	Dampen by taping or clamping. Bend tubing away from contact, where possible.
High suction pressure	Excessive load on evaporator coil	Check for high entering wet bulb temperature. Check for excessive airflow.
	Broken compressor valves. Scroll compressors do not have valves	Scroll compressors should not be pumped down below 5 PSI.
	Compressor is unloaded	Recalibrate unloader pressure switch.
	Leaking check valve	Check temperature across check valve.
	Expansion valve not secured to suction line or TXV defective	Check the TXV, ensure bulb is insulated.
High discharge pressure	TXV setting	Check TXV setting and calibrate superheat.
	Air inlet to condenser dirty or obstructed	Check for proper clearances and possible air recirculation.
	Condenser fan, motor defective	Check condenser fan motor and run capacitor.
	Condenser fan control has incorrect setting	Check calibration of low ambient head pressure control.
Suction pressure too low	Refrigerant undercharge	Check pressures and subcooling.
	Blower running backwards	Interchange any two wires connected to motor.
	Defective or improperly adjusted expansion valve	Check superheat and adjust TXV.
	Dirty filter	Check filter and evaporator coil.
	Too little airflow or low entering air temperature	Check airflow and entering air wet bulb conditions.
	Restriction in suction or liquid line	Check refrigerant circuit for restriction.
Head pressure too low	Insufficient refrigerant charge	Check subcooling. Check for leak.
	Defective or improperly adjusted expansion valve	Check superheat and adjust TXV.
	Low suction pressure	See above – **suction pressure too low.**
	Condenser fan control setting	Check calibration of low ambient control.
	Defective compressor	See above – **high suction pressure**.
Compressor short cycles	Thermostat location or malfunction	Check thermostat. Check heat anticipator setting.
	Improper refrigerant charge	Check subcooling. Verify superheat.
	Defective high or low pressure control	Check high or low pressure switch.
	Cycling on internal overload	Possible tight bearings – see above.
	Defective expansion valve	Check TXV and superheat.
	Poor air distribution	Check ductwork for recirculation.
	High discharge pressure	See above – **high discharge pressure**.
	Leaking discharge valves in compressor	See above – **high suction pressure**.
Running cycle too long or unit operates continuously	Refrigerant undercharged	Check subcooling.
	Dirty filter or evaporator coil	Check filter, coil and airflow.
	Dirty or clogged condenser coil	Check coil and airflow.
	Air or other non-condensables in system	Check equalized high side pressure with equivalent outdoor temperature.
	Defective compressor	See above – **high suction pressure**.
	Restriction in suction and liquid line	Check for restrictions in refrigerant circuit.
	Control contacts stuck	Check thermostat, shorts in wiring, slave relay compressor contactor.
Supply air temperature too high	Refrigerant undercharge or leak in system	Check subcooling and check for leaks.
	Evaporator plugged with dirt or ice	Check evaporator, airflow, and filter.
	Improperly adjusted or defective expansion valve	Check superheat and adjust TXV. Check bulb.
	Defective compressor	Check compressor for proper operation.
	High discharge pressure	See above – **high discharge pressure**.
	Airflow is too high	Check external static pressure.
Supply air temperature too low	Airflow is too low	Check evaporator coil, filter. Check for closed dampers, grills, drive for loose parts, belts, misalignment. Check external static pressure.
	Return air temperature too low	Check entering air wet bulb conditions.
Liquid line too hot	Refrigerant undercharged	See above – **high discharge pressure.**
	High discharge pressure	Restriction upstream at point of frosting.
Suction line frosting	Insufficient evaporator airflow	Check airflow. Check fan VFD, closed dampers.
	Restriction in suction or liquid line	Restriction upstream at point of frosting.
	Malfunctioning or defective expansion valve	Check bulb of TXV.
Blower motor not running	Improper wiring	Check wiring diagram.
	Defective motor	Check motor controller.
	Defective thermostat or control circuit	Check “R” and “G” circuit.
	Motor off on overload protector	Allow motor to cool. Check amperage.

Table 16 — Variable Speed Head Pressure Control

PROBLEM	POSSIBLE CAUSE	SOLUTION
No fan operation	No 24V control voltage	Check for 24 VAC at control.
	No input pressure to control	Check alignment of capillary fitting. Schrader valve depressor must depress Schrader valve enough to allow pressure into capillary.
	Bad fan motor	Disconnect power. When P266 is used, place a jumper from L1 to M1 and connect power. If fan does not start, motor is bad and should be replaced.
	Pressure transducer problem	Disconnect 6 pin connector from right side of control. Place a jumper wire between third pin from the top and bottom pin on the control (not the cable). If fan goes to full speed, check for input pressure. If it has been determined there is adequate pressure, the transducer is bad and the control must be replaced.
Fan stops when pressure reached high end of operating range.	Control is not wired correctly	See wiring diagrams.
No fan modulation (on-off operation)	Control is not wired correctly	See wiring diagrams.
Fan starts at full speed	Control is not wired correctly	See wiring diagrams.
Erratic fan operation	Control is not wired correctly	See wiring diagrams.
	Dirty or blocked condenser coil	Clean condenser coil.
Fan motor is cycling on thermal overload	Dirty or blocked condenser coil	Clean condenser coil.
	Wrong motor for fan speed control application	Replace with motor approved for fan speed control application.
Erratic pressure control	Defective regulator	Replace defective part.
	Dirt causing regulator to bind	Disassemble regulator and clean internal parts. Install strainer.
	Power source to hot gas solenoid or operation of the solenoid is intermittent	Determine if problem is caused by supply voltage, solenoid, or excessive MOPD. Make changes necessary to correct problem.
Regulator leakage	Dirt in regulator causing seat to remain open	Clean regulator. Install strainer.
	Worn or eroded seating surface on regulator	Replace defective part.
Regulator hunting (chattering) with large fluctuations in controlled pressures	Regulator is oversized	Contact a certified technician for correctly sized regulator.
	Regulator and liquid injection thermovalve have control interaction	Increase superheat setting. Dampen bulb response by repositioning.
	Regulator and cylinder unloaders have control interaction	Increase differential between the controls by lowering the regulator's setpoint.
Regulator will provide pressure control	Regulator seat is restricted	Locate and remove stoppage. Install strainer.
	Pressure adjusting stem is set at a point so high that suction pressure never reaches the setpoint	Re-adjust the regulator.
	Strainer clogged at the regulator inlet	Locate and remove stoppage.
	MOPD exceeded across the solenoid or loss of source voltage	Replace solenoid or troubleshoot the electrical problem.
	Solenoid coil burned out	Replace coil.
	Wrong type of distributor for hot gas bypass to the evaporator	Install proper Venturi-Flo* type distributor for low pressure drop.
Regulator fails to close	Dirt under seat of regulator	Locate and remove stoppage. Install strainer or filter drier.
	Diaphragm failure (leakage around the adjusting stem)	Replace defective parts.
	Pressure adjusting stem is set at a point so high that suction never reaches the setpoint	Re-adjust the regulator.
	Blocked external equalizer passage	Locate and remove stoppage. Install strainer.
	Worn or eroded regulator seat	Replace defective part.

LEGEND

MOPD — Maximum Opening Pressure Difference

* Venturi-Flo is a trademark of Control Devices, LLC.

Table 17 — Energy Wheel Conservation

PROBLEM	POSSIBLE CAUSE	SOLUTION
Inadequate wheel performance	Incorrect wheel rotation speed	Check wheel rotation speed.
	Worn wheel media or worn/out-of-place seals	Check wheel integrity and seals. Adjust and/or replace seals.
	Unanticipated entering air conditions	Check entering air conditions and compare to design.
	Dirty media	Check media for dirt and clean.
Improper wheel rotation	Misaligned belts	Check drive belts for engagement with sheaves.
	Improper motor operation	Check drive motor and drive motor wiring for proper voltage.
	Improper VFD operation	Check VFD programming.
	Improper VFD sensor operation	Check VFD input sensor (temperature/relative humidity) for malfunctioning.
High pressure drop	Unanticipated airflow	Check airflow and compare to design.
	Dirty filters	Check filters and clean/replace.
	Dirty media	Check media for dirt and clean.
Noise	Out-of-place seals	Check seals and adjust.
	Worn bearings	Check bearings.
	Misaligned belts	Check belts for slippage.

Table 18 — Gas Heater

PROBLEM	POSSIBLE CAUSE	SOLUTION
Steady on - No operation	Internal control fault	
One flash - Combustion airflow fault	Faulty combustion blower	Check for 230V supply and tightness at fan connections. If no power, replace.
	Airflow switch not closing	
	Airflow switch opened during operation	
Two flashes - Flame with no call for heat	Faulty gas valve	Check voltage to gas valve with thermostat off. Valve should not be powered. If there is gas flow, replace valve.
Three flashes - Ignition lockout *	Ignition control miscommunication	Reset ignition control by removing 24V power to ignition control terminal 24VAC.
	Dirty burners	Clean burners to ensure proper flame carryover.
	Faulty spark igniter	Check if connecting lead or spark igniter are damaged. If yes, replace.
	Faulty flame sensor	Check if connecting lead or flame probe are damaged and/or touching earthed components. If yes, replace.
	Incorrect gas pressure at gas valve	Check that the gas pressure at inlet of valve is correct for the gas type. If not, correct pressure problem.
	Faulty gas valve	Check that the gas pressure at outlet of the valve rises when valve turns on and returns to zero, or lower, when valve turns off. If not, replace.

* LED flashed on for 0.25 seconds and off for 0.25 seconds during fault condition. The pause between fault codes is 3 seconds.

Table 19 — Electric Heater

PROBLEM	POSSIBLE CAUSE	SOLUTION
No heat	No call for heat	Check that the controls are set to call for heating.
	No power and control voltage to heater	Check that heater has power and control voltage.
	Faulty component	Check components with continuity meter. Replace as necessary.
Not enough heat	Faulty component	Check that ampere draw is reasonably close to that on the heater data plate. If more than 10% short, begin testing individual components. Replace, as necessary.
	Heat anticipator current draw too low, causing short cycling	Check current draw.
Heater cycling on automatic limit	Improper airflow	Check for obstructions to return air, loose or broken fan belt, and clogged filters and/or evaporator coils.
	Faulty temperature limit switch	Test, and if necessary, replace.
Open secondary protective device	Stuck contactor	Check contactor.
Contractor chatter	Improper wiring	Check wiring.
	Insufficient transformer capacity	Check transformer.
Element failure	Corroded hardware and/or loose connections	Check hardware.

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

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