

REZNOR®

INSTALLATION INSTRUCTIONS

FORM RZ-NA-I-XBWS-AQ21
MAY 29, 2014
SUPERCEDES 09-27-13
DXX-2ZERV

ENERGY RECOVERY VENTILATOR

Applies to Model XBWS when used with Option AQ21
Vertical Supply and Return Air

INSTALLATION INSTRUCTIONS FOR ROOFTOP STAND ALONE ENERGY RECOVERY UNIT IN VERTICAL (UP/DOWN) AIRFLOW DESIGN



Energy recovery COMPONENT certified to the AHRI Air-to-Air Energy Recovery Ventilation Equipment Certification Program in accordance with AHRI Standard 1060-2000. Actual performance in packaged equipment may vary.



ETL Certified per UL 1995 and CSA 22.2

I - Shipping and Packing List

Package contains:

- 1 — Energy Recovery Ventilator Assembly

II - Shipping Damage

Check unit for shipping damage. Receiving party should contact last carrier immediately if shipping damage is found.

III - General

These instructions are intended as a general guide and do not supersede local codes in any way. Authorities having jurisdiction should be consulted before installation.

IV - Requirements

When installed, the unit must be electrically wired and grounded in accordance with local codes or, in absence of local codes, with the current National Electric Code, ANSI/NFPA No. 70.

V - Application

These Energy Recovery Ventilators (ERV) are used in a down discharge manner equipped with field provided balancing damper assembly through the roof. A roof curb must be provided to Rooftop Systems specifications. These wheels conserve energy by mixing warmer air with cooler air in the following manner:

Recovery Wheel Mode

The Recovery Wheel mode is accomplished by two blowers providing continuous exhaust of stale indoor air and replacement by equal amount of outdoor air. Energy recovery is achieved by slowly rotating the energy recovery wheel within the cassette frame work. In winter, the ERV adsorbs heat and moisture from the exhaust air stream during one half of a complete rotation and gives them back to the cold, drier intake air supply during the other half rotation. In summer, the process is automatically reversed. Heat and moisture are absorbed from incoming fresh air supply and transferred to the exhaust air stream. This process allows outdoor air ventilation rates to be increased by factors of three or more without additional energy penalty or increase in size of heating or air conditioning systems.

VI - Rigging Unit For Lifting

1. Maximum weight of unit is — Varies per Series {300-1200 Lbs.} (Crated)
2. Remove crating.

3. All panels must be in place for rigging.
4. Remove hood assemblies from door marked filter access.
5. Place 2" filter in filter rack and replace filter access door.
6. Duct work should be installed into roof curb before installing ERV on curb.
7. Roof curb gasket must be applied to all top surfaces of the curb. (Refer to roof curb installation instruction.)
8. Forklift channels must be removed from the base of ERV before setting unit on curb. **See Figure 1.**
9. Position unit on roof curb and provide service access to ERV control access door and wheel.

! WARNING



Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

! CAUTION

Danger of sharp metallic edges. Can cause injury. Take care when servicing unit to avoid accidental contact with sharp edges.

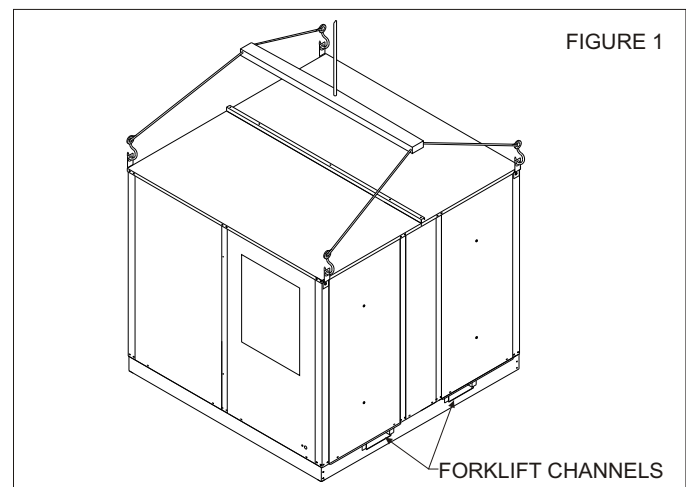


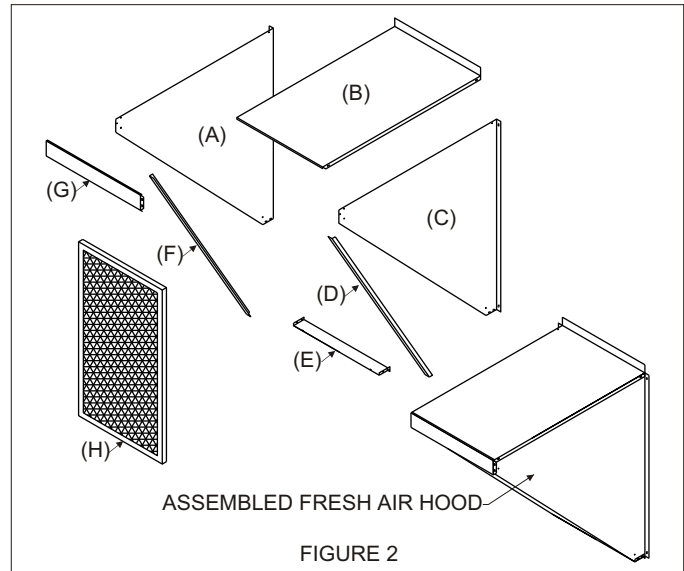
FIGURE 1

FORKLIFT CHANNELS

VII - Installation

Fresh Air Hood Assembly (See Figure 2)

1. Secure hood sides (A and C) to Hood top (B) using the supplied #10 x ½ screws.
 2. Secure filter channels (F and D) to hood sides using the supplied #10 x ½ screws.
 3. Secure hood bottom (E) to the inside of the hood sides using the supplied #10 x ½ screws.
 4. Slide the fresh air filter (H) into the tracks created by the front of the hood sides and the filter channels.
 5. Secure the filter panel (G) to the hood sides. Slide the filter panel under the front flange of the hood top.
 6. Install fresh air hood over ERV fresh air opening on front door panel.
 7. Install barometric exhaust hood over exhaust blower outlet.
 8. Remove ERV control access panel to connect field wiring.
 9. Route class II low voltage wire (3 conductor) from thermostat or energy management through small bushing in end panel of ERV. **See wiring diagram.**
 - a. Thermostat (dependent) - connect in parallel at rooftop unit with "G", "C" and "W". Then connect matching color at terminal 1, 2, and 3 respectively on ERV circuit board.
 - b. Energy Management - provide +24 VAC to "1" and common, 24 VAC to "2" terminals on ERV circuit board.
 - c. Thermostat (dedicated) - splice into +24 vac (blue wire) at (control circuit board) transformer connection run wire to "R" terminal. Then run another wire from "G" terminal to ERV (control circuit board) terminal block #1.
 10. All electrical connections must conform to any local codes and current National Electric Codes (NEC) and Canadian Electric Codes (CEC). Refer closely to unit wiring diagram in unit and/or in these instructions for proper wiring connections.
 11. Refer to the unit nameplate for minimum circuit ampacity (MCA) and maximum overcurrent protection size (fuse).
 12. Electrical data is listed on unit rating plate and motor name plates.
 13. Connect line voltage power supply to ERV fuse block in control box of unit from disconnect switch. **See wiring diagram.**
 14. Ground unit with a suitable ground connection either through unit supply wiring or an earth ground.
- Note: Unit voltage entries must be sealed weather tight after wiring is complete.**
15. Remove motor access panels. Locate belts fastened to blower assembly. Install belt onto motor and blower pulley. Adjust motor sheave to correct blower RPM for CFM and external static pressure requirements. See charts in this instruction. Multiple pulley arrangements are available to meet the entire range.



Caution: Blower speed must be adjusted for the given external static pressure and airflow (CFM) requirements. If blower speed is not adjusted for conditions, possible motor over loading can occur.

16. Replace access panel onto the ERV unit and secure.
17. Restore power to unit.
18. Cleanup once unit is operating properly, caulk any open joints, holes or seams to make the units completely air and water tight.
19. Leave this instruction manual with owner or in an envelope to be kept near unit.

VIII - Operation

How It Works

The unit contains an Energy Recovery Wheel (ERW) that is a new concept in rotary air-to-air heat exchangers. Designed as a packaged unit for ease of installation and maintenance, only the connection of electrical power is required to make the system operational.

When slowly rotating through counter flowing exhaust and fresh air streams the ERW adsorbs sensible heat and latent heat from the warmer air stream and transfer this total energy to the cooler air stream during the second half of its rotating cycle. Rotating at 50-60 revolutions per minute, the wheel provides constant flow of energy from warmer to cooler air stream. The large energy transfer surface and laminar flow through the wheel causes this constant flow of recovered energy to represent up to 85% of the difference in total energy contained within the two air streams.

Sensible and latent heat are the two components of total heat. Sensible heat is energy contained in dry air and latent heat is the energy contained within the moisture of the air. The latent heat load from the outdoor fresh air on an air conditioning system can often be two to three times that of the sensible heat load and in the winter it is a significant part of a humidification heat load.

During both the summer and winter, the ERW transfers moisture entirely in the vapor phase. This eliminates wet surfaces that retain dust and promote fungal growth as well as the need for a condensate pan and drain to carry water.

Because it is constantly rotating when in the air stream, the ERV is always being cleaned by air, first in one direction then the other. Because it is always dry, dust or other particles impinging on the surface during one half cycle, are readily removed during the next half cycle.

During the heating season, when outdoor air temperatures are below 15°F, it is recommended to use the (optional) low ambient kit (field installed).

Low Ambient Kit is appropriate for climates with limited HVAC system operation when outdoor temperatures are below 10°F.

The frost threshold is the outdoor temperature at which frost will begin to form on the ERV wheel. For Energy Recovery Ventilators, the frost threshold is typically below 10°F. Frost threshold is dependent on indoor temperature and humidity. The table shows how the frost threshold temperatures vary depending on indoor conditions

| FROST THRESHOLD TEMPERATURE | |
|-----------------------------|-----------------------------|
| INDOOR RH AT 70°F | FROST THRESHOLD TEMPERATURE |
| 20% | 0°F |
| 30% | 5°F |
| 40% | 10°F |

Because Energy Recovery Ventilators have a low frost threshold, frost control options are not necessary in many climates. Where outdoor temperatures may drop below the frost threshold during the ERV operational hours, exhaust only frost control option is available.

Low Ambient Kit (Optional)

Low Ambient Kit turns off the supply blower when outdoor temperatures fall below the frost threshold. The exhaust only thermostat set points are field adjustable. Supply fan operation is automatically restored when the exhaust air temperature rises above the thermostat set point. Provisions for introducing make-up air into the building when the supply blower is off to avoid depressurization should be considered.

Recovery Wheel Mode

On a thermostat call for blower operation in heating, cooling or continuous blower, the ERW will rotate between fresh air and exhaust air streams. Both the fresh air and exhaust air blowers will also be operating to overcome the air resistance of the ERV.

IX - System Check

1. Disconnect main power.
2. Turn to "Cont" for blower operation on thermostat controlled models.
3. Restore power to unit. Observe ERV wheel rotation and both fresh air and exhaust air blowers will operating.

Note: If Low ambient kit is used the jumper between TB37-5 & TB37-6 should be removed. Also if system check out is being conducted at low ambient temperatures, technician should be aware that this kit can cause system not to operate.

4. Verify that the ERV (3) three phase blower motors are phased sequentially ensuring correct rotation and operation.
 - a. Disconnect power.

- b. Reverse any two field power leads to the ERV.
 - c. Reapply power.
5. Verify that both blower motors are operating under their full load AMP rating (FLA). The FLA can be found on each motor and the unit nameplate

A - Return Damper Settings

Manually adjust position of field installed dampers to balance air flow.

B - Air Flow / Blower Speed Adjustment

Blower speed selection is accomplished by changing the sheave setting on both fresh air and exhaust air blowers. To set ERV for the required air flow (CFM), the external static pressure applied to the ERV (duct static) must be known. See the CFM vs External Static Pressure chart for the appropriate unit to determine the correct blower RPM for the specified CFM and External Static Pressure.

After blower speed adjustments have been made. Ensure that when the belt is replaced it is tensioned correctly. The motor mounting plate can be adjusted to tension the belt. If using a belt tension checker, adjust the span to the appropriate setting and check the belt deflection force. The belt deflection force should be between 5-8 lbs or the lowest tension at which the belt will not slip under peak load conditions.

5. Disconnect main power to unit before making adjustment to economizer and/or ERV unit.
6. Replace ERV control access cover.
7. Set thermostat to normal operating position.
8. Restore power to unit.

X - Maintenance

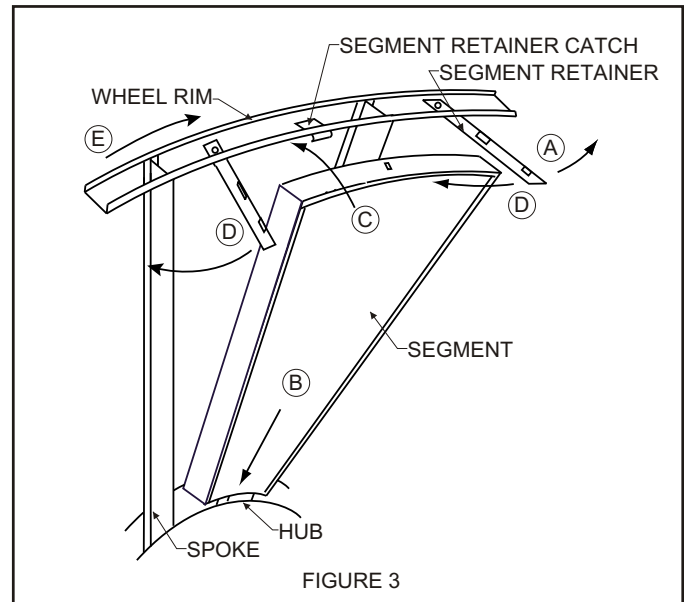
1. All motors use prelubricated sealed bearings; no further lubrication is necessary.
2. Make visual inspection of motors, belts and wheel rotating bearings during routine maintenance.
3. Eight pie-shaped segments, are seated on stops between the segment retainer which pivots on the wheel rim and secured to the hub and rim of wheel. Annual inspection of the self cleaning wheel is recommended. With power disconnected, remove ERV access panels (rear) and unplug [J150 & P150] (**Refer to wiring diagram in this instruction manual**). Remove segment and wash with water and/or mild detergent.
4. To install wheel segments follow steps A through E . **See Figure 3.** Reverse procedure for segment removal.
 - a. Unlock two segment retainers (one on each side of the selected segment opening).
 - b. With the embedded stiffener facing the motor side, insert the nose of the segment between the hub plates.
 - c. Holding segment by the two outer corners, press the segment towards the center of the wheel and inwards against the spoke flanges. If hand pressure does not fully seat the segment, insert the flat tip of a screw driver between the wheel rim and outer corners of the segment and apply downward force while guiding the segment into place.

- d. Close and latch each segment retainer under segment retaining catch.
- e. Slowly rotate the wheel 180°. Install the second segment opposite the first for counterbalance. Rotate the two installed segments 90° to balance the wheel while the third segment is installed. Rotate the wheel 180° again to install the fourth segment opposite the third. Repeat this sequence with the remaining four segments.

XI - Pulley Kit Installation

The units are shipped from the factory at the low static setting. Pulley kits are available for the medium and high static settings. To install a pulley kit.

1. Check content of pulley kit, if pulley kit contains:
 - a. An adjustable sheave and a fixed pitch pulley then remove belt and both motor and blower pulley
 - b. An adjustable sheave then remove the motor pulley.
 - c. A fixed pitch pulley then remove the blower pulley.
2. Replace pulley(s) with the pulley(s) from pulley kit. Make sure each pulley is installed with a key. Tighten the set screw on the pulley(s) to 100 in.lb.
3. Install the belt that came with the pulley kit. Tension belt as explained in the blower speed adjustment section.
4. Check the speed of the blower. Adjust the motor sheave to increase or decrease the speed of the blower. See blower adjustment section.

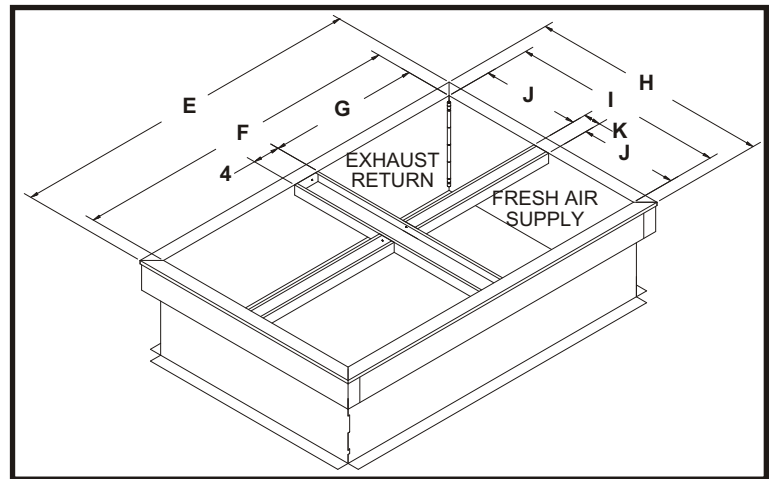
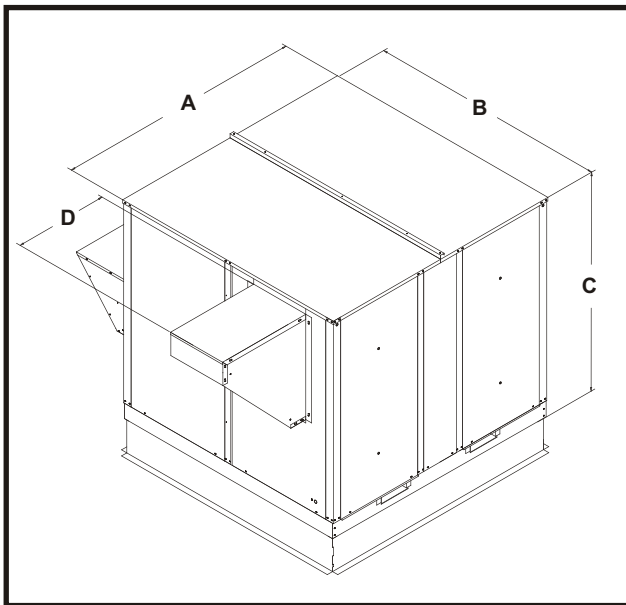
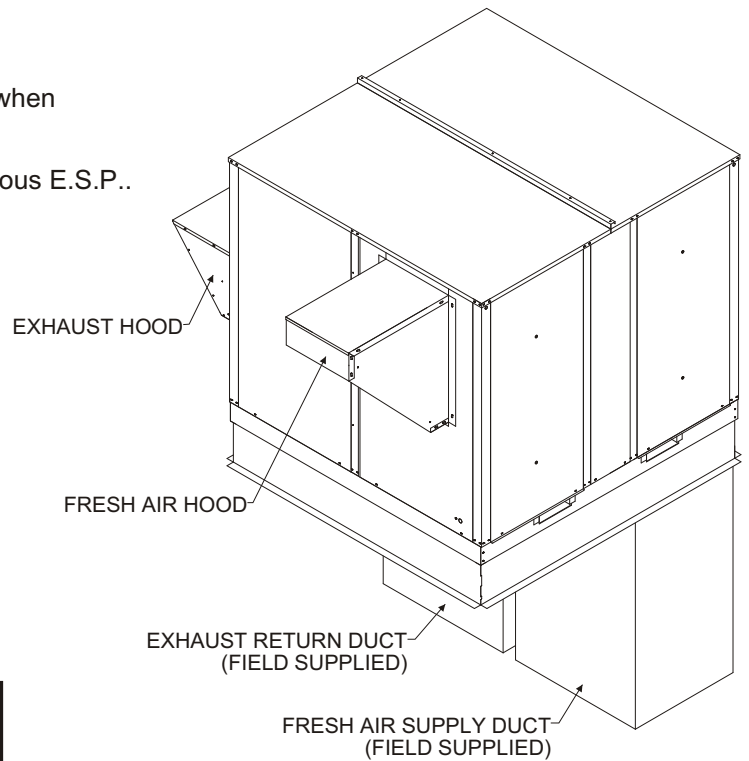


Stand Alone ERV'S For Down Discharge Duct Arrangements

Features and Notes

1. Stand alone design allows higher levels of outdoor air to be introduced into the a/c space.
2. Static test ports provided to verify intake and exhaust CFM.
3. Balancing damper(s) field supplied in duct work when connected to ERV.
4. Roof curbs are available for the ERV's.
5. See blower performance charts for airflow at various E.S.P..
6. Filter rack with 2" pleated filters included.

| Roof Curbs (Option Codes) | | |
|---------------------------|---------|---------|
| Size | 14" | 24" |
| 11 | CJ51-11 | CJ52-11 |
| 20 | CJ51-20 | CJ52-20 |
| 28 | CJ51-28 | CJ52-28 |
| 36 | CJ51-36 | CJ52-36 |
| 46 | CJ51-46 | CJ52-46 |
| 62 | CJ51-62 | CJ52-62 |



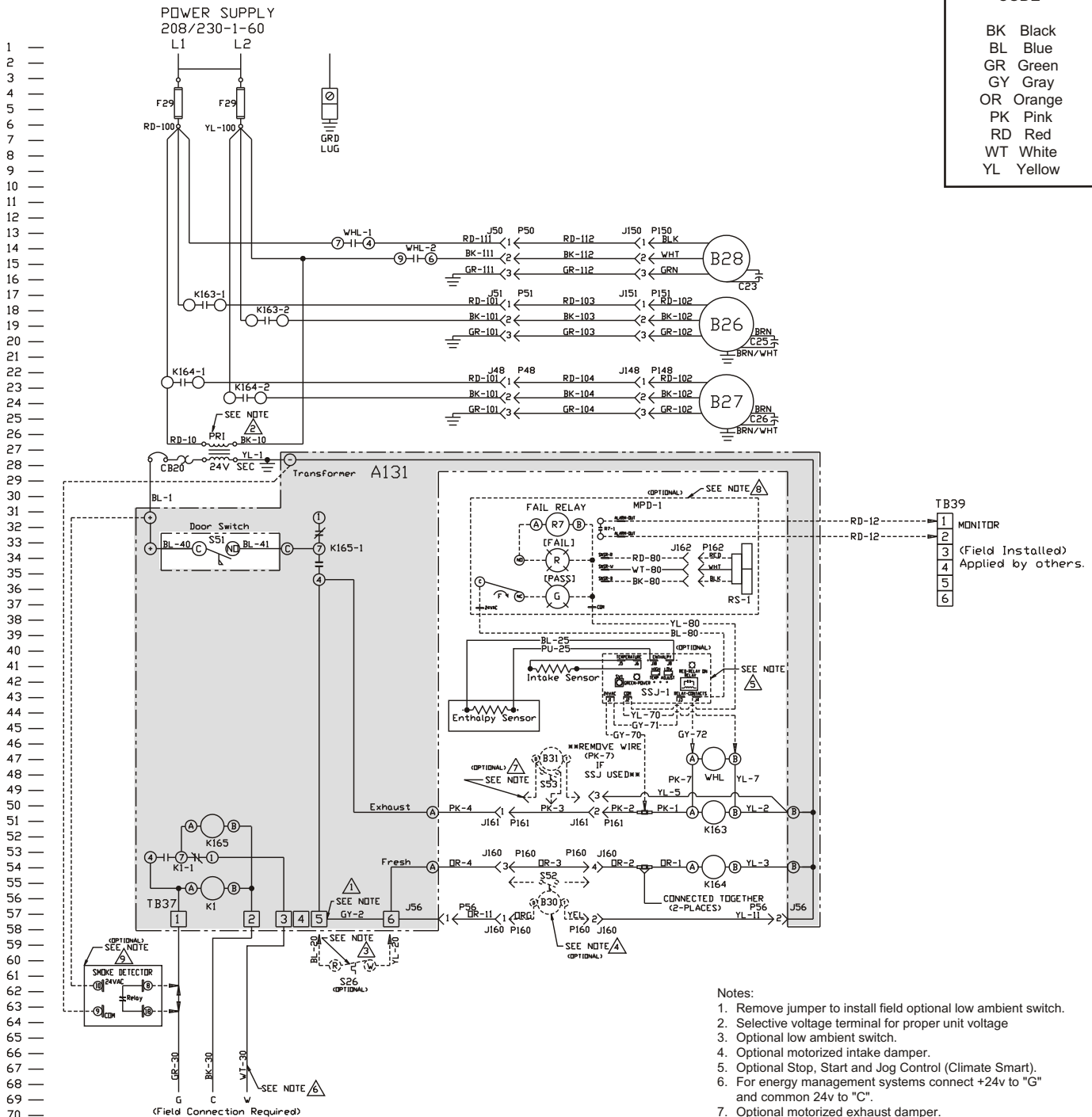
| ERV Data | | | Dimensional Data | | | | | | | | | | |
|----------|-----------|-------------------|------------------|-------|-------|-------|-----------|-------|-------|-------|-------|-------|------|
| Size | CFM Range | Duct Size (G x J) | ERV | | | | Roof Curb | | | | | | |
| | | | A | B | C | D | E | F | G | H | I | J | K |
| 11 | 300-1100 | 17.00 x 11.38 | 44.75 | 32.13 | 33.50 | 14.38 | 43.00 | 39.00 | 17.50 | 30.25 | 26.25 | 11.88 | 2.50 |
| 20 | 1200-2000 | 21.88 x 14.00 | 54.36 | 37.25 | 37.50 | 17.50 | 52.75 | 48.75 | 22.38 | 35.50 | 31.50 | 14.50 | 2.50 |
| 28 | 1200-2800 | 20.25 x 17.00 | 52.25 | 42.63 | 43.56 | 25.50 | 49.50 | 45.50 | 20.75 | 41.00 | 37.00 | 17.50 | 2.00 |
| 36 | 2000-3600 | 23.38 x 17.38 | 60.00 | 46.69 | 57.37 | 25.50 | 55.75 | 51.75 | 23.88 | 41.81 | 37.81 | 17.91 | 2.00 |
| 46 | 3000-4600 | 23.38 x 20.38 | 60.00 | 52.69 | 57.37 | 28.06 | 55.75 | 51.75 | 23.88 | 47.81 | 43.81 | 20.91 | 2.00 |
| 62 | 4600-6200 | 29.38 x 30.00 | 72.00 | 70.88 | 63.63 | 37.75 | 67.75 | 63.75 | 29.88 | 66.00 | 62.00 | 30.50 | 2.00 |

COMPONENT CODE

| | | | | | |
|------|----------------------------------|-------|---|------|------------------------------------|
| A131 | Fixed Relay Board | J150 | Jack, Wheel Motor Harness | P161 | Plug, Damper Exhaust Motor Harness |
| B26 | Motor, Exhaust Air | J151 | Jack, Exhaust Air Motor Harness | RS-1 | Rotation Sensor (Optional) |
| B27 | Motor, Intake Air | J160 | Jack, Damper Intake Motor Harness | S26 | Switch, Low Ambient (Optional) |
| B28 | Motor, Desiccant Wheel | J161 | Jack, Damper Exhaust Motor Harness | S51 | Switch, Door |
| B30 | Motor, Damper Intake (Optional) | K163 | Contact, Exhaust Air Motor | S52 | Switch, Damper Intake |
| B31 | Motor, Damper Exhaust (Optional) | K164 | Contact, Intake Air Motor | S53 | Switch, Damper Exhaust |
| C23 | Capacitor, Wheel Motor | MPD-1 | Missing Pulse Detector Board (Optional) | SD | Smoke Detector (Optional) |
| C25 | Capacitor, Exhaust Air | P48 | Plug, Intake Air Motor Harness | SSJ | Climate Smart Board (Optional) |
| C26 | Capacitor, Intake Air | P50 | Plug, Wheel Motor Harness | T27 | Transformer, Control |
| F29 | Fuse | P51 | Plug, Exhaust Air Motor Harness | T28 | Transformer, Step-down (Optional) |
| J48 | Jack, Control Box (Intake Air) | P56 | Plug, Damper Motor Harness | TB37 | Terminal Block (Low Voltage) |
| J50 | Jack, Control Box (Wheel) | P148 | Plug, Intake Air Motor | TB39 | Terminal Block (Monitoring) |
| J51 | Jack, Control Box (Exhaust Air) | P150 | Plug, Wheel Motor | WHL | Relay, Wheel Motor |
| J56 | Jack, Control Box (Damper) | P151 | Plug, Exhaust Air Motor | | |
| J148 | Jack, Intake Air Motor Harness | P160 | Plug, Damper Intake Motor Harness | | |

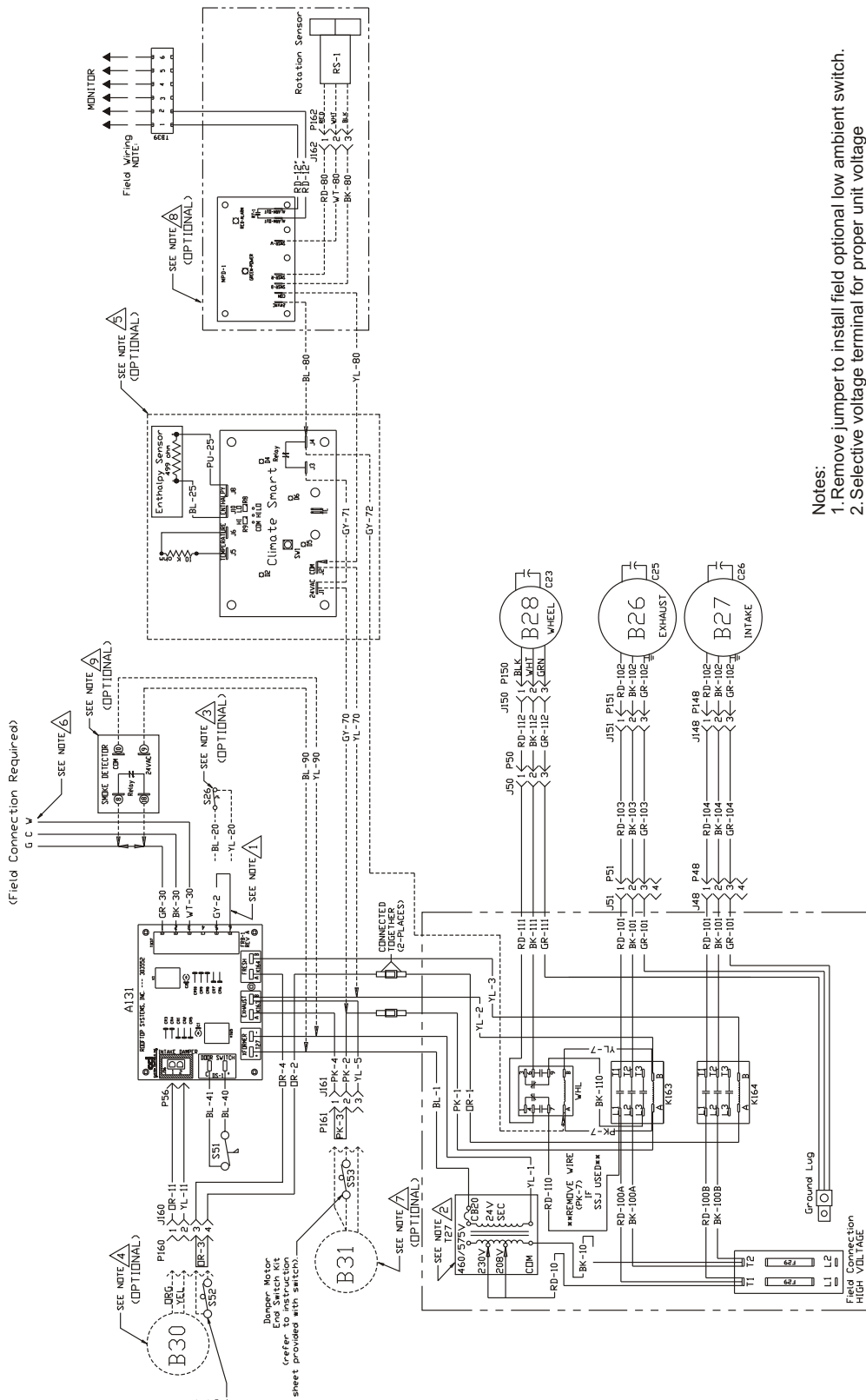
WIRE COLOR CODE

| | |
|----|--------|
| BK | Black |
| BL | Blue |
| GR | Green |
| GY | Gray |
| OR | Orange |
| PK | Pink |
| RD | Red |
| WT | White |
| YL | Yellow |



D11-21-2ZERV

ERV UNIT WIRING DIAGRAM



- Notes:**
1. Remove jumper to install field optional low ambient switch.
 2. Selective voltage terminal for proper unit voltage
 3. Optional low ambient switch.
 4. Optional motorized intake damper.
 5. Optional Stop, Start and Jog Control (Climate Smart).
 6. For energy management systems connect +24v to "G" and common 24v to "C".
 7. Optional motorized exhaust damper.
 8. Optional wheel rotation sensor.
 9. Optional smoke detector.

Desiccant Wheel for Rooftop Unit
208-230V (1 PH)

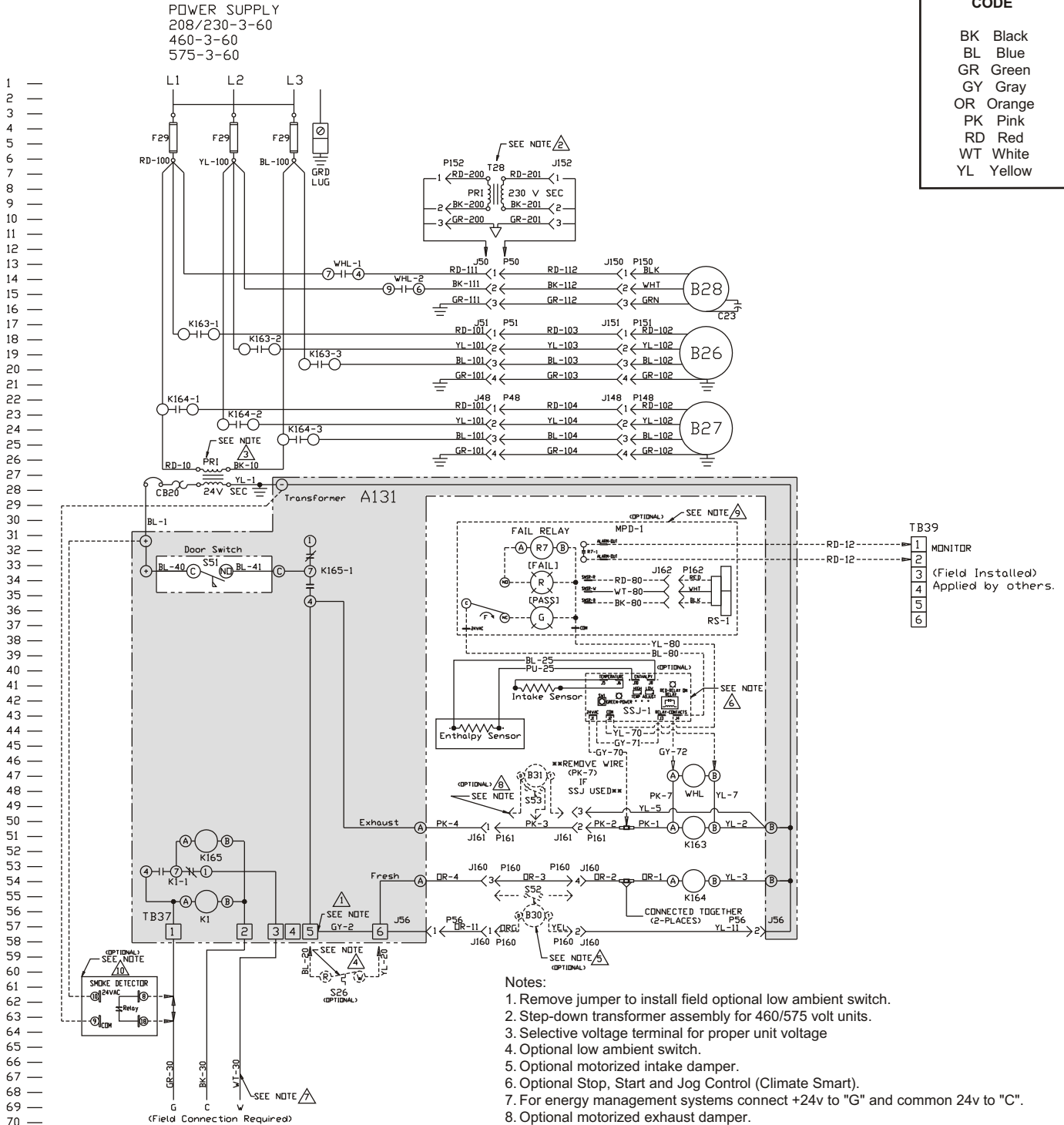
Unit#: 01-D11-02XX-21

COMPONENT CODE

| | | | | | |
|------|----------------------------------|-------|---|------|------------------------------------|
| A131 | Fixed Relay Board | J152 | Jack, Transformer (High Voltage) | P161 | Plug, Damper Exhaust Motor Harness |
| B26 | Motor, Exhaust Air | J160 | Jack, Damper Intake Motor Harness | RS-1 | Rotation Sensor (Optional) |
| B27 | Motor, Intake Air | J161 | Jack, Damper Exhaust Motor Harness | S26 | Switch, Low Ambient (Optional) |
| B28 | Motor, Desiccant Wheel | K163 | Contactor, Exhaust Air Motor | S51 | Switch, Door |
| B30 | Motor, Damper Intake (Optional) | K164 | Contactor, Intake Air Motor | S52 | Switch, Damper Intake |
| B31 | Motor, Damper Exhaust (Optional) | MPD-1 | Missing Pulse Detector Board (Optional) | S53 | Switch, Damper Exhaust |
| C23 | Capacitor, Wheel Motor | P48 | Plug, Intake Air Motor Harness | SD | Smoke Detector (Optional) |
| F29 | Fuse | P50 | Plug, Wheel Motor Harness | SSJ | Climate Smart Board (Optional) |
| J48 | Jack, Control Box (Intake Air) | P51 | Plug, Exhaust Air Motor Harness | T27 | Transformer, Control |
| J50 | Jack, Control Box (Wheel) | P56 | Plug, Damper Motor Harness | T28 | Transformer, Step-down (Optional) |
| J51 | Jack, Control Box (Exhaust Air) | P148 | Plug, Intake Air Motor | TB37 | Terminal Block (Low Voltage) |
| J56 | Jack, Control Box (Damper) | P150 | Plug, Wheel Motor | TB39 | Terminal Block (Monitoring) |
| J148 | Jack, Intake Air Motor Harness | P151 | Plug, Exhaust Air Motor | WHL | Relay, Wheel Motor |
| J150 | Jack, Wheel Motor Harness | P152 | Plug, Transformer (High Voltage) | | |
| J151 | Jack, Exhaust Air Motor Harness | P160 | Plug, Damper Intake Motor Harness | | |

WIRE COLOR CODE

| | |
|----|--------|
| BK | Black |
| BL | Blue |
| GR | Green |
| GY | Gray |
| OR | Orange |
| PK | Pink |
| RD | Red |
| WT | White |
| YL | Yellow |

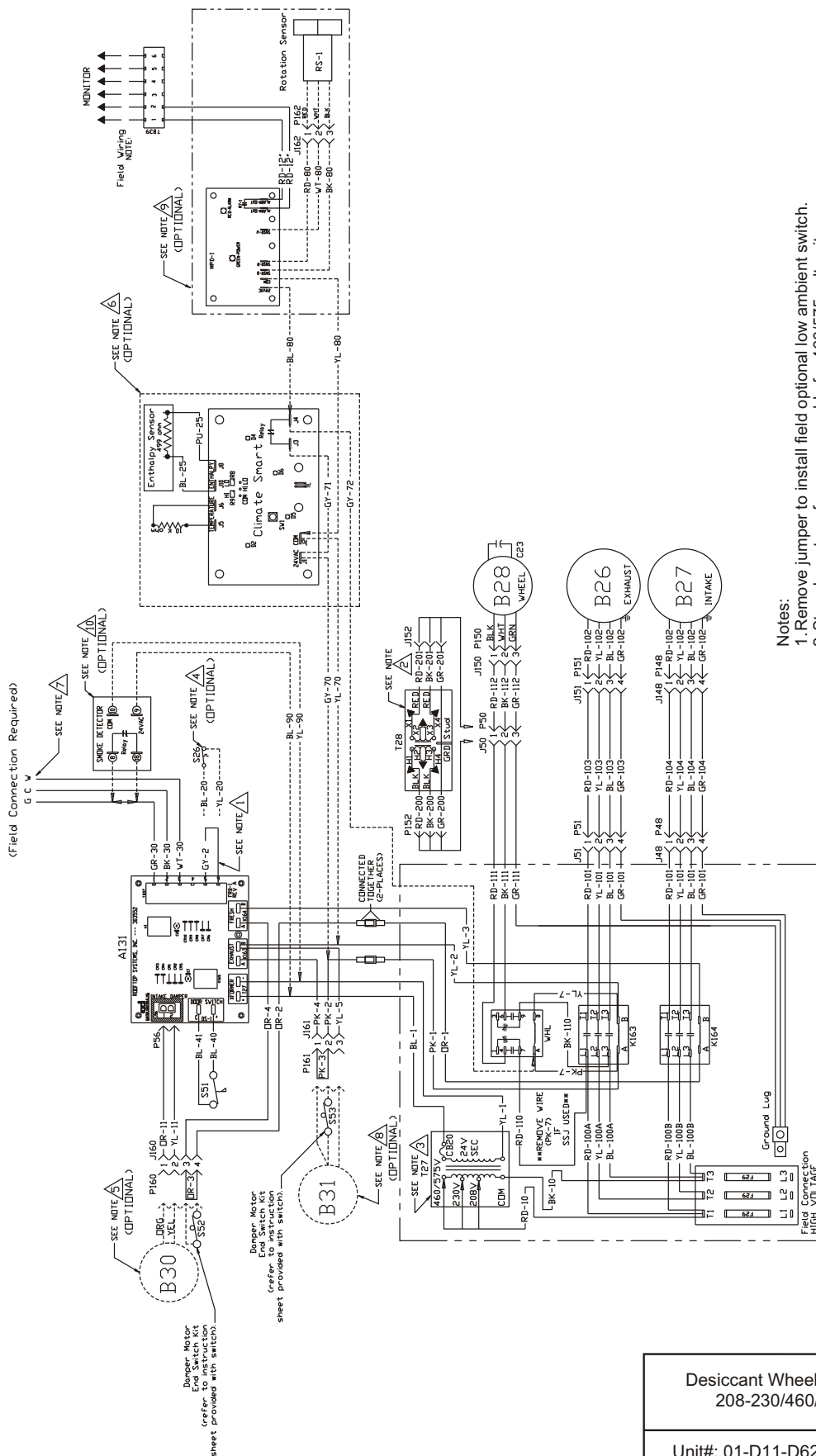


Notes:

1. Remove jumper to install field optional low ambient switch.
2. Step-down transformer assembly for 460/575 volt units.
3. Selective voltage terminal for proper unit voltage
4. Optional low ambient switch.
5. Optional motorized intake damper.
6. Optional Stop, Start and Jog Control (Climate Smart).
7. For energy management systems connect +24v to "G" and common 24v to "C".
8. Optional motorized exhaust damper.
9. Optional wheel rotation sensor.
10. Optional smoke detector.

D11-D62-2ZERV

ERV UNIT WIRING DIAGRAM



Desiccant Wheel for Rooftop Unit
208-230/460/575V (3 PH)

Unit#: 01-D11-D62-02XX-23 thru -43

Blower RPM for XBWS11 w/AQ21

SUPPLY




| | | Mist Eliminator Filter in Intake Hood (1.5HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 300 | N/A | N/A | 1175 | 1350 | 1450 | 1605 | 1730 |
| | 500 | N/A | 1170 | 1340 | 1540 | 1655 | 1725 | 1840 |
| | 700 | 1295 | 1425 | 1600 | 1625 | 1795 | 1960 | 2035 |
| | 900 | 1540 | 1660 | 1720 | 1790 | 2030 | 2110 | 2195 |
| | 1100 | 1785 | 1915 | 2025 | 2185 | N/A | N/A | N/A |

EXHAUST

| | | Barometric Hood, 2" Pleated Filters (1.5HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 300 | N/A | N/A | 1030 | 1225 | n/a | n/a | n/a |
| | 500 | N/A | 1025 | 1180 | 1265 | 1425 | 1535 | n/a |
| | 700 | 1120 | 1190 | 1340 | 1445 | 1540 | 1645 | 1720 |
| | 900 | 1285 | 1525 | 1500 | 1575 | 1670 | 1785 | 1865 |
| | 1100 | 1570 | 1665 | 1670 | 1775 | 1860 | 1920 | N/A |

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions.
3. Blower RPMs are for reference only.

| RPM Range | | | |
|---|--------|-----------|---------------|
|  | Low | 1000-1300 | Standard Unit |
|  | Medium | 1300-1700 | Optional Kit |
|  | High | 1750-2200 | Optional Kit |

Blower RPM for XBWS20 w/AQ21

SUPPLY




| | | Mist Eliminator Filter in Intake Hood (2HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 1200 | 1055 | 1135 | 1295 | 1420 | 1540 | 1650 | 1725 |
| | 1400 | 1140 | 1240 | 1340 | 1490 | 1600 | 1690 | 1795 |
| | 1600 | 1200 | 1330 | 1460 | 1565 | 1645 | 1740 | 1830 |
| | 1800 | 1320 | 1405 | 1525 | 1615 | 1705 | 1785 | 1885 |
| | 2000 | 1415 | 1515 | 1605 | 1690 | 1775 | 1875 | 1960 |

EXHAUST

| | | Barometric Hood, 2" Pleated Filters (2HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 1200 | 1010 | 1195 | 1350 | 1445 | 1580 | 1685 | 1735 |
| | 1400 | 1125 | 1315 | 1435 | 1545 | 1620 | 1730 | 1800 |
| | 1600 | 1185 | 1370 | 1500 | 1610 | 1695 | 1790 | 1965 |
| | 1800 | 1305 | 1485 | 1600 | 1685 | 1781 | 1955 | 2030 |
| | 2000 | 1410 | 1550 | 1670 | 1765 | 1855 | N/A | N/A |

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions.
3. Blower RPMs are for reference only.

| RPM Range | | | |
|---|--------|-----------|---------------|
|  | Low | 1000-1300 | Standard Unit |
|  | Medium | 1300-1700 | Optional Kit |
|  | High | 1700-2080 | Optional Kit |

Blower RPM for XBWS28 w/AQ21

SUPPLY

| | | Mist Eliminator Filter in Intake Hood (3HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 1200 | N/A | 790 | 960 | 1110 | 1210 | 1315 | 1380 |
| | 1600 | 750 | 900 | 1005 | 1145 | 1230 | 1365 | 1410 |
| | 2000 | 900 | 1005 | 1105 | 1210 | 1275 | 1400 | 1450 |
| | 2400 | 1005 | 1125 | 1210 | 1275 | 1365 | 1450 | 1500 |
| | 2800 | 1125 | 1230 | 1315 | 1380 | 1450 | 1535 | 1600 |

EXHAUST

| | | Barometric Hood, 2" Pleated Filters (3HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 1200 | 750 | 885 | 1015 | 1145 | 1260 | 1350 | 1485 |
| | 1600 | 870 | 1015 | 1125 | 1215 | 1325 | 1410 | 1500 |
| | 2000 | 1015 | 1145 | 1240 | 1345 | 1410 | 1485 | 1560 |
| | 2400 | 1125 | 1250 | 1345 | 1430 | 1500 | 1575 | 1630 |
| | 2800 | 1250 | 1410 | 1485 | 1520 | 1630 | 1650 | 1675 |

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions.
3. Blower RPMs are for reference only.

| | | RPM Range | | |
|--|--------|-----------|---------------|--|
| | Low | 750-975 | Standard Unit | |
| | Medium | 1008-1314 | Optional Kit | |
| | High | 1311-1708 | Optional Kit | |

Blower RPM for XBWS36 w/AQ21

SUPPLY

| | | Mist Eliminator Filter in Intake Hood (3HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 2000 | 725 | 825 | 900 | 1000 | 1070 | 1180 | 1250 |
| | 2400 | 800 | 900 | 1000 | 1070 | 1160 | 1250 | 1275 |
| | 2800 | 900 | 1000 | 1070 | 1160 | 1250 | 1275 | 1340 |
| | 3200 | 1000 | 1070 | 1160 | 1250 | 1275 | 1340 | 1400 |
| | 3600 | 1055 | 1180 | 1250 | 1300 | 1360 | N/A | N/A |

EXHAUST

| | | Barometric Hood, 2" Pleated Filters (3HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 2000 | 750 | 865 | 950 | 1030 | 1100 | 1200 | 1265 |
| | 2400 | 820 | 950 | 1035 | 1100 | 1200 | 1265 | 1300 |
| | 2800 | 925 | 1035 | 1150 | 1200 | 1265 | 1315 | 1350 |
| | 3200 | 1035 | 1160 | 1215 | 1265 | 1325 | 1350 | 1390 |
| | 3600 | 1100 | 1215 | 1300 | 1350 | 1390 | N/A | N/A |

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions.
3. Blower RPMs are for reference only.

| | | RPM Range | | |
|--|--------|-----------|---------------|--|
| | Low | 725-975 | Standard Unit | |
| | Medium | 1000-1315 | Optional Kit | |
| | High | 1215-1425 | Optional Kit | |

Blower RPM for XBWS46 w/AQ21

SUPPLY

| | | Mist Eliminator Filter in Intake Hood (5HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 3000 | 900 | 1030 | 1100 | 1165 | 1240 | 1285 | 1350 |
| | 3400 | 975 | 1085 | 1175 | 1240 | 1290 | 1350 | 1400 |
| | 3800 | 1070 | 1175 | 1240 | 1290 | 1350 | 1400 | 1465 |
| | 4200 | 1165 | 1240 | 1320 | 1350 | 1430 | 1465 | 1515 |
| | 4600 | 1240 | 1320 | 1375 | 1430 | 1500 | 1515 | 1580 |

EXHAUST

| | | Barometric Hood, 2" Pleated Filters (5HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 3000 | 955 | 1100 | 1160 | 1245 | 1280 | 1360 | 1425 |
| | 3400 | 1055 | 1185 | 1245 | 1300 | 1375 | 1425 | 1480 |
| | 3800 | 1160 | 1300 | 1360 | 1400 | 1425 | 1530 | 1585 |
| | 4200 | 1245 | 1375 | 1450 | 1480 | 1500 | 1585 | 1650 |
| | 4600 | 1360 | 1450 | 1500 | 1585 | 1600 | 1650 | 1700 |

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions.
3. Blower RPMs are for reference only.

| | | RPM Range | | |
|--|--------|-----------|---------------|--|
| | Low | 780-1020 | Standard Unit | |
| | Medium | 1000-1315 | Optional Kit | |
| | High | 1315-1700 | Optional Kit | |

Blower RPM for XBWS62 w/AQ21

SUPPLY

| | | Mist Eliminator Filter in Intake Hood (5HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 4600 | 815 | 900 | 975 | 1045 | 1085 | 1125 | 1175 |
| | 5000 | 880 | 940 | 1015 | 1060 | 1135 | 1175 | 1215 |
| | 5400 | 915 | 975 | 1045 | 1125 | 1150 | 1195 | 1250 |
| | 5800 | 975 | 1045 | 1085 | 1175 | 1250 | 1260 | N/A |
| | 6200 | 1000 | 1075 | 1165 | 1200 | N/A | N/A | N/A |

EXHAUST

| | | Barometric Hood, 2" Pleated Filters (5HP) | | | | | | |
|-----|------|---|------|------|------|------|------|------|
| | | External Static Pressure (in water) | | | | | | |
| | | 0 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 |
| CFM | 4600 | 825 | 915 | 1000 | 1025 | 1100 | 1140 | 1170 |
| | 5000 | 890 | 975 | 1025 | 1100 | 1140 | 1170 | 1240 |
| | 5400 | 925 | 1000 | 1085 | 1140 | 1170 | 1240 | 1280 |
| | 5800 | 975 | 1025 | 1140 | 1170 | 1240 | N/A | N/A |
| | 6200 | 1025 | 1120 | 1170 | N/A | N/A | N/A | N/A |

Notes:

1. Drive losses included in the above tables.
2. Performance can vary depending on ambient conditions.
3. Blower RPMs are for reference only.

| | | RPM Range | | |
|--|--------|-----------|---------------|--|
| | Low | 820-1000 | Standard Unit | |
| | Medium | 1000-1200 | Optional Kit | |
| | High | 1175-1375 | Optional Kit | |

START UP INFORMATION SHEET

VOLTAGE - ERV UNIT

Incoming Voltage L1-L2 _____ L1-L3 _____ L2-L3 _____
Running Voltage L1-L2 _____ L 1-L3 _____ L2-L3 _____
Secondary Voltage _____ C (black) to G (green) Volts* _____
C (black) to W (white) Volts* _____

* With thermostat calling.

AMPERAGE - ERV MOTORS

Intake Motor: Nominal HP _____ Rated Amps _____ Running Amps _____
Exhaust Motor: Nominal HP _____ Rated Amps _____ Running Amps _____
Wheel Motor: Nominal HP _____ Rated Amps _____ Running Amps _____

AIRFLOW

Intake Design CFM _____ Pressure Drop _____ Calculated CFM _____
Exhaust Design CFM _____ Pressure Drop _____ Calculated CFM _____
Amb. db Temp _____ Return Air db Temp* _____ Tempered Air db Temp* _____
Amb. wb Temp _____ Return Air wb Temp* _____ Tempered Air wbTemp* _____

* Measure after 15 minutes of run time

INSTALLATION CHECK LIST

ERV Model # _____ Serial # _____
Owner _____ Owner Phone # _____
Owner Address _____
Installing Contractor _____ Start Up Mechanic _____

- Inspect the unit for transit damage and report any damage on the carrier's freight bill.
- Check model number to insure it matches the job requirements.
- Install field accessories and unit adapter panels as required. Follow accessory and unit installation manuals.
- Verify field wiring, including the wiring to any accessories.
- Check all multi-tap transformers, to insure they are set to the proper incoming voltage.
- Verify correct belt tension, as well as the belt/pulley alignment. Tighten if needed.
- Prior to energizing the unit, inspect all the electrical connections.
- Power the unit. Bump the motor contactor to check rotation. Three phase motors are synchronized at the factory. If blower motor fans are running backwards, de-energize power to the unit, then swap two of the three incoming electrical lines to obtain proper phasing. Re-check.
- Perform all start up procedures outlined in the installation manual shipped with the unit.
- Fill in the Start Up Information as outlined on the opposite side of this sheet.
- Provide owner with information packet. Explain the thermostat and unit operation.

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