INSTALLATION INSTRUCTIONS FOR HIGH STATIC POWER EXHAUST BLOWER (PEB) AND HIGH STATIC POWER EXHAUST FAN WITH VARIABLE FREQUENCY DRIVE (PEV) USED 242-360 UNITS

SHIPPING AND PACKING LIST

Package 1 of 1 contains: See Illustration 1 and 2.
1 - Power Exhaust Assembly
   a. Outdoor Exhaust Air Hood(s) w/ Barometric Damper(s)
   b. Sub-Fused Control Box w/ Factory Installed High Voltage Connecting Harness
   c. Low Voltage Harness for Communication from Rooftop Unit.
1 - Adapter Panel
1 - Hardware Bag Assembly
   14' - Gasket ¾" x ¼"
   10 - Self-tapping Screw(s) #10-16 x ½"
1 - Installation Instructions
2 - Wiring Stickers
3 - Wire Ties

PRINCIPLE OF OPERATION

The power exhaust contains forward curve belt driven blower assemblies with (3) three phase motors using variable pitch sheaves on PEV models a variable frequency drive (VFD) in installed.

These blower assemblies are located in the cabinet that attaches to the rooftop unit horizontal return air section. When the rooftop unit provides a signal to operate, a contactor located in the power exhaust control box is energized, providing high voltage power to each motor. This allows the blower assemblies to exhaust air from the building through the return air duct work of the rooftop unit.

On the PEV models a pressure differential is measured between outside air and return air and a signal is sent to VFD for change of motor speed.

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a qualified installer or service agency.

CAUTION

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.
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.

REQUIREMENTS

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

SHIPPING DAMAGE

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

RIGGING UNIT FOR LIFTING

1. Maximum weight of PEB/PEV unit is - 631 Lbs. (Crated)
2. Remove crating and retrieve hardware bag that is attached to control box inside PEB/PEV. Also retrieve adaptor panels.
3. All PEB/PEV door panels must be in place for rigging.
4. Lifting lugs are supplied with the PEB/PEV unit. Loosen machine bolts and rotate lifting lug. Retighten bolt before lifting.

RIGGING UNIT FOR LIFTING

1. Disconnect all power to rooftop unit.
2. Remove the rooftop unit horizontal supply air and return air access panels. Also remove any hoods and/or barometric damper. Discard barometric damper and horizontal return air access panel. See Figure 1.
3. Locate J69 on rooftop unit, under side of damper on left hand side of the economizer area. See Figure 2 and 3. This connection will be used later.
4. Locate J218 on rooftop unit, under side of damper on right hand side of the economizer area. See Figure 2 and 4. This connection will be used later.
5. Install provided adapter panel using existing screws that were removed in Step 2.

**INSTALL POWER EXHAUST ASSEMBLY**

1. Using lifting lugs, raise PEB/PEV unit approximately three (3) feet. Remove nut and bolt assembly to slide telescoping part of leg out of guide from the top. Reinsert leg into bottom of guide having attached flat foot under unit. Do not fasten tightly, adjustment will need to be made when PEB/PEV is put into position on unit. See Figure 5.

2. Apply ¾” x ¼” gasket material (provided in hardware bag) to open side of PEB/PEV on the turned out flanges of this unit.

3. Locate the connector P218 wiring harness in the PEB/PEV. See Figure 6. Route harness into the return air of the rooftop unit near J218. See Figure 2 and 4. These harnesses will be connected after the PEB/PEV is attached to rooftop unit. Refer to wiring diagrams on Pages 8 thru 9.

4. Locate the connector P69 wiring harness in the PEB/PEV. Route harness into the return air of the rooftop unit near J69. Connect after power exhaust assembly is attached to rooftop unit. See Figure 7. Refer to wiring diagrams on Pages 8 thru 9.

5. Position PEB/PEV in front of horizontal exhaust air opening. Line up the PEB/PEV to the rooftop unit. Insure that there are not any screws on the rooftop unit that will interfere with the mounting flanges of the PEB/PEV and if so remove them.

6. Lower PEB/PEV onto rooftop unit base rail catching the front edge of the PEB/PEV bottom. Slide the PEB/PEV so that it is tight against the adapter panel and top panel holes align with adapter panel holes. Now secure PEB/PEV top and side to the rooftop unit with supplied screws. See Figure 8.

7. With the PEB/PEV in place, adjust the standoff legs to level and support PEB/PEV against rooftop unit. Tighten securely. Release all the weight from lifting crane. Rotate lifting lug to original position and tighten machine bolts. See Figure 9 and 10.

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**Note - Equipment support kit or equivalent should be used under feet of standoff legs to prevent roof damage.**
BLOWER SPEED ADJUSTMENT

Note - To access motor sheaves for center blower assembly, top panel of power exhaust will need to be removed.

Blower speed selection is accomplished by changing the sheave setting on exhaust air blowers. All blowers are factory set at “open” for minimum airflow. To determine airflow setting, measure the return duct static pressure and read CFM from table. Reference Tables.

PRESSURE TRANSDUCERS WITH VDC OUTPUT

<table>
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<tr>
<th>Range (w.c.)</th>
<th>Output</th>
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<td>0 to 1.0 / 0 to 0.5 / 0 to 0.25 / -0.5 to + 0.5 / -0.25 to + 0.25 / -0.125 to +0.125</td>
<td>0-10 VDC</td>
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Indicates Factory Setting

Wiring
Refer to PEB Power Exhaust unit diagram for detail connections.

Tubing
The high pressure tubing is coiled inside PEB/PEV and has a pressure tap on the end. This is 3 feet long and hangs inside the return air duct. Note: This tube may need to be replaced with a longer tube if specification calls for measuring room pressure. The low pressure tubing is factory mounted to the corner post of the PEB/PEV. Use flexible ¼” O.D. ⅝” I.D. tubing for the high and low pressure connections.

Adjustments

FIGURE 10

8. Check and seal, if necessary, along the edges where the PEB/PEV meets the rooftop unit to ensure there is no air leakage.
9. Remove access panels and connect P69 to J69 and P218 to J218.
   a. PEV models, drop provided sensor tube into return air
10. Replace access panels onto the PEB/PEV unit and secure.
11. Restore power to unit.
12. Once PEB/PEV is working properly, caulk any open joints, holes, or seams to make the units completely air and water tight.
13. Leave this instruction manual in the pouch on the inside of the control compartment door on the Lennox rooftop unit.

FIGURE 11

Never connect 120 Vac to these transducers. Never connect AC voltage to a unit intended for DC supply.
Checkout
1. Verify that the unit is mounted in the correct position.
2. Verify appropriate input signal and supply voltage.
3. Verify appropriate configuration range.

Transducer Operation
This is a rough functional check only.
1. Adjust the pressure by blowing into high pressure tube to obtain maximum output signal for appropriate range.
2. Output should be 10 Vdc.
3. Adjust the pressure by releasing pressure from high pressure tube to obtain minimum output signal.
4. Output should be 0 Vdc.

Note - For applications requiring a high degree of accuracy, the use of laboratory quality meters and gauges are recommended.

MAINTENANCE
Motor Maintenance
All motors use prelubricated sealed bearings; no further lubrication is necessary.

Mechanical Inspection
Make visual inspection of dampers, linkage assemblies and PEB/PEV rotating bearings during routine maintenance. To access blower pulley, belt and bearings for assembly behind control box. Remove (2) two screws on right side of box at the base. Then pivot box away from blower assembly. See Figure 13.

FIGURE 13

Belt and Pulley Alignment
Proper alignment is essential to maintain long V-Belt life. Belt alignment should be checked every time belt maintenance is performed, each time the belt is replaced, and whenever sheaves are removed or installed.

Belt Installation
Always move the drive unit forward so the belt can be easily slipped into the groove without forcing them. Never force the belt into a sheave with a screw driver or wedge. You will damage the fabric and break the cords. It is recommended that the pulley center distances be offset by ¾" for proper length. This will allow the motor assembly to slide forward to remove belt and backward for belt tension.

Belt Tension
Belt Tension should be checked at least every 6 months, more frequently in some applications. Measure the span length (center distance between pulleys when belt is snug). Mark center of span, then apply a force (6 to 9 Lbs on new belts) perpendicular to the span large enough to deflect the belt " for every inch in span length.
Variable Frequency Drive (VFD)
To access VFD remove access door opposite control box. See Figure 14. These VFD are preprogrammed. A list of the parameters are listed on Page 10 of this instruction.

For units that have bypass option, to switch to direct control from VFD control do the following steps.
1. Disconnect power at rooftop unit.
2. Remove access doors on each end.
3. Remove top panel of PEV.
4. Unplug each motor harness from wiring cap and connect to properly marked alternate cap. See Figure 15. Refer to wiring diagrams.
5. At control box remove jumper plug (J211) from top of box, and store inside control box.
6. Reattach top panel.
7. Place access doors back on each end of PEV.
8. Reconnect power at rooftop unit.
**High Static Power Exhaust Fans - 50%**

**Unit contains:**

- **Motors --** (2) @ 200-230/460 Volt, 2.0 HP, 3Ph, 1725 RPM, 50/60Hz, 6.5-6.6/3.3 FLA, 1.15 Service Factor, 56H Frame, Open Drip Proof, 7/8" x 2.31" shaft.
- **Motors --** (2) @ 575 Volt, 2.0 HP, 3Ph, 1725 RPM, 50/60Hz, 2.4 FLA, 1.15 Service Factor, 56H Frame, Open Drip Proof, 7/8" x 2.31" shaft.

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**Data contains a 10% belt loss factor.**

**High Static Power Exhaust Fans - 100%**

**Unit contains:**

- **Motors --** (3) @ 200-230/460 Volt, 2.0 HP, 3Ph, 1725 RPM, 50/60Hz, 6.5-6.6/3.3 FLA, 1.15 Service Factor, 56H Frame, Open Drip Proof, 7/8" x 2.31" shaft.
- **Motors --** (3) @ 575 Volt, 2.0 HP, 3Ph, 1725 RPM, 50/60Hz, 2.4 FLA, 1.15 Service Factor, 56H Frame, Open Drip Proof, 7/8" x 2.31" shaft.

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**Data contains a 10% belt loss factor.**
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COMPONENT
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A137
A141
A142
B35
B36
B37
F36
J69
J208
J209
J210
J211
J218
J265
K207
P69
P206
P209
P210
P211
P218
P265
TB13
TB24
TB58
A PANEL, MAIN
A INVERTER, EXHAUST 1
A INVERTER, EXHAUST 2
A INVERTER, EXHAUST 3
B MOTOR, EXH, BLO 1
B MOTOR, EXH, BLO 2
B MOTOR, EXH, BLO 3
F FUSE, INVERTER
J JACK, INTERFACE
J JACK, MOTOR, EXH BLO B35
J JACK, MOTOR, EXH BLO B36
J JACK, MOTOR, EXH BLO B37
J JACK, INVERTER EXH BLO, AUX
J JACK, CONTROL, INVERTER
J JACK, CONTACTORS AND RELAYS
K RELAY, EXH BLO, ADDER
P PLUG, INTERFACE
P PLUG, MOTOR, EXH BLO, B35
P PLUG, MOTOR, EXH BLO, B36
P PLUG, MOTOR, EXH BLO, B37
P PLUG, INVERTER, EXH BLO, AUX
P PLUG, CONTROL, INVERTER
P PLUG, CONTACTORS AND RELAYS
TB TERMINAL STRIP, POWER DISTRIBUTION
TB TERMINAL STRIP, UNIT ADDER
TB TERMINAL STRIP, INVERTER
NOTE - ALL REMAINING WIRES FACTORY INSTALLED

DENOTES OPTIONAL COMPONENTS
LINE VOLTAGE FIELD INSTALLED NEC/CEC CLASS I
NOTE - ALL REMAINING WIRES FACTORY INSTALLED

SEPARATE DISCONNECT WIRING WHEN NOT FACTORY INSTALLED
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