



ENERGENCE KITS AND ACCESSORIES

P36A-52LDW

July 12, 2010
Supersedes 02-15-10

50P3652xH ENERGY RECOVERY SYSTEM

INSTALLATION INSTRUCTIONS FOR ENERGY RECOVERY SYSTEMS (ERS) USED WITH ENERGENCE 156-300 SERIES UNITS



Patent# 5,548,970

ETL Certified
per UL 1995
and CSA 22.2

humidity is acceptable. During economizer operation, the ERS exhaust blower continues to run, providing power exhaust for the system. The intake blower is de-energized during economizer operation.

SHIPPING AND PACKING LIST

Package 1 of 1 contains: **See Illustration 1 and 2.**

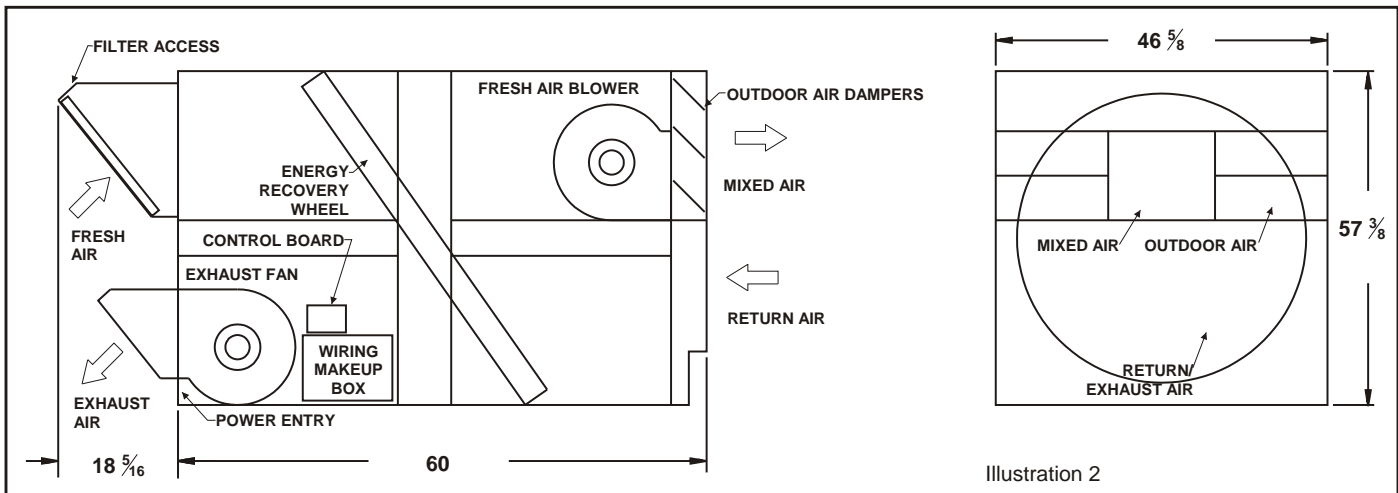
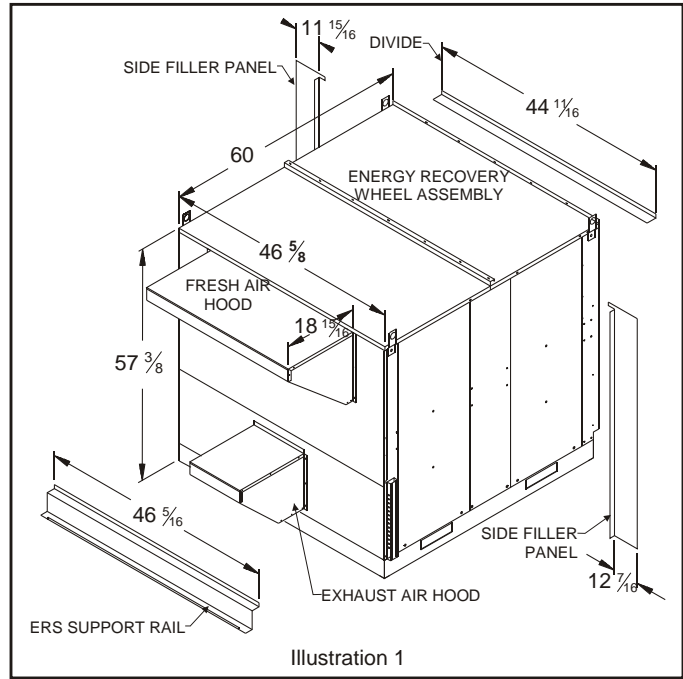
- 1 - Energy Recovery System Assembly
- 1 - Intake Air Hood with Filter
- 1 - Exhaust Hood(s) with Barometric Damper(s)
- 1 - ERS Support Rail
- 2 - Side Filler Panels
- 1 - Divider
- 1 - Hardware Bag:
 - 14 - Gasket $\frac{3}{4}$ " x $1\frac{1}{4}$ "
 - 7 - Gasket $\frac{1}{8}$ " x $\frac{1}{2}$ "
 - 1 - Field Wire Harness
 - 4 - Wire Ties
 - 10 - Self-tapping Screw(s) #10-16 x $\frac{1}{2}$ "
 - 8 - Gold Screw(s) #10-16 x $\frac{1}{2}$ "
 - 5 - Mounting Screw(s) #14-16 x $\frac{3}{4}$ "
 - 1 - Installation Instructions
 - 2 - Wiring Sticker(s)

PRINCIPLE OF OPERATION

The ERS enthalpy wheel contains parallel layers of a polymeric material that are impregnated with silica gel (desiccant). The wheel is located in the entering (intake) air and exhaust air streams of the ventilation equipment. As the wheel rotates through each air stream, the wheel surface adsorbs sensible and latent energy. In the heating mode, the wheel rotates to provide a constant transfer of heat from the exhaust air stream to the colder intake air stream. During the cooling season, the process is reversed. When the temperatures are mild the wheel pivots out of the air stream to allow economizer to operate normally for "free cooling" when outdoor temperature and

! 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

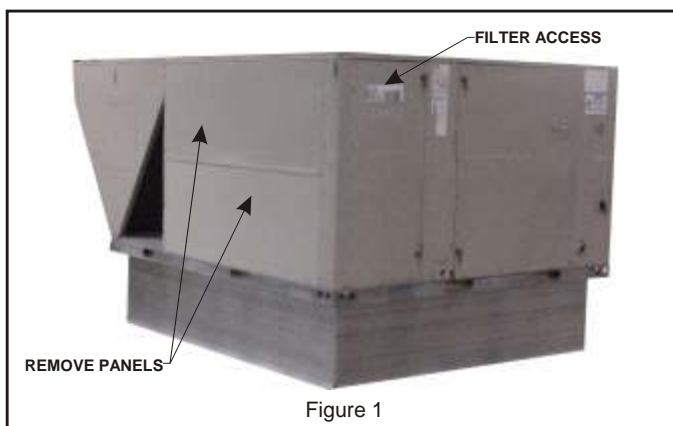
Check unit for shipping damage. Receiving party should contact last carrier immediately if shipping damage is found.

RIGGING UNIT FOR LIFTING

1. Maximum weight of unit is — 1150 Lbs.
2. Remove crating and retrieve hardware bag that is attached to back of control box inside ERS. Also retrieve ERS support rail, (2) side filler panels and divider panel.
3. All ERS door panels must be in place for rigging.
4. Lifting lugs are supplied with the unit. Loosen machine bolts and rotate lifting lug. Retighten bolt before lifting.

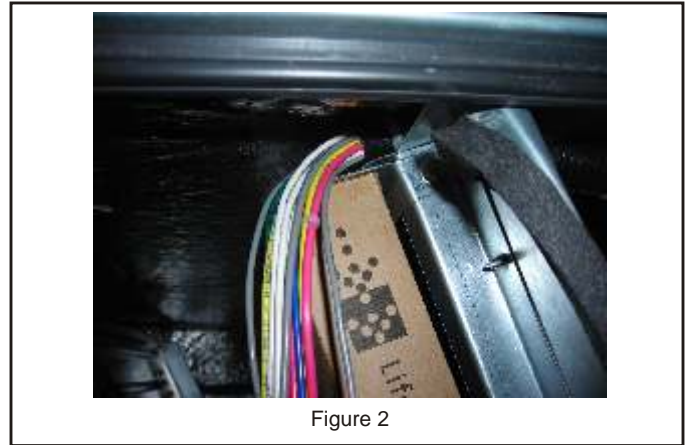
ROOFTOP UNIT PREPARATION

1. Disconnect all power to rooftop unit.
2. Open filter access door. If installing a pivoting wheel, verify and/or install an internal modulating economizer.
3. Remove the rooftop unit horizontal supply air and return air access panels. Also remove any hoods and/or power exhaust equipment, and horizontal supply and return air access panels. **See Figure 1.**

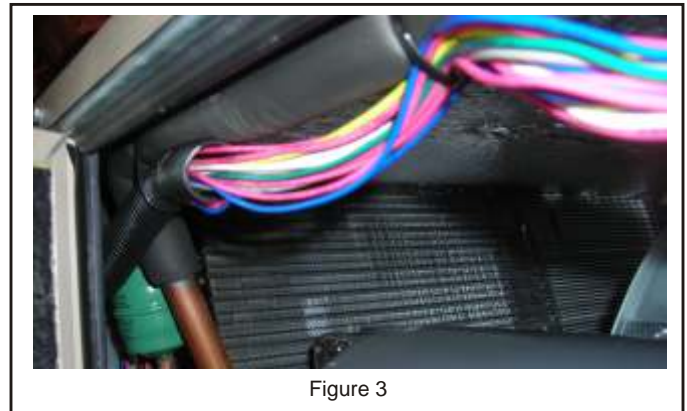


4. If a factory install ERS Harness (J298/P153) is installed go to **Step 5**, otherwise use the provided harness from the hardware bag within the ERS and complete the following steps.

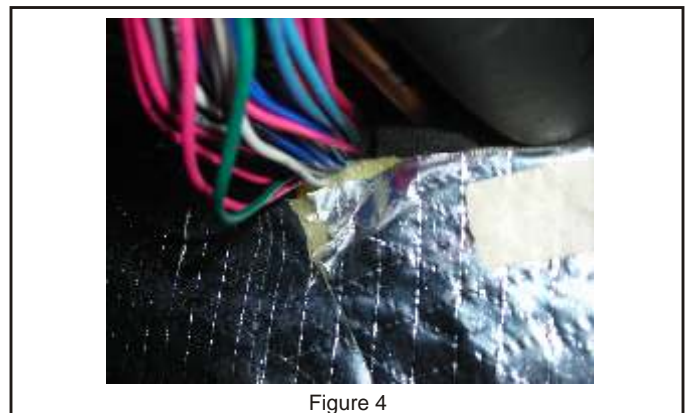
- A. Locate the field harness from the hardware bag shipped inside the ERS.
- B. With door panels open on the economizer and control side of RTU, route the wire harness bare ends (3 wires Green, Pink and Black) from economizer section along the RTU wire at the top of unit and through panel above the filter rack. **See Figure 2.**



- C. Follow wires all the way through blower section. **See Figure 3.**



- D. Continue to follow wires along the top and through divider panel into the control center. **See Figure 4.**



- E. Route wire through the control section down to the M2 Control board. Strip the wire ends 3/8" if they have not been pre-done. Place the Green wire under screw terminal at J298-8 (Purple connector). Do the same routine for Pink at J298-10 and Black to J298-9. **See Figure 5.**

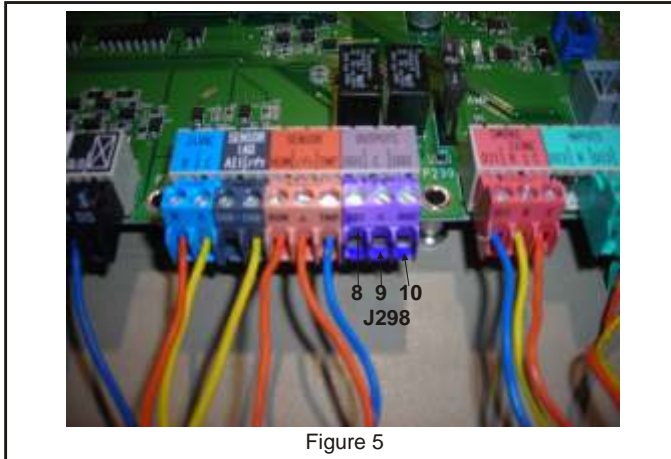


Figure 5

4. Remove both of the clips that are mounted to the upper spacer panel of the unit. **See Figure 6.**

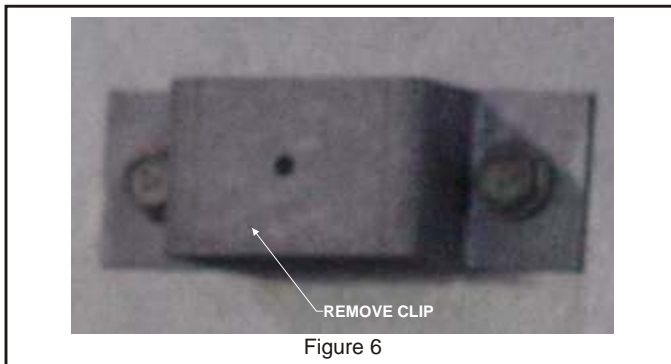


Figure 6

5. The economizer may use an A7 enthalpy sensor located on the division panel between the economizer outdoor air and return air dampers. If present, the sensor must be moved to the intake air section of the ERS. Disconnect sensor A7 wires from logic module, remove screws securing the sensor, and retain sensor assembly and screws. **See Figure 7.**



Figure 7

6. Using wire ties neatly route the wires to clear any moving parts.

7. Route the 6-pin connector P153 and wiring harness under the economizer and out the return air. Coil excess wire and route into return air of the rooftop unit. **See Figure 8.**



Figure 8

INSTALL ENERGY RECOVERY SYSTEM

1. Position ERS support rail with notched flange pointing away from rooftop unit. Center the ERS support rail by using the center hole of plate and aligning it with the center hole in the base pan of the return opening. Use (5) of the #14-16 x 3/4" screws provided to secure plate to base of unit. Apply 3/4" x 1 1/4" gasket along face of the support rail. **See Figure 9.**

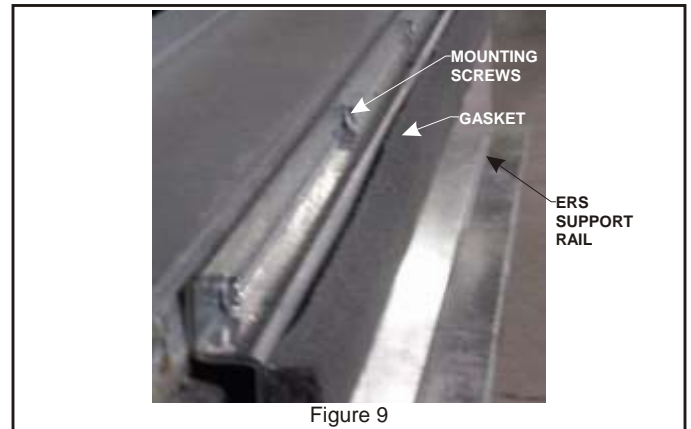


Figure 9

2. Install divider. Attaching to rooftop unit division panel with 1" flange pointing upward. This part has slots to aid in setting to proper position (Approx. 1" away from divider edge). Apply 3/4" x 1 1/4" gasket to front edge of seal stop. **See Figure 10.**

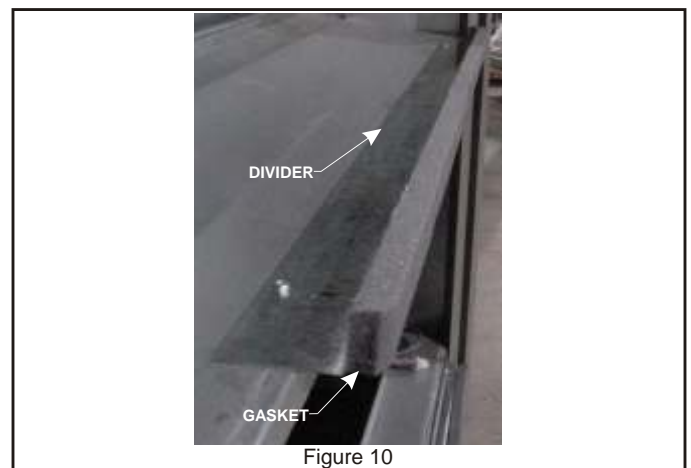


Figure 10

- Remove all screws holding the corner of top panel of rooftop unit around the horizontal exhaust air opening. Ensure that the top panel will move upward at least 2".
- Using lifting lugs, raise ERS unit approximately three (3') feet. Remove nut and bolt assembly to slide telescoping part of leg out of guide from the top and reinsert into bottom of guide having attached flat foot under unit. Do not fasten tightly, adjustment will need to be made when ERS is put into position on unit. **See Figure 11 and Figure 12.**

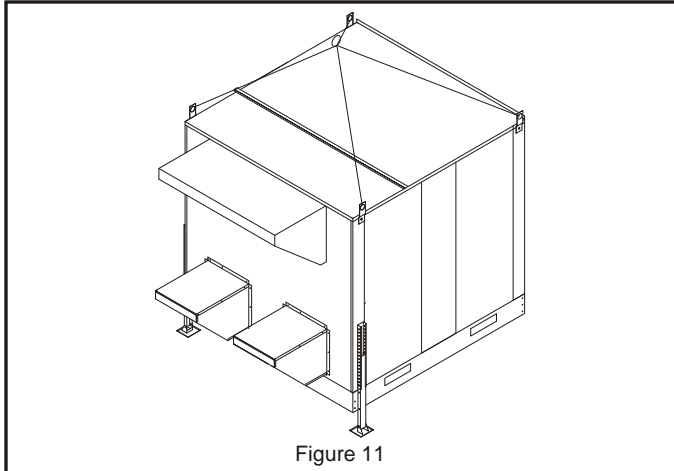


Figure 11



Figure 12

Note: *Equipment support kit or equivalent should be used under feet of standoff legs to prevent roof penetration. See Figure 12*

- Position ERS in front of horizontal exhaust air opening. Line up the ERS to the rooftop unit. Ensure that there are not any screws on the rooftop unit that will interfere with the mounting flanges of the ERS and if so remove them.
- Install the side filler panel that is closest to the filter access panel of the unit. Remove the 1st, 3rd, 5th screws from the bottom in the corner post along the return air opening. Set the side filler panel so the screws removed can be reinstalled to same holes. **See Figure 13.**

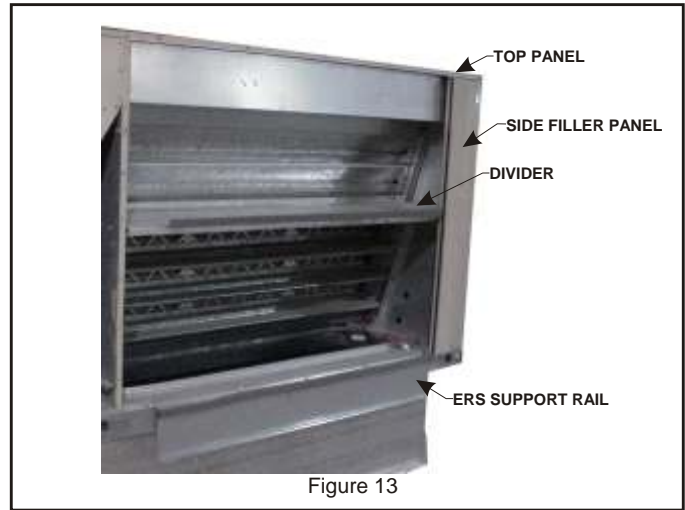


Figure 13

- Lower ERS into ERS support rail catching the front edge of the ERS bottom into the 1/2" flange. Tuck the front top flange of ERS under the rooftop unit top panel. Slide the ERS so that it is tight against the side filler. Now secure unit top and side filler to the ERS. **See Figures 14.**

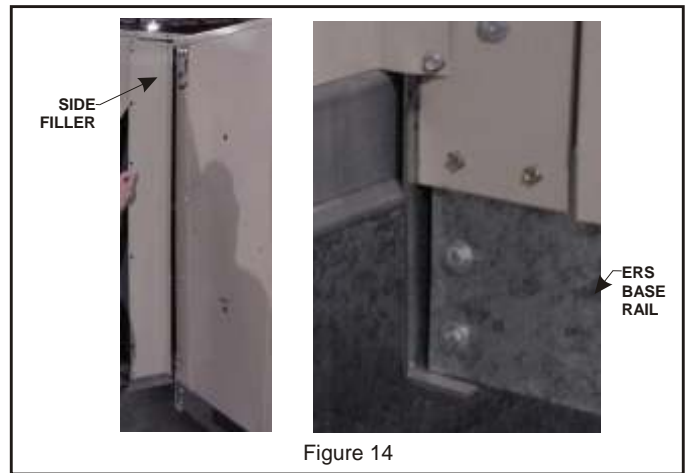


Figure 14

- With the ERS in place, adjust the telescoping legs to level and support ERS against rooftop unit. Tighten securely. Rotate lifting lug to original position and tighten machine bolts.
- Insert remaining side filler panel having notched corner at the top. Tuck top edges of filler panel under top panel of rooftop unit and ERS unit. **See Figure 15.**



Figure 15

10. Check and seal, if necessary, along the edges where the ERS meets the rooftop unit to ensure there is no air leakage. Final assembly should resemble **Figure 16**.



Figure 16

11. Remove the control access panel and locate the 6-pin connector P153 wiring harness that was previously routed into the return air of the rooftop unit. Plug the harness connector P153 into the connector J153 located at the bottom of the access door inside the ERS. See **Figure 17** and **Figure 18**.

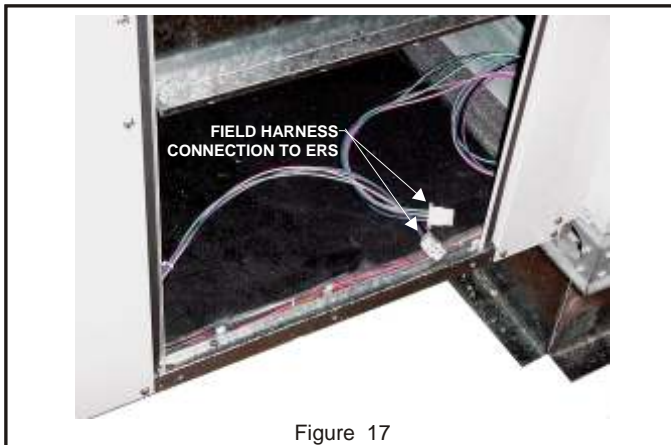
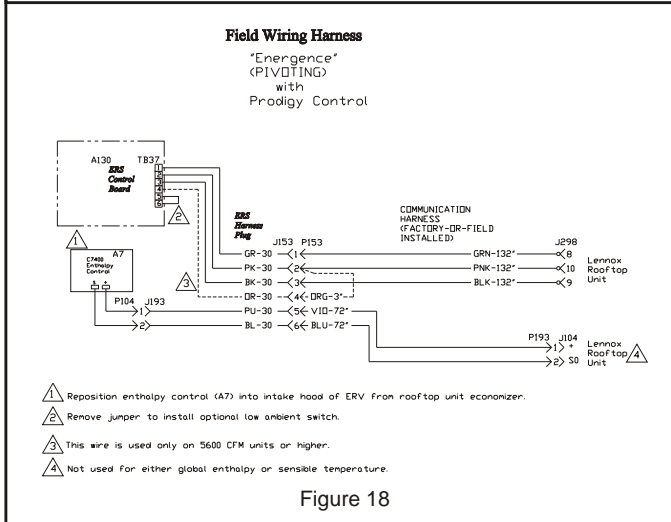


Figure 17



12. Installations using an A7 enthalpy sensor - Remove the screws to the filter access panel of the fresh air hood on the ERS and remove the air filter. Reinstall the A7 enthalpy control sensor with retained screws removed on the bottom panel of the fresh air intake hood. See **Figure 19**.

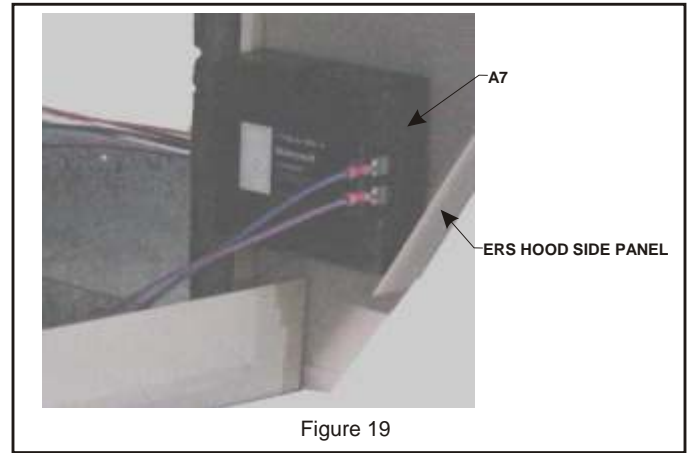


Figure 19

13. If the A7 enthalpy sensor was retained, locate the blue and purple wire harness on the top deck. Remove the intake air access panel and route blue and purple harness to the A7 enthalpy sensor harness and connect P104 to J193. Secure excess wiring. See **Figure 20**.

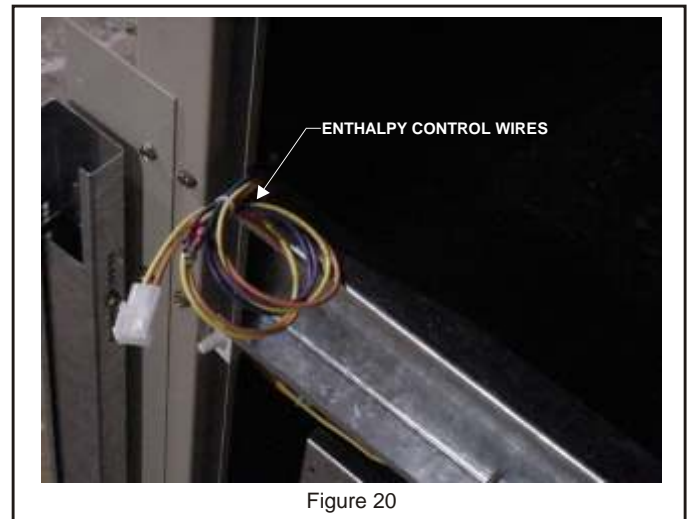


Figure 20

14. All electrical connections must conform to any local codes and the current National Electric Codes (NEC) and Canadian Electric Code (CEC). Refer closely to wiring diagram in unit and/or in these instructions for proper connections. Refer to the unit nameplate for the minimum circuit ampacity and maximum over current protection size. Electrical data is listed on unit rating plate and motor nameplates.

15. Connect line voltage power to ERS unit from ERS field provided or rooftop unit disconnect switch (disconnect must be properly sized). Then connect line voltage from disconnect switch through ERS knockout on middle post to control box per the wiring diagram. See **Figure 21**.

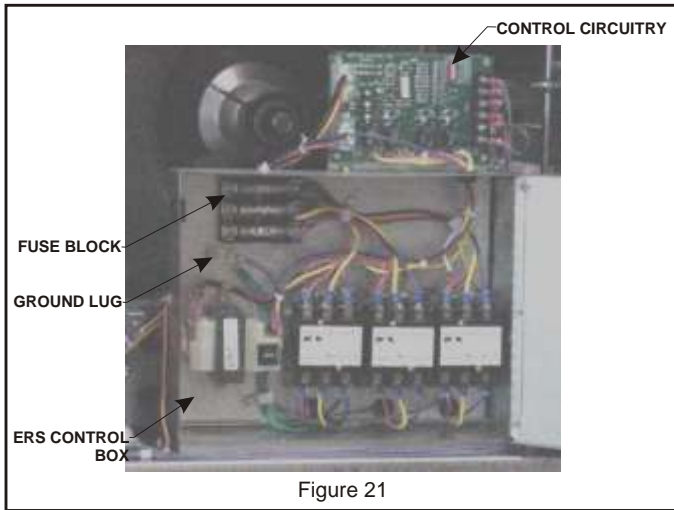


Figure 21

16. Ground unit with a suitable ground connection either through unit supply wiring or earth ground.

Note: Unit voltage entries must be sealed weather tight after wiring is complete.

17. Replace access panels onto the ERS unit and secure.

**ROOFTOP UNIT WIRING
(See Field Wiring Diagram)**

1. Open access panel to rooftop unit controls.
2. The minimum damper blade position must be adjusted on the economizer control board to the correct amount of outside air specified by the customer. Refer to Lennox rooftop unit manual for setting.

Wheel Pivot Adjustment

The Electronic Configuration To Order (ECTO) parameter must be set at ECTO 7.22 = 10 to indicate ERS is installed.

In the A55 Integrated Modular Controller II (IMC2) [Prodigy] of the RTU setting is required for the economizer to go to minimum outside air.

During default operation the ERS will start when the RTU unit blower is on and dampers are at minimum position. The wheel will pivot out of the fresh air stream at power exhaust signal or free-cooling demand.

The A55 (IMC2) uses the following parameters to control wheel position. **See Figure 22.**

For Smoke Mode reference the Smoke Mode Operation table .

Smoke Mode Operation

| Smoke Mode Setting (ECTO 5.01) | Blower | D02 | Damper | D01 |
|--------------------------------|--------|-----|-----------|-----|
| 0, unit off (default) | OFF | OFF | Closed | OFF |
| 1, pos. pressure | ON | OFF | 100% Open | ON |
| 2, neg. pressure | ON | ON | Closed | ON |
| 3, purge | ON | ON | 100% Open | ON |
| 4, neg. pressure | OFF | ON | Closed | ON |
| 5, neg. pressure | ON | ON | Closed | ON |
| 6, purge | ON | ON | 100% Open | ON |
| 7, neg. pressure | OFF | ON | Closed | ON |

3. Close access panels on the rooftop unit and secure.
4. Restore power to unit.

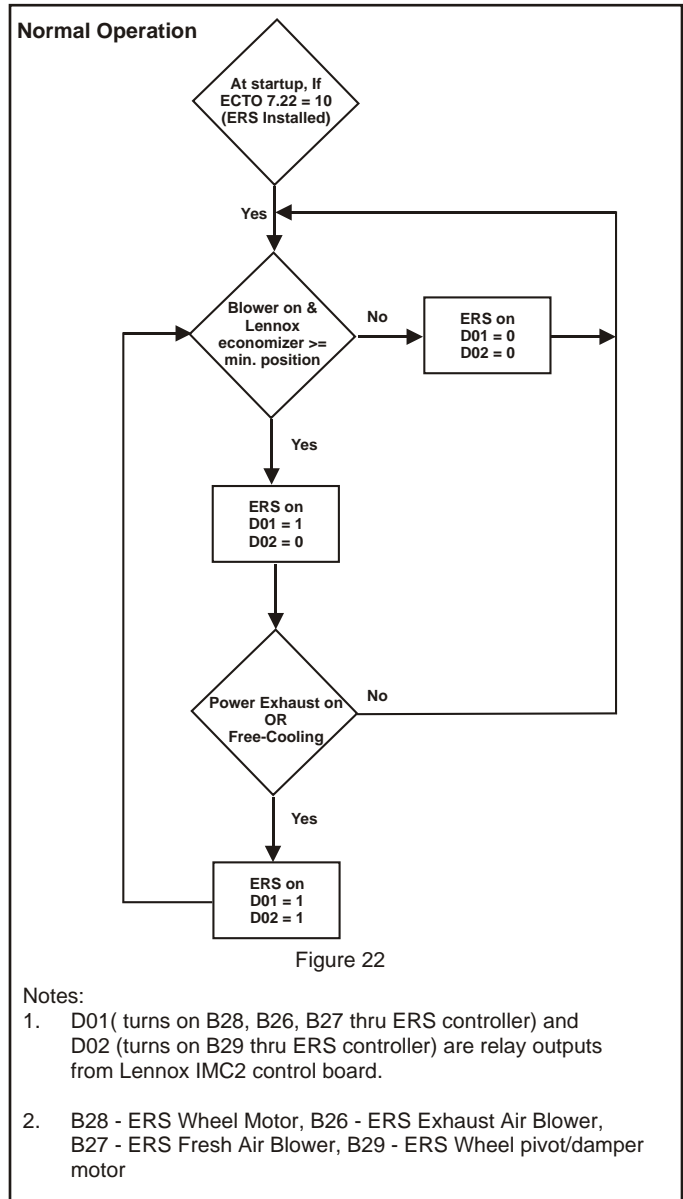


Figure 22

Notes:

1. D01 (turns on B28, B26, B27 thru ERS controller) and D02 (turns on B29 thru ERS controller) are relay outputs from Lennox IMC2 control board.
2. B28 - ERS Wheel Motor, B26 - ERS Exhaust Air Blower, B27 - ERS Fresh Air Blower, B29 - ERS Wheel pivot/damper motor

5. Once ERS is working properly, caulk any open joints, holes, or seams to make the units completely air and water tight.
6. Leave this instruction manual with owner or in an envelope to be kept near unit.

OPTIONAL KITS (Factory Installed)

Motorized Intake Air Damper

Damper mounts behind the outdoor air intake hood. It opens when the ERS is energized and closes when de-energized.

Pressure Sensor

Measurement device on the ERS to determine airflow across the Enthalpy Wheel.

Low Ambient Control Kit

Prevents frost formation on energy wheel heat transfer surfaces by terminating the intake blower operation when discharge air temperature falls below a field selectable temperature setting. Intake blower operation resumes operation after temperature rises above the adjustable temperature differential.

The frost threshold is the outdoor temperature at which frost will begin to form on the ERS wheel. For energy recovery systems, 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 Systems 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 ERS operational hours, exhaust only frost control option is available.

ECONOMIZER SETTINGS

Refer to economizer instructions for minimum air flow requirement. The damper setting on the internal economizer assembly is field adjustable to any position above minimum air flow for fresh air requirements at the customers specified conditions.

BLOWER SPEED ADJUSTMENT

Blower speed selection is accomplished by changing the sheave setting on both fresh air and exhaust air blowers. All blowers are factory set at “closed” for maximum airflow. To determine air flow setting, external static pressure readings will need to be read across the ERS **Reference Table #1 on Page 9**. For location to take pressure readings **See Figure 23**.

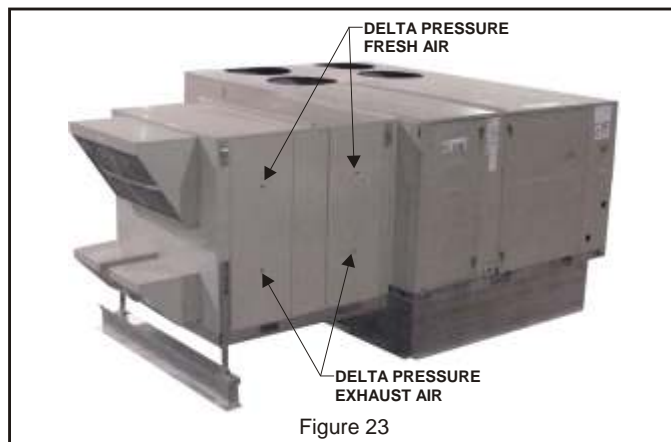


Figure 23

OPERATION

Recovery Wheel Mode

On a thermostat call for blower operation in heating, cooling or continuous blower, the ERS media will rotate between fresh air and exhaust air streams. Both the fresh air blower and exhaust air blower will be operating.

Economizer/Power Exhaust Mode

On the activation of the economizer mode (closure of EH and EH1 of logic module), the ERS unit will shutdown for approximately 60 seconds to allow the ERS media to pivot out of the air stream. After this delay timer has been satisfied, the exhaust air blower will operate. The ERS unit will act as a power exhaust unit.

This mode will continue until economizer has been deactivated. The exhaust air blower will shut down and the delay timer will be activated. During this time period the ERS media will pivot back into the air stream. When timing is complete the unit will operate in the Recovery Wheel Mode.

Then if economizer continues to close the ERS will shutdown when the "N" terminal is deactivated, thus allowing rooftop unit to run in night set back mode.

SYSTEM CHECK

1. Disconnect ERS main power.
2. Remove ERS control access panel and install jumper at low voltage terminal strip between TB37-1 and TB37-2.

Note: If Low ambient kit S26 is used the jumper between TB37-5 & TB37-6 should be removed. Also if system check out is being conducted at low ambient temperatures, jumper low ambient switch.

3. Open rooftop unit blower access panel and locate TB1. Jumper terminals 6 (24v) and 3 (G) to energize rooftop unit blower. Refer to manufacturers instructions when an electronic thermostat or other energy management system is used.
4. Restore power to ERS unit. The recovery wheel will pivot out of the air stream, fresh air dampers will open, and after a delay, the exhaust blower will operate.
5. Remove jumper from ERS control board TB37-1 and TB37-2. The recovery wheel will pivot into the air stream, the fresh air dampers will close, and after a delay, the fresh air blower and exhaust air blower will operate.
6. Verify that the ERS (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 ERS.
 - c. Reapply power.
7. Disconnect main power to unit before making adjustment to economizer and/or ERS unit.
8. Remove all jumpers and replace ERS control access cover.
9. Set thermostat to normal operating position.
10. Restore power to unit.

MAINTENANCE

Motor Maintenance

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

Mechanical Inspection

Make visual inspection of dampers, linkage assemblies and ERS rotating bearings during routine maintenance. Filters should be checked periodically and cleaned when necessary. Filter is located in fresh air hoods. **DO NOT** replace permanent filters with throwaway type filters.

Belt 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 $\frac{3}{4}$ " for proper length. This will allow the motor assembly to slide forward to remove belt and backward for belt tension.

Belt Tension

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 $\frac{1}{64}$ " for every inch in span length.

Energy Wheel Maintenance

Eight pie-shaped energy recovery wheel 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 ERS access panels (rear) and unplug [J150 and P150] (**Refer to wiring diagrams in this instruction manual**). Remove segment and wash with water and/or mild detergent.

To install wheel segments follow steps A through E. See **Figure 24**. 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 segment 90° to balance the wheel while the third segment is installed. Rotate the wheel 180° again to install the fourth segment. Repeat this sequence with the remaining four segments.

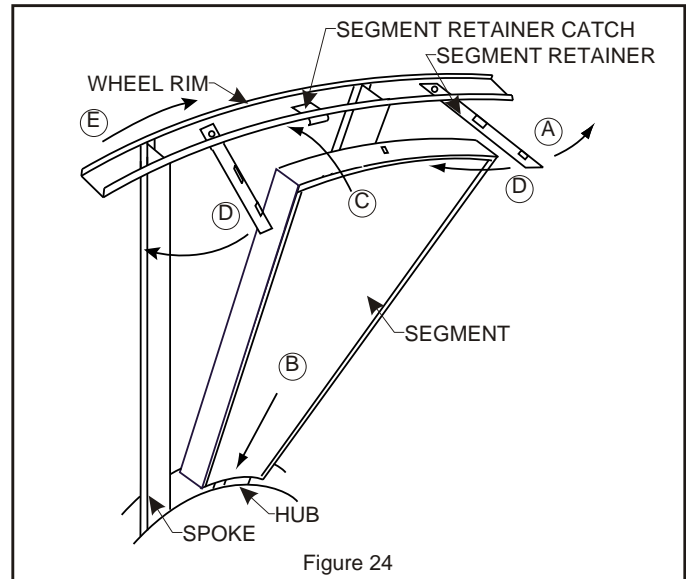
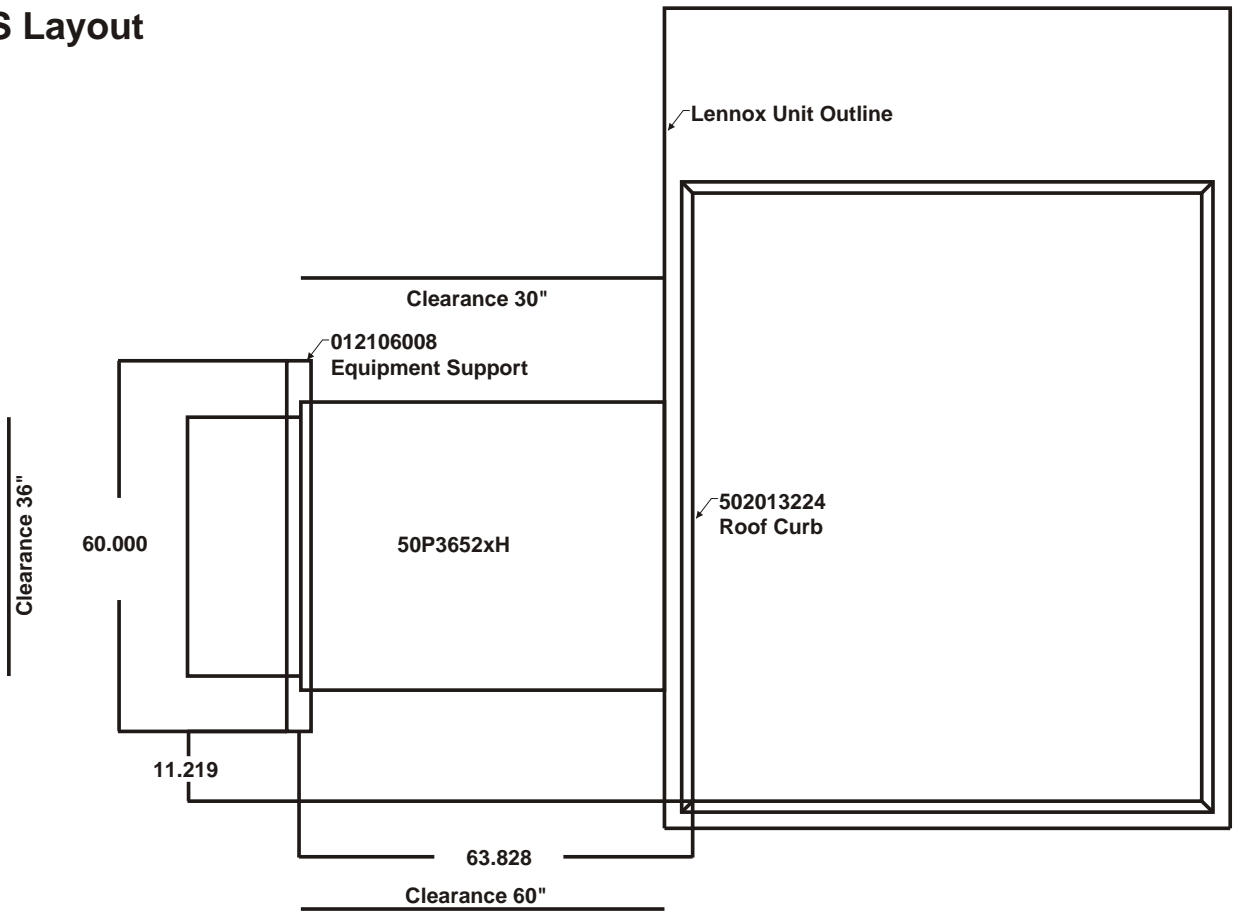


Figure 24

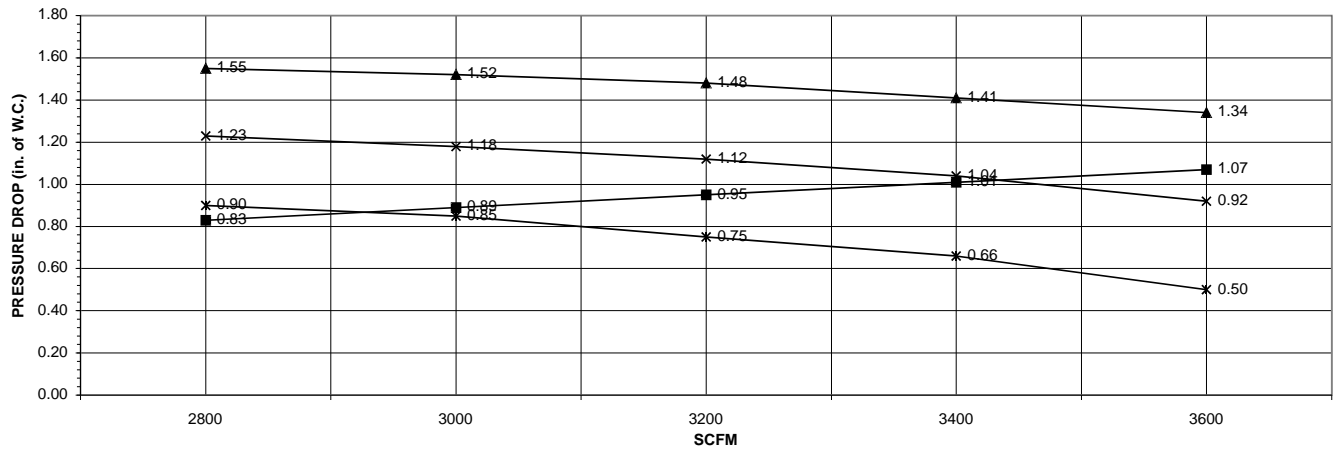
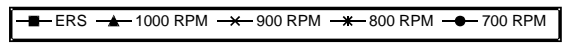
| Lennox Model No. | Req'd Curb Height | CFM Range | Voltage | Phase |
|------------------|-------------------|-----------|---------|-------|
| 50P3652xH23 | 24" | 2800-3600 | 208-230 | 3 |
| 50P3652xH33 | 24" | 2800-3600 | 460 | 3 |
| 50P3652xH43 | 24" | 2800-3600 | 575 | 3 |

ERS Layout



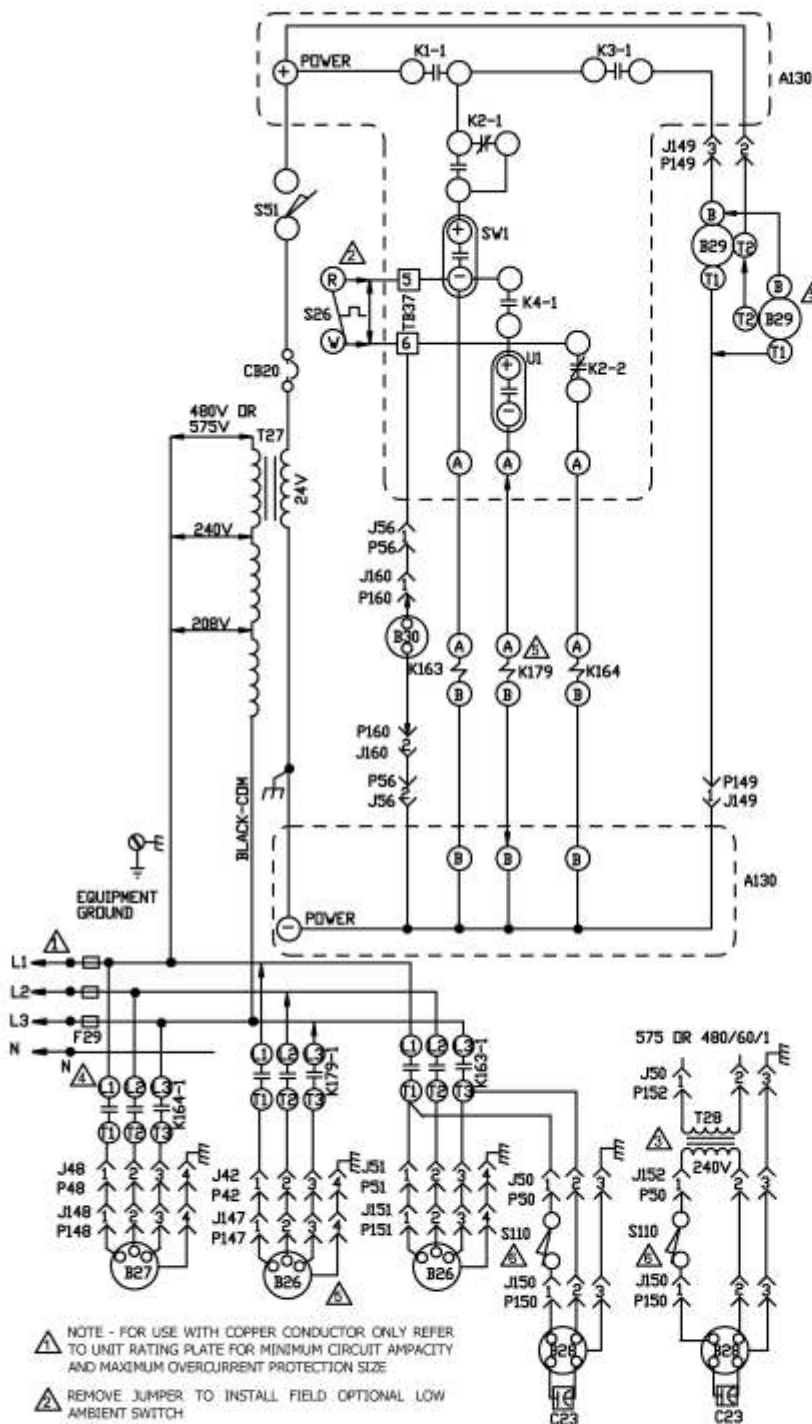
50P3652xH Series

ENERGY RECOVERY SYSTEM SCFM vs. PRESSURE DROP



Equation of line: $SCFM = (PD + 0.01) / 0.0003$
TABLE #1

| KEY | DESCRIPTION |
|----------|------------------------------------|
| A130 | CONTROL, PIVOT WHEEL |
| B26 | MOTOR, EXHAUST AIR BLOWER |
| B27 | MOTOR, FRESH AIR BLOWER |
| B28 | MOTOR, DESSICANT WHEEL |
| B30 | MOTOR, DAMPER (OPTIONAL) |
| C23 | CAPACITOR, WHEEL MOTOR |
| CB20 | CIRCUIT BREAKER, DESSICAN WHEEL |
| F29 | FUSE, DESSICANT WHEEL |
| J42 | JACK, EXHAUST FAN |
| J48 | JACK, MOTOR VARIABLE SPEED |
| J50 | JACK, TRANSFORMER |
| J51 | JACK, EXHAUST BLOWER |
| J56 | JACK, DAMPER MOTOR PCB |
| J147 | JACK, EXHASUT AIR BLOWER |
| J148 | JACK, FRESH AIR BLOWER |
| J149 | JACK, WHEEL AND DAMPER MOTOR |
| J150 | JACK, WHEEL MOTOR |
| J151 | JACK, EXHAUST BLOWR MOTOR |
| J152 | JACK, TRANSFORMER EXHAUST BLOWER |
| J160 | JACK, DAMPER MOTOR |
| K163, -1 | CONTACTOR, EXHAUST AIR BLOWER |
| K164, -1 | CONTACTOR, FRESH AIR BLOWER |
| K179, -1 | CONTACTOR EXHAUST FAN |
| P42 | PLUG, EXHAUST FAN |
| P48 | PLUG, MOTOR VARIABLE SPEED |
| P50 | PLUG, TRANSFORMER |
| P51 | PLUG, EXHAUST BLOWER |
| P56 | PLUG, DAMPER MOTOR PCB |
| P148 | PLUG, FRESH AIR BLOWER |
| P149 | PLUG, WHEEL AND DAMPER MOTOR |
| P150 | PLUG, WHEEL MOTOR |
| P151 | PLUG, EXHAUST BLOWER MOTOR |
| P152 | PLUG, TRANSFORMER EXHAUST BLOWER |
| P160 | PLUG, DAMPER MOTOR |
| S26 | THERMOSTAT, AMBIENT |
| S51 | SWITCH, DOOR INTERLOCK |
| S110 | SWITCH, TIP |
| T27 | TRANSFORMER, DESSICANT WHEEL |
| T28 | TRANSFORMER, STEP DOWN WHEEL MOTOR |



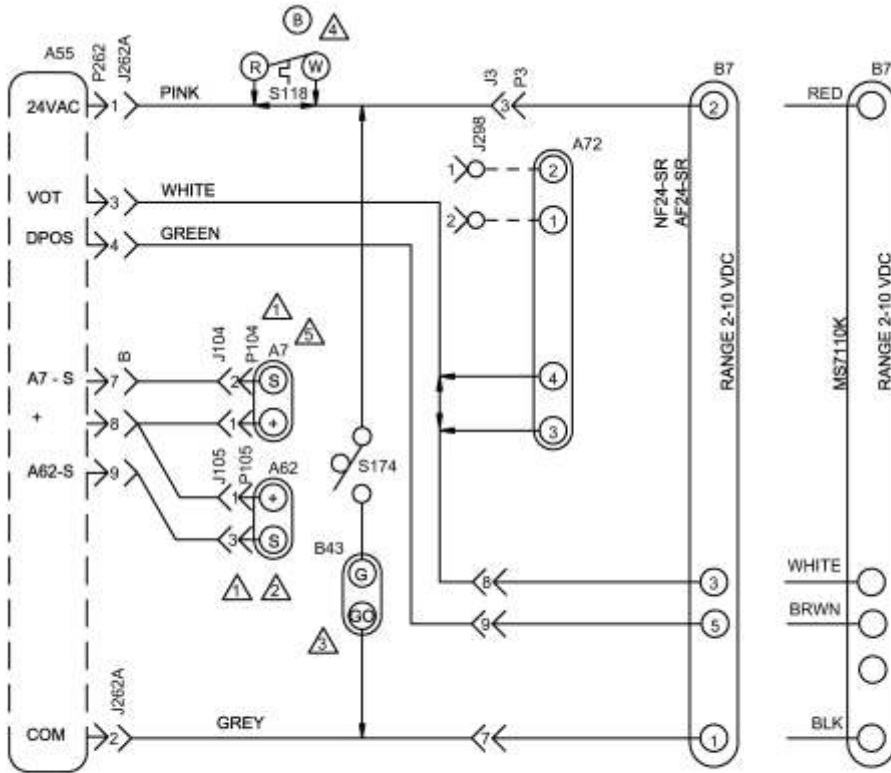
NOTE - IF ANY WIRE IN THIS APPLIANCE IS REPLACED IT MUST BE REPLACED WITH WIRE OF LIKE SIZE, RATING, TERMINATION AND INSULATION THICKNESS

WARNING - ELECTRIC SHOCK HAZARD, CAN CAUSE INJURY OR DEATH. UNIT MUST BE GROUNDED IN ACCORDANCE WITH NATIONAL AND LOCAL CODES DISCONNECT ALL POWER BEFORE SERVICING.

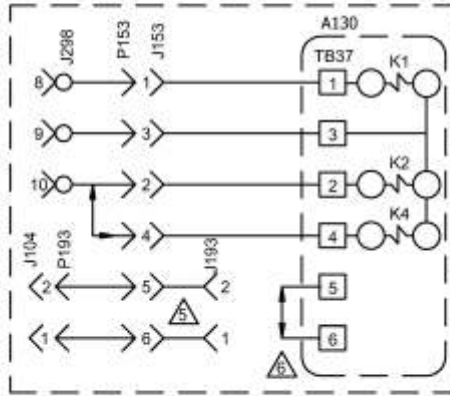
- NOTE - FOR USE WITH COPPER CONDUCTOR ONLY REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION SIZE
- REMOVE JUMPER TO INSTALL FIELD OPTIONAL LOW AMBIENT SWITCH
- STEP DOWN TRANSFORMER ASSEMBLY FOR 480 AND 600 VOLT UNITS ONLY
- M (380-420 50 Hz 3 ø) VOLTAGE HOOK UP
- B29 AND K179 USED ON HIGHER CFM UNITS
- S110 CLOSED DURING RECOVERY MODE AND OPEN DURING ECONOMIZER MODE

← DENOTES OPTIONAL COMPONENTS
 — LINE VOLTAGE FIELD INSTALLED NEC/CEC CLASS 1
 NOTE - ALL REMAINING WIRES FACTORY INSTALLED

| | | |
|---|---------------------------|----------|
| WIRING DIAGRAM | | 02/10 |
| ACCESSORIES | | |
| PIVOTING ENERGY RECOVERY WHEEL FOR ENERGENCE AND LANDMARK G, J, M, Y VOLTAGE UNITS | | |
| SECTION F | | REV. 1.0 |
| Supersedes | New Form No. 537331-01 | |



| DESCRIPTION | |
|-------------|----------------------------------|
| KEY | COMPONENT |
| A7 | SENSOR, SOLID STATE ENTHALPY |
| A130 | CONTROL ERS |
| A55 | CONTROL, MAIN PANEL LENNOX |
| A62 | SENSOR, ENTHALPY INDOOR |
| A72 | CONTROL, REMOTE MIN POS (OPT) |
| B7 | MOTOR, DAMPER ECONOMIZER |
| B43 | MOTOR, EXHAUST DAMPER |
| J3 | JACK, UNIT ECONOMIZER |
| J104 | JACK, SENSOR OUTDOOR ENTHALPY |
| J105 | JACK, SENSOR RETURN AIR ENTHALPY |
| J153 | JACK, ENTHALPY / DAMPER MOTOR |
| J193 | JACK, ENTHALPY SENSOR |
| J298A | JACK, IAQ INTERFACE |
| J262A | JACK, DAMPER MOTOR |
| J262B | JACK, ENTHALPY SENSORS |
| P3 | PLUG, ECONOMIZER BYPASS |
| P153 | PLUG, ENTHALPY / DAMPER MOTOR |
| P193 | PLUG, ENTHALPY SENSOR |
| P262 | PLUG, ECONOMIZER OUTPUT |
| S118 | THERMOSTAT, DESICANT DEFROST |
| S174 | SWITCH, EXHAUST DAMPER |



ENERGY RECOVERY WHEEL HOOK UP

- ⚠️ DELETE A7 AND A62 (IF USED) FOR EITHER GLOBAL ENTHALPY OR SENSIBLE TEMPERATURE CONTROL
- ⚠️ FOR UNIT DIFFERENTIAL ENTHALPY CONTROL, ADD A62 RETURN AIR ENTHALPY SENSOR
- ⚠️ OPTIONAL EXHAUST DAMPER ACTUATOR TO HOLD EXHAUST DAMPER CLOSED WHEN OUTSIDE AIR DAMPER IS CLOSED
- ⚠️ S118 USED ON 35 TO 50 TON EMERGENCY UNITS WITH ENERGY RECOVERY WHEEL (ERW)
- ⚠️ REPOSITION A7 ENTHALPY SENSOR FROM ROOFTOP UNIT ECONOMIZER INTO INTAKE HOOD OF THE ERW ROOFTOP UNIT
- ⚠️ REMOVE JUMPER WHEN INSTALLING OPTIONAL LOW AMBIENT SWITCH

NOTE- THIS DIAGRAM USED ONLY WHEN ECONOMIZER OR MOTORIZED OUTDOOR AIR DAMPERS ARE INSTALLED.

→ DESIGNATES OPTIONAL WIRING
 --- CLASS II FIELD WIRING

| | | |
|--|--------------|-------|
| WIRING DIAGRAM | | 09/09 |
| ACCESSORIES | | |
| EMERGENCY SERIES ECONOMIZER AND MOTORIZED OAD PIVOTING WHEEL ENERGY RECOVERY SYSTEM OPTION | | |
| SECTION D | | |
| Supersedes | New Form No. | |
| | 537189-01 | |

© 2009

Lennox Commercial

START UP INFORMATION SHEET

VOLTAGE - ERS 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 - ERS 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

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.