L SERIES KITS AND ACCESSORIES

P20A-30LDW
504,647M
SEPTEMBER 30, 2003
SUPERCEDES 01-10-03

LAERS03/07-1700H*
ENERGY RECOVERY SYSTEM

INSTALLATION INSTRUCTIONS FOR ENERGY RECOVERY SYSTEMS USED WITH "L" SERIES 036-072 UNITS

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

Patent# 5,548,970

ETL Certified per UL 1995 and CSA 22.2

SHIPPING AND PACKING LIST

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

- 1 - Energy Recovery System Assembly
- 1 - Outdoor Fresh Air Hood with Filter
- 1 - Outdoor Exhaust Air Hood with Barometric Damper
- 1 - Divider Panel
- 1 - ERS Support Rail
- 1 - Balancing Damper Assembly (**Fixed Only**)
- 1 - Economizer Shroud (**Fixed Only**)
- 1 - Economizer Side Panel (**Fixed Only**)
- 1 - Economizer Channel (**Fixed Only**)
- 1 - LD Shield (**Fixed Only**)
- 1 - Hardware Bag:
  - 14' - Gasket ¾" x 1 ¼"
  - 7' - Gasket c" x ½"
  - 1 - Field Harness
  - 1 - J3-3 Extension Wire
  - 1 - End Switch Assembly (**Pivoting Only**)
    - 2 - Cam
    - 2 - Cam Screw 10-32 x ½"
    - 2 - Washer #14 w/ Seal Tight
  - 4 - Wire Ties
  - 10 - Self-Tapping Screws 10-16 x ½"
  - 1 - Installation Instruction
  - 2 - Wiring Stickers

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. **For pivoting applications** the wheel pivots out of the air stream to allow economizer to operate normally for "free cooling" when outdoor temperature and 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.

⚠ 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.

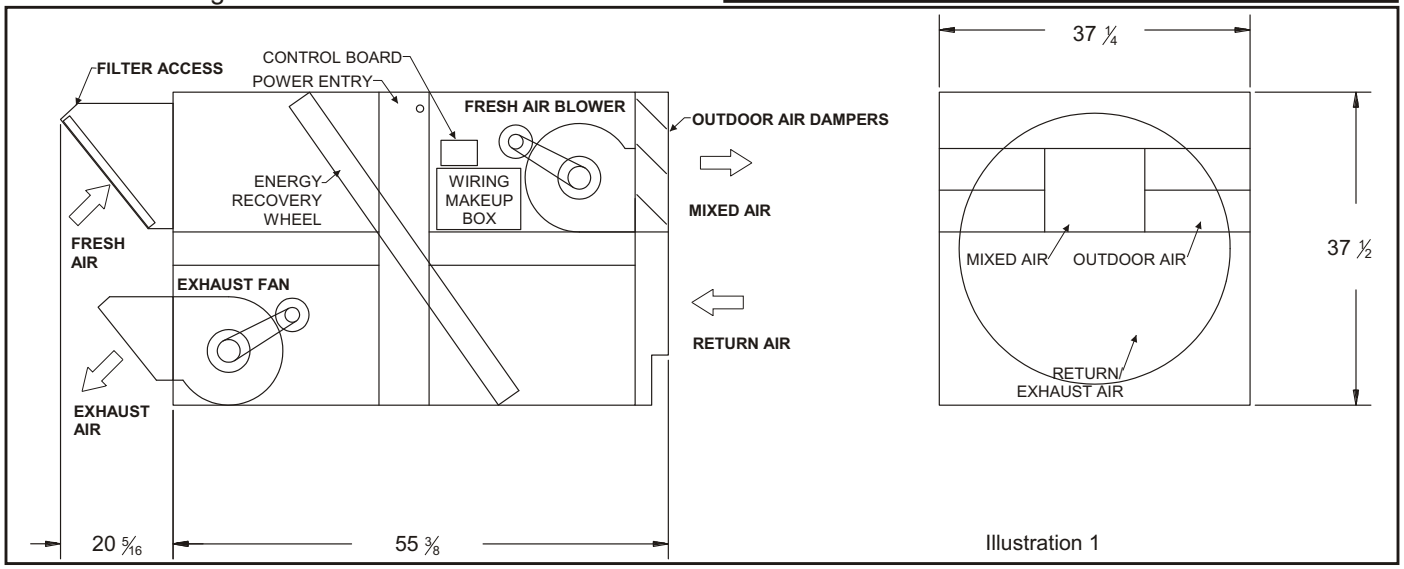


Illustration 1

⚠ 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

SHIPPING DAMAGE

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

RIGGING UNIT FOR LIFTING

1- Maximum weight of unit is —- 300 Lbs (crated).

2- Remove crating and retrieve hardware bag that is inside of ERS.

3- All ERS door panels must be in place for rigging.

4- Use straps to lift unit.

ROOFTOP UNIT PREPARATION

NOTE: The ERS unit is equipped with a support block that must be removed to allow the unit to change operating modes. This block may cause damage to system if not removed. See Figure 17.

1- Disconnect all power to rooftop unit.

2- Open rooftop unit filter access door. If installing pivoting wheel verify and/or install modulating economizer.

3- Remove the rooftop unit horizontal return air access panels. Also remove any hoods and/or power exhaust equipment. Discard hoods, power exhaust equipment, and horizontal return air panels. **See Figure 1.**

If installing fixed wheel skip to step 11

4- 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 plug P104, remove screws securing the sensor, and retain sensor assembly and screws. Push sensor jack J104 through economizer support wall. **See Figure 2.**

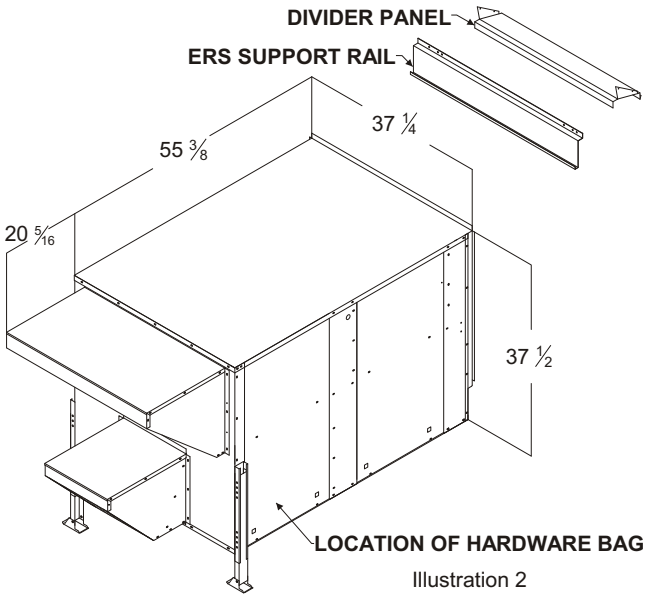


Illustration 2

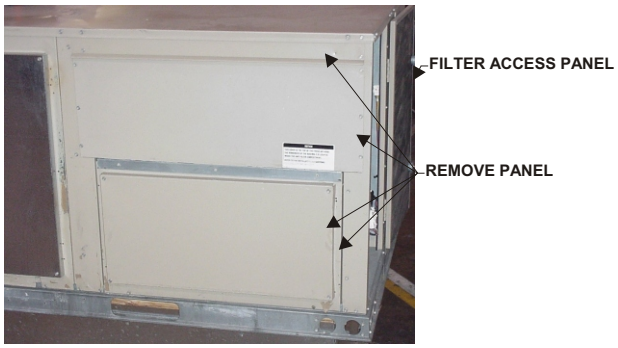


Figure 1

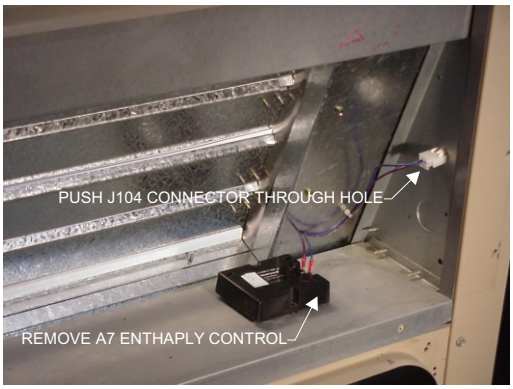


Figure 2

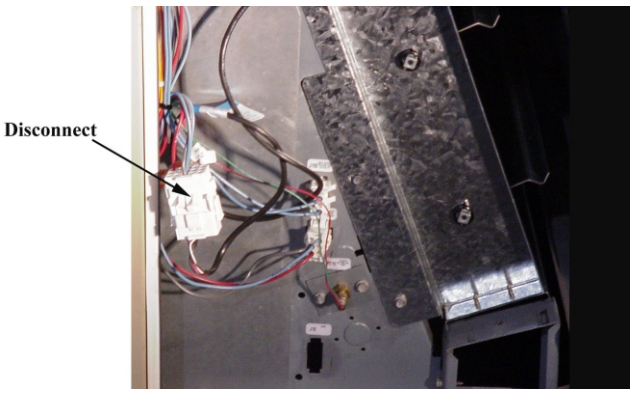


Figure 3

5- Disconnect plug P3 from connector J3. **See Figure 3 and 4**.

6- Install the provided ERS field harness between J3 and P3 by plugging P27 into J3, plugging J27 into P3 harness. **See Figure 4**.

7- Plug P193 from ERS field harness into J104, the plug previously pushed through the wall. **See Figure 4**.

8- Locate the provided end switch assembly. Install the end switch bracket onto the economizer by removing the two (2) bottom screws securing the economizer. Match the end switch assembly up to these two (2) screw holes and reinstall the mounting screws. **See Figure 5.**

9- Install the cams on the economizer blade pivots with the #10-32 x ½" screw and washer but do not tighten. The cam will trip the end switch S122 when the damper rotates. Set the end switch arm so that it closes when the fresh air dampers are open 50% or greater. Tighten screw to secure cam. For end switch S132 the cam needs to open the normally closed end switch when economizer is moved from minimum position to closed (night set back). **See Figure 5**. Damper rotation will close the normally open end switch S122 to prevent ERS operation during economizer free cooling except power exhaust blowers.

10- Connect P192 from end switch assembly to J192 of field harness.

11- Remove and retain two (2) screws from each side of economizer division panel; discard panel. Position the provided divider panel in approximately the same location, sloping downward. **See Figure 10**. Align two holes on each side of new panel with holes previously used. Secure panel using retained screws. Apply ¾" x 1 ¼" gasket to front edge of divider panel.

If installing pivoting wheel skip to step 19

12- Position economizer side panel in filter section. Secure economizer side panel to the economizer channel bracket and the flange on the unit base. **See Figure 6.**

13- Remove screws securing the unit top panel in place on the economizer end of the unit. Lift top panel to provide access to economizer section.

14- Install the economizer shroud, economizer divider panel, and economizer channel. Secure with screws. **See Figure 6.**

15- Open filter access door and slide in balancing damper in economizer rails. The damper blades should be at the bottom. The flange on the middle divider of the balancing damper should slide under the middle divider in the return air opening of the rooftop unit. **See Figure 6.**

16- Loosen wing nut on balancing damper. Slide arm to open blades 50% and then retighten wing nut.

17- Secure balancing damper in place by screwing the LD shield to the economizer side panel. **See Figure 7**.

18- Plug field harness P27 into economizer plug J3. **See page 13** for field wiring.

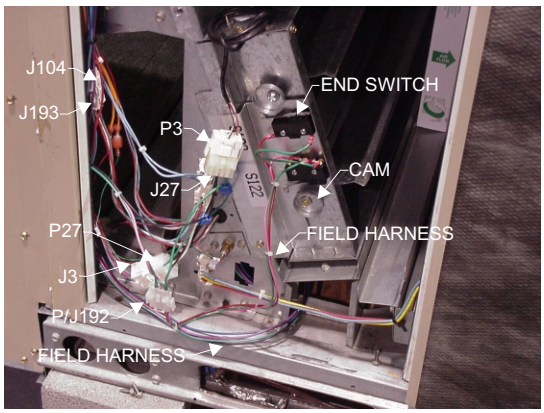


Figure 4

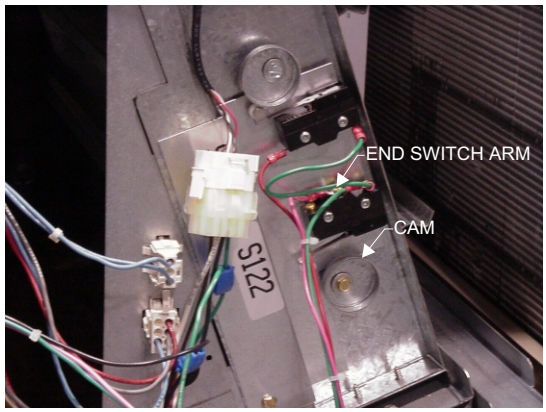


Figure 5

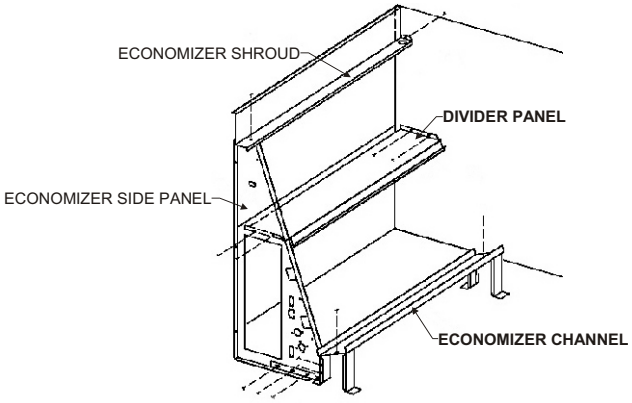


Figure 6

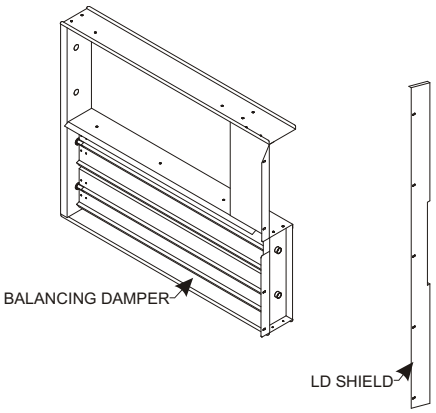


Figure 7

19- Using wire ties neatly route the wires to clear any moving parts. Final wiring should resemble **Figure 4.**

20- Route the 6-pin (pivoting) / 3-pin (fixed) 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.**

21- Apply ¾" x 1 ¼" gasket to top and bottom decks of ERS as shown in the figure. **See Figure 9.** Apply c" x ½" gasket to ERS side flanges.

22- Position the ERS support rail in the rooftop unit horizontal return air opening. Orient the notched flange away from unit. Align bracket screw holes with base plate holes and secure with existing screws. Apply ¾" x 1 ¼" gasket to the bracket top and side flanges. **See Figure 10.**

23- 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".

INSTALL ENERGY RECOVERY SYSTEM

1- Lift ERS at least three feet (3'). Remove four screws holding telescoping legs to guides and pull out legs. Reinsert the legs from the bottom with the flat foot under the unit. Reinsert one of the screws to hold legs into place. The legs will need to be adjusted later when unit is in position. **See Figure 11.**

2- 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.

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

3- Tuck the top flange of the ERS under the rooftop unit top panel. Raise ERS until bottom clears the ½" front flange of the ERS support rail. Slide the ERS so that it is tight against the unit side. Secure with the existing rooftop unit screws. **See Figure 12.**

4- Remove the screws placed in the standoff legs and adjust the legs on the ERS until it is level. Replace all four screws in each leg to secure the ERS in the leveled position. **See Figure 11.**

5- Use provided 10-16 x ½" self-tapping screws to secure the side mounting flanges of the ERS to the rooftop unit. **See Figure 12.**

6- 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 13.**

7- Remove the control access panel and locate the 6-pin (pivoting) / 3-pin (fixed) 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 14.**

If installing fixed wheel skip to step 12

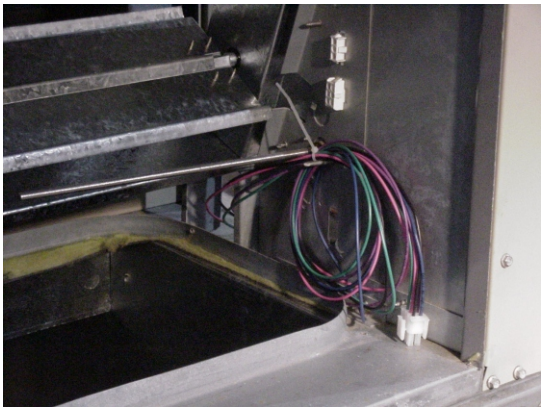


Figure 8

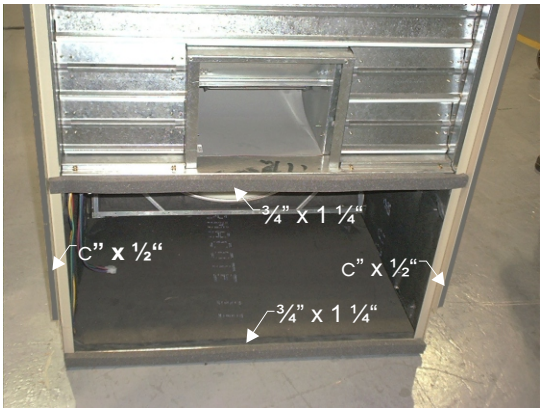


Figure 9

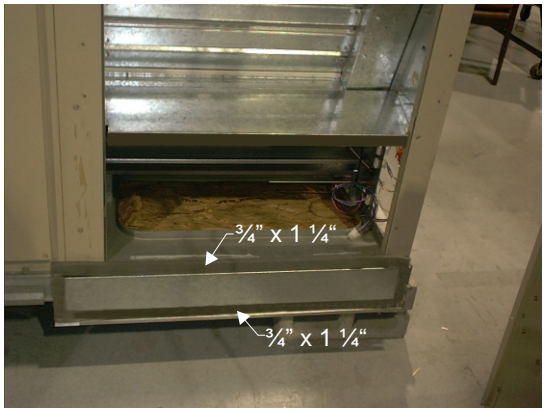


Figure 10

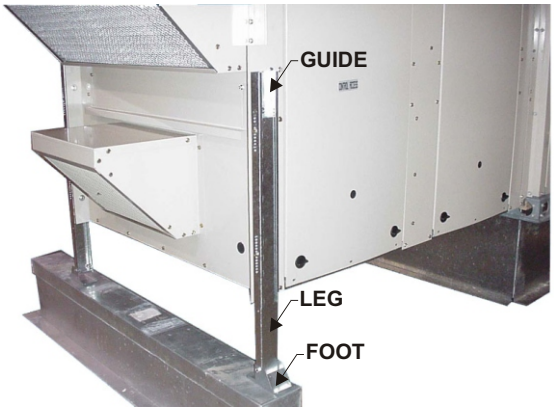


Figure 11

8- Locate the A7 enthalpy control sensor (if removed earlier from the rooftop unit.) **See Figure 2.**

9- 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 15.**

10- 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 16** and **Page 10** for field wiring diagram .

11- Remove ERS support block to allow wheel rotation when unit is placed in operation. **See Figure 17.**

12- 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.

13- 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 18.**

14- 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.

15- 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- *Direct Drive Blower Motors*
Disconnect red wire marked J3-3 from TB34 terminal 1. **See Figure 19.** Add extension wire (provided) to J3-3 wire. Connect J3-3 to combustion air blower relay K13 terminal 9. **See Figure 20.**

Belt Drive Blower Motors
Disconnect red wire marked J3-3 from TB34 terminal 1. **See Figure 19**. Add extension wire (provided) to J3-3 wire. Connect J3-3 to K3 blower relay coil terminal A. **See Figure 21.**

3- Affix D3 wiring diagram sticker, provided in kit, over current economizer sticker on compressor access door. Affix F3 wiring sticker, also provided, in alphanumeric order next to current diagrams.

4- 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

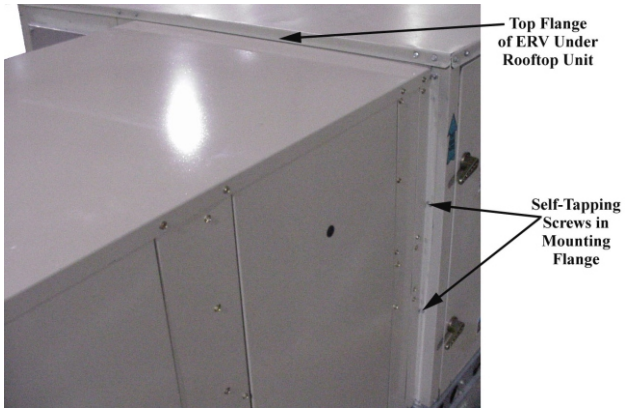


Figure 12

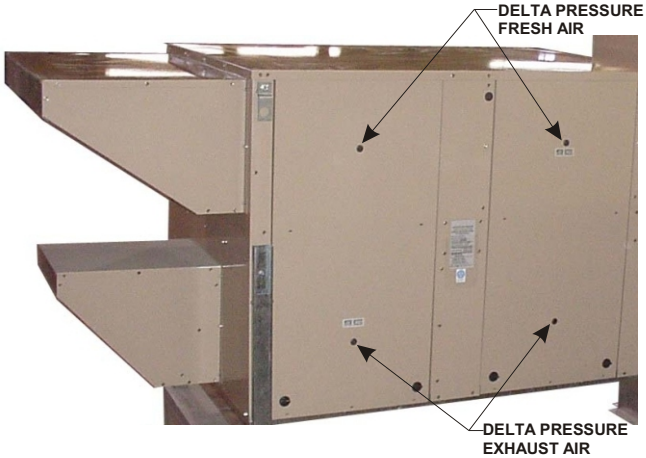


Figure 13

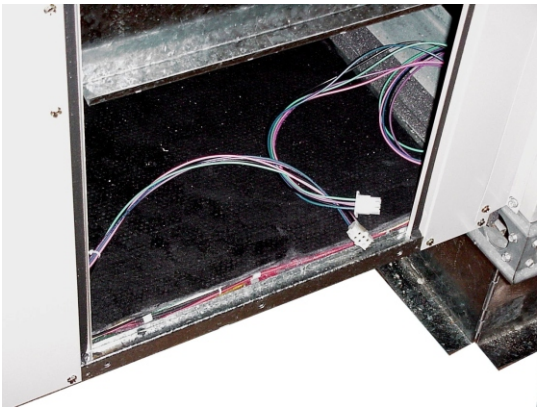


Figure 14

Figure 15

Lennox rooftop unit manual for setting. **See Figure 22** for economizer control board.

5- Close access panels on the rooftop unit and secure.

6- Restore power to unit.

7- Once ERS is working properly, caulk any open joints, holes, or seams to make the units completely air and water tight.

8- 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. Powered by B30 damper motor.

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

Low Ambient Control Kit (S26)
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 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 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.

Stop-Start-Jog (Fixed only)
Control option that allows intermittent operation of the enthalpy wheel during mild outdoor conditions to provide cycling and cleaning of the wheel.

ECONOMIZER SETTINGS (Pivoting Only)

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

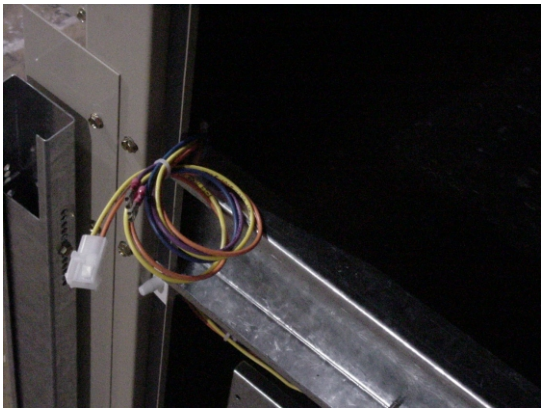
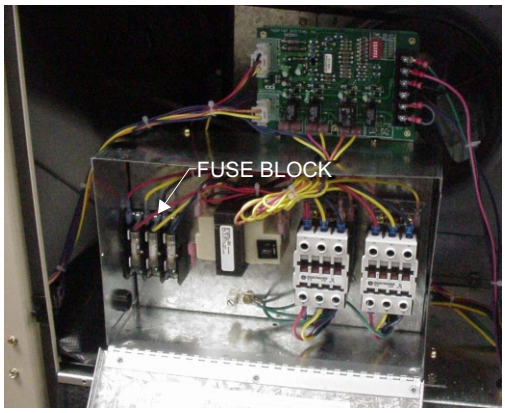


Figure 16

Figure 17



(PIVOTING CONTROL BOX SHOWN)

Figure 18

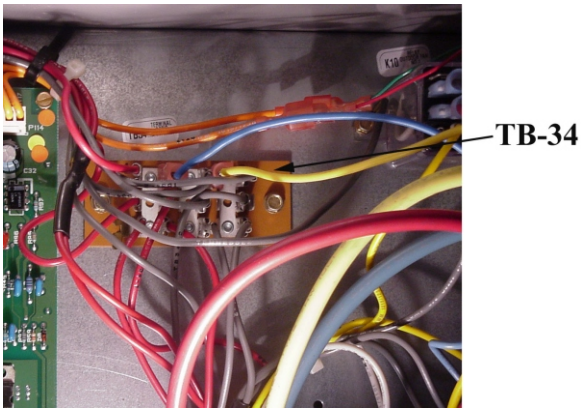


Figure 19

BLOWER SPEED ADJUSTMENT

Blower speed selection is accomplished by adjusting the motor sheave on both fresh air and exhaust air blowers. All blowers are factory set in closed position for maximum airflow. To determine air flow setting, external static pressure readings will need to be read across the ERS . **Reference Table 1.** For location to take pressure readings. **See Figure 13.**

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 (Pivoting Only)
On the activation of the economizer mode (closure of end switch), 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 and S132 will be deactivated, thus allowing rooftop unit to run in night set back mode.

SYSTEM CHECK

If installing fixed wheel skip to step 6

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.

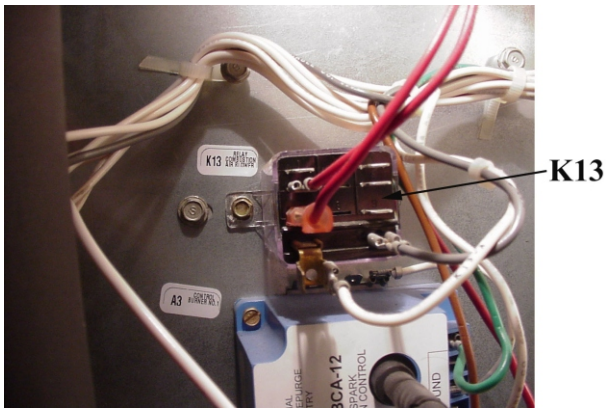


Figure 20

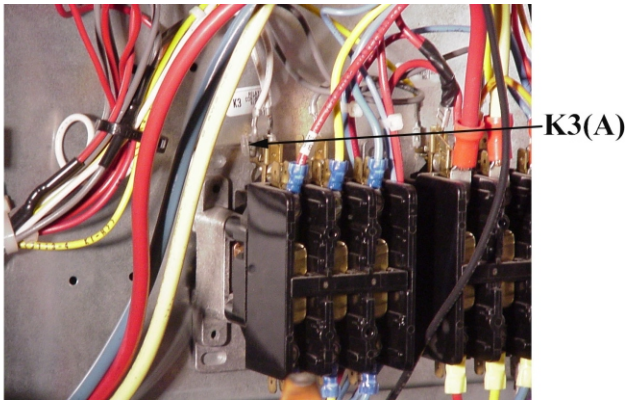


Figure 21

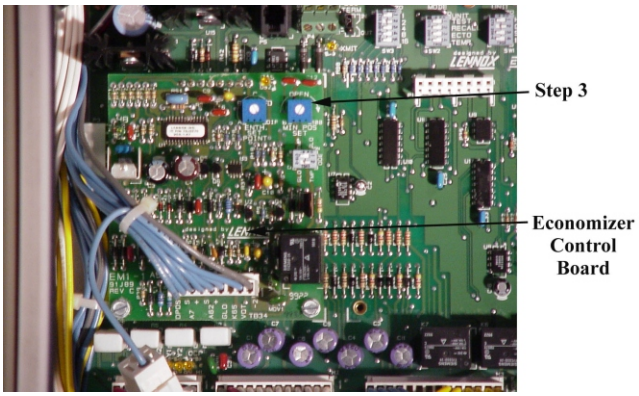


Figure 22

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.

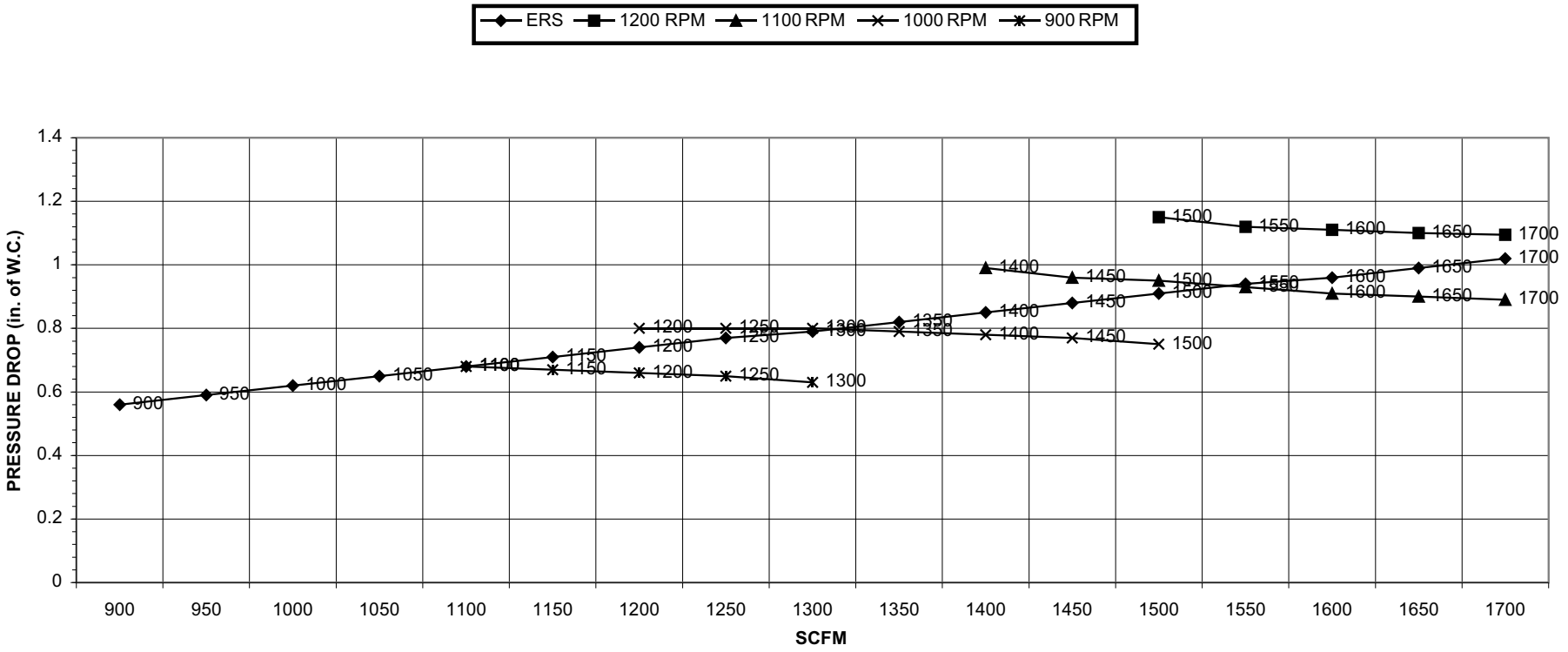
Belt Installation
Always move the drive unit forward so the belt can be easily slipped into the groove without forcing them. Never force the belt into a sheave with a screw driver or wedge. You will damage the fabric and break the cords. It is recommended that the pulley center distances be offset by ¾" 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
Annual inspection of the self cleaning wheel is recommended. With power disconnected, remove ERS access panels (rear) and unplug [J150 & P150] **(Refer to wiring diagrams in this instruction manual).** Remove media and wash with water and/or mild detergent. Replace media by reversing the above procedure.

ENERGY RECOVERY VENTILATOR

SCFM vs. PRESSURE DROP

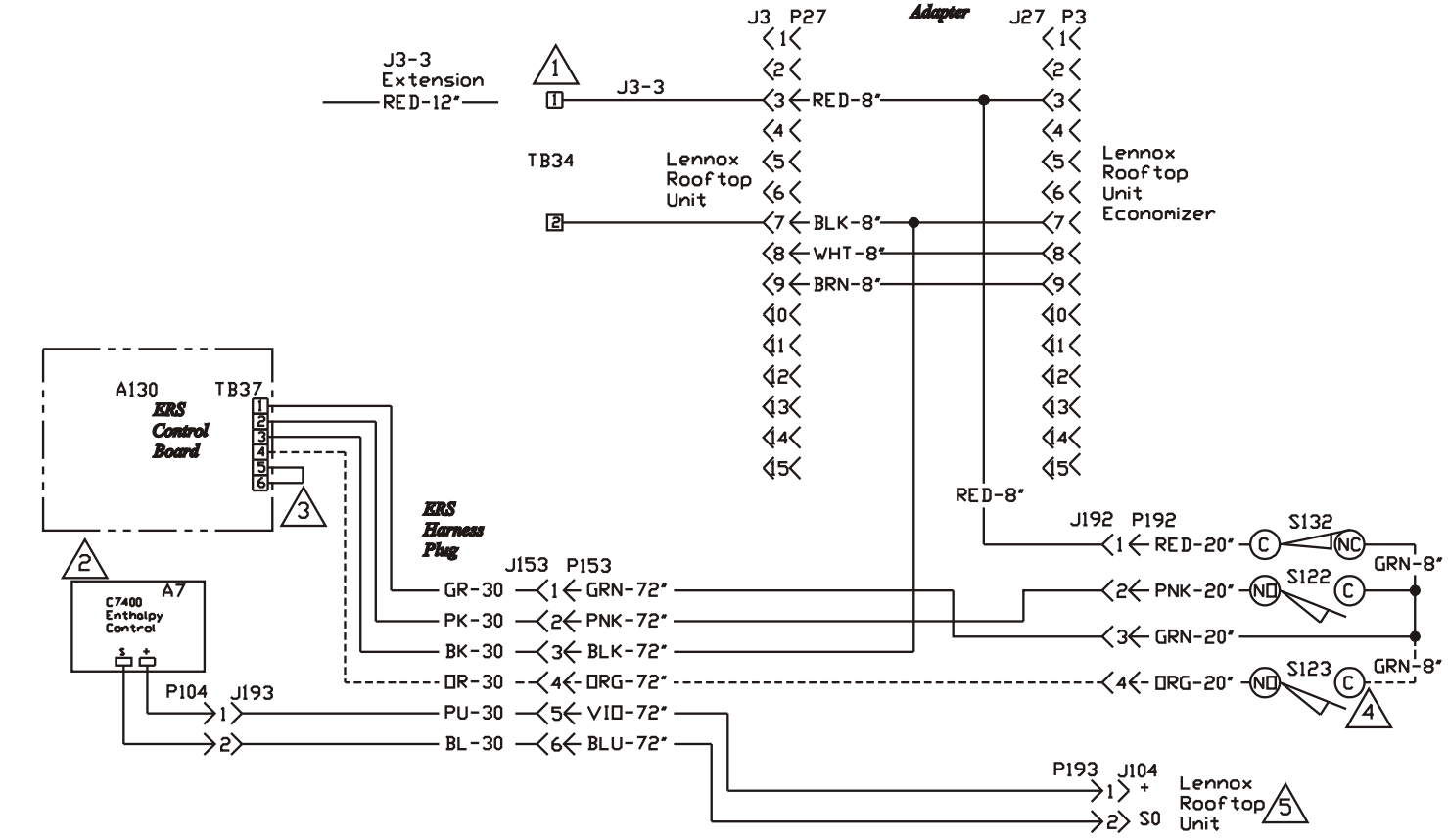


Equation of line: SCFM=(PD -0.0492647)/0.0005721)

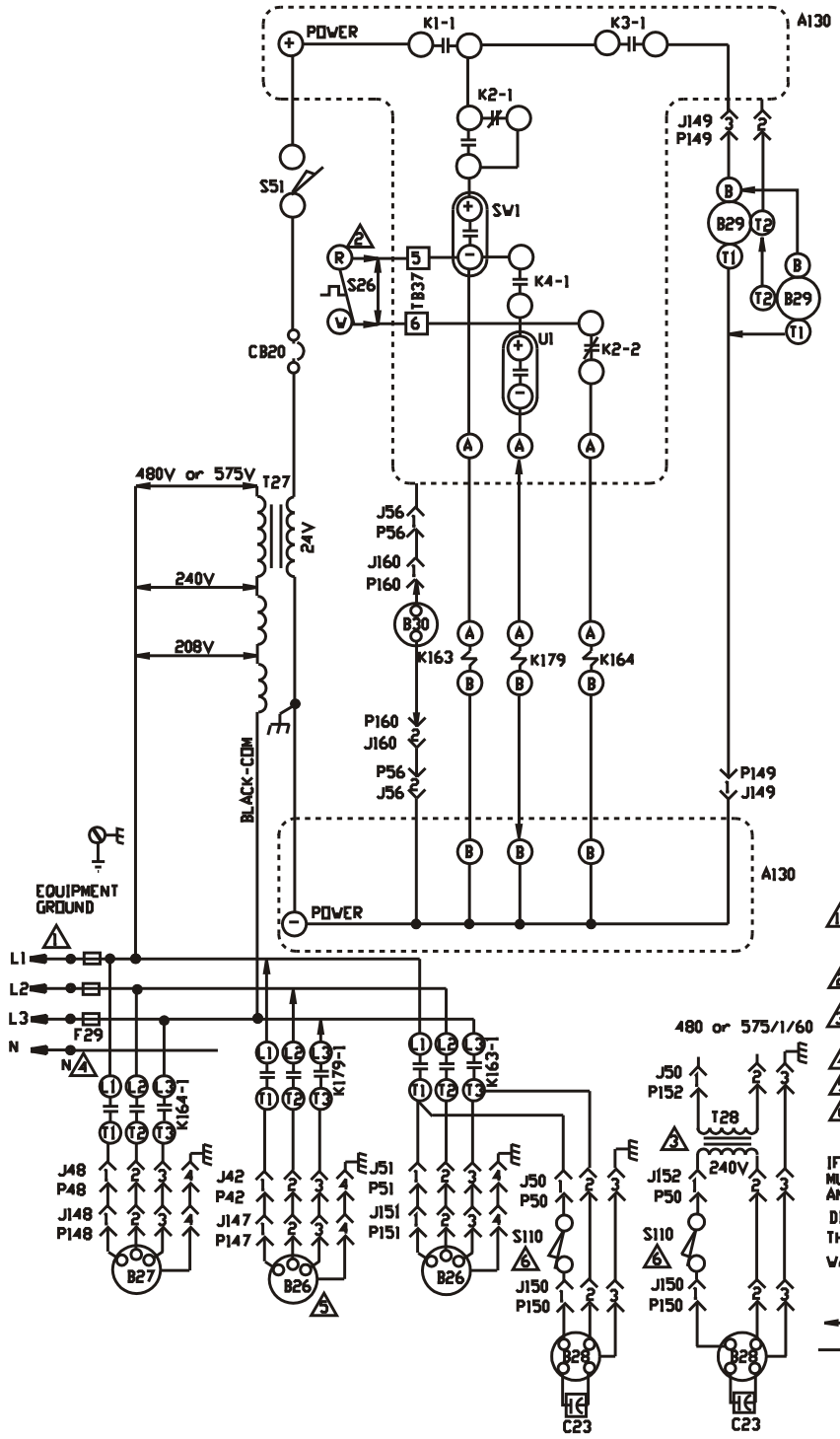
TABLE #1

Field Wiring Harness

"L" SERIES
(PIVOTING)



1. Reposition wire J3-3 in rooftop unit at TB34 to K13 termianl 9 (Direct Drive) or K3-A (Belt Drive) by adding extension.
2. Reposition enthalpy control (A7) into intake hood of ERV from rooftop unit economizer.
3. Remove jumper to install optional low ambient switch.
4. S123 is used only on Higher CFM units.
5. Not used for either global enthalpy or sensible temperature.



KEY	DESCRIPTION COMPONENT
A130	CONTROL-PIVOT WHEEL
B26	MOTOR-EXHAUST AIR BLOWER
B27	MOTOR-FRESH AIR BLOWER
B28	MOTOR-DESICCANT WHEEL
B29	MOTOR-WHEEL AND DAMPER
B30	MOTOR-DAMPER OPTIONAL
C23	CAPACITOR-WHEEL MOTOR
CB20	CIRCUIT BREAKER-DESICCANT WHEEL
F29	FUSE-DESICCANT WHEEL
J42	JACK-EXHAUST FAN
J48	JACK-MOTOR,VARIABLE SPEED
J50	JACK-TRANSFORMER
J51	JACK-EXHAUST BLOWER
J56	JACK-DAMPER MOTOR,BOARD
J147	JACK-EXHAUST AIR BLOWER
J148	JACK-FRESH AIR BLOWER
J149	JACK-WHEEL AND DAMPER MOTOR
J150	JACK-WHEEL MOTOR
J151	JACK-EXHAUST BLOWER MOTOR
J152	JACK-TRANS.EXHAUST BLOWER MOTOR
J160	JACK-DAMPER MOTOR
K163,-1	CONTACTOR-EXHAUST AIR
K164,-1	CONTACTOR-FRESH AIR BLOWER
K179,-1	CONTACTOR-EXHAUST AIR
P42	PLUG-EXHAUST FAN
P48	PLUG-MOTOR,VARIABLE SPEED
P50	PLUG-TRANSFORMER
P51	PLUG-EXHAUST BLOWER
P56	PLUG-DAMPER MOTOR,BOARD
P147	PLUG-EXHAUST AIR BLOWER
P148	PLUG-FRESH AIR BLOWER
P149	PLUG-WHEEL AND DAMPER MOTOR
P150	PLUG-WHEEL MOTOR
P151	PLUG-EXHAUST BLOWER MOTOR
P152	PLUG-TRANS,EXHAUST BLOWER MOTOR
P160	PLUG-DAMPER MOTOR
S26	THERMOSTAT-AMBIENT
S51	SWITCH-DOOR INTERLOCK 1
S110	SWITCH-TIP
T27	TRANSFORMER-DESICCANT WHEEL
T28	TRANSFORMER-STEPDOWN,WHEEL MOTOR

1. NOTE-FOR USE WITH COPPER CONDUCTORS ONLY REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION SIZE
2. REMOVE JUMPER TO INSTALL FIELD OPTIONAL LOW AMBIENT SWITCH
3. STEP DOWN TRANSFORMER ASSEMBLY FOR 480 AND 600 VOLT UNITS ONLY
4. M (380/3/50) VOLTAGE HOOKUP
5. USED ON HIGHER CFM UNITS
6. S110 CLOSED DURING RECOVERY MODE
   S110 IS OPEN DURING ECONOMIZER MODE

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

DISCONNECT ALL POWER BEFORE SERVICING

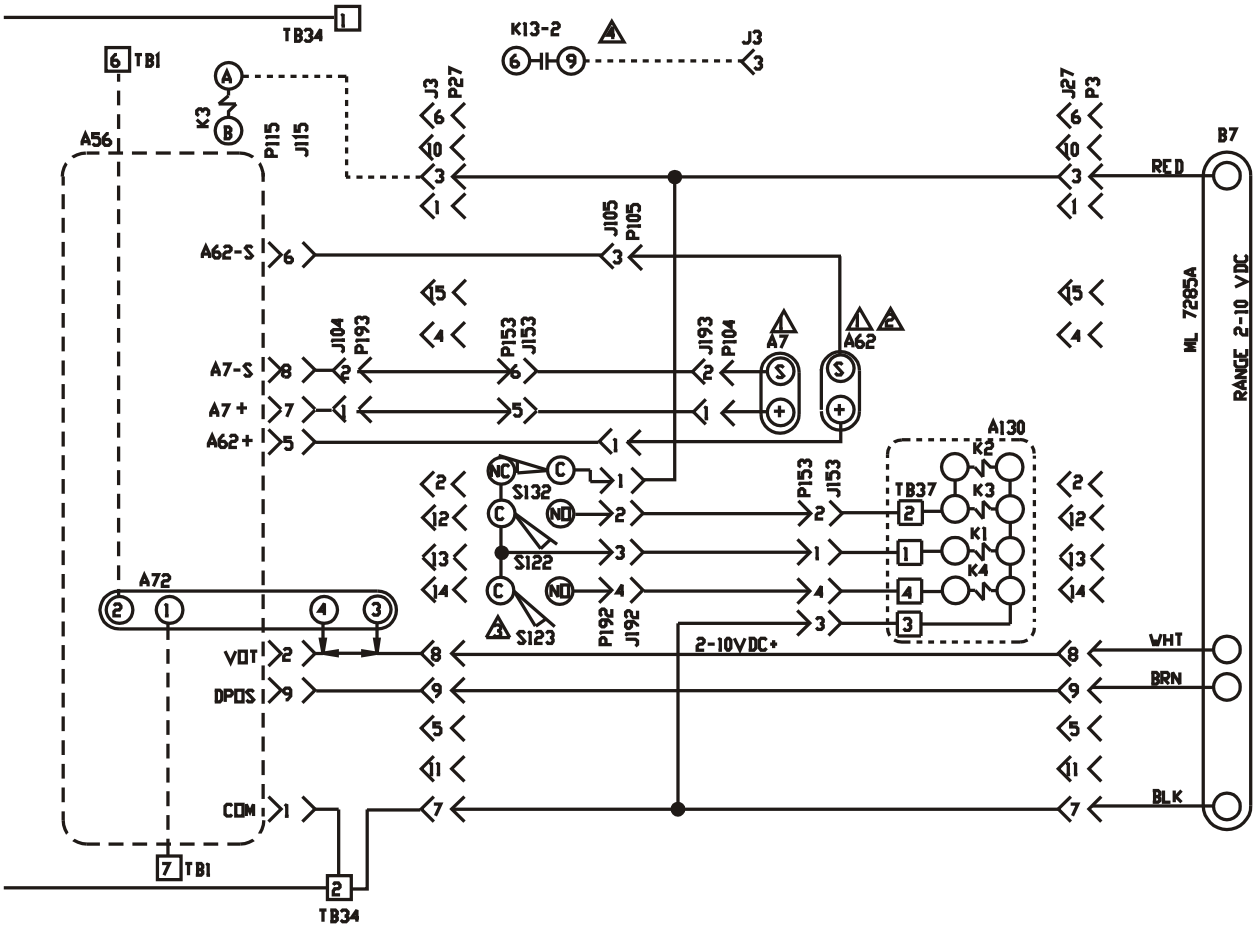
THERMOSTAT HEAT ANTICIPATION SETTING 0.1 AMP

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

⟵ DENOTES OPTIONAL COMPONENTS

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

WIRING DIAGRAM	8/02
COMBINATION PACKAGED/ROOFTOP	
PIVOTING ENERGY RECOVERY WHEEL "L" SERIES AND 16 SERIES G,J,M,Y VOLTAGE UNITS	
HEAT/COOL SECTION F3	
Supersedes Form No.	New Form No. 534.213W



KEY	DESCRIPTION COMPONENT
A7	SENSOR-SOLID STATE ENTHALPY
A56	PANEL-ECONOMIZER
A62	SENSOR-ENTHALPY,INDOOR
A72	CONTROL-REMOTE,MIN POS(OPT)
A130	CONTROL-ERS
B7	MOTOR-DAMPER
J3	JACK-UNIT ECONOMIZER
J27	JACK-ECONOMIZER ADAPTER
J104	JACK-SENSOR,OUTDOOR ENTHALPY
J105	JACK-SENSOR,RETURN AIR ENTHALPY
J115	JACK-ECONOMIZER,OUTPUT
J153	JACK-ENTHALPY/DAMPER MOTOR
J192	JACK-TIP SWITCH
J193	JACK-ENTHALPY SENSOR
K3	CONTACTOR-BLOWER
K13-2	RELAY-COMB AIR INDUCER
P3	PLUG-UNIT ECONOMIZER
P27	PLUG-ECONOMIZER ADAPTER
P104	PLUG-SENSOR,OUTDOOR ENTHALPY
P105	PLUG-SENSOR,RETURN AIR ENTHALPY
P115	PLUG-ECONOMIZER,OUTPUT
P153	PLUG-ENTHALPY/DAMPER MOTOR
P192	PLUG-TIP SWITCH
P193	PLUG-ENTHALPY SENSOR
S122	SWITCH-ECONOMIZER MODE,PWR EXH
S123	SWITCH-ECONOMIZER MODE,PWR EXH
S132	SWITCH-OCCUPIED,UNOCCUPIED
TB1	TERMINAL STRIP-CLASS II VOLTAGE
TB34	TERMINAL STRIP-TRANSFORMER T1

1. DELETE A7 AND A62 (IF USED) FOR EITHER GLOBAL ENTHALPY OR SENSIBLE TEMPERATURE CONTROL
2. FOR UNIT DIFFERENTIAL ENTHALPY CONTROL, ADD A62 RETURN AIR ENTHALPY SENSOR
3. K178 AND S123 ARE USED ON HIGHER CFM UNITS
4. FOR L SERIES UNITS, 036,042,048,060,072 WITH B3 DIRECT DRIVE BLOWER MOTOR WITH HEATING AND COOLING SPEEDS, CONNECT WIRE FROM J3-3 TO K13-9.

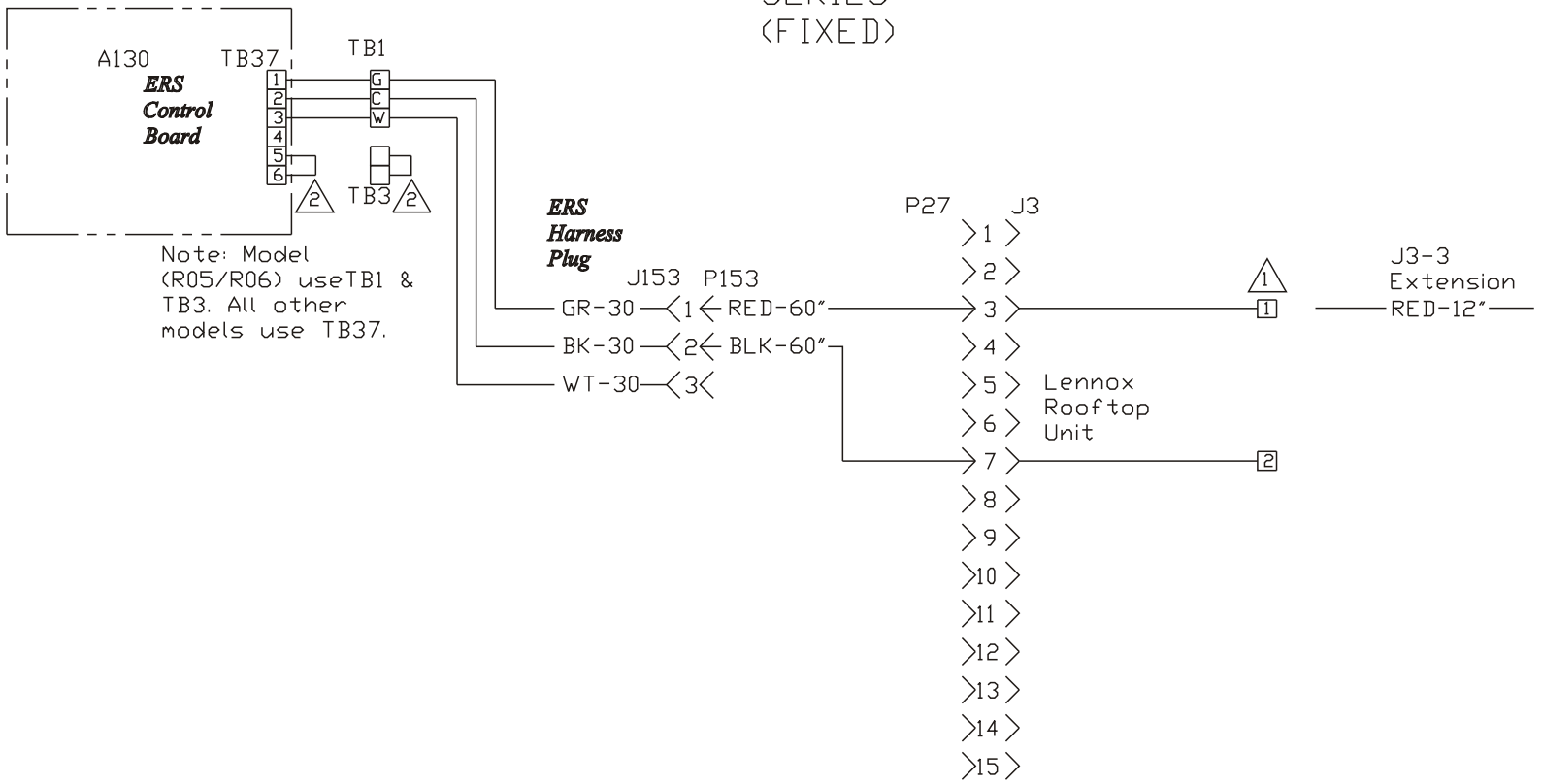
← DENOTES OPTIONAL COMPONENTS

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

WIRING DIAGRAM	8/02
ACCESSORIES	
DAD WITH PIVOTING WHEEL ENERGY RECOVERY SYSTEM FOR "L" SERIES UNITS	
SECTION-D3	
Supersedes Form No.	New Form No. 534.212W

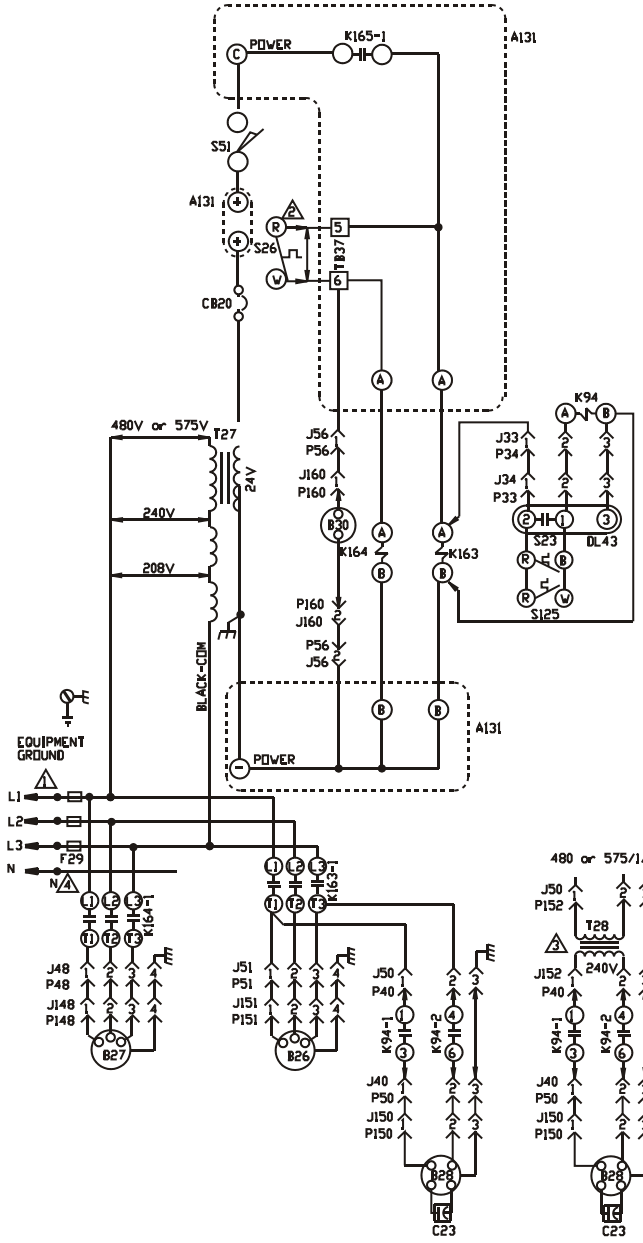
Field Wiring Harness

LGA/LCA
SERIES
(FIXED)



1 Reposition wire J3-3 in rooftop unit at TB34 to K13 termianl 9 (Direct Drive) or K3-A (Belt Drive) by adding extension.

2 Remove jumper to install optional low ambient switch.



KEY	DESCRIPTION COMPONENT
A131	CONTROL-FIXED WHEEL
B26	MOTOR-EXHAUST AIR BLOWER
B27	MOTOR-FRESH AIR BLOWER
B28	MOTOR-DESICCANT WHEEL
B30	MOTOR-DAMPER OPTIONAL
C23	CAPACITOR-WHEEL MOTOR
CB20	CIRCUIT BREAKER-DESICCANT WHEEL
DL43	DELAY-CYCLE TIMER
F29	FUSE-DESICCANT WHEEL
J33	JACK-CYCLE CONTROL
J34	JACK-CYCLE CONTROL HARNESS
J40	JACK-WHEEL CYCLE
J48	JACK-MOTOR,VARIABLE SPEED
J50	JACK-TRANSFORMER
J51	JACK-EXHAUST BLOWER
J56	JACK-DAMPER MOTOR,BOARD
J148	JACK-FRESH AIR BLOWER
J150	JACK-WHEEL MOTOR
J151	JACK-EXHAUST BLOWER MOTOR
J152	JACK-TRANS,EXHAUST BLOWER MOTOR
J160	JACK-DAMPER MOTOR
K94,-1,2	RELAY-ON-OFF
K163,-1	CONTACTOR-EXHAUST AIR
K164,-1	CONTACTOR-FRESH AIR BLOWER
P33	PLUG-CYCLE CONTROL
P34	PLUG-CYCLE CONTROL HARNESS
P40	PLUG-WHEEL CYCLE
P48	PLUG-MOTOR,VARIABLE SPEED
P50	PLUG-TRANSFORMER
P51	PLUG-EXHAUST BLOWER
P56	PLUG-DAMPER MOTOR,BOARD
P148	PLUG-FRESH AIR BLOWER
P150	PLUG-WHEEL MOTOR
P151	PLUG-EXHAUST BLOWER MOTOR
P152	PLUG-TRANS,EXHAUST BLOWER MOTOR
P160	PLUG-DAMPER MOTOR
S23	SWITCH-LOW AMBIENT CUT IN
S26	THERMOSTAT-AMBIENT
S51	SWITCH-DOOR INTERLOCK 1
S125	SWITCH-AMBIENT OVERRIDE
T27	TRANSFORMER-DESICCANT WHEEL
T28	TRANSFORMER-STEPDOWN,WHEEL MOTOR

1. NOTE-FOR USE WITH COPPER CONDUCTORS ONLY REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION SIZE
2. REMOVE JUMPER TO INSTALL FIELD OPTIONAL LOW AMBIENT SWITCH
3. STEP DOWN TRANSFORMER ASSEMBLY FOR 480 AND 600 VOLT UNITS ONLY
4. M (380/3/50) VOLTAGE HOOKUP

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

DISCONNECT ALL POWER BEFORE SERVICING

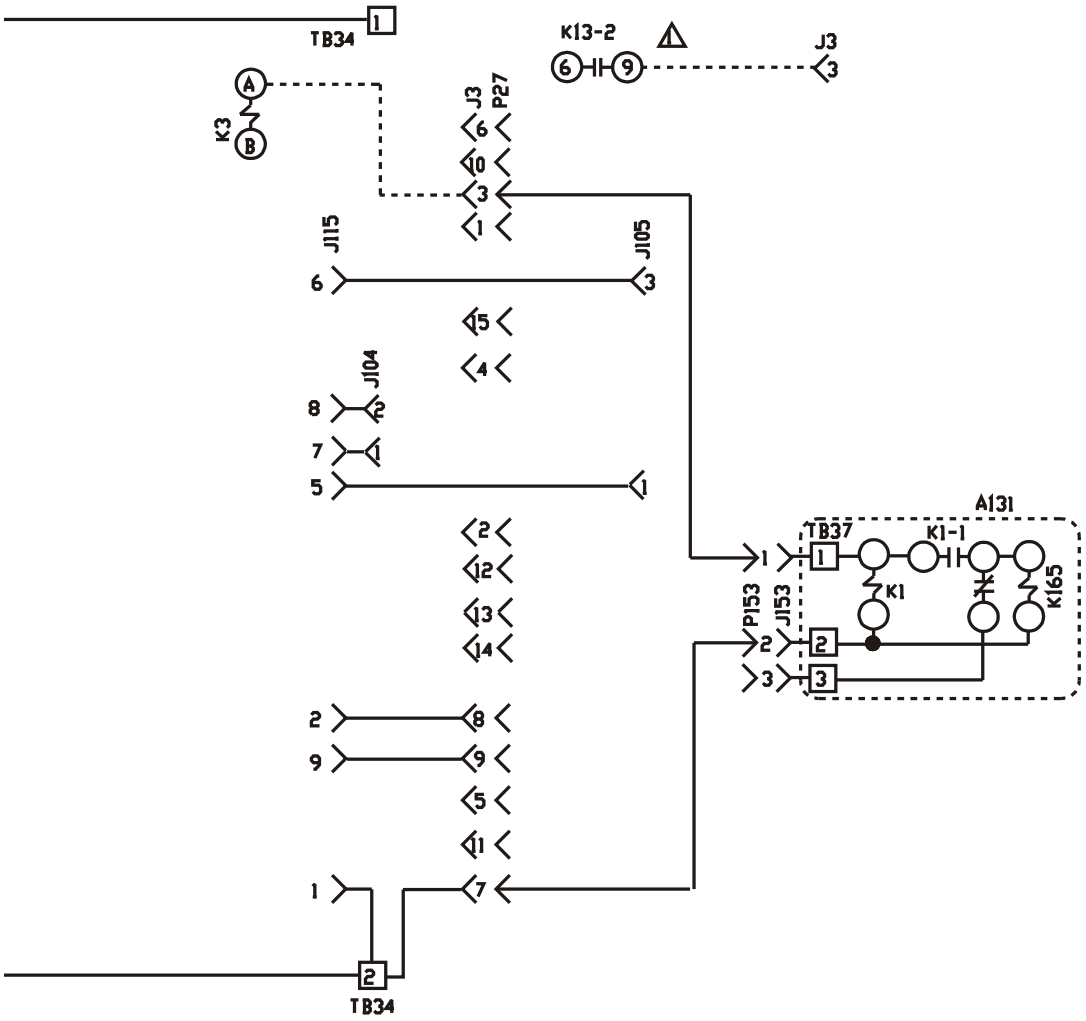
THERMOSTAT HEAT ANTICIPATION SETTING 0.1 AMP

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

DENOTES OPTIONAL COMPONENTS

LINE VOLTAGE FIELD INSTALLED NEC/CEC CLASS 1
NOTE-ALL REMAINING WIRES FACTORY INSTALLED

WIRING DIAGRAM	9/03
COMBINATION PACKAGED/ROOFTOP	
FIXED ENERGY RECOVERY WHEEL "L" SERIES AND 16 SERIES G,J,M,Y VOLTAGE UNITS	
HEAT/COOL SECTION F3	
Supersedes Form No.	New Form No. 534,227W



DESCRIPTION	
KEY	COMPONENT
A131	CONTROL-ERS
J3	JACK-UNIT ECONOMIZER
J104	JACK-SENSOR,OUTDOOR ENTHALPY
J105	JACK-SENSOR,RETURN AIR ENTHALPY
J115	JACK-ECONOMIZER,OUTPUT
J153	JACK-ENTHALPY/DAMPER MOTOR
K3	CONTACTOR-BLOWER
K13-2	RELAY-COMB AIR INDUCER
P27	PLUG-ECONOMIZER ADAPTER
P153	PLUG-ENTHALPY/DAMPER MOTOR
TB34	TERMINAL STRIP-TRANSFORMER T1

⚠ FOR L SERIES UNITS, 036,042,048,060,072 WITH B3 DIRECT DRIVE BLOWER MOTOR WITH HEATING AND COOLING SPEEDS, CONNECT WIRE FROM J3-3 TO K13-9.

WIRING DIAGRAM	9/02
ACCESSORIES	
DAD WITH FIXED WHEEL ENERGY RECOVERY SYSTEM FOR "L" SERIES UNITS	
SECTION-D3	
Supersedes Form No.	New Form No. 534.229W

Litho U.S.A.

Lennox Cat No.	Lennox Model No.	Req'd Curb Height	CFM Range	Voltage	Phase
43M03	LAERS03/07-1700HP-1Y Energy Rec Sys	24"	1100-1700	208-230	3
43M04	LAERS03/07-1700HP-1G Energy Rec Sys	24"	1100-1700	460	3
48M25	LAERS03/07-1700HP-1J Energy Rec Sys	24"	1100-1700	575	3
43M11	LAERS03/07-1700HF-1Y Energy Rec Sys	24"	1100-1700	208-230	3
43M12	LAERS03/07-1700HF-1G Energy Rec Sys	24"	1100-1700	460	3
48M28	LAERS03/07-1700HF-1J Energy Rec Sys	24"	1100-1700	575	3