

506715-04
2/2025
Supersedes 506715-03

POWER EXHAUST FANS
**INSTALLATION INSTRUCTIONS FOR POWER EXHAUST FANS USED WITH
LG/LC/LH/LD/KG/KC/KH/KD 078-152 & LG/LC/LH/LD 240-360 PACKAGED UNITS**
Shipping and Packing List**53W44, 45, 46, & 47****Package 1 of 1 contains:**

- 1- Power exhaust assembly
- 1- Bag assembly containing:
 - #10 Sheet metal screws
 - #12 Sheet metal screws
 - 1- K65 exhaust fan relay
 - 3- Harnesses

74W21, 22, 23, 24**Package 1 of 1 contains:**

- 1- Power exhaust assembly
- 1- Harness (3 in 74W24 kits)
- 1- K65/K123 Relay (2 in 74W21, 22, 23, 24 kits)
- 1- Bag assembly containing:
 - Self tapping screws
 - Thread forming screws
 - 1-Foam insulating tape
- 74W21 Kits Only:
 - 2- Fuse holders 2-Fuses
 - 1- Fuse block bracket

Check packaging for shipping damage. Contact the last carrier immediately if any shipping damage is found.

!CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

Application

Power exhaust fans are applied to units equipped with an economizer in downflow air discharge. The power exhaust fan option cannot be used in horizontal air discharge applications. See TABLE 1.

!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 licensed professional HVAC installer or equivalent, service agency, or the gas supplier.

TABLE 1

Unit	Voltage	Part #	CAT. #
078-152	Y (208/230)	603365-01	53W44
078-152	G (460)	603365-02	53W45
078-152	J (575)	603365-03	53W46
240, 300H, 360	Y (208/230)	606210-01	74W21
240, 300H, 360	G (460)	606210-02	74W22
240, 300H, 360	J (575)	606210-03	74W23

Locate all other accessories to be installed. Install accessories in the following order:

- 1 - Outdoor Air or Economizer Dampers
- 2 - Sensors
- 3 - Power Exhaust Fans
- 4 - Gravity Exhaust Dampers
- 5 - Exhaust Hoods
- 6 - Intake Hoods

Wiring

IMPORTANT -

53W44, 45, 46 & 47 Kits

Discard harness labeled 603541-01 when installing the exhaust fan in KG/KC/KH/KD 092-150 units.

74W21 Kit

Discard harness labeled 606666-01 and one relay when installing single-stage exhaust fans.

Discard harness labeled 607048-01 when installing dual-stage exhaust fans.

74W22 & 23 Kits

Discard harness labeled 606665-01 and one relay when installing single-stage exhaust fans.

Discard harness labeled 607049-01 when installing dual-stage exhaust fans.

74W24 Kit

Discard harness labeled 606665-01 and one relay when installing single-stage exhaust fans.

Discard harnesses labeled 607049-01 and 607050-01 when installing dual-stage exhaust fans.

Install K65 (and K231 on dual-stage exhaust fans) exhaust fan relay(s) in unit control box using screws provided. Refer to figure shown in TABLE 2.

240 - 360 Y-Volt Units Only -

Install F6 fuse block near F10 fuse block. Insert fuses provided. See FIGURE 3.

Route wire harnesses; refer to figure shown in TABLE 2.

Harness wires are hot-stamped for identification. Make wiring connections as follows:

FIGURE 7	LG/LC/LH/LD 078-152 units - std. SCCR
FIGURE 9	LCX/LGX/LHX 092-150, all voltages
FIGURE 10	LG/LC/LH/LD 078-152 units - high SCCR
FIGURE 11	KG/KC/KH/KD 092-150 units
FIGURE 12	LGH/LCH242-360 G & J volt units
FIGURE 13	LGH/LCH242-360 Y volt units
FIGURE 14	LGT/LCT242-360 all voltages

TABLE 2

Unit	Voltage	Figure	
		K65/K231	Wire Routing
LGM/LCM 092-150	All	1	4
LG/LC/LH/LD 078-152	All	1	5
KG/KC/KH/KD 092-150	All	1	6
LCX/LGX/LHX 092-150	All	1	8
240-360	G, J	2	2
360	Y	3	3

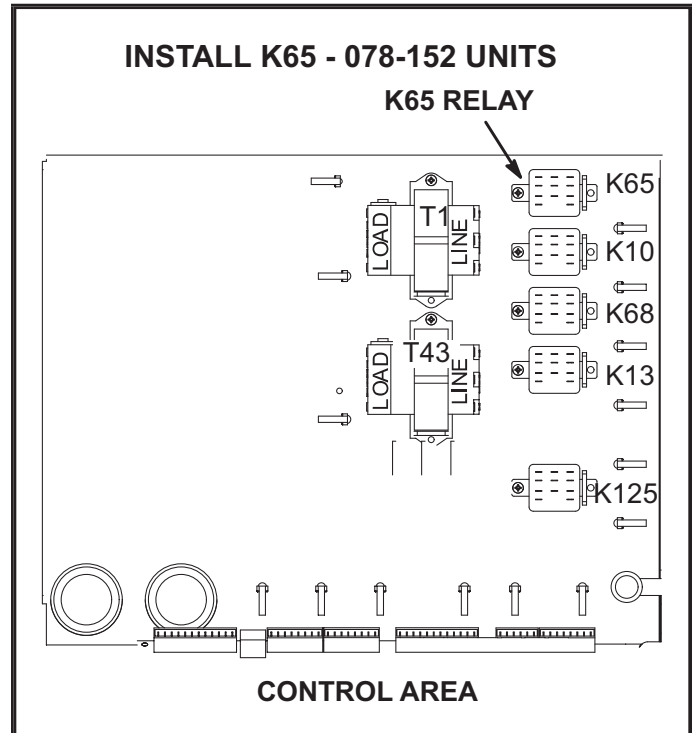


FIGURE 1

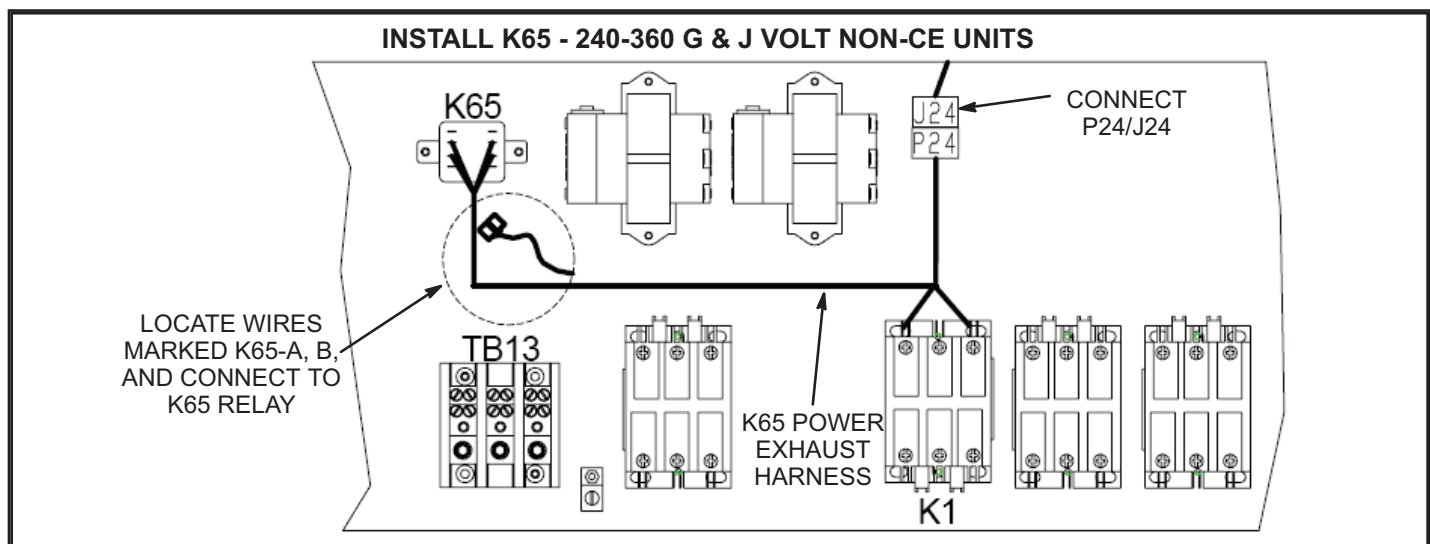


FIGURE 2

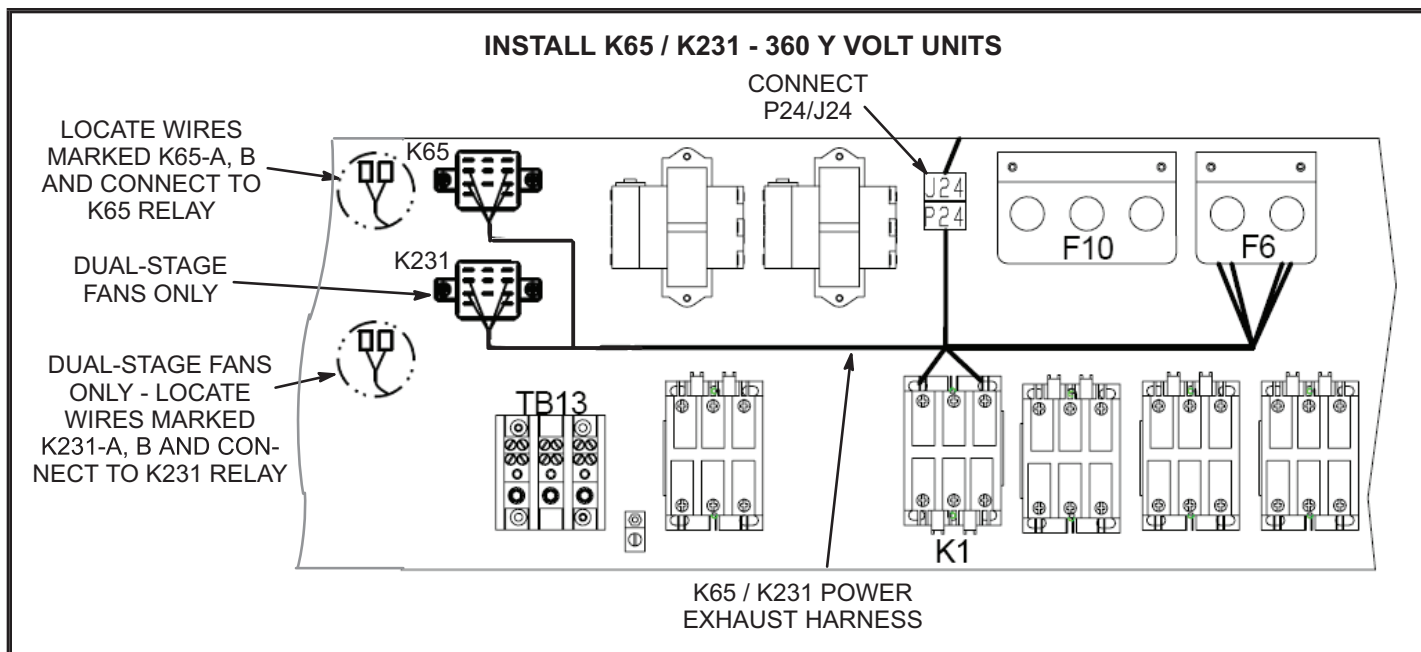


FIGURE 3

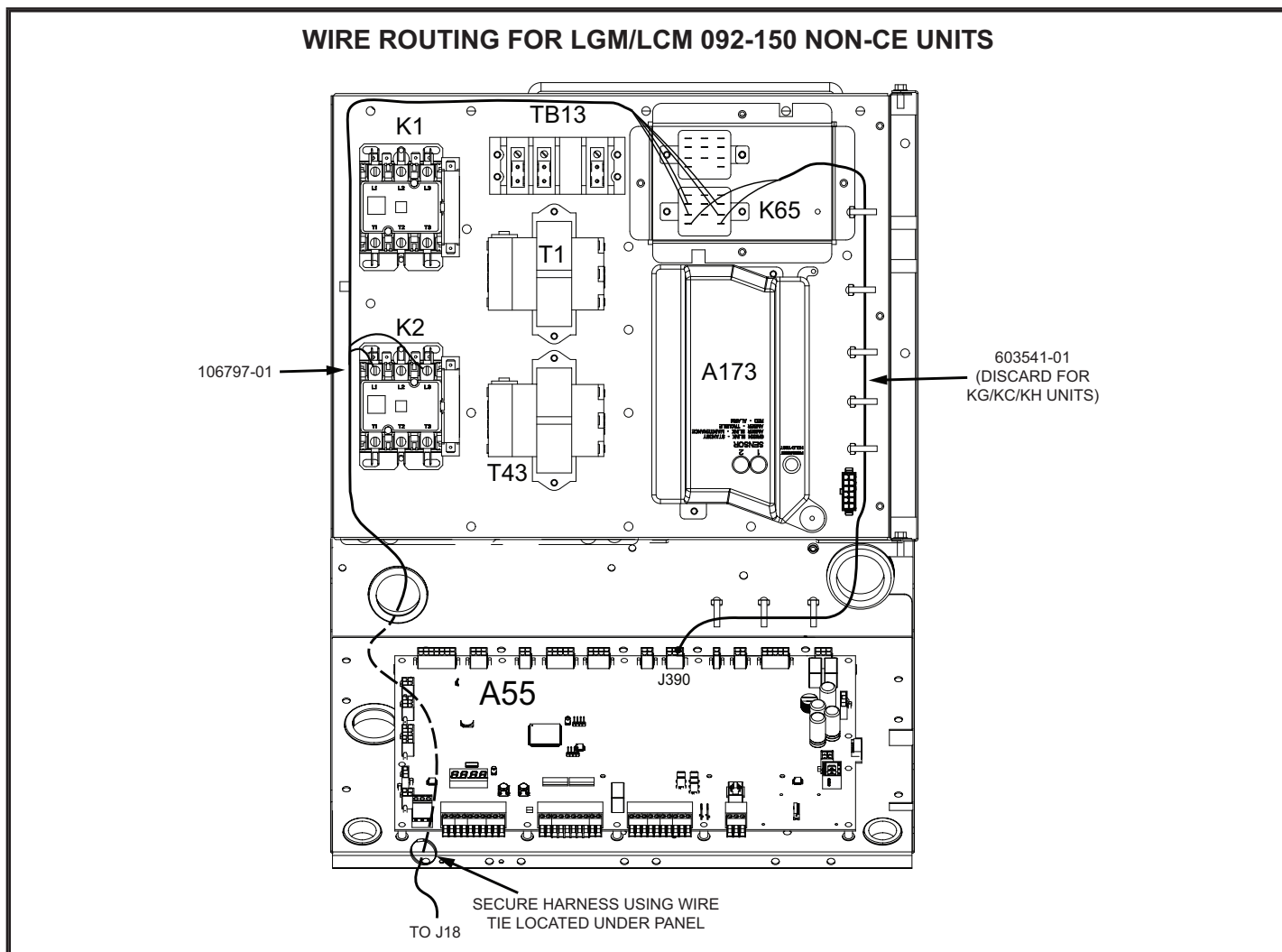


FIGURE 4

WIRE ROUTING FOR LCT/LGT/LHT/LDT 078-152 NON-CE UNITS

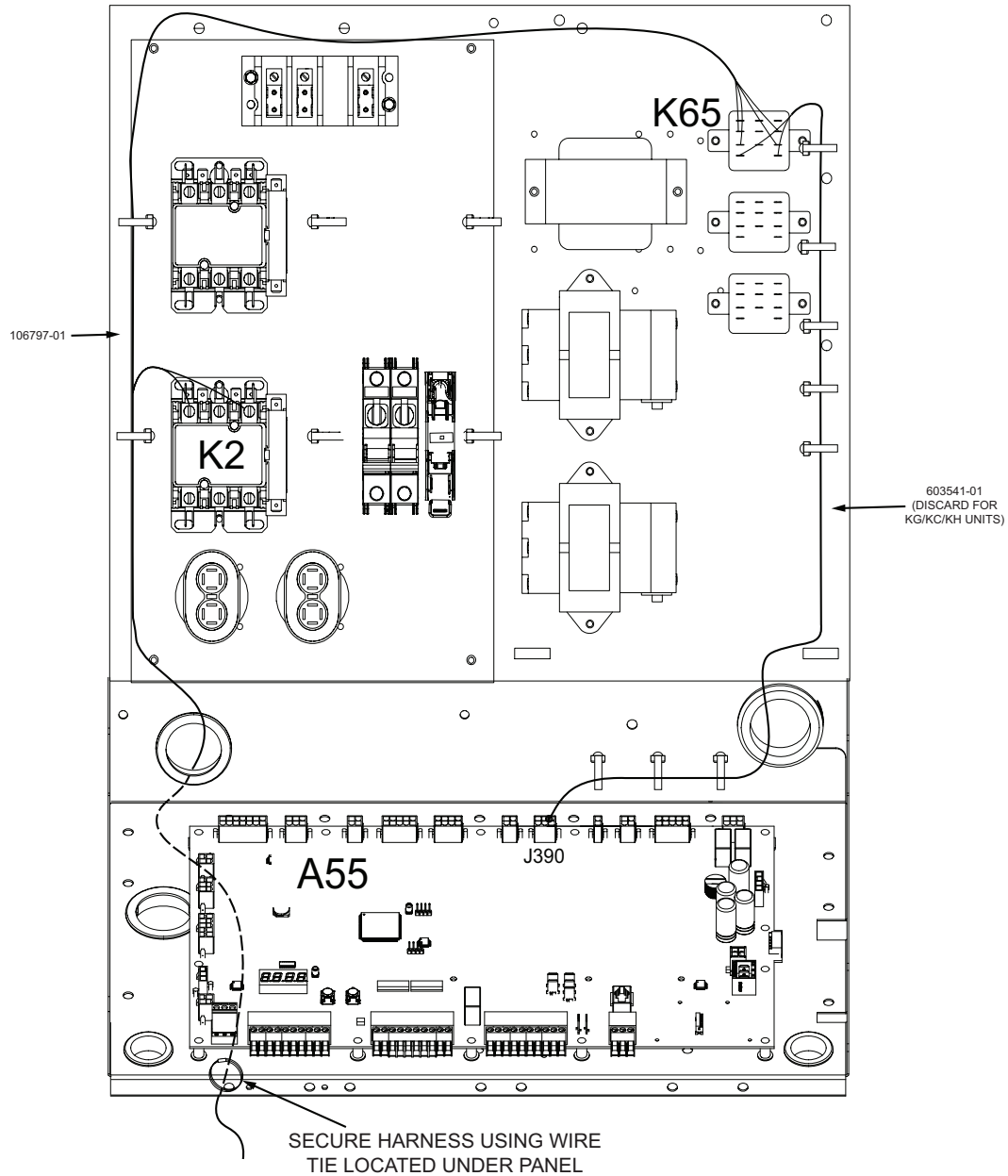


FIGURE 5

WIRE ROUTING FOR KG/KC/KH/KD 092-150 UNITS (NON-CE UNITS)

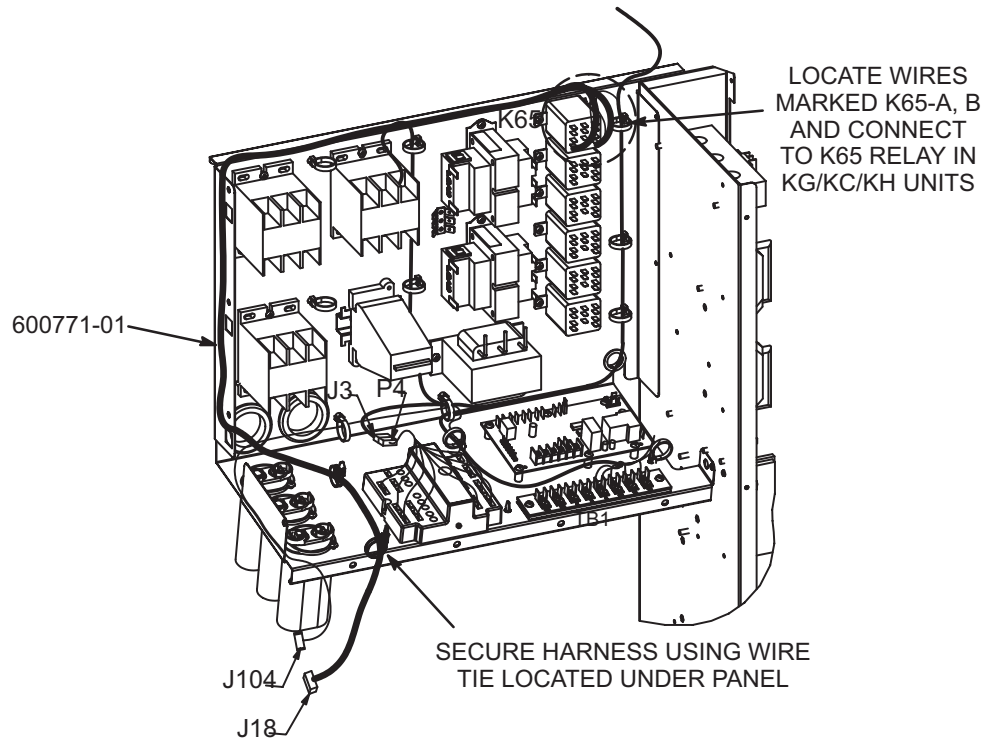


FIGURE 6

LG/LC/LH/LD 078-152 WIRING - STANDARD SCCR UNITS

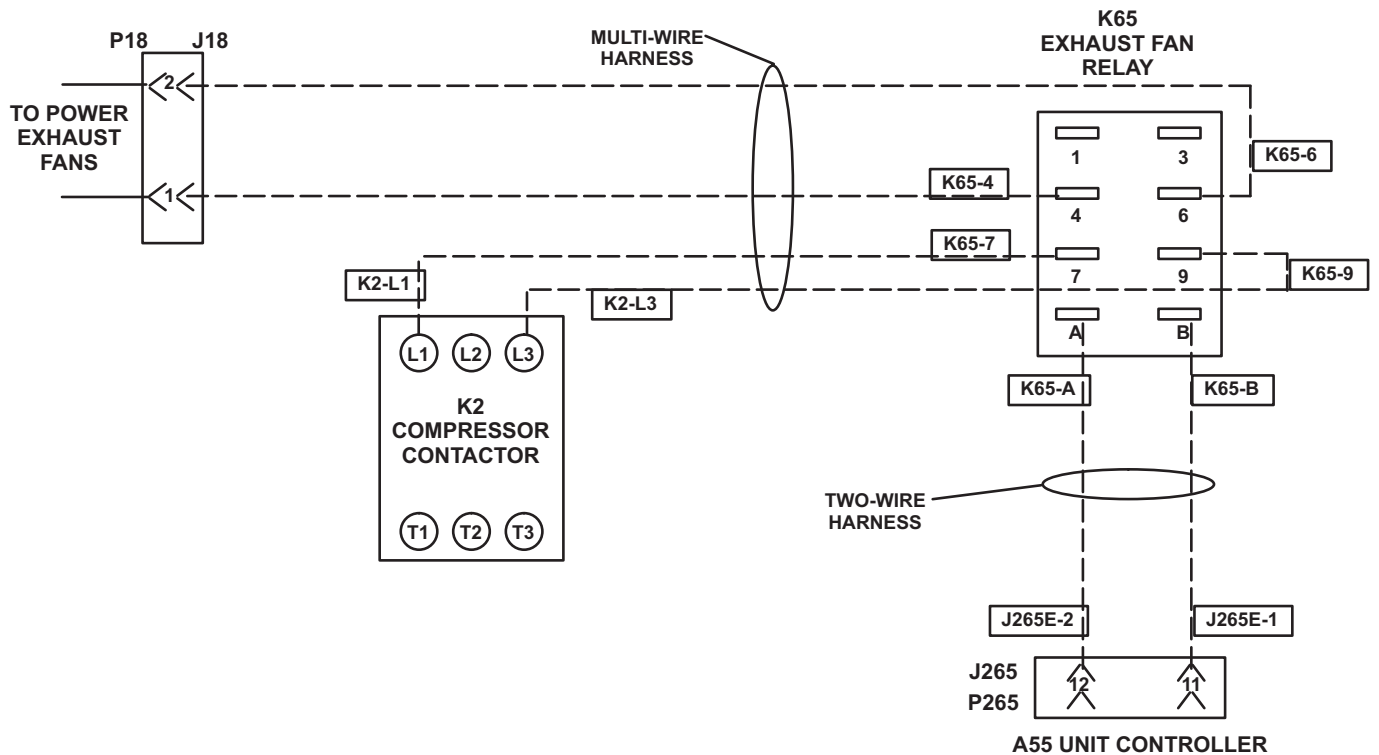


FIGURE 7

WIRE ROUTING FOR LGX/LCX/LHX 092-150 UNITS

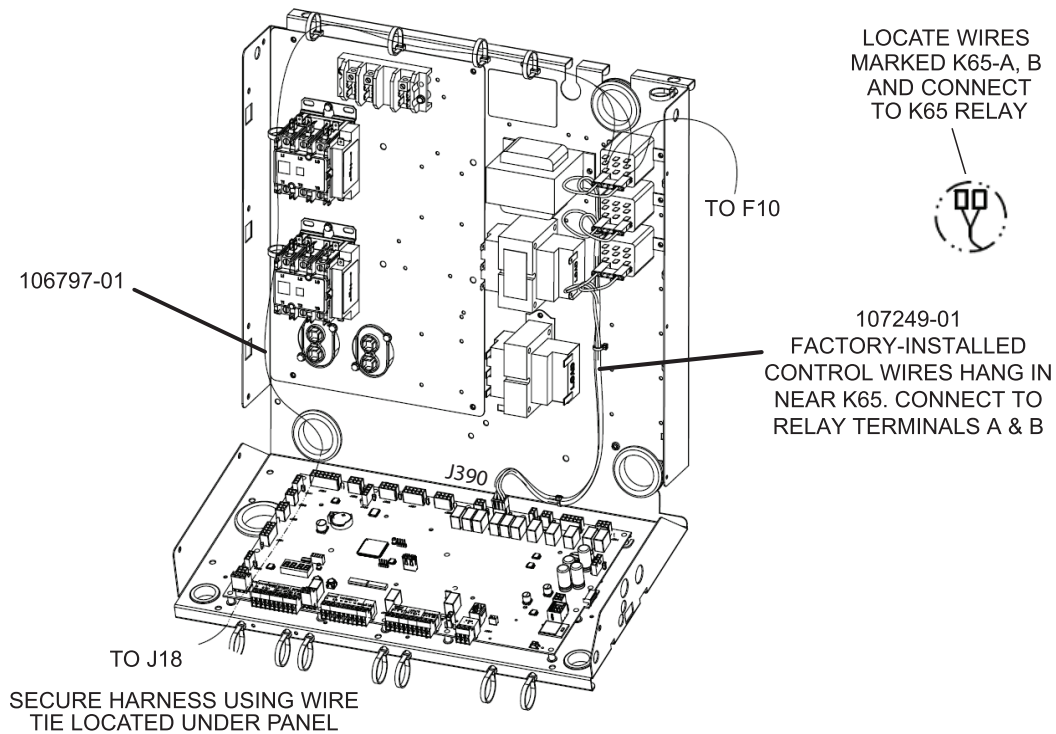


FIGURE 8

LGX/LCX/LHX 092-150 WIRING

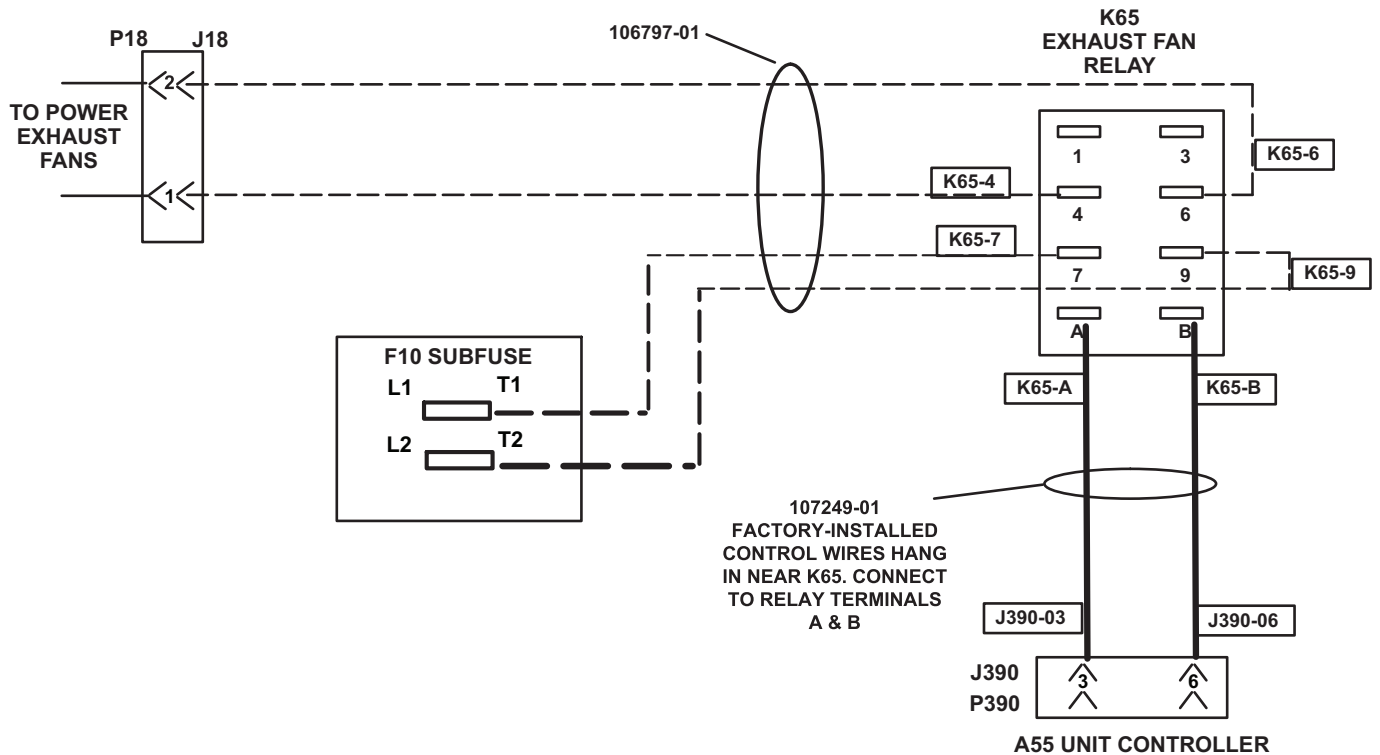


FIGURE 9

LG/LC/LH/LD 092-152 WIRING - HIGHER SCCR UNITS

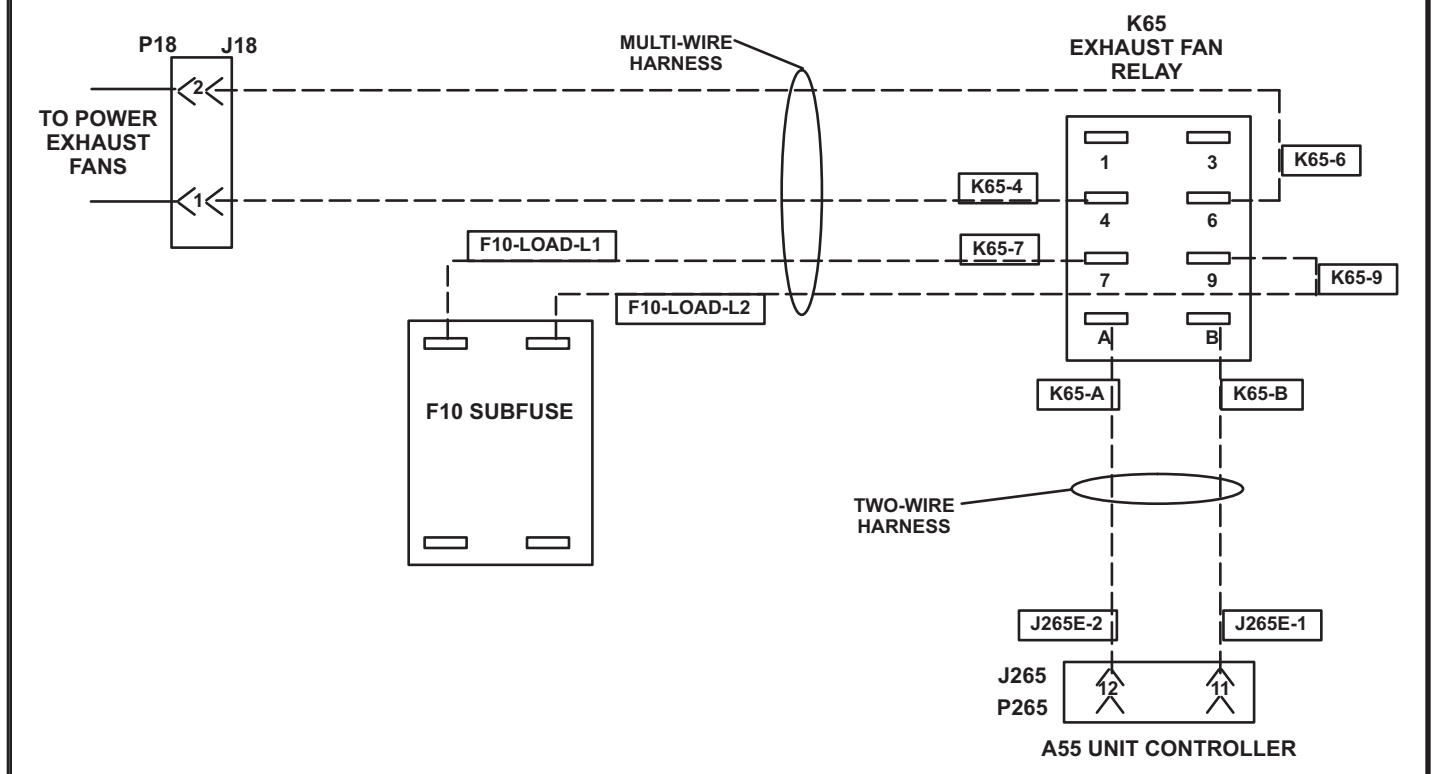


FIGURE 10

KG/KC/KH/KD 092-150 WIRING

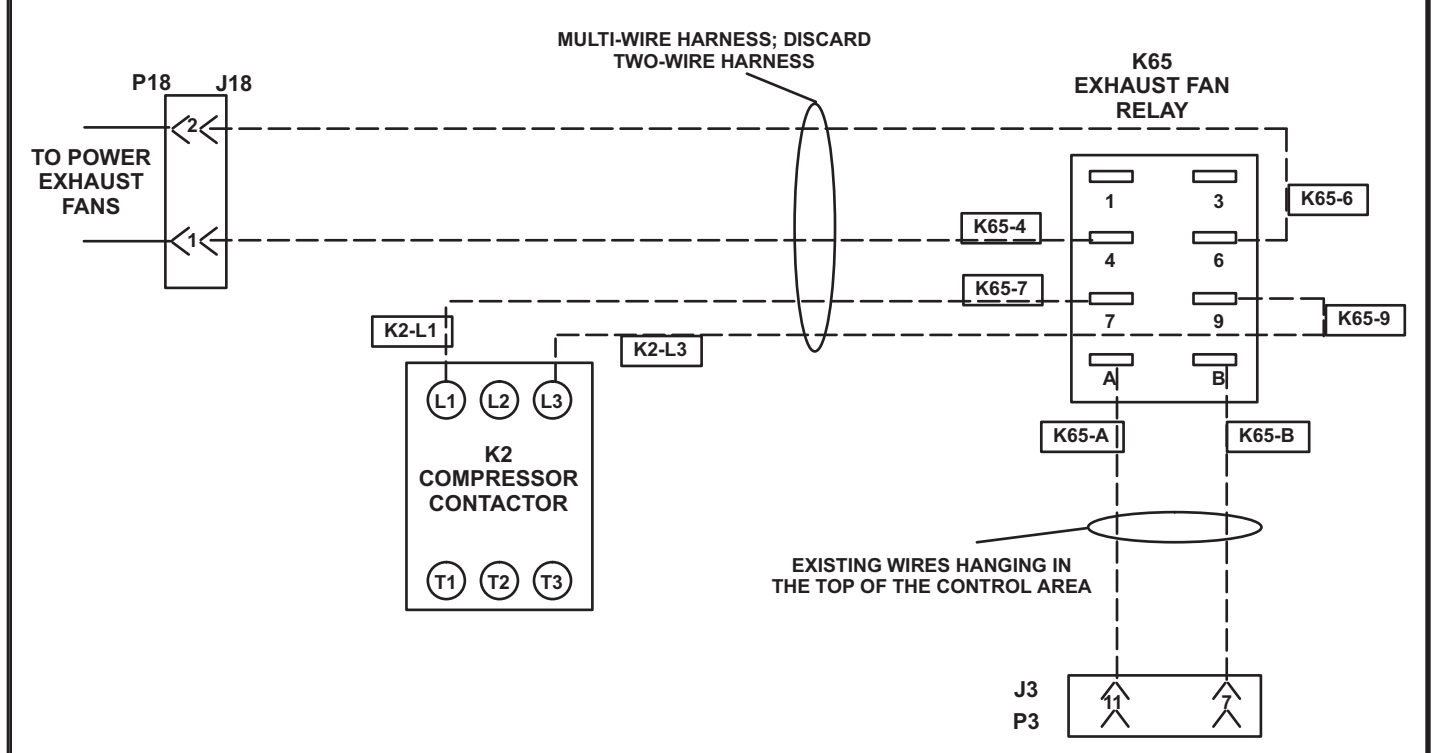
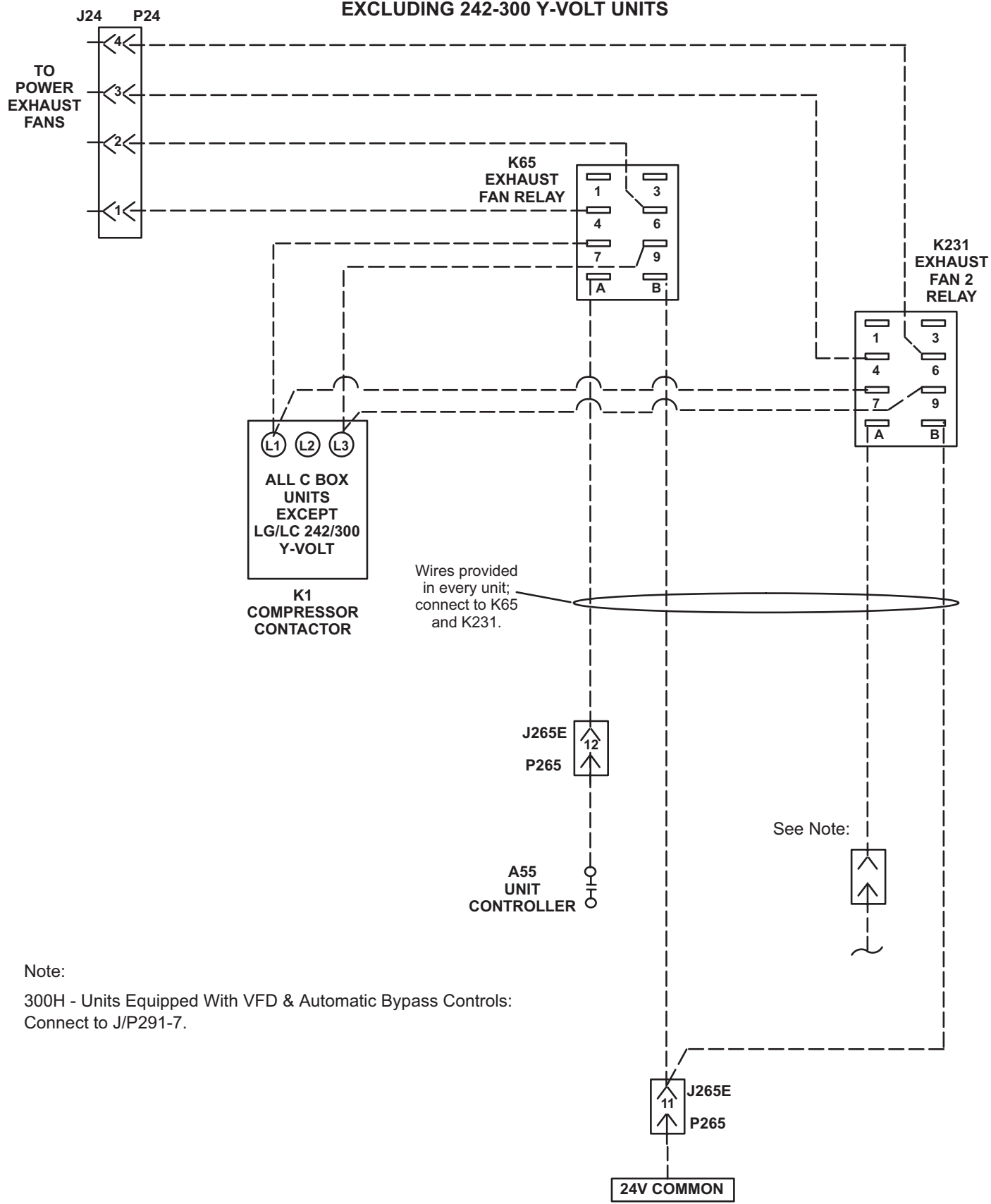


FIGURE 11

LGH/LCH 242-300 WIRING EXCLUDING 242-300 Y-VOLT UNITS



Note:

300H - Units Equipped With VFD & Automatic Bypass Controls:
Connect to J/P291-7.

FIGURE 12

LGH/LCH 242-300 Y-VOLT WIRING

The diagram illustrates the electrical wiring for LGH/LCH 242-300 Y-VOLT units. It includes the following components and connections:

- Power Source:** A vertical terminal block on the left with terminals J24 (1, 2, 3, 4) and P24 (1, 2, 3, 4). Terminals 1, 2, and 3 are labeled "TO POWER EXHAUST FANS".
- Exhaust Fan Relays:** Two relays, K65 (EXHAUST FAN RELAY) and K231 (FAN 2 RELAY), are shown. Each has terminals 1, 3, 4, 6, 7, 9, A, and B.
- Compressor Contactor:** K1 COMPRESSOR CONTACTOR with terminals 1, 2, L1, L2, and L3.
- Fuse:** F6 EXHAUST FUSE.
- Unit Controller:** A55 UNIT CONTROLLER with terminals J265E and P265.
- Wiring Connections:**
 - Terminal 1 of K65 is connected to P24 terminal 1.
 - Terminal 3 of K65 is connected to P24 terminal 2.
 - Terminal 4 of K65 is connected to P24 terminal 3.
 - Terminal 6 of K65 is connected to P24 terminal 4.
 - Terminal 7 of K65 is connected to P24 terminal 1.
 - Terminal 9 of K65 is connected to P24 terminal 2.
 - Terminal A of K65 is connected to P24 terminal 3.
 - Terminal B of K65 is connected to P24 terminal 4.
 - Terminal 1 of K231 is connected to P24 terminal 1.
 - Terminal 3 of K231 is connected to P24 terminal 2.
 - Terminal 4 of K231 is connected to P24 terminal 3.
 - Terminal 6 of K231 is connected to P24 terminal 4.
 - Terminal 7 of K231 is connected to P24 terminal 1.
 - Terminal 9 of K231 is connected to P24 terminal 2.
 - Terminal A of K231 is connected to P24 terminal 3.
 - Terminal B of K231 is connected to P24 terminal 4.
 - Terminal 1 of K1 is connected to P24 terminal 1.
 - Terminal 2 of K1 is connected to P24 terminal 2.
 - Terminal L1 of K1 is connected to P24 terminal 3.
 - Terminal L2 of K1 is connected to P24 terminal 4.
 - Terminal L3 of K1 is connected to P24 terminal 1.
 - Terminal 1 of F6 is connected to P24 terminal 1.
 - Terminal 2 of F6 is connected to P24 terminal 2.
 - Terminal 1 of A55 is connected to P24 terminal 1.
 - Terminal 2 of A55 is connected to P24 terminal 2.
 - Terminal 3 of A55 is connected to P24 terminal 3.
 - Terminal 4 of A55 is connected to P24 terminal 4.
 - Terminal 1 of J265E is connected to P24 terminal 1.
 - Terminal 2 of J265E is connected to P24 terminal 2.
 - Terminal 3 of J265E is connected to P24 terminal 3.
 - Terminal 4 of J265E is connected to P24 terminal 4.
 - Terminal 1 of J265E is connected to P24 terminal 1.
 - Terminal 2 of J265E is connected to P24 terminal 2.
 - Terminal 3 of J265E is connected to P24 terminal 3.
 - Terminal 4 of J265E is connected to P24 terminal 4.

Note:
300H - Units Equipped With VFD & Automatic Bypass Controls:
Connect to J/P291-7.

FIGURE 13

LGT/LCT 302-360 ALL VOLTAGES WIRING

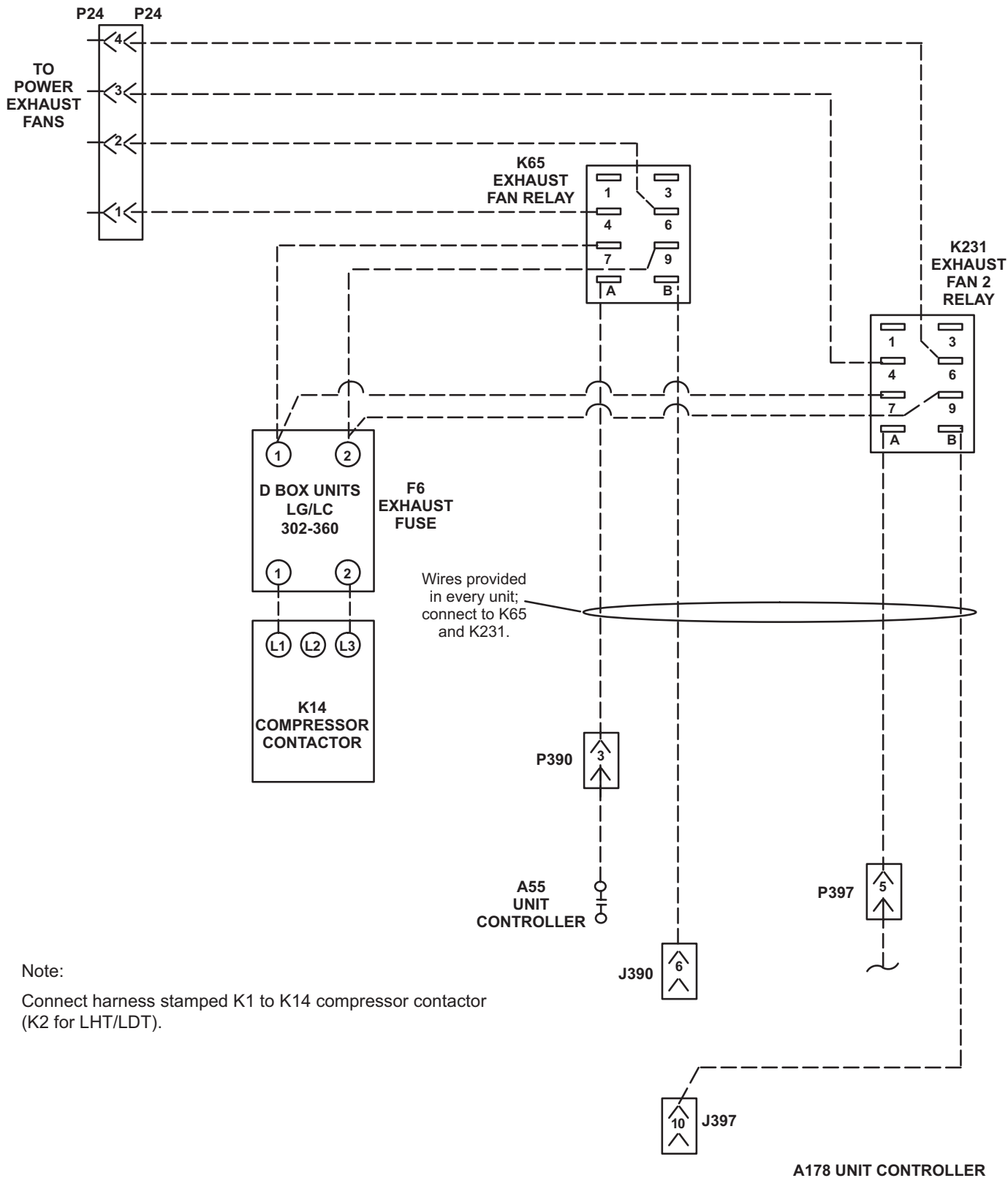


FIGURE 14

Installation

078-152 Units (refer to FIGURE 15)

- 1 - Disconnect electrical power to unit.
- 2 - Remove both upper and lower accessory panels from unit. Retain screws for future use. Also remove optional gravity exhaust damper if unit contains one.

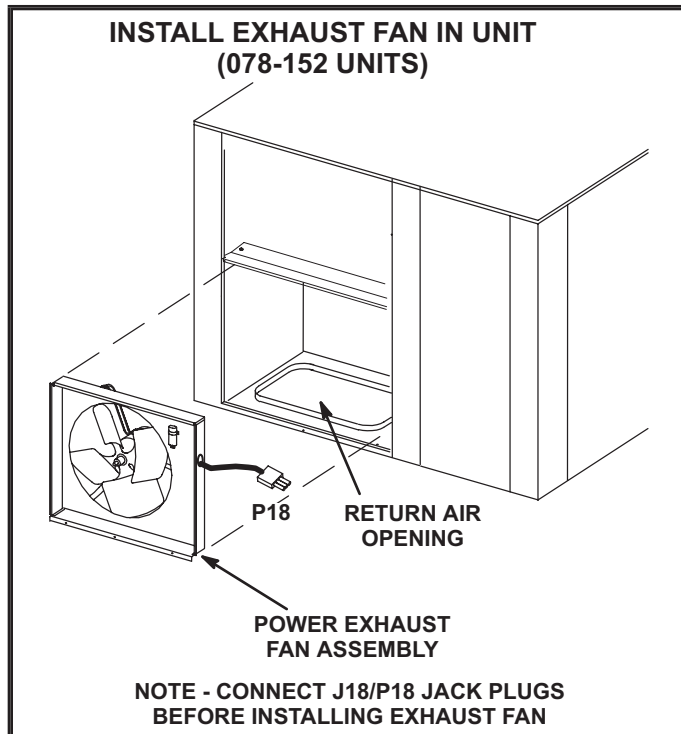


FIGURE 15

- 3 - Reach through fan orifice and connect power exhaust fan P18 plug to unit J18 jack. J18 is located on the wall between the economizer and compressor section. See FIGURE 16.

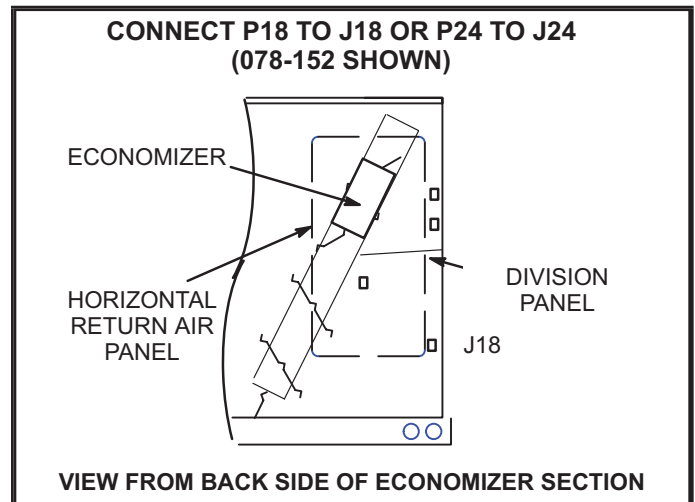


FIGURE 16

240-360 Units

- 1 - Disconnect electrical power to unit.
- 2 - Remove both upper and lower accessory panels from unit. Retain screws for future use. Also remove optional gravity exhaust damper if unit contains one.

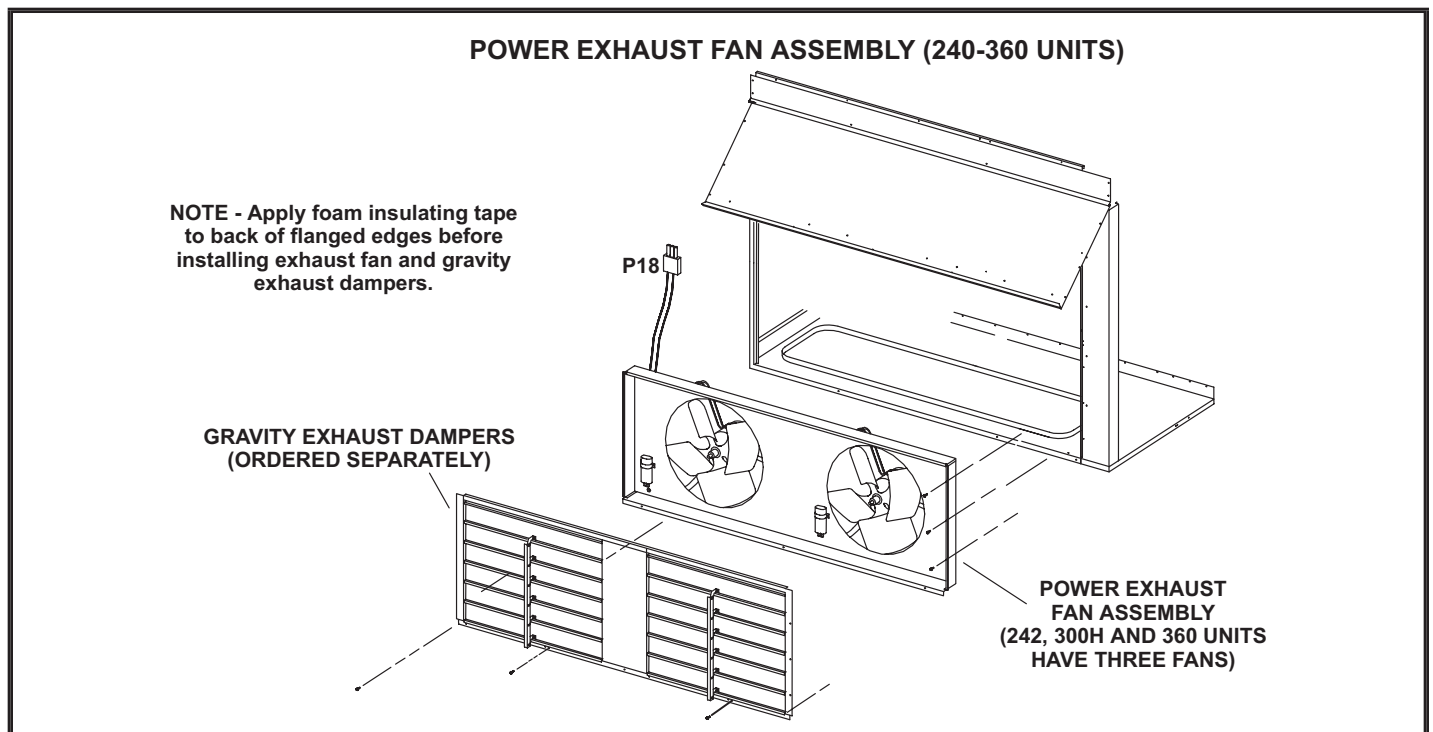


FIGURE 17

- 3 - Apply foam insulating tape on the back of the flanged edges of the fan assembly.
- 4 - Reach through fan orifice and connect power exhaust fan P18 plug to unit J18 jack. J18 is located on the left side underneath the fresh/exhaust air divider panel. See FIGURE 17.

All Units

- 1 - Lift the fan assembly into the opening and insert the top side first. Align the top of the assembly inside the flange on the division panel. Secure the bottom of the assembly to the unit with screws provided. See FIGURE 15 for 078-152 units and FIGURE 17 for 240/360 units.
- 2 - Install gravity exhaust damper according to instructions provided with damper.

Unit Controller Setup

Unit Controllers have power exhaust fan control options that include support for both single-stage and two-stage equipment. The power exhaust is controlled based on the damper position. To enable the power exhaust:

Lennox CORE Unit Controller

Use the following menu:

RTU Menu > Setup > Install

- Navigate through the various screens until CONFIGURATION ID 1 appears. Set position 3 to (S = Single Stage or D = Dual Stage). Set position 4 to A = Damper Position.
- **NOTE:** The M4 Unit Controller disables Single & Dual stage Power Exhaust operation if the economizer (CID1, position 2) is set to "Not Installed" or "Unconfigured."

Prodigy II Unit Controller

- Go to SETUP / INSTALL and set Configuration ID 1, position 3 to (S = Single Stage or D = Dual Stage).
- Go to SETUP / INSTALL and set Configuration ID 1, position 4 to A = Damper Position

Operation

Power exhaust fans are energized when economizer dampers reach 50% (default).

Power Exhaust Setpoint Adjustment

LG/LC/LH/LD Units - Refer to the Unit Controller manual provided with each rooftop unit.

KG/KC/KH/KD Units - Locate the A6 enthalpy control in the control area for 092-150 units and the economizer side panel for 240-300 units. The EXH SET potentiometer is factory-set at approximately 50% of the dial range. See FIGURE 18. Power exhaust fans will be energized 30 seconds after dampers are 50% open. Adjust the EXH SET potentiometer higher (clockwise toward 10V) to energize fans when dampers are further open. Adjust the EXH SET potentiometer lower (counterclockwise toward 2V) to energize fans when dampers are further closed. (Thirty-second delay allows dampers to partially open before exhaust fan starts.)

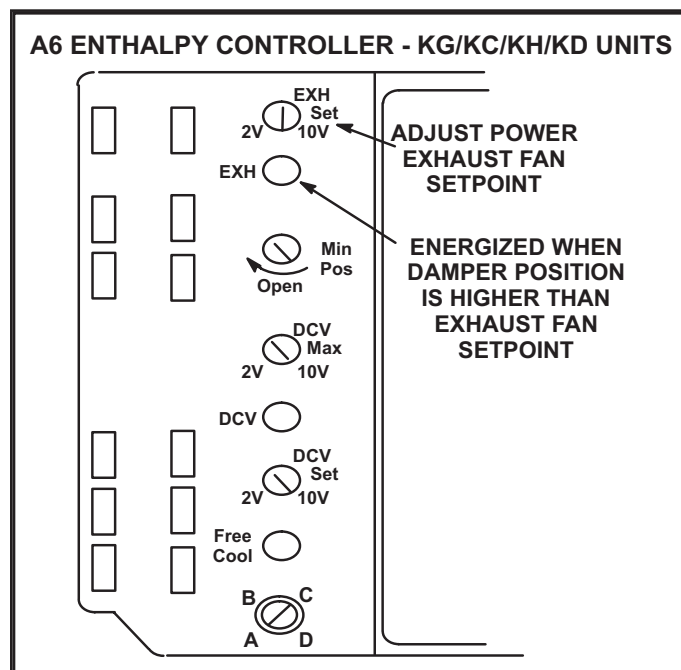


FIGURE 18