

# PACKAGED UNITS KITS AND ACCESSORIES

506335-03  
6/2024  
Supersedes 2/2018

## LOW AMBIENT KIT

### INSTALLATION INSTRUCTIONS FOR LOW AMBIENT KIT USED ON LHX/KG/KC/KH/KD PACKAGED ROOFTOP UNITS

#### Shipping and Packing List

14D89 & 14D96

Package 1 of 1 contains:

- 1- Pressure switch (S11)
- 2- Wire harnesses
- 1- Relay (K10 or K58) 1- Screw
- 1- Valve depressor tee

54W16

Package 1 of 1 contains:

- 2- Pressure switches (S11, S84)
- 2- Wire harnesses

14N31

Package 1 of 1 contains:

- 3- Pressure switches (S11, S84, S185)
- 1- Wire harness

15C84

Package 1 of 1 contains:

- 2- Pressure switches (S11, S185)
- 2- Relays (K58, K159)
- 1- Wire harness
- 1- Valve depressor tee

### 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.

### 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.

#### Shipping and Packing List

See TABLE 1 for usage.

TABLE 1

Box	Unit	Cat. #	LB #
A	KG/KC 024-090	14D89	LB-107318BT
A	LHX/KH 024-074S	14D96	LB-107318BR
A	LHX/KHB/KDB 024-060H	15C84	603364-31
B	KG/KC 092-150, KHA 092S-150S	54W16	603364-06
B	KHB/KDB 092H-122H	14N31	603364-30

The low ambient pressure switches cycle the outdoor fan while allowing compressor operation in the cooling cycle. This intermittent fan operation results in a high evaporating temperature which allows the system to operate without icing the evaporator coil and losing capacity. This kit is designed for use in ambient temperatures no lower than 0°F (-17.8°C) unless otherwise noted in the Engineering Handbook.

Install a belly-band style crankcase heater on compressors which don't have one.

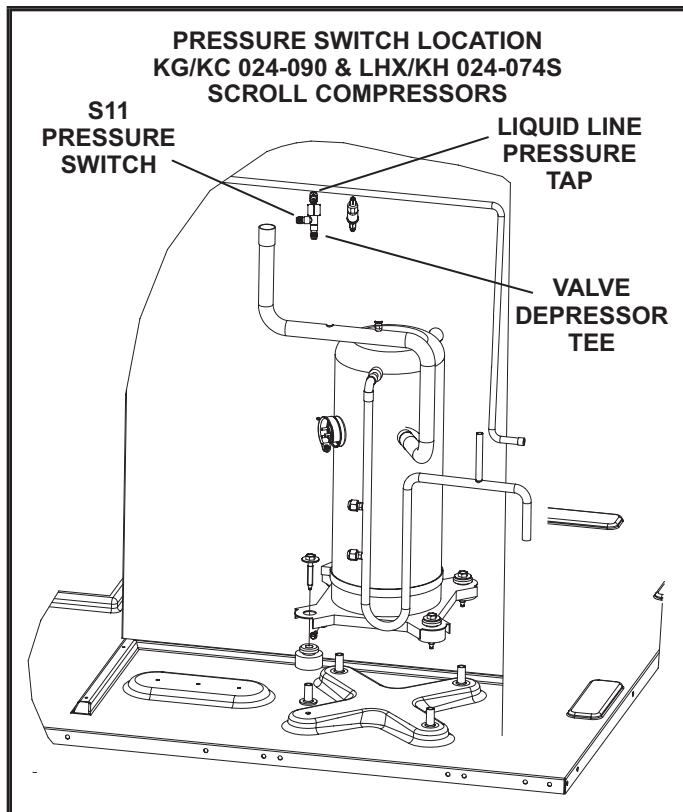
#### Install Pressure Switch

- 1 - Disconnect power to unit.
- 2 - Refer to TABLE 2 for figure number showing switch location. Open appropriate unit panel.
- 3 - *024-090 Units* -  
Install the valve depressor tee on the liquid line pressure tap. See FIGURE 1 and FIGURE 2.
- 4 - Install pressure switches on liquid line pressure taps or valve depressor tee.
- 5 - Check system for leaks.

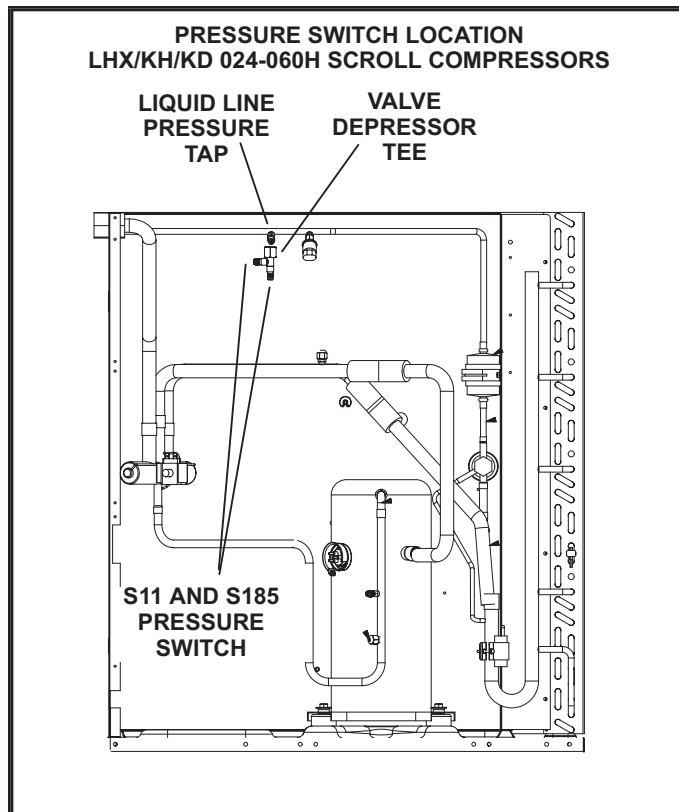
TABLE 2

Unit	Switch Location
KG/KC 024-090 KH 024-074S	FIGURE 1
LHX/KD/KH 024-060H	FIGURE 2
KG/KC 092-150, KHA 092S-150S	FIGURE 3
KHB/KDB 092H-122H	FIGURE 4

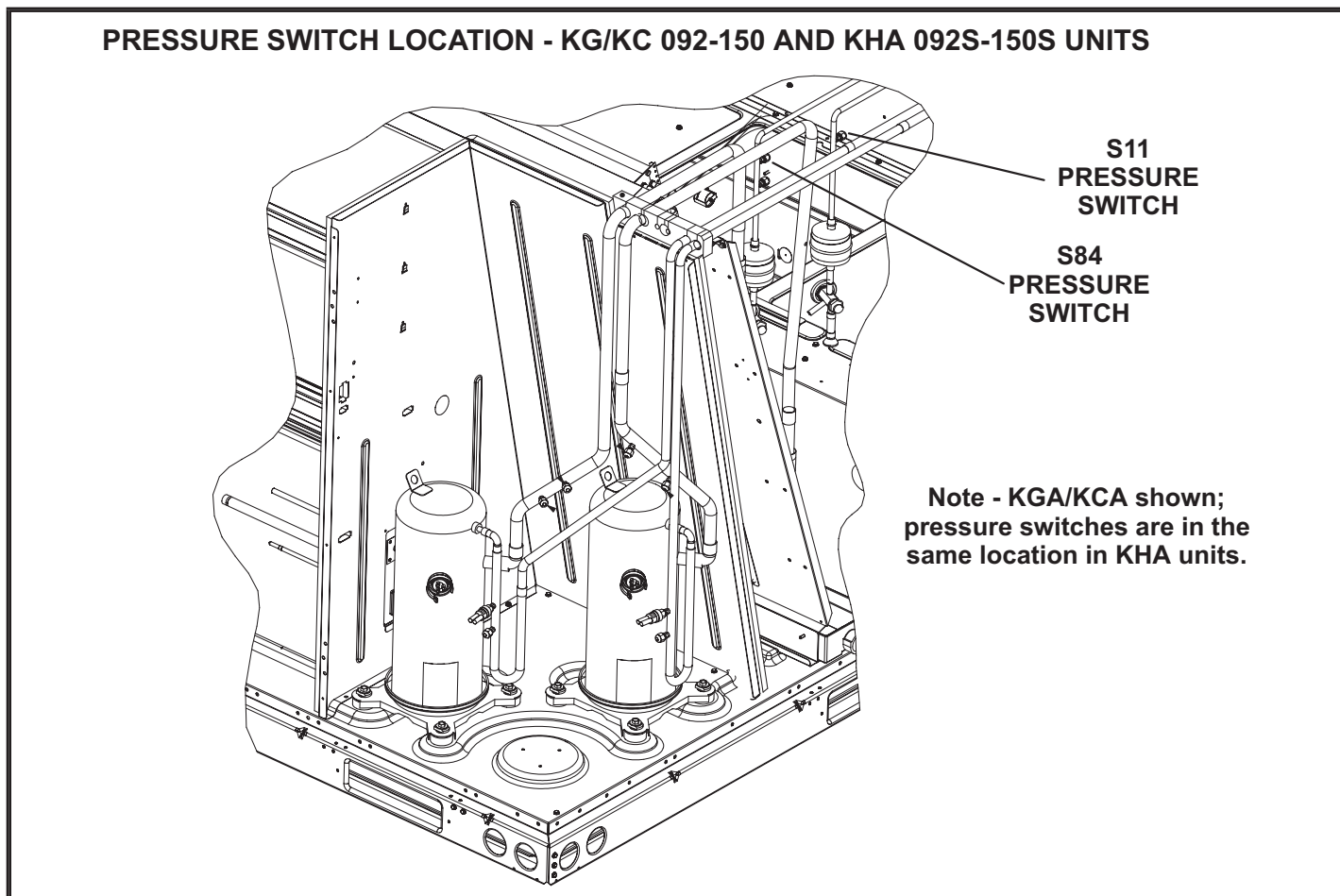




**FIGURE 1**

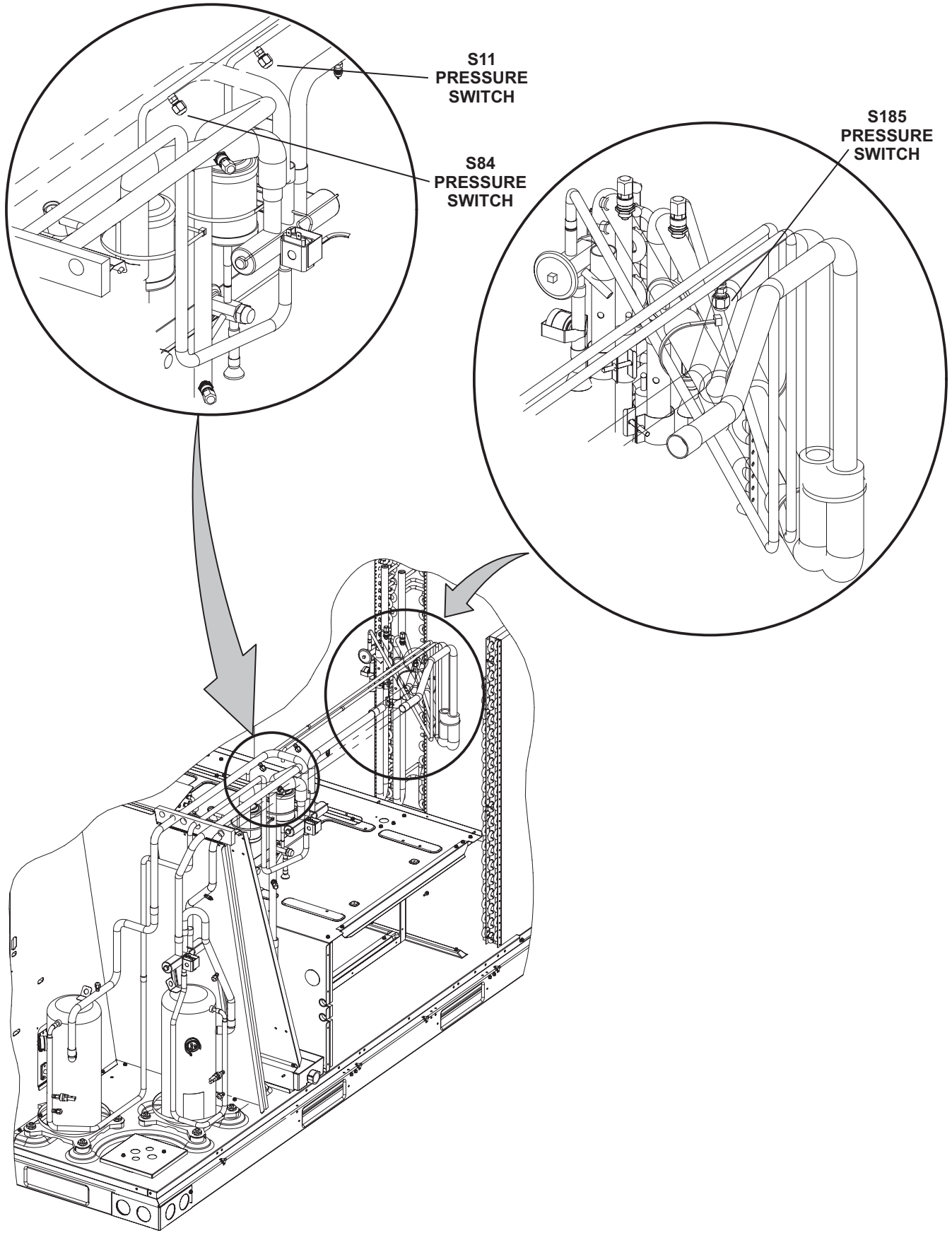


**FIGURE 2**



**FIGURE 3**

**PRESSURE SWITCH LOCATION - KHB/KDB 092H-122H UNITS**



**FIGURE 4**

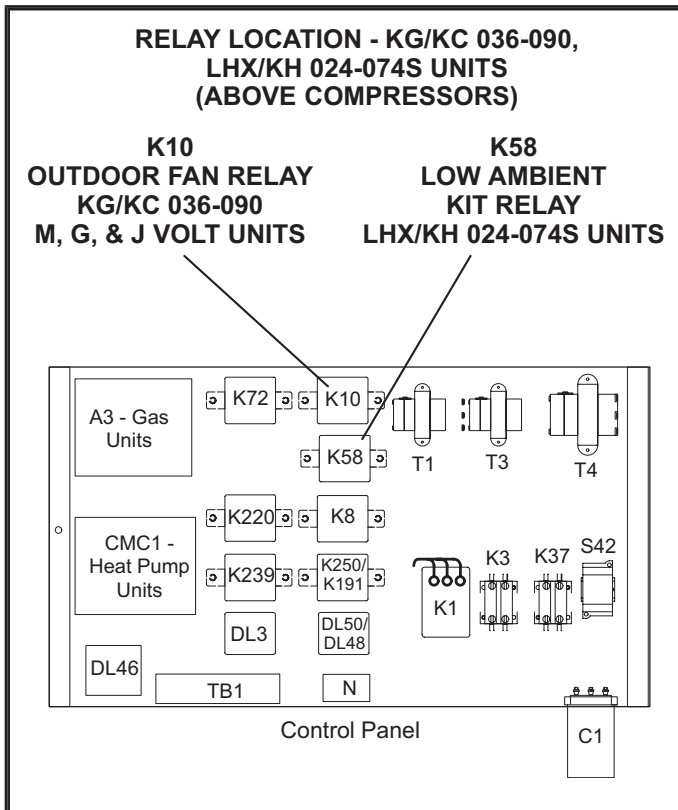
**Install Relay - KG/KC 024-090, LHX/KH 024-074**

1 - Install the relay in units shown in TABLE 3. Refer to FIGURE 5 for KG/KC and LHX/KH standard efficiency unit relay location. Refer to FIGURE 6 for LHX/KH/KD high efficiency relay location. Secure with screws provided in kit.

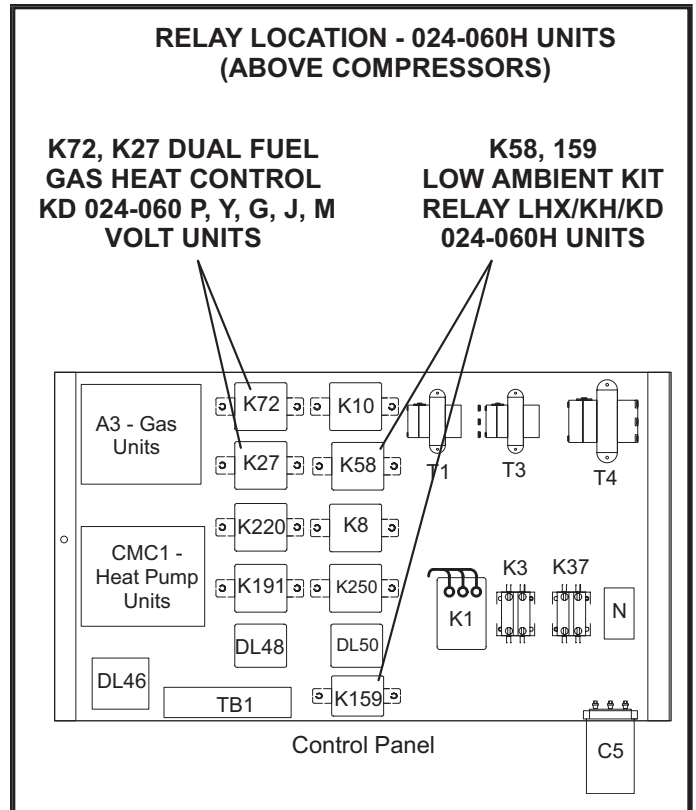
**TABLE 3**

Unit	Wiring Diagram Key No.
KG/KC 024-090 Y & P Volt	Relay not required; discard.
KG/KC 036-090 M, G & J Volt*	K10
LHX/KH 024-074S	K58
LHX/KH/KD 024-060H	K58, K159

\*Caution - Pressure switch is not rated for applications above 240V. Relay must be used in high voltage applications.



**FIGURE 5**



**FIGURE 6**

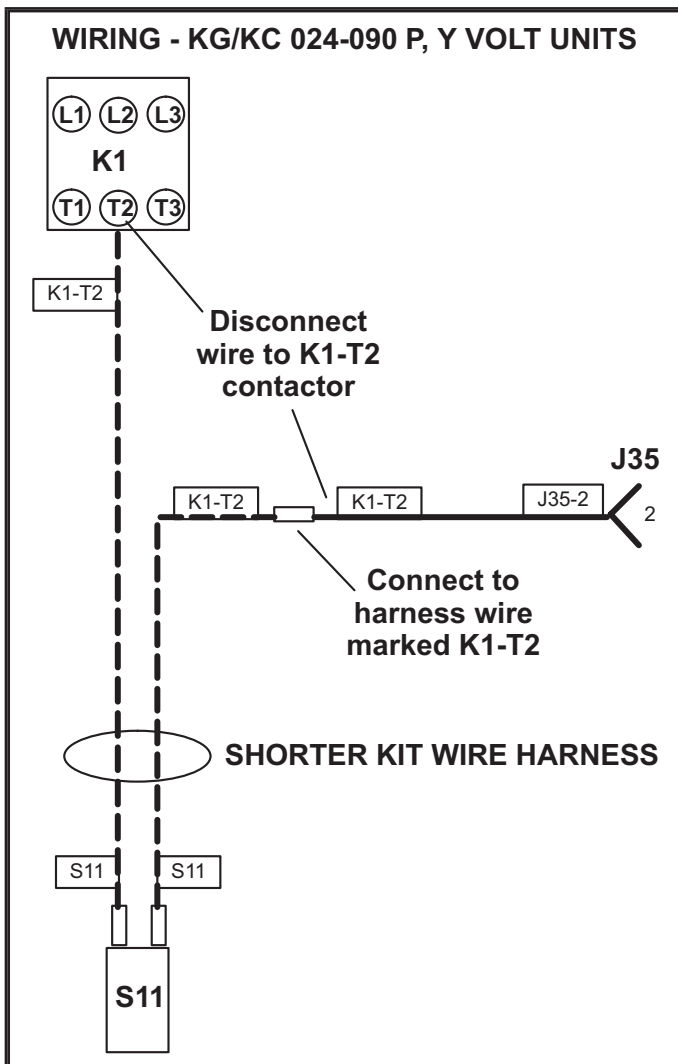
**TABLE 4**  
**024-090 UNIT WIRING**

Kit	Unit	Wiring	Notes	Reference Diagram
14D89	KG/KC 024-060 P Volt KG/KC 036-090 Y Volt	FIGURE 7	Discard relay and longer harness.	P volt - 537780 Y volt - 537777
14D89	KG/KC 036-090 G, J, M Volt	FIGURE 8	All kit components used.	537777
14D96	LHX/KH 024-074S P, Y Volt	FIGURE 9 & FIGURE 11*	P, Y volt units do not use K10. FIGURE 9 shows the multi-wire harness.	P volt - 537780 Y volt - 537777
14D96	LHX/KH 036-074S G, J, M Volt	FIGURE 10 & FIGURE 11*	FIGURE 10 shows the multi-wire harness.	537779
15C84	KD/LHX/KH 024-060H P, Y, G, J, M Volt	FIGURE 12	One harness	537855-537858

\*Two-wire harness shown.

### Wiring - 024-090 Units

- 1 - Wire pressure switches. Refer to TABLE 4 for appropriate wiring diagram. Wires are stamped as shown in each figure.
- 2 - Bundle wiring and secure away from unit components.



**FIGURE 7**

WIRING - KG/KC 036-090 G, J, M VOLT UNITS

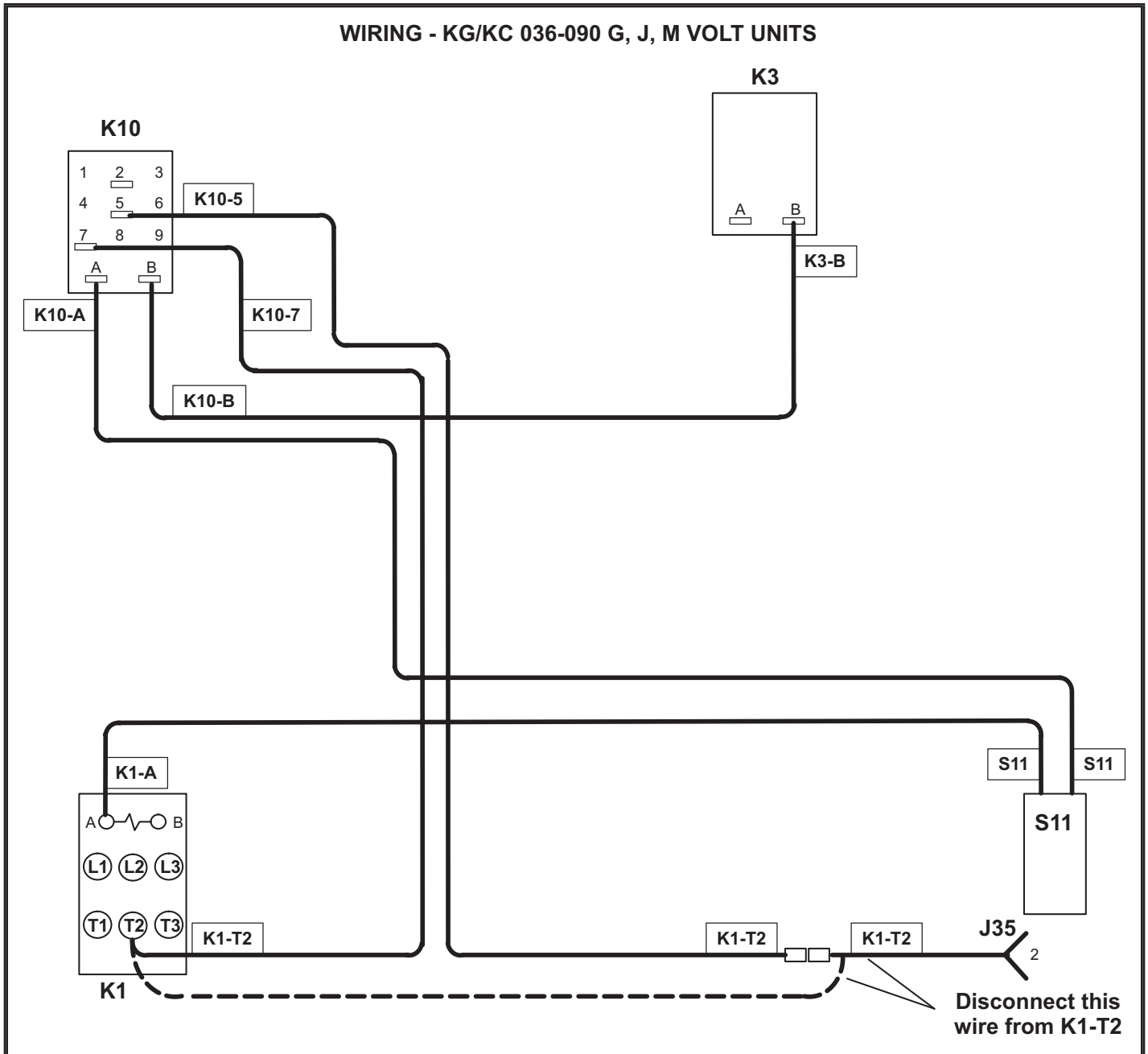
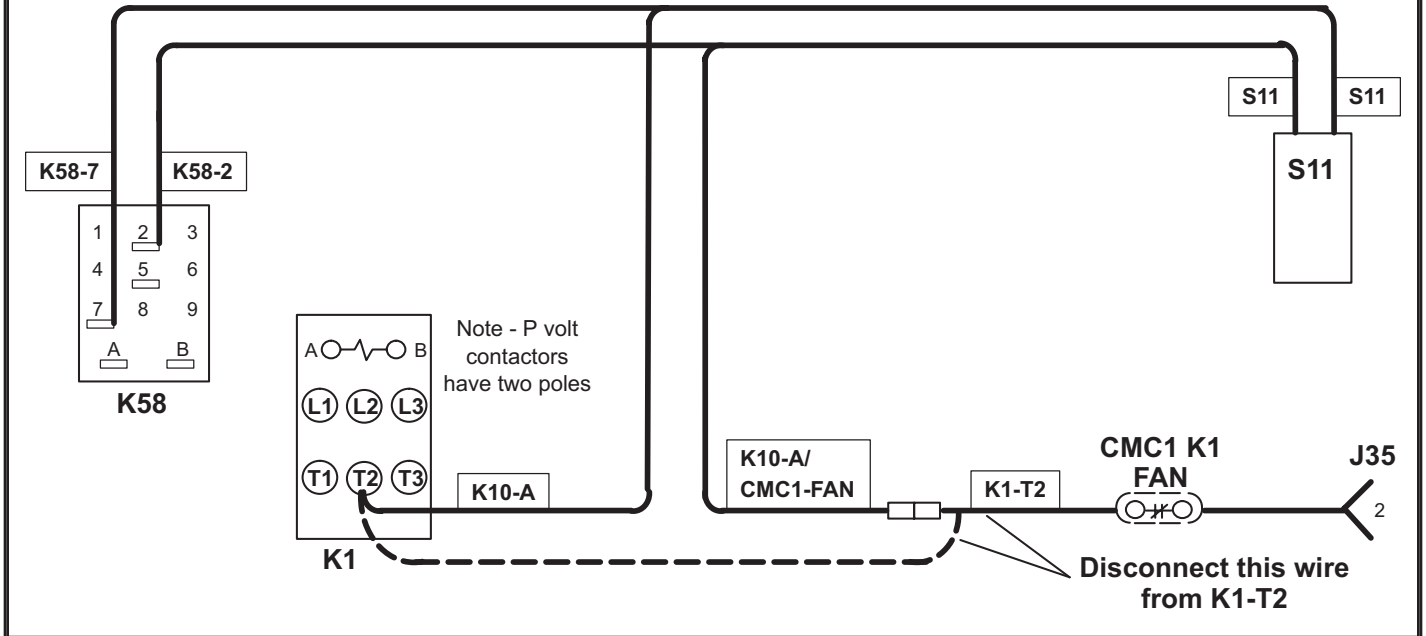
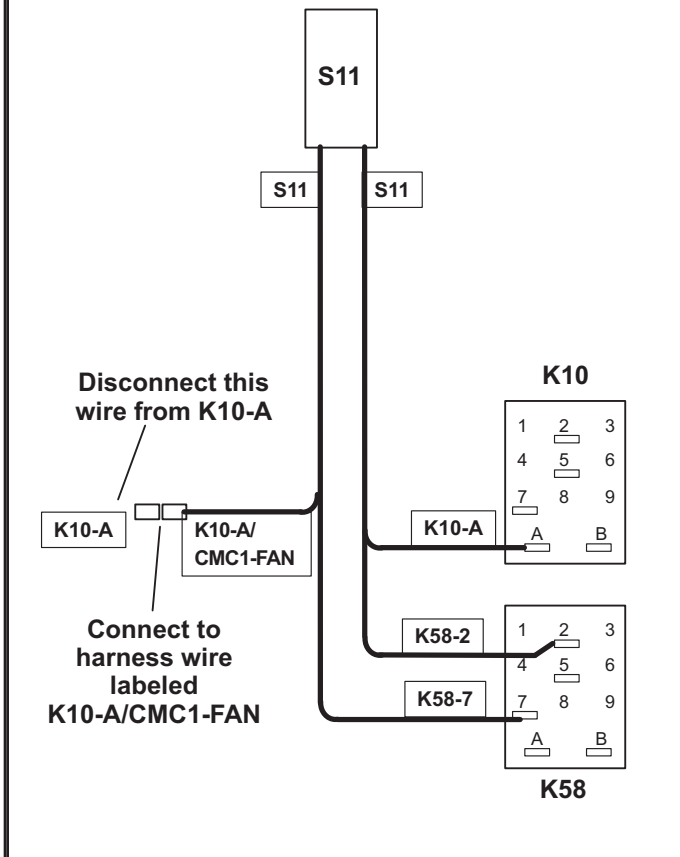


FIGURE 8

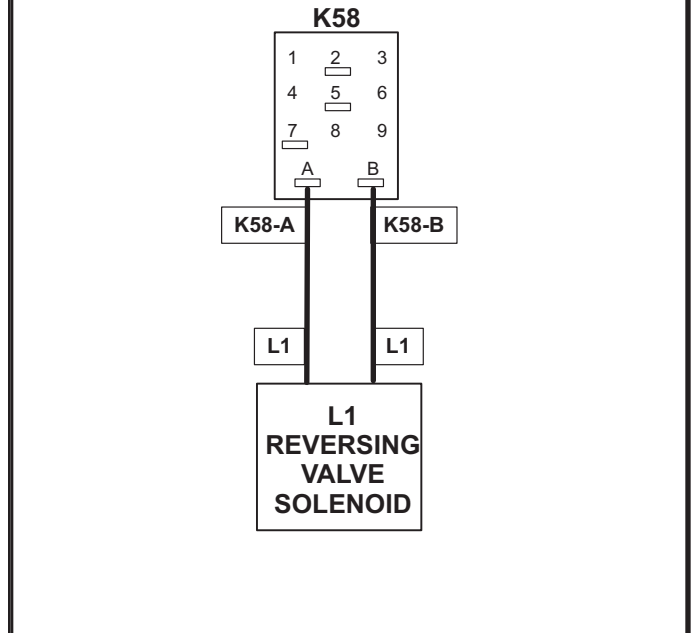
**WIRING - KH 024-074S P, Y VOLT UNITS  
MULTI-WIRE HARNESS**



**WIRING - LHX/KH 036-074S G, J, M VOLT UNITS  
MULTI-WIRE HARNESS**



**WIRING - ALL LHX/KH 024-074S UNITS  
TWO-WIRE HARNESS**



WIRING - KD/LHX/KH 024-060H UNITS ALL VOLTAGES

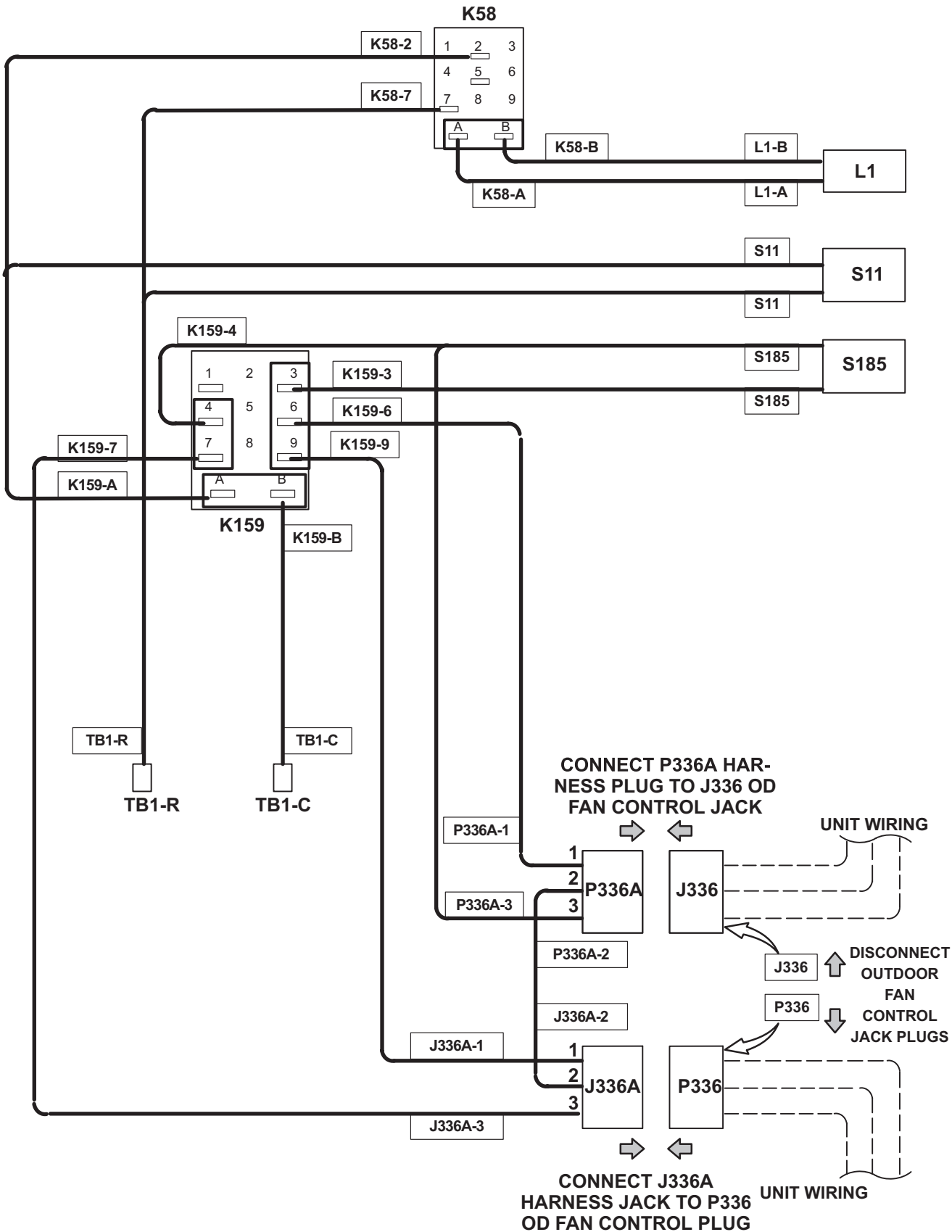


FIGURE 12



### Install Relay - KG/KC 024-090, KH 024-074

- 1 - Disconnect wires marked S11 as shown in FIGURE 14.
- 2 - Locate shorter kit harness and connect wires as shown in FIGURE 13.

**NOTE** - Kits for KHB/KDB092H-122H units contain only one harness.

#### 3 - KHA 092S-150S Units Only -

Locate longer kit harness. Disconnect wire to CMC1-FAN and connect to harness wire stamped "CMC1-FAN/P35-6". See FIGURE 15. Connect harness as shown in FIGURE 16. Discard longer harness when installing a KG or KC unit.

#### 4 - KHB/KDB 092H-122H Units Only -

Route the S185 pressure switch wires near the jumper plug shown in FIGURE 14. Remove jumper plug and connect wires from S185.

- 5 - Bundle wiring and secure away from unit components.

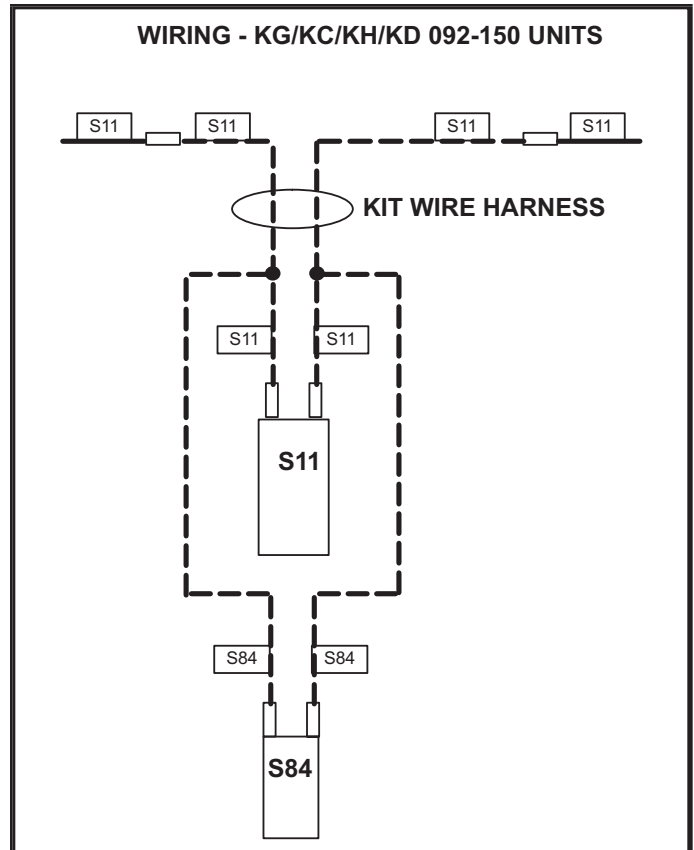


FIGURE 13

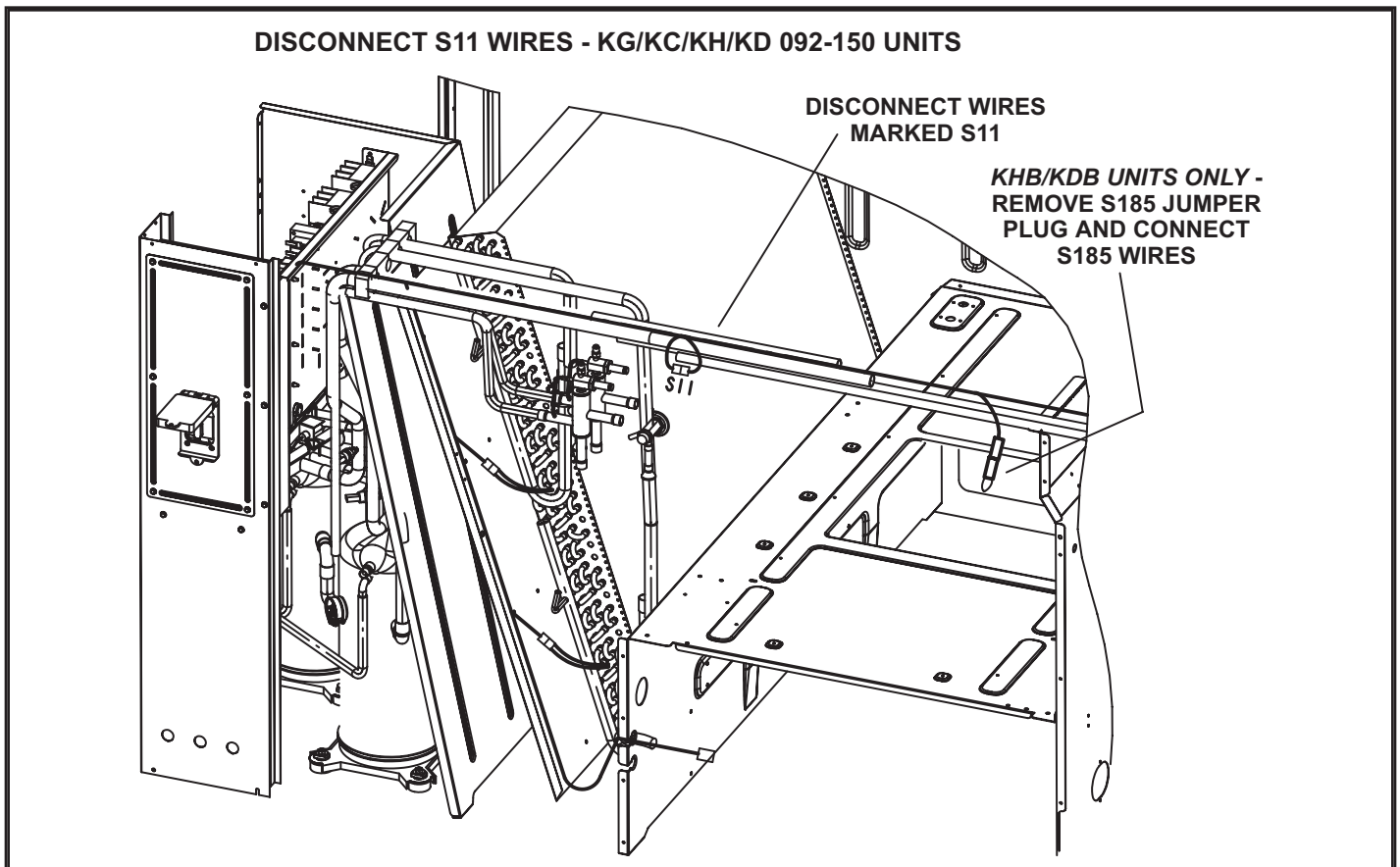
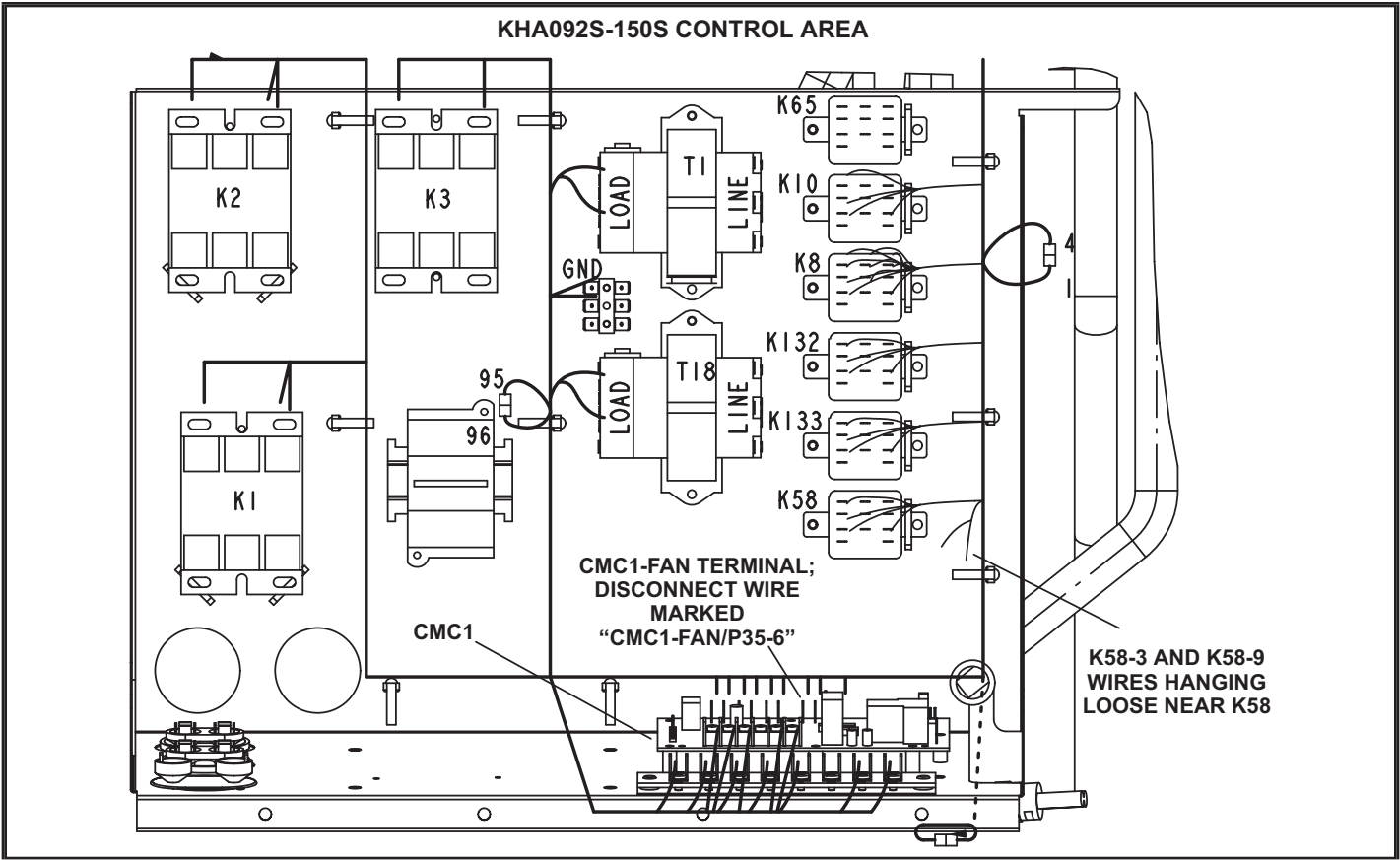
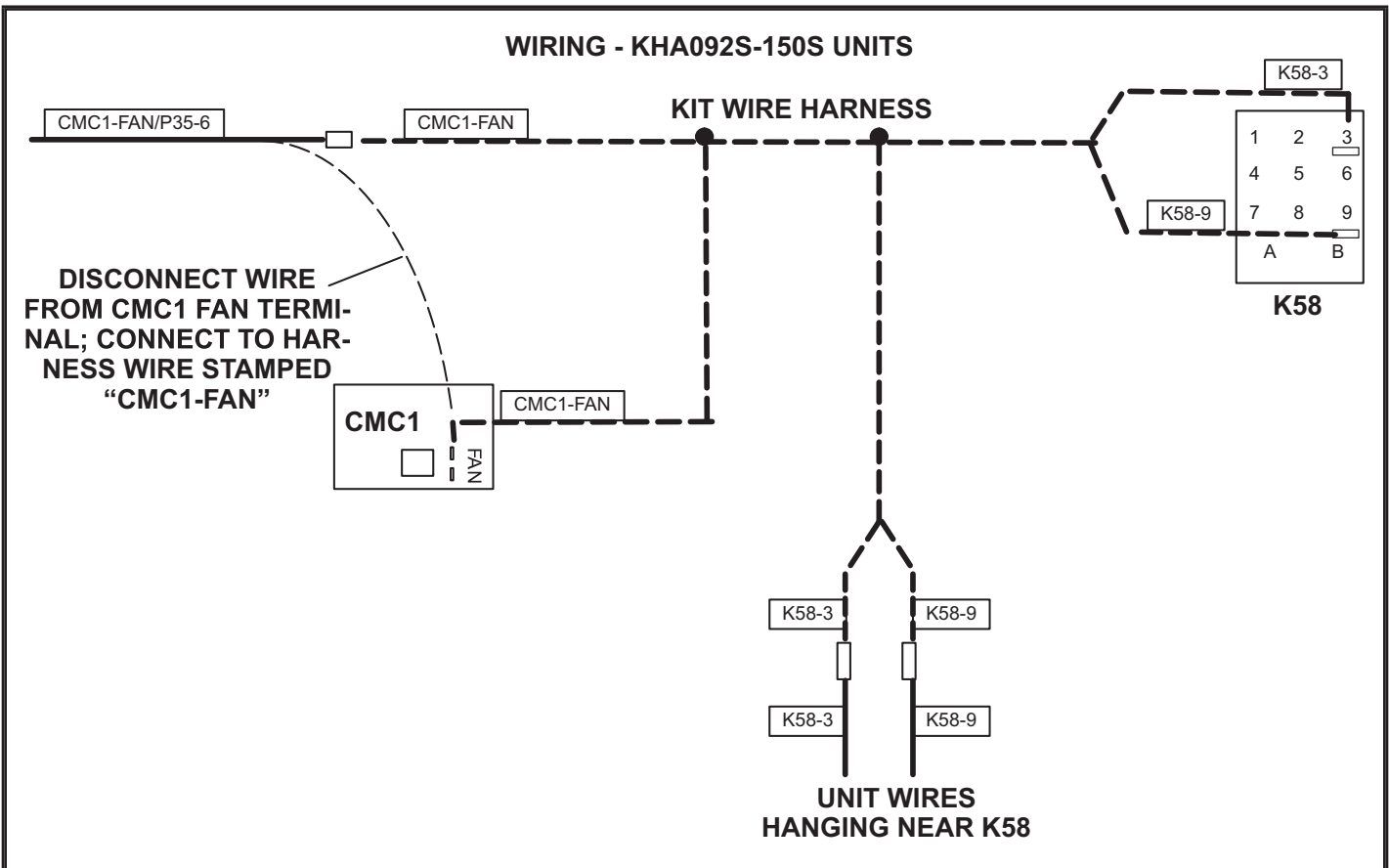


FIGURE 14



**FIGURE 15**



**FIGURE 16**

## Operation

Outdoor fans will be energized when the liquid pressure rises to 450 psig (3103kPa) and de-energize when liquid pressure drops to 240 psig (1655kPa).

### **KGA/KCA/KHA 092S-150S -**

Outdoor fans cycle together (all switches must be open).

### **KHB/KDB 024H-122H -**

See TABLE 5 for outdoor fan operation

**TABLE 5**

Liquid Pressure (psig)	Operation
↓ From 450 to 240	All OD Fans On
↓ From 240 to 180	All OD Fans at 25% of Full Speed
↓ From 180 to 0	All OD Fans Off
↑ From 0 to 300	All OD Fans Remain Off
↑ From 300 to 450	All OD Fans at 25% of Full Speed
↑ From 450 to higher	All OD Fans On