

## INSTALLATION INSTRUCTIONS FOR LOW AMBIENT KIT (37G59; 619589-11, 37G60; 619589-12, 37G63; 619589-13) USED ON LGX/LCX180-300 PACKAGED ROOFTOP UNITS

Use TABLE 1 to find relevant unit.

TABLE 1

Unit	Page Number
180-240	1
300	9

**NOTE** - FIGURE 15 on pg. 15 covers all models (LGX/LCX180-300)

### LGX-LCX180-240

#### Shipping and Packing List

##### Package 1 of 1 contains:

- 1- Head pressure control (A190)
- 1- Temperature switch bracket
- 1- Wiring harness - A190 to K68
- 1- Bag assembly containing:
  - 1-Pressure transducer (A188)
  - 1-Temperature switch (S201)
  - 10-Wire ties
  - 1-Wiring diagram
  - 2-Screws, #8-32 X 1/2 TFS
  - 2-Screws, #8-32 X 1-1/4 TFS

#### **⚠ 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

This kit allows low ambient operation to 0°F (-17.8°C) unless otherwise noted in product specifications.

#### Operation

When ambient temperature drops below 55°F (adjustable), S201 temperature switch opens to de-energize K10 relay coil. Condenser fans 1 & 3 are de-energized.

Liquid line pressure transducer A188 converts the pressure to an analog signal which is sent to the head pressure control (A190). The head pressure control provides a variable output which slows Condenser Fan 2 & 4 operation at lower ambient temperatures.

#### **⚠ 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 installer (or equivalent), service agency or the gas supplier.

#### Installation

- 1 - Disconnect all power to unit and open access panels.
- 2 - Install the head pressure control (A190) in the control panel.
- 3 - Install the temperature switch mounting bracket onto the mullion. Align the bracket with the 4th screw from the top of the unit; secure with provided screw. See FIGURE 1.
- 4 - Install the temperature switch onto the bracket.
- 5 - Using the ICM Omni App, set the head pressure controller as follows:
  - Probe Type: Pressure
  - Setpoint: 355 psig
  - Hard Start: 0.1s
  - Minimum Voltage Output: 32%
- 6 - Install the pressure transducer on compressor 2 liquid line pressure tap as shown in FIGURE 2.

#### **⚠ WARNING**

To prevent serious injury or death:

- 1- Lock-out/tag-out before performing maintenance.
- 2- If system power is required (e.g., smoke detector maintenance), disable power to blower, remove fan belt where applicable, and ensure all controllers and thermostats are set to the "OFF" position before performing maintenance.
- 3- Always keep hands, hair, clothing, jewelry, tools, etc., away from moving parts.

## HEAD PRESSURE CONTROL AND TEMPERATURE SWITCH LOCATION

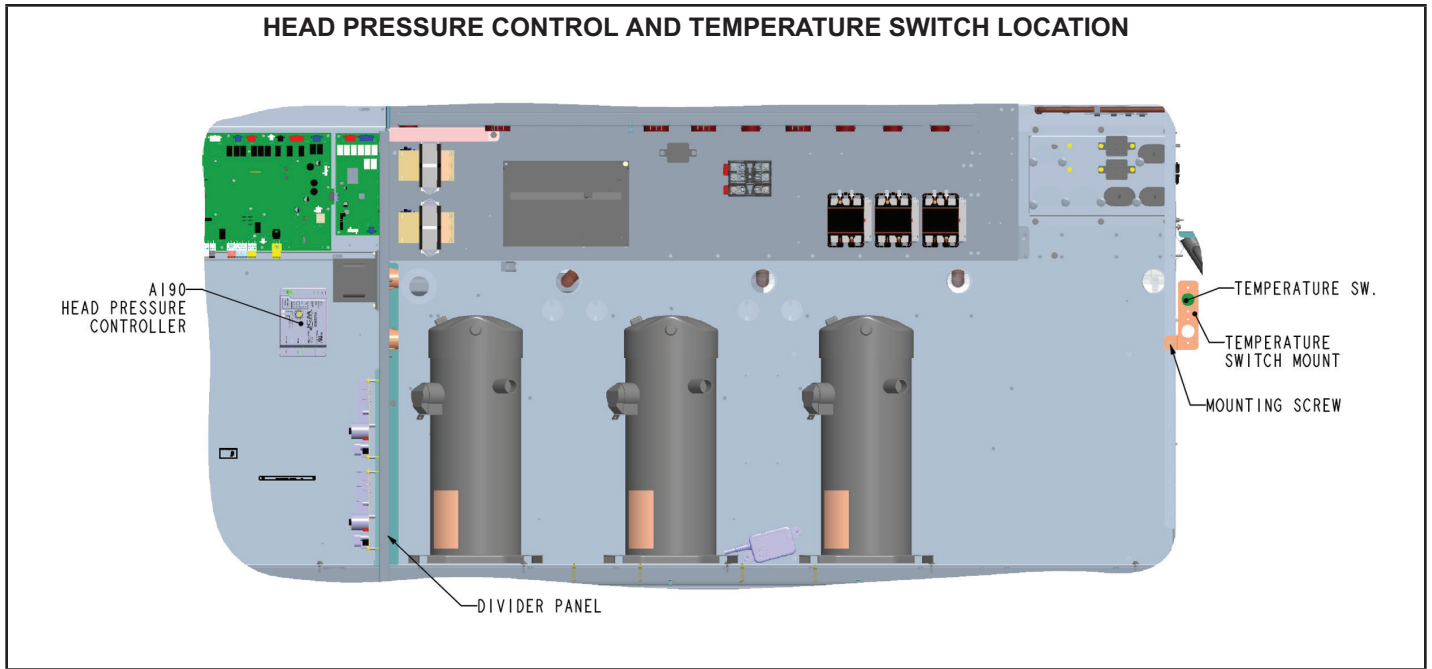


FIGURE 1

## LIQUID LINE PRESSURE TAP LOCATION

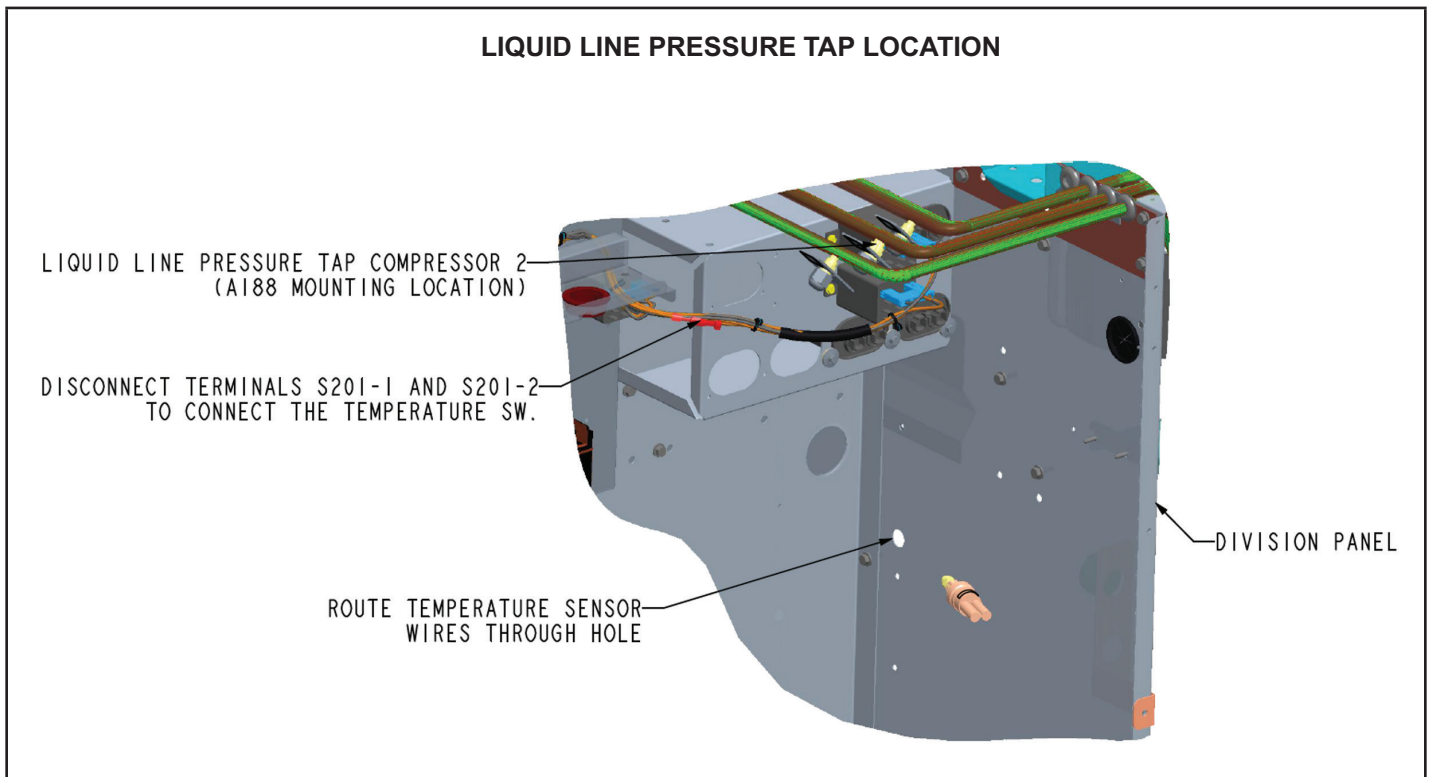


FIGURE 2

## Temperature Switch Wire Connections

- 1 - Route temperature switch wires through the division panel between the compressor and outdoor coil sections. See FIGURE 1.
- 2 - Disconnect male and female terminals from wires marked "S201" near K10 relay. See FIGURE 3.
- 3 - Make wiring connections as shown in FIGURE 3.

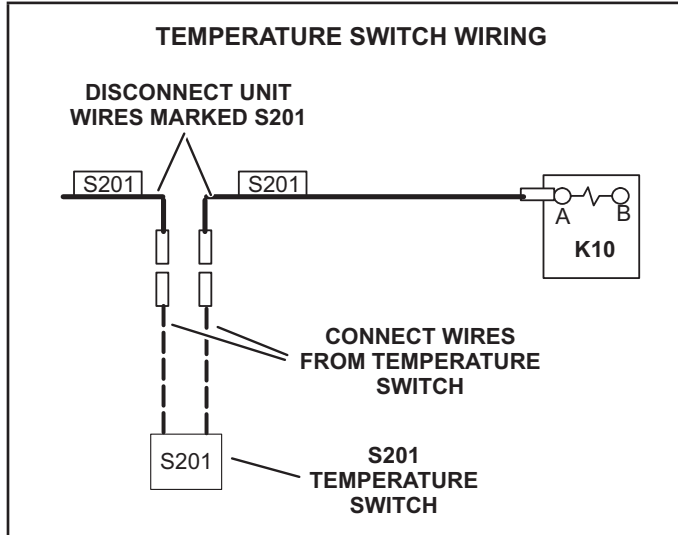


FIGURE 3

## Low Voltage Wire Connections

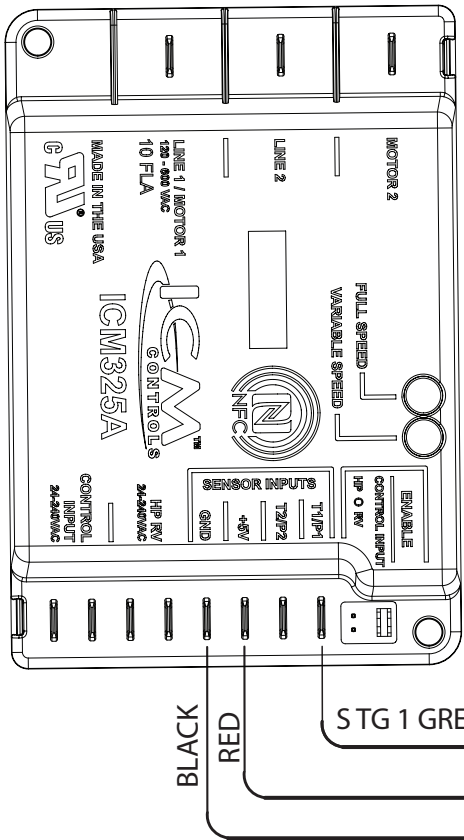
Use the pressure transducer, provided in this kit, to make wire connections as shown in FIGURE 4.

## High Voltage Wire Connections

- 1 - Disconnect factory wires to K68 terminals 4 & 6. Reconnect these wires to the kit harness as shown in FIGURE 5 or FIGURE 6.
- 2 - Connect the harness wire labeled "A190-L1" to the 120 - 600 VAC terminal.
- 3 - Make the rest of the K68 harness connections as shown in FIGURE 5 or FIGURE 6. Refer to the diagrams in FIGURE 7 or FIGURE 8.
- 4 - Make sure all connections are secure.
- 5 - Bundle wiring and use wire ties to route wiring away from sharp edges.
- 6 - Place the wiring diagram provided in this kit on the inside of the control door.
- 7 - Close unit panels and restore power.

# PRESSURE TRANSDUCER WIRING

## A190 HEAD PRESSURE CONTROL



## A188 STG 2 PRESSURE TRANSDUCER

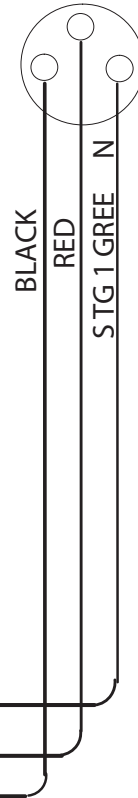


FIGURE 4

# LGX/LCX 180-210

K254 HARNESS WIRING

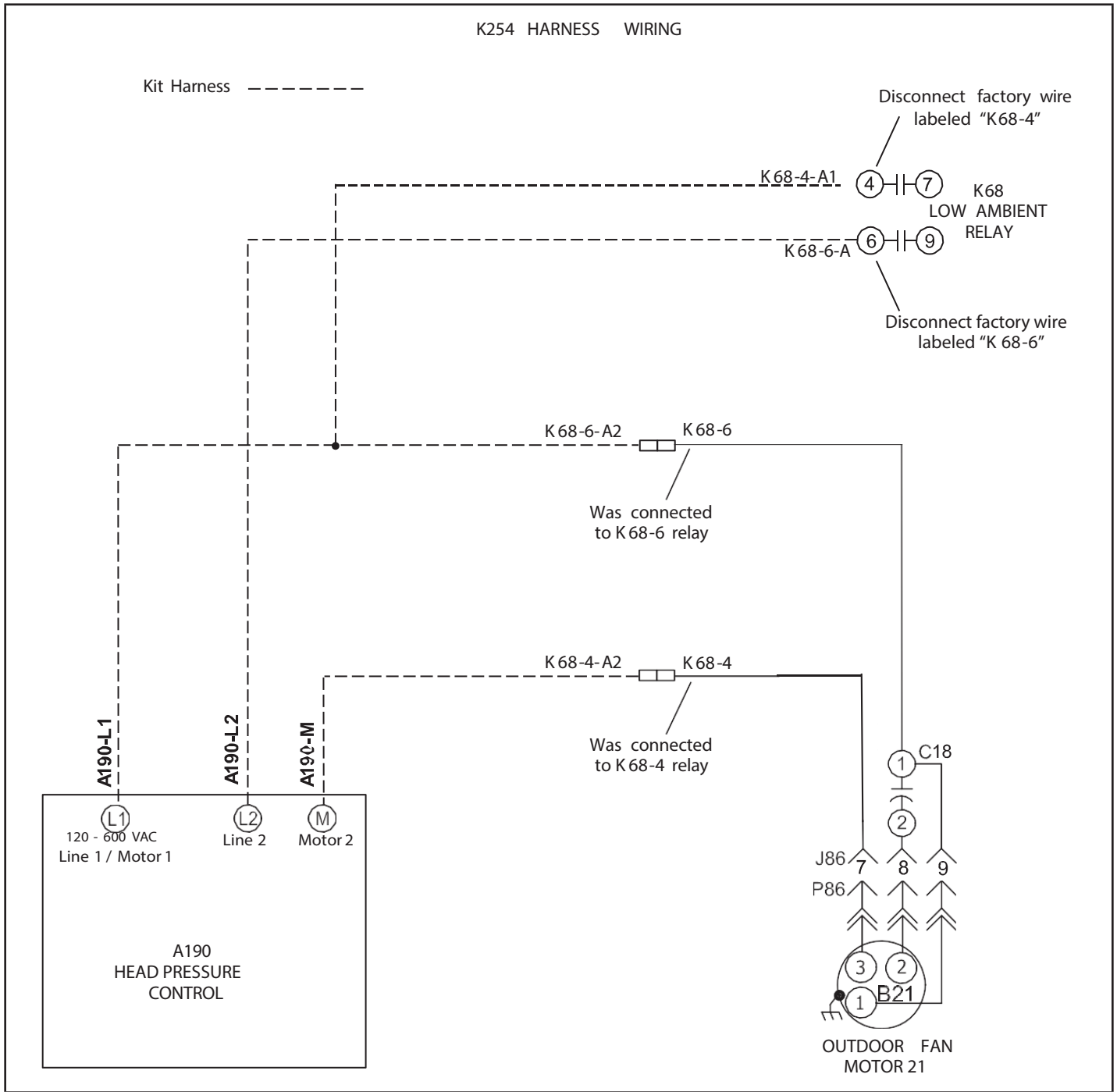


FIGURE 5

# LGX/LCX 240

## K68 HARNESS WIRING

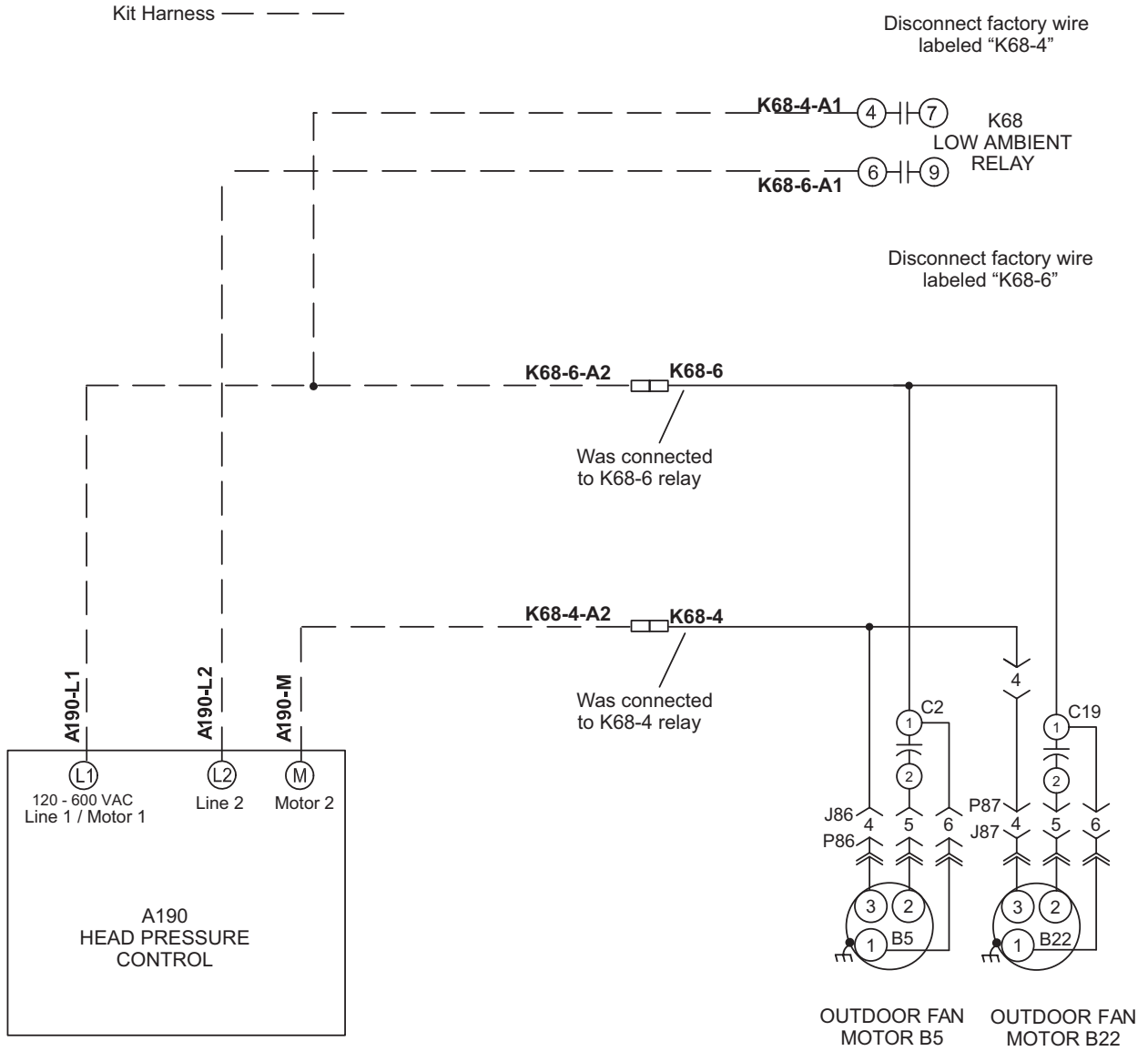


FIGURE 6

# LGX/LCX 180-210



**AA**

**BB**

**CC**

**DD**

**EE**

**FF**

KEY LIST		
LOCATION		COMPONENT DESCRIPTION
EE08	A187	PRESSURE TRANSDUCER 1
DD07	A190	HEAD PRESSURE CONTROLLER 1
AA/BB08	B4, B5	MOTOR, OUTDOOR FAN 1, 2
CC09	B21	MOTOR, OUTDOOR FAN 3
BB/CC07	C1, C2	CAPACITOR, OUTDOOR FAN 1, 2
DD08	C18	CAPACITOR, OUTDOOR FAN 3
EE06	F10	FUSE, COMPONENT
AA/BB07/CC06	K10	RELAY, OUTDOOR FAN 1, 2
CC06/DD07	K68	RELAY, OUTDOOR FAN 3
BB04	S201	TEMPERATURE SWITCH, OUTDOOR

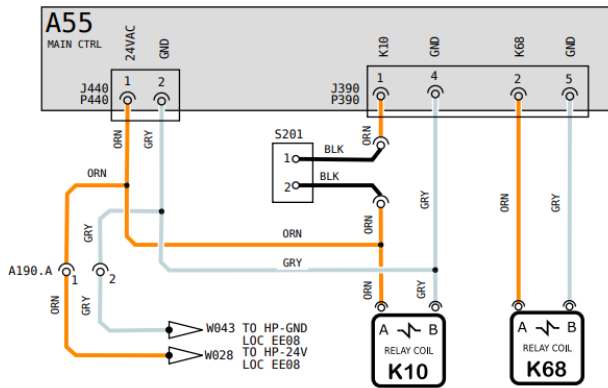
**01**

**02**

**03**

**04**

**05**

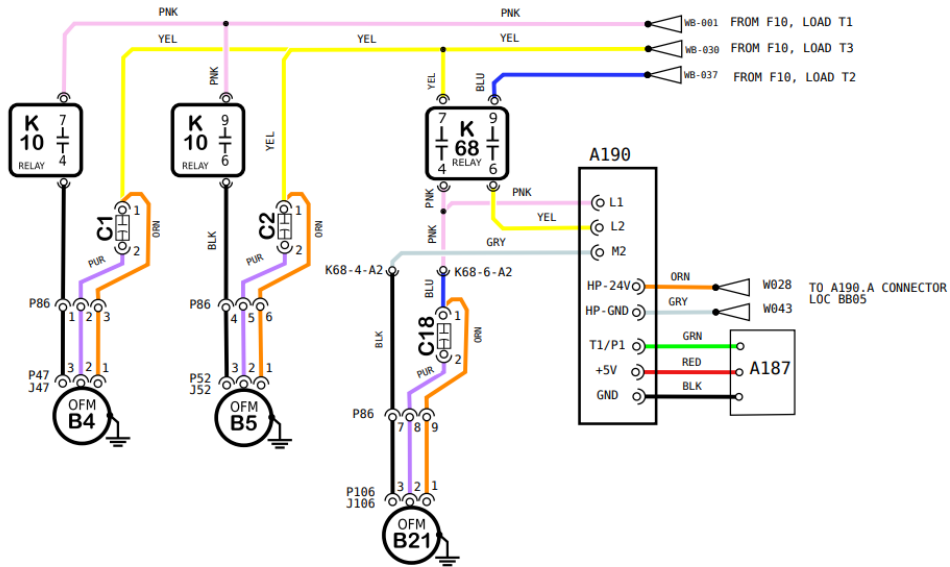


**06**

**07**

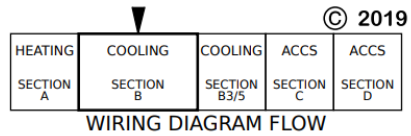
**08**

**09**



**10**

Model: LCX LGX 180S, 210S  
 LOW AMBIENT KIT  
 Voltage: ALL VOLTAGES  
 Supersedes: N/A Form No: 538553-01 Rev: 0



**FIGURE 7**

# LGX/LCX 240



**AA**

**BB**

**CC**

**DD**

**EE**

**FF**

**01**

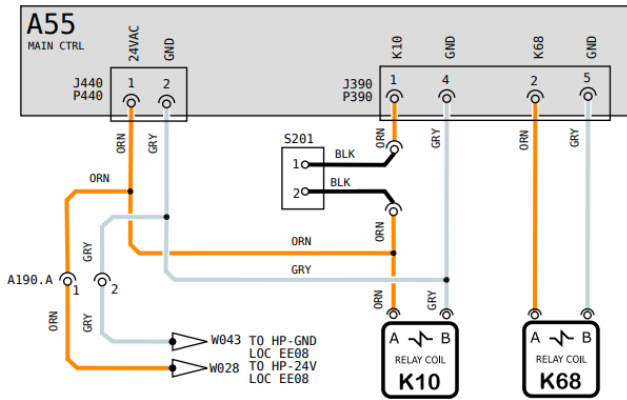
**02**

KEY LIST		
LOCATION	COMPONENT DESCRIPTION	
FF08	A187	PRESSURE TRANSDUCER 1
EE07	A190	HEAD PRESSURE CONTROLLER 1
AA/BB08	B4, B5	MOTOR, OUTDOOR FAN 1, 2
CC09	B21, B22	MOTOR, OUTDOOR FAN 3
AA/BB07	C1, C2	CAPACITOR, OUTDOOR FAN 1, 2
CC/DD08	C19, C20	CAPACITOR, OUTDOOR FAN 3, 4
DD06	F10	FUSE, COMPONENT
CC05/AA/BB07	K10	RELAY, OUTDOOR FAN 1, 2
DD05/CC07	K68	RELAY, OUTDOOR FAN 3, 4
CC04	S201	TEMPERATURE SWITCH, OUTDOOR

**03**

**04**

**05**

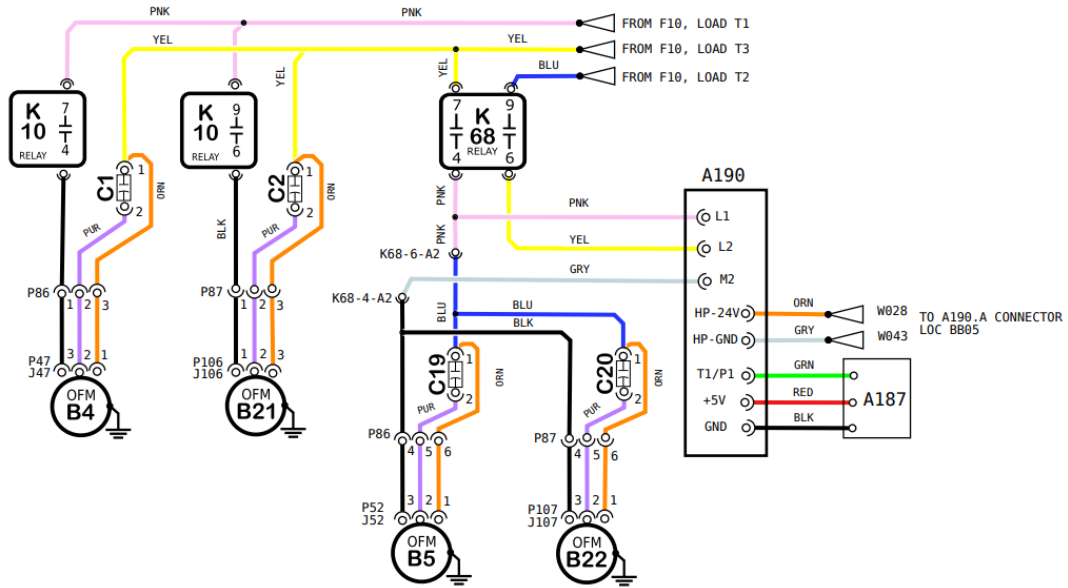


**06**

**07**

**08**

**09**



**10**

Model: LCX LGX 240S  
 LOW AMBIENT KIT  
 Voltage: ALL VOLTAGES  
 Supersedes: N/A Form No: 538554-01 Rev: 0

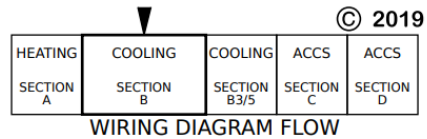


FIGURE 8



# LGX-LCX300

## Shipping and Packing List

### Package 1 of 1 contains:

- 2- Head pressure control (A190, A191)
- 1- Temperature switch bracket
- 1- Wiring harness - A190 to K68
- 1- Wiring harness - A191 to K150
- 1- Bag assembly containing:
  - 2-Pressure transducers (A188, A189)
  - 2-Temperature switches (S201, S202)
  - 10-Wire ties
  - 1-Wiring diagram
  - 2-Screws, #8-32 X 1/2 TFS
  - 2-Screws, #8-32 X 1-1/4 TFS

## 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

This kit allows low ambient operation to 0°F (-17.8°C) unless otherwise noted in product specifications.

## Operation

When ambient temperature drops below 55°F (adjustable), S201 and S202 temperature switches open to de-energize K10 and K150 relay coils. Condenser fans 1, 2, 4 & 5 are de-energized.

Liquid line pressure transducer A188 and A189 convert the pressure to an analog signal which is sent to the head pressure controls (A190, A191). The head pressure control provides a variable output which slows Condenser Fan 3 & 6 operation at lower ambient temperatures.

## 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 installer (or equivalent), service agency or the gas supplier.

## Installation

- 1 - Disconnect all power to unit and open access panels.
- 2 - Install head pressure controls (A190 & A191) in the control section as shown in FIGURE 9. Secure with screws (provided).
- 3 - Install the temperature switch mounting bracket onto the mullion. Align the bracket with the 4th screw from the top of the unit; secure with provided screw. See FIGURE 9.
- 4 - Install the temperature switch onto the bracket.
- 5 - Using the ICM Omni App, set the head pressure controller as follows:
  - Probe Type: Pressure
  - Setpoint: 355 psig
  - Hard Start: 0.1s
  - Minimum Voltage Output: 32%
- 6 - Install the pressure transducers on compressor 2 (stg. 2) and compressor 4 (stg. 4). liquid line pressure tap as shown in FIGURE 10.

## WARNING

To prevent serious injury or death:

- 1- Lock-out/tag-out before performing maintenance.
- 2- If system power is required (e.g., smoke detector maintenance), disable power to blower, remove fan belt where applicable, and ensure all controllers and thermostats are set to the "OFF" position before performing maintenance.
- 3- Always keep hands, hair, clothing, jewelry, tools, etc., away from moving parts.

### HEAD PRESSURE CONTROL AND TEMPERATURE SWITCH LOCATION

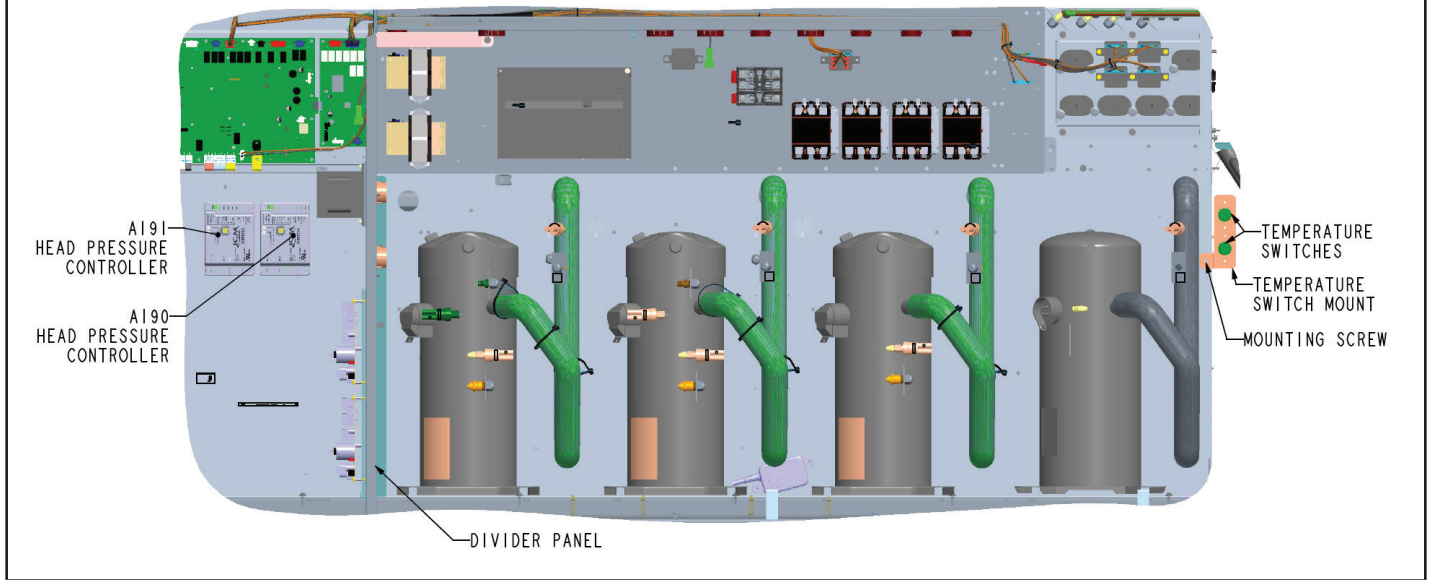


FIGURE 9

### LIQUID LINE PRESSURE TAP LOCATION

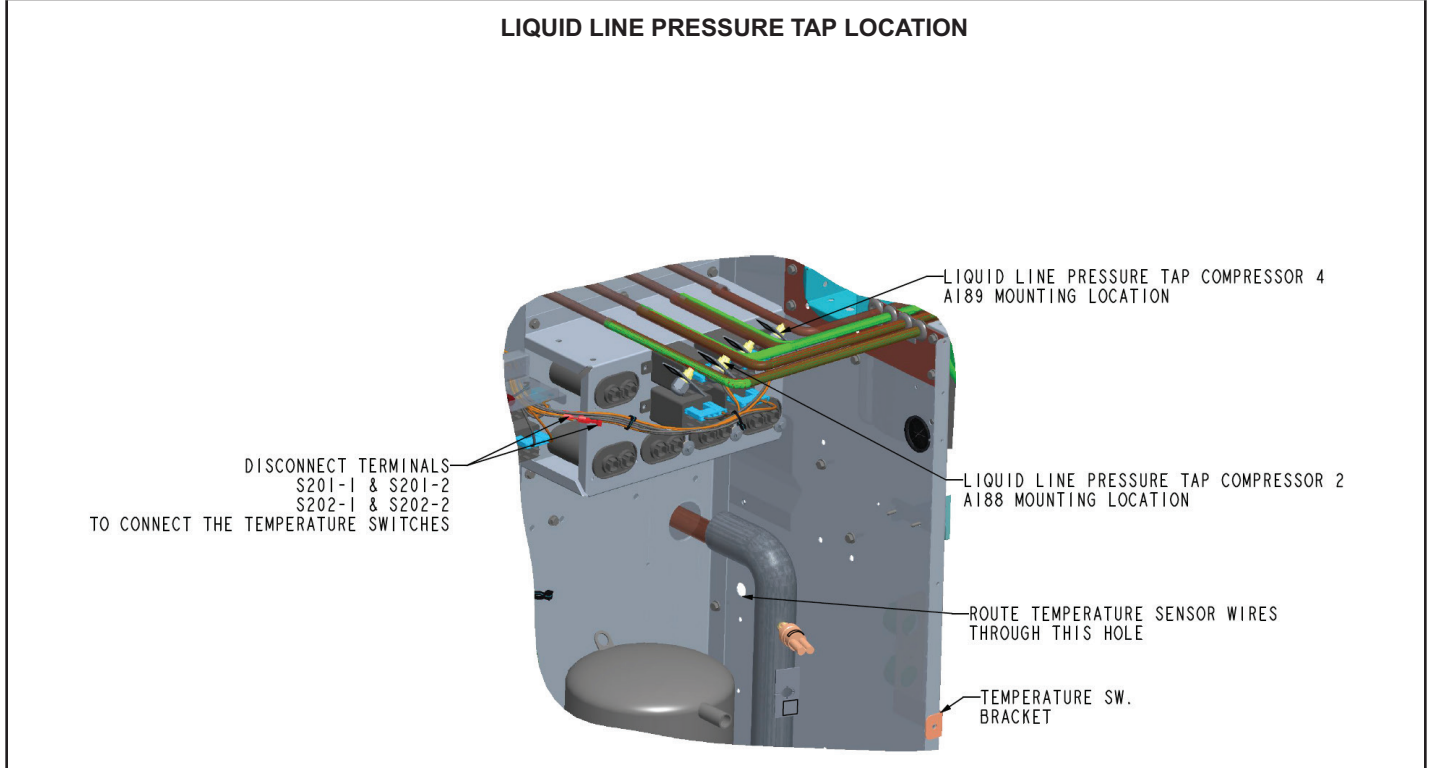


FIGURE 10

## Temperature Switch Wire Connections

- 1 - Route temperature switch wires through the division panel between the compressor and outdoor coil sections. See FIGURE 10.
- 2 - Disconnect male and female terminals from wires marked "S201" and "S202" near K10 relay. See FIGURE 10.
- 3 - Make wiring connections as shown in FIGURE 11.

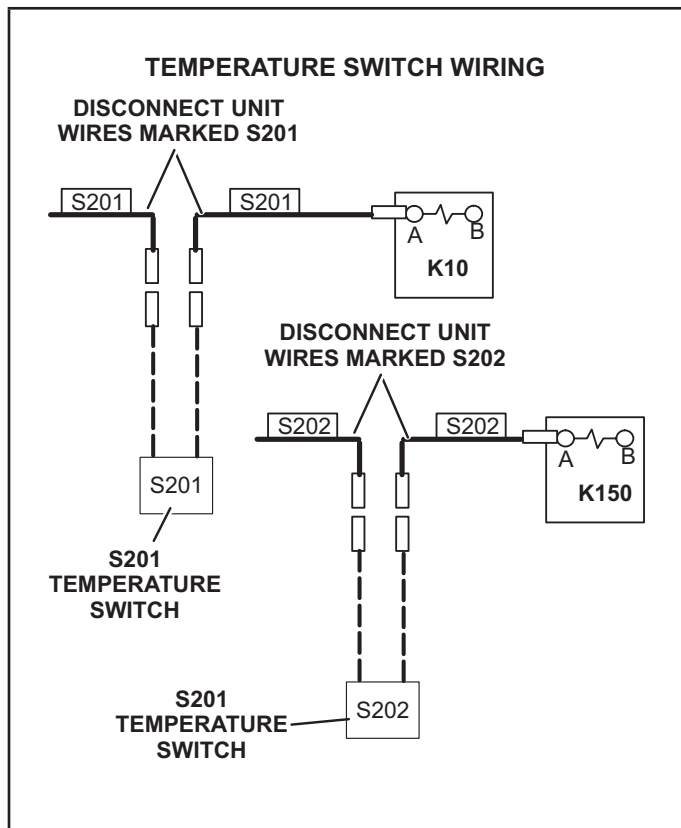


FIGURE 11

## Low Voltage Wire Connections

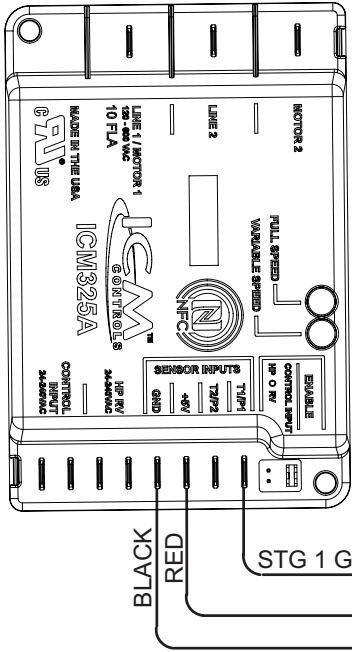
Use the pressure transducer, provided in this kit, to make wire connections as shown in FIGURE 12.

## High Voltage Wire Connections

- 1 - Connect the harness wire labeled "A190-L1" to the terminal marked "Line 1" on the A190 control.
- 2 - Connect wires labeled "A190-M" & "A191-M" to the terminal marked "Motor 2" on ICM controllers A190 & A191 as shown in FIGURE 13.
- 3 - Connect wires labeled "A190-L2" & "A191-L2" to the terminal marked "Line 2" on ICM controllers A190 & A191 as shown in FIGURE 13.
- 4 - Disconnect factory wires to K68 terminals 3 & 5. Reconnect these wires to the kit harness as shown in FIGURE 13.
- 5 - Disconnect factory wires to K150 terminals 3 & 5. Reconnect these wires to the kit harness as shown in FIGURE 13.
- 6 - Make the rest of the K68 and K150 harness connections as shown in FIGURE 13. Refer to the diagram in FIGURE 14.
- 7 - Make sure all connections are secure.
- 8 - Bundle wiring and use wire ties to route wiring away from sharp edges.
- 9 - Place the wiring diagram provided in this kit on the inside of the control door.
- 10 - Close unit panels and restore power.

## PRESSURE TRANSDUCER WIRING

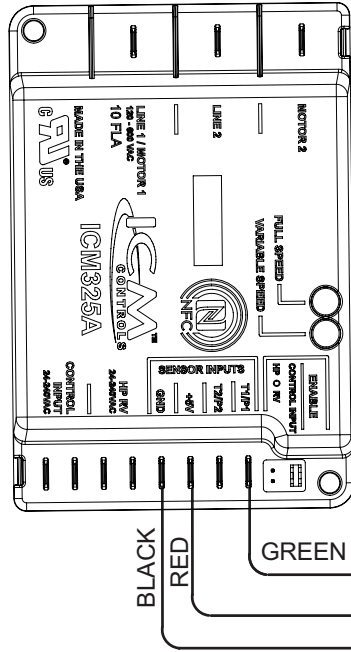
**A190  
HEAD PRESSURE CONTROL**



**A188  
STG 1  
PRESSURE  
TRANSDUCER**



**A191  
HEAD PRESSURE CONTROL**

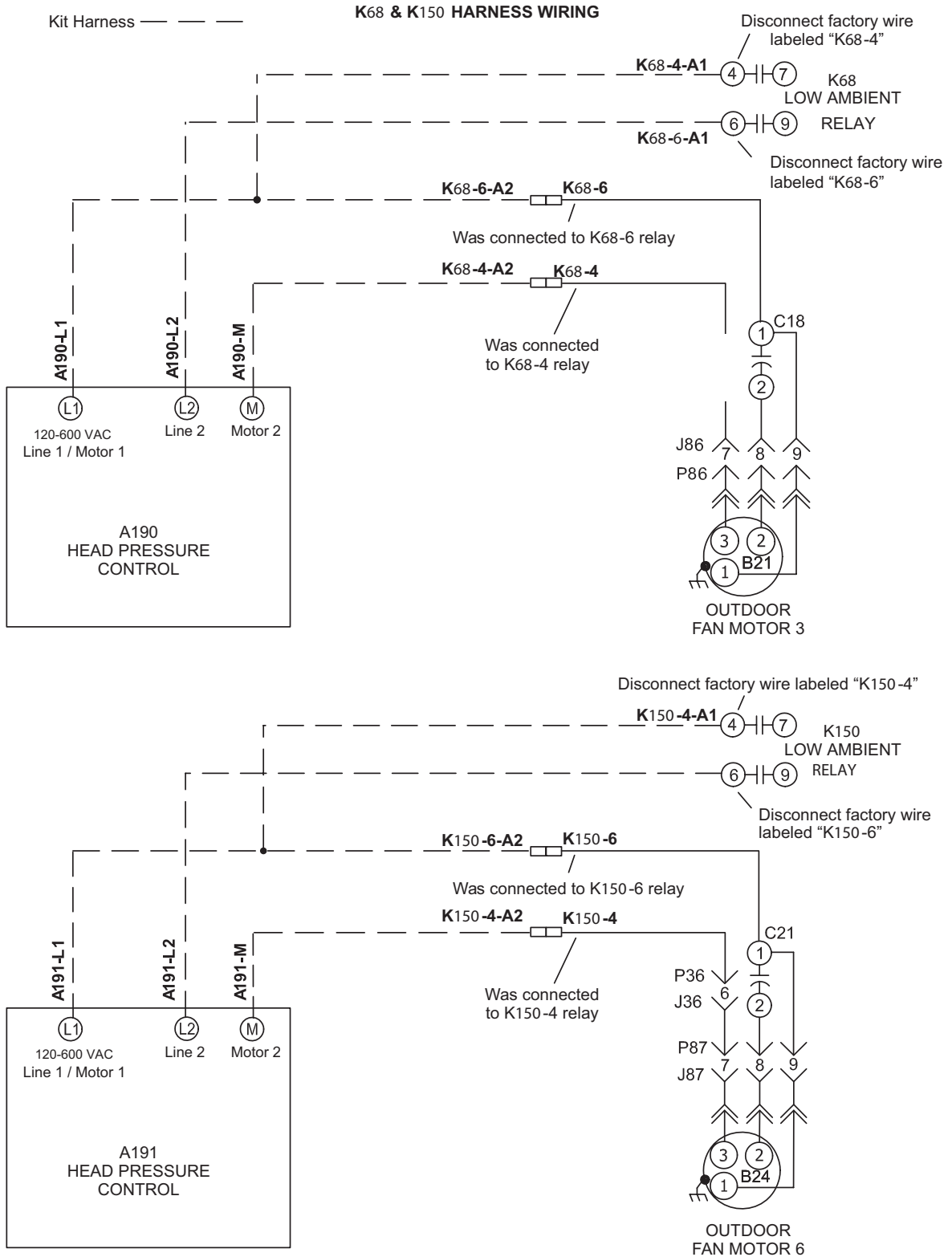


**A189  
STG 2  
PRESSURE  
TRANSDUCER**



**FIGURE 12**

# LGX/LCX 300



**FIGURE 13**

# LGX/LCX 300

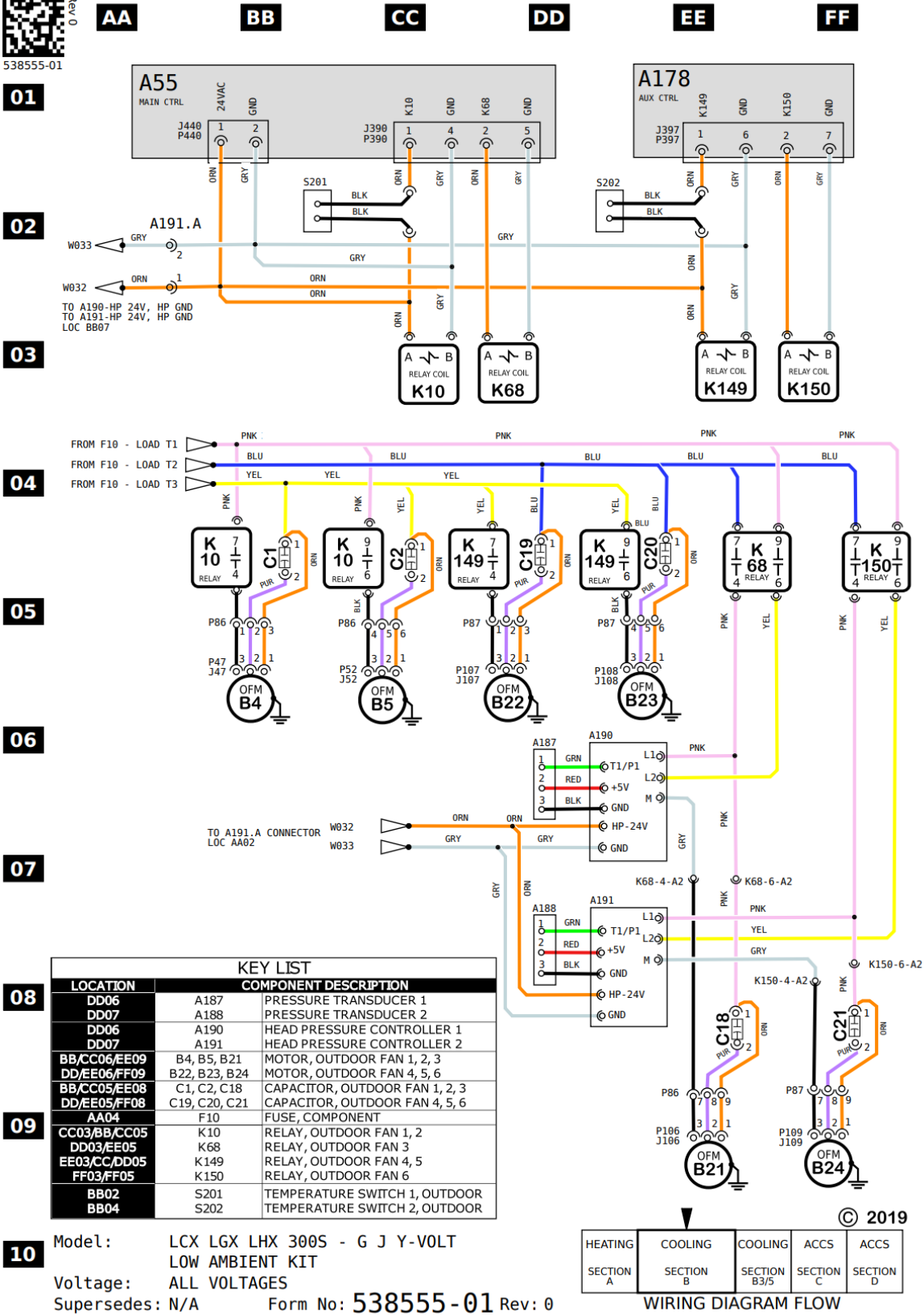
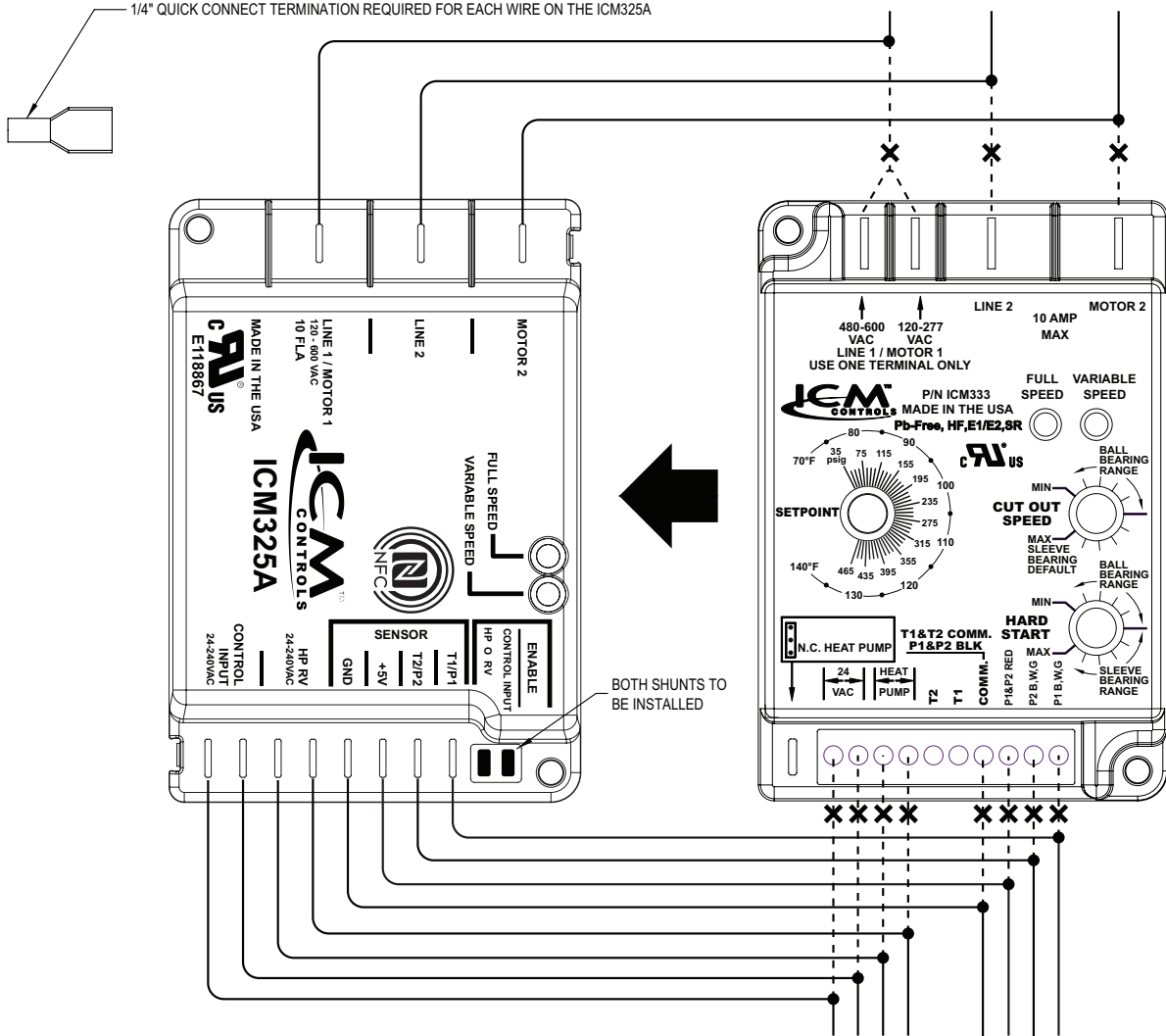


FIGURE 14

ICM333 (105240-01) TO ICM325A (105240-02) COMPARISON



BOTH SHUNTS TO BE INSTALLED

**ICM325A**

**ICM333**

- 17% minimum voltage output setting in App ← CUT OUT SPEED to MIN, CCW turn (in the 'BALL BEARING RANGE')
- 48% minimum voltage output setting in App ← CUT OUT SPEED to MAX, CW turn (in the 'SLEEVE BEARING RANGE')
- ~0.5s LOWER hard start time in App ← HARD START to MIN, CCW turn (in the 'BALL BEARING RANGE')
- ~5s HIGHER hard start time in App ← HARD START to MAX, CW turn (in the 'SLEEVE BEARING RANGE')

FIGURE 15