IAQ - UV LIGHTS

BIPOLAR IONIZER KIT

INSTALLATION INSTRUCTIONS FOR BIPOLAR IONIZER KIT USED WITH LG/LC/LH/LD/KG/KC/KH 024-300 UNITS

⚠WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, person al injury or loss of life. Installation and service must be performed by a licensed professional installer (or equivalent), service agency or the gas supplier.

Shipping and Packing List

Package 1 of 1 contains the following:

1- Bipolar ionizer assembly

1- Bag assembly containing:

1- Wiring diagram

2- #10-16 x 5/8" sheet metal screws (3 on 092-210)

2- Screw-in wire ties (156-300 only)

1- Wire tie (156-300 only)

3- Edge protectors (156-300 only)

1- Power harness (LG/LC/KG/KC/KH 024-300 only)

1- Warning label

NOTE - Not all components provided in kit are used in each application.

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 in jury. Take care while handling this equipment and wear gloves and protective clothing.

General

The Bipolar Ionizer integrates with system controls for effective air cleaning. The brush-type ionizer produces both positive and negative ions. Ionization has been shown to effectively reduce harmful pathogens, pollutants and odors by the introduction of these positive and negative ions into the airstream. These Ions are dispersed into the occupied space through the duct system proactively reducing airborne contaminants.

Application

The Needlepoint Bipolar Ionizer (NBPI) kit is specifically designed for LG/LC/LH/LD/KG/KC/KH 024-300 units. The ionizer is equipped with dry contacts which allow a Building Automation System (BAS) to interface and indicate ionizer functionality.

NOTE - The BAS will be able to monitor units equipped with M4 Unit Controllers only. Units with an M3 Unit Controller or no controller need to be connected to a separate monitoring system.

The Ionizers are also equipped with a green LED which indicates power is on. When the blower is in operation, power is delivered to the Ionizers and ions are generated.

See TABLE 1 for unit application.

TABLE 1

Unit		Part. No.
LGM/LCM/LGT/LCT/LHT/LDT/LGX/LCX/LHX024-074	21U35	622688-01
LGM/LCM/LGT/LCT/LHT/LDT078-150	21U36	622688-02
LG/LC/LH/LD/KG/KC/KH 156, 180, 210	21U37	622688-03
LG/LC/LH/LD/KG/KC/KH 240	21U38	622688-04
LG/LC/LH/LD/KG/KC/KH 300	21U39	622688-05
LGH/LCH/KG/KC/KH 024-074	22U14	622688-06
LGH/LCH/KG/KC/KH 092-150	22U15	622688-07

⚠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 main tenance), disable power to blower, remove fan belt where applicable, and ensure all controllers and ther mostats are set to the "OFF" position before performing maintenance.
3. Always keep hands, hair, clothing, jewelry, tools, etc., away from moving parts.

Specifications	
Ionizer dimension	3.875" L x 1.500" W x 1.500" H (98mm x 38mm x 38mm)
Lamp assembly dimension	40.75" L x 2" W x 2.75" H (1035mm x 51mm x 60mm)
Triangular sheet metal panel dimension	024-074 - 40.620" L x 1.688" W x 2.688" H (1032mm x 43mm x 68mm)
	LG/LC/LH/LD 078-150-24.000" L x 0.591" W x 3.717" H
	(610mm x 15mm x 94mm)
	LGH/LCH/KG/KC/KH 092-150 - 36.375" L x 0.591" W x 3.717" H
	(924mm x 15mm x 94mm)
	156-300 - 68.812" L x 2.438" W x 0.750" H (1748mm x 62mm x 19mm)
Electrical power supply	24V
Power consumption	<1 Watt
Temperature (outside of duct:	5°F to 158°F (-15°C to 70°C)
Relatve humidity	<95%
Listings: Conforms to ANSI/UL Std. 867. Certified to CSA 22.2 #187	
Specifications subject to change without notice.	

Before Installation

- Turn off power to the rooftop unit.

- Open access to the control box, blower compartment and the filter section.

⚠WARNING

Electric shock hazard.

Can cause injury or death.

Disconnect all remote power supplies before opening any unit access panels. Unit may have multiple power supplies. Do not operate without access panels in place.

Install Ionizer

Affix warning label, provided in kit, in location shown in FIGURE 2 for 024-150 units and FIGURE 11 for 156-300 units.

IMPORTANT - Make sure unit is powered-off during ionizer installation, repair, and/or filter replacement.

024-074 Units

1 - On the back side of the unit, remove one screw securing the horizontal supply air duct cover in place. See FIGURE 1. Retain the screw to secure the back side of the ionizer bracket.

2 - Install ionizer assembly on the blower deck to the left of the blower housing; secure with two provided screws. See FIGURE 2.

3 - On the back side of the unit, reinstall the retained screw engaging the back side of the ionizer bracket. See FIGURE 2.

092-150 Units

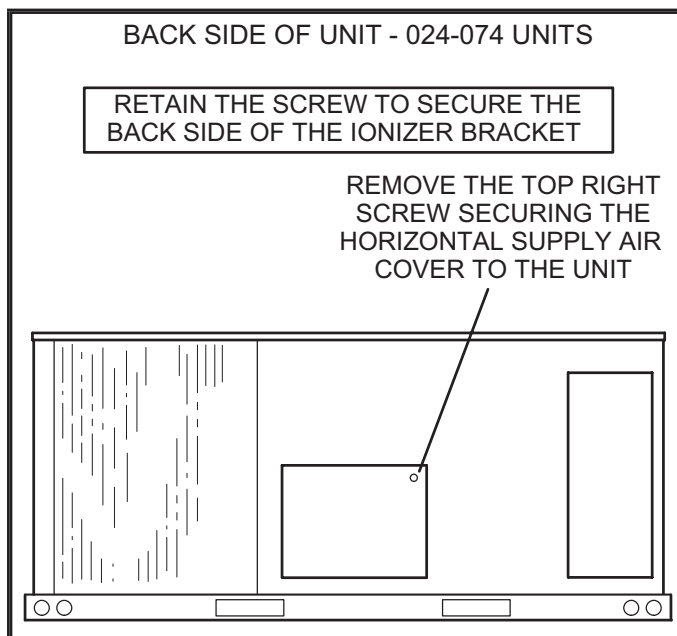1 - Install Ionizer assembly on the blower deck to the left of the blower using 3 provided screws. See FIGURE 3.
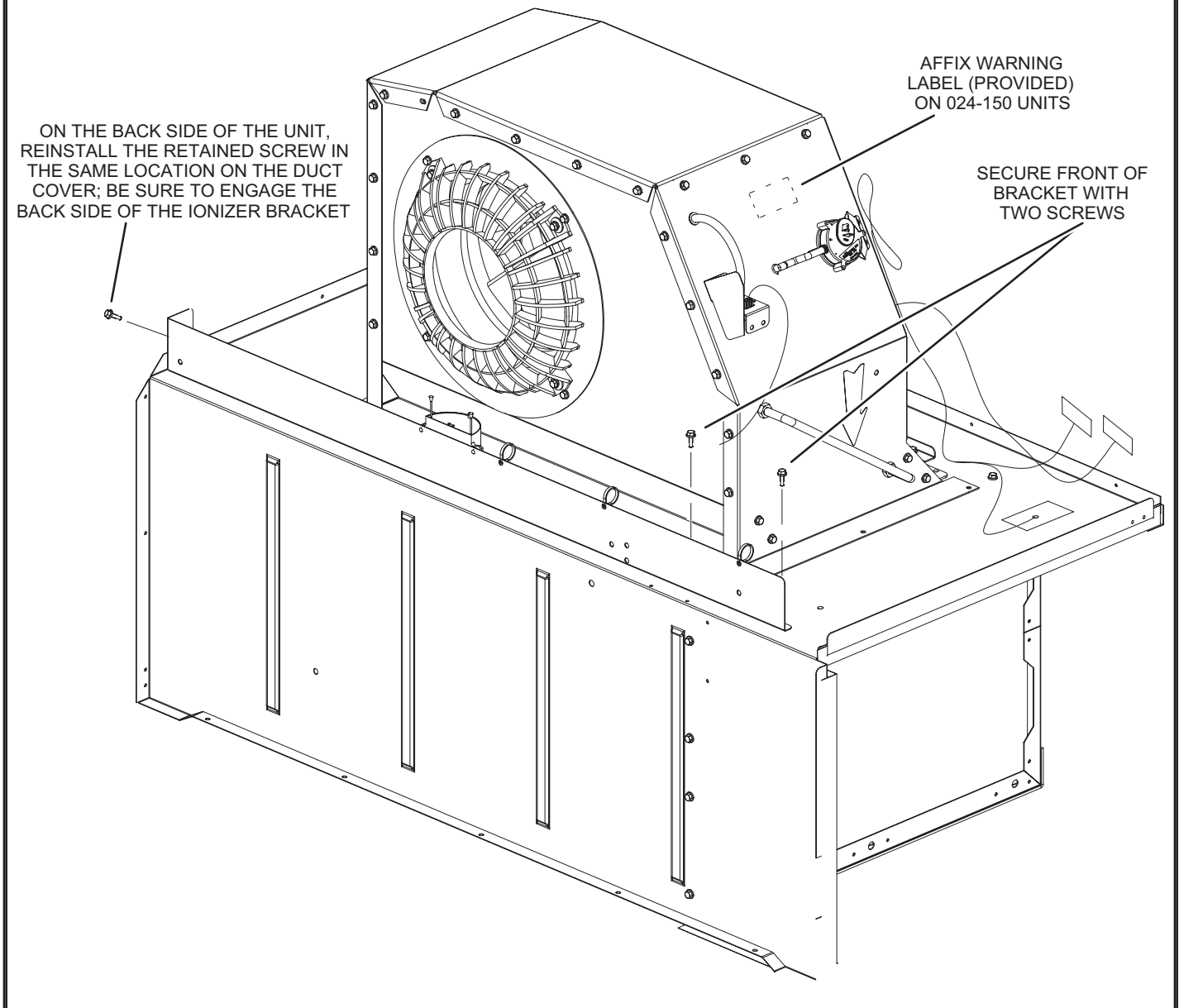
BACK SIDE OF UNIT - 024-074 UNITS

RETAIN THE SCREW TO SECURE THE BACK SIDE OF THE IONIZER BRACKET

REMOVE THE TOP RIGHT SCREW SECURING THE HORIZONTAL SUPPLY AIR COVER TO THE UNIT

FIGURE 1

INSTALL IONIZER - 024-074 (LGM SHOWN)

AFFIX WARNING
LABEL (PROVIDED)
ON 024-150 UNITS

ON THE BACK SIDE OF THE UNIT,
REINSTALL THE RETAINED SCREW IN
THE SAME LOCATION ON THE DUCT
COVER; BE SURE TO ENGAGE THE
BACK SIDE OF THE IONIZER BRACKET

SECURE FRONT OF
BRACKET WITH
TWO SCREWS

FIGURE 2

INSTALL IONIZER - 092-150

IONIZER
ASSEMBLY

INSTALL IONIZER ASSEMBLY
TO THE LEFT OF THE BLOWER;
SECURE WITH THREE SCREWS
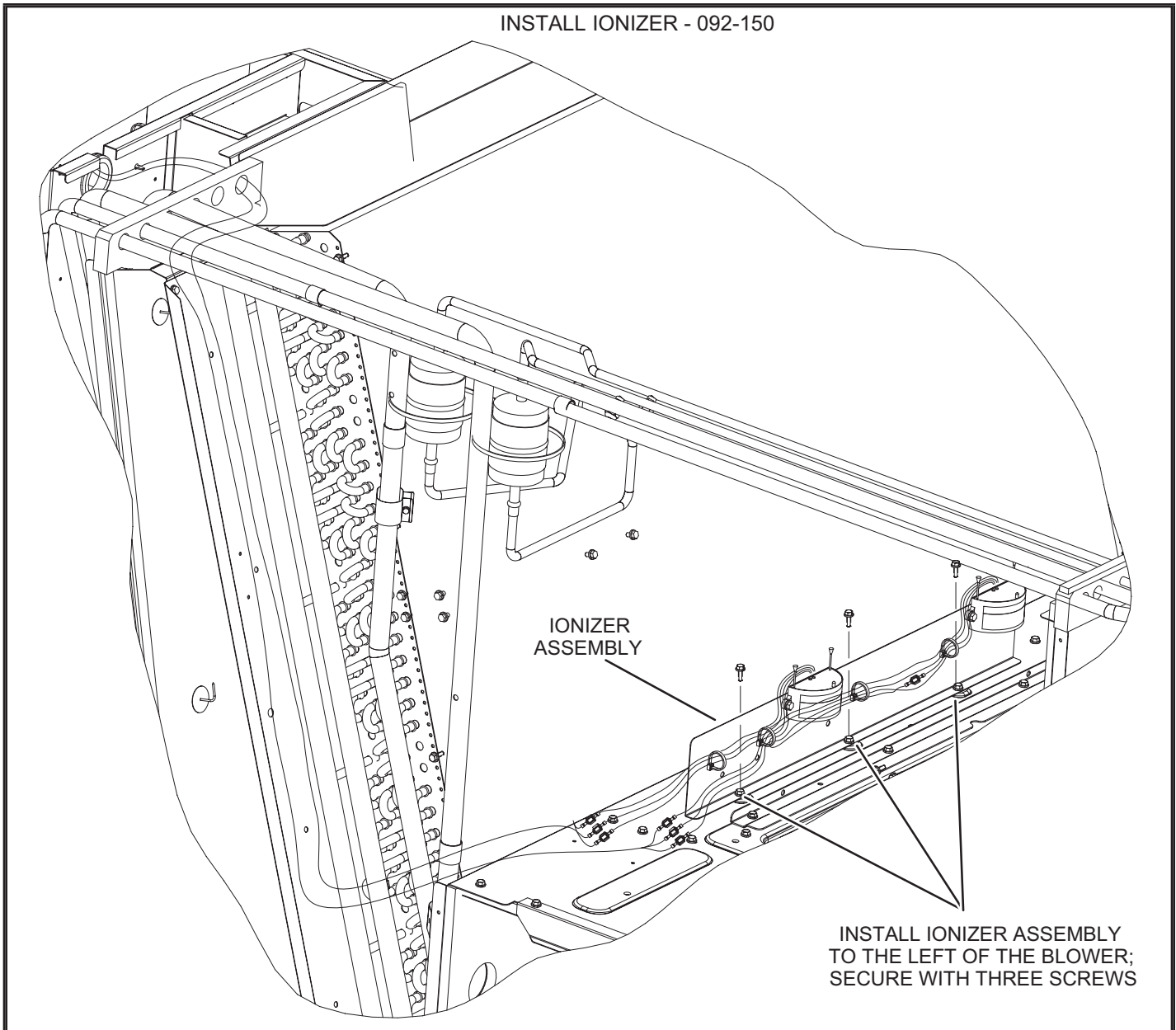
FIGURE 3

156-300 Units

1 - Open the filter access door and remove the filters and filter puller.

2 - Remove the screw securing the bottom of the upper filter bracket. See detail in FIGURE 4.

3 - Orient the ionizers toward the indoor coil and slide the ionizer assembly bracket between the upper and lower filter U-channels.

4 - Using the provided screw, secure a screw-in wire tie where the bottom filter rack screw was removed. See FIGURE 5.

5 - Install provided edge protectors. See FIGURE 4 for location.

6 - Remove the screw securing the top of the upper filter bracket. See detail in FIGURE 4.

7 - Using the provided screw, secure a screw-in wire tie where the top filter rack screw was removed. See FIGURE 5.

8 - Unbundle ionizer wires and route through wire ties.

INSTALL IONIZER - 156-300

20 TON SHOWN
(5 IONIZERS)
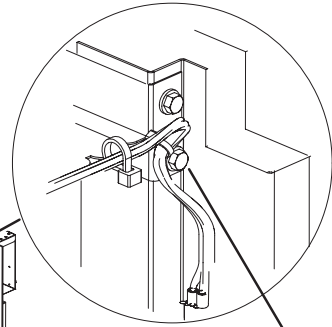
REMOVE THE SCREW
SECURING THE TOP
OF THE UPPER FILTER
RACK BRACKET
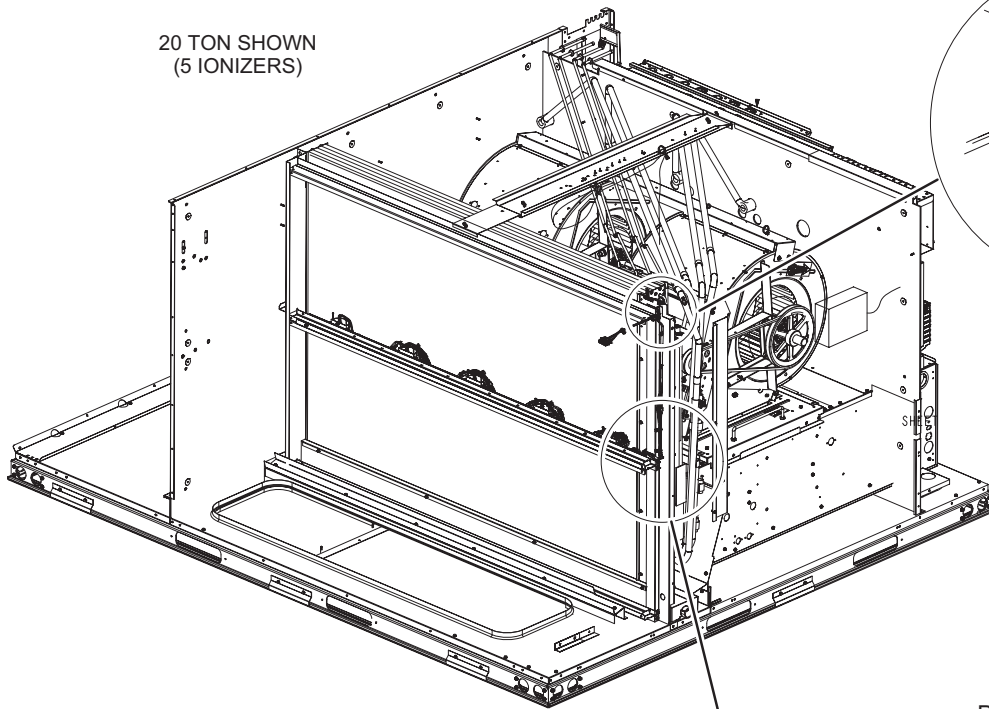
ONE EDGE
PROTECTOR ON
IONIZER BRACKET

REMOVE THE
SCREW SECURING
THE BOTTOM OF
THE UPPER FILTER
RACK BRACKET

EVAPORATOR
COIL

TWO EDGE
PROTECTORS ON
FILTER RACK

IONIZER
BRACKET

UPPER FILTER
BRACKET
U-CHANNEL

SLIDE IONIZER BRACKET
BETWEEN UPPER AND LOWER
FILTER BRACKET U-CHANNELS

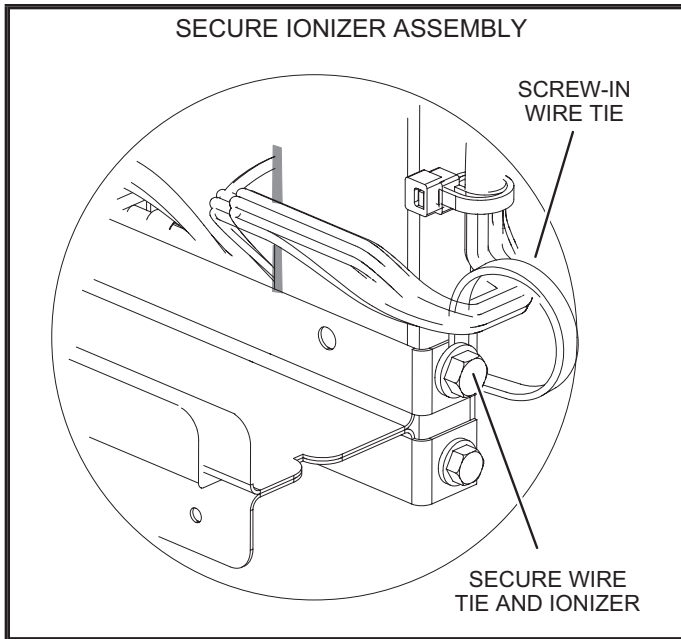LOWER FILTER
BRACKET
U-CHANNEL

FIGURE 4

SECURE IONIZER ASSEMBLY

SCREW-IN
WIRE TIE

SECURE WIRE
TIE AND IONIZER

FIGURE 5

Wiring Units With M4 Unit Controller

1 - Make wiring connections as shown in:

FIGURE 6 - LGM/LCM/LGT/LCT/LHT/LDT/LGX/
LCX/LHX024-074 Units

FIGURE 7 - LGM/LCM/LGT/LCT/LHT/LDT078-150

FIGURE 8 - LGM/LCM/LGT/LCT/LHT/LDT156-300

NOTE - The power harness provided in the kit is not used in LGM/LCM/LGT/LCT/LHT/LDT applications; unit power wiring is factory-installed.
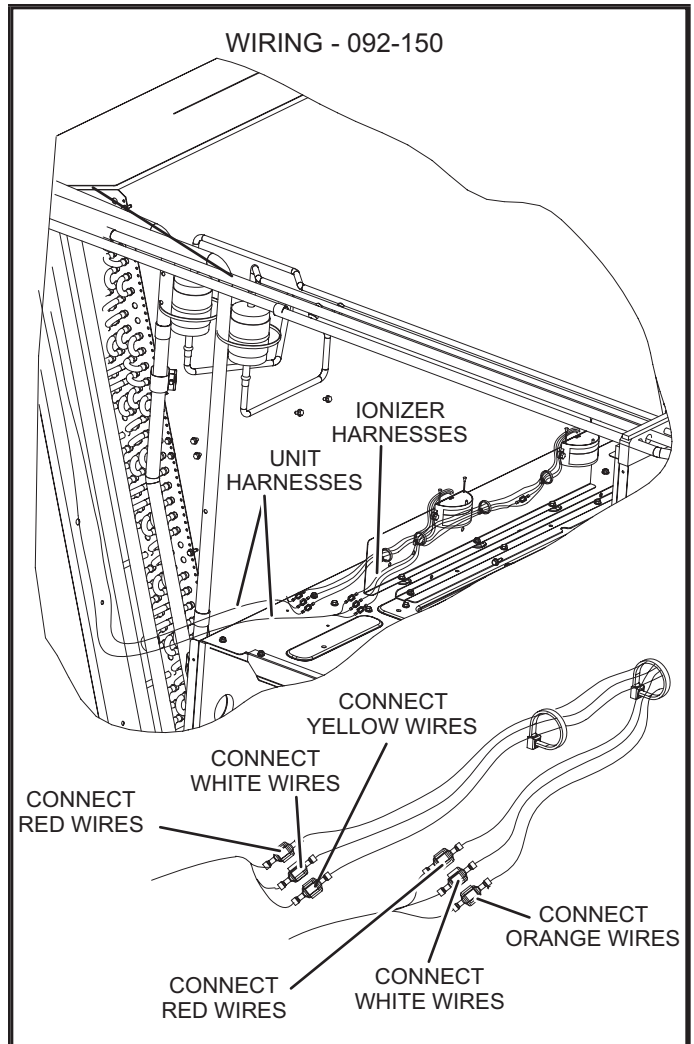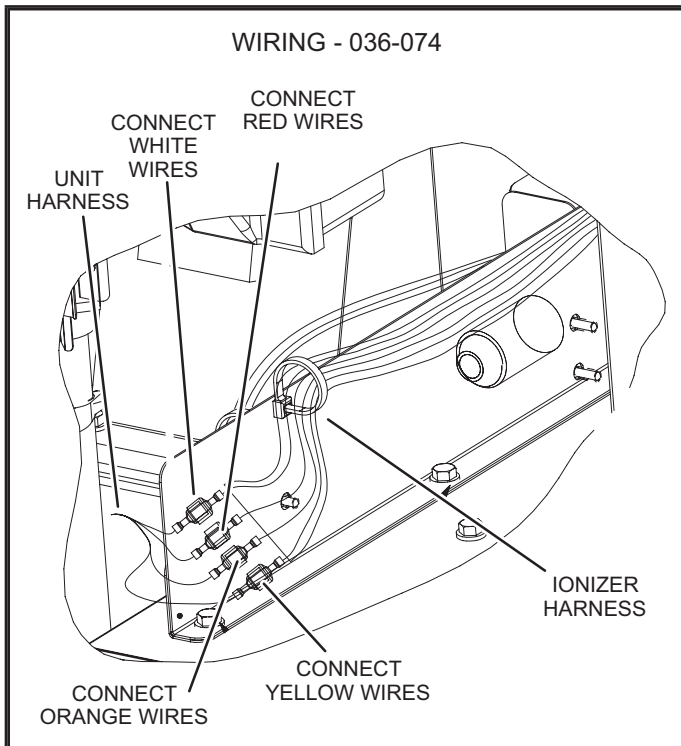
WIRING - 036-074

CONNECT
WHITE
WIRES

CONNECT
RED WIRES

UNIT
HARNESS

IONIZER
HARNESS

CONNECT
ORANGE WIRES

CONNECT
YELLOW WIRES

FIGURE 6

WIRING - 092-150

IONIZER
HARNESSES

UNIT
HARNESSES

CONNECT
YELLOW WIRES

CONNECT
WHITE WIRES

CONNECT
RED WIRES

CONNECT
ORANGE WIRES

CONNECT
RED WIRES

CONNECT
WHITE WIRES

FIGURE 7

Wiring Units With M4 Unit Controller

1 - Use the following mobile service app menu to configure the Unit Controller.

**SETUP > INSTALL > RTU INFORMATION > CONFIGU-
RATION ID2**

2 - Set position 6 to to the appropriate setting to enable the ionizer:

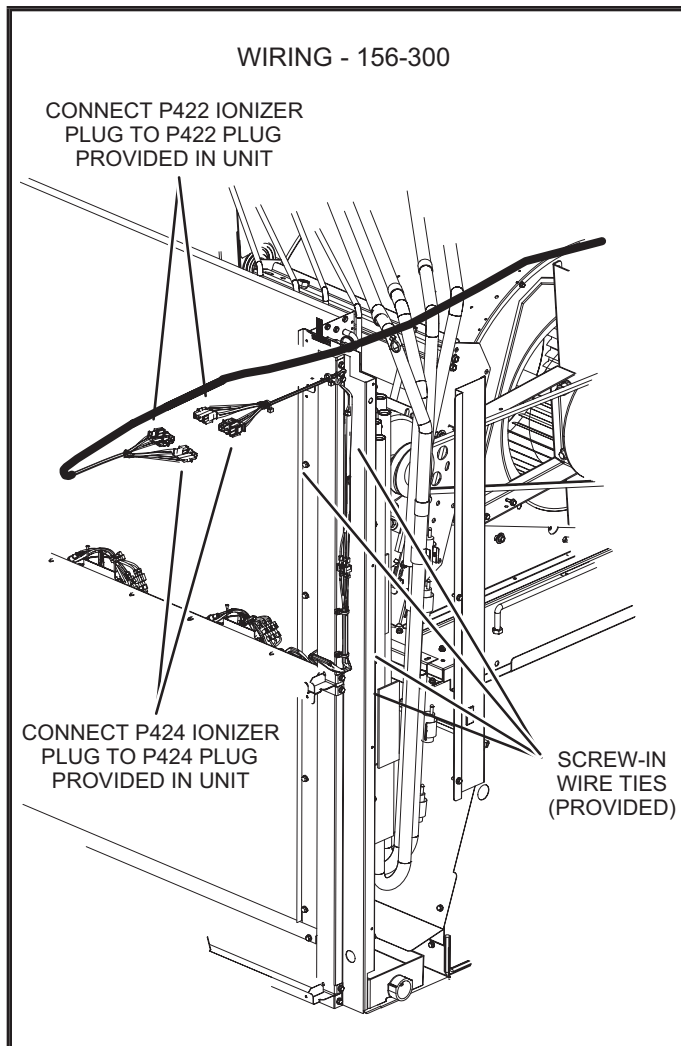2=Bipolar Ionizer Installed

3=Both UV Lamp and Ionizer Installed

WIRING - 156-300

CONNECT P422 IONIZER
PLUG TO P422 PLUG
PROVIDED IN UNIT

CONNECT P424 IONIZER
PLUG TO P424 PLUG
PROVIDED IN UNIT

SCREW-IN
WIRE TIES
(PROVIDED)

FIGURE 8

Wiring Units With M3 Unit Controller - LG/LC036-300S

1 - Locate the kit harness and cut the wires near the 3-pin plug. Discard plug.

2 - Route the cut wire ends to the control area and the 2-pin plug to the filter or blower section. See FIGURE 9, FIGURE 10, or FIGURE 11. Secure with provided wire ties.

3 - Strip and connect the cut wires to P298 terminals D01 and C on the M3 Unit Controller. See FIGURE 12.

4 - Connect the 2-pin P422 plug (routed to the filter or blower section) to the ionizer P422. See FIGURE 13.

5 - Apply power to unit. Use the M3 to navigate through the following menu which enables the ionizer.

DATA > RTU OPTION > EDIT PARAMETER > ENTER DATA ID 186 > OPTION 3

6 - To monitor ionizer operation, connect orange and yellow BAS ionizer wires to field-provided monitoring system if available. If the BAS signal is not used, bundle wires and secure together.

Wiring Units Without Unit Controller

1 - Locate the kit harness and cut the wires near the 3-pin plug. Discard plug.

2 - Route the cut wire ends to the control area and the 2-pin plug to the filter or blower section. See FIGURE 9, FIGURE 10, or FIGURE 11. Secure with provided wire ties.

3 - Strip and connect the cut wires to TB1 terminals G and C. See FIGURE 14.

4 - Connect the 2-pin P422 plug (routed to the filter or blower section) to the ionizer P422 plug. See FIGURE 13. On 024-150 units, bundle excess wiring in blower section.

5 - To monitor ionizer operation, connect orange and yellow BAS ionizer wires to field-provided monitoring system if available. If the BAS signal is not used, bundle wires and secure together.
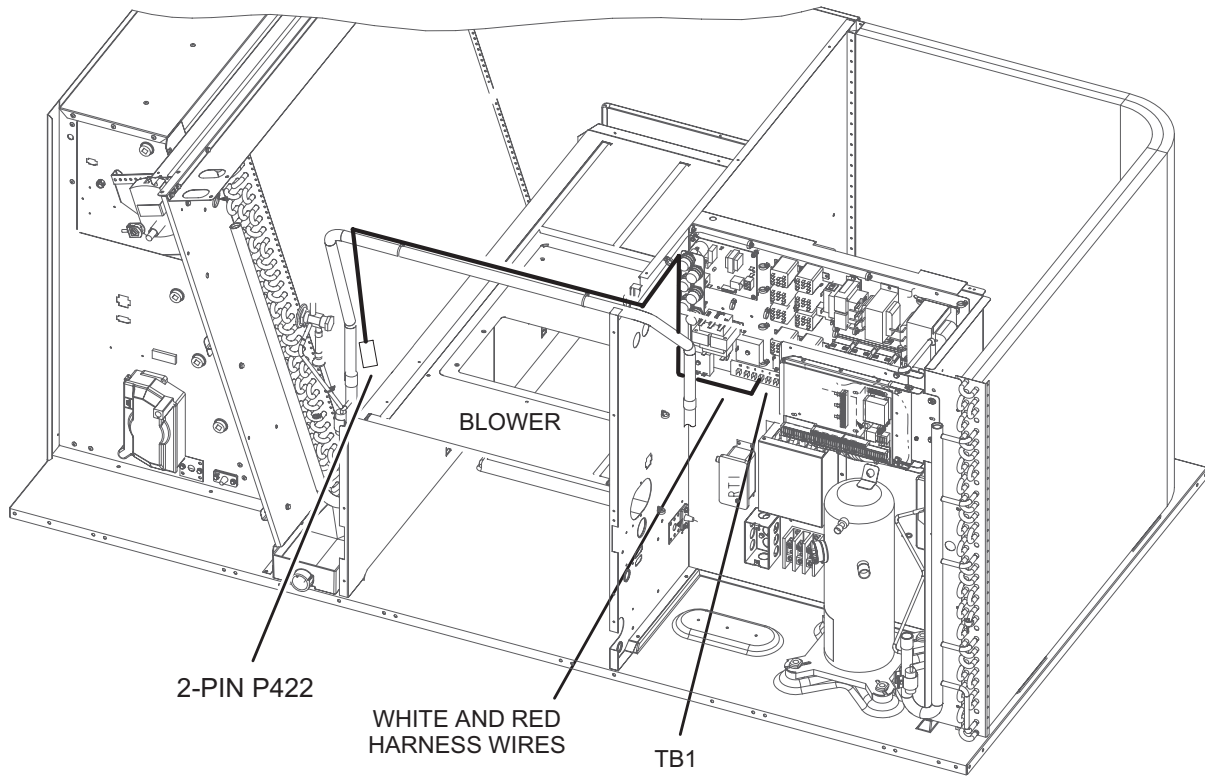
ROUTE KIT HARNESS - KG/KC/KH 024-090

BLOWER

2-PIN P422

WHITE AND RED
HARNESS WIRES

TB1

FIGURE 9

ROUTE KIT HARNESS - KG/KC/KH 092-150

TB1

BLOWER

TB1

WHITE AND RED
HARNESS WIRES

2-PIN P422

FIGURE 10

ROUTE KIT HARNESS - LG/LC/KG/KC/KH 156-300S
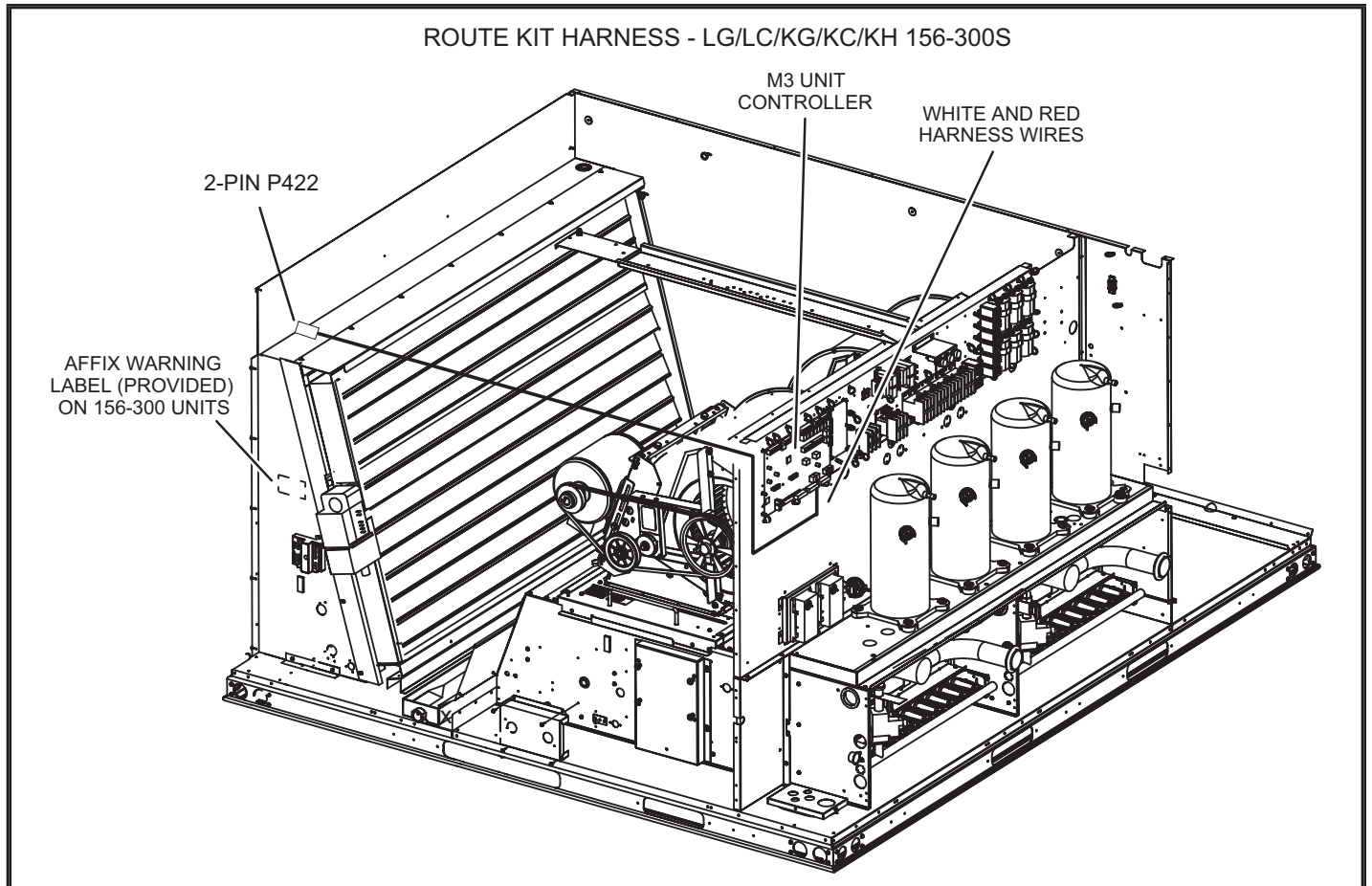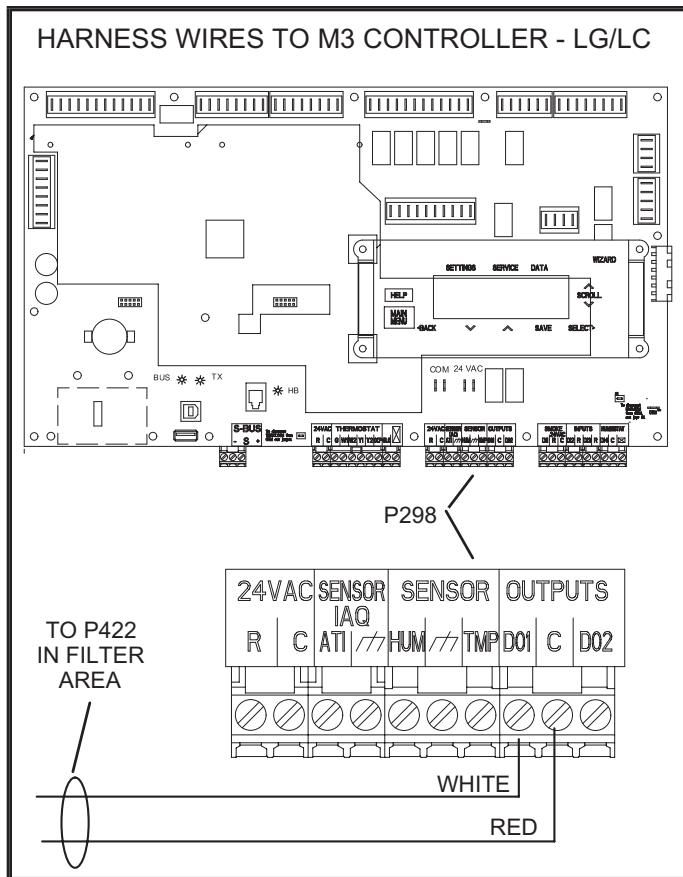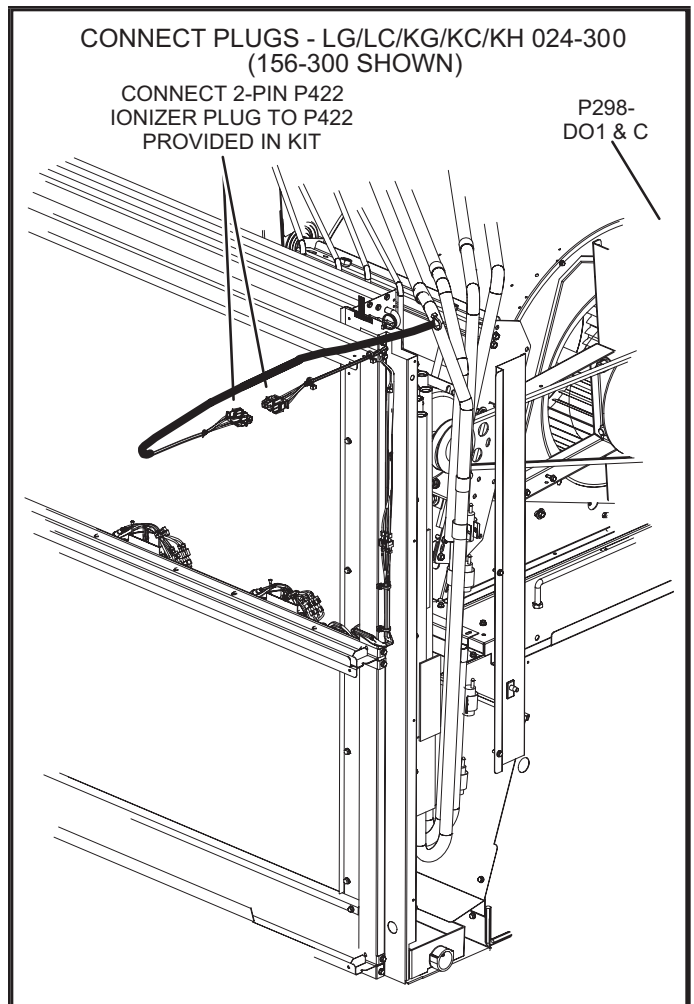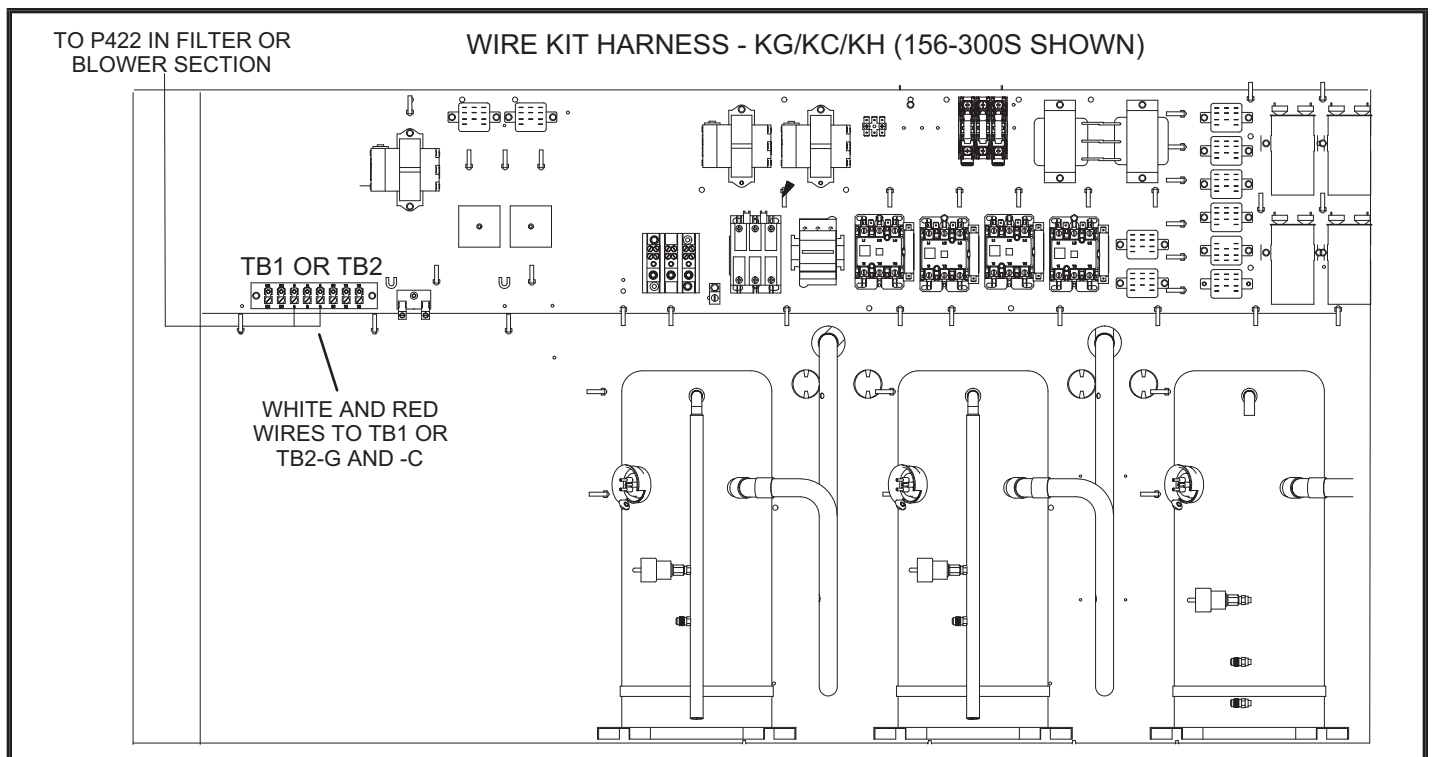
M3 UNIT CONTROLLER

WHITE AND RED HARNESS WIRES

2-PIN P422

AFFIX WARNING LABEL (PROVIDED) ON 156-300 UNITS

FIGURE 11

HARNESS WIRES TO M3 CONTROLLER - LG/LC

P298

TO P422 IN FILTER AREA

24VAC		SENSOR IAQ		SENSOR		OUTPUTS		
R	C	ATI	///	HUM	///	TMP	DO1	C	DO2

WHITE

RED

FIGURE 12

CONNECT PLUGS - LG/LC/KG/KC/KH 024-300
(156-300 SHOWN)

CONNECT 2-PIN P422 IONIZER PLUG TO P422 PROVIDED IN KIT

P298-DO1 & C

FIGURE 13

WIRE KIT HARNESS - KG/KC/KH (156-300S SHOWN)

TO P422 IN FILTER OR BLOWER SECTION

TB1 OR TB2

WHITE AND RED WIRES TO TB1 OR TB2-G AND -C

FIGURE 14

Maintenance

The ionizer was designed for low maintenance. The device should be checked semi-annually to confirm the brushes are clean for maximum output. If the carbon fiber brushes are dirty, to clean the device as follows:

1 - Disconnect power.

2 - Remove any accumulated dust on bristles of the brushes with either compressed air or a toothbrush.

3 - Reconnect power.

Troubleshooting

If the unit is not working, check the following:

1 - The supply fan is running and that the green LED light illuminates.

2 - Check the power input connections to the ionization unit. Verify all connections are correct and tightened. Reconnect any loose wires as necessary.

3 - Test dry contact wiring with multimeter set to continuity mode.