

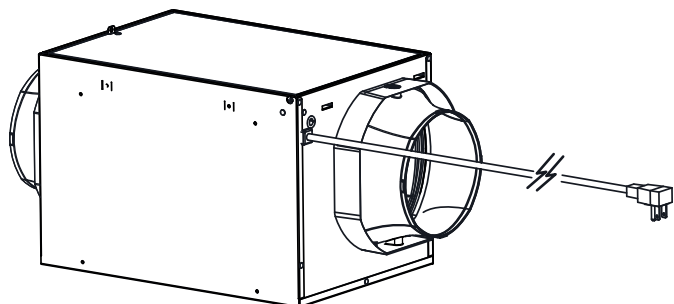
FSFXXAOA1180

Fresh Air Supply Fan

Installation and User Instructions

NOTE: Read the entire instruction manual before starting the installation.


IMPORTANT: SAVE THESE INSTRUCTIONS.



Register your product online at: <https://www.cac-bdp-all.com/>

RESIDENTIAL USE ONLY

Please take note that this manual uses the following symbols to emphasize particular information:

Recognize safety information. When you see this symbol  on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards, which will result in severe personal injury or death. WARNING signifies hazards, which could result in personal injury or death. CAUTION is used to identify unsafe practices, which may result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

LIMITATION

For residential (domestic) installation only. Installation work and electrical wiring must be done by a qualified person in accordance with all applicable codes and standards, including fire-rated construction codes and standards.

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! WARNING

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSON(S) OBSERVE THE FOLLOWING

1. Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
2. Before servicing or cleaning this unit, disconnect power cord from electrical outlet.
3. This unit is not designed to provide combustion and/or dilution air for fuel-burning appliances.
4. Do not use this unit with any solid-state speed control device other than those specified in ([Connection to the AHU on p8](#)).
5. Do not operate any fan with a damaged cord or plug. Discard fan or contact your HVAC contractor, or the manufacturer.
6. Do not run cord under carpeting. Do not cover cord with throw rugs, runners or similar coverings. Do not route cord under furniture or appliances. Arrange cord away from traffic area and where it will not be tripped over.
7. Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable code and standards, including fire-rated construction.
8. When cutting or drilling into a wall or ceiling, do not damage electrical wiring and other hidden utilities.
9. This unit must be grounded.
10. When performing installation, servicing or cleaning this unit, it is recommended to wear safety glasses and gloves.
11. When applicable local regulation comprises more restrictive installation and/or certification requirements, the aforementioned requirements prevail on those of this document and the installer agrees to conform to these at his own expenses.
12. The unit must be mounted at least 3.3 feet (1.0 meter) away from any accessible opening of the duct.

INSTALLER INFORMATION

IMPORTANT: Ducting has a strong effect on the air flow, noise and energy use of the fan. Use the shortest, straightest duct routing possible for best performance, and avoid installing the fan with smaller ducts than recommended. Insulation around the ducts can reduce energy loss and inhibit mold growth. Fans installed with existing ducts may not achieve their rated air flow.

NOTE: Make sure that the outdoor intake hood is easily accessible for annual maintenance. If located above the first floor, place it close to a window or balcony to allow ease of access.

! CAUTION

TO AVOID UNIT DAMAGE AND ENSURE LONG LIFE

1. Please read specification label on product for further information and requirements.
2. Do not intake/exhaust air into spaces within walls or ceiling or into attics, crawl spaces, or garage. Do not attempt to recover the exhaust air from a dryer or a range hood.
3. Intended for residential installation only in accordance with the requirements of NFPA 90B.
4. When leaving the house for a long period of time (more than two weeks), a responsible person should regularly check if the unit operates adequately.
5. At least once a year, the unit mechanical and electronic parts should be inspected by qualified service personnel.
6. Since the electronic control system of the unit uses a microprocessor, it may not operate correctly because of external noise or very short power failure. If this happens, unplug the unit and wait approximately 10 seconds. Then, plug the unit in again.
7. Outdoor intake hood must be weather tight and comprise a bird screen.
8. Should you decide to dispose of this unit or of parts of it, do so in accordance with local laws and regulation.
9. Some areas are prone to a higher frequency of lightning-induced power surges. Using a surge protector to protect units located in these areas is recommended.

USER INFORMATION

Optional Wall Control

This unit can be connected to the supply fan wall control.

- Upon startup, the wall control LED will light up during the boot sequence, and remain ON as the unit starts to operate after the boot sequence. Press the push button to turn the unit OFF; the wall control LED will also turn OFF.
- When it is time to perform the filter maintenance, the wall control LED will blink slowly (2 seconds ON, 2 seconds OFF). After the filter maintenance has been performed, press and hold the push button for 5 seconds to reset the filter maintenance reminder.
- Refer to your installer for any other blinking pattern.

User Servicing Instructions

- The metal filter included with this unit should be cleaned every 6 months using water and a mild soap. To remove the filter(s), open the door, release the filter retaining clip and pull filter(s) out. Allow the filter to dry completely before putting it back in the unit; when reinserting it in the unit, make sure that it is standing straight.
- Inspect the outdoor air intake at least once a year.
- During the first year of operation, it is recommended to inspect your unit at a higher frequency, especially if you live near a highway or in an area where there is a lot of construction work, generating lots of dust. Your filter(s) may need more frequent cleaning or replacement in these types of environments.
- Replace the optional MERV filter at least once a year; do not attempt to clean and reuse the optional MERV filter.
- These recommendations may change according to the environmental conditions in your area.

Comfort Mode

Should the air inside your house become too humid, or if such conditions want to be prevented, the operation mode of your Supply Fan can be changed from a Code-Compliant one (modes 1 to 3) to a Comfort Mode (modes A to E). Refer to the map in ([APPENDIX A on p12](#)) to make the right choice.

When making such change, make sure to only change the Mode and to leave the Run time % as it was set by your installer. If in doubt, refer to your HVAC contractor.

Selected Mode	Climatic Zones*
1 - Ashrae 2016	Zones 1-4
2 - Ashrae 2010 (factory setting)	Zones 1-4
3 - IRC / IMC 2012-2015	Zones 1-4
A - Comfort mode Hot / Humid #1	Zones 2A and 1
B - Comfort mode Hot / Humid #2	Zones 1 and 2A
C - Comfort mode Hot / Dry	Zone 2B
D - Comfort mode Mixed / Humid	Zones 3A, 4A, 3C and 4C
E - Comfort mode Mixed / Dry	Zones 3B and 4B

*. As defined by the Department of Energy. Refer to the map in Appendix A.

Planning

Installation Zones

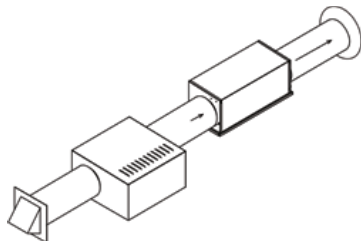
The FSFXXAOA1180 unit can be installed in climatic zones 1 to 4 as defined by the Department of Energy (refer to ([APPENDIX A on p12](#)) for the map), whether as a stand alone unit or connected to the ducting of an AHU. Installation in any other climatic zone may cause damage to the house.

Installation Types

IMPORTANT: Always use insulated ducting of a minimum R-4 insulation factor. Duct diameter equal or larger than port size is recommended.

Stand-Alone Installation

The installer shall ensure that, if necessary, an in-line heater sized according to required airflow and outside design heating temperature from Manual J or ASHRAE table is installed to avoid condensation on uninsulated duct distribution systems within the house or surfaces near the distribution register. The in-line heater shall have an integrated airflow sensor and an over temperature sensor to prevent heating in no-flow or low-flow conditions.



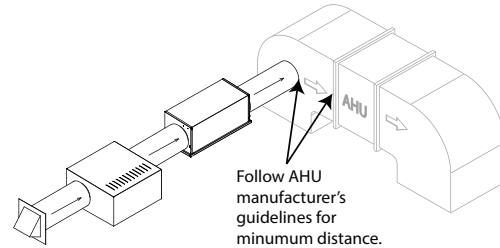
A200588

When deciding if a preheater is required and whether it should be installed BEFORE or AFTER the supply fan, consider the following:

- This supply fan's minimum operating temperature is 14 °F.
- The minimum distance between the preheater and the supply fan is 12 inches.
- The temperature distributed in the ducting should not be below 55 °F.

Installation with an AHU

The installer shall ensure that, if necessary, an in-line heater sized according to required airflow and outside design heating temperature from Manual J or ASHRAE table is installed to ensure that the air delivered to the AHU is never below the minimum temperature allowed by the manufacturer (generally 55 °F). The in-line heater shall have an integrated airflow sensor and an over temperature sensor to prevent heating in no-flow or low-flow conditions.



A200589

When deciding if a preheater is required and whether it should be installed BEFORE or AFTER the supply the supply fan runs. Refer to ([Wiring and Logic Diagrams on p7](#)) for wiring configurations.

Preparation

IMPORTANT: This unit has to be provided with a low voltage power source (AHU or other), refer to WIRING.

1. Remove the unit from the box and inspect for damage. Installation hardware is located in a plastic bag along with this guide, on top of the filler.
2. Put the unit down on a protected surface.
3. Open the unit's door and remove the filter to allow for more room to work in the electronic compartment.

NOTE: This unit reads temperature and relative humidity every hour and uses this data to choose the best time of the day to ventilate, according to the chosen mode's preset limits.

4. Refer to the table below. Choose the mode you want the unit to operate in and note it down in the space provided for that purpose on the unit's label.

Selected Mode*	Climatic Zones†
1 - Ashrae 2016	Zones 1-4
2 - Ashrae 2010 (factory setting)	Zones 1-4
3 - IRC / IMC 2012-2015	Zones 1-4
A - Comfort mode Hot / Humid #1	Zones 2A and 1
B - Comfort mode Hot / Humid #2	Zones 1 and 2A
C - Comfort mode Hot / Dry	Zone 2B
D - Comfort mode Mixed / Humid	Zones 3A, 4A, 3C and 4C
E - Comfort mode Mixed / Dry	Zones 3B and 4B

*. Refer to the label on the inlet or to Appendix B for the full limits table.

†. As defined by the Department of Energy. Refer to map in Appendix A.

5. Refer to your local building code to determine the required airflow.
6. Refer to the tables below. Find out what speed and run time percentage the unit has to be set in to provide the required airflow, and note down the chosen values in the space provided for that purpose on the unit's label.

For example: If the required airflow is 90 CFM, the speed switch should be set to 180 CFM, and the Run time % button, to 50%.

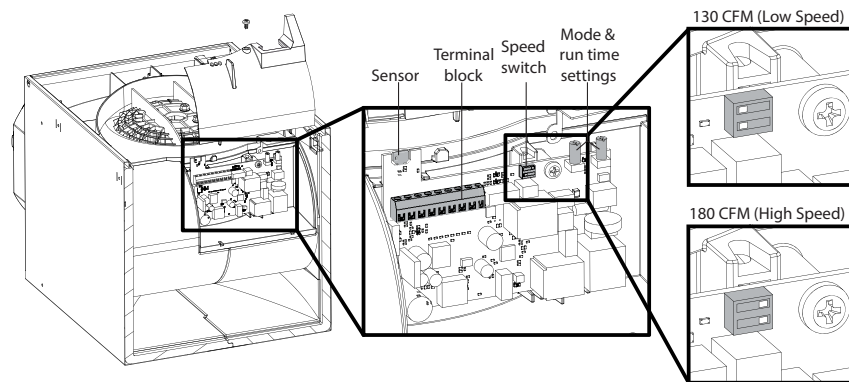
Table 1 – Run Time % According to Speed Setting and Required Airflow

	Required Airflow (CFM)															
Speed Setting	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105
130 CFM	25	30	30	35	40	40	45	50	55	60	60	65	70	75	80	80
180 CFM	20	20	20	25	30	30	35	35	40	40	45	50	50	55	55	60
	Run time % button value															

	Required Airflow (CFM)															
Speed Setting	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	
130 CFM	85	90	90	95	100	—	—	—	—	—	—	—	—	—	—	
180 CFM	60	65	70	70	70	75	80	80	85	85	70	90	95	95	100	
	Run time % button value															

Grayed out values are the recommended settings and should be preferred.

- Remove the screw holding the electronic compartment cover, as well as the cover itself.
- Set the Speed Switch to 130 CFM or 180 CFM, according to the settings chosen in step 6. The unit is factory set to 130 CFM.



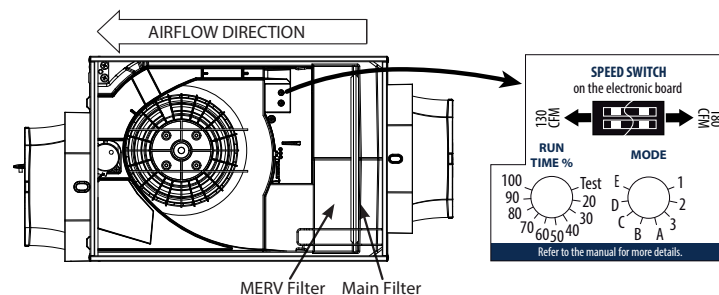
A200590

- Using the terminal block located on the electronic board, perform the low voltage connection ([Connection to the AHU on p8](#)). Connection to a low voltage power source is mandatory.
 - Make sure that the polarity of the connections is respected.
 - Pay special attention to the sensor located above the terminal block and the potentiometer buttons on the electronic board; they are very fragile, do not damage them while performing the connections.
 - Run the low voltage wires along with the other wires all the way to the hole and grommet in the housing, where the low voltage wires should exit. Make sure that the wire seal foam is reinstalled.

NOTE: If the unit is to be connected to a supply fan optional wall control, the low voltage wire should be connected to the terminal block now. Refer to ([Connection to the Supply Fan Optional Wall Control on p8](#)) for the wiring diagram.

IMPORTANT: Make sure that the wire seal foam is put back in place.

- Reinstall the electronic compartment cover (make sure not to pinch wires), and set the Mode and Run time % buttons according to the settings previously chosen.



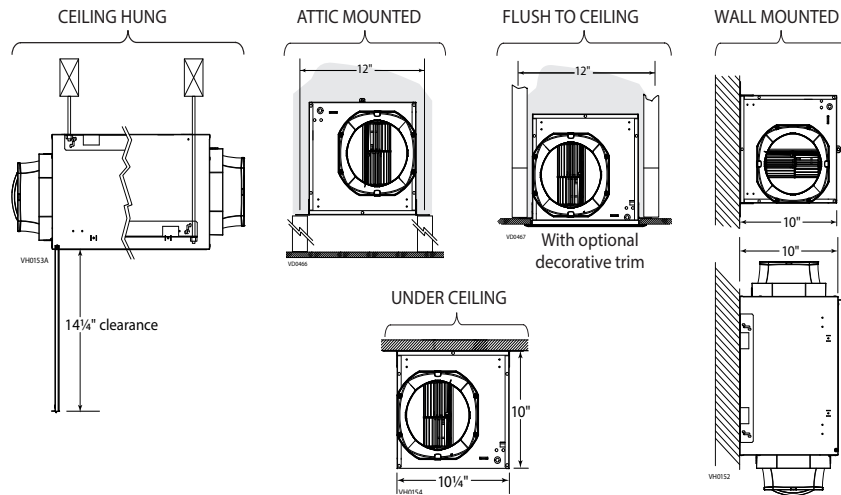
A200591

- Reinstall the main filter in the unit.

NOTE: An optional MERV filter may be installed now. The main filter should remain as a prefilter, and the MERV filter should be installed as indicated above.

Mounting the Unit

NOTE: When choosing a location for this unit, keep in mind that maintenance will have to be performed by the end user on a regular basis. Choose an easily accessible location and plan for a 14¼-in. clearance for the door to open.

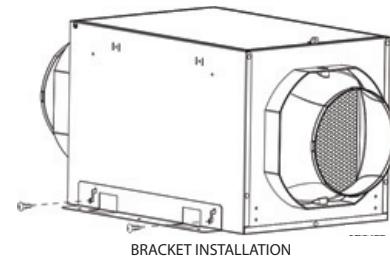
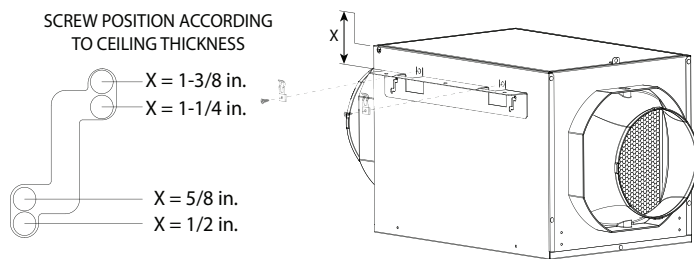


A200592

Flush to Ceiling

NOTE: If the finishing will be done using the optional decorative finishing trim (part no. KVAAC0101DFT), the springs included in the optional kit should be installed before installing the brackets.

- Using 4 screws no. 8-18 x 0.375 in., install the brackets on the unit following the diagram below to adapt to the thickness of the ceiling. **DO NOT USE OTHER SCREWS.**

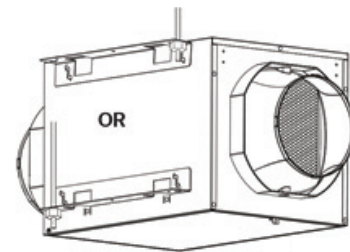


A200595

Ceiling Hung

The brackets have been designed to allow that the unit be hung using threaded rods.

- Using 4 screws no. 8-18 x 0.375 in., install the brackets in one of both ways illustrated below. **DO NOT USE OTHER SCREWS.** Use nuts to secure the unit.

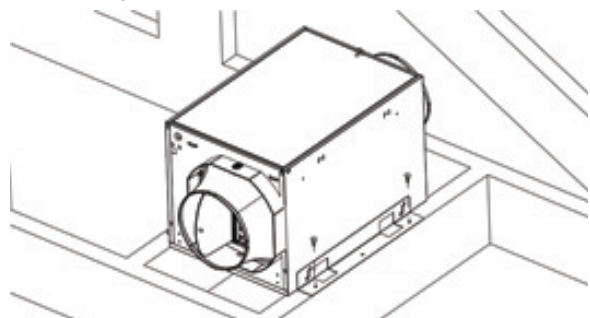


A200596

In the Attic

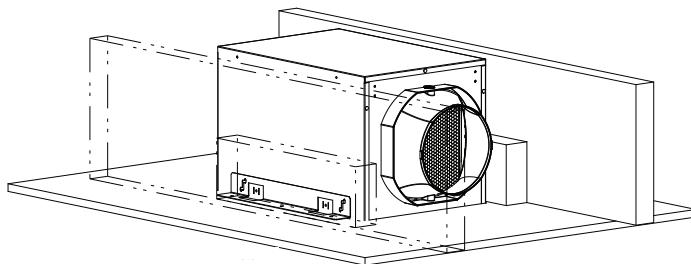
IMPORTANT: Do not install in an attic where the temperature may exceed 160 °F.

- Using 4 screws no. 8-18 x 0.375 in., install the brackets on the unit as illustrated for Under Ceiling or Wall Mounted. **DO NOT USE OTHER SCREWS.**
- Using 4 screws no. 10-12 x 0.625 in., secure the unit to the joists or cross framing.



A200597

- Using 4 screws no. 10-12 x 0.625 in., install the unit between the joists. This unit is designed to fit between 12-in. cc joists. If the joists are closer, do not force the unit in—choose another installation method.



A200594

NOTE: Prior to painting, clean the metal housing using solvent and the plastic decorative finishing trim using water.

Under Ceiling or Wall Mounted

- Using 4 screws no. 8-18 x 0.375 in., install the brackets on the unit as illustrated below. **DO NOT USE OTHER SCREWS.**
- Using 4 screws no. 10-12 x 0.625 in. or longer screws if necessary, secure the unit to the wall or ceiling, into the studs, joists or other solid material.

NOTE: When wall mounted, the unit can be positioned in any orientation to suit your need.

Connecting the Insulated Ducts to the Unit

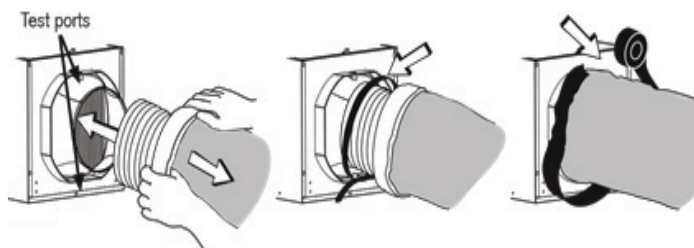
1. Slide the inner flexible duct over the port and tie it using a tie-wrap.
2. Pull the insulation over the outer ring of the port without compressing it.
3. Use duct tape to seal the outer membrane of the insulated duct to the outer ring of the port.

IMPORTANT: Avoid blocking the test ports with the duct tape.

! WARNING

PERSONAL INJURY HAZARD

Make sure the outdoor intake hood is at least 12 inches above the ground and 6 feet away from any of the following: Dryer exhaust, high-efficiency furnace vent, central vacuum vent, gas meter exhaust, gas barbecue-grill, any exhaust from a combustion source, garbage bin and any other source of contamination.



A200598

NOTE: Make sure that the outdoor intake hood is easily accessible for annual maintenance. If located above the first floor, place it close to a window or balcony to allow ease of access.

! WARNING

PERSONAL INJURY HAZARD

Failure to follow this warning could result in personal injury or death. Never install a stale air exhaust register in a room where there is a combustion device, such as a gas furnace, a gas water heater or a fireplace. A negative pressure could be created in the area of the fuel burning unit and draw carbon monoxide into the room. CO can cause personal injury or death.

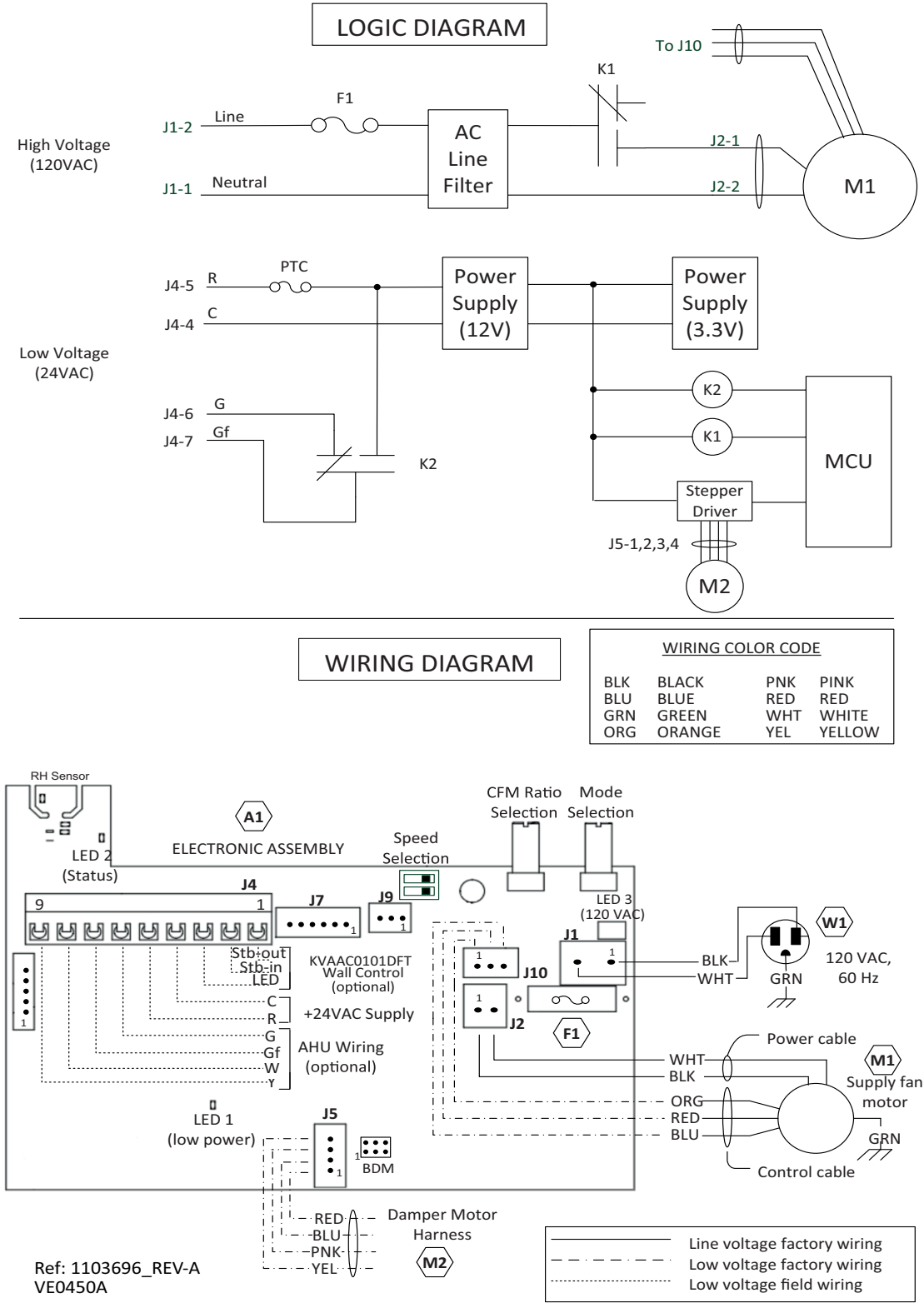
WIRING

! WARNING

SHOCK HAZARD

Risk of electric shock. Electrical wiring must be done by qualified personnel in accordance with all applicable codes and standards. Before connecting wires, switch power off at service panel and lock service disconnecting means to prevent power from being switched on accidentally.

Wiring and Logic Diagrams



Connection to the AHU

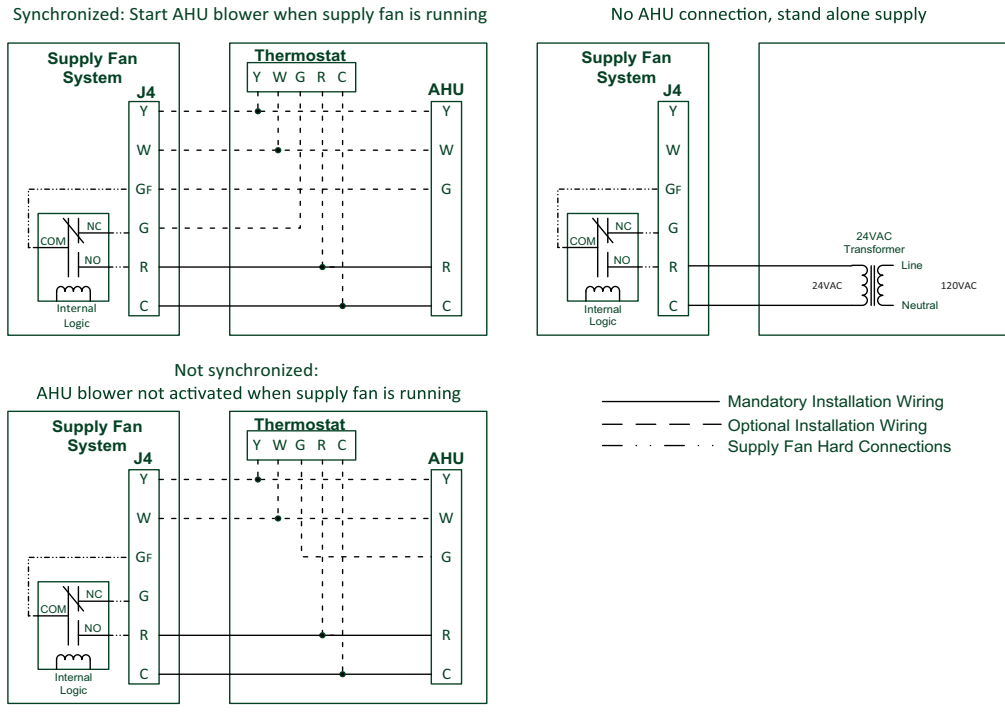


WARNING

SHOCK HAZARD

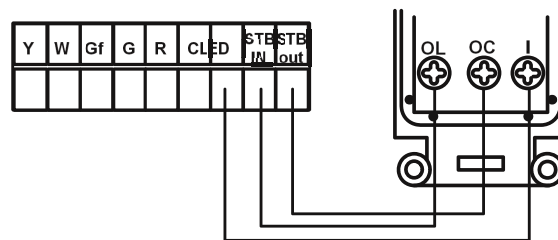
Risk of electric shock. Electrical wiring must be done by qualified personnel in accordance with all applicable codes and standards. Before connecting wires, switch power off at service panel and lock service disconnecting means to prevent power from being switched on accidentally.

IMPORTANT: Control interface of AHU systems may vary. Please contact your AHU supplier for any installation involving alternate wiring electrical specifications.



A200602

Connection to the Supply Fan Optional Wall Control



A200603

HOW TO TEST THE UNIT

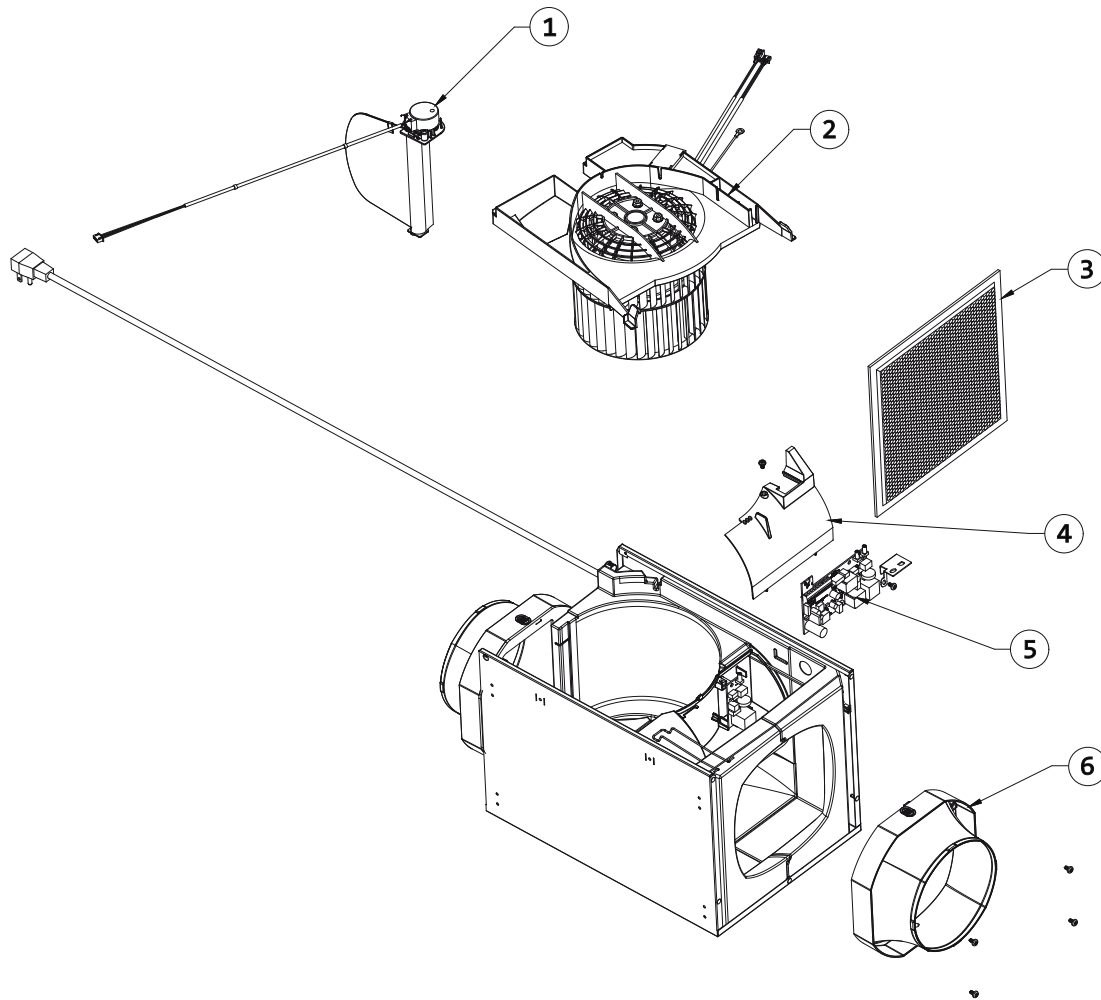
After the unit has been installed, the low voltage connection has been made, and the ducts and hoods have been installed, the airflow can be tested. To do so:

1. Open the unit's door and take note of the unit's Run time % setting.
2. If connected to the ducting of an AHU, turn the AHU OFF while measuring the airflow.
3. Turn the Run time % button in the "Test" position and close the door.
4. Wait until the booting sequence is done (at least 45 seconds).
5. Remove the test port cap located on the port on the intake side of the unit (closest to the filter).
6. Test the airflow using a Pitot tube. The distance between the test port and VD0472 the center of the duct is 3.75 inches.
7. Put the cap back on the test port.
8. Set the Run time % button back to its previous setting.



A200604

SERVICE PARTS



A200605

Item no.	Part no.	Description
1	S97021043	Damper Assembly
2	S97021044	Motor Assembly
3	S97021045	Main Filter
4	S97021048	Electronic Cover
5	S97021047	Electronic Board
6	S97021041	6-in. Port
Not shown	KVACN0101(C,B)SF	Optional Supply Fan Wall Control
Not shown	KVAAC0101DFT	Optional Decorative Trim
Not shown	S99010461	Optional MERV 8 Filter
Not shown	S99010462	Optional MERV13 Filter

Replacement Parts and Repair

In order to ensure your ventilation unit remains in good working condition, you must use Factory Authorized Parts™ only. The Factory Authorized Parts™ are specially designed for each unit and are manufactured to comply with all the applicable certification standards and maintain a high standard of safety. Any third party replacement part used may cause serious damage and drastically reduce the performance level of your unit, which will result in premature failing. Contact your local dealer for all replacement parts and repairs.

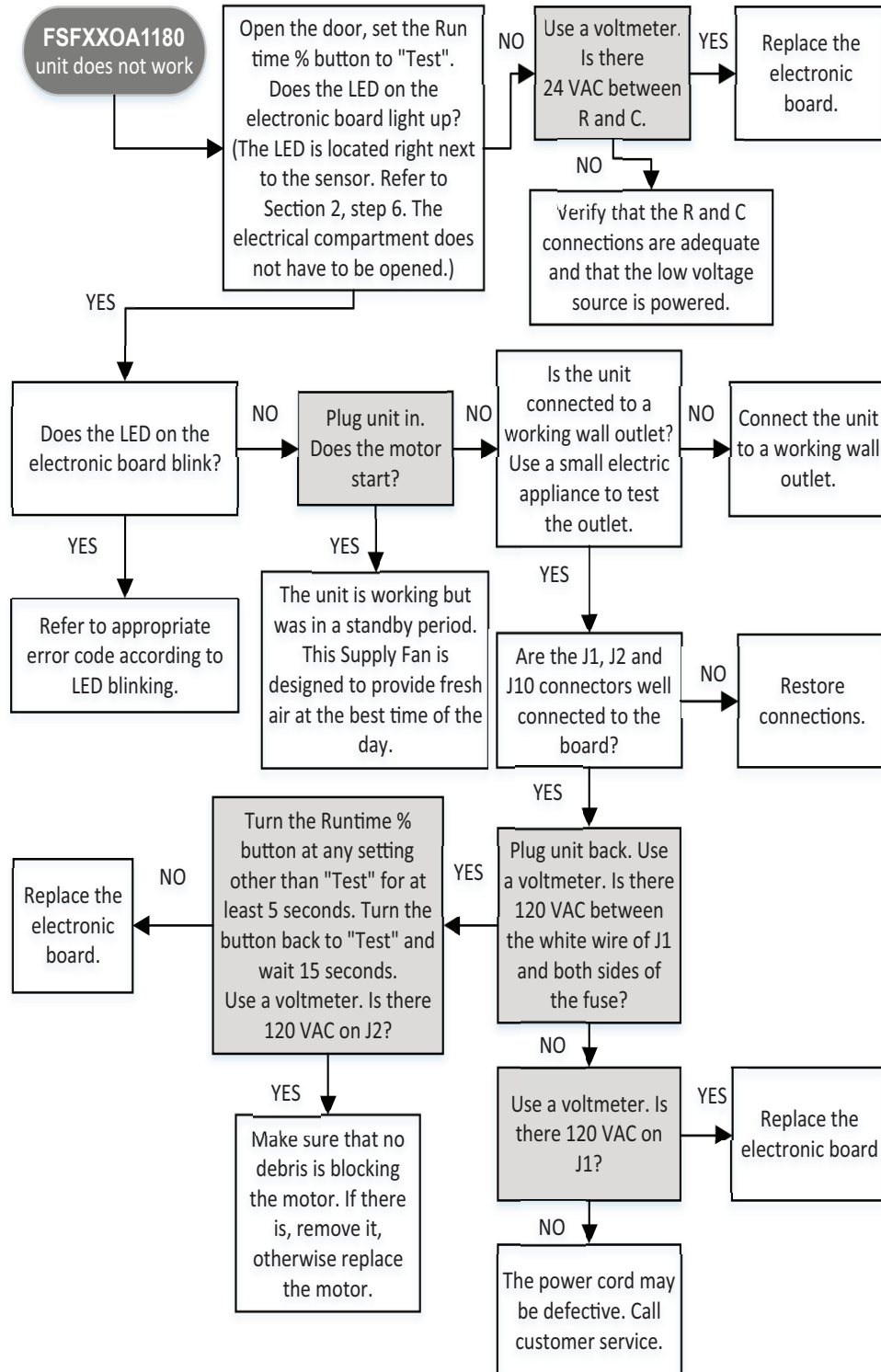
TROUBLESHOOTING

WARNING

SHOCK HAZARD

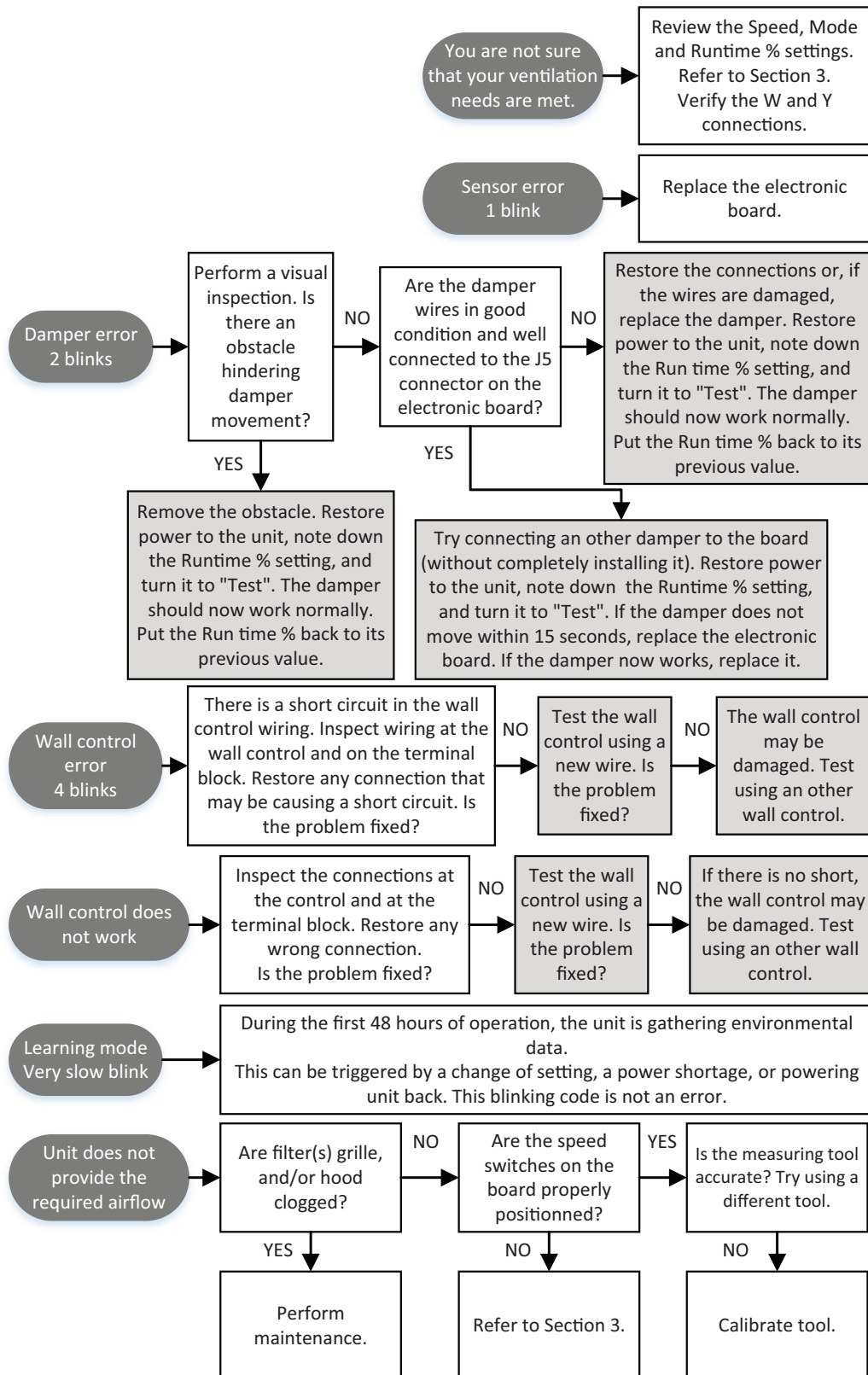
Risk of electric shock.

Before performing any maintenance or servicing, always disconnect the unit from its power source or turn power off at service panel. Some troubleshooting steps (boxes in light grey) require the unit to be powered while being manipulated; beware of live and moving parts at all times.

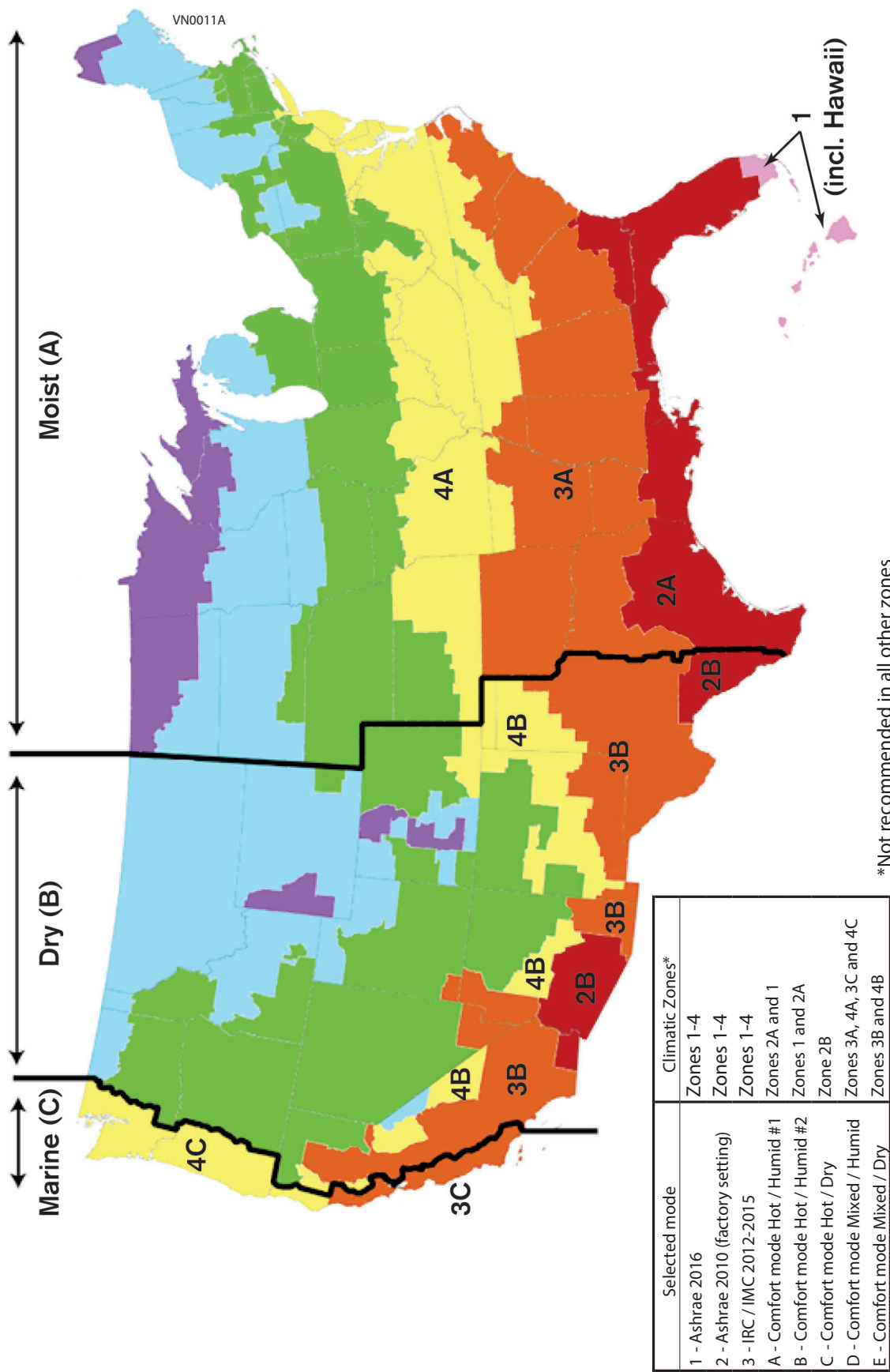
FSF Troubleshooting

All Units Troubleshooting

LED Blinking Codes	
Sensor Error	1 blink
Damper Error	2 blinks
Wall Control Error	4 blinks
Filter Maintenance	Slow blink (2 s ON, 2 s OFF)
Learning Mode	Very slow blink (1 s ON, 10 s OFF)



APPENDIX A



APPENDIX B

Code modes:
1- ASHRAE 2016
2- ASHRAE 2010 (factory setting)
3- IRC / IMC 2012-2015

Comfort modes (Climate zones):
A- Hot / Humid #1 (2A & 1)
B- Hot / Humid #2 (1 & 2A)
C- Hot / Dry (2B)
D- Mixed / Humid (3A, 4A, 3C & 4C)
E- Mixed / Dry (3B & 4B)
As defined by the Department of Energy.
Refer to map in Appendix A.

Do not use
1103611
Rev. A

Material:
Glue:
UL file number:

Speed Switch
on the electronic board

MODE
1
2
3
A
B
C
D
E

Test
100
90
80
70
60
50
40
30
20
10

RUN TIME %

To reset filter maintenance reminder on the wall control, press on the wall control, and hold button for 5 seconds.

Wiring diagram

24VAC

LED

STB-OUT

STB-IN

Optional AHU Wiring

Optional Wall Control

Y W G F I R C I O L O C

www.carrier.com
www.bryant.com

Settings

Selected speed 130 or 180

Selected mode

Selected %

Status LED CODE

Sensor Error	1 blink	Wall ctrl Error	4 blinks
Damper Error	2 blinks	Filter Clean	2s ON / 2s OFF
		Learning Mode	1s ON / 10s OFF

Limits Table

Selected mode	No thermostat call				Thermostat heating call				Thermostat cooling call			
	Lower limits (F)		Upper limits (F)		Lower limits (F)		Upper limits (F)		Lower limits (F)		Upper limits (F)	
	T°	D.P.*	T°	D.P.*	T°	D.P.*	T°	D.P.*	T°	D.P.*	T°	D.P.*
1	14	14	14	14	14	14	14	14	14	14	14	14
2	14	14	14	14	14	14	14	14	14	14	14	14
3	14	14	14	14	14	14	14	14	14	14	14	14
A	40	23	88	73	32	14	96	78				
B	40	23	90	75	32	14	98	80				
C	40	23	95	75	32	14	102	85				
D	40	23	85	75	32	14	90	80				
E	40	23	86	75	32	14	95	80				

*D.P.: Dew point

Refer to manual for details and Spanish.

Supply Fan, 180 CFM

NOTES PAGE