

IMPORTANT INSTRUCTIONS - OPERATING MANUAL

Models: AK150LS, E Series



Exhaust Fan



READ AND SAVE THESE INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING TO ASSEMBLE, INSTALL, OPERATE OR MAINTAIN THE PRODUCT DESCRIBED. PROTECT YOURSELF AND OTHERS BY OBSERVING ALL SAFETY INFORMATION. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE!



RETAIN INSTRUCTIONS FOR FUTURE REFERENCE.

GENERAL SAFETY INFORMATION



When using electrical appliances, basic precautions should always be followed to reduce the risk of fire, electric shock and injury to person, including the following:



WARNING: TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK AND INJURY TO PERSON, OBSERVE THE FOLLOWING:

- a) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
- b) Before servicing or cleaning the unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.



WARNING: TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK AND INJURY TO PERSON, OBSERVE THE FOLLOWING:

- a) Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-related construction.
- b) Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment to prevent back drafting. Follow the heating equipment manufacturer's guideline and safety standards such as those published by the National Fire Protection Association (NFPA) and the American Society for Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), and the local code authorities.
- c) When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.



CAUTION: FOR GENERAL VENTILATING USE ONLY. DO NOT USE TO EXHAUST HAZARDOUS OR EXPLOSIVE MATERIALS AND VAPORS.

- d) Ducted fans must always be vented to the outdoors.
- e) If this unit is to be installed over a tub or shower, it must be marked as appropriate for the application and be connected to a GFCI (Ground Fault Circuit Interrupter) – protected branch circuit.
- f) This unit must be grounded.
- g) To avoid motor bearing damage and noisy and/or unbalanced impellers, keep drywall spray, construction dust, etc. off power unit.
- h) Read all instructions before installing or using exhaust fan.
- i) Suitable for use with electronic speed control device.



WARNING: DO NOT USE IN KITCHENS.



WARNING: THE DUCTING FROM THIS FAN TO THE OUTSIDE OF THE BUILDING 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 AIRFLOW.

SAVE THESE INSTRUCTIONS

INSTALLATION INSTRUCTIONS



CAUTION: MAKE SURE POWER IS SWITCHED OFF AT SERVICE PANEL BEFORE STARTING INSTALLATION.

SECTION 1

Preparing the Exhaust Fan

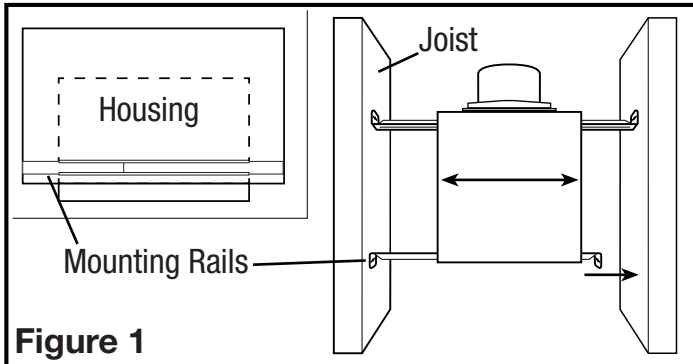
1. Unpack fan from the carton and confirm that all pieces are present. In addition to the exhaust fan you should have:
 - 1 - Grill
 - 1 - Damper Assembly (attached)
 - 4 - Mounting Rails
 - 1 - Mounting Flange
 - 1 - Instruction/Safety Sheet
2. Choose the location for your fan. To ensure the best air and sound performance, it is recommended that the length of ducting and the number of elbows be kept to a minimum, the radius of each elbow be as large as possible for the installation, and that insulated hard ducting be used. Larger duct sizes will reduce noise and airflow restrictions. This fan will require at least 10" of clearance in the ceiling or wall, and will mount through drywall up to 3/4" thick.
3. No additional vibration deadening materials are needed for this fan.

SECTION 2

New Construction

NOTE: If the mounting flange is installed on the fan housing, remove the two screws that connect the ceiling mounting flange to the housing and set aside (**Figure 12**).

1. Install the rails into the mounting channel on the housing. Center the mounting channel in the slots on the housing, then from inside the housing tighten the mounting channel nuts so the channel is securely in place. Position the housing next to the joist. Line up housing so that it will be flush with the finished ceiling. Secure the ends of the rails with screws or nails (not included) to the joists and slide the housing into the final position (**Figure 1**).

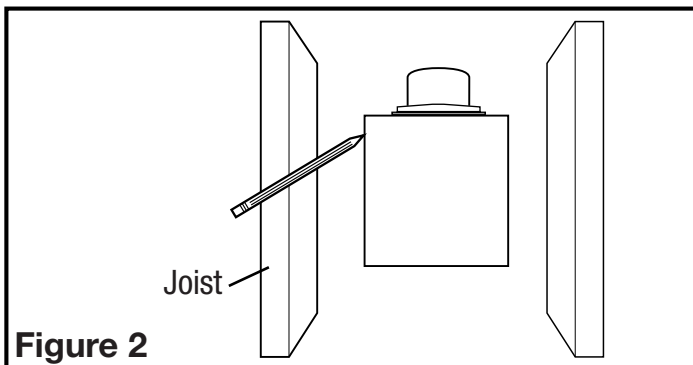


SECTION 3

Existing Construction

NOTE: If the mounting flange is installed on the fan housing, remove the two screws that connect the ceiling mounting flange to the housing and set aside (**Figure 12**).

1. Set housing in position between the joist and trace an outline onto the ceiling material (**Figure 2**). Set housing aside and cut opening, being careful not to cut or damage any electrical or other hidden utilities. Install the rails into the mounting channel on the housing. Center the mounting channel in the slots on the housing, then from inside the housing tighten the mounting channel nuts so the channel is securely in place. Position the housing in the previously cut hole so that it is flush with the finished ceiling. Secure the ends of the rails to the joists (**Figure 1**).



SECTION 4

Ducting

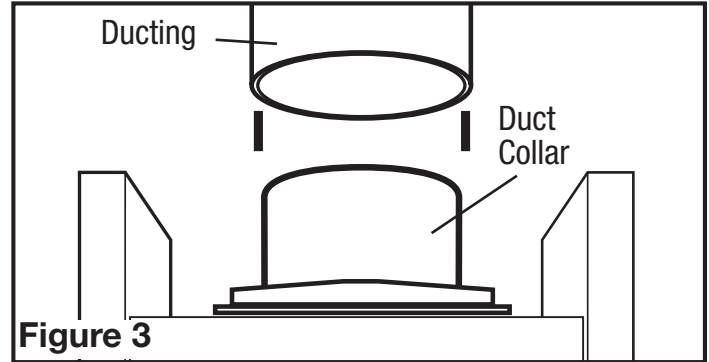
NOTE: 6" OR LARGER RIGID DUCT IS RECOMMENDED FOR BEST PERFORMANCE.



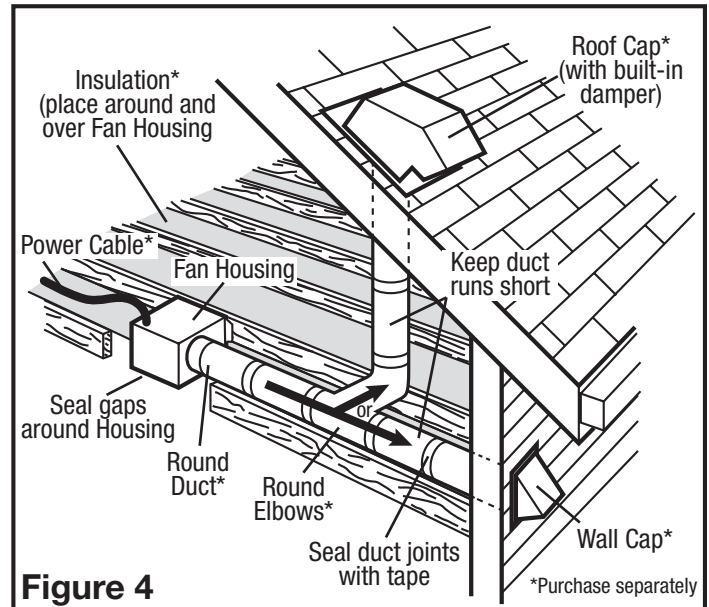
CAUTION: ALL DUCTING MUST COMPLY WITH LOCAL AND NATIONAL BUILDING CODES.

NOTE: The ducting from this fan to the outside of the building 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.

1. Connect the ducting to the fan's duct collar (**Figure 3**). Secure in place using tape or screw clamp. Always duct the fan to the outside through a wall or roof cap. It is recommended that low restriction termination fittings be used.



2. Ensure duct joints and exterior penetrations are sealed with caulk or other similar material to create an air-tight path to minimize building heat loss or gain and to reduce the potential for condensation. Place/wrap insulation around duct and/or fan to in order to minimize possible condensation buildup within the duct, as well as building heat loss or gain (**Figure 4**).



SECTION 5

Wiring



CAUTION: MAKE SURE POWER IS SWITCHED OFF AT SERVICE PANEL BEFORE STARTING INSTALLATION.



CAUTION: ALL ELECTRICAL CONNECTIONS MUST BE MADE IN ACCORDANCE WITH LOCAL CODES, ORDINANCES, OR NATIONAL ELECTRICAL CODE. IF YOU ARE UNFAMILIAR WITH METHODS OF INSTALLING ELECTRICAL WIRING, SECURE THE SERVICES OF A QUALIFIED ELECTRICIAN.

NOTE: This unit includes a side access panel for wiring that does not require the removal of the fan's blower assembly. If you choose to wire the unit from the inside, you will need to remove the blower assembly and internal wiring compartment. Both methods are equally effective.

- 1a. **External Wire Compartment:** Remove the wire compartment cover screw and place cover in a secure place (**Figure 5**).

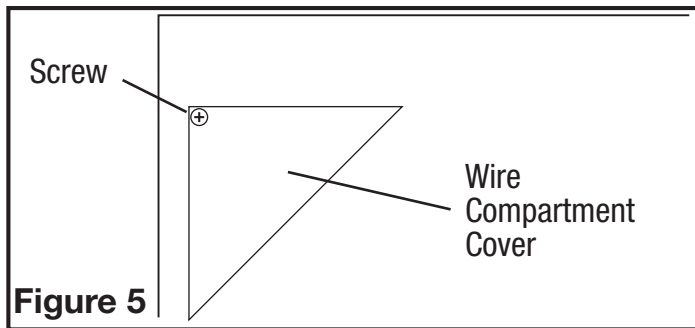


Figure 5

- 1b. Internal Wire Compartment: If the motor is already installed in the housing, remove the two screws holding the blower assembly in place. Lift up on the assembly and slide it out of the tabs on the housing (**Figure 6**). Remove the wire compartment cover screw and place the cover in a secure place (**Figure 7**).

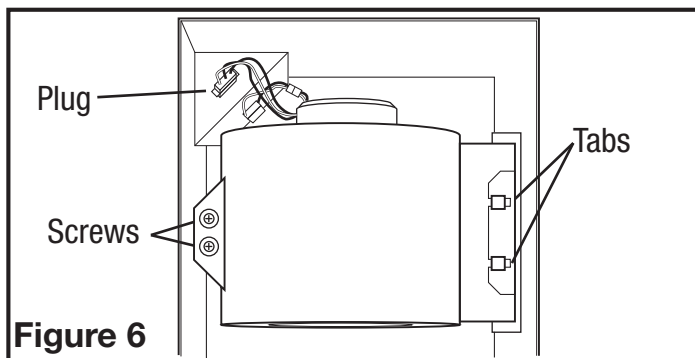


Figure 6

NOTE: If the fan motor plug is connected to the fan housing receptacle, unplug so the blower assembly can be completely removed.

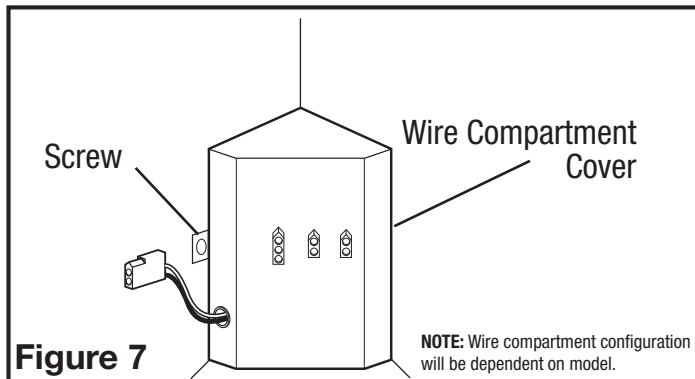


Figure 7

NOTE: Wire compartment configuration will be dependent on model.

Standard and Motion Sensing Models

- 2a. Run wiring from an approved wall switch (not included) carrying the appropriate rating. One neutral (white), one ground (green or bare copper), and one hot (black lead connected to the switch). Secure the electrical wires to the housing with an approved electrical connector. Make sure you leave enough wiring in the box to make the connection to the fan's receptacle.
- 2b. From where you have chosen to access the fan's junction box, connect the white wire from the house to the white wire from the fan's receptacle. Connect the black wire from the wall switch to the black wire from the fan's receptacle. Connect the ground wire from the house to the green wire from the fan housing (**Figure 8**). Use approved methods for all connections.

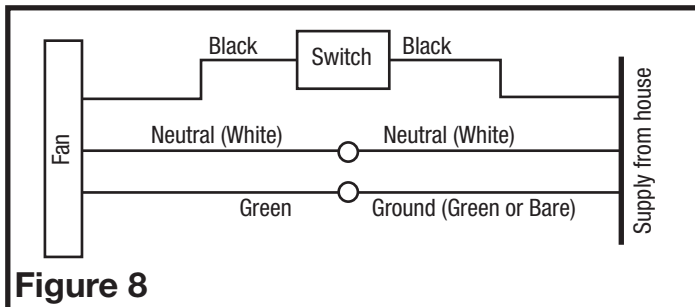


Figure 8

NOTE: The fan's receptacle wires might need to be pulled outside compartment for connection. Only pull the five loose wires outside of compartment. Additional wires will be present.

NOTE: Unit must be grounded according to all local and national codes.

Humidity Sensing Models

- 3a. For proper operation the humidity sensing fan will require a 3 way switch (not included). Run wiring between the fan and the switch location. Make sure you leave enough wiring in each box to make the connections. At the switch box connect the black wire from the house to the common terminal of the switch. Connect the black wire from the fan to one of the switched terminals on the switch. This position will energize the automatic mode and the fan will energize upon a rise in humidity. Connect the yellow wire from the fan to the other switched terminal on the switch. This position will activate the Manual On feature and energize the fan. Properly connect the ground and neutral (if applicable) mount the switch and the cover.
- 3b. From where you have chosen to access the fan's junction box, connect the white wire from the house to the white wire from the fan. Connect the wire from the automatic position on the wall switch to the black wire from the fan, connect the wire from the manual On position on the switch to the yellow wire from the fan. Connect the ground wire from the house to the green wire from the fan housing (**Figure 9**). Use approved methods for all connections.

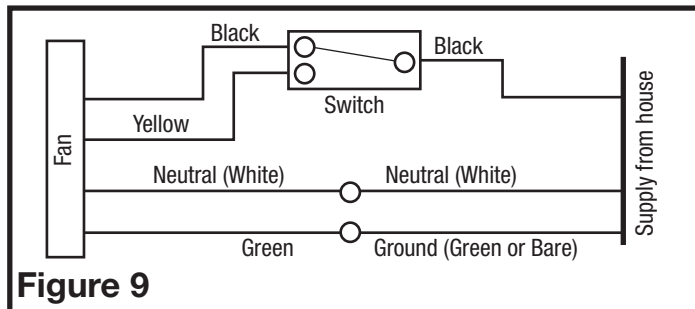


Figure 9

NOTE: The yellow wire may contain a wire crimp nut which will have to be cut off and the wire stripped.

4. Carefully tuck wire back inside wire compartment and replace wire compartment cover securing with the screw that was removed earlier.

SECTION 6

Completing the Installation

1. Use a sealant appropriate for contact with the building materials present and for the temperature requirements of the installation to prevent air leakage from unconditioned spaces is recommended. If gaps between unit housing and ceiling are great, additional material (backing rod, ceiling material) may be required.

NOTE: This fan is rated for direct insulation contact (Type IC) and it is recommended that this fan be completely covered by insulation in order to reduce heat loss or gain to unconditioned space.

2. If the fan's blower assembly was removed during the wiring process, reinstall the blower by reversing the directions in **Section 5 (Wiring), Step 1b**.
- 3a. **STANDARD MODELS:** Plug the fan's 2 pin and 3 pin quick connect motor cords into the corresponding receptacle located on the wire compartment cover. These cords will only fit one way into the receptacles (**Figure 10**).

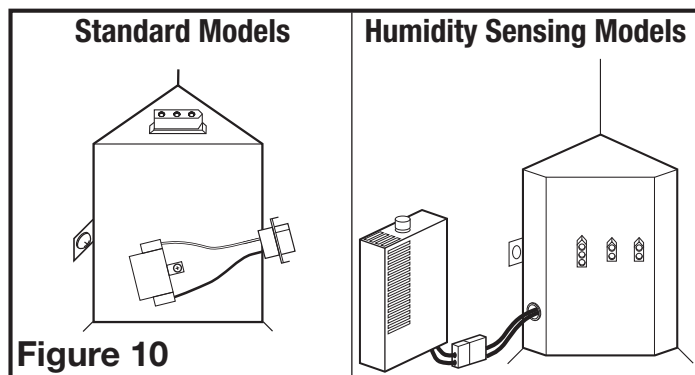


Figure 10

- 3b. **HUMIDITY SENSING MODELS:** Plug the fan's 2 pin and 3 pin quick connect motor cords into the corresponding receptacle located on the wire compartment cover. Connect the two pin connector from the humidistat compartment to the two pin connector from the side of the wire compartment cover. These cords will only fit one way into the receptacles (**Figure 10**).

- 3c. **MOTION SENSING MODELS:** Plug the fan's 2 pin quick connect motor cord into the receptacle located on the side of the wire compartment cover. Plug the 3 pin quick connect motor cord into the shorter end of the included harness then into the receptacle located on the top of the wire compartment cover. These cords will only fit one way into the receptacles (**Figure 11**).

4. Install the ceiling mounting flange to cover any gaps which exist between the housing and the finished ceiling. Put sealant (not provided) on inside edge of the ceiling mounting flange to ensure that the flange is sealed to the ceiling. Line up the screw holes in the ceiling mounting flange with the screw holes on the inside of the housing and press flange in place so it is tight against the ceiling. Reinstall ceiling flange mounting screws inside the housing (**Figure 12**).

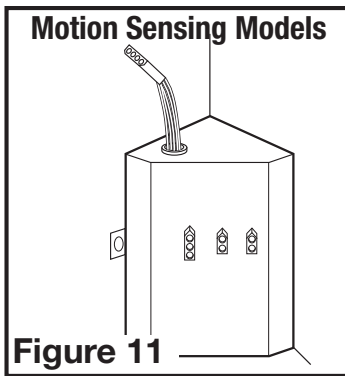


Figure 11

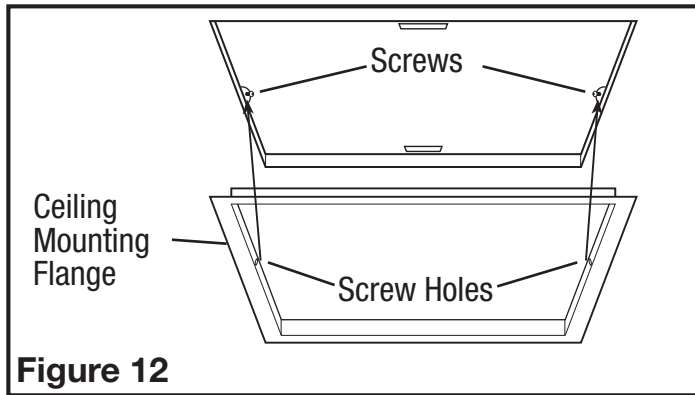


Figure 12

NOTE: If the housing is mounted too far or not far enough into the ceiling for the flange to make a solid connection, loosen the mounting channel and adjust the housing up or down on the rails. Once in place, fully tighten the mounting channel nuts.

- 5a. **STANDARD AND HUMIDITY SENSING MODELS:** Install the grill by squeezing the two ends of the springs together and installing them up into the slots on the fan's housing. Push the grill up into position (**Figure 13**).

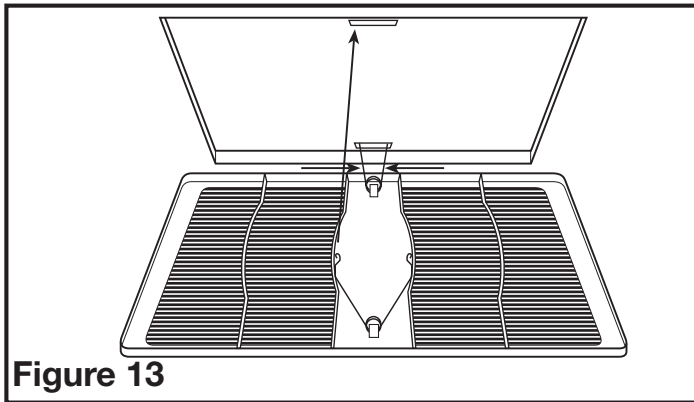


Figure 13

- 5b. **MOTION SENSING MODELS:** Install the grill by squeezing the spring furthest from the motion sensor together and installing it up into the slot furthest from the wire compartment on the fan's housing. Attach the 3 pin quick connect from the motion sensor on the grill to the harness installed in *Step 2a*. This cord will only fit one way into the receptacle. Install the other spring in place and push the grill up into position (**Figure 14**).

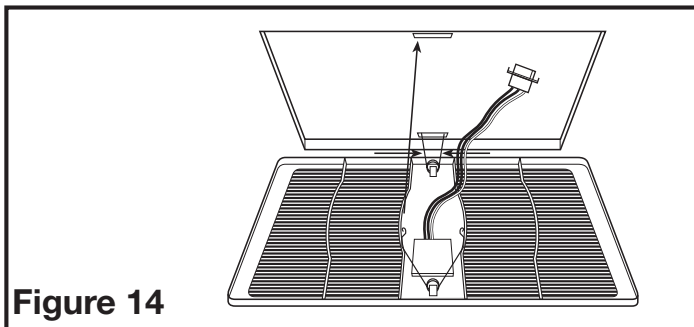


Figure 14

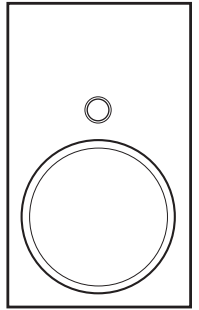
6. Restore power and test your installation.

SECTION 7

Programming the Occupancy Sensor

- 1a. **Setting the Occupancy Time Delay.** This will set the amount of time the fan will continue to operate after the room is vacated. Locate the motion sensor on the fan's grill and press the button 2 times. The LED on the sensor will then flash the number of times to indicate the current setting, this will repeat 3 times:

1 time = 30 seconds	6 times = 12.5 minutes
2 times = 2.5 minutes	7 times = 15 minutes
3 times = 5 minutes	8 times = 17.5 minutes
4 times = 7.5 minutes	9 times = 20 minutes
5 times = 10 minutes	



- 1b. To adjust the setting, while the sensor is still flashing from *Step 1a*, press the button the number of times that corresponds with the amount of time you desire, for instance 3 times sets the delay to 5 minutes (see numbers in *Step 1*). The sensor will then flash the number of times for the new setting 3 times before exiting back to the programming mode.

- 2a. **Setting the Minimum On Time.** This sets the minimum time the fan will operate once motion is detected within the room. This works in conjunction with the Occupancy Time Delay feature set in *Steps 1a* and *1b*. For instance if you set the minimum time on for 15 minutes and the Time Delay for 5 minutes, the fan will operate for at least 15 minutes then 5 additional minutes.

NOTE: This is a minimum time that the fan will operate. If the room is occupied longer, the fan will continue to run until the room is vacated and the occupancy time delay has elapsed.

- 2b. Locate the motion sensor on the fan's grill and press the button 10 times. The LED on the sensor will then flash the number of times to indicate the current setting, this will repeat 3 times:

1 time = 0 minutes	4 times = 45 minutes
2 times = 15 minutes	5 times = 60 minutes
3 times = 30 minutes	

- 2c. To adjust the setting, while the sensor is still flashing from *Step 2b*, press the button the number of times that corresponds with the amount of time you desire, for instance 3 times sets the minimum on time to 30 minutes (see numbers in *Step 2b*). The sensor will then flash the number of times for the new setting 3 times before exiting back to the programming mode.

3. Once all setting have been made and the sensor will return to detection mode and the LED will flash when occupancy of the room is detected.

SECTION 8

Setting the Humidistat

This fan may be equipped with a humidity sensor that automatically turns the fan on when humidity is above set point and off when humidity is at or below set point. If the fan is operating too long or not enough, first check to see the humidity sensor set point. In cases where the ambient humidity level of the room rises higher than the preset level, the fan will turn on even if the room is not occupied. This helps prevent conditions that lead to mold growth.



CAUTION: MAKE SURE POWER IS SWITCHED OFF AT SERVICE PANEL BEFORE SERVICING THE UNIT.

- To set the desired humidity level of the room, remove the grill and locate the dehumidistat dial located on the wire compartment cover.
- Set the dial to the relative humidity you want the fan to maintain usually between 50% & 80%. Moist climates will require higher settings than dry climates. When the humidity level of the room is below this setting the fan will remain off. When the humidity level rises about this setting the fan will turn on and run until the humidity level falls below this setting.
- Reinstall the grill and restore power.

SECTION 9

Activating the Boost Speed (E models ONLY)

Should it be determined that additional flow is necessary due to excessive duct resistance or other field conditions this model is equipped with a boost speed. To activate the boost speed:

- Remove the grill and find the 2 wire harness from the fan motor to the capacitor.
- Disconnect the harness from the capacitor at the quick connect fitting and remove the "Boost Label" from the quick connect fitting on the boost capacitor.
- Plug the motor harness into the boost capacitor and reinstall grill.

SECTION 10

Use and Care



CAUTION: MAKE SURE POWER IS SWITCHED OFF AT SERVICE PANEL BEFORE SERVICING THE UNIT.

1. **Cleaning the Grill:** Remove grill and use a mild detergent, such as dishwashing liquid, and dry with a soft cloth. NEVER USE ANY ABRASIVE PADS OR SCOURING POWDERS. Completely dry grill before reinstalling. Refer to instructions in **Section 6** *Completing the Installation*, to reinstall grill.
2. **Cleaning the Fan Assembly:** Wipe all parts with a dry cloth or gently vacuum the fan. NEVER IMMERSE ELECTRICAL PARTS IN WATER.

CALIFORNIA RESIDENTS ONLY:



WARNING: THIS PRODUCT CAN EXPOSE YOU TO A CHEMICAL [OR CHEMICALS] KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.



WARNING: THIS PRODUCT CAN EXPOSE YOU TO A CHEMICAL [OR CHEMICALS] KNOWN TO THE STATE OF CALIFORNIA TO CAUSE REPRODUCTIVE TOXICITY.

Troubleshooting Guide

Trouble	Probable Cause	Suggested Remedy
1. Fan does not operate when the switch is on.	1a. A fuse may be blown or a circuit tripped. 1b. Connector plug from motor is not plugged in. 1c. Wiring is not connected properly. 1d. Motor has stopped operating.	1a. Replace fuse or reset circuit breaker. 1b. Turn off power to unit. Remove Grill and plug motor into receptacle in housing. Restore power to unit. 1c. Turn off power to unit. Check that all wires are connected. 1d. Replace motor.
2. Fan is operating, but air moves slower than normal.	2. Obstruction in the exhaust ducting.	2. Check for any obstructions in the ducting. The most common are bird nests in the roof cap or wall cap where the fan exhausts to the outside.
3. Fan is operating louder than normal	3a. Motor is loose. 3b. Fan blade is hitting housing of unit.	3a. Turn off power to unit. Remove grill and check that all screws are fully tightened. Restore power to unit. 3b. Call your dealer for service.

LIMITED WARRANTY

WHAT THIS WARRANTY COVERS: This product is warranted against defects in workmanship and/or materials.

HOW LONG THIS WARRANTY LASTS: This warranty extends only to the original purchaser of the product and lasts for five (5) years from the date of original purchase or until the original purchaser of the product sells or transfers the product, whichever first occurs.

WHAT AIR KING WILL DO: During the warranty period, Air King will, at its sole option, repair or replace any part or parts that prove to be defective or replace the whole product with the same or comparable model.

WHAT THIS WARRANTY DOES NOT COVER: This warranty does not apply if the product was damaged or failed because of accident, improper handling or operation, shipping damage, abuse, misuse, unauthorized repairs made or attempted. This warranty does not cover shipping costs for the return of products to Air King for repair or replacement. Air King will pay return shipping charges from Air King following warranty repairs or replacement.

ANY AND ALL WARRANTIES, EXPRESSED OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY), LAST ONE YEAR FROM THE DATE OF ORIGINAL PURCHASE OR UNTIL THE ORIGINAL PURCHASER OF THE PRODUCT SELLS OR TRANSFERS THE PRODUCT, WHICHEVER FIRST OCCURS AND IN NO EVENT SHALL AIR KING'S LIABILITY UNDER ANY EXPRESS OR IMPLIED WARRANTY INCLUDE (I) INCIDENTAL OR CONSEQUENTIAL DAMAGES FROM ANY CAUSE WHATSOEVER, OR (II) REPLACEMENT OR REPAIR OF ANY HOUSE FUSES, CIRCUIT BREAKERS OR RECEPTACLES. NOTWITHSTANDING ANYTHING TO THE CONTRARY, IN NO EVENT SHALL AIR KING'S LIABILITY UNDER ANY EXPRESS OR IMPLIED WARRANTY EXCEED THE PURCHASE PRICE OF THE PRODUCT AND ANY SUCH LIABILITY SHALL TERMINATE UPON THE EXPIRATION OF THE WARRANTY PERIOD.

Some states and provinces do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental or consequential damages, so these exclusions or limitations may not apply to you. This warranty gives you specific legal rights. You may also have other rights which vary from state to state and province to province. Proof of purchase is required before a warranty claim will be accepted.

CUSTOMER SERVICE:

Toll-Free (800) 465-7300

Our Customer Service team is available to assist you with product questions, service center locations, and replacement parts. They can be reached Monday through Friday, 8am-4pm Eastern. Please have your model number available, as well as the type and style (located on the label inside of your product).

Please do not return product to place of purchase.

www.airkinglimited.com

PARTS FOR DISCONTINUED, OBSOLETE AND CERTAIN OTHER PRODUCTS MAY NOT BE AVAILABLE. DUE TO SAFETY REASONS, MANY ELECTRONIC COMPONENTS AND MOST HEATER COMPONENTS ARE NOT AVAILABLE TO CONSUMERS FOR INSTALLATION OR REPLACEMENT.

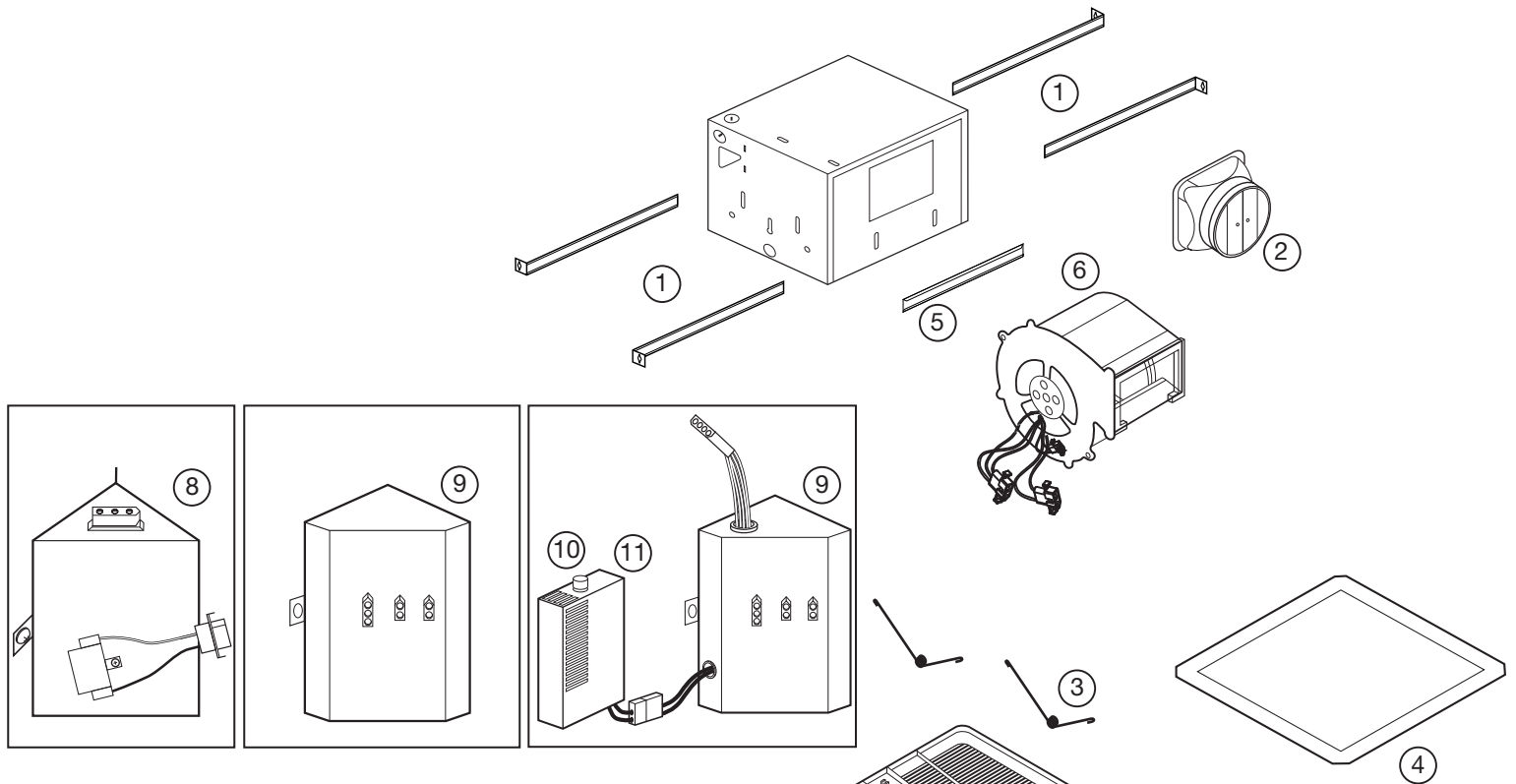
Installer: _____

Installation Date: _____

Place of Purchase: _____

Model Number: _____

REPLACEMENT PARTS DIAGRAM



All Models

#	Qty.	Description	Replacement Part #
1	4	Mounting Rails	5S1299002
2	1	6" Metal Collar Assembly	5S5299100
3	2	Grill Springs	5S1202046
4	1	Ceiling Flange	5S1202050
5	2	Mounting Channel	5S1202123
6	1	Blower Assembly	5S2239008

Specific to Models E80S, E110S, E130S

#	Qty.	Description	Replacement Part #
7	1	Grill	5S1202048
8	1	Wire Compartment Assembly - E80S	5S1239858
	1	Wire Compartment Assembly - E110S	5S1239892
	1	Wire Compartment Assembly - E130S	5S1239859

Specific to Models AK150LS

#	Qty.	Description	Replacement Part #
7	1	Grill	5S1202048
8	1	Wire Compartment Assembly	5S1239860

Specific to Models E80SG, E130SG

#	Qty.	Description	Replacement Part #
9	1	Wire Compartment Assembly - E80SG	5S1239861
	1	Wire Compartment Assembly - E130SG	5S1239862
12	1	Grill Assembly	5S1239115

Specific to Models E80SH, E130SH

#	Qty.	Description	Replacement Part #
7	1	Grill	5S1202048
9	1	Wire Compartment Assembly - E80SH	5S1239863
	1	Wire Compartment Assembly - E130SH	5S1239864
10	1	Knob	5S1299802
11	1	Humidity Sensor Compartment	5S1239826

