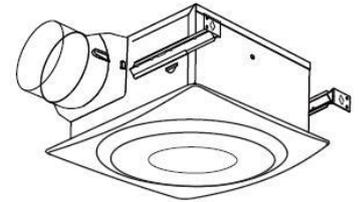


VENTILATION FAN



MODEL: AP90-SL & AP90H-SL



WARNING

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, PLEASE READ THE FOLLOWING:

1. Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer at the address or telephone number listed in the warranty. 2. Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switching on accidentally. If the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel. 3. Installation work and electrical wiring must be done by a licensed person(s) in accordance with all applicable codes and standards, including fire-rated construction codes and standards. 4. Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment to prevent backdraft. 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. 5. When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities. 6. Ducted fans must always be vented to the outdoors. 7. Acceptable for use over a tub or shower when connected to a GFCI (Ground Fault Circuit Interrupter) protected branch circuit (ceiling installation only). 8. This unit must be grounded. 9. Never place a switch where it can be reached from a tub or shower. 10. Not for use in kitchens. This unit may be installed in a wall for a non-wet application. 11. Install fan at least 2.5 m (8 feet) above the floor. 12. WARNING: To reduce the risk of fire or electric shock, do not use this fan with any solid-state speed control device. 13. The fan must not be installed in a ceiling thermally insulated to a value greater than R40.

CAUTION

1. For general ventilating use only. Do not use to exhaust hazardous or explosive materials and vapors.
2. This product is designed for installation in ceilings up to a 12/12 pitch (45 degree angle). Duct connector must point up for wall application.
3. To avoid motor bearing damage and noisy and/or unbalanced impellers, keep drywall and construction dust off power unit.
4. Please read specification label on product for further information and requirements.

CLEANING & MAINTENANCE

For quiet and efficient operation, long life, and attractive appearance, lower or remove grille and vacuum interior of unit with the dusting brush attachment.

The motor is permanently lubricated and never needs oiling.

OPERATION

See "Connect Wiring" for details. (AP90-SL)

The humidity control and fan and light can be operated separately. Do not use a dimmer switch to operate the humidity control or light. See "Connect Wiring" for details. (AP90H-SL)

Humidity Sensor For AP90H-SL

SENSOR OPERATION

The humidity-sensing fan uses a sophisticated humidity sensor that responds to: (a) rapid to moderate (user-adjustable) increases in humidity or (b) humidity above a user-adjustable set-point (50%-100% relative humidity). The humidity sensor may occasionally turn the fan ON when environmental conditions change. If the fan continuously responds to changing environmental conditions, "H" (means "humidity") adjustment may be required. This figure is factory-set for about 75% RH.

SENSITIVITY ADJUSTMENT

The "H" has been factory set for most shower applications. However, if the fan is in a tub area or is being used for dampness control, the "H" may need to be increased toward maximum "+". If the control is responding too often to changing environmental conditions, movement toward less "-" "H" may be required.

To adjust the "H":

1. Disconnect power at service entrance.
2. Through the grille, locate the slot marked "H".
3. Carefully rotate the "H" adjustment toward "+" or "-".
4. Turn on power and check operation by turning on the shower or other humidity source until the fan turns on.
5. Repeat above steps if necessary.

When the temperature changes, humidity sensor values will have deviation.

TIMER ADJUSTMENT

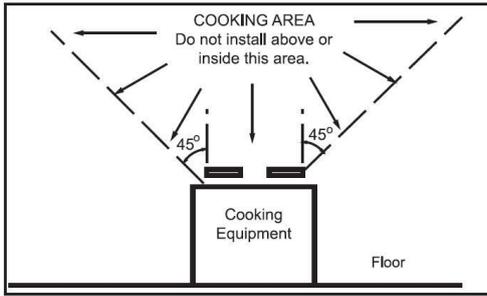
The humidity sensing fan has a "T" (means timer) that can be adjusted from 5 to 60 minutes (factory-set at about 20 minutes). This "T" controls the length of time that the fan remains ON after the sensor has stopped sensing a rise in humidity and the humidity level is below the user-adjustable set-point. To adjust the "T":

1. Disconnect power at service entrance;
2. Through the grille, locate the slot marked "T";
3. Carefully rotate the "T" adjustment to desired setting (from 5 to 60 minutes).
4. Check operation by turning on a humidity source until the fan turns on.
5. Turn humidity source off and time the unit.
6. Repeat above steps if necessary.

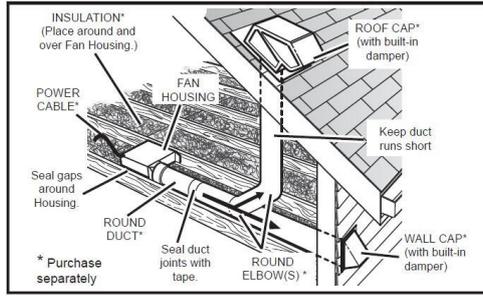
READ AND SAVE THESE INSTRUCTIONS
Installer: Leave this manual with the homeowner

PLAN THE INSTALLATION

1. Do not use in a cooking area.



2. Two ways to connect ductwork to a factory-shipped unit



ASSEMBLY INSTRUCTIONS

1. Before installation, you need to know:

- Screw A  ST4.2*13mm
- Screw B  ST4.2*25mm
- Hanger bar (short)  7 1/2 in (190mm)
- Hanger bar (long)  13 3/8 in (340mm)

Note: Hanger bar short only can slide into channel A.

2. Mount with mounting holes and hanger bar
Slide one hanger bar into the channel on the housing and adjust to fit between framing. Hold housing in place so that the housing contacts the bottom of the joist. Screw housing to joist through hole A and hole B. Screw the hanger bar onto the other side of joist through the hole (refer to diagram at right). Screw hanger bar to housing with screw A.

Hanger Bar Options

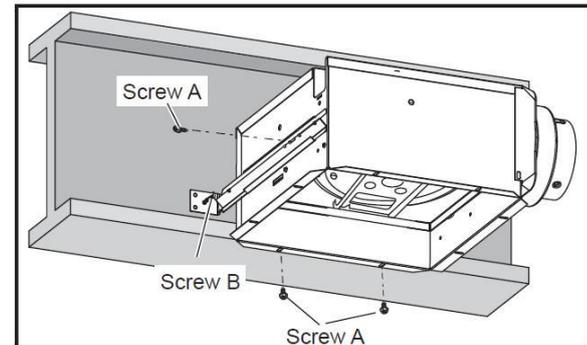
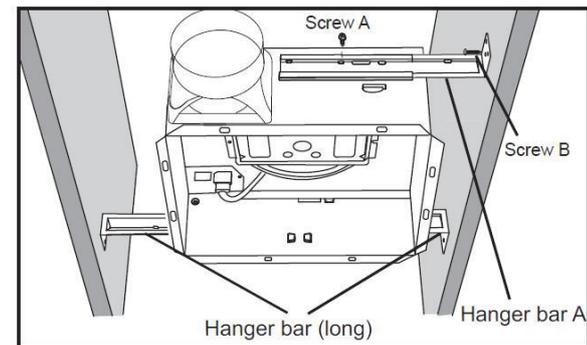
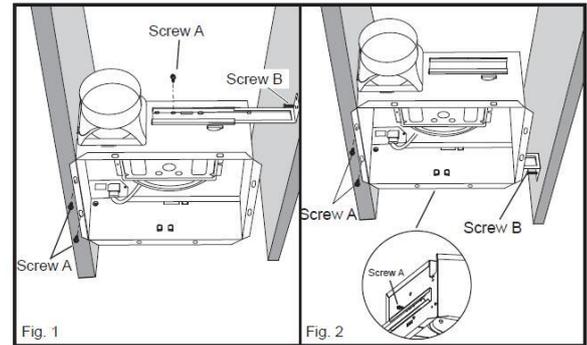
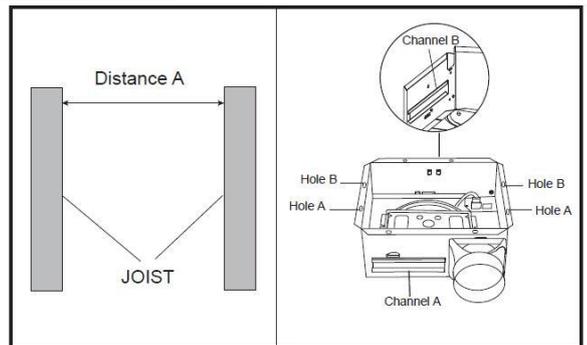
Distance A	Hanger Bar	Channel
13 1/4 in to 15 1/2 in (336mm-394mm)	Hanger bar (short)	Channel A (Fig. 1)
16 1/2 in to 18 7/8 in (419mm-480mm)	Hanger bar (long)	Channel B (Fig. 2)

3. Mount with hanger bars only
Slide hanger bars onto housing and adjust to fit between framing. Extend the hanger bars to the width of the framing. Holding the fan in place, position the hanger bar tabs close to the bottom edge of the framing. Secure hanger bars to framing using one screw on each end of hanger bar (refer to the right diagram). Screw hanger bars to housing with screw A.

Hanger Bar A Option

Distance A	Hanger Bar A
14 in to 23 1/2 in (356mm-597mm)	Hanger bar (short)
21 1/4 in to 23 1/2 in (540mm-597mm)	Hanger bar (long)

4. Mount to I-joist
Slide one hanger bar (long) into channel B on the housing and adjust to fit between framing. Hold housing in place so that the housing contacts the bottom of the joist. Screw housing to joist through hole A and hole B. Screw the hanger bar onto the other side of joist through the hole (refer to diagram at right). Screw hanger bar to housing with screw A.



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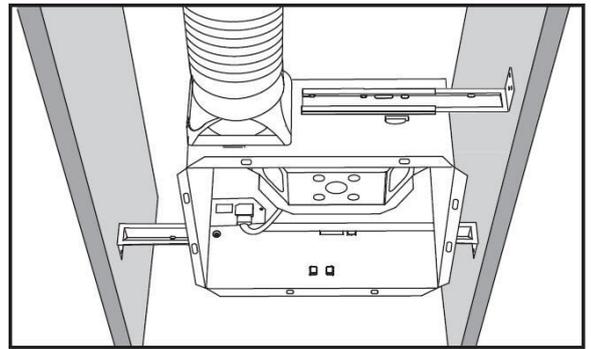
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ASSEMBLY INSTRUCTIONS

5. INSTALL DUCTWORK

Connect the round ductwork (not included) to the damper/duct connector, and run the ductwork to a roof or wall cap (not included). Using duct tape (not included), secure all the ductwork connections so that they are air tight. Insulated flexible duct is recommended for the quietest possible installation. If rigid duct is used, a short (1-3 feet) section of insulated flexible duct will ensure quiet operation.

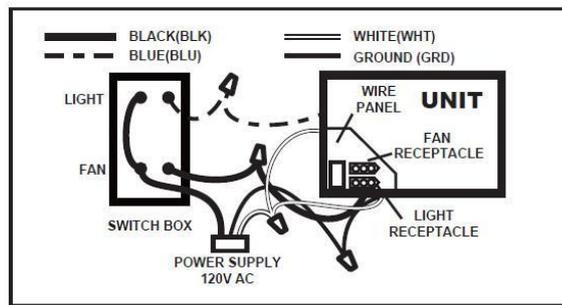
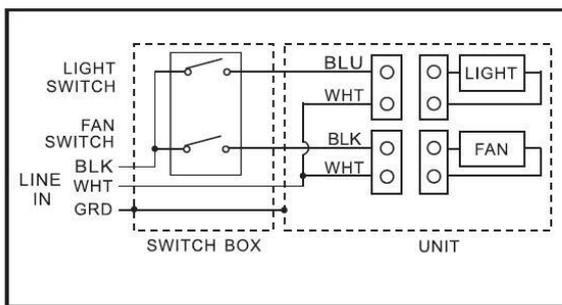
The ducting from this fan to the outside of building has a strong effect on the air flow, noise and energy use of the fan. Use the shortest, straightest duct routing possible for best performance, and avoid installing the fan with smaller ducts than recommended. Insulation around the ducts can reduce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



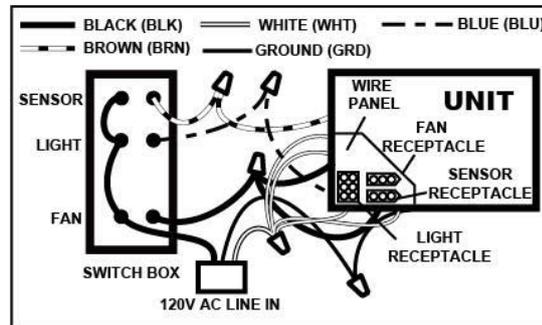
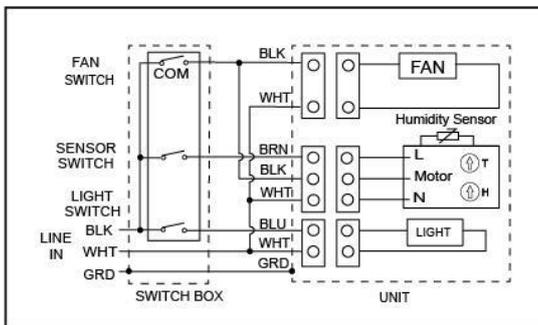
CONNECT ELECTRICAL WIRING

Run 120V AC house wiring to the location of the fan. Use only UL-approved connectors (not included) to attach the house wiring to the wiring plate. Refer to the wiring diagram and connect the wires as shown.

For AP90-SL



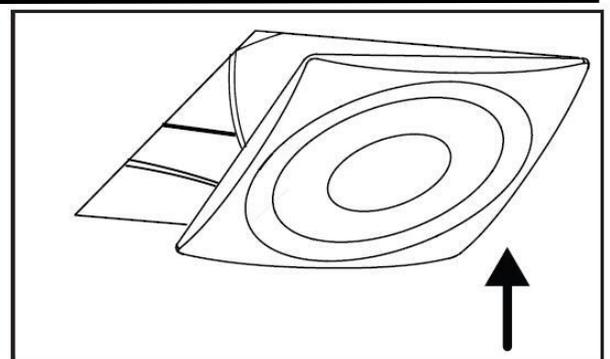
For AP90H-SL



INSTALL GRILLE

Install ceiling material to complete the ceiling construction. Then cut around the fan housing.

To attach the grille assembly to the fan housing, pinch the grille springs on the sides of the grille assembly, and position the grille into the housing with the grille springs in the appropriate slots. Gently push the grille assembly towards the ceiling to secure.

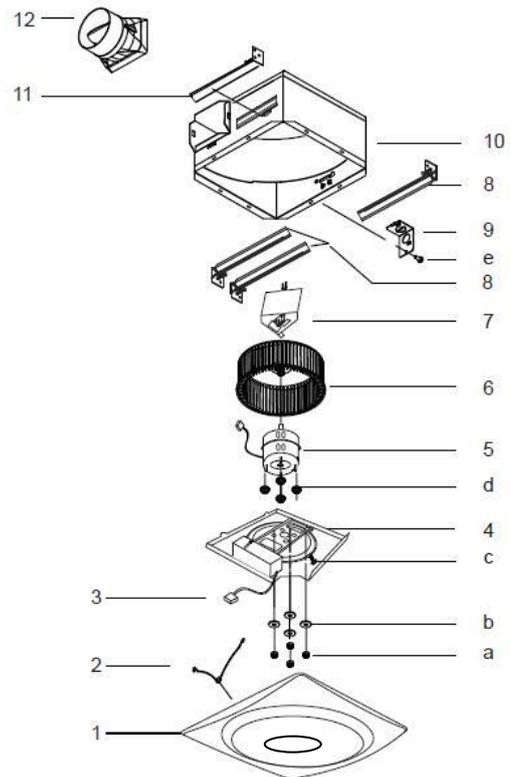


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SERVICE PARTS

PART	PART NAME	Qty.
1	Grille Assembly (includes part 2)	1
2	Grille Spring	2
3	Humidity sensor (for AP90H-S AP120H-S)	1
4	Motor Plate	1
5	Motor	1
6	Blower Wheel	1
7	Wire Panel / Harness Assembly	3
8	Hanger Bar Kit (long)	1
9	Wiring plate	1
10	Housing	1
11	Damper / Duct Connector	1
a	Nut, Hex Lock	4
b	Washer	4
c	Screw	1
d	Isolator	4
e	Screw	1



* Blower Assembly includes part 5, 4, d, 3, c, b, a.

Replacement installation: a

Remove the screw (part c), then take out the motor plate (part 3) from the housing (part 9) by pushing down the rib in the plate while pulling out on the side of the housing. Replace the broken parts.

WARNING: Before replacing, be sure to turn off power at power source.

WARRANTY

This warranty covers all defects in workmanship or materials for:

The mechanical and electrical parts contained in this product for a period of 72 months from the date of purchase. You must keep and be able to provide your original sales receipt as proof of date of purchase. This warranty is covered to the original retail purchaser of this product only. The manufacturer will replace any mechanical or electrical part that proves defective in normal household use for a period of 72 months.

THIS WARRANTY DOES NOT COVER:

- Damages from improper installation.
- Damages from shipping.
- Damages from misuse, abuse, accident, alteration, lack of proper care and maintenance.
- Damages from service by persons other than a licensed electrician.
- Does not cover any labor or transportation charges related to the repair of this product.

This warranty does not extend to fluorescent lamp starters and tubes.

THIS LIMITED WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The remedy provided in this warranty is exclusive and is granted in lieu of all other remedies. This warranty does not cover incidental or consequential damages. Some states do not allow the exclusion of incidental or consequential damages, so this limitation may not apply to you.

Some states do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you. This warranty gives you specific legal rights; you may also have other rights, which vary from state to state.

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