

# BROAN®

## F40000 SERIES 4-WAY CONVERTIBLE RANGE HOOD

### READ AND SAVE THESE INSTRUCTIONS

#### IMPORTANT

For Non-ducted (Ductfree) Installation:

- Purchase non-ducted filter separately.
- Remove and discard damper/duct connector and louver cover (See Step 4) in "Prepare the Hood," Page 2.
- Follow all steps except steps inside dotted lines.

For Ducted Installation:

Follow all steps, including steps inside dotted lines.

**⚠ INTENDED FOR DOMESTIC COOKING ONLY. ⚠**

### WARNING ⚠ ⚠

**TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:**

- 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.
- Before servicing or cleaning 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.
- Installation work and electrical wiring must be done by a qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction codes and standards.
- Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment to prevent backdrafting. 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.
- When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
- Ducted fans must always be vented to the outdoors.
- Do not use this unit with any solid-state speed control device.
- To reduce the risk of fire, use only metal ductwork.
- Use with approved cord-connection kit only.
- This unit must be grounded.

**TO REDUCE THE RISK OF A RANGE TOP GREASE FIRE:**

- Never leave surface units unattended at high settings. Boilovers cause smoking and greasy spillovers that may ignite. Heat oils slowly on low or medium settings.
- Always turn hood ON when cooking at high heat or when cooking flaming foods.
- Clean ventilation fans frequently. Grease should not be allowed to accumulate on fan or filter.
- Use proper pan size. Always use cookware appropriate for the size of the surface element.

**TO REDUCE THE RISK OF INJURY TO PERSONS IN THE EVENT OF A RANGE TOP GREASE FIRE, OBSERVE THE FOLLOWING:\***

- SMOTHER FLAMES** with a close-fitting lid, cookie sheet, or metal tray, then turn off the burner. **BE CAREFUL TO PREVENT BURNS.** If the flames do not go out immediately, **EVACUATE AND CALL THE FIRE DEPARTMENT.**
  - NEVER PICK UP A FLAMING PAN** - You may be burned.
  - DO NOT USE WATER**, including wet dishcloths or towels - a violent steam explosion will result.
  - Use an extinguisher **ONLY** if:
    - You know you have a Class ABC extinguisher and you already know how to operate it.
    - The fire is small and contained in the area where it started.
    - The fire department is being called.
    - You can fight the fire with your back to an exit.
- \* Based on "Kitchen Fire Safety Tips" published by NFPA.

### CAUTION ⚠

- For indoor use only.
- For general ventilating use only. Do not use to exhaust hazardous or explosive materials and vapors.
- To avoid motor bearing damage and noisy and/or unbalanced impellers, keep drywall spray, construction dust, etc. off power unit.
- Your hood motor has a thermal overload which will automatically shut off the motor if it becomes overheated. The motor will restart when it cools down. If the motor continues to shut off and restart, have the hood serviced.
- For best capture of cooking impurities, your range hood should be mounted 18-24" above the cooking surface.
- Please read specification label on product for further information and requirements.

## PLANNING DUCTWORK INSTALLATION

Begin planning ductwork by deciding where the duct will run between the range hood and the outside. For best performance, use the shortest possible duct run and a minimum number of elbows. There are several choices shown - FIGS. 1A - 1E. In more complex ducting situations, a 3-1/4" rectangular ducting range hood can be converted to a round duct by means of a transition.

FIG. 1A. Ducting directly through the wall (for range hoods mounted on an exterior wall). Shown are two ways to duct through an outside wall. If a wall cap is used directly off the back of the hood, special care must be taken to make sure that the damper in the damper/duct connector on the hood and damper in the wall cap do not interfere with each other when the hood is operating. This could result in either inadequate air delivery or back drafts. If this condition does exist, remove the hood damper flap. Sometimes when using a wall cap it is easier to duct vertically and then use an elbow as shown in FIG. 1B.

FIG. 1C. Ducting straight up through the roof using 3-1/4" x 10" rectangular duct. (For single story installations.)

FIG. 1D. Ducting between the ceiling joists (for multi-story installations) or through the soffit space above the cabinets (where the soffit connects to an outside wall).

FIG. 1E. Straight up through the roof using 3-1/4" x 10" to 6" round duct transition and 6" round duct (for single-story installations).

FIG. 1F. Straight up through the roof using 7" round duct (for single-story installations).

## PREPARING THE RANGE HOOD

- Unpack hood and check contents. You should receive:
  - Aluminum Filter
  - 3-1/4" x 10" Damper/Duct Connector (mounted inside of hood for shipping only) (Save screws for mounting.)
  - 7" Round Duct Plate (mounted on top of hood) (not shown) (Save screws for mounting.)
- Remove 7" round duct plate from top of hood. Set duct plate aside - with mounting screws.
- Remove wiring box cover. Under cover find:
  - Plastic Bag containing loose mounting hardware

**For Ductfree Installations Only:**

- For ductfree installation, remove louver cover from front (or inside) of hood. (FIG. 3)

#### NOTE

Louvers on front of hood must be open and visible for hood to function in ductfree mode.

- Remove either top or rear electrical knockout depending upon whether wiring will enter hood from wall or cabinet. (FIG. 4)

FIG. 1A

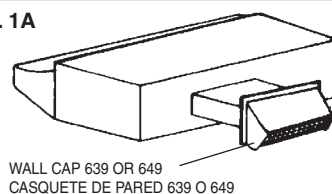


FIG. 1B

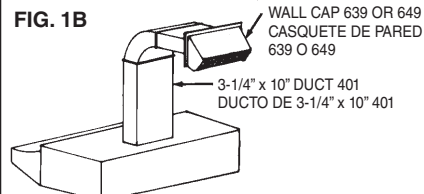


FIG. 1C

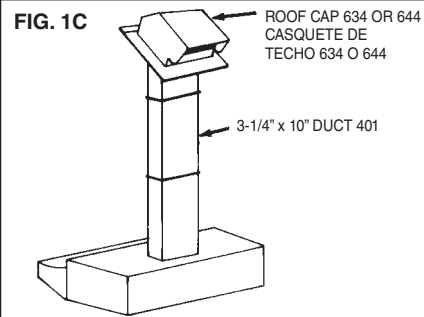


FIG. 1D

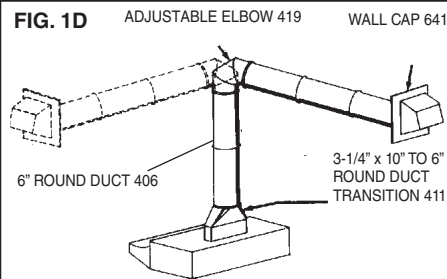


FIG. 1E

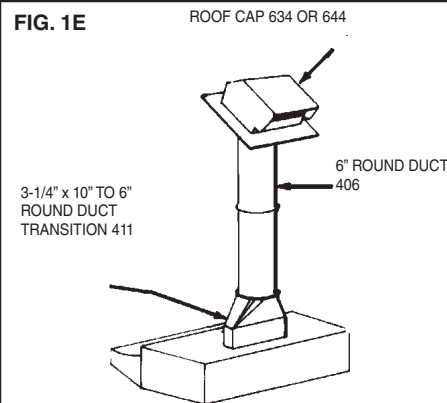


FIG. 1F

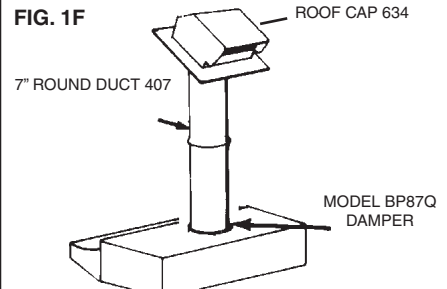


FIG. 2

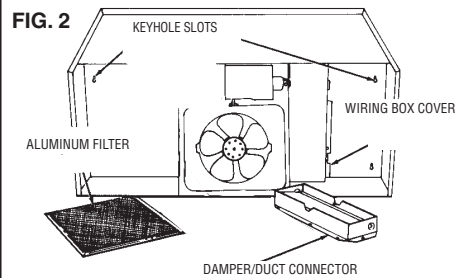


FIG. 3

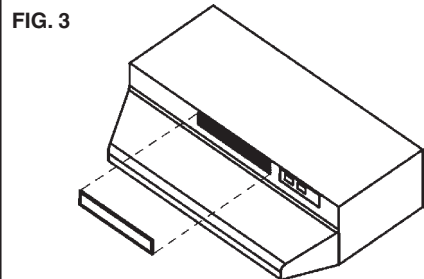


FIG. 4

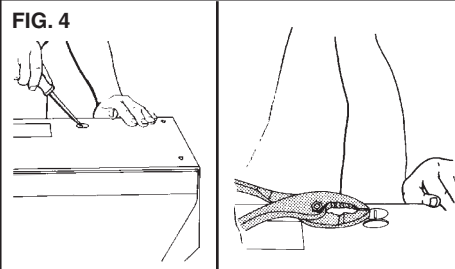


FIG. 5

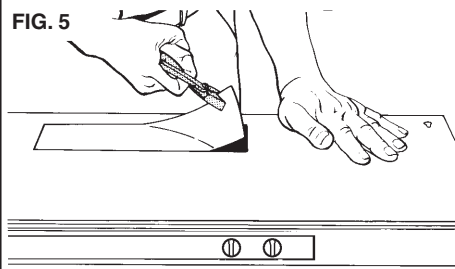
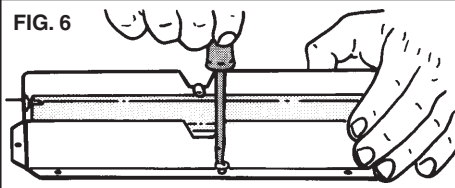


FIG. 6



## DUCTED INSTALLATION ONLY

### NOTE

Louver cover must be installed as shown in Figure 3 to function in ducted mode.

- Remove appropriate duct knockout on hood by inserting screwdriver into edge of knockout and breaking tabs holding knockout to hood. You may have to tap screwdriver with hammer to break tabs. Peel knockout back with pliers. (FIG. 5)
- Fit damper/duct connector over opening and secure in place with black sheet metal screws. (FIG. 6)  
Hinge pins and damper/duct connector should be toward top of hood for ducting through wall or toward back of hood for ducting through cabinet above hood. Seal joint between damper/duct connector and hood with duct tape.
- 7" round ducted discharge only:** Re-install 7" round duct plate removed in Step #2 under "PREPARING THE RANGE HOOD" section. **For best performance, line up the 7" round duct plate with the 7" round opening on hood.** Mount duct plate to hood with 2 screws from duct plate and 2 screws from 3/4" x 10" damper. Install a 7" round damper (purchase separately). Damper flap must open freely in direction of air flow (away from range hood).

## PREPARING THE INSTALLATION LOCATION

### NOTE

**MOUNT HOOD SO THAT BOTTOM OF HOOD IS 18"-24" ABOVE COOKING SURFACE. TOP FRONT EDGE OF HOOD SHOULD BE FLUSH WITH FRONT OF CABINET FRAME. IF DISTANCE BETWEEN WALL AND FRONT OF CABINET FRAME IS MORE THAN 12" THERE WILL BE A SPACE BETWEEN BACK OF HOOD AND WALL. THIS IS NORMAL.**

OMIT STEP 9 if range hood will be installed under cabinets with flush bottom.

- (For installation on recessed bottom cabinets only) Attach a wood filler strip at each side of recessed area under cabinet. (Use two 1" x 2" strips cut to length.) If recess is more than 1" use thicker strips. Attach strips with 1-1/4" screws about 3" from each end. See FIG. 7.
- Measure and mark the following (FIGS. 7 & 8):
  - Electrical line opening
  - Duct opening
- Drill four pilot holes in corners of marked duct opening as shown and cut opening with saber saw or keyhole saw.
- Use 1-1/4" drill bit to drill opening for electrical connection in wall or cabinet.
- Hold hood up against cabinet bottom and trace keyhole slots onto cabinet bottom of filler strips.
- Screw the four supplied 7/8" wood screws for mounting the hood into the exact center of the narrow end of the keyhole slots marked underneath the cabinet. Allow 3/8" of the screws to project, so the hood can be fitted into place.

## INSTALLING THE DUCTWORK

### NOTE

**THESE INSTRUCTIONS WILL FOLLOW THE PLANS MADE ON PAGE 2. START AT THE EXTERIOR AND RUN THE DUCT BACK TO THE RANGE HOOD.**

**FOR BEST PERFORMANCE OF YOUR RANGE HOOD, USE THE SHORTEST POSSIBLE DUCT RUN AND A MINIMUM NUMBER OF ELBOWS.**

**NEVER VENT A RANGE HOOD INTO AN ATTIC SPACE BECAUSE A BUILDUP OF GREASE WILL BECOME A FIRE HAZARD.**

**USE ONLY METAL DUCTWORK (DO NOT USE PLASTIC DUCT). ASSEMBLE SECURELY SO THAT IN CASE OF A GREASE FIRE ON THE RANGE, THE FIRE WILL BE CONTAINED INSIDE METAL DUCT WORK.**

**IT IS A GOOD PRACTICE TO TAPE ALL DUCT CONNECTIONS, MAKING THEM BOTH SECURE AND AIR TIGHT.**

- Follow appropriate directions below for type of duct work you are installing:

### WALL CAPS (FIG. 9)

Use a saber saw to cut a hole slightly larger than duct so duct will line up easily with hood. Install casing strips on outside walls finished in siding. Assemble the duct work and tape all joints. Run duct work back to hood. Fasten wall cap to last section of duct and nail or screw cap to wall. Seal all around flange on wall cap with caulking compound. Make sure that enough duct runs into the room so that the duct will overlap the damper/duct connector by 3/4" when the hood is installed.

### ROOF CAPS

Cut hole in roof slightly larger than duct so duct will line up easily with hood. Trim shingles around hole so that they will fit snugly around hood of cap when cap is installed. Assemble the duct work and tape all joints. Run the duct work down to hood. Trim duct parallel to roof pitch, leaving 3/4" of duct projecting above roof. Seal all around duct with roof cement.

Install roof cap, inserting back edge of cap under shingles. Seal around cap with roof cement and seal all nail heads and shingles which were cut or lifted.

Make sure that enough duct runs into the room so that the duct will overlap the damper/duct connector by 3/4" when the hood is put into place.

## INSTALLING THE RANGE HOOD

- Bring electrical cable through access hole drilled in wall or bottom of cabinet. Provide 6" wire leads and install proper connector for type of cable being used. Remove lock nut from connector and let prepared cable project through cabinet or wall opening so it is ready for installation into range hood. (FIG. 10)
- Position hood in place so that:
  - Electrical line is routed through appropriate knockout opening. This step will have to be accomplished while positioning hood. (FIG. 13)
  - Large part of keyhole mounting slots on hood fit onto hood mounting screws projecting from bottom of cabinet. (FIG. 11)
  - Damper/duct connector slides into duct work in wall or cabinet.
- Adjust hood so the front of hood is flush with cabinet front.
- Tighten the four hood mounting screws securely.
- Install locknut on electrical connector and tighten securely.
- Make electrical connection using wire nuts to connect white wire to white, black wire to black. Ground hood to prepared hole using green ground screw provided. (FIG. 12)
- Replace wiring box cover and screw. Make sure that all wiring is safely contained inside.

### NOTE

For Ductfree Installations Only:

Install both filters. Make sure that ductfree filter (purchase separately) is next to fan assembly with blue side next to blade. Aluminum filter should be facing out.

## USE AND CARE

### SWITCHES

The fan and light are each controlled by a rocker switch. The light switch has two positions, "ON" and "OFF". The fan switch has three positions - "HIGH", "LOW" and "OFF". ("OFF" is the middle position.)

### CLEANING

Finish Keep your range hood clean using a mild detergent suitable for painted surfaces. Aluminum Filters should be cleaned frequently with a detergent solution to avoid grease build up. They are also dishwasher safe.

### FILTER REMOVAL

Remove filter by turning filter clip to the side and lifting filter out. In ducted version, turn filter retaining clip to one side and place aluminum filter over embossed retaining tabs on back of fan housing. Turn filter clip so that the low end of clip holds single filter firmly in place. (FIG. 13)

In non-ducted version, place non-ducted filter (non-ducted filter to be purchase separately, model 41F) over tabs on back of fan housing. Turn filter retaining clip so that high end holds filter firmly in place. Make sure blue side of non-ducted filter is next to fan blade.

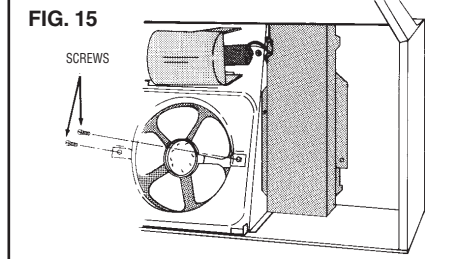
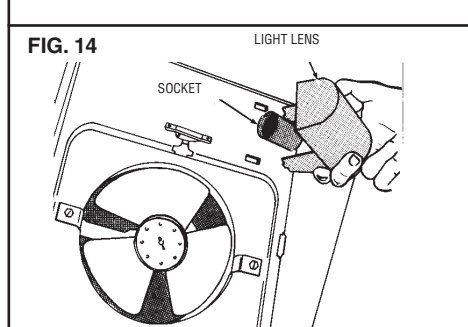
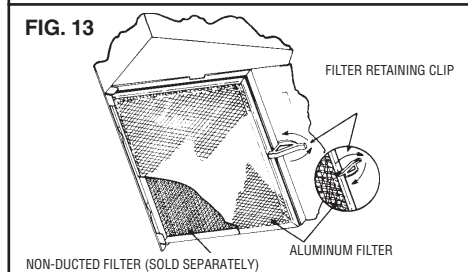
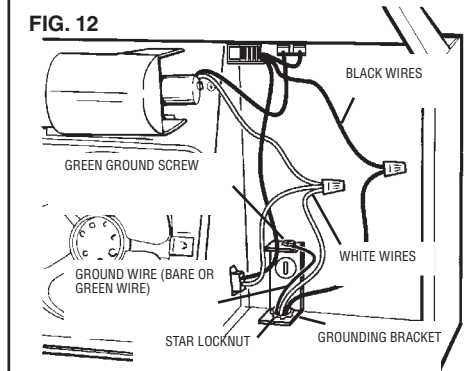
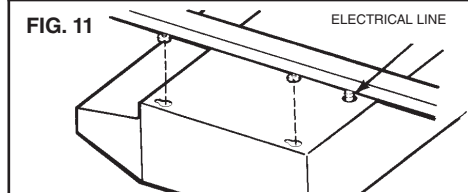
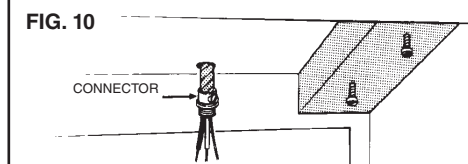
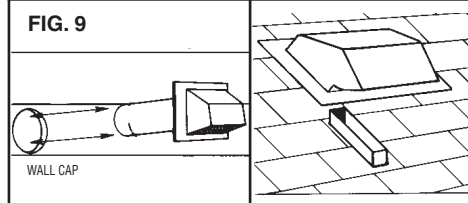
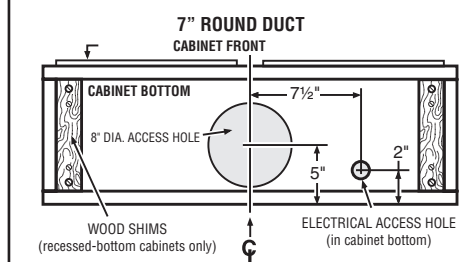
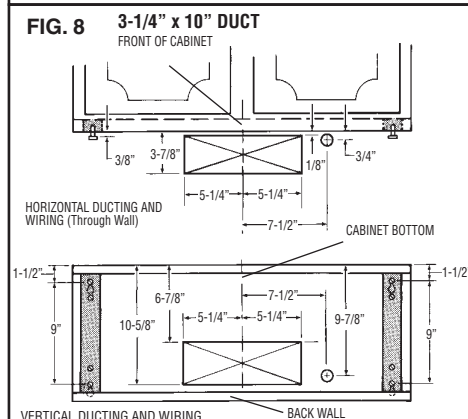
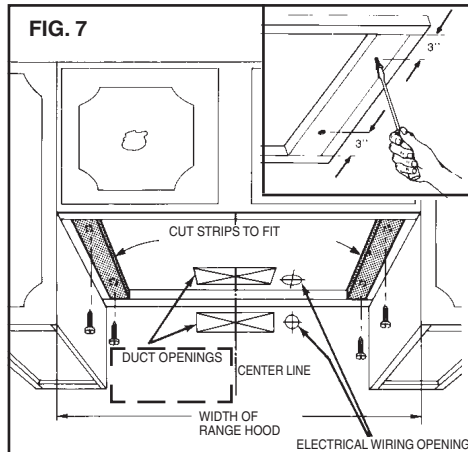
NOTE: Make sure that arrows on filter retaining clip point toward back and front of hood.

### LIGHT BULB REPLACEMENT

Light bulb (not supplied with hood) should be 75 watts maximum. The lens covering bulb is removed by pressing the two extending tabs together until they release from the retaining slots. (FIG. 14)

### FAN ASSEMBLY REMOVAL

Be sure power is disconnected. Remove filters. Remove the two screws holding the motor bracket to the range hood and unplug the fan assembly. Be careful not to allow fan assembly to drop when the screws are removed. (FIG. 15)





## **Additional Information for Range Hoods meeting ADA Compliance**

Broan and NuTone branded residential range hoods can be installed to comply with Sections 308 and 309 of ADA Guidelines, when used with appropriately mounted controls installed at 15” to 48” above the floor and control access should not require reaching over a cooking appliance.

The following range hoods can work in an ADA Compliant situation when the range hood is wired to operate from a dedicated, standard electrical wall switch. To facilitate this application, share the information on the following pages with your electrician when preparing for the installation.

### **2-SPEED RANGE HOODS:**

**Broan** 40000, F40000, 41000, 42000, 43000, 52000, PM250, QL1, QS1, QSE1, QDE, QML and CBD1 Series, BKSA1, CLSC1, CRSF1

**NuTone** NS6500, NSPM250, RL6200, WS1 Series, AHSA1, AVSF1

### **INTERMEDIATE RANGE HOODS: (with variable speed)**

**Broan** 46000 & QT20000 Series

**NuTone** ACS Series

# 2-ROCKER & 3-ROCKER SWITCHES

## WARNING

ALL ELECTRICAL WORK MUST BE DONE IN ACCORDANCE WITH LOCAL CODES, ORDINANCES, OR NATIONAL ELECTRICAL CODE AS APPLICABLE. **FOR SAFETY, THIS PRODUCT MUST BE INSTALLED IN A GROUNDED SWITCH BOX.** IF YOU ARE UNFAMILIAR WITH METHODS OF INSTALLING ELECTRICAL WIRING, SECURE THE SERVICES OF A QUALIFIED ELECTRICIAN.

Turn off power and lock out service panel before installing or wiring this product.

Use this control only with copper or copper-clad wire. Do not use aluminum wire with this device.

## INSTALLATION

### 1. WARNING

To avoid fire or electrical shock, turn off power at circuit breaker or fuse. Test that the power is off before wiring.

### 2. MOUNT THE SWITCH BOX

*For 2-Rocker Switch:* Install a 3½" deep single-gang switch box or a 2" deep double-gang switch box.

*For 3-Rocker Switch:* Install a 2½" deep double-gang switch box with a single device adapter plate.

### 3. ATTACH POWER CABLE

Clamp wiring to switch box and unit using appropriate clamp. Provide 6" leads inside box and fan for easier wiring.

### 4. CONNECT WIRING

General instructions for all configurations:

Make sure both the switch box and the appliance are properly grounded.

Make sure ground wire is securely fastened to control's ground screw. Tighten ground screw 14 to 16-in. lbs. torque.

Remove insulation per strip gauge on control (approx. 5/8"). Use proper wire nut sizes for number and size of wires.

For push-in terminals: Use #14-AWG solid copper wire only.

For screw terminals: Use #12 or #14-AWG solid copper wire only. Tighten screw terminals 14 to 16-in. lbs. torque.

### Choose 4A., 4B. or 4C

4A. When using 2-Rocker or 3-Rocker Switch to turn an appliance ON & OFF:

Make electrical connections following appropriate diagram.

(over)

## WARNING

To prevent serious injury from electrical shock or damage to electrical components - **DO NOT WIRE HOT!**

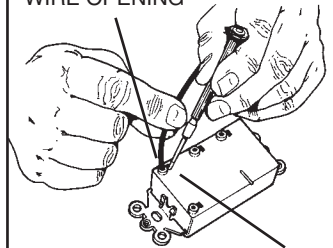
Each individual rocker switch on this control is rated at 15 AMPS, @ 120 VAC. The total load on this control must not exceed 20 AMPS, @ 120 VAC.

Warranty is void if miswired.

**NOTE:** If the switch has not been wired properly and wires need to be moved, proceed as follows:

**WARNING:** To avoid fire or electrical shock, turn off power at circuit breaker or fuse. Test that the power is off before wiring.

WIRE OPENING

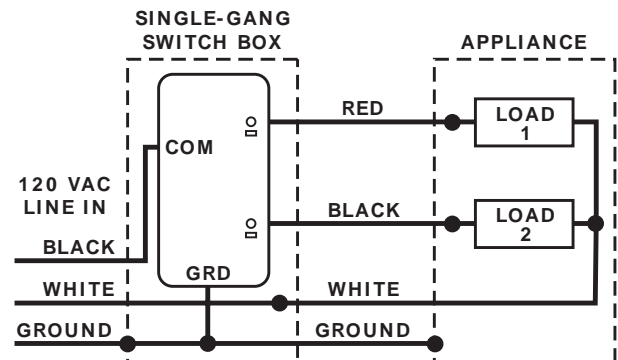


RELEASE SLOT

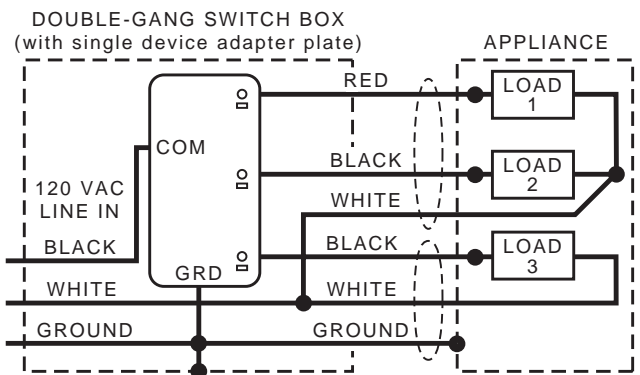
1. Each wire opening has a release slot.
2. Push a small nail or screwdriver into release slot while gently removing wire.
3. DO NOT pull any wire out of the switch without using the release slot. The switch may become damaged.

## STEP 4A

### 2 - ROCKER SWITCH



### 3 - ROCKER SWITCH



**4B. When using a 2-Rocker Switch to turn a range hood ON & OFF from another location with 120 VAC POWER CABLE ENTERING SWITCH BOX:**

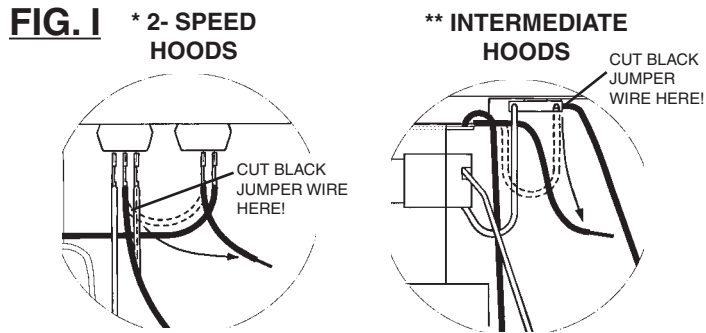
Remove the range hood's wiring cover. If the hood has a BLACK JUMPER WIRE, it must be cut and the end stripped as shown. (FIG. 1)

Use UL approved clamps to secure all cables to hood and box. Make wiring connections following appropriate diagram. Use proper wire nut sizes for number and size of wires. Replace range hood wiring cover.

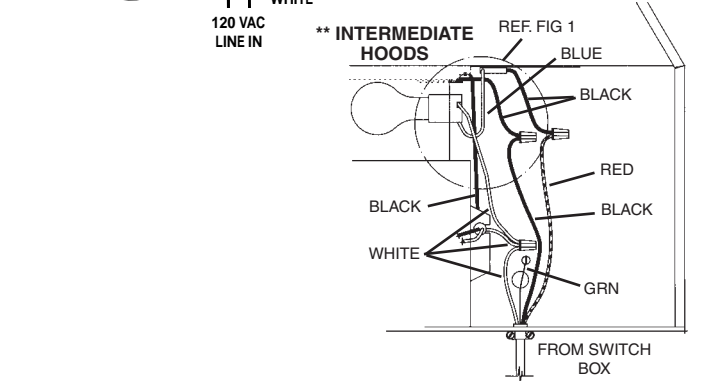
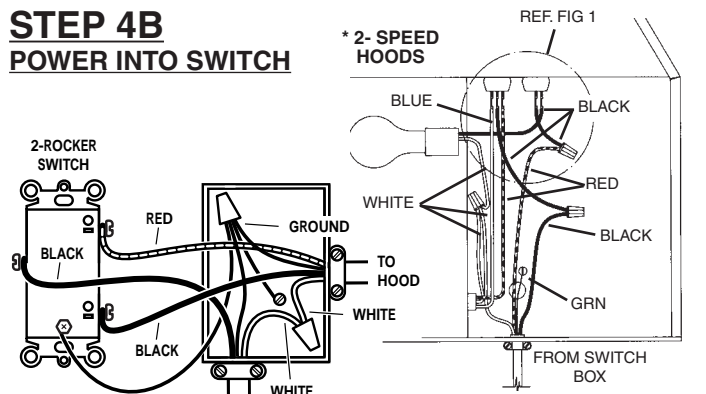
**4C. When using a 2-Rocker Switch to turn a range hood ON & OFF from another location with 120 VAC POWER CABLE ENTERING HOOD:**

Remove the range hood's wiring cover. If the hood has a BLACK JUMPER WIRE, it must be cut and the end stripped as shown. (FIG. 1)

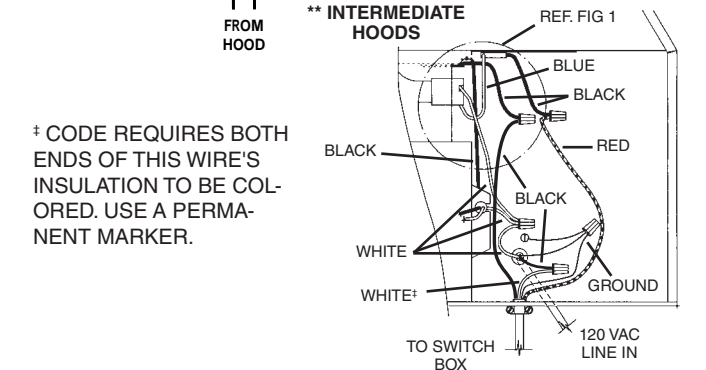
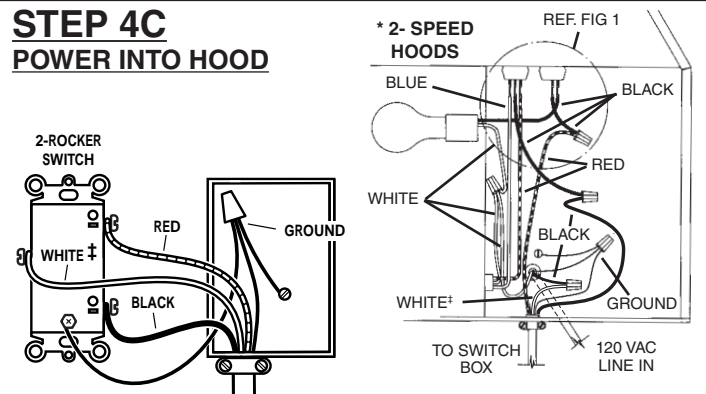
Use UL approved clamps to secure all cables to hood and box. Make wiring connections following appropriate diagram. Use proper wire nut sizes for number and size of wires. Replace range hood wiring cover.



**STEP 4B  
POWER INTO SWITCH**



**STEP 4C  
POWER INTO HOOD**



‡ CODE REQUIRES BOTH ENDS OF THIS WIRE'S INSULATION TO BE COLORED. USE A PERMANENT MARKER.

**5. MOUNT CONTROL IN SWITCH BOX**

Tuck wires into switch box and fasten the control to box using attached screws.

**6. ATTACH SWITCH PLATE**

Fasten the switch plate to the control using the short screws from the parts bag.

**\* 2-SPEED RANGE HOODS:**

Broan 40000, F40000, 41000, 42000, 43000, 52000, PM250, CBD1, QL1, QML, QS1 & QSE1 Series. NuTone NS6500, NSPM250, RL6200 & WS1 Series.

**\*\* INTERMEDIATE RANGE HOODS:**

Broan 46000 & QT20000 Series. NuTone ACS3 Series.

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