

THREE WAY SWITCHES

With three way switches you can turn lights off or on from two separate locations. Three-way switches are used at the top and bottom of stair cases, at either end of a hallway, and adjacent to each door in a room with two means of entry/ exit. Three-ways might also be used in large rooms and to control outside lighting from two different locations.

When installing a three-way switch circuit, it is imperative to know which wire bundle is supplying the power and return path. This is called the "home run". Wiring three-way switches requires 2 conductor wire: 14/2 with ground (14/2-g), and three conductor wire: 14/3 with ground (14/3-g). The "home run" is supplied on the 14/2-g wire. 14/2-g might also be used between a switch and the light fixture for some installations. 14/3-g wire is used to "toggle" the power between switches, and so runs switch to switch.

In three-way installations it is sometimes required for a white jacketed conductor to serve as a "hot" conductor. In electricity this is called: "when white is black". When a white conductor is used as a power conductor it must be "tagged" or marked with black electrical tape to let others know that this is now a hot conductor - not a neutral.

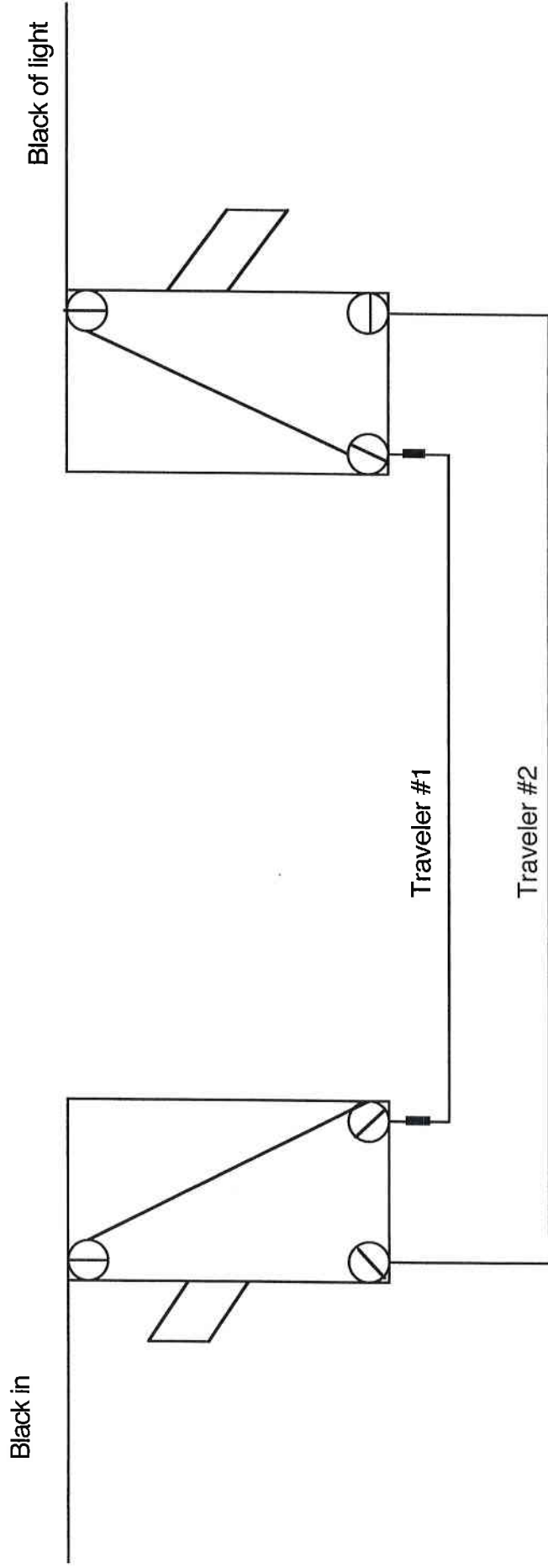
With a three-way switch there are three poles on one device. The hot terminal or pole is color coded with a black set screw. This is referred to as the "common". On the same side of the device and below the "hot" or black screw is the terminal for the red traveler. On the other side of the switch is the other pole. The white traveler - tagged with black tape, connects to this pole. On this same side of the switch is the green grounding connection.

Step by Step Wiring of a Three-Way Switch Circuit

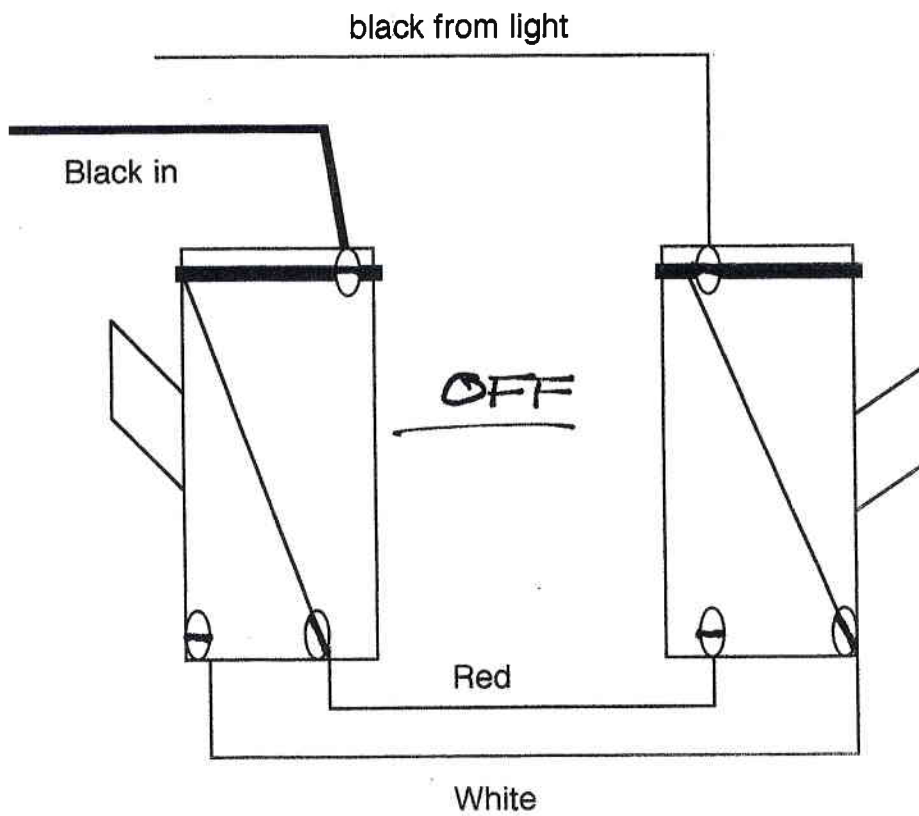
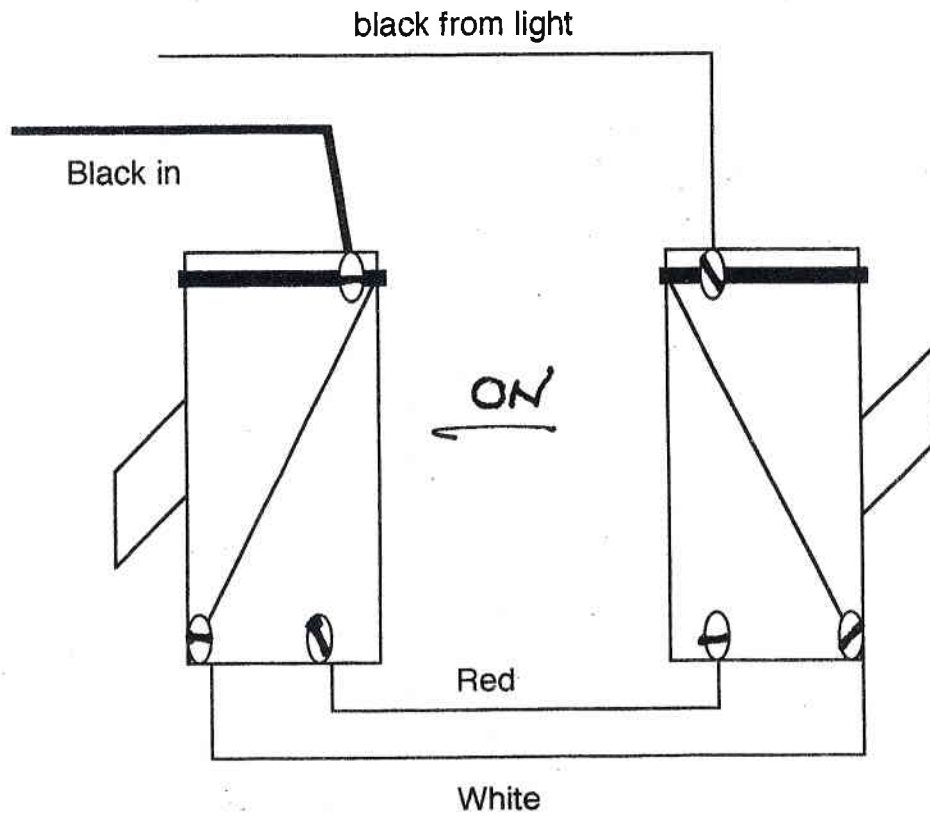
Sometimes it can be confusing during these installations to keep up with all of the wire and to make sure it is directed to the correct terminal. If you follow these simple steps your three-way circuit will always be correct:

1. Black, or hot ,in - to the black pole of the first switch.
2. White, or neutral, in - to the white of the light.
3. Black of the light - to the black of the second switch.
4. Red traveler - switch to switch.
5. White traveler - switch to switch. (remember to tag this to let others know it is hot)
6. Grounds connected to grounds & grounding terminals of each device.

3 WAY SWITCH TOGGLE ACTION

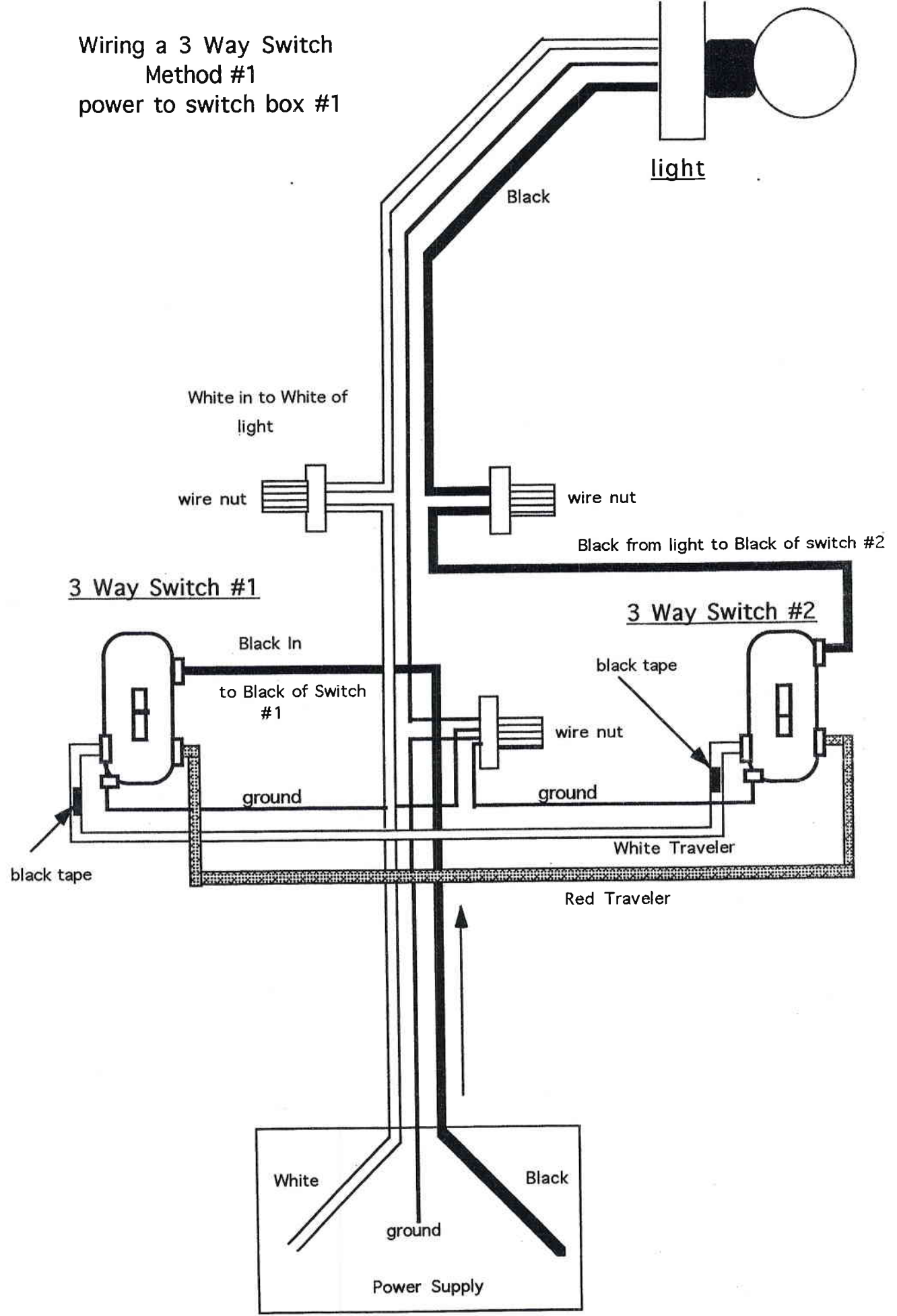


Note: For residential wiring, traveler color code would be - Traveler #1 - White tagged black
Traveler #2 - Red



TOGGLE ACTION OF THREE WAY SWITCHES

Wiring a 3 Way Switch
Method #1
power to switch box #1



Wiring a 3 Way Switch
Method #2
(power from light box)

