

TECHNICAL SOURCE GUIDE

FIRE EFFECTS FOR THE STAGE – PART II

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This is the second in a series of four articles dealing with fire effects for the stage.

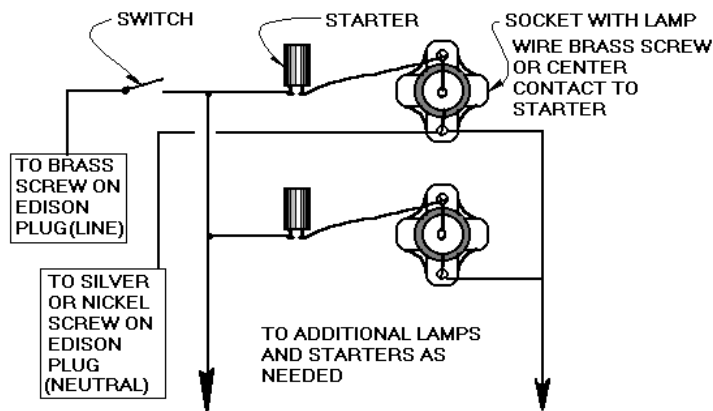
The last article focused on a battery operated fire effect. This article will describe a line voltage (USA 120VAC) device. This device can be made to imitate the flickering of a fire, a TV set, or any other low level, random flickering light source. The device involves a 15- to 40-watt, 120 volt lamp; a fluorescent starter; and miscellaneous wiring for each lamp used in the effect. Note: There are many types and brands of starters and some starters will need a ballast to provide sufficient power to operate the lamp. If the circuit does not work without a ballast, it will be cheaper to buy another type of starter than to buy a ballast. The starters cost between 50 cents and \$3, ballasts run \$15 to \$30 each.

The starter is the main ingredient in the mix. Starters are the small silver cylinders about 1 ½ inches long and about ¾ of an inch around that fits into one end of older type fluorescent fixtures. They are available at most home improvement stores or hardware stores. A starter is basically an electrical capacitor that gives a short boost of voltage to start the old style (slow start) type of fluorescent lamps and then turns off. In a fluorescent fixture the starter is out of the circuit until the switch is turned off and then on again. In the fire effect, the starter is wired in series with the lamp and is “in the circuit” all the time. When the switch is turned on, the starter is “off” but it starts storing up voltage. At a certain point the voltage builds up and “overflows” causing the lamp to light up. The starter is now “empty” of electricity and “shuts off” causing the lamp to be dark.

It is like a bucket under a faucet that is hinged to tip over when the bucket is full and to tip back up when it is empty. In the fluorescent fixture, the starter only operates once each time the fixture is turned on; therefore it is not important just how consistent or accurate the starter is. The impreciseness helps in the circuit because no two lamps will blink at the same rate.

For most fire effects at least three or four lamps should flicker and one should be on for a steady background effect. If physical space in the fire unit permits, as many as nine or 10 lamps may be used. As the number of lamps increase, the wattage can be lowered. However a mix of different wattages makes a more realistic effect.

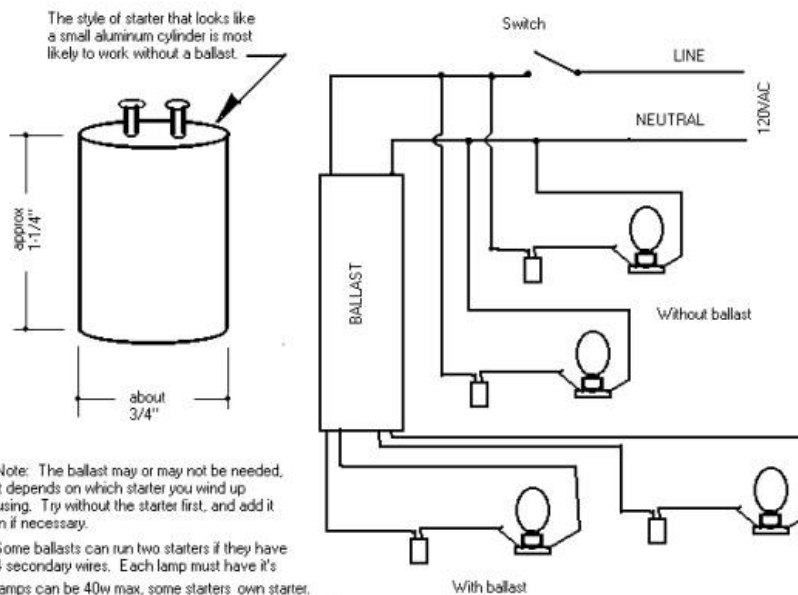
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To wire the effect, a starter for each lamp, a socket for each lamp, a male Edison plug, wire, wire nuts, and a plywood (or similar) base is necessary. The switch can be wired into the circuit or the wiring designed to plug into a switch box already on hand.

The most critical part of the wiring is the starter. There are

two small prongs on one end; most look like the head of a nail sticking out about a quarter inch. The starter should be fastened down in some manner with hot glue, plumber's strap, heavy rubber band, Velcro strap, etc. Wiring must not contact the outer case of the starter in any way. The easiest way to connect to the starter is to use small, insulated alligator clips available at Radio Shack. This makes changing the starter very easy if necessary. The starter can also be soldered directly to the contacts.



As noted earlier, a ballast might be needed depending on which type of starter. Note the illustration here on how to integrate a ballast into the project

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Some ballasts can run two starters if they have four secondary wires. Each lamp must have it's own starter. Lamps can be 40 watts maximum, some starters may only handle 25 watts.

Next issue: Part III, Fire Effects for the Stage, using fans and fabric.

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