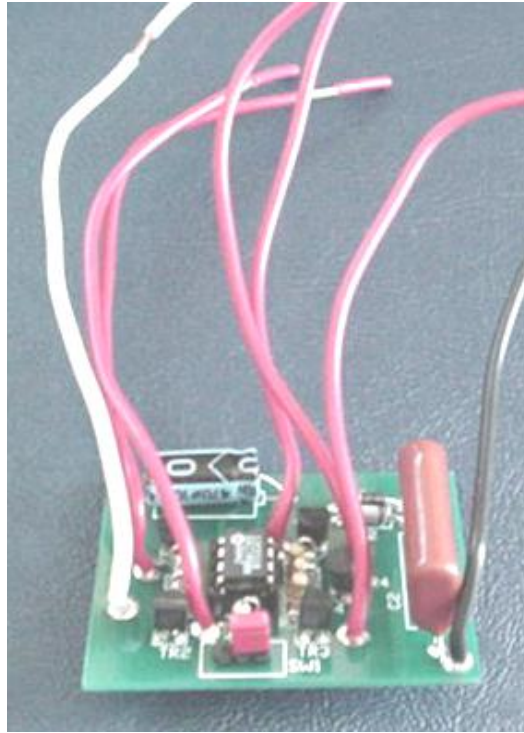


Light Sequenced Candelabra Construction Manual







Cowlacious Designs


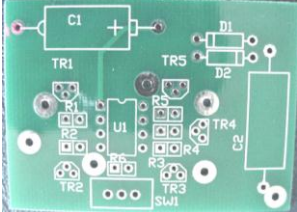

By Computer & Electronics Services

Step 1.

Make sure you have received all the correct parts for your kit:

Candelabra Parts List

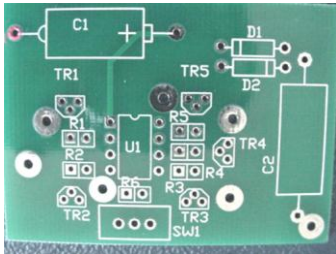
Qty. / Kit	Picture	Packed	Part #	Description
1			SW1	Three pin header
1			SW1	Red header shorting block, to be used as switch
5			R1-R5	1.5K Ohm (brown, green, red, gold) 1/4W resistor
1			R6	10K Ohm (brown, black, orange, gold) 1/4W resistor
1			R7	1K Ohm (brown, black, red, gold) 1/4W resistor
1			U1	PIC12CE518 or PIC12F675 or PIC 12F683 – Microcontoller
1			U1 Socket	Socket for U1
1			Tr1-Tr5	L401E3 Triac
1			C1	470uF, 16V Electrolytic capacitor – Axial lead

1			C2	2.2uF, 250V Mylar capacitor
1			D1	1N4004 Diode
1			D2	1N4734A Zener diode, 1W
1			Black Wire	Black Wire
1			White Wire	White Wire
5			Red Wire	Red Wire
1			Circuit Board	Candelabra Circuit board
6			Wire Nuts	Wire Nuts

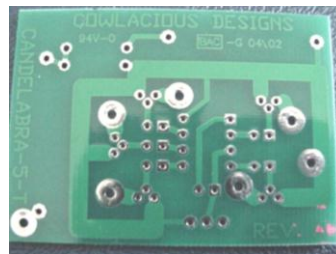
Circuit Construction

— Step 2.

Identify the component side and the solder side of the circuit board.



Component Side



Solder Side

All components will be placed on the “Component Side” of the circuit board. All Soldering will be done on the “Solder Side” of the circuit board.

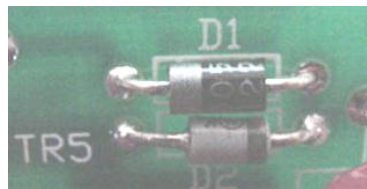
Step 3.

Place the U1 Socket on the circuit board where it shows the location for U1. Flip the board over and solder in place on the solder side of the circuit board.

Note: Take care to place the notch of the socket the same direction as the notch for U1 shown on the component side of the circuit board.

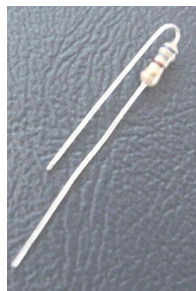
Step 4.

Place D1 in its respective spot solder in place. Make sure the silver band on D1 is going the same direction on the band shown on the circuit board.



Step 5.

Bend the lead of one side of resistors R1-R5 so that they are prepared for vertical mounting. Mount them in their appropriate locations on the circuit board and solder in place



Step 6.

Bend the lead on one side of resistor R6 so that it is prepared for vertical mounting. Mount in place and solder.

Step 7.

Mount the triacs (Tr1-Tr5) in their appropriate locations on the circuit board and solder them in place.

Note: Make sure the flat side of the triac is facing the same way as it shows on the component side of the circuit board.

Step 8.

Identify the positive lead of capacitor C1:

If you look closely at the capacitor you will notice that the casing has negative symbols with arrows pointing to the negative lead.



Negative symbol on the case

Place the capacitor leads through their respective holes on the component side of the circuit board and solder in place. The hole for the positive lead has “+” symbol next to it on the component side of the circuit board.

Step 9.

Mount and solder C2 in place. It does not matter which direction this capacitor faces as it does not have polarized leads.

Step 10.

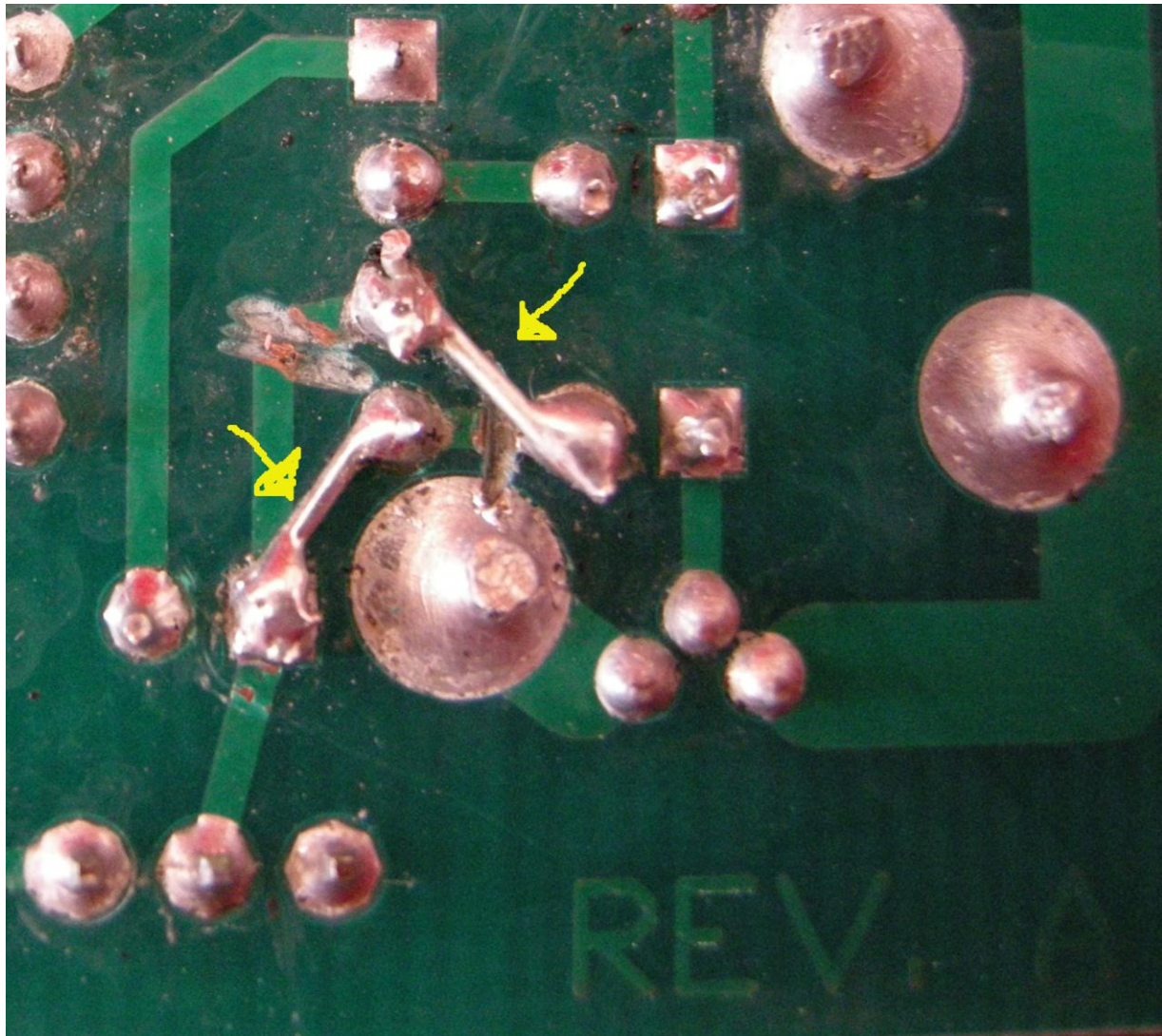
Place the three pin header in the three holes that are marked with a box that has the letters “SW1” next to it and solder it in place. You place the shorter side of the header into the holes to be soldered.

Step 11.

Place the red header shorting block on two of the jumpers, it doesn't matter which two at this point.

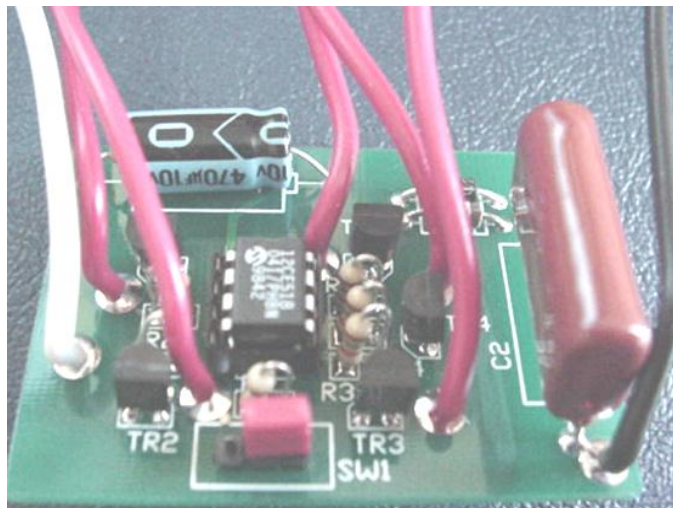
Step 10.

Use a couple of small pieces of cut-off resistors leads to make jumpers on the bottom of the board. A design flaw required us to cut two of the traces. These jumpers make the proper connections for the circuit. The yellow arrows point to the jumpers that need to be soldered in place.



Strip 3/8" of insulation off one end of the black, white, and red wires.

- Place the stripped portion of the black wire in the hole that is closest to C2 and the corner of the board. Solder in place.
- Place the red wires in the holes that are next to the triacs and solder them in place.
- Place the white wire in the remaining hole and solder in place.



Thank you for purchasing a
Cowlacious Designs Kit!!

Happy Halloween!

Candelabra Circuit Setup and Operation

Step 1.

Strip ½ inch of insulation from the ends of all the wires on the Candelabra circuit board.

Step 2.

Make sure no power is going to the lamp or candelabra that you intend to connect to the candelabra circuit.

Step 3.

Open the lamp or candelabra that you intend to connect to the candelabra circuit. You should see a group of black wires connected together and a group of white wires connected together. Remove the wire nut from the white group of wires. You should see on wire that is solid and the rest will be stranded. The solid wire is the neutral from the voltage supply. The stranded wires are the neutrals from the individual lamp sockets.

CAUTION: Make sure you use a polarized plug if you are supplying the power to your lamp or candelabra through a power cord instead of the standard wiring that is in a house. A polarized plug has one prong that is slightly wider than the other. The wider prong is the neutral and should be wired the same as the white wire described above. Remember WIDE = WHITE. It is very important that the polarity of this circuit is correct! If it is not correct the circuit may not work and damage could occur.

Step 4.

Connect the white wire, that is solid, to the white wire from the candelabra circuit board and screw on a wire nut.

Step 5.

Connect each of the remaining white wires, the stranded ones, to a red wire on the candelabra circuit board and screw on the wire nuts. You may want to do this in order so that the lights light up in the order you desire. The lamp socket connected to the red wire closest to Tr1 will light first, then Tr2, then Tr3, etc.

Step 6.

Remove the wire nut from the group of black wires. Connect the black wire from the candelabra circuit board in with all the other black wires and reattach the wire nut.

Step 7.

Set the red header shorting jumper on the two leads that are closest to "SW1" to have the circuit go through its routine and then have the lights stay on. Switch the red shorting jumper to the other two leads if you want the circuit to go through its routine, stay on for a few seconds and then start all over again.

Step 8.

Recheck everything to make sure it is all right.

Step 9.

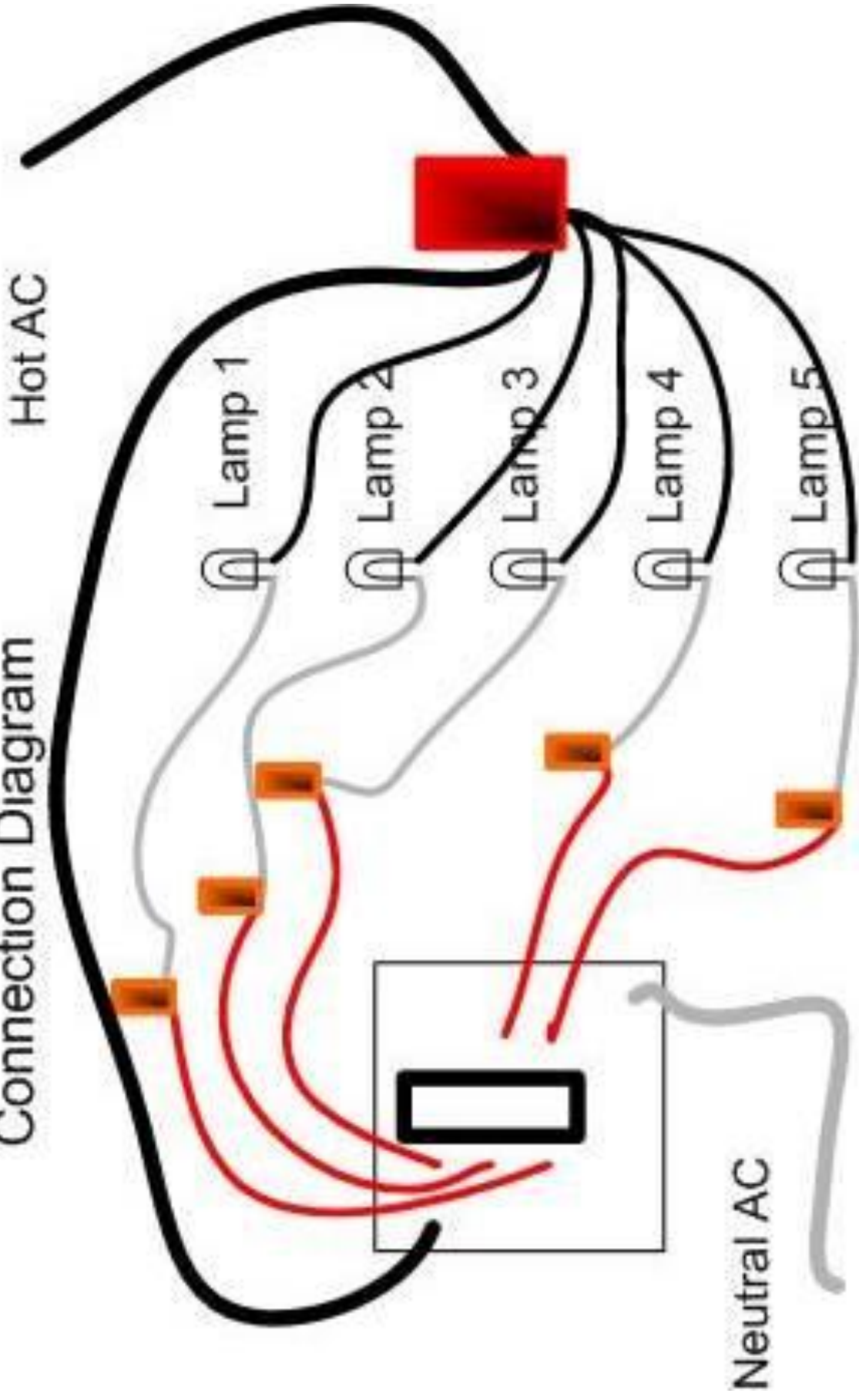
Wrap the circuit board (especially the bottom) with electrical tape to prevent the contacts on the board from touching any metal. You may want to leave room so that you can switch the shorting jumper if you want.

Step 10.

Apply power. You should have a couple of seconds delay, then the first light should light, then the second, the third, etc. until all the lights are on. It will then either stay on until power is removed or it will wait a few seconds and start the routine over again, depending on how the red header jumper is set.

Candelabra

Connection Diagram



NOTES :

Features:

- Easy to build
- Two different lighting routines to choose from.
- Fun to use



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Rev. 2

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