



### Overview:

L86 dimmer cards have one or two power cubes within their tray. The power cube is responsible for chopping the wave so that we are able to dim conventional sources. This is done by allowing the power cube to receive a low voltage control signal that turns the solid state relay on and off at the proper times to achieve our dimming goals.

Reasons for failure come from short circuits in the cable or fixture. Due to  $V = IR$   $V$  is a constant, as resistance approaches 0, our current approaches infinity, which in this case will trip the breaker or burn out the power cube.

Symptoms of a burnt out power cube may include a dimmer being stuck on or off.

Through the years ETC has had many revisions on parts and pieces that are used in the L86 dimmer card. Because of this we recommend that you see additional information before proceeding, to see if this manual applies to you.



**Note:** *If your power cube has screw terminals instead of crimp connections, please contact ETC for assistance on choosing the appropriate power cube.*

### Tools Needed:

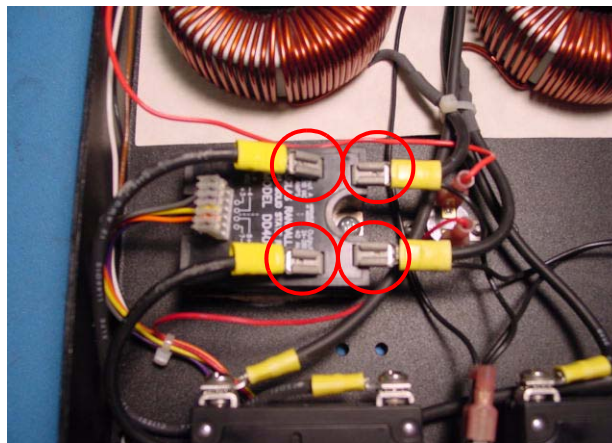
- Phillips #2 Screwdriver
- Pliers
- Rubber gloves
- Thermal Joint compound
- Rubbing alcohol
- Towels or rags
- 5/8" Nut driver with ground down tip (see additional information)\*
- 3/8" Nut driver with ground down tip (see additional information)\*



**Note:** *See additional Information for tools marked with a \**

### Procedure:

Step 1: With your pliers, pull off circled wire crimps from relay.



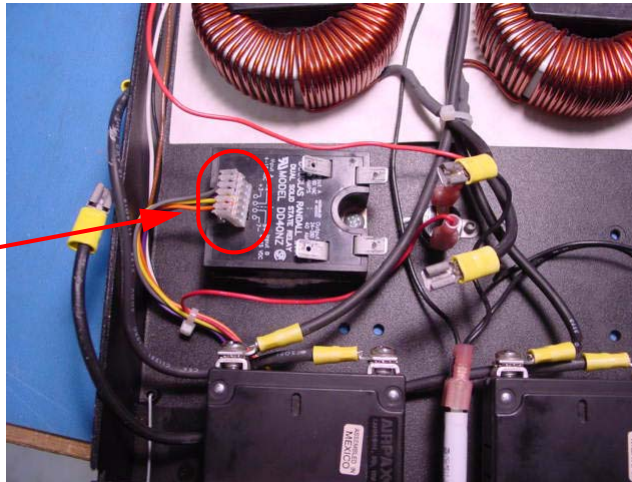
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Technical Services ■ Rev A ■ Released 2009-07

# ETC Service Note:

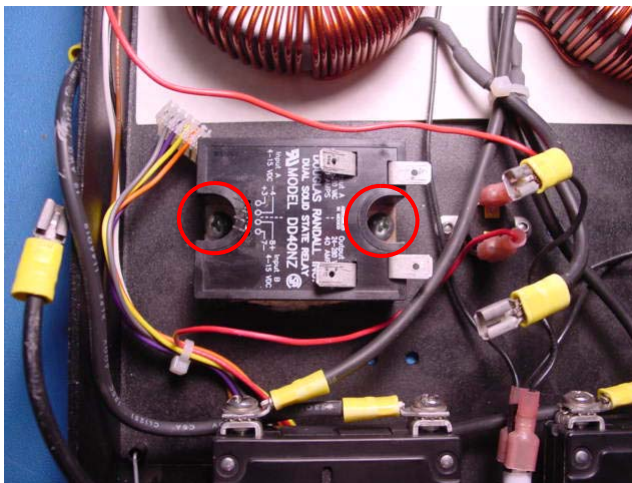
## Power Cube Replacement in L86 Dimmer Modules

Step 2: Next remove control from relay.

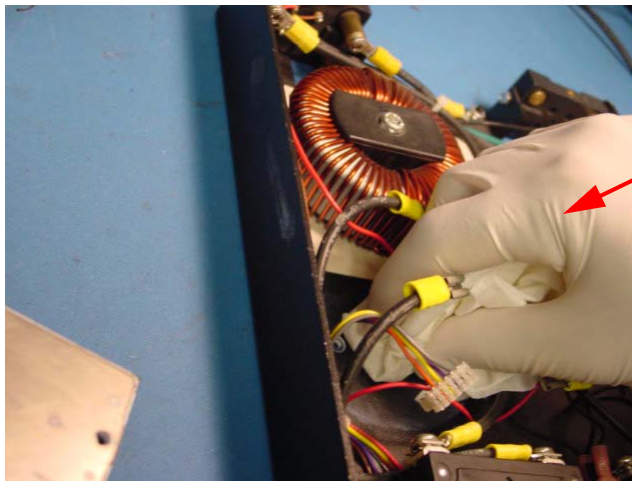
Note the connector on this card has 6 possible connections but only the center 4 are used.



Step 3: Remove 2 circled screws. Keep in mind that different models might have nuts on them. This will require you to use specially modified tools. See additional information for more details.



Step 4: With a towel or rag, remove the joint compound. Apply rubbing alcohol as needed to remove excess residue left behind.



If you are using chemicals to remove old joint compound, we recommend wearing gloves.

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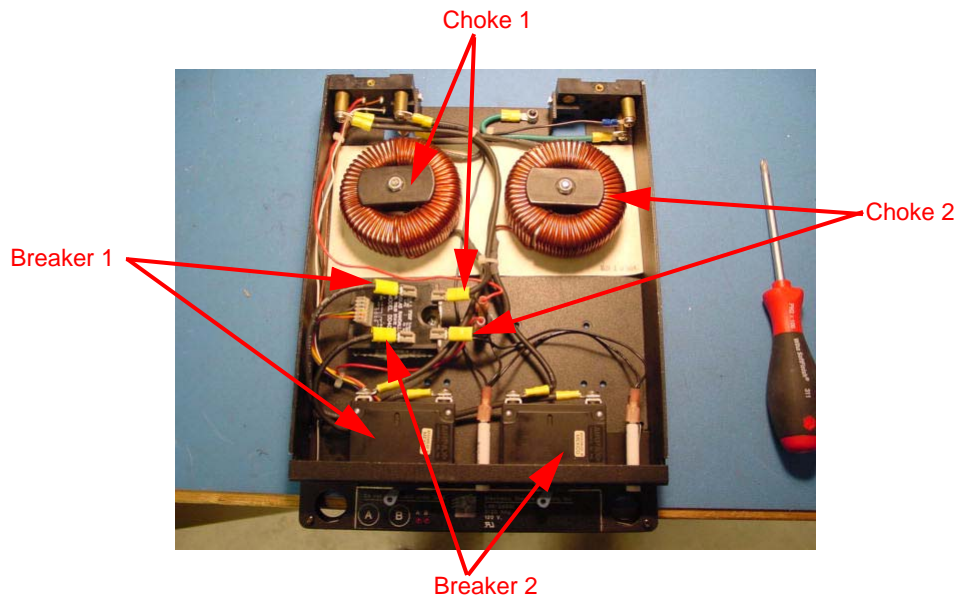
## Power Cube Replacement in L86 Dimmer Modules

Step 5: Using your finger, spread a thin layer of thermal joint compound onto the back of the new power cube. (More is not better when it comes to thermal compound). Keep in mind that this stuff can make a big mess. You might want to have a towel nearby and/or keep on the gloves from the last step.



If you are truly replacing this power cube, you would want to clean old joint compound off with the same process as in Step 4.

Step 6: Replace the new power cube, reconnect your 4 crimp connections and connect your control cable. Make sure that the 4 pins on the control connector line up.

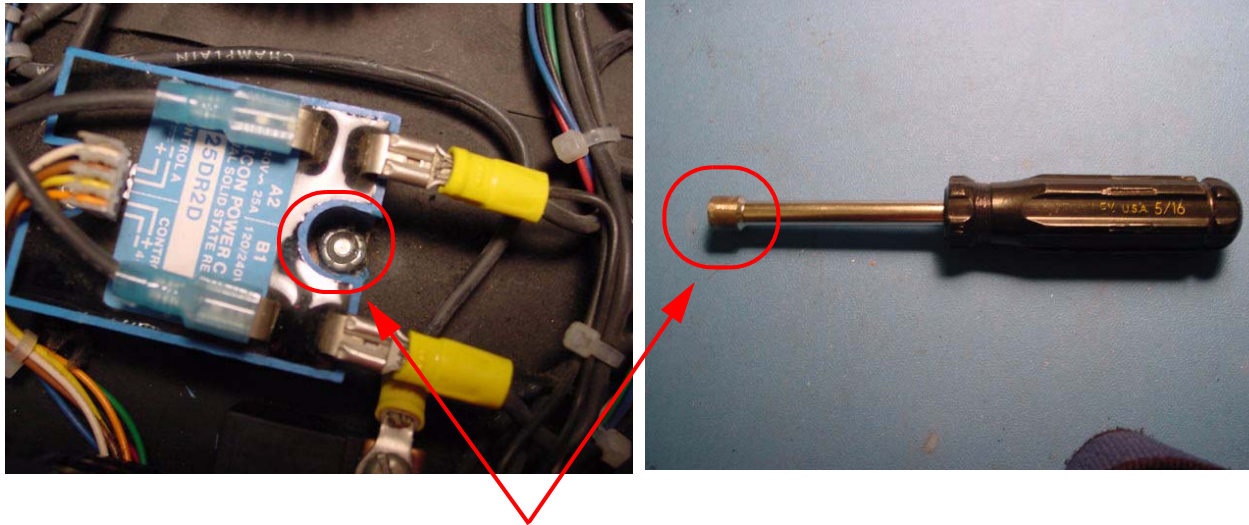


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## Power Cube Replacement in L86 Dimmer Modules

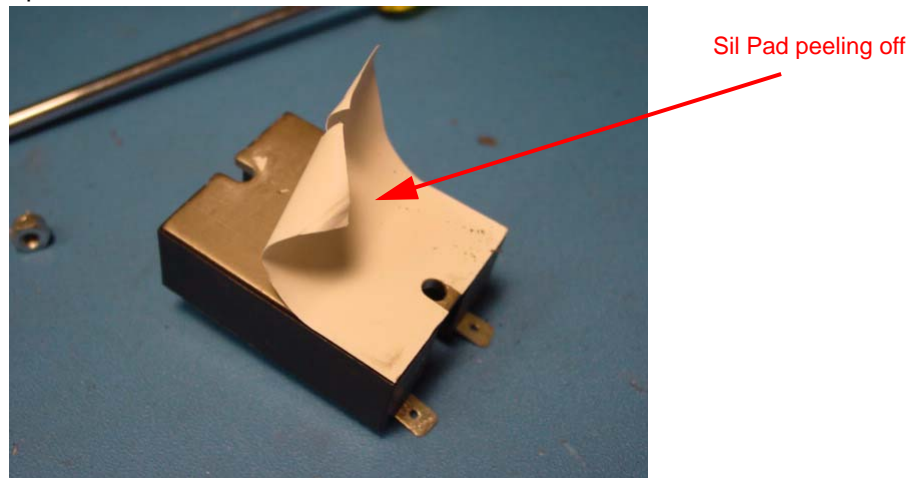
### Additional Information:

Due to multiple revisions of the L86 dimmer module, there are many small differences between a few cards. These differences may require you to have different tools to make your life easier. Examples of this would be for the removal of some power cubes, there might be a 3/8" or a 5/16" nut holding it in place. A normal nut driver will not fit in the power cube so you need to take the circled portion of your nut driver to a grinder.



The tip of this 5/16th nut driver was ground down so that it could remove the shown nut. Without grinding down the tool, you would not be able to fit it into the power cube.

On some older models of the L86 dimmer modules, instead of using joint compound, ETC used a Sil Pad. When replacing the power cube, do not reuse this Sil Pad. Instead install the new power cube with joint compound.



### Part Numbers for Power cubes:

Part Number	Description
Q114	L86 Power Cube 25A, for 1.2kW dimmer
Q116	L86 Power Cube 40A, for 2.4kW Dimmer
Q115	L86 Power Cube 80A, for 6kW Dimmer