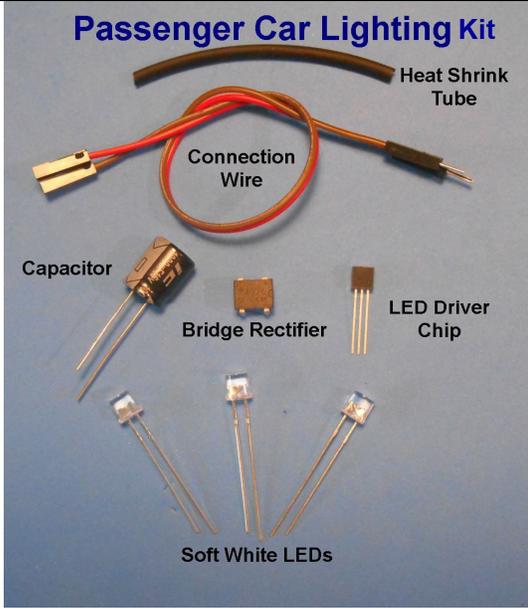


# Instructions for installing Passenger Car Lighting Kit

[www.modeltrainsounds.com](http://www.modeltrainsounds.com)



**Passenger Car Lighting Kit**

Heat Shrink Tube

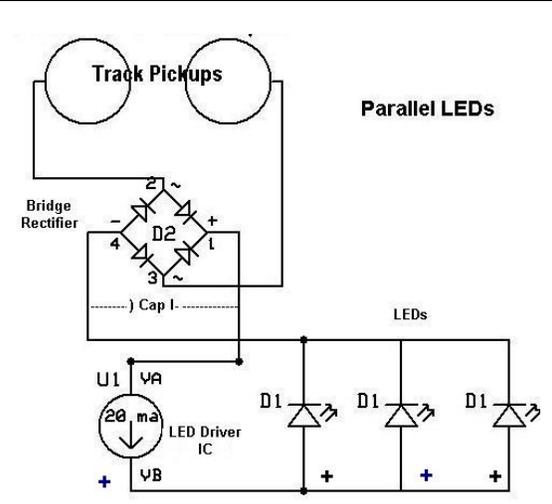
Connection Wire

Capacitor

Bridge Rectifier

LED Driver Chip

Soft White LEDs



Track Pickups

Parallel LEDs

Bridge Rectifier

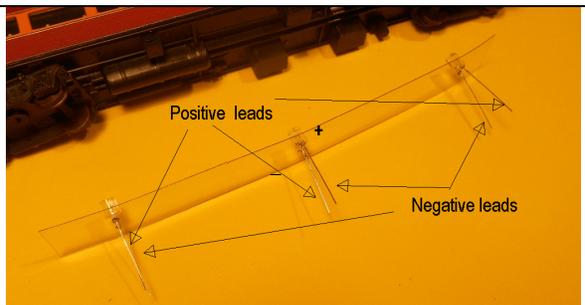
Cap 1

U1 VA LED Driver IC VB

D1 D1 D1

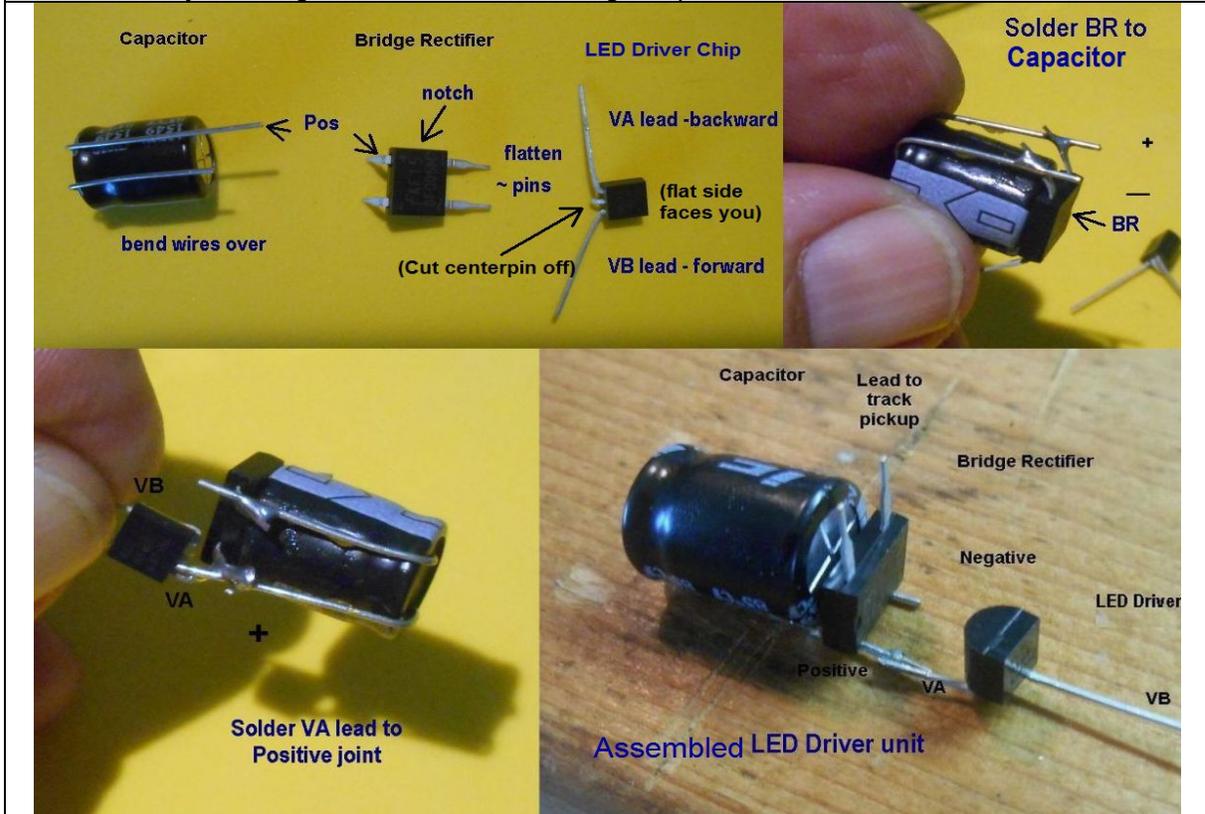
**Kit Components:** If the complete kit was ordered, two wheelsets with copper collars, extra pickup wire and heat shrink tube are included.

**The Circuit:** LEDs are set up in a parallel arrangement. Positives connect to Positive and Negative to Negatives.

Step 1. Disassemble the Car.	Step 2 Assemble the LEDs
 <p>Southern Pacific "Daylight" Coach</p>	 <p>Positive leads</p> <p>Negative leads</p>
<p>Select a passenger coach to install the lighting circuit and disassemble as shown below</p>	<p>Cut a piece of flat clear plastic styrene material 9-10" long &amp; 3/4" wide. Label one side (+) and other (-) side. Line up the LEDs next to the car to determine where to place the LEDs Mark 2 spots across where each of the 3 LEDs are to be positioned. Punch two small holes with an awl or pin at these spots. Insert the LEDs with the positive leads (longer lead) on the (+) side and the Negative leads on the (-) side Bend the outer leads toward the center and the Center LED bend toward a matching lead. (see below)</p>
 <p>tabs</p> <p>Cabin and Roof</p> <p>Interior</p> <p>Weight Plate</p> <p>Chassis</p> <p>Trucks</p>	<p>In this case tabs secured the cabin to the chassis and were gently separated</p>

### Step 3. Assemble the LED Driver Circuit.

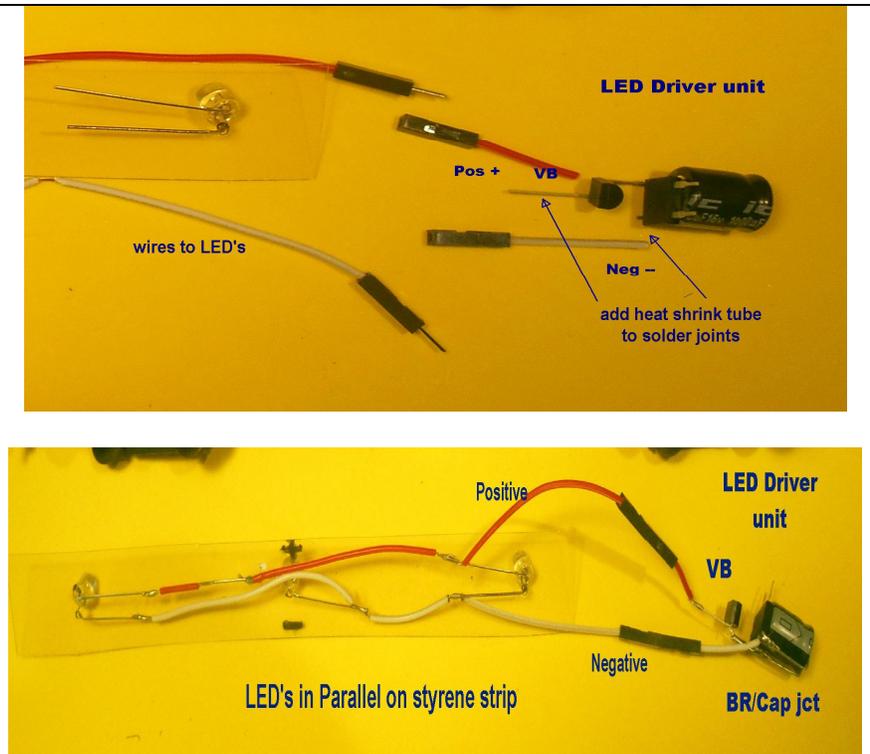
Refer to the website for a more detailed instruction sheet on how the three components are assembled by bending the leads and soldering the pins .



### Step 4 Solder the components

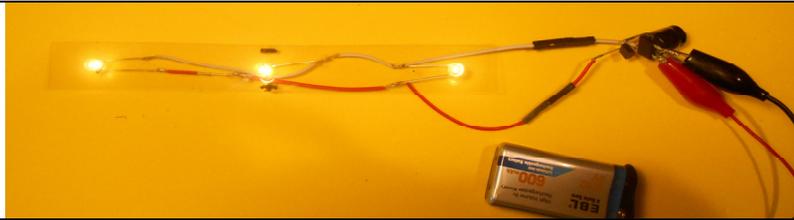
Cut the connecting wires as shown. Solder Positive wire with female connector to the VB lead. Solder Negative wire to BR/Cap junction. Use heat shrink tube on these joints.

Using the Positive wire Male connector solder to the positive leads of the LEDs. Using the Negative Male connector wire connect the negative leads



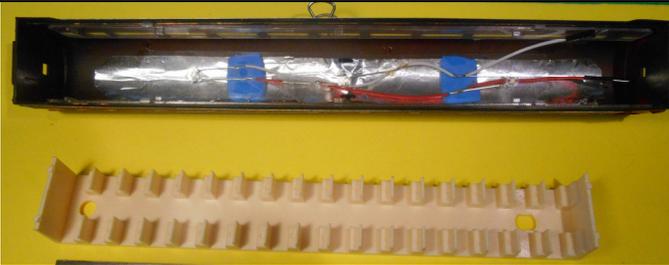
### Test the Circuit

Use a 9 Volt battery connect the leads to the BR (~) tilde pins. LEDs should light



### Step 5 Install Lights in Cabin

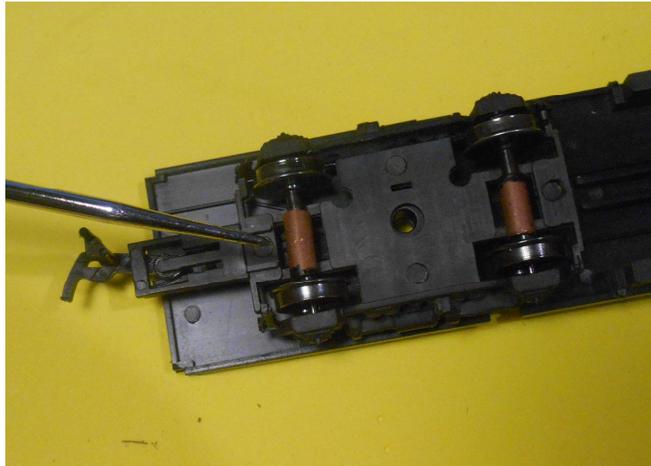
A strip of heavy duty aluminum foil has been glued to the ceiling. Blue adhesive putty is used to hold the light strip in place.



### Step 6 Hooking up the electrical Pickup Wheels.

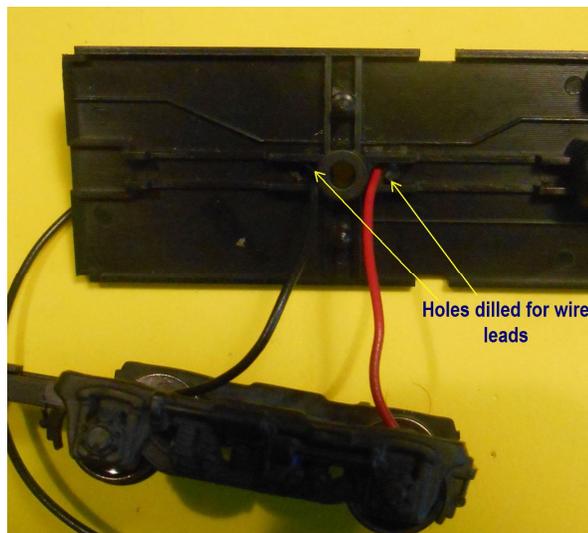
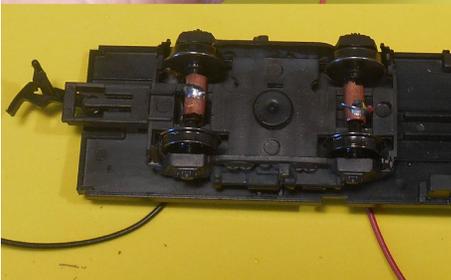
Two wheel sets with either 33" or 36" diameter wheels with copper collars are set on the insulated plastic truck. These can be ordered separately if needed. A black rim on the collar indicates the insulated wheel. Set them on opposite sides on the truck.

If the trucks are metal it is necessary to set the wheels on both trucks to avoid a short circuit.



The connecting wires are stripped, tinned and passed through the holes to be soldered onto the collars

The wires pass into the cabin via 2 holes drilled in the floor of the cabin. These holes are made close to the central pivot attachment point of the truck to the chassis to avoid pulling on the collars during turning of the car.



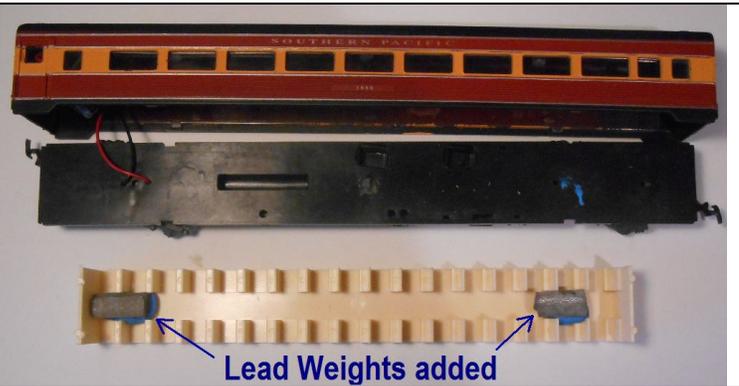
**Retest** the circuit by attaching the battery leads to the active (non insulated) pickup wheels to make sure the circuit is connected correctly.

If all is lighting well the cabin is ready to be reassembled.



### Step 7 Reassemble Car

In reassembling the car I prefer to use weights in the cabin set directly over the truck wheels for better conductivity. In this case the metal plate originally present was left off as it interfered with closure of the cabin. Adding some painting and passengers to the interior is a good idea too.



Finished car on the track. The lights will light at around 6 Volts often before the locomotive moves. Once lit the intensity is constant. Some dimming may occur with dirty track.

