Installing LED's To Change The Stock Gauges A Different Color

By: TheHammer
It seems nobody is happy with the 7th Generation gauge color that Toyota has picked…. Orange. Orange isn't a bad color, it's just not a color that goes with everything, and when you add indiglo gauges (which seems to be the trend these days) the orange REALLY looks bad. That's why I have taken it upon myself to do the research and cross-referencing to come up with an alternative for those unsightly orange gas/temperature gauges and needles.

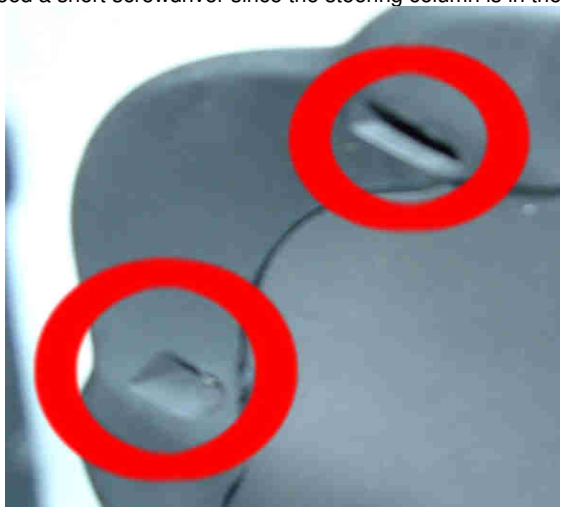
Tools that will be required for this installation:

1. Phillips head screwdriver, short as possible
2. Phillips head screwdriver, regular size
3. Set of tweezers
4. Soldering Iron
5. Thin solder (rosin based or no clean type preferably)
6. Rubbing Alcohol
7. Paint Thinner or Brake Cleaner
8. Q-Tips or soft bristle brush
9. White or same color as led paint or sharpie marker

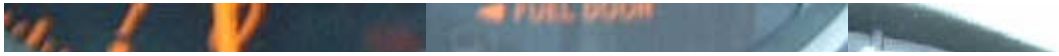
*** Disclaimer:* The author of this installation guide is not liable for any damages you produce by following the instructions below. If you do not feel you are capable of installing these LED's, find a friend or relative that has experience soldering to do this for you. You may also find a local TV/VCR repair shop, and see how much they would charge to do this, it shouldn't take them but maybe half an hour at most once you have the cluster out of the car. Use the following at your own risk.

Now, it's time to take the gauge cluster out from the car…

1. The first step to take out the dash is to use the shortest Phillips head screwdriver that you have and unscrew the two screws holding the black dash panel front cowl on. To do this, you will have to lower the steering column to the lowest possible point and remove the screws (that's why you need a short screwdriver since the steering column is in the way.)

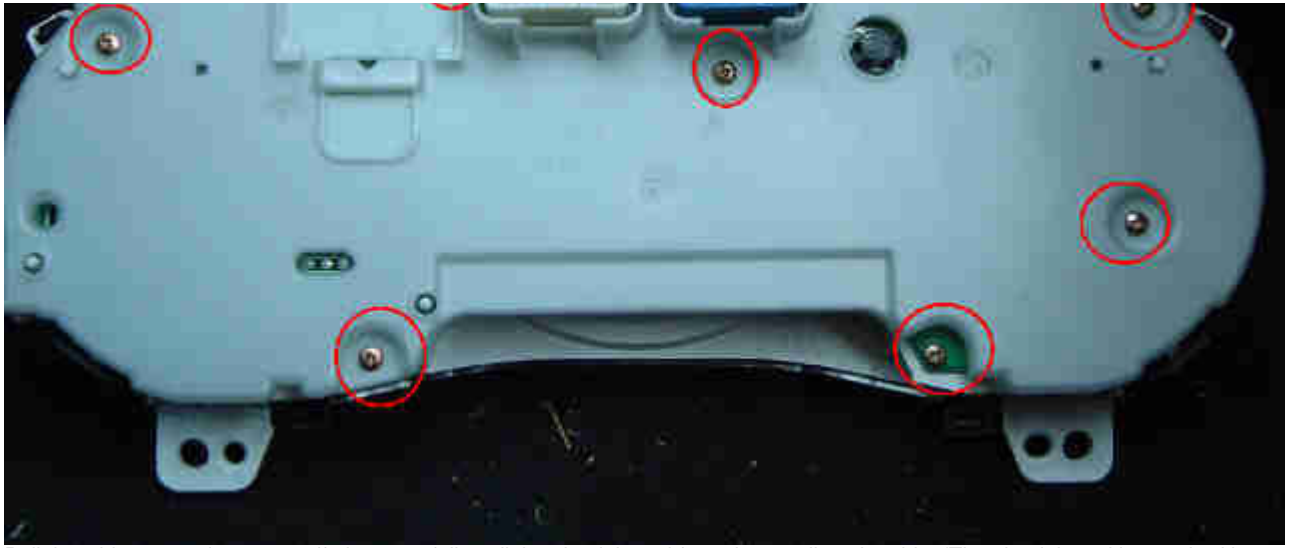


2. Once you have removed the two screws, the black dash cowl will un-snap and pull right out.
3. Next you will need to remove the three screws holding the gauge cluster in. You will see one on top and one on each side of the bottom of the cluster.

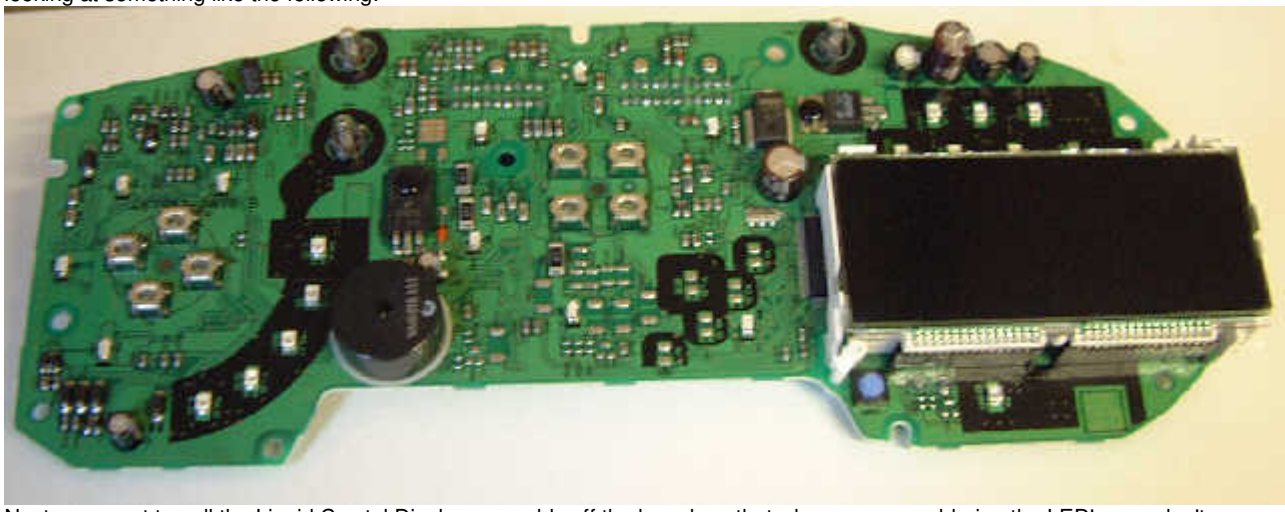


4. After the screws are out, pull the cluster out a bit and to the side, and you'll see two connectors (white and blue) connected to the back of the gauges. These connectors are just like any other connector in the car in that you have to push down in the middle (snap release) and pull back at the same time for each one. Be sure you don't pull on the wires instead of the connector because you might create a loose connection on one of the wires and screw up the connector.

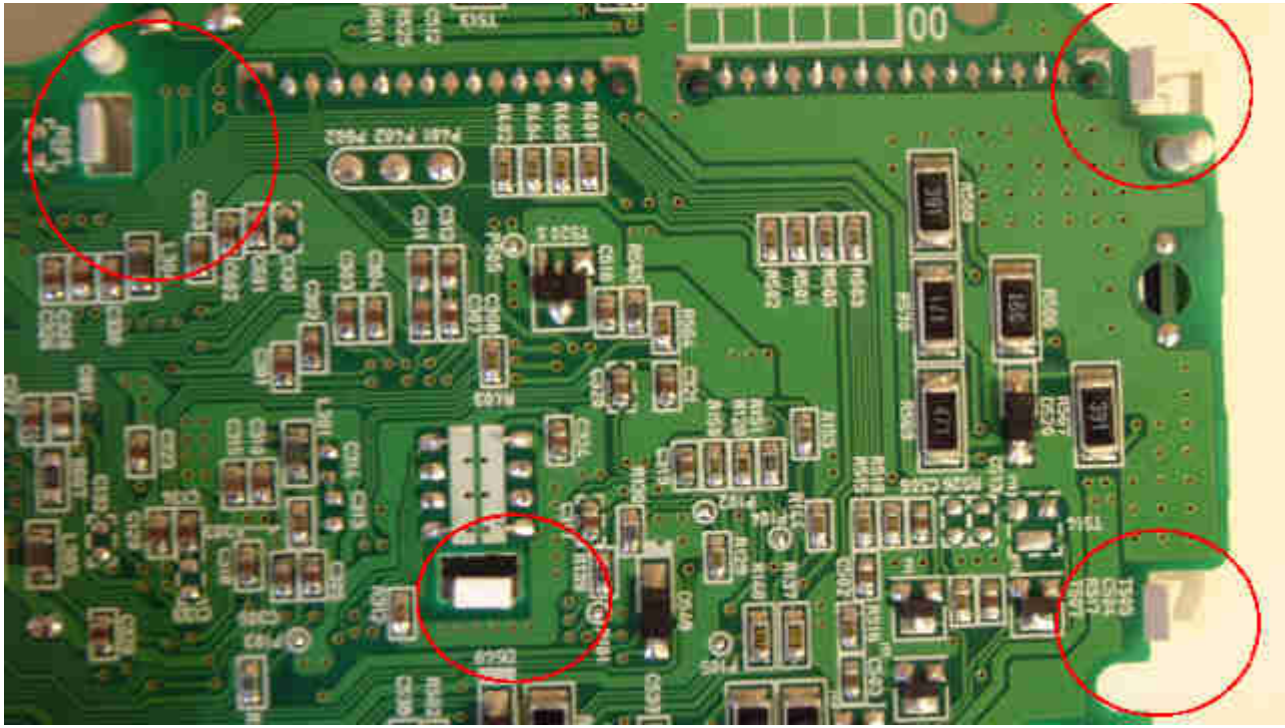
5. Once the connectors are out, you'll need to maneuver the cluster out from behind the steering wheel so that you can take it inside to do the soldering.
6. Once you have the gauge cluster on your workbench or wherever you are going to be doing the soldering, you need to remove all the screws from the back (8 in total).



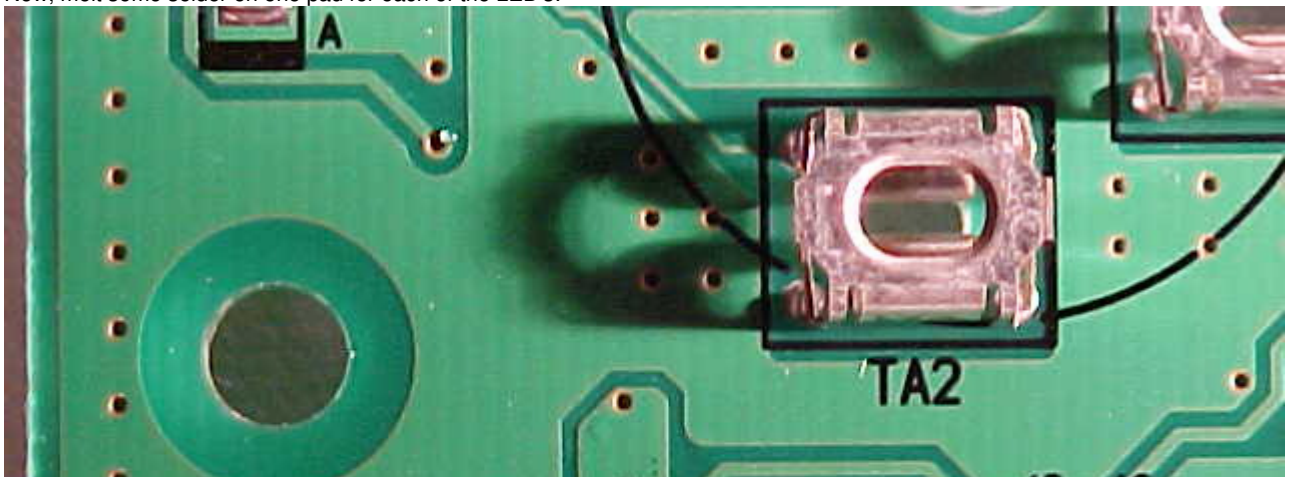
7. Pull the white protective cover off, then carefully pull the circuit board from the needle solenoids. (The circuit board is attached by 4 prongs for the tach needle as well as 4 prongs for the speedo needle. They just slide right out, but be careful.) Now you should be looking at something like the following:

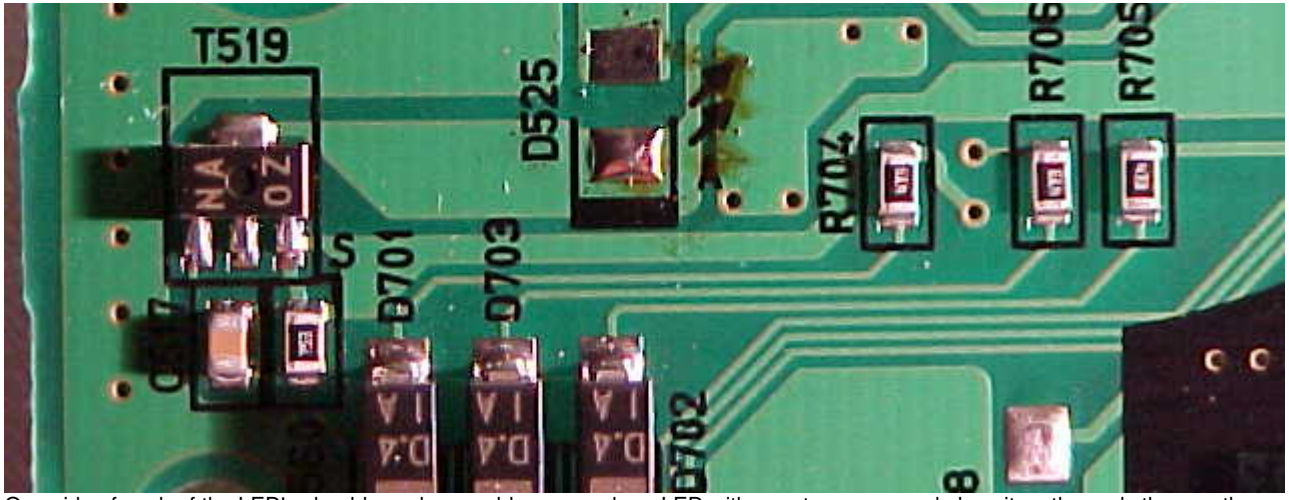


8. Next, you want to pull the Liquid Crystal Display assembly off the board, so that when you are soldering the LED's, you don't accidentally melt part of the glass. In order to do this, turn the circuit board over and look for the four white mounting clips that hold the LCD in place. **Make sure you have something soft for the LCD to drop onto, so that you don't crack it ** Push each one off to the side, going from one side to the other in order, and gently push the white alignment rods to get the LCD to disconnect. Let the LCD fall onto a cushion of some sort (not only is the LCD connected by the 4 mounting clips, but it is also held in by the metal traces on the bottom of the LCD.)

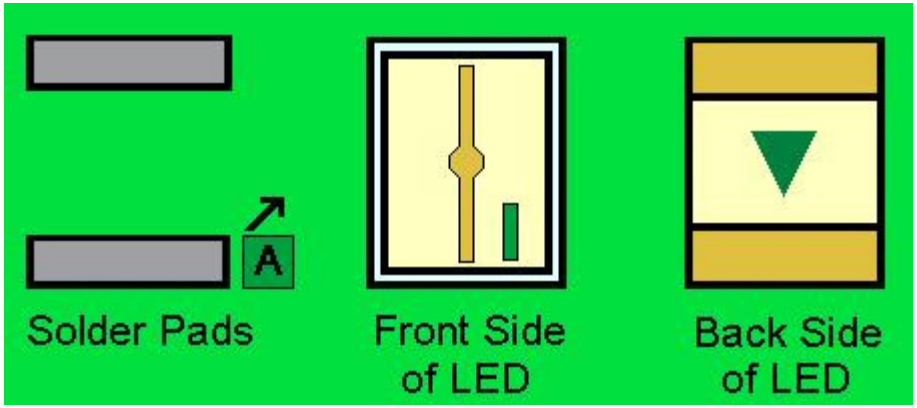


9. First you want to start on the tach needle LED's (left side). The key to removing the LED's without harm while keeping the pads intact, I found it easier to add a bit of solder to each side of the led, then keep alternating heating each side of the led until it moves on it's own. Once you see the LED move, take your tweezers and push it to the side off of the solder pads. Once off, you can pick the LED up with the tweezers, keep in mind they are hot, and place them somewhere off to the side that they won't burn (Static mat or something of that nature.)
10. Once you have the LED's off the left side (tach needle), take some solder braid and heat it up on the solder pads to remove the excess solder (the solder pads should be smooth and free from any solder.)
11. Now, melt some solder on one pad for each of the LED's:

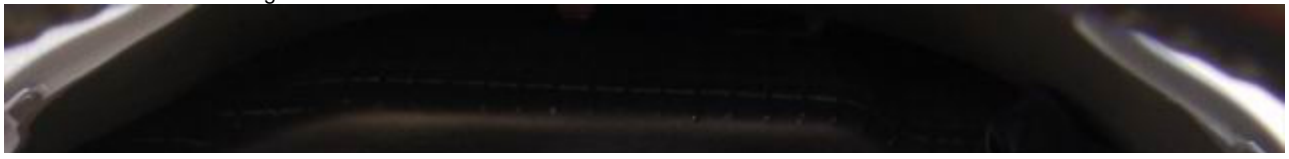


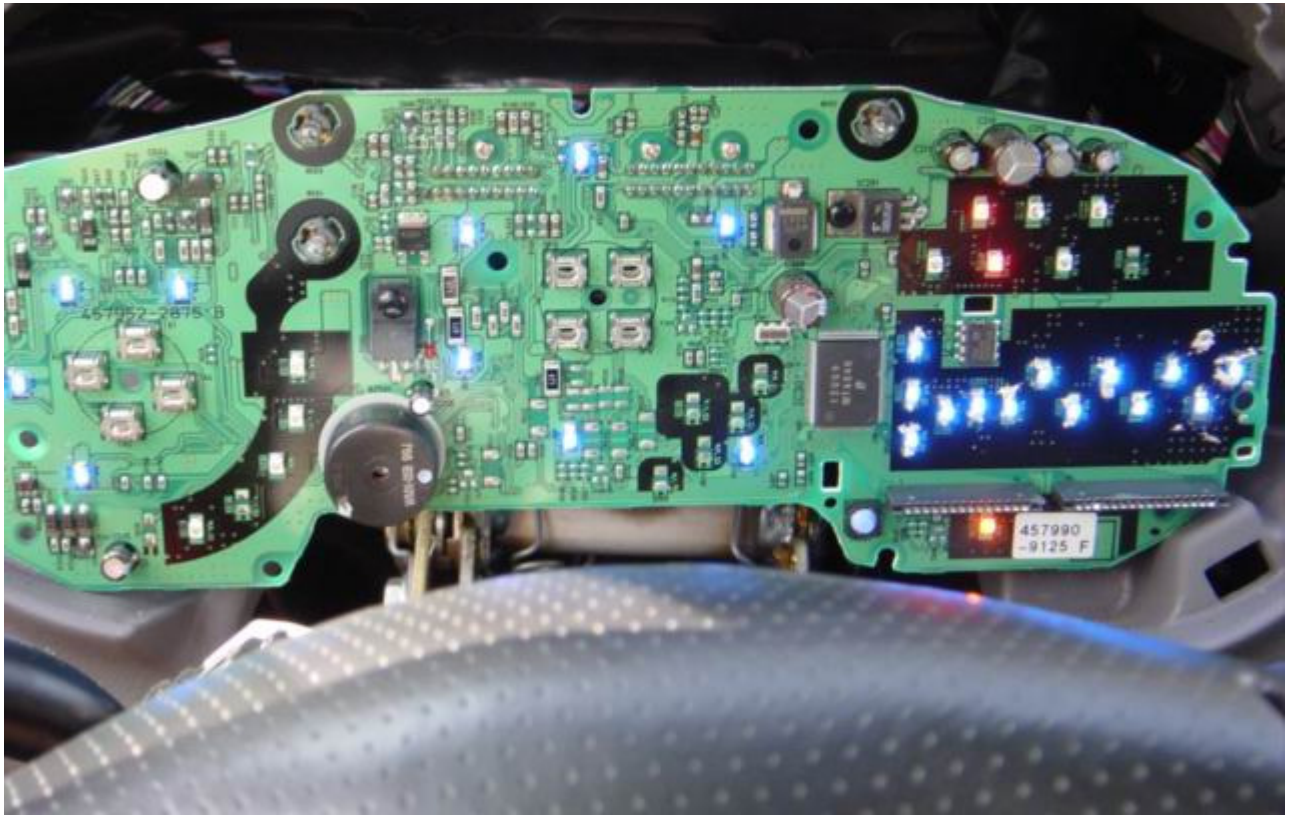


12. One side of each of the LED's should now have solder, so, grab an LED with your tweezers, and place it on the pads the way they are supposed to go (anode on the bottom pad). Now heat up the solder on the one side and led the LED seat properly. You should be able to look at the LED from the side and see that the bottom is flush with the circuit board. If not, re-heat the pad and adjust the LED. **Keep in mind, too much heat will melt the LED and render it inoperable, which will not be covered by me. Heat only the solder pads, and not the LED's. **



13. Once you have the LED flush with the circuit board, heat up the other pad for the LED and add solder. Now both sides of the LED should be soldered and ready to go.
14. Repeat steps 12-14 for each LED for the left side (tach LED's) as well as the right side (Speedo LED's).
15. Now, do the same thing for the 13 LED's that light up the gas/temperature LCD.
16. All the LED's are now soldered in, pour some rubbing alcohol onto a Q-Tip or soft bristle brush and gently brush around the LED's that you just soldered, cleaning up the rosin that accumulated while soldering. The alcohol should evaporate after a few seconds, leaving a clean board behind.
17. Take the circuit board back to the car and hook up both the blue and white connectors and turn the car to the ACC state. You should now have something that looks like this:





18. If all the led's light up, go on to the next step. If not, check all the solder connections that you made, touch up the solder points if one is out, and repeat Step 17. Keep in mind, if one LED is out, the others may not light since it's a complete circuit.
19. Re-Attach the LCD to the circuit board. Make sure that the aligning rods and mounting clips line up where they are supposed to go as well as the metal pins (traces). Be very careful that these pins are not bent and are lined up correctly, or your LCD will not function properly. The LCD should CLICK several times meaning it is seated properly.
20. Clean off the top of the LCD with some Windex and a soft paper towel (get rid of fingerprints.)
21. Now, re-attach the circuit board to the rest of the gauge cluster and follow the directions in reverse to put everything back to the way that you found it.
22. Lastly, if you want to change the color of the needles themselves, to make the LED changeover that much better, follow the steps on the last page to give your gauge cluster a much better defined look both day and night.

Steps to make the needles look even better

In order for the needles to properly light up blue, not only do the led's need to be changed, but the orange paint on the back of the needles needs to be removed and replaced with either white or reflective blue paint (You can also even use a blue Sharpie marker for that matter).

In order to do this, you'll need 2 spoons and some paint. With a spoon on one side and a second spoon on the opposite side, pry up each needle (carefully!!!) to remove them from the cluster.

Once both needles are removed, you'll need to clean off the orange paint. In order to do this, you can use a Q-Tip or soft bristle brush along with paint thinner or rubbing alcohol. Be very careful doing this, or you'll break the needle. Once you have all the orange paint off the back of the needle, paint only the back of the needles either blue or white, whichever you think would look better during the day (both will show up blue at night though considering the blue led's)

the day (both will show up blue at night though considering the blue led's).

After the paint has dried and all the led's have been installed on the gauge cluster, take the cluster along with the needles to the car (make sure you don't have the clear plastic cover on just yet). Plug the cluster into both the white and blue connectors on the car and turn the key to acc state. While the car is on, but the motor is not running, place the needles back on the cluster at the zero point (one side of the needle will be touching the needle stopper). Once both are installed, turn the car on and make sure that the needles go where they are supposed to (watch the rpm's). If they don't look right, remove them and try again, but if they look good, re-attach all the components that need to go on and put everything back together. Done.

You can also download this installation and print it from Microsoft Word by clicking the following link:
www.teamcelica.com/thehammer/ledinstall/ledinstallation.doc

For more information, contact Chris (TheHammer) via email:
thehammer@teamcelica.com