Retrofitting an 'R' Instrument Cluster

This is a step-by-step tutorial for those wishing to incorporate the unique look of the 'R' instrument gauges to their current modules. Before starting, be certain that the key is removed from the ignition. After the key is removed, wait for several minutes before starting work.

NOTE! 2001-2003 modules use conventional filament bulbs to backlight the display whereas MY 2004-2007 modules incorporate LEDs. Illuminating the 'R' dials using modules equipped with incandescent bulbs may not achieve the same results as modules with the integrated LEDs.

Modifications were carried out on a DIM (driver information module) from a 2006 XC70. Although instructions/illustrations in this tutorial can be used for applicable model years and/or models, some variations may occur.

Materials and Tools Required for this Project:

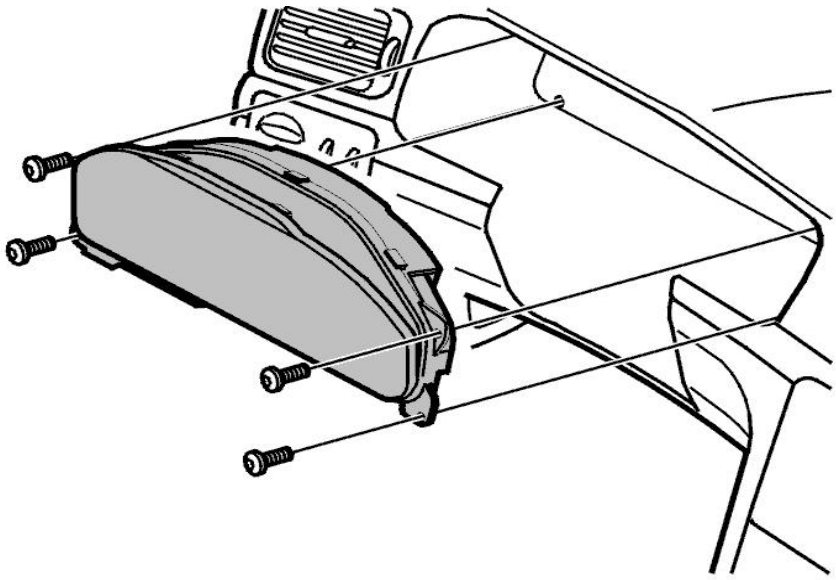
-Wire Stripper/Razor Knife
-#25 Torx Driver
-Dremel Tool/Mini Hacksaw
-Mini Phillips Screwdriver
-Pry Tool
-18-20 Gauge Wire
-Butt Connectors/Electrical Tape
-Spade Terminal for the ground wire
-Mini or Reg Size Add-A-Circuit Fuse Holder (Dependent on Fuse Panel Location)

Start by moving the steering wheel down to its lowest position. Prior to extracting the DIM, first remove the forward fascia by pulling it straight out, beginning with the clips at the top. I found it helpful to use a pry/bone tool to wedge an opening between the fascia and the edge of the dash.

Continue pulling the fascia towards you as each clip releases.

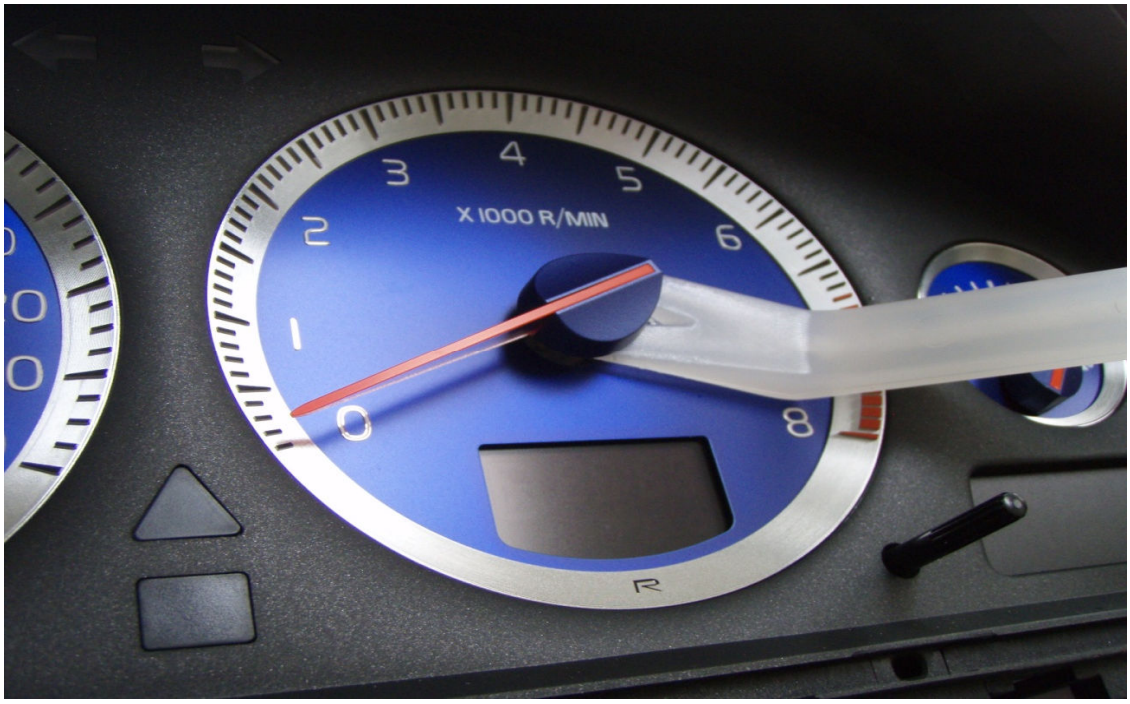
On the 2006 XC70, there are three clips on the top and two on the bottom of the fascia. Once the top clips have been released, the bottom clips should be easier to deal with.

Pull up on the steering column cover which is attached to the fascia by a flexible piece of rubber. Remove everything in one single piece.



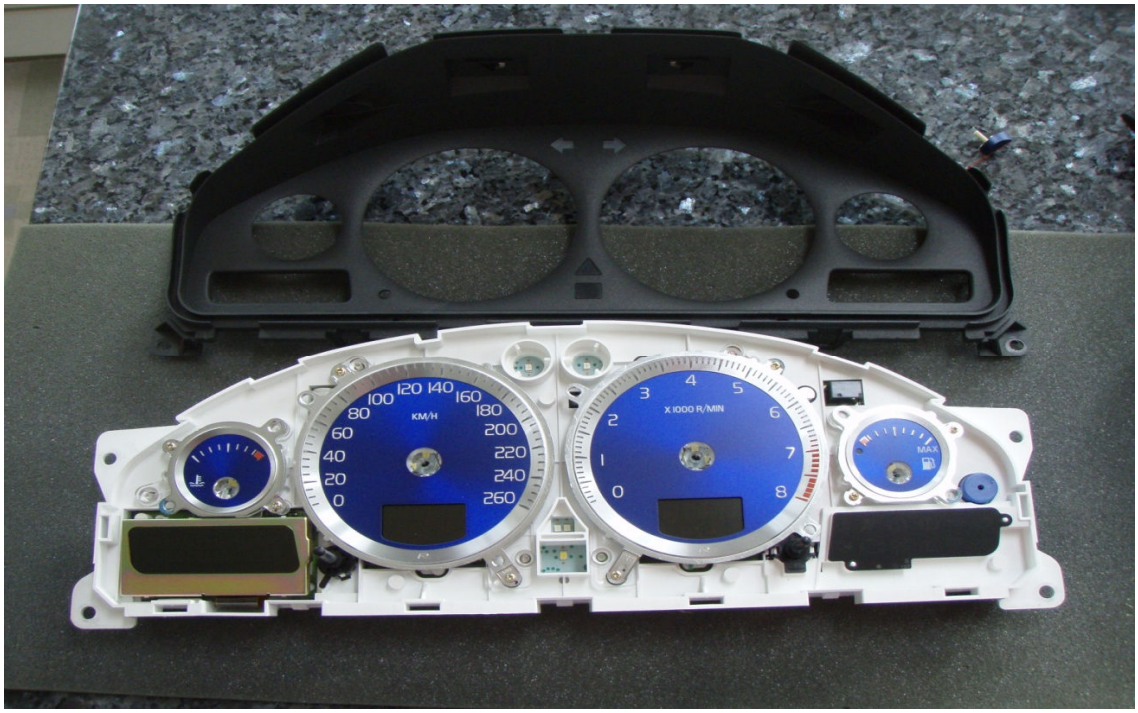
Remove the four #25 torx screws and detach the connector at the rear of the DIM. Pull out the module and set it aside.

The 'R' DIM in the photo was acquired from a 2004 V70R. Begin removing the clear plastic cover from the module by pushing on the plastic tabs at the bottom and top of the shroud.

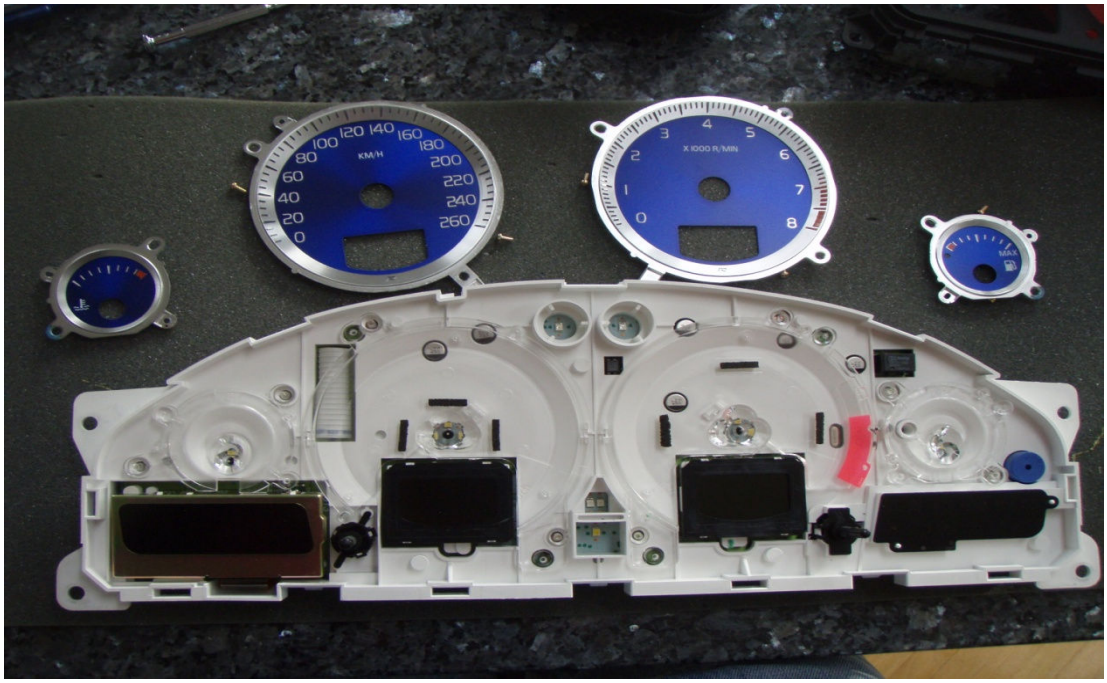


Lever each of the gauge needles up using a pry tool while taking care to not scratch the dial faces. I use a soft plastic version from Bojo Tools for jobs just like this.

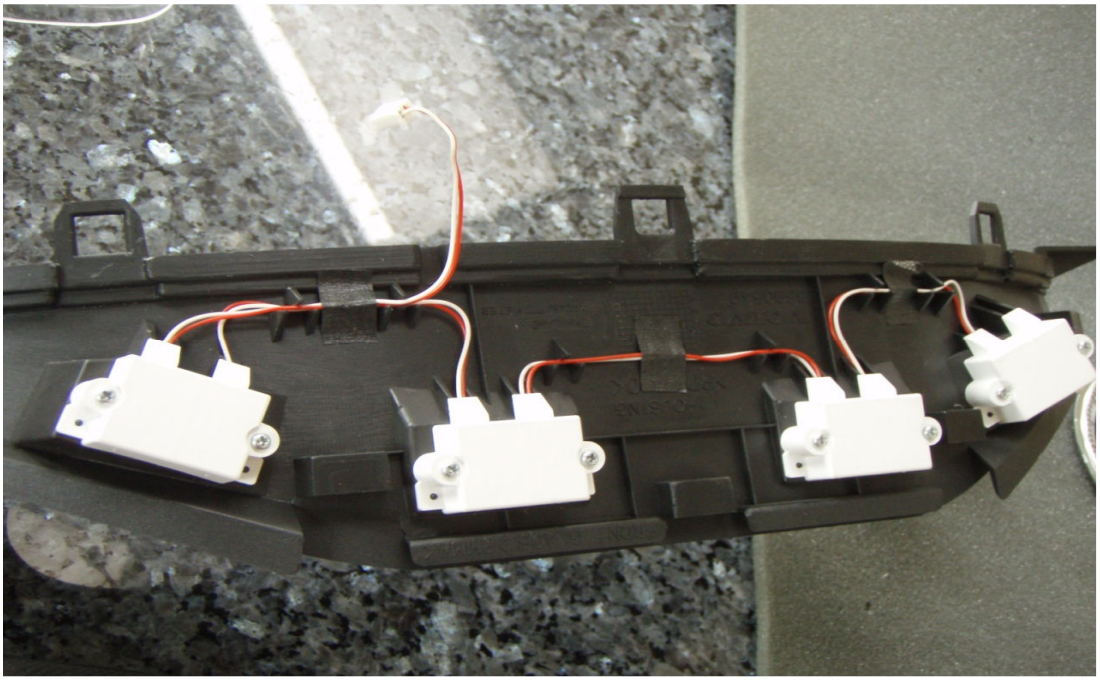
www.bojotools.com



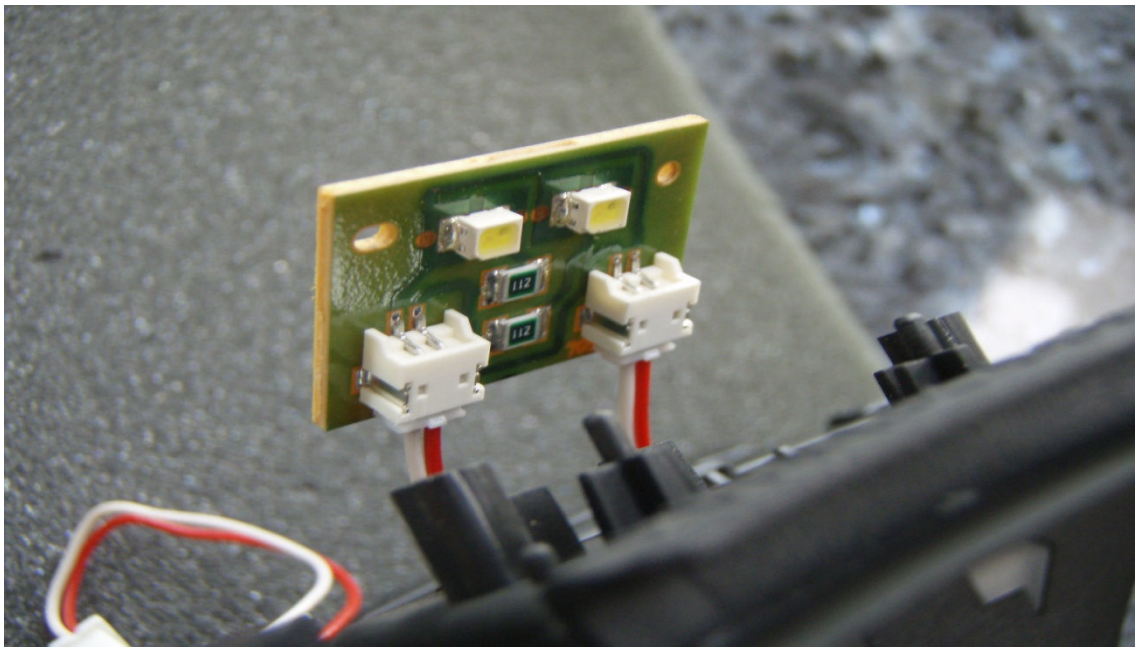
Release the shroud from the module by freeing up the tabs.



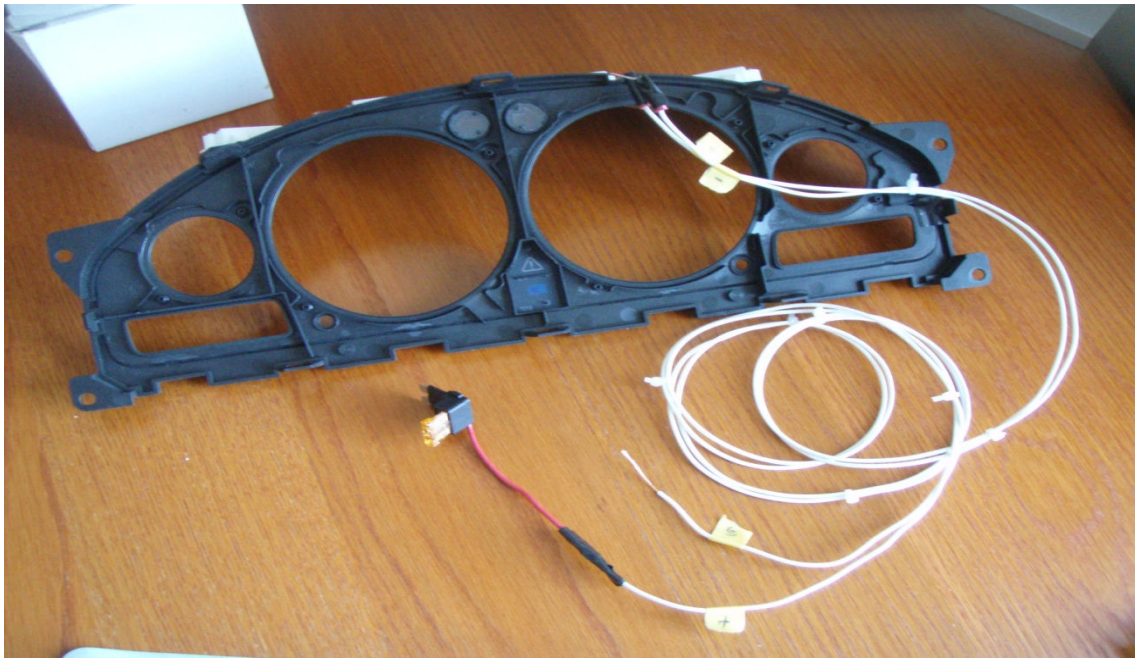
Remove the screws from each of the dials and set everything aside. Only the gauges, needles and LED shroud will be used for this project.



On top of the 'R' shroud sits the LED array. It will require a separate +12V power source to illuminate the gauges from above. Snip off the small white connector and strip the ends of the two wires. The LED wires are of a very fine gauge so a normal stripper may not work. Use a sharp razor knife/blade to cut around the sheathing and carefully remove it.



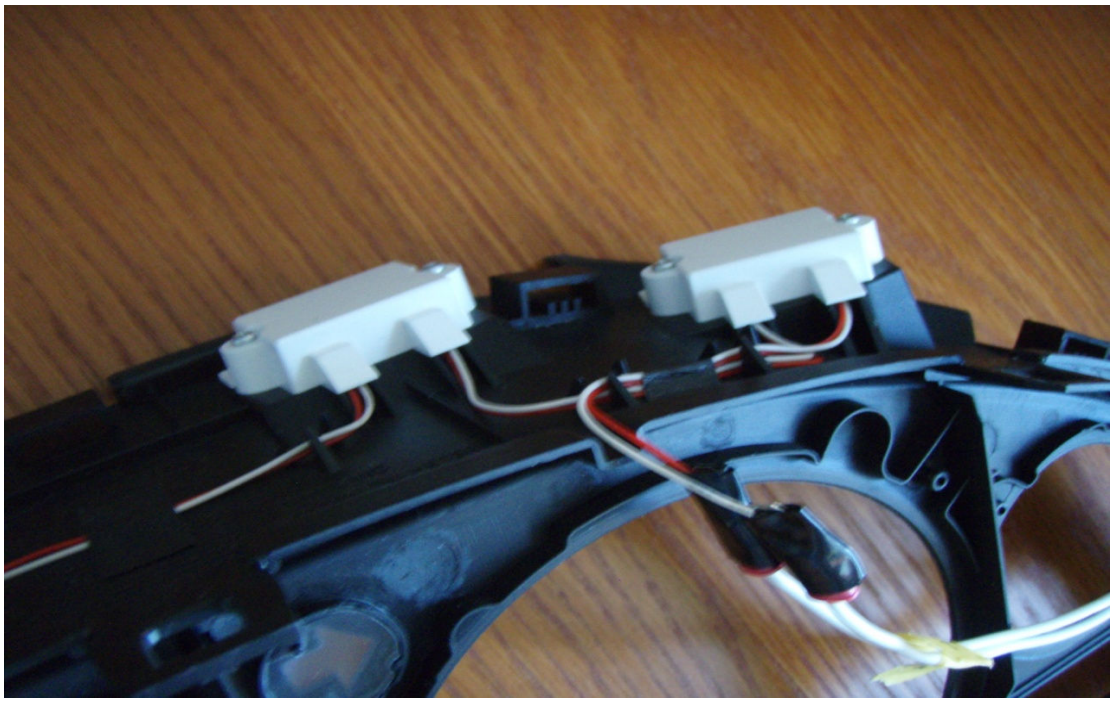
Close up view of one of the four sets of LEDs in the string.



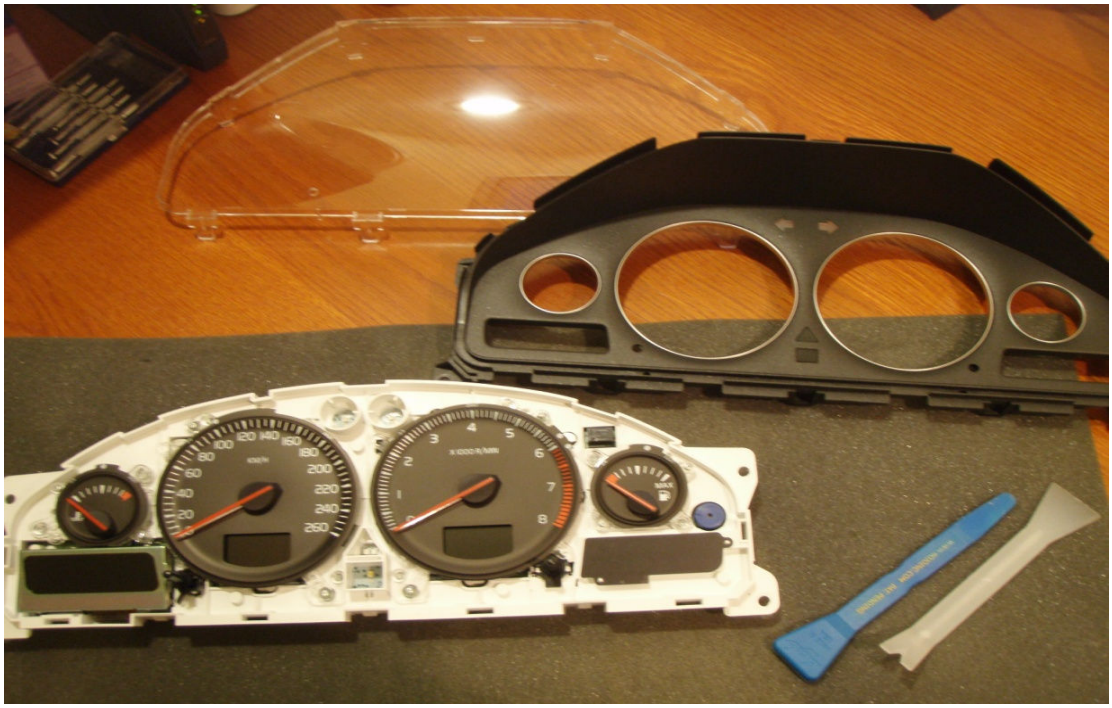
Use an add-a-circuit fuse holder to provide the necessary power for the top-mounted LEDs. It will allow you to tap into the fuse panel without having to splice into any current wiring.

www.littlefuse.com

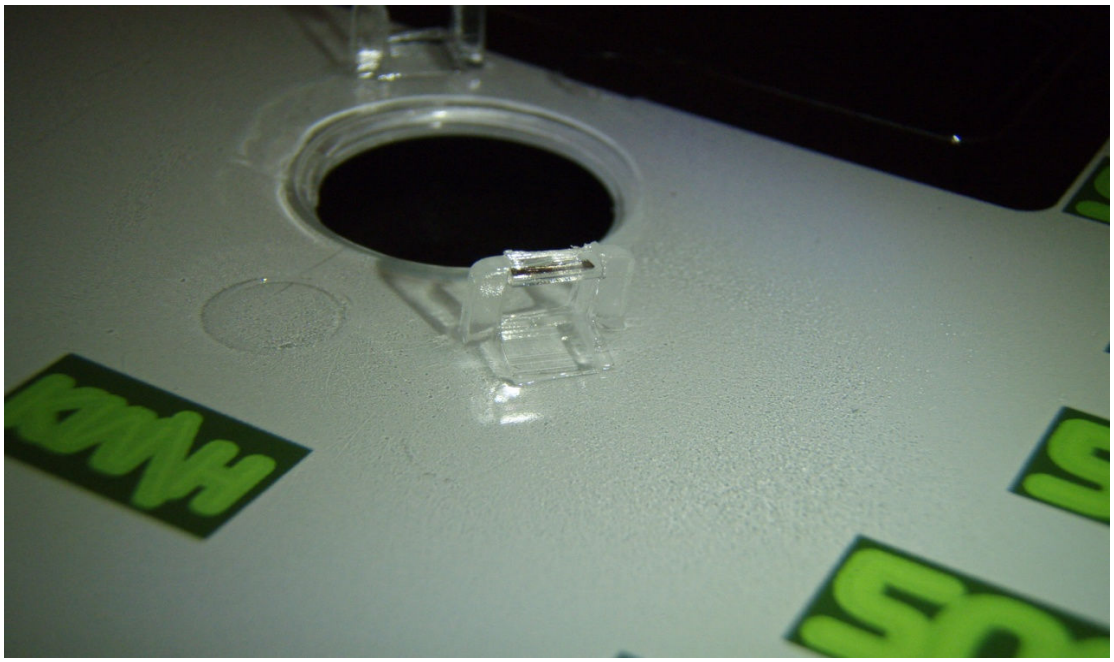
The only drawback to the A-A-C is that it max's out at 10 amps. With that being said, I doubt that the LED string will be drawing that much of a load to arouse concern.



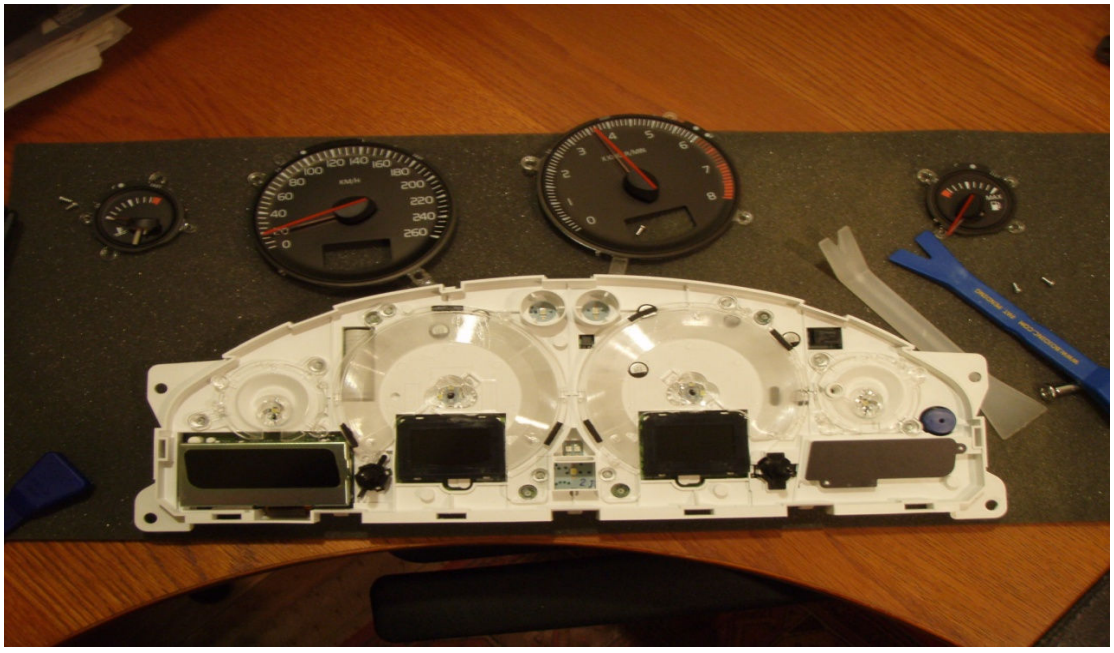
Connect the positive (Red) wire from the LED string to the power lead on the fuse holder. Correct polarity is vital otherwise the LEDs will not work. The ground (White) wire will need to be anchored to a point somewhere on the chassis.



Follow up taking apart the stock DIM and employ the same method used to disassemble the 'R' module.



Removing the needles and dials on the stock gauges appears simple enough. However, on the back of my speedo and tach there were two plastic clips on either side of the central holes that needed to be disengaged before the two larger dials would come loose. I cautiously used one of my flat pry tools in an attempt to work them free but ended up breaking one of the fragile clips. I'm not certain why they were designed this way since each dial was held down securely by two screws.



Once the stock dials and needles have been removed and store them away as you will have no further use for them.

The plastic ridge surrounding the high beam and warning indicators must be trimmed down to allow for proper fitment of the shroud. A dremel tool works great but I would imagine a fine toothed mini hacksaw or a coping saw would also yield similar results.

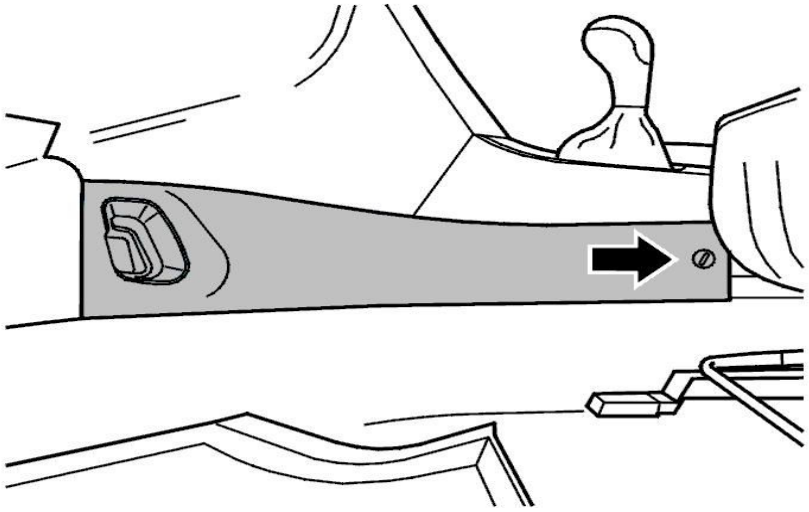
On the 2006 module, I discovered at the last moment that a bit of trimming was also required on the circular protrusions around the turn signal indicators. Remove enough material from them until the top of the shroud clicks into place.

Install the 'R' components back onto the stock module but press down on the gauge needles with just enough pressure so they can still be easily removed. This will make it less difficult to recalibrate the gauges later on.

Insert the modified DIM back into the dash and allow the wires to fall through the opening at the base of the steering column. Reconnect and screw in the DIM. At this point, leave the clear shield off until the gauge needles are properly calibrated.

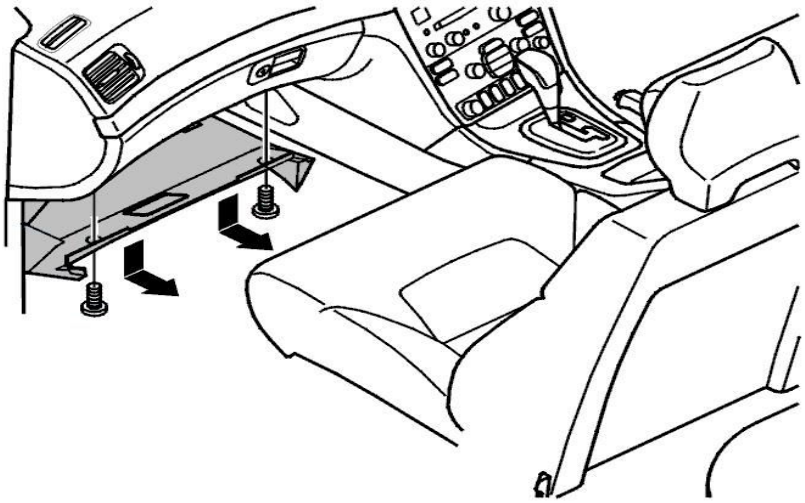
It's vital that the upper LEDs come on only during ignition for obvious reasons. Unfortunately, the easy-to-access fuse panel on the driver-side for model years 2005- 2007 does not support switchable power (only constant). The only other option is the fuse box located above the area of the drivers' foot well.

Fig. 1

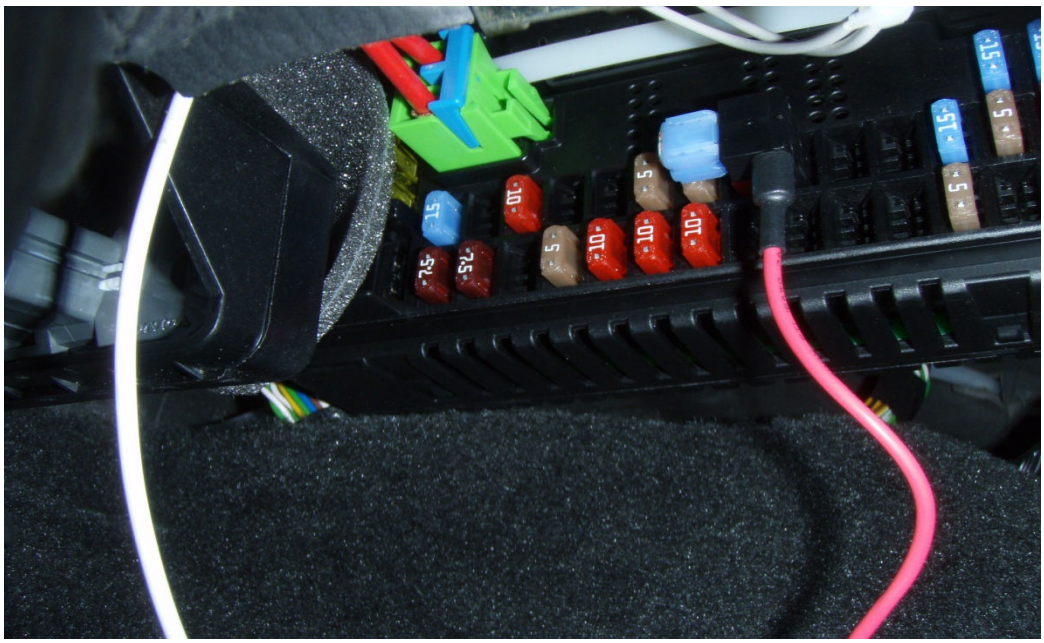


To gain access to those fuses requires dropping the side soundproofing panel first (Fig. 1) and then the upper courtesy light panel (Fig. 2) just above the foot pedals.

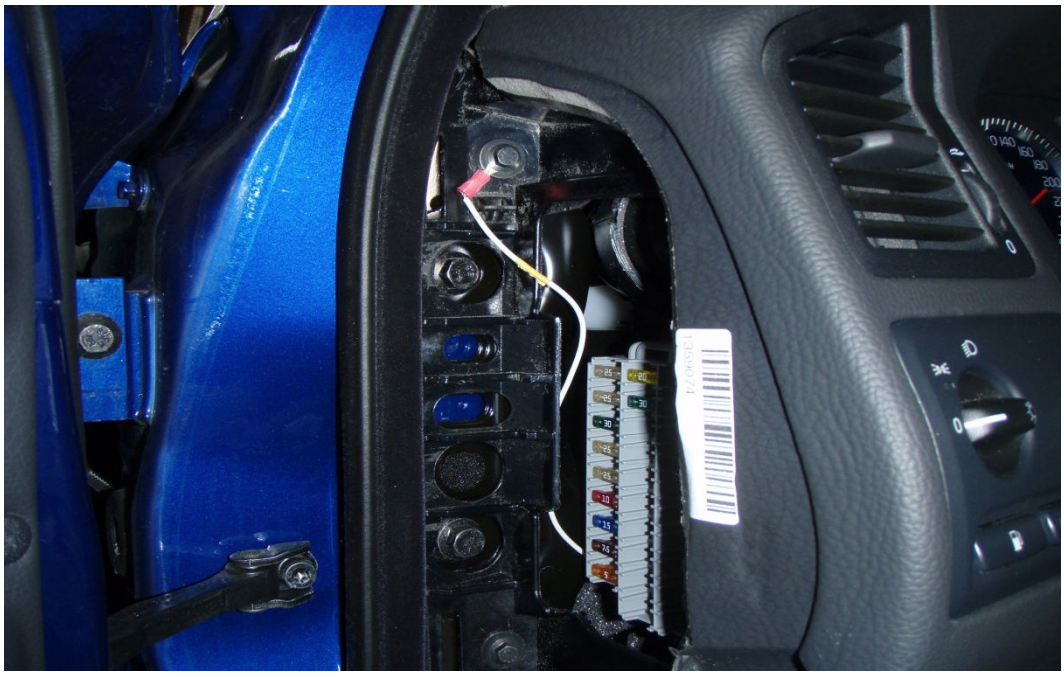
Fig. 2



View of the fuse panel looking upwards from the floor of the foot well.



Next, direct only the power feed wire down to the area of the fuse panel and plug the AAC piggyback holder into fuse position #11(15 amp). It supplies switched power to both the front and rear 12V aux outlets. NOTE: The lower fuse panel accepts only mini fuses so a mini AAC holder is required.



Crimp a spade terminal to the ground wire and run it up to the driver-side fuse panel. Attach it to one of the chassis bolts.

Next, turn the ignition on and check to make sure that everything is functioning properly. Now would be a good time to calibrate the gauge needles. Gently lift up each needle and push it down using the following guidelines: (a) Use a portable Nav unit to calibrate the speedo. (b) Normal revs during idling should hover around 675 rpm. (c) Topping up the gas tank will allow you to set the fuel gauge needle to the maximum mark. (d) Set the temp needle at the center mark when the engine is sufficiently warm.

Once you are satisfied with the accuracy of the gauges, snap the clear shield and DIM surround back into place. Finish up by tucking the wires up inside the fuse cavity and re-installing both lower soundproofing panels.

Now all that's left to do is to sit back and enjoy the view! ☺

DAY LIGHT

NIGHT TIME