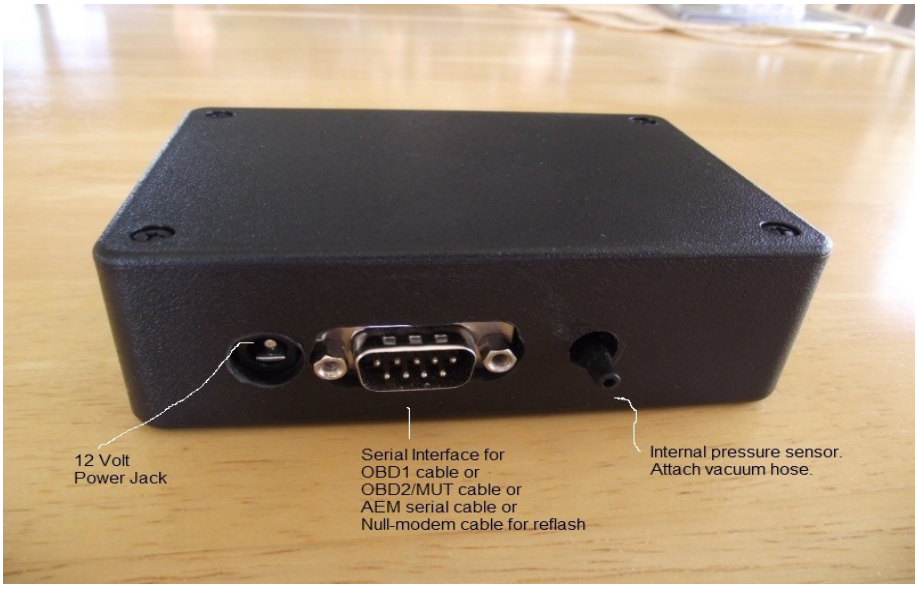
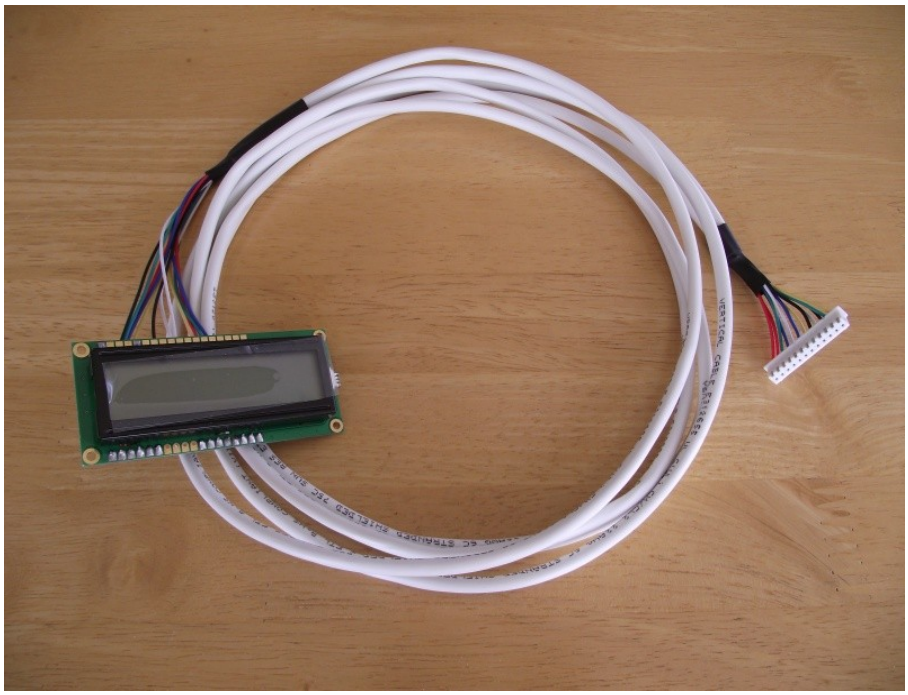
Installation Manual for LCD Boost Controller device.

Main Black box front view.
The lonely white 4pin connector above means this box is equipped with the optional serial expansion card.

Main black box back view.

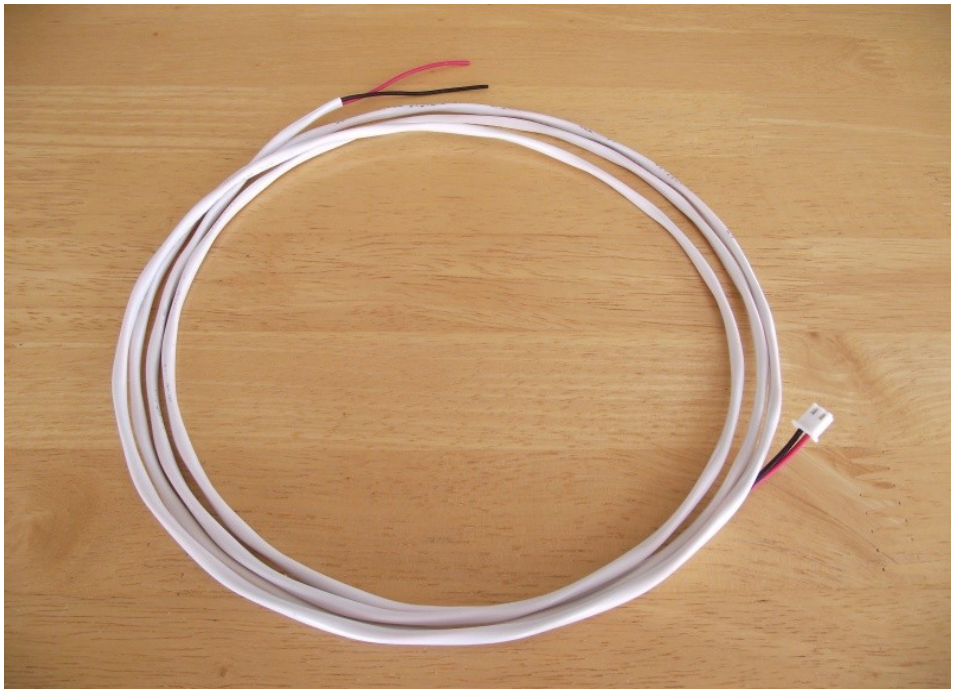


LCD RGB Display shown with protective screen (to prevent scratches during shipping)

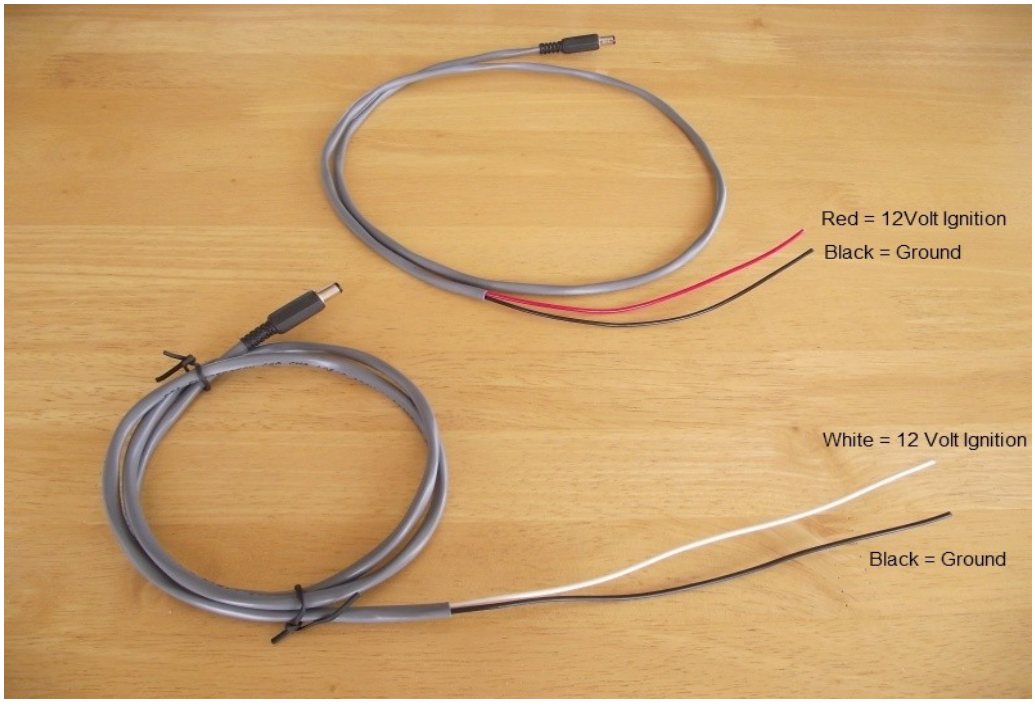


Rotary Encoder Knob with bonus plastic knob (recommend replacing knob with something more attractive).

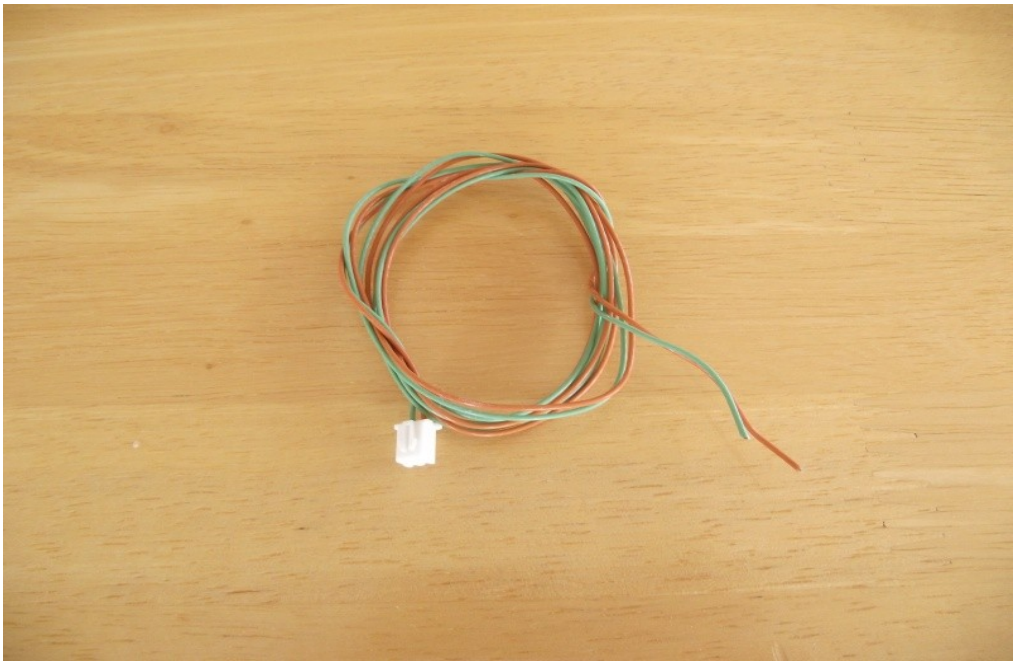
Boost solenoid harness for hooking up AEM/Mac valve boost solenoid.



Older style power cord is pictured in red/black wire.
Newer style power cord is pictured in white/black wire.

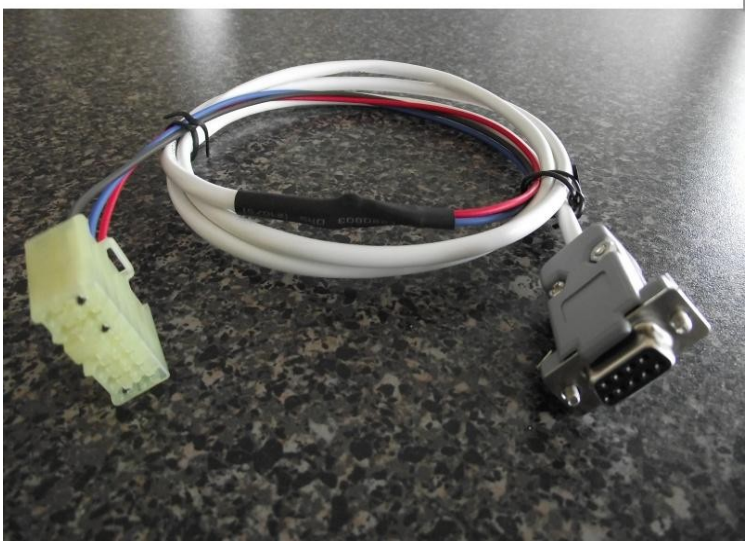


WBO2 input / Auxiliary input harness.



Optional

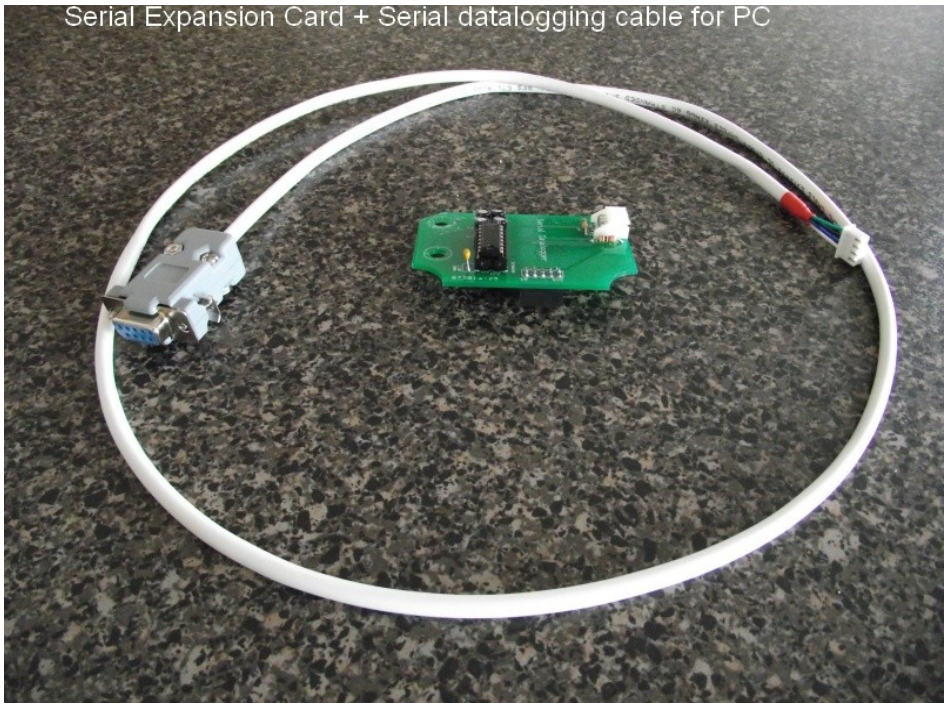
OBD1 Interface Cable

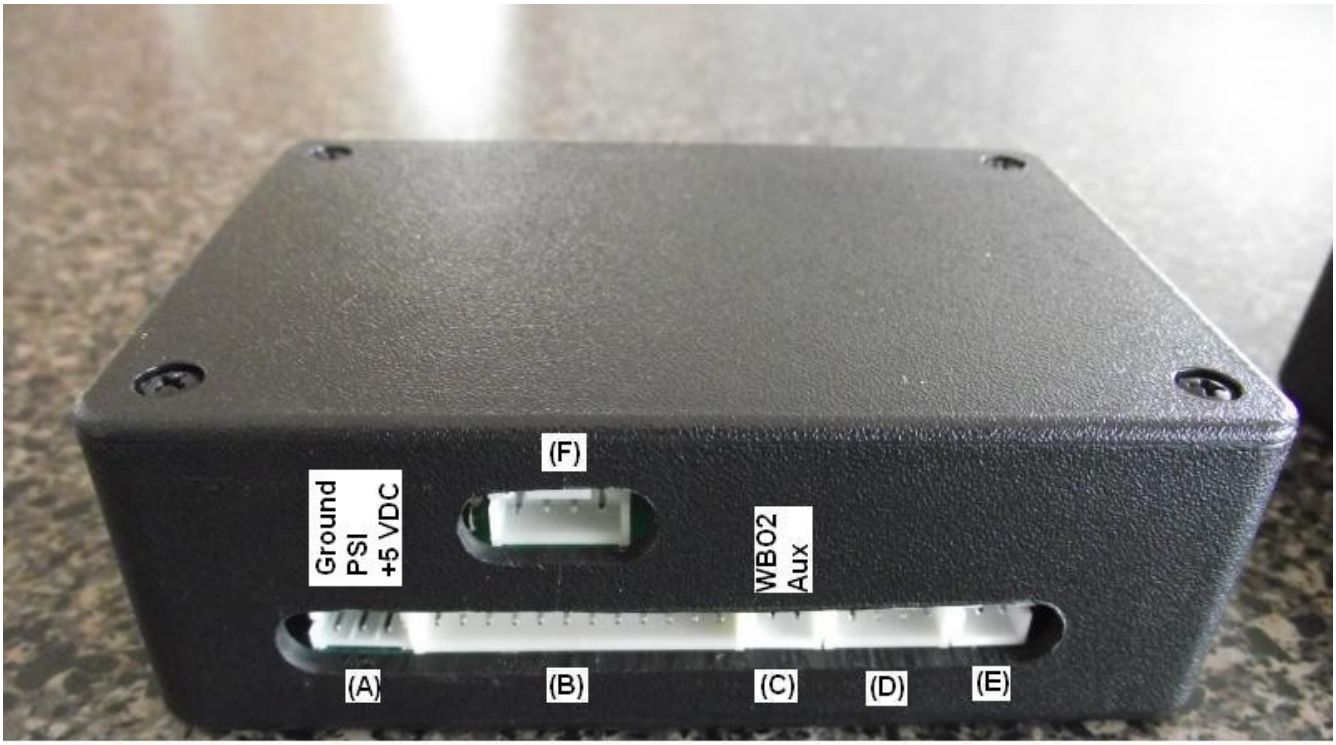


Optional

OBD2/MUT Interface Cable

Optional





(A) 3pin - optional external pressure sensor
(B) 12pin - LCD display
(C) 2pin - WBO2 input, AUX input
(D) 4pin - Rotary Encoder switch
(E) 2pin - Boost solenoid harness
(F) 4pin - optional external serial datalogging to PC

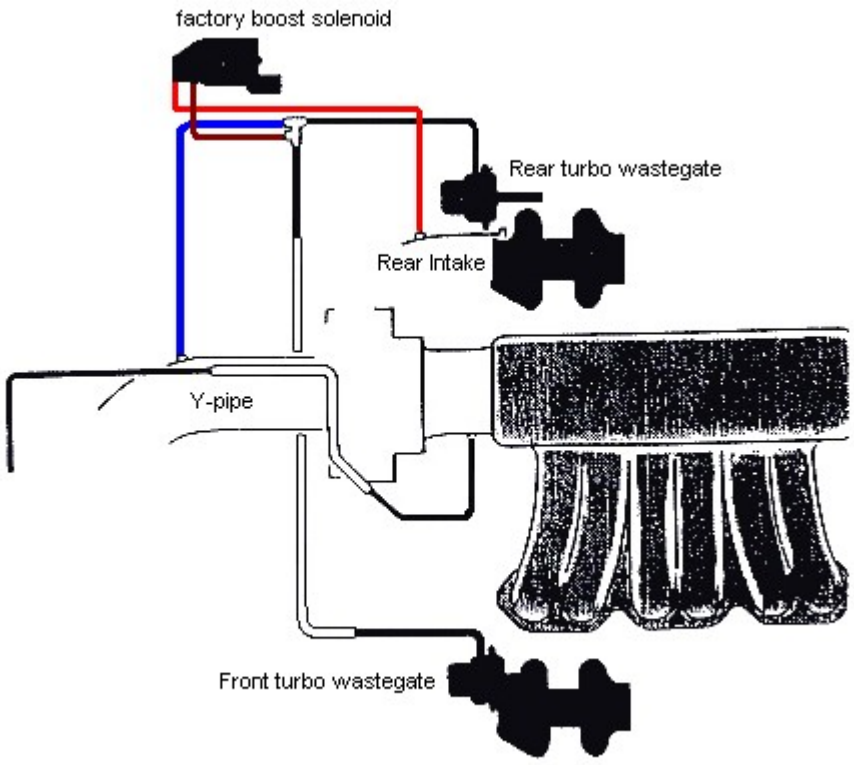
Miscellaneous items you may need

- thick walled vacuum hose (*for internal pressure sensor*)
- null-modem cable for updating firmware upgrades or for OBD1 palm datalog cables.
- knob (*for rotary encoder*)
- Add-a-fuse (*for hooking up power easily and protect the device. Recommend 2 amp fuse*)
- sharp xacto knife
- diagonal cutters
- roto-zip for grinding
- clear silicone

The rotary knob itself has a D-shape shaft but I found these to fit anyways. Ebay has hundreds of different style knobs available.

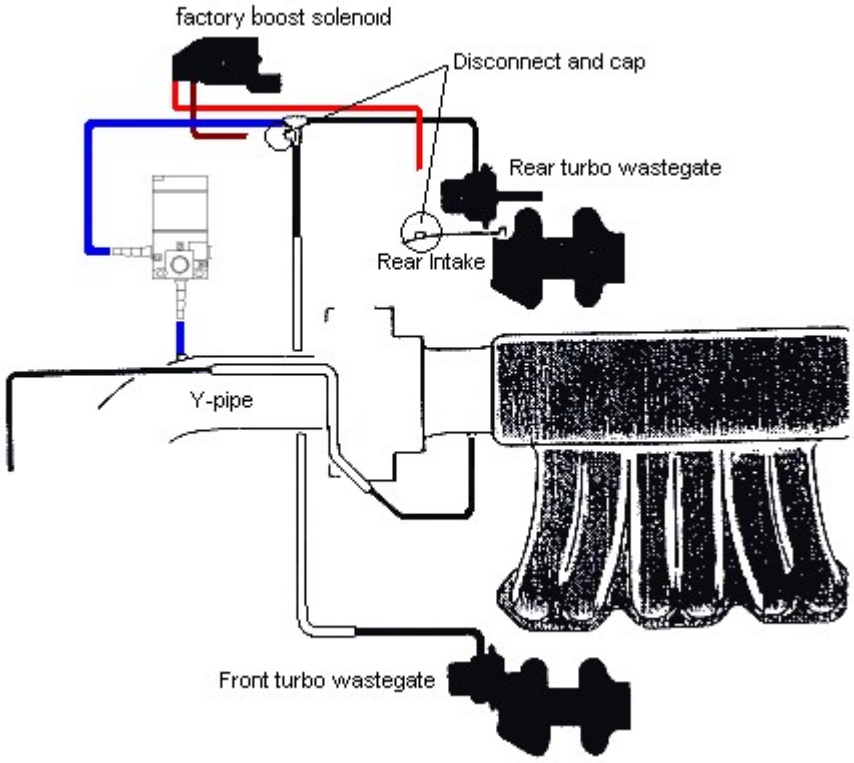
Installation of boost solenoid:

Diagram represents boost solenoid system for Dodge Stealth / Mitsubishi 3000GT VR4.

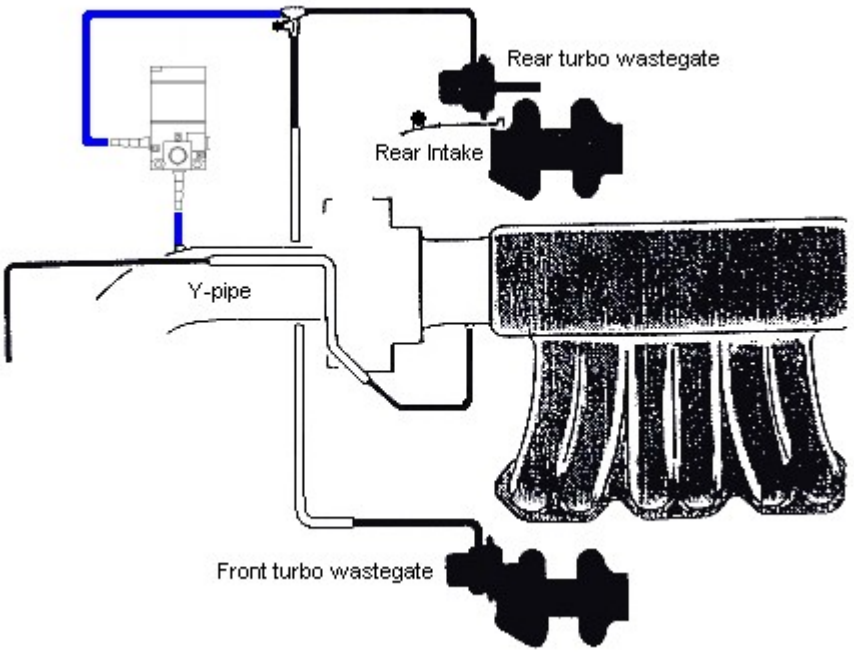


Step 1: Disconnect the factory boost solenoid vacuum hoses and cap the exposed vacuum ports.

Step 2: Install new AEM/Mac valve boost solenoid, note the boost solenoid is labeled with ports 1, 2 and 3. Port 2 goes to wastegate, and port 3 goes to Y-pipe (boost source). Port 1 is left open, you could optionally add a sintered vent or muffler to keep dirt out.



Factory boost solenoid can be completely removed and replaced with AEM / Mac valve.

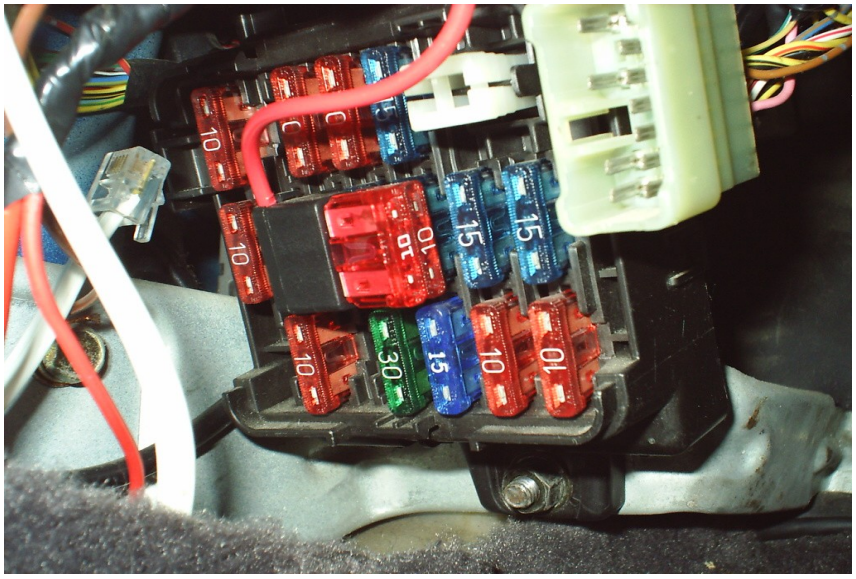


Step 3: The black box pressure sensors needs to measure boost, so grab a thick walled vacuum hose and feed it through the firewall and 'T' into something, perhaps the Blow Off Valve, etc. While feeding the vacuum hose through the firewall it might be a good idea to feed the boost solenoid harness through the same time. Keep in mind that you want the connector of the boost solenoid harness to be inside the vehicle so it can be hooked up to the black box.

Step 4: Hookup the boost solenoid to the boost solenoid harness. Insert heat shrink tube into each wire, solder each wire and pull heat shrink tube over solder connection and use a heat gun (or hairdryer) to shrink and protect. Boost solenoids are not polarity sensitive so it does not matter which wire goes to which.

The best location to install the black box itself is behind the ECU where there's a lot of empty space and also minimize the length of the vacuum hose.

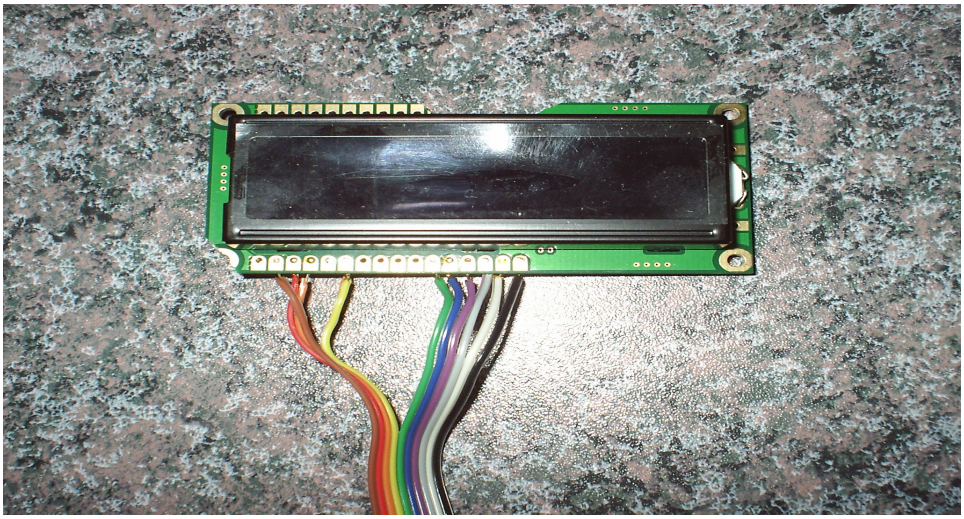
In the picture below I used a product called Add-A-Fuse to provide 12 volt ignition power to both my wideband O2 controller and the black box. The older style power cord has two wires red and black. Red goes to 12 volt ignition, and black goes to ground. The newer style power cord is white (12v), and black (ground).



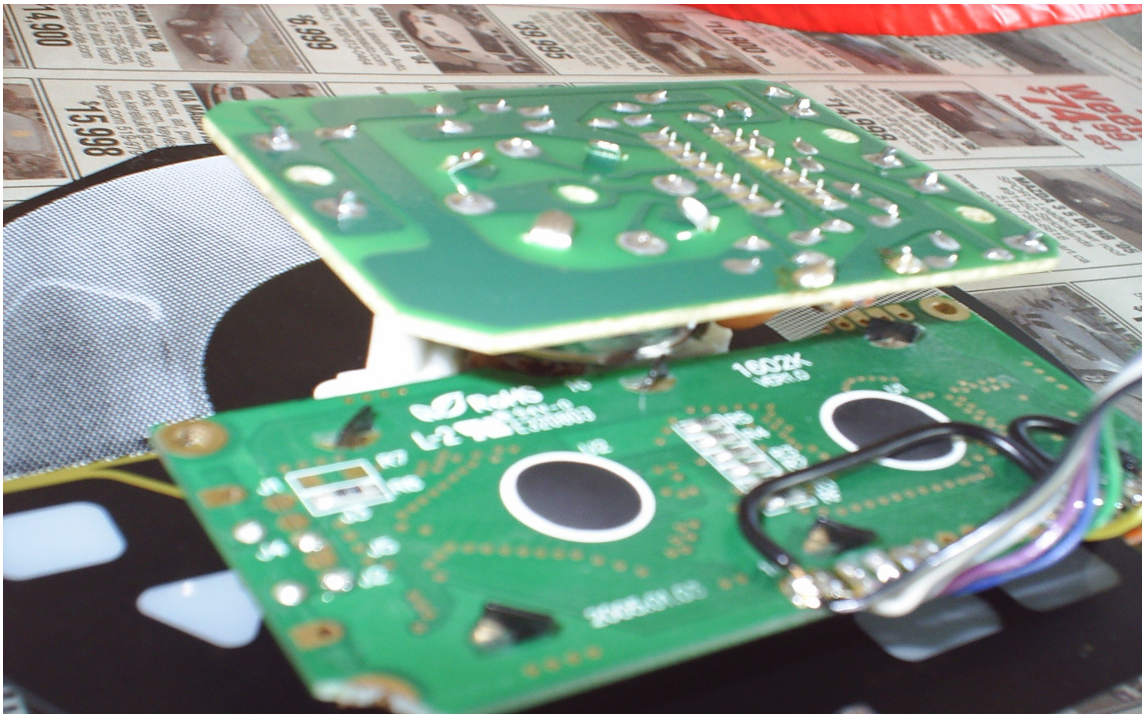
INSTALLING LCD SCREEN IN THE RPM GAUGE

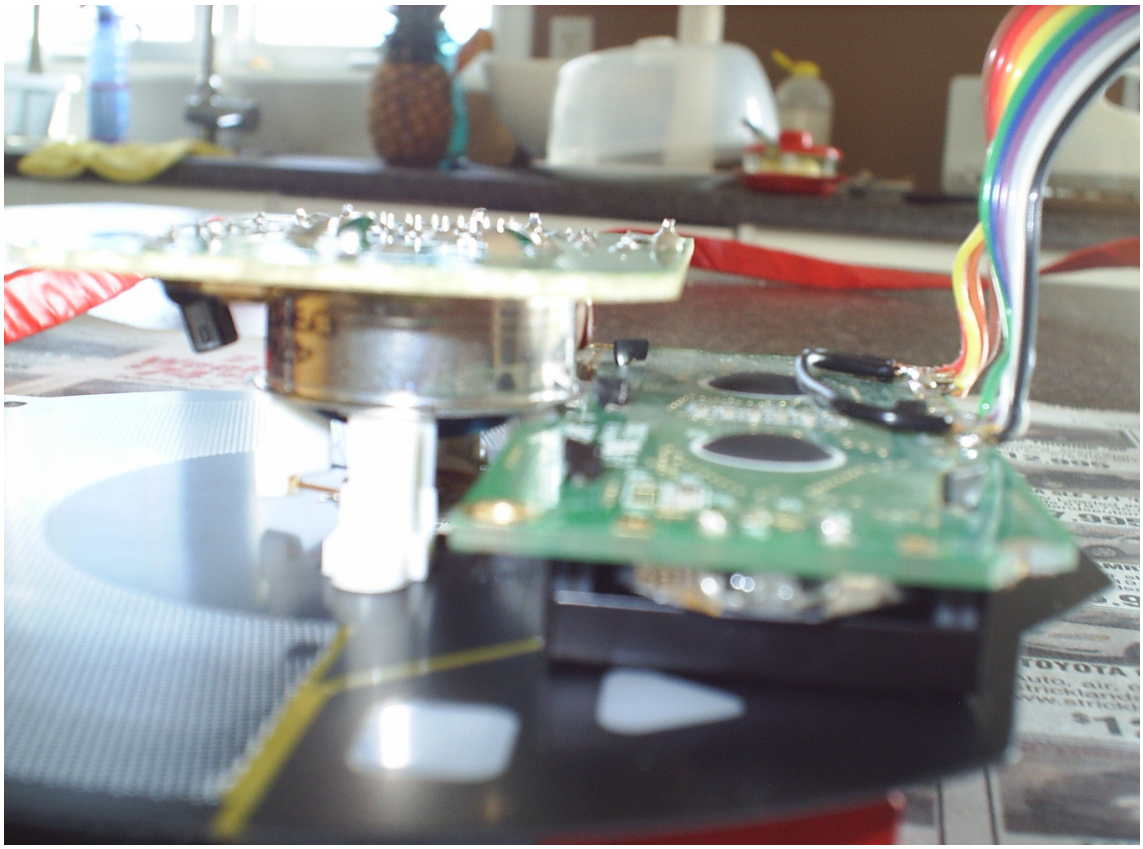
You may consider purchasing an extra cluster panel from ebay and work on that. This way you can take your time to do a good job. When you disassemble the cluster panel you do not have to remove trip reset pin, but it does make the job easier if it's out of the way. The easiest way to remove the pin is when the cluster panel is still attached to the car, push it down to reset and pull it out very quickly. If it didn't come out on your first attempt repeat by push down to reset and pull. Trying to remove it when the cluster panel is off the car will make it challenging. If you get frustrated and can't get it out, don't worry, it's not necessary to remove it. I've installed the LCD screen twice:

The first attempt I installed an amber LCD screen pretty high up on the RPM gauge. Because it was so high up, I had to grind away part of the PCB see image below.



Here's the amber LCD screen installed behind the RPM gauge.

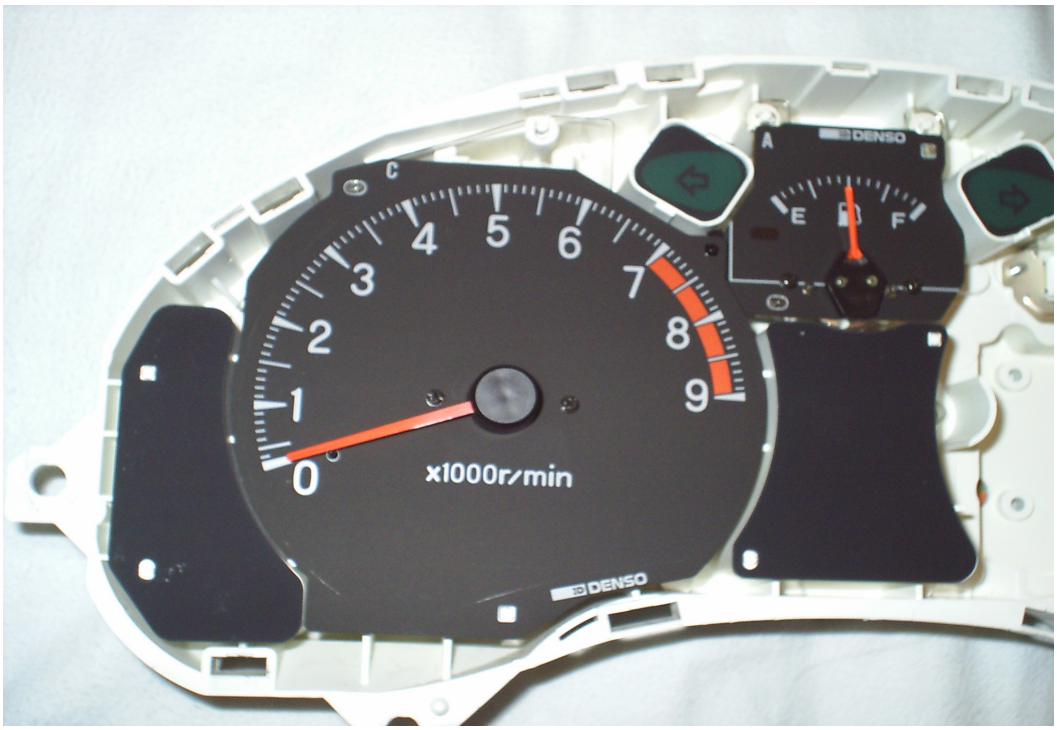




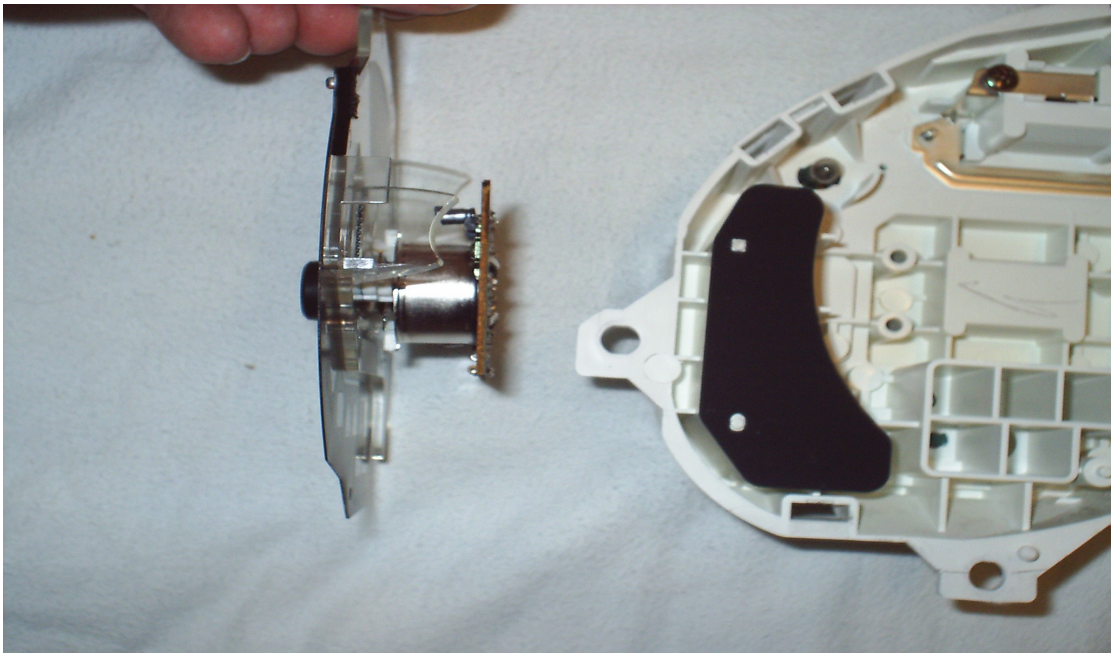
In the background you can see I use hot glue gun, I don't recommend this as it doesn't give you enough time to align it properly. Instead I recommend clear silicone, as it gives you lots of time to work with before it dries, and is easily removable afterwards.

The amber LCD as you can see sits a bit too high. I did have to grind away some the night light clear plastic reflector to get it that high. The data display on the screen is just fake, I was just formatting/spacing the text. I could not read the display in sunlight so I abandon it.

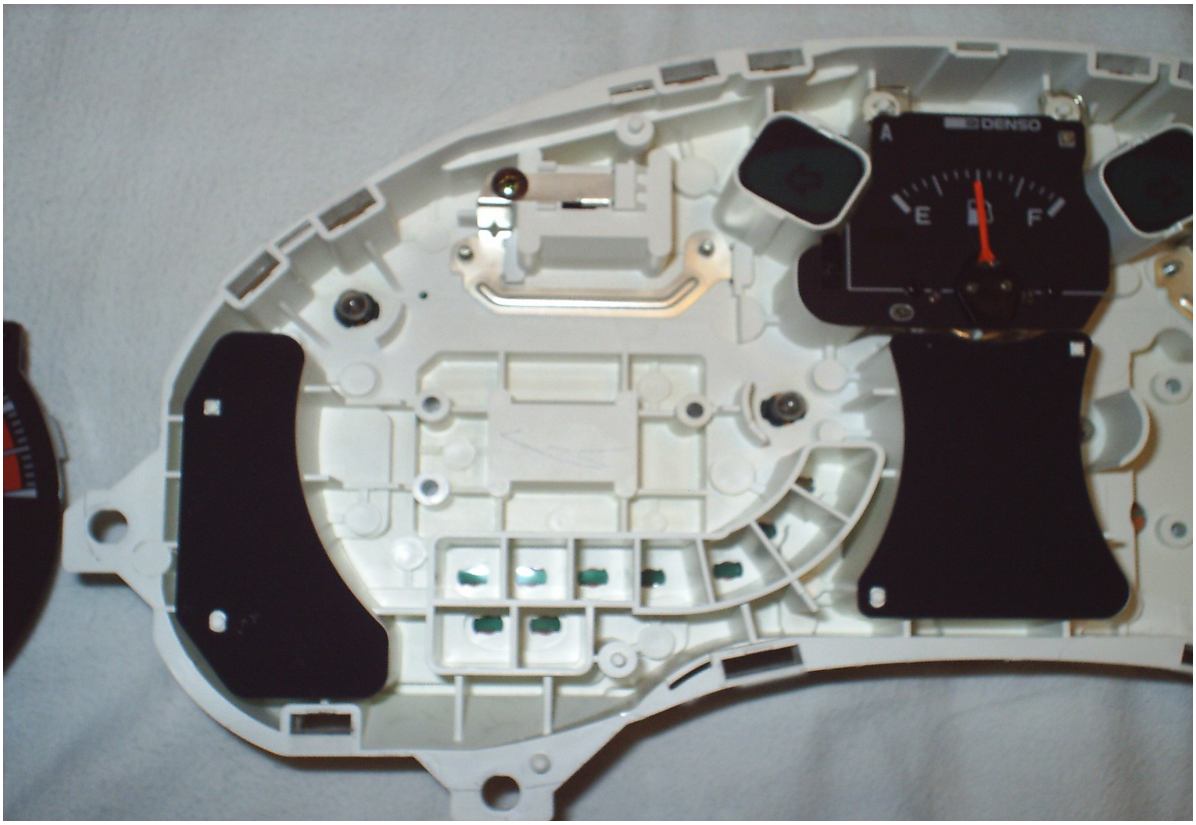
On my second attempt I used a sunlight readable LCD screen display and I also got a bit lazy and didn't feel like disassembling the RPM display, as a result the LCD display is lower.



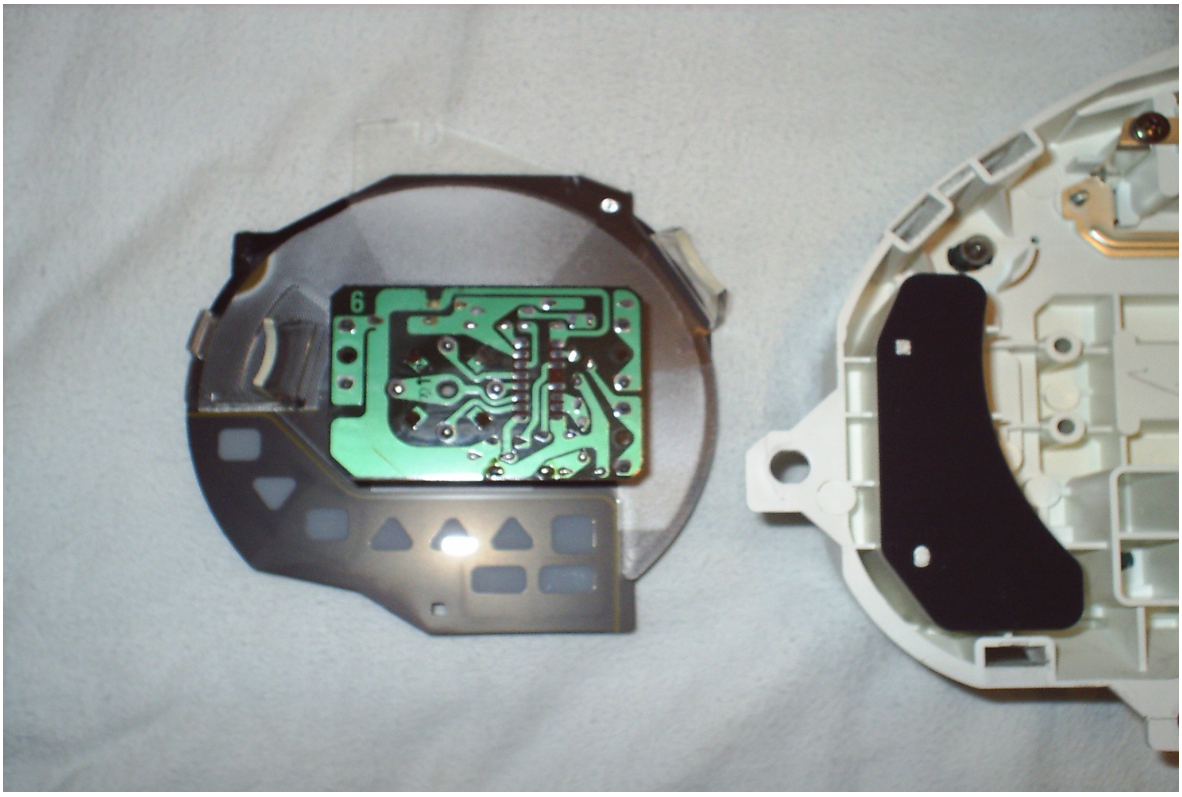
RPM gauge meter removed from cluster panel to show what's behind there.



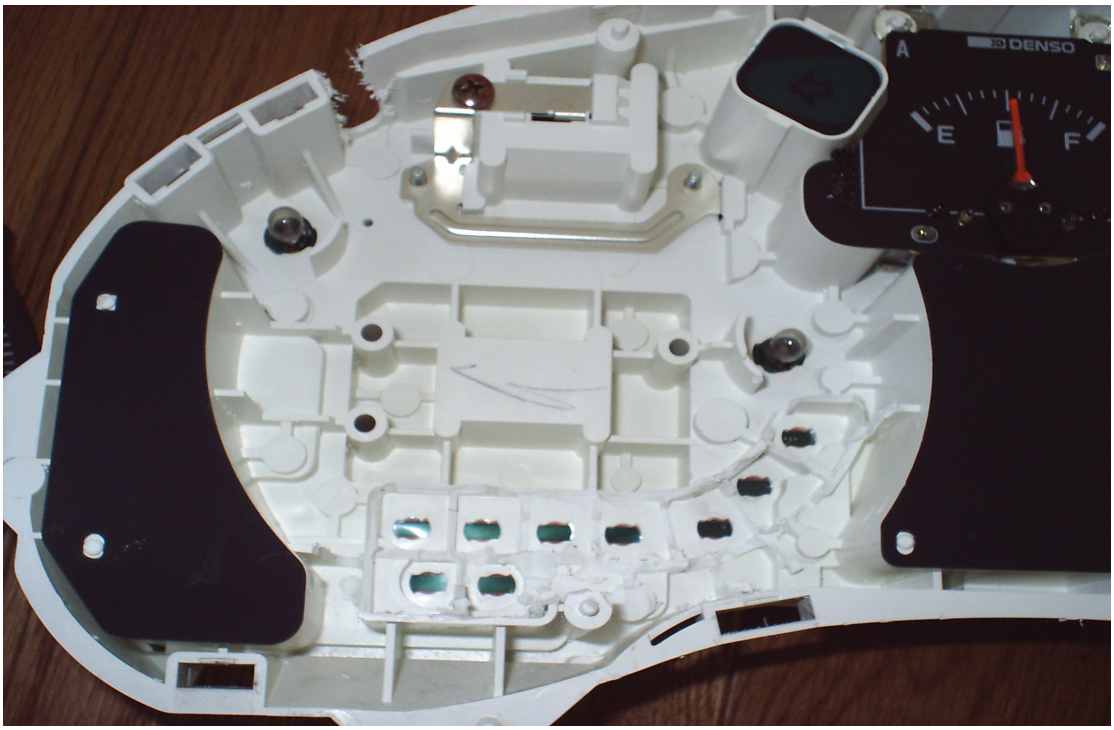
As you can see, Mitsubishi had 11 unused future expansion lights. I grind all of that away to make room for the LCD screen.



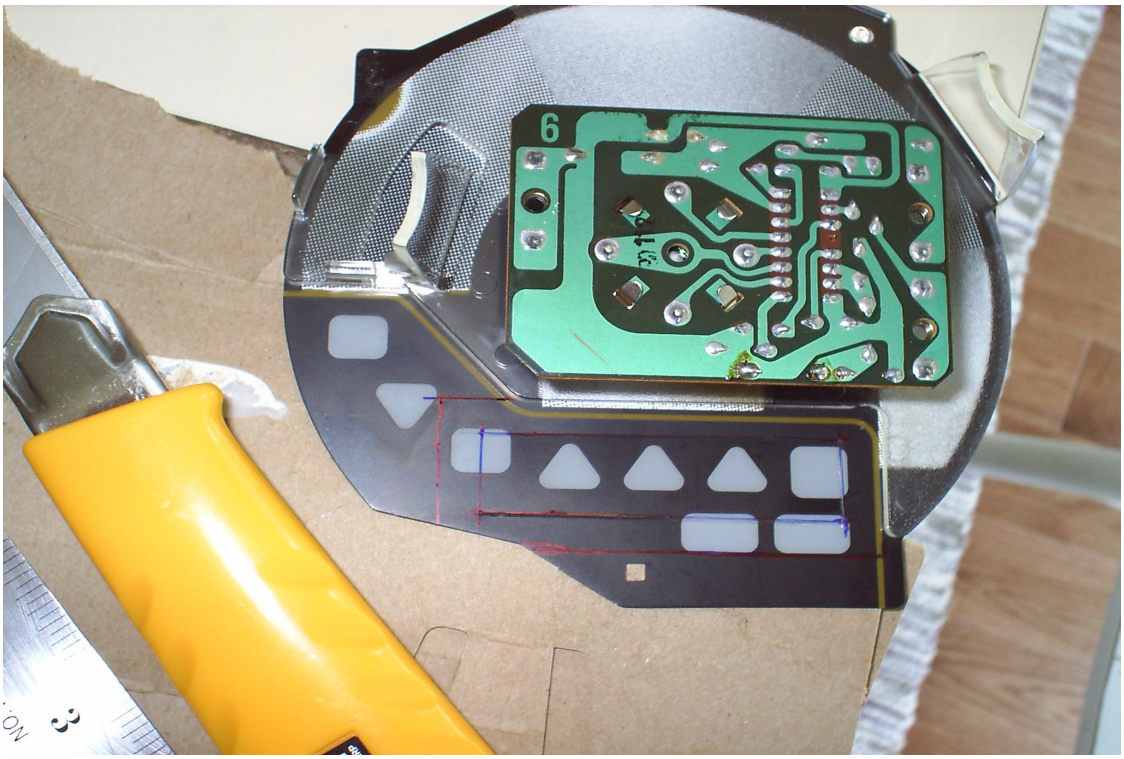
RPM gauge meter laying face down.



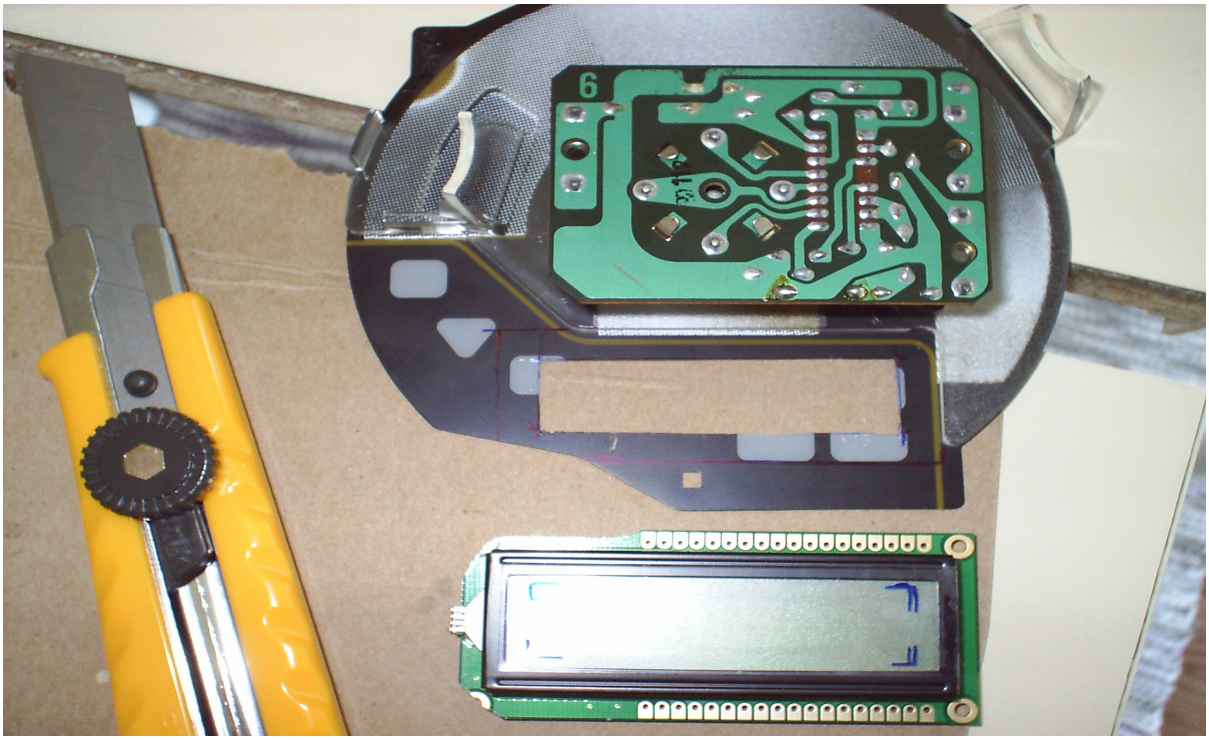
Using diagonal pliers I snapped and grinded down the white plastic to make room.



Here I mark the backside of the RPM meter of where the LCD will sit and also mark the location of the cutout. Using a new xacto knife and metal ruler I score the cutout many times.

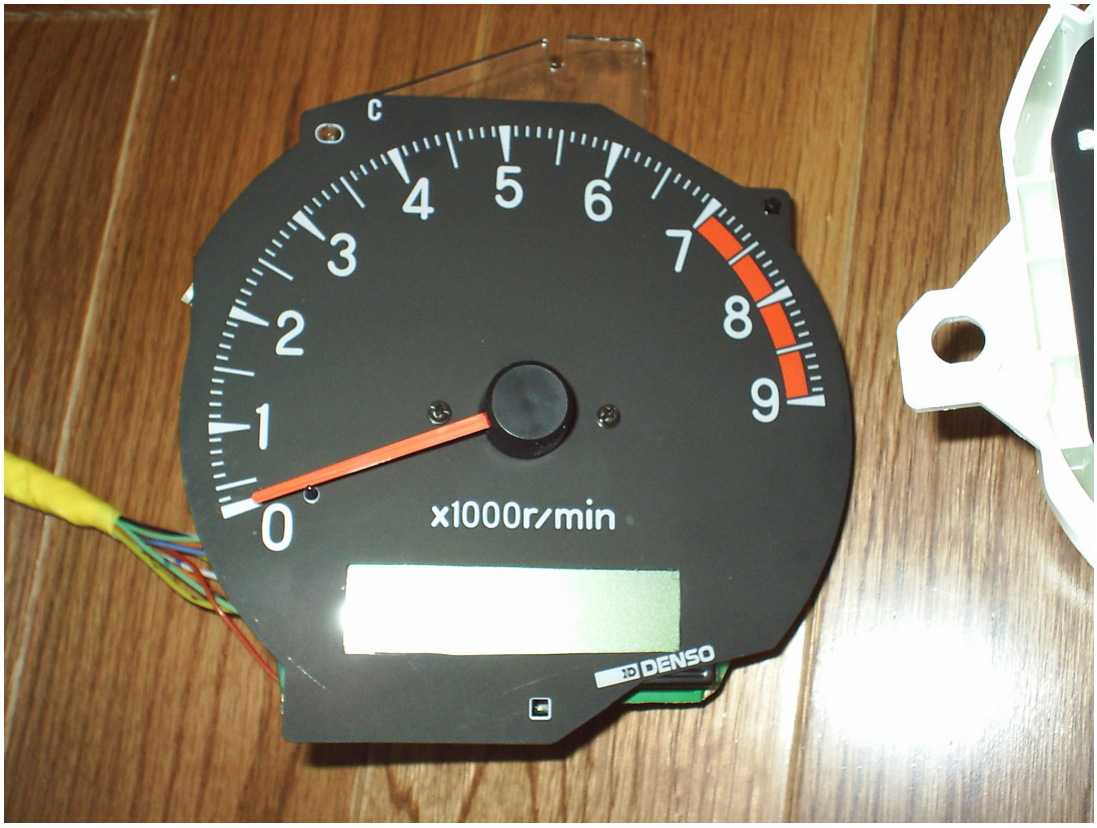


My LCD screen has a protective film still on it so I use a marker to see and verify how much of the screen will be covered/uncovered. I opted not to show the entire LCD screen, but only the portion of the screen that actually displays characters, as this will give me some lee way if my installation is not 100% aligned. The RPM meter transparent plastic night light has a rounded corner so I grinded some of that away so the LCD screen would fit straight and true.



Here's the RPM gauge temporarily installed in the cluster panel without the LCD screen to see how close of fit it will be.

LCD screen is siliconed to the back of the RPM gauge.



LCD screen & cluster installed back into the car.

Picture below is a customer's install who obviously spent more time doing a better job of centering.