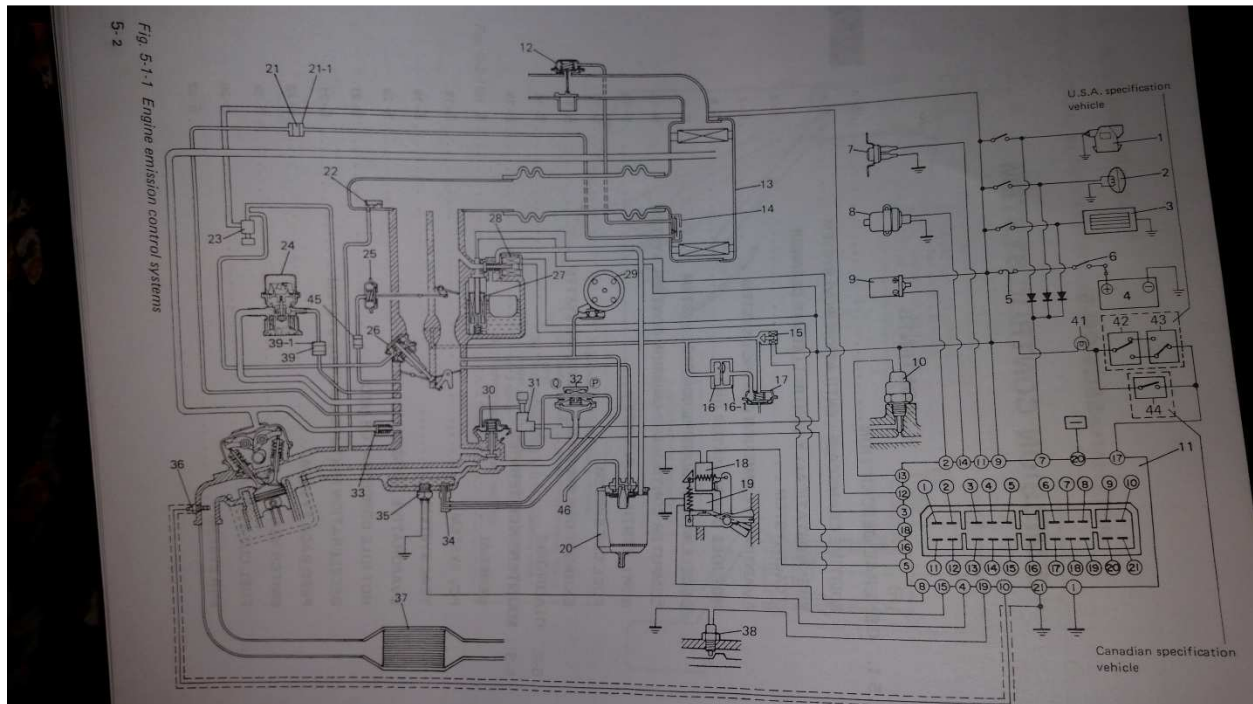


## Removing the ECU from a Carbureted Samurai

This will be a quick rundown of how to remove the ECU wiring from a Samurai. Owners who have upgrade to a different carburetor (Weber, 3K or Harley) may want to remove the stock wiring associated with the stock ECU controlled carburetor. These instructions are a guide and do not necessarily represent the only way to remove these wires. It has worked for me several times and produces good results.

This picture is from the Factory Service Manual (FSM). These will be the items which will be removed - all controlled by the ECU.



Looks rather complicated, but not that difficult to follow. Much of the left side of the picture will be removed when the carburetor is removed. These sensors are attached to the carburetor itself. We will find 2 sensors on the firewall and a couple more (cluster on a single mount – the white item at the lower right side of the picture) on the engine.



This picture is the stock Samurai carburetor and sensors in place. This guide will show you a method to remove the clutter left in the engine compartment after the stock carburetor is removed. Pictures are not the best. These were taken with my old phone which was not very responsive to my dirty fingers. But you can understand what is happening. We will locate and unplug the ECU (inside the cab), pull the wires into the engine bay, remove the unwanted wires and reinstall the necessary wires. In the FSM these are referred to "Wire Harness #1". The Firewall Grommet on the left side is where we will be working.

**Remove both battery cables before you begin. No shorts circuits allowed.**



Begin by removing the Air Cleaner air horn and the Big Plastic air box. Remove the Carburetor as instructed by other instructions.

Many of the connectors may require a screwdriver to separate. The next picture shows how to raise the tab to release the locking mechanism. With the tap lifted, the plugs will come apart. For now, only remove the plugs associated with the carburetor.

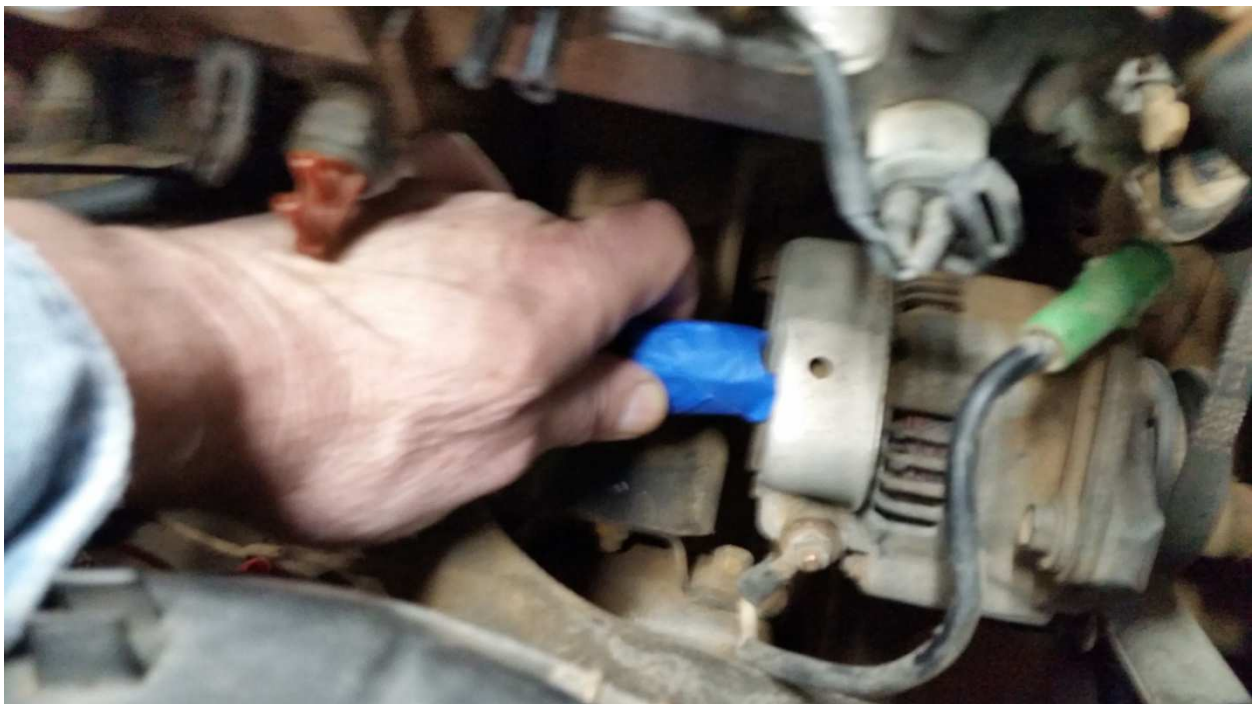




Let's mark the wires we want to keep. I like to use blue masking tape to cover the wire connector to indicate "save this wire". This picture is the Fusible Link from the Alternator heavy wire output cable.



Here is the alternator control plug, wrapped with blue tape "to be saved".



This is the Water Temperature Sensor wire. This sensor is for the Temp Gauge on the dash board.

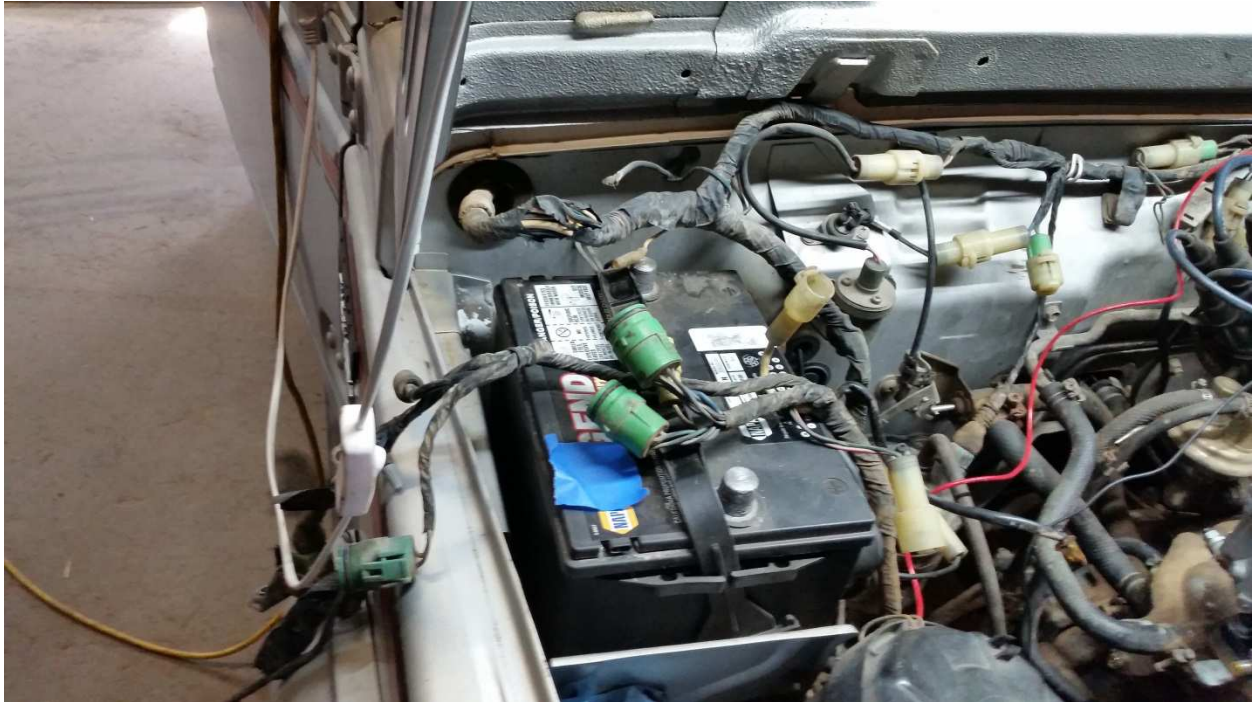


The twin wire plug next to this sensor is for the ECU. You may cut these wires off short on the sensor. The threads are metric and use a sealing washer to seal the coolant. Certified Machine has made a few of these plugs if you wish to purchase a plug (to save the sensor or to dress up the engine bay).





You can gather up these loose wires and connectors (from the sensors and carburetor) and drape them over the passenger fender.



Go inside the cab on the passenger side and look under the dash, up behind the glove box. The small black box is the ECU. It can be released and left hanging. To reach (and or see) the next wire connectors, you may need to release the top of the glove box to see behind the dash. These two connectors will be unconnected from under the dash but you may need to look through the opening in the glove box. The following pictures show the connectors and how they operate to be removed. These will need to be pushed through the hole in the dash to do some trimming. It is not necessary to cut the grommet. But the grommet will need to be removed from the firewall, from the engine compartment side of the firewall.



These are the other two connectors we need to unconnected (picture was taken by sticking the phone under the dash and hoping it would show something – I got lucky!).



Only the top group of screws need to be removed for you to see (on the right side) the two connectors as you unsnap them



The following shows the Operation of these two connectors.



How to release the plug snaps.





Move to the engine compartment and “wrestle” the grommet out of the hole. Be Careful not to stab yourself or cut wires while you are doing this. Best to pull the two smaller plugs thru hole before the big ECU plug is removed.



Unplug the ECU and push the green plug half through the hole from the inside cab. From the outside (which is in the engine bay) the green plug can be removed. Now all the wires are out of the grommet hole. (I refer to ‘the green plug’ because mine was green. I do not know if it was from age or original color but that is what I called it).



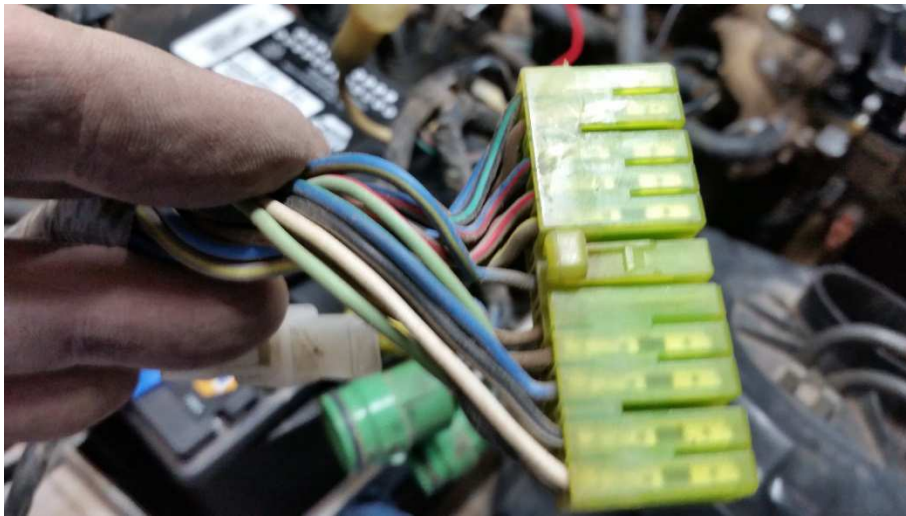
With the wires out of the grommet hole, begin to strip the wires of the loom tape. It is best to just cut only as much as necessary and resort to unwrapping the loom. If a wire is nicked by the knife/scissor and not discovered, you may have a failure in the future. Take your time and peel back the loom forward to the headlight (not all the way to the headlight, just reveal what wiring is to be removed). And unwrap across the firewall to the driver's side of the car, exposing the O2 sensor plug connection.



This is the driver's side Oxygen Sensor wire (big white wire). The loom needs to be opened to remove it – all the way across the engine compartment. You will find this wire tangled in the other wires as it runs across the firewall. Take this

wire over to the passenger side fender and drape it out of the way. You will have a whole bunch of wires exposed, but fear not, we are about to start cutting out the crowd.

Next picture shows the green ECU connector. We want to tape this whole bundle up to avoid confusion. Then one at a time, you will follow each wire and remove it from the engine bay.

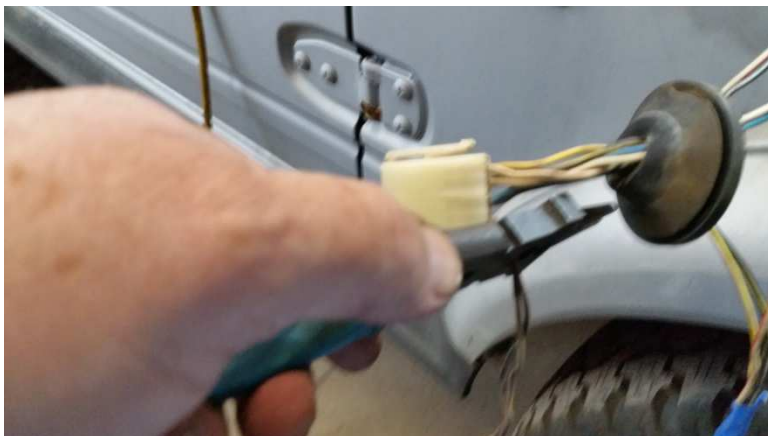






Pull the taped wires through the grommet. Leave the others plugs in trough the grommet.

You will find two wires which run from the green plug to the smaller white plug. One of these is the “Check Engine Light” and the other is the “Famous Magic Switch” under the steering column. Trim these off close to the white plug.



Step back and the engine bay should look like this (similar).



That is all we will remove. When the taped wires from the green plug are traced out, you may remove the wire as well as the component it controls. Note in the last picture, two sensors are removed from the firewall, next to the battery. The 5<sup>th</sup> gear switch plug has a black ground wire attached to the plug (you want to remove) – cut as shown in the next picture.



The Power Filter should be left with the car. This filter blocks RF frequencies generated by the distributor from interrupting the tachometer signal. Your car may or may not need this filter, I just leave them alone. The RF filter can be seen

in the following picture – it is the small rectangular ‘block’ on the right. Some of the sensors share wires with the needed wires, just snip the wire to be removed.



When taping up the wires I prefer to use a high quality Loom Tape (sometimes mistaken as friction tape). The difference being the Loom Tape will not collect water, it is flame resistant and high temperature (to 300 degrees).

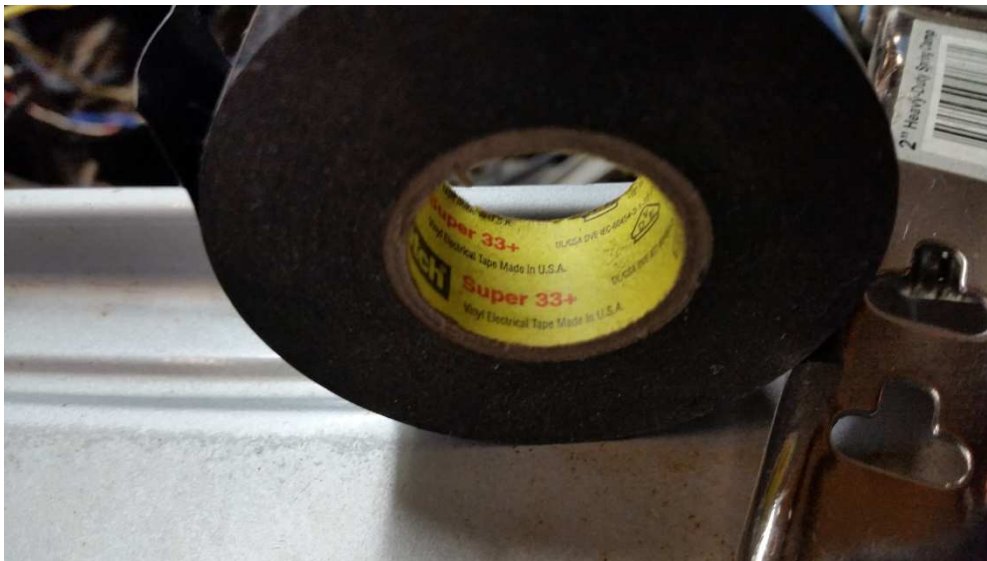


Fabric Loom Tape



I also use high quality electrical tape. The electrical tape is extra sticky and will not leave a gummy residue when removed. The following are both available from Amazon (yes they are pricy, but I will only need to do this once).

### Plastic Electrical Tape



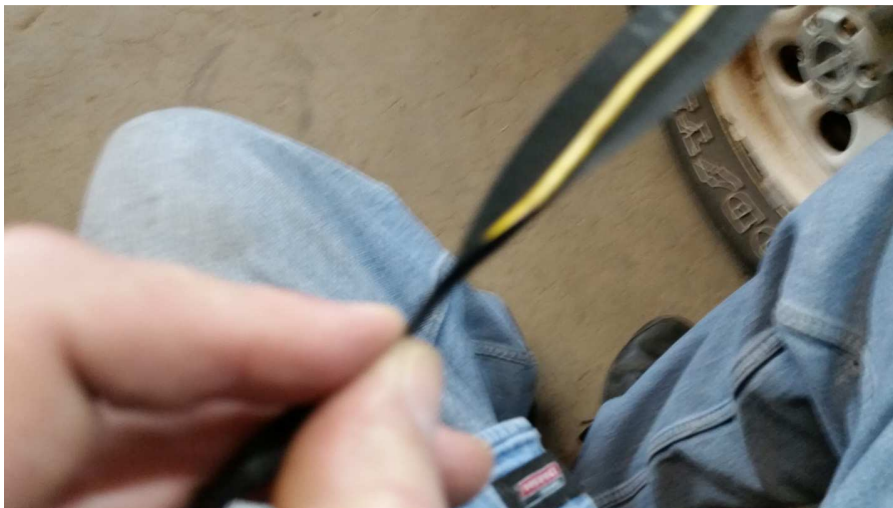
I like to cut short sections of electrical tape and put them on the fender (or nearby) so as I gather the wire together the way I want, I can have a piece of tape handy to bundle that group together. Slowly work your way around the engine bay, collecting wires and taping them together. Squeeze them tight in your hand but do not pull them hard (you may unplug something you need). It is best to start at the grommet. Loom tape the wires that will go under the dash, poke them into the grommet hole and mark where the grommet will be. Wrap several layers in this area to make the grommet fit tight against the wire loom to seal out cold air and water from entering the cab.



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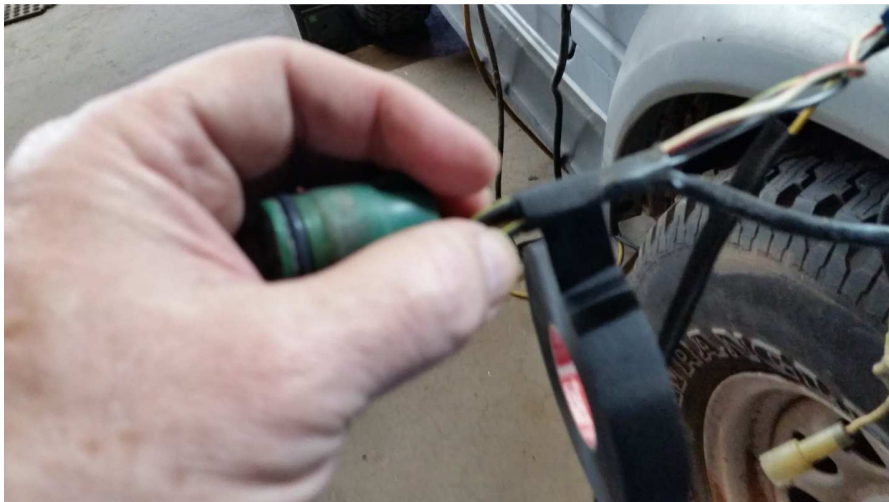


Single stand wires (like the coolant temperature sender) I like to simple fold a piece of loom tape over the wire, sealing it up.





Where old and new looms meet, just blend your taping to match factory. This particular junction is under the air box so no one can see it.



Double wrap before wrapping the length of the wires.

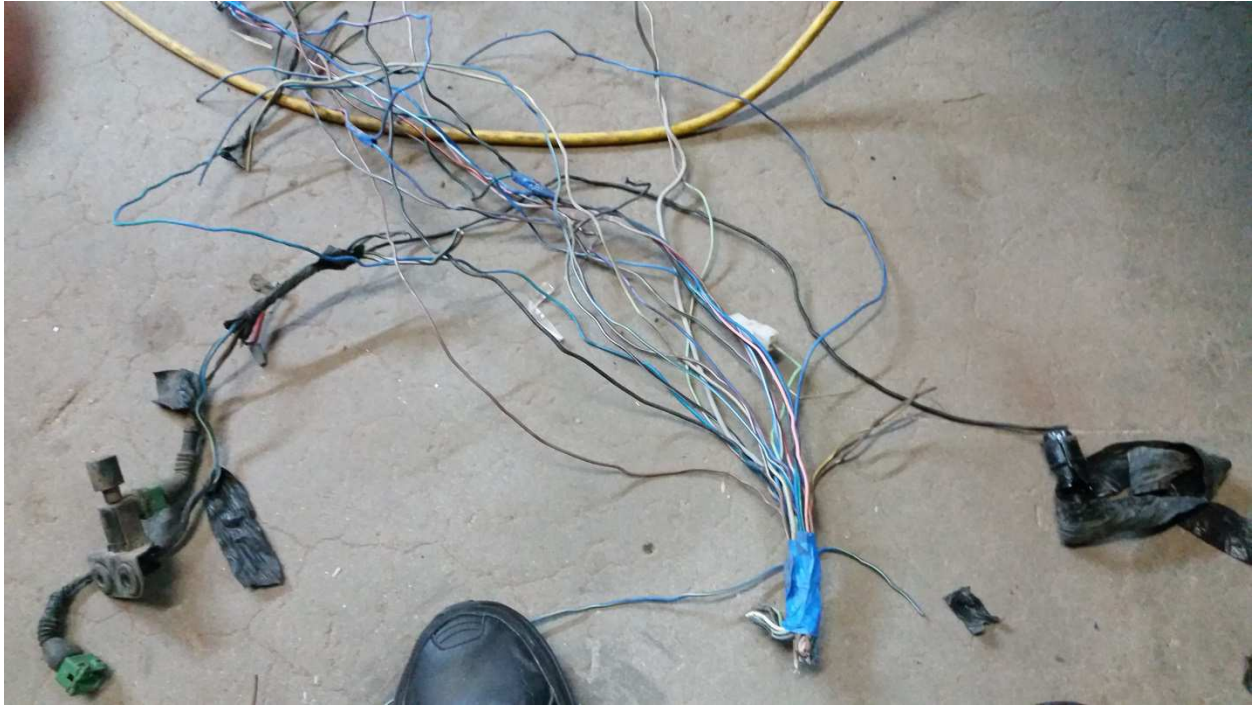


Double wrap at junctions with branches of wires.



Here is one branch wrapped and ready to plug back into the engine bay.





Just a small amount of wires removed. Note Vacuum sensor on left, removed from the cylinder head above the thermostat housing.



These items are ready to scrap (or recycle).