

HOW TO REMOVE THE COMPLETE WIRING HARNESS FROM YOUR SUBARU DONOR CAR

In the following pages we'll be going through the key aspects of removing the complete main wiring harness from your donor Subaru. There's no need to be intimidated by the project ahead of you – though this job seems involved it is easily broken down into smaller tasks. Most donor cars are not destined to be put back on the road so it is up to you how much care you take while removing components such as the dash, interior trim, etc. (interior pieces are sometimes valuable as resale items to offset the cost of your conversion). **We're working on the assumption that you have safely evacuated the air conditioning system and drained all fluids from the motor. Please be responsible for your own actions!**

The key to this job is to remove the harness without giving in to the urge to snip wires instead of unearthing and disconnecting connectors. Take the time to trace the harness along its myriad paths and follow it to its ends. Your patience will be rewarded with a complete harness rather than a pile of unidentifiable spaghetti.

First and foremost, record the VIN number and engine code from the donor vehicle. We like to write the year, model and VIN on the ECU with a Sharpie. This will allow you to be specific when ordering parts for your motor in the future. We'll get to removing the ECU in a few paragraphs.

Now is a great time to locate all the important components, sensors and plugs in the engine bay and familiarize yourself with the layout of the motor. It's extremely useful to have a repair manual for your particular donor as there are differences year over year in the locations of components. As you identify components such as sensors, etc. mark the harness with tape and a marker. Taking the time before you disconnect things will pay off later when you are installing your modified harness into your conversion. Note that there may be a couple subharnesses that plug into your main harness: namely your alternator and oxygen sensor subharnesses. You need to collect them all. In some cars there will be sensors and relays located on the passenger fender well and/or firewall. Be sure to remove **ALL** electrical components from the car and replug them into the harness to keep track of locations. **Items that are easily missed include: Oxygen sensors, Atmospheric Pressure sensor, Main relay, Fuel Pump relay. Images of these components are at the end of this document.**

Prepare the car for harness removal Before you go any further, ***disconnect the battery!*** Push on the brake pedal for ten seconds or so to discharge any remaining voltage in the vehicle's air bag system. Remove the front seats and the center console up to the shifter will give you more room to maneuver when pulling the dashboard. (Fair warning: you may want to have a shop-vac handy as the years of detritus under the seats can be pretty gross.) If you haven't already, remove the hood from the car. Remove the glove box, the plastic trim panels in front of and to the side of the floor mats, the plastic panel surrounding the steering column, etc.

Harness Removal: Begin removal by noting the two large main plugs that come from the main harness to the intake harness. You do not need to remove the intake harness from your motor, just disconnect it from the main harness at the plug. Continue by carefully working your way around the engine bay to tag and disconnect plugs. Note that some plugs are push connectors (push down on a tab to release) and some are pull connectors (insert a small flat-blade screwdriver to release). Take care not to damage connectors.

Note that the main harness disappears through the firewall on the passenger side and into the cabin of the car. This leads to the ECU and interior section of the main harness. Under the carpet in the interior passenger footwell locate the ECU (it may be behind a small plate). It's a small metal box about 8" x 8" x 3" that has a series (usually three) of large connectors entering into it from the main harness. Remove the ECU and store it someplace safe (we like to keep it out of the elements and away from the work area). This is also a good time to write the vehicle's VIN number on the ECU with sharpie.

Continue inside the car by removing the center console, the stereo, the climate control system and any remaining dash trim. You'll notice that there is a separate wiring system that is wrapped in bright yellow with orange connectors. This is your SAS or air bag system. Be vigilant when dealing with air bags as they have been known to deploy with just a static electric charge. Always face the air bag away from you when handling – there's **a lot** of latent energy here. Disconnect as many of the SAS plugs as you can easily reach. The passenger side air bag can be removed by accessing the nuts/bolts behind the glove box.

Note that the main harness curves up along the firewall and under the dash. You'll need to remove the dash to access the remaining main harness connectors and remove the harness. Begin by removing everything that is still attached to the main dash. There are screws that hold the instrument cluster cover and cluster. Remove these screws and pull the instrument cluster out enough that you can disconnect the plugs from the rear. Remove the two plastic panels on each side of the dash to reveal two of the dash attachment bolts. Look at the top front of the dash next to the windshield for either screws or bolts (they may be under vent trim). Look up under the dash to find several more attachment bolts and nuts. Keep removing fasteners as you encounter them.

It's helpful to lower the steering column to access several of the dash fasteners. This can be done from under the dash by removing the bolts that affix the column to the dash and bracing. Disconnect the wiring connectors from the column as you go.

When you feel like you have removed all the fasteners that affix the dash slowly lift the dash out of position. Watch for wires, cables and components that may still be attached. When you are sure that the dash is free lift it out of the car; it's not heavy but can be unwieldy. Notice the round steel support that sits longitudinally across the car under where the dash used to be. Your next step is to remove this support by removing the fasteners at either end. There may be various wires and cables connected to the support – separate as necessary. Don't be tempted to cut wires!

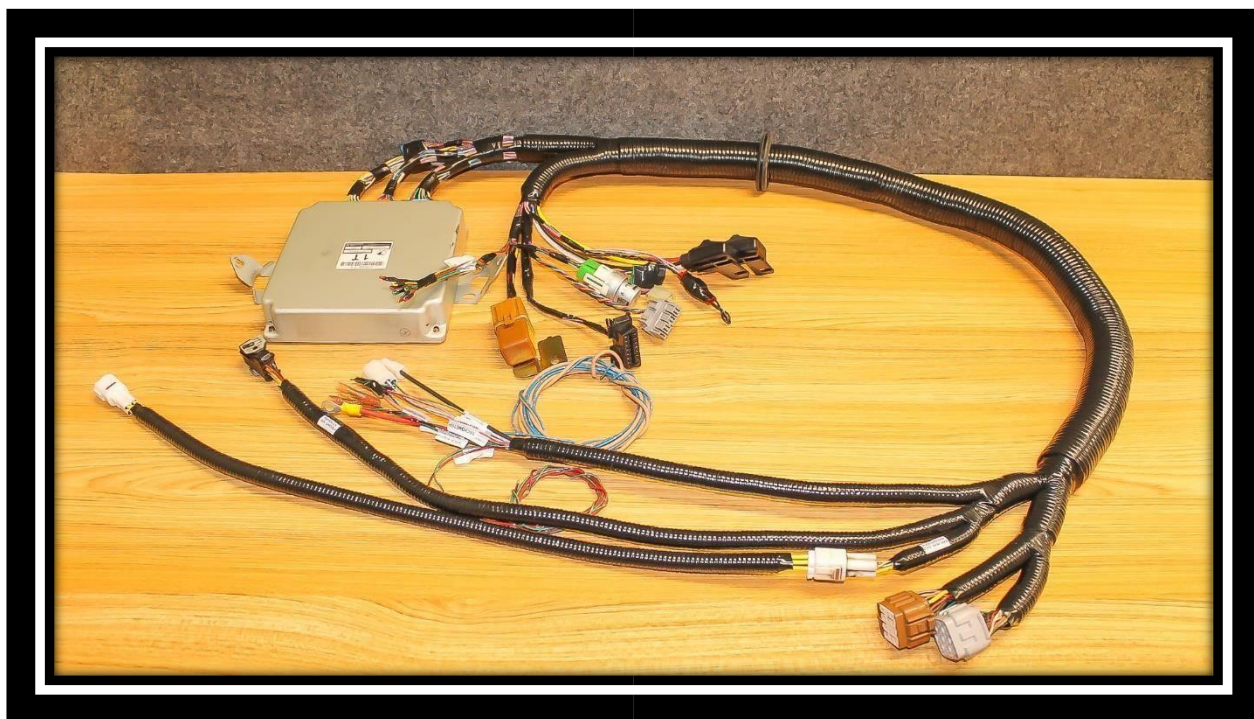
Once the support is removed, you'll have access to the rest of the main harness. Remove the driver's side fuse box along with the rest of the harness. There will also be various chassis ground wires to remove from the body of the car. Carefully feed the harness from the engine side of the firewall into the passenger side of the interior. It's nice to have an assistant here to help guide the harness through the firewall but you can manage it solo if you pay attention. Separate any remaining connections from the main harness and carefully pull it out of the vehicle.

To remove your **alternator subharness** simply disconnect the wiring at the alternator and follow it over to the fuse block in the engine compartment. Most of the wires terminate in the fuse block but there may be one

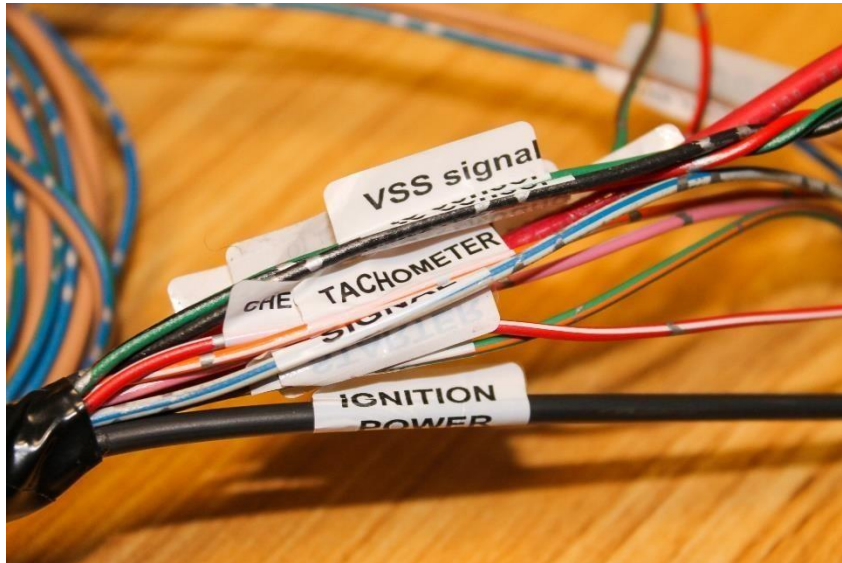
wire that continues into the driver's fender area. You can snip this wire as close to where it disappears as possible.

Removing your **Oxygen Sensor subharness** is as easy as following your oxygen sensors up from where the screw into your exhaust and disconnecting the first two connectors that you see. They will either be two fourpin connectors or one four-pin and one six-pin connector. Once your oxygen sensors are removed from your exhaust, reconnecting them to the wiring harness is an easy way to keep track of their placement.

Congratulations! You're finished with your harness removal! Now you can decide if you're up for the epic job of building your conversion harness yourself or purchasing a plug and play harness conversion service from Rocky Mountain Westy. With an RMW harness, all wires and sensors are custom made to length for *your particular motor into your particular Van*. You'll receive a harness that has been fully wrapped and tested - no guess work, no fuss.



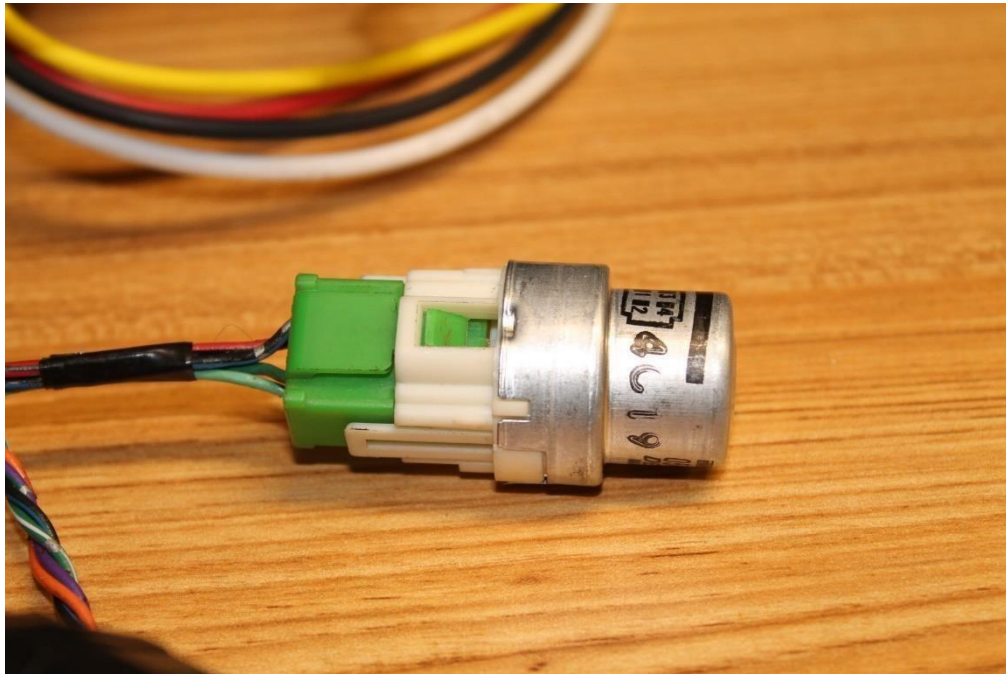
ROCKY MOUNTAIN WESTY FINISHED CONVERSION HARNESS



All conversion harnesses come fully labeled and ready to plug and play



Subaru Main Relay: The vast majority of main relays will look like this. It usually lives near the ECU.



Subaru Fuel Pump Relay: Most fuel pump relays will have a green connector and live near the main relay.



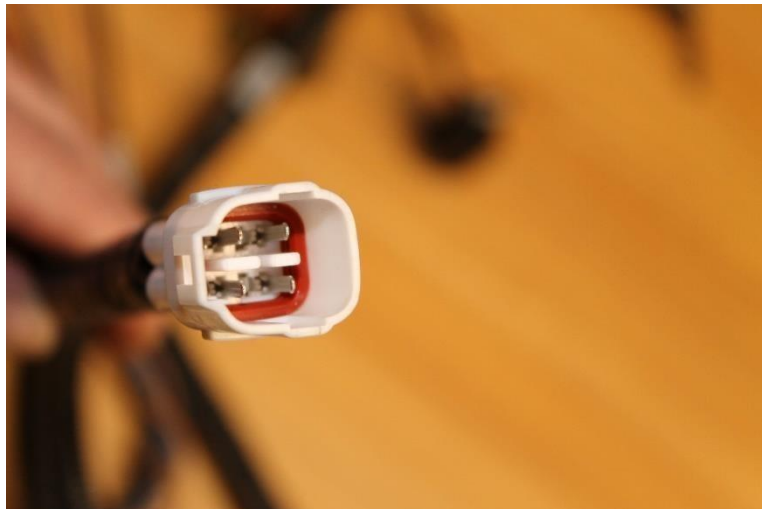
Subaru Alternator Harness: Your harness will have the green and red alternator connectors and the small AC one-wire (multipin in some models) connector.



Subaru OBDII communication connector: DO NOT CUT THIS OFF YOUR MAIN HARNESS!



Subaru Six-pin O2 Sensor connector: Just flip the grey bail and pull connectors apart.



Subaru Four-pin O2 Sensor Connector