

ALPHA 

Q50 Q60 RED ALPHA

FLEX FUEL KIT V2

Introduction

The goal of AMS Performance is to provide the highest quality, best performing products available. By utilizing research and development, and rigorous testing programs AMS Performance will never compromise the quality or performance of our products. In addition, AMS Performance will only provide the finest customer service offering only parts and advice that are in the best interests of the customer. AMS Performance was built on a foundation of integrity. This is who we are; this is what you can count on.

A vehicle modified by the use of performance parts may not meet the legal requirements for use on public roads. Federal and state laws prohibit the removal, modification, or rendering inoperative of any part or element of design affecting emissions or safety on motor vehicles used for transporting persons or property on public streets or highways. Use or installation of performance parts may adversely affect the drivability and reliability of your vehicle, and may also affect or eliminate your insurance coverage, factory warranty, and/or new OEM part warranty. Performance parts are sold as-is without any warranty of any type. There is no warranty stated or implied due to the stresses placed on your vehicle by performance parts and our inability to monitor their use, tuning, or modification.

These instructions are provided as a guide only as there are many variables that cannot be accounted for concerning your particular vehicle, including but not limited to model year differences, model differences, the presence of non-OEM parts, and modifications that may already be or were previously installed. A basic knowledge of automotive parts and systems is helpful but a better understanding of the parts and systems on your particular vehicle may be required.

If you have any questions or issues at any time during the installation of your AMS Performance product(s) please call us for technical assistance. The AMS Performance tech line can be reached during business hours at 847-709-0530 for AMS Performance products only.

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WARNING: By purchasing this Flex Fuel Kit you confirm that you have read and understand the following: **WARNING/DANGER: SERIOUS RISK OF FIRE, EXPLOSION, BODILY INJURY INCLUDING RESULTING DEATH, AND ENGINE, VEHICLE, AND OTHER PROPERTY DAMAGE. THIS FLEX FUEL KIT MUST BE INSTALLED AND REMOVED ONLY BY A QUALIFIED MOTOR SPORTS TECHNICIAN. THE TECHNICIAN ALSO MUST BE TRAINED IN HOW TO INSTALL AND REMOVE THIS KIT FROM THIS SPECIFIC VEHICLE. THE TECHNICIAN MUST NOT PARTICIPATE IN ANY ACTIVITY THAT WOULD BE CONSIDERED A CATALYST FOR IGNITION WHILE INSTALLING OR REMOVING THIS KIT AND MUST READ THIS INSTALLATION INSTRUCTION GUIDE BEFORE INSTALLATION OR REMOVAL.**

FUEL PRESSURE RELIEF

Warning! Make sure the engine has cooled down. Disconnecting fuel lines on a hot engine can lead to fuel rushing out of fuel lines at random, caused by fuel boiling when opened to atmosphere. Fuel temperatures in the low side fuel line can be as high as 150 degrees Fahrenheit at the inlet of the HPFP and the high side can be significantly higher, especially at pressures of 200 bar. At a minimum, fuel in the high side rails and lines will follow engine bay temperature. Make sure to follow the OEM fuel pressure relieving procedure. (Without Consult Tool)

1. Pull the #52 (15A) Fuse listed as Fuel Pump in the IPDM. The IPDM (Intelligent Power Distribution Module) is the fuse box located next to the battery in the engine compartment.

Note: The battery may need to be removed in order to remove the IPDM cover.

2. Start the engine

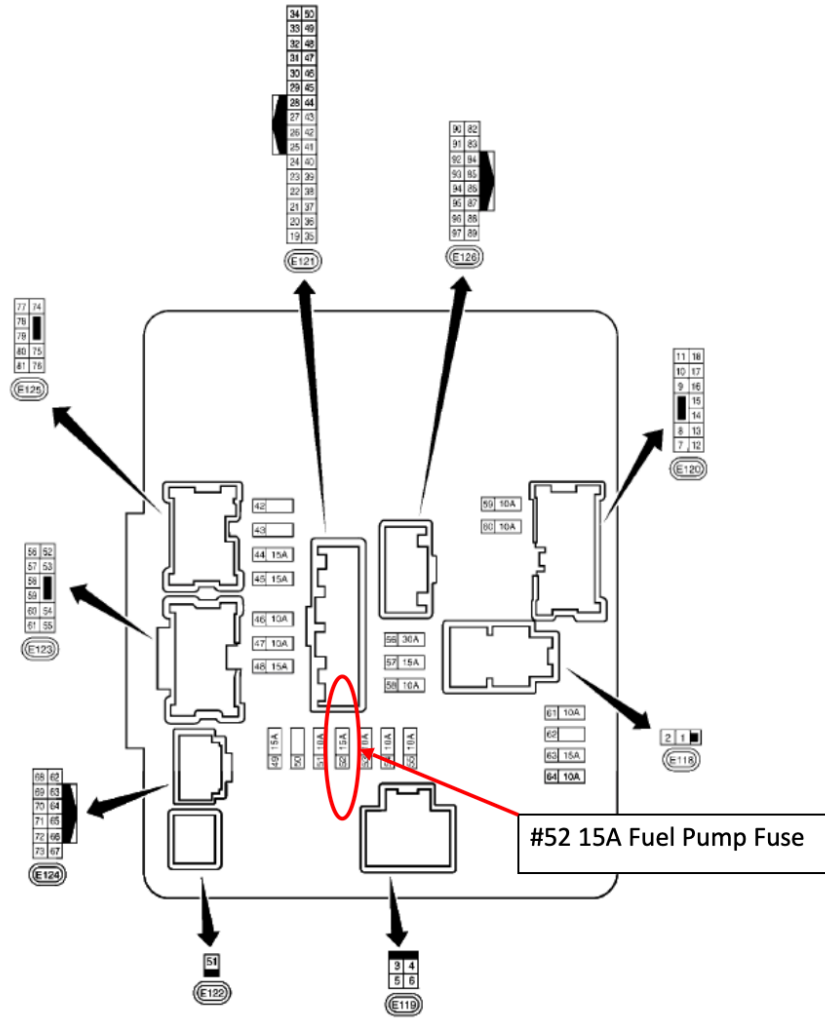
3. After the engine stalls, crank it for two or three times to release all the fuel pressure

4. Turn the ignition OFF

5. Disconnect the battery

6. Reinstall the fuel pump fuse after the flex fuel installation, see step #20





1) After the fuel pressure has been relieved, remove the engine cover to gain access to the fuel system.



2) If a complete kit was purchased, locate the Ethanol Composition Sensor (Flex Fuel Sensor), or your own supplied sensor.

Note: The mounting bracket is only set up for the use of a mini Continental® Flex Fuel Sensor. The mounting bracket will not work with other styles.

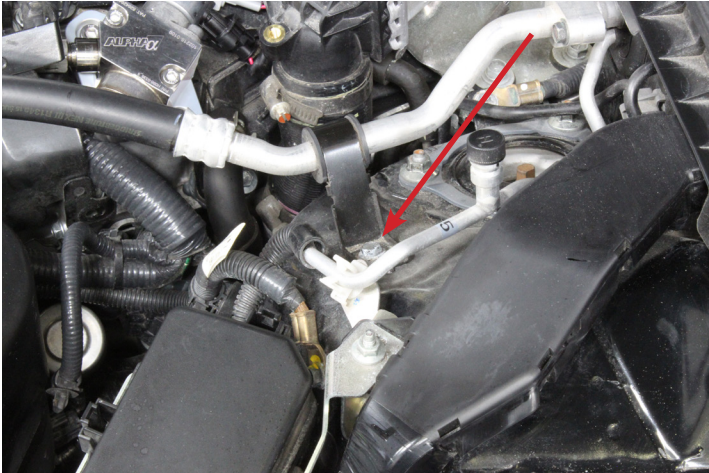
3) Locate the 3/8" to -6AN fuel line adapters. Install the adapters on the flex fuel sensor. Remove the rear locking nut of the adapter. Slide the locking nut over the retention step on the fuel sensor, there is a groove machined in the adapter. Install the adapter and screw and assembly together, locking the adapter to the fuel sensor. Make sure not to over tighten the locking nut on the rear of the adapter; it should just be snug.



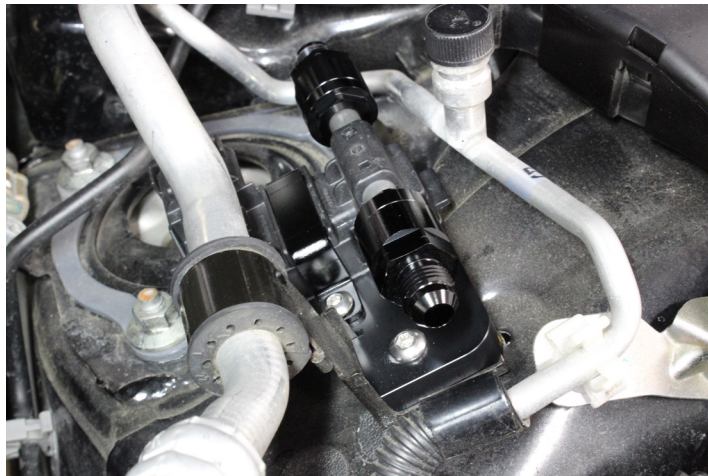
4. Locate the flex fuel sensor mounting bracket and strap. Use the two supplied M5 button head bolts and attach the flex fuel sensor to the mount as shown.



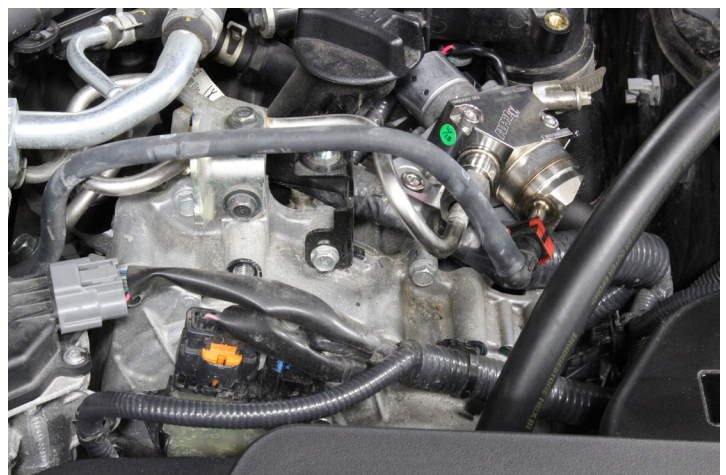
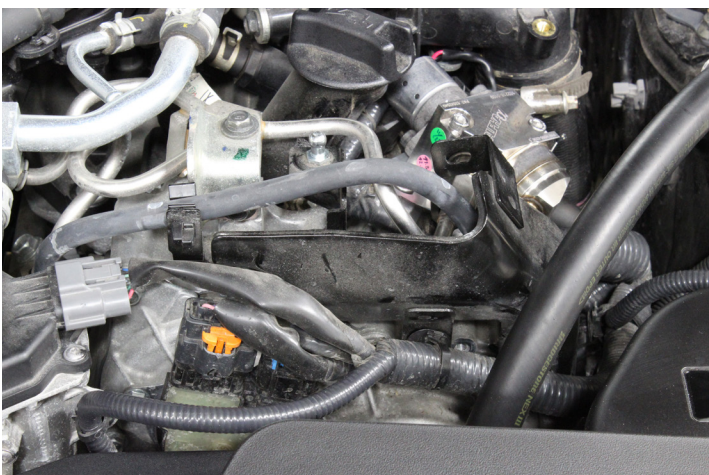
5) Remove the OEM bolt from the A/C hose bracket on the driver's side strut tower. The bolt will not be reused.



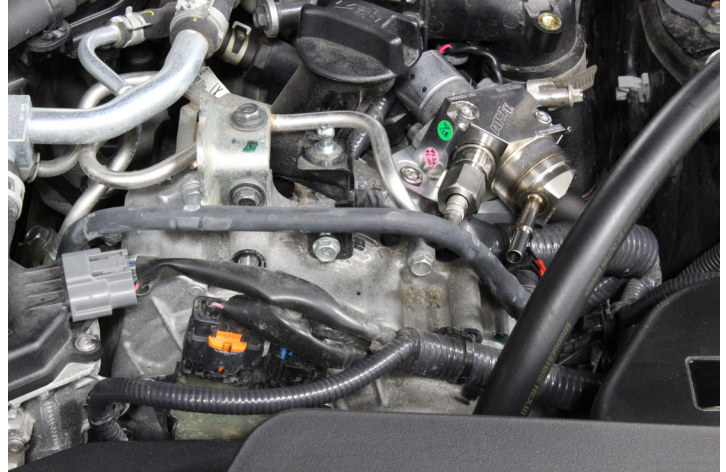
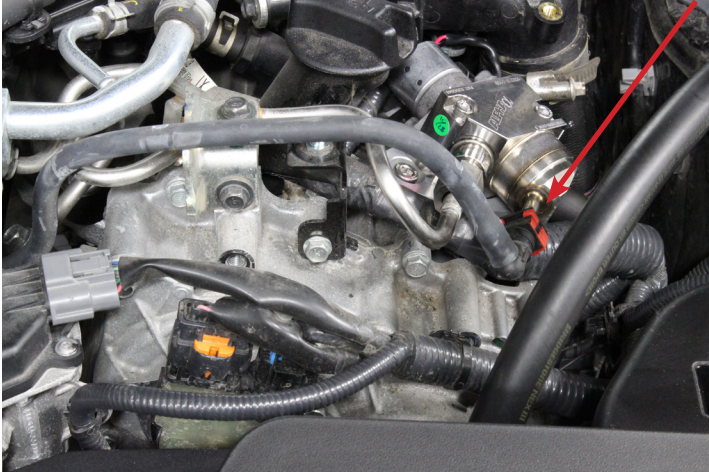
6) Use the supplied M6 x 22mm long button head bolt and install the flex fuel sensor and mount on top of the A/C bracket as shown.



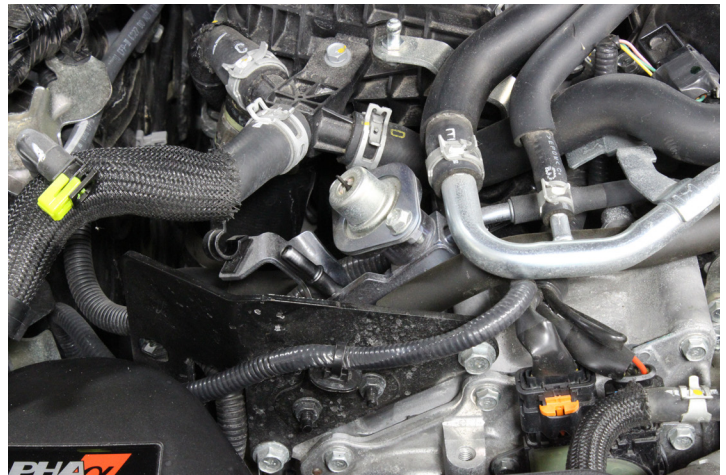
7) Remove the bracket in front of the HPFP. Unclip the harness and fuel line from the bracket. Unbolt the two 12mm bolts from the lower area of the bracket and remove. This bracket will not be reused.



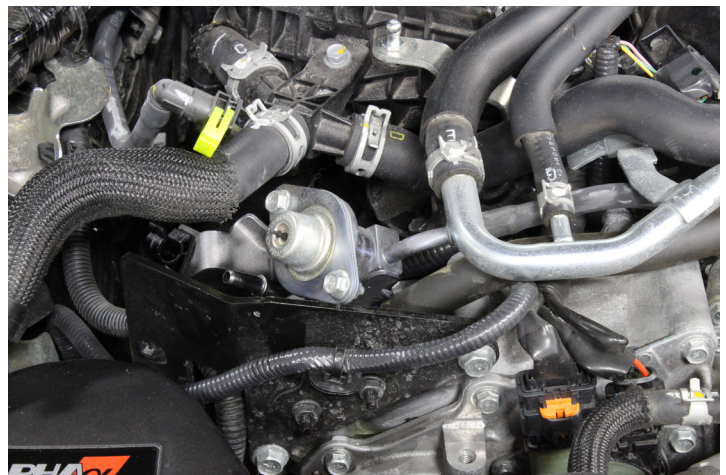
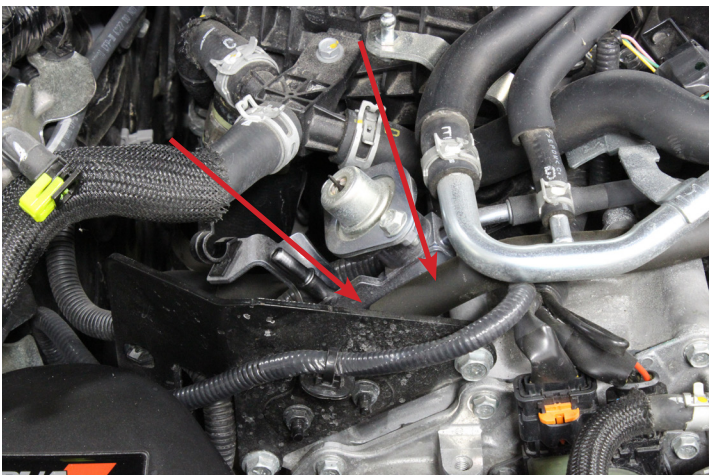
8) Make sure the fuel pressure has been relieved properly as noted in the first part of the instructions. Disconnect the low-pressure fuel supply hose from the HPFP.



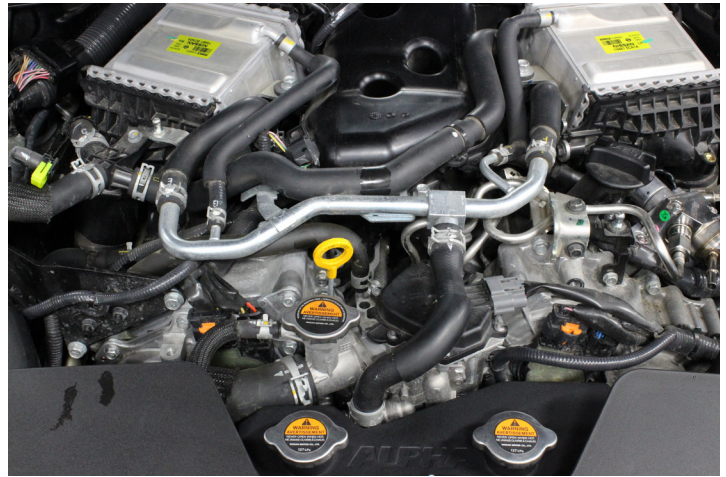
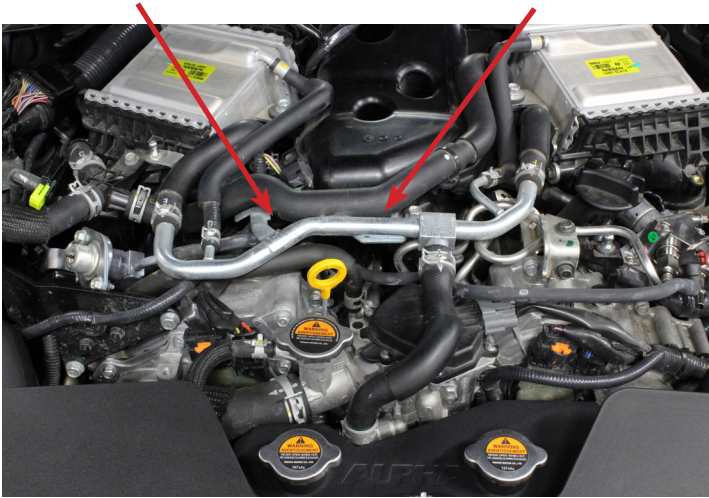
9) On the right side of the engine, disconnect the low-pressure fuel line from the bracket on the engine as shown.



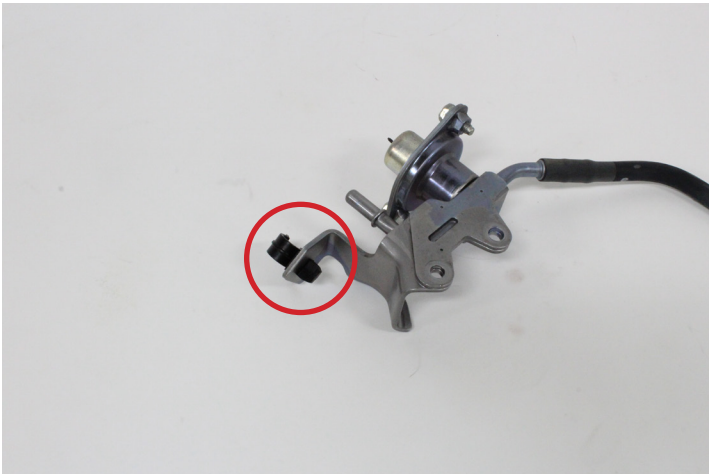
10) Unbolt the fuel line bracket from the engine. It is held in place by two M6 bolts located behind the black bracket shown.



11) To make the removal of the fuel line easier, remove the two M6 bolts from the water pipe so it can be moved out of the way. The bolts are hidden under the rubber hose that crosses over from one intercooler to the other. Remove the entire low-pressure fuel line and bracket as shown.



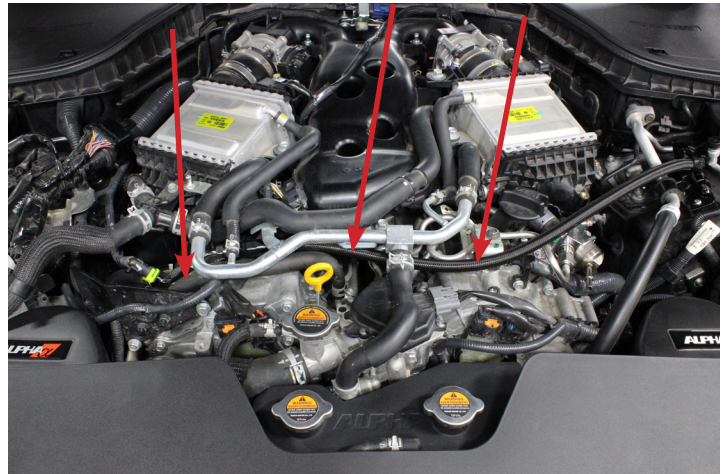
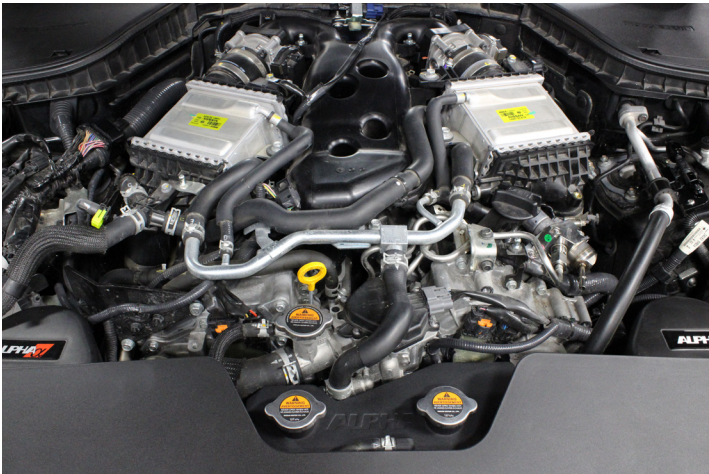
12) Locate the new low-pressure fuel line bracket. Swap the plastic fuel line clip from the OEM fuel line to the new bracket in the same orientation.



13) Locate the longer -6AN hose and install the straight hose end on the new fuel line bracket while on the bench. Tighten the straight fitting onto the new fuel line bracket.



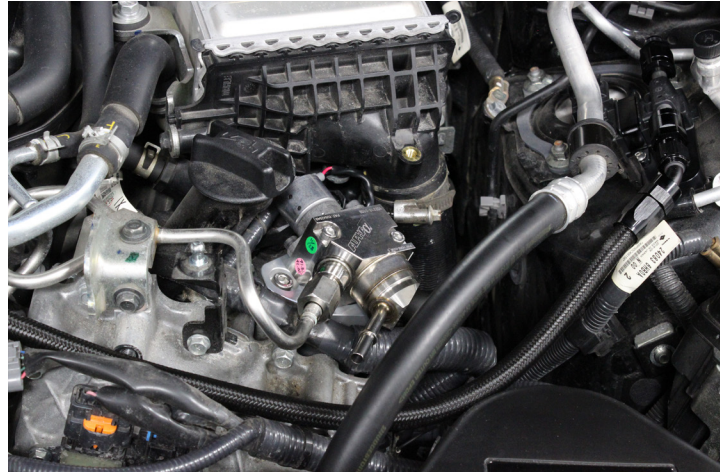
14) Install the new fuel line and bracket as shown under the intercooler water pipe. Once in place, reinstall the two M6 bolts holding water pipe to the intercooler.



15) Reattach the fuel line to the new bracket as shown on the right side of the engine. Make sure the OEM fuel line is properly clipped into the plastic bracket.



16) Route the hose as shown to the forward most fitting on the flex fuel sensor and tighten the fitting. The new fuel line will route under the A/C hose along the front of the engine.



17) Locate the remaining 5/16" fuel line adapter fitting and install it on the HPFP. This fitting will work with the OEM HPFP and AMS HPFP. It does not get used on the AMS Big Bore HPFP.

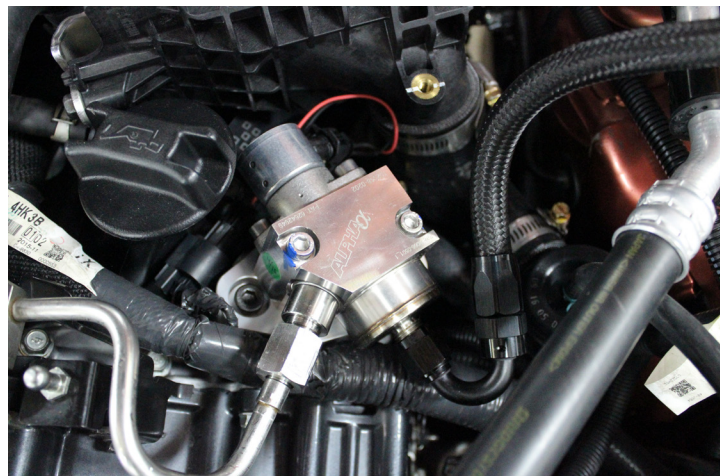


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18) Locate the remaining supplied fuel hose. This hose can be installed in both directions to offer options for different HPFPs. The hose shown is installed on an AMS HPFP, so the 180-degree fitting is attached to the HPFP and the 150-degree fitting is installed on the flex fuel sensor. The fuel hose can be routed over or under the A/C hose depending on the configuration.



19) Alternately, if using the AMS Big Bore HPFP, the inlet fitting on the pump is a male -6AN. Attach the 180-degree fitting to the flex fuel sensor and the 150-degree fitting to the fuel pump.

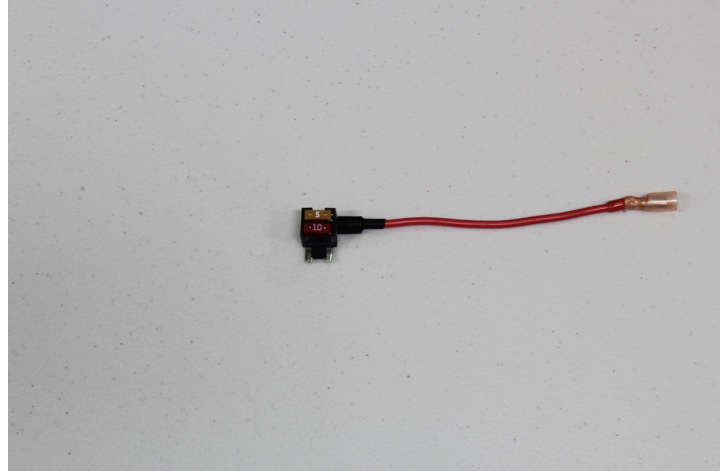


20) Double check all your connections. Reinstall the fuse removed during the first section of the instructions to relieve the fuel pressure. Key the car on a few times without starting it to prime the fuel system. Recheck all your connections for leaks.

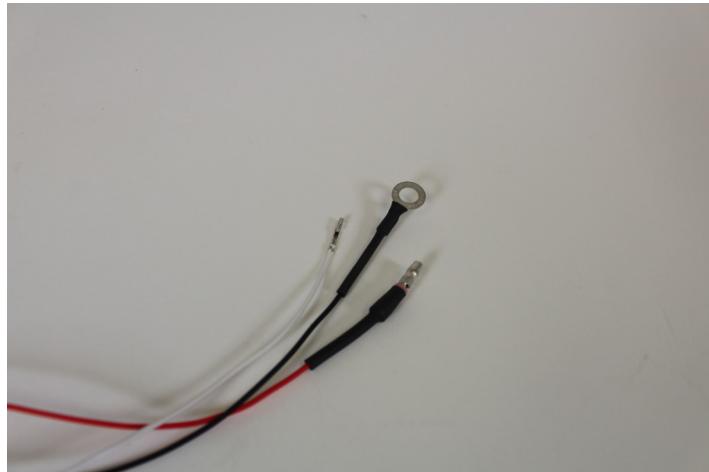
ELECTRICAL GAUGE / DISPLAY INSTALLATION / ECU INTEGRATION

21) At this point, install the gauge or display of your choice. Follow the gauge or displays instructions to install.

22) The wiring harness/ converter box supplied with the AMS Flex Fuel Kit has been modified specifically for your Infiniti Q50 or Q60. We also have supplied a mini fuse tap to properly power the Flex Fuel Sensor without the need of tapping or splicing into a factory wire harness.



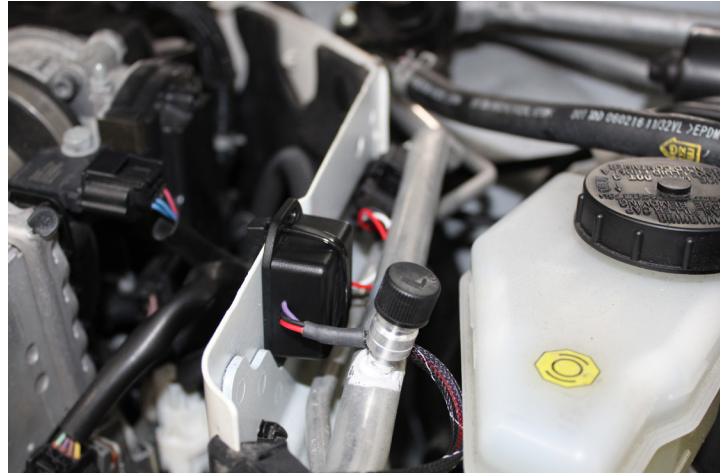
23) The wiring harness has only three wires. For reference, the red wire is a 12v power supply, black is chassis ground, and the white wire is a 0-5v output ECU Flex Fuel integration or data logger if desired.



24) To install and wire the harness, start by removing the cowl, battery and brake master covers.



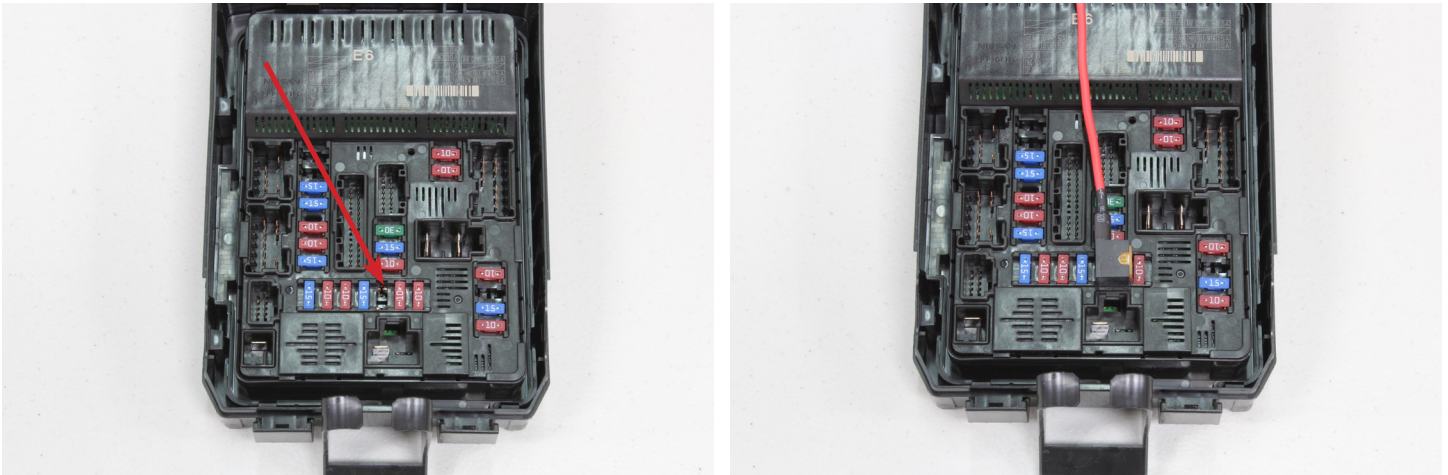
25) Connect the brown connector of the harness to the Flex Fuel Sensor and route the harness just on top of the rubber grommet for the A/C line that passes through the secondary firewall. Route the harness along the secondary fire wall to the battery area making sure to avoid any moving parts of the wiper motor assembly.



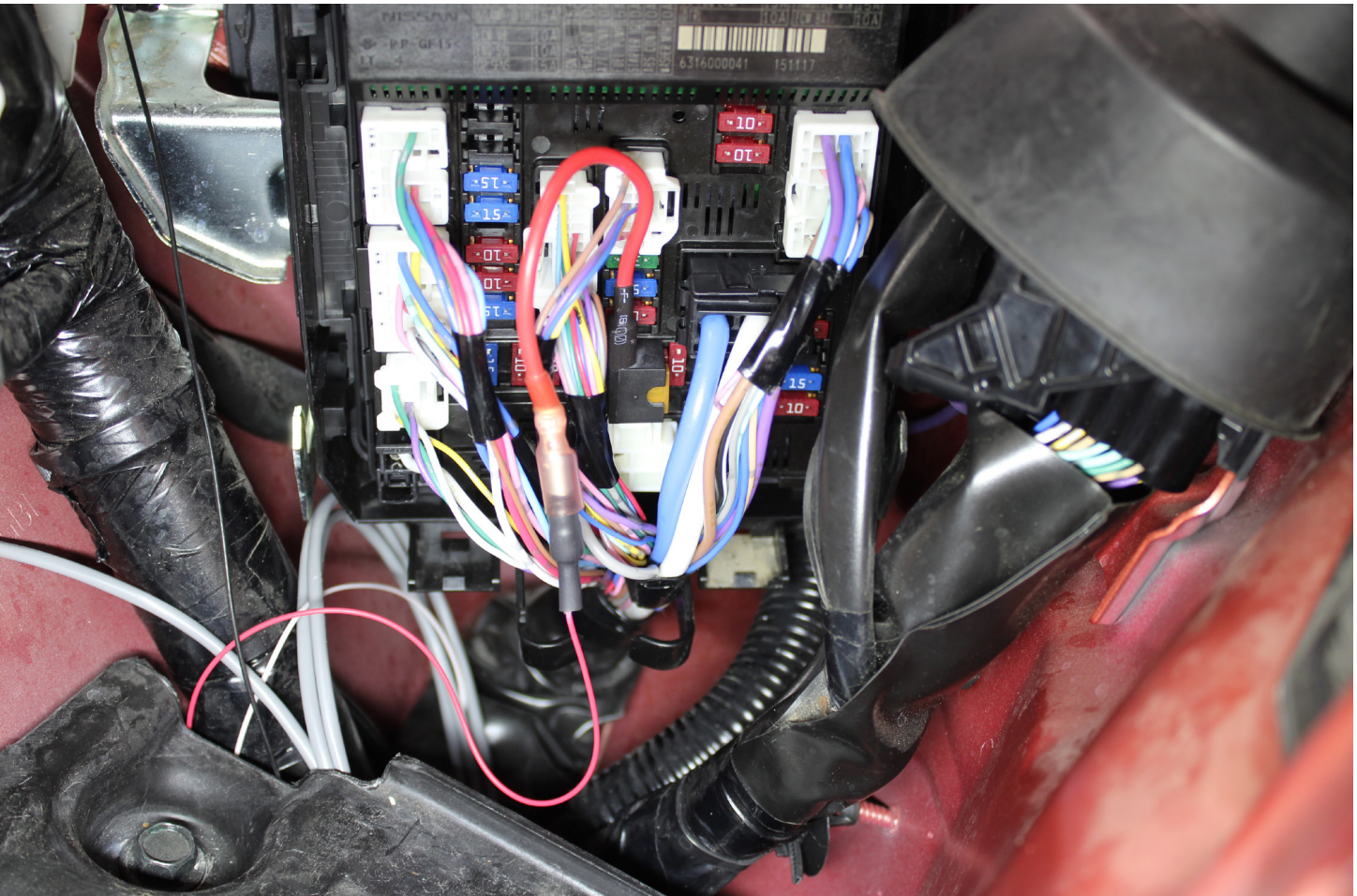
26) Remove the battery to gain access to the IPDM, if this has not already been done. Unclip the IPDM from its mounting bracket by releasing the two tabs at the top, then slide the IPDM upwards to remove from the bracket. To remove the cover, release the two tabs at the bottom of the IPDM cover, pull the bottom of the cover away from the IPDM slightly, then remove by lifting it upwards.



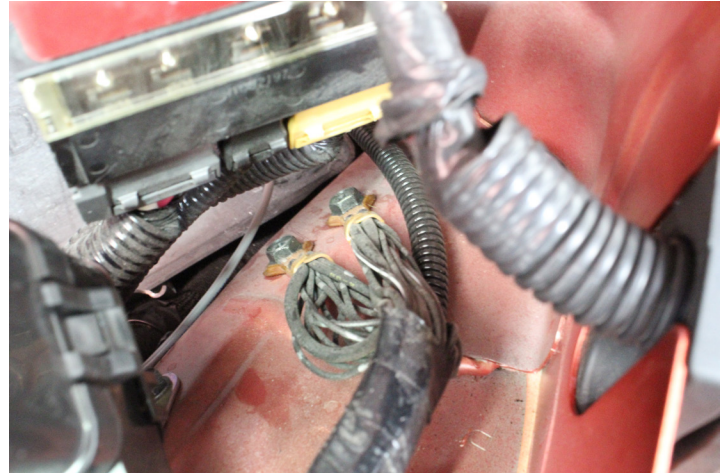
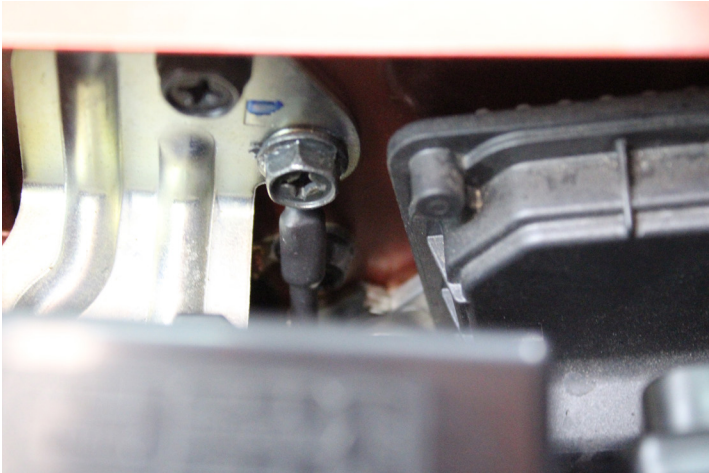
29) The fuse location we will be tapping into is #53 10 AMP Ignition. It is the 3rd fuse from the right on the bottom. Install the fuse tap as shown with the wire pointed upwards. The direction is very important on these fuse taps. If it is installed in the opposite direction, there will be no circuit protection.



30) Route the harness around the battery area. Connect the red wire of the wire harness to the fuse tap and route the wire along the factory harness leading out of the bottom of the IPDM housing.



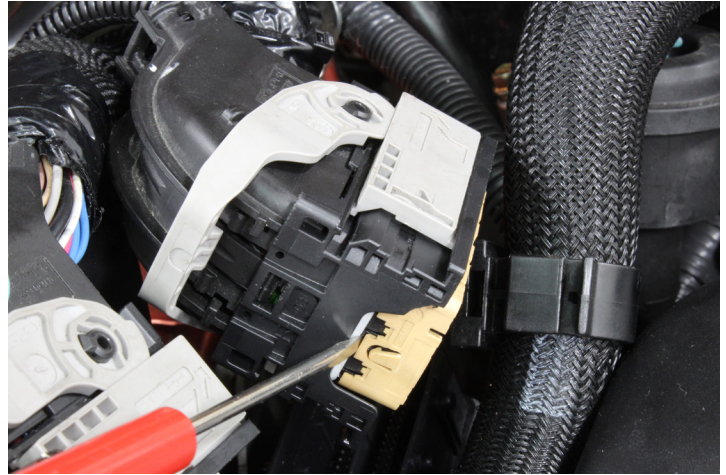
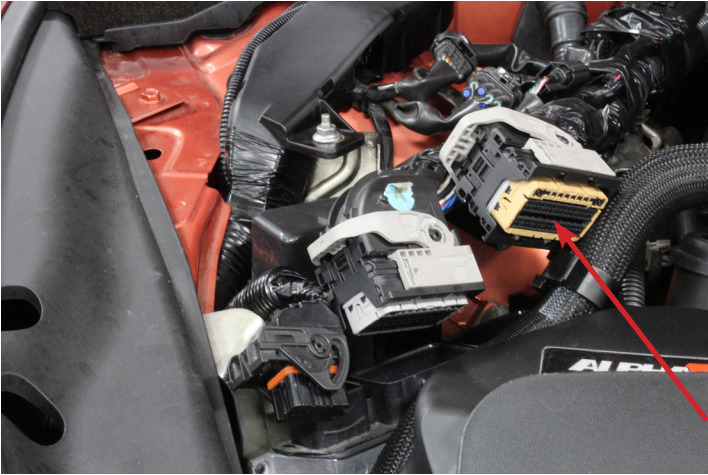
31) Connect the ground to a suitable chassis ground. There are several suitable locations including the battery terminal, wire harness ground location in front of the battery, and the AUX mounting bracket shown by the fender behind the IPDM.



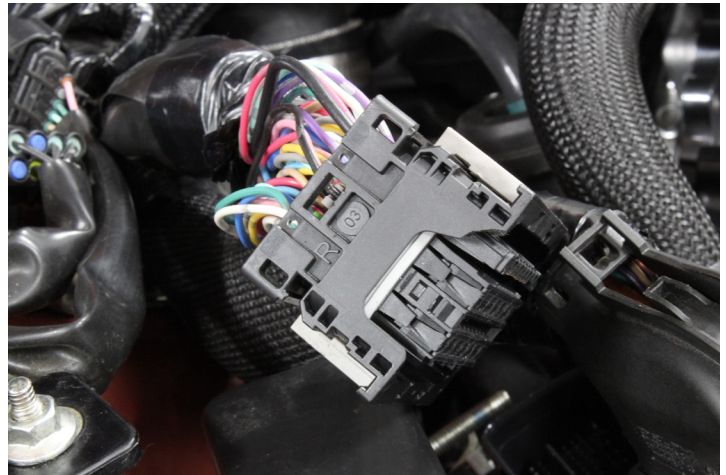
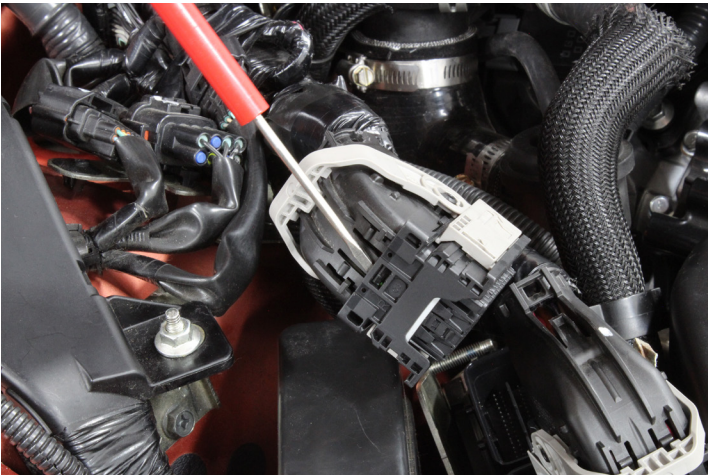
32) Now we will be adding a flex fuel input wire to the ECM. Ensure the battery is still disconnected. Locate and disconnect all three ECM connectors starting with the smallest connector and working your way towards the engine. They need to be disconnected in this order.



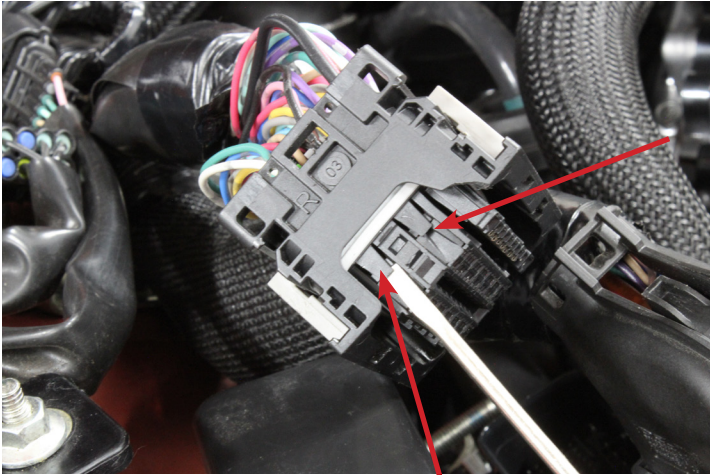
33) The third connector you will disconnect is the brown connector, this is where the flex fuel sensor input will be pinned into. Start by carefully removing the brown portion of the connector by inserting a small flat blade screwdriver to the area shown and give it a slight twist. This a secondary lock to the connector.



34) This step we will need to remove the cap and lever portion of the connector. Cut off the zip tie on the rear of the cover. Using a small flat blade screwdriver, remove cover and lever by releasing the retaining clip like shown the picture.

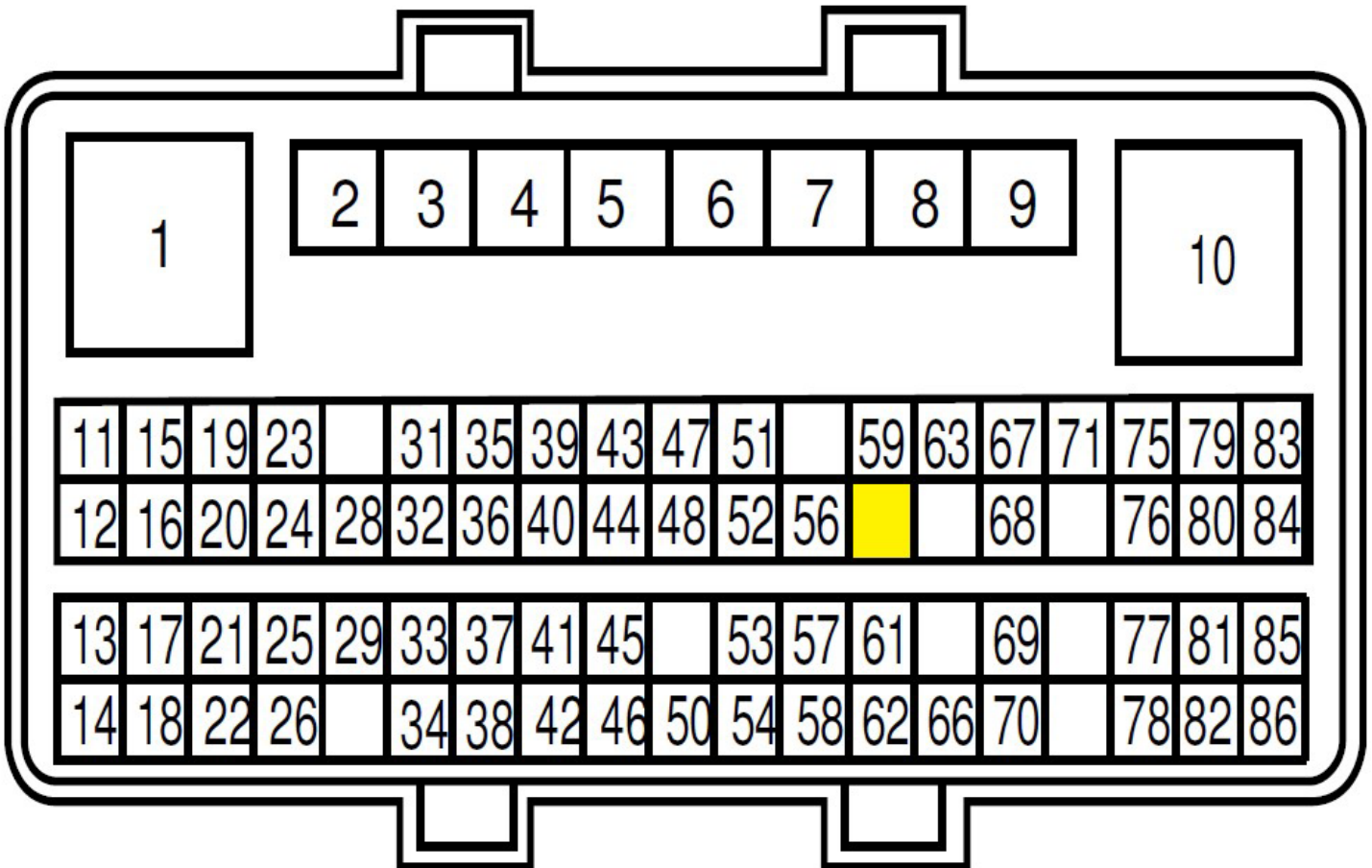


35) Now you will see there is a green connector and a gray connector. We need to access the gray connector so we will be removing both. Start by using a flat blade screwdriver and release the tabs on each end of the green connector as shown. Repeat for gray connector.



36) Locate Pin 60 in the gray connector and carefully remove the white plug.

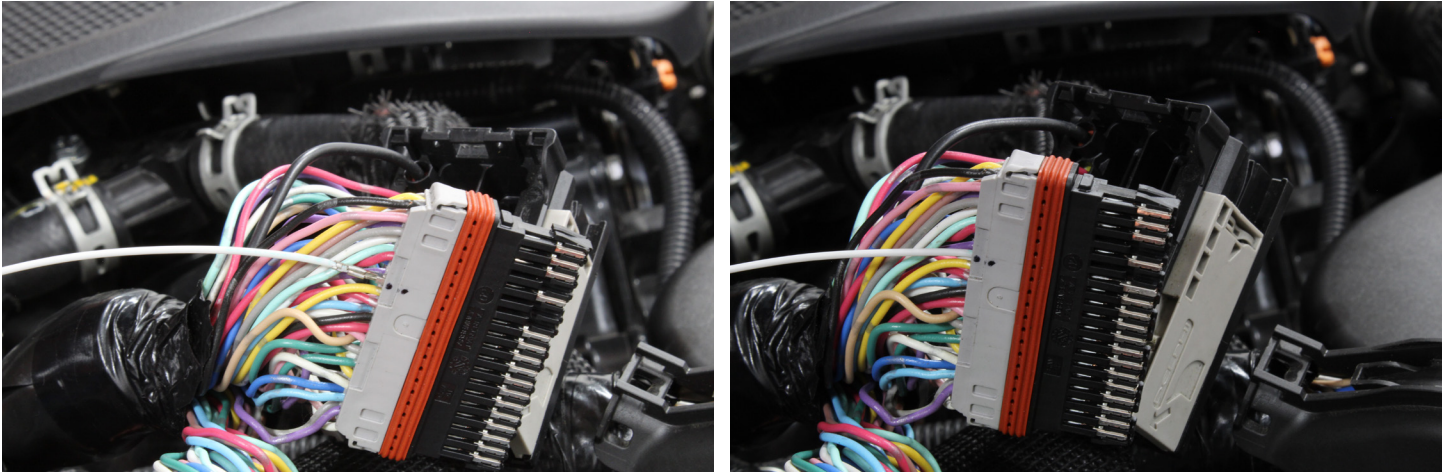
NOTE: Be very careful not to damage the connector. There is no force required for these steps.





37) Locate the white wire supplied in the kit. It is already crimped with the OEM terminal. Insert the wire into terminal 60 until it is full clipped in. You will know it is fully seated when the black retaining clip is sitting flat. Pay close attention to the orientation of the terminal and make sure the new wire is being installed the same way.

Note: The new terminal outer shell appears to be slightly different but is the correct series of terminal for this connector.



38) Plug the gray and the green connectors back in the black socket. Locate the small wire loom supplied in the kit and install it on the white wire as shown.

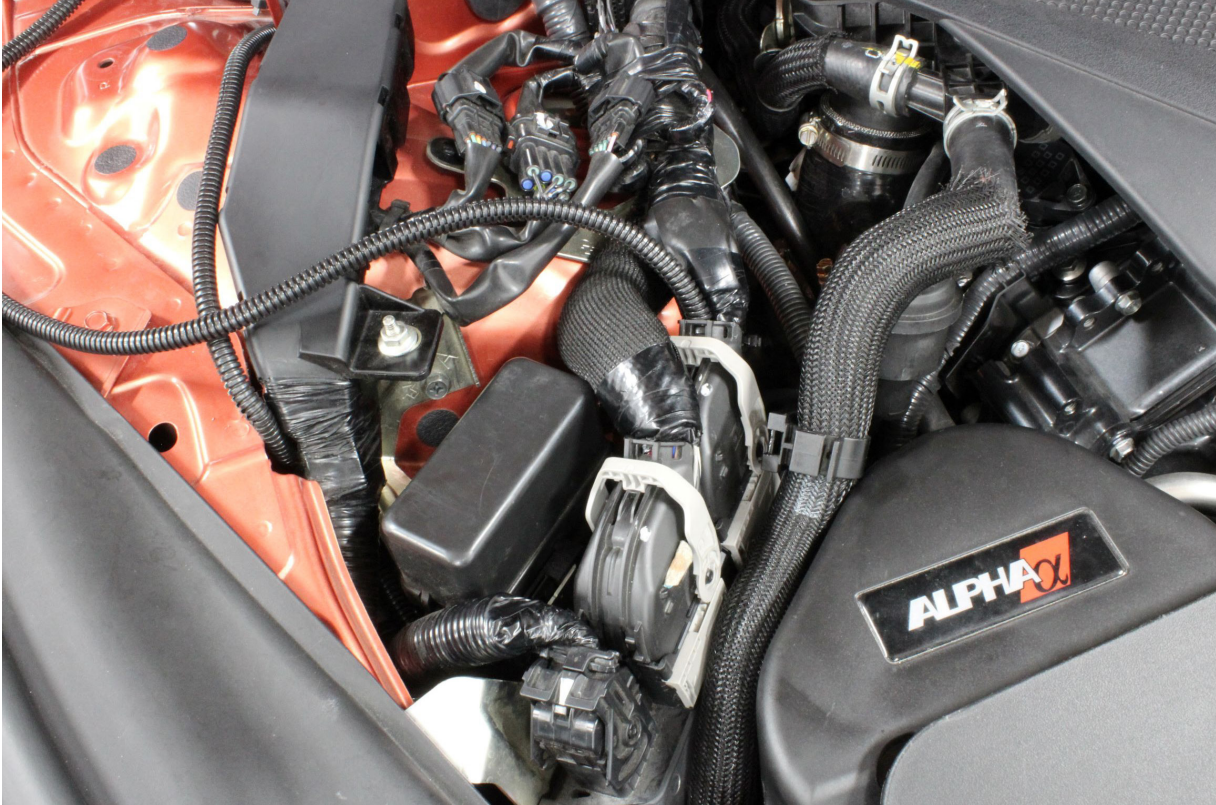


39) Reinstall the brown plastic connector end and the lever assembly while making sure the two gray slides on each side of the connector and the lever are in the correct position for it to function properly.



40) Reconnect all 3 ECM connectors starting with the connector you added the wire to.

41) Route the loomed white wire over to the battery compartment and secure with supplied zip ties.



42) Reinstall the IPDM cover, battery, and cover panels. Reconnect the battery.

Note: In order to take full advantage of ECUtek Flex Fuel Support, you will need to check with your tuner to have the most recent software release loaded in your vehicle that support Flex Fuel. This system will not automatically start working on its own.



43) Once everything is good to go, Enjoy!

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