

AMS NISSAN Z FLEX FUEL

INSTALL INSTRUCTIONS

Nissan Z 2023+

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 and tuning may not meet the legal requirements for use on public roads. AMS Performance makes no claims of compliance unless otherwise stated on a per-product basis. Use or installation of performance parts and tuning may adversely affect the drivability and reliability of your vehicle, and may also affect or eliminate your insurance coverage, factory warranty and new OEM part warranty. There is no stated or implied guarantee by AMS of continued OEM vehicle warranty, insurance coverage, or emissions compliance, due to the stress placed on your vehicle by performance parts and our inability to monitor its use, tuning or modification.

These instructions are not intended to be a comprehensive guide for installation as there are many variables that may affect your particular vehicle, including but not limited to model year differences, sub-model/trim/optional equipment differences, the presence of non-OEM parts, or other modifications that may have previously been completed. A basic understanding of automotive parts and systems and novice mechanical skills should be all that is necessary for installation, but certain circumstances may necessitate professional installation.

AMS Performance is committed to providing quality support for our products. If you are in need of technical support, installation help, or a replacement component, our Customer Service Team is available directly via telephone at 847-709-0530, or digitally via the contact form linked here: amsperformance.com/support

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DISASSEMBLY AND REMOVAL ///

Depending on your current modifications, the next few steps may or may not apply to you. It may be easier to remove some or all of the downpipe assembly in order to access the fuel line quick disconnect.

1. Position your car on a lift or raise it in a safe manner where you can access the engine bay and passenger downpipe area.
2. Starting with the top side, remove the front half of the engine cover(fig 1 & 2)



Figure 1



Figure 2

Note: If an AMS Fuel Filter Kit has already been installed, skip to step 6. Otherwise continue with step 3.

3. Unclip the harness from the bracket(arrow fig 3) and remove two bolts holding the bracket near the HPFP(circled fig 3). Remove the bracket(fig 4).

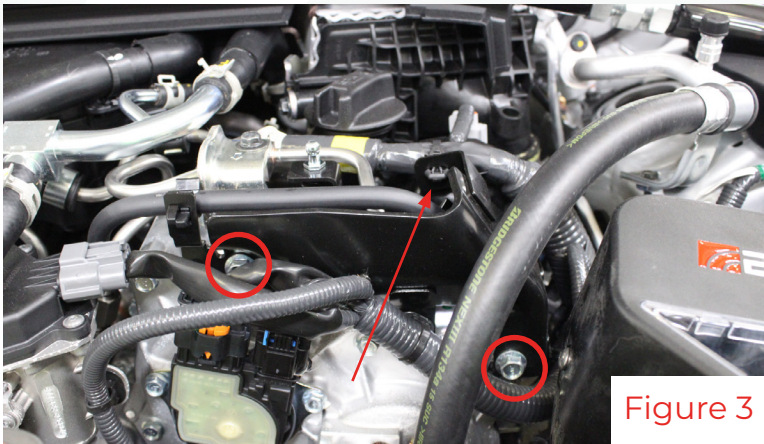


Figure 3

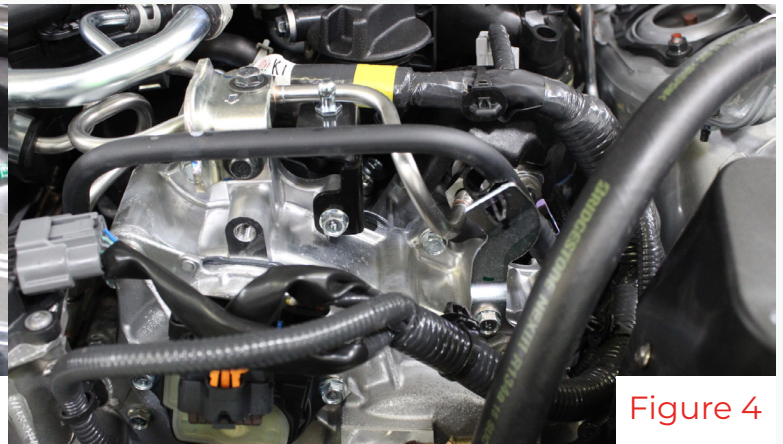


Figure 4

4. Remove the fuel line bracket(fig 5 & 6).

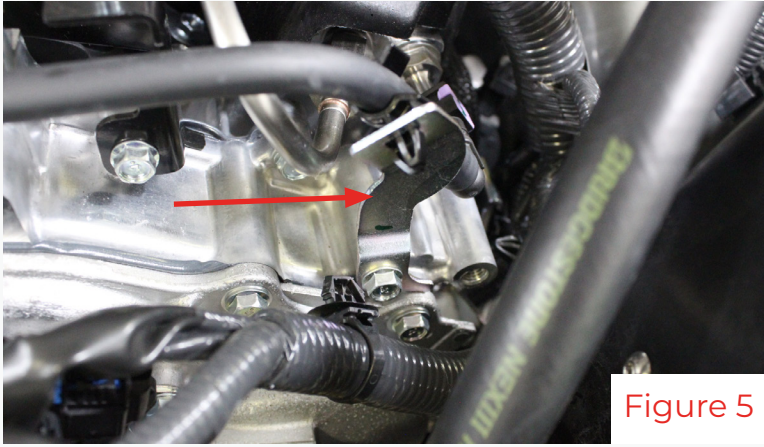


Figure 5

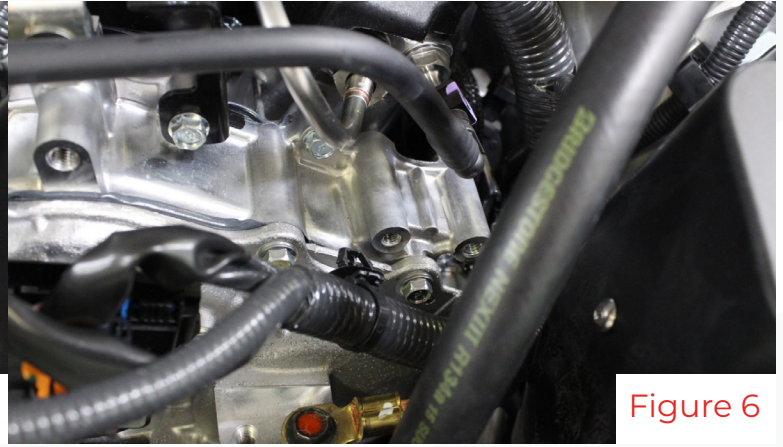


Figure 6

5. Release the purple clip and disconnect the fuel line from the HPFP(fig 7 & 8).

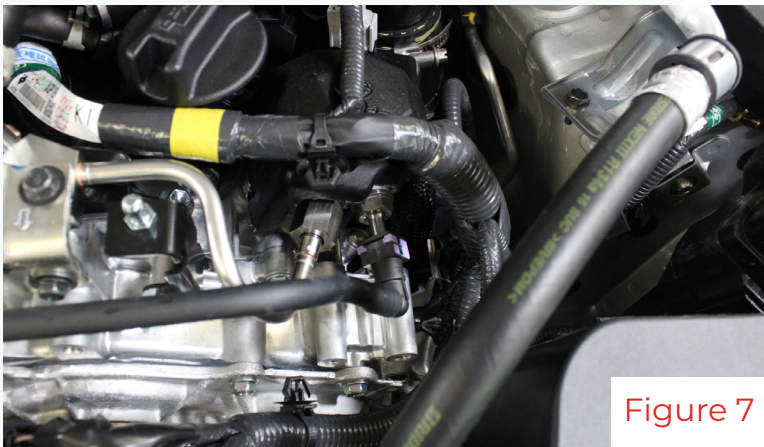


Figure 7



Figure 8

6. On the other side of the engine, unclip the harness and remove the bracket near the fuel pressure damper (fig 9 & 10).

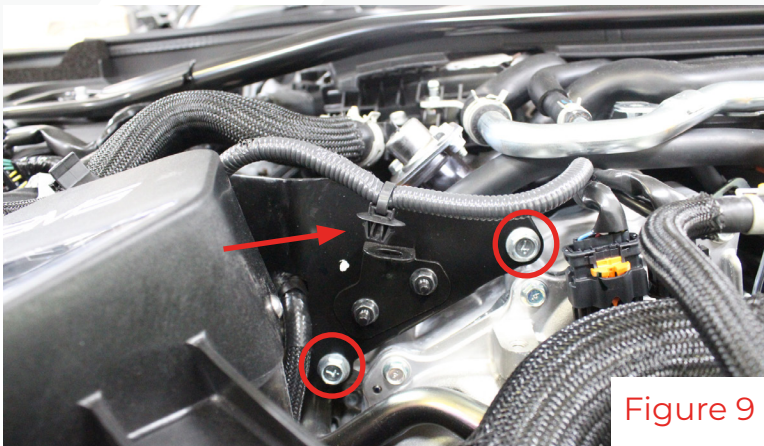


Figure 9



Figure 10

7. Remove the two bolts under the water line holding the hard pipe to the manifold(fig 11).

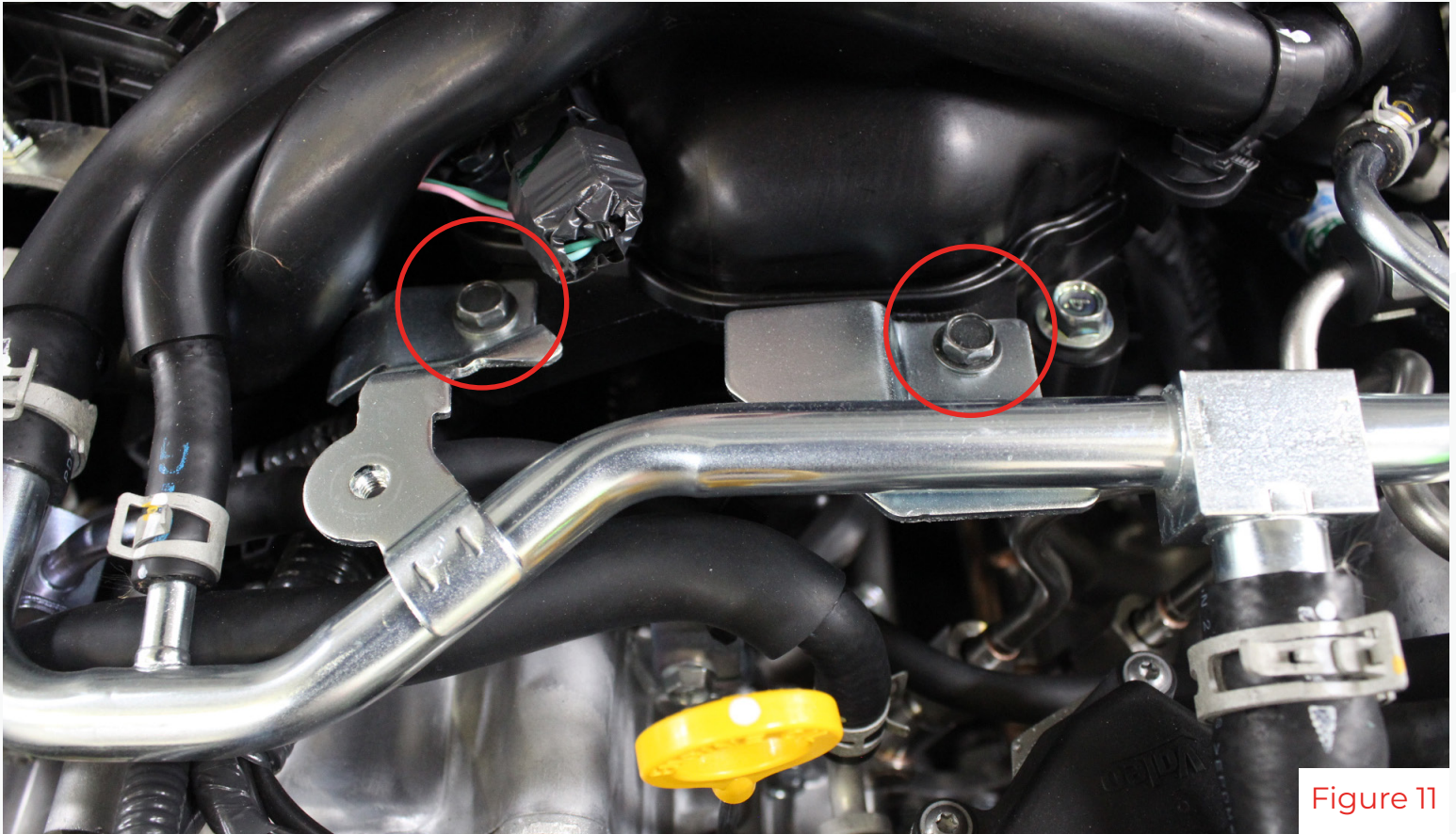


Figure 11

8. Release the yellow fuel line lock and disconnect the fuel line from the damper assembly(fig 12). Remove the two bolts mounting the damper assembly to the engine(fig 13).

Note: If an AMS Fuel Filter Kit is already installed, remove the hardpipe assembly as it will not be used.

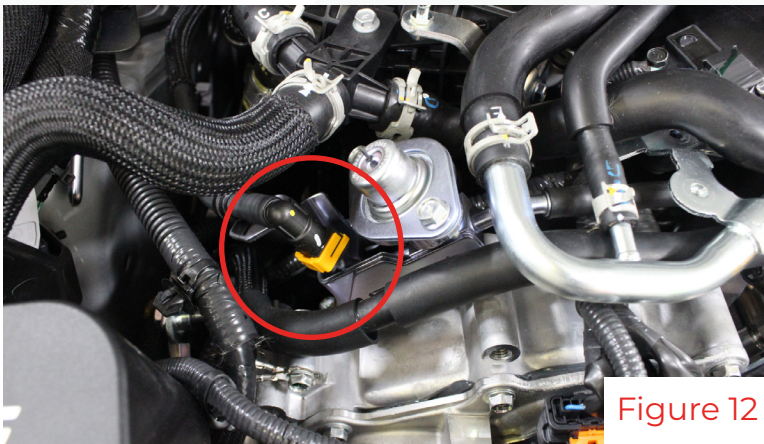


Figure 12

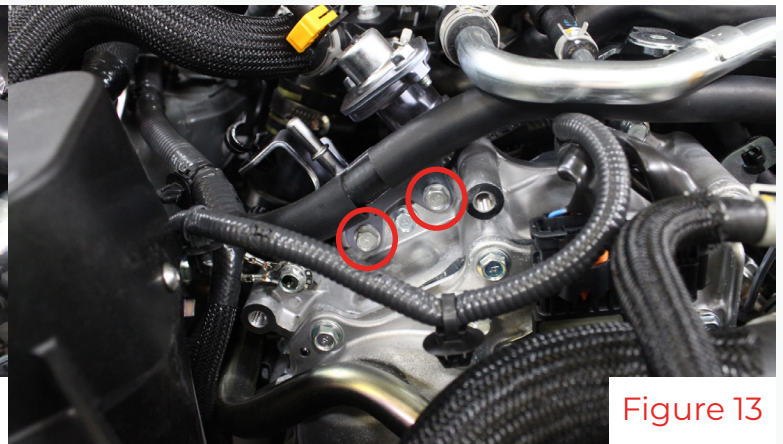


Figure 13

9. Remove the two passenger side downpipe nuts from the top, near the rear secondary firewall(fig 14).

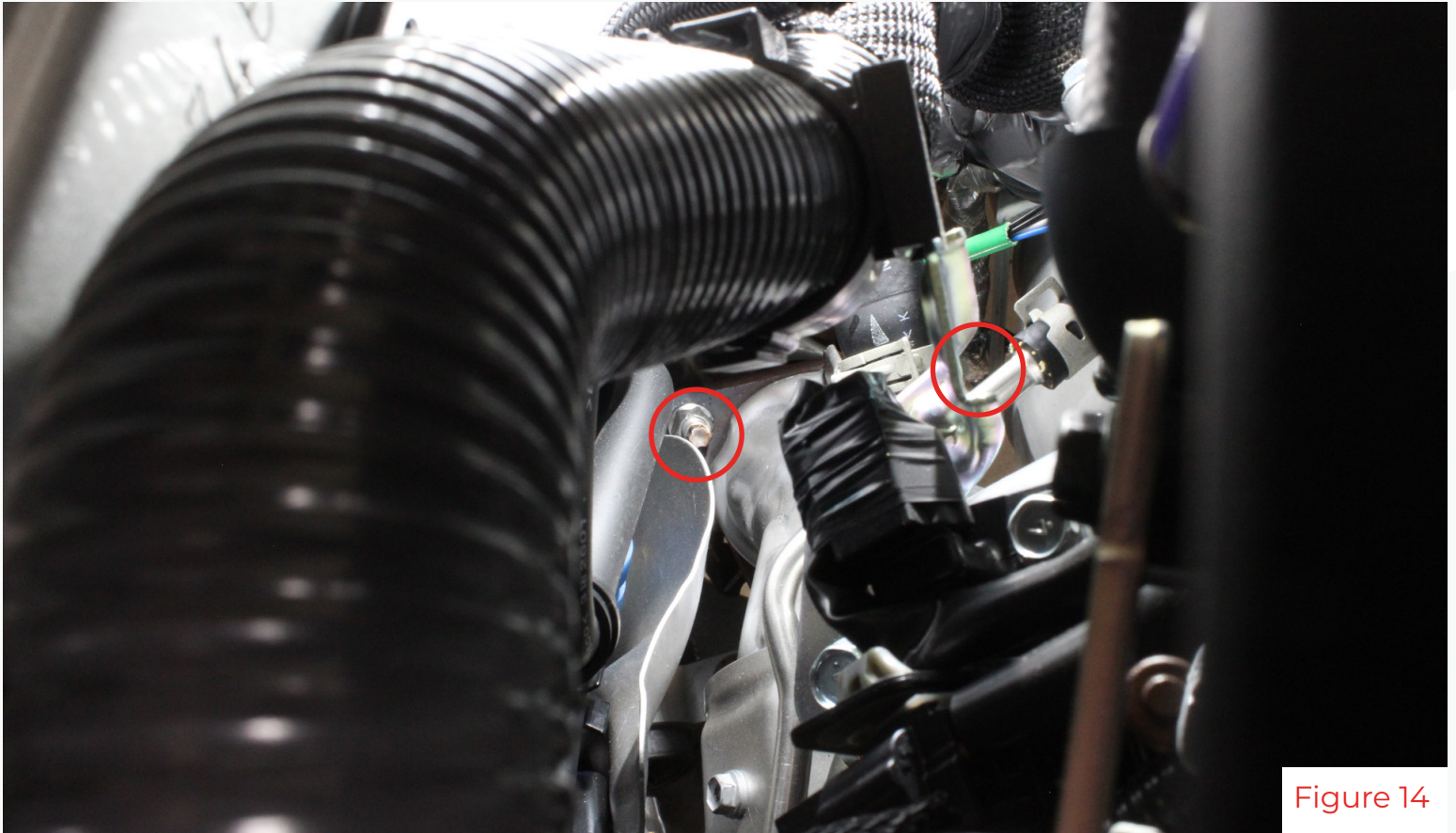


Figure 14

10. Under the vehicle, remove the last exhaust nut for the lower downpipe and the two bolts for the downpipe bracket(fig 15). Then disconnect the O2 sensor(fig 16).



Figure 15



Figure 16

11. Remove the final two exhaust nuts from the midpipe(fig 17), then remove the downpipe(fig 18).

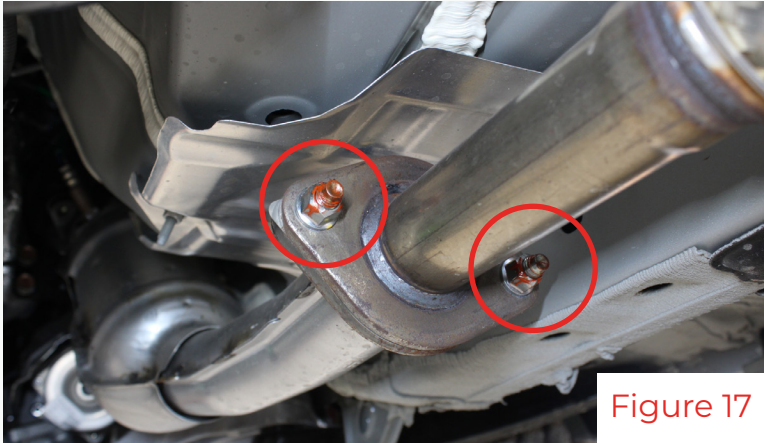


Figure 17



Figure 18

12. Remove the two m6 bolts holding the heat shield on(fig 19 & 20).



Figure 19



Figure 20

13. Remove the blue fuel line lock cover(fig 21). Then disconnect the fuel line(fig 22).It is advisable to use a shop towel to catch the rest of the fuel in the line.



Figure 21

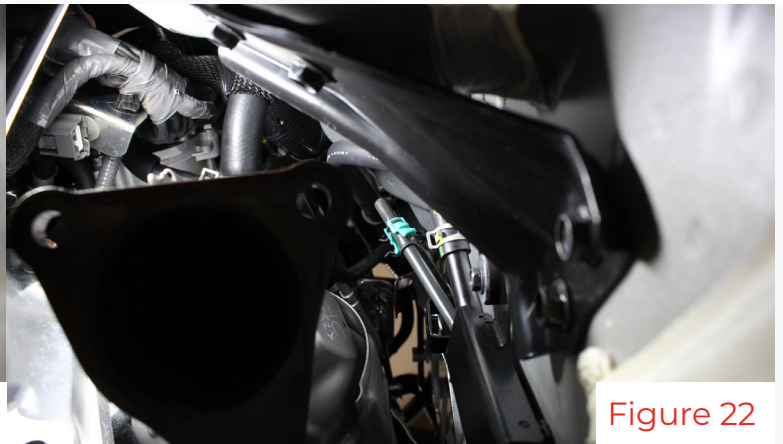


Figure 22

14. Remove the fuel line and green plastic fuel line clip(fig 23). Now you should have both the fuel lines and clip removed(fig 24).

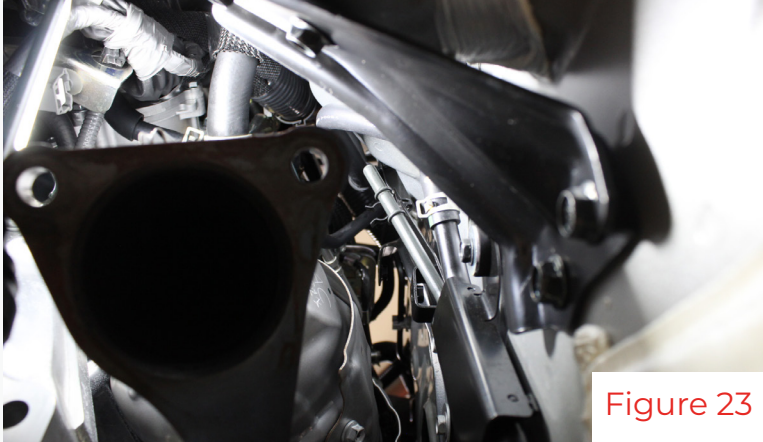


Figure 23

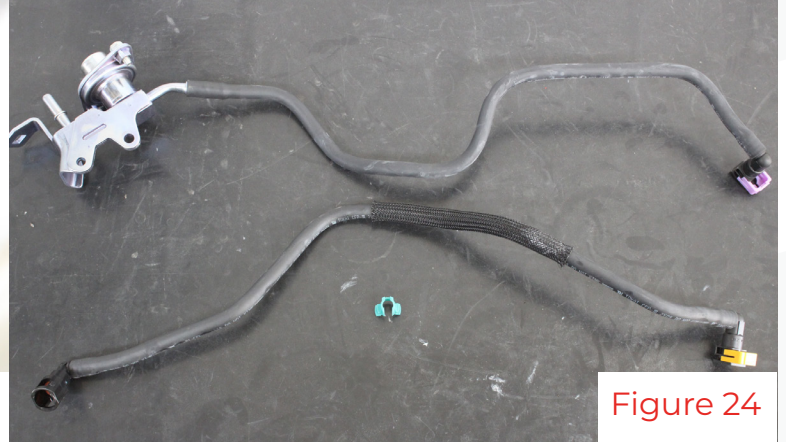


Figure 24

Installation

15. Locate the provided fuel line with the 90-degree fitting on one end and 45-degree on the other(fig 25). Route the 90-degree fitting end down towards the firewall connection(fig 26). Remove the screw nut and install the fitting onto the hardline. The nut has a groove on it that will mate to the shoulder on the hardline. Slide it onto the groove and screw the fitting together(fig 27). Use a 5/8" wrench and a 22mm wrench to tighten the fitting(fig 28).



Figure 25

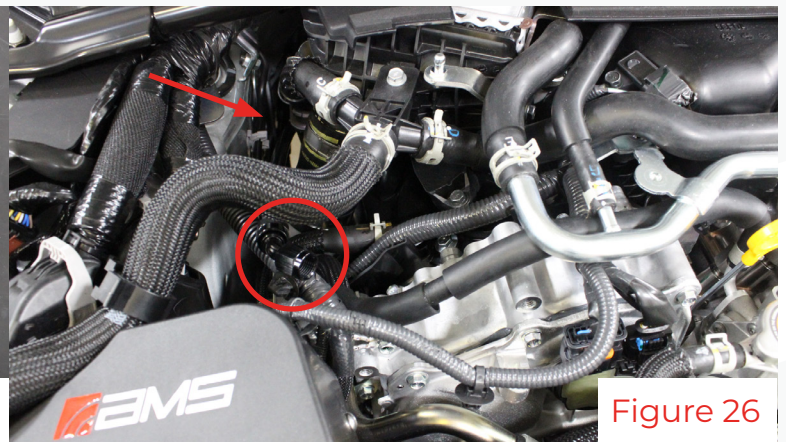


Figure 26



Figure 27



Figure 28

16. Push the new fuel line into the factory clip(fig 29). Reinstall the metal heatshield(fig 30).

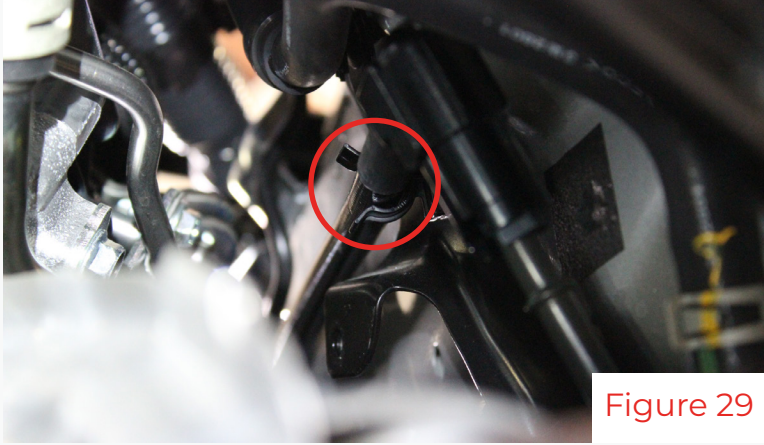


Figure 29

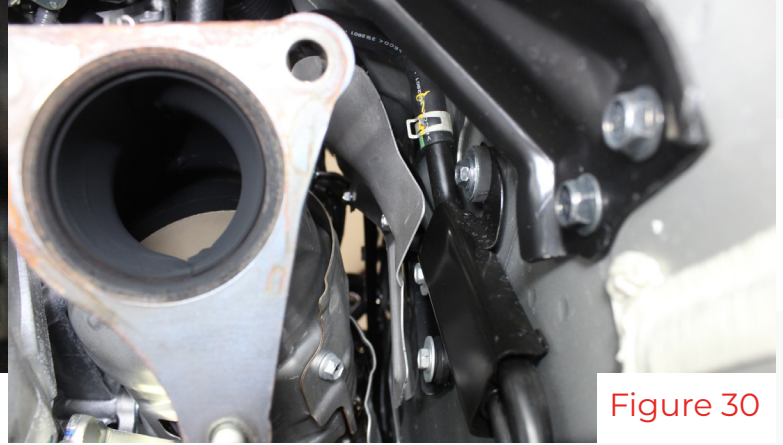


Figure 30

17. Gather the parts below to assemble the flex fuel sensor assembly(fig 31). Place the foam on the back of the sensor (fig 32). Then, with the logo on the bracket facing you, install the sensor on the backside with the connector at the top(fig 33 & 34).

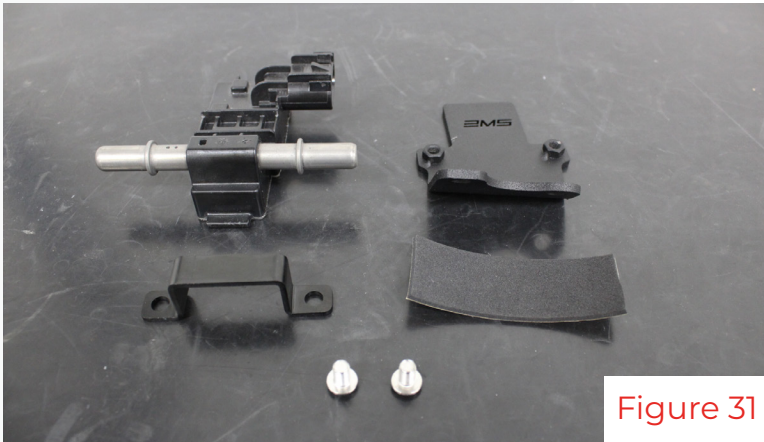


Figure 31



Figure 32



Figure 33

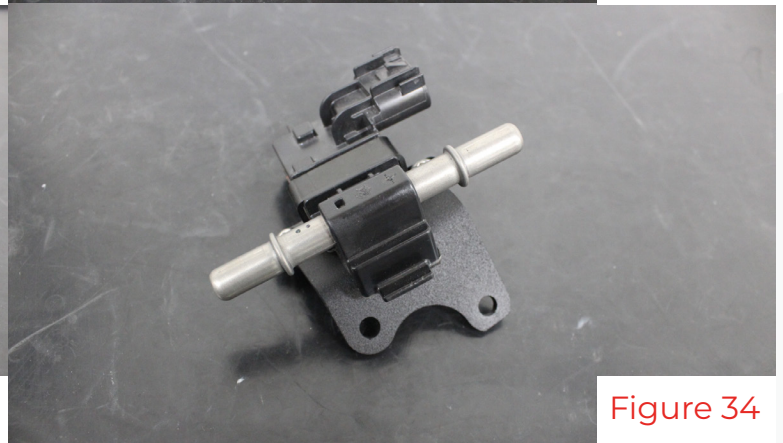


Figure 34

18. Install the two 3/8" quick connect fittings on the sensor(fig 35). Reuse the bolts from the OEM fuel damper and install the flex fuel sensor assembly in the same location(fig 36).

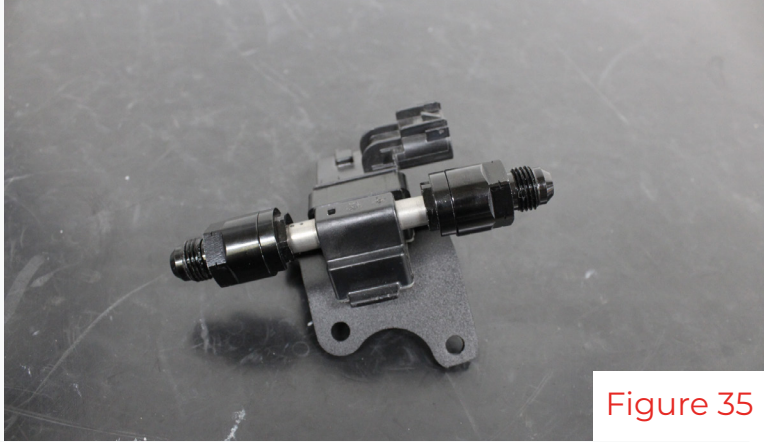


Figure 35



Figure 36

19. Be sure the new fuel line is routed up near the intercooler and connect it to flex fuel sensor(fig 37 & 38).

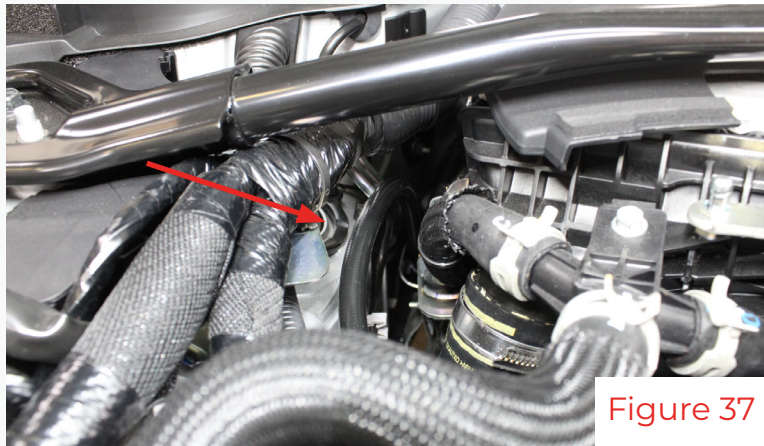


Figure 37

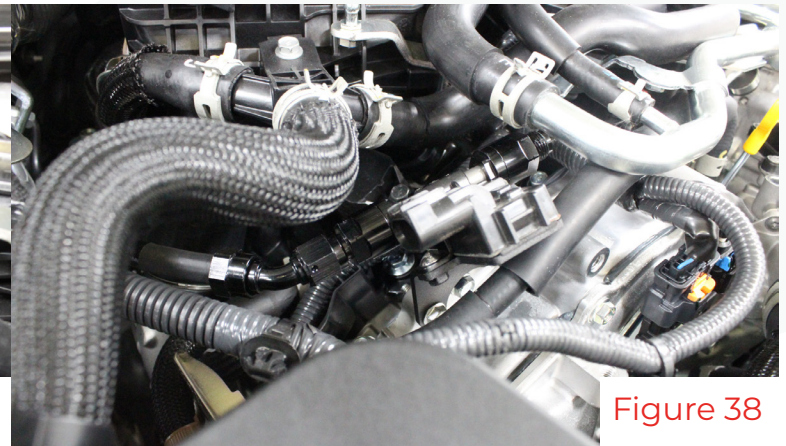


Figure 38

Follow the steps below based on your situation.

I am not installing an AMS Fuel Filter Kit. - Continue to step 20.

I already installed the AMS Fuel Filter Kit. - Simply connect the line that was removed from the AMS hardpipe assembly. Then skip to the wiring section of the instructions.

I purchased both the AMS Flex Fuel Kit and AMS Fuel Filter Kit and plan to install them at the same time. - Follow the Fuel Filter instructions from here, then return to the wiring section of these instructions when complete.

20. Using the line provided in the flex fuel kit(fig 39), route the end of the line with the straight fitting under the coolant crossover hard pipe to the flex fuel sensor and connect it(fig 40 & 41).



Figure 39



Figure 40

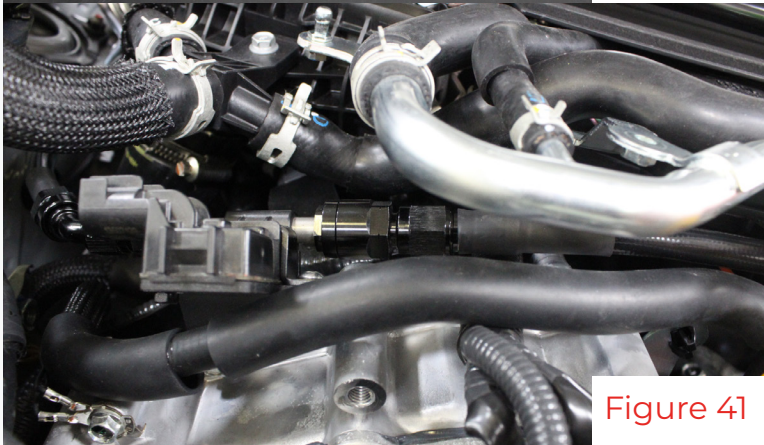


Figure 41

21. **All pumps EXCEPT Stage 3:** Install the 5/16" quick connect fitting onto the pump(fig 42 & 43). Push the fuel line into the fuel line retainer in the valley of the engine(fig 44). Connect the 90-degree fitting to the pump(fig 45).



Figure 42



Figure 43



Figure 44



Figure 45

22. **Stage 3 Pump Only:** Route the fuel line over the valley and connect it directly to the HPFP.

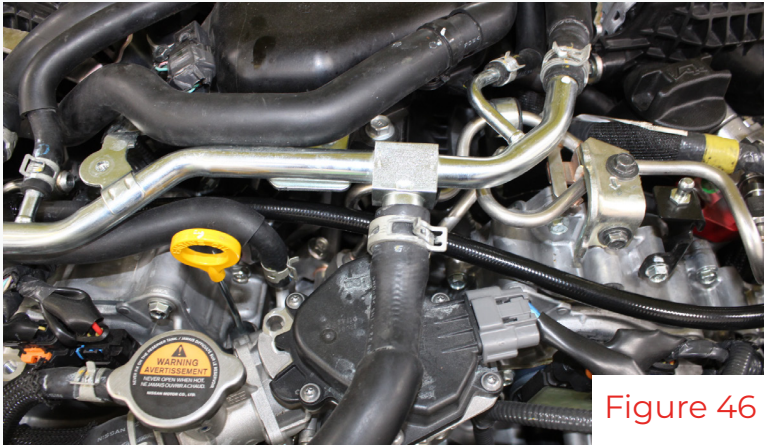


Figure 46



Figure 47

23. Reinstall the bolts for the crossover pipe(fig 48) and reinstall the metal bracket near the flex fuel sensor(fig 49).

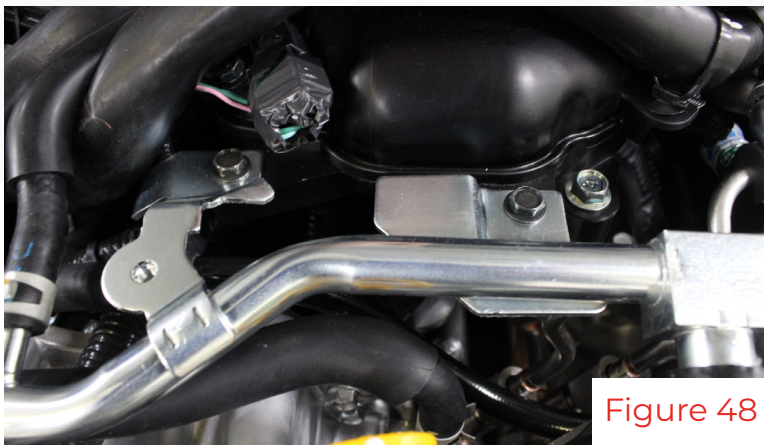


Figure 48



Figure 49

Wiring

24. Remove the battery and brake fluid access panels and disconnect the battery (fig 50). Remove the passenger side cowl cover, and the two clips holding the middle cowl cover (fig 51).



Figure 50



Figure 51

25. Locate the bag of electrical components included in the kit; unbox the Zeitronix box and lay the parts out (fig 52 & 53). Some of the wires have been removed from the Zeitronix connector for accessories not used in a standard installation. These can be repinned and utilized by following the guide included in the Zeitronix kit.



Figure 52

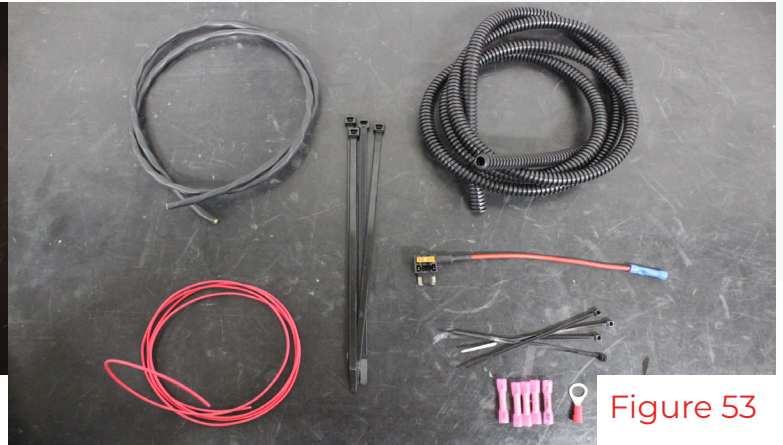


Figure 53

26. Take the Zeitronix harness and use a wire stripper to strip the black wire and install the ring terminal (fig 54 & 55).

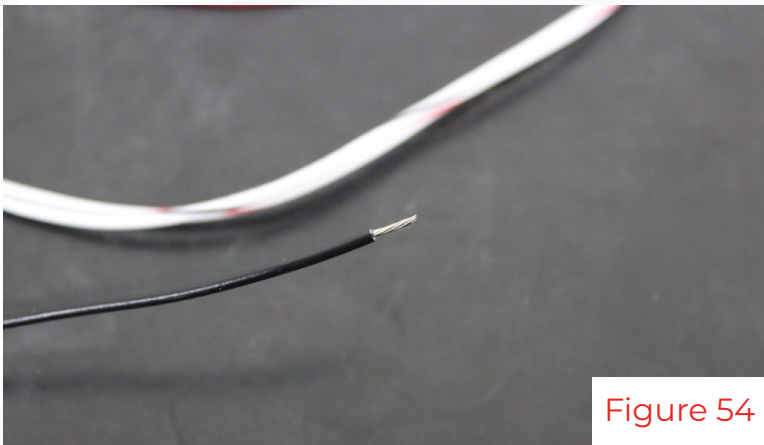


Figure 54

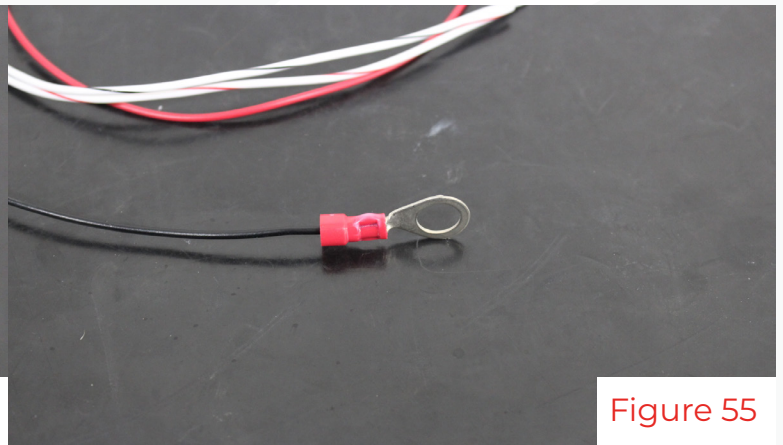


Figure 55

27. Remove the two bolts holding the small fuse box in the battery compartment(fig 56) and install the ring terminal on one of the ground bolts(fig 57).

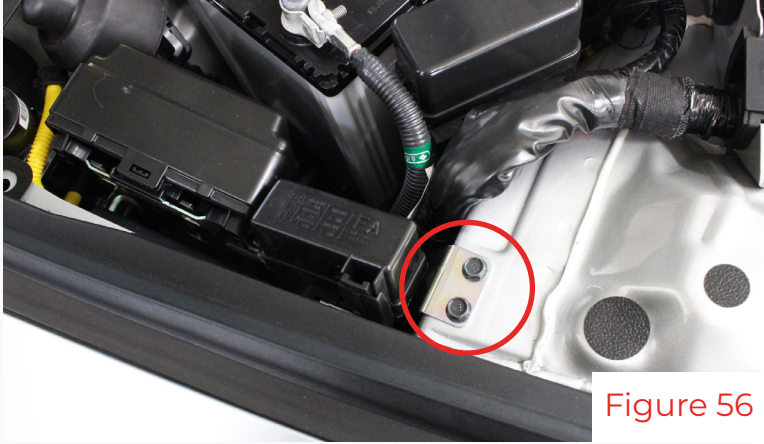


Figure 56

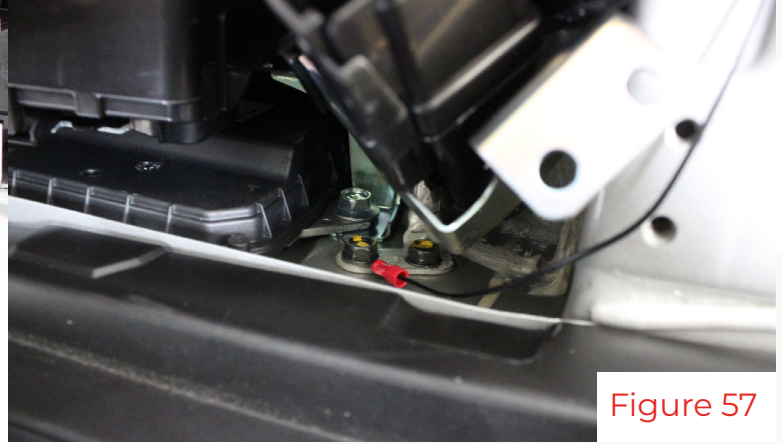


Figure 57

28. Route the harness under the vehicle harness(arrow fig 58) towards the front of the battery. Using one zip tie, mount the Zeitronix box to the harness and plug in the Zeitronix connector.

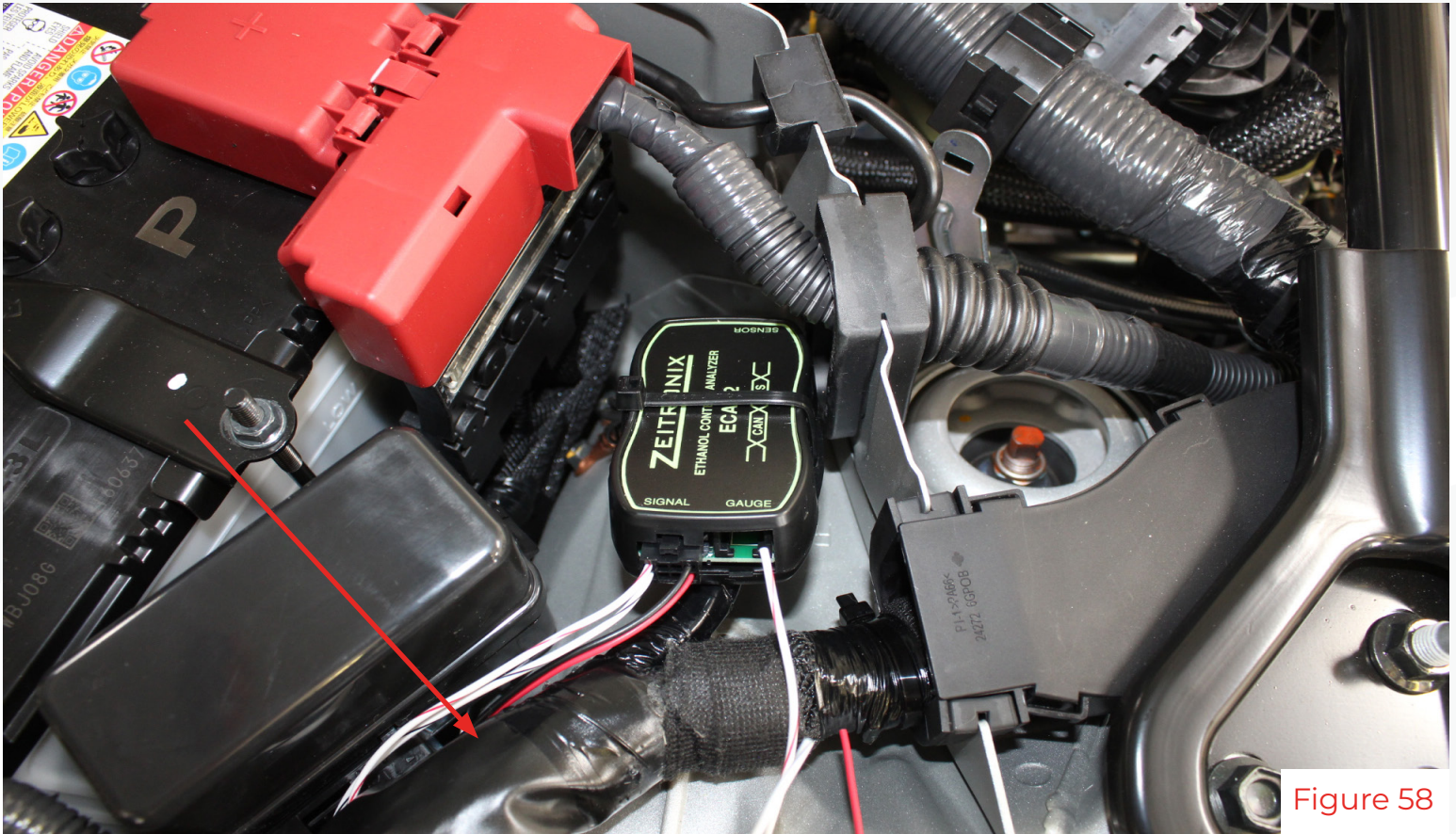


Figure 58

29. Trim about four inches of wire off the two white wires(fig 59) and then use a wire strippers to strip them for a crimp connection(fig 60).

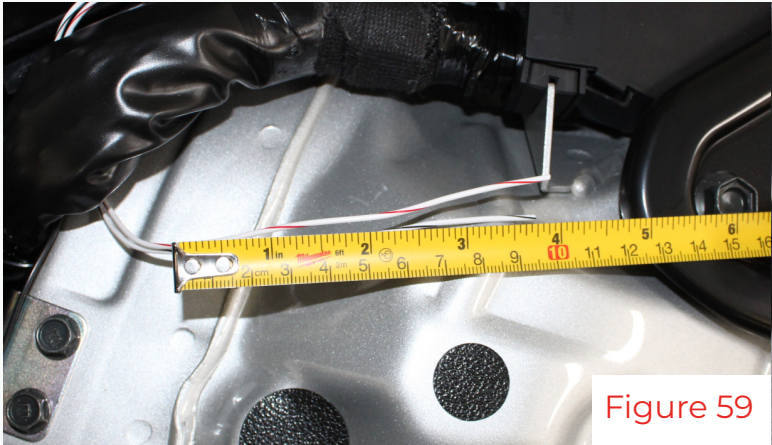


Figure 59

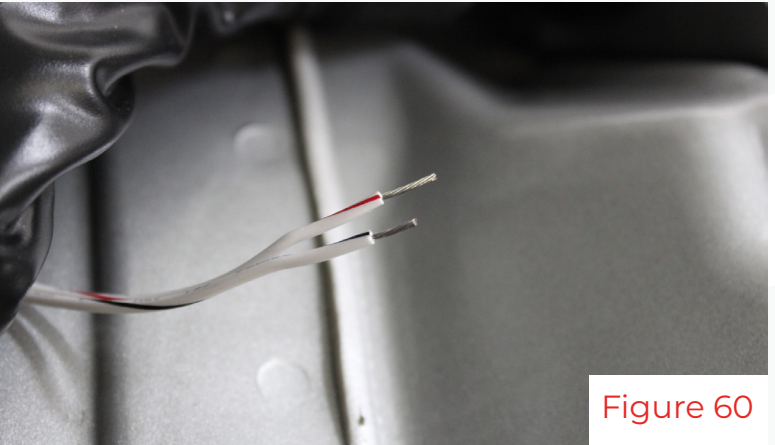


Figure 60

30. Prepare the CAN-BUS wire by carefully stripping back the sleeving without cutting into the individual wire insulation(fig 61). Use two butt connectors to crimp the yellow wire to the white/red wire, and the green wire to the white/black wire of the Zeitronix harness(fig 62). Use a heat gun or similar to shrink the butt connection to make a waterproof seal(fig 63).

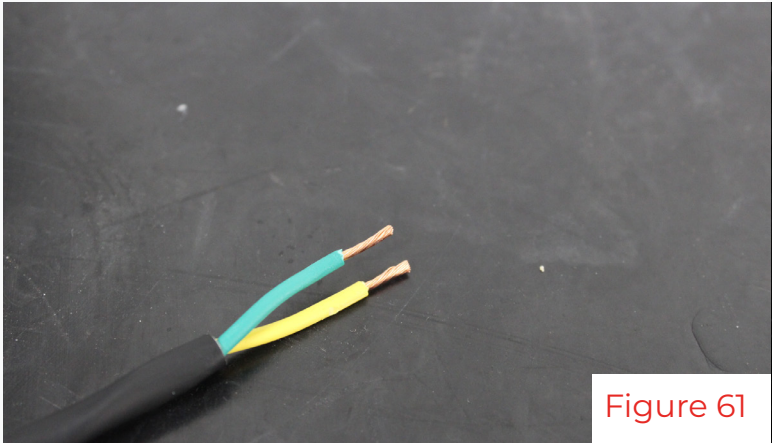


Figure 61

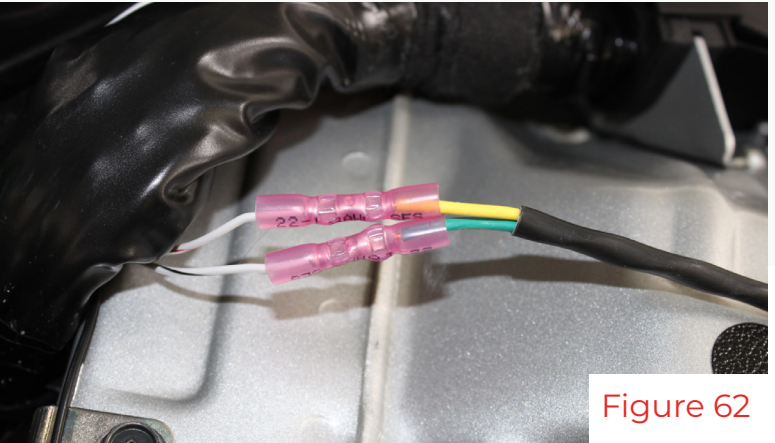


Figure 62



Figure 63

31. Disconnect the outer most connector from the ecu. Follow the figures below to disassemble the connector (fig 64-69).



Figure 64



Figure 65



Figure 66

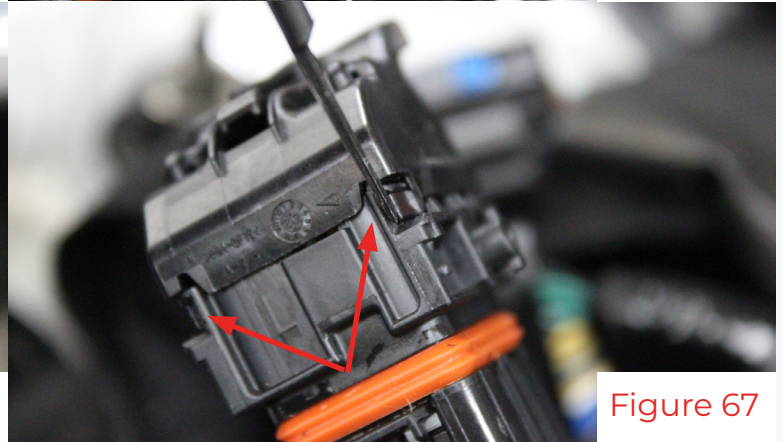


Figure 67

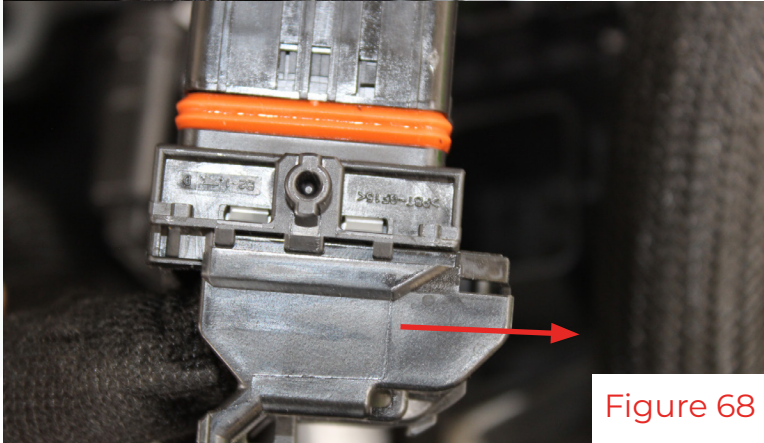


Figure 68

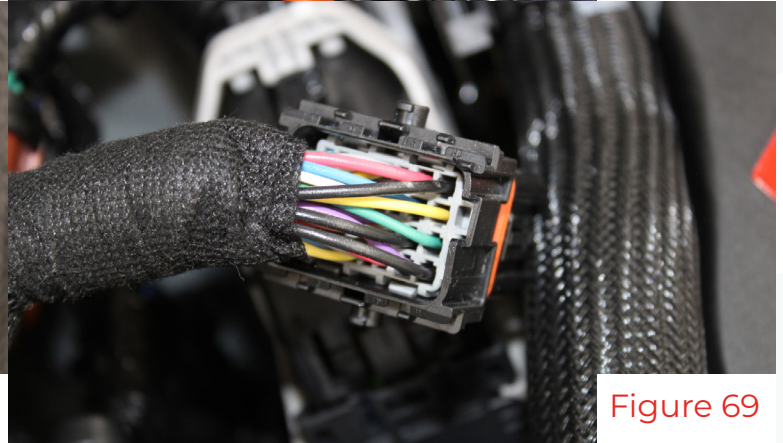


Figure 69

32. Locate pins 175 and 176. The wires should be Pink and Light Blue(fig 70). These are the CAN-H and CAN-L wires needed to splice into for the Zeitronix module. Untape the harness and open the loom to find the twisted pair of CAN wires(fig 71).

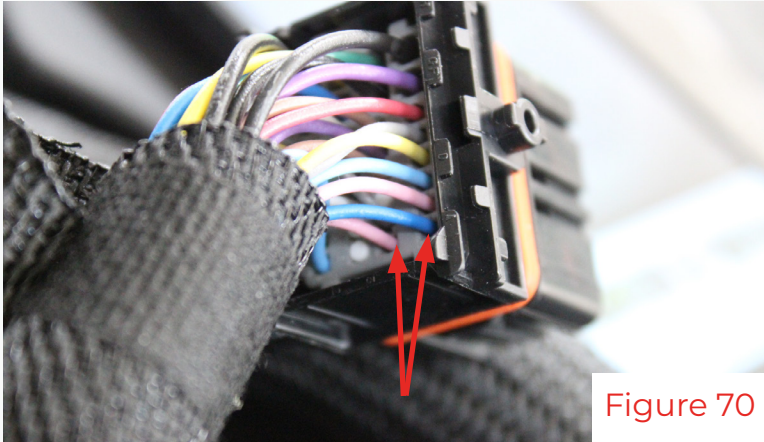


Figure 70



Figure 71

33. Cut the CAN wires in the middle and use a wire stripper to prepare another crimp connection(fig 72).

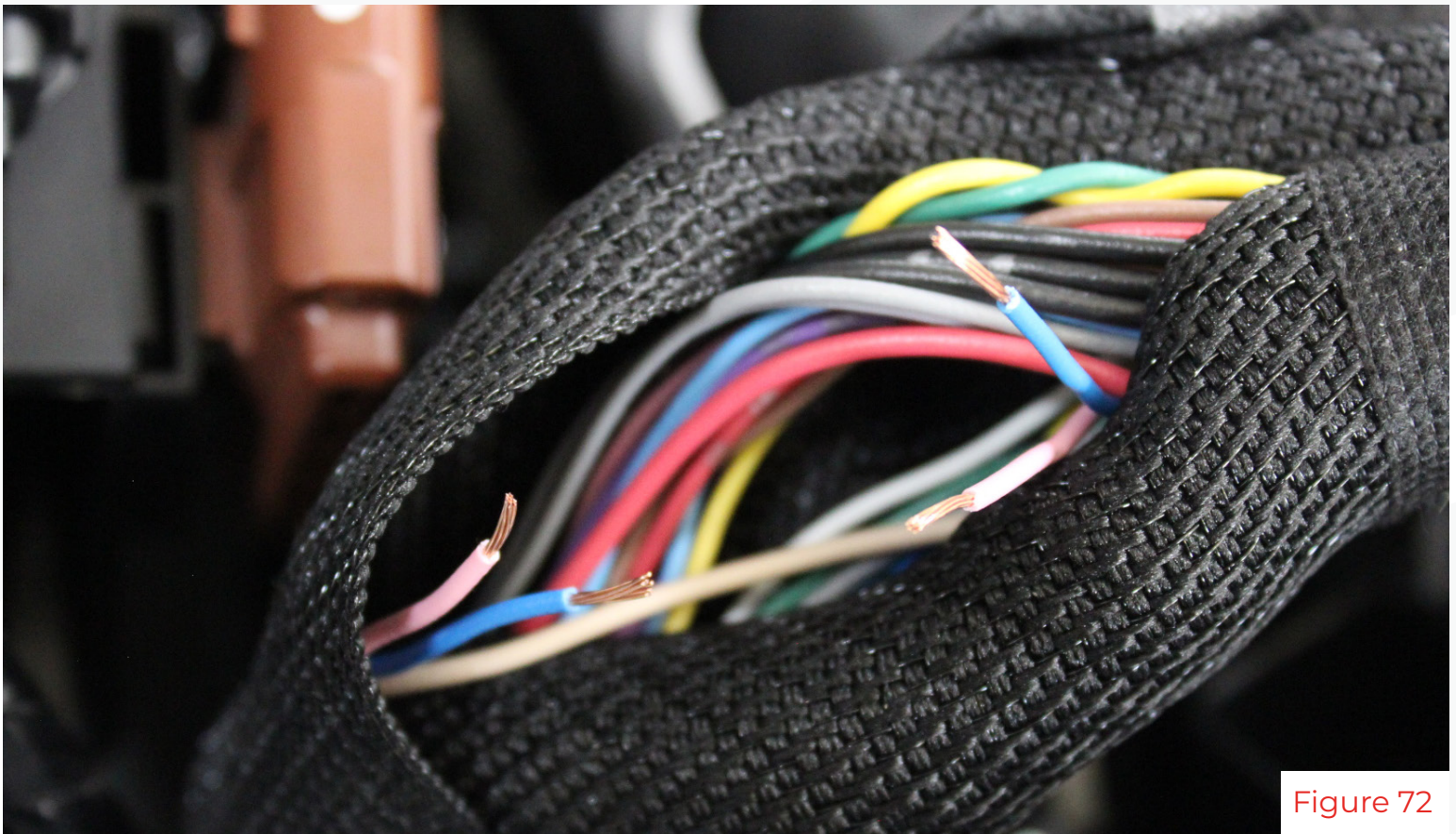


Figure 72

34. Locate two butt connectors. Twist the yellow wire with one pink wire and make a crimp connection. Then crimp the remaining pink wire on the opposing end. Repeat for the Blue CAN-H wire and insert the green CAN-BUS wire into one side of the second butt connector(fig 73 & 74)). Heat shrink the butt connector to make a waterproof seal(fig 75).

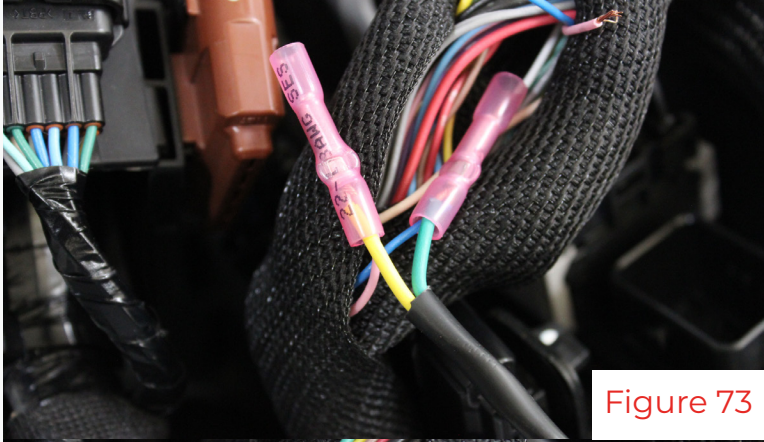


Figure 73



Figure 74



Figure 75

35. Tuck the wires back in the loom and neatly retape the harness(fig 76). Reassemble the connector and plug it back into the ecu(fig 77).

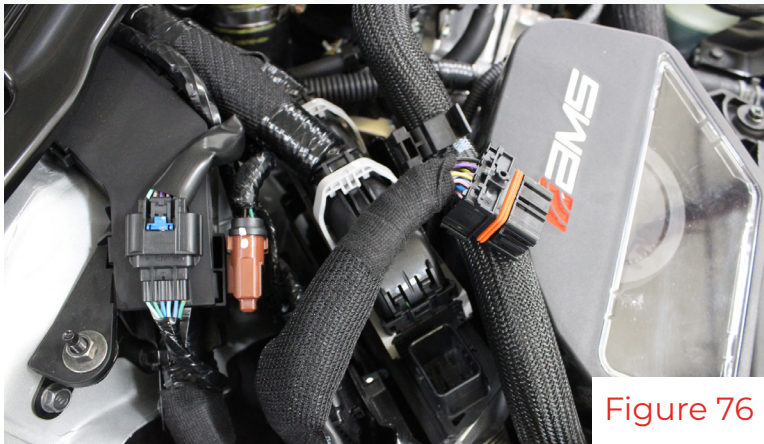


Figure 76



Figure 77

36. Using the Zeitronix flex fuel sensor harness(fig 78), route it under the vehicle harness and vehicle frame into the fender cavity(fig 79 & 80). Route the harness up to the battery compartment and plug it into the Zeitronix box(fig 80 & 81). Use one zip tie to neatly bundle the access harness(fig 82). Tuck it into the fender cavity with and secure with a second zip tie(fig 83).

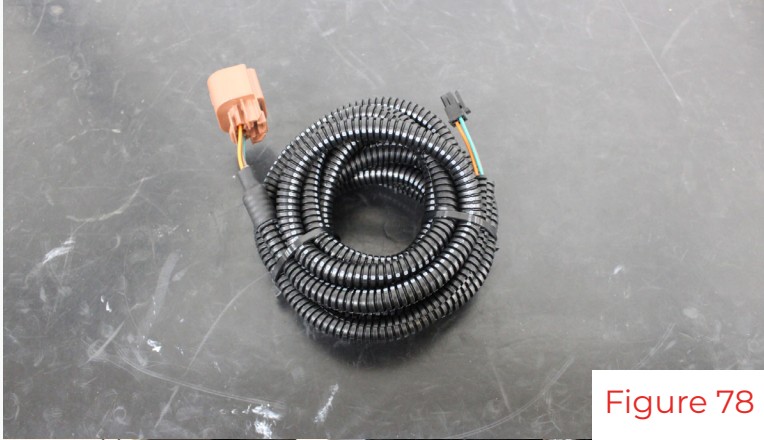


Figure 78



Figure 79



Figure 80

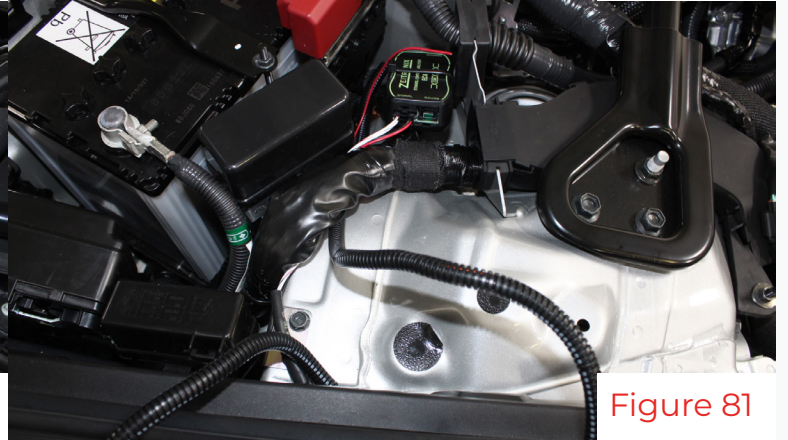


Figure 81



Figure 82

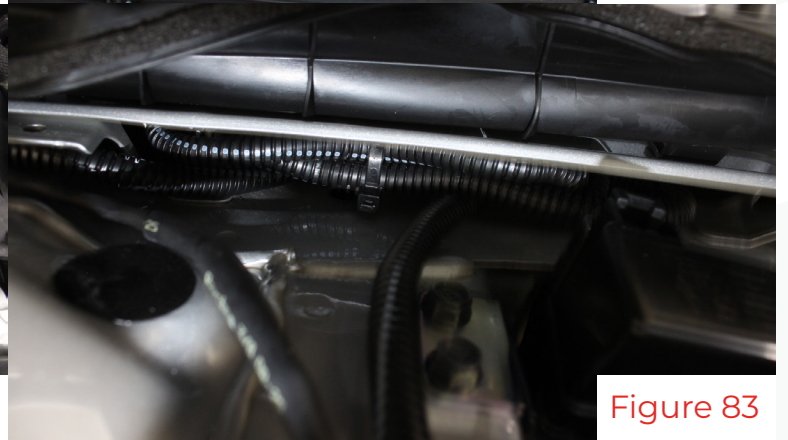
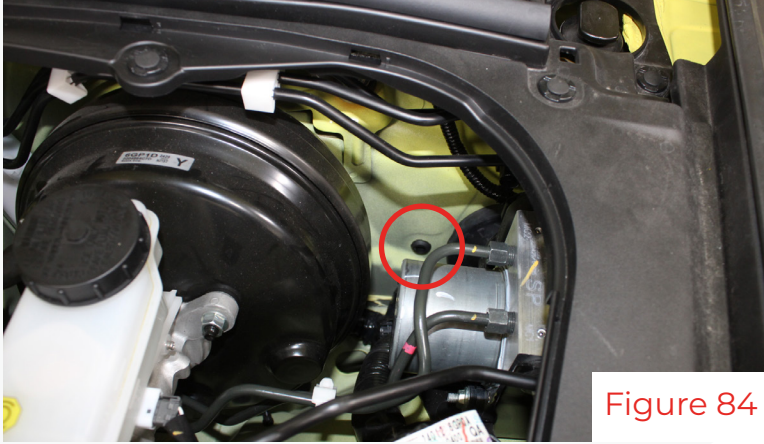


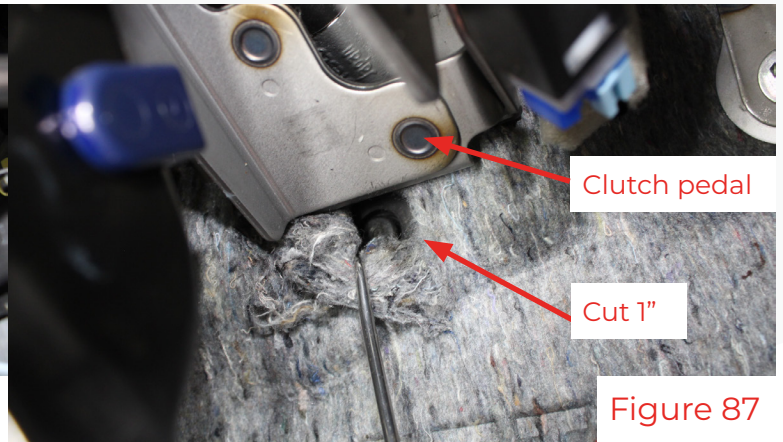
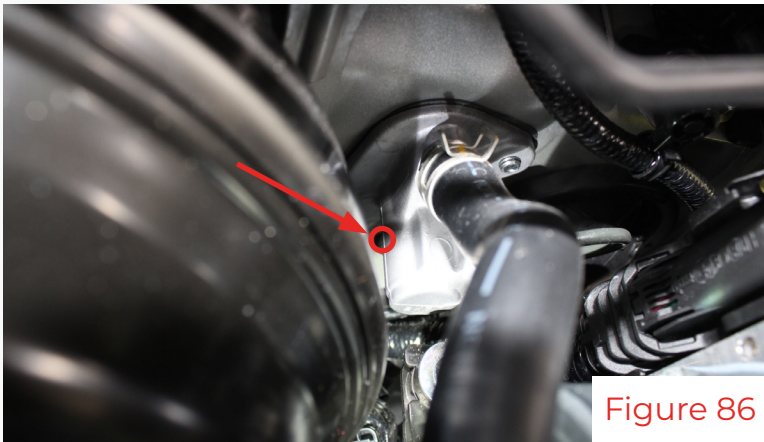
Figure 83

37. Locate the grommet in the firewall on the drivers side near the brake booster/drivers foot well. On automatic cars, it is very easy to see(fig 84 & 85). On manuals, it is right below the clutch master cylinder (fig 86 & 87).

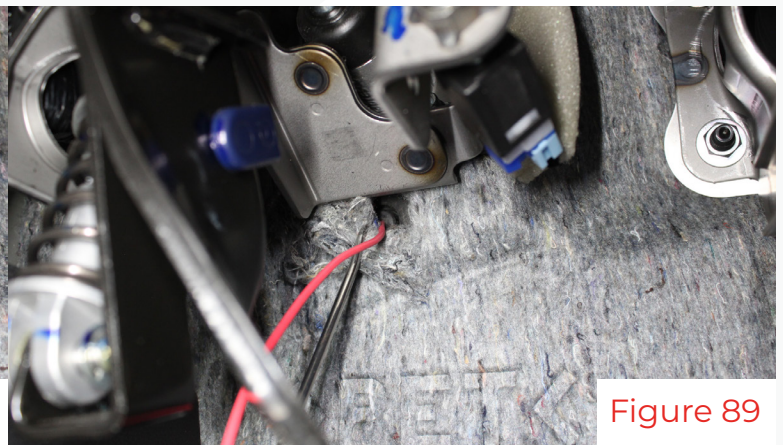
Automatic Transmission



Manual Transmission



38. Poke through the grommet with a small pick(fig 88). Feed the provided red wire through the grommet into the cowl comartment(fig 89).



39. Pull the red wire through to the cowl compartment(fig 90) and begin running the wire under the cowl cover and over to the Zeitronix module(fig 91 & 92).



Figure 90



Figure 91

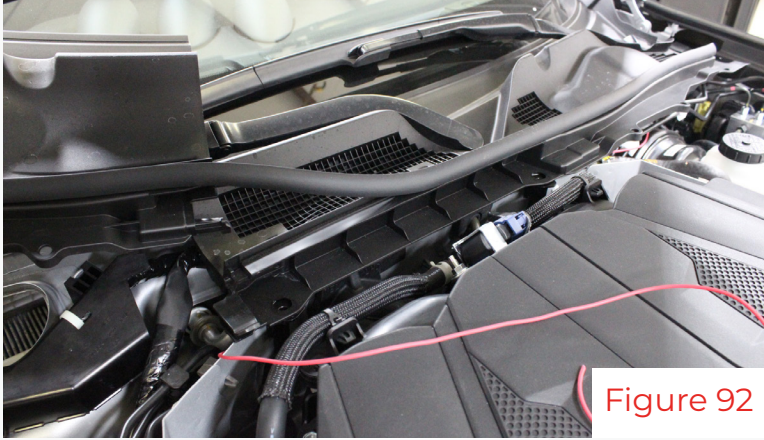


Figure 92

40. Using wire strippers, strip the wire you just ran along with red wire on the Zeitronix module(fig 93). Crimp the two wires using a heat shrink butt connector, then heat shrink the the connector to create a waterproof seal(fig 94).

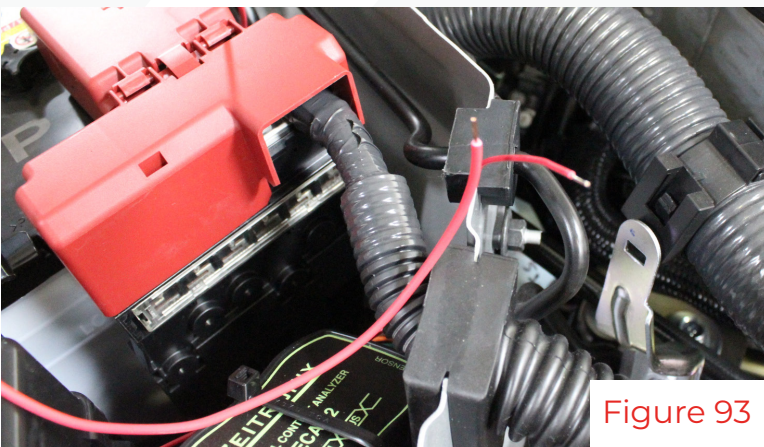


Figure 93



Figure 94

41. Neatly route the red wire back to the firewall grommet to reduce slack(fig 95 & 96). Trim off about 6" of wire loom and set aside for the next step. Slide the remaining wire loom on the red wire from the Zeitronix module to the firewall grommet(fig 97 & 98). Use zip ties to secure the loomed wire(fig 99 & 100).



Figure 95



Figure 96

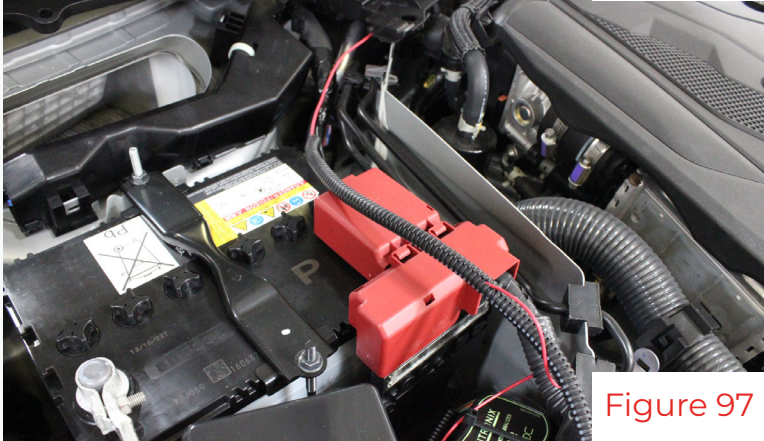


Figure 97



Figure 98

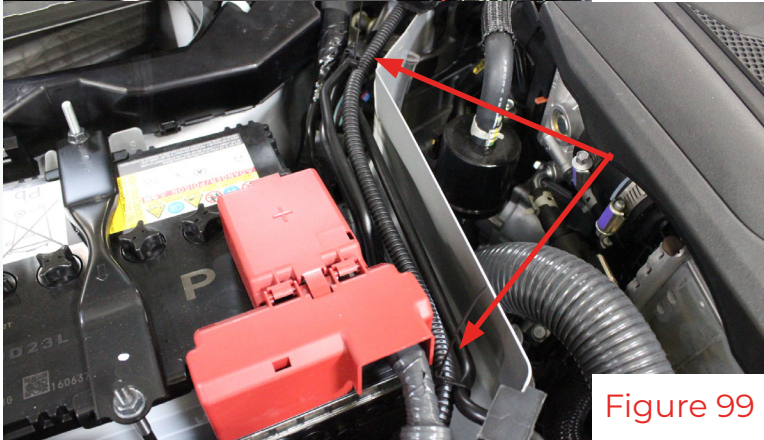


Figure 99

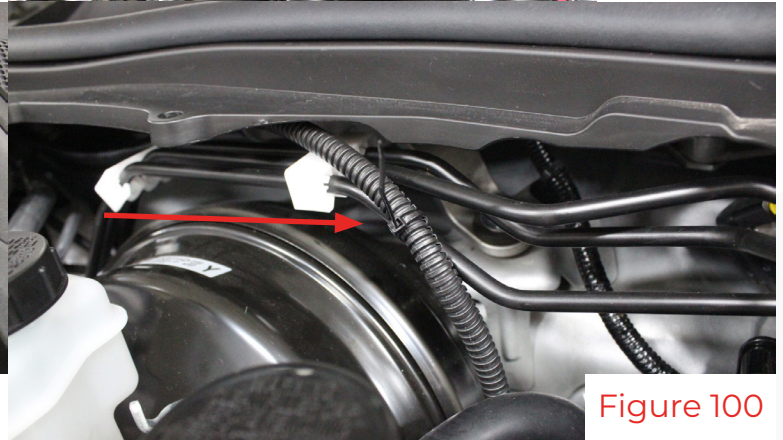


Figure 100

42. Use the remaining wire loom from the previous step and put it on the red wire under the dash near the clutch pedal (if equipped)(fig 101).

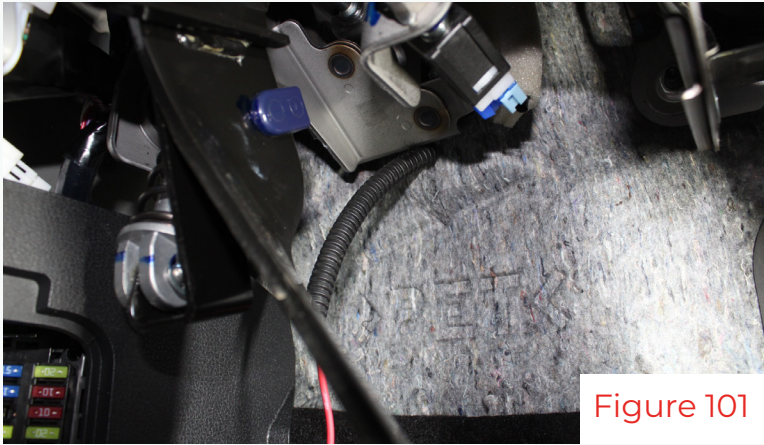


Figure 101

43. Remove the 20A fuse shown below from the drivers fuse box(fig 102). Install that fuse into the provided fuse tap(fig 103).



Figure 102

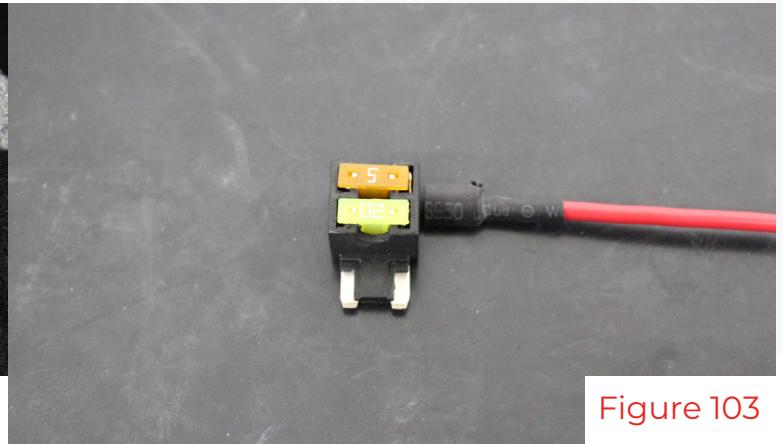


Figure 103

44. Mock up the fuse tap to the fuse box and cut any access wire off the unterminated wire. Be sure **not** to cut off the blue butt connector from the fuse tap. Then use a wire stripper to strip the wire and make crimp connection on the fuse tap(fig 104 & 105).

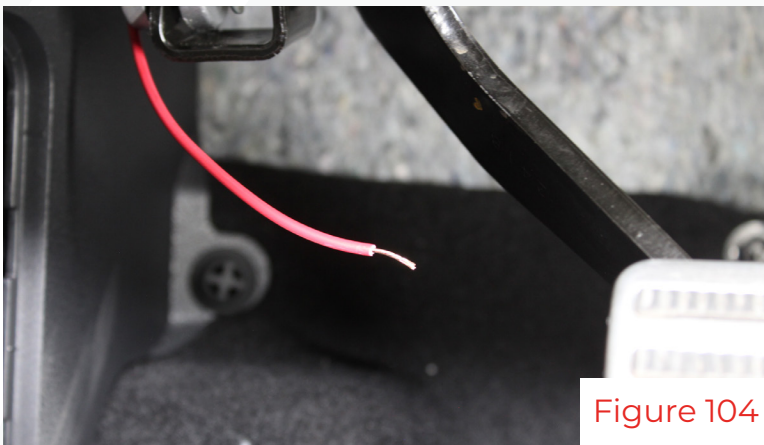


Figure 104

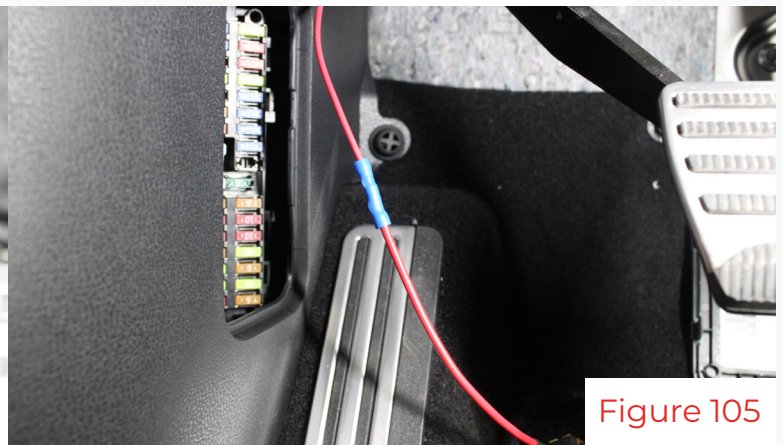


Figure 105

45. Route the fuse tap to the fuse box behind the cover panel and plug the fuse tap into the open spot where the 20A fuse was removed(fig 106). Safely tuck the wire out of the way along the vehicle harness and secure with a zip tie.(fig 107).



Figure 106



Figure 107

46. Check for any fuel system leaks before reinstalling all removed parts.

This completes the AMS Flex Fuel Installation! Contact AMS for an onsite or remote tune for final setup. Enjoy!