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V1.0

## BRZ/FR-S/GT86 FlexFuel Kit Instructions

Congratulations on your purchase! Our flex fuel kit utilizes the finest quality components, assembled into a package that makes for trouble free installation and reliability. With that in mind, please understand the following:

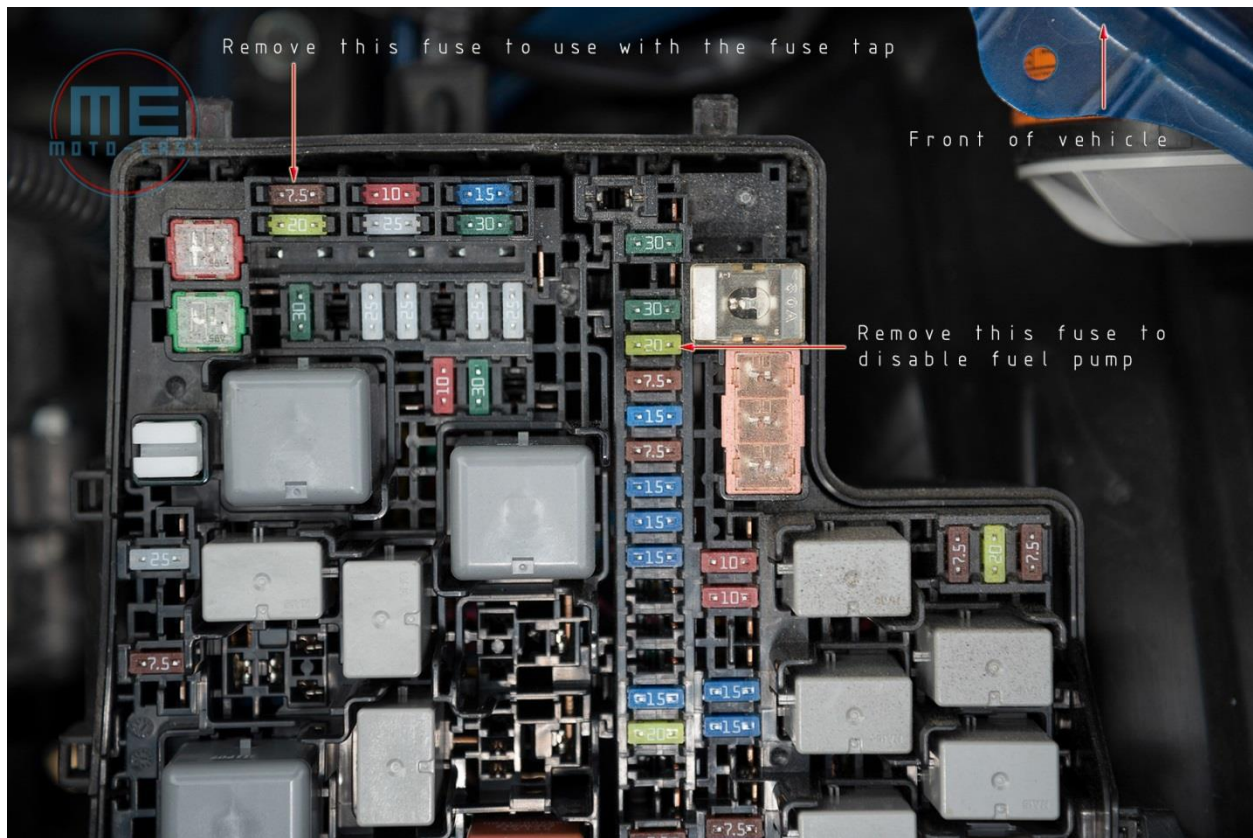
- Kit should be installed by a professional who is familiar with fuel systems and safety. We take no liability for installation issues, and these instructions are a guide only.
- Do NOT assume that everything will be leak free. Always make sure to double check for leaks, and retighten fittings as necessary. Though we pre-tighten everything during assembly and pressure test, you may need to retighten once installed, or shipping may loosen fittings. Do NOT over-tighten AN fittings. They will warp and fail to seal.
- Use supplied (or your own) quick disconnect tool to remove the factory fittings. Do not attempt to use a screw driver or anything not meant for quick connects.
- When assembling quick connect fitting, install the plastic retainer on the fuel line first, and then slide the metal fitting over it. Do not attempt to install together as it may not seat properly. Double check to make sure the plastic ends are symmetrical and fitting does not pull back with moderate pressure.
- Read instructions fully prior to starting!
- Tools required: Wire crimp pliers/strippers. Wire cutters. Phillips screwdriver. EcuTek ProECU kit w/FlexFuel tune.
- Regarding wiring: We have pre-crimped wherever possible, and you should have to make four crimps total. Power, ground, sensor input, sensor output. Soldering is best, but the crimps we use are heavy duty, turn rock hard when heat is applied, and will outlast the car in this application.
- Liability: This is a fuel system modification that is not to be used upon a public roadway, on a pollution controlled vehicle, or in any capacity where harm may occur. User assumes all liability with installation and performance. Should there be any leaks we will gladly replace the kit at no charge, but it is up to the user test thoroughly prior to operating the vehicle.

### **Step 1: Inspect**

Check the contents of the kit. You should have the ECA display, sensor, harness pigtail, grease packet, hoses with AN fittings, ECU connector (if ordered), wire ties, extra crimp connectors (two), grounding lug, fuel disconnect tool, and fuse tap.

### **Step 2: Depressurize the fuel system**

Start the car. In the engine bay on the passenger side, remove the fuse box cover. Find the fuel pump fuse and remove. The car will sputter and stall after a few seconds. Crank it once more for a few seconds to relieve the residual pressure. Do not replace the fuse until everything is complete. There is a white fuse puller in the fusebox to make things easier.

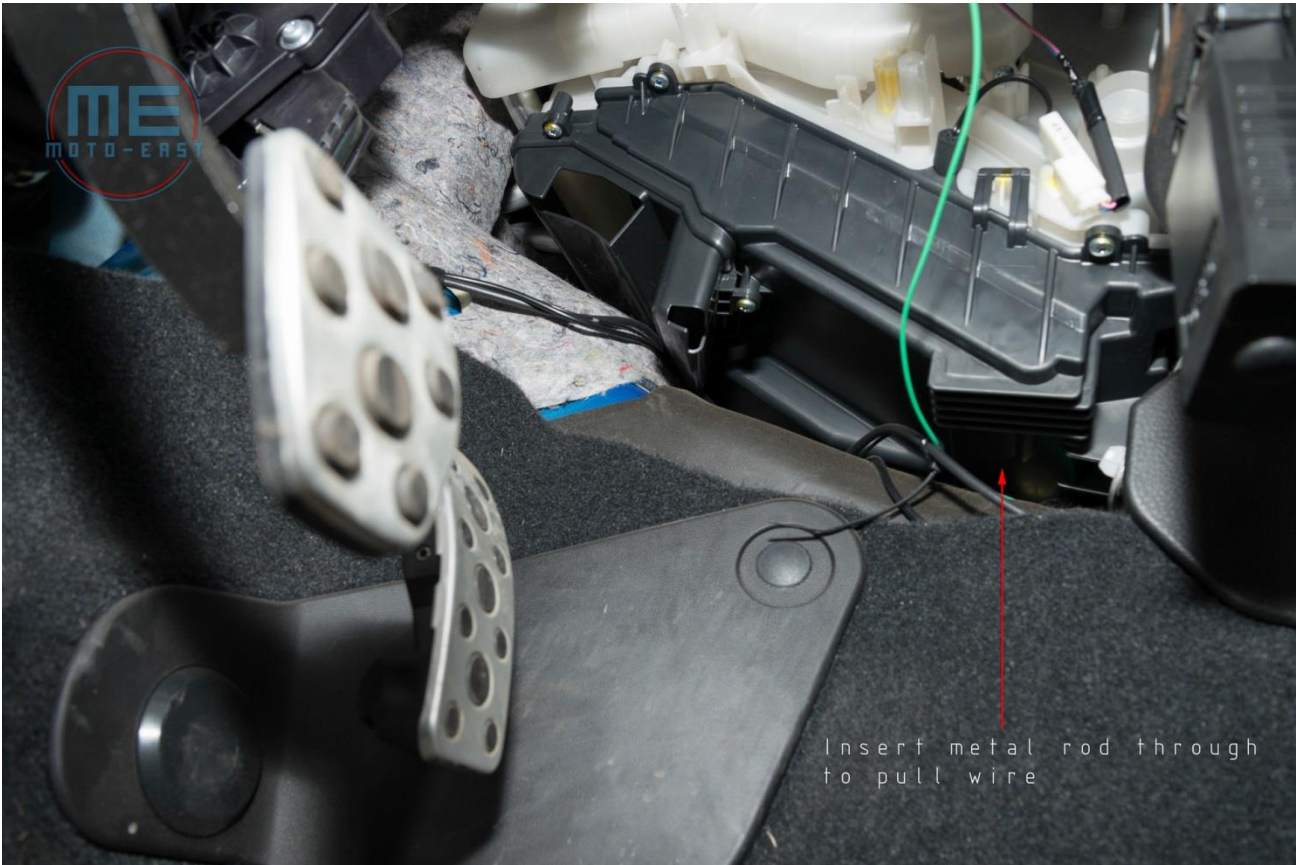


### **Step 3: ECU harness**

It is a good idea to disconnect the battery prior to this step. On the passenger side footwell, towards the body and behind the glove box, find the ECU. There are four connectors going to it. You will remove the third (C) connector and disconnect it. Looking at the picture below, it is the second from the left. It may help to just disconnect all of them to give you more room to work. There's a harness in the way that attaches with a clip, release the clip and move it out of the way if needed. Attach the new harness extension to the ECU and push in until you hear/feel a click. This will take some pressure. Attach the stock harness to the new extension.

You will then run the wire along and need to string it to the driver's side footwell. To do this, take a thin but firm wire (an unwound coat hanger works), and push it in from the driver's side behind the radio. Attach the wire to it with tape, and pull back until you get it on the driver's side. Use supplied wire ties to secure it out of the way. You will want to attach this above the pedal assembly, and run it to the fuse box.

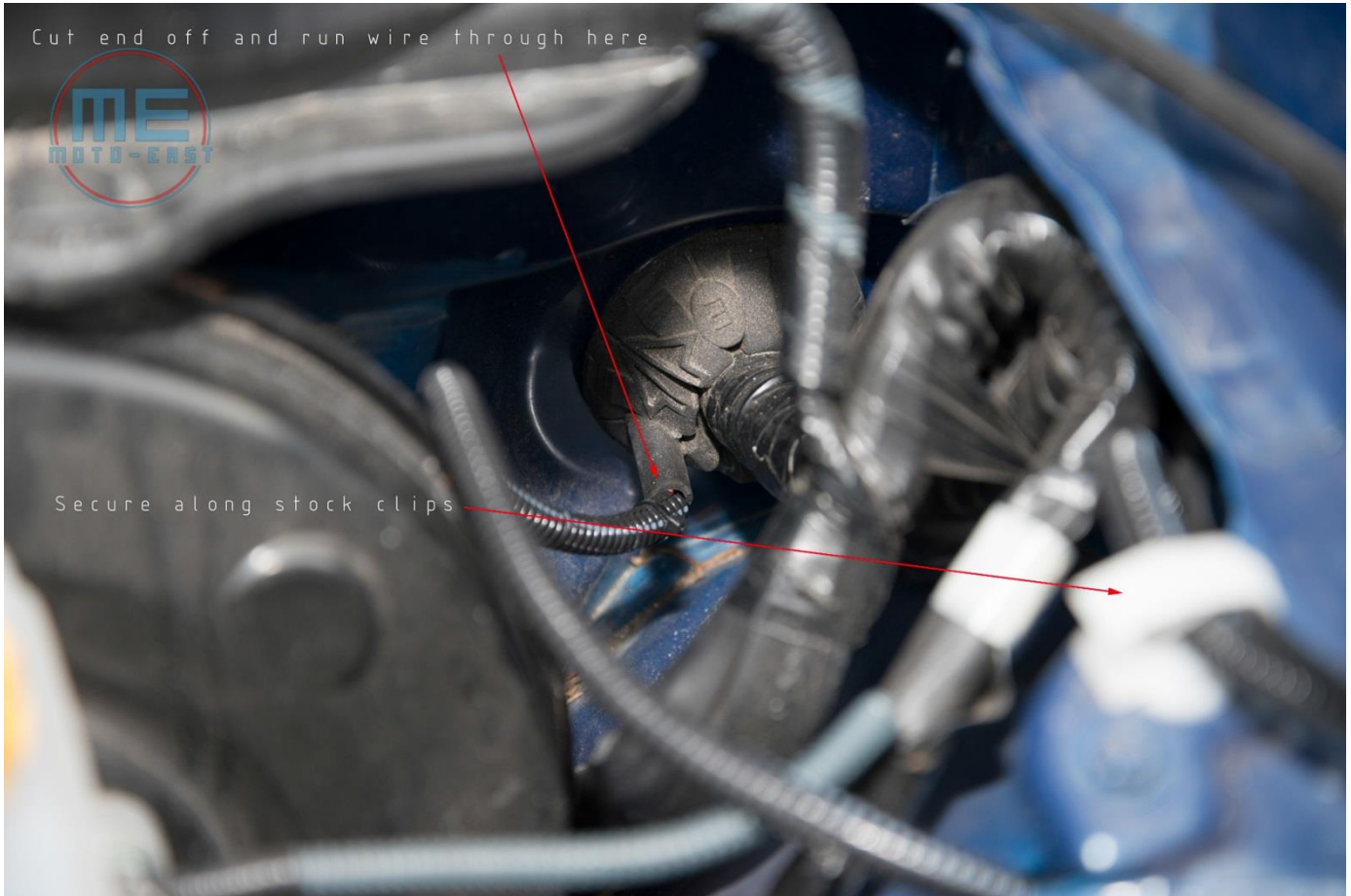




Insert metal rod through  
to pull wire

#### **Step 4: Sensor harness**

We left these ends intentionally unterminated. The reason for this is that you can easily route them through the firewall this way, and also use the extra lengths for alternate placement. Cut these to length as needed for final placement. Locate the large grommet on the driver's side. There is a nipple that protrudes. Cut the end of it off. Route the three wires through and then pull them from the driver's side footwell. Use wire ties or electrical tape to secure the coiled harness where you end up cutting. There is no need to draw the harness through the grommet; just the wires. Use the unused portion of the wire sheath on the interior.







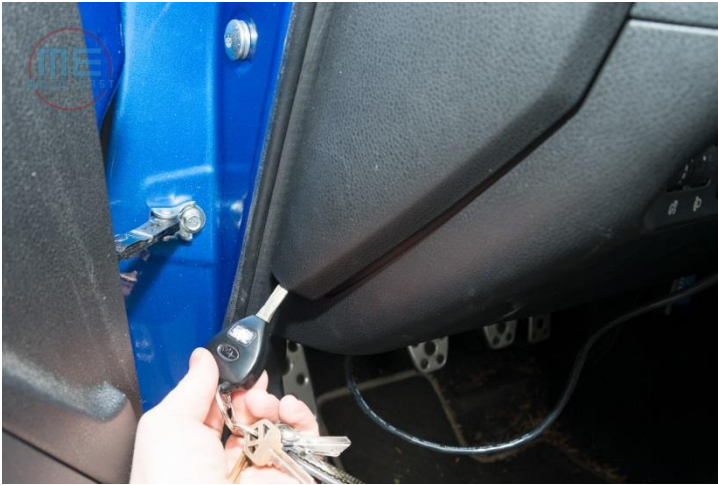
Route harness  
through here





### Step 5: Power and ground

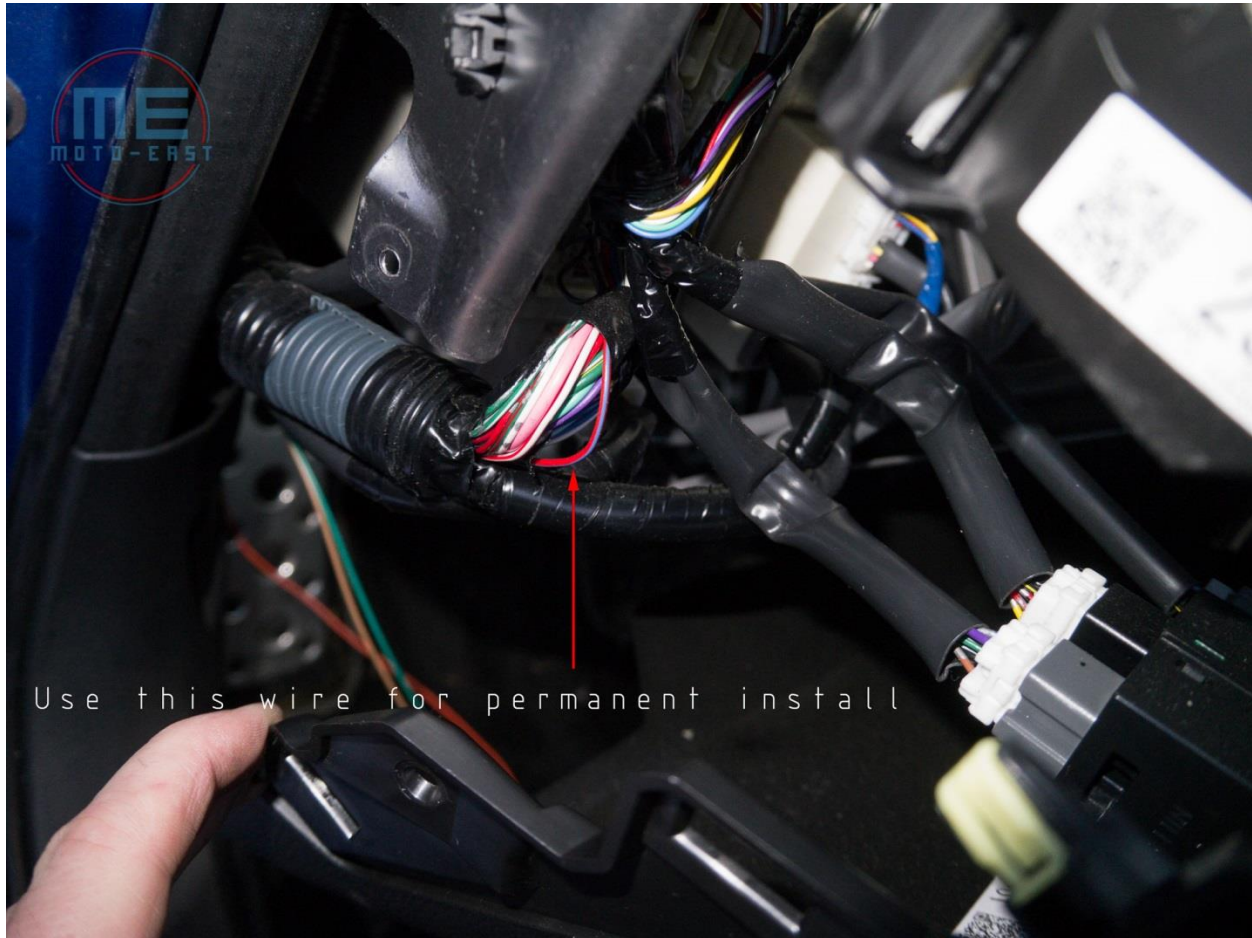
Remove the side cover by using a screwdriver or plastic tool. Remove the two screws on the panel under the steering wheel. Remove the fuse box cover. Tie the sensor ground BROWN wire and ground lug wire together, then insert into crimp connector on the ECA display harness. Crimp down until secure. Install the ground lug on the bolt on the bottom cover. Use a heat source to seal the heat shrink. This will also melt around the wires to prevent them slipping out. Double check to make sure it is secure. We've included extra crimps in case it takes more than one attempt. Note that these are not just any old crimps, but specialty heavy duty ones. If you need more please ask and we'll mail you some, do not attempt to use the cheap non-automotive grade found in radio shack.



Locate the fuse box. Insert the supplied tap into the 7.5 AMP Gauge slot, or any powered slot (powered only with ignition ON). Re-use the 7.5 amp fuse, and take a 7.5 amp fuse from the spares in the underhood fuse box (or get a new 5a fuse). Combine this wire with the ORANGE wire from the sensor harness. Insert into crimp on the ECA harness and crimp down. Melt the heat shrink to secure wiring.



Alternatively, you can do a permanent installation by tapping the blue/red wire.



### ***Step 6: Signals and mounting***

Locate the green wire you pulled through the firewall. Attach to GREEN wire on ECA harness and crimp down. Melt heat shrink. This is the signal from the sensor to the ECA.

Locate the black wire you pulled from the ECU tap harness (color may vary). Insert into WHITE/BLUE wire on ECA harness and crimp. Melt heat shrink. This is the ECA output for the ECU to use.

At this point you will have all the wiring done! Secure the wires with zip ties so they cannot be kicked. Use the provided alcohol prep pad to clean a mounting location. Make sure the temperature is over 50F, then remove the backing and stick sensor on interior panel. The tape used is 3M VHB tape. It is pressure activated and permanent, but you can use dental floss to remove it later if needed. Press down on the unit firmly for 30 seconds to secure.

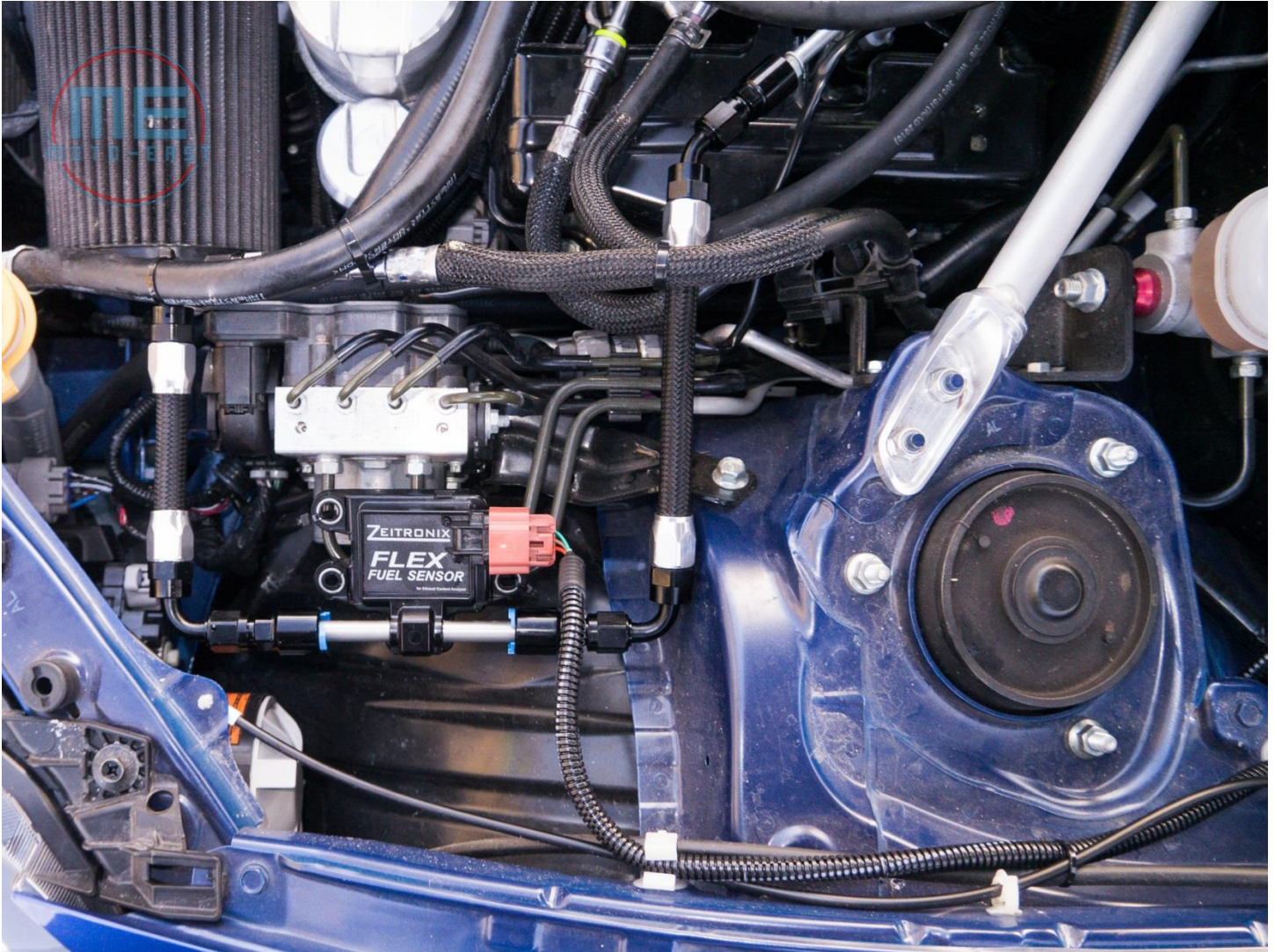
For extra measure, we recommend that the ECA display harness is secured to something (existing wire or bracket) so that there is no tension on the wires themselves in case of accidental pulling. The wires are very thin and should be treated with care.

### ***Step 7: Fuel lines***

Using the supplied tool (plastic) you will remove the stock fuel line from the port injection rail. This is the one closest to the driver. Do this with the car COLD to avoid any ignition sources. Place some rags under the fuel line to catch any remaining fuel. Place the grey tool over the stock fuel line. Insert it into the fuel line fitting. When completely inside, pull on the stock fuel line to remove. Some fuel will spill out. Pinch the plastic fingers on the AN fitting to remove the plastic



tab. Place this tab on the fuel line. Use some of the supplied lube on the male end of the exposed fuel line on the car and on the kit. Push in the fuel line fitting from the kit onto the fuel rail. Push in the stock line onto the male end of the kit. Make sure the clips are secure by tugging back and forth. You will feel when there is a positive seal; there should be a click. Secure the sensor to the brake lines with the included wire ties. If the fitting comes into contact with the strut tower, you can put on a piece of foam tape either on the strut tower or the fitting. However, you should be able to secure the sensor in a way that it does not. Use remaining wire ties to secure the fuel line as pictured.



### ***Step 8: Final check and tune***

Re-install the fuel pump fuse. Flash in the flexfuel tune. Start the car. Immediately check for any fuel leaks and allow to reach fully warmed up state. Take it for a short drive with a wide open throttle pull and double check again for any fuel leaks. This makes sure that the fuel system is completely pressurized. Tug on the quick fittings again to make sure nothing moved.

At this point the fittings and kit are 100% maintenance free!



### ***Step 9: Custom Tune***

Because the GT86 platform uses both direct and port injection, you will need to flush the lines through whenever you change mixture. Though the car will eventually flush both and it will adjust, for quicker learning we have set up a custom map in RaceROM to alter the injection ratio. You can set the trigger to whatever you'd like, but our example uses the VSC Sport Mode as the trigger (because we never use that mode). This then will leave the other modes with whatever custom DI/PI ratio you or your tuner has prescribed. Generally a PI/DI ratio of 35/65 is fine in most areas of operation (stock tune uses this at mid/low loads). Above 5000 RPM the ratio is much more precise at FI platforms due to injector changes, so in our example pictured, we have this custom map turn off at 5000 RPM. This is entirely up to the user, and in Normally Aspirated vehicles, it can be left on fully to redline.



