

## SKID MARK GARAGE

### Axillary Fuel Supply

*\*Disclaimer: Our Axillary Fuel kits are designed to fit most late model GM vehicles with minimum modifications. While not quite a “universal” kit for all, it has been tested on several generations of Camaro, but may require some amount of customization from you the installer. The basics are covered below along with pics from the installation on our 9xx+ Whp 2017 Camaro. Again, you may choose to mount a few things differently, and this kit has the flexibility to allow you to do just that.*

#### **Included with your kit**

1. Preassembled fuel pump assembly. Hoses will be attached but loose, just so you know how they go, **final tightening will be needed once installed.**
2. Wire harness and zip ties to secure it out of the way. Your kit will contain a fully assembled wire harness package.
3. New tube of thread sealant, no need to use entire tube, just enough to coat the NPT threads of the fuel tank fitting and pressure switch only. You can discard the rest. (do not use on the AN fittings)
4. Bag containing a length of vacuum line, and barbed brass switch fitting.

#### **Tools and/or additional parts needed (not included in this kit)**

##### Tools

1. Drill, drill bit and tap. **Drill bit size 37/64 and 3/8” NPT tap**, can usually be purchased as a kit online or your local hardware store. **(not included in this kit)**
2. Misc. wrenches to tighten fittings once installed 16, 18 and 19mm or adjustable style wrenches.
3. Socket wrench and 10mm socket to remove lower dust tray under car and power connections.
4. Jack and jack stands or automotive hoist, drain pan or bucket to catch spilled fuel.
5. Tools to remove right front wheel and wheel liner (t15 torx for liner screws)
6. #2 Phillips screw driver.
7. Safety glasses to protect your eyes from debris and fuel when drilling and working under your car will also be a smart idea.

##### Parts

1. Vacuum distribution block and/or barbed vacuum fitting depending on how you mount the Hobbs switch.

#### **Pre-installation prep work**

1. Drive the car, you want the fuel tank as empty as possible as you will be drilling a small hole in the fuel tank to attach the new feed line to the aux fuel system. We drove our car till it was nearly on fumes and still had some spillage. When the car says its on “e” there is probably another Gallon or so in the tank.

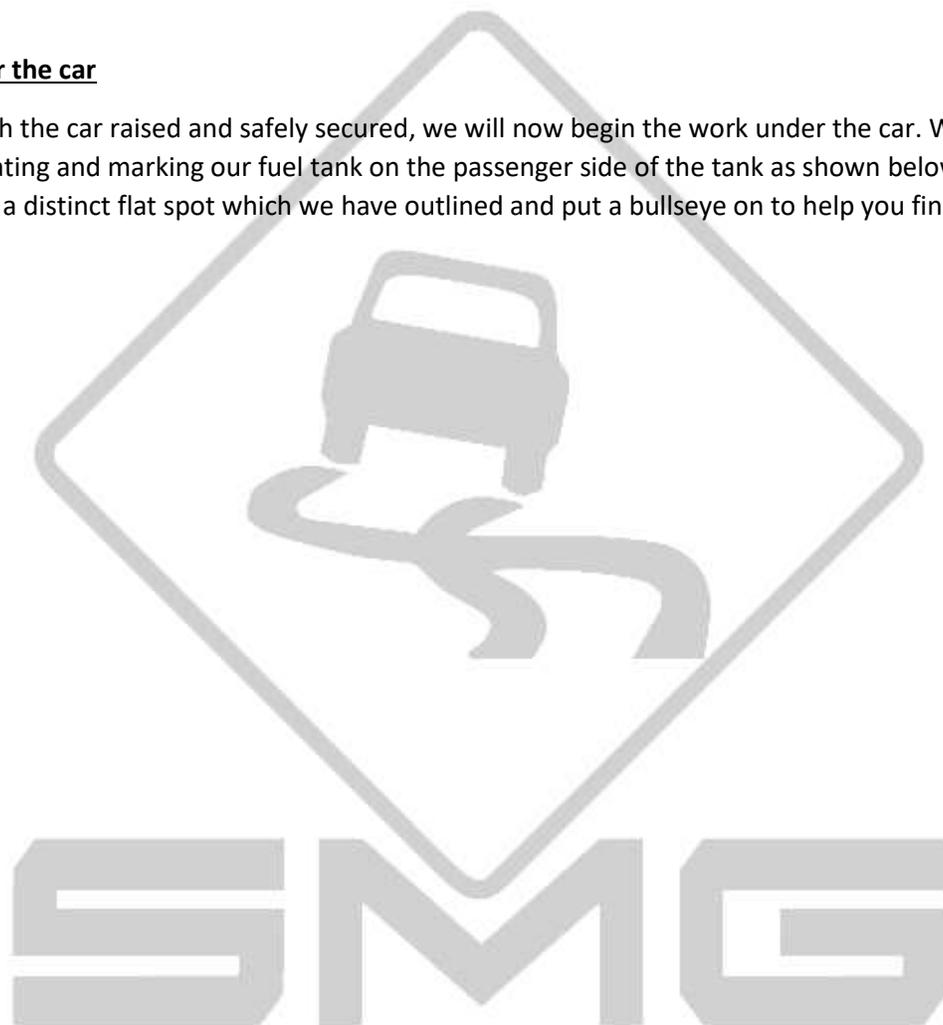
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2. Working in a well-ventilated area, Jack up the rear of the car, or use a hoist, making sure the rear of the car is several inches higher than the front to make sure as little as possible fuel spills when tapping the rear of the tank.
3. A drain pan or bucket should be handy to catch any spilled fuel. Fire extinguisher and appropriate safety equipment also advised.
4. Disconnect negative battery terminal as we will be working with fuel and electrical systems.

### **Installation begins!**

#### **Work under the car**

1. With the car raised and safely secured, we will now begin the work under the car. We begin with locating and marking our fuel tank on the passenger side of the tank as shown below. You will see a distinct flat spot which we have outlined and put a bullseye on to help you find it.



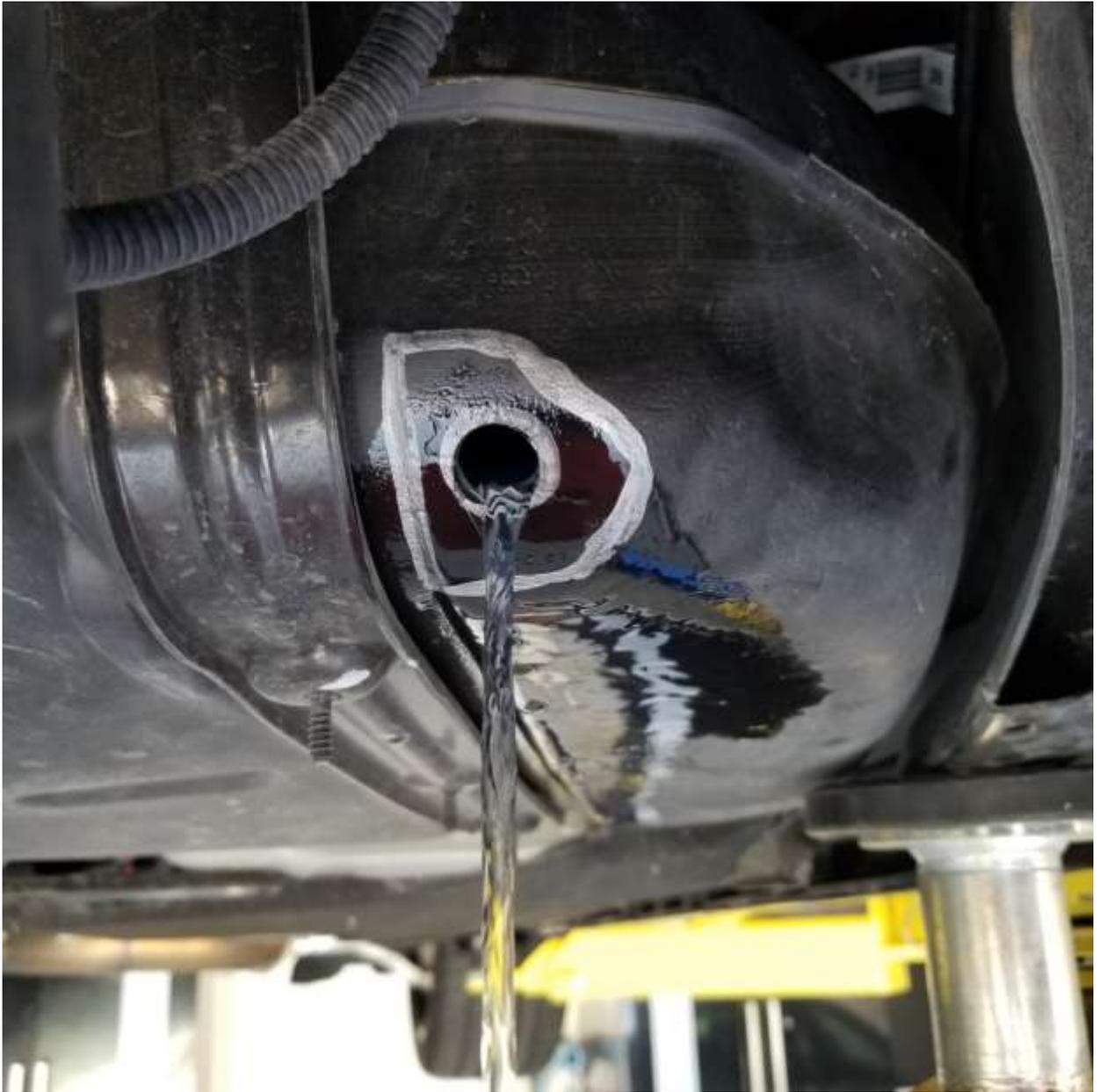
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2. With the location found, clear off any dust or road debris with a shop rag and prepare to drill this location with the 37/64" drill bit mentioned on the 1<sup>st</sup> page.
3. Wearing eye protection and using medium but steady pressure, begin drilling your hole at a slow to medium speed to ensure a clean cut into the plastic. The tank is only approximately 1/8 thick so be prepared. Catch any loose plastic shavings as they fall and discard.

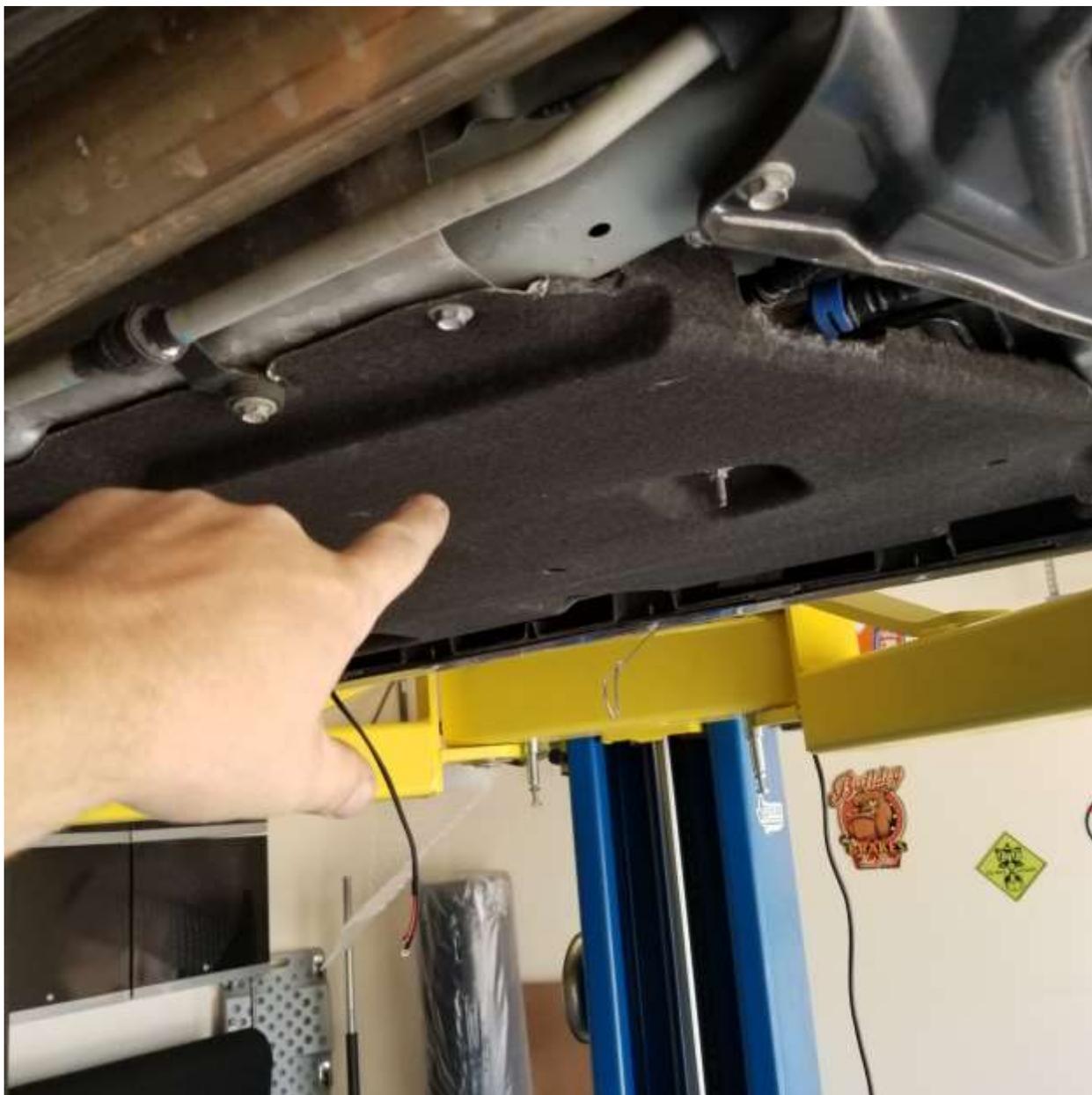
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4. Your hole should now look like the picture blow, you may have some fuel draining at this time so be prepared to catch it.



5. We'll allow the tank to continue draining and move forward to other tasks while it drains.
6. Remove the 10mm bolts and nuts securing the dust shield shown here.

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7. With the dust tray removed and set aside, locate the 2 fuel lines at the front of the tank. One will have a blue clip, and one will have a red clip. We will be working with the blue in this application. (either way, you'll look for the larger of the 2, typically the feed is a 10mm/ 3/8 line and the return is smaller) You may have to follow your line to the FPR to determine which if you are unsure. Again, some knowledge of the car you are working on helps here.
8. Remove the zip ties from the aux fuel pump assembly and find the fitting shown below. Remove it from the hose and prepare to install it inline.

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(Your adapter could be squared like above or even round but should look similar to above, we are working with our machine shop to shrink this fitting down to allow easier installation in other applications so yours may look different than pictured here, but will look over all the same with quick disconnects front and back and a 06an fitting out the side)

9. Carefully slide back (don't fully remove) the blue clip from the fuel line feed and separate the 2 halves of the fuel line. Some left-over fuel may spill out of the fuel lines, a small rag should be sufficient to catch it.
10. Quickly insert the fitting between the 2 halves and rotate the fitting so that the small threaded plug faces the drive shaft and the threaded AN fitting faces the passenger side of the car, reassemble the fuel lines and secure the blue clip. Some cars have tighter clearance and may need a little "adjustment" of the metal feed line further up the run to allow room for the adapter to be placed inline (removing a line bracket or adding a small bend to the feed up line is usually sufficient to add the additional room)

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11. Reattach the fuel line and the rest of the fuel pump assembly and route forward towards the passenger floor board. You can let it hang loose for now as we move onto the fitting at the tank. You will see the filter side of the aux pump assembly will face the rear of the car.
12. Attached to the other hose on the pump assembly is a 90-degree fitting that has a 3/8" NPT on one end and the flare end is attached to the hose. Remove this fitting and locate the thread sealant tube that came in your kit.
13. Open the sealant and liberally apply to only the NPT threads, working it into the threads with your finger but not so much that its dripping and set aside to allow it to set up. You have approximately one hour of working time before the sealant "cures" so be sure to mind the clock.
14. Locate your 3/8" NPT tap mentioned on the 1<sup>st</sup> page and head back to the hole we drilled in the tank. By now it should be done draining so we can begin the tapping process.
15. Insert the tap into the hole as square to the flat spot as possible and begin turning the tap into the hole. Ensure the tap is square to the hole and continue tapping until the tap as reached approximately ½ of the taps threads, then remove along with any debris.
16. Once the threads are tapped and cleaned of any debris, wipe the area clean and dry, if you have any brake parts cleaner or denatured alcohol, that will work great and will not leave a residue, otherwise just use a dry rag and make sure it is clean.
17. Grab the fitting we just applied the sealant to and insert the NPT thread into the freshly tapped hole. It may be hard to start at 1<sup>st</sup> but apply even pressure as you turn it in by hand will work, be sure to not cross thread it and keep it square to the hole. Here a 19mm wrench can be used to provide leverage when threading the fitting into the hole.
18. NPT threads are tapered, meaning they will get tighter as you rotate the fitting into the hole. You may see a little of the sealant starting to build up around the threads as you go, just leave it for now as the threads will continue to collect it as needed as they go in.
19. At approximately ¾ of the threads, stop and position the fitting to face similar to this.

A large, light gray watermark logo for SMMG is centered on the page. The logo consists of the letters 'S', 'M', 'M', and 'G' in a bold, blocky, sans-serif font. The 'S' and 'G' have horizontal bars through them, and the two 'M's are connected at the top.



20. Now taking the other hose assembly that you just removed this fitting from, route the 45\* fitting back towards the hole we drilled in the tank, routing it through the rear brace as shown here

S M G



You may find that routing it from the back forward is easier so removing the entire hose from the assembly and routing the 0-degree fitting from the back forward is easier.

21. Once routed and reconnected to the fuel pump assembly (as it came assembled with the electrical terminals facing the front of the car and the 180\* fitting at the front as well, meaning the filter will be at the rear with a straight hose fitting), go ahead and connect the 45-degree fitting to the fitting you just installed in the tank.
22. For now, we will leave the fittings finger tight to allow movement while will secure the pump assembly to the car.
23. Back to the fuel pump assembly. Included in your kit attached to the pump assembly are brackets and self-tapping screws that will attach to the underside of the car and hold the pump securely in place. If you can mount to an existing bolt hole under the car, use it, if not, we have included a few zinc plated self-tapping screws to help secure the plate to the location you choose under car.
24. Locate the holes shown below and attach the brackets in place using the hardware supplied or you removed from the dust cover. For now, leave them finger tight as you we will want to revisit this at a later point.
25. With the pump in place and mostly secured, we will now go back and snug the fuel fittings, using a wrench, snug the fittings tight, but be mindful not to over torque them, these are aluminum fittings and too much force will ruin them. We will check for leaks once finished so we can go back and re-tighten any that need it later.

### Onto the Wiring portion

1. If using a lift, lower the car back down to allow you to work under the hood.
2. In your kit, located the Hobbs pressure switch that looks like this. It was prewired and designed to be mounted in relative proximity to the relay where you'll have easy access later should you want to adjust the pressure sensitivity (pressure adjust covered on last page). Newly included in your kit is a brass barbed fitting designed to connect your Hobbs switch to a vacuum/boost source.



- 3.
4. This switch is pre-wired and ready for you to simply add the barbed fitting and vacuum line to your manifold. The threaded end can also be attached directly to a "manifold" as well, but the preferred method is a vacuum line to limit wire length. (Wires going to the switch would need to be extended if you opt for this route).

S M G

5. If your car has an aftermarket boost adder, you should have some sort of vacuum manifold or “tree” to feed a mechanical boost gauge, bypass valve etc.. similar to this.



6. Attach your vacuum line from the Hobbs switch here or your preferred boost reference location.
7. Safely route the Vacuum line back to the hobs switch avoiding any pinch points or hot parts that would melt the hose (exhaust manifolds, turbos etc You will ultimately place the relay harness and switch assembly next to the fuse box and secure it to a bolt and or a zip-tie on the inner fender. Use included zip to secure any loose wires and vacuum lines for best appearance and safety.
8. Taking the other side of the harness, (long single power lead to pump) and route into the fender towards the back of the car. Removing the front wheel and dropping the fender liner at this time will aid in routing the wire to its ultimate goal, the new fuel pump.

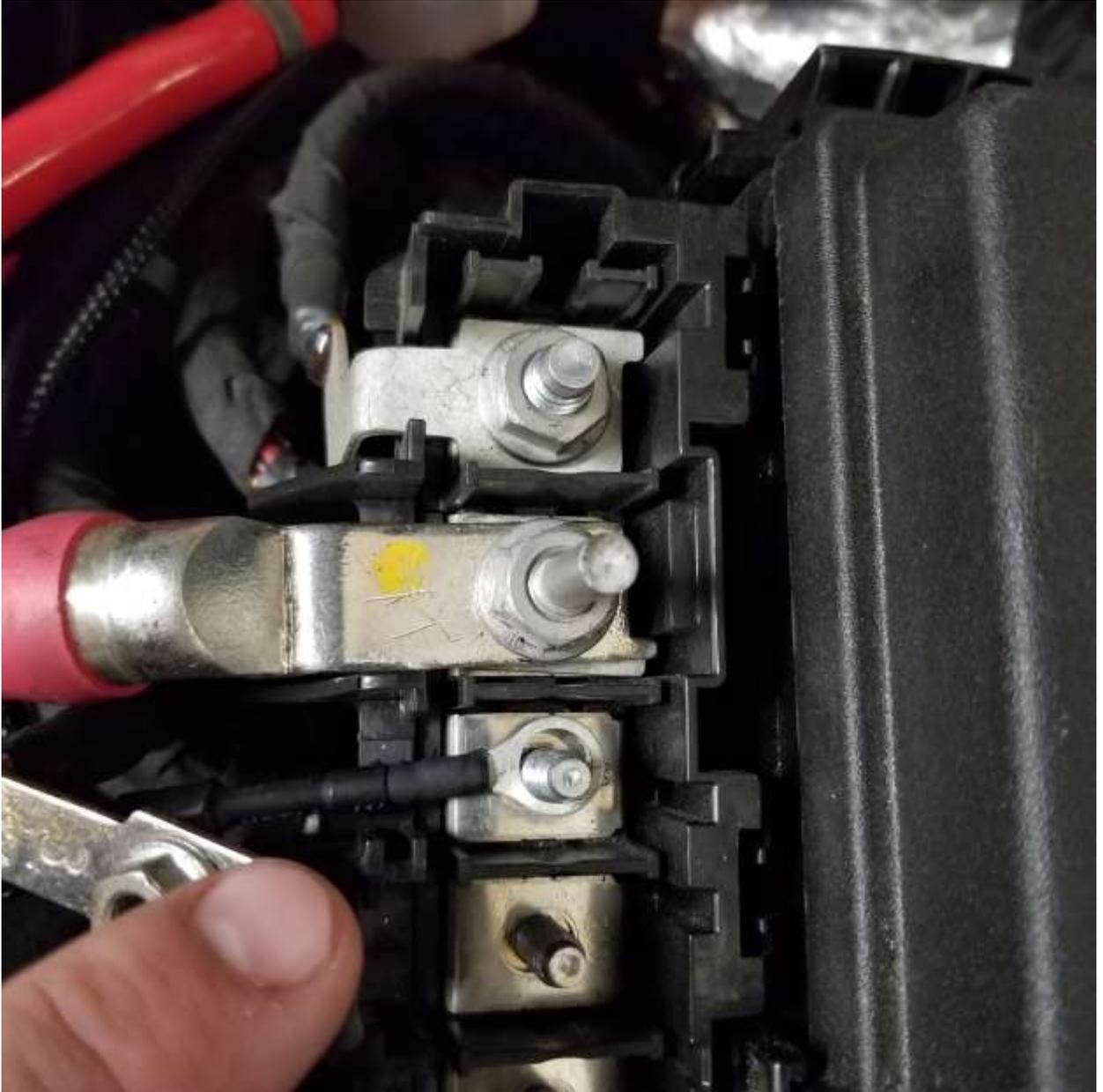
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9. Located the power supply under this cover at the fuse box



10. Your Wiring harness is designed to be used with constant and/or switched power, your car may or may not have a “switched” power terminal here, many are just constant power, which is fine, but switched power is ideal. On a 6<sup>th</sup> gen Camaro as shown here; Remove the cover, remove the 10mm nut at location 3 shown here and attach both of the short “red” ring terminals (one with the inline fuse holder, is the “constant” the other is the switched and will include labels) under the power wire and reattach the nut and snug tight. Again, as mentioned in several places, our kit is designed to work on several applications so this guide can only give you the basic principles, you have to decide what is best for your installation. Or refer to a 12v wiring expert near you.

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11.

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13. Secure the relay to this 10mm bolt or a similar location of your choosing



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14. We choose to mount the Hobbs pressure switch like shown just above, you are free to mount as you wish. Keep in mind this kit can be used in several applications and as such has flexibility built in.
15. Secure any under hood wires with zip ties to your liking and close the hood, for now we are done under hood.
16. Raise the car back up and finish routing the power lead from the fender well to the pump, making sure to route it from and moving parts or sharp edges, connect the red tipped lead to the pump + terminal, (the negative terminal should already be attached to a short ground wire and to the bracket)
17. Secure the wire with included zip ties and tuck away any slack. Re assemble the fender liner and re-attach the passenger front wheel.

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18. We will now double check the fuel fittings for snug, zip tie any hose that hangs low to the underbody holes. Lower the car, add additional fuel if your tank was empty, it's time to start it up and check for leaks. Reattach the battery if disconnected.
19. With the car started and warm, look underneath, touch the fuel fittings and make sure no wet fuel is present on any fittings, if found, shut off car, snug a bit tighter, and verify leak is gone. Repeat step 17 until no leaks are found.
20. Reattach the dust cover if you removed one, at this point you can snug up the pump mount as well. Installation is complete.

### **Adjusting the trigger point of the Hobbs switch.**

1. Your Hobbs switch is preset at ~4psi boost pressure which is suitable for most applications. You may custom tailor it to come on sooner or later depending on your need.
2. If you find you need to adjust the pressure setting on the Hobbs Switch, there is a small rubber cover on the top of the plastic stem of the housing, underneath it a hex head set screw, turn it clock wise (in) and the pressure required to trigger it goes up, counter clockwise (out) and the pressure required goes down. The switch included has a window of ~1psi~10psi. Higher rated switches are available on a custom order basis. Test and tune as you would with any adjustable fuel modification to find what works best for you.
3. If you monitor fuel pressure on a gauge or via your preferred tuning software, you should now see the increased low side fuel pressure under load. Some cars may need the FPCM programmed to take full advantage of the increased fuel, consult your tuner for more info

That's it! Your install is complete and you are ready to go tear up the competition.

*Our goal is to offer high quality, in demand products for your car for less than the competition. To help keep our prices low, we keep our overhead low. Paid advertising is kept to a minimum, and forum sponsorships are non-existent.*

*That means we need your help spreading the word. If you could take a few moments and drop us a review on a board or 2 and rate us or tag us on Facebook, that would be greatly appreciated.*

*Our Auxiliary fuel systems are manufactured in house and use proven top-quality components and tested before they ship. Should you have a problem with your kit due to failure of a component within the 1<sup>st</sup> year, we will replace it at no charge. Physical damage, nor faulty installation of the kits are covered under this policy.*

*Thank you for your business.*

- Jeremy Dominick  
Owner- Skid Mark Garage

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