

## **2006-2009 PONTIAC G8 2200HP FUEL SYSTEM**





## Important! Must Read First

Congratulations on the purchase of a KPM Fuel System for your [2006-2009 Pontiac G8](#).

To ensure your fuel system is fitted correctly and operates perfectly and reliably, we advise that this kit is fitted by a KPM Fuel Systems Dealer workshop.

If you are unable to access a KPM Fuel Systems dealer, we **strongly** recommend a professional and experienced fully qualified technician to install your new fuel system.

Ask your qualified installer to contact KPM Fuel Systems on any aspect unclear in the instructions provided.

Email: [support@kpmfuelsystems.com](mailto:support@kpmfuelsystems.com)

As a wide variety of skills, procedures, special tools, and workshop equipment is needed to install this kit:

- KPM will take NO responsibility or give NO guarantees on the operation of this product for fitment not carried out by a KPM Fuel Systems dealer or experienced qualified technician.
- KPM will take NO responsibility or give NO guarantees on the operation of this product due to not fitting this kit exactly as per the instructions provided.
- Ensure correct workshop safety procedures are carried out in fitment of this kit.
- Please read **ALL** instructions before commencing fitment

## Guarantee

On satisfaction that **ALL** instructions have been followed as per this document KPM will warrant this KPM Fuel System against any defects or faults for 12 months from the date of purchase.



## Important

This fuel system is engineered to operate perfectly as a complete system, when used with all components as supplied only by KPM Fuel Systems.

Depending on the level of KPM Fuel System you have purchased, included in the kit will be the following;

### **PONTIAC G8 2006-2009: AUP-KPMCOM2200PWM-PK**

- 1) KPM Fuel Module x1 - Primary (for increased flow and capacity)
  - 2) KPM Fuel Module x1 – Secondary (for ultimate flow and capacity)
  - 3) KPM Plug and Play EMI safe wiring (for correct and reliable current supply)
  - 4) KPM High-flow Fuel Hose kit
  - 5) KPM Retrofit Kit
- KPM Fuel Systems will take NO responsibility for the operation of this fuel system if any of the components listed are not utilised with this package.
  - KPM Fuel Systems will take NO responsibility for the operation of this fuel system if any of the components listed are replaced with a non-KPM approved component.
  - KPM will take NO responsibility for the operation of this fuel system if used on a vehicle NOT fully retrofitted for E85 Ethanol or flex fuel.

**Note: E85 Ethanol is highly corrosive on many components.**

Please be aware that if your car is NOT built for E85 Ethanol from manufacturer, it may be possible that components NOT supplied by KPM Fuel Systems will also need to be replaced or suited for E85 Ethanol. Examples of some possible non-compatible components - are fuel injectors, fuel filters, fuel lines, rubber hoses, fittings etc.

**All KPM Fuel System components are 100% Ethanol and Gasoline compatible**

## Before Dismantling

- You will need to reduce residual fuel pressure in the fuel system to 0 kPa to enable disconnection of fuel lines.
- You can do this by removing the fuel pump fuse and running the engine until fuel pressure drops to 0 kPa.
- Disconnect the Battery.

## Primary Fuel Module and Secondary Fuel Sender Module Removal

- 1) Drain fuel tank.
- 2) The vehicles fuel tank needs to be removed to access the in-tank module/s. You will need to remove the fuel tank from your vehicle as per the manufacturer's instructions.
- 3) Remove the fuel lines from the **primary** fuel module (a quick disconnect tool is recommended for disconnecting fuel lines, take extra care in not crimping/damaging the fuel line on removal) Remove the electrical connectors from the module. [FIGURE 1](#)
- 4) Remove the retaining ring holding the **primary** fuel module to the tank with the correct tool. [FIGURE 2](#)
- 5) Lift the **primary** module from the tank until you can access and remove the crossover pipe connector at the base of the canister.
- 6) Carefully lift the **primary** module completely from the fuel tank. [FIGURE 3](#)
- 7) Remove the retaining ring holding the **secondary** fuel sender unit to the tank with the correct tool.
- 8) Lift the **secondary** fuel sender unit from the tank until you can access and remove the crossover pipe connector at the base of the sender unit.
- 9) Carefully lift the **secondary** fuel sender unit completely from the fuel tank.

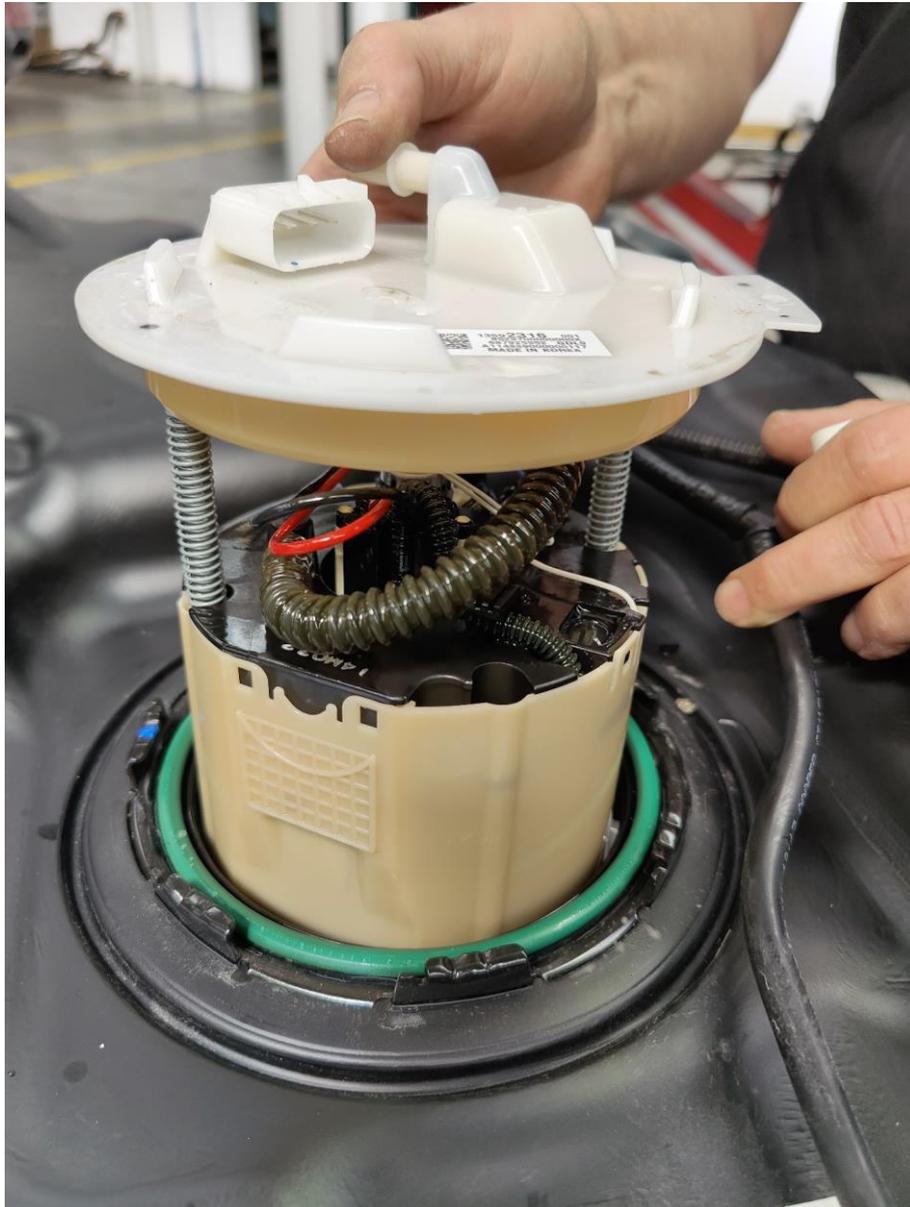
**FIGURE 1**



**FIGURE 2**

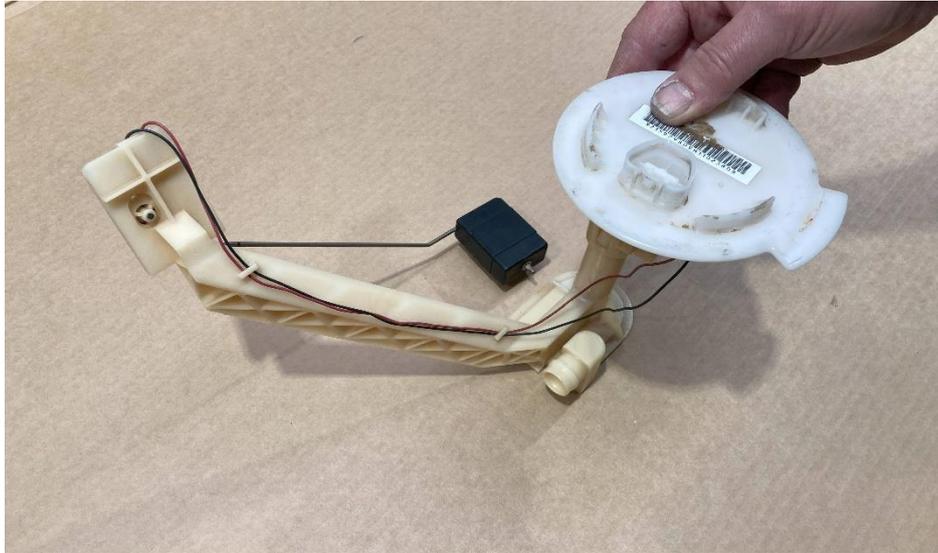


**FIGURE 3**

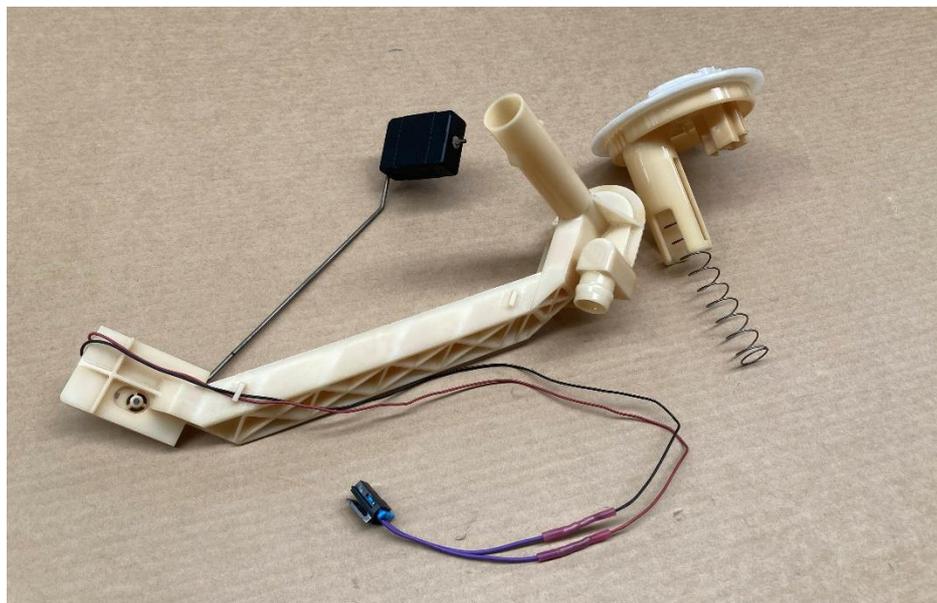


## Secondary Fuel Sender Modification

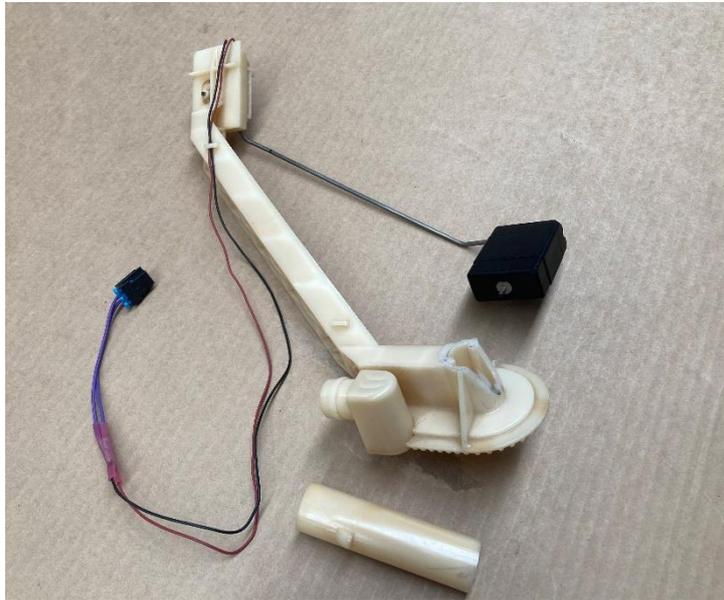
The secondary fuel sender unit will require modification to enable it to be attached and refitted with the new KPM Secondary fuel module.



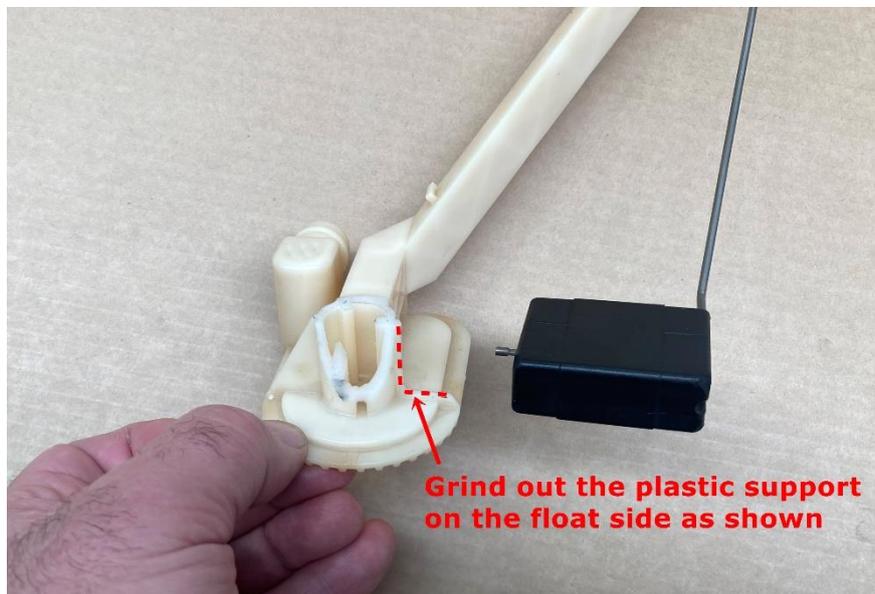
- 1) Remove the sender unit assembly lid and spring from the main assembly. Simply pull the lid from the assembly tabs and it will release.



2) Cut the spring tunnel at the base as pictured below.



3) Grind or cut out the plastic support gusset on the float side as shown



- 4) Drill a pilot hole in the centre of the plastic section as shown below with a small drill bit and then finishing off with an 8.5mm drill.

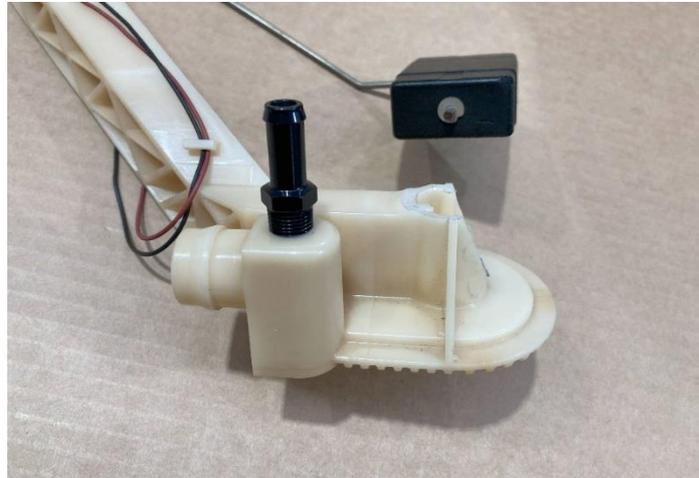


- 5) Carefully tap a thread in this hole using the supplied 1/8 NPT tap.

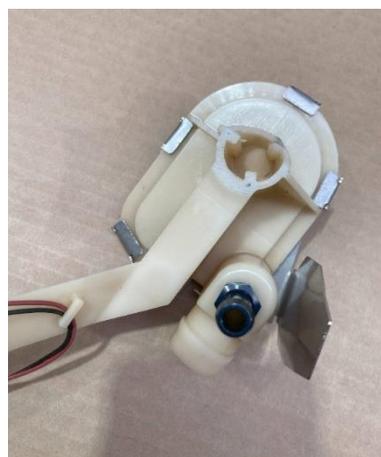
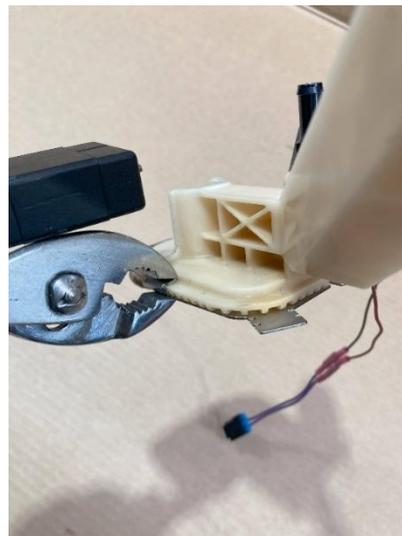


# KPM FUEL SYSTEMS

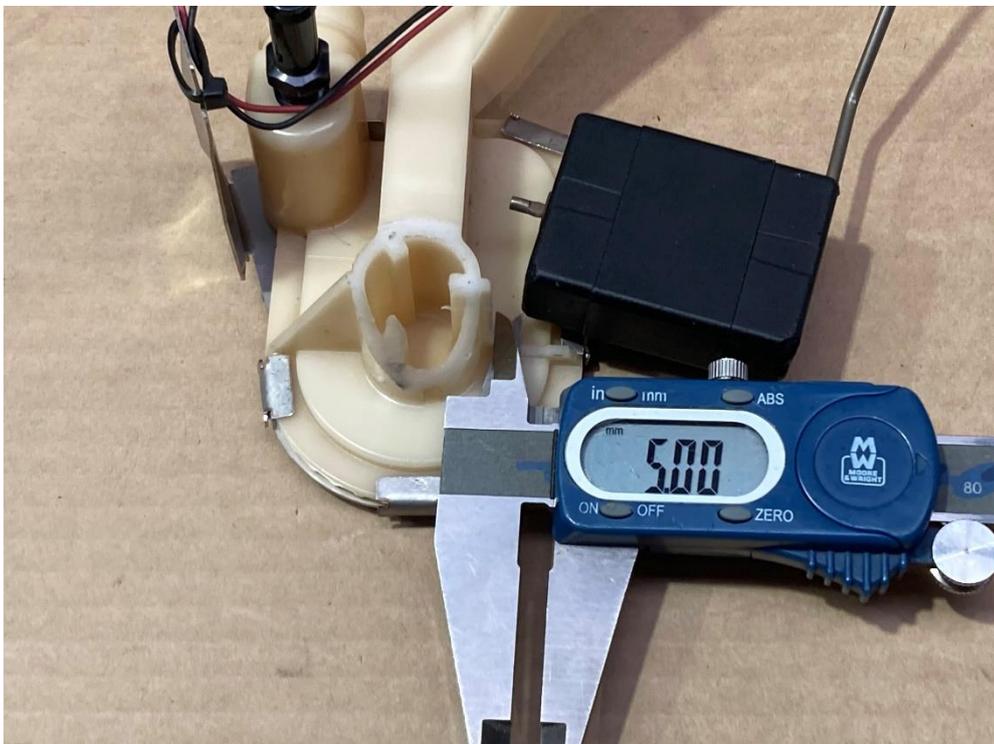
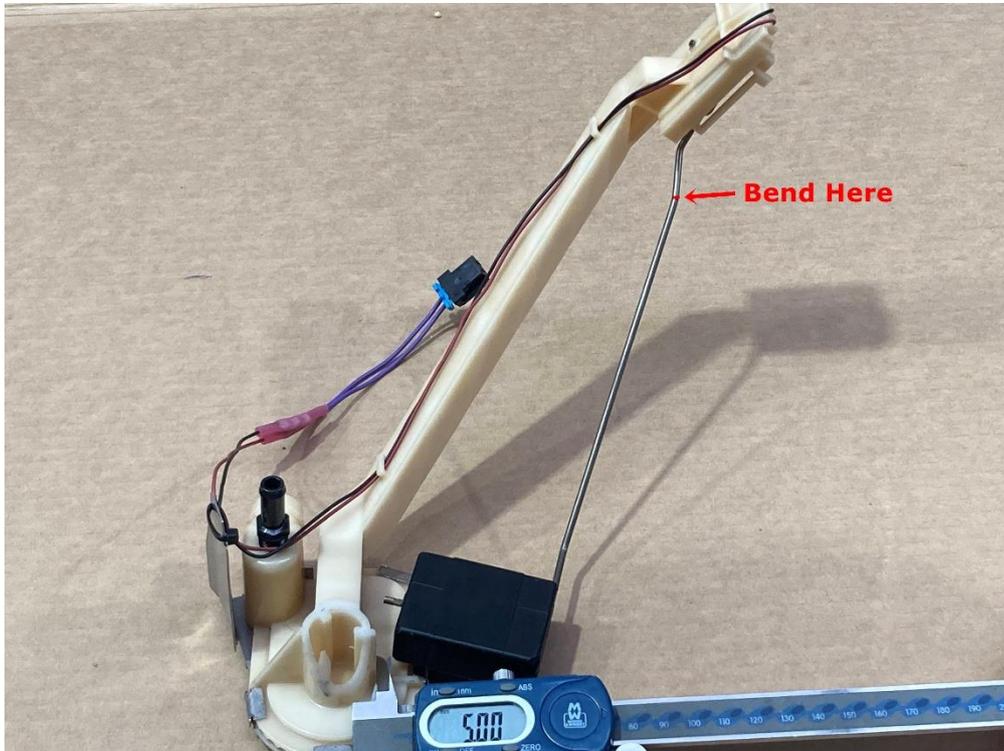
- 6) Using a thread sealing compound, carefully screw the supplied fitting into the threaded hole being careful not to overtighten. **\*PLEASE NOTE** this fitting holds no weight and acts as a low fuel level breather, therefore does not require any excessive tensioning.



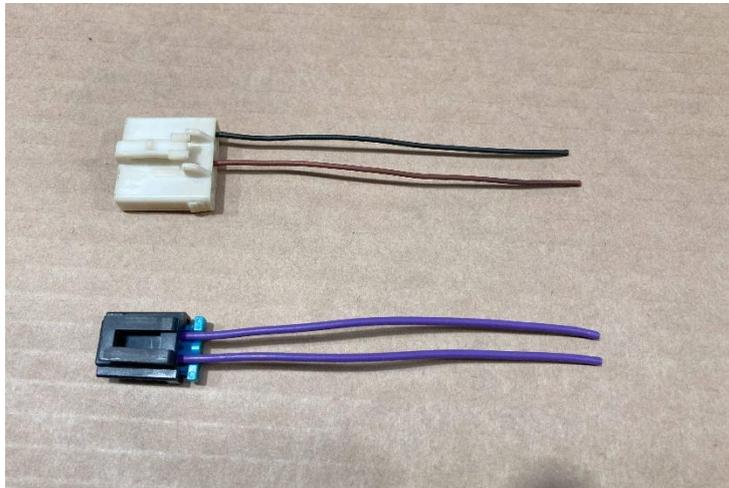
- 7) Fit the supplied base to the sender unit by bending over the tabs.



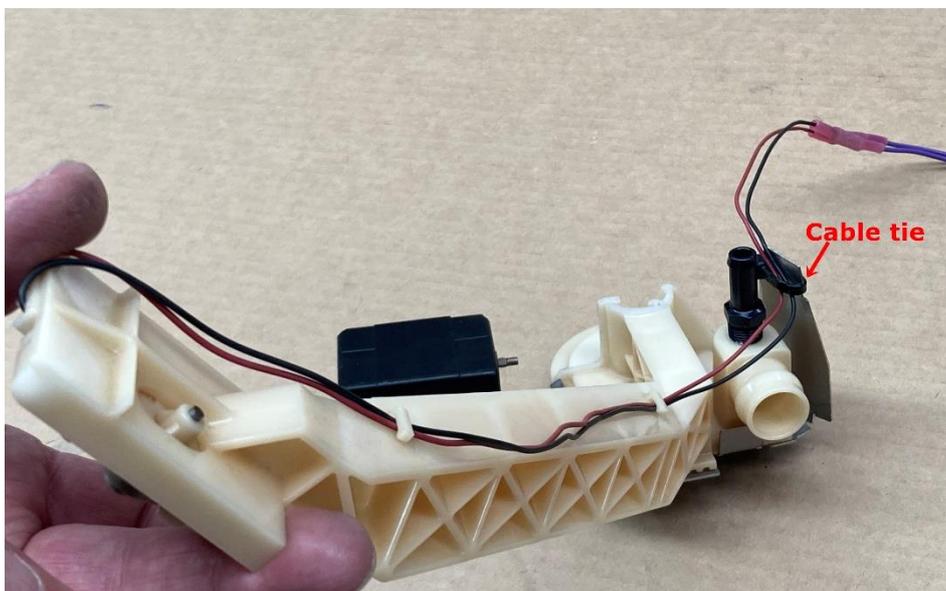
- 8) Measure the float to sender base position as shown. Bend the float arm to adjust the float to base distance to 5mm.



- 9) Cut the sender connector and wire at the length shown. Crimp or solder new connector and wire.



- 10) Route the sender wires along the sender unit arm and the top of the sender base and attach with a cable tie as pictured.



- 11) The modified secondary fuel sender unit is now ready for fitment.  
**BEFORE FITMENT IN TANK ENSURE METAL TAB FITS NEATLY TO CANISTER.**

## KPM Secondary Fuel Module Fitment

Below are two pictures to demonstrate the secondary fuel sender and secondary fuel module fitted while out of the tank.

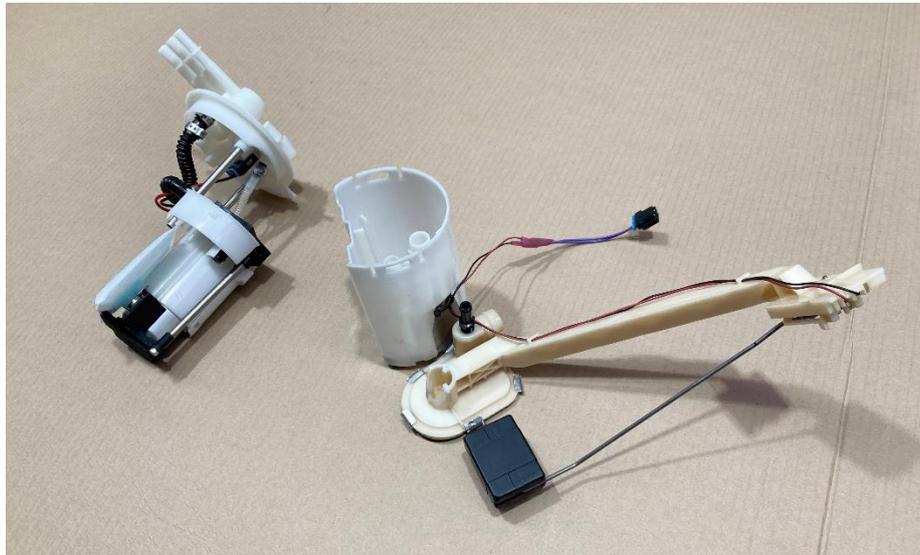
It is not possible to then fit the complete assembly into the fuel tank, therefore needs to be carefully carried out as described below.

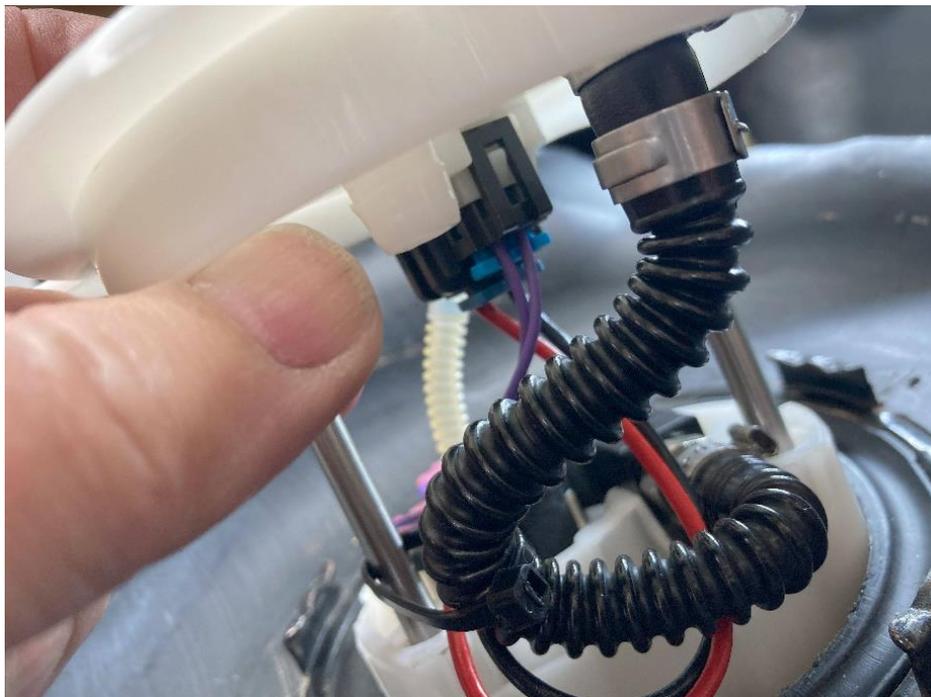
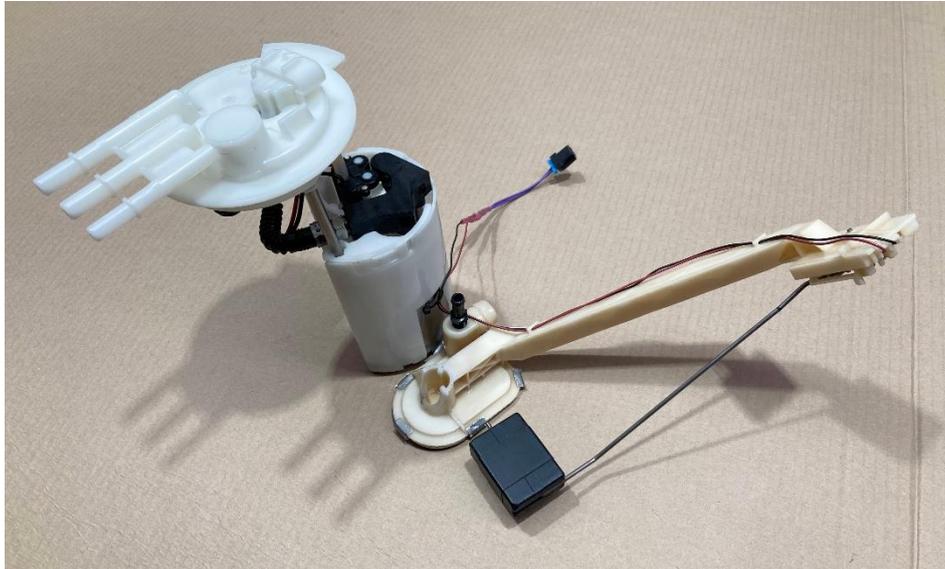
The KPM secondary fuel module canister is supplied separated from the lid (pump/manifold) assembly to make this easier.

The secondary fuel sender unit is fitted to the KPM secondary fuel module canister while the canister is being lowered into the fuel tank. This is can be tricky, however with some patience and care it can be successfully fitted.

The rest of the lid (pump/manifold) assembly is then fitted down and clicks unto this canister while sitting in the tank.

To make fitment easier we have tied back the convoluted fuel supply hose with a cable tie (as pictured). This will make fitment through the tank opening easier. The cable tie can permanently remain fitted.

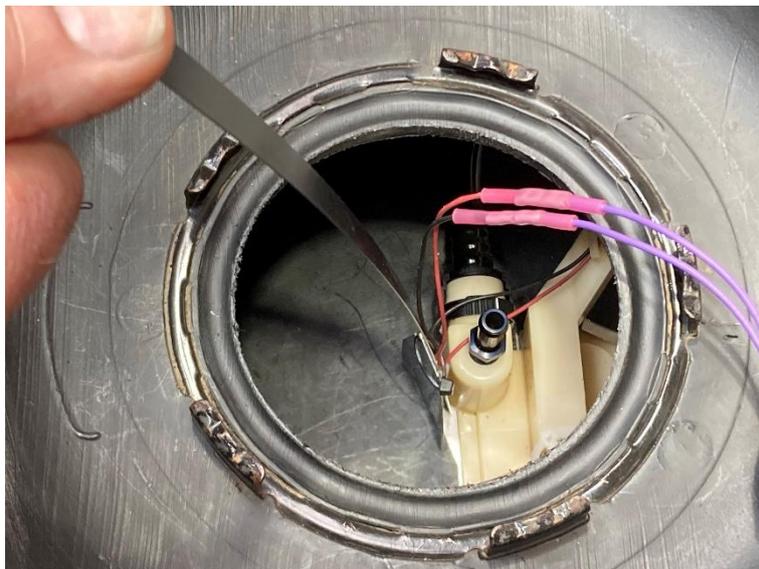




- 1) Place the secondary sender unit into the tank and connect the crossover pipe.



- 2) Tape the sender unit wire temporarily to the outside of the tank. This is just to keep it out of the way.
- 3) Slip a flexible ruler or a hacksaw blade between the sender wire and support bracket cable tie. This is to be able to manoeuvre the sender unit assembly easier.



- 4) Lower the fuel canister and sit it on the bottom of the fuel tank next to the fuel sender support bracket.

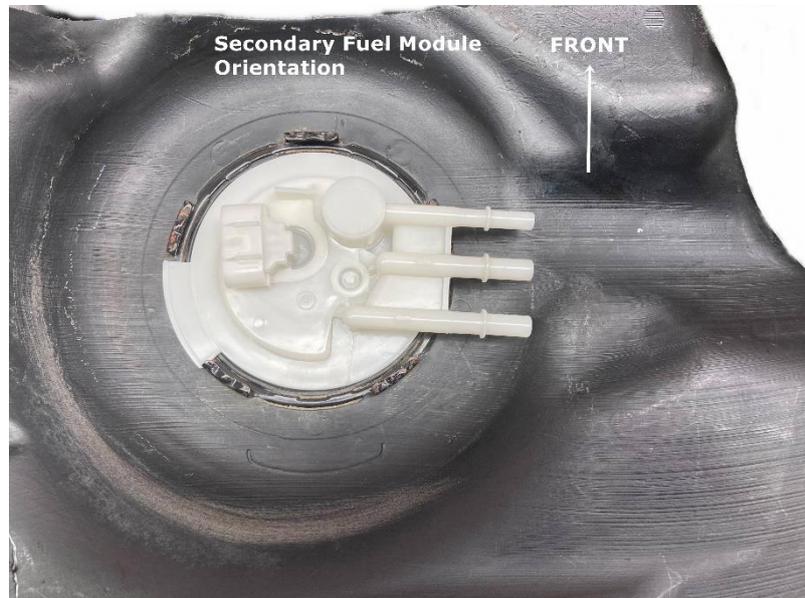
- 5) With one hand, tilt the fuel canister recess against the fuel sender support bracket. Using the flexible ruler and your other hand, manoeuvre the support bracket into the fuel canister channel.
  - a. You can use some long nose pliers to hold the canister if it makes this easier.



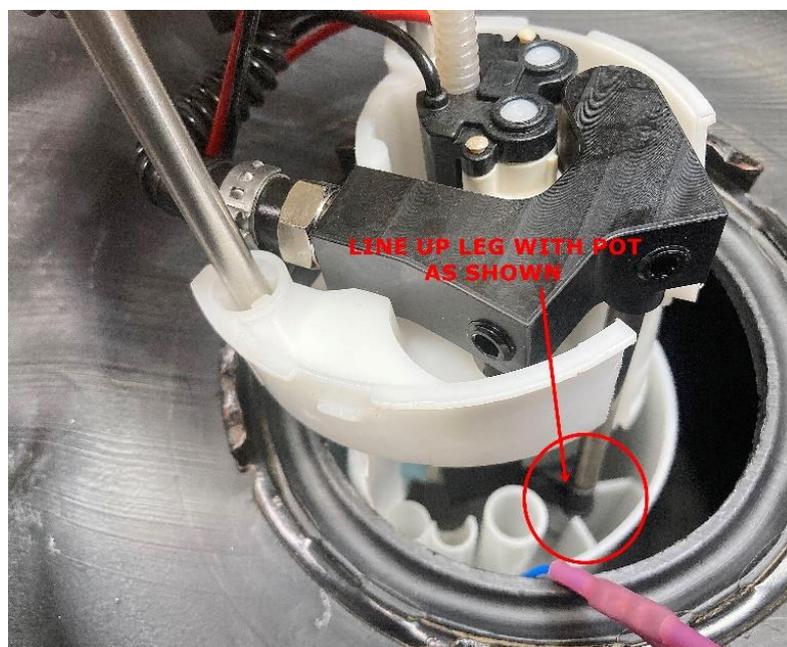
- 6) As the sender support bracket is “V” shaped, it will only start to run tightly into the canister recess channels as you lower the canister down on it.
- 7) When you feel that it starts to align and catch correctly onto the canister channel, push the canister down until it bottoms on the support bracket and sits squarely on the fuel tank floor.
- 8) When you are satisfied the support bracket has correctly fitted all the way unto the fuel canister recess, centralise the canister in the fuel tank opening ready to accept the lid (pump/manifold) assembly. Remove the flexible ruler.



- 9) Line up the fuel module lid assembly over the fuel canister as per the orientation pictured below.



- 10) Lower the lid assembly down into the canister while lining up the lid assembly leg with the canister webbing as pictured below.

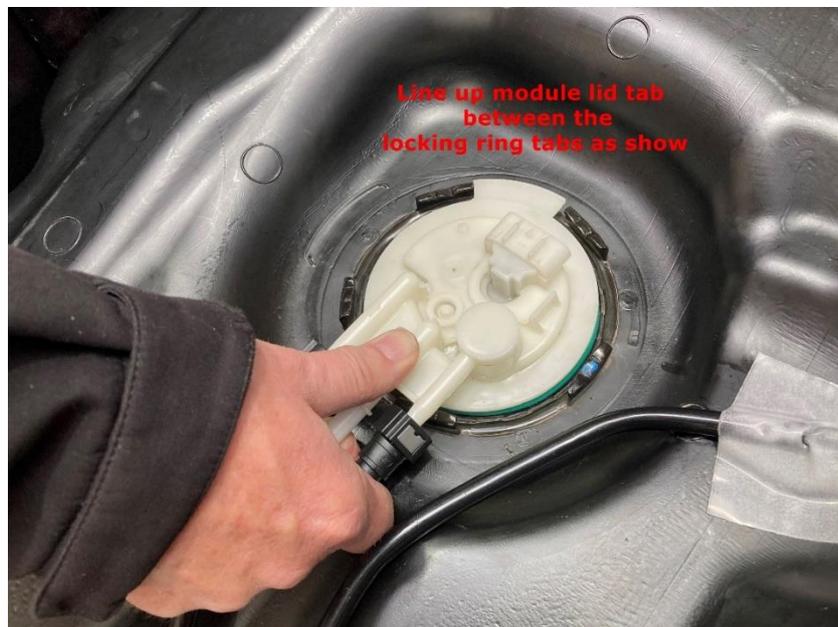


- 11) Continue lowering the lid assembly down onto the canister until you hear the locking tabs. Proceed to click them together securely.

12) Fit the fuel sender connector to the connector under the fuel module lid.



13) Line up the fuel module lid tab between the locking ring tabs as pictured.



14) Proceed to fit the o ring new seal and re-tension the lock ring to the secondary module lid. (Ensure module is sitting square and flush on the seal prior to tensioning).

## KPM Primary Fuel Module Fitment

As this vehicle is a 2006-2009 Pontiac G8 you will need to fit the Retrofit Kit supplied as per the supplementary instructions provided.

- 1) Carefully lower the new primary fuel module into the tank taking care not to damage the fuel sender and float mechanism while doing so.
- 2) Ensure that you can access the crossover pipe connector in the fuel tank with plenty of room to reconnect to the base of the canister.
- 3) Ensure the internal crossover pipe connector clicks fully onto the fuel pump module canister.
- 4) Fit the new O-ring seal and retention the retaining ring to secure the fuel module into the tank with the correct tool.
  - a. Ensure module is sitting square and flush on the seal prior to tensioning
- 5) Fit the new KPM fuel line #KPMFHCOM4 as per the routing pictured below.
- 6) It is very important that the fuel lines are routed exactly as shown and securely held in position with the provided adhesive tape.
- 7) Please clean the tank surface with tank-prep before adhering the adhesive.



- 8) **IMPORTANT:** Fit fuel tank insulators to stop excess rubbing and contact between tank and the underbody of the vehicle. This will provide more clearance for the module, wiring and fittings as well as help to reduce vibration.



- 9) Fit the standard wiring loom sections to the tank as shown in the picture below.
- 10) Fit the KPM section wiring looms #Com3 and #Com7 to the primary and secondary fuel modules. Be sure to connect the earth wire eyelet to the new fuel modules earth studs by securing the supplied nut and washer.
- 11) You will need to cut the 2 fuel sender wires from the factory secondary fuel sender connector and join them to the 2 wires on the #Com7 loom.

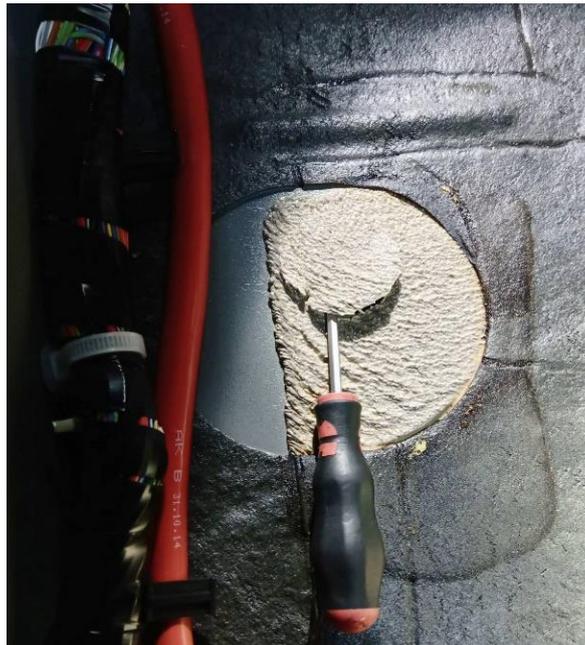




## Fuel Tank Fitment & Module Wiring into Cabin

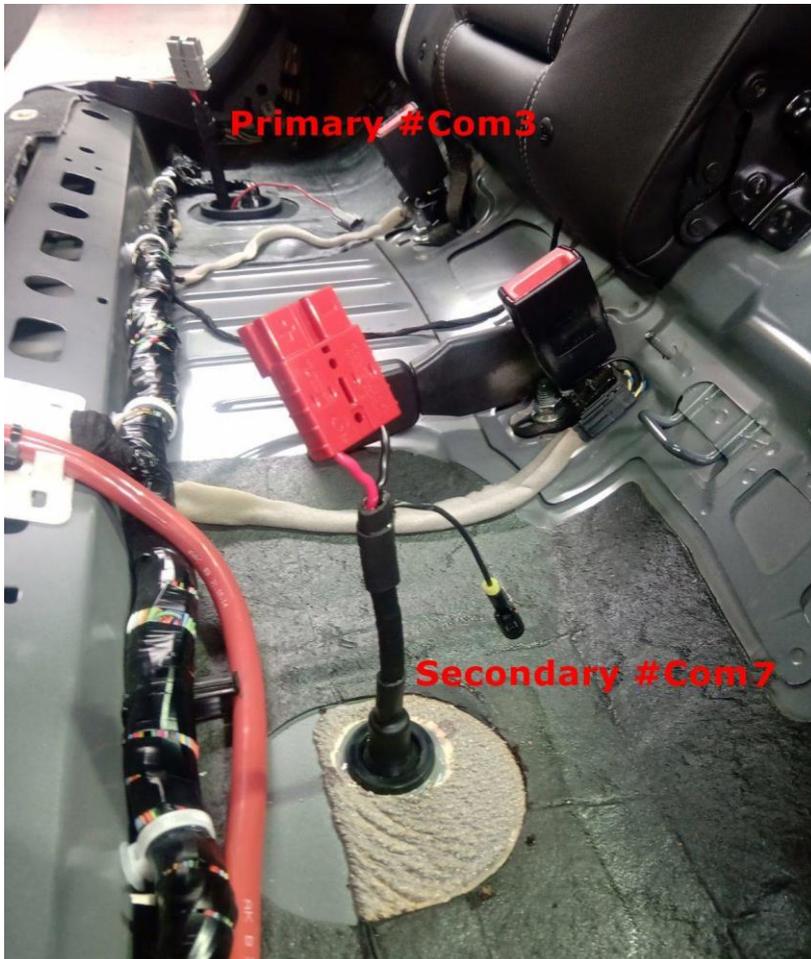
### Sedan

- 1) Remove the base of the rear seat from the vehicle cabin.
- 2) Locate rubber grommet for the primary fuel pump wiring on the RH seat floor area.
- 3) Pop out the rubber grommet to make provision to feed the new primary fuel pump wiring loom through.  
A new 50mm rubber grommet is supplied with the wiring loom #Com3
- 4) On the left side of the rear seat floor area, you will find a sealing cap to a 35mm factory hole. Remove the sealing compound around the cap and carefully pop out the cap with a small flat blade screwdriver to make provision for the new secondary fuel pump wiring loom to feed through.



- 5) Proceed to refit the fuel tank ensuring that both the primary and secondary fuel module wiring looms are fed through the holes in the floor.

- 6) The secondary fuel module loom (#Com7), is supplied with the red Anderson connector removed. This will allow easy feeding through the 35mm hole in the floor. The Anderson connector can then be fitted once fed through.



- 7) Proceed to refit the remainder of your fuel tank as per manufactures instructions.
- 8) Proceed to the [KPM PWM and Wiring Instructions](#) for the relevant wiring schematics and wiring fitment instructions.

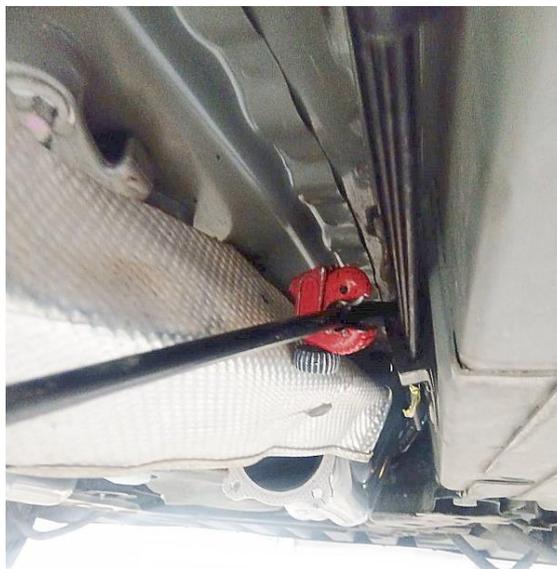
## **KPM High Flow Fuel Hose Kit Fitment**

The KPM high flow fuel hose kit is made of high-grade stainless steel, mandrel bent to perfectly fit either your 2006-2009 Pontiac G8.

The pipe inside diameter is 13.5mm and designed to support well over 3000hp of fuel supply. KPM also supplies aluminium heatshield sheathing that you can cut to size along the full length of the pipe.

The fuel filter is made of 40-micron stainless steel mesh and is fully re-cleanable for lifetime usage. It is 100% Ethanol and Gasoline compatible. On vehicles requiring the fuel pressure sensor as part of the fitment, the fuel filter canister has a boss made to perfectly accept the supplied Bosch fuel pressure sensor supplied.

- 1) Remove the plastic shrouding near the fuel tank that acts as a mount for the fuel, brake and emission pipes.
- 2) Remove the steel fuel supply piping from the rear tank section as far as you can towards the engine.
- 3) You will find that as you get towards the engine the piping runs behind steel plating and bends behind the firewall in a very-inaccessible area.
- 4) It would take removing the engine or both cylinder heads to completely access and remove this section of piping.
- 5) Rather than going to this extent you can leave this section of piping in situ by cutting the pipe as far towards the engine as possible, with it still able to be held out the way by the mounting saddle.



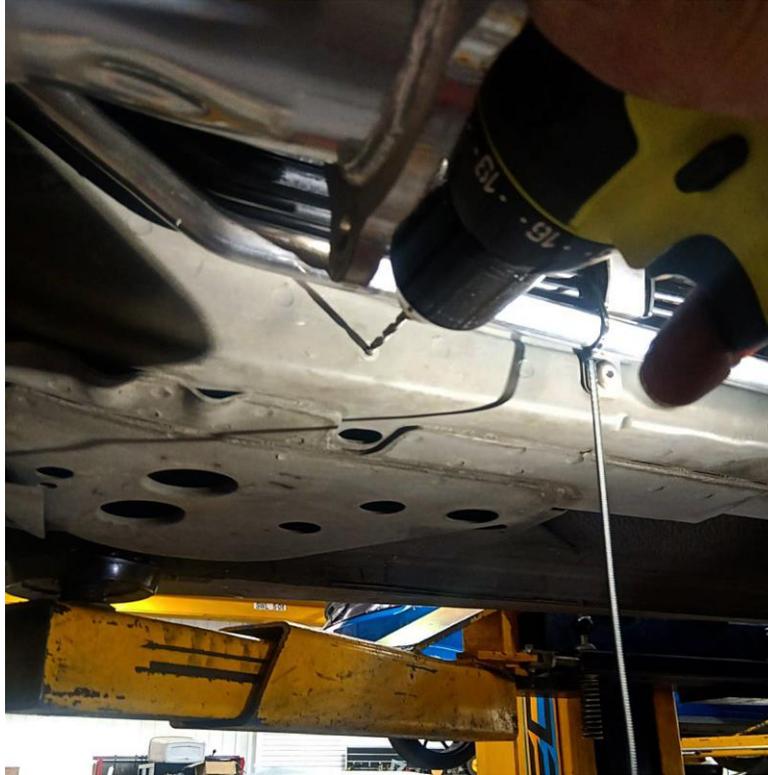
- 6) Lubricate the 2x O-ring seals on the T-Piece fitting. Carefully fit to the **Pontiac #KPMFHCOM3** or **Caprice #KPMFHCOM3-U** and tighten the locking nut securely.
- 7) Lay this pipe section unto the plastic shrouding as shown to act as a template to modify the shrouding.



- 8) You will need to scallop the plastic shrouding to accept the new and larger 16mm OD #KPMFHCOM3/#KPMFHCOM3-U fuel pipe.
- 9) Refit the plastic shrouding back on the vehicle to the brake and emission pipes as well as the new section KPM pipe and fitting.



- 10) Fit the front section #KPMFHCOM2 steel pipe from underneath up into the engine bay area. Temporarily use cable ties to hold it in an approximate position.



- 11) Fit the fuel filter to the flared ends of both pipes. Loosely screw on the nuts until they are seated.
- Ensure the filter is fitted in the correct direction of fuel flow.
  - Ensure the provisional fuel sensor boss is facing outwards as shown.



- c. Ensure that the 2 pipe flare O-ring seals are fitted in place (as supplied) on both sides of the filter ends



- 12) Check the piping is in correct positions in all areas, when satisfied, test fit and mark out the positions for the final fitment of the fuel pipe clamps supplied. You will find supplied 2x 10mm base clamps and 2x 20mm base clamps.



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- 13) With all the fuel pipes and fitting clamps mapped out, you can now measure and cut your heat shielding to be fitted for a final fitment. Be especially sure to run the heat shielding on any section of fuel line running close to a heat source e.g., headers, exhaust, cats etc.



- 14) Securely fit all fuel line connectors and tighten the flare nuts at the fuel filter firmly. **DO NOT OVERTIGHTEN.**
- 15) Fit your final #KPMFHCOM1 nylon fuel hose section to the fuel pipe end in the engine bay. Route this fuel hose behind the engine to end at its OE outlet position. Secure as required.
- 16) Due to the many combinations of manifolds, fuel rails, flex fuel systems, superchargers, turbo etc. positions, the end user is required to manufacture their own last piece of fuel supply line to the rail entry. KPM have supplied a quick release 8AN fitting to help you complete your fuel system using common fittings.
- 17) When you have fully finished fitment of your fuel supply system **YOU MUST CHECK FOR ANY LEAKS BEFORE START UP.** Prime fuel lines while checking for leaks. If all ok start the vehicle and perform a thorough check under vehicle and at all fitting points. Run the vehicle until everything has been warmed and then re-check all fittings and fuel filter nut tensions.

Congratulations! You are ready to go.

Please see your specific vehicle year/model [PWM and Wiring Instructions](#) to complete you KPM Fuel System installation.