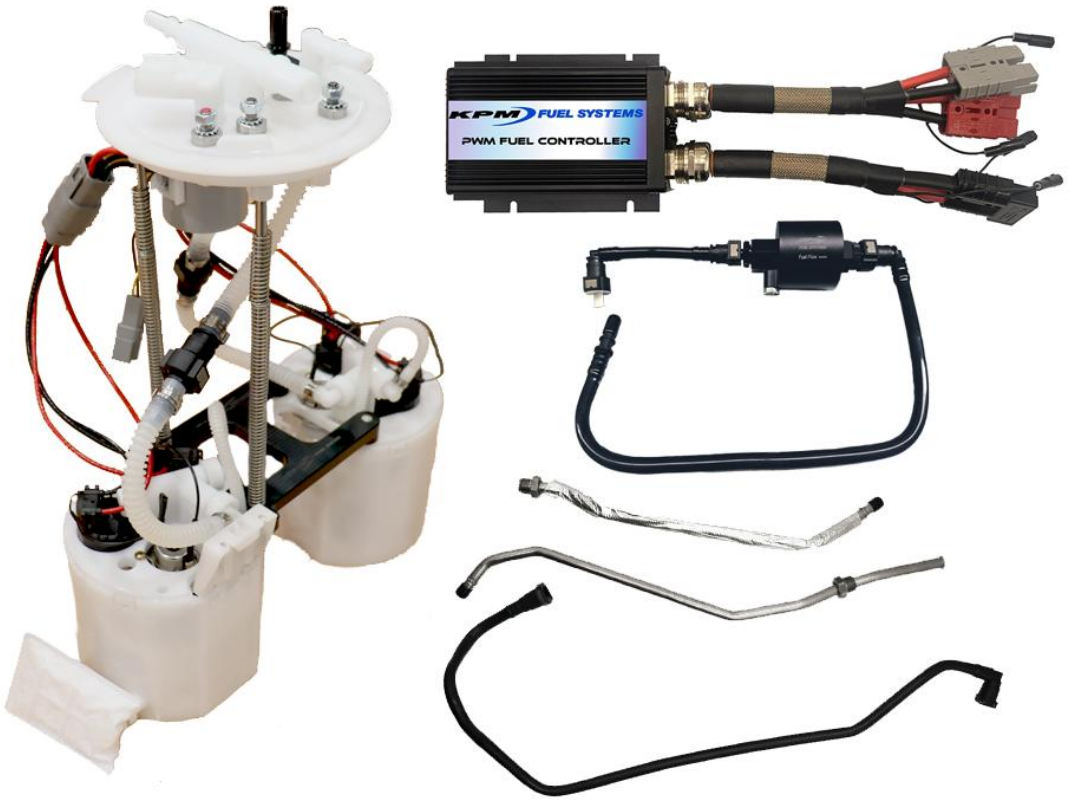
Ford F150 2015 onwards
2200HP/2700HP Fuel system



Important! Must Read First

Congratulations on the purchase of a KPM Fuel System for your Ford F150.

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 not clear in the instructions provided.

Email: 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 only as supplied by KPM Fuel Systems.

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

KPM Fuel Module x 1 - Primary (for increased flow and capacity)
KPM Fuel Module x 1 - Secondary (for ultimate flow and capacity)
KPM PWM Fuel System Controller - (for precise electronic control over fuel module/s operation)
KPM Plug and Play EMI safe wiring kit (for correct, reliable, and safe current supply).
KPM Fuel pressure sensor kit. (2015-2017 ONLY)
KPM High flow fuel hose and filter kit.

- KPM Fuel Systems will take NO responsibility for the operation of this fuel system if any of the components listed are not utilized 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.

Operation and Functions

The KPM Pulse Width Modulated (PWM) Fuel System Controller has been specifically designed to support up to 80 amps of continuous current draw.

This gives it the capability of running up to 4x high flow motorsport fuel pumps simultaneously and continuously.

The controller is programmed to run the fuel system at a pre-determined fuel pressure. The fuel pumps will only be run at the duty cycle required and when required. This ensures less currant draw, which means less heat, improved reliability and precise tune-ability.

With this amount of control over fuel flow, we now have the ability to support extreme horsepower with OE level functionality.

The KPM Fuel System Controller is fully programmed from factory to perfectly suit all vehicle models and the many combinations of fuel delivery required.

The PWM Fuel System Controller has the following functions:

- 80-amp continuous current support
- Fully programmable to control up to 4 fuel pumps by means of one or all of the following inputs:
    - Fuel pressure, MAP, MAF, Throttle position. *
- Fully programmable OE factory PWM input, piggy back control
- Fully programmable pump output and pump staging*
- Fully programmable system pressure settings*
- Multiple options for safety settings and pump control*
- Multiple gauge and warning light outputs*
- Advanced low temperature electronic circuits for robust motorsport and long-term reliability
- Supplied with EMI shielded high amperage wiring and connector kit to block out interference with other vehicle electronic modules and devices.
- LED on controller for visual system pass and fault code readout.
- Fully modular fitment to all KPM Fuel Systems

*To re-program this function please contact KPM Fuel Systems.

The KPM PWM Fuel System Controller will be supplied pre-programmed to exactly suit the model of your vehicle and the level of KPM fuel system purchased.

There is nothing to do, just follow the wiring instructions, plug in the connectors and start the car. Simple! The controller will do the rest.

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 0psi.
- Disconnect the Battery.

Standard Fuel Module Removal

1) Drain fuel tank.
2) Disconnect fuel lines and vapor lines on top of fuel tank.
3) Remove fuel tank from vehicle.
4) Remove the retaining ring holding the fuel module to the tank with the correct tool.
5) Carefully lift the OE module completely from the fuel tank.

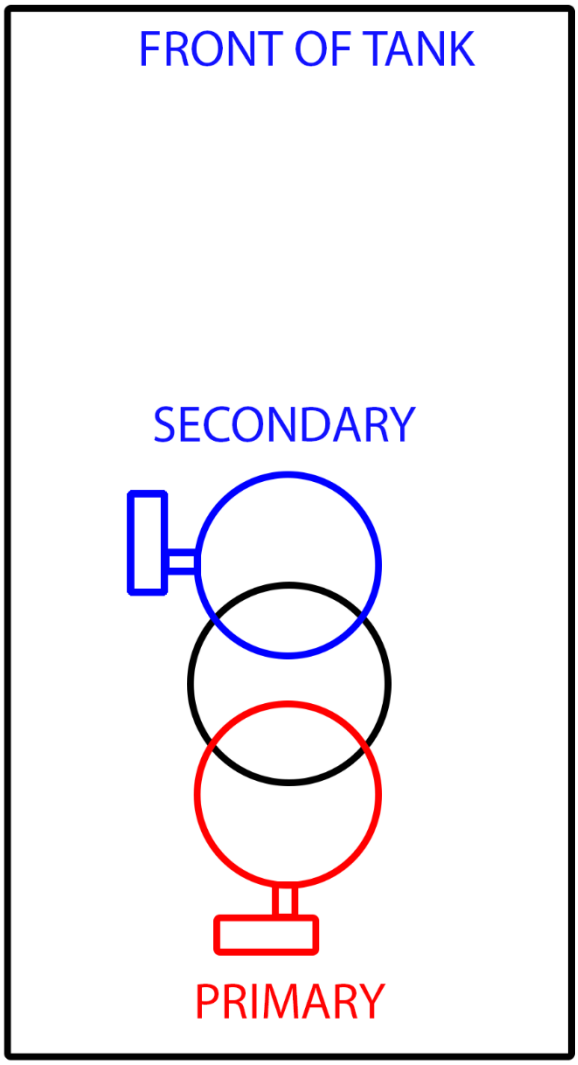
KPM Fuel Module Fitment

You will need to remove the fuel sender unit from the standard fuel module for fitment to the upgraded KPM Fuel Module.

1) Cut OE electrical connector from sender unit closest to the connector. Strip appropriate length of insulation on both wires. Crimp Deutsch terminals onto wires and assemble connector.

2) Carefully lower the SECONDARY fuel module into the fuel tank and slide toward the front of the tank away from the tank opening. Align with the feed hose fitting facing the rear of the tank

3) Carefully lower the PRIMARY fuel module into the tank with the venturi filter facing the rear of the tank.

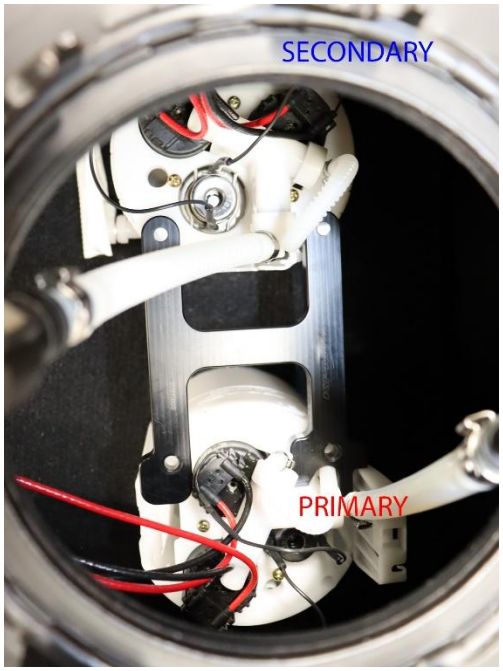


4) Lower sender unit into available space alongside the pump module

5) Slide the sender unit base up the bracket and clip into position. Ensure wires are clipped into bracket.

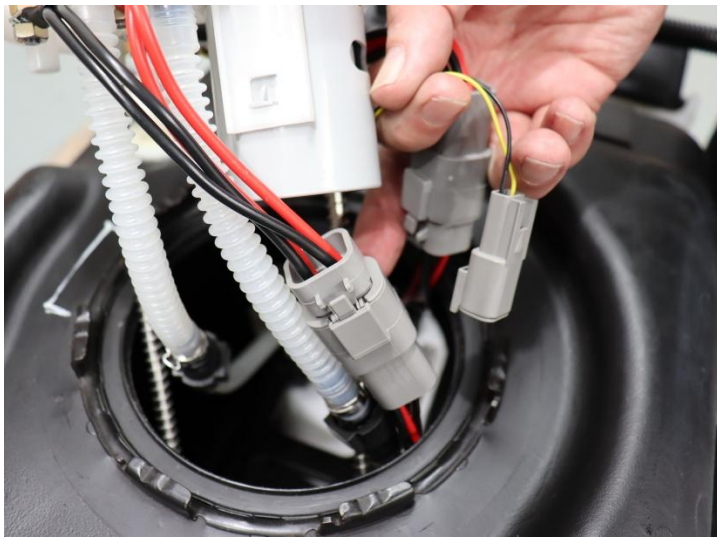
6) Lower the module bridge piece into the tank and insert the legs into the holes in the SECONDARY fuel module.

7) Now carefully slide the SECONDARY fuel module toward the PRIMARY fuel module and locate the bridge piece as shown. It will gently “lock” into position and align with the PRIMARY leg holes.

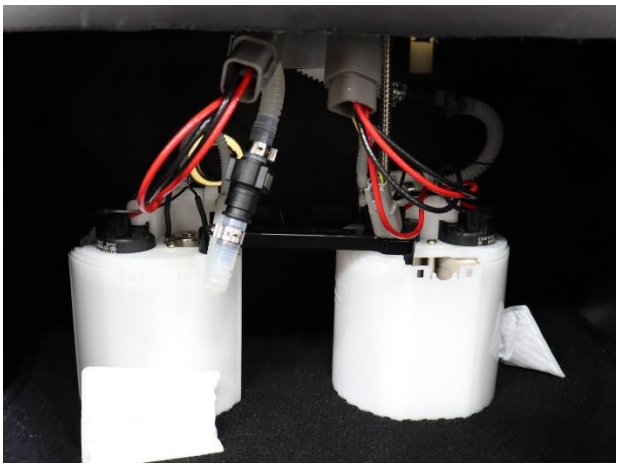


8) Lower the lid assembly legs into the fuel tank and join all three Deutsch connectors. (The pump connectors are opposite from each other so they can only be assembled one way)

9) Connect the fuel feed lines from modules to the lid. (They are opposite from each other and can only be assembled one way also)



10) Orientate the fuel pump wiring looms to the opposite side from the sender unit to avoid tangling. (cut-away fuel tank shown with lid compressed and hoses and wiring connected)



11) Ensure fuel tank o ring surface and o ring are clean and free of debris.

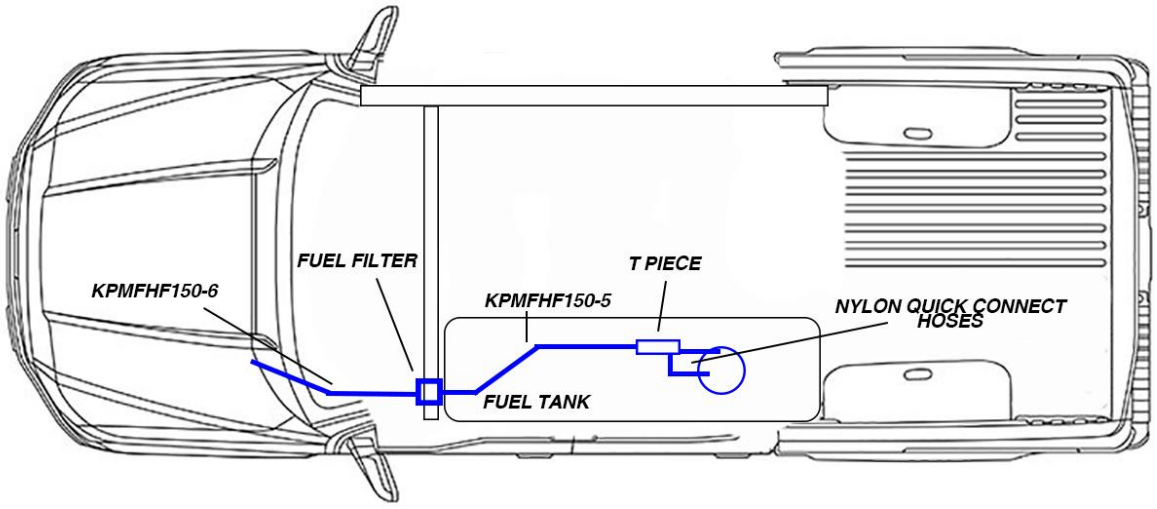
12) Compress fuel module lid and re fit retaining ring.

KPM High Flow Fuel Hose Kit Fitment

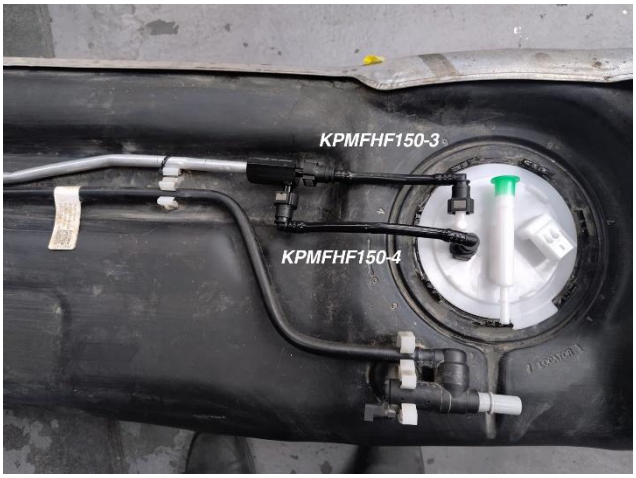
The KPM high flow fuel hose kit is made of high-grade stainless steel, mandrel bent to perfectly fit your 2015 - onwards F150.

The pipe inside diameter is 13.5mm and designed to support well over 3000hp of fuel supply. KPM also supplies aluminum 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 and is fully re-cleanable for lifetime usage. It is 100% Ethanol and Gasoline compatible. The fuel filter canister has a boss made to perfectly accept the supplied Bosch Fuel Pressure Sensor (2015-2017 only).

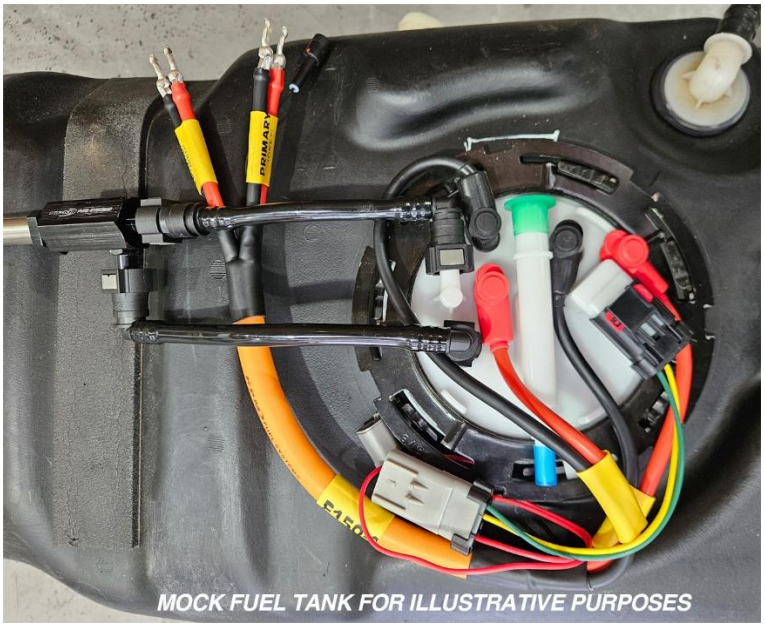


1) With the fuel tank still out of the vehicle fit KPMFHF150-3 AND KPMFHF150-4 from the fuel module outlets to the T-piece as shown below.



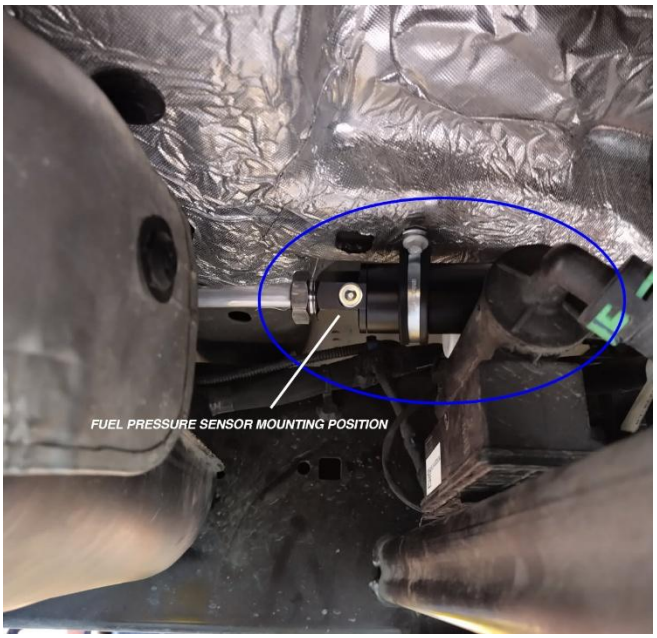
2) Leave the 5/8 breather hose in the first plastic clip and un clip it from the following two. Fit stainless steel fuel line KPMFHF150-5 into T piece and clip into the two plastic clips previously used by the breather. zip tie the stainless line to the first clip then use zip ties to secure the breather to the stainless line.

3) Fit wiring harness F150-9 to fuel module lid as shown below. Ensuring terminals are secured to the correct studs as per decals on the Module lid.



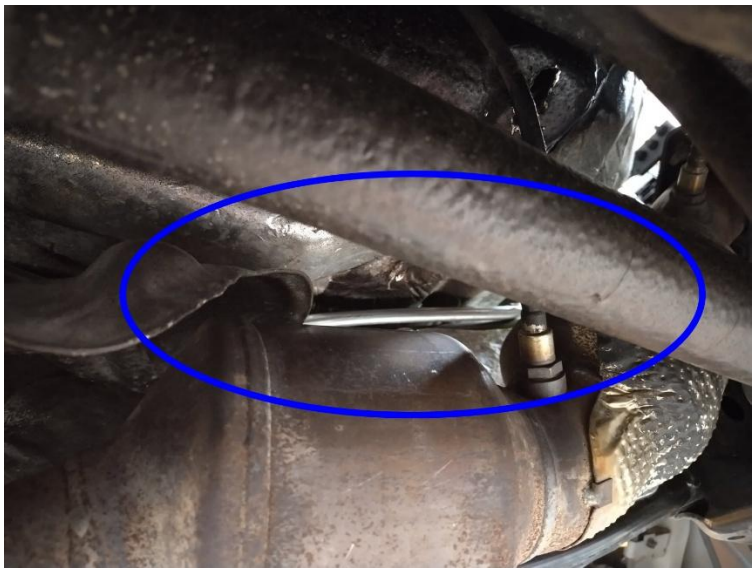
4) Re fit fuel tank in the reverse order that it was removed.

5) To fit the fuel filter in front of the fuel tank with supplied P clamp firstly attach fuel line KPMFHF150-5 into fuel filter. Do not tighten fully yet. This will position the filter in the correct location. (2015-2017 ONLY. Fit fuel pressure sensor.)



6) For fitment of the final fuel line KPMFHF150-6, first remove the catalytic converter heat shield at the front of the transmission tunnel against the chassis rail if the vehicle is fitted with one.

7) From the engine bay, carefully slide the fuel line downward and follow the chassis rail until threaded end meets the fuel filter. This can be loosely attached to the fuel filter to help hold in place



8) Mark appropriate positions for supplied mounting brackets.
Mark supplied heat shielding for bracket positions and cut accordingly. slip heat shielding over fuel line leaving room for brackets to be mounted. Secure fuel line and brackets.

9) Tighten up both stainless steel fuel lines at the fuel filter.

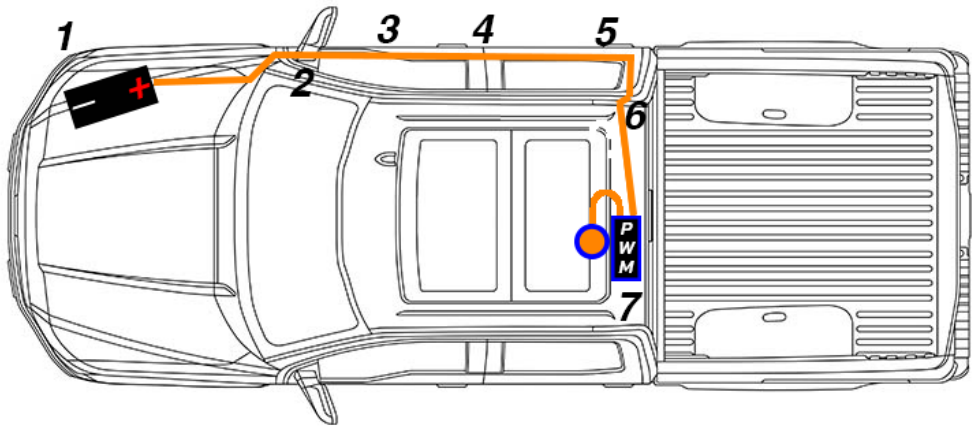
10) Re fit Catalytic converter heat shield.

11) 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 and adapt your fuel system using common fittings.

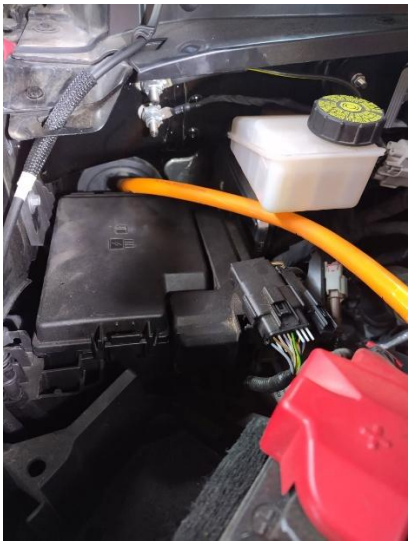
Wiring/PWM fitment (Schematic Diagram Attached)

Inside vehicle

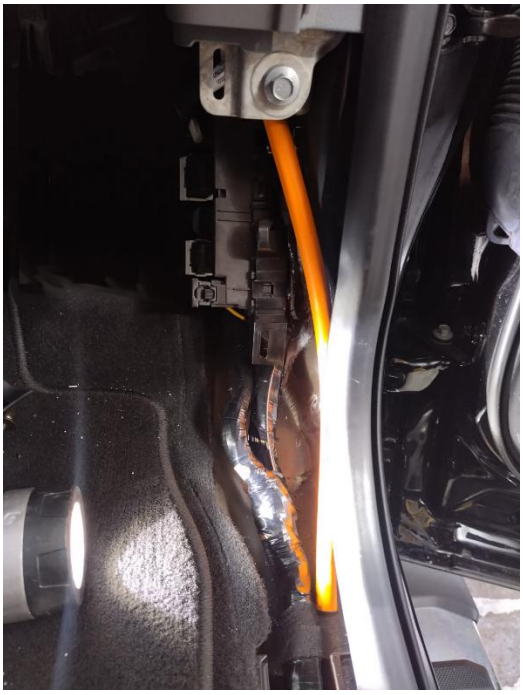
This shows where the wiring sections will run from the battery, through the inside of the vehicle and to the tank on a LONG wheelbase variant. SHORT wheelbase variants will need to locate an appropriate location to run wiring through the floor.



1) Starting at the battery, attach wiring section F150-1 to battery And start to feed through grommet at firewall.



2) After removing passenger side kick panel, continue feeding wiring through and follow the OE wiring loom down to the floor to the carpet seem under the scuff panels.

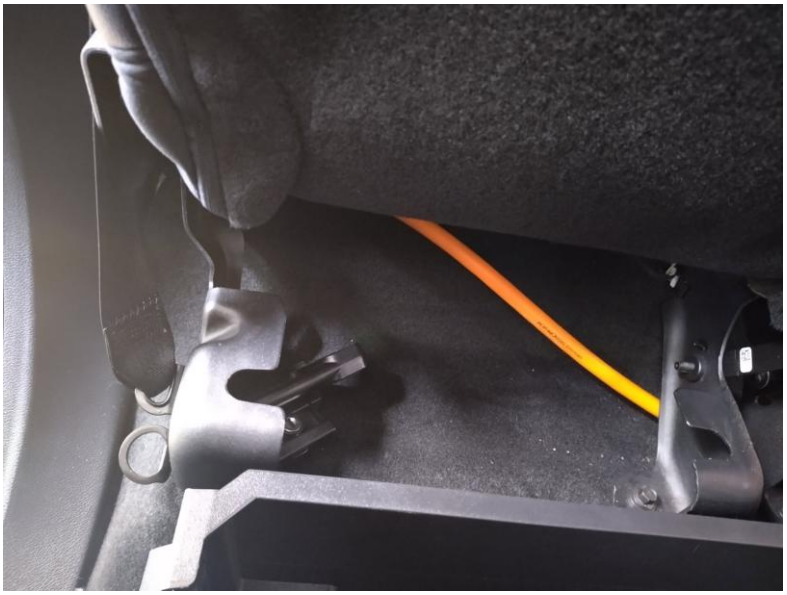


3) Unclip the trim at the base of the carpet and the scuff panels and feed wiring towards rear of vehicle underneath the clips.

4) Continue feeding wiring sections toward the rear of the vehicle underneath the trim panels.

5) Route wiring under the rear most trim panel and cross wiring over to beneath the rear seat and past jack and tool kit.

6) Feed wiring sections beneath the rear seat and towards the driver's side of the vehicle and clip terminals into Anderson connector (black wire -) (red wire +) then leave for now.

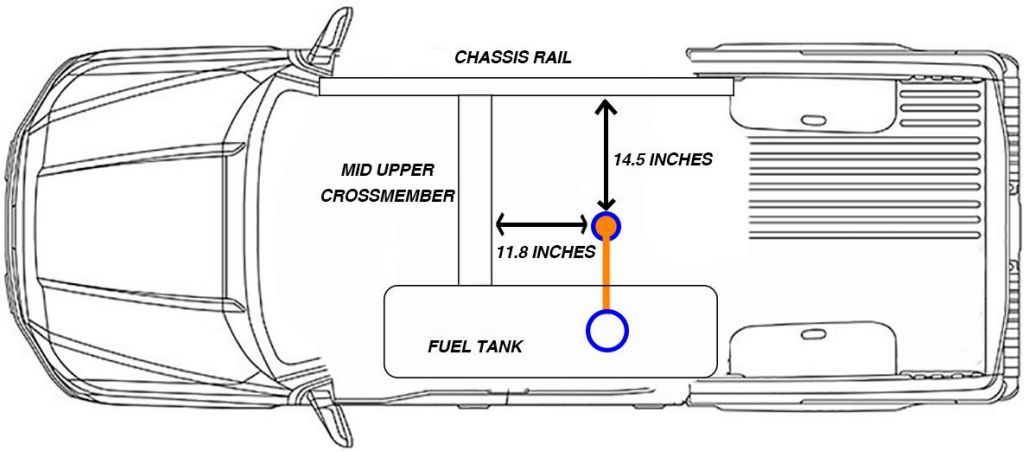


7) Mount PWM under rear seat in the position oriented as shown in the routing diagram above.

8) The wiring will now go underneath the vehicle. Leave the wiring at this point inside for now.

Underneath vehicle

LONG wheelbase shown. For Short wheelbase find appropriate location to run wiring through cabin floor.



1) Measure 14.5 inches from the inside of the passenger side chassis rail and mark it.

2) Measure 11.8 inches from the mid upper cross member and mark it.

3) Find the intersection of these two points and mark it.

4) Drill a pilot hole from underneath vehicle

Inside vehicle

1) Back in the cabin where the pilot hole was drilled from underneath. Use a stepped drill bit or a hole saw to make a 30 mm hole.

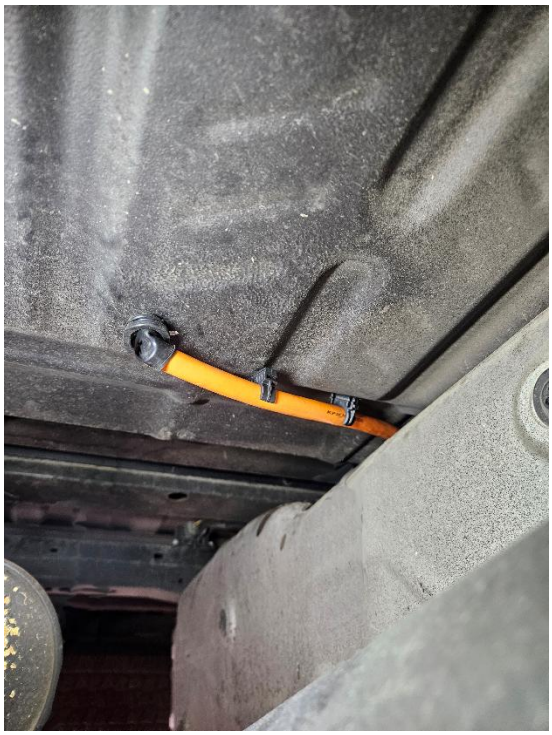
2) Fit supplied grommet to hole with protruding side facing downward.

3) Feed wiring section F150-7 and F150-8 through grommet and underneath with the assembled Anderson connectors remaining inside the vehicle. (2015-2017 models ONLY will need to fee wiring loom F150-19 through grommet also.)

4) Connect the Grey Anderson to the grey Anderson at the PWM and the Deutsch connector. (2015-2017 models ONLY will need to connect F150-19 Deutsch connector to the fuel pressure sensor input connector.)

Underneath Vehicle

1) Pull wiring through grommet and route towards fuel tank.
mount supplied wiring clips as shown. (2015-2017 models ONLY will need to also pull wiring loom F150-19 and route along fuel lines and connect to the fuel pressure sensor.)



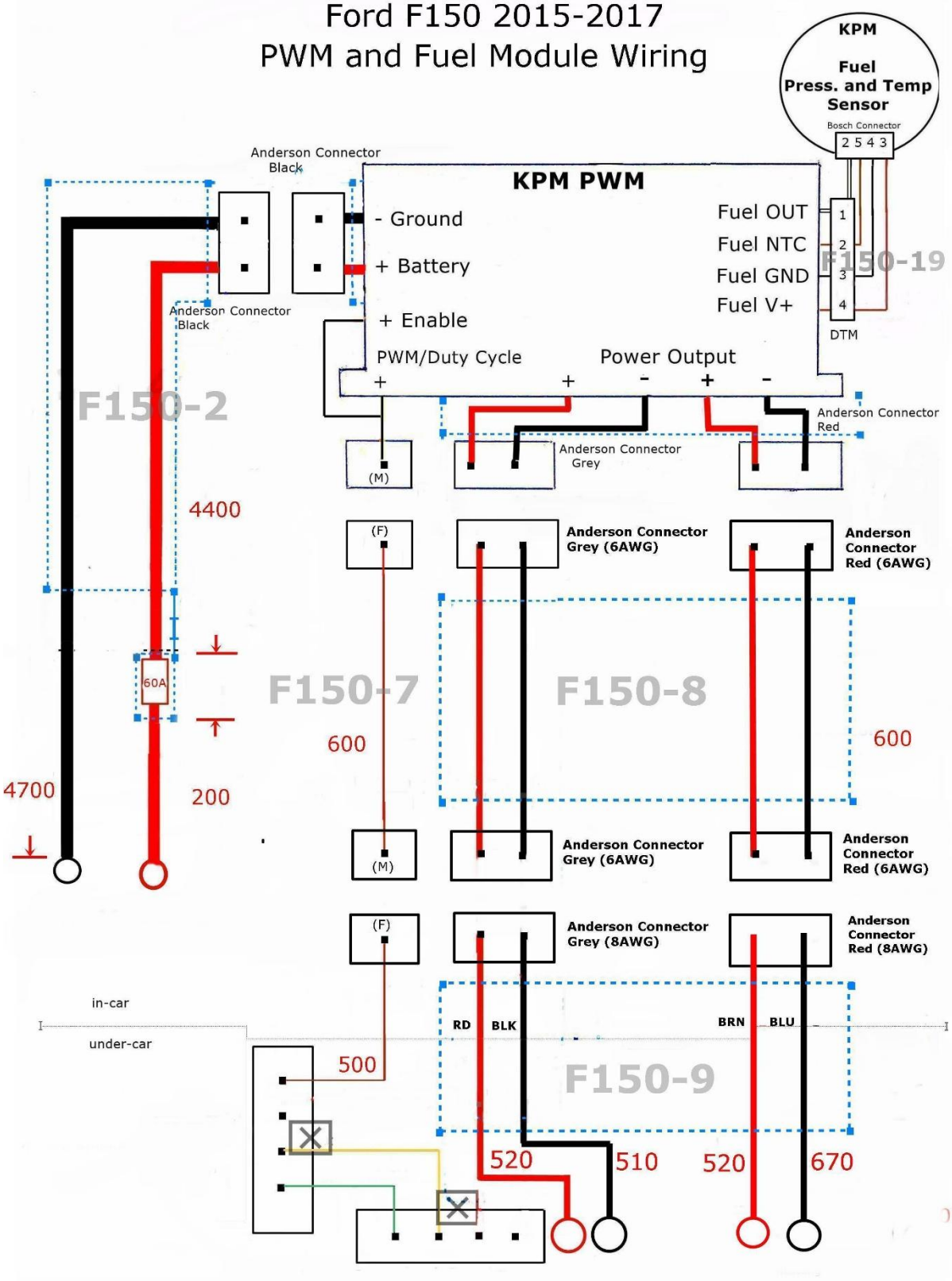
2) Assemble terminals into Anderson connectors and connect to fuel tank wiring section F150-3, also connecting F150-7.

Inside Vehicle

1) Secure Wiring throughout cabin and re assemble trim components

F150PWMWIRE2200/2700-15

Ford F150 2015-2017
PWM and Fuel Module Wiring



Engine start up

1) Refit the fuel pump fuse.
2) Reconnect your battery.
3) Ensure you have at least ½ tank of correct clean/fresh fuel.
4) Connect a fuel pressure gauge to the supply line at the fuel rail or read your fuel pressure on your scan tool.
5) Prime fuel system and start engine.
6) Check all fittings at pump and fuel rail for NO leaks
7) Stop engine and relieve fuel pressure.
8) Remove fuel pressure gauge and refit fuel line
9) Re-start engine and check for NO leaks.

IMPORTANT INFORMATION

KPM Fuel Systems strongly recommends that you have your engine tune checked by a professional tuning workshop!

Depending on the previous fuel system your vehicle has been tuned to, your car may run differently with the new KPM Fuel System pressure and extra supply.

This can cause rich or lean fuel mixtures and possibly be detrimental to your engine!

It is your responsibility to have your vehicle checked and/or re-tuned by specialist methods to ensure correct fueling and engine safety and reliability.

It is your responsibility to have your vehicle checked and/or re-tuned by specialist methods to ensure any fault codes in the vehicles electronic management system/s are corrected.