

PERFORMANCE BY



INSTALLATION GUIDE

IE TRUEFLEX SENSOR KIT FOR AUDI B9 A4 IEELCK3



This installation guide is for instructional purposes only. For best results, professional installation by an experienced technician is always recommended. By reading this guide you agree Integrated Engineering is not responsible for any damage or personal injury caused by incorrect installation.

DIFFICULTY



Expect 3 hours on average

REQUIRED TOOLS

- IE HPFP Assembly Tool - IEFUVN1-4
- Bench Vice
- Socket Wrench
- Hydraulic Press
- Degreaser
- 10mm Socket
- Flat Head Screwdriver
- Pliers
- Snips
- Depinning Tool

BEFORE YOU BEGIN

It is highly recommended to pre-read this entire guide ahead of your installation to familiarize yourself with each step. Always park your vehicle in a safe and level location and allow plenty of time for the engine bay and exhaust to completely cool. Locate and prepare your work space with each required tool listed above. Unbox all components and verify the contents and quantities before you begin. If anything is missing or damaged, please contact us for immediate help at support@performancebyie.com

REQUIRED PARTS

- IEFUVN1 - IE High Pressure Fuel Pump (HPFP) Upgrade Kit
- (1) OEM MQB HPFP - PART # 06L 127 027 C
- (2) HPFP Bolts - Part # N 911 287 01
- (1) Vacuum Pump Housing - Part # 06L 145 100 N
- (1) Vacuum Pump Gasket - Part # 06H 103 121 J
- (3) Vacuum Pump Bolts - Part # N 107 394 01

REQUIRED TOOLS

- Wire cutters
- T30 Socket
- 17MM Wrench
- Pig Mat or Rags

SPECIAL NOTE:

This install guide has been photographed and written on a 2018 Audi A4 with some prior modifications. Some steps and factory hardware specifications may vary depending on vehicle model, year, and region. This guide is for reference purposes only. If you are unsure of the installation procedure for any individual step or part, please seek professional help before proceeding. This install guide is also covers three distinct sections, so depending on your current modifications there may be some repetition in the steps.



INCLUDED PARTS

- 01 - B9 A4 Flex Fuel Harness
- 02 - AcDelco Flex Fuel Sensor
- 03 - Fuel Injection Hose - 6AN - J30R9
- 04 - (2) Nylon Plastic Cable Tie, Standard, 6" Long, for 1-3/8" Maximum Bundle Diameter, 0.14" Wide Black
- 05 - (2) Tight-Seal Bolt Clamps for Soft Hose and Tube, Galvanized Steel with Zinc-Plated Steel Bolt, 31/64" to 37/64" ID
- 06 - 2 Amp Standard Blade Fuse, Automotive
- 07 - (2) 9.49MM Push Lock to 3/8" Barb Connector
- 08 - ECU PIN

Some items may be partially assembled.

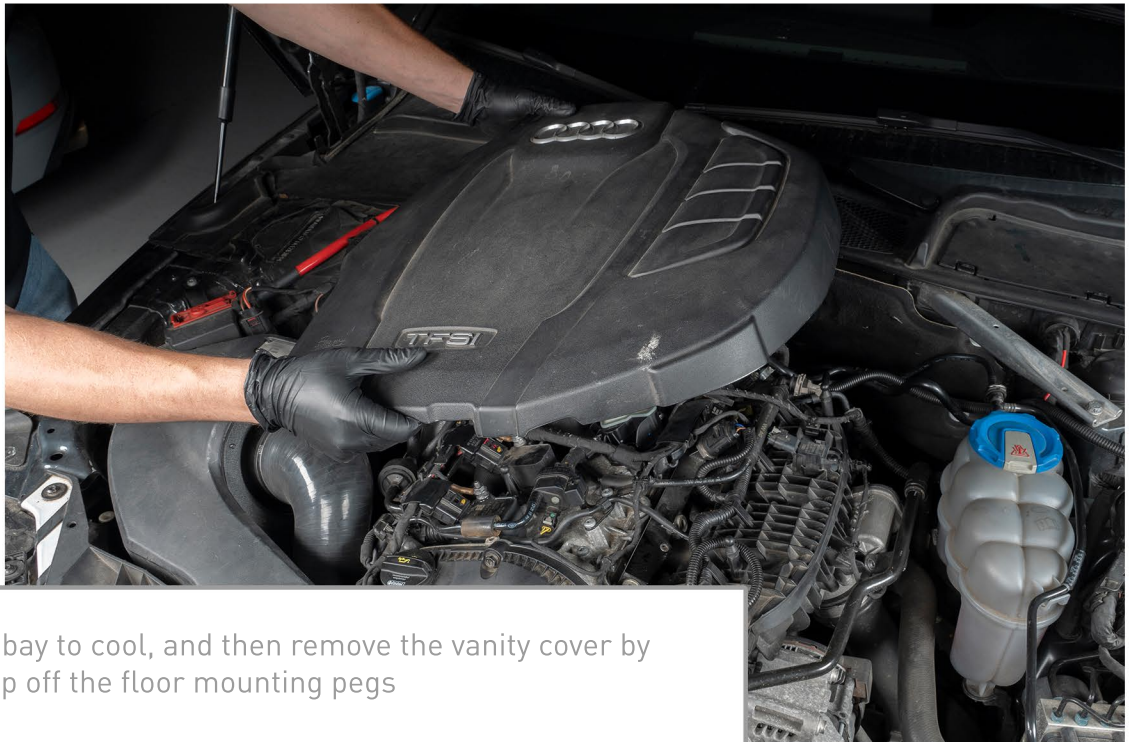


1



Begin by removing the negative terminal to the battery by lifting the cover in the trunk and using a 10 mm socket to loosen the terminal.

2



Allow the engine bay to cool, and then remove the vanity cover by pulling straight up off the floor mounting pegs

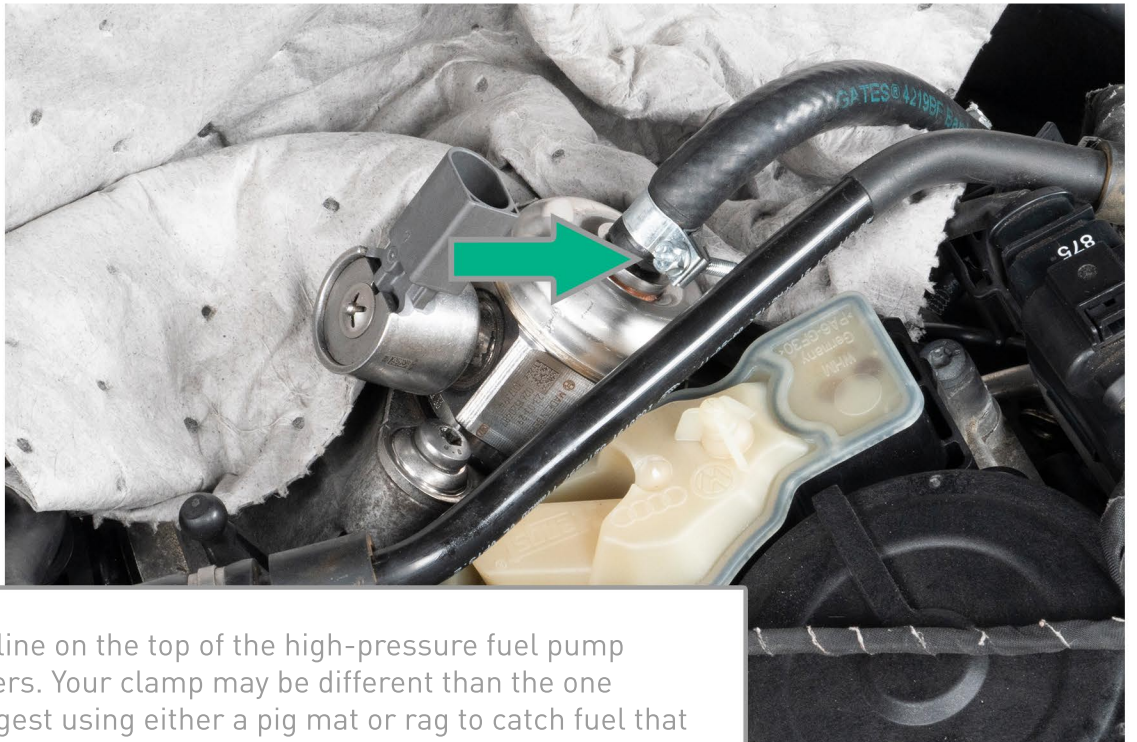


3



Remove the factory solenoid connector by lifting the tab and pulling straight away.

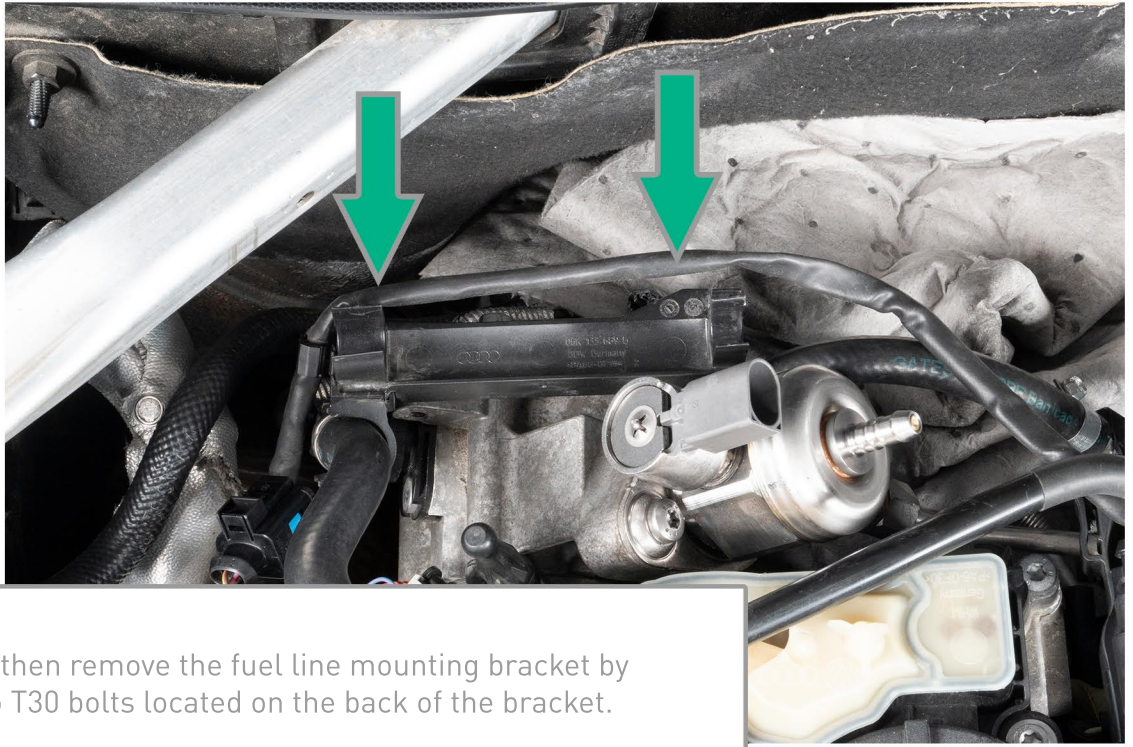
4



Remove the fuel line on the top of the high-pressure fuel pump using a set of pliers. Your clamp may be different than the one pictured. We suggest using either a pig mat or rag to catch fuel that will leak out.

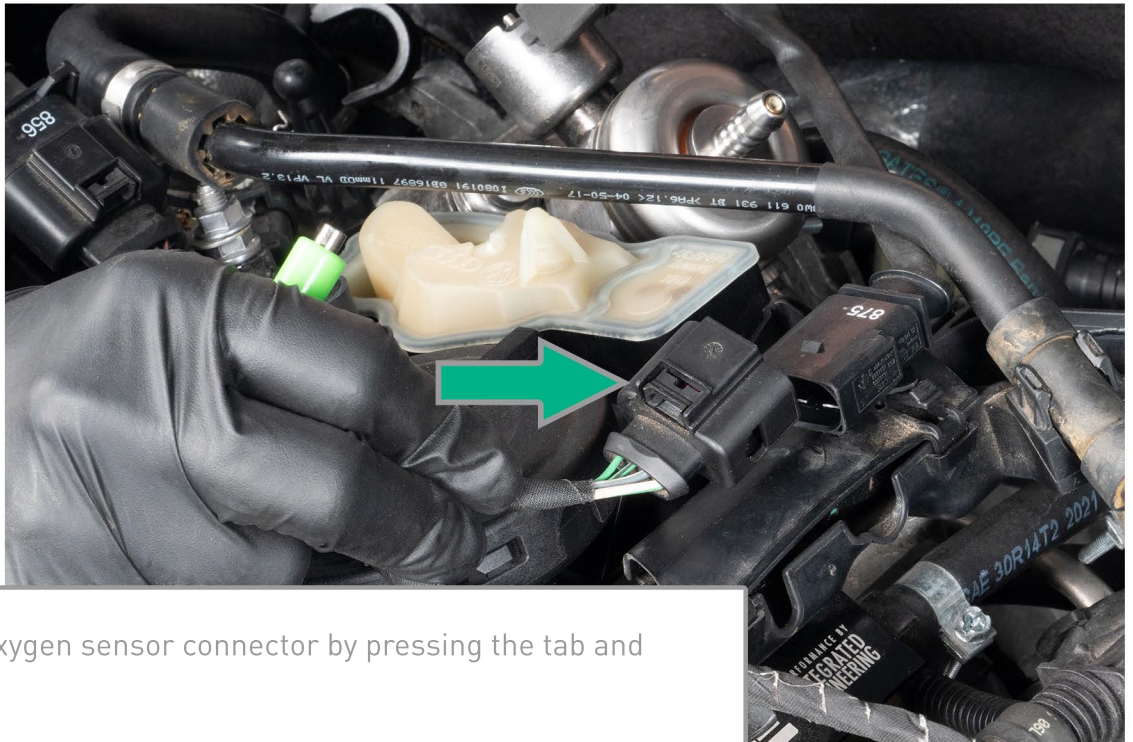


5



Pull the fuel line then remove the fuel line mounting bracket by removing the two T30 bolts located on the back of the bracket.

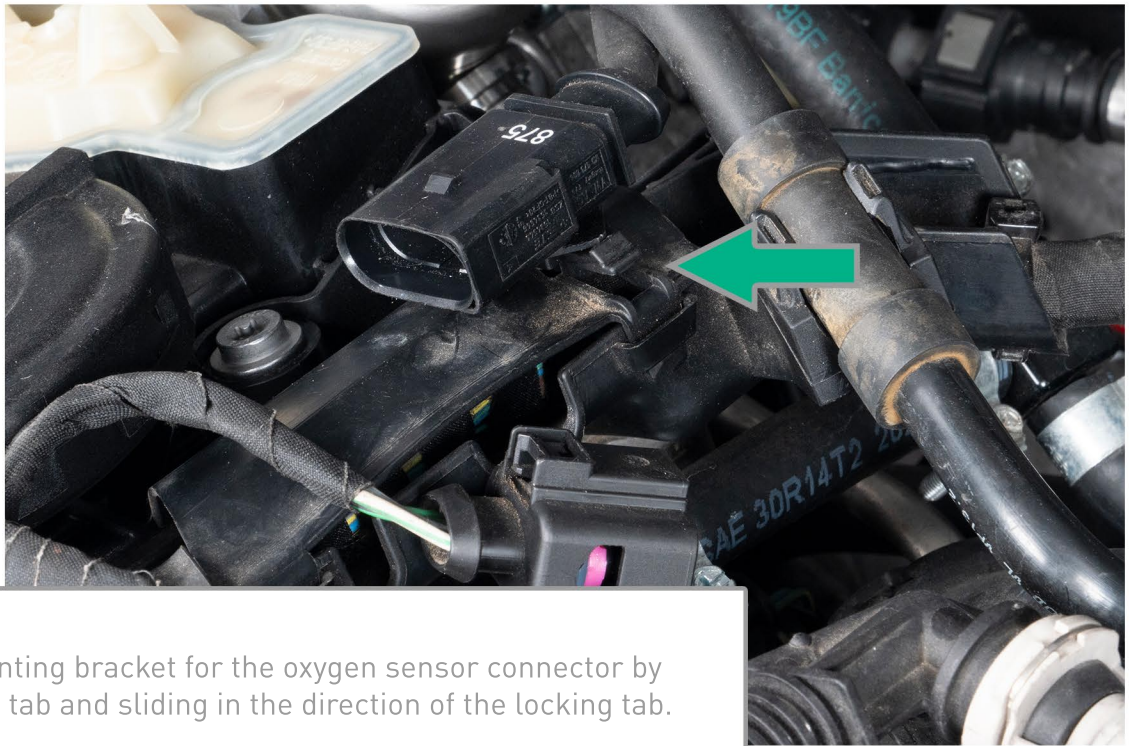
6



Disconnect the oxygen sensor connector by pressing the tab and pulling back.

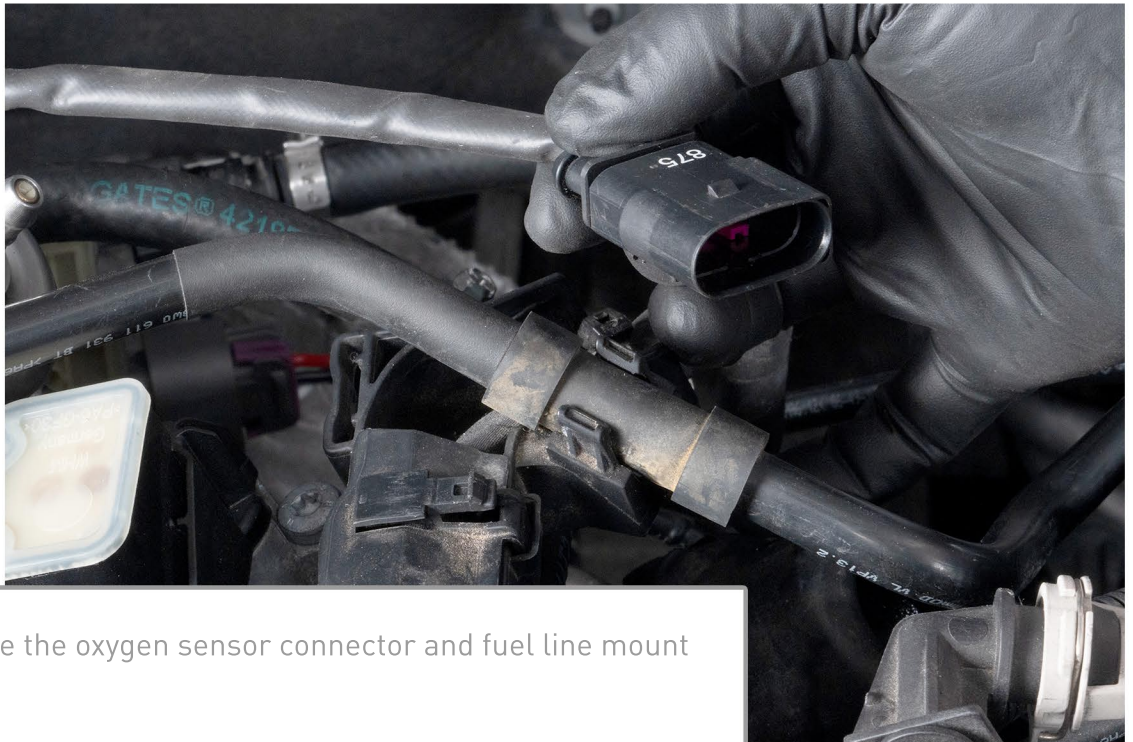


7



Remove the mounting bracket for the oxygen sensor connector by pressing the side tab and sliding in the direction of the locking tab.

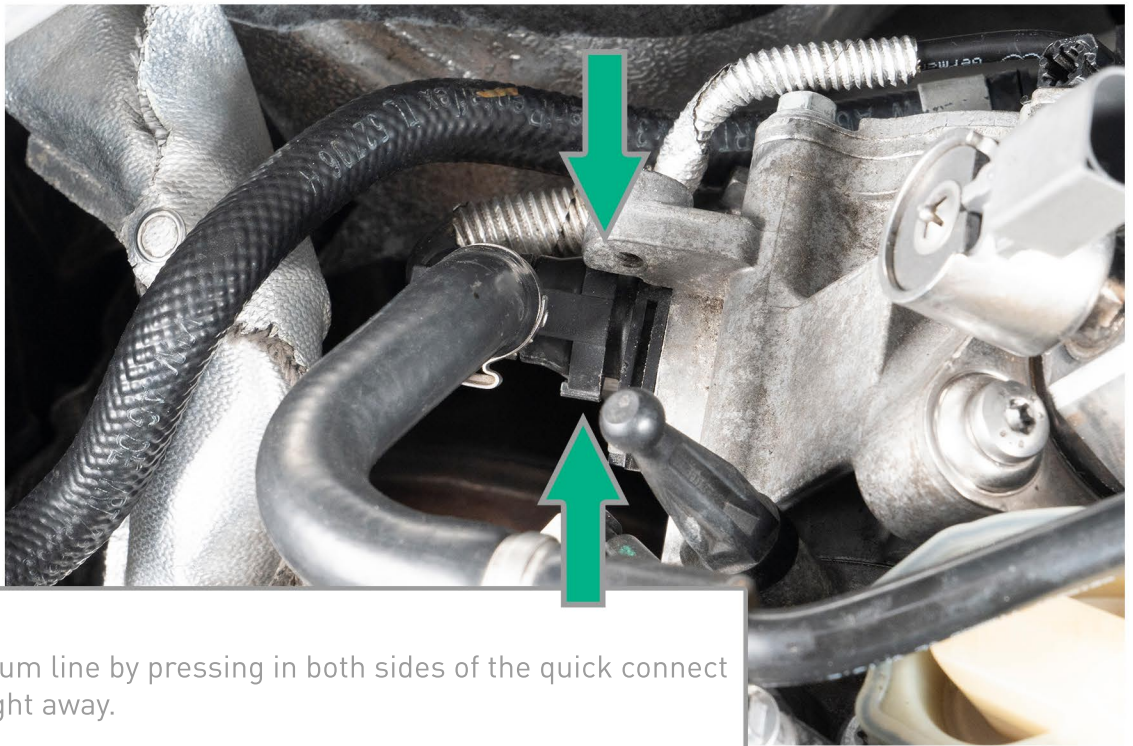
8



You can now move the oxygen sensor connector and fuel line mount out-of-the-way.



9



Remove the vacuum line by pressing in both sides of the quick connect and pulling straight away.

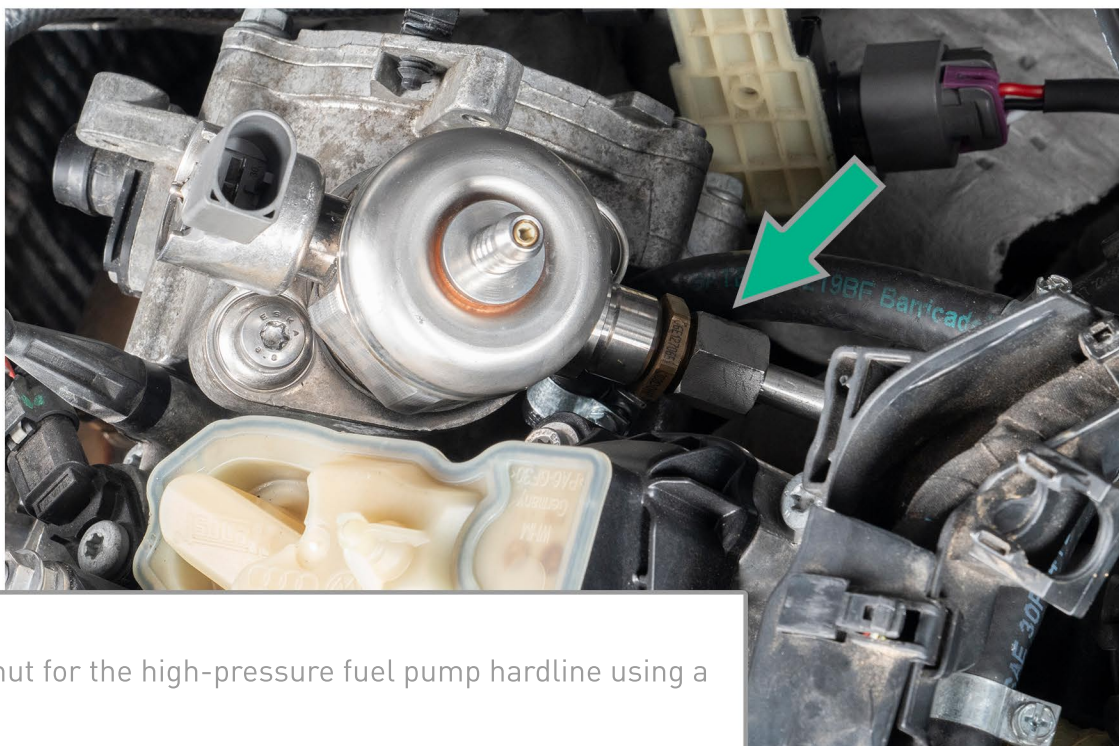
10



You can then move the vacuum line out of the way for clearance.

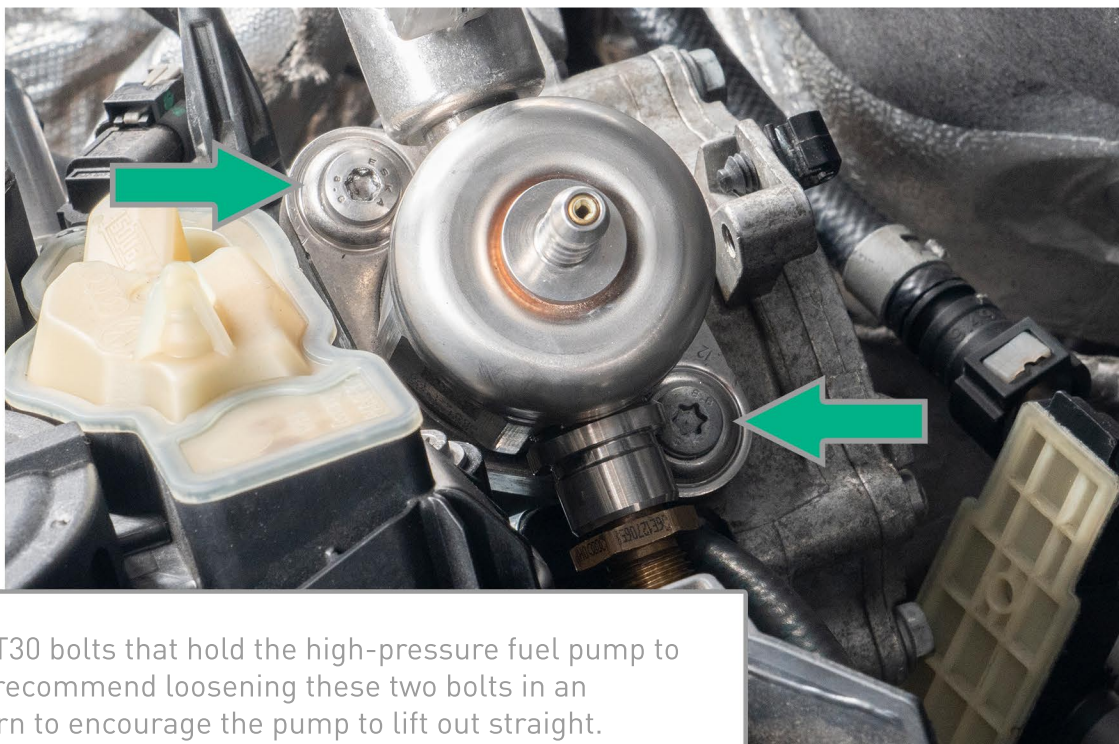


11



Loosen the flange nut for the high-pressure fuel pump hardline using a 17 mm wrench.

12



Remove the two T30 bolts that hold the high-pressure fuel pump to the housing. We recommend loosening these two bolts in an alternating pattern to encourage the pump to lift out straight.

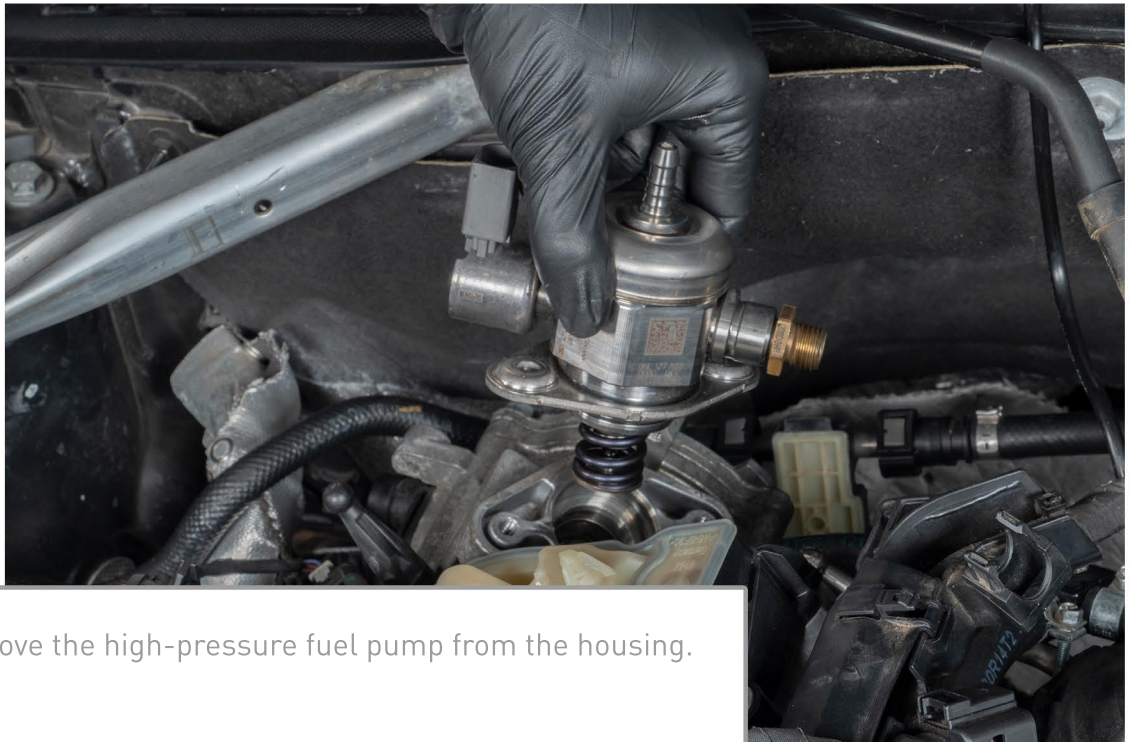


13



Next, you will lift the high-pressure fuel pump out of the housing by simultaneously applying upward pressure on the pump as well as downward-outward pressure on the hardline so you do not overstress or bend the hardline.

14



You can now remove the high-pressure fuel pump from the housing.

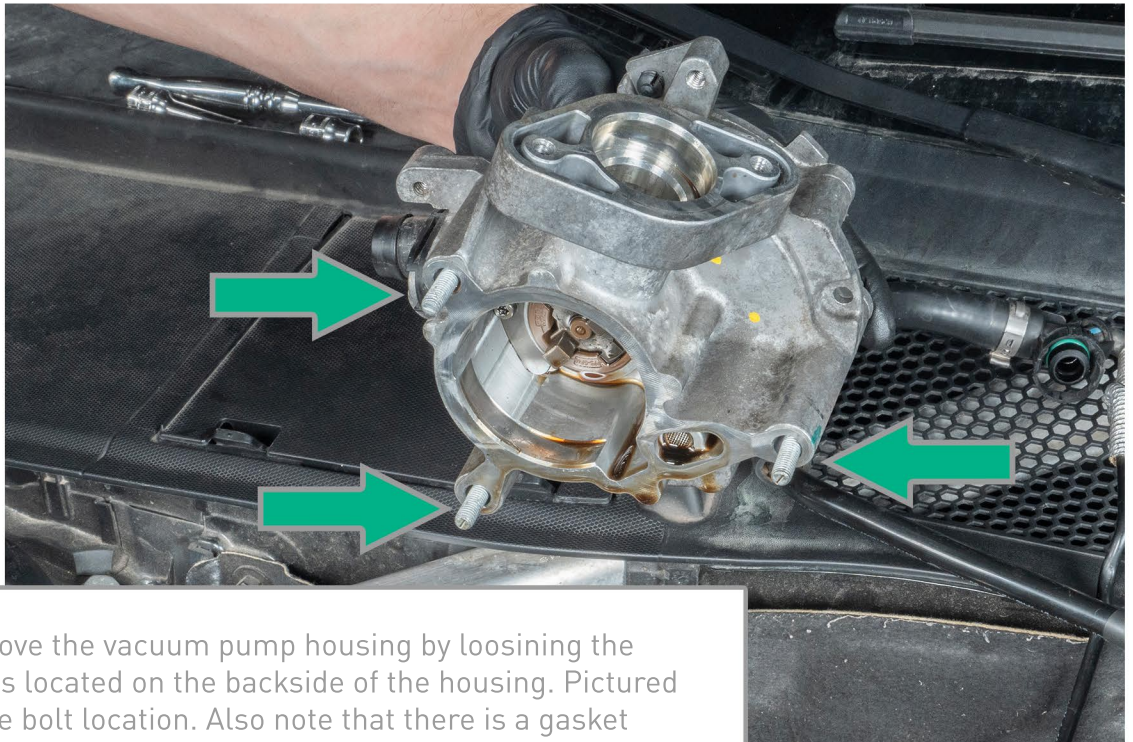


15



Using a magnet, you are going to pull out the cam follower by simply grabbing it with a magnet, pulling it straight out of the housing and set aside in a clean area for reuse later.

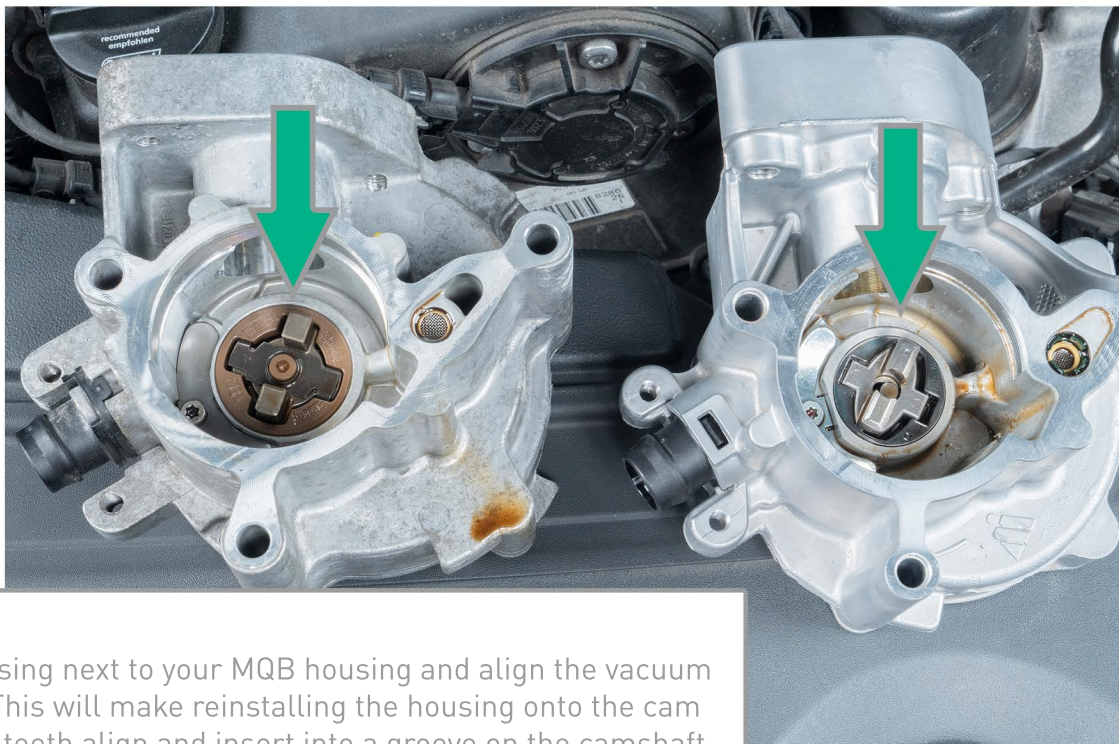
16



You will now remove the vacuum pump housing by loosening the Three 10mm bolts located on the backside of the housing. Pictured above you can see bolt location. Also note that there is a gasket between the cylinder head and the housing. We recommend replacing the gasket, but it can be reused.



17



Lay the OEM housing next to your MQB housing and align the vacuum pump drive key. This will make reinstalling the housing onto the cam smoother. Those teeth align and insert into a groove on the camshaft.

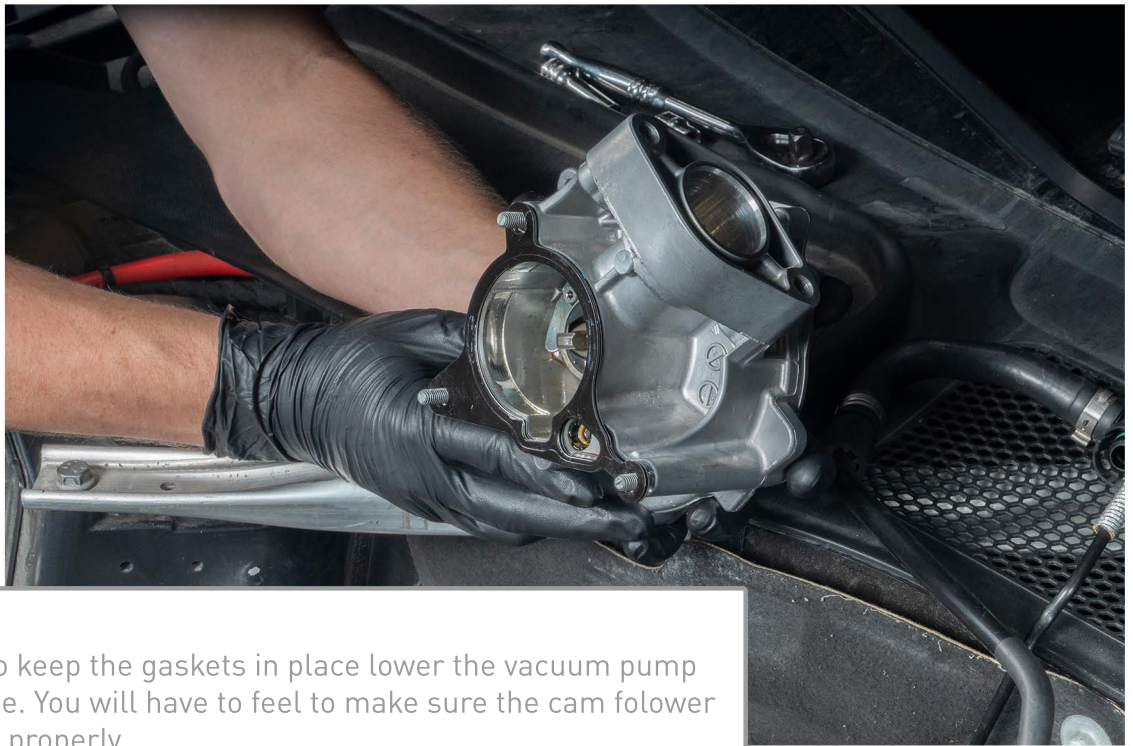
18



Transfer the three mounting bolts from your OE housing to the MQB housing then preinstall the the housing gasket before lowering it back into place in the vehicle.

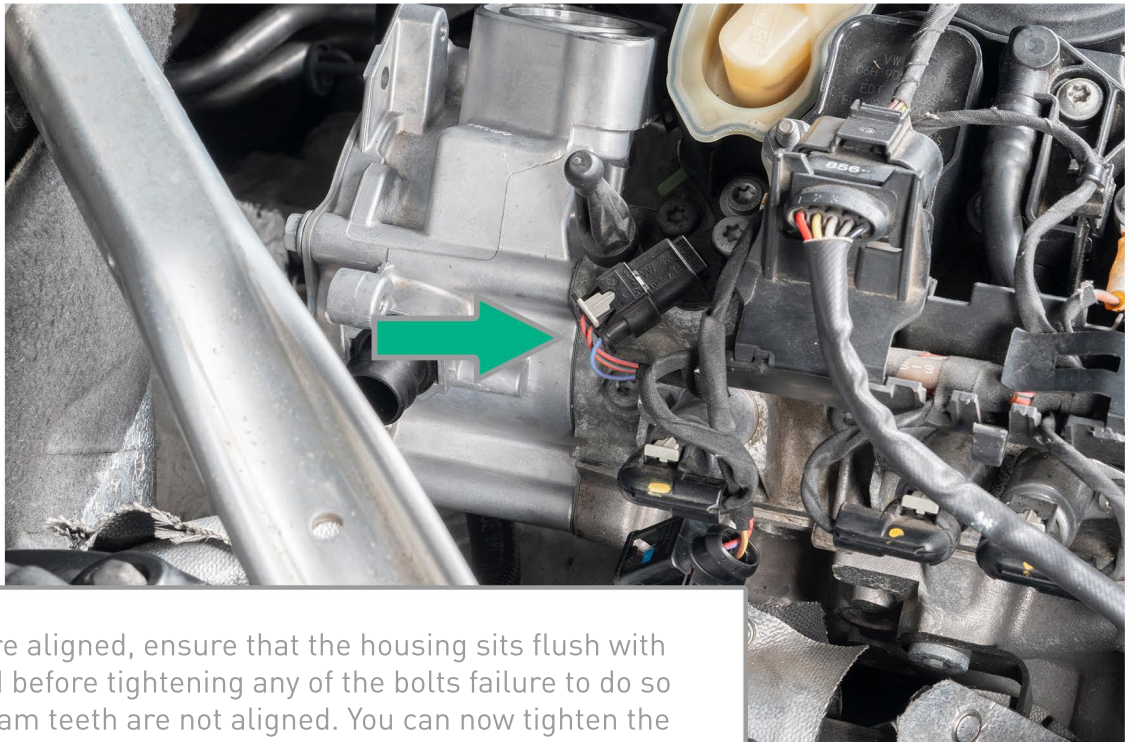


19



Using the bolts to keep the gaskets in place lower the vacuum pump housing into place. You will have to feel to make sure the cam follower teeth are aligned properly.

20



Once the teeth are aligned, ensure that the housing sits flush with the cylinder head before tightening any of the bolts failure to do so means that the cam teeth are not aligned. You can now tighten the three 10 mm bolts that secure the vacuum pump housing to the cylinder head.



21



Begin the install of your IE HPFP Internals install by pulling the HPFP internal assembly from the pump using your IE assembly tool (part number IEFUVN1-4), 1/2" drive socket wrench, and a bench vise.

22



Prepare an incredibly clean surface, this is very important as any contamination can cause issues with seals or wear on the pin/cylinder and lead to premature failure.



23



Using a hydraulic press, line up a similar-sized bit to the stock HPFP pin and press it out of the retainer to release the spring. Remove the stock spring and set aside for re-assembly with IE parts.

24



Thoroughly clean HPFP with degreaser.



25



Lay out all the new IE components, pump body, and the stock spring in your clean environment. Inspect and clean all parts of any contaminants (dust, dirt, lint, etc.)

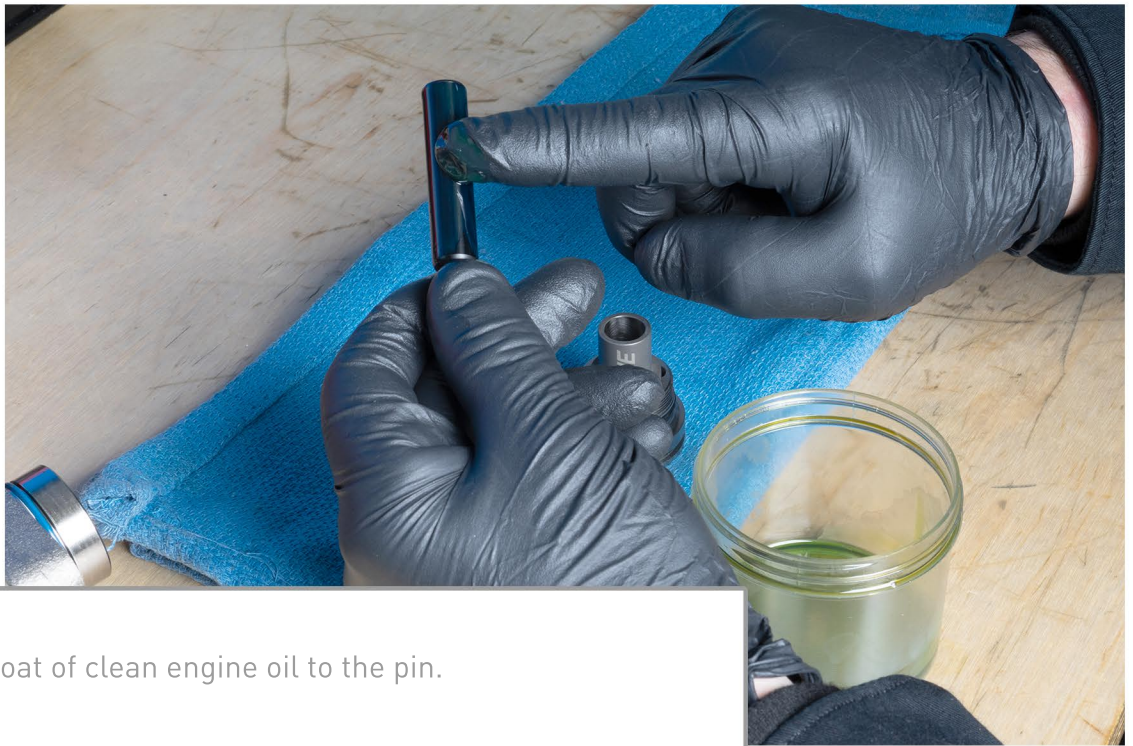
26



Install the cylinder into the assembly body as shown below.



27



Apply generous coat of clean engine oil to the pin.

28



Insert pin small end first through the small side of the cylinder. Push until the tip of the pin has clearance to insert the retainer. NEVER install the opposite direction or seal damage will occur.

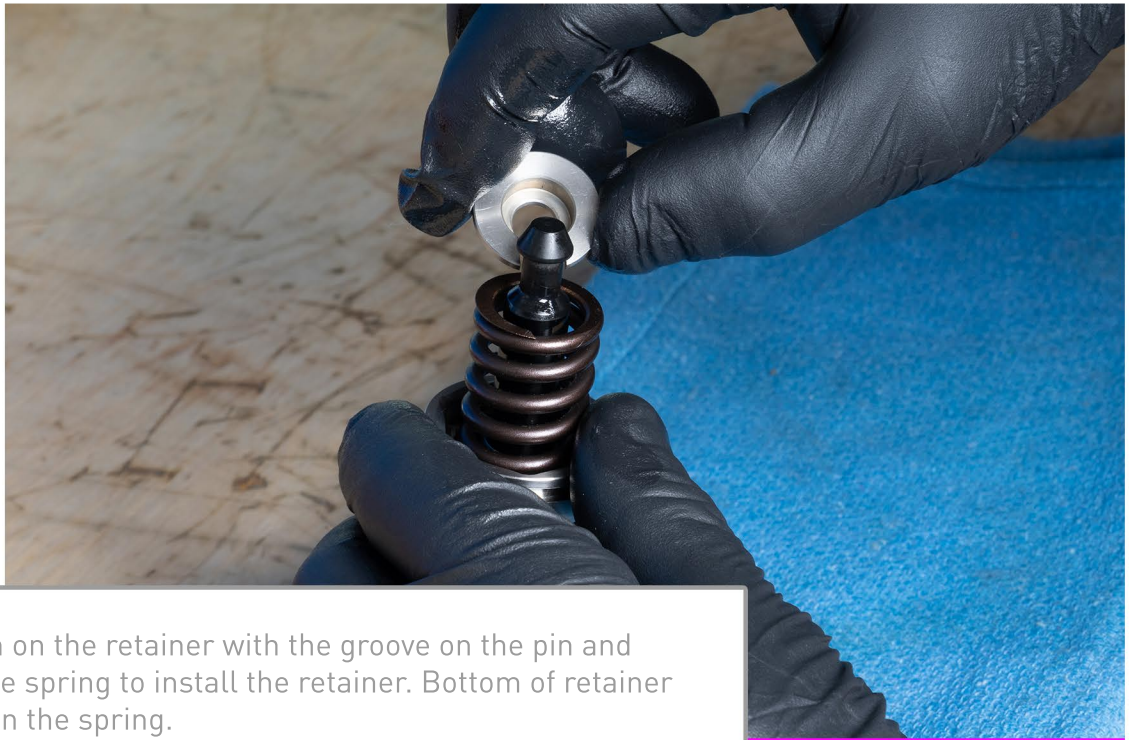


29



Install factory spring over the pin seated on the assembly body.

30



Line up the notch on the retainer with the groove on the pin and press down on the spring to install the retainer. Bottom of retainer should sit flush on the spring.



31



Hand thread the complete IE internal assembly into the HPFP pump. Using IE HPFP assembly tool, torque the internal assembly to 45ft-lb.

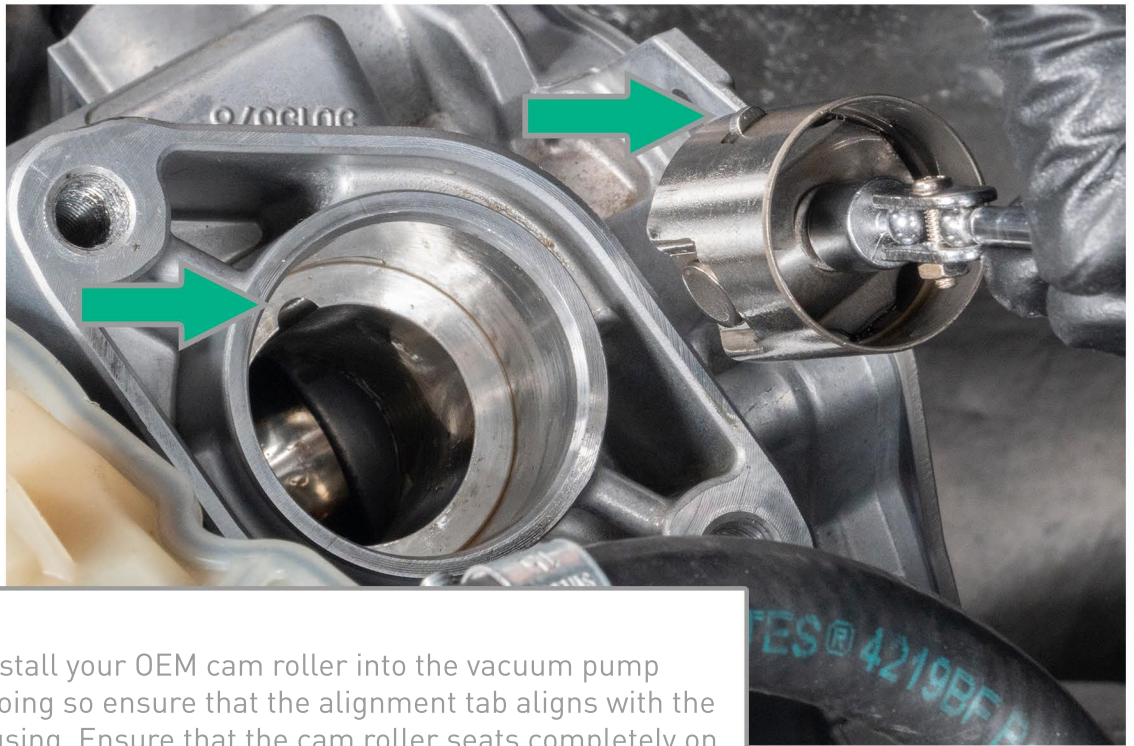
32



Once the pump is reassembled, you're then good to proceed onto installing it into the vacuum pump housing.



33



You can now reinstall your OEM cam roller into the vacuum pump housing. When doing so ensure that the alignment tab aligns with the groove in the housing. Ensure that the cam roller seats completely on the cam.

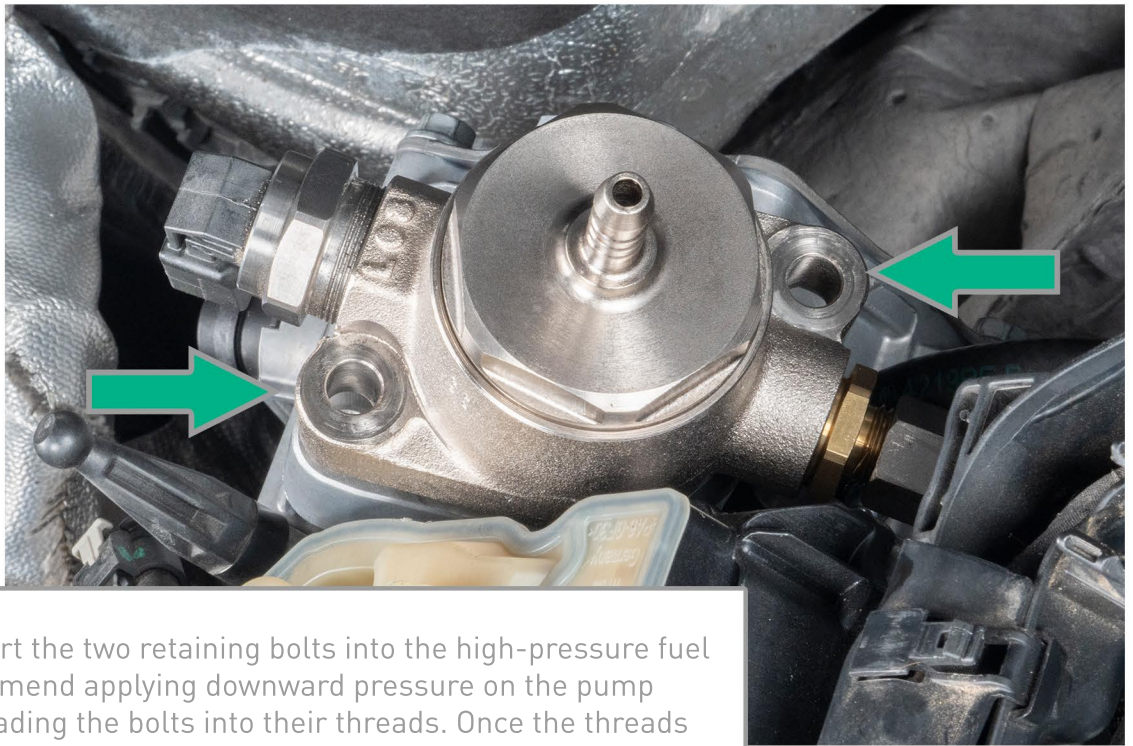
34



You can now lower your MQB HPFP with the upgraded IE internals into the vacuum pump housing while simultaneously aligning the hardline on the side of the HPFP. We recommend hand starting and threading the flare nut on the hardline before bolting down the high pressure fuel pump housing so you can maneuver the hardline to seat correctly.



35



You can now insert the two retaining bolts into the high-pressure fuel pump. We recommend applying downward pressure on the pump while finger threading the bolts into their threads. Once the threads have been started, you will tighten the bolts in an alternating fashion to ensure that the pump lowers into place evenly.

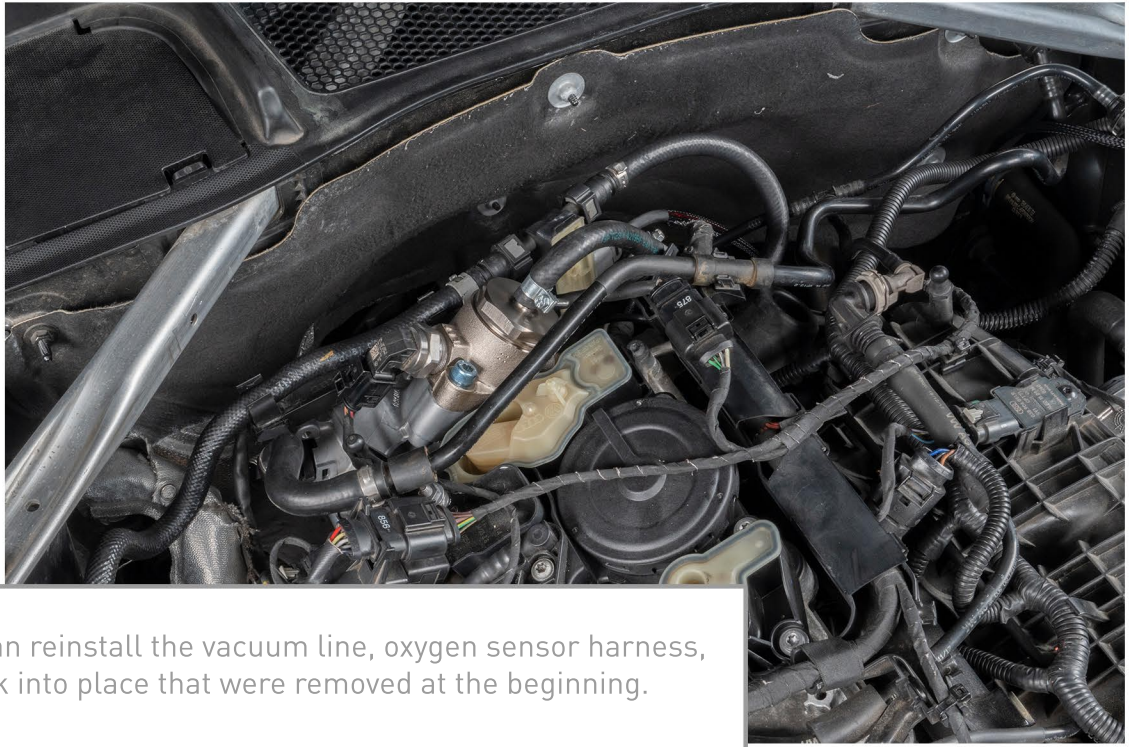
36



Once the pump is in place, you can then tighten down the flare nut



37



From here you can reinstall the vacuum line, oxygen sensor harness, and fuel line back into place that were removed at the beginning.

38



You are now ready to move onto installing your IE Flex Sensor Kit.



39



Pull up on the low pressure line from the tank to the HPFP to remove it from the plastic mount.

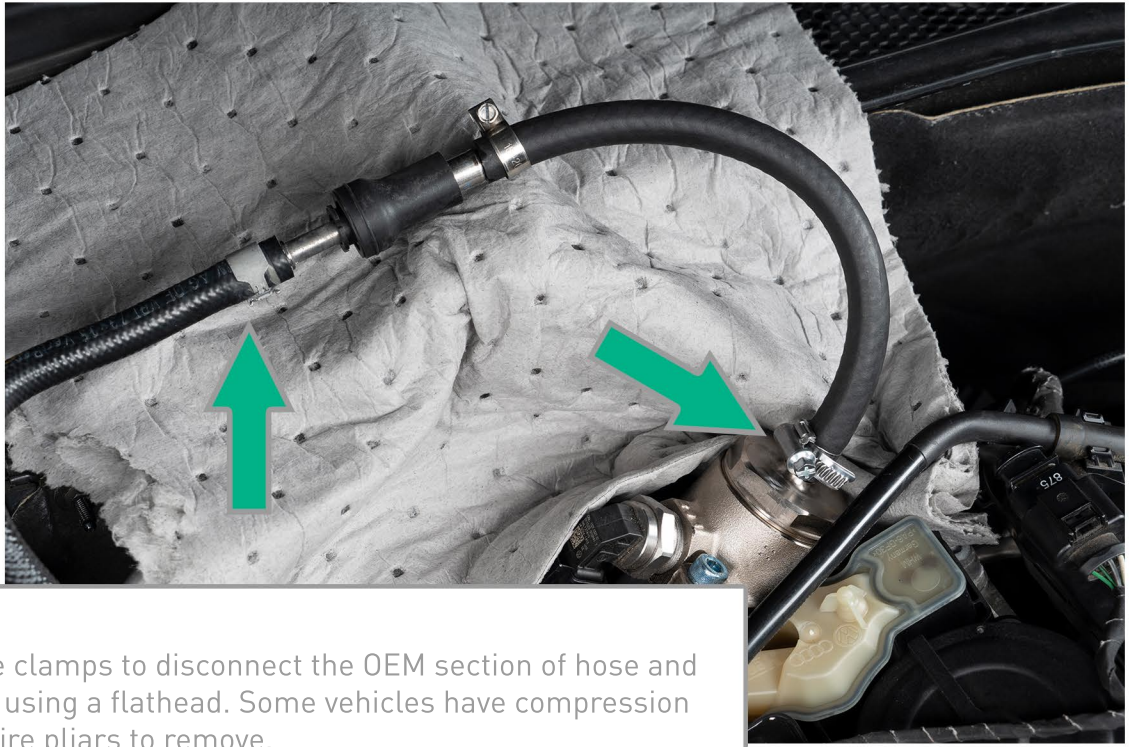
40



Before disconnecting the fuel lines, lay a rag or a pig mat underneath the section of line that you will be removing. We also recommend if the line has any pressure you lay a rag or pig mat on top of the section. You're about to remove to catch any pressurized fuel spray.

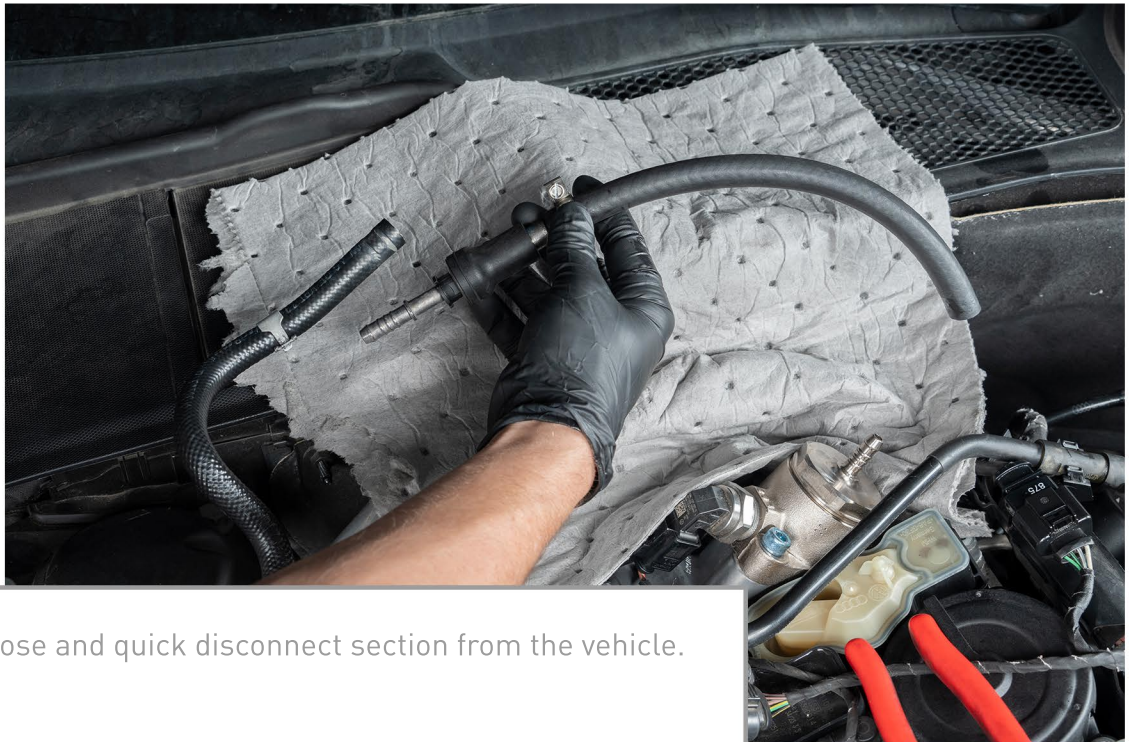


41



Remove two hose clamps to disconnect the OEM section of hose and quick disconnect using a flathead. Some vehicles have compression clamps that require pliers to remove.

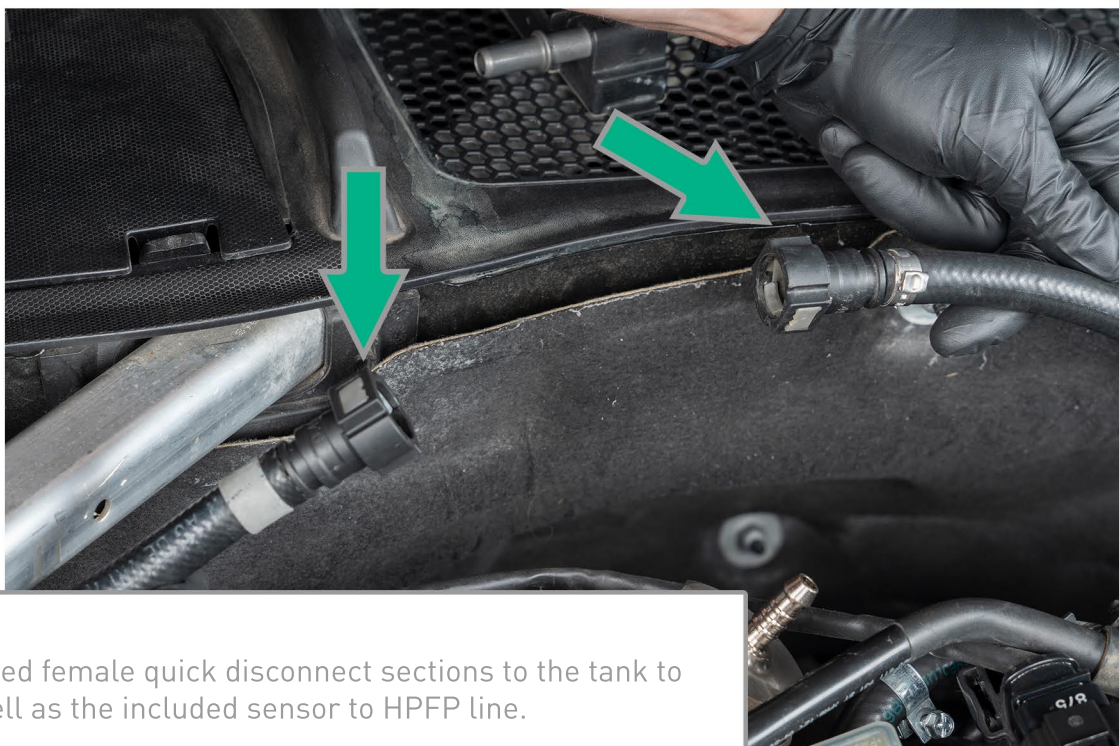
42



Remove the OE hose and quick disconnect section from the vehicle.

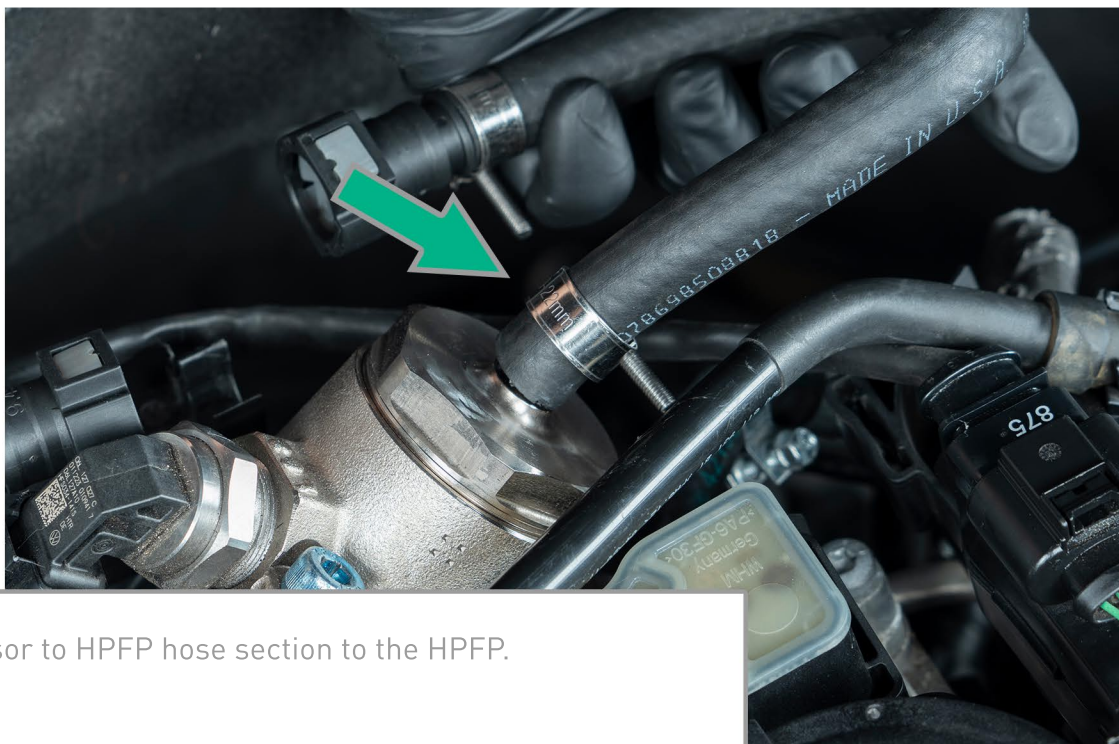


43



Install two provided female quick disconnect sections to the tank to sensor line as well as the included sensor to HPFP line.

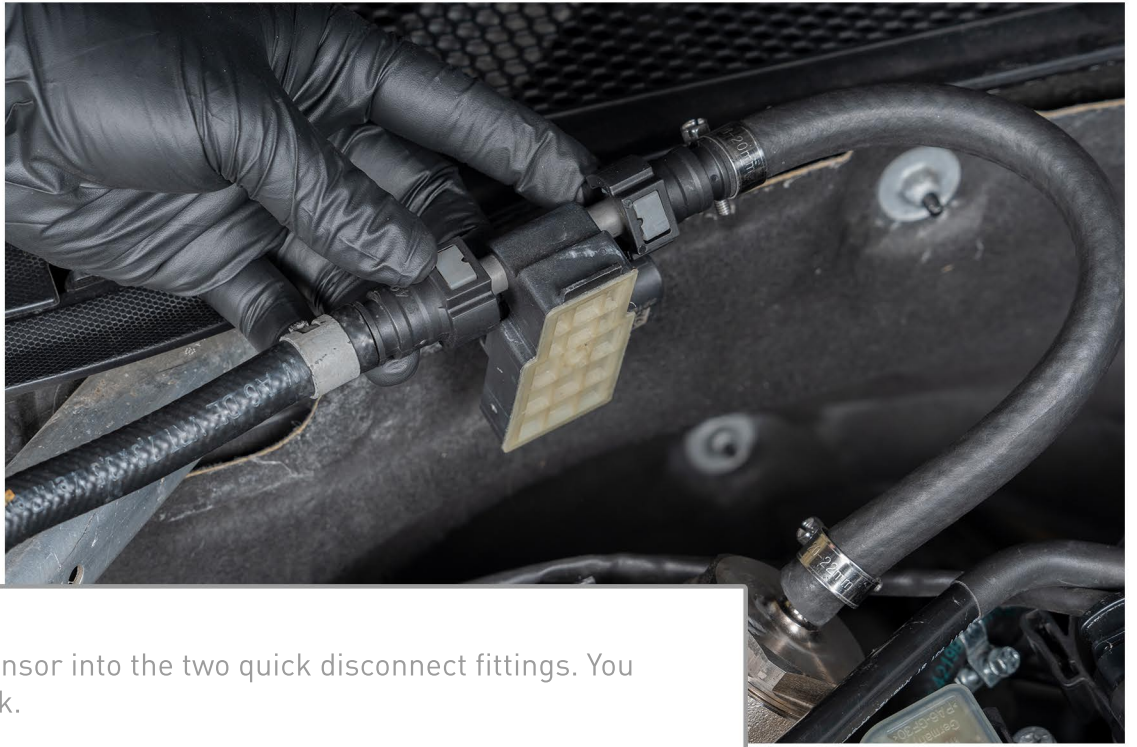
44



Connect the sensor to HPFP hose section to the HPFP.

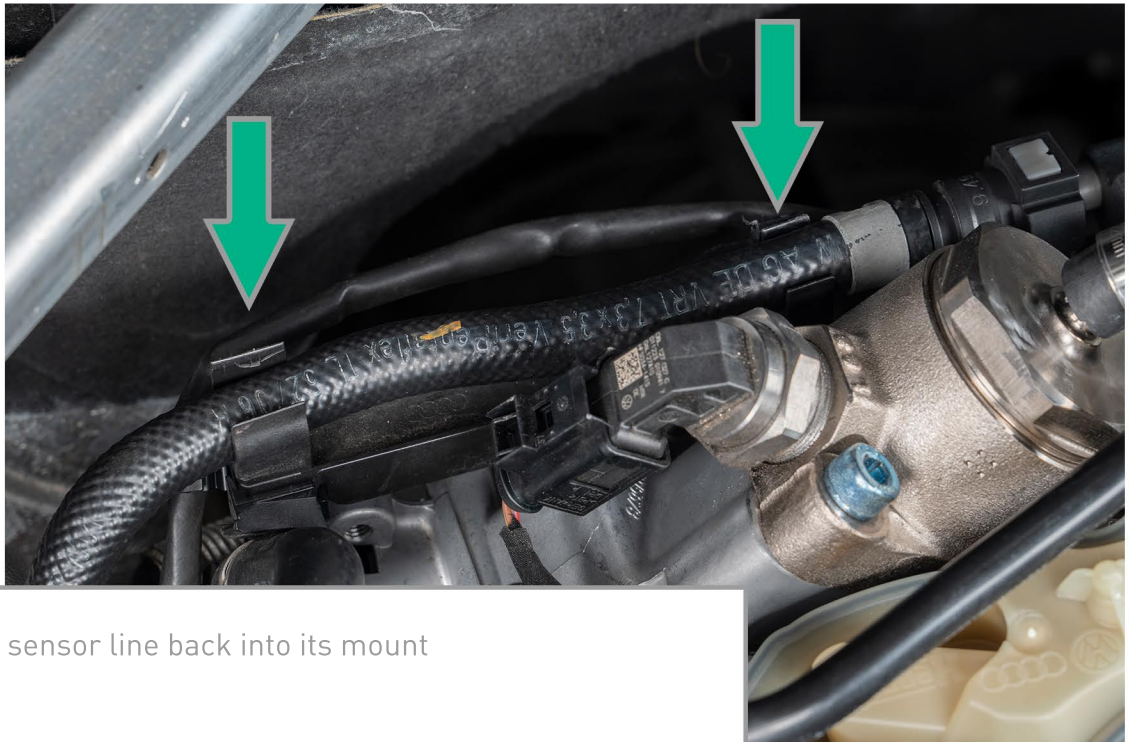


43



Install the flex sensor into the two quick disconnect fittings. You should feel a click.

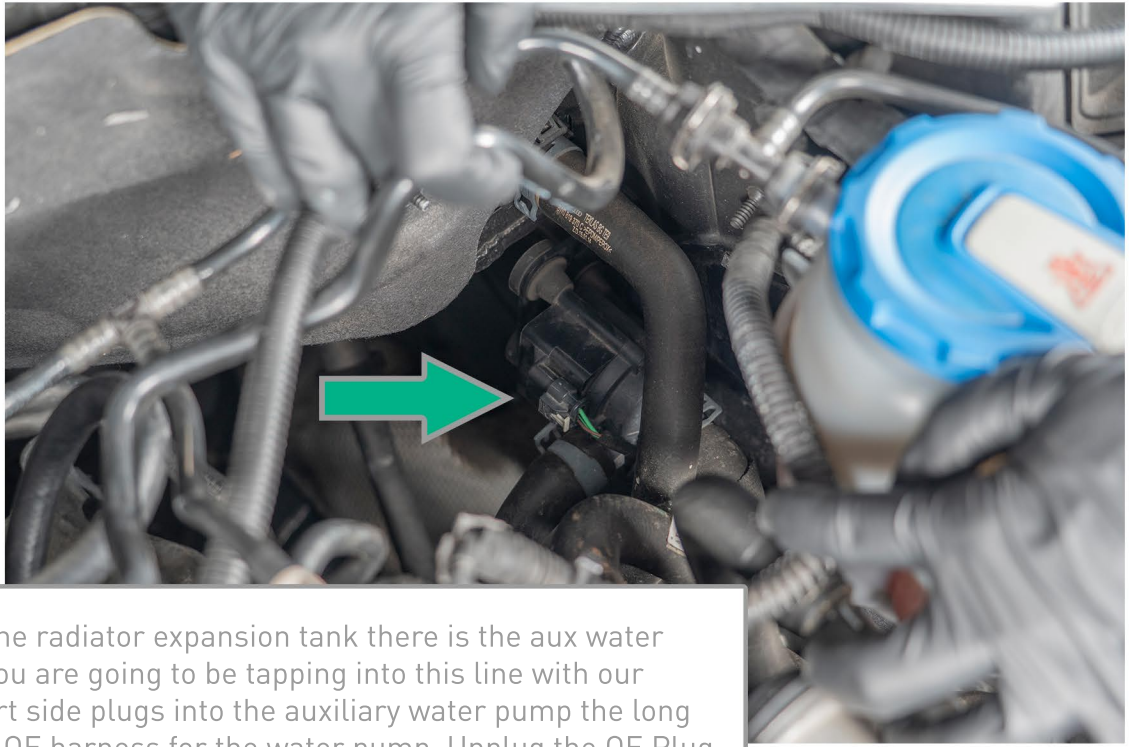
44



Press the tank to sensor line back into its mount

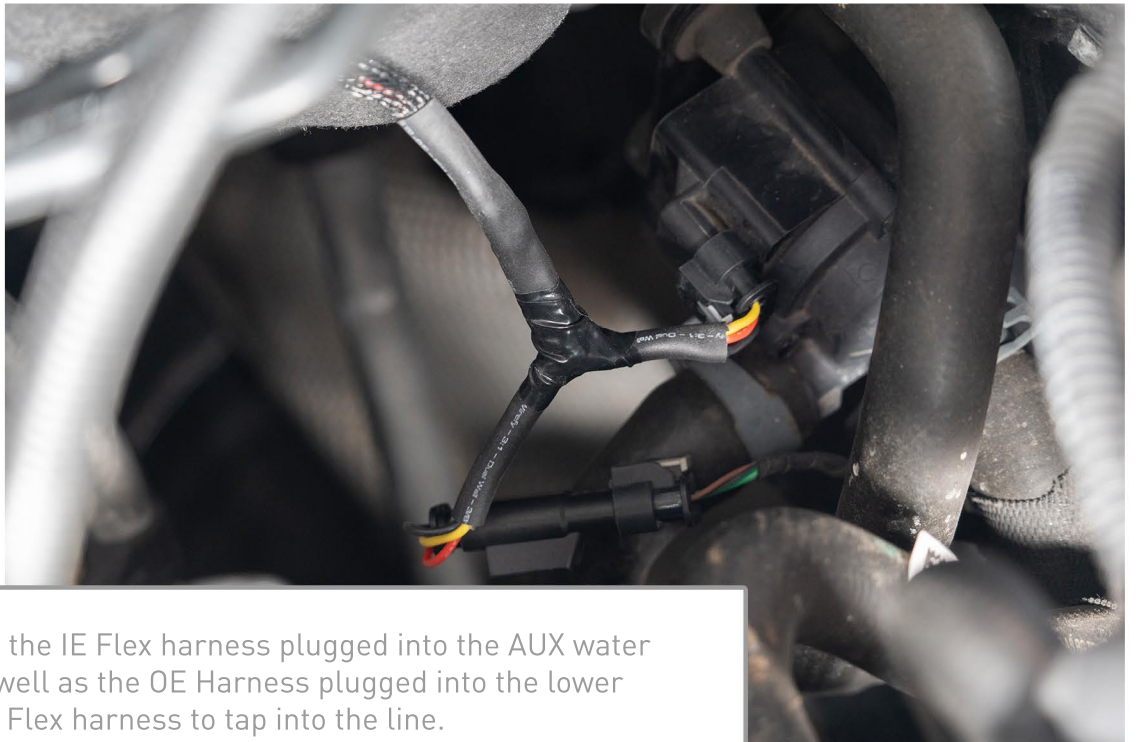


45



Located behind the radiator expansion tank there is the aux water pump harness, you are going to be tapping into this line with our harness, the short side plugs into the auxiliary water pump the long side receives the OE harness for the water pump. Unplug the OE Plug by pulling back on the gray tab, then pushing down on the tab while pulling away the harness.

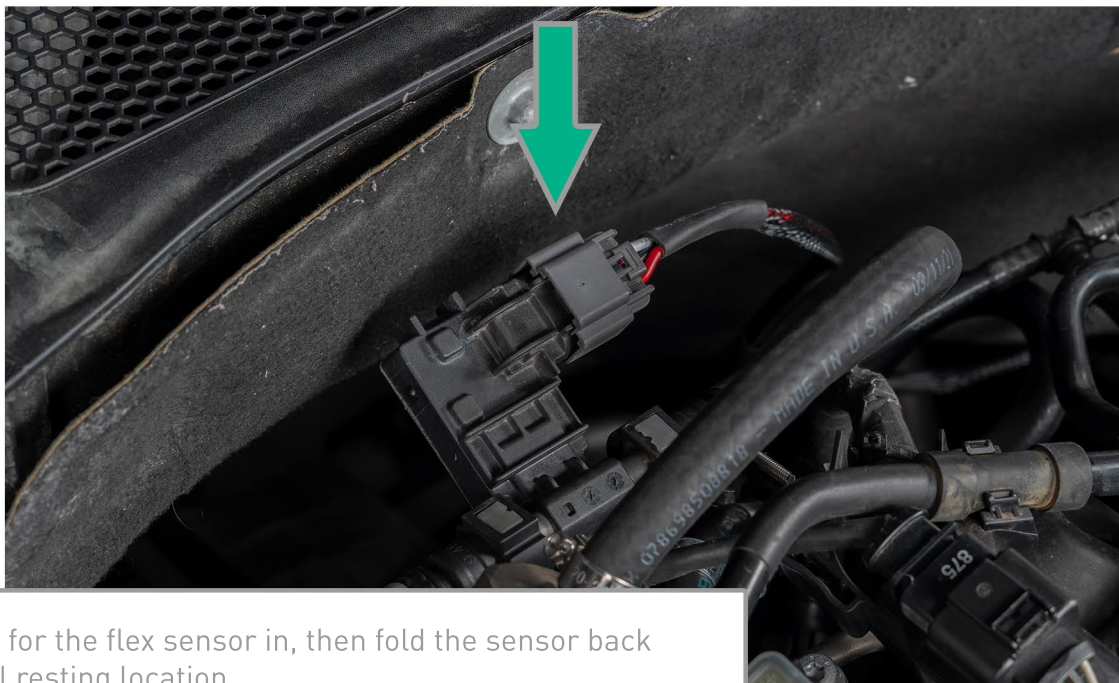
46



Here you can see the IE Flex harness plugged into the AUX water pump on top, as well as the OE Harness plugged into the lower harness of the IE Flex harness to tap into the line.

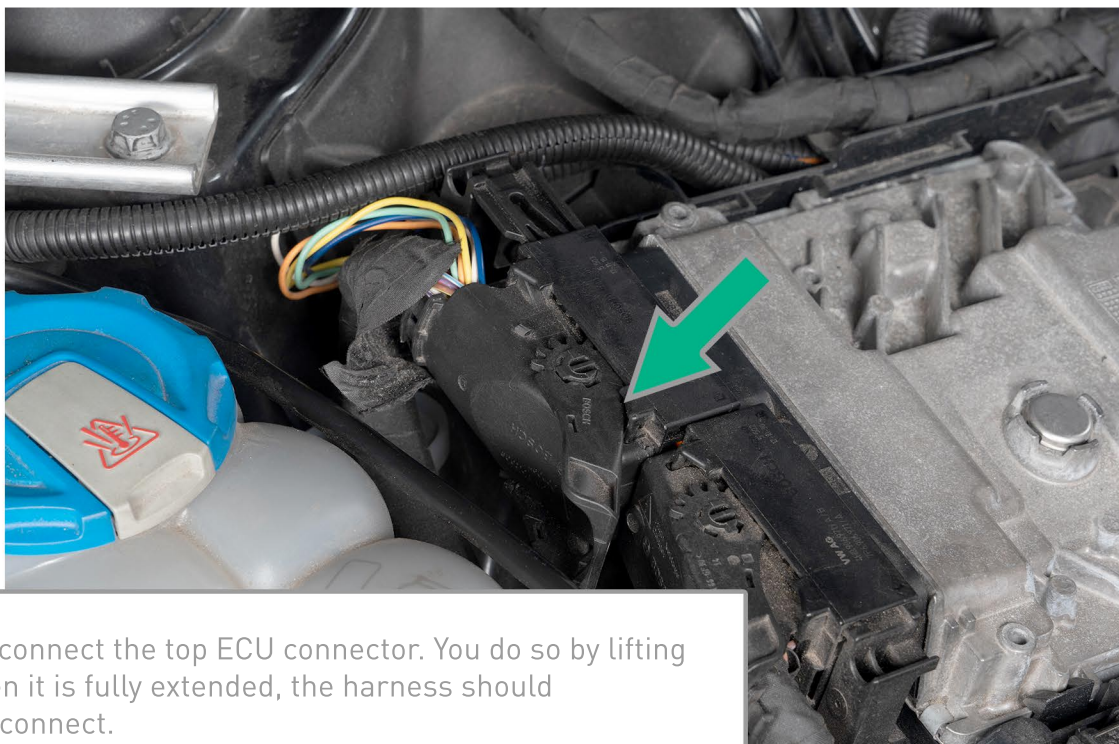


47



Plug the harness for the flex sensor in, then fold the sensor back down into its final resting location.

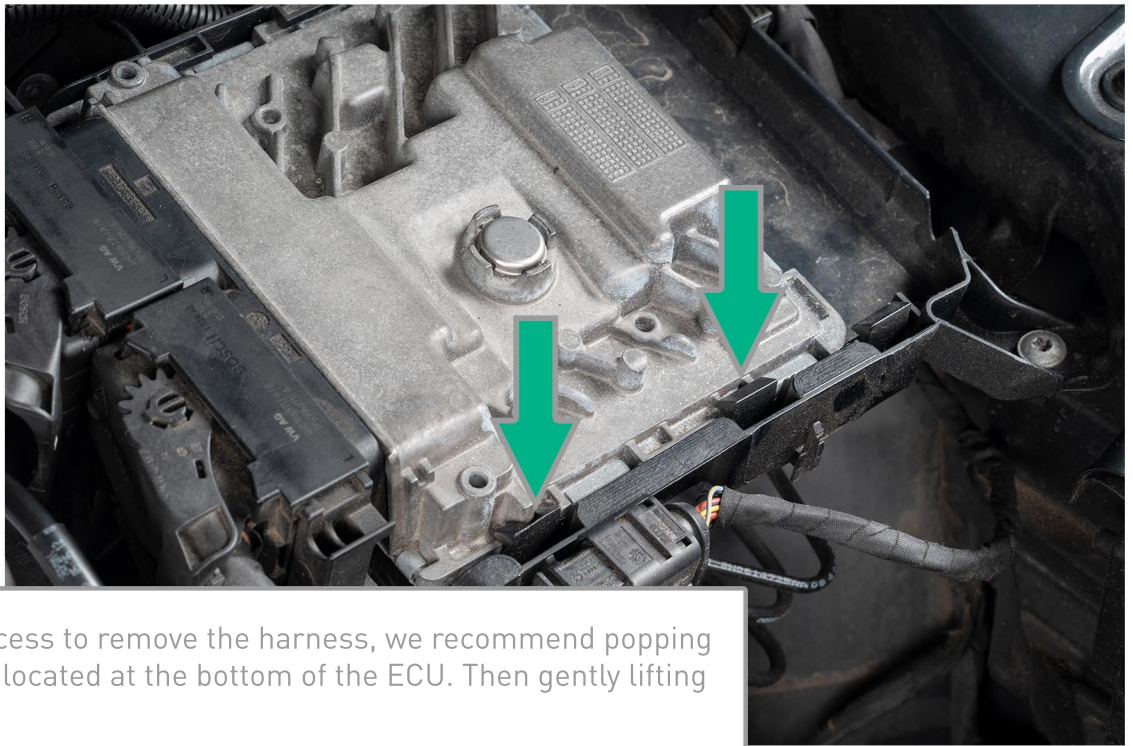
48



Next, you will disconnect the top ECU connector. You do so by lifting up the lever. When it is fully extended, the harness should automatically disconnect.

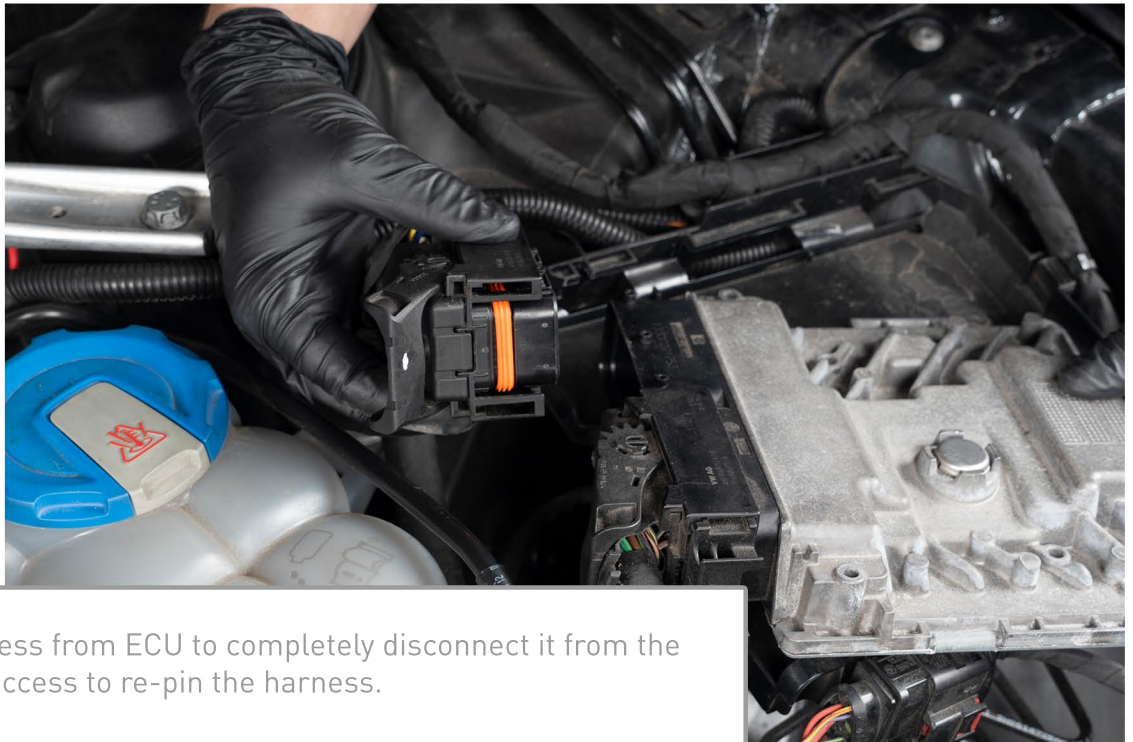


49



To gain better access to remove the harness, we recommend popping the retainer tabs located at the bottom of the ECU. Then gently lifting up on the ECU.

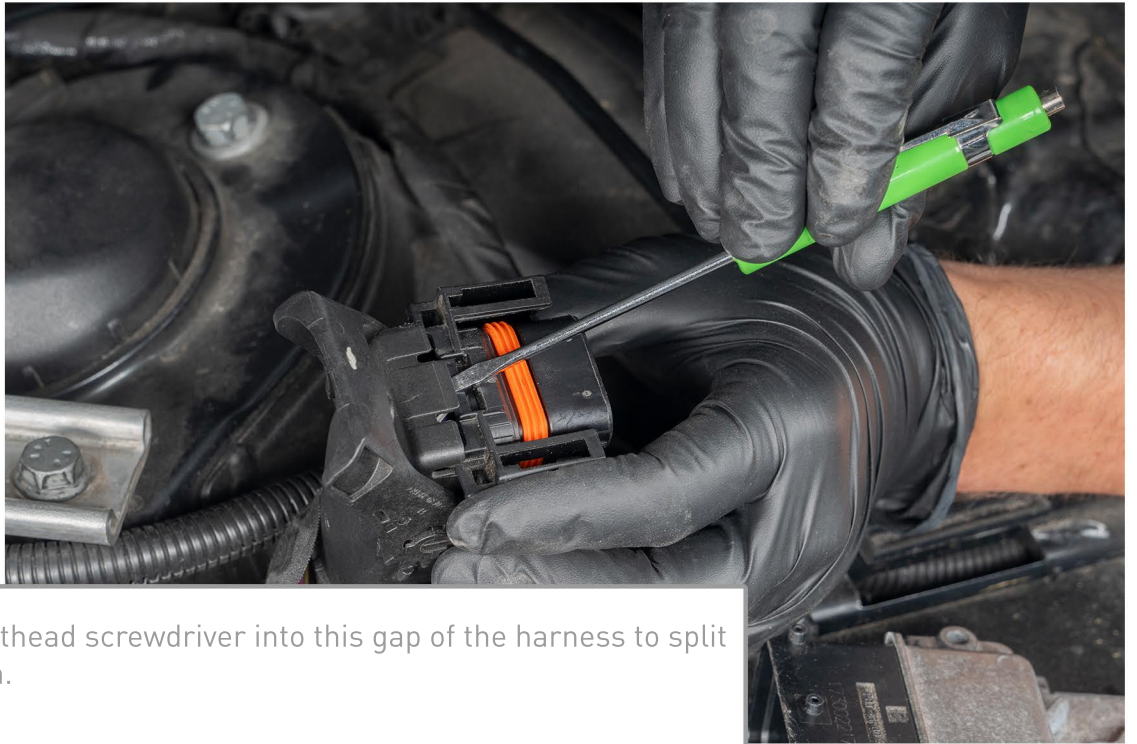
50



Pull the top harness from ECU to completely disconnect it from the ECU to give you access to re-pin the harness.



51



Insert a small flathead screwdriver into this gap of the harness to split the harness open.

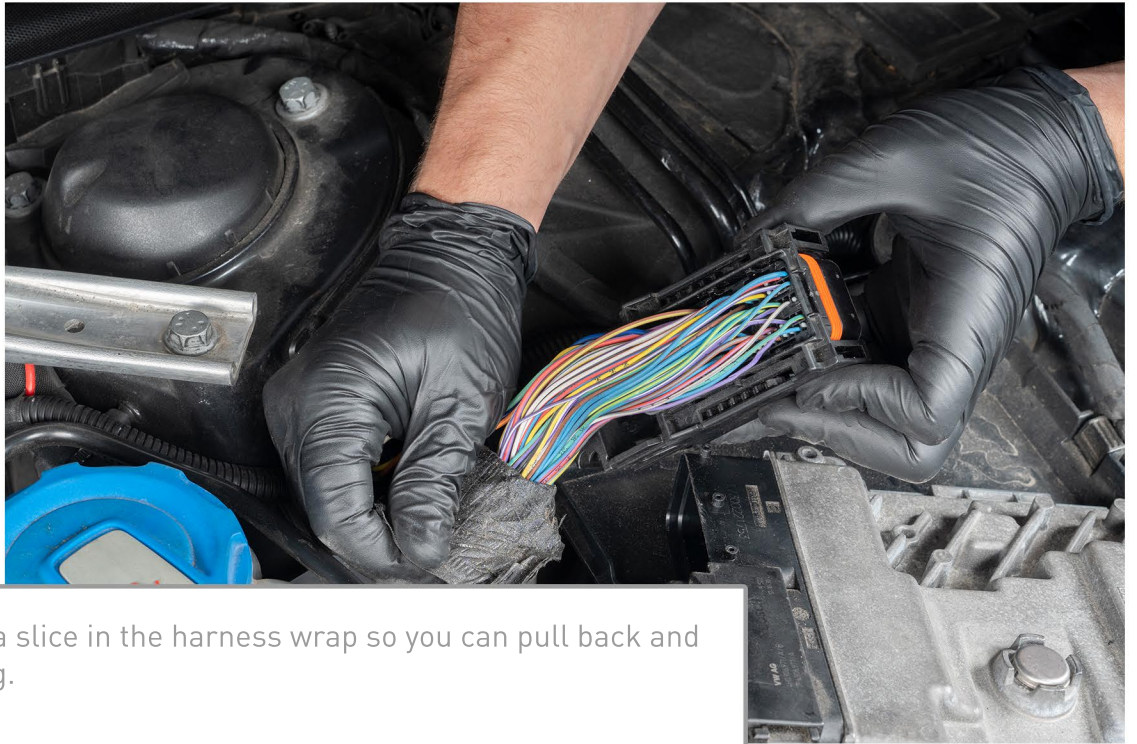
52



Once you have the harness cover split open, you can pull the top cover off by rotating it off the bottom portion of the harness. There will be a zip tie that needs to be cut to remove it completely.



53



Carefully create a slice in the harness wrap so you can pull back and expose the wiring.

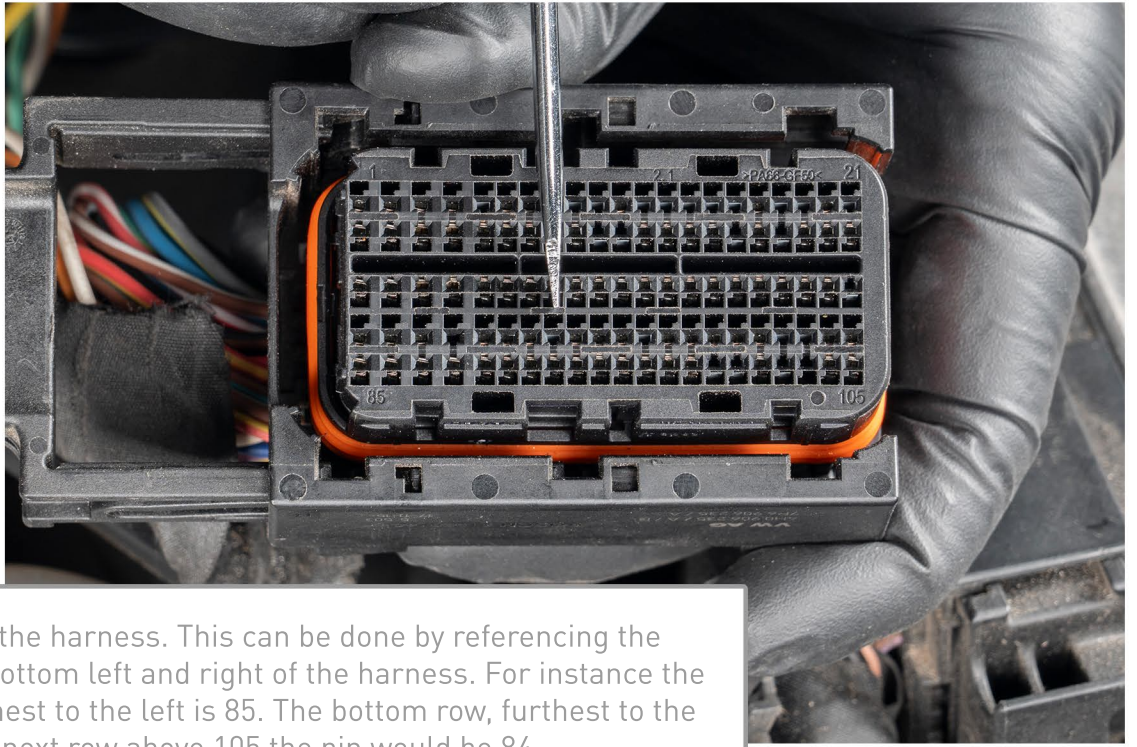
54



Use a small flathead screwdriver to remove the purple pin retainer clip from the harness. You can remove it completely from the harness and set it aside.



55



Locate pin 71 on the harness. This can be done by referencing the numbers in the bottom left and right of the harness. For instance the bottom row, furthest to the left is 85. The bottom row, furthest to the right is 105. The next row above 105 the pin would be 84.

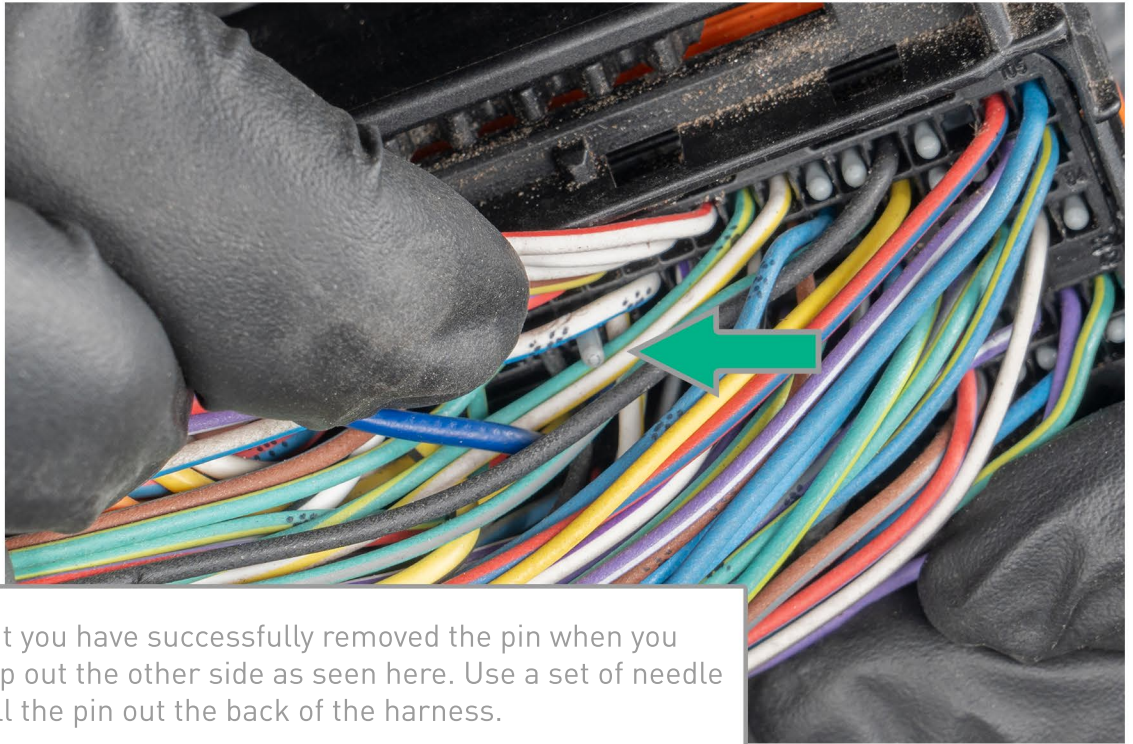
56



We use the specific depinning tool to simultaneously release the clip on the pin and push it out from the harness at the same time. You can now do so on Pin 71.



57



You will know that you have successfully removed the pin when you see it begin to pop out the other side as seen here. Use a set of needle nose pliers to pull the pin out the back of the harness.

58



Take note of the orientation of the plug when removing it from the harness. You will want to orient the wire pin in the same way when reinstalling.

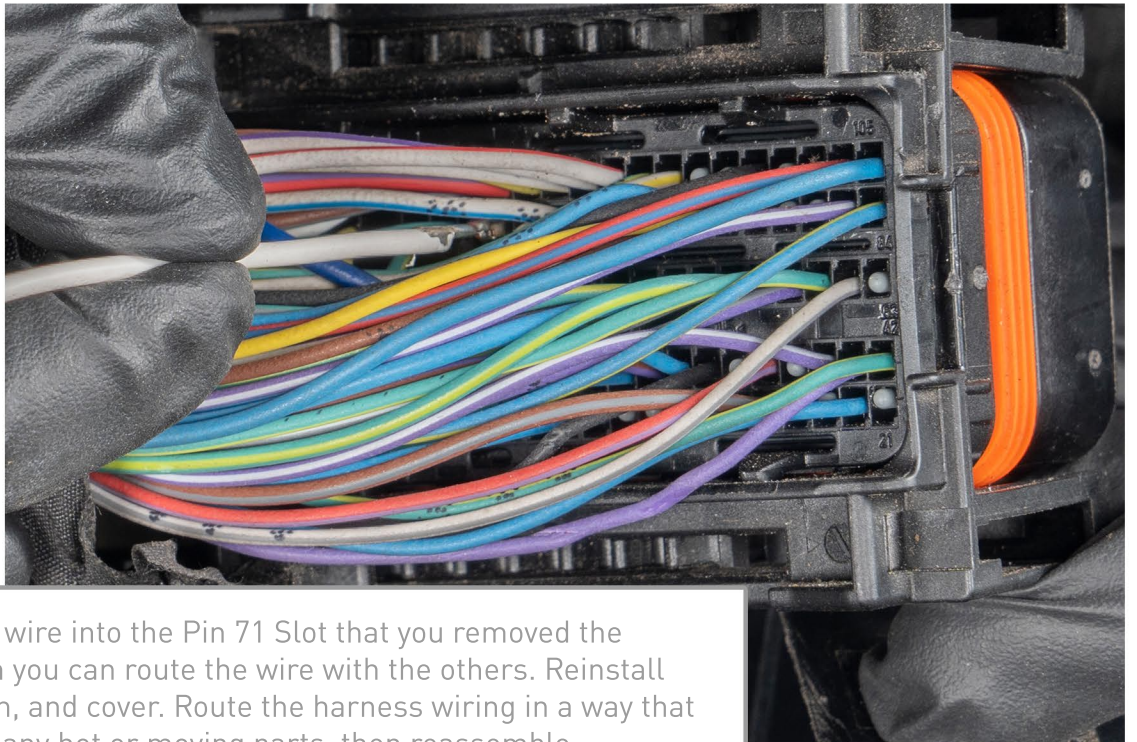


59



Notice how both the retaining barbs are on the same side in this photo. That is important when reinstalling into the harness.

60



Install the signal wire into the Pin 71 Slot that you removed the dummy pin. Then you can route the wire with the others. Reinstall the retainer, loom, and cover. Route the harness wiring in a way that does not impede any hot or moving parts, then reassemble everything else in reverse order to finalize the install of your IE TrueFlex Sensor Harness.



ENJOY!

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