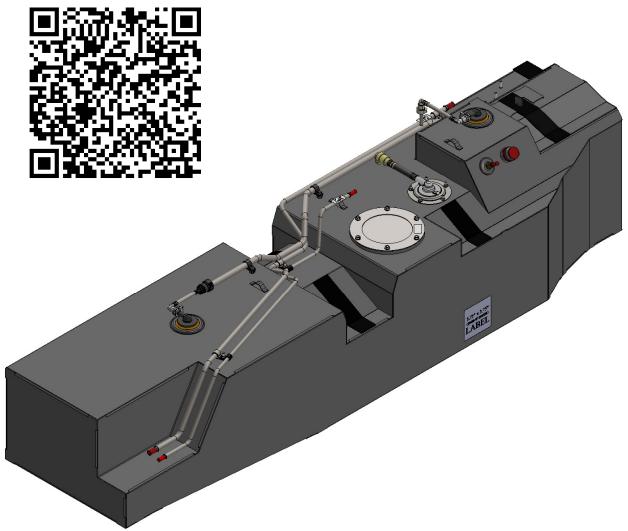
2020-2023 FORD F250/F350 58 GALLON MIDSHIP REPLACEMENT TANK INSTALLATION INSTRUCTIONS

Installation Sheet-943

Scan here for installation video!





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FOREWORD

Thank you for purchasing a Transfer Flow 58-gallon Midship Replacement Fuel Tank System for your 2020-2023 Ford F250/F350 gasoline pickup. Please read the following procedures carefully before starting the installation.

This manual provides the necessary information for the installation of the Transfer Flow fuel system onto your vehicle. All the information and instructions contained in this document are based on our annual model year signoff. We update our instruction sheets based on information obtained during this model year signoff and information provided by OEM companies and our customers. Changes to installation instructions may be made at any time without notice. If you find something we missed or require any additional information, please feel free to contact our Technical Support team at (800) 442-0056 x2.

Transfer Flow fuel systems and parts are intended to be used in conjunction with original manufacturer's equipment or Transfer Flow systems and components.

Our systems and components are not intended to be used in conjunction with other aftermarket systems. Attempting to use our products inappropriately may lead to malfunction and voids the warranty. To ensure that your Transfer Flow products perform appropriately for many years to come, we ask that you follow these guidelines.

NOTICE

This product is protected by state or common law, copyright, trademark(s) and/or patent(s). All legal rights therein are reserved. The design, layout, dimensions, geometry, and engineering features shown in this product are the exclusive property of Transfer Flow. This product may not be copied or duplicated in whole or part, abstractly or fundamentally, intentionally or fortuitously, nor shall any design, dimension, or other information be incorporated into any product or apparatus without prior written consent of Transfer Flow.



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SAFETY NOTES

Please read installation instructions before beginning the installation of the Transfer Flow fuel system.

If you would prefer your fuel system be professionally installed, please contact your local dealer or you can browse our list of dealers in your area on our website at www.TransferFlow.com/installation.

Transfer Flow fuel systems are designed for use on stock OEM vehicles. We do our best to foresee how our customers will use and modify their vehicles, but unfortunately, we cannot verify all aftermarket modifications. If your vehicle has had any modifications to the chassis, suspension, fuel system, truck bed, or wheel/tire size is different than stock, please call Transfer Flow before installing one of our fuel systems.

- Work in a well-ventilated area.
- Always wear safety glasses.
- The Transfer Flow tank is heavy, please use proper lifting techniques when handling tank.



CAUTION: DO NOT HAVE ANY OPEN FLAME OR HEAT SOURCE CLOSE TO THE INSTALLATION AREA.



<u>CAUTION</u>: DO NOT OVER FILL.

PLEASE READ THE FOLLOWING PROCEDURES CAREFULLY BEFORE STARTING THE INSTALLATION.



Due to the increased capacity of the Transfer Flow replacement fuel system, the vehicle's "Distance to Empty" (DTE) reading will no longer be accurate. Based on the original capacity and the Transfer Flow tank capacity of 58 gallons, the following are approximate gauge position/gallon readings for the 58-gallon replacement system (may vary depending on gauge and sender tolerances).

| Gauge | Gallons |
|-------|---------|
| EMPTY | 1.5 |
| 1/4 | 19 |
| 1/2 | 29 |
| 3/4 | 40 |
| FULL | 58 |



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TOOLS & SUPPLY REQUIREMENTS

Before starting the installation process, review the entire installation instructions. If you have any questions regarding the fuel system or the installation process, please contact Transfer Flow at (800) 442-0056.

| 1 001 L | ASU: |
|---------|----------------------------------|
| | Safety glasses |
| | Air compressor |
| | Air nozzle |
| | Spray bottle with soapy water |
| | Catch pan or spill mats |
| | OEM Owner's Manual |
| | 13mm open ended wrench |
| | 15mm open ended wrench |
| | 7/16 inch open ended wrench |
| | 7mm socket |
| | 10 mm socket |
| | 13mm socket |
| | 14mm socket |
| | 15mm socket |
| | 7/16 inch socket |
| | Impact gun |
| | 1/4" drive socket extensions |
| | 1/2" drive socket extensions |
| | Mallet |
| | Hydraulic jack |
| | 0-50 ft-lb torque wrench |
| | Ratchet |
| | Flat screwdriver or small prybar |
| | Electric drill |
| | Center punch |
| | 1/4" drill bit |
| | 3/8" drill bit |
| | 1/4" – 1/2" step drill bit |
| | Diagonal side cutting pliers |
| | Multimeter |



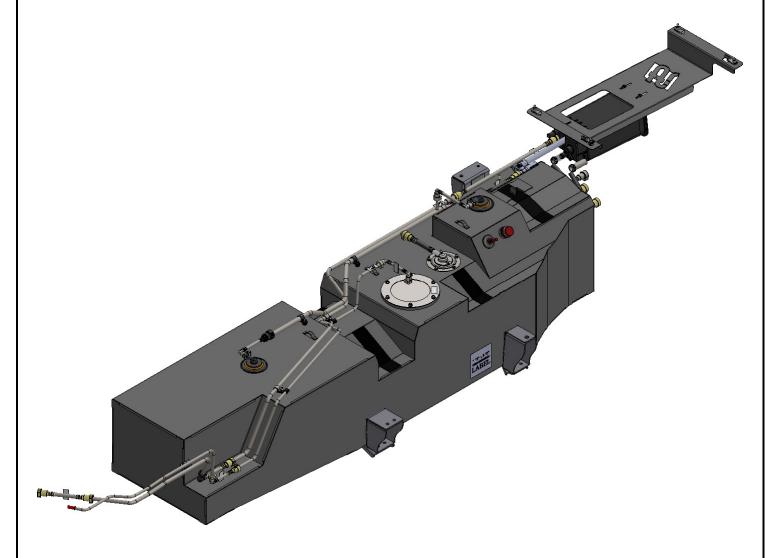
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PARTS LIST/DIAGRAM

Before beginning installation, verify all parts shown below are included in the installation kit. If there are any missing or damaged parts, please contact Transfer Flow at (800) 442-0056.

- 58-gallon Ford 2020-2023 F250/F350 Midship Replacement Fuel Tank System (080-01-17182)
- Supplemental Instruction Sheets
 - o IS-484 Torque Specifications
 - o IS-642 Weight List
 - IS-946 CARB Aftermarket Parts Label





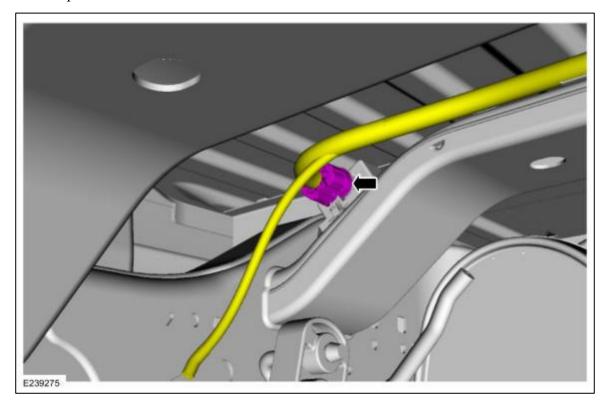
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INSTALLATION INSTRUCTIONS

SECTION 1: REMOVE THE OEM FUEL SYSTEM

- 1. Park the vehicle in the desired location and engage the parking brake.
- 2. Turn the key to the "off" position.
- 3. Release the fuel system pressure.
 - O Disconnect the Fuel Pump Control Module electrical connector located above the exhaust muffler, attached to the frame crossmember.
 - Start the engine and allow it to idle until it stalls.
 - o After the engine stalls, crank the engine for approximately five seconds to ensure that the fuel rail pressure has been released.

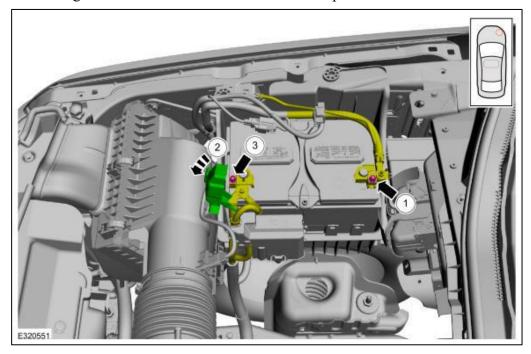




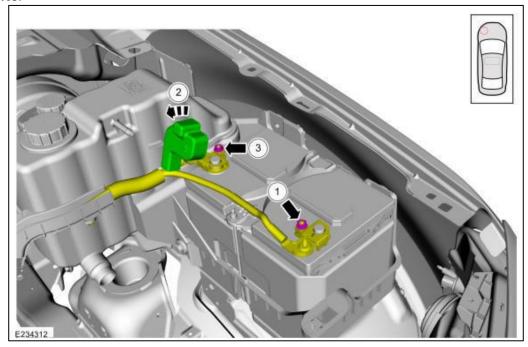
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4. Disconnect the primary battery located at the front, passenger side of the engine compartment. Loosen and remove the negative terminal connector. Then remove positive terminal connector.



5. If available, disconnect the secondary battery located at the front, driver's side of the engine compartment. Loosen and remove the negative terminal connector. Then remove positive terminal connector.





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- 6. If equipped, remove the fuel tank skid plate.
 - o Loosen and remove the three bolts located above the tank, near the drive shaft.
 - o Loosen and remove the three bolts located along the driver's side frame.





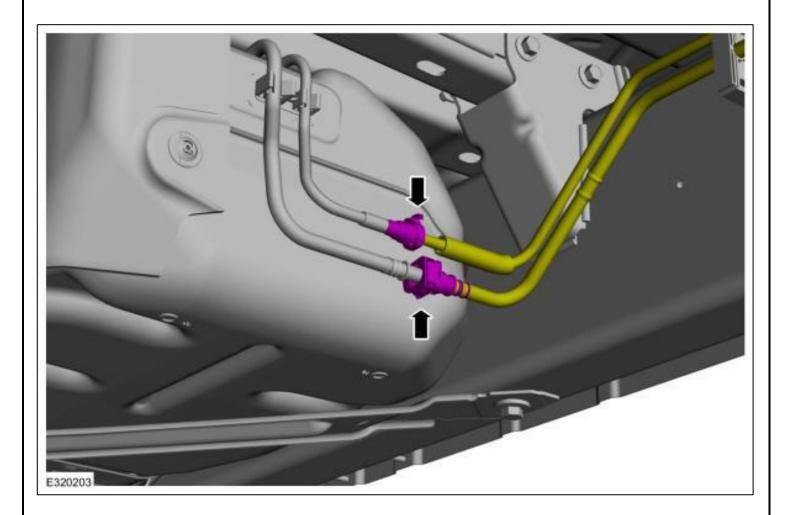
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7. Disconnect the fuel and purge line connectors located at the front of the fuel tank. Some fuel may spray or leak out of the fuel line.



CAUTION: THE FUEL LINES MAY BE UNDER PRESSURE. WEAR THE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT. USE RAGS TO COVER THE SURROUNDING AREA AND A CATCH PAN TO CAPTURE THE GASOLINE THAT LEAKS FROM THE FUEL LINES.

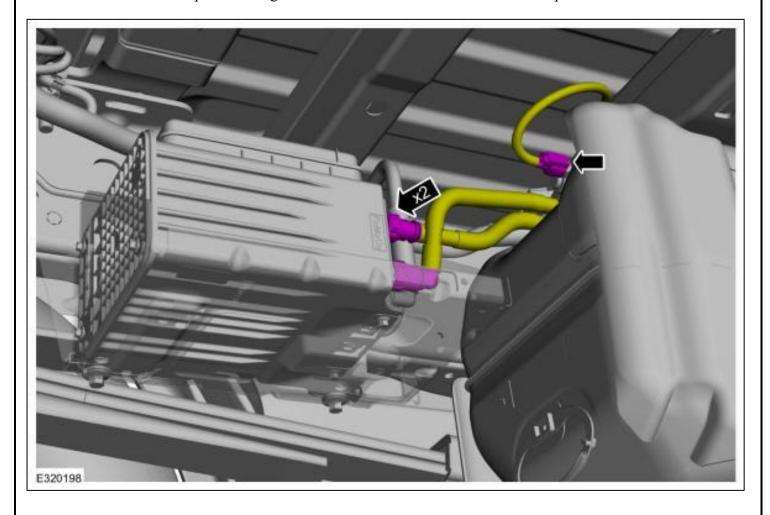




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- 8. Disconnect the two quick-connect fittings on the vapor canister, located to the rear of the fuel tank.
- 9. Disconnect the Vapor Blocking Valve electrical connector located at the top rear of the fuel tank.





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10. Loosen the gear clamp securing the rubber fuel fill tube to the steel fill neck. The gear clamp is located above the driver's side frame rail, below the fuel fill door. Access the fill neck tubes through the front of the driver's side rear wheel well. Leave the gear clamp on the steel fill neck, as it will be reused when installing the new fuel tank.

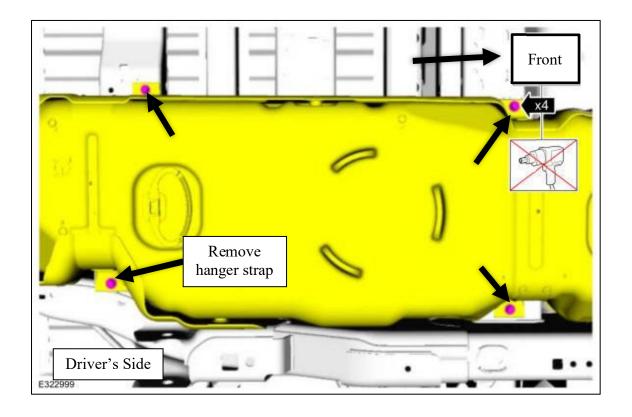


- 11. Support the fuel tank using a pneumatic or hydraulic jack.
- 12. Loosen and remove the two bolts that secure the front tank strap. Set the tank strap aside and save the two bolts for the new fuel tank installation. <u>Use hand tools only</u>. An impact gun will damage the clip nuts that secure the tank straps to the frame.
- 13. Loosen and remove the two bolts that secure the rear tank strap. Set the tank strap aside and save the two bolts for the new fuel tank installation. Remove both rear hanger strap and formed tank strap. <u>Use hand</u> tools only. An impact gun will damage the clip nuts that secure the tank straps to the frame.
- 14. Lower the fuel tank about 8-10 inches, or just enough to have access to the top of the fuel tank and sending unit. Disconnect the sending unit and pressure sensor connectors. Lowering the tank too much will damage the electrical connectors if they are not disconnected from the sending unit and pressure sensor.



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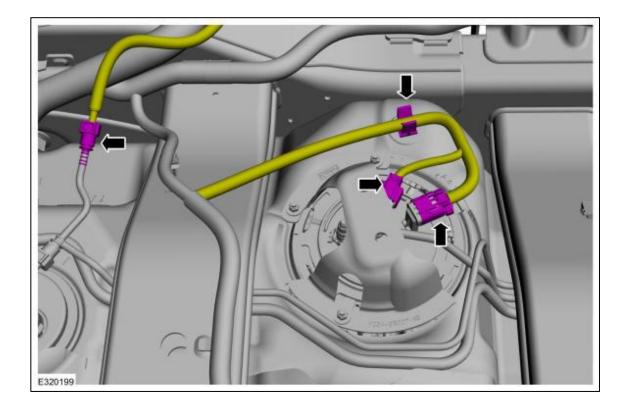
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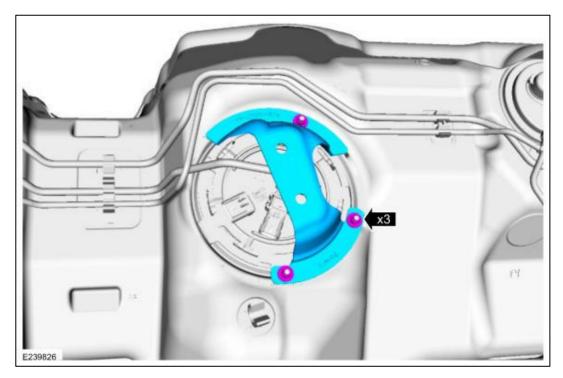


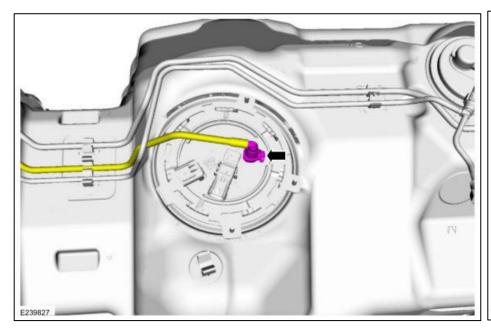
- 15. Disconnect the fill neck vent line quick-connect fitting located to the rear of the sending unit. This can be accessed from the driveshaft side of the tank or through the space between the driver's side frame rail rear and truck bed, next to the fill neck tubing.
 - With the tank slightly lowered, cut the zip-tie that connects the fill hose and vent line. The vent line will remain attached to the truck while the fill hose will be removed with the tank.
- 16. After checking that all electrical, fuel, and vapor connections are disconnected, lower and remove the OEM fuel tank.
- 17. Remove the fuel sending unit from the OEM fuel tank.
 - o Remove the three nuts and sending unit cover, using an 8mm socket.
 - o Disconnect the quick-connect fitting attached to the top of the sending unit. Some fuel may spill out of this connector.
 - o Remove the locking ring with SST 310-123 (if available), or by using a large flat head screwdriver/pry bar and mallet. Turn the ring counterclockwise until it unlocks.
 - Lift the sending unit up and slowly tip to allow fuel to drain. Then remove the sending unit from the tank while ensuring not to bend the float wire.

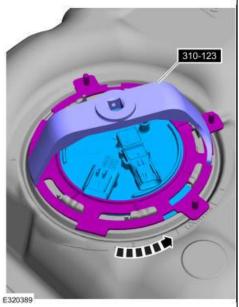


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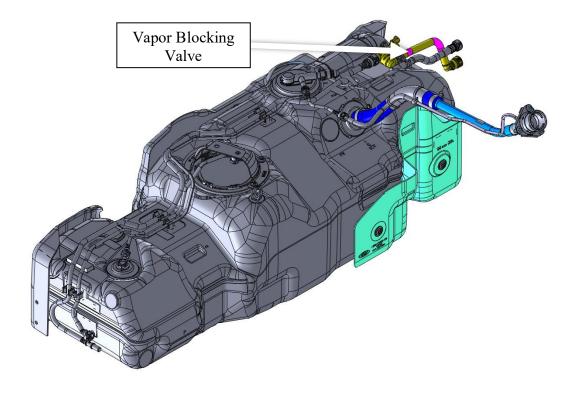


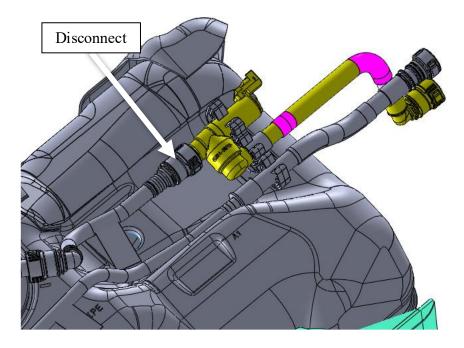


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18. Remove the Vapor Blocking Valve from the OEM tank by disconnecting the quick-connect fitting located at the top rear of the tank. This will be reused on the new fuel tank.





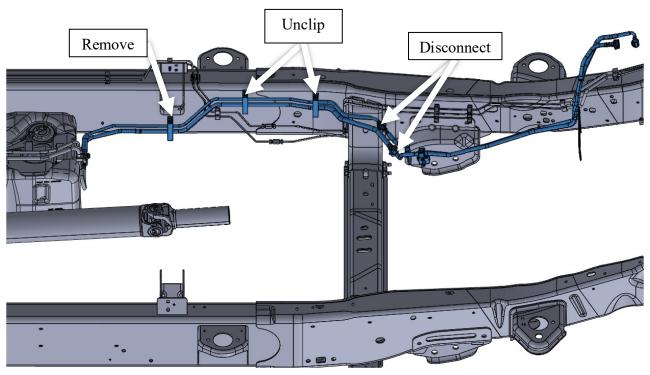


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- 19. Unclip the three plastic tube clips along the driver's side frame rail, next to the transfer case.
- 20. Disconnect the two quick-connect fittings at the front of the tubes.
- 21. Remove the fuel line and purge line from the plastic clips. Some fuel may drip from the tube.
- 22. Remove the rear plastic clip, located under the frame cross member.







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SECTION 2: INSTALLING THE ADD-ON EMISSIONS CANISTER

- 1. Locate the emissions canister bracket in the installation kit.
- 2. Bend the rectangular tabs up to a 90-degree angle, making sure to not break the tab off.



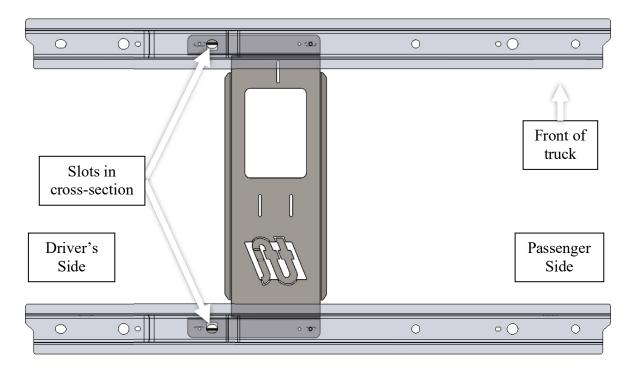


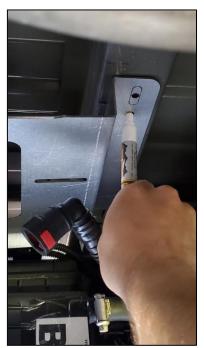


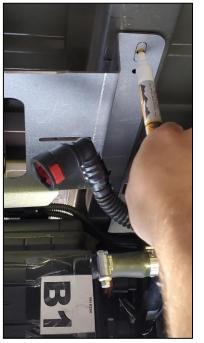
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3. Hold the canister bracket up in the mounting location between the two bed stiffener cross-sections. The hand-bent tabs will locate the bracket by inserting into two slots in the bed stiffener cross-sections. While holding the bracket in place, mark the six holes on the bed stiffeners using the bracket as a template.





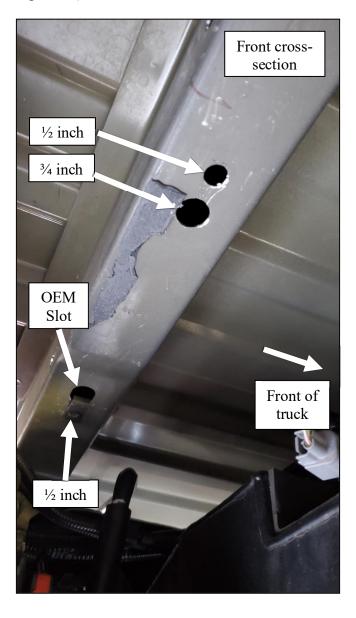




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- 4. Drill ¼ inch pilot holes on each of the six markings. Make sure to only drill through the bed stiffener and not the bed. Check that each mark is centered on the bed stiffener before drilling and verify the hole locations by holding the bracket in-place again.
- 5. Use a step-drill bit to enlarge the two outer pilot holes on the front bed stiffener and two outer pilot holes on the rear bed stiffener to ½ inch.
- 6. Use a step-drill bit to enlarge the inner pilot hole on the front bed stiffener and inner pilot hole on the rear bed stiffener (passenger side) to ³/₄ inch.

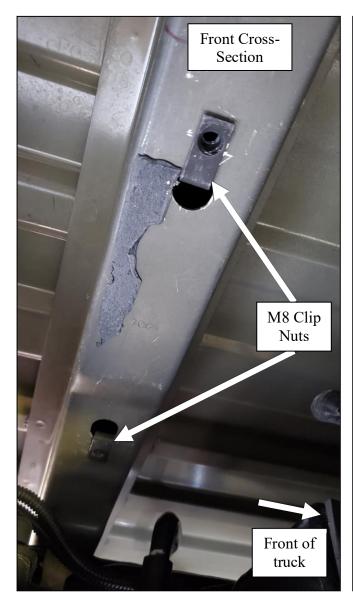




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7. Insert the provided M8 clip nuts into the ¾ inch holes (passenger side) and ¾ inch OEM slots (driver side) and make sure that each nut seats into the ½ inch holes.



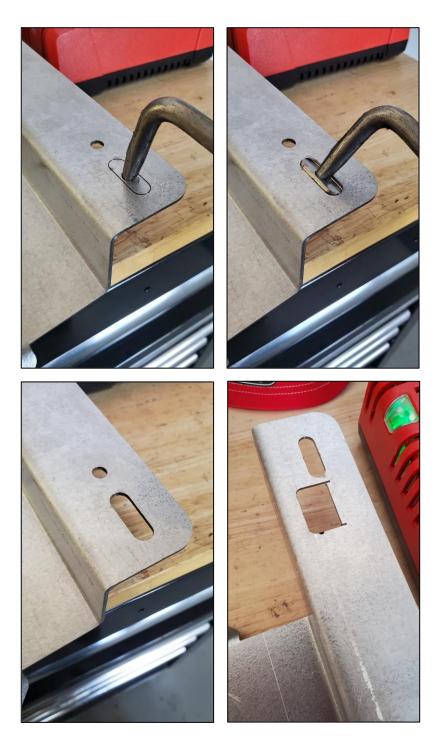




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8. Break off the two rectangular tabs and four slotted tabs from the canister bracket using a screwdriver and/or pliers.

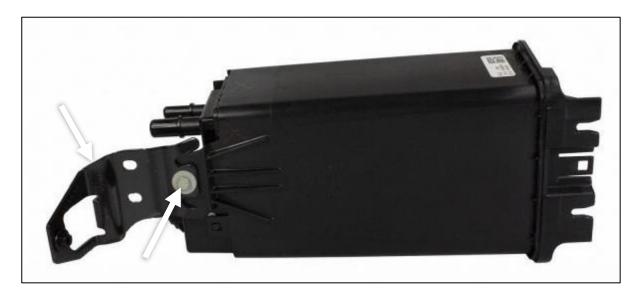




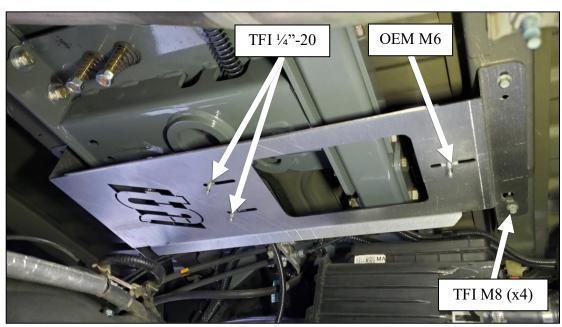
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- 9. Install the canister bracket using the four provided M8 bolts. Center the bracket in the mounting slots and tighten the bolts.
- 10. Remove the provided add-on canister from the packaging. Remove and discard the metal bracket from the canister. Retain the M6 bolt to mount the canister to the new bracket.



- 11. Install the two provided 1/4"-20 bolts into the rear slots of the canister bracket.
- 12. Install the OEM M6 canister bolt (re-use) into the front slot of the canister bracket.
- 13. Mount the canister to the bracket using the OEM hardware (front) and provided ½"-20 nuts (rear). Place a washer on each side of the joint and secure with the ½"-20 Nylock nuts. Do not fully tighten the hardware at this time. Allow the canister to slide front and back while connecting the emissions hoses.





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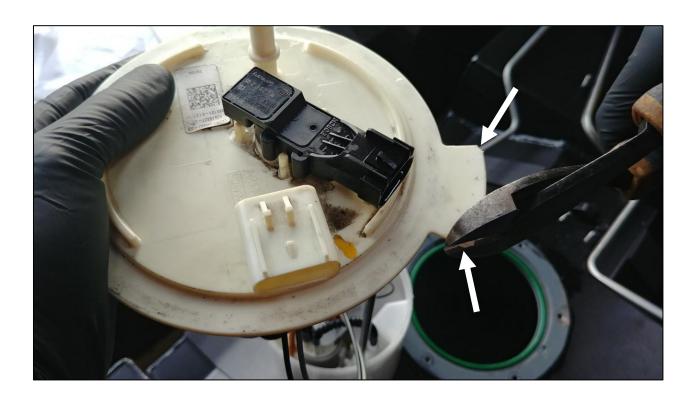


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SECTION 3: INSTALLING THE FUEL PUMP SENDING UNIT

- 1. Loosen and remove the six bolts securing the sending unit cover plate. Remove the sender plate cover and discard. The ring and hardware will be reused.
- 2. Using a pair of wire cutters, snip roughly 1/8-inch off each corner of the locating tab of the OEM sending unit. Cut the corner at approximately 45-degrees.
- 3. Check that the green O-ring is installed properly in the sending unit tank ring.
- 4. Insert the sending unit into the replacement tank and line up the locating tab with the notch on the sending unit tank ring. Carefully guide the float wire into the tank first, making sure not to bend the wire.
- 5. While holding the sending unit down against the green O-ring, install the sender ring and six bolts. Torque the bolts per IS-484 in a star pattern to seal the ring evenly.
- 6. Install the fuel line adapter (A8) by inserting a 90-degree quick-connect fitting onto the fuel supply port on top of the sending unit.

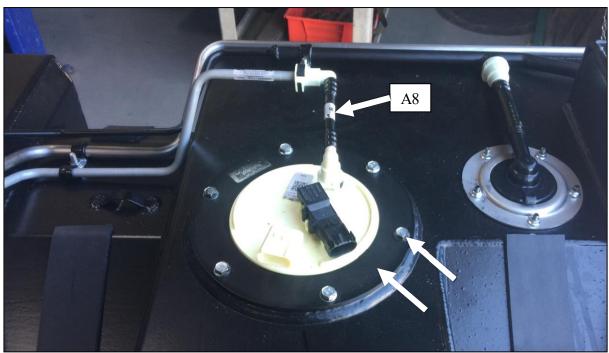




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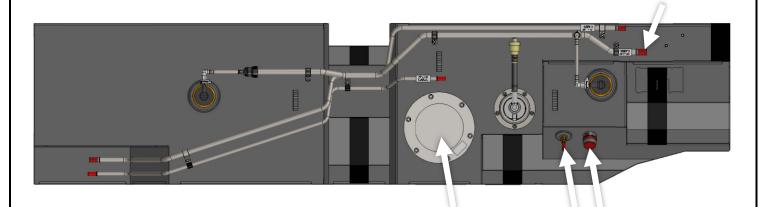


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SECTION 4: PRESSURE TESTING THE REPLACEMENT TANK

- 1. Seal the fuel supply port on the sending unit, fill neck vent (brass fitting), fill neck tube, and the steel vapor line.
- 2. Connect an air supply to the brass fill neck vent port (5/16" J2044) using a quick connect fitting or by inserting a rubber hose over the fitting.
- 3. Pressurize the tank to 1-3 psi MAX and use a soapy water solution to thoroughly check for leaks around all valves, the sending unit, sealing surfaces, and connection points. If any leaks are present, reseal the affected area and retest the system.



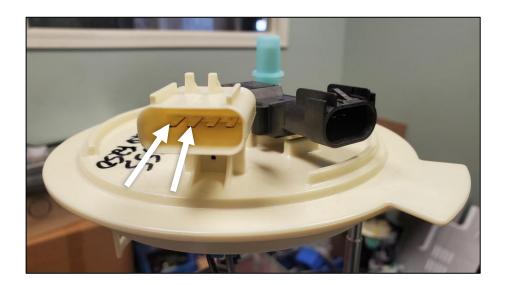


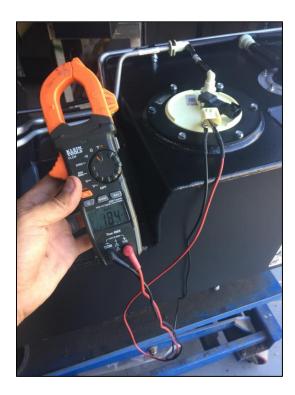


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4. Using a multimeter, attach the wire clamps to the two pins on the left of the sending unit plug. Set the multimeter to the resistance setting. The sending unit should read 180-184 Ohms when installed in the empty tank.





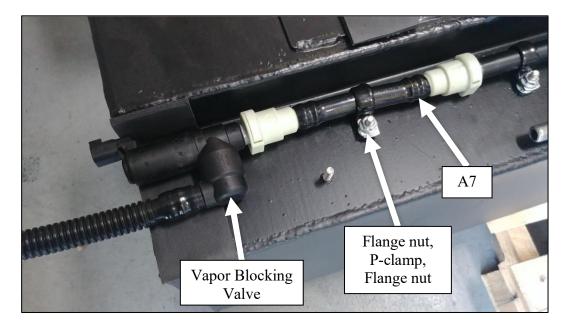


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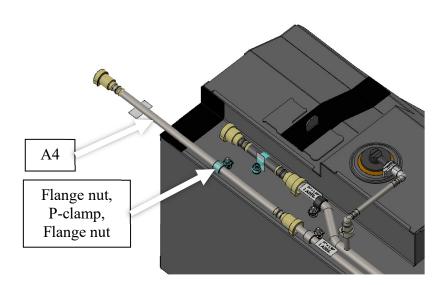
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SECTION 5: PREPARING THE REPLACEMENT TANK

- 1. Install the rear vapor line (A7) on the replacement tank using the provided 5/8-inch P-clamp and M6 flange nut. Tighten the flange nuts per specifications listed in IS-484.
- 2. Install the OEM Vapor Blocking Valve by inserting the male end into the rear vapor line. Fasten one flange nut onto the weld stud, then install the P-clamp, followed by another flange nut.



3. Install the purge line adapter assembly (A4) using the supplied flange nuts and tube clamp. Fasten one flange nut onto the weld stud, then install the P-clamp, followed by another flange nut.

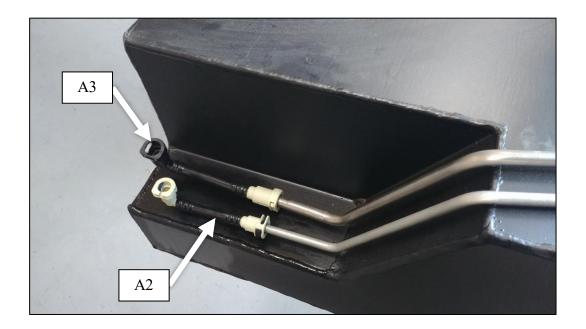




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4. Install the purge (A3) and fuel supply (A2) lines at the front of the replacement tank by inserting the straight quick-connect fittings onto the steel tank tubes.





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SECTION 6: INSTALLING THE REPLACEMENT TANK

1. Remove the red cap and install the OEM rubber fill tube onto the replacement tank. Note the orientation of the fill tube on the OEM tank (lines on fill tube). Using the painted lines on the fill tube, match the orientation of the tube on the replacement tank. The painted lines should be at the top of the tube when installed. Tighten the hose clamp per IS-484.



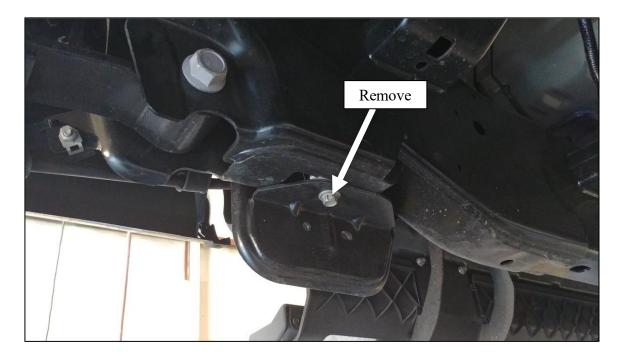




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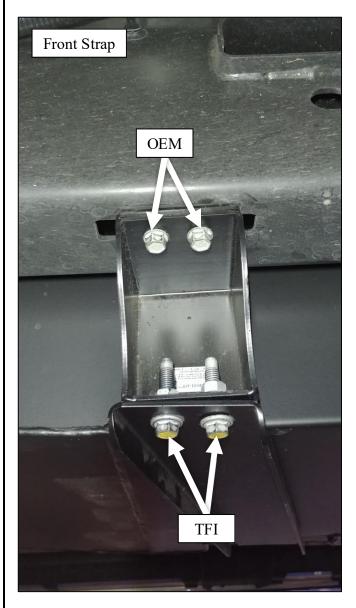
- 2. Install the Transfer Flow front driver's side tank strap spacer with the OEM hardware. Use the TFI supplied hardware to connect the strap bracket to the front tank strap.
- 3. Remove the OEM bolt shown below, located to the front of the rear driver's side wheel. The bolt will be reused to install the Transfer Flow strap bracket.
- 4. Install the Transfer Flow rear drivers side tank strap bracket with the OEM hardware.

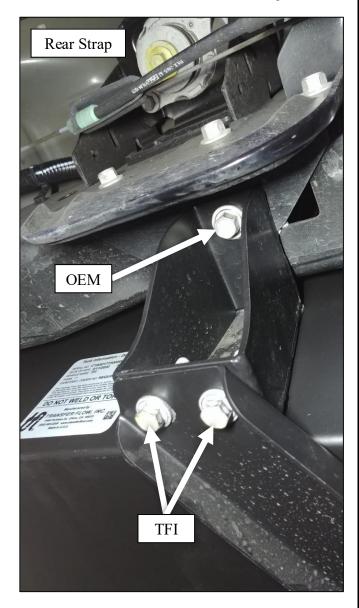




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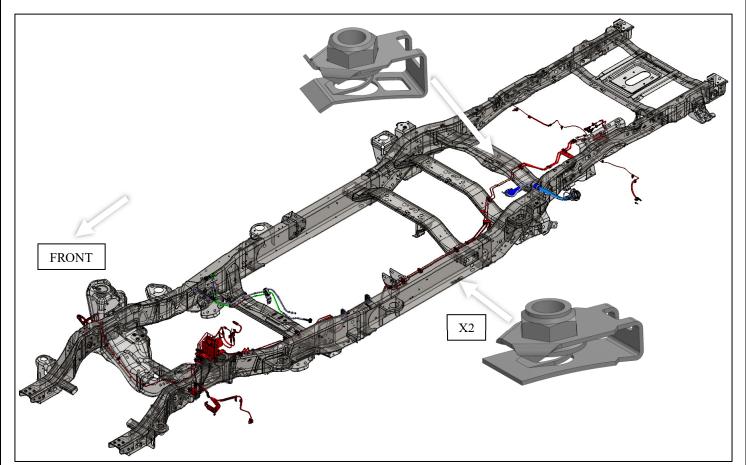


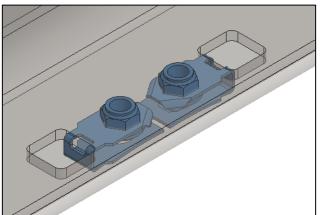
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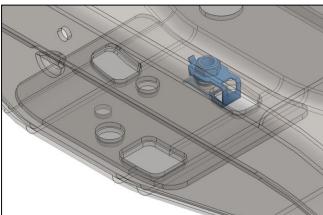
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NOTE: OEM ROCK SHIELD AND EXTRA HARDWARE

- If the vehicle is equipped with an OEM fuel tank rock shield, the provided hardware will not be required. The OEM hardware can be reused.
- If the vehicle is *NOT* equipped with an OEM fuel tank rock shield, use the provided M8x1.25 clip nuts as shown below.





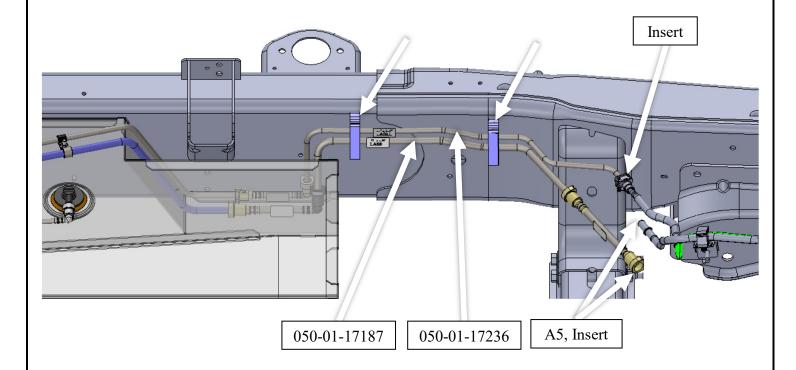




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- 5. Install the front steel fuel line along the driver's side frame rail, next to the transfer case or transmission.
 - a. Press the tube into the two plastic tube clips (top slot) that are attached to the driver's side frame rail.
 - b. Insert the male end of the fuel line into the OEM quick-connect, making sure that the tube is fully inserted and the locking clip on the fitting is closed properly.
- 6. Install the front steel purge line along the driver's side frame rail, next to the transfer case or transmission.
 - a. Press the tube into the two plastic tube clips (bottom slot) that are attached to the driver's side frame rail.
- 7. Close the tab on the two plastic tube clips.
- 8. Install the front plastic purge line (A5) to connect the TFI front steel purge line (050-01-17187) and OEM purge line, located to the front of the transfer case and above the front prop shaft.

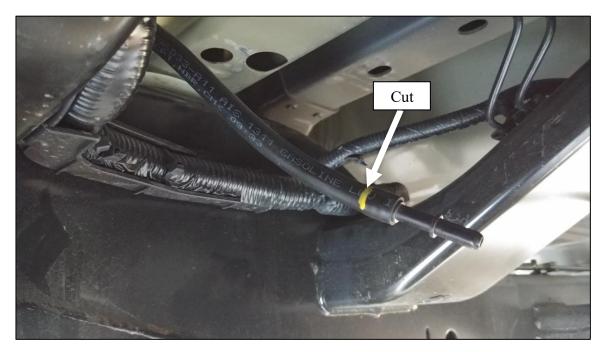




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9. Remove the male fitting from the fill neck vent by cutting the rubber hose with hose cutters. Cut as close to the fitting as possible. Replace the male fitting with the provided female quick-connect fitting and hose clamp. Tighten the hose clamp per IS-484.





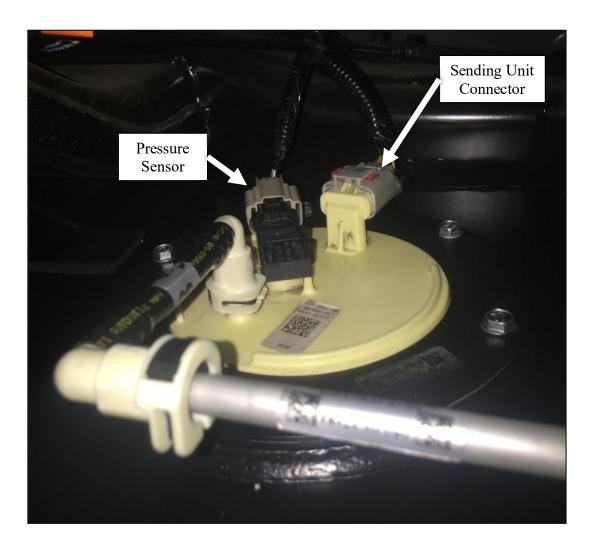


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10. Place the fuel tank on a pneumatic or hydraulic jack and raise the tank until it is about 12 inches from the final position. Guide the rubber fill hose around the frame rail so it does not get caught on other components.

11. Plug in the sending unit and pressure sensor electrical connections. **Do not lower the tank with these connectors plugged in as it can break the connector.**



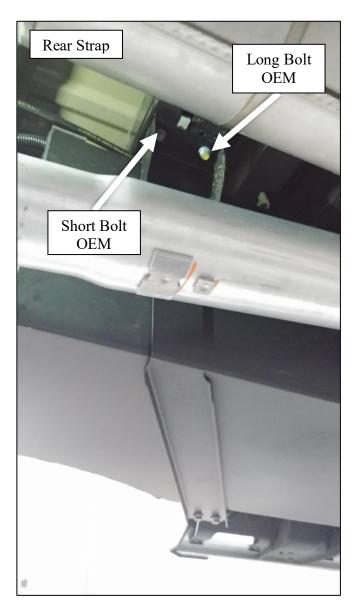


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- 12. Raise the tank until it meets the frame cross members. Locate the tank with the tab on the top rear of the tank. The tab must fit into the slot on the rear cross member.
- 13. Install the front strap using the provided hardware. Connect the front strap to the strap bracket and fasten together with two nuts and two bolts.
- 14. Install the rear strap using the OEM short bolt (from OEM rock shield) and OEM long bolt. Torque the hardware per the specifications listed in IS-484.







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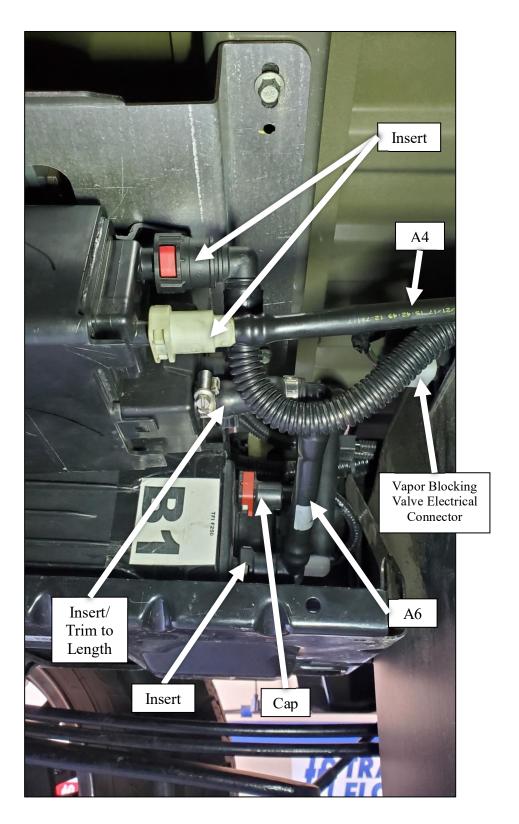
- 15. Connect the long purge line adapter hose assembly (A4) to the bottom port of the add-on canister. Some adjustment to the canister position may be needed. Slide the canister along the length of the slots on the canister bracket to connect the purge line adapter.
- 16. Connect the Vapor Blocking Valve corrugated tube to the top quick-connect port of the add-on canister.
- 17. Connect the 90-degree quick-connect of the canister adapter assembly to the bottom quick-connect port on the OEM vapor canister.
- 18. Connect the canister adapter tube assembly (A6) rubber line to the add-on canister and insert the 90-degree quick-connect fitting to the 5/8" port on the OEM canister. Trim the rubber hose to length such that the quick-connect fitting is not bent forward or backward, and the plastic hose rests in a vertical position.
- 19. Plug in the Vapor Blocking Valve electrical connector at the top rear of the tank.
- 20. Once all the emissions lines are connected, fasten the canister mounting hardware (two TFI ¼"-20 bolts and one OEM M6 bolt) to secure the add-on canister to the bracket.

NOTE: The add-on canister does not require an electrical connector to function properly. Do not plug any electrical connectors into the add-on canister.



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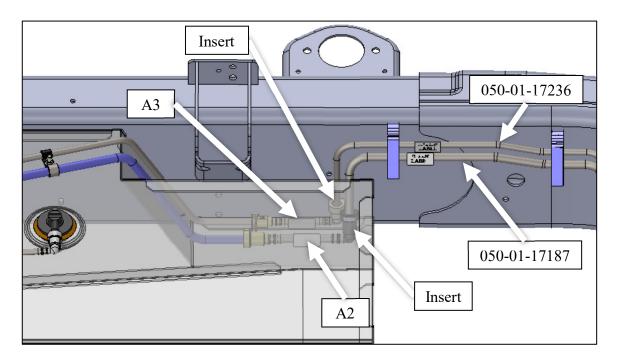




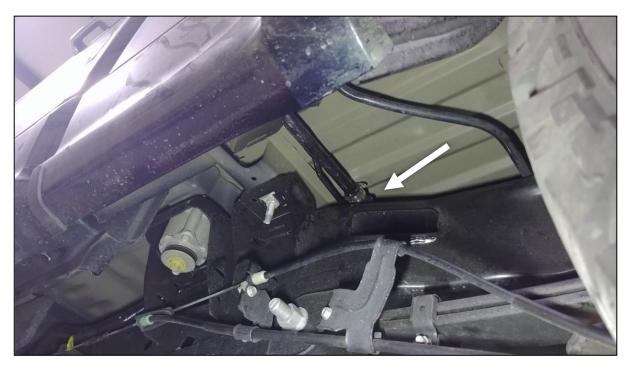
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21. Connect the front fuel and purge line adapters to the steel lines along the driver's side frame rail at the front of the tank.



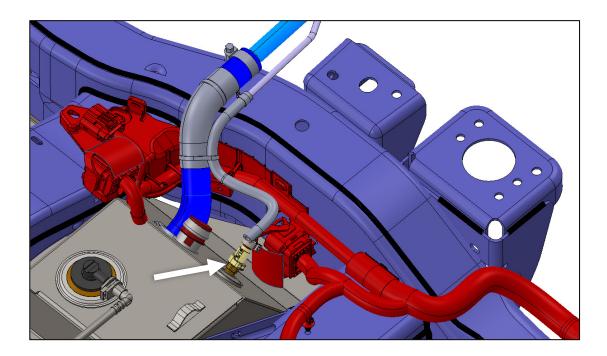
22. Connect the fill neck vent line to the brass male quick-connect fitting. This can be accessed through the front of the driver's side rear wheel well and between the frame and bed.





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23. Connect the fuel fill tube to the steel filler neck and secure with the OEM gear clamp. Tighten the gear clamp per IS-484.





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SECTION 7: FINALIZING THE INSTALLATION

- 1. Make sure all the fuel, fill, vent lines, and electrical wires are not kinked or pinched, close to any heat source, or in contact with any sharp or moving objects. Confirm that the vent line has a continuous downwards slope from the filler neck to the tank.
- 2. Reconnect the vehicles battery and secondary battery if used.
- 3. Add fuel to the tank.



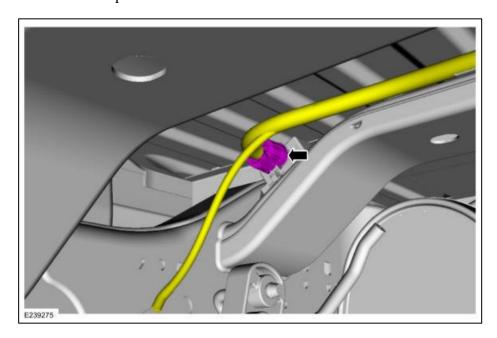
WARNING: FUEL MAY SPIT BACK DURING THE INITIAL FUEL FILL WHEN USING A FUEL STATION NOZZLE. FILL THE TANK VERY SLOWLY FOR THE FIRST 5 GALLONS, THEN FILL AT A NORMAL RATE. THE FUEL NOZZLE MAY CLICK-OFF THROUGHOUT THE FIRST 5 GALLONS OR SO. AGAIN, FUEL MAY SPIT BACK DURING THIS FIRST FILL CYCLE. IF FUEL SPIT BACK IS OBSERVED AFTER THE FIRST FILL UP, PLEASE CONTACT

TECHNICAL SUPPORT FOR INSTRUCTION. RINSE ANY FUEL OFF THE VEHICLE AND CLEAN UP ANY FUEL ON THE GROUND BEFORE OPERATING THE VEHICLE.



WARNING: DO NOT OVER FILL OR TOP OFF TANK AFTER THE FIRST SHUT OFF CLICK. THE FUEL AND/OR EMISSIONS SYSTEM MAY BE DAMAGED IF THE TANK IS OVERFILLED.

4. Reconnect the Fuel Pump Control Module electrical connector located above the exhaust muffler. The module is attached to the top side of the frame cross member.





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- 5. Pressurize the fuel system by cycling the ignition key to IGNITION ON / ENGINE OFF and wait 3 seconds to pressurize the fuel system. Repeat this three times.
 - a. Check for fuel leaks under the vehicle before starting the engine.
 - b. Turn the engine on.
- 6. Apply the CARB EO label to the underside of the hood, per supplemental instruction sheet IS-946.

| omplete Final Installation Checklist below. | |
|---|--|
| All hose clamps are tight and secure. | |
| All nuts and bolts are torqued to spec (See IS-484). | |
| ☐ Mounting brackets and straps are secure. | |
| Sending unit bolts are secure and torqued to spec. | |
| All fuel lines are secure with no kinks. | |
| ☐ Tank does not interfere or rub with other vehicle components. | |
| ☐ Tank calibration is accurate. | |
| | |
| | |

Congratulations on a successful installation!



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