



Ford F-59 Stripped Chassis  
Liquid Propane Autogas Fuel System – Side Saddle Tank

# ROUSH CleanTech Liquid Propane Autogas Fuel System: Ford F-59 Stripped Chassis

**C**

Vehicle lowered

- 7. Preparing the engine compartment
- 11. Installing the new fuel rails
- 14. Installing the FRPCM and engine return line
- 17. Installing the engine supply line
- 18. Installing the smart relay module (SRM)
- 19. Installing the forward lines
- 22. Installing the vapor management kit
- 24. Trans dip stick bracket installation
- 25. Finalizing engine compartment lines
- 28. Modifying the vapor canister bracket
- 31. Drilling holes in the frame

**E**

Vehicle lowered

- 70. Installing the CAN harness
- 71. Installing the underhood harness

**G**

Vehicle lowered

- 82. Final electrical connections
- 83. Installing badges and labels
- 88. Completing the kit installation

**A**

Vehicle in work area

- 3. Preparing vehicle



**H**

Reference

- 89. Special tools

**B**

Vehicle raised

- 4. Removing OEM tank
- 5. Removing OEM fuel lines, vapor lines, and vapor canister

**D**

Vehicle raised

- 36. Cutting out the body skirt gusset
- 37. Preparing the tank
- 38. Installing the tank
- 40. Installing the supply line and fuel line retention bracket
- 41. Installing the fuel lines
- 47. Installing the vapor canister
- 49. Installing the fill system
- 65. Installing the electronic fuel pump relay

**F**

Vehicle raised

- 76. Installing the rear frame harness
- 80. Installing the tank harness

## PREPARING VEHICLE

### **\*ATTENTION\***

Prior to starting the installation of the ROUSH CleanTech propane fuel system please ensure the vehicle has been registered online via the ROUSH Installer Portal. This will automatically generate a request to overnight a VECI label for the vehicle which will be needed to program the Ford PCM with the ROUSH CleanTech propane calibration after the fuel system has been installed.

If any assistance is needed with the registration of the vehicle please contact ROUSH CleanTech at **1-800-59-ROUSH (opt 2)**.

**Note: Threaded fasteners and threaded fuel line connections must be paint marked after they have been torqued to specification.**

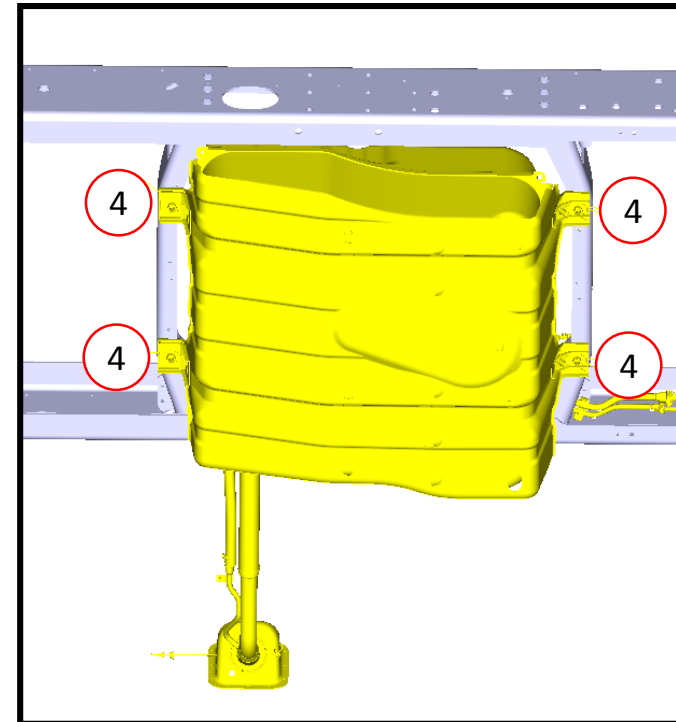
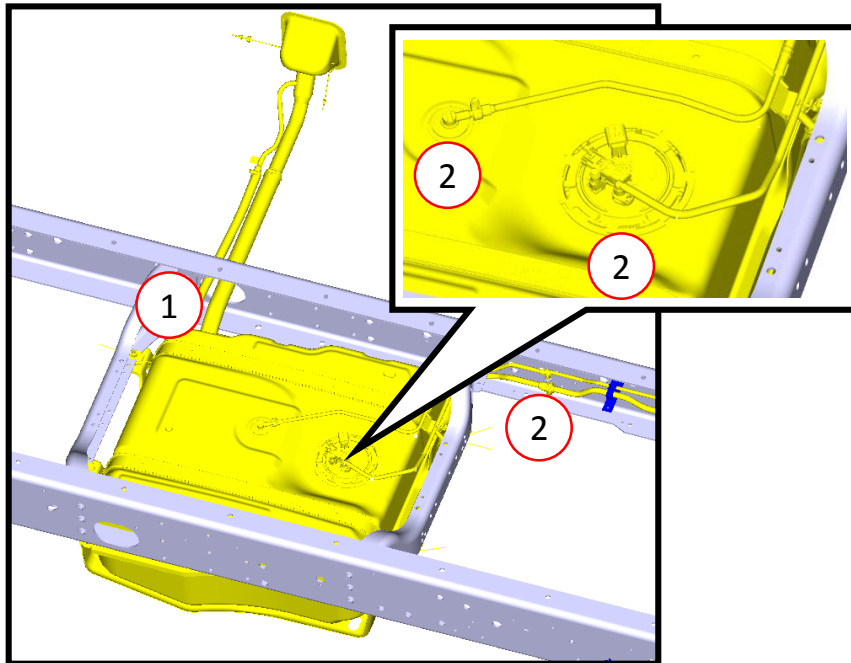
1. Using a scan tool, check for all diagnostic trouble codes. Correct all trouble codes before continuing.
2. Depressurize the fuel rails using the procedure described in the *Ford Workshop Manual Section 310-00 Fuel System, General Information*.
3. Disconnect the battery terminals and remove the battery.
4. Disconnect the OEM PCM harness push-pin to allow easier ROUSH CleanTech under hood harness installation.
5. Disconnect the mass air flow (MAF) sensor connector and remove the air cleaner assembly including the air filter cover, degas bottle hose, air box and intake air box adapter. Separate the air cleaner cover, MAF sensor and air box from the adapter independently.

## REMOVING OEM FUEL TANK

Refer to the *Ford Workshop Manual, Section 310-01, Fuel Tank and Lines*, for instructions on removing the original fuel tank, tank shield and hardware.

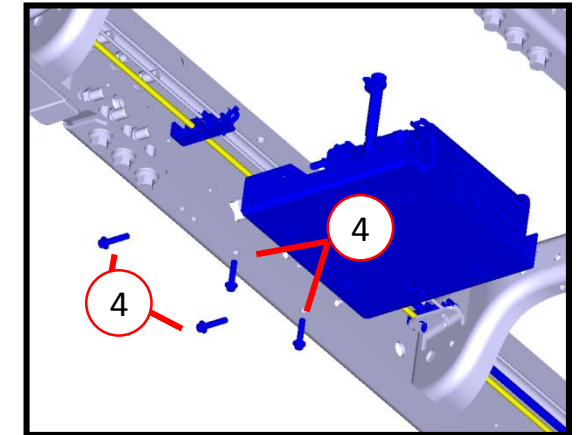
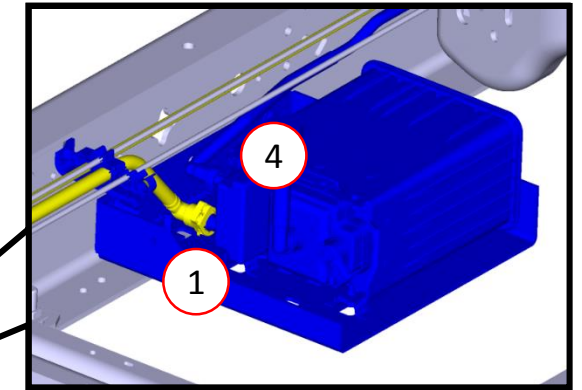
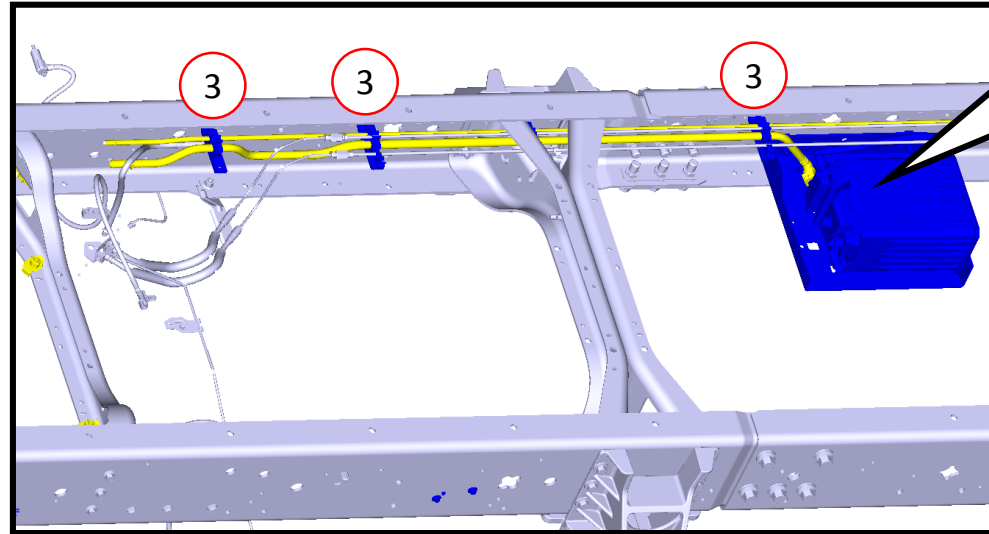
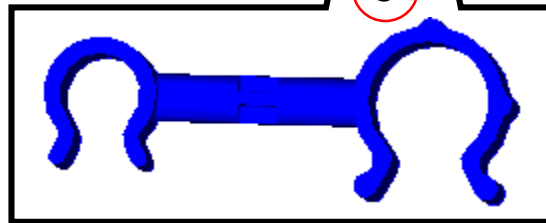
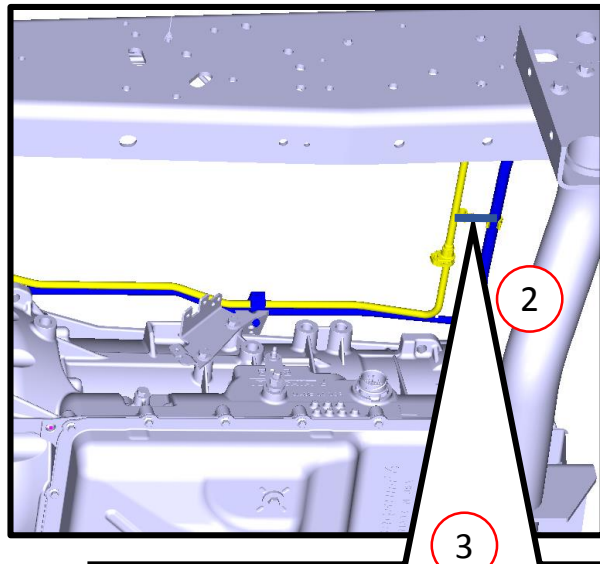
**Note:** Remove only the fuel and vapor lines, do NOT remove the brake lines when following the *Ford Workshop Manual procedure*.

1. Disconnect the fuel tank filler pipe and vent hose from fuel tank.
2. Disconnect vapor line and fuel supply line from fittings at tank and frame rail.
3. Disconnect all wiring connections from tank.
4. Remove tank mounting bolts and drop/remove tank and shield.



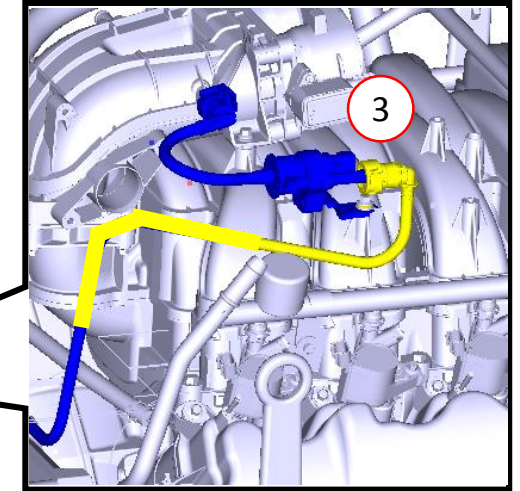
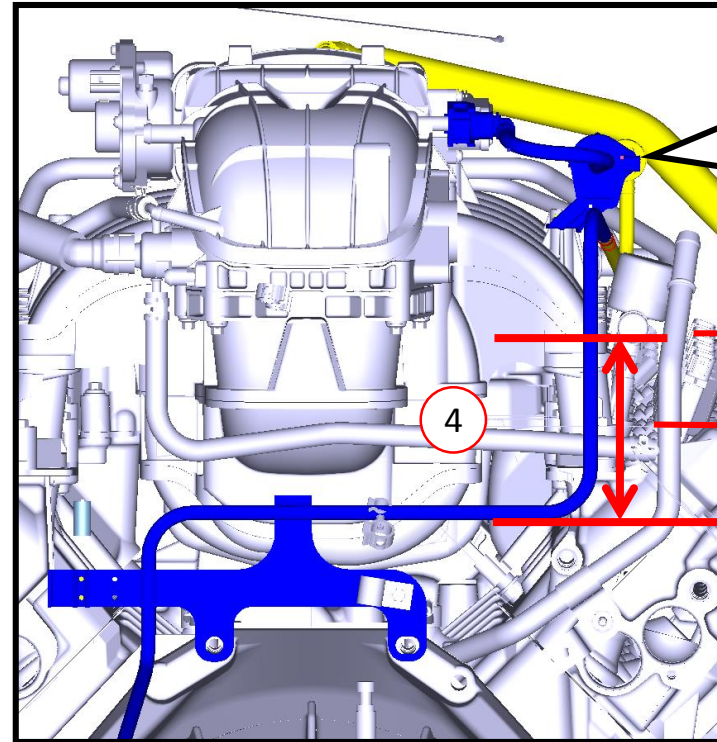
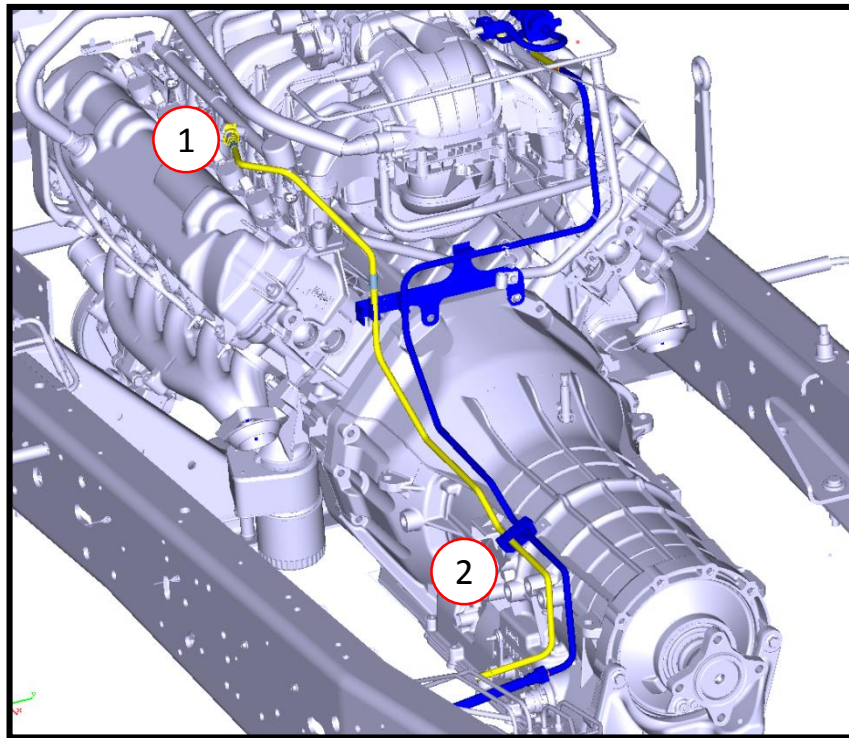
## REMOVING OEM REAR FUEL LINES, VAPOR LINES, AND VAPOR CANISTER

1. Disconnect the vapor line that is aft of the vapor canister from the vapor canister.
  2. Disconnect the fuel line near the transmission.
  3. Remove the fuel line and disconnected vapor line from clips, **do not remove or discard clips.**
- NOTE: THE FOLLOWING STEPS ARE FOR 168" AND 178" WHEELBASE VEHICLES ONLY.**
4. Disconnect the remaining vapor line from canister and remove the vapor canister with bracket from the frame.
  5. Place the vapor canister with bracket and the four bolts on a bench, do not discard.



## REMOVING OEM FORWARD FUEL SUPPLY LINE AND MODIFYING VAPOR LINE

1. Disconnect fuel rail supply.
2. Open fuel line retention clip (do not remove) and remove fuel supply line.
3. Disconnect the vapor line from the Vapor Management Valve (VMV).
4. Cut the vapor line 6" from the bottom and discard the top portion.



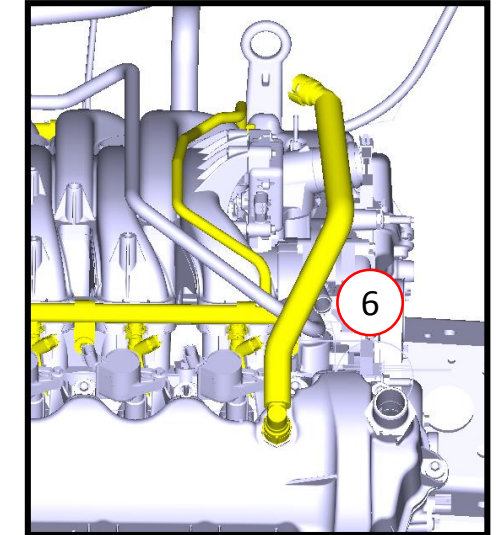
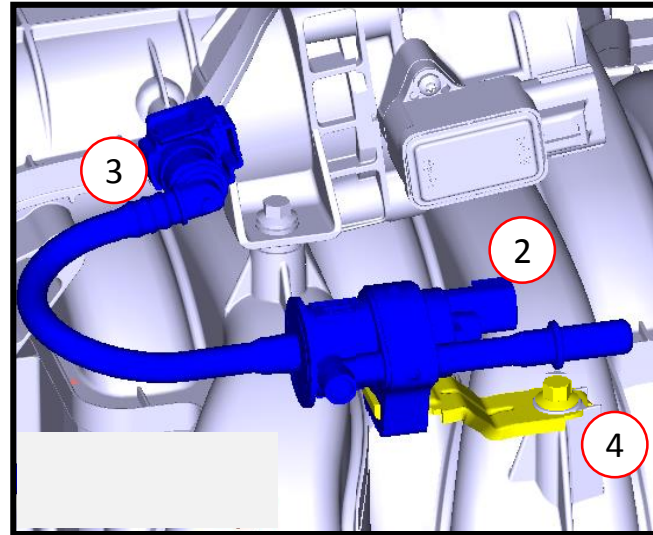
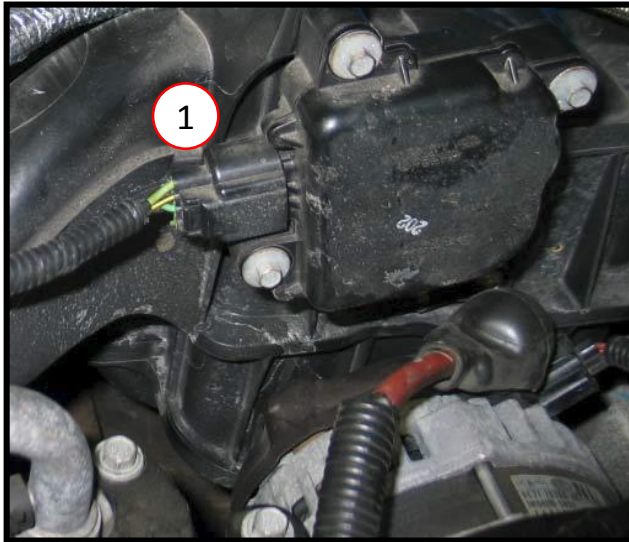
Cut here and discard upper portion.

6"

## PREPARING THE ENGINE COMPARTMENT

Refer to the *Ford Workshop Manual, Section 303-04, Fuel Charging and Controls — 6.8L(3V)*, for complete instructions on removing the fuel rails and injectors. Some original parts will be reused. The components in this section may be saved, discarded or new. Refer to color key.

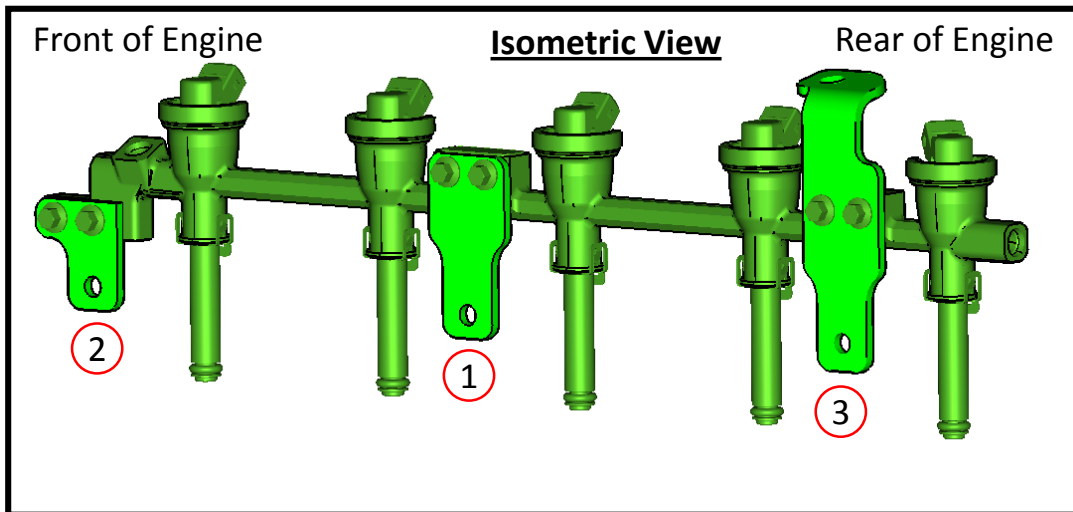
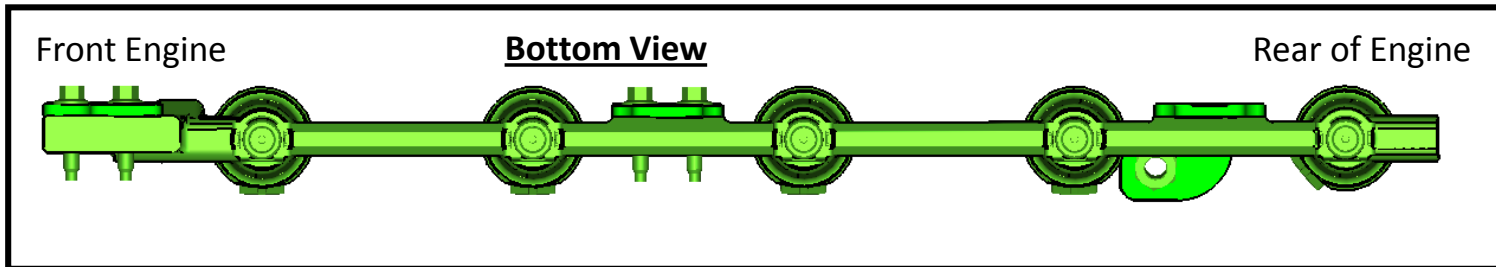
1. Disconnect the intake manifold runner control (IMRC) actuator electrical connector.
2. Unplug the electrical harness connector from OEM VMV.
3. Disconnect the VMV hose quick-connect fitting from the throttle body adapter.
4. Remove the bolt securing the bracket and remove the VMV assembly (hose, VMV and bracket).
5. Pull the OEM VMV bracket out of the VMV. Discard the bracket and bolt.
6. Remove the PCV hose that connects the right hand crank cover to the clean air hose.



## PREPARING THE RIGHT HAND RAIL (P16MB-03D002-A)

1. Attach part P16MB-03D200-B using Qty. 2 M6x1x25 flange head bolts to the middle mounting location.
2. Attach part P16MB-03D200-C using Qty. 2 M6x1x25 flange head bolts to the forward mounting location.
3. Attach part P16MB-03D200-A using Qty. 2 M6x1x25 flange head bolts to the rear mounting location as shown in the image below. **Bracket should bend towards the fuel rail.**
4. Torque all 6 bolts to 8 – 12 Nm.

**Note: The rear injector is facing a different direction than the other four injectors to avoid interference with the heater line on the engine.**

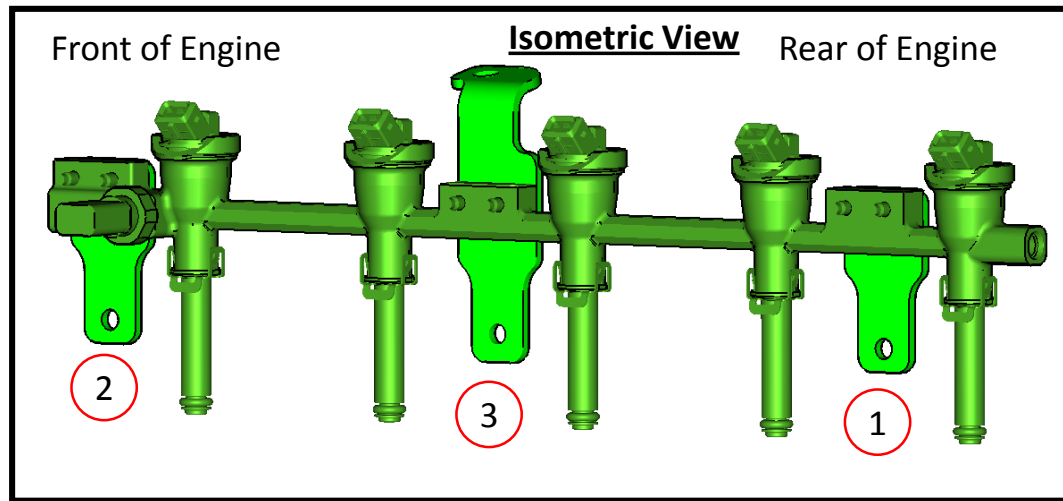
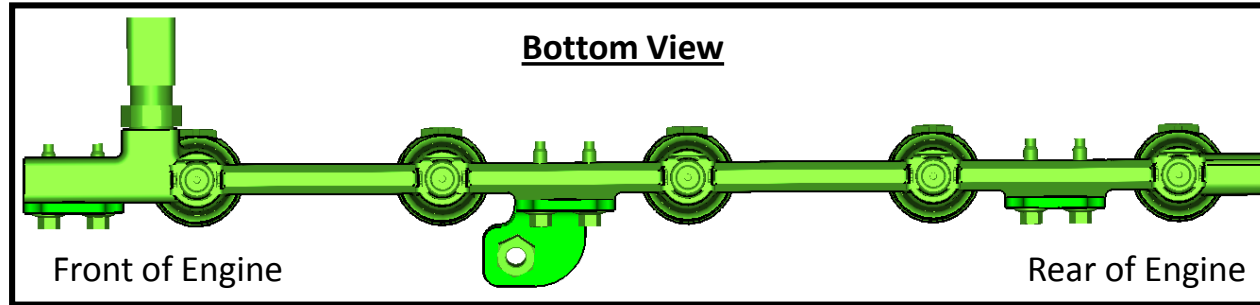


**NOTE: Brackets mount to inboard side of rails.**



## PREPARING THE LEFT HAND RAIL (P16MB-03D001-A)

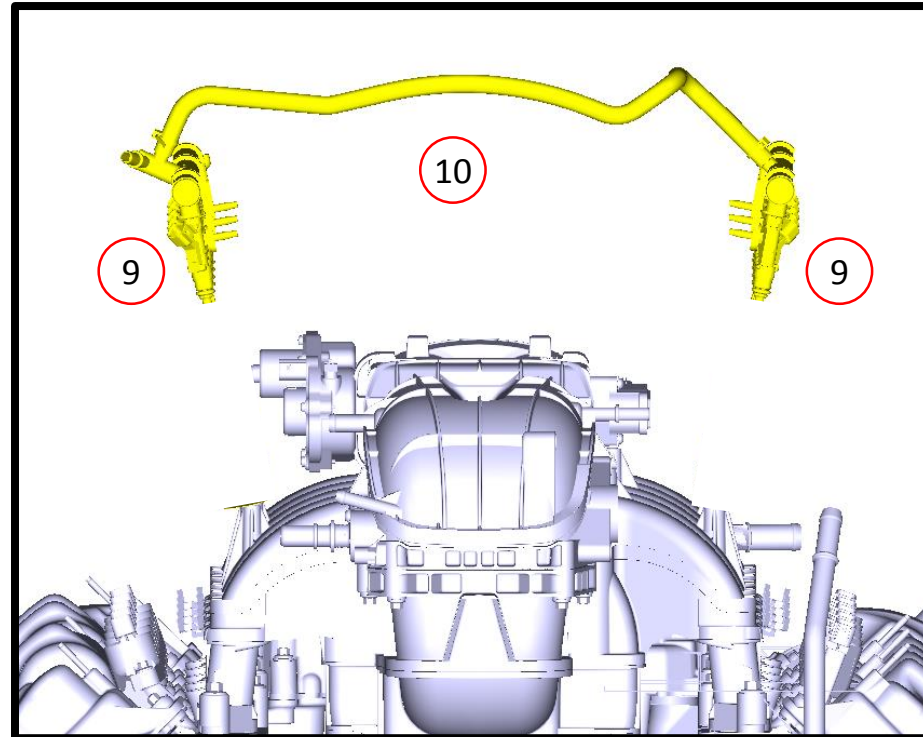
1. Attach part P16MB-03D200-B using Qty. 2 M6x1x25 flange head bolts to the rear mounting location.
2. Attach part P16MB-03D200-B using Qty. 2 M6x1x25 flange head bolts to the forward mounting location.
3. Attach part P16MB-03D200-A using Qty. 2 M6x1x25 flange head bolts to the middle mounting location as shown in the image below. **Bracket should bend away from the fuel rail.**
4. Torque all 6 bolts to 8 – 12 Nm.



**NOTE: Brackets mount to inboard side of rails.**

## PREPARING THE ENGINE COMPARTMENT (CONTINUED)

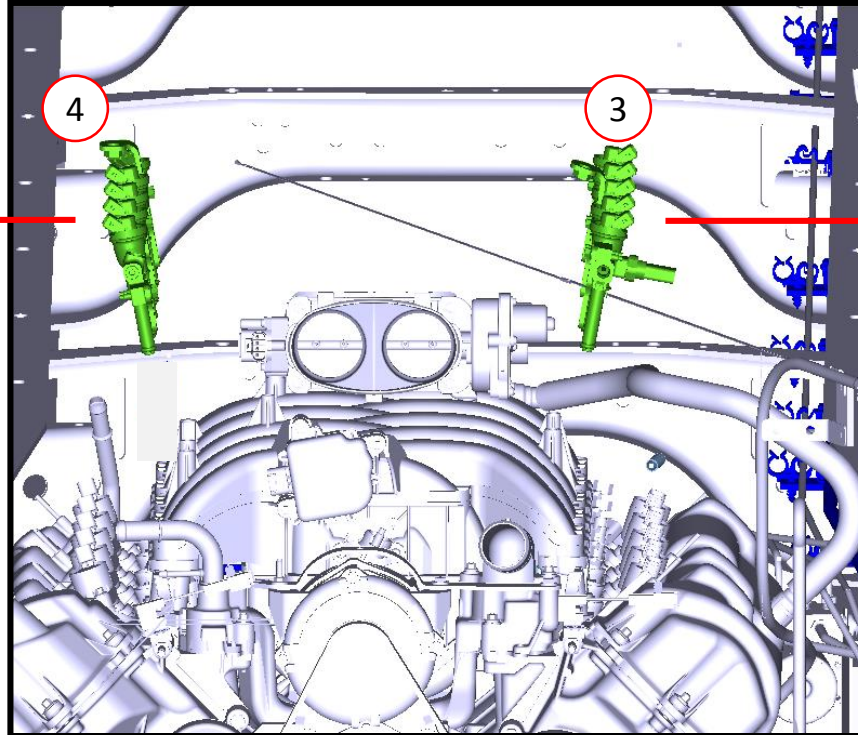
7. If necessary, remove the engine wiring harness from the mounting studs on the valve cover.
8. Disconnect electrical connector from each OEM fuel injector.
9. Remove the six fuel rail mounting bolts and fuel rail assembly (with crossover hose).
10. Discard fuel rail assembly and bolts.



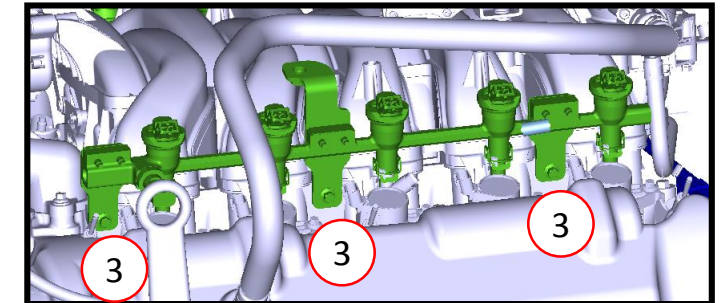
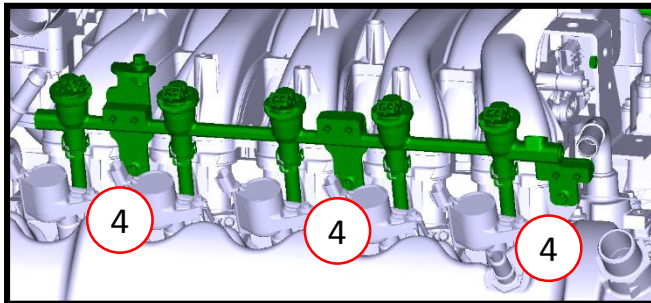
## INSTALLING THE FUEL RAILS

1. If necessary, disconnect coil electrical wires (and ignition coils if necessary) for clearance.
2. Using engine oil (Motorcraft SAE 5W-20 or equivalent), lubricate lower O-rings on injector nozzles before seating rail assemblies.
3. Position left hand fuel rail assembly onto driver side of intake manifold and fully seat nozzles. Using Qty. 3 M6x1x16 flange head bolts, secure fuel rail to intake manifold. Tighten bolts to 8–12 Nm.
4. Position right hand fuel rail assembly onto driver side of intake manifold and fully seat nozzles. Using Qty. 3 M6x1x16 flange head bolts, secure fuel rail to intake manifold. Tighten bolts to 8–12 Nm.

Right hand rail orientation.

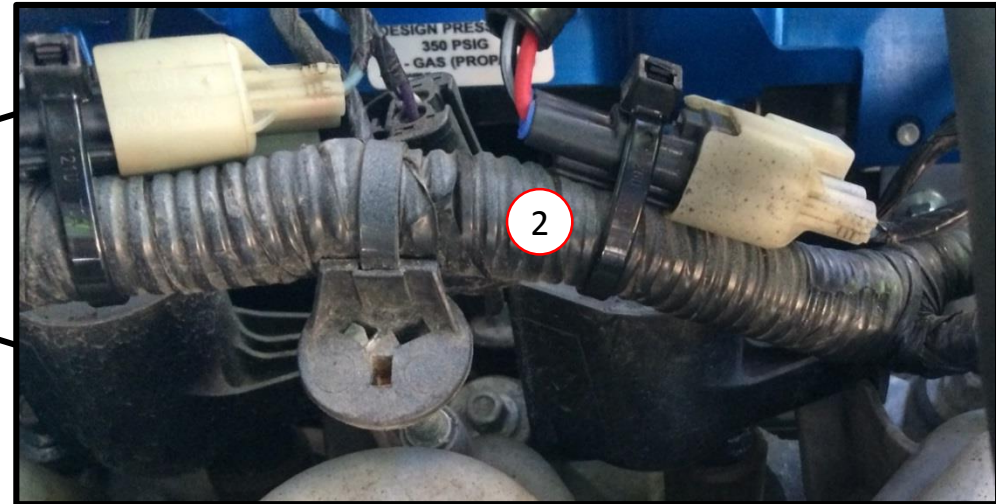
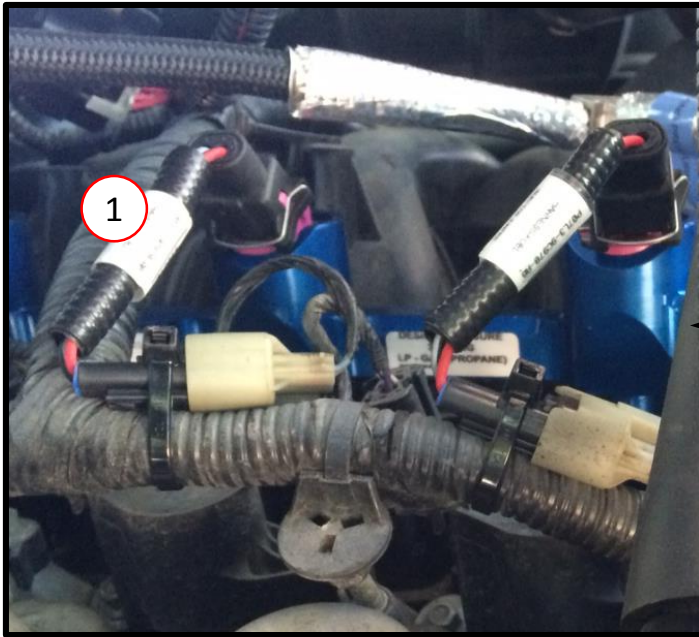


Left hand rail orientation.



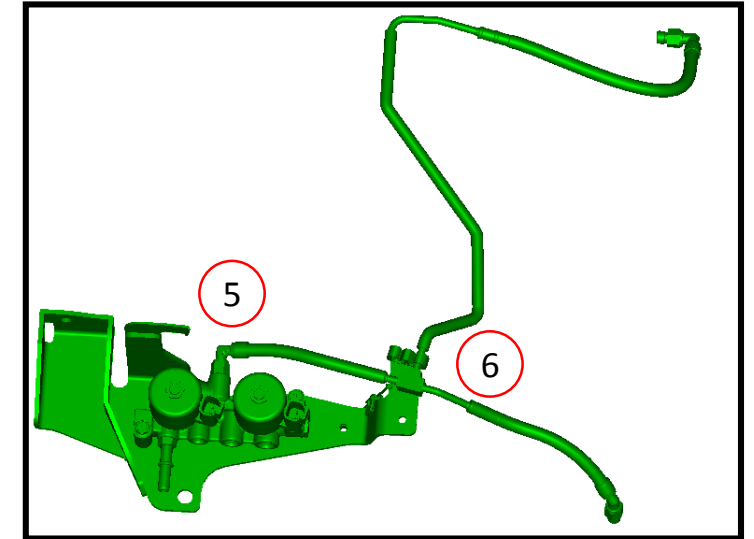
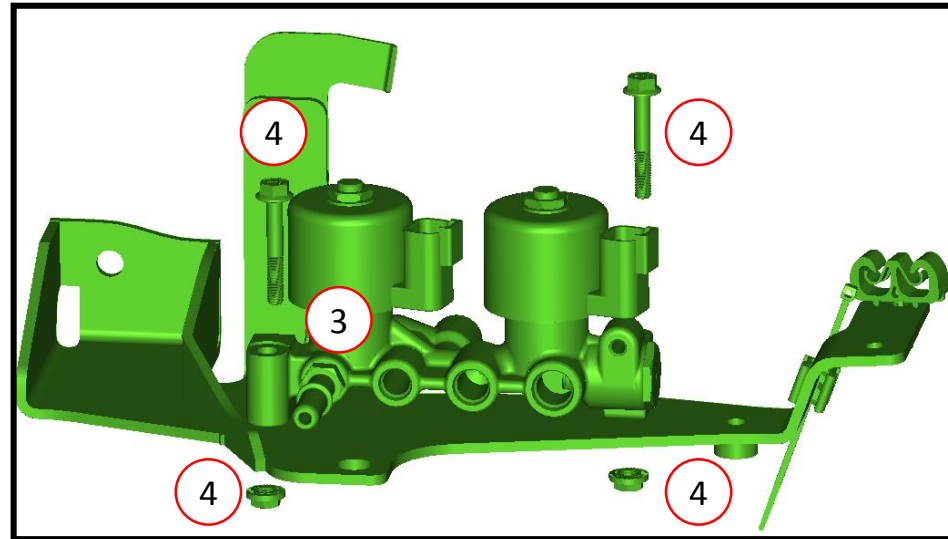
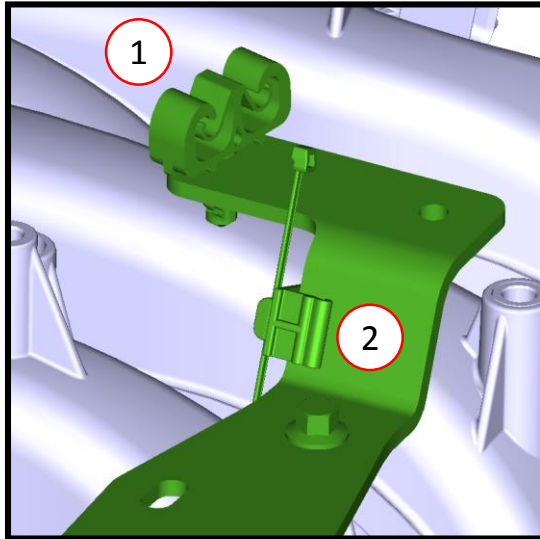
## INJECTOR JUMPER INSTALLATION

1. Install quantity ten RCT jumper lines (P07L3-9C978-A) as shown below. The RCT jumper line connects the OEM wiring harness to RCT injectors.
2. Secure the RCT jumpers to the OEM engine wiring harness using zip ties (20-403-0003) for each injector.



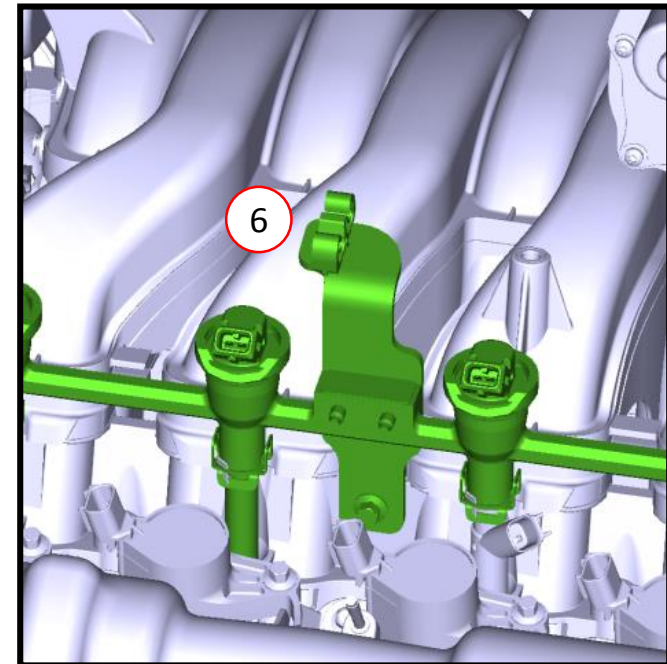
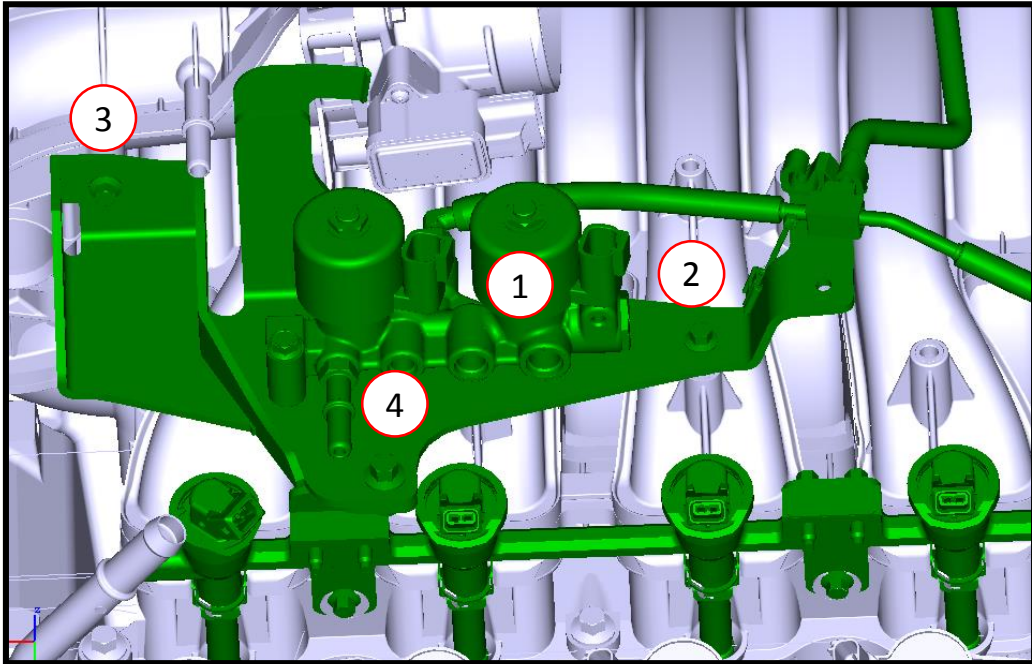
## PREPARING THE FUEL RAIL PRESSURE CONTROL MODULE (FRPCM)

1. Install a double snail clip (15-004175) in the front inboard hole of the FRPCM bracket (P16MB-10E201-A).
2. Install an edge clip zip tie (156-04600) on the FRPCM bracket as shown. This will be used to retain the VMV wiring branch later on.
3. Install the bleeder port (P16MB-10E215-A) on the FRPCM (P16MB-10E200-A) as shown below. Torque to 18-20 Nm.
4. Retain the FRPCM using Qty. 2 M6x1x40 flange head bolts and Qty. 2 M6 serrated nuts. Torque bolts to 8-12 Nm.
5. Thread the engine return line (P16MB-03D120-A) into the FRPCM as shown below. Hand tighten only.
6. Insert the return line into the dual snail clip on the FRPCM bracket as shown.



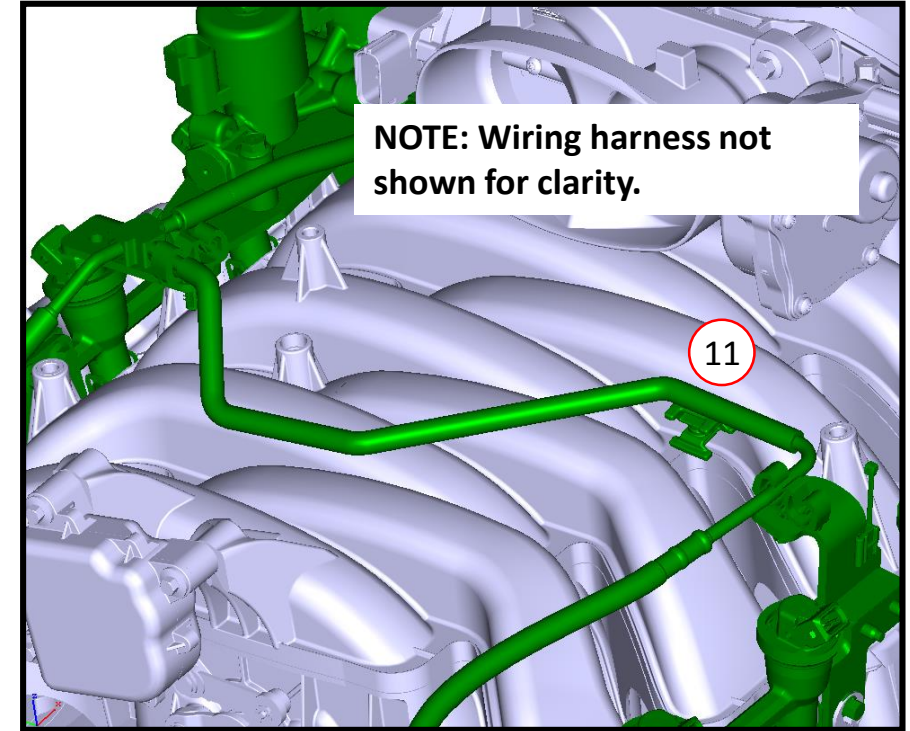
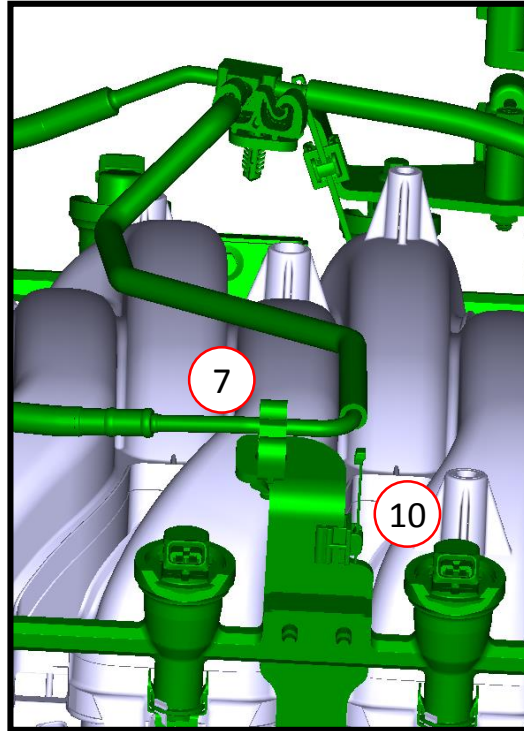
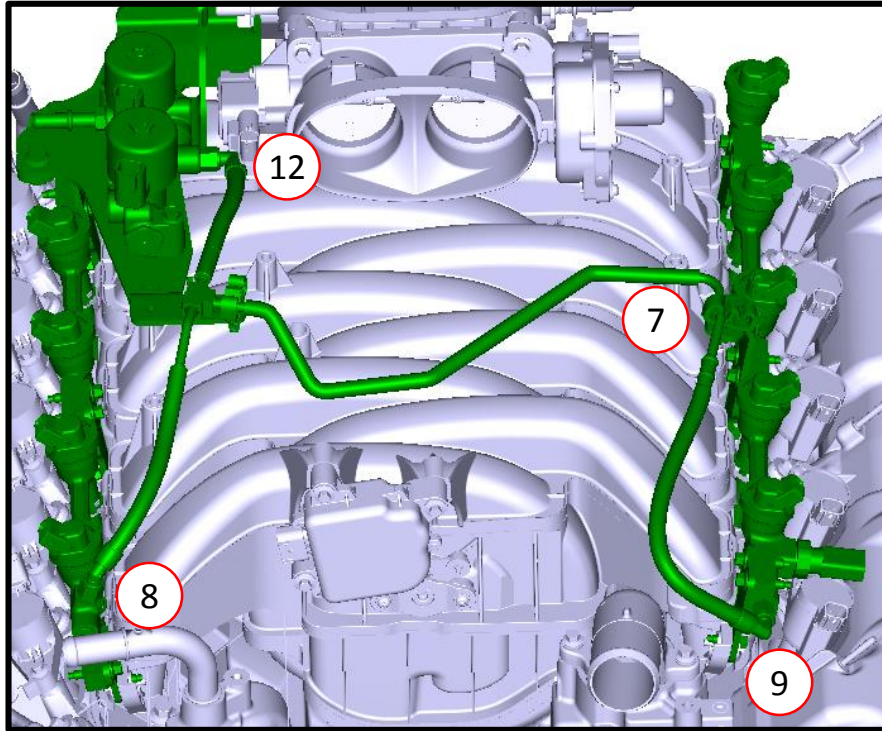
## INSTALLING THE FRPCM AND ENGINE RETURN LINE

1. Place FRPCM assembly on right hand side of engine as shown below.
2. Insert an M6x1x25 flange head bolt at the front at intake manifold and hand tighten.
3. Insert an M6x1x16 flange head bolt at the rear at throttle body spacer and hand tighten.
4. Insert an M8x1.25x20 flange head bolt at the side at the fuel rail mounting bracket and hand tighten.
5. Torque sequence for bolts:
  1. Location 2 per illustration torque to 8-12 Nm
  2. Location 3 per illustration torque rear bolt to 8-12 Nm
  3. Location 4 per illustration torque outboard bolt to 20-30 Nm.
6. Install a double snail clip (15-004175) onto the middle bracket on the left hand fuel rail assembly by threading it into the weld nut.



## INSTALLING THE FRPCM AND ENGINE RETURN LINE (CONTINUED)

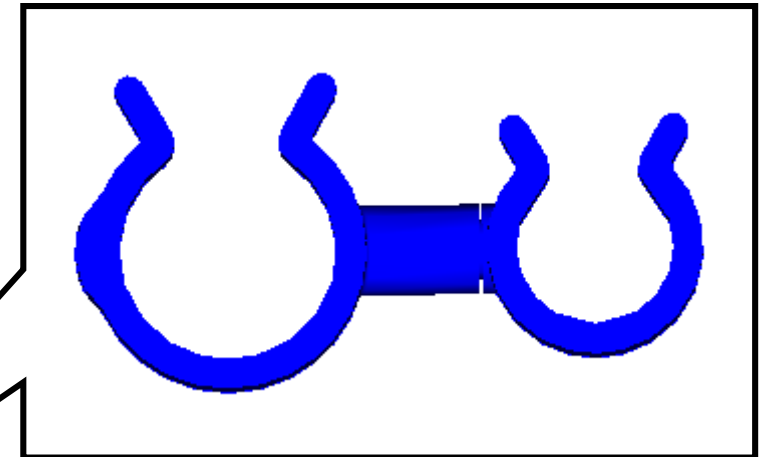
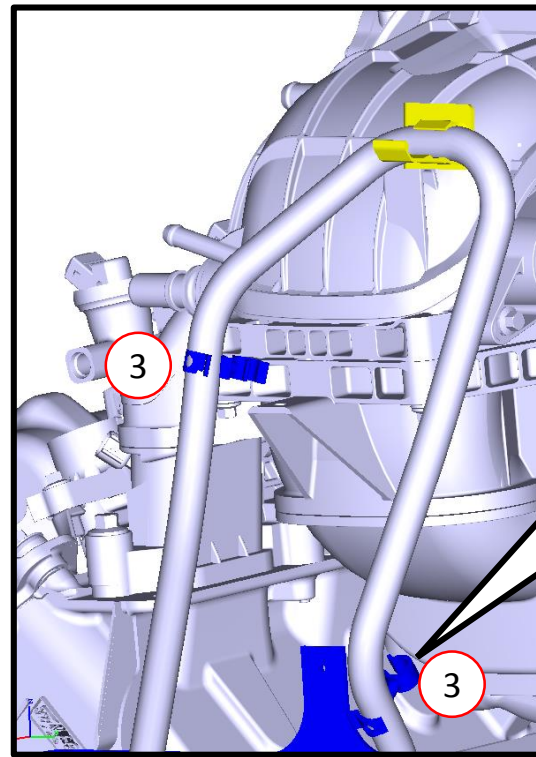
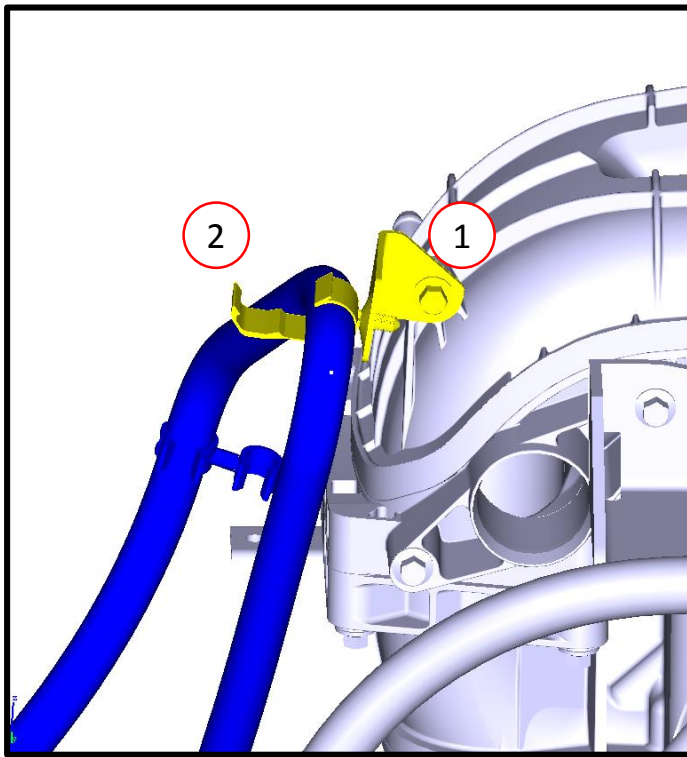
7. Insert the return line into the dual snail clip on the left hand rail assembly.
8. Hand tighten the engine return line fitting to the right hand rail. Torque to 18-20 Nm.
9. Hand tighten the engine return line fitting to the left hand rail. **Using a wrench to counterhold the fuel rail and a torque wrench with a crow's foot,** torque the return line fitting going to the left hand rail to 18-20 Nm.
10. Install an edge clip zip tie (156-04600) on the middle bracket on the right hand rail as shown. Retain engine harness to edge clip.
11. Install one dual saddle spacers (151-06500) on return line with zip ties (7130K48) as shown below. Zip tie the engine harness to the other side to maintain spacing between the engine return line and the engine harness.
12. Torque the return line fitting going to the FRPCM to 18-20 Nm.



## PREPARING FOR THE ENGINE SUPPLY LINE INSTALLATION

**NOTE: THESE STEPS ARE ONLY APPLICABLE IF THE TRANSMISSION HAS A LONG VENT HOSE COMING OFF OF IT AS SHOWN BELOW**

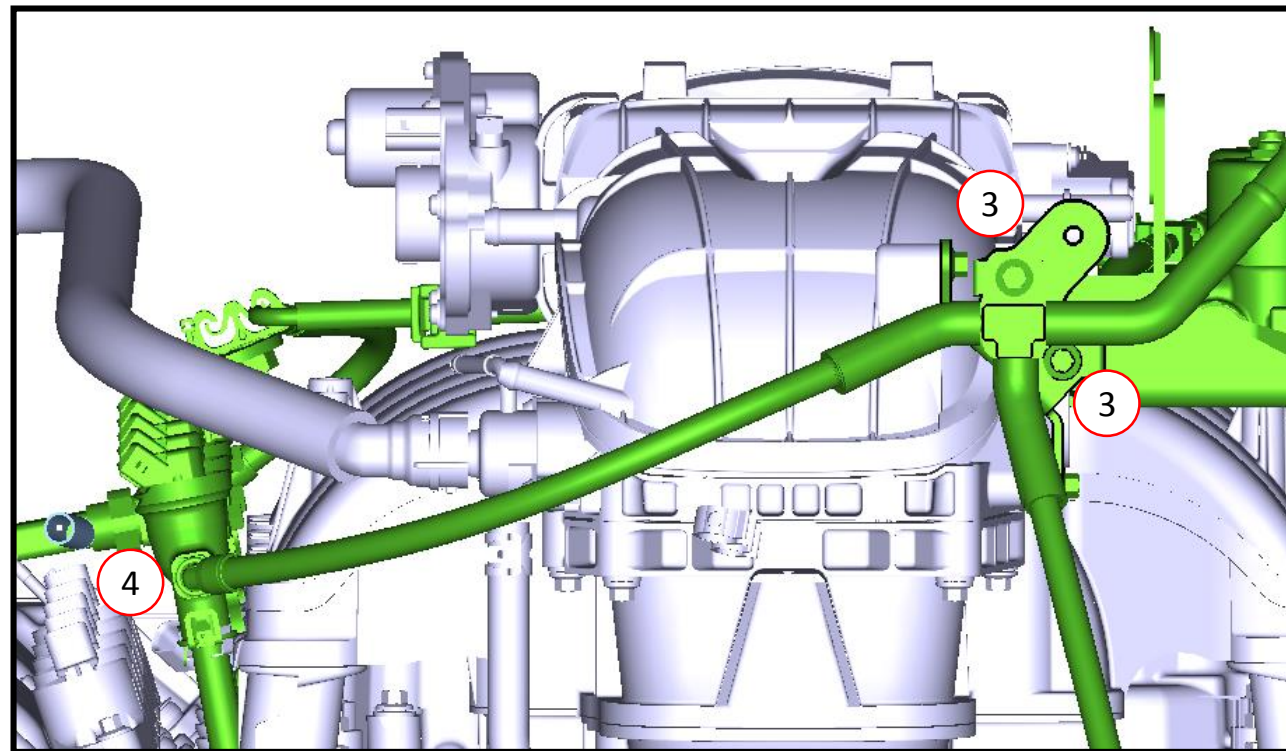
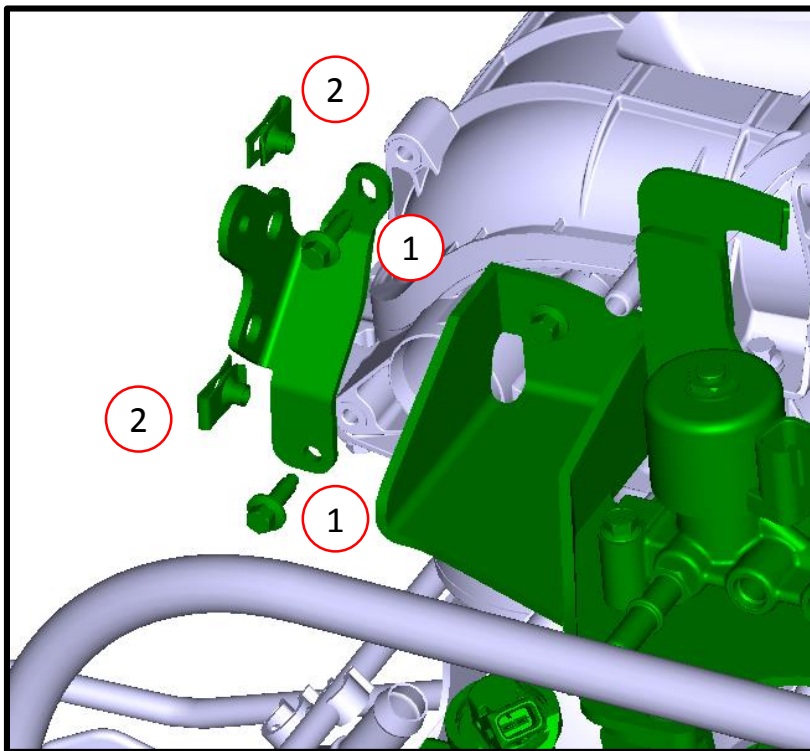
1. Remove and discard the M6 bolt that holds the transmission vent hose bracket to the throttle body spacer.
2. Detach the clip from the transmission vent hose and discard bracket and clip.
3. Keep the Qty. 2 plastic retention clips on the transmission vent line, they will be utilized later.





## INSTALLING THE ENGINE SUPPLY LINE

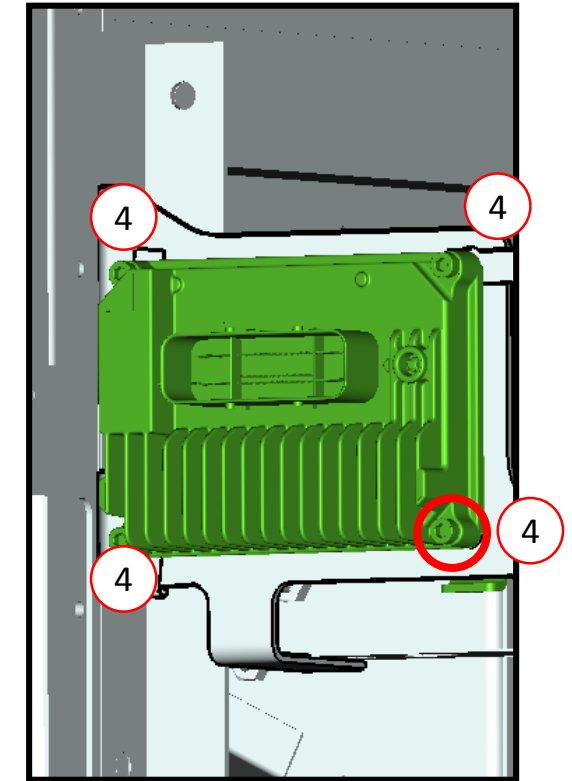
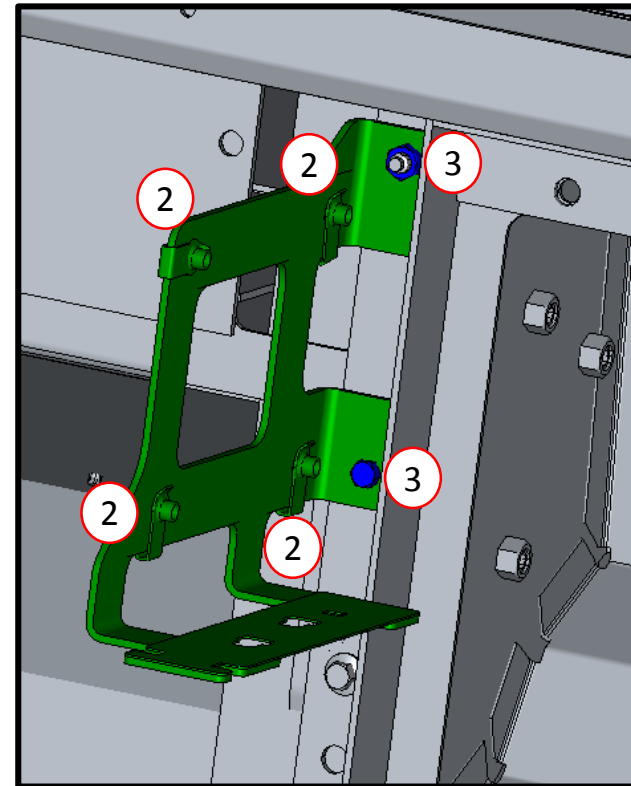
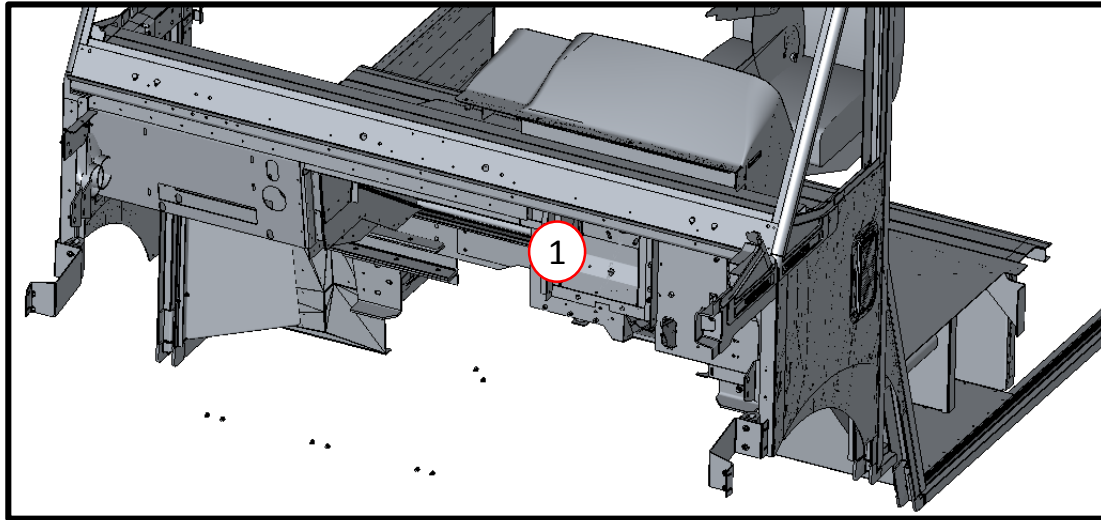
1. Attach bracket P16MB-10F100-B to the throttle body spacer using Qty. 2 M6x1x16 flange head bolts. Torque to 8-12 Nm.
2. Attach Qty. 2 J-clips W520822-S439 to the fuel line retention bracket.
3. Attach the engine supply line to the fuel line retention bracket using Qty. 2 M6x1x16 flange head bolts. Torque to 8-12 Nm.
4. Hand tighten the engine supply line to the left hand rail. **Using a wrench to counterhold the fuel rail and a torque wrench with a crow's foot**, torque the supply line fitting going to the left hand rail to 18-20 Nm.
5. **Leave the other two ends of the engine supply line disconnected.**



## INSTALLING THE SMART RELAY MODULE (SRM)

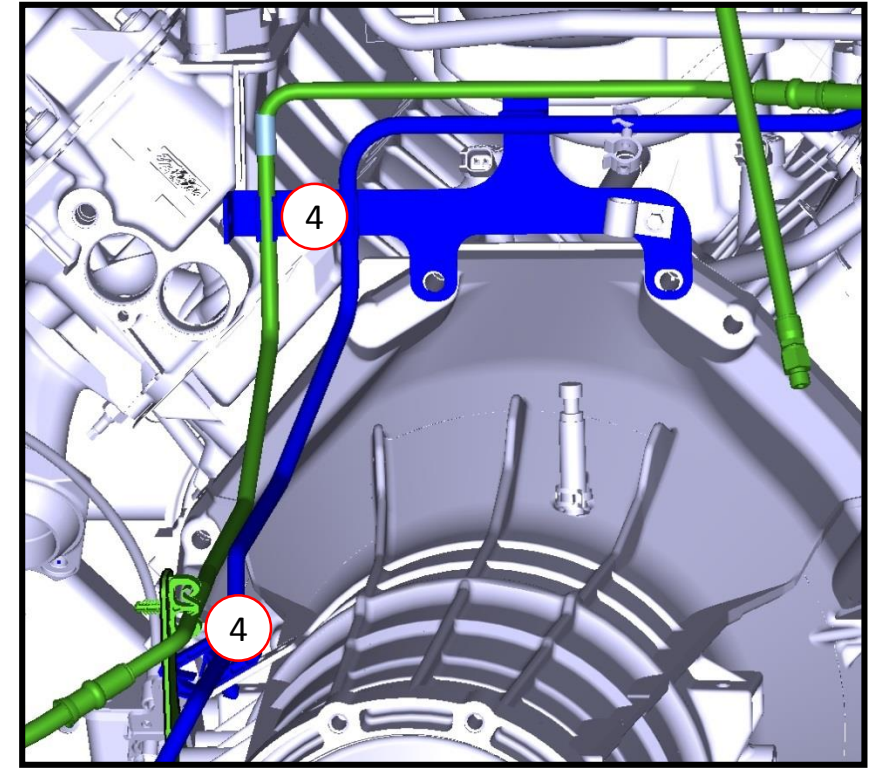
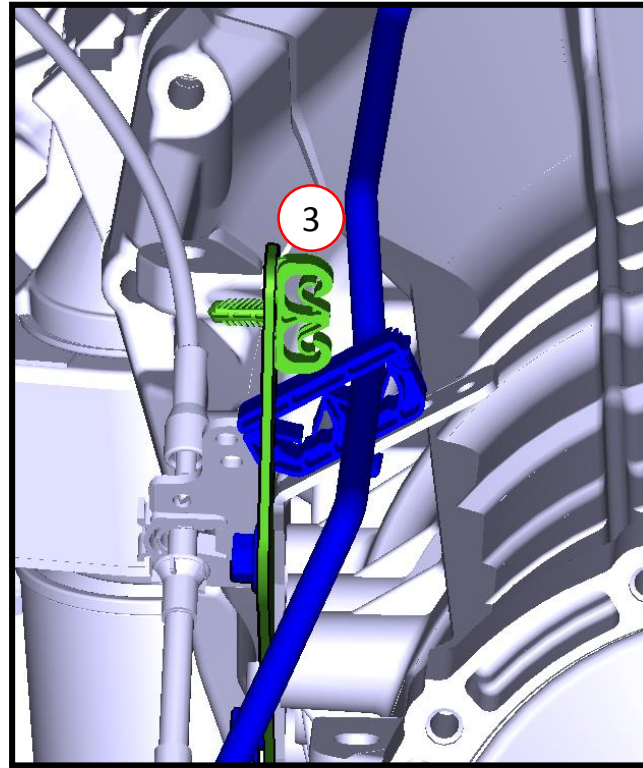
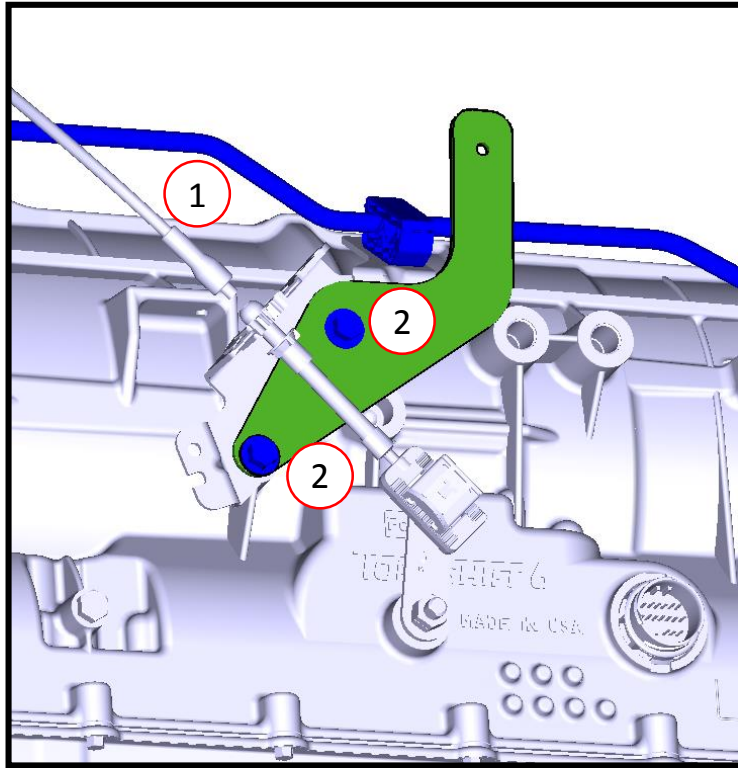
1. The SRM bracket installs onto the engine side of the bulkhead towards the drivers side.
2. Attach Qty. 3 J-clips (11-056-0043) to the SRM bracket (P16MB-03P211-A) as shown.
3. Attach SRM bracket to body as shown reusing the existing hardware. Torque the mounting hardware to 20-30 Nm.
4. Attach SRM (P16MB-03P240-A/B) to SRM bracket using Qty. 4 M6x1x35 socket bolts as shown. Torque to 5-7 Nm.

**Note: Grounding eyelet to SRM will be installed to the circled position shown below at a later step.**



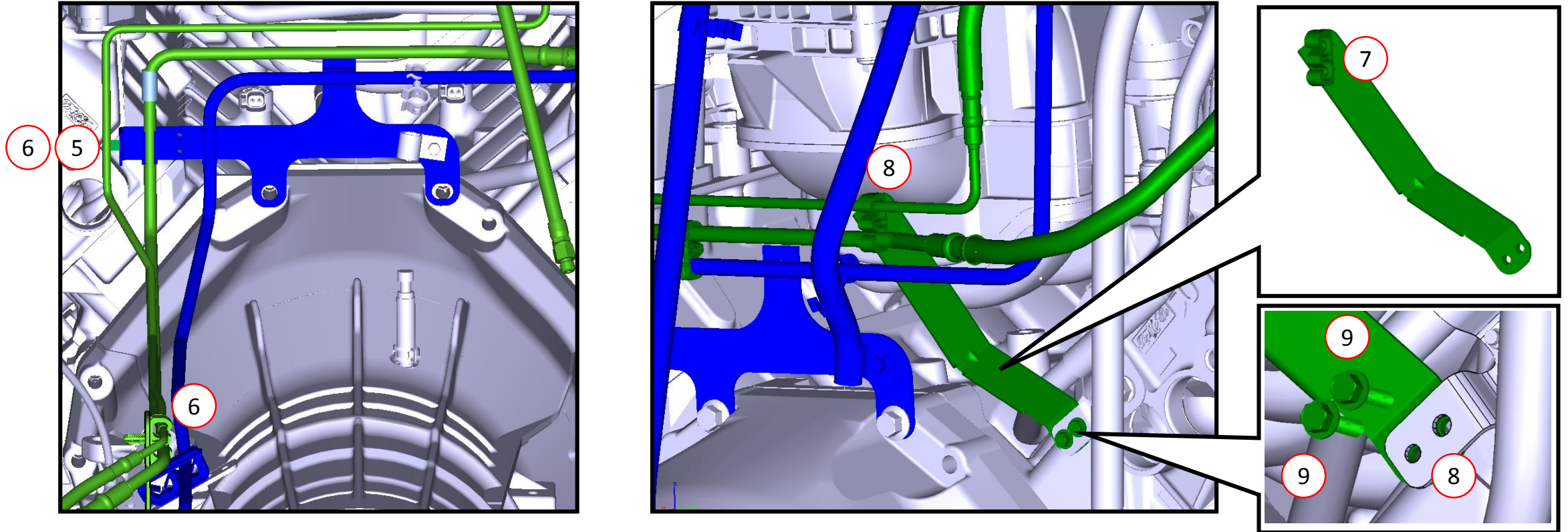
## INSTALLING THE FORWARD LINES

1. Follow Ford procedure *Ford Workshop Manual, Section 307-05, Powertrain, Automatic Transaxle/Transmission External Controls*, to make sure there is no tension on the shifter cable.
2. Remove OEM fasteners attaching the transmission shift cable bracket to the transmission. Attach fuel line retention bracket P16MB-10F100-D to the transmission as shown below reusing existing hardware. Torque bolts to 48 Nm.
3. Install a double snail clip (15-004175) on the fuel line retention bracket as shown.
4. Install the forward supply line (P16MB-10S110-A) as shown. Retain supply line into bottom hole on dual snail clip and into ford retention clip.



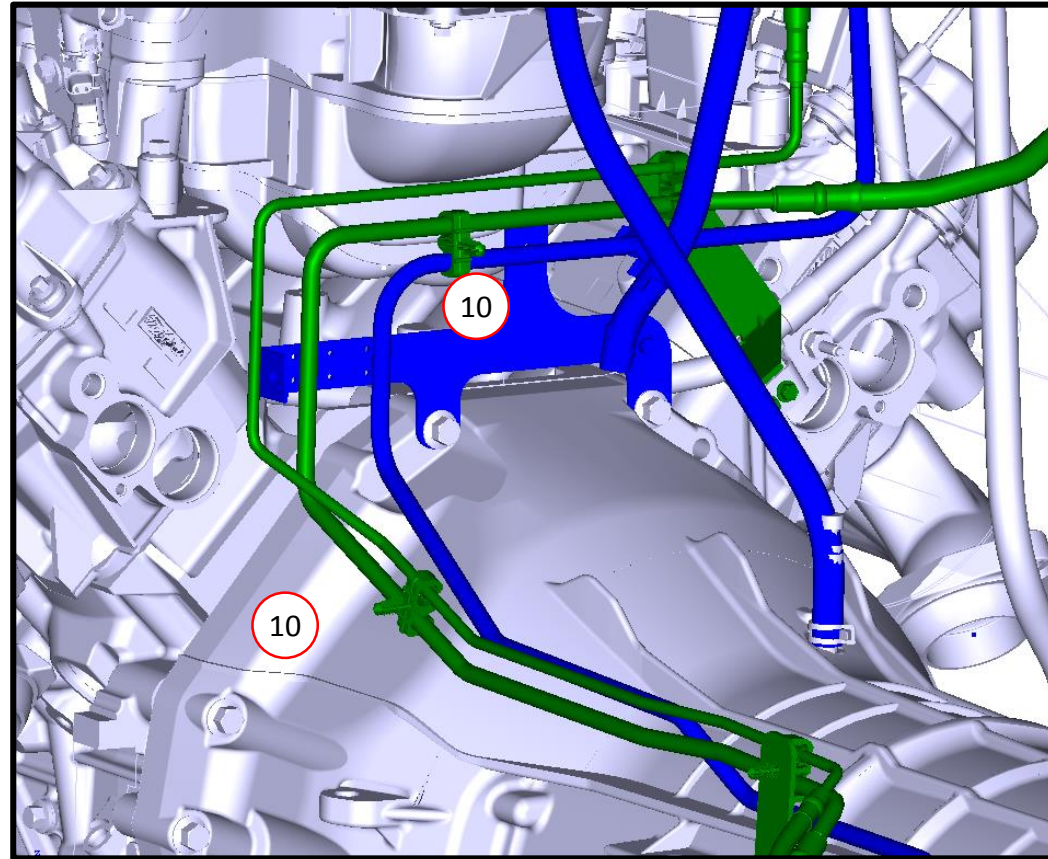
## INSTALLING THE FORWARD LINES (CONTINUED)

5. Install a push pin zip tie (155-05800) onto the Ford transmission bracket on the bent tab on the driver's side.
6. Install the forward return line (P16MB-10R110) as shown. Retain supply line into top hole on dual snail clip and secure push pin zip tie around return line.
7. Install Qty. 1 double snail clip (15-004175) into forward retention bracket (P16MB-10F100-E) as shown.
8. Attach the snail clip with the bracket to the supply and return line as shown. Slide the bracket to align the mounting holes with the heater tube bracket.
9. Attach using Qty. 2 M5x0.8x20 flange head bolts. Torque bolts to 5 – 7 Nm.



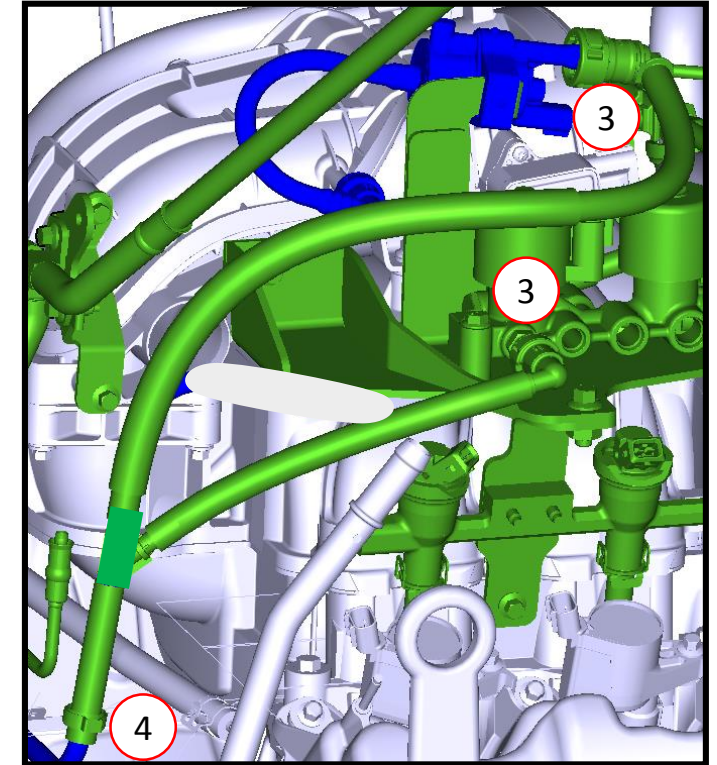
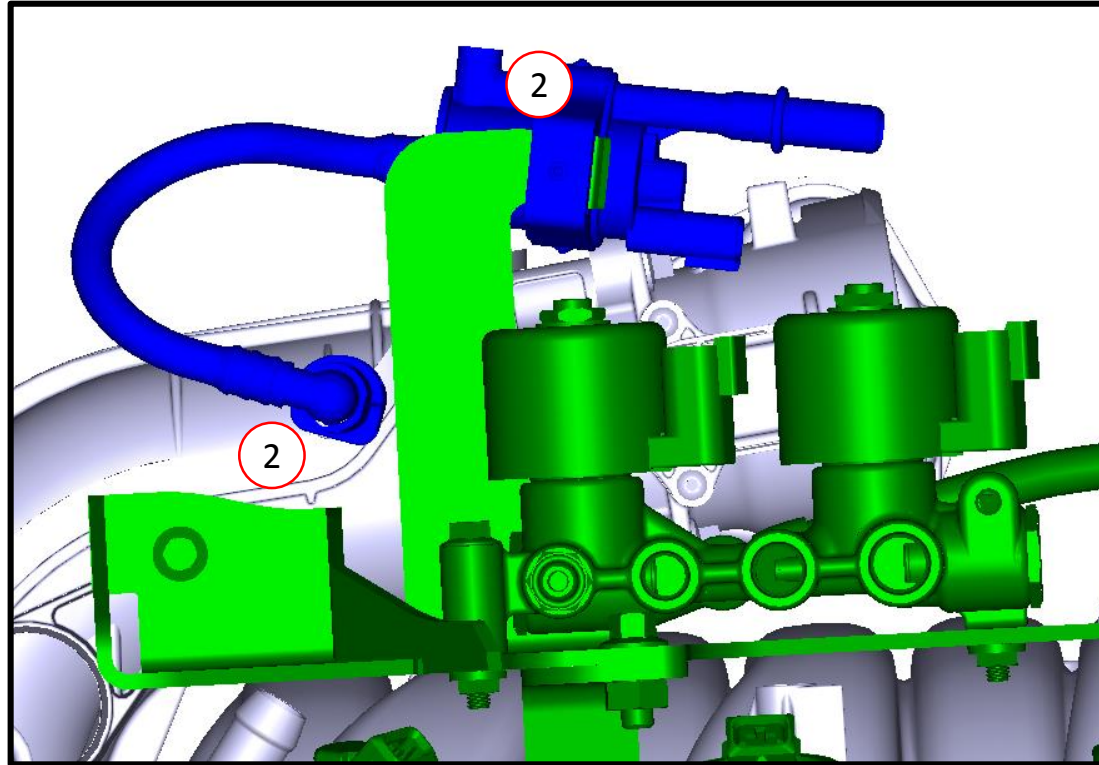
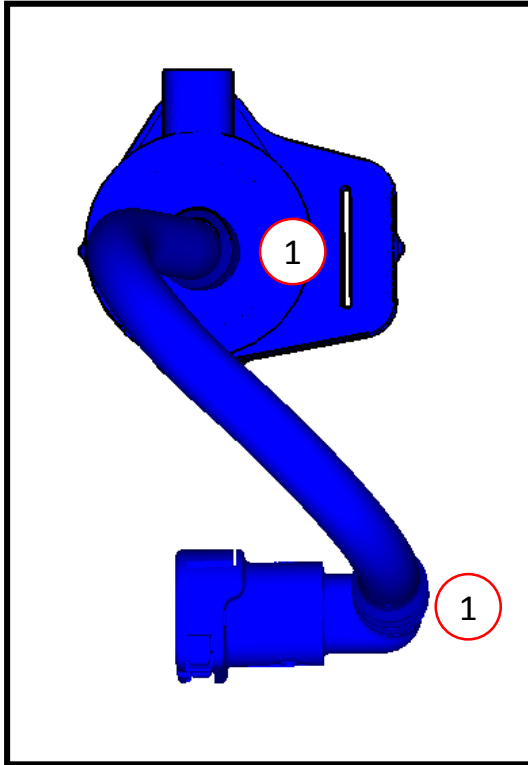
## INSTALLING THE FORWARD LINES (CONTINUED)

10. Install Qty. 2 double snail clips onto forward lines in locations shown below.
11. Snip the studs off of the floating snail clips.



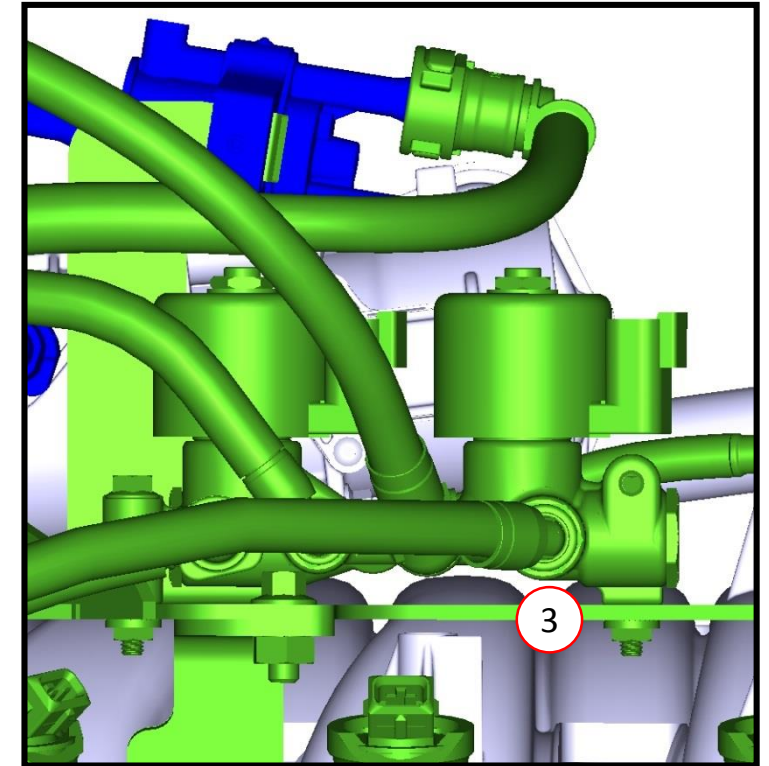
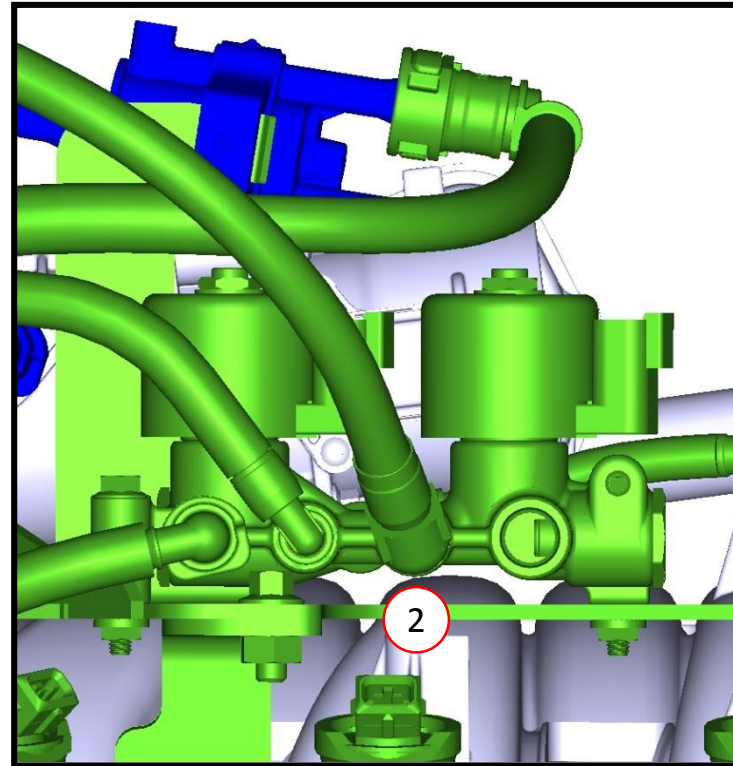
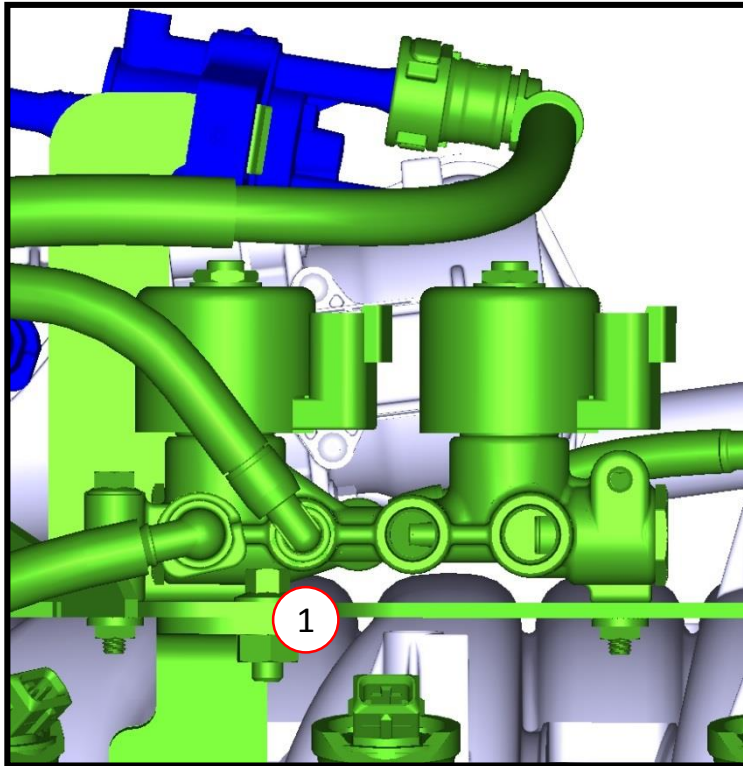
## INSTALLING THE VAPOR MANAGEMENT VALVE AND KIT

1. Rotate the flex line on the vapor management valve (VMV) and the quick connect fitting and orient the components as shown.
2. Connect the vapor management valve assembly to the throttle body spacer and slide the vapor management valve onto the FRPCM bracket as shown.
3. Connect the vapor hose assembly P16MB-03N100-A to the VMV and to the FRPCM as shown.
4. Slide the step-less ear clamp (16700019) onto the ford vapor line and then push the vapor hose assembly 1 inch onto the tube. Retain the hose to the tube with the clamp, refer to the *Special Tools* section for more information.



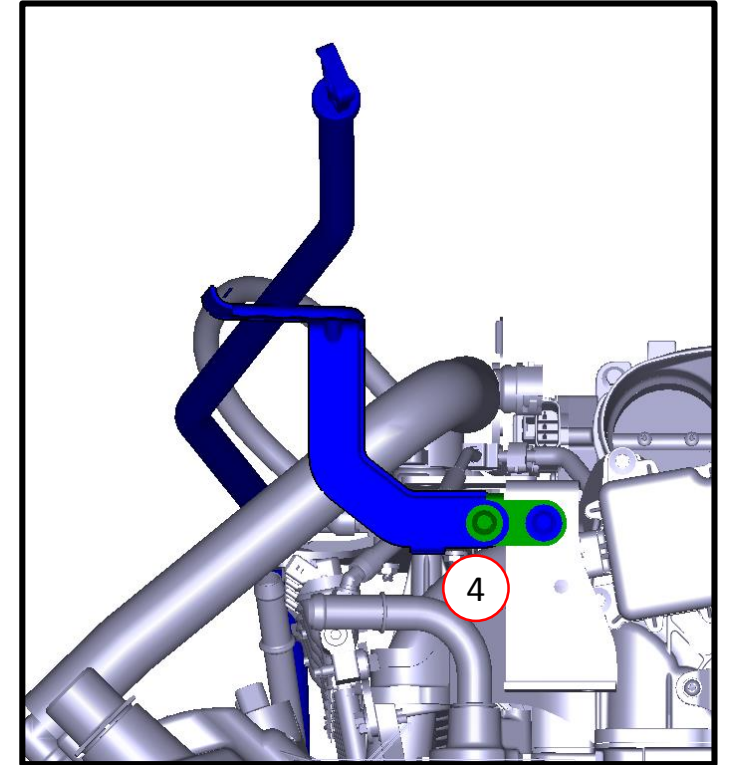
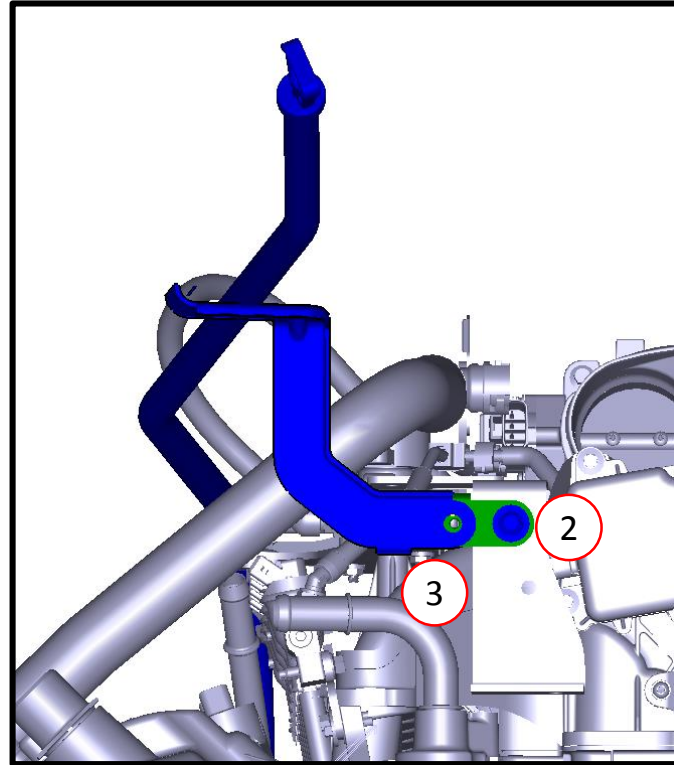
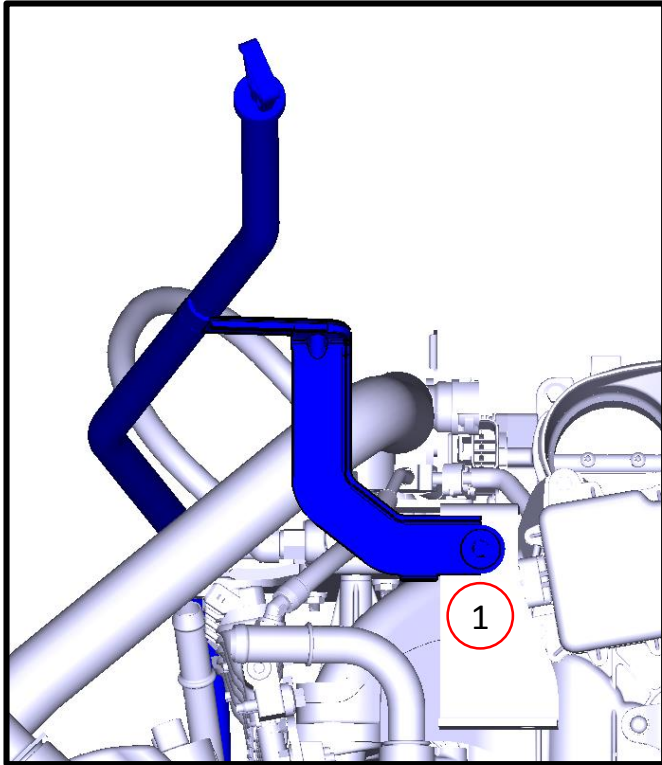
## CONNECTING THE FUEL LINES TO THE FRPCM

1. Connect the forward return line (P16MB-10R110-A) to the rear port on the FRPCM. **Note: The forward line should route over the engine supply line.** While retaining the line, torque the fitting to 18-20 Nm.
2. Connect the engine supply line (P16BB-03D110-A) to the middle port on the FRPCM. While retaining the line, torque the fitting to 23-26 Nm.
3. Connect the forward supply line (P16MB-10S110-A) to the forward port on the FRPCM. While retaining the line, torque the fitting to 29-33 Nm.



## Trans Dip stick bracket Installation

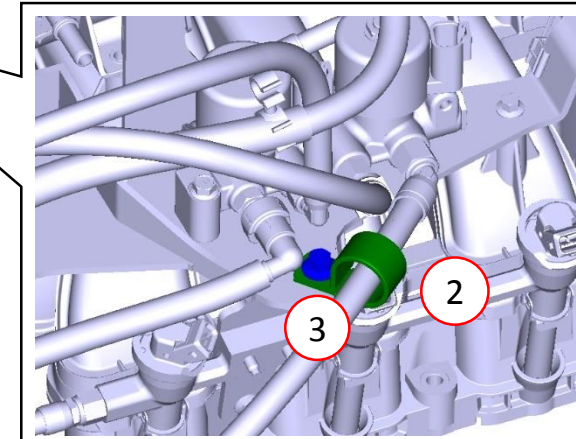
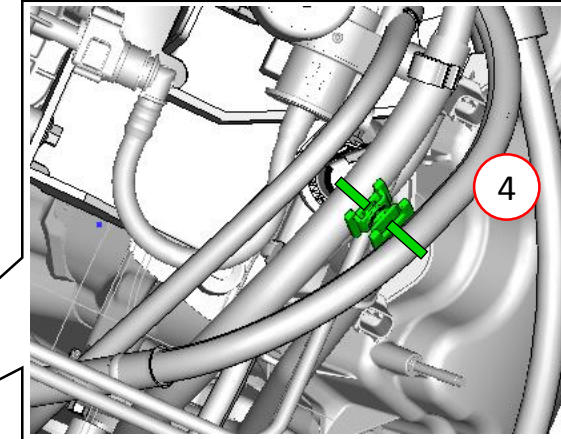
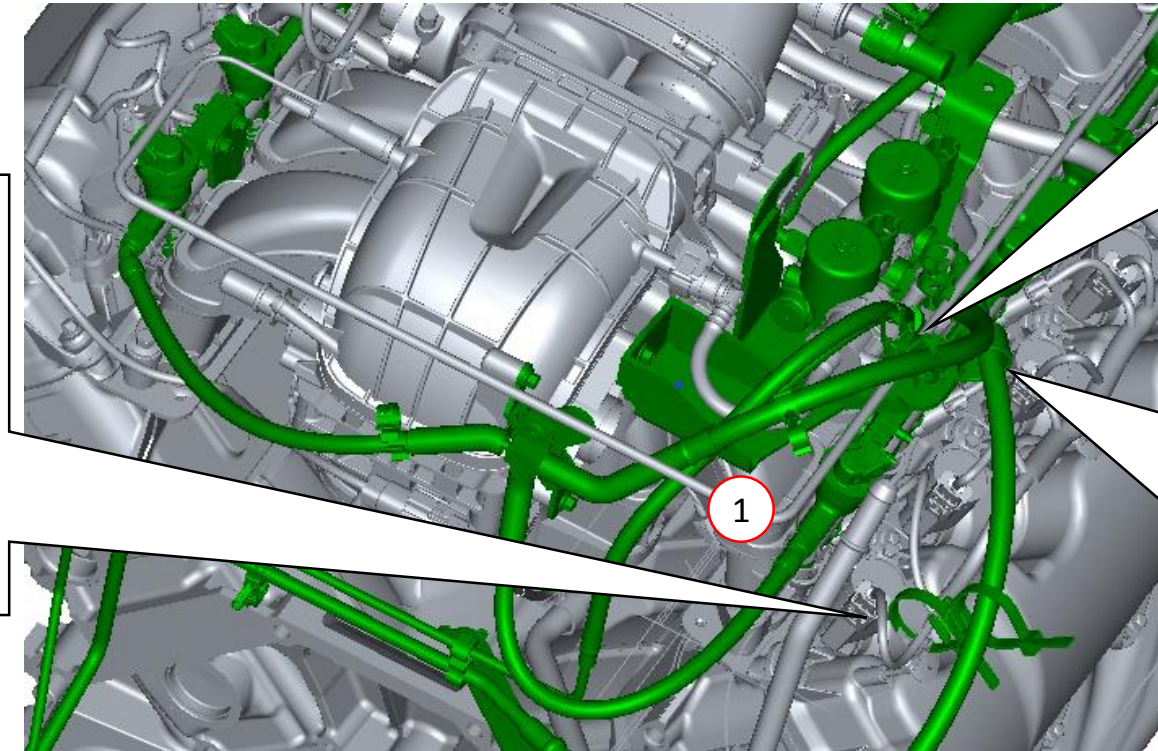
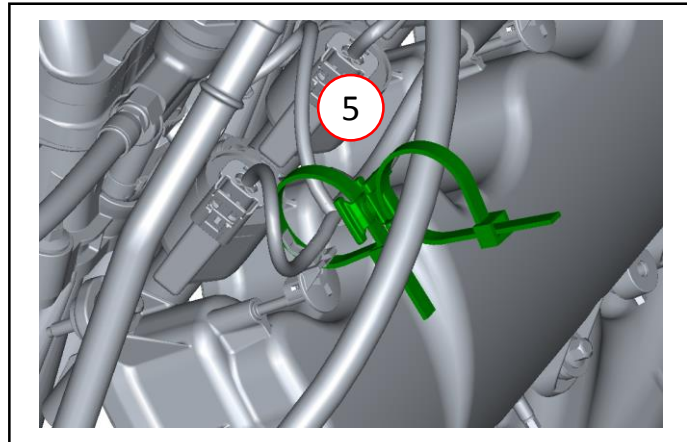
1. Remove M6 bolt holding transmission dip stick tube bracket at the front of the engine.
2. Attach the ROUSH dip stick tube bracket (P16MB-03B001-A) reusing the Ford bolt. Torque to 8 – 12 Nm.
3. Align the existing hole in the dip stick tube retention bracket with the weld nut on the ROUSH dip stick tube bracket.
4. Retain the transmission dip stick tube bracket to the ROUSH bracket using Qty. 1 an M6x1x16 flange head bolt.





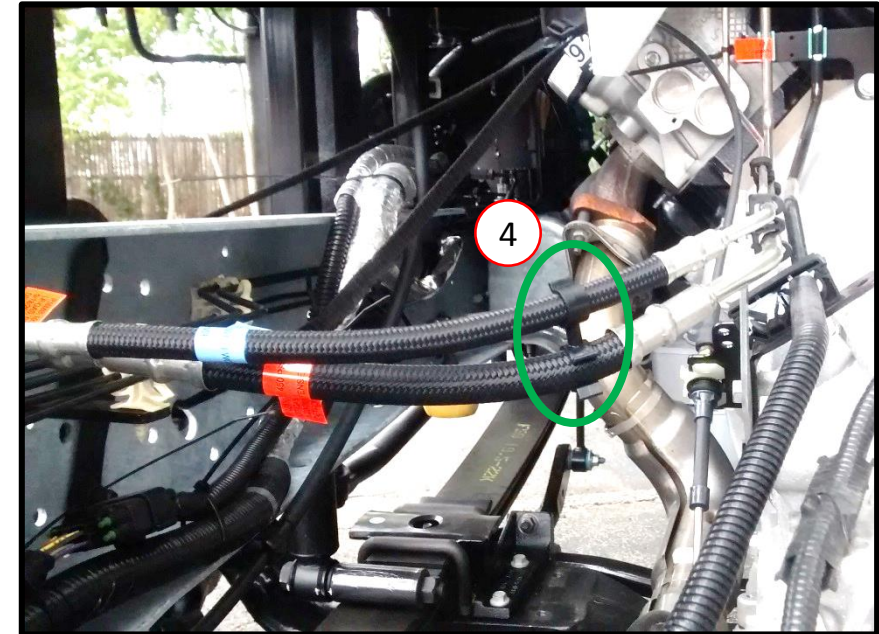
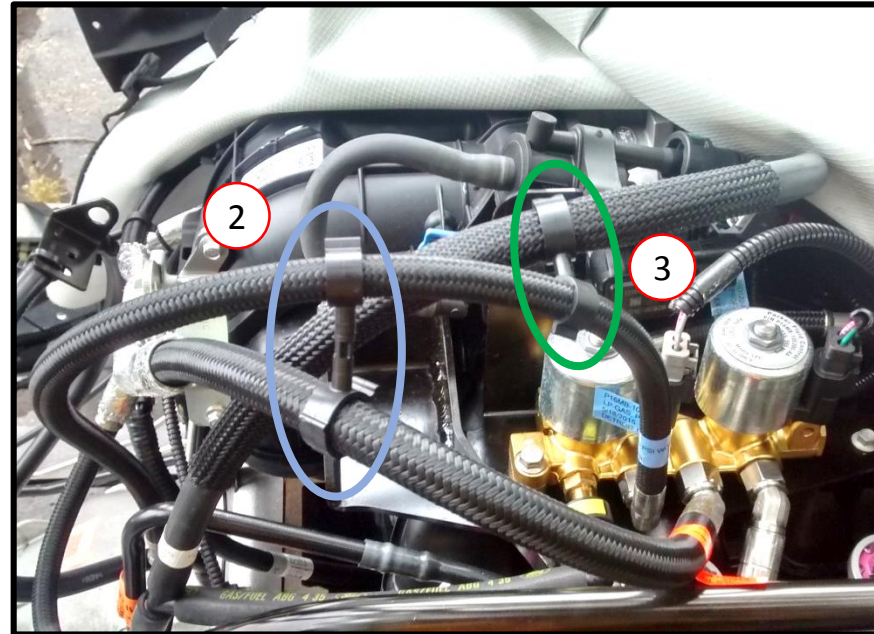
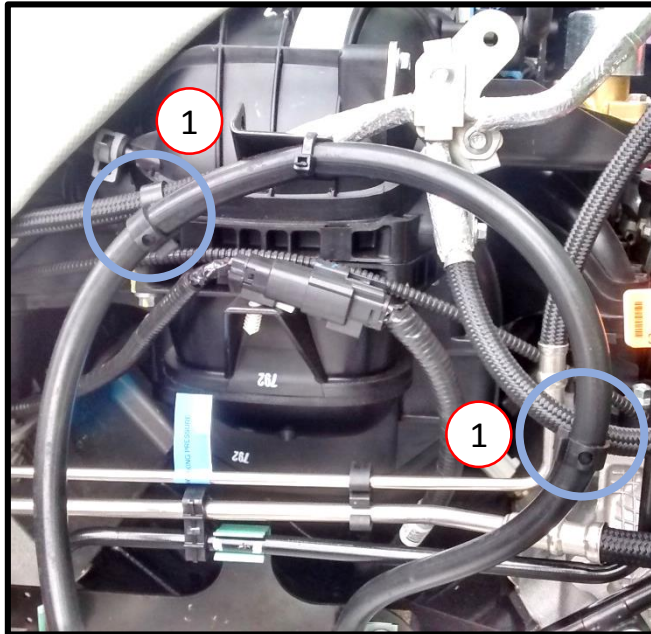
## CONNECTING AND TORQUING THE REMAINING LINES

1. Connect the engine supply line to the right hand rail. **Using a wrench to counterhold the fuel rail and torque wrench with a crow's foot** torque the fitting to 18-20 Nm.
2. Use 3/4" P-Clip (11-056-0041) to retain forward line to FRPCM bracket as shown below.
3. Torque bolt to 20 – 30 Nm.
4. Retain the engine supply line to the vapor line using two zip ties and a dual swivel spacer (151-06500).
5. Retain forward supply line to engine harness using two zip ties and a dual swivel spacer (151-06500).



## INSTALLING RETENTION C-CLIPS

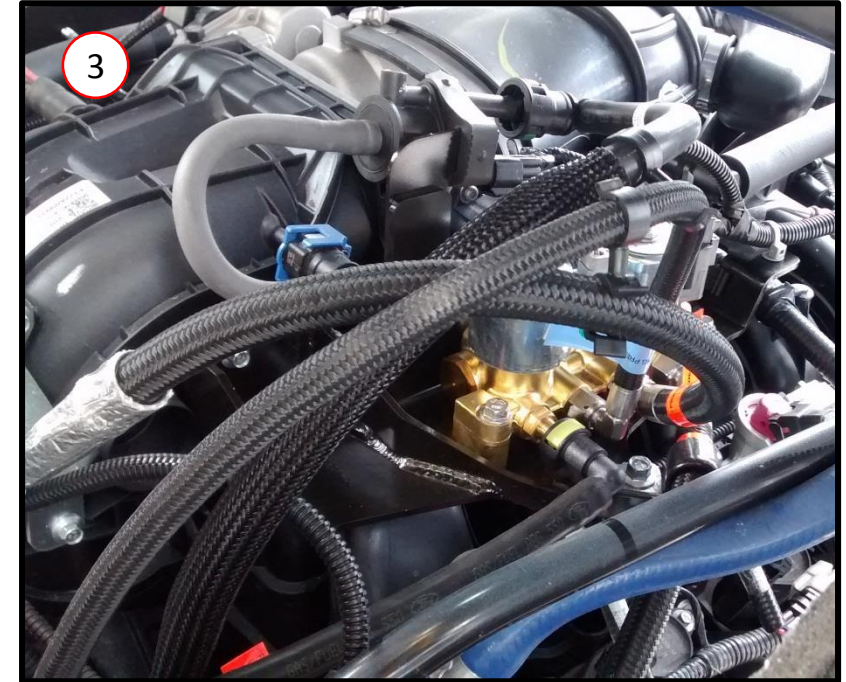
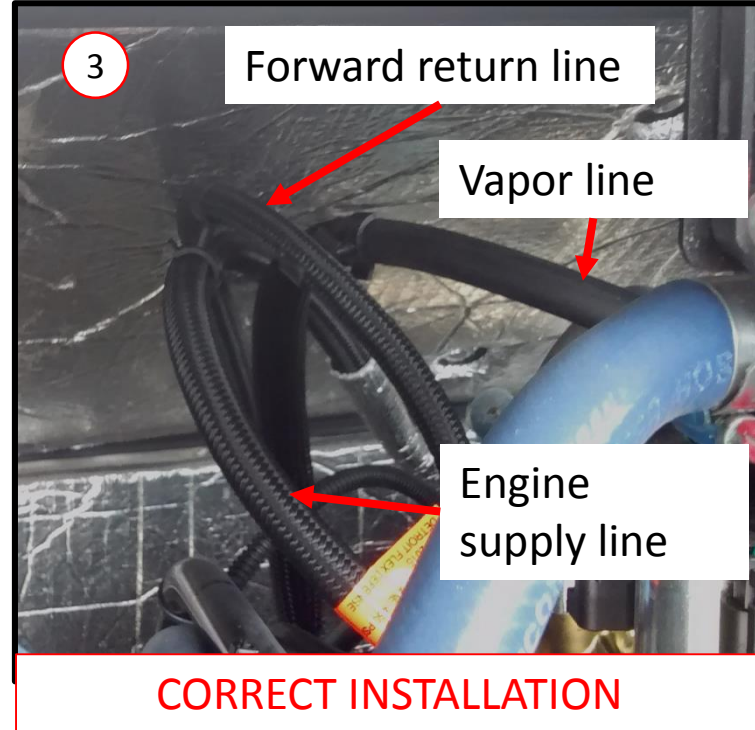
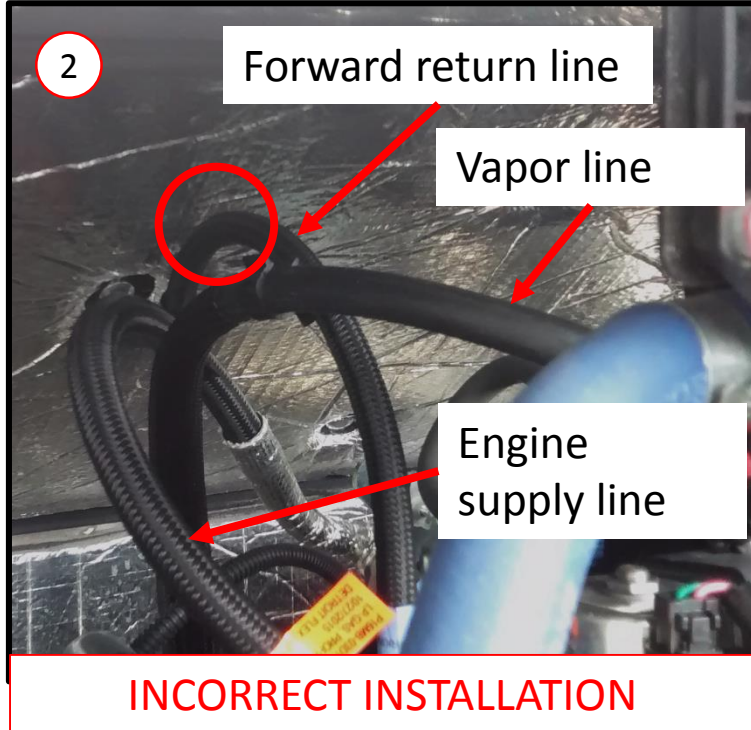
1. Relocate the two plastic retention clips on the transmission vent line so that they retain the transmission vent line to the engine supply line as shown.
2. Relocate the plastic retention clip that was saved from the vapor line near the rear of the transmission and use it to retain the forward return line to the engine supply line as shown.
3. Use a new plastic retention clip (W713776-S300) provided in the kit to retain the vapor line to the forward return line as shown.
4. Use a new plastic retention clip (W713776-S300) provided in the kit to retain the flexible portion of the forward fuel lines to each other near the rear of the transmission as shown.



## CHECKING THE ENGINE COMPARTMENT

**Note:** These instructions are only applicable for vehicles with forward return line part number P16MB-10R130-AA.

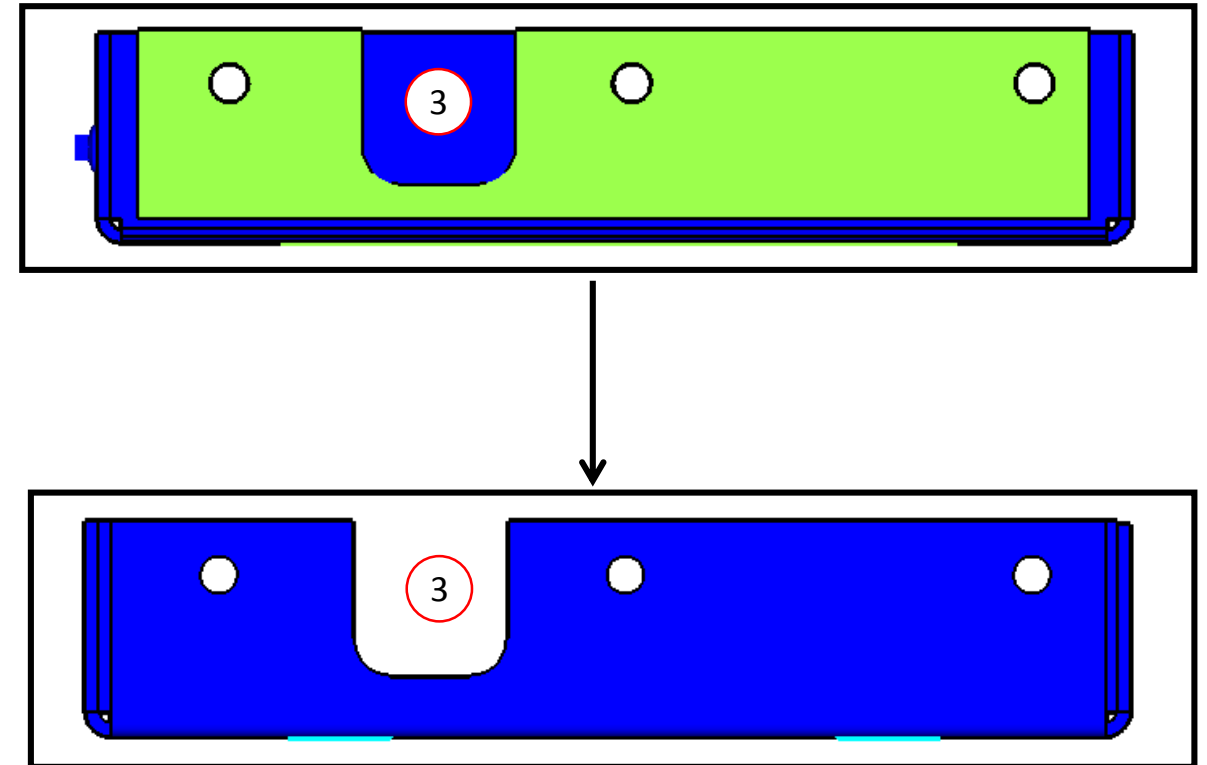
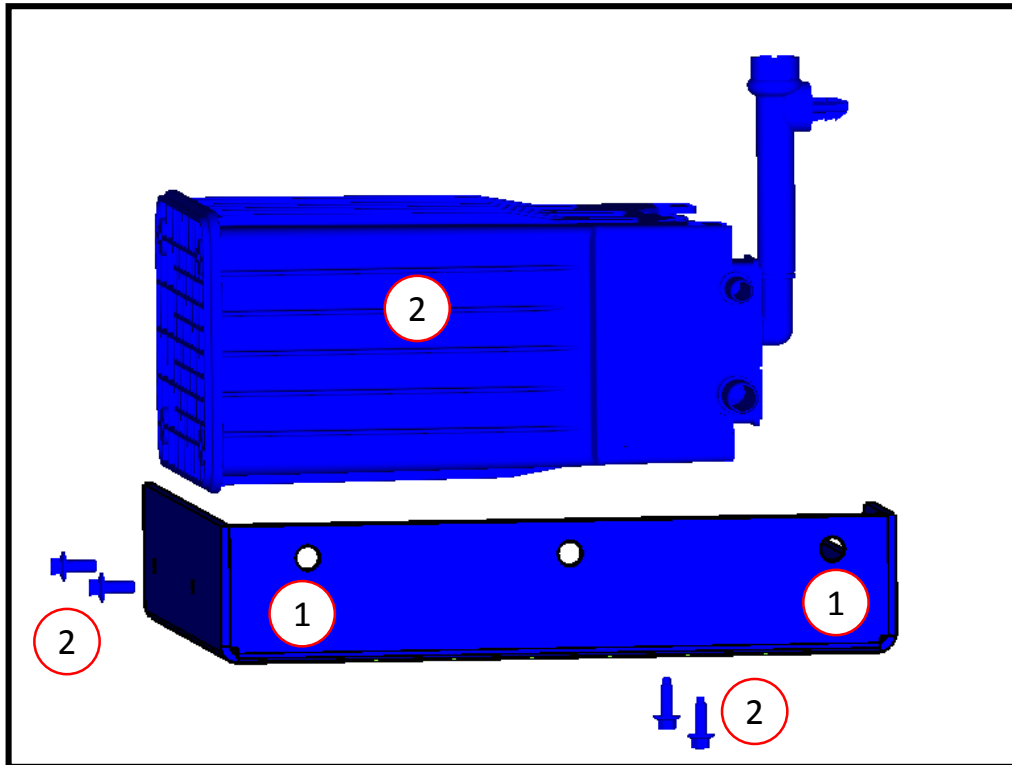
1. Put the dog house cover back on the vehicle and look to make sure that there are no interferences between the forward return line and the dog house.
2. The first image below shows an incorrect installation. The forward return line is touching the dog house in the circled area and the vapor line is on the outboard side of the forward return line.
3. The second and third images show correct installation. The forward return line has good clearance to the dog house and the vapor line is on the inboard side of the forward return line. Notice that the clip retaining the forward return line and engine supply line is far forward to hold the return line down.



## MODIFYING THE VAPOR CANISTER BRACKET

**NOTE: THESE STEPS ARE FOR 178" WHEEL BASE VEHICLES ONLY. IF YOUR VEHICLE IS NOT A 178" WHEEL BASE VEHICLE PLEASE SKIP TO THE NEXT PAGE.**

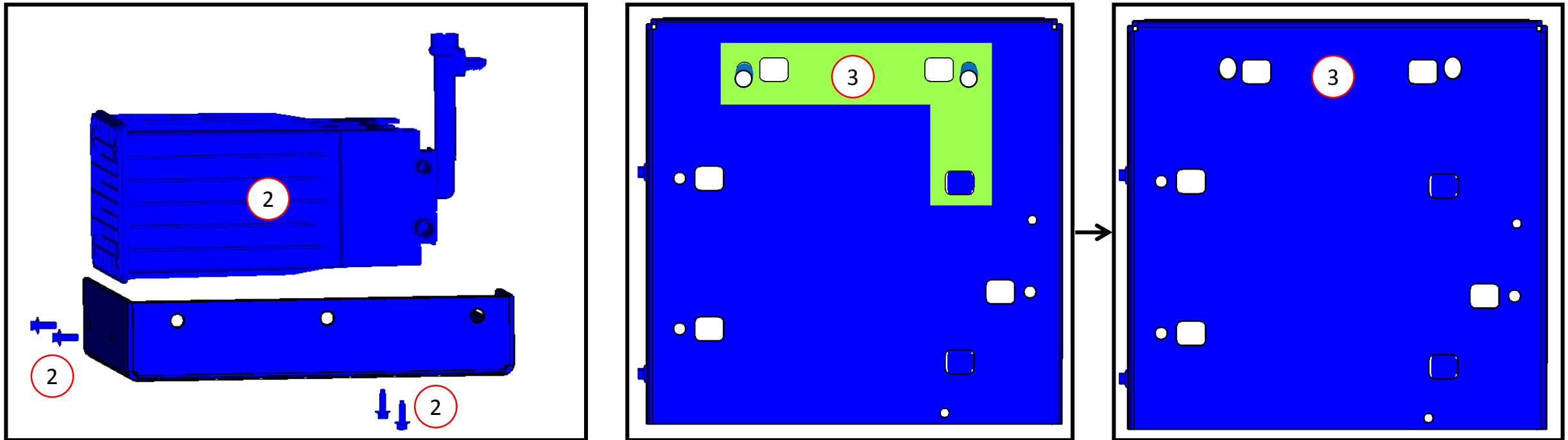
1. Remove the two J-clips on the top flange of the vapor canister bracket.
2. Remove the vapor canister from the vapor canister bracket.
3. Align the supplied template (P16MB-01F201-AA) to mark and cut out the rectangular area shown below using an air powered reciprocating saw or equivalent tool to modify the bracket. Follow the directions printed on the template. Refer to the *Special Tools* section for more information.
4. Deburr material and paint bracket. Refer to the *Special Tools* section for more information.



## MODIFYING THE VAPOR CANISTER BRACKET

**NOTE: THESE STEPS ARE FOR 168" AND 178" WHEELBASE VEHICLES ONLY. IF YOUR VEHICLE IS NOT A 168" OR A 178" WHEEL BASE VEHICLE PLEASE SKIP TO THE NEXT PAGE.**

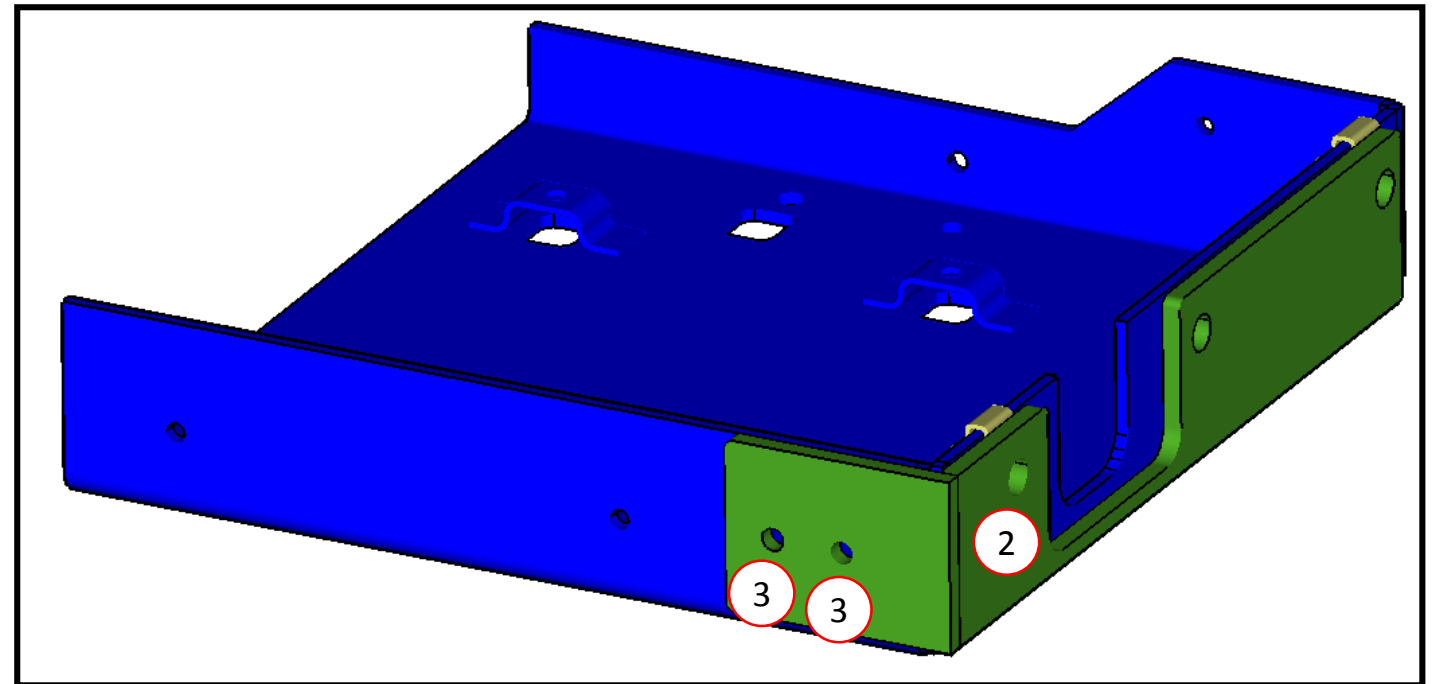
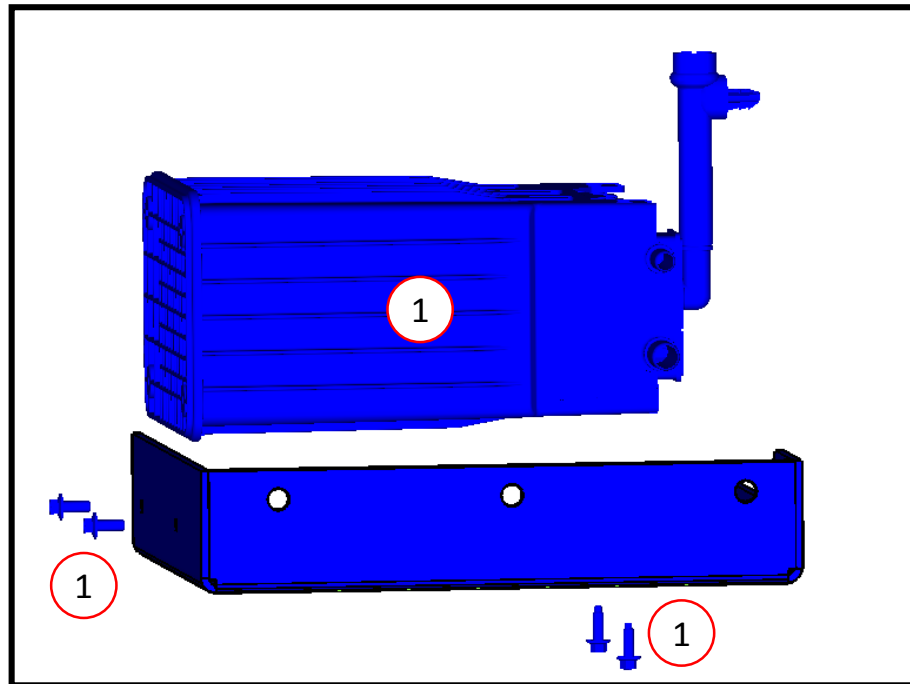
1. Remove the two J-clips on the bottom of the vapor canister bracket.
2. Remove the vapor canister from the vapor canister bracket.
3. Align the supplied template (P16MB-01F201-B) to mark and cut out the bolt holes shown below using a die grinder with a deburring bit or an equivalent appropriate tool. Follow the directions printed on the template. Refer to the *Special Tools* section for more information.
4. Deburr material and paint bracket. Refer to the *Special Tools* section for more information.



## MODIFYING THE VAPOR CANISTER BRACKET

**NOTE: THESE STEPS ARE FOR 168" AND 178" WHEELBASE VEHICLES ONLY. IF YOUR VEHICLE IS NOT A 168" OR A 178" WHEEL BASE VEHICLE PLEASE SKIP TO THE NEXT PAGE.**

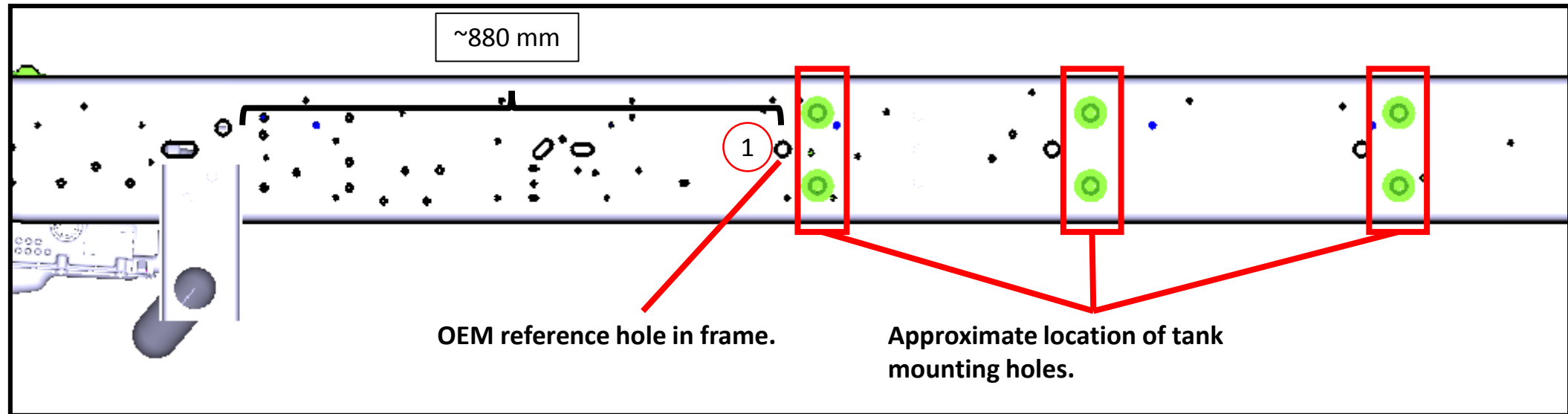
1. Remove the vapor canister from the vapor canister bracket.
2. Align the spacer plate bracket (P16MB-10E305-B) to the vapor canister as shown below.
3. Mark the two holes on the side with a center punch or marking gauge.
4. Drill the two holes using a 7 mm. drill bit. Deburr and paint the holes. Refer to the *Special Tools* section for more information.
5. Re-install all four j-clips onto the vapor canister bracket.
6. Re-install the vapor canister onto the vapor canister bracket.



## DRILLING THE FRAME FOR MOUNTING THE TANK

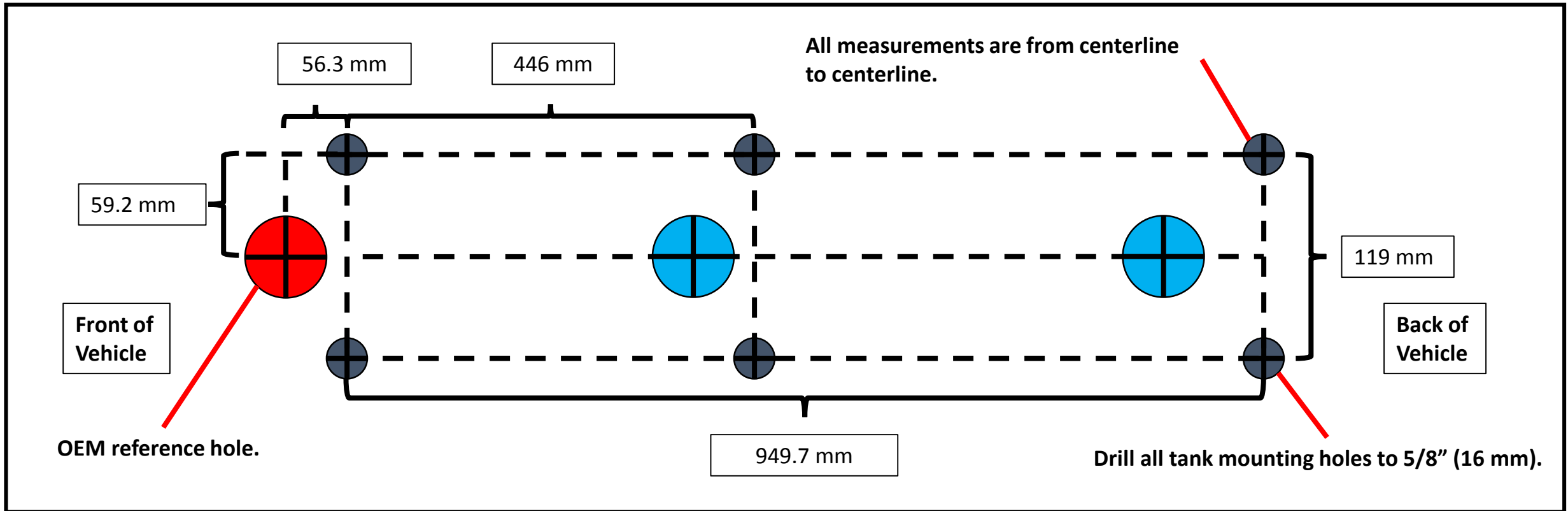
**NOTE: YOU MAY FIND THAT YOUR VEHICLE ALREADY HAS THE HOLES DETAILED IN THIS PAGE IN WHICH CASE YOU CAN SKIP THIS PAGE AND THE NEXT.**

1. Locate the OEM reference hole in the frame. It is found approximately 880 mm. behind the transmission cross member.
2. Align the supplied template (P16MB-01F250-A) or measure from the center of the OEM preexisting hole to determine the center of the drilling locations for the tank mounting fasteners.



## DRILLING THE FRAME FOR MOUNTING THE TANK (CONTINUED)

3. Mark the measured locations using a center punch or marking gauge.
4. Drill small pilot holes in each of the six (6) fuel tank mounting locations using a 1/8" drill bit.
5. Using a step bit or gradually increasing bit size, drill all tank mounting holes to 5/8" (16 mm).
6. Deburr and coat all bare metal using a premium undercoating. Refer to the *Special Tools* section.

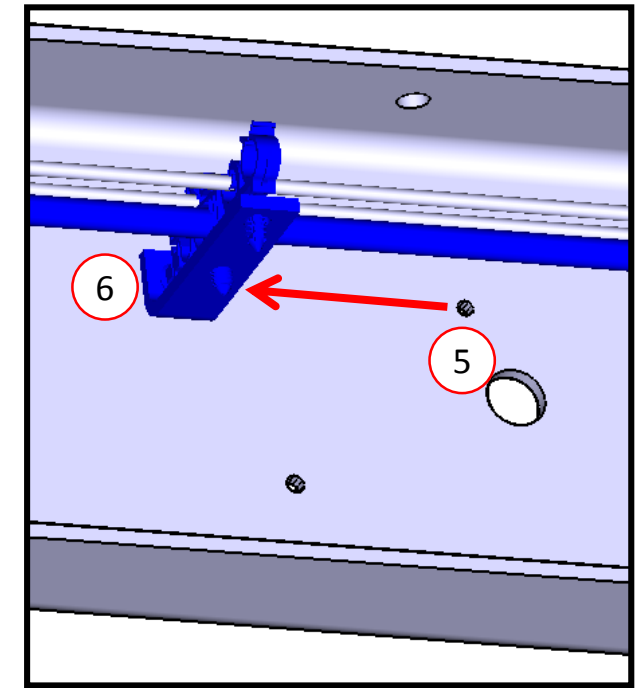
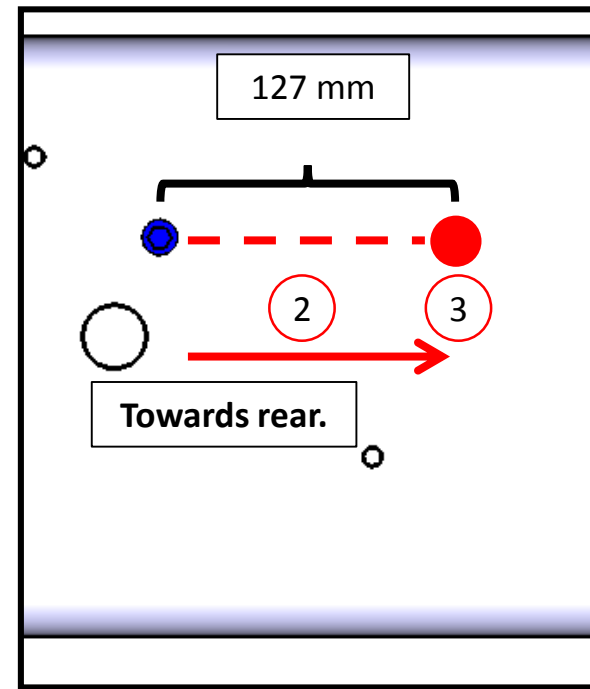
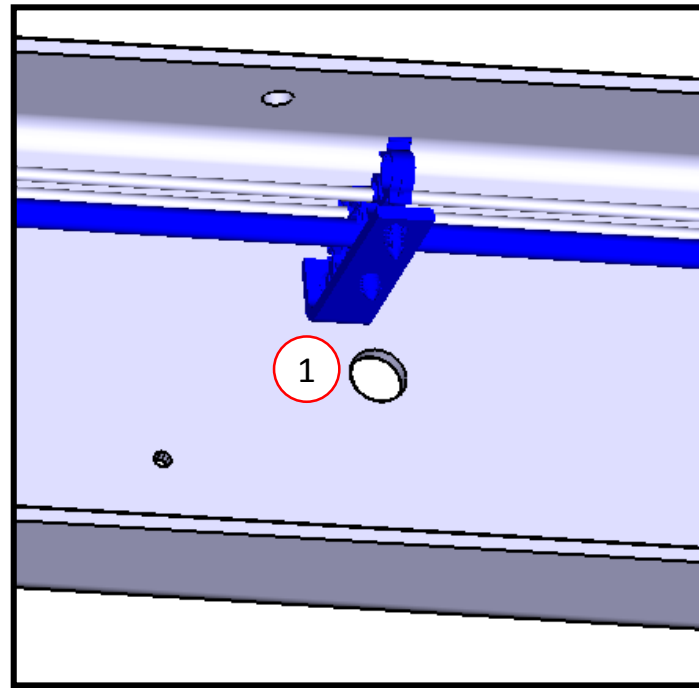




## DRILLING ADDITIONAL HOLES

**NOTE: THESE STEPS ARE FOR 208" WHEELBASE VEHICLES ONLY. YOU MAY FIND THAT YOUR VEHICLE ALREADY HAS THE HOLES DETAILED IN THIS PAGE IN WHICH CASE YOU CAN SKIP THIS PAGE AND THE NEXT.**

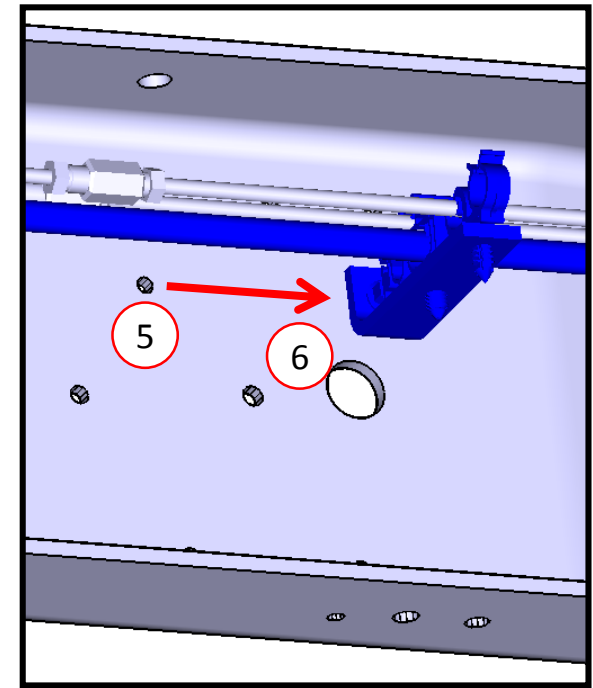
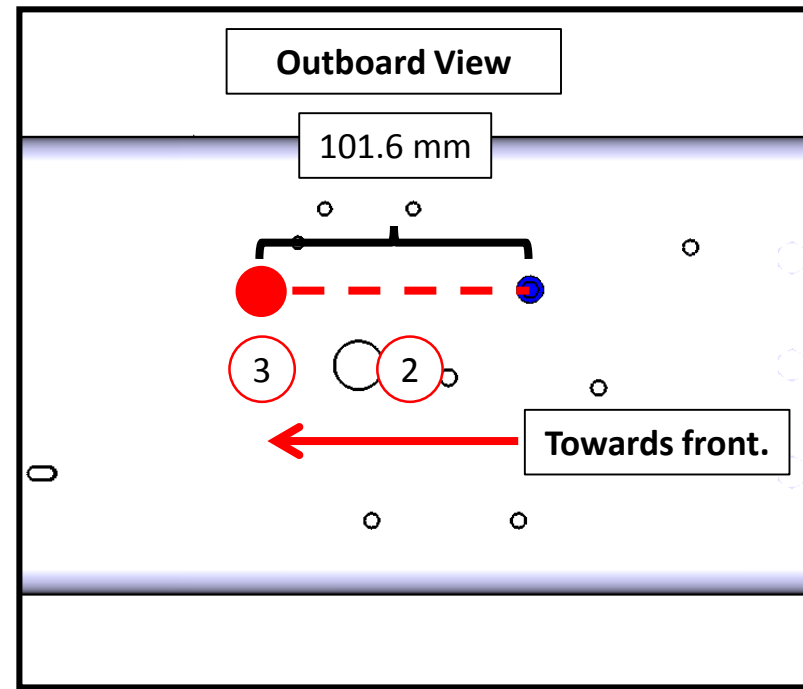
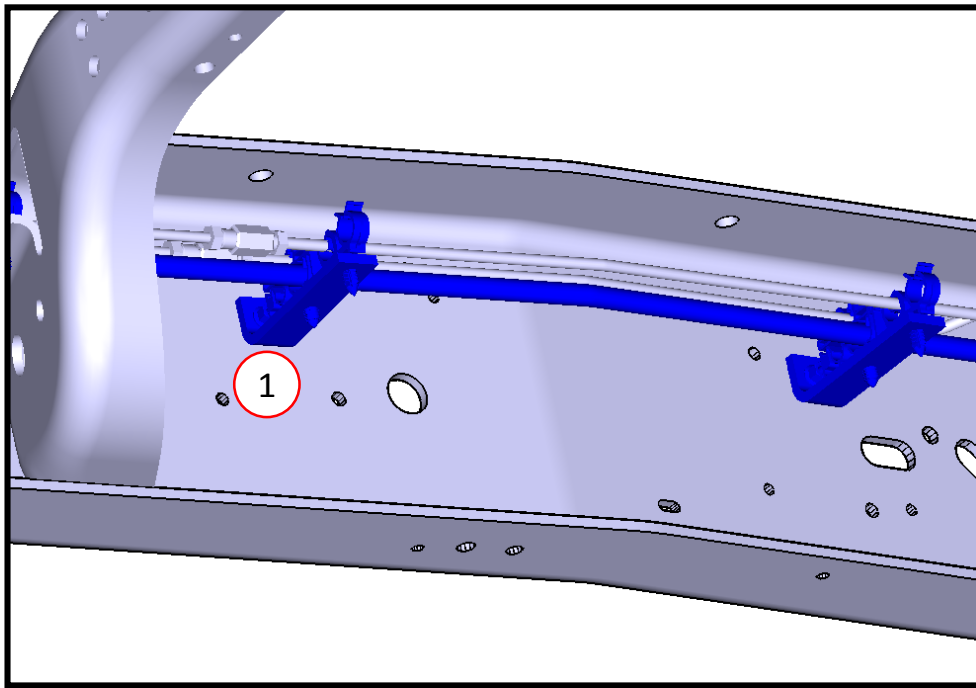
1. Locate the OEM fuel line retention bracket closest to the rear of the new fuel tank mounting holes.
2. On the outside of the frame, measure and mark a point 127 mm (5 in) towards the rear of the fuel line retention bracket bolt.
3. Drill a hole through the marked point using a 9/32" (7 mm) drill bit.
4. Deburr and coat all bare metal using a premium undercoating. Refer to the *Special Tools* section.
5. Remove the bolt and nut from the OEM fuel line retention bracket but leave the bracket on the lines.
6. Slide the bracket back and attach it to the new hole using the same hardware. Torque to 8-12 Nm.



## DRILLING ADDITIONAL HOLES

**NOTE: YOU MAY FIND THAT YOUR VEHICLE ALREADY HAS THE HOLES DETAILED IN THIS PAGE IN WHICH CASE YOU CAN SKIP TO THE NEXT PAGE.**

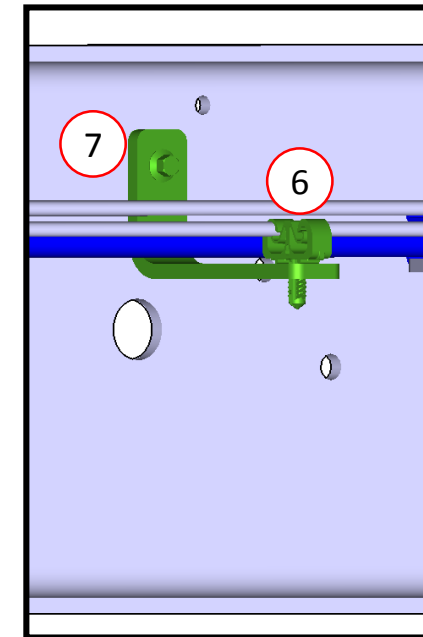
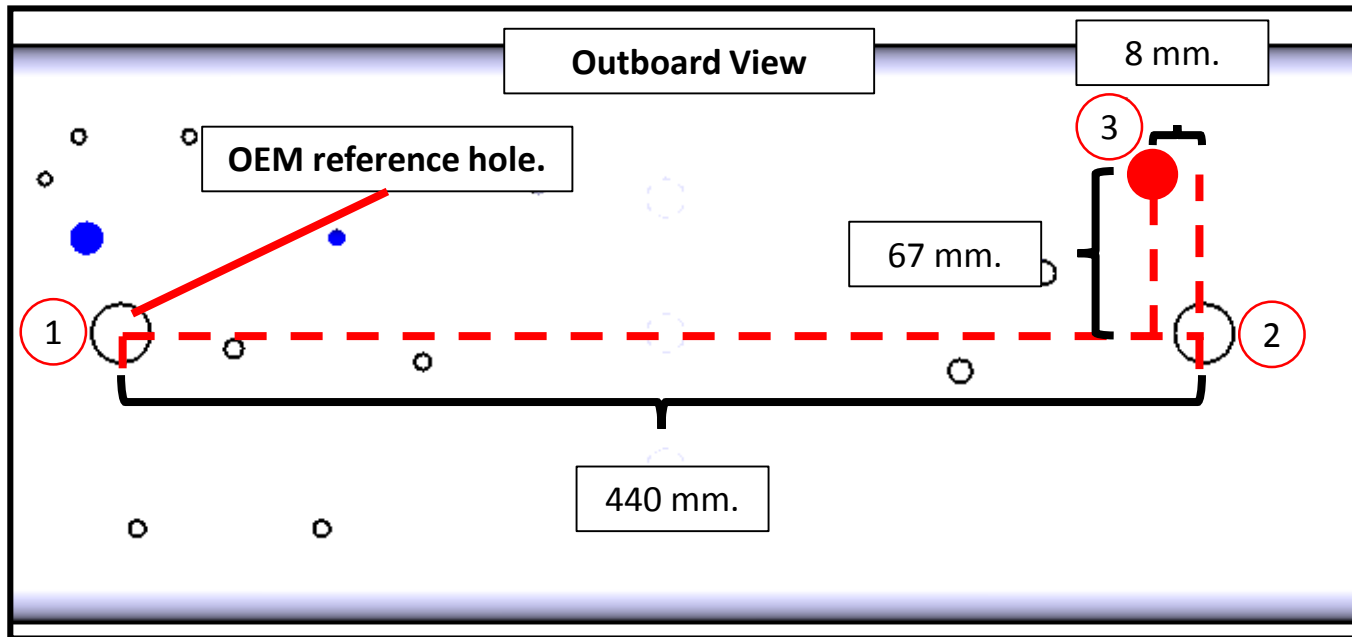
1. Locate the OEM fuel line retention bracket closest to the front tank mounting holes.
2. On the outside of the frame, measure and mark a point 101.6 mm (4 in) towards the front of the fuel line retention bracket bolt.
3. Drill a hole through the marked point using a 9/32" (7 mm) drill bit.
4. Deburr and coat all bare metal using a premium undercoating. Refer to the *Special Tools* section.
5. Remove the bolt and nut from the OEM fuel line retention bracket but leave the bracket on the lines.
6. Slide the bracket forward and attach it to the new hole using the same hardware. Torque to 8-12 Nm.



## DRILLING ADDITIONAL HOLES

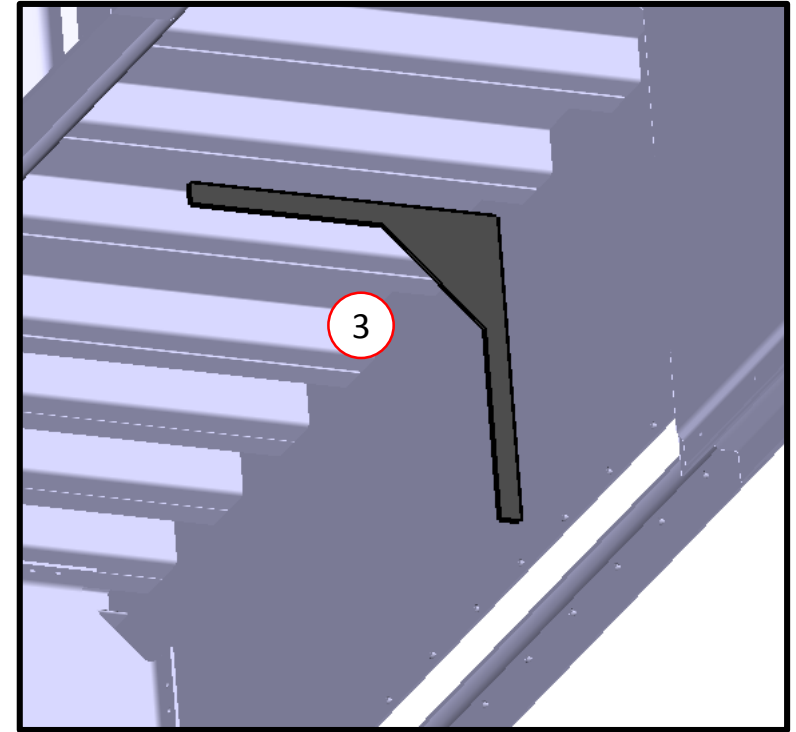
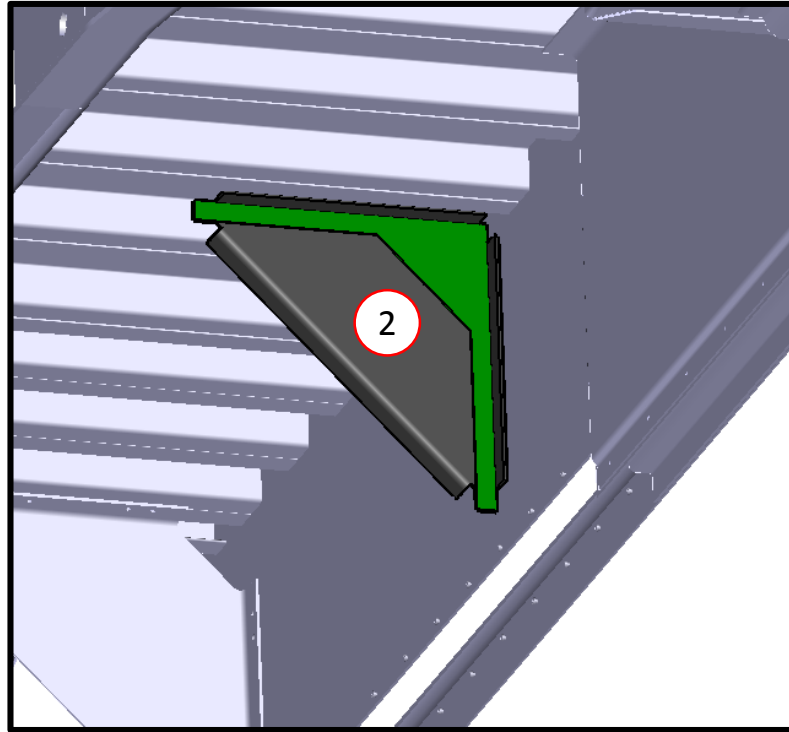
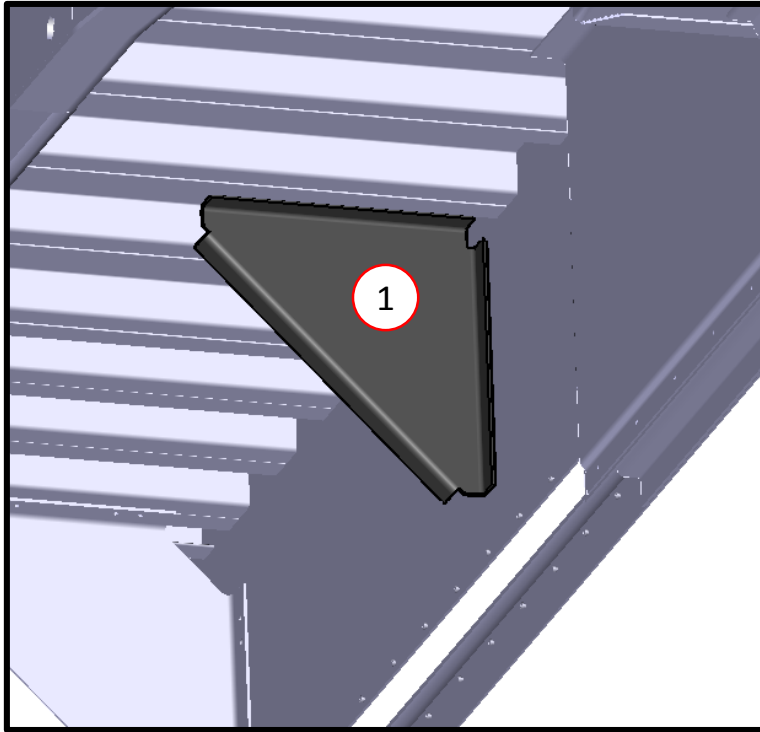
**NOTE: THESE STEPS ARE FOR 178", 190", AND 208" WHEELBASE VEHICLES. YOU MAY FIND THAT YOUR VEHICLE ALREADY HAS THE HOLES DETAILED IN THIS PAGE IN WHICH CASE YOU CAN SKIP TO THE NEXT PAGE.**

1. Locate the OEM reference hole detailed in the "DRILLING THE FRAME FOR MOUNTING THE TANK" section.
2. Locate the next OEM pre-existing hole of the same size which is located 440 mm (17.3 in) rear of the OEM reference hole.
3. On the outside of the frame, measure and mark a point 8 mm (0.3 in) forward and 67 mm (2.6 in) above the centerline of the hole identified in Step 2.
4. Drill a hole through the marked point using a 9/32" (7 mm) drill bit.
5. Deburr and coat all bare metal using a premium undercoating. Refer to the *Special Tools* section.
6. Install a double snail clip (15-004175) on the fuel line retention bracket (P16MB-10F100-C) as shown.
7. Locate the fuel line bracket by lining it up with the hole and inserting the brake line into the snail clip.
8. Attach using an M6x1x20 flange head bolt and an M6 serrated nut. Torque to 8-12 Nm.



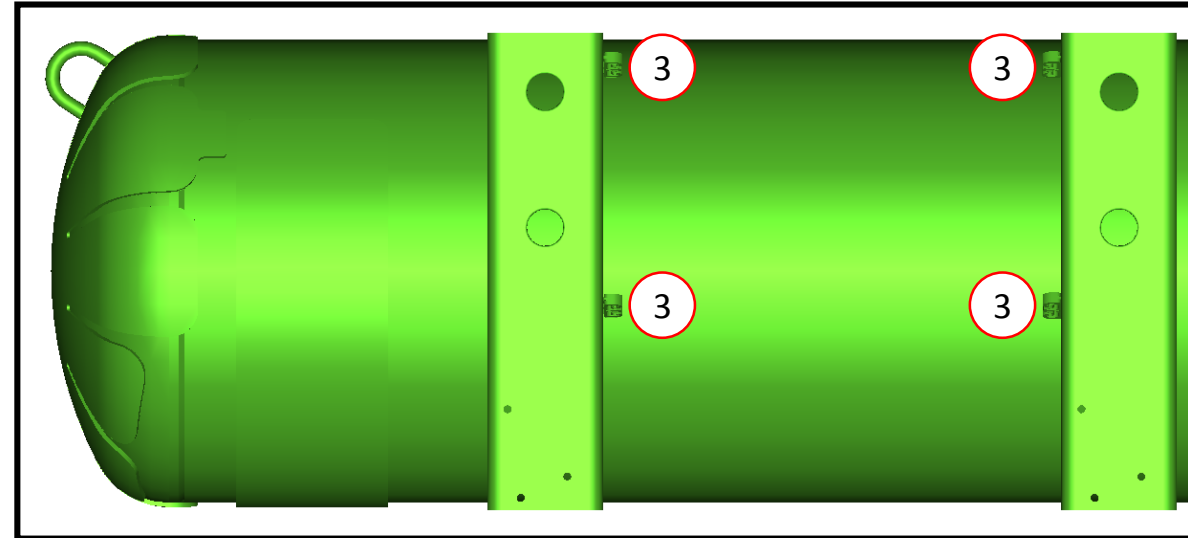
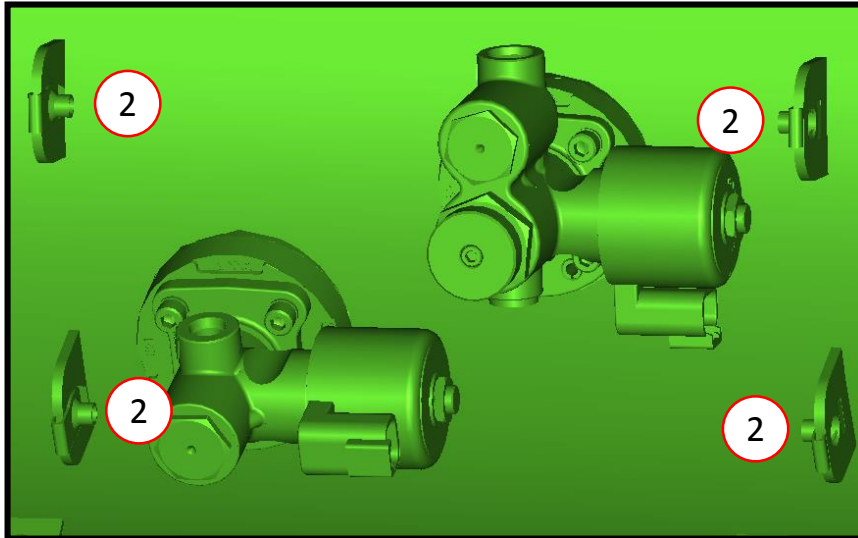
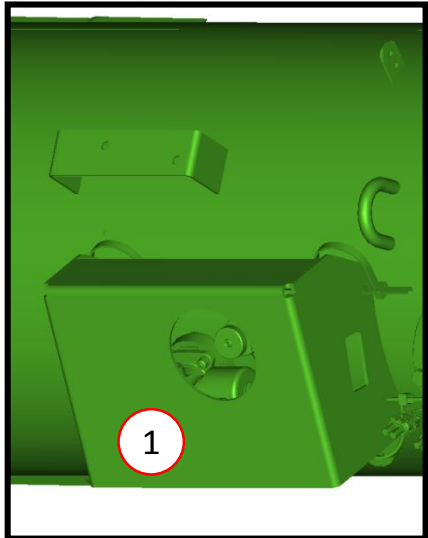
## CUTTING OUT THE BODY GUSSET

1. Identify any body skirt gussets that overlap the area under the floor where the tank will mount.
2. Use gusset template P16MB-01F250-B to mark the cutout shape on the body skirt gusset.
3. Cut the body skirt gusset to the new size to provide adequate clearance to tank, fuel lines, and filter.



## PREPARING THE TANK

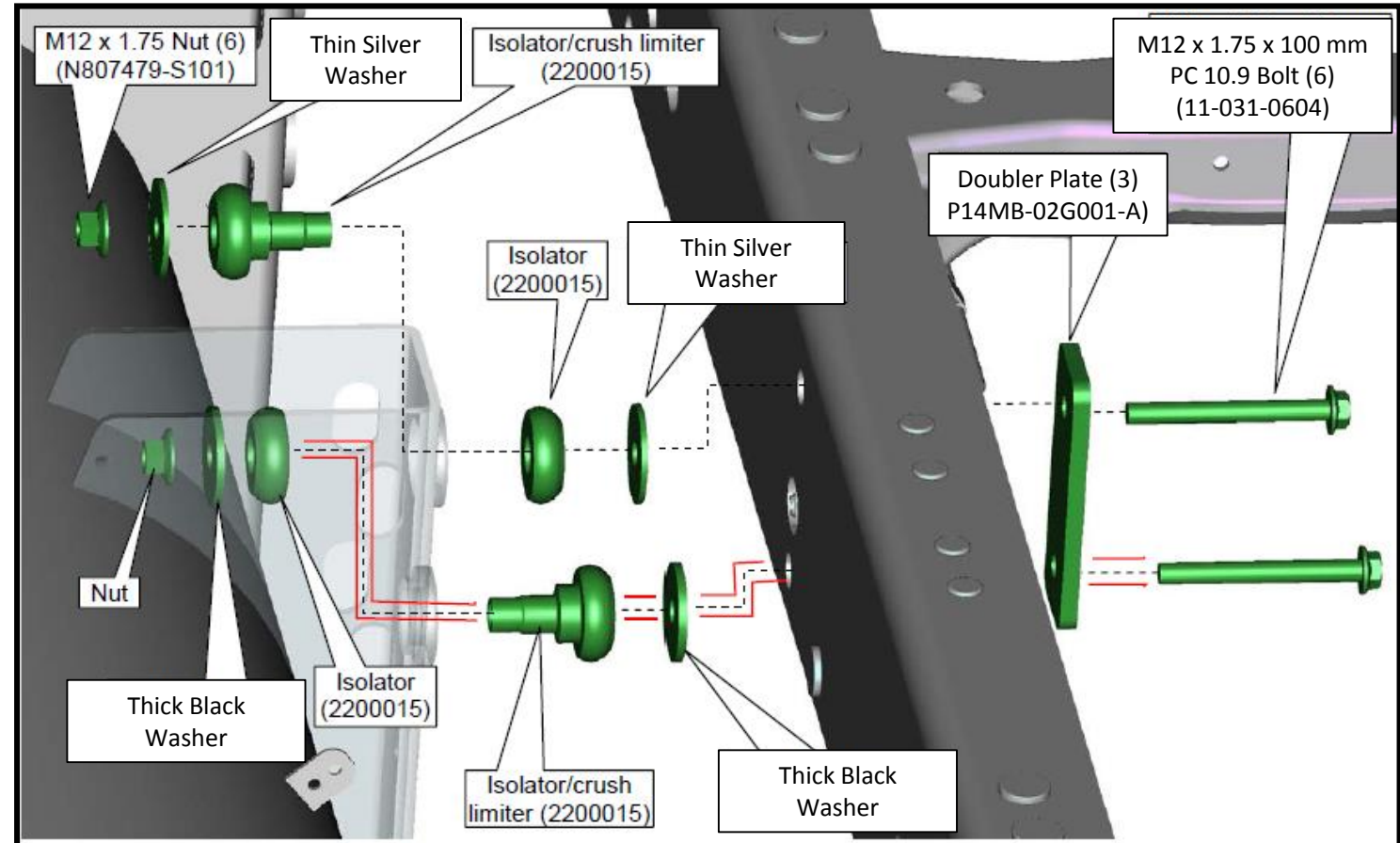
1. Remove the valve guard from the tank by snipping the four zip ties.
2. Install Qty. 4 J-clips (W520822-S439) onto the valve guard mounting tabs as shown.
3. Install Qty. 4 double snail clips (15-004175) onto the tank on the two brackets closest to the tank access hole.



## INSTALLING THE TANK

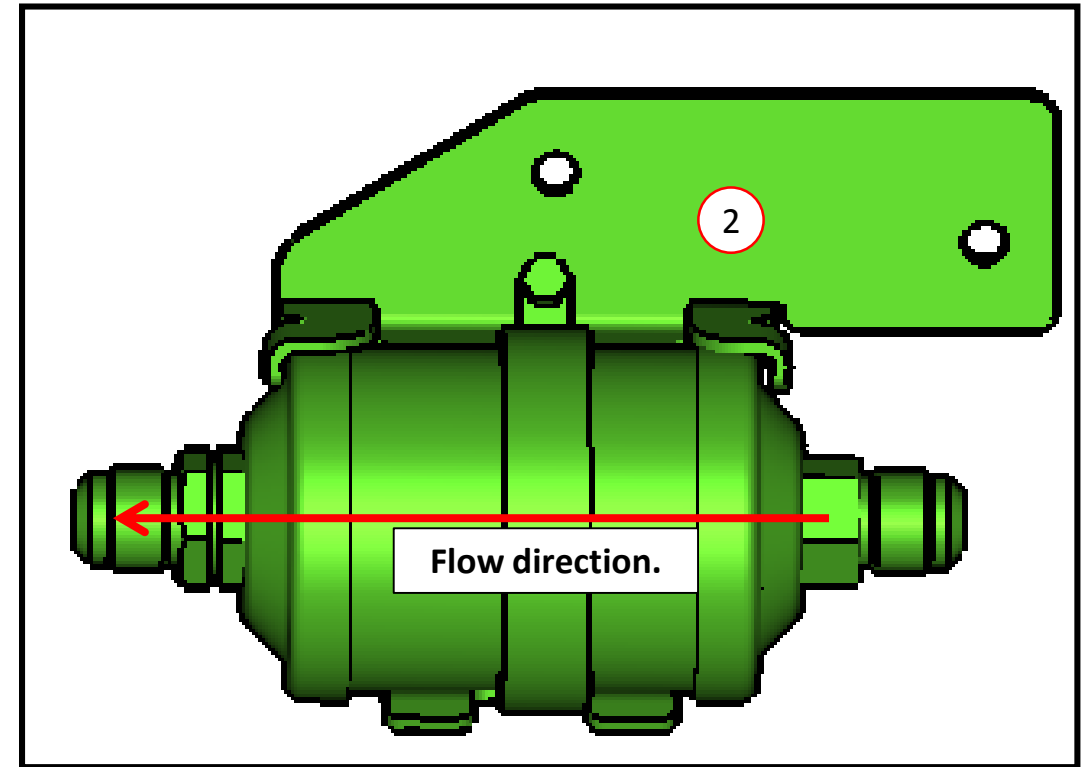
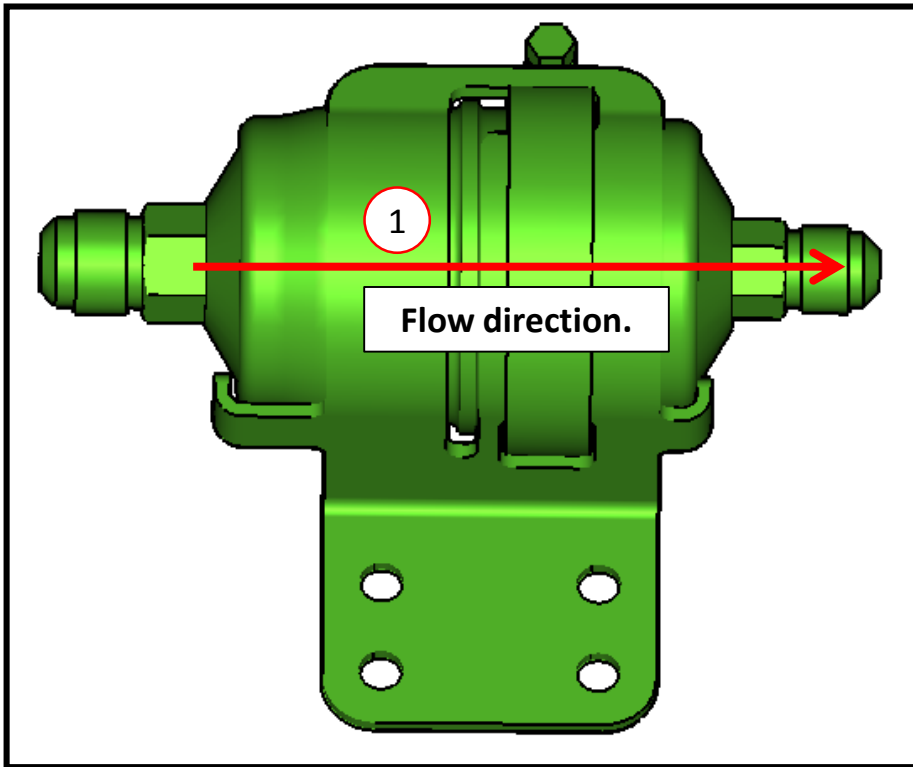
**NOTE:** The tank mounting hardware is the same for all of the mounting holes of each bracket.

1. Assemble the isolators and crush limiters onto the tank mounting brackets. **NOTE THE CORRECT ORIENTATION OF THE COMPONENTS.**
2. Use a suitable lifting device and position the fuel tank to the left frame rail. Align the six mounting holes in the tank brackets with the mounting holes in the frame rail.
3. Carefully position the tank assembly to the frame rail until the tank (and hardware) is aligned with frame mounting holes.
4. Place the three doubler plates (P14MB-02G001-A) in position against the inside of the frame rail. Install the M12 x 1.75 x 100 mm bolts through the holes in the doubler plate. Slip the washers into position between the frame and mounting isolator. Continue installing the bolts through the holes in the tank mounting brackets.
5. Install the six M12 x 1.75 mounting nuts and corresponding washers, one each onto the M12 bolts. Thread the nuts onto the bolts hand tight. Tighten the fasteners to 80-90 Nm.



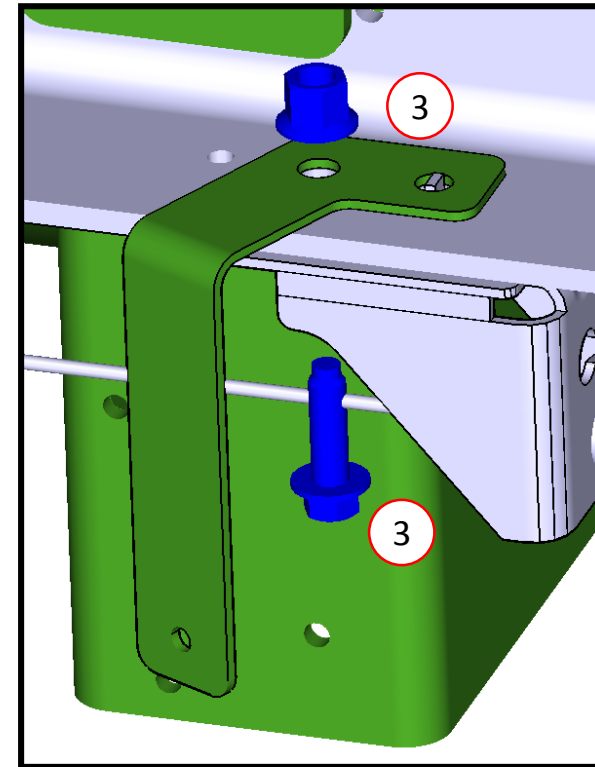
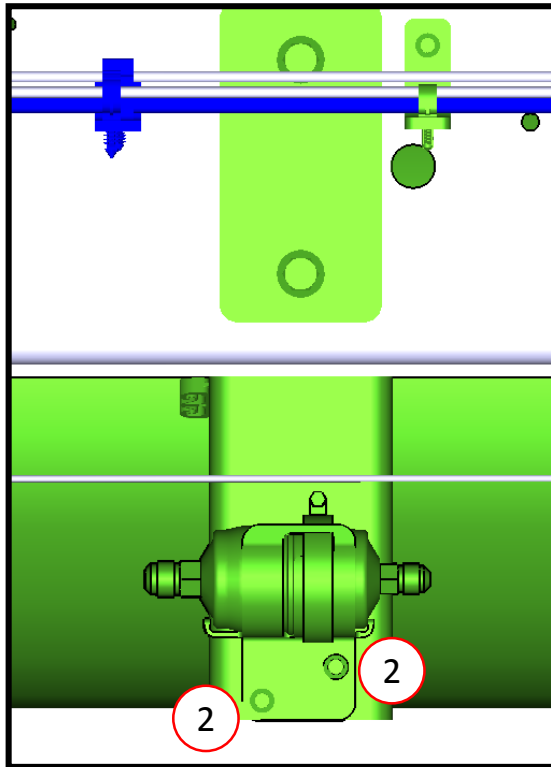
## ASSEMBLING THE FILTERS

1. Assemble the supply filter (P-10S200-A) to the supply filter bracket (P10C2-10S220-A) using a worm gear clamp (6P-300-52). Make sure that the fuel flow direction on the filter is oriented correctly as shown below. Tighten the clamp to secure the filter to the bracket.
2. Assemble the fill filter (P11BB-9155-A) to the fill filter bracket (P11GD-10D220-BB) using a worm gear clamp (6P-300-52). Make sure that the fuel flow direction on the filter is oriented correctly as shown below. Tighten the clamp to secure the filter to the bracket.



## INSTALLING THE SUPPLY LINE FILTER AND RETENTION BRACKET

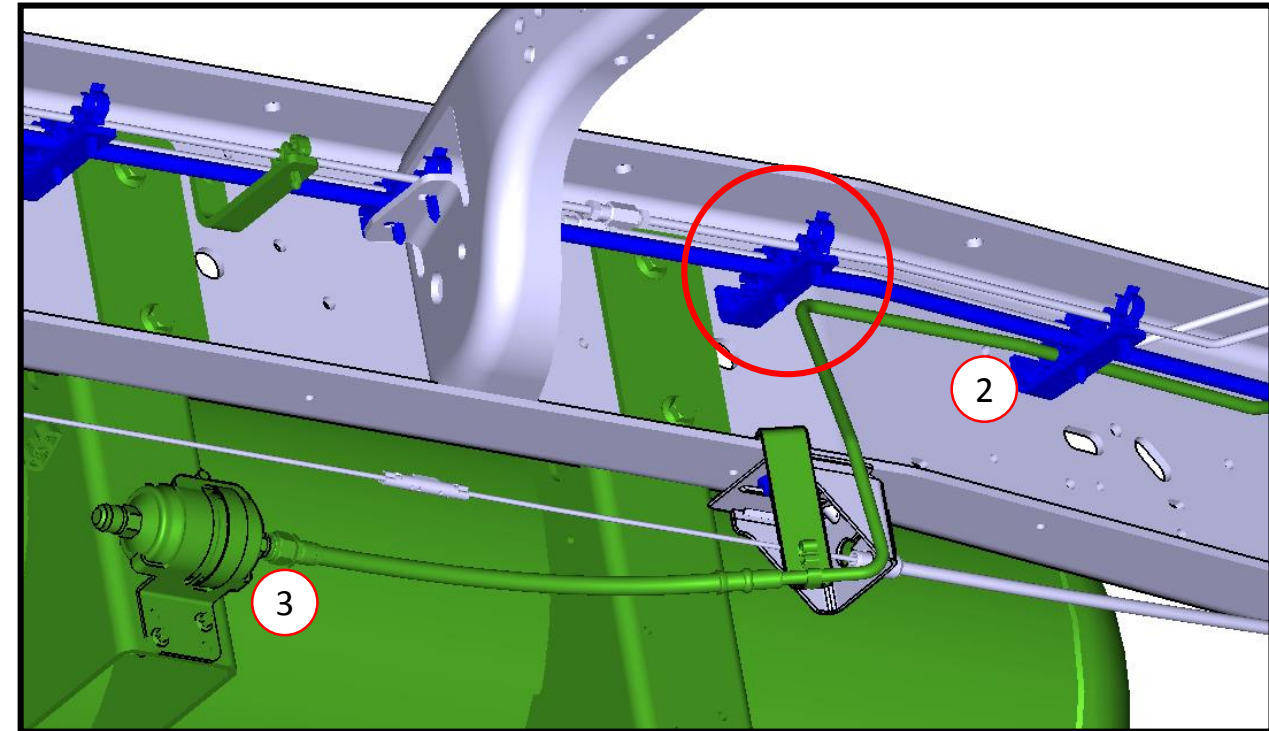
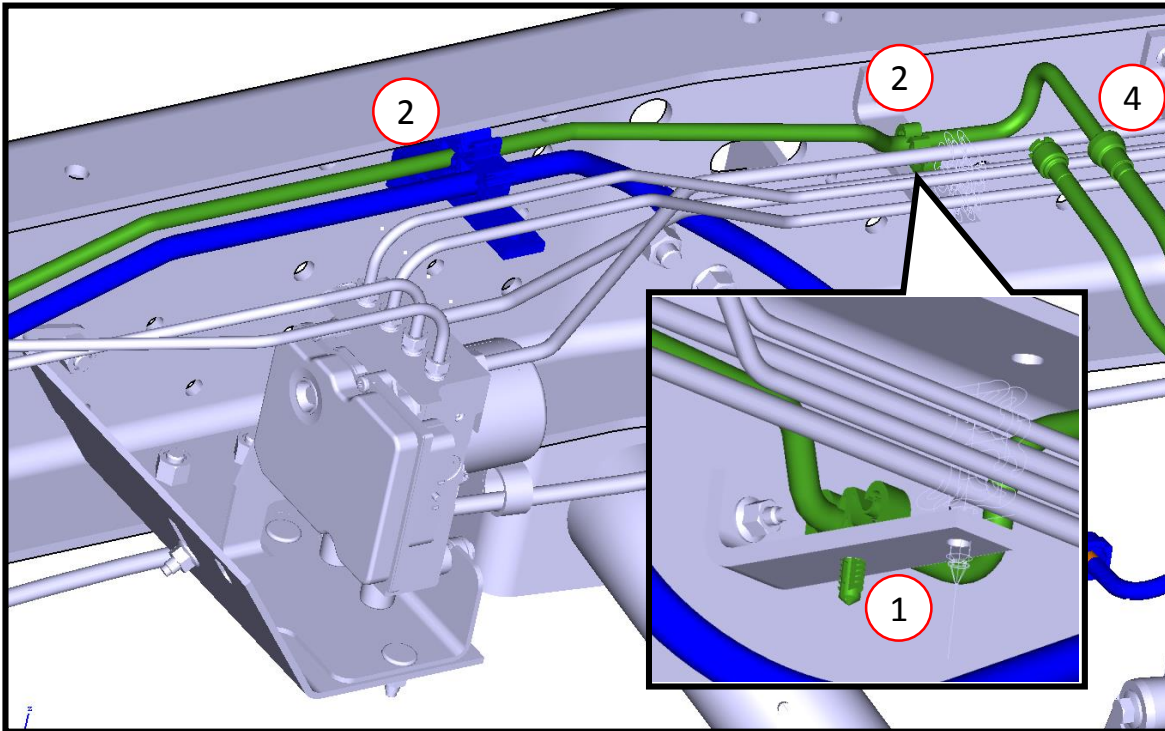
1. Make sure that the parking brake is disengaged before proceeding with steps 2 to 4 shown on this slide.
2. Attach the supply filter assembly to the tank's middle bracket using Qty. 2 M6x1x20 flange head bolts and M6 serrated nuts. Torque to 8-12 Nm.
3. Locate the parking brake cable bracket near the tank's front bracket. Remove the bolt and nut, align the fuel line retention bracket (P16MB-10F100-A) as shown below and attach to frame re-using the parking brake cable nut and bolt. Torque to 40-55 Nm.





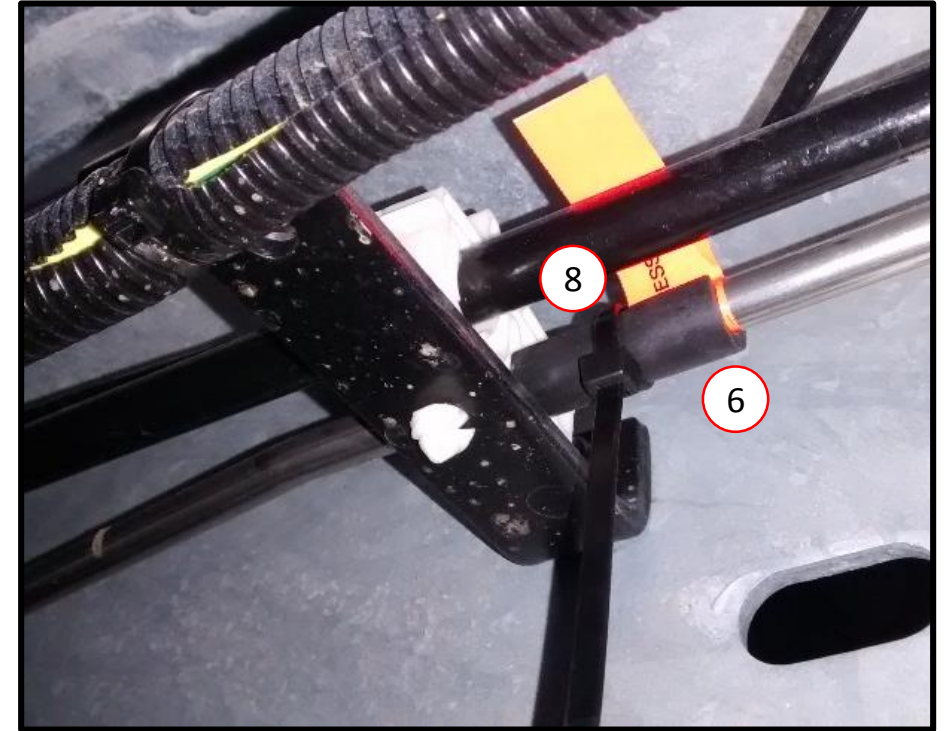
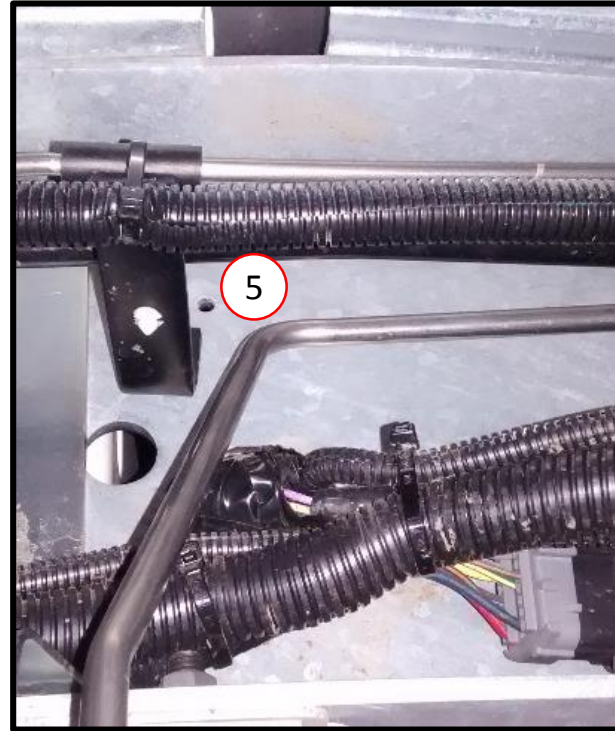
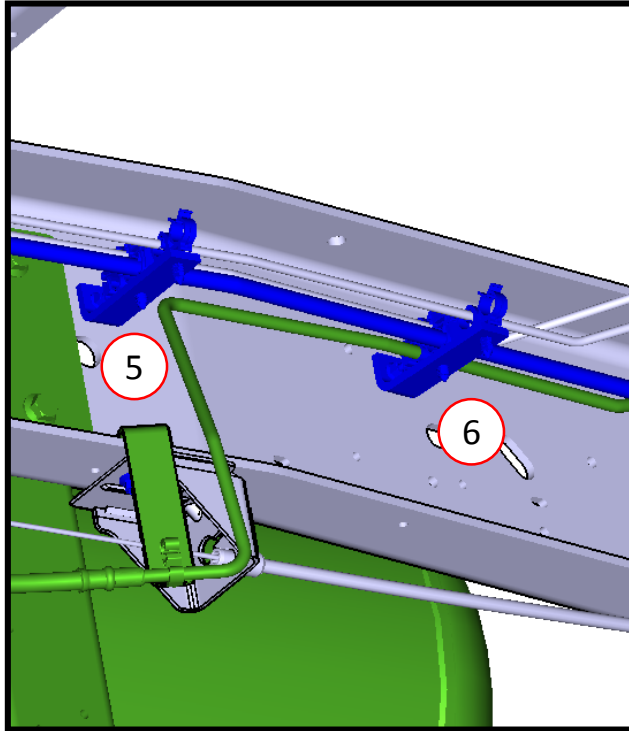
## INSTALLING THE INTERMEDIATE SUPPLY LINE

1. Install a double snail clips (15-004175) onto the OEM fuel line retention bracket that is in front of the ABS module as shown.
2. Install the intermediate fuel supply line (P16MB-10S120-A) as shown below. Make sure to clip the line into the double snail clips at the OEM line retention bracket. **Note that the line does not clip into the OEM clip next to the forward tank mount, area circled below.**
3. Thread the supply line into the supply line filter. Torque to 24-32 Nm. **Use two wrenches when tightening the filter side and make sure that the whole fuel line isn't rotating out of position.**
4. Connect the forward supply line to the intermediate supply line.



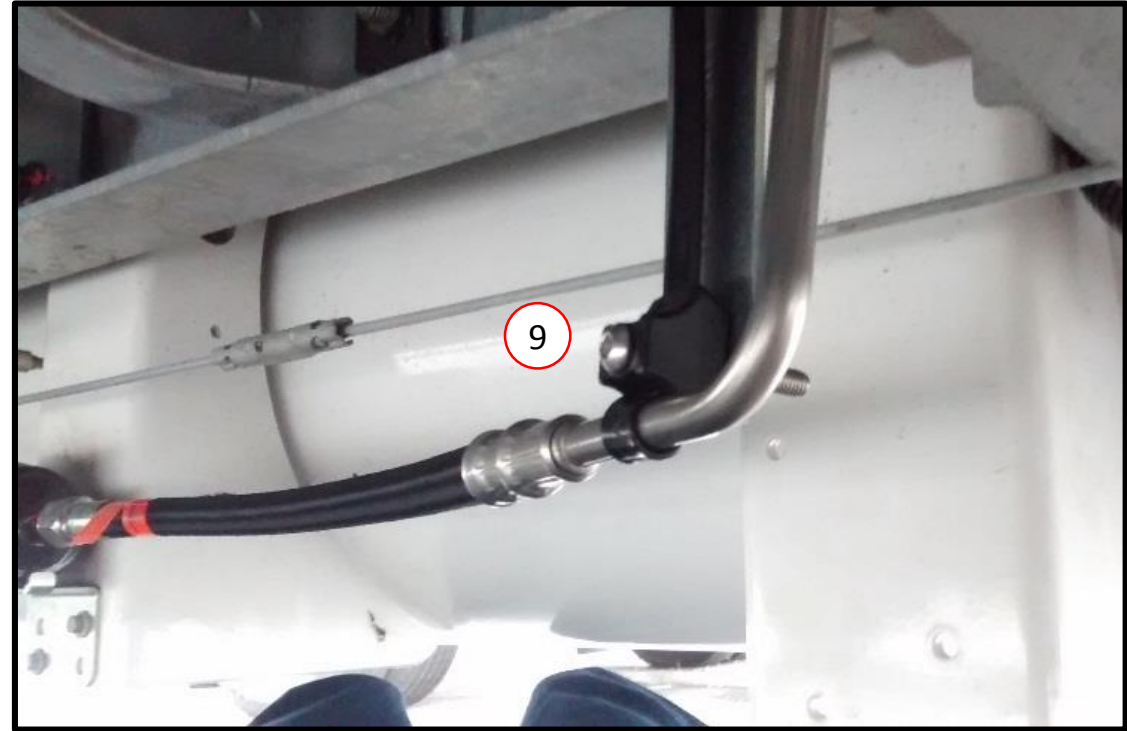
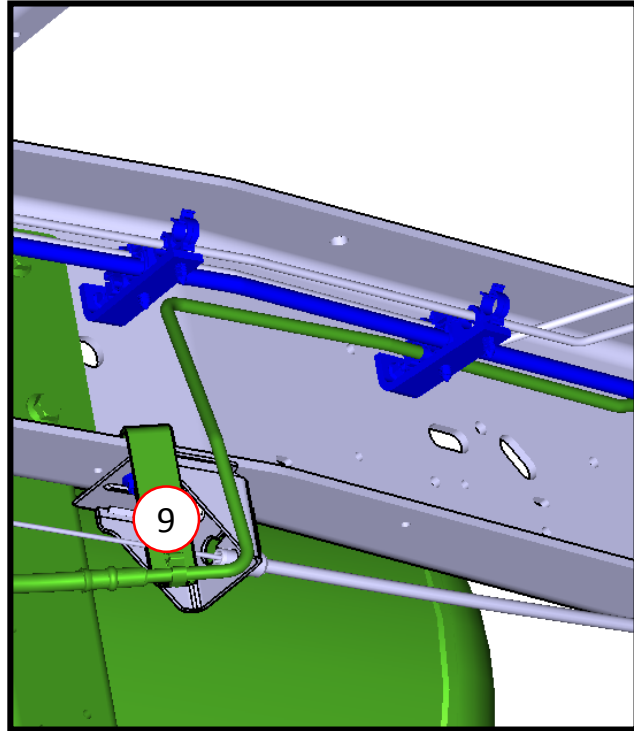
## INSTALLING THE INTERMEDIATE SUPPLY LINE (CONTINUED)

5. Ensure that there is sufficient clearance between the intermediate supply line and the OEM brake line retention bracket as shown below.
6. Install an EPDM sleeve (P07L3-9C328-A) on the supply line on the forward facing side of OEM line retention clip as shown so that the line cannot move rearwards.
7. Pull the line rearwards to check for movement. If the line moves re-do step 5 and move the EPDM sleeve further rearwards.
8. Once the EPDM sleeve is in the right position use a zip tie (7130K48) to retain the EPDM sleeve firmly in place.



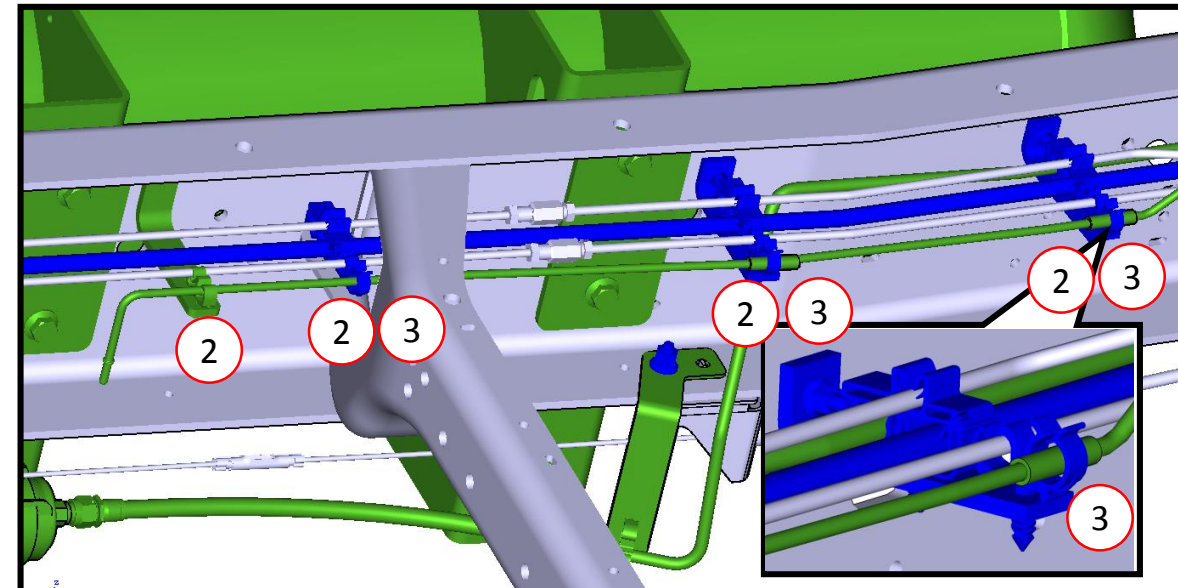
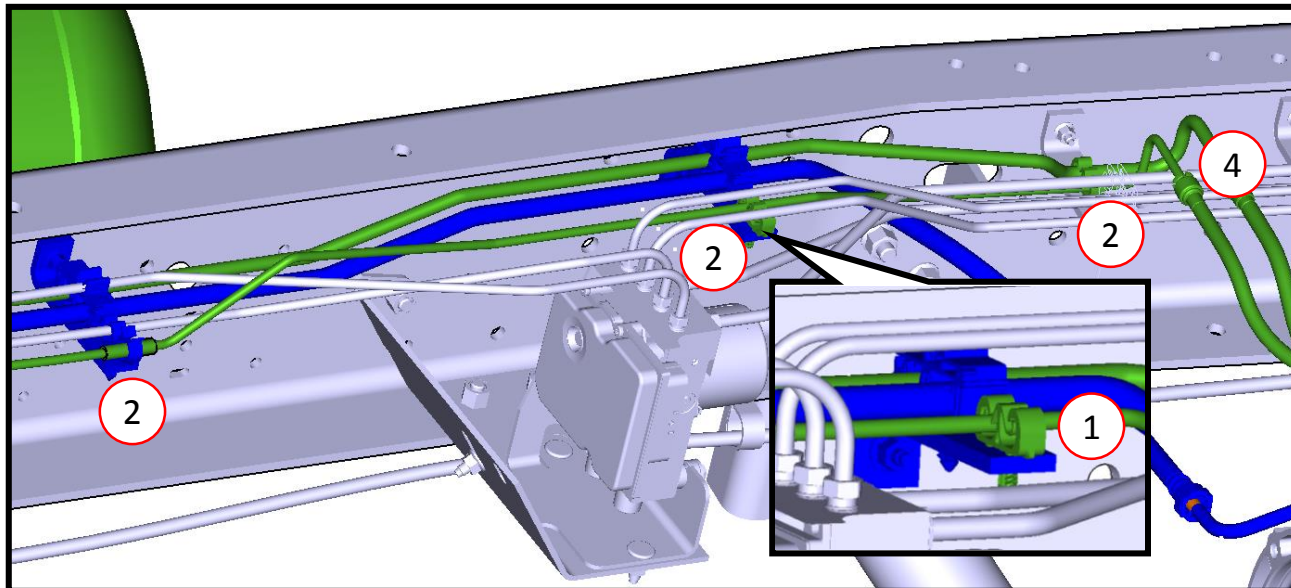
## INSTALLING THE INTERMEDIATE SUPPLY LINE (CONTINUED)

9. Use a dual clamp tie (20-403-0004), M6x1x45 button head screw (92095A250), and M6 serrated flange nut (11-278-0274) to retain the intermediate supply line to the fuel line retention bracket as shown below. Make sure that the zip tie is tight around the line before snipping it.



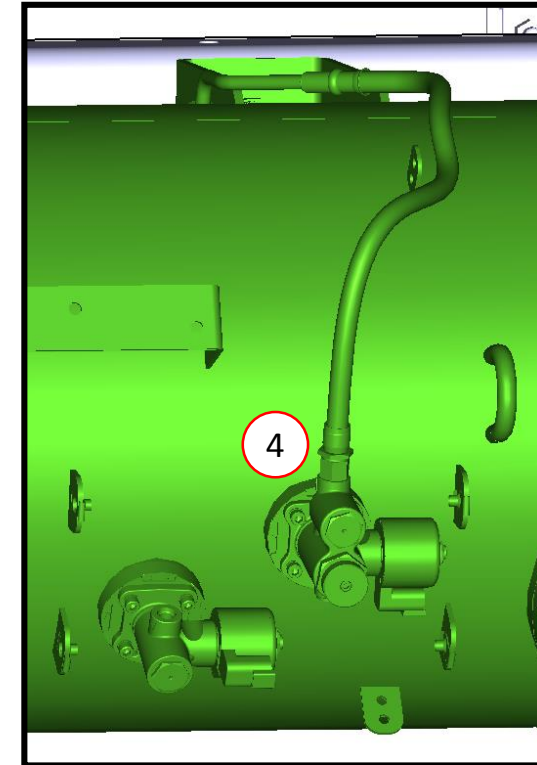
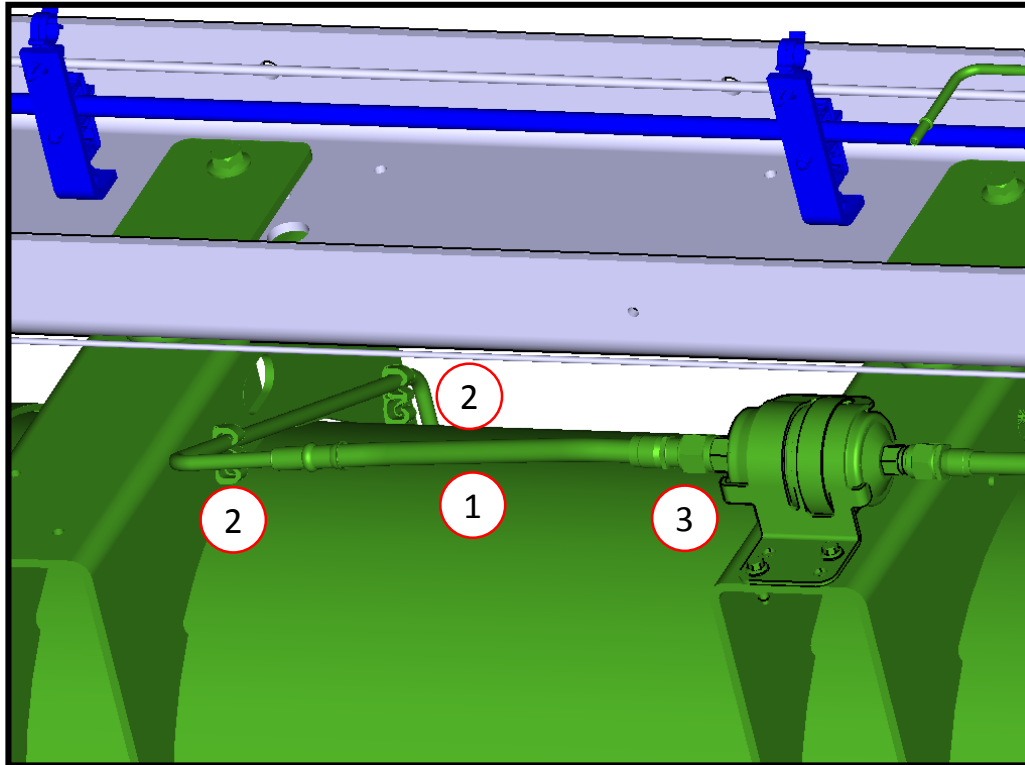
## INSTALLING THE INTERMEDIATE RETURN LINE

1. Install a double snail clips (15-004175) onto the OEM fuel line retention bracket that is in closest to the ABS module as shown.
2. Install the intermediate fuel supply line (P16MB-10R120-A) as shown below. Make sure to clip the line into the double snail clips and into the corresponding OEM retention clips.
3. Install an EPDM sleeve (P07L3-9C328-A) on the return line on all spots where it goes through an OEM clip.
4. Connect the forward return line to the intermediate return line.



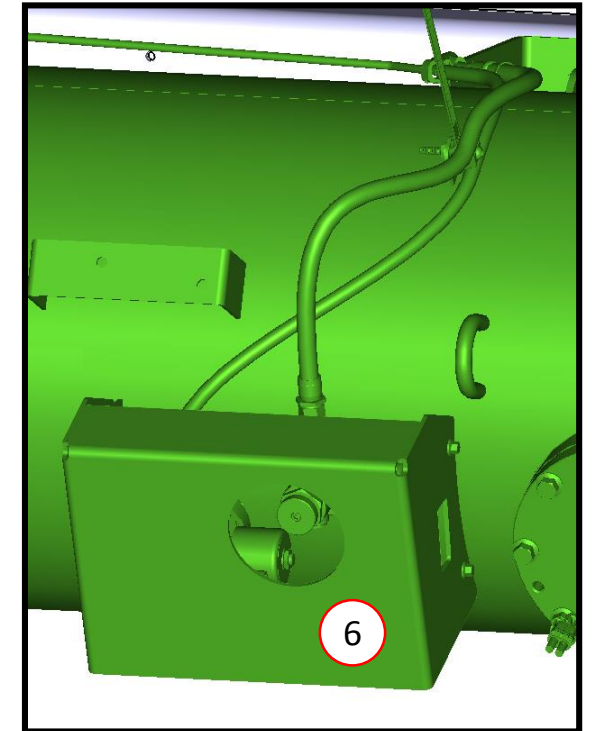
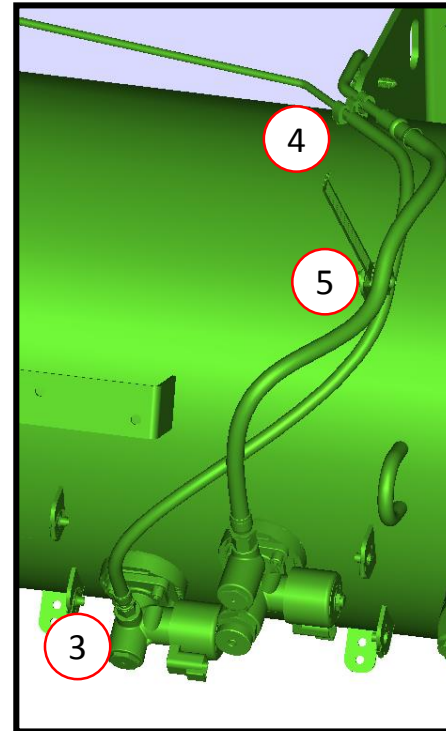
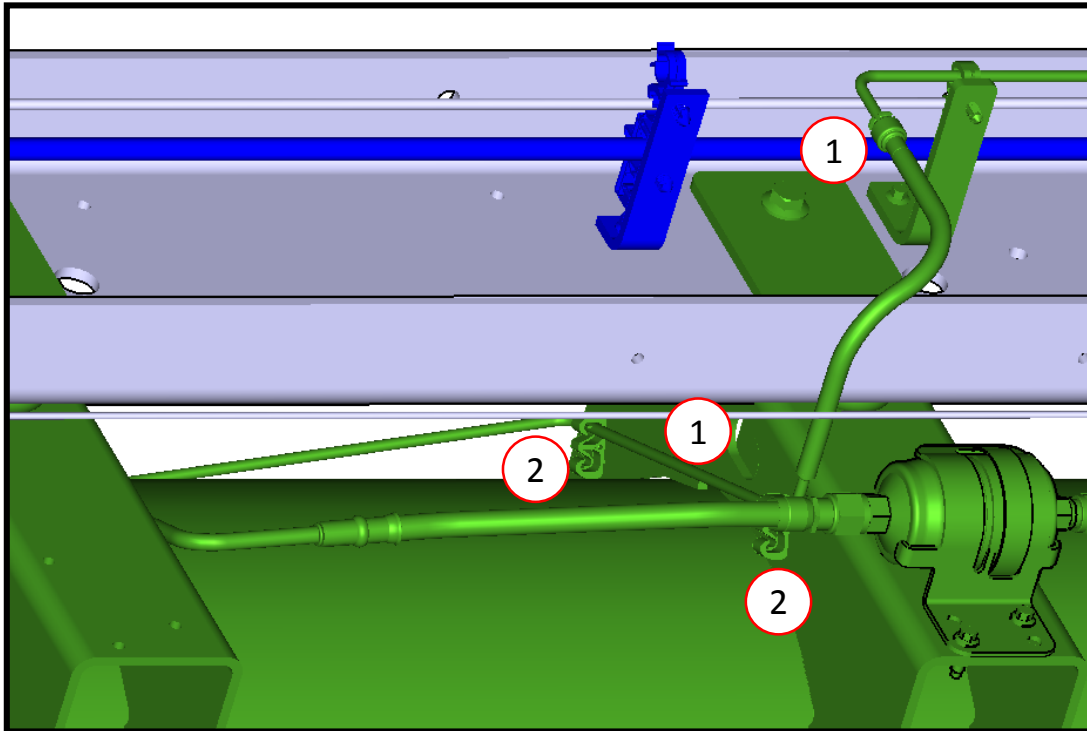
## INSTALLING THE REAR SUPPLY LINE

1. Snake the rear supply line (P16MB-10S130-A) between the tank and frame as shown below. **Make sure that the line is below the parking brake cable.**
2. Clip the supply line into the snail clips on the tank at two locations as shown.
3. Thread the supply line into the supply line filter. Using two wrenches, torque to 53-61 Nm. **Use two wrenches when tightening the filter side.**
4. Thread the supply line into the supply valve on the outboard side of the tank. Torque to 29-33 Nm.



## INSTALLING THE REAR RETURN LINE

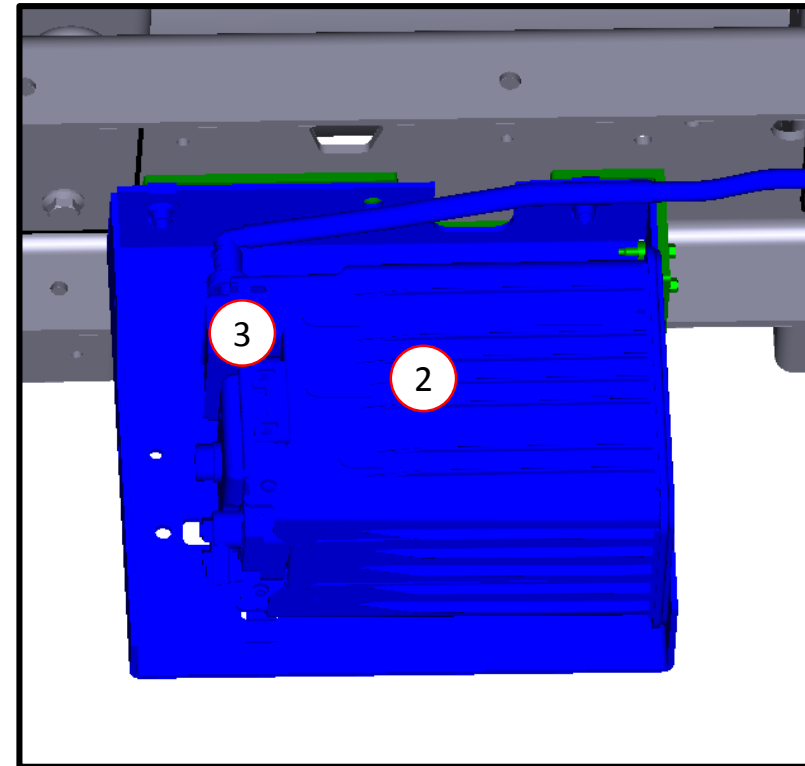
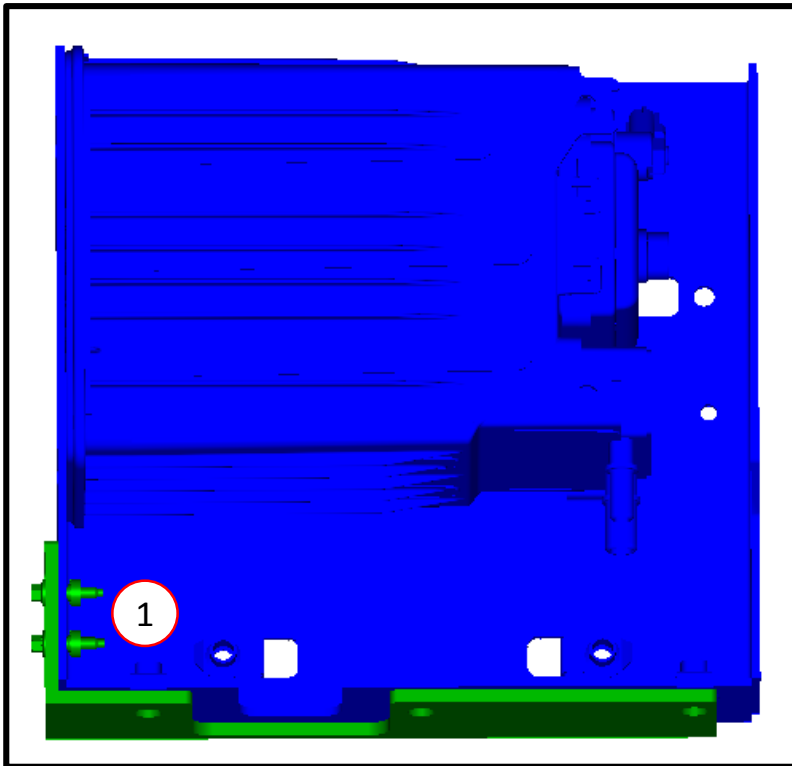
1. Snake the rear return line (P16MB-10R130-A) between the tank and frame as shown below. **Make sure that the line is between the parking brake cable and the frame rail.** Connect the rear return line to the intermediate return line.
2. Clip the return line into the snail clips on the tank at two locations as shown.
3. Thread the return line into the return valve on the outboard side of the tank. Torque to 18-20 Nm.
4. Retain lines to each other using a double snail clip (15-004175) as shown.
5. Retain flex lines to the tank using a dual clamp zip tie (20-403-0004), M6x1x45 button head screw (92095A250), and M6 serrated flange nut (11-278-0274) as shown.
6. Attach the valve cover to the tank using Qty. 4 M6x1x20 flange head bolts . Torque to 8-12 Nm. **NOTE: RECOMMENDED TO APPLY ANTI-SEIZE.**



## INSTALLING THE VAPOR CANISTER WITH SPACER

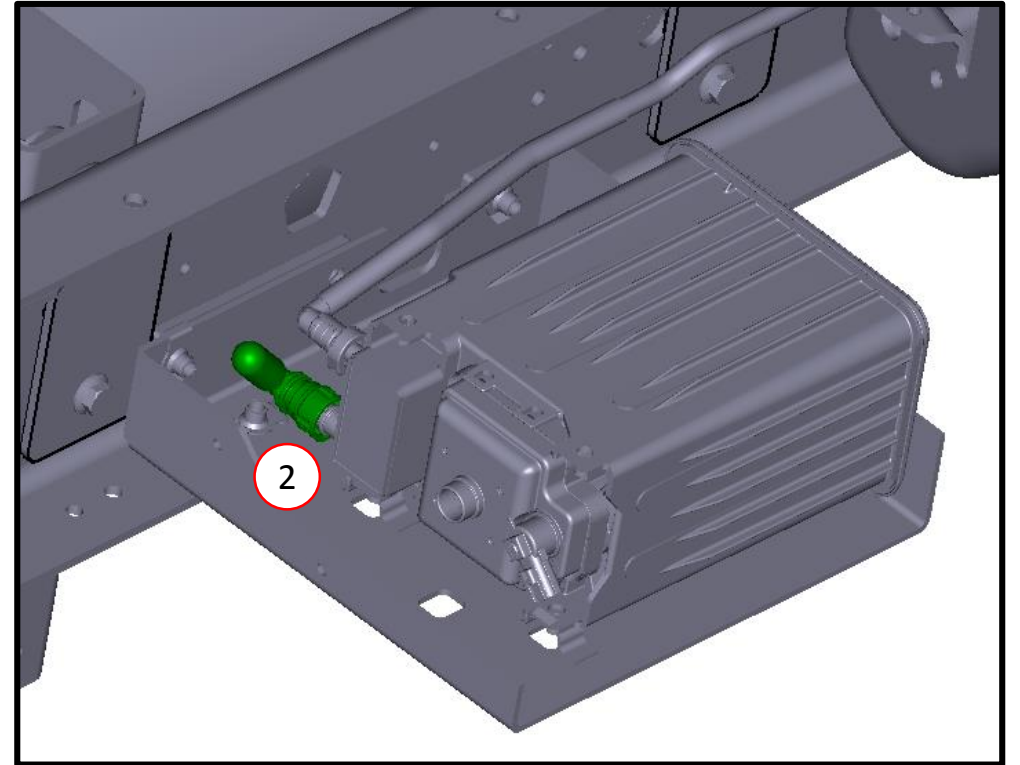
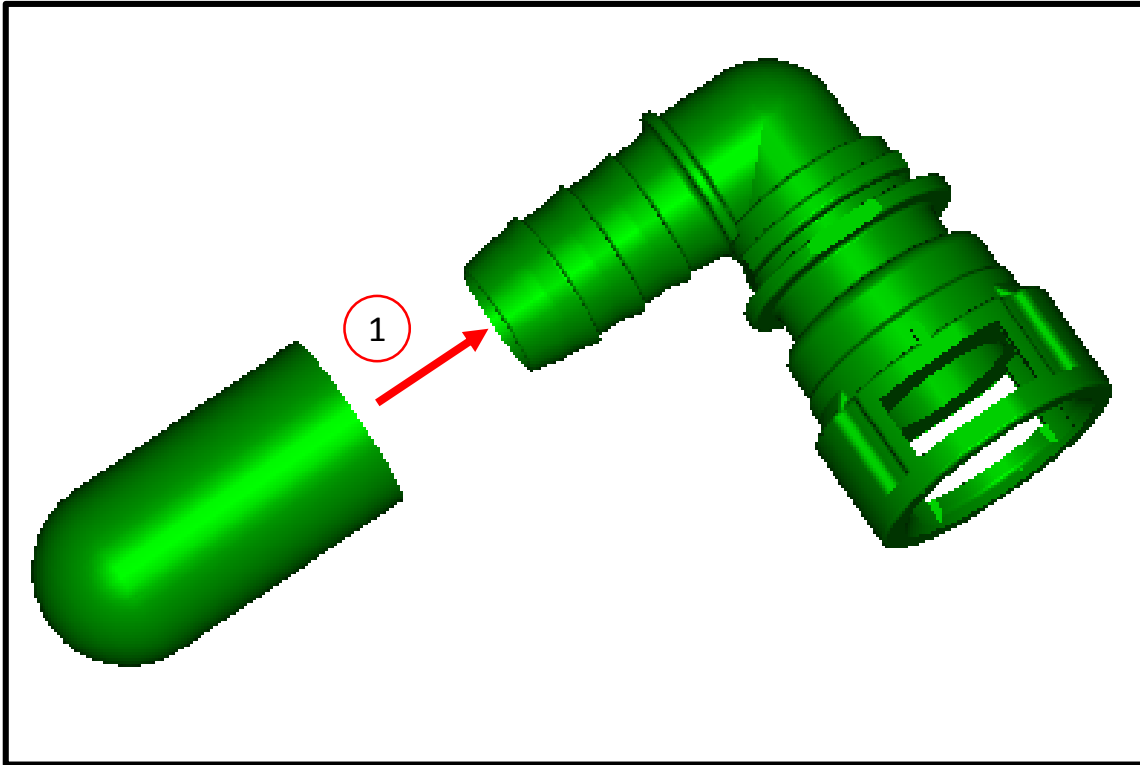
**NOTE: THESE STEPS ARE FOR 168" and 178" WHEELBASE VEHICLES ONLY. IF YOUR VEHICLE IS A DIFFERENT WHEELBASE PLEASE SKIP TO THE NEXT PAGE.**

1. Attach the vapor canister spacer bracket (P16MB-10E305-A) to the vapor canister bracket using Qty. 2 bolts M6x1x25 and Qty. 2 serrated M6 nuts. Torque to 8-12 Nm.
2. Reattach the vapor canister assembly to the frame in its original location re-using the original M10 Bolts (Qty. 4). Torque to 40-55 Nm.
3. Connect the OEM vapor line back to the vapor canister at the top port.



## INSTALLING THE VAPOR CANISTER PLUG

1. Attach the vapor cap to the vapor cap 90 degree elbow as shown below. Make sure the parts are attached securely.
2. Attach the elbow with cap on the bottom port of the vapor canister as shown below.

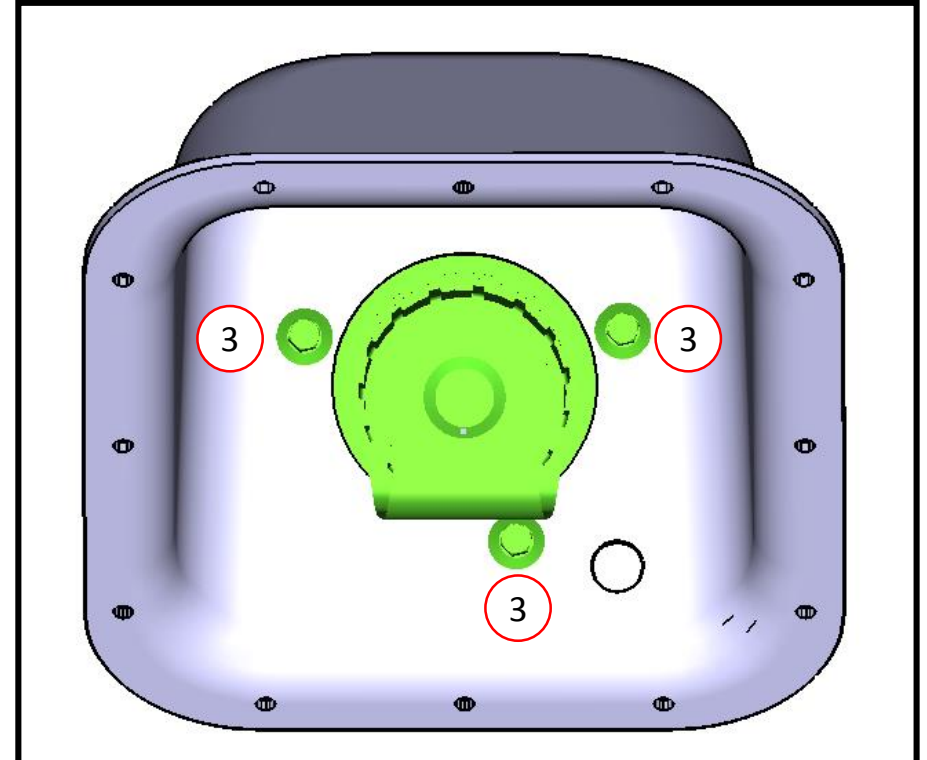




## ASSEMBLING THE FILL VALVE (ACME VALVE)

**NOTE: THESE STEPS ARE FOR THE ACME FILL VALVE (THREADED STYLE) ONLY. IF YOUR VEHICLE HAS THE EURO VALVE (QUICK CONNECT STYLE) THEN PLEASE SKIP TO THE NEXT PAGE.**

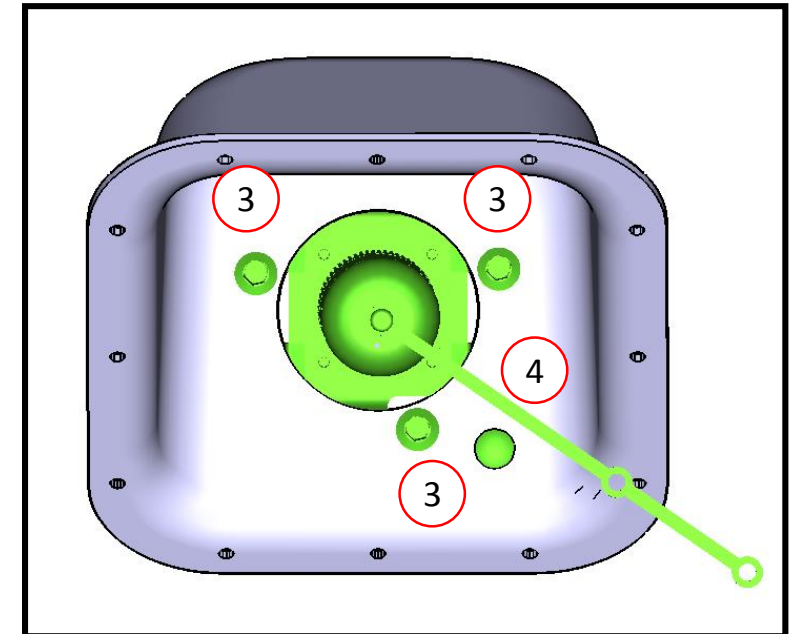
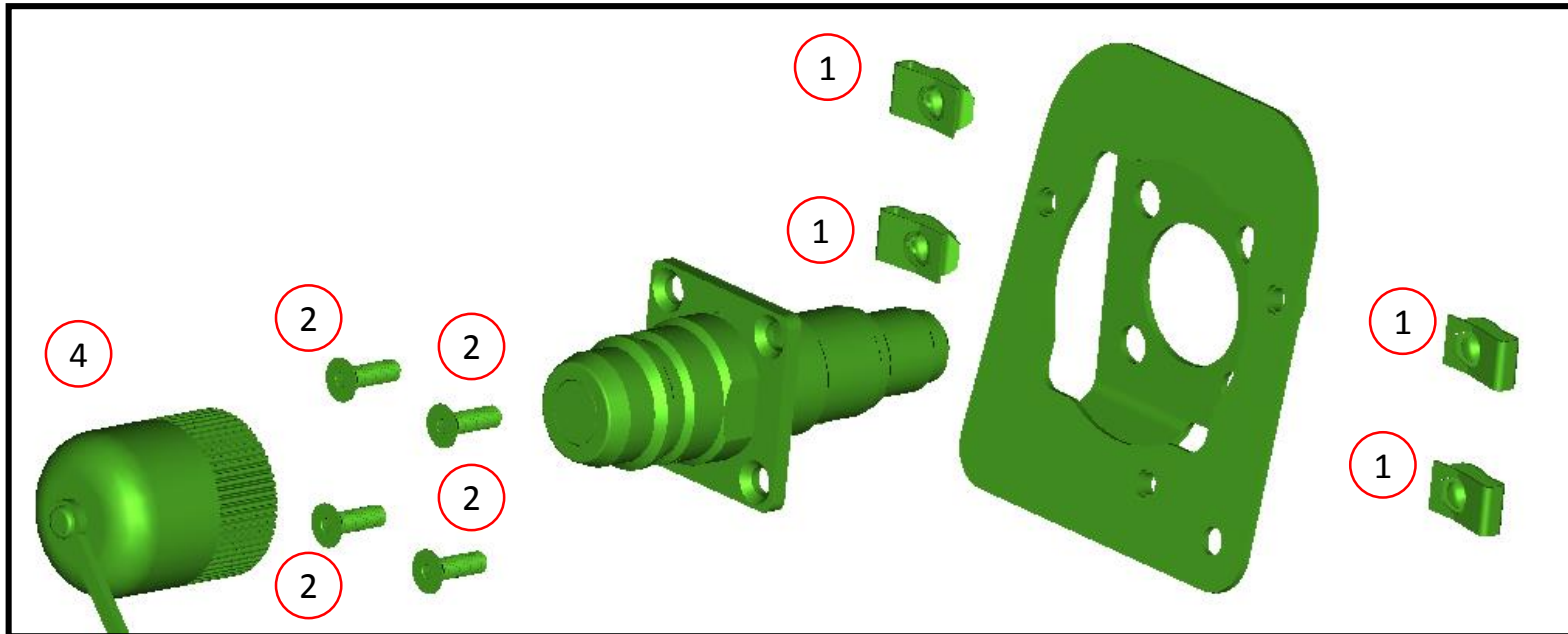
1. Remove nut and washer from fuel fill valve (11-438-005) and assemble valve to fuel fill bracket (P10C2-9B213-A).
2. Support fill valve and bracket assembly and tighten nut securely.
3. Install fuel fill valve assembly to the body mounting bracket using Qty. 3 M5x0.9x16 bolts. Tighten the bolts to 5–7 Nm.



## ASSEMBLING THE FILL VALVE (EURO VALVE)

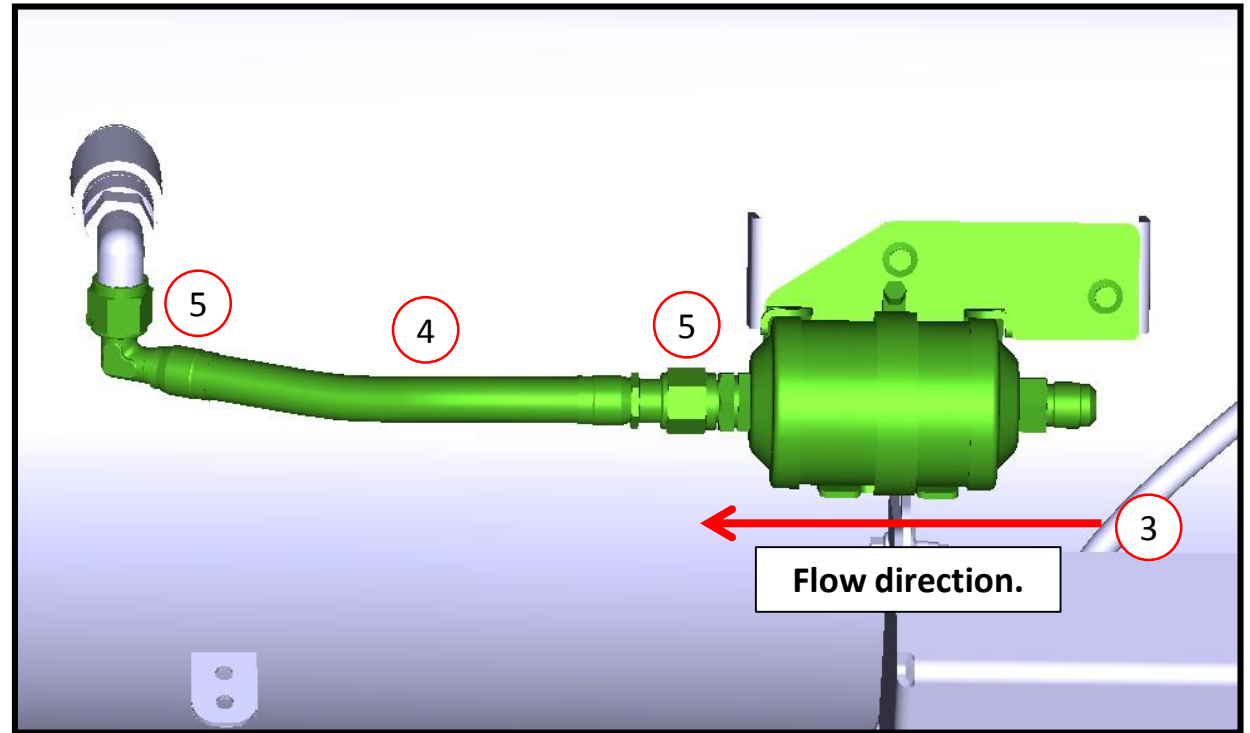
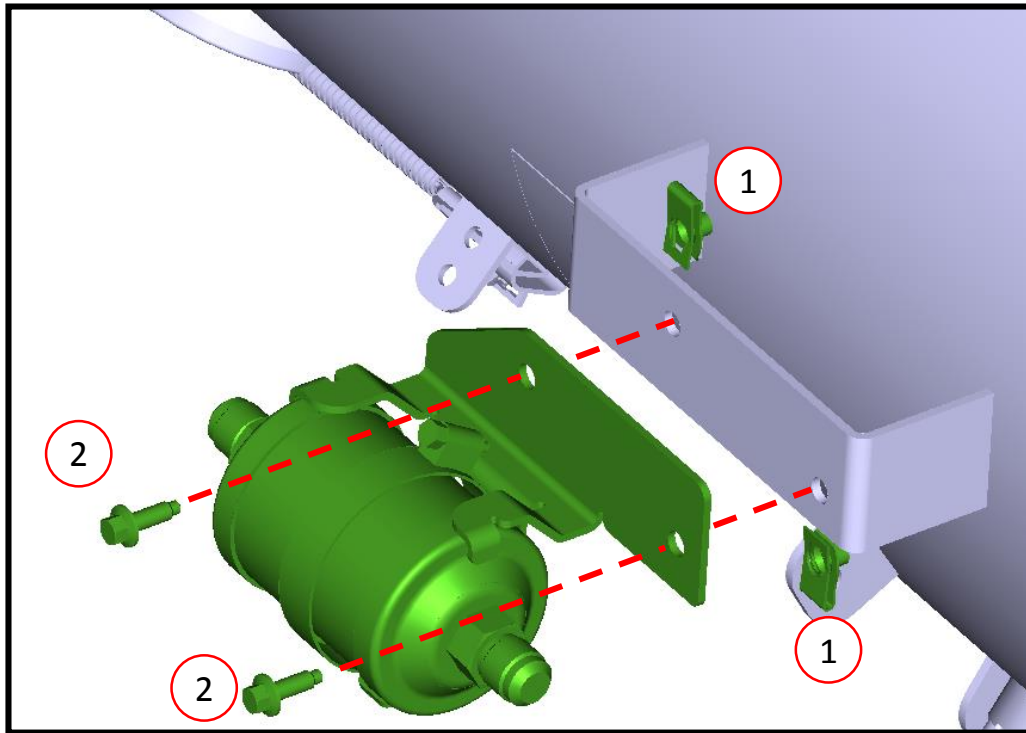
**NOTE: THESE STEPS ARE FOR THE EURO FILL VALVE (QUICK CONNECT STYLE) ONLY. IF YOUR VEHICLE HAS THE ACME VALVE (THREADED STYLE) THEN PLEASE SKIP TO THE NEXT PAGE.**

1. Attach Qty. 4 M5 J-clips (95210A130) to the Euro Valve bracket (P16MB-10D310-A).
2. Attach the Euro Valve (22-4945) to the bracket using Qty. 4 M5x0.8x16 Countersunk Socket Cap Screws. Torque the bolts to 5-7 Nm.
3. Install fuel fill valve assembly to the body mounting bracket using Qty. 3 M5x0.9x16 bolts. Torque the bolts to 5-7 Nm.
4. Thread on the Valve Dust Cover (14-6053-900) and retain the tether to the bracket using a nylon rivet (11-341-0561).



## INSTALLING THE FILL SYSTEM – FILL FILTER

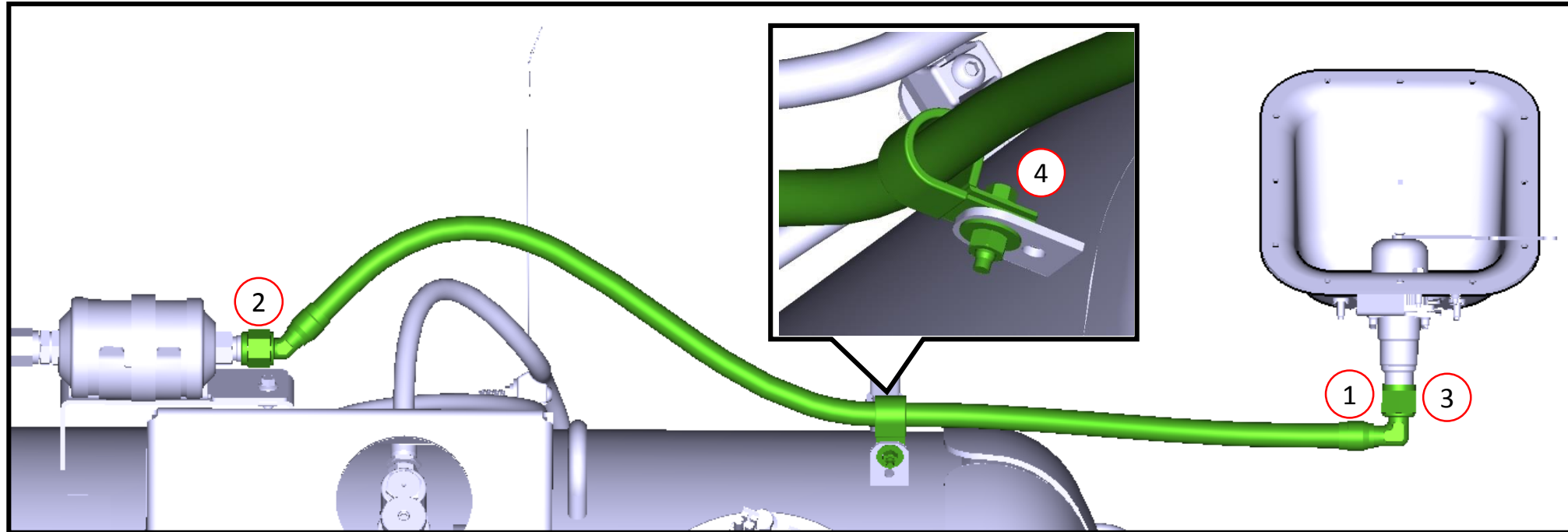
1. Install the Qty. 2 M6 J-clips (W520822-S439) to the fill filter bracket mount on the fuel tank.
2. Position the fill filter bracket assembly as shown and attach using Qty. 2 M6x1x16 flange head bolts. Torque to 8-12 Nm.
3. Verify that the fuel flow direction arrows on the filter are pointing towards the front of the vehicle, if this is not the case then loosen the worm clamp and turn the filter around.
4. Attach the fill line P-10D121-C-240 to the tank and filter as shown below. The 90 degree elbow should go to the tank.
5. Torque the fittings to 41-49 Nm. **Use two wrenches when tightening the filter side.**



## INSTALLING THE FILL SYSTEM (DRIVER SIDE FILL, FORWARD OF AXLE)

**NOTE: THESE STEPS ARE FOR VEHICLES INTENDED TO HAVE A FILL VALVE ON THE DRIVER'S SIDE IN FRONT OF THE REAR AXLE. IF YOUR VEHICLE IS MEANT TO HAVE A DIFFERENT FILL VALVE CONFIGURATION PLEASE SKIP TO THE NEXT SECTION.**

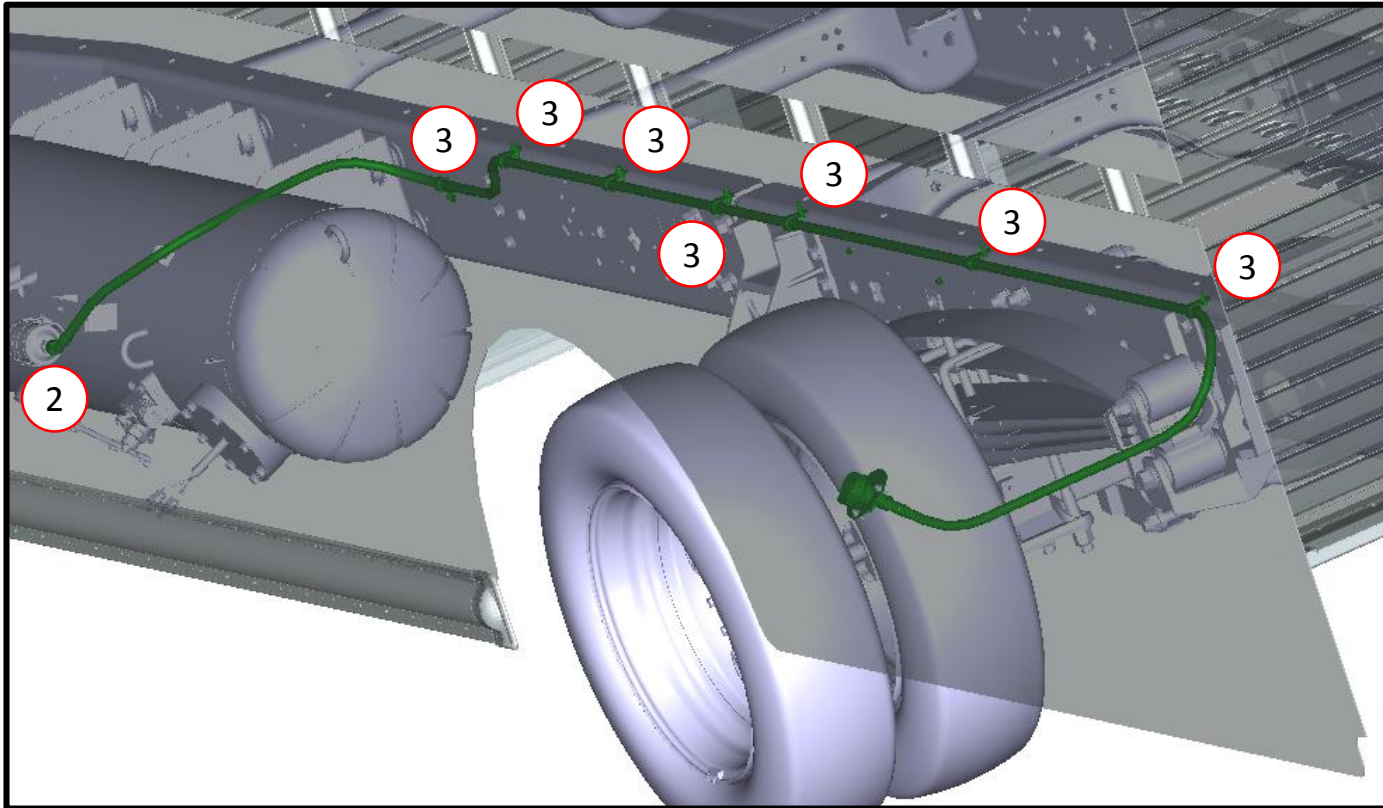
1. Attach the 90 degree end of fill line P-10D129-C-820 to the fill valve mounted to the body. Hand tighten only.
2. Attach the 45 degree end of the fill line P-10D129-C-820 to the fill filter. Torque the fitting to 41-49 Nm. **Use two wrenches.**
3. Torque the fitting on the fill valve to 41-49 Nm. **Use two wrenches.**
4. Attach a P-clip (11-056-0042) to the fill line and retain the P-clip to the tank using an M6x1x16 flange head bolt and an M6x1 nut with captive washer. Torque to 8-12 Nm.



## INSTALLING THE FILL SYSTEM (DRIVER SIDE FILL, REAR OF AXLE, UTILIMASTER)

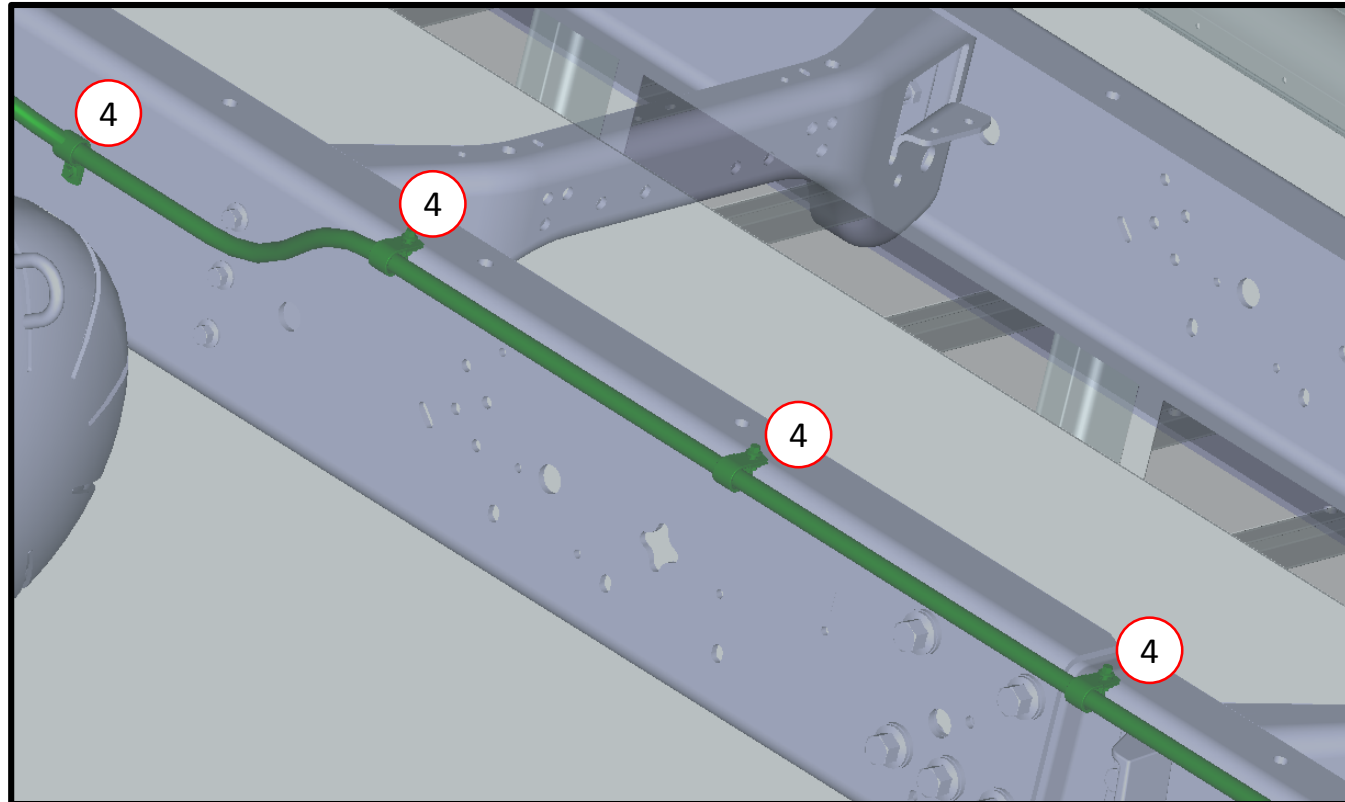
**NOTE: THESE STEPS ARE FOR VEHICLES INTENDED TO HAVE A FILL VALVE ON THE DRIVER'S SIDE BEHIND THE AXLE ON UTILIMASTER BODIES. IF YOUR VEHICLE IS MEANT TO HAVE A DIFFERENT FILL VALVE CONFIGURATION PLEASE SKIP TO THE NEXT SECTION.**

1. Install the fuel fill hose as shown. Follow the gasoline fill tube routing where the hose routes from the fill valve to the frame. Then feed along the top of the frame rail and tank.
2. Attach the 45 degree end of the fill line P-10D124-C-4724 to the fill filter. Torque the fitting to 41-49 Nm.
3. Attach 7 P-clip's 11-056-0042 along the fill hose in the locations shown below.



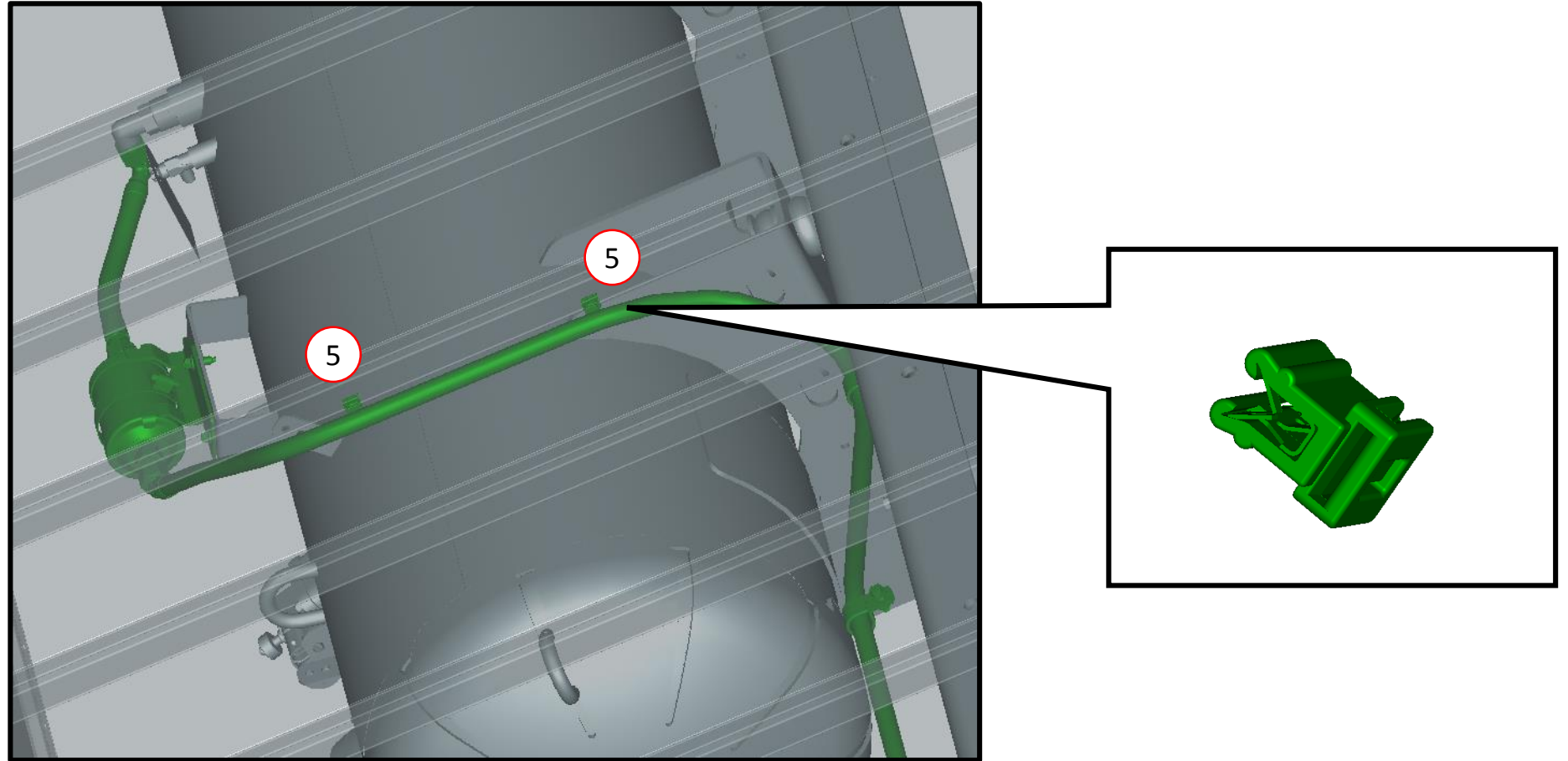
## INSTALLING THE FILL SYSTEM (DRIVER SIDE FILL, REAR OF AXLE, UTILIMASTER CONTINUED)

- The P-clamp that is closest to the tank mounts to the frame rail and the 3 others shown below mount to the cargo floor. The mounting locations utilize existing holes in the frame and cargo floor. Each of the 4 P-clamps is installed using an M6 x 20mm bolt 98093A440 and an M6 nut W702147-S438. Torque 8-12 Nm.



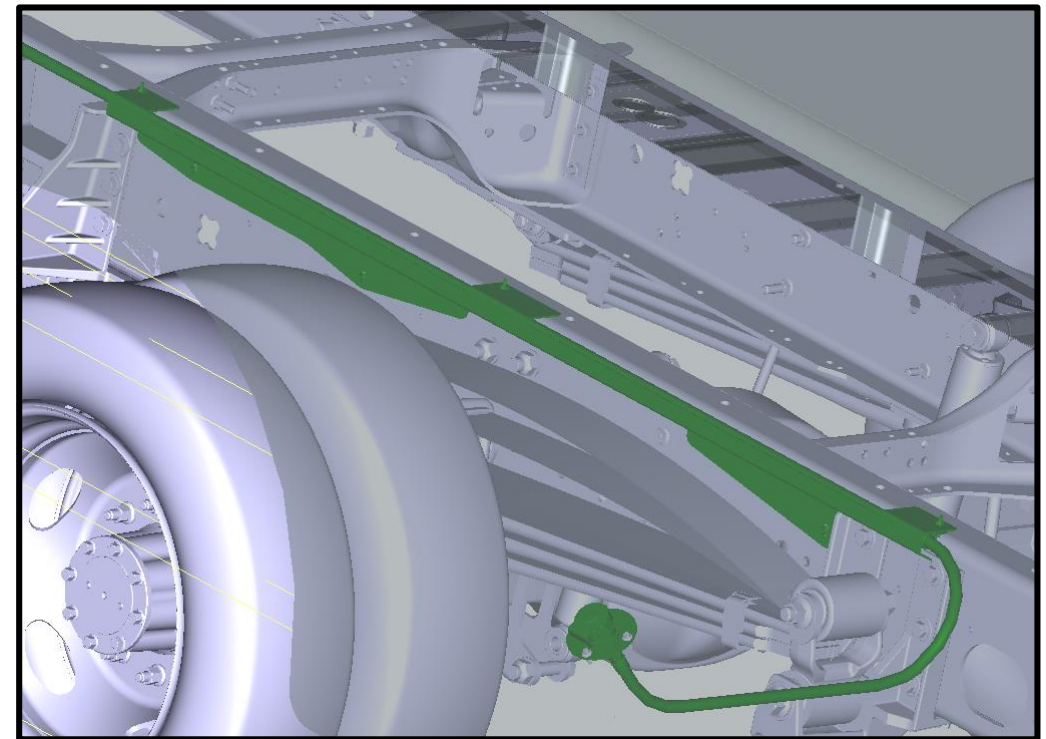
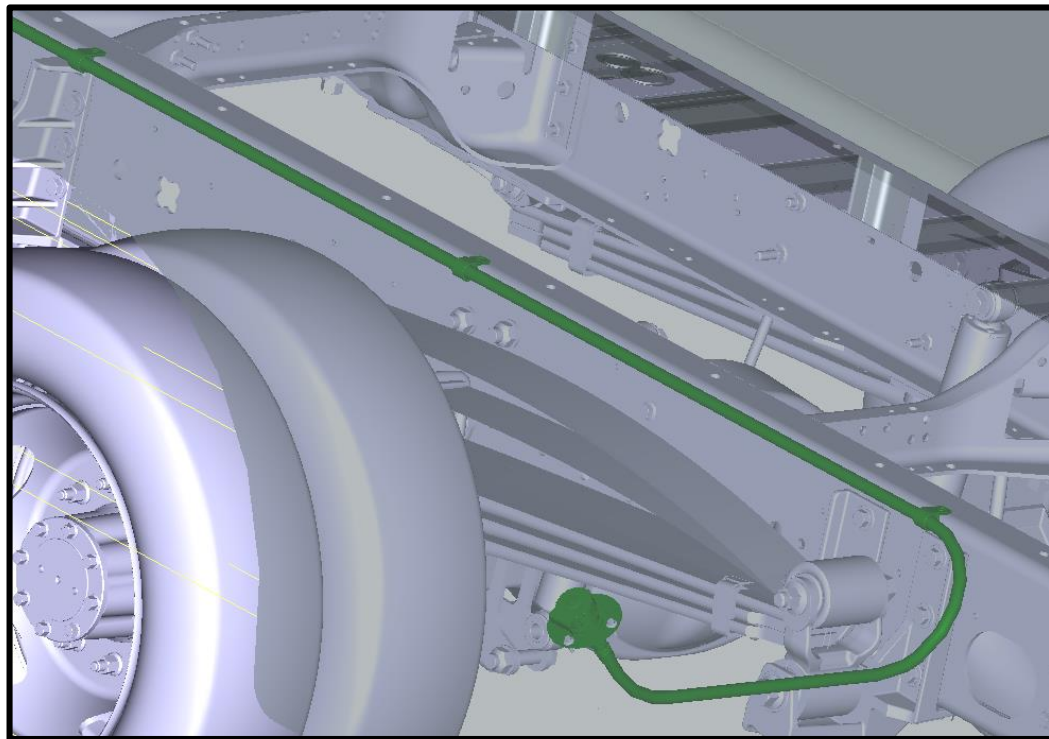
## INSTALLING THE FILL SYSTEM (DRIVER SIDE FILL, REAR OF AXLE, UTILIMASTER CONTINUED)

5. The fuel fill hose retains to the cargo floor where it passes over the tank in the two locations shown below using qty. 2 zip-tie with edge clips 20-403-0011.



## INSTALLING THE FILL SYSTEM (DRIVER SIDE FILL, REAR OF AXLE, UTILIMASTER CONTINUED)

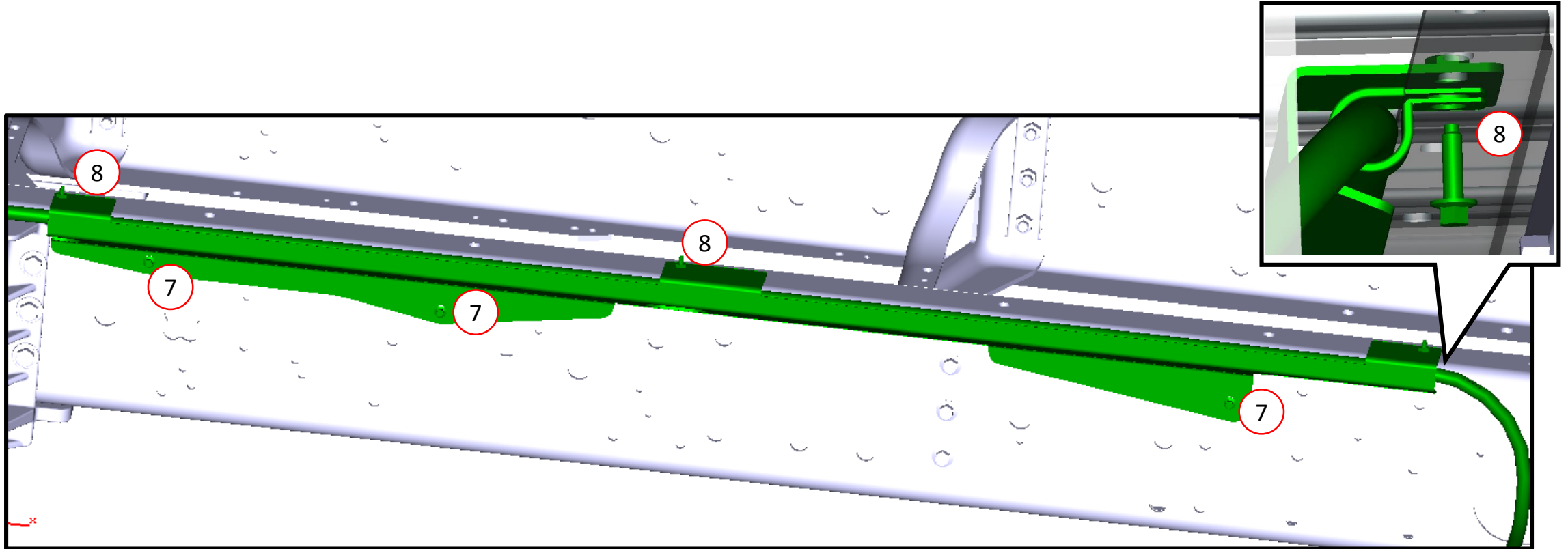
6. The fill hose guard P15MB-10T002-A is installed along the axle as shown below





## INSTALLING THE FILL SYSTEM (DRIVER SIDE FILL, REAR OF AXLE, UTILIMASTER CONTINUED)

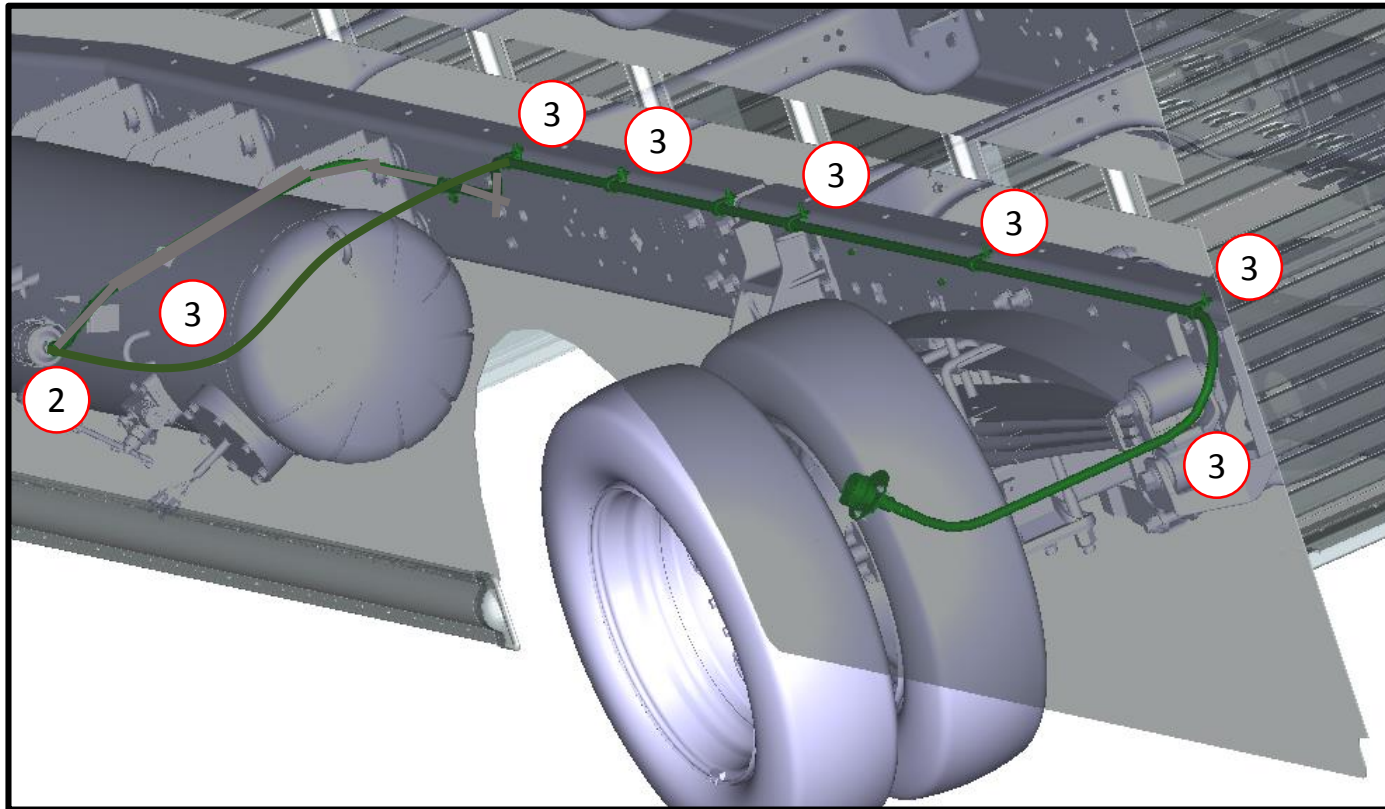
7. The fill hose guard P15MB-10T002-A is retained using 3 M6 bolts 98093A440 and 3 M6 nuts W702147-S438 along the frame rail. Torque to 8-12 Nm.
8. Line up the 3 P-clamps with the tabs on the top of the guard. Using 3 M6 bolts 98093A440, fasten to the M6 weld nuts on the guard. The cargo floor goes in between the guard and the P-clamp as shown below. Torque 8-12 Nm.



## INSTALLING THE FILL SYSTEM (DRIVER SIDE FILL, REAR OF AXLE, MORGAN OLSON)

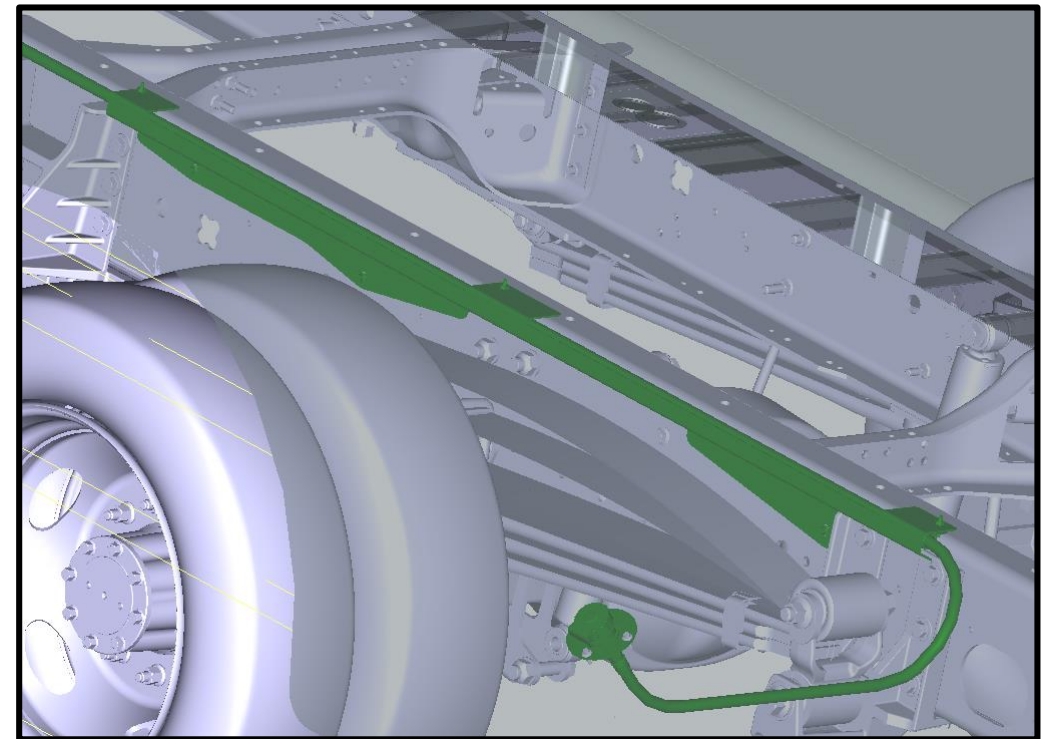
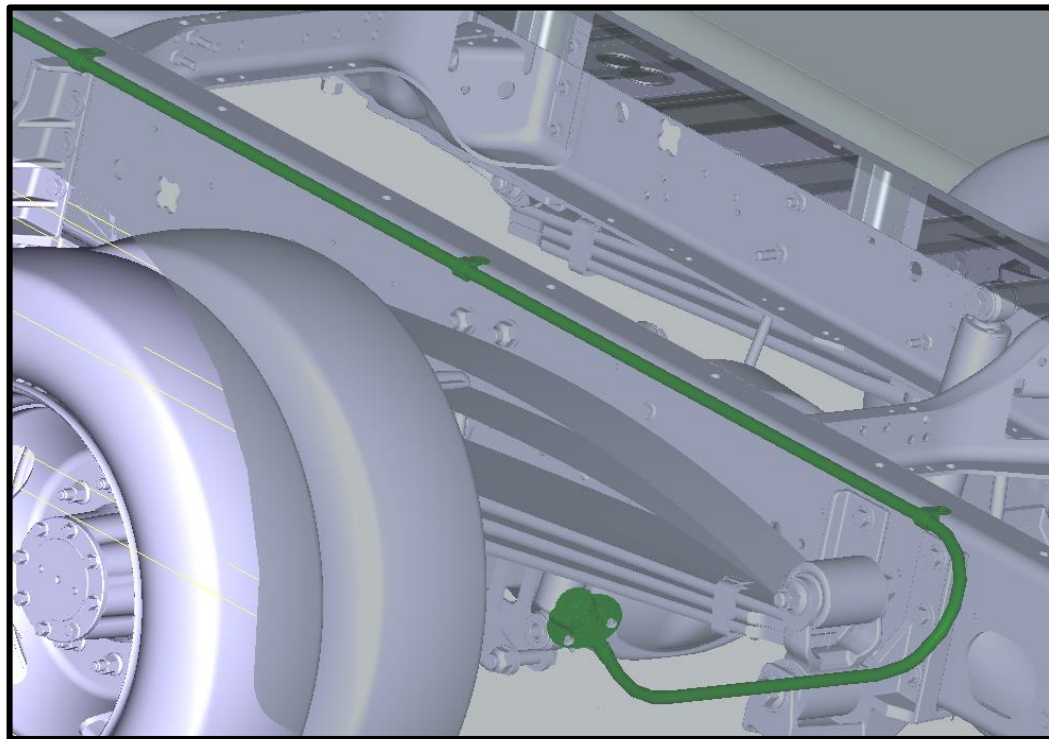
**NOTE: THESE STEPS ARE FOR VEHICLES INTENDED TO HAVE A FILL VALVE ON THE DRIVER'S SIDE BEHIND THE AXLE ON MORGAN OLSON BODIES. IF YOUR VEHICLE IS MEANT TO HAVE A DIFFERENT FILL VALVE CONFIGURATION PLEASE SKIP TO THE NEXT SECTION.**

1. Install the fuel fill hose as shown. Follow the gasoline fill tube routing where the hose routes from the fill valve to the frame. Then feed behind the tank through the lifting eye bracket.
2. Attach the straight end of the fill line P-10D122-C-XXXX to the fill filter. Torque the fitting to 41-49 Nm.
3. Attach 7 P-clips 11-056-0042 along the fill hose in the locations shown below.



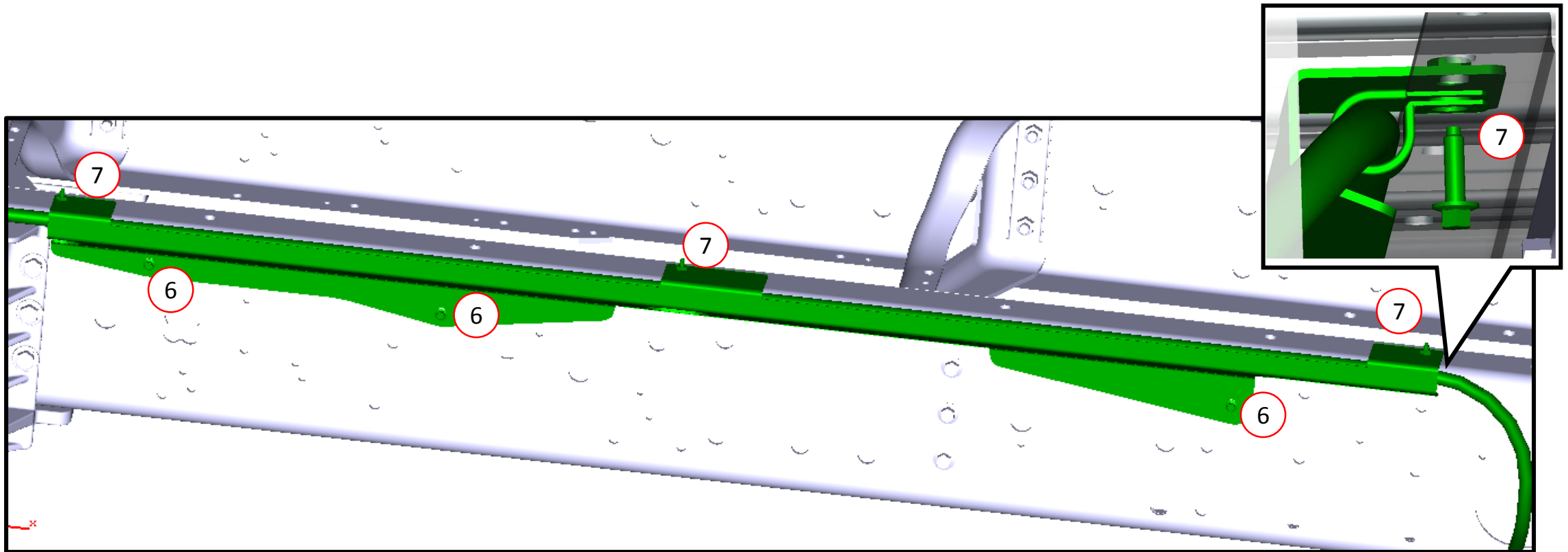
## INSTALLING THE FILL SYSTEM (DRIVER SIDE FILL, REAR OF AXLE, MORGAN OLSON CONT.)

4. The fill hose guard P16MB-10T002-A is installed along the axle as shown below.



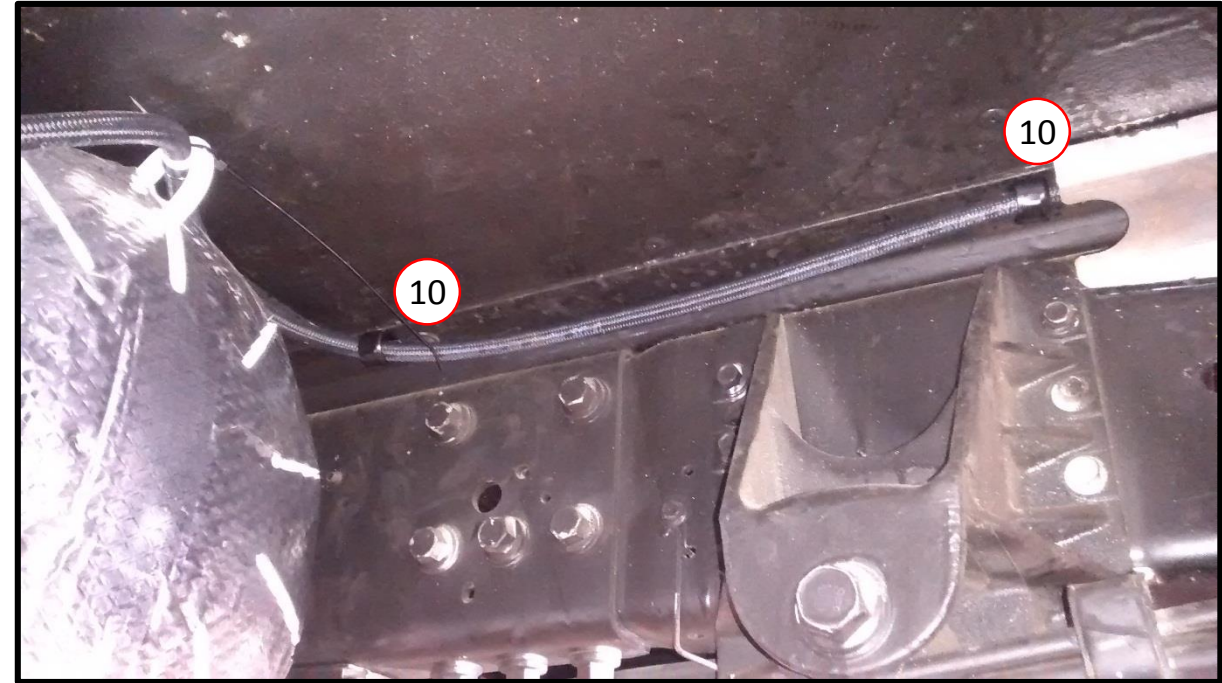
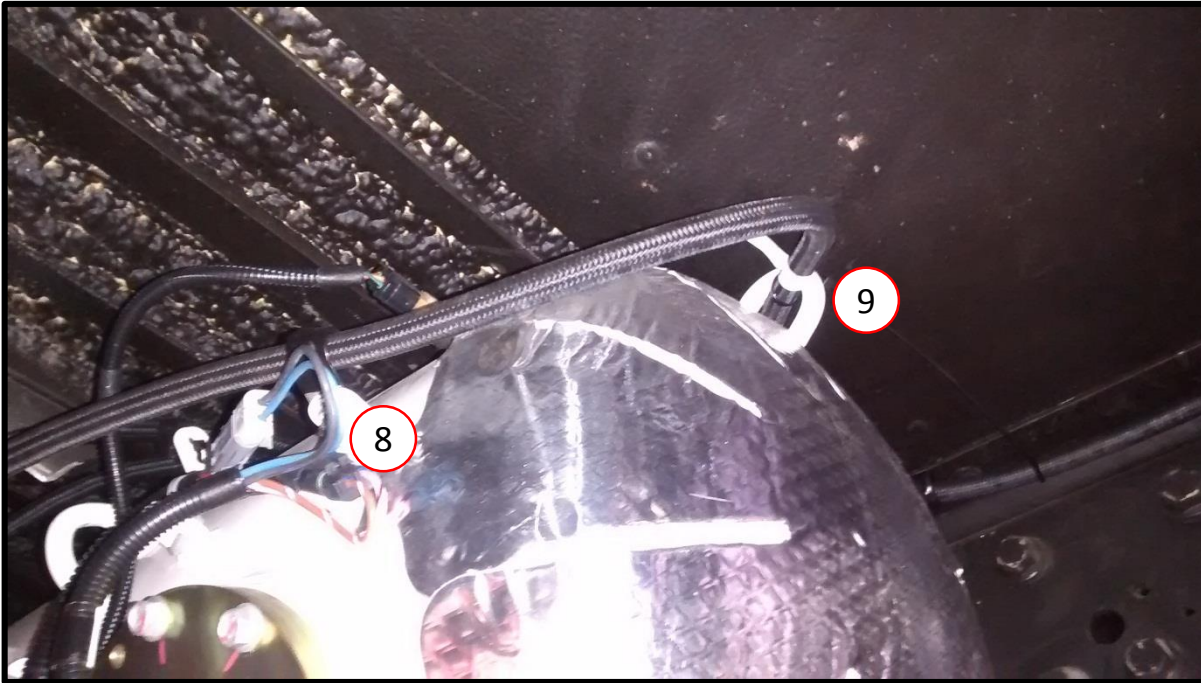
## INSTALLING THE FILL SYSTEM (DRIVER SIDE FILL, REAR OF AXLE, MORGAN OLSON CONT.)

5. Use the fill hose guard as a template to drill the line retention holes in the body mounting channel. Attach the fill hose guard with the weld nuts positioned underneath the body mounting channel and mark the location of the weld nuts. Drill the holes to 7 mm. (9/32”).
6. The fill hose guard P16MB-10T002-A is retained using 3 M6 bolts 98093A440 and 3 M6 nuts W702147-S438 along the frame rail. Torque to 8-12 Nm.
7. Line up the 3 P-clamps with the tabs on the top of the guard. Using 3 M6 bolts 98093A440, fasten to the M6 weld nuts on the guard. The cargo floor goes in between the guard and the P-clamp as shown below. Torque 8-12 Nm.



## INSTALLING THE FILL SYSTEM (DRIVER SIDE FILL, REAR OF AXLE, MORGAN OLSON CONT.)

8. Retain the fill line to the tank using a p-clamp and an M6x1x20 flange head bolt and nut and washer assembly as shown.
9. Use a zip tie (7130K48) to retain the fill line to the lifting lug on the tank as shown. Make sure the line is routed inside the lifting lug.
10. Use two p-clamps, two washers, and two self tapping screws to retain the line to the body mounting channel as shown. Drill a 3 mm. (1/8") pilot hole for the self tapping screws.



## INSTALLING THE FILL SYSTEM (DRIVER SIDE FILL, REAR OF AXLE, MORGAN OLSON CONT.)

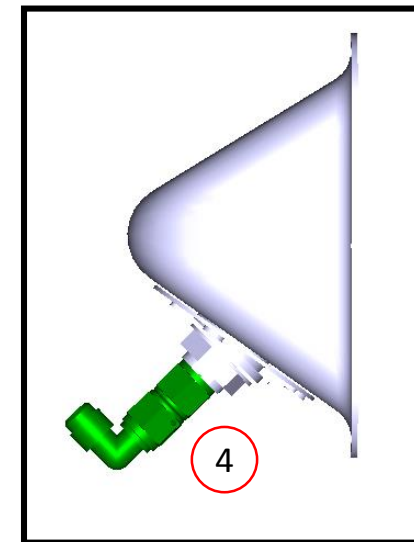
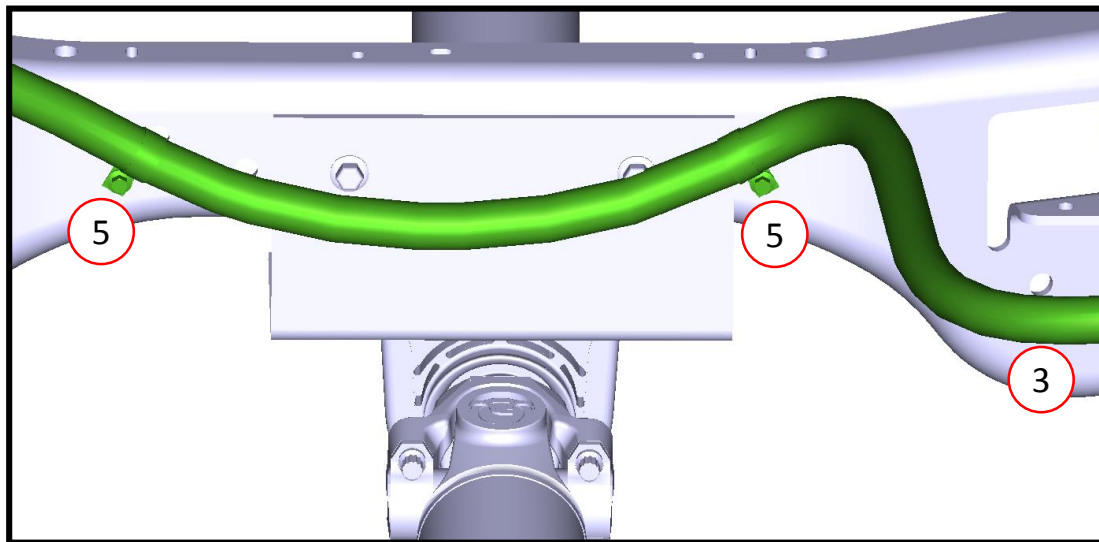
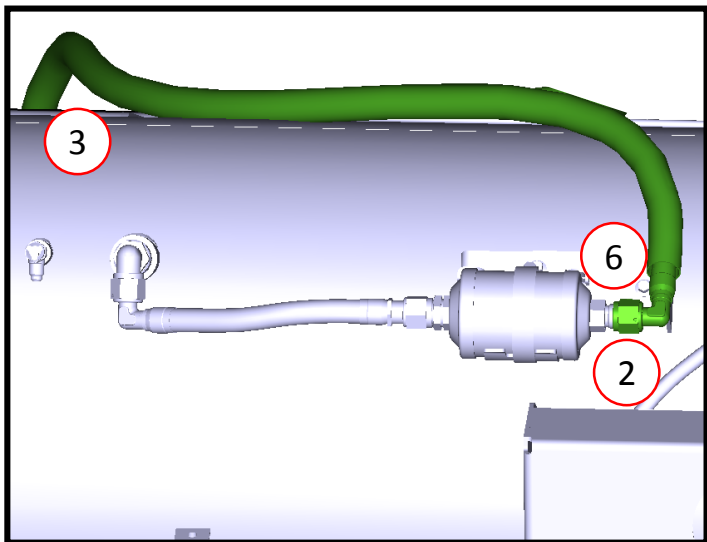
11. Retain the fill line to the body floor near the rear reusing an existing bolt on the body as shown.



## INSTALLING THE FILL SYSTEM (PASSENGER SIDE FILL)

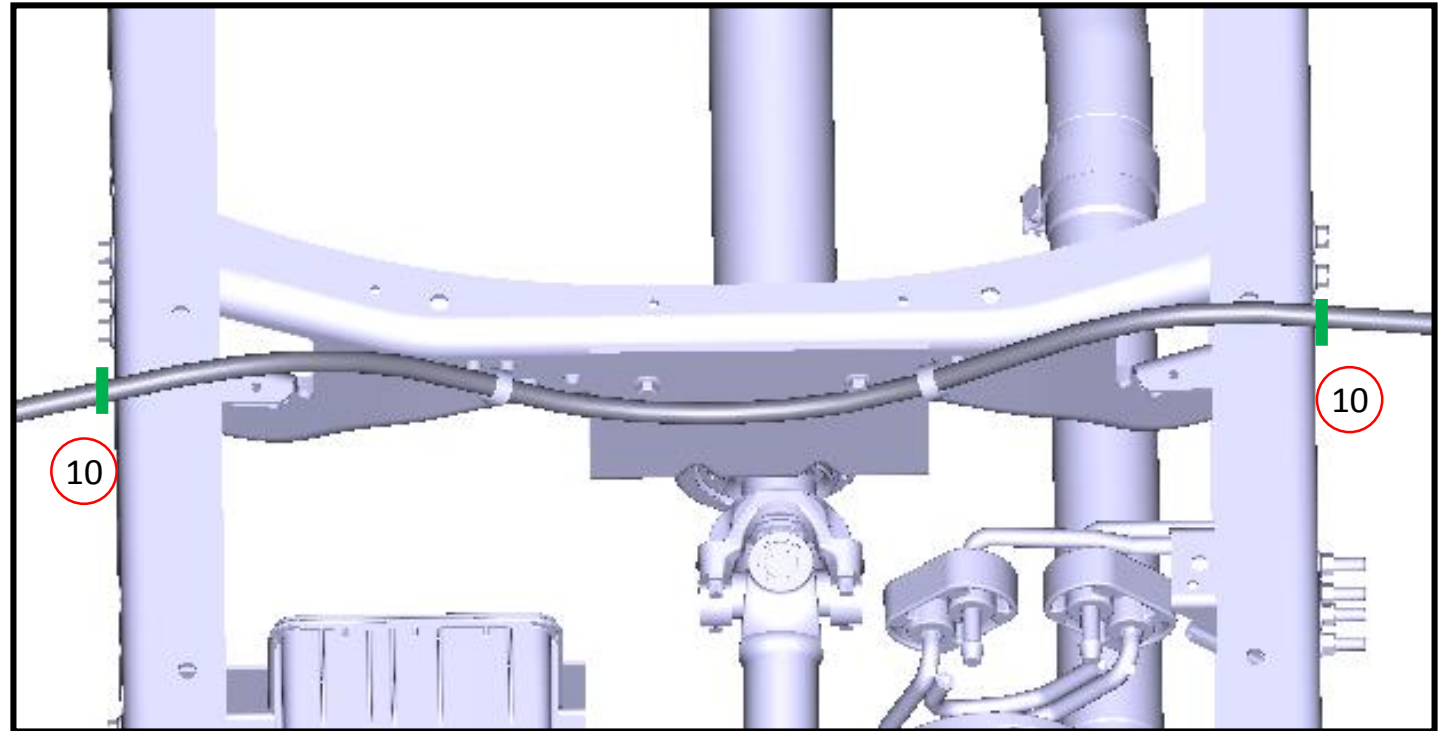
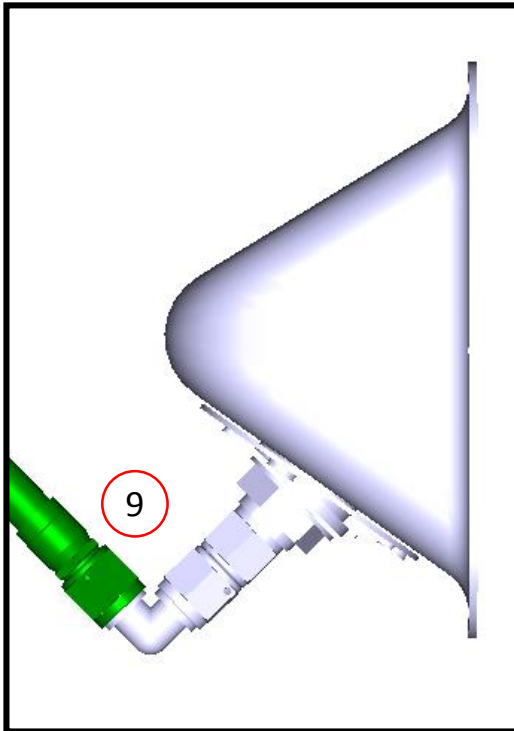
**NOTE: THESE STEPS ARE FOR VEHICLES INTENDED TO HAVE A FILL VALVE ON THE PASSENGER'S SIDE. IF YOUR VEHICLE IS MEANT TO HAVE A FILL VALVE ON THE DRIVER'S SIDE PLEASE SKIP TO THE NEXT SECTION.**

1. Install convolute onto fill line P-10D121-C.
2. Attach the 90 degree end of the fill line P-10D129-C to the fill filter. Hand tighten only.
3. Snake the fill line over the tank and between the frame rail and body floor near the front cross member that supports the drive shaft. Pull the line underneath the body and then snake it between the frame rail and body floor on the driver side.
4. Connect the dual swivel fitting and 90 degree elbow to the fill valve as shown. Torque the fittings to 41-49 Nm. **Use two wrenches.**
5. Attach a Qty 2. P-clips (11-056-0041) to the fill line and retain to the cross member in two positions as shown below. Use M6x1x16 flange head bolts and M6x1 nuts with captive washer. Torque to 8-12 Nm.
6. Torque the fitting at the fill filter to 41-49 Nm. **Use two wrenches.**
7. Use two zip ties T50R0HSM4 to secure the convolute to the fill line near each end.
8. Use edge clip zip ties 156-00006 to secure the fill line to the body and frame rail where necessary so that fill line isn't loose.



## INSTALLING THE FILL SYSTEM (PASSENGER SIDE FILL CONTINUED)

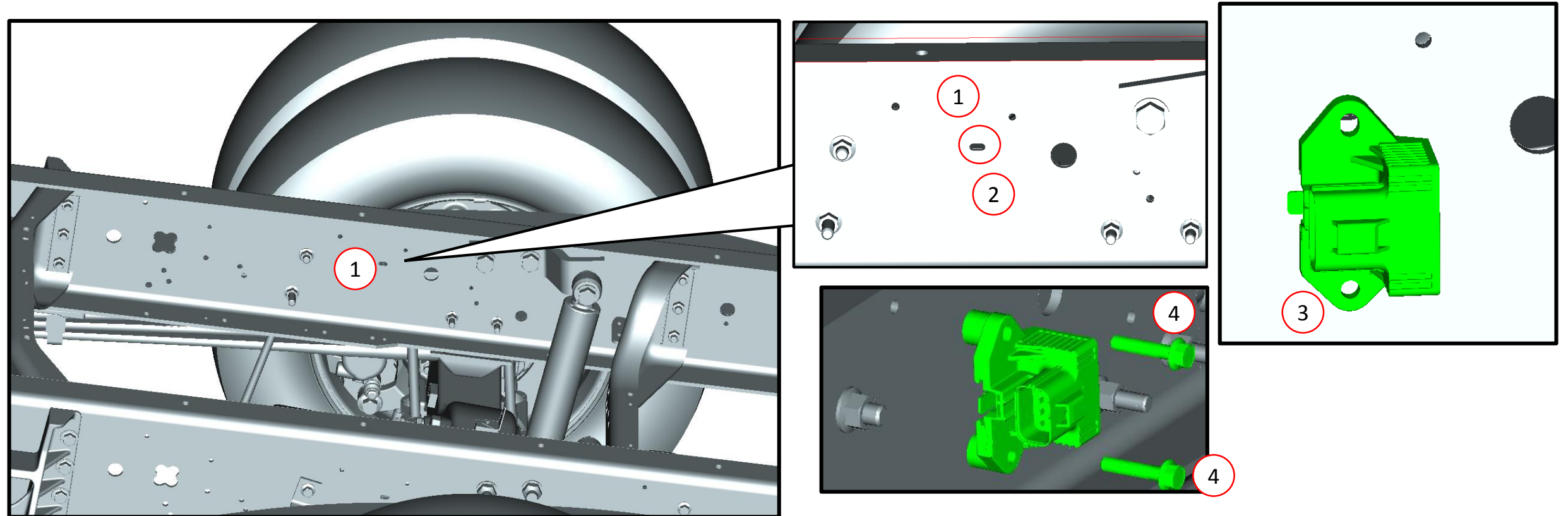
9. Connect the fill line to the elbow on the fill valve. Torque the fitting to 41-49 Nm. **Use two wrenches.**
10. Use Qty 2. edge clip zip ties 156-00006 to secure the fill line to the body where it crosses over the frame rail. and frame rail where necessary so that fill line isn't loose.
11. Use additional edge clip zip ties as needed to secure the fill line to the body or body gussets so that it won't rub against other components.





## INSTALLING THE NEW ELECTRONIC FUEL PUMP RELAY (EFPR)

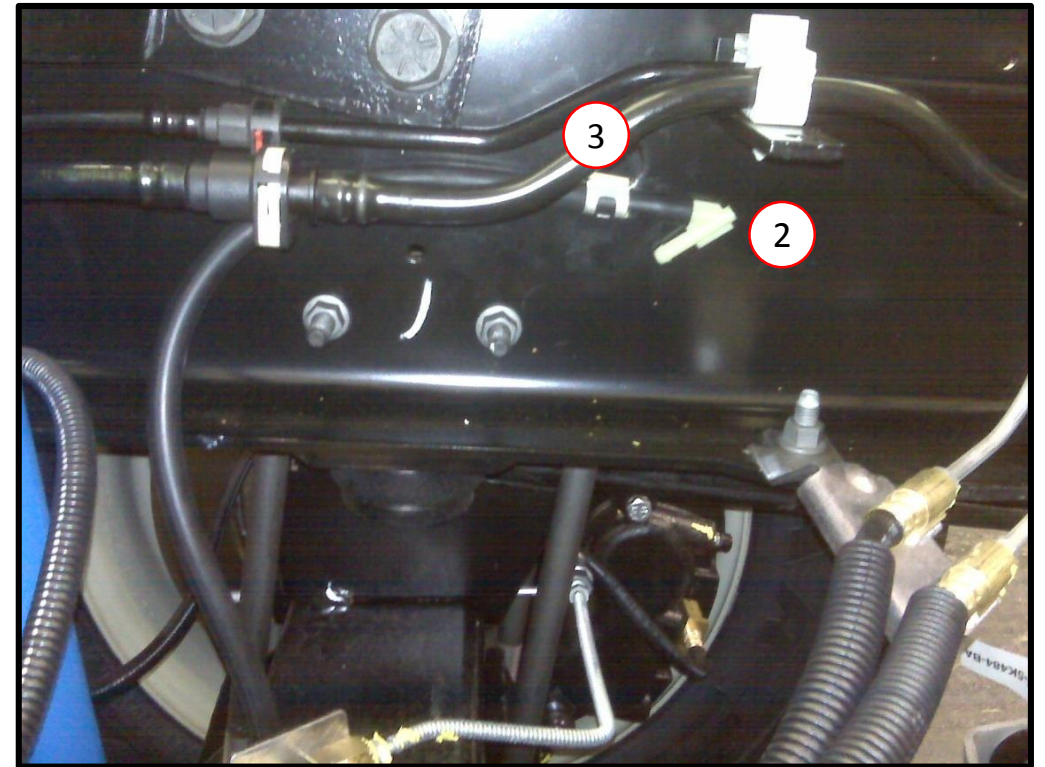
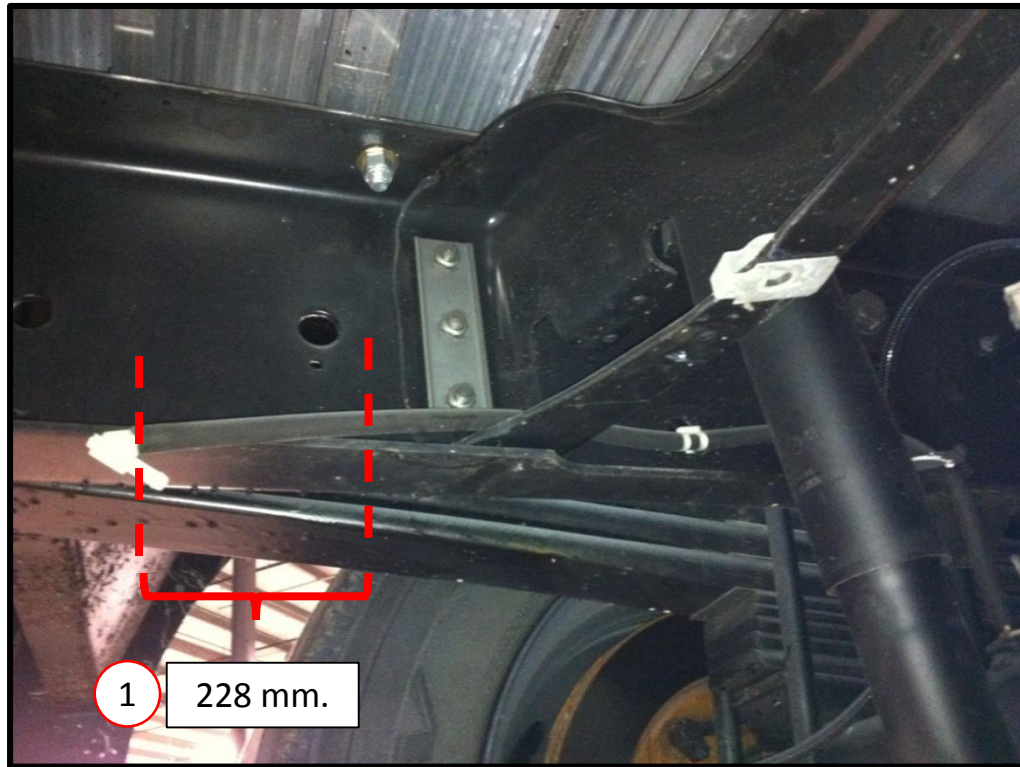
1. Install just rearward of the OEM EFPR. Locate reference hole on passenger side frame rail near the rear axle shown below.
2. Drill a 5/16" or 8 mm. hole in the center of the reference hole to allow an M8 bolt to go through.
3. Position new EFPR with the electrical connector orientated forward. Align the upper hole of the relay with frame rail reference hole, mark lower relay hole on frame rail and drill a 5/16" or 8 mm hole in the frame rail.
4. Use two spacers AS75-18-32 between EFPR and frame rail, position relay and install two M8 bolts 98093A558 and M8 locknuts 92461A400. Tighten to 7.6 – 10.4 Nm.



## RELOCATING THE REAR AXLE VENT HOSE

**NOTE: YOUR VEHICLE MAY ALREADY HAVE A RELOCATED VENT HOSE. IF THIS IS THE CASE THEN PLEASE SKIP TO THE NEXT SLIDE.**

1. Trim 228 mm (9 in) off of the rear axle vent hose.
2. Re-attach the plastic fitting on the end to the hose.
3. Move the edge clip to the location shown below.



## INSTALLING THE WIRING HARNESSSES – COMPONENT OVERVIEW

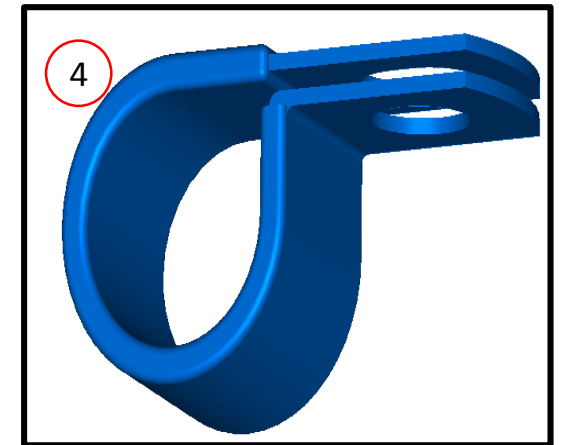
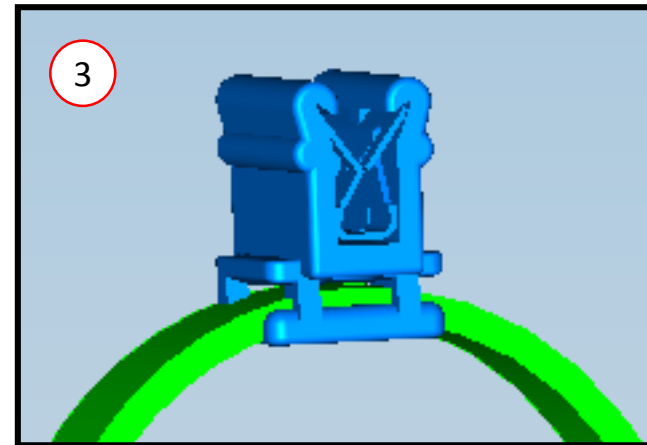
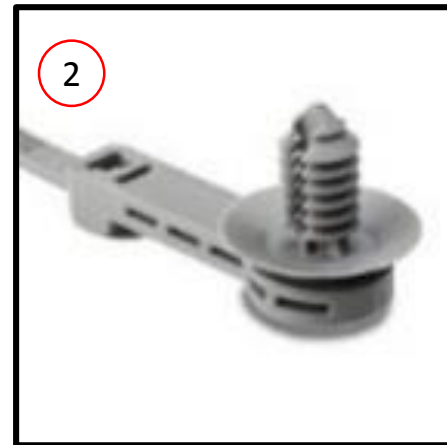
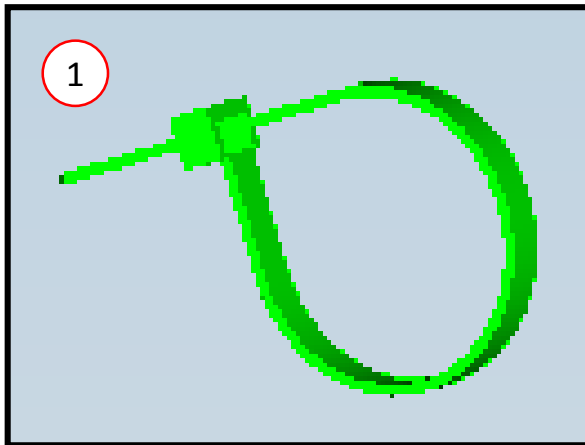
The following instruction are for installing propane kit harnesses:

1. P16MB-18A100-A Underhood harness
2. P16MB-18B100-A CAN harness
3. P16MB-18C200-A Rear Frame harness
4. P16MB-18K377-A Tank harness

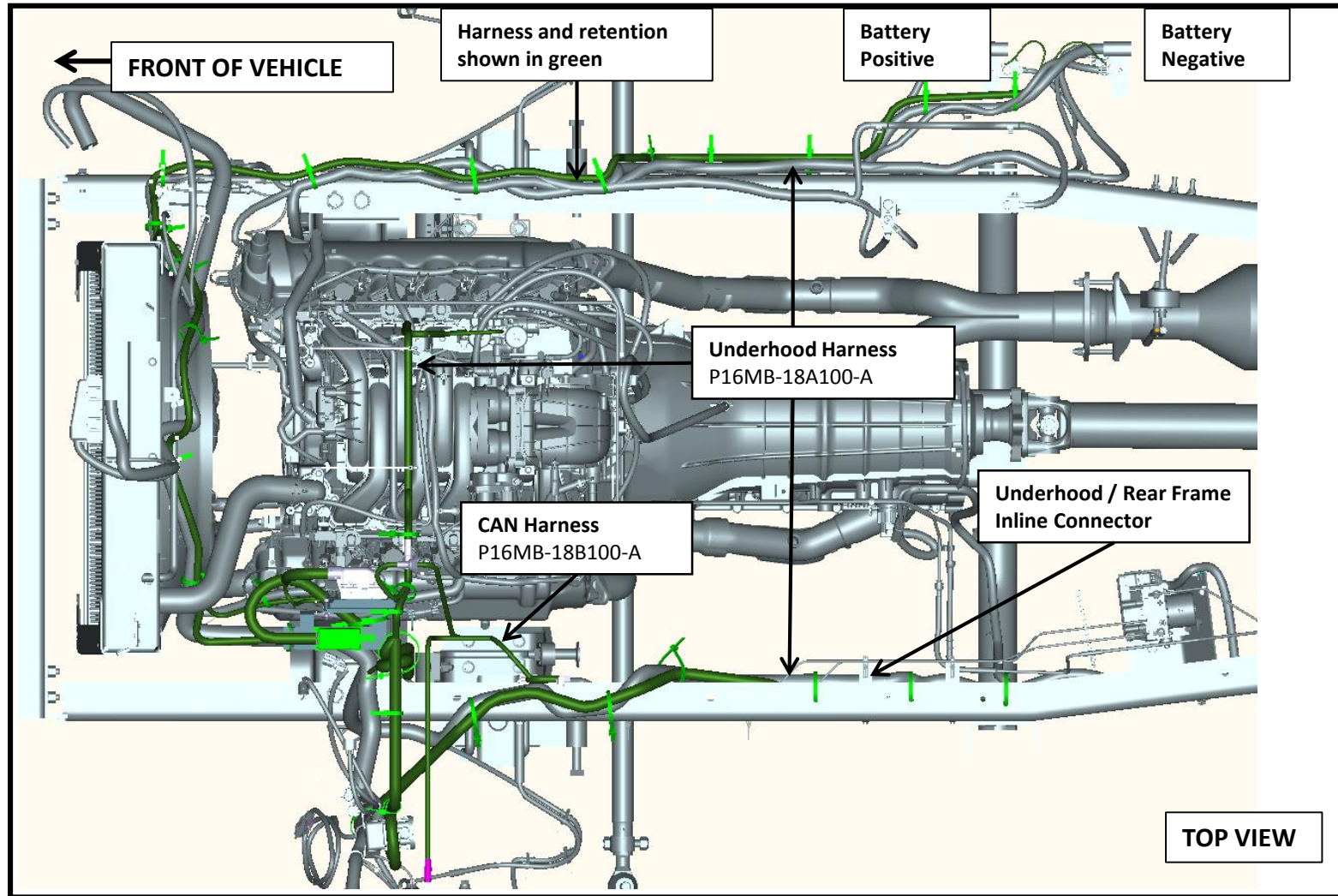
### \*\*\* READ BEFORE STARTING THE INSTALLATION \*\*\*

There are 4 types of retainers in the Electrical Kit to retain harnesses.

1. Tie Straps (20-403-0003) are typically used to retain to the OEM harness.
2. Use 2 Offset Fir Tree Clip (157-403-0013) to retain Underhood harness to engine compartment dash panel.
3. Plastic Edge Clips (20-403-0011) retain a portion of the Underhood harness in engine compartment.
4. P-Clamp P/N 11-056-0042 to retain Rear Frame Harness to frame outlined later in this guide.

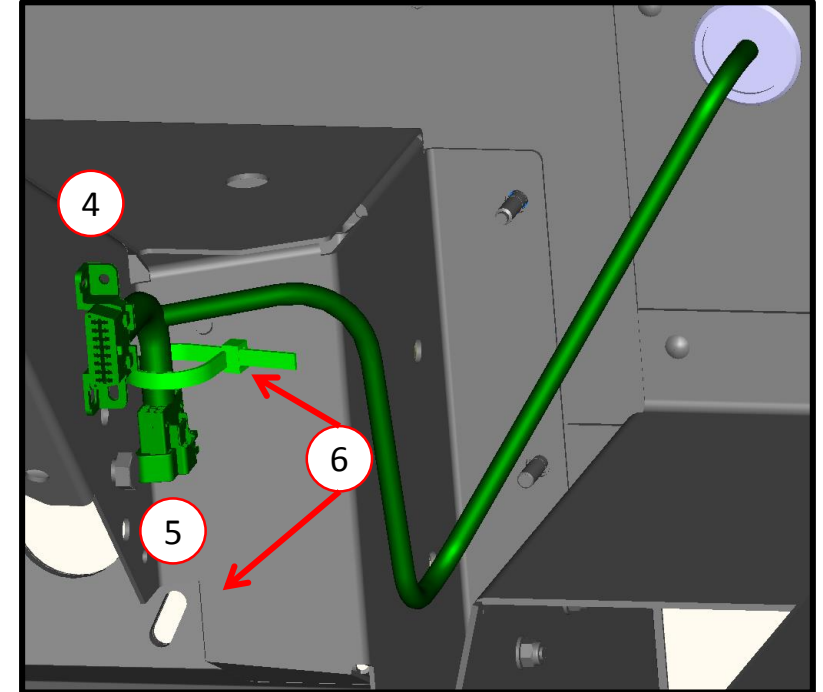
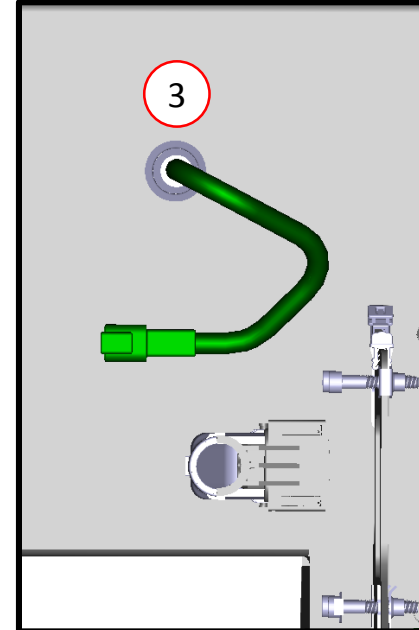
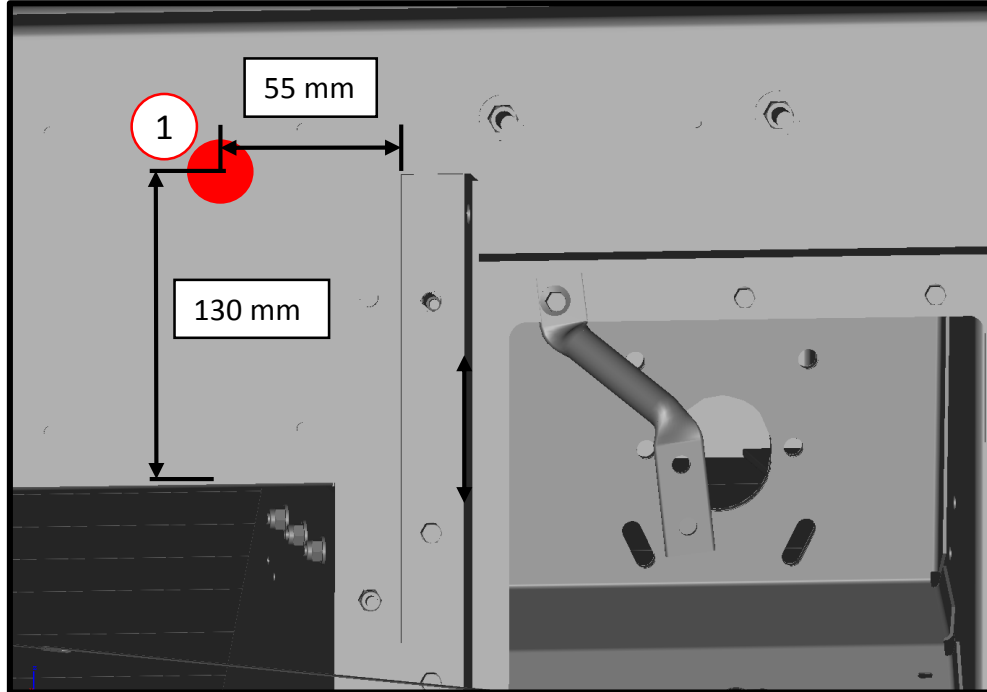


## INSTALLING THE WIRING HARNESSSES – FRONT HALF WIRING OVERVIEW

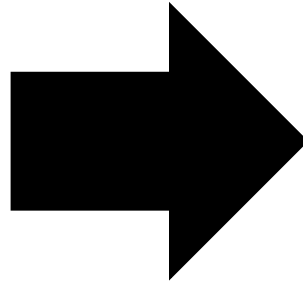


## INSTALLING THE CAN HARNESS

1. Mark a hole as shown in image below in the dash panel sheet metal.
2. Use a hole saw to drill a 29 mm (1.14 in) in the dash panel sheet metal for the CAN harness pass through. **Make sure there is clearance on the other side of the sheet metal before drilling.** Refer to the *Special Tools* section for more information.
3. Pull CAN Harness (P16MB-18B100-A) through the 29 mm hole and seat grommet to make a proper seal.
4. Remove OEM OBD diagnostic connector. Use same hardware to attach CAN harness OBD connector as shown.
5. Plug OEM OBD diagnostic connector into CAN harness male OBD connector.
6. Secure harness about 100 mm on each side of mated OBD connectors using 2 tie straps (20-403-0003).

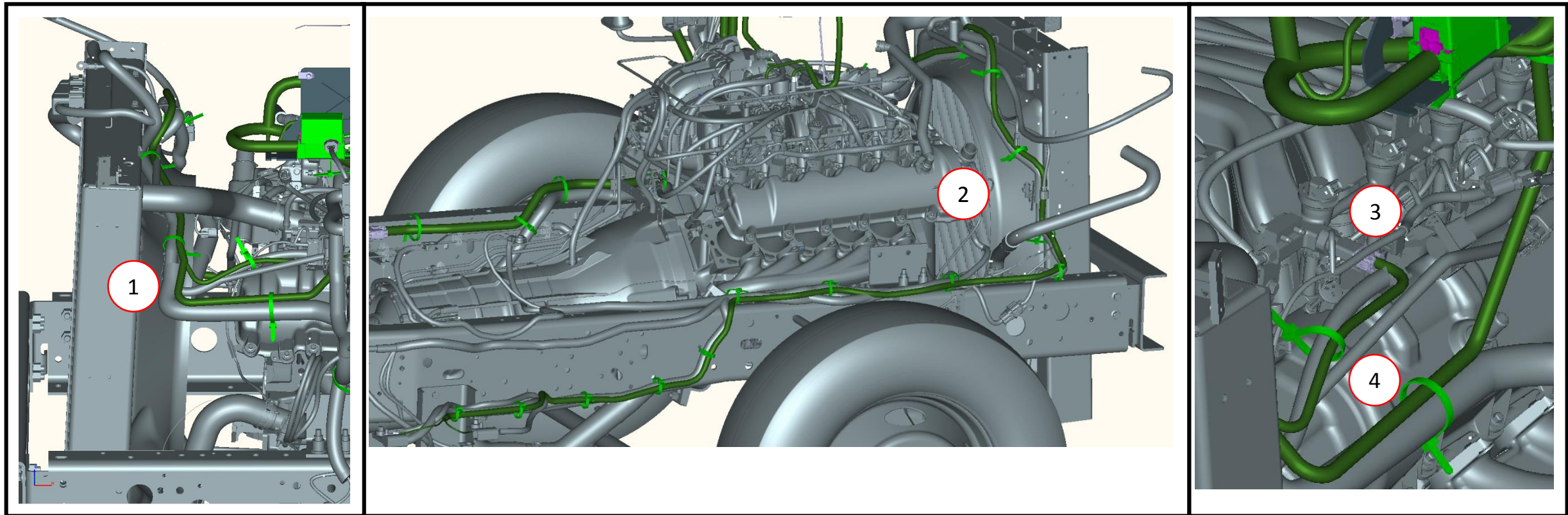


# APPLY LABEL TO RCT CAN HARNESS



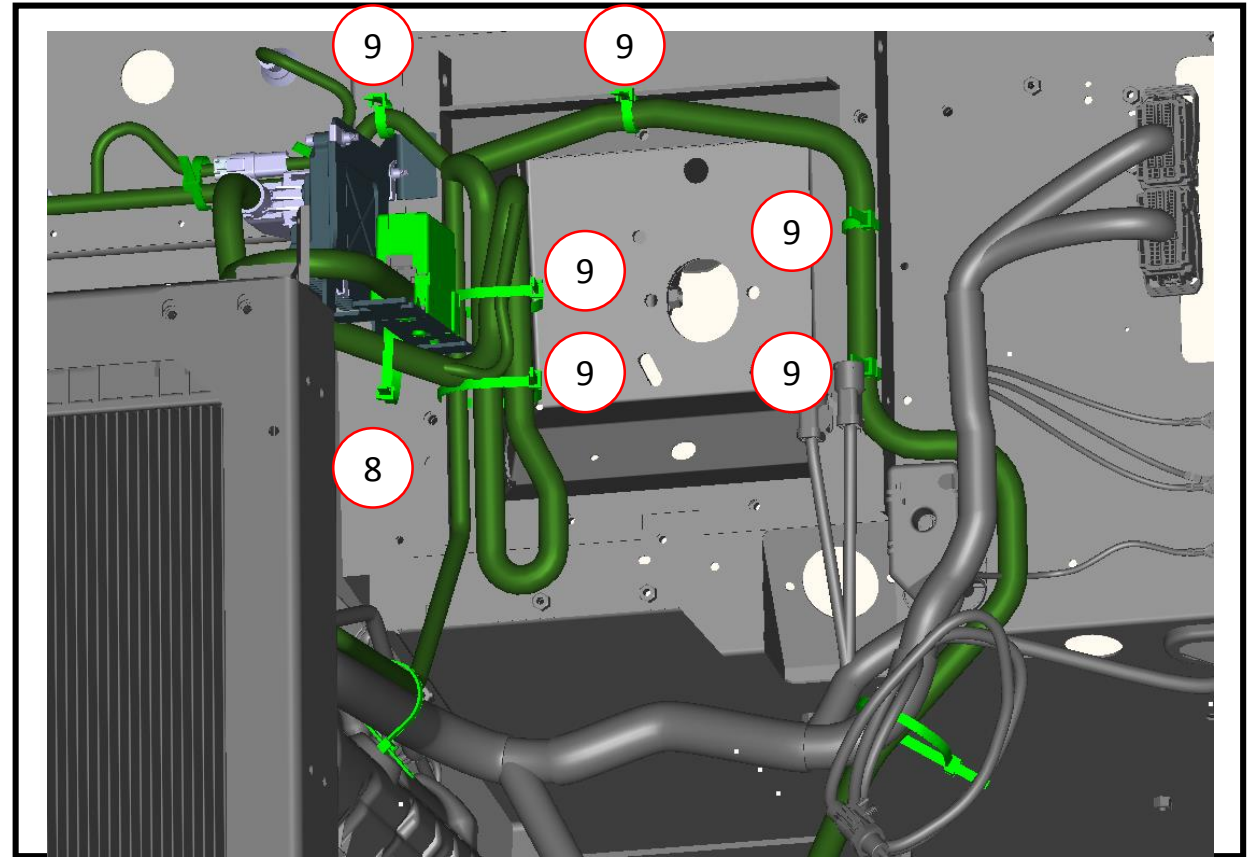
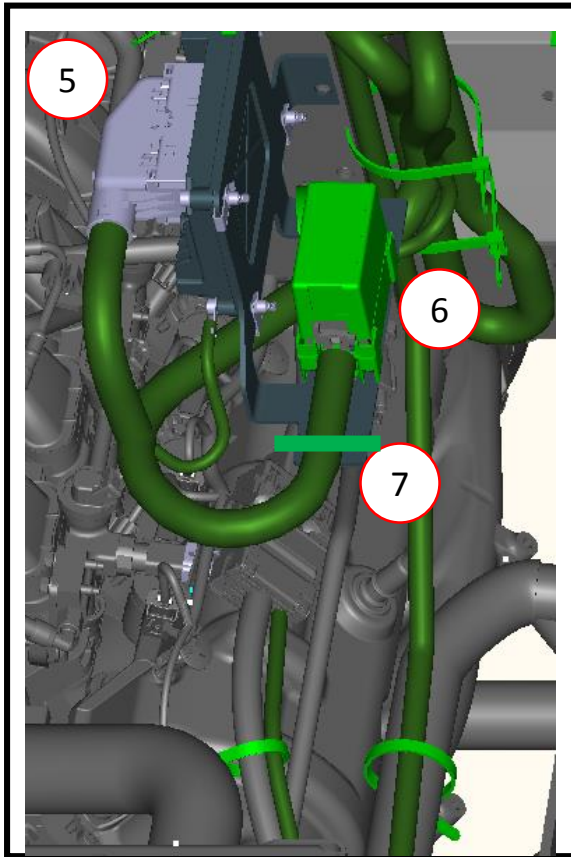
## INSTALLING THE UNDERHOOD HARNESS

1. Begin in the front left engine compartment. Position the Underhood Harness (P16MB-18A100-AA) along the Ford Engine Compartment Harness as shown. Loosely install tie straps (20-403-0003) to allow proper fitment before tightening the tie straps.
2. Retain the Underhood Harness to Ford Engine Compartment Harness along the Fan Shroud and continue along battery cables to battery tray. With harness positioned to properly reach the battery terminals install and secure all tie-straps along fan shroud and right side frame rail.
3. Make the IPTS connection on the left fuel rail.
4. Use tie straps (20-403-0003) to secure the Underhood Harness as shown. Secure any loose tie straps before next step.



## INSTALLING THE UNDERHOOD HARNESS (CONTINUED)

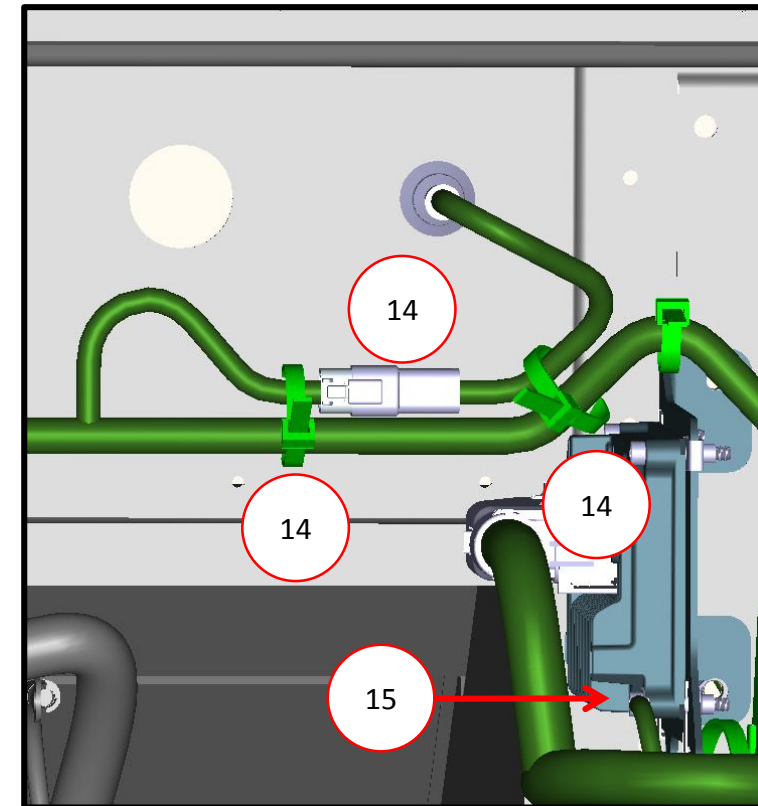
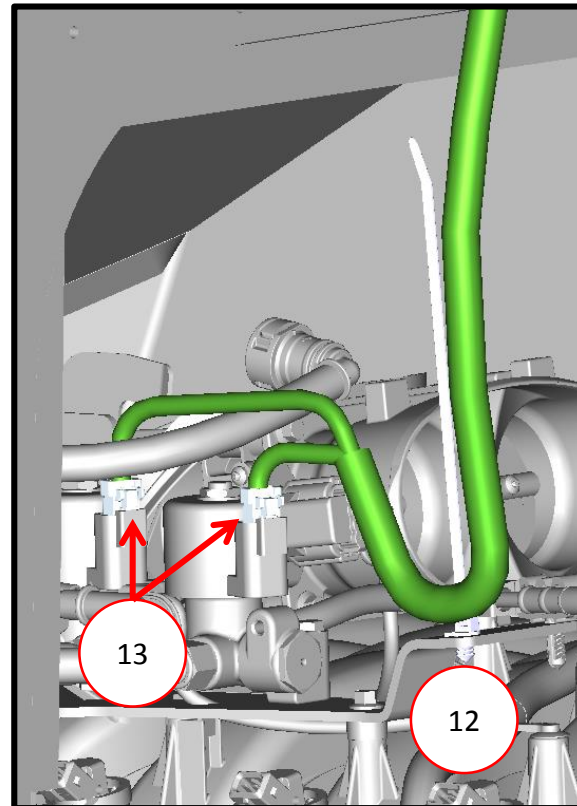
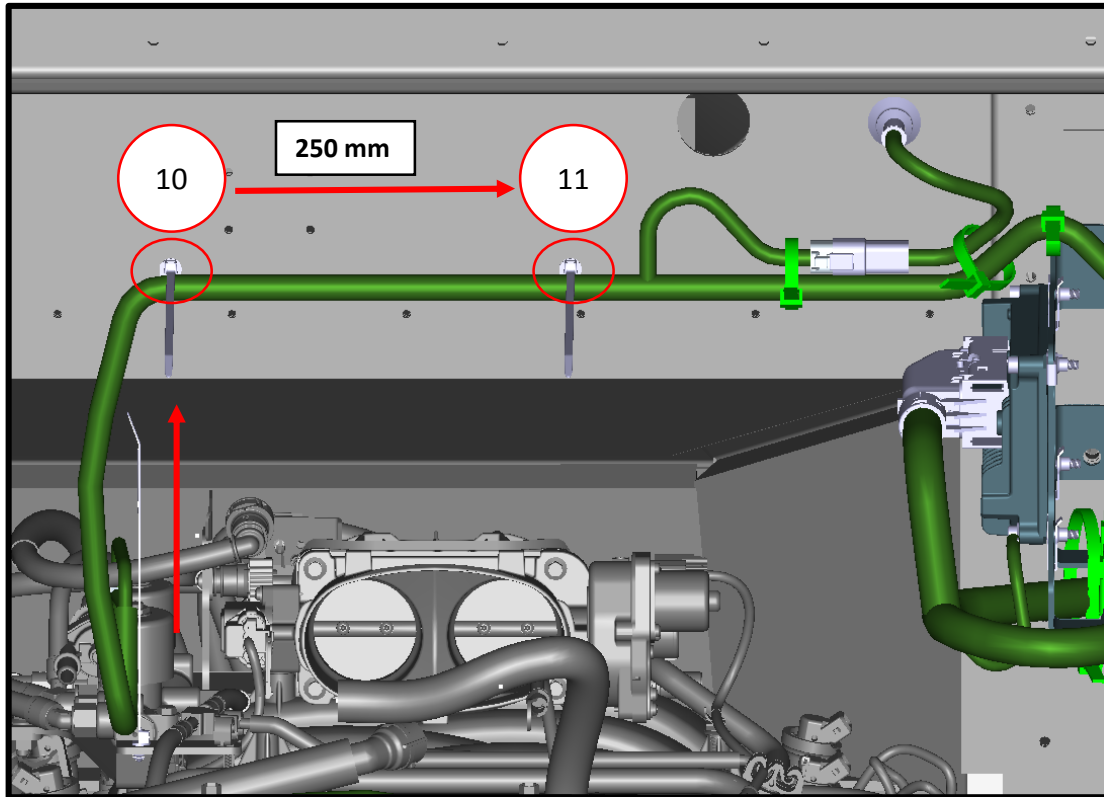
5. Connect the Underhood Harness to the SRM.
6. Connect the Underhood Harness Fuse Box by inserting it in bracket as shown and sliding it forward to lock in place.
7. Secure harness to fuse box bracket with a tie strap (20-403-0003).
8. Tie strap harness to bottom of SRM bracket and bundle extra harness as shown after all connections have been made.
9. Use 6 plastic edge clips (20-403-0011) to secure harness to angle brackets and SRM bracket as shown.





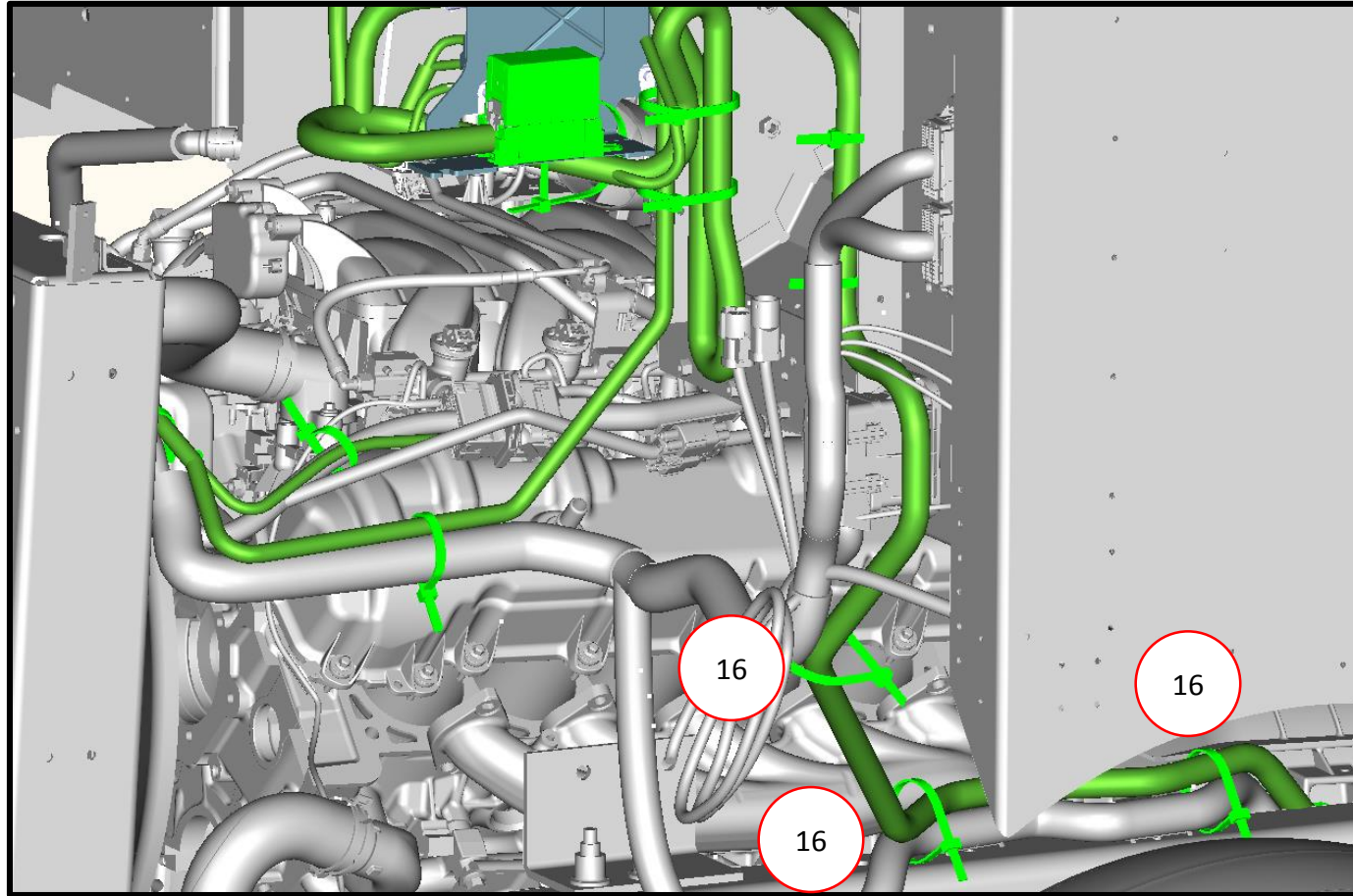
## INSTALLING THE UNDERHOOD HARNESS (CONTINUED)

10. Drill a 6.5 mm hole in dash panel above the FRPCM. The hole should be aligned with the edge of the solenoids on the FRPCM.
11. Drill a second 6.5 mm hole 250 mm from the first clip hole.
12. Insert the harness clip into the FRPCM bracket hole.
13. Connect the harness to the Bleed Solenoid and Supply Solenoid. **Note: The black connector connects to the supply solenoid (front of the engine).**
14. Connect the Underhood Harness to the CAN Harness and use tie straps (20-403-0003) on each side of the mated connectors as shown.
15. **Secure the ring terminal at SRM mounting bolt.**

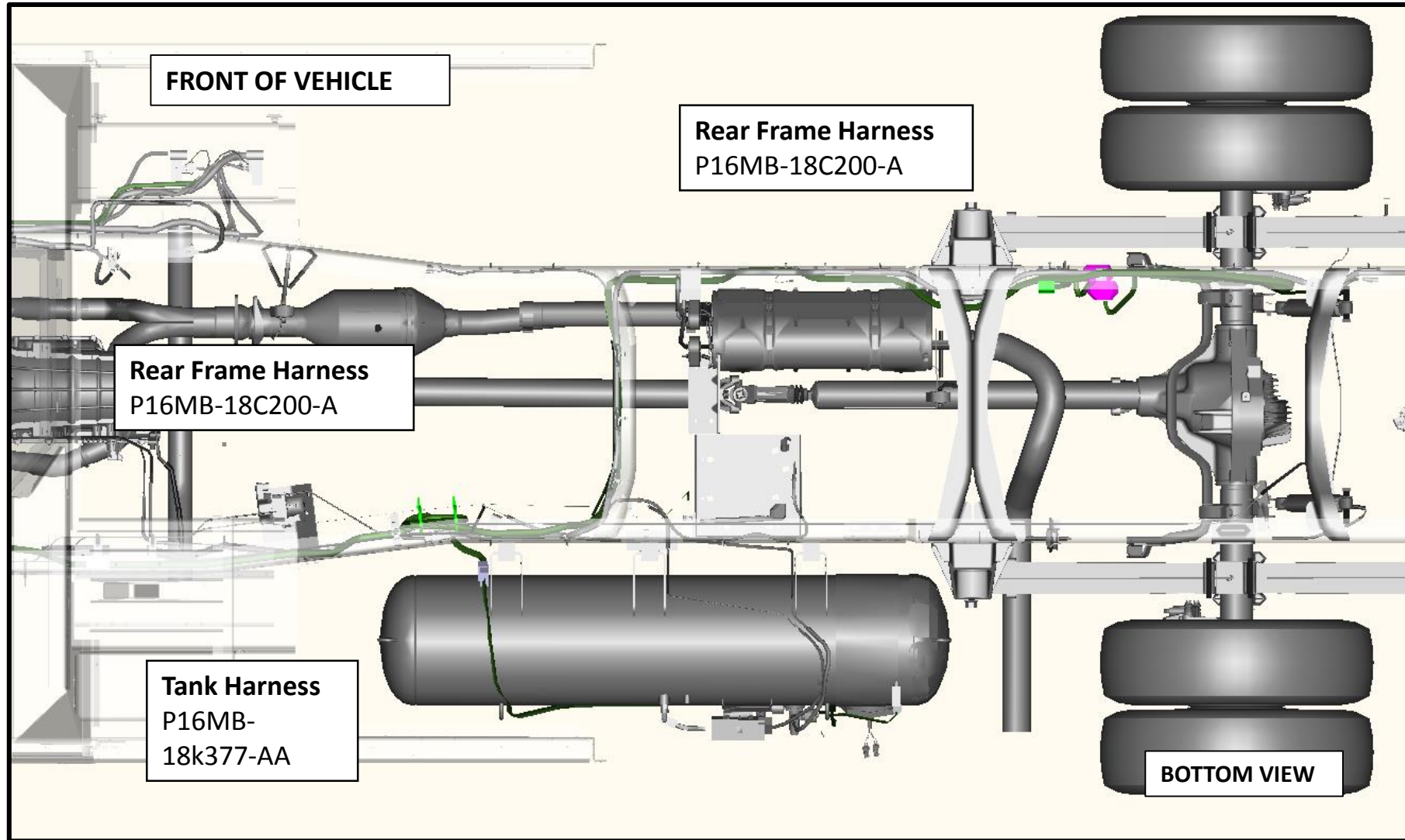


## INSTALLING THE UNDERHOOD HARNESS (CONTINUED)

16. Position the remainder of the Underhood Harness along the Ford Engine Compartment Harness and secure using three tie straps (20-403-0003) as shown below.

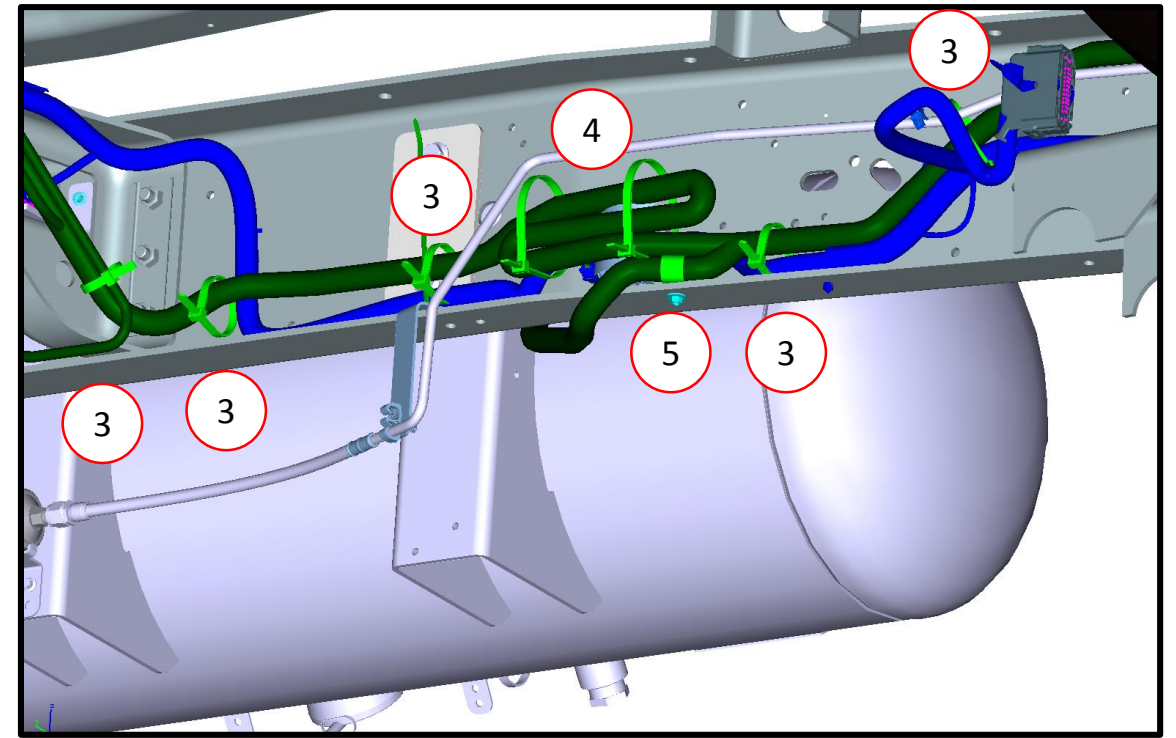
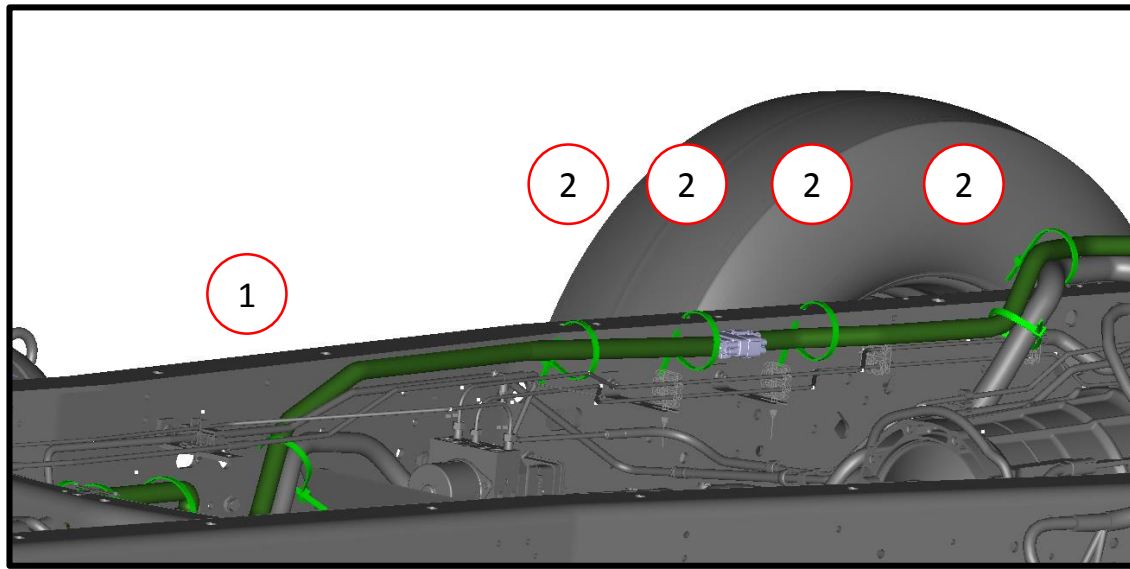


## INSTALLING THE WIRING HARNESSSES – REAR HALF WIRING OVERVIEW



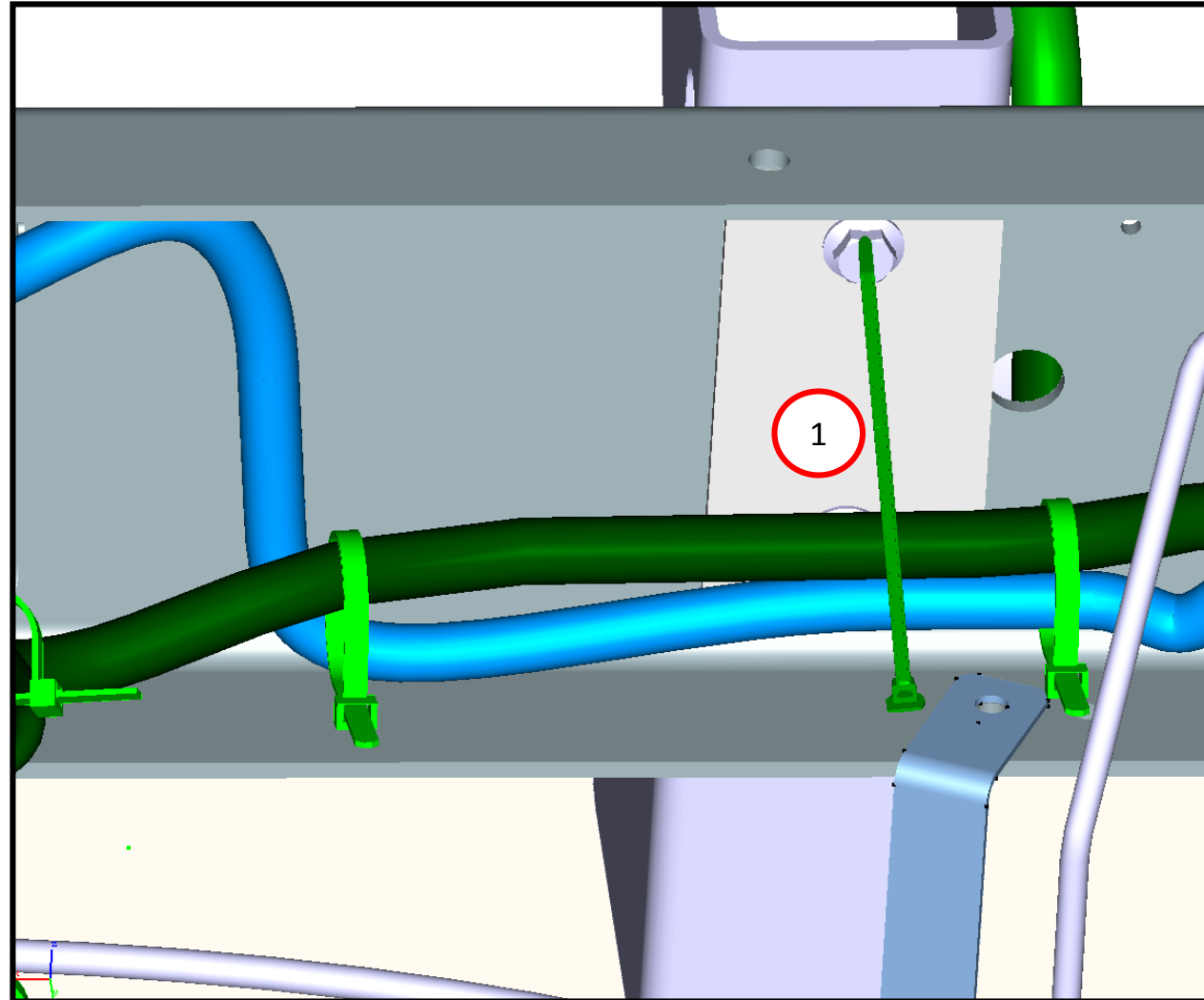
## INSTALLING THE REAR FRAME HARNESS

1. Carefully route the 16 way inline connector between the frame rail and the fuel lines as shown.
2. Connect the Underhood Harness to the Rear Frame Harness and retain using tie straps (20-403-0003) to the frame rail.
3. Ensure the Rear Frame Harness is positioned away from the fuel lines then retain the Rear Frame Harness to the Ford Frame Harness with tie straps (20-403-0003).
4. Bundle extra Rear Frame Harness length as shown.
5. Route the branch to fuel tank by securing the harness with the p-clamp P/N 11-056-0042 and M6 bolt and nut using the existing frame hole as shown.



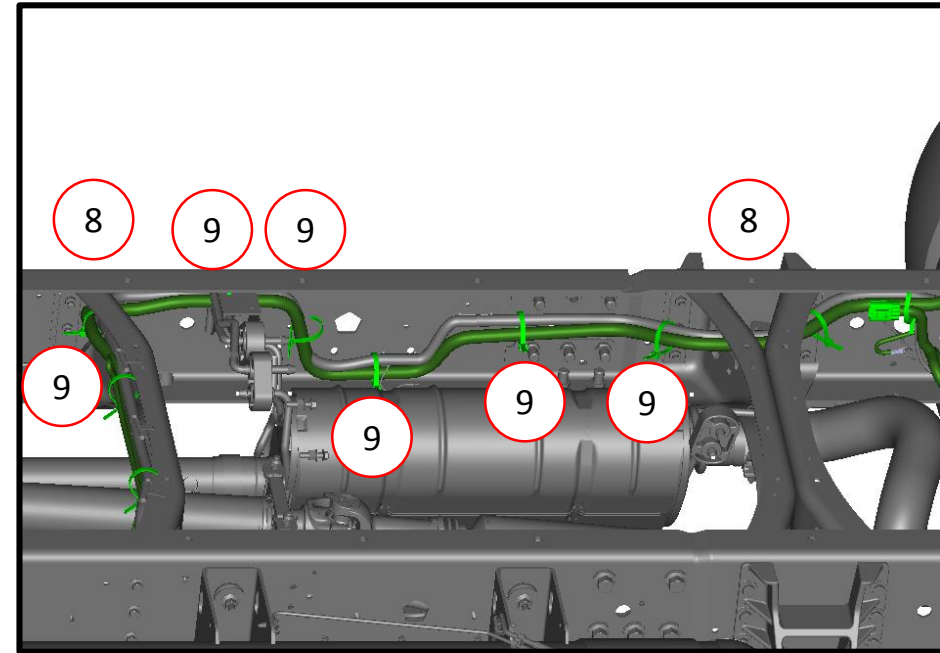
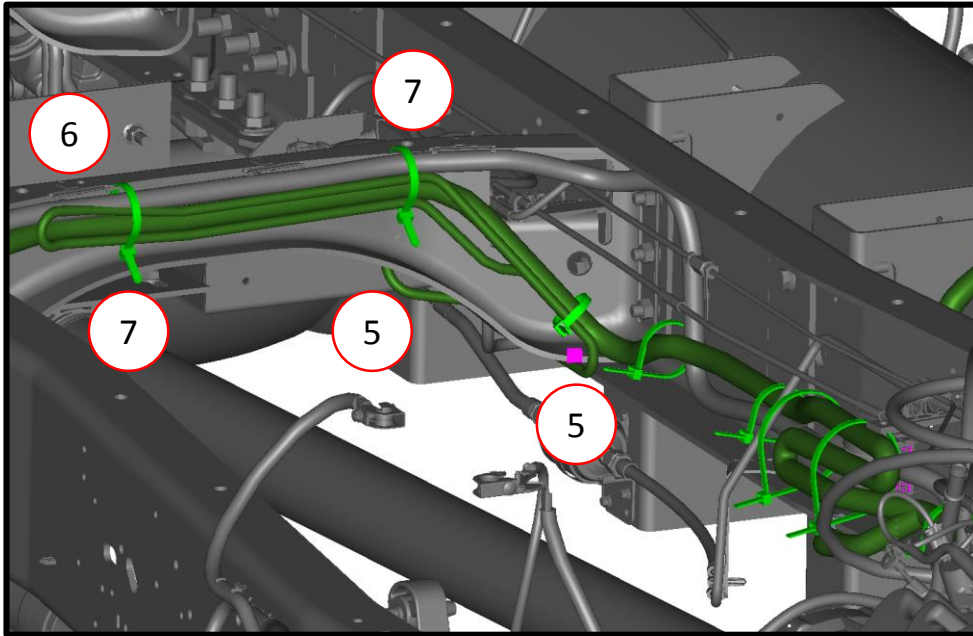
## INSTALLING THE REAR FRAME HARNESS (CONTINUED)

1. Retain both the OEM and RCT harness using fir-tree P/N 157-00052 in the existing hole on the vehicles frame.



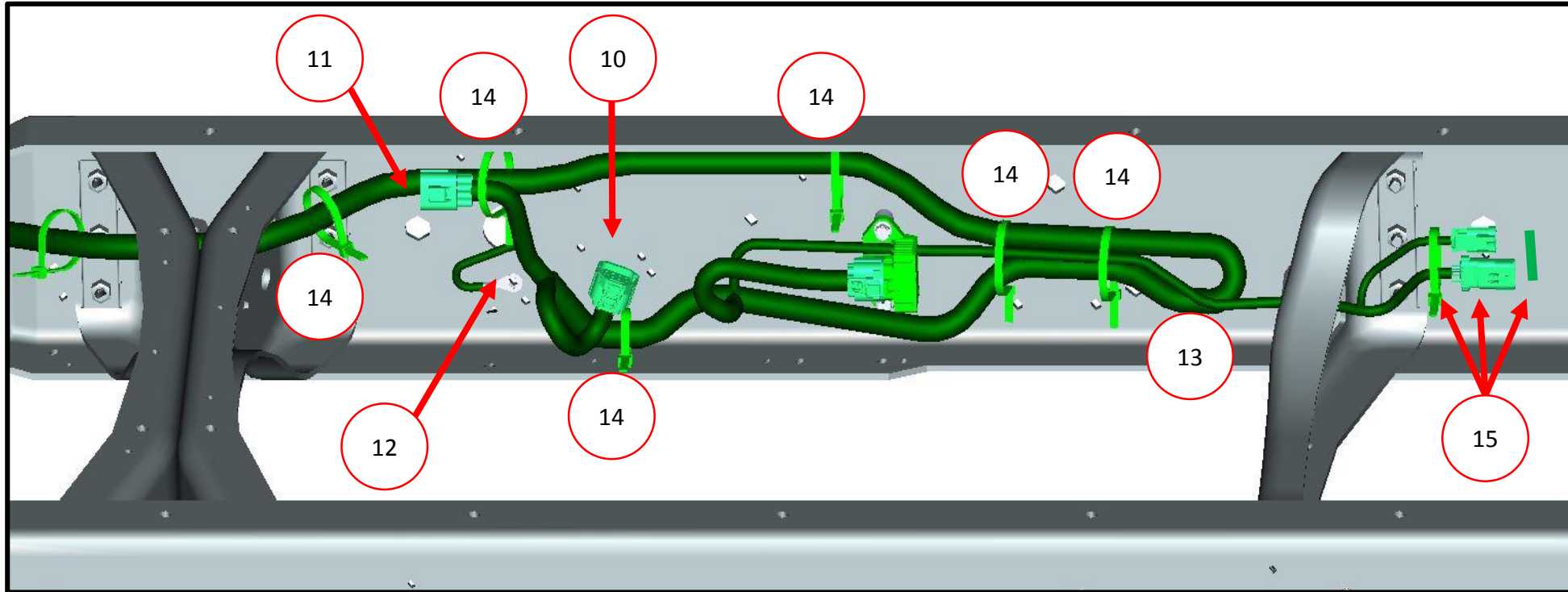
## INSTALLING THE REAR FRAME HARNESS (CONTINUED)

5. The connector for the fuel tank pressure transducer is not being used on MY16. Pack the connector terminals with Ford dielectric grease, or equivalent. Seal open end of connector with electrical tape. Bundle wire length along cross-member.
6. Tie strap the Rear Frame Harness to the OEM Harness as shown.
7. Route the Rear Frame Harness through two cross members as shown along the passenger's side of the vehicle.
8. Tie strap the Rear Frame Harness to the OEM Harness as shown.



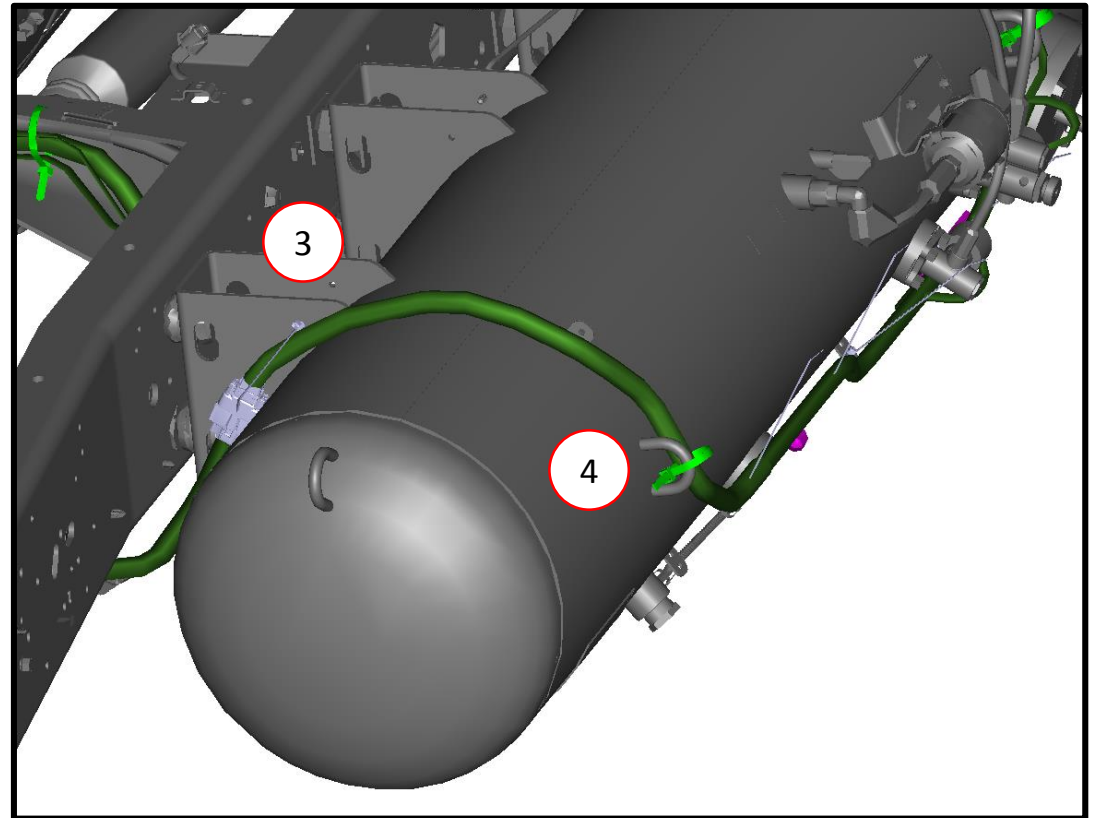
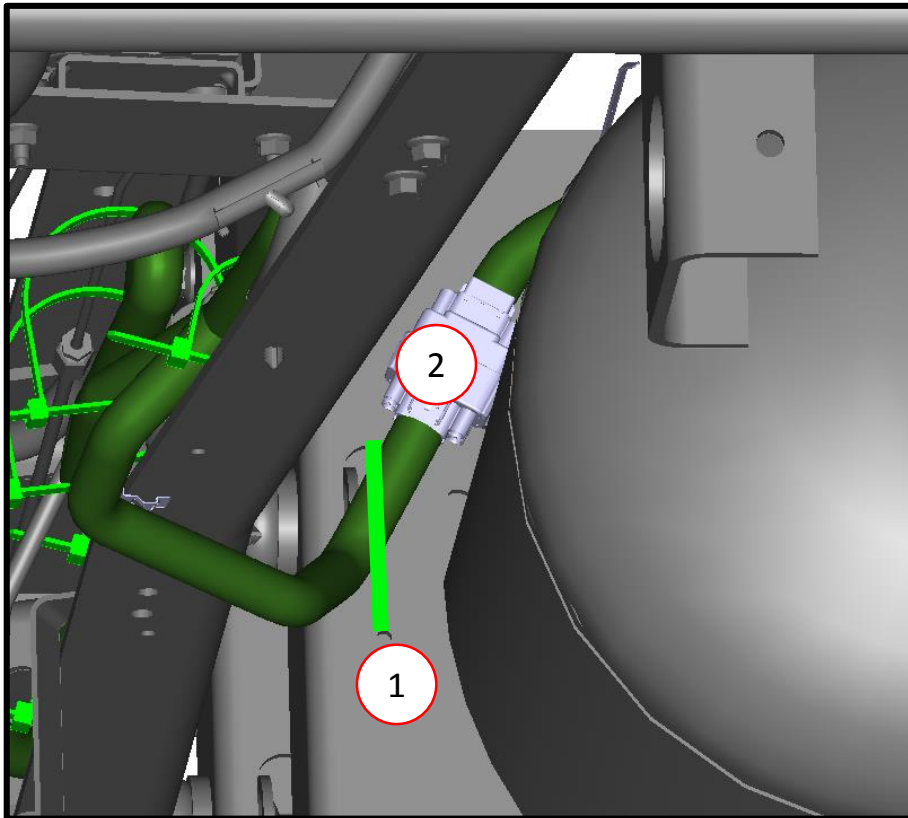
## INSTALLING THE REAR FRAME HARNESS (CONTINUED)

10. Connect the Rear Frame Harness to the Ford EFPR and the RCT EFPR.
11. Connect the 8-pin connector to the Ford Harness connector that plugged into the EFPR.
12. Connect the ring terminal frame ground using the same bolt as the Ford ground bolt.
13. Bundle any extra Rear Frame Harness length as shown.
14. Tie strap the Rear Frame Harness to the OEM harness as shown.
15. Connect both connectors to Ford Fuel Pump harness connectors and tie strap the harness on each side of the mated connectors.



## INSTALLING THE TANK HARNESS

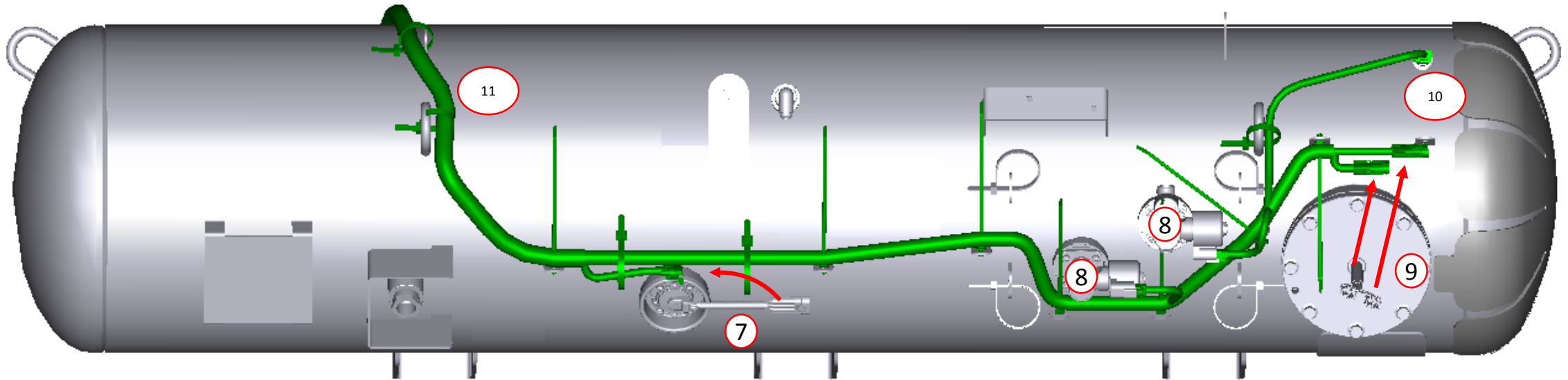
1. Feed tie strap (20-403-0003) through holes in tank mounting bracket and secure the Rear Frame Harness to the tank.
2. Connect the Rear Frame Harness to the Tank Harness (P16MB-18K377-A).
3. Insert Tank Harness clip in mounting bracket hole.
4. Tie strap (20-403-0003) Tank Harness to eye hook.





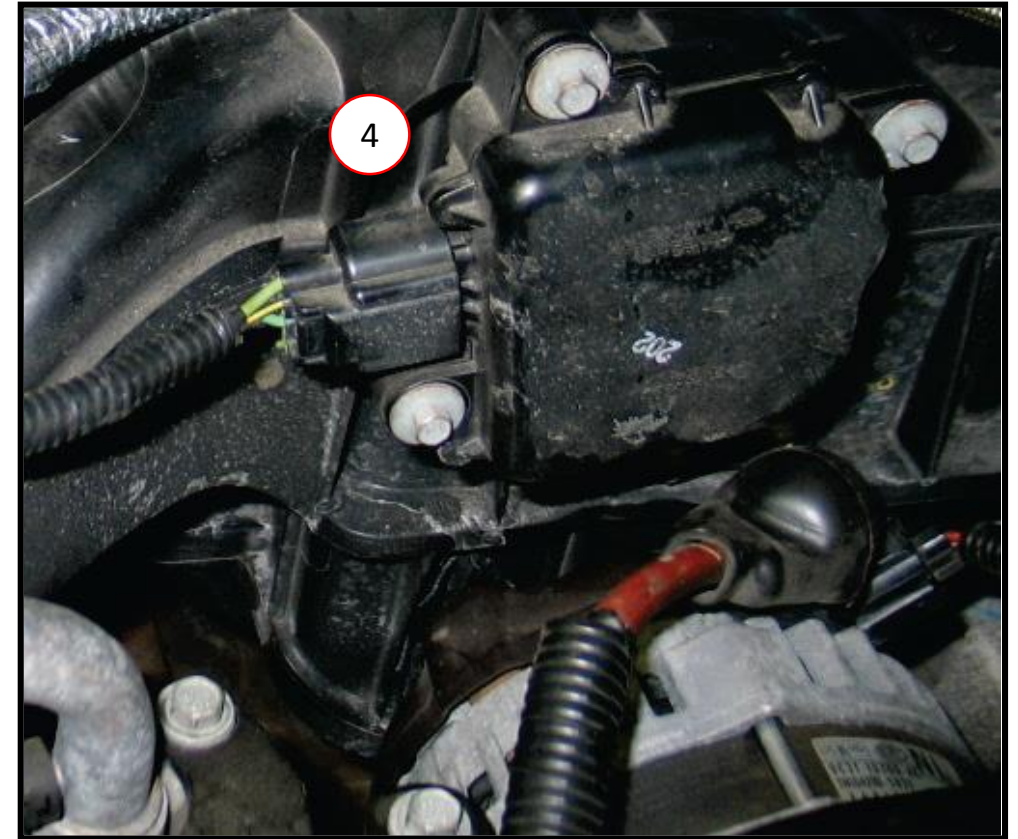
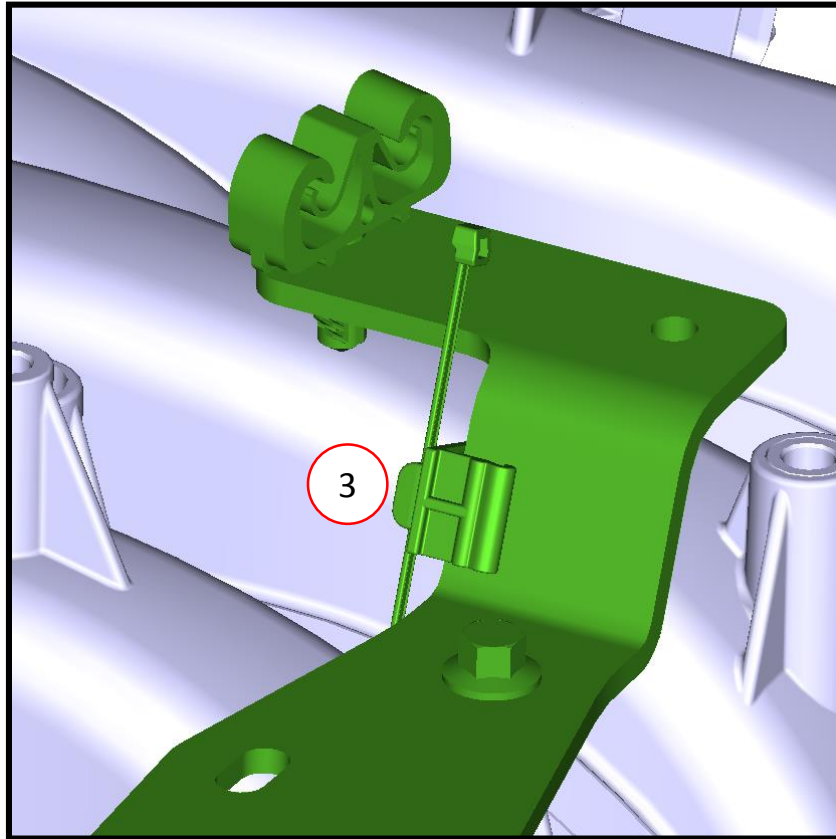
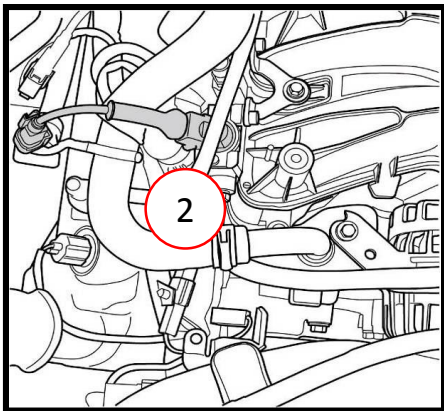
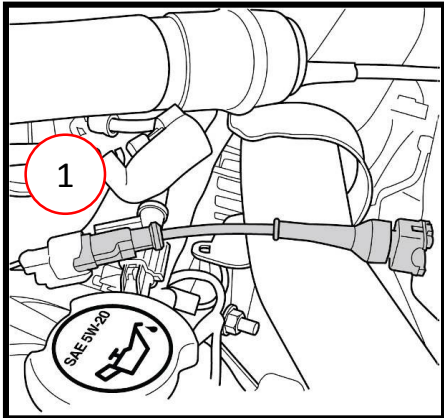
## INSTALLING THE TANK HARNESS (CONTINUED)

6. Insert tank harness clips into tank tab holes.
7. Connect the Fuel Level Sender to the Tank Harness and tie strap (20-403-0003) on each side of mated connectors.
8. Connect the Tank Harness to the Flow Control Solenoid and to the Supply Solenoid. **Note: The black connector connects to the supply solenoid (closest to tank access hole).**
9. Connect both Fuel Pump 2-pin connectors and tie strap (20-403-0003) harness on each side of mated connectors.
10. Connect the Tank Harness to the Fuel Pressure and Temperature Sensor (FPTS) on the tank.
11. Tie strap (20-403-0003) Tank Harness to tank lifting eye hook.



## FINAL ELECTRICAL CONNECTIONS

1. If applicable, connect coil wires.
2. Connect the injector jumpers to the engine harness.
3. Connect wiring to VMV and retain wiring branch to edge clip zip tie at front of FRPCM bracket.
4. Connect the intake manifold runner control (IMRC) actuator electrical connector.



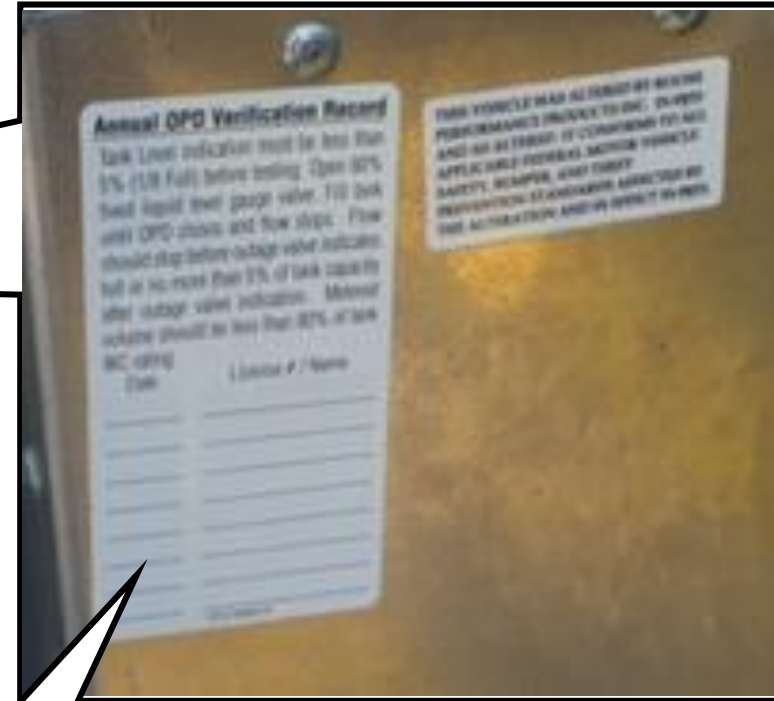
## INSTALLING BADGES AND LABELS

1. Clean and dry all surfaces before applying new self-adhesive badges and labels.
2. Install labels next to fill valve as shown below.



## INSTALLING BADGES AND LABELS (CONTINUED)

3. The annual OPD verification record label is installed near the passenger side door as shown below. The second label is the Roush modified vehicle statement label.



P07L3-9A095-C

## INSTALLING BADGES AND LABELS (CONTINUED)

4. The vehicle emission control information labels (VECI) and the PCM tamper label R07100008-10-A are installed under hood on the drivers side firewall near the OEM PCM as shown below. The second PCM tamper label is installed on the dash below the steering wheel as shown below.



R07100008-10-A

## INSTALLING BADGES AND LABELS (CONTINUED)

5. The diamond propane label D85 is installed on the rear of the vehicle as shown below.



D85

## INSTALLING BADGES AND LABELS (CONTINUED)

6. The Roush CleanTech badge P-01G100-A is installed on the drivers side fender as shown below.







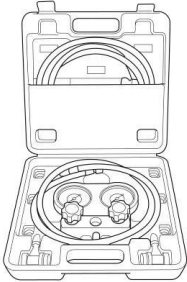



P-01G100-A








## COMPLETING THE KIT INSTALLATION

1. Install vehicle battery and connect positive and negative terminals. Tighten to 8–12 Nm.
2. Install air induction system.
3. Connect MAF sensor.
4. Perform system leak check of fuel lines.




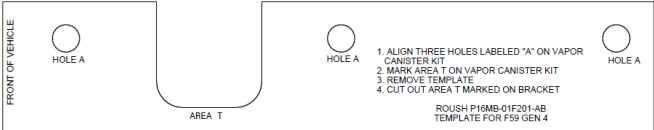
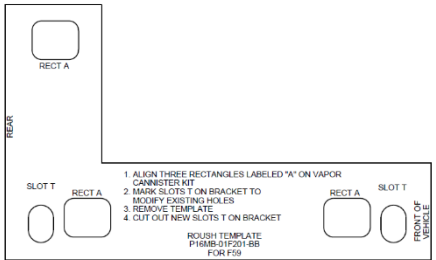


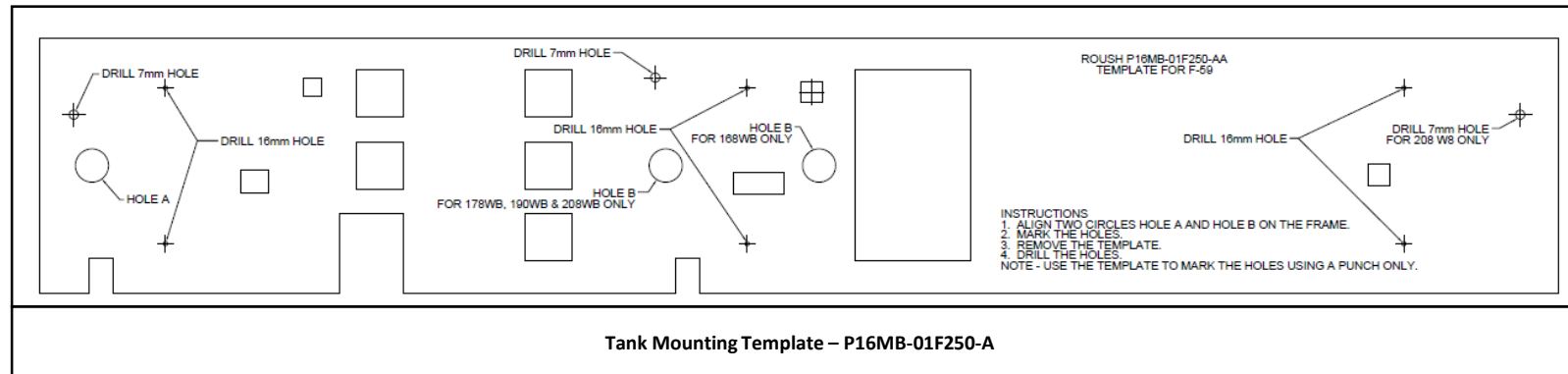
## SPECIAL TOOLS

							
Touch-Up Paint	Liquid Leak Detector	Premium Aerosol Undercoating	Torque Wrenches (to 22 Nm and to 200 Nm)	A/C Manifold Gauge Kit	Gloves (Approved for Propane)	Scan Tool	J2044 Quick Disconnect Tool (1/4" and 3/8")

						
Hole Saw – 29 mm.	Vacuum Gauge	Vacuum Pump	Dielectric Grease	Stepless Ear Clamp Pliers	Drill Bits – 1/8", 9/32", and 5/8".	Tubing Cutter

# SPECIAL TOOLS (CONTINUED)

			 <p>1. ALIGN THREE HOLES LABELED "A" ON VAPOR CANISTER KIT 2. MARK AREA T ON VAPOR CANISTER KIT 3. REMOVE TEMPLATE 4. CUT OUT AREA T MARKED ON BRACKET</p> <p>ROUSH P16MB-01F201-AB TEMPLATE FOR F59 GEN 4</p>	 <p>1. ALIGN THREE RECTANGLES LABELED "A" ON VAPOR CANISTER KIT 2. MARK SLOTS T ON BRACKET TO MODIFY EXISTING HOLES 3. REMOVE TEMPLATE 4. CUT OUT NEW SLOTS T ON BRACKET</p> <p>ROUSH TEMPLATE P16MB-01F201-BB FOR F59</p>
<p>Crows Foot – 9/16" and 11/16"</p>	<p>Reciprocating Saw</p>	<p>Die Grinder With Deburring Tool</p>	<p>Evap Canister Template #1 – P16MB-10F201-A (Certain wheelbases only)</p>	<p>Evap Canister Template #2 – P16MB-10F201-B (Certain wheelbases only)</p>



## Release Revision History

-AH	Removed auxiliary A/C clutch signal monitor section from this manual. For auxiliary A/C detail see P-01F001-C. Deleted pages 93-97. Removed SRM Drip shield instructions. Updated page 18 to remove drip shield bracket. Deleted pages 75 and 76.	10/11/2017
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