Installation Instructions

Dedicated CNG Fuel System
MY2024-2025 Ford F-650 7.3L (260WB)

Revision: D
Date: 4-2-2025

PLEASE PRINT IN COLOR AS COLORS ARE REFERENCED MULTIPLE TIMES THROUGHOUT

Final Chassis Specification Sign-off

The following sign off acknowledges the final chassis specification as agreed to at the chassis pilot in Ohio on 3/28/2025:

_____	_____
Paul Shaffer, Landi Technologies	Date
_____	_____
Jim Konen, National Fleet Services	Date
_____	_____
TBD, Utilimaster	Date
_____	_____
Jim Schreiber, Peach State Truck Center	Date

Welcome to the Landi Technologies installation process. This manual is not intended to replace or substitute a Landi Technologies certified installation training. It is intended to complement the installation training and serve as a guide for the conversion process.

Landi Technologie's training covers only the installation of Landi Technologie's fuel injection system. Installers must have basic mechanic skills, knowledge of computer-controlled fuel injection on Ford engines and knowledge of high pressure CNG installation regulations and safety precautions (including the latest edition of NFPA 52).

Installation of the Landi Technologies system may only be performed by authorized trained professionals and installation may not be performed by anyone not specifically trained by Landi Technologies.

Before you begin, review this manual completely as there may be new or updated information. The photos and figures are for reference only and may not represent your specific information. If you have any questions or need additional detail, contact service@landitechnologies.com or (310) 257-9481 before proceeding.

Please Quality Control all parts included in the kit prior to installation. Do not mix and match parts from other kits. If a part is missing, contact Service before proceeding.

Attention!

You must check whether the Ford F-Series vehicle you intend to convert is equipped with the factory option for a Gaseous Prep Package. If your vehicle is not so equipped, Landi Technologies will not warranty any components or systems installed on such a vehicle.

If you are unsure whether your vehicle is equipped with a Gaseous Prep Package, refer to the window sticker of the vehicle, or contact a Ford Dealer for assistance.

Installation Notes

Please Note: Prior to any installation or disabling of gasoline operation, it is required that the gasoline (pre-conversion) portion of the data collection be completed using the MyCANIC-FD flash tool and sent to Landi Technologies (service@landitechnologies.com).

Avoid problems down the road by following good general practices. Use heat shrink tubing and tape to seal off any exposed wires. Dielectric grease will help prevent corrosion or damage to exposed electrical terminals. Tie-wrap or otherwise secure all loose wires, hoses, and lines back out of harm's way assuring that vibration, heat, and relative movement will not ever wear them through. Leave no connection or wire unshielded from wet or corrosive environments.

Review each step of the installation for robust durability. Are any wires, fuel lines, tanks, and other components vulnerable to chafing, stress, or excessive heat? Rework as required to ensure a robust installation before moving on to the next step.

Please contact Service at service@landitechnologies.com or (310) 257-9481 for any questions or concerns.

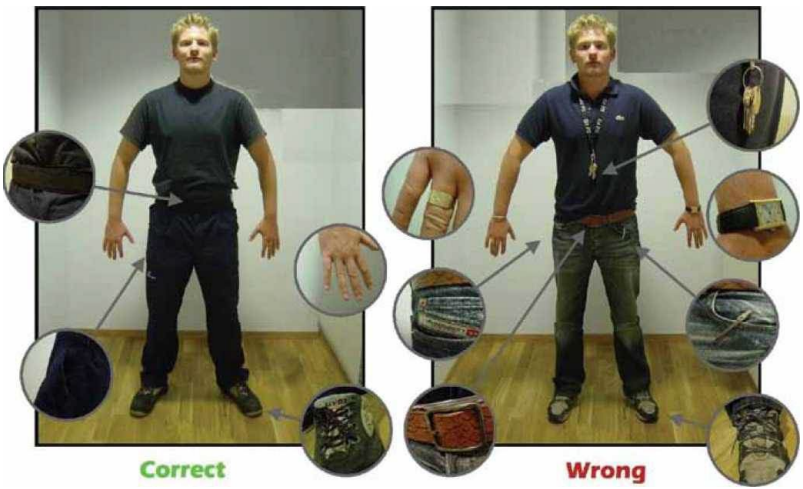
Tools and Consumables

- Torque Wrenches, 30-250 ft-lb, 150 to 750 in.-lbs., 3/8-inch or 1/2-inch Drive
- Rivet Nut Tool, Air, 3/8-inch - Blue Pneumatic ® BP-350Qc or Similar
- Pliers for Constant Tension Hose Clamps
- Pliers, Hose Pinching, 10-inch - Blue Point ® HCP10A or Similar
- Drill, Air, 3/8-inch Capacity - Blue Point ® AT811 or Similar
- Soldering Iron
- Drill Bit Set, Cobalt, 1/16-inch to 1/2-inch - Milwaukee ® 48-89-0026 or Similar
- Cobalt Step Drill Bit 1/2"-1”
- Leak Detector, Liquid - Swagelok ® MS-SNOOP, Nu-Calgon Cal-Blue, or Similar
- Pliers, Locking, C-Clamp, 12-inch - Blue Point VGP22412 or Similar
- Wire Crimpers
- Delphi Terminal Crimp Tool #12014254
- Delphi Terminal Removal Tool #12014012-1 or Snap-on #TT600-4
- Micro Torch, POWER PROBE
- Engine Diagnostic Tool
- Wrench Set, Metric, 10mm - 24mm
- Wrench Set, Standard, 3/8-inch - 1-inch
- Socket Set, 10mm - 19mm, 3/8-inch - 3/4-inch
- Screwdriver Set, Phillips and Flathead
- Screwdriver Set, Miniature
- Hex Key Set, Standard
- Tubing, Heat Shrink
- Tubing, Heat Shrink, Environmentally Sealed
- Zip Ties, 8-inch, Black
- Manufacturer Manuals
- Portable Magnetic Drill with 1/2-inch, 9/16-inch, 11/16-inch, 13/16-inch bits
    - Hogan Brand or equivalent
- Clean, non-synthetic, non-detergent engine oil for all O-ring lubrication (i.e. 30W engine oil)
- Adhesive, spray – 3M Hi-Strength 90 or Similar
- Hydraulic Manual Lift Table – Use ULINE or similar means of lifting fuel tank assembly
- Electrical tape – 3M or similar
- MyCANIC-FD PCM Flash Tool (obtain from Landi Technologies USA)
- Nudi Terminal Removal Tool (Motorcraft P/N NUD900-002) or pick set
- Combustible Gas Detector – TIF 8900 or Similar
- OMB ESA Valve Installation Tool
- Cold Galvanizing Compound Paint, RUST-OLEUM
- Nut & Ferrule Tool (Swagelok 600 series or equivalent
- Special Socket for tank solenoid plugs
- 7/32” hole punch for template drilling

Operator Clothing

To prevent damage to the vehicle and offer added protection for the Operator/Technician, the following should be observed regarding clothing:

- Belt buckle repositioned or removed
- Rings and other jewelry removed
- Clothing free of rivets or other sharp or protruding items
- Lanyards or other loose items removed
- Safety-shoes or other appropriate work footwear
- Eye protection for use when chiseling, drilling, grinding or hammering.



Vehicle Intake Check-In

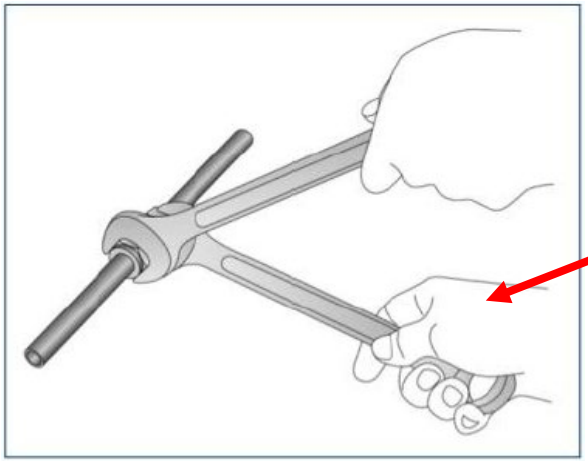
1. Prior to any work on the vehicle, an OBDII system check must be performed. Pre-conversion gasoline data collection is to be completed using the MyCANIC-FD tool and submitted to Landi Technologies. If any codes are present, perform repair or take the vehicle to the nearest Ford Dealer or authorized facility before conversion. If no codes are present, continue with installation.

Refer to the separate guide on the Landi Technologies Service website on reading DTCs and data collection using the MyCANIC-FD.

Fuel and PRD Vent Line Installation

Fuel and PRD vent line general procedure:

1. Use touch of non-synthetic, non-detergent oil (i.e., 30W engine oil) to lubricate O-rings prior to installation. CAUTION! DO NOT USE SILICONE GREASE OR ANY OTHER TYPE OF LUBRICANT.
2. Per supplier recommendations, install all high-pressure fittings, tubing, and hoses finger tight to ensure proper fitment before fully torquing components. Torque values for fittings used in this installation is listed on the next slide. When tightening all connections, it is important to have a wrench applying equal opposite force on the fitting as a wrench tightens the nut to the fitting. Following supplier (fitting and tube) manufacturer instructions when assembling system (www.parker.com).
3. Ensure tubing and hoses do not make contact or rub on surrounding areas or components.



Note: When assembling a hose or stainless-steel line to fittings, ensure that the fitting body is secured with a back-up wrench while tightening nut on tube or hose to proper torque specifications.

Fuel and PRD Vent Line Installation

SAE J1926
O-Ring Boss
(ORB) Fittings

Used On:
-LP Fuel Lines
-HP Fuel Lines
-PRD Vent Lines

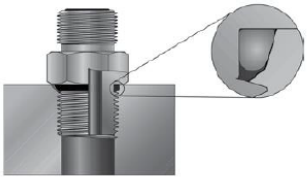


Fig. S7 — Non-Adjustable Port End Assembly

SAE Straight Thread Port Assembly (SAE J1926)

SAE Dash Size	Thread Size UN/UNF	Assembly Torque (+10% -0) Non-Adjustables: Seal-Lok (Heavy Duty SAE J1926-2) ft.lbs. (In. lbs)	N-m	Non-Adjustables: Triple-Lok Ferulok Adapters (Light Duty SAE J1926-3) ft.lbs. (In. lbs)	N-m	Adjustables: Seal-Lok (Heavy Duty SAE J1926-2) ft.lbs. (In. lbs)	N-m	Adjustables: Triple-Lok Ferulok Adapters (Light Duty SAE J1926-3) ft.lbs. (In. lbs)	N-m	Plugs: Hollow Hex HP5ON-S (Light Duty SAE J1926-3) ft.lbs. (In. lbs)	N-m	Plugs: Hex Head P5ON-S (Light Duty SAE J1926-3) ft.lbs. (In. lbs)	N-m
6	9/16-18	(420)	47	(350)	40	(420)	47	(350)	40	(350)	40	(350)	40
8	3/4-16	(720)	81	(620)	70	(720)	81	(620)	70	(620)	70	(620)	70

Notes: Lubricate threads before assembly. Values in chart are for plated steel fittings in steel ports. For stainless steel fittings, use the upper limit of torque range. For brass and aluminum, decrease torque value by 35%.

Table S1 – SAE J1926 Straight Thread Port Assembly Torques

SAE J1453
O-Ring Face Seal
Fittings (ORFS)

Used On:
-LP Fuel Lines
-HP Fuel Lines

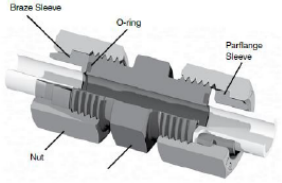


Fig. S15 – Seal-Lok Union cutaway with flanged and brazed assemblies

O.D. (in.)	O.D. (mm)	SAE Dash Size	Tube Side Thread Size (UN/UNF)	Tube Side Assembly Torque (+10% -0%) in.-lb.	ft.-lb.	N-m	Flats from Wrench Resistance (F.F.W.R.) Tube Nuts	Swivel & Hose Ends
3/8	8, 10	-6	11/16-16	360	30	40	1/4 to 1/2	1/2 to 3/4

Table S14 – Seal-Lok and UPTC assembly torque and F.F.W.R. For brass, aluminum (and other soft metals) decrease torque value by 35%, however F.F.W.R. is the same.

SAE J514
JIC / 37° Flare
Fittings

Used On:
-PRD Vent Lines

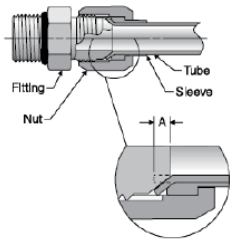


Fig. S26 — Tube length allowance

Tube O.D. (in.)	Thread Size	Assembly Torque* (+10% -0) in. lb.	ft. lb.	Tube Connection FFWR	Swivel Nut or Hose Connection FFWR
1/2	3/4-16	505	42	2	1 1/2

Table S19 – Triple-Lok assembly torques and FFWR
For brass and aluminum fittings, use approximately 65% of the torque values shown, unlubricated, however FFWR is same for all materials.

Standard Fastener Torque (If not otherwise specified)

ASTM A307 GRADE A, SAE J429 GRADE 5 & 8, HOLO-KROME GRADE 9

Nominal Dia. (in.)	Threads per inch	307A ASTM A307 Grade A			SAE J429 Grade 5				SAE J429 Grade 8				Holo-Krome Grade 9	
		Clamp Load (Lbs.)	Tightening Torque		Clamp Load (Lbs.)	Tightening Torque			Clamp Load (Lbs.)	Tightening Torque			Clamp Load (Lbs.)	Tightening Torque
			K = 0.15	K = 0.20		Ecoguard™	K = 0.15	K = 0.20		Ecoguard™	K = 0.15	K = 0.20		Ecoguard™
Unified Coarse Thread Series														
1/4	20	859	32 in-lbs	43 in-lbs	2029	66 in-lbs	76 in-lbs	10 1in-lbs	2864	93 in-lbs	107 in-lbs	143 in-lbs	3357	109 in-lbs
5/16	18	1416	66	88	3342	136	157	209	4719	192	221	295	5531	225
3/8	16	2092	10 ft-lbs	13 ft-lbs	4940	20 ft-lbs	23 ft-lbs	31 ft-lbs	6974	28 ft-lbs	33 ft-lbs	44 ft-lbs	8174	33 ft-lbs
7/16	14	2870	16	21	6777	32	37	49	9568	45	52	70	11214	53
1/2	13	3831	24	32	9046	49	57	75	12771	69	80	106	14969	81
9/16	12	4912	35	46	11599	71	82	109	16375	100	115	154	19193	117
5/8	11	6102	48	64	14408	98	113	150	20340	138	159	212	23840	161
3/4	10	9030	85	113	21322	173	200	267	30101	245	282	376	35281	287
7/8	9	12467	136	182	29436	279	322	429	41556	394	455	606	48707	462
1	8	16355	204	273	38616	418	483	644	54517	591	681	909	63899	692
1-1/4	7	26166	409	545	53786	728	840	1121	87220	1181	1363	1817	102229	1384
1-3/8	6	31182	536	715	64096	955	1102	1469	103939	1548	1786	2382	121826	1815
1-1/2	6	37942	711	949	77991	1267	1462	1950	126473	2055	2371	3162	148237	2224
Fine Thread Series														
1/4	28				2319	75 in-lbs	87 in-lbs	116 in-lbs	3274	106 in-lbs	123 in-lbs	164 in-lbs	3837	125 in-lbs
5/16	24				3702	150	174	231	5226	212	245	327	6125	249
3/8	24				5599	23 ft-lbs	26 ft-lbs	35 ft-lbs	7905	32 ft-lbs	37 ft-lbs	49 ft-lbs	9265	38 ft-lbs
7/16	20				7568	36	41	55	10684	51	58	78	12523	59
1/2	20				10197	55	64	85	14396	78	90	120	16873	91
9/16	18				12940	79	91	121	18268	111	128	171	21412	130
5/8	18				16317	110	127	170	23036	156	180	240	27000	183
3/4	16				23776	193	223	297	33566	273	315	420	39343	320
7/8	14				32479	308	355	474	45853	435	502	669	53743	509
1	14				43343	470	542	722	61190	663	765	1020	71720	777
1-1/4	12				59548	806	930	1241	96565	1308	1509	2012	113182	1533
1-3/8	12				72967	1087	1254	1672	118324	1763	2034	2712	138686	2066
1-1/2	12				87747	1426	1645	2194	142292	2312	2668	3557	166778	2710

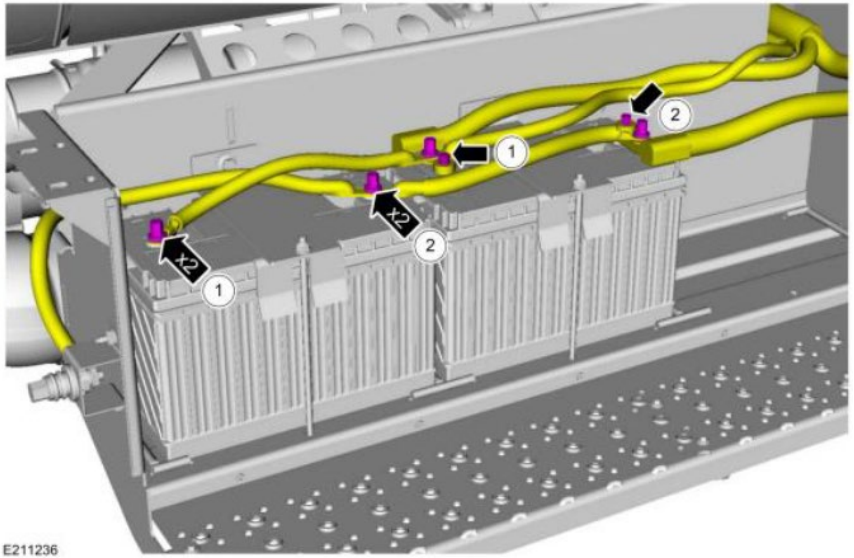
https://www.fastenal.com/content/merch_rules/images/fcom/content-library/9702365_FEDSTorquePoster_PRESS.pdf

Disconnect Battery

1. Disconnect the negative (-) battery cable

2. Secure negative (-) terminal connector away from battery to avoid possible accidental reconnection.

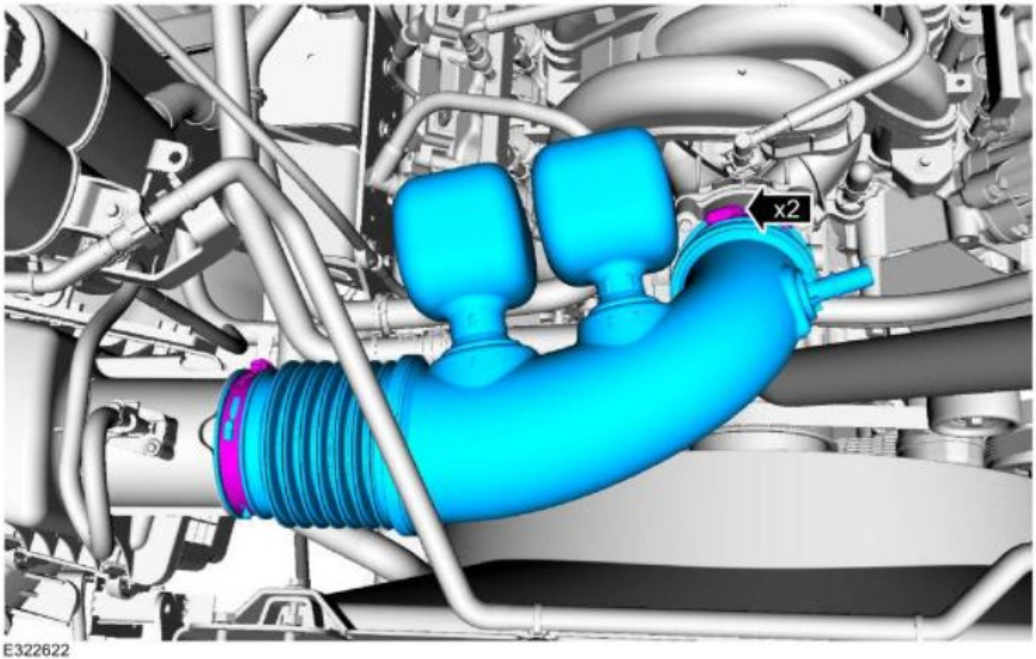
Please note: Automotive batteries produce flammable gasses. Keep open flames and heating devices away from the area near the battery. Automotive batteries contain sulfuric acid. Always wear eye protection when working on or near the battery.



Remove Air Cleaner Outlet Assembly

1. Remove air cleaner outlet pipe following the Ford Motor Company procedure in the Ford Workshop Manual. *Picture may not represent actual current model year, but theory is similar*

2. Cover throttle body intake from outside contaminants.

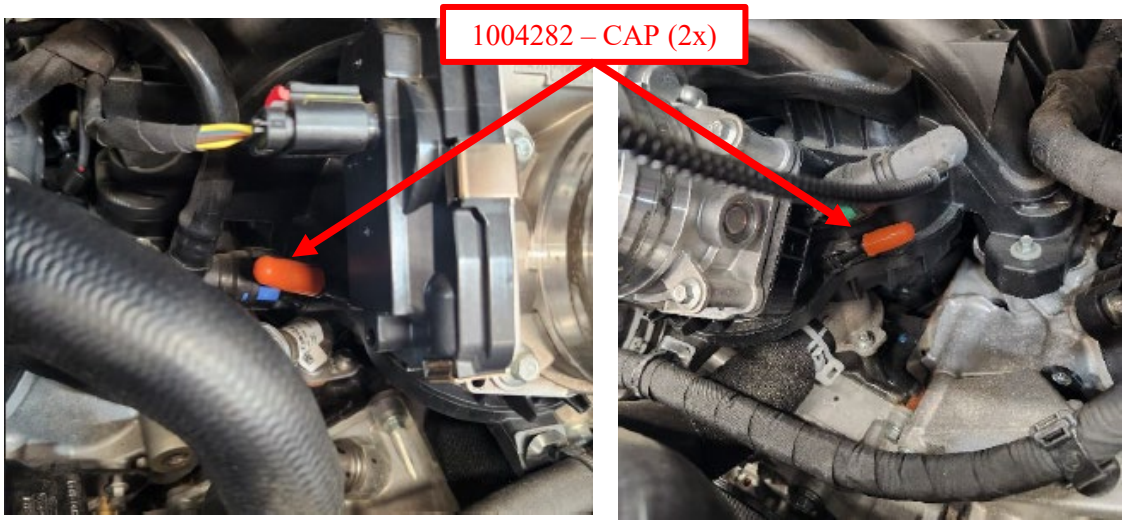


Remove Gasoline Fuel System & EVAP Components

1. Remove the following OEM gasoline fuel system components and EVAP canister components from the vehicle. Refer to the Ford F-Series service manual for the proper procedure. Cut off electrical connectors related to the removal of gasoline components, and cover wiring end with environmentally sealed heat shrink tubing.

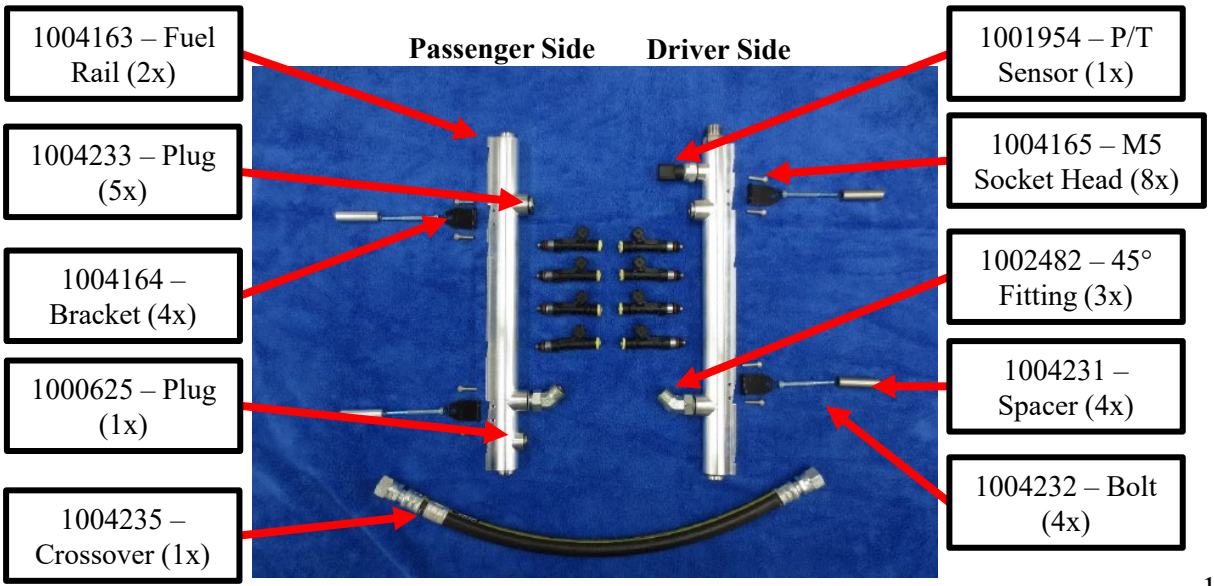
- Release the Fuel System pressure
- Disconnect Fuel Pump and Fuel Tank Pressure Sensor connectors.
- Remove & drain the fuel tank **AND** then seal and re-install OEM fuel tank.
- Fuel lines.
- EVAP canister and bracket, canister purge valve from engine compartment, and lines.
- Fuel rail assembly and injectors.

2. Cap purge valve-to-intake port on intake manifold using provided high temperature cap **(P/N 1004282)**.



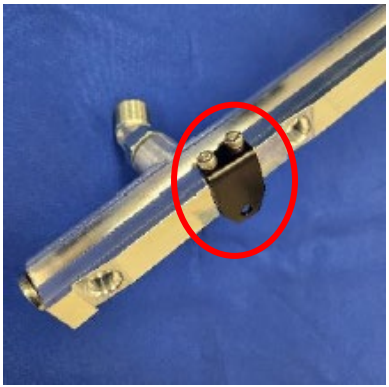
CNG Fuel Rail Installation (1 of 4):

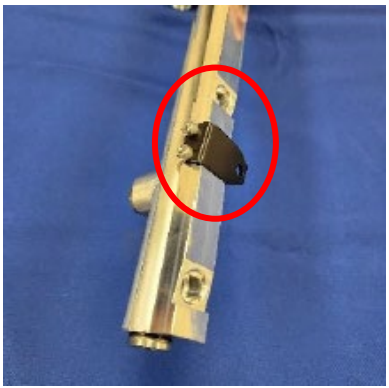
1. Gather fuel rail components as shown below to prepare for assembly to the engine (See below).
2. See torque specifications on slide #9, 10, and 11.
3. Leave hose fittings finger tight for final torque sequence on the vehicle.
4. Lubricate all O-rings on CNG fuel rail assembly with engine oil to prevent damage or shearing of O-rings. Use ONLY clean non-synthetic engine oil (i.e., 30W engine oil). **CAUTION! DO NOT USE SILICONE GREASE OR ANY OTHER TYPE OF LUBRICANT.**

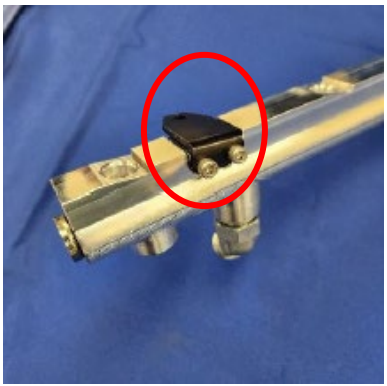


CNG Fuel Rail Installation (2 of 4):

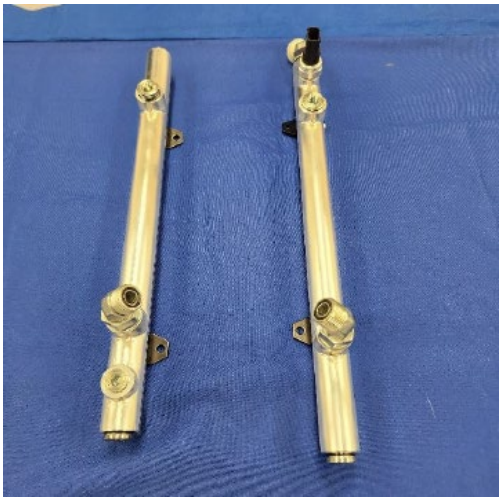
6. Continue fuel rail bench assembly as shown below.
7. Torque 1004165 M5 socket head bolts to 85 in/lbs. with brackets placed as shown.







Passenger Side **Driver Side**



Please note this is how the fuel rail assembly should be seen looking into the engine box after final installation

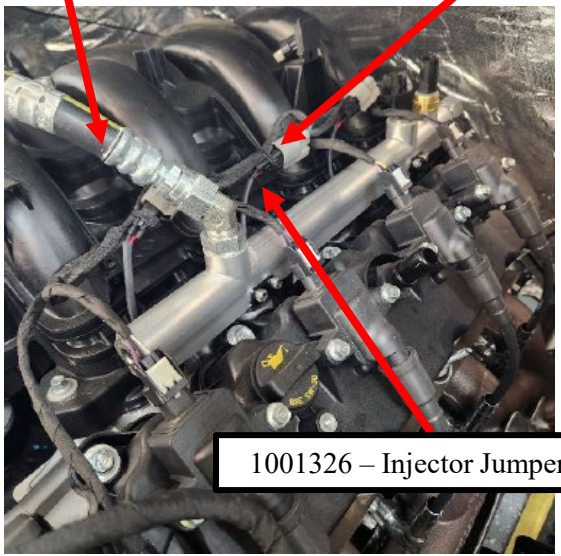
CNG Fuel Rail Installation (3 of 4):

8. Install driver and passenger side fuel rail using supplied spacers and socket head cap screws. Torque to 90 in/lbs.
9. Install injector harnesses and secure with supplied zip ties as shown.
10. Install crossover fuel tube.

1004232 – Bolt (4x)

1004235 – Crossover Tube (1x)

1000810 – Cable Tie (8x)



1001326 – Injector Jumper(8x)

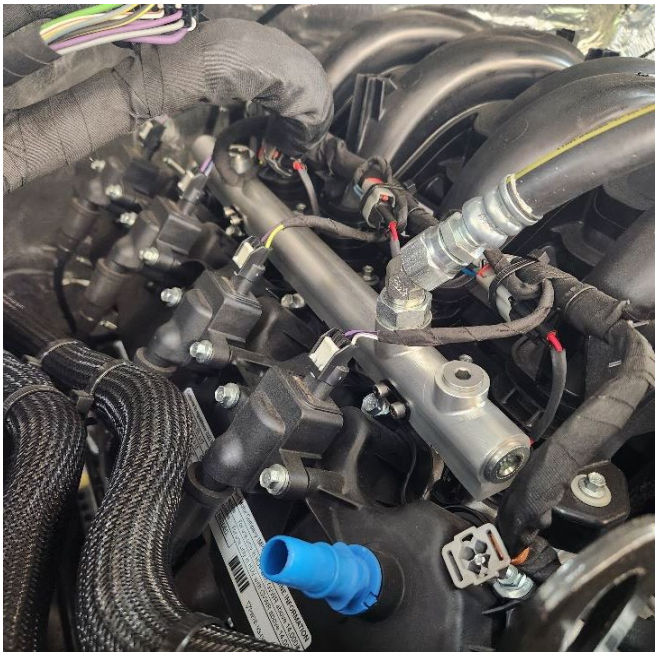
1004231 – Spacer (4x)

CNG Fuel Rail Installation (4 of 4):

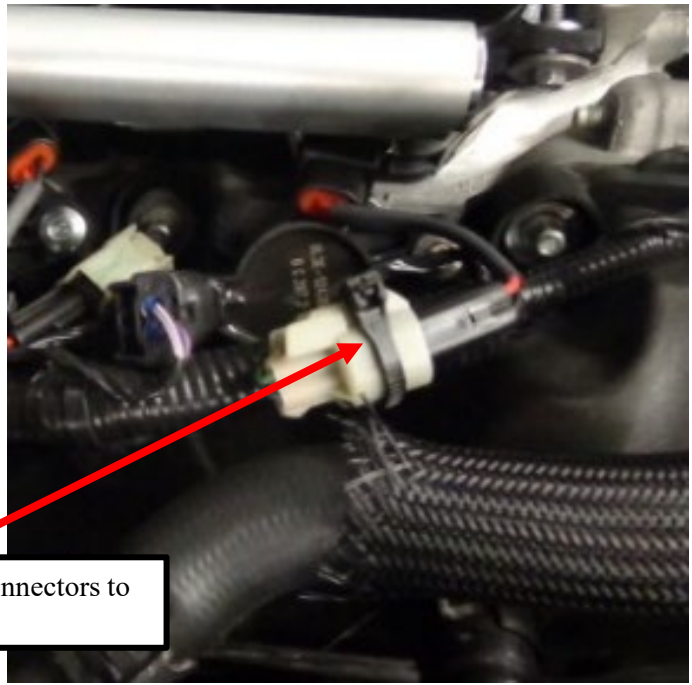
11. Passenger and top side of fuel rail shown for reference
12. Please reference pages 9, 10, and 11 for torque specifications not specified.
13. For the powertrain temperature/pressure sensor (P/T sensor) please note:

    Six-sided 24.0 mm driver required to torque hex.

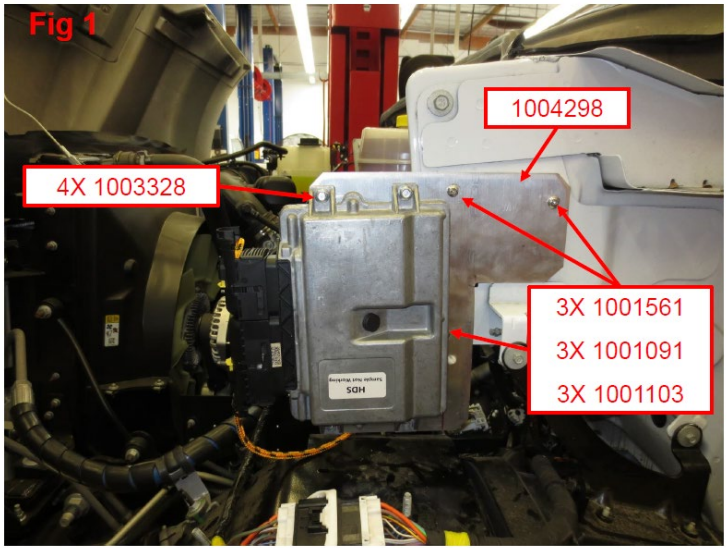
    Recommended torque to be applied <u>ONLY</u> to the hex flats = 6 – 8 Nm

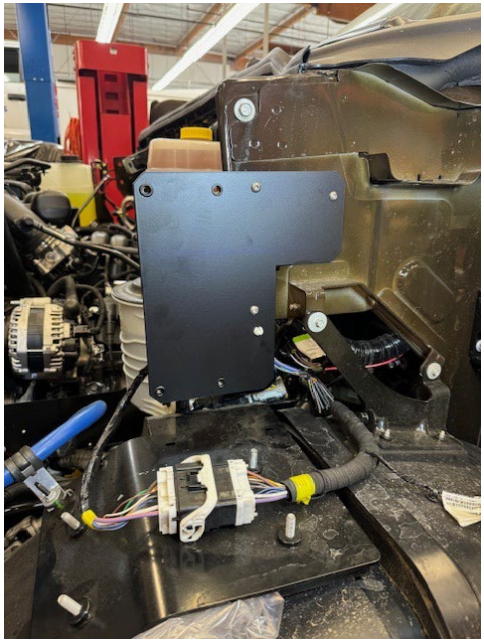


Remove Gasoline Fuel System & EVAP Components (Continued)



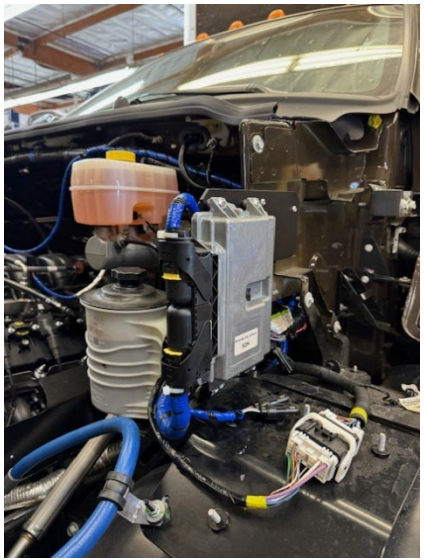
- Install the AFCM and bracket with the part numbers highlighted below.

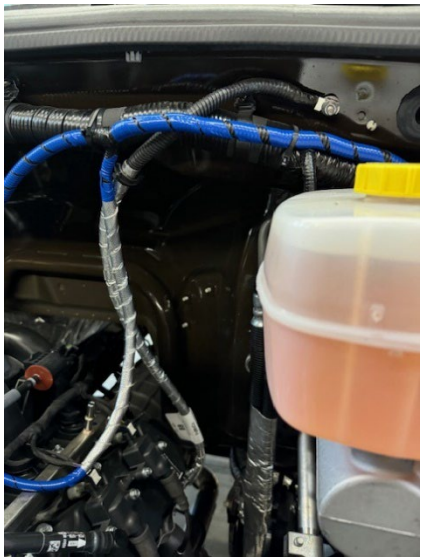




Harness Installation (1 of 10)

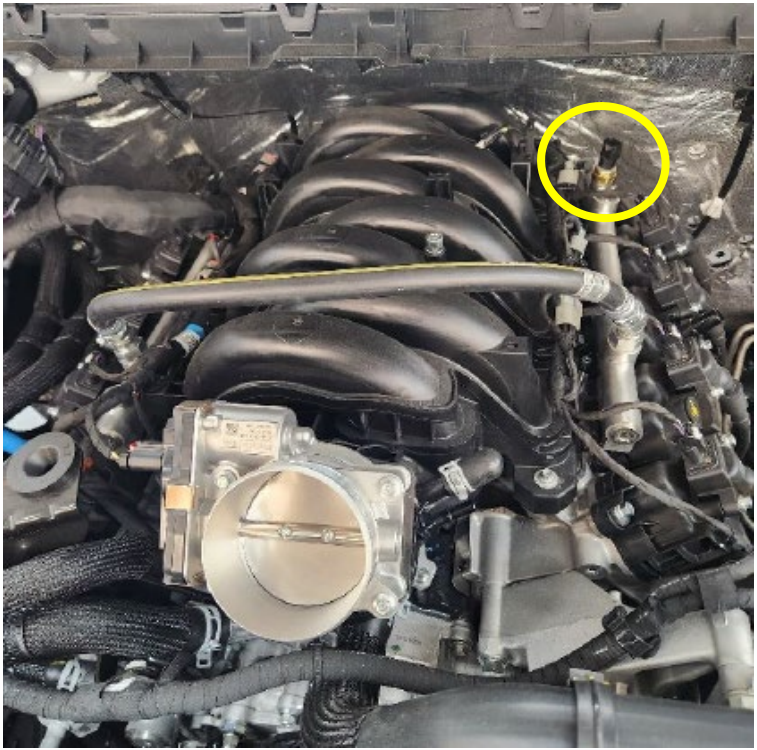
- Start the wiring at the AFCM and route along driver side fender & dash panel.
- CNG wiring harness should have blue tape wrapped around the entire harness by NFS in order to help differentiate between CNG harness and original OEM harness.





Harness Installation (2 of 10)

- Connect, the labeled, wiring harness to the pressure/temperature sensor

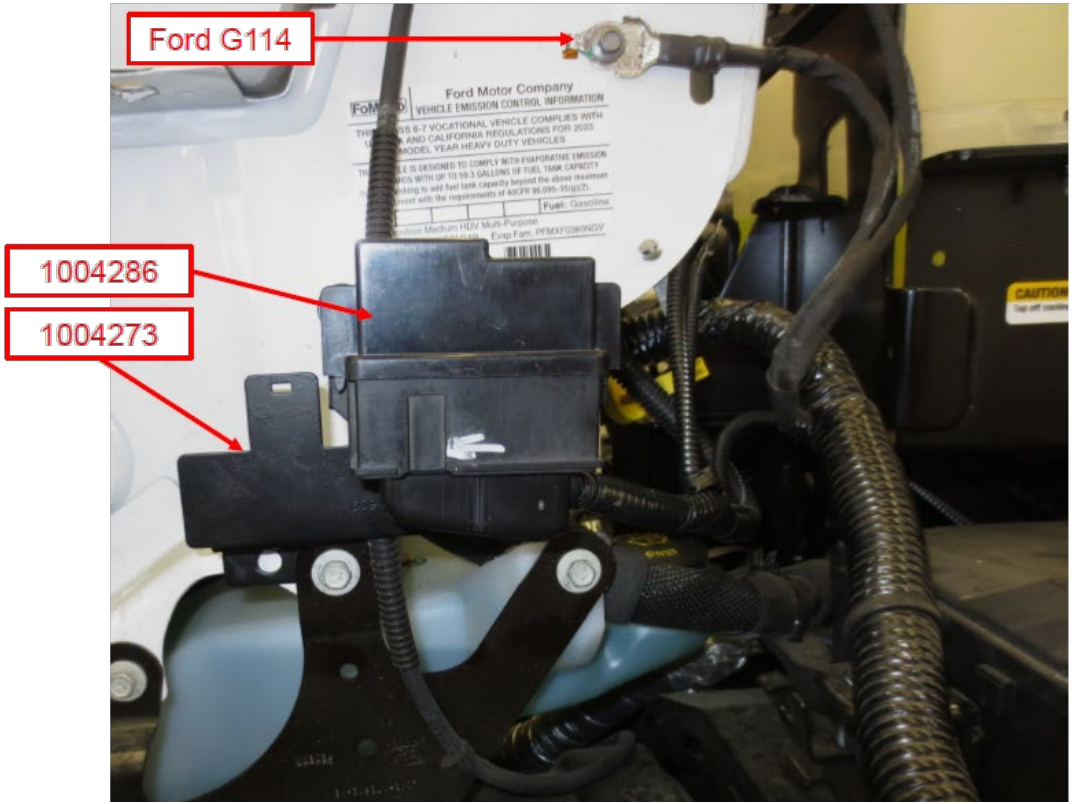


Harness Installation (3 of 10)

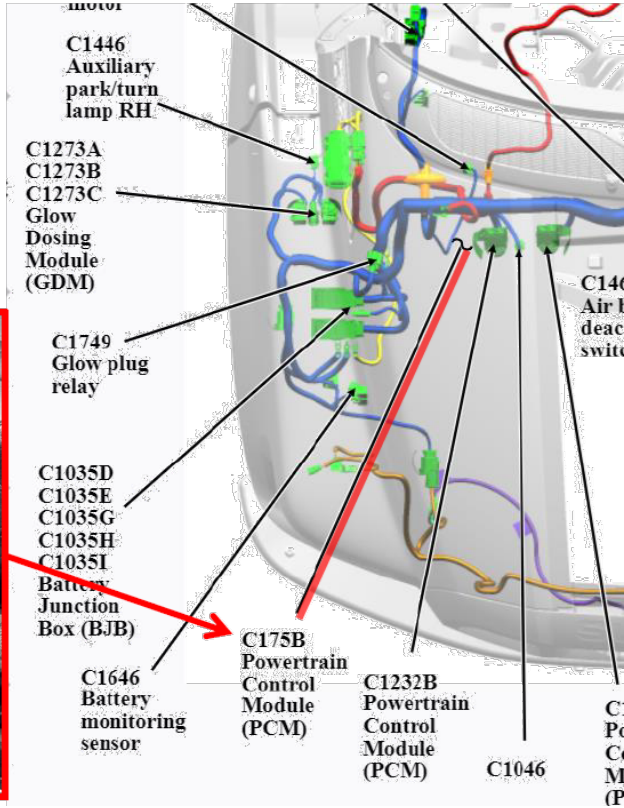
1. Install Fuse Bracket(**1004273**) by loosening OEM bolt located above passenger side wheel well. Slide the Fuse bracket and tighten 93 lb.in. slide to clip in the Gas Prep Harness(**1004286**) to the bracket.

Note: if OEM bolt is being used, we have provided a Bolt(**1003227**) and Nut(**1001103**) so bracket can be installed on an empty hole located to the right.

2. Unbolt Ford ground(G114) and install Gas Prep Harness Ground eyelet(C5), use original bolt to secure both grounds to the body.

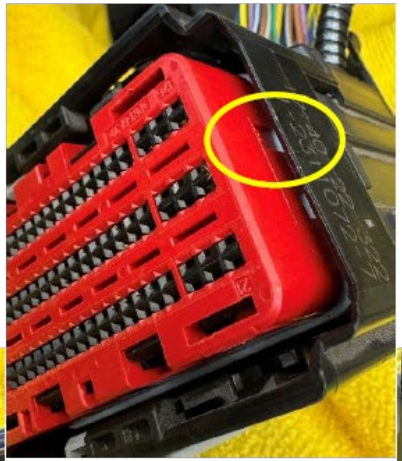


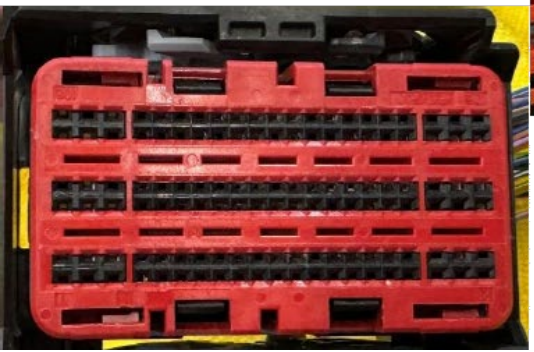
Locate Ford C175B and disconnect from PCM.



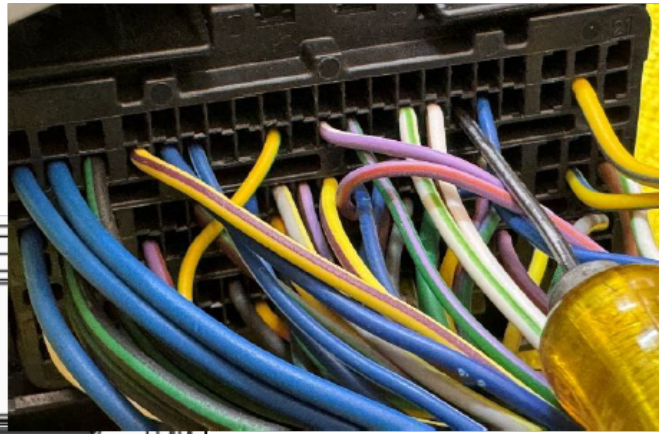
- Once located remove the protective tape around the connector housing and harness.
- Remove the connector housing by unlatching the tabs located on both sides of the connector.

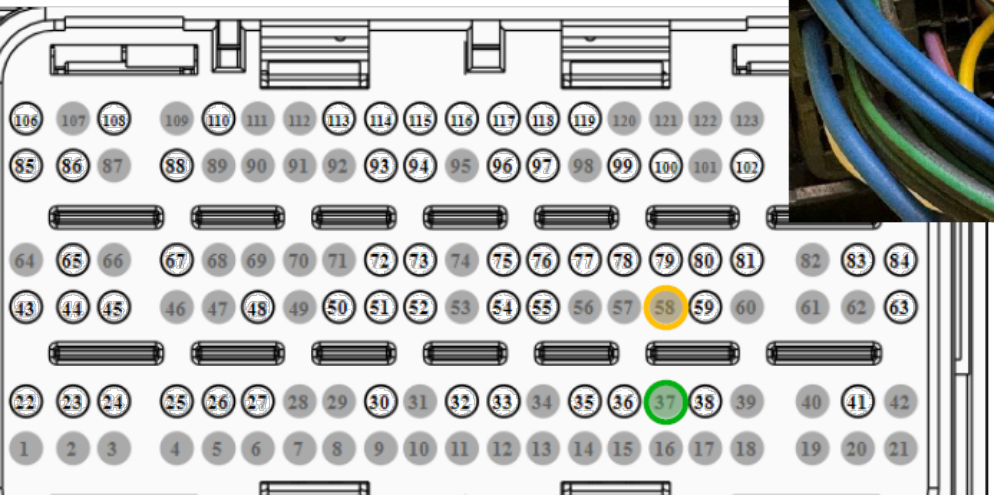
- Remove red locking retainer by prying at both sides of the retainer and pull straight out.



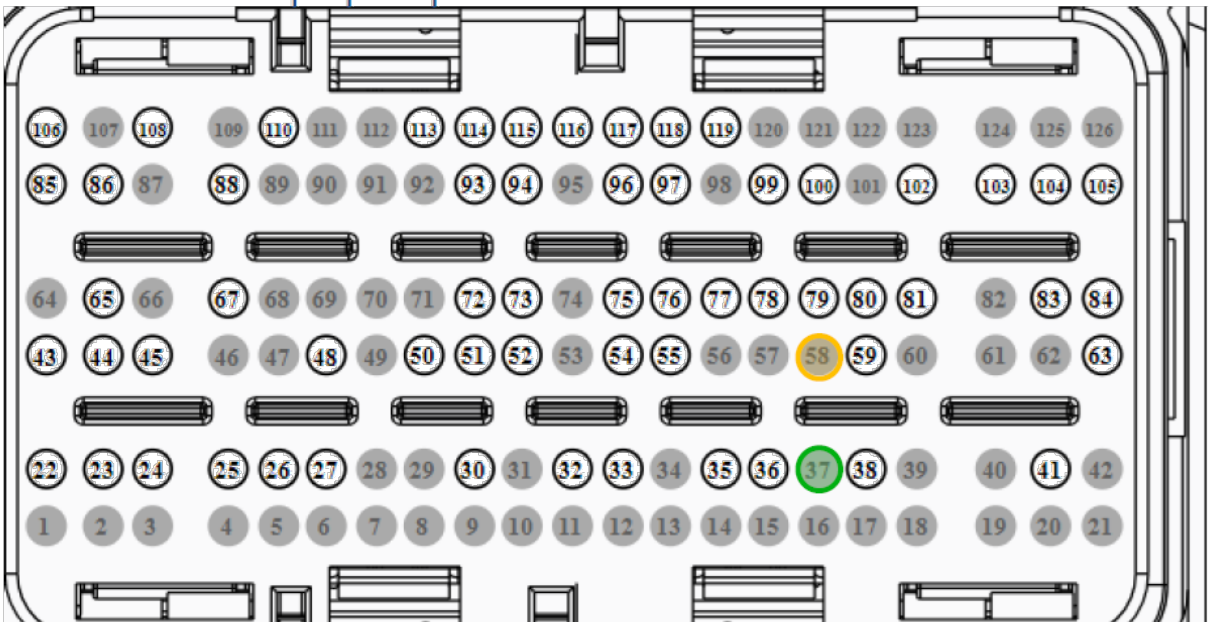


- Locate Pin cavities 37 & 58.
- With a small punch tool or small Allen insert into desired pin and press firmly and through. A small plastic pin will come out from the other side.



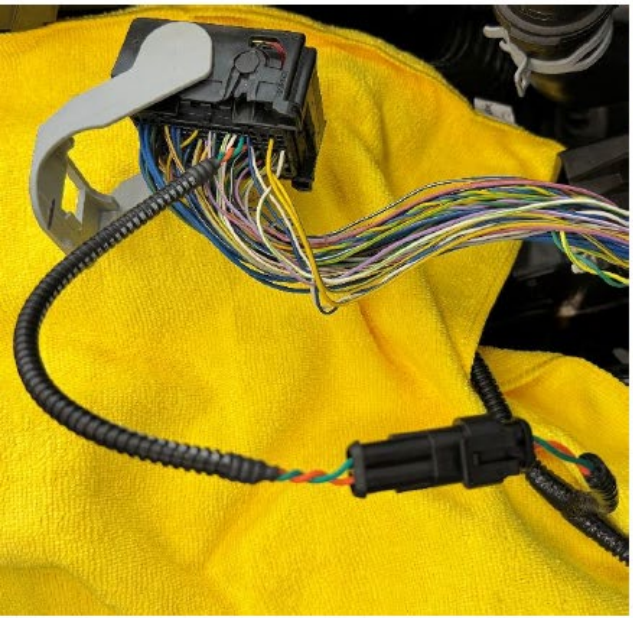


- Insert terminals to Pin cavities 37 & 58 until you feel or hear a click.
- Make sure wires are twisted. See page 9.
- Reinstall red retaining clip and connector housing, retape harness.
- Test vehicle for proper operation.



Harness Installation (9 of 10)

- Insert Terminals



Harness Installation (10 of 10)

- The remainder of the wiring harness should be routed and set near the regulator assembly area highlighted in the next slides.
- The full harness will be highlighted in the end of the installation manual.

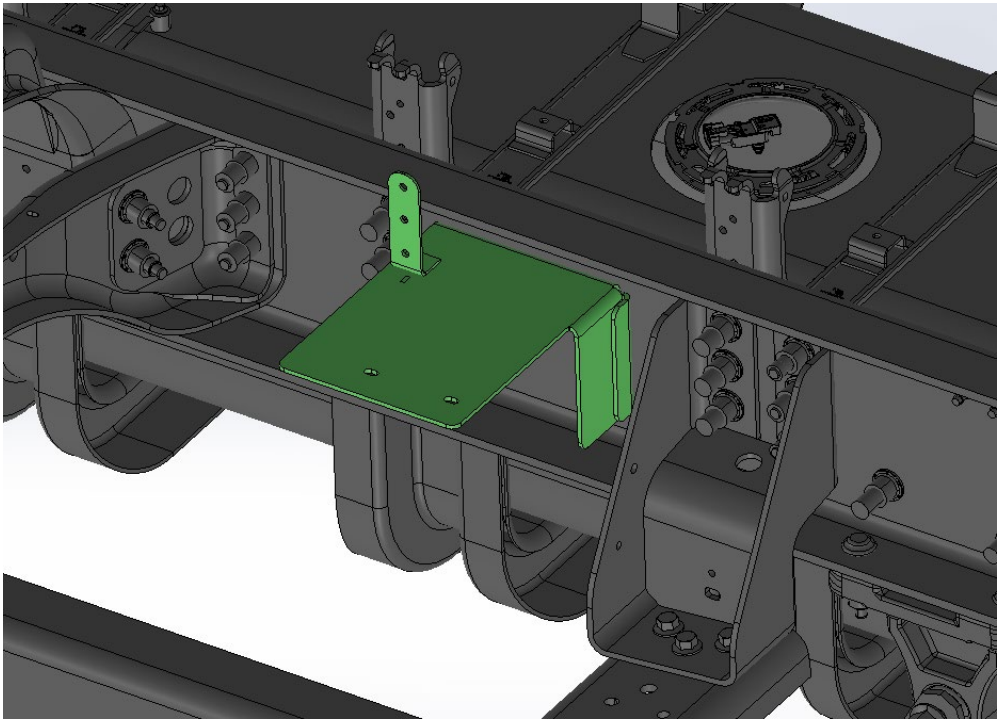
CNG Regulator Assembly (1 of 6)

- The regulator assembly comes pre-assembled with the parts highlighted in yellow.
  - BOM shown on the right.
- The following slides will highlight how to attach regulator assembly to the frame.

REGULATOR SUB ASSEMBLY			
1004473	Bracket,Regulator	1	Bracket
1004131	Regulator,120.5 PSIG,12V Slnd	1	Regulator
1001891	Sensor,Press,0-5000 PSIG, ORB	1	HP sensor
1004544	Bolt,Button Head,M6 x30 mm,SS	4	Bolts to attach regulator to bracket
1004545	Washer,Split Lock,M6,SS	4	Washer for the bolts
1004546	Washer,Flat,M6,SS	4	Washer for the bolts
1004548	Bolt,Button Head,M8 x 20 mm,SS	2	LP Filter Mounting
1004549	Washer,Split Lock,M8,SS	2	LP Filter Mounting
1004550	Washer,Flat,M8,SS	2	LP Filter Mounting
1001863	Filter, LP Coalescing, SAE8	1	LP Filter
1002292	Connector,SAE #8,FORFS,SAE #8 MORB,CS	1	Fitting between regulator and filter

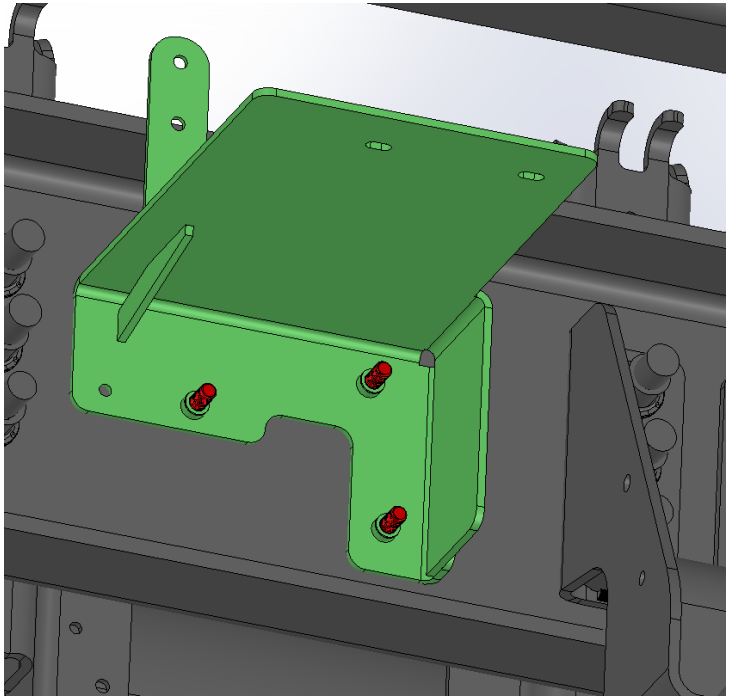
CNG Regulator Assembly (2 of 6)

- The regulator frame bracket (**1004471**) will bolt to the frame in a similar fashion to the Gasoline Carbon Canister that was previously removed.
- Regulator frame bracket is between transmission crossmember and the gasoline tank second bracket



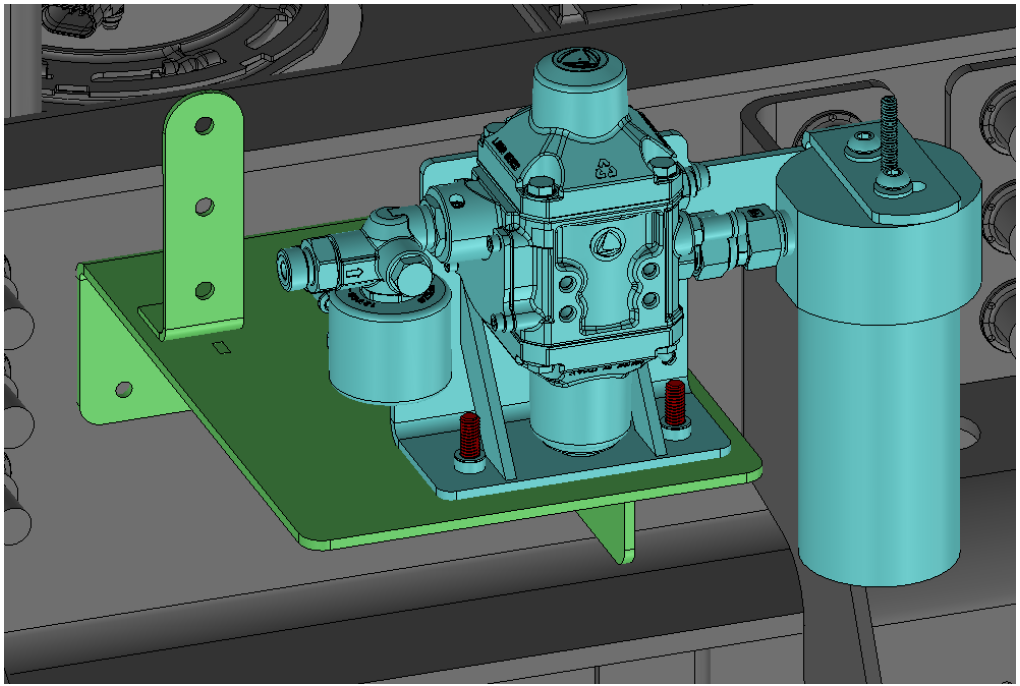
CNG Regulator Assembly (3 of 6)

- The regulator frame bracket (**1004471**) is attached using quantity 3 of 3/8”-16 x 1.5” long stainless-steel hex head bolts (**1004543**).
- Please put the heads of the bolt on the outside of the frame and thread them into the press-fit nuts on the frame bracket. Please torque to 33 ft.-lbs.



CNG Regulator Assembly (4 of 6)

- Place the regulator assembly on the top of the regulator frame bracket (**1004471**).
- Please tighten the quantity 2 of 5/16”-18 x 1.25” long stainless-steel serrated bolt hex head (**1004547**) to 221 in.-lbs.

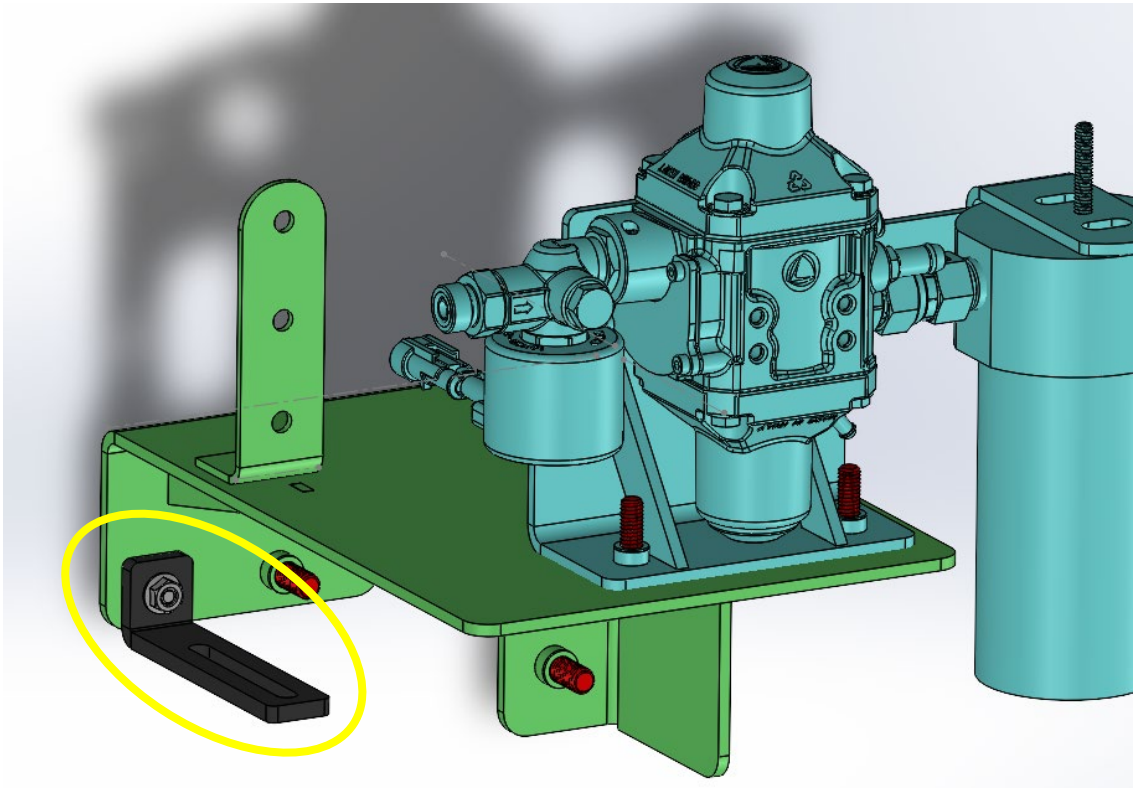


CNG Regulator Assembly (5 of 6)

- The park cable needs to be supported due to removing the OEM carbon canister bracket. Please keep the cushion clamp from the OEM support for use in the following instructions.
- Attach bracket (**1003868**) to the regulator bracket smaller hole highlighted on the next slide. Use ¼”-20 by 1.25” long serrated hex head bolt (**1003328**) at the frame with ¼”-20 nut (**1001103**) and torque to 76 in.-lbs.
- Please use ¼”-20 by 1” long serrated hex bolt (**1003231**) and ¼”-20 serrated flange nut (**1001103**) with the **OEM CUSHION CLAMP** attachment of the park brake cable and secure to the above bracket and torque to 76 in.-lbs.

CNG Regulator Assembly (6 of 6)

FOR REFERENCE ONLY



Low Pressure CNG Hose

Warning! When installing the low-pressure hoses, DO NOT USE Teflon tape or other pipe sealing method.

- Hand tighten 45° #8 MORB/#8MORFS elbow (**1002482**) to the fuel rail and #8 MORFS/#8MORB fitting (**1002166**) at the low-pressure filter attached to the regulator assembly.
- Apply a light coating of oil to the O-rings of the fittings. Refer to page 6 for oil specifications.
- Hand tighten Low Pressure CNG Hose (**1004554**) as shown below. Orient the hose so that the 45° fitting is installed on the driver side fuel rail. Please also include the loom (**1002958**).
- The low-pressure hose will be clipped to the existing transmissions bracket with the cable tie (**1004556**). Additional zip tie shown in image to the right will be highlighted later.

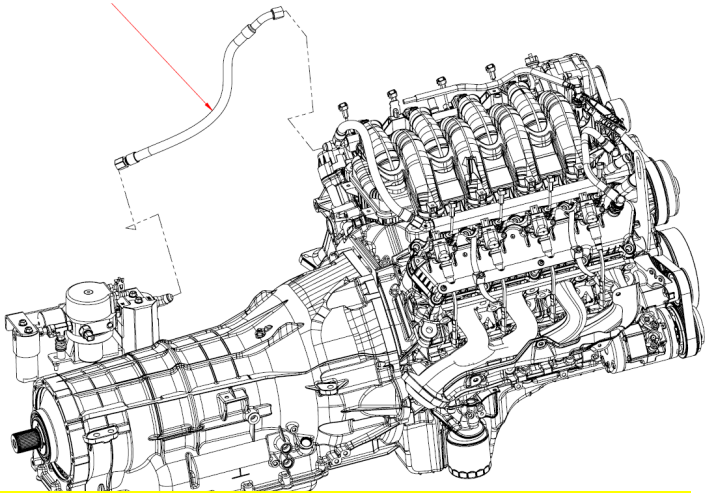
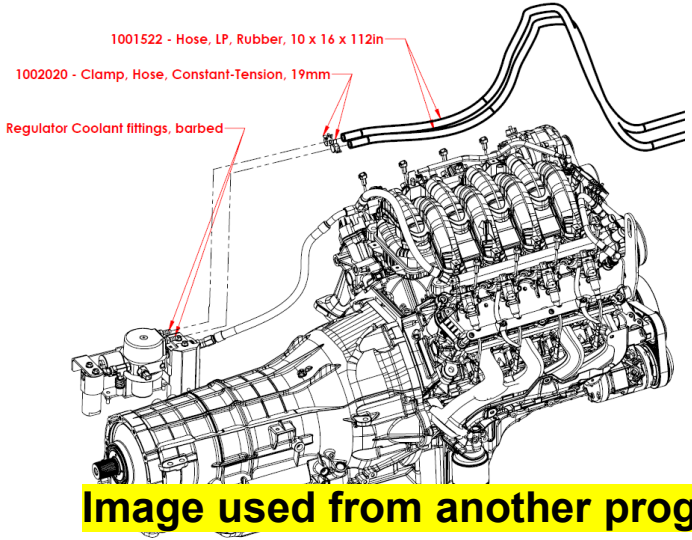


Image used from another program

Coolant Hoses from Regulator

- Locate both 112” long Coolant hoses (**1001522**) and install the protective fiberglass high temperature loom (**1002824**) over both hoses. Locate the 56” long loom all the way to regulator end of the 112” long hose
- Attach hoses to regulator coolant fittings using two 19mm constant tension (CT) clamps (**1002020**). Make sure that CT Clamps are on rubber hose only and not on top of loom.



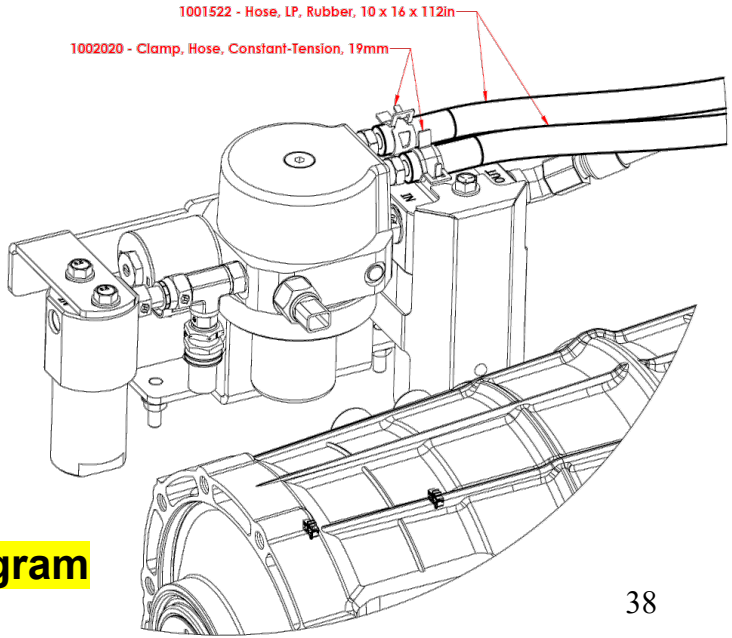
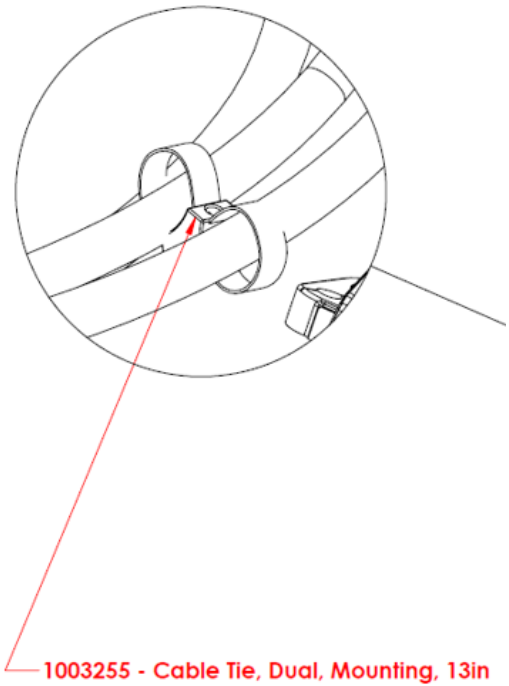
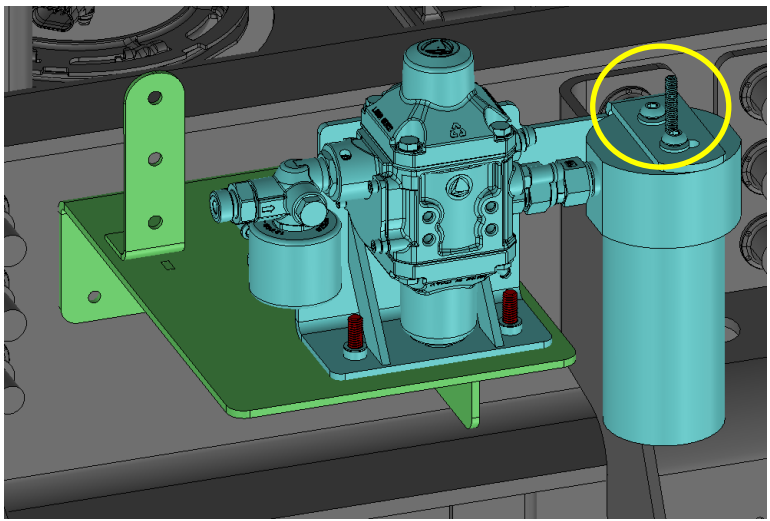


Image used from another program

Coolant Hoses Support (1 of #)

- The first location that the cooling lines will be attached to are highlighted below. Please use the cable tie for dual mounting (**1003255**).
- Leave the ties loose until instructed to fully close.





Coolant Hoses Support (1 of #)

- The second location is on the transmission and highlighted below and previously. Please use the cable tie (**1002494**).
- Leave the ties loose until instructed to fully close.

Coolant Hoses Support

- The image shows the rough locations where the two cooling lines should be held together via cable tie (**1002494**).
- RED = coolant hoses tied together
- GREEN = operation highlighted on the previous slide
- BLUE = coolant hoses cable tied to the wiring harness routed along the plenum.

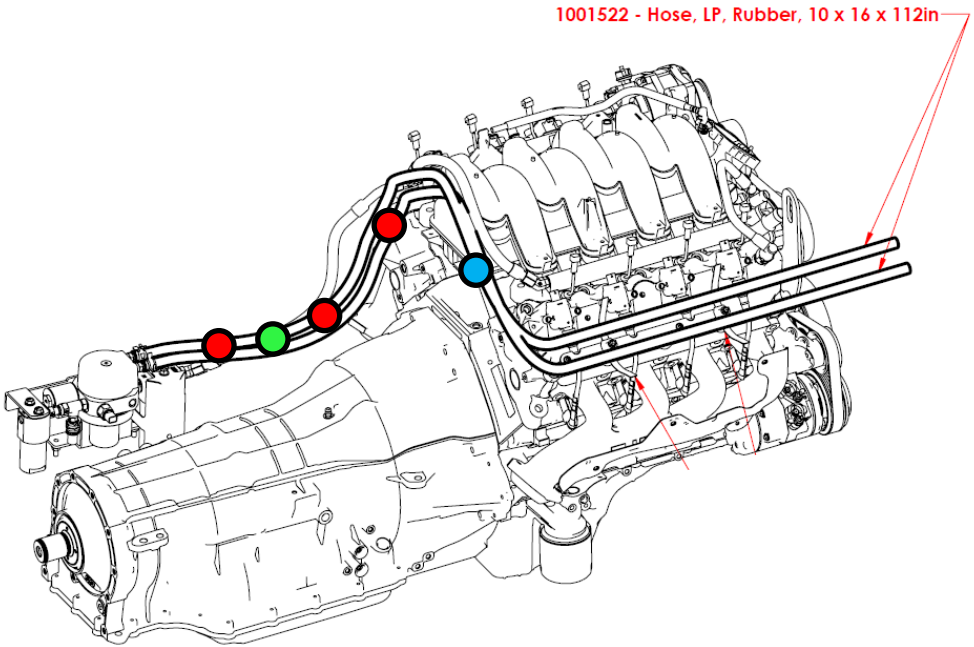


Image used from another program

Coolant Hoses Support Bracket

- Slide spacers onto passenger side valve cover studs as shown. Thread the F/F standoffs onto the studs and tighten snugly.
- Orient support bracket as shown so that relief cuts point towards the engine and clears the spark plug wires/boots. Install with supplied socket head cap screws to the F/F standoffs.
- Install butterfly clips and hex bolts. Leave the ties loose for routing of coolant lines.

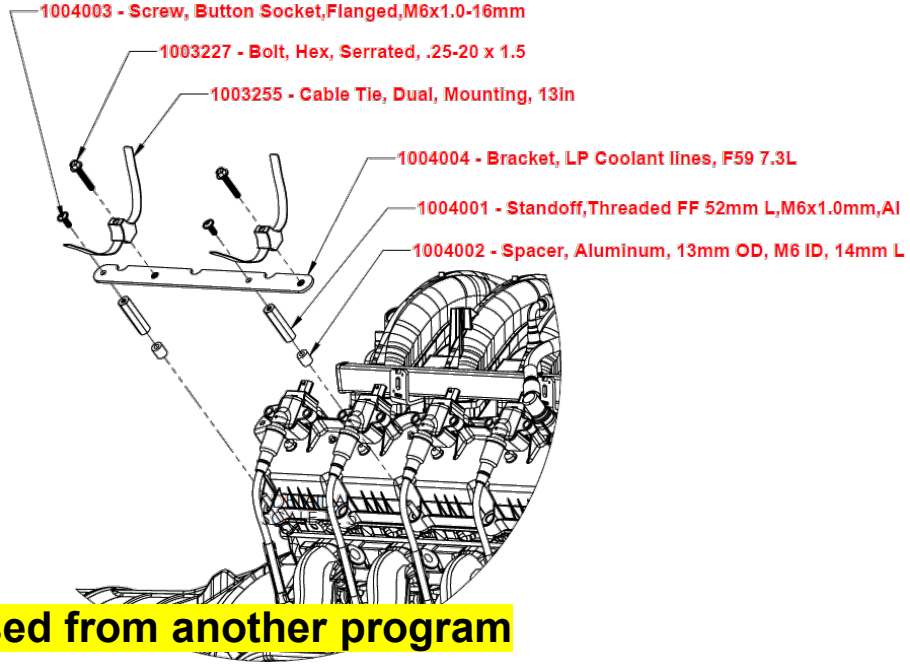


Image used from another program

Coolant Hoses Support Bracket Continued

- Route the fuel and coolant lines along the transmission housing as shown below, and secure along the LP coolant line bracket (**1004004**) at the passenger side spark plug location.
- Route and secure with the dual cable ties (**1003255**) on this bracket. Close the ties around the hose but leave loose until later. Leave engine side of coolant lines floating.

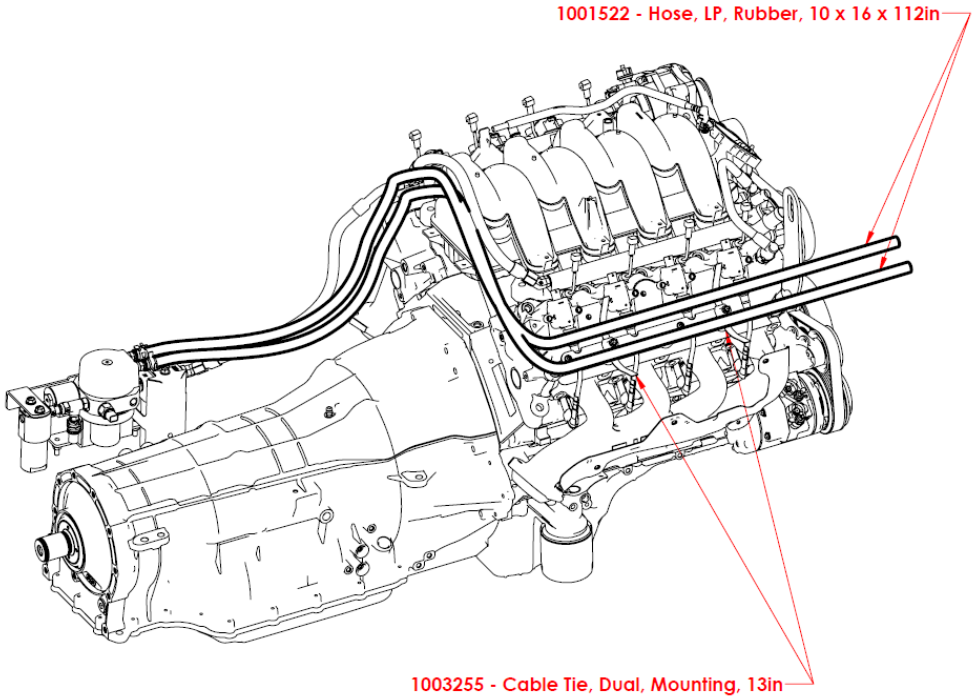
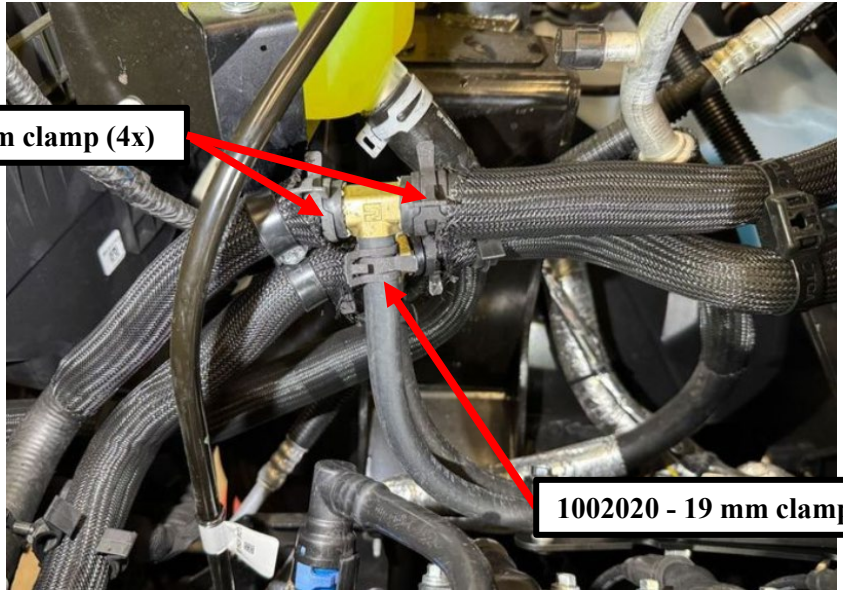


Image used from another program

Coolant Hose Connection to Heater Hose

- Prepare vehicle heater hoses by cutting to accept two (2) coolant tees (**1003180**) at the two locations indicated below.
- Install coolant tees into heater hoses using constant tensions clamps (**1002494**).
- After the coolant hoses are routed to the heater hoses cut the regulator coolant hoses to proper length and attach the regulator coolant hoses to tees using constant tension clamps (**1002020**).

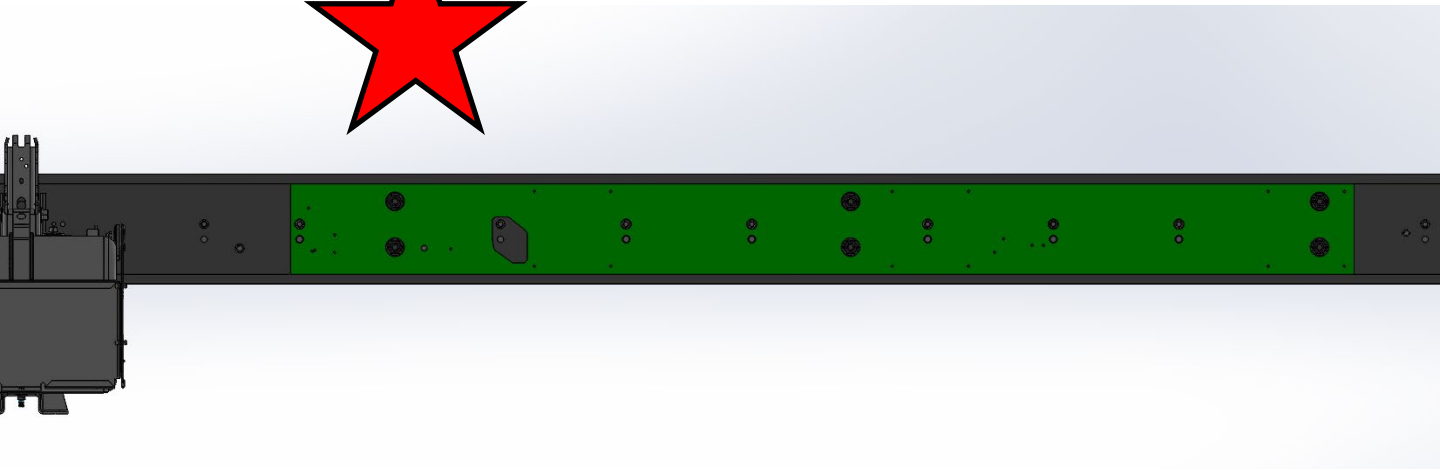


Fuel and Coolant Hoses

- Please fully secure and tighten all cable ties/straps associated with fuel and coolant lines.

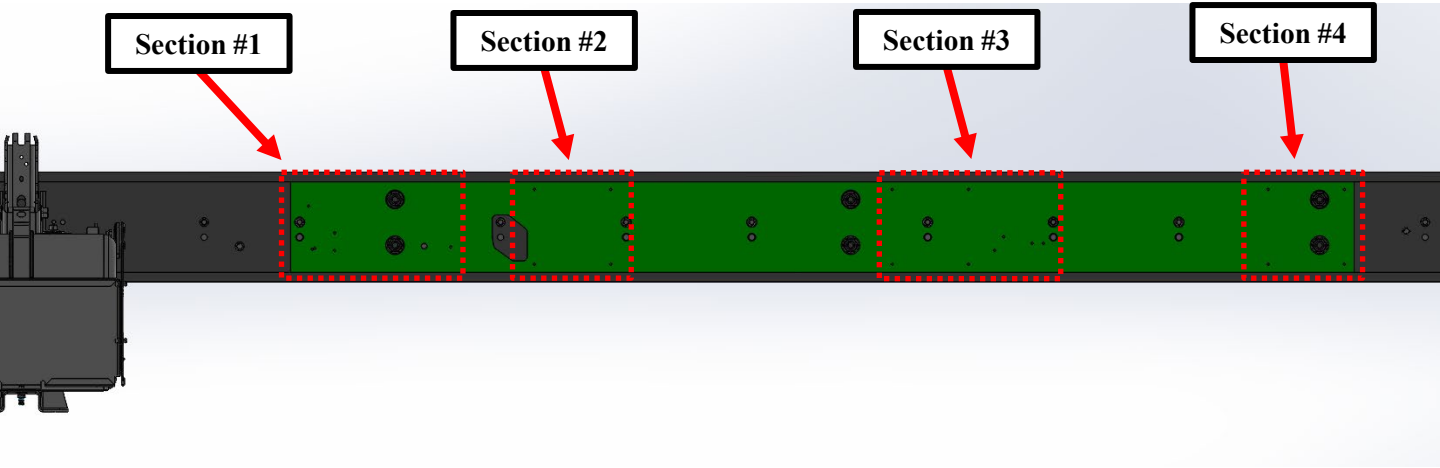
CNG Holes on Frame (1 of 6)

- The holes in the frame, for tank brackets and high-pressure hoses/tubes, require the use of the GREEN template (**1004568**). This will be made of aluminum.
- There are holes in the template to avoid features of the frame. These features are the break line bracket (Nut & anti-rotation feature on bracket), cross member fasteners, and exhaust hanger fasteners (Passenger side only).
- **The holes that require drilling will be highlighted in the following slides. These are currently designed to accept a 7/32" standard hole punch. The size of the holes will be further discussed.**



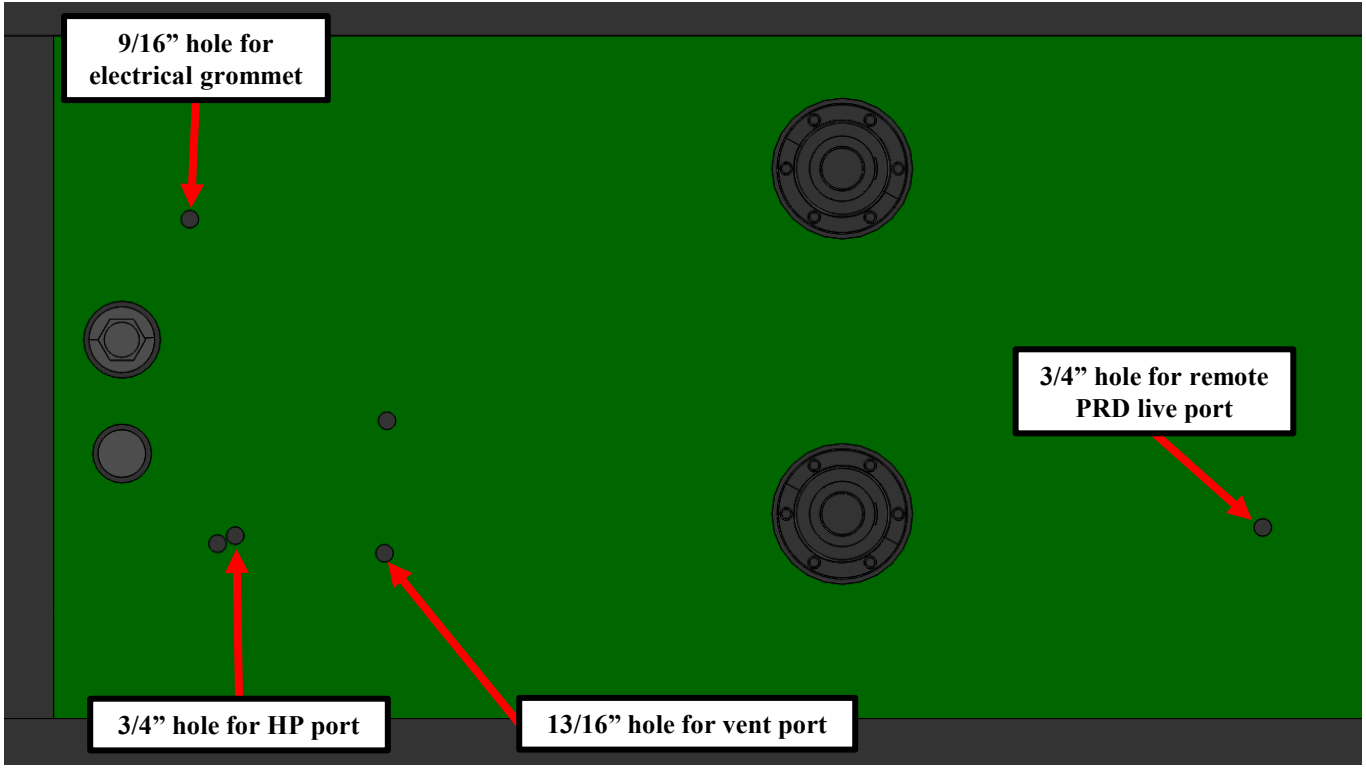
CNG Holes on Frame (2 of 6)

- First section, from left to right, will highlight the high-pressure & vent ports from the front of the CNG tank as well as the remote PRD live port.
  - This section will highlight the uniqueness of the driver to passenger side.
- The second section will highlight CNG tank bracket location #1.
- The third section will highlight CNG tank bracket location #2 as well as the remote PRD.
- The fourth section will highlight CNG tank bracket location #3.



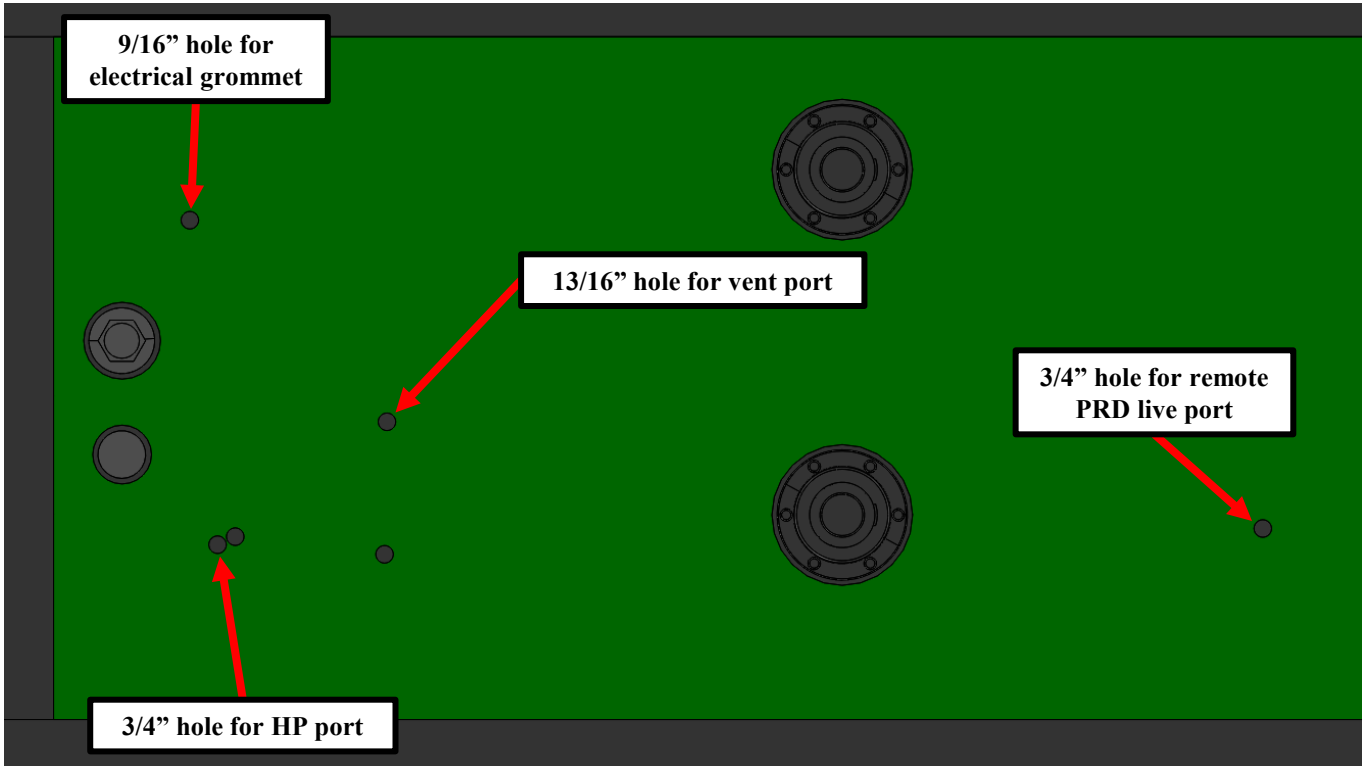
CNG Holes on Frame – Section 1 Continued (3 of 6)

DRIVER SIDE OF VEHICLE: These center points will be drilled to the following diameter



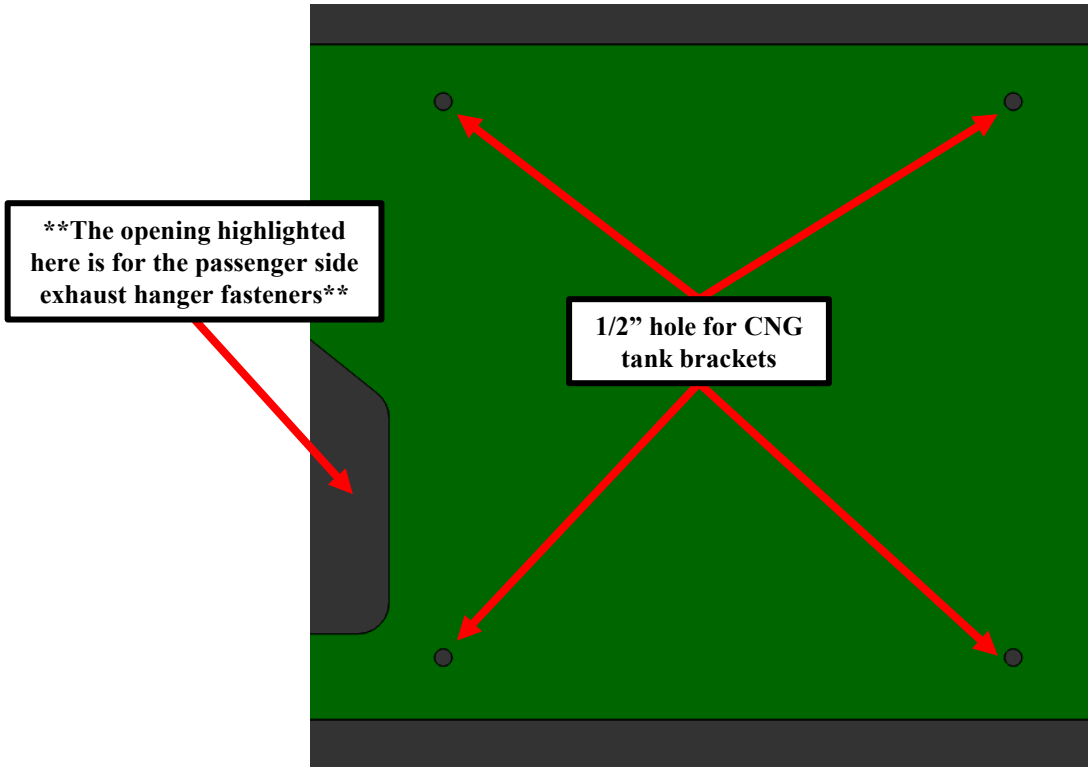
CNG Holes on Frame – Section 1 Continued (4 of 6)

PASSENGER SIDE OF VEHICLE: These center points will be drilled to the following diameter



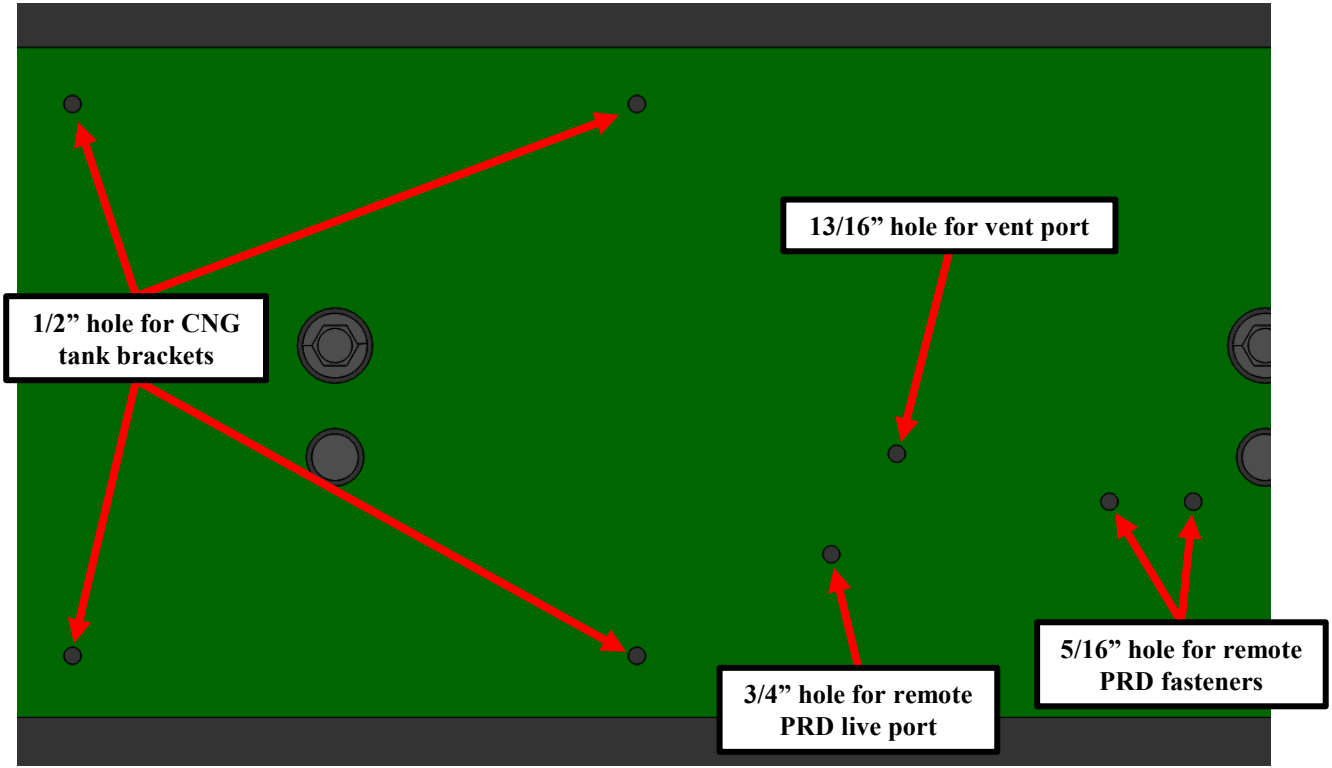
CNG Holes on Frame – Section 2 (5 of 6)

PASSENGER & DRIVER SIDE OF VEHICLE: These center points will be drilled to the following diameter



CNG Holes on Frame – Section 3 (6 of 6)

PASSENGER & DRIVER SIDE OF VEHICLE: These center points will be drilled to the following diameter

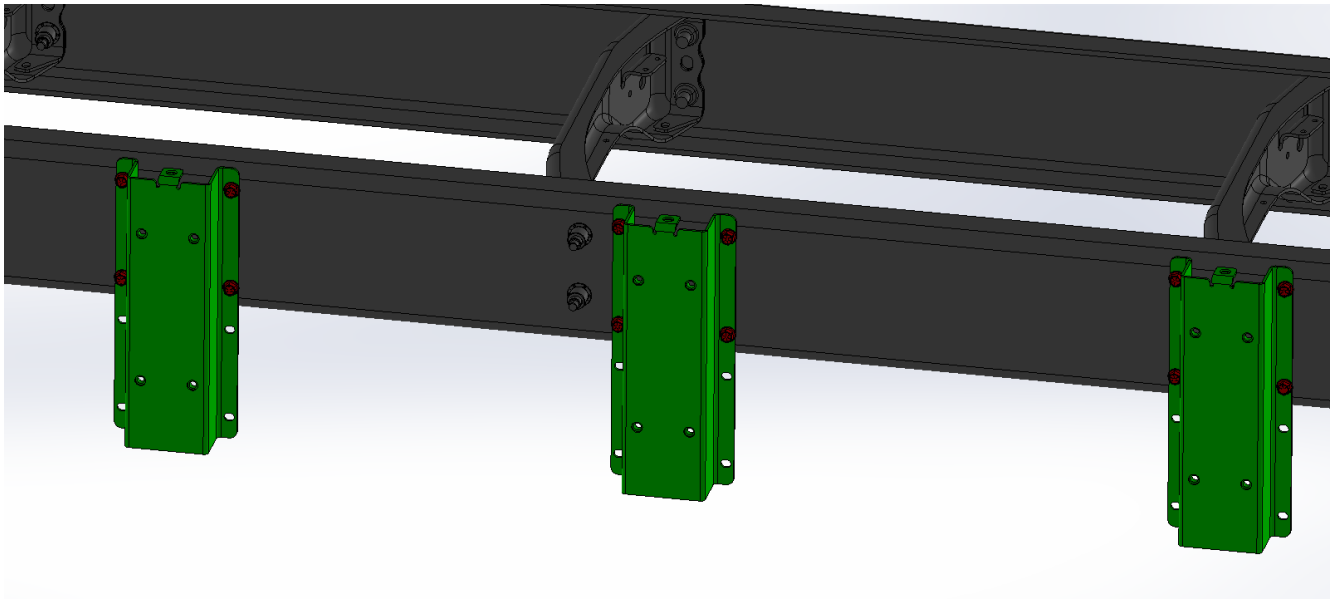


CNG Holes on Frame – Paint Coat

After drilling the holes, please apply a light coat of black paint to seal the surface.

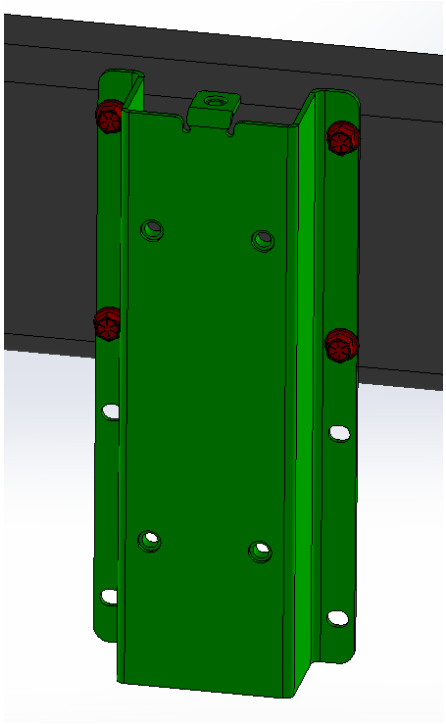
CNG Tank Brackets (1 of 4)

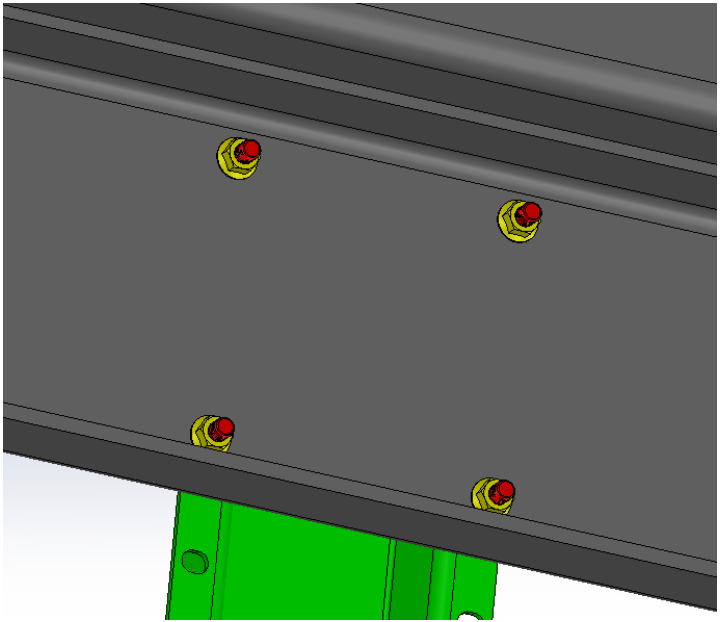
- The brackets (**1004442**) are to be bolted to the frame in the same manner on both sides of the vehicle.
- There will be ½" – 13 hex bolts (**1004493**) and ½"-13 flange nut (**1003241**) used to bolt these to the frame.
  - 4 bolts and 4 nuts used for each bracket (Total = 24 of each)
- Please torque these fasteners to 95 ft.-lbs.



CNG Tank Brackets (2 of 4)

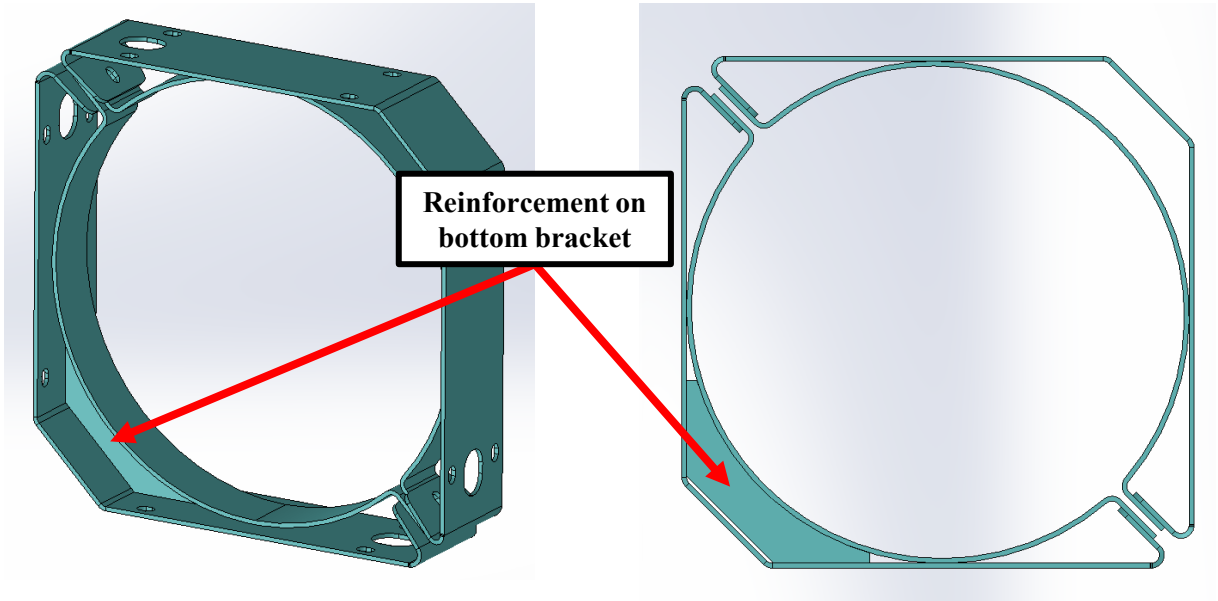
- Closer view of the fasteners
  - Bracket (**1004442**) = GREEN
  - Bolt (**1004493**) = RED
  - Nut (**1003241**) = YELLOW





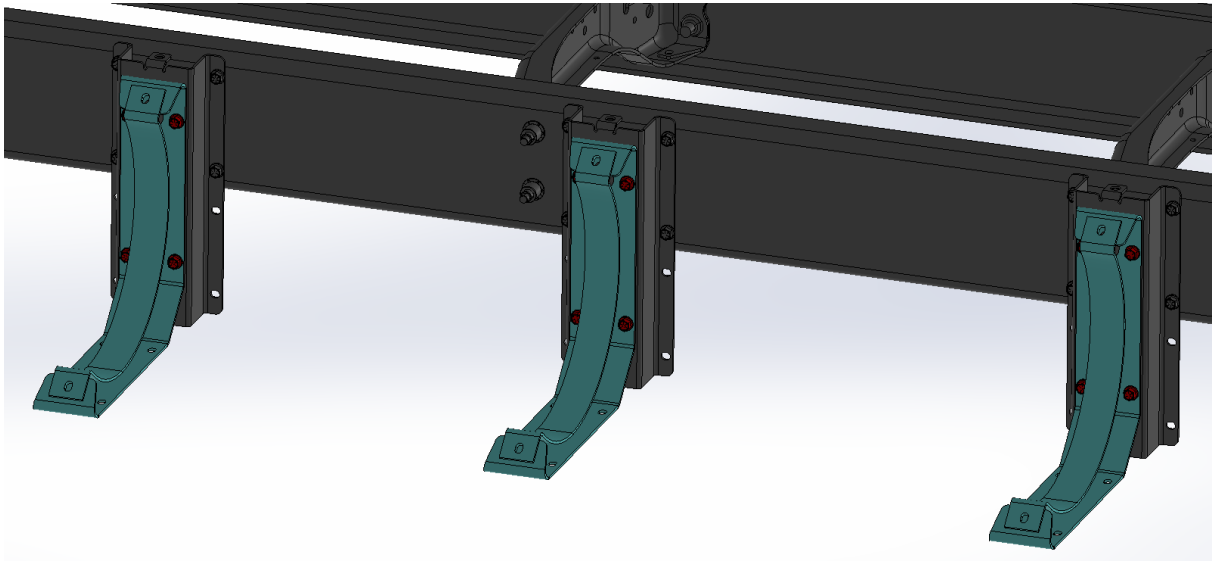
CNG Tank Brackets (3 of 4)

- The next set of brackets (**1004445**) with contain two separate bracket designs. The bottom bracket will have the added reinforcement.
- The fasteners used to fasten the two brackets together will be included in the above part number.
- There will be a spacer (**1004494**) used at both interfaces that will be put between the two brackets which will be highlighted in a following slide.



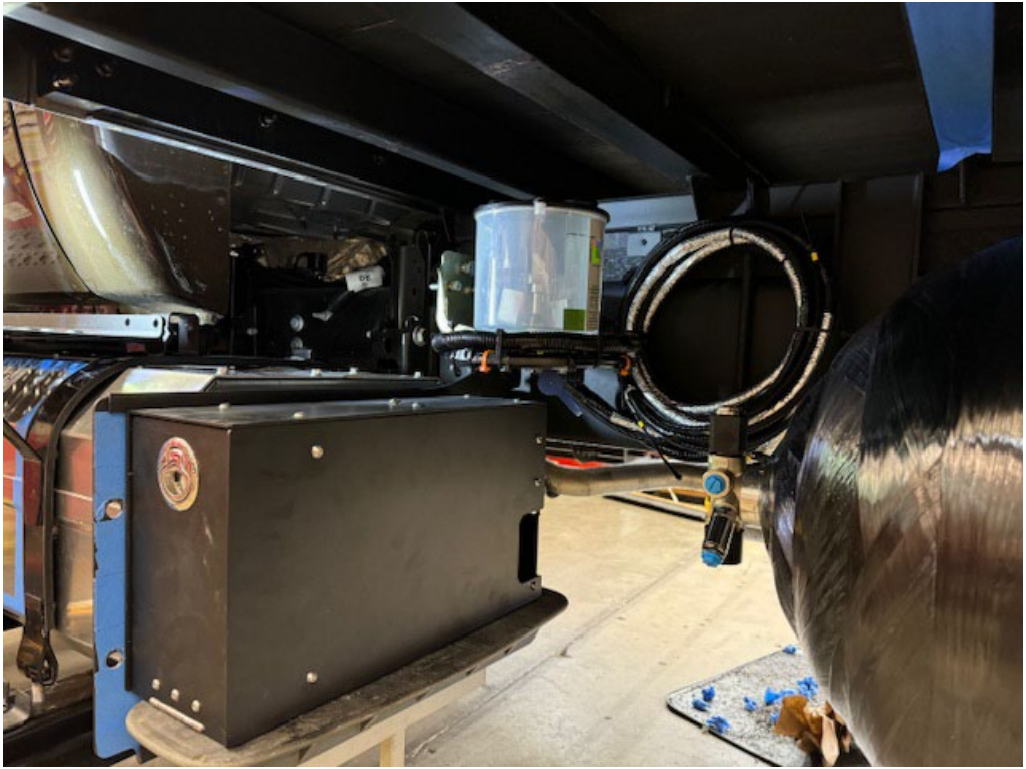
CNG Tank Brackets (4 of 4)

- The bottom bracket, with additional reinforcement, from the bracket kit (**1004445**) are to be bolted to the frame brackets (**1004442**) in the same manner on both sides of the vehicle.
- There will be quantity of 4 – ½" – 13 hex bolts (**1004493**) used to bolt the bracket to the frame brackets (12 bolts for each side / 24 bolts in total)
- Please torque these fasteners to 95 ft.-lbs.
- **Please spray adhesive on each half of the blue brackets and align/install the rubber isolator provided in bracket kit box.**



CNG Fill Box Assembly (1 of 5)

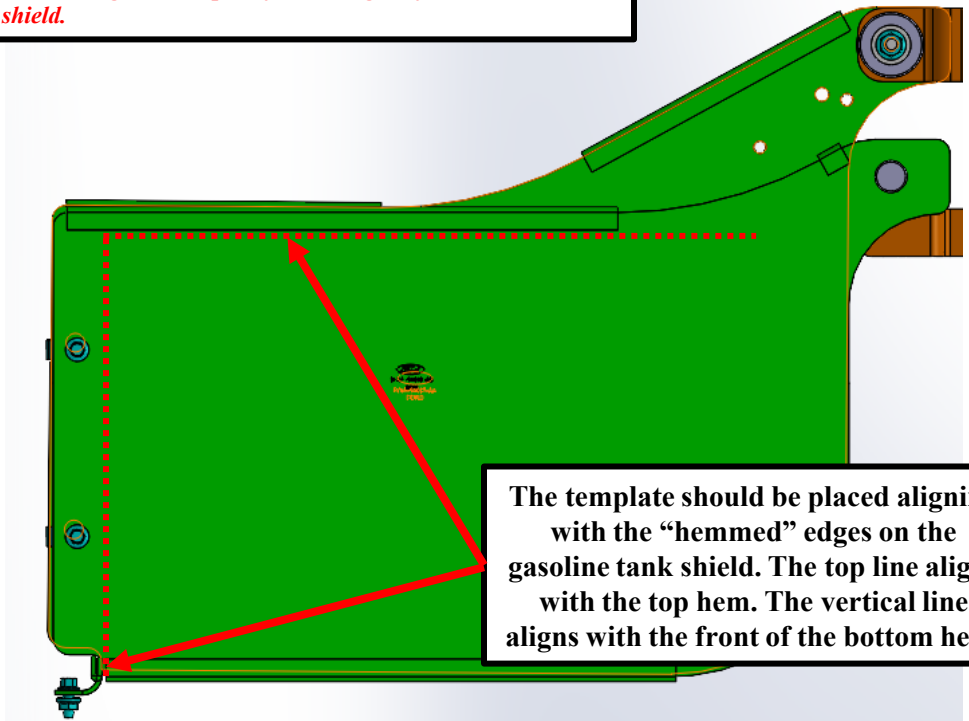
- The fill box will be mounted on the rear side of the gasoline tank.
- The following slides will highlight the alignment and dimensions of the holes as well as the installation procedure.



CNG Fill Box Assembly (2 of 5)

Datum Points

Please note this is used to align the template for drilling the fill box holes on the gasoline tank shield.

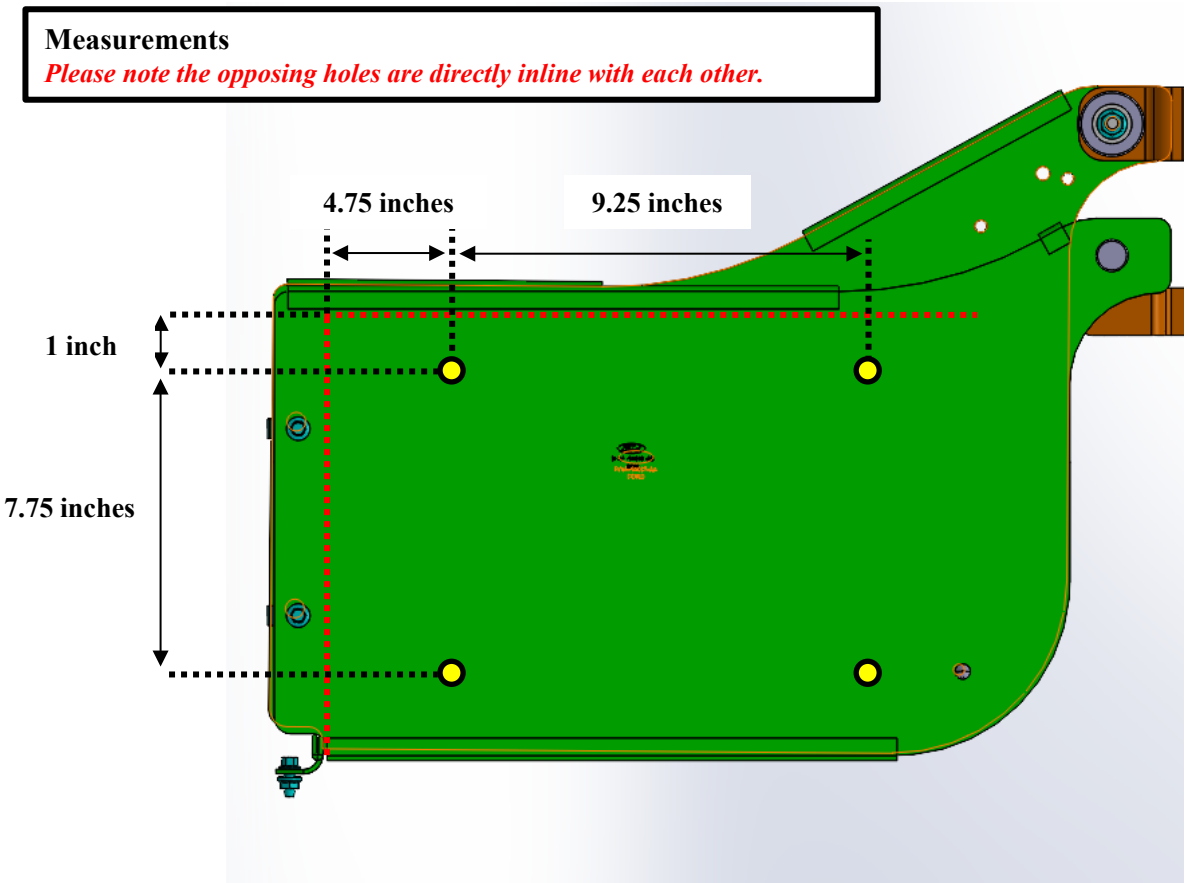


The template should be placed aligning with the "hemmed" edges on the gasoline tank shield. The top line aligns with the top hem. The vertical line aligns with the front of the bottom hem.

CNG Fill Box Assembly (3 of 5)

Measurements

Please note the opposing holes are directly inline with each other.



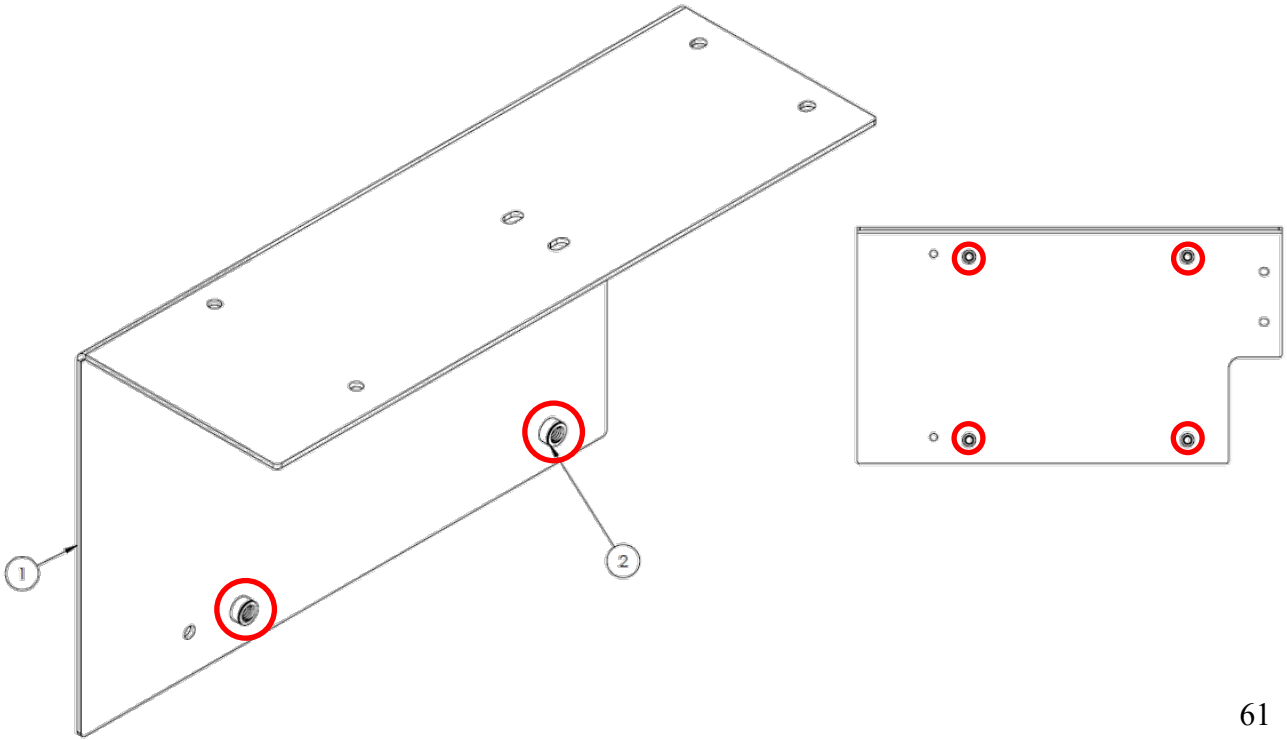
CNG Fill Box Assembly (4 of 5)

- The CNG fill box will need to be supported while trying to bolt this to the pre-drilled holes on the gasoline tank shield.
- The button head screw (**1004495**) will be inserted on the gasoline shield side. Please include the split lock washer (**1004496**). The spacer (**1004497**) will be between the gasoline shield and the CNG fill box. Please torque the button head screw to 30 ft.-lbs.
- The next slide shows the rivet nuts that come inside the fill box that will be used with the above fasteners (**ALREADY INSTALLED**)

CNG Fill Box Assembly (5 of 5)

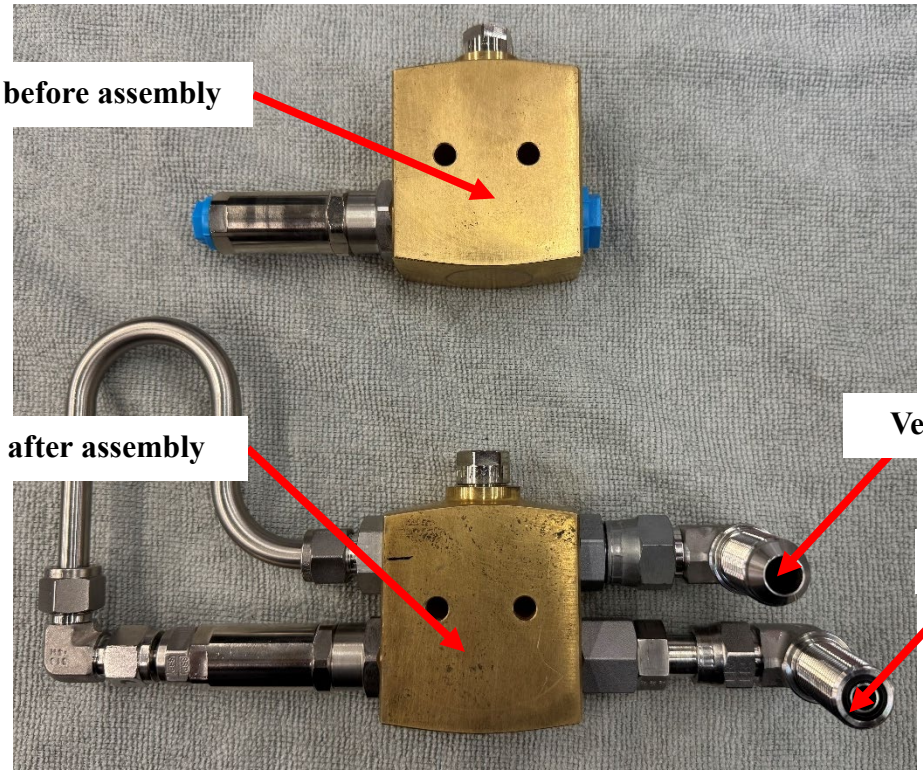
Rivet Nuts

Please note these will come already installed in the fill box.



CNG REMOTE PRD Assembly (1 of 3)

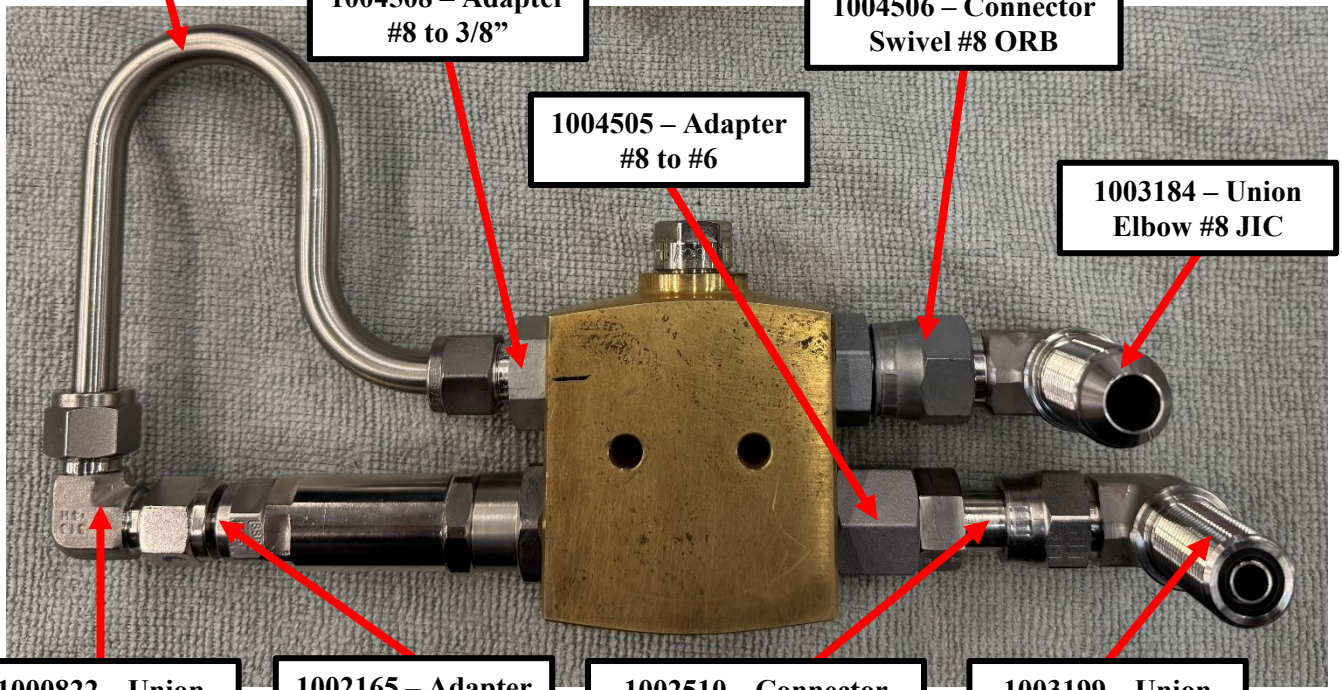
The following slides will highlight the BOM for the remote PRD assembly. Please reference torques on slides 9 & 10



CNG REMOTE PRD Assembly (2 of 3)

Landi

Driver Side Remote PRD Assembly



CNG REMOTE PRD Assembly (3 of 3)

- **Below shows the differences between passenger and driver side assembly.**
- **Installation onto the frame will be highlighted in a future slide.**

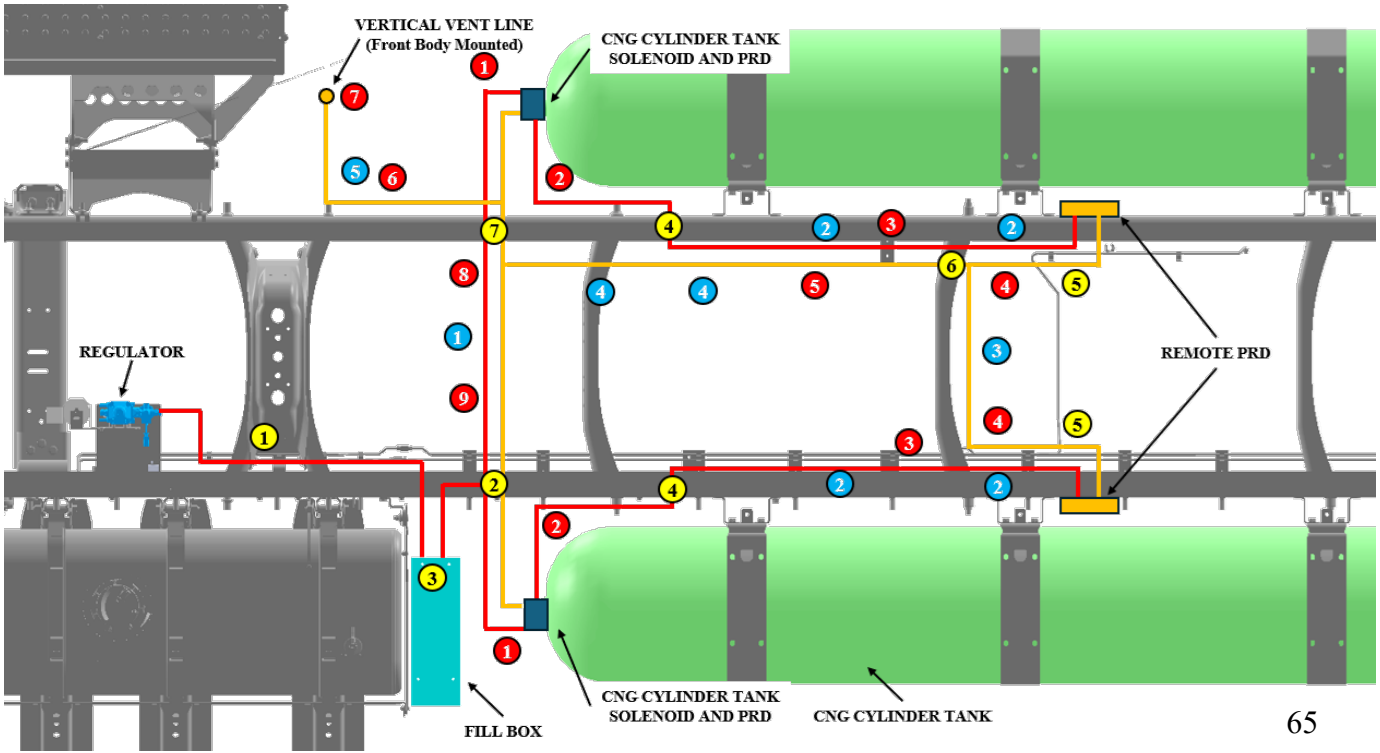
Passenger

Driver

CNG High Pressure & Vent Line Summary

- RED lines = high pressure lines
- ORANGE lines = venting lines

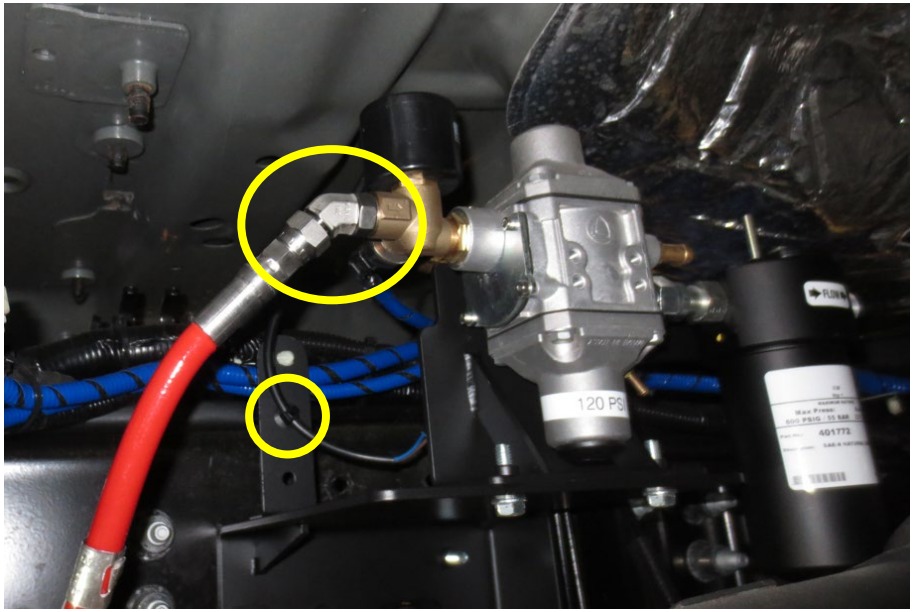
- YELLOW #s = bulkheads, fittings, and tees
- RED #'s = Hose or tubes
- BLUE #'s = Hose or tube supports



CNG Regulator High Pressure Line - #1

1

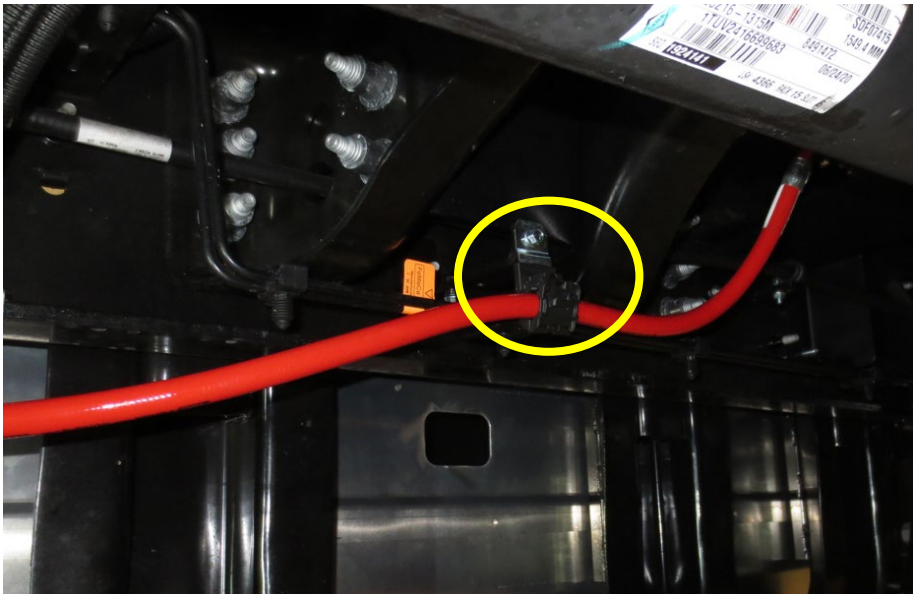
- Apply a light coating of oil to the O-rings of the loose fittings on the Regulator Assembly. Refer to page 6 for oil specifications.
- Hand tighten 45° elbow (**1002515**) to the regulator and connect HP line (**1002822**).
- Use cable tie to secure regulator main harness with cable tie (**1003272**) to the regulator frame bracket (**1004471**) shown in the small circle (Middle hole on welded tab).
  - Image below shows the pigtail being connected, but this is not accurate to the builds.
- Please ensure hose fitting is hand tightened until final torque instructions are provided.



CNG Regulator High Pressure Line - #1

1

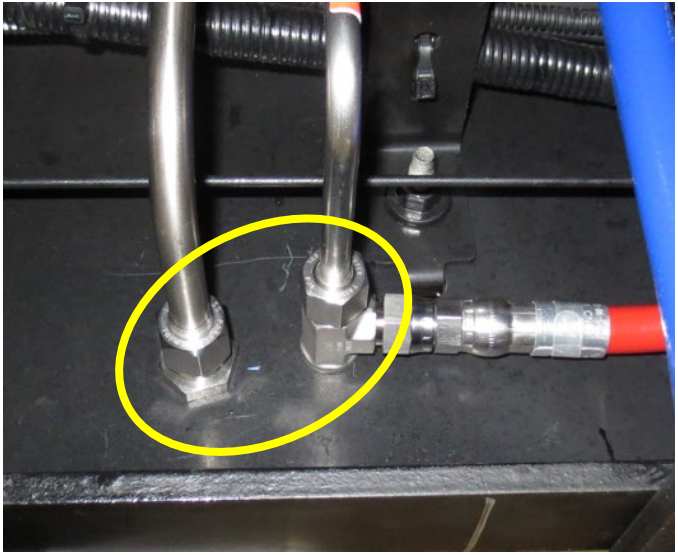
- Partially clamp the adjustable clamp (**1003929**) to the HP line (**1002822**) from regulator.
  - Once lines are fully torqued at both ends of this HP line you can fully tighten clamp.
- The clamp is attached to the frame with the bracket (**1003868**) and the bolt (**1003231 X 2**) and nut (**1001103 X 2**)
  - One set of fasteners attaches the bracket to frame and the other set attaches adjustable clamp to the bracket.

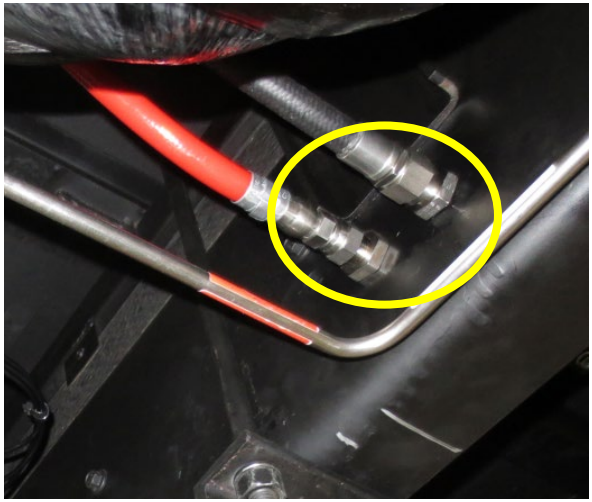


CNG Fitting HP Fill & Vent Line - #2 (Driver Side)

2

- The high-pressure frame hole will get the #6 bulkhead tee (**1003198**) and the backside (Outside frame) will have the #6 bulkhead nut (**1002507**).
- The vent frame hole will get the #8 JIC bulkhead (**1004428**) and the backside (Outside frame) will have the #8 JIC bulkhead nut (**1003182**).
- Please ensure hose fitting is hand tightened until final torque instructions are provided.

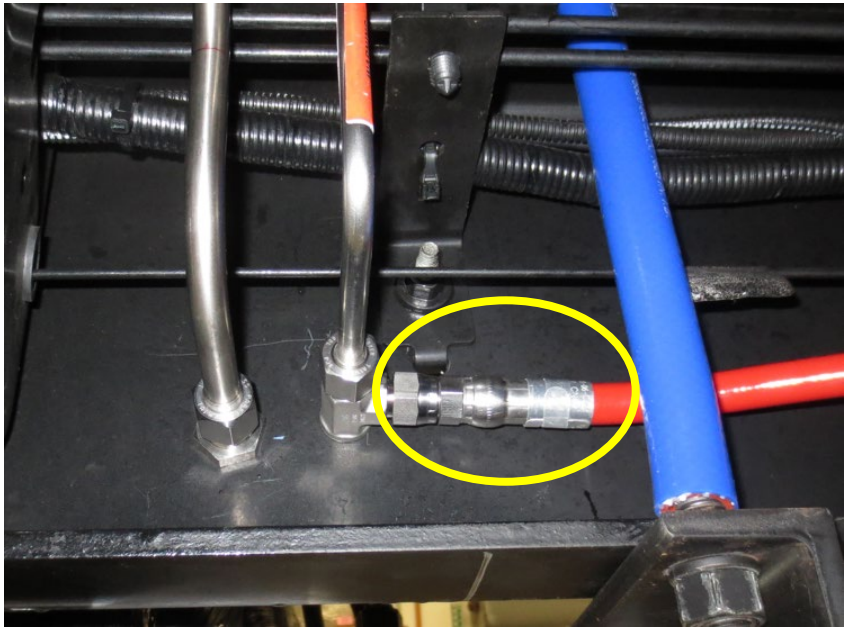




CNG HP Fill - #2 (Driver Side)

2

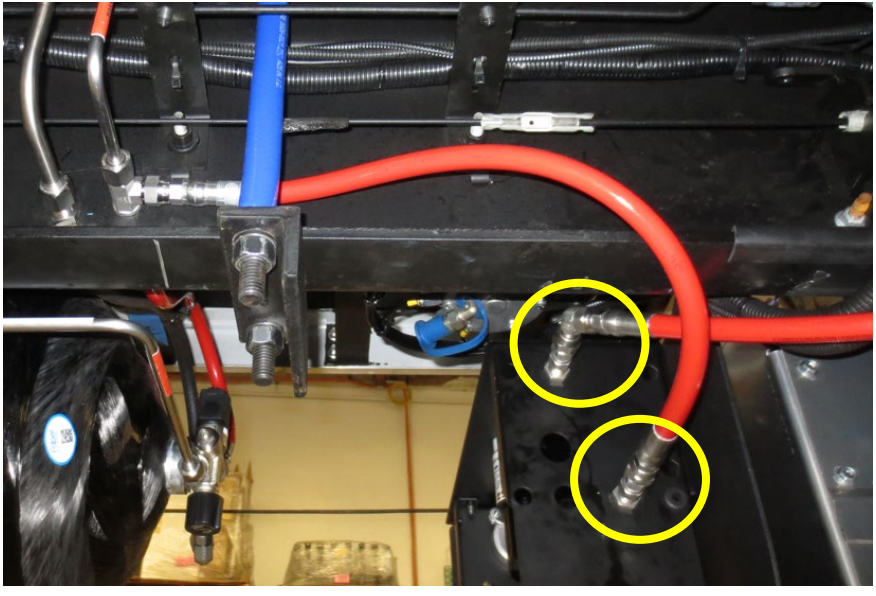
- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- Please hand tighten the 24” long HP ORFS hose (**1003197**) to the branch tee previously installed.



CNG Fill Box High Pressure Lines - #3

3

- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- There are fittings zip tied inside the front opening of the fill box that need to be hand tightened onto the fittings already installed on fill box.
- Hand tighten 45° elbow (**1002527**) to the fill box and connect HP line (**1002822**) from top of fill box coming from the adjustable clamp previously installed (Top highlighted area below).
- Hand tighten and connect HP line (**1003197**) coming from the branch tee fitting to the bottom fitting on the fill box, both previously installed.
- Please ensure hose fittings are hand tightened until final torque instructions are provided.

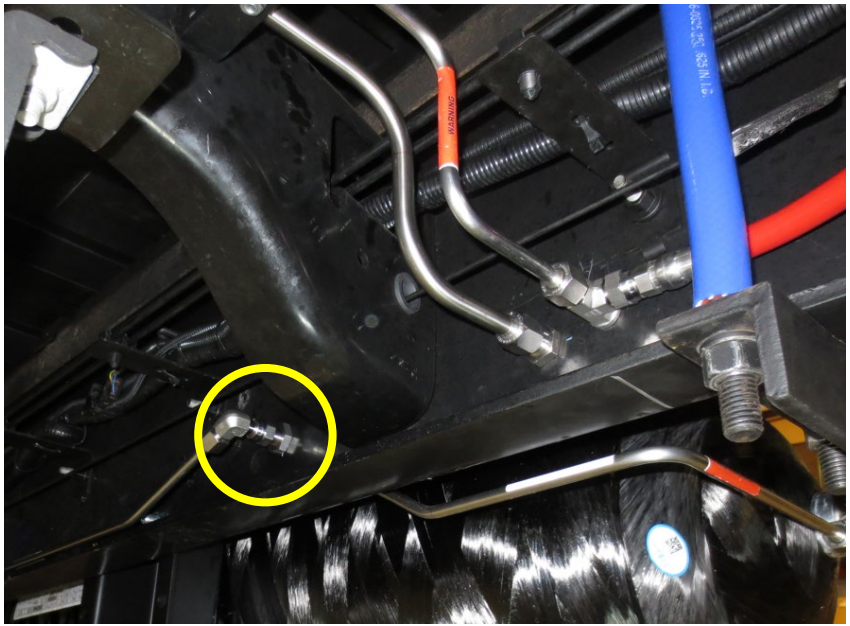


CNG Live Port Pass Through Fitting - #4

4

Landi

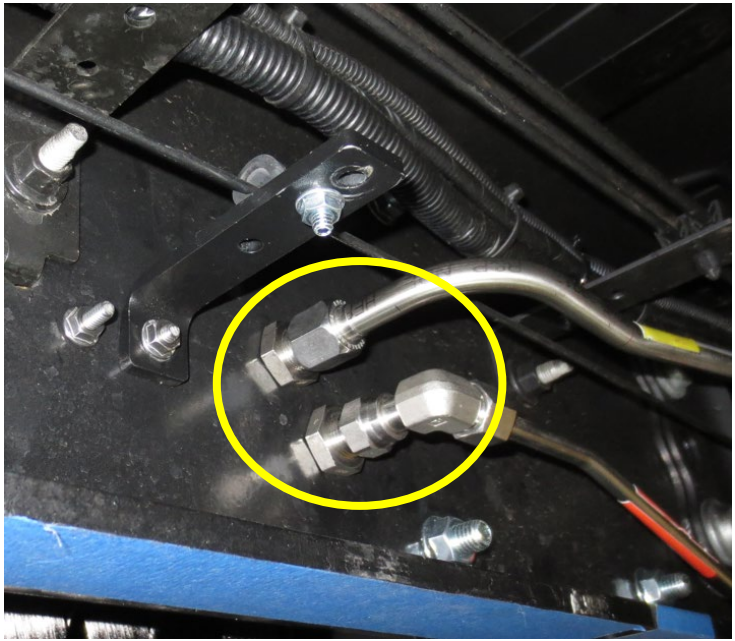
- This operation will be the same on driver & passenger side.
- The #6 ORFS bulkhead (**1003199**) and #6 ORFS bulkhead nut (**1002507**) will be hand tightened on both sides of the vehicle (Quantity 2 for this operation).
- The #6 MORFS/#6 FORFS 90° swivel elbow (**1002509**) will be used on both insides of the vehicle going back towards the remote PRD (Inside of frame ONLY).
- Please ensure hose fittings are hand tightened until final torque instructions are provided.



CNG Remote PRD & Fittings - #5 (Driver)

5

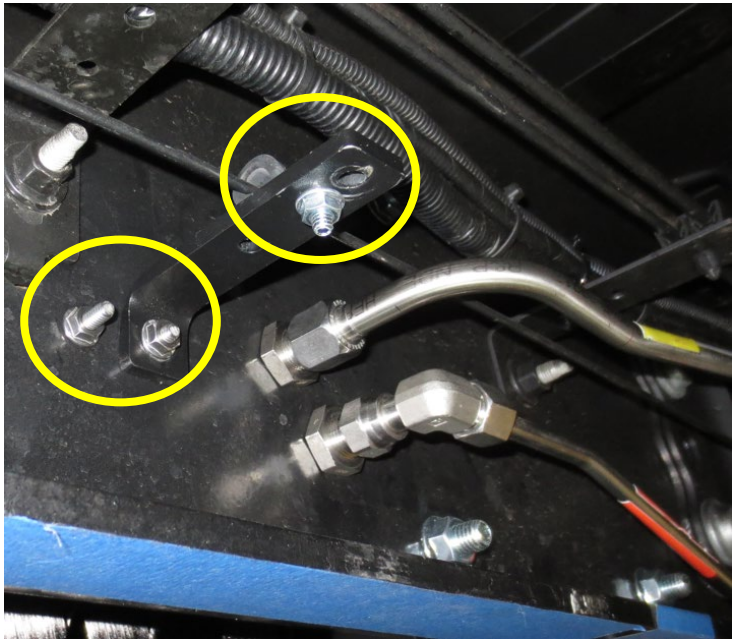
- The remote PRD from page 62-64 will now be inserted into frame holes
- The #8 JIC bulkhead nut (**1003182**) and #6 bulkhead nut (**1002507**) will be hand tightened to help align the remote PRD with the frame holes.
- Before installing the bolts through the remote PRD please install the #6 MORFS/#6 FORFS 90° swivel elbow (**1002509**) on the live port line (lowest most fitting).



CNG Remote PRD & Fittings - #5 (Driver) Continued

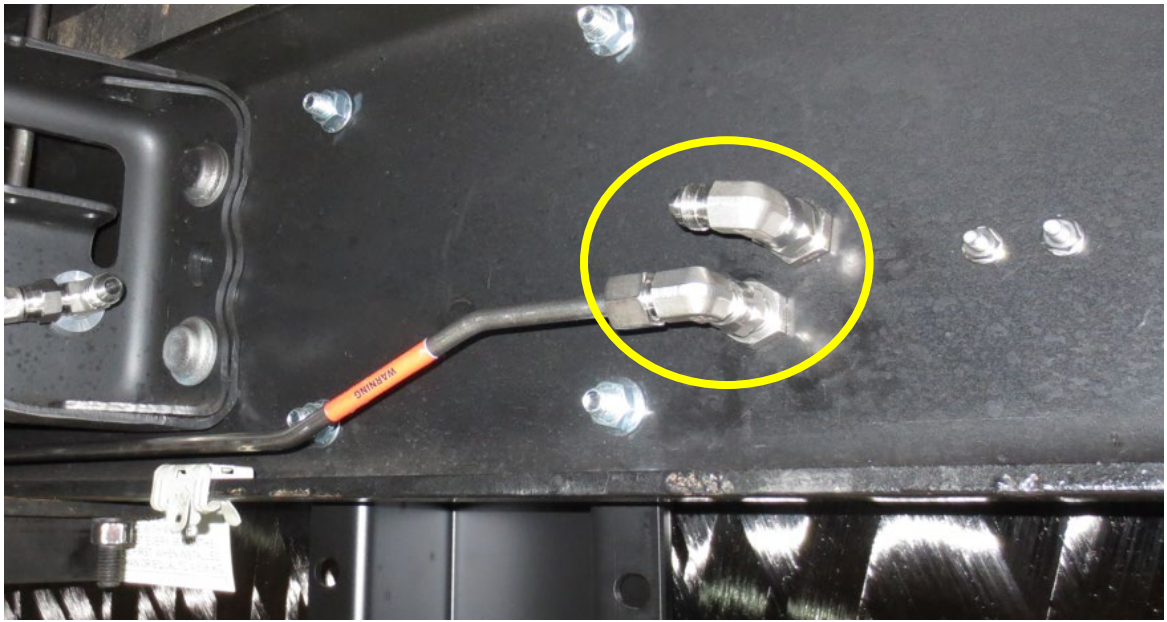
5

- The ¼-20 by 2-3/8” long socket head bolt (**1004509**) will be inserted into the remote PRD mounting holes and the forward most fastener will have the L-bracket (**1003868**) sandwiched between the frame and nut.
- Please hand tighten the ¼”-20 serrated flange nut (**1004510**) at both bolts.
- Please hand tighten the cushion clamp with the 1” ¼-20 hex bolt (**1003231**) along with the ¼”-20 serrated flange nut (**1001103**).



CNG Remote PRD & Fittings - #5 (Passenger)

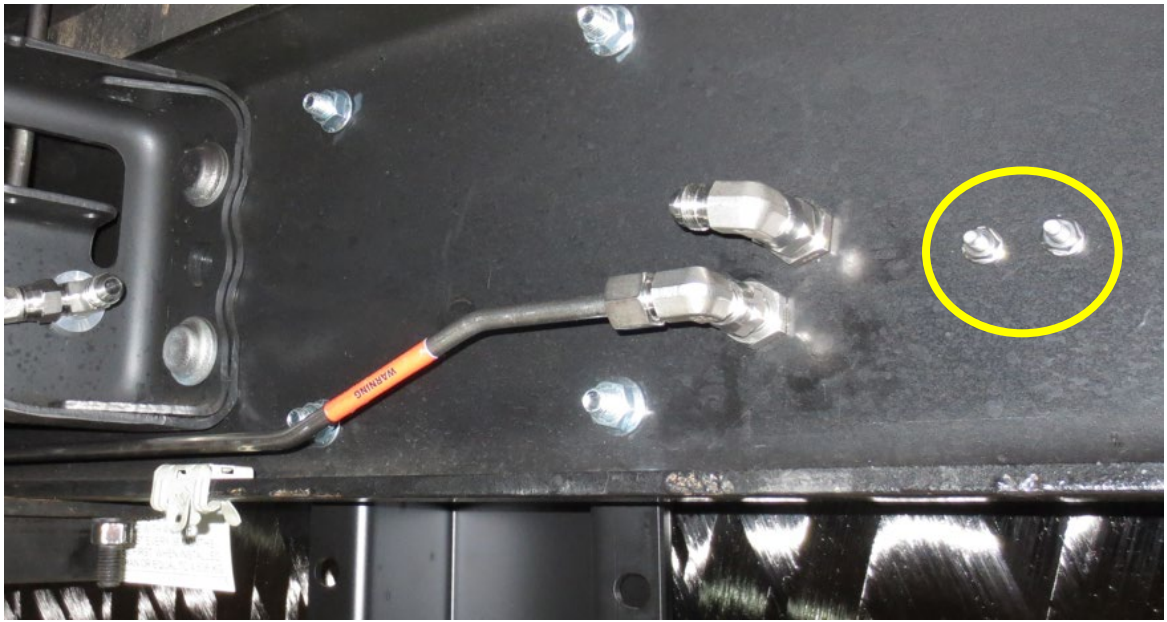
- The #8 JIC bulkhead nut (**1003182**) and #6 bulkhead nut (**1002507**) will be hand tightened to help align the remote PRD with the frame holes.
- Before installing the bolts through the remote PRD please install the #6 MORFS/#6 FORFS 90° swivel elbow (**1002509**) on the live port line (lowest most fitting).
- Additional #8 JIC 90° elbow (**1003183**) will need to be hand tightened onto the top, vent port as image below shows.



CNG Remote PRD & Fittings - #5 (Passenger) Continued

- The ¼-20 by 2-3/8” long socket head bolt (**1004509**) will be inserted into the remote PRD mounting holes.
- Please hand tighten the ¼”-20 serrated flange nut (**1004510**) at both bolts.

5



CNG Vent Line Pass Through Frame Fitting - #6

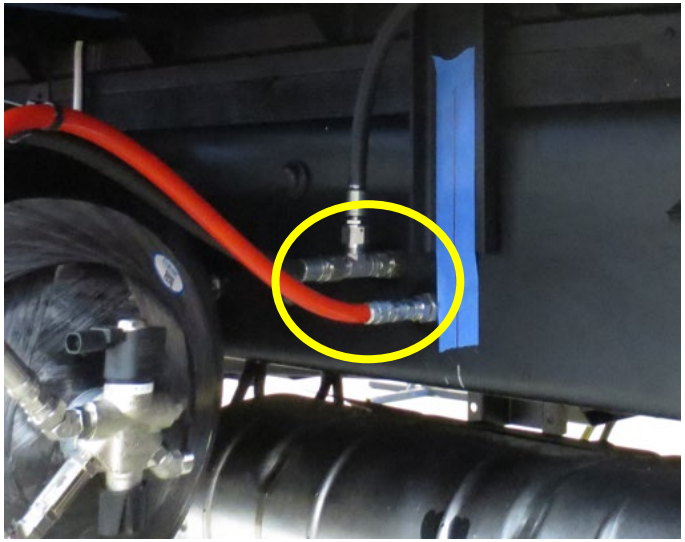
6

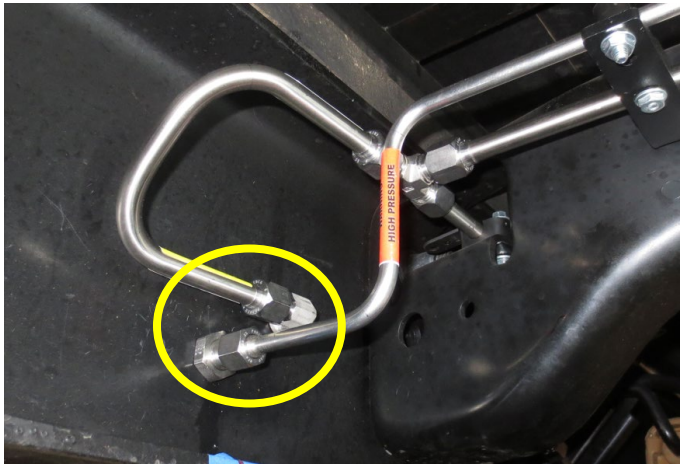
- #8 JIC bulkhead tee (**1004430**) will need the #8 JIC 45° swivel elbow (**1003867**) installed before installing both onto the frame cross member.
  - Another #8 JIC 45° swivel elbow (**1003867**) will be installed on the backside of the tee fitting.
- On the side shown below there will be a spacer with 1-1/2” OD, 3/4” ID, 1/4” length (**1004536**). Please insert tee from above into the spacer and frame hole.
- On the backside, not pictured please put the washer with 1-5/16” OD, 3/4” ID, 1/32” thickness (**1004537**) before securing the entire assembly with the #8 JIC bulkhead nut (**1003182**).

CNG HP Fill & Vent Hose Fittings - #7 (Passenger Side)

7

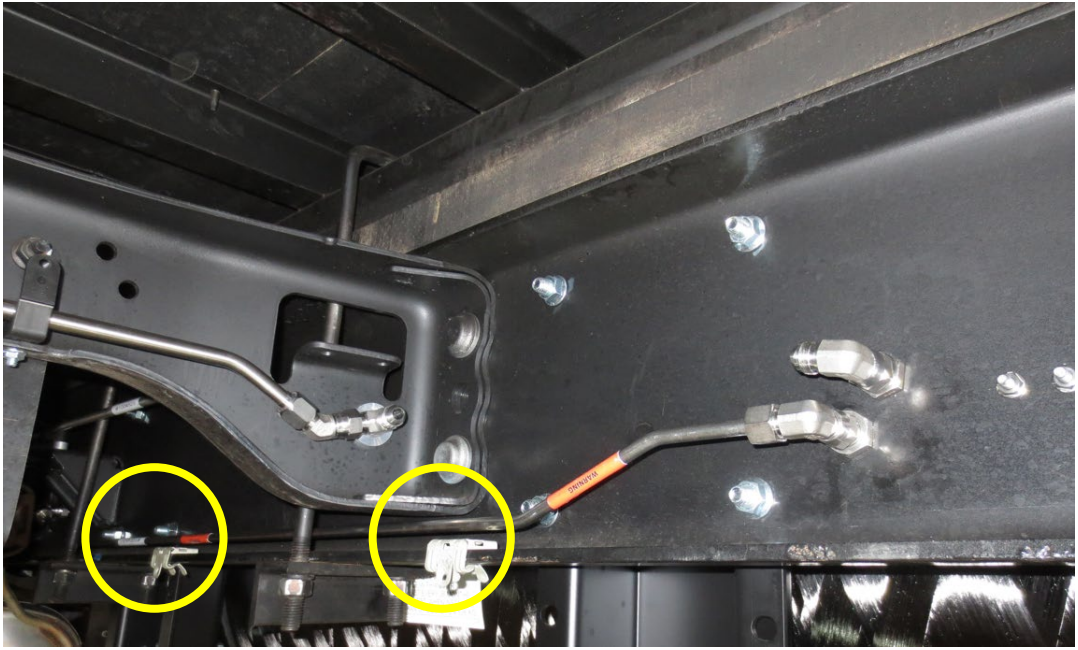
- For the black vent hose please install #8 JIC swivel tee (**1004532**) outside the frame and the #8 JIC bulkhead nut (**1003182**) on the inside along with the #8 JIC union elbow (**1003184**) shown in right image.
- For the red high-pressure hose please use #6 MORFS bulkhead (**1002506**) outside the frame and #6 bulkhead nut (**1002507**) inside the frame.





CNG Live Port Tube Attachments - #2

- The support points for the live port tube will need to be installed prior to the actual tubing.
- There will be two secure points on both sides of the frame.
- Each secure point will be made up of universal beam clamp (**1004538**), 3/8” plastic routing clamp (**1003103**) and ¼”-20 serrated hex bolt (**1003231**).
- Please install the plastic clamp onto the tubing in the next slide install the bolt after both ends of the tube have been hand tightened.



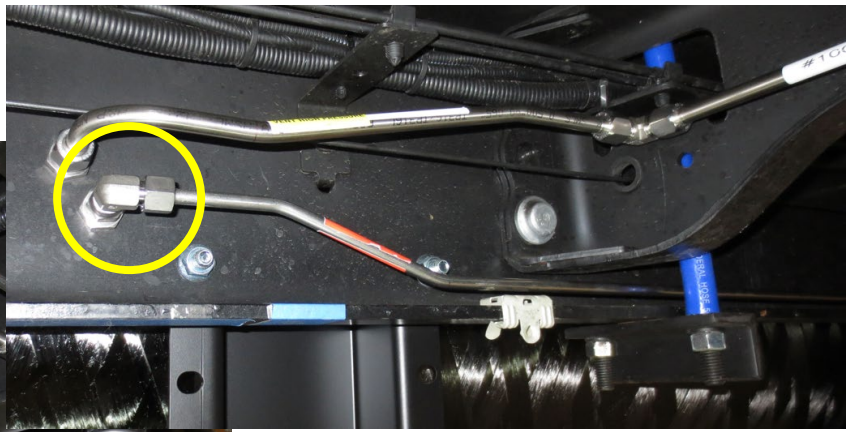
CNG Live Port Tube to Remote PRD - #3

3

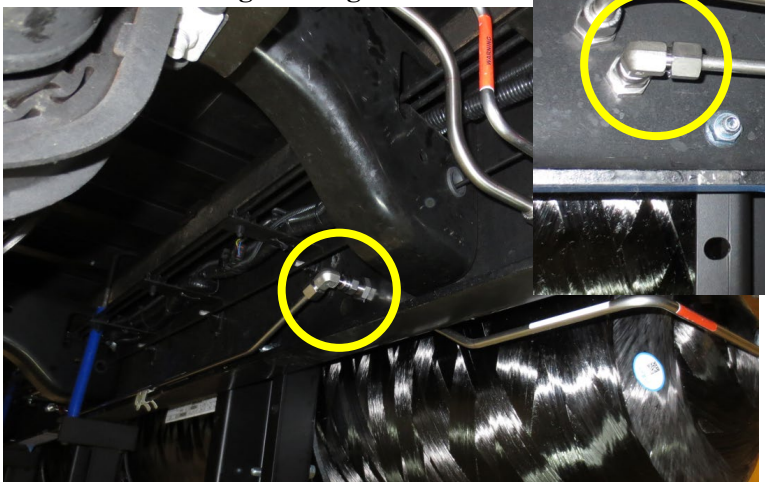
Landi

- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- The live port tube (**1004531**) will be the same for both sides of vehicle
- Please ensure tube fittings are hand tightened until final torque instructions are provided.

Remote PRD Fitting



Front Pass-Through Fitting

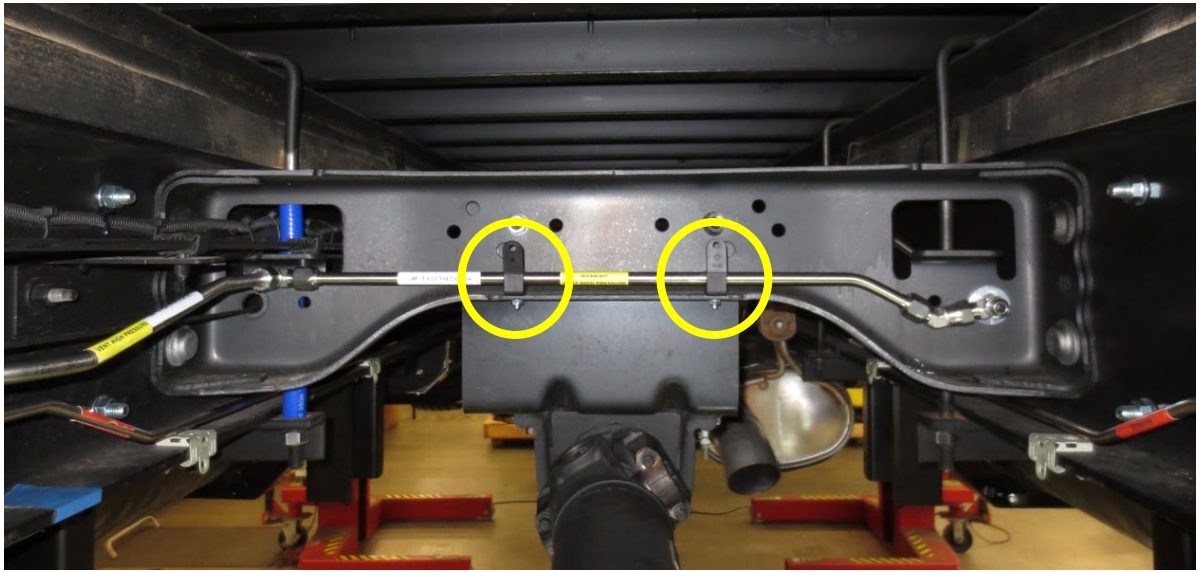


CNG Remote PRD & Vent Line Attachments - #3

3

Landi

- The remote PRD vent tubes that go from driver side to the passenger side cross member tee fitting will be supported at two locations on existing holes in the frame cross member.
- Please make sure to wrap the ½" plastic clamp (**1003102**) over the tube in the following slides prior to hand tightening the fittings.
- The fasteners will be ¼"-20 by 1-1/2" long serrated hex bolt (**1003227**) and ¼"-20 serrated flange nut (**1001103**).

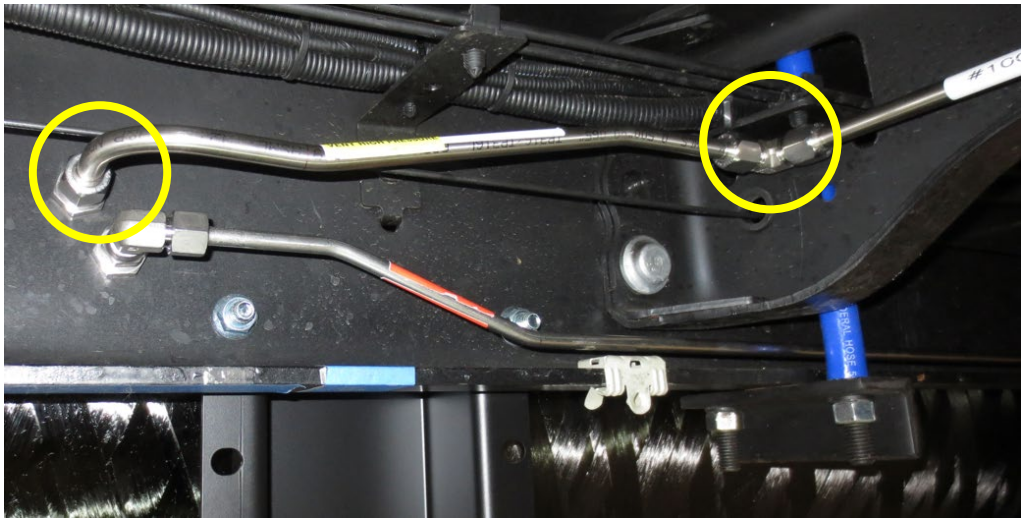


CNG Vent Remote PRD Driver to Passenger - #4

4

- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- The remote PRD vent tube (**1004522**) to elbow will need to have the #8 JIC 90° elbow (**1003183**) installed on the forward end shown in the image below.
- Please ensure tube fittings are hand tightened until final torque instructions are provided.

Remote PRD (Driver)



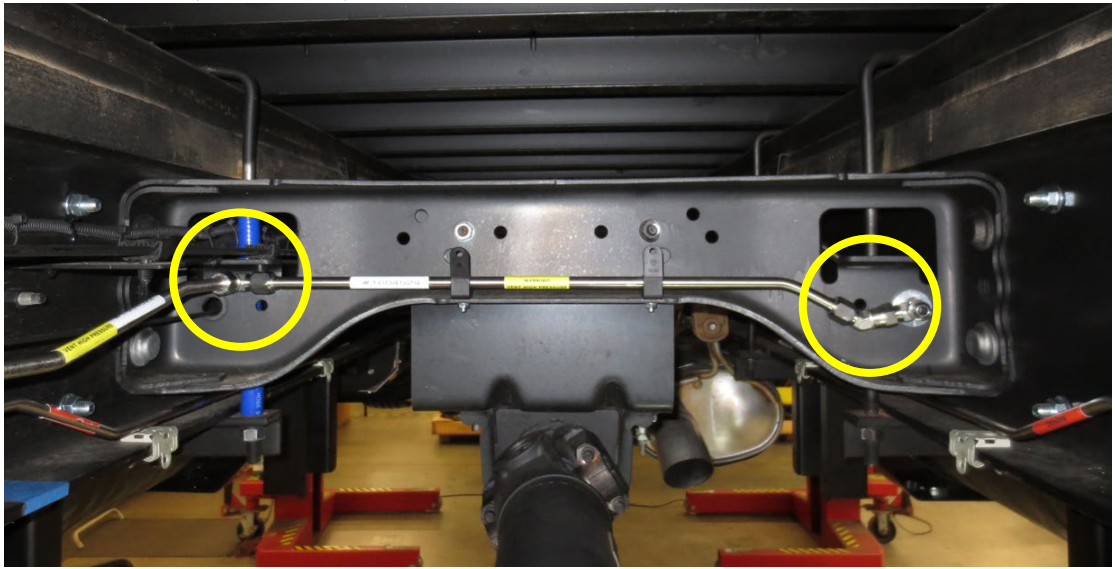
CNG Vent Remote PRD Driver to Passenger - #4

4

Landi

- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- The remote PRD vent tube (**1004524**) crossover will need the plastic clamps from before installed prior.
- Please ensure tube fittings are hand tightened until final torque instructions are provided.
- Also, the ¼”-20 bolts previously highlighted will be installed in this operation.

Remote PRD (Cross-Over)

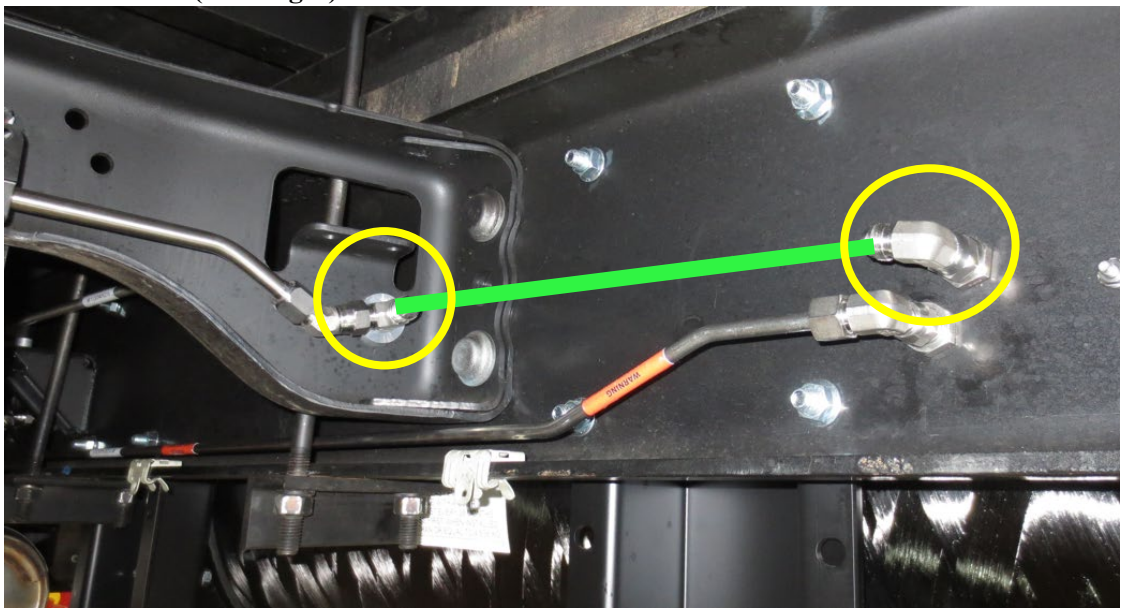


CNG Vent Remote PRD Driver to Passenger - #4

4

- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- The remote PRD vent tube (**1004525**) will be installed in this location (Pictured as green line).
- Please ensure tube fittings are hand tightened until final torque instructions are provided.

Remote PRD (Passenger)

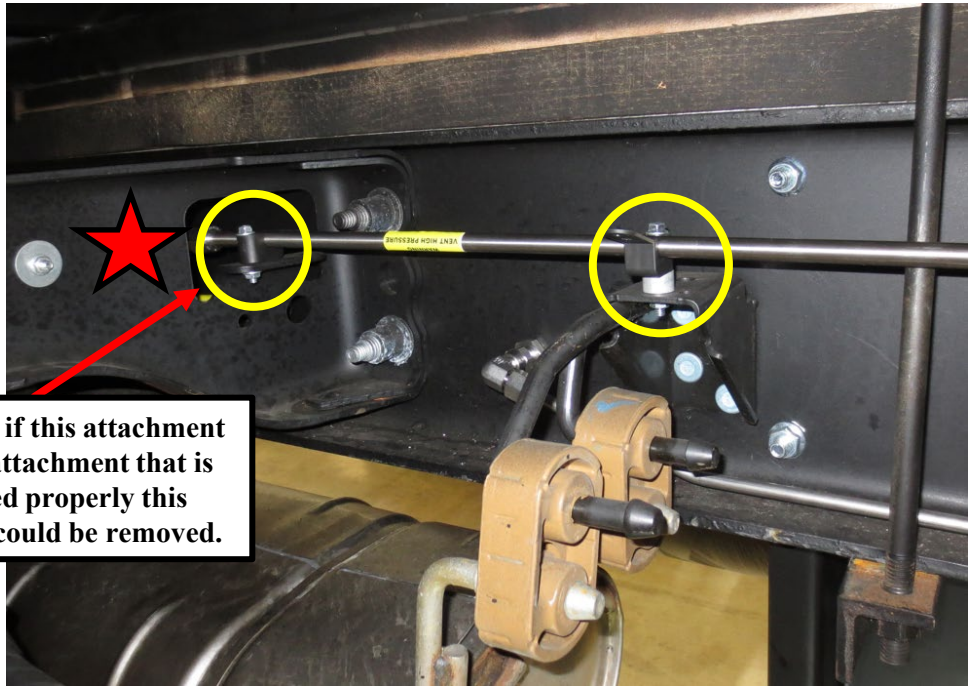


CNG Mid-Frame Vent Tube Attachments - #4

4

Landi

- These two attachments will be used for the following vent tube.
- These will be secured to existing holes in the frame, near the exhaust hanger location.
- Both locations will use the ½" plastic clamp (**1003102**) and the ¼"-20 serrated nut (**1001103**).
- The rearward location will have a spacer (**1004551**) between the plastic clamp and the frame.
- Both locations will use the ¼"-20 by 1-1/2" long serrated hex bolt (**1003227**).

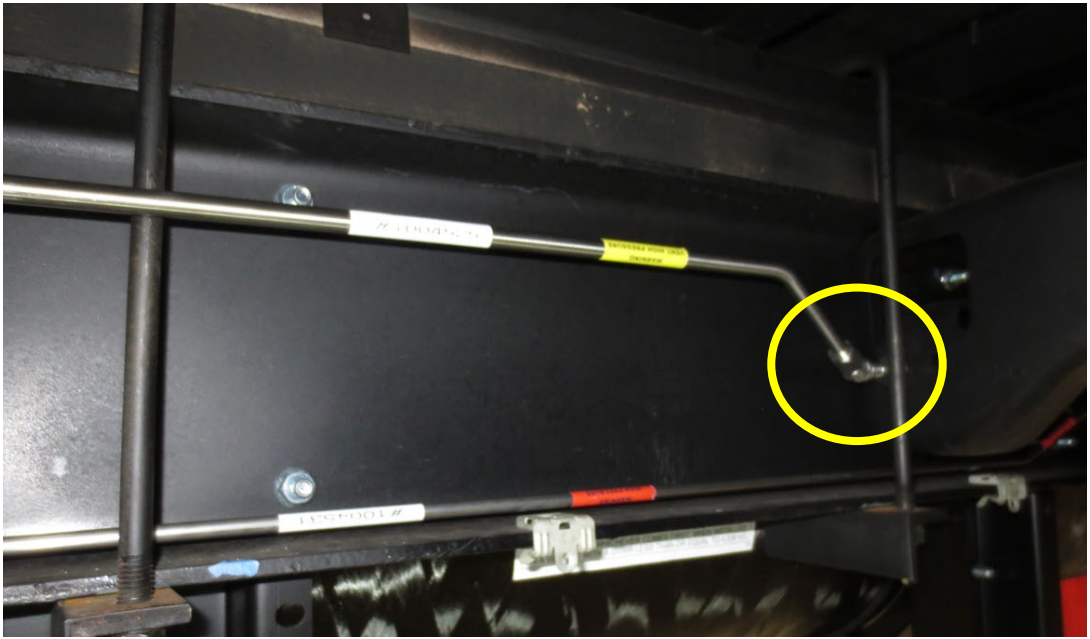


Please note: if this attachment is the only attachment that is not aligned properly this attachment could be removed.

CNG Rear X-Member Tee to Front Vent Tube - #5

5

- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- The remote PRD vent tube (**1004523**), tee to front bulkhead, will be installed on the forward side of the tee previously installed. The next slide will highlight the additional operations.
- Please ensure tube fittings are hand tightened until final torque instructions are provided.

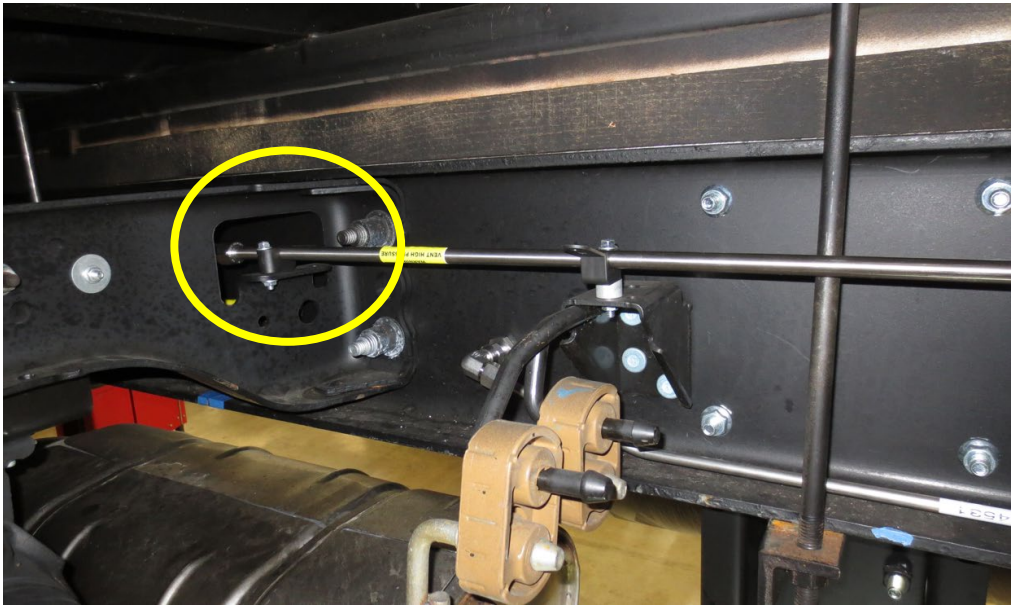


CNG Rear X-Member Tee to Front Vent Tube - #5

5

Landi

- Please make sure the vent line goes through this cross-member opening above the exhaust hanger.
- Forward fitting for this vent tube is pictured on the next slide.
- Please ensure tube fittings are hand tightened until final torque instructions are provided.



CNG Vent Tube Connection - #8

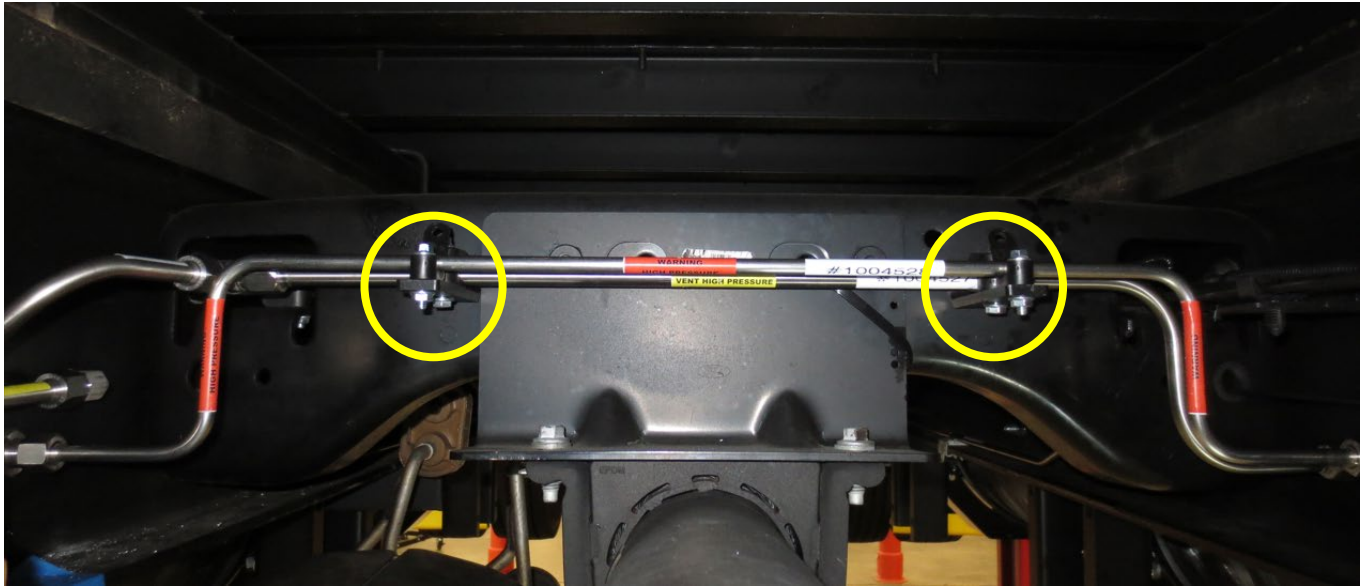
- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- For the PRD vent tube (1004526) please hand tighten the #8 JIC tee fitting (1003187) to the top end of the tube.
- After the tee fitting is installed the remaining fittings can be hand tightened.
- Please ensure tube fittings are hand tightened until final torque instructions are provided.

CNG HP & Vent Tube Cross Over Attachment - #1

1

Landi

- The high-pressure and vent tubes that crossover at the front of the frame are supported in two locations.
- The brackets (**1003868**) will be attached to the frame using ¼”-20 by 1” long serrated hex bolt (**1003231**), a ¼” fender washer (**1000818**) and ¼” serrated flange nut (**1001103**).
- The high-pressure tube will use the 3/8” plastic clamp (**1003103**) with the ¼”-20 by 1-1/4” long serrated hex bolt (**1003328**) and ¼”-20 serrated flange nut (**1001103**)
- The vent tube will use ½” plastic clamp (**1003102**) with the ¼”-20 by 1-1/2” long serrated hex bolt (**1003227**) and ¼”-20 serrated flange nut (**1001103**).

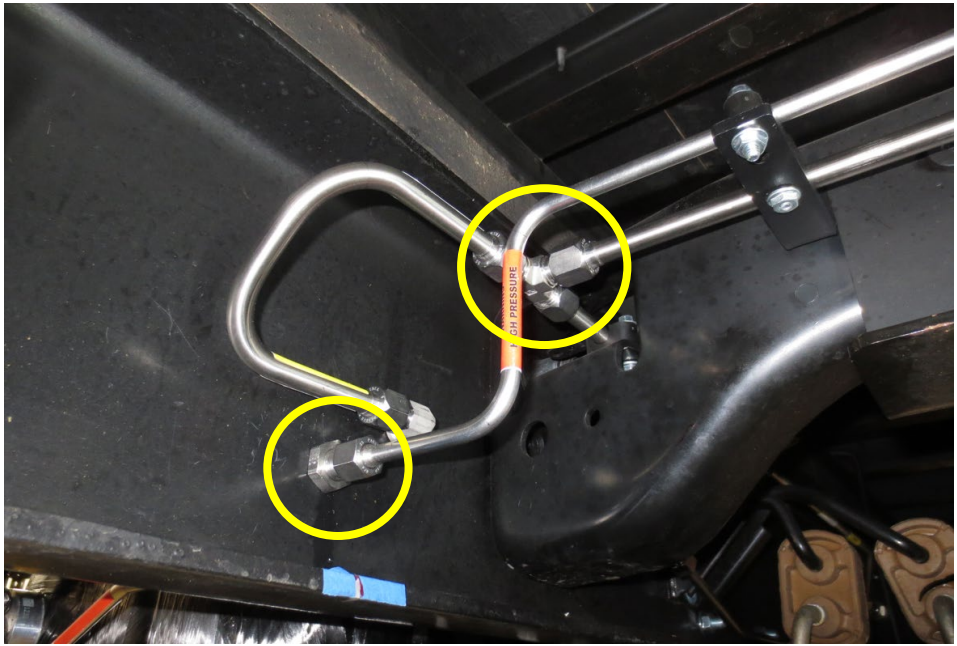


CNG HP & Vent Tube Connection - #9

9

Landi

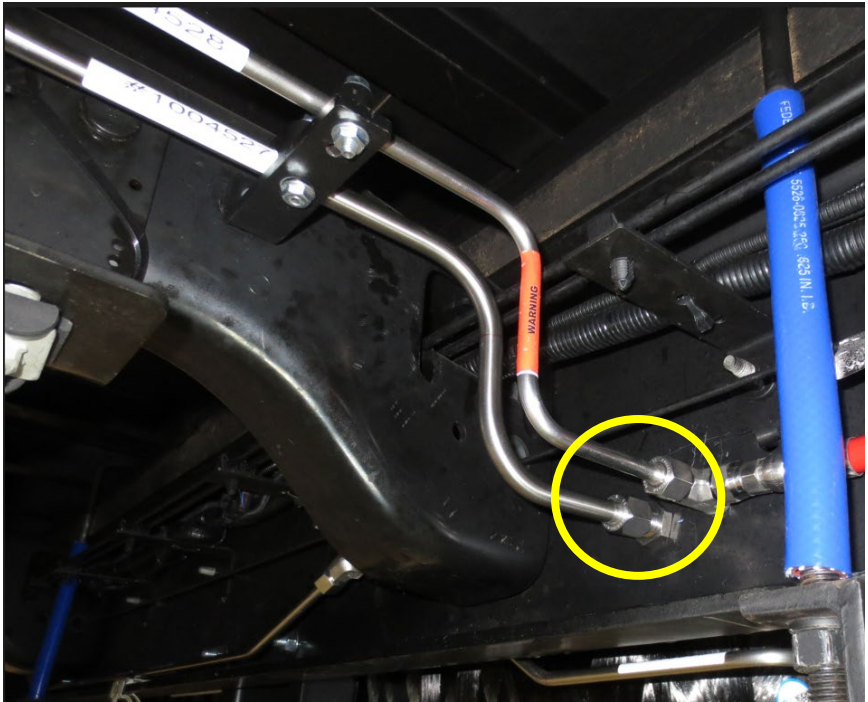
- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- HP crossover tube (**1004528**) will be attached to the bottom fitting on the passenger side of vehicle.
- PRD vent tube (**1004527**) will be attached to the tee fitting on the passenger side of vehicle.
- Please ensure tube fittings are hand tightened until final torque instructions are provided.



CNG HP & Vent Tube Connection - #9 Continued

9

- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- HP crossover tube (**1004528**) will be attached to the tee fitting on the driver side of vehicle.
- PRD vent tube (**1004527**) will be attached to the lower bulkhead fitting on the driver side of vehicle.
- Please ensure tube fittings are hand tightened until final torque instructions are provided.



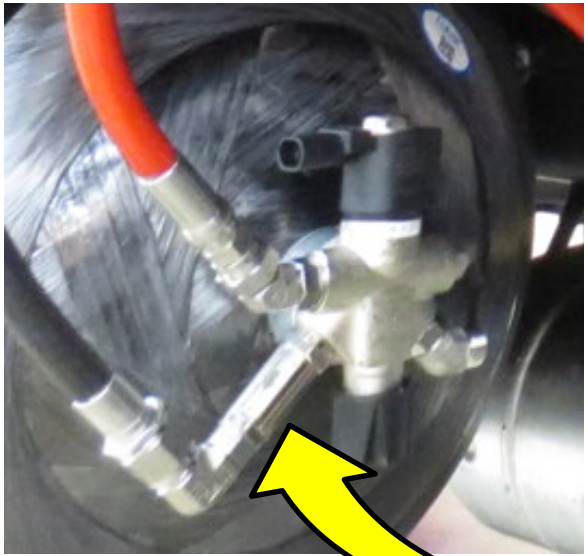
CNG Tank Defueling & PRD Swap

- The passenger side CNG tank will need to have the PRD swapped to the outboard side.
- This will require the defueling of the nitrogen that comes inside the tank. Both tanks will need this to be completed before filling for the first time with CNG. The passenger side will need this operation to be completed for the swapping of the PRD location on the tank solenoid.
- All tanks will need to have jumper directly connected to Battery in order to defuel Nitrogen stored in the tanks.
- This operation should take around 20 minutes for each tank.

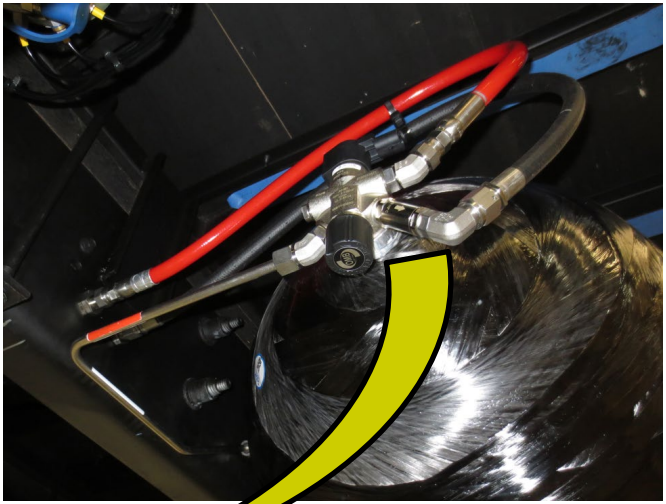
CNG Tank PRD Swap (1 of 2)

- The following slide will highlight the procedure for swapping the PRD.

Passenger Tank Solenoid



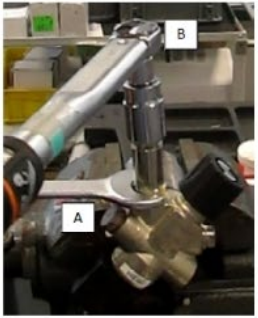
Driver Tank Solenoid



CNG Tank PRD Swap (2 of 2)

- **Before swapping PRD on tank solenoid the passenger tank needs to be defueled of nitrogen**

OMB ASSEMBLING PROCESS: PRD is assembled on the valve with a torque value of 35 Nm



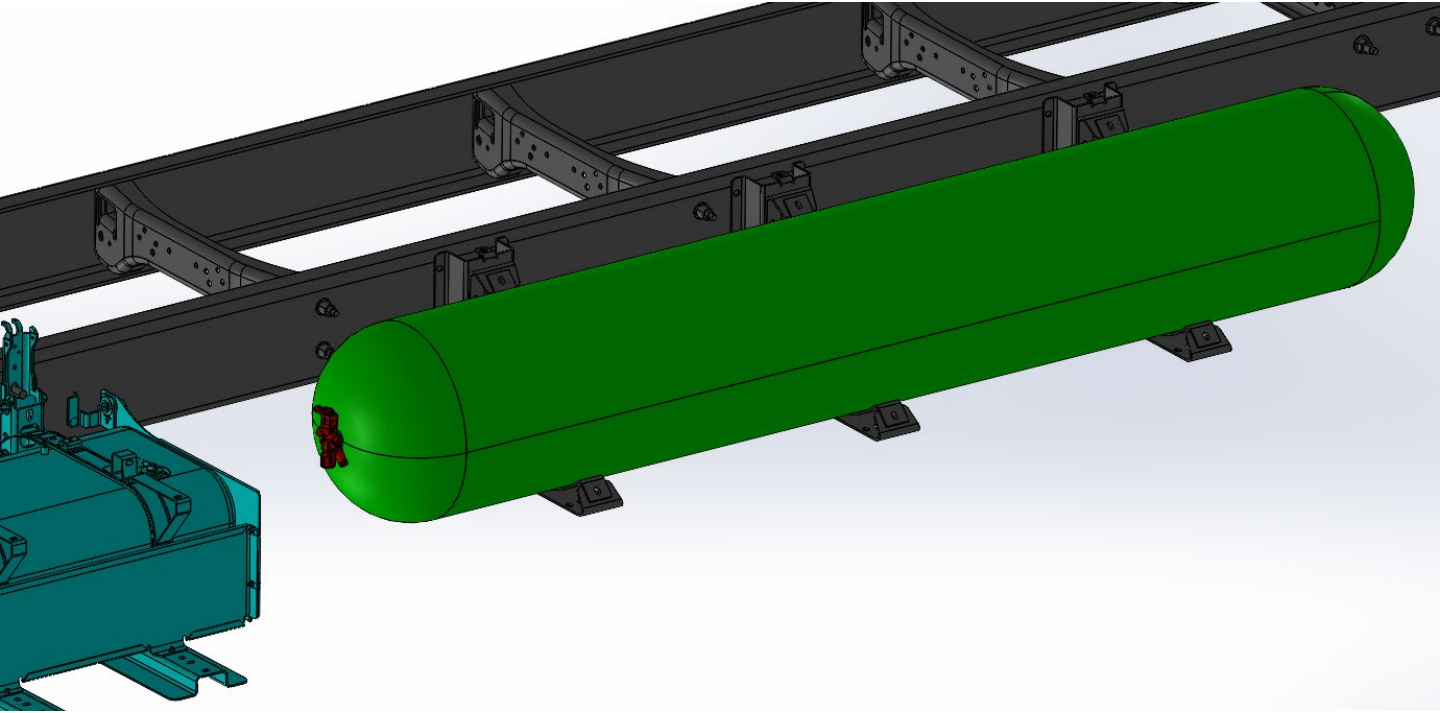
RECOMMENDED PROCEDURE TO ASSEMBLING THE CONNECTION AND THE FITTING ON THE PRD:

- Block the PRD body by a wrench (detail A) and screw the connection on the PRD thread by the torque wrench (detail B)
- To apply the fitting on the connection: block the connection by a wrench and assemble the fitting by a torque wrench.

The torque value recommended is 40 Nm Min / 50 Nm Max

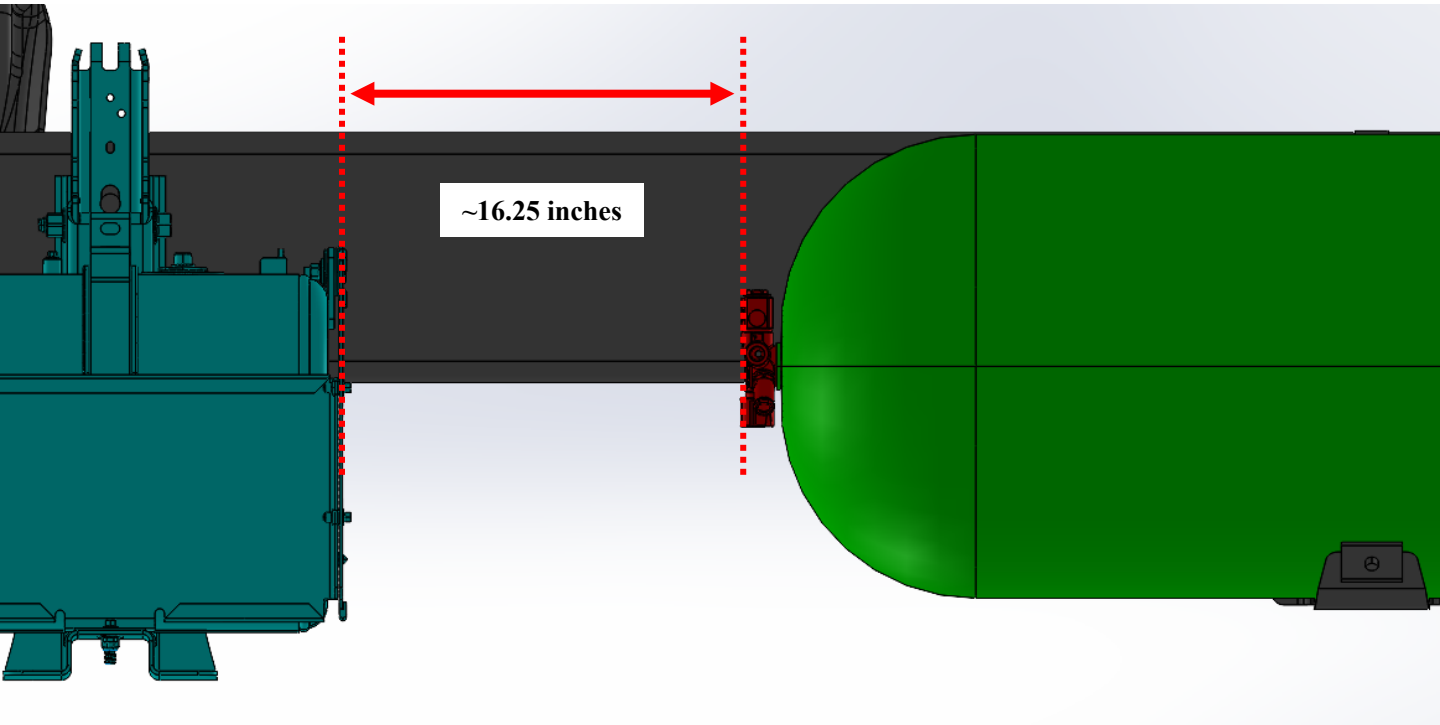
CNG Tank Positioning (1 of 3)

- The tank (**1004420**) should be lifted onto the bottom brackets previously installed.
- The rough positioning of the tank will be on the following slide. The final positioning of the tank will be confirmed via the installation of the remote PRD live tube.



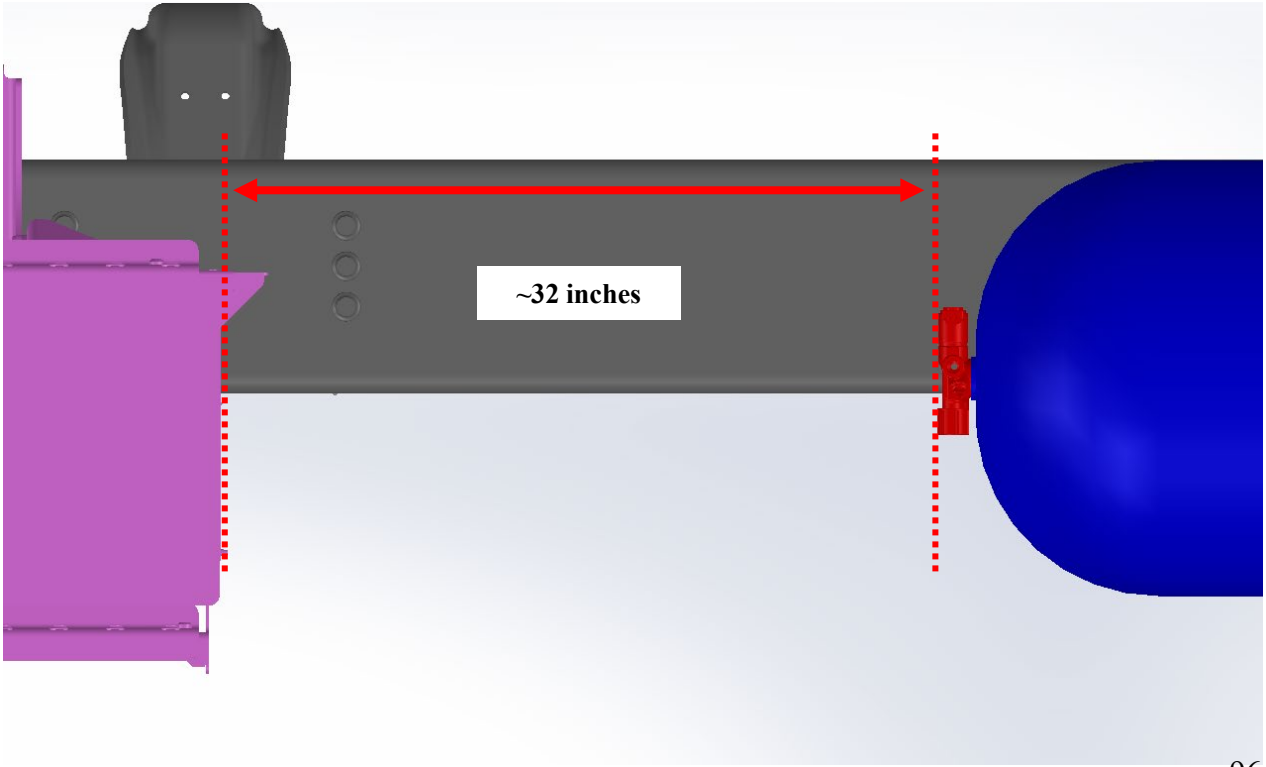
CNG Tank Positioning (2 of 3)

- The tank (**1004420**) should be roughly positioned 16.25 inches on the driver side. Final position will be confirmed via the install of the remote PRD live port tube.



CNG Tank Positioning (3 of 3)

- The tank (**1004420**) should be roughly positioned 32 inches on the passenger side. Final position will be confirmed via the install of the remote PRD live port tube.

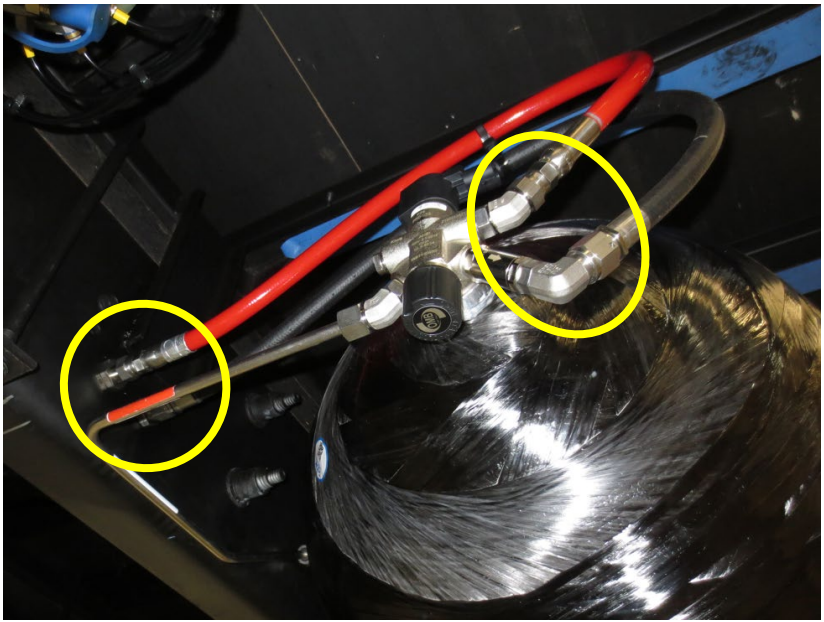


CNG HP & Vent Hoses at the Tank - #1 (Driver Side)

1

Landi

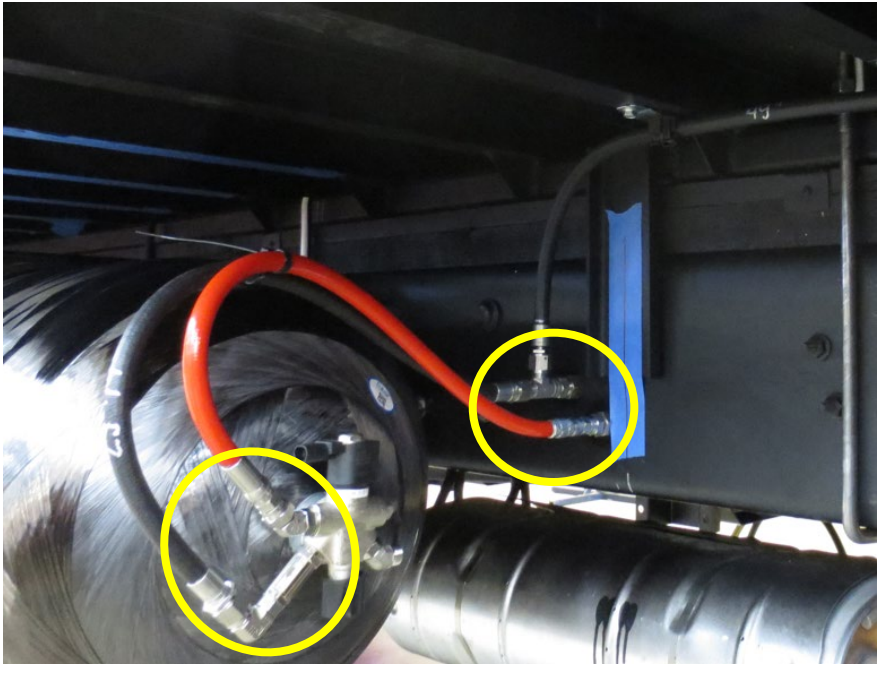
- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- The #6 MORB/#6 MORFS 45° elbow (**1002515**) will need to be connected to the HP port.
- The #6 MORB/#8 JIC 90° elbow fitting (**1003186**) will be installed on the venting port.
- The 30.75” venting hose (**1004534**) and the 28” HP ORFS 3/8” hose (**1002499**) will be installed like the image below.
- Please ensure tube fittings are hand tightened until final torque instructions are provided.



CNG HP & Vent Hoses at the Tank - #1 (Passenger Side)

1

- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- The #6 MORB/#6 MORFS 45° elbow (**1002515**) will need to be connected to the HP port.
- The #6 MORB/#8 JIC 90° elbow fitting (**1003186**) will be installed on the venting port.
- The 29.25” venting hose (**1004533**) and the 28” HP ORFS 3/8” hose (1002499) will be installed like the image below.
- Please ensure tube fittings are hand tightened until final torque instructions are provided.



CNG Tank Position Refinement

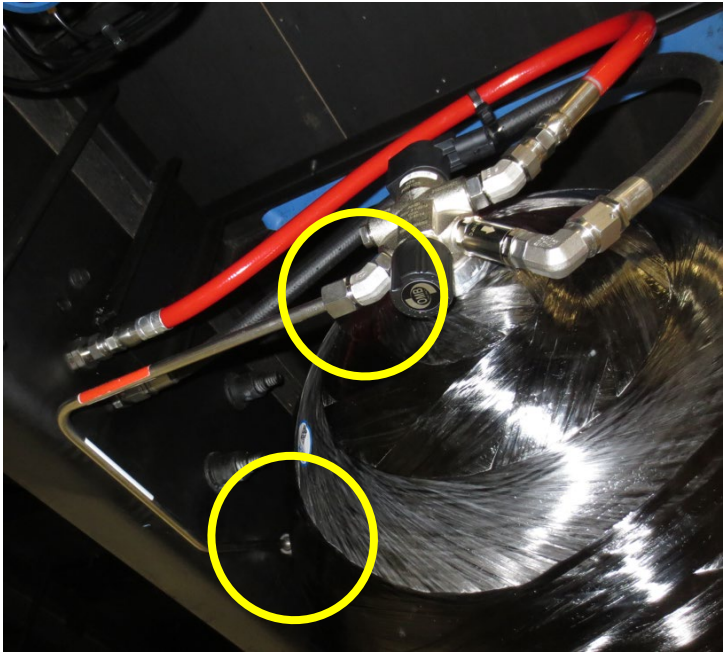
- Refinement of tank location needs to be considered before connecting the live port tubes on the next slides.
- If the live port tubes do not fit properly, please move the tank rearward or forward relative to the tube fitting correctly.
- A way to confirm this would be in the ease the tube nut has when tightening. Also, visible bending in the tube could show misalignment.
- If this is the case, please **STOP** and realign the tank relative to the live port tubes.

CNG Live Port Tube - #2 (Driver Side)

2

Landi

- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- The #6 MORB/#6 MORFS 45° elbow (**1002515**) needs to be installed prior to tube.
- The live port tube (**1004529**) is to be installed on the driver side of the vehicle.
- Please ensure tube fittings are hand tightened until final torque instructions are provided.

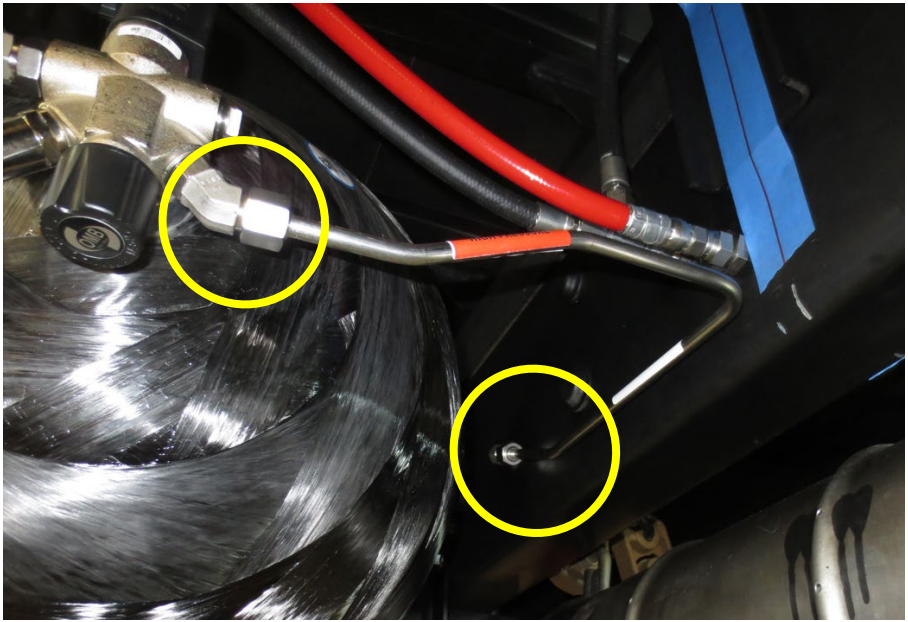


CNG Live Port Line - #2 (Passenger Side)

2

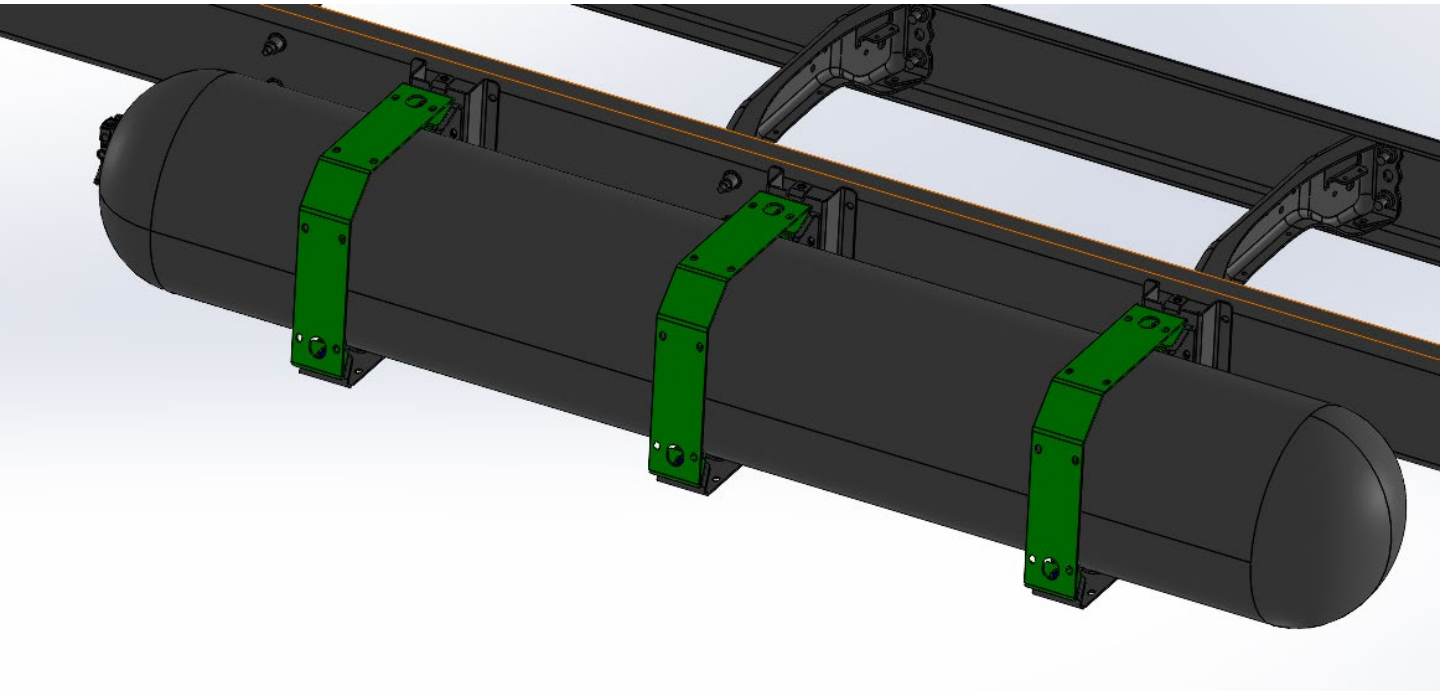
Landi

- Apply a light coating of oil to the O-rings of the loose fittings. Refer to page 6 for oil specifications.
- The #6 MORB/#6 MORFS 45° elbow (**1002515**) needs to be installed prior to tube.
- The live port tube (**1004530**) is to be installed on the driver side of the vehicle.
- Please ensure tube fittings are hand tightened until final torque instructions are provided.



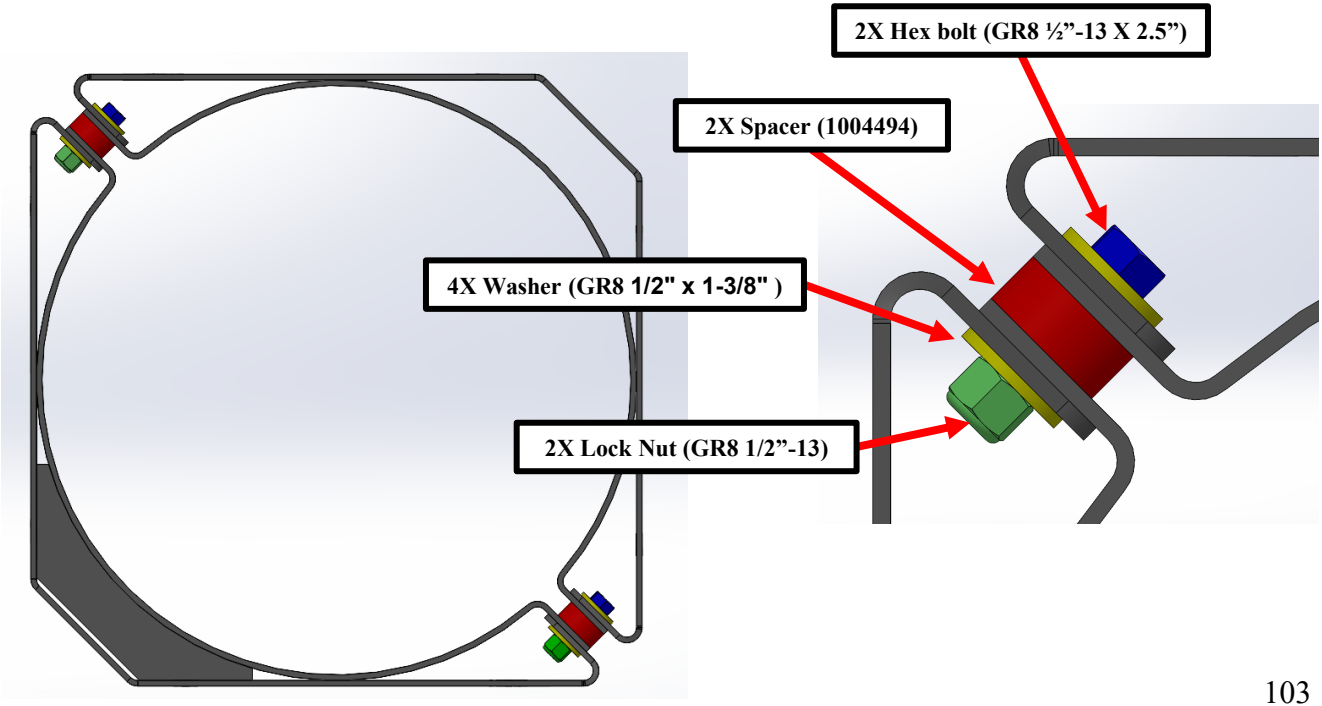
CNG Tank & Brackets – Final

- The tank will be secured with the remaining parts of the bracket kit (**1004445**).
- The fasteners and spacer (**1004494**) will be shown in further detail.
- Please do not fully torque these fasteners until the high-pressure fuel lines and vent lines are torqued.



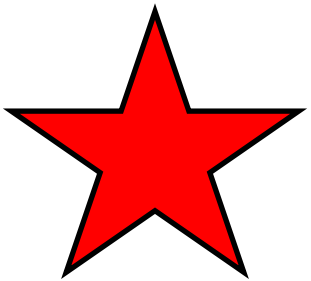
CNG Tank & Brackets – Final Continued

- There will be 2 sets of fasteners & spacers for each bracket set. Total fastener sets for the vehicle will be 12.
- The below breakdown will be per each bracket set.
- Please torque these fasteners to 95 ft.-lbs.



Final Installation of Tubes & Hoses

- **Begin at the regulator and move rearward, tightening all high-pressure & vent stainless tubes.**
- **At the cylinder tighten all flex hose from the bulkhead to the valve and up to the fill box assembly, regulator, and fuel rail.**
- **Please refer to page 9, 10, and 11 for fastener & fitting torques.**
- **SPECIAL ATTENTION NEEDS TO BE DONE ON LIVE PORT TUBE. IF THIS TUBE/FITINGS LEAK THEN THE TANK NEEDS TO BE COMPLETELY DEFUELED (3600 psi).**
- **If any of the attachment points for tubes or hoses are not correct or appear to be misaligned, please loosen all fittings and tubes/hoses in order to get proper alignment.**
- **If any of the tubes or hoses are bent due to misalignment, please loosen all fittings and tubes/hoses in order to get proper alignment.**
- **If the proper alignment is not achieved after the second attempt, please contact service@landitechnologies.com for further instruction.**
- **If misalignment persists, on multiple builds, then a visit to discuss what is being observed should be in order. The template needs to be installed on the frame properly and the hole punching should be done properly.**

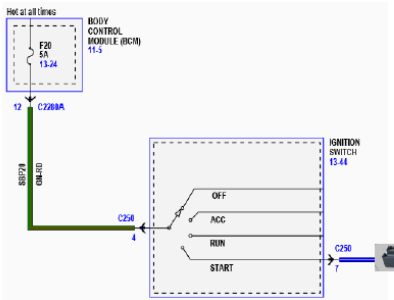


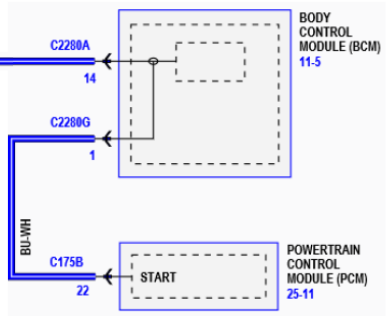
Starter Interrupt - Schematic

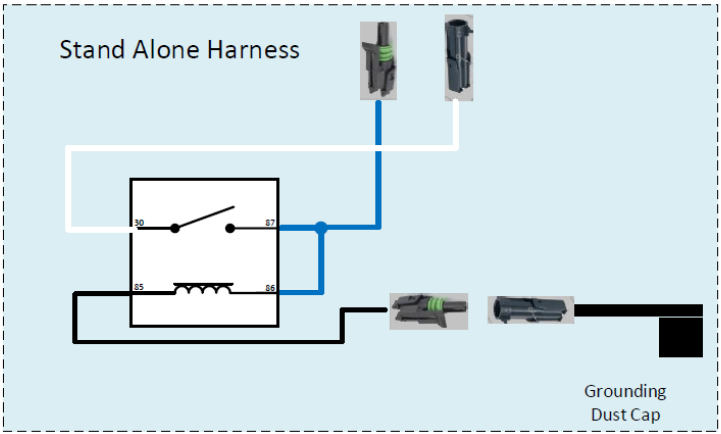
LandiRenzo USA - Starter Interupt Safety device

Designed by LandiRenzo USA
W. Eichbrecht
B. Trkulja

If relay or dust cap circuit fails, connect the two 1-pin Delphi connectors to bypass the safety device. This will connect the circuit from the ignition switch to the body controller.







If the grounding dust cap is not connected to fill valve (not grounded), the starter will not operate when the key is in the start position (trying to crank).

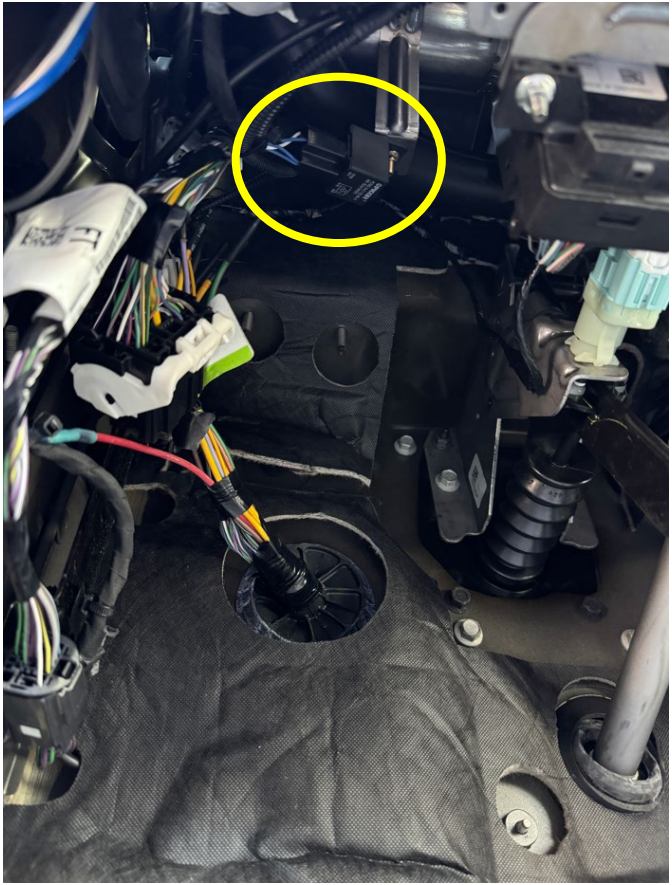
If the grounding dust cap is connected to the fill valve (grounded), the starter will operate when the key is in the start position (trying to crank),

Starter Interrupt - BOM

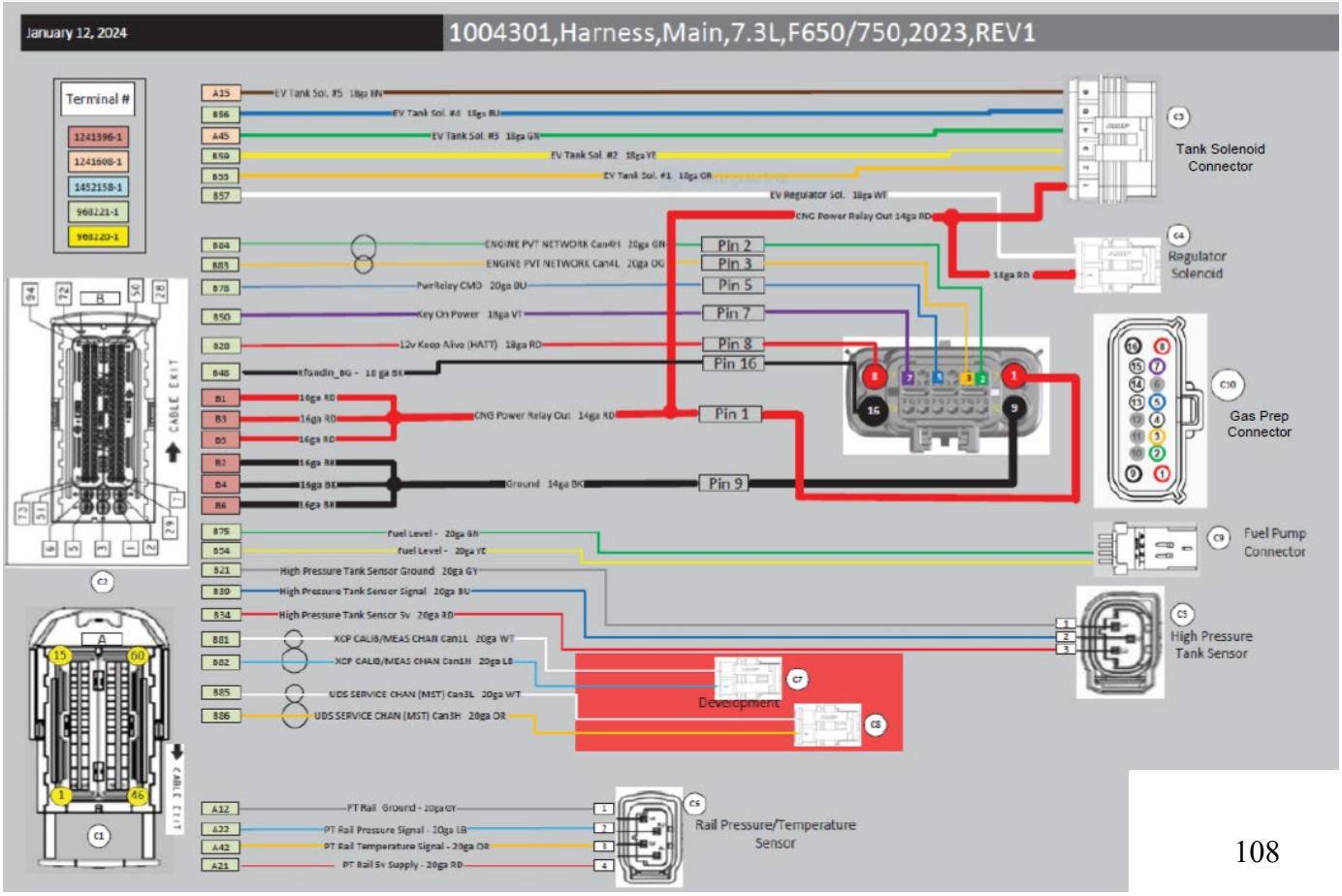
- The grommet (**1004562**) will need a ½" hole cut in the dash panel in order to pass the harness (**1004092**) from inside the vehicle routed down the main harness to the fill box.
- The harness (**1004563**) will be the dust cover and wiring that will be installed inside the fill box and will connect to the other end of the harness (**1004092**).
- The bolt (**1004564**) and nut (**1004565**) will connect the module (**1004093**) to the bracket shown on the following slide.
- There is one additional connector (**1000494**) will go on the fill box end of harness (**1004092**).
- The remaining connectors (**1000493** & **1000494**) along with the remaining terminals (**1001398** & **1000498**) and seals (**1003925**) will be used to splice into the original OEM wiring from ignition switch to BCM.

1004562	Grommet,Starter Interupt,1/2"OD,5/16"ID	1
1004563	Harness,EXT,Starter Interupt	1
1004093	Module, Starter Interrupt, Sempra, 2022	1
1004564	Bolt,Flanged,M5x0.8MMx16MM Long	1
1004565	Nut,Flanged,M5x0.8MM	1
1004092	Harness,Inter Connect,15Ft,2022	1
1000493	Connector, F, Weather Pack,1 Pos	1
1000494	Connector, M, Weather Pack,1 Pos,	2
1001398	Terminal ,F, Weather Pac	1
1000498	Terminal, M, Weather Pack	1
1003925	Wire Seal, Purple, Weather Pack	2

Starter Interrupt – Interior Image

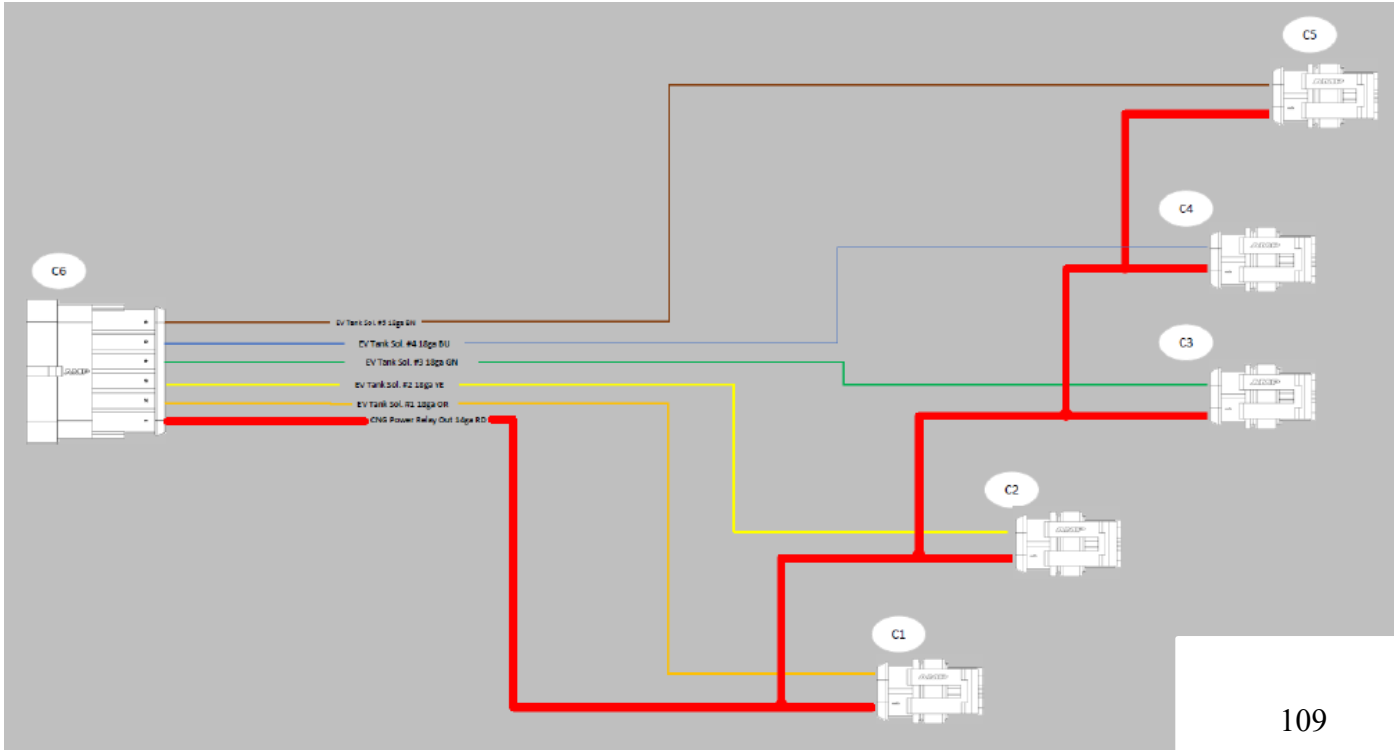


Main Harness Schematic



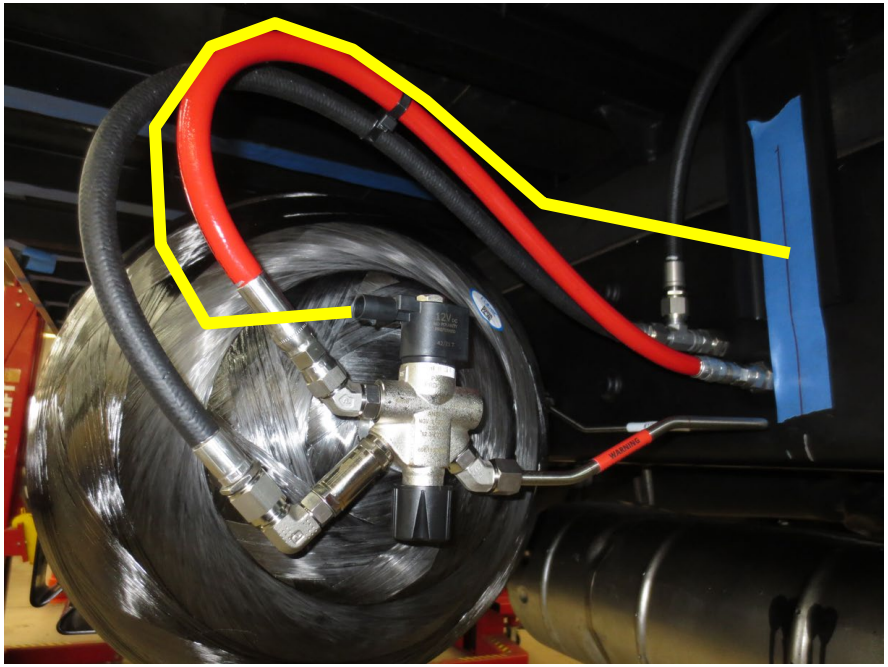
Tank Solenoid Harness

- The connectors C3 through C5 will be capped with three connectors (**1001175**) and six seals (**1001164**).
- The wiring from C1 & C2 will be highlighted in the following slide.



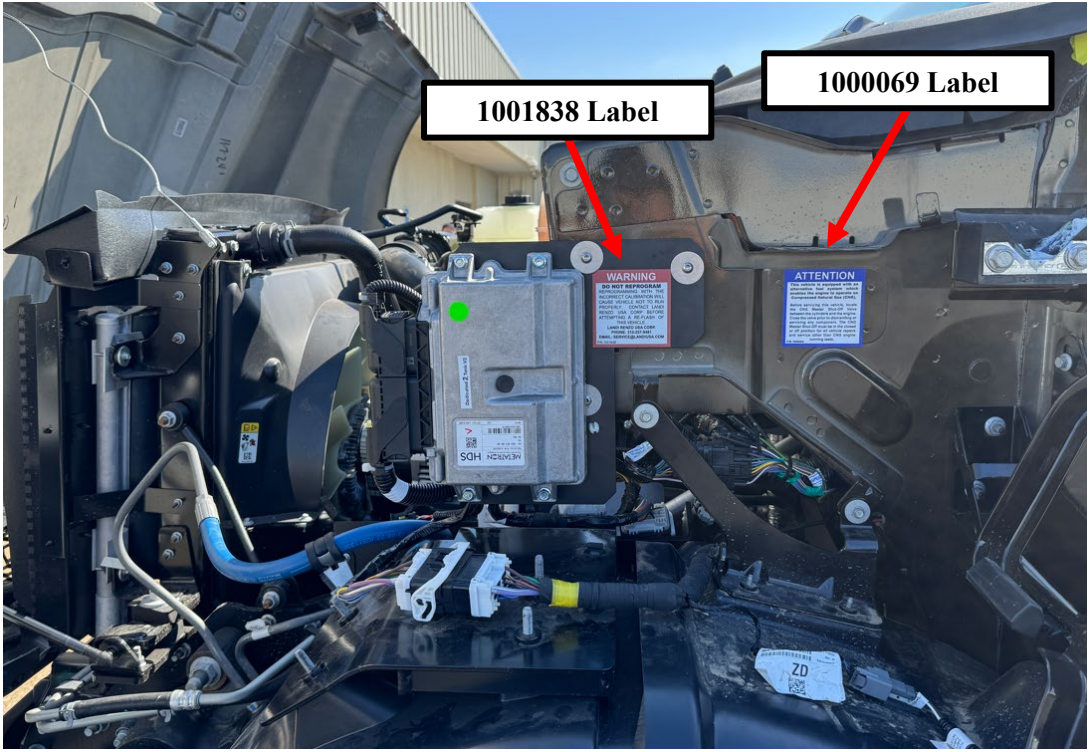
Tank Solenoid Harness Continued

- The tank solenoid harness for the driver side (**1004559**) and passenger side (**1004560**) will be routed from the connectors on the previous slide to the tank solenoids.
- The grommet (**1004561**) will go through the pre-drilled hole in the frame that is 9/16” diameter.
- Once the harness is routed through the frame you can connect the connector (**1001175**) to each end before plugging into the tank solenoid.
- Please secure the wiring harness with cable ties. Approximate routing shown below.



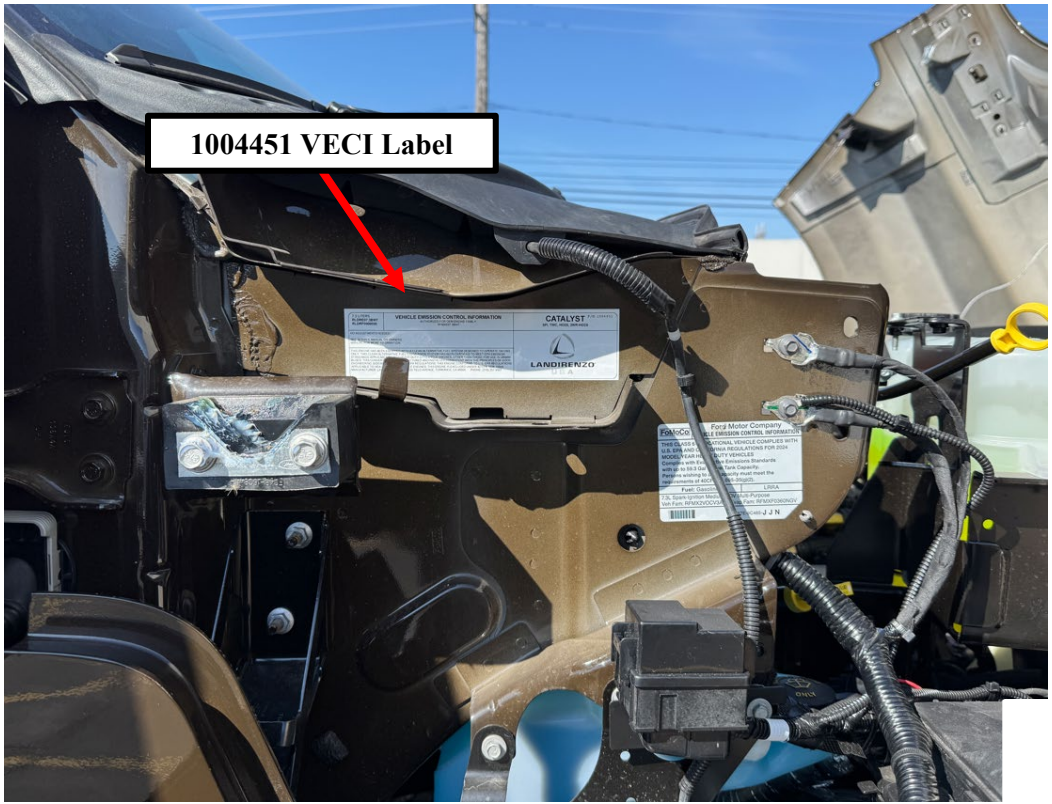
Labeling

- Position labels in the following locations listed below. Labels with blank fields should be filled out as appropriate and placed conspicuously to provide proper notice and aid in inspection.



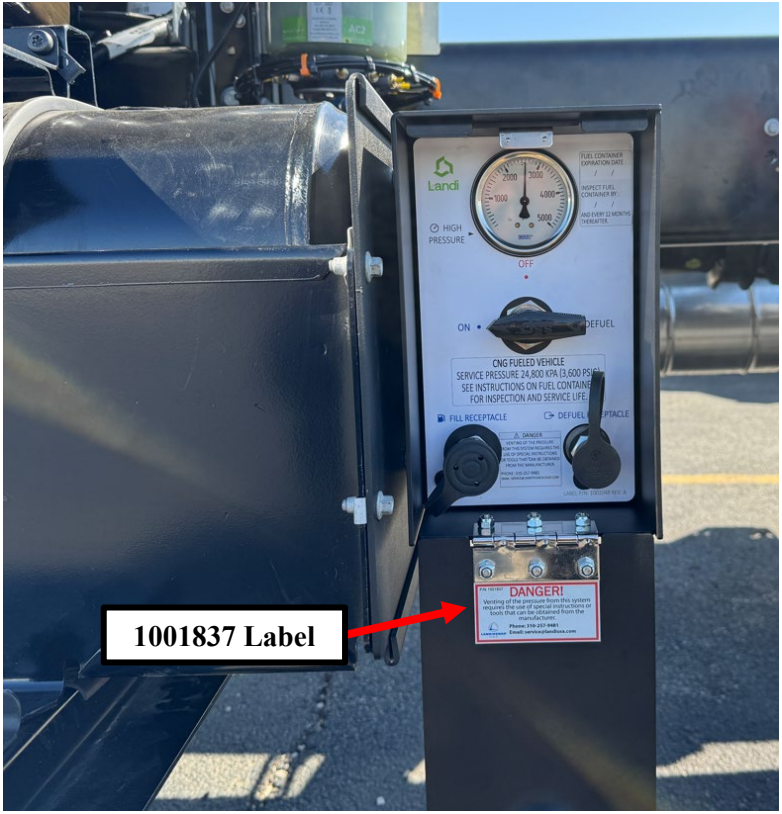
Labeling Continued

- Position labels in the following locations listed below. Labels with blank fields should be filled out as appropriate and placed conspicuously to provide proper notice and aid in inspection.



Labeling Continued

- Position labels in the following locations listed below. Labels with blank fields should be filled out as appropriate and placed conspicuously to provide proper notice and aid in inspection.

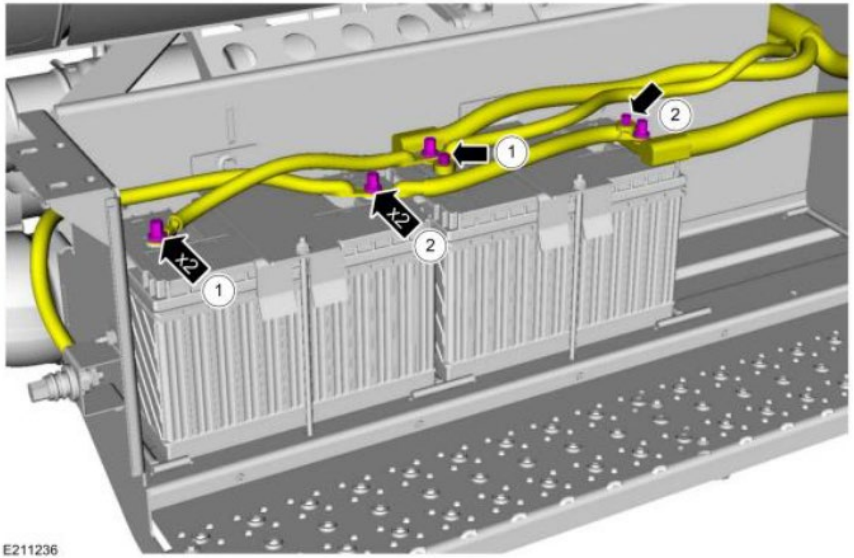


Reconnect Battery

- Reconnect the negative (-) battery cable.

Automotive batteries produce flammable gasses. Keep open flames and heating devices away from the area near the battery.

Automotive batteries contain sulfuric acid. Always wear eye protection when working on or near the battery.



Reinstall / Flash Ford PCM

Flash PCM using MyCANIC-FD tool. Refer to the separate guide on PCM flashing with the MyCANIC-FD located on the Landi Technologies Service website.

Perform Visual Inspection of Installation

Perform a visual inspection of installation to ensure all hoses, wiring and other components are in the correct position and securely fastened to the vehicle.

CNG Filling Operation

The CNG tanks should **NOT** be filled in a manner that violates any regulation/standards. Specifically, NFPA52 and the method discussed verbally at the training exercise should not be followed.

Perform Vehicle Road Test

Check all cylinders to ensure that all valves are in the “open” position.

Perform road test to determine if vehicle performs properly.

Inspect vehicle for any fluid leaks.

Correct any deficiencies in performance and fluid leaks.

Perform Vehicle Leak Check

Ensure quarter turn ball valve and tank valves are open.

With vehicle running, check system for any CNG leaks using combustible gas detector.

If leaks are present, determine source of leak using leak detection solution and stop engine.

Correct source(s) of any CNG leaks and restart engine to confirm there are no additional leaks.

Perform second road test to confirm any previous issue have been resolved.

Complete Documentation

(NFS) Record Post Conversion Data.

(NFS) Retain file copies of all intake documentation for future reference in accordance with Ford Motor Company and Landi Technologies policies. Send quality inspection report and SD card files to Landi weekly.

Perform Final Quality Inspection (NFS/UM)

1. Perform quality inspection on vehicle exterior and interior to ensure all components and trim removed during installation process have been correctly reinstalled to their original positions.

   IMPORTANT: Verify minimum 1/2 inch clearance around cylinders and at least 3/8 inch from shield. Ensure shields and drain holes are free of debris.

1. Complete NFS/UM Quality Check Sheet.